## Annex A (informative): Connection Diagrams

Definition of Terms

**System Simulator or SS** – A device or system, that is capable of generating simulated Node B signalling and analysing UE signalling responses on one or more RF channels, in order to create the required test environment for the UE under test. It will also include the following capabilities:

- 1. Measurement and control of the UE Tx output power through TPC commands
- 2. Measurement of Rx BLER and BER
- 3. Measurement of signalling timing and delays
- 4. Ability to simulate UTRAN and/or GERAN signalling

**Test System** – A combination of devices brought together into a system for the purpose of making one or more measurements on a UE in accordance with the test case requirements. A test system may include one or more System Simulators if additional signalling is required for the test case. The following diagrams are all examples of Test Systems.

NOTE: The above terms are logical definitions to be used to describe the test methods used in this document (TS34.121), in practice, real devices called 'System Simulators' may also include additional measurement capabilities or may only support those features required for the test cases they are designed to perform.



Figure A.1: Connection for basic single cell tests



Figure A.2: Connection for Transmitter Intermodulation tests

Figure A.3: Void



Figure A.4: Connection for Receiver tests with Interference



Figure A.5: Connection for Receiver tests with Interference or additional CW signal



Figure A.6: Connection for Receiver tests with additional CW signal



## Figure A.7: Connection for Receiver tests with both Interference and additional CW signal



Figure A.8: Connection for tests with additional Spectrum Analyzer



Figure A.9: Connection for single cell tests with static propagation



Figure A.10: Connection for single cell tests with Multi-path Fading propagation



Figure A.11: Connection for two cell tests with Multi-path Fading propagation







Figure A.12a: Connection for single cell tests with static propagation and transmit diversity



Figure A.13: Connection for basic two cell tests



Figure A.14: Connection for multi-cell tests with static propagation



Figure A.15: Connection for multi-carrier, multi-cell tests with static propagation

Figure A.16: Void

Figure A.17: Void



Figure A.18: Connection for basic three cell tests

Figure A.19: Void

Figure A.20: Void



Figure A.21: Connection for single cell tests with Multi-path Fading propagation and UE receive diversity



Figure A.22: Connection for single cell tests with Multi-path Fading propagation, transmit diversity UE receive diversity and MIMO.



Figure A.23: Connection for three cell tests with Multi-path fading propagation



Figure A.24: Connection for two cell tests with Multi-path Fading propagation and UE receive diversity



## Figure A.25: Connection for three cell tests with Multi-path Fading propagation and UE receive diversity



Figure A.26: Connection for single cell tests with static propagation and UE receive diversity



Figure A.27: Connection for two cell tests with static propagation and UE receive diversity







Figure A.29: Connection for single cell tests with Multi-path Fading propagation and UE receive diversity for Type 3i tests











Figure A.32: Connection for DC-HSDPA and DB-DC-HSDPA receiver tests with interferer or additional CW signal



Figure A.33: Connection for DC-HSDPA and DB-DC-HSDPA receiver tests with additional CW signal



Figure A.34: Connection for DC-HSDPA and DB-DC-HSDPA receiver tests with both interferer and additional CW signal



Figure A.35: Connection for Dual cell tests with Multi-path Fading propagation for DC-HSDPA and DB-DC-HSDPA type 2 performance requirements



Figure A.36: Connection for Dual cell tests with Multi-path Fading propagation for DC-HSDPA and DB-DC-HSDPA CQI reporting test cases



Figure A.37: Connection for Dual cell tests with Multi-path Fading propagation for DC-HSDPA and DB-DC-HSDPA Type 3 Performance test cases



Figure A.38: Connection for Dual cell tests with Static propagation for DC-HSDPA and DB-DC-HSDPA CQI reporting test cases



 $\epsilon$ 

Fader

Fader

Fader

Figure A.39: Connection for DC-HSDPA, Type 3i. 6 faders. 1 delay, to compensate for the basic delay of the faders. 2 part test illustrated by "Freq. 1→2 and Freq. 2→1" Uplink not displayed

AWGN R

11.52MHz

+

RX 🗲

AWGN RT

11.52MHz

3GPP







Figure A.41: Connection for basic DC-HSUPA transmitter tests



Figure A.42: Connection for DC-HSUPA Transmitter intermodulation tests



Figure A.43: Connection for DC-HSUPA receiver tests with interferer or additional CW signal



Figure A.44: Connection for DC-HSUPA receiver tests with both interferer and additional CW signal



Figure A.45: Connection for DB-DC-HSDPA, Type 3i. 6 faders. 1 delay, to compensate for the basic delay of the faders. 2 part test illustrated by "Freq. 1→2 and Freq. 2→1". Uplink not displayed



Figure A.46: Connection for 4C-HSDPA tests with multi-path fading propagation. Depending on 4C-HSDPA configuration SS#4 may not be needed



Figure A.47: Connection for 4C-HSDPA with multi-path fading propagation and UE receive diversity. Depending on 4C-HSDPA configuration SS#4 may not be needed



Figure A.48: Connection for basic 4C-HSDPA tests. Depending on 4C-HSDPA configuration SS#4 may not be needed



Figure A.49: Connection for 4C-HSDPA Receiver tests with Interference or additional CW signal. Depending on 4C-HSDPA configuration SS#4 may not be needed


Figure A.50: Connection for 4C-HSDPA Receiver tests with additional CW signal. Depending on 4C-HSDPA configuration SS#4 may not be needed



Figure A.51: Connection for 4C-HSDPA Receiver tests with both Interference and additional CW signal. Depending on 4C-HSDPA configuration SS#4 may not be needed

## Annex B (normative): Global In-Channel TX-Test

## B.1 General

The global in-channel Tx test enables the measurement of all relevant parameters that describe the in-channel quality of the output signal of the Tx under test in a single measurement process.

The parameters describing the in-channel quality of a transmitter, however, are not necessarily independent. The algorithm chosen for description inside this annex places particular emphasis on the exclusion of all interdependencies among the parameters. Any other algorithm (e.g. having better computational efficiency) may be applied, as long as the results are the same within the acceptable uncertainty of the test system as defined in annex F.

The global in-channel Tx test is bipartite depending whether the signal under test contains a 16QAM modulation on any of the uplink code channels. Further details are in Note: Residual(16 QAM).

All notes referred in the various clauses of B.2 are put together in B.3.

## B.2 Definition of the process

### B.2.1 Basic principle

The process is based on the comparison of the actual **output signal of the TX under test**, received by an ideal receiver, with a **reference signal**, that is generated by the measuring equipment and represents an ideal error free received signal. The reference signal shall be composed of the same number of codes at the correct spreading factors as contained in the test signal. Note, for simplification, the notation below assumes only codes of one spreading factor although the algorithm is valid for signals containing multiple spreading factors. All signals are represented as equivalent (generally complex) baseband signals.

### B.2.2 Output signal of the TX under test

The output signal of the TX under test is acquired by the measuring equipment, filtered by a matched filter (RRC 0.22, correct in shape and in position on the frequency axis) and stored for further processing.

The following form represents the physical signal in the entire measurement interval:

one vector  $\mathbf{Z}$ , containing N = ns x sf complex samples;

with

ns: number of symbols in the measurement interval;

sf: number of chips per symbol. (sf: spreading factor) (see Note: Symbol length)

## B.2.3 Reference signal

The reference signal is constructed by the measuring equipment according to the relevant TX specifications.

It is filtered by the same matched filter, mentioned in clause B.2.2., and stored at the Inter-Symbol-Interference free instants. The following form represents the reference signal in the entire measurement interval:

- one vector **R**, containing N = ns xsf complex samples;
- ns, sf: see clause B.2.2.

## B.2.4 void

### B.2.5 Classification of measurement results

The measurement results achieved by the global in-channel TX test can be classified into two types:

- Results of type "deviation", where the error-free parameter has a non-zero magnitude. (These are the parameters that quantify the integral physical characteristic of the signal). These parameters are:

RF Frequency;		
Power	(in case of single code);	
Code Domain Power	(in case of multi code);	
Timing		
(Additional parameters: see Note: Deviation).		

- Results of type "residual", where the error-free parameter has value zero. (These are the parameters that quantify the error values of the measured signal, whose ideal magnitude is zero). These parameters are:
  - Error Vector Magnitude (EVM);
  - Peak Code Domain Error (PCDE).
  - Relative Code Domain Error (RCDE).

Origin Offset (O) See Note : Residual(16 QAM)

#### B.2.6 Process definition to achieve results f, t, $\phi$ , g<sub>1</sub>, g<sub>2</sub>, and O

The reference signal ( $\mathbf{R}$ ; see clause B.2.3) and the signal under Test ( $\mathbf{Z}$ ; see subclause B.2.2) are varied with respect to the parameters RF Frequency, absolute Amplitude or Code Domain Amplitude, Phase, Timing and Origin Offset in order to achieve best fit. Best fit is achieved when the RMS difference value between the varied signal under test and the varied reference signal is an absolute minimum.

Overview:

#### FCT[ $Z(\tilde{f}, \tilde{t}, \tilde{\phi}, g_1, g_2, ..., \tilde{O}) - R(f, t, \phi, \tilde{g}_1, \tilde{g}_2, ..., O)$ ]=Minimum!

- Z: Signal under test.
- R: Reference signal,

with

- frequency f,
- the timing t,
- the phase  $\varphi$ ,
- amplitude of code1 (g1), amplitude of code2 (g2) etc
- Origin Offset O See Note: Residual(16 QAM).

The parameters marked with a tilde in Z and R are varied in order to achieve a best fit.

Detailed formula: see Note: Formula for the minimum process.

The varied reference signal, after the best fit process, will be called R'.

The varied signal under test, after the best fit process, will be called Z'.

Hence

The samples **R** are constructed, using the nominal values of the parameters f, t,  $\phi$ ,  $g_1$ ,  $g_2$ ,... and O from the TX specifications

Vice versa, values for the parameters f, t,  $\phi$ ,  $g_{1,g_{2,...}}$  and O can be assigned to the measured samples Z

The values in <b>R'</b> :	f, t, $\phi$ and O are the same as in <b>R</b> ,	$g_1, g_2, \dots$ are fit towards Z
The values in <b>Z</b> ':	f, t, $\phi$ and O are fit towards $\boldsymbol{R}$	$g_1, g_2, \dots$ are same as in $\mathbf{Z}$

The varying parameters, leading to **R' and Z'** represent directly the wanted results f, t,  $\varphi$ ,  $g_1$ ,  $g_2$ , etc, and O. . These measurement parameters are expressed as deviation from the reference value with units same as the reference value.

In case of multi code, the f, t,  $\varphi$ ,  $g_1$ ,  $g_2$ , etc, and O. parameters (frequency, timing, origin offset and (RF-phase)) are varied commonly for all codes such that the process returns one frequency-deviation, one timing deviation, (one RF-phase-deviation) one origin offset.

(These parameters are <u>not</u> varied on the individual codes signals such that the process would return kr frequency errors. (kr: number of codes in the reference signal)).

The only parameters varied individually are the code domain amplitudes  $(g_1, g_2, ...)$  where  $(g_1, g_2, ...)$  comprise the active codes only. In general the measured signal Z contains residual power on the unused codes. The amplitudes of the unused codes in R remain 0 and are not fit towards Z.

R' will be used for normalisation frequently in the subsequent clauses. Hence the physical meaning of R' is explained here:

R' is the modified reference signal, modified by fitting the code amplitudes of the active codes towards the measured signal. Hence the power of these samples is the power of the active codes in the measured signal. For a signal, not containing 16 QAM, this is true although f, t,  $\varphi$  in the measured signal are different from the equivalent values in R', however differences in these parameters do not contribute to the power in R'. For a signal, containing 16 QAM modulation on any of the uplink codes, the meaning is different: f, t,  $\varphi$  and O in the measured signal are different to the equivalent values in R', but O contribute to the power in R'. Hence the power in the samples of R' is the power of the active codes in the measured signal excluding the power in the IQ offset.

#### B.2.6.1 Decision Point Power

The mean-square value of the signal-under-test, sampled at the best estimate of the of Intersymbol-Interference-free points using the process defined in subclause 2.6, is referred to the *Decision Point Power* (DPP):

$$DPP = mean(|Z|^2)$$

#### B.2.6.2 Measured total power of all active codes

The mean-square value of the modified reference signal R' defined in subclause 2.6, is referred to the *measured total* power of all active codes:

measured total power of all active codes = mean( $|\mathbf{R}'|^2$ )

#### B.2.6.3 Code-Domain Power

The samples,  $\mathbf{Z}'$ , are separated into symbol intervals to create ns time-sequential vectors  $\mathbf{z}$  with sf complex samples comprising one symbol interval. The *Code Domain Power* is calculated according to the following steps:

- 1) Take the vectors **z** defined above.
- 2) To achieve meaningful results it is necessary to descramble z, leading to z' (see Note1: Scrambling code)
- 3) Take the orthogonal vectors of the channelization code set C (all codes belonging to one spreading factor) as defined in TS 25.213 and TS 25.223 (range +1, -1), and normalize by the norm of the vectors to produce Cnorm=C/sqrt(sf). (see Note: Symbol length)

- 4) Calculate the inner product of z' with Cnorm. Do this for all symbols of the measurement interval and for all codes in the code space.
  - This gives an array of format k x ns, each value representing a specific symbol and a specific code, which can be exploited in a variety of ways.

k: total number of codes in the code space (active and unused)

ns: number of symbols in the measurement interval

- 5) Calculate k mean-square values, each mean-square value unifying ns symbols within one code. (These values can be called "Absolute CodeDomainPower (CDP)".) Unused codes may carry CDP. The sum of the k values of CDP is equal to DPP.
- 6) Normalize by the decision point power to obtain

 $Relative \ CodeDomainPower = \frac{Absolute \ CodeDomainPower}{DecisionPointPower}$ 

#### B.2.6.4 Code-Domain Power of the varied reference signal

- The samples R', as defined in B.2.6, are separated into symbol intervals to create ns time-sequential vectors r with sf complex samples comprising one symbol interval. The code domain power of the varied reference signal is calculated according to the following steps:
- 2) To achieve meaningful results it is necessary to descramble **r**, leading to **r'** (see Note1: Scrambling code)
- 3) Take the orthogonal vectors of the channelization code set C (all codes belonging to one spreading factor) as defined in TS 25.213 and TS 25.223 (range +1, -1), and normalize by the norm of the vectors to produce Cnorm=C/sqrt(sf).
- 4) Calculate the inner product of r' with Cnorm. Do this for all symbols of the measurement interval but only for used codes in the code space. This gives an array of format uk x ns, each value representing a specific symbol and a specific code

uk: number of codes (only active (used) codes)

ns: number of symbols in the measurement interval

- 5) Calculate uk mean-square values, each mean-square value unifying ns symbols within one code. These are called "Absolute *Code Domain Power of the varied reference signal*"
- 6) Normalize by measured total power of all active codes (B.2.6.2) to obtain:

Absolute Code Domain Power of the varied reference signal

Measured code domain power ratio = -----

measured total power of all active codes

### B.2.7 Process definition to achieve results EVM, PCDE, RCDE

The difference between the varied reference signal ( $\mathbf{R}'$ ; see clause B.2.6.) and the varied TX signal under test ( $\mathbf{Z}'$ ; see clause B.2.6) is the error vector  $\mathbf{E}$  versus time:

- E = Z' - R'.

E gives results of type "residual" applying the three algorithms defined in clauses B 2.7.1, B 2.7.2.1 and B.2.7.3.

#### B.2.7.1 Error Vector Magnitude (EVM)

The Error Vector Magnitude EVM is calculated according to the following steps:

1) Take the error vector **E** defined in clause B.2.7 and calculate the RMS value of **E**; the result will be called RMS(**E**).

- 2) Take the varied reference vector **R'** defined in clause B.2.6 and calculate the RMS value of **R'**; the result will be called RMS(**R'**).
- 3) Calculate EVM according to:

 $EVM = \frac{RMS(E)}{RMS(R')} \times 100\%$ 

(here, EVM is relative and expressed in %)

(see Note: Formula for EVM)

#### B.2.7.2 Code Domain Error Power

The Code Domain Error Power is calculated according to the following steps:

- 1) The samples **E**, as defined in B.2.7, are separated into symbol intervals to create ns time -sequential vectors **e** with sf complex samples comprising one symbol interval.
- 2) To achieve meaningful results it is necessary to descramble e, leading to e' (see Note1: Scrambling code)
- 3) Take the orthogonal vectors of the channelisation code set C (all codes belonging to one spreading factor) as defined in TS 25.213 and TS 25.223 (range +1, -1). (see Note: Symbol length) and normalize by the norm of the vectors to produce Cnorm= C/sqrt(sf). (see Note: Symbol length)
- 4) Calculate the inner product of **e'** with **Cnorm**. Do this for all symbols of the measurement interval and for all codes in the code space.

This gives an array of format k x ns, each value representing an error-vector representing a specific symbol and a specific code, which can be exploited in a variety of ways.

k: total number of codes in the code space

ns: number of symbols in the measurement interval

 5) Calculate k values mean(|e'|<sup>2</sup>), each value unifying ns symbols within one code. (These values can be called "Absolute Code Domain Error Power" B.2.7.2.1 Peak Code Domain Error Power (PCDE)

Find the peak value among the k "Absolute Code Domain Error Powers". (This value can be called "Absolute Peak Code Domain Error Powers" This peak may hit an unused or an active code.)

Normalise by the measured total power of all active codes (clause B.2.6.2) to achieve PCDE

Absolute Peak Code Domain Error Power

PCDE = 10\*lg ----- dB

(a relative value in dB).

measured total power of all active codes  $(RMS(\mathbf{R'}))^2$ 

(see Note 2: Scrambling code)

(see Note IQ)

#### B.2.7.3 Relative Code Domain Error (RCDE)

The Relative Code Domain Error is calculated according to the following steps:

Re-use step 1 to 3 from clause B.2.7.2.

4) Calculate the inner product of **e'** with **Cnorm**. Do this for all symbols of the measurement interval but only for the used codes in the code space.

This gives an array of format uk x ns, each value representing an error-vector representing a specific symbol and a specific code.

uk: used (active) codes in the code space

ns: number of symbols in the measurement interval

- 5) Calculate uk values  $mean(|e'|^2)$ , each value unifying ns symbols within one code. (These values can be called "*Absolute Code Domain Error Powers*")
- 6) The uk absolute code domain error powers are normalized by the equivalent uk code domain powers of the varied reference signal (B.2.6.4 step 5)

Absolute CodeDomain Error Power

RCDE =-----

Code domain power of the varied reference signal

## B.3 Notes

#### Note: Symbol length)

A general code multiplexed signal is multicode and multirate. In order to avoid unnecessary complexity, the measurement applications use a unique symbol-length, corresponding to a spreading factor, regardless of the really intended spreading factor. Nevertheless the complexity with a multicode / multirate signal can be mastered by introducing appropriate definitions.

#### Note: Deviation)

It is conceivable to regard more parameters as type ,,deviation" e.g. Chip frequency and RF-phase.

As chip-frequency and RF-frequency are linked together by a statement in the core specifications [1] it is sufficient to process RF frequency only.

A parameter RF-phase must be varied within the best fit process (B 2.6.). Although necessary, this parametervariation doesn't describe any error, as the modulation schemes used in the system don't depend on an absolute RF-phase.

#### Note: Residual (non 16 QAM))

It is conceivable to regard more parameters as type "residual" e.g. IQ origin offset. As it is not the intention of the test to separate for different error sources, but to quantify the quality of the signal, all such parameters are not extracted by the best fit process, instead remain part of EVM and PCDE.

#### Note: Residual (16 QAM)

When a UE uses 16QAM modulation on any of the uplink code channels, the best fit process, described in B.2.6, includes the Origin Offset as an additional parameter for minimisation. Otherwise Origin Offset is not part of the best fit process and remains part of EVM, PCDE and RCDE, This bipartite handling of the minimisation process will influence the results for EVM, PCDE and RCDE by definition. It will influence the results for amplitude and the code amplitudes and it may influence, as an effect of higher order, the results for RF frequency, absolute phase and phase discontinuity.

#### Note 1: Scrambling Code)

In general a TX signal under test can use more than one scrambling code. Note that PCDE is processed regarding the unused channelisation - codes as well. In order to know which scrambling code shall be applied on unused channelisation -codes, it is necessary to restrict the test conditions: TX signal under test shall use exactly one scrambling code.

#### Note 2: Scrambling Code)

To interpret the measurement results in practice it should be kept in mind that erroneous code power on unused codes is generally de-scrambled differently under test conditions and under real life conditions, whereas erroneous code power on used codes is generally de-scrambled equally under test conditions and under real life conditions. It might be indicated if a used or unused code hits PCDE.

#### Note IQ)

As in FDD/uplink each code can be used twice, on the I and on the Q channel, the measurement result may indicate separate values of CDP or PCDE for I and Q on which channel (I or Q) they occur.

NOTE: Formula for the minimum process

$$L(\Delta \widetilde{f}, \Delta \widetilde{t}, \Delta \widetilde{\varphi}, \Delta \widetilde{g}_{c}, ..., \widetilde{O}) = \sum_{\nu=0}^{N-1} |Z(\nu) - R(\nu)|^{2}$$

Legend:

L : the function to be minimised.

The parameters to be varied in order to minimize are:

 $\Delta \tilde{f}$ : the RF frequency offset

 $\Delta \tilde{t}$ : the timing offset

 $\Delta \widetilde{\varphi}$  : the phase offset

 $\Delta \tilde{g}_c$ ... code amplitude offsets (one offset for each code)

 $\widetilde{O}$ : Origin Offset

Z(v): Samples of the signal under Test

R(v): Samples of the reference signal

$$\sum_{\nu=0}^{N-1}$$

: counting index v starting at the beginning of the measurement interval and ending at its end.

N = No of chips during the measurement interval.

Z(v): Samples of the signal under Test. It is modelled as a sequence of complex baseband samples Z(v) with a n Origin offset, time-shift  $\Delta t$ , a frequency offset  $\Delta f$ , a phase offset  $\Delta \phi$ , the latter three with respect to the reference signal.

$$Z(\nu) = Z(\nu - \Delta \tilde{t}) * e^{-j2\pi\Delta \tilde{f}\nu} * e^{-j\Delta \tilde{\varphi}}$$
$$Z(\nu) = Z(\nu - \Delta \tilde{t}) * e^{-j2\pi\Delta \tilde{f}\nu} * e^{-j\Delta \tilde{\varphi}} - \tilde{O}$$

 $Z(\nu) = Z(\nu - \Delta \tilde{t}) * e^{-j2\pi\Delta \tilde{f}\nu} * e^{-j\Delta \tilde{\varphi}}$ 

R(v): Samples of the reference signal:

$$R(v) = \sum_{c=1}^{No.of} (g_c + \Delta \tilde{g}_c) * Chip_c(v)$$

g: nominal amplitude of the code channel

 $\Delta \widetilde{g}$ : The offset to be varied in the minimum process

Chip(v) is the chipsequence of the code channel

Indices at g,  $\Delta g$  and Chip:

The index indicates the code channel: c = 1, 2, ... No of code channels

Range for Chip<sub>c</sub>: +1,-1

NOTE: Formula for EVM

$$EVM = \sqrt{\frac{\sum_{\nu=0}^{N-1} |Z'(\nu) - R'(\nu)|^2}{\sum_{\nu=0}^{N-1} |R'(\nu)|^2}} *100\%$$

Z'(v), R'(v) are the varied measured and reference signals.

## Annex C (normative): Measurement channels

## C.1 General

The measurement channels in this annex are defined to derive the requirements in clauses 5, 6 and 7. The measurement channels represent example configuration of radio access bearers for different data rates.

The measurement channel for 12,2 kbps shall be supported by any UE both in up- and downlink. Support for other measurement channels is depending on the UE Radio Access capabilities.

## C.2 UL reference measurement channel

## C.2.1 UL reference measurement channel (12,2 kbps)

The parameters for the 12,2 kbps UL reference measurement channel are specified in table C.2.1.1, table C 2.1.2, table C 2.1.3 and table C.2.1.4. The channel coding for information is shown in figure C.2.1.

Table C.2.1.1: UL	reference measurement	channel physica	parameters	(1 2,2 kbp	s)
				(· _,_ · ····	

Parameter	Level	Unit
Information bit rate	12,2	kbps
DPDCH	60	kbps
DPCCH	15	kbps
DPCCH Slot Format #i	0	-
DPCCH/DPDCH power ratio	-5,46	dB
TFCI	On	-
Repetition 23 %		
NOTE: Slot Format #2 is used for closed loop tests in clause 7.6.2. Slot Format #2 and #5 are used for site selection diversity transmission tests in subclause 7.6.3.		

Table C.2.1.2: UL reference measurement channel using RLC-TM for DTCH, transport chan	nel
parameters (12.2 kbps)	

Higher		RAB/Signalling RB	RAB	SRB
Layer				
RLC	Logical cha	annel type	DTCH	DCCH
	RLCmode		ТМ	UM/AM
	Payload siz	zes, bit	244	88/80
	Max data ra	ate, bps	12200	2200/2000
	PDU heade	er, bit	N/A	8/16
	TrD PDU h	eader, bit	0	N/A
MAC	MAC head	er, bit	0	4
	MAC multip	plexing	N/A	Yes
Layer 1	TrCH type		DCH	DCH
	Transport Channel Identity		1	5
	TB sizes, b	vit	244	100
	TFS	TF0, bits	0*244	0*100
		TF1, bits	1*244	1*100
	TTI, ms		20	40
	Coding type		Convolution Coding	Convolution Coding
	Coding Rate		1/3	1/3
	CRC, bit		16	12
	Maxnumb	er of bits/TTI after channel coding	804	360
	Uplink: Max	x number of bits/radio frame before	402	90
	rate matchi	ing		
	<b>RM</b> attribut	e	256	256

TFCS size	4
TFCS	(DTCH, DCCH)=
	(TF0, TF0), (TF1, TF0), (TF0, TF1), (TF1, TF1)

Table C.2.1.3: UL reference measurement channel, TFCS (12.2 kbps)

NOTE: The TFCs except for (TF1, TF1) are belonging to minimum set of TFCs.



Figure C.2.1 (Informative): Channel coding of UL reference measurement channel (12,2 kbps)

## C.2.2 UL reference measurement channel (64 kbps)

The parameters for the 64 kbps UL reference measurement channel are specified in table C.2.2.1, table C.2.2.2, table C.2.2.3 and table C.2.2.4. The channel coding for information is shown in figure C.2.2.

Parameter	Level	Unit
Information bit rate	64	kbps
DPDCH	240	kbps
DPCCH	15	kbps
DPCCH Slot Format #i	0	-
DPCCH/DPDCH	-9,54	dB
TFCI	On	-
Repetition	18	%

Table C.2.2.1: UL reference measurement channel (64 kbps)

Higher Layer	RAB/Signalling RB	RAB	SRB
RLC	Logical channel type	DTCH	DCCH
	RLCmode	TM	UM/AM
	Payload sizes, bit	1280	88/80
	Max data rate, bps	64000	2200/2000
	PDU header, bit	N/A	8/16
	TrD PDU header, bit	0	N/A
MAC	MAC header, bit	0	4
	MAC multiplexing	N/A	Yes
Layer 1	TrCH type	DCH	DCH
	Transport Channel Identity	1	5
	TB sizes, bit	1280	100
	TFS TF0, bits	0*1280	0*100
	TF1, bits	1*1280	1*100
	TTI, ms	20	40
	Coding type	Turbo Coding	Convolution Coding
	Coding Rate	N/A	1/3
	CRC, bit	16	12
	Maxnumber of bits/TTI after channel coding	3900	360
	Uplink: Max number of bits/radio frame before rate matching	1950	90
	RMattribute	256	256

# Table C.2.2.2: UL reference measurement channel using RLC-TM for DTCH, transport channel parameters (64 kbps)

# Table C.2.2.3: UL reference measurement channel using RLC-AM for DTCH, transport channel parameters (64 kbps)

Higher	RAB/Signalling RB		RAB	SRB
Layer				
RLC	Logical cha	annel type	DTCH	DCCH
	RLC mode		AM	UM/AM
	Payload si	zes, bit	1264	88/80
	Maxdatar	ate, bps	63200	2200/2000
	PDU head	er, bit	16	8/16
	TrD PDU h	eader, bit	N/A	N/A
MAC	MAC head	er, bit	0	4
	MAC multi	plexing	N/A	Yes
Layer 1	TrCH type		DCH	DCH
	Transport Channel Identity		1	5
	TB sizes, b	pit	1280	100
	TFS	TF0, bits	0*1280	0*100
		TF1, bits	1*1280	1*100
	TTI, ms		20	40
	Coding typ	e	Turbo Coding	Convolution Coding
	Coding Ra	te	N/A	1/3
	CRC, bit		16	12
	Maxnumb	er of bits/TTI after channel coding	3900	360
	Uplink: Ma	x number of bits/radio frame before	1950	90
	rate match	ing		
	RMattribut	e	256	256

#### Table C.2.2.4: UL reference measurement channel, TFCS (64 kbps)

IFC3 SIZE	4
TFCS	(DTCH, DCCH)= (TF0, TF0), (TF1, TF0), (TF0, TF1), (TF1, TF1)

NOTE: The TFCs except for (TF1, TF1) are belonging to minimum set of TFCs.



Figure C.2.2 (Informative): Channel coding of UL reference measurement channel (64 kbps)

## C.2.3 UL reference measurement channel (144 kbps)

The parameters for the 144 kbps UL reference measurement channel are specified in table C.2.3.1, table C.2.3.2, table C.2.3.3 and table C.2.3.4. The channel coding for information is shown in figure C.2.3.

Parameter	Level	Unit
Information bit rate	144	kbps
DPDCH	480	kbps
DPCCH	15	kbps
DPCCH Slot Format #i	0	-
DPCCH/DPDCH power ratio	-11,48	dB
TFCI	On	-
Repetition	8	%

Table C.2.3.1: UL reference	emeasurement	channel	(144	kbps)
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Higher Layer	RAB/Signalling RB	RAB	SRB
RLC	Logical channel type	DTCH	DCCH
	RLCmode	TM	UM/AM
	Payload sizes, bit	2880	88/80
	Max data rate, bps	144000	2200/2000
	PDU header, bit	N/A	8/16
	TrD PDU header, bit	0	N/A
MAC	MAC header, bit	0	4
	MAC multiplexing	N/A	Yes
Layer 1	TrCH type	DCH	DCH
-	Transport Channel Identity	1	5
	TB sizes, bit	2880	100
	TFS TF0, bits	0*2880	0*100
	TF1, bits	1*2880	1*100
	TTI, ms	20	40
	Coding type	Turbo Coding	Convolution Coding
	Coding Rate	N/A	1/3
	CRC, bit	16	12
	Maxnumber of bits/TTI after channel coding	8700	360
	Uplink: Max number of bits/radio frame before	4350	90
	rate matching		
	RMattribute	256	256

## Table C.2.3.2: UL reference measurement channel using RLC-TM for DTCH, transport channel parameters (144 kbps)

# Table C.2.3.3: UL reference measurement channel using RLC-AM for DTCH, transport channel parameters (144 kbps)

Higher Layer	RAB/Signalling RB		RAB	SRB
RLC	Logical cha	annel type	DTCH	DCCH
	RLCmode	1	AM	UM/AM
	Payload size	zes, bit	2864	88/80
	Maxdatar	ate, bps	143200	2200/2000
	PDU head	er, bit	16	8/16
	TrD PDU h	eader, bit	N/A	N/A
MAC	MAC head	er, bit	0	4
	MAC multi	plexing	N/A	Yes
Layer 1	TrCH type		DCH	DCH
	Transport Channel Identity		1	5
	TB sizes, b	bit	2880	100
	TFS	TF0, bits	0*2880	0*100
		TF1, bits	1*2880	1*100
	TTI, ms		20	40
	Coding typ	е	Turbo Coding	Convolution Coding
	Coding Ra	te	N/A	1/3
	CRC, bit		16	12
	Maxnumb	er of bits/TTI after channel coding	8700	360
	Uplink: Ma rate match	x number of bits/radio frame before ing	4350	90
	RM attribut	e	256	256

Table C.2.3.4: U	_ reference	measurement	channel,	TFCS	(144	kbps)
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TFCS size	4
TFCS	(DTCH, DCCH)=
	(TF0, TF0), (TF1, TF0), (TF0, TF1), (TF1, TF1)

NOTE: The TFCs except for (TF1, TF1) are belonging to minimum set of TFCs.



Figure C.2.3 (Informative): Channel coding of UL reference measurement channel (144 kbps)

## C.2.4 UL reference measurement channel (384 kbps)

The parameters for the 384 kbps UL reference measurement channel are specified in table C.2.4.1, table C.2.4.2, table C.2.4.3 and table C.2.4.4. The channel coding for information is shown in figure C.2.4.

Parameter	Level	Unit
Information bit rate	384	kbps
DPDCH	960	kbps
DPCCH	15	kbps
DPCCH Slot Format #i	0	-
DPCCH/DPDCH power ratio	-11,48	dB
TFCI	On	-
Puncturing	18	%

Table C.2.4.1: UL reference measurement channel (384 kbps)

Higher Layer	RAB/Signalling RB	RAB	SRB
RLC	Logical channel type	DTCH	DCCH
	RLC mode	TM	UM/AM
	Payload sizes, bit	3840	88/80
	Max data rate, bps	384000	2200/2000
	PDU header, bit	N/A	8/16
	TrD PDU header, bit	0	N/A
MAC	MAC header, bit	0	4
	MAC multiplexing	N/A	Yes
Layer 1	TrCH type	DCH	DCH
	Transport Channel Identity	1	5
	TB sizes, bit	3840	100
	TFS TF0, bits	0*3840	0*100
	TF1, bits	1*3840	1*100
	TTI, ms	10	40
	Coding type	Turbo Coding	Convolution Coding
	Coding Rate	N/A	1/3
	CRC, bit	16	12
	Maxnumber of bits/TTI after channel coding	11580	360
	Uplink: Maxnumber of bits/radio frame before rate matching	11580	90
	RMattribute	256	256

# Table C.2.4.2: UL reference measurement channel using RLC-TM for DTCH, transport channel parameters (384 kbps)

# Table C.2.4.3: UL reference measurement channel using RLC-AM for DTCH, transport channel parameters (384 kbps)

Higher	RAB/Signalling RB		RAB	SRB
Layer				
RLC	Logical cha	annel type	DTCH	DCCH
	RLC mode		AM	UM/AM
	Payload size	zes, bit	3824	88/80
	Max data r	ate, bps	382400	2200/2000
	PDU head	er, bit	16	8/16
	TrD PDU h	eader, bit	N/A	N/A
MAC	MAC head	er, bit	0	4
	MAC multi	plexing	N/A	Yes
Layer 1	TrCH type		DCH	DCH
	Transport Channel Identity		1	5
	TB sizes, bit		3840	100
	TFS	TF0, bits	0*3840	0*100
		TF1, bits	1*3840	1*100
	TTI, ms		10	40
	Coding typ	e	Turbo Coding	Convolution Coding
	Coding Ra	te	N/A	1/3
	CRC, bit		16	12
	Maxnumb	er of bits/TTI after channel coding	11580	360
	Uplink: Ma	x number of bits/radio frame before	11580	90
	rate match	ing		
	RM attribut	e	256	256

#### Table C.2.4.4: UL reference measurement channel, TFCS (384 kbps)

TFCS size	4
TFCS	(DTCH, DCCH)=
	(TF0, TF0), (TF1, TF0), (TF0, TF1), (TF1, TF1)

NOTE: The TFCs except for (TF1, TF1) are belonging to minimum set of TFCs.



Figure C.2.4 (informative): Channel coding of UL reference measurement channel (384 kbps)

## C.2.5 UL reference measurement channel (768 kbps)

The parameters for the UL measurement channel for 768 kbps are specified in table C.2.5.1, table C.2.5.2, table C.2.5.3 and table C.2.5.4.

Parameter	Level	Unit
Information bit rate	2*384	kbps
DPDCH <sub>1</sub>	960	kbps
DPDCH <sub>2</sub>	960	kbps
DPCCH	15	kbps
DPCCH Slot Format #i	0	-
DPCCH/DPDCH power ratio	-11.48	dB
TFCI	On	-
Puncturing	18	%

Table C.2.5.1: UL reference measurement channel, physical parameters (768 kbps)

Higher Layer	RAB/Signalling RB	RAB	SRB
RLC	Logical channel type	DTCH	DCCH
	RLCmode	TM	UM/AM
	Payload sizes, bit	7680	88/80
	Max data rate, bps	768000	2200/2000
	PDU header, bit	N/A	8/16
	TrD PDU header, bit	0	N/A
MAC	MAC header, bit	0	4
	MAC multiplexing	N/A	Yes
Layer 1	TrCH type	DCH	DCH
	Transport Channel Identity	1	5
	TB sizes, bit	3840	100
	TFS TF0, bits	0*3840	0*100
	TF1, bits	2*3840	1*100
	TTI, ms	10	40
	Coding type	Turbo Coding	Convolution Coding
	Coding Rate	N/A	1/3
	CRC, bit	16	12
	Maxnumber of bits/TTI after channel coding	23160	360
	Uplink: Maxnumber of bits/radio frame before rate matching	23160	90
	RMattribute	256	256

# Table C.2.5.2: UL reference measurement channel using RLC-TM for DTCH, transport channel parameters (768 kbps)

# Table C.2.5.3: UL reference measurement channel using RLC-AM for DTCH, transport channel parameters (768 kbps)

Higher	RAB/Signalling RB		RAB	SRB
Layer				
RLC	Logical cha	annel type	DTCH	DCCH
	RLC mode		TM	UM/AM
	Payload size	zes, bit	7664	88/80
	Max data r	ate, bps	766400	2200/2000
	PDU head	er, bit	16	8/16
	TrD PDU h	eader, bit	N/A	N/A
MAC	MAC head	er, bit	0	4
	MAC multi	plexing	N/A	Yes
Layer 1	TrCH type		DCH	DCH
	Transport Channel Identity		1	5
	TB sizes, bit		3840	100
	TFS	TF0, bits	0*3840	0*100
		TF1, bits	2*3840	1*100
	TTI, ms		10	40
	Coding typ	e	Turbo Coding	Convolution Coding
	Coding Ra	te	N/A	1/3
	CRC, bit		16	12
	Maxnumb	er of bits/TTI after channel coding	23160	360
	Uplink: Ma	x number of bits/radio frame before	23160	90
	rate match	ing		
	RM attribut	e	256	256

#### Table C.2.5.4: UL reference measurement channel, TFCS (768 kbps)

TFCS size	4
TFCS	(DTCH, DCCH)=
	(TF0, TF0), (TF1, TF0), (TF0, TF1), (TF1, TF1)

NOTE: The TFCs except for (TF1, TF1) are belonging to minimum set of TFCs.

# C.2.6 UL E-DCH reference measurement channel for DC-HSUPA using BPSK modulation

The parameters for the UL measurement channel for UE transmitter characteristics for DC-HSUPA are specified in Table C.2.6.1 and Figure C.2.6. The power imbalance in Table C.2.6.1 refers to the ratio of the DPCCH power of the primary uplink frequency to the DPCCH power of the secondary uplink frequency, expressed in dB.

#### Table C.2.6.1: Settings for DC-HSUPA reference measurement channel using BPSK modulation

Parameter	Unit	Value
Modulation		BPSK
Maximum. Inf. Bit Rate	kbps	60
TTI	ms	2
Number of HARQ Processes	Processes	8
Information Bit Payload (N <sub>INF</sub> )	Bits	120
Binary Channel Bits per TTI (N <sub>BIN</sub> )	Bits	480
(3840 / SF x TTI sum for all channels)		
Coding Rate (N <sub>INF</sub> / N <sub>BIN</sub> )		0.25
Physical Channel Codes	SF for each	{16}
	physical channel	
E-DPDCH/DPCCH power ratio	dB	4.08
E-DPCCH/DPCCH power ratio	dB	-9.54
HS-PDCCH/DPCCH power ratio	dB	-9.54
Power imbalance	dB	0
Note: HS-DPCCH is applicable only for t	he primary uplink frequ	Jency.

Information Bit Payload	N <sub>INF</sub> = 120		
CRC Addition	N <sub>INF</sub> = 120	24	
Code Block Segmentation	120+24 = 144		
Turbo Encoding (R=1/3)		$3 \text{ x} (N_{INF}+24) = 432$	12
RV Selection		480	
Physical Channel Segmentation		480	

Figure C.2.6: Coding rate for DC-HSUPA reference measurement channel using BPSK modulation

# C.2.7 UL E-DCH reference measurement channel for DC-HSUPA using 16QAM modulation

The parameters for the UL measurement channel for UE transmitter characteristics for DC-HSUPA using 16QAM modulation are specified in Table C.2.7.1 and Figure C.2.7. The power imbalance in Table C.2.7.1 refers to the ratio of the DPCCH power of the primary uplink frequency to the DPCCH power of the secondary uplink frequency, expressed in dB.

Table C.2.7.1: Set	tings for DC-HSUPA	reference measurement	t channel using 1	6QAM modulation
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Parameter	Unit	Value		
Modulation		16QAM		
Maximum. Inf. Bit Rate	kbps	4227		
ТП	ms	2		
Number of HARQ Processes	Processes	8		
Information Bit Payload (NINF)	Bits	8454		
Binary Channel Bits per TTI (NBIN) (3840 / SF x TTI sum for all channels)	Bits	23040		
Coding Rate (NINF/ NBIN)		0.367		
Physical Channel Codes	SF for each physical channel	{2,2,4,4}		
E-DPDCH/DPCCH power ratio SF4 codes E-DPCCH/DPCCH power ratio SF2 codes E-DPCCH/DPCCH power ratio HS-PDCCH/DPCCH power ratio	dB dB dB dB	16.03 19.02 8.07 2.05		
Power imbalance	dB	0		
Note: HS-DPCCH is applicable only for the primary uplink frequency.				

Information Bit Payload	$N_{INF} = 8454$						
CRC Addition	N <sub>INF</sub> = 8454		24	]			
Code Block Segmentation	(8454+24)/2 = 4239			(8454	+24)/2 = 4239		
Turbo Encoding (R=1/3)	3 x 4239=12717	12		3 x -	4239=12717		12
RV Selection		230	)40				
Physical Channel Segmentation	7680	768	80		3840	3	840

Figure C.2.7: Coding rate for DC-HSUPA reference measurement channel using 16QAM modulation

### C.2.8 Combinations of UL E-DCH reference measurement channel for DC-HSUPA tests

The combinations of BPSK and 16QAM reference measurement channels in Table C.2.8.1 shall be used for verifying the UE maximum output power for DC-HSUPA, additional Spectrum emission mask for DC-HSUPA, and additional ACLR requirement for DC-HSUPA. The entry BPSK in Table C.2.8.1 refers to the UL E-DCH reference measurement channel for DC-HSUPA using BPSK modulation, specified in subclause C.2.6, and the entry 16QAM refers to the UL E-DCH reference measurement channel for DC-HSUPA using 16QAM modulation, specified in subclause C.2.7. The power imbalance in subclause C.2.6 and C.2.7 have been adjusted as shown in Table C.2.8.1.

Config #	Primary carrier	Secondary carrier	Power imbalance [dB]	Allowed MPR [dB]
1	BPSK	BPSK	-10	[0.5]
2	BPSK	BPSK	8	[1.0]
3	BPSK	BPSK	0	[1.5]
4	16QAM	16QAM	0	[TBD]

 Table C.2.8.1: E-DPDCH settings for DC-HSUPA reference measurement channel

## C.3 DL reference measurement channel

## C.3.1 DL reference measurement channel (12.2 kbps)

The parameters for the 12,2 kbps DL reference measurement channel are specified in table C.3.1.1, table C.3.1.2 and table C.3.1.3. The channel coding is detailed in figure C.3.1. For the RLC configuration of AM DCCHs Timer\_STATUS\_Periodic shall not be set in RRC CONNECTION SETUP message used in test procedure for RF test as defined in TS 34.108 [3] clause 7.3. This is to prevent unexpected DCHs from being transmitted through such RLC entities when the timer has expired in order to sure that the required TFC from the minimum set of TFCs can continuously convey a DCH for DTCH during the test.

Parameter	Level	Unit
Information bit rate	12.2	kbps
DPCH	30	ksps
Slot Format #I	11	-
TFCI	On	
Power offsets PO1, PO2 and PO3	0	dB
DTX position	Fixed	-

Table C.3.1.1: DL reference measurement channel (12.2 kbps)

Higher		RAB/Signalling RB	RAB	SRB
Layer				
RLC	Logical cha	annel type	DTCH	DCCH
	RLC mode	1	TM	UM/AM
	Payload si	zes, bit	244	88/80
	Max data r	ate, bps	12200	2200/2000
	PDU head	er, bit	N/A	8/16
	TrD PDU h	eader, bit	0	N/A
MAC	MAC head	er, bit	0	4
	MAC multi	plexing	N/A	Yes
Layer 1	TrCH type		DCH	DCH
	Transport	Channel Identity	6	10
	TB sizes, b	pit	244	100
	TFS	TF0, bits	0*244	0*100
		TF1, bits	1*244	1*100
	TTI, ms		20	40
	Coding typ	e	Convolution Coding	Convolution Coding
	Coding Ra	te	1/3	1/3
	CRC, bit		16	12
	Maxnumb	er of bits/TTI after channel coding	804	360
	RM attribut	e	256	256

## Table C.3.1.2: DL reference measurement channel using RLC-TM for DTCH, transport channel parameters (12.2 kbps)

#### Table C.3.1.3: DL reference measurement channel, TFCS (12.2 kbps)

TFCS size	4
TFCS	(DTCH, DCCH)=
	(TF0, TF0), (TF1, TF0), (TF0, TF1), (TF1, TF1)



Figure C.3.1 (informative): Channel coding of DL reference measurement channel (12.2 kbps)

## C.3.1A DL reference measurement channel (0 kbps and 12.2 kbps)

The parameters for the 0 kbps and 12.2 kbps DL reference measurement channel are specified in table C.3.1A.1, table C.3.1A.2 and table C.3.1A.3. The channel coding is detailed in figures C.3.1A and C.3.1B. For the RLC configuration of AM DCCHs Timer\_STATUS\_Periodic shall not be set in RRC CONNECTION SETUP message used in the test procedure for RF testing as defined in TS 34.108 [3] clause 7.3. This is to prevent unexpected DCHs from being transmitted through such RLC entities when the timer has expired in order to make sure that the required TFC from the minimum set of TFCs can continuously convey a DCH for DTCH during the test.

Table C.3.1A.1: DL reference measurement channel (0 kbps and 12.2 kbps)

Parameter	Level	Unit
Information bit rate	12.2	kbps
DPCH	30	ksps
Slot Format #I	11	-
TFCI	On	-
Power offsets PO1, PO2 and PO3	0	dB
DTX position	Fixed	-

# Table C.3.1A.2: DL reference measurement channel using RLC-TM for DTCH, transport channel parameters (0 kbps and 12.2 kbps)

Higher Laver	RAB/Signalling RB	RAB	SRB
RLC	Logical channel type	DTCH	DCCH
	RLC mode	TM	UM/AM
	Payload sizes, bit	244	88/80
	Max data rate, bps	12200	2200/2000
	PDU header, bit	N/A	8/16
	TrD PDU header, bit	0	N/A
MAC	MAC header, bit	0	4
	MAC multiplexing	N/A	Yes
Layer 1	TrCH type	DCH	DCH
	Transport Channel Identity	6	10
	TB sizes, bit	244	100
	TFS TF0, bits	1*0	0*100
	TF1, bits	1*244	1*100
	TTI, ms	20	40
	Coding type	Convolution Coding	Convolution Coding
	Coding Rate	1/3	1/3
	CRC, bit	16	12
	Maxnumber of bits/TTI after channel of	coding 804	360
	RMattribute	256	256

#### Table C.3.1A.3: DL reference measurement channel, TFCS (0 kbps and 12.2 kbps)

TFCS size	4
TFCS	(DTCH, DCCH)= (TF0, TF0), (TF1, TF0), (TF0, TF1), (TF1, TF1)



Figure C.3.1A (Informative): Channel coding of DL reference measurement channel (0 kbps)



Figure C.3.1B (informative): Channel coding of DL reference measurement channel (12.2 kbps)

## C.3.2 DL reference measurement channel (64 kbps)

The parameters for the DL reference measurement channel for 64 kbps are specified in table C.3.2.1, table C.3.2.2, table C.3.2.3 and table C.3.2.4. The channel coding is detailed in figure C.3.2. For the RLC configuration of AM DCCHs Timer\_STATUS\_Periodic shall not be set in RRC CONNECTION SETUP message used in test procedure for RF test as defined in TS 34.108 [3] clause 7.3. This is to prevent unexpected DCHs from being transmitted through such RLC entities when the timer has expired in order to sure that the required TFC from the minimum set of TFCs can continuously convey a DCH for DTCH during the test.

Parameter	Level	Unit
Information bit rate	64	kbps
DPCH	120	ksps
Slot Format #i	13	-
TFCI	On	-
Power offsets PO1, PO2 and PO3	0	dB
DTX position	Fixed	-

#### Table C.3.2.1: DL reference measurement channel (64 kbps)

# Table C.3.2.2: DL reference measurement channel using RLC-TM for DTCH, transport channel parameters (64 kbps)

Higher	RAB/Signalling RB	RAB	SRB
Layer		DTOUL	Boolu
RLC	Logical channel type	DICH	DCCH
	RLCmode	TM	UM/AM
	Payload sizes, bit	1280	88/80
	Max data rate, bps	64000	2200/2000
	PDU header, bit	N/A	8/16
	TrD PDU header, bit	0	N/A
MAC	MAC header, bit	0	4
	MAC multiplexing	N/A	Yes
Layer 1	TrCH type	DCH	DCH
	Transport Channel Identity	6	10
	TB sizes, bit	1280	100
	TFS TF0, bits	0*1280	0*100
	TF1, bits	1*1280	1*100
	TTI, ms	20	40
	Coding type	Turbo Coding	Convolution Coding
	Coding Rate	N/A	1/3
	CRC, bit	16	12
	Maxnumber of bits/TTI after channel coding	3900	360
	RMattribute	256	256

# Table C.3.2.3: DL reference measurement channel using RLC-AM for DTCH, transport channel parameters (64 kbps)

Higher Laver	RAB/Signa	alling RB	RAB	SRB
RLC	Logical ch	annel type	DTCH	DCCH
	RLC mode	9	AM	UM/AM
	Payload si	izes, bit	1264	88/80
	Maxdataı	rate, bps	63200	2200/2000
	PDU head	ler, bit	16	8/16
	TrD PDU I	neader, bit	N/A	N/A
MAC	MAC head	ler, bit	0	4
	MAC multi	iplexing	N/A	Yes
Layer 1	TrCH type		DCH	DCH
	Transport	Channel Identity	6	10
	TB sizes,	bit	1280	100
	TFS	TF0, bits	0*1280	0*100
		TF1, bits	1*1280	1*100
	TTI, ms		20	40
	Coding type		Turbo Coding	Convolution Coding
	Coding Rate		N/A	1/3
	CRC, bit		16	12
	Maxnumb	per of bits/TTI after channel coding	3900	360
	RM attribu	te	256	256

#### Table C.3.2.4: DL reference measurement channel, TFCS (64 kbps)

TFCS size	4
TFCS	(DTCH, DCCH)=
	(TF0, TF0), (TF1, TF0), (TF0, TF1), (TF1, TF1)



Figure C.3.2 (informative): Channel coding of DL reference measurement channel (64 kbps)

## C.3.3 DL reference measurement channel (144 kbps)

The parameters for the DL reference measurement channel for 144 kbps are specified in table C.3.3.1, table C.3.3.2, table C.3.3.3 and table C.3.3.4. The channel coding is detailed in figure C.3.3. For the RLC configuration of AM DCCHs Timer\_STATUS\_Periodic shall not be set in RRC CONNECTION SETUP message used in test procedure for RF test as defined in TS 34.108 [3] clause 7.3. This is to prevent unexpected DCHs from being transmitted through such RLC entities when the timer has expired in order to sure that the required TFC from the minimum set of TFCs can continuously convey a DCH for DTCH during the test.

Parameter	Level	Unit
Information bit rate	144	kbps
DPCH	240	ksps
Slot Format #i	14	-
TFCI	On	
Power offsets PO1, PO2 and PO3	0	dB
DTX position	Fixed	-

Table C.3.3.1: DL reference measurement channel (144kbps)

# Table C.3.3.2: DL reference measurement channel using RLC-TM for DTCH, transport channel parameters (144 kbps)

Higher	RAB/Signalling RB	RAB	SRB
	Logical channel time	DTCH	DCCU
RLC			
	RLC mode	I IVI	UWAN
	Payload sizes, bit	2880	88/80
	Max data rate, bps	144000	2200/2000
	PDU header, bit	N/A	8/16
	TrD PDU header, bit	0	N/A
MAC	MAC header, bit	0	4
	MAC multiplexing	N/A	Yes
Layer 1	TrCH type	DCH	DCH
	Transport Channel Identity	6	10
	TB sizes, bit	2880	100
	TFS TF0, bits	0*2880	0*100
	TF1, bits	1*2880	1*100
	TTI, ms	20	40
	Coding type	Turbo Coding	Convolution Coding
	Coding Rate	N/A	1/3
	CRC, bit	16	12
	Maxnumber of bits/TTI after channel coding	8700	360
	RMattribute	256	256

Higher		RAB/Signalling RB	RAB	SRB
Layer				
RLC	Logical ch	annel type	DTCH	DCCH
	RLC mode	9	AM	UM/AM
	Payload s	izes, bit	2864	88/80
	Maxdata	rate, bps	143200	2200/2000
	PDU head	ler, bit	16	8/16
	TrD PDU	neader, bit	N/A	N/A
MAC	MAC head	ler, bit	0	4
	MAC mult	iplexing	N/A	Yes
Layer 1	TrCH type		DCH	DCH
	Transport	Channel Identity	6	10
	TB sizes,	bit	2880	100
	TFS	TF0, bits	0*2880	0*100
		TF1, bits	1*2880	1*100
	TTI, ms		20	40
	Coding typ	De	Turbo Coding	Convolution Coding
	Coding Ra	ate	N/A	1/3
	CRC, bit		16	12
	Maxnumb	er of bits/TTI after channel coding	8700	360
	RM attribu	te	256	256

## Table C.3.3.3: DL reference measurement channel using RLC-AM for DTCH, transport channel parameters (144 kbps)

#### Table C.3.3.4: DL reference measurement channel, TFCS (144 kbps)

TFCS size	4
TFCS	(DTCH, DCCH)=
	(TF0, TF0), (TF1, TF0), (TF0, TF1), (TF1, TF1)



Figure C.3.3 (informative): Channel coding of DL reference measurement channel (144 kbps)

## C.3.4 DL reference measurement channel (384 kbps)

The parameters for the DL reference measurement channel for 384 kbps are specified in table C.3.4.1, table C.3.4.2, table C.3.4.3 and table C.3.4.4. The channel coding is shown for information in figure C3.4. For the RLC configuration of AM DCCHs Timer\_STATUS\_Periodic shall not be set in RRC CONNECTION SETUP message used in test procedure for RF test as defined in TS 34.108 [3] clause 7.3. This is to prevent unexpected DCHs from being transmitted through such RLC entities when the timer has expired in order to sure that the required TFC from the minimum set of TFCs can continuously convey a DCH for DTCH during the test.

 Table C.3.4.1: DL reference measurement channel, physical parameters (384 kbps)

Parameter	Level	Unit
Information bit rate	384	kbps
DPCH	480	ksps
Slot Format #i	15	-
TFCI	On	-
Power offsets PO1, PO2 and PO3	0	dB
DTX position	Fixed	-

 Table C.3.4.2: DL reference measurement channel using RLC-TM for DTCH, transport channel parameters (384 kbps)

Higher Layer	RAB/Signalling RB	RAB	SRB
RLC	Logical channel type	DTCH	DCCH
	RLCmode	ТМ	UM/AM
	Payload sizes, bit	3840	88/80
	Max data rate, bps	384000	2200/2000
	PDU header, bit	N/A	8/16
	TrD PDU header, bit	0	N/A
MAC	MAC header, bit	0	4
	MAC multiplexing	N/A	Yes
Layer 1	TrCH type	DCH	DCH
	Transport Channel Identity	6	10
	TB sizes, bit	3840	100
	TFS TF0, bits	0*3840	0*100
	TF1, bits	1*3840	1*100
	TTI, ms	10	40
	Coding type	Turbo Coding	Convolution Coding
	Coding Rate	N/A	1/3
	CRC, bit	16	12
	Maxnumber of bits/TTI after channel coding	11580	360
	RMattribute	256	256

Higher	RAB/Signalling RB	RAB	SRB
Layer			
RLC	Logical channel type	DTCH	DCCH
	RLC mode	AM	UM/AM
	Payload sizes, bit	3824	88/80
	Max data rate, bps	382400	2200/2000
	PDU header, bit	16	8/16
	TrD PDU header, bit	N/A	N/A
MAC	MAC header, bit	0	4
	MAC multiplexing	N/A	Yes
Layer 1	TrCH type	DCH	DCH
	Transport Channel Identity	6	10
	TB sizes, bit	3840	100
	TFS TF0, bits	0*3840	0*100
	TF1, bits	1*3840	1*100
	TTI, ms	10	40
	Coding type	Turbo Coding	Convolution Coding
	Coding Rate	N/A	1/3
	CRC, bit	16	12
	Maxnumber of bits/TTI after channel coding	11580	360
	RMattribute	256	256

## Table C.3.4.3: DL reference measurement channel using RLC-AM for DTCH, transport channel parameters (384 kbps)

#### Table C.3.4.4: DL reference measurement channel, TFCS (384 kbps)



Figure C.3.4 (informative): Channel coding of DL reference measurement channel (384 kbps)

## C.3.5 DL reference measurement channel 2 (64 kbps)

The parameters for the DL reference measurement channel 2 for 64 kbps are specified in table C.3.5.1, table C.3.5.2 and table C.3.5.3. The channel coding is detailed in figure C.3.5. For the RLC configuration of AM DCCHs Timer\_STATUS\_Periodic shall not be set in RRC CONNECTION SETUP message used in test procedure for RF test as defined in TS 34.108 [3] clause 7.3. This is to prevent unexpected DCHs from being transmitted through such RLC entities when the timer has expired in order to sure that the required TFC from the minimum set of TFCs can continuously convey a DCH for DTCH during the test.

Table C.3.5.1: D	L reference	measurement	channel	physical	parameters	(64 kbps)
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Parameter	Unit	Level
Information bit rate (DTCH)	kbps	64
Information bit rate (DCCH)	kbps	3.4
DPCH	ksps	120
Slot Format #i	-	13
TFCI	-	On
Puncturing (DTCH)	%	8.6
Repetition (DCCH)	%	27.9

# Table C.3.5.2: DL reference measurement channel 2 using RLC-AM for DTCH, transport channel parameters (64 kbps)

Higher	RAB/Signalling RB	RAB	SRB
Layer			
RLC	Logical channel type	DTCH	DCCH
	RLCmode	AM	UM/AM
	Payload sizes, bit	320	136/128
	Max data rate, bps	64000	3400/3200
	PDU header, bit	16	8/16
	TrD PDU header, bit	N/A	N/A
MAC	MAC header, bit	0	4
	MAC multiplexing	N/A	Yes
Layer 1	TrCH type	DCH	DCH
	Transport Channel Identity	6	10
	TB sizes, bit	336	148
	TB set size, bit	1344	148
	TB per TTI	4	1
	TFS TF0, bits	0*336	0*148
	TF1, bits	1*336	1*148
	TF2, bits	4*336	
	TTI, ms	20	40
	Coding type	Turbo Coding	Convolution Coding
	Coding Rate	1/3	1/3
	CRC, bit	16	16
	Maxnumber of bits/TTI after channel coding	1068*4	516
	RMattribute	143	256

#### Table C.3.5.3: DL reference measurement channel 2, TFCS (64 kbps)

TFCS size	6
TFCS	(DTCH, DCCH)=
	(TF0, TF0), (TF1, TF0), (TF2, TF0), (TF0, TF1), (TF1, TF1)



Figure C.3.5 (informative): Channel coding of DL reference measurement channel 2 (64 kbps)

# C.4 Reference measurement channel for BTFD performance requirements

# C.4.1 UL reference measurement channel for BTFD performance requirements

The parameters for UL reference measurement channel for BTFD are specified in table C.4.1.1, table C.4.1.2, table C.4.1.3 and table C.4.1.4.

ГаЫе С.4.1.1: UI	_ reference	measurement	channel	physical	parameters for	BTFD
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Parameter	Level	Unit
Information bit rate	12.8k, 10.8k, 8.55k, 8.0k,	kbps
	7.3K, 6.5K, 5.75K, 5.35K, 2.55k	
DPCCH	15	kbps
DPCCH Slot Format #i	0	-
DPCCH/DPDCH power ratio	-5.46 (12.8k - 7.3k)	dB
	-2.69 (6.5k – 2.55k)	
TFCI	On	-
Puncturing Limit	100	%

Higher	RA	B/Signalling RB	SRB		
Layer					
RLC	C Logical channel type		DCCH		
	RLC mode	e	UWAM		
	Payload s	izes, bit	88/80		
	Maxdata	rate, bps	2200/2000		
	PDU head	ler, bit	8/16		
	TrD PDU	header, bit	N/A		
MAC	MAC header, bit MAC multiplexing		4		
			Yes		
Layer 1	TrCH type		DCH		
	Transport	Channel Identity	10		
	TB sizes,	bit	100		
	TFS	TF0, bits	0*100		
		TF1, bits	1*100		
	TTI, ms		40		
	Coding typ	De	Convolution Coding		
	Coding Ra	ate	1/3		
	CRC, bit		12		
	Maxnumb	per of bits/TTI after	360		
	channel c	oding			
	Uplink: Ma	axnumber of bits/radio	90		
	frame befo	ore rate matching			
	RM attribu	Ite	256		

Table C.4.1.2: UL reference measurement channel, transport channel parameters for SRB

Higher	RAB/Signalling		12.8k /10.8k/8.55k/8.0k/7.3k/6.5k/5.75k/5.35k/2.55k
Layer	RB		
RLC	C Logical channel type RLC mode		DTCH
			TM
	Payload s	sizes, bit	256, 216, 171, 160, 146, 130, 115, 107, 51, 12
	Maxdata	rate, bps	12200
	PDU hea	der, bit	N/A
	TrD PDU	header,	0
	bit		
MAC	MAC hea	der, bit	0
	MAC mul	tiplexing	N/A
Layer 1	TrCH type	Э	DCH
	Transport Channel Identity		1
	TB sizes, bit		256, 216, 171, 160, 146, 130, 115, 107, 51,12
F	TFS	TF0 bit	0x256
		TF1 bit	1x256
		TF2 bit	1x216
		TF3 bit	1x171
		TF4 bit	1x160
		TF5 bit	1x146
		TF6 bit	1x130
		TF7 bit	1x115
		TF8 bit	1x107
		TF9 bit	1x51
		TF10	1x12
		bit	
	TTI, ms		20
	Coding ty	pe	CC
	Coding R	ate	1/3
	CRC, bit		0
	RMattrib	ute	256

# Table C.4.1.3: UL reference measurement channel using RLC-TM for DTCH, transport channel parameters

#### Table C.4.1.4: UL reference measurement channel, TFCS

TFCS size	22
TFCS	(DTCH, DCCH)=
	(TF0, TF0), (TF1, TF0), (TF2, TF0), (TF3, TF0), (TF4, TF0), (TF5, TF0), (TF6, TF0), (TF7, TF0),
	(TF8, TF0), (TF9, TF0), (TF10, TF0), (TF0, TF1), (TF1, TF1), (TF2, TF1), (TF3, TF1), (TF4,
	TF1), (TF5, TF1), (TF6, TF1), (TF7, TF1), (TF8, TF1), (TF9, TF1), (TF10, TF1)

NOTE: The TFCs (TF0, TF0), (TF10, TF0) and (TF0, TF1) are belonging to minimum set of TFCs.

# C.4.2 DL reference measurement channel for BTFD performance requirements

The parameters for DL reference measurement channel for BTFD are specified in table C.4.2.1, table C.4.2.2, table C.4.2.3 and table C.4.2.4. The channel coding for information is shown in figures C.4.1, C.4.2, and C.4.3. For the RLC configuration of AM DCCHs Timer\_STATUS\_Periodic shall not be set in RRC CONNECTION SETUP message used in test procedure for RF test as defined in TS 34.108 [3] clause 7.3. This is to prevent unexpected DCHs from being transmitted through such RLC entities when the timer has expired in order to ensure that the required TFC from the minimum set of TFCs can continuously convey a DCH for DTCH during the test.

Parameter	Rate 1	Rate 2	Rate 3	Unit
Information bit rate	12,2	7,95	1,95	kbps
DPCH		ksps		
Slot Format #I	8		-	
TFCI		Off		-
Power offsets PO1, PO2 and PO3		dB		
DTX position		-		

Table C.4.2.1: DL	reference	measurement	channel	physical	parameters for BTFD
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Table C.4.2.2: DL	reference	measurement channel	. transı	oort channel	parameters for	SRB
			,		parametersion	

Higher	RAB/Signalling RB		SRB
Layer			
RLC	Logical channel type		DCCH
	RLCmode		UM/AM
	Payload sizes, bit		88/80
	Max data rate, bps		2200/2000
	PDU header, bit		8/16
	TrD PDU header, bit		N/A
MAC	MAC header, bit		4
	MAC multiplexing		Yes
Layer 1	TrCH type		DCH
	Transport Channel Identity		20
	TB sizes, bit		100
	TFS	TF0, bits	0*100
		TF1, bits	1*100
	TTI, ms		40
	Coding type		Convolution Coding
	Coding Rate		1/3
	CRC, bit		12
	Max number of bits/TTI after		360
	channel coding		
	Uplink: Max number of bits/radio		90
	trame before rate matching		
	RMattribute		256
Higher	RAB/Signalling RB	12.2k/10.2k/7.95k/7.4k/6.7k/5.9k/5.15k/4.75k/1.95k	
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Layer			
RLC	Logical channel	DTCH	
	type		
	RLCmode	ТМ	
	Payload sizes, bit	244, 204, 159, 148, 134, 118, 103, 95, 39	
	Max data rate, bps	12200	
	PDU header, bit	N/A	
	TrD PDU header,	0	
	bit		
MAC	MAC header, bit	0	
	MAC multiplexing	N/A	
Layer 1	TrCH type	DCH	
	Transport Channel	1	
	Identity		
	TB sizes, bit	244, 204, 159, 148, 134, 118, 103, 95, 39	
	TFS		
	TF0 bit	1x244	
	TF1 bit	1x204	
	TF2 bit	1x159	
	TF3 bit	1x148	
	TF4 bit	1x134	
	TF5 bit	1x118	
	TF6 bit	1x103	
	TF7 bit	1x95	
	TF8 bit	1x39	
	TTI, ms	20	
	Coding type	CC	
	Coding Rate	1/3	
	CRC, bit	12	
	RMattribute	256	

## Table C.4.2.3: DL reference measurement channel using RLC-TM for DTCH, transport channel parameters

#### Table C.4.2.4: DL reference measurement channel, TFCS

TFCS size	18
TFCS	(DTCH, DCCH)=
	(TF0, TF0), (TF1, TF0), (TF2, TF0), (TF3, TF0), (TF4, TF0), (TF5, TF0), (TF6, TF0), (TF7, TF0),
	(TF8, TF0), (TF0, TF1), (TF1, TF1), (TF2, TF1), (TF3, TF1), (TF4, TF1), (TF5, TF1), (TF6, TF1),
	(TF7, TF1), (TF8, TF1)



FigureC.4.1 (informative): Channel coding of DL reference measurement channel for BTFD (Rate 1)



Figure C.4.2 (informative): Channel coding of DL reference measurement channel for BTFD (Rate 2)



Figure C.4.3 (informative): Channel coding of DL reference measurement channel for BTFD (Rate 3)

# C.4.3 Reference parameters for discontinuous UL DPCCH transmission

The parameters for the UE UL power control operation with discontinuous UL DPCCH transmission test is specified in Table C.4.3.1. Same parameter values are used for 2ms and 10ms E-DCH TTI.

Parameter	Unit	Level
Enabling_Delay	Radio frames	0
UE_DTX_cycle_1	Subframes	10
UE_DTX_cycle_2	Subframes	10
UE_DTX_DRX_offset	Subframes	0
Inactivity_threshold_for_UE_DTX_cycle2	E-DCH TTI	1
UE_DPCCH_burst_1	Subframes	1
UE_DPCCH_burst_2	Subframes	1
UE_DTX_long_preamble_length	Slots	2
CQI Feedback cycle, k	Milliseconds	0
CQI_DTX_TIMER	Subframes	0

Table C.4.3.1: Parameters for the discontinuous UL DPCCH transmission

## C.5 DL reference compressed mode parameters

Parameters described in table C.5.1 are used in some test specified in TS 25.101 while parameters described in table C.5.2 are used in some tests specified in TS 25.133 [2].

Set 1 parameters in table C.5.1 are applicable when compressed mode by spreading factor reduction is used in downlink. Set 2 parameters in table C.5.1 are applicable when compressed mode by puncturing is used in downlink. Set 2 is applicable for Release 99 and Release 4 only.

Parameter	Set 1	Set 2	Set 2A	Note
TGSN (Transmission Gap Starting Slot Number)	11	11	4	
TGL1 (Transmission Gap Length 1)	7	7	7	
TGL2 (Transmission Gap Length 2)	-	-	7	For Set 1 and Set 2 only one gap in use.
TGD (Transmission Gap Distance)	0	0	15	Only one gap in use. For Set 1 and Set 2 UNDEFINED is used for TGD.
TGPL1 (Transmission Gap Pattern Length)	4	4	4	
TGPL2 (Transmission Gap Pattern Length)	-	-	-	R99 and Rel-4: Only one pattern in use. Rel-5 and later releases: Not applicable
TGPRC (Transmission Gap Pattern Repetition Count)	NA	NA	NA	Defined by higher layers
TGCFN (Transmission Gap Connection Frame Number):	NA	NA	0	Defined by higher layers
UL/DL compressed mode selection	DL & UL	DL & UL	DL & UL	2 configurations possible DL &UL / DL
UL compressed mode method	SF/2	SF/2	SF/2	
DL compressed mode method	SF/2	Puncturin g	SF/2	Compressed mode by puncturing is applicable for R99 and Rel-4 only.
Downlink Slot format	11B	11A	11B	Downlink frame type is specified per individual test. If it is not specified either downlink frame type A or B can be used
Scrambling code change	No	No	No	
RPP (Recovery period power control mode)	0	0	0	
ITP (Initial transmission power control mode)	0	0	0	

#### Table C.5.1: Compressed mode reference pattern 1 parameters

Parameter	Set 1	Set 2	Set 3	Set 4	Set 5	Note
TGSN (Transmission Gap Starting Slot Number)	4	4	10	8	10	
TGL1 (Transmission Gap Length 1)	7	7	10	14	10	
TGL2 (Transmission Gap Length 2)	-	-	-	-	-	Only one gap in use.
TGD (Transmission Gap Distance)	0	0	0	0	0	UNDEFINED is used for TGD.
TGPL1 (Transmission Gap Pattern Length)	3	12	11	4	8	
TGPL2 (Transmission Gap Pattern Length)	-	-	-	-	-	R99 and Rel-4: Only one pattern in use. Rel-5 and later releases: Not applicable
TGPRC (Transmission Gap Pattern Repetition Count)	NA	NA	NA	NA	NA	Defined by higher layers
TGCFN (Transmission Gap Connection Frame Number):	NA	NA	NA	NA	NA	Defined by higher layers
UL/DL compressed mode selection	DL & UL	DL & UL	DL & UL	DL & UL	DL & UL	2 configurations possible. DL & UL / DL
UL compressed mode method	SF/2	SF/2	SF/2	SF/2	SF/2	
DL compressed mode method	SF/2	SF/2	Puncturing	SF/2	SF/2	Compressed mode by puncturing is applicable for R99 and Rel-4 only.
Downlink and Slot format	11B	11B	11A	11B	11B	Downlink frame type is specified per individual test. If it is not specified either downlink frame type A or B can be used
Scrambling code change	No	No	No	No	No	
RPP (Recovery period power control mode)	0	0	0	0	0	
ITP (Initial transmission power control mode)	0	0	0	0	0	

Parameter	Set 1	Set 2	Set 3	Set 4	Note
TGSN (Transmission Gap Starting Slot Number)	8	8	8	8	
TGL1 (Transmission Gap Length 1)	14	14	14	14	
TGL2 (Transmission Gap Length 2)	-	-	-	-	Only one gap in use.
TGD (Transmission Gap Distance)	0	0	0	0	UNDEFINED is used for TGD.
TGPL1 (Transmission Gap Pattern Length)	8	24	24	24	
TGPRC (Transmission Gap Pattern Repetition Count)	NA	NA	NA	NA	Defined by higher layers
TGCFN (Transmission Gap Connection Frame Number):	0	4	12	20	
UL/DL compressed mode selection	DL & UL	DL & UL	DL & UL	DL & UL	2 configurations possible. DL & UL / DL
UL compressed mode method	SF/2	SF/2	SF/2	SF/2	
DL compressed mode method	SF/2	SF/2	SF/2	SF/2	
Downlink and Slot format	11B	11B	11B	11B	Downlink frame type is specified per individual test. If it is not specified either downlink frame type A or B can be used
Scrambling code change	No	No	No	No	
RPP (Recovery period power control mode)	0	0	0	0	
ITP (Initial transmission power control mode)	0	0	0	0	

Table C.5.3: Compre	ssed mode reference	pattern 3	parameters
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## C.6 Auxiliary measurement channels

## C.6.1 Introduction

BLER measurements for test cases where the UL data rate is less or equal to the DL data rate require that special auxiliary measurement channels (AUXMC) are used. This annex specifies the alternative auxiliary measurement channels and the UE test loop mode parameters to be used for the different UL and DL data rate combinations.

## C.6.2 Channel combinations for BLER measurements

Table C.6.2: BLER test method and measurement channels for BLER tests for UL DL data rate combinations

DL rate	UE UL	BLER	DL RMC	UL RMC	UEtest	Comments	
	RMC rate	Test			loop		
	capability	method			mode		
[kbps]	[kbps]				(Note 1)		
12.2	RMC 12.2	Loopback	DLTMRMC	UL TM AU XMC	2	Perform test in CS domain.	
		Data+CRC	12.2 kbps	12.2 kbps, no CRC			
			See C.3.1	See C.6.3			
64	RMC 12.2	AM	DLAMRMC	UL AM AU XMC	1	DL RLC SDU size=1248	
		ACK/NACK	64 kbps	12.2 kbps		UL RLC SDU size=0	
			See C.3.2	See C.6.7		See Note 2	
			5			Perform test in PS domain.	
64	RMC 12.2	AM	DLAMRMC		1	DL RLC SDU size=304	
		ACK/NACK	64 KDps	12.2 Kbps			
			See C.3.5	See C.6.8		See Note 5	
111	PMC 12.2	<u> </u>			1	DL DL C SDL sizo-2848	
144	RIVIC 12.2		1/1 khrs	12.2 kbps	1	UL RIC SDU size=2040	
		ACIVITACI	See C 3 3	See C. 6.7		See Note 3	
			000 0.0.0	000 0.0.1		Perform test in PS domain.	
384	RMC 12.2	АМ	DLAMRMC		1	DL RLC SDU size=3808	
		ACK/NACK	384 kbps	12.2 kbps		UL RLC SDU size=0	
			See C.3.4	See C.6.7		See Note 4	
						Perform test in PS domain.	
Note 1	See TS 34.10	9 [4] for details	regarding UE te	est loop modes. See TS	34.109 [4] A	Annex A.3 for description of	
	the BLER test	tmethod using	TM reference m	neasurement channel a	nd UE test lo	op mode 2 (Loopback	
	Data+CRC). S	See TS 34.109	[4] Annex A.2 fc	or BLER test method us	ing AM refer	ence measurement channels	
	and UE test lo	opmode1(AN	ACK/NACK).				
Note 2	The DL AM R	MC for 64 kbps	according to cl	ause C.3.2 table C.3.2.	3 has payloa	ad size = $1264$ bits and TTI =	
	20 ms. The S	S sends one R	LC SDU of size	1248 bits (payload size	of 1264 bits	– 16 bits for length indicator	
	and extension	bit) every dow	niink III (20 m	s). The UE test loop parts	rameter "UL	RLC SDU size" is set to u	
Noto 3		MC for 144 kbr		E Dullel Overliows.	2 has nove	ad size - 2864 bits and TTI	
NOIE 5	-20  ms The	SS sends one	RIC SDU of siz	ause 0.5.5 lable 0.5.	7e of 2864 hi	$a_{13126} = 2004$ bits and 111	
	- 20 ms. The SS series one RLC SDO of size 2040 bits (payload size of 2004 bits - 10 bits 101 leftigtin indicator and extension bit) every downlink TTL (20 ms). The LLE test loop parameter "III. DLC SDU size" is						
	set to 0 (no da	ata will be retur	ned) in order to	avoid UE buffer overflo	ws.		
Note 4	The DL AM R	MC for 384 kbr	os according to	clause C.3.4 table C.3.4	1.3 has a pay	load size of 3824 bits and a	
	TTI of 10 ms. The SS sends one RLC SDU of size 3808 bits (=payload size of 3824 bits - 16 bits for length						
	indicator and extension bit) every downlink TTI (10 ms). The UE test loop parameter "UL RLC SDU size" set						
	to 0 (no data will be returned) in order to avoid UE buffer overflows.						
Note 5	The DL AM R	MC for 64 kbps	s according to cl	ause C.3.5 table C.3.5.	2 has a payl	oad size of 320 bits and a	
	TTI of 20 ms.	The SS sends	one RLC SDU	of size 304 bits (=payloa	ad size of 32	0bits – 16 bits for length	
	indicator and	extension bit) e	every downlink T	TI (20 ms). The UE tes	t loop param	eter "UL RLC SDU size" set	
	to 0 (no data will be returned) in order to avoid UE buffer overflows.						

# C.6.3 UL auxiliary reference measurement channel (TM, 12.2 kbps, no CRC)

I Back an			DAD	000	
Higner		RAB/Signalling RB	RAB	SKB	
Layer					
RLC	Logical ch	annel type	DTCH	DCCH	
	RLC mode	)	TM	UM/AM	
	Payload si	zes, bit	260	88/80	
	Maxdatar	ate, bps	13000	2200/2000	
	PDU head	er, bit	N/A	8/16	
	TrD PDU h	neader, bit	0	N/A	
MAC	MAC head	er, bit	0	4	
	MAC multi	plexing	N/A	Yes	
Layer 1	TrCH type		DCH	DCH	
	Transport	Channel Identity	1	5	
	TB sizes, b	pit	260	100	
	TFS	TF0, bits	0*260	0*100	
		TF1, bits	1*260	1*100	
	TTI, ms		20	40	
	Coding typ	e	Convolution Coding	Convolution Coding	
	Coding Ra	te	1/3	1/3	
	CRC, bit		0	12	
	Maxnumb	er of bits/TTI after channel coding	804	360	
	Uplink: Ma rate match	x number of bits/radio frame before ing	402	90	
	RM attribu	te	256	256	

#### Table C.6.3: UL AUXMC TM 12.2 kbps (13 kbps), no CRC

# C.6.3A UL auxiliary reference measurement channel (TM, 0 kbps and 12.2 kbps, no CRC)

Table C.6.3A: UL	LAUXMCTM0kbps	(400 bps) and 12.2	: kbps (13 kbps), r	10 CRC
------------------	---------------	--------------------	---------------------	--------

Higher Laver		RAB/Signalling RB	RAB	SRB
RLC	Logical cha	annel type	DTCH	DCCH
	RLCmode		TM	UM/AM
	Payload size	zes, bit	260/16	88/80
	Max data r	ate, bps	13000/400	2200/2000
	PDU head	er, bit	N/A	8/16
	TrD PDU h	ieader, bit	0	N/A
MAC	MAC head	er, bit	0	4
	MAC multi	plexing	N/A	Yes
Layer 1	TrCH type		DCH	DCH
	Transport	Channel Identity	1	5
	TB sizes, b	bit	260	100
	TFS	TF0, bits	0*260	0*100
		TF1, bits	1*260	1*100
		TF2, bits	1*16	-
	TTI, ms		20	40
	Coding typ	e	Convolution Coding	Convolution Coding
	Coding Ra	te	1/3	1/3
	CRC, bit		0	12
	Maxnumb	er of bits/TTI after channel coding	804	360
	Uplink: Ma	x number of bits/radio frame before	402	90
	rate match	ing		
	RM attribut	e	256	256

C.6.4	Void	
		Table C.6.4: Void
C.6.5	Void	
		Table C.6.5: Void
C.6.6	Void	
		Table C.6.6: Void

## C.6.7 UL AUXMC AM 12.2 kbps

Higher Layer		RAB/Signalling RB	RAB	SRB
RLC	Logical cha	annel type	DTCH	DCCH
	RLC mode		AM	UM/AM
	Payload siz	zes, bit	224	88/80
	Max data ra	ate, bps	11200	2200/2000
	PDU heade	er, bit	16	8/16
	TrD PDU h	eader, bit	N/A	N/A
MAC	MAC header, bit		0	4
	MAC multiplexing		N/A	Yes
Layer 1	TrCH type		DCH	DCH
	Transport Channel Identity		1	5
	TB sizes, b	it	240	100
	TFS	TF0, bits	0*240	0*100
		TF1, bits	1*240	1*100
	TTI, ms		20	40
	Coding type	e	Convolution Coding	Convolution Coding
	Coding Ra	te	1/3	1/3
	CRC, bit Max number of bits/TTI after channel coding		16	12
			792	360
	Uplink: Ma: rate matchi	x number of bits/radio frame before ing	396	90
	RMattribut	e	256	256

#### Table C.6.7: UL AUXMC AM 12.2 kbps (11.2 kbps)

1595

## C.6.8 UL AUXMC AM 12.2 kbps(DCCH with TB size of 148bit)

#### Table C.6.8: UL AUXMC AM 12.2 kbps (11.2 kbps) (DCCH with TB size of 148bit)

Higher Layer		RAB/Signalling RB	RAB	SRB
RLC	Logical cha	annel type	DTCH	DCCH
	RLC mode		AM	UM/AM
	Payload sizes, bit		224	136/128
	Maxdatara	ate, bps	11200	3400/3200
	PDU heade	er, bit	16	8/16
	TrD PDU h	eader, bit	N/A	N/A
MAC	MAC header, bit MAC multiplexing		0	4
			N/A	Yes
Layer 1	TrCH type		DCH	DCH
	Transport Channel Identity		1	5
	TB sizes, b	it	240	148
	TFS	TF0, bits	0*240	0*148
		TF1, bits	1*240	1*148
	TTI, ms		20	40
	Coding type	e	Convolution Coding	Convolution Coding
	Coding Ra	te	1/3	1/3
	CRC, bit		16	16
	Maxnumb	er of bits/TTI after channel coding	792	516
	Uplink: Ma:	x number of bits/radio frame before	396	129
	rate matchi	ng		
	RMattribut	e	256	256

## C.7 DL reference parameters for PCH tests

The parameters for the PCH demodulation tests are specified in table C.7.1 and table C.7.2.

#### Table C.7.1: Physical channel parameters for S-CCPCH

Parameter	Unit	Level
Channel bit rate	Kbps	60
Channel symbol rate	Ksps	30
Slot Format #I	-	4
TFCI	-	OFF
Power offsets of TFCI and Pilot fields relative to data field	dB	0

#### Table C.7.2: Transport channel parameters for S-CCPCH

Parameter	PCH
Transport Channel Number	1
Transport Block Size	240
Transport Block Set Size	240
Transmission Time Interval	10 ms
Type of Error Protection	Convolution Coding
Coding Rate	1/2
Rate Matching attribute	256
Size of CRC	16
Position of TrCH in radio frame	fixed

## C.8 DL reference channel parameters for HSDPA tests

### C.8.1 Fixed Reference Channel (FRC)

### C.8.1.1 Fixed Reference Channel Definition H-Set 1/1A/1B/1C

#### Table C.8.1.1: Fixed Reference Channel H-Set 1/1A/1B/1C

	Parameter	Unit	Va	lue		
Nominal	Avg. Inf. Bit Rate	kbps	534	777		
Inter-TTI	Distance	TTI's	3	3		
Number	Number of HARQ Processes		2	2		
		ses	2	2		
Informati	on Bit Payload ( $N_{{\scriptscriptstyle I\!N\!F}}$ )	Bits	3202	4664		
Number	Code Blocks	Blocks	1	1		
Binary C	hannel Bits Per TTI	Bits	4800	7680		
Total Ava	ailable SML's in UE	SML's	19200	19200		
Number	of SML's per HARQ Proc.	SML's	9600	9600		
Coding F	Rate		0.67	0.61		
Number	Number of Physical Channel Codes		5	4		
Modulati	on		QPSK	16QAM		
Note:	The HS-DSCH shall be transmitte	d continuo	usly with co	onstant		
	power but only every third TTI sha	II be alloca	ited to the	UE		
	under test. The values in the table	defines H	-Set 1. H-S	Set 1A for		
	DC-HSDPA and DB-DC-HSDPA is	s formed b	y applying	H-Set 1		
to each of the carriers available in DC-HSDPA and DB-DC-						
HSDPA mode. H-Set 1B and H-Set 1C for 4C-HSDPA are						
	formed by applying H-Set 1 to each of the carriers available in					
	4C-HSDPA mode (3 carriers for H Set 1C).	-Set 1B an	d 4 carrier	s for H-		

Inf. Bit Payload [	3202				
CRC Addition	3202	24 CRC			
Code Block Segmentation	3226				
Turbo-Encoding (R=1/3)			9678		12 Tail Bit
1st Rate Matching			9600		
RV Selection		4800		]	
Physical Channel Segmentation	960				



Inf. Bit Payload	4664				
CRC Addition	4664	24 CRC			
Code Block Segmentation	4688				
Turbo-Encoding (R=1/3)			14064	12 Ta	ail Bits
1st Rate Matching			9600		
RV Selection		7680			
Physical Channel Segmentation	1920				

#### Figure C.8.2: Coding rate for Fixed reference Channel H-Set 1 (16 QAM)

### C.8.1.2 Fixed Reference Channel Definition H-Set 2

#### Table C.8.1.2: Fixed Reference Channel H-Set 2

Parameter	Unit	Va	lue	
Nominal Avg. Inf. Bit Rate	kbps	801	1166	
Inter-TTI Distance	TTI's	2	2	
Number of HARQ Processes	Processes	3	3	
Information Bit Payload ( $N_{INF}$ )	Bits	3202	4664	
MAC-d PDU size	Bits	336	336	
Number Code Blocks	Blocks	1	1	
Binary Channel Bits Per TTI	Bits	4800	7680	
Total Available SML's in UE	SML's	28800	28800	
Number of SML's per HARQ Proc.	SML's	9600	9600	
Coding Rate		0.67	0.61	
Number of Physical Channel Codes	Codes	5	4	
Modulation		QPSK	16QAM	
Note: The HS-DSCH shall be transmitted continuously with constant power but only ever y second TTI shall be allocated to the UE under test				

Inf. Bit Payload [	3202				
CRC Addition	3202	24 CRC			
Code Block Segmentation	3226				
Turbo-Encoding (R=1/3)			9678		12 Tail Bits
1st Rate Matching			9600		
RV Selection		4800		]	
Physical Channel Segmentation	960				



Inf. Bit Payload	4664				
CRC Addition	4664	24 CRC			
Code Block Segmentation	4688				
Turbo-Encoding (R=1/3)			14064		12 Tail Bits
1st Rate Matching			9600		
RV Selection		7680		]	
Physical Channel Segmentation	1920				



### C.8.1.3 Fixed Reference Channel Definition H-Set 3/3A/3B/3C

Parameter	Unit	Va	lue	
Nominal Avg. Inf. Bit Rate	kbps	1601	2332	
Inter-TTI Distance	TTľs	1	1	
Number of HARQ Processes	Processes	6	6	
Information Bit Payload ( $N_{\rm INF}$ )	Bits	3202	4664	
Number Code Blocks	Blocks	1	1	
Binary Channel Bits Per TTI	Bits	4800	7680	
Total Available SML's, in UE	SML's	57600	57600	
Number of SML's per HARQ Proc.	SML's	9600	9600	
Coding Rate		0.67	0.61	
Number of Physical Channel Codes	Codes	5	4	
Modulation		QPSK	16QAM	
Note: The values in the table defines H-Set 3. H-Set 3A for DC- HSDPA and DB-DC-HSDPA is formed by applying H-Set 3 to each of the carriers available in DC-HSDPA and DB-DC- HSDPA mode. H-Set 3B and H-Set 3C for4C-HSDPA are formed by applying H-Set 3 to each of the carriers available in 4C-HSDPA mode (3 carriers for H-Set 3B and 4 carriers for H-Set 3C).				

Table C.8.1.3: Fixed Reference Channel H-Set 3/3A/3B/3C

Inf. Bit Payload [	3202				
CRC Addition	3202	24 CRC			
Code Block Segmentation	3226				
Turbo-Encoding (R=1/3)			9678		12 Tail Bits
1st Rate Matching			9600		
RV Selection		4800		]	
Physical Channel Segmentation	960				



г		_			
Inf. Bit Payload	4664				
r					
CRC Addition	4664	24 CRC			
Codo Block					
COUE BIOCK	4688				
Segmentation					
Turbo-Encoding			14064		12 Toil Pito
(R=1/3)			14004		
A.C. D.C. Matching					]
1st Rate Matching			9600		
г				-	
RV Selection		7680			
-				-	
Physical Channel					
Segmentation	لال 1920				

Figure C.8.6: Coding rate for Fixed reference Channel H-Set 3 (16QAM)

### C.8.1.4 Fixed Reference Channel Definition H-Set 4

Table C.8.1.4: Fixed Re	ference Channel H-Set 4
-------------------------	-------------------------

Parameter	Unit	Value		
Nominal Avg. Inf. Bit Rate	kbps	534		
Inter-TTI Distance	TTI's	2		
Number of HARQ Processes	Processes	2		
Information Bit Payload ( $N_{INF}$ )	Bits	3202		
MAC-d PDU Size	Bits	336		
Number Code Blocks	Blocks	1		
Binary Channel Bits Per TTI	Bits	4800		
Total Available SML's in UE	SML's	14400		
Number of SML's per HARQ Proc.	SML's	7200		
Coding Rate		0.67		
Number of Physical Channel Codes	Codes	5		
Modulation		QPSK		
Note: Inis FRC is used to verify the minimum inter-TIT distance for UE category 11. The HS-PDSCH shall be transmitted continuously with constant power. The six sub-frame HS-SCCH signalling pattern shall repeat as follows: OOXOXOOOXOXO, where 'X' marks TTI in which HS-SCCH uses the identity of the UE under				
test and 'O' marks TTI in which HS-SCC	Huses a different ic	lentity.		

Inf. Bit Payload	3202				
CRC Addition	3202	24 CRC			
Code Block Segmentation	3226				
Turbo-Encoding (R=1/3)			9678		12 Tail Bits
1st Rate Matching		7200			
RV Selection		4800			
Physical Channel Segmentation	960				

#### Figure C.8.7: Coding rate for Fixed Reference Channel H-Set 4

### C.8.1.5 Fixed Reference Channel Definition H-Set 5

		Parameter		Unit	Value	
	Nominal Avg.	Inf. Bit Rate		kbps	801	
	Inter-TTI Dista	ince		TTľs	1	
	Number of HA	RQ Processes		Processes	3	
	Information Bi	t Payload (N <sub>INF</sub> )		Bits	3202	
	MAC-d PDU S	bize		Bits	336	
	Number Code	Blocks		Blocks	1	
	Binary Chann	el Bits Per TTI		Bits	4800	
	Total Available	e SML's in UE		SML's	28800	
	Number of SM	L's per HARQ Proc.		SML's	9600	
	Coding Rate				0.67	
	Number of Ph	ysical Channel Codes		Codes	5	
	Modulation				QPSK	
In (	HS HS ( wh 'O' of. Bit Payload CRC Addition Code Block	-PDSCH shall be transmit -SCCH signalling patterns IOXXXOOOXXXO, ere 'X' marks TTI in which marks TTI in which HS-SC 3202 24 3226	ted continuou shall repeat a HS-SCCH us <u>CCH uses a d</u> CRC	usly with constant pow s follows: ses the identity of the l lifferent identity.	er. The six sub-frame JE under test and	
Tur	bo-Encodina					
	(R=1/3)		9	678	12 Tail Bit	ts
1st F	Rate Matching			9600		
F	RV Selection	48	00			
Physic Segr	al Channel	960				

Table C.8.1.5: Fixed Reference Channel H-Set 5



### C.8.1.6 Fixed Reference Channel Definition H-Set 6/6A/6B/6C

Γ	Parameter	Unit	Va	ue	
F	Nominal Avg. Inf. Bit Rate	kbps	3219	4689	
	Inter-TTI Distance	TTI's	1	1	
-	Number of HARQ Processes	Proces ses	6	6	
-	Information Bit Payload $(N_{INF})$	Bits	6438	9377	
F	Number Code Blocks	Blocks	2	2	
	Binary Channel Bits Per TTI	Bits	9600	15360	
F	Total Available SML's in UE	SML's	115200	115200	
	Number of SML's per HARQ Proc.	SML's	19200	19200	
F	Coding Rate		0.67	0.61	
	Number of Physical Channel Codes	Codes	10	8	
	Modulation		QPSK	16QAM	
	formed by applying H-Set 6 to eac 4C-HSDPA mode (3 carriers for H Set 6C).	h of the ca -Set 6B an	rriers avail d 4 carrier	ale able in s for H-	
Inf. Bit Payloa	ad 6438				
CRC Additio	n 6438 24 CRC				
Code Block Segmentatio	n 3231				
Turbo-Encodin (R=1/3)	g9693	3			12 Tail Bits
1st Rate Matchi	ng 960	00			
<b>RV</b> Selection	ר <u>4800</u>				

#### Table C.8.1.6: Fixed Reference Channel H-Set 6/6A/6B/6C



#### Figure C.8.9: Coding rate for Fixed reference Channel H-Set 6 (QPSK)

Inf. Bit Payload	9377	]			
CRC Addition	9377	24 CRC			
Code Block Segmentation	4701				
Turbo-Encoding (R=1/3)			14103		12 Tail Bits
1st Rate Matching			9600		
RV Selection		7680		]	
Physical Channel Segmentation	1920				



### C.8.1.7 Fixed Reference Channel Definition H-Set 7

#### Table C.8.1.7: Fixed Reference Channel H-Set 7

Parameter	Unit	Value		
Nominal Avg. Inf. Bit Rate	kbps	37.8		
Inter-TTI Distance	TTI's	8		
Information Bit Payload ( $N_{INF}$ )	Bits	605		
Number Code Blocks	Blocks	1		
Binary Channel Bits Per TTI	Bits	960		
Coding Rate		0.66		
Number of Physical Channel Codes	Codes	1		
Modulation		QPSK		
Note: This FRC is used to verify CPC operation. The HS-DSCH shall				
be transmitted continuously with constant power but only every				
8th TTI shall be allocated to the U	JE under test.			

Inf. Bit Payload	605	]		
CRC Addition	605	24 CRC		
Code Block Segmentation	629			
Turbo-Encoding (R=1/3)		188	7	12 Tail Bits
1st Rate Matching		18	99	
RV Selection	960		]	
Physical Channel [	960		]	

Figure C.8.11: Coding rate for Fixed Reference Channel H-Set 7 (QPSK)

### C.8.1.8 Fixed Reference Channel Definition H-Set 8/8A/8B/8C

	Parameter	Unit	Value			
	Nominal Avg. Inf. Bit Rate	kbps				
			132	252		
	Inter-TTI Distance	TTI's	1			
	Number of HARQ Processes	Proces	6			
		Ses	0.05	0.4		
	Information Bit Payload ( $N_{INF}$ )	Bits	265	04		
	Number Code Blocks	Blocks	6			
	Binary Channel Bits Per TTI	Bits	432	200		
	Total Available SML's in UE	SML's	259200	264000		
	Number of SML's per HARQ Proc.	SML's	43200	44000		
	Coding Rate		0.61	0.60		
	Number of Physical Channel Codes	Codes	1:	5		
	Modulation		64Q	AM		
	Note 1: The values in the table define H-Set	8. H-Set 8/	A for DC-H	SDPA		
	and DB-DC-HSDPA is formed by app	lying H-Se	t 8 to each	of the		
	carriers available in DC-HSDPA and I	DB-DC-HS	SDPAmode	e. H-Set		
	8B and H-Set 8C for 4C-HSDPA are f	ormed by	applying H	-Set 8 to		
	each of the carriers available in 4C-H	SDPAmo	de (3 carne	rs for H-		
	Noto 2: If "Total number of off channel bits"			antina		
	is equal to 250200, set "Number of SI	ds µei⊓o∙ Mi'e nor ⊔		" Ac		
	43200 using an implicit LE IP Buffer 9	vi∟ s per ri Sizo Alloca	tion	13		
	If "Total number of soft channel bits" i	s larger the	an or equal	to		
	264000 set "Number of SMI 's per H	ARO Proc <sup>3</sup>	' As 44000	usina		
	an explicit UE IR Buffer Size Allocatio	n	/8 11000	doing		
l						
Inf Bit Payload	26504					
III . Dit i ayload						
CRC Addition	26504 24 CRC					
Code Block						
Segmentation						•
Turbo - Encodina						
(R = 1/3)	13266				12	Tail Bits
1 st Rate Matching	7200					
<b>RV</b> Selection	7200	44				
Physical Channel						
Segmentation						
	۳ ۲۰۰۰ ۲۰۰۰					

#### Table C.8.1.8: Fixed Reference Channel H-Set 8/8A/8B/8C



Release 11

Physical Channel Segmentation

**RV** Selection

1920

### C.8.1.9 Fixed Reference Channel Definition H-Set 9/9A/9B/9C

Γ	Parameter	Unit	V	alue		
	Transport block		Primary	Secondary		
	Combined Nominal Avg. Inf. Bit Rate		1:	3652		
	Nominal Avg. Inf. Bit Rate	kbps	8784	4868		
	Inter-TTI Distance	TTľs	1	1		
	Number of HARQ Processes	Proces ses	6	6		
	Information Bit Payload ( $N_{INF}$ )	Bits	17568	9736		
	Number Code Blocks	Blocks	4	2		
	Binary Channel Bits Per TTI	Bits	28800	14400		
	Total available SML's in UE	Bits	34	5600		
-	Number of SML's per HARQ Proc.	SML's	28800	28800		
	Coding Rate		0.61	0.68		
	Number of Physical Channel Codes	Codes	15	15		
	Modulation		16QAM	QPSK		
	HSDPA and DB-DC-HSDPA mode HSDPA are formed by applying H available in 4C-HSDPA mode (3 c carriers for H-Set 9C).	HSDPA and DB-DC-HSDPA mode. H-Set 9B and H-Set 9C for 4C- HSDPA are formed by applying H-Set 9 to each of the carriers available in 4C-HSDPA mode (3 carriers for H-Set 9B and 4 carriers for H-Set 9C).				
Inf . Bit Payload	17568					
CRC Addition	17568 24 CRC					
Code Block Segmentation	4398					
Turbo - Encoding (R = 1/3)	1319	4			12 Tail Bits	
1 st Rate Matching	720	00				

#### Table C.8.1.9: Fixed Reference Channel H-Set 9/9A



7200

1604



Figure C.8.14: Coding rate for Fixed Reference Channel H-Set 9/9A Secondary Transport Block

### C.8.1.10 Fixed Reference Channel Definition H-Set 10/10A/10B/10C

Table	C.8.1.10:	Fixed F	Reference	Channel	H-Set	10/10A/	10B/1	0C

Parameter	Unit	V	alue				
Nominal Avg. Inf. Bit Rate	Kbps	8774	4860				
Inter-TTI Distance	TTI's	1	1				
Number of HARQ Processes	Proces	6	6				
	ses						
Information Bit Payload	Bits	17548	9719				
Number Code Blocks	Blocks	4	2				
Binary Channel Bits Per TTI	Bits	28800	14400				
Number of SML's per HARQ Proc.	SML's	28800	28800				
Coding Rate		0.6	0.67				
Number of Physical Channel Codes	Codes	15	15				
Modulation		16QAM	QPSK				
Note:       The values in the table defines H-Set 10. H-Set 10A for DC-HSDPA and DB-DC-HSDPA is formed by applying H-Set 10 to each of the carriers available in DC-HSDPA and DB-DC-HSDPA mode. H-Set 10B and H-Set 10C for 4C-HSDPA are formed by applying H-Set 10 to each of the carriers available in 4C-HSDPA are formed by applying H-Set 10 to each of the carriers available in 4C-HSDPA							







Figure C.8.16: Coding rate for Fixed Reference Channel H-Set 10 (QPSK)

### C.8.1.11 Fixed Reference Channel Definition H-Set 11/11A/11B/11C

	Parameter				V	alue	
	Transport l	block			Primary	Secondary	
	Combined	Nominal A	vg. Inf. Bit Rate		2	2074	
	Nominal A	vg. Inf. Bit I	Rate	kbps	13300	8774	
	Inter-TTI D	istance		TTI's	1	1	
	Number of	HARQ Pro	ocesses	Proces	6	6	
				Ses	00504	17500	
	Informatior	n Bit Payloa	ad ( $N_{_{I\!N\!F}}$ )	Bits	26504	17568	
	Number Co	ode Blocks		Blocks	6	4	
	Binary Cha	annel Bits F	Per TTI	Bits	43200	28800	
	Total availa	able SML's	in UE	Bits	51	8400	
	Number of	SML's per	HARQ Proc.	SML's	43200	43200	
	Coding Ra	ite			0.61	0.6	
	Number of	Physical C	Channel Codes	Codes	15	15	
	Modulation	) <del>-</del>			64QAM	16QAM	
Inf . Bit Payload CRC Addition Code Block Segmentation	Note:	The values HSDPA is available ir H-Set 11C Set 11C to carriers for 26504 26504 4422	in the table defines H- formed by applying H-S n DC-HSDPA and DB-E for 4C-HSDPA are form each of the carriers av H-Set 11B and 4 carrie	Set 11. H-S Set 11 to ea OC-HSDPA ned by app ailable in 4 ers for H-So	Set 11A for ach of the c mode. H-S lying H-Se C-HSDPA et 11C).	DC- arriers Set 11B and at 11 and H- mode (3	
Turbo - Encoding (R = 1/3)			13266				Tail Bits
1st Rate Matching			7200	)			
<b>RV</b> Selection			7200	]//			
Physical Channel Segmentation	2880						

#### Table C.8.1.11: Fixed Reference Channel H-Set 11/11A





Figure C.8.18: Coding rate for Fixed Reference Channel H-Set 11/11A Secondary Transport Block

### C.8.1.12 Fixed Reference Channel Definition H-Set 12

	Parameter	Unit	Value					
Nominal	Avg. Inf. Bit Rate	kbps	60					
Inter-TTI	Distance	TTľs	1					
Number	of HARQ Processes	Proces	6					
		ses	0					
Informati	on Bit Payload ( $N_{\rm INF}$ )	Bits	120					
Number	Code Blocks	Blocks	1					
Binary Cl	hannel Bits Per TTI	Bits	960					
Total Ava	ailable SML's in UE	SML's	19200					
Number	of SML's per HARQ Proc.	SML's	3200					
Coding F	Rate		0.15					
Number	of Physical Channel Codes	Codes	1					
Modulatio	on		QPSK					
Note 1:       The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table.         Note 2:       Maximum number of transmission is limited to 1, i.e., retransmission is not allowed.								

#### Table C.8.1.12: Fixed Reference Channel H-Set 12

Inf. Bit Payload	120				
CRC Addition	120	24 CRC			
Code Block Segmentation	144				
Turbo-Encoding (R=1/3)			432		12 Tail Bits
1st Rate Matching			432		
RV Selection		960		]	
Physical Channel Segmentation	960				

Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

# C.9 Downlink reference channel dummy DCCH transmission on DCH

Many test cases have been designed to have continuous downlink DCCH transmission on DCH. The DCCH is carrying SRBs. When there are no signalling messages to be transmitted on downlink DCCH then dummy DCCH messages shall be transmitted on the downlink.

For all test cases with continuous downlink DCCH transmission on DCH the format of the dummy DCCH message is using an invalid MAC header with the value "1111" for the C/T field. The UE shall discard PDU's with this invalid MAC header according to TS 25.321. This applies for cases where a MAC header is used to distinguish between several logical channels. In the case of the reference measurement channels the SRBs on DCH use a 4 bit MAC header.

## C.9A MAC header transmission on HS-DSCH

For all test cases with HS-DSCH transmission either a correct MAC-hs header consistent with the actual HSDPA transmission is used or an inconsistent MAC-hs header with the value "111" for the SID field is used. If an inconsistent MAC-hs header is used, then the UE shall discard PDU's according to TS 25.321[13] section 10. For other fields the MAC-hs header shall be set according to the HS-DSCH configuration configured by RRC and the actual HS-DSCH transmission in order to avoid unspecified UE behaviour.

## C.10 UL reference channel parameters for HSDPA tests

This annex specifies the UL reference channels in for HSDPA test cases and the UE test loop mode parameters to be used when the UL reference measurement channel (12.2 kbps) from C.2.1 does not support the required test conditions. Transmitter characteristics tests with HS-DPCCH require continuous transmission and test loop operation on UL DPCH.

## C.10.1 UL reference measurement channel for HSDPA tests

Table C.10.1.1 to C.10.1.4 are applicable for tests on Transmitter Characteristics with HSDPA in clauses 5.2A, 5.2C, 5.2AA, 5.7A, 5.9A, 5.10A, 5.13.1A and 5.13.1AA.

#### Table C.10.1.1: UL reference measurement channel physical parameters (12.2 kbps) for HSDPA tests

	Parameter	Level	Unit		
DPCCH/D	PDCH power ratio	-5.46 (Note 1)	dB		
Note 1: The power ratio for transmitter characteristics testing with HS-DPCCH deperture on the beta values given in table C.10.1.4.					
Note 2:	With the exception of the other parameters are defi C.2.1, table C.2.1.1.	DPCCH/DPDCH power ratio ned in UL referenœ measure	parameter in this table all ement channel in clause		

## Table C.10.1.2: UL reference measurement channel, transport channel parameters (12.2 kbps) for HSDPA

Higher Layer	RAB/Signalling RB	RAB	SRB
Note:	As defined in UL reference measurement chann	el in clause C.2.1, table C	C.2.1.2.

#### Table C.10.1.3: UL reference measurement channel, TFCS (12.2 kbps) for HSDPA

Note: As defined in UL reference measurement channel in clause C.2.1, table C.2.1.3.

Sub-test	βc	βa	β <sub>d</sub> (SF)	β σ/β a	βнs (Note1, Note 2)	<b>CM (dB)</b> (Note 3)	MPR (dB) (Note 3)					
1	2/15	15/15	64	2/15	4/15	0.0	0.0					
2	12/15	15/15	64	12/15	24/15	1.0	0.0					
	(Note 4)	(Note 4)		(Note 4)								
3	15/15	8/15	64	15/8	30/15	1.5	0.5					
4	15/15	4/15	64	15/4	30/15	1.5	0.5					
Note 1: $\Delta_{AC}$ Note 2: For Main c $\beta_{A}$	Note 1: $\Delta_{ACK}$ , $\Delta_{NACK}$ and $\Delta_{CQI} = 30/15$ with $\beta_{hs} = 30/15 * \beta_c$ . Note 2: For the HS-DPCCH power mask requirement test in clause 5.2C, 5.7A, and the Error Vector Magnitude (EVM) with HS-DPCCH test in clause 5.13.1A, and HSDPA EVM with phase discontinuity in clause 5.13.1AA, $\Delta_{ACK}$ and $\Delta_{NACK} = 30/15$ with $\beta_{hs} = 30/15 * \beta_c$ , and $\Delta_{CQI} = 24/15$ with											
<ul> <li>β<sub>hs</sub> = 24/15 * β<sub>c</sub>.</li> <li>Note 3: CM = 1 for β<sub>c</sub>/β<sub>d</sub> =12/15, β<sub>hs</sub>/β<sub>c</sub>=24/15. For all other combinations of DPDCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.</li> <li>Note 4: For subtest 2 the β<sub>c</sub>/β<sub>d</sub> ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to β<sub>c</sub> = 11/15 and β<sub>d</sub> = 15/15.</li> </ul>												

## C.11 Reference channel parameters for E-DCH tests

This annex specifies the reference channel parameters for E-DCH test cases.

### C.11.1 UL reference measurement channel for E-DCH tests

On uplink E-DCH the MAC-d flow parameters and the physical channel parameters according to default Radio Bearer Setup message of section 9.2.1 of TS 34.108 are used. On uplink DCH the reference measurement channel according to section C.2.1 is used with the exception that for transmitter characteristics tests the DPCCH/DPDCH power ratio depends on the beta values given in table C.11.1.3. For transmitter characteristics tests the beta values on all uplink channels according to table C.11.1.3. are used.

#### Table C.11.1.1: Void

#### Table C.11.1.2: Void

βc	βd	βd	β₀/β₀	βнѕ	βec	$\beta_{ed}$	βed	$\beta_{ed}$	СМ	MPR	AG	E-
		(SF)	•••	(Note1)	•	(Note 4)	(SF)	(Codes)	(dB)	(dB)	Index	TFCI
						(Note 5)			(Note	(Note	(Note	
									2)	2)	5)	
										(Note 6)		
11/15	15/15	64	11/15	22/15	209/2	1309/225	4	1	1.0	0.0	20	75
(Note 3)	(Note		(Note		25							
	3)		3)									
6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
15/15	9/15	64	15/9	30/15	30/15	β <sub>ed</sub> 1: 47/15	4	2	2.0	1.0	15	92
						β <sub>ed</sub> 2: 47/15	4					
2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
15/15	0	-	-	5/15	5/15	47/15	4	1	1.0	0.0	12	67
Forsu	ub-test 1	to 4, Δ <sub>Α</sub>	.ck, $\Delta_{\sf NACK}$	and $\Delta_{CC}$	a = 30/15	5 with $\beta_{hs}$ = 3	0/15 *	$eta_c$ . For s	ub-test5	$5, \Delta_{ACK}, \Delta_{5}$	NACK and	$\Delta_{CQI} =$
5/15 v	with $\beta_{hs}$ =	= 5/15 *	$\beta_c$ .									
CM-	1 for 8./8	<sub>→</sub> –12/1	5 Bha/Ba	-24/15	For all off	her combinatio	ons of		DPCCH	HS- DP	CH E-	росн
and F		the MF	PR is has	-2 - 7 10.1	e relative	CM difference	5115 OT	Di Don, i	001,		JOI 1, L L	0 0011
Forsi	ihtest 1 th		ratio of	11/15 fo	r the TFC	during the m	easure	ment ner	iod (TF1	TF0) is	achieved	l hv
sotting	the sign	alled o	ain facto	re for the		TFC (TF1	TE1) to	о В. <b>–</b> 10/1	5 and B	, 11 0) 10 . – 15/15		, by
· In cae	a of testi	na hvl	IF using		H Physic	cento (nn, callaver cate	$a o r \sqrt{1}$	Sub-test	3 is om i	tted acm	rdina to	
TS25	306 Tabl	e 5 1 a	/L using		///////////////////////////////////////		gory	, Oub 1031	0 15 0111			
Bed Cal	n not he	set dire	ectly: it is	set hy A	hsolute (	Grant Value						
Forsi	intests 2	3 and	4 LIF m	avnerfor	m F-DPI	OCH nowerse	aling	atmaxnov	ver whic	h could r	esulte in	slightly
	$MDD _{M}$		-, UL III	aypenor			annya	armax por				Singinuy
	$β_c$ 11/15 (Note 3) 6/15 15/15 2/15 15/15 For su 5/15 v CM = and E For su setting In cas TS25. β <sub>ed</sub> ca For su	βc         βd           11/15         15/15           (Note 3)         (Note 3)           6/15         15/15           15/15         9/15           2/15         15/15           15/15         0           For sub-test 1 fr           5/15 with β <sub>hs</sub> =           CM = 1 for βc/β           and E-DPCCH           For subtest 1 tf           setting the sign           In case of testin           TS25.306 Tabl           βed can not be s           For subtests 2,	βc         βd         βd         βd           11/15         15/15         64           (Note 3)         3)         6           6/15         15/15         64           15/15         9/15         64           15/15         9/15         64           15/15         0         -           For sub-test 1 to 4, ΔA         5/15 with $\beta_{hs} = 5/15 *$ CM = 1 for βd/gd = 12/1         and E-DPCCH the MF           For subtest 1 the βd/gd setting the signalled g         In case of testing by U           TS25.306 Table 5.1g.         βed can not be set dire           For subtests 2, 3 and         Setting the signalled g	βc         βd         β	βcβdβdβdβσβdβHS (Note1)11/1515/156411/1522/15(Note 3)(Note3)3)6/1515/15646/1512/1515/159/15646/1512/1515/159/156415/930/152/1515/15642/154/1515/1505/15For sub-test 1 to 4, ΔACK, ΔNACK and Δcc5/15 with $β_{hs} = 5/15 * β_c$ .CM = 1 for βc/βd = 12/15, βhs/βc=24/15. For subtest 1 the βc/βd ratio of 11/15 for setting the signalled gain factors for the ln case of testing by UE using E-DPDCTS25.306 Table 5.1g.βd can not be set directly; it is set by A For subtests 2, 3 and 4, UE may performed to the local set of the local set	βcβdβdβdβd/βdβHSβec11/1515/156411/1522/15209/2(Note 3)(Note3)3)256/1515/15646/1512/1512/1515/159/15646/1512/1512/1515/159/156415/930/1530/152/1515/15642/154/152/1515/1505/155/15For sub-test 1 to 4, ΔACK, ΔNACK and ΔCQI = 30/155/155/15For sub-test 1 to 4, ΔACK, ΔNACK and ΔCQI = 30/155/15For all oth and E-DPCCH the MPR is based on the relative For subtest 1 the βd/βd ratio of 11/15 for the TFC setting the signalled gain factors for the reference In case of testing by UE using E-DPDCH Physic TS25.306 Table 5.1g. βed can not be set directly; it is set by Absolute 0 For subtests 2, 3 and 4, UE may perform E-DPI	βcβdβdβdβσβdβHs (Note 1)βecβed (Note 4) (Note 5)11/1515/156411/1522/15209/21309/225(Note 3)(Note (Note 3)3)3)251309/2256/1515/15646/1512/1512/1594/7515/159/15646/1512/1512/1594/7515/159/156415/930/1530/15βed1: 47/152/1515/15642/154/152/1556/7515/1505/155/1547/15For sub-test 1 to 4, ΔACK, ΔNACK and ΔcQI = 30/15 with βhs = 305/15 with βhs = 5/15 * βc<.	βcβdβdβdβd/βdβHSβecβedβedβedβed11/1515/156411/1522/15209/21309/2254(Note 3)(Note(Note2511309/2254(Note 3)(Note(Note2513)3)3)3116/1515/15646/1512/1512/1594/75415/15946415/930/1530/15βed1: 47/15415/1505/155/75415/1505/1547/15415/1505/1547/15415/1505/1547/15415/1505/155/1547/15415/1505/155/1547/15415/1505/155/1547/15415/1505/155/1547/15415/1505/155/1547/15415/1505/155/1547/15415/1505/155/1547/15415/1505/155/1511/15115/15105/155/1511/15115/15 <td>βcβdβdβdβoβdβHSβecβed</td> <td>βcβdβdβdβdβdβdβdβecβecβedβedβedβed(Codes)CM11/1515/156411/1522/15209/21309/225411.0(Note 3)(Note 3)(Note 3)3)3)3)3)411.06/1515/15646/1512/1512/1594/75413.015/159/15646/1512/1512/1594/75413.015/159/15646/1512/1512/1556/75413.015/159/15642/154/152/1556/75411.02/1515/15642/154/152/1556/75411.0For sub-test 1 to 4, Δack, Δnack and Δcol = 30/15 with β<sub>hs</sub> = 30/15 * β<sub>c</sub>. For sub-test 55/15 with β<sub>hs</sub> = 5/15 * β<sub>c</sub>.CM = 1 for βd/ga = 12/15, βns/βc=24/15. For all other combinations of DPDCH, DPCCH, and E-DPCCH the MPR is based on the relative CM difference.For subtest 1 the βd/ga ratio of 11/15 for the TFC during the measurement period (TF1 setting the signalled gain factors for the reference TFC (TF1, TF1) to βc = 10/15 and βIn case of testing by UE using E-DPDCH Physical Layer category 1, Sub-test 3 is omi TS25.306 Table 5.1g.βed can not be set directly, it is set by Absolute Grant Value.For subtest 2, 3 and 4, UE may perform E-DPDCH power scaling at max power whic</td> <td>βcβdβdβoβdβoβdβHSβecβecβedβedβedβedβedβedβed(Codes)(Codes)(MPR(Mote(SF)(SF)(SF)(SF)(SF)(SF)(Codes)(Codes)(B)(Mote11/1515/156411/1522/15209/21309/225411.00.0(Note3)3)3)25413.02.015/15646/1512/1512/1594/75413.02.015/159/156415/930/1530/15βed1: 47/15422.01.015/1505/155/1547/15411.00.0For sub-test 1 to 4, Δack, ΔNack and Δcol = 30/15 with β<sub>hs</sub> = 30/15 * β<sub>c</sub>. For sub-test 5, Δack, Δi5/15 with β<sub>hs</sub> = 5/15 * β<sub>c</sub>.CM = 1 for β<sub>c</sub>/β<sub>d</sub> = 12/15, βhs/β<sub>c</sub>=24/15. For all other combinations of DPDCH, DPCCH, HS- DPCand E-DPCCH the MPR is based on the relative CM difference.For subtest 1 the β<sub>c</sub>/β<sub>d</sub> aratio of 11/15 for the TFC during the measurement period (TF1, TF0) is a setting the signalled gain factors for the reference TFC (TF1, TF1) to β<sub>c</sub> = 10/15 and β<sub>d</sub> = 15/15In case of testing by UE using E-DPDCH Physical Layer category 1, Sub-test 3 is omitted accord TS25.306 Table 5.1g.β<sub>ed</sub> can not be set directly; it is set by Absolute Grant Value.For subtests 2, 3 and 4, UE may perform E-DPDCH power scaling at max power which could reference.</td> <td><math display="block"> \begin{array}{c c c c c c c c c c c c c c c c c c c </math></td>	βcβdβdβdβoβdβHSβecβed	βcβdβdβdβdβdβdβdβecβecβedβedβedβed(Codes)CM11/1515/156411/1522/15209/21309/225411.0(Note 3)(Note 3)(Note 3)3)3)3)3)411.06/1515/15646/1512/1512/1594/75413.015/159/15646/1512/1512/1594/75413.015/159/15646/1512/1512/1556/75413.015/159/15642/154/152/1556/75411.02/1515/15642/154/152/1556/75411.0For sub-test 1 to 4, Δack, Δnack and Δcol = 30/15 with β <sub>hs</sub> = 30/15 * β <sub>c</sub> . For sub-test 55/15 with β <sub>hs</sub> = 5/15 * β <sub>c</sub> .CM = 1 for βd/ga = 12/15, βns/βc=24/15. For all other combinations of DPDCH, DPCCH, and E-DPCCH the MPR is based on the relative CM difference.For subtest 1 the βd/ga ratio of 11/15 for the TFC during the measurement period (TF1 setting the signalled gain factors for the reference TFC (TF1, TF1) to βc = 10/15 and βIn case of testing by UE using E-DPDCH Physical Layer category 1, Sub-test 3 is omi TS25.306 Table 5.1g.βed can not be set directly, it is set by Absolute Grant Value.For subtest 2, 3 and 4, UE may perform E-DPDCH power scaling at max power whic	βcβdβdβoβdβoβdβHSβecβecβedβedβedβedβedβedβed(Codes)(Codes)(MPR(Mote(SF)(SF)(SF)(SF)(SF)(SF)(Codes)(Codes)(B)(Mote11/1515/156411/1522/15209/21309/225411.00.0(Note3)3)3)25413.02.015/15646/1512/1512/1594/75413.02.015/159/156415/930/1530/15βed1: 47/15422.01.015/1505/155/1547/15411.00.0For sub-test 1 to 4, Δack, ΔNack and Δcol = 30/15 with β <sub>hs</sub> = 30/15 * β <sub>c</sub> . For sub-test 5, Δack, Δi5/15 with β <sub>hs</sub> = 5/15 * β <sub>c</sub> .CM = 1 for β <sub>c</sub> /β <sub>d</sub> = 12/15, βhs/β <sub>c</sub> =24/15. For all other combinations of DPDCH, DPCCH, HS- DPCand E-DPCCH the MPR is based on the relative CM difference.For subtest 1 the β <sub>c</sub> /β <sub>d</sub> aratio of 11/15 for the TFC during the measurement period (TF1, TF0) is a setting the signalled gain factors for the reference TFC (TF1, TF1) to β <sub>c</sub> = 10/15 and β <sub>d</sub> = 15/15In case of testing by UE using E-DPDCH Physical Layer category 1, Sub-test 3 is omitted accord TS25.306 Table 5.1g.β <sub>ed</sub> can not be set directly; it is set by Absolute Grant Value.For subtests 2, 3 and 4, UE may perform E-DPDCH power scaling at max power which could reference.	$ \begin{array}{c c c c c c c c c c c c c c c c c c c $

#### Table C.11.1.3: $\beta$ values for transmitter characteristics tests with HS-DPCCH and E-DCH

Sub-	βc	βd	βнs	β <sub>ec</sub>	$\beta_{ed}$	$\beta_{ed}$	СМ	MPR	AG	E-TFCI	E-TFCI
test	(Note3)		(Note1)		(2xSF2)	(2xSF4)	(Note 2)	(Mote 2)	Index	(Note 5)	(boost)
4	4	0	20/15	20/1E				0.5	(1000 4)	105	105
	1	0	30/15	30/15	β <sub>ed</sub> 1: 30/15	β <sub>ed</sub> 3: 24/15	3.5	2.5	14	105	105
					β <sub>ed</sub> 2: 30/15	β <sub>ed</sub> 4:24/15					
Note 1	: Даск	, $\Delta_{NAC}$	$_{K} and \Delta_{CQI}$	= 30/15	with $\beta_{hs}$ = 30/15	* $eta_c$ .					
Note 2	2: CM=	= 3.5 a	and the MF	PR is bas	ed on the relative	e CM difference	, MPR = M	AX(CM-1	,0).		
Note 3	: DPD	CH is	not config	ured, the	refore the $\beta_c$ is s	et to 1 and $\beta_d =$	0 by defau	llt.			
Note 4	: β <sub>ed</sub> C	an no	t be set di	rectly; it is	s set by Absolute	Grant Value.					
Note 5	Note 5: All the sub-tests require the UE to transmit 2SE2+2SE4 160AM EDCH and they apply for UE using E-									E-	
	DPDCH category 7 E-DCH TIL is set to 2ms TIL and E-DCH table index = 2. To support these E-DCH										
	confi	aunti			allocated The LL	E is signalled to	uso tho or	dranolati	on algorit	hm	•••
	contigurations DPDCH is not allocated. The UE is signalled to use the extrapolation algorithm.										

### C.11.2 DL reference measurement channel for E-DCH tests

On downlink DCH the reference measurement channel according to section C.3.1 is used. On downlink HS -DSCH the fixed reference channel H-Set 1 according to section C.8.1.1 is used.

## C.11.3 RLC SDU size for E-DCH tests

Table C.11.3.1 defines the number of DL RLC SDUs per TTI and the sizes of the DL and UL RLC SDUs to achieve the required asymmetrical DL/UL data rates for the E-DCH test cases.

TC Clause	TS 34.121-1 E-DCH Test Cases	Inter-TTI (Note 1)	DL SDU size [bits] (Note 2)	Number of DL SDUs per DL transmission	UL RLC SDU Size [bits] (Note 1)
5.2B	Maximum Output Power	3 (H-Set 1)	2936		For sub-test 1-4
0.20	with HS-DPCCH and E-	0 (11 001 1)	2000		2936
	DCH				For sub-test 5: 11744
5.2D	UE Relative Code Domain	3 (H-Set 1)	2936	1	2936
	Power Accuracy for HS-				
	DPCCH and E-DCH				
5.2E	UE Relative Code Domain Power Accuracy for HS- DPCCH and E-DCH with 16QAM	3 (H-Set 1)	312	9	8808
5.9B	Spectrum Emission Mask with E-DCH	3 (H-Set 1)	2936	1	For sub-test 1-4: 2936 For sub-test 5: 11744
5.10B	ACLR with E-DCH	3 (H-Set 1)	2936	1	For sub-test 1-4:
					2936 For sub-test 5: 11744
5.13.1AAA	EVM and IQ origin offset for HS-DPCCH and E- DCH with 16QAM	3 (H-Set 1)	312	9	8808
5.13.2B	Relative Code Domain Error with HS-DPCCH and F-DCH	3 (H-Set 1)	2936	1	2936
5.13.2C	Relative Code Domain Error for HS-DPCCH and E-DCH with 16QAM	3 (H-Set 1)	312	9	8808
8.4.4.1	10 ms TTI E-DCH E-TFC Restriction	3 (H-Set 1)	2936	1	11744
8.4.4.2	2ms TTI E-DCH E-TFC Restriction	3 (H-Set 1)	968	3	11744
8.7.9	UE Transmission Power Headroom	3 (H-Set 1)	-	-	No E-DCH payload data transmitted
10.2.1.1	Detection of E-HICH - Single Link Performance (10ms)	3 (H-Set 1)	2936	1	2936
10.2.1.2	Detection of E-HICH - Single Link Performance (2ms)	3 (H-Set 1)	2936	1	5872
10.2.2.1.1	Detection in Inter-Cell Handover conditions - RLS not containing the Serving E-DCH cell (10ms)	3 (H-Set 1)	2936	1	11744
10.2.2.1.2	Detection in Inter-Cell Handover conditions - RLS not containing the Serving E-DCH cell (2ms)	3 (H-Set 1)	968	3	5872
10.2.2.2.1	Detection in Inter-Cell Handover conditions - RLS containing the Serving E- DCH cell (10ms)	3 (H-Set 1)	968	3	5872
10.2.2.2.2	Detection in Inter-Cell Handover conditions - RLS containing the Serving E- DCH cell (2ms)	3 (H-Set 1)	968	3	9784
10.3.1.1	Detection of E-RGCH - Single Link Performance (10ms)	3 (H-Set 1)	2936	1	2936
10.3.1.2	Detection of E-RGCH - Single Link Performance	3 (H-Set 1)	2936	1	5872

#### Table C.11.3.1: UL RLC SDU size for E-DCH tests

TC Clause	TS 34.121-1 E-DCH Test	Inter-TTI	DL SDU size	Number of DL	UL RLC SDU Size		
	Cases	(Note 1)	[bits]	SDUs per DL	[bits]		
			(Note 2)	transmission	(Note 1)		
				(Note 1)			
	(2ms)						
10.3.2	Detection of E-RGCH -	3 (H-Set 1)	2936	1	11744		
	Detection in Inter-Cell						
	Handover conditions						
10.4.1	Demodulation of E-AGCH	3 (H-Set 1)	2936	1	8808		
	(Single Link						
	Performance)						
Note 1: The	achieved UL rate will depend	on the number of D	L SDUs sent at ev	ery inter-TTI interv	al. For each		
rece	ived DL RLC SDU one UL RL	C SDU of the config	gured UL RLC SDI	Jsize is transmitte	d in UL. Generated		
ULt	pit rate by the UE test loop fund	ction = Number of D	L SDUs per Inter-	TTI reception * UL	. RLC SDU size / DL		
TTI '	Inter-TTI. The UE test loop fu	nction bit rate shall	be equal or larger	r than the UL rate i	required by the test		
to av	oid that Tx buffer becomes en	npty during the test	phase. The SS co	onfigured UL SDU	size for UE test loop		
mod	e 1 shall be limited to maximu	m 1520 octets (121	60 bits) to not rest	rict the applicability	y of test cases to		
UEs	supporting optional UL RLC S	SDU sizes larger that	an 1520 octets (TS	34.109 clause 6.2	2).		
Note 2: The	The DL RLC SDU size for all E-DCH tests is set to fit into a transport block size of 3202 bits (the transport						
bloc	ksize used for H-Set 1). For th	e case of one, thre	e or nine DL SDU	s are used per DL	transmission then		
DL S	SDU size of 2936, 968 and 312	2 bits are used. The	se DL SDU sizes t	take into account t	he required fixed		
and	flexible MAC and RLC header	size to enable the	SS to concatenate	and transmit the D	DL RLC SDUs in		
one	and the same TTI.						

## C.11A Reference channel parameters for DC-HSUPA tests

This annex specifies the reference channel parameters for DC-HSUPA test cases.

## C.11A.1 UL reference measurement channel for DC-HSUPA tests

On uplink E-DCH the MAC-d flow parameters and the physical channel parameters according to default Radio Bearer Setup message of section 9.2.1 of TS 34.108 are used. On uplink DCH the reference measurement channel according to section C.2.6 (BPSK configuration) or C.2.7 (16QAM configuration) is used. Table C.11A.1.1 and Table C.11A.1.2 show the beta values on all uplink channels on both carriers that are used for transmitter characteristics tests.

β <sub>c</sub> (Note	2)	βa	βнs (Note1)	βHS         βec           (Note1)         (Note 2)		AG Index (Note 2 and 3)	E-TFCI (Note 2 and 4)
15/1	5	-	5/15	5/15	24/15	6	1
Note 1:	$\Delta_{ACK}$ , $\Delta$	$\Delta_{\text{NACK}}$ and $\Delta_{\text{CQI}} = \xi$	5/15 with $\beta_{hs}$ =5/1	15 * $eta_{_c}$ . This chai	nnel is present on	ly in primary carrie	er.
Note 2:	This v	alue is used for b	oth primary and s	econdary carriers.			
Note 3:	Dete 3: $\beta_{ed}$ can not be set directly; it is set by Absolute Grant Value.						
Note 4:	2ms TTI E-DCH Transport Block Size Table 0 is used.						

#### Table C.11A.1.1: $\beta$ values for transmitter characteristics tests for DC-HSUPA with QPSK

#### Table C.11A.1.2: $\beta$ values for transmitter characteristics tests for DC-HSUPA with 16QAM

β <sub>c</sub> (Note2)	βd	βнs (Note1)	β <sub>ec</sub> (Note2)	β <sub>ed</sub> (2xSF2) (Note 2)	β <sub>ed</sub> (2xSF4) (Note 2)	AG Index (Note 2 and 3)	E-TFCI (Note 2 and 4)	E-TFCI (Boost)
15/15	-	19/15	38/15	β <sub>ed</sub> 1: 134/15 β <sub>ed</sub> 2: 134/15	β <sub>ed</sub> 3: 95/15 β <sub>ed</sub> 4: 95/15	24	68	67
Note 1: 2 Note 2: 7 Note 3: 6 Note 4: 2	∆ <sub>АСК</sub> , ∆ <sub>NACK</sub> and Гhis value is us 3 <sub>ed</sub> can not be s 2ms TTI E-DCH	$\Delta_{CQI} = 19/15$ ed for both pri et directly; it is I Transport Blo	with $\beta_{hs}$ =19/ imary and sec s set by Absol ock Size Table	15 * $eta_c$ . This condary carrie lute Grant Val e 3 is used.	channel is pro rs. ue.	esent only in p	primary carrier.	

## C.11A.2 DL reference measurement channel for DC-HSUPA tests

On downlink DCH the reference measurement channel according to section C.3.1 is used. On downlink HS -DSCH the fixed reference channel H-Set 3A with QPSK according to section C.8.1.1 is used.

## C.11A.3 RLC SDU size for DC-HSUPA tests

Table C.11A.3.1 defines the number of DL RLC SDUs per TTI and the sizes of the DL and UL RLC SDUs to achieve the required asymmetrical DL/UL data rates for the E-DCH test cases.

TC Clause	TS 34.121-1 E-DCH Test Cases	Inter-TTI DL SDU size (Note 1) [bits] (Note 2)		Number of DL SDUs per DL transmission	UL RLC SDU Size [bits] (Note 1)	
			(	(Note 1)		
5.2BA	Maximum Output Power for DC-HSUPA	1 (H-Set 3A)	2936	1	72 (BPSK) 8406 (16QAM)	
5.2DA	UE Relative Code Domain Power Accuracy for DC- HSUPA with QPSK	1 (H-Set 3A)	2936	1	72	
5.3A	Frequency Error for DC- HSUPA	1 (H-SET 3A)	2936	1	72	
5.4.1A	Open Loop Power Control in the Uplink for DC- HSUPA	1 (H-SET 3A)	2936	1	72	
5.4.2A	Inner Loop Power Control in the Uplink for DC- HSUPA	1 (H-SET 3A)	2936	1	72	
5.8A	Occupied Bandwidth (OBW) for DC-HSUPA	1 (H-SET 3A)	2936	1	72	
5.9C	Additional Spectrum Emission Mask for DC- HSUPA	1 (H-SET 3A)	2936	1	72 (BPSK) 8406 (16QAM)	
5.10C	Adjacent Channel Leakage Power Ratio (ACLR) with E-DCH for DC-HSUPA	1 (H-SET 3A)	2936	1	72 (BPSK) 8406 (16QAM)	
5.11A	Spurious Emissions for DC-HSUPA	1 (H-SET 3A)	2936	1	72	
5.12A	Transmit Intermodulation for DC-HSUPA	1 (H-SET 3A)	2936	1	72	
5.13.2BA	Relative Code Domain Error with HS-DPCCH and E-DCH for DC-HSUPA	1 (H-SET 3A)	2936	1	72	
5.13.2CA	Relative Code Domain Error for HS-DPCCH and E-DCH with 16QAM for DC-HSUPA	1 (H-SET 3A)	2936	1	8406	
5.13.5	In-band emission for DC- HSUPA	1 (H-SET 3A)	2936	1	72	
Note 1: The rece UL b TTI*	Note 1: The achieved UL rate will depend on the number of DL SDUs sent at every inter-TTI interval. For each received DL RLC SDU one UL RLC SDU of the configured UL RLC SDU size is transmitted in UL. Generated UL bit rate by the UE test loop function = Number of DL SDUs per Inter-TTI reception * UL RLC SDU size / DL TTI * IntervTTI. The UE test loop function bit rate shall be equal or larger than the LH rate required by the test					
to avoid that Tx buffer becomes empty during the test phase. The SS configured UL SDU size for UE test loop mode 1 shall be limited to maximum 1520 octets (12160 bits) to not restrict the applicability of test cases to UEs supporting optional UL RLC SDU sizes larger than 1520 octets (TS 34.109 clause 6.2).					size for UE test loop y of test cases to 2). ts (the transport	
block size used for H-Set 3A).						

#### Table C.11A.3.1: UL RLC SDU size for E-DCH tests

## C.12 DL reference parameters for MBMS tests

This annex specifies the reference channel parameters for MBMS test cases.

## C.12.1 MTCH

The parameters for the MTCH demodulation tests are specified in Table C.12.1.1 and Table C.12.1.2.

Table C.12.1.1: Physical channel parameters for S-CCPCH

Parameter	Unit	Level	Level
User Data Rate	kpbs	256	128
Channel bit rate	kbps	960	480
Channel symbol rate	ksps	480	240
Slot Format #i	-	14	12
TFCI	-	ON	ON
Power offsets of TFCI and Pilot fields relative to data field	dB	0	0

Table C.12.1.2: Transport channel parameters for S-CCPCH

Parameter		МТСН	
User Data Rate	256 kbps	128 kbps 40 ms TTI	128 kbps, 80 ms TTI
Transport Channel Number	1	1	1
Transport Block Size	2536	2536	2536
Transport Block Set Size	10144	5072	10144
Nr of transport blocks/TTI	4	2	4
RLC SDU block size	10080	5024	10080
Transmission Time Interval	40 ms	40 ms	80 ms
Type of Error Protection	Turbo	Turbo	Turbo
Rate Matching attribute	256	256	256
Size of CRC	16	16	16
Position of TrCH in radio frame	Flexible	Flexible	Flexible

## C.12.2 Combined MTCH demodulation and cell identification

The parameters for combined MTCH demodulation and cell identification test are defined in Table C.12.2.1.

Parameter	Unit	Value
Serving cell in the initial condition		Cell1
Neighbour cells		32 intra-frequency neighbour cells are indicated induding Cell2 and Cell3
Cell_selection_and_ reselection_quality_ measure		CPICH E <sub>c</sub> /N <sub>0</sub>
Qqualmin	dB	-20
Qrxlevmin	dBm	-115
UE_TXPWR_MAX_ RACH	dB	21
Qhyst2	dB	20 dB
Treselection	seconds	4
Sintrasearch	dB	not sent
IE "FACH Measurement occasion info"		not sent

Table	C.12.2.1:	Cell	reselection	parameters

## Annex D (normative): Propagation Conditions

## D.1 General

### D.1.1 Definition of Additive White Gaussian Noise (AWGN) Interferer

The minimum bandwidth of the AWGN interferer shall be 1,5 times chip rate of the radio access mode (e.g. 5,76 MHz for a chip rate of 3,84 Mcps). The flatness across this minimum bandwidth shall be less than  $\pm 0,5$  dB and the peak to average ratio at a probability of 0,001 % shall exceed 10 dB.

For DC-HSDPA tests the minimum bandwidth of the AWGN interferer shall be 11.52 MHz for a chip rate of 3,84 Mcps. The flatness across this minimum bandwidth shall be less than  $\pm 1,0$  dB and the peak to average ratio at a probability of 0,001 % shall exceed 10 dB.

## D.2 Propagation Conditions

## D.2.1 Static propagation condition

The propagation for the static performance measurement is an Additive White Gaussian Noise (AWGN) environment. No fading and multi-paths exist for this propagation model.

## D.2.2 Multi-path fading propagation conditions

Table D.2.2.1 shows propagation conditions that are used for the performance measurements in multi-path fading environment. All taps have classical Doppler spectrum.

Cas	<u>_ 1</u>	Ca		Cor		Car		Coco F	(Noto 1)	<u> </u>	~~ F
Uds	eı	Ud	se z	Cas	se s	Uda	56 4	Case 5	(NOLE I)	Ud	50 0
Speed for	or Band	Speed for	or Band I,	Speed for	or Band I,	Speed for Band I,		Speed for Band I,		Speed for Band I,	
I, II, III, I	V, IX, X	II, III, IV,	IX, X and	II, III, IV	√, IX, X	II, III, I	V, IX, X	II, III, I	V, IX, X	II, III, IV, IX, X and	
and >	(XV:	XX	KV:	and	XXV:	and	XXV:	and	XXV:	X	XV:
3 kr	n/h	3 k	m/h	120	km/h	3 k	:m/h	50 I	km/h	250	km/h
Speed for	or Band	Speed for	or Band V,	Speed f	or Band	Speed	for Band	Speed	for Band	Speed for	or Band V,
V, VI, VI	II, XIX,	VI, VIII,	XIX, XX	V, VI,VIII	, XIX, XX	V, VI,V	'III, XIX,	V, VI, \	/III, XIX,	VI, VIII,	XIX, XX
XX and	XXVI:	and	XXVI:	and >	XXVI:	XX and	d XXVI:	XX and	d XXVI:	and	XXVI:
7 kr	n/h	7 k	m/h	282 km/h	(Note 2)	7 k	:m/h	118	km/h	583 km/	h (Note 2)
Speed for	or Band	Speed	for Band	Speed f	or Band	Speed	for Band	Speed	for Band	Speed	for Band
VI	l:	V	11:	V	ll:	V	11:	VII:		VII:	
2.3 k	.m/h	2.3	km/h	92 k	(m/h	2.3 km/h 3		38	km/h	192 km/h	
Speed for	or Band	Speed	for Band	Speed f	or Band	Speed for Band Speed f		for Band	Speed	for Band	
XI, X	(XI:	XI,	XXI:	XI, 2	XXI:	XI, XXI:		XI, XXI:		XI,	XXI:
4.1 k	m/h	4.1	km/h	166	km/h	4.1 km/h		69 I	km/h	345 km/	h (Note 2)
Speed for	or Band	Speed	for Band	Speed f	or Band	Speed for Band		Speed for Band		Speed	for Band
XII, XIII a	ind XIV:	XII, XIII	and XIV:	XII, XIII a	and XIV:	XII, XIII and XIV:		XII, XIII and XIV:		XII, XIII and XIV:	
8 kr	n/h	8 k	m/h	320	km/h	8 k	m/h	133	km/h	668	km/h
Relativ	Relati	Relativ	Relativ	Relativ	Relativ	Relati	Relativ	Relati	Relativ	Relati	Relativ
е	ve	e Delay	e mean	e Delay	е	ve	е	ve	е	ve	e mean
Delay	mean	[ns]	Power	[ns]	mean	Delay	mean	Delay	mean	Delay	Power
[ns]	Power		[dB]		Power	[ns]	Power	[ns]	Power	[ns]	[dB]
	[dB]				[dB]		[dB]		[dB]		
0	0	0	0	0	0	0	0	0	0	0	0
976	-10	976	0	260	-3	976	0	976	-10	260	-3
		20000	0	521	-6					521	-6
				101	-9					101	-9

#### Table D.2.2.1: Propagation conditions for multi-path fading environments

NOTE 1: Case 5 is only used in Requirements for support of RRM.

NOTE 2: Speed above 250km/h is applicable to demodulation performance requirements only.

Table D.2.2.1A shows propagation conditions that are used for HSDPA performance measurements in multi-path fading environment. For HSDPA and DCH enhanced performance requirements, the fading of the signals and the AWGN signals provided in each receiver antenna port shall be independent. For DC-HSDPA requirements, the fading of the signals for each cell shall be independent.

Table D.2.2.1A: Propagation Conditions for multi-path fading environments for HSDPA

ITU Pede Speed (PA	strian A 3km/h A3)	ITU Pede Speed (PE	strian B 3km/h 33)	ITU vehi Speed 3 (VA	cular A 80km/h 30)	ITU vehicular A Speed 120km/h (VA120)		
Speed for B	and I, II, III,	Speed for B	and I, II, III,	Speed for B	and I, II, III,	Speed for Band I, II,		
IV, IX, Xa	and XXV:	IV, IX, Xa	and XXV:	IV, IX, Xa	nd XXV:	III, IV, IX, I	X and XXV:	
3 kr	n/h	3 kr	n/h	30 k	m/h	120	km/h	
Speed for E	Band V, VI,	Speed for I	Band V, VI,	Speed for E	Band V, VI,	Speed for	Band V, VI,	
VIII, XIX, XX	(and XXVI:	VIII, XIX, XX	(and XXVI:	VIII, XIX, XX	and XXVI:	VIII, XIX	, XX and	
7 kr	n/h	7 kr	n/h	71 ki	m/h	XX	(VI:	
						282 km/ł	n (Note 1)	
Speed for	Band VII:	Speed for	Band VII:	Speed for	Band VII:	Speed for	r Band VII:	
2.3 k	:m/h	2.3 k	(m/h	23 ki	m/h	921	km/h	
Speed for	Band XI,	Speed for	Band XI,	Speed for Band XI,		Speed for Band XI,		
XX	(I:	XX	<li>(1):</li>	XXI:		XXI:		
4.1 k	m/h	4.1 k	m/h	41 km/h		166 km/h (Note 1)		
Speed for	Band XII,	Speed for B	and XII, XIII	Speed for Band XII,		Speed for Band XII,		
XIII an	d XIV:	and	XIV:	XIII and XIV:		XIII ar	nd XIV:	
8 kr	n/h	8 kr	n/h	80 km/h		320	km/h	
Relative	Relative	Relative	Relative	Relative	Relative	Relative	Relative	
Delay	Mean	Delay	Mean	Delay	Mean	Delay	Mean	
[ns]	Power	[ns]	Power	[ns]	Power	[ns]	Power	
	[UD]							
0	0	0	0	0	0	0	0	
110	-9.7	200	-0.9	310	-1.0	310	-1.0	
190	-19.2	800	-4.9	710	-9.0	710	-9.0	
410	-22.8	1200	-8.0	1090	-10.0	1090	-10.0	
		2300	-7.8	1730	-15.0	1730	-15.0	
		3700	-23.9	2510	-20.0	2510	-20.0	

NOTE 1: Speed above 120km/h is applicable to demodulation performance requirements only.

Table D.2.2.1B shows propagation conditions that are used for CQI test in multi-path fading and HS-SCCH-less demodulation of HS-DSCH. For HSDPA enhanced performance requirements, the fading of the signals and the AWGN signals provided in each receiver antenna port shall be independent. For DC-HSDPA requirements, the fading of the signals for each cell shall be independent.

Table D.2.2.1B: Propagation Conditions for CQI test in multi-path fading and HS-SCCH-less demodulation of HS-DSCH

Case 8					
Speed for Band I, II, III, I\	/, IX, X and XXV: 30km/h				
Speed for Band V, VI, VIII,	XIX, XX and XXVI: 71km/h				
Speed for Bar	nd VII: 23km/h				
Speed for Band	XI, XXI: 41km/h				
Speed for Band XII, 2	XIII and XIV: 80 km/h				
Relative Delay [ns]	Relative mean Power [dB]				
0	0				
976	-10				

Table D.2.2.1C shows propagation conditions that are used for MBMS demodulation performance measurements in multi-path fading environment.

## Table D.2.2.1C: Propagation Conditions for Multi-Path Fading Environments for MBMS Performance Requirements, Demodulation of HS-DSCH H-Set9 and H-Set10, HS-SCCH Type 3 Performance

Speed 2km/b		
(\/ A 3)		
(VA 3)		
Speed for Band I, II, III, IV, IX, X and XXV:		
S KIII/II Cread far Dand V/ VII VIII VIV VV and VVVII		
Speed for Band V, VI, VIII, XIX, XX and XXVI:		
7 km/h		
Speed for Band VII:		
2.3 km/h		
Speed for Band XI, XXI:		
4.1 km/h		
Speed for Band XII, XIII and XIV:		
8 km/h		
Relative Delay	Relative Mean Power	
[ns]	[dB]	
0	0	
310	-1.0	
710	-9.0	
1090	-10.0	
1730	-15.0	
2510	-20.0	

## D.2.3 Moving propagation conditions

The dynamic propagation conditions for the test of the baseband performance are non fading channel models with two taps. The moving propagation condition has two taps, one static, Path0, and one moving, Path1. The time difference between the two paths is according Equation D.2.3.1. The taps have equal strengths and equal phases.



Figure D.2.3.1: The moving propagation conditions

$$\Delta \tau = B + \frac{A}{2} (1 + \sin(\Delta \omega \cdot t))$$
 Equation D.2.3.1

The parameters in the equation are shown in.

А	5 µs
В	1 μs
Δω	$40 \cdot 10^{-3} \text{ s}^{-1}$

## D.2.4 Birth-Death propagation conditions

The dynamic propagation conditions for the test of the baseband performance is a non fading propagation channel with two taps. The moving propagation condition has two taps, Path1 and Path2 while alternate between 'birth' and 'death'. The positions the paths appear are randomly selected with an equal probability rate and are shown in figure D.2.4.1.



- NOTE1: Two paths, Path1 and Path2 are randomly selected from the group [-5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5] μs. The paths have equal strengths and equal phases.
- NOTE 2: After 191 ms, Path1 vanishes and reappears immediately at a new location randomly selected from the group [-5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5] µs but excludes the point Path2.
- NOTE 3: After additional 191 ms, Path2 vanishes and reappears immediately at a new location randomly selected from the group [-5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5] µs but excludes the point Path1.
- NOTE 4: The sequence in 2) and 3) is repeated.

### D.2.4A High speed train conditions

The high speed train condition for the test of the baseband performance is a non-fading propagation channel with one tap. Doppler shift is given by

$$f_s(t) = f_d \cos \theta(t) \tag{D.2.4A.1}$$

where  $f_s(t)$  is the Doppler shift and  $f_d$  is the maximum Doppler frequency. The cosine of angle  $\theta(t)$  is given by

$$\cos\theta(t) = \frac{D_s/2 - vt}{\sqrt{D_{\min}^2 + (D_s/2 - vt)^2}}, \ 0 \le t \le D_s/v$$
(D.2.4A.2)

where  $D_s/2$  is the initial distance of the train from BS, and  $D_{\min}$  is BS-Railway track distance, both in meters; v is the velocity of the train in m/s, t is time in seconds. The parameters in the equation are shown in table D.2.4A.1. Accordingly, Doppler shift changes to the following figure D.2.4A.1.

Parameter	Value
$D_s$	300 m
$D_{\min}$	2 m
v	300 km/h
$f_d$	600 Hz

#### Table D.2.4A.1



Figure D.2.4A.1: Doppler shift trajectory

# D.2.5 Conditions for HSDPA enhanced performance requirements type 1 with UE receiver diversity

The fading profiles used in the two or four faders for testing enhanced performance requirements type 1 with UE receiver diversity shall be uncorrelated to each other.

The two AWGN signals used for testing enhanced performance requirements type 1 with UE receiver diversity shall be uncorrelated to each other.

# D.2.6 Conditions for HSDPA enhanced performance requirements type 3 with UE receiver diversity

The fading profiles used in the two faders for testing enhanced performance requirements type 3 with UE receiver diversity shall be uncorrelated to each other.

The two AWGN signals used for testing enhanced performance requirements type 3 with UE receiver diversity shall be uncorrelated to each other.

### D.2.7 Conditions for open and closed loop diversity performance

The fading profiles used in the two or four faders for testing open and closed loop diversity performance shall be uncorrelated to each other.

# D.2.8 Conditions for MBMS enhanced performance requirements type 1 with UE receiver diversity

The fading profiles used in the six faders for testing enhanced performance requirements type 1 with UE receiver diversity shall be uncorrelated to each other.

The two AWGN signals used for testing enhanced performance requirements type 1 with UE receiver diversity shall be uncorrelated to each other.

### D.2.9 MIMO propagation conditions

MIMO propagation conditions are defined for a 2x2 antenna configuration. The resulting propagation channel shall be characterized by a complex 2x2 matrix termed

$$\mathbf{H} = \begin{pmatrix} h_{11} & h_{12} \\ h_{21} & h_{22} \end{pmatrix}.$$

The channel coefficients of **H** shall be defined as a function of the possible precoding vectors or matrices. The possible precoding vectors for MIMO operation according to [5] shall be termed

$$\mathbf{w}^{(1)} = \begin{pmatrix} \frac{1}{\sqrt{2}} \\ \frac{1+j}{2} \end{pmatrix}, \quad \mathbf{w}^{(2)} = \begin{pmatrix} \frac{1}{\sqrt{2}} \\ \frac{1-j}{2} \\ \frac{1-j}{2} \end{pmatrix}, \quad \mathbf{w}^{(3)} = \begin{pmatrix} \frac{1}{\sqrt{2}} \\ \frac{-1+j}{2} \\ \frac{-1-j}{2} \end{pmatrix}, \quad \mathbf{w}^{(4)} = \begin{pmatrix} \frac{1}{\sqrt{2}} \\ \frac{-1-j}{2} \\ \frac{-1-j}{2} \end{pmatrix}$$
(EQ. D.2.9.1)

Furthermore the following possible precoding matrices shall be defined:

$$\mathbf{W}^{(1)} = \begin{pmatrix} \mathbf{w}^{(1)} & \mathbf{w}^{(4)} \end{pmatrix}, \quad \mathbf{W}^{(2)} = \begin{pmatrix} \mathbf{w}^{(2)} & \mathbf{w}^{(3)} \end{pmatrix}, \quad \mathbf{W}^{(3)} = \begin{pmatrix} \mathbf{w}^{(3)} & \mathbf{w}^{(2)} \end{pmatrix}, \quad \mathbf{W}^{(4)} = \begin{pmatrix} \mathbf{w}^{(4)} & \mathbf{w}^{(1)} \end{pmatrix} \quad (EQ. D.2.9.2)$$

### D.2.9.1 MIMO Single Stream Fading Conditions

For MIMO single stream conditions, the resulting propagation channel shall be generated using two independent fading processes with classical Doppler and one randomly picked but fixed precoding vector  $\mathbf{W}$  out of the set defined in equation EQ. D.2.9.1. The two fading processes shall be generated according to the parameters in Table D.2.9.1

#### Table D.2.9.1

MIMO Single Stream Conditions,			
Speed for Band I, II, III, IV, IX and X: 3km/h			
Speed for Band V, VI, VIII, XIX, XX and XXVI: 7.1km/h			
Speed for Band VII: 2.3km/h			
Speed for Band XI, XXI: 4.1km/h			
Speed for Band XII, XIII and XIV: 8 km/h			
Relative Delay	Relative Mean	(Amplitude, phase)	
[ns]	Power [dB]	symbols	
0	0	$(a_1, \varphi_1)$	
0	0	$(a_2, \varphi_2)$	

NOTE: The amplitude  $a_2$  is not used in tests under MIMO single stream conditions, only the phase  $\varphi_2$  will be used.

The channel coefficients of the resulting propagation channel under MIMO single stream conditions shall be given by

$$\mathbf{H} = \begin{pmatrix} h_{11} & h_{12} \\ h_{21} & h_{22} \end{pmatrix} = a_1 \cdot \begin{pmatrix} \exp(\mathbf{j} \cdot \varphi_1) \\ \exp(-\mathbf{j} \cdot \varphi_2) \end{pmatrix} \cdot \mathbf{w}^{\mathrm{H}}$$

The generation of the resulting channel coefficients for MIMO single stream conditions and the association with the transmitter and receiver ports are depicted Figure D.2.9.1. Figure D.2.9.1 does not restrict test system implementation.


Figure D.2.9.1: Test setup under MIMO Single Stream Fading Conditions

### D.2.9.2 MIMO Dual Stream Fading Conditions

For MIMO dual stream conditions, the resulting propagation channel shall be generated using two independent fading

processes with classical Doppler and one randomly picked but fixed precoding matrix  $\mathbf{W}$  out of the set defined in equation EQ. D.2.9.2. The two fading processes shall be generated according to the parameters in Table D.2.9.2

Table D.2.9.2

MIMO Dual Stream Conditions,		
Speed for Band V. VI. VIII. XIX. XX and XXVI: 7.1km/h		
Speed for Band VII: 2.3km/h		
Speed for Band XI, XXI: 4.1km/h		
Speed for Band XII, XIII and XIV: 8 km/h		
Relative Delay	Relative Mean	(Amplitude, phase)
[ns]	Power [dB]	symbols
0	0	$(a_1, \varphi_1)$
0	-3	$(a_2, \varphi_2)$

The channel coefficients of the resulting propagation channel under MIMO dual stream conditions shall be given by

$$\mathbf{H} = \begin{pmatrix} h_{11} & h_{12} \\ h_{21} & h_{22} \end{pmatrix} = \sqrt{\frac{2}{3}} \begin{pmatrix} \exp(\mathbf{j} \cdot \varphi_1) & \exp(\mathbf{j} \cdot \varphi_2) \\ \exp(-\mathbf{j} \cdot \varphi_2) & -\exp(-\mathbf{j} \cdot \varphi_1) \end{pmatrix} \cdot \begin{pmatrix} a_1 & 0 \\ 0 & a_2 \end{pmatrix} \cdot \mathbf{W}^{\mathrm{H}}$$

The generation of the resulting channel coefficients for MIMO dual stream conditions and the association with the transmitter and receiver ports are depicted Figure D.2.9.2. Figure D.2.9.2 does not restrict test system implementation.



Figure D.2.9.2: Test setup under MIMO Dual Stream Fading Conditions

### D.2.9.3 MIMO Dual Stream Static Orthogonal Conditions

The channel coefficients of the resulting propagation channel under MIMO dual stream conditions shall be given by

$$\mathbf{H} = \begin{pmatrix} h_{11} & h_{12} \\ h_{21} & h_{22} \end{pmatrix} = \begin{pmatrix} 1 & 1 \\ 1 & -1 \end{pmatrix}$$

The generation of the resulting channel coefficients for MIMO dual stream conditions and the association with the transmitter and receiver ports are depicted Figure D.2.9.3. Figure D.2.9.3 does not restrict test system implementation.



Figure D.2.9.3: Test setup under MIMO Dual Stream Static Orthogonal Conditions

## Annex E (normative): Downlink Physical Channels

# E.1 General

This normative annex specifies the downlink physical channels that are needed for setting a connection and channels that are needed during a connection. For the definition of OCNS, the power of OCNS shall be controlled so as to keep the total transmit power spectral density Ior constant. The Ior shall be measured as the mean power defined in 3.1 Definitions. The mean power shall be kept constant from one slot to the next.

In test cases where the Ior should be kept constant, it shall be acceptable to continuously send logical channel DCCH data which is allowed to be dummy DCCH data, so that it is not necessary to count the number of power off symbols and calculate OCNS power every symbol or slot period to keep the Ior constant.

# E.2 Connection Set-up for non-HSDPA test cases

Table E.2.1 describes the downlink Physical Channels that are required for connection set up.

#### Table E.2.1: Downlink Physical Channels required for connection set-up

Physical Channel		
CPICH		
P-CCPCH		
SCH		
S-CCPCH		
PICH		
AICH		
DPCH		

### E.2.1 Measurement without dedicated connection

Table E.2.2 describes the downlink Physical Channels that are required for measurement before connection. This is applicable for the clauses 5.4.1, 5.5.2 and 5.13.4 and 5.5.2.

Physical Channel	Power	
Ïor	Test dependent power	
CPICH	CPICH_Ec / lor	= -3.9 dB
P-CCPCH	P-CCPCH_Ec / lor	= -8.3 dB
SCH	SCH_Ec / lor	= -8.3 dB
PICH	PICH_Ec / lor	= -8.3 dB
S-CCPCH	S-CCPCH_Ec / lor	= -5.3 dB

Table E.2.2: Downlink Physical Channels transmitted without dedicated connection

# E.3 During connection for non-HSDPA test cases

The following clauses describe the downlink Physical Channels that are transmitted during a connection i.e., when measurements are done. For these measurements the offset between DPCH and SCH shall be zero chips at base station meaning that SCH is overlapping with the first symbols in DPCH in the beginning of DPCH slot structure.

NOTE: The power level specified for each physical channel in this annex is an average power, as measured during periods when the physical channel transmission is ON (see [19] for definitions), and no DTX symbols are being transmitted on that physical channel.

### E.3.1 Measurement of Tx Characteristics

Table E.3.1 is applicable for measurements on the Transmitter Characteristics (clause 5) with the exception of clauses 5.3, 5.4.1, 5.4.4 and 5.4.4A.

NOTE: Applicability to clause 5.7 (Power setting in uplink compressed mode) is FFS.

Physical Channel	Power		
Îor	–93 dBm / 3,84MHz		
CPICH	CPICH_Ec/DPCH_Ec = 7 dB		
P-CCPCH	P-CCPCH_Ec / DPCH_Ec = 5 dB		
SCH	SCH_Ec/DPCH_Ec = 5 dB		
PICH	PICH_Ec / DPCH_Ec = 2 dB		
DPCH	–103,3 dBm / 3,84MHz		

Table E.3.1: Downlink Physical Channels transmitted during a connection

### E.3.2 Measurement of Rx Characteristics

Table E.3.2.1 is applicable for measurements on the Receiver Characteristics (clause 6) including clauses 5.3, excluding clauses 6.3 and 6.8.

Physical Channel	Power	
CPICH	CPICH_Ec/DPCH_Ec	= 7 dB
P-CCPCH	P-CCPCH_Ec/DPCH_Ec	= 5 dB
SCH	SCH_Ec/DPCH_Ec	= 5 dB
PICH	PICH_Ec/DPCH_Ec	= 2 dB
DPCH	Test dependent power	

Table E.3.2.2 describes the downlink Physical Channels that are required for the test of Spurious Emissions (clause 6.8). The UE is in the CELL\_FACH state during the measurement.

Physical Channel	Power		
CPICH	–86dBm / 3,84MHz		
P-CCPCH	P-CCPCH_Ec/CPICH_Ec	= -2 dB	
SCH	SCH_Ec/CPICH_Ec	= -2 dB	
PICH	PICH_Ec/CPICH_Ec	= -5 dB	
S-CCPCH	S-CCPCH_Ec/CPICH_Ec	= -2 dB	

### E.3.3 Measurement of Performance requirements

Table E.3.3 is applicable for measurements on the Performance requirements (clause 7), including clauses 6.3, 5.4.4 and 5.4.4A, excluding clauses 7.6.1, 7.6.2, 7.11 and 7.12.

Table E.3.3.1 is applicable for measurements on the Performance requirements (clause 7) that are done without a dedicated connection (i.e. clauses 7.11 and 7.12).

Physical Channel	Power <sup>2</sup>		Note
P-CPICH	P-CPICH_Ec/lor	= -10 dB	Use of P-CPICH or S-CPICH as phase reference is specified for each requirement and is also set by higher layer signalling.
S-CPICH	S-CPICH_Ec/lor	= -10 dB	When S-CPICH is the phase reference in a test condition, the phase of S-CPICH shall be 180 degrees offset from the phase of P-CPICH. When S-CPICH is not the phase reference, it is not transmitted.
P-CCPCH	P-CCPCH_Ec/lor	= -12 dB	
SCH	SCH_Ec/lor	= -12 dB	This power shall be divided equally between Primary and Secondary Synchronous channels
PICH	PICH_Ec/lor	= -15 dB	
DPCH	Test dependent pow	<i>i</i> er	When S-CPICH is the phase reference in a test condition, the phase of DPCH shall be 180 degrees offset from the phase of P-CPICH.
OCNS	Necessary power so that total transmit power spectral density of Node B (lor) adds to one <sup>1</sup>		OCNS interference consists of 16 dedicated data channels as specified in table E.3.6.
<ul> <li>NOTE 1: For dynamic power correction required to compensate for the presence of transient channels, e.g. control channels, a subset of the OCNS DPCH channels may be used.</li> <li>NOTE 2: Power levels are based on the assumption that multipath propagation conditions and noise source representing interference from other cells loc are turned on after the call-set-up phase.</li> </ul>			

Table E.3.3: Downlink Physical Channels transmitted during a connection
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Table E.3.3.1: Downlink Physical Chann	els transmitted without a dedicated connection
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Physical Channel	Power <sup>2</sup>		Note
P-CPICH	P-CPICH_Ec/lor	=-10 dB	
P-CCPCH	P-CCPCH_Ec/lor	= -12 dB	
S-CCPCH	S-CCPCH_Ec/lor	= -12 dB	This value is set in case the
			SCCPCH is not a test dependent
			power
SCH	SCH_Ec/lor	= -12 dB	This power shall be divided equally
			between Primary and Secondary
			Synchronous channels
PICH	PICH_Ec/lor	= –15 dB	This value is set in case the PICH is
			not a test dependent power
AICH	AICH_Ec/lor	= -10 dB	This value is set in case the AICH is
			not a test dependent power
OCNS	Necessary power so that total OCNS interference consists of 16		OCNS interference consists of 16
	transmit power spectral density dedicated data channels as		
	of Node B (lor) adds to one <sup>1</sup> specified in table E.3.6.		
NOTE 1: For dynamic power correction required to compensate for the presence of transient			
channels, e.g. control channels, a subset of the OCNS DPCH channels may be used.			
NOTE 2: Power levels are based on the assumption that multipath propagation conditions and			
noise source representing interference from other cells loc are turned on after the call-			
set-up phase.	-		

# E.3.4 Connection with open-loop transmit diversity mode

Table E.3.4 is applicable for measurements for clause 7.6.1.

Table E.3.4: Downlink Phy	sical Channels transmitted	during a connection
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Physical Channel	Power <sup>2</sup>	Note			
P-CPICH (antenna 1)	$P-CPICH_E_{c1}/I_{or} = -13 \text{ dB}$	1. Total P-CPICH_E <sub>c</sub> /I <sub>or</sub> = -10 dB			
P-CPICH (antenna 2)	$P-CPICH_E_{c2}/I_{or} = -13 \text{ dB}$				
P-CCPCH (antenna 1)	$P-CCPCH\_Ec_1/I_{or} = -15 \text{ dB}$	1. STTD applied			
P-CCPCH (antenna 2)	$P-CCPCH_Ec_2/I_{or} = -15 \text{ dB}$	2. Total P-CCPCH_Ec/I <sub>or</sub> = -12 dB			
SCH (antenna 1 / 2)	$SCH_E_c/I_{or} = -12 dB$	<ol> <li>TSTD applied.</li> <li>This power shall be divided equally between Primary and Secondary Synchronous channels</li> </ol>			
PICH (antenna 1)	$PICH_E_{c1}/I_{or} = -18 \text{ dB}$	1. STTD applied			
PICH (antenna 2)	$PICH_E_{c2}/I_{or} = -18 \text{ dB}$	2. Total PICH_ $E_c/I_{or} = -15 \text{ dB}$			
DPCH	Test dependent power	<ol> <li>STTD applied</li> <li>Total power from both antennas</li> </ol>			
OCNS	Necessary power so that total transmit power spectral density of Node B (I <sub>or</sub> ) adds to one <sup>1</sup>	<ol> <li>This power shall be divided equally between antennas</li> <li>OCNS interference consists of 16 dedicated data channels as specified in Table E.3.6.</li> </ol>			
<ul> <li>NOTE 1: For dynamic power correction required to compensate for the presence of transient channels, e.g. control channels, a subset of the OCNS DPCH channels may be used.</li> <li>NOTE 2: Power levels are based on the assumption that multipath propagation conditions and noise source representing interference from other cells loc are turned on after the call-set-up phase.</li> <li>NOTE 3: The time alignment of the P-CPICH from Antenna 1 and Antenna 2 as measured at the</li> </ul>					
UE antenna co	UE antenna connection shall be within 1/4 chip.				

## E.3.5 Connection with closed loop transmit diversity mode

table E.3.5 is applicable for measurements for clause 7.6.2.

Table E.3.5: Downlink Physical Channels transmitted during a connection

Physical Channel	Power <sup>2</sup>	Note			
P-CPICH (antenna 1)	P-CPICH_Ec1/lor = $-13 \text{ dB}$	1. Total P-CPICH_Ec/lor = -10 dB			
P-CPICH (antenna 2)	P-CPICH_Ec2/lor = $-13 \text{ dB}$				
P-CCPCH (antenna 1)	$P$ -CCPCH_Ec1/lor = -15 dB	1. STTD applied			
P-CCPCH (antenna 2)	$P$ -CCPCH_Ec2/lor = -15 dB	1. STTD applied, total			
		$P-CCPCH_Ec/lor = -12 dB$			
SCH (antenna 1 / 2)	SCH_Ec/lor = $-12 \text{ dB}$	1. TSTD applied			
PICH (antenna 1)	$PICH_Ec1/lor = -18 dB$	1. STTD applied			
PICH (antenna 2)	$PICH_Ec2/lor = -18 dB$	<ol><li>STTD applied, total</li></ol>			
		PICH_Ec/lor = -15 dB			
DPCH	Test dependent power	1. Total power from both antennas			
OCNS	Necessary power so that total	1. This power shall be divided			
	transmit power spectral density	equally between antennas			
	of Node B (lor) adds to one <sup>1,3</sup>	2. OCNS interference consists of			
		16 dedicated data channels as			
		specified in Table E.3.6.			
NOTE 1: For dynamic po	wer correction required to compen-	sate for the presence of transient			
channels, e.g. c	ontrol channels, a subset of the O	CNS DPCH channels may be used.			
NOTE 2: Power levels ar	e based on the assumption that m	ultipath propagation conditions and			
noise source re	noise source representing interference from other cells loc are turned on after the call -				
set-up phase.	set-up phase.				
NOTE 3: For the case of	3: For the case of DPCH with transmit diversity, the OCNS power calculation shall be				
based on the ac	dition of the power from Antenna	1 and Antenna 2, i.e. disregarding			
any phase relat	any phase relationship between the antennas.				
NOTE 4: The time alignm	The time alignment of the P-CPICH from Antenna 1 and Antenna 2 as measured at the				
UE amenna cor	OE amenna connection shall be within 1/4 Chip.				

### E.3.6 OCNS Definition

Table E.3.6: DPCH Channelization Code and relative level settings for OCNS signal.

Channelization Code at SF=128 <sup>1</sup>	<ul> <li>Relative Level setting (dB)<sup>1,2</sup></li> </ul>	DPCH Data
• 2	• -1	<ul> <li>The DPCH data</li> </ul>
• 11	• -3	for each
• 17	• -3	channelization
• 23	• -5	code shall be
• 31	• -2	uncorrelated with
• 38	• -4	each other and
• 47	• -8	signal over the
• 55	• -7	period of any
• 62	• -4	measurement.
• 69	• -6	For OCNS with
• 78	• -5	transmit diversity
• 85	• -9	the DPCH data
• 94	• -10	sent to each
• 125	• -8	antenna shall be
• 113	• -6	either SITD
• 119	• 0	encoded or generated from uncorrelated sources.

NOTE 1: The DPCH Channelization Codes and relative level settings are chosen to simulate a signal with realistic Peak to Average Ratio.

NOTE 2: The relative level setting specified in dB refers only to the relationship between the OCNS channels. The level of the OCNS channels relative to the Ior of the complete signal is a function of the power of the other channels in the signal with the intention that the power of the group of OCNS channels is used to make the total signal add up to 1.

# E.4 W-CDMA Modulated Interferer for non-HSDPA test cases

The W-CDMA modulated interferer consists of the downlink channels defined in table E.4.1 plus the OCNS channels defined in Table E.3.6. The relative power of the OCNS channels shall be such that the power of the total signal adds up to one. In this subclause Ior refers to the power of the interferer.

# Table E.4.1: Spreading Code, Timing offsets and relative level settings for W-CDMA Modulated Interferer signal channels.

Channel Type	Spreading Factor	Channelization Code	Timing offset (x256T <sub>chip</sub> )	Power	NOTE
P-CCPCH	256	1	0	P- CCPCH_Ec/lo r = -10 dB	
SCH	256	-	0	SCH_Ec/lor = -10 dB	The SCH power shall be divided equally between Primary and Secondary Synchronous channels
P-CPICH	256	0	0	P- CPICH_Ec/lor = *10 dB	
PICH	256	16	16	PICH_Ec/lor = -15 dB	
OCNS		See table E.3.6		Necessary power so that total transmit power spectral density of Node B (lor) adds to one	OCNS interference consists of the dedicated data channels. as specified in Table E.3.6.

# E.5 HSDPA DL Physical channels

### E.5.0 Downlink Physical Channels for connection set-up

Table E.5.0: Levels for HSDPA connection	setup
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Parameter During Connection setup	Unit	Value
P-CPICH_Ec/lor	dB	-10
P-CCPCH and SCH_Ec/lor	dB	-12
PICH _Ec/lor	dB	-15
HS-PDSCH	dB	off
HS-SCCH_1	dB	off
DPCH_Ec/lor	dB	-5
OCNS_Ec/lor	dB	-3.1

## E.5.1 Downlink Physical Channels for measurement

Table E.5.1 is applicable for the measurements for tests in subclauses 5.2A, 5.2AA, 5.2C, 5.7A, 5.9A, 5.10A, 5.13.1A, 5.13.1AA, 5.13.2A, 6.3A, 9.2.1A to 9.2.1GD, 9.3.1, 9.3.1C (HSDPA categories 1-8, 11 and 12), 9.3.2, 9.5.1 and 9.5.1A.

Table E.5.1A is applicable for the measurements for tests in subclauses 6.3B, 9.2.1H, 9.2.1HA, 9.2.1HB, 9.2.1HC, 9.2.1HD, 9.2.1I, 9.3.1, 9.3.1C (HSDPA categories 9,10 and 13-20), 9.3.1A and 9.3.2B.

Table E.5.2 is applicable for the measurements for tests in subclauses 9.2.2A to 9.2.2E, 9.3.3, 9.3.4, 9.2.4A, 9.2.4B, 9.3.7A to 9.3.7E.

Table E.5.3 is applicable for the measurements for tests in subclauses 9.2.3A to 9.2.3E, 9.3.5 and 9.3.6.

Table E.5.4 is applicable for the measurements for tests in subclauses 9.4.1, 9.4.1A.

Table E.5.4A is applicable for the measurements for tests in subclauses 9.4.2, 9.4.2A, 9.4.3, 9.4.4 and 9.4.4A.

Table E.5.4B is applicable for the measurements for DC-HSDPA, DB-DC-HSDPA and 4C-HSDPA tests in sections 5 and 6.

Table E.5.4C is applicable for the measurements for tests in subclauses 9.6.1 and 9.6.2.

Table E.5.4D is applicable for the measurements for tests in subclauses 9.2.4E, 9.2.4F, 9.2.4G. 9.2.4H, 9.3.7F, 9.3.7G, 9.3.7H, 9.3.7I and 9.3.7J

Table E.5.4E is applicable for the measurements for tests in subclauses 9.4.4B, 9.4.4C, 9.4.4D and 9.4.4E.

# Table E.5.1: Downlink physical channels for HSDPA/DC-HSDPA/4C-HSDPA receiver testing for Single Link performance

Physical	Parameter	Value	NOTE	
P-CPICH	P-CPICH Ec/lor	-10dB		
P-CCPCH	P-CCPCH Ec/lor	-12dB	Mean power level is shared with SCH.	
SCH	SCH_Ec/lor	-12dB	Mean power level is shared with P-CCPCH – SCH includes P- and S-SCH, with power split between both. P-SCH code is S_dl,0 as per [14] S-SCH pattern is scrambling code group 0	
PICH	PICH_Ec/lor	-15dB		
DPCH	DPCH_Ec/lor	Test-specific only for serving HS-DSCH cell, omitted otherwise	12.2 kbps DL reference measurement channel as defined in Annex C.3.1	
HS-SCCH-1	HS-SCCH_Ec/lor	Test-specific	Specifies fraction of Node-B radiated power transmitted when TTI is active (i.e. due to minimum inter-TTI interval). During TTIs, in which the HS-SCCH is not allocated to the UE the HS- SCCH shall be transmitted continuously with constant power.	
HS-SCCH-2	HS-SCCH_Ec/lor	DTX'd	No signalling scheduled, or power radiated, on this HS-SCCH, but signalled to the UE as present.	
HS-SCCH-3	HS-SCCH_Ec/lor	DTX'd	As HS-SCCH-2.	
HS-SCCH-4	HS-SCCH_Ec/lor	DTX'd	No signalling scheduled, or power radiated, on this HS-SCCH, but signalled to the UE as present only in HSDPA configuration and not in multi cell configurations e.g. DC-HSDPA.	
HS-PDSCH	HS-PDSCH_Ec/lor	Test-specific		
OCNS		Necessary power so that total transmit power spectral density of Node B (lor) adds to one <sup>1</sup>	OCNS interference consists of a number of dedicated data channels as specified in table E.5.5. Table E.5.5 is the definition of OCNS for the test case which uses a maximum of ten HS- PDSCH.	
NOTE 1: For dynamic power correction required to compensate for the presence of transient channels, e.g. control channels, a subset of the OCNS DPCH channels may be used				

# Table E.5.1A: Downlink physical channels for HSDPA/DC-HSDPA/4C-HSDPA receiver testing forSingle Link performance, FRC H-Set 8 to H-Set 10

Physical Channel	Parameter	Value	Note
P-CPICH	P-CPICH_Ec/lor	-10dB	
P-CCPCH	P-CCPCH_Ec/lor	-12dB	Mean power level is shared with SCH.
SCH	SCH_Ec/lor	-12dB	Mean power level is shared with P-CCPCH – SCH includes P- and S-SCH, with power split between both. P-SCH code is S_dI,0 as per [14] S-SCH pattern is scrambling code group 0
PICH	PICH_Ec/lor	-15dB	
DPCH	DPCH_Ec/lor	Test-specific only for serving HS-DSCH cell, omitted otherwise	12.2 kbps DL reference measurement channel as defined in Annex C.3.1
HS-SCCH-1	HS-SCCH_Ec/lor	Test-specific	Specifies fraction of Node-B radiated power transmitted when TTI is active (i.e. due to minimum inter-TTI interval). During TTIs, in which the HS-SCCH is not allocated to the UE the HS- SCCH shall be transmitted continuously with constant power.
HS-SCCH-2	HS-SCCH_Ec/lor	DTX'd	No signalling scheduled, or power radiated, on this HS-SCCH, but signalled to the UE as present.
HS-PDSCH	HS-PDSCH_Ec/lor	Test-specific	
OCNS		Necessary power so that total transmit power spectral density of Node B (lor) adds to one	OCNS interference consists of a number of dedicated data channels as specified in table E.5.5A. Table E.5.5A is the definition of OCNS for the test case which uses a maximum of 11 to 15 HS-PDSCH.

# Table E.5.2: Downlink physical channels for HSDPA/DC-HSDPA receiver testing for Open Loop Transmit Diversity performance and MIMO performance

Physical Channel	Parameter	Value	Note
P-CPICH (antenna 1)	P-CPICH_Ec1/lor	-13dB	1. Total P-CPICH_Ec/lor = -10dB
P-CPICH (antenna 2)	P-CPICH_Ec2/lor	-13dB	
P-CCPCH (antenna 1)	P-CCPCH_Ec1/lor	-15dB	1. STTD applied.
P-CCPCH (antenna 2)	P-CCPCH_Ec2/lor	-15dB	2. Total P-CCPCH ECHORIS –12dB.
SCH (antenna 1/2)	SCH_Ec/lor	-12dB	1. TSTD applied.
			and secondary SCH.
PICH (antenna 1)	PICH_Ec1/lor	-18dB	1. STTD applied.
PICH (antenna 2)	PICH_Ec2/lor	-18dB	2. Total PICH Ec/lor is –15dB.
DPCH	DPCH_Ec/lor	Test-specific only for serving HS- DSCH cell, omitted otherwise	<ol> <li>STTD applied.</li> <li>Total power from both antennas</li> </ol>
HS-SCCH-1	HS-SCCH_Ec/lor	Test-specific	1. STTD applied. 2. Specifies fraction of Node-B radiated power transmitted when TTI is active (i.e. due to minimum inter-TTI interval). During TTIs, in which the HS-SCCH_1 is not allocated to the UE, the HS-SCCH_1 shall be transmitted continuously with constant power.
HS-SCCH-2	HS-SCCH_Ec/lor	DTX'd	1. UE assumes STTD applied. 2. No signalling scheduled, or power radiated, on this HS-SCCH, but signalled to the UE as present.
HS-PDSCH	HS-PDSCH_Ec/lor	Test-specific	1. STTD applied. 2. Total power from both antennas
OCNS		Necessary power so that total transmit power spectral density of Node B (lor) adds to one <sup>1,2</sup>	1. Balance of power $I_{or}$ of the Node-B is assigned to OCNS. 2. Power divided equally between antennas. 3. OCNS interference consists of a number of dedicated data channels as specified in table E.5.5 and E.5.5A. Table E.5.5 is the definition of OCNS for the test case which uses a maximum of ten HS-PDSCH. Table E.5.5A is the definition of OCNS for the test case which uses a maximum of 11 to 15 HS-PDSCH.
<ul> <li>NOTE 1: For dynamic power correction required to compensate for the presence of transient channels, e.g. control channels, a subset of the OCNS DPCH channels may be used.</li> <li>NOTE 2: For the case of DPCH with transmit diversity, the OCNS power calculation shall be based on the addition of the power from Antenna 1 and Antenna 2, i.e. disregarding any phase relationship between the antennas.</li> </ul>			

# Table E.5.3: Downlink physical channels for HSDPA receiver testing for Closed LoopTransmit Diversity (Mode-1) performance.

Physical Channel	Parameter	Value	Note
P-CPICH (antenna 1)	P-CPICH_Ec1/lor	-13dB	1. Total P-CPICH_Ec/lor = -10dB
P-CPICH (antenna 2)	P-CPICH_Ec2/lor	-13dB	
P-CCPCH (antenna 1)	P-CCPCH_Ec1/lor	-15dB	1. STTD applied.
P-CCPCH (antenna 2)	P-CCPCH_Ec2/lor	-15dB	2. Total P-CCPCH Echor IS –120B.
SCH (antenna 1/2)	SCH_Ec/lor	-12dB	1. TSTD applied.
			2. Power divided equally between primary
		10.15	and secondary SCH.
PICH (antenna 1)	PICH_Ec1/lor	-18dB	1. STID applied.
PICH (antenna 2)	PICH_Ec2/lor	-18dB	2. Total PICH Ec/lor is –15dB.
DPCH	DPCH_Ec/lor	Test-specific	1. CL1 applied.
			2. Iotal power from both antennas
HS-SCCH-1	HS-SCCH_Ec/lor	Test-speatic	1. STID applied.
			2. Specifies fraction of Node-B radiated
			power transmitted when TTI internal. During
			TTIE in which the US SCOU 1 is not
			allocated to the LIE the HS-SCCH 1 shall
			be transmitted continuously with constant
	HS-SCCH Ec/lor	DTX'd	1 LIE assumes STTD applied
113-30011-2	110-0001_L0/101	DIXU	2 No signalling scheduled or power
			radiated on this HS-SCCH but signalled to
			the UE as present.
HS-SCCH-3	HS-SCCH Ec/lor	DTX'd	1. As HS-SCCH-2.
HS-SCCH-4	HS-SCCH_Ec/lor	DTX'd	2. As HS-SCCH-2.
HS-PDSCH	HS-PDSCH_Ec/lor	Test-specific	1. CL1 applied.
			2. Total power from both antennas
OCNS		Necessary	1. Balance of power $I_{ar}$ of the Node-B is
		powerso	assigned to OCNS.
		that total	2. Power divided equally between antennas.
		transmit	3. OCNS interference consists of 6
		power	dedicated data channels as specified in
		spectral	table E.5.5. Table E.5.5 is the definition of
		Nodo B (lor)	OCNS for the test case which uses a
			maximum of ten HS-PDSCH. Table E.5.5A
		auus 10	is the definition of OCNS for the test case
		0116	which uses a maximum of 11 to 15 HS-
			PDSCH.
NOTE 1: For dynamic	power correction requi	red to compensa	ate for the presence of transient channels,
e.g. control cl	nannels, a subset of the	e OCNS DPCH	channels may be used.
NULE 2: For the case	of DPCH with transmit	diversity, the OC	NS power calculation shall be based on the
addition of the	e power from Antenna	and Antenna 2	2, i.e. disregarding any phase relationship
between the antennas.			

Parameter	Units	Value	Comment
CPICH $E_c / I_{or}$	dB	-10	
CCPCH E <sub>c</sub> / I <sub>or</sub>	dB	-12	Mean power level is shared with SCH.
SCH E <sub>c</sub> / I <sub>or</sub>	dB	-12	Mean power level is shared with P- CCPCH – SCH includes P- and S-SCH, with power split between both. P-SCH code is S_dl,0 as per [14] S-SCH pattern is scrambling code group 0
PICH $E_c / I_{or}$	dB	-15	
HS-PDSCH-1 $E_c / I_{or}$	dB	-10	HS-PDSCH associated with HS-SCCH- 1. The HS-PDSCH shall be transmitted continuously with constant power.
HS-PDSCH-2 $E_c / I_{or}$	dB	DTX	HS-PDSCH associated with HS-SCCH-2
HS-PDSCH-3 $E_c / I_{or}$	dB	DTX	HS-PDSCH associated with HS-SCCH-3
HS-PDSCH-4 $E_c / I_{or}$	dB	DTX	HS-PDSCH associated with HS-SCCH-4
DPCH $E_c / I_{or}$	dB	-8	12.2 kbps DL reference measurement channel as defined in Annex C.3.1
HS-SCCH-1 $E_c / I_{or}$	dB	Test Specific	All HS-SCCH's allocated equal $E_c/I_{or}$ .
HS-SCCH-2 $E_c / I_{or}$	dB		Specifies $E_c / I_{or}$ when TTL is active
HS-SCCH-3 $E_c / I_{or}$	dB		During TTIs, in which the HS-SCCH's
HS-SCCH-4 $E_c/I_{or}$	dB		are not allocated to the UE, the HS- SCCH's shall be transmitted continuously with constant power.
OCNS $E_c / I_{or}$	dB	Remaining power at Node- B (including HS-SCCH power allocation when HS- SCCH's inactive). <sup>1,2</sup>	OCNS interference consists of 6 dedicated data channels as specified in table E.5.5. Table E.5.5 is the definition of OCNS for the test case which uses a maximum of ten HS-PDSCH. Table E.5.5A is the definition of OCNS for the test case which uses a maximum of 11 to 15 HS-PDSCH.
<ul> <li>NOTE 1: For dynamic power correction required to compensate for the presence of transient channels, e.g. control channels, a subset of the OCNS DPCH channels may be used.</li> <li>NOTE 2: For the case of DPCH with transmit diversity, the OCNS power calculation shall be based on the addition of the power from Antenna 1 and Antenna 2, i.e. disregarding any phase relationship between the antennas.</li> </ul>			

# Table E.5.4: Downlink physical channels for HSDPA receiver testing for HS-SCCH detection performance

# Table E.5.4A: Downlink physical channels for HSDPA receiver testing for HS-SCCH detection with Open Loop Transmit Diversity performance and MIMO performance

Parameter	Units	Value	Comment		
P-CPICH (antenna 1)	P-CPICH_Ec1/lor	-13dB	1. Total P-CPICH_Ec/lor = -10dB		
P-CPICH (antenna 2)	P-CPICH_Ec2/lor	-13dB			
P-CCPCH (antenna 1)	P-	-15dB	1. STTD applied.		
	CCPCH_Ec1/lor		2. Total P-CCPCH Ec/lor is –12dB.		
P-CCPCH (antenna 2)	P- CCPCH_Ec2/lor	-15dB			
SCH (antenna 1/2)	SCH_Ec/lor	-12dB	1. TSTD applied.		
			2. Power divided equally between primary and secondary SCH.		
PICH (antenna 1)	PICH_Ec1/lor	-18dB	1. STTD applied.		
PICH (antenna 2)	PICH_Ec2/lor	-18dB	2. Total PICH Ec/lor is –15dB.		
HS-PDSCH-1 $E_c / I_{or}$	dB	-10 dB	<ol> <li>STTD applied.</li> <li>HS-PDSCH associated with HS- SCCH-1. The HS-PDSCH shall be transmitted continuously with constant power.</li> <li>Total power from both antennas</li> </ol>		
HS-PDSCH-2 $E_c / I_{or}$	dB	DTX	HS-PDSCH associated with HS- SCCH-2		
HS-PDSCH-3 $E_c / I_{or}$	dB	DTX	HS-PDSCH associated with HS- SCCH-3		
HS-PDSCH-4 $E_c / I_{or}$	dB	DTX	HS-PDSCH associated with HS- SCCH-4		
DPCH $E_c / I_{or}$	dB	-8	1. STTD applied. 2. Total power from both antennas		
HS-SCCH-1 E <sub>c</sub> / I <sub>or</sub>	dB	Test Specific	1. UE assumes STTD applied.		
HS-SCCH-2 $E_c / I_{or}$	dB		2. All HS-SCCH's allocated		
HS-SCCH-3 $E_o/I_{or}$	dB		equal $2c^{r}$ or . Specifies $2c^{r}$ or . when TTL is active During TTLs in		
	dB		which the HS-SCCH's are not		
$E_c/I_{or}$			allocated to the UE, the HS-SCCH's		
			shall be transmitted continuously		
			with constant power.		
OCNS $E / I$	dB	Remaining power at	OCNS interference consists of a		
-c - c - or		Node-B (including HS-	number of dedicated data channels		
		SCCH power allocation	as specified in table E.5.5 and		
		when HS-SCCH's	E.5.5A. Table E.5.5 is the definition		
		inactive). '*	of OCNS for the test case which		
			uses a maximum of ten HS-PDSCH.		
			OCNS for the test ease which upon a		
			maximum of 11 to 15 HS-PDSCH.		
NOTE 1: For dynamic pow	er correction required	to compensate for the pres	ence of transient channels, e.g. control		
channels, a subs	et of the OCNS DPCH	I channels may be used.			
NOTE 2: For the case of D	PCH with transmit div	ersity, the OCNS power cal	culation shall be based on the addition		
of the power from	Antenna 1 and Anter	nna 2, i.e. dis regarding any p	phase relationship between the		
antennas.					

Physical Channel	Parameter	Value	Note
P-CPICH	P-CPICH_Ec/lor	-10 dB	
P-CCPCH	P-CCPCH_Ec/lor	-12 dB	Mean power level is shared with SCH.
SCH	SCH_Ec/lor	-12 dB	Mean power level is shared with P-CCPCH – SCH includes P- and S-SCH, with power split between both. P-SCH code is S_dI,0 as per TS25.213 S-SCH pattern is scrambling code group 0
PICH	PICH_Ec/lor	-15 dB	
DPCH	DPCH_Ec/lor	Test-specific only for serving HS-DSCH cell, omitted otherwise	12.2 kbps DL reference measurement channel as defined in Annex C.3.1
HS-SCCH-1	HS-SCCH_Ec/lor	-9 dB	Specifies fraction of Node-B radiated power transmitted when TTI is active (i.e. due to minimum inter-TTI interval).
HS-SCCH-2	HS-SCCH_Ec/lor	DTX'd	No signalling scheduled, or power radiated, on this HS-SCCH, but signalled to the UE as present.
HS-SCCH-3	HS-SCCH_Ec/lor	DTX'd	As HS-SCCH-2.
HS-PDSCH	HS-PDSCH_Ec/lor	Test-specific	
OCNS		Necessary power so that total transmit power spectral density of Node B (lor) adds to one	OCNS interference consists of a number of dedicated data channels as specified in table E.5.5 and E.5.5A. Table E.5.5 specifies the OCNS setup for H-Set 1 to H-Set 6 and H-Set 12. Table E.5.5A specifies the OCNS setup for H-Set 8 and H-set 10.

#### Table E.5.4B: Downlink physical channels for DC-HSDPA/4C-HSDPA Receiver testing

#### Table E.5.4C: Downlink physical channels for HS-DSCH and HS-SCCH reception in CELL-FACH state

Physical Channel	Parameter	Value	Note
P-CPICH	P-CPICH_Ec/lor	-10 dB	
P-CCPCH	P-CCPCH_Ec/lor	-12 dB	Mean power level is shared with SCH.
SCH	SCH_Ec/lor	-12 dB	Mean power level is shared with P-CCPCH – SCH includes P- and S-SCH, with power split between both. P-SCH code is S_dI,0 as per TS25.213 S-SCH pattern is scrambling code group 0
PICH	PICH_Ec/lor	-15 dB	
AICH	AICH Ec/lor	-10 dB	
HS-SCCH-1	HS-SCCH_Ec/lor	-10 dB	Specifies fraction of Node-B radiated power transmitted when TTI is active (i.e. due to minimum inter-TTI interval).
HS-SCCH-2	HS-SCCH_Ec/lor	DTX'd	No signalling scheduled, or power radiated, on this HS-SCCH, but signalled to the UE as present.
HS-SCCH-3	HS-SCCH_Ec/lor	DTX'd	As HS-SCCH-2.
HS-SCCH-4	HS-SCCH_Ec/lor	DTX'd	As HS-SCCH-2.
HS-PDSCH	HS-PDSCH_Ec/lor	Test-specific	
OCNS		Necessary power so that total transmit power spectral density of Node B (lor) adds to one	OCNS interference consists of a number of dedicated data channels as specified in table E.5.5. Table E.5.5 is the definition of OCNS for the test case which uses a maximum of ten HS- PDSCH.

Table E.5.4D: Downlink physical channels for HSDPA/DC-HSDPA receiver testing for MIMO
performance with asymmetric P-CPICH/S-CPICH power settings

Physical Channel	Parameter	Value	Note
P-CPICH (antenna 1)	P-CPICH_Ec/lor	-10dB	Phase reference
S-CPICH (antenna 2)	S-CPICH Ec/lor	-13dB	Phase reference
P-CCPCH	P-CCPCH_Ec/lor	-12dB	
SCH	SCH_Ec/lor	-12dB	
PICH	PICH_Ec/lor	-15dB	
DPCH	DPCH_Ec/lor	Test-specific	
HS-SCCH-1	HS-SCCH_Ec/lor	Test-specific	Specifies fraction of Node-B radiated power transmitted when TTI is active (i.e. due to minimum inter-TTI interval).
HS-SCCH-2	HS-SCCH_Ec/lor	DTX'd	No signalling scheduled, or power radiated, on this HS-SCCH, but signalled to the UE as present.
HS-SCCH-3	HS-SCCH_Ec/lor	DTX'd	As HS-SCCH-2.
HS-SCCH-4	HS-SCCH_Ec/lor	DTX'd	No signalling scheduled, or power radiated, on this HS-SCCH, but signalled to the UE as present only in HSDPA configuration and not in multi cell configurations e.g. DC- HSDPA.
HS-PDSCH	HS-PDSCH_Ec/lor	Test-specific	Precoding used.
OCNS		Necessary power so that total transmit power spectral density of Node B (lor) adds to one	1. Balance of power $I_{or}$ of the Node-B is assigned to OCNS. 2. OCNS interference consists of a number of dedicated data channels as specified in Table E.5.5and E.5.5A.Table E.5.5 specifies the OCNS setup for H-Set 1 to H-set 6. Table E.5.5A specifies the OCNS setup for H-Set 9 and H-Set 11. 3. OCNS transmitted only on antenna 1.
NOTE: Transmit dive	ersity (STTD or TSTD) i HS-SCCH, DPCH)	s disabled on th	e associated physical channels (P-CPICH,

Physical Channel	Parameter	Value	Note		
P-CPICH (antenna 1)	P-CPICH_Ec/lor	-10dB	Phase reference		
S-CPICH (antenna 2)	S-CPICH Ec/lor	-13dB	Phase reference		
P-CCPCH	P-CCPCH_Ec/lor	-12dB			
SCH	SCH_Ec/lor	-12dB			
PICH	PICH_Ec/lor	-15dB			
DPCH	DPCH_Ec/lor	-8dB	1. STTD applicability is test-specific. 2. 12.2 kbps DL reference measurement channel as defined in Annex C.3.1		
HS-SCCH-1	HS-SCCH_Ec/lor		<ol> <li>STTD applicability is test specific.</li> <li>Specifies fraction of Node-B</li> </ol>		
HS-SCCH-2	HS-SCCH_Ec/lor	Test-specific	radiated power transmitted when TTT is active (i.e. due to minimum inter- TTI interval).		
HS-SCCH-3	HS-SCCH_Ec/lor		2. All HS-SCCH's allocated equal $E_c/I_{or}$ .		
HS-SCCH-4	HS-SCCH_Ec/lor		3. Specifies $E_c / I_{or}$ when TTI is active.		
HS-PDSCH-1 $E_c/I_{or}$	HS-PDSCH_Ec/lor	Necessary power so that total transmit power spectral density of Node B (lor) adds to one	1. Precoding used. 2. Balance of power $I_{or}$ of the Node-B is assigned to HS-PDSCH.		
HS-PDSCH-2 $E_c / I_{or}$	HS-PDSCH_Ec/lor	DTX			
HS-PDSCH-3 $E_c / I_{or}$	HS-PDSCH_Ec/lor	DTX			
HS-PDSCH-4 $E_c/I_{or}$	HS-PDSCH_Ec/lor	DTX			
OCNS		DTX			
NOTE1: Transmit diversity (STTD or TSTD) is disabled on P-CCPCH, PICH and SCH. NOTE2: OCNS is not present for this test, HS-PDSCH is used in order to model other UE MIMO traffic.					

#### Table E.5.4E: Downlink physical channels for HSDPA receiver testing for HS-SCCH detection performance with asymmetric P-CPICH/S-CPICH power settings

## E.5.2 HSDPA OCNS Definition

The selected channelization codes and relative power levels for OCNS transmission for HSDPA performance assessment for receiver types other than enhanced performance type 3i are defined in Table E.5.5 and E.5.5A. The selected codes are designed to have a single length-16 parent code. The test definition for the enhanced performance type 3i is defined in section E.5E.

Channelization Code at SF=128	Relative Level setting (dB) (Note 1)	DPCH Data
122	0	The DPCH data for each channelization code shall
123	-2	be uncorrelated with each other and with any
124	-2	wanted signal over the period of any
125	-4	measurement. For OCNS with transmit diversity
126	-1	the DPCH data sent to each antenna shall be
127	-3	either STID encoded or generated from uncorrelated sources.

Table E.5.5: OCNS definition for HSDPA receiver testing

NOTE 1: The relative level setting specified in dB refers only to the relationship between the OCNS channels. The level of the OCNS channels relative to the Ior of the complete signal is a function of the power of the other channels in the signal with the intention that the power of the group of OCNS channels is used to make the total signal add up to 1.

Table L.J.JA. OONJ deminition for hopi A receiver lesting, into h-set 0, h-set 3, h-set 10, h-set i	Table	E.5.5A: OCNS	definition for	HSDP A r	receiver testing,	FRC H-Set 8,	H-Set 9,	H-Set 10,	H-Set 1	1
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Channelization Code at SF=128	DPCH Data	
6	For OCNS with transmit diversity the DPCH data sent to each antenna shall be either STTD encoded or generated from uncorrelated sources.	
Note: The core requirements are based on OCNS with 4 codes. However when taking into account the necessary physical channels for call setup, only one code fit the code tree. See table E.6.2.4.		

# E.5.3 Downlink Physical Channels for measurement including test tolerances

Table E.5.6 to E.5.8D are applicable for tests in subclause 9.2. Table E.5.9 indicates which levels are applied, when the primary level settings (Ec/Ior and Ior/Ioc) and propagation conditions (PA3, PB3, VA 3, VA30, VA 120) vary. Table E.5.6 is also applicable for tests in subclause 9.5.1 and 9.5.1A. For the downlink physical channels of other than serving cell, OCNS is necessary power so that total transmit power spectral density of Node B (Ior) adds to one.

Table E.5.6: Level set 1 for HSDPA measurements including	y test tolerances
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Parameter	Unit	Value
During Measurement		
P-CPICH_Ec/lor	dB	-9.9
P-CCPCH and SCH_Ec/lor	dB	-11.9
PICH _Ec/lor	dB	-14.9
HS-PDSCH	dB	-5,9
HS-SCCH_1	dB	-7.4
DPCH_Ec/lor	dB	-5
OCNS_Ec/lor	dB	-13.3
Measurement conditions	PA3 & Case 6dB, lo	8:HS-PDSCH = - r/loc = 0 dB
	Case 8: HS-	PDSCH = -9 dB,
	lor/lo	c = 0 dB

Table E.5.7: Level set 2 for HSDPA measurements including test tolerances

Parameter	Unit	Value
During Measurement		
P-CPICH_Ec/lor	dB	-9.9
P-CCPCH and SCH_Ec/lor	dB	-11.9
PICH _Ec/lor	dB	-14.9
HS-PDSCH	dB	-5.9
HS-SCCH_1	dB	-8.4
DPCH_Ec/lor	dB	-5
OCNS_Ec/lor	dB	-10.75
Measurement conditions	HS-PDS	SCH = -6dB,
	lor/loc = 10d	IB, 5dB and 0dB

Table E.5.8: Level set 3 for HSDPA	measurements including	g test tolerances
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Parameter	Unit	Value
During Measurement		
P-CPICH_Ec/lor	dB	-9.9
P-CCPCH and SCH_Ec/lor	dB	-11.9
PICH _Ec/lor	dB	-14.9
HS-PDSCH	dB	-2,9
HS-SCCH_1	dB	-8.4
DPCH_Ec/lor	dB	-8.4
OCNS_Ec/lor	dB	off
Measurement conditions	HS-PDSCH = -3dB,	
	lor/loc = 10d	IB, 5dB and 0 dB

Parameter During Measurement	Unit	Value
P-CPICH_Ec/lor	dB	-9.9
P-CCPCH and SCH_Ec/lor	dB	-11.9
PICH _Ec/lor	dB	-14.9
HS-PDSCH	dB	-8,9
HS-SCCH_1	dB	-8.4
DPCH_Ec/lor	dB	-5
OCNS_Ec/lor	dB	-6.75
Measurement conditions	HS-PDSCH = -9dB, lor/loc = 10dB	

#### Table E.5.8A: Level set 4 for HSDPA measurements including test tolerances

#### Table E.5.8B: Level set 5 for HSDPA measurements including test tolerances

Parameter During Measurement	Unit	Value
P-CPICH_Ec/lor	dB	-9.9
P-CCPCH and SCH_Ec/lor	dB	-11.9
PICH _Ec/lor	dB	-14.9
HS-PDSCH	dB	-11,9
HS-SCCH_1	dB	-8.4
DPCH_Ec/lor	dB	-5
OCNS_Ec/lor	dB	-5.6
Measurement conditions	HS-PDS lor/lo	CH = -12dB, c = 10dB

#### Table E.5.8C: Level set 6 for HSDPA measurements including test tolerances

Parameter	Unit	Value
During Measurement		
P-CPICH_Ec/lor	dB	-9.9
P-CCPCH and SCH_Ec/lor	dB	-11.9
PICH _Ec/lor	dB	-14.9
HS-PDSCH	dB	-1,9
HS-SCCH_1	dB	-11.1
DPCH_Ec/lor	dB	-11.1
OCNS_Ec/lor	dB	Off
Measurement conditions	HS-PDS	SCH = -2dB,
	lor/loc = 4 dE	3, 6 dB, 8 dB, 10
	dB, 15 d	B and 18 dB

#### Table E.5.8D: Level set 7 for HSDPA measurements including test tolerances

Parameter During Measurement	Unit	Value
P-CPICH_Ec/lor	dB	-9.9
P-CCPCH and SCH_Ec/lor	dB	-11.9
PICH _Ec/lor	dB	-14.9
HS-PDSCH	dB	-1,4
HS-SCCH_1	dB	-14.2
DPCH_Ec/lor	dB	-14.2
OCNS_Ec/lor	dB	Off
Measurement conditions	HS-PDS lor/lo	CH = -1.5 dB, c = 18 dB

Propagation Conditions	Reference value							
Contaitionic					T-put	T-put	T-put	T-put
		T-put <i>R</i> (kbps)	T-put	T-put	R (kbps)	R (kbps)	R (kbps)	R (kbps)
	HS- PDSCH $E_c / I_{or}$ (dB)	$\hat{I}_{or}/I_{oc} =$ <b>0 dB</b>	(KDPS) $\hat{I}_{or} / I_{oc} =$ 10 dB	(KDPS) $\hat{I}_{or} / I_{oc} =$ 6 dB	$\hat{I}_{or} / I_{oc} =$ 15 dB and 18 dB	$\hat{I}_{or} / I_{oc} =$ 5 dB	$\hat{I}_{or} / I_{oc} =$ 4 dB and 8 dB	<i>Î<sub>or</sub> / I<sub>oc</sub></i> = 18 dB
	-12	Not tested	Level set 5	Not tested	Not tested	Not tested	Not tested	Not tested
	-9	Not tested	Level set 4	Not tested	Not tested	Not tested	Not tested	Not tested
BAG	-6	Level set 1	Level set 2	Not tested	Not tested	Not tested	Not tested	Not tested
PA3	-3	Level	Level	Not tested	Not tested	Not tested	Not tested	Not tested
-	-2	Not tested	Level set 6	Level set 6	Level set 6	Not tested	Not tested	Not tested
	-1.5	Not tested	Not tested	Not tested	Not tested	Not tested	Not tested	Level set 7
	-9	Not tested	Level set 4	Not tested	Not tested	Not tested	Not tested	Not tested
PB3	-6	Level set 2	Level set 2	Not tested	Not tested	Level set 2	Not tested	Not tested
	-3	Level set 3	Level set 3	Not tested	Not tested	Level set 3	Not tested	Not tested
	-9	Not tested	Level set 4	Not tested	Not tested	Not tested	Not tested	Not tested
VA30	-6	Level set 2	Level set 2	Not tested	Not tested	Not tested	Not tested	Not tested
	-3	Level set 3	Level set 3	Not tested	Not tested	Not tested	Not tested	Not tested
	-9	Not tested	Level set 4	Not tested	Not tested	Not tested	Not tested	Not tested
VA120	-6	Level set 2	Level set 2	Not tested	Not tested	Not tested	Not tested	Not tested
	-3	Level set 3	Level set 3	Not tested	Not tested	Not tested	Not tested	Not tested
VA3	-2	Not tested	Level set6	Level set 6	Not tested	Not tested	Level set 6	Not tested

# E.5.4 Downlink Physical Channels for Transmitter Characteristics with HS-DPCCH

Table E.5.10 is applicable for measurements on the Transmitter Characteristics with HSDPA in clauses 5.2A, 5.2AA, 5.2C, 5.7A, 5.9A, 5.10A, 5.13.1A, 5.13.1AA and 5.13.2A.

Parameter Unit		Test		
DPCH	DPCH_Ec/lor (dB)	-9		
HS-SCCH_1 HS-SCCH_Ec/lor (dB)		-8		
HS-PDSCH HS-PDSCH_Ec/lor (dB)		-3		
Note: The power levels are selected high enough to keep the DTX reporting ratio very small and to ensure that the radio link is maintained during the test.				

Table E.5.10: Test specific downlink physical channels

# E.5A E-DCH with HSDPA DL Physical channels

## E.5A.0 Downlink Physical Channels for connection set-up

Parameter During Connection setup	Unit	Value
P-CPICH_Ec/lor	dB	-10
P-CCPCH and SCH_Ec/lor	dB	-12
PICH _Ec/lor	dB	-15
HS-PDSCH	dB	off
HS-SCCH_1	dB	off
DPCH_Ec/lor	dB	-5
E-HICH	dB	off
E-AGCH	dB	off
E-RGCH	dB	off
OCNS_Ec/lor	dB	-3.1

#### Table E.5A.0: Levels for connection setup

## E.5A.1 Downlink Physical Channels for measurement

Table E.5A.1 is applicable for tests in subclause 5.2B, 5.2D, 5.2E, 5.9B, 5.10B, 5.13.1AAA, 5.13.2B, and 5.13.2C. Table E.5A.2 is applicable for tests in subclause 10.2.1, 10.3.1, 10.4.1 and 10.4.1A. Table E.5A.3 is applicable for tests in subclause 10.2.2, 10.3.2 and 10.3.2A.

Table E.5A.1A is applicable for the measurements for DC-HSUPA in sections 5 and 6, and is valid for both DC-HSDPA cells (DC-HSDPA is configured).

#### Table E.5A.1: Downlink Physical Channel parameters for E-DCH the Transmitter Characteristics tests

Parameter	Unit	Value	Remark			
During Measurement	•					
P-CPICH_Ec/lor	dB	-10				
P-CCPCH and SCH_Ec/lor	dB	-12				
PICH _Ec/lor	dB	-15				
HS-PDSCH	dB	-3	During TTIs, in which the HS-PDSCH is not allocated to the UE via HS- SCCH signalling, the HS-PDSCH shall be transmitted continuously with constant power			
HS-SCCH_1	dB	-8	During TTIs, in which the HS-SCCH is not allocated to the UE the HS- SCCH shall be transmitted continuously with constant power.			
DPCH_Ec/lor	dB	-10				
E-AGCH	dB	-20				
E-HICH	dB	-20				
E-RGCH	dB	DTX°d				
OCNS_Ec/lor	dB	Necessary power so that total transmit power spectral density of Node B (lor) adds to one	OCNS interference consists of 6 dedicated data channels as specified in table E.5A.4			
NOTE 1: For dynamic power correctio	NOTE 1: For dynamic power correction required to compensate for the presence of transient channels, e.g.					
control channels, a subset of the OCNS DPCH channels may be used. NOTE 2: For 5.2B, 5.9B, 5.10B, the power levels are selected high enough to keep the DTX reporting ratio very small and to ensure that the radio link is maintained during the test.						

Parameter	Unit	Value	Remark
During Measurement			
P-CPICH_Ec/lor	dB	-10	
P-CCPCH and SCH_Ec/lor	dB	-12	
PICH _Ec/lor	dB	-15	
HS-PDSCH	dB	-3	During TTIs, in which the HS-PDSCH is not allocated to the UE via HS- SCCH signalling, the HS-PDSCH shall be transmitted continuously with constant power
HS-SCCH_1	dB	-8	During TTIs, in which the HS-SCCH is not allocated to the UE the HS- SCCH shall be transmitted continuously with constant power.
DPCH_Ec/lor	dB	-10	
E-AGCH	dB	-20	
E-HICH	dB	-20	
E-RGCH	dB	DTX'd	
OCNS_Ec/lor	dB	Necessary power so that total transmit power spectral density of Node B (lor) adds to one	OCNS interferenœ consists of 6 dedicated data channels as specified in table E.5A.4
<ul> <li>NOTE 1: For dynamic power correction required to compensate for the presence of transient channels, e.g. control channels, a subset of the OCNS DPCH channels may be used.</li> <li>NOTE 2: For 5.2BA, 5.9C, 5.10C, the power levels are selected high enough to keep the DTX reporting ratio very small and to ensure that the radio link is maintained during the test.</li> <li>NOTE 3: DC-HSDPA shall be configured when testing DC-HSUPA.</li> </ul>			

# Table E.5A.1A: Downlink Physical Channel parameters for DC-HSUPA Transmitter and Receiver Characteristics tests

#### Table E.5A.2: Downlink Physical Channel parameters for E-DCH single link performance tests

Parameter	Unit	Value	Remark		
During Measurement					
P-CPICH_Ec/lor	dB	-10			
P-CCPCH and SCH_Ec/lor	dB	-12			
PICH _Ec/lor	dB	-15			
HS-PDSCH	dB	-3	During TTIs, in which the HS-PDSCH		
			is not allocated to the UE via HS-		
			SCCH signalling, the HS-PDSCH shall		
			be transmitted continuously with		
			constant power		
HS-SCCH_1	dB	-7.5	During TTIs, in which the HS-SCCH is		
			not allocated to the UE the HS-SCCH		
			shall be transmitted continuously with		
			constant power.		
DPCH_Ec/lor	dB	-10			
E-AGCH	dB	Test specific	Test-specific value or –20dB is used		
E-HICH	dB	Test specific	Test-specific value or DTX'd is used		
E-RGCH	dB	Test specific	Test-specific value or DTX'd is used		
OCNS_Ec/lor	dB	Necessary	OCNS interference consists of 6		
		power so that	dedicated data channels as specified in		
		total transmit	table E.5A.4		
		power spectral			
		density of Node			
		B (lor) adds to			
		one			
NOTE 1: For dynamic power correction	NOTE 1: For dynamic power correction required to compensate for the presence of transient channels, e.g.				
control channels, a subset of the OCNS DPCH channels may be used.					

Parameter	Unit	Value	Remark
During Measurement (Note 1)			
P-CPICH_Ec/lor 1 and 2	dB	-10	
P-CCPCH and SCH_Ec/lor1 and 2	dB	-12	
PICH _Ec/lor1 and 2	dB	-15	
HS-PDSCH1	dB	Test specific	During TTIs, in which the HS-PDSCH is not allocated to the UE via HS-SCCH signalling, the HS-PDSCH shall be transmitted continuously with constant power
HS-SCCH_11	dB	-7.5	During TTIs, in which the HS-SCCH is not allocated to the UE the HS-SCCH shall be transmitted continuously with constant power.
DPCH_Ec/lor1 and 2	dB	-10	
E-AGCH1	dB	Test specific	Test-specific value or –20dB is used
E-HICH 1	dB	Test specific	Test-specific value or DTX'd is used
E-RGCH1	dB	Test specific	Test-specific value or DTX'd is used
OCNS_Ec/lor 1 and 2	dB	Necessary	OCNS interference consists of 6
		powerso that	dedicated data channels as specified in
		total transmit	table E.5A.4
		power spectral	
		density of Node	
		B (lor) adds to	
		one).	
NOTE1: Index 1: cell belonging to RL	S containing the	e Serving E-DCH ce	ell, Index 2: cell belonging to RLS not
containing the Serving E-DC	H cell		

#### Table E.5A.3: Downlink Physical Channel parameters for E-DCH in Inter-cell SHO tests

### E.5A.2 E-DCH OCNS Definition

The selected channelization codes and relative power levels for OCNS transmission for E-DCH tests assessment are defined in Table E.5A.4. The selected codes are designed to have a single length-16 parent code.

Channelization Code at SF=128	Relative Level setting (dB)	DPCH Data
122	0	The DPCH data for each channelization code shall be
123	-2	uncorrelated with each other and with any wanted signal
124	-2	over the period of any measurement. For OCNS with
125	-4	transmit diversity the DPCH data sent to each antenna shall
126	-1	be either STTD encoded or generated from uncorrelated
127	-3	sources.

	Table	E.5A.4:	OCNS	definition	for	<b>HSDPA</b>	receiver	testing
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NOTE 1: The relative level setting specified in dB refers only to the relationship between the OCNS channels. The level of the OCNS channels relative to the Ior of the complete signal is a function of the power of the other channels in the signal with the intention that the power of the group of OCNS channels is used to make the total signal add up to 1.

# E.5B MBMS DL Physical channels

## E.5B.1 Downlink Physical Channels for connection set-up

Table E.5B.1 is applicable for measurements on the Performance requirements in Clause 11.

#### Table E.5B.1: Downlink Physical Channels on each radio link

Physical Channel	Power ratio	NOTE
P-CPICH	P-CPICH_Ec/lor = -10 dB	Only P-CPICH is used as phase reference for S-CCPCH carrying MCCH or MTCH.
P-CCPCH	P-CCPCH_Ec/lor = -12 dB	
SCH	SCH_Ec/lor = -12 dB	This power shall be divided equally between Primary and Secondary Synchronous channels
PICH	PICH_Ec/lor = -12 dB	This powershall be high enough such that UE can transition to CELL_PCH state reliably
S-CCPCH_1	S-CCPCH_Ec/lor = -7 dB	Specifies the power of the S-CCPCH carrying the FACH/PCH/MCCH
S-CCPCH_2	S-CCPCH_Ec/lor = test dependent	Specifies the power of the S-CCPCH carrying the MTCH
MICH	MICH_Ec/lor = -10 dB	
OCNS	Necessary power so that total transmit power spectral density of Node B (lor) adds to one	OCNS interference consists of 16 dedicated data channels as specified in table E.3.6

# E.5C F-DPCH with HSDPA DL Physical channels

E.5C.0 Downlink Physical Ch	nannels for connection set-up
-----------------------------	-------------------------------

Parameter During Connection setup	Unit	Value
P-CPICH_Ec/lor	dB	-10
P-CCPCH and SCH_Ec/lor	dB	-12
PICH _Ec/lor	dB	-15
HS-PDSCH	dB	off
HS-SCCH_1	dB	off
DPCH_Ec/lor	dB	-5
F-DPCH_Ec/lor	dB	off
OCNS_Ec/lor	dB	-3.1

#### Table E.5C.0: Levels for connection setup

### E.5C.1 Downlink Physical Channels for measurement

Table E.5C.1 is applicable for tests in subclause 7.8.5.

Parameter During Measurement	Unit	Value	Remark	
P-CPICH Ec/lor	dB	-10		
P-CCPCH Ec/lor	dB	-12	Mean power level is shared with SCH.	
SCH Ec/lor	dB	-12	Mean power level is shared with P- CCPCH – SCH includes P- and S- SCH, with power split between both. P-SCH code is S_dI,0 as per [14] S-SCH pattern is scrambling code group 0	
PICH _Ec/lor	dB	-15		
HS-PDSCH_Ec/lor	dB	-7	Specifies fraction of Node-B radiated power transmitted when TTI is active (i.e. due to minimum inter-TTI interval). During TTIs, in which the HS-PDSCH is not allocated to the UE via HS- SCCH signalling, the HS-PDSCH shall be transmitted continuously with constant power	
HS-SCCH_1_Ec/lor	dB	-10	Specifies fraction of Node-B radiated power transmitted when TTI is active (i.e. due to minimum inter-TTI interval). During TTIs, in which the HS-SCCH is not allocated to the UE the HS-SCCH shall be transmitted continuously with constant power.	
HS-SCCH-2_Ec/lor	dB	DTX'd	Not present	
HS-SCCH-3_Ec/lor	dB	DTX'd	Not present	
HS-SCCH-4_Ec/lor	dB	DTX'd	Not present	
DPCH_Ec/lor	dB	off	Not present	
F-DPCH_Ec/lor	dB	Test specific	DL power control is ON so this power varies according to TPC commands received from UE.	
OCNS_Ec/lor NOTE 1: For dynamic power correction	dB n required to co	Necessary power so that total transmit power spectral density of Node B (lor) adds to one ompensate for the pr	OCNS interference consists of 6 dedicated data channels as specified in table E.5.5 resence of transient channels, e.g.	
control channels, a subset of the OCNS DPCH channels may be used.				

#### Table E.5C.1: Downlink Physical Channel parameters for F-DPCH performance tests

# E.5D HSDPA and E-DCH DL Physical channels with discontinuous UL DPCCH transmission

## E.5D.0 Downlink Physical Channels for connection set-up

#### Table E.5D.0: Levels for connection setup

Parameter	Unit	Value
During Connection setup		
P-CPICH_Ec/lor	dB	-10
P-CCPCH and SCH_Ec/lor	dB	-12
PICH _Ec/lor	dB	-15
HS-PDSCH	dB	off
HS-SCCH_1	dB	off
DPCH_Ec/lor	dB	-5
F-DPCH_Ec/lor	dB	off
OCNS_Ec/lor	dB	-3.1
E-HICH	dB	off
E-AGCH	dB	off
E-RGCH	dB	off

## E.5D.1 Downlink Physical Channels for measurement

Table E.5D.1 is applicable for the test in subclause 7.13.

Parameter	Unit	Value	Remark	
During Measurement				
P-CPICH_Ec/lor	dB	-10		
P-CCPCH Ec/lor	dB	-12	Mean power level is shared with SCH.	
SCH Ec/lor	dB	-12	Mean power level is shared with P-	
			CCPCH – SCH includes P- and S-	
			SCH, with power split between both.	
			P-SCH code is S_di,0 as per [14]	
			S-SCH pattern is scrambling code	
		4.5	group 0	
PICH _Ec/lor	dB	-15		
HS-PDSCH_Ec/lor	dB	-3	Specifies fraction of Node-B radiated	
			power transmitted when I II is active	
			(i.e. due to minimum inter-111 interval).	
			is not allocated to the UE via HS	
			SCCH signalling the HS-PDSCH shall	
			be transmitted continuously with	
			constant nower	
HS-SCCH 1 Ec/lor	dB	-10	Specifies fraction of Node-B radiated	
	ЧD	10	power transmitted when TTL is active	
			(i.e. due to minimum inter-TTI interval)	
			During TTIs, in which the HS-SCCH is	
			not allocated to the UE the HS-SCCH	
			shall be transmitted continuously with	
			constant power.	
HS-SCCH-2_Ec/lor	dB	DTX'd	Not present	
HS-SCCH-3_Ec/lor	dB	DTX'd	Not present	
HS-SCCH-4_Ec/lor	dB	DTX'd	Not present	
DPCH_Ec/lor	dB	off	Not present	
F-DPCH_Ec/lor	dB	-10	DL power control is OFF so this power	
			does not vary according to TPC	
<b>E</b> 40011	5	0.0.15	commands received from UE.	
E-AGCH	dB	-20 dB		
E-HICH	dB	-20 dB		
	dB	ΟΠ	E-RGCH is not configured	
OCNS_Ec/lor	aв	Necessary	OCNS interference consists of 6	
		power so that		
			lable E.S.S	
		hower spectral		
		B (lor) adds to		
NOTE 1: For dynamic power correction	n required to a	romnensate for the p	resence of transient channels e d	
control channels a subset of the OCNS DPCH channels may be used				

# Table E.5D.1: Downlink Physical Channel parameters for UE UL power control operation with discontinuous UL DPCCH transmission test

# E.5E Test Definition for Enhanced Performance Type 3i

This section defines additional test definition for enhanced performance type 3i including: number of interfering cells and their respective powers; transmitted code and power characteristics (OCNS) for serving and interfering cells; and frame offsets for interfering cells. For DC-HSDPA, DB-DC-HSDPA and 4C-HSDPA requirements, the number of interfering cells and their respective powers; transmitted code and power characteristics (OCNS) for serving and interfering and interfering cells; and frame offsets for interfering cells shall be the same for each carrier frequency. The transmitted OCNS and data signals shall be independent for each cell.

DIPi =  $\hat{I}_{or(i+1)} / I_{oc}$  where  $\hat{I}_{orj}$  is the average received power spectral density from the *j*-th strongest interfering cell ( $\hat{I}_{orl}$  is assumed to be the power spectral density associated with the serving cell), and  $I_{oc}$  is given by  $I_{oc} = \sum_{i=2}^{3} \hat{I}_{orj} + I_{oc}$  where loc is the average power spectral density of a band limited white noise source

consistent with the definition provided in section 3.4.

Annex K specifies how the serving cell and interfering cells are mapped to TS 34.108 cells.

### E.5E.1 Transmitted code and power characteristics for serving cell

The downlink physical channel code allocations for the serving cell are specified in Table E.5E.1.1. Ten HS-PDSCH codes have been reserved for the user of interest, based upon the use of QPSK with FRC H-Set 6. The other user codes are selected from 46 possible SF = 128 codes. Note not all 46 of these codes are used, and in addition only 16 codes are used at a given instance in time. Table E.5E.1.2 summarizes the power allocations of different channels for the serving cell for 50% and 25% HS-PDSCH power allocation. Note the power allocations in the last row of Table E.5E.1.2 are to be split between the HS-SCCH and the other users' channels in order to ensure proper operation of the HS-SCCH during testing.

Table E.5E.1.3 summarizes the channelisation codes to be used for the other users channels (OCNS) along with their respective relative power allocations in dB when HS-PDSCH is allocated 25% or 50% of the total power. As shown in Table E.5E.1.3, there are two groups of 16 codes, which are randomly selected with equal probability on a symbol-by-symbol basis. This random selection is done per code pair, where a code pair occupies the same row, as opposed to selecting all of the codes within group 1 or group 2. This random selection between these two groups is for purposes of modelling a simplified form of DTX. Note that the switching time for the symbols with SF = 64 would be the symbol timing for SF = 128 channel. Thus, there would be two different symbol times dependent upon the SF. For SF = 64, symbol time ~ 16.67 microseconds, and for SF = 128, symbol time ~ 33.33 microseconds. Each of these users is also power controlled as described in section E.5E.3.

The scrambling code of the serving cell is set to 0.

Channelization Code at SF=128	Note
0	P-CPICH, P-CCPCH and PICH on SF=256
26	5 SF=128 codes free for OCNS
7	HS-SCCH on SF=128
887	10 HS-PDSCH codes at SF=16
8896	9 SF=128 codes free for OCNS
97	DPCH on SF=128
98127	30 SF=128 codes free for OCNS

	Servir	ng cell		
Common channels	0.195 (-7.1dB) As specified in Table E.5.1			
HS-PDSCH transport format	H-Set 6			
HS-PDSCH power allocation [Ec/lor]	0.5 (-3 dB)	0.25 (-6 dB)		
HS-SCCH + DPCH + Other users' channels (OCNS)	0.30490.5551(-5.16 dB)(-2.56 dB)Other users' channelsOther users' channelsset according to TableE.5E.1.3E.5E.1.3E.5E.1.3			
Note 1: The repetition cycle length of the pre-generated other users channels should be at least 50ms. The pre-generated pattern should be different for each cell and the cycle length should not be the same.				

#### Table E.5E.1.2: Summary of modelling approach for the serving cell

# Table E.5E.1.3: Channelization codes and relative power levels for 25% and 50% HS-PDSCH power allocations

Group 1 Channelization Code, Cch, SF,k	Group 2 Channelization Code, Cch, SF, k	Relative level setting for 25% and 50% allocation
C <sub>ch,128,2</sub>	Cch,128,108	-1.7
C <sub>ch,128,3</sub>	Cch,128,103	-2.7
C <sub>ch,128,5</sub>	Cch,128,109	-3.5
C <sub>ch,128,6</sub>	Cch,128,118	-0.8
Cch,128,90	C <sub>ch,128,4</sub>	-6.2
C <sub>ch,128,94</sub>	C <sub>ch,128,123</sub>	-4.6
C <sub>ch,128,96</sub>	C <sub>ch,128,111</sub>	-2.3
Cch,128,98	C <sub>ch,128,106</sub>	-4.1
C <sub>ch,128,99</sub>	Cch,128,100	-3.1
Cch,128,101	Cch,128,113	-5.1
C <sub>ch,64,52</sub>	C <sub>ch,64,44</sub>	0.0
Cch,128,110	C <sub>ch,128,124</sub>	-4.6
Cch,128,114	C <sub>ch,128,115</sub>	-4.8
C <sub>ch,128,116</sub>	C <sub>ch,128,126</sub>	-4.8
C <sub>ch,64,60</sub>	C <sub>ch,64,46</sub>	-1.1
C <sub>ch,128,125</sub>	Cch,128,95	-4.1

NOTE: The relative level settings specified in dB refer only to the relationship between the OCNS channels. For the serving cell, the sum of the powers of the OCNS channels plus the power allocated to the HS-SCCH must add up to the values specified in the last row of Table E.5E.1.2. For the interfering cells, the sum of the powers of the OCNS channels must add up to the value shown in the last row of E.5E.2-1.

# E.5E.2 Transmitted code and power characteristics for interfering cells

The downlink physical channel code allocations for the interfering cells are same as for the serving cell as given in Table E.5E.1.1. The modelling approach for the interfering cells is summarized in Table E.5E.2.1. The modelling of the other users' dedicated channels is done in the same way as in the case of the serving cell except that the HSDPA power allocation is fixed at 50% and the total power allocated is not shared with the HS-SCCH. Thus, the two groups of channelisation codes defined in Table E.5E.1.3 apply, along with the specified relative power levels.

	Interfering cell(s)		
Common channels	0.195 (-7.1dB)		
	As specified in Table E.5.1		
HS-PDSCH transport	Selected randomly from Table E.5E.2.2		
format	Independent for each interferer.		
HS-PDSCH power	0.5		
allocation [Ec/lor]	(-3 dB)		
Other users' channels	0.3049		
	(-5.16 dB)		
	Set according to Table E.5E.1.3 for		
	50% HS-PDSCH power allocation		
Note 1: The repetition cycle length of the pre-generated HS-PDSCH			
and other users channels should be at least 50ms. The			
pre-generated pattern should be different for each cell			
and the cycle length should not be the same.			

Table E.5E.2.1: Summary of modelling approach for the interfering cells

NOTE: The values given in decibel are only for information.

The HS-PDSCH transmission for interfering cells is modelled to have randomly varying modulation and number of codes. The predefined modulation and number of codes are given in Table E.5E.2.2, with the actual codes selected per the code allocation given in Table E.5E.1.1. The transmission from each interfering cell is randomly and independently selected every HSDPA TTI among the four options given in Table E.5E.2.2.

The scrambling codes of the interfering cells are set to 16 and 32, respectively. The frame offsets for the interfering cells are set to 1296 and 2576 chips relative to the serving cell. The scrambling code value of 16 and the frame offset value of 2576 correspond to the first interfering cell.

#	Used modulation and number of HS-PDSCH codes
1	QPSK with 5 codes
2	16QAM with 5 codes
3	QPSK with 10 codes
4	16QAM, with 10 codes

### E.5E.3 Model for power control sequence generation

In this section the modelling of power control for the other users' channels is described. There are two powers that are calculated for each user, i at each slot, n. The first is an interim power calculation, which develops a power  $P_n^i$  in dB.

The second is the actual applied transmit power,  $\hat{P}_n^i$  in the linear domain, which is normalized such that the total power for all users remains the same as that originally allocated. The interim power calculation is described first followed by the applied, normalized power calculation.

The interim power is varied randomly, either by increasing or decreasing it by 1 dB steps in each slot, i.e.

$$P_n^i = P_{n-1}^i + \Delta_{, \text{ where }} \Delta \in \{-1, +1\}$$
 (EQ.E.5E.3.1)

The probability of  $\Delta$  having a value of +1 for the *i*<sup>th</sup> user at time instant *n* can be determined as

$$Pr_n^i(\Delta = +1) = 0.5 - (P_{n-1}^i - P_0^i)\frac{0.5}{L}$$
(EQ.E.5E.3.2)

where,  $P_{n-1}^{i}$  is the interim power at time instant *n*-1 and  $P_{0}^{i}$  is the initial value given in Table E.5E.1.3 after conversion to dB for each of the two possible HS-PDSCH power allocations. L is a scaling factor which can be used to determine the range to which the variation of power is confined. The value of L is set to 10, leading to a variance of  $\sim 5$  dB.

The applied, normalized power is given by

$$\hat{P}_{n}^{i} = \frac{P_{lin,n}^{i}}{\sum_{i} P_{lin,n}^{i}} \sum_{i} P_{lin,0}^{i}$$
(EO.E.5E.3)

#### 3.3) (EQ.E.5E

where  $P_{lin,n}^{i}$  is the interim power of the user i at time instant n in the linear domain, and  $P_{lin,0}^{i}$  is the initial value of the i<sup>th</sup> user's power also in the linear domain. Each summation is over all 16 possible values for  $P_{lin,n}^{i}$  and  $P_{lin,0}^{i}$  where the latter summation is equal to either 0.5551 or 0.3049 for HS-PDSCH allocations of 25% and 50%, respectively, see Table E.5E.1.3. The total instantaneous output power of the OCNS is now always equal to its allocated power. One other subtle point to note is that at each iteration of interim power generation using (EQ.E.5E.3.1) that the value of  $P_{n-1}^{i}$ is set to  $P_n^i$  of the previous iteration as opposed to  $\hat{P}_n^i$  of the previous iteration. In summary, two sets of power control

sequences are developed using (EQ.E.5E.3.1) and (EQ.E.5E.3.3), respectively, where the interim outputs developed by (E.1) are used to develop the applied, normalized values described by (EQ.E.5E.3.3) and to which the actual channel powers are set.

# E.6 Downlink Physical Channels Code Allocation (This clause is informative)

### E.6.1 Downlink Physical Channels Code Allocation for non-HSDPA test cases

Table E.6.1.1 shows the downlink code allocation for non-HSDPA test cases. The numbers in the code columns indicate the code number with the respective spreading factor (SF). The Note column refers to specifications where the code allocation is defined. Only the system configuration according to TS 34.108 [3] section 6.10b is used for RF testing. The codes used for the WCDMA interferer as defined in Table E.4.1 are not included in the table below because the WCDMA interferer is on another carrier. The S-CCPCH has been moved from code 1 to code 2 (SF=64) in order to resolve the code conflict with OCNS DPCH.

Code with	Code with	Code with	Note
SF=256	SF=128	SF=64	
0: P-CPICH	0		TS 25.213; TS 34.108 [3]: 6.1.4
1: P-CCPCH	0.	0	TS 25.213
2: PICH	1	0.	TS 34.108 [3]: 6.1.0b (SIB5)
3: AICH	••		TS 34.108 [3]: 6.1.0b (SIB5)
4: -	2: OCNS DPCH		OCNS: TS34.121: Table F.3.6
5: -		1:-	
6: -	3: S-CCPCH		3: TS 34,121: TC 7,11 (PCH) only
7:-			·····
8:-	4:-		S-CCPCH for RF testing TS 34.108 [3]: 7.3
9:-		2: S-CCPCH	(SIB5), TS 34.121: TC 7.11 (FACH)
10: -	5: -		5: TS 34.108 [3]: 6.1.2 (CTCH)
11:-			
12:-	6: -		
13:-		3: -	
14:-	7:-		
15:-			
16:	8: -		
17		4:-	
10	9: -		
19			
20	10: -		
21		5:-	
22	11: OCNS DPCH		OCNS: TS 34.121: E.3.6
23	12-15:-	6-7:-	
32.	12-10	0-7	
33:-	16: -		
34: -		8: -	
35: -	17: OCNS DPCH		OCNS: TS 34.121: E.3.6
36-43: -	18-21: -	9-10: -	
44: -			
45: -	22: -		
46: -		11:-	
47: -	23: OCNS DPCH		OCNS: IS 34.121: E.3.6
48-59: -	24-29: -	12-14: -	
60: -	20.		
61:-	30:-	15.	
62: -		15:-	OCNE: TE 24 121: E 2.6
63: -	31. UCINS DPCH		UUNS. 15 34.121. E.3.0
64-75: -	32-37: -	16-18: -	
76: -			OCNS: TS 34 121: E 3.6
77: -		10.	00110. 10 04.121. E.J.0
78: -	30	13.	
79: -	00		

#### Table E.6.1.1: Downlink Physical Channels Code Allocation for RF testing (non-HSDPA)

Code with	Code with	Code with	Note
80-01 -	40-45: -	20-22:-	
92	+0-+3	20-22	
93 -	46: -		
94		23: -	
95: -	47: OCNS DPCH		OCNS: TS 34.121: E.3.6
96-107: -	48-53: -	24-26: -	
108: -	E 4.		
109: -	- 54	27.	
110: -		27	OCNS: TS 34 121: E 3.6
111:-	55. OCNS DI CIT		00N3. 13 34.121. E.3.0
112-123: -	56-61: -	28-30: -	
124: -	62: OCNS DPCH		OCNS: TS 34.121: E.3.6
125: -		31: -	
126: -	63: -		
127:-	C4 C7:	22.22	
120-130	04-07	32-33	
130	- 68: -		
138		34: -	
139: -	69: OCNS DPCH		OCNS: TS 34.121: E.3.6
140-155: -	70-77: -	35-38: -	
156: -			
157: -	78: OCINS DPCH	20.	OGNS: 15 34.121; E.3.6
158: -	70.	39	
159: -	75		
160-167: -	80-83: -	40-41: -	
168: -	84: -		
169: -		42: -	
170	85: OCNS DPCH		OCNS: TS 34.121: E.3.6
172-187	86-93.	43-46	
188 -	00 00.	+0 +0.	
189: -	94: OCNS DPCH		OCNS: TS 34.121: E.3.6
190: -	05	47:-	
191: -	95:-		
192: DCH SRB	96· DCH 12 2		TE 24 409 [2]: 0.2.4 (DCU SDB and 42.2);
193: -	50. DOIT 12.2	48	DCH 64: SE32-Code24
194: -	97: -	10.	DCH 144: SF16-Code12.
195: -	00.444	40.55	DCH 384: SF8-Code6
196-223: -	98-111: -	49-55: -	
224: -	112: -		
220		56: -	
220	113: OCNS DPCH		OCNS: TS 34.121: E.3.6
228-235: -	114-117: -	57-58: -	
236: -	110		
237: -	118:-	50.	
238: -		59	OCNS: TS 24 121: E 2.6
239: -			UUNU. 10 04.121. E.J.U
240-59: -	120-123: -	60-61: -	
248: -	124: -		
249: -		62: -	
250: -	125: OCNS DPCH		OCNS: TS 34.121: E.3.6
201	126-127.	63	
202 200		00.	

# E.6.2 Downlink Physical Channels Code Allocation for HSDPA test cases

Tables E.6.2.1, E.6.2.2, E.6.2.3 and E.6.2.4 show the downlink code allocation for HSDPA test cases. Table E.6.2.1 shows the complete downlink code tree for spreading factors 16, 32 and 64. Table E.6.2.2 shows details of the downlink code tree for SF=16 code=0 with spreading factors 64, 128 and 256. Tables E.6.1.1 and E.6.1.2 should be used for HSDPA test cases for UE categories 1-8 and 11-12. Tables E.6.2.3 and E.6.2.4 show the complete downlink code trees to be used for HSDPA test case for UE categories 9-10 and 13-20, with the exception of test cases testing the control channel performance, for which Tables E.6.2.1 and E.6.2.2 should be used. The numbers in the code columns indicate the code number with the respective spreading factor (SF). The Note column refers to specifications where the code allocation is defined.

Code with SF=64	Code with SF=32	Code with SF=16	Note
0:-			P-CPICH, P-CCPCH, PICH, AICH on SF256
1:-	0:-		HS-SCCH1 and HS-SCCH2 on SF128
2: S-CCPCH		0:-	S-CCPCH: TS 34,108 [3]; 6,1,0b
3: -	1:-		HS-SCCH3 and HS-SCCH4 on SF128
4: -	-		
5: -	2:-		
6: -		1: HS-PDSCH	1st HS-PDSCH code
7:-	3:-		
8: -			
9: -	4:-		
10: -	-	2: HS-PDSCH	2nd HS-PDSCH code
11:-	5:-		
12: -	<u>C</u> .		
13: -	0		and US DDSCU and
14: -	7.	3: 13-20201	3rd HS-PDSCH code
15: -	7:-		
16: -	o.		
17:-	0		Ath HS PDSCH code
18: -	Q· _	4.110-1 00011	
19: -	9		
20: -	10.		
21:-	10	5 HS-PDSCH	5th HS-PDSCH code
22: -	11	0.1101 00011	
23: -	11.		
24: -	12		
25: -	12.	6. HS-PDSCH	6th HS-PDSCH code
26: -	13:-	0.1101 20011	
27:-			
28: -	14:-		
29: -		7: HS-PDSCH	7th HS-PDSCH code
30:-	15: -		
31:-	-		
32:-	16: -		
33: -		8: HS-PDSCH	8th HS-PDSCH code
34:-	17:-		
35:-			
36:-	18: -		
37:-		9: HS-PDSCH	9th HS-PDSCH code
38:-	19: -		
39:-			
40:-	20: -		
41:-		10: HS-PDSCH	10th HS-PDSCH code
42	21:-		
43			
44	22: -	11	
	23.	· · · · ·	
40	23		

Fable E.6.2.1: HSDPA Downlink Ph	ysical Channels Code	Allocation for RF testing
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Code with SF=64	Code with SF=32	Code with SF=16	Note
47: -			
48: - 49: -	24: -	12	RMC12.2 on code 96 (SF128), the SRB
50: - 51: -	- 25: -	12	(SF256) (TS 34.108 [3]: 9.2.1)
52: - 53: -	26: -	13: -	
54: - 55: -	27:-		
56: - 57: -	28: -	14.	
58: - 59: -	- 29: -	14:-	
60: - 61: -	30: -	15	OCNS DPCH on codes 122-127 (SF128)
62: - 63: -	31:-	15:-	

#### Table E.6.2.2: HSDPA Downlink Physical Channels Code Allocation for SF=16 code=0

Code with SF=256	Code with SF=128	Code with SF=64	Note
0: P-CPICH	0		TS 25.213; 34.108 [3]: 6.1.4; 34.121: E.4.2
1: P-CCPCH	0	0.	TS 25.213; 34.121: E.4.2
2: PICH	1	0	TS 34.108 [3]: 6.1.0b (SIB5)
3: AICH	1		TS 34.108 [3]: 6.1.0b (SIB5)
4: -	2. 46 60041		TS 24 108 [2]: 0.2.1 PR Sotup moss ago
5: -	2.113-300111	1	13 34.100 [5]. 9.2.1 Kb Setup message
6: -	3. 48-80042	1.	TS 3/ 108 [3]: 9.2.1 RB Setup message
7:-	5.110-000112		10 04.100 [5]. 3.2.1 ND Oetup message
8: -	1		
9: -	т	2. S-CCPCH	S-CCPCH: TS 3/ 108 [3]: 6 1 0b (SIB5)
10: -	5	2.0-001 011	
11:-	0.		
12: -	6· HS-SCCH3		TS 3/ 108 [3]: 9.2.1 RB Setup message
13: -	0.110-000113	3.	10 34.100 [0]. 9.2.1 ND Oetup message
14: -	7· HS-SCCH4	0	TS 3/ 108 [3]: 0.2.1 RB Setup message
15: -	7.110-000114		10 07.100 [0]. 3.2.1 ND Oetup message

Code with	Code with SF=32	Code with	Note
SF=64		SF=16	
0:-	0: -		P-CPICH, P-CCPCH, PICH, AICH on SF256
1:-			HS-SCCH1 and HS-SCCH2 on SF128
2: S-CCPCH 3: -	1:-	0: -	S-CCPCH: TS 34.108 [3]: 6.1.0b OCNS DPCH on code 6 (SF128) (Table E.5.5A), RMC12.2 on code 7 (SF128) (TS 34.108 [3]: 9.2.1 RRC Connection Setup message (Transition to CELL_DCH) with exceptions in Annex I), the SRB standalone used during call setup on code 14 (SF256) (TS 34.108 [3]: 9.2.1 RB Setup message (HSDPA) with exceptions in Annex I)
4: -	<u>р.</u>		
5: -	2		
6: -	o.	1.113-FD3011	
7: -	5		
8: -	1.		
9: -	ч		2nd HS-PDSCH code
10: -	5.	2.115-1 05011	
11:-	5		
12: -	6.		
13: -	0		2 <sup>rd</sup> US DDSCU and
14: -	7.	3. ПЗ-РОЗСП	3 H3-FD3CH COde
15: -	1		
16: -	0.		
17: -	0		Ath HS DDSCH and
18: -	0.	4.113-FD3011	4 113-FD3C11 code
19: -	9		
20: -	10.		
21: -	10		5 <sup>th</sup> HS DDSCH and
22: -	11.	5. NS-FDSCN	5 H3-FD3CH code
23: -	11		
24: -	12.		
25: -	12		6 <sup>th</sup> HS-PDSCH code
26: -	13.	0.110-1 00011	
27: -	10		
28: -	14		
29: -		7. HS-PDSCH	7 <sup>th</sup> HS-PDSCH code
30: -	15:-		
31:-			
32: -	16: -		
33: -		8: HS-PDSCH	8 <sup>th</sup> HS-PDSCH code
34: -	17:-		
35: -			
30:-	18: -		
37:-		9: HS-PDSCH	9 <sup>th</sup> HS-PDSCH code
38:-	19: -		
39:-			
40	20: -		
41		10: HS-PDSCH	10 <sup>th</sup> HS-PDSCH code
42:-	21:-		
43			
44	22: -		
40		11: HS-PDSCH	11 <sup>th</sup> HS-PDSCH code
40	23: -		
47			
40	24: -		
<del>4</del> 3 50:-		12: HS-PDSCH	12 <sup>™</sup> HS-PDSCH code
51	25: -		
51	1	1	

# Table E.6.2.3: HSDPA Downlink Physical Channels Code Allocation for RF testing for UE categories9-10 and 13-20 test cases, except control channel performance test cases
Code with SF=64	Code with SF=32	Code with SF=16	Note	
52: -	26			
53: -	20.	13 HS-PDSCH	13 <sup>th</sup> HS-PDSCH code	
54: -	27	10.110120011		
55: -	21.			
56: -	28.			
57: -	20		14 <sup>th</sup> HS PDSCH code	
58: -	29	14.113-203011		
59: -	25			
60: -	20.			
61:-	50		15 <sup>th</sup> HS PDSCH code	
62: -	21.	10.110-2000		
63: -	31			

## Table E.6.2.4: HSDPA Downlink Physical Channels Code Allocation for SF=16 code=0 for UE categories 9-10 and 13-20 test cases, except control channel performance test cases

Code with	Code with	Code with	Note	
SF=256	SF=128	SF=64		
0: P-CPICH	0.		TS 25.213; 34.108 [3]: 6.1.4; 34.121: E.4.2	
1: P-CCPCH	0	0.	TS 25.213; 34.121: E.4.2	
2: PICH	1	0	TS 34.108 [3]: 6.1.0b (SIB5)	
3: AICH	1		TS 34.108 [3]: 6.1.0b (SIB5)	
4: -	2·HS-SCCH1		TS 34.108 [3]: 9.2.1 RB Setup message	
5: -	2.110-000111	1	(HSDPA) with exceptions in Annex I	
6: -	3. 85-80082	1	TS 34.108 [3]: 9.2.1 RB Setup message	
7: -	3.110-000112		(HSDPA) with exceptions in Annex I	
8: -	1			
9: -	т		S-CCPCH: TS 34.108 [3]: 6.1.0b (SIB5)	
10: -	5·_	2.0-001 011		
11:-	5			
12: -	6. OCNS DPCH		OCNS DPCH on code 6 (SE128) (Table E 5 5A)	
13: -				
14: SRB during			RMC12.2 on code 7 (SF128) (TS 34.108 [3]:	
call setup			9.2.1 RRC Connection Setup message	
15: -	7: RMC 12.2	3: -	(Iransition to CELL_DCH) with exceptions in Annex I), the SRB standalone used during call setup on code 14 (SF256) (TS 34.108 [3]: 9.2.1 RB Setup message (HSDPA) with exceptions in Annex I)	

## E.6.3 Downlink Physical Channels Code Allocation for E-DCH test cases

Tables E.6.3.1 and E.6.3.2 show the downlink code allocation for E-DCH test cases. Table E.6.3.1 shows the complete downlink code tree for spreading factors 16, 32 and 64. Table E.6.3.2 shows details of the downlink code tree for SF=16 code=0 with spreading factors 64, 128 and 256. The numbers in the code columns indicate the code number with the respective spreading factor (SF). The Note column refers to specifications where the code allocation is defined.

Table E.6.3.1: E-DCH Downlink Physical Channels Code Allocation for RF testing

Code with SF=64	Code with SF=32	Code with SF=16	Note	
0:-		010	P-CPICH, P-CCPCH, PICH, AICH on SF256	
1	0:-		HS-SCCH1 and HS-SCCH2 on SE128	
2: S-CCPCH		0: -	S-CCPCH: TS 34.108 [3]: 6.1.0b	
	1:-		E-HICH/E-RGCH on SF128. E-AGCH on	
3: -			SF256	
4: -				
5: -	2:-			
6: -	0.	1: HS-PDSCH	1st HS-PDSCH code	
7:-	- 3: -			
8: -	4.			
9: -	4		2nd HS_PDSCH code	
10: -	5·-	2.110-1 00011		
11:-	5			
12: -	6			
13: -	0	3. HS-PDSCH	3rd HS-PDSCH code	
14: -	7:-			
15: -				
16: -	8:-			
17:-	-	4: HS-PDSCH	4th HS-PDSCH code	
18:-	9: -			
19:-				
20:-	10: -			
21		5: HS-PDSCH	5th HS-PDSCH code	
22	11:-			
20				
25:-	12: -			
26:-		6: -		
27:-	13:-			
28: -	1 4.			
29: -	14	7.		
30: -	15.	7		
31:-	15			
32: -	16:-			
33: -	10	8		
34: -	17	· · ·		
35: -				
36: -	18: -			
37:-		9: -		
38:-	19: -	-		
39:-				
40: -	20: -			
41:-		10: -		
42	21:-			
43				
44	22: -			
46		11:-		
47	23: -			
48: -			RMC12,2 on code 96 (SF128), the SRB	
49: -	24: -	12: -	standalone used during call setup on code 192	
	1	1	J	

Code with SF=64	Code with SF=32	Code with SF=16	Note
50: -	25		(SF256) (TS 34.108 [3]: 9.2.1)
51: -	20		
52: -	26		
53: -	20.	13	
54: -	27	10.	
55: -	21.		
56: -	28		
57: -	20.	14	
58: -	29		
59: -	20.		
60: -	30		
61:-	00.	15	OCNS DPCH on codes 122-127 (SF128)
62: -	31	10.	
63: -	01.		

#### Table E.6.2.2: E-DCH Downlink Physical Channels Code Allocation for SF=16 code=0

Code with SF=256	Code with SF=128	Code with SF=64	Note	
0: P-CPICH	0		TS 25.213; 34.108 [3]: 6.1.4; 34.121: E.4.2	
1: P-CCPCH	0.	0.	TS 25.213; 34.121: E.4.2	
2: PICH	1.	0	TS 34.108 [3]: 6.1.0b (SIB5)	
3: AICH	1		TS 34.108 [3]: 6.1.0b (SIB5)	
4: -	2. HS-SCCH1		TS 34 108 [3]: 9 2 1 RB Setup message	
5: -	2.110 000111	4.		
6: -	2. 49 50042	1	TS 24 108 [2]: 0.2.1 PR Sotup moss ago	
7: -	3.110-000112		13 54.100 [5]. 9.2.1 ND Setup message	
8: -	1.			
9: -	- т. <sup>-</sup>	2: S-CCPCH	S-CCPCH: TS 34 108 [3]: 6 1 0b (SIB5)	
10: -	5.			
11:-	5			
12: -	6: E-HICH/E-		TS 24 109 [2]: 0.2.1 PB Sotup mossage	
13: -	RGCH	3.	13 34.100 [5]. 9.2.1 Kb Selup message	
14: E-AGCH	7.	J	TS 34.108 [3]: 9.2.1 RB Setup message	
15: -	1			

# E.6.4 Downlink Physical Channels Code Allocation for MBMS test cases

Table E.6.4.1 show the details of downlink code allocation for MBMS test cases. The numbers in the Code columns indicate the code number with the respective spreading factor (SF). The Note column refers to specifications where the code allocation is defined.

Table E.6.4.1: MBMS Downlink Physical Channels Code Allocation for RF testing

Code with	Code with	Code with	Note	
SF=230	SF=128	5F=04	TO 05 040 TO 04 400 101 0 4 4	
	0: -		TS 25.213; TS 34.108 [3]: 6.1.4	
		0:-		
2: PICH	1:-		TS 34.108 [3]: 6.1.06 (SIB5)	
3: AICH			TS 34.108 [3]: 6.1.00 (SIB5)	
4:-	2: OCNS DPCH		OCNS: TS34.121: Table E.3.6	
5:-		1:-		
	3: -			
7: MICH				
8:-	4: -			
9:-		2: S-CCPCH	2: TS 34.108 [3]: 6.1.0b (SIB5)	
10:-	5: -			
11				
12	6: S-CCPCH		6: TS 34.121: TC 8.3.5.4	
13		3: -		
14	7:-			
15				
10.	8: -			
17		4: -		
10	9: -			
20:-				
20	10: -			
21		5: -		
22	11: OCNS DPCH		OCNS: TS 34.121: E.3.6	
24-31	12-15:-	6-7:-		
32	12-10	0-7		
33	16: -			
34:-		8: -		
35:-	17: OCNS DPCH		OCNS: TS 34.121: E.3.6	
36-43 <sup>.</sup> -	18-21.	9-10.		
44	10 21.	5 10.		
45: -	22: -			
46:-		11:-		
47:-	23: OCNS DPCH		OCNS: TS 34.121: E.3.6	
48-59 -	24-29 -	12-14 -		
60: -				
61:-	30: -			
62: -		15:-		
63: -	31: OCNS DPCH		OCNS: IS 34.121: E.3.6	
64-75: -	32-37: -	16-18: -		
76: -				
77: -	38: OCNS DPCH		OCNS: IS 34.121: E.3.6	
78: -		19: -		
79: -	39:-			
80-91: -	40-45: -	20-22: -		
92: -	40	-		
93: -	46: -			
94: -	47.0010 5501	23: -		
95: -	47: OCNS DPCH		OUNS: IS 34.121: E.3.6	
96-107: -	48-53: -	24-26: -		
108: -	54	07.		
109: -	54:-	27:-		
1	1	1	1	

Code with SF=256	Code with SF=128	Code with SF=64	Note
110:-	55: OCNS DPCH		OCNS: TS 34.121: E.3.6
112-123.	56-61 -	28-30	
12120.	00 01.	20 00.	
125:-	62: OCNS DPCH		OCNS: TS 34.121: E.3.6
126:-		31: -	
127: -	63: -		
128-135: -	64-67: -	32-33: -	
136: -	0.0		
137: -	68:-	24.	
138: -		34	
139: -	69: OCNS DPCH		OCINS: 15 34.121; E.3.0
140-155: -	70-77: -	35-38: -	
156: -			OCNS: TS 3/ 121: E 3.6
157: -	70.0010001011	30	
158: -	79	<b>JJ</b>	
159: -	10.		
160-167: -	80-83: -	40-41: -	
168: -	84: -		
169: -	-	42: -	
170:-	85: OCNS DPCH		OCNS: TS 34.121: E.3.6
1/1:-	00.00	40.40	
172-187:-	86-93: -	43-46: -	
188:-	94: OCNS DPCH		OCNS: TS 34.121: E.3.6
109		47: -	
190.=	95: -		
192			$TS 24 121 \cdot TC 9 25 4 9 26 2 11 2(Toot 2)$
193: -	96: -		MTCH 256kbps: SF8-Code6
194: -		48: -	
195: -	97: -		TS 34.121: TC 11.2(Test 1 and 3), 11.3
196-223: -	98-111: -	49-55: -	MTCH 128kbps: SF16-Code12
224: -	110.		
225: -	112	56.	
226: -		50	OCNS: TS 24 121: E 2.6
227: -	TIS. OCINS DECIT		OCN3. 13 34.121. E.3.0
228-235: -	114-117: -	57-58: -	
236: -	118: -		
237: -		59: -	
238: -	119: OCNS DPCH		OCNS: TS 34.121; E.3.6
239: -	100.400		
240-59: -	120-123: -	60-61: -	
248: -	124: -		
249		62: -	
200 251∙ -	125: OCNS DPCH		OCNS: TS 34.121: E.3.6
252-255-	126-127 -	63	
202-200	120-121	00	

## Annex F (normative): General test conditions and declarations

The requirements of this clause apply to all applicable tests in the present document.

Many of the tests in the present document measure a parameter relative to a value that is not fully specified in the UE specifications. For these tests, the Minimum Requirement is determined relative to a nominal value specified by the manufacturer.

When specified in a test, the manufacturer shall declare the nominal value of a parameter, or whether an option is supported.

In all the relevant clauses in this clause all Bit Error Ratio (BER), Block Error Ratio (BLER), False transmit format Detection Ratio (FDR) measurements shall be carried out according to the general rules for statistical testing in clause F.6.

For operating band XXII, the Test Tolerances may not be valid since some Test System uncertainties are changed for frequencies above 3000MHz. The Test Tolerances for those specific bands are therefore For Further Study [FFS].

## F.1 Acceptable uncertainty of Test System

The maximum acceptable uncertainty of the Test System is specified below for each test, where appropriate. The Test System shall enable the stimulus signals in the test case to be adjusted to within the specified range, and the equipment under test to be measured with an uncertainty not exceeding the specified values. All ranges and uncertainties are absolute values, and are valid for a confidence level of 95 %, unless otherwise stated.

A confidence level of 95% is the measurement uncertainty tolerance interval for a specific measurement that contains 95% of the performance of a population of test equipment.

For RF tests it should be noted that the uncertainties in clause F.1 apply to the Test System operating into a nominal 50 ohm load and do not include system effects due to mis match between the DUT and the Test System.

### F.1.1 Measurement of test environments

The measurement accuracy of the UE test environments defined in annex G, Test environments shall be.

- Pressure  $\pm 5$  kPa.
- Temperature  $\pm 2$  degrees.
- Relative Humidity  $\pm 5\%$ .
- DC Voltage  $\pm 1,0\%$ .
- AC Voltage  $\pm 1,5\%$ .
- Vibration 10 %.
- Vibration frequency 0,1 Hz.

The above values shall apply unless the test environment is otherwise controlled and the specification for the control of the test environment specifies the uncertainty for the parameter.

## F.1.2 Measurement of transmitter

#### Table F.1.2: Maximum Test System Uncertainty for transmitter tests

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
5.2 Maximum Output Power	±0,7 dB	
5.2A Maximum Output Power with HS- DPCCH (Release 5 only)	±0,7 dB	
5.2AA Maximum Output Power with HS- DPCCH (Release 6 and later)	±0,7 dB	
5.2B Maximum Output Power with HS- DPCCH and E-DCH	±0,7 dB	
5.2BAUE Maximum Output Power for DC-HSUPA (QPSK)	±0,7 dB	The accuracy over two carriers is the same as over one carrier
5.2BB UE Maximum Output Power for DC-HSUPA (16QAM)	±0,7 dB	The accuracy over two carriers is the same as over one carrier
5.2C UE relative code domain power	For 0 dB ≥ -10 dB CDP ± 0.2 dB	This accuracy is based on the
accuracy	For -10 dB ≥ -15 dB CDP ± 0.3 dB	linearity of the code domain
	For -15 dB ≥ -20 dB CDP ± 0.4 dB	power measurement of the test equipment.
5.2D UE Relative Code Domain Power	For 0 dB ≥ -10 dB CDP ± 0.2 dB	This accuracy is based on the
Accuracy with HS-DPCCH and E-DCH	For -10 dB ≥ -15 dB CDP ± 0.3 dB	linearity of the code domain
	For -15 dB ≥ -20 dB CDP ± 0.4 dB	power measurement of the test equipment.
5.2DA UE Relative Code Domain Power	For 0 dB ≥ -10 dB CDP ± 0.2 dB	This accuracy is based on the
Accuracy for DC-HSUPA with QPSK	For -10 dB ≥ -15 dB CDP ± 0.3 dB	linearity of the code domain
	For -15 dB ≥ -20 dB CDP ± 0.4 dB	test equipment.
5.2E UE Relative Code Domain Power	For 0 dB ≥ -10 dB CDP ± 0.2 dB	This accuracy is based on the
ACCURACY FOR HS-DPCCH and E-DCH WITH	For -10 dB ≥ -15 dB CDP ± 0.3 dB	linearity of the code domain
IOQAM	For -15 dB $\geq$ -20 dB CDP $\pm$ 0.4 dB	test equipment
<b>E O EA LIE</b> relative and domain nowar		This secure suis based on the
5.2 EA UE relative code domain power	For $0 \text{ dB} \ge -10 \text{ dB} \text{ CDP} \pm 0.2 \text{ dB}$	linearity of the code domain
DPCCH and F-DCH with 16QAM	For $15 dP \ge 20 dP CDP \pm 0.0 dP$	power measurement of the
	For 20 dB $\geq$ 20 dB CDP $\pm$ 0.4 dB	test equipment.
5.3 Frequency Error	+10 Hz	
5.3A Frequency Error for DC-HSUPA	+10 Hz per carrier	
5.3C Frequency error for UL CLTD Activation state 1	±10 Hz	
5.3D Frequency error for UL CLTD Activation state 2 and 3	10 Hz	
5.4.1 Open loop power control in uplink	±1,0 dB	The uncertainty of this test is a combination of the downlink level setting error and the uplink power measurement that are uncorrelated.
		Formula = SQRT(source_level_error <sup>2</sup> + power_meas_error <sup>2</sup> )
5.4.1A Open Loop Power Control in the Uplink for DC-HSUPA	±1,0 dB per carrier	The uncertainty of this test is a combination of the downlink level setting error and the uplink power measurement that are uncorrelated.
		Formula = SQRT(source_level_error <sup>2</sup> + power_meas_error <sup>2</sup> )

Clause	Maximum Test System Uncertainty	Derivation of Test System
		Uncertainty
5.4.2 Inner loop power control in the	The test system uncertainty is the function	This accuracy is based on the
uplink	of the UE transmitter power control range	inearity of the absolute power
	number of steps.	equipment.
	For 0 dB and 1 dB range $\pm$ 0,1 dB	
	For a nominal 2 dB range $\pm 0,15$ dB	
	For a nominal 3 dB range ±0,2 dB	
5.4.24 Inner Lean Dower Control in the	For a greater than 3 dB range $\pm 0.3$ dB	
Unlink for DC-HSUPA	of the UE transmitter power control range	linearity of the absolute power
	for each combination of the step size and	measurement of the test
	number of steps.	equipment.
	For 0 dB and 1 dB range ±0,1 dB per	
	For a nominal 2 dB range +0.15 dB per	
	carrier	
	For a nominal 3 dB range $\pm 0,2$ dB per	
	carrier	
	For a greater than 3 dB range $\pm 0,3$ dB per	
5.4.3 Minimum Output Power		Measured on a static signal
5.4.3A Minimum Output Power for DC-	+1 0 dB	Measured on a static signal
HSUPA		
E 4 4 Out of our observice tion bondling of		
5.4.4 Out-of-synchronisation handling of	±0,4 dB	0.1 dB uncertainty in DPCCH
output power: $\frac{DPCCH_E_c}{C}$		0.2 dB upcortainty in $\hat{t}$ /t
I <sub>or</sub>		based on power meter
		measurement after the
		combiner
		Overall error is the sum of the
		$\hat{I}_{or}/I_{oc}$ ratio error and the
		DPCCH_Ec/lor ratio. The
		absolute error of the AWGN
		loc is not important but is
5.4.4. Out-of-synchronisation handling of	+0.4.dP	0.1 dB uncertainty in DPCCH
output power for UE which supports type	±0,4 0B	ratio
1 for $DCH$ : DPCCH E.		0.3 dB uncertainty in $\hat{I}$ /I
		based on power meter
or		measurement after the
		combiner
		Overall error is the sum of the
		$\hat{I}_{or}/I_{oc}$ ratio error and the
		DPCCH_Ec/lor ratio. The
		absolute error of the AVVGN
		specified as 1.0 dB
5.5.1 Transmit OFF Power: (static case)	±1,0 dB	Measured on a static signal
5.5.2 Transmit ON/OFF time mask	On power +0,7 dB / -1,0 dB	Assume asymmetric meas
(dynamic case)	Off power (dynamic case) TBD	error -1.0 dB / 0.7 dB
		comprising RSS of: -0.7 dB
		meas error, and +0.7 dB for
		upper limit (assume UE won't
		go above 24 nominal).
		For the off power, the
		accuracy of a two-pass
		analysed.

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
5.6 Change of TFC: power control step size (7 dB step)	±0,3 dB relative over a 9 dB range	
5.7 Power setting in uplink compressed mode:-UE output power	A subset of 5.4.2.	
5.7A HS-DPCCH	The test system uncertainty is the function of the UE transmitter power range for each step size on the HS-DPCCH channel. For 0 dB and 1 dB range ±0,1 dB	This accuracy is based on the linearity of the absolute power measurement of the test equipment.
	For a nominal 3 dB range $\pm 0,13$ dB For a nominal 3 dB range $\pm 0,2$ dB For a greater than 3 dB range $\pm 0,3$ dB	
5.8 Occupied Bandwidth	±100 kHz	Accuracy = $\pm 3$ *RBW. Assume 30 kHz bandwidth.
5.8A Occupied Bandwidth for DC-HSUPA	±100 kHz	Accuracy = $\pm 3^{*}$ RBW. Assume 30 kHz bandwidth.
5.9 Spectrum emission mask	±1,5 dB	
5.9A Spectrum emission mask with HS- DPCCH	±1,5 dB	
5.9B Spectrum emission mask with E- DCH	±1,5 dB	
5.9C Additional Spectrum Emission Mask for DC-HSUPA (QPSK)	±1,5 dB	
5.9D Additional Spectrum Emission Mask for DC-HSUPA (16QAM)	±1,5 dB	
5.10 ACLR	5 MHz offset: ± 0,8 dB	
	10 MHz offset: ± 0,8 dB	
5.10A ACLR with HS-DPCCH	5 MHz offset: ± 0,8 dB	
5.10B ACLR with E-DCH	5 MHz offset: ± 0,8 dB	
	10 MHz offset: ± 0,8 dB	
(QPSK)	7.5 MHZ 01/Set: ± 0,8 dB	
5 10D ACL R with E-DCH for DC-HSUPA	$75 \text{ MHz offset:} \pm 0.8 \text{ dB}$	
(16QAM)		
E 11 Spurious omissions	12.5 WHZ UISEL $\pm$ 0,0 UB	
	$\pm$ 2,0 dB for OE and coexistence bands for results $\geq$ -60 dBm	
	$\pm$ 3,0 dB for results < -60 dBm	
	Outside above: f≤2.2GHz: ± 1.5 dB	
	2.2 GHz < $f \le 4$ GHz:	
	± 2.0 dB f > 4 GHz: ±4.0 dB	
5.11A Spurious emissions for DC-HSUPA	$\pm$ 2,0 dB for UE and coexistence bands for results $\geq$ -60 dBm	
	$\pm$ 3,0 dB for results < -60 dBm	
	Outside above: f≤2.2GHz: ± 1.5 dB 2.2 GHz < f ≤ 4 GHz: ± 2.0 dB	
	f > 4 GHz: ±4.0 dB	

Clause	Maximum Test System Uncertainty	Derivation of Test System
		Uncertainty
5.12 Transmit Intermodulation	± 2.2 dB	CW Interferer error is 0.7 dB
		for the UE power RSS with 0.7
		dB for CW setting = 1.0 dB
		Measurement error of
		intermod product is 0.7 dB for
		UE power RSS with 0.7 dB for
		relative = 1.0 dB
		Interferer has an effect of 2
		times on the intermod product
		so overall test uncertainty is
		2*1.0 RSS with 1.0 = 2.2 dB.
		Apply half any excess test
		system uncertainty to increase
		the interferer level
5.12A Transmit Intermodulation for	± 2.2 dB	
DC-HSUPA		
5.13.1 Transmit modulation: EVM	±2.5 %	
	(for single code)	
5.13.1A Transmit modulation: EVM with	±2.5 %	
HS-DPCCH	(for single code)	
5.13.1AA Transmit modulation: EVM and	±2.5 %	
phase discontinuity with HS-DPCCH	(for single code)	
	±6 degree for Phase discontinuity	
5.13.1AAA EVM and IQ origin offset for	±0.5 dB	
HS-DPCCH with E-DCH with 16 QAM	(for IQ origin offset)	
5.13.2 Transmit modulation: peak code	±1.0dB	
domain error		
5.13.2A Relative Code Domain Error	±0.5 dB	
5.13.2B Relative Code Domain Error with	±0.5 dB	
HS-DPCCH and E-DCH		
5.13.2BA Relative Code Domain Error	±0.5 dB	
with HS-DPCCH and E-DCH for DC-		
HSUPA		
5.13.2C Relative Code Domain Error for	±0.5 dB	
HS-DPCCH and E-DCH with 16QAM		
5.13.2CA Relative Code Domain error	±0.5 dB	
With HS-DPCCH and E-DCH with 16QAM		
TOF DU-HSUPA	2.5.0/ for 5\/N//for o indo codo)	
5.13.3 UE phase discontinuity	±2.5 % for EVIVI (for single code)	
	±10 IIZ IOF Frequency error	
5.13.4 PKACH quality (E VIVI)	±2.0 %	
5.13.4 PRACH quality (Frequency effor)		
5.13.5 In-band emission for DC-HSUPA	±0,8 aB	

## F.1.3 Measurement of receiver

#### Table F.1.3: Maximum Test System Uncertainty for receiver tests

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
6.2 Referenœ sensitivity level	± 0.7 dB for lor ± 0.7 dB for Ec	
6.2A Reference sensitivity level for DC- HSDPA	± 0.7 dB for lor ± 0.7 dB for Ec	This applies for both DC- HSDPA cells
6.2B Reference sensitivity level for DB- DC-HSDPA	± 0.7 dB for lor ± 0.7 dB for Ec	This applies for both DB-DC- HSDPA cells
6.2C Reference sensitivity level for single band 4C-HSDPA	± 0.7 dB for lor ± 0.7 dB for Ec	This applies for all 3CHSDPA cells
6.2D Reference sensitivity level for Dual band 4C-HSDPA	± 0.7 dB for lor ± 0.7 dB for Ec	This applies for all /4C-HSDPA cells
6.2DA Reference sensitivity level for Dual band 4C-HSDPA (3 carrier)	± 0.7 dB for lor ± 0.7 dB for Ec	This applies for all 3C-HSDPA cells
6.3 maximum input level:	± 0.7 dB for lor	The critical parameter is the overall signal level and not the –19 dB DPCH_Ec/lor ratio.
		0.7 dB absolute error due to signal measurement
		DPCH_Ec/lor ratio error is <0.1 dB but is not important so is ignored
6.3A Maximum Input Level for HS- PDSCH Reception (16QAM)	± 0.7 dB for lor	The critical parameter is the overall signal level and not the –3 dB HS-PDSCH_Ec/lor ratio.
		0.7 dB absolute error due to signal measurement
		HS-PDSCH/lor ratio error is <0.1 dB but is not important so is ignored
6.3B Maximum Input Level for HS- PDSCH Reception (64QAM)	± 0.7 dB for lor	The critical parameter is the overall signal level and not the –2 dB HS-PDSCH_Ec/lor ratio.
		0.7 dB absolute error due to signal measurement
		HS-PDSCH/lor ratio error is <0.1 dB but is not important so is ignored
6.3C Maximum Input Level for DC- HSDPA Reception (16QAM)	± 0.7 dB for lor	Same as 6.3A This applies for both DC- HSDPA cells
6.3D Maximum Input Level for DC- HSDPA Reception (64QAM)	± 0.7 dB for lor	Same as 6.3B This applies for both DC- HSDPA cells
6.3E Maximum Input Level for DB-DC- HSDPA Reception (16QAM)	± 0.7 dB for lor	Same as 6.3A This applies for both DB-DC- HSDPA cells
6.3F Maximum Input Level for DB-DC- HSDPA Reception (64QAM)	± 0.7 dB for lor	Same as 6.3B This applies for both DB-DC- HSDPA cells
6.3G Maximum Input Level for 4C- HSDPA Reception (16QAM)	± 0.7 dB for lor	Same as 6.3A This applies for all 4C-HSDPA cells

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
6.3GA Maximum Input Level for 4C- HSDPA Reception (16QAM) (3 carrier)	± 0.7 dB for lor	Same as 6.3A This applies for all 3C-HSDPA
6.3H Maximum Input Level for 4C- HSDPA Reception (64QAM)	± 0.7 dB for lor	Same as 6.3B This applies for all /4C-HSDPA cells
6.3HA Maximum Input Level for 4C- HSDPA Reception (64QAM)(3 carrier)	± 0.7 dB for lor	Same as 6.3B This applies for all 3C-HSDPA cells
6.4 Adjacent channel selectivity (Rel-99 and Rel-4)	± 1.1 dB	Overall system uncertainty comprises three quantities: 1. Wanted signal level error 2. Interferer signal level error 3. Additional impact of interferer ACLR Items 1 and 2 are assumed to be uncorrelated so can be root sum squared to provide the ratio error of the two signals. Assume for simplicity this ratio error is linearly added to the interferer ACLR. Test System uncertainty = SQRT (wanted_level_error <sup>2</sup> + interferer_level_error <sup>2</sup> ) + ACLR effect. The ACLR effect is calculated by:(Formula to follow) (E.g. ACLR at 5 MHz of 51 dB gives additional error of .0765 dB. ACLR of 48 gives error of -0.15 dB.)
6.4A Adjacent channel selectivity (ReI-5 and later releases)	± 1.1 dB	Same as above
6.4B Adjacent channel selectivity (ACS) for DC-HSDPA	± 0.7 dB for loac ± 0.7 dB for loac ± 1.1 dB for overall uncertainty	Overall system uncertainty comprises three quantities: 1. Wanted signal level error 2. Interferer signal level error 3. Additional impact of interferer ACLR Items 1 and 2 are assumed to be uncorrelated so can be root sum squared to provide the ratio error of the two signals. Assume for simplicity this ratio error is linearly added to the interferer ACLR. Assume also for simplicity this interferer ACLR impacts equally on both DC-HSDPA cells. Test System uncertainty = SQRT (wanted_level_error <sup>2</sup> + interferer_level_error <sup>2</sup> ) + ACLR effect. The ACLR effect is calculated by:(Formula to follow) (E.g. ACLR at 5 MHz of 51 dB gives additional error of .0765 dB. ACLR of 48 gives error of -0.15 dB.)

Clause	Maximum Test System Uncertainty	Derivation of Test System
		Uncertainty
6.4C Adjacent channel selectivity (ACS)	± 0.7 dB for lor	Same as 6.4B
IOI DB-DC-HSDPA	$\pm$ 0.7 dB for overall uncertainty	
6.5 Blocking characteristics	System error with f <15 MHz offset:	Using $\pm 0.7$ dB for signal and
	± 1.4 dB	interferer as currently defined and 68 dB ACLR @ 10 MHz.
	f >= 15 MHz offset and $f_b \le 2.2$ GHz: ± 1.0 dB	
	2.2 GHz < f ≤ 4 GHz: ±1.7 dB f > 4 GHz: ±3.1 dB	
6.5A Blocking characteristics for DC-	System error with f <15 MHz offset:	Using $\pm 0.7$ dB for signal and
HSDPA	± 1.4 dB	interferer as currently defined and 68 dB ACLR @ 10 MHz.
	$f >= 15$ MHz offset and $f_b \le 2.2$ GHz: ± 1.0 dB	Assume for simplicity this
	$2.2 \text{ GHz} < f \le 4 \text{ GHz}: \pm 1.7 \text{ dB}$ f > 4 GHz: $\pm 3.1 \text{ dB}$	system error applies for both DC-HSDPA cells.
6.5B Blocking characteristics for DB-DC- HSDPA	System error with f <15 MHz offset: ± 1.4 dB	Same as 6.5A
	$f_{\lambda} = 15$ MHz offset and $f_{\lambda} < 2.2$ GHz $\pm 1.0$ dB	
	2.2  GHz < f < 4  GHz + 1.7  dB	
	f > 4 GHz: ±3.1 dB	
6.5C Blocking characteristics for DC-	System error with f <15 MHz offset:	Same as 6.5A
HSUPA	± 1.4 dB	
	f >= 15 MHz offset and $f_b \le 2.2 \text{ GHz: } \pm 1.0 \text{ dB}$	
	2.2 GHz < f ≤ 4 GHz: ±1.7 dB	
6.5D Blocking Characteristics for single	f > 4 GHZ: ±3.1 dB System error with $f < 15$ MHz offset:	Same as 6.54
Uplink Single band 4C-HSDPA	± 1.4 dB	Same as 0.5A
	f >= 15 MHz offset and $f_b \le 2.2 \text{ GHz: } \pm 1.0 \text{ dB}$	
	2.2 GHz < f ≤ 4 GHz: ±1.7 dB f > 4 GHz: ±3.1 dB	
6.5E Blocking Characteristics for dual	System error with f <15 MHz offset:	Same as 6.5A
Uplink Single band 4C-HSDPA	± 1.4 dB	
	f >= 15 MHz offset and $f_b \le 2.2 \text{ GHz: } \pm 1.0 \text{ dB}$	
	2.2 GHz < f ≤ 4 GHz: ±1.7 dB	
6 EE Placking Characteristics for single	f > 4 GHz; ±3.1 dB	Sama an 6 EA
Uplink Dual band 4C-HSDPA	± 1.4 dB	Same as 6.5A
	f >= 15 MHz offset and $f_b \le 2.2 \text{ GHz: } \pm 1.0 \text{ dB}$	
	2.2 GHz < f ≤ 4 GHz: ±1.7 dB	
CEEA Blocking Characteristics for single	f > 4 GHz: ±3.1 dB	
Uplink Dual band 4C-HSDPA (3 carrier)	± 1.4 dB	Same as 6.5A
	f >= 15 MHz offset and fb $\Box$ 2.2 GHz: ± 1.0	
	ɑʁ   2 2 GHz < f □ □ 4 GHz; +1 7 dB	
	f > 4 GHz; ±3.1 dB	
6.5G Blocking Characteristics for dual	System error with f <15 MHz offset:	Same as 6.5A
Uplink Dual band 4C-HSDPA	± 1.4 0B	
	f >= 15 MHz offset and $f_b \le 2.2 \text{ GHz: } \pm 1.0 \text{ dB}$	
	2.2 GHz < $f \le 4$ GHz: ±1.7 dB	
	t > 4 GHz: ±3.1 dB	

Clause	Maximum Test System Uncertainty	Derivation of Test System
6 5GA Blocking Characteristics for dual	System error with f < 15 MH z offset:	Same as 6.54
Uplink Dual band 4C-HSDPA (3 carrier)	± 1.4 dB	Same as 0.5A
	f >= 15 MHz offset and fb □ 2.2 GHz: ± 1.0	
	2.2 GHz < f □ □ 4 GHz: ±1.7 dB f > 4 GHz: ±3 1 dB	
6.6 Spurious Response	f < 22  GHz + 10  dB	
	$2.2 \text{ GHz} \le 1.0 \text{ dB}$ 2.2 GHz < f $\le$ 4 GHz; $\pm$ 1.7 dB f > 4 GHz; $\pm$ 3 1 dB	
6.64 Spurious Response for DC-HSDPA	$f < 22 \text{ GHz} \pm 10 \text{ dB}$	This applies for both DC-
	$1 \ge 2.2 \text{ GHZ} = 1.0 \text{ GHZ} + 1.7 \text{ dB}$	HSDPA cells
	$12.2 \text{ GHZ} < 1 \ge 4 \text{ GHZ} = 1.7 \text{ ub}$	
6 6B Spurious Beapage for DB DC		This applies for both DB DC
6.6B Spurious Response for DB-DC-	$f \le 2.2 \text{ GHZ}; \pm 1.0 \text{ dB}$	This applies for both DB-DC-
	2.2 GHz < f ≤ 4 GHz: ±1.7 dB f > 4 GHz: ±3.1 dB	HSDPA cells.
6.6C Spurious Response for single band	f ≤ 2.2 GHz: ± 1.0 dB	This applies for all 3C-HSDPA
4C-HSDPA	2.2 GHz < f ≤ 4 GHz: ±1.7 dB f > 4 GHz: ±3.1 dB	cells.
6.6D Spurious Response for dual band	f ≤ 2.2 GHz: ± 1.0 dB	This applies for all 4C-HSDPA
4C-HSDPA	2.2 GHz < f < 4 GHz; ±1.7 dB	cells.
	f > 4 GHz; +3.1 dB	
6 6DA Spurious Response for dual band	f < 22  GHz + 10  dB	This applies for all 3C-HSDPA
4C-HSDPA (3 carrier)	$2.2 \text{ GHz} \neq f < 4 \text{ GHz} \pm 1.7 \text{ dB}$	cells
	f > 1 GHz; +3.1 dB	001101
6.7 Intermodulation Characteristics	+1 2 dB	Similar issues to 7.4 ACS tost
	±1.5 dD	ETR028 says impact f the closer signal is twice that of the far signal. If both signals drop 1 dB, intermod product drops 2 dB.
		Formula =
		$\sqrt{(2 \cdot CW \_ level \_ error)^2} + (mod\_ level \_ error)^2}$
		(Using CW interferer ±0.5 dB, modulated interferer ±0.5 dB, wanted signal ±0.7 dB) 1.3 dB! Broadband noise/ACLR not considered but may have impact.
6.7A Intermodulation Characteristics for DC-HSDPA	± 1.3 dB	Same as 6.7. This applies for both DC- HSDPA cells.
6.7B Intermodulation Characteristics for DB-DC-HSDPA	± 1.3 dB	Same as 6.7. This applies for both DB-DC- HSDPA cells.
6.7C Intermodulation Characteristics for DC-HSUPA	± 1.3 dB	Same as 6.7. This applies for both DC- HSUPA cells.
6.7D Intermodulation Characteristics for single uplink single band 4C-HSDPA	± 1.3 dB	Same as 6.7. This applies for all 3CHSDPA cells.
6.7E Intermodulation Characteristics for single uplink dual band 4C-HSDPA	± 1.3 dB	Same as 6.7. This applies for all 4C-HSDPA cells.
6.7EA Intermodulation Characteristics for single uplink dual band 4C-HSDPA (3 carrier)	± 1.3 dB	Same as 6.7. This applies for all 3C-HSDPA cells.

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
6.8 Spurious emissions	$\pm$ 3.0 dB for UE receive band and UE transmit band (-60 dBm) Outside above: f≤2.2GHz: $\pm$ 2.0 dB (-57 dBm) 2.2 GHz < f ≤ 4 GHz: $\pm$ 2.0 dB (-47 dBm) f > 4 GHz: $\pm$ 4.0 dB (-47 dBm) Downlink signal Îor $\pm$ 2.0 dB	

### F.1.4 Performance requirement

#### Table F.1.4: Maximum Test System Uncertainty for Performance Requirements

Clause	Maximum Te	est System Uncertainty	Derivation of Test System
			Uncertainty
7.2 Demodulation in Static Propagation	$\hat{I}_{ar}/I_{ac}$	±0.3 dB	0.1 dB uncertainty in
Condition	I	+1 0 dB	DPCH_Ec ratio
		±1.0 dB	
	$\underline{DPCH}_{E_c}$	±0.1 dB	0.3 dB uncertainty in $I_{or}/I_{oc}$
	I <sub>or</sub>		based on power meter
			measurement after the
			combiner
			Overall error is the sum of the
			$\hat{I}_{or}/I_{oc}$ ratio error and the
			DPCH_Ec/lor ratio but is not
			RSS for simplicity. The
			absolute error of the AWGN
			loc is not important for any
			specified as 1.0 dB
7.3 Demodulation of DCH in multipath	$\hat{I}$ /I	+0.56 dB	Worst case gain uncertainty
Fading Propagation conditions	$I_{or} / I_{oc}$	±0.00 dB	due to the fader from the
	I <sub>oc</sub>	±1.0 dB	calibrated static profile is $\pm 0.5$
	$DPCH \_E_c$	+0.1 dB	dB
	$I_{or}$	±0.1 dB	In addition the same +0.3 dB
			$\hat{I}$ / $I$ ratio error as 7.2
			$I_{or}/I_{oc}$ ratio error as $T.Z.$
			These are uncorrelated so can
			be RSS.
			Overall error in $I_{or}/I_{oc}$ is $(0.5^2)$
			$(+ 0.3^2)^{0.5} = 0.6 \text{ dB}$
7.4 Demodulation of DCH in Moving	$\hat{I}_{or}/I_{oc}$	±0.6 dB	Same as 7.3
Propagation conditions	I <sub>oc</sub>	±1.0 dB	
	$DPCH \_ E_c$		
	$I_{or}$	±0.1 dB	
7.5 Demodulation of DCH in Birth-Death	$\hat{I}_{\mu\nu}/I_{\mu\nu}$	±0.6 dB	Same as 7.3
Propagation conditions	I	+1 0 dB	
	-0c	2.10 02	
	$\frac{DICII_L_c}{I}$	±0.1 dB	
7.54 Domodulation of DCH in high around	1 <sub>or</sub>		Sama an 7.2
train conditions	$I_{or}/I_{oc}$	±0.6 dB	Same as 7.5
	I <sub>oc</sub>	±1.0 dB	
	$DPCH \_E_c$		
	I <sub>or</sub>		

Clause	Maximum To	est System Uncertainty	Derivation of Test System Uncertainty
7.6.1 Demodulation of DCH in open loop Transmit diversity mode	$ \begin{array}{c} \hat{I}_{or}/I_{oc} \\ I_{oc} \\ \underline{DPCH}\_E_{c} \end{array} $	±0.8 dB ±1.0 dB ±0.1 dB	Worst case gain uncertainty due to the fader from the calibrated static profile is ±0.5 dB per output
	I <sub>or</sub>		In addition the same ±0.3 dB $\hat{I}_{or}/I_{oc}$ ratio error as 7.2. These are uncorrelated so can
			De RSS. Overall error in $\hat{I}_{or}/I_{oc}$ is $(0.5^2 + 0.5^2 + 0.3^2)^{0.5} = 0.768$ dB. Round up to 0.8 dB
7.6.2 Demodulation of DCH in closed loop Transmit diversity mode	$\hat{I}_{or}/I_{oc}$ $I_{oc}$	±0.8 dB ±1.0 dB	Same as 7.6.1
	$\frac{DPCH\_E_c}{I_{or}}$	±0.1 dB	
selection diversity Transmission power control mode	$I_{or}/I_{oc}$ $I_{oc}$	±0.8 dB ±1.0 dB	Same as 7.6.1
	$\frac{DPCH\_E_c}{I_{or}}$	±0.1 dB	
Handover (Release 5 and earlier)	$\frac{\hat{I}_{or1}}{\hat{I}_{or2}}/I_{oc}$	±0.6 dB ±0.6 dB	Worst case gain uncertainty due to the fader from the calibrated static profile is $\pm 0.5$ dB per output
	$\frac{DPCH\_E_c}{I_{or}}$	±0.1 dB	In addition the same ±0.3 dB $\hat{I}_{or}/I_{oc}$ ratio error as 7.2. These are uncorrelated so can be RSS.
			Overall error in $\hat{I}_{or}/I_{oc}$ is $(0.5^2 + 0.5^2 + 0.3^2)^{0.5} = 0.768 \text{ dB}$ , but per output $\hat{I}_{oc}/I_{oc}$ or
			$\hat{I}_{or2} / I_{oc}$ the error is $(0.5^2 + 0.3^2)^{0.5} = 0.6$ dB.
7.7.1A Demodulation in inter-cell soft Handover (Release 6 and later)	$\frac{\hat{I}_{or1}/I_{oc}}{\hat{I}_{or2}/I_{oc}}$	±0.6 dB ±0.6 dB	Worst case gain uncertainty due to the fader from the calibrated static profile is ±0.5 dB per output
	$\frac{I_{oc}}{\frac{DPCH\_E_c}{I_{or}}}$	±0.1 dB	In addition the same ±0.3 dB $\hat{I}_{or}/I_{oc}$ ratio error as 7.2. These are uncorrelated so can be RSS.
			Overall error in $\hat{I}_{or}/I_{oc}$ is $(0.5^2 + 0.5^2 + 0.3^2)^{0.5} = 0.768 \text{ dB}$ , but per output $\hat{I}_{or1}/I_{oc}$ or $\hat{I}_{aa}/I_{aa}$ the error is $(0.5^2 + 0.5^2)^{10}$
			$\left[0.3^2\right]^{0.5} = 0.6 \text{ dB}.$

Clause	Maximum Te	est System Uncertainty	Derivation of Test System
7.7.2 Combining of TPC commands Test	lor1.lor2	±1.0 dB	Test is looking for changes in
1	DPCH E.		power – need to allow for
	$\frac{DT OT \_ D_C}{I}$	±0.1 dB	relaxation in criteria for power
	<sup>1</sup> or		step of probably 0.1 dB to 0.4
			dB
2	$\hat{I}_{or1}/I_{oc}$	±0.6 dB	Same as 7.7.1
	$\hat{I}_{or2}/I_{oc}$	±0.6 dB	
	I <sub>oc</sub>	±1.0 dB	
	$\frac{DPCH\_E_c}{I}$	±0.1 dB	
	1 <sub>or</sub>		
commands from radio links of different	$\hat{I}_{or1}/I_{oc}$	±0.3 dB	Same as 7.2.
radio link sets	$\hat{I}_{or2}/I_{oc}$	±0.3 dB	Offsets calculated as RMS of: lor1/loc, DPCH_Ec1/lor1 and
	$\hat{I}_{or3}/I_{oc}$	±0.3 dB	DPCH_Ec2/lor2 and
	I	+1 0 dB	lor1/loc, DPCH_Ec1/lor1 and DPCH_Ec3/lor3
		2110 02	respectively.
	$\frac{DPCH\_E_{c1}}{I}$	±0.1 dB	
	$\frac{DICII_{c2}}{I_{ar^2}}$	±0.1 dB	
	$DPCH \_E_{c3}$		
	I <sub>or3</sub>	±0.1 dB	
	Offset of $\frac{DPC}{D}$	$\frac{H_{c2}}{E_{c2}}$ relative to	
	DPCH E.	orl	
	$\frac{I}{I_{orl}}$	±0.4 dB	
	Offset of $\frac{DPC}{DPC}$	$H_{c3}$ relative to	
		orl	
	$\frac{DPCH \_E_{c1}}{I_{c1}}$	±0.4 dB	
	ori		

Clause	Maximum Te	est System Uncertainty	Derivation of Test System Uncertainty
7.8.1 Power control in downlink constant BLER target (Release 5 and earlier)	$\frac{\hat{I}_{or}/I_{oc}}{I_{oc}}$ $\frac{DPCH\_E_c}{I_{or}}$	±0.6 dB ±1.0 dB ±0.1 dB	Same as 7.3 For test cases wherein the SS response time to DL power control commands is delayed by one timeslot from the immediate response then additional test system uncertainty in $\frac{DPCH\_E_c}{I_{or}}$ is applied: For test 1 an additional 0.3 dB is allowed. This value is based on a rounded 0.24 dB delta value from simulations. For test 2 an additional 0.2 dB is allowed. This value is based on a rounded 0.14 dB delta
			on a rounded 0.14 dB delta value from simulations.
7.8.1A Power control in downlink constant BLER target (Release 6 and later)	$ \frac{\hat{I}_{or}/I_{oc}}{I_{oc}} $ $ \frac{DPCH\_E_c}{I} $	±0.6 dB ±1.0 dB ±0.1 dB	Same as 7.3
7.8.2, Power control in downlink initial convergence	$\frac{\hat{I}_{or}}{I_{oc}} \frac{I_{oc}}{DPCH\_E_c}}{I_{or}}$	±0.6 dB ±1.0 dB ±0.1 dB	Same as 7.3. When the SS response time to DL power control commands is delayed by one timeslot from the immediate response, then additional test system uncertainty in $\frac{DPCH_{-}E_{c}}{I_{or}}$ of 0.2 db is applied. This value is based on a rounded 0.15 dB delta value from simulations.
7.8.3, Power control in downlink: wind up effects (Release 5 and earlier)	$ \frac{\hat{I}_{or}/I_{oc}}{I_{oc}} $ $ \frac{DPCH\_E_c}{I_{or}} $	±0.6 dB ±1.0 dB ±0.1 dB	Same as 7.3. For test cases wherein the SS response time to DL power control commands is delayed by one timeslot from the immediate response, then additional test system uncertainty in $\frac{DPCH\_E_c}{I_{or}}$ is applied: For test 1 an additional 0.3 dB is allowed. This value is based on a rounded 0.26 dB delta value from simulations.
7.8.3A, Power control in downlink: wind up effects (Release 6 and later)	$\frac{\hat{I}_{or}/I_{oc}}{I_{oc}}$ $\frac{DPCH\_E_c}{I_{or}}$	±0.6 dB ±1.0 dB ±0.1 dB	Same as 7.3.

Clause	Maximum Te	est System Uncertainty	Derivation of Test System
			Uncertainty
7.8.4, Power control in the downlink,	$\hat{I}_{or}/I_{oc}$	±0.6 dB	Same as 7.3
	Inc	±1.0 dB	response time to DL power
	DPCH E		control commands is delayed
	$\frac{DICH_{L_{c}}}{I}$	±0.1 dB	by one times lot from the
	<sup>1</sup> or		immediate response, then
			additional test system
			uncertainty in $\frac{DPCH - E_c}{E_c}$ is
			I <sub>or</sub>
			applied:
			For test 1 stage 1, an
			additional 0.2 dB is allowed.
			This value is based on a
			from simulations.
			For to a t 4 of to read 0 or r
			additional 0.1 dB is allowed
			This value is based on a
			rounded 0.16 dB delta value
7.9.5 Dower control in the downlink for E			from simulations.
DPCH	$I_{or}/I_{oc}$	±0.6 dB	Same as 7.3
	I <sub>oc</sub>	±1.0 dB	
	$\frac{F - DPCH \_ E_c}{E_c}$	±0.1 dB	
	I <sub>or</sub>		
(Release 5 and earlier)	$\hat{I}_{or}/I_{oc}$	±0.6 dB	Same as 7.3
	I <sub>oc</sub>	±1.0 dB	
	$DPCH \_ E_c$	+0.1 dB	
	I <sub>or</sub>	±0.1 dD	
7.9.1A Downlink compressed mode	$\hat{I}_{or}/I_{oc}$	±0.6 dB	Same as 7.3
(Release 6 and later)	I <sub>ac</sub>	±1.0 dB	
	DPCH E		
	$\frac{DI OII - D_c}{I_{or}}$	±0.1 dB	
7.10 Blind transport form at detection	$\hat{I}$ /I	±0.3 dB	Same as 7.2
Tests 1, 2, 3	- or / - oc I	+1 0 dB	
	DPCH E	11.0 00	
	$\frac{DICII_{c}}{I}$	±0.1 dB	
	1 <sub>or</sub>		
7.10 Blind transport format detection	$\hat{I}_{ar}/I_{aa}$	±0.6 dB	Same as 7.3
Tests 4, 5, 6	I	+1 0 dB	
	DPCH E	2110 00	
	$\frac{DICII_{L_c}}{I}$	±0.1 dB	
	1 or		
7.11 Demodulation of paging channel	Test 1:		Test 1: Values for lor/loc and
(PCH)	$\hat{I}_{or}/I_{oc}$	±0.3 dB	loc are the same as 7.2
	I	+1 0 dB	Uncertainties for S-
	S-CCPCH Ec/lo	$\pm 1.0$ dB	PICH Ec/lor are the same of
	PICH_Ec/lor	±0.1 dB	for DPCH_Ec/lor

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
	Test 2: $\hat{I}_{ex}/I_{ex}$ ±0.6 dB	Test 2: Values for lor/loc and loc are the same as 7.3
	$I_{oc}$ ±1.0 dB	Uncertainties for S- CCPCH_Ec/lor and
	S-CCPCH_Ec/lor ±0.1 dB PICH_Ec/lor ±0.1 dB	PICH_Ec/lor are the same as for DPCH_Ec/lor
7.12 Detection of acquisition indicator (Al)	$\hat{I}_{or}/I_{oc}$ ±0.3 dB	Values for lor/loc and loc are the same as 7.2
	$I_{oc}$ ±1.0 dB AICH_Ec/lor ±0.1 dB	Uncertainty for AICH_Ec/lor and S-CCPCH_Ec/lor is the
	S-CCPCH_Ec/lor ±0.1 dB	same as for DPCH_Ec/lor
7.12A Detection of E-DCH Acquisition Indicator (E-AI)	$\hat{I}_{or}/I_{oc}$ ±0.3 dB	Values for lor/loc and loc are the same as 7.2
	$I_{oc}$ ±1.0 dB AICH Ec/lor ±0.1 dB	Uncertainty for AICH_Ec/lor, E-AICH and S-CCPCH_Ec/lor
	E-AICH_Ec/lor ±0.1 dB S-CCPCH Ec/lor ±0.1 dB	is the same as for DPCH_Ec/lor
7.13 UE UL power control operation with discontinuous UL DPCCH transmission operation	DL: $\frac{F - DPCH - E_c}{I_{or}} \pm [0.1] dB$	DL: Value for lor is same as for TC 7.7.2 test 1. Value for F-DPCh is same as TC for TC 7.8.5
	UL: For a greater than 3 dB range $\pm$ [0,3]dB	UL: This accuracy is based on the linearity of the absolute power measurement of the test equipment.

## F.1.5 Requirements for support of RRM

#### Table F.1.5: Maximum Test System Uncertainty for Radio Resource Management Tests

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.2 Idle Mode Tasks		
8.2.2 Cell Re-Selection		
8.2.2.1 Scenario 1: Single carrier case	$\frac{\text{During T1 and T2:}}{I_{or}}$ $\frac{\text{CPICH }_{E_c}}{I_{or}} \pm 0.1 \text{ dB}$ $I_{oc} \pm 1.0 \text{ dB}$ $\frac{\text{During T1:}}{I_{or}(2)} \pm 0.7 \text{ dB}$	
	$I_{or}(1, 3, 4, 5, 6) \text{ relative to } I_{or}(2) \pm 0.3 \text{ dB}$ $\frac{\text{During T2:}}{I_{or}(1)} \pm 0.7 \text{ dB}$ $I_{or}(2, 3, 4, 5, 6) \text{ relative to } I_{or}(1) \pm 0.3 \text{ dB}$	
	<ul> <li>Assumptions: <ul> <li>a) The contributing uncertainties for loc are derived according to ETR factor of k=2.</li> <li>b) Within each cell, the uncertainty for ratio are uncorrelated to each oth c) The relative uncertainties for lor(n have any amount of positive correct to one (fully correlated).</li> <li>d) Across different cells, the channe have any amount of positive correct to one (fully correlated).</li> <li>e) The uncertainty for loc and lor(n) positive correlated).</li> <li>f) The absolute uncertainty of lor(2) uncertainty of lor(1, 3, 4, 5, 6), are Similarly, the absolute uncertainty uncertainty of lor(2, 3, 4, 5, 6), are behind the assumptions, is recorded in 3GP</li> </ul> </li> </ul>	lor(n), channel power ratio, and 273-1-2 [16], with a coverage or lor(n), and channel power er. across different cells may elation from zero (uncorrelated) I power ratio uncertainties may elation from zero (uncorrelated) may have any amount of correlated) to one (fully at T1 and the relative e uncorrelated to each other. of lor(1) at T2 and the relative e uncorrelated to each other. tainties, and of the rationale P TR 34 902 [24].

Clause	Maximum Test System Uncertainty	Derivation of Test System
8.2.2.2 Scenario 2: Multi carrier case	Channel 1 during T1 and T2:	Uncertainty
	$\frac{CPICH \_ E_c}{\_} = \pm 0.1 \text{ dB}$	
	I <sub>or</sub>	
	$I_{oc}(1)$ ±1.0 dB	
	Channel 1 during T1:	
	$I_{or}(1)$ ±0.7 dB	
	$I_{or}(3,4)$ relative to $I_{or}(1) \pm 0.3$ dB	
	Channel 1 during T2:	
	$I_{or}(1) \pm 0.7  dB$	
	$I_{or}(3, 4)$ relative to $I_{or}(1) \pm 0.3$ dB	
	Channel 2 during T1 and T2:	
	$\frac{CPICH\_E_c}{I_{or}} = \pm 0.1 \text{ dB}$	
	<i>I<sub>oc</sub></i> (2) ±1.0 dB	
	Channel 2 during T1:	
	<i>I</i> <sub>or</sub> (2) ±0.7 dB	
	$I_{or}$ (5, 6) relative to $I_{or}$ (2) ±0.3 dB	
	Channel 2 during T2:	
	$I_{or}(2)$ ±0.7 dB	
	$I_{or}$ (5, 6) relative to $I_{or}$ (2) ±0.3 dB	
	Assumptions:	
	a) to e): Same as for the one-frequency te	st 8.2.2.1.
	lor(3, 4), are uncorrelated to each	other. Similarly, the absolute
	uncertainty of lor(2) and the relati	ve uncertainty of lor(5, 6), are
	g) The absolute uncertainties for lor( amount of positive correlation from (fully correlated)	(1) and lor(2) may have any n zero (uncorrelated) to one
	h) The absolute uncertainties for loc	(1) and loc(2) may have any
	amount of positive correlation from (fully correlated)	n zero (uncorrelated) to one
	An explanation of correlation between uncer	tainties, and of the rationale
8.2.3 UTRAN to GSM Cell Re-Selection	benind the assumptions, is recorded in SGP	11X 04 302 [24].

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.2.3.1 Scenario 1: Both UTRA and GSM level changed	$\hat{I}_{or}/I_{oc}$ ±0.3 dB $I_{oc}/RXLEV$ ±0.5 dB	0.1 dB uncertainty in CPICH_Ec ratio
	<i>I<sub>oc</sub></i> ±1.0 dB RXLEV ±1.0 dB	0.3 dB uncertainty in $\hat{I}_{ac}/I_{ac}$
	$\frac{CPICH\_E_c}{I_{or}} = \pm 0.1 \text{ dB}$	based on power meter measurement after the combiner
		0.5 dB uncertainty in loc/RXLEV based on power meter measurement after the combiner
		The absolute error of the AWGN is specified as 1.0 dB.
		The absolute error of the RXLEV is specified as 1.0 dB.
8.2.3.2 Scenario 2: Only UTR A le vel changed	$ \begin{array}{ll} \hat{I}_{or}/I_{oc} & \pm 0.3 \text{ dB} \\ I_{oc}/RXLEV & \pm 0.5 \text{ dB} \\ I_{oc} & \pm 1.0 \text{ dB} \\ \text{RXLEV} & \pm 1.0 \text{ dB} \end{array} $	Same as 8.2.3.1
	$\frac{CPICH\_E_c}{I_{or}} = \pm 0.1 \text{ dB}$	
8.2.3.3 Scenario 3: HCS with only UTRA level changed	$ \begin{array}{ll} \hat{I}_{or}/I_{oc} & \pm 0.3 \text{ dB} \\ I_{oc}/RXLEV & \pm 0.5 \text{ dB} \\ I_{oc} & \pm 1.0 \text{ dB} \\ \text{RXLEV} & \pm 1.0 \text{ dB} \end{array} $	Same as 8.2.3.1
	$\frac{CPICH\_E_c}{I_{or}} = \pm 0.1 \text{ dB}$	
8.2.4 FDD/TDD cell re-selection	$ \begin{array}{ll} \hat{I}_{or}/I_{oc} & \pm 0.3 \text{ dB} \\ I_{oc} & \pm 1.0 \text{ dB} \\ I_{oc1}/I_{oc2} & \pm 0.3 \text{ dB} \\ \\ \hline \frac{CPICH\_E_c}{I_{or}} & \pm 0.1 \text{ dB} \\ \end{array} $ For multi-band UE with Band I and VI	Same as 8.2.2.2
8.2.5 UTRA to E-UTRA Cell Re-Selection	$I_{oc1}/I_{oc2}$ ±0.5 dB	

Clause	Maximum Test System Uncertainty	Derivation of Test System
8.2.5.1 E-UTRA is of higher priority	$\label{eq:constraint} \begin{array}{l} \frac{UTRAcell}{I_{oc}\pm0.7\;dB} \\ I_{or}/I_{oc}\pm0.3\;dB \\ CPICHE_c/I_{or}\pm0.1\;dB \\ \hline \\ \frac{E-UTRAcell}{N_{oc}\pm0.7\;dB} \mbox{ averaged over } BW_{Config} \\ \hat{E}s/N_{oc}\pm0.3\;dB \mbox{ averaged over } BW_{Config} \\ \hline \end{array}$	Notes: I <sub>oc</sub> is the AWGN on cell 1 (UTRA) frequency I <sub>or</sub> / I <sub>oc</sub> is the ratio of cell 1 signal / AWGN CPICH Ec / Ior is the fraction of cell 1 power assigned to the CPICH Physical channel N <sub>∞</sub> is the AWGN on cell 2 (E- UTRA)frequency
		Ês / N <sub>oc</sub> is the ratio of cell 12signal / AWGN
8.2.5.2 E-UTRA is of lower priority	Same as 8.2.5.1	
8.3 UTRAN Connected Mode Mobility		
8.3.1 FDD/FDD Soft Handover	$\begin{array}{l} \hline \underline{\text{During T0/T1 and T2/T3/T4/T5/T6:}} \\ \hline \underline{CPICH}_E_c \\ \hline I_{or} \\ \hline I_{or} \\ \hline \\ I_{or} \\ \hline \hline \\ I_{or} \\ \hline \hline \hline \\ I_{or} \\ \hline \hline \hline \\ I_{or} \\ \hline \hline \hline I_{or} \\ \hline \hline \\ I_{or} \\ \hline \hline \hline \\ I_{or} \\ \hline \hline \hline \hline I_{or} \\ \hline \hline \hline I_{$	
	<ul> <li>a) The contributing uncertainties for loc are derived according to ETR factor of k=2.</li> <li>b) Within each cell, the uncertainty for ratio are uncorrelated to each oth c) Across different cells, the channe have any amount of positive correction one (fully correlated).</li> <li>d) The uncertainty for loc and lor(n) positive correlation from zero (unc correlated).</li> <li>e) The absolute uncertainty of lor(1) lor(2), are uncorrelated to each of An explanation of correlation between uncert behind the assumptions, is recorded in 3GPI</li> </ul>	lor(n), channel power ratio, and 273-1-2 [16], with a coverage or lor(n), and channel power er. I power ratio uncertainties may elation from zero (uncorrelated) may have any amount of correlated) to one (fully and the relative uncertainty of ther. tainties, and of the rationale P TR 34 902 [24].
8.3.2 FDD/FDD Hard Handover		L J'

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.3.2.1 Handover to intra-frequency cell	$\frac{During T1 and T2 / T3:}{CPICH \_ E_c} \pm 0.1 dB$ $I_{or} \pm 0.7 dB$ $I_{oc} \pm 1.0 dB$ $\frac{During T1:}{Already covered above}$ $\frac{During T2 / T3:}{I_{oc} (2) relative to I_{oc} (1) \pm 0.2 dB$	Uncertainty
	<ul> <li>Assumptions:</li> <li>a) The contributing uncertainties for loc are derived according to ETR factor of k=2.</li> <li>b) Within each cell, the uncertainty for ratio are uncorrelated to each oth</li> <li>c) Across different cells, the channe have any amount of positive correct to one (fully correlated).</li> <li>d) The uncertainty for loc and lor(n) positive correlation from zero (uncorrelated).</li> <li>e) The absolute uncertainty of lor(1) lor(2), are uncorrelated to each of An explanation of correlation between uncert behind the assumptions, is recorded in 3GP</li> </ul>	lor(n), channel power ratio, and 273-1-2 [16], with a coverage or lor(n), and channel power er. I power ratio uncertainties may elation from zero (uncorrelated) may have any amount of correlated) to one (fully and the relative uncertainty of ther. rtainties, and of the rationale P TR 34 902 [24].
8.3.2.2 Handover to inter-frequency cell	$\frac{\text{Channel 1 during T1 and T2 / T3:}}{I_{or}}$ $\frac{CPICH\_E_c}{I_{or}} \pm 0.1 \text{ dB}$ $I_{or}(1) \pm 0.7 \text{ dB}$ $I_{oc}(1) \pm 1.0 \text{ dB}$ $\frac{\text{Channel 2 during T1 and T2 / T3:}}{I_{oc}(2) \pm 1.0 \text{ dB}}$ $\frac{\text{Channel 2 during T1:}}{\text{Already covered above}}$ $\frac{\text{Channel 2 during T2 / T3:}}{I_{or}}$ $\frac{CPICH\_E_c}{I_{or}} \pm 0.1 \text{ dB}$	

Clause	Maximum Test System Uncertainty	Derivation of Test System
	Accumptions	Uncertainty
	a) The contributing uncertainties for	lor(n) channel power ratio and
	loc are derived according to ETR	273-1-2 [16], with a coverage
	factor of k=2.	
	<ul> <li>b) Within each cell, the uncertainty for ratio are uncorrelated to each oth</li> </ul>	or lor(n), and channel power er.
	c) Across different cells, the channe	l power ratio uncertainties may
	have any amount of positive corre	elation from zero (uncorrelated)
	d) The uncertainty for loc(n) and lor(	n) may have any amount of
	positive correlation from zero (und	correlated) to one (fully
	e) The absolute uncertainties for lor	1) and lor(2) may have any
	amount of positive correlation from	n zero (uncorrelated) to one
	(fully correlated).	(4) (2)
	<ol> <li>I he absolute uncertainties for loc amount of positive correlation from</li> </ol>	(1) and loc(2) may have any
	(fully correlated)	1 Zero (uncorrelated) to one
	An explanation of correlation between uncer	tainties, and of the rationale
	behind the assumptions, is recorded in 3GP	P TR 34 902 [24].
8.3.3 FDD/TDD Handover	TBD	
8.3.4 Inter-system Handover from	$\hat{I}_{or}/I_{oc}$ ±0.3 dB	0.1 dB uncertainty in CPICH Ec ratio
	$I_{oc}/RXLEV$ ±0.5 dB	0.3 dB uncertainty in $\hat{I}_{}/I_{}$
	$I_{oc}$ ±1.0 dB	based on power meter
	RXLEV ±1.0 dB	measurement after the
	$CPICH \_E_c$	0.5 dB uncertainty in
	$\pm 0.1 \text{ dB}$	loc/RXLEV based on power
	I or	meter measurement after the
		Combiner The absolute error of the
		AWGN is specified as 1.0 dB.
		The absolute error of the
		RXLEV is specified as 1.0 dB.
8.3.4a Inter-system Handover from	UTRACEII:	Notes:
OTRANTED IS E-OTRANTED	$\log \pm 0.7$ dB	$_{\infty}$ is the AWGN off cert 1 (UTRA) frequency
	$CPICH E_c / I_{or} \pm 0.1 \text{ dB}$	$I_{or} / I_{oc}$ is the ratio of cell 1
		signal / AWGN
	EUTRA Cell:	CPICH Ec / lor is the fraction
	$N_{oc} \pm 0.7$ dB averaged over BW <sub>Config</sub> $\hat{F}_{s} / N_{out} \pm 0.3$ dB averaged over BW <sub>Config</sub>	OF CELL 1 power assigned to the
	L3 / Noc 10.5 UD averaged over DV Comig	or form hysical channel
		$N_{oc}$ is the AWGN on cell 2
		frequency
		Es / $N_{\infty}$ is the ratio of cell 2
8.3.4b Inter-system Handover from	Same as 8 3 4a	Same as 8.3.4a
UTRAN FDD to E-UTRAN TDD		
8.3.4c Inter-system Handover from	Same as 8.3.4a	Same as 8.3.4a
Unknown Target Cell		
8.3.4d Inter-system Handover from	Same as 8.3.4a	Same as 8.3.4a
UTRAN FDD to E-UTR AN TDD;		
Unknown Target Cell		
8.3.5 Cell Re-selection in CELL_FACH		

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.3.5.1 One frequency present in the neighbour list	During T1 and T2:	
	CPICH E	
	$\frac{1}{I_{or}} = \pm 0.1 \text{ dB}$	
	<i>I<sub>oc</sub></i> ±1.0 dB	
	During T1:	
	<i>I<sub>or</sub></i> (2) ±0.7 dB	
	$I_{or}(1, 3, 4, 5, 6)$ relative to $I_{or}(2) \pm 0.3$ dB	
	During T2:	
	$I_{or}(1)$ ±0.7 dB	
	$I_{or}(2, 3, 4, 5, 6)$ relative to $I_{or}(1) \pm 0.3$ dB	
	Assumptions: a) The contributing uncertainties for loc are derived according to ETR factor of k=2.	lor(n), channel power ratio, and 273-1-2 [16], with a coverage
	b) Within each cell, the uncertainty for	or lor(n), and channel power
	ratio are uncorrelated to each other	er.
	have any amount of positive corre	lation from zero (uncorrelated)
	<ul> <li>d) Across different cells, the channel have any amount of positive correction to one (fully correlated).</li> </ul>	power ratio uncertainties may lation from zero (uncorrelated)
	e) The uncertainty for loc and lor(n) positive correlation from zero (unc correlated).	may have any amount of correlated) to one (fully
	f) The absolute uncertainty of lor(2) uncertainty of lor(1, 3, 4, 5, 6), are Similarly, the absolute uncertainty uncertainty of lor(2, 3, 4, 5, 6), are	at T1 and the relative uncorrelated to each other. of lor(1) at T2 and the relative uncorrelated to each other
	An explanation of correlation between uncert behind the assumptions, is recorded in 3GP	tainties, and of the rationale P TR 34 902 [24].

Clause	Maximum Test System Uncertainty	Derivation of Test System
8.3.5.2 Two frequencies present in the	Channel 1 during T1 and T2:	Oncertainty
neighbour list		
	$\frac{CPICH\_E_c}{\pm 0.1 \text{ dB}}$	
	I <sub>or</sub>	
	<i>I</i> (1) +10 dB	
	Channel 1 during T1:	
	$I_{or}(1)$ ±0.7 dB	
	$I_{or}$ (3, 4) relative to $I_{or}$ (1) ±0.3 dB	
	Channel 1 during T2:	
	<i>I</i> <sub>or</sub> (1) ±0.7 dB	
	$I_{or}$ (3, 4) relative to $I_{or}$ (1) ±0.3 dB	
	Channel 2 during T1 and T2:	
	CPICH _ E	
	$I_{or}$ ±0.1 dB	
	<i>I<sub>oc</sub></i> (2) ±1.0 dB	
	Channel 2 during T1:	
	$I_{or}(2)$ ±0.7 dB	
	$I_{or}$ (5, 6) relative to $I_{or}$ (2) ±0.3 dB	
	Channel 2 during T2:	
	$I_{or}(2)$ ±0.7 dB	
	$I_{or}$ (5, 6) relative to $I_{or}$ (2) ±0.3 dB	
	Assumptions: a) to e): Same as for the one-frequency te	st 8.3.5.1.
	f) The absolute uncertainty of lor(1)	and the relative uncertainty of
	Ior(3, 4), are uncorrelated to each uncertainty of Ior(2) and the relati	other. Similarly, the absolute ve uncertainty of lor(5, 6), are
	uncorrelated to each other.	(1) and (a.(2) may be set a set (1)
	amount of positive correlation from	(1) and $lor(2)$ may have any n zero (uncorrelated) to one
	(fully correlated).	$(1)$ and $\log(2)$ may have any
	amount of positive correlation from	n zero (uncorrelated) to one
	(fully correlated).	tainties and of the rationalo
	behind the assumptions is recorded in 3GPF	PTR 34 902 [24].

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.3.5.3 Cell Re-selection to GSM	$\hat{I}_{or}/I_{oc}$ ±0.3 dB	0.1 dB uncertainty in CPICH_Ec ratio
	$I_{oc}/RXLEV \pm 0.5 \text{ dB}$ $I_{oc} \pm 1.0 \text{ dB}$ $RXLEV \pm 1.0 \text{ dB}$ $\frac{CPICH \_ E_c}{I_{or}} \pm 0.1 \text{ dB}$	0.3 dB uncertainty in $\hat{I}_{or}/I_{oc}$ based on power meter measurement after the combiner 0.5 dB uncertainty in loc/RXLEV based on power meter measurement after the combiner The absolute error of the AWGN is specified as 1.0 dB.
		The absolute error of the RXLEV is specified as 1.0 dB.
session, two frequencies present in neighbour list	$\frac{CPICH \_ E_c}{I_{or}} \pm 0.1 \text{ dB}$ $\frac{I_{or}(1) \pm 0.7 \text{ dB}}{I_{oc}(1) \pm 1.0 \text{ dB}}$ $\frac{Channel 1 \text{ during T1, T2 and T3:}}{I_{oc}(1) \pm 1.0 \text{ dB}}$ $\frac{Channel 2 \text{ during T1, T2 and T3:}}{I_{or}} \pm 0.1 \text{ dB}$ $\frac{CPICH \_ E_c}{I_{or}} \pm 0.1 \text{ dB}$ $I_{oc}(2) \pm 1.0 \text{ dB}$ $I_{or}(2) \pm 0.7 \text{ dB}$	
8.3.6 Cell Re-selection in CELL_PCH	<ul> <li>Assumptions: <ul> <li>a) The contributing uncertainties for loc are derived according to ETR factor of k=2.</li> <li>b) Within each cell, the uncertainty for ratio are uncorrelated to each oth c) Across different cells, the channed have any amount of positive correct to one (fully correlated).</li> <li>d) The uncertainty for loc(n) and lord positive correlated).</li> <li>e) The absolute uncertainties for lor amount of positive correlated).</li> <li>f) The absolute uncertainties for lor (fully correlated).</li> <li>f) The absolute uncertainties for lor amount of positive correlation from (fully correlated).</li> </ul> </li> <li>An explanation of correlation between uncerbehind the assumptions, is recorded in 3GP</li> </ul>	lor(n), channel power ratio, and 273-1-2 [16], with a coverage or lor(n), and channel power er. I power ratio uncertainties may elation from zero (uncorrelated) (n) may have any amount of correlated) to one (fully (1) and lor(2) may have any m zero (uncorrelated) to one c(1) and loc(2) may have any m zero (uncorrelated) to one tainties, and of the rationale P TR 34 902 [24].
8.3.6.1 One frequency present in the neighbour list	Same as 8.2.2.1	Same as 8.2.2.1
8.3.6.2 Two frequencies present in the neighbour list	Same as 8.2.2.2	Same as 8.2.2.2

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.3.6.3 Cell re-selection during an MBMS	Channel 1 during T2:	0.3 dB uncertainty in $\hat{I}$ /I
2 GSM cells present in the neighbour list		based on power meter
	$\frac{CPICH \_E_c}{=}$ ±0.1 dB	measurement after the
	I <sub>or</sub>	combiner
	<i>I</i> <sub>or</sub> (1) ±0.7 dB	0.5 dB uncertainty in loc/RXLEV based on power
	Channel 1 during T1, T2 and T3:	meter measurement after the combiner
	$I_{oc}(1)$ ±1.0 dB	
	Channel 2 during T1, T2 and T3:	The absolute error of the AWGN is specified as 1.0 dB.
	$\frac{CPICH\_E_c}{I_{or}} = \pm 0.1 \text{ dB}$	The absolute error of the RXLEV is specified as 1.0 dB.
	<i>I<sub>oc</sub></i> (2) ±1.0 dB	
	$I_{\rm or}(2)$ ±0.7 dB	
	$\hat{I} / I $ +0.3 dB	
	for froc	
	GSM during T2:	
	$I_{oc}(2)/RXLEV$ 1 ±0.5 dB	
	RXLEV1 ±1.0 dB	
	$I(2)/RXIEV_2$ +0.5 dB	
	$\frac{1}{cc} \frac{2}{2} + 10  dB$	
	GSM during T3:	
	$I_{oc}(2)/RXLEV$ 2 ±0.5 dB	
	RXLEV2 ±1.0 dB	
	a) The contributing uncertainties for	lor(n), channel power ratio, and
	loc are derived according to ETR factor of k=2.	273-1-2 [16], with a coverage
	b) Within each cell, the uncertainty for	or lor(n), and channel power
	ratio are uncorrelated to each oth	er. Loower ratio uncertainties may
	have any amount of positive corre	elation from zero (uncorrelated)
	to one (fully correlated).	· · · · · · · · · · · · · · · · · · ·
	<ul> <li>I ne uncertainty for loc(n) and lor( positive correlation from zero (unc</li> </ul>	n) may have any amount of correlated) to one (fully
	correlated).	
	e) The absolute uncertainties for lor amount of positive correlation from	(1) and lor(2) may have any n zero (uncorrelated) to one
	(tully correlated). f) The absolute uncertainties for loc	(1) and loc(2) may have any
	amount of positive correlation from	n zero (uncorrelated) to one
	(fully correlated).	
	behind the assumptions, is recorded in 3GP	tainties, and of the rationale P TR 34 902 [24].
8.3.7 Cell Re-selection in URA_PCH		· · · · · - [- ·].
8.3.7.1 One frequency present in the	Same as 8.2.2.1	Same as 8.2.2.1
8.3.7.2 Two frequencies present in the	Same as 8.2.2.2	Same as 8,2.2.2
neighbour list		

Clause	Maximum Test System Uncertainty	Derivation of Test System
8 3 8 Serving HS-DSCH cell change	During T0 and T1/T2/T3/T4:	Uncertainty
	$\frac{CFICH_{L_c}}{1}$ ±0.1 dB	
	I <sub>or</sub>	
	$I_{or}(1)$ ±0.7 dB	
	$I_{oc}$ ±1.0 dB	
	Relative delay of paths received from cell 2	
	with respect to cell 1: ±0.5 chips	
	During TO:	
	Already covered above	
	During T1/T2/T3/T4:	
	$I_{\it or}$ (2) relative to $I_{\it or}$ (1) ±0.3 dB	
	Assumptions:	
	a) The contributing uncertainties for loc are derived according to ETR	lor(n), channel power ratio, and 273-1-2 [16], with a coverage
	tactor of k=2.	or lor(n) and channel power
	ratio are uncorrelated to each oth	er.
	c) Across different cells, the channe	l power ratio uncertainties may
	have any amount of positive corre	elation from zero (uncorrelated)
	d) The uncertainty for loc and lor(n)	may have any amount of
	positive correlation from zero (und	correlated) to one (fully
	correlated).	
	e) I ne absolute uncertainty of lor(1) lor(2) are uncorrelated to each of	and the relative uncertainty of
	An explanation of correlation between uncer	tainties, and of the rationale
	behind the assumptions, is recorded in 3GP	P TR 34 902 [24].
8.3.9 Enhanced Serving HS-DSCH cell	During T1/T2/T3/T4:	
change	$\frac{CPICH \_ E_c}{2}$ +0.1 dB	
	$I_{or}$ ±0.1 dB	
	$I_{\rm or}(1)$ ±0.7 dB	
	$I_{\rm ex}(2)$ relative to $I_{\rm ex}(1) \pm 0.3$ dB	
	<i>I</i> +10 dB	
	Relative delay of paths received from cell 2	
	with respect to cell 1: $\pm 0.5$ chips	
	Assumptions:	
	a) The contributing uncertainties for	lor(n), channel power ratio, and
	factor of k=2.	273-1-2 [10], with a coverage
	b) Within each cell, the uncertainty for	or lor(n), and channel power
	ratio are uncorrelated to each oth	er.
	have any amount of positive corre	elation from zero (uncorrelated)
	to one (fully correlated).	
	d) The uncertainty for loc and lor(n)	may have any amount of
	positive correlation from zero (und	correlated) to one (fully
	e) The absolute uncertainty of lor(1)	and the relative uncertainty of
	lor(2), are uncorrelated to each of	ther.
	An explanation of correlation between uncer behind the assumptions is recorded in 3GP	tainties, and of the rationale P TR 34 902 [24]
8.3.10 System information acquisition for		
CSG cell		

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.3.10.1 Intrafrequency System	During T1 / T2:	
information acquisition for CSG cell	CPICH F	
	$\frac{CHCH_{L_c}}{\pm 0.1 \text{ dB}}$	
	I <sub>or</sub>	
	$I_{or}(1)$ ±0.7 dB	
	<i>I<sub>oc</sub></i> ±1.0 dB	
	During T1:	
	Already covered above	
	During T2:	
	$I_{or}$ (2) relative to $I_{or}$ (1) ±0.3 dB	
	Assumptions:	
	a) The contributing uncertainties for	lor(n), channel power ratio, and
	loc are derived according to ETR	273-1-2 [16], with a coverage
	tactor of k=2. b) Within each cell, the uncertainty fr	or lor(n) and channel nower
	ratio are uncorrelated to each oth	er.
	c) Across different cells, the channe	l power ratio uncertainties may
	have any amount of positive corre	elation from zero (uncorrelated)
	to one (fully correlated).	may have any amount of
	positive correlation from zero (uno	correlated) to one (fully
	correlated).	
	e) The absolute uncertainty of lor(1)	and the relative uncertainty of
	lor(2), are uncorrelated to each of	ther.
	behind the assumptions, is recorded in 3GP	P TR 34 902 [24].
8.3.10.2 Inter frequency System	Channel 1 during T1 and T2 / T3:	
information acquisition for CSG cell	CPICH E	
	$\frac{-1}{L}$ ±0.1 dB	
	I or	
	$I_{or}(1)$ ±0.7 dB	
	$I_{oc}(1)$ ±1.0 dB	
	Channel 2 during T1 and T2 / T3:	
	$I_{oc}(2)$ ±1.0 dB	
	Channel 2 during T1:	
	Aiready covered above	
	Channel 2 during T2 / T3:	
	CPICH E	
	$\frac{-c}{I_{ar}}$ ±0.1 dB	
	I(2) + 0.7  dB	

Clause	Maximum Test System Uncertainty	Derivation of Test System
		Uncertainty
	Assumptions:	
	a) The contributing uncertainties for	lor(n), channel power ratio, and
	loc are derived according to ETR	273-1-2 [16], with a coverage
	factor of k=2.	
	b) Within each cell, the uncertainty for lor(n), and channel power	
	ratio are uncorrelated to each other.	
	c) Across different cells, the channe	l power ratio uncertainties may
	have any amount of positive correlation from zero (uncorrelated)	
	to one (fully correlated).	
	d) The uncertainty for loc(n) and lor(	n) may have any amount of
	positive correlation from zero (uno	correlated) to one (fully
	correlated).	
	e) The absolute uncertainties for lore	(1) and lor(2) may have any
	amount of positive correlation fror	m zero (uncorrelated) to one
	(fully correlated).	
	f) The absolute uncertainties for loc	(1) and loc(2) may have any
	amount of positive correlation from	n zero (uncorrelated) to one
	(fully correlated).	
	An explanation of correlation between uncer	tainties, and of the rationale
	behind the assumptions, is recorded in 3GP	P TR 34 902 [24].
8.4 RRC Connection Control		
8.4.1 RRC Re-establishment delay	Settings.	0.1 dB uncertainty in
	$\hat{I}_{or}/I_{oc}$ ±0.3 dB	CPICH_Ec ratio
	<i>I<sub>oc</sub></i> ±1.0 dB	$\hat{I}$
	CDICH F	0.3 dB uncertainty in $I_{or}/I_{oc}$
	$\frac{CFTCTT}{C}$ +0.1 dB	based on power meter
	I	measurement after the
	or	combiner
		Overall error is the sum of the
		$I_{or}/I_{oc}$ ratio error and the
		CPICH Ec/lor ratio.
		The absolute error of the
		AWGN is specified as 1.0 dB

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.4.2 Random Access	Settings. $\hat{I}_{or}/I_{oc}$ ±0.3 dB	0.1 dB uncertainty in AICH_Ec ratio
	$\frac{I_{oc}}{\frac{AICH\_E_{c}}{I_{or}}} \pm 0.1 \text{ dB}$	0.3 dB uncertainty in $\hat{I}_{or}/I_{oc}$ based on power meter meas urement after the combiner
		Overall error is the sum of the $\hat{I}_{or}/I_{oc}$ ratio error and the AICH_Ec/lor ratio. The absolute error of the AWGN is specified as 1.0 dB
	Measurements: Power difference. ± 1dB Maximum Power: same as 5.5.2	Power difference: Assume symmetric meas error ±1.0 dB comprising RSS of: - 0.7 dB downlink error plus -0.7 dB meas error.
		Ma xim um Power: Assume asymmetric meas error -1.0 dB / 0.7 dB comprising RSS of: -0.7 dB downlink error plus -0.7 dB meas error, and +0.7 dB for upper limit
	PRACH timing error ±0.5 chips	
8.4.3 Transport format combination selection in UE	$\frac{DPCH\_E_c}{I_{or}} = \pm 0.1 \text{ dB}$	0.1 dB uncertainty in DPCH_Ec ratio
8.4.4 E-TFC restriction in UE		
8.4.4.1 10ms TTI E-DCH E-TFC restriction	$\frac{E_c}{I_{or}} = \pm 0.1 \text{ dB}$	0.1 dB uncertainty in Ec/lor ratio
	<i>I</i> <sub>or</sub> ±0.7 dB	
	DPCCH code domain absolute power measurement uncertainty ±0.9 dB	Absolute power uncertainty (all codes together) $\pm 0.7$ dB, relative code domain power uncertainty $\pm 0.5$ dB,
		These are uncorrelated so can be combined RSS.
		Overall error is $(0.5^2 + 0.7^2)^{0.5}$ = 0.9 dB,
8.4.4.2 2ms THE-DCHE-TFC restriction	$\left  \frac{E_c}{I_{or}} \right  $ ±0.1 dB	ratio
	<i>I</i> <sub>or</sub> ±0.7 dB	
	DPCCH code domain absolute power measurement uncertainty ±0.9 dB	Same as 8.4.4.1
8.5 Timing and Signalling Characteristics		

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty	
8.5.1 UE Transmit Timing	<i>I</i> <sub>er</sub> ±1.0 dB	0.1 dB uncertainty in	
	$\frac{0}{1}$ , $\frac{1}{1}$ , $\frac{1}{2}$ , $\pm 0.3$ dB	DPCH_EC ratio	
	$\frac{DTCH_{L}E_{c}}{L} = \pm 0.1 \text{ dB}$	0.3 dB uncertainty in lor1/lor2	
		based on power meter	
	$\frac{CPICH\_E_c}{\pm 0.1 \text{ dB}}$	combiner	
	I <sub>or</sub>		
	Rx-1x Timing Accuracy ±0.5 chips	The absolute error of the lor is	
	Tx-Tx Timing Accuracy ±0.25 chips	specified as 1.0 dB.	
8.6 UE Measurements Procedures			
8.6.1.1 Event triggered reporting in	During T1/T4 and T2/T3:		
AWGN propagation conditions (R99)	CPICH E		
	$\frac{-\frac{-c}{c}}{I} = \pm 0.1 \text{ dB}$		
	I (1) +0.7 dB		
	$I_{or}(1)$ = 10.7 dB		
	During T1/T4 only:		
	Arready covered above		
	During T2/T3 only:		
	$I_{or}$ (2) relative to $I_{or}$ (1) ±0.3 dB		
8.6.1.1A Event triggered reporting in	During T1/T3 and T2:		
later)	$\frac{CPICH\_E_c}{\pm 0.1 \text{ dB}}$		
	I <sub>or</sub>		
	$I_{or}(1)$ ±0.7 dB		
	<i>I<sub>oc</sub></i> ±1.0 dB		
	During T1/T3 only:		
	Already covered above		
	During T2 only:		
	$I_{ar}(2)$ relative to $I_{ar}(1) \pm 0.3$ dB		
8.6.1.1 and 8.6.1.1A	Assumptions:		
	a) The contributing uncertainties for lor(n), channel power ratio, and		
	factor of $k=2$ .		
	b) Within each cell, the uncertainty for lor(n), and channel power		
	c) Across different cells, the channel power ratio uncertainties may		
	<ul> <li>have any amount of positive correlation from zero (uncorrelated) to one (fully correlated).</li> <li>d) The uncertainty for loc and lor(n) may have any amount of positive correlation from zero (uncorrelated) to one (fully</li> </ul>		
	e) The absolute uncertainty of lor(1)	and the relative uncertainty of	
	lor(2), are uncorrelated to each o	ther.	
	An explanation of correlation between uncer behind the assumptions, is recorded in 3GP	tainties, and of the rationale P TR 34 902 [24].	
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Clause	Maximum Test System Uncertainty	Derivation of Test System
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$ \begin{array}{c} \mbox{multiple neighbours in AWGN} \\ \mbox{propagation condition (R99)} \\ \hline \\ \mbox{CPICH} = E_c \\ I_{cr} \\ to 1 dB \\ I_{cr} (1) = \pm 0.7 dB \\ I_{cr} (3) relative to I_{cr} (1) \pm 0.3 dB \\ \hline \\ \mbox{During T1/T2, T3 and T6:} \\ I_{cr} (2) relative to I_{cr} (1) \pm 0.3 dB \\ \hline \\ \mbox{During T3, T4/T5 and T6:} \\ I_{cr} (2) relative to I_{cr} (1) \pm 0.3 dB \\ \hline \\ \mbox{During T3, T4/T5 and T6:} \\ I_{cr} (2) relative to I_{cr} (1) \pm 0.3 dB \\ \hline \\ \mbox{During T0, T3, T4/T5 and T6:} \\ I_{cr} (2) relative to I_{cr} (1) \pm 0.3 dB \\ \hline \\ \mbox{During T3, T4/T5 and T6:} \\ I_{cr} (2) relative to I_{cr} (1) \pm 0.3 dB \\ \hline \\ \mbox{During T3, T4/T5 and T6:} \\ I_{cr} (2) relative to I_{cr} (1) \pm 0.3 dB \\ \hline \\ \mbox{During T3, T4/T5 and T6:} \\ I_{cr} (2) relative to I_{cr} (1) \pm 0.3 dB \\ \hline \\ \mbox{During T1, T2, and T4:} \\ I_{cr} (2) relative to I_{cr} (1) \pm 0.3 dB \\ \hline \\ \mbox{During T1, T2 and T4:} \\ I_{cr} (3) relative uncertainty of loc(1) and the relative to I_{cr} (1) \pm 0.3 dB \\ \hline \\ \mbox{During T1, T2 and T4:} \\ I_{cr} (3) relative to I_{cr} (1) \pm 0.3 dB \\ \hline \\ \mbox{During T2, T3 and T5:} \\ I_{cr} (3) relative to I_{cr} (1) \pm 0.3 dB \\ \hline \\ \mbox{During T2, T3 and T5:} \\ I_{cr} (2) re$	8.6.1.2 Event triggered reporting of	During T0 to T6:	Oncertainty
propagation condition (R99)       Image: the set of the se	multiple neighbours in AWGN	CPICH E	
$8.6.1.3E \text{ Event triggered reporting of multiple registron condition (Re)-4 and later \frac{1}{I_{av}}(1) \pm 0.7 \text{ dB} \frac{1}{I_{av}}(3) \text{ relative to } I_{av}(1) \pm 0.3 \text{ dB} \frac{1}{I_{av}}(3) \text{ relative to } I_{av}(1) \pm 0.3 \text{ dB} \frac{1}{I_{av}}(2) \text{ relative to } I_{av}(1) \pm 0.3 \text{ dB} \frac{1}{I_{av}}(2) \text{ relative to } I_{av}(1) \pm 0.3 \text{ dB} \frac{1}{I_{av}}(2) \text{ relative to } I_{av}(1) \pm 0.3 \text{ dB} \frac{1}{I_{av}}(2) \text{ relative to } I_{av}(1) \pm 0.3 \text{ dB} \frac{1}{I_{av}}(2) \text{ relative to } I_{av}(1) \pm 0.3 \text{ dB} \frac{1}{I_{av}}(2) \text{ relative to } I_{av}(1) \pm 0.3 \text{ dB} \frac{1}{I_{av}}(2) \text{ relative to } I_{av}(1) \pm 0.3 \text{ dB} \frac{1}{I_{av}}(2) \text{ relative to } I_{av}(1) \pm 0.3 \text{ dB} \frac{1}{I_{av}}(2) \text{ relative to } I_{av}(1) \pm 0.3 \text{ dB} \frac{1}{I_{av}}(1) \text{ relative to } I_{av}(1) \pm 0.3 \text{ dB} \frac{1}{I_{av}}(1) \text{ relative } I_{av}(1) \pm 0.3 \text{ dB} \frac{1}{I_{av}}(1) \text{ relative } I_{av}(1) \pm 0.3 \text{ dB} \frac{1}{I_{av}}(1) \pm 0.7 \text{ dB} \frac{1}{I_{av}}(2) \text{ relative } I_{av}(1) \pm 0.3 \text{ dB} \frac{1}{I_{av}}(2) \text{ relative } I_{av}(1) \pm 0.3 \text{ dB} \frac{1}{I_{av}}(2) \text{ relative } I_{av}(1) \pm 0.3 \text{ dB} \frac{1}{I_{av}}(1) \pm 0.7 \text{ dB} \frac{1}{I_{av}}(2) \text{ relative } I_{av}(1) \pm 0.3 \text{ dB} \frac{1}{I_{av}}(2) \text{ relative } I_{av}(1) \pm 0.3 \text{ dB} \frac{1}{I_{av}}(3) \text{ relative } I_{av}(1) \pm 0.3 \text{ dB} \frac{1}{I_{av}}(1) \pm 0.7 \text{ dB} \frac{1}{I_{av}}(3) \text{ relative } I_{av}(1) \pm 0.3 \text{ dB} \frac{1}{I_{av}}(3) \text{ relative } I_{av}(1) \pm 0.3 \text{ dB} \frac{1}{I_{av}}(3) \text{ relative } I_{av}(1) \pm 0.3 \text{ dB} \frac{1}{I_{av}}(3) \text{ relative } I_{av}(1) \pm 0.3 \text{ dB} \frac{1}{I_{av}}(1) \pm 0.7 \text{ dB} \frac{1}{I_{av}}(1) \pm 0.7 \text{ dB} \frac{1}{I_{av}}(1) \pm 0.3 \text{ dB} \frac{1}{I_{av}}(1) \pm 0.3 \text{ dB} \frac{1}{I_{av}}(3) \text{ relative } I_{av}(1) \pm 0.3 \text{ dB} \frac{1}{I_{av}}(3) \text{ relative } I_{av}(1) \pm 0.3 \text{ dB} \frac{1}{I_{av}}(1) \pm 0.3 \text{ dB} \frac{1}{I_{av}}(1) \text{ relative } I_{av}(1) \pm 0.3 \text{ dB} \frac{1}{I_{av}}(1) \text{ relative } I_{av}(1) \pm 0.3 \text{ dB} \frac{1}{I_{av}}(2) \text{ relative } I_{av}(1) \pm 0.3 \text{ dB} \frac{1}{I_{av}}(2) \text{ relative } I_{av}(1) \pm 0.3 $	propagation condition (R99)	$\frac{1}{I} = \frac{1}{C} = \frac{1}{C} \pm 0.1 \text{ dB}$	
$ \begin{array}{c c} I_{\alpha r}^{-}(1) & \pm 0.7 \ \mathrm{dB} \\ I_{\alpha r}^{-} & \pm 1.0 \ \mathrm{dB} \\ \hline I_{\alpha r}^{-} & \pm 1.0 \ \mathrm{dB} \\ \hline \\ \hline \\ I_{\alpha r}^{-}(3) \ \mathrm{relative to} \ I_{\alpha r}^{-}(1) \pm 0.3 \ \mathrm{dB} \\ \hline \\ \hline \\ \hline \\ I_{\alpha r}^{-}(2) \ \mathrm{relative to} \ I_{\alpha r}^{-}(1) \pm 0.3 \ \mathrm{dB} \\ \hline \\ \hline \\ \hline \\ Assumptions: \\ \mathbf{a} \\ \mathbf{a} \\ \mathbf{a} \\ \mathbf{b} \\ \mathbf{a} \\ \mathbf{c} \\ $			
$I_{oc} \pm 1.0 \text{ dB}$ $\frac{I_{oc}}{P_{or}(3) \text{ relative to } I_{or}(1) \pm 0.3 \text{ dB}}{P_{or}(3) \text{ relative to } I_{or}(1) \pm 0.3 \text{ dB}}$ $\frac{P_{urinn 1712, 173, and 16;}{I_{or}(2) \text{ relative to } I_{or}(1) \pm 0.3 \text{ dB}}$ $\frac{P_{urinn 1712, 173, and 16;}{I_{or}(2) \text{ relative to } I_{or}(1) \pm 0.3 \text{ dB}}$ $\frac{P_{urinn 1712, 173, and 16;}{P_{ur}(2) \text{ relative to } I_{or}(1) \pm 0.3 \text{ dB}}$ $\frac{P_{urinn 1712, 173, 143, and 16;}{P_{urin}(2) \text{ relative to } I_{or}(1) \pm 0.3 \text{ dB}}$ $\frac{P_{urinn 1712, 173, 143, and 16;}{P_{urin}(2) \text{ relative to relation from 2ero (uncorrelated)}}$ $P_{urinn 1712, 173, 174, and 175;}$ $P_{urinn 1712, 173, 174, and 15;}$ $\frac{P_{urinn 1712, 173, 174, and 15;}{P_{urin}(1) \pm 0.7 \text{ dB}}$ $\frac{P_{urinn 172, 173, 174, and 15;}{P_{uri}(2) \text{ relative to } I_{or}(1) \pm 0.3 \text{ dB}}$		$I_{or}(1)$ ±0.7 dB	
$ \frac{During T1/T2. T3 and T6:}{I_{ar}(3) relative to I_{ar}(1) \pm 0.3 dB} \\ \frac{During T3. T4/T5 and T6:}{I_{ar}(2) relative to I_{ar}(1) \pm 0.3 dB} \\ \frac{During T3. T4/T5 and T6:}{I_{ar}(2) relative to I_{ar}(1) \pm 0.3 dB} \\ \frac{Assumptions:}{Assumptions:} \\ \frac{Assumptions:}{Assumptions:} \\ \frac{During T4. T2 Assumptions:}{Assumptions:} \\ Discontrol to the according to ETR 273-1-2 [4], with a coverage factor of ke2. \\ Discontrol to the according to ETR 273-1-2 [4], with a coverage factor of ke2. \\ Discontrol to the according to ETR 273-1-2 [4], with a coverage factor of ke2. \\ Discontrol to the according to ETR 273-1-2 [4], with a coverage factor of ke2. \\ Discontrol to the according to ETR 273-1-2 [4], with a coverage factor of ke2. \\ Discontrol to the according to ETR 273-1-2 [4], with a coverage factor of ke2. \\ Discontrol to the according to ETR 273-1-2 [4], with a coverage factor of ke2. \\ Discontrol to the according to ETR 273-1-2 [4], with a coverage factor of ke2. \\ Discontrol to the according to ETR 273-1-2 [4], with a coverage factor of ke2. \\ Discontrol to the according to ETR 273-1-2 [4], with a coverage factor of ke2. \\ Discontrol to target according to ETR 273-1-2 [4], with a coverage factor of ke2. \\ Discontrol to target according to ETR 273-1-2 [4], with a coverage factor of ke2. \\ Discontrol to target according to Etra 200 to the corelated to each other. \\ Discontrol to target according to Etra 200 to the corelated to each other. \\ During T0.1 T4: \\ During T0.1 T4: \\ During T0.1 T4: \\ During T0.1 T4: \\ During T1.1 T2 and T4: \\ During T1.1 T2 and T4: \\ During T1.2 T3 and T4: \\ During T1.1 2 and T4: \\ During T1.2 T3 and T4: \\ During T1.2 T3 and T4: \\ During T2.2 T3 and T4: \\ During T2.2 T3 and T4: \\ During T2$		<i>I<sub>oc</sub></i> ±1.0 dB	
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $		During T1/T2, T3 and T6:	
$ \frac{\text{During T3. T4/T5 and T6;}{I_{or}(2) \text{ relative to } I_{or}(1) \pm 0.3 \text{ dB} } \\ \hline $		$I_{or}$ (3) relative to $I_{or}$ (1) ±0.3 dB	
$ \frac{I_{or}(2) \text{ relative to } I_{or}(1) \pm 0.3 \text{ dB} \\ \hline Assumptions: \\ a) The contributing uncertainties for lor(n), channel power ratio, and loc are derived according to ETR 273-1-2 [4], with a coverage factor of k=2. \\ b) Within each cell, the uncertainty for lor(n), and channel power ratio are uncorrelated to each other. \\ c) The relative uncertainties for lor(n) across different cells may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated). \\ d) Across different cells, the channel power ratio uncertainties may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated). \\ e) The uncertainty for loc and lor(1) may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated). \\ e) The absolute uncertainty of loc and lor(1) may have any amount of positive correlation from zero (uncorrelated) for lor(2, 3), are uncertainty of lor(1) and the relative uncertainty of lor(2, 3), are uncertainty of lor(1) and the relative uncertainty of lor(2, 3), are uncertainty of lor(1) and the relative uncertainty of lor(1) and the relative uncertainty of lor(1) = to 7 dB loc = ± 1.0 dB \\ \hline Uning T1, T2 and T4: I_{or}(3) relative to I_{or}(1) \pm 0.3 dB \\ \hline Uning T2, T3 and T4: I_{or}(2) relative to I_{or}(1) \pm 0.3 dB \\ \hline During T0 to T5: \\ \hline CPICH = E_e = \pm 0.1 dB \\ \hline I_{or} = \pm 0.1 dB \\ \hline I_{or}(1) = \pm 0.7 dB \\ I_{or}(2) relative to I_{or}(1) \pm 0.3 dB \\ \hline I_{or}(3) relative to I_{or}(1) \pm 0.3 dB \\ \hline I_{or}(3) relative to I_{or}(1) \pm 0.3 dB \\ \hline I_{or}(3) relative to I_{or}(1) \pm 0.3 dB \\ \hline I_{or}(3) relative to I_{or}(1) \pm 0.3 dB \\ \hline Uning T2(T3, T4 and T5: I_{or}(3) relative to I_{or}(1) \pm 0.3 dB \\ \hline Uning T2(T3, T4 and T5: I_{or}(2) relative to I_{or}(1) \pm 0.3 dB \\ \hline Uning T2(T3, T4 and T5: I_{or}(2) relative to I_{or}(1) \pm 0.3 dB \\ \hline Uning T2(T3, T4 and T5: I_{or}(2) relative to I_{or}(1) \pm 0.3 dB \\ \hline Uning T2(T3, T4 and T5: I_{or}(2) re) = 0.3 dB \\ \hline Uning T2(T$		During T3, T4/T5 and T6:	
$ \begin{array}{llllllllllllllllllllllllllllllllllll$		$I_{or}$ (2) relative to $I_{or}$ (1) ±0.3 dB	
a) The contributing uncertainties for for(n), channel power ratio, and loc care derived according to ETR 273-12 [4], with a coverage factor of k=2. b) Within each cell, the uncertainty for lor(n), and channel power ratio are uncorrelated to each other. c) The relative uncertainties for for(n) accoss different cells may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated). d) Accross different cells, the channel power ratio uncertainties may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated). e) The uncertainty for loc and lor(1) may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated). e) The uncertainty for loc and lor(1) may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated). e) The uncertainty of lor(1) and the relative uncertainty of lor(2, 3), are uncorrelated to each other. 8.6.1.2A Event triggered reporting of multiple neighbours in AWGN propagation condition (Rel-4 and later) EVENT $L_{orc} = \pm 0.1  dB$ $L_{orc} = \pm 1.0  dB$ $L_{orc} = \pm 1.0  dB$ $L_{orc} = \pm 0.1  dB$ $L_{orc} = \pm 0.1 $		Assumptions:	
8.6.1.3  Event triggered reporting of two effects in a set of the set of		a) The contributing uncertainties for loc are derived according to ETR	lor(n), channel power ratio, and 273-1-2 [4], with a coverage
$8.6.1.3 \text{ Event triggered reporting of two effectives to I_{or}(1) \pm 0.3 \text{ dB} Pircharticle Pirchart$		b) Within each cell, the uncertainty for	or lor(n), and channel power
$ \begin{array}{c} \begin{array}{c} ( ) & \text{The focus of possible correlation from zero (uncorrelated)} \\ \text{have any amount of possible correlation from zero (uncorrelated)} \\ \text{to one (fully correlated)}. \end{array} \\ \begin{array}{c} ( ) & \text{Across different cells, the channel power ratio uncertainties may have any amount of positive correlation from zero (uncorrelated) \\ \text{to one (fully correlated)}. \end{array} \\ \begin{array}{c} ( ) & \text{The uncertainty for loc and lor(1) may have any amount of positive correlation from zero (uncorrelated) \\ \text{to one (fully correlated)}. \end{array} \\ \begin{array}{c} ( ) & \text{The uncertainty for loc and lor(1) may have any amount of positive correlated) is one (fully correlated). \end{array} \\ \begin{array}{c} ( ) & \text{The absolute uncertainty of lor(1) and the relative uncertainty of lor(2, 3), are uncorrelated to each other. \end{array} \\ \begin{array}{c} ( ) & \text{The absolute uncertainty of lor(1) and the relative uncertainty of lor(2, 3), are uncorrelated to each other. \end{array} \\ \begin{array}{c} ( ) & \text{The absolute uncertainty of lor(1) and the relative uncertainty of lor(2, 3), are uncorrelated to each other. \end{array} \\ \begin{array}{c} ( ) & \text{The absolute uncertainty of lor(1) and the relative uncertainty of lor(2, 3), are uncorrelated to each other. \end{array} \\ \begin{array}{c} ( ) & \text{The absolute uncertainty of lor(1) and the relative uncertainty of lor(2, 3), are uncorrelated to each other. \end{array} \\ \begin{array}{c} ( ) & \text{The absolute uncertainty of lor(1) and the relative uncertainty of lor(2, 3), are uncorrelated to each other. \end{array} \\ \begin{array}{c} Sheed to the add the triant of the term of term of$		ratio are uncorrelated to each oth	er. ) across different cells may
$ \begin{array}{c} \mbox{to one (fully correlated).} \\ \mbox{d)} & Across different cells, the channel power ratio uncertainties may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated). \\ \mbox{e)} & nave any amount of positive correlated to coad lor(1) may have any amount of positive correlation from zero (uncorrelated) to one (fully correlated). \\ \mbox{e)} & nave any amount of positive correlated to coad lor(1) may have any amount of positive correlated). \\ \mbox{f)} & neutraliny for loc and lor(1) and the relative uncertainty of loc(2, 3), are uncorrelated to each other. \\ \mbox{f)} & 1 \mbox{The absolute uncertainty of lor(1) and the relative uncertainty of lor(2, 3), are uncorrelated to each other. \\ \mbox{f)} & \frac{\text{During T0 to T4:}}{I_{or}} \\ \mbox{f)} & \frac{\text{During T1, T2 and T4:}}{I_{or}(1) \pm 0.7 \text{ dB}} \\ \mbox{f} & \frac{I_{or}(1) \pm 0.3 \text{ dB}}{I_{oc} \pm 1.0 \text{ dB}} \\ \mbox{F} & \frac{I_{or}(1) \pm 0.7 \text{ dB}}{I_{or}} \\ \mbox{f} & \frac{I_{or}(1) \pm 0.3 \text{ dB}}{I_{or}} \\ \mbox{f} & \frac{I_{or}(2) \text{ relative to } I_{or}(1) \pm 0.3 \text{ dB}} \\ \mbox{f} & \frac{I_{or}(2) \text{ relative to } I_{or}(1) \pm 0.3 \text{ dB}} \\ \mbox{f} & \frac{I_{or}(2) \text{ relative to } I_{or}(1) \pm 0.3 \text{ dB}} \\ \mbox{f} & \frac{I_{or}(2) \text{ relative to } I_{or}(1) \pm 0.3 \text{ dB}} \\ \mbox{f} & \frac{I_{or}(2$		have any amount of positive corre	elation from zero (uncorrelated)
$\begin{array}{llllllllllllllllllllllllllllllllllll$		to one (fully correlated).	
$ \begin{array}{llllllllllllllllllllllllllllllllllll$		(d) Across different cells, the channe have any amount of positive corre	elation from zero (uncorrelated)
		to one (fully correlated).	
$\begin{array}{c} \begin{array}{c} \begin{array}{c} \text{correlated}, \\ \text{f} & \text{The absolute uncertainty of Ior(1) and the relative uncertainty of Ior(2, 3), are uncorrelated to each other.} \end{array} \\ \begin{array}{c} \text{S.6.1.2A E vent triggered reporting of multiple neighbours in AWGN propagation condition (ReI-4 and later)} \end{array} \\ \begin{array}{c} \begin{array}{c} \begin{array}{c} \text{During T0 to T4:} \\ \hline CPICH\_E_c \\ I_{or} \end{array} \pm 0.1 \text{ dB} \\ \hline I_{oc} \end{array} \pm 0.1 \text{ dB} \\ \hline I_{oc} \end{array} \pm 1.0 \text{ dB} \\ \hline I_{oc} \end{array} \pm 1.0 \text{ dB} \\ \hline During T1. T2 \text{ and T4:} \\ \hline I_{or} (3) \text{ relative to } I_{or} (1) \pm 0.3 \text{ dB} \\ \hline During T2. T3 \text{ and T4:} \\ \hline I_{or} (2) \text{ relative to } I_{or} (1) \pm 0.3 \text{ dB} \\ \hline Same as 8.6.1.2 \\ \hline \end{array} \\ \begin{array}{c} \begin{array}{c} \text{8.6.1.3 Event triggered reporting of two detectable neighbours in AWGN propagation condition (R99)} \end{array} \end{array} \\ \begin{array}{c} \begin{array}{c} \begin{array}{c} \text{B} \\ During T1. T2 \text{ and T4:} \\ \hline I_{or} (2) \text{ relative to } I_{or} (1) \pm 0.3 \text{ dB} \\ \hline \end{array} \\ \hline \end{array} \\ \begin{array}{c} \begin{array}{c} \begin{array}{c} \text{B} \\ \text{Assumptions:} \\ \text{Same as 8.6.1.2} \\ \hline \end{array} \\ \begin{array}{c} \begin{array}{c} During T0 \text{ to T5:} \\ \hline \end{array} \\ \hline \end{array} \\ \begin{array}{c} \begin{array}{c} CPICH\_E_c \\ I_{or} \end{array} \\ \pm 0.1 \text{ dB} \\ \hline \end{array} \\ \hline \end{array} \\ \begin{array}{c} \begin{array}{c} During T1. \text{ T2/T3. T4 and T5:} \\ I_{or} (3) \text{ relative to } I_{or} (1) \pm 0.3 \text{ dB} \\ \hline \end{array} \end{array} \end{array}$		e) The uncertainty for loc and lor(1) positive correlation from zero (unc	may have any amount of correlated) to one (fully
		correlated).	
8.6.1.2A Event triggered reporting of multiple neighbours in AWGN propagation condition (Rel-4 and later) <u>During T0 to T4:</u> $I_{or}$ $\pm 0.1 \text{ dB}$ $I_{or}$ $I_{or}$ $\pm 0.1 \text{ dB}$ $I_{or}$ $I_{or}$ $\pm 0.1 \text{ dB}$ $I_{or}$ $\pm 0.1 \text{ dB}$ $I_{or}$ $I_{or}$ $\pm 0.1 \text{ dB}$ $I_{or}$ $I$		lor(2, 3), are uncorrelated to each	other.
$\frac{CPICH\_E_c}{I_{or}} \pm 0.1 \text{ dB}$ $\frac{CPICH\_E_c}{I_{or}} \pm 0.1 \text{ dB}$ $\frac{I_{or}(1) \pm 0.7 \text{ dB}}{I_{oc} \pm 1.0 \text{ dB}}$ $\frac{I_{or}(3) \text{ relative to } I_{or}(1) \pm 0.3 \text{ dB}}{I_{or}(2) \text{ relative to } I_{or}(1) \pm 0.3 \text{ dB}}$ $\frac{S.6.1.3 \text{ Event triggered reporting of two}{detectable neighbours in AWGN}$ $\frac{During T2. T3 \text{ and } T4:}{I_{or}(2) \text{ relative to } I_{or}(1) \pm 0.3 \text{ dB}}$ $\frac{S.6.1.3 \text{ Event triggered reporting of two}{detectable neighbours in AWGN}$ $\frac{During T0 \text{ to } T5:}{I_{or}(1) \pm 0.7 \text{ dB}}$ $I_{oc} \pm 1.0 \text{ dB}$ $\frac{During T1. T2/T3. T4 \text{ and } T5:}{I_{or}(3) \text{ relative to } I_{or}(1) \pm 0.3 \text{ dB}}$	8.6.1.2A Event triggered reporting of	During T0 to T4:	
$I_{or} = I_{or} = I$	propagation condition (Rel-4 and later)	$\frac{CPICH - E_c}{E_c} + 0.1  dB$	
$ \begin{array}{c} I_{or}(1) \pm 0.7 \text{ dB} \\ I_{oc} \pm 1.0 \text{ dB} \\ \hline \\ I_{oc} (3) \text{ relative to } I_{or}(1) \pm 0.3 \text{ dB} \\ \hline \\ \hline \\ During T2, T3 \text{ and T4:} \\ I_{or}(2) \text{ relative to } I_{or}(1) \pm 0.3 \text{ dB} \\ \hline \\ \hline \\ \hline \\ \hline \\ Resumptions: \\ Same as 8.6.1.2 \\ \hline \\ \hline \\ Resumptions: \\ Same as 8.6.1.2 \\ \hline \\ \hline \\ I_{or} (1) \pm 0.7 \text{ dB} \\ I_{oc} \pm 1.0 \text{ dB} \\ \hline \\ I_{oc} (3) \text{ relative to } I_{or}(1) \pm 0.3 \text{ dB} \\ \hline \\ \hline \\ \hline \\ \hline \\ I_{or} (1) \pm 0.7 \text{ dB} \\ I_{oc} \pm 1.0 \text{ dB} \\ \hline \\ \hline \\ I_{or} (3) \text{ relative to } I_{or}(1) \pm 0.3 \text{ dB} \\ \hline \\ I_{or}(2) \text{ relative to } I_{or}(1) \pm 0.3 \text{ dB} \\ \hline \\ $		$I_{or}$ ±0.1 dB	
$I_{oc} \pm 1.0 \text{ dB}$ $\frac{I_{oc}}{During T1, T2 \text{ and } T4:} I_{or}(3) \text{ relative to } I_{or}(1) \pm 0.3 \text{ dB}$ $\frac{During T2, T3 \text{ and } T4:} I_{or}(2) \text{ relative to } I_{or}(1) \pm 0.3 \text{ dB}$ $\frac{Assumptions:}{Same \text{ as } 8.6.1.2}$ 8.6.1.3 Event triggered reporting of two detectable neighbours in AWGN propagation condition (R99) $\frac{During T0 \text{ to } T5:}{I_{or}} \pm 0.1 \text{ dB}$ $I_{oc} \pm 1.0 \text{ dB}$ $\frac{During T1, T2/T3, T4 \text{ and } T5:}{I_{or}} I_{or}(1) \pm 0.3 \text{ dB}$ $\frac{During T2/T3, T4 \text{ and } T5:}{I_{or}} I_{or}(1) \pm 0.3 \text{ dB}$		$I_{or}(1)$ ±0.7 dB	
$\begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \text{During T1, T2 and T4:} \\ I_{or}(3) \text{ relative to } I_{or}(1) \pm 0.3 \text{ dB} \end{array} \\ \end{array} \\ \begin{array}{c} \begin{array}{c} \begin{array}{c} \text{During T2, T3 and T4:} \\ I_{or}(2) \text{ relative to } I_{or}(1) \pm 0.3 \text{ dB} \end{array} \\ \end{array} \\ \hline \begin{array}{c} \begin{array}{c} \text{Assumptions:} \\ \text{Same as 8.6.1.2} \end{array} \end{array} \\ \end{array} \\ \begin{array}{c} \begin{array}{c} \text{8.6.1.3 Event triggered reporting of two} \\ \text{detectable neighbours in AWGN} \end{array} \\ \hline \begin{array}{c} \begin{array}{c} \begin{array}{c} \text{During T0 to T5:} \\ \hline \\ I_{or} \end{array} \\ \end{array} \\ \hline \begin{array}{c} PICH \_ E_c \\ I_{or} \end{array} \\ \pm 0.1 \text{ dB} \end{array} \\ \hline \begin{array}{c} I_{or}(1) \pm 0.7 \text{ dB} \\ I_{oc} \end{array} \\ \hline \begin{array}{c} I_{or}(1) \pm 0.7 \text{ dB} \\ I_{oc} \end{array} \\ \hline \begin{array}{c} \begin{array}{c} \begin{array}{c} During T1, T2/T3, T4 \text{ and T5:} \\ I_{or}(3) \text{ relative to } I_{or}(1) \pm 0.3 \text{ dB} \end{array} \end{array} \end{array} \end{array}$ \\ \end{array}		<i>I<sub>oc</sub></i> ±1.0 dB	
$I_{or}(3) \text{ relative to } I_{or}(1) \pm 0.3 \text{ dB}$ $\frac{\text{During T2, T3 and T4:}}{I_{or}(2) \text{ relative to } I_{or}(1) \pm 0.3 \text{ dB}}$ $\frac{\text{Assumptions:}}{\text{Same as 8.6.1.2}}$ 8.6.1.3 Event triggered reporting of two detectable neighbours in AWGN propagation condition (R99) $\frac{\text{During T0 to T5:}}{I_{or}} \pm 0.1 \text{ dB}$ $I_{oc} \pm 1.0 \text{ dB}$ $\frac{\text{During T1, T2/T3, T4 and T5:}}{I_{or}(3) \text{ relative to } I_{or}(1) \pm 0.3 \text{ dB}}$ $\frac{\text{During T2/T3, T4 and T5:}}{I_{or}(2) \text{ relative to } I_{or}(1) \pm 0.3 \text{ dB}}$		During T1, T2 and T4:	
$\frac{\begin{array}{ c c c c c } \hline During T2, T3 and T4: \\ I_{or}(2) \text{ relative to } I_{or}(1) \pm 0.3 \text{ dB} \\ \hline \hline Assumptions: \\ \hline Same as 8.6.1.2 \\ \hline \hline Same as 8.6.1.2 \\ \hline \hline \\ Berline Charge Condition (R99) \\ \hline \\ \\ Berline Charge Condition (R99) \\ \hline \\ \\ Berline Charge Condition (R99) \\ \hline \\ \\ \\ Berline Charge Condition (R99) \\ \hline \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ $		$I_{or}$ (3) relative to $I_{or}$ (1) ±0.3 dB	
$\frac{I_{or} (2) \text{ relative to } I_{or} (1) \pm 0.3 \text{ dB}}{I_{or} (2) \text{ relative to } I_{or} (1) \pm 0.3 \text{ dB}}$ 8.6.1.3 Event triggered reporting of two detectable neighbours in AWGN propagation condition (R99) $\frac{\text{During T0 to T5:}}{I_{or}} \pm 0.1 \text{ dB}$ $I_{or} (1) \pm 0.7 \text{ dB}$ $I_{oc} \pm 1.0 \text{ dB}$ $\frac{\text{During T1, T2/T3, T4 \text{ and T5:}}}{I_{or} (3) \text{ relative to } I_{or} (1) \pm 0.3 \text{ dB}}$		During T2 T3 and T4:	
or C J         Assumptions: Same as 8.6.1.2         8.6.1.3 Event triggered reporting of two detectable neighbours in AWGN propagation condition (R99) $During T0 \text{ to T5:}$ $CPICH \_E_c$ $I_{or}$ $\pm 0.1 \text{ dB}$ $I_{or}(1) \pm 0.7 \text{ dB}$ $I_{oc} \pm 1.0 \text{ dB}$ $During T1, T2/T3, T4 \text{ and T5:}$ $I_{or}(3) \text{ relative to } I_{or}(1) \pm 0.3 \text{ dB}$ During T2/T3, T4 and T5: $I_{or}(2) \text{ relative to } I_{or}(1) \pm 0.3 \text{ dB}$		$I_{ac}(2)$ relative to $I_{ac}(1) \pm 0.3$ dB	
Same as 8.6.1.28.6.1.3 Event triggered reporting of two detectable neighbours in AWGN propagation condition (R99)During T0 to T5: CPICH $\_E_c$ $I_{or}$ $I_{or}(1) \pm 0.7  dB$ $I_{oc} \pm 1.0  dB$ <		Assumptions:	
$\frac{During 10 \text{ to 15:}}{\text{detectable neighbours in AWGN}}$ propagation condition (R99) $\frac{During 10 \text{ to 15:}}{I_{or}} \pm 0.1 \text{ dB}$ $I_{or}(1) \pm 0.7 \text{ dB}$ $I_{oc} \pm 1.0 \text{ dB}$ $\frac{During T1, T2/T3, T4 \text{ and T5:}}{I_{or}(3) \text{ relative to } I_{or}(1) \pm 0.3 \text{ dB}}$		Same as 8.6.1.2	
propagation condition (R99) $ \frac{CPICH \_ E_c}{I_{or}} \pm 0.1 \text{ dB} $ $ I_{or}(1) \pm 0.7 \text{ dB} $ $ I_{oc} \pm 1.0 \text{ dB} $ $ \frac{During T1, T2/T3, T4 \text{ and } T5:}{I_{or}(3) \text{ relative to } I_{or}(1) \pm 0.3 \text{ dB}} $ $ \frac{During T2/T3, T4 \text{ and } T5:}{I_{or}(2) \text{ relative to } I_{or}(1) \pm 0.3 \text{ dB}} $	detectable neighbours in AWGN	During 10 to 15:	
$I_{or}(1) \pm 0.7 \text{ dB}$ $I_{oc} \pm 1.0 \text{ dB}$ $\frac{\text{During T1, T2/T3, T4 \text{ and T5:}}}{I_{or}(3) \text{ relative to } I_{or}(1) \pm 0.3 \text{ dB}}$ $\frac{\text{During T2/T3, T4 \text{ and T5:}}}{I_{or}(2) \text{ relative to } I_{or}(1) \pm 0.3 \text{ dB}}$	propagation condition (R99)	$\frac{CFICH\_L_c}{I_{or}} = \pm 0.1 \text{ dB}$	
$I_{oc} = \pm 1.0 \text{ dB}$ $\frac{\text{During T1, T2/T3, T4 \text{ and T5:}}}{I_{or}(3) \text{ relative to } I_{or}(1) \pm 0.3 \text{ dB}}$ $\frac{\text{During T2/T3, T4 \text{ and T5:}}}{I_{or}(2) \text{ relative to } I_{or}(1) \pm 0.3 \text{ dB}}$		$I_{ar}(1)$ ±0.7 dB	
$\frac{\text{During T1, T2/T3, T4 and T5:}}{I_{or}(3) \text{ relative to } I_{or}(1) \pm 0.3 \text{ dB}}$ $\frac{\text{During T2/T3, T4 and T5:}}{I_{or}(2) \text{ relative to } I_{or}(1) \pm 0.3 \text{ dB}}$		<i>I<sub>oc</sub></i> ±1.0 dB	
$I_{or}(3)$ relative to $I_{or}(1) \pm 0.3$ dB <u>During T2/T3, T4 and T5:</u> $I_{or}(2)$ relative to $I_{or}(1) \pm 0.3$ dB		During T1, T2/T3, T4 and T5:	
During T2/T3, T4 and T5: $I_{or}$ (2) relative to $I_{or}$ (1) ±0.3 dB		$I_{or}$ (3) relative to $I_{or}$ (1) ±0.3 dB	
$I_{or}(2)$ relative to $I_{or}(1) \pm 0.3$ dB		During T2/T3, T4 and T5:	
		$I_{or}$ (2) relative to $I_{or}$ (1) ±0.3 dB	

Clause	Maximum Test System Uncertainty	Derivation of Test System
8.6.1.3A Event triggered reporting of two	During T0 to T4:	Oncertainty
detectable neighbours in AWGN	$CPICH \_E_c$	
propagation condition (Rei-4 and later)	$I_{ar}$ ±0.1 dB	
	$I_{ax}(1) \pm 0.7  dB$	
	$I_{oc}$ ±1.0 dB	
	During 11, 12, 13 and 14: $L_{1}(0)$ relation to $L_{1}(4) = 0.0$ dD	
	$I_{or}(3)$ relative to $I_{or}(1) \pm 0.3$ dB	
	During T2, T3 and T4:	
	$I_{or}$ (2) relative to $I_{or}$ (1) ±0.3 dB	
	Assumptions:	
	a) The contributing uncertainties for loc are derived according to ETR factor of k=2	lor(n), channel power ratio, and 273-1-2 [4], with a coverage
	b) Within each cell, the uncertainty for	or lor(n), and channel power
	c) The relative uncertainties for lor(n	er. n) across different cells may
	have any amount of positive corre to one (fully correlated).	elation from zero (uncorrelated)
	<ul> <li>Across different cells, the channe have any amount of positive corre</li> </ul>	l power ratio uncertainties may
	to one (fully correlated).	
	e) The uncertainty for loc and lor(1) positive correlation from zero (unc	correlated) to one (fully
	correlated).	and the relative uncertainty of
	lor(2, 3), are uncorrelated to each	n other.
	An explanation of correlation between uncer behind the assumptions is recorded in 3GP	tainties, and of the rationale P TR 34 902 [24]
8.6.1.4A Correct reporting of neighbours	During T1 and T2:	
in fading propagation condition (Rel-4 and later)	$CPICH \_E_c$ +0.1 dB	
	$I_{or}$ ±0.1 dB	
	$I_{or}(1)$ ±0.7 dB	
	$I_{oc}$ ±1.0 dB	
	During T1 and T2	
	$\frac{During 11 and 12}{I}$ (1) +0.3 dB	
8614A	Assumptions:	
	a) The contributing uncertainties for	lor(n), channel power ratio, and
	loc are derived according to ETR factor of k=2.	273-1-2 [16], with a coverage
	b) Within each cell, the uncertainty for	or lor(n), and channel power
	c) ratio are uncorrelated to each oth c) Across different cells, the channe	er. I power ratio uncertainties mav
	have any amount of positive corre	elation from zero (uncorrelated)
	d) The uncertainty for loc and lor(n)	may have any amount of
	positive correlation from zero (uno	correlated) to one (fully
	e) The absolute uncertainty of lor(1)	and the relative uncertainty of
	Ior(2), are uncorrelated to each of An explanation of correlation between uncer	ther. tainties, and of the rationale
	behind the assumptions, is recorded in 3GP	P TR 34 902 [24].

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.6.1.5 Event triggered reporting of	During T1 and T2:	
multiple neighbour cells in Case 1 fading	CPICH E	
condition	$\frac{-1}{L}$ ±0.1 dB	
	I <sub>or</sub>	
	$I_{or}(1)$ ±0.7 dB	
	<i>I<sub>oc</sub></i> ±1.0 dB	
	During T1 and T2:	
	$I_{or}$ (2) relative to $I_{or}$ (1) ±0.3 dB	
	Assumptions:	
	a) The contributing uncertainties for loc are derived according to ETR factor of k=2.	lor(n), channel power ratio, and 273-1-2 [4], with a coverage
	b) Within each cell, the uncertainty for	or lor(n), and channel power
	c) The relative uncertainties for lor(n	across different cells may
	have any amount of positive corre	lation from zero (uncorrelated)
	d) Across different cells, the channel	l power ratio uncertainties may
	have any amount of positive corre	lation from zero (uncorrelated)
	to one (fully correlated).	may have any amount of
	positive correlation from zero (unc	correlated) to one (fully
	correlated).	, , , ,
	f) The absolute uncertainty of lor(1)	and the relative uncertainty of
	(2), are uncorrelated to each of An explanation of correlation between uncert	ner. tainties and of the rationale
	behind the assumptions, is recorded in 3GPI	P TR 34 902 [24].
8.6.1.6 Event triggered reporting of	During T1 and T2:	
multiple neighbour cells in Case 3 fading	$CPICH \_E_{c}$	
conduon	$I_{or}$ ±0.1 dB	
	$I_{ar}(1) = \pm 0.7  \text{dB}$	
	<i>I<sub>oc</sub></i> ±1.0 dB	
	During T1 and T2:	
	$I_{or}$ (2) relative to $I_{or}$ (1) ±0.3 dB	

Clause	Maximum Test System Uncertainty	Derivation of Test System
	Assumptions	Oncertainty
	a) The contributing uncertainties for	
	lor(n), channel power ratio, and	
	loc are derived according to	
	ETR 273-1-2 [4], with a	
	coverage factor of k=2.	
	b) Within each cell, the uncertainty	
	for lor(n), and channel power	
	ratio are uncorrelated to each	
	other.	
	c) The relative uncertainties for	
	lor(n) across different cells may	
	have any amount of positive	
	correlation from zero	
	(uncorrelated) to one (fully	
	correlated).	
	d) Across different cells, the	
	channel power ratio	
	uncertainties may have any	
	from zero (upcorrelated) to one	
	(fully correlated)	
	<ul> <li>The uncertainty for loc and lor(1)</li> </ul>	
	may have any amount of	
	nositive correlation from zero	
	(uncorrelated) to one (fully	
	correlated).	
	f) The absolute uncertainty of	
	lor(1) and the relative	
	uncertainty of lor(2), are	
	uncorrelated to each other.	
	An explanation of correlation between	
	uncertainties, and of the rationale behind	
	the assumptions, is recorded in 3GPP TR	
	34 902 [24].	
8.6.2 FDD inter frequency measurements		
8.6.2.1 Correct reporting of neighbours in	Channel 1 during T0, T1 and T2:	
AVV GIN propagation condition (Release 5		
and earlier)	$CPICH \_E_c$	
	±0.1 dB	
	I <sub>or</sub>	
	<i>I<sub>oc</sub></i> ±1.0 dB	
	$I_{or}(1) \pm 0.7 \text{ ab}$	
	Channel 1 during T2:	
	$I_{\rm or}$ (2) relative to $I_{\rm or}$ (1) ±0.3 dB	
	Channel 2 during T0, T1 and T2;	
	<u></u>	
	$I_{ac}$ ±1.0 dB	
	Channel 2 <u>during T1 and T2:</u>	
	<i>I</i> <sub>or</sub> (3) ±0.7 dB	
	$\frac{CPICH\_E_c}{I_{or}} = \pm 0.1 \text{ dB}$	

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
	Assumptions:         a)       The contributing uncertainties for loc are derived according to ETR factor of k=2.         b)       Within each cell, the uncertainty for ratio are uncorrelated to each oth c)         c)       Across different cells, the channe have any amount of positive correct to one (fully correlated)         d)       The uncertainty for loc and lor(n) positive correlation from zero (unc correlated).         e)       The absolute uncertainty of lor(1) lor(2), are uncorrelated to each of amount of positive correlation from (fully correlated).         g)       The absolute uncertainties for loc amount of positive correlation from (fully correlated).         g)       The absolute uncertainties for loc amount of positive correlation from (fully correlated).         An explanation of correlation between uncer behind the assumptions, is recorded in 3GP	lor(n), channel power ratio, and 273-1-2 [16], with a coverage or lor(n), and channel power er. I power ratio uncertainties may elation from zero (uncorrelated) may have any amount of correlated) to one (fully and the relative uncertainty of ther. (1) and lor(3) may have any n zero (uncorrelated) to one (1) and loc(2) may have any n zero (uncorrelated) to one tainties, and of the rationale P TR 34 902 [24].
8.6.2.1A Correct reporting of neighbours in AWGN propagation condition (Release 6 and later)	Same as 8.6.2.1	Same as 8.6.2.1
8.6.2.2 Correct reporting of neighbours in Fading propagation condition (Release 5 only)	$\frac{Channel 1 during T1 and T2:}{CPICH \_ E_c} \pm 0.1 dB$ $I_{or}(1) \pm 0.7 dB$ $I_{oc}(1) \pm 1.0 dB$ $\frac{Channel 2 during T1 and T2:}{I_{oc}(2) \pm 1.0 dB}$ $\frac{Channel 2 during T2:}{I_{or}} \pm 0.1 dB$ $I_{or}(2) \pm 0.7 dB$	
9.6.2.24 Correct reporting of poighbour	<ul> <li>Assumptions: <ul> <li>a) The contributing uncertainties for loc are derived according to ETR factor of k=2.</li> <li>b) Within each cell, the uncertainty for ratio are uncorrelated to each oth c) Across different cells, the channe have any amount of positive correct to one (fully correlated).</li> <li>d) The uncertainty for loc(n) and lor(positive correlation from zero (uncorrelated).</li> <li>e) The absolute uncertainties for lor(amount of positive correlation from zero (uncorrelated).</li> <li>f) The absolute uncertainties for loc amount of positive correlation from (fully correlated).</li> <li>f) The absolute uncertainties for loc amount of positive correlation from correlation from correlated).</li> </ul> An explanation of correlation between uncertainty for assumptions, is recorded in 3GPI</li></ul>	lor(n), channel power ratio, and 273-1-2 [16], with a coverage or lor(n), and channel power er. I power ratio uncertainties may elation from zero (uncorrelated) in) may have any amount of correlated) to one (fully (1) and lor(2) may have any n zero (uncorrelated) to one (1) and loc(2) may have any n zero (uncorrelated) to one tainties, and of the rationale P TR 34 902 [24].
8.6.2.2A Correct reporting of neighbours in Fading propagation condition (Release 6 and later)	Same as 8.6.2.2	Same as 8.6.2.2

Clause	Maximum Test System Uncertainty	Derivation of Test System
8.6.2.3 Correct reporting of neighbours in	Channel 1 during T1 and T2:	Uncertainty
Fading propagation condition using	CPICH F	
TGL1=14	$\frac{UTUTL_c}{L}$ ±0.1 dB	
	I <sub>or</sub>	
	$I_{or}(1)$ ±0.7 dB	
	$I_{oc}(1)$ ±1.0 dB	
	Channel 2 during T1 and T2:	
	$I_{oc}(2)$ ±1.0 dB	
	Channel 2 during T2:	
	$CPICH \_E_{c}$	
	$\frac{1}{I_{or}} = \pm 0.1 \text{ dB}$	
	<i>I</i> <sub>or</sub> (2) ±0.7 dB	
	Assumptions:	
	a) The contributing uncertainties for loc are derived according to ETR	lor(n), channel power ratio, and 273-1-2 [16], with a coverage
	b) Within each cell, the uncertainty for	or lor(n), and channel power
	c) ratio are uncorrelated to each oth c) Across different cells, the channe	er. I power ratio uncertainties may
	have any amount of positive corret to one (fully correlated).	elation from zero (uncorrelated)
	d) The uncertainty for loc(n) and lor(	(n) may have any amount of
	correlated).	correlated) to one (fully
	e) The absolute uncertainties for lor	(1) and lor(2) may have any
	(fully correlated).	in zero (uncorrelated) to one
	f) The absolute uncertainties for loc	(1) and loc(2) may have any
	amount of positive correlation from (fully correlated).	n zero (uncorrelated) to one
8.6.3 TDD measurements		
8.6.3.1Correct reporting of TDD	TBD	
neighbours in AWGN propagation		
8.6.4 GSM Measurement		
8.6.4.1 Correct reporting of GSM	$\hat{I}_{u}/I_{u}$ ±0.3 dB	0.1 dB uncertainty in
neighbours in AWGN propagation	$I_{A}/RXLEV \pm 0.5 \text{ dB}$	CPICH_Ec ratio
	$I_{oc}$ ±1.0 dB	0.3 dB uncertainty in $\hat{I}$ /I
	RXLEV ±1.0 dB	based on power meter
	$CPICH \_E_c$	measurement after the combiner
	±0.1 dB	
	or	0.5 dB uncertainty in loc/RXLEV based on power meter measurement after the combiner
		The absolute error of the AWGN is specified as 1.0 dB. The absolute error of the RXLEV is specified as 1.0 dB.
8.6.5 Combined Inter frequency and GSM measurements		

Clause	Maximum Test System Uncertainty	Derivation of Test System
8651 Correct reporting of poighbours in	Chappel 1 during T0 to T5:	Uncertainty
AWGN propagation condition		0.3 dB uncertainty in $I_{ar}/I_{ac}$
	$\frac{CPICH - E_c}{E_c} = \pm 0.1  dB$	based on power meter
	I	measurement after the
		combiner
	$I_{or}(1) \pm 0.7  \text{dB}$	
	$I_{oc}(1)$ ±1.0 dB	0.5 dB uncertainty in
	$\hat{i}$ / $i$ ±0.3 dB	meter measurement after the
	or loc	combiner
	Channel 1 during T2 to T5:	
		The absolute error of the
	I (2) relative to $I$ (1) +0.3 dB	AWGN is specified as 1.0 dB.
	$\Gamma_{or}(\Sigma)$ relative to $\Gamma_{or}(\Gamma)$ =0.0 dD	The absolute error of the
	For multi-band UE with Band Land VI	RALEV IS specified as 1.0 dB.
	I (2) relative to $I$ (1) +0.5 dB	
	$I_{or}(z)$ relative to $I_{or}(1) \pm 0.5$ db	
	Channel 2 during T0 to T5:	
	$L_{1}(2)$ +1.0 dB	
	Channel 2 during T2 to T5:	
	CPICH E	
	$\frac{1}{I}$ ±0.1 dB	
	I or	
	$I_{ar}(2) \pm 0.7  dB$	
	$\hat{I}_{av}/I_{aa}$ ±0.3 dB	
	GSM during T4/T5	
	I / RXLEV + 0.5 dB	
	RXI FV +10 dB	
	Assumptions:	
	a) The contributing uncertainties for	lor(n), channel power ratio, and
	loc are derived according to ETR	273-1-2 [16], with a coverage
	factor of k=2.	
	b) within each cell, the uncertainty is	or
	c) Across different cells, the channel	l power ratio uncertainties may
	have any amount of positive corre	elation from zero (uncorrelated)
	to one (fully correlated).	
	d) The uncertainty for loc(n) and lor	(n) may have any amount of
	positive correlation from zero (uno	correlated) to one (fully
	correlated).	(1) and lor(2) may have any
	amount of positive correlation from	m zero (uncorrelated) to one
	(fully correlated).	
	f) The absolute uncertainties for loc	(1) and loc(2) may have any
	amount of positive correlation from	n zero (uncorrelated) to one
	(fully correlated).	
	An explanation of correlation between uncer	Tainties, and of the rationale
1	bomina une assumptions, is recorded III SOF	I IIX 07 002 [27].

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.6.6.1 Correct reporting of E-UTRAN FDD neighbour in fading propagation condition	UTRA Cell: $I_{oc} \pm 0.7 \text{ dB}$ $I_{or} / I_{oc} \pm 0.6 \text{ dB}$ CPICH E <sub>c</sub> / I <sub>or</sub> ±0.1 dB EUTRA Cell: $N_{oc} \pm 0.7 \text{ dB}$ averaged over BW <sub>Config</sub> Ês / N <sub>oc</sub> ±0.6 dB averaged over BW <sub>Config</sub>	Notes: $I_{oc}$ is the AWGN on cell 1 (UTRA) frequency $I_{or} / I_{oc}$ is the ratio of cell 1 signal / AWGN CPICH Ec / Ior is the fraction of cell 1 power assigned to the CPICH Physical channel
		$N_{\infty}$ is the AWGN on cell 2 frequency $\hat{E}s / N_{\infty}$ is the ratio of cell 2 signal / AWGN
8.6.6.2 Correct reporting of E-UTRAN TDD neighbour in fading propagation condition	Same as 8.6.6.1	Same as 8.6.6.1
8.6.7.1 Correct reporting of E-UTRA FDD neighbours in fading propagation condition	UTRA Cell 1 : $I_{oc} \pm 0.7 \text{ dB}$ $I_{or} / I_{oc} \pm 0.3 \text{ dB}$ CPICH E <sub>c</sub> / $I_{or} \pm 0.1 \text{ dB}$	Notes: $I_{oc}$ is the AWGN on cell 1 (UTRA) frequency $I_{or} / I_{oc}$ is the ratio of cell 1 signal / AWGN CPICH Ec / Ior is the fraction of cell 1 power assigned to the CPICH Physical channel
	UTRA Cell2 : $I_{oc} \pm 0.7 \text{ dB}$ $I_{or} / I_{oc} \pm 0.6 \text{ dB}$ CPICH E <sub>c</sub> / I <sub>or</sub> ±0.1 dB	$\begin{array}{l} I_{oc} \text{ is the AWGN on cell 2} \\ (UTRA) \text{ frequency} \\ I_{or} / I_{oc} \text{ is the ratio of cell 2} \\ \text{signal / AWGN} \\ \text{CPICH Ec / Ior is the fraction} \\ \text{of cell 2 power assigned to the} \\ \text{CPICH Physical channel} \end{array}$
	EUTRA Cell 3: $N_{oc} \pm 0.7$ dB averaged over $BW_{Config}$ Ês / $N_{oc} \pm 0.6$ dB averaged over $BW_{Config}$	$N_{oc}$ is the AWGN on cell 3 frequency $\hat{E}s / N_{oc}$ is the ratio of cell 3 signal / AWGN
		For Cell 2 and Cell 3: $I_{or} / I_{oc}$ uncertainty or Ês / N <sub>oc</sub> uncertainty for fading condition comprises two quantities: 1. Signal-to-noise ratio uncertainty 2. Fading profile power uncertainty
		Items 1 and 2 are assumed to be uncorrelated so can be root sum squared: $\hat{E}s / N_{\infty}$ uncertainty or $I_{or} / I_{\infty}$ uncertainty = SQRT (Signal-to- noise ratio uncertainty <sup>2</sup> + Fading profile power uncertainty <sup>2</sup> ) Signal-to-noise ratio uncertainty ±0.3 dB Fading profile power uncertainty ±0.5 dB
8.6.7.2 Correct reporting of E-UTRATDD neighbours in fading propagation condition	Same as 8.6.7.1	Same as 8.6.7.1
8.7 ivieas urements Performance Requirements 8.7.1 CPICH RSCP		

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.7.1.1 Intra frequency measurements	$\hat{I}_{or}/I_{oc}$ ±0.3 dB	Same as 8.2.2.1
accuracy	$I_{ac}$ ±1.0 dB	
	CPICH E	
	$\frac{1}{I_{or}} = \pm 0.1 \text{ dB}$	
8.7.1.2 Inter frequency measurement	$\hat{I}_{or}/I_{oc}$ ±0.3 dB	Same as 8.2.2.2
accuracy	$I_{oc}$ ±1.0 dB	
	$I_{oc1}/I_{oc2}$ ±0.3 dB	
	$CPICH \_E_c$	
	$I_{ar}$ ±0.1 dB	
	For multi-band UE with Band I and VI	
	$I_{ocl}/I_{oc2}$ ±0.5 dB for	
8.7.2 CPICH Ec/lo		
8.7.2.1 Intra frequency measurements	$\hat{I}_{or}/I_{oc}$ ±0.3 dB	Same as 8.2.2.1
	<i>I<sub>oc</sub></i> ±1.0 dB	
	$CPICH \_E_c$	
	$I_{ar}$ ±0.1 dB	
8.7.2.2 Inter frequency measurement	$\hat{I}_{ac}/I_{ac}$ ±0.3 dB	Same as 8.2.2.2
accuracy	$I_{ac}$ ±1.0 dB	
	$\frac{\pi}{L}$ +0.3 dB	
	$\frac{CFICH_{L}E_{c}}{L}$ ±0.1 dB	
	I or	
	For multi-band OE with Band Fand Vi $I / I \rightarrow 0.5 dD$ for	
8731UTRACarrier RSSL absolute	$I_{ocl}/I_{oc2} = 0.3 \text{ dB IOI}$	<u> </u>
measurement accuracy	$I_{or}/I_{oc}$ ±0.3 dB	0.3 dB uncertainty in $I_{or}/I_{oc}$
	$I_{oc}$ ±1.0 dB	based on power meter
	$I_{ocl}/I_{oc2}$ ±0.3 dB	combiner
	For multi-band UE with Band I and VI	0.3 dB or 0.5dB uncertainty in
	$I_{oc1}/I_{oc2}$ ±0.5 dB	loc1/loc2 based on power
		meter measurement after the combiner
		AWGN is specified as 1.0 dB
8.7.3.2 UTRA Carrier RSSI, relative measurement accuracy	$\hat{I}_{or}/I_{oc}$ ±0.3 dB	0.3 dB uncertainty in $\hat{I}_{or}/I_{oc}$
	<i>I<sub>oc</sub></i> ±1.0 dB	based on power meter
		measurement atter the combiner
	$I_{oc2}/I_{oc3}$ ±0.3 dB	
	For multi-band UE with Band I and VI	based on power meter
	$I_{ac2}/I_{ac3}$ ±0.5 dB	measurement after the
		combiner
		The absolute error of the AWGN is specified as 1.0 dB

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
8.7.3A GSM Carrier RSSI	$\hat{I}_{or}/I_{oc}$ ±0.3 dB $I_{oc}/RXLEV$ ±0.5 dB	0.1 dB uncertainty in CPICH_Ec ratio
	$I_{oc} = \pm 1.0 \text{ dB}$ $\frac{CPICH \_ E_c}{I_{or}} = \pm 0.1 \text{ dB}$ RXLEV = ±1.0 dB	0.3 dB uncertainty in $\hat{I}_{or}/I_{oc}$ based on power meter measurement after the combiner
	RXLEV1/RXLEV2 ±1.4 dB	loc/RXLEV based on power meter measurement after the combiner
		The absolute error of the AWGN is specified as 1.0 dB.
		The absolute error of the RXLEV is specified as 1.0 dB.
		The relative accuracy of RXLEV1 to RXLEV2 is specified to be 1.4 dB (RMS of individual uncertainties) when BCCHs are on the same or on different RF channel within the same frequency band
		The relative accuracy of RXLEV1 to RXLEV2 is specified to be 1.4 dB (RMS of individual uncertainties) when BCCHs are on different frequency band
8.7.3C UE Transmitted power (R99 and Rel-4 only)	Mean power measurement ±0,7 dB	Downlink parameters are unimportant.
8.7.3D UE Transmitted power (Rel-5 and later)	Mean power measurement ±0,7 dB	Downlink parameters are unimportant.
8.7.4 SFN-CFN observed time difference 8.7.4.1 Intra frequency measurements accuracy	$\hat{I}_{or}/I_{oc}$ ±0.3 dB $I_{oc}$ ±1.0 dB Actual SFN-CFN observed time difference: ±0.5 chips	0.3 dB uncertainty in $\hat{I}_{or}/I_{oc}$ based on power meter measurement after the combiner The absolute error of the
8.7.4.2 Inter frequency measurements accuracy	$\hat{I}_{or}/I_{oc}$ ±0.3 dB $I_{oc}$ ±1.0 dB Actual SFN-CFN observed time difference: ±0.5 chips	0.3 dB uncertainty in $\hat{I}_{or}/I_{oc}$ based on power meter measurement after the combiner
8.7.5.1 SFN-SFN observed time difference type 1	$\hat{I}_{or}/I_{oc}$ ±0.3 dB $I_{oc}$ ±1.0 dB Actual SFN-SFN observed time difference type 1: ±0.5 chips	AWGN is specified as 1.0 dB 0.3 dB uncertainty in $\hat{I}_{or}/I_{oc}$ based on power meter measurement after the combiner The absolute error of the
		AWGN is specified as 1.0 dB

Clause	Maximum Test System Uncertainty	Derivation of Test System
8.7.6.1 UE Rx-Tx time difference (Release 5 and earlier)	$\hat{I}_{or}/I_{oc}$ ±0.3 dB $I_{oc}$ ±1.0 dB Rx-Tx Timing Accuracy ±0.5 chip	0.3 dB uncertainty in $\hat{I}_{or}/I_{oc}$ based on power meter measurement after the combiner The absolute error of the AWGN is specified as 1.0 dB.
(Release 6 and later)	$I_{or}/I_{oc}$ ±0.3 dB $I_{oc}$ ±1.0 dB Rx-Tx Timing Accuracy ±0.5 chip	0.3 dB uncertainty in $I_{or}/I_{oc}$ based on power meter measurement after the combiner The absolute error of the AWGN is specified as 1.0 dB.
8.7.8 P-CCPCH RSCP 8.7.9 UE Transmission Power Headroom	TBD $\frac{E_c}{I_{or}}$ ±0.1 dBOverall UL absolute power measurement uncertainty ±0.7 dBDPCCH code domain absolute power measurement uncertainty ±0.8 dB	0.1 dB uncertainty in Ec/lor ratio Absolute power uncertainty (all codes together) ±0.7dB, relative code domain power uncertainty ±0.3dB, These are uncorrelated so can be combined RSS.
8.7.10 E-UTRAN FDD RSRP absolute accuracy	$\label{eq:constraint} \begin{array}{l} \underline{UTRAcell} \\ I_{cc} \pm 0.7 \ dB \\ \hat{I}_{or} \ / \ I_{cc} \pm 0.3 \ dB \\ \hline CPICH \ E_{c}/I_{or} \pm 0.1 \ dB \\ \hline \underline{E-UTRAcell} \\ N_{cc} \pm 0.7 \ dB \ averaged \ over \ BW_{Config} \\ N_{cc} \pm 1.0 \ dB \ for \ PRBs \ \#22-27 \\ \hline \hat{E}_{s} \ / \ N_{cc} \pm 0.3 \ dB \ averaged \ over \ BW_{Config} \\ \hline \hat{E}_{s} \ / \ N_{cc} \pm 0.8 \ dB \ for \ PRBs \ \#22-27 \\ \hline \end{array}$	Overall error is $(0.3^2 + 0.7^2)^{0.5}$ = 0.8 dB, Note: I <sub>oc</sub> is the AWGN on cell 1 frequency $\hat{I}_{or} / I_{oc}$ is the ratio of cell 1 signal / AWGN CPICH E <sub>c</sub> / I <sub>or</sub> is the fraction of cell 1 power assigned to the CPICH Physical channel N <sub>oc</sub> is the AWGN on cell 2 frequency $\hat{E}_S / N_{oc}$ is the ratio of cell 2 signal / AWGN
8.7.11 E-UTRAN TDD RSRP absolute accuracy	Same as 8.7.10	Same as 8.7.10
8.7.12 E-UTRAN FDD RSRQ absolute accuracy 8.7.13 E-UTRAN TDD RSRQ absolute accuracy	Same as 8.7.10 Same as 8.7.10	Same as 8.7.10 Same as 8.7.10

# F.1.6 Performance requirement (HSDPA)

### Table F.1.6: Maximum Test System Uncertainty for Performance Requirements (HSDPA)

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
9.2.1A to 9.2.1KD Single Link Performance	$\hat{I}_{or}/I_{oc}$ ±0.6 dB	0.1 dB uncertainty in Ec/lor ratio
	$\frac{I_{oc}}{\frac{E_c}{I_{or}}} = \pm 0.1 \text{ dB}$	Worst case gain uncertainty due to the fader from the calibrated static profile is $\pm 0.5$ dB per output
		In addition the same $\pm 0.3 \text{ dB}$ $\hat{I}_{or}/I_{oc}$ ratio error as 7.2.
		These are uncorrelated so can be RSS.
		Overall error in $\hat{I}_{or}/I_{oc}$ is $(0.5^2 + 0.3^2)^{0.5} = 0.6 \text{ dB}$
	For multi-carrier, uncertainties apply for each carrier	For multi-carrier, uncertainties apply for each carrier
9.2.1L to 9.2.1LD Single Link Enhanced Performance Type 3i	Wanted signal $\hat{I}_{orl}/I_{oc}$ ±0.6 dB	0.1 dB uncertainty in Ec/lor ratio
	First interferer $\hat{I}_{or2}/I_{oc}$ ±0.6 dB Second interferer $\hat{I}_{or3}/I_{oc}$ ±0.6 dB $I_{oc}$ ±1.0 dB	For wanted signal and each interferer, worst case gain uncertainty due to the fader from the calibrated static profile is $\pm 0.5$ dB per output
	$\frac{E_c}{I_{or}} = \pm 0.1 \text{ dB}$	In addition the same $\pm 0.3$ dB $\hat{I}_{or}/I_{oc}$ uncertainty as 7.2. These are uncorrelated so can be combined RSS. Overall uncertainty in
		$\hat{I}_{or}/I_{oc}$ ,for each signal: (0.5 <sup>2</sup> + 0.3 <sup>2</sup> ) <sup>0.5</sup> = 0.6 dB.
	For multi-carrier, uncertainties apply for each carrier	For multi-carrier, uncertainties apply for each carrier
9.2.2A to 9.2.2E Open loop diversity performance	$ \begin{array}{ccc} \hat{I}_{or}/I_{oc} & \pm 0.8 \text{ dB} \\ I_{oc} & \pm 1.0 \text{ dB} \\ \\ \hline \frac{E_c}{I_{or}} & \pm 0.1 \text{ dB} \end{array} $	Worst case gain uncertainty due to the fader from the calibrated static profile is ±0.5 dB per output In addition the same ±0.3 dB $\hat{I}_{or}/I_{oc}$ ratio error as 7.2.
		These are uncorrelated so can be RSS. Overall error in $\hat{I}_{or}/I_{oc}$ is $(0.5^2 + 0.5^2 + 0.3^2)^{0.5} = 0.768$ dB. Round up to 0.8 dB
9.2.3A to 9.2.3E Closed loop diversity	Same as 9.2.2A	Same as 9.2.2A
9.2.4A to 9.2.4H MIMO performance	Same as 9.2.2A	Same as 9.2.2A

Clause	Maximum Test System Uncertainty	Derivation of Test System
	, , , , , , , , , , , , , , , , , , ,	Uncertainty
9.3.1 Single Link Performance - AWGN	$\hat{i}$ / $i$ ±0.3 dB	0.1 dB uncertainty in
propagation conditions		DPCH_Ec ratio
	<i>I<sub>oc</sub></i> ±1.0 dB	0.3 dB uncertainty in $\hat{I}_{or}/I_{oc}$
		based on power meter
	$\frac{1}{I}$ ±0.1 dB	measurement after the
	<sup>1</sup> or	combiner
		Overall error is the sum of the
		$I_{or}/I_{oc}$ ratio error and the
		DPCH_Ec/lor ratio but is not
		RSS for simplicity. The
		loc is not important for any
		tests in clause 7 but is
		specified as 1.0 dB.
9.3.1A Single Link Performance - AWGN	Same as 9.3.1	Same as 9.3.1
propagation conditions, 64QAM		
Propagation Conditions DC-HSDPA	$I_{ar1}/I_{ac}$ ±0.3 dB	DPCH Ecratio
requirements	$\hat{T}$	0.3 dB uncertainty in
	$I_{or2}/I_{oc}$ ±0.3 dB	$\hat{I}$ / $I$ and
		$I_{or1}/I_{oc}$ and
	$I_{oc}$ ±1.0 dB	$\hat{I}_{ar2}/I_{ac}$ based on power
		meter measurement after the
	$\frac{1}{I}$ ±0.1 dB	combiner
	l or	Overall error is the sum of the
		$\hat{I}_{or}/I_{oc}$ ratio error and the
		DPCH_Ec/lor ratio but is not
		RSS for simplicity. The
		loc is not important for any
		tests in clause 7 but is
		specified as 1.0 dB.
9.3.1BA Single Link Performance -	$\hat{I}$ / $I$ +0.2 dB	0.1 dB uncertainty in
AWGN Propagation Conditions, DB-DC-	$r_{or1}/r_{oc}$ ±0.5 db	DPCH_Ec ratio
Insuranequirements	$I_{or2}/I_{oc}$ ±0.3 dB	
		$I_{\it or1}/I_{\it oc}$ and
	<i>I<sub>oc</sub></i> ±1.0 dB	$\hat{I}_{aa2}/I_{aa}$ based on power
		meter measurement after the
	$\frac{-c}{I}$ ±0.1 dB	combiner
	<sup>1</sup> or	Overall error is the sum of the
		$\hat{I}_{or}/I_{oc}$ ratio error and the
		DPCH_Ec/lor ratio but is not
		RSS for simplicity. The
		absolute error of the AVVGN
		tests in clause 7 but is
		specified as 1.0 dB.

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
9.3.1C Single Link Performance - AWGN Propagation Conditions, Periodically	$\hat{I}_{or}/I_{oc1},\hat{I}_{or}/I_{oc2}$ ±0.3 dB	0.1 dB uncertainty in DPCH Ec ratio
Varying Radio Conditions	$I_{out}, I_{out} = \pm 1.0 \text{ dB}$	0.3 dB uncertainty in $\hat{I}_{ar}/I_{ac}$
	$\frac{E_c}{I_{or}} = \pm 0.1 \text{ dB}$	based on power meter measurement after the combiner Overall error is the sum of the
	<i>I<sub>oc</sub></i> Linearity within the applicable range of 10dB 1.0 dB	$\hat{I}_{or}/I_{oc}$ ratio error and the DPCH_Ec/lor ratio but is not RSS for simplicity. The absolute error of the AWGN loc is specified as 1.0 dB. The linearity of the AWGN loc is specified as 1.0 dB (±0.5dB)
9.3.2 Single Link Performance - Fading	$\hat{I}_{or}/I_{oc}$ ±0.6 dB	0.1 dB uncertainty in Ec/lor
propagation conditions	<i>I<sub>oc</sub></i> ±1.0 dB	ratio
	$\frac{E_c}{I_{or}} = \pm 0.1 \text{ dB}$	Worst case gain uncertainty due to the fader from the calibrated static profile is $\pm 0.5$ dB per output
		In addition the same $\pm 0.3$ dB $\hat{I}$ / $I$ ratio error as 7.2
		These are uncorrelated so can be RSS.
		Overall error in $\hat{I}_{or}/I_{oc}$ is $(0.5^2 + 0.3^2)^{0.5} = 0.6 \mathrm{dB}$
9.3.2A Single Link Performance - Fading	$\hat{I}_{art}/I_{ar}$ ±0.6 dB	0.1 dB uncertainty in Ec/lor
requirements	$\hat{I}_{or2}/I_{oc}$ ±0.6 dB	Worst case gain uncertainty
	$I_{oc}$ ±1.0 dB	calibrated static profile is $\pm 0.5$ dB per output
	$\frac{L_c}{L}$	in addition the same $\pm 0.3$ dB $\hat{i}$ / $i$
	<i>I</i> <sub>or</sub> ±0.1 dB	$r_{or}/r_{oc}$ ratio error as 7.2. These are uncorrelated so can be RSS.
		Overall error in $\hat{I}_{or}/I_{oc}$ is (0.52 + 0.32) 0.5 = 0.6 dB
9.3.2AA Single Link Performance - Fading Propagation Conditions, DB-DC-	$\hat{I}_{or1}/I_{oc}$ ±0.6 dB	0.1 dB uncertainty in Ec/lor ratio
HSUPA requirements	$I_{or2}/I_{oc}$ ±0.6 dB	due to the fader from the
	<i>I<sub>oc</sub></i> +1.0 dB	calibrated static profile is $\pm 0.5$
		ав per output In addition the same ±0.3 dB
		$\hat{I}_{or}/I_{oc}$ ratio error as 7.2.
	±0.1 uB	These are uncorrelated so can be RSS.
		Overall error in $I_{or}/I_{oc}$ is (0.52 + 0.32) 0.5 = 0.6 dB
9.3.2B Single Link Performance - Fading propagation conditions, 64QAM	Same as 9.3.2	Same as 9.3.2

Clause	Maximum Test System Uncertainty	Derivation of Test System
	······	Uncertainty
9.3.3 Open Loop Diversity Performance -	$\hat{I}_{or}/I_{oc}$ ±0.5 dB	0.3 dB uncertainty in $\hat{I}_{or}/I_{oc}$
AWGN propagation conditions	<i>L</i> <sub>ac</sub> ±1.0 dB	for each antenna output based
		on power meter measurement
	$\frac{E_c}{t}$ +0.1 dB	after the combiner
	I <sub>ar</sub>	In addition the same $\pm 0.3$ dB
	07	$I_{or}/I_{oc}$ ratio error as 7.2.
		These are uncorrelated so can be RSS.
		Overall error in $\hat{I}_{ar}/I_{ac}$ is $(0.3^2)$
		$(+0.3^2)^{0.5} = 0.424$ dB. Round
		up to 0.5 dB
9.3.4 Open Loop Diversity Performance -	$\hat{I}_{or}/I_{oc}$ ±0.8 dB	In addition the same ±0.3 dB
Fading propagation conditions	<i>I</i> +10 dB	$\hat{I}_{or}/I_{oc}$ ratio error as 7.2.
		These are uncorrelated so can
	$\frac{E_c}{c}$ +0.1 dB	be RSS.
	I <sub>ar</sub>	Overall error in $\hat{I}_{or}/I_{oc}$ is $(0.5^2)$
	01	$+0.5^{2}+0.3^{2})^{0.5}=0.768$ dB.
	0 000	Round up to 0.8 dB
9.3.5 Closed Loop Diversity Performance	Same as 9.3.3	
9.3.6 Closed Loop Diversity Performance	Same as 9.3.4	
- Fading propagation conditions		
9.3.7A, MIMO performance – Reporting	Same as 9.3.4	
of Channel Quality indicator - Single		
stream fading conditions	Sama as 0.3.4	
Channel Quality indicator - Dual stream	Same as 9.5.4	
fading conditions		
9.3.7C MIMO performance – Reporting of	Same as 9.3.4	
Channel Quality indicator - Dual stream		
fading conditions – UE categories 19-20	0 001	
9.3.7D MIMO performance – Reporting of Channel Quality indicator - Dual stream	Same as 9.3.4	
static orthogonal conditions – UE		
categories 15-20		
9.3.7E MIMO performance – Reporting of	Same as 9.3.4	
Channel Quality indicator - Dual stream		
static orthogonal conditions – UE		
9.3.7F MIMO performance – Reporting of	Same as 9.3.4	
Channel Quality indicator - Single stream		
fading conditions – Asymmetric CPICHs		
9.3.7G MIMO performance – Reporting of	Same as 9.3.4	
Channel Quality Indicator - Dual Stream		
9.3.7H MIMO performance – Reporting of	Same as 9.3.4	
Channel Quality indicator - Dual stream		
fading conditions – UE categories 19-20		
9.3.71 MIMO performance – Reporting of	Same as 9.3.4	
Channel Quality indicator - Dual stream		
categories 15-20 -Asymmetric CPICHs		
9.3.7J MIMO performance – Reporting of	Same as 9.3.4	
Channel Quality indicator - Dual stream		
static orthogonal conditions – UE		
categories 19-20 – Asymmetric CPICHs		

Clause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
9.4.1 Single link Performance	$\hat{I}$ /I ±0.6 dB	0.1 dB uncertainty in Ec/lor
		ratio
	$I_{oc}$ ±1.0 dB	Worst case gain uncertainty
	Ε	due to the fader from the
	$\frac{c}{r}$ ±0.1 dB	calibrated static profile is $\pm 0.5$
	I <sub>or</sub>	dB per output
		$I_{or}/I_{oc}$ ratio error as 7.2.
		These are uncorrelated so can
		be RSS.
		Overall error in $\hat{I}_{or}/I_{oc}$ is $(0.5^2)$
		$+0.3^{2})^{0.5} = 0.6 \text{ dB}$
9.4.1A Single link Performance –	Same as 9.4.1	Same as 9.4.1
Enhanced Performance Requirements		
Type 1		
9.4.2 Open loop diversity performance	$\hat{I}_{or}/I_{oc}$ ±0.8 dB	Worst case gain uncertainty
	<i>L</i> <sub>aa</sub> ±1.0 dB	calibrated static profile is ±0.5
		dB per output
	$\frac{E_c}{1}$ +0.1 dB	
	I	In addition the same $\pm 0.3$ dB
	or	$\hat{I}$ / <i>I</i> ratio error as 7.2.
		- or I - oc
		These are uncorrelated so can
		be RSS.
		Overall error in $\hat{I}_{or}/I_{oc}$ is
		(0.52 + 0.52 + 0.32) 0.5 =
		0.768 dB. Round up to 0.8 dB
9.4.2A Open loop diversity performance –	Same as 9.4.2	Same as 9.4.2
Enhanced Performance Requirements		
	Sama an 0.4.2	Sama ao 0.4.2
9.4.3 HS SCCH Type 3 performance	Same as 0.4.2	Same as 9.4.2
STTD disabled- Asymmetric CPICHs	Same as 5.4.2	Same as 9.4.2
9.4.3B HS-SCCH Type 3 Performance -	Same as 9.4.2	Same as 9.4.2
STTD enabled- Asymmetric CPICHs		
	0	0
9.4.4 HS-SCCH Type 3 performance for	Same as 9.4.2	Same as 9.4.2
MIMO only with single-stream restriction	Same as 0.4.2	Same as 9.4.2
MIMO only with single-stream restriction-	Same as 5.4.2	Same as 9.4.2
Enhanced Performance Requirements		
Type 1		
9.4.4B HS-SCCH Type 3 Performance for	Same as 9.4.2	Same as 9.4.2
MIMO only with single-stream restriction-		
STTD disabled-asymmetric CPICHs		
9.4.4C HS-SCCH Type 3 Performance for	Same as 9.4.2	Same as 9.4.2
MIMO only with single-stream restriction-		
STID disabled-asymmetric CPICHs-		
A 4 D HS-SCCH Type 3 Performance for	Same as 0.4.2	Same as 9.4.2
MIMO only with single-stream restriction-	Same as 5.4.2	Same as 9.4.2
STTD enabled-asymmetric CPICHs		
9.4.4E HS-SCCH Type 3 Performance for	Same as 9.4.2	Same as 9.4.2
MIMO only with single-stream restriction-		
STTD enabled-asymmetric CPICHs-		
Enhanced Performance Requirements		
Туре 1		
9.5.1 HS-SCCH-less demodulation of HS-	Same as 9.2.1A	Same as 9.2.1A
DOCH		

Clause	Maximum Test System Uncertainty	Derivation of Test System
		Uncertainty
9.5.1A HS-SCCH-less demodulation of	Same as 9.2.1A	Same as 9.2.1A
HS-DSCH, Enhanced Performance		
Requirements Type 1		
9.6.1 Single link HS-DSCH Demodulation	Same as 9.2.1A	Same as 9.2.1A
performance in CELL_FACH state		
9.6.2 Single link HS-SCCH Detection	Same as 9.2.1A	Same as 9.2.1A
performance in CELL_FACH state		

## F.1.7 Performance requirement (E-DCH)

### Table F.1.7: Maximum Test System Uncertainty for Performance Requirements (E-DCH)

Clause	Maximum Unce	Test System ertainty	Derivation of Test System Uncertainty
9.2.1L Single Link Enhanced Performance Type 3i	0.76 dB for $\hat{I}_{or}$ / 0.17 dB for DIP1 0.1 dB for Ec/lor	/I <sub>oc</sub> ' , DIP2	
10.2.1.1 Detection of E-DCH HARQ ACK Indicator Channel (E-HICH) Single Link Performance (10 ms TTI)	$\hat{I}_{or}/I_{oc}$ $I_{oc}$ E-HICH Ec/lor	±0.6 dB ±1.0 dB ±0.1 dB	0.1 dB uncertainty in Ec/lor ratio Worst case gain uncertainty due to the fader from the calibrated static profile
		10.1 00	is ±0.5 dB per output In addition the same ±0.3 dB $\hat{I}_{or}/I_{oc}$ ratio error as 7.2. These are uncorrelated so can be
			RSS. Overall error in $\hat{I}_{or}/I_{oc}$ is $(0.5^2 + 0.3^2)$ $^{0.5} = 0.6 \text{ dB}$
ACK Indicator Channel (E-HICH) Single Link Performance (10 ms TTI, Type 1)	$\hat{I}_{or}/I_{oc}$ $I_{oc}$ E-HICH_Ec/lor	±0.6 dB ±1.0 dB ±0.1 dB	0.1 dB uncertainty in Ec/lor ratio Worst case gain uncertainty due to the fader from the calibrated static profile is $\pm 0.5$ dB per output
			In addition the same ±0.3 dB $\hat{I}_{or}/I_{oc}$ ratio error as 7.2. These are uncorrelated so can be
			RSS. Overall error in $\hat{I}_{or}/I_{oc}$ is $(0.5^2 + 0.3^2)^{0.5} = 0.6 \text{ dB}$
10.2.1.2 Detection of E-DCH HARQ ACK Indicator Channel (E-HICH) Single Link Performance (2 ms TTI)	Same as in 10.2	.1.1	Same as 10.2.1.1
10.2.1.2A Detection of E-DCH HARQ ACK Indicator Channel (E-HICH) Single Link Performance (2 ms TTI, Type 1)	Same as in 10.2	.1.1	Same as 10.2.1.1
10.2.2.1.1 Detection of E-DCH HARQ ACK Indicator Channel (E-HICH) in Inter- Cell handover conditions – RLS not	$ \begin{vmatrix} \hat{I}_{or1} / I_{oc} \\ \hat{I}_{oc} / I \end{vmatrix} $	±0.6 dB	Worst case gain uncertainty due to the fader from the calibrated static profile is ±0.5 dB per output
Containing the serving E-DCH cell (10 ms	$I_{oc}$	±1.0 dB	In addition the same ±0.3 dB $\hat{I}_{or}/I_{oc}$ ratio error as 7.2. These are uncorrelated so can be
	E-HICH_Ec/lor	±0.1 dB	RSS. Overall error per $\hat{I}_{or1}/I_{oc}$ or
			$\hat{I}_{or2} / I_{oc}$ is $(0.5^2 + 0.3^2)^{0.5} = 0.6 \mathrm{dB}.$

Clause	Maximum Test System	Derivation of Test System
	Uncertainty	Uncertainty
9.2.1L Single Link Enhanced	0.76 dB for $\hat{I}$ /I '	
renomance Type Si	0 17 dB for DIP1 DIP2	
	0.1 dB for Ec/lor	
10.2.2.1.1A Detection of E-DCH HARQ	$\hat{I}$ / $I$ , $\hat{I}$ , $\hat{I}$	Worst case gain uncertainty due to the
ACK Indicator Channel (E-HICH) in Inter-	$I_{or1}/I_{oc}$ ±0.6 dB	fader from the calibrated static profile
Cell handover conditions – RLS not	$\hat{I}_{a}/I$ ±0.6 dB	is ±0.5 dB per output
Containing the serving E-DCH cell (10 ms	- or2 / - oc	In addition the same ±0.3 dB $\hat{I}_{or}/I_{oc}$
	<i>I</i> +10 dB	ratio error as 7.2.
		These are uncorrelated so can be
	E-HICH Ec/lor ±0.1 dB	RSS.
	_	Overall error per $I_{or1}^{}/I_{oc}^{}$ or
		$\hat{I}$ / $I$ is $(0.5^2 + 0.2^2)^{0.5} = 0.6$ dB
		$I_{or2}/I_{oc}$ IS (0.5 + 0.5) = 0.6 dB.
10.2.2.1.2 Detection of E-DCH HARQ	Same as 10.2.2.1.1	Same as 10.2.2.1.1
Cell handover conditions – RLS not		
containing the serving E-DCH cell (2 ms		
TTI)		
10.2.2.1.2A Detection of E-DCH HARQ	Same as 10.2.2.1.1	Same as 10.2.2.1.1
ACK Indicator Channel (E-HICH) in Inter-		
containing the serving E-DCH cell (2 ms		
TTI, Type 1)		
10.2.2.2.1 Detection of E-DCH HARQ	Same as 10.2.2.1.1	Same as 10.2.2.1.1
ACK Indicator Channel (E-HICH) in Inter-		
Cell handover conditions – RLS		
10.2.2.2.1A Detection of E-DCH HARQ	Same as 10.2.2.1.1	Same as 10.2.2.1.1
ACK Indicator Channel (E-HICH) in Inter-		
Cell handover conditions – RLS		
TTL Type 1)		
10.2.2.2.2 Detection of E-DCH HARQ	Same as 10.2.2.1.1	Same as 10.2.2.1.1
ACK Indicator Channel (E-HICH) in Inter-		
Cell handover conditions – RLS		
containing the serving E-DCH cell (2 ms		
	Same as 10 2 2 1 1	Same as 10.2.2.1.1
ACK Indicator Channel (E-HICH) in Inter-	Came as 10.2.2.1.1	
Cell handover conditions - RLS		
containing the serving E-DCH cell (2 ms		
TTI, Type 1)		Como oo 10 0 1 1
Grant Channel (E-RGCH) Single Link	$I_{or}/I_{oc}$ ±0.6 dB	Same as 10.2.1.1
Performance (10 ms TTI)	<i>I<sub>oc</sub></i> ±1.0 dB	
	E-RGCH_Ec/lor ±0.1 dB	
10.3.1.1A Detection of E-DCH Relative	$\hat{I}_{ar}/I_{aa}$ ±0.6 dB	Same as 10.2.1.1
Grant Channel (E-RGCH) Single Link		
Performance (10 ms 111, 1ype 1)	$F_{\rm BGCH} = C/lor \pm 0.1 dB$	
10.3.1.2 Detection of F-DCH Relative	Same as 10.3.1.1	Same as in 10.2.1.1
Grant Channel (E-RGCH) Single Link		
Performance (2 ms TTI)		
10.3.1.2A Detection of E-DCH Relative	Same as 10.3.1.1	Same as in 10.2.1.1
Grant Channel (E-RGCH) Single Link		
renomance (zms.rn, rype.r)		

Clause	Maximum <sup>-</sup> Unce	Test System rtainty	Derivation of Test System Uncertainty
9.2.1L Single Link Enhanœd Performance Type 3i	0.76 dB for $\hat{I}_{or}/$ 0.17 dB for DIP1 0.1 dB for Ec/lor	I <sub>oc</sub> ' , DIP2	
10.3.2 Detection of E-DCH Relative Grant Channel (E-RGCH) in Inter-Cell	$\hat{I}_{or1}/I_{oc}$	±0.6 dB	Same as 10.2.2.1.1
Handover conditions	$\hat{I}_{or2}/I_{oc}$	±0.6 dB	
	Inc	±1.0 dB	
	E-RGCH_Ec/lor	±0.1 dB	
10.3.2A Detection of E-DCH Relative Grant Channel (E-RGCH) in Inter-Cell	$\hat{I}_{or1}/I_{oc}$	±0.6 dB	Same as 10.2.2.1.1
Handover conditions (Type 1)	$\hat{I}_{or2}/I_{oc}$	±0.6 dB	
	Inc	±1.0 dB	
	E-RGCH_Ec/lor	±0.1 dB	
10.4.1 Demodulation of E-DCH Absolute Grant Channel (E-AGCH) Single Link	$\hat{I}_{or}/I_{oc}$	±0.6 dB	Same as 10.2.1.1
Performance	I <sub>oc</sub>	±1.0 dB	
	E-AGCH_Ec/lor	±0.1 dB	
10.4.1A Demodulation of E-DCH Absolute Grant Channel (E-AGCH) Single	$\hat{I}_{or}/I_{oc}$	±0.6 dB	Same as 10.2.1.1
Link Performance (Type 1)	I <sub>oc</sub>	±1.0 dB	
	E-AGCH_Ec/lor	±0.1 dB	

## F.1.8 Performance requirement (MBMS)

### Table F.1.8: Maximum Test System Uncertainty for Performance Requirements (MBMS)

Clause	Maximum Test System	Derivation of Test System
	Uncertainty	Uncertainty
11.2 Demodulation of MTCH	S-CCPCH_Ec/lor $\pm 0.1 \text{ dB}$ $I_{oc}$ $\pm 1.0 \text{ dB}$	0.1 dB uncertainty in S-CCPCH_Ec/lor ratio Worst case gain uncertainty due to the fader from the calibrated static profile is ±0.5 dB per output. In addition the same ±0.3 dB $\hat{I}_{or}/I_{oc}$
	$\hat{I}_{or1} / I_{oc} = \pm 0.6 \text{ dB}$ $\hat{I}_{or2} / I_{oc} = \pm 0.6 \text{ dB}$ $\hat{I}_{or3} / I_{oc} = \pm 0.6 \text{ dB}$	ratio error as 7.2. These are uncorrelated so can be RSS. Overall error in $\hat{I}_{or}/I_{oc}$ is $(0.5^2 + 0.5^2 + 0.5^2 + 0.3^2)^{0.5} = 1.0$ dB, but per output $\hat{I}_{orl}/I_{oc}$ , $\hat{I}_{or2}/I_{oc}$ or $\hat{I}_{or3}/I_{oc}$ the error is $(0.5^2 + 0.3^2)^{0.5} = 0.6$ dB.
11.2A Demodulation of MTCH - Enhanœd Performance Requirements Type 1	S-CCPCH_Ec/lor $\pm 0.1 \text{ dB}$ $I_{oc}$ $\pm 1.0 \text{ dB}$	0.1 dB uncertainty in S-CCPCH_Ec/lor ratio Worst case gain uncertainty due to the fader from the calibrated static profile is ±0.5 dB per output. In addition the same ±0.3 dB $\hat{I}_{or}/I_{oc}$
	$\hat{I}_{or1}/I_{oc}$ ±0.6 dB $\hat{I}_{or2}/I_{oc}$ ±0.6 dB $\hat{I}_{or3}/I_{oc}$ ±0.6 dB	These are uncorrelated so can be RSS. Overall error in $\hat{I}_{or}/I_{oc}$ is $(0.5^2 + 0.5^2 + 0.5^2 + 0.3^2)^{0.5} = 1.0$ dB, but per output $\hat{I}_{or1}/I_{oc}$ , $\hat{I}_{or2}/I_{oc}$ or $\hat{I}_{or3}/I_{oc}$ the error is $(0.5^2 + 0.3^2)^{0.5} = 0.6$ dB.
11.3 Demodulation of MTCH and cell identification	S-CCPCH_Ec/lor $\pm 0.1 \text{ dB}$ $I_{oc}$ $\pm 1.0 \text{ dB}$	0.1 dB uncertainty in S-CCPCH_Ec/lor ratio Worst case gain uncertainty due to the fader from the calibrated static profile is $\pm 0.5$ dB per output.
	$\hat{I}_{or1} / I_{oc} = \pm 0.6 \text{ dB}$ $\hat{I}_{or2} / I_{oc} = \pm 0.6 \text{ dB}$ $\hat{I}_{or3} / I_{oc} = \pm 0.6 \text{ dB}$	in addition the same ±0.3 dB $I_{or}/I_{oc}$ ratio error as 7.2. These are uncorrelated so can be RSS. Overall error in $\hat{I}_{or}/I_{oc}$ is $(0.5^2 + 0.5^2 + 0.5^2 + 0.5^2 + 0.5^2)^{0.5} = 1.0$ dB, but per output $\hat{I}_{or1}/I_{oc}$ , $\hat{I}_{or2}/I_{oc}$ or $\hat{I}_{or3}/I_{oc}$ the
		error is $(0.5^2 + 0.3^2)^{0.0} = 0.6 \text{ dB}.$

# F.2 Test Tolerances (This clause is informative)

The Test Tolerances defined in this clause have been used to relax the Minimum Requirements in the present document to derive the Test Requirements.

The Test Tolerances are derived from Test System uncertainties, regulatory requirements and criticality to system performance. As a result, the Test Tolerances may sometimes be set to zero.

The test tolerances should not be modified for any reason e.g. to take account of commonly known test system errors (such as mismatch, cable loss, etc.).

### F.2.1 Transmitter

Clause	Test Tolerance
5.2 Maximum Output Power	0.7 dB
5.2A Maximum Output Power with HS- DPCCH (Release 5 only)	0.7 dB
5.2AA Maximum Output Power with HS- DPCCH (Release 6 and later)	0.7 dB
5.2B Maximum Output Power with HS- DPCCH and E-DCH	0.7 dB
5.2BA UE Maximum Output Power for DC-HSUPA (QPSK)	0.7 dB
5.2BB UE Maximum Output Power for DC-HSUPA (16QAM)	0.7 dB
5.2C UE relative code domain power	For 0 dB ≥ -10 dB CDP 0.2 dB
accuracy	For -10 dB ≥ -15 dB CDP 0.3 dB
,	For -15 dB ≥ -20 dB CDP 0.4 dB
5.2D UE Relative Code Domain Power	For 0 dB ≥ -10 dB CDP 0.2 dB
Accuracy with HS-DPCCH and E-DCH	For -10 dB ≥ -15 dB CDP 0.3 dB
····,	For -15 dB ≥ -20 dB CDP 0.4 dB
5.2DA UE Relative Code Domain Power	For 0 dB ≥ -10 dB CDP 0.2 dB
Accuracy for DC-HSUPA with QPSK	For -10 dB ≥ -15 dB CDP 0.3 dB
	For -15 dB ≥ -20 dB CDP 0.4 dB
5.2E UE Relative Code Domain Power	For 0 dB ≥ -10 dB CDP 0.2 dB
Accuracy for HS-DPCCH and E-DCH with	For -10 dB ≥ -15 dB CDP 0.3 dB
16QAM	For -15 dB ≥ -20 dB CDP 0.4 dB
	For -20 dB ≥ -30 dB CDP 0.5 dB
5.2 EAUE relative code domain power	For 0 dB ≥ -10 dB CDP 0.2 dB
accuracy for DC-HSUPA using HS-	For -10 dB ≥ -15 dB CDP 0.3 dB
DPCCH and E-DCH with 16QAM	For -15 dB ≥ -20 dB CDP 0.4 dB
	For -20 dB ≥ -30 dB CDP 0.5 dB
5.3 Frequency error	10 Hz
5.3A Frequency Error for DC-HSUPA	10 Hz per carrier
5.3C Frequency error for UL CLTD Activation state 1	10 Hz
5.3D Frequency error for UL CLTD Activation state 2 and 3	10 Hz
5.4.1 Open loop power control in uplink	1.0 dB
5.4.1A Open Loop Power Control in the Uplink for DC-HSUPA	1.0 dB per carrier
5.4.2 Inner loop power control in the	0.1 dB (1 dB and 0 dB range)
uplink	0.15 dB (2 dB range)
	0.2 dB (3 dB range
	0.3 dB (> 3 dB range))
5.4.2A Inner Loop Power Control in the	0.1 dB per carrier (1 dB and 0 dB range)
Uplink for DC-HSUPA	0.15 dB per carrier (2 dB range)
	0.2 dB per carrier (3 dB range
	0.3 dB per carrier (> 3 dB range))
5.4.3 Minimum Output Power	1.0 dB
5.4.3A Minimum Output Power for DC-	1.0 dB
HSUPA	

#### Table F.2.1: Test Tolerances for transmitter tests

Clause	Test Tolerance
5.4.4 Out-of-synchronisation handling of	0.4 dB
DPCCH F	
output power: $\underline{DTCOT}_{L_c}$	
I or	
5.4.4 Out-of-synchronisation handling of	0 ms
output power: transmit ON/OFF time	
5.4.4A Out-of-synchronisation handling of	0.4 dB
output power for a UE which supports	
type 1 for DCH: $DPCCH = E_{a}$	
	0
5.4.4 A Out-oi-synchronisation handling	0 ms
trace 4 for DOLL trace mit ON/OFE time	
type 1 for DCH: transmit ON/OFF time	
5.5.1 Transmit OFF power	1.0 dB
5.5.2 Transmit ON/OFF time mask	On power +0.7 dB / -1.0 dB
(dynamic case)	
E.C. Change of TEC: now or control ston	
size	0.5 UB
Size	Concerning of 5 4 0
mode:-IE output power	See Subset of 5.4.2
	0.1 dB (1 dB and 0 dB range)
	0.1  dB (1 dB and 0 dB fallye) 0.15 dB (2 dB range)
	0.15  ub (2  ub range) 0.2  dB (3  dB range)
	$0.3 \mathrm{dB} (> 3 \mathrm{dB range})$
5.8 Occupied Bandwidth	
5.84 Occupied Bandwidth for DC-HSUPA	
S.S. Coccupied Ballamatinor De Hoer A	0 1112
5.9 Spectrum emission mask	1.5 dB (0 dB for additional requirements for Band II, Band
	IV, Band V and Band X only)
5.9A Spectrum emission mask with HS-	1.5 dB (0 dB for additional requirements for Band II, Band
DPCCH	IV, Band V and Band X only)
5.9B Spectrum emission mask with E-	1.5 dB (0 dB for additional requirements for Band II, Band IV
DCH	and Band V only)
5.9C Additional Spectrum Emission Mask	1.5 dB (0 dB for additional requirements for band II, IV, V
for DC-HSUPA (QPSK)	and X only)
5.9D Additional Spectrum Emission Mask	1.5 dB (0 dB for additional requirements for band II, IV, V
for DC-HSUPA (16QAM)	and X only)
5.10 ACLR	0.8 dB for ratio
	0.0 dB for absolute power
5.10A ACLR with HS-DPCCH	0.8 dB for ratio
	0.0 dB for absolute power
5.10B ACLR with E-DCH	0.8 dB for ratio
	U.U dB for absolute power
5.10C ACLK WITH E-DCH for DC-HSUPA	U.8 dB tor ratio
	0.0 dP for obsolute power
(16QAIVI)	
5.11 Spurious emissions	
5.11 A Sputious emissions for DC-HSUPA	
5.12 Transmit Intermodulation	
DC-HSUPA	VUD
5 12 1 Transmit modulation: EV/M	0%
5 13 1 A Transmit modulation: EV/M with	0%
	0 /0
5 13 1 AA Transmit modulation: EV/M and	0% F\/M
phase discontinuity with HS-DPCCH	6 degress phase discontinuity
5 13 1AAA EVMand IO origin offset for	+0.5 dB
HS-DPCCH with F-DCH with 16 OAM	(for IQ origin offset)
5 13 2 Transmit modulation: peak code	10 dB
domain error	
5.13.2A Relative Code Domain Error	±0.5 dB
5.13.2B Relative Code Domain Frror with	±0.5 dB
HS-DPCCH and E-DCH	
-	

Clause	Test Tolerance
5.13.2B Relative Code Domain Error with	±0.5 dB
HS-DPCCH and E-DCH for DC-HSUPA	
5.13.2C Relative Code Domain Error for	±0.5 dB
HS-DPCCH and E-DCH with 16QAM	
5.13.3 UE phase discontinuity	0% for EVM
	10 Hz for Frequency error
	6 degree for Phase discontinuity
5.13.4 PRACH preamble quality (EVM)	0%
5.13.4 PRACH preamble quality	10 Hz
(Frequency error)	
5.13.5 In-band emission for DC-HSUPA	0.8 dB

# F.2.2 Receiver

Clause	Test Tolerance
6.2 Reference sensitivity level	0.7 dB for lor and Ec
6.2A Reference sensitivity level for DC-	0.7 dB for lor and Ec (for both DC-HSDPA cells)
HSDPA	
6.2B Reference sensitivity level for DB-	0.7 dB for lor and Ec (for both DB-DC-HSDPA cells)
DC-HSDPA	
6.2C Reference sensitivity level for single	0.7 dB for lor and Ec (for all 3C-HSDPA cells)
band 4C-HSDPA	
6.2D Reference sensitivity level for Dual	0.7 dB for lor and Ec (for all 4C-HSDPA cells)
band 4C-HSDPA	
6.2DA Reference sensitivity level for Dual	0.7 dB for lor and Ec (for all 3C-HSDPA cells)
band 4C-HSDPA (3 carrier)	
6.3 Maximum input level:	0.7 dB for lor
6.3A Maximum Input Level for HS-	0.7 dB for lor
PDSCH Reception (16QAM)	
6 3B Maximum Input Level for HS-	0.7 dB for lor
PDSCH Reception (64QAM)	
6.3C Maximum Input Level for DC-	0.7 dB for lor (for both DC-HSDPA cells)
HSDPA Reception (16QAM)	
6 3D Maximum Input Level for DC-	0.7 dB for lor (for both DC-HSDPA cells)
HSDPA Reception (64QAM)	
6.3F Maximum Input Level for DB-DC-	0.7 dB for lor (for both DB-DC-HSDPA cells)
HSDPA Reception (160AM)	
6.3E Maximum Input Level for DB-DC-	0.7 dB for lor (for both DB-DC-HSDPA cells)
HSDPA Recention (640AM)	
6.3G Maximum Input Level for 4C-	0.7 dB for lor and Ec (for all 4C-HSDPA cells)
HSDPA Reception (160AM)	
6 3GA Maximum Input Level for 4C-	0.7 dB for lor and Ec (for all 3C-HSDBA cells)
HSDPA Reception (160AM) (3 carrier)	
6 3H Maximum Input Level for 4C-	0.7 dB for lor and Ec (for all 4C-HSDBA cells)
HSDRA Recention (640AM)	
6 3HA Maximum Input Level for 4C-	0.7 dB for lor and Ec (for all 3C-HSDPA cells)
HSDPA Reception (610AM) (3 carrier)	
6.4 Adjacent channel selectivity (Rel-99	0 dB
and Rel-1)	0 00
6 4 A Adjacent channel selectivity (Rel-5	0 dB
and later releases)	0.00
6.4B Adjacent channel selectivity (ACS)	0 dB
for DC-HSDDA	0.00
6 4C Adjacent channel selectivity (ACS)	0 dB
for DB-DC-HSDPA	0.00
6.5 Blocking characteristics	0 dB
6.54 Blocking characteristics for DC	
6.58 Blocking characteristics for DB DC	
6.50 Blocking characteristics for DC	0 dB
RED Ploaking Characteriation for similar	
0.00 BIOCKING UNARACTERISTICS FOR SINGLE	VUD
Oplink Single band 40-HSDPA	
0.5E BIOCKING UNARACTERISTICS FOR QUAL	VUD
Uplink Single band 4C-HSDPA	
0.5F BIOCKING UNARACTERISTICS TOF SINGLE	VUD
6.5FA BIOCKING Characteristics for single	U QR
Opinik Dual band 40-HSDPA (3 carrier)	
6.5G BIOCKING Characteristics for dual	U ab
Uplink Dual band 4C-HSDPA	
0.5GA BIOCKING UNARACTERISTICS FOR dual	UQB
Opinik Dual band 40-HSDPA (3 carrier)	
o.o Spurious Kesponse	
6.6A Spurious Response for DC-HSDPA	I U GB

### Table F.2.2: Test Tolerances for receiver tests

Clause	Test Tolerance
6.6B Spurious Response for DB-DC- HSDPA	0 dB
6.6C Spurious Response for single band 4C-HSDPA	0 dB
6.6D Spurious Response for dual band 4C-HSDPA	0 dB
6.6DA Spurious Response for dual band 4C-HSDPA (3 carrier)	0 dB
6.7 Intermodulation Characteristics	0 dB
6.7A Intermodulation Characteristics for DC-HSDPA	0 dB
6.7B Intermodulation Characteristics for DB-DC-HSDPA	0 dB
6.7C Intermodulation Characteristics for DC-HSUPA	0 dB
6.7D Intermodulation Characteristics for single uplink single band 4C-HSDPA	0 dB
6.7E Intermodulation Characteristics for single uplink dual band 4C-HSDPA	0 dB
6.7EA Intermodulation Characteristics for single uplink dual band 4C-HSDPA (3 carrier)	0 dB
6.8 Spurious emissions	0 dB

# F.2.3 Performance requirements

Clause	Test Tolerance
7.2 Demodulation in Static Propagation	0.3 dB for $\hat{I}$ /I
Condition	0.1 dB for DDCH Eq/lor
7.3 Domodulation of DCH in multipath	
Fading Propagation conditions	0.6 dB for $I_{or}/I_{oc}$
r ading r ropagation conditions	0.1 dB for DPCH_Ec/lor
7.4 Demodulation of DCH in Moving	0.6 dB for $\hat{I}$ /I
Propagation conditions	0.1  dB for DPCH Ec/lor
7.5 Demodulation of DCH in Birth-Death	
Propagation conditions	0.6 dB for $I_{or}/I_{oc}$
	0.1 dB for DPCH_Ec/lor
7.5A Demodulation of DCH in high speed	0.6 dB for $\hat{I}_{ar}/I_{ac}$
train conditions	0.1 dB for DPCH_Ec/lor
7.6.1 Demodulation of DCH in open loop	0.8 dB for $\hat{I}$ /I
Transmit diversity mode	0.0 dB for DPCH. Eq/loc
7.6.2 Demodulation of DCH in closed	
loop Transmit diversity mode	0.8 dB for $I_{or}/I_{oc}$
	0.1 dB for DPCH_Ec/lor
7.6.3, Demodulation of DCH in site	0.8 dB for $\hat{I}_{ar}/I_{ac}$
selection diversity I ransmission power	0.1 dB for DPCH Ec/lor
control mode	
7.7.1 Demodulation in inter-cell soft	0.6 dB for $\hat{I}_{\rm out}/I_{\rm out}$ and $\hat{I}_{\rm out}/I_{\rm out}$
Parlier)	0.1 dB for DPCH Ec/lor
7 7 1 A Demodulation in inter-cell soft	
Handover conditions (Release 6 and	0.6 dB for $I_{or1}/I_{oc}$ and $I_{or2}/I_{oc}$
later)	0.1 dB for DPCH_Ec/lor
7.7.2 Combining of TPC commands Test	0 dB for lor1, lor2
1	0.1 dB for DPCH_Ec/lor
7.7.2 Combining of TPC commands Test	0.8 dB for $\hat{I}_{ar}/I_{ar}$
2	0.1 dB for DPCH Ec/lor
7.7.3 Combining of reliable TPC	Test parameters:
commands from radio links of different	
radio link sets	
	0 dB for $\hat{I}_{or2}/I_{oc}$
	$0 dP for \hat{I} / I$
	$O$ db for $T_{or3}/T_{oc}$
	0 dB for DPCH_Ec1/lor1
	Test requirements:
	0 dB for Test 1
	0 dB for Test 2
7.8.1 Power control in downlink constant	0.6 dB for $\hat{I}$ /I
BLER target (Release 5 and earlier)	0.1 dB for DPCH_Ec/lor
	For test cases wherein the SS response time to DL power control commands is delayed by one timeslot from the
	immediate response the following $\frac{DPCH\_E_c}{I_{or}}$ test
	tolerances apply:
	Test 1: 0.4 dB for $\frac{DPCH\_E_c}{I_{or}}$
	Test 2: 0.3 dB for $\frac{DPCH_E_c}{I_{or}}$

### Table F.2.3: Test Tolerances for Performance Requirements

Clause	Test Tolerance
7.8.1A Power control in downlink constant	0.6 dB for $\hat{i}$ /I
BLER target (Release 6 and later)	0.1 dB for DPCH Ec/lor
7.8.2, Power control in downlink initial convergence (Release 5 and earlier)	0.6 dB for measured DPCH_Ec/lor power ratio values during T1 and T2.
	When the SS response time to DL power control commands is delayed by one timeslot from the immediate response the following measured DPCH_Ec/lor power ratio value test tolerance applies: Test 1, 2, 3 and 4: 0.8 dB (= rounded 0.75 dB)
7.8.3A, Power control in downlink: wind up effects (Release 6 and later)	0.6 dB for $\hat{I}_{or}/I_{oc}$
7.8.3. Power control in downlink: wind up	0.1 dB IoI DPCH_EC/IOI
effects	0.0 dB for $P_{or}/T_{oc}$ 0.1 dB for DPCH_Ec/lor
	For test cases wherein the SS response time to DL power control commands is delayed by one timeslot from the DPCH E
	immediate response the following $\frac{DPON = D_c}{I_{or}}$ test
	tolerance applies:
	Test 1: 0.4 dB for $\frac{I - I - I - I}{I_{or}}$
7.8.4, Power control in the downlink,	0.6 dB for $\hat{I}_{or}/I_{oc}$
	0.1 dB for DPCH_Ec/lor
	For test cases where the SS response time to DL power control commands is delayed by one times lot from the $DPCH = E_{c}$
	immediate response the following $D + D - D - D - D - D - D - D - D - D - $
	tolerances apply: $DPCH = E_c$
	lest 1 stage 1: 0.3 dB for $I_{or}$
	Test 1 stage 2: 0.2 dB for $\frac{DPCH_{-}E_{c}}{I_{or}}$
7.8.5, Power control in the downlink for F-	0.6 dB for $\hat{I}_{or}/I_{oc}$
ОРСН	0.1 dB for F-DPCH_Ec/lor
7.9.1 Downlink compressed mode	0.6 dB for $\hat{I}_{or}/I_{oc}$
	0.1 dB for DPCH_Ec/lor
7.9.1A Downlink compressed mode	0.6 dB for $\hat{I}_{or}/I_{oc}$
	0.1 dB for DPCH_Ec/lor
7.10 Blind transport format detection	0.3 dB for $\hat{I}_{or}/I_{oc}$
7.40 Dlind turnene at form at data stice	0.1 dB for DPCH_Ec/lor
Tests 4, 5, 6	0.6 dB for $I_{or}/I_{oc}$
7.11 Domodulation of paging abannal	0.1 dB for DPCH_Ec/lor
(PCH)	Test 1: 0.4 dB for $I_{or}/I_{oc}$
7.12 Detection of acquisition indicator (AI)	$0.4 \text{ dB for } \hat{I} / I$
7.12A Detection of E-DCH Acauisition	$0.4 \mathrm{dB}$ for $\hat{L}/L$
Indicator (E-AI)	DI: No test tolerances applied
discontinuous UL DPCCH transmission	
operation	UL: [0.3] dB for the measured UL power step

# F.2.4 Requirements for support of RRM

Clause	Test Tolerance
8.2 Idle Mode Tasks	
8.2.2 Cell Re-Selection	
8.2.2.1 Scenario 1: Single carrier case	During T1 and T2: +0.60 dB for all Cell 1 and 2 Ec/lor ratios -0.50 dB for all Cell 3, 4 ,5, 6 Ec/lor ratios +0.03 dB for lor(3, 4, 5, 6)
	During T1: -0.27 dB for lor(1) +0.13 dB for lor(2)
	During T2: +0.13 dB for lor(1) -0.27 dB for lor(2)
8.2.2.2 Scenario 2: Multi carrier case	Channel 1 during T1 and T2: +0.70 dB for all Cell 1 Ec/lor ratios -0.80 dB for all Cell 3 and 4 Ec/lor ratios
	<u>Channel 1 during T1:</u> -0.01 dB for lor(1) -0.01 dB for lor(3, 4) No change for loc(1)
	<u>Channel 1 during T2:</u> +0.75 dB for lor(1) -0.05 dB for lor(3, 4) -1.80 dB for loc(1)
	<u>Channel 2 during T1 and T2:</u> +0.70 dB for all Cell 2 Ec/lor ratios -0.80 dB for all Cell 5 and 6 Ec/lor ratios
	<u>Channel 2 during T1:</u> +0.75 dB for lor(2) -0.05 dB for lor(5, 6) -1.80 dB for loc(2)
	<u>Channel 2 during T2:</u> -0.01 dB for lor(2) -0.01 dB for lor(5, 6) No change for loc(2)
8.2.3 UTRAN to GSM Cell Re-Selection	
6.2.3.1 Scenario 1. Both OTRA and GSIMIe ver changed	0.3 dB for $I_{or}/I_{oc}$ 0.1 dB for CPICH_Ec/lor
	1.0 dB for RXLEV
8.2.3.2 Scenario 2: Only UTR A level changed	0.3 dB for $\hat{I}_{or}/I_{oc}$ 0.1 dB for CPICH_Ec/lor
9.2.2.2. Seenario 2: HCS with only LITPA loyal abanged	1.0 dB for RXLEV
0.2.3.3 Scenario 3. HOS WILLONIY OTKA level changed	0.3 dB for $I_{or}/I_{oc}$ 0.1 dB for CPICH_Ec/lor 1.0 dB for RXLEV
8.2.4 FDD/TDD cell re-selection	0.3 dB for $\hat{I}_{or}/I_{oc}$ 0.1 dB for CPICH_Ec/lor 0.3 dB for loc1/loc2 For multi-band UE with Band I and VI 0.5 dB for loc1/loc2
8.2.5 UTRA to E-UTRA Cell Re-Selection	

Clause	Test Tolerance
8.2.5.1 E-UTRA is of higher priority	UTRA cell during T1:
	0dB for loc
	+0.80dB for lor/loc
	0dB for CPICH Ec/lor
	E-UTRA cell during T1:
	-1.10dB for Noc
	0dB for Ês / N₀c
	UTRA cell during T2:
	0dB for loc
	+0.80dB for lor/loc
	0dB for CPICH_Ec/lor
	E-UTRA cell during 12:
	$-1.10$ dB for $\hat{E}_{c}$ / N
	UTRA cell during T3
	OdB for loc
	+0.80dB for lor/loc
	0dB for CPICH_Ec/lor
	_
	E-UTRA cell during T3:
	-1.10dB for Noc
	+0.30dB for Ês / N₀c
8.2.5.2 E-UTRA is of lower priority	UTRA cell during T1:
	-0.10dB for loc
	+0.90dB for lor/loc
	UdB for CPICH_EC/lor
	E-LITRA cell during T1:
	OdB for Noc
	$\pm 0.80$ dB for $\hat{F}s / N_{co}$
	UTRA cell during T2:
	-0.10dB for loc
	-0.70dB for lor/loc
	0dB for CPICH_Ec/lor
	E-UTRA cell during T2:
	0dB for Noc
0.0.1.1TD ANI Opening a feed Marcha Mathilite	+0.80dB for Es / $N_{oc}$
8.3 UTRAN Connected Mode Mobility	During TO // and TO // O // // // O
8.3.1 FDD/FDD Soπ Handover	During 10/11 and 12/13/14/15/16:
	+0.70 ub for all Cell 1 EC/101 fallos Relative delay: $\int -147.5 +147.5$ chips
	During T0/T1:
	Already covered above
	During T2/T3/T4/T5/T6:
	+0.70 dB for all Cell 2 Ec/lor ratios
8.3.2 FDD/FDD Hard Handover	
8.3.2.1 Handover to intra-frequency cell	During 11 and 12 / 13:
	+0.70 dB for all Cell 1 Ec/lor ratios
	During T1:
	Already covered above
	During T2 / T3:
	+0.70 dB for all Cell 2 Ec/lor ratios

Clause	Test Tolerance
8.3.2.2 Handover to inter-frequency cell	Channel 1 during T1 and T2 / T3:
	+0.80 dB for all Cell 1 Ec/lor ratios
	Channel 2 during T1:
	Not applicable
	Channel 2 during T2 / T3:
	+0.80 dB for all Cell 2 Ec/lor ratios
8.3.3 FDD/TDD Handover	TBD
8.3.4 Inter-system Handover form UTRAN FDD to GSM	During T2 and T3:
	+ 1 dB for RXLEV
8.3.4a Inter-system Handover from UTRAN FDD to E-UTRAN	UTRA cell during T1:
FDD	0dB for loc
	0dB for lor/loc
	0dB for CPICH_Ec/lor
	E-UTRA cell during 11:
	0dB for Noc
	0dB for Es / Noc
	UTRA cell during 12:
	UdB for loc
	0dB for lor/loc
	0dB for CPICH_Ec/lor
	E-UTRA cell during 12:
	+0.80dB for Es / Noc
	LITD A call during TO:
	UTRA cell during 13:
	UdB for loc
	Uab for CPICH_EC/for
	E LITP A call during T2:
	E-OTRACEII dulling TS.
	udb lol inoc 10 80dB for Ês / Noc
8.2.4b Inter eventeen Handover from LITPAN EDD to E. LITPAN	
	Same as 0.3.4a
8 3 4c Inter-system Handover from LITR AN FDD to F-LITP AN	Zero TT is applied
FDD: Unknown Target Cell	
8 3 4d Inter-system Handover from LITRAN EDD to E-LITRAN	Same as 8.3.4c
TDD: Unknown Target Cell	
8.3.5 Cell Re-selection in CELL_FACH	
8.3.5.1 One frequency present in the neighbour list	During T1 and T2:
	+0.60 dB for all Cell 1 and 2 Ec/lor ratios
	-0.50 dB for all Cell 3.4.5.6 Ec/lor ratios
	+0.03 dB for lor(3, 4, 5, 6)
	During T1:
	-0.27 dB for lor(1)
	+0.13  dB for lor(2)
	During T2
	+0.13 dB for lor(1)
	-0.27 dB for lor(2)

Clause	Toot Telerence
8.3.5.2 Two frequencies present in the neighbour list	Channel 1 during 11 and T2:
	+0.60 dB for all Cell 1 Ec/lor ratios
	-0.70 dB for all Cell 3 and 4 Ec/lor ratios
	Channel 1 during T1:
	+0.05 dB for lor(1)
	+0.05 dB for lor(3, 4)
	No change for loc(1)
	Channel 1 during T2:
	$\pm 0.75 dB$ for lor(1)
	-0.05 dB for lor(3.4)
	-0.05  dD for loc(3, 4)
	Observation T1 and T0
	Channel 2 during 11 and 12:
	+0.60 dB for all Cell 2 Ec/lor ratios
	-0.70 dB for all Cell 5 and 6 Ec/lor ratios
	Channel 2 during T1:
	+0.75 dB for lor(2)
	-0.05 dB for lor(5, 6)
	-1.60 dB for loc(2)
	Channel 2 during T2:
	+0.05 dB for lor(2)
	$\pm 0.05 \text{ dB for lor(2)}$
	No change for $loc(2)$
8 2 5 2 Coll Pagalaction to CSM	<u> </u>
	0.3 dB for $I_{or}/I_{or}$
	0.1 dP for CPICH Ec/lor
	1.0 dB for BXLEV
8.3.5.4 Call Percentian during on MPMS specian two	Chappel 1 during T2 and T2:
frequencies present in neighbour list	1 00 dP for all Coll 1 Eo/lor ration
	Charmel 4 during T2:
	<u>Channel Fouring TS.</u>
	-1.52 dB for loc(1)
	Channel 2 during T1, T2 and T2:
	Channel 2 during 11, 12 and 13:
	+1.00 dB for all Cell 2 Ec/lor ratios
	Channel 2 during 12:
	-1.38 dB for loc(2)
8.3.6 Cell Re-selection in CELL_PCH	
8.3.6.1 One frequency present in the neighbour list	Same as 8.2.2.1
8.3.6.2 Two frequencies present in the neighbour list	Same as 8.2.2.2
8.3.6.3 Cell re-selection during an MBMS session, one UTRAN	Channel 1 during T2:
inter-frequency and 2 GSM cells present in the neighbour list	+1.00 dB for all Cell 1 Ec/lor ratios
	Channel 2 during T1 and T2:
	+1.00 dB for all Cell 2 Ec/lor ratios
	Channel 2 during T2:
	-1.50 dB for loc(2)
	. ,
	Channel 2 during T3:
	-0.1 dB for CPICH_Ec/lor
	$\hat{I}$
	-0.3 dB for $I_{or}/I_{oc}$
	GSM during T2:
	-1.0 dB for RXLEV1
	-1.0 dB for RXLEV2
	GSM during T3:
	+1.0 dB for RXLEV2

Clause	Test Tolerance
8.3.7 Cell Re-selection in URA_PCH	
8.3.7.1 One frequency present in the neighbour list	Same as 8.2.2.1
8.3.7.2 Two frequencies present in the neighbour list	Same as 8.2.2.2
8.3.8 Serving HS-DSCH cell change	During T0/T1/T2/T3/T4:
	+0.70 dB for all Cell 1 Ec/lor ratios
	Relative delay: {-147.5 +147.5} chips
	<u>During 10</u> Already covered above
	Alleady covered above
	During T1/T2/T3/T4
	+0.70 dB for all Cell 2 Ec/lor ratios
8.3.9 Enhanced Serving HS-DSCH cell change	During /T1/T2/T3/T4:
	+0.70 dB for all Cell 1 Ec/lor ratios
	+0.70 dB for all Cell 2 Ec/lor ratios
	+ 0.5 chips for relative delay
8.3.10 System information acquisition for CSG cell	During T1 / T2:
o.3.10.1 Initialitequency System information acquisition for CSG	$\pm 0.70$ dB for all Cell 1 Ec/lor ratios
	During T1:
	Already covered above
	During T2:
	+0.70 dB for all Cell 2 Ec/lor ratios
8.3.10.2 Inter frequency System information acquisition for CSG	Channel 1 during 11 and 12/13:
	Channel 2 during T1:
	Not applicable
	Channel 2 during T2 / T3:
	+0.80 dB for all Cell 2 Ec/lor ratios
8.4 RRC Connection Control	Sottingo:
0.4.1 KKC Re-establistiment delay	
	0 dB for $I_{or}/I_{oc}$
	0 dB for any_Ec/lor
	Zero TT is applied, as level settings are not
	critical with respect to the outcome of the
9.4.2 Bandom Access	test.
0.4.2 Rahuum Access	
	0.3 dB for $I_{or}/I_{oc}$
	0.1 dB for AICH_Ec/lor
	Measurements:
	Power difference: ± 1dB
	Maximum Power: -1dB / +0.7dB
	DDACH timing array 0.5 abing
8 4 3 Transport format combination selection in LIF	0 dB for DPCH Ec/lor
8.4.4 F-TEC restriction in UF	
8.4.4.1 10ms TTI E-DCH E-TFC restriction	0.1 dB for Ec/lor
	0.7 dB for Îor
8.4.4.2 2ms TTI E-DCH E-TFC restriction	0.1 dB for Ec/lor
	0.7 dB for Îor
8.5 Timing and Signalling Characteristics	
8.5.1 UE Transmit Timing	0.1 dB for CPICH_Ec/lor
	U.1 dB for DPCH_Ec/lor
	1 00 101 101 1 1 3 dB for Îor2
	0.5 chips for Rx-Tx timing accuracy
	0.25 chips for Tx-Tx Timing Accuracy
8.6 UE Measurements Procedures	
8.6.1 FDD intra frequency measurements	

Clause	Test Tolerance
8.6.1.1 Event triggered reporting in AWGN propagation conditions	During T1/T4 and T2/T3
(R99)	+0.70 dB for all Cell 1 Ec/lor ratios
	During T1/T4 colu
	During 11/14 only.
	Already covered above
	During T2/T3 only:
	+0.70 dB for all Cell 2 Ec/lor ratios
8.6.1.1A Event triggered reporting in AWGN propagation	During T1/T3 and T2:
conditions (Rel-4 and later)	+0.70 dB for all Cell 1 Ec/lor ratios
	During T1/T3 only
	Altered very served above
	Alleady covered above
	During 12 only:
	+0.70 dB for all Cell 2 Ec/lor ratios
8.6.1.2 Event triggered reporting of multiple neighbours in AWGN	During T0 to T6:
propagation condition (R99)	+0.70 dB for all Cell 1 Ec/lor ratios
	+0.70 dB for all Cell 2 Ec/lor ratios
	+0.70 dB for all Cell 3 Ec/lor ratios
8.6.1.24 Event triggered reporting of multiple neighbours in	During T0 to $T4$ :
AWGN propagation condition (Rel 4 and later)	$\pm 0.70  dB for all Call 1 Ec/loc ratios$
$\int du = \frac{1}{2} \int du$	$+0.70 \text{ dB}$ for all Call 2 $\Box a/a = \pi a^4 = a$
	+0.70 dB for all Cell 2 Ec/lor fatios
	+0.70 dB for all Cell 3 EC/lor ratios
8.6.1.3 Event triggered reporting of two detectable neighbours in	During T0 to T5:
AWGN propagation condition (R99)	+0.40 dB for all Cell 1 Ec/lor ratios
	+0.40 dB for all Cell 2 Ec/lor ratios
	+0.40 dB for all Cell 3 Ec/lor ratios
8.6.1.3A Event triggered reporting of two detectable neighbours in	During T0 to T4:
AWGN propagation condition (Rel-4 and later)	+0.40 dB for all Cell 1 Ec/lor ratios
	$\pm 0.40$ dB for all Cell 2 Ec/lor ratios
	$\pm 0.40$ dB for all Cell 3 Ec/lor ratios
9.6.1.4.4.Correct reporting of pairbhours in fading propagation	During T1:
ose dition (Del 4 and later)	During TT.
condition (Rei-4 and later)	+0.70 dB for all Cell 1 Ec/lor ratios
	+0.30 dB for all Cell 2 Ec/lor ratios
	During T2:
	+0.30 dB for all Cell 1 Ec/lor ratios
	+0.70 dB for all Cell 2 Ec/lor ratios
8.6.1.5 Event triggered reporting of multiple neighbour cells in	During T1 and T2:
Case 1 fading condition	+0.70 dB for all Cell 1 Ec/lor ratios
	+0.70 dB for all Cell 2 Ec/lor ratios
	$\pm 0.70$ dB for all Cell 3 Ec/lor ratios
8.6.1.6 Event triggered reporting of multiple peighbour cells in	During T1 and T2:
	0.70 dB for all Call 1 Ea/lar ration
Case 3 lading condition	
	+0.70 dB for all Cell 2 Ec/lor ratios
	+0.70 dB for all Cell 3 Ec/lor ratios
8.6.2 FDD inter frequency measurements	
8.6.2.1 Correct reporting of neighbours in AWGN propagation	During T0 to T2:
condition (Release 5 and earlier)	+0.80 dB for all Cell 1 Ec/lor ratios
	+0.80 dB for all Cell 2 Ec/lor ratios
	+0.80 dB for all Cell 3 Ec/lor ratios
8.6.2.1.4 Correct reporting of peighbours in AWGN propagation	During T0 to T2:
condition (Release 6 and later)	+0.80 dB for all Cell 1 Ec/lor ratios
	10.00  dB for all Coll 2 Eq/log ratios
	$\pm 0.00 \text{ ub tot all Cell 2 EC/101 fallos}$
	+0.00 dB for all Cell 3 EC/lor ratios
8.6.2.2 Correct reporting of neighbours in Fading propagation	During 11 and 12:
condition (Release 5 only)	+0.80 dB tor all Cell 1 Ec/lor ratios
	+0.80 dB for all Cell 2 Ec/lor ratios
8.6.2.2A Correct reporting of neighbours in Fading propagation	During T1 and T2:
condition (Release 6 and later)	+0.80 dB for all Cell 1 Ec/lor ratios
, , ,	+0.80 dB for all Cell 2 Ec/lor ratios
8.6.2.3 Correct reporting of neighbours in Fading propagation	During T1 and T2:
condition using TGI 1=14	+0.80 dB for all Cell 1 Ec/lor ratios
	$\pm 0.80$ dB for all Coll 2 Ec/lor ratios
0.0.3 IDD measurements	

Clause	Test Tolerance
8.6.3.1Correct reporting of TDD neighbours in AWGN propagation	TBD
condition	
8.6.4 GSM measurements	During TO:
8.6.4.1 Correct reporting of GSM neighbours in AWGN	During 12:
	During T3:
	-1 dB for RXLEV
8.6.5 Combined Inter frequency and GSM measurements	
8.6.5.1 Correct reporting of neighbours in AWGN propagation	_During T0 to T5:
condition	+0.80 dB for all Cell 1 Ec/lor ratios
	+0.80 dB for all Cell 2 Ec/lor ratios
	During 14 to 15:
8.6.6.1 Correct reporting of E-LITRAN EDD neighbour in fading	+ 1 dB lof RALE V
propagation condition	-0.6 dB for Cell 2 Noc
	During T2:
	-0.6 dB for Cell 2 Noc
	0.6dB for Cell 2 Es/Noc
	During T3:
	<u>-0.6 dB for Cell 2 Noc</u>
8.6.6.2 Correct reporting of ELITEAN TOD poighbour in foding	U.6dB for Cell 2 ES/NOC
propagation condition	<u>Same as 0.0.0.1</u>
8 6 7 1 Correct reporting of E-UTRA FDD neighbours in fading	During T2 <sup>.</sup>
propagation condition	0.7dB for Cell 2 lor/loc
8.6.7.2 Correct reporting of E-UTRA TDD neighbours in fading	Same as 8.6.7.1
propagation condition	
8.7 Measurements Performance Requirements	
8.7.1 CPICH RSCP	
8.7.1.1 Intra frequency measurements accuracy	0.3 dB for $\hat{I}_{\rm m}/I_{\rm m}$
	0.1 dB for CPICH Ec/lor
	1.0 dB for loc
8.7.1.2 Inter frequency measurement accuracy	
	0.3 dB for $I_{or}/I_{oc}$
	0.1 dB for CPICH_Ec/lor
	0.3 dB for loc 1/10c2
	For multi-band UE with Band Land VI
	0.5 dB for loc1/loc2
8.7.2 CPICH Ec/lo	
8.7.2.1 Intra frequency measurements accuracy	0.2 dB for $\hat{I}$ /I
	0.3 dB IOI $I_{or}/I_{oc}$
	0.1 dB for CPICH_Ec/lor
8.7.2.2 Inter frequency measurement accuracy	0.3 dB for $\hat{I}_{ar}/I_{ac}$
	0.1 dB for CPICH Ec/lor
	0.3 dB for loc1/loc2
	1.0 dB for loc
	For multi-band UE with Band I and VI
	0.5 dB for loc1/loc2
8.7.3.1 UTRA Carrier RSSI, absolute measurement accuracy	0.3 dB for $\hat{I}_{or}/I_{oc}$
	0.3 dB for loc1/loc2
	1.0 dB for loc
	For multi-band UE with Band I and VI
	U.5 dB for loc1/loc2
8.7.3.2 UTRA Carrier KSSI, relative measurement accuracy	0.3 dB for $I_{ar}/I_{ac}$
	1.0 dB for loc

Clause	Test Tolerance
8.7.3A GSM Carrier RSSI	TT for test parameters
	GSM cell levels:
	Step 1: -1 dB
	Step 2: -1 dB
	Step 3: -1 dB
	Relative accuracy requirements: a, b, c and
	d values in minimum requirements are
	increased by 2 dB i.e.,
	For x1 $\ge$ s+14, x2< -48 dBm:
	a=4, b=4, c=6, d=6
	For $s+14 > x1 \ge s+1$
	a=5, b=4, c=7, d=6
	For $s+1 > x1$
	a=6, b=4, c=8, d=6
	Absolute accuracy requirements: original
	minimum requirements are increased by $\pm 1$
	dB
8.7.3B Transport channel BLER	TBD
8.7.3C UE Transmitted power (R99 and Rel-4 only)	0.7 dB for mean power measurement by
	test system
8.7.3D UE Transmitted power (Rel-5 and later)	0.7 dB for mean power measurement by
874 SEN CEN observed time difference	
0.7.4 OF N°OT N ODSERVED TIME DIMETERICE	0.3 dB for $I_{or}/I_{oc}$
	1.0 dB for loc
	±0.5 chips for the actual SFN-CFN
	observed time difference
8.7.5.1 SEN-SEN observed time difference type 1	0.3 dB for $\hat{I}_{\rm m}/I_{\rm m}$
	1.0 dB for loc
	±0.5 chips for the actual SFN-SFN
	observed time difference type 1
8.7.6.1 UE Rx-Tx time difference (Release 5 and earlier)	$0.0 \pm 0.5 \pm 1$
	0.3 dB for $I_{or}/I_{oc}$
	1.0 dB for loc
	0.5 chip for Rx-1x Timing Accuracy
8.7.6.1 A UE KX-1 X time difference (Release 6 and later)	0.3 dB for $\hat{I}_{ar}/I_{ac}$
	1.0 dB for loc
	0.5 chip for Rx-Tx Timing Accuracy
8.7.7 Observed time difference to GSM cell	TBD
8.7.8 P-CCPCH RSCP	TBD
8.7.9 UE Transmission Power Headroom	0.8 dB for UPH reporting accuracy
Clause	Test Tolerance
---	------------------------
8.7.10 E-UTRAN FDD RSRP absolute accuracy	UTRA cell in Test 1:
	<u>0dB for loc</u>
	0dB for lor/loc
	0dB for CPICH_Ec/lor
	E-UTRA cell in Test 1:
	-0.30dB for Noc
	0dB for Ēs/Noc
	UTRA cell in Test 2:
	OdB for loc
	0dB for lor/loc
	0dB for CPICH_Ec/lor
	E-UTRA cell in Test 2:
	0dB for Noc
	+0.80dB for Ës/Noc
8.7.11 E-UTRAN TDD RSRP absolute accuracy	Same as 8.7.10
8.7.12 E-UTRAN FDD RSRQ absolute accuracy	UTRA cell in Test 1:
	0dB for loc
	0dB for lor/loc
	0dB for CPICH_Ec/lor
	E-UTRA cell in Test 1:
	-0.80dB for Noc
	0dB for Ês/Noc
	UTRA cell in Test 2:
	OdB for loc
	UdB for CPICH_Ec/lor
	E-UTRA cell in Test 2:
	0dB for Noc
	+0.80dB for Ês/Noc
	UTRA cell in Test 3:
	0dB for loc
	0dB for lor/loc
	0dB for CPICH_Ec/lor
	E-UTRA cell in Test 3:
	0dB for Noc
	+0.80dB for Es/Noc
8.7.13 E-UTRAN TDD RSRQ absolute accuracy	Same as 8.7.12

# F.2.5 Performance requirements (HSDPA)

#### Table F.2.5: Test Tolerances for Performance Requirements (HSDPA)

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Clause	Test Tolerance
9.2.1A to 9.2.1KD Single Link	0.6 dB for $\hat{i}$ / <i>i</i>
Performance	0.1 dB for Ec/lor
	Test Tolerances apply for each carrier
9.2.1L to 9.2.1LD Single Link Enhanced	
Performance Type 3i	0.76 dB for $I_{or}/I_{oc}$
	0.17 dB for DIP1, DIP2
	0.1 dB for Ec/lor
	Test Tolerances apply for each carrier
9.2.2A to 9.2.2E Open loop diversity	0.8 dB for $\hat{I}_{or}/I_{oc}$
performance	0.1 dB for Ec/lor
9.2.3A to 9.2.3E Closed loop diversity	Same as 9.2.2A
performance	
9.2.4A to 9.2.4H MIMO performance	Same as 9.2.2A
9.3.1 Single Link Performance - AWGN	No test tolerances applied
propagation conditions	
9.3.1A Single Link Performance - AWGN	No test tolerances applied
0.2.1 R Single Link Porformance AWGN	No tost tolomosos applied
Propagation Conditions DC-HSDPA	No lest loterances applied
requirements	
9.3.1BA Single Link Performance -	No test tolerances applied
AWGN Propagation Conditions, DB-DC-	
HSDPA requirements	
9.3.1C Single Link Performance - AWGN	No test tolerances applied for test step 7 and 8
Propagation Conditions, Periodically	I for M-difference is 1 for test step 9 (difference in
0.2.2 Single Link Performance Ending	Medians Mit and Mi2
propagation conditions	No lest loterances applied
9.3.2A Single Link Performance - Fading	No test tolerances applied
Propagation Conditions, DC-HSDPA	
requirements	
9.3.2AA Single Link Performance -	No test tolerances applied
Fading Propagation Conditions, DB-DC-	
HSDPA requirements	
9 3 2B Single Link Performance - Fading	No test tolerances applied
propagation conditions 64QAM	No lest loterarices applied
9.3.3 Open Loop Diversity Performance -	No test tolerances applied
AWGN propagation conditions	
9.3.4 Open Loop Diversity Performance -	No test tolerances applied
Fading propagation conditions	
9.3.5 Closed Loop Diversity Performance	No test tolerances applied
- AWGN propagation conditions	
9.3.6 Closed Loop Diversity Performance	No test tolerances applied
- rading propagation conditions	
9.3.7 A, WIINO performance – Reporting	ivo test tolerances applied
stream fading conditions	
9.3.7B MIMO performance – Reporting of	No test tolerances applied
Channel Quality indicator - Dual stream	
fading conditions	
9.3.7C MIMO performance - Reporting of	No test tolerances applied
Channel Quality indicator - Dual stream	
fading conditions – UE categories 19-20	
9.3.7D MIMO performance – Reporting of	No test tolerances applied
Channel Quality indicator - Dual stream	
static orthogonal conditions – UE	
categories 15-20	

Clause	Test Tolerance
9.3.7F MIMO performance – Reporting of	No test tolerances applied
Channel Quality indicator - Dual stream	
static orthogonal conditions – UE	
categories 19-20	
9.3.7A MIMO performance – Reporting of	No test tolerances applied
Channel Quality indicator - Single stream	
fading conditions - Asymmetric CPICHs	
9.3.7B MIMO performance – Reporting of	No test tolerances applied
Channel Quality indicator - Dual stream	
fading conditions –Asymmetric CPICHs	
9.3.7C MIMO performance – Reporting of	No test tolerances applied
Channel Quality indicator - Dual stream	
fading conditions – UE categories 19-20 –	
Asymmetric CPICHs	
9.3.7D MIMO performance – Reporting of	No test tolerances applied
Channel Quality indicator - Dual stream	
static orthogonal conditions – UE	
categories 15-20 - Asymmetric CPICHs	
9.3.7 E MIMO performance – Reporting of	No test tolerances applied
Channel Quality indicator - Dual stream	
static orthogonal conditions – UE	
Categories 19-20 - Asymmetric CPICHs	
9.4.1 Single Link Performance	0.6 dB for $I_{or}/I_{oc}$
	0.1 dB for P-CPICH_Ec/lor and HS-SCCH_Ec/lor
9.4.1A Single Link Performance -	Same as 9.4.1
Enhanced Performance Requirements	
Туре 1	
9.4.2 Open loop diversity performance	0.8 dB for $\hat{I}_{}/I_{}$
	0.1 dB for P-CPICH_Ec/lor and HS-SCCH_Ec/lor
9 4 2 A Open loop diversity performance –	Same as 9.4.2
Enhanced Performance Requirements	
Type 1	
9.4.3 HS-SCCH Type 3 performance	Same as 9.4.2
9.4.3A HS-SCCH Type 3 Performance -	Same as 9.4.2
STTD disabled- Asymmetric CPICHs	
9.4.3B HS-SCCH Type 3 Performance -	Same as 9.4.2
STTD enabled- Asymmetric CPICHs	
9.4.4 HS-SCCH Type 3 performance for	Same as 9.4.2
MIMO only with single-stream restriction	
9.4.4A HS-SCCH Type 3 performance for	Same as 9.4.2
MIMO only with single-stream restriction-	
Enhanced Performance Requirements	
lype1	
9.4.48 HS-SCCH Type 3 Performance for	Same as 9.4.2
WIND only with single-stream restriction-	
SILD disabled-asymmetric CPICHs	Sama as 0.4.2
9.4.40 HS-SUCH Type 3 Performance for	Same as 9.4.2
STTD dischool commentation OPICITE	
Enhanced Portemance Partitionant	
A AD HS-SCCH Type 2 Porformance for	Same as 0.4.2
MIMO only with single-stream restriction-	0ame as 3.4.2
STTD enabled-asymmetric CPICHs	
944F HS-SCCH Type 3 Performance for	Same as 9.4.2
MIMO only with single-stream restriction-	
STTD enabled-asvmmetric CPICHs-	
Enhanced Performance Requirements	
Type 1	
9.5.1 HS-SCCH-less demodulation of HS-	Same as 9.2.1A
DSCH	
9.5.1A HS-SCCH-less demodulation of	Same as 9.2.1A
HS-DSCH, Enhanced Performance	
Requirements Type 1	

Clause	Test Tolerance
9.6.1 Single link HS-DSCH Demodulation performance in CELL_FACH state	Same as 9.2.1A
9.6.2 Single link HS-SCCH Detection performance in CELL_FACH state	Same as 9.2.1A

# F.2.6 Performance requirements (E-DCH)

#### Table F.2.6: Test Tolerances for Performance Requirements (E-DCH)

Clause	Test Tolerance
10.2.1.1 Detection of E-DCH HARQ ACK Indicator Channel (E-	0.6 dB for $\hat{i}$ / <i>I</i>
HICH) Single Link Performance (10 ms)	0.1 dB for F-HICH Ec/lor
10.2.1.1A Detection of E-DCH HARQ ACK Indicator Channel	$0.6 \text{ dB for } \hat{I} / I$
(E-HICH) Single Link Performance (10 ms, Type 1)	0.1  dB for F-HICH Ec/lor
10.2.1.2 Detection of E-DCH HARQ ACK Indicator Channel (E-	$0.6 \text{ dB for } \hat{l} / l$
HICH) Single Link Performance (2 ms TTI)	0.0 dB for $F_{or}/T_{oc}$
10.2.1.2A Detection of E-DCH HARQ ACK Indicator Channel	
(E-HICH) Single Link Performance (2 ms TTI, Type 1)	0.6 dB IOI $I_{or}/I_{oc}$
10.2.2.1.1 Detection of E-DCH HARO ACK Indicator Channel	
(E-HICH) in Inter-Cell handover conditions – RLS not	0.6 dB for $I_{or1}^{}/I_{oc}^{}$ and $I_{or2}^{}/I_{oc}^{}$
containing the serving E-DCH cell (10 ms TTI)	0.1 dB for E-HICH_Ec/lor
10.2.2.1.1A Detection of E-DCH HARQ ACK Indicator Channel	0.6 dB for $\hat{I}$ / $I$ and $\hat{I}$ / $I$
(E-HICH) in Inter-Cell handover conditions – RLS not	0.0 dB for $\Gamma_{or1}/\Gamma_{oc}$ and $\Gamma_{or2}/\Gamma_{oc}$
Containing the serving E-DCH cell (10 ms 111, 1 ype 1)	
(F-HICH) in Inter-Cell handover conditions – RI S not	0.6 dB for $I_{or1}/I_{oc}$ and $I_{or2}/I_{oc}$
containing the serving E-DCH cell (2 ms TTI)	0.1 dB for E-HICH_Ec/lor
10.2.2.1.2A Detection of E-DCH HARQ ACK Indicator Channel	$\hat{I}$
(E-HICH) in Inter-Cell handover conditions – RLS not	0.6 dB for $I_{or1}/I_{oc}$ and $I_{or2}/I_{oc}$
containing the serving E-DCH cell (2 ms TTI, Type 1)	0.1 dB for E-HICH_Ec/lor
10.2.2.2.1 Detection of E-DCH HARQ ACK indicator Channel (E-HICH) in Inter-Cell handover conditions – RLS containing	0.6 dB for $\hat{I}_{arl}/I_{ac}$ and $\hat{I}_{ar2}/I_{ac}$
the serving F-DCH cell (10 ms TTI)	0.1 dB for E-HICH Ec/lor
10.2.2.2.1A Detection of E-DCH HARQ ACK Indicator Channel	
(E-HICH) in Inter-Cell handover conditions – RLS containing	0.6 dB for $I_{or1}/I_{oc}$ and $I_{or2}/I_{oc}$
the serving E-DCH cell (10 ms TTI, Type 1)	0.1 dB for E-HICH_Ec/lor
10.2.2.2.2 Detection of E-DCH HARQ ACK indicator Channel (E-HICH) in Inter-Cell handover conditions – RLS containing	0.6 dB for $\hat{I}_{arl}/I_{ac}$ and $\hat{I}_{ar2}/I_{ac}$
the serving F-DCH cell (2 ms TTI)	0.1 dB for E-HICH Ec/lor
10.2.2.2.2A Detection of E-DCH HARQ ACK Indicator Channel	
(E-HICH) in Inter-Cell handover conditions – RLS containing	0.6 dB for $I_{or1}/I_{oc}$ and $I_{or2}/I_{oc}$
the serving E-DCH cell (2 ms TTI, Type 1)	0.1 dB for E-HICH_Ec/lor
10.3.1.1 Detection of E-DCH Relative Grant Channel (E-	0.6 dB for $\hat{I}_{or}/I_{oc}$
	0.1 dB for E-RGCH_Ec/lor
10.3.1.1A Detection of E-DCH Relative Grant Channel (E-	0.6 dB for $\hat{I}_{or}/I_{oc}$
RGCH) Single Link Performance (10 ms 111, Type 1)	0.1 dB for E-RGCH_Ec/lor
10.3.1.2 Detection of E-DCH Relative Grant Channel (E-	0.6 dB for $\hat{I}_{ac}/I_{ac}$
RGCH) Single Link Performanœ (2 ms TTI)	0.1 dB for E-RGCH_Ec/lor
10.3.1.2A Detection of E-DCH Relative Grant Channel (E-	$0.6 \mathrm{dB}$ for $\hat{I} / I$
RGCH) Single Link Performance (2 ms TTI, Type 1)	0.1  dB for  F-RGCH Ec/lor
10.3.2 Detection of E-DCH Relative Grant Channel (E-RGCH)	
in Inter-Cell Handover conditions	0.6 dB for $I_{or1}/I_{oc}$ and $I_{or2}/I_{oc}$
	0.1 dB for E-RGCH_Ec/lor
10.3.2A Detection of E-DCH Relative Grant Channel (E-RGCH)	0.6 dB for $\hat{I}_{arl}/I_{ac}$ and $\hat{I}_{ar2}/I_{ac}$
	0.1 dB for E-RGCH_Ec/lor
10.4.1 Demodulation of E-DCH Absolute Grant Channel (E-	$0.6 \text{ dB for } \hat{I} / I$
AGCH) Single Link Performance	0.1 dB for E-AGCH Ec/lor
10.4.1A Demodulation of E-DCH Absolute Grant Channel (F-	$0.1 \text{ dB for } \hat{I} = \frac{1}{10}$
AGCH) Single Link Performance (Type 1)	0.0 UD IOI $I_{or}/I_{oc}$
	U.1 dB for E-AGCH_Ec/lor

### F.2.7 Performance requirements (MBMS)

Table F.2.7: Test	<b>Tolerances for</b>	Performance	Requirements	(MBMS).
				· · · /

Clause	Test Tolerance
11.2 Demodulation of MTCH	0.1 dB for S-CCPCH_Ec/lor
	0.6 dB for $\hat{I}_{or1}/I_{oc}$ , $\hat{I}_{or2}/I_{oc}$ and $\hat{I}_{or3}/I_{oc}$ .
11.2A Demodulation of MTCH - Enhanced Performance	0.1 dB for S-CCPCH_Ec/lor
Requirements Type 1	0.6 dB for $\hat{I}_{or1}/I_{oc}$ , $\hat{I}_{or2}/I_{oc}$ and $\hat{I}_{or3}/I_{oc}$ .
11.3 Demodulation of MTCH and cell identification	0.1 dB for S-CCPCH_Ec/lor
	0.6 dB for $\hat{I}_{or1}/I_{oc}$ , $\hat{I}_{or2}/I_{oc}$ and $\hat{I}_{or3}/I_{oc}$

# F.3 Interpretation of measurement results

The measurement results returned by the Test System are compared – without any modification – against the Test Requirements as defined by the shared risk principle.

The Shared Risk principle is defined in ETR 273-1-2 clause 6.5.

The actual measurement uncertainty of the Test System for the measurement of each parameter shall be included in the test report.

The recorded value for the Test System uncertainty shall be, for each measurement, equal to or lower than the appropriate figure in clause F.1 of the present document.

If the Test System for a test is known to have a measurement uncertainty greater than that specified in clause F.1, it is still permitted to use this apparatus provided that an adjustment is made value as follows.

Any additional uncertainty in the Test System over and above that specified in clause F.1 shall be used to tighten the Test Requirement – making the test harder to pass. (For some tests e.g. receiver tests, this may require modification of stimulus signals). This procedure will ensure that a Test System not compliant with clause F.1does not increase the chance of passing a device under test where that device would otherwise have failed the test if a Test System compliant with clause F.1 had been used.

For some of the more complex tests e.g. RRM, deriving the overall test system uncertainty is not straightforward. In such cases the derivation is given in TR 34.902 [24] rather than in subclause F.1. If it is deemed necessary to apply the additional test system uncertainty rules to these tests, the formula for deriving the new overall uncertainty from any excess fundamental test system uncertainties, shall use the formulas provided in 34.902.

# F.4 Derivation of Test Requirements (This clause is informative)

The Test Requirements in the present document have been calculated by relaxing the Minimum Requirements of the core specification using the Test Tolerances defined in clause F.2. When the Test Tolerance is zero, the Test Requirement will be the same as the Minimum Requirement. When the Test Tolerance is non-zero, the Test Requirements will differ from the Minimum Requirements, and the formula used for this relaxation is given in table F.4.

# F.4.1 Transmitter

Test	Minimum Requirement in TS	Test	Test Requirement in TS 34.121
	25.101	Tolerance	
		(TT)	
5.2 Maximum	Power class 1 (33 dBm)	0.7 dB	Formula: (Upper) Minimum
Output Power	Iolerance = +1/-3 dB		Requirement + 11
	Power class 2 (27 dBm)		(Lower) Minimum Requirement –
	Tolerance = $+1/-3$ dB		$\Pi$
	Power class 3 (24 dBm)		For power classes 1-3:
	Tolerance = +1/-3 dB		Upper Tolerance limit = +1.7 dB
	Power class 4 (21 dBm)		Lower Tolerance limit = $-3.7 \text{ dB}$
	Tolerance = ±2 dB		For power class 4:
			Upper Tolerance limit = +2.7 dB
			Lower Tolerance limit= -2.7 dB
5.2A Maximum	For Power class 3:	0.7 dB	Formula: (Upper) Minimum
Output Power with	Power class 3 (24 dBm)		Requirement + TT
HS-DPCCH	Tolerance = +1/-3 dB		(Lower) Minimum Requirement –
(Release 5 only)	Power class 3 (23 dBm)		TT
	Tolerance = +2/-3 dB		For power classes 3:
	Power class 3 (22 dBm)		Upper Tolerance limit = +1.7 dB (24
	Tolerance = $+3/-3$ dB		dBm)
	For Power class 4:		Upper Toleranœ limit = +2.7 dB (23
	Power class 4 (21 dBm)		dBm)
	Tolerance = $\pm 2 \text{ dB}$		Upper Toleranœ limit = +1.7 dB (22
	Power class 4 (20 dBm)		dBm)
	Tolerance = $+3/-2$ dB		_Lower Tolerance limit = -3.7 dB
	Power class 4 (19 dBm)		For power class 4:
	Tolerance = +4/-2 dB		Upper Toleranœ limit = +2.7 dB (24
			dBm)
			Upper Tolerance limit = +3.7 dB (23
			dBm)
			Upper Toleranœ limit = +4.7 dB (22
			dBm)
			Lower Toleranœ limit = -2.7 dB

#### Table F.4.1: Derivation of Test Requirements (Transmitter tests)

Test	Minimum Requirement in TS	Test	Test Requirement in TS 34.121
	25.101	Tolerance	
		(TT)	
5.2AA Maximum	For Power class 3:	0.7 dB	Formula: (Upper) Minimum
Output Power with	Sub-test 1: Power class 3 (24		Requirement + TT
HS-DPCCH	dBm)		(Lower) Minimum
(Release 6 and	Tolerance = +1/-3 dB		Requirement – TT
later)	Sub-test 2: Power class 3 (24		For power classes 3:
	dBm)		Sub-test 1: Upper Tolerance limit =
	Tolerance = +1/-3 dB		+1.7 dB (24 dBm)
	Sub-test 3: Power class 3 (23.5		Sub-test 1: Lower Tolerance limit =
	dBm)		-3.7 dB
	Tolerance = +1.5/-3 dB		Sub-test 2: Upper Tolerance limit =
	Sub-test 4: Power class 3 (23.5		+1.7 dB (24 dBm)
	dBm)		Sub-test 2: Lower Tolerance limit =
	Tolerance = +1.5/-3 dB		-3.7 dB
	For Power class 4:		Sub-test 3: Upper Tolerance limit =
	Sub-test 1: Power class 4 (21		+2.2 dB (23.5 dBm)
	dBm)		Sub-test 3: Lower Tolerance limit =
	$Iolerance = \pm 2 dB$		-3.7 dB
	Sub-test 2: Power class 4 (21		Sub-test 4: Upper Tolerance limit =
	dBm)		+2.2 dB (23.5 dBm)
	$10 \text{ lefance} = \pm 2 \text{ dB}$		Sub-test 4: Lower Tolerance limit =
	Sub-test 3: Power class 4 (20.5		-3.7 dB
	abm) Talaranaa (2.5/2.dD		For power class 4:
	10  lefalle = +2.5/-2  ub		Sub-lest T. Opper Tolerance IImit =
	dBm)		+2.7 ub (21 ubiii) Sub test 1: Lower Telerance limit –
	Tolorance $= 12.5/2  dB$		27 dP
	101e1a11ce = +2.5/-2  dB		Sub tast 2: Uppar Talamasa limit -
			3ub  lest 2. Opper l'oleiance limit =
			Sub-test 2: Lower Tolerance limit –
			-2.7 dB
			Sub-test 3: Upper Tolerance limit –
			+3.2  dB (20.5  dBm)
			Sub-test 3: Lower Tolerance limit –
			-2 7 dB
			Sub-test 4: Upper Tolerance limit =
			+3.2 dB (20.5 dBm)
			Sub-test 4: Lower Tolerance limit =
			-2.7 dB
			2.1 30

Test	Minimum Requirement in TS	Test	Test Requirement in TS 34.121
	25.101	Tolerance	
		(TT)	
5.2B Maximum	For Power class 3:	0.7 dB	Formula: (Upper) Minimum
Output Power with	Sub-test 1: Power class 3 (24		Requirement + TT
HS-DPCCH and E-	dBm)		(Lower) Minimum
DCH	Tolerance = $+1/-3$		Requirement – TT
	Sub-test 2: Power class 3 (22		For power classes 3:
	dBm)		Sub-test 1: Upper Tolerance limit =
	Iolerance = +3/-3		+1.7 dB (24 dBm)
	Sub-test 3: Power class 3 (23		Sub-test 1: Lower Tolerance limit = -
	dBm)		3.7 dB (24 dBm)
	10  lerance = +2/-3		Sub-test 2: Upper Tolerance limit =
	Sub-test 4: Power class 3 (22		+3.7 dB (22 dBm)
	dBm) Talaranaa (1/2		Sub-test 2: Lower Tolerance limit = $-$
	10  lerance = +1/-3		3.7 dB (22 dBm)
	dBm)		Sub-test 3: Upper Tolerance limit = $(2.7 \text{ dB})$
	Tolerance $= \pm 1/3$		Sub-test 3: Lower Tolerance limit -
	For Power class 4:		37  dB (23  dBm)
	Sub-test 1: Power class 4.		Sub-test 4: Upper Tolerance limit –
	dBm)		$\pm 3.7 \text{ dB} (22 \text{ dBm})$
	Tolerance = $+2  dB$		Sub-test 4: Lower Tolerance limit = $-$
	Sub-test 2: Power class 4 (19		3.7  dB (22  dBm)
	dBm)		Sub-test 5: Upper Tolerance limit =
	Tolerance = $+4/-2$ dB		+1.7  dB (24  dBm)
	Sub-test 3: Power class 4 (20		Sub-test 5: Lower Tolerance limit = -
	dBm)		3.7 dB (24 dBm)
	Tolerance = $+3/-2$ dB		For power class 4:
	Sub-test 4: Power class 4 (19		Sub-test 1: Upper Tolerance limit =
	dBm)		+2.7 dB (21 dBm)
	Tolerance = $+4/-2$ dB		Sub-test 1: Lower Tolerance limit = -
	Sub-test 5: Power class 4 (21		2.7 dB (21 dBm)
	dBm)		Sub-test 2: Upper Tolerance limit =
	Tolerance = $\pm 2  dB$		+4.7 dB (19 dBm)
			Sub-test 2: Lower Tolerance limit = -
			2.7 dB (19 dBm)
			Sub-test 3: Upper Tolerance limit =
			+3.7 dB (20 dBm)
			Sub-test 3: Lower Tolerance limit = -
			2.7 dB (20 dBm)
			Sub-test 4: Upper Tolerance limit =
			+4.7 dB (19 dBm)
			Sub-test 4: Lower Tolerance limit = -
			2.7 dB (19 dBm)
			Sub-test 5: Upper Tolerance limit =
			+2.7 dB (21 dBm)
			Sub-test 5: Lower Tolerance limit = -
			2.7 dB (21 dBm)
5.2BAUE Maximum	For Power class 3:	0.7 dB	Formula: (Upper) Minimum
	Sub-test 1: Power class 3		Requirement + 11
DC-HSUPA (QPSK)	(22.5  dDm)		
	101erande = +17-3		For now of close 2
	For Dower close 4		For power classes 3:
	For Power class 4:		Sub-test 1: Upper Tolerance $IIIII = 12.2 dP (22.5 dPm)$
	(10.5 dBm)		Sub test 1: Lower Telemano limit -
	(19.5  dBm)		3  J = 27  dP (22.5  dPm)
			-3.7 UD (22.3 UDIII)
			For power class 4:
			Sub-test 1: Upper Tolerance limit –
			+4.2 dB (19.5 dBm)
			Sub-test 1: Lower Tolerance limit =
			-2.7 dB (19.5 dBm)

<b>—</b>	M:	<b>—</b>	T ( D ) ( TO 04 404
lest	Minimum Requirement in TS 25.101	Test Tolerance (TT)	Test Requirement in TS 34.121
5.2BB UE Maximum Output Power for DC-HSUPA (16QAM)	For Power class 3: Sub-test 1: Power class 3 (22.5 dBm) Tolerance = +1/-3 For Power class 4: Sub-test 1: Power class 4 (19.5 dBm) Tolerance = ±2 dB	0.7 dB	Formula: (Upper) Minimum Requirement + TT (Lower) Minimum Requirement – TT For power classes 3: Sub-test 1: Upper Tolerance limit = +3.2 dB (22.5 dBm) Sub-test 1: Lower Tolerance limit = -3.7 dB (22.5 dBm) For power class 4: Sub-test 1: Upper Tolerance limit = +4.2 dB (19.5 dBm) Sub-test 1: Lower Tolerance limit = -2.7 dB (19.5 dBm)
5.2C UE relative code domain power accuracy	For 0 dB ≥ -10 dB CDP ± 1.5 dB For -10 dB ≥ -15 dB CDP ± 2.0 dB For -15 dB ≥ -20 dB CDP ± 2.5 dB	For 0 dB ≥ - 10 dB CDP 0.2 dB For -10 dB ≥ -15 dB CDP 0.3 dB For -15 dB ≥ -20 dB CDP 0.4 dB	Formula: UE relative CDP accuracy + TT For 0 dB $\geq$ -10 dB CDP ± 1.7 dB For -10 dB $\geq$ -15 dB CDP ± 2.3 dB For -15 dB $\geq$ -20 dB CDP ± 2.9 dB
5.2D UE Relative Code Domain Power Accuracy with HS-DPCCH and E-DCH	For 0 dB $\ge$ -10 dB CDP $\pm$ 1.5 dB For -10 dB $\ge$ -15 dB CDP $\pm$ 2.0 dB For -15 dB $\ge$ -20 dB CDP $\pm$ 2.5 dB	For 0 dB ≥ - 10 dB CDP 0.2 dB For -10 dB ≥ -15 dB CDP 0.3 dB For -15 dB ≥ -20 dB CDP 0.4 dB	Formula: UE relative CDP accuracy + TT For 0 dB $\geq$ -10 dB CDP ± 1.7 dB For -10 dB $\geq$ -15 dB CDP ± 2.3 dB For -15 dB $\geq$ -20 dB CDP ± 2.9 dB
5.2DA UE Relative Code Domain Power Accuracy for DC-HSUPA with QPSK	For 0 dB $\ge$ -10 dB CDP ±1.5 dB For -10 dB $\ge$ -15 dB CDP ± 2.0 dB For -15 dB $\ge$ -20 dB CDP ± 2.5 dB	For 0 dB $\geq$ - 10 dB CDP 0.2 dB For -10 dB $\geq$ -15 dB CDP 0.3 dB For -15 dB $\geq$ -20 dB CDP 0.4 dB	Formula: UE relative CDP accuracy + TT For 0 dB $\geq$ -10 dB CDP ± 1.7 dB For -10 dB $\geq$ -15 dB CDP ± 2.3 dB For -15 dB $\geq$ -20 dB CDP ± 2.9 dB
5.2E UE Relative Code Domain Power Accuracy for HS-DPCCh and E- DCH with 16QAM	For 0 dB $\ge$ -10 dB CDP ±1.5 dB For -10 dB $\ge$ -15 dB CDP ± 2.0 dB For -15 dB $\ge$ -20 dB CDP ± 2.5 dB For -20 dB $\ge$ -30 dB CDP ± 3.0 dB	For 0 dB $\geq$ - 10 dB CDP [0.2 dB] For -10 dB $\geq$ -15 dB CDP [0.3 dB] For -15 dB $\geq$ -20 dB CDP [0.4 dB] For -20 dB $\geq$ -30 dB CDP [0.5 dB]	Formula: UE relative CDP accuracy + TT For 0 dB $\geq$ -10 dB CDP [± 1.7 dB] For -10 dB $\geq$ -15 dB CDP [± 2.3 dB] For -15 dB $\geq$ -20 dB CDP [± 2.9 dB] For -20 dB $\geq$ -30 dB CDP [± 3.5 dB]

Test	Minimum Requirement in TS	Test	Test Requirement in TS 34.121
	25.101	Tolerance (TT)	
5.2 EA UE relative code domain power accuracy for DC- HSUPA using HS- DPCCH and E-DCH with 16QAM	For 0 dB ≥ -10 dB CDP ±1.5 dB For -10 dB ≥ -15 dB CDP ± 2.0 dB For -15 dB ≥ -20 dB CDP ± 2.5 dB For -20 dB ≥ -30 dB CDP ± 3.0 dB	For 0 dB ≥ - 10 dB CDP [0.2 dB] For -10 dB ≥ -15 dB CDP [0.3 dB] For -15 dB ≥ -20 dB CDP [0.4 dB] For -20 dB ≥ -30 dB CDP [0.5 dB]	Formula: UE relative CDP accuracy + TT For 0 dB $\geq$ -10 dB CDP [± 1.7 dB] For -10 dB $\geq$ -15 dB CDP [± 2.3 dB] For -15 dB $\geq$ -20 dB CDP [± 2.9 dB] For -20 dB $\geq$ -30 dB CDP [± 3.5 dB]
5.3 Frequency Error	The UE modulated carrier frequency shall be accurate to within ±0.1 ppm compared to the carrier frequency received from the Node B.	10 Hz	Formula: modulated carrier frequency error + TT modulated carrier frequency error = $\pm (0.1 \text{ ppm} + 10 \text{ Hz}).$
5.3C Frequency error for UL CLTD Activation state 1	The UE modulated carrier frequency shall be accurate to within ±0.1 ppm compared to the carrier frequency received from the Node B.	10 Hz	Formula: modulated carrier frequency error + TT modulated carrier frequency error = $\pm(0.1 \text{ ppm} + 10 \text{ Hz}).$
5.3D Frequency error for UL CLTD Activation state 2 and 3	The UE modulated carrier frequency shall be accurate to within ±0.1 ppm compared to the carrier frequency received from the Node B.	10 Hz	Formula: modulated carrier frequency error + TT modulated carrier frequency error = $\pm(0.1 \text{ ppm} + 10 \text{ Hz}).$
5.4.1 Open loop power control in the uplink	Open loop power control tolerance ±9 dB (Normal) Open loop power control tolerance ±12 dB (Extreme)	1.0 dB	Formula: (Upper) Minimum Requirement + TT (Lower) Minimum Requirement – TT For Normal conditions: Upper Tolerance limit = +10 dB Lower Tolerance limit = -10 dB For Extreme conditions: Upper Tolerance limit = +13 dB Lower Tolerance limit = -13 dB
5.4.1A Open loop power control in the uplink for DC- HSUPA	Open loop power control toleranœ ±9 dB (Normal) Open loop power control toleranœ ±12 dB (Extreme)	1.0 dB	Formula: (Upper) Minimum Requirement + TT (Lower) Minimum Requirement – TT For Normal conditions: Upper Tolerance limit = +10 dB Lower Tolerance limit = -10 dB For Extreme conditions: Upper Tolerance limit = +13 dB Lower Tolerance limit = -13 dB
5.4.2 Inner loop power control in uplink	See table 5.4.2.1 and 5.4.2.2	0.1dB 0.15 dB 0.2 dB 0.3 dB	Formula: (Upper) Minimum Requirement + TT (Lower) Minimum Requirement – TT
5.4.2A Inner loop power control in uplink for DC- HSUPA	See table 5.4.2.1 and 5.4.2.2	0.1dB 0.15 dB 0.2 dB 0.3 dB	Formula: (Upper) Minimum Requirement + TT (Lower) Minimum Requirement – TT
5.4.3 Minimum Output Power	UE minimum transmit power shall be less than –50 dBm	1.0 dB	Formula: Minimum Requirement + TT
			UE minimum transmit power = -49 dBm

Test	Minimum Requirement in TS 25.101	Test Tolerance	Test Requirement in TS 34.121
		(TT)	
5.4.3A Minimum Output Power for DC-HSUPA	UE minimum transmit power shall be less than –50 dBm	1.0 dB	Formula: Minimum Requirement + TT UE minimum transmit power = -49
			dBm
5.4.4 Out-of- synchronisation handling of output power:	$\frac{DPCCH\_E_c}{I_{or}} \text{ levels}$ AB: -22 dB BD: -28 dB DE: -24 dB EF: -18 dB transmit ON/OFF time 200ms $\frac{DPDCH\_E_c}{I_{or}} = -16.6 \text{ dB}$ $\hat{I}_{or}/I_{oc} = -1 \text{ dB}$	0.4 dB for $\frac{DPCCH\_E_c}{I_{or}}$ 0 ms for timing measurement	Formulas: Minimum Requirement between A and B + TT Minimum Requirement between B and D - TT Minimum Requirement between D and E - TT Minimum Requirement between E and F + TT transmit ON/OFF time Minimum Requirement + TT timing $\frac{DPDCH_{-}E_{c}}{I_{or}} = -16.6 \text{ dB}$ $\hat{I}_{or}/I_{or} = -1 \text{ dB}$
			$\frac{DPCCH - E_c}{I_{or}}$ levels: $\frac{DPCCH - E_c}{I_{or}}$ levels: AB: -21.6 dB BD: -28.4 dB DE: -24.4 dB EF: -17.6 dB transmit ON/OFF time 200ms timing Uncertainty of OFF power measurement is handled by Transmit OFF power test and uncertainty of ON power measurement is handled by Minimum output power test.

Test	Minimum Requirement in TS	Test	Test Requirement in TS 34.121
	25.101	Tolerance (TT)	
5.4.4A Out-of-	$DPCCH \_ E_c$ levels	0.4 dB	Formulas:
synchronisation	I <sub>or</sub>	tor DPCCH F	Minimum Requirement between A and B + TT
power for a UE which supports type	AB: -25 dB BD: -31 dB	$\frac{DICCII_{c}}{I_{or}}$	Minimum Requirement between B and D – TT
1 for DCH:	DE: -27 dB EF: -21 dB	0 ms for	Minimum Requirement between D and
	transmit ON/OFF time	timing	Minimum Requirement between E and
	200113	measurement	F + TT transmit ON/OFF time Minimum
	$\underline{DPDCH\_E_c}$ = -19.6 dB		Requirement + TT timing
	I <sub>or</sub>		
	<i>I<sub>oc</sub></i> - 60 dBm		$\frac{DPDCH\_E_c}{I_{or}} = -19.6 \text{ dB}$
	$\hat{I}_{or}/I_{oc}$ = - 1 dB		
			<i>I<sub>oc</sub></i> - 60 dBm
			$\hat{I}_{or}/I_{oc}$ = -1 dB
			$\frac{DPCCH_E_c}{I}$ levels:
			AB: -24.6 dB
			BD: -31.4 dB
			EF: -20.6 dB
			transmit ON/OFF time
			200ms timing
			measurement is handled by Transmit
			OFF power test and uncertainty of ON
			Minimum output power test.
5.5.1 Transmit OFF	Transmit OFF power shall be	1.0 dB	Formula: Transmit OFF power
power (static case)	less than -56 dBm		Minimum Requirement + TT
		-	Transmit OFF power = -55dBm.
5.5.2 Transmit	Transmit ON power shall be the	On power	Formula for transmit ON power:
(dynamic case)	clause 5.5.2.2	0.7 dB	(Transmit ON power) + On power
	Transmit OFF power shall be	On power	upper TT
		1.0 dB	(Lower) Minimum Requirement
		Off power TT	(Transmit ON power) - On power lower
		= 1.0 dB	To coloulate Transmit ON power to reat
			value range take the nominal TX power
			range from Table 5.5.2.3 then apply
			table 5.4.1.1 open limits then apply table 5.7.1 (only if there has been a
			transmission gap) then cap the upper value using table 5.2.1.
			Formula for transmit OFF power:
			Transmit OFF power Minimum Requirement + Off power TT
			Transmit OFF power = -55 dBm

Test	Minimum Requirement in TS 25.101	Test Tolerance	Test Requirement in TS 34.121
5.6 Change of TFC: power control step size	TFC step size = 7dB (Up or     0.3 dB       Down)     Toleranœ=±2dB		For the nominal -7dB step: (Upper) Minimum Requirement + TT = -4.7 dB (Lower) Minimum Requirement - TT = -9.3 dB For the nominal +7dB step: (Upper) Minimum Requirement + TT =
5.7 Powersetting in	See tables 5.7.2 and 5.7.3	Subset of	(Lower) Minimum Requirement - TT = +4.7 dB Formula: (Upper) Minimum
uplink compressed mode		5.4.2	Requirement + TT (Lower) Minimum Requirement – TT
5.7A HS-DPCCH	See table 5.7A.1 and 5.7A.2	0.1 dB 0.15 dB 0.2 dB 0.3 dB	Formula: (Upper) Minimum Requirement + TT (Lower) Minimum Requirement – TT
5.8 Occupied Bandwidth	The occupied channel bandwidth shall be less than 5 MHz based on a chip rate of 3.84 Mcps.	0 kHz	Formula: occupied channel bandwidth Minimum Requirement + TT occupied channel bandwidth = 5.0 MHz
5.8A Occupied Bandwidth for DC- HSUPA	The occupied channel bandwidth shall be less than 10 MHz based on a chip rate of 3.84 Mcps.	0 kHz	Formula: occupied channel bandwidth Minimum Requirement + TT occupied channel bandwidth = 10.0 MHz
5.9 Spectrum emission mask	Minimum requirement defined in TS25.101 Table 6.10. The lower limit shall be -50 dBm / 3.84 MHz or which ever is higher. This is expressed as the equivalent power in the measurement band-width used at each offset.	1.5 dB	Formula: Minimum requirement + TT Lower limit Minimum Requirement + TT Add 1.5 to Minimum requirement entries in TS25.101 Table 6.10. Zero test tolerance is applied for Additional requirements for Band II, Band IV Band V and Band X due to FCC regulatory requirements. The lower limit shall be -48.5 dBm / 3.84 MHz or which ever is higher.
5.9A Spectrum emission mask with HS-DPCCH	Minimum requirement defined in TS25.101 Table 6.10. The lower limit shall be -50 dBm / 3.84 MHz or which ever is higher.	1.5 dB	Formula: Minimum requirement + TT Lower limit Minimum Requirement + TT Add 1.5 to Minimum requirement entries in TS25.101 Table 6.10. Zero test tolerance is applied for Additional requirements for Band II, Band IV, Band V and Band X due to FCC regulatory requirements. The lower limit shall be -48.5 dBm / 3.84 MHz or which ever is higher.
5.9B Spectrum emission mask with E-DCH	Minimum requirement defined in TS25.101 Table 6.10. The lower limit shall be -50 dBm / 3.84 MHz or which ever is higher.	1.5 dB	Formula: Lower limit Minimum Requirement + TT Add 1.5 to Minimum requirement entries in TS25.101 Table 6.10. Zero test tolerance is applied for Additional requirements for Band II, Band IV, Band V and Band X due to FCC regulatory requirements. The lower limit shall be –48.5 dBm / 3.84 MHz or which ever is higher.

Test	Minimum Requirement in TS 25.101	Test Tolerance	Test Requirement in TS 34.121
5.9C Additional Spectrum Emission Mask for DC- HSUPA (QPSK)	Minimum requirement defined in TS25.101 Table 6.10D	1.5 dB	Formula: Lower limit Minimum Requirement + TT Add 1.5 to Minimum requirement entries in TS25.101 Table 6.10D. Zero test tolerance is applied for Additional requirements for Band II, IV, V, X and XXV due to FCC regulatory
5.9D Additional Spectrum Emission Mask for DC- HSUPA (16QAM)	Minimum requirement defined in TS25.101 Table 6.10D	1.5 dB	Fequirements.         Formula: Lower limit Minimum         Requirement + TT         Add 1.5 to Minimum requirement         entries in TS25.101 Table 6.10D.         Zero test tolerance is applied for         Additional requirements for Band II, IV,         V, X and XXV due to FCC regulatory         requirements.
5.10 Adjacent Channel Leakage Power Ratio (ACLR)	If the adjacent channel power is greater than –50 dBm then the ACLR shall be higher than the values specified below.	0.0 dB	Formula: Absolute power threshold + TT
	Power Classes 3 and 4: UE channel +5 MHz or -5 MHz, ACLR limit: 33 dB UE channel +10 MHz or -10 MHz, ACLR limit: 43 dB	0.8 dB	Formula: ACLR Minimum Requirement - TT Power Classes 3 and 4: UE channel +5 MHz or -5 MHz, ACLR limit = 32.2 dB UE channel +10 MHz or -10 MHz, ACLR limit = 42.2 dB
5.10A Adjacent Channel Leakage Power Ratio (ACLR) with HS-	If the adjacent channel power is greater than –50 dBm then the ACLR shall be higher than the values specified below.	0.0 dB	Formula: Absolute power threshold + TT
DPCCH	Power Classes 3 and 4: UE channel +5 MHz or -5 MHz, ACLR limit: 33 dB UE channel +10 MHz or - 10MHz, ACLR limit: 43 dB	0.8 dB	Formula: ACLR Minimum Requirement – TT Power Classes 3 and 4: UE channel +5 MHz or -5 MHz, ACLR Limit : 32.2 dB UE channel +10 MHz or -10 MHz, ACLR Limit: 42.2 dB
5.10B Adjacent Channel Leakage Power Ratio (ACLR) with E-DCH	If the adjacent channel power is greater than –50 dBm then the ACLR shall be higher than the values specified below.	0.0 dB	Formula: Absolute power threshold Minimum Requirement + TT
	Power Classes 3 and 4: UE channel +5 MHz or -5 MHz, ACLR limit: 33 dB UE channel +10 MHz or - 10MHz, ACLR limit: 43 dB	0.8 dB	Formula: ACLR Minimum Requirement– TT Power Classes 3 and 4: UE channel +5 MHz or -5 MHz, ACLR Limit: 32.2 dB UE channel +10 MHz or -10 MHz, ACLR Limit:42.2 dB
5.10C ACLR with E- DCH for DC- HSUPA (QPSK)	If the adjacent channel power is greater than –50 dBm then the ACLR shall be higher than the values specified below.	0.0 dB	Formula: Absolute power threshold Minimum Requirement + TT
	Power Classes 3 and 4: UE channel +7.5 MHz or -7.5 MHz: ACLR limit: 33 dB UE channel +12.5 MHz or -12.5 MHz, ACLR limit: 36 dB	0.8 dB	Formula: ACLR Minimum Requirement– TT Power Classes 3 and 4: UE channel +7.5 MHz or -7.5 MHz, ACLR Limit: 32.2 dB UE channel +12.5 MHz or -12.5 MHz, ACLR Limit: 35.2 dB

Test	Minimum Require 25.101	ment in TS	Test Tolerance (TT)	Test Requirement in TS 34.121	
5.10D ACLR with E- DCH for DC- HSUPA (16QAM)	If the adjacent chan greater than –50 dB ACLR shall be highe values specified below	nel power is m then the er than the ow	0.0 dB	Formula: Absolute powe Minimum Requirement +	r threshold TT
	Power Classes 3 and 4: UE channel +7.5 MHz or -7.5 MHz: ACLR limit: 33 dB UE channel +12.5 MHz or -12.5 MHz, ACLR limit: 36 dB		0.8 dB	Formula: ACLR Minimum Requirement– TT Power Classes 3 and 4: UE channel +7.5 MHz or -7.5 MHz, ACLR Limit: 32.2 dB UE channel +12.5 MHz or -12.5 MHz, ACL B Limit: 35.2 dB	
5.11 Spurious Emissions				Formula: Minimum Requ Add zero to all the values Requirements in table 5. 5.11.1b.	irement+ TT s of Minimum 11.1a and
	Frequency Band	Minimum Requirem ent		Frequency Band	Ninimum Requirement
	9 kHz ≤ f < 150 kHz	−36dBm /1kHz	0 dB	9kHz≤f<1GHz	−36dBm /1kHz
	150 kHz≤f< 30 MHz	–36dBm ∕10kHz	0 dB	150 kHz ≤ f < 30 MHz	−36dBm /10kHz
	30 MHz ≤ f < 1000 MHz	–36dBm /100kHz	0 dB	30 MHz ≤ f < 1000 MHz	–36dBm /100kHz
	1 GHz ≤ f < 12.75 GHz	−30dBm /1MHz	0 dB	1 GHz ≤ f < 2.2 GHz	–30dBm ∕1MHz
			0 dB	2.2 GHz ≤ f < 4 GHz	−30dBm /1MHz
			0 dB	4 GHz ≤ f < 12.75 GHz	−30dBm /1MHz
	1893.5 MHz < f < 1915.7 MHz	-41dBm /300kHz	0 dB	1893.5 MHz < f < 1915.7 MHz	-41dBm /300kHz
	925 MHz ≤ f ≤ 935 MHz	–67dBm /100kHz	0 dB	925 MHz ≤ f ≤ 935 MHz	–67dBm /100kHz
	935 MHz < f ≤ 960 MHz	–79dBm /100kHz	0 dB	935 MHz < f ≤ 960 MHz	–79dBm /100kHz
	1805 MHz ≤ f ≤ 1880 MHz	–71dBm /100kHz	0 dB	$1805 \text{ MHz} \le f \le 1880 \\ \text{MHz}$	_71dBm ∕100kHz
5.11A Spurious Emissions for DC- HSUPA 5.12 Transmit Intermodulation	Intermodulation Product 5MHz -31 dBc 10MHz -41 dBc CW Interferer level = -40 dBc		0 dB	Formula: CW interferer M Requirement– TT/2 Intermod Products limits unchanged.	∕linimum remain dBc
5.12A Transmit Intermodulation for DC-HSUPA	Intermodulation Product 10MHz -31 dBc 20MHz -41 dBc CW Interferer level = -40 dBc		0 dB	Formula: CW interferer N Requirement– TT/2 Intermod Products limits unchanged. CW interferer level = -40	dinimum remain dBc
5.13.1 Transmit modulation: EVM	The measured EVM exceed 17.5%	shall not	0%	Formula: EVM Minimum Requirement + TT EVM limit = 17.5 %	
5.13.1A Transmit modulation: EVM with HS-DPCCH	The measured EVM exceed 17.5%	shall not	0%	Formula: EVM Minimum + TT EVM limit = 17.5 %	Requirement
modulation: EVM	exceed 17.5%	snail not	0%	+ TT EVM limit = 17.5 %	Requirement

Test	Minimum Requirement in TS	Test	Test Requirement in TS 34.121	
	25.101	Tolerance		
		(TT)		
	Phase discontinuity:	[6] degree	Formula: Phase discontinuity + 11	
5.13.1AAA EVM	The Relative Carrier Leakage	±0.5 dB	Formula: Relative Carrier Leakage	
and IQ origin offset	Powershall not exceed -17 dB	(for IQ origin	Power + II Deleting Corrier Leeke se Dewer	
TOT HS-DPCCH WITH		onset)	Relative Carrier Leakage Power	
E-DCH with 16			= -16.5 dB	
QAM 5 12 2 Transmit	The measured Deek and	1040	Formula: Dook oo do dom oin Minimum	
5.15.2 Hanshill modulation: pook	domain arrar a holl not avoad	1.0 UD	Portificial. Feak code dontain Minimum	
ando domain arrar			Requirement + 11 Book codo domain arrar – 14 dB	
5 12 24 Polotivo	The measured PCDE shall not	0.5.dP	Fear code domain end = $-14 \text{ ub}$	
Codo Domain Error	avecad table 5.12.20.1	0.5 0.5	Formula. DE RODE requirement + 11	
5 12 2P Polotivo	The measured BCDE a hall not		Earmula: LIE BODE requirement + TT	
Codo Domain Error	avecoed table 5 12 2B 1	0.5 UB	Formula. DE RODE requirement + TT	
	exceed lable 5.15.2D.1			
and E-DCH				
5 13 2B Relative	The measured RCDE shall not	0.5.dB	Formula: LIE RCDE requirement + TT	
Code Domain Error	exceed table 5 13 2BA 1	0.5 0.5	ronnua. De NODe requiement + 11	
with HS-DPCCH				
and F-DCH for DC-				
HSUPA				
5.13.2C Relative	The measured RCDE shall not	0.5 dB	Formula: UE RCDE requirement + TT	
Code Domain Error	exceed tables 5.13.2C.1.and		'	
for HS-DPCCH and	5.13.2C.2			
E-DCH with 16QAM				
5.13.3 UE phase	EVM: The measured EVM shall	0%	Formula: EVM Minimum Requirement	
discontinuity	not exceed 17.5%		+ TT	
			EVM limit = 17.5 %	
	Frequency error:	10 Hz	Formula: modulated carrier frequency	
	The UE modulated carrier		error + TT	
	frequency shall be accurate to			
	within +/-0.1 ppm compared to		modulated carrier frequency error = +/-	
	the carrier frequency received		(0.1 ppm + 10 Hz).	
	from the Node B.			
	Phase discontinuity:	6 degree	Formula: Phase discontinuity + 11	
5.13.4 PRACH	Ine measured EVIVIShall not	0%	Formula: EVIVI Minimum Requirement	
preamble quality	exceed 17.5%.			
	The LIE medulated corrier	10 11-7	E V W W W = 17.5%	
	frequency shall be accurate to		error Minimum Requirement LT	
(Frequency error)	within $\pm /-0.1$ ppm compared to			
(i requeitcy error)	the carrier frequency received		modulated carrier frequency error - 1/	
	from the Node R		(0.1  ppm + 10  Hz)	
5 13 5 In-band	The measured in-band emission	0.8 dB	Formula: in-band emission minimum	
emission for DC-	shall not exceed table 5.13.5.1		requirement + TT	
HSUPA				

## F.4.2 Receiver

Test	Minimum Requirement in TS	Test	Test Requirement in TS 34.121
	25.101	Tolerance (TT)	
6.2 Reference	lor = -106.7 dBm / 3.84 MHz	0.7 dB	Formula: Ïor Minimum Requirement + TT
sensitivity le vel	DPCH_Ec = -117 dBm / 3.84		DPCH_Ec + TT
	MHz		BER limit unchanged
	BER limit = $0.001$		
			Or = -106  dBm / 3.84  MHz
6 2A Reference	lor = -102.7  dBm / 3.84  MHz	0.7.dB	Formula:
sensitivity level for DC-	$HS-PDSCH_Ec = -113 \text{ dBm}/$	0.7 02	Îor: Minimum Requirement + TT
HSDPA	3.84 MHz		HS-PDSCH_Ec Minimum Requirement
	BLER limit = 0.1		+TT DL ED live it we show as d
			BLER limit unchanged
			lor = -102 dBm / 3.84 MHz
			HS-PDSCH_Ec = -112.3 dBm / 3.84
			MHz
6.2B Reference	lor = -102.7  dBm / 3.84  MHz	0.7 dB	Formula:
	$HS-PDSCH_EC = -113 \text{ dBm} /$		HS-PDSCH Ec Minimum Requirement
	BLFR limit = 0.1		
			BLER limit unchanged
			lor = -102 dBm / 3.84 MHz
			HS-PDSCH_Ec = -112.3 dBm / 3.84
	_		MHz
6.2C Reference	lor = -102.7 dBm / 3.84 MHz	0.7 dB	Formula:
Sensitivity Level for	$HS-PDSCH_Ec = -113 \text{ dBm}/$		Ior: Minimum Requirement + 11
HSDPA	3.04  IVIFIZ		
	DEEK MINT = 0.1		BLER limit unchanged
			Ior = -102 dBm / 3.84 MHz
			$MH_{7}$
6.2D Reference	lor = -102.7 dBm / 3.84 MHz	0.7 dB	Formula:
Sensitivity Level for	HS-PDSCH_Ec = -113 dBm /		Îor: Minimum Requirement + TT
Dual band 4C-HSDPA	3.84 MHz		HS-PDSCH_Ec Minimum Requirement
	BLER IIMIT = 0.1		HI FR limit unchanged
			lor = -102 dBm / 3.84 MHz
			HS-PDSCH_Ec = -112.3 dBm / 3.84 MH <i>z</i>
6.2DA Reference	lor = -102.7 dBm / 3.84 MHz	0.7 dB	Formula:
Sensitivity Level for	HS-PDSCH_Ec = -113 dBm /		Îor: Minimum Requirement + TT
Dual band 4C-HSDPA	3.84 MHz		HS-PDSCH_Ec Minimum Requirement
(5 camer)	BLER IIIIII = 0.1		BLER limit unchanged
			lor = -102 dBm / 3.84 MHz
			HS-PDSCH_Ec = -112.3 dBm / 3.84
6.3 Maximum input	-25 dBm lor	0.7 dB	Formula: lor Minimum Requirement -TT
level	-19 dBc DPCH_Ec/lor		lor = $-25.7$ dBm
6.3A Maximum Input	-25 dBm lor	0.7 dB	Formula: Minimum Requirement -TT
Recention (1604M)			IOF = -25.7 GBM
6.3B Maximum Input	-25 dBm lor	0.7 dB	Formula: Minimum Requirement -TT
Level for HS-PDSCH			lor = -25.7 dBm
Reception (64QAM)			

Table F.4.2: Derivation of Test Requirements (Receiver tests)

Test	Minimum Requirement in TS 25.101	Test Tolerance	Test Requirement in TS 34.121
6.3C Maximum Input Level for DC-HSDPA	-25 dBm lor	(TT) 0.7 dB	Formula: Minimum Requirement -TT lor = -25.7 dBm
Reception (16QAM) 6.3D Maximum Input	-25 dBm lor	0.7 dB	Formula: Minimum Requirement -TT
Level for DC-HSDPA Reception (64QAM)			lor = -25.7 dBm
6.3E Maximum Input Level for DB-DC- HSDPA Reception (16QAM)	-25 dBm lor	0.7 dB	Formula: Minimum Requirement -TT lor = -25.7 dBm
6.3F Maximum Input Level for DB-DC- HSDPA Reception (64QAM)	-25 dBm lor	0.7 dB	Formula: Minimum Requirement -TT lor = -25.7 dBm
6.3G Maximum Input Level for 4C-HSDPA Reception (16QAM)	-25 dBm lor	0.7 dB	Formula: Minimum Requirement -TT lor = -25.7 dBm
6.3GA Maximum Input Level for 4C-HSDPA Reception (16QAM) (3 carrier)	-25 dBm lor	0.7 dB	Formula: Minimum Requirement -TT lor = -25.7 dBm
6.3H Maximum Input Level for 4C-HSDPA Reception (64QAM)	-25 dBm lor	0.7 dB	Formula: Minimum Requirement -TT lor = -25.7 dBm
6.3HA Maximum Input Level for 4C-HSDPA Reception (64QAM) (3 carrier)	-25 dBm lor	0.7 dB	Formula: Minimum Requirement -TT lor = -25.7 dBm
6.4 Adjacent Channel Selectivity (Rel-99 and Rel-4)	ior = -92.7 dBm / 3.84 MHz DPCH_Ec = -103 dBm / 3.84 MHz loac (modulated) = -52 dBm/3.84 MHz BER limit = 0.001	0 dB	Formula: Ior unchanged DPCH_Ec unchanged Ioac Minimum Requirement – TT BER limit unchanged
6.4A Adjacent Channel Selectivity (Rel-5 and later releases)	Case 1: $\hat{lor} = \langle REF\hat{l}_{or} \rangle + 14 \text{ dB} / 3.84$ MHz DPCH_Ec = $\langle REFSENS \rangle + 14$ dB / 3.84  MHz loac (modulated) = -52 dBm/3.84  MHz BER limit = 0.001 Case 2: $\hat{lor} = \langle REF\hat{l}_{or} \rangle + 41 \text{ dB} / 3.84$ MHz DPCH_Ec = $\langle REFSENS \rangle + 41$ dB / 3.84  MHz loac (modulated) = -25 dBm/3.84  MHz	0 dB	Ioac = -52 dBm/3.84 MHz Formula: lor unchanged DPCH_Ec unchanged Ioac Minimum Requirement – TT BER limit unchanged Case1: Ioac = -52 dBm/3.84 MHz Case2: Ioac = -25 dBm/3.84 MHz

Test	Minimum Requirement in TS 25.101	Test Tolerance	Test Requirement in TS 34.121
6.4B Adjacent channel selectivity (ACS) for DC-HSDPA	Case 1: $\hat{lor} = \langle REF\hat{l}_{or} \rangle + 14 \text{ dB} / 3.84$ MHz HS-PDSCH_Ec = $\langle REFSENS \rangle$ + 14  dB / 3.84  MHz loac (modulated) = -52 dBm/3.84 MHz BLER limit = 0.1 Case 2: $\hat{lor} = \langle REF\hat{l}_{or} \rangle + 41 \text{ dB} / 3.84$ MHz HS-PDSCH_Ec = $\langle REFSENS \rangle$ + 41  dB / 3.84  MHz loac (modulated) = -25 dBm/3.84 MHz BLER limit = 0.1	(TT) 0 dB	Formula: lor unchanged DPCH_Ec unchanged loac Minimum Requirement – TT BLER limit unchanged Case1: loac = -52 dBm/3.84 MHz Case2: loac = -25 dBm/3.84 MHz
6.5 Blocking Characteristics	See Table 6.5.1, 6.5.2 and 6.5.3. in TS34.121 BER limit = 0.001	0 dB	Formula: I blocking (modulated) Minimum Requirement - TT (dBm/3.84MHz) I blocking (CW) Minimum Requirement - TT (dBm) BER limit unchanged
6.5A Blocking characteristics for DC- HSDPA	See Table 6.5A.1, 6.5A.2 and 6.5A.3 in TS34.121 BLER limit = 0.1	0 dB	Formula: I blocking (modulated) Minimum Requirement - TT (dBm/3.84MHz) I blocking (CW) Minimum Requirement - TT (dBm) BLER limit unchanged
6.5B Blocking characteristics for DB- DC-HSDPA	See Table 6.5B.1, 6.5B.2 and 6.5B.3 in TS34.121 BLER limit = 0.1	0 dB	Formula: I blocking (modulated) Minimum Requirement - TT (dBm/3.84MHz) I blocking (CW) Minimum Requirement - TT (dBm) BLER limit unchanged
6.5C Blocking characteristics for DC- HSUPA	See Table 6.5C.1 and 6.5C.3 in TS34.121 BLER limit = 0.1	0 dB	Formula: I blocking (modulated) Minimum Requirement - TT (dBm/3.84MHz) I blocking (CW) Minimum Requirement - TT (dBm) BLER limit unchanged
6.5D Blocking Characteristics for single Uplink Single band 4C-HSDPA	See Table 6.5D.1, 6.5D.2 and 6.5D.3 in TS34.121 BLER limit = 0.1	0 dB	Formula: I blocking (modulated) Minimum Requirement - TT (dBm/3.84MHz) I blocking (CW) Minimum Requirement - TT (dBm) BLER limit unchanged
6.5E Blocking Characteristics for dual Uplink Single band 4C- HSDPA	See Table 6.5E.1 and 6.5E.3 in TS34.121 BLER limit = 0.1	0 dB	Formula: I <sub>blocking</sub> (modulated) Minimum Requirement - TT (dBm/3.84MHz) I <sub>blocking</sub> (CW) Minimum Requirement - TT (dBm) BLER limit unchanged
6.5F Blocking Characteristics for single Uplink Dual band 4C-HSDPA	See Table 6.5F.1, 6.5F.2 and 6.5F.3 in TS34.121 BLER limit = 0.1	0 dB	Formula: I blocking (modulated) Minimum Requirement - TT (dBm/3.84MHz) I blocking (CW) Minimum Requirement - TT (dBm) BLER limit unchanged
6.5FA Blocking Characteristics for single Uplink Dual band 4C-HSDPA (3 carrier)	See Table 6.5F.1, 6.5F.2 and 6.5F.3 in TS34.121 BLER limit = 0.1	0 dB	Formula: I blocking (modulated) Minimum Requirement - TT (dBm/3.84MHz) I blocking (CW) Minimum Requirement - TT (dBm) BLER limit unchanged

Test	Minimum Requirement in TS 25.101	Test Tolerance (TT)	Test Requirement in TS 34.121
6.5G Blocking Characteristics for dual Uplink Dual band 4C- HSDPA	See Table 6.5G.1 and 6.5G.3 in TS34.121 BLER limit = 0.1	0 dB	Formula: I blocking (modulated) Minimum Requirement - TT (dBm/3.84MHz) I blocking (CW) Minimum Requirement - TT (dBm) BLER limit unchanged
6.5GA Blocking Characteristics for dual Uplink Dual band 4C- HSDPA (3 carrier)	See Table 6.5G.1 and 6.5G.3 in TS34.121 BLER limit = 0.1	0 dB	Formula: I blocking (modulated) Minimum Requirement - TT (dBm/3.84MHz) I blocking (CW) Minimum Requirement - TT (dBm) BLER limit unchanged
6.6 Spurious Response	Iblocking(CW) –44 dBm Fuw: Spurious response frequencies BER limit = 0.001	0 dB	Formula: I blocking (CW) Minimum Requirement - TT (dBm) Fuw unchanged BER limit unchanged Iblocking(CW) = -44 dBm
6.6A Spurious Response for DC- HSDPA	Iblocking(CW) –44 dBm Fuw: Spurious response frequencies BLER limit = 0.1	0 dB	Formula: I blocking (CW) Minimum Requirement - TT (dBm) Fuw unchanged BLER limit unchanged
6.6B Spurious Response for DB-DC- HSDPA	Iblocking(CW) –44 dBm Fuw: Spurious response frequencies BLER limit = 0.1	0 dB	Formula: I blocking (CW) Minimum Requirement - TT (dBm) Fuw unchanged BLER limit unchanged
6.6C Spurious Response for single band 4C-HSDPA	Iblocking(CW) –44 dBm Fuw: Spurious response frequencies BLER limit = 0.1	0 dB	Formula: I blocking (CW) Minimum Requirement - TT (dBm) Fuw unchanged BLER limit unchanged Iblocking (CW) = -44 dBm
6.6D Spurious Response for dual band 4C-HSDPA	Iblocking(CW) –44 dBm Fuw: Spurious response frequencies BLER limit = 0.1	0 dB	Formula: I <sub>blocking</sub> (CW) Minimum Requirement - TT (dBm) Fuw unchanged BLER limit unchanged I <sub>blocking</sub> (CW) = -44 dBm
6.6DA Spurious Response for dual band 4C-HSDPA (3 carrier)	Iblocking(CW) –44 dBm Fuw: Spurious response frequencies BLER limit = 0.1	0 dB	Formula: I blocking (CW) Minimum Requirement - TT (dBm) Fuw unchanged BLER limit unchanged Iblocking(CW) = -44 dBm
6.7 Intermodulation Characteristics	louw1 (CW) -46 dBm louw2 (modulated) -46 dBm / 3.84 MHz Fuw1 (offset) 10 MHz Fuw2 (offset) 20 MHz lor = -103.7 dBm/3.84 MHz DPCH_Ec = -114 dBm/3.84 MHz BER limit = 0.001	0 dB	Formula: Ior Minimum Requirement + TT DPCH_Ec + TT Iouw1 level unchanged Iouw2 level unchanged BER limit unchanged.

Test	Minimum Requirement in TS	Test	Test Requirement in TS 34.121
	25.101	Tolerance (TT)	
6.7A Intermodulation Characteristics for DC- HSDPA	louw1 (CW) -46 dBm louw2 (modulated) -46 dBm / 3.84 MHz Fuw1 (offset) 10 MHz Fuw2 (offset) 20 MHz lor = -99.7 dBm/3.84 MHz HS-PDSCH_Ec = -110 dBm/3.84 MHz BER limit = 0.1	0 dB	Formula: lor Minimum Requirement + TT HS-PDSCH_Ec + TT louw1 level unchanged louw2 level unchanged BLER limit unchanged.
6.7B Intermodulation Characteristics for DB- DC-HSDPA	louw1 (CW) -46 dBm louw2 (modulated) -46 dBm / 3.84 MHz Fuw1 (offset) 10 MHz Fuw2 (offset) 20 MHz lor = -99.7 dBm/3.84 MHz HS-PDSCH_Ec = -110 dBm/3.84 MHz BER limit = 0.1	0 dB	Formula: lor Minimum Requirement + TT HS-PDSCH_Ec + TT louw1 level unchanged louw2 level unchanged BLER limit unchanged.
6.7C Intermodulation Characteristics for DC- HSUPA	louw1 (CW) -46 dBm louw2 (modulated) -46 dBm / 3.84 MHz Fuw1 (offset) 10 MHz Fuw2 (offset) 20 MHz lor = -99.7 dBm/3.84 MHz HS-PDSCH_Ec = -110 dBm/3.84 MHz BER limit = 0.1	0 dB	Formula: lor Minimum Requirement + TT HS-PDSCH_Ec + TT louw1 level unchanged louw2 level unchanged BLER limit unchanged.
6.7D Intermodulation Characteristics for single uplink single band 4C-HSDPA	louw1 (CW) -46 dBm louw2 (modulated) -46 dBm / 3.84 MHz Fuw1 (offset) 10 MHz Fuw2 (offset) 20 MHz lor = -99.7 dBm/3.84 MHz HS-PDSCH_Ec = -110 dBm/3.84 MHz BER limit = 0.1	0 dB	Formula: lor Minimum Requirement + TT HS-PDSCH_Ec + TT louw1 level unchanged louw2 level unchanged BLER limit unchanged.
6.7E Intermodulation Characteristics for single uplink dual band 4C-HSDPA	louw1 (CW) -46 dBm louw2 (modulated) -46 dBm / 3.84 MHz Fuw1 (offset) 10 MHz Fuw2 (offset) 20 MHz lor = -99.7 dBm/3.84 MHz HS-PDSCH_Ec = -110 dBm/3.84 MHz BER limit = 0.1	0 dB	Formula: lor Minimum Requirement + TT HS-PDSCH_Ec + TT louw1 level unchanged louw2 level unchanged BLER limit unchanged.
6.7EA Intermodulation Characteristics for single uplink dual band 4C-HSDPA (3 carrier)	louw1 (CW) -46 dBm louw2 (modulated) -46 dBm / 3.84 MHz Fuw1 (offset) 10 MHz Fuw2 (offset) 20 MHz lor = -99.7 dBm/3.84 MHz HS-PDSCH_Ec = -110 dBm/3.84 MHz BER limit = 0.1	0 dB	Formula: lor Minimum Requirement + TT HS-PDSCH_Ec + TT louw1 level unchanged louw2 level unchanged BLER limit unchanged.

Test	Minimum Requirement in TS 25.101		Test Tolerance (TT)	Test Requirement in	TS 34.121
6.8 Spurious Emissions				Formula: Maximum level + Add zero to all the values of Level in table 6.8.1.	TT of Maximum
	Frequency Band	Maximum level		Frequency Band	Maximum level
	9kHz≤f<1GHz	-57dBm /100kHz	0 dB	9kHz≤f<1GHz	-57dBm /100kHz
	1GHz≤f≤ 12.75GHz	-47dBm /1MHz	0 dB	1GHz≤f≤2.2GHz	-47dBm /1MHz
			0 dB	$2.2GHz < f \le 4GHz$	-47dBm /1MHz
			0 dB	4GHz < f ≤ 12.75GHz	-47dBm /1MHz
	1920MHz≤f≤ 1980MHz	-60dBm /3.84MHz	0 dB	1920MHz≤f≤1980MHz	-60dBm /3.84MHz
	2110MHz≤f≤ 2170MHz	-60dBm /3.84MHz	0 dB	$2110MHz \le f \le 2170MHz$	-60dBm /3.84MHz

## F.4.3 Performance requirements

Test	Minimum Requirement in TS 25.101	Test Tolerance	Test Requirement in TS 34.121
7.2 Domodulation of		(TT)	Formulae
DPCH in static conditions	$\frac{DPCH\_E_c}{I_{or}}$ -5.5 to -16.6 dB	for $\frac{DPCH\_E_c}{I}$	$\frac{DPCH\_E_c}{I_{or}} = \text{Minimum Requirement} +$
	$I_{oc} = -60 \text{ dBm}$	0.3 dB for	$\hat{I}_{or}/I_{oc}$ = Minimum Requirement + TT
	$I_{or}/I_{oc} = -1 \text{ dB}$	$\hat{I}_{or}/I_{oc}$	I <sub>oc</sub> unchanged
			$\hat{I}_{or}/I_{oc}$ = -0.7 dB
			$\frac{DPCH_{-}E_{c}}{I_{or}}$ = -5.4 to -16.5 dB:
7.3 Demodulation of DPCH in multi-path fading propagation conditions Tests 1-4	$\frac{DPCH\_E_c}{I_{or}}$ -2.2 to -15.0	0.1 dB for $\underline{DPCH}_E_c$	Formulas: $\frac{DPCH_{-}E_{c}}{I_{or}} = \text{Minimum Requirement} + $
	$I_{oc} = -60 \text{ dBm}$	I <sub>or</sub> 0.6 dB for	$\frac{\text{TT}}{\hat{I}_{or}}/I_{oc} = \text{Minimum Requirement} + \text{TT}$
	$I_{or}/I_{oc} = 9$ db to -3 db	$\hat{I}_{or}/I_{oc}$	I <sub>oc</sub> unchanged
			$\hat{I}_{or}/I_{oc}$ = 9.6 to -2.4 dB
			$\frac{DPCH_{-}E_{c}}{I_{or}}$ = -2.1 to -14.9 dB:
7.3 Demodulation of DPCH in multi-path fading propagation conditions Tests 5-8	$\frac{DPCH\_E_c}{I_{or}}$ -3.2 to -7.7 dB	0.1 dB for $\frac{DPCH\_E_c}{I}$	Formulas: $\frac{DPCH\_E_c}{I_{or}} = \text{Minimum Requirement} + $
	$I_{oc} = -60 \text{ dBm}$	0.6 dB for	$\hat{I}_{or}/I_{oc}$ = Minimum Requirement + TT
	$I_{or}/I_{oc} = 0$ db 10 -3 db	$\hat{I}_{or}/I_{oc}$	I <sub>oc</sub> unchanged
			$\hat{I}_{or}/I_{oc}$ = 6.6 to -2.4 dB
			$\frac{DPCH_{-}E_{c}}{I_{or}}$ = -3.1 to -7.6 dB:
7.3 Demodulation of DPCH in multi-path fading propagation conditions Tests 9-12	$\frac{DPCH\_E_c}{I_{or}} -4.4 \text{ to } -11.8 \text{ dB}$	0.1 dB for $\frac{DPCH\_E_c}{I_{or}}$	Formulas: $\frac{DPCH \_ E_c}{I_{or}} = Minimum Requirement + III$
	$\hat{I}_{oc} = 6 \text{ dB to } -3 \text{ dB}$	0.6 dB for	$\hat{I}_{or}/I_{oc}$ = Minimum Requirement + TT
		$I_{or}/I_{oc}$	I <sub>oc</sub> unchanged
			$\hat{I}_{or}/I_{oc} = 6.6 \text{ to } -2.4 \text{ dB}$
			$\frac{DPCH_{-}E_{c}}{I_{or}}$ =-4.3 to -11.7 dB:

#### Table F.4.3: Derivation of Test Requirements (Performance tests)

Test	Minimum Requirement in TS	Test	Test Requirement in TS 34.121
	25.101	Tolerance (TT)	
7.3 Demodulation of DPCH in multi-path	$\underline{DPCH\_E_c}$ -2.2 to -15.0 dB	0.1 dB for	Formulas:
fading propagation	I <sub>or</sub>	$DPCH \_E_c$	$\frac{DFCH_{L_c}}{I_{c}} = \text{Minimum Requirement} +$
conditions lests 13-16	I <sub>oc</sub> = -60 dBm	I <sub>or</sub>	$\Pi$
		0.6 dB for	$\hat{I}_{or}/I_{oc}$ = Minimum Requirement + TT
	$I_{or}/I_{oc} = 9$ UD	$\hat{I}_{or}/I_{oc}$	I <sub>oc</sub> unchanged
			$\hat{I}_{or}/I_{oc} = 9.6$
			$\frac{DPCH_{-}E_{c}}{I_{or}}$ = -2.1 to -14.9 dB:
7.3 Demodulation of DPCH in multi-path	$\frac{DPCH_{-}E_{c}}{L}$ -1.4 to -8.8 dB	0.1 dB for	Formulas: DPCH E - Minimum Requirement
fading propagation	I <sub>or</sub>	$\underline{DPCH}_{E_c}$	$\frac{I}{I_{or}} = 10000000000000000000000000000000000$
	$I_{oc}$ = -60 dBm	I <sub>or</sub>	TT
	$\hat{I}$ /I = 6 to -3 dB	0.6 dB for	$I_{or}/I_{oc}$ = Minimum Requirement + 11
	or I - oc	$I_{or}/I_{oc}$	I <sub>oc</sub> unchanged
			$\hat{I}_{or}/I_{oc}$ = 6.6 to -2.4 dB
			$\frac{DPCH_{-}E_{c}}{I_{or}}$ = -1.3 to -8.7 dB:
7.4 Demodulation of DPCH in moving	$\frac{DPCH_{-}E_{c}}{L}$ -10.9 to -14.5	0.1 dB for	Formulas:
propagation conditions	I <sub>or</sub>	$DPCH_E_c$	$\frac{DICH_{-}L_{c}}{I_{or}} = \text{Minimum Requirement} +$
	<i>I<sub>oc</sub></i> = - 60 dBm	I <sub>or</sub>	
	$\hat{I}$ /I = -1 dB	0.6 dB for	$I_{or}/I_{oc}$ = Minimum Requirement + 11
	$I_{or}/I_{oc}$ – 1 UD	$I_{or}/I_{oc}$	I <sub>oc</sub> unchanged
			$\hat{I}_{or}/I_{oc}$ = -0.4 dB
			$\frac{DPCH_{-}E_{c}}{E_{c}}$ = -10.8 to -14.4 dB:
7.5 Demodulation of	DPCH E ozto 10 c dp	0.1 dB	Formulas:
DPCH birth-death	$\frac{D I O I - D_c}{I_{or}}$ -8.7 10 -12.6 dB	for	$\underline{DPCH}_{-}\underline{E_{c}}$ = Minimum Requirement +
propagation conditions	I – 60 dPm	$\frac{DPCH\_E_c}{I_m}$	
	$I_{oc} = -60 \text{ dBm}$	0.6 dB for	$\hat{I}_{or}/I_{oc}$ = Minimum Requirement + TT
	$I_{or}/I_{oc}$ = -1 dB	$\hat{I}_{or}/I_{oc}$	I <sub>oc</sub> unchanged
			$\hat{I}_{or}/I_{oc}$ = -0.4 dB
			$\frac{DPCH_{-}E_{c}}{I_{cr}}$ =-18.6 to -12.5 dB:

Test	Minimum Requirement in TS	Test	Test Requirement in TS 34.121
	25.101	Tolerance (TT)	
7.5A Demodulation of	$\underline{DPCH}_{E_c}$ -21.8 dB	0.1 dB for	Formulas:
train conditions	I <sub>or</sub>	$DPCH \_E_c$	$\frac{DPCH_{-E_c}}{I} = \text{Minimum Requirement +}$
	<i>I<sub>oc</sub></i> = - 60 dBm	I <sub>or</sub>	Π
	<u>^ /</u>	0.6 dB for	$\hat{I}_{or}/I_{oc}$ = Minimum Requirement + TT
	$I_{or}/I_{oc} = 5 \text{ dB}$	$\hat{I}_{or}/I_{oc}$	I <sub>oc</sub> unchanged
			$\hat{I}_{or}/I_{oc}$ = 5.6 dB
			$\frac{DPCH\_E_c}{I_{or}} = -21.7 \text{ dB}:$
7.6.1 Demodulation of DPCH in transmit	$\underline{DPCH}_{-}\underline{E_{c}}$ -16.8 dB	0.1 dB for	Formulas:
diversity propagation	I <sub>or</sub>	$DPCH\_E_c$	$\frac{DICH_{-L_{c}}}{I_{or}} = \text{Minimum Requirement} +$
conditions	<i>I<sub>oc</sub></i> = - 60 dBm	I <sub>or</sub>	$\Pi$
	î /r odb	0.8 dB for	$I_{or}/I_{oc}$ = Minimum Requirement + TT
	$I_{or}/I_{oc} = 9 \text{ dB}$	$\hat{I}_{or}/I_{oc}$	I <sub>oc</sub> unchanged
			$\hat{I}_{or}/I_{oc} = 9.8 \text{ dB}$
			$\frac{DPCH_{-}E_{c}}{I_{or}}$ = -16.7 dB:
7.6.2 Demodulation of DCH in closed loop	$\frac{DPCH_{-}E_{c}}{2}$ -18 to -18.3 dB	0.1 dB for	Formulas:
Transmit diversity	I <sub>or</sub>	$DPCH_E_c$	$\frac{DTCH_{-L_{c}}}{I_{or}} = Minimum Requirement +$
mode	<i>I<sub>oc</sub></i> = - 60 dBm	I <sub>or</sub>	Π
	î /r ode	0.8 dB for	$I_{or}/I_{oc}$ = Minimum Requirement + TT
	$I_{or}/I_{oc} = 9$ UD	$\hat{I}_{or}/I_{oc}$	I <sub>oc</sub> unchanged
			$\hat{I}_{or}/I_{oc} = 9.8 \text{ dB}$
			$\frac{DPCH_{-}E_{c}}{I_{-}}$ = -17.9 to -18.2 dB:
7.6.3, Demodulation of	$\underline{DPCH}_{-}\underline{E_{c}}_{-}$ -5.0 to -10.5 dB	0.1 dB	Formulas:
diversity Transmission	I <sub>or</sub>	tor DPCH E.	$\frac{DPCH_{E_c}}{I}$ = Minimum Requirement +
power control mode	<i>L<sub>co</sub></i> = - 60 dBm	$I_{or}$	
	$\hat{x}$ / $x$ 0 to 0 dD	0.8 dB for	$\hat{I}_{or}/I_{oc}$ = Minimum Requirement + TT
	$I_{or}/I_{oc} = 0 \text{ to } -3 \text{ GB}$	$\hat{I}_{or}/I_{oc}$	I <sub>oc</sub> unchanged
			$\hat{I}_{or}/I_{oc}$ = 0.8 to -2.2 dB
			$\frac{DPCH_{-}E_{c}}{I_{or}}$ = -4.9 to -10.4 dB:

Test	Minimum Requirement in TS	Test	Test Requirement in TS 34.121
	25.101	(TT)	
7.7.1 Demodulation in	$DPCH E = E = t_0 + 1E + 2 dB$	0.1 dB	Formulas:
inter-cell soft Handover	$\frac{DT CH - D_c}{I}$ -5.5 to -15.2 dB	for	$DPCH_E_{a}$ – Minimum Requirement +
(Release 5 and earlier)	lor	$DPCH \_E_c$	
	$I = -60  \mathrm{dBm}$	Iar	
	$T_{oc} = 00$ dBm	07	$\hat{I}$ / $I$ – Minimum Paquiroment I TT
	$\hat{\mathbf{x}}$ / $\hat{\mathbf{x}}$ $\hat{\mathbf{x}}$ / $\hat{\mathbf{x}}$	0.6 dB for	$I_{or1}/I_{oc}$ = Minimum Requirement + 11
	$I_{or1}/I_{oc} = I_{or2}/I_{oc} = 6 \text{ to } 0$	$\hat{I}_{\perp}/I$	$\hat{I}_{aa2}/I_{aa}$ = Minimum Requirement + TT
	dB	and	0721 00
		$\hat{\boldsymbol{\tau}}$ / $\boldsymbol{\tau}$	<i>I</i> unchanged
		$I_{or2}/I_{oc}$	
			$\hat{I}$ / $I$ $\hat{I}$ / $I$ octoocal
			$I_{or1}/I_{oc} = I_{or2}/I_{oc} = 6.6 \text{ to } 0.6 \text{ dB}$
			$\frac{DPCH_{-}E_{c}}{L}$ =-5.4 to -15.4 dB:
77400		0.4.15	I <sub>or</sub>
7.7.1A Demodulation in inter-cell soft Handover	$\frac{DPCH_{-}E_{c}}{2}$ -5.8 to -15.2 dB	0.1 dB for	Formulas:
(Release 6 and later)	I <sub>or</sub>	DPCH E	$\frac{DPCH - E_c}{I}$ = Minimum Requirement +
		$\frac{DICH_{c}}{I}$	
	$I_{oc} = -60 \text{ dBm}$	1 or	
		0.6 dB for	$I_{or1}/I_{oc}$ = Minimum Requirement + TT
	$I_{or1}/I_{oc} = I_{or2}/I_{oc} = 6$ to 0	$\hat{I}$ /I	$\hat{I}$ /I – Minimum Requirement + TT
	dB	nor1/noc	or2/1 oc - Winning Requirement + +
			I unchanged
		$I_{or2}/I_{oc}$	
			$\hat{\mathbf{x}}$ / $\mathbf{x}$ $\hat{\mathbf{x}}$ / $\mathbf{x}$
			$I_{or1}/I_{oc} = I_{or2}/I_{oc} = 6.6$ to 0.6 dB
			$\frac{DPCH_{E_c}}{E_c}$ = -5.7 to -15.1 dB:
7700 1:: (		0.4.15	I <sub>or</sub>
TPC commands Test 1	$\underline{DPCH}_{-}\underline{E_{c}}$ -12 dB	0.1 dB	Formulas:
n o commands rest i	I <sub>or</sub>	DPCH E	$\frac{DPCH_{-}L_{c}}{I}$ = Minimum Requirement +
	lor1 and lor2 60dPm	$\frac{DICII_c}{I}$	
	IOFT and IOF2 -600BIT	1 or	
		0dB for	
		lor1 and	$DPCH_{E_{c}} = -11.9 \text{ dB};$
		lor2	$I_{ar}$
			lor1 = -60 dBm
			lor2 = -60 dBm
			The absolute levels of lor1 and lor2 are
			not important to this test.

Test	Minimum Requirement in TS 25 101	Test Tolerance	Test Requirement in TS 34.121
	20.101	(TT)	
7.7.2 Combining of TPC commands Test 2	$\frac{DPCH\_E_c}{I_{or}} - 12 \text{ dB}$ $I_{oc} = -60 \text{ dBm}$ $\hat{I}_{or1} / I_{oc} = \hat{I}_{or2} / I_{oc} = 0 \text{ dB}$	0.1 dB for $\frac{DPCH_{-}E_{c}}{I_{or}}$ 0.6 dB for $\hat{I}_{or1}/I_{oc}$ and $\hat{I}_{or2}/I_{oc}$	Formulas: $\frac{DPCH\_E_c}{I_{or}} = \text{Minimum Requirement} + \frac{I}{I_{or}}$ TT $\hat{I}_{or1}/I_{oc} = \text{Minimum Requirement} + \text{TT}$ $\hat{I}_{or2}/I_{oc} = \text{Minimum Requirement} + \text{TT}$ $I_{oc} \text{ unchanged}$
			$I_{or1}/I_{oc} = I_{or2}/I_{oc} = 0.6 \text{ dB}$ $\frac{DPCH_E_c}{I_{or}} = -11.9 \text{ dB}:$
7.7.3 Combining of reliable TPC commands from radio links of different radio link sets	Test parameters: $\frac{DPCH\_E_{c1}}{I_{or1}} = \text{set at the level}$ corresponding to 5% TPC error rate. Test 1: $\frac{DPCH\_E_{c2}}{I_{or2}} = \frac{DPCH\_E_{c1}}{I_{or1}} - 10$ dB $\frac{DPCH\_E_{c3}}{I_{or3}} = \frac{DPCH\_E_{c1}}{I_{or1}} - 10$ dB Test 2: $\frac{DPCH\_E_{c2}}{I_{or2}} = \frac{DPCH\_E_{c1}}{I_{or1}} + 6$ dB Test requirements: Test 1: UE output power = -15 dBm ± 5 dB Test 2: UE output power = -15 dBm ± 3 dB	0 dB for all test parameters 0 dB for all test requiremen ts	Test parameters: $\frac{DPCH\_E_{c1}}{I_{or1}} = \text{Minimum Requirement} + \frac{1}{I_{or1}}$ TT $\frac{DPCH\_E_{c2}}{I_{or2}} = \text{Minimum Requirement} + \frac{1}{I_{or2}}$ TT $\frac{DPCH\_E_{c3}}{I_{or3}} = \text{Minimum Requirement} + \frac{1}{I_{or3}}$ TT Test requirements: Test 1: UE output power = -15 dBm ± (5 dB + TT) Test 2: UE output power = -15 dBm ± (3 dB + TT)

Test	Minimum Requirement in TS	Test	Test Requirement in TS 34.121
	25.101	Tolerance (TT)	
7.8.1 Power control in	$DPCH\_E_c$ -9 to -16 dB	0.1 dB	Formulas:
downlink constant	I	for	$\underline{DPCH}_{E_c}$ = Minimum Requirement +
5 and earlier)		$\frac{DFCH_{L_c}}{I}$	
	$I_{oc} = -60 \text{ dBm}$	1 or	$\hat{I}$ /I – Minimum Requirement + TT
	$\hat{I}$ /I = 9 to -1 dB	0.6 dB for	
	$\Gamma_{or}/\Gamma_{oc} = 0.00$	$I_{or}/I_{oc}$	I <sub>oc</sub> unchanged
		DPCH F	
		$\frac{DICH_{L_{c}}}{I_{or}}$	$\hat{I}_{or}/I_{oc}$ = 9.6 to -0.4 dB
		tolerances	DPCH F OOK AS O ID
		also apply	$\frac{DT CH_{-} L_{c}}{I}$ = -8.9 to -15.9 dB:
		cases	or
		using an	
		delayed DL	
		power	
		response	
7914 Dower control in		time.	Formulae
downlink constant	$\frac{DPCH\_E_c}{L}$ -9 to -16 dB	for	DPCH E Minimum Dequirement
BLER target (Release	I <sub>or</sub>	$DPCH \_E_c$	$\frac{DTOT = D_c}{I_{or}} = \text{Minimum Requirement} +$
6 and later)	$I_{ac} = -60 \text{ dBm}$	I	Π
		0.6 dB for	$\hat{I}_{or}/I_{oc}$ = Minimum Requirement + TT
	$\hat{I}_{or}/I_{oc}$ = 9 to -1 dB	$\hat{I}_{or}/I_{oc}$	L unchanged
			$\hat{I}_{or}/I_{oc}$ = 9.6 to -0.4 dB
			$\frac{DPCH_{-}E_{c}}{L}$ = -8.9 to -15.9 dB:
782 Power control in	DPCH E ALL LA A	0.6 dB	I <sub>or</sub> Formulas
downlink initial	$\frac{DPCH_{-}L_{c}}{I}$ -8.1 to -18.9 dB	for	
convergence (Release	or	$\underline{DPCH \_ E_c}$	DPCH_Ec/lor during T1 and T2:
	<i>I<sub>oc</sub></i> = - 60 dBm		Minimum Requirement –TT ≤
		ratio values	DPCH_Ec/lor $\leq$ Minimum Requirement +
	$I_{or}/I_{oc} = -1 \text{ dB}$	during T1	
			$\hat{I}_{or}/I_{oc}$ = unchanged
		Alternative	The second second
		$\frac{D(CH_{L_c})}{I_{c}}$	
		tolerance	
		of 0.8 dB	
		when using	
		an SS with	
		delayed DL power	
		control	
		response time.	

Test	Minimum Requirement in TS	Test	Test Requirement in TS 34.121
	25.101	(TT)	
7.8.3A, Power control	$DPCH_{-}E_{c}$ -13.3 dB	0.1 dB	Formulas:
effects (Release 6 and	$I_{or}$	TOF DPCH F	$\frac{DPCH_{-}E_{c}}{L_{-}}$ = Minimum Requirement +
later)		$\frac{DICII_{c}}{I}$	
	$I_{oc} = -80$ dBm	or	$\hat{I}_{}/I_{} = Minimum Requirement + TT$
	$\hat{I}_{\rm ex}/I_{\rm ex} = 5  \rm dB$	0.6 dB for	or i oc
		$I_{or}/I_{oc}$	$I_{oc}$ unchanged
			$\hat{i}$ / $i$ – 5.6 dB
			$I_{or}/I_{oc} = 5.0$ ub
			$\underline{DPCH}_{-}E_{c}$ = -13.2 dB:
		0.4 -10	I <sub>or</sub>
7.8.3, Power control in downlink: wind up	$\frac{DPCH\_E_c}{L}$ -13.3 dB	0.1 dB for	Pormulas:
effects	I <sub>or</sub>	$DPCH \_E_c$	$\frac{DICH_{-}L_{c}}{I_{ar}} = \text{Minimum Requirement} +$
	<i>I<sub>oc</sub></i> = - 60 dBm	I <sub>or</sub>	Π
		0.6 dB for	$\hat{I}_{or}/I_{oc}$ = Minimum Requirement + TT
	$I_{or}/I_{oc} = 5 \text{ dB}$	$\hat{I}_{or}/I_{oc}$	<i>L</i> . unchanged
		Alternative	
		$\frac{DPCH\_E_c}{I_{or}}$	$\hat{I}_{or}/I_{oc}$ = 5.6 dB
		tolerances	$DPCH_{-}E_{c} = -13.2 \text{ dB}$ :
		for test	I <sub>or</sub>
		cases	
		SS with	
		delayed DL	
		control	
		response	
7.8.4, Power control in	DPCH E AC to AD JD	time. 0.1 dB	Formulas:
the downlink, different	$\frac{I I O I I I I O I}{I_{or}} = 10 \text{ IO} = 10 \text{ GB}$	for	$\underline{DPCH}_{-}\underline{E_{c}}$ = Minimum Requirement +
transport formats	07	$\frac{DPCH\_E_c}{I}$	I
	<i>I<sub>oc</sub></i> = - 60 dBm	I <sub>or</sub>	
	$\hat{I}/I = 9  dB$	0.6 dB for	$I_{or}/I_{oc} = $ Withintum Requirement + 11
	$I_{or}/I_{oc} = 0.00$	$I_{or}/I_{oc}$ Alternative	I <sub>oc</sub> unchanged
		$\frac{DPCH\_E_c}{I_{or}}$	$\hat{I}_{or}/I_{oc}$ = 9.6 dB
		tolerances	$DPCH_E_{c} = -15.9 \text{ to } -17.9 \text{ dB}^{\circ}$
		also apply for test	$\frac{I_{or}}{I_{or}} = 10.0 \text{ to -11.0 \text{ to -1}}.$
		cases	
		using an SS with	
		delayed DL	
		power	
		response	
		time.	

Test	Minimum Requirement in TS	Test	Test Requirement in TS 34.121
	25.101	Tolerance (TT)	
7.8.5, Power control in	$F - DPCH - E_c$ -15.9 to -12 dB	0.1 dB	
DPCH	I <sub>or</sub>	F – DPCH E	
	$I_{oc} = -60 \text{ dBm}$	$\frac{I}{I_{or}}$	
	$I_{or}/I_{oc} = 9$ to -1 dB		
		0.6 dB for	
		$\hat{I}_{or}/I_{oc}$	
7.9.1 Downlink	$\underline{DPCH}_{E_c}$	0.1 dB	Formulas:
single link performance		$DPCH \_E_c$	$\frac{DPCH_{-}E_{c}}{I}$ = Minimum Requirement +
(Release 5 and earlier)	Test 3 -15.2 dB	I	
	<i>I<sub>oc</sub></i> = - 60 dBm	0.6 dB for	$\hat{I}_{or}/I_{oc}$ = Minimum Requirement + TT
	$\hat{I}_{or}/I_{oc} = 9 \text{ dB}$	$\hat{I}_{or}/I_{oc}$	I <sub>oc</sub> unchanged
			$\hat{I}_{or}/I_{oc}$ = 9.6 dB
			$DPCH_E_c =$
			Test 1 -14.5 dB Test 3 -15 1 dB
7.9.1A Downlink	$DPCH_E_c$	0.1 dB	Formulas:
compressed mode / single link performance	Ior	for	$\frac{DPCH_{E_c}}{E_c}$ = Minimum Requirement +
(Release 6 and later)	Test 1 -13.7 dB	$\frac{DICH_{L_c}}{I_{c}}$	
	$I_{OC} = -60$ dBiii	or	$\hat{I}_{or}/I_{oc}$ = Minimum Requirement + TT
	$\hat{I}_{ar}/I_{ac} = 9  \mathrm{dB}$	0.6 dB for	or roc .
		$I_{or}/I_{oc}$	$I_{oc}$ unchanged
			$\hat{I}_{or}/I_{oc}$ = 9.6 dB
			$\underline{DPCH}_{\underline{E_c}} =$
			I <sub>or</sub> Test 1 -13.6 dB
7.10 Blind transport	$DPCH_{E_{c}}$ -17.7 to -18.4 dB	0.1 dB	Formulas:
format detection Tests	I_or	tor	$\frac{DPCH_{-}E_{c}}{E_{c}}$ = Minimum Requirement +
, , -	$I = 60  \mathrm{dBm}$	$\frac{DICH_{L_c}}{I_{cr}}$	
		0.3 dB for	$\hat{I}_{or}/I_{oc}$ = Minimum Requirement + TT
	$I_{or}/I_{oc} = -1 \text{ dB}$	$\hat{I}_{or}/I_{oc}$	I <sub>oc</sub> unchanged
			$\hat{I}_{or}/I_{oc}$ = -0.7 dB
			$\frac{DPCH_{-}E_{c}}{I_{or}}$ =-17.6 to -18.3 dB:

Test	Minimum Requirement in TS	Test	Test Requirement in TS 34.121
	25.101	Tolerance (TT)	
7.10 Blind transport	DPCH = 12.0 to $12.9$ dD	0.1 dB	Formulas:
format detection Tests	$\frac{DI OII - D_c}{I}$ -13.0 to -13.8 dB	for	$DPCH_{-}E_{c} = Minimum Requirement +$
4, 5, 6	- or	$\underline{DPCH}_{E_c}$	
	I <sub>oc</sub> = - 60 dBm	I <sub>or</sub>	Π
		0.6 dB for	$\hat{I}_{or}/I_{oc}$ = Minimum Requirement + TT
	$\hat{I}_{or}/I_{oc} = -3 \text{ dB}$	$\hat{I}_{ax}/I_{aa}$	T unchenned
		011 00	T <sub>oc</sub> unchanged
			$\hat{I} / I = -2.4  dB$
			$DPCH_{-}E_{c} = -12.9 \text{ to } -13.7 \text{ dB}$ :
7.11 Demodulation of	Test 1:	Test 1:	loc, S-CCPCH_Ec/lor and PICH_Ec/lor
	$\hat{l}or/loc = -1 dB$	Îor/loc	are unchanged
	S-CCPCH_Ec/lor = -14.8 dB		Since PICH Power Offset has to be an
	PICH_EC/IOF = -19 dB Test 2:	Test 2 <sup>.</sup>	But TT of for/loc has been increased by
	loc=-60 dBm	0.7 dB for	0.1 dB from its normal value (0.3 dB / 0.6
	lor/loc = -3 dB	lor/loc	dB) due to test system uncertainty of
	$PICH_Ec/lor = -12 dB$		
			Formulas: $\hat{I}_{or}/I_{oc}$ = Minimum
	· · · · · · · · · · · · · · · · · · ·		Requirement + TT
7.12 Detection of	loc=-60 dBm lor/loc = -1 dB	0.4 dB for	loc and AICH_Ec/lor are unchanged.
(AI)	AICH_Ec/lor = -22.0 dB		Since AICH Power Offset has to be an
	S-CCPCH_Ec/lor = -12.0 dB		integer value TT for AICH_Ec/lor is zero.
			0.1 dB from its normal value (0.3 dB) due
			to test system uncertainty of
			No need to add test tolerance to S-
			CCPCH_Ec/lor since it is not critical
			parameter
			Formula: Îor/loc = Minimum Requirement
7.12A Detection of E-	loc=-60 dBm	0.4 dB for	loc, AICH_Ec/lor and E-AICH_Ec/lor are
DCH Acquisition	$\hat{I}$ or/loc = -1 dB	Îor/loc	unchanged.
	$E-AICH_Ec/lor = -22.0 dB$		Since AICH Power Offset has to be an
	S-CCPCH_Ec/lor = -12.0 dB		integer value TT for AICH_Ec/lor and E-
			has been increased by 0.1 dB from its
			normal value (0.3 dB) due to test system
			AICH Ec/lor
			No need to add test tolerance to S-
			CCPCH_Ec/lor since it is not critical parameter
			Formula: Îor/loc = Minimum Requirement
7.13 UE UL power	UE Output power difference:	[0.31 dB	+ II DL: No test tolerances applied:
control operation with	Lower: -2 dB		UL: Formula: (Upper) Minimum
discontinuous UL	Upper: 4 dB		Requirement + TT
operation			(Lower) Winimum Requirement – II

## F.4.4 Requirements for support of RRM

Test	Test Parameters in TS 25.133 [2]	Test Tolerance (TT)	Test Requirement in TS 34.121	
8.2 Idle Mode Tasks				
8.2.2 Cell Re-Selection				
8.2.2.1 Scenario 1: Single carrier case	Because the relationships between the Test system uncertainties and the Test Tolerances are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].			
	$\label{eq:product} \begin{array}{l} \hline \underline{During \ T1 \ and \ T2:} \\ \hline Cells \ 1 \ and \ 2: \\ \hline CPICH_Ec/lor = -10 \ dB \\ \hline PCCPCH_Ec/lor = -12 \ dB \\ \hline SCH_Ec/lor = -12 \ dB \\ \hline PICH_Ec/lor = -15 \ dB \\ \hline Cells \ 3, \ 4, \ 5, \ 6: \\ \hline CPICH_Ec/lor = -10 \ dB \\ \hline PCCPCH_Ec/lor = -12 \ dB \\ \hline SCH_Ec/lor = -12 \ dB \\ \hline PICH_Ec/lor = -12 \ dB \\ \hline PICH_Ec/lor = -15 \ dB \\ \hline lor(3, \ 4, \ 5, \ 6) = -69.73 \ dBm \end{array}$	During T1 and T2: +0.60 dB +0.60 dB +0.60 dB +0.60 dB -0.50 dB -0.50 dB -0.50 dB -0.50 dB +0.03 dB for lor(3, 4, 5, 6)	During T1 and T2:         Ec/lor Minimum Requirement +         TT         Lor(3, 4, 5, 6) Minimum	
	<u>During T1:</u> lor(1) = -62.73 dBm lor(2) = -59.73 dBm	During T1: -0.27 dB for lor(1) +0.13 dB for lor(2)	Requirement + 11         During T1:         lor(1) Minimum Requirement +         TT         lor(2) Minimum Requirement +	
	<u>During T2:</u> lor(1) = -59.73 dBm lor(2) = -62.73 dBm	During T2: +0.13 dB for lor(1) -0.27 dB for lor(2)	TT <u>During T2:</u> lor(1) Minimum Requirement + TT lor(2) Minimum Requirement + TT	
8.2.2.2 Scenario 2: Multi carrier case	Because the relationships betwee are complex, it is not possible to document. The analysis is recor	een the Testsystem unc give a simple derivatior ded in 3GPP TR 34 902	ertainties and the Test Toleranœs of the Test Requirement in this [24].	

Test	Test Parameters in TS 25.133 [2]	Test Tolerance (TT)	Test Requirement in TS 34.121
	Channel 1 during T1 and T2: Cell 1:	Channel 1 during T1 and T2:	Channel 1 during T1 and T2:
	CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB	+0.70 dB +0.70 dB +0.70 dB	Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement +
	Cells 3 and 4:	+0.70 dB	TT Ec/lor Minimum Requirement +
	CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB	-0.80 dB -0.80 dB -0.80 dB -0.80 dB	TT Ec/lor Minimum Requirement + TT
			Ec/lor Minimum Requirement + TT
			Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement +
			TT Ec/lor Minimum Requirement + TT
	Channel 1 during T1:	Channel 1 during T1: -0.01 dB for lor(1)	Channel 1 during T1:
	lor(1) = -73.39 dBm lor(3, 4) = -77.39 dBm loc(1) = -70.00 dBm	-0.01 dB for lor(3,4) 0.00 dB for loc(1)	lor(1) Minimum Requirement + TT lor(3, 4) Minimum Requirement
			+ TT oc(1) Minimum Requirement + TT
	Channel 1 during T2:	Channel 1 during T2:	Channel 1 during T2:
	lor(1) = -67.75 dBm lor(3, 4) = -74.75 dBm	-0.05 dB for lor(1) -1.80 dB for loc(1)	lor(1) Minimum Requirement + TT
	loc(1) = -70.00 dBm		lor(3, 4) Minimum Requirement + TT
			TT
	Channel 2 during T1 and T2:	Channel 2 during T1 and T2:	Channel 2 during T1 and T2:
	Cell 2: CPICH_Ec/lor = -10 dB		
	PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB	+0.70 dB +0.70 dB +0.70 dB	Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement +
	Cells 5 and 6:	+0.70 dB	TT Ec/lor Minimum Requirement +
	CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB	-0.80 dB -0.80 dB -0.80 dB	TT Ec/lor Minimum Requirement + TT
		-0.80 dB	Ec/lor Minimum Requirement +
			Ec/lor Minimum Requirement +
			Ec/lor Minimum Requirement + TT
			Ec/lor Minimum Requirement + TT

Tost	Test Parameters in	Test Tolerance	Test Pequirement in TS 3/ 121
Test	TS 25 133 [2]	(TT)	rest Requirement in 15 54.121
	Channel 2 during T1:	Channel 2 during T1:	Chappel 2 during T1:
	Channel 2 during 11.	$\frac{\text{Channel 2 during 11.}}{10.75 \text{ dP for lor(2)}}$	Channel 2 during 11.
	lor(2) 67.75 dDm	+0.75 dB for lor(2)	Minimum Dequirement $(ler(2))$
	lor(2) = -07.75 ubiti lor(5, 6) = 74.75 dBm	-0.05 dB for loc(3, 6)	$\tau_{\tau}$
	IOF(5, 6) = -74.75  dBff	-1.80 dB for loc(2)	
	IOC(2) = -70.00  dBm		
	Channel 2 during 12:	Channel 2 during 12:	Channel 2 during 12:
		-0.01 dB for lor(2)	
	lor(2) = -73.39  dBm	-0.01 dB for lor(5,6)	Ior(2) Minimum Requirement +
	lor(5, 6) = -77.39  dBm	0.00 dB for loc(2)	
	loc(2) = -70.00  dBm		lor(5, 6) Minimum Requirement
			IOC(2) Minimum Requirement +
			11
8.2.3 UTRAN to GSM			
Cell Re-Selection			
8.2.3.1 Scenario 1:	During T1:	During T1:	During T1:
Both UTRA and GSM	$CPICH \_E_c = -10 \text{ dB}$	0.1 dB for	Formulas:
level changed		$CPICH \_E_c$	
	or		$CPICH_{-}E_{c} = Minimum$
	lor/loc = 0 dB	0.3 dB for lor/loc	
			Bequirement + TT
	RXI EV90 dBm	1.0 dB for RXLEV	lor/loc – Minimum Requirement
		1.0 db loi RAEE V	
			+ 11
			RXI FV - TT
			lor/loc = 0.3 dB
			CPICH E
			$\frac{CHCH_{-L_{c}}}{2} = -9.9 \text{ dB}$ :
			I <sub>or</sub>
			Measured GSM Carrier RSSI $\pm$
			uncertainty of R XLEV setting
			shall be below –90 dBm
			(Threshold for GSM).
	During T2:	During T2:	During T2:
	$CPICH \_E_c = -10 \text{ dB}$	0.1 dB for	Formulas:
		CPICH $\_E_c$	
	or		$CPICH_{-}E_{c} = Minimum$
	lor/loc = -5 dB	$0.3 \mathrm{dB}$ for lor/loc	
			Pequirement - TT
	RXI EV75 dBm	1.0 dB for RXLEV	lor/loc – Minimum Requirement
		1.0 db for toxee v	
			RXI FV + TT
			lor/loc = -5.3 dB
			CPICH E 404 ID
			$\frac{1}{L} = -10.1 \text{ dB}$ :
			I <sub>or</sub>
			Measured GSM Carrier RSSI $\pm$
			uncertainty of RXLEV setting
			shall be above –75 dBm
			(Threshold for GSM).

Test	Test Parameters in	Test Tolerance	Test Requirement in TS 34.121
	TS 25.133 [2]	(TT)	
8.2.3.2 Scenario 2:	During T1:	During T1:	During T1:
OnlyUIRAlevel	$CPICH \_E_c = -10 \text{ dB}$	0.1 dB for	Formulas:
changed		<u>CPICH <math>E_c</math></u>	
	07		$\underline{CPICH}_{-}\underline{E_{c}}$ = Minimum
	lor/loc = 20 dB	0.3 dB for lor/loc	I <sub>or</sub>
			Requirement + TT
	RXLEV=-80 dBm	1.0 dB for RXLEV	lor/loc = Minimum Requirement
			+11
			RXLEV - TT
			lor/loc = 20.3 dB
			101/100 - 20.0 00
			$CPICH \_E_c \9.9 dB$
			For Measured GSM Carrier RSSL+
			uncertainty of $R XI F V$ setting
			shall be below -80 dBm
			(Threshold for GSM).
	During T2:	During T2:	During T2:
	$CPICH_E_c = -10 \text{ dB}$	0.1 dB for	Formulas:
		CPICH $\_E_c$	
	- or		$\underline{CPICH}_{\underline{E_c}} = Minimum$
	lor/loc = -9 dB	0.3 dB for lor/loc	
			Requirement - TT
	RXLEV=-80 dBm	1.0 dB for RXLEV	lor/loc = Minimum Requirement
			- 17
			RALEV + 11
			lor/loc = -9.3 dB
			$CPICH \_ E_c = -10.1 \text{ dB}:$
			Measured GSM Carrier RSSI ±
			uncertainty of R XLE V setting
			shall be above -80 dBm
			(Threshold for GSM).
8.2.3.3 Scenario 3:	$CPICH_E_c = -10 \text{ dB}$	0.1 dB for	Formulas:
HCS with only UTRA		$CPICH \_E_c$	
level changed	or	I	$\underline{CPICH}_{-}E_{c}$ = Minimum
	lor/loc = 40 dB	0.3 dB for lor/loc	I <sub>or</sub>
			Requirement + TT
		1.0 dB for RXLEV	lor/loc = Minimum Requirement
			+ TT
			RXI FV + TT
			lor/loc = 40.3 dB
			$\frac{CPICH - E_c}{E_c} = -9.9 \text{ dB}:$
			I <sub>or</sub>
Test	Test Parameters in TS 25 133 [2]	Test Tolerance (TT)	Test Requirement in TS 34.121
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	$CPICH  E_{a} = -10 \text{ dB}$	0.1 dB for	Formulas:
		CPICH $\_E_c$	
	or	I	$\underline{CPICH}_{E_c}$ = ratio - TT
	lor/loc = 10 dB	0.3 dB for lor/loc	I <sub>or</sub> lor/loc – ratio - TT
		1.0 dB for RXLEV	
			RALEV + I I
			lor/loc = 9.7 dB
			$\frac{CPICH\_E_c}{I_{or}} = -10.1 \text{ dB}:$
8.2.4 FDD/TDD cell re-	TBD		
8.2.5 UTRA to E-UTRA			
Cell Re-Selection			
8.2.5.1 E-UTRA is of	UTRA cell during T1:	UTRA cell during T1:	UTRA cell during T1:
nigner priority	I <sub>cc</sub> : -70.00dBm/3.84MHZ		I <sub>oc</sub> : -70.00dBm/3.84MHz
	$I_{0r} / I_{0c} + 13.000B$	+0.000B	$I_{0r} / I_{0c} + 13.000B$
		UUD	
	E-UTRA cell during T1:	<u>E-UTRA cell during</u> <u>T1:</u>	E-UTRA cell during T1:
	N <sub>oc</sub> : -98.00dBm/15kHz	-1.10dB	N <sub>oc</sub> : -99.10dBm/15kHz
	Ês / N∞: -infinity dB	0dB	Ês / N∞: -infinity dB
	UTRA cell during T2:	UTRA cell during T2:	UTRA cell during T2:
	l₀c: -70.00dBm/3.84MHz	0dB	l <sub>oc</sub> : -70.00dBm/3.84MHz
	I <sub>or</sub> / I <sub>oc</sub> : +13.00dB	+0.80dB	l <sub>or</sub> / l <sub>oc</sub> : +13.80dB
	CPICH_E <sub>c</sub> /I <sub>or</sub> : -10.00dB	0dB	CPICH_E <sub>c</sub> /I <sub>or</sub> : -10.00dB
	E-UTRA cell during T2:	E-UTRA cell during	E-UTRA cell during T2:
	N∞: -98.00dBm/15kHz	-1.10dB	N <sub>cc</sub> : -99.10dBm/15kHz
	Ês / N <sub>oc</sub> : +12.00dB	+1.90dB	Ês / N <sub>oc</sub> : +13.90dB
	UTRA cell during T3:	UTRA cell during T3:	UTRA cell during T3:
	l <sub>oc</sub> : -70.00dBm/3.84MHz	0dB	l <sub>oc</sub> : -70.00dBm/3.84MHz
	I <sub>or</sub> / I <sub>oc</sub> : +13.00dB	+0.80dB	I <sub>or</sub> / I <sub>oc</sub> : +13.80dB
	CPICH_E <sub>c</sub> /I <sub>or</sub> : -10.00dB	0dB	CPICH_E <sub>c</sub> /I <sub>or</sub> : -10.00dB
	E-UTRA cell during T3:	<u>E-UTRA cell during</u> <u>T3:</u>	E-UTRA cell during T3:
	Ŋ₀c: -98.00dBm/15kHz	-1.10dB	N <sub>oc</sub> : -99.10dBm/15kHz
	Es / N <sub>oc</sub> : -4.00dB	+0.30dB	Es / N <sub>oc</sub> : -3.70dB
8.2.5.2 E-UTRA is of	UTRA cell during T1:	UTRA cell during T1:	UTRA cell during T1:
lower phority		-0.100B	I <sub>oc</sub> : -70.10dBm/3.84MHZ
		+0.900B	
		OUD	
	E-UTRA cell during T1:	<u>E-UTRA cell during</u> T1:	E-UTRA cell during T1:
	N <sub>cc</sub> : -98.00dBm/15kHz	0dB	N <sub>∞</sub> : -98.00dBm/15kHz
	ES / N <sub>oc</sub> : +14.00dB	+0.80aB	Es / N <sub>∞</sub> : +14.80dB
	UTRA cell during T2:	UTRA cell during T2:	UTRA cell during T2:
		-0.100B	I <sub>0C</sub> 7 U. I UUDIII/3.84IVIHZ
		OdB	
	E-UTRA cell during T2:	E-UTRA cell during	E-UTRA cell during T2:
	N <sub>w</sub> : -98 00dBm/15kHz	0dB	N <sub>m</sub> : -98 00dBm/15kHz
	Ês / N₀c: +14.00dB	+0.80dB	Ês / N <sub>c</sub> : +14.80dB

TBD Because the relationships betwee are complex, it is not possible to	en the Test system unco	
Because the relationships betwee are complex, it is not possible to	en the Testsystem unc	
Because the relationships betwee are complex, it is not possible to	on the Test system unco	
are complex, it is not possible to give a simple derivation of the Test Requirement in document. The analysis is recorded in 3GPP TR 34 902 [24].		
During T0/T1 and	During T0/T1 and	During T0/T1 and
<u>T2/T3/T4/T5/T6:</u>	<u>T2/T3/T4/T5/T6:</u>	<u>T2/T3/T4/T5/T6:</u>
Cell 1: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB Relative delay of paths received from cell 2 with respect to cell 1 = $\{-148 \dots 148\}$ chips	+0.70 dB +0.70 dB +0.70 dB +0.70 dB 0.5 chips	Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement + TT {-148+TT 148-TT} chips
During T0/T1:	During T0/T1:	During T0/T1:
Already covered above	Covered above	Already covered above
During T2/T3/T4/T5/T6: Cell 2:	<u>During</u> <u>T2/T3/T4/T5/T6:</u>	During T2/T3/T4/T5/T6:
CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB	+0.70 dB +0.70 dB +0.70 dB +0.70 dB	Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement + TT
Because the relationships betwe are complex, it is not possible to document. The analysis is record	een the Testsystem unco give a simple derivation ded in 3GPP TR 34 902	ertainties and the Test Tolerances of the Test Requirement in this [24].
During T1 and T2 / T3:	During T1 / T2 / T3:	During T1 and T2 / T3:
Cell 1: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB	+0.70 dB +0.70 dB +0.70 dB +0.70 dB	Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement + TT
During T1:	During T1:	During T1:
Already covered above	Covered above	Already covered above
During T2 / T3:	During T2 / T3:	During T2 / T3:
Cell 2: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB	+0.70 dB +0.70 dB +0.70 dB +0.70 dB	Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement +
	document. The analysis is record During T0/T1 and T2/T3/T4/T5/T6: Cell 1: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB Relative delay of paths received from cell 2 with respect to cell 1 = {-148 148} chips During T0/T1: Already co vered above During T2/T3/T4/T5/T6: Cell 2: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB Because the relationships betwee are complex, it is not possible to document. The analysis is record During T1 and T2/T3: Cell 1: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -12 dB PCCPCH_Ec/lor = -12 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -12 dB PICH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB	document. The analysis is recorded in 3GPP TR 34 902During T0/T1 and T2/T3/T4/T5/T6:During T0/T1 and T2/T3/T4/T5/T6:Cell 1: CPICH_Ec/lor = -10 dB PICPCPCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB PICH_Ec/lor = -15 dB PICH_Ec/lor = -12 dB PICH_Ec/lor = -12 dB PICH_Ec/lor = -12 dB PICH_Ec/lor = -10 dB PICH_Ec/lor = -10 dB PICH_Ec/lor = -12 d

Test	Test Parameters in TS 25.133 [2]	Test Tolerance (TT)	Test Requirement in TS 34.121
8322 Handover to	Because the relationships betwee	en the Test system unce	ertainties and the Test Tolerances
inter-frequency cell	are complex, it is not possible to document. The analysis is record	give a simple derivation ded in 3GPP TR 34 902	of the Test Requirement in this [24].
	<u>Channel 1 during T1 and T2 /</u> <u>T3:</u>	Channel 1 during T1 and T2 / T3:	Channel 1 during T1 and T2 / T3:
	Cell 1: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB	+0.80 dB +0.80 dB +0.80 dB +0.80 dB	Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement +
	Channel 2 during T1:	Channel 2 during T1: Not applicable	Channel 2 during T1:
	Not applicable		Not applicable
	Channel 2 during T2 / T3:	Channel 2 during T2 / T3:	Channel 2 during T2 / T3:
	Cell 2: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB	+0.80 dB +0.80 dB +0.80 dB +0.80 dB	Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement + TT
8.3.3 FDD/TDD Handover	TBD		
8.3.4 Inter-system Handover form UTRAN FDD to GSM	During T2 and T3 RXLEV=-75 dBm	<u>During T2 and T3:</u> + 1 dB for RXLEV	During T2 and T3 Minimum Requirement + TT Only RXLEV during T2 and T3 is a critical parameter. UE measurement accuracy for GSM Carrier RSSI is ±4 dB in this test. During T2 and T3 : measured GSM Carrier RSSI ± uncertainty of RXLEV setting shall be above -80 dBm (Threshold for GSM). => TT=+1 dB for R XL EV

Test	Test Parameters in	Test Tolerance	Test Requirement in TS 34.121
8.3.4a Inter-system	UTRA cell during 11:	UTRA cell during 11:	
Handover from UTRAN	I <sub>oc</sub> : -70.00dBm/3.84IVIHZ	UdB	I <sub>0</sub> ;:-/0.00dBm/3.84WHZ
FDD to E-UTRAN FDD	Ior / Ioc: UdB	UdB	
	CPICH_E <sub>c</sub> /I <sub>or</sub> : -10.00dB	0dB	CPICH_E <sub>c</sub> /I <sub>or</sub> : -10.00dB
	E-UTRA cell during T1:	E-UTRA cell during	E-UTRA cell during T1:
	N <sub>m</sub> : -98.00dBm/15kHz	0dB	N <sub>m</sub> : -98.00dBm/15kHz
	Ês / N₀c: -infinity dB	0dB	Ês / N <sub>oc</sub> : -infinity dB
	UTRA cell during T2:	UTRA cell during T2:	UTRA cell during T2:
	loc: -70.00dBm/3.84MHz	0dB	l <sub>oc</sub> : -70.00dBm/3.84MHz
	lor / loc: 0dB	0dB	lor / loc: 0dB
	CPICH_E <sub>c</sub> /I <sub>or</sub> : -10.00dB	0dB	CPICH_E <sub>c</sub> /I <sub>or</sub> : -10.00dB
	E-UTRA cell during T2:	E-UTRA cell during	E-UTRA cell during T2:
		<u>12:</u>	
	N <sub>∞</sub> : -98.00dBm/15kHz	UdB	N <sub>cc</sub> : -98.00dBm/15kHz
	Es / N <sub>oc</sub> : +7.00dB	+0.80dB	Es / N <sub>oc</sub> : +7.80dB
	UTRA cell during T3:	UTRA cell during T3:	UTRA cell during T3:
	l <sub>oc</sub> : -70.00dBm/3.84MHz	0dB	l <sub>oc</sub> : -70.00dBm/3.84MHz
	I <sub>or</sub> / I <sub>oc</sub> : 0dB	0dB	I <sub>or</sub> / I <sub>oc</sub> : 0dB
	CPICH_E <sub>c</sub> /I <sub>or</sub> : -10.00dB	0dB	CPICH_E <sub>c</sub> /I <sub>or</sub> : -10.00dB
	E-UTRA cell during T3:	E-UTRA cell during	E-UTRA cell during T3:
	N <sub>m</sub> : -98 00dBm/15kHz	0dB	N <sub>~</sub> : -98 00dBm/15kHz
	$\hat{F}_{s}/N_{c}$ ; +7.00dB	+0.80dB	$\hat{F}_{s}/N_{cc}$ +7.80dB
8.3.4b Inter-system	Same as 8.3.4a	Same as 8.3.4a	Same as 8.3.4a
Handover from UTRAN			
FDD to E-UTRAN TDD			
8.3.4c Inter-system	UTRA cell during T1:	UTRA cell during T1:	UTRA cell during T1:
Handover from UTRAN	I <sub>oc</sub> : -70.00dBm/3.84MHz	0dB	l <sub>oc</sub> : -70.00dBm/3.84MHz
FDD to E-UTRAN	I <sub>or</sub> / I <sub>oc</sub> : 0dB	0dB	I <sub>or</sub> / I <sub>oc</sub> : 0dB
FDD: Unknown Target	CPICH_E <sub>c</sub> /I <sub>or</sub> : -10.00dB	0dB	CPICH_E <sub>c</sub> /l <sub>or</sub> : -10.00dB
Cell	E-UTRA cell during T1:	E-UTRA cell during	E-UTRA cell during T1:
	Ês / N <sub>oc</sub> : -infinity dB	0dB 0dB	$\hat{E}_{s} / N_{oc}$ : -infinity dB
	UTRA cell during T2:	UTRA cell during T2.	UTRA cell during T2:
	loc: -70.00dBm/3.84MHz	0dB	loc: -70.00dBm/3.84MHz
	lor / loc: 0dB	0dB	
	CPICH_E <sub>c</sub> /l <sub>or</sub> : -10.00dB	0dB	CPICH_E <sub>c</sub> /I <sub>or</sub> : -10.00dB
	E-UTRA cell during T2:	E-UTRA cell during	E-UTRA cell during T2:
		<u>12:</u>	
	N <sub>∞</sub> : -98.00dBm/15kHz	OdB	N <sub>oc</sub> : -98.00dBm/15kHz
	Es / N <sub>oc</sub> : 0dB	0dB	Es / N <sub>oc</sub> : 0dB
8.3.4d Inter-system	Same as 8.3.4c	Same as 8.3.4c	Same as 8.3.4c
FDD to E-LITRAN			
TDD: Unknown Target			
Cell			
8.3.5 Cell Re-selection			
IN CELL_FACH			
0.3.5.1 Une frequency	Because the relationships betwee	een the lest system und	entainties and the lest lolerances
present in the	are complex, it is not possible to	give a simple derivation	I OF THE LEST REQUIREMENT IN THIS
neignbouriist	document. The analysis is recorded in 3GPP TR 34 902 [24].		

Test	Test Parameters in TS 25.133 [2]	Test Tolerance (TT)	Test Requirement in TS 34.121
	During T1 and T2:	During T1 and T2:	During T1 and T2:
	Cells 1 and 2: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB S-CCPCH_Ec/lor = -12 dB Cells 3, 4, 5, 6: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB S-CCPCH_Ec/lor = -12 dB lor(3, 4, 5, 6) = -69.73 dBm	+0.60 dB +0.60 dB +0.60 dB +0.60 dB +0.60 dB -0.50 dB -0.50 dB -0.50 dB -0.50 dB -0.50 dB +0.03 dB for lor(3, 4, 5, 6)	Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement + TT
	<u>During 11:</u> lor(1) = -62.73 dBm lor(2) = -59.73 dBm	During 11: -0.27 dB for lor(1) +0.13 dB for lor(2)	During 11: Minimum Requirement (lor(1)) + TT Minimum Requirement (lor(2)) + TT
	During T2:	During T2:	During T2:
	lor(1) = -59.73 dBm lor(2) = -62.73 dBm	+0.13 dB for lor(1) -0.27 dB for lor(2)	lor(1) Minimum Requirement + TT or(2) Minimum Requirement + TT
8.3.5.2 Two	Because the relationships betwee	en the Testsystem unc	ertainties and the Test Tolerances
frequencies present in	are complex, it is not possible to	give a simple derivation	of the Test Requirement in this
the neighbour list	document. The analysis is recorded in 3GPP TR 34 902 [24].		

Test	Test Parameters in	Test Tolerance (TT)	Test Requirement in TS 34.121
	Channel 1 during T1 and T2:	Channel 1 during T1 and T2:	Channel 1 during T1 and T2:
	Cell 1: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB S-CCPCH_Ec/lor = -12 dB Cells 3 and 4: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB S-CCPCH_Ec/lor = -12 dB	+0.60 dB +0.60 dB +0.60 dB +0.60 dB +0.60 dB -0.70 dB -0.70 dB -0.70 dB -0.70 dB	Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement + TT
		-0.70 dB	Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement + TT
	<u>Channel 1 during T1:</u> lor(1) = -71.85 dBm lor(3, 4) = -76.85 dBm loc(1) = -70.00 dBm	<u>Channel 1 during T1:</u> +0.05 dB for lor(1) +0.05 dB for lor(3,4) 0.00 dB for loc(1)	Channel 1 during T1: Ior(1) Minimum Requirement + TT Ior(3, 4) Minimum Requirement + TT Ioc(1) Minimum Requirement + TT
	<u>Channel 1 during T2:</u> lor(1) = -67.75 dBm lor(3, 4) = -74.75 dBm loc(1) = -70.00 dBm	<u>Channel 1 during T2:</u> +0.75 dB for lor(1) -0.05 dB for lor(3, 4) -1.60 dB for loc(1)	Channel 1 during T2: lor(1) Minimum Requirement + TT lor(3, 4) Minimum Requirement + TT loc(1) Minimum Requirement + TT

Test	Test Parameters in TS 25.133 [2]	Test Tolerance (TT)	Test Requirement in TS 34.121
	Channel 2 during T1 and T2: Cell 2: CPICH Ec/lor = -10 dB	Channel 2 during T1 and T2:	Channel 2 during T1 and T2:
	PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB	+0.60 dB +0.60 dB +0.60 dB	Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement +
	S-CCPCH_Ec/lor = -12 dB Cells 5 and 6: CPICH_Ec/lor = -10 dB	+0.60 dB +0.60 dB	TT Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement +
	PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB S-CCPCH_Ec/lor = -12 dB	-0.70 dB -0.70 dB -0.70 dB -0.70 dB -0.70 dB	TT Ec/lor Minimum Requirement + TT
			Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement + TT
			Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement +
			TT Ec/lor Minimum Requirement + TT
	<u>Channel 2 during T1:</u> lor(2) = -67.75 dBm lor(5, 6) = -74.75 dBm	<u>Channel 2 during T1:</u> +0.75 dB for lor(2) -0.05 dB for lor(5, 6) -1.60 dB for loc(2)	Channel 2 during T1: lor(2) Minimum Requirement +
	loc(2) = -70.00 dBm		Ior(5, 6) Minimum Requirement + TT Ioc(2) Minimum Requirement + TT
	<u>Channel 2 during T2:</u> lor(2) = -71.85 dBm lor(5, 6) = -76.85 dBm	Channel 2 during T2: +0.05 dB for lor(2) +0.05 dB for lor(5,6) 0.00 dB for loc(2)	Channel 2 during T2: lor(2) Minimum Requirement +
	loc(2) = -70.00 dBm		Ior(5, 6) Minimum Requirement + TT Ioc(2) Minimum Requirement + TT
8.3.5.3 Cell Re- selection to GSM	$\frac{During T1:}{\frac{CPICH\_E_c}{I_{or}}} = -10 \text{ dB}$ lor/loc = 0 dB	$\frac{\text{During T1:}}{0.1 \text{ dB for}}$ $\frac{CPICH \_E_c}{I_{or}}$ 0.3 dB for lor/loc	$\frac{During T1:}{\frac{CPICH \_E_c}{I_{or}}} = Minimum$ Requirement + TT $lor/loc = Minimum Requirement$
	RXLEV=-90 dBm loc/RXLEV = 20	1.0 dB lof RALE V	RXLEV - TT
			lor/loc = 0.3 dB $\frac{CPICH \_E_c}{I_{or}} = -9.9 \text{ dB}:$
			Measured GSM Carrier RSSI ± uncertainty of R XLEV setting shall be below –90 dBm (Threshold for GSM).

Test	Test Parameters in TS 25.133 [2]	Test Tolerance (TT)	Test Requirement in TS 34.121
	$\frac{During T2:}{\frac{CPICH \_E_c}{I_{or}}} = -10 \text{ dB}$ $lor/loc = -5 \text{ dB}$ $RXLEV=-75 \text{ dBm}$ $loc/RXLEV = 5$	During T2: 0.1 dB for $CPICH \_E_c$ $I_{or}$ 0.3 dB for lor/loc 1.0 dB for RXLEV	$\frac{\text{During T2:}}{I_{or}} = \text{Minimum}$ Requirement - TT $\text{Ior/loc} = \text{Minimum Requirement}$ - TT $\text{RXLEV} + \text{TT}$ $\text{Ior/loc} = -5.3 \text{ dB}$ $\frac{CPICH - E_c}{I_{or}} = -10.1 \text{ dB:}$ $\text{Measured GSM Carrier RSSI} \pm \text{uncertainty of RXLEV setting}$ $\text{shall be above 75 dPm}$
			(Threshold for GSM).
8.3.5.4 Cell Reselection during an MBMS session, two	Because the relationships betwe are complex, it is not possible to document. The analysis is record	en the Testsystem unco give a simple derivation ded in 3GPP TR 34 902	ertainties and the Test Tolerances of the Test Requirement in this [24].
frequencies present in neighbour list	Channel 1 during 12 and 13: Cell 1: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB S-CCPCH_Ec/lor = -12 dB	<u>Channel 1 during 12</u> and T3: +1.00 dB +1.00 dB +1.00 dB +1.00 dB +1.00 dB	Channel 1 during 12 and 13: Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement + TT
	Channel 1 during T3:	Channel 1 during T3:	Channel 1 during T3:
	loc(1) = -70.00 dBm	-1.52 dB for loc(1)	loc(1) Minimum Requirement + TT
	Channel 2 during T1, T2 and T3:	<u>Channel 2 during T1,</u> <u>T2 and T3:</u>	Channel 2 during T1, T2 and T3:
	Cell 2: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB S-CCPCH1_Ec/lor = -12 dB S-CCPCH2_Ec/lor = -6 dB	+1.00 dB +1.00 dB +1.00 dB +1.00 dB +1.00 dB +1.00 dB	Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement + TT
	Channel 2 during T2:	Channel 2 during T2:	Channel 2 during T2:
	loc(2) = -70.00 dBm	-1.38 dB for loc(2)	loc(2) Minimum Requirement + TT

Test	Test Parameters in TS 25.133 [2]	Test Tolerance (TT)	Test Requirement in TS 34.121
8.3.6 Cell Re-selection in CELL_PCH			
8.3.6.1 One frequency present in the	Same as 8.2.2.1	Same as 8.2.2.1	Same as 8.2.2.1
neighbour list	$\frac{CPICH\_E_c}{I_{or}} = -10 \text{ dB}$ $I_{oc} = -70 \text{ dBm}$ $Ior/Ioc = 10.27 \text{ dB}$ Note: Parameters are valid for cell 1 at time T2 and cell 2 at time T1	0.1 dB for $\frac{CPICH\_E_c}{I_{or}}$ 0.3 dB for lor/loc	Formulas: $\frac{CPICH\_E_c}{I_{or}} = \text{Minimum}$ Requirement + TT lor/loc = Minimum Requirement + TT loc unchanged lor/loc = 10.57 dB $\frac{CPICH\_E_c}{I} = -9.9 \text{ dB}:$
8.3.6.2 Two frequencies present in the neighbour list	Same as 8.2.2.2	Same as 8.2.2.2	Same as 8.2.2.2
	$\frac{CPICH\_E_c}{I_{or}} = -10 \text{ dB}$ $I_{oc} = -70 \text{ dBm}$ lor/loc = 2.2 dB Note: Parameters are valid for cell 1 at time T2 and cell 2 at time T1	0.1 dB for $\frac{CPICH \_E_c}{I_{or}}$ 0.3 dB for lor/loc	Formulas: $\frac{CPICH \_E_c}{I_{or}} = \text{Minimum}$ Requirement + TT lor/loc = Minimum Requirement + TT loc unchanged loc ratio unchanged lor/loc = 2.5 dB $\frac{CPICH \_E_c}{I_{or}} = -9.9 \text{ dB}:$
8.3.6.3 Cell re-selection during an MBMS session, one UTRAN	Same way as 8.3.5.4 for Channel 1 and 2 during T1 and T2.	Same way as 8.3.5.4 for Channel 1 and 2 during T1 and T2.	Same way as 8.3.5.4 for Channel 1 and 2 during T1 and T2.
Inter-frequency and 2 GSM cells present in the neighbour list	Channel 1 during T2: Cell 1: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB S-CCPCH_Ec/lor = -12 dB	<u>Channel 1 during T2:</u> +1.00 dB +1.00 dB +1.00 dB +1.00 dB +1.00 dB	Channel 1 during T2: Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement + TT

Test	Test Parameters in TS 25.133 [2]	Test Tolerance (TT)	Test Requirement in TS 34.121
	Channel 2 during T1 and T2:	Channel 2 during T1	Channel 2 during T1 and T2:
	Cell 2: CPICH_Ec/lor = -10 dB	+1.00 dB	Ec/lor Minimum Requirement + TT
	PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB	+1.00 dB +1.00 dB	Ec/lor Minimum Requirement +
	$PICH_Ec/lor = -15 dB$	+1.00 dB	Ec/lor Minimum Requirement +
	S-CCPCH2_Ec/lor = $-6.8 \text{ dB}$	+1.00 dB	Ec/lor Minimum Requirement +
			Ec/lor Minimum Requirement +
			Ec/lor Minimum Requirement + TT
	Channel 2 during T2:	Channel 2 during T2:	Channel 2 during T2:
	loc(2) = -70.00 dBm	-1.50 dB for loc(2)	loc(2) Minimum Requirement + TT
	Channel 2 during T3:	Channel 2 during T3:	Channel 2 during T3:
	$\frac{CPICH\_E_c}{I} = -10 \text{ dB}$	-0.1 dB for <i>CPICH</i> _E <sub>c</sub>	$\frac{CPICH\_E_c}{I} = Minimum$
	or	I <sub>or</sub>	Requirement + TT
	lor/loc = -15 dB	-0.3 dB for lor/loc	lor/loc = Minimum Requirement + TT
	GSM During T2:	GSM During T2:	<u>GSM During T2:</u>
	RXLEV1=-85 dBm RXLEV2=-85 dBm	-1.0 dB for RXLEV1 -1.0 dB for RXLEV2	RXLEV + TT RXLEV + TT
			Measured GSM Carrier RSSI ± uncertainty of R XLEV setting shall be below –85 dBm (Threshold for GSM).
	GSM During T3:	GSM During T3:	GSM During T3:
	RXLEV2=-85 dBm	+1.0 dB for RXLEV2	RXLEV + TT
			Measured GSM Carrier RSSI $\pm$ uncertainty of R XLE V setting shall be above –85 dBm (Threshold for GSM).

Test	Test Parameters in	Test Tolerance (TT)	Test Requirement in TS 34.121
8.3.7 Cell Re-selection		()	
8.3.7.1 One frequency present in the neighbour list	Same as 8.2.2.1	Same as 8.2.2.1	Same as 8.2.2.1
8.3.7.2 Two frequencies present in the neighbour list	Same as 8.2.2.2	Same as 8.2.2.2	Same as 8.2.2.2
8.3.8 Serving HS- DSCH cell change	Because the relationships betwe are complex, it is not possible to document. The analysis is record	en the Testsystem unco give a simple derivation ded in 3GPP TR 34 902	ertainties and the Test Toleranœs of the Test Requirement in this [24].
	During T0/T1/T2/T3:	During T0/T1/T2/T3:	During T0/T1/T2/T3:
	Cell 1: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB HS-PDSCH_Ec/lor = -10 dB HS-SCCH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB PICH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB Relative delay of paths received from cell 2 with respect to cell 1 = {-148 148} chips	+0.70 dB +0.70 dB	Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement + TT
	During TO		{-148+TT 148-TT} chips
	Already covered above During T1/T2/T3	Covered above During T1/T2/T3	Already covered above During T1/T2/T3
	Cell 2: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB	+0.70 dB +0.70 dB +0.70 dB +0.70 dB	Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement + TT

Test	Test Parameters in	Test Tolerance	Test Requirement in TS 34.121
	TS 25.133 [2]	(TT)	-
	During T4:	During T4:	During T4:
	0-11.4		
		10 70 dP	Ec/lor Minimum Poquiromont
	PCCPCH = -10  dB	+0.70 dB	
	SCH $Ec/lor = -12 dB$	+0.70 dB	Ec/lor Minimum Requirement +
	PICH Ec/lor = $-15 \text{ dB}$	+0.70 dB	
			Ec/lor Minimum Requirement +
	Cell 2:		тт
	CPICH_Ec/lor = -10 dB	+0.70 dB	Ec/lor Minimum Requirement +
	PCCPCH_Ec/lor = -12 dB	+0.70 dB	П
	$SCH_Ec/lor = -12 dB$	+0.70 dB	
	$PICH_EC/IOI = -15 \text{ dB}$	+0.70 dB	Ec/lor Minimum Poquiromont
	$HS-PDSCH_EC/IOI = -10 dB$	+0.70 dB	
	113-30011_E0/101 = -13 dB	+0.70 dB	Ec/lor Minimum Requirement +
	Relative delay of paths		
	received from cell 2 with	0.5 chips	Ec/lor Minimum Requirement +
	respect to cell 1 = {-148		Π
	148} chips		Ec/lor Minimum Requirement +
			Ec/lor Minimum Poquiromont
			Ec/lor Minimum Requirement +
			ТТ
			{-148+TT 148-TT} chips
8.3.9 Enhanced	Because the relationships betwee	en the lest system unce	ertainties and the lest lolerances
change	document The analysis of TC 8	3 9 is not recorded in 30	SPP TR 34 902 [24] but it would
change	be very similar to TC 8.3.8 analy	sis, and therefore it is sa	afe to assume to apply the same
	principle in TC 8.3.9 tolerances	as in TC 8.3.8 tolerances	6.
	During T1/T2:	During T1/T2:	During T1/T2:
	Cell 1:		_ /
	$CPICH_Ec/lor = -10 dB$	+0.70 dB	Ec/lor Min Requirement + 11
	$PCCPCH_EC/IOI = -12 \text{ dB}$	+0.70 dB	Ec/lor Min Requirement + 11
	$SCH_EC/IOI = -12 \text{ dB}$	+0.70 dB	Ec/lor Min Requirement + TT
	HS-PDSCH Ec/lor = -10 dB	+0.70 dB	Ec/lor Min Requirement + TT
	HS-SCCH-1 Ec/lor = $-13 \text{ dB}$	+0.70 dB	Ec/lor Min Requirement + TT
	Cell 2:		
	CPICH_Ec/lor = -10 dB	+0.70 dB	Ec/lor Min Requirement + TT
	PCCPCH_Ec/lor = -12 dB	+0.70 dB	Ec/lor Min Requirement + TT
	$SCH_Ec/lor = -12 dB$	+0.70 dB	Ec/lor Min Requirement + TT
		+0.70 ub	
	Relative delay of paths		
	received from cell 2 with	0.5 chips	{-148+TT 148-TT} chips
	respect to cell $1 = \{-148 \dots$	p -	
	148} chips		

Test	Test Parameters in TS 25 133 [2]	Test Tolerance (TT)	Test Requirement in TS 34.121
	During T3:	During T3:	Durina T3:
	<u> </u>	<u> </u>	<u> </u>
	Cell 1:		
	CPICH_Ec/lor = -10 dB	+0.70 dB	Ec/lor Min Requirement + TT
	PCCPCH_Ec/lor = -12 dB	+0.70 dB	Ec/lor Min Requirement + $TT$
	$SCH_Ec/lor = -12 dB$	+0.70 dB	Ec/lor Min Requirement + 11
	$PICH_EC/IOT = -15 \text{ dB}$	+0.70 dB	Ec/lor Min Requirement + 11
	Cell 2: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB HS-SCCH-1_Ec/lor = -13 dB	+0.70 dB +0.70 dB +0.70 dB +0.70 dB +0.70 dB	Ec/lor Min Requirement + TT Ec/lor Min Requirement + TT Ec/lor Min Requirement + TT Ec/lor Min Requirement + TT Ec/lor Min Requirement + TT
	Relative delay of paths received from cell 2 with respect to cell 1 = {-148 148} chips	0.5 chips	{-148+TT 148-TT} chips
	During T4:	During T4:	During T4:
	CPICH Ec/lor = $-10 \text{ dB}$	+0 70 dB	Ec/lor Min Requirement + TT
	PCCPCH Ec/lor = $-12 \text{ dB}$	+0.70 dB	Ec/lor Min Requirement + TT
	SCH_Ec/lor = -12 dB	+0.70 dB	Ec/lor Min Requirement + TT
	PICH_Ec/lor = -15 dB	+0.70 dB	Ec/lor Min Requirement + TT
	Cell 2: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB HS-PDSCH_Ec/lor = -10 dB HS-SCCH-2_Ec/lor = -13 dB	+0.70 dB +0.70 dB +0.70 dB +0.70 dB +0.70 dB +0.70 dB	Ec/lor Min Requirement + TT Ec/lor Min Requirement + TT
	Relative delay of paths received from cell 2 with respect to cell 1 = {-148 148} chips	0.5 chips	{-148+TT 148-TT} chips
8.3.10 System			
for CSG cell			
8.3.10.1 Intrafrequency System information acquisition for CSG cell	Because the relationships betwee are complex, it is not possible to document. The analysis is record During T1/T2:	en the Testsystem unco give a simple derivation ded in 3GPP TR 34 902 During T1 / T2:	ertainties and the Test Tolerances of the Test Requirement in this [24]. During T1 / T2:
	Cell 1: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB	+0.70 dB +0.70 dB +0.70 dB +0.70 dB	Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement + TT Ec/lor Minimum Requirement + TT
	During T1:	During T1:	During T1:
	Already covered above	Covered above	Already covered above

Test	Test Parameters in	Test Tolerance	Test Requirement in TS 34.121
	During T2:	During T2:	During T2:
	During 12.	During 12.	During 12.
	Cell 2:		
	CPICH_Ec/lor = -10 dB	+0.70 dB	Ec/lor Minimum Requirement +
	PCCPCH_Ec/lor = -12 dB	+0.70 dB	Π
	SCH_Ec/lor = -12 dB	+0.70 dB	Ec/lor Minimum Requirement +
	PICH_Ec/lor = -15 dB_	+0.70 dB	Π
			Ec/lor Minimum Requirement +
			Ec/lor Minimum Requirement +
			Π
8.3.10.2 Inter	Because the relationships betwe	en the Testsystem unce	ertainties and the Test Tolerances
frequency System	are complex, it is not possible to	give a simple derivation	of the Test Requirement in this
information acquisition	document. The analysis is record	ded in 3GPP TR 34 902	[24].
for CSG cell	Channel 1 during T1 and T2 /	Channel 1 during T1	Channel 1 during T1 and T2 /
	T3:	and T2 / T3:	T3:
	Cell 1:		
	CPICH Ec/lor = -10 dB	+0.80 dB	Ec/lor Minimum Requirement +
	PCCPCH Ec/lor = $-12 \text{ dB}$	+0.80 dB	Π
	SCH Ec/lor = -12 dB	+0.80 dB	Ec/lor Minimum Requirement +
	$PICH_Ec/lor = -15 dB$	+0.80 dB	TT
		10.00 GB	Ec/lor Minimum Requirement +
			Ec/lor Minimum Requirement +
	Channel 2 during T1:	Channel 2 during T1:	Channel 2 during T1:
	Not applicable	Not applicable	Not applicable
	Channel 2 during T2 / T3:	Channel 2 during T2	Channel 2 during T2 / T3:
		/ T3:	
	Cell 2:		
	CPICH_Ec/lor = -10 dB	+0.80 dB	Ec/lor Minimum Requirement +
	PCCPCH_Ec/lor = -12 dB	+0.80 dB	Π
	SCH_Ec/lor = -12 dB	+0.80 dB	Ec/lor Minimum Requirement +
	PICH_Ec/lor = -15 dB	+0.80 dB	TT
			Ec/lor Minimum Requirement +
			Π
			Ec/lor Minimum Requirement +
			ТТ
0.4.1 KKU Ke-	עסו		
establishment delay			

Test	Test Parameters in TS 25.133 [2]	Test Tolerance (TT)	Test Requirement in TS 34.121
8.4.1.1 Test 1	Cell 1, T1: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB DCH_Ec/lor = -17 dB lor/loc = 2.39 dB	0.1 dB for $\frac{CPICH \_E_c}{I_{or}}$ 0.3 dB for lor/loc	Level settings in either direction are not critical with respect to the outcome of the test.
	Cell 1, T2: lor/loc = -infinity		
	Cell 2, T1: CPICH_Ec/lor = $-10 \text{ dB}$ PCCPCH_Ec/lor = $-12 \text{ dB}$ SCH_Ec/lor = $-12 \text{ dB}$ PICH_Ec/lor = $-15 \text{ dB}$ lor/loc = 4.39 dB		
	Cell 2, T2: CPICH_Ec/lor = $-10 \text{ dB}$ PCCPCH_Ec/lor = $-12 \text{ dB}$ SCH_Ec/lor = $-12 \text{ dB}$ PICH_Ec/lor = $-15 \text{ dB}$ lor/loc = $0.02 \text{ dB}$		
8.4.1.2 Test 2	Cell 1, T1: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB DCH_Ec/lor = -17 dB lor/loc = -3.35 dB	0.1 dB for $\frac{CPICH\_E_c}{I_{or}}$ 0.3 dB for lor/loc	Level settings in either direction are not critical with respect to the outcome of the test.
	Cell 1, T2: lor/loc = -infinity		
	Cell 2, T1: lor/loc = -infinity		
	Cell 2, T2: CPICH_Ec/lor = $-10 \text{ dB}$ PCCPCH_Ec/lor = $-12 \text{ dB}$ SCH_Ec/lor = $-12 \text{ dB}$ PICH_Ec/lor = $-15 \text{ dB}$ lor/loc = $0.02 \text{ dB}$		
8.4.2 Random Access	PRACH power difference nominal 3dB ± 2dB UE setting uncertainty	Measurement TT: Power difference ± 1dBMaximum Power-1dB / +0.7dB	Test parameter settings unchanged. Power measurement: Upper limit +TT Lower limit -TT
8.4.2.1A Correct behaviour when receiving an ACK (Release 6 and later)	PRACH timing error ±3.5 chips	0.5 chips	Formula: Upper limit + TT Lower limit – TT
8.4.2.4 Random Access correct	Maximum preamble power=0dBm±9dB (Normal)	1.0 dB	Formula: Upper limit + TT
benaviour when reaching maximum transmit power	Maximum preamble power=0dBm±12dB (Extreme)		Lower limit – TT For Normal conditions: Upper Toleranœ limit = +10 dB Lower Toleranœ limit = -10 dB
			For Extreme conditions: Upper Tolerance limit = +13 dB Lower Tolerance limit = -13 dB

Test	Test Parameters in	Test Tolerance	Test Requirement in TS 34.121
	15 25.133 [2]	(11)	
8.4.3 Transport format	DL Power control is ON so	0 dB for	No test requirements for
combination selection	DPCH_Ec/lor depends on	DPCH_Ec/lor	DPCH_Ec/lor
in UE	TPC commands sent by UE		
8.4.4 E-TFC restriction in UE			
8.4.4.1 10ms TTI E-	E3.47 -10 -31dB	0.1 dB	Formulas:
DCH E-TFC restriction	$\frac{-c}{1}$ -3.47, -10, -310B	for E	$E_{\rm c}$ – ratio + TT
	I <sub>or</sub>		$\frac{c}{r} = 1000 \pm 11$
		I <sub>or</sub>	I <sub>or</sub>
	A		<b>^</b>
	lor = -70 dBm		lor = Minimum Requirement +
		0.7 dB for lor	Π
8.4.4.2 2ms TTI E-DCH	$E_{c}$ -3.5 -10 -24.4dB	0.1 dB	Formulas:
E-TFC restriction	$\frac{1}{I}$ 0.0, 10, 21,10D	for $E_c$	$E_c$ – ratio + TT
	or		$\frac{1}{I}$
		1 or	I or
	Î		Î. Minimum Demuinement
	lor = -70  dBm		
		0.7 dB for lor	11
8.5 Timing and			
Signalling			
Characteristics			
8.5.1 UE Transmit	DPCH_Ec/lor = -13.5 dB	0.1 dB for	Since the test is performed close
Timing	$CPICH_Ec/lor = -10 dB$	CPICH_Ec/lor	to sensitivity level any TT
	Îor1=-96 dB		applied to the nominal setting
	Îor2=-99 dB	0.1 dB for	shall fulfil:
		DPCH_Ec/lor	
	Rx-Tx Timing accuracy ±1.5		Îor1 shall not go below –96 dBm
	chips	0.1 dB for	Îor2 shall not go below –99 dBm
	•po	DPCH Ec/lor	Îor1/Îor2 shall not go above 3 dB
	<sup>1</sup> / <sub>4</sub> chip / 200ms maximum rate		
		1 dB for Îor1	DPCH_Ec/lorshall not go below
	233ps / s minimum rate		_13.5 dB
		1.3 dB for Îor?	CPICH Ec/lor shall not go
		1.3 00 101 1012	bolow 10 dP
		0.5 shine for Dy Ty	Delow - TO db
		0.5 Chips for RX-1X	Formulae for test permeters
		unning acculacy	
		Timing Accuracy	
			lor2 + 11
			Rx-Tx Timing accuracy $\pm 2.0$
			chip
			Formulas for test requirements:
			Upper limit +TT
			Lower limit –TT
			Tx-Tx Timing accuracies
			Formulas for test requirements:
			Upper limit +TT
			Lower limit –TT
8.6 UE Measurements			
Procedures			
8.6.1 FDD intra			
frequency			
measurements			
8.6.1.1 Event triggered	Because the relationships betwee	en the Testsvstem unc	ertainties and the Test Tolerances
reporting in AWGN	are complex it is not possible to	give a simple derivation	of the Test Requirement in this
propagation conditions	document The analysis is record	ded in 3GPP TR 34 902	[24]
(R99)	During T1 to $T4 \cdot$		During T1 to T4:
(100)			<u>Duning 11 to 14.</u>
			Ealler retia
			Ec/lor ratio + TT
			$E_0/101 Tatio + 11$ E_0/101 rotio + $TT$
		+U./UUB	
1	PICH_EC/IOT = -15 dB	+0.70 dB	EC/IOF ratio + 11

During T1/T4 enty:         During T1/T4 enty:         During T1/T4 enty:           Aready covered above         Covered above         Aready covered above         During T2/T3 enty:           Cell 2:         CPICH, Ector =-10 dB         +0.70 dB         Ector ratio + TT           PCCPC Ector =-12 dB         +0.70 dB         Ector ratio + TT           S.6.1.1A Event         Because the relationships between the Testsystem uncertainties and the Test Tolerances           regerd reporting in accomplex, it is not possible to give a simple deviation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].         During T1/T2/T3:           Cell 1:         CPICH, Ector =-10 dB         +0.70 dB         Ector ratio + TT           PCCPC Ector =-10 dB         +0.70 dB         Ector ratio + TT           Cell 1:         CPICH, Ector =-12 dB         +0.70 dB         Ector ratio + TT           Cell 1:         CPICH, Ector =-12 dB         +0.70 dB         Ector ratio + TT           PCCPC, Ector =-12 dB         +0.70 dB         Ector ratio + TT           PCCPC, Ector =-12 dB         +0.70 dB         Ector ratio + TT           PCCPC, Ector =-12 dB         +0.70 dB         Ector ratio + TT           PCCPC, Ector =-12 dB         +0.70 dB         Ector ratio + TT           PCCPC, Ector =-12 dB         +0.70 dB         Ector rat	Test	Test Parameters in TS 25 133 [2]	Test Tolerance (TT)	Test Requirement in TS 34.121
Aready covered above         Covered above         Aready covered above           During T2/T3 only.         During T2/T3 only.         During T2/T3 only.           Cell 2:         CPCPCH_Eclor = -10 dB         +0.70 dB         Eclor ratio + TT           Sch 1.1A Event         Sch Eclor ratio + TT         Eclor ratio + TT           PCCPCH_Eclor = -12 dB         +0.70 dB         Eclor ratio + TT           Bc.1.1A Event         Bccause the relationships between the Test system uncertainties and the Test Tolerances are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in SGPP TR 34 902 [24].           During T1/T2/T3:         During T1/T2/T3:         During T1/T2/T3:           Cell 1:         CPICH_Eclor = -10 dB         +0.70 dB         Eclor ratio + TT           PCCPCH_Eclor = -10 dB         +0.70 dB         Eclor ratio + TT           PCCPCH_Eclor = -10 dB         +0.70 dB         Eclor ratio + TT           PCCPCH_Eclor = -10 dB         +0.70 dB         Eclor ratio + TT           PCCPCH_Eclor = -10 dB         +0.70 dB         Eclor ratio + TT           PCCPCH_Eclor = -10 dB         +0.70 dB         Eclor ratio + TT           During T2/DNJ         During T2/DNJ         During T2/DNJ           Cell 2:         CPICH_Eclor = -12 dB         +0.70 dB         Eclor ratio + TT		During T1/T4 only :	During T1/T4 only:	During T1/T4 only:
Aiready covered above         Covered above         Aiready covered above           During T2/T3 only.         During T2/T3 only.         During T2/T3 only.           Cell 2: CPICH_Eclor = -10 dB FCCFCH Eclor = -12 dB FCCFCH Eclor = -10 dB F		<u> </u>	<u></u>	<u> </u>
During T2/T3 only, Cell 2: CPICH_EC/or = -10 dB         During T2/T3 only, PCCPCH_Ec/or = -12 dB         During T2/T3 only, During T2/T3 only,         During T2/T3 only,           8.6.1.1A Event triggered reporting in AWGN propagation conditions (Rel-4 and later)         Because the relationships between the Test system uncertainties and the Test Tolerances are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].           8.6.1.2 Event triggered reporting in Auready covered above         During T1/T2/T3: During T1/T2/T3: During T1/T2/T3: During T1/T3 only.         During T1/T2/T3: During T1/T3 only.         During T1/T3 only.           8.6.1.2 Event triggered reporting of multiple neighbous in MVGN propagation condition (Rel-4 and later)         Cell 2: CPICH_Ec/or = -10 dB PCCPCH_Ec/or = -10 dB PCC		Already covered above	Covered above	Already covered above
Cell 2: CPICH_ECtor = -10 dB PCCPCH_Ector = -12 dB SCH_Eotr = -12 dB +0.70 dB Ector ratio + TT PICH_Ector = -15 dB +0.70 dB Ector ratio + TT PICH_Ector = -15 dB +0.70 dB Ector ratio + TT Ector ratio + TT		During T2/T3 only:	During T2/T3 only:	During T2/T3 only:
Cell 2: CPCPCH_Ector = -10 dB PCCPCH_Ector = -12 dB SCH_Ector = -12 dB +0.70 dB Ector ratio + TT PCH_Ector = -12 dB +0.70 dB Ector ra				
ECPCH_Eclor = 12 dB         +0.70 dB         Eclor ratio + TT           Sch_Eclor = 12 dB         +0.70 dB         Eclor ratio + TT           Sch_Eclor = 12 dB         +0.70 dB         Eclor ratio + TT           Bc6.11A Event         Because the relationships between the Testsystem uncertainties and the Test Tolerances are complex it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].           During TL/T2/T3:         During TL/T2/T3:         During TL/T2/T3:           Cell 1:         CPCH_Eclor = -10 dB         +0.70 dB         Eclor ratio + TT           PCCPLEClor = -10 dB         +0.70 dB         Eclor ratio + TT           PCCPLEclor = -12 dB         +0.70 dB         Eclor ratio + TT           PCCPLEclor = -12 dB         +0.70 dB         Eclor ratio + TT           PCCPLEclor = -12 dB         +0.70 dB         Eclor ratio + TT           PCCPLEclor = -12 dB         +0.70 dB         Eclor ratio + TT           During TL/T3_onix:         During TL/T3_onix         During TL/T3_onix           Aready covered above         During TL/T3_onix         During TL/T3_onix           Sch12 Event triggered         Eclor ratio + TT         Eclor ratio + TT           PCCPL_Eclor = -10 dB         +0.70 dB         Eclor ratio + TT           PCCPL_Eclor = -12 dB		Cell 2:		
PCUPUN_ECOID         = 12 dB         +0.70 dB         Ec/or ratio + TT           3.6.1.1A Event triggered reporting in AWCM propagation conditions (Rel-4 and later)         Ecolar ratio + TT         Ecolar ratio + TT           3.6.1.1A Event triggered reporting in AWCM propagation conditions (Rel-4 and later)         During TL/TZ/T3:         During TL/TZ/T3:         During TL/TZ/T3:           0.11         Cell 1: CPICH_Ecolor = -10 dB         +0.70 dB         Ecolor ratio + TT           7.02         Cell 1: CPICH_Ecolor = -12 dB         +0.70 dB         Ecolor ratio + TT           7.02         Cell 1: CPICH_Ecolor = -12 dB         +0.70 dB         Ecolor ratio + TT           7.02         Cell 1: CPICH_Ecolor = -12 dB         +0.70 dB         Ecolor ratio + TT           7.02         Cell 1: During TL/T3 only:         During TL/T3 only.         During TL/T3 only.           8.6.1.22         Ecolor ratio + TT         Ecolor ratio + TT           7.02         Cell 2: CPICH_Ecolor = -12 dB         +0.70 dB         Ecolor ratio + TT           7.02         Cell 2: CPICH_Ecolor = -12 dB         +0.70 dB         Ecolor ratio + TT           7.04         Ecolor ratio + TT         Ecolor ratio + TT         Ecolor ratio + TT           7.04         Ecolor ratio + TT         Ecolor ratio + TT         Ecolor ratio + TT           7.04         <		$CPICH_Ec/lor = -10 dB$	+0.70 dB	Ec/lor ratio + 11
Both Lector = 12 dB         +0.70 dB         Externation and the set of the set		$PCCPCH_EC/IOF = -12 \text{ dB}$	+0.70 dB	Ec/lor ratio + 11
8.6.1.3 Event triggered reporting in AWGN propagation conditions (Rei-4 and later)       Because the relationships between the Testsystem uncertainties and the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].         During T1/T2/T3.       During T1/T2/T3.         Cell 1:       CPICH_Ec/or = -10 dB       +0.70 dB       Ec/or ratio + TT         PCCPCH_Ec/or = -12 dB       +0.70 dB       Ec/or ratio + TT         PICH_Ec/or = -12 dB       +0.70 dB       Ec/or ratio + TT         PICH_Ec/or = -13 dB       +0.70 dB       Ec/or ratio + TT         PICH_Ec/or = -12 dB       +0.70 dB       Ec/or ratio + TT         PICH_Ec/or = -12 dB       +0.70 dB       Ec/or ratio + TT         PICH_Ec/or = -13 dB       +0.70 dB       Ec/or ratio + TT         PICH_Ec/or = -10 dB       +0.70 dB       Ec/or ratio + TT         PICH_Ec/or = -12 dB       +0.70 dB       Ec/or ratio + TT         PICH_Ec/or = -12 dB       +0.70 dB       Ec/or ratio + TT         PICH_Ec/or = -12 dB       +0.70 dB       Ec/or ratio + TT         PICH_Ec/or = -16 dB       +0.70 dB       Ec/or ratio + TT         PICH_Ec/or = -16 dB       +0.70 dB       Ec/or ratio + TT         PICH_Ec/or = -16 dB       +0.70 dB       Ec/or ratio + TT         PICH_Ec/or = -16 dB       +0.70 dB       Ec/or ratio + TT <td></td> <td>PICH Ec/lor = -15 dB</td> <td>+0.70 dB</td> <td>Ec/lor ratio + TT</td>		PICH Ec/lor = -15 dB	+0.70 dB	Ec/lor ratio + TT
are complex, it is not possible to give a simple derivation of the Test Requirement in this downent. The analysis is recorded in 3GPP TR 34 902 [24].         WGN propagation conditions (Rel-4 and later)       During T1 / T2 / T3:       During T1 / T2 / T3:       During T1 / T2 / T3:         Cell 1:       CPICH_Ec/lor = -10 dB       +0.70 dB       Ec/lor ratio + TT         PCICH_Ec/lor = -12 dB       +0.70 dB       Ec/lor ratio + TT         PCICH_Ec/lor = -12 dB       +0.70 dB       Ec/lor ratio + TT         PCICH_Ec/lor = -16 dB       +0.70 dB       Ec/lor ratio + TT         PCICH_Ec/lor = -16 dB       +0.70 dB       Ec/lor ratio + TT         PCICH_Ec/lor = -10 dB       +0.70 dB       Ec/lor ratio + TT         PCICH_Ec/lor = -10 dB       +0.70 dB       Ec/lor ratio + TT         PCICH_Ec/lor = -10 dB       +0.70 dB       Ec/lor ratio + TT         PCICH_Ec/lor = -12 dB       +0.70 dB       Ec/lor ratio + TT         PCICH_Ec/lor = -12 dB       +0.70 dB       Ec/lor ratio + TT         S6.12 Event triggerd       Because the relationships between the Test system uncertainties and the Test Tolerances are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].         During T0 to T6:       During T0 to T6:       During T0 to T6:         Cell 1, Cell 2 and Cell 3:       CPICH_Ec/lor = -12 dB <td>8.6.1.1A Event</td> <td>Because the relationships betwee</td> <td>en the Testsvstem unce</td> <td>ertainties and the Test Tolerances</td>	8.6.1.1A Event	Because the relationships betwee	en the Testsvstem unce	ertainties and the Test Tolerances
AWCRN propagation conditions (Rel-4 and later)       document. The analysis is recorded in 3GPP TR 34 902 [24].         During T1/T2/T3;       During T1/T2/T3;         During T1/T2/T3;       During T1/T2/T3;         During T1/T2/T3;       During T1/T2/T3;         Cell 1:       CPICH_Eclor = -10 dB       +0.70 dB       Ec/tor ratio + TT         PCCPCH_Eclor = -12 dB       +0.70 dB       Ec/tor ratio + TT         During T1/T3 only;       During T1/T3 only;       During T/T3 only;         During T1/T3 only;       During T1/T3 only;       During T/T3 only;         Aready covered above       Covered above       Aready covered above         During T2 only;       During T2 only;       During T2 only;         Cell 2:       CPICH_Eclor = -10 dB       +0.70 dB       Eclor ratio + TT         PCCPCH_Eclor = -12 dB       +0.70 dB       Eclor ratio + TT         PCCPCH_Eclor = -12 dB       +0.70 dB       Eclor ratio + TT         PCCPCH_Eclor = -16 dB       +0.70 dB       Eclor ratio + TT         PCCPCH_Eclor = -10 dB       +0.70 dB       Eclor ratio + TT         PCCPCH_Eclor = -10 dB       +0.70 dB       Eclor ratio + TT         PCCH_Eclor = -10 dB       +0.70 dB       Eclor ratio + TT         PCCH_Eclor = -10 dB       +0.70 dB       Eclor ratio + TT </td <td>triggered reporting in</td> <td>are complex, it is not possible to</td> <td>give a simple derivation</td> <td>of the Test Requirement in this</td>	triggered reporting in	are complex, it is not possible to	give a simple derivation	of the Test Requirement in this
conditions (Rel-4 and later)       During T1/T2/T3: Cell 1: Cell 2: Cell 2: CPICH Eclor = -12 dB +0.70 dB Eclor ratio + TT PICH_Eclor = -12 dB +0.70 dB Eclor ratio + TT PICH_Eclor = -10 dB PICH_Eclor = -12 dB PICH_Eclo	AWGN propagation	document. The analysis is record	ded in 3GPP TR 34 902	[24].
later)Cell 1: CPICH_Ec/tor =-12 dB+0.70 dBEc/tor ratio + TTCPICH_Ec/tor =-12 dB+0.70 dBEc/tor ratio + TTPICH_Ec/tor =-13 dB+0.70 dBEc/tor ratio + TTDuring T1/T3 only:During T1/T3 only:During T1/T3 only:Aready covered aboveCovered aboveAready covered aboveDuring T2 only:During T2 only:During T2 only:Cell 2: CPICH_Ec/tor =-12 dB+0.70 dBEc/tor ratio + TTPCCPCH_Ec/tor	conditions (Rel-4 and	During T1 / T2 / T3:	<u>During T1 / T2 / T3:</u>	During T1 / T2 / T3:
Cell 1: CPICH_Ec/lor =-10 dB PCCPCH_Ec/lor =-12 dB PCCPCH_Ec/lor =-1	later)			
CPCCPL_Ector = -10 db       +0.70 dB       Ector ratio + TT         SCH_Ector = -12 dB       +0.70 dB       Ector ratio + TT         SCH_Ector = -13 dB       +0.70 dB       Ector ratio + TT         During T1/T3 only:       During T1/T3 only:       During T1/T3 only:         Aready covered above       Covered above       Aready covered above         During T2 only:       During T2 only:       During T2 only:         CEI 2:       CPCH_Ector = -12 dB       +0.70 dB       Ector ratio + TT         PCCPL_Ector = -12 dB       +0.70 dB       Ector ratio + TT         PCCPL_Ector = -12 dB       +0.70 dB       Ector ratio + TT         PCCPL_Ector = -12 dB       +0.70 dB       Ector ratio + TT         PCCPL_Ector = -12 dB       +0.70 dB       Ector ratio + TT         PCCPL_Ector = -12 dB       +0.70 dB       Ector ratio + TT         PCCPCH_Ector = -12 dB       +0.70 dB       Ector ratio + TT         PCCPCH_Ector = -13 dB       +0.70 dB       Ector ratio + TT         PCCPCH_Ector = -13 dB       +0.70 dB       Ector ratio + TT         PCCPCH_Ector = -12 dB       +0.70 dB       Ector ratio + TT         PCCPCH_Ector = -12 dB       +0.70 dB       Ector ratio + TT         PCCPCH_Ector = -12 dB       +0.70 dB       Ector ratio + TT			.0.70 .10	
Sch_Ec/or = -12 dB     +0.70 dB     Ec/or ratio + TT       PiCH_Ec/or = -12 dB     +0.70 dB     Ec/or ratio + TT       During T1/T3 only.     During T1/T3 only.     During T1/T3 only.       Aready covered above     Covered above     Aready covered above       During T2 only.     During T2 only.     During T2 only.       Cell 2:     CPICH_Ec/lor = -10 dB     +0.70 dB     Ec/lor ratio + TT       CPICH_Ec/lor = -12 dB     +0.70 dB     Ec/lor ratio + TT       PiCH_Ec/lor = -12 dB     +0.70 dB     Ec/lor ratio + TT       PiCH_Ec/lor = -12 dB     +0.70 dB     Ec/lor ratio + TT       PiCH_Ec/lor = -12 dB     +0.70 dB     Ec/lor ratio + TT       PiCH_Ec/lor = -13 dB     +0.70 dB     Ec/lor ratio + TT       PiCH_Ec/lor = -15 dB     +0.70 dB     Ec/lor ratio + TT       PiCH_Ec/lor = -12 dB     +0.70 dB     Ec/lor ratio + TT       bournent. The analysis is recorded in 3GPP TR 34 902 [24].     During T0 to T6:       Cell 1, Cell 2 and Cell 3:     CPICH_Ec/lor = -12 dB     +0.70 dB       PiCH_Ec/lor = -12 dB     +0.70 dB     Ec/lor ratio + TT       bournent or the analysis is recorded in 3GPP TR 34 902 [24].     During T0 to T6:       Cell 1, Cell 2 and Cell 3:     CPICH_Ec/lor = -12 dB     +0.70 dB       PiCH_Ec/lor = -12 dB     +0.70 dB     Ec/lor ratio + TT       bouc		$CPICH_EC/IOF = -10 \text{ dB}$	+0.70 dB	Ec/lor ratio + 11
PICH_Ector = -15 dB     +0.70 dB     Ector ratio + TT       During T1/T3 only.     During T1/T3 only.     During T1/T3 only.       Afready covered above     Covered above     Aready covered above       During T2 only.     During T2 only.     During T2 only.       Cell 2:     CPICH_Ector = -10 dB     +0.70 dB     Ec/lor ratio + TT       CPICH_Ector = -12 dB     +0.70 dB     Ec/lor ratio + TT       PICH_Ector = -12 dB     +0.70 dB     Ec/lor ratio + TT       PICH_Ector = -12 dB     +0.70 dB     Ec/lor ratio + TT       PICH_Ector = -12 dB     +0.70 dB     Ec/lor ratio + TT       PICH_Ector = -12 dB     +0.70 dB     Ec/lor ratio + TT       PICH_Ector = -12 dB     +0.70 dB     Ec/lor ratio + TT       PICH_Ector = -12 dB     +0.70 dB     Ec/lor ratio + TT       PICH_Ector = -12 dB     +0.70 dB     Ec/lor ratio + TT       PICH_Ector = -12 dB     +0.70 dB     Ec/lor ratio + TT       ProcePoL Ector = -12 dB     +0.70 dB     Ec/lor ratio + TT       ProcePoL Ector = -12 dB     +0.70 dB     Ec/lor ratio + TT       PICH_Ector = -12 dB     +0.70 dB     Ec/lor ratio + TT       PICH_Ector = -12 dB     +0.70 dB     Ec/lor ratio + TT       PICH_Ector = -12 dB     +0.70 dB     Ec/lor ratio + TT       PICH_Ector = -12 dB     +0.70 dB     Ec/l		SCH Ec/lor = -12 dB	+0.70 dB	Ec/lor ratio + TT
During T1/T3 only:         During T1/T3 only:         During T1/T3 only:           Aready covered above         Covered above         Aready covered above         Aready covered above           During T2 only:         During T2 only:         During T2 only:         During T2 only:           Cell 2:         CPICH_Eclor = -10 dB         +0.70 dB         Ec/lor ratio + TT           PCCPCOH_Eclor = -12 dB         +0.70 dB         Ec/lor ratio + TT           PCCPCOH_Eclor = -15 dB         +0.70 dB         Ec/lor ratio + TT           PCCPCOH_Eclor = -15 dB         +0.70 dB         Ec/lor ratio + TT           Protepagation condition         Because the relationships between the Test system uncertainties and the Test Tolerances are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].           During T0 to T6:         During T0 to T6:         During T0 to T6:           Cell 1, Cell 2 and Cell 3:         CPICH_Eclor = -12 dB         +0.70 dB         Ec/lor ratio + TT           PCCPCOH_Eclor = -12 dB         +0.70 dB         Ec/lor ratio + TT         Ec/lor ratio + TT           PICH_Eclor = -12 dB         +0.70 dB         Ec/lor ratio + TT         Ec/lor ratio + TT           PICH_Eclor = -12 dB         +0.70 dB         Ec/lor ratio + TT         Ec/lor ratio + TT           PICH_Eclor = -12 dB<		PICH Ec/lor = -15 dB	+0.70 dB	Ec/lor ratio + TT
Already covered above     Already covered above     Already covered above       During T2 only.     During T2 only.     During T2 only.       Cell 2:     CPICH_Ec/lor = -10 dB     +0.70 dB     Ec/lor ratio + TT       PCCPCH_Ec/lor = -12 dB     +0.70 dB     Ec/lor ratio + TT       PCCPCH_Ec/lor = -12 dB     +0.70 dB     Ec/lor ratio + TT       Because the relationships between the Testsystem uncertainties and the Test Tolerances are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].       During T0 to T6:     During T0 to T6:       Cell 1, Cell 2 and Cell 3:     CPICH_Ec/lor = -12 dB       PCCPCH_Ec/lor = -12 dB     +0.70 dB       SC1_ZAEvent triggered reporting of multiple neighbours in AWCN       PICH_Ec/lor = -12 dB     +0.70 dB       Because the relationships between the Test system uncertainties and the Test Tolerances are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].       WGN propagation condition (Rel-4 and later)     During T0 to T4:       Because the relationships between the Test system uncertainties and the Test Tolerances are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].       During T0 to T4:     During T0 to T4:       Cell 1, Cell 2 and Cell 3:     CPICH_Ec/lor = -12 dB       CPICH_Ec		During T1/T3 only :	During T1/T3 only:	During T1/T3 only:
Aready covered aboveCovered aboveAready covered aboveDuring T2 only:During T2 only:During T2 only:Cell 2: CPICH_Ec/lor = -10 dB+0.70 dBEc/lor ratio + TTPCCPCH_Ec/lor = -12 dB+0.70 dBEc/lor ratio + TTPCCPCH_Ec/lor = -15 dB+0.70 dBEc/lor ratio + TTPropagation conditionBecause the relationships between the Testsystem uncertainties and the Test Tolerances are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3CPP TR 34 902 [24].Puring T0 to T6: CPICH_Ec/lor = -12 dB+0.70 dBEc/lor ratio + TTPCCPCH_Ec/lor = -12 dB+0.70 dB <td></td> <td></td> <td></td> <td></td>				
During T2 only:         During T2 only:         During T2 only:         During T2 only:           Cell 2: CPICH_Ec/or = -10 dB PCCPCH_Ec/or = -12 dB scl_tze/or = -12 dB reporting of multiple neighbours in AWGN propagation condition (R99)         Ec/or ratio + TT Ec/or ratio + TT         Ec/or ratio + TT           8.6.1.2 Event triggered reporting of multiple neighbours in AWGN propagation condition (R99)         Because the relationships between the Testsystem uncertainties and the Test Tolerances document. The analysis is recorded in 3GPP TR 34 902 [24].           During T0 to T6: Cell 1, Cell 2 and Cell 3: CPICH_Ec/or = -12 dB triggered reporting of multiple neighbours in AWGN propagation condition (Rel-4 and later)         Because the relationships between the Testsystem uncertainties are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].           WKGN propagation condition (Rel-4 and later)         Because the relationships between the Testsystem uncertainties and the Test Tolerances are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].           Wing T0 to T4: Cell 1, Cell 2 and Cell 3: CPICH_Ec/or = -12 dB PCCPCH_Ec/or = -16 dB         During T0 to T4: During T0 to T4: Cell 1, Cell 2 and Cell 3: CPICH_Ec/or = -16 dB           Cell 1, Cell 2 and Cell 3: CPICH_Ec/or = -16 dB         During T0 to T5: During T0 to T5: Cell 1, Cell 2 and Cell 3: CPICH_Ec/or = -16 dB         During T0 to T5: During T0 to T5: Cell 1, Cell 2 and Cell 3: CPICH_Ec/or = -17 dB		Already covered above	Covered above	Already covered above
Cell 2: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB PCCPCH_Ec/lor = -15 dB+0.70 dB PCCPCH_Ec/lor = 10 dB PCCPCH_Ec/lor = -17 dB8.6.1.2 Event triggerd reporting of multiple neighbours in AWGN (R99)Because the relationships between the Testsystem uncertainties and the Test Tolerances are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].900During T0 to T6: Cell 1, Cell 2 and Cell 3: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB PCCPCH_Ec/lor = -12 dB PCCPCH_Ec/lor = -12 dB Ho.70 dB Cellor ratio + TT8.6.1.2A Event triggerd reporting of condition (Rel-4 and later)Because the relationships between the Test system uncertainties and the Test Tolerances are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].8.6.1.2A Event triggerd reporting of condition (Rel-4 and later)Because the relationships between the Test system uncertainties and the Test Tolerances are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].0.000 Leclor = -12 dB PCCPCH_Ec/lor =		During T2 only:	During T2 only:	During T2 only:
Cell 2: CPICH_Ec/lor = -10 dB+0.70 dBEc/lor ratio + TTPCCPCH_Ec/lor = -12 dB+0.70 dBEc/lor ratio + TTSCH_Ec/lor = -12 dB+0.70 dBEc/lor ratio + TTPCH_Ec/lor = -15 dB+0.70 dBEc/lor ratio + TTPeoting of multiple neighbours in AWGN propagation condition (R99)Because the relationships between the Test system uncertainties and the Test Tolerances are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].During T0 to TE: CPICH_Ec/lor = -10 dBDuring T0 to TE: CPICH_Ec/lor = -12 dBDuring T0 to TE: CPICH_Ec/lor = -12 dBDuring T0 to T5: CPICH_Ec/lor = -12 dB+0.70 dBEc/lor ratio + TT +0.70 dB8.6.1.2A Event triggered reporting of multiple neighbours in AWGN propagation condition (Rel-4 and later)Because the relationships between the Test system uncertainties and the Test Tolerances are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].During T0 to T4: Condition (Rel-4 and later)During T0 to T4: During T0 to T4:During T0 to T4: During T0 to T4:During T0 to T4: Condition (Rel-6 and later)During T0 to T4: Color = -12 dB +0.70 dB Ce/lor = -10 dBDuring T0 to T4: Color ratio + TT PCCPCH_Ec/lor = -10 dB +0.70 dB Ce/lor ratio + TT8.6.1.3 Event triggered reporting of two detectable neighbours condition (R99)Because the relationships between the Test system uncertainties and the Test Tolerances are complex, it is not possible to give a simple derivatio		0		
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AWGN propagation condition (Rel-4 and later)During T0 to T4:During T0 to T4:Cell 1, Cell 2 and Cell 3: CPICH_Ec/lor = -10 dB+0.70 dBEc/lor ratio + TTPCCPCH_Ec/lor = -12 dB+0.70 dBEc/lor ratio + TTPCCPCH_Ec/lor = -12 dB+0.70 dBEc/lor ratio + TTPICH_Ec/lor = -15 dB+0.70 dBEc/lor ratio + TT8.6.1.3 Event triggered reporting of two detectable neighbours in AWGN propagation condition (R99)Because the relationships between the Test system uncertainties and the Test Tolerances are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].TBDDuring T0 to T5:During T0 to T5:Cell 1, Cell 2 and Cell 3: CPICH_Ec/lor = -10 dB+0.40 dBEc/lor ratio + TTPCCPCH_Ec/lor = -12 dB+0.40 dBEc/lor ratio + TTPCCPCH_Ec/lor = -12 dB+0.40 dBEc/lor ratio + TTCell 1, Cell 2 and Cell 3: CPICH_Ec/lor = -15 dBCPICH_Ec/lor = -17 dB+0.40 dBEc/lor ratio + TTCell 1: DPCH_Ec/lor = -17 dBPCH_Ec/lor = -17 dBH0.40 dBEc/lor ratio + TTCell 1: DPCH_Ec/lor = -17 dBPCH_Ec/lor = -17 dBH0.40 dBEc/lor ratio + TT	multiple neighbours in	document. The analysis is record	ded in 3GPP TR 34 902	[24].
condition (Rel-4 and later)Cell 1, Cell 2 and Cell 3: CPICH_Ec/lor = -10 dB+0.70 dBEc/lor ratio + TTCell 1, Cell 2 and Cell 3: CPICH_Ec/lor = -12 dB+0.70 dBEc/lor ratio + TTSCH_Ec/lor = -12 dB+0.70 dBEc/lor ratio + TTPICH_Ec/lor = -15 dB+0.70 dBEc/lor ratio + TT8.6.1.3 Event triggered reporting of two detectable neighbours in AWGN propagation condition (R99)Because the relationships between the Test system uncertainties and the Test Tolerances are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].TBDDuring T0 to T5:During T0 to T5:Cell 1, Cell 2 and Cell 3: CPICH_Ec/lor = -10 dB+0.40 dBCPICH_Ec/lor = -12 dB+0.40 dBPCCPCH_Ec/lor = -12 dB+0.40 dBEc/lor ratio + TTPCCPCH_Ec/lor = -12 dB+0.40 dBEc/lor ratio + TTCell 1: DPCH_Ec/lor = -17 dB+0.40 dBEc/lor ratio + TTCell 1: DPCH_Ec/lor = -17 dBDPCH_Ec/lor = -17 dB+0.40 dB	AWGN propagation	During T0 to T4:	During T0 to T4:	During T0 to T4:
later)Cell 1, Cell 2 and Cell 3: CPICH_Ec/lor = -10 dB+0.70 dBEc/lor ratio + TTPCCPCH_Ec/lor = -12 dB+0.70 dBEc/lor ratio + TTSCH_Ec/lor = -12 dB+0.70 dBEc/lor ratio + TTSCH_Ec/lor = -12 dB+0.70 dBEc/lor ratio + TTPICH_Ec/lor = -15 dB+0.70 dBEc/lor ratio + TT8.6.1.3 Event triggered reporting of two detectable neighbours in AWGN propagation condition (R99)Because the relationships between the Test system uncertainties and the Test Tolerances are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].TBDDuring T0 to T5:During T0 to T5:Cell 1, Cell 2 and Cell 3: CPICH_Ec/lor = -10 dBDuring T0 to T5:Cell 1, Cell 2 and Cell 3: CPICH_Ec/lor = -12 dB+0.40 dBEc/lor ratio + TTSCH_Ec/lor = -12 dB+0.40 dBPICH_Ec/lor = -12 dB+0.40 dBEc/lor ratio + TTCell 1: DPCH_Ec/lor = -17 dB+0.40 dBEc/lor ratio + TT	condition (Rel-4 and			
CPICH_Ec/lor = -10 dB+0.70 dBEc/lor ratio + TTPCCPCH_Ec/lor = -12 dB+0.70 dBEc/lor ratio + TTSCH_Ec/lor = -12 dB+0.70 dBEc/lor ratio + TTPICH_Ec/lor = -15 dB+0.70 dBEc/lor ratio + TT8.6.1.3 Event triggered reporting of two detectable neighbours in AWGN propagation condition (R99)Because the relationships between the Test system uncertainties and the Test Tolerances are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].TBDDuring T0 to T5:During T0 to T5:Cell 1, Cell 2 and Cell 3: CPICH_Ec/lor = -10 dB+0.40 dBPCCPCH_Ec/lor = -12 dB+0.40 dBPCCPCH_Ec/lor = -12 dB+0.40 dBPICH_Ec/lor = -12 dB+0.40 dBEc/lor ratio + TTCell 1: DPCH_Ec/lor = -17 dB+0.40 dBEc/lor ratio + TTCell 1: DPCH_Ec/lor = -17 dBCell 1: DPCH_Ec/lor = -17 dB+0.40 dBEc/lor ratio + TT	later)	Cell 1, Cell 2 and Cell 3:		
PCCPCH_Ec/lor = -12 dB+0.70 dBEc/lor ratio + 11SCH_Ec/lor = -12 dB+0.70 dBEc/lor ratio + TTPICH_Ec/lor = -15 dB+0.70 dBEc/lor ratio + TT8.6.1.3 Event triggered reporting of two detectable neighbours in AWGN propagation condition (R99)Because the relationships between the Test system uncertainties and the Test Tolerances are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].TBDDuring T0 to T5:During T0 to T5:Cell 1, Cell 2 and Cell 3: CPICH_Ec/lor = -10 dB+0.40 dBPCCPCH_Ec/lor = -12 dB+0.40 dBPCCPCH_Ec/lor = -12 dB+0.40 dBPICH_Ec/lor = -15 dB+0.40 dBEc/lor ratio + TTCell 1: DPCH_Ec/lor = -17 dB+0.40 dBEc/lor ratio + TTCell 1: DPCH_Ec/lor = -17 dBDPCH_Ec/lor = -17 dB+0.40 dBEc/lor ratio + TT		CPICH_Ec/lor = -10 dB	+0.70 dB	Ec/lor ratio + TT
SCH_EC/IOF = -12 dB PICH_Ec/Ior = -15 dB+0.70 dBEC/IOF ratio + TT8.6.1.3 Event triggered reporting of two detectable neighbours in AWGN propagation condition (R99)Because the relationships between the Test system uncertainties and the Test Tolerances are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].TBDDuring T0 to T5:During T0 to T5:Cell 1, Cell 2 and Cell 3: CPICH_Ec/Ior = -10 dB PCCPCH_Ec/Ior = -12 dB SCH_Ec/Ior = -12 dB PICH_Ec/Ior = -17 dBCell 1: DPCH_Ec/Ior = -17 dB+0.40 dB +0.40 dBEc/Ior ratio + TT Ec/Ior ratio + TTCell 1: DPCH_Ec/Ior = -17 dBDPCH_Ec/Ior = -17 dB+0.40 dB		PCCPCH_Ec/lor = -12 dB	+0.70 dB	Ec/lor ratio + 11
8.6.1.3 Event triggered reporting of two detectable neighbours in AWGN propagation condition (R99)       Because the relationships between the Test system uncertainties and the Test Tolerances are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].TBD         During T0 to T5:       During T0 to T5:         Cell 1, Cell 2 and Cell 3:       CPICH_Ec/lor = -10 dB         PCCPCH_Ec/lor = -10 dB       +0.40 dB         PCCPCH_Ec/lor = -12 dB       +0.40 dB         PICH_Ec/lor = -12 dB       +0.40 dB         FC/lor ratio + TT         PICH_Ec/lor = -15 dB       +0.40 dB         Cell 1:       DPCH_Ec/lor = -17 dB         PICH_Ec/lor = -17 dB       +0.40 dB         Ec/lor ratio + TT		$SCH_EC/IOT = -12 \text{ dB}$	+0.70 dB +0.70 dB	Ec/lor ratio + TT
8.6.1.3 Event triggered reporting of two detectable neighbours in AWGN propagation condition (R99)       Because the relationships between the Test system uncertainties and the Test Tolerances are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].TBD         During T0 to T5:       During T0 to T5:         Cell 1, Cell 2 and Cell 3:       CPICH_Ec/lor = -10 dB         PCCPCH_Ec/lor = -12 dB       +0.40 dB         PCCPCH_Ec/lor = -12 dB       +0.40 dB         PICH_Ec/lor = -15 dB       +0.40 dB         PICH_Ec/lor = -17 dB       +0.40 dB         Ec/lor ratio + TT         Cell 1:       DPCH_Ec/lor = -17 dB         POCH_Ec/lor = -17 dB       +0.40 dB			10.70 00	
reporting of two detectable neighbours in AWGN propagation condition (R99)are complex, it is not possible to give a simple derivation of the Test Requirement in this document. The analysis is recorded in 3GPP TR 34 902 [24].TBDDuring T0 to T5:During T0 to T5:During T0 to T5:Cell 1, Cell 2 and Cell 3: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -15 dBDuring T0 to T5:During T0 to T5:Cell 1: DPCH_Ec/lor = -17 dBH0.40 dB + 0.40 dBEc/lor ratio + TT Ec/lor ratio + TTCell 1: DPCH_Ec/lor = -17 dB+0.40 dBEc/lor ratio + TT	8.6.1.3 Event triggered	Because the relationships betwe	en the Testsvstem unce	ertainties and the Test Tolerances
detectable neighbours in AWGN propagation condition (R99)document. The analysis is recorded in 3GPP TR 34 902 [24].TBDDuring T0 to T5:During T0 to T5:Cell 1, Cell 2 and Cell 3: CPICH_Ec/lor = -10 dBDuring T0 to T5:CPICH_Ec/lor = -10 dB+0.40 dBPCCPCH_Ec/lor = -12 dB+0.40 dBSCH_Ec/lor = -12 dB+0.40 dBPICH_Ec/lor = -15 dB+0.40 dBCell 1: DPCH_Ec/lor = -17 dB+0.40 dBEc/lor ratio + TTEc/lor ratio + TTCell 1: DPCH_Ec/lor = -17 dBCell 1: DPCH_Ec/lor = -17 dB	reporting of two	are complex, it is not possible to	give a simple derivation	of the Test Requirement in this
in AWGN propagation condition (R99) $\begin{array}{ c c c c c }\hline During T0 to T5: \\ \hline Cell 1, Cell 2 and Cell 3: \\ CPICH_Ec/lor = -10 dB \\ PCCPCH_Ec/lor = -12 dB \\ PICH_Ec/lor = -12 dB \\ PICH_Ec/lor = -12 dB \\ PICH_Ec/lor = -15 dB \\ \hline Cell 1: \\ DPCH_Ec/lor = -17 dB \\ \hline Cell 1: \\ DPCH_Ec/lor = -17 dB \\ \hline Cell 0 \\ Cell 1: \\ DPCH_Ec/lor = -17 dB \\ \hline Cell 0 \\ Cell 0 $	detectable neighbours	document. The analysis is record	ded in 3GPP TR 34 902	[24].TBD
condition (R99)Cell 1, Cell 2 and Cell 3: CPICH_Ec/lor = -10 dB PCCPCH_Ec/lor = -12 dB SCH_Ec/lor = -12 dB PICH_Ec/lor = -12 dB PICH_Ec/lor = -15 dB $+0.40 dB$ $+0.40 dBEc/lor ratio + TTEc/lor ratio + TTEc/lor ratio + TTCell 1:DPCH_Ec/lor = -17 dB+0.40 dB+0.40 dBEc/lor ratio + TTEc/lor ratio + TT$	in AWGN propagation	During T0 to T5:	During T0 to T5:	During T0 to T5:
Cell 1, Cell 2 and Cell 3: $CPICH\_Ec/lor = -10 dB$ $+0.40 dB$ $PCCPCH\_Ec/lor = -12 dB$ $+0.40 dB$ $PCLP\_Ec/lor = -12 dB$ $+0.40 dB$ $PCH\_Ec/lor = -12 dB$ $+0.40 dB$ $PICH\_Ec/lor = -12 dB$ $+0.40 dB$ $PICH\_Ec/lor = -15 dB$ $+0.40 dB$ $PICH\_Ec/lor = -17 dB$ $+0.40 dB$ $PICH\_Ec/lor = -17 dB$ $+0.40 dB$	condition (R99)			
$CFICH_EC/IOT = -10 dB$ $+0.40 dB$ $EC/IOT ratio + TT$ $PCCPCH_Ec/Ior = -12 dB$ $+0.40 dB$ $Ec/Ior ratio + TT$ $SCH_Ec/Ior = -12 dB$ $+0.40 dB$ $Ec/Ior ratio + TT$ $PICH_Ec/Ior = -15 dB$ $+0.40 dB$ $Ec/Ior ratio + TT$ $Cell 1:$ $DPCH_Ec/Ior = -17 dB$ $+0.40 dB$ $Ec/Ior ratio + TT$				Ec/lor ratio + TT
SCH_Ec/lor = -12 dB+0.40 dBEc/lor ratio + TTPICH_Ec/lor = -15 dB+0.40 dBEc/lor ratio + TTCell 1: DPCH_Ec/lor = -17 dB+0.40 dBEc/lor ratio + TT		PCCPCH = -10  dB	+0.40 0B +0.40 dB	$E_{C}/101$ ratio + 11 $E_{C}/101$ ratio + $TT$
PICH_Ec/lor = -15 dB+0.40 dBEc/lor ratio + TTCell 1: DPCH_Ec/lor = -17 dB+0.40 dBEc/lor ratio + TT		SCH $Ec/lor = -12 dB$	+0.40 dB	Fc/lor ratio + TT
Cell 1: DPCH_Ec/lor = -17 dB+0.40 dBEc/lor ratio + TT		PICH Ec/lor = $-15 \text{ dB}$	+0.40 dB	Ec/lor ratio + TT
Cell 1: DPCH_Ec/lor = -17 dB +0.40 dB Ec/lor ratio + TT				
DPCH_Ec/lor = -17 dB +0.40 dB Ec/lor ratio + TT		Cell 1:		
		DPCH_Ec/lor = -17 dB	+0.40 dB	Ec/lor ratio + TT

Test	Test Parameters in	Test Tolerance	Test Requirement in TS 34.121		
	IS 25.133 [2]	(II)			
8.6.1.3A Event	indexed reporting of				
two detectable	document The analysis is record	ad in 3GPP TR 3/ 902			
neighbours in AWGN	During T0 to T4:	During T0 to T4:	During T0 to T4:		
propagation condition	During to to 14.	During To to 14.	<u>During 10 to 14.</u>		
(Rel-4 and later)	Cell 1. Cell 2 and Cell 3:				
· · · · · ·	CPICH_Ec/lor = -10 dB	+0.40 dB	Ec/lor ratio + TT		
	PCCPCH_Ec/lor = -12 dB	+0.40 dB	Ec/lor ratio + TT		
	SCH_Ec/lor = -12 dB	+0.40 dB	Ec/lor ratio + TT		
	PICH_Ec/lor = -15 dB	+0.40 dB	Ec/lor ratio + TT		
	0 11 /				
		+0.40 0B	Echor fallo + 11		
8614A Correct	Because the relationships betwe	en the Test system unco	artainties and the Test Tolerances		
reporting of neighbours	are complex it is not possible to	give a simple derivation	of the Test Requirement in this		
in fading propagation	document. The analysis is record	ded in 3GPP TR 34 902	[24].		
condition (Rel-4 and	During T1 only:	During T1:	During T1:		
later)	0	0	C C		
	Cell 1:				
	CPICH_Ec/lor = -10dB	+0.70 dB	Ec/lor ratio + TT		
	PCCPCH_Ec/lor = -12 dB	+0.70 dB	Ec/lor ratio + $TT$		
	$SCH_Ec/lor = -12 dB$	+0.70 dB	Ec/lor ratio + 11		
	$PICH_EC/IOI = -15 \text{ dB}$	+0.70 dB	Ec/lor ratio + 11		
		+0.70 dB	Echor fallo + 11		
	Cell 2:				
	CPICH Ec/lor = $-10$ dB	+0.30 dB	Ec/lor ratio + TT		
	PCCPCH Ec/lor = -12 dB	+0.30 dB	Ec/lor ratio + TT		
	SCH_Ec/lor = -12 dB	+0.30 dB	Ec/lor ratio + TT		
	PICH_Ec/lor = -15 dB	+0.30 dB	Ec/lor ratio + TT		
	During T2 only:	During T2:	During T2:		
	CPICH Ec/lor = $-10$ dB	+0.30 dB	Ec/lor ratio + TT		
	PCCPCH_Ec/lor = -12 dB	+0.30 dB	Ec/lor ratio + TT		
	SCH_Ec/lor = -12 dB	+0.30 dB	Ec/lor ratio + TT		
	PICH_Ec/lor = -15 dB	+0.30 dB	Ec/lor ratio + TT		
	DPCH_Ec/lor = -17 dB	+0.30 dB	Ec/lor ratio + TT		
	Cell 2. CPICH Ec/lor = $-10dB$	±0.70 dB	Ec/lor ratio + TT		
	PCCPCH Ec/lor = -12 dB	+0.70 dB +0.70 dB	Ec/lor ratio + TT		
	SCH $Ec/lor = -12 dB$	+0.70 dB	Ec/lor ratio + TT		
	$PICH_Ec/lor = -15 dB$	+0.70 dB	Ec/lor ratio + TT		
8.6.1.5 Event triggered	Because the relationships betwe	en the Testsystem unce	ertainties and the Test Tolerances		
reporting of multiple	are complex, it is not possible to	give a simple derivation	of the Test Requirement in this		
neighbour cells in Case	document. The analysis is record	ded in 3GPP TR 34 902	[24].		
1 fading condition	During 11 and 12:	During 11 and 12:	During 11 and 12:		
	Cell 1 2 3 and Cell 4				
	CPICH $Ec/lor = -10 dB$	+0 70 dB	Ec/lor ratio + TT		
	PCCPCH Ec/lor = $-12 \text{ dB}$	+0.70 dB	Ec/lor ratio + TT		
	SCH_Ec/lor = -12 dB	+0.70 dB	Ec/lor ratio + TT		
	$PICH_Ec/lor = -15 dB$	+0.70 dB	Ec/lor ratio + TT		
8.6.1.6 Event triggered	Because the relationships betwe	en the Testsystem unce	ertainties and the Test Tolerances		
reporting of multiple	are complex, it is not possible to	give a simple derivation	of the Test Requirement in this		
neighbour cells in Case	document. The analysis is record	ded in 3GPP TR 34 902	[24].		
3 fading conditions	During T1 and T2:	During T1 and T2:	During T1 and T2:		
	Cell 1 2 3 and Cell 4				
	CPICH $Ec/lor = -10 dB$	+0.70 dB	Ec/lor ratio + TT		
	$PCCPCH_Ec/lor = -12 dB$	+0.70 dB	Ec/lor ratio + TT		
	SCH_Ec/lor = -12 dB	+0.70 dB	Ec/lor ratio + TT		
	PICH Ec/lor = -15 dB	+0.70 dB	Ec/lor ratio + TT		

Test	Test Parameters in TS 25.133 [2]	Test Tolerance (TT)	Test Requirement in TS 34.121
8.6.2 FDD inter	TBD	(,	
frequency			
measurements	Pagauga the relationships between	on the Testevister upo	artaintian and the Test Telerances
reporting of neighbours	are complex, it is not possible to	give a simple derivation	of the Test Requirement in this
in AWGN propagation	document. The analysis is recor	ded in 3GPP TR 34 902	[24].
condition (Release 5	During T0 to T2:	During T0 to T2:	During T0 to T2:
and earlier)			
	CPICH $E_c/lor = -10 \text{ dB}$	+0 80 dB	Ec/lor ratio + TT
	$PCCPCH_Ec/lor = -12 dB$	+0.80 dB	Ec/lor ratio + TT
	SCH_Ec/lor = -12 dB	+0.80 dB	Ec/lor ratio + TT
	PICH_Ec/lor = -15 dB	+0.80 dB	Ec/lor ratio + TT
	Cell 1:		Faller rotio + TT
		+0.00 UB	
8.6.2.1A Correct	Because the relationships betwee	en the Testsystem unc	ertainties and the Test Tolerances
reporting of neighbours	are complex, it is not possible to	give a simple derivation	of the Test Requirement in this
condition (Release 6	During T0 to T2:	During T0 to T2.	[24]. During T0 to T2:
and later)	<u>Duning 10 to 12.</u>	<u>Burng 10 to 12.</u>	Damig To to T2.
	Cell 1, Cell 2 and Cell 3:		
	$CPICH_Ec/lor = -10 dB$	+0.80 dB	Ec/lor ratio + 11
	SCH $Ec/lor = -12 dB$	+0.80 dB	Ec/lor ratio + TT
	$PICH_Ec/lor = -15 dB$	+0.80 dB	Ec/lor ratio + TT
	_		
	Cell 1:		Coller rotio + TT
		+0.00 UB	
8.6.2.2 Correct	Because the relationships betwee	en the Testsystem unc	ertainties and the Test Tolerances
reporting of neighbours	are complex, it is not possible to	give a simple derivation	of the Test Requirement in this
condition (Release 5	During T1 and T2:	During T1 and T2:	[24]. During T1 and T2:
only)	During 11 and 12.	During 11 and 12.	Duning IT and TZ.
	Cell 1 and Cell 2:		
	$CPICH\_Ec/lor = -10 dB$	+0.80 dB	Ec/lor ratio + TT
	$PCCPCH_Ec/lor = -12 dB$	+0.80 dB	Ec/lor ratio + 11
	PICH Ec/lor = $-15 \text{ dB}$	+0.80 dB	Ec/lor ratio + TT
8.6.2.2A Correct	Because the relationships betwee	en the Test system unc	ertainties and the Test Tolerances
reporting of neighbours	are complex, it is not possible to	give a simple derivation	of the Test Requirement in this
In Fading propagation	document. The analysis is recor	ded in 3GPP TR 34 902	[24].
and later)	During 11 and 12.	During TT and TZ.	During TT and TZ.
,	Cell 1 and Cell 2:		
	CPICH_Ec/lor = -10 dB	+0.80 dB	Ec/lor ratio + TT
	PCCPCH_Ec/lor = -12 dB	+0.80 dB	Ec/lor ratio + TT
	$SCH_Ec/lor = -12 dB$	+0.80 dB	Ec/lor ratio + 11
8.6.2.3 Correct	Because the relationships betwee	en the Test system unc	ertainties and the Test Tolerances
reporting of neighbours	are complex, it is not possible to	give a simple derivation	of the Test Requirement in this
condition using	During T1 and T2:	During T1 and T2:	During T1 and T2:
TGL1=14			
	Cell 1 and Cell 2:		Eo/lor rotio
	PCCPCH Ec/lor = -10 dB	+0.00 dB +0.80 dB	Ec/lor ratio + TT
	SCH_Ec/lor = $-12 \text{ dB}$	+0.80 dB	Ec/lor ratio + TT
	PICH_Ec/lor = -15 dB	+0.80 dB	Ec/lor ratio + TT
8.6.3 TDD	TBD		
measurements			

Test	Test Parameters in	Test Tolerance	Test Requirement in TS 34.121
	TS 25.133 [2]	(TT)	
8.6.3.1Correct	IBD		
reporting of IDD			
neighbours in AVVGN			
propagation condition			
8.6.4 GSM			
measurements			
8.6.4.1 Correct	During 12	During 12:	During 12 and 13
	RXLEV=-75 dBm	+ 1 dB for RALE V	RALEV + I I
neignbours in AvvGiN	During TO		
propagation condition			Only R XLEV IS a critical
	RALEV=-85 dBm	-1 dB for RALE V	parameter. DE measurement
			accuracy for GSM Carrier RSSI
			IS ±4 dB in this test.
			During T2: measured GSM
			Carrier PSSI + upcortainty of
			PXI EV setting shall be above –
			80 dBm (Threshold for CSM)
			$\rightarrow$ TT-+1 dB for P XI EV
			During T3: measured GSM
			Carrier RSSI + uncertainty of
			RXI EV setting shall be below –
			80 dBm (Threshold for GSM)
			=>TT=-1 dB for R XI F V
8.6.5 Combined Inter			
frequency and GSM			
measurements			
8.6.5.1 Correct	During T0 to T5:	During T0 to T5:	During T0 to T5:
reporting of neighbours			
in AWGN propagation	Cell 1 and Cell 2:	+0.80 dB	
condition	CPICH_Ec/lor = -10 dB	+0.80 dB	Ec/lor ratio + TT
	PCCPCH_Ec/lor = -12 dB	+0.80 dB	Ec/lor ratio + TT
	SCH_Ec/lor = -12 dB	+0.80 dB	Ec/lor ratio + TT
	PICH_Ec/lor = -15 dB		Ec/lor ratio + TT
		During T4 and T5:	
	During T4 to T5:	+1 dB for RXLEV	During T4 and T5
	RXLEV=-75 dBm		RXLEV + TT

Test	Test Parameters in TS 25.133 [2]	Test Tolerance (TT)	Test Requirement in TS 34.121
8.6.6.1 Correct	UTRA cell during T1:	UTRA cell during T1:	UTRA cell during T1:
reporting of E-UTRAN	I <sub>oc</sub> : -70.00dBm/3.84MHz	0dB	l <sub>oc</sub> : -70.00dBm/3.84MHz
FDD neignbour in		0dB	Ior / Ioc: UOB CPICH_E/Ioc: -13.00dB
condition	F-UTRA cell during T1:	F-UTRA cell during	E-UTRA cell during T1:
		<u>T1:</u>	
	N <sub>oc</sub> : -100.00dBm/15kHz Ês / N <sub>oc</sub> : -infinity dB	-0.6dB 0dB	$N_{oc}$ : -100.60dBm/15kHz Ês / $N_{oc}$ : -infinity dB
	UTRA cell during T2:	UTRA cell during T2:	UTRA cell during T2:
	l <sub>oc</sub> : -70.00dBm/3.84MHz	0dB	l <sub>oc</sub> : -70.00dBm/3.84MHz
	$I_{or} / I_{oc}$ : OdB	0dB	$I_{or} / I_{oc}$ : 0dB
	CPICH_E <sub>c</sub> /lor: -13.00dB	UQB	CPICH_E <sub>c</sub> /I <sub>or</sub> : -13.00dB
	E-UTRA cell during T2:	E-UTRA cell during T2:	E-UTRA cell during T2:
	N₀c: -100.00dBm/15kHz	-0.6dB	N <sub>oc</sub> : -100.60dBm/15kHz
	Ês / N∞: 16.00 dB	0.6dB	Ês / N₀c: 16.6dB
	UTRA cell during T3:	UTRA cell during T3:	UTRA cell during T3:
	I <sub>oc</sub> : -70.00dBm/3.84MHz	0dB	l <sub>oc</sub> : -70.00dBm/3.84MHz
	I <sub>or</sub> / I <sub>oc</sub> : 0dB	0dB	I <sub>or</sub> / I <sub>oc</sub> : 0dB
	CPICH_E <sub>c</sub> /l <sub>or</sub> : -13.00dB	0dB	CPICH_E <sub>c</sub> /I <sub>or</sub> : -13.00dB
	E-UTRA cell during T3:	E-UTRA cell during T3:	E-UTRA cell during T3:
	N₀c: -100.00dBm/15kHz	-0.6dB	N <sub>∞</sub> : -100.60dBm/15kHz
	Ês / N <sub>oc</sub> : -4.00 dB	0.6dB	Ês / N <sub>oc</sub> : -3.4dB
reporting of E-UTRAN TDD neighbour in fading propagation condition	Same as 6.6.6.1	Same as 6.6.6.1	Same as 6.6.6.1
8.6.7.1 Correct	UTRA cell 1 during T1 and T2:	UTRA cell 1 during	UTRA cell 1 during T1 and T2:
reporting of E-UTRA		<u>T1 and T2:</u>	
fading propagation	l <sub>oc</sub> : -70.00dBm/3.84MHZ	0dB	l <sub>oc</sub> : -70.00dBm/3.84IVIHZ
condition	CPICH_E <sub>c</sub> /l <sub>or</sub> : -10.00dB	0dB	CPICH_E <sub>c</sub> /I <sub>o</sub> : -10.00dB
	UTRA cell 2 during T1 :	UTRA cell 2 during	UTRA cell 2 during T1 :
		T1:	
	$I_{00}$ : -70.000Bm/3.84WHZ	0dB	loc: -70.000Bm/3.84WHZ
	CPICH_E <sub>c</sub> /l <sub>or</sub> :Infinity dB	0dB	CPICH_E <sub>c</sub> /l <sub>or</sub> :Infinity dB
	E-UTRA cell 3 during T1:	E-UTRA cell 3 during	E-UTRA cell 3 during T1:
	N <sub>m</sub> : -98.00dBm/15kHz	0dB	N <sub>m</sub> : -98.00dBm/15kHz
	$\hat{E}s / N_{\infty}$ : -infinity dB	0dB	Ês / N <sub>oc</sub> : -infinity dB
	UTRA cell 2 during T2:	UTRA cell 2 during T2:	UTRA cell 2 during T2:
	I <sub>oc</sub> : -70.00dBm/3.84MHz	0dB	l <sub>oc</sub> : -70.00dBm/3.84MHz
	l <sub>or</sub> / l <sub>oc</sub> : -1.8dB CPICH_E <sub>c</sub> /l <sub>or</sub> : -10.00dB	0.7dB 0dB	l <sub>or</sub> / l <sub>oc</sub> : -1.1dB CPICH_E₀/l <sub>or</sub> : -10.00dB
	E-UTRA cell 3 during T2:	E-UTRA cell 3 during	E-UTRA cell 3 during T2:
	N <sub>cc</sub> : -98.00dBm/15kHz	0dB	N₀c: -98.00dBm/15kHz
	Ës / N∞: 13.00 dB	0dB	Ës / N₀c: 13.00 dB

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8.6.7.2 Correct	Same as 8.6.7.1	Same as 8.6.7.1	Same as 8.6.7.1
TDD neighbours in			
fading propagation			
condition			
8.7 Measurements			
Performance			
9.7.1 CFICH KSCF	and table 971111 and table	1 dP for looy 0.2 dP	Any TT applied to the pominal
8.7.1.1 Intra frequency	8 7 1 1 1 2	$\pm 1$ dB for loc $\pm 0.3$ dB	Any I I applied to the nominal setting shall fulfil: Test 1
accuracy	0.7.1.1.1.2	for Fc/lor	(absolute and relative): lo shall
			not go above -70dBm Test
			2(absolute and relative): lo shall
			not go above -50 dBm Test 3
			(absolute and relative): lo shall
			TTTT on top of LIF
			measurement
			accuracy:Absolute±1.0 dB for
			loc±0.3 dB for lor/loc ±0.1dB for
			CPICH_Ec/lor ∑
			1.4dBRelative±0.3 dB for lor/loc
			$(cell 1) \pm 0.3$ dB for CPICH Ec/lor
			(cell1)±0.1dB for CPICH_Ec/lor
			(cell2)∑ 0.8dB
8.7.1.2 Inter frequency	See table 8.7.1.2.1.1 and table	±1 dB for loc±0.3 dB	Any TT applied to the nominal
measurement accuracy	8.7.1.2.1.2	for loc1/loc2±0.3 dB	setting shall fulfil: Test 1: lo shall
		for lor/loc±0.1dB for	not go above -50 dBm Test 2: lo
		For multi-hand LIF	lor/loc + TT
		with Band I and VI	TT on top of UE measurement
		0.5 dB for loc1/loc2	accuracy:
			±0.3 dB for loc1/loc2
			±0.3 dB for lor/loc (cell1)
			±0.3 dB for IOf/IOC (Cell2)
			$\pm 0.1$ dB for CPICH_EC/lor (cell2)
			$\Sigma$ 1.1 dB
8.7.2 CPICH Ec/lo			-

Teat	Toot Doromotoro in	Teet Telerenee	Test Dequirement in TC 24 424
Test	TS 25.133 [2]	(TT)	Test Requirement in 15 34.121
8.7.2.1 Intra frequency measurements	table 8.7.2.1.1.1 and table 8.7.2.1.1.2	±1 dB for loc ±0.3 dB for lor/loc	Any TT applied to the nominal setting shall fulfil:
accuracy		forEc/lor	Test 1(absolute and relative): lo shall not go above -50 dBm
			Test 2 (absolute and relative): lo shall not go below -87dBm
			Test 3 (absolute and relative): lo shall not go below -94 dBm
			CPICH Ec/lo shall stay in the UE accuracy ranges
			lor/loc + TT
			TT on top of UE measurement accuracy: Absolute ±0.3 dB for lor/loc ±0.1dB for CPICH_Ec/lor
			∑ 0.4dB
			Relative loc1=loc2 ±0.3 dB for lor/loc (cell1) ±0.3 dB for lor/loc (cell2) ±0.1dB for CPICH_Ec/lor (cell1) ±0.1dB for CPICH_Ec/lor (cell2)
			$\sum 0.8$ dB
8.7.2.2 Inter frequency measurement accuracy	table 8.7.2.2.2.1 and table 8.7.2.2.2.2	±1 dB for loc ±0.3 dB for loc1/loc2 ±0.3 dB for lor/loc ±0.1dB forEc/lor For multi-band UE with Band I and VI 0.5 dB for loc1/loc2	Any I I applied to the nominal setting shall fulfil: Test 1: lo shall not go above -50 dBm Test 2: lo shall not go below -87 dBm Test 3: lo shall not go below -94 dBm lor/loc + TT TT on top of UE measurement accuracy: loc1=loc2. ±0.3 dB for lor/loc (cell1) ±0.3 dB for lor/loc (cell2) ±0.1dB for CPICH_Ec/lor (cell1) ±0.1dB for CPICH_Ec/lor (cell2) ∑ 0.8 dB

Test	Test Parameters in	Test Tolerance	Test Requirement in TS 34.121
	TS 25.133 [2]	(TT)	-
8.7.3.1 UTRA Carrier	Table 8.7.3.1.2	±1 dB for loc	Any TT applied to the nominal
RSSI, absolute		±0.3 dB for loc1/loc2	setting shall fulfil:
measurement accuracy		±0.3 dB for Îor/loc	Test 1: lo shall not go above -50
		For multi-band UE	dBm
		with Band I and VI	Test 2: lo shall not go below -69
			Test 3: lo shall not go below -94
			dBm
			lor/loc + TT
			TT on top of UE measurement accuracy:
			Test 1:
			$MaxTT = Io_{max} - Io_{nominal}$
			$I_{Onominal} = -51.15 \text{ dBm}$
			$ O_{max} =  O_{max} +  O_{max} = (-53.5)$
			dBm + 1dB) + (-52.5 dBm – 1.45
			dB + 0.3 dB) = -50.0 dBm
			=> Max TT = 1.15 dB
			Min TT = Io <sub>min</sub> - Io
			$Io_{min} = Ioc_{min} + Ior_{min} = (-53.5)$
			dBm –1 dB) + (-54.5 dBm – 1.45
			dB – 0.3 dB) = - 52.3 dBm
			=> Min TT = -1.15 dB
			Test 2:
			MaxTT= lo <sub>max</sub> - lo <sub>nominal</sub> lo <sub>nominal</sub> = - 67.9 dBm
			$lo_{max} = loc_{max} + lor_{max} = (-69.27)$
			dBm + 1dB) + (-68.27 dBm - 4.4)
			dB + 0.3 dB) = -66.8 dBm
			=> Max   I = 1.1 dB
			10 + 10 = 10 = 10 = 10
			dBm = 1 dB + (-70.27 dBm
			4  dB = 0.3  dB = -69.0  dBm
			-> Min TT1 1 dB
			Test 3 (Band I):
			$Max TT = Io_{max} - Io_{nominal}$
			$ O_{\text{pominal}} = -93 \text{ dBm}$
			$IO_{max} = IOC_{max} + IOT_{max} + NO = (-$
			93.46 dBm + 1dB) + (-92.46
			dBm – 9.24 dB +Ó.3 dB) + -99
			dBm = -91.2
			=> Max TT = 1.8 dB
			Min TT = Io <sub>min</sub> - Io
			$lo_{min} = loc_{min} + lor_{min} = (-93.46)$
			dBm – 1 dB) + (-94.46 dBm –
			9.24 dB – 0.3 dB) = -94.0 dBm
			=> Min TT = -1.0 dB
			The same TT for all bands

Test	Test Parameters in TS 25.133 [2]	Test Tolerance (TT)	Test Requirement in TS 34.121
8.7.3.2 UTRA Carrier RSSI, relative measurement accuracy	Table 8.7.3.2.1A	±1 dB for loc ±0.3 dB for loc2/loc3 ±0.3 dB for îor/loc	Any TT applied to the nominal setting shall fulfil: Test 1: lo shall not go above -50 dBm. lo3-lo2 shall not go below -20 dB. Test 2: lo shall not go below -91 dBm. lo3-lo2 shall not go above 20 dB Test 3: lo shall not go below -94 dBm (Band I). lo3-lo2 shall not go above 20 dB. lor/loc + TT TT on top of UE measurement accuracy: Test 1: $\pm 0.3$ dB for loc3/loc2 ratio $\pm 0.3$ dB for loc3/loc2 ratio $\pm 0.3$ dB for lor3/loc3 ratio $\Sigma \pm 0.9$ dB (This is the worst case since G factor makes the actual tolerance lower. No impact from Noise Floor. The same TT for all bands. Test 2: $\pm 0.3$ dB for loc3/loc2 ratio
			$\pm 0.3 \text{ dB}$ for loc3/loc2 ratio $\pm 0.3 \text{ dB}$ for lor2/loc2 ratio $\pm 0.3 \text{ dB}$ for lor3/loc3 ratio $\Sigma \pm 0.9 \text{ dB}$ (This is the worst case since G factor makes the actual tolerance lower). Noise floor impact: Noise floor = -96 dB for Band III, VIII, and VIII, XII, XIII, XIV and XX (worst case). => lo2 increases by 1.0 dB, lo3 increases by 0.1 dB. Thus noise floor increases the test tolerance by 0.9 dB => TT = ±1.8 dB The same TT for all bands.
			Test 3: $\pm 0.3 \text{ dB}$ for loc3/loc2 ratio $\pm 0.3 \text{ dB}$ for loc3/loc2 ratio $\pm 0.3 \text{ dB}$ for lor3/loc3 ratio $\Sigma \pm 0.9 \text{ dB}$ (This is the worst case since G factor makes the actual tolerance lower). Noise floor impact (Band I): Noise floor = -99 dB. => lo2 increases by 1.0 dB. No impact to lo3. Thus noise floor increases the test tolerance by 1.0 dB => TT = $\pm 1.9 \text{ dB}$ The same TT for all bands.

Test	Test Parameters in	Test Tolerance	Test Requirement in TS 34 121
	TS 25.133 [2]	(TT)	
8.7.3A GSM Carrier	WCDMA cell parameters: See	TT for test	WCDMA: Test parameter
RSSI	table 8.7.3A.2	parameters	settings are unchanged since
	GSM cell parameters: See		level settings in either direction
	table 8.7.3A.3	GSM cell levels:	are not critical with respect to
		Step 1: -1 dB	the outcome of the test
		Step 2: -1 dB	
		Step 3: -1 dB	GSM: Test parameter settings
		Step 4:+1 dB	are changed in steps 1,2,3 and 4 as follows: BCCH levels are
		TT for test	increased by test tolerance so
		requirements:	that during
			Step 1, level $\leq$ 38 dBm,
		Relative accuracy	Step 2, level $\leq$ 48 dBm,
		requirements:a,b,c	Step 3, level $\leq$ 70 dBm,
		and d values in	Step 4, level ≥ -110 dBm.
		minimum	Hence during steps 1,2,3 and 4:
		increased by 2 dB	New levels=Original levels + TT
		i.e.,	For other steps 5 to 12 GSM test parameter settings are
		For x1 $\ge$ s+14, x2< -	unchanged since level settings
		48 dBm:	in either direction are not critical
		a=4, b=4, c=6, d=6	with respect to the outcome of the test
		For $s+14 > x1 \ge s+1$ a=5 b=4 c=7 d=6	TT on top of UE measurement
			accuracy:
		For $s+1 > x1$	Relative accuracy: Test system
		a=6, b=4, c=8, d=6	uncertainty $\pm 1.4$ dB. Rounded to
		Absolute accuracy	$\pm 2$ ub due to granularity of GSW
		requirements:	1 dB.
		requirements are	Absolute acquiracy: Test system
		increased by +1 dB	Absolute accuracy. Test system
		increased by ±1 db	increase due to grapularity of
			GSM Carrier RSSI report
			mapping of 1 dB.
8.7.3B Transport channel BLER	TBD		
8.7.3C UE Transmitted	Accuracy upper limit	0.7 dB	Formula: Upper accuracy limit +
power (R99 and Rel-4	Accuracy lower limit		Π
only)	Depends on PUEMAX see		Lower accuracy limit
	table 8.7.3C.2.1		-Π
			Add and subtract TT to all the
			values in table 8.7.3C.2.1.
8.7.3D UE Transmitted	Accuracy upper limit	0.7 dB	Formula: Upper accuracy limit +
power (Rel-5 and later)	Accuracy lower limit		
			Lower accuracy limit
			8.7.3D.4.3.

8.7.4 SFN-CFN observed time difference       T able 8.7.4.1.2 and Table 8.7.4.2.2       ±1.0 dB for loc ±0.3 dB for lor/loc       Intra and inter frequency ca Test 1: lo shall not go abow dBm         ±0.5 chips for the actual SFN-CFN observed time difference       Test 2: No restrictions on lo value         Test 3: lo shall not go below dBm (Band 1, IV, VI, X), or below -93 dBm (Band IX). or
observed time       8.7.4.2.2         difference       ±0.3 dB for lor/loc         ±0.5 chips for the actual SFN-CFN observed time difference       Test 1: lo shall not go abov dBm         Test 2: No restrictions on Ic value       Test 3: lo shall not go below dBm (Band 1, IV, VI, X), or below -93 dBm (Band IX).
±0.5 chips for the actual SFN-CFN Test 2: No restrictions on Ic observed time difference Test 3: Io shall not go below dBm (Band 1, IV, VI, X), or below -93 dBm (Band IX). or
Test 3: lo shall not go belov dBm (Band 1, IV, VI, X), or below -93 dBm (Band IX). o
below –92 dBm (Band II, V, XI) or below –91 dBm (Ban VIII, XII, XIII, XIV, XX)
Îor/loc + TT
TT on top of UE measurem accuracy: SFN-CFN observed ti
difference: 1.0 chips +
observed time difference time 1
Test 2: No restrictions on lo
±0.5 chips for the value actual SEN-SEN
observed time Test 3: lo shall not go belov difference dBm (Band 1, IV, VI, X), or
below -93 dBm (Band IX), o below –92 dBm (Band II, V,
XI) or below –91 dBm (Ban VIII, XII, XIII, XIV, XX)
Îor/loc + TT
TT on top of UE measurem
SFN-SFN observed time difference: 1.0 chips + TT
8.7.6.1 UE Rx-Tx time $Io - 10.9 dB = Ioc$ , 1 dB for loc Test 1: lo = -92.7 dBm, difference (Polesco 5 Test 1: lo = 0.4 dBm
and earlier) Test 1: lo = -74 dBin Test 2: lo = -72 dBm 0.3 dB for lor/loc
I est3 : IO = -50dBm 0.5 chip for timing   Ioc*(1-TTIoc+ (Ior/Ioc-TTIor/Io
Timing Accuracy ± 1.5 chip accuracy -94
Test 2: unchanged (no critic
Test 3: lo = -51.3 dBm, loc
Formula:
loc*(1+TT <sub>loc</sub> + (lor/loc+TT <sub>lor/l</sub> -50
Timing accuracy ±2.0 chip Formulas:
Upper limit +TT

Test	Test Parameters in TS 25.133 [2]	Test Tolerance (TT)	Test Requirement in TS 34.121
8.7.6.1AUE Rx-Tx time difference (Release 6 and later)	Table 8.6.7.1A.2 and Table 8.6.7.1A.4	±1.0 dB for loc ±0.3 dB for lor/loc ±0.5 chip for timing accuracy	Test 1: lo shall not go below -94 dBm (Band I, IV, VI, X), or below -93 dBm (Band IX), or below – 92 dBm (Band II, V, VI, XI) or below –91 dBm (Band III, VII, XII, XIII, XIV, XX) Formula: loc*(1-TT <sub>loc</sub> + (lor/loc-TT <sub>lor/loc</sub> )) $\geq$ -94 Test 2: No restrictions on lo value Test 3: lo shall not go above -50 dBm Formula: loc*(1+TT <sub>loc</sub> + (lor/loc+TT <sub>lor/loc</sub> )) $\leq$ -50 Timing accuracy ±2.0 chip Formulas:
			Upper limit + I I Lower limit –TT
8.7.7 Observed time difference to GSM cell	IBD		
8.7.8 P-CCPCH RSCP	TBD		
8.7.9 UE Transmission Power Headroom	UPH reporting accuracy from ±2 dB to ±6 dB, depending on UE power class and total UE output power.	0.8 dB for UPH reporting accuracy	Formula: (Upper) Minimum Requirement + TT (Lower) Minimum Requirement - TT UPH reporting accuracy from ±2.8 dB to ±6.8 dB, depending on UE power class and total UE output power.
8.7.10 E-UTRAN FDD RSRP absolute accuracy	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	<u>Test 1:</u> OdB OdB OdB -0.30dB OdB Via mapping	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$
	$\frac{\text{Test 2:}}{\text{UTRA Cell 1}}$ $I_{oc}: -70dBm/3.84MHz$ $\hat{I}_{or} / I_{oc}: -1.00dB$ $\text{CPICH}\_E_{c}/I_{or}: -10.00dB$ $\text{E-UTRA Cell 2}$ $N_{oc}: -117dBm \text{ or } -115dBm \text{ or } -113.5 \text{ or } -114dBm \text{ or } -116dBm$ $/15kHz \text{ depending on}$ $operating band$ $\hat{E}s / N_{oc}: -4.00dB$ $\text{Reported RSRP values: } \pm 6dB$	Test 2: OdB OdB OdB +0.80dB Via mapping	$\frac{\text{Test 2:}}{\text{UTRA Cell 1}}$ $\frac{1}{\text{loc}: -70 \text{dBm}/3.84 \text{MHz}}$ $\hat{1}_{or} / 1_{oc}: -1.00 \text{dB}$ CPICH_E_o/1_{or}: -10.00 dB $\frac{\text{E-UTRA Cell 2}}{\text{Noc}: -117 \text{dBm or } -115 \text{dBm or } -113.5 \text{ or } -114 \text{dBm or } -116 \text{dBm}}$ /15 kHz depending on operating band $\hat{\text{Es}} / \text{Noc}: -3.20 \text{dB}$ RSRP_13 to RSRP_28 RSRP_15 to RSRP_30 RSRP_17 to RSRP_31 RSRP_16 to RSRP_31 RSRP_14 to RSRP_29 depending on operating band

Test	Test Parameters in	Test Tolerance	Test Requirement in TS 34.121		
	TS 25.133 [2]	(TT)	•		
	The derivation of the RSRP values takes into account the uncertainty in Cell 2 RSRP from				
	$N_{oc}$ and Ês / $N_{oc}$ , the allowed UE	reporting accuracy, and	the UE mapping function.		
	The RSRP values given above are for normal conditions. In all cases the RSRP values are				
	3dB wider at each end for extreme conditions.				
8.7.11 E-UTRAN TDD	Same as 8.7.10	Same as 8.7.10	Same as 8.7.10		
RSRP absolute					
accuracy					
8.7.12 E-UTRAN FDD	Test 1:	Test 1:	Test 1:		
RSRQ absolute					
accuracy		OdB	IOC: -70dBm/3.84IVIHZ		
		OdB			
	CPICH_Ec/lor: -10.00dB	OdB	CPICH_Ec/lor: -10.00dB		
	E-UTRACEIIZ Noc: 80.00dBm /15kHz	0.8048	E-UTRACEIIZ Noc: 90 90dBm /15kHz		
	ÊS/Noo: 1 75dP		NUC00.0000011/13KHZ		
	Bonarted BSBO values:		$PSPO_04 to PSPO_16$		
	+2 5dB	via mapping			
	12.500				
	Test 2.	Test 2.	Test 2 <sup>.</sup>		
	UTRA Cell 1	10012.	UTRA Cell 1		
	loc: -70 dBm/3 84MHz	0dB	loc: -70dBm/3 84MHz		
	lor/loc: -1.00dB	0dB	lor/loc: -1.00dB		
	CPICH Ec/lor: -10.00dB	0dB	CPICH Ec/lor: -10.00dB		
		002			
	E-UTRA Cell 2		E-UTRA Cell 2		
	Noc: -104.70dBm /15kHz	0dB	Noc: -104.70dBm /15kHz		
	Ês / Noc: -4.00dB	+0.80dB	Ês / Noc: -3.20dB		
	Reported RSRQ values:	Via mapping	RSRQ 00 to RSRQ 16		
	±3.5dB				
	Test 3:	Test 3:	Test 3:		
	UTRA Cell 1		UTRA Cell 1		
	loc: -70dBm/3.84MHz	0dB	loc: -70dBm/3.84MHz		
	Îor/loc: -1.00dB	0dB	Îor/loc: -1.00dB		
	CPICH_Ec/lor: -10.00dB	0dB	CPICH_Ec/lor: -10.00dB		
	E-UTRA Cell 2		E-UTRA Cell 2		
	Noc: -119.5dBm or -118.5dBm	0dB	Noc: -119.5dBm or -118.5dBm		
	or -117.5 or -116.5dBm or -		or -117.5 or -116.5dBm or -		
	116dBm /15kHz depending on		116dBm /15kHz depending on		
	operating band		operating band		
	Es/Noc: -4.00dB	+0.80dB	Es/Noc: -3.20dB		
	Reported RSRP values:	Via mapping	RSRQ_00 to RSRQ_16		
	±3.5dB				
	Ine derivation of the RSRQ valu	ies takes into account the	e uncertainty in Cell 2 RSRQ from		
	$N_{oc}$ and Es / $N_{oc}$ , the allowed UE	reporting accuracy, and	the UE mapping function.		
	Ine RSRQ values given above a	are for normal conditions	. In Test 1 the RSRQ values are		
	1.5dB wider at each end and in	Test 2 and 3 the RSRQ	alues are 0.5dB wider at each		
	end for extreme conditions.	extreme conditions.			
0.7.13 E-UTRAN IDD	Same as 8.7.12	Same as 8.7.12	Same as 8.7.12		
KSKQ absolute					
accuracy		1			

## F.4.5 Performance requirements (HSDPA)

## Table F.4.5: Derivation of Test Requirements (Performance tests HSDPA)

Test	Minimum Requirement in TS	Test	Test Requirement in TS 34.121
	25.101	(TT)	
9.2.1A to 9.2.1KD	$E_{c}$ -12, -9, -6, -3 and -2 dB	0.1 dB	Formulas:
Performance	I <sub>or</sub>	for $\frac{E_c}{I}$	$\frac{E_c}{I}$ = ratio + TT
	<i>I<sub>oc</sub></i> = -60 dBm	0.6 dB for	$\hat{I}_{or}^{or}/I_{oc}$ = ratio + TT
	$\hat{I}_{or}/I_{oc} = 0, 5, 10, 15 \text{ and } 18$ dB	$\hat{I}_{or}/I_{oc}$	I <sub>oc</sub> unchanged
	Minimum requirements apply for each carrier	Tolerances apply for each carrier	Test requirements apply for each carrier
9.2.1L to 9.2.1LD	$E_c$ -6 and -3 dB	0.1 dB	Formulas:
Single Link Enhanced	$\frac{I_{or}}{I_{or}}$	for $\underline{E_c}$	$\frac{E_c}{T}$ = ratio + TT
	$I_{oc} = -60 \text{ dBm}$	I <sub>or</sub>	$I_{or}$ $\hat{I}$ $I_{I}$ - ratio + 1.2dB
		0.76 dB for	$\hat{\mathbf{r}}_{or1} / \hat{\mathbf{r}}_{oc}$ = ratio + 1.2db
	$\hat{I}_{or}/I_{oc}$ ' = 0 dB	$I_{or}/I_{oc}$	$I_{or2}/I_{oc}$ = ratio + 0.6dB
	DIP1 = -2.75 dB	0.17 dB for	$I_{or3}/I_{oc}$ = ratio + 0.6dB
	DIP2 = -7.64 dB	DII 1, DII 2	This has the effect of increasing
	Minimum requirements apply for each carrier	Test Tolerances apply for	$\hat{I}_{or}/I_{oc}$ ' by 0.76dB and increasing DIP1 and DIP2 by 0.17dB.
		each carrier	$\hat{I}_{or2}/I_{oc}$ and $\hat{I}_{or3}/I_{oc}$ TT is derived by increasing ratio by uncertainty to ensure DIP values are maintained.
			$\hat{I}_{or1}/I_{oc}$ TT is derived by combined effect of $\hat{I}_{or1}/I_{oc}$ , $\hat{I}_{or2}/I_{oc}$ and $\hat{I}_{or3}/I_{oc}$ uncertainties in wanted signal, interferer 1 and interferer 2 respectively, after applying TT to $\hat{I}_{or2}/I_{oc}$ and $\hat{I}_{or3}/I_{oc}$ . The interferer uncertainties are scaled according to their effect on $\hat{I}_{or}/I_{oc}$ ', which is determined from the DIP values. $I_{oc}$ unchanged
			Test requirements apply for each carrier

Test	Minimum Requirement in TS	Test	Test Requirement in TS 34.121
	25.101	Tolerance (TT)	
9.2.2A to 9.2.2E Open	$E_{\rm c}$ -6 and -3 dB	0.1 dB	Formulas:
loop diversity performance	$\frac{1}{I_{or}}$ of and of ab	for $\frac{E_c}{L}$	$\frac{E_c}{I}$ = ratio + TT
	x 00 ID	I <sub>or</sub>	
	$I_{oc} = -60 \text{ dBm}$	0.8 dB for	$I_{or}/I_{oc}$ = ratio + 11
	$\hat{I}_{or}/I_{oc} = 0$ and 10 dB	$I_{or}/I_{oc}$	I <sub>oc</sub> unchanged
9.2.3A to 9.2.3E	Same as 9.2.2A	Same as	Same as 9.2.2A
performance		9.Z.ZA	
9.2.4A MIMO	$E_{\rm a}$ -2 dB	0.1 dB	Formulas:
performance	$\frac{1}{I_{\text{m}}}$	for $\underline{E_c}$	$\underline{E_c}$ = ratio + TT
	or	I <sub>or</sub>	I <sub>or</sub>
	$I_{oc} = -60 \text{ dBm}$	0.8 dB for	$\hat{I}_{or}/I_{oc}$ = ratio + TT
	$\hat{I}_{or}/I_{oc} = 6$ and 10 dB	$\hat{I}_{or}/I_{oc}$	I <sub>oc</sub> unchanged
9.2.4B MIMO and	<i>E<sub>c</sub></i> -1.5 dB	0.1 dB	Formulas:
64QAM performance	$\overline{I_{or}}$	for $\underline{E_c}$	$\underline{E_c}$ = ratio + TT
		I <sub>or</sub>	I <sub>or</sub>
	$I_{oc} = -60 \text{ dBm}$	0.8 dB for	$\hat{I}_{or}/I_{oc}$ = ratio + TT
	$\hat{I}_{or}/I_{oc}$ = 18 dB	$\hat{I}_{or}/I_{oc}$	I <sub>oc</sub> unchanged
9.2.4C MIMO	<u> </u>	0.1 dB	Formulas:
Reference Channel	$\overline{I_{or}}$	for $\frac{E_c}{I}$	$\frac{E_c}{I}$ = ratio + TT
(FRC) H-Set 9A	$I_{oc}$ = -60 dBm	0.8 dB for	$\hat{I}_{or}^{or}/I_{oc}$ = ratio + TT
	$\hat{I}/I = 6$ and 10 dB	$\hat{I}_{or}/I_{oc}$	<i>I</i> unchanged
			Test requirements should be applied for
			both the cells
9.2.4CA MIMO Performance - Fixed	Same as 9.2.4C	Same as	Same as 9.2.4C
Reference Channel		0.2.40	
(FRC) H-Set 9A for DB			
DC-HSDPA	E	0.1.dB	Formulas:
Performance - Fixed	$\frac{L_c}{L}$ -1.5 dB	for E	$E_{-}$ rotio + TT
Reference Channel	1 <sub>or</sub>	$\frac{101}{I}$	$\frac{c}{I} = 1$ and $\pm 11$
(FRC) H-Set 11A	<i>I<sub>oc</sub></i> = -60 dBm		$\hat{I}_{or}^{or}/I_{oc}$ = ratio + TT
		$\hat{i}$ / $i$	
	$I_{or}/I_{oc} = 18 \text{ dB}$	I or / I oc	I <sub>oc</sub> unchanged
			Test requirements should be applied for both the cells
9.2.4DA MIMO	Same as 9.2.4D	Same as	Same as 9.2.4D
Performance - Fixed		9.2.4D	
(FRC) H-Set 11A for			
DB DC-HSDPA			
9.2.4E MIMO	$E_c$ -2 dB	0.1 dB	Formulas:
Reference Channel (FRC)	I <sub>or</sub>	for $\frac{E_c}{I}$	$\frac{E_c}{I}$ = ratio + TT
H-Set 9 Asymmetric		I <sub>or</sub>	
	$I_{oc} = -60 \text{ dBm}$	0.8 dB for	$I_{or}/I_{oc}$ = ratio + TT
	$\hat{I}_{or}/I_{oc}$ = 6 and 10 dB	$\hat{I}_{or}/I_{oc}$	I <sub>oc</sub> unchanged

Test	Minimum Requirement in TS	Test	Test Requirement in TS 34.121
	25.101	(TT)	
9.2.4F MIMO	$E_c$ -1.5 dB	0.1 dB	Formulas:
performance-Fixed	$\overline{I_{or}}$	for $\underline{E_c}$	$\underline{E_c}$ = ratio + TT
H-Set 11 Asymmetric		I <sub>or</sub>	I <sub>or</sub>
CPICHs	$I_{oc}$ = -60 dBm	0.8 dB for	$\hat{I}_{or}/I_{oc}$ = ratio + TT
	$\hat{I}$ /I = 18 dB	$\hat{I}_{ar}/I_{ac}$	L unchanged
Performance - Fixed	$\frac{E_c}{L}$ -2 dB		F refine $TT$
Reference Channel (FRC)	I <sub>or</sub>		$\frac{D_c}{I} = 1000 \pm 11$
H-set 9A Asymmetric	$I = -60  \mathrm{dBm}$	1 or	$\hat{I}_{or}$
CFICID	$T_{oc} = -00$ dBm	0.8 dB for	$I_{or}/I_{oc} = 1400 \pm 11$
	$\hat{I}_{or}/I_{oc} = 6$ and 10 dB	$\hat{I}_{or}/I_{oc}$	I <sub>oc</sub> unchanged
			Test requirements should be applied for
			both the cells
9.2.4 NINO Performance - Fixed	$\frac{E_c}{2}$ -1.5 dB		$F$ $\cdot \cdot \cdot$
Reference Channel (FRC)	I <sub>or</sub>	for $\frac{L_c}{I}$	$\frac{L_c}{I}$ = ratio + 11
H-set 11A Asymmetric		1 <sub>or</sub>	$r_{or}$
	$I_{oc} = -60 \text{ dBm}$	0.8 dB for	$I_{or}/I_{oc} = ratio + 11$
	$\hat{I} / I = 18  dB$	$\hat{I}_{or}/I_{oc}$	I unchanged
	$I_{or}/I_{oc} = 10$ dB	0.7.00	$T_{oc}$ unchanged Test requirements should be applied for
			both the cells
9.3.1 Single Link		No test	
propagation conditions		applied	
9.3.1A Single Link		No test	
Performance - AWGN		tolerances	
propagation conditions, 64QAM		applied	
9.3.1B Single Link		No test	
Performance - AWGN		tolerances	
Propagation		applied	
HSDPA requirements			
9.3.1BA Single Link		No test	
Performance - AWGN		tolerances	
Conditions DB-DC-		applied	
HSDPA requirements			
9.3.1C Single Link		No test	10 dB botwoon I and I more to 0
Performance - AWGN		tolerances	between modiling M and M hance 0.0M
Propagation		applied for	per dB. 1dB linearity uncertainty maps to
Varving Radio		and 8.	0.6 M. Since M is integer, the M
Conditions		TT for the	uncertainty is 1: TT for M is defined to 1
		M-	Formula:
		difference	
		step 9.	
9.3.2 Single Link		No test	
Performance - Fading		tolerances	
propagation conditions		applied	
Performance - Fading		tolerances	
propagation conditions,		applied	
DC-HSDPA			
requirements			

Test	Minimum Requirement in TS	Test	Test Requirement in TS 34.121
	25.101	Tolerance (TT)	· · · · · · · · · · · · · · · · · · ·
9.3.2AA Single Link		Notest	
Performance - Fading		tolerances	
propagation conditions.		applied	
DB-DC-HSDPA		- 11	
requirements			
9.3.2B Single Link		No test	
Performance - Fading		tolerances	
64QAM		applied	
9.3.3 Open Loop		No test	
Diversity Performance -		tolerances	
AWGN propagation		applied	
conditions			
9.3.4 Open Loop		No test	
Diversity Performance -		tolerances	
Fading propagation		applied	
Conditions		No toot	
9.3.5 Closed Loop		tolerances	
AWGN propagation		applied	
conditions		appilea	
9.3.6 Closed Loop		No test	
Diversity Performance -		tolerances	
Fading propagation		applied	
conditions			
9.3.7A, MIMO		No test	
performance –		tolerances	
Reporting of Channel		applied	
Quality indicator -			
Single stream fading			
conditions			
9.3.7B MIMO		No test	
Periormance –		conclined	
Quality indicator Dual		applied	
Quality Indicator - Dual			
conditions			
9.3.7C MIMO		No test	
performance –		tolerances	
Reporting of Channel		applied	
Quality indicator - Dual			
stream fading			
conditions-UE			
categories 19-20			
9.3.7D MIMO		No test	
Perioritiance –		applied	
Quality indicator - Dual		applied	
stream static			
orthogonal conditions -			
UE categories 15-20			
9.3.7E MIMO		No test	
performance –		tolerances	
Reporting of Channel		applied	
Quality indicator - Dual			
stream static			
orthogonal conditions –			
UE categories 19-20			

Test	Minimum Requirement in TS 25.101	Test Tolerance	Test Requirement in TS 34.121
		(TT)	
9.3.7F MIMO		No test	
performance –		tolerances	
Reporting of Channel		applied	
Quality indicator -			
single stream lading			
Asymmetric CPICHs			
9.3.7G MIMO		No test	
performance –		tolerances	
Reporting of Channel		applied	
Quality indicator - Dual			
stream fading			
conditions –			
		No toot	
performance –		tolerances	
Reporting of Channel		applied	
Quality indicator - Dual			
stream fading			
conditions-UE			
categories 19-20 -			
Asymmetric CPICHs			
9.3.71 MIMO		NO test	
Reporting of Channel		applied	
Quality indicator - Dual		appiloa	
stream static			
orthogonal conditions –			
UE categories 15-20 -			
Asymmetric CPICHs			
9.3.7J MIMO		No test	
Reporting of Channel		applied	
Quality indicator - Dual		appiloa	
stream static			
orthogonal conditions –			
UE categories 19-20 -			
Asymmetric CPICHs		0.4.15	
9.4.1 Single Link	$\underline{E_c}$ -9, -9.9 and -10 dB	0.1 dB	Formulas:
Fenomance	I <sub>or</sub>	for $\underline{E_c}$	$\underline{E_c}$ = ratio + TT
		I <sub>or</sub>	I <sub>or</sub>
	$I_{oc} = -60 \text{ dBm}$		$\hat{I}_{or}/I_{oc}$ = ratio + TT
	$\hat{I}_{or}/I_{oc} = 0$ and 5 dB	$I_{or}/I_{oc}$	I <sub>oc</sub> unchanged
9.4.1A Single Link	$E_{c}$ -12 and -15.6 dB	0.1 dB	Formulas:
Performance -	$\overline{I_{or}}$	for $\underline{E_c}$	$\underline{E_c}$ = ratio + TT
Borformanco		I <sub>or</sub>	I <sub>or</sub>
Requirements Type 1	$I_{ac} = -60 \text{ dBm}$		$\hat{I}$ /I = ratio + TT
Requirements Type 1		0.6 dB for	or for for the second sec
	$\hat{I}_{or}/I_{oc} = 0 \text{ dB}$	$I_{or}/I_{oc}$	I <sub>oc</sub> unchanged
9.4.2 Open loop	$\frac{E_c}{2}$ -11.6, -13.4 and -11.5 dB	0.1 dB	Formulas:
diversity performance	I <sub>or</sub>	for $\underline{E_c}$	$\frac{E_c}{T}$ = ratio + TT
		I <sub>or</sub>	I <sub>or</sub>
	<i>I<sub>oc</sub></i> = -60 dBm		$\hat{I}_{or}/I_{oc}$ = ratio + TT
	$\hat{I}_{or}/I_{oc} = 0$ and 5 dB	$I_{or}/I_{oc}$	I <sub>oc</sub> unchanged

Test	Minimum Requirement in TS	Test	Test Requirement in TS 34.121
	25.101	Tolerance (TT)	
9.4.2A Open loop	$E_{c}$ -15.2 and -16.4 dB	0.1 dB	Formulas:
diversity performance –	I <sub>or</sub>	for $\underline{E_c}$	$\underline{E_c}$ = ratio + TT
Performance		I <sub>or</sub>	I <sub>or</sub>
Requirements Type 1	$I_{oc} = -60 \text{ dBm}$		$\hat{I}_{or}/I_{oc}$ = ratio + TT
	$\hat{I}_{or}/I_{oc} = 0 \text{ dB}$	$I_{or}/I_{oc}$	I <sub>oc</sub> unchanged
9.4.3 HS-SCCH Type 3	<u><i>E<sub>c</sub></i></u> -14.7, -15.6, -16 and -16.8	0.1 dB	Formulas:
performance	I <sub>or</sub>	for $\underline{E_c}$	$\underline{E_c}$ = ratio + TT
	dB	I <sub>or</sub>	I <sub>or</sub>
	x	0.9 dB for	$\hat{I}_{or}/I_{oc}$ = ratio + TT
	$I_{oc} = -60 \text{ dBm}$	$\hat{I}$ /I	
		$I_{or} / I_{oc}$	I <sub>oc</sub> unchanged
	$I_{or}/I_{oc} = 0 \text{ dB}$		E I
3 Performance -STTD	$\frac{E_c}{2}$ -12.3, -14.9, -11.4 and -	0.1 dB	Formulas:
disabled- Asymmetric		for $E_c$	$E_c$ = ratio + TT
CPICHs	14.2 dB	$\overline{I_{or}}$	$\frac{I_{ar}}{I_{ar}}$
			$\hat{I}_{or}/I_{oc}$ = ratio + TT
	$I_{oc} = -60 \text{ dBm}$	0.8 dB for	
		$\hat{I}_{or}/I_{oc}$	
		011 00	I <sub>ac</sub> unchanged
	$\hat{I}_{or}/I_{oc} = 0 \text{ dB}$		
			Formulae
3 Performance -STTD	$\frac{E_c}{2}$ -15.3, -16.7, -14.4 and -	0.1 06	Formulas.
enabled- Asymmetric		for $E_c$	$E_c$ = ratio + TT
CPICHs	15.0 UB	$\overline{I_{or}}$	$\overline{I_{or}}$
			$\hat{I}_{or}/I_{oc}$ = ratio + TT
	$I_{oc} = -60 \text{ dBm}$	0.8 dB for	
		$\hat{I}_{or}/I_{oc}$	
			I <sub>oc</sub> unchanged
	$\hat{I}_{or}/I_{oc} = 0 \text{ dB}$		
	E	0.1.4B	Formulas
performance for MIMO	$\frac{E_c}{I}$ -8.9, -11.0, -15.6 and -16.8	for E	E ratio $+$ TT
only with single-stream	dB	$\frac{10I}{I}$	$\frac{2c}{I} = 1800 \pm 11$
restriction		or	$\hat{I}$ / $I$ - ratio + $TT$
	$I_{oc} = -60 \text{ dBm}$	0.8 dB for	$T_{or}/T_{oc}$ = ratio + rr
		$\hat{I}_{or}/I_{oc}$	L. unchanged
	$\hat{I}_{or}/I_{oc} = 0 \text{ dB}$		
9.4.4A HS-SCCH Type	$E_c$ -15.6 and -16.8 dB	0.1 dB	Formulas:
3 performance for		for $\underline{E_c}$	$\underline{E_c}$ = ratio + TT
MIMO only with single-		I_or	I <sub>or</sub>
Enhanœd	<i>I<sub>oc</sub></i> = -60 dBm		$\hat{I}_{or}/I_{oc}$ = ratio + TT
Performance		0.8 dB for	
Requirements Type1	$\hat{I}_{or}/I_{oc} = 0 \text{ dB}$	$I_{or}/I_{oc}$	I <sub>oc</sub> unchanged

Test	Minimum Requirement in TS	Test	Test Requirement in TS 34.121
	25.101	Tolerance	
		(TT)	
9.4.4B HS-SCCH Type	E <sub>c</sub> -11.08.712.3 and -14.9	0.1 dB	Formulas:
3 Performance for	$\frac{1}{I_{m}}$	for $E_c$	$E_c$ = ratio + TT
MIMO only with single-	dB	$\overline{I_{or}}$	$\overline{I_{ar}}$
Stream restriction-		07	$\hat{I}'/I$ = ratio + TT
asymmetric CPICHs	$I_{aa} = -60  \text{dBm}$	0.8 dB for	$I_{or}/I_{oc}$ = ratio + ++
	-00	$\hat{I}_{ar}/I_{ac}$	I unchanged
	$\hat{I}/I = 0  dB$	0.7 00	
	$\Gamma_{or}/\Gamma_{oc} = 0.02$	0.1.4P	Formulae
3 Performance for	$E_{c}$ -12.3 and -14.9 dB	0.1 UB	E
MIMO only with single-	I <sub>or</sub>	for $\frac{E_c}{1}$	$\frac{E_c}{T}$ = ratio + TT
stream restriction-		I <sub>or</sub>	I <sub>or</sub>
STTD disabled-	$I_{oc} = -60 \text{ dBm}$		$\hat{I}_{or}/I_{oc}$ = ratio + TT
asymmetric CPICHs-			
Enhanœd	$\hat{I}_{ar}/I_{ac} = 0  \mathrm{dB}$	$I_{or}/I_{oc}$	I <sub>ac</sub> unchanged
Performance			
	<i>E</i>	0.1.4B	Formulas
3 Performance for	$\frac{E_c}{L}$ -8.4, -11.1, -15.3 and -16.7		$F \rightarrow $
MIMO only with single-	Ior	for $\frac{L_c}{L}$	$\frac{E_c}{I}$ = ratio + 11
stream restriction-	dB	I <sub>or</sub>	1 <sub>or</sub>
STTD enabled-		0.9 dP for	$\hat{I}_{or}/I_{oc}$ = ratio + TT
asymmetric CPICHs	$I_{oc} = -60 \text{ dBm}$		
		$I_{or}/I_{oc}$	I <sub>oc</sub> unchanged
	$\hat{I}_{or}/I_{oc} = 0 \text{ dB}$		
9.4.4E HS-SCCH Type	$E_c$ -15.3 and -16.7 dB	0.1 dB	Formulas:
3 Performance for	$\frac{1}{I_{ar}}$	for $\underline{E_c}$	$\underline{E_c}$ = ratio + TT
stream restriction-		I <sub>or</sub>	I <sub>or</sub>
STTD enabled-	$I_{oc} = -60 \text{ dBm}$		$\hat{I}_{ax}/I_{ax}$ = ratio + TT
asymmetric CPICHs-		0.8 dB for	011 00
Enhanœd	$\hat{I} / I = 0  \mathrm{dB}$	$\hat{I}_{or}/I_{oc}$	I an unchanged
Performance			
Q 5 1 HS-SCCH-Jess	E	0.1.dB	Formulas
demodulation of HS-	$\frac{L_c}{L}$ -6 dB	tan E	
DSCH	I <sub>or</sub>	10r $\frac{L_c}{I}$	$\frac{L_c}{I} = ratio + 11$
		1 or	$\hat{I}_{or}$
	$I_{oc} = -60 \text{ dBm}$	0.6 dB for	$I_{or}/I_{oc} = ratio + 11$
	$\hat{t}/t = 0 dB$	$\hat{I}_{ar}/I_{ac}$	I unchanged
	$I_{or}/I_{oc} = 0.00$		
demodulation of HS-	$\frac{E_c}{1}$ -9 dB		
DSCH, Enhanced	I <sub>or</sub>	for $\frac{L_c}{L}$	$\frac{L_c}{I}$ = ratio + 11
Performance	X 00 15	1 <sub>or</sub>	
Requirements Type 1	$I_{oc} = -60 \text{ dBm}$	0.6 dB for	$I_{or}/I_{oc}$ = ratio + 11
	<u>^</u>	$\hat{i}$ /I	
	$I_{or}/I_{oc} = 0 \text{ dB}$	f or / f oc	I <sub>oc</sub> unchanged
9.6.1 Single link HS-	$\underline{E_c}$ -6 dB	0.1 dB	Formulas:
DSCH Demodulation	I <sub>or</sub>	for $\underline{E_c}$	$\underline{E_c}$ = ratio + TT
CELL FACH state		I <sub>or</sub>	I <sub>or</sub>
	$I_{oc}$ = -60 dBm		$\hat{I}_{or}/I_{oc}$ = ratio + TT
		0.6  dB for	
	$\hat{I}_{or}/I_{oc} = 0 \text{ dB}$	$I_{or}/I_{oc}$	I <sub>oc</sub> unchanged
9.6.2 Single link HS-	$E_c$ -10 dB	0.1 dB	Formulas:
SCCH Detection	$\overline{I_{or}}$	for $\underline{E_c}$	$\underline{E_c}$ = ratio + TT
		I <sub>or</sub>	I <sub>or</sub>
	$I_{oc} = -60 \text{ dBm}$		$\hat{I}_{or}/I_{oc}$ = ratio + TT
		0.6 dB for	
	$\hat{I}_{or}/I_{oc} = 0 \text{ dB}$	$I_{or}/I_{oc}$	I <sub>oc</sub> unchanged
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## F.4.6 Performance requirements (E-DCH)

#### Table F.4.6: Derivation of Test Requirements (Performance tests E-DCH)

Test	Minimum Requirement in TS 25.101	Test Tolerance (TT)	Test Requirement in TS 34.121
10.2.1.1 Detection of	E-HICH_Ec/lor = -35.1 dB	0.1 dB for E-	Formulas:
E-DCH HARQ ACK		HICH_Ec/lor	E-HICH_Ec/lor = ratio + TT
Indicator Channel (E-	$I = -60 \mathrm{dBm}$		$\hat{I}$ /I - ratio + TT
HICH) Single Link	$I_{OC} = 00$ dBm	0.6 dB for $\hat{i}/I$	$I_{or}/I_{oc}$ = 1000 + 11
Performance (10 ms		0.0 UD IOI $I_{or}/I_{oc}$	
TTI)	$\hat{I}_{or}/I_{oc} = 0 \text{ dB}$		I <sub>oc</sub> unchanged
10.2.1.1A Detection of	E-HICH Ec/lor = -38.1 dB	0.1 dB for E-	Formulas:
E-DCH HARQ ACK		HICH Ec/lor	E-HICH Ec/lor = ratio + TT
Indicator Channel (E-	$I = -60  \mathrm{dBm}$		$\hat{I}$ /I = ratio   TT
HICH) Single Link		$0.6 dB for \hat{I} / I$	$I_{or}/I_{oc}$ = 1400 + 11
Performance (10 ms		0.0 UD IOI $I_{or}/I_{oc}$	
TTI, Type 1)	$I_{or}/I_{oc} = 0 \text{ dB}$		I <sub>oc</sub> unchanged
10.2.1.2 Detection of	E-HICH_Ec/lor = -28.3 dB	0.1 dB for E-	Same as in 10.2.1.1
E-DCH HARQ ACK	_	HICH_Ec/lor	
Indicator Channel (E-	$I = -60 \mathrm{dBm}$		
HICH) Single Link		0.6 dB for $\hat{I}$ /I	
Performance (2 ms		$0.0$ dB for $T_{or}/T_{oc}$	
TTI)	$I_{or}/I_{oc} = 0 \text{ dB}$		
10.2.1.2A Detection of	E-HICH_Ec/lor = -31.7 dB	0.1 dB for E-	Same as in 10.2.1.1
E-DCH HARQ ACK		HICH_Ec/lor	
Indicator Channel (E-	$I_{ac} = -60 \text{ dBm}$		
HICH) Single Link		0.6 dB for $\hat{I}$ /I	
Performance (2 ms	î /z odd	or I - oc	
TTI, Type 1)	$I_{or}/I_{oc} = 0 \text{ dB}$		
10.2.2.1.1 Detection of	E-HICH_Ec/lor = -23.6 dB	0.1 dB for E-	Formulas:
E-DCH HARQ ACK		HICH_Ec/lor	$E$ -HICH_Ec/lor = ratio + TT
Indicator Channel (E-	$I_{oc} = -60 \text{ dBm}$	0.0 JD (	$\hat{I}$ , $I$ = ratio + TT
HICH) in Inter-Cell		0.6 dB for	
PLS not containing the	$\hat{I}$ / $I$ o dp	$\hat{I}_{\rm out}/I_{\rm out}$ and	$I_{ar2}/I_{ac}$ = ratio + TT
serving E-DCH cell (10	$I_{or1}/I_{oc} = 0$ db	<i>0/11/0€</i>	0121 00
ms TTI)	$\hat{I}$ /I = 0 dB	$I_{or2}/I_{oc}$	L unchanged
	$r_{or2}/r_{oc} = 0.00$		
	$E-HICH_EC/IOT = -27.8 \text{ dB}$	U.1 dB for E-	Formulas:
Indicator Channel (E-	L OO dDar		
HICH) in Inter-Cell	$I_{oc} = -60 \text{ dBm}$	0.6 dB for	$I_{or1}/I_{oc}$ = ratio + TT
handover conditions –		$\hat{x}$ / $x$	$\hat{\mathbf{r}}$ / $\mathbf{r}$
RLS not containing the	$\hat{I}$ , $I$ = 0 dB	$I_{or1}/I_{oc}$ and	$I_{or2}/I_{oc}$ = ratio + TT
serving E-DCH cell (10	$r_{orl}/r_{oc} = 0.02$	$\hat{\tau}$ / $\tau$	
ms TTI, Type 1)	$I_{or2}/I_{oc}$ = 0 dB	$I_{or2}/I_{oc}$	I <sub>oc</sub> unchanged
10.2.2.1.2 Detection of	E-HICH_Ec/lor = -16.3 dB	0.1 dB for E-	Same as 10.2.2.1.1
E-DCH HARQ ACK		HICH_Ec/lor	
Indicator Channel (E-	$I_{oc} = -60 \text{ dBm}$		
HICH) in Inter-Cell		0.6 dB for	
DLS not conditions –	$\hat{I}$ / $I$ and $\nabla$	$\hat{I}_{-1}/I_{-}$ and	
RLS Hot containing the	$I_{or1}/I_{oc} = 0 \text{ dB}$	0/1/ 0C	
me TTI)	$\hat{I}$ $/I$ = 0 dB	$I_{or2}/I_{oc}$	
10.2.2.1.24 Data ation			Somo oo 10 2 2 1 1
	E-HICH_EC/IOI = -20.0 dB		Same as 10.2.2.1.1
Indicator Channel (F-	I CO dDm		
HICH) in Inter-Cell	$I_{OC} = -00 \text{ dBm}$	0.6 dB for	
handover conditions -		$\hat{\tau}$ / $\tau$	
RLS not containing the	$I_{ar1}/I_{ac} = 0 \text{ dB}$	$I_{or1}/I_{oc}$ and	
serving E-DCH cell (2	↑ / -	$\hat{I}$ /I	
ms TTI, Type 1)	$I_{or2}/I_{oc} = 0 \text{ dB}$	• or2 / • oc	

Test	Minimum Requirement in TS	Test Tolerance	Test Requirement in TS 34.121
10.2.2.2.1 Detection of	E-HICH_Ec/lor = -29.7 dB	0.1 dB for E-	Same as 10.2.2.1.1
E-DCH HARQ ACK	_	HICH_Ec/lor	
Indicator Channel (E-	<i>I<sub>oc</sub></i> = -60 dBm	0.6 dD for	
handover conditions –			
RLS containing the	$\hat{I}_{art}/I_{ar} = 0 \text{ dB}$	$I_{or1}/I_{oc}$ and	
serving E-DCH cell (10	$\hat{I}$	$\hat{I}_{a}/I$	
ms I II)	$I_{or2}/I_{oc} = 0 \text{ dB}$	or2/ oc	
10.2.2.2.1A Detection	E-HICH_Ec/lor = -33.4 dB	0.1 dB for E-	Same as 10.2.2.1.1
Indicator Channel (E-	$I = -60  \mathrm{dBm}$		
HICH) in Inter-Cell		0.6 dB for	
handover conditions -	î /r	$\hat{I}$ / $I$ and	
RLS containing the	$I_{or1}/I_{oc} = 0 \text{ dB}$	2 orl/2 oc and $2 / 2$	
ms TTI, Type 1)	$\hat{I}_{ar2}/I_{ar} = 0 \text{ dB}$	$I_{or2}/I_{oc}$	
10.2.2.2.2 Detection of	E-HICH_Ec/lor = -23.2 dB	0.1 dB for E-	Same as 10.2.2.1.1
E-DCH HARQ ACK	_	HICH_Ec/lor	
Indicator Channel (E-	<i>I<sub>oc</sub></i> = -60 dBm	0.6 dD for	
handover conditions –			
RLS containing the	$\hat{I}_{ar1}/I_{ac} = 0 \text{ dB}$	$I_{or1}/I_{oc}$ and	
serving E-DCH cell (2	$\hat{I}$ / $I$ and $\hat{I}$	$\hat{I}_{a}/I$	
	$I_{or2}/I_{oc} = 0 \text{ dB}$		
of F-DCH HARO ACK	$E-HICH_EC/Ior = -27.1 dB$	0.1 dB for E-	Same as 10.2.2.1.1
Indicator Channel (E-	I = -60  dBm		
HICH) in Inter-Cell		0.6 dB for	
handover conditions –		$\hat{I}_{a,1}/I_{a,a}$ and	
serving E-DCH cell (2	$I_{or1}/I_{oc} = 0 \text{ dB}$	$\hat{\boldsymbol{\tau}}$	
ms TTI, Type 1)	$I_{or2}/I_{oc} = 0 \text{ dB}$	$I_{or2}/I_{oc}$	
10.3.1.1 Detection of	E-RGCH_Ec/lor = -31 dB	0.1 dB for E-	Formulas:
E-DCH Relative Grant		RGCH_Ec/lor	$E-RGCH_Ec/lor = ratio + TT$
Single Link	$I_{oc} = -60 \text{ dBm}$	0.6 dB for $\hat{I}$ /I	$I_{or}/I_{oc}$ = ratio + TT
Performance (10 ms	$\hat{t}/t = 0$ dP		T unchessed
TTI)	$I_{or}/I_{oc} = 0$ dB		
E-DCH Relative Grant	E-RGCH_EC/IOF = -35 dB	RGCH Ec/lor	E-RGCH Ec/lor = ratio + TT
Channel (E-RGCH)	$I_{oc} = -60 \text{ dBm}$		$\hat{I}$ /I = ratio + TT
Single Link		0.6 dB for $\hat{I}_{or}/I_{oc}$	- or I - oc
TTL Type 1)	$\hat{I}_{ar}/I_{ac} = 0  \mathrm{dB}$		$I_{oc}$ unchanged
10.3.1.2 Detection of	E-RGCH_Ec/lor = -24.4 dB	0.1 dB for E-	Same as 10.3.1.1
E-DCH Relative Grant		RGCH_Ec/lor	
Channel (E-RGCH)	$I_{oc} = -60 \text{ dBm}$		
Performance (2 ms		0.6 dB for $I_{or}/I_{oc}$	
TTI)	$I_{or}/I_{oc} = 0 \text{ dB}$		
10.3.1.2A Detection of	E-RGCH_Ec/lor = -28.6 dB	0.1 dB for E-	Same as 10.3.1.1
Channel (E-RGCH)	$I = 60  \mathrm{dBm}$	RGCH_EC/IOI	
Single Link	$T_{oc} = -60$ dBm	0.6 dB for $\hat{I} / I$	
Performance (2 ms	$\hat{I}/I = 0 dB$	or / oc	
10.3.2 Detection of E-	$F_{or}/T_{oc} = 0.00$	0.1 dB for E-	Formulas:
DCH Relative Grant		RGCH_Ec/lor	E-RGCH_Ec/lor = ratio + TT
Channel (E-RGCH) in	$I_{oc} = -60 \text{ dBm}$		$\hat{I}$ , $I$ = ratio + TT
Inter-Cell Handover			-or1/-oc - radio + + +
	$\hat{I}_{or1}/I_{oc}$ = 0 dB	$I_{or1}/I_{oc}$ and	$I_{or2}/I_{oc}$ = ratio + TT
	$\hat{I}_{or2}/I_{oc} = 0 \text{ dB}$	$I_{or2}/I_{oc}$	I <sub>oc</sub> unchanged

Test	Minimum Requirement in TS 25.101	Test Tolerance (TT)	Test Requirement in TS 34.121
10.3.2A Detection of E- DCH Relative Grant	E-RGCH_Ec/lor = -31.2 dB	0.1 dB for E- RGCH_Ec/lor	Formulas: E-RGCH_Ec/lor = ratio + TT
Channel (E-RGCH) in Inter-Cell Handover	$I_{oc} = -60 \text{ dBm}$	0.6 dB for	$\hat{I}_{or1}/I_{oc}$ = ratio + TT
conditions (Type 1)	$\hat{I}_{or1}/I_{oc}$ = 0 dB	$\hat{I}_{or1}/I_{oc}$ and	$\hat{I}_{or2}/I_{oc}$ = ratio + TT
	$\hat{I}_{or2}/I_{oc}$ = 0 dB	$\hat{I}_{or2}/I_{oc}$	I <sub>oc</sub> unchanged
10.4.1 Demodulation of E-DCH Absolute Grant	E-AGCH_Ec/lor = -23.2 dB	0.1 dB for E-	Formulas: F-AGCH_Ec/lor = ratio + TT
Channel (E-AGCH) Single Link	<i>I<sub>oc</sub></i> = -60 dBm	0.6 dB for $\hat{I}_{or}/I_{oc}$	$\hat{I}_{or}/I_{oc}$ = ratio + TT
Penormance	$\hat{I}_{or}/I_{oc} = 0  \mathrm{dB}$		I <sub>oc</sub> unchanged
10.4.1A Demodulation of E-DCH Absolute	E-AGCH_Ec/lor = -26.8 dB	0.1 dB for E- AGCH_Ec/lor	Formulas: E-AGCH_Ec/lor = ratio + TT
Grant Channel (E- AGCH) Single Link	$I_{oc} = -60 \text{ dBm}$	0.6 dB for $\hat{I}_{ar}/I_{ac}$	$\hat{I}_{or}/I_{oc}$ = ratio + TT
Performance (Type 1)	$\hat{I}_{or}/I_{oc} = 0 \text{ dB}$		I <sub>oc</sub> unchanged

## F.4.7 Performance requirements (MBMS)

#### Table F.4.7: Derivation of Test Requirements (Performance tests MBMS)

Test	Minimum Requirement in TS 25.101	Test Tolerance (TT)	Test Requirement in TS 34.121
11.2 Demodulation of MTCH	S-CCPCH_Ec/lor = -4.9, - 5.6, -8.5 dB	0.1 dB for S-CCPCH_Ec/lor ratio	Formulas: S-CCPCH_Ec/lor = ratio + TT
			$I_{oc}$ unchanged
		0.6 dB for $\hat{I}_{or1}/I_{oc}$	
		0.6 dB for $I_{or2}/I_{oc}$	$I_{or1}/I_{oc} = 1$ ratio +TT $\hat{I}_{or1}/I_{oc} = ratio +TT$
			$\hat{I}_{or3}/I_{oc}$ = ratio +TT
11.2A Demodulation of MTCH - Enhanced Performance Requirements Type 1	S-CCPCH_Ec/lor = -7.7, - 8.7, -11.5 dB	0.1 dB for S-CCPCH_Ec/lor ratio	Formulas: S-CCPCH_Ec/lor = ratio + TT
			I <sub>oc</sub> unchanged
		0.6 dB for $\hat{I}_{or1}/I_{oc}$	
		0.6 dB for $\hat{I}_{or2}/I_{oc}$	$\hat{I}_{or1}/I_{oc}$ = ratio +TT
		0.6 dB for $\hat{I}_{or3}/I_{oc}$	$\hat{I}_{or2}/I_{oc} = \text{ratio} + TT$
11.3 Demodulation of		0.1 dB for	$I_{or3}/I_{oc} = ratio + 11$
MTCH and cell	$5-0.00 \text{ GPCH}_{=}0.00 \text{ GPCH}_{=}0.$	S-CCPCH_Ec/lor ratio	S-CCPCH_Ec/lor = ratio + TT
identification	Stage 1:		
	$\hat{I}_{oc} = -3 \text{ dB}$		$I_{oc}$ unchanged
	$\hat{I}_{or2}/I_{oc}$ = -3 dB	$0.6 dP for \hat{t} / t$	
	$\hat{I}_{or3}/I_{oc} = -infinity$	0.6 dB for $\hat{I}_{or1}/I_{oc}$	$\hat{I}_{or1}/I_{oc}$ = ratio +TT
	Stage 2:	0.6 dB for $\hat{I}_{or2}/I_{oc}$	$\hat{I}_{or2}/I_{oc} = \text{ratio} + TT$
	$I_{oc}$ = -73 dB		$I_{or3}/I_{oc} = ratio + 11$
	$\hat{I}_{or1}/I_{oc} = 0 \mathrm{dB}$		
	$\hat{I}_{or2}/I_{oc} = 0 \mathrm{dB}$		
	$\hat{I}_{or3}/I_{oc} = 0 \text{ dB}$		
	Stage 3:		
	$I_{oc} = -70  \text{dB}$		
	$\begin{bmatrix} I_{orl} / I_{oc} &= -3 \text{ GB} \\ \hat{i} / I_{oc} &= -3 \text{ finite} \end{bmatrix}$		
	$\begin{bmatrix} I_{or2}/I_{oc} = -\text{Infinity} \\ \hat{I}_{or2}/I_{oc} = -3 \text{ dB} \end{bmatrix}$		
	$I_{or3}/I_{oc} = -3$ UD		

## F.5 Acceptable uncertainty of Test Equipment (This clause is informative)

This informative clause specifies the critical parameters of the components of an overall Test System (e.g. Signal generators, Signal Analysers etc.) which are necessary when assembling a Test System that complies with clause F.1 Acceptable Uncertainty of Test System. These Test Equipment parameters are fundamental to the accuracy of the overall Test System and are unlikely to be improved upon through System Calibration.

## F.5.1 Transmitter measurements

#### Table F.5.1: Equipment accuracy for transmitter measurements

Test	Equipment accuracy	Test conditions
	Natoritizal	
5.2 Maximum Output Power	Not critical	19 to 25 dBm
DPCCH (Release 5 only)	Not chucai	19 10 25 UDIT
5.2AA Maximum Output Power with HS-DPCCH (Release 6 and later)	Not critical	19 to 25 dBm
5.2B Maximum Output Power with HS- DPCCH and E-DCH	Not critical	19 to 25 dBm
5.2C UE relative code domain power accuracy	For 0 dB $\geq$ -10 dB CDP $\pm$ 0.2 dB For -10 dB $\geq$ -15 dB CDP $\pm$ 0.3 dB For -15 dB $\geq$ -20 dB CDP $\pm$ 0.4 dB	-10 to 10 dBm
5.2D UE Relative Code Domain Power Accuracy with HS-DPCCH and E-DCH	For 0 dB $\geq$ -10 dB CDP $\pm$ 0.2 dB For -10 dB $\geq$ -15 dB CDP $\pm$ 0.3 dB For -15 dB $\geq$ -20 dB CDP $\pm$ 0.4 dB	-10 to 10 dBm
5.2E UE Relative Code Domain Power Accuracy for HS-DPCCH and E-DCH with 16QAM	For 0 dB $\geq$ -10 dB CDP $\pm$ 0.2 dB For -10 dB $\geq$ -15 dB CDP $\pm$ 0.3 dB For -15 dB $\geq$ -20 dB CDP $\pm$ 0.4 dB For -20 dB $\geq$ -30 dB CDP $\pm$ 0.5 dB	-10 to 10 dBm
5.3 Frequency error	± 10 Hz	0 to 500 Hz.
5.4.1 Open loop power control in uplink	Not critical	-43.7 dBm to 25 dBm
5.4.2 Inner loop power control in the uplink	$\pm 0.1$ dB relative over a 1.5 dB range $\pm 0.15$ dB relative over a 3.0 dB range $\pm 0.2$ dB relative over a 4.5 dB range $\pm 0.3$ dB relative over a 26 dB range	+25 dBm to -50 dBm
5.4.3 Minimum Output Power	Not critical	
5.4.4 Out-of-s ynchronisation handling of output power: $\frac{DPCCH_{-}E_{c}}{I_{or}}$	±0.1 dB uncertainty in DPCCH_Ec/lor ratio	Ratio from –16.6 dB to –28 dB
5.4.4A Out-of-synchronisation handling of output power for a UE which supports type 1 for DCH: $\frac{DPCCH\_E_c}{I_{or}}$	±0.1 dB uncertainty in DPCCH_Ec/lor ratio	Ratio from –19.6 dB to –31 dB
5.5.1 Transmit ON/OFF Power: UE transmit OFF power	Not critical	-56 dBm (static power)
5.5.2 Transmit ON/OFF Power: transmit ON/OFF time mask	TBD	-56 dBm (dynamic power over approx. 70 dB range)
5.6 Change of TFC: power control step size	$\pm 0.3$ dB relative over a 9 dB range	+25 dBm to -50 dBm
5.7 Power setting in uplink compressed mode:-UE output power	Subset of 5.4.2	+25 dBm to -50 dBm
5.7A HS-DPCCH	$\pm$ 0.1 dB relative over a 1.5 dB range $\pm$ 0.15 dB relative over a 3.0 dB range $\pm$ 0.2 dB relative over a 4.5 dB range $\pm$ 0.3 dB relative over a 26 dB range	+25 dBm to -50 dBm
5.8 Occupied Bandwidth	±100 kHz	For results between 4 and 6 MHz?
5.9 Spectrum emission mask	Not critical	P_Max Accuracy applies ±5 dB either side of UE requirements
5.9A Spectrum emission mask with HS- DPCCH	Not critical	P_Max Accuracy applies ±5 dB either side of UE requirements
5.9B Spectrum emission mask with E- DCH	Not critical	P_Max Accuracy applies ±5 dB either side of UE requirements

5.10 ACLR	5 MHz offset ± 0.8 dB	19 to 25 dBm at 5 MHz offset for
		results between 40 dB and 50
	10 MHz offset ± 0.8 dB	dB.
		25 dBm at 10 MHz offset for
		results between 45 dB and 55
		dB.
5.10A ACLR with HS-DPCCH	5 MHz offset $\pm$ 0.8 dB	19 to 25 dBm at 5 MHz offset for
		results between 40 dB and 50
	10 MHz offset + 0.8 dB	dB.
		25 dBm at 10 MHz offset for
		results between 45 dB and 55
		dB.
5.10B ACLR with E-DCH	5 MHz offset ± 0.8 dB	19 to 25 dBm at 5 MHz offset for
		results between 40 dB and 50
		dB
		25 dBm at 10 MHz offset for
		results between 45 dB and 55
		dB
5 10C ACL R with E-DCH for DC-	$7.5$ MH z officiat $\pm 0.8$ dP	19 to 25 dBm at 7.5 MH z offerst
	7.5 MHZ UISEL $\pm$ 0.6 UD	for results between 40 dB and 50
11501 A		dP
	12.5 MHz offset ± 0.8 dB	uD. 05 dDm at 40 5 Milita affa at fair
		25 dBm at 12.5 MHz offset for
		results between 45 dB and 55
		dB.
5.11 Spurious emissions	Not critical	19 to 25 dBm
5.11A Spurious emissions for DC- HSUPA	Not critical	19 to 25 dBm
5.12 Transmit Intermodulation	Not critical	19 to 25 dBm
5.12A Transmit Intermodulation for	Not critical	19 to 25 dBm
DC-HSUPA		
5.13.1 Transmit modulation: EVM	±2.5 %	25 dBm to –21 dBm
	(for single code)	
5.13.1A Transmit modulation: EVM with	±2.5 %	25 dBm to –21 dBm
HS-DPCCH	(for single code)	
5.13.1AAA EVM and IQ origin offset for	±0.5 dB	UE transmitted power = -28 dB
HS-DPCCH with E-DCH with 16 QAM	(for IQ origin offset)	± 2dB
5.13.2 Transmit modulation: peak code	±1.0dB	For readings between -10 dB to
domain error		–20 dB.
5.13.2A Relative Code Domain Error	±0.5 dB	Effective Code Domain Power >
		-30 dB
		Nominal Code Domain Power
		> -20 dB
5.13.2B Relative Code Domain Error	±0.5 dB	Effective Code Domain Power >
with HS-DPCCH and E-DCH		-30 dB
		Nominal Code Domain Power
		> -20  dB
5 13 2C Relative Code Domain Error for	+0.5 dB	Effective Code Domain Power >
HS-DPCCH and E-DCH with 160AM	10.0 00	-30 dB
		Nominal Code Domain Power
		> -30 dB
5.13.3 UE phase discontinuity	+10 Hz for Frequency error	+25 dBm to -50 dBm
	+2.5 % for EVM (for single code)	+25 dBm to -20 dBm
	6 degree for Phase discontinuity	+25  dBm to  -50  dBm
5 13 4 PRACH preamble quality (EV/M)	+2.5 %	25 dBm to -21 dBm
5 13 / PRACH preamble quality	+ 10 Hz	0 to 500 Hz
(Frequency error)		0.000112.
\		

## F.5.2 Receiver measurements

6.7B Intermodulation Characteristics for

DB-DC-HSDPA

#### Clause Equipment accuracy Test conditions 6.2 Reference sensitivity level Not critical 6.2A Reference sensitivity level for DC-Not critical HSDPA 6.2B Reference sensitivity level for DB-Not critical DC-HSDPA 6.2C Reference sensitivity level for single Not critical band 4C-HSDPA 6.2D Reference sensitivity level for Dual Not critical band 4C-HSDPA 6.3 Maximum input level: Not critical 6.3A Maximum Input Level for HS-Not critical PDSCH Reception (16QAM) 6.3B Maximum Input Level for HS-Not critical PDSCH Reception (64QAM) 6.3C Maximum Input Level for DC-Not critical HSDPA Reception (16QAM) 6.3D Maximum Input Level for DC-Not critical HSDPA Reception (64QAM) 6.3E Maximum Input Level for DB-DC-Not critical HSDPA Reception (16QAM) 6.3F Maximum Input Level for DB-DC-Not critical HSDPA Reception (64QAM) 6.3G Maximum Input Level for 4C-Not critical HSDPA Reception (16QAM) 6.3H Maximum Input Level for 4C-Not critical HSDPA Reception (64QAM) 6.4 Adjacent channel selectivity (ReI-99 Not critical and Rel-4) 6.4A Adjacent channel selectivity (Rel-5 Not critical and later releases) 6.4B Adjacent channel selectivity (ACS) Not critical for DC-HSDPA 6.4C Adjacent channel selectivity (ACS) Not critical for DB-DC-HSDPA 6.5 Blocking characteristics Not critical 6.5A Blocking characteristics for DC-Not critical **HSDPA** 6.5B Blocking characteristics for DB-DC-Not critical **HSDPA** 6.5D Blocking Characteristics for single Not critical Uplink Single band 4C-HSDPA 6.5E Blocking Characteristics for dual Not critical Uplink Single band 4C-HSDPA 6.5F Blocking Characteristics for single Not critical Uplink Dual band 4C-HSDPA 6.5G Blocking Characteristics for dual Not critical Uplink Dual band 4C-HSDPA 6.6 Spurious Response Not critical 6.6A Spurious Response for DC-HSDPA Not critical 6.6B Spurious Response for DB-DC-Not critical HSDPÅ 6.6C Spurious Response for single band Not critical 4C-HSDPA 6.6D Spurious Response for dual band Not critical 4C-HSDPA 6.7 Intermod Characteristics Not critical 6.7A Intermodulation Characteristics for Not critical DC-HSDPA

#### Table F.5.2: Equipment accuracy for receiver measurements

Not critical

6.7D Intermodulation Characteristics for single uplink single band 4C-HSDPA	Not critical	
6.7E Intermodulation Characteristics for single uplink dual band 4C-HSDPA	Not critical	
6.8 Spurious emissions	Not critical	

## F.5.3 Performance measurements

#### Table F.5.3: Equipment accuracy for performance measurements

Clause	Equipment accuracy	Test conditions
7.2 to 7.10	$\frac{DPCH\_E_c}{I_{or}} = \pm 0.1 \text{ dB}$	-2.2 to -21.8 dB
7.13	±[0.3] dB relative over 4 dB range	+25 dBm to -50 dBm

## F.5.4 Requirements for support of RRM

#### Table F.5.4: Equipment accuracy for RRM

Clause	Equipment accuracy		Test conditions
8.2.2 to 8.7.8	any_Ec/lor	±0.1 dB	
	lor//loc	±0.3 dB	
	loc1/loc2	±0.3 dB	
	loc	±1.0 dB	
	RXLEV	±1.0 dB	
	loc/ RXLEV ±0.5 dB		
8.4.2.1A Correct behaviour when receiving an ACK (Release 6 and later)	PRACH timing e	error ±0.5 chips	±10 chips

## F.5.5 Performance measurements (HSDPA)

#### Table F.5.5: Equipment accuracy for performance measurements (HSDPA)

Clause	Equipment accuracy	Test conditions
9.2.1A to 9.2.1DB Single Link	E	-12, -9, -6 and -3 dB
Performance	$\frac{c}{I}$	
	1 <sub>or</sub> ±0.1 dB	
9.2.1LA Enhanced Performance	Time alignment between DC-HSDPA cells:	
Requirements Type 3i - QPSK, Fixed	$\pm \frac{1}{2}$ chip The (0 are (0 dD) ten in the forded since $l$	
Reference Channel (FRC) H-Set 6A	shall be (equally timed +1% chip) compared	
	to the delayed signal.	
	Critical!	
9.2.2A to 9.2.2E Open loop diversity	Same as 9.2.1A	Same as 9.2.1A
performance	Sama as 0.2.1A	Samo as 0.2.1A
performance	Same as 9.2.1A	Same as 9.2.1A
9.2.4A to 9.2.4H MIMO performance	Same as 9.2.1A	-1.52 dB
9.3.1 Single Link Performance - AWGN	Same as 9.2.1A	- ,
propagation conditions		
9.3.1A Single Link Performance - AWGN	Same as 9.2.1A	
propagation conditions, 64QAM	Sama as 0.2.1.4	
9.3.18 Single Link Performance - AWGN	Same as 9.2.1A	
requirements		
9.3.1C Single Link Performance - AWGN	Same as 9.2.1A	-60dBm ≤ loc ≤ -50dBm
Propagation Conditions, Periodically	Additionally loc linearity 1dB	
Varying Radio Conditions		
9.3.2 Single Link Performance - Fading	Same as 9.2.1A	
9.3.2A Single Link Performance - Fading	Same as 9.2.1A	
propagation conditions. DC HSDPA		
requirements		
9.3.2B Single Link Performance - Fading	Same as 9.2.1A	
propagation conditions, 64QAM		
AWGN propagation conditions	Same as 9.2.1A	
9.3.4 Open Loop Diversity Performance -	Same as 9.2.1A	
Fading propagation conditions		
9.3.5 Closed Loop Diversity Performance	Same as 9.2.1A	
- AWGN propagation conditions		
9.3.6 Closed Loop Diversity Performance	Same as 9.2.1A	
9.3.7A MIMO performance – Reporting	Same as 9.2.1A	
of Channel Quality indicator - Single		
stream fading conditions		
9.3.7B MIMO performance – Reporting of	Same as 9.2.1A	
Channel Quality indicator - Dual stream		
ading conditions	Sama as 0.2.1.4	
Channel Quality indicator - Dual stream	Same as 9.2.1A	
fading conditions – UE categories 19-20		
9.3.7D MIMO performance – Reporting of	Same as 9.2.1A	
Channel Quality indicator - Dual stream		
static orthogonal conditions – UE		
9.3.7F MIMO performance – Reporting of	Same as 9.2.1A	
Channel Quality indicator - Dual stream		
static orthogonal conditions - UE		
categories 19-20		
9.3./ HIMO performance – Reporting of	Same as 9.2.1A	
fading conditions – Asymmetric CPICHs		
	1	

9.3.7G MIMO performance – Reporting of	Same as 9.2.1A	
Channel Quality indicator - Dual stream		
fading conditions – Asymmetric CPICHs		
9.3.7H MIMO performance – Reporting of	Same as 9.2.1A	
Channel Quality indicator - Dual stream		
fading conditions – UE categories 19-20 –		
Asymmetric CPICHs		
9.3.71 MIMO performance – Reporting of	Same as 9.2.1A	
Channel Quality indicator - Dual stream		
static orthogonal conditions – UE		
categories 15-20 – Asymmetric CPICHs		
9.3.7J MIMO performance – Reporting of	Same as 9.2.1A	
Channel Quality indicator - Dual stream		
static orthogonal conditions – UE		
categories 19-20 – Asymmetric CPICHs		
9.5.1 HS-SCCH-less demodulation of HS-	Same as 9.2.1A	-6 dB
DSCH		
9.5.1A HS-SCCH-less demodulation of	Same as 9.2.1A	-9 dB
HS-DSCH, Enhanced Performance		
Requirements Type 1		
9.6.1 Single link HS-DSCH Demodulation	Same as 9.2.1A	
performance in CELL_FACH state		
9.6.2 Single link HS-SCCH Detection	Same as 9.2.1A	
performance in CELL_FACH state		

## F.5.6 Performance measurements (E-DCH)

#### Table F.5.6: Equipment accuracy for performance measurements (E-DCH)

Clause	Equipmo	ent accuracy	Test conditions
10.2.1.1 Detection of E-DCH HARQ ACK	E-HICH_Ec/lor	±0.1 dB	-35.1 dB
Indicator Channel (E-HICH) Single Link			
Performance (10 ms TTI)			
10.2.1.1A Detection of E-DCH HARQ	E-HICH_Ec/lor	±0.1 dB	-38.3 dB
Link Porformance (10 ms TTL Type 1)			
10.2.1.2 Detection of E-DCH HAPO ACK	E-HICH Ec/lor	+0.1.dB	-28.3 dB
Indicator Channel (F-HICH) Single Link		±0.1 uD	-20.5 0B
Performance (2 ms TTI)			
10.2.1.2A Detection of E-DCH HARQ	E-HICH Ec/lor	±0.1 dB	-31.7 dB
ACK Indicator Channel (E-HICH) Single			
Link Performance (2 ms TTI, Type 1)			
10.2.2.1.1 Detection of E-DCH HARQ	E-HICH_Ec/lor	±0.1 dB	-23.6 dB
ACK Indicator Channel (E-HICH) in Inter-			
Cell handover conditions – RLS not			
containing the serving E-DCH cell (10 ms			
		.0.4	
10.2.2.1.1A Detection of E-DCH HARQ	E-HICH_EC/IOF	±0.1 0B	-27.8 dB
Cell bandover conditions – RLS not			
containing the serving E-DCH cell (10 ms			
TTL Type 1)			
10.2.2.1.2 Detection of E-DCH HARQ	E-HICH Ec/lor	±0.1 dB	-16.3 dB
ACK Indicator Channel (E-HICH) in Inter-	—		
Cell handover conditions – RLS not			
containing the serving E-DCH cell (2 ms			
ΤΤΙ)			
10.2.2.1.2A Detection of E-DCH HARQ	E-HICH_Ec/lor	±0.1 dB	-20.7 dB
ACK Indicator Channel (E-HICH) in Inter-			
cell handover conditions – RLS not			
10.2.2.2.1 Detection of E-DCH HARQ	E-HICH Ec/lor	±0.1 dB	-29.7 dB
ACK Indicator Channel (E-HICH) in Inter-			
Cell handover conditions – RLS			
containing the serving E-DCH cell (10 ms			
ΤΤΙ)			
10.2.2.2.1A Detection of E-DCH HARQ	E-HICH_Ec/lor	±0.1 dB	-33.4 dB
ACK Indicator Channel (E-HICH) in Inter-			
Cell handover conditions – RLS			
10.2.2.2 Detection of E-DCH HARO	E-HICH Ec/lor	+0.1.dB	-23.2 dB
ACK Indicator Channel (F-HICH) in Inter-		±0.1 UD	
Cell handover conditions – RLS			
containing the serving E-DCH cell (2 ms			
TTI)			
10.2.2.2.2A Detection of E-DCH HARQ	E-HICH_Ec/lor	±0.1 dB	-27.1 dB
ACK Indicator Channel (E-HICH) in Inter-			
Cell handover conditions – RLS			
containing the serving E-DCH cell (2 ms			
10311 Detection of E DCH Polative	E-RCCH Eallar	±0.1.dB	-31 dB
Grant Channel (F-RGCH) Single Link			
Performance (10 ms TTI)			
10.3.1.1A Detection of E-DCH Relative	E-RGCH Ec/lor	±0.1 dB	-35 dB
Grant Channel (E-RGCH) Single Link			
Performance (10 ms TTI, Type 1)			
10.3.1.2 Detection of E-DCH Relative	E-RGCH_Ec/lor	±0.1 dB	-24.4 dB
Grant Channel (E-RGCH) Single Link			
Pertormance (2 ms TTI)			

10.3.1.2A Detection of E-DCH Relative	E-RGCH_Ec/lor	±0.1 dB	-28.6 dB
Grant Channel (E-RGCH) Single Link			
Performance (2 ms TTI, Type 1)			
10.3.2 Detection of E-DCH Relative Grant	E-RGCH_Ec/lor	±0.1 dB	-27.3 dB
Channel (E-RGCH) in Inter-Cell			
Handover conditions			
10.3.2A Detection of E-DCH Relative	E-RGCH_Ec/lor	±0.1 dB	-31.2 dB
Grant Channel (E-RGCH) in Inter-Cell			
Handover conditions (Type 1)			
10.4.1 Demodulation of E-DCH Absolute	E-AGCH_Ec/lor	±0.1 dB	-23.2 dB
Grant Channel (E-AGCH) Single Link			
Performance			
10.4.1A Demodulation of E-DCH	E-AGCH_Ec/lor	±0.1 dB	-26.8 dB
Absolute Grant Channel (E-AGCH)			
Single Link Performance (Type 1)			

## F.5.7 Performance measurements (MBMS)

#### Table F.5.7.1: Equipment accuracy for performance measurements (MBMS)

Clause	Equipme	ent accuracy	Test conditions
11.2 Demodulation of MTCH	S-CCPCH_Ec/lor	±0.1 dB	-4.9dB, -5.6dB, -8.5dB
11.2A Demodulation of MTCH - Enhanced Performance Requirements Type 1	S-CCPCH_Ec/lor	±0.1 dB	-7.7dB, -8.7dB, -11.5dB
11.3 Demodulation of MTCH and cell identification	S-CCPCH_Ec/lor	±0.1 dB	-5.6dB

## F.6 General rules for statistical testing

## F.6.1 Statistical testing of receiver BER/BLER performance

#### F.6.1.1 Error Definition

1) Bit Error Ratio (BER)

The Bit Error Ratio is defined as the ratio of the bits wrongly received to all data bits sent. The bits are the information bits above the convolutional/turbo decoder

2) Block Error Ratio (BLER)

A Block Error Ratio is defined as the ratio of the number of erroneous blocks received to the total number of blocks sent. An erroneous block is defined as a Transport Block, the cyclic redundancy check (CRC) of which is wrong.

## F.6.1.2 Test Method

Each test is performed in the following manner:

- a) Setup the required test conditions.
- b) Record the number of samples tested and the number of occurred events (bit error or block error)
- c) Stop the test at a stop criterion which is minimum test time or an early pass or an early fail event.
- d) Once the test is stopped decide according to the pass fail decision rules (subclause F.6.1.7)

## F.6.1.3 Test Criteria

The test shall fulfil the following requirements:

a) good pass fail decision

- 1) to keep reasonably low the probability (risk) of passing a bad unit for each individual test;
- 2) to have high probability of passing a good unit for each individual test;
- b) good balance between test time and statistical significance
  - 3) to perform measurements with a high degree of statistical significance;
  - 4) to keep the test time as low as possible.

#### F.6.1.4 Calculation assumptions

#### F.6.1.4.1 Statistical independence

- (a) It is assumed, that error events are rare (lim BER BLER → 0) independent statistical events. However the memory of the convolutional /turbo coder is terminated after one TTI. Samples and errors are summed up every TTI. So the assumption of independent error events is justified.
- (b) In the BLER test with fading there is the memory of the multipath fading channel which interferes the statistical independence. A minimum test time is introduced to average fluctuations of the multipath fading channel. So the assumption of independent error events is justified approximately.

#### F.6.1.4.2 Applied formulas

The formulas, applied to describe the BER BLER test, are based on the following experiments:

- (1) After having observed a certain number of errors (**ne**) the number of samples are counted to calculate BER BLER. Provisions are made (note 1) such that the complementary experiment is valid as well:
- (2) After a certain number of samples (ns) the number of errors, occurred, are counted to calculate BER BLER.

Experiment (1) stipulates to use the following Chi Square Distribution with degree of freedom ne: 2\*dchisq(2\*NE, 2\*ne).

Experiment (2) stipulates to use the Poisson Distribution: dpois(ne,NE)

(NE: mean of the distribution)

To determine the early stop conditions, the following inverse cumulative operation is applied:

0.5 \* qchisq(D,2\*ne). This is applicable for experiment (1) and (2).

D: wrong decision risk per test step

Note: other inverse cumulative operations are available, however only this is suited for experiment (1) and (2).

#### F.6.1.4.3 Approximation of the distribution

The test procedure is as follows:

During a running measurement for a UE ns (number of samples) and ne (number of errors) are accumulated and from this the preliminary BER BLER is calculated. Then new samples up to the next error are taken. The entire past and the new samples are basis for the next preliminary BER BLER. Depending on the result at every step, the UE can pass, can fail or must continue the test.

As early pass- and early fail-UEs leave the statistical totality under consideration, the experimental conditions are changed every step resulting in a distribution that is truncated more and more towards the end of the entire test. Such a distribution can not any more be handled analytically. The unchanged distribution is used as an approximation to calculate the early fail and early pass bounds.

#### F.6.1.5 Definition of good pass fail decision.

This is defined by the probability of wrong decision F at the end of the test. The probability of a correct decision is 1-F.

The probability (risk) to fail a good DUT shall be  $\leq$  F according to the following definition: A DUT is failed, accepting a probability of  $\leq$  F that the DUT is still better than the specified error ratio (Test requirement).

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The probability to pass a bad DUT shall be  $\leq$  F according to the following definition: A DUT is passed, accepting a probability of  $\leq$  F that the DUT is still worse than M times the specified error ratio. (M>1 is the bad DUT factor).

This definitions lead to an early pass and an early fail limit:

Early fail: ber≥ berlim<sub>fail</sub>

$$ber \lim_{fail} (D, ne) = \frac{2 * ne}{qchisq(D, 2 * ne)}$$
(1)

For  $ne \ge 7$ 

Early pass: ber  $\leq$  berlimbad<sub>pass</sub>

$$ber \lim bad_{pass}(D, ne) = \frac{2 * ne * M}{qchisq(1-D, 2*ne)}$$
(2)

For  $ne \ge 1$ 

With

ber (normalized BER, BLER): BER, BLER according to F.6.1.1 divided by Test requirement

D: wrong decision probability for a test step . This is a numerically evaluated fraction of F, the wrong decision probability at the end of the test. See table F.6.1.6.1.

ne: Number of error events

M: bad DUT factor see table F.6.1.6.1.

qchisq: inverse cumulative chi squared distribution

#### F.6.1.6 Good balance between test time and statistical significance

Three independent test parameters are introduced into the test and shown in Table F.6.1.6.1. These are the obvious basis of test time and statistical significance. From the first two of them four dependent test parameters are derived. The third independent test parameter is justified separately.

Table F.6.1.6.1 independent	t and dependent tes	t parameters
-----------------------------	---------------------	--------------

Independe	ent test para	ameters	Dependent test parameters			
Test Parameter	Value	Reference	Test parameter	Value	Reference	
Bad DUT factor M	1.5	Table F.6.1.8	Earlypass/fail condition	Curves	Subclause F.6.1.5 Figure 6.1.9	
Final probability of wrong pass/fail decision F	0.2% 0.02%, note 2	Subclause F.6.1.5	Target number of error events	345	Table 6.1.8	
			Probability of wrong pass/fail decision per test step D	0.0085% 0.0008% and 0.008%, note 2		
			Test limit factor TL	1.234]	Table 6.1.8	
Minimum test time		Table F.6.1.6.2				

The minimum test time is derived from the following justification:

1) For no propagation conditions and static propagation condition

No early fail calculated from fractional number of errors <1 (see note 1)

2) For multipath fading condition

No stop of the test until 990 wavelengths are crossed with the speed given in the fading profile.

3) For birth death propagation conditions

No stop of the test until 200 birth death transitions occur

4) For moving propagation conditions: 628 sec

This is necessary in order to pass all potential critical points in the moving propagation profile 4 times:

Maximum rake window

Maximum adjustment speed

Intersection of moving taps

5) For high speed train conditions

This corresponds 4 complete cycles of approach and leave to and from a BS antenna.

Tak	ble	F.6	1.6.2	1	minimum	Test	time
-----	-----	-----	-------	---	---------	------	------

Fading profile	Minimum test time
Multipath propagation 3 km/h	164 sec
Multipath propagation 50 km/h	9.8 sec
Multipath propagation 120 km/h	4.1 sec
Multipath propagation 250 km/h	2 sec
Birth Death propagation	38.2 sec
Moving propagation	628 sec
High speed train conditions	28.8 sec

In table F.6.1.8 the minimum test time is converted in minimum number of samples.

#### F.6.1.7 Pass fail decision rules

No decision is allowed before the minimum test time is elapsed.

 If minimum Test time < time for target number of error events then the following applies: The required confidence level 1-F (= correct decision probability) shall be achieved. This is fulfilled at an early pass or early fail event.

For BER:

For every TTI (Transmit Time Interval) sum up the number of bits (ns) and the number if errors (ne) from the beginning of the test and calculate

BER<sub>1</sub> (including the artificial error at the beginning of the test (Note 1))and

BER<sub>0</sub> (excluding the artificial error at the beginning of the test (Note 1)).

If BER<sub>0</sub> is above the early fail limit, fail the DUT.

If BER<sub>1</sub> is below the early pass limit, pass the DUT.

Otherwise continue the test

For BLER:

- For every block sum up the number of blocks (ns) and the number of erroneous blocks (ne) from the beginning of the test and calculate
- BLER<sub>1</sub> (including the artificial error at the beginning of the test (Note 1))and

BLER<sub>0</sub> (excluding the artificial error at the beginning of the test (Note 1)).

If BLER<sub>1</sub> is below the early pass limit, pass the DUT.

If BLER<sub>0</sub> is above the early fail limit, fail the DUT.

Otherwise continue the test

2) If the minimum test time  $\geq$  time for target error events, then the test runs for the minimum test time and the decision is done by comparing the result with the test limit.

For BER:

For every TTI (Transmit Time Interval) sum up the number of bits (ns) and the number if errors (ne) from the beginning of the test and calculate  $BER_0$ 

For BLER:

For every block sum up the number of blocks (ns) and the number of erroneous blocks (ne) from the beginning of the test and calculate  $BLER_0$ 

If BER<sub>0</sub>/BLER<sub>0</sub> is above the test limit, fail the DUT.

If BER<sub>0</sub>/BLER<sub>0</sub> is on or below the test limit, pass the DUT.

#### F.6.1.8 Test conditions for BER, BLER, RLC SDU Error Rate tests

Type of test (BER)	Test requirement (BER/BLER)	Test limit (BER/BLER) = Test requirement (BER/BLER) x TL TL	Target number of error events (time)	Minimum number of samples	Prob that good unit will fail = Prob that bad unit will pass [%]	Bad unit BER/BLE R factor M
Reference Sensitivity Level	0.001	1.234	345 (22.9s)	Note 1	0.2	1.5
Maximum Input Level	0.001	1.234	345 (22.9s)	Note 1	0.2	1.5
Adjacent Channel Selectivity	0.001	1.234	345 (22.9s)	Note 1	0.2	1.5
Blocking Characteristics Pass condition Note 2	0.001	1.251	403 (26.4s)	Note 1	0.2	1.5
Blocking Characteristics Fail condition Note 2	0.001	1.251	403 (26.4s)	Note 1	0.02	1.5
Spurious Response	0.001	1.234	345 (22.9s)	Note 1	0.2	1.5
Intermodulation Characteristics	0.001	1.234	345 (22.9s)	Note 1	0.2	1.5
HS-SCCH Detection	0.05	1.234	345 (34s)	Note 1	0.2	1.5
Performance	0.01	1.234	345 (168s)	Note 1	0.2	1.5

#### Table F.6.1.8: Test conditions for a single BER/BLER tests

Type of test (BLER)	Information Bit rate	Test requirement (BER/BLER)	Test limit (BER/B LER)= Test require ment (BER/B LER)x TL	Target number of error events (time)	Minimum number of samples	Prob that bad unit will pass = Prob that good unit will fail [%]	Bad unit BER/BL ER factor M
Demodulation in Static Propagation conditions	12.2 64 144 384	0.01 0.1 0.01 0.1 0.01 0.1 0.01	TL 1.234	345 (559.16s) (55.92s) (559.16s) (55.92s) (559.16s) (27.96s) (279.58s)	Note1	0.2	1.5
Demodulation of DCH in Multi-path Fading Propagation conditions							
3km/h (Case 1, Case 2, Case 4)	12.2 64 144 384	0.01 0.1 0.01 0.1 0.01 0.1 0.1 0.01	1.234	345 (559.16s) (55.92s) (559.16s) (55.92s) (559.16s) (27.96s) (279.58s)	8200 8200 8200 8200 8200 16400 16400	0.2	1.5
120 km/h (Case3)	12.2 64 144 384	0.01 0.1 0.01 0.1 0.01 0.1 0.01	1.234	345 (559.16s) (55.92s) (55.92s) (55.92s) (55.92s) (559.16s) (27.96s) (279.58s)	205 205 205 205 205 205 410 410	0.2	1.5
250 km/h (Case 6)	12.2 64 144 384	0.01 0.1 0.01 0.1 0.01 0.1 0.01	1.234	345 (559.16s) (55.92s) (55.92s) (55.92s) (55.92s) (559.16s) (27.96s) (27.96s)	100 100 100 100 200 200	0.2	1.5
Demodulation of DCH in Moving Propagation conditions	12.2 64	0.01 0.01	1.234	345 (559.16)	31400 31400	0.2	1.5
Demodulation of DCH in Birth-Death Propagation conditions	12.2 64	0.01 0.01	1.234	345 (559.16s) (559.16s)	1910 1910	0.2	1.5
Demodulation of DCH in high speed train conditions	12.2	0.01	1.234	345 (559.16s)	1440	0.2	1.5

#### Table F.6.1.8-2: Test conditions for BLER tests

Demodulation of DCH in Base Station Transmit diversity modes (3 km/h, case1)	12.2	0.01	1.234	345 (559.16s)	8200	0.2	1.5
Demodulation of DCH in closed loop transmit diversity mode (3 km/h.	12.2	0.01	1.234	345 (559.16s)	8200	0.2	1.5
case1) Mode 1	12.2	0.01		(559.16s)	8200		
Demodulation of DCH in Site Selection Diversity Transmission Power Control mode	12.2	0.01	1.234	345 (559.16)	8200	0.2	1.5
Demodulation of DCH in Inter-Cell Soft Handover (120 km/h, case3)	12.2 64 144 384	0.01 0.1 0.01 0.1 0.01 0.1 0.01	1.234	345 (559.16s) (55.92s) (559.16s) (55.92s) (559.16s) (27.96s) (279.58s)	205 205 205 205 205 410 410	0.2	1.5
Combining of TPC commands from radio links of different radio link sets				Not applicable			
Power control in the downlink, constant BLER target				Not applicable			
Power control in the downlink, initial convergence				Not applicable			
Power control in the downlink, wind up effects				Not applicable			
Power control in the downlink, different transport formats				Not applicable			
Downlink compressed mode				Not applicable			

Blind transport format detection	Static 12.2 7.95 1.95	BLER 10 <sup>-2</sup> 10 <sup>-2</sup> 10 <sup>-2</sup>	FDR 10 <sup>-4</sup> 10 <sup>-4</sup> 10 <sup>-4</sup>	1.234	345 BLER FDR 559.16s 932min 559.16s 932min	Note 1 Note 1 Note 1	0.2	1.5
	Multipath 12.2 7.95 1.98	10 <sup>-2</sup> 10 <sup>-2</sup> 10 <sup>-2</sup>	10 <sup>-4</sup> 10 <sup>-4</sup> 10 <sup>-4</sup>		559.16s 932min 559.16s 932min 559.16s 932min 559.16s 932min	205 205 205		

Type of test (SDU ER)	Test requirement (SDU ER)	Test limit (SDU ER)= Test requirement (SDU ER)x TL TL	Target number of error events	Minimum number of samples	Prob that good unit will fail = Prob that bad unit will pass [%]	Bad unit SDU ER factor M
Cell re-selection during an MBMS session, one UTRAN inter-frequency and 2 GSM cells present in the neighbour list	0.04	1.236	NA The SDU ER test the Cell resele and its test duration During the cell r test more sa necessary fi significance are SDU ER test. (a Hence, after fir delay test, the s decided agains 0.04*1.23	NA t is embedded in ction delay test tion depends on of the delay test. reselection delay amples than or statistical generated in the pprox factor 50). nalisation of the SDU ER test is st the test limit: 16=0.0495	5%	1.5

## F.6.1.9 Practical Use (informative)

See figure F.6.1.9:

The early fail limit represents formula (1) in F.6.1.5. The range of validity is  $ne \ge 7$ ,  $\ge 8$  in case of blocking test to ne = 345

The early pass limit represents the formula (2) in F.6.1.5. The range of validity is ne=1 to ne =345. See note 1

The intersection co-ordinates of both curves are : number of errors ne = 345 and test limit TL = 1.234.

The range of validity for TL is ne>345.

A typical BER BLER test, calculated form the number of samples and errors (F.6.1.2.(b)) using experimental method (1) or (2) (see F.6.1.4. calculation assumptions) runs along the yellow trajectory. With an errorless sample the trajectory goes down vertically. With an erroneous sample it jumps up right. The tester checks if the BER BLER test intersects the early fail or early pass limits. The real time processing can be reduced by the following actions:

 $BLER_0$  (excluding the artificial error at the beginning of the test (Note 1)). is calculated only in case of an error event.

 $BER_0$  (excluding the artificial error at the beginning of the test (Note 1)). is calculated only in case of an error event within a TTI.

So the early fail limit cannot be missed by errorless samples.

The check against the early pass limit may be done by transforming formula (2) in F.6.1.5 such that the tester checks against a Limit-Number-of-samples (NL(ne)) depending on the current number of errors (including the artificial error at the beginning of the test (Note 1)).

Early pass if

$$NL(ne) \ge \frac{qchisq(1-D,2*ne)}{2*TR*M}$$

TR: test requirement (0.001)





NOTE 1: At the beginning of the test, an artificial error is introduced. This ensures that an ideal DUT meets the valid range of the early pass limit. In addition this ensures that the complementary experiment (F.6.1.4. bullet point (2)) is applicable as well.

For the check against the early fail limit the artificial erroneous sample, introduced at the beginning of the test, is disregarded.

Due to the nature of the test, namely discrete error events, the early fail condition shall not be valid, when fractional errors <1 are used to calculate the early fail limit: Any early fail decision is postponed until number of errors  $ne \ge 7$ . In the blocking test any early fail decision is postponed until number of errors  $e \ge 8$ .

NOTE 2: F= 0.2% is intended to be used for a test containing a few BER/BLER tests (e.g. receiver sensitivity is repeated 12 times). For a test containing many BER/BLER tests (e.g. blocking test) this value is not appropriate for a single BER/BLER test.

The blocking test contains approx. 12750 single BER tests. A DUT on the limit will fail approx. 25 to 26 times due to statistical reasons (wrong decision probability at the end of the test F=0.2 %). 24 fails are allowed in the blocking test but they are reserved for spurious responses. This shall be solved by the following rule:

All passes (based on F=0.2%) are accepted, including the wrong decisions due to statistical reasons.

An early fail limit based on F=0.02% instead of 0.2% is established, that ensures that wrong decisions due to statistical reasons are reduced to 2 to 3.

These asymmetric test conditions ensure that a DUT on the test limit consumes hardly more test time for a blocking test than in the symmetric case and on the other hand discriminates sufficiently between statistical fails and spurious response cases.

#### F.6.1.10 Dual limit BLER tests

This annex is applicable for subclause 7.8.1 and 7.8.1A Power control in the downlink constant BLER target, subclause 7.8.4 Power control in the downlink, different transport formats and subclause 7.9 Downlink compressed mode. In this tests the BLER shall stay between two limits.



Table F.6.1.10. Parameters for single and dual limit BLER



Figure F.6.1.10: Dual limit BLER

#### F.6.1.10.1 Description of the parameters for dual limit BLER tests

(refer figure F.6.1.10)

The origin

1 (black horizontal line in the centre): this is the normalised origin BLER

The asymptotes

1.3 (red horizontal line): this is the specified upper limit of the range (BLER +30%) (upper test requirement)

0.7(blue horizontal line): this is the specified lower limit of the range (BLER-30%)(lower test requirement)

1.3\*M (black horizontal line): this is M times the specified upper limit of the range (Bad DUT BLER)

0.7/M (brown horizontal line): this is 1/M times the specified lower limit. (Bad DUT BLER)

The pass/fail limits

Fail\_high (bold red curve ):

Definition: A momentary BLER value above this curve is with high probability above the specified upper limit: BLER +30% .

Verdict: Above: Fail due to bad BLER

Below: continue

It approaches towards 1.3(red).

Validity range 7< errors <345.

Formula:

fail\_high(ne, D) := 
$$2 \cdot \frac{\text{ne} \cdot 1.3}{\text{qchisq}(D, 2 \cdot ne)}$$

Fail\_low (bold blue curve):

Definition: A momentary BLER value below this curve is with high probability below the specified lower limit: BLER -30% ).

Verdict: Above: continue

Below: Fail due to too good BLER

It approaches towards 0.7(blue).

Validity range  $1 \le \text{errors} < 343$ .

Formula:

fail\_low(ne, D) :=  $2 \cdot \frac{\text{ne} \cdot 0.7}{\text{qchisq}(1 - D, 2 \cdot \text{ne})}$ 

Pass\_high (bold black curve):

Definition: a momentary BLER value on and below this curve is with high probability below M times the specified upper limit.

Verdict: Above: continue

Below: pass for  $ne \ge 29$ 

continue for ne < 29

It approaches 1.3\*M(black).

Validity range  $1 \le \text{errors} < 345$ .

Formula:

pass\_high (ne, D) := 
$$2 \cdot \frac{\text{ne}}{\text{qchisq}(1 - D, 2 \cdot \text{ne})} \cdot M \cdot 1.5$$

Pass\_low (bold brown curve):

Definition: a momentary BLER value on and above this curve is with high probability above 1/M times the specified lower limit of the range.

Verdict: Above: pass for  $ne \ge 29$ ,

continue for ne < 29

Below: continue

It approaches 0.7/M(brown).

Validity range 7< errors <343.

pass\_low(ne,D) := 
$$2 \cdot \frac{\text{ne} \cdot \frac{0.7}{M}}{\text{qchisq}(D, 2 \cdot \text{ne})}$$

Legend formulas:

D: wrong decision risk per test step: 0.000085

M: bad DUT factor: 1.5

ne: number of errors

qchisq: inverse cumulative chi square function

Upper test limit (boarder between pink and green)1.3\*1.234 = 1.6

Validity range:  $345 \le \text{errors}$ .

Verdict: Above: fail due to bad BLER

Below: pass

Lower test limit (boarder between green and orange) 0.7/1.234 = 0.567

Validity range:  $343 \le \text{errors}$ 

Verdict: Above: pass

Below: fail due to too good BLER

The intersection co-ordinates:

Fail\_high (bold red curve ) and Pass\_high (bold black curve):

Upper target number of errors (345) and upper test limit: 1.3\* 1.234

Fail\_low (bold blue curve) and Pass\_high (bold black curve):

Lower target number of errors (343) and lower test limit: 0.7 / 1.234

Pass\_high (bold black curve) and Pass\_low (bold brown curve)

Minimum number of errors (29) and optimum normalised BLER (1.049)

The ranges:

Range(pink): in this range the measurement can be stopped and the DUT is failed due to too high BLER.

Range (orange): in this range the measurement can be stopped and the DUT is failed due to too low BLER.

Range (yellow): in this range the measurement is undecided and must be continued.

Range (green): in this range the measurement can be stopped and the DUT is passed. No final BLER result is achieved.

#### F.6.1.10.2 Pass fail decision rules

No decision is allowed before the minimum test time (Table F.6.1.6.2) has elapsed

1) If minimum Test time < time for target number of error events then the following applies: The required confidence level 1-F (= correct decision probability, Table F.6.1.6.2) shall be achieved. This is fulfilled at

fail\_high

pass\_high

pass\_low

fail\_low

For every block sum up the number of blocks (ns) and the number of erroneous blocks (ne) from the beginning of the test and calculate

BLER<sub>1</sub> (including the artificial error at the beginning of the test (Note 1, F.6.1.9))and

BLER<sub>0</sub> (excluding the artificial error at the beginning of the test (Note 1, F.6.1.9)).

If BLER<sub>0</sub> is above *fail\_high*, fail the test due to too bad BLER

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If BLER<sub>1</sub> is below *fail\_low*, fail the test due to too good BLER

If BLER <sub>0</sub> is on or below <i>fail_high</i>	and	if BLER <sub>1</sub> is above <i>pass_high</i> , continue the test
If BLER <sub>0</sub> is below <i>pass_low</i>	and	if BLER <sub>1</sub> is above or on <i>fail low</i> , continue the test
If BLER <sub>1</sub> is below or on <i>pass_high</i>	and	if BLER <sub>0</sub> is on or above <i>pass_low</i> , pass the test

2) If the minimum test time  $\geq$  time for target error events, then the test runs for the minimum test time and the decision is done by comparing the result with the upper and lower test limit.

If BLER<sub>0</sub> is above the upper test limit, fail the DUT due to too bad BLER

If  $BLER_1$  is below the lower test limit, fail the DUT due to too good BLER

If BLER<sub>0</sub> is on or below the upper test limit and if BLER<sub>1</sub> is on or above the lower test limit, pass the DUT

#### F.6.1.10.3 Test conditions for dual limit BLER tests

Type of test (BLER)	Data rate,	Test	Test limit =	Target	Minimum	Prob that	Bad unit
	Propagation	requirement	Test	number of	number of	a good	factor
	condition	(BLER)	requirement	error	samples	unit will	M
				(time)		that a had	
				(unie)		unit will	
						pass: FI%]	
Power control in the	12.2 kbit/s,	0.01±30%	Upper TL:	Upper: 345	8200	0.2	Upper:
downlink, constant	3km/h	0.1±30%	1.3*1.234	(431.25s)			1.5
BLER target	(case4)	0.001±30%	Lower TL	(43s)			Lower
_			0.7/1.234	(4311s)			1/1.5
				Lower 343			
				(1191s)			
				(119s)			
				(11946s)			
Power control in the	64 kbit/s,	0.01±30%	Upper TL:	Upper: 345	32800	0.2	Upper:
downlink, constant	3km/h	0.1±30%	1.3*1.234	(431.25s)			. 1.5
BLER target	(case4)	0.001±30%	Lower TL	(43s)			Lower
			0.7/1.234	(4311s)			1/1.5
				Lower 343			
				(11915)			
				(119S)			
Downlink comprosed	10.01/6:16	0.01.200/		(11946S)	8200	0.0	Uppor
Downlink compressed	IZ.ZKDIVS,	0.01±30%		(424.25a)	8200	0.2	
mode			1.3 1.234	(431.205)			1.5
	(case z)			(1101c)			1/1 5
Power control in the	12.2 kbit/s	0.01+30%	0.7/1.234	(11915)	8200	0.2	I/1.5
downlink different	3km/h	0.01±3070	1 3*1 234	(431 25s)	0200	0.2	1.5
transport formats	0 khit/s		Lower TI	Lower 343			Lower
	3km/h		0 7/1 234	(1191s)			1/1 5
	(case 4)		5, 1.201	(11010)			.,

#### F.6.1.10.4 Test conditions for dual limit TPC Command Error Rate tests

Type of test (TPC Command Error Rate)	TPC Command Error Rate, Propagation condition	Test requirement (TPC Command Error Rate)	Test limit = Test requirement * TL TL	Target number of error events (time)	Minimum number of samples	Prob that a good unit will fail = prob that a bad unit will pass: F[%]	Bad unit factor M
Power control in the	1500TPC's/s	0.01±50%	Upper TL:	Upper: 345	246000	0.2	Upper:
downlink for F-DPCH	,3km/h	0.05±30%	1.5*1.234	(12.425s)	(164*1500)		1.5
	(case4)		6.5*1.234	(2.485s)			Lower
			Lower TL	Lower: 343			1/1.5
			0.5/1.234	(37.06s)			
			3.5/1.234	(7.412s)			

Table F.6.1.10.4: Test conditions for dual limit TPC Command Error Rate tests

## F.6.2 Statistical testing of RRM delay performance

#### F.6.2.1 Test Method

Each test is performed in the following manner:

- a) Setup the required test conditions.
- b) Measure the delay repeated times. Start each repetition after sufficient time, such that each delay test is independent from the previous one. The delay-times, measured, are simplified to:

a good delay, if the measured delay is  $\leq$  limit.

a bad delay, if the measured delay is > limit

- c) Record the number of delays (ns), tested, and the number of bad delays (ne)
- d) Stop the test at an early pass or an early fail event.
- e) Once the test is stopped, decide according to the pass fail decision rules (subclause F.6.2.7)

## F.6.2.2 Bad Delay Ratio (ER)

The Bad Delay Ratio (ER) is defined as the ratio of bad delays (ne) to all delays (ns). (1-ER is the success ratio)

#### F.6.2.3 Test Criteria

The test shall fulfil the following requirements:

- a) good pass fail decision
  - 1) to keep reasonably low the probability (risk) of passing a bad unit for each individual test;
  - 2) to have high probability of passing a good unit for each individual test;
- b) good balance between test-time and statistical significance
  - 3) to perform measurements with a high degree of statistical significance;
  - 4) to keep the test time as low as possible.

## F.6.2.4 Calculation assumptions

#### F.6.2.4.1 Statistical independence

It is arranged by test conditions, that bad delays are independent statistical events.

#### F.6.2.4.2 Applied formulas

The specified ER is 10% in most of the cases. This stipulates to use the binomial distribution to describe the RRM delay statistics. With the binomial distribution optimal results can be achieved. However the inverse cumulative operation for the binomial distribution is not supported by standard mathematical tools. The use of the Poisson or Chi Square Distribution requires  $ER \rightarrow 0$ . Using one of this distributions instead of the binomial distribution gives sub-optimal results in the conservative sense: a pass fail decision is done later than optimal and with a lower wrong decision risk than predefined.

The formulas, applied to describe the RRM delay statistics test, are based on the following experiment:

(1) After having observed a certain number of bad delays (**ne**) the number of all delays (**ns**) are counted to calculate ER. Provisions are made (note 1) such that the complementary experiment is valid as well:

(2) After a certain number of delays (ns) the number of bad delays (ne), occurred, are counted to calculate ER.

Experiment (1) stipulates to use the Chi Square Distribution with degree of freedom ne: 2\*dchisq(2\*NE,2\*ne).

Experiment (2) stipulates to use the Poisson Distribution: dpois(ne,NE)

(NE: mean value of the distribution)

To determine the early stop conditions, the following inverse cumulative operation is applied:

0.5 \* qchisq(D, 2\*ne) for experiment (1) and (2)

D: wrong decision risk per test step

NOTE: Other inverse cumulative operations are available, however only this is suited for experiment (1) and (2).

#### F.6.2.4.3 Approximation of the distribution

The test procedure is as follows:

During a running measurement for a UE ns (Number of Delays) and ne (Number of bad delays) are accumulated and from this the preliminary ER is calculated. Then new samples up to the next bad delay are taken. The entire past and the new samples are basis for the next preliminary ER. Depending on the result at every step, the UE can pass, can fail or must continue the test.

As early pass- and early fail-UEs leave the statistical totality under consideration, the experimental conditions are changed every step resulting in a distribution that is truncated more and more towards the end of the entire test. Such a distribution can not any more be handled analytically. The unchanged distribution is used as an approximation to calculate the early fail and early pass bounds.

#### F.6.2.5 Definition of good pass fail decision

This is defined by the probability of wrong decision F at the end of the test. The probability of a correct decision is 1- F.

The probability (risk) to fail a good DUT shall be  $\leq$  F according to the following definition: A DUT is failed, accepting a probability of  $\leq$  F that the DUT is still better than the specified bad delay ratio (Test requirement).

The probability (risk) to pass a bad DUT shall be  $\leq$  F according to the following definition: A DUT is passed, accepting a probability of  $\leq$  F that the DUT is still worse than M times the specified bad delay ratio. (M>=1 is the bad DUT factor).

This definitions lead to an early pass and an early fail limit:

Early fail:  $er \ge er li m_{fail}$ 

$$er \lim_{fail} (D, ne) = \frac{2 * ne}{qchisq(D, 2 * ne)}$$
(1)

For  $ne \ge 5$ 

Early pass:  $er \le erlimbad_{pass}$ 

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$$er \lim bad_{pass}(D, ne) = \frac{2 * ne * M}{qchisq(1-D, 2*ne)}$$
(2)

For ne  $\geq 1$ 

With

er (normalized ER): ER according to F.6.2.2 divided by specified ER

D: wrong decision probability for a test step . This is a numerically evaluated fraction of F, the wrong decision probability at the end of the test. see table F.6.2.6.1

ne: Number of bad delays

M: bad DUT factor see table F.6.2.6.1

qchisq: inverse cumulative chi squared distribution

#### F.6.2.6 Good balance between test-time and statistical significance

Two independent test parameters are introduced into the test and shown in Table F.6.2.6.1. These are the obvious basis of test time and statistical significance. From them four dependent test parameters are derived.

Independe	Independent test parameters			Dependent test parameters		
Test Parameter	Value	Reference	Test parameter	Value	Reference	
Bad DUT factor M	1.5	Table F.6.1.8	Early pass/fail condition	Curves	Subclause F.6.2.5 Figure 6.2.9	
Final probability of 5% Table wrong pass/fail		Table F.6.2.8	Target number of bad delays	154	Table 6.2.8	
decision F			Probability of	0.6 %		
			wrong pass/fail			
			decision per test			
			step D			
			Test limit factor TL	1.236]	Table 6.2.8	

#### Table F.6.2.6 independent and dependent test parameters

## F.6.2.7 Pass fail decision rules

The required confidence level 1-F (= correct decision probability) shall be achieved. This is fulfilled at an early pass or early fail event. Sum up the number of all delays (ns) and the number of bad delays from the beginning of the test and calculate:

ER<sub>1</sub> (including the artificial error at the beginning of the test (Note 1))and

ER<sub>0</sub> (excluding the artificial error at the beginning of the test (Note 1)).

If  $ER_0$  is on or above the early fail limit, fail the DUT.

If  $ER_1$  is on or below the early pass limit, pass the DUT.

Otherwise continue the test

# F.6.2.8 Test conditions for RRM delay tests, Combining of TPC commands test 1, Demodulation of Paging channel and Detection of acquisition indicator tests and UE measurement performance tests.

NOTE: Statistical independence of the tests below need to be considered:

In test 7.7.2 the statistical independency of the samples is given: Power control algorithm 1 is used. Hence the TPC commands represent directly the TPC reception. The TPC bit patterns are independent.

In test 7.7.3 the statistical independency of the samples is FFS

Test 7.11 the statistical independency of the samples is given: A paging message is an independent sample, since channel-coding, introducing dependency, is terminated after one message.

The same holds for Test 7.12

The delay tests in clause 8 up to clause 8.6 use independent samples. This is ensured by changing the scenario or reset the UE in between the samples.

In clause 8.7 the UE reports measurements. In between the reports the scenario keeps constant and the UE continues its measurement. It is unknown, whether the UE re-uses knowledge from the previous reports for the next report (intentionally or unintentionally). Hence it is unknown, whether the samples in the test are independent or not. Independent samples allow the usage of the theory in clause F.6.2.1 to F.6.2.7. Dependent samples could result in a distribution which is wider or narrower, compared to the equivalent independent distribution. In this situation statistical independency of the samples is **assumed** and the theory described in clause F.6.2.1 to F.6.2.7 is re-used.

## Table F.6.2.8: Test conditions for a single RRM delay tests, Combining of TPC commands test 1,Demodulation of Paging channel and Detection of Acquisition indicator tests and UE measurementperformance tests.

Type of test	Test	Test	Test	Target	Prob that	Bad
	requirement	(ER= 1-	Test	of bad	will fail	factor
		success	requirement	results	= Prob	М
		ratioj			unit will	
					pass [%]	
7.7.2 Combining of TPC	99%	0.01	1.236	154	5	1.5
commands rest i	for power					
	control					
	sequence					
7.7.3 Combining of reliable TPC	90%	0.1	1.236	154	5	1.5
commands from radio links of	success ratio					
different radio link sets	control					
	sequence					
7.11 Demodulation of Paging	1% missed	0.01	1.236	154	5	1.5
Channel (PCH)	paging					
7.12 Detection of Acquisition	1% false	0.01	1.236	154	5	1.5
indicator (Al).	alam					
	detection					
7.12A Detection of E-DCH	99.5%	0.005	1.236	154	5	1.5
Acquisition Indicator (E-Al)	correct	0.000			C C	
	detection					
8.2.2 Cell reselection	8s delay	0.1	1.236	154	5	1.5
8.2.3.1 UTRAN to GSM cell	27.9s delay	0.1	1.236	154	5	1.5
reselection,						
8.2.3.2 UTRAN to GSM cell	9.6s delav	0.1	1,236	154	5	1.5
reselection,					-	
scenario 2						
8.2.3.3 UTRAN to GSM cell	39.6s delay	0.1	1.236	154	5	1.5
reselection,						
8 2 4 FDD/TDD Cell reselection	8s delav	0.1	1 236	154	5	15
8.3.1 FDD/FDD Soft handover	NA	0.1	1.200	101	<u> </u>	1.0
8.3.2 FDD/FDD Hard Handover						
8.3.2.1 Handover to intra	110 ms	0.1	1.236	154	5	1.5
frequency cell	delay					
8.3.2.2 FDD/FDD Hard Handover to inter frequency cell	140ms delay	0.1	1.236	154	5	1.5
8.3.4 Inter-system Handover from UTRAN to GSM r	100 ms delay	0.1	1.236	154	5	1.5
8.3.6.3 Cell re-selection during an	4.65 s delay	0.1	1.236	154	5	1.5
MBMS session, one UTRAN inter-	_					
frequency and 2 GSM cells						
present in the neighbour list	75 ma 95	0.1	1 006	151	F	1 5
change	ms delav	0.1	1.230	154	5	1.5
8.3.9 Enhanced Serving HS-	50 ms	0.1	1.236	154	5	1.5
DSCH cell change						
8.3.10 System information						
acquisition for CSG cell	0.74	0.4	4.000	454		4 5
o.s.10.1 Intratrequency System	2.11 s delay	0.1	1.236	154	5	1.5
cell						
8.3.10.2 Inter frequency System	1.96 s delay	0.1	1.236	154	5	1.5
information acquisition for CSG						
cell						

8.4.3. Transport format	140ms delay	0.1	1.236	154	5	1.5
combination selection in UE.	(see	-	-	-	-	-
	8.4.3.1.4.2					
	and					
	8.4.3.1A.4.2					
8 4 4 1:10 ms TTLE-DCH E-TEC	50msdelav	0.1	1 236	154	5	15
restriction	Joinsuelay	0.1	1.230	134	5	1.5
8.4.4.2: 2 ms TTI E-DCH E-TFC	31ms delay	0.1	1.236	154	5	1.5
restriction	,					
8.6.2.2 correct reporting of	[13.9 s	0.1	1.236	154	5	1.5
neighbours in fading propagation	delay]					
condition.	(see					
	862242					
	step 8.)					
8.6.2.3 correct reporting of	[1.78 s	0.1	1.236	154	5	1.5
neighbours in fading propagation	delay]					
condition using TGL1=14.	(see					
	procedure					
	8.6.2.3.4.2 step 8.)					
CPICH RSCP	90%	0.1	1,236	154	5	1.5
Intra frequency measurements	correct	011			Ū.	
accuracy	reports					
8.7.1.1.1 Absolute accuracy						
	0.00%		4 000	454		4.5
8.7.1.1.2 Relative accuracy	90%	0.1	1.236	154	5	1.5
lequiement	reports					
Inter frequency measurement	90%	0.1	1.236	154	5	1.5
accuracy	correct					
8.7.1.2.1 Relative accuracy	reports					
requirement					_	
CPICH Ec/lo	90%	0.1	1.236	154	5	1.5
accuracy	reports					
8.7.2.1.1 Absolute accuracy	Терога					
requirement						
8.7.2.1.2 Relative accuracy	90%	0.1	1.236	154	5	1.5
requirement	correct					
	reports	0.1	4.000	454	5	4 5
Inter frequency measurement	90%	0.1	1.236	154	5	1.5
8.7.2.2.2 Relative accuracy	reports					
requirement						
UTRA Carrier RSSI	90%	0.1	1.236	154	5	1.5
8.7.3.1 Absolute measurement	correct					
accuracy requirement	reports		4 000	454		4.5
8.7.3.2 Relative measurement	90%	0.1	1.236	154	5	1.5
accuracy requirement	reports					
8.7.3 AGSM Carrier SSI		0.1	1.236	154	5	1.5
	90%					
	correct					
	reports		4.000			
8.7.3C UE transmitted power (R99	90%	0.1	1.236	154	5	1.5
	hetween					
	reported					
	power and					
	transmitted					
	power					

8.7.3D UE transmitted power (Rel-	90%	0.1	1.236	154	5	1.5
5 and later)	consistency					
	between					
	reported					
	power and					
	transmitted					
	power					
SFN-CFN observed time	90%	0.1	1.236	154	5	1.5
difference	correct					
8.7.4.1 Intra frequency	reports					
measurement requirement						
8.7.4.2 Inter frequency	90%	0.1	1.236	154	5	1.5
measurement requirement	correct	-		_	-	_
	reports					
SEN-SEN observed time	90%	0.1	1 236	154	5	15
difference	correct	0.1	1.200	101	Ũ	110
8.7.5.1 SEN-SEN observed time	reports					
difference type 1	. op or o					
8752SEN-SEN observed time						
difference type 2 without IPDI						
period active						
Note: This test case is not						
complete and there are currently						
no plans to complete it.						
8753SEN-SEN observed time	90%	0.1	1 236	154	5	15
difference type 2 with IPDL period	correct	0.1	1.200	101	Ũ	110
active	reports					
Note: This test case is not	. op or o					
complete and there are currently						
no plans to complete it.						
UE Rx-Tx time difference	90%	0.1	1.236	154	5	1.5
8.7.6.1 UE Rx-Tx time difference	correct	•••			-	
type 1 (Rel-5 and earlier)	reports					
8761A UF Rx-Tx time	90%	0.1	1 236	154	5	1.5
difference type 1 (Rel-6 and later)	correct	0.1	00		Ū,	
	reports					
8.7.6.2UE Rx-Tx time difference						
tvpe 2						
Note: This test case is not						
complete and there are currently						
no plans to complete it.						
P-CCPCH RSCP	90%	0.1	1 236	154	5	15
8 7 8 1 Absolute measurement	correct	0.1	1.200	101	Ũ	1.0
accuracy	reports					
879 LIF Transmission Power	90%	0.1	1 236	154	5	15
Headroom.	correct	0.1	1.200	104		1.0
	reports					
1			1	1	1	

## F.6.2.9 Practical Use (informative)

See figure F.6.2.9:

The early fail limit represents formula (1) in F.6.2.5. The range of validity is  $ne \ge 5$  to ne = 154

The early pass limit represents the formula (2) in F.6.2.5. The range of validity is ne=1 to ne =154. See note 1. The intersection co-ordinates of both curves are: target number of bad delays ne = 154 and test limit TL = 1.236.

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A typical delay test, calculated form the number of samples and errors (F.6.2.2) using experimental method (1) or (2) (see F.6.2.4.2. calculation assumptions) runs along the yellow trajectory. With an good delay the trajectory goes down vertically. With a bad delay it jumps up right. The tester checks if the ER test intersects the early fail or early pass limits.





NOTE 1: At the beginning of the test, an artificial bad delay is introduced. This ensures that an ideal DUT meets the valid range of the early pass limit. In addition this ensures that the complementary experiment (F.6.2.4.2. bullet point (2)) is applicable as well. For the check against the early fail limit the artificial bad delay sample, introduced at the beginning of the test, is disregarded. Due to the nature of the test, namely discrete bad delay events, the early fail condition shall not be valid, when fractional bad delays <1 are used to calculate the early fail limit: Any early fail decision is postponed until number of errors ne ≥ 5.</li>

## F.6.3 Statistical Testing of HSDPA Receiver Performance

#### F.6.3.1 Definition

Information Bit Throughput R:

The measured information bit throughput R is defined as the sum (in kilobits) of the information bit payloads (excluding the 24-bit HS-DSCH CRC) successfully received during the test interval, divided by the duration of the test interval (in seconds).

## F.6.3.2 Mapping throughput to block error ratio

a) In measurement practice the UE indicates successfully received information bit payload by signalling an ACK to the SS.

If payload is received, but damaged and cannot be decoded, the UE signals a NACK.

- b) Only the ACK and NACK signals, not the data bits received, are accessible to the SS. The number of bits is known in the SS from knowledge of what payload was sent.
- c) For fixed reference channel the number of bits in a TTI is fixed during one test.
- d) The time in the measurement interval is composed of successful TTIs (ACK), unsuccessful TTIs (NACK) and DTX-TTIs.
- e) DTX-TTIs occur regularly according to the H-set. (reg DTX). In real live this is the time when other UEs are served. regDTX vary from test to test but are fixed within the test.
- f) Additional DTX-TTIs occur statistically when the UE is not responding ACK or NACK where it should. (statDTX)

This may happen when the UE was not expecting data or decided that the data were not intended for it.

The pass / fail decision is done by observing the:

- number of NACKs
- number of ACKs and
- number of statDTXs (regDTX is implicitly known to the SS)

The ratio (NACK + statDTX) / (NACK + statDTX + ACK) is the Bock Error Ratio BLER. Taking into account the time consumed by the ACK-, NACK-, and DTX-TTIs (regular and statistical), BLER can be mapped unambiguously to throughput for any single FRC test.

#### F.6.3.3 Bad DUT factor

NOTE: Data throughput in a communication system is of statistical nature and must be measured and decided pass or fail. The specified limit of throughput related to the ideal throughput in different throughput tests is in the range of a few % to near 100%. To make it comparable with BER, we define the complement of the relative throughput: BLER as defined above. Complementary this is in the range of near 100% down to a few % For e.g. BLER = 1%, the currently in BER BLER used Bad DUT factor M=1.5 is highly meaningful. For e.g. BLER = 99%, the currently used M=1.5 obviously meaningless.

An appropriate definition of the bad DUT factor is illustrated in figure F.6.3.3: constant and variable Bad DUT factor.

It illustrates how to find the Bad BLER when the nominal BLER is given.

- 1) In the range 0% < nominal BLER>10% the Bad DUT factor is constant 1.5
- 2) In the range 90% < bad BLER>100% it decreases to 1. (symmetrical to (1))
- 3) The range in between is interpolated by an arc section.

The example shows: nominal BLER=35,6%  $\rightarrow$  bad BLER=47.67.5%  $\rightarrow$  M=1.34

(blue mapping)



Figure F.6.3.3: constant and variable Bad DUT factor

Formula:

For 0 < BLER <= 0.1 M = 1.5

M(BLER) := 
$$\frac{\sqrt{r^2 - (BLER - 2.35)^2}}{BLER} - \frac{1.35}{BLER}$$

For 0.1 < BLER <.9

For 0.9 <= BLER < 1 M(BLER) = 2/3BLER + 1/3

With BLER: no minal Block Error Ratio (0<BLER<1)

With r = 2.70415 (Radius of the arc)

#### F.6.3.3.1 Bad DUT factor, range of applicability

Inaccuracy is one practical reason to avoid the grey shaded area of figure F.6.3.3: constant and variable Bad DUT factor. For BLER near 1 the Bad DUT factor M is near 1. For M=1, exactly, the pass and fail criteria do not intersect. The test never is finalised.
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For M near 1 the pass and fail criteria exhibit a very smooth intersection. In addition the binomial distribution and its inverse are of discrete nature. Therefore the test limit and the number of samples is calculable only very ambiguous.

It is proposed to apply the bad DUT factor only in the not shaded area of figure F.6.3.3.

This is done by the following:

BLER mode:

Use BLER as defined above in the range of 0 to 50%, use M >1 as defined above.

The Test Limit will be > the Test Requirement in the table F.6.3.5. below.

Relative Throughput mode:

If BLER is in the range 50 to 100%, use 1-BLER instead. Use m<1 instead of M.

1-BLER is the relative throughput with respect to the ideal throughput.

As a consequence, the Test Limit < Test Requirement

Formula for m:

For  $0 < (1-BLER) \le 0.15 \text{ m} = 1/1.5$ 

 $m := \frac{2.35 - \sqrt{r^2 - \left[(1 - BLER) + 1.35\right]^2}}{(1 - BLER)}$ For 0.15 <(1-BLER) <.85

In figure F.6.3.3 this is represented by the red mapping.

The tables F.6.3.5... below distinguish between m and M.

#### F.6.3.4 Minimum Test time

Same as with BER BLER there is a minimum test time is necessary for multipath fading profiles with the same justification:

profile	Minimum Test time
PA3, PB3	164s
VA30, Case 8	16.4s
VA 120	4.1s

The purpose of tables F.6.3.5.0 to F.6.3.5.4.10 is to decide throughput pass or fail.

(the Ior/Ioc levels are only for reference)

Meaning of a decision:

- A passed DUT is not worse than a Bad DUT with 95% confidence level.
- A failed DUT is not better than a Limit DUT with 95% confidence level.

The minimum Test Time is

1) the minimum test time due to statistical reasons

(To ensure the confidence level, the test must be continued until a certain number of samples (NACK+ statDTX +ACK) is reached.)

2) the minimum test time due to multipath fading.

The longer test time applies. It is marked in table F.6.3.5. which one applies.

Statistical independence:

If a process works within an incremental redundancy sequence, the samples are not independent. The incremental redundancy sequence for every process must be finalised, successfully or unsuccessfully, on or beyond the minimum test time.

Then the BLER (or 1-BLER) is compared with the Test Limit to decide pass or fail.

Note: It is FFS, if correlation within groups of retransmissions may influence the confidence level of the test.

#### Formula:

The theory, to derive the minimum number of samples and the Test Limit, takes into consideration that BLER is in the range of near 0% to near 100%. Hence it is based on the binomial distribution and its inverse cumulative function: qbinom:

For the BLER test mode:

 $ne_{low} = qbinom(D, ns, M*BLER_{limit})$  (1)

 $ne_{high} = qbinom(1-D,ns,BLER_{limit})$  (2)

given: 1-D: confidence level= 95%

BLER<sub>limit</sub>=Block error ratio at the limit

M: Bad DUT factor >1

Input: ns: number of samples (NACK+ statDTX + ACK)

Output ne: number of events (NACK+ statDTX)

The intersection of (1) and (2) is the Test Limit with the coordinates: ns and ne

For the Relative Throughput test mode:

 $ne_{low} = qbinom(D,ns,1-BLER_{limit})$  (3)

 $ne_{high} = qbinom(1-D, ns, m^*(1-BLER_{limit}))$  (4)

given: 1-D: confidence level= 95%

1-BLER<sub>limit</sub>= Relative Throughput at the limit

m: Bad DUT factor <1

Input: ns: number of samples (NACK+ statDTX + ACK)

Output ne: number of events (ACK)

The intersection of (3) and (4) is the Test Limit with the coordinates: ns and ne

- Note 1: In contrast to BER BLER test, this approach does not contain any test time optimisation. (early pass, early fail)
- Note 2: The intersection of (3) and (4) above is a multipoint intersection due to the discrete nature of those curves. Thus, the specific intersection point used for the test limit is a subjective decision about the intersection point. In all cases, the intersection point was chosen such that it fell in the middle of the set of intersections of curves (3) and (4) above.

Nomenclature used in the tables F.6.3.5... below:

- NACK+ statDTX + ACK is summarised as No of samples
- NACK+ statDTX is summarised as No of errors
- ACK is summarised as No of successes

- In the BLER (BL) test mode the ratio: No of errors/ No of samples is recorded. In this mode a pass is below the test limit
- In the Relative Throughput (RT) test mode (1-BLER) the ratio: No of successes/ No of samples is recorded. In this mode a pass is above the test limit
- The test mode, used, is indicated in the right most column with BL or RT
- The transition from the BL to the RT test mode can also be seen in the column relative test requirement: BLER%  $\rightarrow$  (1-BLER%)
- The generic term for No of errors (BLER mode) or No of successes (Relative Throughput mode) is No of events. This is used in the table column Test Limit.

#### F.6.3.5 Test conditions for HSDPA Receiver Performance

#### Table F.6.3.5.0: DC-HSDPA/4C-HSDPA receiver test case 6.2A, 6.2C, 6.2D, 6.4B, 6.5A, 6.5D, 6.2DA, 6.5E, 6.5F, 6.5FA 6.5G, 6.5GA, 6.6A, 6.6C, 6.6D, 6.6DA, 6.7A, 6.7D, 6.7E and 6.7EA

DC-HSDPA		Relative test	Testlimit	Min No of	Test time in s	BL
Reception		requirement	expressed as No of	samples		/
	Absolute Test	(normalized to	events/min No of		Mandatory if	RT
QPSK H-Set 12	ADSUIULE TEST	ideal=60 kbps)	samples	(number of	fading	
	(kbps)			events to pass)		
		No of events/No of	(Bad DUT factor)		Informative	
		samples in %		Mandatory if	and approx. if	
				applicable	statistical	
	E A	10%	58/467	467	0.934s (stat)	BL
	54		(M=1.5)	(≤58)		

#### Table F.6.3.5.1: Maximum Input Level test cases 6.3A, 6.3C, 6.3G and 6.3GA

Maximum Input Level		Relative test requirement	Test limit expressed as No of	Min No of samples	Test time in s	BL /
for HS- PDSCH Reception	Absolute Test	(normalized to ideal=777 kbps)	events/min No of samples	(number of events to pass)	Mandatory if fading	RT
(16QAM) 16 QAM H-Set 1	(kbps)	No of events/No of samples in %	(Bad DUT factor)	Mandatory if applicable	Informative and approx. if statistical	
	700	10%	58/467 (M=1.5)	467 (≤58)	2.8s (stat)	BL

#### Table F.6.3.5.1A: Maximum Input Level test cases 6.3B, 6.3D, 6.3H and 6.3HA

Maximum		Relative test	Test limit	Min No of	Test time in s	BL
for HS-	Absolute Test	(normalized to ideal=13252 kbps)	events/min No of samples	(number of	Mandatory if fading	, RT
Reception	requirement			events to pass)	Informativa	
(64QAM) 64 QAM	(корз)	samples in %		Mandatory if	and approx. if	
H-Set 8				аррісаріе	Statistical	
	11800	10.96%	57/422 (M=1.499)	422 (≤57)	0.844s (stat)	BL

# Table F.6.3.5.2.1: Single link performance for test case 9.2.1A, 9.2.1C 9.2.1F, 9.2.1FA to 9.2.1FD demodulation of HS-DSCH (QPSK, H-Set 1, 2, 3/3A/3B/3C)

Single link			Relative test	Testlimit	Min No of	Test time in s	BL
Performance			requirement	expressed as No of	samples		/
QPSK			(normalized to	events/min No of	o campioo	Mandatory if	RT
H-Set 1/2/3	H-SEI	1	ideal=534 kbps for	samples for H-SET	(number of	fading	
11 001 1/2/0	Absolu	ite lest	H-SET 1)	1.2.3	events to pass)		
	require	ement		.,_, _		Informative	
Testnumber	()	kbps)	No of events/No of	(Bad DUT factor)	Mandatorvif	and approx. if	
			samples in %	(	applicable	statistical	
			$BL \rightarrow (RT)$				
1		65	87.82%→ (12.18%)	60/595	N.A.	164s (fading)	RT
$(\hat{I} / I = 0)$	PA3			(m = 1 / 1.5)		( 0,	
$(I_{or}/I_{oc} = 0$	170						
dB)		00	05.000/ > (4.040/)	0.4/4.700			БТ
2		23	95.69% → (4.31%)	64/1/96	N.A	164s (fading)	RI
$(\hat{I} / I = 0)$	PB3	100	7440() (05 000()	(m = 1/1.5)			<b></b>
dB)		138	(25.86%)	58/268	N.A.	164s(fading)	RI
ub)				(m = 0.682)			<b></b>
3		22	95.9%→ (4.1%)	64/1888	N.A.	16.4s(fading)	RI
$(\hat{I} / I = 0)$	VA30			(m=1/1.5)			
		142	73.4%→ (26.6%)	59/264	N.A.	16.4s(fading)	RI
ив)				(m = 0.684)			
		13	97.564%→	63/3224	3224	H-set 1:	RT
			(2.436%)	(m = 1/1.5)	(≥63)	19.5s(stat)	
4						H-set 2:	
$(\hat{I} / I = 0)$	VA12					13s (stat)	
	0					H-set 3:	
ub)				7.0 /0.0.0		6.5s (stat)	
		140	73.77%→ (26.23%)	59/268	N.A.	4.1s(fading)	RI
				(m = 0.683)			
1		309	42.1%	83/171	N.A.	164s (fading)	BL
$(\hat{I} / I = 10)$	PA3			(M = 1.295)			
		423	20.74%	60/237	N.A.	164s (fading)	BL
ив)				(M = 1.445)			
2		181	66.1%→ (33.9%)	62/215	N.A	164s (fading)	RT
$(\hat{I} / I = 10)$	PB3			(m = 0.703)			
$(1_{or}, 1_{oc} = 10$	1.20	287	46.22%→ (53,78%)	84/176	N.A.	164s(fading)	RT
uв)				(m = 0.77)			
3		190	64.4%→ (35.6%)	64/211	N.A.	16.4s(fading)	RT
$(\hat{I} / I = 10)$	VA30			(m = 0.708)			
		295	44.72% →	85/173	N.A.	16.4s(fading)	RT
uB)			(55.28%)	(m = 0.775)			
4		181	66.1%→ (33.9%)	62/215	N.A.	4.1s(fading)	RT
$(\hat{I} / I = 10)$	VA12			(m = 0.703)			
$(I_{or}/I_{oc} - 10)$	0	275	48.5%→ (51.5%)	79/174	N.A.	4.1s(fading)	RT
uB)				(m = 0.761)			

# Table F.6.3.5.2.1A: Single link Performance for test case 9.2.1D, 9.2.1E demodulation of HS-DSCH (enhanced requirement type 1, QPSK, H-Set 1, 2, 3) and 9.2.1G, 9.2.1GA, 9.2.1GB, 9.2.1GC, 9.2.1GD demodulation of HS-DSCH (enhanced requirement type 3, QPSK, H-Set 3)

Single link			Relative test	Test limit	Min No of	Test time in s	BL
enhanced			requirement	expressed as No of	samples		/
requirement			(normalized to	events/min No of		Mandatory if	RT
tvpe 1	H-SEI1		ideal=534 kbps for	samples for H-SET	(number of	fading	
Performance	Absolu	ite lest	H-SET 1)	1, 2, 3	events to pass)	5	
QPSK	require	ement (has)	,		. ,	Informative	
H-Set 1/2/3	()	(aps)	No of events/No of	(Bad DUT factor)	Mandatory if	and approx. if	
Toot number			samples in %		applicable	statistical	
restnumber			$BL \rightarrow (RT)$				
		195		64/205	N.A.	164s (fading)	RT
1			63.46% →	(m = 0.710)			
$(\hat{I} / I = 0)$	DV3		(36.54%)				
$(I_{or}/I_{oc}=0$	FAS	329	38.35% →(61.65%)		N.A.	164s (fading)	BL
dB)				78/175			
				(M = 1.320)			
2		156	70.77% →	59/239	N.A.	164s (fading)	RT
$(\hat{I} / I = 0)$	PB3		(29.23%)	(m = 0.690)			
$(I_{or}/I_{oc} = 0$	1 00	263	50.72% →	76/176	N.A.	164s (fading)	RT
dB)			(49.28%)	(m = 0.753)			
2		171	67.96% <del>→</del>	61/225	N.A.	16.4s(fading)	RT
3			(32.04%)	(m = 0.697)			
$(\hat{I}_{or} / I_{oc} = 0$	VA30						
dB)		273	48.84% →	96/174	N.A.	16.4s(fading)	BL
			(51.16%)	(M=1.252)			
4		168	68.52% →	60/228	N.A.	4.1s(fading)	RT
$(\hat{I} / I = 0)$	VA12		(34.48%)	(m = 0.696)			
	0	263	50.72% →	76/176	N.A.	4.1s(fading)	RT
иь)			(49.28%)	(m = 0.753)			
1		247	53.72% →	72/180	N.A.	164s (fading)	RT
$(\hat{I} / I = 10)$	PA3		(46.28%)	(m = 0.742)			
		379	28.95% →	66/193	N.A.	164s (fading)	BL
ub)		105	(71.02%)	(M = 1.386)	<b>NI A</b>		<b>DT</b>
2		195	63.46% →	63/204	N.A.	164s (fading)	RI
$(\hat{I} / I = 10)$	PB3		(36.54%)	(m = 0.710)	<b>N 1</b> A		
		316	40.79% →	81/1/2	N.A.	164s (fading)	BL
ub)			(59.21%)	(M = 1.303)			
3		212	60.27% →	66/194	N.A.	16.4s(fading)	RI
$(\hat{I} / I = 10)$	VA30		(39.73%)	(m = 0.720)	<b>NI A</b>		
dB)		329	38.35% →	78/175	N.A.	16.4s(fading)	BL
ub)		101	(61.65%)	(M = 1.320)	NI A		DT
4	1440	191	64.21% →	63/208	N.A.	4.1s(fading)	RI
$(\hat{I}_{}/I) = 10$	VA12	000	(35.79%)	(m = 0.708)	NI ^		<b>D</b>
dB)	0	293	45.10% →	89/1/3	N.A.	4.1s(fading)	BL
ub)			(54.90%)	(M = 1.275)			

#### Table F.6.3.5.2.2: Single link performance for test case 9.2.1A and 9.2.1C demodulation of HS-DSCH (16 QAM, H-Set 1, 2, 3)

Single link			Relative test	Test limit	Min No of	Test time in s	BL /
16 QAM H-Set 1/2/3	H-SET 1 Absolute Test requirement (kbps)		(normalized to ideal=777 kbps for H-SET 1)	events/min No of samples for H-SET 1, 2, 3	(number of events to pass)	Mandatory if fading	, RT
Testnumber			No of events/No of samples in % BL $\rightarrow$ (RT)	(Bad DUT factor)	Mandatory if applicable	Informative and approx. if statistical	
1	D <b>A</b> 2	198	74.53%→ (25.47%)	58/272 (m=0.681)	N.A.	164s (fading)	RT
$(I_{or}/I_{oc} = 10)$ dB)	FAS	368	52.66%→ (47.34%)	74/179 m=0.746	N.A.	164s(fading)	RT
2	PB3	34	95.626%→ (4.374%)	64/1770 (m=1/1.5)	N.A.	164s (fading)	RT
$\frac{(I_{or}/I_{oc} - 10)}{\text{dB}}$		219	71.83% → (28,17%)	58/240 (m=0.687)	N.A.	164s (fading)	RT
3	\/^30	47	93.95% → (6.05%)	63/1259 (m=1/1.5)	N.A.	16.4s (fading)	RT
$\frac{(I_{or}/I_{oc} - 10)}{\text{dB}}$	VA30	214	72.47% → (27.53%)	59/255 (m=0.686)	N.A.	16.4s (fading)	RT
$4$ $(\hat{I}_{or}/I_{oc}=10$	VA12 0	28	96.4% → (3.6%)	64/2150 (m=1/1.5)	2150 (≥64)	12.9s H-set1 8.6s H-set2 4.3s Hset3 (stat)	RT
dB)		167	78.51% → (21.49%)	57/319 (m=0.673)	N.A.	4.1s (fading)	RT

### Table F.6.3.5.2.2A: Single link Performance for test case 9.2.1D and 9.2.1E demodulation of HS-DSCH(enhanced requirement type 1, 16 QAM, H-Set 1, 2, 3)

Single link			Relative test	Test limit	Min No of	Test time in s	BL
enhanced	H-SET 1		requirement	expressed as No of	samples		/
requirement			(normalized to	events/min No of		Mandatory if	RT
type 1		I Ita Tast	ideal=777 kbps for	samples for H-SET	(number of	fading	
Performance	require	ment	H-SET 1)	1, 2, 3	events to pass)		
16 QAM	/L	(hns)				Informative	
H-Set 1/2/3	(i	(000)	No of events/No of	(Bad DUT factor)	Mandatory if	and approx. if	
Testnumber			samples in %		applicable	statistical	
restnumber			BL → (RT)				
1		312	59.86% →	66/193	N.A.	164s (fading)	RT
$(\hat{I} / I - 10)$	ΡΔ3		(40.14%)	(m = 0.722)			
$(I_{or}/I_{oc} = 10$	1710	487	37.35% → (62.65)	76/176	N.A.	164s (fading)	BL
aB)				(M = 1.327)			
2		275	64.62% →	63/209	N.A.	164s (fading)	RT
$(\hat{I} / I - 10)$	PB3		(35.38%)	(m = 0.707)			
$(I_{or}/I_{oc} = 10)$	1 00	408	47.51% → (52.49)	94/174	N.A.	164s (fading)	BL
aB)				(M = 1.260)			
3		296	61.92% →	65/199	N.A.	16.4s (fading)	RT
$(\hat{I} / I - 10)$	VA30		(38.08%)	(m = 0.715)			
$(I_{or}/I_{oc} = 10)$	v7.50	430	44.68% →	88/173	N.A.	16.4s (fading)	BL
dB)			(55.32%)	(M = 1.278)			
4		271	65.14% <del>→</del>	62/211	N.A.	4.1s (fading)	RT
$(\hat{I} / I - 10)$	VA12		(34.86%)	(m = 0.705)			
$(I_{or}/I_{oc} - 10)$	0	392	49.57% →	97/175	N.A.	4.1s (fading)	BL
aB)			(50.43%)				

Single link			Relative test	Test limit	Min No of	Test time in s	BL
Performance	Absolute Test		requirement	expressed as No of	samples		/
QPSK			(normalized to	events/min No of		Mandatory if	RT
H-Set 4	require	mont	ideal=534 kbps)	samples	(number of	fading	
	/L	(hns)			events to pass)		
Test number	(r	(000)	No of events/No of	(Bad DUT factor)		Informative	
restnumber			samples in %		Mandatory if	and approx. if	
			$BL \rightarrow (RT)$		applicable	statistical	
1		72	86.5% → (13.5%)	59/528	N.A.	164s (fading)	RT
$(\hat{I} / I = 0)$	PA3			(m=1/1.5)			
dB)							
2		24	95.5% → (4.5%)	63/1695	N.A.	164s (fading)	RT
				(m=1/1.5)		( 0,	
$(I_{or}/I_{oc}=0$	PB3	142	73.4% → (26.6%)	59/264	N.A.	164s (fading)	RT
dB)				(m=0.684)		( 0,	
3		19	96.44% → (3.56%)	64/2176	N.A.	16.4s (fading)	RT
	1/420			(m=1/1.5)			
$(I_{or}/I_{oc}=0$	VASU	148	72.27% →	59/253	N.A.	16.4s (fading)	RT
dB)			(27.73%)	(m=0.686)			
4		11	98% → (2%)	65/3746	3746	22.5s (stat)	RT
	VA12			(m=1/1.5)	(≥65)		
$(I_{or}/I_{oc}=0$	0	144	73% → (27%)	58/256	N.A.	4.1s (fading)	RT
dB)				(m=0.684)		( 0)	
1		340	36.29%	75/177	N.A.	164s (fading)	BL
				(M=1.334)			
$(I_{or} / I_{oc} = 10)$	PA3	439	17.74%	58/266	N.A.	164s (fading)	BL
dB)				(M=1.468)			
2		186	65.15% <del>→</del>	62/209	N.A.	164s (fading)	RT
	000		(34.85%)	(m=0.705)			
$(I_{or} / I_{oc} = 10)$	PDJ	299	44% → (56%)	87/174	N.A.	164s(fading)	RT
dB)				(m=0.778)			
3		183	65.7% →(34.3%)	63/216	N.A.	16.4s (fading)	RT
$(\hat{I}) = 10$	1/420			(m=0.704)		-	
$(I_{or}/I_{oc} = 10$	VASU	306	42.66%	86/176	N.A.	16.4s (fading)	BL
dB)				(M=1.291)			
4		170	68,14% →	61/226	N.A.	4.1s (fading)	RT
$(\hat{I}   I = 10)$	VA12		(31.86%)	(m=697)			
$(I_{or} / I_{oc} = 10)$	0	284	46.78%→	81/172	N.A.	4.1s (fading)	RT
dB)			(53.22%)	(m = 0.767)			

# Table F.6.3.5.2.3: Single link performance for test case 9.2.1B demodulation of HS-DSCH (QPSK H-<br/>Set 4)

Single link			Relative test	Test limit	Min No of	Test time in s	BL
Performance	Absoluto Tost		requirement	expressed as No of	samples		/
QPSK			(normalized to	events/min No of		Mandatory if	RT
H-Set 5	roquire	ment	ideal=801 kbps)	samples	(number of	fading	
	iequile /L				events to pass)		
Teatnumber	(r	ups)	No of events/No of	(Bad DUT factor)		Informative	
restnumber			samples in %		Mandatory if	and approx. if	
			$BL \rightarrow (RT)$		applicable	statistical	
1		98	87.76% →	59/583	N.A.	164s (fading)	RT
$(\hat{I} / I = 0)$	PA3		(12.24%)	(m=1/1.5)			
$(I_{or}/I_{oc} - 0)$	1710						
ав)		0.5		00/4740			D.T
2		35	95.63% → (4.37%)	63/1/46	N.A.	164s (fading)	RI
$(\hat{I} / I = 0)$	PB3	0.07	74.440/ >	(m=1/1.5)			DT
dB)		207	74.14% →	58/268	N.A.	164s (fading)	RI
ub)			(25.86%)	(m=0.682)			
3		33	95.88% → (4.12%)	64/18/9	N.A.	16.4s (fading)	RI
$(\hat{I} / I = 0)$	VA30			(m=1/1.5)			
		213	73.4% → (26.6%)	59/264%	N.A.	16.2s (fading)	RI
αь)				(m=0.684)			
4		20	97.5% → (2.5%)	64/3101	3101	12.4s (stat)	RT
$(\hat{I} / I = 0)$	VA12			(m=1/1.5)	(≥64)		
$(I_{or}/I_{oc}=0)$	0	210	73.77% →	59/268	N.A.	4.1s (fading)	RT
dB)			(26.23%)	(m=0.683)			
1		464	42%	84/174	N.A.	164s (fading)	BL
$(\hat{t} / t - 10)$	DV3			(M=1.295)			
$(I_{or}/I_{oc} = 10$	FAS	635	20.67%	59/234	N.A.	164s (fading)	BL
dB)				(M=1.446)			
2		272	66.02% →	63/218	N.A.	164s (fading)	RT
-	002		(33.98%)	(m=0.703)			
$(I_{or} / I_{oc} = 10)$	РБЭ	431	46.16% → (53.84)	84/176	N.A.	164s(fading)	RT
dB)				(m=0.77)			
3		285	64.4% → (35.6%)	64/211	N.A.	16.4s (fading)	RT
	1/400			(m=0.708)			
$(I_{or} / I_{oc} = 10)$	VA30	443	44.7% → (55.3%)	85/173	N.A.	16.4s(fading)	RT
dB)			. , ,	(m=0.775)			
1		272	66.02% →	63/218	N.A.	4.1s (fading)	RT
	VA12		(33.98%)	(m=0.703)		- (	
$(I_{or} / I_{oc} = 10)$	0	413	48.4% → (51.6%)	81/176	N.A.	4.1s(fadina)	RT
dB)			( /	(m=0.761)		、 5/	

### Table F.6.3.5.2.4: Single link performance for test case 9.2.1B demodulation of HS-DSCH (QPSK H-<br/>Set 5)

### Table F.6.3.5.2.5: Single link Performance for test case 9.2.1C demodulation of HS-DSCH (QPSK H-<br/>Set 6)

Single link Performance	Absolute Test requirement (kbps)		Relative test	Test limit expressed as No of	Min No of samples	Test time in s	BL /
QPSK H-Set 6			(normalized to ideal=3219 kbps)	events/min No of samples	(number of	Mandatory if fading	RT
Testnumber			No of events/No of samples in % BL → (RT)	(Bad DUT factor)	events to pass) Mandatory if applicable	Informative and approx. if statistical	
$1$ ( $\hat{L}$ /L = 10	DV3	1407	56.29% → (43.71%)	70/185	N.A.	164s (fading)	RT
$\frac{(I_{or}/I_{oc} - 10)}{\text{dB}}$	170	2090	35.07% → (64.93%)	73/179	N.A.	164s (fading)	BL

### Table F.6.3.5.2.5A: Single link Performance for test case 9.2.1E demodulation of HS-DSCH (enhanced requirement type 1, QPSK H-Set 6)

Single link			Relative test	Test limit	Min No of	Test time in s	BL
enhanced			requirement	expressed as No of	samples		/
requirement	Al I-		(normalized to	events/min No of		Mandatory if	RT
type 1	ADSOIL	ite rest	ideal=3219 kbps)	samples	(number of	fading	
Performance	require	ement	. ,	·	events to pass)		
QPSK	()	(ops)	No of events/No of	(Bad DUT factor)		Informative	
H-Set 6			samples in %		Mandatory if	and approx. if	
Testnumber			$BL \rightarrow (RT)$		applicable	statistical	
1		672	79.12% →	57/328	N.A.	164s (fading)	RT
$(\hat{1} / I - 10)$	DV3		(20.88%)	(m = 0.672)			
$(I_{or} / I_{oc} = 10)$	T AS	1305	59.46% →	67/193	N.A.	164s (fading)	RT
dB)			(40.54%)	(m = 0.723)			

### Table F.6.3.5.2.5B: Single link Performance for test case 9.2.1F, 9.2.1FA to9.2.1FD demodulation ofHS-DSCH (enhanced requirement type 2, QPSK H-Set 6/6A/6B/6C)

Single link			Relative test	Test limit	Min No of	Test time in s	BI
enhanced			requirement	expressed as No of	samples		/
requirement			(normalized to	events/min No of	00p100	Mandatory if	RT
type 2	Absolute Test requirement (kbps)		ideal=3219 kbps)	samples	(number of	fading	
Performance					events to pass)		
QPSK			No of events/No of	(Bad DUT factor)	· · /	Informative	
H-Set 6			samples in %	· · · · · · · · · · · · · · · · · · ·	Mandatory if	and approx. if	
Testnumber			$BL \rightarrow (RT)$		applicable	statistical	
1		1494	53.59% →	72/179	N.A.	164s (fading)	RT
$(\hat{T}_{1}) = 10$			(46.41%)	(m = 0.743)			
$(I_{or}/I_{oc} = 10$	FAS	2153	33.12% →	71/182	N.A.	164s (fading)	BL
dB)			(66.88%)	(M = 1.356)			
2		1038	67.75% <del>→</del>	61/224	N.A.	164s (fading)	RT
$(\hat{I}) = 10$	002		(32.25%)	(m = 0.698)			
$(I_{or}/I_{oc} = 10)$	FDJ	1744	45.82% →	90/172	N.A.	164s (fading)	BL
dB)			(54.18%)	(M = 1.271)			
3		1142	64.52% →	63/209	N.A.	16.4s(fading)	RT
$(\hat{I}) = 10$	1/420		(35.48%)	(m = 0.707)			
$(I_{or}/I_{oc} = 10)$	VASU	1782	44.64% →	88/172	N.A.	16.4s(fading)	BL
dB)			(55.36%)	(M = 1.278)			
4		909	71.76% →	59/248	N.A.	4.1s(fading)	RT
$(\hat{I})/I = 10$	VA12		(28.24%)	(m = 0.687)			
$(I_{or}/I_{oc} = 10)$	0	1467	54.43% →	72/181	N.A.	4.1s(fading)	RT
dB)			(45.57%)	(m = 0.740)			

#### Table F.6.3.5.2.5C: Single link Performance for test case 9.2.1G, 9.2.1GA, 9.2.1GB, 9.2.1GC, 9.2.1GD demodulation of HS-DSCH (enhanced requirement type 3, QPSK H-Set 6/6A)

Single link			Relative test	Test limit	Min No of	Test time in s	BI
enhanced	Absolute Test		requirement	expressed as No of	samples		/
requirement	Absolute Test requirement		(normalized to	events/min No of	oampioo	Mandatorvif	, RТ
type 3			ideal=3219 kbps)	samples	(number of	fading	
Performance				e ampree	events to pass)	iaanig	
OPSK	- (ł	kbps)	No of events/No of	(Bad DUT factor)	,	Informative	
H-Set 6			samples in %	( ,	Mandatory if	and approx. if	
Testnumber			$BL \rightarrow (RT)$		applicable	statistical	
1		1554	51.72% →	75/178	N.A.	164s (fading)	RT
	DA0		(48.28%)	(m = 0.749)		5,	
$(I_{or}/I_{oc} = 10$	PA3	2495	22.49% →	61/226	N.A.	164s (fading)	BL
dB)			(77.51%)	(M = 1.433)		( 0,	
2		1190	63.03% →	64/205	N.A.	164s (fading)	RT
$(\hat{I}) = 10$	002		(36.94%)	(m = 0.712)		-	
$(I_{or}/I_{oc} = 10$	FDJ	2098	34.82% →	73/180	N.A.	164s (fading)	BL
dB)			(65.18%)	(M = 1.344)			
3		1299	59.65% →	66/192	N.A.	16.4s(fading)	RT
$(\hat{I})/I = 10$	V/A30		(40.35%)	(m = 0.722)			
$(I_{or}/I_{oc} = 10$	VA30	2013	37.46% →	77/176	N.A.	16.4s(fading)	BL
dB)			(62.54%)	(M = 1.326)			
4		1060	67.07% <del>→</del>	61/221	N.A.	4.1s(fading)	RT
$(\hat{I})/I = 10$	VA12		(39.93%)	(m = 0.700)			
$(I_{or}/I_{oc} - 10)$	0	1674	48.00% →	96/174	N.A.	4.1s(fading)	BL
dB)			(52.00%)	(M = 1.252)			
5		1248	61.23% →	66/198	N.A.	164s (fading)	RT
$(\hat{I})/I = 5$	PB3		(38.77%)	(m = 0.717)			
$(I_{or}/I_{oc} - J)$	1.00	2044	36.50% →	75/176	N.A.	164s (fading)	BL
aB)			(63.50%)	(M = 1.332)			

### Table F.6.3.5.2.6: Single link Performance for test case 9.2.1C demodulation of HS-DSCH (16 QAM H-<br/>Set 6)

Single link Performance			Relative test requirement	Testlimit expressed as No of	Min No of samples	Test time in s	BL /
16 QAM H-Set 6	Absolute Test requirement (kbps)		(normalized to ideal=4689 kbps)	events/min No of samples	(number of	Mandatory if fading	RT
Testnumber			No of events/No of samples in % BL → (RT)	(Bad DUT factor)	events to pass) Mandatory if applicable	Informative and approx. if statistical	
1	887		81.08% → (18.92%)	56/362 (m = 0.669)	N.A.	164s (fading)	RT
	ГAJ	1664	64.51% → (35.49%)	63/209 (m = 0.707)	N.A.	164s (fading)	RT

#### Table F.6.3.5.2.6A: Single link Performance for test case 9.2.1E demodulation of HS-DSCH (enhanced requirement type 1, 16 QAM H-Set 6)

Single link			Relative test	Test limit	Min No of	Test time in s	BL /
requirement type 1	Absolute Test		(normalized to ideal=4689 kbps)	events/min No of samples	(number of	Mandatory if fading	ŔT
Performance	require	ement	. ,	·	events to pass)	0	
16 QAM	()	(ops)	No of events/No of	(Bad DUT factor)		Informative	
H-Set 6			samples in %		Mandatory if	and approx. if	
Testnumber			$BL \rightarrow (RT)$		applicable	statistical	
1		912	80.55% →	56/352	N.A.	164s (fading)	RT
$(\hat{I})/I = 10$	PA3		(19.45%)	(m = 0.670)			
$\frac{(I_{or}/I_{oc} - 10)}{\text{dB}}$	1760	1730	63.10% → (36.90%)	64/203 (m = 0.712)	N.A.	164s (fading)	RT

Single link			Relative test	Test limit	Min No of	Test time in s	BL
enhanced			requirement	expressed as No of	samples		/
requirement	Absolute Test		(normalized to	events/min No of		Mandatory if	RT
type 2	roquir	mont	ideal=4689 kbps)	samples	(number of	fading	
Performance	requie /I				events to pass)		
16 QAM	(KDps)		No of events/No of	(Bad DUT factor)		Informative	
H-Set 6			samples in %		Mandatory if	and approx. if	
Testnumber			$BL \rightarrow (RT)$		applicable	statistical	
1		991	78.86% →	57/324	N.A.	164s (fading)	
$(\hat{x}   x = 10)$			(21.14%)	(m = 0.673)			RT
$(I_{or} / I_{oc} = 10)$	FAS	1808	61.44% →	65/197	N.A.	164s (fading)	
dB)			(38.56%)	(m = 0.717)			RT
2		465	90.08% → (9.92%)	60/740	N.A.	164s (fading)	
$(\hat{t} / t - 10)$	DP2			(m = 1/1.5)			RT
$(I_{or}/I_{oc} = 10$	F D J	1370	70.78% →	59/242	N.A.	164s (fading)	
dB)			(29.22%)	(m = 0.690)			RT
3		587	87.48% →	59/573	N.A.	16.4s(fading)	
$(\hat{t} / t - 10)$	1/430		(12.52%)	(m = 1/1.5)			RT
$(I_{or} / I_{oc} = 10)$	v <del>~</del> 30	1488	68.26% →	60/226	N.A.	16.4s(fading)	
dB)			(31.74%)	(m = 0.697)			RT
4		386	91.77% → (8.23%)	61/905	N.A.	4.1s(fading)	
$(\hat{I})/I = 10$	VA12			(m = 1/1.5)			RT
$(I_{or}/I_{oc} - 10)$	0	1291	72.46% →	58/254	N.A.	4.1s(fading)	
dB)			(27.54%)				RT

### Table F.6.3.5.2.6B: Single link Performance for test case 9.2.1F, 9.2.1FA to 9.2.1FD demodulation of HS-DSCH (enhanced requirement type 2, 16 QAM H-Set 6/6A/6B/6C)

### Table F.6.3.5.2.6C: Single link Performance for test case 9.2.1G, 9.2.1GA, 9.2.1GB, 9.2.1GC, 9.2.1GD demodulation of HS-DSCH (enhanced requirement type 3, 16 QAM H-Set 6/6A)

Single link			Relative test	Test limit	Min No of	Test time in s	BL
enhanced			requirement	expressed as No of	samples		/
requirement	Absolute Test requirement		(normalized to	events/min No of	-	Mandatory if	RT
type 3			ideal=4689 kbps)	samples	(number of	fading	
Performance	require				events to pass)		
16 QAM	(r	(uha)	No of events/No of	(Bad DUT factor)		Informative	
H-Set 6			samples in %		Mandatory if	and approx. if	
Testnumber			BL → (RT)		applicable	statistical	
1		1979	57.79% →	69/190	N.A.	164s (fading)	RT
$(\hat{I} / I - 10)$	DA3		(42.21%)	(m = 0.728)			
$(I_{or}/I_{oc} = 10)$	FAS	3032	35.34% →	73/178	N.A.	164s (fading)	BL
dB)			(64.66%)	(M = 1.340)			
2		1619	65.47% <del>→</del>	62/211	N.A.	164s (fading)	RT
$(\hat{I})/I = 10$	PB3		(34.53%)	(m = 0.704)			
$(I_{or}/I_{oc} = 10)$	1 00	2464	47.45% →	92/171	N.A.	164s (fading)	BL
dB)			(52.55%)	(M = 1.260)			
3		1710	63.53% <del>→</del>	63/204	N.A.	16.4s(fading)	RT
$(\hat{I} / I - 10)$	VA30		(36.47%)	(m = 0.710)			
$(I_{or}/I_{oc} = 10$	v7.50	2490	46.90% →	91/171	N.A.	16.4s(fading)	BL
aB)			(53.10%)	(M = 1.264)			
4		1437	69.35% <del>→</del>	59/231	N.A.	4.1s(fading)	RT
$(\hat{I} / I - 10)$	VA12		(30.65%)	(m = 0.694)			
$(I_{or}/I_{oc} = 10$	0	2148	54.19% →	72/182	N.A.	4.1s(fading)	RT
dB)			(45.81%)	(m = 0.740)			
5		779	83.39% →	57/414	N.A.	164s (fading)	RT
$(\hat{I})/I = 5$	PB3		(16.61%)	(m = 0.667)			
$(I_{or}/I_{oc} = 0)$	105	1688	64.00% →	63/207	N.A.	164s (fading)	RT
aB)			(36.00%)	(m = 0.709)			

#### Table F.6.3.5.2.7: Single link Performance for test case 9.2.1H, 9.2.1HA to- 9.2.1HD demodulation of HS-DSCH (enhanced requirement type 2, 64QAM H-Set 8/8A/8B/8C)

Single link			Relative test	Test limit	Min No of	Test time in s	BL
enhanced			requirement	expressed as No of	samples		/
requirement	Aba aluta Taat		(normalized to	events/min No of	-	Mandatory if	RT
type 2	ADSOIL	ite lest	ideal=13245 kbps)	samples	(number of	fading	
Performance	require	ement	,	·	events to pass)	0	
64 QAM	()	(ops)	No of events/No of	(Bad DUT factor)		Informative	
H-Set 8			samples in %		Mandatory if	and approx. if	
Testnumber			$BL \rightarrow (RT)$		applicable	statistical	
1		4507	65.97% <del>→</del>	57/324	N.A.	164s (fading)	RT
$(\hat{1} / 1 - 15)$	P۸3		(34.03%)	(m = 0.703)			
$(I_{or}/I_{oc} = 15)$	175	5736	56.69% →	70/188	N.A.	164s (fading)	RT
and 18 dB)			(43.31%)	(m = 0.732)			

### Table F.6.3.5.2.7A: Single link Performance for test case 9.2.1I, 9.2.1IA to 9.2.1ID demodulation of HS-<br/>DSCH (enhanced requirement type 3, 64QAM H-Set 8/8A/8B/8C)

Single link enhanced			Relative test requirement	Testlimit expressed as No of	Min No of samples	Test time in s	BL /
requirement	Abaali		(normalized to	events/min No of		Mandatory if	RT
type 3	ADSOIL		ideal=13245 kbps)	samples	(number of	fading	
Performance	requile /L	(hps)			events to pass)		
64 QAM	(r	(000)	No of events/No of	(Bad DUT factor)		Informative	
H-Set 8			samples in %		Mandatory if	and approx. if	
Testnumber			BL → (RT)		applicable	statistical	
1		6412	51.59% →	78/184	N.A.	164s (fading)	RT
$(\hat{I} / I - 15)$	PA3		(48.41%)	(m = 0.750)			
$(I_{or}/I_{oc} = 10)$	170	7638	42.33% →	85/175	N.A.	164s (fading)	BL
and 18 dB)			(57.67%)	(M = 1.293)			

#### Table F.6.3.5.2.7B: Single link Performance for test case 9.2.1J, 9.2.1JA to 9.2.1JD -Enhanced requirement type 2, QPSK / 16QAM, FRC H-Set 10/10A/10B/10C)

Single link			Relative test	Test limit	Min No of	Test time in s	BL
enhanced			requirement	expressed as No of	samples		/
requirement			(normalized to	events/min No of		Mandatory if	RT
Type2	Abaal	1to Toot	ideal=4860(QPSK)	samples	(number of	fading	
QPSK/16QAM	ADSOI		ideal=8774	-	events to pass)	, i i i i i i i i i i i i i i i i i i i	
H-Set 10	requi		(16QAM)	(Bad DUT factor)		Informative	
	()	kops)			Mandatory if	and approx. if	
Teet			No of events/No of		applicable	statistical	
Test			samples in %				
			$BL \rightarrow (RT)$				
$OPSK(\hat{I})/I$		1397	71.255%→	63/259	N.A.	164s (fading)	RT
	VA3		(28.745%)	(m=0.698)			
= 4.6 dB)			. ,				
16 QAM,		1726	80.33%→ (19.67%)	56/343	N.A.	164s (fading)	RT
$(\hat{I}_{or} / I_{oc} = 8.6$	VA3			(m=0.67 )			
dB)							

### Table F.6.3.5.2.7C: Single link Performance for test case 9.2.1K, 9.2.1KA to 9.2.1KD Enhanced requirement type 3, QPSK / 16 QAM FRC H-Set 10/10A/10B/10C)

	-						
Single link			Relative test	Test limit	Min No of	Test time in s	BL
enhanced			requirement	expressed as No of	samples		/
Type 3			(normalized to	events/min No of	-	Mandatory if	RT
QPSK/16QAM	A 1		ideal=4860 (QPSK)	samples	(number of	fading	
H-Set 10	ADSO	ute lest	ideal=8774	•	events to pass)	Ŭ	
	requi	rement	(16QAM)	(Bad DUT factor)	1 /	Informative	
	(	kbps)	( )	( ,	Mandatory if	and approx. if	
Test			No of events/No of		applicable	statistical	
			samples in %				
			$BI \rightarrow (RT)$				
OPSK		2621	46.07% →	90/172	ΝΔ	16/s (fading)	BI
		2021	(53 03%)	(M-1 260)	IN.A.		DL
$(I_{or}/I_{oc} = 4.6$	VA3		(33.9378)	(101-1.209)			
dB)							
16QAM		3396	61.29% →	65/196	N.A.	164s (fading)	RT
$(\hat{I}_{or} / I_{oc} = 8.6$	VA3		(38.71%)	(m=0.717 )		-	
dB)							

### Table F.6.3.5.2.7D: Single link Performance for test case 9.2.1L, 9.2.1LA to 9.2.1LD Enhanced requirement type 3i, QPSK, FRC H-Set 6/6A/6B/6C)

Single link enhanced			Relative test requirement	Testlimit expressed as No of	Min No of samples	Test time in s	BL /
Type 3i	Absolute Test requirement (kbps)		(normalized to	events/min No of		Mandatory if	RT
QPSK			ideal=3219	samples	(number of	fading	
H-Set 6/6A					events to pass)	-	
			No of events/No of	(Bad DUT factor)		Informative	
Test			samples in %		Mandatory if	and approx. if	
			$BL \rightarrow (RT)$		applicable	statistical	
		691	78.534% →	57/319	N.A.	164s (fading)	RT
QPSK			(21.466%)	(m=0.673)			
$(\hat{I})/I = 0 dB$	PB3						
$(I_{or}/I_{oc} = 00D$		1359	57.782% <del>→</del>	69/189	N.A.	164s (fading)	RT
DIP1=-2.75			(42.218%)	(m=0.728)			
dB		661	79.466% <del>→</del>	57/334	N.A.	16.4s (fading)	RT
DIP2=-7.64	1/430		(20.534%)	(m=0.672)			
aB	VA30	1327	58.776% →	68/191	N.A.	16.4s (fading)	RT
			(41.224%)	(m=0.725)			

# Table F.6.3.5.3.1: Open Loop Diversity Performance for test case 9.2.2A and 9.2.2D demodulation ofHS-DSCH (QPSK, H-Set 1, 2, 3)

Open Loop Diversity Performance QPSK	H-SET 1 Absolute Test requirement		Relative test requirement (normalized to ideal=534 kbps for	Test limit expressed as No of events/min No of samples for H-SET	Min No of samples (number of	Test time in s Mandatory if fading	BL / RT
H-Set 1/2/3			H-SET 1)	1, 2, 3	events to pass)	Informativa	
Testnumber	(k	kbps)	No of events/No of samples in % BL → (RT)	(Bad DUT factor)	Mandatory if applicable	and approx. if statistical	
1	D 4 2	77	85.57%→(14.43%)	58/486 (m=1/1.5)	N.A.	164s (fading)	RT
$(I_{or}/I_{oc} = 0)$ dB)	FAS	180	66.27%→(33.73%)	62/216 (m=0.702)	N.A.	164s (fading)	RT
2	PB3	20	96.25%→ (3.75%)	64/2065 (m=1/1.5)	N.A.	164s (fading)	RT
$(I_{or}/I_{oc} = 0)$ dB)	1 05	154	71.14%→ (28,86%)	59/243 (m=0.689)	N.A.	164s (fading)	RT
$3$ $(\hat{I}_{or} / I_{oc} = 0$	VA30	15	97.19% → (2.81%)	64/2758 (m=1/1.5)	H-Set 1: 2758 (≥64)	H-Set 2,3: 16.4s (fading) H-Set 1: 16.6s(stat.)	RT
dB)		162	69.64%→ (30.36%)	60/235 (m=0.693)	N.A.	16.4s (fading)	RT
1	DV3	375	29.7%	68/192 (M=1.38)	N.A.	164s (fading)	BL
$\frac{(I_{or}/I_{oc} - 10)}{\text{dB}}$	170	475	11%	58/425 (M=1.499)	N.A.	164s (fading)	BL
2	DB3	183	65.7% → (34.3%)	63/216 (m=0.704)	N.A.	164s (fading)	RT
$\frac{(I_{or}/I_{oc} - 10)}{\text{dB}}$	1 05	274	48.7% →(51.3%)	80/177 (m=0.76)	N.A.	164s (fading)	RT
$\frac{3}{(\hat{L}_{1}/L - 10)}$	VA30	187	65% → (35%)	62/208 (m=0.706)	N.A.	16.4s (fading)	RT
$\frac{1}{dB}$	v7.00	284	46.8% →(53.2%)	82/174 (m=0.767)	N.A.	16.4s (fading)	RT

### Table F.6.3.5.3.2: Open Loop Diversity Performance for test case 9.2.2A and 9.2.2D demodulation ofHS-DSCH (16 QAM, H-Set 1, 2, 3)

Open Loop			Relative test	Test limit	Min No of	Test time in s	BL
Diversity	H-SET 1		requirement	expressed as No of	samples		/
Performance	H-SET 1 Absolute Test		(normalized to	events/min No of		Mandatory if	RT
16 QAM			ideal=777 kbps for	samples for H-SET	(number of	fading	
H-Set 1/2/3	require	ment	H-SET 1)	1, 2, 3	events to pass)		
	/L	(hns)				Informative	
Teatnumber	(r	(000)	No of events/No of	(Bad DUT factor)	Mandatory if	and approx. if	
restnumber			samples in %		applicable	statistical	
			$BL \rightarrow (RT)$				
1		295	62% →(38%)	66/203	N.A.	164s (fading)	RT
$(\hat{I} / I - 10)$	DA2			(m=0.715)			
$(I_{or}/I_{oc} = 10)$	FAS	463	40.4%	82/176	N.A.	164s (fading)	BL
dB)				(M=1.306)			
2		24	96.9% →(3.1%)	64/2500	N.A.	164s (fading)	RT
$(\hat{I}) = 10$	002			(m=1/1.5)			
$(I_{or} / I_{oc} = 10)$	грэ	243	68.7% →(31.3%)	60/227	N.A.	164s (fading)	RT
dB)				(m=0.695)			
3		35	95.5% →(4.5%)	63/1695	N.A.	16.4s (fading)	RT
$(\hat{I} / I - 10)$	VA30			(m=1/1.5)			
$(I_{or}/I_{oc} = 10)$	v <i>A</i> 30	251	67.7% →(32.3%)	61/223	N.A.	16.4s (fading)	RT
dB)				(m=0.698)			

# Table F.6.3.5.3.3: Open Loop Diversity Performance for test case 9.2.2B demodulation of HS -DSCH(QPSK, H-Set 4)

Open Loop			Relative test	Testlimit	Min No of	Test time in s	BL
Diversity			requirement	expressed as No of	samples		/
Performance	Absolu	ite Test	(normalized to	events/min No of		Mandatory if	RT
QPSK	Absolute Test requirement		ideal=534 kbps)	samples	(number of	fading	
H-Set 4					events to pass)		
	(r	ups)	No of events/No of	(Bad DUT factor)		Informative	
Testnumber			samples in %		Mandatory if	and approx. if	
			$BL \rightarrow (RT)$		applicable	statistical	
1		70	86.9% →(13.1%)	59/544	N.A.	164s (fading)	RT
				(m=1/1.5)			
$(I_{or}/I_{oc}=0)$	PA3	171	68% →(32%)	61/225	N.A.	164s (fading)	RT
dB)				(m=0.697)		( 0)	
2		14	97.4% →(2.6%)	64/2982	N.A.	164s (fading)	RT
				(m=1/1.5)		( 0)	
$(I_{or}/I_{oc}=0)$	PB3	150	71.9% →(28.1%)	59/250	N.A.	164s (fading)	RT
dB)				(m=0.687)			
3		11	97.04% →(2.06%)	65/3819	3819	23s (stat)	RT
$(\hat{I} / I = 0)$	1/420			(m=1/1.5)	(≥65)		
$(I_{or}/I_{oc} = 0$	VASU	156	70.8% →(29.2%)	60/243	N.A.	16.4s (fading)	RT
dB)				(m=0.69)			
1		369	30.9%	69/188	N.A.	164s (fading)	BL
$(\hat{1} / I - 10)$	D 4 2			(M=1.372)			
$(I_{or}/I_{oc} = 10$	FAS	471	11.7%	58/400	N.A.	164s (fading)	BL
dB)				(M=1.497)			
2		180	66.3% →(33.7%)	63/220	N.A.	164s (fading)	RT
$(\hat{I} / I - 10)$	DB3			(m=0.702)			
$(I_{or}/I_{oc} = 10$	1 05	276	48.3% →(51.7%)	79/173	N.A.	164s (fading)	RT
dB)				(m=0.762)			
3		184	65.5% →(34.5%)	62/211	N.A.	16.4s (fading)	RT
$(\hat{I} / I = 10)$	1/430			(m=0.704)			
$(I_{or}/I_{oc} = 10$	v 730	285	46.6% →(53.4%)	81/171	N.A.	16.4s (fading)	RT
aB)				(m=0.768)			

# Table F.6.3.5.3.4: Open Loop Diversity Performance for test case 9.2.2B demodulation of HS -DSCH(QPSK, H-Set 5)

Open Loop			Relative test	Test limit	Min No of	Test time in s	BL
Diversity			requirement,	expressed as No of	samples		/
Performance	Absolu	uto Tost	normalized to	events/min No of		Mandatory if	RT
QPSK	Absolute Test requirement (kbps)		ideal=801 kbps	samples	(number of	fading	
H-Set 5					events to pass)		
	(r	ups)	No of events/No of	(Bad DUT factor)		Informative	
Testnumber			samples in %		Mandatory if	and approx. if	
			$BL \rightarrow (RT)$		applicable	statistical	
1			85.5% →(14.5%)	59/492	N.A.	164s (fading)	RT
$(\hat{I} / I = 0)$		116		(m=0.667)			
$(I_{or}/I_{oc}=0$	PAS		66.27% →(33.73%)	62/216	N.A.	164s (fading)	RT
dB)		270		(m=0.702)			
2			96.25% →(3.75%)	65/2100	N.A.	164s (fading)	RT
$(\hat{I} / I = 0)$	002	30		(m=1/1.5)			
$(I_{or}/I_{oc}=0$	грэ		71.14% →(28.86%)	58/243	N.A.	164s (fading)	RT
dB)		231		(m=0.689)			
3			97.13% →(2.87%)	64/2741	N.A.	16.4s (fading)	RT
$(\hat{I} / I = 0)$	1/430	23		(m=1/1.5)			
$(I_{or}/I_{oc} - 0)$	v730		69.64% →(30.36%)	60/234	N.A.	16.4s (fading)	RT
dB)		243		(m=0.693)			
1			29.67%	68/194	N.A.	164s (fading)	BL
$(\hat{1} / I - 10)$	DV3	563		(M=1.381)			
$(I_{or}/I_{oc} = 10$	FAS		10.93%	58/428	N.A.	164s (fading)	BL
dB)		713		(M=1.499)			
2			65.65% →(34.35%)	64/212	N.A.	164s (fading)	RT
$(\hat{I} / I - 10)$	DB3	275		(m=0.704)			
$(I_{or}/I_{oc} = 10$	1 05		48.66% →(51.34%)	77/170	N.A.	164s (fading)	RT
dB)		411		(m=0.76)			
3			64.9% →(35.1%)	63/211	N.A.	16.4s (fading)	RT
$(\hat{1} / I - 10)$	1/420	281		(m=0.706)			
$(I_{or}/I_{oc} = 10)$	v A30		46.78% →(53.22%)	81/172	N.A.	16.4s (fading)	RT
aB)		426		(m=0.767)			

#### Table F.6.3.5.3.5: Open Loop Diversity Performance for test case 9.2.2C demodulation of HS -DSCH(QPSK, H-Set 1, 2, 3) and test case 9.2.2E

Open Loop			Relative test	Test limit	Min No of	Test time in s	BL
Diversity	H-SET 1		requirement	expressed as No of	samples		/
Performance	H-SET 1 Absolute Test		(normalized to	events/min No of	<i>,</i> , , ,	Mandatory if	RT
QPSK			ideal=534 kbps for	samples for H-SEI	(number of	fading	
H-Set 1/2/3	require	ement	H-SET 1)	1, 2, 3	events to pass)		
		(hns)				Informative	
Testnumber	(.	(opc)	No of events/No of	(Bad DUT factor)	Mandatory if	and approx. if	
reethaniber			samples in %		applicable	statistical	
			$BL \rightarrow (RT)$				
1		197	63.09% <del>→</del>	64/203	N.A.	164s (fading)	RT
$(\hat{I} / I = 0)$	DV3		(36.91%)	(m = 0.712)			
$(I_{or}/I_{oc} - 0$	175	330	38.16% →	80/181	N.A.	164s (fading)	BL
aB)			(61.84%)	(M = 1.321)			
2		152	71.52% →	59/247	N.A.	164s (fading)	RT
$(\hat{I}   I = 0)$	DB3		(28.48%)	(m = 0.688)			
$(I_{or}/I_{oc}=0$	1.00	251	52.97% →	73/179	N.A.	164s (fading)	RT
dB)			(47.03%)	(m = 0.745		-	
3		164	69.27% →	60/232	N.A.	16.4s (fading)	RT
$(\hat{I})/I = 0$	1/420		(30.73%)	(m = 0.694)			
$(I_{or}/I_{oc}=0$	VA30	261	51.09% →	75/176	N.A.	16.4s (fading)	RT
aB)			(48.91%)	(m = 0.751)			
1		268	49.78% →	101/181	N.A.	164s (fading)	BL
$(\hat{I}_{-}) = 10$	DV3		(50.22%)	(M = 1.246)			
$(I_{or} / I_{oc} = 10$	1 75	407	23.74% →	62/217	N.A.	164s (fading)	BL
dB)			(76.26%)	(M = 1.424)		-	
2		183	65.71% →	62/213	N.A.	164s (fading)	RT
$(\hat{I} / I - 10)$	DB3		(34.29%)	(m = 0.704)			
$(I_{or}/I_{oc} - 10)$	1 05	288	46.03% →	93/178	N.A.	164s (fading)	BL
dB)			(53.97%)	(M = 1.269)			
3		197	63.09% →	64/203	N.A.	16.4s (fading)	RT
$(\hat{I} / I = 10)$	V/A30		(36.91%)	(m = 0.712)			
$(I_{or} / I_{oc} = 10)$	v 7.50	307	42.47% →	87/178	N.A.	16.4s (fading)	BL
dB)			(57.53%)	(M = 1.292)			

### Table F.6.3.5.3.6: Open Loop Diversity Performance for test case 9.2.2C demodulation of HS -DSCH(16QAM, H-Set 1, 2, 3) and test case 9.2.2E

Open Loop Diversity			Relative test requirement	Testlimit expressed as No of	Min No of samples	Test time in s	BL /
Performance	H-SET 1		(normalized to	events/min No of	•	Mandatory if	RT
16 QAM			ideal=777 kbps for	samples for H-SET	(number of	fading	
H-Set 1/2/3	regi	irement	H-SET 1)	1, 2, 3	events to pass)		
	()	(hns)				Informative	
Testnumber	(1	(666)	No of events/No of	(Bad DUT factor)	Mandatory if	and approx. if	
reethanser			samples in %		applicable	statistical	
			$BL \rightarrow (RI)$				
1		340	56.26% →	70/184	N.A.	16.4s (fading)	RT
$(\hat{I} / I = 10)$	PA3		(43.74%)	(m = 0.733)			
$(I_{or}/I_{oc} = 10)$	170	513	34.01% →	72/180	N.A.	16.4s (fading)	BL
aB)			(65.99%)	(M = 1.350)			
2		251	67.71% →	60/222	N.A.	16.4s (fading)	RT
$(\hat{I} / I - 10)$	PB3		(32.29%)	(m = 0.698)			
$(I_{or}/I_{oc} = 10$	1 00	374	51.89% →	74/177	N.A.	16.4s (fading)	RT
dB)			(48.11%)	(m = 0.749)			
3		280	63.98% →	63/206	N.A.	16.4s (fading)	RT
$(\hat{I} / I - 10)$	VA30		(36.02%)	(m = 0.709)			
$(I_{or}/I_{oc} = 10)$	VA30	398	48.80% →	96/174	N.A.	16.4s (fading)	BL
aB)			(51.20%)	(M = 1.252)			

# Table F.6.3.5.4.1: Closed Loop Diversity Performance for test case 9.2.3A and 9.2.3D demodulation of<br/>HS-DSCH (QPSK, H-Set 1, 2, 3)

$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	Closed Loop			Relative test	Test limit	Min No of	Test time in s	BL
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Diversity			requirement	expressed as No of	samples		/
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Performance	H-SET 1 Absolute Test		(normalized to	events/min No of		Mandatory if	RT
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	QPSK			ideal=534 kbps for	samples for H-SET	(number of	fading	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	H-Set 1/2/3	ADSU	lute rest	H-SET 1)	1, 2, 3	events to pass)		
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $		requ					Informative	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Taatuumahan	(۴	(ops)	No of events/No of	(Bad DUT factor)	Mandatory if	and approx. if	
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	restnumber			samples in %	· · · · · ·	applicable	statistical	
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $				$BL \rightarrow (RT)$				
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	1		118	77.89% →(22.11%)	58/315	N.A.	164s (fading)	RT
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$(\hat{I} / I = 0)$	PA3			(m=0.674)			
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$(I_{or}/I_{oc} - 0$	1710	225	57.84% →(42.16%)	69/189(m=0.728)	N.A.	164s (fading)	RT
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	aB)		50		04/707			- DT
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	2		50	90.63% →(9.37%)	61//8/	N.A.	164s (fading)	RI
$\begin{array}{c c} (I_{or}, I_{oc} = 0 \\ dB) \end{array} & \begin{array}{c c} 173 \\ 173 \\ \hline \\ 173 \\ dB \end{array} & \begin{array}{c c} 67.58\% \rightarrow (32.42\%) \\ \hline \\ 91.2\% \rightarrow (8.8\%) \\ \hline \\ 172 \\ dB \end{array} & \begin{array}{c c} 67.58\% \rightarrow (32.42\%) \\ \hline \\ (I_{or}, I_{oc} = 0 \\ dB \end{array} & \begin{array}{c c} N.A. \\ 164s (fading) \\ RT \\ \hline \\ (m=1/1.5) \\ (m=0.698) \\ \hline \\ 172 \\ for -(1_{oc} = 10 \\ for -(1_{oc} $	$(\hat{I} / I = 0)$	PB3	1 - 0		(m=1/1.5)			
$\begin{array}{c c c c c c c c c c c c c c c c c c c $			173	67.58% →(32.42%)	61/222	N.A.	164s (fading)	RI
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	UB)				(m=0.698)			
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	3		47	91.2% →(8.8%)	62/852	N.A.	16.4s (fading)	RT
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$(\hat{I} / I = 0)$	VA30			(m=1/1.5)			
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$(I_{or}/I_{oc} - 0$	11.00	172	67.77% →(32.23%)	61/223	N.A.	16.4s (fading)	RT
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	dB)				(m=0.698)			
$(\hat{I}_{or}/I_{oc} = 10   PA3   (M=1.413)   (M=1.413)$	1		399	25.23%	63/207	N.A.	164s (fading)	BL
( <i>T<sub>or</sub></i> / <i>T<sub>oc</sub></i> =10 176 458 14.18% 57/325 N.A. 164s (fading) BL	$(\hat{1} / I - 10)$	P۵3			(M=1.413)			
	$(I_{or}/I_{oc} - 10)$	1710	458	14.18%	57/325	N.A.	164s (fading)	BL
dB) (M=1.487)	dB)				(M=1.487)			
2 199 62.71% → (37.29%) 65/204 N.A. 164s (fading) RT	2		199	62.71% →(37.29%)	65/204	N.A.	164s (fading)	RT
$(\hat{n} = 10   \text{PR}^2)$ (m=0.713)	$(\hat{I})/I = 10$	DB2			(m=0.713)			
$(I_{or}^{\prime}/I_{oc}^{\prime}=10)$ PD3 301 43.6% 88/180 N.A. 164s (fading) BL	$(I_{or} / I_{oc} = 10)$	грэ	301	43.6%	88/180	N.A.	164s (fading)	BL
dB) (M=1.285)	dB)				(M=1.285)			
3 204 61.77% → (38.23%) 65/198 N.A. 16.4s (fading) RT	3		204	61.77% →(38.23%)	65/198	N.A.	16.4s (fading)	RT
(m=0.716)		1/420		. ,	(m=0.716)			
( <i>I<sub>or</sub>/I<sub>oc</sub></i> = 10 VASU 305 42.85% 85/173 N.A. 16.4s (fading) BL	$(I_{or} / I_{oc} = 10$	VA30	305	42.85%	85/173	N.A.	16.4s (fading)	BL
dB) (M=1.29)	dB)				(M=1.29)			

### Table F.6.3.5.4.1A: Closed Loop Diversity Performance for test case 9.2.3C demodulation of HS-<br/>DSCH (QPSK, H-Set 1, 2, 3), type 1 and test case 9.2.3E

Closed Loop Diversity Performanc e QPSK H-Set 1/2/3 Test number	H-SET 1 Absolute Test requirement (kbps)		Relative test requirement (normalized to ideal=534 kbps for H-SET 1) No of events/No of samples in % BL → (RT)	Test limit expressed as No of events/min No of samples for H- SET 1, 2, 3 (Bad DUT factor)	Min No of samples (number of events to pass) Mandatory if applicable	Test time in s Mandatory if fading Informative and approx. if statistical	BL / RT
1	DV3	242	54.7% →(45.3%)	71/180 (m=0.739)	N.A.	164s (fading)	RT
$(I_{or}/I_{oc} = 0)$ dB)	175	369	30.9%	86/239(M=1.327)	N.A.	164s (fading)	RT
2	000	170	68.2% →(31.8%)	53/199 (m=0.679)	N.A.	164s (fading)	RT
$(I_{or}/I_{oc} = 0)$ dB)	РБЗ	272	49.1% →(50.9%)	78/174 (m=0.759)	N.A.	164s (fading)	RT
3		172	67.8% →(32.2%)	62/227 (m=0.698)	N.A.	16.4s (fading)	RT
$(I_{or}/I_{oc} = 0)$ dB)	VA3U	270	49.4% →(50.6%)	78/175 (m=0.758)	N.A.	16.4s (fading)	RT
		297	44.4.%	88/173 (M=1.28)	N.A.	164s (fading)	BL
$(I_{or}/I_{oc} = 10)$ dB)	FAS	410	23.2%	60/213 (M=1.434)	N.A.	164s (fading)	BL
2	002	194	63.7% →(36.3%)	63/203 (m=0.71)	N.A.	164s (fading)	RT
$(I_{or}/I_{oc} = 10)$ dB)	грэ	308	42.3%	84/173 (M=1.293)	N.A.	164s (fading)	BL
3	1/420	204	61.77% →(38.23%)	65/198 (m=0.716)	N.A.	16.4s (fading)	RT
$(I_{or}/I_{oc} = 10)$ dB)	VA3U	315	41.0%	80/169 (M=1.302)	N.A.	16.4s (fading)	BL

### Table F.6.3.5.4.2: Closed Loop Diversity Performance for test case 9.2.3A and 9.2.3D demodulation of HS-DSCH (16 QAM, H-Set 1, 2, 3)

Closed Loop			Relative test	Test limit	Min No of	Test time in s	BL /
Performance	H-SET 1 Absolute Test		(normalized to	events/min No of	Samples	Mandatory if	ŔT
16 QAM			ideal=777 kbps for	samples for H-SET	(number of	fading	
H-Set 1/2/3	requ	irement	H-SET 1)	1, 2, 3	events to pass)	Informative	
Testnumber	(kbps)		No of events/No of samples in % BL → (RT)	(Bad DUT factor)	Mandatory if applicable	and approx. if statistical	
1	361		53.56% →(46.44%)	73/180 (m=0.743)	N.A.	164s (fading)	RT
$(I_{or}/I_{oc} = 10 dB)$	PA3	500	35.68%	74/177 (M=1.338)	N.A.	164s (fading)	BL
2		74	90.48% →(9.52%)	62/788	N.A.	164s (fading)	RT
$(\hat{I} / I = 10)$	PB3			(m=1/1.5			
dB)	. 20	255	67.2% →(32.8%)	61/219 (m. 0.7)	N.A.	164s (fading)	RT
(LD)		0.4	00.00( )(40.00()	(m=0.7)	NI 4		DT
3 ( î (L 10	84		89.2% →(10.8%)	(m=1/1.5)	N.A.	16.4s (fading)	КI
$(I_{or}/I_{oc} = 10)$ dB)	V A3U	254	67.32% →(32.68%)	61/220 (m=0.699)	N.A.	16.4s (fading)	RT

### Table F.6.3.5.4.2A: Closed Loop Diversity Performance for test case 9.2.3C demodulation of HS-<br/>DSCH (16 QAM, H-Set 1, 2, 3), type 1 and test case 9.2.3E

Closed Loop Diversity Performance 16 QAM H-Set 1/2/3	H- Abso	SET 1 lute Test	Relative test requirement (normalized to ideal=777 kbps for H-SET 1)	Test limit expressed as No of events/min No of samples for H-SET 1, 2, 3	Min No of samples (number of events to pass)	Test time in s Mandatory if fading	BL / RT
Testnumber	requirement (kbps)		No of events/No of samples in % BL $\rightarrow$ (RT)	(Bad DUT factor)	Mandatory if applicable	Informative and approx. if statistical	
1	376		51.6% →(48.4%)	75/177 (m=0.75)	N.A.	164s (fading)	RT
$(I_{or}/I_{oc} = 10)$ dB)	PAS	532	31.5%	72/193 (M=1.368)	N.A.	164s (fading)	BL
2	DB3	267	65.6% →(34.4%)	62/212 (m=0.704	N.A.	164s (fading)	RT
$(I_{or}/I_{oc} = 10)$ dB)	1 05	393	49.4% →(50.6%)	78/175 (m=0.758)	N.A.	164s (fading)	RT
$\frac{3}{(\hat{L}/L-10)}$	1/420	279	64.1% →(35.9%)	63/206 (m=0.708)	N.A.	16.4s (fading)	RT
	VASU	404	48% →(52%)	79/172 (m=0.763)	N.A.	16.4s (fading)	RT

# Table F.6.3.5.4.3: Closed Loop Diversity Performance for test case 9.2.3B demodulation of HS-DSCH(QPSK, H-Set 4)

Closed Loop			Relative test	Test limit	Min No of	Test time in s	BL
Diversity			requirement	expressed as No of	samples		/
Performance	Abcolu	uto Tost	(normalized to	events/min No of		Mandatory if	RT
QPSK	Absolute Test requirement (kbps)		ideal=534 kbps)	samples	(number of	fading	
H-Set 4	iequie /k	(hns)			events to pass)		
	(1	(000)	No of events/No of	(Bad DUT factor)		Informative	
Testnumber			samples in %		Mandatory if	and approx. if	
			$BL \rightarrow (RT)$		applicable	statistical	
1		114	78.64% →(21.36%)	58/327	N.A.	164s (fading)	RT
$(\hat{I} / I = 0)$	PA3			(m=0.673)			
$(I_{or}/I_{oc} = 0$	170	223	58.21% →(41.79%)	69/191	N.A.	164s (fading)	RT
aB)				(m=0.727)			
2		43	91.94% →(8.06%)	62/930	N.A.	164s (fading)	RT
$(\hat{I} / I = 0)$	DB3			(m=1/1.5)			
$(I_{or}/I_{oc} = 0$	1 05	167	68.71% →(31.29%)	60/227	N.A.	164s (fading)	RT
aB)				(m=0.695)			
3		40	92.5% →(7.5%)	63/1017	N.A.	16.4s (fading)	RT
$(\hat{I})/I = 0$	VA30			(m=1/1.5)			
$(I_{or}/I_{oc} = 0$	1100	170	68.14% →(31.86%)	61/226	N.A.	16.4s (fading)	RT
aB)				(m=0.697)			
1		398	25.42%	63/206	N.A.	164s (fading)	BL
$(\hat{I})/I = 10$	PA3			(M=1.412)			
$(I_{or}/I_{oc} - 10)$	175	457	14.37%	57/321	N.A.	164s (fading)	BL
dB)				(M=1.486)			
2		196	63.27 →(36.73%)	64/204	N.A.	164s (fading)	RT
$(\hat{I}) = 10$	DB3			(m=0.711)			
$(I_{or}/I_{oc} = 10$	1 05	292	45.28% →(54.72%)	85/175	N.A.	164s (fading)	RT
dB)				(m=0.773)		-	
3		199	62.71% →(37.29%)	65/204	N.A.	16.4s (fading)	RT
$(\hat{I})/I = 10$	1/420			(m=0.713)			
$(I_{or}/I_{oc} = 10)$	VASU	305	42.85%	85/173	N.A.	16.4s (fading)	BL
dB)				(M=1.29)			

Closed Loop			Relative test	Test limit	Min No of	Test time in s	BL
Diversity			requirement	expressed as No of	samples		/
Performance	Absolute Test requirement (kbps)		(normalized to	events/min No of		Mandatory if	RT
QPSK			ideal=801 kbps)	samples	(number of	fading	
H-Set 5	/L	(hne)			events to pass)		
	(1	(ops)	No of events/No of	(Bad DUT factor)		Informative	
Testnumber			samples in %		Mandatory if	and approx. if	
			$BL \rightarrow (RT)$		applicable	statistical	
1			77.89% →(22.11%)	58/315	N.A.	164s (fading)	RT
$(\hat{I} / I = 0)$	DV3	177		(m=0.674)			
$(I_{or}/I_{oc} = 0$	175		57.78% →(42.22%)	68/186	N.A.	164s (fading)	RT
dB)		338		(m=0.728)			
2			90.63% →(9.37%)	61/787	N.A.	164s (fading)	RT
$(\hat{I})/I = 0$	DB2	75		(m=1/1.5)			
$(I_{or}/I_{oc} = 0$	FDS		67.52% →(32.48%)	62/225	N.A.	164s (fading)	RT
dB)		260		(m=0.699)			
3			91.13% →(8.87%)	62/846	N.A.	16.4s (fading)	RT
$(\hat{I} / I = 0)$	V/A30	71		(m=1/1.5)			
$(I_{or}/I_{oc} = 0$	V7.50		67.77% →(32.23%)	61/223	N.A.	16.4s (fading)	RT
dB)		258		(m=0.698)			
1			25.17%	64/211	N.A.	164s (fading)	BL
$(\hat{I})/I = 10$	DV3	599		(M=1.413)			
$(I_{or}/I_{oc} - 10)$	175		14.18%	57/325	N.A.	164s (fading)	BL
aB)		687		(M=1.487)			
2			62.65% →(37.35%)	64/200	N.A.	164s (fading)	RT
$(\hat{I})/I = 10$	PB3	299		(m=0.713)			
$(I_{or}/I_{oc} = 10)$	1 00		43.54%	87/174	N.A.	164s (fading)	BL
aB)		452		(M=1.285)			
3			61.77% →(38.23%)	65/198	N.A.	16.4s (fading)	RT
$(\hat{I})/I = 10$	VA30	306		(m=0.716)			
$(I_{or}/I_{oc} - 10$	v <i>A</i> 30		42.79%	86/175	N.A.	16.4s (fading)	BL
aB)		458		(M=1.29)			

#### Table F.6.3.5.4.4: Closed Loop Diversity Performance for test case 9.2.3B demodulation of HS-DSCH (QPSK, H-Set 5)

### Table F.6.3.5.4.5: Closed Loop Diversity Performance for test case 9.2.3D demodulation of HS-DSCH(QPSK, H-Set 6)

Closed Loop Diversity			Relative test requirement	Testlimit expressed as No of	Min No of samples	Test time in s	BL /
Performance	Absolute Test requirement (kbps)		(normalized to	events/min No of		Mandatory if	RT
QPSK			ideal=3219 kbps)	samples	(number of	fading	
H-Set 6			(hns)		events to pass)		
	(1005)		No of events/No of	(Bad DUT factor)		Informative	
Testnumber			samples in % BL → (RT)		Mandatory if applicable	and approx. if statistical	
1			52.28% →	74/178	N.A.	164s (fading)	RT
$(\hat{I}_{ar}/I_{ar} = 10$	PB3 1536		(47.72%)	(m = 0.747)			
dB)							

#### Table F.6.3.5.4.6: Closed Loop Diversity Performance for test case 9.2.3D demodulation of HS-DSCH (16QAM, H-Set 6)

Closed Loop			Relative test	Test limit	Min No of	Test time in s	BI
Diversity	Absolute Test		requirement	expressed as No of	samples		/
Performance			(normalized to	events/min No of	00p.00	Mandatory if	RT
16QAM			ideal=4689 kbps)	samples	(number of	fading	
H-Set 6						-	
	, ,	(obs)	No of events/No of	(Bad DUT factor)		Informative	
Testnumber			samples in %		Mandatory if	and approx. if	
			$BL \rightarrow (RT)$		applicable	statistical	
1	PB3 1154		75.39% →	57/280	N.A.	164s (fading)	RT
$(\hat{I}_{or} / I_{oc} = 10$			(24.61%)	(m = 0.679)			
dB)							

#### Table F.6.3.5.4.7: HS-SCCH-less demodulation of HS-DSCH for test case 9.5.1 (QPSK, H-Set 7))

HS-SCCH-			Relative test	Testlimit	Min No of	Test time in s	BL
less	Absolute Test requirement (kbps)		requirement	expressed as No of	samples		/
demodulation			(normalized to	events/min No of		Mandatory if	RT
of HS-DSCH			ideal=TBD kbps)	samples	(number of	fading	
QPSK					events to pass)		
H-Set 7			No of events/No of	(Bad DUT factor)		Informative	
Teet number			samples in %		Mandatory if	and approx. if	
restnumber			$BL \rightarrow (RT)$		applicable	statistical	
1	-		47.35% →	91/170	N.A.	16.4s (fading)	BL
$(\hat{I}_{or} / I_{oc} = 0$	Case		(52.65%)	(M= 1.26)			
dB)	0	19.9					

### Table F.6.3.5.4.8: HS-SCCH-less demodulation of HS-DSCH for test case 9.5.1A (Enhanced requirement type 1, QPSK, H-Set 7))

HS-SCCH-			Relative test	Test limit	Min No of	Test time in s	BI
113-30011-				163111111		i est unie in s	
less			requirement	expressed as No of	samples		/
demodulation			(normalized to	events/min No of	-	Mandatory if	RT
of HS-DSCH	Absolute lest requirement (kbps)		ideal=TBD kbps)	samples	(number of	fading	
QPSK					events to pass)		
H-Set 7			No of events/No of	(Bad DUT factor)	. ,	Informative	
Testation			samples in %		Mandatory if	and approx. if	
lestnumber			$BL \rightarrow (RT)$		applicable	statistical	
1	-	22 E	37.83% →	76/173	N.A.	16.4s (fading)	BL
$(\hat{I} / I = 0)$	Case	23.5	(62.17%)	(M = 1.32)			
$(1_{or}, 1_{oc} - 0)$	8			. ,			
dB)							

Table F.6.3.5.4.9: HS-DSCH and HS-SCCH reception in CELL-FACH state									
.6.1			Test limit	Min No of	Test time in s				
ale link		No of events/No of	expressed as No of	samples					
- DOCU		a anamila a in 0/	avente /min Nie of		Manalatanı				

9.6.1 Single link HS-DSCH demodulation performance in CELL- FACK QPSK H-Set 3	Absolute Test requirement SDU ER		No of events/No of samples in % Error Ratio(ER) → (Success Ratio(SR))	Test limit expressed as No of events/min No of samples (Bad DUT factor)	Min No of samples (number of events to pass) Mandatory if applicable	Test time in s Mandatory if fading Informative and approx. if statistical	ER / SR
$(\hat{I}_{ar}/I_{ar}=0$	VA30		82% → (18%)	57/382 (m = 0.668)	382 (>=57)	30.5s	SR
dB)		0.82					
9.6.2 (HS-DCCH)			1% → (99%)	65/5247 (M = 1.5)	5247 (<=65)	420s	ER
	VA30						
$(\hat{I}_{or} / I_{oc} = 0$							
dB)		0.01					

#### Table F.6.3.5.4.10: MIMO Performance for test case 9.2.4A, 9.2.4C, 9.2.4CA, 9.2.4E, 9.2.4G (FRC , H-Set 9/9A)

MIMO			Relative test	Test limit	Min No of	Test time in s	BL	
Performance	Absolute Test		requirement	expressed as No of	samples		/	
			(normalized to	events/min No of		Mandatory if	RT	
H-Set 9/9A	require	ment	ideal=13510 kbps)	samples	(number of	fading		
	/L	(hne)			events to pass)			
Testnumber	(i	(ups)	No of events/No of	(Bad DUT factor)		Informative		
restriumber			samples in %		Mandatory if	and approx. if		
			BL → (RT)		applicable	statistical		
1	PA3	5563	55.8% → (41.2%)	68/192*	N.A.	164s (fading)	RT	
$(\hat{I} / I = 10)$				(m = 0.725)				
dB)								
2	VA3	4347	$67.8\% \rightarrow (32.2\%)$	61/225*	NA	164s (fading)	RT	
	1710	1017	01.070 7 (02.270)	(m = 0.679)	14.7 6	io io (iddilig)		
$(I_{or} / I_{oc} = 10)$				( = 0.01.07				
dB)								
*)nominator a			nd denominator by its own are irrelevant, only the ratio is relevant.					
			Relative test	Testlimit	Min No of	Test time in s	BL	
MIMO			requirement	expressed as No of	samples		/	
Performance	Absolu	ite Test	(normalized to	events/min No of		Mandatory if	RT	
	require	ement	ideal=8650 kbps)	samples	(number of	fading		
H-Set 9/9A	(k	(bps)			events to pass)			
	``	-1-7	No of events/No of	(Bad DUT factor)		Informative		
lestnumber			samples in %		Mandatory If	and approx. If		
			$BL \to (RI)$	74/400	applicable	statistical	DT	
	PA3	3933	54.5% → (45.5%)	/1/180	N.A.	164s (fading)	RI	
3				(m = 0.739)				
$(\hat{I}_{or} / I_{oc} = 6$								
dB)								
4	VA3	3011	65.2% → (34.8%)	62/210	N.A.	164s (fading)	RT	
$(\hat{I}_{or} / I_{oc} = 6$				(m = 0.705)				
dB)								

#### Table F.6.3.5.2.11: MIMO Performance for test case 9.2.4B, 9.2.4D, 9.2.4DA, 9.2.4F, 9.2.4H (FRC H-Set 11/11A)

Single link	Absolute Test requirement		Relative test	Test limit	Min No of	Test time in s	BL
Performance			requirement	expressed as No of	samples		/
HSET-			(normalized to	events/min No of		Mandatory if	RT
11/11A			ideal=22074 kbps)	samples	(number of	fading	
64 QAM					events to pass)		
	er (Kbps)		No of events/No of	(Bad DUT factor)		Informative	
Testnumber			samples in %		Mandatory if	and approx. if	
			$BL \rightarrow (RT)$		applicable	statistical	
1	9980		54.79% →	71/180	N.A.	164s (fading)	RT
$(\hat{I}_{or} / I_{oc} = 18$	PA3		(45.21%)	(m = 0.739)			
dB)							

# F.6.4 Statistical testing of performance requirement (E-DCH and MBMS)

#### F.6.4.1 Test Method

Each test is performed in the following manner:

- a) Setup the required test conditions.
- b) Measure the E-HICH, the E-RGCH and the E-AGCH repeated times. The results, measured, are summarized to:

a bad result, if the measured E-HICH returns a missed ACK or a false ACK or if the E\_RGCH test returns a missed HOLD or a missed UP/DOWN or a missed DOWN or if the E-AGCH test returns a missed detection in the relevant test.

a good result, otherwise.

- c) Record the number of valid results (ns), tested, and the number of bad results (ne)
- d) Stop the test at an early pass or an early fail event.
- e) Once the test is stopped, decide according to the pass fail decision rules

#### F.6.4.2 Bad Result Ratio (ER)

The Bad Result Ratio (ER) is defined as the ratio of bad results (ne) to all valid results (ns).

(1-ER is the success ratio)

# F.6.4.3 Mapping of E-DCH and MBMS tests to RRM tests (F.6.2) and HSDPA tests (F.6.3)

The test design and the explanations for the RRM tests in F.6.2.4 to F.6.2.7 are valid also for the E-DCH and MBMS test as long as the error ratio for minimum requirements is  $\leq 0.1$ .

The test design and the explanations for the HSDPA tests in F.6.3.3 to F.6.3.4 are partly valid also for the E-DCH test as long as the error ratio for minimum requirements is > 0.1.

#### F.6.4.4 Test conditions for E-DCH tests and MBMS

#### Table F.6.4.4: Test conditions for a E-DCH and MBMS tests

Type of test	Mini	Test limit	Targe	Prob that	Bad	Mini			
	mum	TL	t	good unit	unit	mum			
	requi	(ER)=	numb	will fail	factor	Test			
	reme	Minimum	er of	= Prob	М	time			
	nt	requirem	bad	that bad		[s]			
	(ER)	ent (ER)x	result	unit will		Note			
			S	pass		1			
Detection of E-DCH HARO ACK Indicator Channel (E-		15		[/9]					
HICH)									
10.2.1.1 Single link performance (10ms TTI)									
Missed ACK probability (VA30, Test 1)	0.01	1.236	154	5	1.5	16.4			
False ACK probability (VA30, Test 2)Note 2)	0.5	1.127	NA	5	1.245	16.4			
10.2.1.2 Single link performance (2ms TTI)									
Missed ACK probability (VA30, Test 1)	0.01	1.236	154	5	1.5	16.4			
False ACK probability (VA30, Test 2)Note 2)	0.5	1.127	NA	5	1.245	16.4			
Detection in Inter-Cell Handover conditions									
10.2.2.1.1 RLS not containing the Serving E-DCH cell									
(10ms TTI).									
Missed ACK probability (VA30, Test1)	0.05	1.236	154	5	1.5	16.4			
False ACK probability (VA30,Test 2)	2E-4	1.236	154	5	1.5	NA			
10.2.2.1.2 RLS not containing the Serving E-DCH cell									
(2ms TTI)									
Missed ACK probability (VA30, Test 1)	0.05	1.236	154	5	1.5	16.4			
False ACK probability (VA30, Test 2)	2E-4	1.236	154	5	1.5	NA			
10.2.2.2.1 RLS containing the Serving E-DCH cell									
(10ms TTI)									
Missed ACK probability (Test 1, VA30)	0.05	1.236	154	5	1.5	16.4			
False ACK probability (Test 2,PA3)	0.1	1.236	154	5	1.5	164s			
False ACK probability (Test 3, VA120)	0.1	1.236	154	5	1.5	4.1			
10.2.2.2.2 RLS containing the Serving E-DCH cell									
(2ms TTI)									
Missed ACK probability (Test 1, VA30)	0.05	1.236	154	5	1.5	16.4			
False ACK probability (Test 2, PA3)	0.1	1.236	154	5	1.5	164			
False ACK probability (Test 3, VA120)	0.1	1.236	154	5	1.5	4.1			
Detection of E-DCH Relative Grant Channel (E-RGCH)									
10.3.1.1 Single link performance (10ms TTI)									
Missed UP/DOWN (VA30, Test 1)	0.05	1.236	154	5	1.5	16.4			
Missed HOLD (VA30,Test 2)	0.1	1.236	154	5	1.5	16.4			
10.3.1.2 Single link performance (2ms TTI)									
Missed UP/DOWN (VA30, Test 1)	0.05	1.236	154	5	1.5	16.4			
Missed HOLD (VA30, Test 2)	0.1	1.236	154	5	1.5	16.4			
10.3.2 Detection in Inter-Cell Handover conditions									
Missed HOLD probability (Test 1)	0.005	1.236	154	5	1.5	16.4			
Missed DOWN probability (Test 2)	0.05	1.236	154	5	1.5	16.4			
10.4 Demodulation of E-DCH Absolute Grant Channel									
(E-AGCH									
Missed detection probability (Test 1)	0.01	1.236	154	5	1.5	16.4			
11.2 Demodulation of MTCH	0.1	1.236	154	5	1.5	164			
11.2A Demodulation of MTCH - Enhanced Performance	0.1	1.236	154	5	1.5	164			
Requirements Type 1	_								
This Demodulation of MICH and cell Identification 0.05 1.236 154 5 1.5 164									
Note 1) The minimum test time due to propagation cond	itions is c	onstant and o	verrides	ne test time d	lue to sta	tistical			
reasons. The test time due to statistical reasons Justification is given in clause F.6.1.6.	is variab	ie and depend	is on the	quality of the l	001.				
Note 2) No early decision is designed in this test. Sample	e for 16.4	s. Then decid	de the ER	against the T	L. The lir	nit ratio			
is 102/181=0.563536									