

## Annex A (normative): Test Suites

This annex contains the approved TTCN Test Suites. The test suites have been produced using the Testing and Test Control Notation version 3 (TTCN3) according to ES 201 873-1 [13].

### A.1 Baseline of specifications

Table A.1 shows the baseline of the relevant cores specifications and the test specifications which the delivered TTCN test suites are referred to.

**Table A.1: References of the test and Core specifications**

<b>Core specifications baseline</b>	TS 36.331 [19]
	TS 24.301 [21]
<b>Test specifications</b>	TS 36.508 [3]
	TS 36.509 [4]
	TS 36.523-1 [1]
	TS 36.523-2 [2]

### A.2 E-UTRA Test Suites

Table A.2 lists all approved test cases. An "X" in columns FDD or TDD indicates the test case approved for the respective variant.

**Table A.2: E-UTRA/EPS TTCN test cases**

Test case	Description	FDD	TDD
6.1.1.1	PLMN selection of RPLMN, HPLMN/EHPLMN, UPLMN and OPLMN/Automatic mode	X	X
6.1.1.1a	PLMN selection / Automatic mode / between FDD and TDD	X	X
6.1.1.1b	PLMN selection of RPLMN, HPLMN/EHPLMN, UPLMN and OPLMN / Automatic mode / Single Frequency operation	X	X
6.1.1.2	PLMN selection of "Other PLMN/access technology combinations" / Automatic mode	X	X
6.1.1.2a	PLMN selection of "Other PLMN/access technology combinations" / Automatic mode / Single Frequency operation	X	X
6.1.1.3	Cell reselection of ePLMN in manual mode	X	X
6.1.1.3a	Cell reselection of ePLMN in manual mode / between FDD and TDD	X	X
6.1.1.3b	Cell reselection of ePLMN in manual mode / Single Frequency operation	X	X
6.1.1.4	PLMN selection in shared network environment / Automatic mode	X	X
6.1.1.4a	PLMN selection in shared network environment / Automatic mode / between FDD and TDD	X	X
6.1.1.6	PLMN selection of RPLMN, HPLMN/EHPLMN, UPLMN and OPLMN / Automatic mode / User reselection	X	X
6.1.1.6a	PLMN selection of RPLMN, HPLMN/EHPLMN, UPLMN and OPLMN / Automatic mode / User reselection / Single Frequency operation	X	X
6.1.2.2	Cell selection, Qrxlevmin	X	X
6.1.2.2a	Cell selection / Qqualmin	X	X
6.1.2.3	Cell selection/Intra E-UTRAN/Serving cell becomes non-suitable (S<0 or barred)	X	X
6.1.2.3a	Cell selection / Intra E-UTRAN / Serving cell becomes non-suitable (Srxlev > 0 and Squal <0)	X	X
6.1.2.4	Cell reselection	X	X
6.1.2.5	Cell reselection for inter-band operation	X	X
6.1.2.6	Cell reselection using Qhyst, Qoffset and Treshold	X	X
6.1.2.7	Cell reselection/Equivalent PLMN	X	X
6.1.2.7a	Cell reselection / Equivalent PLMN / Single Frequency operation	X	X
6.1.2.8	Cell reselection using cell status and cell reservations/Access control class 0 to 9	X	X
6.1.2.8a	Cell reselection using cell status and cell reservations / Access control class 0 to 9 / Single	X	X

Test case	Description	FDD	TDD
	Frequency operation		
6.1.2.9	Cell reselection using cell status and cell reservations/Access control class 11 to15	X	X
6.1.2.9a	Cell reselection using cell status and cell reservations / Access control class 11 to 15 / Single Frequency operation	X	X
6.1.2.10	Cell reselection in shared network environment	X	X
6.1.2.11	Inter-frequency cell reselection	X	X
6.1.2.12	Cell reselection / Cell-specific reselection parameters provided by the network in a neighbouring cell list	X	X
6.1.2.13	Cell re-selection, Sintrasearch, Snonintrasearch	X	X
6.1.2.14	Speed-dependent cell reselection	X	X
6.1.2.15	Inter-frequency cell reselection according to cell reselection priority provided by SIBs	X	X
6.1.2.15a	Inter-frequency cell reselection according to cell reselection priority provided by SIBs / Between FDD and TDD	X	X
6.1.2.15b	Inter-band cell reselection according to cell reselection priority provided by SIBs	X	
6.1.2.16	Cell reselection / interband operation / Between FDD and TDD	X	X
6.1.2.17	Cell reselection for Squal to check against SintraSearchQ and SnonIntraSearchQ	X	X
6.1.2.18	Inter-frequency cell reselection based on common priority information with parameters ThreshX, HighQ, ThreshX, LowQ and ThreshServing, LowQ	X	X
6.2.1.1	Inter-RAT PLMN selection / Selection of correct RAT for OPLMN / Automatic mode	X	X
6.2.1.2	Inter-RAT PLMN selection / Selection of correct RAT for UPLMN / Automatic mode	X	X
6.2.1.3	Inter-RAT PLMN selection / Selection of correct PLMN and RAT in shared network environment / Automatic mode	X	X
6.2.1.4	Inter-RAT PLMN selection / Selection of correct RAT from the OPLMN list / Manual mode	X	X
6.2.1.6	Inter-RAT background HPLMN search / Search for correct RAT for HPLMN / Automatic mode	X	X
6.2.2.1	Inter-RAT cell selection/From E-UTRA RRC_IDLE to UTRA_Idle/Serving cell becomes non-suitable	X	X
6.2.2.2	Inter-RAT cell selection / From E-UTRA RRC_IDLE to GSM_Idle/GPRS Packet_idle / Serving cell becomes non-suitable	X	X
6.2.2.3	Inter-RAT cell selection / From E-UTRA RRC_IDLE to HRPD Idle / Serving cell becomes non-suitable	X	-
6.2.2.4	Inter-RAT cell selection / From E-UTRA RRC_IDLE to 1xRTT Dormant / Serving cell becomes non-suitable	X	-
6.2.2.5	Cell selection / No USIM	X	X
6.2.2.6	Inter-RAT Cell selection / From GSM_Idle/GPRS Packet_idle to E-UTRA RRC_IDLE / Serving cell becomes non-suitable	X	X
6.2.2.7	Inter-RAT Cell selection / From GSM_Idle/GPRS Packet_idle to E-UTRA RRC_IDLE / Serving cell is barred	X	X
6.2.2.8	Inter-RAT cell selection / From UTRA_Idle to E-UTRA RRC_IDLE / Serving cell becomes non-suitable	X	X
6.2.3.1	Inter-RAT cell reselection / From E-UTRA RRC_IDLE to GSM_Idle/GPRS Packet_Idle	X	X
6.2.3.1a	Inter-RAT cell reselection / From E-UTRA RRC_IDLE to GSM_Idle/GPRS Packet_Idle (Squal < ThreshServing, LowQ, Srxlev > ThreshX, LowP and Srxlev > ThreshX, HighP)	X	
6.2.3.3	Inter-RAT cell reselection/From UTRA_Idle to E-UTRA RRC_IDLE	X	X
6.2.3.3a	Inter-RAT cell reselection / From UTRA_Idle to E-UTRA RRC_IDLE (QqualminEUTRA, SqualServingCell < Threshserving,low2, SqualnonServingCell,x > Threshx, low2 and SqualnonServingCell,x > Threshx, high2)	X	-
6.2.3.4	Inter-RAT cell reselection / From UTRA CELL_PCH state to E-UTRA RRC_IDLE	X	X
6.2.3.4a	Inter-RAT cell reselection / From UTRA_CELL_PCH state to E-UTRA RRC_IDLE based on RSRQ+RSRP evaluation	X	
6.2.3.5	Inter-RAT cell reselection/From E-UTRA RRC_IDLE to UTRA_Idle	X	X
6.2.3.5a	Inter-RAT cell reselection / From E-UTRA RRC_IDLE to UTRA_Idle (Squal > ThreshX, HighQ, Squal < ThreshServing, LowQ, Squal > ThreshX, LowQ and SnonIntraSearchQ)	X	-
6.2.3.6	Inter-RAT cell reselection / From E-UTRA RRC_IDLE to UTRA_Idle according to RAT priority provided by dedicated signalling	X	X
6.2.3.7	Inter-RAT cell reselection / From E-UTRA RRC_IDLE to HRPD Idle / HRPD cell is higher reselection priority than E-UTRA	X	-
6.2.3.7a	Inter-RAT cell reselection / From E-UTRA RRC_IDLE to HRPD Idle / HRPD cell is higher reselection priority than E-UTRA (Srxlev > ThreshX, HighP)	X	-
6.2.3.8	Inter-RAT cell reselection / From E-UTRA RRC_IDLE to HRPD Idle / HRPD cell is lower reselection priority than E-UTRA	X	-
6.2.3.8a	Inter-RAT cell reselection / From E-UTRA RRC_IDLE to HRPD Idle / HRPD cell is lower reselection priority than E-UTRA (Squal < ThreshServing, LowQ and Srxlev > ThreshX, LowP)	X	-
6.2.3.9	Inter-RAT cell reselection / From E-UTRA RRC_IDLE to 1xRTT Dormant / 1xRTT cell is	X	-

Test case	Description	FDD	TDD
	higher reselection priority than E-UTRA		
6.2.3.9a	Inter-RAT cell reselection / From E-UTRA RRC_IDLE to 1xRTT Dormant / 1xRTT cell is higher reselection priority than E-UTRA (Srxlev > ThreshX, HighP)	X	-
6.2.3.10	Inter-RAT cell reselection / From E-UTRA RRC_IDLE to 1xRTT Dormant / 1xRTT cell is lower reselection priority than E-UTRA	X	-
6.2.3.10a	Inter-RAT cell reselection / From E-UTRA RRC_IDLE to 1xRTT Dormant / 1xRTT cell is lower reselection priority than E-UTRA (Squal < ThreshServing, LowQ and Srxlev > ThreshX, LowP)	X	-
6.2.3.13	Inter-RAT cell reselection / From UTRA_Idle to E-UTRA RRC_IDLE according to RAT priority provided by dedicated signalling	X	X
6.2.3.14	Inter-RAT cell reselection / From GSM_Idle/GPRS Packet_Idle to E-UTRA / Priority of E-UTRA cells are higher than the serving cell	X	X
6.2.3.15	Inter-RAT cell reselection / From GSM_Idle/GPRS Packet_Idle to E-UTRA / Priority of E-UTRA cells are lower than the serving cell	X	X
6.2.3.16	Inter-RAT cell reselection / From GSM_Idle to E-UTRAN /based on H_PRIO criteria	X	X
6.2.3.17	Inter-RAT cell reselection / From GSM_Idle/GPRS Packet_Idle to E-UTRA / Priority E-UTRA cells	X	X
6.2.3.18	Inter-RAT cell reselection / From GSM_Idle/GPRS Packet_Idle to E-UTRA / Blacklisted E-UTRA cells	X	X
6.2.3.19	Inter-RAT cell redirection to E-UTRA cell from GSM TCH mode	X	X
6.2.3.20	Inter-RAT cell redirection to E-UTRA cell from GSM TCH mode and no suitable cell available	X	X
6.2.3.21	Inter-RAT autonomous cell reselection GPRS Packet_transfer NC0 mode to E-UTRA	X	X
6.2.3.23	Inter-RAT cell reselection from GPRS Packet_transfer to E-UTRA in CCN mode / PACKET CELL CHANGE CONTINUE	X	
6.2.3.24	Inter-RAT cell reselection from GPRS Packet_transfer to E-UTRA in CCN mode / PACKET CELL CHANGE ORDER	X	
6.2.3.31	Inter-RAT cell reselection / From UTRA_Idle (low priority) to E-UTRA RRC_IDLE (high priority) according to RAT priority provided by dedicated signalling	X	X
6.2.3.32	Inter-RAT cell re-selection / From E-UTRA RRC_IDLE to UTRA_Idle, Snonintrasearch	X	X
6.2.3.33	Inter-RAT cell reselection / From E-UTRA RRC_IDLE to UTRA_Idle / Squal based cell reselection parameters are broadcasted in E-UTRAN / UE does not support Squal based cell reselection in UTRAN	X	X
6.3.1	Inter-frequency cell reselection / From E-UTRA RRC_IDLE non-CSG cell to E-UTRA RRC_IDLE CSG cell	X	
6.3.5	Manual support for CSG ID selection	X	
6.3.6	Ignoring CSG cells in cell selection/reselection when allowed CSG list is empty or not supported	X	X
6.3.9	Manual CSG ID selection across PLMNs	X	
6.4.1	Manual CSG ID selection / Hybrid cell whose CSG ID is not in the Allowed CSG list nor Operator's list	X	
7.1.1.1	CCCH mapped to UL SCH/DL-SCH/Reserved LCID (Logical Channel ID)	X	X
7.1.1.2	DTCH or DCCH mapped to UL SCH/DL-SCH/Reserved Logical Channel ID	X	X
7.1.2.1	Correct selection of RACH parameters/Random access preamble and PRACH resource explicitly signalled to the UE by RRC/Non-contention based random access procedure	X	X
7.1.2.2	Correct selection of RACH parameters/Random access preamble and PRACH resource explicitly signalled to the UE in PDCCH Order/Non-contention based random access procedure	X	X
7.1.2.3	Correct selection of RACH parameters/Preamble selected by MAC itself/Contention based random access procedure	X	X
7.1.2.4	Random access procedure/Successful	X	X
7.1.2.5	Random access procedure/MAC PDU containing multiple RARs	X	X
7.1.2.6	Maintenance of uplink time alignment	X	X
7.1.2.7	MAC contention resolution/Temporary C-RNTI	X	X
7.1.2.8	MAC contention resolution/C-RNTI	X	X
7.1.2.9	MAC backoff indicator	X	X
7.1.3.1	Correct handling of DL assignment/Dynamic case	X	X
7.1.3.2	Correct handling of DL assignment / Semi-persistent case	X	X
7.1.3.3	MAC PDU header handling	X	X
7.1.3.4	Correct HARQ process handling/DCCH and DTCH	X	X
7.1.3.5	Correct HARQ process handling/CCCH	X	X
7.1.3.6	Correct HARQ process handling/BCCH	X	X
7.1.3.7	MAC padding	X	X
7.1.3.9	MAC reset DL	X	X
7.1.4.1	Correct handling of UL assignment/Dynamic case	X	X

Test case	Description	FDD	TDD
7.1.4.2	Correct handling of UL assignment / Semi-persistent case	X	
7.1.4.3	Logical channel prioritization handling	X	X
7.1.4.4	Correct handling of MAC control information/Scheduling requests and PUCCH	X	X
7.1.4.5	Correct handling of MAC control information/Scheduling requests and random access procedure	X	X
7.1.4.6	Correct handling of MAC control information/Buffer status/UL data arrive in the UE Tx buffer and retransmission of BSR/Regular BSR	X	X
7.1.4.7	Correct handling of MAC control information/Buffer Status/UL resources are allocated/Padding BSR	X	X
7.1.4.7a	Correct handling of MAC control information / Buffer Status / UL resources are allocated / Cancellation of Padding BSR	X	X
7.1.4.8	Correct handling of MAC control information/Buffer status/Periodic BSR timer expires	X	X
7.1.4.10	MAC padding	X	X
7.1.4.11	Correct HARQ process handling	X	X
7.1.4.12	MAC reset UL	X	X
7.1.4.13	MAC PDU header handling	X	X
7.1.4.14	Correct HARQ process handling / TTI bundling	X	X
7.1.4.15	UE power headroom reporting/Periodic reporting	X	X
7.1.4.16	UE power headroom Reporting/DL pathloss change reporting	X	X
7.1.4.18	CA/ Correct handling of MAC control information / Buffer Status / UL data arrive in the UE Tx buffer / Extended buffer size	X	
7.1.5.1	Inter-TTI PUSCH hopping by uplink grant	X	X
7.1.5.2	Predefined intra-TTI PUSCH hopping (N_sb=1)	X	X
7.1.5.3	Predefined intra-TTI PUSCH hopping (N_sb=2/3/4)	X	X
7.1.5.4	Predefined inter-TTI PUSCH hopping (N_sb=1)	X	X
7.1.5.5	Predefined inter-TTI PUSCH hopping (N_sb=2/3/4)	X	X
7.1.6.1	DRX operation/Short cycle not configured/Parameters configured by RRC	X	X
7.1.6.2	DRX operation/Short cycle not configured/DRX command MAC control element reception	X	X
7.1.7.1.1	DL-SCH transport block size selection/DCI format 1/RA type 0	X	X
7.1.7.1.2	DL-SCH transport block size selection/DCI format 1/RA type 1	X	X
7.1.7.1.3	DL-SCH transport block size selection/DCI format 1A/RA type 2/Localised VRB	X	X
7.1.7.1.4	DL-SCH transport block size selection/DCI format 1A/RA type 2/Distributed VRB	X	X
7.1.7.1.5	DL-SCH transport block size selection / DCI format 2A/ RA type 0 / Two transport blocks enabled / Transport block to codeword swap flag value set to 0	X	X
7.1.7.1.6	DL-SCH transport block size selection / DCI format 2A/ RA type 1/ Two transport blocks enabled / Transport block to codeword swap flag value set to 1	X	X
7.1.7.2.1	UL-SCH transport block size selection/DCI format 0	X	X
7.1.8.1	Periodic RI reporting using PUCCH / Category 1 UE / Transmission mode 3/4	X	X
7.2.2.1	UM RLC/Segmentation and reassembly/5-bit SN/Framing info field	X	X
7.2.2.2	UM RLC/Segmentation and reassembly/10-bit SN/Framing info field	X	X
7.2.2.3	UM RLC/Reassembly/5-bit SN/LI value > PDU size	X	X
7.2.2.4	UM RLC/Reassembly/10-bit SN/LI value > PDU size	X	X
7.2.2.5.1	UM RLC/5-bit SN/Correct use of sequence numbering	X	X
7.2.2.5.2	UM RLC/5-bit SN/Correct use of sequence numbering	X	X
7.2.2.6	UM RLC/Concatenation, segmentation and reassembly	X	X
7.2.2.7	UM RLC/In sequence delivery of upper layer PDUs without residual loss of RLC PDUs/Maximum re-ordering delay below t-Reordering	X	X
7.2.2.8	UM RLC/In sequence delivery of upper layer PDUs without residual loss of RLC PDUs/Maximum re-ordering delay exceeds t-Reordering	X	X
7.2.2.9	UM RLC/In sequence delivery of upper layer PDUs with residual loss of RLC PDUs/Maximum re-ordering delay exceeds t-Reordering	X	X
7.2.2.10	UM RLC/Duplicate detection of RLC PDUs	X	X
7.2.2.11	UM RLC/RLC re-establishment procedure	X	X
7.2.3.1	AM RLC/Concatenation and reassembly	X	X
7.2.3.2	AM RLC/Segmentation and reassembly/No PDU segmentation	X	X
7.2.3.3	AM RLC/Segmentation and reassembly/Framing info field	X	X
7.2.3.4	AM RLC/Segmentation and reassembly/Different numbers of length indicators	X	X
7.2.3.5	AM RLC/Reassembly/LI value > PDU size	X	X
7.2.3.6	AM RLC/Correct use of sequence numbering	X	X
7.2.3.7	AM RLC/Control of transmit window	X	X
7.2.3.8	AM RLC/Control of receive window	X	X
7.2.3.9	AM RLC/Polling for status	X	X
7.2.3.10	AM RLC/Receiver status triggers	X	X
7.2.3.13	AM RLC/Reconfiguration of RLC parameters by upper layers	X	X

Test case	Description	FDD	TDD
7.2.3.14	AM RLC/In sequence delivery of upper layers PDUs	X	X
7.2.3.15	AM RLC/Re-ordering of RLC PDU segments	X	X
7.2.3.16	AM RLC/Re-transmission of RLC PDU without re-segmentation	X	X
7.2.3.17	AM RLC/Re-segmentation RLC PDU/SO, FI, LSF	X	X
7.2.3.18	AM RLC/Reassembly/AMD PDU reassembly from AMD PDU segments, Segmentation Offset and Last Segment Flag fields	X	X
7.2.3.20	AM RLC/Duplicate detection of RLC PDUs	X	X
7.2.3.21	AM RLC/RLC re-establishment at RRC connection reconfiguration including mobilityControlInfo IE	X	X
7.3.1.1	Maintenance of PDCP sequence numbers/User plane/RLC AM	X	X
7.3.1.2	Maintenance of PDCP sequence numbers/User plane/RLC UM/Short PDCP SN (7 bits)	X	X
7.3.1.3	Maintenance of PDCP sequence numbers/User plane/RLC UMLong PDCP SN (12 bits)	X	X
7.3.3.1	Ciphering and deciphering/Correct functionality of EPS AS encryption algorithms/SNOW 3G	X	X
7.3.3.2	Ciphering and deciphering/Correct functionality of EPS UP encryption algorithms/SNOW 3G	X	X
7.3.3.3	Ciphering and deciphering/Correct functionality of EPS AS encryption algorithms/AES	X	X
7.3.3.4	Ciphering and deciphering/Correct functionality of EPS UP encryption algorithms/AES	X	X
7.3.3.5	Ciphering and deciphering / Correct functionality of EPS AS encryption algorithms / ZUC	X	X
7.3.3.6	Ciphering and deciphering / Correct functionality of EPS AS encryption algorithms / ZUC	X	X
7.3.4.1	Integrity protection/Correct functionality of EPS AS integrity algorithms/SNOW 3G	X	X
7.3.4.2	Integrity protection/Correct functionality of EPS AS integrity algorithms/AES	X	X
7.3.4.3	Integrity protection / Correct functionality of EPS AS integrity algorithms / ZUC	X	X
7.3.5.2	PDCP handover/Lossless handover/PDCP sequence number maintenance	X	X
7.3.5.3	PDCP handover/Non-lossless handover/PDCP sequence number maintenance	X	X
7.3.5.4	PDCP handover/Lossless handover/PDCP status report to convey the information on missing or acknowledged PDCP SDUs at handover	X	X
7.3.5.5	PDCP handover/In-order delivery and duplicate elimination in the downlink	X	X
7.3.6.1	PDCP discard	X	X
8.1.1.1	RRC/Paging for connection in idle mode	X	X
8.1.1.2	RRC/Paging for notification of BCCH modification in idle mode	X	X
8.1.1.3	RRC / Paging for connection in idle mode / Multiple paging records	X	X
8.1.1.4	RRC / Paging for connection in idle mode / Shared network environment	X	X
8.1.1.6	RRC/BCCH modification in connected mode	X	X
8.1.2.1	RRC connection establishment/Success	X	X
8.1.2.2	RRC connection establishment/Reject with wait time	X	X
8.1.2.3	RRC connection establishment/Return to idle state after T300 timeout	X	X
8.1.2.5	RRC connection establishment/0% access probability for MO calls, no restriction for MO signalling	X	X
8.1.2.6	RRC connection establishment / Non-zero percent access probability for MO calls, no restriction for MO signalling	X	X
8.1.2.7	RRC connection establishment/0% access probability for AC 0 to 9, AC 10 is barred, AC 11 to 15 are not barred, access for UE with access class in the range 11 to 15 is allowed	X	X
8.1.2.8	RRC connection establishment / Range of access barring time	X	X
8.1.2.9	RRC Connection Establishment / 0% access probability for MO calls, non-zero percent access probability for MO signalling	X	X
8.1.2.11	RRC connection establishment of emergency call	X	
8.1.2.13	RRC connection establishment / 0% access probability for MO calls, 0% access probability for MO signalling	X	X
8.1.2.14	RRC connection establishment / High speed flag	X	X
8.1.3.1	RRC connection release/Success	X	X
8.1.3.4	RRC connection release/Redirection to another E-UTRAN frequency	X	X
8.1.3.5	RRC connection release/Success/With priority information	X	X
8.1.3.6	RRC connection release/Redirection from E-UTRAN to UTRAN	X	X
8.1.3.6a	RRC connection release / Redirection from E-UTRAN to UTRAN / Pre-redirection info	X	X
8.1.3.7	RRC connection release / Redirection from UTRAN to E-UTRAN	X	X
8.1.3.8	RRC connection release / Redirection from E-UTRAN to GERAN	X	X
8.1.3.9	RRC connection release / Redirection from E-UTRAN to HRPD	X	-
8.1.3.10	RRC connection release / Redirection from E-UTRAN to 1xRTT	X	-
8.1.3.11	RRC connection release / Redirection to another E-UTRAN band	X	X
8.1.3.11a	RRC connection release / Redirection to another E-UTRAN band / Between FDD and TDD	X	X
8.1.3.12	RRC connection release / Success / With priority information / Inter-band	X	X
8.1.3.12a	RRC connection release / Success / With priority information / Inter-band / Between FDD and TDD	X	X
8.2.1.1	RRC connection reconfiguration/Radio bearer establishment for transition from RRC_IDLE to RRC_CONNECTED/Success/Default bearer/Early bearer establishment	X	X

Test case	Description	FDD	TDD
8.2.1.3	RRC connection reconfiguration/Radio bearer establishment/Success/Dedicated bearer	X	X
8.2.1.5	RRC connection reconfiguration / Radio bearer establishment for transition from RRC_IDLE to RRC_CONNECTED / Success / Latency check	X	X
8.2.1.6	RRC connection reconfiguration / Radio bearer establishment for transition from RRC_IDLE to RRC_CONNECTED / Success / Latency check / SecurityModeCommand and RRCConnectionReconfiguration transmitted in the same TTI	X	X
8.2.1.7	RRC connection reconfiguration/Radio bearer establishment/Success/SRB2	X	X
8.2.1.8	RRC connection reconfiguration / Radio bearer establishment / Success / Dedicated bearer / ROHC configured	X	X
8.2.2.1	RRC connection reconfiguration/Radio resource reconfiguration/Success	X	X
8.2.2.2	RRC connection reconfiguration/SRB/DRB reconfiguration/Success	X	X
8.2.2.3.2	CA/ RRC connection reconfiguration / SCell addition/ modification/release / Success / Inter-band CA	X	
8.2.2.4.1	CA/ RRC connection reconfiguration / SCell SI change / Success / Intra-band Contiguous CA		X
8.2.2.4.2	CA/ RRC connection reconfiguration / SCell SI change / Success / Inter-band CA	X	
8.2.2.5.1	CA/ RRC connection reconfiguration / SCell addition without UL / Success / Intra-band contiguous CA	X	X
8.2.2.5.2	CA/ RRC connection reconfiguration / SCell addition without UL / Success / Inter-band CA	X	
8.2.3.1	RRC connection reconfiguration/Radio bearer release/Success	X	X
8.2.4.1	RRC connection reconfiguration/Handover/Success/Dedicated preamble	X	X
8.2.4.2	RRC connection reconfiguration/Handover/Success/Common preamble	X	X
8.2.4.3	RRC connection reconfiguration/Handover/Success/Intra-cell/Security reconfiguration	X	X
8.2.4.4	RRC connection reconfiguration/Handover/Failure/Intra-cell/Security reconfiguration	X	X
8.2.4.5	RRC connection reconfiguration/Handover/All parameters included	X	X
8.2.4.6	RRC connection reconfiguration/Handover/Success/Inter-frequency	X	X
8.2.4.7	RRC connection reconfiguration/Handover/Failure/Re-establishment successful	X	X
8.2.4.8	RRC connection reconfiguration / Handover / Failure / Re-establishment failure	X	X
8.2.4.9	RRC connection reconfiguration/Handover/Inter-band blind handover/Success	X	X
8.2.4.10	RRC connection reconfiguration / Handover / Between FDD and TDD	X	X
8.2.4.12	RRC connection reconfiguration / Handover / Setup and release of MIMO	X	X
8.2.4.13	RRC connection reconfiguration / Handover / Success (with measurement) / Inter-band	X	X
8.2.4.13a	RRC connection reconfiguration / Handover / Success (with measurement) / Inter-band / between FDD and TDD	X	X
8.2.4.14	RRC connection reconfiguration / Handover / Failure / Re-establishment successful / Inter-band	X	X
8.2.4.14a	RRC connection reconfiguration / Handover / Failure / Re-establishment successful / Inter-band / between FDD and TDD	X	X
8.2.4.15	RRC connection reconfiguration / Handover / Failure / Re-establishment failure / Inter-band	X	X
8.2.4.15a	RRC connection reconfiguration / Handover / Failure / Re-establishment failure / Inter-band / Between FDD and TDD	X	X
8.2.4.18.2	CA/ RRC connection reconfiguration / Handover / Success / SCell release / Inter- band CA	X	
8.3.1.1	Measurement configuration control and reporting/Intra E-UTRAN measurements/Event A1	X	X
8.3.1.2	Measurement configuration control and reporting/Intra E-UTRAN measurements/Event A2	X	X
8.3.1.3	Measurement configuration control and reporting/Intra E-UTRAN measurements/Two simultaneous events A3 (intra and inter-frequency measurements)	X	X
8.3.1.3a	Measurement configuration control and reporting / Intra E-UTRAN measurements / Two simultaneous events A3 (intra and inter-frequency measurements) / RSRQ based measurements	X	X
8.3.1.4	Measurement configuration control and reporting/Intra E-UTRAN measurements/Periodic reporting (intra and inter-frequency measurements)	X	X
8.3.1.5	Measurement configuration control and reporting/Intra E-UTRAN measurements/Two simultaneous event A3 (intra-frequency measurements)	X	X
8.3.1.6	Measurement configuration control and reporting / Intra E-UTRAN measurements / Two simultaneous events A2 and A3 (inter-frequency measurements)	X	X
8.3.1.7	Measurement configuration control and reporting/Intra E-UTRAN measurements/Blacklisting	X	X
8.3.1.8	Measurement configuration control and reporting/Intra E-UTRAN measurements/Handover/IE measurement configuration present	X	X
8.3.1.9	Measurement configuration control and reporting/Intra E-UTRAN measurements/Intra-frequency handover/IE measurement configuration not present	X	X

Test case	Description	FDD	TDD
8.3.1.9a	Measurement configuration control and reporting / Intra E-UTRAN measurements / Intra-frequency handover / IE measurement configuration not present / Single Frequency operation	X	
8.3.1.10	Measurement configuration control and reporting/Intra E-UTRAN measurements/Inter-frequency handover/IE measurement configuration not present	X	X
8.3.1.11	Measurement configuration control and reporting/Intra E-UTRAN measurements/Continuation of the measurements after RRC connection re-establishment	X	X
8.3.1.11a	Measurement configuration control and reporting / Intra Frequency measurements / Continuation of the measurements after RRC connection re-establishment / Single Frequency operation	X	
8.3.1.12	Measurement configuration control and reporting / Intra E-UTRAN measurements / Two simultaneous events A3 (Inter-band measurements)	X	X
8.3.1.12a	Measurement configuration control and reporting / Intra E-UTRAN measurements / Two simultaneous events A3 (inter-band measurements) / Between FDD and TDD	X	X
8.3.1.13	Measurement configuration control and reporting / Intra E-UTRAN measurements / Periodic reporting (intra-frequency and inter-band measurements)	X	
8.3.1.13a	Measurement configuration control and reporting / Intra E-UTRAN measurements / Periodic reporting (intra-frequency and inter-band measurements) / Between FDD and TDD	X	X
8.3.1.14	Measurement configuration control and reporting / Intra E-UTRAN measurements / Two simultaneous events A2 and A3 (Inter-band measurements)	X	X
8.3.1.14a	Measurement configuration control and reporting / Intra E-UTRAN measurements / Two simultaneous events A2 and A3 (inter-band measurements) / Between FDD and TDD	X	X
8.3.1.15	Measurement configuration control and reporting / Intra E-UTRAN measurements / Inter-band handover / IE measurement configuration not present	X	X
8.3.1.15a	Measurement configuration control and reporting / Intra E-UTRAN measurements / Inter-band handover / IE measurement configuration not present / Between FDD and TDD	X	X
8.3.1.16	Measurement configuration control and reporting / Intra E-UTRAN measurements / Continuation of the measurements after RRC connection re-establishment / Inter-band	X	
8.3.1.16a	Measurement configuration control and reporting / Intra E-UTRAN measurements / Continuation of the measurements after RRC connection re-establishment / Inter-band / Between FDD and TDD	X	X
8.3.1.17.2	CA/ Measurement configuration control and reporting / Intra E-UTRAN measurements / Event A6 / Inter-band CA	X	
8.3.1.18.2	CA/ Measurement configuration control and reporting / Intra E-UTRAN measurements / Additional measurement reporting / Inter-band CA	X	
8.3.1.22.2	CA/ Measurement configuration control and reporting / Intra E-UTRAN measurements / Event A1 / Event A2 / Inter-band CA	X	
8.3.2.1	Measurement configuration control and reporting / Inter-RAT measurements / Event B2 / Measurement of GERAN cells	X	X
8.3.2.2	Measurement configuration control and reporting / Inter-RAT measurements / Periodic reporting / Measurement of GERAN cells	X	X
8.3.2.3	Measurement configuration control and reporting/Inter-RAT measurements/Event B2/Measurement of UTRAN cells	X	X
8.3.2.3a	Measurement configuration control and reporting / Inter-RAT measurements / Event B2 / Measurement of UTRAN cells / RSRQ based measurements	X	
8.3.2.4	Measurement configuration control and reporting / Inter-RAT measurements / Periodic reporting / Measurement of UTRAN cells	X	X
8.3.2.5	Measurement configuration control and reporting / Inter-RAT measurements / Periodic reporting / Measurements of E-UTRAN, UTRAN and GERAN cells	X	
8.3.2.6	Measurement configuration control and reporting / Inter-RAT measurements / Simultaneous A2 and two B2 / Measurements of E-UTRAN, UTRAN and GERAN cells	X	X
8.3.2.7	Measurement configuration control and reporting/Inter-RAT measurements/Event B2/Measurement of HRPD cells	X	-
8.3.2.8	Measurement configuration control and reporting / Inter-RAT measurements / Periodic reporting / Measurement of HRPD cells	X	-
8.3.2.9	Measurement configuration control and reporting / Inter-RAT measurements / Event B2 / Measurement of 1xRTT cells	X	-
8.3.2.10	Measurement configuration control and reporting / Inter-RAT measurements / Periodic reporting / Measurement of 1xRTT cells	X	-
8.3.3.1	Measurement configuration control and reporting/SON/ANR/CGI reporting of E-UTRAN cell	X	X
8.3.3.2	Measurement configuration control and reporting / SON / ANR / CGI reporting of UTRAN cell	X	
8.3.3.3	Measurement configuration control and reporting / SON / ANR / CGI reporting of GERAN cell	X	
8.3.3.4	Measurement configuration control and reporting / SON / ANR / CGI reporting of HRPD cell	X	-

Test case	Description	FDD	TDD
8.4.1.2	Inter-RAT handover / From E-UTRA to UTRA PS / Data	X	X
8.4.1.4	Inter-RAT handover / From E-UTRA to UTRA HSPA / Data	X	X
8.4.1.5	Inter-RAT handover / from E-UTRA to UTRA HSUPA/HSDPA / Data	X	
8.4.2.2	Inter-RAT handover / From UTRA PS to E-UTRA / Data	X	X
8.4.2.4	Inter-RAT handover / From UTRA HSPA to E-UTRA / Data	X	X
8.4.3.2	Inter-RAT cell change order / From E-UTRA data RRC_CONNECTED to GPRS / Without NACC	X	X
8.4.3.3	Inter-RAT cell change order / From E-UTRA data to GPRS / With NACC	X	
8.4.7.3	Pre-registration at 1xRTT and inter-RAT handover / CS fallback from E-UTRA RRC_IDLE to 1xRTT	X	-
8.4.7.4	Pre-Registration at 1xRTT and inter-RAT handover / CS fallback caused by addition of CS service / From E-UTRA Data to 1xRTT	X	-
8.4.7.9	Pre-registration at 1xRTT and inter-RAT Handover / Enhanced CS fallback from E-UTRA RRC_CONNECTED to 1xRTT / Extended Service Reject / MO call	X	-
8.5.1.1	Radio link failure/RRC connection re-establishment Success	X	X
8.5.1.2	Radio link failure/T301 expiry	X	X
8.5.1.3	Radio link failure/T311 expiry	X	X
8.5.1.4	Radio link failure / RRC connection re-establishment reject	X	X
8.5.1.5	Radio link failure/Radio link recovery while T310 is running	X	X
8.5.1.6	Radio link failure / T311 expiry / Dedicated RLF timer	X	X
8.5.1.7.1	CA/ No Radio link failure on Scell/ RRC Connection Continues on PCell / Intra-band Contiguous CA	X	X
8.5.1.7.2	CA/ No Radio link failure on Scell/ RRC Connection Continues on PCell / Inter-band CA	X	
8.5.2.1	Redirection to E-UTRAN / From UTRAN upon reception of RRC CONNECTION REJECT	X	X
8.5.4.1	UE capability transfer/Success	X	X
9.1.2.1	Authentication accepted	X	X
9.1.2.3	Authentication not accepted by the network, GUTI used, authentication reject and re-authentication	X	X
9.1.2.4	Authentication not accepted by the UE/MAC code failure	X	X
9.1.2.5	Authentication not accepted by the UE/SQN failure	X	X
9.1.2.6	Abnormal cases/Network failing the authentication check	X	X
9.1.3.1	NAS security mode command accepted by the UE	X	X
9.1.3.2	NAS security mode command not accepted by the UE	X	X
9.1.3.3	No emergency bearer service / NAS security mode command with EIA0 not accepted by the UE	X	X
9.1.4.2	Identification procedure/IMEI requested	X	X
9.1.5.1	EMM information procedure	X	X
9.2.1.1.1	Attach Procedure/Success/Valid GUTI	X	X
9.2.1.1.1a	Attach/Success/Last visited TAI, TAI list and equivalent PLMN list handling	X	X
9.2.1.1.1b	Attach Procedure / Success / Last visited TAI, TAI list and equivalent PLMN list handling / Single Frequency operation	X	X
9.2.1.1.2	Attach Procedure/Success/With IMSI/GUTI reallocation	X	X
9.2.1.1.7	Attach/Success/List of equivalent PLMNs in the ATTACH ACCEPT message	X	X
9.2.1.1.7a	Attach Procedure / Success / List of equivalent PLMNs in the ATTACH ACCEPT message / Single Frequency operation	X	X
9.2.1.1.9	Attach/Rejected/IMSI invalid	X	X
9.2.1.1.10	Attach/Rejected/Illegal ME	X	X
9.2.1.1.11	Attach / Rejected / EPS services and non-EPS services not allowed	X	X
9.2.1.1.12	Attach / Rejected / EPS services not allowed	X	X
9.2.1.1.13	Attach/Rejected/PLMN not allowed	X	X
9.2.1.1.13a	Attach / Rejected / PLMN not allowed / Single Frequency operation	X	X
9.2.1.1.14	Attach/Rejected/Tracking area not allowed	X	X
9.2.1.1.15	Attach/Rejected/Roaming not allowed in this tracking area	X	X
9.2.1.1.15a	Attach / Rejected / Roaming not allowed in this tracking area / Single Frequency operation	X	X
9.2.1.1.16	Attach/Rejected/EPS services not allowed in this PLMN	X	X
9.2.1.1.16a	Attach / Rejected / EPS services not allowed in this PLMN / Single Frequency operation	X	X
9.2.1.1.17	Attach/Rejected/No suitable cells in tracking area	X	X
9.2.1.1.18	Attach / Rejected / Not authorized for this CSG	X	X
9.2.1.1.19	Attach/Abnormal case/Failure due to non integrity protection	X	X
9.2.1.1.20	Attach/Abnormal case/Access barred because of access class barring or NAS signalling connection establishment rejected by the network	X	X
9.2.1.1.21	Attach/Abnormal case/Success after several attempts due to no network response	X	X
9.2.1.1.22	Attach/Abnormal case/Unsuccessful attach after 5 attempts	X	X
9.2.1.1.23	Attach/Abnormal case/Repeated rejects for network failures	X	X



Test case	Description	FDD	TDD
9.2.1.1.24	Attach/Abnormal case/Change of cell into a new tracking area	X	X
9.2.1.1.25	Attach/Abnormal case/Mobile originated detach required	X	X
9.2.1.1.26	Attach/Abnormal case/Detach procedure collision	X	X
9.2.1.2.1	Combined attach/Success/EPS and non-EPS services	X	X
9.2.1.2.1b	Combined attach / Success / SMS only	X	X
9.2.1.2.1c	Combined attach procedure / Success / CS Fallback not preferred	X	X
9.2.1.2.1d	Combined attach procedure / Success / EPS and CS Fallback not preferred / data centric UE	X	X
9.2.1.2.2	Combined attach / Success / EPS services only/ IMSI unknown in HSS	X	X
9.2.1.2.3	Combined attach / Success / EPS services only/ MSC temporarily not reachable	X	X
9.2.1.2.4	Combined attach/Success/EPS services only/CS domain not available	X	X
9.2.1.2.5	Combined attach / Rejected / IMSI in valid	X	X
9.2.1.2.6	Combined attach / Rejected / Illegal ME	X	X
9.2.1.2.7	Combined attach / Rejected / EPS services and non-EPS services not allowed	X	X
9.2.1.2.8	Combined attach / Rejected / EPS services not allowed	X	X
9.2.1.2.9	Combined attach / Rejected / PLMN not allowed	X	X
9.2.1.2.10	Combined attach / Rejected / Tracking area not allowed	X	X
9.2.1.2.11	Combined attach / Rejected / Roaming not allowed in this tracking area	X	X
9.2.1.2.12	Combined attach / Rejected / EPS services not allowed in this PLMN	X	X
9.2.1.2.13	Combined attach / Rejected / No suitable cells in tracking area	X	X
9.2.1.2.14	Combined attach / Rejected / Not authorized for this CSG	X	X
9.2.1.2.15	Combined attach / Abnormal case / Handling of the EPS attach attempt counter	X	X
9.2.2.1.1	UE initiated detach/UE switched off	X	X
9.2.2.1.2	UE initiated detach/USIM removed from the UE	X	X
9.2.2.1.3	UE initiated detach/EPS capability of the UE is disabled	X	X
9.2.2.1.4	UE initiated detach / detach for non-EPS services	X	X
9.2.2.1.6	UE initiated detach/Abnormal case/Local detach after 5 attempts due to no network response	X	X
9.2.2.1.7	UE initiated detach/Abnormal case/Detach procedure collision	X	X
9.2.2.1.8	UE initiated detach/Abnormal case/Detach and EMM common procedure collision	X	X
9.2.2.1.9	UE initiated detach/Abnormal case/Change of cell into a new tracking area	X	X
9.2.2.1.10	UE initiated detach / Mapped security context	X	X
9.2.2.2.1	NW initiated detach/Re-attach required	X	X
9.2.2.2.2	NW initiated detach/IMSI detach	X	X
9.2.2.2.14	NW initiated detach/Abnormal case/EMM cause not included	X	X
9.2.3.1.1	Normal tracking area update/Accepted	X	X
9.2.3.1.4	Normal tracking area update/List of equivalent PLMNs in the TRACKING AREA UPDATE ACCEPT message	X	X
9.2.3.1.5	Periodic tracking area update/Accepted	X	X
9.2.3.1.6	Normal tracking area update / UE with ISR active moves to E-UTRAN	X	X
9.2.3.1.8	UE receives an indication that the RRC connection was released with cause "load balancing TAU required"	X	X
9.2.3.1.9	Normal tracking area update / Correct handling of CSG list	X	X
9.2.3.1.9a	Normal tracking area update/NAS signalling connection recovery	X	X
9.2.3.1.10	Normal tracking area update / Rejected / IMSI invalid	X	X
9.2.3.1.11	Normal tracking area update / Rejected / Illegal ME	X	X
9.2.3.1.12	Normal tracking area update / Rejected / EPS service not allowed	X	X
9.2.3.1.13	Normal tracking area update/Rejected/UE identity cannot be derived by the network	X	X
9.2.3.1.14	Normal tracking area update/Rejected/UE implicitly detached	X	X
9.2.3.1.15	Normal tracking area update / Rejected / PLMN not allowed	X	X
9.2.3.1.15a	Normal tracking area update / Rejected / PLMN not allowed / Single Frequency operation	X	
9.2.3.1.16	Normal tracking area update/Rejected/Tracking area not allowed	X	X
9.2.3.1.17	Normal tracking area update / Rejected / Roaming not allowed in this tracking area	X	X
9.2.3.1.18	Normal tracking area update / Rejected / EPS services not allowed in this PLMN	X	X
9.2.3.1.18a	Normal tracking area update / Rejected / EPS services not allowed in this PLMN / Single Frequency operation	X	
9.2.3.1.19	Normal tracking area update/Rejected/No suitable cells in tracking area	X	X
9.2.3.1.20	Normal tracking area update / Rejected / Not authorized for this CSG	X	X
9.2.3.1.22	Normal tracking area update / Abnormal case / access barred due to access class control or NAS signalling connection establishment rejected by the network	X	X
9.2.3.1.23	Normal tracking area update/Abnormal case/Success after several attempts due to no network response/TA belongs to TAI list and status is UPDATED	X	X
9.2.3.1.25	Normal tracking area update/Abnormal case/Failure after 5 attempts due to no network	X	X

Test case	Description	FDD	TDD
	response		
9.2.3.1.26	Normal tracking area update/Abnormal case/TRACKING AREA UPDATE REJECT	X	X
9.2.3.1.27	Normal tracking area update/Abnormal case/Change of cell into a new tracking area	X	X
9.2.3.1.28	Normal tracking area update/Abnormal case/Tracking area updating and detach procedure collision	X	X
9.2.3.2.1	Combined tracking area update/Successful	X	X
9.2.3.2.1a	Combined tracking area update / Successful / Check of last visited TAI and handling of TAI list, LAI and TMSI	X	X
9.2.3.2.1b	Combined tracking area update / Success / SMS only	X	X
9.2.3.2.1c	Combined tracking area update / Success / CS Fallback not preferred	X	X
9.2.3.2.2	Combined tracking area update / Successful for EPS services only / IMSI unknown in HSS	X	X
9.2.3.2.3	Combined tracking area update / Successful for EPS services only / MSC temporarily not reachable	X	X
9.2.3.2.4	Combined tracking area update / Successful for EPS services only / CS domain not available	X	X
9.2.3.2.5	Combined tracking area update / Rejected / IMSI invalid	X	X
9.2.3.2.6	Combined tracking area update / Rejected / Illegal ME	X	X
9.2.3.2.7	Combined tracking area update / Rejected / EPS services and non-EPS services not allowed	X	X
9.2.3.2.8	Combined tracking area update / Rejected / EPS services not allowed	X	X
9.2.3.2.9	Combined tracking area update / Rejected / UE identity cannot be derived by the network	X	X
9.2.3.2.10	Combined tracking area update / Rejected / UE implicitly detached	X	X
9.2.3.2.11	Combined tracking area update / Rejected / PLMN not allowed	X	X
9.2.3.2.12	Combined tracking area update / Rejected / Tracking area not allowed	X	X
9.2.3.2.13	Combined tracking area update / Rejected / Roaming not allowed in this tracking area	X	X
9.2.3.2.14	Combined tracking area update / Rejected / EPS services not allowed in this PLMN	X	X
9.2.3.2.15	Combined tracking area update / Rejected / No suitable cells in tracking area	X	X
9.2.3.2.16	Combined tracking area update / Rejected / Not authorized for this CSG	X	X
9.2.3.2.17	Combined tracking area update / Abnormal case / handling of the EPS tracking area updating attempt counter	X	X
9.2.3.3.1	First lu mode to S1 mode inter-system change after attach	X	X
9.2.3.3.2	lu mode to S1 mode intersystem change / ISR is active / Expiry of T3312 in E-UTRAN or T3412 in UTRAN and further intersystem change	X	X
9.2.3.3.3	lu mode to S1 mode intersystem change / Periodic TAU and RAU / ISR activated, T34xx expired	X	X
9.2.3.3.4	First S1 mode to lu mode inter-system change after attach	X	X
9.2.3.3.5	Periodic routing area update	X	X
9.2.3.3.5a	Periodic location update	X	
9.2.3.3.6	E-UTRAN RRC connection failure / Reselection of UTRAN cell / NAS signalling to release old S1 interface connection	X	X
9.2.3.4.1	TAU/RAU procedure for inter-system cell reselection between A/Gb and S1 modes	X	X
9.3.1.1	Service request initiated by UE for user data	X	X
9.3.1.3	Service request / Mobile originating CS fallback	X	X
9.3.1.4	Service request / Rejected / IMSI invalid	X	X
9.3.1.5	Service request / Rejected / Illegal ME	X	X
9.3.1.6	Service request / Rejected / EPS services not allowed	X	X
9.3.1.7	Service request/Rejected/UE identity cannot be derived by the network	X	X
9.3.1.7a	Service request/Rejected/UE implicitly detached	X	X
9.3.1.12a	Extended service request / Rejected / CS domain temporarily not available	X	X
9.3.1.16	Service request/Abnormal case/Switch off	X	X
9.3.1.17	Service request/Abnormal case/Procedure collision	X	X
9.3.1.18	Service request / Rejected / Not authorized for this CSG	X	X
9.3.2.1	Paging procedure	X	X
9.3.2.2	Paging for CS fallback/Idle mode	X	X
9.3.2.2a	Paging for CS fallback/Connected mode	X	X
9.4.1	Integrity protection/Correct functionality of EPS NAS integrity algorithm/SNOW3G	X	X
9.4.2	Integrity protection/Correct functionality of EPS NAS integrity algorithm/AES	X	X
9.4.3	Ciphering and deciphering/Correct functionality of EPS NAS encryption algorithm/SNOW3G	X	X
9.4.4	Ciphering and deciphering/Correct functionality of EPS NAS encryption algorithm/AES	X	X
9.4.5	Integrity protection / Correct functionality of EPS NAS integrity algorithm / ZUC	X	X
9.4.6	Ciphering and deciphering / Correct functionality of EPS NAS encryption algorithm / ZUC	X	X
10.2.1	Dedicated EPS bearer context activation/Success	X	X
10.3.1	EPS bearer context modification/Success	X	X

Test case	Description	FDD	TDD
10.4.1	EPS bearer context deactivation/Success	X	X
10.5.1	UE requested PDN connectivity procedure accepted by the network	X	X
10.5.3	UE requested PDN connectivity procedure not accepted	X	X
10.6.1	UE requested PDN disconnect procedure accepted by the network	X	X
10.7.1	UE requested bearer resource allocation, accepted by the network/New EPS bearer context	X	X
10.7.2	UE requested bearer resource allocation accepted by the network/Existing EPS bearer context	X	X
10.7.3	UE requested bearer resource allocation not accepted by the network	X	X
10.7.4	UE requested bearer resource allocation/Expiry of timer T3480	X	X
10.7.5	UE requested bearer resource allocation / BEARER RESOURCE ALLOCATION REJECT message including cause #43 "unknown EPS bearer context"	X	X
10.8.1	UE requested bearer resource modification accepted by the network/New EPS bearer context	X	X
10.8.2	UE requested bearer resource modification accepted by the network/Existing EPS bearer context	X	X
10.8.3	UE requested bearer resource modification not accepted by the network	X	X
10.8.4	UE requested bearer resource modification / Cause #36 "regular deactivation"	X	X
10.8.5	UE requested bearer resource modification / BEARER RESOURCE MODIFICATION REJECT message including cause #43 "unknown EPS bearer context"	X	X
10.8.6	UE requested bearer resource modification / Collision of a UE requested bearer resource modification procedure and EPS bearer context deactivation procedure	X	X
10.8.7	UE requested bearer resource modification / Expiry of timer T3481	X	X
10.9.1	UE routing of uplinks packets	X	X
11.1.1	MT-SMS over SGs/Idle mode	X	X
11.1.2	MT-SMS over SGs/Active mode	X	X
11.1.3	MO-SMS over SGs/Idle mode	X	X
11.1.4	MO-SMS over SGs/Active mode	X	X
11.1.5	Multiple MO-SMS over SGs / Idle mode	X	X
11.1.6	Multiple MO-SMS over SGs / Active mode	X	X
12.2.1	Data transfer of E-UTRA radio bearer combinations 1, 3, 6 and 9	X	X
12.2.2	Data transfer of E-UTRA radio bearer combinations 2, 4, 7 and 10	X	X
12.2.3	Data transfer of E-UTRA radio bearer combinations 5, 6, 8, 11 and 12	X	X
12.2.4	Data transfer of E-UTRA radio bearer combination 13	X	X
12.3.1	Data transfer of E-UTRA radio bearer combinations 1, 3, 6 and 9 / MIMO	X	X
12.3.2	Data transfer of E-UTRA radio bearer combinations 2, 4, 7 and 10 / MIMO	X	X
12.3.3	Data transfer of E-UTRA radio bearer combinations 5, 6, 8, 11 and 12 / MIMO	X	X
12.3.4	Data transfer of E-UTRA radio bearer combination 13 / MIMO	X	X
13.1.1	Activation and deactivation of additional data radio bearer in E-UTRA	X	X
13.1.2	Call setup from E-UTRAN RRC_IDLE / CS fallback to UTRAN with redirection / MO call	X	
13.1.3	Call setup from E-UTRAN RRC_CONNECTED / CS fallback to UTRAN with redirection / MT call	X	
13.1.4	Call setup from E-UTRAN RRC_IDLE / CS fallback to UTRAN with handover / MT call	X	X
13.1.5	Call setup from E-UTRAN RRC_CONNECTED / CS fallback to UTRAN with handover / MO call	X	
13.1.7	Call setup from E-UTRAN RRC_IDLE / CS fallback to GSM with redirection / MT call	X	X
13.1.8	Call setup from E-UTRAN RRC_CONNECTED / CS fallback to GSM with redirection / MO call	X	X
13.1.9	Call setup from E-UTRAN RRC_IDLE / CS fallback to GSM with CCO without NACC / MO call	X	X
13.1.10	Call setup from E-UTRAN RRC_CONNECTED / CS fallback to GSM with CCO without NACC / MT call	X	X
13.1.15	Call setup from E-UTRAN RRC_IDLE / CS fallback to UTRAN with redirection / MT call / UTRAN cell is barred	X	
13.1.16	Emergency call setup from E-UTRAN RRC_IDLE / CS fallback to UTRAN with handover	X	X
13.1.17	Call setup from E-UTRAN RRC_IDLE / mobile originating 1xCS fallback emergency call to 1xRTT	X	-
13.2.1	RRC connection reconfiguration/E-UTRA to E-UTRA	X	X
13.3.1.1	Intra-system connection re-establishment/Radio link recovery while T310 is running	X	X
13.3.1.2	Intra-system connection re-establishment/Re-establishment of a new connection when further data is to be transferred	X	X
13.3.1.3	RRC connection reconfiguration / Full configuration / DRB establishment	X	X
13.3.2.1	Inter-system connection re-establishment / E-UTRAN to UTRAN / Further data are to be transferred	X	X
13.3.2.2	Inter-system connection re-establishment / E-UTRAN to GPRS / Further data are to be	X	X

Test case	Description	FDD	TDD
	transferred		
13.4.1.2	Inter-frequency mobility/E-UTRA to E-UTRA packet	X	X
13.4.1.3	Intra-system mobility/ E-UTRA FDD to E-UTRA TDD to E-UTRA FDD packet	X	X
13.4.1.4	Inter-band mobility/ E-UTRA to E-UTRA packet	X	X
13.4.1.5	RRC connection reconfiguration / Handover / Full configuration / DRB establishment	X	X
13.4.2.1	Inter-system mobility/ E-UTRA to UTRA packet	X	X
13.4.2.4	Inter-system mobility/ Service based redirection from UTRA to E-UTRA	X	X
13.4.2.5	Inter-system mobility/ Service based redirection from GSM/GPRS to E-UTRA	X	
13.4.4.1	Pre-registration at 1xRTT and Cell reselection / 1x Zone Registration	X	-
13.4.4.5	Pre-Registration at 1xRTT / Power Down Registration	X	-
14.1	ETWS reception in RRC_IDLE state / Duplicate detection	X	
14.2	ETWS reception in RRC_CONNECTED state / Duplicate detection	X	
18.1.1	PWS reception in RRC_IDLE state / Duplicate detection	X	-
18.1.2	PWS reception in RRC_CONNECTED state / Duplicate detection	X	-
18.1.3	PWS reception in RRC_CONNECTED State/Power On	X	-

The Test Suite in TTCN3 is contained in multiple ASCII files which accompany the present document.

---

## Annex B (informative): Style Guides

### B.1 Introduction

This annex is based on the style guide given in TS 34.123-3 [7], annex E but the language for UE conformance tests is TTCN-3.

---

### B.2 General Requirements for TTCN-3 Implementations

The TTCN-3 implementation for UE conformance tests shall be based on the following general design considerations:

- Even though it is not reflected in TTCN-3 any more in UE conformance tests ASPs and PDUs will still be distinguished. This has impact on type definitions and naming conventions.
- In general, templates for UE conformance tests shall be separated for sending and receiving.
- Modified templates shall not be modified again.
- All local variables shall be declared at the beginning of a function; the order of declarations is:
  - local constants
  - local variables
  - local timers
- The purpose of the test case implementation is conformance testing.
- The common RAN5 approval process needs to be considered.

The TTCN-3 implementation for UE conformance tests shall fulfil the following requirements.

The implementation shall:

- follow ES 201 873-1 [13] (TTCN-3 Core Language) and ES 201 873-4 [27] (TTCN-3 Operational Semantics);
- be independent from interface specifications like TRI (ES 201 873-5 [28]) and TCI (ES 201 873-6 [29]) as well as from proprietary approaches;
- not use or rely on tool dependent features;
- support maintainability and extendibility;
- follow the naming conventions as defined below.

Further requirements:

- Usage of external functions should be avoided.
- Type definitions:
  - Existing ASN.1 type definitions contained in protocol specifications are imported from the respective standards. All other type definitions shall be done within TTCN-3.

## B.3 Naming Conventions

Even though these are being used for TTCN-3 the naming conventions provided in the present document are mainly backward compatible to TTCN-2 as defined in TS 34.123-3 [7].

### B.3.1 Prefixes and Restrictions for TTCN-3 Objects

**Table B.3.1: Prefixes used for TTCN-3 objects**

TTCN object	Initial Letter	Prefix/ Postfix	Comment
TTCN module	upper case	(none)	
TTCN group	upper case	(none)	
function parameter	upper case	p_	
function running on a component	upper case	f_	
local function (tree) not to be used by other modules	upper case	fl_	local function not to be used by other modules
external function	upper case	fx_	
altstep	upper case	a_	(including defaults)
test case selection expression			name as specified in TS 36.523-2 [2] shall be used
global constant	upper case	tsc_	(see note 1)
local constant	upper case	const_	local constant being defined in a function
Enumerated		(none)	there are no restrictions regarding enumerated types
type definition	upper case	_Type	(see note 7)
local variable	upper case	v_	(see note 6)
global (component) variable	upper case	vc_	(see note 2)
port type	upper case		
port name	upper case		
local timer	upper case	t_	
ASP template	upper case	cas_ cads_ car_ cadr_	send ASP modified (derived) send ASP receive ASP modified (derived) receive ASP
PDU template	upper case	cs_ cds_ cr_ cdr_	send PDU modified (derived) send PDU receive PDU modified (derived) receive PDU (see note 3)
CM template	upper case	cms_ cmr_	send coordination message receive coordination message
Template (neither ASP nor PDU nor CM)	upper case	cs_ cds_ cr_ cdr_ crs_	send template modified (derived) send template receive template modified (derived) receive template templates for IEs used in both directions (see note 5)
test suite parameter (PICS)	upper case	pc_	
test suite parameter (PIXIT)	upper case	px_	
test case		TC_	(see note 4)

<p>NOTE 1: Global constants may be defined differently in imported modules (e.g. without any prefix and with lower case initial letter).</p> <p>NOTE 2: Global variables or timers are those defined within the TTCN-3 components. They are visible to all the functions run in the component.</p> <p>NOTE 3: Base template may have a second prefix:</p> <ul style="list-style-type: none"><li>- 508: PDU as defined in TS 36.508 [3];</li><li>- 108: PDU as defined in TS 34.108 [8].</li></ul> <p>NOTE 4: Test case names will correspond to the clause in the prose that specifies the test purpose. E.g. TC_8_1.</p> <p>NOTE 5: Applicable only in case of "quasi-constant" definitions, e.g. to define a (constant) random pattern to be used for sending and receiving when the UE is configured in loopback mode.</p> <p>NOTE 6: Counter variables do not need to have a prefix.</p> <p>NOTE 7: Exceptions for type definitions:</p> <ul style="list-style-type: none"><li>- ASP names are fully upper case letters and typically have postfix "_REQ", "_CNF" or "_IND".</li><li>- RRC protocol type definitions are extracted and imported from TS 36.331 [19]/TS 25.331 [36] and are therefore out of scope.</li><li>- NAS protocol type definitions follow the names provided in the tabular notion of the standards and therefore do not have a "_Type" postfix.</li></ul>
--

## B.3.2 Void

## B.3.3 Void

## B.3.4 Identifiers consisting of more than one Name

When identifiers are a concatenation of several words the words shall start with capital letters:

e.g.: "px" + "Cell" + "A" + "Cell" + "Id" -> pX\_CellACellId.

Further details are described in TS 34.123-3 [7], clause E.2.1.

---

# B.4 Implementation Issues

## B.4.1 Control part

Even though the control part may not be used in a test campaign but be overruled by the test management system it is used to provide the following information:

- All test cases contained in the test suite.
- For each test case:
  - Test case selection expression.

For maintenance reasons it shall be possible to generate the control part automatically by an appropriate tool.

## B.4.2 Top Level Test Case Definitions

The top level test case definitions run on the MTC exclusively. The tasks of these test case definitions are generally the same for each test case:

- Start guard timer.
- Create PTCs.
- Connect PTCs.
- Start PTCs.

- Wait for PTCs having finished.

Additionally the MTC may host the upper tester but this is left open to implementation.

For maintenance reasons it shall be possible to generate the top level test case definitions defined for the MTC automatically by an appropriate tool. To achieve this, the name of a function to be started on particular PTC need derived from the test case name:

e.g. the function for PTC\_A in test case TC\_XX\_YY\_ZZ shall be f\_TC\_XX\_YY\_ZZ\_A.

Cells are created in an off-state in the preambles of the corresponding PTCs while UE is in the switched off-state.

## B.4.3 Inter Component Communication

Communication between PTCs or PTCs and the MTC can be done by messages or by build-in mechanisms as *done* and *kill*. For maintenance reasons and extendibility the inter component communication shall be encapsulated by TTCN-3 implementation.

## B.4.4 Encoding Information

For UE conformance tests several encoding rules need to be applied by the TTCN-3 codec. Even though the codec is out of scope of the present document there are aspects with impact on TTCN-3 implementation depending on different type definitions.

**Table B.4.4-1**

Type definitions	Encoding
ASN.1 types used for RRC signalling	ASN.1 PER
ASN.1 types used by NAS protocols	ASN.1 BER
NAS types	Tabular notated (see note)
SMS Types	Tabular notated (see note)
DRB types	Tabular notated (see note)
DHCPv4 types	Tabular notated (see note)
ICMPv6 types	Tabular notated (see note)
GERAN types	Tabular notated (see note)
GPRS Padding	see TS 34.123-3 [7], clause 6.10.2.9.1
GSM Spare Padding	see TS 34.123-3 [7], clause 6.10.2.9.2
LowHigh Rule	see TS 34.123-3 [7], clause 6.10.2.9.3
SACCHSysInfo Spare Padding	see TS 34.123-3 [7], clause 6.10.2.9.5
TTCN-3 types not used at the air interface: <ul style="list-style-type: none"> <li>- Configuration of system simulator</li> <li>- Coordination between components</li> <li>- Types used internally in TTCN-3</li> </ul>	(no specific encoding required)
NOTE: Tabular notated is performed by concatenation of all the present fields in the TTCN-3 template.	

Encoding information may be provided and supported in TTCN-3 by grouping of type definitions and using the *encode* attribute.

## B.4.5 Verdict Assignment

In general the following rules shall be applied.

**Table B.4.5-1: Rules for verdict assignment**

Verdict	Rule
<b>Pass</b>	shall be assigned for each step defined in the prose of the test case
<b>Fail</b>	shall be assigned when there is a non-conformant signalling by the UE within the test body
<b>Inconc</b>	shall be assigned outside the test body and when it is not unequivocal whether a misbehaviour is caused by non-conformity of the UE signalling
<b>Error</b>	In case of obvious programming or parameterisation errors (e.g. missing <i>case</i> in a <i>select</i> statement)



### B.4.5.1 PASS verdict assignment

The PASS verdicts are assigned by test cases or test case specific functions.

For generic test procedures as specified in 36.508 cl. 6.4.2, the preliminary pass is assigned directly after the procedure if all described in the procedure UL messages have been successfully received; this allows re-usage of these procedures for other purposes.

### B.4.5.2 FAIL or INCONC verdict assignment

The verdict FAIL or INCONC can be assigned in test cases, in the test case-specific function, in the common functions and in the default behaviour.

Test case or test case-specific function:

In normal cases the common function `f_EUTRA_SetVerdictFailOrInconc` shall be used to assign FAIL or INCONC depending on whether it is in the test body or outside of the body.

An exception is made in the UE capability test cases: TC 8.4.5.1 in 3GPP TS 36.523-1 [1] and TC 8.1.5.7 in 3GPP TS 34.123-1 [2]: the function `f_SetVerdict` is used in the test body to assign a FAIL verdict without stopping the execution of the test case.

If in test cases a verdict FAIL shall be assigned for watchdog timer timeouts this needs to be done explicitly.

Common Functions:

The majority of the common functions have no verdict assignment. If a verdicts assignment is required in some common functions, the common function `f_EUTRA_SetVerdictFailOrInconc` shall be used to assign FAIL or INCONC.

As an exception in the altstep `a_EUTRA_RacingCond_AwaitRrcMessage` an INCONC is assigned when the RRC message and the L1/MAC indication are in the wrong order.

### B.4.5.3 Verdict assignment in default behaviour

The default behaviour handles all events not being handled in test cases or functions. Whether the verdict FAIL or INCONC to be assigned in the default behaviour it depends very much on the port where the event occurs.

**Table B.4.5.3-1: Verdict assignment in default behaviour upon test ports**

Test port	Message	Comment	Verdict
SYS	SYSTEM_CTRL_CNF	unexpected confirmation	INCONC
SYSIND	SYSTEM_IND: Error indication	unspecific error at SS	INCONC
	SYSTEM_IND: MAC indication	(see note 1)	FAIL in the test body INCONC outside the test body
	SYSTEM_IND: L1 indication	RachPreamble, SchedReq, UL_HARQ may be repeated by the UE in case of transmission errors (see note 1)	INCONC
SRB	SRB_COMMON_IND	Any unexpected L3 signalling (see note 3)	FAIL in the test body INCONC outside the test body
NASCTRL	NAS_CTRL_CNF	unexpected confirmation	INCONC
DRB	DRB_COMMON_IND	L2 and combined tests (see note 2)	FAIL in the test body INCONC outside the test body
		pure signalling tests (see note 2)	INCONC
UT	UT_COMMON_CNF	unexpected confirmation	INCONC
NOTE 1: L1/MAC indications need to be enabled by the test case therefore they occur only when being relevant for the test case.			
NOTE 2: L2 and combined tests can be distinguished from pure signalling tests by additional global information controlled by f_EUTRA_TestBody_Set.			
NOTE 3: Layer 3 signalling by definition covers NAS and RRC signalling i.e. in general unexpected RRC messages will cause a FAIL in the body of any NAS test case as well as unexpected NAS messages will cause a FAIL in the body of any RRC test case.			

**Table B.4.5.3-2: Verdict assignment in default behaviour when time-out**

Timeout	Comment	Verdict
any timer	unspecific timeout (see note)	INCONC
NOTE: Local timers of test cases or functions cannot be distinguished in the default behaviour.		

## B.4.6 Default Behaviour

As experience from UMTS conformance tests there shall be one standard default behaviour for each component.

The following rules shall be applied:

- The standard default behaviour is activated during initialisation of the respective component. In normal cases a TTCN writer does not need to care about the default.
- In general there is only one default behaviour activated (i.e. the standard default behaviour).
- The standard default behaviour shall cover all ports and timers of the component.
- Whenever possible deviations from the standard default behaviour shall be implemented locally rather than by introducing a new default behaviour.

If for exceptional cases the standard default behaviour needs to be replaced by another default behaviour or another default behaviour needs to be activated on top, the TTCN writer is responsible:

- to avoid side effects;
- to restore the standard behaviour.

## B.4.7 Templates for Sending and Receiving

Templates used for sending and receiving shall be separated in general:

- A template shall be either for sending or for receiving; this shall be reflected in the prefix of the identifier.
- Send templates shall use no receive templates and vice versa.
- All parameters of a send template shall be restricted to:
  - values;
  - template (value);
  - template (omit).
- Parameters of receive templates may allow wildcards. They can be:
  - values;
  - unrestricted template parameters;
  - template parameters restricted to be present.
- The only exception to the above rule is for "quasi-constant" definitions, as described in note 5 of table B.3.1. Otherwise, even when the same data is expected for sending and receiving templates, there shall be different templates and the following rule shall be applied.
- The receive template is assigned the send template e.g.:
  - template My\_Type cr\_Template := cs\_Template
- This results in separate definitions for sending and receiving and improves maintainability.

NOTE 1: For maintenance reasons, a send template shall never be derived from a receive template; and also a receive template shall never be assigned to a send template.

NOTE 2: When a send template is assigned to a receive template, the formal parameters of the receive template must follow the rules of send templates (i.e. it shall only contain 'template (value)', 'template (omit)' or values only).

## B.4.8 Logging

In general no explicit log statements shall be used. As an exception log may be used to report unexpected situations in TTCN-3 like fatal programming error.

### B.4.8.1 Prose Step Numbers

Informative comments containing the prose steps defined in 36.523-1 should be implemented according to the following guidelines:

- They relate to the Expected Sequence steps in the prose
- They should not be placed in common functions
- They should only be placed in functions containing the test case body
- They should always start with `//@siclog`
- They should always finish with `siclog@`
- For single steps they should be in the form `//@siclog "Step 1" siclog@`
- For multiple steps (where several steps are completed in a common function), they should be in the form `//@siclog "Steps 1 - 3" siclog@` - i.e. Steps, space, first number, space, dash, space, second number

- They should be placed as close as possible, but always BEFORE, the line send/receive/function call
- The step number should also be included in any pass/fail verdict specified in the test case body
- If the step is listed as Void (or a group of steps) in the expected sequence, include the word Void in the comment.

Therefore the format of the comment should be:

```
//@siclog "Step[s] X [- Y] [Void]" siclog@
```

## B.4.9 Top level comments

No restriction is specified for the top level comments.

## B.4.10 Mapping of DRBs

LTE DRBs are mapped in TTCN according to the following rules:

- DRB1 is exclusively reserved for the default DRB and hence is always AM
- additional DRBs (AM or UM) may be assigned from DRB2 onward in any order
- there shall be no reconfiguration of a DRB from AM to UM or vice versa (unless a test case explicitly requires this); this especially means that DRB1 is never reconfigured to UM
- in general at the SS all DRBs needed by a test case may be configured at the beginning of the test case.

---

## B.5 Modularisation

Even though there are no specific rules how to apply modularisation in general some principles can be defined:

- Maintainability and extendibility:
  - Maintainability and extendibility are essential for definition of the modular structure.
- Granularity of modules:
  - Cyclic imports are forbidden in TTCN-3; this has impact on the extendibility:
    - The granularity of modules shall not be too small.
  - Too big modules are hard to handle and may cause increase of compilation time:
    - The granularity of modules shall not be too rough.

NOTE: These are only vague principles since there is no way to define what small or huge modules are.

- General module structure:
  - The following modularisation can be applied independent from the internal structure:
    - Type definitions: TTCN-3, ASN.1.
    - Component definitions.
    - Common Templates: component dependent, component independent.
    - Common behaviour: MTC, PTCs.
    - Test case specific templates.
    - Test case specific behaviour.

- Whether or how these module groups can further be sub-divided is implementation dependent and therefore out of scope of the present document.

---

# Annex C (informative): Design Principles

## C.1 ASP Design

All ASPs consist of a common part (defined as a TTCN-3 type) and a specific part.

All ASPs sent by the SS include timing information (SFN, subframe number) in the common part.

Only one ASP is defined per direction per port, but this ASP may contain a union of several sub-ASPs in the specific part.

In general a small number of common ASPs cover all functionality, although other ASPs may be introduced to simplify TTCN-3 implementation and improve readability. Recurrent SS changes, such as power level changes, security activation and MAC scheduling are handled in dedicated ASPs. In addition, special purpose ASPs are used to control special behaviour, for example in L2 tests.

Configuration ASPs re-use ASN.1 definitions defined in the core specs.

No encoding rules are specified for the configuration ASPs; how they are encoded is left up to the SS implementation.

Configuration ASPs are 'procedure-based', rather than 'protocol layer-based' and reflect the state transitions of the SS. The same ASPs are used for reconfiguration and for initial configuration. In the case of reconfiguration the semantics of omit is to keep the configuration as it is; therefore when an IE in a configuration may be left out this is done e.g. by setting the respective field to a special value "None".

Data ASPs for sending/receiving peer-to-peer PDUs and user data all have different ASPs for the different SAPs.

The common part includes (at least):

- Timing Info:
  - SFN.
  - Subframe number (optional).
  - Which timing to use will depend on the test procedure and ASP purpose.
- Control Info:
  - Confirmation Flag.

The RRC ASN.1 IEs used in the specific part of the configuration ASPs:

- are imported using the granularity at the channel structure level or below;
- allow the ASP to be organised according to SS requirements;
- have a name that relates to SS configuration.

The SS specific IEs used in the specific part of the configuration ASPs (i.e. those elements not imported from the RRC ASN.1):

- use a naming convention such that they are easily distinguishable from the RRC ASN.1 IEs;
- are defined in TTCN-3 (i.e. not in ASN.1).

---

## C.2 SS State Model

Figure C.2 shows the basic SS state model. It is basic in the sense that internally the SS may have more states; however, (re)configuration actions (state transitions in the model) should cause the SS to transit between the states defined below.

The following assumptions have been made about this state model:

- It presents a model of states in scope of a single cell. Hence, all configuration activities shall be performed in scope of a single cell.
- It depicts only SS states and SS (re)configuration actions between these states:
  - It does not show events which may trigger state transitions, e.g. L3 messages or procedures - i.e. it is test case and L3 procedure agnostic.
  - It does not show any peer-to-peer (i.e. between SS and UE) messages.
- Triggers for state transitions are always SS configuration messages (ASPs) coming from the test suite:
  - L2 messages coming from the UE can only trigger internal SS sub-state transitions and semi-autonomous procedures.
- L1 and L2 procedures (e.g. random access procedure, scheduling, security activation steps) are semi-autonomously handled by the SS and after being pre-configured do not require interaction with the test case:
  - The majority of test cases do not need to worry about e.g. RA procedure and letting the SS handle it would greatly simplify test case definition and implementation.
  - There may be stringent time requirements in case of some procedures that can be hard to meet in a generic way in the test suite.
  - Semi-autonomous procedures should be flexibly configurable and should have a "manual" mode in which they are handled by the test suite in order to enable testing them. What is the desired level and way of control is FFS.

Most states are stationary states, i.e. the SS can stay in them for a long time or, after performing some procedures, returns to these states. However, there is one state (indicated by dashed lines) which is part of the AS security activation procedure and is transitional, i.e. the SS can only stay in it for a short time until a transition to the next stationary state is triggered.

To make the diagram more readable, a separate state called *ANY\_STATE* has been introduced, together with some transitions. It shows which transitions are allowed at any point of time in any state.

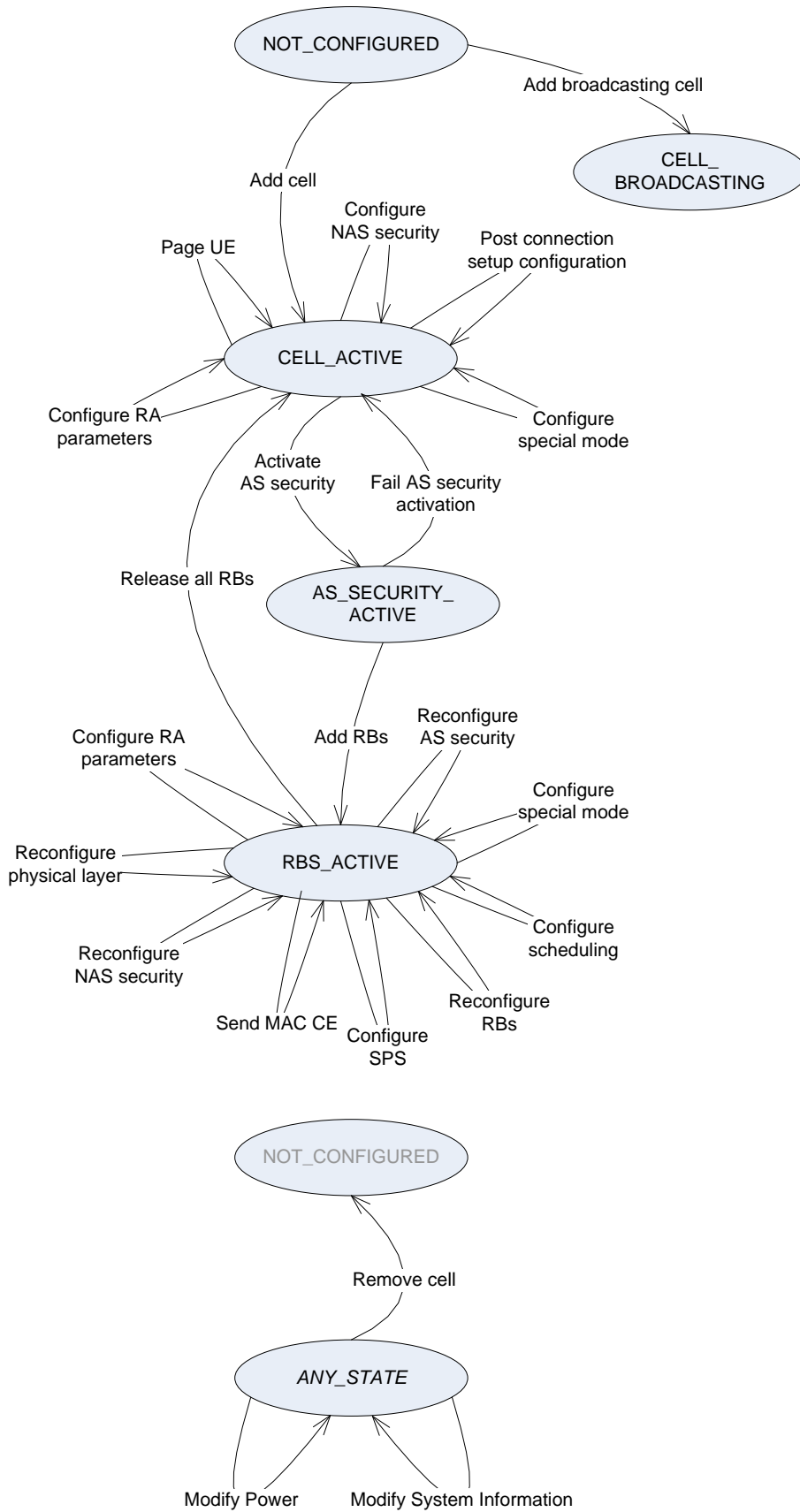


Figure C.2-1: Basic SS state model



Description of states.

**Table C.2-1: Description of states**

<b>State</b>	<b>Description</b>
NOT_CONFIGURED	The cell does not exist (is not configured) in the SS
CELL_BROADCASTING	Physical DL channels and signals configured Initial cell configuration done: freq, BW, antennas, MIMO mode, power, etc. Transport and logical channels configured for SI broadcast Cell is broadcasting SI and downlink signals NOTE 1: This type of cell is needed only to serve as a neighbouring cell for measurement purposes, where full cell configuration does not need to be specified. There is no need to be able to promote a broadcasting cell to a full cell. NOTE 2: It is currently open whether a separate cell type with limited PRACH/RACH Rx capability is needed - this depends on whether a justified use case is defined for such a cell type.
CELL_ACTIVE	Cell configured to send and receive data from UE (fully functional) SRB0 defined (default configuration specified in TS 36.508 [3]) SRB1 defined (default configuration specified in TS 36.508 [3])
AS_SECURITY_ACTIVE	The SS has AS security (integrity protection and ciphering) active NOTE 3: The SS needs to autonomously take care of a temporary state in which integrity protection is applied to an outgoing SMC message, but ciphering is not.
RBS_ACTIVE	SRB2 and/or DRBs are configured for the UE (in addition to SRB0 and SRB1)
ANY_STATE	Represents any of the above states (except NOT_CONFIGURED)