

Draft **ETSI EN 300 607-1** V9.0.1 (2000-07)

---

*European Standard (Telecommunications series)*

**Digital cellular telecommunications system (Phase 2+);  
Mobile Station (MS) conformance specification;  
Part 1: Conformance specification  
(GSM 11.10-1 version 9.0.1 Release 2000)**

---



**GSM**®  
GLOBAL SYSTEM FOR  
MOBILE COMMUNICATIONS

**ETSI** 

---

Reference

---

REN/SMG-071110Q9-1

Keywords

---

Digital cellular telecommunications system,  
Global System for Mobile communications  
(GSM)

**ETSI**

Postal address

---

F-06921 Sophia Antipolis Cedex - FRANCE  
Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C  
Association à but non lucratif enregistrée à la  
Sous-Préfecture de Grasse (06) N° 7803/88

***Important notice***

---

Individual copies of the present document can be downloaded from:

<http://www.etsi.org>

The present document may be made available in more than one electronic version or in print. In any case of existing or perceived difference in contents between such versions, the reference version is the Portable Document Format (PDF). In case of dispute, the reference shall be the printing on ETSI printers of the PDF version kept on a specific network drive within ETSI Secretariat.

Users of the present document should be aware that the document may be subject to revision or change of status. Information on the current status of this and other ETSI documents is available at <http://www.etsi.org/tb/status/>

If you find errors in the present document, send your comment to:  
editor@etsi.fr

***Copyright Notification***

---

No part may be reproduced except as authorized by written permission.  
The copyright and the foregoing restriction extend to reproduction in all media.

© European Telecommunications Standards Institute yyyy.  
All rights reserved.

# Contents

Intellectual Property Rights.....	37
Foreword.....	37
1 Scope.....	38
2 References.....	38
3 Definitions, conventions, and applicability.....	47
3.1 Mobile station definition and configurations.....	47
3.2 Applicability.....	47
3.2.1 Applicability of this specification.....	47
3.2.1.1 MS equipped with a connector.....	47
3.2.1.1.1 GPRS.....	47
3.2.2 Applicability of the individual tests.....	49
3.2.3 Applicability to terminal equipment.....	81
3.3 Definitions.....	81
3.4 Conventions for mathematical notations.....	81
3.4.1 Mathematical signs.....	81
3.4.2 Powers to the base 10.....	82
3.5 Conventions on electrical terms.....	82
3.5.1 Radio Frequency (RF) input signal level.....	82
3.5.2 Reference sensitivity level.....	82
3.5.3 Power level of fading signal.....	82
3.6 Terms on test conditions.....	83
3.6.1 Radio test conditions.....	83
4 Test Equipment.....	84
4.1 Terms used to describe test equipment in this EN.....	84
4.2 Functional requirements of test equipment.....	84
5 Testing methodology in general (layers 1, 2, and 3).....	84
5.1 Testing of optional functions and procedures.....	84
5.2 Test interfaces and facilities.....	85
5.3 Different protocol layers.....	85
5.4 Information to be provided by the apparatus supplier.....	85
5.5 Definitions of transmit and receive times.....	85
6 Reference test methods.....	86
6.1 General.....	86
6.2 Choice of frequencies in the frequency hopping mode.....	86
6.3 "Ideal" radio conditions.....	86
6.4 Standard test signals.....	87
6.5 Power (control) levels.....	87
7 Implicit testing.....	87
8 Measurement uncertainty.....	87
9 Format of tests.....	87
10 Generic call set up procedures.....	88
10.1 Generic call set-up procedure for mobile terminating speech calls.....	88
10.2 Generic call set-up procedure for mobile originating speech calls.....	93
10.3 Generic call set-up procedure for mobile terminating data calls.....	96
10.4 Generic call set-up procedure for mobile originating data calls.....	98
10.5 Generic call set-up procedure for mobile terminating multislot configuration, minimum number of timeslots allocated.....	101

- 10.6 Generic call set-up procedure for mobile originating multislot configuration, minimum number of time slots allocated ..... 104
- 10.7 Generic procedure for GPRS downlink data transfer ..... 107
- 10.8 Generic procedure for GPRS uplink data transfer..... 108
- 11 General tests ..... 111
  - 11.1 Verification of support and non-support of services (multiple numbering scheme or ISDN)..... 111
    - 11.1.1 Mobile Terminated (MT) calls ..... 111
    - 11.1.2 Mobile Originated (MO) calls ..... 112
  - 11.2 Verification of support of the single numbering scheme ..... 113
  - 11.3 Verification of non-support of services (Advice of Charge Charging (AoCC))..... 114
  - 11.4 Verification of non-support of services (call hold)..... 116
  - 11.5 Verification of non-support of services (multiparty)..... 116
  - 11.6 Verification of non-support of feature (Fixed Dialling Number (FDN)) ..... 117
  - 11.7 IMEI Security..... 118
  - 11.8 Coding of the Bearer Capability information element..... 119
    - 11.8.1 Network to MS Direction..... 120
      - 11.8.1.1 BS 21 to 26 - Asynchronous Service..... 120
        - 11.8.1.1.1 BS 21..... 120
        - 11.8.1.1.2 BS 22..... 124
        - 11.8.1.1.3 BS 24..... 124
        - 11.8.1.1.4 BS 25..... 124
        - 11.8.1.1.5 BS 26..... 124
        - 11.8.1.1.6 BS 23..... 124
      - 11.8.1.2 BS 31 to 34 - Synchronous Service..... 125
        - 11.8.1.2.1 BS 32..... 125
        - 11.8.1.2.2 BS 31..... 129
        - 11.8.1.2.3 BS 33..... 130
        - 11.8.1.2.4 BS 34..... 130
      - 11.8.1.3 BS 61 - Alternate Speech / Data..... 130
        - 11.8.1.3.1 Speech/Asynchronous Data, Transparent ..... 131
        - 11.8.1.3.2 Speech/Asynchronous Data, Non Transparent ..... 133
        - 11.8.1.3.3 Speech/Synchronous Data ..... 135
      - 11.8.1.4 BS 81 - Speech followed by Data..... 136
        - 11.8.1.4.1 Speech followed by Asynchronous Data ..... 136
        - 11.8.1.4.2 Speech followed by Synchronous Data ..... 136
      - 11.8.1.5 TS 61 - Alternate Speech / Facsimile group 3 ..... 136
        - 11.8.1.5.1 TS 61 - Alternate Speech / Facsimile group 3, Transparent..... 137
        - 11.8.1.5.2 TS 61 - Alternate Speech / Facsimile group 3, Non-Transparent..... 138
      - 11.8.1.6 TS 62 - Automatic Facsimile group 3..... 139
    - 11.8.2 MS to SS direction..... 139
      - 11.8.2.1 BS 21 to 26 - Asynchronous Service..... 139
        - 11.8.2.1.1 BS 21..... 140
        - 11.8.2.1.2 BS 22..... 144
        - 11.8.2.1.3 BS 24..... 144
        - 11.8.2.1.4 BS 25..... 144
        - 11.8.2.1.5 BS 26..... 144
        - 11.8.2.1.6 BS 23..... 144
      - 11.8.2.2 BS 31 to 34 - Synchronous Service..... 145
        - 11.8.2.2.1 BS 32..... 145
        - 11.8.2.2.2 BS 31..... 149
        - 11.8.2.2.3 BS 33..... 150
        - 11.8.2.2.4 BS 34..... 150
      - 11.8.2.3 BS 41 to 46 - PAD Access Asynchronous ..... 151
        - 11.8.2.3.1 <sup>2)</sup> BS 41..... 151
        - 11.8.2.3.2 BS 42..... 153
        - 11.8.2.3.3 BS 44..... 153
        - 11.8.2.3.4 BS 45..... 153
        - 11.8.2.3.5 BS 46..... 153

11.8.2.3.6	BS 43.....	153
11.8.2.4	BS 51 to 53 - Packet Service Synchronous .....	154
11.8.2.4.1	<sup>2)</sup> BS 51.....	154
11.8.2.4.2	BS 52.....	154
11.8.2.4.3	BS 53.....	155
11.8.2.5	BS 61 - Alternate Speech / Data .....	155
11.8.2.5.1	Speech/Asynchronous Data, Transparent .....	156
11.8.2.5.2	Speech/Asynchronous Data, Non Transparent.....	159
11.8.2.5.3	Speech/Synchronous Data .....	161
11.8.2.6	BS 81 - Speech followed by Data .....	162
11.8.2.6.1	Speech followed by Asynchronous Data .....	162
11.8.2.6.2	Speech followed by Synchronous Data .....	162
11.8.2.7	TS 61 - Alternate Speech / Facsimile group 3 .....	162
11.8.2.7.1	TS 61 - Alternate Speech / Facsimile group 3, Transparent.....	163
11.8.2.7.2	TS 61 - Alternate Speech / Facsimile group 3, Non Transparent .....	164
11.8.2.8	TS 62 - Automatic Facsimile group 3.....	165
11.8.2.9	TS 11 and TS 12- Speech.....	165
11.8.2.9.1	Support of only full/half rate speech version 1 .....	165
11.8.2.9.2	Support of speech full rate version 2 (Enhanced Full Rate) .....	165
12	Transceiver.....	167
12.1	Conducted spurious emissions .....	167
12.1.1	MS allocated a channel.....	167
12.1.2	MS in idle mode .....	169
12.2	Radiated spurious emissions .....	170
12.2.1	MS allocated a channel.....	171
12.2.2	MS in idle mode .....	173
12.3	Conducted spurious emissions for MS supporting the R-GSM frequency band.....	174
12.3.1	MS allocated a channel.....	174
12.3.2	MS in idle mode .....	176
12.4	Radiated spurious emissions for MS supporting the R-GSM frequency band.....	178
12.4.1	MS allocated a channel.....	178
12.4.2	MS in idle mode .....	180
13	Transmitter .....	183
13.1	Frequency error and phase error .....	183
13.2	Frequency error under multipath and interference conditions .....	186
13.3	Transmitter output power and burst timing .....	188
13.4	Output RF spectrum.....	196
13.5	Intermodulation attenuation.....	201
13.6	Frequency error and phase error in HSCSD multislot configurations .....	202
13.7	Transmitter output power and burst timing in HSCSD configurations .....	205
13.8	Output RF spectrum in HSCSD multislot configuration .....	214
13.9	Output RF spectrum for MS supporting the R-GSM band.....	219
13.10	<i>[Reserved for future GSM test]</i> .....	225
13.11	<i>[Reserved for future GSM test]</i> .....	225
13.12	<i>[Reserved for future GSM test]</i> .....	225
13.13	<i>[Reserved for future GSM test]</i> .....	225
13.14	<i>[Reserved for future GSM test]</i> .....	225
13.15	<i>[Reserved for future GSM test]</i> .....	225
13.16	GPRS transmitter tests .....	225
13.16.1	Frequency error and phase error in GPRS multislot configuration .....	225
13.16.2	Transmitter output power in GPRS multislot configuration .....	228
13.16.3	Output RF spectrum in GPRS multislot configuration .....	236
13.17	EGPRS transmitter tests .....	242
13.17.1	Frequency error and Modulation accuracy in EGPRS Configuration.....	242
13.17.2	Frequency error under multipath and interference conditions .....	248
13.17.3	EGPRS Transmitter output power .....	250
13.17.4	Output RF spectrum in EGPRS configuration .....	258
13.17.5	Intermodulation attenuation .....	264

14	Receiver.....	266
14.1	Bad frame indication .....	272
14.1.1	Bad frame indication - TCH/FS.....	272
14.1.1.1	Bad frame indication - TCH/FS - Random RF input .....	272
14.1.1.2	Bad frame indication - TCH/FS - Frequency hopping and downlink DTX.....	274
14.1.2	Bad frame indication - TCH/HS .....	275
14.1.2.1	Bad frame indication - TCH/HS - Random RF input.....	275
14.1.2.2	Bad frame indication - TCH/HS - Frequency hopping and downlink DTX.....	276
14.1.3	Bad frame indication - TCH/FS - Frequency hopping and downlink DTX - Phase 2 MS in a phase 1 network.....	277
14.1.4	Bad frame indication - TCH/HS - Frequency hopping and downlink DTX - Phase 2 MS in a phase 1 network.....	279
14.2	Reference sensitivity .....	281
14.2.1	Reference sensitivity - TCH/FS.....	281
14.2.2	Reference sensitivity - TCH/HS (Speech frames).....	283
14.2.3	Reference sensitivity - FACCH/F.....	285
14.2.4	Reference sensitivity - FACCH/H.....	286
14.2.5	Reference sensitivity - full rate data channels .....	287
14.2.6	Reference sensitivity - half rate data channels .....	288
14.2.7	Reference sensitivity - TCH/EFS.....	289
14.2.8	Reference sensitivity - full rate data channels in multislot configuration.....	291
14.2.9	Reference sensitivity - TCH/FS for MS supporting the R-GSM band .....	293
14.3	Usable receiver input level range .....	294
14.4	Co-channel rejection.....	296
14.4.1	Co-channel rejection - TCH/FS.....	296
14.4.2	Co-channel rejection - TCH/HS.....	298
14.4.3	Co-channel rejection - TCH/HS (SID frames).....	300
14.4.4	Co-channel rejection - FACCH/F .....	301
14.4.5	Co-channel rejection - FACCH/H.....	302
14.4.6	Co-channel rejection - TCH/EFS .....	303
14.4.7	Receiver performance in the case of frequency hopping and co-channel interference on one carrier .....	305
14.5	Adjacent channel rejection.....	306
14.5.1	Adjacent channel rejection - speech channels .....	306
14.5.2	Adjacent channel rejection - control channels .....	309
14.6	Intermodulation rejection.....	311
14.6.1	Intermodulation rejection - speech channels .....	311
14.6.2	Intermodulation rejection - control channels .....	312
14.7	Blocking and spurious response.....	314
14.7.1	Blocking and spurious response - speech channels .....	314
14.7.2	Blocking and spurious response - control channels .....	318
14.7.3	Blocking and spurious response - speech channels for MS supporting the R-GSM band .....	321
14.7.4	Blocking and spurious response - control channels for MS supporting the R-GSM band .....	324
14.8	AM suppression .....	327
14.8.1	AM suppression - speech channels.....	327
14.8.2	AM suppression - control channels.....	329
14.9	Paging performance at high input levels .....	330
14.10	[Reserved for future GSM test] .....	331
14.11	[Reserved for future GSM test] .....	331
14.12	[Reserved for future GSM test] .....	331
14.13	[Reserved for future GSM test] .....	331
14.14	[Reserved for future GSM test] .....	331
14.15	[Reserved for future GSM test] .....	331
14.16	GPRS receiver tests.....	331
14.16.1	Minimum Input level for Reference Performance.....	333
14.16.2	Co-channel rejection .....	337
14.16.2.1	Co-channel rejection for packet channels .....	337
14.18	EGPRS receiver tests .....	339
14.18.1	Minimum Input level for Reference Performance.....	341
14.18.2	Co-channel rejection .....	347

14.18.3 Adjacent channel rejection ..... 350

14.18.4 Intermodulation rejection ..... 354

14.18.5 Blocking and spurious response..... 357

15 Timing advance and absolute delay ..... 364

15.6 GPRS Timing advance and absolute delay ..... 365

16 Reception time tracking speed..... 369

17 Access times during handover ..... 371

17.1 Intra cell channel change ..... 371

17.2 Inter cell handover..... 373

18 Temporary reception gaps..... 376

18.1 Temporary reception gaps, single slot ..... 376

18.2 Temporary reception gaps in HSCSD multislot configurations ..... 377

19 Channel release after unrecoverable errors ..... 380

19.1 Channel release after unrecoverable errors -1 ..... 380

19.2 Channel release after unrecoverable errors - 2 ..... 381

19.3 Channel release after unrecoverable errors - 3 ..... 382

20 Cell selection and reselection..... 384

20.1 Cell selection..... 386

20.2 Cell selection with varying signal strength values ..... 387

20.3 Basic cell reselection ..... 389

20.4 Cell reselection using TEMPORARY\_OFFSET, CELL\_RESELECT\_OFFSET, POWER\_OFFSET and PENALTY\_TIME parameters ..... 391

20.5 Cell reselection using parameters transmitted in the System Information type 2bis, type 2ter, type 7 and type 8 messages ..... 393

20.6 Cell reselection timings ..... 395

20.7 Priority of cells ..... 397

20.8 Cell reselection when C1 (serving cell) < 0 for 5 seconds ..... 398

20.9 Running average of the surrounding cell BCCH carrier signal levels ..... 400

20.10 Running average of the serving cell BCCH carrier signal level ..... 401

20.11 Updating the list of six strongest neighbour carriers and decoding the BCCH information of a new carrier on the list..... 402

20.12 Decoding the BCCH information of the neighbour carriers on the list of six strongest neighbour carriers ..... 403

20.13 Decoding the BSIC of the neighbour carriers on the list of six strongest neighbour carriers ..... 404

20.14 Emergency calls..... 405

20.15 Cell reselection due to MS rejection "LA not allowed" ..... 406

20.16 Downlink signalling failure ..... 408

20.17 Cell selection if no suitable cell found in 10 s ..... 409

20.18 Cell reselection due to MS rejection "Roaming not allowed in this LA" ..... 410

20.19 Cell selection on release of SDCCH and TCH ..... 412

20.20 Multiband cell selection and reselection..... 413

20.20.1 Multiband cell selection and reselection / Cell Selection ..... 413

20.20.2 Multiband cell selection and reselection / Cell reselection ..... 415

20.21 R-GSM cell selection and reselection ..... 417

20.21.1 R-GSM cell selection ..... 418

20.21.2 R-GMS cell selection with varying signal strength values ..... 420

20.21.3 R-GSM basic cell reselection ..... 422

20.21.4 R-GSM cell reselection using TEMPORARY\_OFFSET, CELL\_RESELECT\_OFFSET, POWER\_OFFSET and PENALTY\_TIME parameters ..... 424

20.21.5 R-GSM cell reselection using parameters transmitted in the System Information type 2bis, type 2ter, type 7 and type 8 messages ..... 426

20.21.6 R-GSM cell reselection timings ..... 427

20.21.7 R-GSM priority of cells ..... 429

20.21.8 R-GSM cell reselection when C1 (serving cell) < 0 for 5 seconds ..... 430

20.21.9 R-GSM running average of the surrounding cell BCCH carrier signal levels ..... 432

20.21.10 R-GSM running average of the serving cell BCCH carrier signal level ..... 433

20.21.11	Updating the list of six strongest neighbour carriers and decoding the BCCH information of a new carrier on the list .....	434
20.21.12	R-GSM decoding the BCCH information of the neighbour carriers on the list of six strongest neighbour carriers .....	435
20.21.13	R-GSM decoding the BSIC of the neighbour carriers on the list of six strongest neighbour carriers .....	436
20.21.14	R-GSM emergency calls .....	437
20.21.15	R-GSM cell reselection due to MS rejection "LA not allowed" .....	438
20.21.16	R-GSM downlink signalling failure .....	440
20.21.17	R-GSM cell selection if no suitable cell found in 10 s .....	441
20.21.18	R-GSM cell reselection due to MS rejection "Roaming not allowed in this LA" .....	442
20.21.19	R-GSM cell selection on release of SDCCH and TCH .....	443
20.22	GPRS Cell Selection and Reselection .....	444
20.22.1	Cell selection .....	446
20.22.2	Cell reselection in Packet Idle mode .....	448
20.22.3	Priority of cells .....	449
20.22.4	Cell re-selection with cells in different routing area .....	451
20.22.5	Network controlled Cell re-selection in Transfer Mode .....	452
20.22.6	Cell reselection timings .....	453
20.22.7	Downlink signalling failure .....	454
20.22.8	Cell selection when the best cell does not support GPRS .....	456
20.22.9	Cell reselection when the best cell does not support GPRS .....	457
21	Received signal measurements .....	461
21.1	Signal strength .....	461
21.2	Signal strength selectivity .....	464
21.3	Signal quality under static conditions .....	466
21.3.1	Signal quality under static conditions - TCH/FS .....	466
21.3.2	Signal quality under static conditions - TCH/HS .....	468
21.4	Signal quality under TUhigh propagation conditions .....	470
21.5	Received signal measurements in HSCSD multislot configuration .....	472
21.5.1	Signal strength .....	472
22	Transmit power control timing and confirmation .....	476
22.1	Transmit power control timing and confirmation, single slot .....	476
22.2	Transmit power control timing and confirmation in HSCSD multislot configurations .....	477
22.3	GPRS Uplink Power Control – Use of $\alpha$ and $\Gamma_{CH}$ parameters .....	479
22.4	GPRS Uplink Power Control – Independence of TS Power Control .....	482
22.5	[Reserved for future GPRS test] .....	483
22.6	Normal transmit power control timing and confirmation in ECSD .....	484
22.7	ECSD Fast Power Control (FPC) timing and interworking with normal power control .....	486
22.8	EGPRS Uplink Power Control – Use of $\alpha$ and $\Gamma_{CH}$ parameters .....	489
22.9	EGPRS Uplink Power Control – Independence of TS Power Control .....	492
22.10	[Reserved for future EGPRS test] .....	493
23	Single frequency reference .....	493
24	Tests of the layer 1 signalling functions .....	494
25	Tests of the layer 2 signalling functions .....	495
25.1	Introduction, objective and scope .....	495
25.1.1	General .....	495
25.1.2	Test configurations .....	495
25.1.3	Pre-conditions .....	495
25.1.4	Layer 2 test frames .....	496
25.1.5	Establishment of the dedicated physical resource .....	497
25.1.6	Release of the dedicated physical resource .....	497
25.2	Test sequences .....	497
25.2.1	Initialization .....	498
25.2.1.1	Initialization when contention resolution required .....	498
25.2.1.1.1	Normal initialization .....	498
25.2.1.1.2	Initialization failure .....	499



25.2.1.1.3	Initialization denial .....	502
25.2.1.1.4	Total initialization failure .....	503
25.2.1.2	Initialization, contention resolution not required .....	504
25.2.1.2.1	Normal initialization without contention resolution .....	504
25.2.1.2.2	Initialization failure .....	505
25.2.1.2.3	Initialization denial .....	506
25.2.1.2.4	Total initialization failure .....	507
25.2.2	Normal information transfer .....	508
25.2.2.1	Sequence counting and I frame acknowledgements .....	508
25.2.2.2	Receipt of an I frame in the timer recovery state .....	511
25.2.2.3	Segmentation and concatenation .....	513
25.2.3	Normal layer 2 disconnection .....	516
25.2.4	Test of link failure .....	516
25.2.4.1	I frame loss (MS to SS) .....	516
25.2.4.2	RR response frame loss (SS to MS) .....	518
25.2.4.3	RR response frame loss (MS to SS) .....	518
25.2.5	Test of frame transmission with incorrect C/R values .....	519
25.2.5.1	I frame with C bit set to zero .....	519
25.2.5.2	SABM frame with C bit set to zero .....	520
25.2.6	Test of errors in the control field .....	521
25.2.6.1	N(S) sequence error .....	521
25.2.6.2	N(R) sequence error .....	523
25.2.6.3	Improper F bit .....	523
25.2.7	Test on receipt of invalid frames .....	524
26	Testing of layer 3 functions .....	529
26.1	Default conditions and structured sequence of tests .....	529
26.1.1	Default test conditions during layer 3 tests .....	529
26.1.2	Structured sequence of the tests .....	532
26.1.3	General rules for message parameters .....	532
26.1.4	General rules for layer 3 testing .....	533
26.1.5	Format of layer 3 test descriptions .....	533
26.2	Initial tests .....	535
26.2.1	Channel request .....	535
26.2.1.1	Channel request / initial time .....	535
26.2.1.2	Channel request / repetition time .....	536
26.2.1.3	Channel request / random reference .....	538
26.2.2	IMSI detach and IMSI attach .....	539
26.2.3	Sequenced MM / CM message transfer .....	543
26.2.4	Establishment cause .....	544
26.3	Test of MS functions in idle mode .....	553
26.3.1	Initial conditions .....	553
26.3.2	MS indication of available PLMNs .....	557
26.3.3	MS will send only if BSS is "on air" .....	558
26.3.4	Manual mode of PLMN selection .....	558
26.4	Lower layer failures in layer 3 testing .....	560
26.4.1	Introduction .....	560
26.4.2	Layer 1 reception failures .....	560
26.4.3	Data link layer failures .....	560
26.4.4	Lower layer failures, used for the tests in clause 25 .....	560
26.5	Handling of unknown, unforeseen, and erroneous protocol data, and of parallel transactions .....	561
26.5.1	Handling of unknown, unforeseen, and erroneous protocol data, and of parallel transactions / unknown protocol discriminator .....	561
26.5.2	Handling of unknown, unforeseen, and erroneous protocol data, and of parallel transactions / TI and skip indicator .....	562
26.5.2.1	TI and skip indicator / RR .....	562
26.5.2.1.1	TI and skip indicator / RR / Idle Mode .....	562
26.5.2.1.2	TI and skip indicator / RR / RR-Connection established .....	563
26.5.2.2	TI and skip indicator / MM .....	565

26.5.2.3	TI and skip indicator / CC .....	566
26.5.3	Handling of unknown, unforeseen, and erroneous protocol data, and of parallel transactions / undefined or unexpected message type .....	568
26.5.3.1	Undefined or unexpected message type / undefined message type / CC .....	568
26.5.3.2	Undefined or unexpected message type / undefined message type / MM .....	569
26.5.3.3	Undefined or unexpected message type / undefined message type / RR .....	571
26.5.3.4	Undefined or unexpected message type / unexpected message type / CC .....	572
26.5.4	Handling of unknown, unforeseen, and erroneous protocol data, and of parallel transactions / unforeseen information elements in the non-imperative message part .....	573
26.5.4.1	Unforeseen information elements in the non-imperative message part / duplicated information elements .....	573
26.5.5	Handling of unknown, unforeseen, and erroneous protocol data, and of parallel transactions / non-semantic mandatory IE errors .....	575
26.5.5.1	Non-semantic mandatory IE errors / RR .....	575
26.5.5.1.1	Non-semantic mandatory IE errors / RR / missing mandatory IE error .....	575
26.5.5.1.2	Non-semantic mandatory IE errors / RR / comprehension required .....	577
26.5.5.2	Non-semantic mandatory IE errors / MM .....	579
26.5.5.2.1	Non-semantic mandatory IE errors / MM / syntactically incorrect mandatory IE .....	579
26.5.5.2.2	Non-semantic mandatory IE errors / MM / syntactically incorrect mandatory IE .....	580
26.5.5.2.3	Non-semantic mandatory IE errors / MM / comprehension required .....	581
26.5.5.3	Non-semantic mandatory IE errors / CC .....	583
26.5.5.3.1	Non-semantic mandatory IE errors / CC / missing mandatory IE .....	583
26.5.5.3.2	Non-semantic mandatory IE errors / CC / comprehension required .....	585
26.5.6	Handling of unknown, unforeseen, and erroneous protocol data, and of parallel transactions / unknown IE, comprehension not required .....	586
26.5.6.1	Unknown information elements in the non-imperative message part / MM .....	586
26.5.6.1.1	Unknown IE, comprehension not required / MM / IE unknown in the protocol .....	586
26.5.6.1.2	Unknown IE, comprehension not required / MM / IE unknown in the message .....	588
26.5.6.2	Unknown information elements in the non-imperative message part / CC .....	589
26.5.6.2.1	Unknown information elements in the non-imperative message part / CC / Call establishment .....	589
26.5.6.2.2	Unknown information elements in the non-imperative message part / CC / disconnect .....	590
26.5.6.2.3	Unknown information elements in the non-imperative message part / CC / release .....	591
26.5.6.2.4	Unknown information elements in the non-imperative message part / CC / release complete .....	593
26.5.6.3	Unknown IE in the non-imperative message part, comprehension not required / RR .....	594
26.5.7	Handling of unknown, unforeseen, and erroneous protocol data, and of parallel transactions / spare bits .....	596
26.5.7.1	Spare bits / RR .....	596
26.5.7.1.1	Spare bits / RR / paging channel .....	596
26.5.7.1.2	Spare bits / RR / BCCH .....	597
26.5.7.1.3	Spare bits / RR / AGCH .....	598
26.5.7.1.4	Spare bits / RR / Connected Mode .....	600
26.5.7.2	Spare bits / MM .....	602
26.5.7.3	Spare bits / CC .....	604
26.5.8	Default contents of messages .....	606
26.6	Test of the elementary procedures for radio resource management .....	608
26.6.1	Immediate assignment .....	608
26.6.1.1	Immediate assignment / SDCCH or TCH assignment .....	608
26.6.1.2	Immediate assignment / extended assignment .....	609
26.6.1.3	Immediate assignment / assignment rejection .....	611
26.6.1.4	Immediate assignment / ignore assignment .....	613
26.6.1.5	Immediate assignment after immediate assignment reject .....	615
26.6.2	Test of paging .....	616
26.6.2.1	Normal paging .....	616
26.6.2.1.1	Paging / normal / type 1 .....	616
26.6.2.1.2	Paging / normal / type 2 .....	619
26.6.2.1.3	Paging / normal / type 3 .....	621
26.6.2.2	Paging / extended .....	622
26.6.2.3	Paging / reorganization .....	625
26.6.2.3.1	Paging / reorganization / procedure 1 .....	625

26.6.2.3.2	Paging / reorganization / procedure 2 .....	628
26.6.2.4	Paging / same as before.....	629
26.6.2.5	Paging / multislot CCCH.....	630
26.6.3	Test of measurement report .....	631
26.6.3.1	Measurement / no neighbours .....	631
26.6.3.2	Measurement / all neighbours present .....	636
26.6.3.3	Measurement / barred cells and non-permitted NCCs.....	642
26.6.3.4	Measurement / DTX .....	648
26.6.3.5	Measurement / Frequency Formats.....	655
26.6.3.6	Measurement / multiband environment .....	661
26.6.3.7	Measurement / new cell reporting .....	670
26.6.4	Test of the channel assignment procedure .....	680
26.6.4.1	Dedicated assignment / successful case .....	680
26.6.4.2	Dedicated assignment / failure .....	697
26.6.4.2.1	Dedicated assignment / failure / failure during active state.....	697
26.6.4.2.2	Dedicated assignment / failure / general case.....	698
26.6.5	Test of handover .....	700
26.6.5.1	Handover / successful / active call / non-synchronized .....	701
26.6.5.2	Handover / successful / call under establishment / non-synchronized.....	726
26.6.5.3	Handover / successful / active call / finely synchronized .....	759
26.6.5.4	Handover / successful / call under establishment / finely synchronized .....	768
26.6.5.5	Pre-synchronized handovers .....	787
26.6.5.5.1	Handover / successful / active call / pre-synchronized / Timing Advance IE not included .....	787
26.6.5.5.2	Handover / successful / call being established / pre-synchronized / timing advance IE is included / reporting of observed time difference requested.....	789
26.6.5.6	Handover / successful / active call / pseudo synchronized .....	791
26.6.5.7	Handover / successful / active call / non-synchronized / reporting of observed time difference requested.....	793
26.6.5.8	Handover / layer 3 failure .....	795
26.6.5.9	Handover / layer 1 failure .....	796
26.6.6	Test of frequency redefinition .....	797
26.6.6.1	Frequency redefinition .....	797
26.6.7	Test of the channel mode modify procedure.....	807
26.6.7.1	Test of the channel mode modify procedure / full rate.....	807
26.6.7.2	Test of the channel mode modify procedure / half rate.....	809
26.6.8	Test of ciphering mode setting .....	812
26.6.8.1	Ciphering mode / start ciphering.....	812
26.6.8.2	Ciphering mode / no ciphering .....	813
26.6.8.3	Ciphering mode / old cipher key .....	814
26.6.8.4	Ciphering mode / change of mode, algorithm and key .....	816
26.6.8.5	Ciphering mode / IMEISV request .....	825
26.6.9	Test of additional assignment .....	827
26.6.10	Test of partial release .....	827
26.6.11	Test of classmark.....	827
26.6.11.1	Classmark change.....	827
26.6.11.2	Classmark interrogation.....	829
26.6.12	Test of channel release .....	831
26.6.12.1	Channel release / SDCCH.....	831
26.6.12.2	Channel release / SDCCH - no L2 ACK .....	833
26.6.12.3	Channel release / TCH-F .....	834
26.6.12.4	Channel release / TCH-F - no L2 ACK.....	835
26.6.13	Test of starting time .....	837
26.6.13.1	Dedicated assignment with starting time / successful case / time not elapsed .....	839
26.6.13.2	Dedicated assignment with starting time / successful case / time elapsed .....	841
26.6.13.3	Dedicated assignment with starting time and frequency redefinition / failure case / time not elapsed.....	842
26.6.13.4	Dedicated assignment with starting time and frequency redefinition / failure case / time elapsed .....	845
26.6.13.5	Handover with starting time / successful case / time not elapsed.....	847
26.6.13.6	Handover with starting time / successful case / time elapsed.....	849

26.6.13.7	Handover with starting time and frequency redefinition / failure case / time not elapsed .....	851
26.6.13.8	Handover with starting time and frequency redefinition / failure case / time elapsed .....	854
26.6.13.9	Immediate assignment with starting time / successful case / time not elapsed .....	857
26.6.13.10	Immediate assignment with starting time / successful case / time elapsed .....	858
26.6.14	Default contents of GSM 900 layer 3 messages for RR tests .....	860
26.6.15	Default contents of DCS 1 800 layer 3 messages for RR tests .....	870
26.6.16	Default contents of GSM 450 layer 3 messages for RR tests .....	880
26.6.17	Default contents of GSM 480 layer 3 messages for RR tests .....	890
26.7	Elementary procedures of mobility management .....	901
26.7.1	TMSI reallocation .....	901
26.7.2	Authentication .....	904
26.7.2.1	Authentication accepted .....	904
26.7.2.2	Authentication rejected .....	905
26.7.3	Identification .....	908
26.7.3.1	General Identification .....	908
26.7.3.2	Handling of IMSI shorter than the maximum length .....	910
26.7.4	Location updating .....	913
26.7.4.1	Location updating / accepted .....	913
26.7.4.2	Location updating / rejected .....	918
26.7.4.2.1	Location updating / rejected / IMSI invalid .....	918
26.7.4.2.2	Location updating / rejected / PLMN not allowed .....	921
26.7.4.2.3	Location updating / rejected / location area not allowed .....	925
26.7.4.2.4	Location updating / rejected / roaming not allowed in this location area .....	928
26.7.4.3	Location updating / abnormal cases .....	935
26.7.4.3.1	Location updating / abnormal cases / random access fails .....	935
26.7.4.3.2	Location updating / abnormal cases / attempt counter less or equal to 4, LAI different .....	937
26.7.4.3.3	Location updating / abnormal cases / attempt counter equal to 4 .....	942
26.7.4.3.4	Location updating / abnormal cases / attempt counter less or equal to 4, stored LAI equal to broadcast LAI .....	949
26.7.4.4	Location updating / release / expiry of T3240 .....	955
26.7.4.5	Location updating / periodic .....	956
26.7.4.5.1	Location updating / periodic spread .....	956
26.7.4.5.2	Location updating / periodic normal / test 1 .....	958
26.7.4.5.3	Location updating / periodic normal / test 2 .....	960
26.7.4.5.4	Location updating / periodic HPLMN search .....	963
26.7.4.6	Location updating / interworking of attach and periodic .....	967
26.7.5	MM connection .....	968
26.7.5.1	Introduction .....	968
26.7.5.2	MM connection / establishment with cipher .....	969
26.7.5.3	MM connection / establishment without cipher .....	970
26.7.5.4	MM connection / establishment rejected .....	971
26.7.5.5	MM connection / establishment rejected cause 4 .....	972
26.7.5.6	MM connection / expiry T3230 .....	974
26.7.5.7	MM connection / abortion by the network .....	975
26.7.5.7.1	MM connection / abortion by the network / cause #6 .....	975
26.7.5.7.2	MM connection / abortion by the network / cause not equal to #6 .....	978
26.7.5.8	MM connection / follow-on request pending .....	979
26.7.5.8.1	MM connection / follow-on request pending / test 1 .....	979
26.7.5.8.2	MM connection / follow-on request pending / test 2 .....	980
26.7.5.8.3	MM connection / follow-on request pending / test 3 .....	982
26.7.6	Default contents of messages .....	983
26.8	Tests related to circuit switched call control .....	987
26.8.1	Circuit switched Call Control (CC) state machine verification .....	987
26.8.1.1	General on CC state machine verification .....	987
26.8.1.2	Establishment of an outgoing call .....	988
26.8.1.2.1	Outgoing call / U0 null state .....	990
26.8.1.2.2	Outgoing call / U0.1 MM connection pending .....	991
26.8.1.2.3	Outgoing call / U1 call initiated .....	995
26.8.1.2.4	Outgoing call / U3 MS originating call proceeding .....	1004

26.8.1.2.5	Outgoing call / U4 call delivered .....	1020
26.8.1.2.6	U10 call active .....	1030
26.8.1.2.7	U11 disconnect request.....	1038
26.8.1.2.8	U12 disconnect indication .....	1044
26.8.1.2.9	Outgoing call / U19 release request.....	1049
26.8.1.3	Establishment of an incoming call / Initial conditions .....	1056
26.8.1.3.1	Incoming call / U0 null state .....	1058
26.8.1.3.2	Incoming call / U6 call present .....	1059
26.8.1.3.3	Incoming call / U9 mobile terminating call confirmed .....	1061
26.8.1.3.4	Incoming call / U7 call received.....	1070
26.8.1.3.5	Incoming call / U8 connect request .....	1080
26.8.1.4	In call functions .....	1091
26.8.1.4.1	In-call functions / DTMF information transfer .....	1091
26.8.1.4.2	In-call functions / user notification .....	1093
26.8.1.4.3	In-call functions / channel changes .....	1094
26.8.1.4.4	In-call functions / MS terminated in-call modification.....	1098
26.8.1.4.5	In-call functions / MS originated in-call modification .....	1099
26.8.2	Call Re-establishment.....	1115
26.8.2.1	Call Re-establishment/call present, re-establishment allowed.....	1115
26.8.2.2	Call Re-establishment/call present, re-establishment not allowed.....	1117
26.8.2.3	Call Re-establishment/call under establishment, transmission stopped.....	1118
26.8.3	User to user signalling .....	1119
26.8.4	Default contents of message .....	1121
26.9	Structured procedures .....	1129
26.9.1	Structured procedures / general.....	1129
26.9.2	Structured procedures / MS originated call / early assignment .....	1130
26.9.3	Structured procedures / MS originated call / late assignment.....	1132
26.9.4	Structured procedures / MS terminated call / early assignment.....	1134
26.9.5	Structured procedures / MS terminated call / late assignment .....	1137
26.9.6	Structured procedures / emergency call.....	1140
26.9.6.1	Structured procedures / emergency call / idle updated .....	1140
26.9.6.1.1	Structured procedures / emergency call / idle updated / preferred channel rate .....	1140
26.9.6.1.2	Structured procedures / emergency call / idle updated, non-preferred channel rate .....	1143
26.9.6.2	Structured procedures / emergency call / idle, no IMSI.....	1143
26.9.6.2.1	Structured procedures / emergency call / idle, no IMSI / accept case .....	1143
26.9.6.2.2	Structured procedures / emergency call / idle, no IMSI / reject case .....	1145
26.9.7	Directed Retry / Mobile Originated Call.....	1147
26.9.8	Directed Retry / Mobile Terminated Call.....	1157
26.9.9	Default contents of messages .....	1169
26.10	E-GSM or R-GSM signalling.....	1176
26.10.1	E-GSM or R-GSM signalling / general considerations .....	1176
26.10.2	E-GSM or R-GSM signalling / RR.....	1178
26.10.2.1	E-GSM or R-GSM signalling / RR / Measurement.....	1178
26.10.2.2	E-GSM or R-GSM signalling / RR / Immediate assignment.....	1184
26.10.2.3	E-GSM or R-GSM signalling / RR / channel assignment procedure.....	1186
26.10.2.4	E-GSM or R-GSM signalling / RR / Handover .....	1190
26.10.2.4.1	E-GSM or R-GSM signalling / RR / Handover / Successful handover.....	1190
26.10.2.4.2	E-GSM or R-GSM signalling / RR / Handover / layer 1 failure .....	1196
26.10.2.5	E-GSM or R-GSM signalling / RR / Frequency Redefinition .....	1198
26.10.3	E-GSM or R-GSM signalling / Structured procedure .....	1201
26.10.3.1	E-GSM or R-GSM signalling / Structured procedure / Mobile originated call.....	1202
26.10.3.2	E-GSM or R-GSM signalling / Structured procedures / emergency call .....	1204
26.10.3.3	Default contents of messages .....	1207
26.10.4	E-GSM or R-GSM signalling / Default message contents .....	1208
26.11	Multiband signalling .....	1213
26.11.1	General considerations .....	1213
26.11.2	Multiband signalling / RR .....	1213
26.11.2.1	Multiband signalling / RR / Immediate assignment procedure .....	1213
26.11.2.2	Multiband signalling / RR / Handover.....	1220

26.11.2.2.1	Multiband signalling / RR / Handover / successful / active call / non-synchronized .....	1220
26.11.2.2.2	Multiband signalling / RR / Handover / layer 1 failure .....	1235
26.11.2.2.3	Multiband signalling / RR / Handover / Multiband BCCH / successful / active call / non synchronized .....	1240
26.11.2.2.4	Multiband signalling / RR / Handover / Multiband BCCH / Intracell Handover - Interband Assignment .....	1253
26.11.2.3	Multiband signalling / RR / Measurement reporting .....	1272
26.11.3	Multiband signalling / MM .....	1282
26.11.3.1	Multiband signalling / MM / Location updating .....	1282
26.11.3.1.1	Location updating / accepted .....	1282
26.11.3.1.2	Location updating / periodic .....	1285
26.11.4	Multiband signalling / CC .....	1288
26.11.5	Multiband signalling / Structured procedures .....	1288
26.11.5.1	Multiband signalling / Structured procedures / MS originated call / early assignment .....	1288
26.11.5.2	Structured procedures / MS terminated call / late assignment .....	1296
26.11.6	Multiband signalling / Default messages contents .....	1304
26.12	Enhanced Full Rate signalling .....	1325
26.12.1	EFR signalling / test of the channel mode modify procedure .....	1325
26.12.2	EFR signalling / tests of handover .....	1328
26.12.2.1	EFR signalling / Handover / active call / successful case .....	1329
26.12.3	EFR Signalling / Structured procedures / MS originated call / late assignment .....	1361
26.12.4	Structured procedures / MS terminated call / early assignment .....	1364
26.12.5	Structured procedures / emergency call .....	1367
26.12.6	EFR Signalling / Directed Retry / Mobile Originated Call .....	1370
26.12.7	EFR Signalling / Directed Retry / Mobile Terminated Call .....	1377
26.12.8	Default contents of layer 3 messages for Enhanced Full rate speech tests .....	1385
26.13	Multislot signalling .....	1392
26.13.1	Multislot signalling / RR .....	1392
26.13.1.1	Multislot signalling / RR / Measurement .....	1392
26.13.1.1.1	Multislot signalling / RR / Measurement / symmetric .....	1392
26.13.1.1.2	Multislot signalling / RR / Measurement / asymmetric .....	1398
26.13.1.1.3	Multislot signaling / RR / Measurement / asymmetric / change of the reported subchannel .....	1406
26.13.1.2	Multislot signalling / RR / Dedicated assignment .....	1411
26.13.1.2.1	Multislot signalling / RR / Dedicated assignment / successful case .....	1411
26.13.1.2.2	Multislot signalling / RR / Dedicated assignment / failure / general case .....	1436
26.13.1.3	Test of handover .....	1461
26.13.1.3.1	Multislot signalling / RR / Handover / successful / active call / non-synchronized .....	1461
26.13.1.3.2	Multislot signalling / RR / Handover / successful / call under establishment / non synchronized / resource upgrading .....	1467
26.13.1.3.3	Multislot signalling / RR / Handover / successful / active call / finely synchronized / resource downgrading .....	1474
26.13.1.3.4	Multislot signalling / RR / Handover / successful / call under establishment / finely synchronized / relocation of channels .....	1480
26.13.1.3.5	Multislot signalling / RR / Handover / successful / call under establishment / pre-synchronized / resource upgrading .....	1490
26.13.1.4	Multislot signalling / RR / Test of the channel mode modify procedure .....	1496
26.13.1.5	Multislot signalling / RR / Early classmark sending .....	1499
26.13.1.6	Default contents of layer 3 messages for RR tests .....	1500
26.13.1.6.1	Default contents of GSM 900 layer 3 messages for RR tests .....	1500
26.13.1.6.2	Default contents of DCS 1 800 layer 3 messages for RR tests .....	1510
26.13.1.6.3	Default contents of GSM 450 layer 3 messages for RR tests .....	1521
26.13.1.6.4	Default contents of GSM 480 layer 3 messages for RR tests .....	1532
26.13.2	Multislot signalling / CC .....	1543
26.13.2.1	Multislot signalling / CC / In-call functions .....	1543
26.13.2.1.1	Multislot signalling / CC / In-call functions / User initiated service level upgrade / successful ....	1543
26.13.2.1.2	Multislot signalling / CC / In-call functions / User initiated service level downgrade / successful .....	1545
26.13.2.1.3	Multislot signalling / CC / In-call functions / User initiated service level upgrade / Time-out of timer T323 .....	1547

26.13.2.1.4	Multislot signalling / CC / In-call functions / User initiated service level upgrade / modify reject.....	1549
26.13.2.1.5	Multislot signalling / CC / In call functions / contents of some of the messages .....	1550
26.13.3	Multislot signalling / Structured procedures .....	1552
26.13.3.1	Multislot signalling / Structured procedures / MS originated call / early assignment / HSCSD / non-transparent .....	1552
26.13.3.2	Multislot signalling / Structured procedures / MS originated call / late assignment / HSCSD / non-transparent .....	1555
26.13.3.3	Multislot signalling / Structured procedures / MS originated call / early assignment / HSCSD / Transparent .....	1558
26.13.3.4	Multislot signalling / Structured procedures / MS Terminated call / early assignment / HSCSD / non-transparent .....	1561
26.13.3.5	Multislot signalling / Structured procedures / MS Terminated call / early assignment / HSCSD / Transparent .....	1565
26.13.3.6	Default test conditions during layer 3 tests .....	1569
26.13.3.7	Default contents of messages .....	1571
26.14	VGCS and VBS Tests .....	1577
26.14.1	VGCS-VBS / Notification .....	1578
26.14.1.1	VGCS-VBS / Notification / notification indication .....	1578
26.14.1.2	VGCS-VBS / Notification / NCH position .....	1582
26.14.1.3	VGCS-VBS / Notification / Reduced NCH monitoring .....	1584
26.14.1.4	VGCS-VBS / Notification / Limited Service state .....	1590
26.14.2	VGCS-VBS / Paging .....	1592
26.14.2.1	VGCS-VBS / Paging / Paging indication .....	1592
26.14.2.2	VGCS-VBS / Paging / Notification .....	1595
26.14.3	VGCS-VBS / RR Procedures .....	1599
26.14.3.1	VGCS-VBS / RR Procedures / frequency redefinition .....	1599
26.14.3.2	VGCS-VBS / RR Procedures / assignment .....	1605
26.14.3.3	VGCS-VBS / RR Procedures / handover / successful in group transmit mode .....	1610
26.14.3.4	VGCS-VBS / RR Procedures / handover / successful at group call establishment .....	1622
26.14.3.5	VGCS-VBS / RR Procedures / handover / failure .....	1630
26.14.3.6	VGCS-VBS / RR / Measurement Report .....	1632
26.14.3.6.1	Measurement / all neighbours present .....	1632
26.14.4	VGCS-VBS / Uplink Access and Uplink Reply Procedures .....	1638
26.14.4.1	VGCS-VBS / Uplink Access / uplink investigation .....	1638
26.14.4.2	Uplink Access / uplink access procedure .....	1639
26.14.4.3	VGCS-VBS / Uplink Reply in VGCS receive mode .....	1643
26.14.5	VGCS-VBS / Leaving Group Receive or Group Transmit Mode .....	1644
26.14.5.1	VGCS-VBS / Leaving group receive mode .....	1644
26.14.5.2	VGCS-VBS / Leaving group transmit mode .....	1646
26.14.6	VGCS-VBS / GCC-BCC Procedures .....	1648
26.14.6.1	VGCS-VBS / GCC-BCC Procedures / MO call establishment .....	1648
26.14.6.2	VGCS-VBS / GCC-BCC Procedures / Transaction Identifier .....	1651
26.14.6.3	VGCS-VBS / GCC-BCC Procedures / Call Termination / originator / group transmit mode .....	1652
26.14.6.4	VGCS-VBS / GCC-BCC Procedures / Call Termination / originator in group receive mode .....	1654
26.14.6.5	VGCS-VBS / GCC-BCC Procedures / Call Termination / not originator .....	1656
26.14.6.6	VGCS-VBS / GCC-BCC Procedures / GCC states .....	1657
26.14.6.7	VGCS-VBS / GCC-BCC Procedures / BCC states .....	1660
26.14.7	VGCS-VBS / Error Handling .....	1661
26.14.7.1	VGCS-VBS / Error Handling / short message length, unknown message type and TI .....	1661
26.14.7.2	VGCS-VBS / Error Handling / incorrect information elements .....	1665
26.14.7.3	VGCS-VBS / Messages not addressing VGCS receive mode .....	1669
26.14.8	VGCS-VBS / Structured Procedures .....	1671
26.14.8.1	VGCS-VBS / Structured Procedures / Very early and early assignment .....	1671
26.14.9	VGCS-VBS / Cell change .....	1674
26.14.9.1	VGCS-VBS / Cell Change / Same LA .....	1674
26.14.9.2	VGCS-VBS / Cell Change / Different LA .....	1677
26.14.9.3	VGCS-VBS / Cell Change / Different PLMN .....	1680
26.14.10	VGCS-VBS / Default Message Contents .....	1683

- 26.14.11 VGCS-VBS / User-to-Dispatcher Information..... 1687
- 26.14.11.1 VGCS-VBS / User-to-Dispatcher Information / BCC MO call..... 1687
- 26.14.11.2 VGCS-VBS / User-to-Dispatcher information / GCC MO call ..... 1689
- 26.14.11.3 VGCS-VBS / User-to-Dispatcher information / Compressed user information in VBS fast call set-up  
1691
- 26.14.11.4 VGCS-VBS / User-to-Dispatcher information / Compressed User-to-Dispatcher information in  
VGCS fast call set-up ..... 1693
- 26.15 SoLSA signalling ..... 1696
- 26.15.1 General considerations ..... 1696
- 26.15.2 SoLSA signalling / MM..... 1696
- 26.15.2.1 SoLSA signalling / MM / Location updating ..... 1696
- 26.15.2.1.1 Location updating / accepted..... 1696
- 26.15.3 SoLSA signalling / Structured procedures ..... 1700
- 26.15.3.1 SoLSA signalling / Structured procedures / MS originated call / early assignment..... 1700
- 26.15.3.2 SoLSA signalling / Structured procedures / MS originated call / late assignment ..... 1703
- 26.15.3.3 SoLSA signalling / Structured procedures / MS terminated call / early assignment ..... 1706
- 26.15.3.4 SoLSA signalling / Structured procedures / MS terminated call / late assignment ..... 1709
- 26.15.4 SoLSA signalling / Default messages contents ..... 1712
- 26.16 Adaptive Multi Rate Signalling ..... 1714
- 26.16.1 Inband Signalling, Downlink Codec Adaptation ..... 1714
- 26.16.1a Inband Signalling, Uplink Codec Adaptation ..... 1717
- 26.16.2 Structured procedures / MS terminated call / early assignment / no initial codec mode ..... 1720
- 26.16.3 Structured procedures / MS originated call / late assignment / specified initial codec mode ..... 1724
- 26.16.4 Not used..... 1727
- 26.16.5 AMR signalling / Handover / active call / successful case ..... 1727
- 26.16.6 Structured procedures / emergency call..... 1731
- 26.16.7 AMR Signalling / Directed Retry / Mobile Originated Call ..... 1732
- 26.16.8 AMR Signalling / Directed Retry / Mobile Terminated Call..... 1737
- 26.16.9 Default contents of layer 3 messages for AMR signalling tests ..... 1742
- 27 Testing of the SIM/ME interface ..... 1743
- 27.1 MS identification by short IMSI..... 1746
- 27.1.1 MS identification by short IMSI - Normal case ..... 1746
- 27.1.2 MS identification by short IMSI, Phase 1 DCS SIM ..... 1747
- 27.2 MS identification by short TMSI ..... 1748
- 27.3 MS identification by long TMSI..... 1749
- 27.4 MS identification by long IMSI, TMSI updating and cipher key sequence number assignment ..... 1750
- 27.5 Forbidden PLMNs, location updating and undefined cipher key ..... 1752
- 27.6 MS updating forbidden PLMNs ..... 1755
- 27.7 MS deleting forbidden PLMNs ..... 1757
- 27.8 MS updating the PLMN selector list ..... 1759
- 27.9 MS recognizing the priority order of the PLMN selector list ..... 1760
- 27.10 MS access control management ..... 1761
- 27.11 Exchange protocol tests ..... 1771
- 27.11.1 Character transmission ..... 1771
- 27.11.1.1 Bit/character duration during the transmission from the ME to the SIM ..... 1771
- 27.11.1.2 Bit/character duration during the transmission from the SIM simulator to the ME..... 1771
- 27.11.1.3 Inter-character delay ..... 1772
- 27.11.1.4 Error handling during the transmission from the ME to the SIM ..... 1773
- 27.11.1.5 Error handling during transmission from the SIM to the ME..... 1774
- 27.11.2 Answer to reset (RST) ..... 1775
- 27.11.2.1 Acceptance of SIMs with internal RST ..... 1775
- 27.11.2.2 Acceptance of SIMs with active low RST..... 1775
- 27.11.2.3 Characters of the answer to reset ..... 1776
- 27.11.2.4 PTS procedure ..... 1777
- 27.11.2.5 Reset repetition..... 1778
- 27.11.2.6 Speed Enhancement..... 1779
- 27.11.3 Command processing, procedure bytes ..... 1780
- 27.12 Evaluation of directory characteristics ..... 1781



27.12.1	Operating speed in authentication procedure.....	1781
27.12.2	Clock stop.....	1781
27.13	Mechanical tests.....	1783
27.13.1	Contact pressure.....	1783
27.13.2	Shape of contacts for IC card SIM card reader.....	1784
27.14	Secret code usage.....	1784
27.14.1	Entry of PIN.....	1784
27.14.2	Change of PIN.....	1785
27.14.3	Disabling the PIN.....	1786
27.14.4	PUK entry.....	1787
27.14.5	Entry of PIN2.....	1788
27.14.6	Change of PIN2.....	1789
27.14.7	PUK2 entry.....	1790
27.15	Abbreviated Dialling Numbers (ADN).....	1791
27.16	MMI reaction to SIM status encoding.....	1792
27.17	Electrical tests.....	1793
27.17.1	Test of the power transition phases.....	1794
27.17.1.1	Phase preceding ME power on.....	1794
27.17.1.2	Phase during SIM power on.....	1795
27.17.1.3	Phase during ME power off with clock stop forbidden.....	1797
27.17.1.4	Phase during ME power off with clock stop allowed.....	1798
27.17.1.5	SIM Type Recognition and Voltage Switching.....	1800
27.17.1.5.1	Reaction of 3V only MEs on SIM type recognition failure.....	1800
27.17.1.5.2	Reaction of 3V only MEs on type recognition of 5V only SIMs.....	1801
27.17.1.5.3	Reaction of 3V technology MEs on type recognition of 5V only SIMs.....	1802
27.17.1.5.4	Reaction of 3V technology MEs on type recognition of 3V technology SIMs.....	1803
27.17.2	Electrical tests on each ME contact.....	1804
27.17.2.1	Electrical tests on contact C1.....	1805
27.17.2.1.1	Test 1.....	1805
27.17.2.1.2	Test 2.....	1806
27.17.2.2	Electrical tests on contact C2.....	1808
27.17.2.3	Electrical tests on contact C3.....	1809
27.17.2.4	[Not used].....	1811
27.17.2.5	Electrical tests on contact C7.....	1811
27.18	Fixed Number Dialling (FND).....	1813
27.18.1	ME and SIM with FND activated.....	1813
27.18.1.1	EF <sub>ADN</sub> invalidated and not readable or updatable.....	1813
27.18.2	ME and SIM with FND deactivated.....	1815
27.18.3	Enabling, disabling and updating of FND.....	1816
27.19	Phase identification.....	1817
27.20	SIM presence detection.....	1818
27.21	Advice of Charge (AoC).....	1819
27.21.1	AoC not supported by SIM.....	1819
27.21.2	Maximum frequency of ACM updating.....	1820
27.21.3	Call terminated when ACM greater than ACM <sub>max</sub> .....	1823
27.21.4	Response codes of increase command.....	1825
28	Test of autocalling restrictions.....	1828
28.1	General.....	1828
28.2	Constraining the access to a single number (GSM 02.07 category 3).....	1828
28.3	Constraining the access to a single number (GSM 02.07 categories 1 and 2).....	1830
28.4	Behaviour of the MS when its list of blacklisted numbers is full.....	1832
29	Testing of bearer services.....	1834
29.1	General.....	1834
29.2	Testing of transparent data services.....	1834
29.2.1	Verification of synchronization.....	1834
29.2.2	Filtering of channel control information for transparent BCs.....	1837
29.2.3	Correct Terminal Compatibility Decision.....	1839
29.2.3.1	Negotiation of Radio Channel Requirement (RCR).....	1839

- 29.2.3.2 Negotiation of Connection Element (CE)..... 1839
- 29.2.3.3 Negotiation of Number of Stop Bits, Number of Data bits, and Parity ..... 1840
- 29.2.3.4 Negotiation of Modem Type ..... 1841
- 29.2.3.5 Negotiation of Intermediate Rate ..... 1841
- 29.2.3.6 Negotiation of User Information Layer 2 Protocol..... 1842
- 29.2.3.7 Negotiation between TS 61 and TS 62: Mobile Originated call..... 1843
- 29.2.3.8 Negotiation between TS 61 and TS 62: Mobile Terminated call ..... 1843
- 29.2.4 Data Rate Adaptation for Synchronous Transparent Bearer Capabilities ..... 1844
- 29.2.5 Network Independent Clocking ..... 1845
- 29.2.6 Asynchronous Transparent Bearer Capabilities ..... 1845
  - 29.2.6.1 Data Rate Adaptation ..... 1845
  - 29.2.6.2 Passage of the Break Signal..... 1846
  - 29.2.6.3 Overspeed/Underspeed Handling (Local Terminal) ..... 1848
  - 29.2.6.4 Overspeed/Underspeed Handling (Remote Terminal)..... 1849
- 29.2.7 Interchange circuit mapping for transparent bearer capabilities ..... 1850
- 29.3 Testing of non transparent data services (RLP tests)..... 1851
  - 29.3.1 Initialization ..... 1851
    - 29.3.1.1 Normal initialization done by the MS..... 1851
    - 29.3.1.2 Initialization failure ..... 1853
      - 29.3.1.2.1 Loss of UA frame ..... 1853
      - 29.3.1.2.2 Total loss of UA frame ..... 1854
  - 29.3.2 Data transfer..... 1855
    - 29.3.2.1 Default conditions ..... 1855
    - 29.3.2.2 MS sends I+S frames ..... 1855
      - 29.3.2.2.1 N(S) sequence number ..... 1855
      - 29.3.2.2.2 Transmission window..... 1856
      - 29.3.2.2.3 Busy condition ..... 1859
    - 29.3.2.3 SS sends I+S frames ..... 1861
      - 29.3.2.3.1 N(R) sequence number ..... 1861
      - 29.3.2.3.2 Busy condition ..... 1862
    - 29.3.2.4 SS rejects I+S frames ..... 1864
      - 29.3.2.4.1 REJ frame ..... 1864
      - 29.3.2.4.2 SREJ frame ..... 1866
      - 29.3.2.4.3 I+S reject frame ..... 1868
    - 29.3.2.5 MS rejects I+S frames ..... 1871
      - 29.3.2.5.1 Rejection with REJ or SREJ supervisory frames ..... 1871
      - 29.3.2.5.2 Retransmission of REJ or SREJ frames ..... 1877
      - 29.3.2.5.3 I+S reject frame ..... 1881
    - 29.3.2.6 Checkpoint recovery..... 1884
      - 29.3.2.6.1 SS in checkpoint recovery mode..... 1884
      - 29.3.2.6.2 End of the window ..... 1887
      - 29.3.2.6.3 End of a sequence ..... 1890
      - 29.3.2.6.4 Time-out of one frame..... 1891
      - 29.3.2.6.5 No response to checkpointing ..... 1893
      - 29.3.2.6.6 Incorrect response to checkpointing ..... 1895
      - 29.3.2.6.7 Total loss of response to checkpointing ..... 1898
      - 29.3.2.6.8 Retransmission of a sequence..... 1900
      - 29.3.2.6.9 N2 retransmission of a sequence ..... 1903
  - 29.3.3 Negotiation of the RLP parameters ..... 1907
    - 29.3.3.1 Negotiation initiated by the SS ..... 1907
    - 29.3.3.2 Negotiation initiated by the MS..... 1912
    - 29.3.3.3 Collision of XID frames ..... 1917
    - 29.3.3.4 Loss of XID frames ..... 1922
    - 29.3.3.5 Total loss of XID frames ..... 1924
  - 29.4 Facsimile tests for the transparent network support ..... 1926
    - 29.4.1 General..... 1926
    - 29.4.2 Mobile originated call ..... 1927
      - 29.4.2.1 Call establishment procedure ..... 1927
        - 29.4.2.1.1 Alternate speech / facsimile..... 1927

- 29.4.2.1.2 Automatic facsimile ..... 1928
- 29.4.2.2 Pre-message procedure ..... 1929
- 29.4.2.3 Message procedure ..... 1931
- 29.4.2.4 Post-message procedure ..... 1933
- 29.4.2.5 Call release procedure ..... 1934
- 29.4.2.6 CTC processing - 4th PPR for the same block ..... 1935
- 29.4.2.7 Transition from Facsimile to Speech - Procedure interrupt generated by receiving station ..... 1936
- 29.4.2.8 Transition from Facsimile to Speech - Procedure interrupt generated by transmitting station ..... 1938
- 29.4.2.9 Quality check ..... 1939
- 29.4.3 Mobile terminated call ..... 1940
- 29.4.3.1 Call Establishment Procedure ..... 1940
- 29.4.3.1.1 Alternate Speech/Facsimile ..... 1940
- 29.4.3.1.2 Automatic facsimile ..... 1943
- 29.4.3.2 Pre-message procedure ..... 1944
- 29.4.3.3 Message procedure ..... 1945
- 29.4.3.4 Post-message procedure ..... 1946
- 29.4.3.5 Call release procedure ..... 1947
- 29.4.3.6 Speed conversion factor ..... 1948
- 29.4.3.7 Quality Check ..... 1951
- 29.4.4 Notes ..... 1952
- 30 Speech teleservices ..... 1953
- 30.1 Sending sensitivity/frequency response ..... 1953
- 30.2 Sending loudness rating ..... 1955
- 30.3 Receiving sensitivity/frequency response ..... 1956
- 30.4 Receiving loudness rating ..... 1957
- 30.5 Side tones ..... 1959
- 30.5.1 Side Tone Masking Rating (STMR) ..... 1959
- 30.5.2 Listener Side Tone Rating (LSTR) ..... 1960
- 30.6 Telephone Acoustic coupling Loss (TAL) ..... 1961
- 30.6.1 Echo Loss (EL) ..... 1961
- 30.6.2 Stability margin ..... 1962
- 30.7 Distortion ..... 1962
- 30.7.1 Sending ..... 1962
- 30.7.2 Receiving ..... 1964
- 30.8 Sidetone distortion ..... 1965
- 30.9 Out-of-band signals ..... 1965
- 30.9.1 Sending ..... 1965
- 30.9.2 Receiving ..... 1966
- 30.10 Idle channel noise ..... 1967
- 30.10.1 Sending ..... 1967
- 30.10.2 Receiving ..... 1968
- 30.11 Ambient Noise Rejection ..... 1969
- 30.11.1 Definition and Applicability ..... 1969
- 30.11.2 Conformance Requirement ..... 1969
- 30.11.3 Test Purpose ..... 1969
- 30.11.4 Method of Test ..... 1969
- 31 Test of supplementary services ..... 1971
- 31.1 Number identification supplementary services ..... 1971
- 31.1.1 CLIP ..... 1971
- 31.1.1.1 Normal operation ..... 1971
- 31.1.1.2 Interrogation ..... 1972
- 31.1.1.2.1 Interrogation accepted ..... 1972
- 31.1.1.2.2 Interrogation rejected ..... 1973
- 31.1.2 CLIR ..... 1975
- 31.1.2.1 Normal operation - requesting presentation of CLI ..... 1975
- 31.1.2.2 Normal operation - requesting restriction of CLI presentation ..... 1976
- 31.1.2.3 Interrogation ..... 1977
- 31.1.2.3.1 Interrogation accepted ..... 1977

31.1.2.3.2	Interrogation rejected .....	1979
31.1.3	COLP.....	1981
31.1.3.1	Normal operation .....	1981
31.1.3.2	Interrogation .....	1983
31.1.3.2.1	Interrogation accepted .....	1983
31.1.3.2.2	Interrogation rejected .....	1984
31.1.4	COLR.....	1986
31.1.4.1	Interrogation .....	1986
31.1.4.1.1	Interrogation accepted .....	1986
31.1.4.1.2	Interrogation rejected .....	1987
31.2	Call offering supplementary services.....	1989
31.2.1	Call forwarding supplementary services .....	1990
31.2.1.1	Registration .....	1990
31.2.1.1.1	Registration accepted .....	1990
31.2.1.1.2	Registration rejected .....	1993
31.2.1.2	Erasure by the subscriber .....	1996
31.2.1.2.1	Erasure accepted .....	1996
31.2.1.2.2	Erasure rejected .....	1999
31.2.1.3	Activation.....	2001
31.2.1.4	Deactivation .....	2004
31.2.1.5	Invocation .....	2006
31.2.1.6	Interrogation .....	2006
31.2.1.6.1	Interrogation accepted .....	2006
31.2.1.6.2	Interrogation rejected .....	2009
31.2.1.7	Normal operation .....	2011
31.2.1.7.1	Served mobile subscriber side.....	2011
31.2.1.7.2	Forwarded-to mobile subscriber side .....	2015
31.2.2	Call transfer and mobile access hunting supplementary services .....	2017
31.3	Call completion supplementary services .....	2017
31.3.1	Call Waiting.....	2017
31.3.1.1	Waiting call indication and confirmation .....	2017
31.3.1.2	Normal operation with successful outcome .....	2018
31.3.1.2.1	Waiting call accepted; existing call released.....	2018
31.3.1.2.2	Waiting call accepted; existing call on hold.....	2019
31.3.1.2.3	Existing call released by user A; waiting call accepted .....	2022
31.3.1.3	Normal operation with unsuccessful outcome .....	2023
31.3.1.3.1	Waiting call released by subscriber B.....	2023
31.3.1.3.2	Waiting call released by calling user C.....	2024
31.3.1.4	Activation.....	2025
31.3.1.5	Deactivation .....	2027
31.3.1.6	Interrogation .....	2029
31.3.1.6.1	Interrogation accepted .....	2029
31.3.1.6.2	Interrogation rejected .....	2031
31.3.2	Call Hold.....	2033
31.3.2.1	Hold invocation .....	2033
31.3.2.2	Retrieve procedure .....	2034
31.3.2.3	Alternate from one call to the other.....	2035
31.4	Multi-party supplementary services .....	2037
31.4.1	Beginning the MultiParty service .....	2037
31.4.1.1	Beginning the MultiParty service, successful case .....	2037
31.4.1.2	Beginning the MultiParty service, unsuccessful case .....	2039
31.4.1.3	Beginning the MultiParty service, expiry of timer T(BuildMPTY).....	2041
31.4.2	Managing an active MultiParty call.....	2042
31.4.2.1	Served mobile subscriber.....	2042
31.4.2.1.1	Put the MultiParty call on hold .....	2042
31.4.2.1.2	Create a private communication with one of the remote parties .....	2047
31.4.2.1.3	Terminate the entire MultiParty call .....	2051
31.4.2.1.4	Explicitly disconnect a remote party.....	2052
31.4.2.2	Remote parties .....	2053

31.4.2.2.1	Release from the MultiParty call .....	2053
31.4.3	Managing a held MultiParty call .....	2054
31.4.3.1	Retrieve the held MultiParty call .....	2054
31.4.3.1.1	Retrieve the held MultiParty call, successful case .....	2054
31.4.3.1.2	Retrieve the held MultiParty call, unsuccessful case .....	2056
31.4.3.1.3	Retrieve the held MultiParty call, expiry of timer T(RetrieveMPTY) .....	2057
31.4.3.2	Initiate a new call .....	2059
31.4.3.3	Process a call waiting request .....	2060
31.4.3.4	Terminate the held MultiParty call .....	2061
31.4.3.5	Explicitly disconnect a remote party .....	2063
31.4.4	Managing a single call and a MultiParty call .....	2064
31.4.4.1	Served mobile subscriber .....	2064
31.4.4.1.1	Disconnect the single call .....	2064
31.4.4.1.2	Disconnect the MultiParty call .....	2066
31.4.4.2	Disconnect all calls .....	2071
31.4.4.3	Add the single call to the MPTY .....	2072
31.4.4.3.1	Add the single call to the MPTY, successful case .....	2072
31.4.4.3.2	Add the single call to the MPTY, maximum number of participants exceeded .....	2074
31.4.4.4	Alternate between the MPTY call and the single call .....	2076
31.4.5	Adding extra remote parties .....	2078
31.5	Community of interest supplementary services .....	2080
31.6	Charging supplementary services .....	2080
31.6.1	Advice of Charge Charging .....	2081
31.6.1.1	AOC time related charging / MS originated call .....	2081
31.6.1.2	AOC time related charging / MS terminated call .....	2083
31.6.1.3	AOC volume related charging / MS originated call .....	2086
31.6.1.4	AOC volume related charging / MS terminated call .....	2086
31.6.1.5	Change in charging information during a call .....	2086
31.6.1.6	Different formats of charging information .....	2089
31.6.1.7	AOC on a Call Hold call .....	2092
31.6.1.8	AOC on a Multi-party call .....	2095
31.6.2	Charge Storage .....	2099
31.6.2.1	Removal of SIM during an active call .....	2099
31.6.2.2	Interruption of power supply during an active call .....	2101
31.6.2.3	MS going out of coverage during an active AoCC call .....	2103
31.6.2.4	ACMmax operation / Mobile Originating .....	2105
31.6.2.5	ACMmax operation / Mobile Terminating .....	2108
31.6.3	Advice of Charge Information .....	2111
31.6.4	Default contents of messages .....	2111
31.7	Additional information transfer supplementary services .....	2112
31.8	Call restriction supplementary services .....	2113
31.8.1	Registration of a password .....	2113
31.8.1.1	Registration accepted .....	2113
31.8.1.2	Registration rejected .....	2116
31.8.1.2.1	Rejection after invoke of the RegisterPassword operation .....	2116
31.8.1.2.2	Rejection after password check with negative result .....	2118
31.8.1.2.3	Rejection after new password mismatch .....	2120
31.8.2	Erasure .....	2123
31.8.3	Activation .....	2123
31.8.3.1	Activation accepted .....	2123
31.8.3.2	Activation rejected .....	2126
31.8.3.2.1	Rejection after invoke of ActivateSS operation .....	2126
31.8.3.2.2	Rejection after use of password procedure .....	2128
31.8.4	Deactivation .....	2130
31.8.4.1	Deactivation accepted .....	2130
31.8.4.2	Deactivation rejected .....	2133
31.8.4.2.1	Rejection after invoke of DeactivateSS operation .....	2133
31.8.4.2.2	Rejection after use of password procedure .....	2135
31.8.5	Invocation .....	2138

31.8.6	Interrogation.....	2138
31.8.6.1	Interrogation accepted .....	2138
31.8.6.2	Interrogation rejected .....	2141
31.8.7	Normal operation .....	2143
31.9	Handling of undefined (future) GSM supplementary services .....	2145
31.9.1	Mobile station initiated Unstructured supplementary service data operation .....	2145
31.9.1.1	ProcessUnstructuredSS-request/accepted .....	2145
31.9.1.2	ProcessUnstructuredSS-request/cross phase compatibility and error handling .....	2150
31.9.2	Network initiated unstructured supplementary service operations .....	2155
31.9.2.1	UnstructuredSS-Notify/accepted .....	2155
31.9.2.3	UnstructuredSS-Request/accepted .....	2160
31.10	MMI input for USSD.....	2165
31.11	Specific message contents and ASN.1 codings .....	2167
31.12	eMLPP Service .....	2219
31.12.1	eMLPP Service / priority level of MO call.....	2220
31.12.2	eMLPP Service / automatic answering point-to-point MT call .....	2224
31.12.3	eMLPP Service / automatic answering MT VGCS or VBS call.....	2228
31.12.4	eMLPP Service / registration .....	2230
31.12.5	eMLPP Service / interrogation .....	2232
31.13	Explicit Call Transfer (ECT).....	2234
31.13.1	Explicit Call Transfer invocation.....	2234
31.13.1.1	Explicit Call Transfer invocation, successful case, both calls active, clearing using DISCONNECT ..	2234
31.13.1.2	Explicit Call Transfer invocation, successful case, both calls active, clearing using RELEASE.....	2236
31.13.1.3	Explicit Call Transfer invocation, successful case, both calls active, clearing using RELEASE COMPLETE.....	2237
31.13.1.4	Explicit Call Transfer invocation, successful case, second call alerting .....	2238
31.13.1.5	Explicit Call Transfer invocation, unsuccessful case .....	2239
31.13.1.6	Explicit Call Transfer invocation, expiry of T(ECT).....	2241
31.14	User-to-User Signalling (UUS).....	2243
31.14.1	UUS / Implicit UUS1 .....	2243
31.14.1.1	UUS / Implicit UUS1 / CC MO call.....	2243
31.14.1.2	UUS / Implicit UUS1 / CC MT call .....	2247
31.14.1.3	UUS / Implicit UUS1 / Interactions with Call Waiting and call HOLD supplementary services .....	2251
31.15	Follow Me (FM) .....	2257
31.15.1	Follow Me (FM) / Registration .....	2257
31.15.2	Follow Me (FM) / Interrogation .....	2262
31.15.3	Follow Me (FM) / Erasure .....	2265
32	Testing of speech transcoding functions .....	2271
32.1	Full Rate Downlink speech transcoding.....	2271
32.2	Full Rate Downlink receiver DTX functions .....	2272
32.3	Full Rate Uplink speech transcoding .....	2275
32.4	Full Rate Uplink transmitter DTX functions .....	2276
32.5	Full Rate Speech channel transmission delay .....	2277
32.5.4	Downlink processing delay.....	2278
32.5.5	Downlink coding delay .....	2278
32.5.6	Uplink processing delay .....	2279
32.5.7	Uplink coding delay .....	2279
32.6	Half Rate Downlink speech transcoding .....	2280
32.7	Half Rate Downlink receiver DTX functions .....	2281
32.8	Half Rate Uplink speech transcoding .....	2282
32.9	Half Rate Uplink transmitter DTX functions.....	2284
32.10	Half Rate Speech channel transmission delay.....	2285
32.10.4	Downlink processing delay.....	2286
32.10.5	Downlink coding delay .....	2286
32.10.6	Uplink processing delay .....	2287
32.10.7	Uplink coding delay .....	2287
32.11	Intra cell channel change from a TCH/HS to a TCH/FS .....	2288
32.12	Intra cell channel change from a TCH/FS to a TCH/HS .....	2290

33	Mobile station features.....	2293
33.1	Entry and display of called number.....	2293
33.2	Indication of call progress signals .....	2294
33.2.4	Ringing tone .....	2294
33.2.5	Busy tone.....	2295
33.2.6	Congestion tone .....	2295
33.2.7	Authentication failure tone .....	2296
33.2.8	Number unobtainable tone.....	2296
33.2.9	Call dropped tone .....	2296
33.3	Network selection / indication .....	2297
33.4	Invalid and blocked PIN indicators .....	2301
33.5	Service indicator.....	2302
33.6	Subscription identity management.....	2303
33.7	Barring of outgoing calls .....	2304
33.8	Prevention of unauthorized calls .....	2304
34	Short message service (SMS) .....	2306
34.1	General.....	2306
34.2	Short message service point to point .....	2306
34.2.1	SMS mobile terminated .....	2306
34.2.2	SMS mobile originated.....	2311
34.2.3	Test of memory full condition and memory available notification: .....	2315
34.2.4	Test of the status report capabilities and of SMS-COMMAND:.....	2319
34.2.5	Test of message class 0 to 3 .....	2323
34.2.5.1	Short message class 0.....	2323
34.2.5.2	Test of class 1 short messages .....	2325
34.2.5.3	Test of class 2 short messages .....	2327
34.2.5.4	Test of class 3 short messages .....	2330
34.2.6	Test of short message type 0.....	2330
34.2.7	Test of the replace mechanism for SM type 1-7.....	2330
34.2.8	Test of the reply path scheme .....	2334
34.2.9	Multiple SMS mobile originated.....	2337
34.2.9.1	MS in idle mode .....	2337
34.2.9.2	MS in active mode.....	2339
34.3	Short message service cell broadcast.....	2342
34.4	Default message contents: .....	2344
35	Low battery voltage detection .....	2347
36	Individual equipment type requirements and interworking - special conformance testing functions ..	2349
39	Additional CTS-MS testcases.....	2350
39.1	General paragraph .....	2350
39.2	Tests for CTS-MS/PLMN interface.....	2350
39.2.1	CTS not allowed by GSM Network .....	2350
39.3	RF tests for CTS-MS/FP interface .....	2351
39.3.1	Transmit power control timing and confirmation .....	2351
39.3.2	CTS Fixed Part selection .....	2353
39.3.3	Monitoring of CTSBCH.....	2354
39.3.4	AFA measurement and reporting.....	2355
39.4	L2 tests for CTS-MS/FP interface.....	2357
39.5	L3 tests for CTS-MS/FP interface.....	2357
39.5.3.1	Elementary Procedures .....	2357
39.5.3.1.1	System Access .....	2357
39.5.3.1.2	Immediate Assignment .....	2362
39.5.3.1.2	Paging .....	2366
39.5.3.1.4	Reserved .....	2368
39.5.3.1.5	Reserved .....	2368
39.5.3.1.6	Reserved .....	2368
39.5.3.1.7	Reserved .....	2368

- 39.5.3.1.8 Reserved ..... 2368
- 39.5.3.1.9 Channel Release ..... 2368
- 39.5.3.1.10 Authentication ..... 2371
- 39.5.3.1.11 Reserved ..... 2373
- 39.5.3.1.12 Reserved ..... 2373
- 39.5.3.1.13 Radio Link Management ..... 2373
- 39.5.3.2 Structured Procedures ..... 2376
  - 39.5.3.2.1 Attachment ..... 2376
  - 39.5.3.2.2 Detachment ..... 2378
  - 39.5.3.2.3 Reserved ..... 2380
  - 39.5.3.2.4 Reserved ..... 2380
  - 39.5.3.2.5 Reserved ..... 2380
  - 39.5.3.2.6 Reserved ..... 2380
  - 39.5.3.2.7 Handover ..... 2380
  - 39.5.3.2.8 2381
- 39.5.3.3 Initialisation ..... 2382
  - 39.5.3.3.1 Enrolment ..... 2382
  - 39.5.3.3.2 Reserved ..... 2384
  - 39.5.3.3.3 De-enrolment ..... 2384
- 40. GPRS default conditions, message contents and macros ..... 2387
  - 40.1 Default test conditions ..... 2387
    - 40.1.1 Default settings for cell A: ..... 2388
    - 40.1.2 Default settings for cell B ..... 2389
  - 40.2 Default message contents ..... 2389
    - 40.2.1 System Information messages ..... 2389
      - 40.2.1.1 Cell A ..... 2389
      - 40.2.1.2 Cell B ..... 2392
    - 40.2.2 Packet System Information messages ..... 2392
      - 40.2.2.1 Cell A ..... 2392
      - 40.2.2.2 Cell B ..... 2410
    - 40.2.3 Default contents of Layer 2 messages ..... 2411
    - 40.2.4 Default contents of Layer 3 messages ..... 2414
  - 40.3 Default GPRS Conditions, Message Contents and Macros for the Higher Layer Test Cases ..... 2421
    - 40.3.1 Default Test Conditions for the Higher Layer Test Cases ..... 2421
    - 40.3.2 Default Message for the Higher Layer Test Cases ..... 2421
      - 40.3.2.1 Default Contents of System Information Messages for the Higher Layer Test Cases ..... 2421
      - 40.3.3 Contents Of Packet System Information Messages for the Higher Layer Test Cases ..... 2423
      - 40.3.4 Contents of Layer 2 Messages for the Higher Layer Test Cases ..... 2425
      - 40.3.5 Contents of Layer 3 Messages for the Higher Layer Test Cases ..... 2425
  - 40.4 Macros ..... 2425
    - 40.4.1 Overview ..... 2425
      - 40.4.1.1 Definition ..... 2425
      - 40.4.1.2 Syntax ..... 2426
        - 40.4.1.2.1 Message contents ..... 2426
        - 40.4.1.2.2 Message sequence ..... 2426
    - 40.4.2 Default message contents ..... 2427
    - 40.4.3 Macro message sequences ..... 2427
      - 40.4.3.1 Acknowledged downlink data ..... 2427
      - 40.4.3.2 Classmark and measurement ..... 2428
      - 40.4.3.3 Downlink data ..... 2428
      - 40.4.3.4 Downlink data transfer ..... 2428
      - 40.4.3.5 Measurement reporting ..... 2428
      - 40.4.3.6 Uplink data transfer ..... 2429
      - 40.4.3.7 Uplink dynamic allocation one phase access ..... 2429
      - 40.4.3.8 Uplink dynamic allocation one phase access with contention resolution ..... 2430
      - 40.4.3.9 Uplink dynamic allocation two phase access ..... 2430
      - 40.4.3.10 Completion of uplink RLC data block transfer ..... 2431
      - 40.4.3.11 Uplink fixed allocation one phase access ..... 2432



40.4.3.12	Uplink fixed allocation one phase access with contention resolution .....	2432
40.4.3.13	Uplink fixed allocation two phase access .....	2433
40.4.3.14	Downlink TBF establishment .....	2433
40.4.3.15	PDP Context Activation .....	2433
40.4.3.16	PDP Context Deactivation.....	2434
40.4.3.17	Inter-SGSN Routing Area Update.....	2434
40.4.3.18	PDP Context Modification .....	2434
40.5	Test PDP contexts.....	2435
40.6	Appendix A.....	2438
40.6.1	ARFCNs in different SI messages.....	2438
41	GPRS Paging, TBF establishment/release and DCCH related procedures .....	2440
41.1	/ RR / Paging.....	2440
41.1.1	RR / Paging / on PCCCH for GPRS service successful.....	2440
41.1.1.1	RR / Paging / on PCCCH for GPRS service / normal paging with P-TMSI successful .....	2440
41.1.1.2	RR / Paging / on PCCCH for GPRS service / normal paging with IMSI successful .....	2442
41.1.1.3	RR / Paging / on PCCCH for GPRS service / extended paging with P-TMSI successful.....	2444
41.1.1.4	RR / Paging / on PCCCH for GPRS service / paging reorganisation successful .....	2447
41.1.2	RR / Paging / on PCCCH for circuit-switched services / paging successful.....	2449
41.1.3	RR / Paging / on PCCCH / paging ignored .....	2452
41.1.4	RR / Paging / on PACCH for circuit-switched services .....	2455
41.1.4.1	RR / Paging / on PACCH for circuit-switched services/ paging successful.....	2455
41.1.4.2	RR / Paging / on PACCH for circuit-switched services/ paging ignored .....	2457
41.1.5	RR / Paging / on CCCH for GPRS service .....	2459
41.1.5.1	RR / Paging / on CCCH for GPRS service / normal paging .....	2459
41.1.5.1.1	RR / Paging / on CCCH for GPRS service / normal paging with P-TMSI successful.....	2459
41.1.5.1.2	RR / Paging / on CCCH for GPRS service / normal paging with IMSI successful.....	2462
41.1.5.1.3	RR / Paging / on CCCH for GPRS service / normal paging with P-TMSI ignored .....	2466
41.1.5.2	RR / Paging / on CCCH for GPRS service / extended paging .....	2468
41.1.5.2.1	RR / Paging / on CCCH for GPRS service / extended paging with P-TMSI successful.....	2468
41.1.5.3	RR / Paging / on CCCH for GPRS service / paging reorganisation.....	2470
41.1.5.4	RR / Paging / on CCCH for GPRS service / default message contents .....	2473
41.1.6	RR / Paging / Before T3172 expiry.....	2473
41.2	RR procedures on CCCH related to temporary block flow establishment .....	2475
41.2.1	Permission to access the network.....	2475
41.2.1.1	Permission to access the network / priority classes .....	2475
41.2.2	Initiation of the packet access procedure .....	2478
41.2.2.1	Initiation of the packet access procedure / establishment causes .....	2478
41.2.2.2	Random references for single block packet access .....	2479
41.2.2.3	Random references for one phase packet access.....	2480
41.2.2.4	Initiation of the packet access procedure / timer T3146.....	2481
41.2.2.5	Initiation of the packet access procedure / Request Reference .....	2483
41.2.3	Packet immediate assignment / One phase packet access .....	2484
41.2.3.1	Two-message assignment / Successful case .....	2484
41.2.3.2	Two-message assignment / Failure cases .....	2486
41.2.3.3	Packet uplink assignment / Polling bit set.....	2488
41.2.3.4	One phase packet access / Contention resolution / Successful case .....	2489
41.2.3.5	One phase packet access / Contention resolution / TLLI mismatch .....	2490
41.2.3.6	One phase packet access / Contention resolution / Counter N3104.....	2491
41.2.3.7	One phase packet access / Contention resolution / Timer T3166.....	2492
41.2.3.8	One phase packet access / Contention resolution / 4 access repetition attempts .....	2494
41.2.3.9	One phase packet access / TBF starting time .....	2496
41.2.3.10	One phase packet access / Timing Advance Index present .....	2497
41.2.3.11	One phase packet access / Timing Advance Index not present .....	2498
41.2.4	Packet immediate assignment / Single block packet access .....	2499
41.2.4.1	Single block packet access / Packet Resource Request .....	2499
41.2.4.2	Single block packet access / Packet Measurement Report.....	2500
41.2.5	Packet immediate assignment / Packet access rejection .....	2501
41.2.5.1	Packet access rejection / wait indication .....	2501

41.2.5.2	Packet access rejection / assignment before T3142 expires .....	2503
41.2.6	Packet downlink assignment procedure using CCCH.....	2504
41.2.3.1	Initiation of packet downlink assignment procedure / MS listens to correct CCCH block.....	2504
41.2.6.2	Initiation of packet downlink assignment procedure / timer T3190.....	2505
41.2.6.3	Initiation of packet downlink assignment procedure / TBF starting time.....	2506
41.2.6.4	Initiation of packet downlink assignment procedure / incorrect TFI.....	2507
41.2.7	Single block packet downlink assignment .....	2509
41.2.7.1	Single block packet downlink assignment / TBF Starting Time .....	2509
41.2.7.2	Single block packet downlink assignment / MS returns to packet idle mode .....	2510
41.2.8	Macros and default message contents .....	2511
41.2.8.1	Macros .....	2511
41.2.8.1.1	GPRS attach procedure.....	2511
41.2.8.1.2	Uplink data transfer.....	2512
41.2.8.1.3	Downlink data transfer .....	2513
41.2.8.2	Default message contents.....	2514
41.3	MAC/RLC Release.....	2521
41.3.1	TBF Release / Uplink / Normal / MS initiated.....	2521
41.3.1.1	TBF Release / Uplink / Normal / MS initiated / Acknowledged mode .....	2521
41.3.1.2	TBF Release / Uplink / Normal / MS initiated / Unacknowledged mode .....	2525
41.3.1.3	TBF Release / Uplink / Normal / MS initiated / Channel coding change during countdown .....	2528
41.3.2	TBF Release / Uplink / Normal / Network initiated .....	2529
41.3.2.1	TBF Release / Uplink / Normal / Network initiated / Acknowledged mode.....	2529
41.3.2.2	TBF Release / Uplink / Normal / Network initiated / Unacknowledged mode.....	2531
41.3.3	TBF Release / Uplink / Network initiated / Abnormal release.....	2533
41.3.4	TBF Release / Downlink / Normal / Network initiated.....	2534
41.3.4.1	TBF Release / Downlink / Normal / Network initiated / Acknowledged mode .....	2534
41.3.4.2	TBF Release / Downlink / Normal / Network initiated / Unacknowledged mode .....	2537
41.3.5	PDCH Release .....	2540
41.3.5.1	PDCH Release / Without TIMESLOTS_AVAILABLE.....	2540
41.3.5.2	PDCH Release / With TIMESLOTS_AVAILABLE.....	2543
41.3.6	Default message contents .....	2547
41.4	DCCH related RR procedures for TBF establishment .....	2547
41.4.1	Default conditions and message contents .....	2547
41.4.1.1	Default conditions.....	2547
41.4.1.2	Default message contents.....	2548
41.4.1.2.1	Default contents of system information messages .....	2548
41.4.1.2.2	Default contents of L3 messages.....	2548
41.4.2	Immediate Assignment of a DCCH .....	2548
41.4.2.1	Immediate Assignment / Contention resolution failure.....	2548
41.4.2.2	Immediate Assignment / Use of DCCH for Uplink TBF Establishment .....	2551
41.4.2.3	Immediate Assignment / Use of DCCH for Downlink TBF Establishment .....	2554
41.4.3	RR commands while on DCCH .....	2557
41.4.3.1	Assignment Command .....	2557
41.4.3.2	Handover.....	2559
41.4.3.3	PDCH Assignment Command .....	2562
41.4.3.3.1	Successful case .....	2562
41.4.3.3.2	Failure / T3132 expires .....	2565
41.4.3.4	Cell change order.....	2566
41.4.3.4.1	Successful case / Normal procedure .....	2566
41.4.3.4.2	Successful case / DCCH on the target cell.....	2571
41.4.3.4.3	Failure / Immediate Assignment Reject on CCCH of the target cell .....	2574
41.4.3.4.4	Failure / Packet Access Reject on PCCCH of the target cell.....	2576
41.4.3.4.5	Failure / T3134 expiry .....	2577
41.4.3.4.6	Contention resolution failure / GPRS supported using BCCH .....	2579
41.4.3.4.7	Contention resolution failure / GPRS supported using PBCCH / Timer or counter expiry .....	2581
41.4.3.4.8	Contention resolution failure / GPRS supported using PBCCH / TLLI mismatch .....	2584
41.4.3.5	Release .....	2587
41.4.3.6	Radio link failure .....	2589

42	Test of Medium Access Control (MAC) protocol.....	2592
42.1	Test of Medium Access Control (MAC) Procedures on PCCCH in idle mode .....	2592
42.1.1	Packet Channel Request .....	2592
42.1.1.1	Packet Channel Request / Message format.....	2592
42.1.1.2	Packet Channel Request / Response to Packet Paging .....	2593
42.1.1.3	Packet Channel Request / Access type .....	2596
42.1.1.4	Packet Channel Request / Access persistence control on PRACH .....	2597
42.1.1.4.1	Packet Channel Request / Access persistence control on PRACH / M+1 attempts .....	2597
42.1.1.4.2	Packet Channel Request / Access persistence control on PRACH / Persistence level .....	2598
42.1.1.4.3	Packet Channel Request / Access persistence control on PRACH / Successive Attempts .....	2600
42.1.2	Packet Uplink/Downlink Assignment.....	2602
42.1.2.1	Packet uplink assignment procedure.....	2602
42.1.2.1.1	Packet Uplink Assignment / Packet access queuing notification procedure .....	2602
42.1.2.1.1.1	Packet Uplink Assignment / Packet queuing notification / Stop sending Packet Channel Requests .....	2602
42.1.2.1.1.2	Packet Uplink Assignment / Packet queuing notification / Ignoring Packet Queuing Notification.....	2604
42.1.2.1.1.3	Packet Uplink Assignment / Packet queuing notification / Assigned PDCHs .....	2605
42.1.2.1.1.4	Packet Uplink Assignment / Packet queuing notification / Expiry of timer T3162 .....	2606
42.1.2.1.2	Packet Uplink Assignment / Response to packet polling request.....	2608
42.1.2.1.3	Packet Uplink Assignment / Packet access reject procedure .....	2609
42.1.2.1.3.1	Packet Uplink Assignment / Packet access reject / Action during Wait_Indication .....	2609
42.1.2.1.3.2	Packet Uplink Assignment / Packet access reject / No respond.....	2611
42.1.2.1.3.3	Packet Uplink Assignment / Packet access reject / Trigger RR connection .....	2612
42.1.2.1.4	Packet Uplink Assignment / Packet Uplink Assignment handling .....	2614
42.1.2.1.5	Packet Uplink Assignment / One or two phase access .....	2615
42.1.2.1.6	Packet Uplink Assignment / Decoding of frequency parameters .....	2618
42.1.2.1.7	Packet Uplink Assignment / Most recently received Packet Uplink Assignment .....	2620
42.1.2.1.8	Packet Uplink Assignment / One phase access .....	2621
42.1.2.1.8.1	Packet Uplink Assignment / One phase access / Contention Resolution .....	2621
42.1.2.1.8.1.1	Packet Uplink Assignment / One phase access / Contention resolution / Inclusion of TLLI in RLC data blocks .....	2621
42.1.2.1.8.1.2	Packet Uplink Assignment / One phase access / Contention resolution / Counter N3104 .....	2622
42.1.2.1.8.1.3	Packet Uplink Assignment / One phase access / Contention resolution / Timer T3166.....	2623
42.1.2.1.8.1.4	Packet Uplink Assignment / One phase access / Contention resolution / TLLI mismatch .....	2625
42.1.2.1.8.1.5	Packet Uplink Assignment / One phase access / Contention resolution / 4 access repetition attempts .....	2627
42.1.2.1.8.2	Packet Uplink Assignment / One phase access / Timing Advance .....	2628
42.1.2.1.8.2.1	Packet Uplink Assignment / One phase access / Timing Advance / TA Index present .....	2628
42.1.2.1.8.2.2	Packet Uplink Assignment / One phase access / Timing Advance / TA Index not present .....	2630
42.1.2.1.8.2.3	Packet Uplink Assignment / One phase access / Timing Advance / TA value field not provided.....	2631
42.1.2.1.9	Packet Uplink Assignment / Two phase access .....	2632
42.1.2.1.9.1	Packet Uplink Assignment / Two phase access / Packet Resource Request / RLC Octet Count .....	2632
42.1.2.1.9.2	Packet Uplink Assignment / Two phase access / Contention resolution .....	2633
42.1.2.1.9.2.1	Packet Uplink Assignment / Two phase access / Contention resolution / Expiry of timer T3168 .....	2633
42.1.2.1.9.2.2	Packet Uplink Assignment / Two phase access / Contention resolution / TLLI mismatch .....	2634
42.1.2.1.9.3	Packet Uplink Assignment / Two phase access / Packet Resource Request / No respond to Packet Downlink Assignment .....	2635
42.1.2.1.10	Packet Uplink Assignment / Abnormal cases .....	2637
42.1.2.1.10.1	Packet Uplink Assignment / Abnormal cases / Incorrect PDCH assignment .....	2637
42.1.2.1.10.2	Packet Uplink Assignment / Abnormal cases / Expiry of timer T3164 .....	2638
42.1.2.2	Packet Downlink Assignment .....	2639
42.1.2.2.1	Packet Downlink Assignment / Response to poll bit .....	2639
42.1.2.2.2	Packet Downlink Assignment / PCCCH monitoring .....	2640
42.1.2.2.3	Packet Downlink Assignment / Frequency hopping .....	2642
42.1.2.2.4	Packet Downlink Assignment / Response to Packet Polling .....	2644
42.1.2.2.5	Packet Downlink Assignment / Abnormal cases .....	2645
42.1.2.2.5.1	Packet Downlink Assignment / Abnormal cases / Incorrect PDCH assignment.....	2645

42.1.2.2.5.2 Packet Downlink Assignment / Abnormal cases / Expiry of timer T3190 ..... 2647

42.1.3 Macro and default message contents ..... 2648

42.1.3.1 Macro ..... 2648

42.1.3.1.1 GPRS attach procedure ..... 2648

42.1.3.1.2 Uplink data transfer, dynamic allocation ..... 2649

42.1.3.2 Default Messages ..... 2649

42.2 Fixed Allocation in Packet Transfer Mode ..... 2655

42.2.1 Generic procedures to bring the MS into uplink transfer mode ..... 2655

42.2.1.1 One phase access ..... 2655

42.2.1.2 Two phase access ..... 2656

42.2.2 Fixed Allocation / Uplink Transfer ..... 2658

42.2.2.1 Fixed Allocation / Uplink Transfer / Normal operation ..... 2658

42.2.2.1.1 Fixed Allocation / Uplink Transfer / Normal operation / Blocks ..... 2658

42.2.2.1.2 Fixed Allocation / Uplink Transfer / Normal operation / Block Periods ..... 2660

42.2.2.2 Fixed Allocation / Uplink Transfer / Operation with TS\_OVERRIDE for single-slot TX ..... 2662

42.2.2.3 Fixed Allocation / Uplink Transfer / Operation with TS\_OVERRIDE for multi-slot TX ..... 2664

42.2.2.4 Fixed Allocation / Uplink Transfer / T3184 Expiry ..... 2666

42.2.2.5 Fixed Allocation / Uplink Transfer / T3188 ..... 2668

42.2.2.5.1 Fixed Allocation / Uplink Transfer / T3188/Expiry ..... 2668

42.2.2.5.2 Fixed Allocation / Uplink Transfer / T3188/Stop with Packet Uplink Assignment ..... 2670

42.2.2.5.3 Fixed Allocation / Uplink Transfer / T3188/Stop with Packet Uplink Ack/Nack with REPEAT\_ALLOCATION ..... 2671

42.2.2.5 Fixed Allocation / Uplink Transfer / MS requests new resources/ T3168 ..... 2673

42.2.2.6.1 Fixed Allocation / Uplink Transfer / MS requests new resources/ T3168/Expiry ..... 2673

42.2.2.6.2 Fixed Allocation / Uplink Transfer / MS requests new resources/ T3168/Stop with Packet Uplink Assignment ..... 2675

42.2.2.6.3 Fixed Allocation / Uplink Transfer / MS requests new resources/ T3168/Stop with Packet Uplink Ack/Nack with REPEAT\_ALLOCATION ..... 2677

42.2.2.6.4 Fixed Allocation / Uplink Transfer / MS requests new resources/ T3168/Stop with Packet Access Reject ..... 2678

42.2.2.6.5 Fixed Allocation / Uplink Transfer / MS requests new resources/ T3168/Continue with Packet Uplink Ack/Nack without REPEAT\_ALLOCATION and without ALLOCATION\_BITMAP ..... 2680

42.2.2.7 Fixed Allocation / Uplink Transfer / MS requests new resources/ Successful ..... 2682

42.2.2.7.1 Fixed Allocation / Uplink Transfer / MS requests new resources/ Successful/ Packet Uplink Assignment with ALLOCATION\_BITMAP ..... 2682

42.2.2.7.2 Fixed Allocation / Uplink Transfer / MS requests new resources/ Successful/ Multiple Packet Uplink Assignments ..... 2683

42.2.2.7.3 Fixed Allocation / Uplink Transfer / MS requests new resources/ Successful/ Packet Uplink Ack/Nack with ALLOCATION\_BITMAP ..... 2685

42.2.2.7.4 Fixed Allocation / Uplink Transfer / MS requests new resources/ Successful/ Multiple Packet Uplink Ack/Nack with ALLOCATION\_BITMAP ..... 2687

42.2.2.7.5 Fixed Allocation / Uplink Transfer / MS requests new resources/ Successful/ Multiple Packet Uplink Ack/Nack with REPEAT\_ALLOCATION ..... 2689

42.2.2.8 Fixed Allocation / Uplink Transfer / MS requests new resources/ Failure ..... 2691

42.2.2.8.1 Fixed Allocation / Uplink Transfer / MS requests new resources/ Failure/ Packet Access Reject ..... 2691

42.2.2.8.2 Fixed Allocation / Uplink Transfer / MS requests new resources/ Failure/ Packet Access Reject with WAIT\_INDICATION during allocation in progress ..... 2692

42.2.2.9 Fixed Allocation / Uplink Transfer / Network initiates new resources ..... 2694

42.2.2.10 Fixed Allocation / Uplink Transfer / PACCH operation ..... 2695

42.2.2.10.1 Fixed Allocation / Uplink Transfer / PACCH operation/ Normal Operation ..... 2695

42.2.2.10.2 Fixed Allocation / Uplink Transfer / PACCH operation/ PACCH message addressed to another MS ..... 2697

42.2.2.10.3 Fixed Allocation/ Uplink Transfer / Abnormal cases / PACCH timeslot removed ..... 2699

42.2.2.11 Fixed Allocation/ Uplink Transfer / Abnormal cases ..... 2701

42.2.2.11.1 Fixed Allocation/ Uplink Transfer / Abnormal cases / Assignment without fixed allocation ..... 2701

42.2.2.11.2 Fixed Allocation/ Uplink Transfer / Abnormal cases / Frequency not supported ..... 2702

42.2.2.11.3 Fixed Allocation/ Uplink Transfer / Abnormal cases / Invalid MA\_NUMBER ..... 2704

42.2.3 Fixed Allocation / Uplink Transfer with Downlink TBF Establishment ..... 2706

42.2.3.1 Fixed Allocation / Uplink Transfer with Downlink TBF Establishment/T3190 ..... 2706

42.2.3.1.1	Fixed Allocation / Uplink Transfer with Downlink TBF Establishment/ T3190/Half-Duplex.....	2706
42.2.3.1.2	Fixed Allocation / Uplink Transfer with Downlink TBF Establishment/ T3190/Non Half-Duplex..	2708
42.2.3.2	Fixed Allocation / Uplink Transfer with Downlink TBF Establishment/ Ending uplink TBF.....	2710
42.2.3.2.1	Fixed Allocation / Uplink Transfer with Downlink TBF Establishment/ Ending uplink TBF/ Half-Duplex.....	2710
42.2.3.2.2	Fixed Allocation / Uplink Transfer with Downlink TBF Establishment/ Ending uplink TBF/ Non Half-Duplex.....	2713
42.2.3.3	Fixed Allocation/ Uplink Transfer with Downlink TBF Establishment/ Abnormal cases .....	2715
42.2.3.3.1	Fixed Allocation/ Uplink Transfer with Downlink TBF Establishment/ Abnormal cases / Violation of multi-slot capabilities .....	2715
42.2.3.3.2	Fixed Allocation/ Uplink Transfer with Downlink TBF Establishment/ Abnormal cases / No defined PDCH.....	2717
42.2.4	Fixed Allocation / Downlink Transfer with Uplink TBF Establishment.....	2718
42.2.4.1	Fixed Allocation/ Downlink Transfer with Uplink TBF Establishment/ T3168 .....	2718
42.2.4.1.1	Fixed Allocation/ Downlink Transfer with Uplink TBF Establishment/ T3168/ Expiry .....	2718
42.2.4.1.2	Fixed Allocation/ Downlink Transfer with Uplink TBF Establishment/ T3168/ Stop with Packet Uplink Assignment .....	2720
42.2.4.2	Fixed Allocation/ Downlink Transfer with Uplink TBF Establishment/ Packet Uplink Assignment ....	2722
42.2.4.2.1	Fixed Allocation/ Downlink Transfer with Uplink TBF Establishment/Packet Uplink Assignment/ Non half-duplex.....	2722
42.2.4.2.2	Fixed Allocation/ Downlink Transfer with Uplink TBF Establishment/Packet Uplink Assignment/ Half-duplex.....	2725
42.2.4.3	Fixed Allocation/ Downlink Transfer with Uplink TBF Establishment/Packet Timeslot Reconfigure .	2728
42.2.4.3.1	Fixed Allocation/ Downlink Transfer with Uplink TBF Establishment/Packet Timeslot Reconfigure/Starting time with AFN encoding .....	2728
42.2.4.3.2	Fixed Allocation/ Downlink Transfer with Uplink TBF Establishment/Packet Timeslot Reconfigure/Starting time with relative encoding .....	2731
42.2.4.4	Fixed Allocation/ Downlink Transfer with Uplink TBF Establishment/Packet Access Reject .....	2734
42.2.4.4.1	Fixed Allocation/ Downlink Transfer with Uplink TBF Establishment/Packet Access Reject/ With WAIT_INDICATION.....	2734
42.2.4.4.2	Fixed Allocation/ Downlink Transfer with Uplink TBF Establishment/Packet Access Reject/No WAIT_INDICATION.....	2736
42.2.4.4.3	Fixed Allocation/ Downlink Transfer with Uplink TBF Establishment/Packet Access Reject/With Polling.....	2738
42.2.5	Default message contents .....	2740
42.2.5.1	Default message contents.....	2740
42.3	Dynamic Allocation in Packet Transfer Mode .....	2745
42.3.1	Dynamic Allocation / Uplink Transfer.....	2745
42.3.1.1	Dynamic Allocation / Uplink Transfer / Normal .....	2745
42.3.1.1.1	Dynamic Allocation / Uplink Transfer / Normal / Successful.....	2745
42.3.1.1.2	Dynamic Allocation / Uplink Transfer / Normal / Request new resources .....	2748
42.3.1.1.3	Dynamic Allocation / Uplink Transfer / Normal / Starting frame number encoding .....	2749
42.3.1.1.4	Dynamic Allocation / Uplink Transfer / Normal / Starting time.....	2752
42.3.1.1.5	Dynamic Allocation / Uplink Transfer / Normal / Close-ended TBF.....	2756
42.3.1.1.6	Dynamic Allocation / Uplink Transfer / Normal / T3180 expiry .....	2759
42.3.1.1.7	Dynamic Allocation / Uplink Transfer / Normal / PACCH operation .....	2761
42.3.1.1.8	Dynamic Allocation / Uplink Transfer / Normal / Two uplink timeslots .....	2763
42.3.1.1.9	Dynamic Allocation / Uplink Transfer / Normal / Frequency parameters .....	2765
42.3.1.2.	Dynamic Allocation / Uplink Transfer / Abnormal .....	2775
42.3.1.2.1	Dynamic Allocation / Uplink Transfer / Abnormal / with random access .....	2775
42.3.1.2.2	Dynamic Allocation / Uplink Transfer / Abnormal / with cell reselection in acknowledged mode 2777	
42.3.1.2.3	Dynamic Allocation / Uplink Transfer / Abnormal / with cell reselection in unacknowledged mode.....	2779
42.3.2	Dynamic Allocation / Uplink Transfer with Downlink TBF establishment (concurrent).....	2781
42.3.2.1	Dynamic Allocation / Uplink Transfer with Downlink TBF establishment / Normal .....	2781
42.3.2.1.1	Dynamic Allocation / Uplink Transfer with Downlink TBF establishment / Normal / Successful..	2781
42.3.2.1.2	Dynamic Allocation / Uplink Transfer with Downlink TBF establishment / Normal / Multislot capabilities.....	2786

42.3.2.2	Dynamic Allocation / Uplink Transfer with Downlink TBF establishment / Abnormal .....	2794
42.3.2.2.1	Dynamic Allocation / Uplink Transfer with Downlink TBF establishment / Abnormal / with random access .....	2794
42.3.2.2.2	Dynamic Allocation / Uplink Transfer with Downlink TBF establishment / Abnormal / Continuation of normal operation .....	2798
42.3.3	Dynamic Allocation / Resource reallocation .....	2801
42.3.3.1	Dynamic Allocation / Resource reallocation / Successful .....	2801
42.3.3.1.1	Dynamic Allocation / Resource reallocation / Successful / Higher throughput class or higher radio priority .....	2801
42.3.3.1.2	Dynamic Allocation / Resource reallocation / Successful / Lower throughput class .....	2806
42.3.3.1.3	Dynamic Allocation / Resource reallocation / Successful / Different RLC mode and higher radio priority .....	2809
42.3.3.2	Dynamic Allocation / Resource reallocation / Abnormal .....	2812
42.3.3.2.1	Dynamic Allocation / Resource reallocation / Abnormal / T3168 expiry .....	2812
42.3.3.2.2	Dynamic Allocation / Resource reallocation / Abnormal / Invalid assignment .....	2815
42.3.3.3	Dynamic Allocation / Resource reallocation / Reject .....	2820
42.3.4	Default message contents .....	2825
42.4	Measurement reports and Cell change order procedures .....	2833
42.4.1	Measurement reports .....	2833
42.4.1.1	Network Control measurement reporting / Uplink / Normal case .....	2833
42.4.1.2	Network Control measurement reporting / Idle mode / New cell reselection .....	2836
42.4.1.3	Network Control measurement reporting / Downlink transfer/ Normal case .....	2838
42.4.2	Cell change order procedures .....	2841
42.4.2.1	Cell change order procedure / Uplink transfer .....	2841
42.4.2.1.1	Cell change order procedure / Uplink transfer / Normal case .....	2841
42.4.2.1.2	Cell change order procedure / Uplink transfer / Failure cases / T3174 expiry .....	2842
42.4.2.1.3	Cell change order procedure / Uplink transfer / Failure cases / REJECT from the new cell .....	2844
42.4.2.1.4	Cell change order procedure / Uplink transfer / Failure cases / Contention resolution failure .....	2845
42.4.2.1.5	Cell change order procedure / Uplink transfer / Failure cases / REJECT from the new cell and T3176 expiry .....	2847
42.4.2.1.6	Cell change order procedure / Uplink transfer / Failure cases / Frequency not implemented .....	2848
42.4.2.2	Cell change order procedure / Downlink transfer .....	2849
42.4.2.2.1	Cell change order procedure / Downlink transfer / Normal case .....	2849
42.4.2.2.2	Cell change order procedure / Downlink transfer / Failure cases / REJECT from the new cell .....	2851
42.4.2.2.3	Cell change order procedure / Downlink transfer / Failure cases / Frequency not implemented .....	2852
42.4.2.3	Cell change order procedure / Simultaneous uplink and downlink transfer .....	2853
42.4.2.3.1	Cell change order procedure / Simultaneous uplink and downlink transfer / Normal case .....	2853
42.4.2.3.2	Cell change order procedure / Simultaneous uplink and downlink transfer / Failure case / T3174 expiry .....	2856
42.4.3	Macros and Default Message contents .....	2857
42.4.3.1	Macros .....	2857
42.4.3.1.1	Uplink packet transfer mode / Dynamic allocation .....	2857
42.4.3.1.2	Uplink packet transfer mode / Fixed allocation .....	2857
42.4.3.2	Default Messages .....	2858
42.4.3.2.1	PACKET CELL CHANGE ORDER message .....	2858
42.4.3.2.2	PACKET CELL CHANGE FAILURE message .....	2858
42.4.3.2.3	PACKET MEASUREMENT ORDER message .....	2859
42.5	Downlink Transfer .....	2860
42.5.1	Downlink Transfer / Normal Operation .....	2860
42.5.1.1	Downlink Transfer/ Normal Operation / Relative Encoding TBF starting time .....	2860
42.5.1.2	Downlink Transfer/ Normal Operation / Without TBF starting time .....	2861
42.5.2	Downlink Transfer / Polling .....	2863
42.5.2.1	Downlink Transfer/ Polling/ Normal operation/RLC data block .....	2863
42.5.2.2	Downlink Transfer/ Polling/ Packet Polling Request/ Access Burst format .....	2864
42.5.2.3	Downlink Transfer/ Polling/ Packet Polling Request/ Control block format .....	2866
42.5.3	Downlink Transfer / T3190 Expiry / Initial allocation .....	2868
42.5.3.1	Downlink Transfer/ T3190 Expiry / Initial allocation / Restart with valid RLC data block .....	2868
42.5.4	Downlink Transfer / T3190 Expiry / Resource reallocation .....	2869
42.5.4.1	Downlink Transfer/ T3190 Expiry / Resource reallocation / Without TBF starting time .....	2869

42.5.4.2	Downlink Transfer/ T3190 Expiry / Resource reallocation / With TBF starting time .....	2871
42.5.4.3	Downlink Transfer/ T3190 Expiry / Resource reallocation / Restart with valid RLC data block.....	2873
42.5.5	Downlink Transfer / Reestablishment .....	2875
42.5.5.1	Downlink Transfer/ Reestablishment/ T3192 Expiry .....	2875
42.5.5.2	Downlink Transfer/ Reestablishment/ Packet Downlink Assignment .....	2878
42.5.5.3	Downlink Transfer/ Reestablishment/ Invalid Frequency Parameters IE .....	2880
43	RLC Test Cases .....	2884
43.1	Acknowledged Mode.....	2884
43.1.1	Acknowledged mode / Uplink TBF.....	2884
43.1.1.1	Acknowledged mode / Uplink TBF / Send state variable V(S).....	2884
43.1.1.2	Acknowledged mode / Uplink TBF / Transmit window size.....	2885
43.1.1.3	Acknowledged mode / Uplink TBF / Acknowledge state variable V(A).....	2887
43.1.1.4	Acknowledged mode / Uplink TBF / Negatively acknowledged RLC data blocks .....	2889
43.1.1.5	Acknowledged mode / Uplink TBF / Invalid Negative Acknowledgment .....	2892
43.1.1.6	Acknowledged mode / Uplink TBF / Decoding of Received Block Bitmap .....	2893
43.1.2	Acknowledged mode / Downlink TBF .....	2896
43.1.2.1	Acknowledged mode / Downlink TBF / Receive state variable V(R).....	2896
43.1.2.2	Acknowledged mode / Downlink TBF / Receive window state variable V(Q).....	2897
43.1.2.3	Acknowledged mode / Downlink TBF / Re-assembly of RLC data blocks .....	2898
43.1.2.4	Acknowledged mode / Downlink TBF / Re-assembly / Length Indicator .....	2899
43.2	Control Blocks .....	2900
43.2.1	Control Blocks Re-assembly .....	2900
43.3	Default Message Contents and Macros .....	2902
43.3.1	Message Contents .....	2902
43.3.1.1	Packet Uplink Assignment.....	2902
43.3.2	Macros .....	2903
43.3.2.1	Macro for uplink dynamic allocation two phase access (PBCCH not present).....	2903
43.3.2.2	Macro for downlink TBF establishment (PBCCH not present).....	2903
44	Test case requirements for GPRS mobility management .....	2904
44.1	Applicability, default conditions and default messages .....	2904
44.2	Elementary procedures of GPRS mobility management .....	2905
44.2.1	GPRS attach procedure .....	2905
44.2.1.1	Normal GPRS attach .....	2905
44.2.1.1.1	GPRS attach / accepted .....	2905
44.2.1.1.2	GPRS attach / rejected / IMSI invalid / illegal MS .....	2908
44.2.1.1.3	GPRS attach / rejected / IMSI invalid / GPRS services not allowed .....	2910
44.2.1.1.4	GPRS attach / rejected / PLMN not allowed.....	2911
44.2.1.1.5	GPRS attach / rejected / roaming not allowed in this location area .....	2914
44.2.1.1.6	GPRS attach / abnormal cases / access barred due to access class control .....	2921
44.2.1.1.7	GPRS attach / abnormal cases / change of cell into new routing area .....	2924
44.2.1.1.8	GPRS attach / abnormal cases / power off.....	2926
44.2.1.1.9	GPRS attach / abnormal cases / GPRS detach procedure collision.....	2927
44.2.1.2	Combined GPRS attach.....	2930
44.2.1.2.1	Combined GPRS attach / GPRS and non-GPRS attach accepted .....	2930
44.2.1.2.2	Combined GPRS attach / GPRS only attach accepted .....	2933
44.2.1.2.3	Combined GPRS attach / GPRS attach while IMSI attach .....	2938
44.2.1.2.4	Combined GPRS attach / rejected / IMSI invalid / illegal ME.....	2940
44.2.1.2.5	Combined GPRS attach / rejected / GPRS services and non-GPRS services not allowed .....	2943
44.2.1.2.6	Combined GPRS attach / rejected / GPRS services not allowed .....	2946
44.2.1.2.7	Combined GPRS attach / rejected / location area not allowed.....	2949
44.2.1.2.8	Combined GPRS attach / abnormal cases / attempt counter check / miscellaneous reject causes .....	2952
44.2.1.2.9	Combined GPRS attach / abnormal cases / GPRS detach procedure collision .....	2956
44.2.2	GPRS detach procedure .....	2959
44.2.2.1	MS initiated GPRS detach procedure .....	2959
44.2.2.1.1	GPRS detach / power off / accepted.....	2959
44.2.2.1.2	GPRS detach / accepted .....	2960
44.2.2.1.3	GPRS detach / abnormal cases / attempt counter check / procedure timeout.....	2961
44.2.2.1.4	GPRS detach / abnormal cases / GMM common procedure collision .....	2963

44.2.2.1.5	GPRS detach / power off / accepted .....	2965
44.2.2.1.6	GPRS detach / accepted / GPRS/IMSI detach.....	2966
44.2.2.1.7	GPRS detach / accepted / IMSI detach .....	2967
44.2.2.1.8	GPRS detach / abnormal cases / change of cell into new routing area .....	2969
44.2.2.1.9	GPRS detach / abnormal cases / GPRS detach procedure collision .....	2971
44.2.2.2	Network initiated GPRS detach procedure .....	2974
44.2.2.2.1	GPRS detach / re-attach not required / accepted.....	2974
44.2.2.2.2	GPRS detach / rejected / IMSI invalid / GPRS services not allowed .....	2975
44.2.2.2.3	GPRS detach / IMSI detach / accepted .....	2977
44.2.2.2.4	GPRS detach / re-attach requested / accepted.....	2979
44.2.2.2.5	GPRS detach / rejected / location area not allowed.....	2981
44.2.3	Routing area updating procedure .....	2985
44.2.3.1	Normal routing area updating.....	2985
44.2.3.1.1	Routing area updating / accepted.....	2985
44.2.3.1.2	Routing area updating / rejected / IMSI invalid / illegal ME .....	2988
44.2.3.1.3	Routing area updating / rejected / MS identity cannot be derived by the network.....	2990
44.2.3.1.4	Routing area updating / rejected / location area not allowed .....	2992
44.2.3.1.5	Routing area updating / abnormal cases / attempt counter check / miscellaneous reject causes ..	2995
44.2.3.1.6	Routing area updating / abnormal cases / change of cell into new routing area.....	2998
44.2.3.1.7	Routing area updating / abnormal cases / change of cell during routing area updating procedure.....	2999
44.2.3.1.8	Routing area updating / abnormal cases / P-TMSI reallocation procedure collision .....	3001
44.2.3.2	Combined routing area updating .....	3004
44.2.3.2.1	Combined routing area updating / combined RA/LA accepted.....	3004
44.2.3.2.2	Combined routing area updating / MS in CS operation at change of RA .....	3007
44.2.3.2.3	Combined routing area updating / RA only accepted .....	3008
44.2.3.2.4	Combined routing area updating / rejected / PLMN not allowed .....	3013
44.2.3.2.5	Combined routing area updating / rejected / roaming not allowed in this location area .....	3016
44.2.3.2.6	Combined routing area updating / abnormal cases / access barred due to access class control ...	3021
44.2.3.2.7	Combined routing area updating / abnormal cases / attempt counter check / procedure timeout .	3024
44.2.3.2.8	Combined routing area updating / abnormal cases / change of cell into new routing area .....	3027
44.2.3.2.9	Combined routing area updating / abnormal cases / change of cell during routing area updating procedure.....	3028
44.2.3.2.10	Combined routing area updating / abnormal cases / GPRS detach procedure collision .....	3030
44.2.3.3	Periodic routing area updating .....	3034
44.2.3.3.1	Periodic routing area updating / accepted.....	3034
44.2.3.3.2	Periodic routing area updating / accepted / T3312 default value.....	3035
44.2.3.3.3	Periodic routing area updating / no cell available / network mode I.....	3037
44.2.3.3.4	Combined periodic routing area updating / no cell available .....	3038
44.2.4	P-TMSI reallocation .....	3041
44.2.5	GPRS authentication and ciphering .....	3043
44.2.5.1	Test of authentication .....	3043
44.2.5.1.1	Authentication accepted.....	3043
44.2.5.1.2	Authentication rejected.....	3044
44.2.5.2	Test of ciphering mode setting .....	3047
44.2.5.2.1	Ciphering mode / start ciphering.....	3047
None.44.2.5.2.2	Ciphering mode / stop ciphering.....	3050
44.2.5.2.3	Ciphering mode / IMEISV request .....	3053
44.2.6	Identification procedure .....	3056
44.2.6.1	General Identification.....	3056
44.2.7	GMM READY timer handling .....	3058
45	Session Management Procedures .....	3063
45.1	Definition and applicability .....	3063
45.2	PDP context activation .....	3063
45.2.1	Initiated by the mobile station .....	3063
45.2.1.1	Attach initiated by context activation/QoS Offered by Network is the QoS Requested .....	3063
45.2.1.2	QoS Offered by Network is a lower QoS.....	3065
45.2.1.2.1	QoS Accepted by MS.....	3065



45.2.1.2.2	QoS Rejected by MS.....	3067
45.2.2	PDP context activation requested by the network, successful and unsuccessful.....	3069
45.2.4	Abnormal cases .....	3072
45.2.4.1	T3380 Expiry.....	3072
45.2.4.2	Collision of MS initiated and network requested PDP context activation.....	3074
45.3	PDP context modification procedure.....	3076
45.3.1	PDP context modification .....	3076
45.4	PDP context deactivation procedure.....	3079
45.4.1	PDP context deactivation initiated by the MS .....	3079
45.4.2	PDP context deactivation initiated by the network .....	3081
45.4.3	Abnormal cases .....	3083
45.4.3.1	T3390 Expiry.....	3083
45.4.3.2	Collision of MS and network initiated PDP context deactivation requests.....	3086
45.5	Unknown or Unforeseen Transaction Identifier/Non-semantic Mandatory Information Element Errors .....	3089
45.5.1	Error cases .....	3089
46	3094	
46.1	LLC Tests .....	3094
46.1.1	Default Conditions .....	3094
46.1.2	Test cases .....	3094
46.1.2.1	Unacknowledged data transfer .....	3094
46.1.2.1.1	Data transmission in protected mode.....	3094
46.1.2.1.2	Data transmission in unprotected mode .....	3095
46.1.2.1.3	Reception of I frame in ADM .....	3096
46.1.2.2	Acknowledged data transfer .....	3097
46.1.2.2.1	Link establishment .....	3097
46.1.2.2.1.1	Link establishment from MS to SS.....	3097
46.1.2.2.1.2	Link establishment from SS to MS.....	3098
46.1.2.2.1.3	Loss of UA frame .....	3099
46.1.2.2.1.4	Total loss of UA frame .....	3100
46.1.2.2.1.5	DM response .....	3102
46.1.2.2.2	MS sends I+S frames .....	3103
46.1.2.2.2.1	Checking N(S).....	3103
46.1.2.2.2.2	Busy condition at the peer, with RR sent for resumption of transmission .....	3104
46.1.2.2.2.3	Busy condition at the peer, with ACK sent for resumption of transmission .....	3106
46.1.2.2.2.4	SACK frame.....	3108
46.1.2.2.3	Reception of I + S frames at the MS.....	3109
46.1.2.2.3.1	Checking N(R).....	3109
46.1.2.2.3.2	MS handling busy condition during bi-directional data transfer .....	3110
46.1.2.2.3.3	SACK frame.....	3112
46.1.2.2.3.4	ACK frame .....	3113
46.1.2.2.4	Link Reestablishment.....	3114
46.1.2.2.4.1	Reestablishment due to reception of SABM .....	3114
46.1.2.2.4.2	Reestablishment due to N200 failures .....	3116
46.1.2.2.4.3	Reestablishment due to reception of DM.....	3117
46.1.2.3	Collision of commands and responses .....	3118
46.1.2.3.1	Collision of SABM .....	3118
46.1.2.3.2	Collision of SABM and DISC.....	3119
46.1.2.3.3	Collision of SABM and XID commands .....	3120
46.1.2.4	Unsolicited response frames .....	3121
46.1.2.4.1	Unsolicited DM .....	3121
46.1.2.5	FRMR frames .....	3122
46.1.2.5.1	Sending FRMR due to undefined command control field.....	3122
46.1.2.5.2	Sending FRMR due to reception of an S frame with incorrect length.....	3123
46.1.2.5.3	Sending FRMR due to reception of an I frame information field exceeding the maximum length... ..	3124
46.1.2.5.4	Frame reject condition during establishment of ABM.....	3126
46.1.2.6	Multiple Connections .....	3127
46.1.2.6.1	Simultaneous acknowledged and unacknowledged data transfer on the same SAPI.....	3127
46.1.2.6.2	Simultaneous acknowledged and unacknowledged data transfer on different SAPIs .....	3128

46.1.2.7	XID Negotiation .....	3130
46.1.2.7.1	Negotiation initiated by the SS during ABM, for T200 and N200 .....	3130
46.1.2.7.2	Negotiation initiated by the SS during ADM, for N201-I.....	3131
46.1.2.7.3	Negotiation initiated by the SS (using SABM, for IOV-I).....	3132
46.1.2.7.4	Negotiation initiated by the SS (during ADM, for N201-U).....	3133
46.1.2.7.5	Negotiation initiated by the SS (during ADM, for IOV-UI).....	3134
46.1.2.7.6	Negotiation initiated by the SS (during ABM, for Reset).....	3136
46.1.2.7.7	XID command with unrecognised type field.....	3138
46.1.2.7.8	XID Response with out of range values .....	3139
46.2	SNDCP Tests .....	3140
46.2.1	Default Conditions .....	3140
46.2.2	Test cases .....	3141
46.2.2.1	Data transfer.....	3141
46.2.2.1.1	Mobile originated normal data transfer with LLC in acknowledged mode .....	3141
46.2.2.1.2	Mobile originated normal data transfer with LLC in unacknowledged mode .....	3142
46.2.2.1.3	Usage of acknowledged mode for data transmission before and after PDP Context modification, on different SAPIs .....	3143
46.2.2.1.4	Reset indication during unacknowledged mode .....	3145
46.2.2.1.5	Reset indication during acknowledged mode .....	3146
46.2.2.2	Segmentation .....	3148
46.2.2.2.1	LLC link re-establishment on reception of SN-DATA PDU with F=0 in ack mode in the Receive First Segment state.....	3148
46.2.2.2.2	LLC link re-establishment on receiving second segment with F=1 and with different PCOMP and DCOMP values in the acknowledged mode data transfer.....	3149
46.2.2.2.3	Single segment N-PDU from MS.....	3150
46.2.2.3	Link Release .....	3151
46.2.2.3.1	LLC link release on receiving DM from the SS during link establishment.....	3151
46.2.2.4	XID negotiation .....	3151
46.2.2.4.1	Response from MS on receiving XID request from the SS.....	3151
46.2.2.4.2	Response from MS on receiving an XID request from the SS with an unassigned entity number .....	3153
46.2.2.4.3	Response from MS on receiving an XID response from the SS with unrecognised type field.....	3154

**Annex 1 (Normative): Reference test methods ..... 3156**

A1.1	General Conditions (GC).....	3156
A1.1.1	Outdoor test site and general arrangements for measurements involving the use of radiated fields (GC4)....	3156
A1.1.2	Anechoic shielded chamber (GC5).....	3156
A1.1.3	Temporary antenna connector (GC7).....	3157
A1.1.4	Temporary antenna connector characteristics .....	3157
A1.1.5	Calibration of the temporary antenna connector .....	3158
A1.1.5.1	Antenna radiation pattern .....	3158
A1.1.5.2	Test range calibration .....	3160
A1.1.5.3	Temporary antenna connector coupling factor .....	3160
A1.2	Normal and extreme Test Conditions (TC).....	3161
A1.2.1	Power sources and ambient temperatures (TC2).....	3161
A1.2.2	Normal test conditions (TC2.1).....	3161
A1.2.3	Extreme test conditions (TC2.2).....	3162
A1.2.4	Vibration requirements (TC4).....	3163

**Annex 2: Not used 3164**

**Annex 3: Protocol implementation information ..... 3164**

A3.1	Protocol Implementation Conformance Statement (PICS) .....	3164
A3.1.1	LAPDm protocol (GSM 04.05 and 04.06).....	3164
A3.1.1.1	Simplified protocol - GSM 04.06 section 6.....	3164
A3.1.1.2	Management of SAPI = 3 - GSM 04.11 section 2.3.....	3164
A3.1.2	Mobility management.....	3164
A3.1.2.1	IMSI detach initiation by the MS - GSM 04.08 section 4.3.4.1 .....	3164

A3.1.2.2	IMSI detach completion by the MS - GSM 04.08 section 4.3.4.3 .....	3164
A3.1.2.3	MM specific procedures - GSM 04.08 section 4.4 and 4.5.1.1 .....	3164
A3.1.2.4	Receiving an MM STATUS message - GSM 04.08 section 4.6.....	3165
A3.1.3	Call control.....	3165
A3.1.3.1	Status enquiry procedures - GSM 04.08 section 5.5.3.1.....	3165
A3.1.3.2	Receiving a STATUS message by a CC entity - GSM 04.08 section 5.5.3.2.....	3165
A3.1.3.3	Called side compatibility checking - GSM 04.08 annex B.3 .....	3165
A3.1.3.4	Disconnect on incoming call.....	3165
A3.1.4	Layer 1 .....	3165
A3.1.4.1	Optional storage of BCCH carrier information - GSM 05.08 section 6.3.....	3165
A3.1.5	Autocalling - (ref.: GSM 02.07, annex 1) .....	3165
A3.1.6	Transient states.....	3166
<b>A3.2</b>	<b>Protocol Implementation Extra Information for Testing (PIXIT) .....</b>	<b>3167</b>
A3.2.0	Introduction .....	3167
A3.2.1	Basic characteristics .....	3167
A3.2.1.1	Type of antenna.....	3167
A3.2.1.2	Power supply.....	3167
A3.2.1.3	Power class of the MS .....	3167
A3.2.1.4	Channel modes supported .....	3167
A3.2.1.5	Teleservices supported .....	3168
A3.2.1.6	Supplementary services supported .....	3168
A3.2.1.7	Bearer services supported.....	3168
A3.2.1.8	SIM removal .....	3169
A3.2.1.9	Classmark.....	3169
A3.2.1.10	Type of SIM/ME interface (ref. GSM 11.11 and GSM 11.12).....	3169
A3.2.1.11	Multislot class.....	3169
A3.2.2	Man machine interface .....	3169
A3.2.2.1	Mobile station features.....	3169
A3.2.2.2	Short message service .....	3170
A3.2.2.3	Supplementary services.....	3170
A3.2.2.3.1	Call forwarding.....	3170
A3.2.2.3.2	Call restriction .....	3171
A3.2.2.3.3	Handling of (undefined) GSM supplementary services .....	3171
A3.2.3	Electrical Man Machine Interface (EMMI) .....	3171
A3.2.3.1	Methods supported for activation/deactivation of EMMI.....	3171
A3.2.3.2	Transmission rate supported by the ME on the EMMI.....	3171
A3.2.3.3	Layer 3 messages supported on the EMMI .....	3171
A3.2.3.4	Keystroke sequence messages .....	3172
A3.2.3.5	Internal malfunction detected messages.....	3172
A3.2.4	Digital Audio Interface (DAI).....	3172
A3.2.5	Characteristics related to bearer services or teleservices .....	3172
A3.2.5.1	Access interface .....	3172
A3.2.5.2	Configuration of the MT .....	3172
A3.2.5.3	Capability information.....	3173
A3.2.5.4	Subaddress or DDI number.....	3173
A3.2.5.5	User to user signalling .....	3173
A3.2.5.6	Data call set-up and data call clearing .....	3173
A3.2.5.7	Characteristics of non-transparent data services .....	3173
A3.2.5.8	Possible ways of setting-up a call from either an external interface or internally .....	3174
A3.2.5.9	Application layer causing automatic call termination .....	3174
A3.2.5.10	Call re-establishment for MS not supporting speech .....	3174
A3.2.6	International mobile station equipment identity .....	3174
A3.2.7	Receiver intermediate frequencies .....	3174
A3.2.8	Artificial ear.....	3174
<b>Annex 4:</b>	<b>Test SIM Parameters .....</b>	<b>3175</b>
A4.1	Introduction.....	3175
A4.1.1	Definitions.....	3175

A4.1.2 Definition of the test algorithm for authentication ..... 3175

A4.2 Default Parameters for the test SIM..... 3175

A4.3 Default settings for the Elementary Files (EFs)..... 3176

A4.3.1 EF<sub>ICCID</sub> (ICC Identification) ..... 3176

A4.3.2 EF<sub>LP</sub> (Language preference) ..... 3176

A4.3.3 EF<sub>IMSI</sub> (IMSI) ..... 3176

A4.3.4 EF<sub>Kc</sub> (Ciphering key Kc)..... 3176

A4.3.5 EF<sub>PLMNsel</sub> (PLMN selector)..... 3176

A4.3.6 EF<sub>HPLMN</sub> (HPLMN search period)..... 3177

A4.3.7 EF<sub>ACMmax</sub> (ACM maximum value) ..... 3177

A4.3.8 EF<sub>SST</sub> (SIM service table)..... 3177

A4.3.9 EF<sub>ACM</sub> (Accumulated call meter)..... 3177

A4.3.10 EF<sub>PUCT</sub> (Price per unit and currency table)..... 3178

A4.3.11 EF<sub>CBMI</sub> (Cell broadcast Message Identifier Selection) ..... 3178

A4.3.12 EF<sub>BCCH</sub> (Broadcast control channels) ..... 3178

A4.3.13 EF<sub>ACC</sub> (Access control class)..... 3178

A4.3.14 EF<sub>FPLMN</sub> (Forbidden PLMNs)..... 3178

A4.3.15 EF<sub>LOCI</sub> (Location information)..... 3178

A4.3.16 EF<sub>AD</sub> (Administrative data)..... 3179

A4.3.17 EF<sub>Phase</sub> (Phase identification) ..... 3179

A4.3.18 EF<sub>ADN</sub> (Abbreviated dialling numbers) ..... 3179

A4.3.19 EF<sub>FDN</sub> (Fixed dialling numbers)..... 3179

A4.3.20 EF<sub>SMS</sub> (Short messages)..... 3179

A4.3.21 EF<sub>CCP</sub> (Capability configuration parameters)..... 3179

A4.3.22 EF<sub>MSISDN</sub> (MSISDN)..... 3180

A4.3.23 EF<sub>SMSP</sub> (Short message service parameters) ..... 3180

A4.3.24 EF<sub>SMSS</sub> (SMS status)..... 3180

A4.3.25 EF<sub>EXT1</sub> (Extension 1)..... 3180

A4.3.26 EF<sub>EXT2</sub> (Extension 2)..... 3180

A4.3.27 EF<sub>VGCS</sub> (Voice Group Call Service)..... 3181

A4.3.28 EF<sub>VGCS</sub> (Voice Group Call Service Status)..... 3182

A4.3.29 EF<sub>VBS</sub> (Voice Broadcast Service) ..... 3183

A4.3.30 EF<sub>VBS</sub> (Voice Broadcast Service Status) ..... 3184

A4.3.31 EF<sub>eMLPP</sub> (enhanced Multi Level Pre-emption and Priority)..... 3184

A4.3.32 EF<sub>AAeM</sub> (Automatic Answer for eMLPP Service)..... 3184

**Annex 5: Test equipment ..... 3185**

A5.1 Introduction..... 3185

A5.1.1 General..... 3185

A5.1.2 Test equipment terms ..... 3185

A5.1.3 Confidence level..... 3185

A5.2 Standard test signals ..... 3186

A5.3 SS functional requirements ..... 3186

A5.3.1 Level setting range ..... 3186

A5.3.2 Level Measurement / operation range ..... 3186

A5.3.3 MS power supply interface ..... 3186

A5.3.4 MS antenna interface ..... 3187

A5.3.4.1 Uplink receiver error ..... 3187

A5.3.4.2 Power versus time measurements ..... 3187

A5.3.4.3 Wideband selective power measurement ..... 3190

A5.3.4.4 Inband selective power measurements ..... 3190

A5.3.4.5 Phase trajectory and frequency error measurements ..... 3190

A5.3.4.6 RF delay measurements relative to nominal times ..... 3191

A5.3.4.7 The wanted signal or traffic channel of serving cell ..... 3191

A5.3.4.8 The first interfering signal or traffic channel of the first adjacent cell..... 3192

A5.3.4.9 The second interfering signal ..... 3192

A5.3.4.10 BCCH carriers of serving and adjacent cells ..... 3193

A5.3.4.11 The wide frequency range signal ..... 3194

A5.3.4.12 The multipath fading function ..... 3194

A5.3.5 MS audio interface and DAI ..... 3194

A5.3.5.1 General uncertainties ..... 3194

A5.3.5.2 Analogue single test tone ..... 3195

A5.3.5.3 Delay measurement between Um and DAI ..... 3195

A5.4 SIM simulator functional requirements ..... 3195

A5.4.1 General ..... 3195

A5.4.2 Contacts C1, C2, C6, C7 ..... 3195

A5.4.2.1 Default measurement / setting uncertainties ..... 3195

A5.4.2.2 Contact C1 ..... 3195

A5.4.2.3 Contact C7 ..... 3196

A5.4.3 Contact C3 ..... 3196

A5.4.4 Definition of timing ..... 3197

History ..... 3198