3GPP TSG RAN Meeting #28 **RP-050278**

Quebec, Canada, 1 - 3 June 2005

Title **CRs to 34.123-3 (Prose part not Annex A) for approval**

Source **3GPP TSG RAN WG5 (Testing)**

Agenda Item **7.6.5**

WG Tdoc	Spec	CR	R	Cat	Rel	Curr Ver	Title	Work Item
R5-050639	34.123-3	1334	-	F	Rel-5	5.0.0	Correction to specification version references	TEI
R5-050955	34.123-3	1335	-	F	Rel-5	5.0.0	Modifying AT Commands, ASPs, TSOs and PIXITs	TEI
R5-050975	34.123-3	1336	-	F	Rel-5	5.0.0	HSDPA ASP Modification	TEI
R5-050980	34.123-3	1337	-	F	Rel-5	5.0.0	Modifying G_L2_SYSINFO_REQ ASP	TEI
R5-050983	34.123-3	1338	-	F	Rel-5	5.0.0	CR to 34.123-3 Rel-5: Addition of a new ASP required for test case tc_8_1_7_1d	TEI

3GPP TSG-RAN5 Meeting #27
Bath, UK, 25th – 29th April 2005

Tdoc ⌘R5-050639

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-3** **CR** **1334** ⌘ **rev** **-** ⌘ Current version: **5.0.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction to specification version references
Source:	⌘	3GPP TSG RAN WG5 (Testing)
Work item code:	⌘	TEI
Date:	⌘	12/04/2005
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 *(GSM Phase 2)*
R96 *(Release 1996)*
R97 *(Release 1997)*
R98 *(Release 1998)*
R99 *(Release 1999)*
Rel-4 *(Release 4)*
Rel-5 *(Release 5)*
Rel-6 *(Release 6)*

Reason for change:	⌘	T1#26 discussed about the applicable specification version references mentioned in 34.123-3. There was no clear conclusion to the discussion but this CR proposes to align the references to the ones used in TS 34.121.
Summary of change:	⌘	• "later than R99" references replaced with "Rel-4 or later" • "later than r4" references replaced with "Rel-5 or later"
Consequences if not approved:	⌘	Unclear specification.

Clauses affected:	⌘	Table of Contents, 6.12, 7.3, 8.2, 8.3, 8.11a

Other specs affected: ⌘	Y	N		⌘
		X	Other core specifications	
		X	Test specifications	
		X	O&M Specifications	

Other comments:	⌘	Affects the TTCN, the comments will have to be updated in some of the ASN.1 definitions.

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm.
Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be

downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

6.12 DCH with HS-DSCH model (FDD, ~~later than r4~~Rel-5 or later)

The test model illustrates the relationship between various channels from logical channels to physical channels. All DCH are associated with a single HS-DSCH.

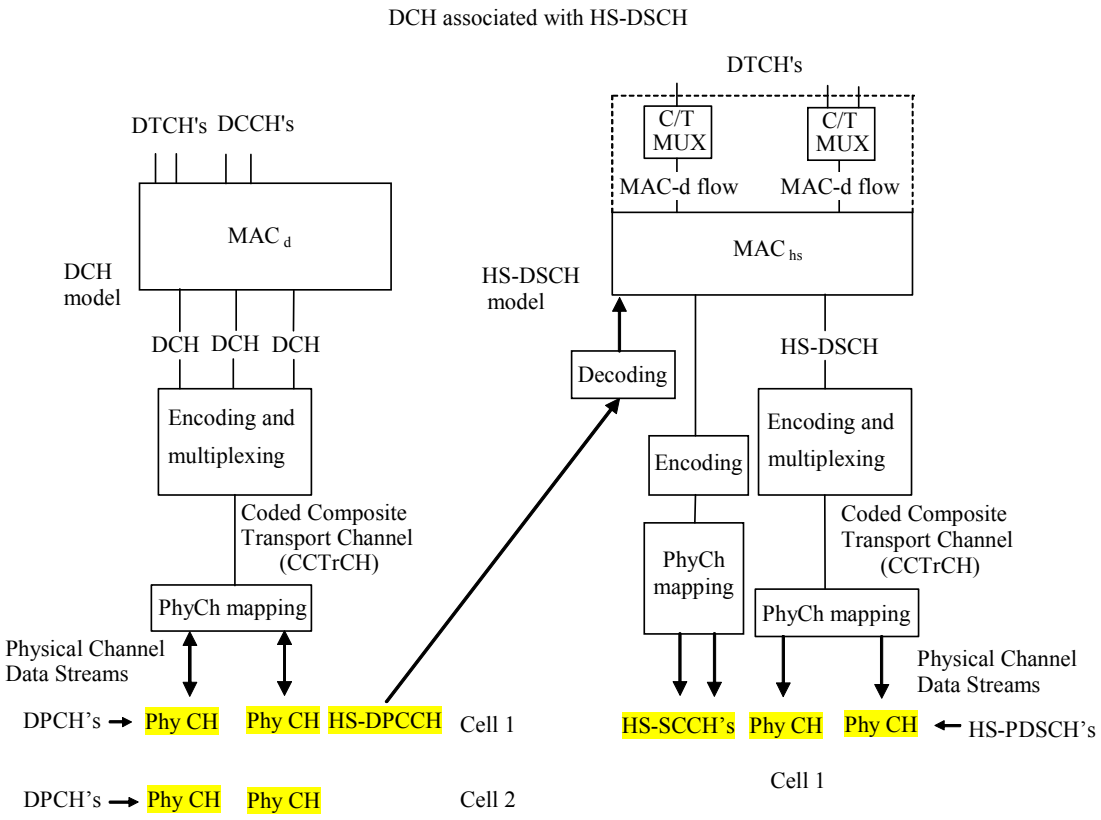

Figure 1: Associated DCH with HS-DSCH model

Associating DCH with HS-DSCH, the model enables in the SS:

- to define MAC-hs and multiplexing of logical channels DTCHs onto MAC-d flows;
- to configure HS-DSCH transport channel and MAC-d flows;
- to configure HS-PDSCHs and HS-SCCHs;
- to define the H-RNTI value.

7 PCO and ASP definitions

7.1 NAS PCO and ASP definitions

7.1.1 NAS PCO Definitions

Table 1: Dc PCO Type Declarations

PCO Type Declarations	
PCO Type	Dc_SAP
Role	LT
Comments	The PCO type for NAS testing

Table 2: Dc PCO Declarations

PCO Declarations	
PCO Name	Dc
PCO Type	Dc_SAP
Role	LT
Comments	Carry transmission and reception of NAS messages

7.1.2 Primitives used at Dc PCO

The Dc PCO is used to transmit and receive NAS (MM, CC, SM, SS) messages. Two categories of primitives are operated at the Dc PCO:

- RRC_DataReq for transmission of a NAS PDU;
- RRC_DataInd for reception of a NAS PDU.

These primitives are declared in TTCN tabular form, see table 17.

Table 3: Primitives used at the Dc PCO

Primitive	Parameters	Use
RRC_DataInd	Cell identity INTEGER (-31 ... 32) LogicChGSM SapId CN domain id START NAS message	The ASP is used to indicate the receipt of a NAS message using acknowledged operation
RRC_DataReq	Cell identity INTEGER (-31 ... 32) LogicChGSM SapId CN domain id NAS message	The ASP is used to request the transmission of a NAS message using acknowledged operation

The RB Identity and CN domain parameters defined in the primitives are mandatory for UTRAN and not applicable for GERAN.

The START parameter is mandatory in INITIAL DIRECT TRANSFER; each time when it is received the new START shall be downloaded to the SS to reinitialize counters-C and counters-I.

The LogicChGSM and SapId parameters are mandatory for GERAN and not applicable for UTRAN. They are defined because they may be used for future TTCN test cases.

Except the initial, uplink and downlink direct transfer procedures, the NAS TTCN specification uses the TTCN test steps to realize all RRC functions for testing. The single layer test concept is kept for the NAS tests.

A simple RRC emulation shall be maintained for the NAS tests. It has four functions:

- Emulate the three direct transfer procedures;
- Convert the NAS downlink messages defined in 3GPP TS 24.008 [**Error! Reference source not found.**] in table format to the NAS message in ASN.1 octet string specified in 3GPP TS 25.331 [**Error! Reference source not found.**]. Convert the NAS uplink message in the reverse way;
- PER encoding and decoding;
- Have the integrity protection.

RB3 and RB4 are specifically used for the NAS signalling. When an uplink message entered the receiving buffer at AM-SAP from the RLC emulation, either an RRC test step if running will take it out; or the RRC emulation if running will pick the received message from the buffer. Activation of any RRC test steps and activation of any NAS test steps at the same time shall be excluded in TTCN (no concurrency between them).

7.2 Ut PCO and ASP definitions

7.2.1 Ut PCO Declarations

The Ut PCO is served as the interface to the UE EMMI for remote control of operations, which have to be performed during execution of a test case such as to switch the UE on/off, initiate a call, etc.

Table 4: Declaration of the uppertester PCO type

PCO Type Declarations	
PCO Type	MMI
Role	UT
Comments	The PCO type for MMI or EMMI of the upper tester

Table 5: Declaration of the Ut PCO

PCO Declarations	
PCO Name	Ut
PCO Type	MMI
Role	UT
Comments	Carry transmission commands and reception of results for the upper tester

7.2.2 Primitives used at Ut PCO

The Ut PCO is used to indicate to the upper tester actions and to receive the acknowledgement of these actions. The AT commands are used wherever the suitable commands exist within 3GPP TS 27.007 [**Error! Reference source not found.**], 3GPP TS 27.005 [**Error! Reference source not found.**] and 3GPP TS 27 060 [**Error! Reference source not found.**]. An MMI command is used, when AT commands does not exit for the action to performed. The primitives used at the Ut PCO, are declared in TTCN tabular form, see the table 17.

Table 6: Primitives used at the Ut PCO

Primitive	Parameters	Use
AT_CmdReq	Command: IA5String SMS_BlockMode: HEXSTRING	Request an AT command to the upper tester.
AT_CmdInd	Command: IA5String SMS_BlockMode: HEXSTRING	Indication of a result from the upper tester.
AT_CmdCnf	Result: BOOLEAN ResultString: IA5String SMS_BlockMode: HEXSTRING	Return a positive or negative result from the command previously sent. Both the boolean result and String parameter are optional.
MMI_CmdReq	Command: IA5String	Request a command to the upper tester.
MMI_CmdCnf	Result: BOOLEAN ResultString: IA5String	Return a positive or negative result from the command previously sent. The String parameter is optional.

The AT_CmdReq primitive for sending AT commands is mostly used to trigger electronically an uplink access, such as initiating of a call, attaching or detaching, starting packet data transfer etc. The MMI_ primitive is defined mainly for observation of some test events via a test operator, such as checking DTMF tone or checking called party number, etc.

The AT_CmdInd primitive for receiving AT commands is mostly used to transfer unsolicited result codes from the UE to the lower tester.

The SMS_BlockMode parameter is used to control and observe the Block mode procedure for SMS. This parameter is not yet used; it is defined for future development. The Command and SMS_BlockMode parameters are mutually exclusive

For the Command in the AT_CmdReq and AT_CmdInd primitives, the verbose format is used as defined in 3GPP TS 27.007 [**Error! Reference source not found.**]. For the Command in MMI_CmdReq, just a descriptive IA5 string line, like "Check DTMF tone" is used.

7.3 RRC PCO and ASP definitions

7.3.1 AM/UM/TM PCO and ASP definitions

7.3.1.1 SAP and PCO for data transmission and reception

Table 7: Declaration of the RRC PCO Type

PCO Type Definition	
PCO Type	DSAP
Role	LT
Comment	DATA transmission and reception

Table 8: PCO TM declaration

PCO Type Definition	
PCO Name	TM
PCO Type	DSAP
Role	LT
Comment	Carry Transparent Mode RLC PDU

Table 9: PCO AM declaration

PCO Type Definition	
PCO Name	AM
PCO Type	DSAP
Role	LT
Comment	Carry Acknowledged Mode RLC PDU

Table 10: PCO UM declaration

PCO Type Definition	
PCO Name	UM
PCO Type	DSAP
Role	LT
Comment	Carry Unacknowledged Mode RLC PDU

Table 11: PCO BMC declaration

PCO Type Definition	
PCO Name	BMC
PCO Type	DSAP
Role	LT
Comment	Provide Unacknowledged Mode BMC data transmission service

7.3.2 Control PCO and ASP

7.3.2.1 SAP and PCO for control primitives transmission and reception

Table 12: SAP declaration

PCO Type Definition	
PCO Type	CSAP
Role	LT
Comment	Control primitives transmission and reception

Table 13: PCO CPHY

PCO Definition	
PCO Name	CPHY
PCO Type	CSAP
Role	LT
Comment	Control Physical Layer

Table 14: PCO CRLC

PCO Type Definition	
PCO Name	CRLC
PCO Type	CSAP
Role	LT
Comment	Control RLC Layer

Table 15: PCO CMAC

PCO Type Definition	
PCO Name	CMAC
PCO Type	CSAP
Role	LT
Comment	Control MAC Layer

Table 16: PCO CBMC

PCO Type Definition	
PCO Name	CBMC
PCO Type	CSAP
Role	LT
Comment	Control BMC Layer

7.3.2.2 Control ASP Type Definition

7.3.2.2.1 CPHY_AICH_AckModeSet

ASN.1 ASP Type Definition	
Type Name	CPHY_AICH_AckModeSet_REQ
PCO Type	CSAP
Comment	To request for setting of AICH Acknowledge Mode
Type Definition	

```
SEQUENCE    {
            cellId              INTEGER(0..63),
            routingInfo         RoutingInfo,
            ratType             RatType,
            aICH_Mode           AICH_Mode
}
```

ASN.1 ASP Type Definition	
Type Name	CPHY_AICH_AckModeSet_CNF
PCO Type	CSAP
Comment	To confirm setting of AICH Acknowledge Mode
Type Definition	

```
SEQUENCE    {
                cellId                  INTEGER(0..63),
                routingInfo             RoutingInfo
}
```

ASN.1 Type Definition	
Type Name	AICH_Mode
Comment	Normal operation: The AICH will operate as normal, and will acknowledge or negatively acknowledge on all UE RACH transmission attempts, appropriately. No Acknowledge: The AICH shall not transmit acknowledge or Negative Acknowledge on all UE RACH transmission attempts. Negative Acknowledge: The AICH shall transmit Negative Acknowledge on all UE RACH transmission attempts
Type Definition	

```
ENUMERATED  {
            normal  (0),
            noAck   (1),
            negACK  (2)
}
```

7.3.2.2.2 CPHY_Cell_Config

ASN.1 ASP Type Definition	
Type Name	CPHY_Cell_Config_CNF
PCO Type	CSAP
Comment	To confirm to setup the cell parameter
Type Definition	

```
SEQUENCE    {
            cellId                          INTEGER(0..63)
}
```

ASN.1 ASP Type Definition	
Type Name	CPHY_Cell_Config_REQ
PCO Type	CSAP
Comment	To request to setup the cell parameter. The unit of tcell is chip; the unit of sfnOffset is frame number; the primary scambling code number of the cell is 16*primaryScramblingCode_SS; the unit of dLTxAttenuationLevel is dB.

Type Definition

```
SEQUENCE    {
            cellId                          INTEGER(0..63),
            tcell                           INTEGER(0..38399),
            sfnOffset                       INTEGER(0..4095),
            frequencyInfo                   FrequencyInfo,
            primaryScramblingCode_SS        INTEGER(0..511),
            cellTxPowerLevel                CellTxPowerLevel,
            dLTxAttenuationLevel            INTEGER(0..30)
}
```

ASN.1 Type Definition	
Type Name	CellTxPowerLevel
Comment	The defaultCellTxPowerLvl is a default setting and is used for the most signalling tests. The real total cell DL Tx power level equals to the sum of the DL Tx power of the individual physical channels configured. The totalCellTxPowerLvl applies to e.g. the idle mode tests in a non-default multi-cell radio environment.

Type Definition

```
CHOICE {
            defaultCellTxPowerLvl       NULL,
            totalCellTxPowerLvl         DL_TxPower
}
```

7.3.2.2.3 CPHY_Cell_Release

ASN.1 ASP Type Definition	
Type Name	CPHY_Cell_Release_CNF
PCO Type	CSAP
Comment	The confirmation to the CPHY_Cell_Release_Req

Type Definition

```
SEQUENCE {
            soft Reset          BOOLEAN,
            cell_ID_List        SEQUENCE (SIZE (1..8)) OF INTEGER(0..63)    -- cell IDs
}
```

ASN.1 ASP Type Definition	
Type Name	CPHY_Cell_Release_REQ
PCO Type	CSAP
Comment	1. This Primitive with "Soft_Reset" flag ON gives a common known starting point/state of SS for a test case. The SS performs the following whenever it receives this primitive with "Soft_Reset" flag ON:Releases all configured Channels and cells (if any) irrespective of Cell ID list IE. 2. Releases the associated Memory Buffers (if any). 3. Cancels all active timers (if any) With "Soft_Reset" flag OFF: 1. Releases cells listed in IE Cell_ID_List and associated configured Channels (if any) 2. Releases the Memory Buffers(if any) associated with Cells listed in IE Cell_ID_List 3. Cancels all active timers (if any) associated with Cells listed in IE Cell_ID_List.

Type Definition

```
SEQUENCE {
            soft_Reset          BOOLEAN,
            cell_ID_List        SEQUENCE (SIZE (1..8)) OF INTEGER(0..63)    -- cell IDs
}
```

7.3.2.2.3a CPHY_Cell_TimingAdjust

tbd

7.3.2.2.3b CPHY_Detect_TFCI

ASN.1 ASP Type Definition	
Type Name	CPHY_DetectTFCI_CNF
PCO Type	CSAP
Comment	To confirm to CPHY_DetetTFCI_REQ
Type Definition	

```
SEQUENCE    {
            cellId                          INTEGER(0..63) ),
            routingInfo                     RoutingInfo

}
```

ASN.1 ASP Type Definition	
Type Name	CPHY_DetectTFCI_REQ
PCO Type	CSAP
Comment	To set the mode of the SS for detecting whether the specified TFCI value occured. Usage: At the SS initialisation, the default mode is stop. When the mode is set to start, the SS shall detect whether the specified TFCI value (tfciValue) happens on the specified uplink physical channel, when happened the SS generates a CPHY_TFCI_Detected_IND and stop further detection. Otherwise keeps monitoring until a CPHY_DetectTFCI_REQ with mode = stop received.
Type Definition	

```
SEQUENCE    {
            cellId                          INTEGER(0..63),
            routingInfo                     RoutingInfo,
            mode                            ENUMERATED{start(0), stop(1)},
            tfciValue                       INTEGER (0..1023)
}
```

ASN.1 ASP Type Definition	
Type Name	CPHY_TFCI_Detected_IND
PCO Type	CSAP
Comment	To indicate the TFCI value specified in the CPHY_DetectTFCI_REQ has been detected.
Type Definition	

```
SEQUENCE    {
            cellId                          INTEGER(0..63),
            routingInfo                     RoutingInfo
}
```

7.3.2.2.4 CPHY_Ini

ASN.1 ASP Type Definition	
Type Name	CPHY_Ini_REQ
PCO Type	CSAP
Comment	Request to initialize the test
Type Definition	

```
ENUMERATED {
            defaultRadioEnvironment(0),
            nonDefaultMultiCell(1)
}
```

ASN.1 ASP Type Definition	
Type Name	CPHY_Ini_CNF
PCO Type	CSAP
Comment	Confirm the test initialization
Type Definition	

```
SEQUENCE    {
            confirmation        NULL
}
```

7.3.2.2.5 CPHY_Cell_TxPower_Modify

ASN.1 ASP Type Definition	
Type Name	CPHY_Cell_TxPower_Modify_CNF
PCO Type	CSAP
Comment	To confirm to change the DL power
Type Definition	

```
SEQUENCE    {
            cellId              INTEGER(0..63)
}
```

ASN.1 ASP Type Definition	
Type Name	CPHY_Cell_TxPower_Modify_REQ
PCO Type	CSAP
Comment	To request to change the DL power If the Tx attenuation level value is set to 123, the cell becomes a non-suitable off cell (CPICH_Ec ≤ -122 dBm/3.84 MHz of an off cell).
Type Definition	

```
SEQUENCE    {
            cellId                      INTEGER(0..63),
            dLTxAttenuationLevel        INTEGER(0..40|123)
}
```

7.3.2.2.6 CPHY_Frame_Number

ASN.1 ASP Type Definition	
Type Name	CPHY_Frame_Number_CNF
PCO Type	CSAP
Comment	To return the requested connection frame number. The routingInfo indicates a physical channel.
Type Definition	

```
SEQUENCE    {
            cellId                      INTEGER(0..63),
            routingInfo                 RoutingInfo,
            frameNumber                 INTEGER (0..255)
}
```

ASN.1 ASP Type Definition	
Type Name	CPHY_Frame_Number_REQ
PCO Type	CSAP
Comment	To request the physical layer to return a connection frame number on which the next message can be sent at the specified PCO on the specified logical channel. The return frame number shall leave time from current frame number in order to leave some execution time for TTCN preparing next message. The routingInfo indicates a physical channel
Type Definition	

```
SEQUENCE    {
            cellId                  INTEGER(0..63),
            routingInfo             RoutingInfo
}
```

7.3.2.2.7 CPHY_Out_of_Sync

ASN.1 ASP Type Definition	
Type Name	CPHY_Out_of_Sync_IND
PCO Type	CSAP
Comment	To report that the physical channel synchronization (in FDD mode, sync with uplink DPCCH) was lost as detected by the SS receiver.
Type Definition	

```
SEQUENCE    {
            cellId                      INTEGER(0..63),
            routingInfo                 RoutingInfo
}
```

7.3.2.2.8 CPHY_PRACH_Measurement

ASN.1 ASP Type Definition	
Type Name	CPHY_PRACH_Measurement_CNF
PCO Type	CSAP
Comment	To Confirm PRACH Measurement Req
Type Definition	

```
SEQUENCE    {
            cellId              INTEGER(0..63),
            routingInfo         RoutingInfo
}
```

ASN.1 ASP Type Definition	
Type Name	CPHY_PRACH_Measurement_REQ
PCO Type	CSAP
Comment	To request for Start or Stop of PRACH Measurements to be done every PRACH PREAMBLE or MESSAGE received.
Type Definition	

```
SEQUENCE    {
            cellId                  INTEGER(0..63),
            routingInfo             RoutingInfo,
            ratType                 RatType,
            pRACH_MeasurementInd    PRACH_MeasurementInd
}
```

ASN.1 Type Definition	
Type Name	PRACH_MeasurementInd
Comment	1. StartMeas : The SS shall start the sending PRACH parameters Measurement report on CPHY PCO, for each PRACH Preamble or MESSAGE received from the UE by primitive CPHY_PRACH_Measurement_Report_IND on CPHY PCO. 2. StopMeas : The SS shall stop sending of PRACH parameters Measurement report on CPHY PCO, for each PRACH Preamble or MESSAGE received from the UE by primitive CPHY_PRACH_Measurement_Report_IND on CPHY PCO.
Type Definition	

```
ENUMERATED  {
            startMeas (0),
            stopMeas (1)
}
```

ASN.1 ASP Type Definition	
Type Name	CPHY_PRACH_Measurement_Report_IND
PCO Type	CSAP
Comment	SS indicates a PRACH parameters measurement report for each PRACH Preambles or MESSAGE received from the UE
Type Definition	

```
SEQUENCE     {
             cellId                      INTEGER(0..63),
             routingInfo                 RoutingInfo,
             ratType                     RatType,
             measurementReport           PRACH_MeasurementReport
}
```

ASN.1 Type Definition	
Type Name	PRACH_MeasurementReport
Comment	
Type Definition	

```
SEQUENCE     {
             usedPRACH_AcessSlot         INTEGER (0..14),
             usedPRACH_Signature         INTEGER (0..15) OPTIONAL
}
```

7.3.2.2.9 CPHY_RL_Modify

ASN.1 ASP Type Definition	
Type Name	CPHY_RL_Modify_CNF
PCO Type	CSAP
Comment	To confirm to modify the Radio Link
Type Definition	

```
SEQUENCE     {
             cellId                      INTEGER(0..63),
             routingInfo                 RoutingInfo
}
```

ASN.1 ASP Type Definition	
Type Name	CPHY_RL_Modify_REQ
PCO Type	CSAP
Comment	To request to modify the Radio Link HardHandover (PhysicalChannelReconfig) ChannelizationCodeChange FrequencyChange PhysicalChannelModifyForTrCHReconfig CompressedMode(PhysicalChannelReconfig) Re_Synchronized HardHandover Softhandover
Type Definition	

```
SEQUENCE         {
                 cellId                  INTEGER(0..63),
                 routingInfo             RoutingInfo,
                 ratType                 RatType,
                 modifyMessage           CphyRlModifyReq
}
```

ASN.1 Type Definition	
Type Name	CphyRlModifyReq
Comment	

Type Definition

```
SEQUENCE    {
        activationTime                  SS_ActivationTime,
        physicalChannelInfo
            CHOICE {
            dpch_CompressedModeStatusInfo       Dpch_CompressedModeStatusInfo,
                secondaryCCPCHInfo          SecondaryCCPCHInfo,
                pRACHInfo                   PRACHInfo,
                dPCHInfo                    DPCHInfo,
                dPCHInfo r5                 DPCHInfo r5,    -- later than r4Rel-5 or
later
                hS_PDSCHInfo                HS_PDSCHInfo    -- later than r4Rel-5 or
later},
        trchConfigToFollow              BOOLEAN             DEFAULT TRUE

}
```

ASN.1 Type Definition	
Type Name	SS_ActivationTime
Comment	

Type Definition

```
CHOICE {
        activationCFN                   ActivationTime,
        activateNow                     NULL
}
```

7.3.2.2.10 CPHY_RL_Release

ASN.1 ASP Type Definition	
Type Name	CPHY_ RL_Release_CNF
PCO Type	CSAP
Comment	PHY emulator confirms that a specified physical channel has been released.

Type Definition

```
SEQUENCE    {
            cellId                      INTEGER(0..63),
            routingInfo                 RoutingInfo
}
```

ASN.1 ASP Type Definition	
Type Name	CPHY_RL_Release_REQ
PCO Type	CSAP
Comment	To request to release the Radio Link

Type Definition

```
SEQUENCE    {
            cellId                      INTEGER(0..63),
            routingInfo                 RoutingInfo
}
```

7.3.2.2.11 CPHY_RL_Setup

ASN.1 ASP Type Definition	
Type Name	CPHY_RL_Setup_CNF
PCO Type	CSAP
Comment	To confirm to setup the Radio Link

Type Definition

```
SEQUENCE    {
            cellId                      INTEGER(0..63),
            routingInfo                 RoutingInfo
}
```

ASN.1 ASP Type Definition	
Type Name	CPHY_RL_Setup_REQ
PCO Type	CSAP
Comment	To request to setup the associated transport channels and the Radio Link itself.

Type Definition

```
SEQUENCE     {
            cellId                      INTEGER(0..63),
            routingInfo                 RoutingInfo,
            ratType                     RatType,
            setupMessage                CphyRlSetupReq
}
```

ASN.1 Type Definition	
Type Name	CphyRlSetupReq
Comment	To request to setup the Radio Link

Type Definition

```
SEQUENCE    {
        physicalChannelInfo         CHOICE      {
            primaryCPICHInfo            PrimaryCPICHInfo,
            secondaryCPICHInfo          SecondaryCPICHInfo,
            primarySCHInfo              PrimarySCHInfo,
            secondarySCHInfo            SecondarySCHInfo,
            primaryCCPCHInfo            PrimaryCCPCHInfo,
            secondaryCCPCHInfo          SecondaryCCPCHInfo,
            pRACHInfo                   PRACHInfo,
            pICHInfo                    PICHInfo,
            aICHInfo                    AICHInfo,
            dPCHInfo                    DPCHInfo,




            pDSCHInfo                   PDSCHInfo,
            dPCHInfo_r5                 DPCHInfo_r5,    -- later than r4Rel-5 or later
            hS PDSCHInfo                HS PDSCHInfo    -- later than r4Rel-5 or later

    }
}
```

ASN.1 Type Definition	
Type Name	PrimaryCPICHInfo
Comment	

Type Definition

```
SEQUENCE    {
            dl TxPower PCPICH           DL TxPower PCPICH,
            tx diversityIndicator       BOOLEAN
}
```

ASN.1 Type Definition	
Type Name	SecondaryCPICHInfo
Comment	

Type Definition

```
SEQUENCE {
            scramblingCode              INTEGER(0..15),
            dl_ChannelizationCode       SF512_AndCodeNumber,
            dl_TxPower                  DL_TxPower
}
```

ASN.1 Type Definition	
Type Name	PrimarySCHInfo
Comment	

Type Definition

```
SEQUENCE {
            tstdIndicator               BOOLEAN,
            dl TxPower                  DL TxPower
}
```

ASN.1 Type Definition	
Type Name	SecondarySCHInfo
Comment	

Type Definition

```
SEQUENCE    {
            tstdIndicator               BOOLEAN,
            dl TxPower                  DL TxPower
}
```

ASN.1 Type Definition	
Type Name	PrimaryCCPCHInfo
Comment	

Type Definition

```
SEQUENCE    {
            sttd_Indicator              BOOLEAN,
            dl_TxPower                  DL_TxPower
}
```

ASN.1 Type Definition	
Type Name	SecondaryCCPCHInfo
Comment	The range for powerOffsetOfTFCI_PO1 and powerOffsetOfPILOT_PO3 is 0-6 dB, 0.25 dB per step.

Type Definition

```
SEQUENCE {
            scramblingCode              INTEGER(0..15),
            dl ChannelizationCode       SF256 AndCodeNumber,
            sCCPCHSlotFormat            SCCPCHSlotFormat,
            timingOffset                INTEGER (0..149),
            positionFixedOrFlexible     PositionFixedOrFlexible,
            sttd_Indicator              BOOLEAN,
            dl TxPower                  DL TxPower,
            powerOffsetOfTFCI PO1       INTEGER (0..24),
            powerOffsetOfPILOT_PO3      INTEGER (0..24)
}
```

ASN.1 Type Definition	
Type Name	PRACHInfo
Comment	

Type Definition

```
SEQUENCE {
            fdd tdd                 CHOICE  {
            fdd
                SEQUENCE   {
                    preambleSignature               AvailableSignatures,
                    spreadingFactorForDataPart      SF_PRACH,
                    preambleScramblingCode          PreambleScramblingCodeWordNumber,
                    puncturingLimit                 PuncturingLimit,
                    accessSlot                      AvailableSubChannelNumbers
                },
            tdd
                SEQUENCE   {
                    -- timeSlot                     TimeSlot,
                    -- spreadingCode                SpreadingCode,
                    -- midambleCode                 MidambleCode,
                }
            }
}
```

ASN.1 Type Definition	
Type Name	PICHInfo
Comment	
Type Definition	

```
SEQUENCE    {
            pichinfo                    PICH_Info,
            dl_TxPower                  PICH_PowerOffset,
            sccpchId associated         INTEGER (0..31)
}
```

ASN.1 Type Definition	
Type Name	AICHInfo
Comment	
Type Definition	

```
SEQUENCE    {
            aichinfo                    AICH_Info,
            dl_TxPower                  AICH_PowerOffset
}
```

ASN.1 Type Definition	
Type Name	DPCHInfo
Comment	At least one of the fields shall be present.
Type Definition	

```
SEQUENCE    {
            ul_DPCH_Info                UL_DPCH_Info    OPTIONAL,
            dl_DPCHInfo                 DL_DPCHInfo     OPTIONAL
}
```

ASN.1 Type Definition	
Type Name	DL_DPCHInfo
Comment	The range for powerOffsetOfTPC_PO2 and powerOffsetOfTFCI_PO1 and powerOffsetOfPILOT_PO3 is 0 dB to 6 dB, 0,25 dB per step.
Type Definition	

```
SEQUENCE    {
            dl_CommonInformation        DL_CommonInformation,
            dl_DPCH_InfoPerRL           DL_DPCH_InfoPerRL,
            powerOffsetOfTFCI_PO1       INTEGER (0..24),
            powerOffsetOfTPC_PO2        INTEGER (0..24),
            powerOffsetOfPILOT_PO3      INTEGER (0..24),
            dl_TxPower                  DL_TxPower,
            dl_TxPowerMax               DL_TxPower,
            dl_TxPowerMin               DL_TxPower
}
```

ASN.1 Type Definition	
Type Name	DPCHInfo_r5
Comment	Applicable ~~later than r4~~Rel-5 or later At least one of the first two fields shall be present. Presence of hs_DPCCHInd (value = truevalue) means that the HS-DPCCH shall be configured in the uplink DPCH. If hs_DPCCHInd is absent no HS-DPCCH shall be configured in the uplink DPCH, or the configured HS-DPCCH shall be removed in the modify ASP. In the active set which has radio links from more than one cell the HS-DPCCH is configured only in the HS-DSCH serving cell. Three combinations are valid: ul_DPCH_Info only, dl_DPCHInfo only and ul_DPCH_Info + hs_DPCCHInd.
Type Definition	

```
SEQUENCE    {
            ul_DPCH_Info        UL_DPCH_Info_r5     OPTIONAL,
            dl_DPCHInfo         DL_DPCHInfo_r5      OPTIONAL,
            hs_DPCCHInd         ENUMERATED {truevalue (0)}  OPTIONAL
}
```

ASN.1 Type Definition	
Type Name	DL_DPCHInfo_r5
Comment	Applicable ~~later than r4~~Rel-5 or later
Type Definition	

```
SEQUENCE    {
            dl_CommonInformation        DL_CommonInformation_r5,
            dl_DPCH_InfoPerRL           DL_DPCH_InfoPerRL_r5,
            powerOffsetOfTFCI_PO1       INTEGER (0..24),
            powerOffsetOfTPC_PO2        INTEGER (0..24),
            powerOffsetOfPILOT_PO3      INTEGER (0..24),
            dl_TxPower                  DL_TxPower,
            dl_TxPowerMax               DL_TxPower,
            dl_TxPowerMin               DL_TxPower
}
```

ASN.1 Type Definition	
Type Name	HS_PDSCHInfo
Comment	Applicable ~~later than r4~~Rel-5 or later When CHY_RL_Setup_REQ is called with CHOICE of hS_PDSCHInfo HS_PDSCH and HS-SCCH shall be configured in SS. The following HS-DSCH related parameters are passed to the SS implicitly by HSDSCH_physical_layer_category: - Maximum number of HS-DSCH codes can be received by UE, - Minimum inter-TTI interval, - Maximum number of bits of an HS-DSCH transport block within an HS-DSCH TTI - Total number of soft channel bits". HSDSCH_physical_Layer_category is also used for interpretation of the meaning of CQI value.
Type Definition	

```
SEQUENCE    {
    hSDSCHPhysicalLayerCategory     HSDSCH_physical_layer_category,
    h_RNTI                          H_RNTI,
    dlHSPDSCHInformation            DL_HSPDSCH_Information,
    sttd_Indicator                  BOOLEAN,
    hs_SCCH_TxPower                 DL_TxPower  -- offset related to pilot bits
                                                -- on DL-DPCCH (25.433, 9.2.2.18I)
}
```

ASN.1 Type Definition	
Type Name	DL_TxPower_PCPICH
Comment	Absolute Tx Power of PCPICH
Type Definition	

```
INTEGER (-60..-30)
```

ASN.1 Type Definition	
Type Name	DL_TxPower
Comment	Downlink Tx Power relative to PCPICH
Type Definition	

```
INTEGER (-35..+15)
```

ASN.1 Type Definition	
Type Name	SCCPCHSlotFormat
Comment	Reference to 3GPP TS25.211 [**Error! Reference source not found.**]
Type Definition	

```
INTEGER (0..17)
```

ASN.1 Type Definition	
Type Name	PDSCHInfo
Comment	
Type Definition	

```
SEQUENCE {
    fdd_tdd          CHOICE  {
            fdd      SEQUENCE    {
                         pdsch_CodeMapping        PDSCH_CodeMapping
                                 },
            tdd      SEQUENCE    {
                         --pdsch_Identity         PDSCH_Identity,
                         --pdsch_Info             PDSCH_Info,
                         --pdsch PowerControlInfo    PDSCH PowerControlInfo  OPTIONAL
                                 },
                     },
    dl_TxPower           DL_TxPower
}
```

7.3.2.2.12 CPHY_Sync

ASN.1 ASP Type Definition	
Type Name	CPHY_Sync_IND
PCO Type	CSAP
Comment	To indicate that physical channel synchronization (in FDD mode, sync with DPCCH) has been achieved.
Type Definition	

```
SEQUENCE    {
                cellId                      INTEGER(0..63),
                routingInfo                 RoutingInfo
}
```

7.3.2.2.12a CPHY_HS_DPCCH_AckNack (~~later than r4~~Rel-5 or later)

ASN.1 ASP Type Definition	
Type Name	CPHY_HS_DPCCH_AckNack_CNF
PCO Type	CSAP
Comment	Applicable ~~later than r4~~Rel-5 or later To Confirm CPHY_HS_DPCCH_AckNack_REQ
Type Definition	

```
SEQUENCE    {
            cellId              INTEGER(0..63)
}
```

ASN.1 ASP Type Definition	
Type Name	CPHY_HS_DPCCH_AckNack_REQ
PCO Type	CSAP
Comment	Applicable ~~later than r4~~Rel-5 or later To request for start or stop reporting Ack/Nack received on the HS-DPCCH for the HARQ process hARQProcessId. At the initialisation the SS is at the “sTOPRep” state without reporting any Ack/Nack
Type Definition	

```
SEQUENCE    {
            cellId                  INTEGER(0..63),
            ratType                 RatType,
            ackNackReportReq        AckNackReportReq,
            hARQProcessId           INTEGER(0..7)
}
```

ASN.1 Type Definition	
Type Name	AckNackReportReq
Comment	Applicable ~~later than r4~~Rel-5 or later startRep : The SS shall start reporting the HARQ-ACK information received on HS-DPCCH by primitive CPHY_HS_DPCCH_AckNack_IND on CPHY PCO. stopRep : The SS shall stop reporting.
Type Definition	

ENUMERATED {
startRep (0),
stopRep (1)
}	

ASN.1 ASP Type Definition	
Type Name	CPHY_HS_DPCCH_AckNack_IND
PCO Type	CSAP
Comment	Applicable ~~later than r4~~Rel-5 or later SS reportes the HARQ-ACK information received on HS_DPCCH, each received Ack/Nack generates a CPHY_HS_DPCCH_AckNack_IND
Type Definition	

SEQUENCE {
cellId INTEGER(0..63),
ratType RatType,
hARQ ACKInfo ENUMERATED {ack(0), nack (1)},
hARQProcessId INTEGER(0..7)
}	

7.3.2.2.12b CPHY_HS_DPCCH_CQI (~~later than r4~~Rel-5 or later)

ASN.1 ASP Type Definition	
Type Name	CPHY_HS_DPCCH_CQI_CNF
PCO Type	CSAP
Comment	Applicable ~~later than r4~~Rel-5 or later To Confirm CPHY_HS_DPCCH_CQI_REQ
Type Definition	

SEQUENCE {
cellId INTEGER(0..63),
}	

ASN.1 ASP Type Definition	
Type Name	CPHY_HS_DPCCH_CQI_REQ
PCO Type	CSAP
Comment	Applicable ~~later than r4~~Rel-5 or later To enable the SS to start reporting N times of the CQI value received on the HS-DPCCH. After N times the SS stops reporting. N is specified in numberOfReports. At the SS initialisation reporting of CQI values is disabled
Type Definition	

SEQUENCE {
cellId INTEGER(0..63),
ratType RatType,
numberOfReports INTEGER(1..32)
}	

ASN.1 ASP Type Definition	
Type Name	CPHY_HS_DPCCH_CQI_IND
PCO Type	CSAP
Comment	Applicable ~~later than r4~~Rel-5 or later SS generates the indication when a CQI value is received on HS_DPCCH after invocation of ASP CPHY_HS_DPCCH_CQI_REQ and before the numberOfReports is reached. This ASP is used for verifying whether the UE has configured the HS-DSCH and starts reception of HS-DSCH. (TS 25.331 cl.8.6.6.34)
Type Definition	

```
SEQUENCE    {
            cellId                      INTEGER(0..63),
            ratType                     RatType,
            cqi                         INTEGER (0..30)
}
```

7.3.2.2.12c CPHY_HS_DSCH_CRC_Mode (~~later than r4~~Rel-5 or later)

ASN.1 ASP Type Definition	
Type Name	CPHY_HS_DSCH_CRC_Mode_CNF
PCO Type	CSAP
Comment	Applicable ~~later than r4~~Rel-5 or later Confirm a previous CPHY_HS_DSCH_CRC_Mode_REQ being successful.
Type Definition	

```
SEQUENCE {
        cellId              INTEGER(-1..63),
        routingInfo         RoutingInfo
}
```

ASN.1 ASP Type Definition	
Type Name	CPHY_HS_DSCH_CRC_Mode_REQ
PCO Type	CSAP
Comment	Applicable ~~later than r4~~Rel-5 or later To set the CRC calculation mode for HS-DSCH. If mode = normal, the SS generates the correct CRC. If mode = erroneous, the SS generates any wrong CRC value which is different from the correct one on the specified MACdFlow. As default, the normal mode is applied. When the HS-DSCH first configured or reconfigured the SS enters the normal CRC calculation mode.
Type Definition	

```
SEQUENCE    {
            cellId              INTEGER(-1..63) ,
            routingInfo         RoutingInfo,
            mac_dFlowId         MAC_d_FlowIdentity,
            mode                ENUMERATED {normal(0), erroneous(1)}
}
```

7.3.2.2.13 CPHY_TrCH_Config

ASN.1 ASP Type Definition	
Type Name	CPHY_TrCH_Config_CNF
PCO Type	CSAP
Comment	To confirm to configure the transport channel
Type Definition	

```
SEQUENCE    {
            cellId                          INTEGER(0..63),
            routingInfo                     RoutingInfo
}
```

ASN.1 ASP Type Definition	
Type Name	CPHY_TrCH_Config_REQ
PCO Type	CSAP
Comment	To request to configure the transport channel

Type Definition

```
SEQUENCE    {
            cellId                          INTEGER(0..63),
            routingInfo                     RoutingInfo,
            ratType                         RatType,
            trchConfigType                  TrchConfigType,
            configMessage                   CphyTrchConfigReq
}
```

ASN.1 Type Definition	
Type Name	CphyTrchConfigReq
Comment	To request to configure the transport channel. The same TFCS information should be provided to the PHY and MAC layers at all times. When a CPHY_TrCH_Config_REQ is used to configure the PHY layer, a corresponding CMAC_Config_REQ should be sent to the MAC layer to ensure that the configuration is consistent. For configuring HS-DSCH transport channel, the ulconnectedTrCHList, ulTFCS, dlconnectedTrCHList and dlTFCS shall be omitted.

Type Definition

```
SEQUENCE    {
        activationTime      SS_ActivationTime,
        ulconnectedTrCHList     SEQUENCE (SIZE (0..maxTrCH)) OF SEQUENCE {
                trchid                  TransportChannelIdentity,
                ul TransportChannelType SS UL TransportChannelType,
                transportChannelInfo    CommonOrDedicatedTFS
                                                                }   OPTIONAL,
        ulTFCS              TFCS    OPTIONAL,
        dlconnectedTrCHList     SEQUENCE (SIZE (0..maxTrCH)) OF SEQUENCE {
                trchid                  TransportChannelIdentity,
                dl_TransportChannelType SS_DL_TransportChannelType,
                transportChannelInfo    CommonOrDedicatedTFS
                                                                }   OPTIONAL,
        dlTFCS              TFCS    OPTIONAL,
        hsDSCHMacdFlows     HS DSCHMACdFlows    OPTIONAL    -- later than r4Rel-5 or
later
}
```

ASN.1 Type Definition	
Type Name	RoutingInfo
Comment	To route between each channels.

Type Definition

```
CHOICE      {
        physicalChannelIdentity         INTEGER                 {0..31},
        transportChannelIdentity        TransportChannelIdentity,
        logicalChannelIdentity          LogicalChannelIdentity,
        rB_Identity                     INTEGER                 {-31..32},
        cn-DomainIdentity               CN-DomainIdentity
}
```

ASN.1 Type Definition	
Type Name	RatType
Comment	To select route between each channels.

Type Definition

```
ENUMERATED  {
            fdd (0), tdd (1)
}
```

ASN.1 Type Definition	
Type Name	CommonOrDedicatedTFS
Comment	Transport Format Set
Type Definition	

```
SEQUENCE {
    tti                                 CHOICE {
        tti10                               CommonOrDedicatedTF InfoList,
        tti20                               CommonOrDedicatedTF_InfoList,
        tti40                               CommonOrDedicatedTF_InfoList,
        tti80                               CommonOrDedicatedTF_InfoList,
        dynamic                         CommonOrDedicatedTF_InfoList_DynamicTTI
    },
    semistaticTF Information            SemistaticTF Information
}
```

ASN.1 Type Definition	
Type Name	CommonOrDedicatedTF_InfoList
Comment	Transport Format Set
Type Definition	

```
SEQUENCE (SIZE (1..maxTF)) OF CommonOrDedicatedTF_Info
```

ASN.1 Type Definition	
Type Name	CommonOrDedicatedTF_Info
Comment	Transport Format Set
Type Definition	

```
SEQUENCE {
    tb_Size                 INTEGER (0..5035),
    numberOfTbSizeList      SEQUENCE (SIZE (1..maxTF)) OF NumberOfTransportBlocks,
    logicalChannelList      LogicalChannelList
}
```

ASN.1 Type Definition	
Type Name	CommonOrDedicatedTF_InfoList_DynamicTTI
Comment	Transport Format Set for TDD mode
Type Definition	

```
SEQUENCE {
    tb Size                 INTEGER (0..5035),
    numberOfTbSizeList      SEQUENCE (SIZE (1..maxTF)) OF NumberOfTransportBlocks,
    logicalChannelList      LogicalChannelList
}
```

ASN.1 Type Definition	
Type Name	TrchConfigType
Comment	
Type Definition	

```
CHOICE {
                    nonDch                      NULL,
                    dch                         ENUMERATED {normal(0), softHO(1)}}
```

ASN.1 Type Definition	
Type Name	HS_DSCHMACdFlows
Comment	Applicable ~~later than r4~~Rel-5 or later Within the ACK/NACK repetition period indicated by ackNackRepetitionFactor the SS shall not transmit MAC-hs PDU's on HS-PDSCH.
Type Definition	

```
SEQUENCE        {
        harqInfo                    HARQ_Info                   OPTIONAL,
        addOrReconfMACdFlow         SS_AddOrReconfMAC_dFlow     OPTIONAL,
        ackNackRepetitionFactor     ACK NACK repetitionFactor   OPTIONAL
}
```

ASN.1 Type Definition	
Type Name	SS_AddOrReconfMAC_dFlow
Comment	Applicable ~~later than r4~~Rel-5 or later
Type Definition	

```
SEQUENCE {
    mac_hs_AddReconfQueue_List      SEQUENCE (SIZE(1..maxQueueIDs)) OF  SEQUENCE {
                    mac hs AddReconfQueue    SS MAC hs AddReconfQueue}   OPTIONAL,
    mac_hs_DelQueue_List            SEQUENCE (SIZE(1..maxQueueIDs)) OF SEQUENCE {
                    mac_hsQueueId             INTEGER(0..7)}             OPTIONAL
}
```

ASN.1 Type Definition	
Type Name	SS_MAC_hs_AddReconfQueue
Comment	Applicable ~~later than r4~~Rel-5 or later The priority of PriorityQueue shall set acoording to the priority of logical channels which is mapped on to this priority queue. Note: the range of priority of PriorityQueue is from 0 to 7 and 0 is the lowest priority. DiscardTimer defines the time (unit ms) to live for a MAC-hs SDU starting from the instant of its arrival into an HSDPA Priority Queue. The SS shall use this information to discard out-of-data MAC-hs SDUs from the HSDPA Priority Queues.
Type Definition	

```
SEQUENCE {
    mAChsAddReconfQueue             MAC hs AddReconfQueue,
    logicalChannelList              SEQUENCE OF LogicalChannelIdentity,
                                    -- logical channels mapping onto the priority queue
                                    -- which is specified in maChsAddReconfQueue
    priority                        INTEGER(0..7),
    discardTimer                    ENUMERATED {
v20(0),v40(1),v60(2),v80(3),v100(4),v120(5),v140(6),v160(7),v180(8),v200(9),
v250(10),v300(11),v400(12),v500(13),v750(14),v1000(15),v1250(16),v1500(17),v1750(18),v20
00(19),v2500(20),v3000(21), v3500(22),v4000(23),v4500(24),v5000(25), v7500(26)
                                                    }   OPTIONAL
    }
```

7.3.2.2.14a CPHY_ UL_PowerModify

ASN.1 ASP Type Definition	
Type Name	CPHY_UL_PowerModify_CNF
PCO Type	CSAP
Comment	To confirm the increase/decrease in UE uplink DPCH power transmission or send the TPC commands as instructed.
Type Definition	

```
SEQUENCE    {
            cellId                          INTEGER(0..63),
            routingInfo                     RoutingInfo
}
```

ASN.1 ASP Type Definition	
Type Name	CPHY_UL_PowerModify_REQ
PCO Type	CSAP
Comment	To request increase/decrease in the UE uplink DPCH transmission by the delta value given in dB, from the existing transmission level or make UE to transmit at maximum or minimum power level. It is assumed that the UE UL DPCH transmission power level is set to -20dbm by default at beginning of each test. For routing Info the Dl DPCH Physical channel ID shall be used. For IE ul_DPCH_Id, the physical channel ID of associated UL DPCH shall be given. SS can use it or neglect it. Ul_UE_TxPower gives either the value in dB, by which SS shall increase/decrease the uplink transmission power of UE from the existing transmission power, when this primitive is called or Start transmission of TPC commands on DL DPCCH as configured
Type Definition	
SEQUENCE {	
cellId	INTEGER(0..63),
routingInfo	RoutingInfo,
ul DPCH Id	INTEGER (0..31),
ul_UE_Tx_Power	Ul_UE_Tx_Power
}	

ASN.1 Type Definition	
Type Name	Ul_UE_Tx_Power
Comment	Choice delta gives the value in dB, by which the existing UE UL DPCH transmission power level is to be increased or decreased. After reaching the new desired level SS shall make UE to maintain this new transmission power level. WithChoice maxMin, and ENUM 'tpc_Up' selection, SS shall start transmitting TPC commands on the DL DPCCH, as '1' every slot so as to ask UE to increase the transmission power. With Choice maxMin, and ENUM 'tpc_Down' selection, SS shall start transmitting TPC commands on the DL DPCCH, as '0' every slot so as to ask UE to decrease the transmission power. With Choice maxMin, and ENUM 'tpc_Maintain' selection, SS will start transmitting TPC commands on the DL DPCCH, as alternate '0' and '1' in alternate slots so as to maintain the UE uplink transmission power
Type Definition	
CHOICE {	
deltaINTEGER	(-64..63)
maxMin	ENUMERATED{ tpc_Up(0), tpc_Down(1), tpc_Maintain(2) }
}	

7.3.2.2.14 CPHY_TrCH_Release

ASN.1 ASP Type Definition	
Type Name	CPHY_TrCH_Release_REQ
PCO Type	CSAP
Comment	To request to release the Radio Link
Type Definition	
SEQUENCE {	
cellId	INTEGER(0..63),
routingInfo	RoutingInfo,
trchConfigType	TrchConfigType
}	

ASN.1 ASP Type Definition	
Type Name	CPHY_TrCH_Release_CNF
PCO Type	CSAP
Comment	To confirm to release the Radio Link
Type Definition	
SEQUENCE {	
cellId	INTEGER(0..63),
routingInfo	RoutingInfo
}	

7.3.2.2.15 CMAC_BMC_Scheduling

ASN.1 ASP Type Definition	
Type Name	CMAC_BMC_Scheduling_CNF
PCO Type	CSAP
Comment	To confirm the BMC scheduling.

Type Definition

```
SEQUENCE    {
            cellId                      INTEGER(0..63),
            routingInfo                 RoutingInfo
}
```

ASN.1 ASP Type Definition	
Type Name	CMAC_BMC_Scheduling_REQ
PCO Type	CSAP
Comment	Send the BMC scheduling information to the MAC.

Type Definition

```
SEQUENCE     {
                cellId                      INTEGER(0..63),
                routingInfo                 RoutingInfo,
                ratType                     RatType,
                schedulingInfo              BMC_SchedulingInfo
}
```

ASN.1 Type Definition	
Type Name	BMC_SchedulingInfo
Comment	

Type Definition

```
SEQUENCE    {
            level1Info                  BMC SchedulingLevel1Info,
            level2Info                  BMC SchedulingLevel2Info    OPTIONAL
}
```

ASN.1 Type Definition	
Type Name	BMC_SchedulingLevel2Info
Comment	

Type Definition

```
SEQUENCE    {
            starCtchBsIndex             INTEGER (1..256)        DEFAULT 1,
            drxSelectionBitmap          OCTET STRING
}
```

ASN.1 Type Definition	
Type Name	BMC_SchedulingLevel1Info
Comment	0 ≤ K ≤ N-1 (3GPP TS 25.331 [**Error! Reference source not found.**], clause 8.5.16)

Type Definition

```
SEQUENCE    {
            ctchAllocationPeriod        INTEGER (1..256),       -- N
            cbsFrameOffset              INTEGER (0..255)        -- K
}
```

7.3.2.2.16 CMAC_Ciphering_Activate

ASN.1 ASP Type Definition	
Type Name	CMAC_Ciphering_Activate_CNF
PCO Type	CSAP
Comment	To confirm to activate or inactivate the ciphering
Type Definition	

```
SEQUENCE {
            cellId                      INTEGER(-1..63),
            routingInfo                 RoutingInfo
}
```

ASN.1 ASP Type Definition	
Type Name	CMAC_Ciphering_Activate_REQ
PCO Type	CSAP
Comment	To request to start or restart downlink ciphering or uplink deciphering. The physicalChannelIdentity of DPCH applies to routingInfo. Initialize the 20 MSB of HFN component of COUNT-C to the START value stored. If the value of incHFN is set to "NotInc" the SS initializes the remaining LSBs of HFN component in COUNT-C to zero and the SS shall not increment HFN part of COUNT-C at every CFN cycle. If the value of incHFN is set to “IncPerCFN_Cycle” the SS initializes the remainingLSBs of HFN component in COUNT-C accordingly. If it is absent the SS initialize the LSBs of HFN component in COUNT-C to zero, increments the HFN component in COUNT-C by one and then starts the increment HFN part of COUNT-C at every CFN cycle.
Type Definition	

```
SEQUENCE {
            cellId                      INTEGER(-1..63),
            routingInfo                 RoutingInfo,
            ratType                     RatType,
            cn_DomainIdentity           CN_DomainIdentity,
            cipheringModeInfo           CipheringModeInfo,
            incHFN      Increment Mode
}
```

ASN.1 Type Definition	
Type Name	Increment_Mode
Comment	
Type Definition	

```
ENUMERATED {incPerCFN_Cycler(0), notInc(1), incByOne_IncPerCFN_Cycle(2)}
```

7.3.2.2.17 CMAC_Config

ASN.1 ASP Type Definition	
Type Name	CMAC_Config_CNF
PCO Type	CSAP
Comment	For MAC emulator to report that a previous attempt to setup, reconfigure or release a logical channel is successful.
Type Definition	

```
SEQUENCE    {
                cellId                  INTEGER(-1..63),
                routingInfo             RoutingInfo
}
```

ASN.1 ASP Type Definition	
Type Name	CMAC_Config_REQ
PCO Type	CSAP
Comment	To request to configure MAC entity. Setup is used for creation of the MAC instances or the MAC resources. Release is used for free the all MAC resources. The reconfiguration is to change the MAC parameters, it is not the MAC modification.

Type Definition

```
SEQUENCE    {
            cellId                      INTEGER(-1..63),
            routingInfo                 RoutingInfo,
            ratType                     RatType,
            configMessage               CHOICE {
                setup                       CmacConfigReq,
                reconfigure                 CmacConfigReq,
                release                     NULL
            }
}
```

ASN.1 Type Definition	
Type Name	CmacConfigReq
Comment	To request to configure MAC

Type Definition

```
SEQUENCE    {
            activationTime                      SS_ActivationTime,
            uE_Info                                 UE_Info,
            trCHInfo                                TrCHInfo,
            trCH LogCHMapping                       TrCH LogCHMappingList1
            -- RACHTrasmissionCtrolElements     TBD,
            -- CPCHTransmissionControlElements  TBD
}
```

ASN.1 Type Definition	
Type Name	UE_Info
Comment	The value of c_RNTI_DSCH_RNTI is 16 bits, used either for C-RNTI or DSCH-RNTI. DSCH is configured if the physical channel in CMAC_config_REQ is a PDSCH. Otherwise, C-RNTI is applied. At the MAC-hs configuration both u_RNTI and c_RNTI_DSCH_RNTI are omitted.

Type Definition

```
SEQUENCE {
        u_RNTI                          U_RNTI      OPTIONAL,
        c_RNTI_DSCH_RNTI                C_RNTI      OPTIONAL
}
```

ASN.1 Type Definition	
Type Name	TrCH_LogCHMappingList1
Comment	maxulTrCH = maxdlTrCH = 16

Type Definition

```
SEQUENCE    {
        ulconnectedTrCHList     SEQUENCE (SIZE (1..maxulTrCH)) OF SEQUENCE {
                trchid                  TransportChannelIdentity,
                trCH LogCHMappingList   TrCH LogCHMappingList
                                                                }   OPTIONAL,
        dlconnectedTrCHList     SEQUENCE (SIZE (1..maxdlTrCH)) OF SEQUENCE {
                trchid                  TransportChannelIdentity,
                trCH_LogCHMappingList   TrCH_LogCHMappingList
                                                                }   OPTIONAL,
        dlconnectedMACdFlows    SEQUENCE (SIZE (1..8)) OF SEQUENCE {
                mac dFlowId                 MAC d FlowIdentity,
                trCH LogCHMappingList       TrCH LogCHMappingList
                                                                }   OPTIONAL
                                -- later than r4Rel-5 or later
}
```

ASN.1 Type Definition	
Type Name	TrCH_LogCHMappingList
Comment	maxLogCHperTrCH = 15
Type Definition	
SEQUENCE (SIZE (1..maxLogCHperTrCH)) OF TrCH_LogicalChannelMapping	

ASN.1 Type Definition	
Type Name	TrCHInfo
Comment	The same TFCS information should be provided to the PHY and MAC layers at all times. When a CMAC_Config_REQ is used to configure the MAC layer, a corresponding CPHY_TrCH_Config_REQ should be sent to the PHY layer to ensure that the configuration is consistent. For MAC-hs configuration: When ulconnectedTrCHList, ulTFCS, dlconnectedTrCHList and dlTFCS are omitted this ASP configures an MAC-hs entity.
Type Definition	

```
SEQUENCE    {
        ulconnectedTrCHList     SEQUENCE (SIZE (1..maxulTrCH)) OF SEQUENCE {
                trchid                  TransportChannelIdentity,
                transportChannelInfo    CommonOrDedicatedTFS
                                                                }   OPTIONAL,
        ulTFCS              TFCS    OPTIONAL,
        dlconnectedTrCHList     SEQUENCE (SIZE (1..maxdlTrCH)) OF SEQUENCE {
                trchid                  TransportChannelIdentity,
        transportChannelInfo    CommonOrDedicatedTFS
                                                                }   OPTIONAL,
        dlTFCS              TFCS    OPTIONAL,
        hsDSCHMacdFlows     HS_DSCHMACdFlows    OPTIONAL    -- later than r4Rel-5 or
later
}
```

ASN.1 Type Definition	
Type Name	TrCH_LogicalChannelMapping
Comment	When used for logical channel to MAC_d flow mapping dl_LogicalChannelMapping shall be chosen,
Type Definition	

```
SEQUENCE    {
    logicalChannel Mapping      CHOICE  {
                ul LogicalChannelMapping            SS UL LogicalChannelMapping,
                dl_LogicalChannelMapping            SS_DL_LogicalChannelMapping
                    },
            rB_Identity                 INTEGER     (-31..32)   OPTIONAL,
            cn-DomainIdentity           CN-DomainIdentity       OPTIONAL
}
```

ASN.1 Type Definition	
Type Name	SS_UL_LogicalChannelMapping
Comment	If the macHeaderManipulation field is 'NormalMacHeader', then data received on the transport channel supporting this logical channel shall have it's MAC header inspected to determine the appropriate routing, and removed as normal. The MAC SDU shall be passed to the appropriate logical channel. If the macHeaderManipulation field field is 'OmitMacHeader', then data received on the transport channel supporting this logical channel shall have it's MAC header inspected to determine the appropriate routing, but the MAC layer shall not remove the MAC header. Thus the entire MAC PDU shall be passed to the appropriate logical channel, and the MAC header can be checked by the TTCN.
Type Definition	

```
SEQUENCE {
    macHeaderManipulation               MAC HeaderManipulation,
    ul TransportChannelType             SS UL TransportChannelType,
    logicalChannelIdentity              LogicalChannelIdentity,
    logicalChannelType                  LogicalChannelType
}
```

ASN.1 Type Definition	
Type Name	SS_DL_LogicalChannelMapping
Comment	If the macHeaderManipulation field is 'NormalMacHeader', then data transmitted on this logical channel shall have an appropriate MAC header added before it is sent to lower layers for transmission. If the macHeaderManipulation field is 'OmitMacHeader', then data transmitted on this logical channel shall not have any MAC header information added, even if the logical channel type and mapping indicates that there should be a MAC header present. This allows the entire MAC PDU to be specified in the TTCN, so individual fields in the MAC header can be modified. When used for DTCH mapping to MAC_d flow, rlc_SizeList shall choose "configured" according to the configured mAChsAddReconfQueue valules.

Type Definition

```
SEQUENCE {
    macHeaderManipulation               MAC_HeaderManipulation,
    dlTransportChannelType              SS_DL_TransportChannelType,
    logicalChannelIdentity              LogicalChannelIdentity,
    logicalChannelType                  LogicalChannelType,
    rlc_SizeList                        CHOICE {
            allSizes                            NULL,
            configured                          NULL,
            explicitList                        RLC_SizeExplicitList},
    mac_LogicalChannelPriority          MAC_LogicalChannelPriority  OPTIONAL
}
```

ASN.1 Type Definition	
Type Name	SS_UL_TransportChannelType
Comment	

Type Definition

```
ENUMERATED {
    dch (0),
    rach (1),
    cpch (2),
    usch (3)
}
```

ASN.1 Type Definition	
Type Name	MAC_LogicalChannelPriority
Comment	

Type Definition

```
INTEGER (1..8)
```

ASN.1 Type Definition	
Type Name	SS_DL_TransportChannelType
Comment	

Type Definition

```
ENUMERATED {
    dch     (0),
    fach    (1),
    bch     (2),
    pch     (3),
    dsch    (4),
    hsdsch  (5)     -- later than r4Rel-5 or later
}
```

ASN.1 Type Definition	
Type Name	LogicalChannelType
Comment	
Type Definition	

```
ENUMERATED {
    bCCH    (0),
    pCCH    (1),
    cCCH    (2),
    cTCH    (3),
    dCCH    (4),
    dTCH    (5),
    sHCCH   (6)
}
```

ASN.1 Type Definition	
Type Name	MAC_HeaderManipulation
Comment	
Type Definition	

```
ENUMERATED  {
            normalMacHeader (0),
            omitMacHeader   (1)
}
```

7.3.2.2.17a CMAC_MAChs_TFRCconfigure (~~later than r4~~Rel-5 or later)

ASN.1 ASP Type Definition	
Type Name	CMAC_MAChs_TFRCconfigure_CNF
PCO Type	CSAP
Comment	Applicable ~~later than r4~~Rel-5 or later Confirm a previous CMAC_MAChs_TFRCconfigure_REQ being successful.
Type Definition	

```
SEQUENCE {
        cellId              INTEGER(-1..63)
}
```

ASN.1 ASP Type Definition	
Type Name	CMAC_MAChs_TFRCconfigure_REQ
PCO Type	CSAP
Comment	Applicable ~~later than r4~~Rel-5 or later To configure the TFRC selection in the MAC-hs entity, channelisationCodeOffset + noOfChannelisationCodes shall not be great than 15. If explicit is selected in `tfrcConfigMode`, the SS shall use all the parameter values specified to configure a correct transport format and radio resources. If sS_Configured is selected, the parameter value range is specified. SS shall dynamically select the suitable values for the parameters “modulationScheme”, “channelisationCodeOffset”, “noOfChannelisatonCodes “, tbSizeIndexOnHS_SCCH”, “redundancyVersion” and “hs_PDSCH_TxPower” according to UE’s capability category and CQI information reported by the UE.

Type Definition

```
SEQUENCE    {
    cellId              INTEGER(-1..63),
    tfrcConfigMode      CHOICE {
        explicit            SEQUENCE {
            modulationScheme                ENUMERATED {qpsk (0), qam16 (1)},
            channelisationCodeOffset        INTEGER (1..14),
            noOfChannelisatonCodes          INTEGER (1..15),
            tbSizeIndexOnHS_SCCH            INTEGER (0..63),
            minimumInterTTIinterval         INTEGER (1..3),
            redundancyVersion               INTEGER (0..7),
            hs PDSCH TxPower                DL TxPower  -- default offset related
                                                        -- to p-CPICH or s-CPICH
                                        },
        sS_Configured       SEQUENCE {
            minChannelisationCodeOffset     INTEGER (1..14),
            maxNoOfChannelisatonCodes       INTEGER (1..15),
            iniHS PDSCH TxPower             DL TxPower  -- default offset related
                                                        -- to p-CPICH or s-CPICH
                                        }
}
}
```

ASN.1 ASP Type Definition	
Type Name	CMAC_MAChs_HARQprocAsign_CNF
PCO Type	CSAP
Comment	Applicable ~~later than r4~~Rel-5 or later Confirm a previous CMAC_MAChs_HARQprocAsign_REQ being successful.

Type Definition

```
SEQUENCE {
        cellId              INTEGER(-1..63)
}
```

ASN.1 ASP Type Definition	
Type Name	CMAC_MAChs_HARQprocAsign_REQ
PCO Type	CSAP
Comment	Applicable ~~later than r4~~Rel-5 or later To assign a HARQ process handling the next MAC-hs PDU transmission. This ASP provides TTCN the ability to select an HARQ process serving the next MAC-hs PDU which follows the ASP. After successful transmission the MAC-hs returns back to normal operation. In the normal operation a suitable HARQ process is selected by HARQ entity in the MAC-hs to serve the MAC-hs PDU without TTCN intervening.

Type Definition

```
SEQUENCE    {
            cellId              INTEGER(-1..63),
            harqProcessId       INTEGER(0..7)
}
```

ASN.1 ASP Type Definition	
Type Name	CMAC_MAChs_Reset_CNF
PCO Type	CSAP
Comment	Applicable ~~later than r4~~Rel-5 or later Confirm a previous CMAC_MAChs_Reset_REQ being successful.
Type Definition	

SEQUENCE {
cellId INTEGER(-1..63)
}	

ASN.1 ASP Type Definition	
Type Name	CMAC_MAChs_Reset_REQ
PCO Type	CSAP
Comment	Applicable ~~later than r4~~Rel-5 or later To reset the MAC-hs entity.
Type Definition	

SEQUENCE {
cellId INTEGER(-1..63)
}	

7.3.2.2.18 CMAC_PAGING_Config

ASN.1 ASP Type Definition	
Type Name	CMAC_PAGING_Config_CNF
PCO Type	CSAP
Comment	To confirm to setup the paging message
Type Definition	

SEQUENCE {
cellId INTEGER(0..63),
routingInfo RoutingInfo
}	

ASN.1 ASP Type Definition	
Type Name	CMAC_PAGING_Config_REQ
PCO Type	CSAP
Comment	To request MAC layer to send the Paging message on the specified configuration.
Type Definition	

SEQUENCE {
cellId INTEGER(0..63),
routingInfo RoutingInfo,
ratType RatType,
configMessage CmacPagingConfigReq
}	

ASN.1 Type Definition	
Type Name	CmacPagingConfigReq
Comment	
Type Definition	

SEQUENCE {
pI_BitMapInfo CHOICE {
e18 BIT STRING (SIZE (18)),
e36 BIT STRING (SIZE (36)),
e72 BIT STRING (SIZE (72)),
e144 BIT STRING (SIZE (144))
},
dRX_CycleLength INTEGER {3..9},
iMSI SEQUENCE (SIZE (6..15)) OF Digit,
t pich T sccpch BOOLEAN -- T pich>T sccpch then FALSE
}	

7.3.2.2.19 CMAC_Restriction

ASN.1 ASP Type Definition	
Type Name	CMAC_Restriction_CNF
PCO Type	CSAP
Comment	For MAC emulator to report that a previous attempt of restricting TFCs have been successful.
Type Definition	

```
SEQUENCE    {
            cellId                      INTEGER(-1..63),
            routingInfo                 RoutingInfo
}
```

ASN.1 ASP Type Definition	
Type Name	CMAC_Restriction_REQ
PCO Type	CSAP
Comment	To request to configure MAC entity. The field restrictAllowedTFCs is provided to allow the UL and/or DL SS TFCS to be restricted for a specific transport channel. This information only needs to be sent to the MAC layer, since it is the MAC layer's responsibility to determine the set of valid TFCs each TTI.
Type Definition	

```
SEQUENCE {
        cellId                      INTEGER (-1..63),
        routingInfo                 RoutingInfo,
        ratType                     RatType,
        restrictAllowedTFCs         TFC Restriction
}
```

ASN.1 Type Definition	
Type Name	TFC_Restriction
Comment	This type is used to specify the allowed TFCs within the current TFCS. A TFC restriction is applicable until a subsequent TFC restriction is applied. TFC restrictions are not cumulative, so each TFC restriction completely replaces the previous TFC restriction. The downlink restriction can be used to ensure that the SS uses a specific TFC for transmission of data, by only allowing the 'No data' TFC, and the 'desired' TFC. It may also be necessary to include one or more 'signalling only' TFCs to allow signalling to occur. The uplink restriction can be used to verify that the UE has used a specific TFC. Any data received by the SS using a forbidden TFCI shall be discarded.
Type Definition	

```
SEQUENCE {
        ulTFCI_Restriction          TFC_Subset OPTIONAL,
        dlTFCI_Restriction          TFC_Subset OPTIONAL
}
```

Detailed Comments	SS requirements for downlink. 1. The SS MAC layer shall not use a restrictednon-allowed TFC for DL. 2. The SS MAC layer shall not use a TFC that requires the SS RLC layer to provide padding PDUs (3GPP TS 25.322 [**Error! Reference source not found.**]) 3. In the case that there is data pending on one or more RLC entities, but not enough to use one of the allowed TFCs: a. The SS MAC layer shall use the 'No data' TFC until there is enough data in the RLC to use another allowed TFC. b. The SS RLC layer shall buffer the data until there is enough data in the RLC entities for the MAC layer to use an allowed TFC other than the 'No data' TFC for transmission of the data. NB: The TTCN author is responsible for ensuring: 1. The SDU discard function is not configured for TM and UM entities in the UE, and is configured to no_discard for AM entities in the UE. 2. That RLC SDUs that are expected to be sent in the same TTI (due to a TFC restriction) are sent as quickly as possible to minimize the number of 'no data' TFCs used by the MAC layer, and the amount of buffering that must be performed by the RLC layer. SS requirements for uplink: The SS shall discard all data received using a restricted non-allowed TFC.

7.3.2.2.20 CMAC_SecurityMode_Config

ASN.1 ASP Type Definition	
Type Name	CMAC_SecurityMode_Config_CNF
PCO Type	CSAP
Comment	To confirm to configure the MAC security mode
Type Definition	

```
SEQUENCE    {
            cellId                  INTEGER(-1..63)
}
```

ASN.1 ASP Type Definition	
Type Name	CMAC_SecurityMode_Config_REQ
PCO Type	CSAP
Comment	To request to configure the MAC security mode. If there are several CMAC_Ciphering_Activate_REQ follow this ASP, the SS shall take a serial of specified actions on the same contents in this ASP at the activation time indicated in each CMAC_Ciphering_Activate_REQ.
Type Definition	

```
SEQUENCE {
            cellId                  INTEGER(-1..63),
            macCipheringInfo        SecurityInfo
}
```

7.3.2.2.21 CMAC_SequenceNumber

ASN.1 ASP Type Definition	
Type Name	CMAC_Sequence_Number_CNF
PCO Type	CSAP
Comment	To return the requested counter sequence number on MAC-d DCH. The physicalChannelIdentity of DPCH applies to routingInfo.
Type Definition	

```
SEQUENCE    {
            cellId                  INTEGER(-1..63),
            routingInfo             RoutingInfo,
            count_C_MSB_UL          COUNT_C_MSB ,
            count_C_MSB_DL          COUNT_C_MSB
}
```

ASN.1 ASP Type Definition	
Type Name	CMAC_SequenceNumber_REQ
PCO Type	CSAP
Comment	To request the MAC layer to return current counter sequence numbers. The physicalChannelIdentity of DPCH applies to routingInfo.
Type Definition	

```
SEQUENCE    {
            cellId                      INTEGER(-1..63),
            routingInfo                 RoutingInfo
}
```

7.3.2.2.22 CMAC_SYSINFO_Config

ASN.1 ASP Type Definition	
Type Name	CMAC_SYSINFO_Config_CNF
PCO Type	CSAP
Comment	To confirm to setup the system information block
Type Definition	

```
SEQUENCE    {
            cellId                      INTEGER(0..63),
            routingInfo                 RoutingInfo
}
```

ASN.1 ASP Type Definition	
Type Name	CMAC_SYSINFO_Config_REQ
PCO Type	CSAP
Comment	To request MAC layer to send the BCCH message on the specified configuration.
Type Definition	

```
SEQUENCE     {
               cellId                      INTEGER(0..63),
               routingInfo                 RoutingInfo,
               ratType                     RatType,
               configMessage               CmacSysinfoConfigReq
}
```

ASN.1 Type Definition	
Type Name	CmacSysinfoConfigReq
Comment	
Type Definition	

```
SEQUENCE    {

        sg REP                  INTEGER     (2..12),
                                -- Repetition period is the sg REP-th power of 2.
        sg_POS                  INTEGER     (0..2047),
                                -- The position of each segment is 2 * sg_POS.
        bcch_ModificationTime   BCCH_ModificationTime   OPTIONAL
}
```

7.3.2.2.22a CRLC_Bind_TestData_TTI

ASN.1 ASP Type Definition	
Type Name	CRLC_Bind_TestData_TTI_CNF
PCO Type	CSAP
Comment	To confirm the request of binding subsequent data sending RLC_TR_TestDataReq on the different DL RBs in the same TTI.
Type Definition	

```
SEQUENCE {
            cellId                      INTEGER(-1..63),
            result                      ENUMERATED{failure(0), success(1)}
}
```

ASN.1 ASP Type Definition	
Type Name	CRLC_Bind_TestData_TTI_REQ
PCO Type	CSAP
Comment	To request binding subsequent data sending RLC_TR_TestDataReq on the different DL RBs in the same TTI. On the request, the transmission of the test data is temporarily suppressed on those radio bearers which follow subsequently this CRLC_Bind_TestData_TTI_REQ and have 'numOfDiffRb' different RB IDs. Having received the number 'numOfDiffRb' of RLC_TR_TestDataReq, the SS RLC sends the test data on those RBs in the same TTI according to the allowed DL TFCS.
Type Definition	

```
SEQUENCE {
            cellId                  INTEGER(-1..63),
            numOfDiffRb             INTEGER(2..6)  -- Number of different RB IDs
}
```

7.3.2.2.23 CRLC_Ciphering_Activate

ASN.1 ASP Type Definition	
Type Name	CRLC_Ciphering_Activate_CNF
PCO Type	CSAP
Comment	To confirm to activate or inactivate the ciphering
Type Definition	

```
SEQUENCE {
            cellId                  INTEGER(-1..63)

}
```

ASN.1 ASP Type Definition	
Type Name	CRLC_Ciphering_Activate_REQ
PCO Type	CSAP
Comment	To request to start orrestart downlink ciphering or uplink deciphering. Each call of the ASP includes one RLC SN in rb-DL-CiphActivationTimeInfo for the corresponding rb-identity. Initialize the 20 MSB of HFN component of COUNT-C to the START value stored. For RLC_UM COUNT-C: - If the value of incHFN is set to "NotInc" the SS initialiszes the remaining LSBs of HFN component in UM COUNT-C to zero. - If the value of incHFN is set to "Inc" the SS initializes the remaining LSBs of HFN component in UM COUNT-C to zero, then increments the HFN by one. For RLC_AM COUNT-C: - If the value of incHFN is set to "NotInc" no further action is needed. - If the value of incHFN is set to "Inc" the SS increments the HFN by one.
Type Definition	

```
SEQUENCE {
            cellId                      INTEGER(-1..63),
            ratType                     RatType,
            cn_DomainIdentity           CN_DomainIdentity,
            ciphActivationInfo          CiphActivationInfo,
            incHFN      RLC_IncMode
}
```

ASN.1 Type Definition	
Type Name	CiphActivationInfo
Comment	DL or UL ciphering activation info If RB is omitted in rB_UL_CiphActivationTimeInfo the SS takes no action on this RB and the ciphering configuration keeps unchanged on this RB. CipheringModeCommand = dummy NULL means no ciphering.
Type Definition	

```
CHOICE {
            cipheringModeInfo               CipheringModeInfo,
            rb UL CiphActivationTimeInfo    RB ActivationTimeInfoList
}
```

ASN.1 Type Definition	
Type Name	RLC_IncMode
Comment	
Type Definition	

```
ENUMERATED{notInc(0), inc(1)}
```

7.3.2.2.24 CRLC_Config

ASN.1 ASP Type Definition	
Type Name	CRLC_Config_CNF
PCO Type	CSAP
Comment	For RLC emulator to confirm that a previous attempt to establish, re_configure or release a radio bearer has been successful.
Type Definition	

```
SEQUENCE  {
            cellId                      INTEGER(-1..63),
            routingInfo                 RoutingInfo
}
```

ASN.1 ASP Type Definition	
Type Name	CRLC_Config_REQ
PCO Type	CSAP
Comment	To request to setup, reconfigure or release RLC entity

Type Definition

```
SEQUENCE    {
            cellId                      INTEGER(-1..63),
            routingInfo                 RoutingInfo,
            ratType                     RatType,
            configMessage               CrlcConfigReq
}
```

ASN.1 Type Definition	
Type Name	CrlcConfigReq
Comment	To request to setup, re_configure release RLC entity The Stop parameter indicates that the RLC entity shall not transmit or receive RLC PDUs. The Continue parameter indicates that the RLC entity shall continue transmission and reception of RLC PDUs. When the RLC entity is stopped, the all protocol parameters, such as the protocol variables, RLC timers and status are not affected. Triggered polls and status transmissions are delayed until the RLC entity is continued.

Type Definition

```
CHOICE  {
        setup                       RBInfo,
        reconfigure                 RBInfo,
        release                     NULL,
        sS stop                     NULL,
        sS continue                 NULL
}
```

ASN.1 Type Definition	
Type Name	RBInfo
Comment	

Type Definition

```
SEQUENCE {
             sS_rlc_Info            SS_RLC_Info         OPTIONAL,
             rB LogCH Mapping       RB LogCH Mapping
}
```

ASN.1 Type Definition	
Type Name	RB_LogCH_Mapping
Comment	Provide mapping information between RB, logical channel and CN domain.

Type Definition

```
SEQUENCE {
    uLlogicalChannelIdentity            LogicalChannelIdentity  OPTIONAL,
    dLlogicalChannelIdentity            LogicalChannelIdentity  OPTIONAL,
    logicalChannelType                  LogicalChannelType      OPTIONAL,
    cn-DomainIdentity                   CN-DomainIdentity       OPTIONAL
}
```

ASN.1 Type Definition	
Type Name	SS_RLC_Info
Comment	UL and DL have been swapped intentionally in this type definition. This is to maximize re-use of the type definitions in 3GPP TS 25.331 [**Error! Reference source not found.**] which are intended to configure a UE, where UL is transmission, and DL is reception. For the SS, UL is reception, and DL is transmission. For example, consider configuring a DL AM RLC entity (transmitter) in the SS. The transmission parameters to be configured include PollingInformation, Transmission-RLC-Discard etc. If the DL-AM-RLC-Mode type definition is used to configure this entity, it is only possible to configure reception parameters such as StatusInformation, and receiving window size. By swapping UL and DL, it is possible to configure the DL AM RLC entity using the existing type definition UL-AM-RLC-Info, which contains all of the required transmission parameters. Either sS_ul_RLC_Mode for R99 or sS_ul_RLC_Mode_r5 for Rel-5 is chosen at the RLC configuration.
Type Definition	

SEQUENCE {
sS_ul_RLC_Mode DL_RLC_Mode OPTIONAL,
sS dl RLC Mode SS DL RLC Mode OPTIONAL,
sS ul RLC Mode r5 DL RLC Mode r5 OPTIONAL -- ~~later than r4~~Rel-5 or later
}	

ASN.1 Type Definition	
Type Name	SS_DL_RLC_Mode
Comment	
Type Definition	

SEQUENCE {
dl_PayloadSize PayloadSize OPTIONAL,
dl RLCModeInfo UL RLC Mode
}	

ASN.1 Type Definition	
Type Name	PayloadSize
Comment	
Type Definition	
INTEGER (0..4992)	

7.3.2.2.25 CRLC_Integrity_Activate

ASN.1 ASP Type Definition	
Type Name	CRLC_integrity_Activate_CNF
PCO Type	CSAP
Comment	To confirm to activate or inactivate the integrity protection
Type Definition	

SEQUENCE {
cellId INTEGER(-1..63)
}	

ASN.1 ASP Type Definition	
Type Name	CRLC_Integrity_Activate_REQ
PCO Type	CSAP
Comment	To request to start or to modifythe the downlink or uplink integrity protection. The ASP shall be called before send SECURITY MODE COMMAND. It activates the integrity on all SRBs in DL. The SS initializes the 20 MSB of HFN component of COUNT-I to the START value stored and set the remaining LSBs of HFN component in COUNT-I to zero. If integrityModeCommand in ASP is set to “startIntegrityProtection”, the SS shall start the downlink integrity protection from the first downlink RRC message. If te integrityModeCommand in ASP is set to “modify”, the SS shall start the downlink integrity protection at the RRC message sequence number specified in “dl_IntegrityProtActivationInfo”.
Type Definition	

SEQUENCE {
cellId INTEGER(-1..63),
cn_DomainIdentity CN_DomainIdentity,
integrityActivationInfo IntegrityActivationInfo
}	

ASN.1 Type Definition	
Type Name	IntegrityActivationInfo
Comment	DL or UL integrity activation info At the RRC message sequence numbers specified in the ul_IntegProtActivationInfo the SS shall initialize COUNT-I for the SRB's indicated in the ul_IntegrityProtActivationInfo and start using the new configuration on uplink for the indicated SRB's. If the START value is omitted in the CRLC_SecurityMode_Config_REQ above COUNT-I initialization shall not be performed.
Type Definition	

CHOICE {
integrityProtectionModeInfo IntegrityProtectionModeInfo,
ul-IntegProtActivationInfo IntegrityProtActivationInfoList
}	

ASN.1 Type Definition	
Type Name	IntegrityProtActivationInfoList
Comment	List of SS IntegrityProtActivationInfo
Type Definition	
SEQUENCE (SIZE (1..maxRB)) OF SS_IntegrityProtActivationTimeInfo	

ASN.1 Type Definition	
Type Name	SS_IntegrityProtActivationTimeInfo
Comment	Omitting rrc_MessageSequenceNumber means activation time set to "now".
Type Definition	

SEQUENCE {
rb Identity INTEGER (-31..32),
rrc MessageSequenceNumber RRC MessageSequenceNumber OPTIONAL
}	

7.3.2.2.26 CRLC_Integrity_Failure

ASN.1 ASP Type Definition	
Type Name	CRLC_Integrity_Failure_IND
PCO Type	CSAP
Comment	RLC emulator reports the occurrences of a failure in integrity protection, i.e. reception of an integrity-protected RLC AM/UM SDU containing a non-matching X-MAC value compared to the desired.
Type Definition	

SEQUENCE {
cellId INTEGER(-1..63),
routingInfo RoutingInfo,
failureCause ENUMERATED { codeNotMatched(0) }
-- the enumerated types of failure cause field is ffs
}	

7.3.2.2.26a CRLC_MAC_I_Mode

ASN.1 ASP Type Definition	
Type Name	CRLC_MAC_I_Mode_CNF
PCO Type	CSAP
Comment	Confirm a previous CRLC_MAC_I_Mode_REQ being successful.
Type Definition	

```
SEQUENCE {
        cellId              INTEGER(-1..63),
        srbId               INTEGER(0..4)
}
```

ASN.1 ASP Type Definition	
Type Name	CRLC_MAC_I_Mode_REQ
PCO Type	CSAP
Comment	To set the MAC-I calculation mode. The ASP does not affect the UL integrity calculation. If mode = normal, the SS generates the correct MAC-I. If mode = erroneous, the SS generates any wrong MAC-I value different from the one it shall be. As default, when the integrity protection is jswitched on the SS enters the normal MAC-I calculation mode.
Type Definition	

```
SEQUENCE    {
            cellId              INTEGER(-1..63),
            srbId               INTEGER (0..4),
            mode                ENUMERATED {normal(0), erroneous(1)}
}
```

7.3.2.2.27 CRLC_Resume

ASN.1 ASP Type Definition	
Type Name	CRLC_Resume_CNF
PCO Type	CSAP
Comment	To confirm the resume request
Type Definition	

```
SEQUENCE    {
            cellId                      INTEGER(-1..63),
            routingInfo                 RoutingInfo
}
```

ASN.1 ASP Type Definition	
Type Name	CRLC_Resume_REQ
PCO Type	CSAP
Comment	To request to resume data transmission
Type Definition	

```
SEQUENCE    {
            cellId                      INTEGER(-1..63),
            routingInfo                 RoutingInfo
}
```

7.3.2.2.27a CRLC_RRC_MessageSN

ASN.1 ASP Type Definition	
Type Name	CRLC_RRC_MessageSN_CNF
PCO Type	CSAP
Comment	To return the counter I values (HFN and RRC message sequence number) for sending the next DL RRC message or for receiving the next UL RRC message on the concerned SRB. COUNT_I_MSB is the 28 MSB of the COUNT-I (HFN)
Type Definition	

```
SEQUENCE    {
            cellId                      INTEGER(-1..63),
            routingInfo                 RoutingInfo,
            count_I_MSB_UL              COUNT_I_MSB,
            count_I_LSB_UL              RRC_SequenceNumber,
            count_I_MSB_DL              COUNT_I_MSB,
            count_I_LSB_DL              RRC_SequenceNumber
}
```

ASN.1 Type Definition	
Type Name	COUNT_I_MSB
Comment	28 bits long
Type Definition	

```
INTEGER (0..268435455)
```

ASN.1 Type Definition	
Type Name	RRC_SequenceNumber
Comment	4 bits long
Type Definition	

```
INTEGER (0..15)
```

ASN.1 ASP Type Definition	
Type Name	CRLC_RRC_MessageSN_REQ
PCO Type	CSAP
Comment	To request the SS to return the values in COUNT-I for sending the next DL RRC message or for receiving the next UL RRC message on the concerned SRB.
Type Definition	

```
SEQUENCE    {
            cellId                      INTEGER(-1..63),
            routingInfo                 RoutingInfo
}
```

7.3.2.2.28 CRLC_SecurityMode_Config

ASN.1 ASP Type Definition	
Type Name	CRLC_SecurityMode_Config_CNF
PCO Type	CSAP
Comment	To confirm to configure the RLC security mode If several subsequent CRLC_Integrity_Activate_REQ or CRLC_Ciphering_Activate_REQ follow this ASP, the SS shall take a serial of specified actions on the same contents in this ASP at the activation time indicated in each CRLC_ Integrity (or Ciphering)_Activate_REQ.
Type Definition	

```
SEQUENCE    {
            cellId                  INTEGER(-1..63)
}
```

ASN.1 ASP Type Definition	
Type Name	CRLC_SecurityMode_Config_REQ
PCO Type	CSAP
Comment	To request to configure the RLC security mode
Type Definition	

```
SEQUENCE    {
            cellId                  INTEGER(-1..63),
            rlcSecurityInfo         SecurityInfo}
```

ASN.1 Type Definition	
Type Name	SecurityInfo
Comment	The integrityKey is not applicable to MAC
Type Definition	

```
SEQUENCE{
            cn-DomainIdentity               CN-DomainIdentity,
            startValue                      START_VALUE             OPTIONAL,
            cipheringKey                    BITSTRING(128)          OPTIONAL,
            integrityKey                    BITSTRING(128)          OPTIONAL,
            gsmCipheringKey                 BITSTRING(64)           OPTIONAL
}
```

Detailed Comments	When the SS receives SecurityInfo, the SS first stores the contents. The SecurityInfo contents is not activated until receiving the subsequent ASP, CRLC_Ciphering_Activate_REQ, CMAC_Ciphering_Activate_REQ or CRLC_Integrity_Activate_REQ. Omitted fields of SecurityInfo shall not be affected by the subsequent ASP at the activation time. EXAMPLE: Omitting of startValue indicates not to re-initialize the relevant COUNT-C or COUNT-I, omitting of cipheringKey indicates that the current ciphering key is valid.

7.3.2.2.28a CRLC_SetRRC_MessageSN

ASN.1 ASP Type Definition	
Type Name	CRLC_SetRRC_MessageSN_CNF
PCO Type	CSAP
Comment	To confirm the RRC message sequence number setting request
Type Definition	

```
SEQUENCE    {
            cellId                  INTEGER(-1..63),
            routingInfo             RoutingInfo
}
```

ASN.1 ASP Type Definition	
Type Name	CRLC_SetRRC_MessageSN_REQ
PCO Type	CSAP
Comment	To request the SS to set the RRC message sequence number in COUNT-I to the value specified in this ASP. The ASP is used to initialize SS RRC SN.
Type Definition	

```
SEQUENCE    {
            cellId                  INTEGER(-1..63),
            routingInfo             RoutingInfo,
            count_I_LSB_UL          RRC_SequenceNumber      OPTIONAL,
            count_I_LSB_DL          RRC_SequenceNumber      OPTIONAL
}
```

7.3.2.2.28b CRLC_Set_Count_I

ASN.1 ASP Type Definition	
Type Name	CRLC_Set_Count_I_CNF
PCO Type	CSAP
Comment	To confirm the count_I_MSB and the RRC message sequence number setting request

Type Definition

```
SEQUENCE    {
            cellId                      INTEGER(-1..63),
            routingInfo                 RoutingInfo
}
```

ASN.1 ASP Type Definition	
Type Name	CRLC_Set_Count_I_REQ
PCO Type	CSAP
Comment	To request the SS to set the 28 MSB and 4 LSB (RRC message sequence number) in COUNT-I according to the parameter values specified in this ASP. Parameters omitted in this ASP shall leave the corresponding bits in the SS COUNT-I unchanged. Typically the parameters count_I_MSB_UL and count_I_MSB_DL are omitted. They are only applied in a few specific security test cases requiring restoration of the used integrity context. Note: The 28 MSBs are initialized with the UE-provided START value plus 8 bits set to 0, using a different ASP (CRLC_SecurityMode_Config_REQ).

Type Definition

```
SEQUENCE    {
            cellId                      INTEGER(-1..63),
            routingInfo                 RoutingInfo,
            count_I_LSB_UL              RRC_SequenceNumber      OPTIONAL,
            count_I_LSB_DL              RRC_SequenceNumber      OPTIONAL,
            count_I_MSB_UL              COUNT_I_MSB             OPTIONAL,
            count_I_MSB_DL              COUNT_I_MSB             OPTIONAL
}
```

.

7.3.2.2.29 CRLC_SequenceNumber

ASN.1 ASP Type Definition	
Type Name	CRLC_Sequence_Number_CNF
PCO Type	CSAP
Comment	To return the requested counter sequence number to which the next DL PDU to be sent or the expected UL PDU to be received.

Type Definition

```
SEQUENCE    {
            cellId                      INTEGER(-1..63),
            routingInfo                 RoutingInfo,
            count_C_MSB_UL              COUNT_C_MSB,
            count_C_LSB_UL              RLC_SequenceNumber,
            count_C_MSB_DL              COUNT_C_MSB,
            count_C_LSB_DL              RLC_SequenceNumber
}
```

ASN.1 ASP Type Definition	
Type Name	CRLC_SequenceNumber_REQ
PCO Type	CSAP
Comment	To request the RLC layer to return current counter sequence numbers to which the next DL PDU to be sent or the expected UL PDU to be received.

Type Definition

```
SEQUENCE    {
            cellId                      INTEGER(-1..63),
            routingInfo                 RoutingInfo
}
```

7.3.2.2.29a CRLC_SendContinuousData_TTI

ASN.1 ASP Type Definition	
Type Name	CRLC_SendContinuousData_CNF
PCO Type	CSAP
Comment	Confirm sending data in every TTI on each requested RB
Type Definition	

```
SEQUENCE    {
            cellId                      INTEGER(-1..63),
            result                      ENUMERATED{failure(0), success(1)}
}
```

ASN.1 ASP Type Definition	
Type Name	CRLC_SendContinuousData_REQ
PCO Type	CSAP
Comment	To request sending data in every TTI on each RB identified. After the CMAC_Restriction_REQ, the TFC under test will be the one corresponding to the maximum CTFC value in the Restricted list, so that SS can select the number of Transport blocks and the size of Transport blocks on individual Transport channels derived from this CTFC. SS shall take care about all kind of discard info in all RLC modes and the final goal is that the DL TFCs under test shall be selected in downlink for sending data on the request RBs in each TTI.
Type Definition	

```
SEQUENCE    {
            cellId                      INTEGER(-1..63),
            rabTxInfo                   RabTxInfo
}
```

ASN.1 Type Definition	
Type Name	RabTxInfo
Comment	Provide test data, number of RBs, and RB Tx info of each RB (RB id, SDU size and number of SDUs) to be transmitted in consecutive TTIs
Type Definition	

```
SEQUENCE {
        testData                BIT STRING (SIZE (8..163840)),
        rbTxInfoList            SEQUENCE (SIZE (1..6)) OF RbTxInfo
}
```

ASN.1 Type Definition	
Type Name	RbTxInfo
Comment	Info on RB id and the actual DL test data size (SDU_Size * number of SDUs). The actual test data is extracted from the first (SDU_Size * number of SDUs) bits in the raw testData buffer. SS shall transmit the actual test data in every TTI. The value nomOfSdu = T / TTI , whereby T=1200 is the duration of the data transmitting in the RAB test, taking into account the test tolerance (+50 %) of the UE loop back delay (< 800 ms).
Type Definition	

```
SEQUENCE {
        rB Identity             INTEGER     (-31..32),
        sduSize                 INTEGER     (1..163840),
        nomOfSdu                INTEGER     (0..255) -- 0 is set for no data on this RB
}
```

7.3.2.2.30 CRLC_Status

ASN.1 ASP Type Definition	
Type Name	CRLC_Status_IND
PCO Type	CSAP
Comment	To report the occurrence of certain events to RRC. Note: the possible event types to be defined for this ASP is FFS.

Type Definition

```
SEQUENCE    {
            cellId                  INTEGER(-1..63),
            routingInfo             RoutingInfo,
            ratType                 RatType,
            statusInd               CrlcStatusInd
}
```

ASN.1 Type Definition	
Type Name	CrlcStatusInd
Comment	

Type Definition

```
ENUMERATED  {
            dataLinkFailure (0)
            maxRESET        (1),
            sDUDiscarded    (2)
            --    More event types are to be added here
}
```

7.3.2.2.31 CRLC_Suspend

ASN.1 ASP Type Definition	
Type Name	CRLC_Suspend_CNF
PCO Type	CSAP
Comment	To confirm the suspension of data transmission. The parameter vt indicates either the value of the Send State Variable VT(S) for AM, or the value of Data State Varialble VT(US) for UM.

Type Definition

```
SEQUENCE    {
            cellId                  INTEGER(-1..63),
            routingInfo             RoutingInfo,
            vt                      RLC_SequenceNumber
}
```

ASN.1 ASP Type Definition	
Type Name	CRLC_Suspend_REQ
PCO Type	CSAP
Comment	To request the suspension of data transmission. The parameter n indicates that an RLC entity will not send a PDU with "Sequence Number"≥VT(S)+N for AM and "Sequence Number"≥VT(US)+N for UM, where N is a non-negative integer.

Type Definition

```
SEQUENCE    {
            cellId                  INTEGER(-1..63),
            routingInfo             RoutingInfo,
            n                       RLC_SequenceNumber
}
```

7.3.2.2.32 CBMC_Config

ASN.1 ASP Type Definition	
Type Name	CBMC_Config_CNF
PCO Type	CSAP
Comment	To confirm the BMC configuration, reconfiguration or release.

Type Definition

```
SEQUENCE    {
            cellId                      INTEGER(0..63),
            routingInfo                 RoutingInfo         -- RBid
}
```

ASN.1 ASP Type Definition	
Type Name	CBMC_Config_REQ
PCO Type	CSAP
Comment	To request the configuration, reconfiguration or release of BMC.
Type Definition	

```
SEQUENCE    {
        cellId                      INTEGER(0..63),
        routingInfo                 RoutingInfo,            -- RBid
        configMessage               CHOICE {
            setup                       BMC SchedulingInfo,
            release                     NULL}
}
```

7.3.2.2.33 RLC_TR_DATA

ASN.1 ASP Type Definition	
Type Name	RLC_TR_DATA_REQ
PCO Type	DSAP
Comment	To request to transmit DATA using transparent mode.
Type Definition	

```
SEQUENCE    {
                cellId                  INTEGER(-1..63),
                routingInfo             RoutingInfo,
                tM Message              CHOICE  {
                        dL DCCH Message             DL DCCH Message,
                        dL CCCH Message             DL CCCH Message,
                        pCCH_Message                PCCH_Message,
                        dL_SHCCH_Message            DL_SHCCH_Message,
                        bCCH_FACH_Message           BCCH_FACH_Message,
                        bCCH BCH Message            BCCH BCH Message,
                        invalid dL DCCH Message     Invalid DL DCCH Message,
                        invalid dL CCCH Message     Invalid DL CCCH Message,
                        invalid_dL_SHCCH_Message    Invalid_DL_SHCCH_Message}
}
```

ASN.1 ASP Type Definition	
Type Name	RLC_TR_DATA_IND
PCO Type	DSAP
Comment	To indicate to receive DATA using transparent mode.
Type Definition	

```
SEQUENCE    {
            cellId                      INTEGER(-1..63),
            routingInfo                 RoutingInfo,
            tM_Message                  CHOICE  {
                        uL_DCCH_Message             UL_DCCH_Message,
                        uL_CCCH_Message             UL_CCCH_Message,
                        uL SHCCH Message            UL SHCCH Message}
}
```

7.3.2.2.34 RLC_AM_DATA

ASN.1 ASP Type Definition	
Type Name	RLC_AM_DATA_REQ
PCO Type	DSAP
Comment	To request to transmit DATA using acknowledged mode.

Type Definition

```
SEQUENCE    {
            cellId                  INTEGER (-1..63),
            routingInfo         RoutingInfo,
            confirmationRequest     AmConfirmationRequest,
            aM Message              CHOICE  {
                        dL DCCH Message             DL DCCH Message,
                        dL_CCCH_Message             DL_CCCH_Message,
                        pCCH_Message                PCCH_Message,
                        dL_SHCCH_Message            DL_SHCCH_Message,
                        bCCH FACH Message           BCCH FACH Message,
                        bCCH BCH Message            BCCH BCH Message,
                        invalid_dL_DCCH_Message     Invalid_DL_DCCH_Message,
                        invalid_dL_CCCH_Message     Invalid_DL_CCCH_Message,
                        invalid_dL_SHCCH_Message    Invalid_DL_SHCCH_Message}
}
```

ASN.1 Type Definition	
Type Name	AmConfirmationRequest
Comment	If the noConfirmationRequested option is used, then an RLC_AM_DATA_CNF is not expected from the RLC AM entity. If the confirmationRequested option is used, then the RLC AM entity is being requested to provide an RLC_AM_DATA_CNF primitive containing the same Mui value.

Type Definition

```
CHOICE {
            noConfirmationRequest       NULL,
            confirmationRequested       Mui
}
```

ASN.1 Type Definition	
Type Name	Mui
Comment	

Type Definition

```
INTEGER {0..4095}
```

ASN.1 ASP Type Definition	
Type Name	RLC_AM_DATA_IND
PCO Type	DSAP
Comment	To indicate to receive DATA using acknowledged mode.

Type Definition

```
SEQUENCE    {
            cellId                      INTEGER(-1..63),
            routingInfo                 RoutingInfo,
            integrityResult             IntegrityResult,
            aM_Message                  CHOICE  {
                        uL_DCCH_Message             UL_DCCH_Message,
                        uL_CCCH_Message             UL_CCCH_Message,
                        uL_SHCCH_Message            UL_SHCCH_Message}
}
```

ASN.1 Type Definition	
Type Name	IntegrityResult
Comment	

Type Definition

```
CHOICE  {
            integrityNotUsed        NULL,
            integrityUsed           IntegrityStatus
}
```

ASN.1 Type Definition	
Type Name	IntegrityStatus
Comment	
Type Definition	

ENUMERATED {
i_pass(0), i_fail(1)
}	

ASN.1 ASP Type Definition	
Type Name	RLC_AM_DATA_CNF
PCO Type	DSAP
Comment	For RLC emulator to report to the upper layer that a previously transmitted SDU has been acknowledged correctly by the UE
Type Definition	

SEQUENCE {
cellId INTEGER(-1..63),
routingInfo RoutingInfo,
mui Mui
}	

7.3.2.2.35 RLC_UM_DATA

ASN.1 ASP Type Definition	
Type Name	RLC_UM_DATA_REQ
PCO Type	DSAP
Comment	To request to transmit DATA using unacknowledged mode.
Type Definition	

```
SEQUENCE    {
            cellId                  INTEGER(-1..63),
            routingInfo             RoutingInfo,
            uM Message               CHOICE {
                        dL DCCH Message             DL DCCH Message,
                        dL_CCCH_Message             DL_CCCH_Message,
                        pCCH_Message                PCCH_Message,
                        dL_SHCCH_Message            DL_SHCCH_Message,
                        bCCH FACH Message           BCCH FACH Message,
                        bCCH BCH Message            BCCH BCH Message,
                        invalid dL DCCH Message     Invalid DL DCCH Message,
                        invalid_dL_CCCH_Message     Invalid_DL_CCCH_Message,
                        invalid_dL_SHCCH_Message    Invalid_DL_SHCCH_Message},
                        specialLI                   BOOLEAN
}
```

ASN.1 ASP Type Definition	
Type Name	RLC_UM_DATA_IND
PCO Type	DSAP
Comment	To indicate to receive DATA using unacknowledged mode.
Type Definition	

```
SEQUENCE    {
            cellId                  INTEGER(-1..63),
            routingInfo             RoutingInfo,
            integrityResult         IntegrityResult,
            uM Message               CHOICE {
                        uL DCCH Message             UL DCCH Message,
                        uL CCCH Message             UL CCCH Message,
                        uL_SHCCH_Message            UL_SHCCH_Message}
}
```

7.3.2.3 Specific ASP and IE definitions for 1.28 Mcps TDD (~~later than R99~~Rel-4 or later)

The ASP definitions in 7.3.2.2 are applied to 1.28 Mcps TDD with the exceptions.

1. The ASP definition CPHY_AICH_AckModeSet is not applied.

2. Specifici IE definitions in this clause replace the definitions in 7.3.2.2.

7.3.2.3.1 Specific ASP definitions

ASN.1 ASP Type Definition	
Type Name	CPHY_Cell_Config_REQ
PCO Type	CSAP
Comment	Applicable ~~later than r99~~Rel-4 or later To request to setup the cell parameter. The unit of tcell is chip; the unit of sfnOffset is frame number; the primary scambling code number of the cell is 16*primaryScramblingCode_SS; the unit of dLTxAttenuationLevel is dB.

Type Definition

```
SEQUENCE {
    cellId                              INTEGER (0..63),
    sfnOffset                           INTEGER (0 .. 4095),
    frequencyInfo                       FrequencyInfo,
    cellTxPowerLevel                    CellTxPowerLevel,
    dLTxAttenuationLevel                INTEGER(0..30),
    cellParametersID                    CellParametersID,
    timeSlotConfigurationList_LCR       TimeSlotConfigurationList_LCR,
    dwPCHInfo                           DwPCHInfo,
    transmissionDiversityApplied        ENUMERATED {NotApplied(0),Applied(1)}   OPTIONAL
}
```

7.3.2.3.2 Specific IE definitions

ASN.1 Type Definition	
Type Name	CphyRlModifyReq
Comment	Applicable ~~later than r99~~Rel-4 or later for LCR TDD

Type Definition

```
SEQUENCE    {
        activationTime                  SS_ActivationTime,
        physicalChannelInfo             CHOICE {
                secondaryCCPCHInfo          SecondaryCCPCHInfo,
                pRACHInfo                   PRACHInfo,
                dPCHInfo                    DPCHInfo
                                                }
}
```

ASN.1 Type Definition	
Type Name	CphyRlSetupReq
Comment	Applicable ~~later than r99~~Rel-4 or later for LCR TDD To request to setup the Radio Link for LCR TDD

Type Definition

```
SEQUENCE {
    physicalChannelInfo     CHOICE {
        primaryCCPCHInfo        PrimaryCCPCHInfo,
        secondaryCCPCHInfo      SecondaryCCPCHInfo,
        pRACHInfo               PRACHInfo,
        pICHInfo                PICHInfo,
        dPCHInfo                DPCHInfo,
        pDSCHInfo               PDSCHInfo,
        pUSCHInfo               PUSCHInfo
                                    }
}
```

ASN.1 Type Definition	
Type Name	PrimaryCCPCHInfo
Comment	Applicable ~~later than r99~~Rel-4 or later for LCR TDD

Type Definition

```
SEQUENCE {
    sctd_Indicator          ENUMERATED {NotApplied(0), Applied(1)},
    tstd_Indicator          ENUMERATED {NotApplied(0), Applied(1)},
    commonTimeSlotInfo      CommonTimeslotInfo,
    dL TxPower PCCPCH       DL TxPower PCCPCH
}
```

ASN.1 Type Definition	
Type Name	SecondaryCCPCHInfo
Comment	Applicable ~~later than r99~~Rel-4 or later for LCR TDD The range for powerOffsetOfTFCI_PO1 and powerOffsetOfPILOT_PO3 is 0-6 dB, 0.25 dB per step.
Type Definition	

```
SEQUENCE {
    tstd_Indicator          ENUMERATED {NotApplied(0), Applied(1)},
    sctd Indicator          ENUMERATED {NotApplied(0), Applied(1)},
    dl TxPower              DL TxPower,
    commonTimeSlotInfo      CommonTimeslotInfoSCCPCH,
    channelisationCode      SCCPCH_ChannelisationCodeList,
    individualTimeslotInfo  IndividualTimeslotInfo_LCR_r4,
    powerOffsetOfTFCI_PO1   INTEGER (0..24) OPTIONAL
}
```

ASN.1 Type Definition	
Type Name	PRACHInfo
Comment	Applicable ~~later than r99~~Rel-4 or later for LCR TDD
Type Definition	

```
SEQUENCE {
    pRACH_RACH_Info_LCR_r4          PRACH_RACH_Info_LCR_r4,
    accessServiceClass_TDD_LCR      AccessServiceClass_TDD_LCR_r4,
    fPACH_Power                     DL_TxPower
}
```

ASN.1 Type Definition	
Type Name	DL_DPCHInfo
Comment	Applicable ~~later than r99~~Rel-4 or later for LCR TDD The range for powerOffsetOfTPC_PO2 and powerOffsetOfTFCI_PO1 and powerOffsetOfPILOT_PO3 is 0 dB to 6 dB, 0,25 dB per step.
Type Definition	

```
SEQUENCE {
    dl_CommonInformation            DL_CommonInformation_r4,
    dl_DPCH_InfoPerRL               DL_DPCH_InfoPerRL_r4,
    powerOffsetOfTFCI PO1           INTEGER (0..24),
    powerOffsetOfTPC PO2            INTEGER (0..24),
    dl_TxPower                      DL_TxPower,
    dl_TxPowerMax                   DL_TxPower,
    dl_TxPowerMin                   DL_TxPower,
    dL_TimeslotISCPInfoLCR          TimeslotListWithISCP
}
```

ASN.1 Type Definition	
Type Name	PDSCHInfo
Comment	Applicable ~~later than r99~~Rel-4 or later for LCR TDD
Type Definition	

```
SEQUENCE {
    pdsch_Identity          PDSCH_Identity,
    pdsch_Info              PDSCH_Info_r4,
    pdsch PowerControlInfo  PDSCH PowerControlInfo  OPTIONAL,
    dl TxPower              DL TxPower
}
```

7.3.3 TTCN primitives

7.3.3.1 UTRAN TTCN primitives

Table 17 shows the primitives that are used for RLC, BMC ,RB and PDCP tests, these primitives are defined in TTCN tabular form.

Table 17: Primitives for RLC, BMC and RB tests

Primitive	Parameters	Use
RLC_TR_TestDataReq	Cell identity INTEGER (-31..32) Data (Meta type PDU)	The ASP is used to request the transmission of unstructured data using transparent mode in the downlink direction
RLC_TR_TestDataInd	Cell identity INTEGER (-31..32) Data (Meta type PDU)	The ASP is used to indicate the reception of unstructured data using transparent mode in the uplink direction
RLC_UM_TestDataReq	Cell identity INTEGER (-31..32) Data (Meta type PDU)	The ASP is used to request the transmission of unstructured data using unacknowledged mode in the downlink direction
RLC_UM_TestDataInd	Cell identity INTEGER (-31..32) Data (Meta type PDU)	The ASP is used to indicate the reception of unstructured data using unacknowledged mode in the uplink direction
RLC_AM_TestDataReq	Cell identity INTEGER (-31..32) Data (Meta type PDU)	The ASP is used to request the transmission of unstructured data using acknowledged mode in the downlink direction
RLC_AM_TestDataInd	Cell identity INTEGER (-31..32) Data (Meta type PDU)	The ASP is used to indicate the reception of unstructured data using acknowledged mode in the uplink direction
BMC_DataReq	Cell identity, INTEGER (-31..32), Data (Meta type PDU)	The ASP is used to request the transmission of unstructured BMC data or scheduling message, using unacknowledged mode in the downlink direction.
BMC_DataCnf	CellId, INTEGER (-31..32)	The ASP is used to confirm the reception of BMC CBS data
RLC_HandoverReq	CellId INTEGER (-31..32) Data (Meta type PDU)	The ASP is used to request the transmission of the HandoverFromUTRANCommand_GSM message using acknowledged operation (AM). The Meta PDU in turn consists of 2 components. 1. the ASN.1 PER encoded HandoverFromUTRANCommand, without any 1 bit to 7 bits of padding 2. The GSM Handover command The SS shall take care of inserting the MAC and RLC sequence number of Integrity check info, as in the case of other RRC DL PDU's

The TTCN tabular format applies to the primitive definitions.

7.3.4 GERAN PCO and ASP definitions

7.3.4.1 PCO Type definitions

7.3.4.1.1 PCO type for data transmission and reception in GERAN

Table 18: Declaration of the G_DSAP PCO Type

PCO Type Definition	
PCO Type	G_DSAP
Role	LT
Comment	DATA transmission and reception

7.3.4.1.2 PCO type for configuration and control in GERAN

Table 19: Declaration of the G_CSAP PCO Type

PCO Type Definition	
PCO Type	G_CSAP
Role	LT
Comment	Transmission and reception of control primitives

7.3.4.2 PCO definitions

7.3.4.2.1 PCOs for data transmission and reception in GERAN

7.3.4.2.1.1 PCO for data transmission and reception through GERAN L2

Table 20: Declaration of G_L2 PCO

PCO Type Definition	
PCO Name	G_L2
PCO Type	G_DSAP
Role	LT
Comment	Control and observation point of GERAN L3 messages and user data

7.3.4.2.1.2 PCO for data transmission and reception through GPRS RLC

Table 21: Declaration of G_RLC PCO

PCO Type Definition	
PCO Name	G_RLC
PCO Type	G_DSAP
Role	LT
Comment	Control and observation point of GPRS GRR signalling messages

7.3.4.2.1.3 PCO for data transmission and reception through GPRS LLC

Table 22: Declaration of LLC PCO

PCO Type Definition	
PCO Name	G_LLC
PCO Type	G_DSAP
Role	LT
Comment	Control and observation point of GPRS GMM signalling messages

7.3.4.2.1.4 PCO for data transmission and reception through GPRS SNDCP

Table 23: Declaration of SNDCP PCO

PCO Type Definition	
PCO Name	G_SNDCP
PCO Type	G_DSAP
Role	LT
Comment	Control and observation point of GPRS user packet data

7.3.4.2.2 PCOs for control primitives transmission and reception in GERAN

7.3.4.2.2.1 PCO for GERAN L1control primitives transmission and reception

Table 24: Declaration of G_CL1 PCO

PCO Type Definition	
PCO Name	G_CL1
PCO Type	G_CSAP
Role	LT
Comment	Control GERAN Physical Layer (L1)

7.3.4.2.2.2 PCO for GERAN L2 control primitives transmission and reception

Table 25: Declaration of G_CL2 PCO

PCO Type Definition	
PCO Name	G_CL2
PCO Type	G_CSAP
Role	LT
Comment	Control GERAN L2

7.3.4.2.2.3 PCO for GPRS RLC control primitives transmission and reception

Table 26: Declaration of G_CRLC PCO

PCO Type Definition	
PCO Name	G_CRLC
PCO Type	G_CSAP
Role	LT
Comment	Control GPRS RLC/MAC layer

7.3.4.2.2.4 PCO for GPRS LLC control primitives transmission and reception

Table 27: Declaration of G_CLLC PCO

PCO Type Definition	
PCO Name	G_CLLC
PCO Type	G_CSAP
Role	LT
Comment	Control GPRS LLC layer

7.3.4.2.2.5 PCO for GPRS SNDCP control primitives transmission and reception

Table 28: Declaration of G_CSNDCP PCO

PCO Type Definition	
PCO Name	G_CSNDCP
PCO Type	G_CSAP
Role	LT
Comment	Control GPRS SNDCP layer

7.3.4.3 GERAN ASP Definitions

7.3.4.3.1 ASPs for data transmission and reception in GERAN

7.3.4.3.1.1 ASPs for data transmission and reception through GERAN L2

ASP Name	G_L2_DATA_REQ	
PCO Type	G_DSAP	
Comments	The ASP is used to send L3 signalling message on the signalling channels or user data on the traffic channels to the UE/MS in acknowledged mode.	
Parameter Name	**Parameter Type**	**Comments**
cellId	CellId	
sAPI	SAPI	0 or 3
physicalChId	PhysicalChId	Channel identifier
g_LogicChType	G_LogicChType	
subChannel	SubChannelNumber	Valid only for logical channel types: TCH/H, FACCH/H, SACCH/TH, SDCCH/8, SACCH/C8, SDCCH/4, and SACCH/C4. For TCH/H, FACCH/H and SACCH/TH value is (0..1); For SDCCH/8 and SACCH/C8 value is (0..7); for SDCCH/4 and SACCH/C4 value is (0..3). This field is not applicable and the SS shall ignore it if this field is coded as 15.
rfn	RFN	The reduced frame number of the first frame on which this message is sent. This field is not applicable and the SS shall ignore it if the field t2 of rfn is coded as '11111'B.
msg	PDU	Signalling message or user data to be sent
Detailed Comments	Parameter rfn is only used in the test cases that require L3 message to be sent on specified frame number.	

ASP Name	G_L2_DATA_IND	
PCO Type	G_DSAP	
Comments	The ASP is used to receive a L3 signalling message on the signalling channels or user data on the traffic channels from the UE/MS in acknowledged mode.	
Parameter Name	**Parameter Type**	**Comments**
cellId	CellId	
sAPI	SAPI	0 or 3
physicalChId	PhysicalChId	Channel identifier
g_LogicChType	G_LogicChType	
subChannel	SubChannelNumber	Valid only for logical channel types: TCH/H, FACCH/H, SACCH/TH, SDCCH/8, SACCH/C8, SDCCH/4, and SACCH/C4. For TCH/H, FACCH/H and SACCH/TH value is (0..1); For SDCCH/8 and SACCH/C8 value is (0..7); for SDCCH/4 and SACCH/C4 value is (0..3). This field is not applicable and the SS shall ignore it if this field is coded as 15.
rfn	RFN	The reduced frame number of the first frame carrying the message
msg	PDU	Signalling message or user data received
Detailed Comments		

ASP Name	G_L2_L2Estab_IND		
PCO Type	G_DSAP		
Comments	The ASP is used to receive an indication of that L2 multiple frame operation on the specified channel has been established.		
Parameter Name		**Parameter Type**	**Comments**
cellId		CellId	
physicalChId		PhysicalChId	Channel identifier
g_LogicChType		G_LogicChType	
subChannel		SubChannelNumber	Valid only for logical channel types: FACCH/H, SDCCH/8 and SDCCH/4, This field shall be coded as 15 if it is not applicable.
sAPI		SAPI	0,3
establish_mode		OCTETSTRING[1]	
rfn		RFN	The reduced frame number of the first frame carries the L2 SABM frame
msg		PDU	this field is present only when the establish mode is CoRes (collision resolution)
Detailed Comments	see 3GPP TS 44.006 [**Error! Reference source not found.**] clauses 7.1.1 and 7.1.3		

ASP Name	G_L2_UNITDATA_REQ		
PCO Type	G_DSAP		
Comments	The ASP is used to send L3 signalling message on the signalling channels or send user data on the traffic channels to the UE/MS in unacknowledged mode.		
Parameter Name		**Parameter Type**	**Comments**
cellId		CellId	
sAPI		SAPI	0 or 3
physicalChId		PhysicalChId	Channel identifier
g_LogicChType		G_LogicChType	
subChannel		SubChannelNumber	Valid only for logical channel types: TCH/H, FACCH/H, SACCH/TH, SDCCH/8, SACCH/C8, SDCCH/4, and SACCH/C4. For TCH/H, FACCH/H and SACCH/TH value is (0..1); For SDCCH/8 and SACCH/C8 value is (0..7); for SDCCH/4 and SACCH/C4 value is (0..3). This field is not applicable and the SS shall ignore it if this field is coded as 15.
rfn		RFN	The reduced frame number of the first frame on which this message is sent. This field is not applicable and the SS shall ignore it if the field t2 of rfn is coded as '11111'B.
msg		PDU	Signalling message or user data to be sent
Detailed Comments	Parameter fn is only used in the test cases that require specific L3 message to be sent on specified frame number.		

ASP Name	G_L2_UNITDATA_IND		
PCO Type	G_DSAP		
Comments	The ASP is used to receive a L3 signalling message on the signalling channels or user data on the traffic channels from the UE/MS in unacknowledged mode.		
Parameter Name		**Parameter Type**	**Comments**
cellId		CellId	
sAPI		SAPI	0 or 3
physicalChId		PhysicalChId	Channel identifier
g_LogicChType		G_LogicChType	
subChannel		SubChannelNumber	Valid only for logical channel types: TCH/H, FACCH/H, SACCH/TH, SDCCH/8, SACCH/C8, SDCCH/4, and SACCH/C4. For TCH/H, FACCH/H and SACCH/TH value is (0..1); For SDCCH/8 and SACCH/C8 value is (0..7); for SDCCH/4 and SACCH/C4 value is (0..3). This field is not applicable and the SS shall ignore it if this field is coded as 15.
rfn		RFN	The reduced frame number of the first frame carrying the message
msg		PDU	Signalling message or user data received
Detailed Comments			

ASP Name	G_L2_ACCESS_IND		
PCO Type	G_DSAP		
Comments	The ASP is used to receive a random access or handover access burst on the specified channel.		
Parameter Name		**Parameter Type**	**Comments**
cellId		CellId	
physicalChId		PhysicalChId	Channel identifier
g_LogicChType		G_LogicChType	RACH, FACCH, SDCCH/8, SDCCH/4. RACH is used for random access burst; others are used for handover access burst
subChannel		SubChannelNumber	Valid only for logical channel types: FACCH/H, SDCCH/8, SDCCH/4. This field is not applicable and the SS shall ignore it if this field is coded as 15.
rfn		RFN	The reduced frame number of the first frame carrying the burst
burst		PDU	Random access burst or handover access burst
Detailed Comments			

ASP Name	G_L2_Paging_REQ		
PCO Type	G_DSAP		
Comments	The ASP is used to send a paging message on the specified paging group of the specified paging channel to the UE/MS, when the UE/MS is in idle mode or the UE/MS not supporting SPLIT_PG_CYCLE on CCCH is in GPRS attached mode and PCCCH is absent.		
Parameter Name		**Parameter Type**	**Comments**
cellId		CellId	
sAPI		SAPI	0
physicalChId		PhysicalChId	Channel identifier of the right CCCH_GROUP
g_LogicChType		G_LogicChType	PCH
pagingGroup		PAGING_GROUP	
pagingMode		PagingMode	0-normal paging; 1-extended paging; 2-paging reorganization.
msg		PDU	Paging message
Detailed Comments	The SS is required to send valid layer 3 messages continuously on all paging subchannels on CCCH where paging can appear. For "normal paging" the SS send the paging message in the specified pagingGroup; For "extended paging" " the SS send the paging message in the specified pagingGroup and in the "next but one" position on the PCH, following the block corresponding to pagingGroup; For "paging reorganization" the SS send the paging message in all paging subchannels. The required 51-multiframe occurs when: pagingGroup div (N div BS_PA_MFRMS) = (FN div 51) mod (BS_PA_MFRMS) The index to the required paging block in the 51-multiframe determined above: Paging block index = pagingGroup mod (N div BS_PA_MFRMS) N = (9-BS_AG_BLKS_RES) * BS_PA_MFRMS CCCH not combined or N = (3-BS_AG_BLKS_RES) * BS_PA_MFRMS CCCH + SDCCH combined		

ASP Name	G_L2_PagingGPRS_REQ		
PCO Type	G_DSAP		
Comments	The ASP is used to send a paging message on the specified paging group of the specified paging channel to the UE/MS, when the UE/MS supporting SPLIT_PG_CYCLE on CCCH is in GPRS attached mode and PCCCH absent.		
Parameter Name		**Parameter Type**	**Comments**
cellId		CellId	
sAPI		SAPI	0
physicalChId		PhysicalChId	Channel identifier of the right CCCH_GROUP
g_LogicChType		G_LogicChType	PCH
pagingGroup		PAGING_GROUP	
pagingMode		PagingMode	0-normal paging; 1-extended paging; 2-paging reorganization.
msg		PDU	Paging message
Detailed Comments	The SS is required to send valid layer 3 messages continuously on all paging subchannels on CCCH where paging can appear. For "normal paging" the SS send the paging message in the specified pagingGroup; For "extended paging" " the SS send the paging message in the specified pagingGroup and in the "next but one" position on the PCH, following the block corresponding to pagingGroup; For "paging reorganization" the SS send the paging message in all paging subchannels. The required 51-multiframe occurs when: pagingGroup div (M div 64) = (FN div 51) mod 64 The index to the required paging block in the 51-multiframe determined above: Paging block index = pagingGroup mod (M div 64) M = (9-BS_AG_BLKS_RES) × 64 CCCH not combined or M = (3-BS_AG_BLKS_RES) × 64 CCCH + SDCCH combined		
NOTE: This ASP may not be implemented if the MS/UE does not support SPLIT_PG_CYCLE on CCCH.			

Type Name	CellId
Type Definition	INTEGER
Type Encoding	
Comments	

Type Name	SAPI
Type Definition	INTEGER
Type Encoding	
Comments	Service access point identifier for GERAN L2 and LLC

Type Name	PhysicalChId
Type Definition	INTEGER(0..31)
Type Encoding	
Comments	Physical channel identifier in GERAN

Type Name	G_LogicChType
Type Definition	INTEGER
Type Encoding	
Comments	GERAN logical channel type: 0-BCCH; 1-RACH; 2-PCH; 3-AGCH; 4-SDCCH/4; 5-SACCH/C4; 6-SDCCH/8; 7-SACCH/C8; 8-TCH/F; 9-FACCH/F; 10-SACCH/TF; 11-TCH/H; 12-FACCH/H; 13-SACCH/TH; 14-PBCCH; 15-PRACH; 16-PPCH; 17-PAGCH; 18-PDTCH/F; 19-PACCH/F; 20-PTCCH/F; 21-E-TCH/F; 22-E-IACCH/F; 23-E-FACCH/F; 24-SACCH/M; 25-SACCH/MD

Type Name	SubChannelNumber
Type Definition	INTEGER
Type Encoding	
Comments	Subchannel number for TCH/H, FACCH/H, SACCH/TH, SDCCH/4, SDCCH/C4, SDCCH/8 and SDCCH/C8. For TCH/H, FACCH/H and SACCH/TH value is (0..1); For SDCCH/8 and SACCH/C8 value is (0..7); For SDCCH/4 and SACCH/C4 value is (0..3).

Type Name	PAGING_GROUP
Type Definition	INTEGER
Type Encoding	
Comments	3GPP TS 05.02 or 3GPP TS 45.002 [**Error! Reference source not found.**] clauses 6.5.2 and 6.5.6

Type Name	PagingMode
Type Definition	INTEGER
Type Encoding	
Comments	0 - normal paging; 1 - extended paging; 2 - paging reorganization.

Type Name	RFN		
Encoding Variation			
Comments	The reduced frame number, its range is 0 -- 42431 (FN modulo 42432) about 195.8 s		
Element Name	**Type Definition**	**Field Encoding**	**Comments**
t1_	BITSTRING[5]		(FN div 1326) mod 32
t3	BITSTRING[6]		FN mod 51
t2	BITSTRING[5]		FN mod 26
Detailed Comments	see 3GPP TS 04.18 or 3GPP TS 44.018 [**Error! Reference source not found.**] clause 10.5.2.38. The reduced frame number, FN modulo 42432 can be calculated in the following formula: 51 × ((t3 - t2) mod 26) + t3 + 1326 × t1_. RFN is used for starting time and TBF starting time.		

ASP Name	G_L2_Release_CNF	
PCO Type	G_DSAP	
Comments	This ASP from L2, indicates that the multiple frame operation release was successful. This means that the UA message was received in response to L2 DISC command.	
Parameter Name	**Parameter Type**	**Comments**
cellId	CellId	
sAPI	SAPI	0 or 3
physicalChId	PhysicalChId	Channel identifier
g_LogicChType	G_LogicChType	
subChannel	SubChannelNumber	For SDCCH/8 and SACCH/C8 value is (0..7); for SDCCH/4 and SACCH/C4 value is (0..3). This field is not applicable and the SS shall ignore it if this field is coded as 15.
releaseMode	BITSTRING[1]	0 = normal release; 1 = local release.
Detailed Comments		

ASP Name	G_L2_Release_REQ	
PCO Type	G_DSAP	
Comments	This ASP requests L2 to send Layer 2 DISC command on the indicated SAPI.	
Parameter Name	**Parameter Type**	**Comments**
cellId	CellId	
sAPI	SAPI	0 or 3
physicalChId	PhysicalChId	Channel identifier
g_LogicChType	G_LogicChType	
subChannel	SubChannelNumber	For SDCCH/8 and SACCH/C8 value is (0..7); for SDCCH/4 and SACCH/C4 value is (0..3). This field is not applicable and the SS shall ignore it if this field is coded as 15.
releaseMode	BITSTRING[1]	0 = normal release; 1 = local release.
Detailed Comments		

ASP Name	G_L2_Release_IND		
PCO Type	G_DSAP		
Comments	The ASP is used to receive an indication of the termination of an established multiple frame operation or an indication of an unsuccessful establishment attempt.		
Parameter Name		**Parameter Type**	**Comments**
cellId		CellId	
sAPI		SAPI	0
physicalChId		PhysicalChId	Channel identifier
g_LogicChType		G_LogicChType	
subChannel		SubChannelNumber	Valid only for logical channel types: TCH/H, FACCH/H, SACCH/TH, SDCCH/8, SACCH/C8, SDCCH/4, and SACCH/C4. For TCH/H, FACCH/H and SACCH/TH value is (0..1); for SDCCH/8 and SACCH/C8 value is (0..7); for SDCCH/4 and SACCH/C4 value is (0..3).
releaseMode		BITSTRING[1]	0 = normal release; 1 = local end release
outstanding_Indicator		BOOLEAN	whether or not there are outstanding acknowledgements or unsolved G_L2_DATA_REQ primitives.
Detailed Comments			

ASP Name	G_L2_SYSINFO_REQ		
PCO Type	G_DSAP		
Comments	The ASP is used to send system information messages to the lower layer emulator.		
Parameter Name		**Parameter Type**	**Comments**
cellId		CellId	
sAPI		SAPI	0
physicalChId		PhysicalChId	
g_LogicChType		G_LogicChType	BCCH or SACCH
instanceIndex		INTEGER	To indicate the instance of the system information messages. For SYSTEM INFORMATION Type 2ter, 18, 19, 20 the value is (0..7); for type 14, 15 the value is (0..3); for type 2quater the value is (0..15); for all other type the value is 0.
sysInfoType		SysInfoType	SYSTEM INFORMATION Type 5, 5bis, 5ter, and 6 are sent on SACCH, the other SYSTEM INFORMATION 's are sent on BCCH.
msg		PDU	This field contains SYSTEM INFORMATION message. See 3GPP TS 44.018 [43] clause 9.1.31 to clause 9.1.43h for SYSTEM INFORMATION message definitions.
Detailed Comments	The lower layer emulator shall store the SYSTEM INFORMATION's, and transmit them periodically according to the rules specified in clause 6.3.1.3 of 3GPP TS 05.02 or 3GPP TS 45.002 [**Error! Reference source not found.**]. The msg shall override the same type system information message previous stored in the lower layer emulator.		

Type Name	SysInfoType
Type Definition	INTEGER
Type Encoding	
Comments	25--SYSTEM INFORMATION TYPE 1 26--SYSTEM INFORMATION TYPE 2 2 -- SYSTEM INFORMATION TYPE 2bis 3 -- SYSTEM INFORMATION TYPE 2ter 7 -- SYSTEM INFORMATION TYPE 2quater 27--SYSTEM INFORMATION TYPE 3 28--SYSTEM INFORMATION TYPE 4 29--SYSTEM INFORMATION TYPE 5 5 -- SYSTEM INFORMATION TYPE 5bis 6 -- SYSTEM INFORMATION TYPE 5ter 30--SYSTEM INFORMATION TYPE 6 31--SYSTEM INFORMATION TYPE 7 24--SYSTEM INFORMATION TYPE 8 4 -- SYSTEM INFORMATION TYPE 9 0 -- SYSTEM INFORMATION TYPE 13 61--SYSTEM INFORMATION TYPE 16 62--SYSTEM INFORMATION TYPE 17 64--SYSTEM INFORMATION TYPE 18 65--SYSTEM INFORMATION TYPE 19 66--SYSTEM INFORMATION TYPE 20

7.3.4.3.1.2 ASPs for data transmission and reception through GERAN RLC

ASP Name	G_RLC_PSI_REQ		
PCO Type	G_DSAP		
Comments	The ASP is used to send packet system information messages to the lower layer emulator.		
Parameter Name		**Parameter Type**	**Comments**
cellId		CellId	
physicalChId		PhysicalChId	
g_LogicChType		G_LogicChType	PBCCH or PACCH or PCCCH
packetSysInfoCategory		PSI_Category	PSI1 or high repetition rate or low repetition rate. Type of this field is INTEGER: 0-- PSI1; 1--high repetition category; 2--low repetition category.
positionInList		PositionInList	Position in the high repetition rate list or the low repetition rate list, for PSI1 this field is not applicable and set to 31. Type of this field is INTEGER, the order of the position is from 0, 1, ... 0 indicates the first position, 1 the second, and so on.
msg		PDU	This field contains PACKET SYSTEM INFORMATION message, see 3GPP TS 04.60 or 3GPP TS 44.060 [**Error! Reference source not found.**] clauses 11.2.18 to 11.2.25 for the message definitions
Detailed Comments	On PBCCH, the lower layer emulator shall store the PACKET SYSTEM INFORMATION's, and transmit them periodically according to the rules specified in clause 6.3.2.4 of 3GPP TS 05.02 or 3GPP TS 45.002 [**Error! Reference source not found.**]. The msg shall override the same type packet system information message previous stored in the lower layer. Multiple instances of a PSI shall be put in the same list and in ascending order of the message instance number		

Type Name	PSI_Category
Type Definition	INTEGER
Type Encoding	
Comments	3GPP TS 05.02 or 3GPP TS 45.002 [**Error! Reference source not found.**] clause 6.3.2.4

Type Name	PositionInList
Type Definition	INTEGER
Type Encoding	
Comments	0 is the first position; 1 is the second, and so on.

ASP Name	G_RLC_ControlMsg_REQ		
PCO Type	G_DSAP		
Comments	The ASP is used to transmit a RLC/MAC control message to the UE/MS on the specified channel.		
Parameter Name		**Parameter Type**	**Comments**
cellId		CellId	
physicalChId		PhysicalChId	
g_LogicChType		G_LogicChType	PCCCH or PACCH or PTCCH
tBF_Direction		INTEGER	1-downlink TBF; 0-uplink TBF
tFI		TFI	Temporary flow identity
rRBP		RRBP	Relative reserved block period
s_P_Bit		S_P_Bit	Supplementary/polling bit
rfn		RFN	The reduced frame number of the first frame on which this message is sent. This field is not applicable and the SS shall ignore it if the field t2 of rfn is coded as '11111'B.
pagingGroup		PAGING_GROUP	for message other than PACKET PAGING REQUEST this field shall be omitted
pagingMode		PagingMode	0 -- normal paging; 1-- exteded paging; 3 -- paging reorganization. this field is valid only for PACKET PAGING REQUEST control message, for message other than PACKET PAGING REQUEST this field shall be omitted
msg		PDU	Down link RLC/MAC control message
Detailed Comments	This ASP provides values for “RRBP” and “S/P” fields in MAC header for TTCN controlling the response from the UE, the value for “PayloadType” and “USF” fields in MAC header shall be filled by the SS. If a RLC/MAC control message can not be fitted into one RLC/MAC control block, the SS RLC/MAC entity shall take the responsibility of segmentation of the message, and set the correct “PayloadType” and optional octet1 (and optional octet2). PTCCH is valid for PACKET TIMING ADVANCE/POWER CONTROL message if sending PACKET PAGING REQUEST. The required 52-multiframe occurs when: pagingGroup div (M div 64) = (FN div 52) mod 64 The index to the required paging block in the 51-multiframe determined above: Paging block index = pagingGroup mod (M div 64) M = (12 - BS_PAG_BLKS_RES - BS_PBCCH_BLKS) × 64		

Type Name	RRBP
Type Definition	BITSTRING[2]
Type Encoding	
Comments	3GPP TS 04.60 or 3GPP TS 44.060 [**Error! Reference source not found.**] clause 10.4.5

Type Name	S_P_Bit
Type Definition	BITSTRING[1]
Type Encoding	
Comments	0 - RRBP field is not valid; 1 - RRBP field is valid.

ASP Name	G_RLC_ControlMsg_IND		
PCO Type	G_DSAP		
Comments	The ASP is used to receive an uplink RLC/MAC control block sent by the UE/MS on the specified channel.		
Parameter Name		**Parameter Type**	**Comments**
cellId		CellId	
physicalChId		PhysicalChId	
g_LogicChType		G_LogicChType	PACCH or PDTCH
tBF_Direction		INTEGER	1 - downlink TBF; 0 - uplink TBF
tFI		TFI	Temporary flow identity
rfn		RFN	The reduced frame number of the frame carrying the message
msg		PDU	Uplink RLC/MAC control message
Detailed Comments	Logical channel type PDTCH is valid for PACKET ENHANCED MEARSUREMENT REPORT message only. The ASP is not used to receive PACKET CHANNEL REQUEST, EGPRS PACKET CHANNEL REQUEST and burst format of PACKET CONTROL ACKNOWLEDGEMENT which are received by G_RLC_ACCESS_IND.		

ASP Name	G_RLC_ACCESS_IND		
PCO Type	G_DSAP		
Comments	The ASP is used to receive an access burst sent by the UE/MS on the specified channel.		
Parameter Name		**Parameter Type**	**Comments**
cellId		CellId	
physicalChId		PhysicalChId	
g_LogicChType		G_LogicChType	PRACH or PACCH or PTCCH
rfn		RFN	The reduced frame number of the frame carrying the burst
retryBit		BITSTRING[1]	For access bursts on PRACH, RACH. For PACCH, this field is no meaning
burst		PDU	8-bit or 11-bit access burst
Detailed Comments	PACKET CHANNEL REQUEST, EGPRS PACKET CHANNEL REQUEST and burst format of PACKET CONTROL ACKNOWLEDGEMENT are access bursts.		

7.3.4.3.1.3 ASPs for data transmission and reception through GERAN LLC

ASP Name	G_LLC_UNITDATA_REQ		
PCO Type	G_DSAP		
Comments	The ASP is used to send L3 PDU to the UE/MS in LLC unconfirmed transmission.		
Parameter Name		**Parameter Type**	**Comments**
lLMEId		LLMEId	
tLLI		TLLI	
sAPI		SAPI	
protectMode		BITSTRING[1]	0 -- unprotected; 1 -- protected
cipherMode		BITSTRING[1]	0 –sent without encryption; 1 –sent with encryption
msg		PDU	L3 PDU
Detailed Comments	3GPP TS 04.64 or 3GPP TS 44.064 [**Error! Reference source not found.**] clause 8.4.1 After the ciphering function is started in the SS by G_CLLC_Assign_REQ, the SS shall encrypt the “msg” when cipherMode = ‘1’, and the SS shall not encrypt the “msg” if cipherMode = ‘0’.		

Type Name	LLMEId
Type Definition	INTEGER
Type Encoding	
Comments	The identifier of the Logical Link Management Entity in SGSN

ASP Name	G_LLC_UNITDATA_IND		
PCO Type	G_DSAP		
Comments	The ASP is used to receive a L3 PDU from the UE/MS in LLC unconfirmed transmission.		
Parameter Name		Parameter Type	Comments
lLMEId		LLMEId	
tLLI		TLLI	
sAPI		SAPI	
msg		PDU	L3 PDU
Detailed Comments	3GPP TS 04.64 or 3GPP TS 44.064 [**Error! Reference source not found.**] clause 8.4.2		

7.3.4.3.1.4 ASPs for data transmission and reception through GERAN SNDCP

ASP Name	G_SN_DATA_REQ		
PCO Type	G_DSAP		
Comments	The ASP is used to send a valid IP datagram on the specified NSAPI to the UE/MS by acknowledged transmission.		
Parameter Name		Parameter Type	Comments
sNDCPId		SNDCPId	
nSAPI		NSAPI	5 to 15
n_PDU_Number		OCTETSTRING[1]	
n_PDU		N_PDU	Valid IPv4 or IPv6 datagram
Detailed Comments	Acknowledged transmission mode		

ASP Name	G_SN_DATA_IND		
PCO Type	G_DSAP		
Comments	The ASP is used to receive an IP datagram on the specified NASPI from the UE/MS in acknowledged transmission mode.		
Parameter Name		Parameter Type	Comments
sNDCPId		SNDCPId	
nSAPI		NSAPI	5 to 15
n_PDU		N_PDU	IPv4 or IPv6 datagram
Detailed Comments	Acknowledged transmission mode		

ASP Name	G_SN_UNIDATA_REQ		
PCO Type	G_DSAP		
Comments	The ASP is used to send a valid IP datagram on the specified NSAPI to the UE/MS by unacknowledged transmission.		
Parameter Name		Parameter Type	Comments
sNDCPId		SNDCPId	
nSAPI		NSAPI	5 to 15
n_PDU		N_PDU	Valid IPv4 or IPv6 datagram
Detailed Comments	Unacknowledged transmission mode		

ASP Name	G_SN_UNITDATA_IND		
PCO Type	G_DSAP		
Comments	The ASP is used to receive an IP datagram on the specified NASPI from the UE/MS in unacknowledged transmission mode.		
Parameter Name		Parameter Type	Comments
sNDCPId		SNDCPId	
nSAPI		NSAPI	5 to 15
n_PDU		N_PDU	IPv4 or IPv6 datagram
Detailed Comments	Unacknowledged transmission mode		

ASP Name	G_SN_XID_REQ		
PCO Type	G_DSAP		
Comments	The ASP is used to send the requested XID parameters to the UE/MS.		
Parameter Name		Parameter Type	Comments
sNDCPId		SNDCPId	
xID_Info		XID_Info	XID parameters requested
Detailed Comments			

ASP Name	G_SN_XID_IND		
PCO Type	G_DSAP		
Comments	The ASP is used to receive the XID parameters requested by the UE/MS.		
Parameter Name		Parameter Type	Comments
sNDCPId		SNDCPId	
xID_Info		XID_Info	XID parameters requested by the UE/MS
Detailed Comments			

ASP Name	G_SN_XID_CNF		
PCO Type	G_DSAP		
Comments	The ASP is used to receive the negotiated XID parameters agreed by the UE/MS.		
Parameter Name		Parameter Type	Comments
sNDCPId		SNDCPId	
xID_Info		XID_Info	The negotiated XID parameters agreed by the UE/MS
Detailed Comments			

ASP Name	G_SN_XID_RES		
PCO Type	G_DSAP		
Comments	The ASP sends to the UE/MS the negotiated XID parameters agreed by the SS.		
Parameter Name		Parameter Type	Comments
sNDCPId		SNDCPId	
xID_Info		XID_Info	The negotiated XID parameters agreed by the SS
Detailed Comments			

Type Name	SNDCPId
Type Definition	INTEGER
Type Encoding	
Comments	The identifier of the SNDCP entity in SGSN

7.3.4.3.2 ASPs for control primitive transmission and reception in GERAN

7.3.4.3.2.1 ASPs for configuration and control of GERAN L1

ASP Name	G_CL1_CreateCell_REQ		
PCO Type	G_CSAP		
Comments	The ASP is used to create a cell in GERAN		
Parameter Name		Parameter Type	Comments
cellId		CellId	
baseId		BITSTRING[6]	base transceiver station identity code = NCC+BCC. see 3GPP TS 23.003 [**Error! Reference source not found.**]
timingAdvance		BITSTRING[8]	The SS sets the timing of uplink direction in advance of downlink direction timing by this value.
Detailed Comments			

ASP Name	G_CL1_CreateCell_CNF		
PCO Type	G_CSAP		
Comments	The ASP is used to get the confirmation of a G_CL1_CreateCell_REQ		
Parameter Name		**Parameter Type**	**Comments**
cellId		CellId	The cell created
Detailed Comments			

ASP Name	G_CL1_DeleteCell_REQ		
PCO Type	G_CSAP		
Comments	The ASP is used to delete a cell in GERAN		
Parameter Name		**Parameter Type**	**Comments**
cellId		CellId	The cell to be deleted
Detailed Comments			

ASP Name	G_CL1_DeleteCell_CNF		
PCO Type	G_CSAP		
Comments	The ASP is used to get the confirmation of a G_CL1_DeleteCell_REQ		
Parameter Name		**Parameter Type**	**Comments**
cellId		CellId	The cell deleted
Detailed Comments			

ASP Name	G_CL1_CreateBasicPhyCh_REQ	
PCO Type	G_CSAP	
Comments	The ASP is used to create a basic physical channel in GERAN	
Parameter Name	**Parameter Type**	**Comments**
cellId	CellId	The cell which the channel to be created belongs to
physicalChId	PhysicalChId	identifier of the physical channel in the SS.
channelCombination	ChannelCombination	Logical channels combined onto the basic physical channel.
frqInfo	FrqInfo	Parameters for Description of the physical channel in frequency domain
timeSlot	TN	The timeslot number of the physical channel
tsc	TSC	Training sequence code. For common control and broadcast channels the value of tsc must be equal to BCC (base station colour code)
channelSpecificInfo	ChannelSpecificInfo	Specific parameters related to individual channel
txPower	TX_Power	The transmission power level in dBµVemf()
bandIndicator	BITSTRING[1]	Parameter for DCS or PCS frequency band selection. A value 0 for frqInfo.arfcn interpreted as DCS1800. A value 1 for frqInfo.arfcn interpreted as PCS1900. If omitted, the value in frqInfo.arfcn interpreted as DCS1800.
Detailed Comments	The value of channelCombination permitted currently: 1 TCH/F + FACCH/F + SACCH/TF 2 TCH/H(0,1) + FACCH/H(0,1) + SACCH/TH(0,1) 3 TCH/H(0,0) + FACCH/H(0,1) + SACCH/TH(0,1) + TCH/H(1,1) 4 FCCH + SCH + BCCH + CCCH 5 FCCH + SCH + BCCH + CCCH + SDCCH/4(0..3) + SACCH/C4(0..3) 6 BCCH + CCCH 7 SDCCH/8(0..7) + SACCH/C8(0.. 7) 8 TCH/F + FACCH/F + SACCH/M 9 TCH/F + SACCH/M 10 TCH/FD + SACCH/MD 11 PBCCH+PCCCH+PDTCH/F+PACCH/F+PTCCH/F 12 PCCCH+PDTCH/F+PACCH/F+PTCCH/F 13 PDTCH/F+PACCH/F+PTCCH/F 18 E-TCH/F + E-IACCH/F + E-FACCH/F + SACCH/TF 19 E-TCH/F + E-IACCH/F + E-FACCH/F + SACCH/M 20 E-TCH/F + E-IACCH/F + SACCH/M 21 E-TCH/FD + E-IACCH/F + SACCH/MD	

ASP Name	G_CL1_CreateBasicPhyCh_CNF		
PCO Type	G_CSAP		
Comments	The ASP is used to get the confirmation of a G_CL1_CreateBasicPhyCh_REQ		
Parameter Name		**Parameter Type**	**Comments**
cellId		CellId	The cell which the created channel belongs to
physicalChId		PhysicalChId	The physical channel created.
Detailed Comments			

Type Name	FrqInfo		
Encoding Variation			
Comments	Parameters for Description of basic physical channel in frequency domain.		
Element Name	**Type Definition**	**Field Encoding**	**Comments**
h	BITSTRING[1]		h=1:hopping channel h=0: non-hopping channel
spr	BITSTRING [3]		'000'B
spr1	BITSTRING [2]		'00'B if h = 0, otherwise OMIT
maio	BITSTRING [6]		mobile allocation index offset if h = 1, otherwise OMIT
hsn	BITSTRING [6]		hopping sequence number if h = 1, otherwise OMIT
arfcn	BITSTRING [10]		absolute RF channel number if h = 0, otherwise OMIT
hoppingFreqList	FrequencyList		hopping frequency list if h = 1, otherwise OMIT. The definition see 3GPP TS 44.018 [**Error! Reference source not found.**] or 3GPP TS 04.18, clause 10.5.2.13
Detailed Comments			

Type Name	ChannelSpecificInfo		
Encoding Variation			
Comments	Parameters for individual channel		
Element Name	**Type Definition**	**Field Encoding**	**Comments**
dedCH_Info	DedCH_Info		Parameters for dedicated channel. Valid for combination:1, 2, 3, 5, 7, 8, 9, 10 This field is omitted if DedCH_Info does not apply for the channelCombination
cCCH_Info	CCCH_Info		Parameters for common control channels: PCH, SCH, etc. Valid for combination: 4, 5, 6 This field is omitted if CCCH_Info does not apply for the channelCombination
pCCCH_Info	PCCCH_Info		Parameters for packet common control channels: PCCCH, PPCH,… Valid for combination: 11, 12 This field is omitted if PCCCH_Info does not apply for the channelCombination
pBCCH_Info	PBCCH_Info		Parameters for packet broadcast channels: PBCCH Valid for combination: 11 This field is omitted if PBCCH_Info does not apply for the channelCombination
Detailed Comments			

Type Name	DedCH_Info		
Encoding Variation			
Comments	Parameters for dedicated channel		
Element Name	Type Definition	Field Encoding	Comments
chMod	ChMode		Definition see 3GPP TS 04.18 or 3GPP TS 44.018 [**Error! Reference source not found.**] clause 10.5.2.6
cipherMode	CipherModeSetting		Definition see 3GPP TS 04.18 or 3GPP TS 44.018 [**Error! Reference source not found.**] clause 10.5.2.9
cipherKey	BITSTRING[64]		
powerLevel	BITSTRING[5]		Initial MS uplink transmission power level. This value is used in the L1 header of SACCH.
timingAdvance	BITSTRING[8]		Initial timing advance. This value is used in the L1 header of SACCH. This field shall be set to the same value as in timingAdvance of G_CL1_CreateCell_REQ.
Detailed Comments	In addition to ciphering algorithm the cipherMode specifies the initial ciphering mode of the physical channel in both transmission and receiving direction.by startingCiph bit. During ciphering mode setting procedure the ciphering mode of receiving direction can be changed by G_CL1_CipheringControl_REQ.		

Type Name	CCCH_Info		
Encoding Variation			
Comments	Parameters for common control channels		
Element Name	Type Definition	Field Encoding	Comments
bS_PA_MFRMS	BITSTRING[3]		the number of 51-multiframes between transmissions of paging messages. Definition see 3GPP TS 04.18 or 3GPP TS 44.018 [**Error! Reference source not found.**] clause 10.5.2.11
bS_AG_BLKS_RES	BITSTRING[3]		the number of blocks on each common control channel reserved for access grant messages. Definition see 3GPP TS 04.18 or 3GPP TS 44.018 [**Error! Reference source not found.**] clause 10.5.2.11
Detailed Comments			

Type Name	PCCCH_Info		
Encoding Variation			
Comments	Parameters for packet common control channels		
Element Name	Type Definition	Field Encoding	Comments
bS_PBCCH_BLKS	BITSTRING[2]		3GPP TS 04.60 or 3GPP TS 44.060 [**Error! Reference source not found.**] clause 12.25
bS_PAG_BLKS_RES	BITSTRING[4]		3GPP TS 04.60 or 3GPP TS 44.060 [**Error! Reference source not found.**] clause 12.25
bS_PRACH_BLKS	BITSTRING[4]		3GPP TS 04.60 or 3GPP TS 44.060 [**Error! Reference source not found.**] clause 12.25
Detailed Comments			

Type Name	PBCCH_Info		
Encoding Variation			
Comments	Parameters for packet broadcast channel		
Element Name	Type Definition	Field Encoding	Comments
pSI1_REPEAT_PERIOD	BITSTRING[4]		The repeat period of packet system information Type 1. See 3GPP TS 04.60 or 3GPP TS 44.060 [**Error! Reference source not found.**] clause 11.2.18
pSI_COUNT_HR	BITSTRING[4]		The number of PSI message instances sent with high repetition rate. See 3GPP TS 04.60 or 3GPP TS 44.060 [**Error! Reference source not found.**] clause 11.2.18
pSI_COUNT_LR	BITSTRING[6]		The number of PSI message instances sent with low repetition rate. See 3GPP TS 04.60 or 3GPP TS 44.060 [**Error! Reference source not found.**] clause 11.2.18
Detailed Comments			

ASP Name	G_CL1_CreateMultiSlotConfig_REQ	
PCO Type	G_CSAP	
Comments	The ASP is used to create a multi-slot configuration in GERAN and should be preceded with G_CL1_CreateBasicPhyCh_REQ in order to create a basic physical channel with single timeslot.	
Parameter Name	Parameter Type	Comments
cellId	CellId	The cell which the configuration to be created belongs to
mainChannel	PhysicalChId	identifier of the main physical channel of this multi-slot configuration.
multiSlotAllocation	MultiSlotAllocation	The timeslot allocation of the configuration
Detailed Comments	This ASP is to add a multi-slot configuration to the physical channel created in G_CL1_CreateBasicPhyCh_REQ ASP. For multi-slot configuration refer 3GPP TS 05.02 or 3GPP TS 45.002 [**Error! Reference source not found.**] clause 6.4.2.	

ASP Name	G_CL1_CreateMultiSlotConfig_CNF	
PCO Type	G_CSAP	
Comments	The ASP is used to get the confirmation of a G_CL1_CreateMultiSlotConfig_REQ	
Parameter Name	Parameter Type	Comments
cellId	CellId	The cell which the created multi-slot configuration belongs to.
physicalChId	PhysicalChId	The main physical channel identifier.
Detailed Comments		

Type Name	MultiSlotAllocation		
Encoding Variation			
Comments	Used in multi-slot configuration		
Element Name	Type Definition	Field Encoding	Comments
tN0	BOOLEAN		TRUE - time slot 0 is allocated; FALSE -- not allocated
channelCombination0	ChannelCombination		Channel combination fortime slot 0; not applicable if tN0 = FALSE
tN1	BOOLEAN		TRUE - time slot 1 is allocated; FALSE -- not allocated
channelCombination 1	ChannelCombination		Channel Combination fortime slot 1; not applicable if tN1 = FALSE
tN2	BOOLEAN		TRUE - time slot 2 is allocated; FALSE -- not allocated
channelCombination 2	ChannelCombination		Channel Combination fortime slot 2; not applicable if tN2 = FALSE
tN3	BOOLEAN		TRUE - time slot 3 is allocated; FALSE -- not allocated
channelCombination 3	ChannelCombination		Channel Combination fortime slot 3; not applicable if tN3 = FALSE
tN4	BOOLEAN		TRUE - time slot 4 is allocated; FALSE -- not allocated
channelCombination 4	ChannelCombination		Channel Combination for time slot 4; not applicable if tN4 = FALSE
tN5	BOOLEAN		TRUE - time slot 5 is allocated; FALSE -- not allocated
channelCombination 5	ChannelCombination		Channel Combination fortime slot 5; not applicable if tN5 = FALSE
tN6	BOOLEAN		TRUE - time slot 6 is allocated; FALSE -- not allocated
channelCombination 6	ChannelCombination		Channel Combination fortime slot 6; not applicable if tN6 = FALSE
tN7	BOOLEAN		TRUE - time slot 7 is allocated; FALSE -- not allocated
channelCombination 7	ChannelCombination		Channel Combination for time slot 7; not applicable if tN7 = FALSE
Detailed Comments	Multislot configuration is referred to 3GPP TS 05.02 or 3GPP TS 45.002 [**Error! Reference source not found.**] clause 6.4.2. The timeslot for which G_CL1_CreateBasicPhyCh_REQ has set the channel combination shall be set to FALSE.		

ASP Name	G_CL1_CipheringControl_REQ	
PCO Type	G_CSAP	
Comments	The ASP is used to set the ciphering mode of the physical channel in receiving direction, the kc and ciphering algorithm was set by the G_CL1_CreateBasicPhyCh_REQ for the physical channel before calling the ASP.	
Parameter Name	Parameter Type	Comments
cellId	CellId	
physicalChId	PhysicalChId	Channel identifier
rcvCipherMode	BITSTRING[1]	Ciphering Mode in SS receiving direction: 0→ not ciphered 1→ ciphered
Detailed Comments	For GSM dedicated physical channel, the ciphering mode of the SS shall be changed in three steps: (3GPP TS 44.018 [**Error! Reference source not found.**], clause 3.4.7) Before the SS sending CIPHERING MODE COMMAND the SS is transmitting and receiving in old ciphering mode (for example, not ciphered), after the SS sending CIPHERING MODE COMMAND the SS changes its receiving ciphering mode to new ciphering mode (for example, ciphered) and keeps transmitting in old ciphering mode; then after receiving CIPHERING MODE COMPLETE or any correct L2 frame in new ciphering mode the SS changes the transmitting ciphering mode to the new mode. TTCN writer shall use this ASP before sending the CIPHERING MODE COMMAND to ensure the ciphering mode of the physical channel, in sufficient time, according to the 3 step procedure outlined above.	

ASP Name	G_CL1_CipheringControl_CNF		
PCO Type	G_CSAP		
Comments	The ASP is used to confirm that the G_CL1_CipheringControl_REQ is executed correctly.		
Parameter Name		**Parameter Type**	**Comments**
cellId		CellId	
physicalChId		PhysicalChId	Channel identifier
Detailed Comments			

ASP Name	G_CL1_ComingFN_REQ		
PCO Type	G_CSAP		
Comments	The ASP is used to request lower layer return the reduced frame number (FN modulo 42432) which is far enough in the future from current frame number and is able to carry L3 message on the specified channel. The requirement of "far enough" is that there is enough time left for TTCN to prepare a L3 message to send before that frame. The ASP could also be used in the calculation of a value for starting time		
Parameter Name		**Parameter Type**	**Comments**
cellId		CellId	
physicalChId		PhysicalChId	Channel identifier
g_LogicChType		G_LogicChType	
subChannel		SubChannelNumber	Valid only for logical channel types: TCH/H, FACCH/H, SACCH/TH, SDCCH/8, SACCH/C8, SDCCH/4, and SACCH/C4. For TCH/H, FACCH/H and SACCH/TH value is (0..1); For SDCCH/8 and SACCH/C8 value is (0..7); for SDCCH/4 and SACCH/C4 value is (0..3). This field is not applicable and the SS shall ignore it if this field is coded as 15.
Detailed Comments			

ASP Name	G_CL1_ComingFN_CNF		
PCO Type	G_CSAP		
Comments	The ASP is used to receive the result of G_CL1_ComingFN_REQ.		
Parameter Name		**Parameter Type**	**Comments**
cellId		CellId	
physicalChId		PhysicalChId	Channel identifier
g_LogicChType		G_LogicChType	
subChannel		SubChannelNumber	Valid only for logical channel types: TCH/H, FACCH/H, SACCH/TH, SDCCH/8, SACCH/C8, SDCCH/4, and SACCH/C4. For TCH/H, FACCH/H and SACCH/TH value is (0..1); For SDCCH/8 and SACCH/C8 value is (0..7); for SDCCH/4 and SACCH/C4 value is (0..3). This field is not applicable and the SS shall ignore it if this field is coded as 15.
rfn		RFN	the reduced frame number (FN modulo 42432) which is about 5 seconds later than current frame number and is able to carry L3 message on the channel specified by "physicalChId"+"G_LogicChType"+"subChannel"
Detailed Comments			

ASP Name	G_CL1_L1Header_REQ		
PCO Type	G_CSAP		
Comments	The ASP is used to request lower layer return the L1 header of SACCH.		
Parameter Name		**Parameter Type**	**Comments**
cellId		CellId	
physicalChId		PhysicalChId	Channel identifier
g_LogicChType		G_LogicChType	SACCH
subChannel		SubChannelNumber	Valid only for logical channel types: SACCH/TH, SACCH/C8, and SACCH/C4 This field is not applicable and the SS shall ignore it if this field is coded as 15.
Detailed Comments			

ASP Name	G_CL1_L1Header_CNF	
PCO Type	G_CSAP	
Comments	The ASP is used to receive the result of G_CL1_L1Header_REQ.	
Parameter Name	**Parameter Type**	**Comments**
cellId	CellId	
physicalChId	PhysicalChId	Channel identifier
g_LogicChType	G_LogicChType	SACCH
subChannel	SubChannelNumber	Valid only for logical channel types: SACCH/TH, SACCH/C8, and SACCH/C4 This field is not applicable and the SS shall ignore it if this field is coded as 15.
l1Header	L1HD	Power level and timing advance
Detailed Comments		

ASP Name	G_CL1_DeleteChannel_REQ	
PCO Type	G_CSAP	
Comments	The ASP is used to delete a basic physical channel or an multi-slot configuration	
Parameter Name	**Parameter Type**	**Comments**
cellId	CellId	The identifier of the cell which the channel to be deleted belongs to
physicalChId	PhysicalChId	The physical channel or the multi-slot configuration to be deleted.
Detailed Comments		

ASP Name	G_CL1_DeleteChannel_CNF	
PCO Type	G_CSAP	
Comments	The ASP is used to get the confirmation of a G_CL1_DeleteChannel_REQ	
Parameter Name	**Parameter Type**	**Comments**
cellId	CellId	The identifier of the cell which the deleted channel belongs to
physicalChId	PhysicalChId	The physical channel or multi-slot configuration deleted.
Detailed Comments		

ASP Name	G_CL1_ChModeModify_REQ	
PCO Type	G_CSAP	
Comments	The ASP is used to modify the channel mode of a dedicated channel	
Parameter Name	**Parameter Type**	**Comments**
cellId	CellId	The identifier of the cell
physicalChId	PhysicalChId	Channel identifier
g_LogicChType	G_LogicChType	
subChannel	SubChannelNumber	Valid only for logical channel types: TCH/H, FACCH/H, SACCH/TH, SDCCH/8, SACCH/C8, SDCCH/4, and SACCH/C4. For TCH/H, FACCH/H and SACCH/TH value is (0..1); For SDCCH/8 and SACCH/C8 value is (0..7); for SDCCH/4 and SACCH/C4 value is (0..3). This field is not applicable and the SS shall ignore it if this field is coded as 15.
chMode	ChMode	Definition see 3GPP TS 04.18 or 3GPP TS 44.018 [**Error! Reference source not found.**] clause 10.5.2.1b
Detailed Comments		

ASP Name	G_CL1_ChModeModify_CNF	
PCO Type	G_CSAP	
Comments	The ASP is used to get the confirmation of a G_CL1_ChModeModify_REQ	
Parameter Name	**Parameter Type**	**Comments**
cellId	CellId	The identifier of the cell
physicalChId	PhysicalChId	Channel identifier
g_LogicChType	G_LogicChType	
subChannel	SubChannelNumber	Valid only for logical channel types: TCH/H, FACCH/H, SACCH/TH, SDCCH/8, SACCH/C8, SDCCH/4, and SACCH/C4. For TCH/H, FACCH/H and SACCH/TH value is (0..1); For SDCCH/8 and SACCH/C8 value is (0..7); for SDCCH/4 and SACCH/C4 value is (0..3). This field is not applicable and the SS shall ignore it if this field is coded as 15.
Detailed Comments		

ASP Name	G_CL1_SetNewKey_REQ	
PCO Type	G_CSAP	
Comments	The ASP is used to set new cipher key for a dedicated channel	
Parameter Name	**Parameter Type**	**Comments**
cellId	CellId	The identifier of the cell
physicalChId	PhysicalChId	The channel which uses the new key
g_LogicChType	G_LogicChType	
subChannel	SubChannelNumber	Valid only for logical channel types: TCH/H, FACCH/H, SACCH/TH, SDCCH/8, SACCH/C8, SDCCH/4, and SACCH/C4. For TCH/H, FACCH/H and SACCH/TH value is (0..1); For SDCCH/8 and SACCH/C8 value is (0..7); for SDCCH/4 and SACCH/C4 value is (0..3). This field is not applicable and the SS shall ignore it if this field is coded as 15.
cipherKey	BITSTRING[64]	
Detailed Comments		

ASP Name	G_CL1_SetNewKey_CNF	
PCO Type	G_CSAP	
Comments	The ASP is used to get the confirmation of a G_CL1_SetNewKey_REQ	
Parameter Name	**Parameter Type**	**Comments**
cellId	CellId	The identifier of the cell
physicalChId	PhysicalChId	Channel identifier
g_LogicChType	G_LogicChType	
subChannel	SubChannelNumber	Valid only for logical channel types: TCH/H, FACCH/H, SACCH/TH, SDCCH/8, SACCH/C8, SDCCH/4, and SACCH/C4. For TCH/H, FACCH/H and SACCH/TH value is (0..1); For SDCCH/8 and SACCH/C8 value is (0..7); for SDCCH/4 and SACCH/C4 value is (0..3). This field is not applicable and the SS shall ignore it if this field is coded as 15.
Detailed Comments		

ASP Name	G_CL1_CipherModeModify_REQ	
PCO Type	G_CSAP	
Comments	The ASP is used to modify cipher mode of a dedicated channel	
Parameter Name	**Parameter Type**	**Comments**
cellId	CellId	The identifier of the cell
physicalChId	PhysicalChId	Channel identifier
g_LogicChType	G_LogicChType	
subChannel	SubChannelNumber	Valid only for logical channel types: TCH/H, FACCH/H, SACCH/TH, SDCCH/8, SACCH/C8, SDCCH/4, and SACCH/C4. For TCH/H, FACCH/H and SACCH/TH value is (0..1); For SDCCH/8 and SACCH/C8 value is (0..7); for SDCCH/4 and SACCH/C4 value is (0..3). This field is not applicable and the SS shall ignore it if this field is coded as 15.
cipherMode	CipherModeSetting	The new cipher mode. Definition see 3GPP TS 04.18 or 3GPP TS 44.018 [**Error! Reference source not found.**] clause 10.5.2.9
Detailed Comments		

ASP Name	G_CL1_CipherModeModify_CNF	
PCO Type	G_CSAP	
Comments	The ASP is used to get the confirmation of a G_CL1_CipherModeModify_REQ	
Parameter Name	**Parameter Type**	**Comments**
cellId	CellId	The identifier of the cell
physicalChId	PhysicalChId	Channel identifier
g_LogicChType	G_LogicChType	
subChannel	SubChannelNumber	Valid only for logical channel types: TCH/H, FACCH/H, SACCH/TH, SDCCH/8, SACCH/C8, SDCCH/4, and SACCH/C4. For TCH/H, FACCH/H and SACCH/TH value is (0..1); For SDCCH/8 and SACCH/C8 value is (0..7); for SDCCH/4 and SACCH/C4 value is (0..3). This field is not applicable and the SS shall ignore it if this field is coded as 15.
Detailed Comments		

ASP Name	G_CL1_ChangePowerLevel_REQ	
PCO Type	G_CSAP	
Comments	The ASP is used to change the transmission power level of a physical channel	
Parameter Name	**Parameter Type**	**Comments**
cellId	CellId	The identifier of the cell which the physical channel belongs to
physicalChId	PhysicalChId	Channel using the new transmission power level
txPower	TX_Power	The new transmission power level in dBµVemf()
Detailed Comments		

ASP Name	G_CL1_ChangePowerLevel_CNF	
PCO Type	G_CSAP	
Comments	The ASP is used to get the confirmation of a G_CL1_ChangePowerLevel_REQ	
Parameter Name	**Parameter Type**	**Comments**
cellId	CellId	The identifier of the cell
physicalChId	PhysicalChId	The physical channel which uses the new transmission power level
Detailed Comments		

7.3.4.3.2.2 ASPs for configuration and control of GERAN L2

ASP Name	G_CL2_HoldPhyInfo_REQ		
PCO Type	G_CSAP		
Comments	The ASP commands the SS to hold the PHYSICAL INFORMATION message, which will be sent on PCO G_L2 following the current ASP. The PHYSICAL INFORMATION message shall be sent to the UE/MS within T3124 from the time when the SS has received n handover access bursts.		
Parameter Name	**Parameter Type**	**Comments**	
cellId	CellId		
physicalChId	PhysicalChId	Channel identifier	
g_LogicChType	G_LogicChType		
subChannel	SubChannelNumber	Valid only for logical channel types: FACCH/H, SDCCH/8 and SDCCH/4, This field is not applicable and the SS shall ignore it if this field is coded as 15.	
n	INTEGER	The number of handover access bursts to be received	
Detailed Comments	T3124 is defined in 3GPP TS 04.18 or 3GPP TS 44.018 [**Error! Reference source not found.**] clauses 3.4.4.2.2 and 11.1.1		

ASP Name	G_CL2_HoldPhyInfo_CNF	
PCO Type	G_CSAP	
Comments	The ASP is used to get a confirmation of the G_CL2_HoldPhyInfo_REQ.	
Parameter Name	**Parameter Type**	**Comments**
cellId	CellId	
physicalChId	PhysicalChId	Channel identifier
g_LogicChType	G_LogicChType	
subChannel	SubChannelNumber	Valid only for logical channel types: FACCH/H, SDCCH/8 and SDCCH/4. This field is not applicable and the SS shall ignore it if this field is coded as 15.
Detailed Comments		

ASP Name	G_CL2_MeasRptControl_REQ		
PCO Type	G_CSAP		
Comments	The ASP is used to enable or disable the reporting of received Measurement Reports to the TTCN		
Parameter Name	**Parameter Type**	**Comments**	
cellId	CellId		
physicalChId	PhysicalChId	Channel identifier	
g_LogicChType	G_LogicChType	Valid only for logical channel types: SACCH/TF, SACCH/TH, SACCH/C8 and SACCH/C4	
subChannel	SubChannelNumber	For SACCH/TH value is (0..1); for SACCH/C8 value is (0..7); for SACCH/C4 value is (0..3).	
sendMeasRpts	BOOLEAN	Whether or not to report received Measurement Reports to the TTCN.	
Detailed Comments	Per default, this will be set to FALSE		

ASP Name	G_CL2_MeasRptControl_CNF	
PCO Type	G_CSAP	
Comments	The ASP is used to confirm that G_CL2_MeasRptControl_REQ was executed correctly	
Parameter Name	**Parameter Type**	**Comments**
cellId	CellId	
physicalChId	PhysicalChId	Channel identifier
Detailed Comments		

ASP Name	G_CL2_NoUAforSABM_REQ		
PCO Type	G_CSAP		
Comments	The ASP commands the SS not to send UA response to the UE when it receives SABM from the UE on the specified channel.		
Parameter Name	**Parameter Type**	**Comments**	
cellId	CellId		
physicalChId	PhysicalChId	Channel identifier	
g_LogicChType	G_LogicChType		
subChannel	SubChannelNumber	Valid only for logical channel types: FACCH/H, SDCCH/8 and SDCCH/4, This field is not applicable and the SS shall ignore it if this field is coded as 15.	
Detailed Comments			

ASP Name	G_CL2_NoUAforSABM_CNF		
PCO Type	G_CSAP		
Comments	The ASP is used to get a confirmation of the G_CL2_NoUAforSABM_REQ.		
Parameter Name	**Parameter Type**	**Comments**	
cellId	CellId		
physicalChId	PhysicalChId	Channel identifier	
g_LogicChType	G_LogicChType		
subChannel	SubChannelNumber	Valid only for logical channel types: FACCH/H, SDCCH/8 and SDCCH/4. This field is not applicable and the SS shall ignore it if this field is coded as 15.	
Detailed Comments			

ASP Name	G_CL2_Release_REQ	
PCO Type	G_CSAP	
Comments	The ASP is used request the SS stop L2 transmission on a channel.	
Parameter Name	**Parameter Type**	**Comments**
cellId	CellId	
physicalChId	PhysicalChId	Channel identifier
Detailed Comments		

ASP Name	G_CL2_Release_CNF	
PCO Type	G_CSAP	
Comments	The ASP is used to confirm that the G_CL2_Release_REQ is executed correctly	
Parameter Name	**Parameter Type**	**Comments**
cellId	CellId	
physicalChId	PhysicalChId	Channel identifier

ASP Name	G_CL2_ResumeUAforSABM_REQ		
PCO Type	G_CSAP		
Comments	The ASP commands the SS to send UA response to the UE when it receives SABM from the UE on the specified channel. This ASP is used after G_CL2_NoUAforSABM_REQ to resume the normal multiframe operation of L2		
Parameter Name	**Parameter Type**	**Comments**	
cellId	CellId		
physicalChId	PhysicalChId	Channel identifier	
g_LogicChType	G_LogicChType		
subChannel	SubChannelNumber	Valid only for logical channel types: FACCH/H, SDCCH/8 and SDCCH/4, This field is not applicable and the SS shall ignore it if this field is coded as 15.	
Detailed Comments			

ASP Name	G_CL2_ResumeUAforSABM_CNF		
PCO Type	G_CSAP		
Comments	The ASP is used to get a confirmation of the G_CL2_ResumeUAforSABM_REQ.		
Parameter Name	**Parameter Type**	**Comments**	
cellId	CellId		
physicalChId	PhysicalChId	Channel identifier	
g_LogicChType	G_LogicChType		
subChannel	SubChannelNumber	Valid only for logical channel types: FACCH/H, SDCCH/8 and SDCCH/4. This field is not applicable and the SS shall ignore it if this field is coded as 15.	
Detailed Comments			

7.3.4.3.2.3 ASPs for configuration and control of GERAN RLC/MAC

ASP Name	G_CRLC_CreateRLC_MAC_REQ		
PCO Type	G_CSAP		
Comments	The ASP is used to create a RLC/MAC entity in GERAN RLC/MAC emulation module.		
Parameter Name		**Parameter Type**	**Comments**
cellId		CellId	The identifier of the cell
Detailed Comments	One RLC/MAC entity per cell can exist, cellId will be used for couping LLC layer module to the RLC/MAC emulation module.. The packet channel description given in the ChannelSpecificInfo of G_CL1_CreateBasicPhyCh_REQ shall be used to configure this layer. This ASP shall be called after the G_CL1_CreateBasicPhyCh_REQ ASP.		

ASP Name	G_CRLC_CreateRLC_MAC_CNF		
PCO Type	G_CSAP		
Comments	The ASP is used to confirm the G_CRLC_CreateRLC_MAC_REQ		
Parameter Name		**Parameter Type**	**Comments**
cellId		CellId	The identifier of the cell
Detailed Comments			

ASP Name	G_CRLC_DeleteRLC_MAC_REQ		
PCO Type	G_CSAP		
Comments	The ASP is used to delete a RLC/MAC entity in GERAN emulation module.		
Parameter Name		**Parameter Type**	**Comments**
cellId		CellId	The identifier of the cell
Detailed Comments	This ASP is used to release any resource used for the RLC/MAC emulation entity in the SS.		

ASP Name	G_CRLC_DeleteRLC_MAC_CNF		
PCO Type	G_CSAP		
Comments	The ASP is used to confirm the G_CRLC_CreateRLC_MAC_REQ		
Parameter Name		**Parameter Type**	**Comments**
cellId		CellId	The identifier of the cell
Detailed Comments			

ASP Name	G_CRLC_UL_TBF_Config_REQ	
PCO Type	G_CSAP	
Comments	The ASP is used to configure a TBF used for uplink packet data transfer	
Parameter Name	**Parameter Type**	**Comments**
cellId	CellId	
tFI	TFI	
tBF_Mode	BITSTRING[1]	0 - GPRS; 1 - EGPRS
channelCoding	ChannelCoding	
tLLI_BlockChannelCoding	BITSTRING[1]	0 - CS-1 or MCS-1(EGPRS); 1 - same as channelCoding
rLC_Mode	BITSTRING[1]	0 - acknowledged mode; 1 - unacknowledged mode
startingTime	RFN	This field is not applicable and the SS shall ignore it if the field t2 of rfn is coded as '11111'B.
uSF_Rate	INTEGER	This parameter controls the speed of the UL TBF transferring data blocks by controlling the USF rate: 1---> implementation dependent. TTCN does not specify the USF generating rate; 2---> 10 USF's per second; 3---> 5 USF's per second; 4---> 1 USF per second; 5---> 1 USF per 2 seconds; 6---> 1 USF per 3 seconds; 7---> 1 USF per 4 seconds.
dynamicAllocation	dynamicAllocation	dynamic allocation and other parameters.
Detailed Comments	For GPRS channel coding can be: CS-1, CS-2, CS-3 and CS-4; For EGPRS channel coding can be : MCS-1, MCS-2, MCS-3, MCS-4, MCS-5, MCS-6, MCS-7, MCS-8, MCS-9, MCS-5-7 and MCS-6-9. Due to one cell currently has only one RLC/MAC emulation module, this ASP does not contain RLC/MAC identity parameter to indicate which RLC/MAC emulation module this TBF is established for, instead, the parameter cellId implicitly indicates the RLC/MAC module, which is created by G_CRLC_CreateRLC_MAC_REQ in the cell. The higher layer (LLC emulation module) uses rLC/MAC_MappingInfo (with type of CellId) to address the RLC/MAC emulation module to which it connects	

ASP Name	G_CRLC_UL_TBF_Config_CNF	
PCO Type	G_CSAP	
Comments	The ASP is used to get the confirmation of a G_CRLC_UL_TBF_Config_REQ	
Parameter Name	**Parameter Type**	**Comments**
cellId	CellId	
tFI	TFI	
Detailed Comments		

Type Name	ChannelCoding
Type Definition	INTEGER
Type Encoding	
Comments	1 - CS-1; 2 - CS-2; 3 - CS-3; 4 -- CS-4; 5 - MCS-1; 6 - MCS-2; 7 - MCS-3; 8 - MCS-4; 9 - MCS-5; 10 - MCS-6; 11 - MCS-7; 12 - MCS-8; 13 - MCS-9; 14 - MCS-5-7; 15 - MCS-6-9

Type Name	DynamicAllocation		
Encoding Variation			
Comments	Used for up link TBF; dynamic allocation or extended dynamic allocation		
Element Name	Type Definition	Field Encoding	Comments
extendedAllocation	BITSTRING[1]		0 - dynamic allocation; 1 - extended dynamic allocation
uSFGranularity	BITSTRING[1]		0 - one block; 1 - four blocks
physicalChId	PhysicalChId		Single PDCH or multislot-configured PDCHs
tN0	BOOLEAN		TRUE - time slot 0 is allocated; FALSE -- not allocated
uSF_TN0	BITSTRING[3]		USF value for slot 0
tN1	BOOLEAN		TRUE - time slot 1 is allocated; FALSE -- not allocated
uSF_TN1	BITSTRING[3]		USF value for slot 1
tN2	BOOLEAN		TRUE - time slot 2 is allocated; FALSE -- not allocated
uSF_TN2	BITSTRING[3]		USF value for slot 2
tN3	BOOLEAN		TRUE - time slot 3 is allocated; FALSE -- not allocated
uSF_TN3	BITSTRING[3]		USF value for slot 3
tN4	BOOLEAN		TRUE - time slot 4 is allocated; FALSE -- not allocated
uSF_TN4	BITSTRING[3]		USF value for slot 4
tN5	BOOLEAN		TRUE - time slot 5 is allocated; FALSE -- not allocated
uSF_TN5	BITSTRING[3]		USF value for slot 5
tN6	BOOLEAN		TRUE - time slot 6 is allocated; FALSE -- not allocated
uSF_TN6	BITSTRING[3]		USF value for slot 6
tN7	BOOLEAN		TRUE - time slot 7 is allocated; FALSE -- not allocated
uSF_TN7	BITSTRING[3]		USF value for slot 7
Detailed Comments	The uSF_TNx field is not applicable when tNx = FALSE.		

ASP Name	G_CRLC_DL_TBF_Config_REQ	
PCO Type	G_CSAP	
Comments	The ASP is used to configure a TBF used for down link packet data transfer	
Parameter Name	Parameter Type	Comments
cellId	CellId	
tFI	TFI	
tBF_Mode	BITSTRING[1]	0 - GPRS; 1 - EGPRS
channelCoding	ChannelCoding	
rLC_Mode	BITSTRING[1]	0 - acknowledged mode; 1 - unacknowledged mode
timeSlotAllocation	TimeSlotAllocation	Downlink TBF time slot allocation
startingTime	RFN	This field is not applicable and the SS shall ignore it if the field t2 of rfn is coded as '11111'B.
dataBlockRate	INTEGER	This parameter controls the speed of the DL TBF sending RLC/MAC data blocks on the assigned PDCH's: 1---> implementation dependent. TTCN does not specify the data block rate; 2---> 10 data blocks per second; 3---> 5 data blocks per second; 4---> 1 data block per second; 5---> 1 data block per 2 seconds; 6---> 1 data block per 3 seconds; 7---> 1 data block per 4 seconds.
Detailed Comments	For GPRS channel coding can be: CS-1, CS-2, CS-3 and CS-4; For EGPRS channel coding can be : MCS-1, MCS-2, MCS-3, MCS-4, MCS-5, MCS-6, MCS-7, MCS-8, MCS-9, MCS-5-7 and MCS-6-9.	

ASP Name	G_CRLC_DL_TBF_Config_CNF		
PCO Type	G_CSAP		
Comments	The ASP is used to get the confirmation of a G_CRLC_DL_TBF_Config_REQ		
Parameter Name		**Parameter Type**	**Comments**
cellId		CellId	
tFI		TFI	
Detailed Comments			

Type Name	TimeSlotAllocation		
Encoding Variation			
Comments	Used for downlink and up link TBF		
Element Name	**Type Definition**	**Field Encoding**	**Comments**
physicalChId	PhysicalChId		single PDCH or multislot-configured PDCHs
tN0	BOOLEAN		Timeslot 0; TRUE - allocated; FALSE - not allocated.
tN1	BOOLEAN		Timeslot 1; TRUE - allocated; FALSE - not allocated.
tN2	BOOLEAN		Timeslot 2; TRUE - allocated; FALSE - not allocated.
tN3	BOOLEAN		Timeslot 3; TRUE - allocated; FALSE - not allocated.
tN4	BOOLEAN		Timeslot 4; TRUE - allocated; FALSE - not allocated.
tN5	BOOLEAN		Timeslot 5; TRUE - allocated; FALSE - not allocated.
tN6	BOOLEAN		Timeslot 6; TRUE - allocated; FALSE - not allocated.
tN7	BOOLEAN		Timeslot 7; TRUE - allocated; FALSE - not allocated.
Detailed Comments			

7.3.4.3.2.4 ASPs for configuration and control of GERAN LLC

ASP Name	G_CLLC_CreateLLE_REQ	
PCO Type	G_CSAP	
Comments	The ASP is used to create an LLE (LLC Entity) in GERAN emulation part of the SS and connects the created LLE to the RLC/MAC emulation module pointed by rLC/MAC_MappingInfo..	
Parameter Name	**Parameter Type**	**Comments**
lLMEId	LLMEId	Logical Layer Management Entity Id
rLC/MAC_MappingInfo	CellId	This parameter indicates the RLC/MAC emulation module in the cell, not the cell itself.
Detailed Comments	The RLC/MAC emulation module needs to be created prior to this ASP by G_CRLC_CreateRLC_MAC_REQ ASP.	

ASP Name	G_CLLC_CreateLLE_CNF		
PCO Type	G_CSAP		
Comments	The ASP is used to confirm the G_CLLC_CreateLLE_REQ		
Parameter Name		**Parameter Type**	**Comments**
lLMEId		LLMEId	The identifier of the cell Logical Layer Management Entity Id
Detailed Comments			

ASP Name	G_CLLC_DeleteLLE_REQ		
PCO Type	G_CSAP		
Comments	The ASP is used to delete an LLE (LLC Entity) in GERAN LLC emulation module.		
Parameter Name		**Parameter Type**	**Comments**
ILMEId		LLMEId	Logical Layer Management Entity Id
Detailed Comments			

ASP Name	G_CLLC_DeleteLLE_CNF		
PCO Type	G_CSAP		
Comments	The ASP is used to confirm the G_CLLC_DeleteLLE_REQ		
Parameter Name		**Parameter Type**	**Comments**
ILMEId		LLMEId	Logical Layer Management Entity Id
Detailed Comments			

ASP Name	G_CLLC_Assign_REQ	
PCO Type	G_CSAP	
Comments	The ASP is used to assign, change, or unassign the TLLI, the ciphering key (Kc) and the ciphering algorithm of GERAN LLC emulation module.	
Parameter Name	**Parameter Type**	**Comments**
ILMEId	LLMEId	Logical Layer Management Entity Id
oldTLLI	TLLI	OCTETSTRING[4]
newTLLI	TLLI	
cipherKey	BITSTRING[64]	
cipherAlgorithm	GPRS_CipherAlg	BITSTRING[3], see 3GPP TS 24.008 [**Error! Reference source not found.**] clause 10.5.5.3
Detailed Comments	This ASP is used to assign, change, or unassign the TLLI, the ciphering key (Kc) and the ciphering algorithm. 1. The oldTLLI and newTLLI parameters shall be interpreted as follows: - If oldTLLI = all 1's and newTLLI ≠ all 1's then newTLLI is assigned and used when (re-)transmitting LLC frames. If an oldTLLI ≠ all 1's was assigned to the LLME, then oldTLLI is unassigned. Only newTLLI is accepted when received from the peer. It shall be treated as a TLLI change. If oldTLLI = all 1's was assigned to the LLME, then this shall be treated as a TLLI assignment, and this ASP shall be the first ASP sent to the SS in order to enable LLC to process requests from layer 3. - If oldTLLI ≠ all 1's and newTLLI ≠ all 1's then oldTLLI and newTLLI are assigned, and newTLLI shall be used when (re-)transmitting LLC frames. Both oldTLLI and newTLLI shall be accepted when received from the peer. It shall be treated as a TLLI change. - If oldTLLI ≠ all 1's and newTLLI = all 1's then oldTLLI shall be unassigned. It shall be treated as a TLLI unassignment, and this ASP shall be the last ASP sent to the SS in order to disable LLC to not process requests from layer 3 any longer. 2. Kc and Ciphering Algorithm are associated with newTLLI (and with oldTLLI if assigned): - If Ciphering Algorithm indicates no ciphering, then the ciphering function shall be disabled. - Otherwise, the ciphering function shall be enabled. If a Ciphering Algorithm was already associated with newTLLI or oldTLLI, then the new Kc shall replace the previous Kc, and Ciphering Algorithm shall replace the previous algorithm selection. All I frames, and UI frames with the E bit set to 1, shall use the new Kc and algorithm for ciphering. All unacknowledged I frames shall be ciphered using the new Kc and algorithm before retransmission. As an implementation option, the previous Kc and algorithm may be used to decipher received frames.	

ASP Name	G_CLLC_Assign_CNF		
PCO Type	G_CSAP		
Comments	the ASP is used to get confirmation of G_CLLC_Assign_REQ		
Parameter Name		**Parameter Type**	**Comments**
ILMEId		LLMEId	Logical Layer Management Entity Id
Detailed Comments			

ASP Name	G_CLLC_ReassignLLE_REQ		
PCO Type	G_CSAP		
Comments	The ASP is used to reassign RLC/MAC entity to the specified LLME Identity.		
Parameter Name	**Parameter Type**	**Comments**	
lLMEId	LLMEId	Logical Layer Management Entity Id	
rLC/MAC_MappingInfo	CellId	This parameter indicates the RLC/MAC emulation module in the cell, not the cell itself	
tLLI	TLLI		
Detailed Comments	This ASP allows simulation of Intra-SGSN operations in tests.		

ASP Name	G_CLLC_ReassignLLE_CNF		
PCO Type	G_CSAP		
Comments	The ASP is used to confirm the G_CLLC_ReassignLLE_REQ		
Parameter Name	**Parameter Type**	**Comments**	
lLMEId	LLMEId	Logical Layer Management Entity Id	
Detailed Comments			

7.3.4.3.2.5 ASPs for configuration and control of GERAN SNDCP

ASP Name	G_CSNDCP_Activate_REQ	
PCO Type	G_CSAP	
Comments	The ASP is used to activate the SNDC entity	
Parameter Name	**Parameter Type**	**Comments**
sNDCPId	SNDCPId	The SNDCP entity identifier of the cell
lLMEId	LLMEId	Logical link management entity Id
nSAPI	NSAPI	The Network Service Access Point Identifier
sAPI	SAPI	LLC SAPI
PCI_Compression	INTEGER	0 - RFC 1144 [**Error! Reference source not found.**] compress; 1 - RFC 2507 [**Error! Reference source not found.**] compression; 32 - no compression
dataCompression	INTEGER	0 - ITU-T Recommendation V.42bis [**Error! Reference source not found.**] compression; 1 - ITU-T Recommendation V.44 [**Error! Reference source not found.**] compression; 32 - no compression
nPDUNumberSync	INTEGER	0 - Asynchronous 1 - Synchronous
Detailed Comments		

ASP Name	G_CSNDCP_Activate_CNF	
PCO Type	G_CSAP	
Comments	The ASP is used to get the confirmation of a G_CSNDCP_Activate_REQ	
Parameter Name	**Parameter Type**	**Comments**
sNDCPId	SNDCPId	SNDCPentity identifier
nSAPI	NSAPI	The Network Service Access Point Identifier
Detailed Comments		

ASP Name	G_CSNDCP_SNSM_Activate_RES	
PCO Type	G_CSAP	
Comments	This ASP is used to inform that the NSAPI is in use and the acknowledge mode peer to peer LLC operation for the requested SAPI is established.	
Parameter Name	**Parameter Type**	**Comments**
sNDCPId	SNDCPId	The SNDCP entity identifier
tLLI	TLLI	Temperory Logical Link Entity
nSAPI	NSAPI	The Network Service Access Point Identifier
Detailed Comments		

ASP Name	G_CSNDCP_SNSM_Deactivate_IND		
PCO Type	G_CSAP		
Comments	This ASP is used to inform the SNDCP emulator that an NSAPI has been deactivated and cannot be used anymore. Upon reception of this ASP the SNDCP emulator shall release acknowledged peer-to-peer LLC operation for the associated SAPI.		
Parameter Name		**Parameter Type**	**Comments**
sNDCPId		SNDCPId	The SNDCP entity identifier
tLLI		TLLI	Temperory Logical Link Entity
nSAPI		NSAPI	The Network Service Access Point Identifier
lLCReleaseIndicator		INTEGER	Deactivation cause
Detailed Comments			

ASP Name	G_CSNDCP_SNSM_Deactivate_RES		
PCO Type	G_CSAP		
Comments	This ASP indicates that the NSAPI is no longer in use and the acknowledged peer to peer LLC operation for the requested SAPI has been released.		
Parameter Name		**Parameter Type**	**Comments**
sNDCPId		SNDCPId	The SNDCP entity identifier
tLLI		TLLI	Temperory Logical Link Entity
nSAPI		NSAPI	The Network Service Access Point Identifier
Detailed Comments			

ASP Name	G_CSNDCP_SNSM_Status_REQ		
PCO Type	G_CSAP		
Comments	This ASP informs that the SNDCP cannot continue its operation due to errors in the lower layers of the protocol stack.		
Parameter Name		**Parameter Type**	**Comments**
sNDCPId		SNDCPId	The SNDCP entity identifier
tLLI		TLLI	Temperory Logical Link Entity
sAPI		SAPI	The Service Access Point Identifier
cause		INTEGER	Error cause
Detailed Comments			

ASP Name	G_CSNDCP_SNSM_Modify_IND		
PCO Type	G_CSAP		
Comments	This ASP informs the SNDCP emulator to trigger the change of QoS profile for an NSAPI and indication of the SAPI to be used		
Parameter Name		**Parameter Type**	**Comments**
sNDCPId		SNDCPId	The SNDCP entity identifier
tLLI		TLLI	Temperory Logical Link Entity
nSAPI		NSAPI	The Network Service Access Point Identifier
qos		OCTETSTRING[4]	Quality of Service, defined 3GPP TS 04.08 or 3GPP TS 44.008 [**Error! Reference source not found.**] clause 10.5.6.5
sAPI		SAPI	
send_NPDU_Number		INTEGER	
received_NPDU_Number		INTEGER	
Detailed Comments			

ASP Name	G_CSNDCP_SNSM_Modify_RES		
PCO Type	G_CSAP		
Comments	This ASP indicates that the NSAPI and QoS profile are now in used and the acknowledged peer to peer LLC operations for the appropriate SAPIs are established and/or released		
Parameter Name		**Parameter Type**	**Comments**
sNDCPId		SNDCPId	The SNDCP entity identifier
tLLI		TLLI	Temperory Logical Link Entity
nSAPI		NSAPI	The Network Service Access Point Identifier
Detailed Comments			

7.3.5 A-GPS Upper tester, PCO and ASP definitions

7.3.5.1 Upper tester

In order to perform A-GPS test, an Upper Tester is defined to have two basic functional unites:

- Satellite simulator generating and broadcasting satellite signals,
- Assistance data source storeging the data simulating a number of pre-defined GPS test scenarios.

Under the TTCN command, the upper tester loads a pre-defined or re-loads another pre-defined GPS test scenario to the satellite simulator. The generated satellite signals shall simulate a sufficient number satellites. The signal shall be sufficiently strong, in order to enable the UE to do the positioning measurement.

The SS also sends the GPS assistance data to the UE through RRC signalling to facilitate the UE acquiring and tracking satellites. Such assistance data shall be consistent to within +/- 2 seconds with the satellite signals generated.

The assistance data source shall provide the assistance data consistent to + 1 /- 0 second with the GPS test scenario currently running in the satellite simulator (i.e. the data shall be up to 1 second in advance of the scenario); this allows for a further 2 seconds of latency in the SS.

7.3.5.2 SV PCO

The upper tester has an ASP interface through a PCO in type of SatS PCO defined in the table.

PCO Type Declarations	
PCO Type	SatS
Role	UT
Comments	PCO type used for the Satellite Simulator and the assistance data source in the upper tester

PCO Declarations	
PCO Name	SV
PCO Type	SatS
Role	UT
Comments	Carry control, configuration and GPS assistance data to/from satellite simulator and assistance data source in the upper tester

7.3.5.3 A-GPS Primitives

The primitives at SV PCO are used to

- load a pre-defined GPS test scenario into the satellite simulator,
- start or stop generating and broadcasting satellite signals from the satellite simulator
- retrieve the GPS assistance data from assistance data source, the table below is the summary of these primitives.

Primitive	Parameters	Use
Satellite_StartStop_REQ	Mode: start or stop	Start or stop generating satellite signals in the satellite simulator.
Satellite_StartStop_CNF	Null	Confirm the Satellite_StartStop_Req.
Load_GPS_Scenario_ REQ	GPS test scenario number	Requests to load a pre-defined GPS test scenario into the satellite simulator
Load_GPS_Scenario_ CNF	Null	Confirm the load_GPS_Scenario_Req
Retri_GPS_AssistanceData_REQ	Indication of which assistance data elements to be retrieved	Request the assistance data source to provide the next (in time) valid GPS assistance data elements.
Retri_GPS_AssistanceData_CNF	GPS assistance data elements	Return the GPS assistance data retrieved

7.3.5.3.1 Control ASP Type Definition

ASN.1 ASP Type Definition	
Type Name	Satellite_StartStop_CNF
PCO Type	SatS
Comment	To confirm successful of Satellite_StartStop_REQ
Type Definition	
SEQUENCE { confirm NULL }	

ASN.1 ASP Type Definition	
Type Name	Satellite_StartStop_REQ
PCO Type	SatS
Comment	To start or stop generating satellite signals in the satellite simulator “start” starts broadcasting satellite signals; “stop” stops broadcasting satellite signals If used for start (0), this ASP shall be called 2 s. after the ASP Load_GPS_Scenario_REQ for loading or reloading a pre-defined GPS test scenario.
Type Definition	
SEQUENCE { satelliteSignals ENUMERATED {startSatSignal (0), stopSatSignal (1)} }	

7.3.5.3.2 Data ASP Type Definition

ASN.1 ASP Type Definition	
Type Name	Load_GPS_Scenario_CNF
PCO Type	SatS
Comment	To confirm the Load_GPS_Scenario_REQ
Type Definition	
SEQUENCE { dummy NULL }	

ASN.1 ASP Type Definition	
Type Name	Load_GPS_Scenario_REQ
PCO Type	SatS
Comment	To request the upper tester to load the required pre-defined GPS test scenario.
Type Definition	
SEQUENCE { gps_Scenario INTEGER(0..31)}	

ASN.1 ASP Type Definition	
Type Name	Retri_GPS_AssistanceData_CNF
PCO Type	SatS
Comment	To return the next valid GPS assistance data elements as requested in the Retri_GPS_AssistanceData_REQ. The returned GPS assistance data (all or part) will be used as assistance data sent to UE in RRC messages for A-GPS positioning.
Type Definition	

SEQUENCE {
assistanceData UE_Positioning_GPS_AssistanceData
}	

ASN.1 ASP Type Definition	
Type Name	Retri_GPS_AssistanceData_REQ
PCO Type	SatS
Comment	To request the GPS assistance data source to provide the next valid GPS assistance data elements, consistent with the running GPS test scenario. The parameter navModelAddDataRequest in the assistanceDataReq shall be omitted. Another three parameters, utcModelRequest, dgpsCorrectionsRequest and realTimeIntegrityRequest in the assistanceDataReq are not applicable and shall be set to ”FALSE”.
Type Definition	

SEQUENCE {
assistanceDataReq UE_Positioning_GPS_AdditionalAssistanceDataRequest
}	

8 Design Considerations

8.1 Channel mapping

Figure 2 shows the channel type mapping that is used for the configuration of the SS.

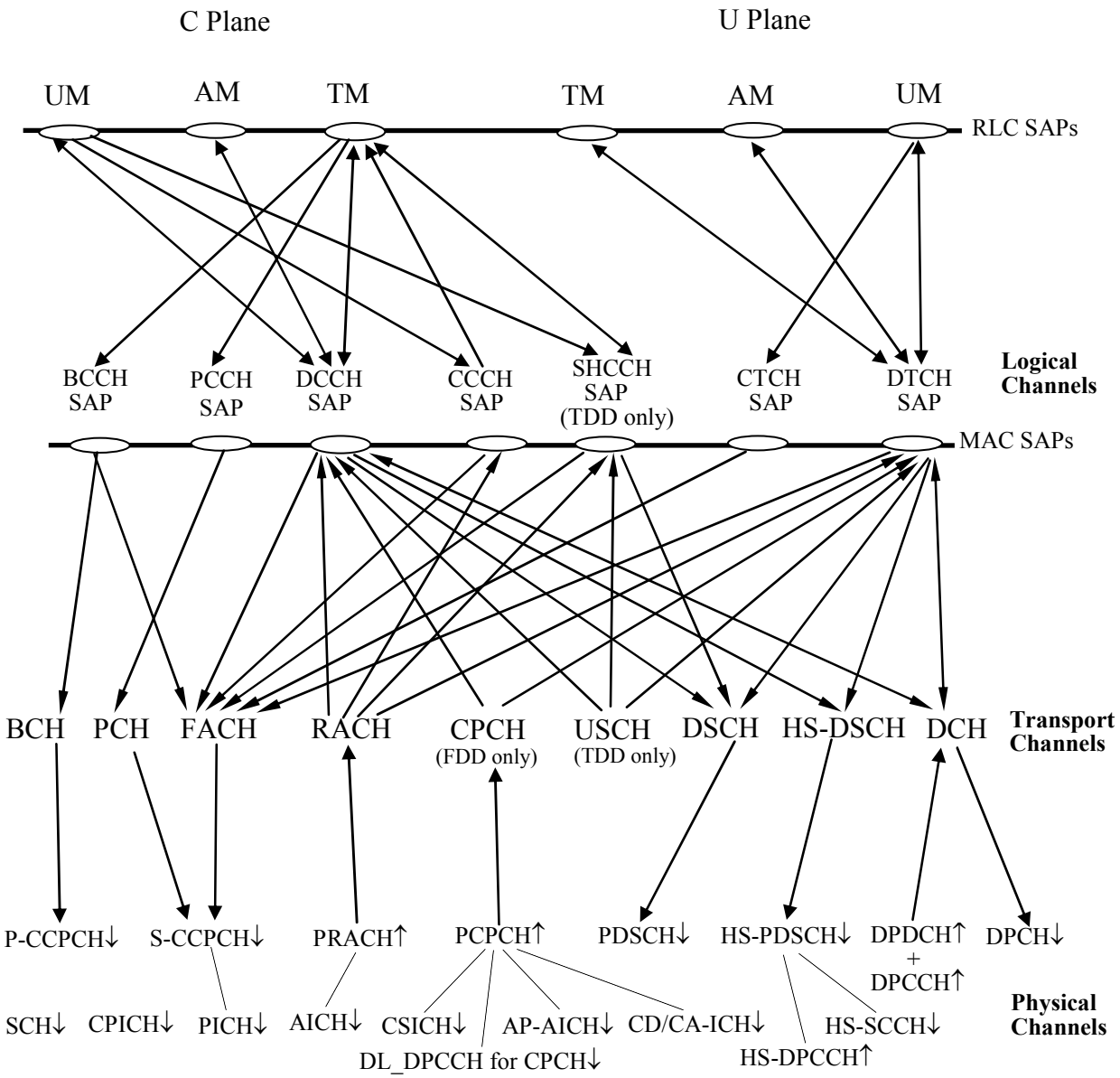

Figure 2: Channel mapping in SS-

8.2 Channel and RB identity

The TTCN addresses the TTCN tester by using a channel identifier:

- Either Physical channel identifier (PhyCh id); or
- Transport channel identifier (TrCh id); or
- Radio bearer identifier (RB id).

The selected channel identifier identifies uniquely:

- a channel within a cell;
- a total path of the address in the lower layers concerned.

Having taken out the cell id and PCO id (AM, UM and TM), a complete address, as RoutingInfo in the RRC ASP definition, should have at least five fields, CN domain id, RB id, LogCH id, TrCH id and PhyCH id. For simplified

application of CHOICE of the routing information, a TTCN writer must carefully follow a number of rules assigning the channel identifiers.

General requirements:

- a structured scheme of planning all channel identifiers assigned;
- the scheme shall meet the requirements for all test cases in 3GPP TS 34.123-1 [**Error! Reference source not found.**] including TDD channels;
- the scheme can apply to all radio bearer configurations in 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10;
- a clear multiplex mapping between a PhyCH id to TrCH ids and a TrCH id to LogCH ids, RB ids is needed.

Requirements on identification of RB in a test case:

- unique identification of the individual SRBs;
- unique identification of the individual sub-flows of a RABs in CS and PS domain.;
- an assigned RB id can represent UL and DL.

Requirements on identification of Logical Channel in a test case:

- it is an instance number of the individual logical channel; and
- uniquely identifies among all the Logical Channel mapped onto a Transport Channel.

Requirements on identification of Transport Channel in a test case:

- unique identification of the individual Transport Channel;
- assign different identities for UL and DL of a same Transport Channel type;
- the order of the Transport Channel id assigned in a cell shall follow the TFCS definitions in the 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.

EXAMPLE: Transport Channel ids are assigned in the ascending order for (RABsubflow#1, RABsubflow#2, RABsubflow#3, 64kRAB, DCCH).

Requirements on identification of Physical Channel in a test case:

- unique identification of the individual Physical Channel;
- assign different identities for UL and DL of a same Physical Channel type;
- each S-CCPCH or PRACH has a unique identifier;
- for 2 Mbps PS data radio link (in case of demux of a Transport Channel), three DPCH are needed for high-speed data. A single Physical Channel id is assigned to a bundle of the three physical channels.

Table 29 shows which type of channel identity is chosen for the individual primitives. In table 29, the ASN.1 primitives use a CHOICE type for channel identity, while TTCN primitives use an explicit channel identity.

Table 29: Primitives and the associated channel identity type

Primitive name	Channel Idientity	Releases
ASN.1 Primitives		
CPHY_AICH_AckModeSet_CNF	Physical Channel Identity	
CPHY_AICH_AckModeSet_REQ	Physical Channel Identity	
CPHY_Cell_Config_CNF	No Routing Info Field Present	
CPHY_Cell_Config_REQ	No Routing Info Field Present	
CPHY_Cell_Ini_CNF	No Routing Info Field Present	
CPHY_Cell_Ini_REQ	No Routing Info Field Present	
CPHY_Cell_TxPower_Modify_CNF	No Routing Info Field Present	

CPHY_Cell_TxPower_Modify_REQ	No Routing Info Field Present	
CPHY_Commit_CNF	Physical Channel Identity	
CPHY_Commit_REQ	Physical Channel Identity	
CPHY_Frame_Number_CNF	Physical Channel Identity	
CPHY_Frame_Number_REQ	Physical Channel Identity	
CPHY_Out_of_Sync_IND	Physical Channel Identity	
CPHY_PRACH_Measurement_CNF	Physical Channel Identity	
CPHY_PRACH_Measurement_REQ	Physical Channel Identity	
CPHY_RL_Modify_CNF	Physical Channel Identity	
CPHY_RL_Modify_REQ	Physical Channel Identity	
CPHY_RL_Release_CNF	Physical Channel Identity	
CPHY_RL_Release_REQ	Physical Channel Identity	
CPHY_RL_Setup_CNF	Physical Channel Identity	
CPHY_RL_Setup_REQ	PhysicalChannelIdentity	
CPHY_Sync_IND	Physical Channel Identity	
CPHY_TrCH_Config_CNF	Physical Channel Identity	
CPHY_TrCH_Config_REQ	PhysicalChannelIdentity	
CPHY_TrCH_Release_CNF	Physical Channel Identity	
CPHY_TrCH_Release_REQ	Physical Channel Identity	
CPHY_HS_DPCCH_AckNack_CNF	No Routing Info Field Present	~~Later than r4~~Rel-5 or later
CPHY_HS_DPCCH_AckNack_REQ	No Routing Info Field Present	~~Later than r4~~Rel-5 or later
CPHY_HS_DPCCH_AckNack_IND	No Routing Info Field Present	~~Later than r4~~Rel-5 or later
CPHY_HS_DPCCH_CQI_CNF	No Routing Info Field Present	~~Later than r4~~Rel-5 or later
CPHY_HS_DPCCH_CQI_REQ	No Routing Info Field Present	~~Later than r4~~Rel-5 or later
CPHY_HS_DPCCH_CQI_IND	No Routing Info Field Present	~~Later than r4~~Rel-5 or later
CPHY_HS_DSCH_CRC_Mode_CNF	Physical Channel Identity	~~Later than r4~~Rel-5 or later
CPHY_HS_DSCH_CRC_Mode_REQ	Physical Channel Identity	~~Later than r4~~Rel-5 or later
CMAC_BMC_Scheduling_CNF	Physical Channel Identity	
CMAC_BMC_Scheduling_REQ	Physical Channel Identity	
CMAC_Ciphering_Activate_CNF	Physical Channel Identity of DPCH	
CMAC_Ciphering_Activate_REQ	Physical Channel Identity of DPCH	
CMAC_Config_CNF	Physical Channel Identity	
CMAC_Config_REQ	PhysicalChannelIdentity	
CMAC_PAGING_Config_CNF	Physical Channel Identity	
CMAC_PAGING_Config_REQ	Physical Channel Identity	
CMAC_Restriction_CNF	PhysicalChannelIdentity	
CMAC_Restriction_REQ	PhysicalChannelIdentity	
CMAC_SecurityMode_Config_CNF	No Routing Info Field Present (applies to all RB Ids)	
CMAC_Sequence_Number_CNF	Physical Channel Identity	
CMAC_SequenceNumber_REQ	Physical Channel Identity	
CMAC_SYSINFO_Config_CNF	RB Identity	
CMAC_SYSINFO_Config_REQ	RB Identity	
CMAC_MAChs_Reset_CNF	No Routing Info Field Present	~~Later than r4~~Rel-5 or later
CMAC_MAChs_Reset_REQ	No Routing Info Field Present	~~Later than r4~~Rel-5 or later
CMAC_MAChs_HARQprocAsign_CNF	No Routing Info Field Present	~~Later than r4~~Rel-5 or later
CMAC_MAChs_HARQprocAsign_REQ	No Routing Info Field Present	~~Later than r4~~Rel-5 or later
CMAC_MAChs_TFRCconfigre_CNF	No Routing Info Field Present	~~Later than r4~~Rel-5 or later
CMAC_MAChs_TFRCconfigre_REQ	No Routing Info Field Present	~~Later than r4~~Rel-5 or later
CRLC_Ciphering_Activate_CNF	No Routing Info Field Present (applies to all RB Ids)	
CRLC_Ciphering_Activate_REQ	No Routing Info Field Present (applies to all RB Ids)	
CRLC_Config_CNF	RB Identity	
CRLC_Config_REQ	RB_Identity	

CRLC_Integrity_Activate_CNF	No Routing Info Field Present (applies to all RB Ids)	
CRLC_Integrity_Activate_REQ	No Routing Info Field Present (applies to all RB Ids)	
CRLC_Integrity_Failure_IND	RB Identity	
CRLC_Resume_CNF	RB Identity (applies to all suspended RB Ids)	
CRLC_Resume_REQ	RB Identity (applies to all suspended RB Ids)	
CRLC_SecurityMode_Config_CNF	No Routing Info Field Present (applies to all RB Ids)	
CRLC_SecurityMode_Config_REQ	No Routing Info Field Present (applies to all RB Ids)	
CRLC_SequenceNumber_CNF	RB Identity	
CRLC_SequenceNumber_REQ	RB Identity	
CRLC_Status_Ind	RB Identity	
CRLC_Suspend_CNF	RB Identity	
CRLC_Suspend_REQ	RB Identity	
CBMC_Config_CNF	RB Identity	
CBMC_Config_REQ	RB Identity	
RLC_AM_DATA_CNF	RB Identity	
RLC_AM_DATA_IND	RB Identity	
RLC_AM_DATA_REQ	RB Identity	
RLC_TR_DATA_IND	RB Identity	
RLC_TR_DATA_REQ	RB Identity	
RLC_UM_DATA_IND	RB Identity	
RLC_UM_DATA_REQ	RB Identity	
TTCN Primitives		
RLC_AM_TestDataInd	RB Identity	
RLC_AM_TestDataReq	RB Identity	
RLC_TR_TestDataInd	RB Identity	
RLC_TR_TestDataReq	RB Identity	
RLC_UM_TestDataInd	RB Identity	
RLC_UM_TestDataReq	RB Identity	
BMC_DataReq	RB Identity	

8.2.1 Physical channels

Table 30: Physical channel identities

Type	Min. No.	Current Config.	Identities (value assigned)	Direction	Comment
P-CCPCH	1	1	tsc_P_CCPCH (4)	downlink	Primary Common Control Physical Channel. For Broadcasting System Information messages, using the Primary Scrambling Code for the Cell.
P-CPICH	1	1	tsc_P_CPICH (0)	downlink	Primary Common Pilot Channel using the Primary Scrambling Code for the Cell.
S-CPICH	1	FFS	tsc_S_CPICH (3)	downlink	Secondary Common Pilot Channel, used as the phase reference for some RF tests.
P-SCH	1	1	tsc_P_SCH (1)	downlink	Primary Synchronization Channel
S-SCH	1	1	tsc_S_SCH (2)	downlink	Secondary Synchronization Channel
S-CCPCH	2	1	tsc_S_CCPCH1 (5) tsc_S_CCPCH2 (10)	downlink	Secondary Common Control Physical Channel.
PICH	1	1	tsc_PICH1 (6) tsc_PICH2 (11)	downlink	To identify whether the UE should access the PCCH for Paging Messages.
AICH	1	1	tsc_AICH1 (7) tsc_AICH2 (12)	downlink	General Acquisition Indicator Channel, can be used for: - Aquisition Indicator Channel, for PRACH - Access Preamble Acquisition Indicator Channel (AP-ICH), for PCPCH - Collision-Detection/Channel-Assignment Indicator Channel (CD/CA-ICH), for PCPCH

Type	Min. No.	Current Config.	Identities (value assigned)	Direction	Comment
DPCH	3	1	tsc_DL_DPCH1 (26) tsc_DL_DPCH2 (27)	downlink	Downlink Physical Data Channel. Layer 1 signalling is transmitted only on the first DPCH. This number is for the First Cell. Additional Cells may define a lower number which should be at least 1.
DPDCH	1	1	tsc_UL_DPCH1 (20) tsc_UL_DPCH2 (21)	uplink	Uplink Dedicated Physical Channel. A single DPCCH associated with all the DPDCHs used for Layer 1 signalling.
PDSCH	1	1	tsc_DL_PDSCH1 (16)	downlink	Physical Downlink Shared Channel.
PRACH	2	1	tsc_PRACH1 (8) tsc_PRACH2 (9)	uplink	Physical Random Access Channel.
PCPCH	1	FFS		uplink	Physical Common Packet Channel.
CSICH	1	FFS		downlink	CPCH Status Indicator Channel
HS-PDSCH	1		tsc_HSPDSCH(18)	downlink	~~Later than r4~~Rel-5 or later High speed physical downlink shared channel

The Physical Channel values 20 to 25 are assigned to uplink DPCHs and the values 26 to 31 are assigned to downlink DPCHs.

8.2.2 Transport channels

Table 31: Transport channel identities

Type	Min. No.	Current Config.	Identities (value assigned)	Direction	Comments
BCH	1	1	tsc_BCH1 (11)	downlink	
FACH	1	1	tsc_FACH1 (13) tsc_FACH2 (14) tsc_FACH3 (16) tsc_FACH4 (17)	downlink	
PCH	1	1	tsc_PCH1 (12) tsc_PCH2 (30)	downlink	
DCH	n	4	tsc_UL_DCH1 (1) tsc_UL_DCH2 (2) tsc_UL_DCH3 (3) tsc_UL_DCH4 (4) tsc_UL_DCH5 (5)	uplink	tsc_UL_DCH1 for RAB1-1 or RAB1, tsc_UL_DCH2 for RAB1-2 or RAB2, tsc_UL_DCH3 for RAB1-3, tsc_UL_DCH4 RAB2, tsc_UL_DCH5 for SRB.
DCH	n	4	tsc_DL_DCH1 (6) tsc_DL_DCH2 (7) tsc_DL_DCH3 (8) tsc_DL_DCH4 (9) tsc_DL_DCH5 (10)	downlink	tsc_DL_DCH1 for RAB1-1 or RAB1, tsc_DL_DCH2 for RAB1-2 or RAB2, tsc_DL_DCH3 for RAB1-3, tsc_DL_DCH4 for RAB2, tsc_DL_DCH5 for SRB.
USCH	1	N/A	tsc_USCH1(20)	uplink	TDD only
DSCH	1	N/A	tsc_DSCH (19)	downlink	
RACH	2	1	tsc_RACH1 (15) tsc_RACH2 (31)	uplink	
CPCH	1	N/A	tsc_CPCH1(32)	uplink	
FAUSCH	N/A	N/A	tsc_FAUSCH1(18)	uplink	Not in Release 99
HSDSCH	1	1	N/A	downlink	~~Later than r4~~Rel-5 or later

The TrCH values 20 to 29 are assigned to the TDD TrCH.

8.2.3 Logical Channels

Table 32 shows the logical channels identities.

Table 32: Logical channel identities

Type	Min. No.	Current Config.	Identities (value assigned)	Direction	Comments
BCCH_BCH	1	1	tsc_BCCH1 (1)	downlink	
BCCH_FACH	1	1	tsc_BCCH6 (6)	downlink	
CCCH	1	1	tsc_DL_CCCH5 (5)	downlink	
CCCH	1	2	tsc_UL_CCCH5 (5) tsc_UL_CCCH6 (6)	uplink	
DCCH	4	4	tsc_DL_DCCH1 (1) tsc_DL_DCCH2 (2) tsc_DL_DCCH3 (3) tsc_DL_DCCH4 (4)	downlink	tsc_DL_DCCH1 for SRB1, tsc_DL_DCCH2 for SRB2, tsc_DL_DCCH3 for SRB3, tsc_DL_DCCH4 for SRB4
DCCH	4	4	tsc_UL_DCCH1 (1) tsc_UL_DCCH2 (2) tsc_UL_DCCH3 (3) tsc_UL_DCCH4 (4)	uplink	tsc_UL_DCCH1 for SRB1, tsc_UL_DCCH2 for SRB2, tsc_UL_DCCH3 for SRB3, tsc_UL_DCCH4 for SRB4
PCCH	1	2	tsc_PCCH1 (1) tsc_PCCH2 (2)	downlink	
DTCH	n	4	tsc_UL_DTCH1 (7) tsc_UL_DTCH2 (8) tsc_UL_DTCH3 (9) tsc_UL_DTCH4 (10)	uplink	tsc_UL_DTCH1 for RAB1-1 or RAB 1, tsc_UL_DTCH2 for RAB1-2 or RAB 2, tsc_UL_DTCH3 for RAB1-3' tsc_UL_DTCH4 for RAB2
DTCH	n	4	tsc_DL_DTCH1 (7) tsc_DL_DTCH2 (8) tsc_DL_DTCH3 (9) tsc_DL_DTCH4 (10)	downlink	tsc_DL_DTCH1for RAB1-1 or RAB 1, tsc_DL_DTCH2 for RAB1-2 or RAB 2, tsc_DL_DTCH3 for RAB-3, tsc_DL_DTCH4 for RAB2
CTCH	1	2	tsc_CTCH1 (11) tsc_CTCH2 (12)	downlink	

8.2.4 Radio bearers

Table 33: Radio bearer identities

Identities (value assigned)	Direction	Type	RLC mode	Service domain	Comments
tsc_RB_BCCH (-1)	downlink		TM	NA	BCCH-BCH
tsc_RB_PCCH (-2)	downlink		TM	NA	PCCH PCH
tsc_RB_BCCH_FACH (-3)	downlink		TM	NA	BCCH FACH
tsc_RB_2ndPCCH (-4)	downlink		TM	NA	Second PCCH PCH SCPCCH
tsc_RB_2ndCCCH (-5)	uplink		TM	NA	Second CCCH RACH PRACH
tsc_RB_UM_7_RLC (-10)	downlink	RAB	TM	CS	For UM RLC tests using 7 bit LIs
tsc_RB_UM_7_RLC (-10)	uplink	RAB	TM	CS	For UM RLC tests using 7 bit LIs
tsc_RB_UM_15_RLC (-11)	downlink	RAB	TM	CS	For UM RLC tests using 15 bit LIs
tsc_RB_UM_15_RLC (-11)	uplink	RAB	TM	CS	For UM RLC tests using 15 bit LIs
tsc_RB_AM_7_RLC (-12)	downlink	RAB	TM	CS	For AM RLC tests using 15 bit LIs
tsc_RB_AM_7_RLC (-12)	uplink	RAB	TM	CS	For AM RLC tests using 7 bit LIs
tsc_RB_AM_15_RLC (-13)	downlink	RAB	TM	CS	For AM RLC tests using 15 bit LIs
tsc_RB_AM_15_RLC (-13)	uplink	RAB	TM	CS	For AM RLC tests using 15 bit LIs
tsc_RB_DCCH_FACH_MAC (-14)	downlink	SRB3	TM	CS	For MAC tests using DCCH mapped to FACH
tsc_RB_DCCH_FACH_MAC (-14)	uplink	SRB3	TM	CS	For MAC tests using DCCH mapped to FACH
tsc_RB_DCCH_DCH_MAC (-15)	downlink	SRB3	TM	CS	For MAC tests using DCCH mapped to DCH
tsc_RB_DCCH_FACH_MAC (-15)	uplink	SRB3	TM	CS	For MAC tests using DCCH mapped to DCH
tsc_RB3_DCCH_RRC_(-16)	uplink	SRB3	AM	CS or PS	For RRC test cases to route UL NAS messages
tsc_RB_CCCH_FACH_MAC (-18)	downlink	SRB0	TM	CS or PS	For MAC test using donwlink SRB0 on TM
tsc_RB_BCCH_FACH_RAB (-19)	downlink		TM	NA	BCCH FACH

Identities (value assigned)	Direction	Type	RLC mode	Service domain	Comments
tsc_RB0 (0)	uplink	SRB0	TM	CS or PS	The service domain for which the most recent security negotiation took place. CCCH
tsc_RB0 (0)	downlink	SRB0	UM	CS or PS	CCCH
tsc_RB1 (1)	uplink	SRB1	UM	CS or PS	DCCH
tsc_RB1 (1)	downlink	SRB1	UM	CS or PS	DCCH
tsc_RB2 (2)	uplink	SRB2	AM	CS or PS	DCCH
tsc_RB2 (2)	downlink	SRB2	AM	CS or PS	DCCH
tsc_RB3 (3)	uplink	SRB3	AM	CS or PS	DCCH
tsc_RB3 (3)	downlink	SRB3	AM	CS or PS	DCCH
tsc_RB4 (4)	uplink	SRB4	AM	CS or PS	DCCH
tsc_RB4 (4)	downlink	SRB4	AM	CS or PS	DCCH
tsc_RB5 (5)	uplink		TM		DCCH
tsc_RB5 (5)	downlink		TM		DCCH
tsc_RB10 (10)	uplink	RAB#1-1	TM	CS	or RAB1
tsc_RB10 (10)	downlink	RAB#1-1	TM	CS	or RAB1
tsc_RB11 (11)	uplink	RAB#1-2	TM	CS	or RAB2
tsc_RB11 (11)	downlink	RAB#1-2	TM	CS	or RAB2
tsc_RB12 (12)	uplink	RAB#1-3	TM	CS	
tsc_RB12 (12)	downlink	RAB#1-3	TM	CS	
tsc_RB13 (13)	uplink	RAB#2	TM	CS	
tsc_RB13 (13)	downlink	RAB#2	TM	CS	
tsc_RB20 (20)	uplink	RAB#1	AM	PS	
tsc_RB20 (20)	downlink	RAB#1	AM	PS	
tsc_RB21 (21)	uplink	RAB#2	UM	PS	
tsc_RB21 (21)	downlink	RAB#2	UM	PS	
tsc_RB22 (22)	uplink	RAB#2	AM	PS	
tsc_RB22 (22)	downlink	RAB#2	AM	PS	
tsc_RB23 (23)	uplink	RAB#2	AM	PS	2nd AM RAB for PS
tsc_RB23 (23)	downlink	RAB#2	AM	PS	2nd AM RAB for PS
tsc_RB24 (24)	uplink	RAB#2	AM	PS	2nd AM RAB for PS
tsc_RB24 (24)	downlink	RAB#2	AM	PS	2nd AM RAB for PS
tsc_RB25 (25)	uplink	RAB#1	AM	PS	~~Later than r4~~Rel-5 or later DTCH on DPCH associated HS-DSCH
tsc_RB25 (25)	downlink	RAB#1	AM	PS	~~Later than r4~~Rel-5 or later DTCH on HS-DSCH
tsc_RB29 (29)	downlink	SRB0	AM	PS	RB Id for Radio bearer that carries the 2nd CCCH in the DL
tsc_RB30 (30)	downlink		UM		CTCH FACH
tsc_RB31 (31)	downlink		UM		Second CTCH FACH

The RB values 0 to 5 are used for the signalling bearers. The values 10 to 15 are assigned to the CS RAB sub-flows. The values 20 to 25 are assigned to the PS RAB sub-flows. The value 30 is assigned to the CBSMS/BMC service.

Table 34: RB identities mapping between 34.123-1 & 34.123-3

RAB Combinations	34.123-1	34.123-3
Single CS RAB	RB5	tsc_RB10
	RB6	tsc_RB11
	RB7	tsc_RB12
Single PS RAB	RB5	tsc_RB20
	RB7	tsc_RB20
	RB8	tsc_RB20
CS+PS Multi RABs	RB5	tsc_RB10
	RB6	tsc_RB11, tsc_RB20
	RB7	tsc_RB12
	RB8	tsc_RB20
	RB9	tsc_RB22
CS+CS Multi RABs	RB5	tsc_RB10
	RB6	tsc_RB11
	RB7	tsc_RB12
	RB8	tsc_RB13
PS+PS Multi RABs	RB5	tsc_RB20
	RB6	tsc_RB22
	RB7	tsc_RB20
	RB8	tsc_RB24

8.2.5 Scrambling and channelization codes

Table 35 shows the primary/secondary scrambling codes and the channelization codes for downlink channels.

Table 35: Primary/secondary scrambling codes and channelization codes for downlink channels

Type	Identities (value assigned)	Primary scrambling code	Secondary scrambling code	Channelization Code
P-CCPCH	tsc_P_CCPCH (4)	(px_PrimaryScramblingCode + 50 × (cell No -1)) mod 512	NA	tsc_P_CCPCH_ChC (256:1)
P-CPICH	tsc_P_CPICH (0)	(px_PrimaryScramblingCode + 50 × (cell No -1)) mod 512	NA	tsc_P_CPICH_ChC (256:0)
S-CCPCH	tsc_S_CCPCH1 (5)	(px_PrimaryScramblingCode + 50 × (cell No -1)) mod 512	NA (carrying PCH)	tsc_S_CCPCH1_ChC (64:1)
	tsc_S_CCPCH2 (10)	(px_PrimaryScramblingCode + 50 × (cell No -1)) mod 512	NA (carrying PCH)	tsc_S_CCPCH2_ChC (64:2)
PICH	tsc_PICH1 (6)	(px_PrimaryScramblingCode + 50 × (cell No -1)) mod 512	NA	tsc_PICH1_ChC (256:2)
	tsc_PICH2 (11)	(px_PrimaryScramblingCode + 50 × (cell No -1)) mod 512	NA	tsc_PICH2_ChC (256:12)
AICH	tsc_AICH1 (7)	(px_PrimaryScramblingCode + 50 × (cell No -1)) mod 512	NA	tsc_AICH1_ChC (256:3)
	tsc_AICH2 (12)	(px_PrimaryScramblingCode + 50 × (cell No -1)) mod 512	NA	tsc_AICH2_ChC (256:13)
DPCH	tsc_DL_DPCH1 (26)	(px_PrimaryScramblingCode + 50 × (cell No -1)) mod 512	tsc_DL_DPCH1_2ndScrC (1) This value is related to the primary scrambling code of the cell	Depending on the configuration: tsc_DL_DPCH1_ChC_SRB (128:9) tsc_DL_DPCH1_ChC_Speech (128:0) tsc_DL_DPCH1_ChC_Streaming (32:0) tsc_DL_DPCH1_ChC_64k_CS (32:0) tsc_DL_DPCH1_ChC_64k_PS (32:0)
	tsc_DL_DPCH2 (27)	(px_PrimaryScramblingCode + 50 × (cell No -1)) mod 512	tsc_DL_DPCH2_2ndScrC (1) This value is related to the primary scrambling code of the cell	Depending on the configuration: tsc_DL_DPCH2_ChC_SRB (256:1) tsc_DL_DPCH2_ChC_Speech (128:1) tsc_DL_DPCH2_ChC_Streaming (32:1) tsc_DL_DPCH2_ChC_64k_CS (32:1) tsc_DL_DPCH2_ChC_64k_PS (32:1)
HS-PDSCH	tsc_HSPDSCH(18)	Same as HS-SCCH	Same as HS-SCCH	~~Later than r4~~Rel-5 or later SF= 16 Number of codes depending on the configuration, at most 15 codes
HS-SCCH	NA	(px_PrimaryScramblingCode + 50 × (cell No -1)) mod 512	tsc_DL_DPCH2_2ndScrC (1) This value is related to the primary scrambling code of the cell	~~Later than r4~~Rel-5 or later SF =128 Number of codes depending on the configuration, at most 4 codes

Table 36 shows the scrambling codes, the signatures and the spreading factors for uplink channels.

Table 36: Scrambling codes, signatures and spreading factor for uplink channels

Type	Identities (value assigned)	Scrambling code	Signature	Spreading factor
DPDCH	tsc_UL_DPCH1 (20)	(px_UL_ScramblingCode + 1000*(cell No -1)) MOD 16777216	NA	If only one DPDCH and depending on the configuration tsc_UL_DPDCH_SF_SRB (64) tsc_UL_DPDCH_SF_Speech (64) tsc_UL_DPDCH_SF_Streaming (16) tsc_UL_DPDCH_SF_64k_CS (16) tsc_UL_DPDCH_SF_64k_PS (16) If more than one DPDCH tsc_UL_DPDCH_SF_4 (4:1)
	tsc_UL_DPCH2 (21)	(px_UL_ScramblingCode + 1 000 × (cell No -1)) MOD 16 777 216	NA	If only one DPDCH and depending on the configuration tsc_UL_DPDCH_SF_SRB (64) tsc_UL_DPDCH_SF_Speech (64) tsc_UL_DPDCH_SF_Streaming (16) tsc_UL_DPDCH_SF_64k_CS (16) tsc_UL_DPDCH_SF_64k_PS (16) If more than one DPDCH tsc_UL_DPDCH_SF_4 (4:1)
PRACH	tsc_PRACH1 (8)	tsc_PRACH1_ScrC (0)	tsc_PRACH1_Signatures ('0000000011111111'B)	tsc_PRACH1_SF (64)
	tsc_PRACH2 (9)	tsc_PRACH2_ScrC (1)	tsc_PRACH2_Signatures ('0000000011111111'B)	tsc_PRACH2_SF (64)
HS-DPCCH	NA	Same as DPDCH	NA	~~Later than r4~~Rel-5 or later Depending on the number of DPDCHs: If only one DPDCH: $C_{256,64}$; If 2 or 4 or 6 DPDCHs: $C_{256,1}$; If 3 or 5 DPDCHs: $C_{256,32}$.

8.2.6 MAC-d

MAC-d and the served RLC are cell-independent and are configured by using the cell-id = -1. During reconfigurations, cell changes and state transitions, the relevant counters in the RLC and MAC-d are maintained.

For the active set updating, the DL DCH with the same channel Id in the different cells are implicitly connected to form the DL multiple paths.

8.2.6.1 MAC-d configuration examples

The following example shows how the MAC and RLC ASP are used to configure different configurations.

The 1st parameter in ASP represents the cell identity: p_CellId corresponds to the current cell identity, tsc_CellDedicated corresponds to the cell independent (-1). The 2nd parameter represents the channel Id, this parameter is not needed in the CRLC ASP)

1. Cell_DCH_StandAloneSRB: configuratio of DL/UL-DPCH1

```
CPHY!CPHY_RL_Setup_REQ      ( p_CellId, tsc_DL_DPCH1)              -- Cell concerned
CPHY?CPHY_RL_Setup_CNF      ( p_CellId, tsc_DL_DPCH1)              -- Cell concerned
CPHY!CPHY_TrCH_Config_REQ   ( p_CellId, tsc_DL_DPCH1)              -- Cell concerned
CPHY?CPHY_TrCH_Config_CNF   ( p_CellId, tsc_DL_DPCH1 )             -- Cell concerned
CMAC ! CMAC_Config_REQ      ( tsc_CellDedicated,  tsc_DL_DPCH1)    -- Cell independent (-1)
CMAC ? CMAC_Config_CNF      ( tsc_CellDedicated, tsc_DL_DPCH1)     -- Cell independant (-1)
CPHY!CPHY_RL_Setup_REQ      ( p_CellId, tsc_UL_DPCH1)              -- Cell concerned
CPHY?CPHY_RL_Setup_CNF      ( p_CellId, tsc_UL_DPCH1)              -- Cell concerned
CPHY!CPHY_TrCH_Config_REQ   ( p_CellId, tsc_UL_DPCH1 )             -- Cell concerned
CPHY?CPHY_TrCH_Config_CNF   ( p_CellId, tsc_UL_DPCH1 )             -- Cell concerned
CMAC ! CMAC_Config_REQ      ( tsc_CellDedicated,  tsc_UL_DPCH1)    -- Cell independant (-1)
CMAC ? CMAC_Config_CNF      ( tsc_CellDedicated, tsc_UL_DPCH1 )    -- Cell independant (-1)
CRLC ! CRLC_Config_REQ      ( tsc_CellDedicated )                  -- Cell independant (-1)
CRLC ? CRLC_Config_CNF      ( tsc_CellDedicated )                  -- Cell independant (-1)
```

2. Cell_FACH: configuration of S-CCPCH1

```
CPHY!CPHY_RL_Setup_REQ          ( p_CellId, tsc_S_CCPCH1)          -- Cell concerned
CPHY?CPHY_RL_Setup_CNF          ( p_CellId, tsc_S_CCPCH1)          -- Cell concerned t
CPHY!CPHY_TrCH_Config_REQ       ( p_CellId, tsc_S_CCPCH1)          -- Cell concerned
CPHY ? CPHY_TrCH_Config_CNF     ( p_CellId, tsc_S_CCPCH1)          -- Cell concerned
CMAC ! CMAC_Config_REQ          ( p_CellId,  tsc_S_CCPCH1)         -- Cell concerned
CMAC ? CMAC_Config_CNF          ( p_CellId,  tsc_S_CCPCH1 )        -- Cell concerned
CPHY!CPHY_RL_Setup_REQ          ( p_CellId, tsc_PICH1              -- Cell concerned
CPHY?CPHY_RL_Setup_CNF          ( p_CellId, tsc_PICH1)             -- Cell concerned
CRLC ! CRLC_Config_REQ          ( tsc_CellDedicated )              -- Cell independant (-1)
CRLC ? CRLC_Config_CNF          ( tsc_CellDedicated )              -- Cell independant (-1)
```

3. Cell_FACH: configuration of P-CCPCH

```
CPHY!CPHY_RL_Setup_REQ          ( p_CellId, tsc_P_CPICH )          -- Cell concerned
CPHY?CPHY_RL_Setup_CNF          ( p_CellId, tsc_P_CPICH )          -- Cell concerned
```

```
CPHY!CPHY_RL_Setup_REQ          ( p_CellId, tsc_P_SCH)            -- Cell concerned
CPHY?CPHY_RL_Setup_CNF          ( p_CellId, tsc_P_SCH )           -- Cell concerned
CPHY!CPHY_RL_Setup_REQ          ( p_CellId, tsc_P_SCH)            -- Cell concerned
CPHY?CPHY_RL_Setup_CNF          ( p_CellId, tsc_S_SCH )           -- Cell concerned
CPHY!CPHY_RL_Setup_REQ          ( p_CellId, tsc_P_CCPCH)          -- Cell concerned
CPHY?CPHY_RL_Setup_CNF          ( p_CellId, tsc_P_CCPCH )         -- Cell concerned
CPHY!CPHY_TrCH_Config_REQ       ( p_CellId, tsc_P_CCPCH )         -- Cell concerned
CPHY?CPHY_TrCH_Config_CNF       ( p_CellId, tsc_P_CCPCH )         -- Cell concerned
CMAC!CMAC_Config_REQ            ( p_CellId, tsc_P_CCPCH)          -- Cell concerned
CMAC?CMAC_Config_CNF            ( p_CellId, tsc_P_CCPCH )         -- Cell concerned
CRLC! CRLC_Config_REQ           ( p_CellId)                       -- Cell concerned
CRLC? CRLC_Config_CNF           ( p_CellId)                       -- Cell concerned
```

8.2.7 Configuration of compressed mode

8.2.7.1 UE Side

Two IE are available for the configuaration of the compressed mode for the UE.

a) DPCH_CompressedModeInfo.

b) DPCH_CompressedModeStatusInfo.

Compressed mode initiation at UE side can be devided into 2 steps:

a) Downloading compressed mode parameters.

b) Activating the compressed mode.

Both of them can be done in one shot.

8.2.7.2 SS Side

Compressed mode configuartaion at SS side shall be maintained the same status as that on the UE side. So there are 3 different types of compressed mode configuaration states both on UE and SS side.

- Configuration of compressed mode parameters (Use of DPCH_CompressedModeInfo) without the activation.
- Configuration of compressed mode parameters and simultaneous activation (use of DPCH_CompressedModeInfo).
- Only activation (use of DPCH_CompressedModeStatusInfo).

If compressed mode parameters are to be downloaded to the UE without actually activation, it shall be configured on the SS side by any one of the following two procedures.

- If DPCH channel on which compressed mode is to be downloaded is not already configured, primitive "CPHY_RL_Setup_REQ", with "CphyRlSetupReq. PhysicalChannelInfo" which is of choice, chosen to dPCHInfo shall be called. The procedue is used to pre-configure all comepressed patterns necessary for test, but deactivate the all patterns configured at the beginning of the test. This procedure has not been implemented in the TTCN.

- If DPCH channel on which compressed mode is to be downloaded is already configured, the primitive "CPHY_RL_Modify_REQ" with "CphyRlModifyReq. PhysicalChannelInfo" which is of choice, chosen to dPCHInfo shall be called. This procedure in generally used in the TTCN.

If compressed mode parameters are to be configured and simultaneously activated, the same procedure as for the configuration of compressed mode without activation shall be used.

Activation of the compressed mode, whose parameters are already configured shall be achieved by the primitive "CPHY_RL_Modify_REQ" with "CphyRlModifyReq. PhysicalChannelInfo" which is of choice, chosen to dpch_CompressedModeStatusInfo.

8.2.8 Use of U-RNTI and C-RNTI

The uRNTI and cRNTI are optional when configuring the MAC (CMAC_Config_REQ). Table 37 gives indication on when uRNTI and cRNTI are needed.

Table 37: cRNTI and uRNTI in CMAC-Config_REQ

	P-CCPCH	S-CCPCH with mapped DL-DCCH/DTCH (UE in cell_FACH)	S-CCPCH without mapped DL-DCCH/DTCH (UE in cell_DCH)	PRACH with mapped DL-DCCH/DTCH (UE in cell_FACH)	PRACH without mapped DL-DCCH/DTCH (UE in cell_DCH)	DPCH
uRNTI	-	Included	-	Omit	-	-
cRNTI	-	Included	-	Included	-	-
CMAC-Config_REQ	OMIT both	Download cRNTI and uRNTI	OMIT both	Download cRNTI	OMIT both	OMIT both

In the case of DL-DCCH/DTCH mapped on S-CCPCH, cRNTI and uRNTI are downloaded to the MAC layer. As default, SS MAC shall use cRNTI as UE id. At the CMAC configuration of the beginning of test cases, the RLC payload size is configurted, as default on cRNTI for the MAC header calculation. If uRNTI is to be used the SS RLC payload size shall be reconfigured as cRNTI and uRNTI do not have the same length (16 bits and 32 bits repectively).

CELL UPDATE CONFIRM or URA UPDATE CONFIRM shall be sent on DCCH at the test for the ciphering reason except the periodic update without carrying the UE indetity information. In this case the CELL UPDATE CONFIRM or URA UPDATE CONFIRM is sent on CCCH at the test.

Table 38: Relationship between cell update cause, UE state and RLC size reconfiguration

Cell update cause	UE State (before cell update)	CELL UPDATE CONFIRM	CRLC_Reconf RLC_Size Needed	Valid UE ID
Cell reselection	CELL_PCH / CELL_FACH	DCCH	Y	U_RNTI
Periodical cell update	CELL_PCH	DCCH or CCCH	Y (for DCCH)	U_RNTI
Periodical cell update	CELL_FACH	DCCH or CCCH	N	C_RNTI
Uplink data transmission	CELL_PCH / URA _PCH	DCCH	Y	U_RNTI
UTRAN paging response	CELL_PCH / URA_PCH	DCCH	Y	U_RNTI
Re-entered service area	CELL_PCH / URA_PCH	DCCH	Y	U_RNTI
Re-entered service area	CELL_FACH	DCCH	N	C_RNTI
Radio Link failure	CELL_DCH	DCCH	Y	U_RNTI
RLC_unrecoverable error	CELL_DCH / CELL_FACH	DCCH	Y N (selceted the same cell in CELL_FACH)	U_RNTI C_RNTI

8.3 Channels configurations

8.3.1 Configuration of Cell_FACH

The configuration is based on 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.3.2.1.2 for downlink and 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.4.1.1.1 for uplink. The configuration is applied to the RRC tests related in the states CELL_FACH, CELL_PCH and URA_PCH. They need a minimum radio configuration for testing.

Table 39: Uplink configuration of Cell_FACH

RB Identity	tsc_RB20 (20)	tsc_RB0 (0)	tsc_RB1 (1)	tsc_RB2 (2)	tsc_RB3 (3)	tsc_RB4 (4)
LogCh Type	DTCH	CCCH	DCCH	DCCH	DCCH	DCCH
LogCh Identity	Tsc_UL_DTCH1 (7)	tsc_UL_CCCH5 (5)	tsc_UL_DCCH1 (1)	tsc_UL_DCCH2 (2)	tsc_UL_DCCH3 (3)	tsc_UL_DCCH4 (4)
RLC mode	AM	TM	UM	AM	AM	AM
TrCH Type	RACH					
TrCH identity	tsc_RACH1 (15)					
PhyCh Type	PRACH					
PhyCH identity	tsc_PRACH1 (8)					

Table 40: Downlink configuration of Cell_FACH

RB Identity	tsc_RB20 (20)	tsc_RB0 (0)	tsc_RB1 (1)	tsc_RB2 (2)	tsc_RB3 (3)	tsc_RB4 (4)	tsc_RB_BCCH_FACH (-3)	tsc_RB_PCCH (-2)
LogCh Type	DTCH	CCCH	DCCH	DCCH	DCCH	DCCH	BCCH	PCCH
LogCh Identity	tsc_DL_DTCH1 (7)	tsc_DL_CCCH5 (5)	tsc_DL_DCCH1 (1)	tsc_DL_DCCH2 (2)	tsc_DL_DCCH3 (3)	tsc_DL_DCCH4 (4)	tsc_BCCH6 (6)	tsc_PCCH1 (1)
RLC mode	AM	UM	UM	AM	AM	AM	TM	TM
MAC priority	1	1	2	3	4	5	6	1
TrCH Type	FACH	FACH						PCH
TrCH identity	tsc_FACH2 (14)	tsc_FACH1 (13)						tsc_PCH1 (12)
PhyCh Type	Secondary CCPCH							
PhyCH identity	tsc_S_CCPCH1 (5)							

8.3.2 Configuration of Cell_DCH_StandAloneSRB

The configuration is based on 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.1. 3. The RB0/UM-CCCH is referred to 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.3.2.1.2 and RB0/TM-CCCH is referred to 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.4.1.1.1. The configuration is applied to the RRC and NAS signalling tests in the DCH state without RAB.

Table 41: Uplink configuration of Cell_DCH_StandAloneSRB

RB Identity	tsc_RB1 (1)	tsc_RB2 (2)	tsc_RB3 (3)	tsc_RB4 (4)	tsc_RB0 (0)	
LogCh Type	DCCH	DCCH	DCCH	DCCH	CCCH	
LogCh Identity	tsc_UL_DCCH1 (1)	tsc_UL_DCCH2 (2)	tsc_UL_DCCH3 (3)	tsc_UL_DCCH4 (4)	tsc_UL_CCCH5 (5)	
RLC mode	UM	AM	AM	AM	TM	AM
TrCH Type	DCH				RACH	
TrCH identity	tsc_UL_DCH5 (5)				tsc_RACH1 (15)	
PhyCh Type	DPDCH				PRACH	
PhyCH identity	tsc_UL_DPCH1 (20)				tsc_PRACH1 (8)	

Table 42: Downlink configuration of Cell_DCH_StandAloneSRB

RB Identity	tsc_RB1 (1)	tsc_RB2 (2)	tsc_RB3 (3)	tsc_RB4 (4)	tsc_RB0 (0)	tsc_RB_PCCH (-2)	
LogCh Type	DCCH	DCCH	DCCH	DCCH	CCCH	PCCH	
LogCh Identity	tsc_DL_DCCH 1 (1)	tsc_DL_DCCH 2 (2)	tsc_DL_DCCH 3 (3)	tsc_DL_DCCH 4 (4)	tsc_DL_CCCH 5 (5)	tsc_PCCH1 (1)	
RLC mode	UM	AM	AM	AM	UM	TM	AM
MAC priority	1	2	3	4	1	1	1
TrCH Type	DCH				FACH	PCH	FACH
TrCH identity	tsc_DL_DCH5 (10)				tsc_FACH1 (13)	tsc_PCH1 (12)	tsc_FACH2 (14)
PhyCh Type	DPCH				Secondary CCPCH		
PhyCH identity	tsc_DL_DPCH1 (26)				tsc_S_CCPCH1 (5)		

8.3.3 Configuration of Cell_DCH_Speech

The configuration is based on 3GPP TS 34.108 [**Error! Reference source not found.**], clauses 6.10.2.4.1.4 and 6.10.2.4.1.5. The RB0/UM-CCCH is referred to 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.3.2.1.2 and RB0/TM-CCCH is referred to 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.4.1.1.1. The configuration is applied to those RRC and NAS signalling tests in the DCH state where a CS voice service, such as narrowband speech, emergency speech call or TS 61 for speech, is established.

Table 43: Uplink configuration of Cell_DCH_Speech

RB Identity	tsc_RB10 (10)	tsc_RB11 (11)	tsc_RB12 (12)	Same as uplink configuration of Cell_DCH_StandAloneSRB on DPCH	Same as uplink configuration of Cell_DCH_StandAloneSRB on PRACH
LogCh Type	DTCH	DTCH	DTCH		
LogCh Identity	tsc_UL_DTCH1 (7)	tsc_UL_DTCH2 (8)	tsc_UL_DTCH3 (9)		
RLC mode	TM	TM	TM		
TrCH Type	DCH	DCH	DCH		
TrCH identity	tsc_UL_DCH1 (1)	tsc_UL_DCH2 (2)	tsc_UL_DCH3 (3)		
PhyCh Type	DPDCH				PRACH
PhyCH identity	tsc_UL_DPCH1 (20)				tsc_PRACH1 (8)

Table 44: Downlink configuration of Cell_DCH_Speech

RB Identity	tsc_RB10 (10)	tsc_RB11 (11)	tsc_RB12 (12)	Same as downlink configuration of Cell_DCH_StandAloneSRB on DPCH	Same as downlink configuration of Cell_DCH_StandAloneSRB on sCCPCH
LogCh Type	DTCH	DTCH	DTCH		
LogCh Identity	tsc_DL_DTCH1 (7)	tsc_DL_DTCH2 (8)	tsc_DL_DTCH3 (9)		
RLC mode	TM	TM	TM		
MAC priority	1	1	1		
TrCH Type	DCH	DCH	DCH		
TrCH identity	tsc_DL_DCH1 (6)	tsc_DL_DCH2 (7)	tsc_DL_DCH3 (8)		
PhyCh Type	DPCH				Secondary CCPCH
PhyCH identity	tsc_DL_DPCH1 (26)				tsc_S_CCPCH1 (5)

8.3.4 Configuration of Cell_DCH_64kCS_RAB_SRB

The configuration is based on 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.1.13 for the conversational unknown quality class. The RB0/UM-CCCH is referred to 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.3.2.1.2 and RB0/TM-CCCH is referred to 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.4.1.1.1. The configuration is applied to those RRC and NAS signalling tests in the DCH state where one of the following CS transparent data services is established:

- Multimedia call 28,8 kbit/s, 3,1 kHz Audio;
- Multimedia call 32 kbit/s, UDI;
- Multimedia call 33,6 kbit/s, 3,1 kHz Audio;
- Multimedia call 56 kbit/s, RDI;
- Multimedia call 64 kbit/s, UDI;
- Asynchronous 3,1 kHz Audio 28,8 kbit/s;
- Synchronous 3,1 kHz Audio 28,8 kbit/s;
- Synchronous V.110 UDI up to 56 kbit/s;
- BTM RDI 56 kbit/s;
- BTM UDI 64 bit/s.

Table 45: Uplink configuration of Cell_DCH_64kCS_RAB_SRB

RB Identity	tsc_RB10 (10)	Same as uplink configuration of Cell_DCH_StandAloneSRB on DPCH	Same as uplink configuration of Cell_DCH_StandAloneSRB on PRACH
LogCh Type	DTCH		
LogCh Identity	tsc_UL_DTCH1 (7)		
RLC mode	TM		
TrCH Type	DCH		
TrCH identity	tsc_UL_DCH1 (1)		
PhyCh Type	DPDCH		PRACH
PhyCH identity	tsc_UL_DPCH1 (20)		tsc_PRACH1 (8)

Table 46: Downlink configuration of Cell_DCH_64kCS_RAB_SRB

RB Identity	tsc_RB10 (10)	Same as downlink configuration of Cell_DCH_StandAloneSRB on DPCH	Same as downlink configuration of Cell_DCH_StandAloneSRB on sCCPCH
LogCh Type	DTCH		
LogCh Identity	tsc_DL_DTCH 1 (7)		
RLC mode	TM		
MAC priority	1		
TrCH Type	DCH		
TrCH identity	tsc_DL_DCH1 (6)		
PhyCh Type	DPCH		Secondary CCPCH
PhyCH identity	tsc_DL_DPCH1 (26)		tsc_S_CCPCH1 (5)

8.3.5 Configuration of Cell_DCH_57_6kCS_RAB_SRB

The configuration is based on 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.1.17 for the streaming unknown quality class. The RB0/UM-CCCH is referred to 3GPP TS 34.108 [**Error! Reference source not found.**], 6.10.2.4.3.2.1.2 and RB0/TM-CCCH is referred to 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.4.1.1.1. The configuration is applied to those RRC and NAS signalling tests in the DCH state where one of the following CS non-transparent data services is established:

- Asynchronous 3,1 kHz Audio up to 19,2 kbit/s;
- Asynchronous 3,1 kHz Audio modem auto-bauding;
- Asynchronous V.110 UDI up to 38,4 kbit/s, except 28,8 kbit/s;
- Asynchronous V.120 up to 56 kbit/s;
- Asynchronous PIAFS up to 64 kbit/s;
- Asynchronous FTM up to 64 kbit/s;
- Synchronous 3,1 kHz Audio up to 19,2 kbit/s;

- Synchronous V.110 UDI up to 56 kbit/s, except 28,8 kbit/s;
- Synchronous X.31 Flags Stuffing UDI up to 56 kbit/s;
- Synchronous V.120 up to 56 kbit/s;
- Synchronous BTM up to 64 kbit/s;
- TS61 FAX.

Table 47: Uplink configuration of Cell_DCH_57_6kCS_RAB_SRB

RB Identity	tsc_RB10 (10)	Same as uplink configuration of Cell_DCH_StandAloneSRB on DPCH	Same as uplink configuration of Cell_DCH_StandAloneSRB on PRACH
LogCh Type	DTCH		
LogCh Identity	tsc_UL_DTCH1 (7)		
RLC mode	TM		
TrCH Type	DCH		
TrCH identity	tsc_UL_DCH1 (1)		
PhyCh Type	DPDCH		PRACH
PhyCH identity	tsc_UL_DPCH1 (20)		tsc_PRACH1 (8)

Table 48: Downlink configuration of Cell_DCH_57_6kCS_RAB_SRB

RB Identity	tsc_RB10 (10)	Same as downlink configuration of Cell_DCH_StandAloneSRB on DPCH	Same as downlink configuration of Cell_DCH_StandAloneSRB on sCCPCH
LogCh Type	DTCH		
LogCh Identity	tsc_DL_DTCH1 (7)		
RLC mode	TM		
MAC priority	1		
TrCH Type	DCH		
TrCH identity	tsc_DL_DCH1 (6)		
PhyCh Type	DPCH		Secondary CCPCH
PhyCH identity	tsc_DL_DPCH1 (26)		tsc_S_CCPCH1 (5)

8.3.6 Configuration of Cell_RLC_DCH_ RAB

The configuration is based on 3GPP TS 34.108 [**Error! Reference source not found.**], clauses 6.11.1, 6.11.2, 6.11.3, and 6.11.4 for the RLC AM and UM tests with 7 and 15 bit length indicators. The RB0/UM-CCCH is referred to 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.3.2.1.2 and RB0/TM-CCCH is referred to 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.4.1.1.1.

The RB Ids used for the DTCH depend on the RLC mode and length indicator size being simulated (reference clause 6.5.2, RLC test method). Table 49 shows the test suite constants used for each RLC mode, and length indicator size.

Table 49: RB Ids used for DTCH depending on RLC mode and LI size

RLC mode	LI Size	TSC	RB Id
UM	7	tsc_RB_UM_7_RLC	-10
UM	15	tsc_RB_UM_15_RLC	-11
AM	7	tsc_RB_AM_7_RLC	-12
AM	15	tsc_RB_AM_15_RLC	-13

Table 50: Uplink configuration of Cell_RLC_DCH_RAB

RB Identity	See table 49	Same as uplink configuration of Cell_DCH_StandAloneSRB on DPCH	Same as uplink configuration of Cell_DCH_StandAloneSRB on PRACH
LogCh Type	DTCH		
LogCh Identity	tsc_UL_DTCH1 (7)		
RLC mode	TM		
TrCH Type	DCH		
TrCH identity	tsc_UL_DCH1 (1)		
PhyCh Type	DPDCH		PRACH
PhyCH identity	tsc_UL_DPCH1 (20)		tsc_PRACH1 (8)

Table 51: Downlink configuration of Cell_RLC_DCH_RAB

RB Identity	See table 49	Same as downlink configuration of Cell_DCH_StandAloneSRB on DPCH	Same as downlink configuration of Cell_DCH_StandAloneSRB on sCCPCH
LogCh Type	DTCH		
LogCh Identity	tsc_DL_DTCH1 (7)		
RLC mode	TM		
MAC priority	1		
TrCH Type	DCH		
TrCH identity	tsc_DL_DCH1 (6)		
PhyCh Type	DPCH		Secondary CCPCH
PhyCH identity	tsc_DL_DPCH1 (26)		tsc_S_CCPCH1 (5)

8.3.7 Configuration of Cell_FACH_BMC

The configuration is based on 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.3.2.1.2 for downlink and 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.4.1.1.1 without RAB/DTCH for uplink. A RB30/CTCH is configured. The configuration is applied to the BMC and CBSMS tests.

The uplink configuration of Cell_FACH_BMC is the same as the uplink configuration of Cell_FACH.

Table 52: Downlink configuration of Cell_FACH_BMC

RB Identity		tsc_RB0 (0)	tsc_RB1 (1)	tsc_RB2 (2)	tsc_RB3 (3)	tsc_RB4 (4)	tsc_RB_BCCH_FACH (-3)	Tsc_RB30 (30)	tsc_RB_PCCH (-2)
LogCh Type		CCCH	DCCH	DCCH	DCCH	DCCH	BCCH	CTCH	PCCH
LogCh Identity		tsc_DL_CCCH5 (5)	tsc_DL_DCCH1 (1)	tsc_DL_DCCH2 (2)	tsc_DL_DCCH3 (3)	tsc_DL_DCCH4 (4)	tsc_BCCH6 (6)	Tsc_CTCH (11)	tsc_PCCH1 (1)
RLC mode	AM	UM	UM	AM	AM	AM	TM	UM	TM
MAC priority	1	1	2	3	4	5	6	7	1
TrCH Type	FACH	FACH							PCH
TrCH identity	tsc_FACH2 (14)	tsc_FACH1 (13)							tsc_PCH1 (12)
PhyCh Type	Secondary CCPCH								
PhyCH identity	tsc_S_CCPCH1 (5)								

8.3.8 Configuration of PS Cell_DCH_64kPS_RAB_SRB and Cell_PDCP_AM_RAB

The configuration is based on 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.1.26. The RB0/UM-CCCH is referred to 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.3.2.1.2 and RB0/TM-CCCH is referred to 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.4.1.1.1. The configuration is applied to those RRC and NAS signalling tests in the DCH state where a PS RAB on DTCH is setup for the interactive or background service class. The configuration is applied to PDCP test cases in acknowledge mode.

Table 53: Uplink configuration of PS Cell_DCH_64kPS_RAB_SRB SRB and Cell_PDCP_AM_RAB

RB Identity	tsc_RB20 (20)	Same as uplink configuration of Cell_DCH_StandAloneSRB on DPCH	Same as uplink configuration of Cell_DCH_StandAloneSRB on PRACH
LogCh Type	DTCH		
LogCh Identity	tsc_UL_DTCH1 (7)		
RLC mode	AM		
TrCH Type	DCH		
TrCH identity	tsc_UL_DCH1 (1)		
PhyCh Type	DPDCH		PRACH
PhyCH identity	tsc_UL_DPCH1 (20)		tsc_PRACH1 (8)

Table 54: Downlink configuration of PS Cell_DCH_64kPS_RAB_SRB SRB and Cell_PDCP_AM_RAB

RB Identity	tsc_RB20 (20)	Same as downlink configuration of Cell_DCH_StandAloneSRB on DPCH	Same as downlink configuration of Cell_DCH_StandAloneSRB on sCCPCH
LogCh Type	DTCH		
LogCh Identity	tsc_DL_DTCH1 (7)		
RLC mode	AM		
MAC priority	1		
TrCH Type	DCH		
TrCH identity	tsc_DL_DCH1 (6)		
PhyCh Type	DPCH		Secondary CCPCH
PhyCH identity	tsc_DL_DPCH1 (26)		tsc_S_CCPCH1 (5)

8.3.9 Configuration of Cell_Two_DTCH

The configuration is based on 3GPP TS 34.108 [**Error! Reference source not found.**], clauses 6.10.2.4.1.6 to 6.10.2.4.1.11. The RB0/UM-CCCH is referred to 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.3.2.1.2 and RB0/TM-CCCH is referred to 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.4.1.1.1. The configuration is applied to RB tests.

Table 55: Uplink configuration of Cell_Two_DTCH

RB Identity	tsc_RB10 (10)	tsc_RB11 (11)	Same as uplink configuration of Cell_DCH_StandAloneSRB on DPCH	Same as uplink configuration of Cell_DCH_StandAloneSRB on PRACH
LogCh Type	DTCH	DTCH		
LogCh Identity	tsc_UL_DTCH 1 (7)	tsc_UL_DTCH 2 (8)		
RLC mode	TM	TM		
TrCH Type	DCH	DCH		
TrCH identity	tsc_UL_DCH1 (1)	tsc_UL_DCH2 (2)		
PhyCh Type	DPCH			PRACH
PhyCH identity	tsc_UL_DPDCH1 (20)			tsc_PRACH1 (8)

Table 56: Downlink configuration of Cell_Two_DTCH

RB Identity	tsc_RB10 (10)	tsc_RB11 (11)	Same as downlink configuration of Cell_DCH_StandAloneSRB on DPCH	Same as downlink configuration of Cell_DCH_StandAloneSRB on sCCPCH
LogCh Type	DTCH	DTCH		
LogCh Identity	tsc_DL_DTCH1 (7)	tsc_DL_DTCH2 (8)		
RLC mode	TM	TM		
MAC priority	1	1		
TrCH Type	DCH	DCH		
TrCH identity	tsc_DL_DCH1 (6)	tsc_DL_DCH2 (7)		
PhyCh Type	DPCH			Secondary CCPCH
PhyCH identity	tsc_DL_DPCH1 (26)			tsc_S_CCPCH1 (5)

8.3.10 Configuration of Cell_Single_DTCH (CS)

The configuration is based on 3GPP TS 34.108 [**Error! Reference source not found.**], clauses 6.10.2.4.1.12 to 6.10.2.4.1.22. The RB0/UM-CCCH is referred to 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.3.2.1.2 and RB0/TM-CCCH is referred to 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.4.1.1.1. The configuration is applied to RB tests.

Table 57: Uplink configuration of Cell_Single_DTCH (CS)

RB Identity	tsc_RB10 (10)	Same as uplink configuration of Cell_DCH_StandAloneSRB on DPCH	Same as uplink configuration of Cell_DCH_StandAloneSRB on PRACH
LogCh Type	DTCH		
LogCh Identity	tsc_UL_DTCH1 (7)		
RLC mode	TM		
TrCH Type	DCH		
TrCH identity	tsc_UL_DCH1 (1)		
PhyCh Type	DPDCH		PRACH
PhyCH identity	tsc_UL_DPCH1 (20)		tsc_PRACH1 (8)

Table 58: Downlink configuration of Cell_Single_DTCH (CS)

RB Identity	tsc_RB10 (10)	Same as downlink configuration of Cell_DCH_StandAloneSRB on DPCH	Same as downlink configuration of Cell_DCH_StandAloneSRB on sCCPCH
LogCh Type	DTCH		
LogCh Identity	tsc_DL_DTCH1 (7)		
RLC mode	TM		
MAC priority	1		
TrCH Type	DCH		
TrCH identity	tsc_DL_DCH1 (6)		
PhyCh Type	DPCH		Secondary CCPCH
PhyCH identity	tsc_DL_DPCH1 (26)		tsc_S_CCPCH1 (5)

8.3.11 Configuration of PS Cell_PDCP_UM_RAB

The configuration is based on 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.1.26. The RB0/UM-CCCH is referred to 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.3.2.1.2 and RB0/TM-CCCH is referred to 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.4.1.1.1. The configuration is applied to PDCP test cases in unacknowledge mode.

Table 59: Uplink configuration of PS Cell_PDCP_UM_RAB

RB Identity	tsc_RB21 (21)	Same as uplink configuration of Cell_DCH_StandAloneSRB on DPCH	Same as uplink configuration of Cell_DCH_StandAloneSRB on PRACH
LogCh Type	DTCH		
LogCh Identity	tsc_UL_DTCH1 (7)		
RLC mode	UM		
TrCH Type	DCH		
TrCH identity	tsc_UL_DCH1 (1)		
PhyCh Type	DPDCH		PRACH
PhyCH identity	tsc_UL_DPCH1 (20)		tsc_PRACH1 (8)

Table 60: Downlink configuration of PS Cell_PDCP_UM_RAB

RB Identity	tsc_RB21 (21)	Same as downlink configuration of Cell_DCH_StandAloneSRB on DPCH	Same as downlink configuration of Cell_DCH_StandAloneSRB on sCCPCH
LogCh Type	DTCH		
LogCh Identity	tsc_DL_DTCH1 (7)		
RLC mode	UM		
MAC priority	1		
TrCH Type	DCH		
TrCH identity	tsc_DL_DCH1 (6)		
PhyCh Type	DPCH		Secondary CCPCH
PhyCH identity	tsc_DL_DPCH1 (26)		tsc_S_CCPCH1 (5)

8.3.12 Configuration of PS Cell_PDCP_AM_UM_RAB

The configuration is based on 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.1.26. The RB0/UM-CCCH is referred to 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.3.2.1.2 and RB0/TM-CCCH is referred to 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.4.1.1.1. The configuration is applied to PDCP test cases using both the acknowledged and unacknowledged mode.

Table 61: Uplink configuration of PS Cell_PDCP_AM_UM_RAB

RB Identity	tsc_RB20 (20)	tsc_RB21 (21)	Same as uplink configuration of Cell_DCH_StandAloneSRB on DPCH	Same as uplink configuration of Cell_DCH_StandAloneSRB on PRACH
LogCh Type	DTCH	DTCH		
LogCh Identity	tsc_UL_DTCH1 (7)	tsc_UL_DTCH2 (8)		
RLC mode	AM	UM		
TrCH Type	DCH			
TrCH identity	tsc_UL_DCH1 (1)			
PhyCh Type	DPDCH			PRACH
PhyCH identity	tsc_UL_DPCH1 (20)			tsc_PRACH1 (8)

Table 62: Downlink configuration of PS Cell_PDCP_AM_UM_RAB

RB Identity	tsc_RB20 (20)	tsc_RB21 (21)	Same as downlink configuration of Cell_DCH_StandAloneSRB on DPCH	Same as downlink configuration of Cell_DCH_StandAloneSRB on sCCPCH
LogCh Type	DTCH	DTCH		
LogCh Identity	tsc_DL_DTCH1 (7)	tsc_DL_DTCH2 (8)		
RLC mode	AM	UM		
MAC priority	1	1		
TrCH Type	DCH			
TrCH identity	tsc_DL_DCH1 (6)			
PhyCh Type	DPCH			Secondary CCPCH
PhyCH identity	tsc_DL_DPCH1 (26)			tsc_S_CCPCH1 (5)

8.3.13 Configuration of Cell_2SCCPCH_BMC

The configuration is based on 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.3.2.1.2 for downlink and 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.4.1.1.1 without RAB/DTCH for uplink. RB30/CTCH and RB31/CTCH as well as two PCCH are configured. The configuration is applied to the BMC and CBSMS tests.

Table 63: Uplink configuration of Cell_2SCCPCH_BMC

RB Identity	tsc_RB20 (20)	tsc_RB0 (0)	tsc_RB1 (1)	tsc_RB2 (2)	Tsc_RB3 (3)	tsc_RB4 (4)
LogCh Type	DTCH	CCCH	DCCH	DCCH	DCCH	DCCH
LogCh Identity	Tsc_UL_DTCH1 (7)	tsc_UL_CCCH5 (5)	tsc_UL_DCCH1 (1)	tsc_UL_DCCH2 (2)	tsc_UL_DCCH3 (3)	tsc_UL_DCCH4 (4)
RLC mode	AM	TM	UM	AM	AM	AM
TrCH Type	RACH					
TrCH identity	tsc_RACH1 (15)					
PhyCh Type	PRACH					
PhyCH identity	tsc_PRACH1 (8)					

Table 64: Downlink configuration of Cell_2SCCPCH_BMC: second S-CCPCH

RB Identity	Tsc_RB31 (31)	tsc_RB_2ndPCCH (-4)
LogCh Type	CTCH	PCCH
LogCh Identity	Tsc_CTCH2 (12)	tsc_PCCH2 (2)
RLC mode	UM	TM
MAC priority	1	1
TrCH Type	FACH	PCH
TrCH identity	tsc_FACH1 (13)	tsc_PCH2 (30)
PhyCh Type	Secondary CCPCH	
PhyCH identity	tsc_S_CCPCH2 (10)	

Table 65: Downlink configuration of Cell_2SCCPCH_BMC: first S-CCPCCH

RB Identity	tsc_RB20 (20)	tsc_RB0 (0)	tsc_RB1 (1)	tsc_RB2 (2)	tsc_RB3 (3)	tsc_RB4 (4)	tsc_RB_BCCH_FACH (-3)	Tsc_RB30 (30)	tsc_RB_PCCH (-2)
LogCh Type	DTCH	CCCH	DCCH	DCCH	DCCH	DCCH	BCCH	CTCH	PCCH
LogCh Identity	tsc_DL_DTCH1 (6)	tsc_DL_CCCH5 (5)	tsc_DL_DCCH1 (1)	tsc_DL_DCCH2 (2)	tsc_DL_DCCH3 (3)	tsc_DL_DCCH4 (4)	tsc_BCCH6 (6)	Tsc_CTCH1 (11)	tsc_PCCH1 (1)
RLC mode	AM	UM	UM	AM	AM	AM	TM	UM	TM
MAC priority	1	1	2	3	4	5	6	7	1
TrCH Type	FACH	FACH							PCH
TrCH identity	Tsc_FACH2 (14)	tsc_FACH1 (13)							tsc_PCH1 (12)
PhyCh Type	Secondary CCPCH								
PhyCH identity	tsc_S_CCPCH1 (5)								

8.3.14 Configuration of Cell_Four_DTCH_CS_PS, Cell_Four_DTCH_PS_CS

The configuration is based on 3GPP TS 34.108 [**Error! Reference source not found.**], clauses 6.10.2.4.1.40. The RB0/UM-CCCH is referred to 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.3.2.1.2 and RB0/TM-CCCH is referred to 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.4.1.1.1. The configuration is applied to RB tests.

Table 66: Uplink configuration of Cell_Four_DTCH_CS_PS

RB Identity	tsc_RB10 (10)	tsc_RB11 (11)	tsc_RB12 (12)	tsc_RB20 (20)	Same as uplink configuration of Cell_DCH_StandAloneSRB on DPCH	Same as uplink configuration of Cell_DCH_StandAlone SRB on PRACH
LogCh Type	DTCH	DTCH	DTCH	DTCH		
LogCh Identity	tsc_UL_DTCH1 (7)	tsc_UL_DTCH2 (8)	tsc_UL_DTCH3 (9)	tsc_UL_DTCH4 (10)		
RLC mode	TM	TM	TM	AM		
MAC priority	1	1	1	1		
TrCH Type	DCH	DCH	DCH	DCH		
TrCH identity	tsc_UL_DCH 1 (1)	tsc_UL_DCH 2 (2)	tsc_UL_DCH 3 (3)	tsc_UL_DCH 4 (4)		
PhyCh Type	DPDCH					Secondary CCPCH
PhyCH identity	tsc_UL_DPCH1 (20)					tsc_S_CCPCH1 (5)

Table 67: Downlink configuration of Cell_Four_DTCH_CS_PS, Cell_Four_DTCH_PS_CS

RB Identity	tsc_RB10 (10)	tsc_RB11 (11)	tsc_RB12 (12)	tsc_RB20 (20)	Same as downlink configuration of Cell_DCH_StandAloneSRB on DPCH	Same as downlink configuration of Cell_DCH_StandAlone SRB on sCCPCH
LogCh Type	DTCH	DTCH	DTCH	DTCH		
LogCh Identity	tsc_DL_DTCH1 (7)	tsc_DL_DTCH2 (8)	tsc_DL_DTCH3 (9)	tsc_DL_DTCH4 (10)		
RLC mode	TM	TM	TM	AM		
MAC priority	1	1	1	1		
TrCH Type	DCH	DCH	DCH	DCH		
TrCH identity	tsc_DL_DCH 1 (6)	tsc_DL_DCH 2 (7)	Tsc_DL_DCH 3 (8)	tsc_DL_DCH 4 (9)		
PhyCh Type	DPCH					Secondary CCPCH
PhyCH identity	tsc_DL_DPCH1 (20)					tsc_S_CCPCH1 (5)

8.3.15 Configuration of Cell_Two_DTCH_CS_PS, Cell_Two_DTCH_PS_CS

The configuration is based on 3GPP TS 34.108 [**Error! Reference source not found.**], clauses 6.10.2.4.1.51 and 6.10.2.4.1.53. The RB0/UM-CCCH is referred to 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.3.2.1.2 and RB0/TM-CCCH is referred to 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.4.1.1.1. The configuration is applied to RB tests.

Table 68:Uplink configuration of Cell_Two_DTCH_CS_PS, Cell_Two_DTCH_PS_CS

RB Identity	tsc_RB10 (10)	tsc_RB20 (20)	Same as uplink configuration of Cell_DCH_StandAloneSRB on DPCH	Same as uplink configuration of Cell_DCH_StandAloneSRB on PRACH
LogCh Type	DTCH	DTCH		
LogCh Identity	tsc_UL_DTCH1 (7)	tsc_UL_DTCH2 (8)		
RLC mode	TM	AM		
TrCH Type	DCH	DCH		
TrCH identity	tsc_UL_DCH1 (1)	tsc_UL_DCH2 (2)		
PhyCh Type	DPDCH			PRACH
PhyCH identity	tsc_UL_DPCH1 (20)			tsc_PRACH1 (8)

Table 69: Downlink configuration of Cell_Two_DTCH_CS_PS

RB Identity	tsc_RB10 (10)	tsc_RB20 (20)	Same as downlink configuration of Cell_DCH_StandAloneSRB on DPCH	Same as downlink configuration of Cell_DCH_StandAloneSRB on sCCPCH
LogCh Type	DTCH	DTCH		
LogCh Identity	tsc_DL_DTCH1 (7)	tsc_DL_DTCH2 (8)		
RLC mode	TM	AM		
MAC priority	1	1		
TrCH Type	DCH	DCH		
TrCH identity	tsc_DL_DCH1 (6)	tsc_DL_DCH2 (7)		
PhyCh Type	DPCH			Secondary CCPCH
PhyCH identity	tsc_DL_DPCH1 (20)			tsc_S_CCPCH1 (5)

8.3.16 Configuration of Cell_Four_DTCH_CS

The configuration is based on 3GPP TS 34.108 [**Error! Reference source not found.**], clauses 6.10.2.4.1.49. The RB0/UM-CCCH is referred to 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.3.2.1.2 and RB0/TM-CCCH is referred to 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.4.1.1.1. The configuration is applied to RB tests.

Table 70: Uplink configuration of Cell_Four_DTCH_CS

RB Identity	tsc_RB10 (10)	tsc_RB11 (11)	tsc_RB12 (12)	tsc_RB13 (13)	Same as uplink configuration of Cell_DCH_StandAloneSRB on DPCH	Same as uplink configuration of Cell_DCH_StandAlone SRB on PRACH
LogCh Type	DTCH	DTCH	DTCH	DTCH		
LogCh Identity	tsc_UL_DTCH1 (1)	tsc_UL_DTCH2 (2)	tsc_UL_DTCH3 (3)	tsc_UL_DTCH4 (4)		
RLC mode	TM	TM	TM	TM		
MAC priority	1	1	1	1		
TrCH Type	DCH	DCH	DCH	DCH		
TrCH identity	tsc_UL_DCH 1 (6)	tsc_UL_DCH 2 (7)	tsc_UL_DCH 3 (8)	tsc_UL_DCH 4 (9)		
PhyCh Type	DPDCH					Secondary CCPCH
PhyCH identity	tsc_UL_DPCH1 (20)					tsc_S_CCPCH1 (5)

Table 71: Downlink configuration of Cell_Four_DTCH_CS

RB Identity	tsc_RB10 (10)	tsc_RB11 (11)	tsc_RB12 (12)	tsc_RB13 (13)	Same as downlink configuration of Cell_DCH_StandAloneSRB on DPCH	Same as downlink configuration of Cell_DCH_StandAlone SRB on sCCPCH
LogCh Type	DTCH	DTCH	DTCH	DTCH		
LogCh Identity	tsc_DL_DTCH1 (7)	tsc_DL_DTCH2 (8)	tsc_DL_DTCH3 (9)	tsc_DL_DTCH4 (10)		
RLC mode	TM	TM	TM	TM		
MAC priority	1	1	1	1		
TrCH Type	DCH	DCH	DCH	DCH		
TrCH identity	tsc_DL_DCH1 (6)	tsc_DL_DCH2 (7)	tsc_DL_DCH3 (8)	tsc_DL_DCH4 (9)		
PhyCh Type	DPCH					Secondary CCPCH
PhyCH identity	tsc_DL_DPCH1 (20)					tsc_S_CCPCH1 (5)

8.3.17 Configuration of Cell_DCH_MAC_SRB

The configuration is based on 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.1. 3. The RB0/UM-CCCH is referred to 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.3.2.1.2 and RB0/TM-CCCH is referred to 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.4.1.1.1; except that RB3 is mapped on TM mode.

The configuration is applied to the MAC tests.

Table 72: Uplink configuration of Cell_DCH_MAC_SRB

RB Identity	tsc_RB1 (1)	tsc_RB2 (2)	tsc_RB_DCCH_DCH_MAC (-15)	tsc_RB4 (4)	tsc_RB0 (0)	
LogCh Type	DCCH	DCCH	DCCH	DCCH	CCCH	
LogCh Identity	tsc_UL_DCCH1 (1)	tsc_UL_DCCH2 (2)	tsc_UL_DCCH3 (3)	tsc_UL_DCCH4 (4)	tsc_UL_CCCH5 (5)	
RLC mode	UM	AM	TM	AM	TM	AM
TrCH Type	DCH				RACH	
TrCH identity	tsc_UL_DCH5 (5)				tsc_RACH1 (15)	
PhyCh Type	DPDCH				PRACH	
PhyCH identity	tsc_UL_DPCH1 (20)				tsc_PRACH1 (8)	

Table 73: Downlink configuration of Cell_DCH_MAC_SRB

RB Identity	tsc_RB1 (1)	tsc_RB2 (2)	tsc_RB_DCCH_DCH_MAC (-15)	tsc_RB4 (4)	tsc_RB0 (0)	tsc_RB_PCCH (-2)	
LogCh Type	DCCH	DCCH	DCCH	DCCH	CCCH	PCCH	
LogCh Identity	tsc_DL_DCCH1 (1)	tsc_DL_DCCH2 (2)	tsc_DL_DCCH3 (3)	tsc_DL_DCCH4 (4)	tsc_DL_CCCH5 (5)	tsc_PCCH1 (1)	
RLC mode	UM	AM	TM	AM	UM	TM	AM
MAC priority	1	2	3	4	1	1	1
TrCH Type	DCH				FACH	PCH	FACH
TrCH identity	tsc_DL_DCH5 (10)				tsc_FACH1 (13)	tsc_PCH1 (12)	tsc_FACH2 (14)
PhyCh Type	DPCH				Secondary CCPCH		
PhyCH identity	tsc_DL_DPCH1 (26)				tsc_S_CCPCH1 (5)		

8.3.18 Configuration of Cell_FACH_MAC_SRB

The configuration is based on 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.3.2.1.2 for downlink and 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.4.1.1.1 for uplink; except that RB3 is mapped on TM mode.

The configuration is applied to the MAC tests.

Table 74: Uplink configuration of Cell_FACH_MAC_SRB

RB Identity	tsc_RB20 (20)	tsc_RB0 (0)	tsc_RB1 (1)	tsc_RB2 (2)	tsc_RB_DCCH_FACH_MAC (-14)	tsc_RB4 (4)
LogCh Type	DTCH	CCCH	DCCH	DCCH	DCCH	DCCH
LogCh Identity	Tsc_UL_DTCH 1 (7)	tsc_UL_CCCH 5 (5)	tsc_UL_DCCH 1 (1)	tsc_UL_DCCH 2 (2)	tsc_UL_DCCH3 (3)	tsc_UL_DCCH 4 (4)
RLC mode	AM	TM	UM	AM	TM	AM
TrCH Type	RACH					
TrCH identity	tsc_RACH1 (15)					
PhyCh Type	PRACH					
PhyCH identity	tsc_PRACH1 (8)					

Table 75: Downlink configuration of Cell_FACH_MAC_SRB

RB Identity	tsc_RB20 (20)	tsc_RB0 (0)	tsc_RB1 (1)	tsc_RB2 (2)	tsc_RB_DCCH_FACH_MAC (-14)	tsc_RB4 (4)	tsc_RB_BCCH_FACH (-3)	tsc_RB_PCCH (-2)
LogCh Type	DTCH	CCCH	DCCH	DCCH	DCCH	DCCH	BCCH	PCCH
LogCh Identity	tsc_DL_DTCH1 (6)	tsc_DL_CCCH5 (5)	tsc_DL_DCCH1 (1)	tsc_DL_DCCH2 (2)	tsc_DL_DCCH3 (3)	tsc_DL_DCCH4 (4)	tsc_BCCH6 (6)	tsc_PCCH1 (1)
RLC mode	AM	UM	UM	AM	TM	AM	TM	TM
MAC priority	1	1	2	3	4	5	6	1
TrCH Type	FACH	FACH						PCH
TrCH identity	tsc_FACH2 (14)	tsc_FACH1 (13)						tsc_PCH1 (12)
PhyCh Type	Secondary CCPCH							
PhyCH identity	tsc_S_CCPCH1 (5)							

8.3.19 Configuration of Cell_FACH_MAC_SRB0

The configuration is based on 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.3.2.1.2 for downlink and 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.4.1.1.1 for uplink; except that the downlink SRB0 is mapped on TM mode.

The configuration is applied to the MAC tests.

The uplink configuration of Cell_FACH_MAC_SRB0 is the same as the uplink configuration of Cell_FACH.

Table 76: Downlink configuration of Cell_FACH_MAC_SRB0

RB Identity	tsc_RB20 (20)	tsc_RB_CCCH_FACH_MAC (-18)	tsc_RB1 (1)	tsc_RB2 (2)	tsc_RB3 (3)	tsc_RB4 (4)	tsc_RB_BCCH_FACH (-3)	tsc_RB_PCCH (-2)
LogCh Type	DTCH	CCCH	DCCH	DCCH	DCCH	DCCH	BCCH	PCCH
LogCh Identity	tsc_DL_DTCH1 (6)	tsc_DL_CCCH5 (5)	tsc_DL_DCCH1 (1)	tsc_DL_DCCH2 (2)	tsc_DL_DCCH3 (3)	tsc_DL_DCCH4 (4)	tsc_BCCH6 (6)	tsc_PCCH1 (1)
RLC mode	AM	TM	UM	AM	AM	AM	TM	TM
MAC priority	1	1	2	3	4	5	6	1
TrCH Type	FACH	FACH						PCH
TrCH identity	tsc_FACH2 (14)	tsc_FACH1 (13)						tsc_PCH1 (12)
PhyCh Type	Secondary CCPCH							
PhyCH identity	tsc_S_CCPCH1 (5)							

8.3.20 Configuration of Cell_FACH_2_SCCPCH_StandAlonePCH

The configuration is based on 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.3.2.1.2 for downlink and 3GPP TS 34.108 [**Error! Reference source not found.**] except the mapping of PCH, clause 6.10.2.4.4.1.1.1 for uplink.

The configuration is applied to the RAB tests.

The uplink configuration of Cell_FACH_2_SCCPCH_StandAlonePCH is the same as the uplink configuration of Cell_FACH.

Table 77: Downlink configuration of Cell_FACH_2_SCCPCH_StandAlonePCH

RB Identity	tsc_RB20 (20)	tsc_RB0 (0)	tsc_RB1 (1)	tsc_RB2 (2)	tsc_RB3 (3)	tsc_RB4 (4)	tsc_RB_BCCH_FACH (-3)	tsc_RB_PCCH2 (-4)
LogCh Type	DTCH	CCCH	DCCH	DCCH	DCCH	DCCH	BCCH	PCCH
LogCh Identity	tsc_DL_DTCH1 (6)	tsc_DL_CCCH5 (5)	tsc_DL_DCCH1 (1)	tsc_DL_DCCH2 (2)	tsc_DL_DCCH3 (3)	tsc_DL_DCCH4 (4)	tsc_BCCH6 (6)	tsc_PCCH1 (1)
RLC mode	AM	UM	UM	AM	AM	AM	TM	TM
MAC priority	1	1	2	3	4	5	6	1
TrCH Type	FACH	FACH						PCH
TrCH identity	tsc_FACH2 (14)	tsc_FACH1 (13)						tsc_PCH1 (12)
PhyCh Type	Secondary CCPCH							Secondary CCPCH
PhyCH identity	tsc_S_CCPCH2 (10)							tsc_S_CCPCH1 (5)

8.3.21 Configuration of PS Cell_DCH_ 2AM_PS

The configuration is based on 3GPP TS 34.108 [**Error! Reference source not found.**], clauses 6.10.2.4.1.26 and 6.10.2.4.1.57. The RB0/UM-CCCH is referred to 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.3.2.1.2 with 2 AM RAB and RB0/TM-CCCH is referred to 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.4.1.1.1. The configuration is applied to MAC and RAB test cases.

Table 78: Uplink configuration of Cell_DCH_ 2AM_PS

RB Identity	tsc_RB20 (20)	tsc_RB22 (22)	Same as uplink configuration of Cell_DCH_StandAloneSRB on DPCH	Same as uplink configuration of Cell_DCH_StandAloneSRB on PRACH
LogCh Type	DTCH	DTCH		
LogCh Identity	tsc_UL_DTCH 1 (7)	tsc_UL_DTCH 2 (8)		
RLC mode	AM	AM		
TrCH Type	DCH			
TrCH identity	tsc_UL_DCH1 (1)			
PhyCh Type	DPDCH			PRACH
PhyCH identity	tsc_UL_DPCH1 (20)			tsc_PRACH1 (8)

Table 79: Downlink configuration of Cell_DCH_2AM_PS

RB Identity	tsc_RB20 (20)	tsc_RB22 (22)	Same as downlink configuration of Cell_DCH_StandAloneSRB on DPCH	Same as downlink configuration of Cell_DCH_StandAloneSRB on sCCPCH
LogCh Type	DTCH	DTCH		
LogCh Identity	tsc_DL_DTCH 1 (7)	tsc_DL_DTCH 2 (8)		
RLC mode	AM	AM		
MAC priority	1	1		
TrCH Type	DCH			
TrCH identity	tsc_DL_DCH1 (6)			
PhyCh Type	DPCH			Secondary CCPCH
PhyCH identity	tsc_DL_DPCH1 (26)			tsc_S_CCPCH1 (5)

8.3.22 Configuration of PS Cell_DCH_2_PS_Call

The configuration is based on 3GPP TS 34.108 [**Error! Reference source not found.**], clauses 6.10.2.4.1.56 and 6.10.2.4.1.58. The RB0/UM-CCCH is referred to 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.3.2.1.2 and RB0/TM-CCCH is referred to 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.4.1.1.1. The configuration is applied to RB tests.

Table 80: Uplink configuration of Cell_DCH_2_PS_Call

RB Identity	tsc_RB20 (20)	tsc_RB22 (22)	Same as uplink configuration of Cell_DCH_StandAloneSRB on DPCH	Same as uplink configuration of Cell_DCH_StandAloneSRB on PRACH
LogCh Type	DTCH	DTCH		
LogCh Identity	tsc_UL_DTCH 1 (7)	tsc_UL_DTCH 2 (8)		
RLC mode	AM	AM		
TrCH Type	DCH	DCH		
TrCH identity	tsc_UL_DCH1 (1)	tsc_UL_DCH2 (2)		
PhyCh Type	DPDCH			PRACH
PhyCH identity	tsc_UL_DPCH1 (20)			tsc_PRACH1 (8)

Table 81: Downlink configuration of Cell_DCH_2_PS_Call

RB Identity	tsc_RB20 (20)	tsc_RB22 (22)	Same as downlink configuration of Cell_DCH_StandAloneSRB on DPCH	Same as downlink configuration of Cell_DCH_StandAloneSRB on sCCPCH
LogCh Type	DTCH	DTCH		
LogCh Identity	tsc_DL_DTCH 1 (7)	tsc_DL_DTCH 2 (8)		
RLC mode	AM	AM		
MAC priority	1	1		
TrCH Type	DCH	DCH		
TrCH identity	tsc_DL_DCH1 (6)	tsc_DL_DCH2 (7)		
PhyCh Type	DPCH			Secondary CCPCH
PhyCH identity	tsc_DL_DPCH1 (26)			tsc_S_CCPCH1 (5)

8.3.23 Configuration of Cell_FACH_3_SCCPCH_4_FACH_Cnfg1

The configuration is based on 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.3.2 for downlink and 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.4.1.1.1 for uplink. The configuration is applied to the RAB tests.

The uplink configuration of Cell_FACH_3_SCCPCH_4_FACH Cnfg1 is the same as the uplink configuration of Cell_FACH.

Table 82: Downlink configuration of Cell_FACH_3_SCCPCH_4_FACH_Cnfg1: 1st & 2nd S-CCPCH

RB Identity		tsc_RB0 (0)	tsc_RB_BCCH_ FACH (-3)	tsc_RB_PCCH (-2)
LogCh Type		CCCH	BCCH	PCCH
LogCh Identity		tsc_DL_CCCH 5 (5)	tsc_BCCH6 (6)	tsc_PCCH1 (1)
RLC mode		UM	TM	TM
MAC priority		1	6	1
TrCH Type	FACH	FACH		PCH
TrCH identity	tsc_FACH2 (14)	tsc_FACH1 (13)		tsc_PCH1 (12)
PhyCh Type	Secondary CCPCH			Secondary CCPCH
PhyCH identity	tsc_S_CCPCH2 (10)			tsc_S_CCPCH1 (5)

Table 83: Downlink configuration of Cell_FACH_3_SCCPCH_4_FACH_Cnfg1: 3rd S-CCPCH

RB Identity	tsc_RB20 (20)	tsc_RB29 (29)	tsc_RB1 (1)	tsc_RB2 (2)	tsc_RB3 (3)	tsc_RB4 (4)	tsc_RB_BCCH_FACH_RAB (-19)
LogCh Type	DTCH	CCCH	DCCH	DCCH	DCCH	DCCH	BCCH
LogCh Identity	tsc_DL_DTCH1 (7)	tsc_DL_CCCH6 (6)	tsc_DL_DCCH1 (1)	tsc_DL_DCCH2 (2)	tsc_DL_DCCH3 (3)	tsc_DL_DCCH4 (4)	tsc_BCCH7 (7)
RLC mode	AM	UM	UM	AM	AM	AM	TM
MAC priority	1	1	2	3	4	5	6
TrCH Type	FACH	FACH					
TrCH identity	tsc_FACH4 (17)	tsc_FACH3 (16)					
PhyCh Type	Secondary CCPCH						
PhyCH identity	tsc_S_CCPCH3 (13)						

8.3.24 Configuration of Cell_FACH_3_SCCPCH_4_FACH_Cnfg2

The configuration is based on 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.3.2 for downlink and 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.4.1.1.1 for uplink. The configuration is applied to the RAB tests.

The uplink configuration of Cell_FACH_3_SCCPCH_4_FACH Cnfg2 is the same as the uplink configuration of Cell_FACH.

Table 84: Downlink configuration of Cell_FACH_3_SCCPCH_4_FACH_Cnfg2: 2nd S-CCPCH

RB Identity	tsc_RB20 (20)	tsc_RB29 (29)	tsc_RB1 (1)	tsc_RB2 (2)	tsc_RB3 (3)	tsc_RB4 (4)	tsc_RB_BCCH_FACH_RAB (-19)
LogCh Type	DTCH	CCCH	DCCH	DCCH	DCCH	DCCH	BCCH
LogCh Identity	tsc_DL_DTCH1 (7)	tsc_DL_CCCH6 (6)	tsc_DL_DCCH1 (1)	tsc_DL_DCCH2 (2)	tsc_DL_DCCH3 (3)	tsc_DL_DCCH4 (4)	tsc_BCCH7 (7)
RLC mode	AM	UM	UM	AM	AM	AM	TM
MAC priority	1	1	2	3	4	5	6
TrCH Type	FACH	FACH					
TrCH identity	tsc_FACH2 (14)	tsc_FACH1 (13)					
PhyCh Type	Secondary CCPCH						
PhyCH identity	tsc_S_CCPCH2 (10)						

Table 85: Downlink configuration of Cell_FACH_3_SCCPCH_4_FACH_Cnfg2: 1st & 3rd S-CCPCH

RB Identity		tsc_RB0 (0)	tsc_RB_BCCH_ FACH (-3)	tsc_RB_PCCH (-2)
LogCh Type		CCCH	BCCH	PCCH
LogCh Identity		tsc_DL_CCCH 5 (5)	tsc_BCCH6 (6)	tsc_PCCH1 (1)
RLC mode		UM	TM	TM
MAC priority		1	6	1
TrCH Type	FACH	FACH		PCH
TrCH identity	tsc_FACH4 (17)	tsc_FACH3 (16)		tsc_PCH1 (12)
PhyCh Type	Secondary CCPCH			Secondary CCPCH
PhyCH identity	tsc_S_CCPCH3 (13)			tsc_S_CCPCH1 (5)

8.3.25 Configuration of Cell_FACH_3_SCCPCH_3_FACH_CTCH

The configuration is based on 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.3.2 for downlink and 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.4.1.1.1 for uplink. The configuration is applied to the RAB tests.

The uplink configuration of Cell_FACH_3_SCCPCH_3_FACH_CTCH is the same as the uplink configuration of Cell_FACH.

Table 86: Downlink configuration of Cell_FACH_3_SCCPCH_3_FACH_CTCH : 1st & 2nd S-CCPCH

RB Identity	tsc_RB30 (30)	tsc_RB0 (0)	tsc_RB_BCCH_FACH (-3)	tsc_RB_PCCH (-2)
LogCh Type	CTCH	CCCH	BCCH	PCCH
LogCh Identity	tsc_CTCH1 (11)	tsc_DL_CCCH5 (5)	tsc_BCCH6 (6)	tsc_PCCH1 (1)
RLC mode	UM	UM	TM	TM
MAC priority	7	1	6	1
TrCH Type	FACH	FACH		PCH
TrCH identity	tsc_FACH2 (14)	tsc_FACH1 (13)		tsc_PCH1 (12)
PhyCh Type	Secondary CCPCH			Secondary CCPCH
PhyCH identity	tsc_S_CCPCH2 (10)			tsc_S_CCPCH1 (5)

Table 87: Downlink configuration of Cell_FACH_3_SCCPCH_3_FACH_CTCH: 3rd S-CCPCH

RB Identity	tsc_RB20 (20)	tsc_RB29 (29)	tsc_RB1 (1)	tsc_RB2 (2)	tsc_RB3 (3)	tsc_RB4 (4)	tsc_RB_BCCH_FACH_RAB (-19)
LogCh Type	DTCH	CCCH	DCCH	DCCH	DCCH	DCCH	BCCH
LogCh Identity	tsc_DL_DTCH1 (7)	tsc_DL_CCCH6 (6)	tsc_DL_DCCH1 (1)	tsc_DL_DCCH2 (2)	tsc_DL_DCCH3 (3)	tsc_DL_DCCH4 (5)	tsc_BCCH7 (7)
RLC mode	AM	UM	UM	AM	AM	AM	TM
MAC priority	1	1	2	3	4	5	6
TrCH Type	FACH	FACH					
TrCH identity	tsc_FACH4 (17)	tsc_FACH3 (16)					
PhyCh Type	Secondary CCPCH						
PhyCH identity	tsc_S_CCPCH3 (13)						

8.3.26 Configuration of PS Cell_DCH_DSCH_PS_RAB

The configuration is based on 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.2.1. The RB0/UM-CCCH is referred to 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.3.2.1.2 and RB0/TM-CCCH is referred to 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.4.1.1.1. The configuration is applied to those RAB signaling tests where a PS RAB on DTCH is setup for the interactive or background service class is mapped on to DSCH.

The uplink configuration is same in clause 8.3.8.

Table 88a: Downlink configuration of PS Cell_DCH_DSCH_PS_RAB

RB Identity	tsc_RB20 (20)	Same as downlink configuration of Cell_DCH_StandAloneSRB on DPCH	Same as downlink configuration of Cell_DCH_StandAloneSRB on sCCPCH
LogCh Type	DTCH		
LogCh Identity	tsc_DL_DTCH1 (7)		
RLC mode	AM		
MAC priority	1		
TrCH Type	DSCH		
TrCH identity	tsc_DSCH1 (19)		
PhyCh Type	PDSCH	DPCH	Secondary CCPCH
PhyCH identity	tsc_DL_PDSCH1 (16)	tsc_DL_DPCH1 (26)	tsc_S_CCPCH1 (5)

8.3.27 Configuration of Cell_DCH_DSCH_CS_PS

The configuration is based on 3GPP TS 34.108 [**Error! Reference source not found.**], clauses 6.10.2.4.2.4. The RB0/UM-CCCH is referred to 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.3.2.1.2 and RB0/TM-CCCH is referred to 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.4.1.1.1. The configuration is applied to RB tests.

The Uplink configuration is similar to clause 8.3.14.

Table 97b: Downlink configuration of Cell_DCH_DSCH_CS_PS

RB Identity	tsc_RB10 (10)	tsc_RB11 (11)	tsc_RB12 (12)	tsc_RB20 (20)	Same as downlink configuration of Cell_DCH_StandAloneSRB on DPCH	Same as downlink configuration of Cell_DCH_StandAloneSRB on sCCPCH
LogCh Type	DTCH	DTCH	DTCH	DTCH		
LogCh Identity	tsc_DL_DTCH1 (7)	tsc_DL_DTCH2 (8)	tsc_DL_DTCH3 (9)	tsc_DL_DTCH4 (10)		
RLC mode	TM	TM	TM	AM		
MAC priority	1	1	1	1		
TrCH Type	DCH	DCH	DCH	DSCH		
TrCH identity	tsc_DL_DCH1 (6)	tsc_DL_DCH2 (7)	Tsc_DL_DCH3 (8)	tsc_DL_DSCH1 (19)		
PhyCh Type	DPCH			PDSCH	DPCH	Secondary CCPCH
PhyCH identity	tsc_DL_DPCH1 (20)			tsc_DL_PDSCH1 (16)	tsc_DL_DPCH1 (20)	tsc_S_CCPCH1 (5)

8.3.28 Configuration of Cell_FACH_2_SCCPCH_StandAlonePCH_2a

The configuration is based on 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.3.2a for downlink and 3GPP TS 34.108 [**Error! Reference source not found.**] except the mapping of PCH, clause 6.10.2.4.4.2 for uplink. The configuration is applied to the RAB tests.

Table 89: Uplink configuration of Configuration of Configuration of Cell_FACH_2_SCCPCH_StandAlonePCH_2a

RB Identity	tsc_RB24 (24)	tsc_RB20 (20)	tsc_RB0 (0)	tsc_RB1 (1)	tsc_RB2 (2)	tsc_RB3 (3)	tsc_RB4 (4)
LogCh Type	DTCH	DTCH	CCCH	DCCH	DCCH	DCCH	DCCH
LogCh Identity	Tsc_UL_DTCH4 (10)	Tsc_UL_DTCH1 (7)	tsc_UL_CCCH5 (5)	tsc_UL_DCCH1 (1)	tsc_UL_DCCH2 (2)	tsc_UL_DCCH3 (3)	tsc_UL_DCCH4 (4)
RLC mode	AM	AM	TM	UM	AM	AM	AM
TrCH Type	RACH						
TrCH identity	tsc_RACH1 (15)						
PhyCh Type	PRACH						
PhyCH identity	tsc_PRACH1 (8)						

Table 90: Downlink configuration of Cell_FACH_2_SCCPCH_StandAlonePCH_2a

RB Identity	tsc_RB20 (20)	tsc_RB24 (24)	tsc_RB0 (0)	tsc_RB1 (1)	tsc_RB2 (2)	tsc_RB3 (3)	tsc_RB4 (4)	tsc_RB_BCCH_FACH (-3)	tsc_RB_PCCH2 (-4)
LogCh Type	DTCH	DTCH	CCCH	DCCH	DCCH	DCCH	DCCH	BCCH	PCCH
LogCh Identity	tsc_DL_DTCH1 (7)	tsc_DL_DTCH4 (10)	tsc_DL_CCCH5 (5)	tsc_DL_DCCH1 (1)	tsc_DL_DCCH2 (2)	tsc_DL_DCCH3 (3)	tsc_DL_DCCH4 (4)	tsc_BCCH6 (6)	tsc_PCCH1 (1)
RLC mode	AM	AM	UM	UM	AM	AM	AM	TM	TM
MAC priority	1	1	1	2	3	4	5	6	1
TrCH Type	FACH	FACH	FACH						PCH
TrCH identity	tsc_FACH2 (14)		tsc_FACH1(13)						tsc_PCH1 (12)
PhyCh Type	Secondary CCPCH								Secondary CCPCH
PhyCH identity	tsc_S_CCPCH2 (10)								tsc_S_CCPCH1 (5)

8.3.29 Configuration of Cell_FACH_3_SCCPCH_4_FACH_2a_Cnfg1

The configuration is based on 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.3.2a for downlink and 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.4.2 for uplink. The configuration is applied to the RAB tests.

The uplink configuration of Cell_FACH_3_SCCPCH_4_FACH Cnfg1 is the same as the uplink configuration of Cell_FACH_2_SCCPCH_StandAlonePCH_2a.

Table 91: Downlink configuration of Cell_FACH_3_SCCPCH_4_FACH_2a_Cnfg1: 1st & 2nd S-CCPCH

RB Identity			tsc_RB0 (0)	tsc_RB_BCCH_FACH (-3)	tsc_RB_PCCH (-2)
LogCh Type			CCCH	BCCH	PCCH
LogCh Identity			tsc_DL_CCCH5 (5)	tsc_BCCH6 (6)	tsc_PCCH1 (1)
RLC mode			UM	TM	TM
MAC priority			1	6	1
TrCH Type	FACH	FACH	FACH		PCH
TrCH identity	tsc_FACH2 (14)		tsc_FACH1 (13)		tsc_PCH1 (12)
PhyCh Type	Secondary CCPCH				Secondary CCPCH
PhyCH identity	tsc_S_CCPCH2 (10)				tsc_S_CCPCH1 (5)

Table 92: Downlink configuration of Cell_FACH_3_SCCPCH_4_FACH_2a_Cnfg1: 3rd S-CCPCH

RB Identity	tsc_RB24 (24)	tsc_RB20 (20)	tsc_RB29 (29)	tsc_RB1 (1)	tsc_RB2 (2)	tsc_RB3 (3)	tsc_RB4 (4)	tsc_RB_BCCH_FACH_RAB (-19)
LogCh Type	DTCH	DTCH	CCCH	DCCH	DCCH	DCCH	DCCH	BCCH
LogCh Identity	tsc_DL_DTCH4 (10)	tsc_DL_DTCH1 (7)	tsc_DL_CCCH6 (6)	tsc_DL_DCCH1 (1)	tsc_DL_DCCH2 (2)	tsc_DL_DCCH3 (3)	tsc_DL_DCCH4 (4)	tsc_BCCH7 (7)
RLC mode	AM	AM	UM	UM	AM	AM	AM	TM
MAC priority	1	1	1	2	3	4	5	6
TrCH Type	FACH		FACH					
TrCH identity	tsc_FACH4 (17)		tsc_FACH3 (16)					
PhyCh Type	Secondary CCPCH							
PhyCH identity	tsc_S_CCPCH3 (13)							

8.3.30 Configuration of Cell_FACH_3_SCCPCH_4_FACH_2a_Cnfg2

The configuration is based on 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.3.2a for downlink and 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.4.2 for uplink. The configuration is applied to the RAB tests.

The uplink configuration of Cell_FACH_3_SCCPCH_4_FACH Cnfg2 is the same as the uplink configuration of Cell_FACH_2_SCCPCH_StandAlonePCH_2a.

Table 93: Downlink configuration of Cell_FACH_3_SCCPCH_4_FACH_2a_Cnfg2: 2nd S-CCPCH

RB Identity	tsc_RB21 (24)	tsc_RB20 (20)	tsc_RB29 (29)	tsc_RB1 (1)	tsc_RB2 (2)	tsc_RB3 (3)	tsc_RB4 (4)	tsc_RB_BCCH_FACH_RAB (-19)
LogCh Type	DTCH	DTCH	CCCH	DCCH	DCCH	DCCH	DCCH	BCCH
LogCh Identity	tsc_DL_DTCH2 (10)	tsc_DL_DTCH1 (7)	tsc_DL_CCCH6 (6)	tsc_DL_DCCH1 (1)	tsc_DL_DCCH2 (2)	tsc_DL_DCCH3 (3)	tsc_DL_DCCH4 (4)	tsc_BCCH7 (7)
RLC mode	AM	AM	UM	UM	AM	AM	AM	TM
MAC priority	1	1	1	2	3	4	5	6
TrCH Type	FACH	FACH	FACH					
TrCH identity	tsc_FACH2 (14)		tsc_FACH1 (13)					
PhyCh Type	Secondary CCPCH							
PhyCH identity	tsc_S_CCPCH2 (10)							

Table 94: Downlink configuration of Cell_FACH_3_SCCPCH_4_FACH_2a_Cnfg2: 1st & 3rd S-CCPCH

RB Identity			tsc_RB0 (0)	tsc_RB_BCCH_FACH (-3)	tsc_RB_PCCH (-2)
LogCh Type			CCCH	BCCH	PCCH
LogCh Identity			tsc_DL_CCCH5 (5)	tsc_BCCH6 (6)	tsc_PCCH1 (1)
RLC mode			UM	TM	TM
MAC priority			1	6	1
TrCH Type	FACH	FACH	FACH		PCH
TrCH identity	tsc_FACH4 (17)		tsc_FACH3 (16)		tsc_PCH1 (12)
PhyCh Type	Secondary CCPCH				Secondary CCPCH
PhyCH identity	tsc_S_CCPCH3 (13)				tsc_S_CCPCH1 (5)

8.3.31 Configuration of Cell_FACH_3_SCCPCH_3_FACH_CTCH_2a

The configuration is based on 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.3.2 for downlink and 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.4.2 for uplink. The configuration is applied to the RAB tests.

The uplink configuration of Cell_FACH_3_SCCPCH_3_FACH_CTCH_2a is the same as the uplink configuration of Cell_FACH Cell_FACH_3_SCCPCH_4_FACH Cnfg1.

Table 95: Downlink configuration of Cell_FACH_3_SCCPCH_3_FACH_CTCH_2a : 1st & 2nd S-CCPCH

RB Identity	tsc_RB30 (30)	tsc_RB0 (0)	tsc_RB_BCCH_ FACH (-3)	tsc_RB_PCCH (-2)
LogCh Type	CTCH	CCCH	BCCH	PCCH
LogCh Identity	tsc_CTCH1 (11)	tsc_DL_CCCH5 (5)	tsc_BCCH6 (6)	tsc_PCCH1 (1)
RLC mode	UM	UM	TM	TM
MAC priority	7	1	6	1
TrCH Type	FACH	FACH		PCH
TrCH identity	tsc_FACH2 (14)	tsc_FACH1 (13)		tsc_PCH1 (12)
PhyCh Type	Secondary CCPCH			Secondary CCPCH
PhyCH identity	tsc_S_CCPCH2 (10)			tsc_S_CCPCH1 (5)

Table 96: Downlink configuration of Cell_FACH_3_SCCPCH_3_FACH_CTCH_2a: 3rd S-CCPCH

RB Identity	tsc_RB24 (24)	tsc_RB20 (20)	tsc_RB29 (29)	tsc_RB1 (1)	tsc_RB2 (2)	tsc_RB3 (3)	tsc_RB4 (4)	tsc_RB_ BCCH_F ACH_RA B (-19)
LogCh Type	DTCH	DTCH	CCCH	DCCH	DCCH	DCCH	DCCH	BCCH
LogCh Identity	tsc_DL_D TCH4(10)	tsc_DL_D TCH1 (7)	tsc_DL_ CCCH6 (6)	tsc_DL_ DCCH1 (1)	tsc_DL_ DCCH2 (2)	tsc_DL_ DCCH3 (3)	tsc_DL_ DCCH4 (5)	tsc_BCC H7 (7)
RLC mode	AM	AM	UM	UM	AM	AM	AM	TM
MAC priority	1	1	1	2	3	4	5	6
TrCH Type	FACH	FACH	FACH					
TrCH identity	tsc_FACH4 (17)		tsc_FACH3 (16)					
PhyCh Type	Secondary CCPCH							
PhyCH identity	tsc_S_CCPCH3 (13)							

8.3.32 Configuration of PS Cell_DCH_HS-DSCH_64kPS_RAB (~~later than r4~~Rel-5 or later)

The configuration is based on 3GPP TS 34.108 [3], clause 6.10.2.4.5.1. The RB0/UM-CCCH is referred to 3GPP TS 34.108 [3], clause 6.10.2.4.3.2.1.2 and RB0/TM-CCCH is referred to 3GPP TS 34.108 [3], clause 6.10.2.4.4.1.1.1. The configuration is applied to those RAB signaling tests where a PS RAB on DTCH is setup for the interactive or background service class is mapped on to HS-DSCH.

The uplink configuration is same in clause 8.3.8 except a HS-DPCCH shall be included in the UL_DPCH.

Table 97: Downlink configuration of PS Cell_DCH_HS-DSCH_PS_RAB

RB Identity	tsc_RB25 (25)	Same as downlink configuration of Cell_DCH_StandAloneSRB on DPCH	Same as downlink configuration of Cell_DCH_StandAloneSRB on sCCPCH
LogCh Type	DTCH		
LogCh Identity	tsc_DL_DTCH1 (7)		
RLC mode	AM		
MAC priority	1		
TrCH Type	HS_DSCH		
TrCH identity	N/A		
PhyCh Type	HS-PDSCH	DPCH	Secondary CCPCH
PhyCH identity	tsc_HSPDSCH (18)	tsc_DL_DPCH1 (26)	tsc_S_CCPCH1 (5)

8.3.33 Configuration of PS Cell_DCH_HS-DSCH_384kPS_RAB (~~later than r4~~Rel-5 or later)

The configuration is based on 3GPP TS 34.108 [3], clause 6.10.2.4.5.2. The RB0/UM-CCCH is referred to 3GPP TS 34.108 [3], clause 6.10.2.4.3.2.1.2 and RB0/TM-CCCH is referred to 3GPP TS 34.108 [3], clause 6.10.2.4.4.1.1.1. The configuration is applied to those RAB signaling tests where a PS RAB on DTCH is setup for the interactive or background service class is mapped on to HS-DSCH.

The uplink configuration is same in clause 8.3.8 except a HS-DPCCH shall be included in the UL_DPCH..

Table 98: Downlink configuration of PS Cell_DCH_HS-DSCH_PS_RAB

RB Identity	tsc_RB25 (25)	Same as downlink configuration of Cell_DCH_StandAloneSRB on DPCH	Same as downlink configuration of Cell_DCH_StandAloneSRB on sCCPCH
LogCh Type	DTCH		
LogCh Identity	tsc_DL_DTCH1 (7)		
RLC mode	AM		
MAC priority	1		
TrCH Type	HS_DSCH		
TrCH identity	N/A		
PhyCh Type	HS-PDSCH	DPCH	Secondary CCPCH
PhyCH identity	tsc_HSPDSCH (18)	tsc_DL_DPCH1 (26)	tsc_S_CCPCH1 (5)

8.4 System information blocks scheduling

All SIBs specified in 3GPP TS 34.108 [**Error! Reference source not found.**] are broadcast for all test cases in the present document. The repeat period of broadcasting of a complete SIB configuration is 64 frames (0,64 s) as the default configuration.

Except MIB and SB1, they have the highest scheduling rates, SIB 7 has also a higher scheduling rate.

According to the default SIB contents in 3GPP TS 34.108 [**Error! Reference source not found.**], SIB 11 and SIB12 have 3 segments. SIB 5 has 4 segments for FDD and 5 segments for 1.28 Mcps TDD. SIB 6 has 4 segments. MIB, SB1, SIB1, SIB 2, SIB 3, SIB 4, SIB 7 and SIB18 are not segmented, i.e. one segment for each. For the PDCP tests, SIB16 has 7 segments.

Use CMAC_SYSINFO_CONFIG_REQ, CMAC_SYSINFO_CONFIG_CNF and RLC_TR_DATA_REQ as interface to SS for broadcasting.

Two TSOs are defined, one for PER encoding function, the other for segmentation function. The TSOs shall be implemented in the tester.

8.4.1 Grouping SIBs for testing

Table 99

Mandatory in 3GPP TS 34.108 [Error! Reference source not found.**]**	**Used in Idle Mode**	MIB, SB1, (SB2), SIB1, SIB2, SIB3, SIB5, SIB7, SIB11
	Used in Connected Mode	SIB4, SIB6, SIB12
Mandatory for FDD CPCH		SIB8, SIB9
Mandatory for FDD DRAC		SIB10
Mandatory for TDD		SIB14 (for 3.84 Mcps TDD), SIB17
Mandatory for LCS		SIB15, SIB15.1, SIB15.2, SIB15.3
Mandatory for ANSI-41 system		SIB13, SIB13.1, SIB13.2, SIB13.3, SIB13.4
Mandatory for InterSys HO		SIB16
Mandatory for Cell reselection		SIB18

8.4.2 SIB configurations

Currently the ATS contains three SIB configurations, Configuration 1 is default. Configuration 2 is for test cases which need two S_CCPCH or two PRACH. Configuration 3 is for inter-RAT handover test cases.

Table 100

Configuration 1	MIB, SB1, SIB1, SIB2, SIB3, SIB4, SIB5, SIB6, SIB7, SIB11, SIB12, SIB18
Configuration 2	MIB, SB1, SIB1, SIB2, SIB3, SIB4, SIB5, SIB7, SIB11, SIB12, SIB18
Configuration 3	MIB, SB1, SIB1, SIB2, SIB3, SIB4, SIB5, SIB7, SIB11, SIB16, SIB18

8.4.3 Test SIB default schedule

Table 101

Frame No.	0	2	4	6	8	10	12	14
REP-POS	0	1	2	3	4	5	6	7
Block Type	MIB	SB1	SIB7	SIB6	MIB	SIB6	SIB6	SIB6

Frame No.	16	18	20	22	24	26	28	30
REP-POS	8	9	10	11	12	13	14	15
Block Type	MIB	SB1	SIB7/SIB3	SIB1/SIB 2	MIB	SIB12	SIB12	SIB12

Frame No.	32	34	36	38	40	42	44	46
REP-POS	16	17	18	19	20	21	22	23
Block Type	MIB	SB1	SIB7/SIB1 8	SIB5	MIB	SIB5	SIB5	SIB5

Frame No.	48	50	52	54	56	58	60	62
REP-POS	24	25	26	27	28	29	30	31
Block Type	MIB	SB1	SIB7/SIB4	- (FDD) SIB5(LCR TDD)	MIB	SIB11	SIB11	SIB11

SIB-repeat period (in frame)

Table 102

Block Type	MIB	SB1	SIB1	SIB2	SIB3	SIB4	SIB5	SIB6	SIB7	SIB11	SIB12	SIB18
SIB Rep	8	16	64	64	64	64	64	64	16	64	64	64
Max. No of seg.	1	1	1	1	1	1	4(FDD) 5(LCR TDD)	4	1	3	3	1

8.4.3.1 Test SIB schedule for idle mode and measurment

Table 103

Frame No.	0	2	4	6	8	10	12	14
REP-POS	0	1	2	3	4	5	6	7
Block Type	MIB	SB1	SIB6	SIB6	MIB	SIB6	SIB6	SIB7/SIB 3

Frame No.	16	18	20	22	24	26	28	30
REP-POS	8	9	10	11	12	13	14	15
Block Type	MIB	SB1	SIB1/SIB2	SIB12	MIB	SIB12	SIB12	SIB7/SIB 12

Frame No.	32	34	36	38	40	42	44	46
REP-POS	16	17	18	19	20	21	22	23
Block Type	MIB	SB1	SIB5	SIB5	MIB	SIB5	SIB5	SIB7/SIB 18

Frame No.	48	50	52	54	56	58	60	62
REP-POS	24	25	26	27	28	29	30	31
Block Type	MIB	SB1	SIB11	SIB11	MIB	SIB11	SIB11	SIB7/SIB 4

SIB-repeat period (in frame)

Table 104

Block Type	MIB	SB1	SIB1	SIB2	SIB3	SIB4	SIB5	SIB6	SIB7	SIB11	SIB12	SIB18
SIB Rep	8	16	64	64	64	64	64	64	16	64	64	64
Max. No of seg.	1	1	1	1	1	1	4(FDD) 5(LCR TDD)	4(FDD) 3(LCR TDD)	1	4	4	1

8.4.4 Test SIB special schedule

8.4.4.1 Test SIB schedule for two S-CCPCH or two PRACH

Table 105

Frame No.	0	2	4	6	8	10	12	14
REP-POS	0	1	2	3	4	5	6	7
Block Type	MIB	SB1	SB1		MIB	SIB1	SIB18	SIB2

Frame No.	16	18	20	22	24	26	28	30
REP-POS	8	9	10	11	12	13	14	15
Block Type	MIB	SB1	SB1	SIB7	MIB	SIB3		SIB4

Frame No.	32	34	36	38	40	42	44	46
REP-POS	16	17	18	19	20	21	22	23
Block Type	MIB	SB1	SB1	SIB5	MIB	SIB5	SIB5	SIB5

Frame No.	48	50	52	54	56	58	60	62
REP-POS	24	25	26	27	28	29	30	31
Block Type	MIB	SB1	SB1	SIB7	MIB	SIB11	SIB11	SIB11

Frame No.	64	66	68	70	72	74	76	78
REP-POS	32	33	34	35	36	37	38	39
Block Type	MIB	SB1	SB1	SIB5	MIB	SIB5	SIB5	SIB5

Frame No.	80	82	84	86	88	90	92	94
REP-POS	40	41	42	43	44	45	46	47
Block Type	MIB	SB1	SB1	SIB7	MIB	SIB3		SIB4

Frame No.	96	98	100	102	104	106	108	110
REP-POS	48	49	50	51	52	53	54	55
Block Type	MIB	SB1	SB1		MIB			

Frame No.	112	114	116	118	120	122	124	126
REP-POS	56	57	58	59	60	61	62	63
Block Type	MIB	SB1	SB1	SIB7	MIB	SIB12	SIB12	SIB12

SIB-repeat period (in frame)

Table 106

Block Type	MIB	SB1	SIB1	SIB2	SIB3	SIB4	SIB5	SIB7	SIB11	SIB12	SIB18
SIB Rep	8	16	128	128	64	64	128	32	128	128	128
Max. No of seg.	1	2	1	1	1	1	8	1	3	3	1

8.4.4.2 Test SIB schedule for Inter-Rat Handover Test

Table 107

Frame No.	0	2	4	6	8	10	12	14
REP-POS	0	1	2	3	4	5	6	7
Block Type	MIB	SB1	SB1		MIB	SIB1	SIB18	SIB2

Frame No.	16	18	20	22	24	26	28	30
REP-POS	8	9	10	11	12	13	14	15
Block Type	MIB	SB1	SB1	SIB7	MIB	SIB3		SIB4

Frame No.	32	34	36	38	40	42	44	46
REP-POS	16	17	18	19	20	21	22	23
Block Type	MIB	SB1	SB1	SIB5	MIB	SIB5	SIB5	SIB5

Frame No.	48	50	52	54	56	58	60	62
REP-POS	24	25	26	27	28	29	30	31
Block Type	MIB	SB1	SB1	SIB7	MIB	SIB11	SIB11	SIB11

Frame No.	64	66	68	70	72	74	76	78
REP-POS	32	33	34	35	36	37	38	39
Block Type	MIB	SB1	SB1	SIB16	MIB	SIB16	SIB16	SIB16

Frame No.	80	82	84	86	88	90	92	94
REP-POS	40	41	42	43	44	45	46	47
Block Type	MIB	SB1	SB1	SIB7	MIB	SIB3		SIB4

Frame No.	96	98	100	102	104	106	108	110
REP-POS	48	49	50	51	52	53	54	55
Block Type	MIB	SB1	SB1	SIB16	MIB	SIB16	SIB16	SIB16

Frame No.	112	114	116	118	120	122	124	126
REP-POS	56	57	58	59	60	61	62	63
Block Type	MIB	SB1	SB1	SIB7	MIB			

SIB-repeat period (in frame)

Table 108

Block Type	MIB	SB1	SIB1	SIB2	SIB3	SIB4	SIB5	SIB7	SIB11	SIB16	SIB18
SIB Rep	8	16	128	128	64	64	128	32	128	128	128
Max. No of seg.	1	2	1	1	1	1	4	1	3	8	1

8.4.5 Handling the transmission of SIB

According to the SIB repeat periods, SIBs need to be transmitted on a very regular basis during the operation of a test case. This transmission usually has no direct bearing on the operation of the test case, although the carried information ensures the correct configuration and operation of the UE during the test case.

To send this information repeatedly directly from each test case would make the test cases very complex to implement, difficult to understand and place real-time requirements upon them that are beyond the capabilities of most TTCN driven test engines.

Management of scheduling of System Information messages is performed by the system simulator. The SIB contents, usually determined in part by the individual tests, come from the TTCN test cases.

8.4.5.1 Delivery of System Information content

The content of the System Information messages is delivered as a fully encoded bit string to the TM-RLC SAP from the message content defined in the TTCN test case.

The IE 'SFNprime' in the SI messages is set to 0 by the TTCN, and the correct value of 'SFNprime' shall be inserted by the System Simulator prior to transmission of a SI message.

SI messages are ASN.1 packed encoded through a TTCN TSO and segmented another TTCN TSO into SIBs in the TTCN and sent only once to the TM-RLC SAP. Repetition of the SIB is the responsibility of the System Simulator lower layers.

SIBs are considered to be cached. That is, sending a SIB to the TM-RLC SAP will cause a previously sent copy of the SIB to be lost, and all future transmissions of the SIB will be the most recently sent version. This allows for the updating of System Information during the operation of a test case.

8.4.5.2 Scheduling of system Information blocks

The schedule for the transmission of SIBs is provided by the TTCN test case. It is sent using the CMAC_SYSINFO_CONFIG_REQ primitive sent to the CMAC SAP (CMAC_PCO).

Each CMAC_SYSINFO_CONFIG_REQ primitive carries scheduling information for the next SIB sent from the TTCN. Each primitive is followed by an associated SIB. Sending two CMAC_SYSINFO_CONFIG_REQ primitives in succession may cause an unspecified result.

8.4.5.3 Example of usage

The following example shows how the MIB, SB1 and all SIBs in subclause 8.4.3 are sent to the System Simulator lower layers for broadcasting. The 1st parameter in CMAC_SYSINFO_CONFIG_REQ represents the repeat period in power of 2. The 2nd parameter represents the repetition position. Two consecutive frames represent an available repetition position.

CMAC_PCO:	CMAC_SYSINFO_CONFIG_REQ (3, 0)
TM_PCO:	MIB
CMAC_PCO:	CMAC_SYSINFO_CONFIG_REQ (4, 1)
TM_PCO:	SB1
CMAC_PCO:	CMAC_SYSINFO_CONFIG_REQ (6, 2)
TM_PCO:	SIB7
CMAC_PCO:	CMAC_SYSINFO_CONFIG_REQ (6, 3)
TM_PCO:	SIB6 (segment 1 of 4)
CMAC_PCO:	CMAC_SYSINFO_CONFIG_REQ (6, 5)
TM_PCO:	SIB6 (segment 2 of 4)
CMAC_PCO:	CMAC_SYSINFO_CONFIG_REQ (6, 6)
TM_PCO:	SIB6 (segment 3 of 4)
CMAC_PCO:	CMAC_SYSINFO_CONFIG_REQ (6, 7)
TM_PCO:	SIB6 (segment 4 of 4)
CMAC_PCO:	CMAC_SYSINFO_CONFIG_REQ (6, 10)
TM_PCO:	SIB7 + SIB3 (concatenation)
CMAC_PCO:	CMAC_SYSINFO_CONFIG_REQ (6, 11)
TM_PCO:	SIB1 + SIB2 (concatenation)
CMAC_PCO:	CMAC_SYSINFO_CONFIG_REQ (6, 13)
TM_PCO:	SIB12 (segment 1 of 3)
CMAC_PCO:	CMAC_SYSINFO_CONFIG_REQ (6, 14)
TM_PCO:	SIB12 (segment 2 of 3)
CMAC_PCO:	CMAC_SYSINFO_CONFIG_REQ (6, 15)
TM_PCO:	SIB12 (segment 3 of 3)
CMAC_PCO:	CMAC_SYSINFO_CONFIG_REQ (6, 18)
TM_PCO:	SIB7 + SIB18 (concatenation)
CMAC_PCO:	CMAC_SYSINFO_CONFIG_REQ (6, 19)
TM_PCO:	SIB5 (segment 1 of 4)
CMAC_PCO:	CMAC_SYSINFO_CONFIG_REQ (6, 21)
TM_PCO:	SIB5 (segment 2 of 4)

CMAC_PCO: CMAC_SYSINFO_CONFIG_REQ (6, 22)
TM_PCO: SIB5 (segment 3 of 4)
CMAC_PCO: CMAC_SYSINFO_CONFIG_REQ (6, 23)
TM_PCO: SIB5 (segment 4 of 4)
CMAC_PCO: CMAC_SYSINFO_CONFIG_REQ (6, 26)
TM_PCO: SIB7 + SIB4 (concatenation)
CMAC_PCO: CMAC_SYSINFO_CONFIG_REQ (6, 27)
TM_PCO: No segment
CMAC_PCO: CMAC_SYSINFO_CONFIG_REQ (6, 29)
TM_PCO: SIB11 (segment 1 of 3)
CMAC_PCO: CMAC_SYSINFO_CONFIG_REQ (6, 30)
TM_PCO: SIB11 (segment 3 of 3)
CMAC_PCO: CMAC_SYSINFO_CONFIG_REQ (6, 31)
TM_PCO: SIB11 (segment 3 of 3)

8.5 Security in testing

The security functions at the SS side are implemented in RLC and MAC layers. When the AM or UM RLC entities and a MAC(d) entity are created, the TTCN will download a security context for each CN domain used. The two ASPs CMAC_SecurityMode_Config_REQ and CRLC_SecurityMode_Config_REQ configues the SS security contexts and associate the contexts to the created entities. The SS sahll support one activate security contexts and one context pending activation for each CN domain.

A security context at the SS consists of the security parameter START, 20 bits long and a pair of integrity key and a ciphering key, each 128 bits long. All these security parameters belong to a CS or a PS domain. The SS shall have the ability to store these values till the new vlaues are downloaded and activated. $START_{cs}$ is used for intitialization of all counters-C and counters-I (32 bits long each) of all DL and UL radio bearers for ciphering and intergrity protection in the CS domain. The same is for $START_{ps}$ in the PS domain. The TTCN downloads the new START value whenever it is received from the UE. In the case of a succeeded authentication procedure, the START value is reset to zero by the TTCN.

Once the START is downloaded the SS will, according to the activation time, inialize the 20 most significant bits of the RRC HFN (for integrity protection), the RLC HFN (for ciphering) and the MAC-d HFN (for ciphering) to the START value of the corresponding service domain; the remaining bits are initialized to 0.

Upon the concerned RLC entities and the MAC(d) entity release in the SS, the associated security contexts are no longer used and shall be removed as well. The RLC and the MAC(d) entities are addressed by the TTCN with the cell id = -1.

8.5.1 Authentication

A GMM or MM authentication test step makes use of a number of TSOs to generate an authentication vector:

AV := {RAND, XRES, CK, IK, AUTN}

If the UE has valid authentication parameters (CKSN/KSI), for the respective domain, use of the Authentication procedure after an INITIAL DIRECT TRANSFER message is optional. Authentication in this case will be left to the test case implementation and need not be specified in the prose. However, in the case where the UE does not have valid authentication parameters the Authentication procedure shall be performed.

8.5.2 Ciphering

The ciphering in the SS is activated through the ASP CRLC_Ciphering_Activate_REQ for the AM or UM mode and through CMAC_Ciphering_Activate_REQ for the TM mode.

A PIXIT parameter px_CipheringOnOff indicates whether all the tests are performed under ciphering activated or not. If ciphering should be off at the test execution, the ciphering algorithm in IE ciphering ModeInfo is set to uea0 (no encryption). The UE under test is informed about the SS ciphering capability via IE cipheringAlgorithmCap set to uea0.

Table 109 gives the mapping of the RB id and the bearer value used in the ciphering calculation at the SS side.

Table 109: Mapping between RB identity in ASP and BEARER value in the ciphering calculation

RB identity (TTCN constant)	Direction	RLC mode	BEARER value	Type	Comments
-1 (tsc_RB_BCCH)	downlink	TM	N/A		No ciphering applicable
-2 (tsc_RB_PCCH)	downlink	TM	N/A		No ciphering applicable
-3 (tsc_RB_BCCH_FACH)	downlink	TM	N/A		No ciphering applicable
-4 (tsc_RB_2ndPCCH)	downlink	TM	N/A		No ciphering applicable
-5 (tsc_RB_2ndCCCH)	uplink	TM	N/A		No ciphering applicable
-10 (tsc_RB_UM_7_RLC)	downlink	TM	N/A	RAB	For UM RLC tests using 7 bit Lis, no ciphering used
-10 (tsc_RB_UM_7_RLC)	uplink	TM	N/A	RAB	For UM RLC tests using 7 bit LIs, no ciphering used
-11 (tsc_RB_UM_15_RLC)	downlink	TM	N/A	RAB	For UM RLC tests using 15 bit LIs, no ciphering used
-11 (tsc_RB_UM_15_RLC)	uplink	TM	N/A	RAB	For UM RLC tests using 15 bit LIs, no ciphering used
-12 (tsc_RB_AM_7_RLC)	downlink	TM	N/A	RAB	For AM RLC tests using 15 bit LIs, no ciphering used
-12 (tsc_RB_AM_7_RLC)	uplink	TM	N/A	RAB	For AM RLC tests using 7 bit LIs, no ciphering used
-13 (tsc_RB_AM_15_RLC)	downlink	TM	N/A	RAB	For AM RLC tests using 15 bit LIs, no ciphering used
-13 (tsc_RB_AM_15_RLC)	uplink	TM	N/A	RAB	For AM RLC tests using 15 bit LIs, no ciphering used
-14 tsc_RB_DCCH_FACH_MAC)	downlink	TM	N/A	SRB3	MAC testing no ciphering used
-14 (tsc_RB_DCCH_FACH_MAC)	uplink	TM	N/A	SRB3	MAC testing no ciphering used
-15 (tsc_RB_DCCH_DCH_MAC)	downlink	TM	N/A	SRB3	MAC testing no ciphering used
-15 (tsc_RB_DCCH_FACH_MAC)	uplink	TM	N/A	SRB3	MAC testing no ciphering used
-16 (tsc_RB3_DCCH_RRC)	uplink	AM	2	SRB3	
-18 (tsc_RB_CCCH_FACH_MAC)	downlink	TM	N/A	SRB0	No ciphering applicable
0 (tsc_RB0)	uplink	TM	N/A	SRB0	No ciphering applicable
0 (tsc_RB0)	downlink	UM	N/A	SRB0	No ciphering applicable
1 (tsc_RB1)	uplink	UM	0	SRB1	
1 (tsc_RB1)	downlink	UM	0	SRB1	
2 (tsc_RB2)	uplink	AM	1	SRB2	
2 (tsc_RB2)	downlink	AM	1	SRB2	
3 (tsc_RB3)	uplink	AM	2	SRB3	
3 (tsc_RB3)	downlink	AM	2	SRB3	
4 (tsc_RB4)	uplink	AM	3	SRB4	
4 (tsc_RB4)	downlink	AM	3	SRB4	
5 (tsc_RB5)	uplink	TM	4	SRB	DCCH
5 (tsc_RB5)	downlink	TM	4	SRB	DCCH
6	uplink		5		Not used currently
6	downlink		5		Not used currently
7	uplink		6		Not used currently
7	downlink		6		Not used currently
8	uplink		7		Not used currently
8	downlink		7		Not used currently
9	uplink		8		Not used currently
9	downlink		8		Not used currently
10 (tsc_RB10)	uplink	TM	9	RAB#1-1	or RAB1
10 (tsc_RB10)	downlink	TM	9	RAB#1-1	or RAB1
11 (tsc_RB11)	uplink	TM	10	RAB#1-2	or RAB2
11 (tsc_RB11)	downlink	TM	10	RAB#1-2	or RAB2
12 (tsc_RB12)	uplink	TM	11	RAB#1-3	
12 (tsc_RB12)	downlink	TM	11	RAB#1-3	
13 (tsc_RB13)	uplink	TM	12	RAB#2	
13 (tsc_RB13)	downlink	TM	12	RAB#2	
14	uplink		13		Not used currently
14	downlink		13		Not used currently
15	uplink		14		Not used currently
15	downlink		14		Not used currently
16	uplink		15		Not used currently
16	downlink		15		Not used currently
17	uplink		16		Not used currently
17	downlink		16		Not used currently
18	uplink		17		Not used currently
18	downlink		17		Not used currently
19	uplink		18		Not used currently
19	downlink		18		Not used currently
20 (tsc_RB20)	uplink	AM	19	RAB#1	
20 (tsc_RB20)	downlink	AM	19	RAB#1	
21 (tsc_RB21)	uplink	UM	20	RAB#2	
21 (tsc_RB21)	downlink	UM	20	RAB#2	
22 (tsc_RB22)	uplink	AM	21	RAB#2	
22 (tsc_RB22)	downlink	AM	21	RAB#2	
23	uplink		22		Not used yet currently

RB identity (TTCN constant)	Direction	RLC mode	BEARER value	Type	Comments
23	downlink		22		Not used yet currently
24	uplink		23		Not used yet currently
24	downlink		23		Not used yet currently
25	uplink		24		Not used yet currently
25	downlink		24		Not used yet currently
26	uplink		25		Not used yet currently
26	downlink		25		Not used yet currently
27	uplink		26		Not used yet currently
27	downlink		26		Not used yet currently
28	uplink		27		Not used yet currently
28	downlink		27		Not used yet currently
29	uplink		28		Not used yet currently
29	downlink		28		Not used yet currently
30 (tsc_RB30)	downlink	UM	N/A		CTCH FACH no ciphering used
30	uplink		29		Not used yet currently
31 (tsc_RB31)	downlink	UM	N/A		CTCH FACH no ciphering used
31	uplink		30		Not used yet currently
32	downlink		31		Not used yet currently
32	uplink		31		Not used yet currently

8.5.3 Integrity

The integrity protection in the SS is activated through the ASP CRLC_Integrity_Activate_REQ for all SRB.

MAC-I (MessageAuthenticationCode) is calculated by the SS. If the integrity protection is not yet started, the "integrity protection info" IE is omitted in TTCN. If integrity protection is started the TTCN includes the "integrity protection info" IE with all bits set to "0". The SS takes care of all the necessary initialization and calculation on SRBs.

Once integrity is started, the SS initializes and calculates a correct Message Authentication Code, overrides the initial value all bits "0" and inserts a corresponding RRC message sequence number into the IntegrityCheckInfo for all DL DCCH messages. In UL, the SS shall check the received MessageAuthenticationCode. If it is wrong, the ASP CRLC_Integrity_Failure_IND will report having received an UL message with integrity error. If it is correct SS forwards the received messages to the TTCN.

In addition, CRLC_MAC_I_Mode_REQ can be used to force the SS generate wrong DL MAC-I on a specific SRB for the integrity error handling test.

8.5.4 Test security scenarios

Five basic test scenarios are presented in the present document. The corresponding core spec references are found in 3GPP TS 25.331 [**Error! Reference source not found.**] clauses 8.1.12, 8.2.2.2, 8.5.10.1, 8.5.10.2, 8.6.3.4, 8.6.3.5, 8.6.4.3 and 8.6.4.8.

Start security;
RB setup;
AM RB reconfiguration;
Security modification;
SRNS relocation;
Modification of RLC size of AM RB during RB reconfiguration;
Cell/URA update;
InterRAt HO to UTRAN.

As Default, the 1st three basic scenarios can be subdivided into:

Start integrity without ciphering start;
Start integrity and ciphering at the same time.

Regarding the simultaneous SRNS relocation, the security scenarios at the relocation are split into:

No security configuration modification;
Modification of integrity (FRESH) without ciphering configuration change;
Modification integrity FRESH and ciphering algorithm;
A security modification pending at the SRNS relocation.

This clause shows the procedures how the security ASP applied to the SS configurations at the different security test scenarios.

8.5.4.1 Start security function

```
CIPHERING_STATUS = NotStarted for the CN domain concerned.
```

8.5.4.1.1 Start integrity protection without start of ciphering

```
INTEGRITY_PROTECTION Status = NotStarted.

SECURITY MODE COMMAND with "Integrity protection mode info" IE containing
integrityProtectionModeCommand = Start, no "Ciphering mode info" IE
```

1 Before sending SECURITY MODE COMMAND (SMC)

```
CRLC_SecurityMode_Config_REQ
        startValue = value most recently received or 0 (new key)
        integrityKey = value maintained by TTCN
        cn_DomainIdentity = CS or PS
CRLC_SetRRC_MessageSN_REQ (SN=0)
    --  Downlink RRC message sequence number set to 0
CRLC_Integrity_Activate_REQ (CN domain concerned)
        integrityProtectionModeCommand = startIntegrityProtection (FRESH)
        integrityProtectionAlgorithm = selected value
        -- downlink integrity protection starts immediately
CRLC_Integrity_Activate_REQ (CN domain concerned)
        ul_IntegProtActivationInfo = 0 (RB2 only)
```

2 Send SECURITY MODE COMMAND

3 After receiving SECURITY MODE COMPLETE

```
CRLC_Integrity_Activate_REQ (CN domain concerned)
       ul_IntegProtActivationInfo = value in "Uplink integrity protection activation time"
       (except RB2) received from SECURITY MODE COMPLETE
```

8.5.4.1.2 Start both integrity protection and ciphering

```
INTEGRITY_PROTECTION Status = NotStarted.

SECURITY MODE COMMAND with "Integrity protection mode info" IE containing
integrityProtectionModeCommand = Start, and "Ciphering mode info" IE containing cipheringModeCommand
= Start/Restart (algorithm UEA0 or UEA1)
```

1 Before sending SECURITY MODE COMMAND message

```
CRLC_SecurityMode_Config_REQ
        startValue = value most recently received or 0 ( new key)
        cipheringKey = value maintained by TTCN
        integrityKey = value maintained by TTCN
        cn_DomainIdentity = CS or PS
CRLC_SequenceNumber_REQ
    --  Get current RLC SN of all SRB for calculating suitable down link activation time
CRLC_Suspend_REQ
    -- Suspend all signalling radio bearers except RB2
CRLC_Ciphering_Activate_REQ (CN domain concerned)
        cipheringModeCommand = Start/Restart (algorithm)
        rb_DL_CiphActivationTimeInfo = calculated activation time
        incHFN = NotInc
CRLC_SetRRC_MessageSN_REQ (SN=0)
        --  Downlink RRC message sequence number set to 0
```

```
    CRLC_Integrity_Activate_REQ (CN domain concerned)
            integrityProtectionModeCommand = startIntegrityProtection (FRESH)
            integrityProtectionAlgorithm = selected value
            (downlink integrity protection starts immediate)
    CRLC_Integrity_Activate_REQ (CN domain concerned)
            ul_IntegProtActivationInfo = 0 (RB2 only)
```

2 Send SECURITY MODE COMMAND

3 After receiving SECURITY MODE COMPLETE

```
    CRLC_Ciphering_Activate_REQ (CN domain concerned)
           rb_UL_CipheringActivationTimeInfo = value received in SECURITY MODE COMPLETE
           incHFN = NotInc
    CRLC_Integrity_Activate_REQ (CN domain concerned)
           ul_IntegProtActivationInfo = value in "Uplink integrity protection activation time"
           (except RB2) received from SECURITY MODE COMPLETE
    CRLC_Resume_REQ
```

8.5.4.1.3 Void

8.5.4.2 RB setup

```
INTEGRITY_PROTECTION Status = Started.
Condition: "RAB information for setup" IE included in RADIO BEARER SETUP
```

8.5.4.2.1 AM / UM RB

1 Sending the RADIO BEARER SETUP message.

2 Configuring the RB.

3 After receiving RADIO BEARER SETUP COMPLETE.

8.5.4.2.1.1 Ciphering not started

```
CIPHERING_STATUS = NotStarted for the CN domain concerned

    CRLC_SecurityMode_Config_REQ
            startValue = value most recently received
            cipheringKey = value maintained by TTCN
            cn_DomainIdentity = CS or PS
    CRLC_Ciphering_Activate_REQ (CN domain concerned)
            cipheringModeCommand = NULL (no ciphering)
            rb_DL_CiphActivationTimeInfo = 0 (from the first block)
            incHFN = NotInc
    CRLC_Ciphering_Activate_REQ (CN domain concerned)
            rb_UL_CipheringActivationTimeInfo = 0 (from the first block)
            incHFN = NotInc
```

8.5.4.2.1.2 Ciphering started

```
CIPHERING_STATUS = Started for the CN domain concerned

    CRLC_SecurityMode_Config_REQ
            startValue = value most recently received
            cipheringKey = value maintained by TTCN
            cn_DomainIdentity = CS or PS
    CRLC_Ciphering_Activate_REQ (CN domain concerned)
            cipheringModeCommand = Start/Restart (algorithm)
            rb_DL_CiphActivationTimeInfo = 0 (from the first block)
            incHFN = NotInc
    CRLC_Ciphering_Activate_REQ (CN domain concerned)
            rb_UL_CipheringActivationTimeInfo = 0 (from the first block)
            incHFN = NotInc
```

8.5.4.2.2 TM RB

```
Enter Cell_DCH,
no TM RB established before,
"COUNT-C activation time" IE included in RADIO BEARER SETUP COMPLETE message.
```

8.5.4.2.2.1 Ciphering not started

```
CIPHERING_STATUS = NotStarted for the CN domain concerned,
```

1 Send the RADIO BEARER SETUP message

2 Configuring the RB

3 After receiving RADIO BEARER SETUP COMPLETE

```
    CMAC_SecurityMode_Config_REQ
            startValue = value most recently received
            cn_DomainIdentity = CS or PS
    CMAC_Ciphering_Activate_REQ (CN domain concerned)
            incHFN = NotInc
            cipheringModeCommand = NULL (no ciphering)
            activationTimeForDPCH = value in "COUNT-C activation time"
```

8.5.4.2.2.2 Ciphering started

```
CIPHERING_STATUS = Started for the CN domain concerned,
```

1 Sending RADIO BEARER SETUP

2 Configuring the RB

```
    CMAC_SecurityMode_Config_REQ
            startValue = value most recently received
            cipheringKey = value maintained by TTCN
            cn_DomainIdentity = CS or PS
    CMAC_Ciphering_Activate_REQ (CN domain concerned)
            incHFN = NotInc
            cipheringModeCommand = Start/Restart (algorithm)
            activationTimeForDPCH = value in "Activation time" of the RB
```

3 After receiving RADIO BEARER SETUP COMPLETE message

```
    CMAC_SecurityMode_Config_REQ
            startValue = value received in response message
            cipheringKey = value maintained by TTCN
            cn_DomainIdentity = CS or PS
    CMAC_Ciphering_Activate_REQ (CN domain concerned)
            incHFN = IncPerCFN_Cycle
            cipheringModeCommand = Start/Restart (algorithm)
            activationTimeForDPCH = value in "COUNT-C activation time"
```

8.5.4.3 RB Reconfiguration for AM RAB modification of RLC size

```
CIPHERING_STATUS = Started  for the CN domain concerned,
"RB mapping info" IE, changeing AM RB RLC size, is inculded in
    CELL UPDATE CONFIRM,
    RADIO REARER RECONFIGURATION,
    RADIO BEARER RELEASE
```

8.5.4.3.1 "RB mapping info" in CELL UPDATE CONFIRM

After sending the CELL UPDATE CONFIRM message, re-establish the RB and re-configure the RB with new RLC size and re-initialize COUNT-C for the RB:

```
    CRLC_Config_REQ
            Release the concerned RB
    CRLC_Config_REQ
            Setup the concerned RB (new RLC size)
```

```
CRLC_SecurityMode_Config_REQ
        startValue = value received in the CELL UPDATE message
        integrityKey = value maintained by TTCN
        cn_DomainIdentity = CS or PS
CRLC_Ciphering_Activate_REQ
        cipheringModeCommand = Start/Restart (existing algorithm)
        rb_DL_CiphActivationTimeInfo = now
        incHFN = NotInc
CRLC_ Ciphering_Activate_REQ
        rb_UL_CiphActivationTimeInfo = now
        incHFN = NotInc
```

8.5.4.3.2 "RB mapping info" in RB RECONFIGURATION / RELEASE

After receiving the reconfiguration complete message, re-establish the RB and re-configure the RB with new RLC size and re-initialize COUNT-C for the RB:

```
CRLC_Config_REQ
        Release the concerned RB
CRLC_Config_REQ
        Setup the concerned RB (new RLC size)
CRLC_SecurityMode_Config_REQ
        startValue = value received in the reconfiguration complete message
        integrityKey = value maintained by TTCN
        cn_DomainIdentity = CS or PS
CRLC_Ciphering_Activate_REQ
        cipheringModeCommand = Start/Restart (existing algorithm)
        rb_DL_CiphActivationTimeInfo = now
        incHFN = NotInc
CRLC_Ciphering_Activate_REQ
        rb_UL_CiphActivationTimeInfo = now
        incHFN = NotInc
```

8.5.4.4 Security modification

Updating security keys is the scenario in this clause.

```
INTEGRITY_PROTECTION STATUS = Started
SECURITY MODE COMMAND contains "Ciphering mode info" IE and/or "Integrity protection mode info" IE
```

8.5.4.4.1 Integrity started, ciphering not started

```
CIPHERING_STATUS = NotStarted for the CN domain concerned
SECURITY MODE COMMAND with "Integrity protection mode info" IE containing
integrityProtectionModeCommand = modify, but "Ciphering mode info" IE absent the same CN domain as
in the previous SMC to start integrity protection.
```

1 Before sending SECURITY MODE COMMAND message

```
CRLC_SecurityMode_Config_REQ
        startValue = 0 (new key)
        integrityKey = new key
        cn_DomainIdentity = CS or PS
CRLC_RRC_MessageSN_REQ
        -- Get current RRC Message SN for calculation of DL activation time
CRLC_Integrity_Activate_REQ (CN domain concerned)
        integrityProtectionModeCommand = modify
       dl_IntegrityProtActivationInfo = now (SRB2), calculated value or a pending activation
       time set by previous security mode control procedure (SRB2 other than SRB2)
CRLC_Integrity_Activate_REQ (CN domain concerned, RB2)
        ul_IntegrityProtActivationInfo = now
```

2 Sending SECURITY MODE COMMAND message

3 After receiving SECURITY MODE COMPLETE

```
CRLC_Integrity_Activate_REQ (CN domain concerned)
       ul_IntegProtActivationInfo = value in "Uplink integrity protection activation time"
       (except RB2)
```

8.5.4.4.2 Integrity and ciphering started

```
CIPHERING_STATUS = Started for the CN domain concerned
SECURITY MODE COMMAND contains
    "Integrity protection mode info" IE with integrityProtectionModeCommand = modify,
    "Ciphering mode info" IE with cipheringModeCommand = Start/Restart.
```

1 Before sending SECURITY MODE COMMAND message

```
    CRLC_SecurityMode_Config_REQ
            startValue = 0 (new key)
            integrityKey = new key
            cipheringKey = new key
            cn_DomainIdentity = CS or PS
    if TM RB exist
        CMAC_SecurityMode_Config_REQ
            startValue = 0 ( new key)
            cipheringKey = new key
            integrityKey = new key
            cn_DomainIdentity = CS or PS
    CRLC_SequenceNumber_REQ
        -- Get current RLC SN for calculating suitable down link activation time
    CRLC_Suspend_REQ
    CRLC_Ciphering_Activate_REQ (CN domain concerned)
            cipheringModeCommand = Start/Restart (existing algorithm)
            rb_DL_CiphActivationTimeInfo = calculated activation time
            incHFN = NotInc
    CRLC_RRC_MessageSN_REQ
        -- Get current RRC message SN for calculating suitable DL activation time
    CRLC_Integrity_Activate_REQ (CN domain concerned)
            integrityProtectionModeCommand = modify
           dl_IntegrityProtActivationInfo = now (SRB2), calculated value or a pending activation
           time set by previous security mode control procedure (SRB other than SRB2)
    CRLC_Integrity_Activate_REQ (CN domain concerned,RB2)
            ul_IntegrityProtActivationInfo = now
    if TM RB exist
        CPHY_Frame_Number_REQ
            --Get current CFN for calculating suitable activation time for TM RB
        CMAC_Ciphering_Activate_REQ (CN domain concerned)
            cipheringModeCommand = Start/Restart (existing algorithm)
            activationTimeForDPCH = calculated activation time
            incHFN = IncPerCFN_Cycle
```

2 Sending SECURITY MODE COMMAND message

3 After receiving SECURITY MODE COMPLETE

```
    CRLC_Ciphering_Activate_REQ (CN domain concerned)
           rb_UL_CipheringActivationTimeInfo = value received in SECURITY MODE COMPLETE
           incHFN = NotInc
    CRLC_Integrity_Activate_REQ (CN domain concerned, except RB2)
           ul_IntegProtActivationInfo = value in "Uplink integrity protection activation time"
    CRLC_Resume_REQ
```

8.5.4.5 SRNS relocation

```
Simulataneous SRNS relocation will take place
either "Downlink count synchronization info" IE is received in
    CELL UPDATE CONFIRM,
    PHYSICAL CHANNEL RECONFIGURATION,
    RADIO BEARER SETUP,
    RADIO BEARER RELEASE,
    TRANSPORT CHANNEL RECONFIGURATION,
    URA UPDATE CONFIRM,
    UTRAN MOBILITY INFROMATION,
or "new U-RNTI" IE is received in
    RADIO BEARER RECONFIGURATION.

INTEGRITY_PROTECTION Status = Started
```

8.5.4.5.1 Void

8.5.4.5.2 Presence of "Integrity protection mode info" but absence of "Ciphering mode info"

SRNS relocation related messages listed contains "Integrity protection mode info" but does not have "Ciphering mode info" IE.

```
SRNS relocation related message with "Integrity protection mode info" IE containing
integrityProtectionModeCommand = Start, but no "Ciphering mode info" IE (no ciphering configuration
change).
```

8.5.4.5.2.1 No security configuration pending

No security configuration pending triggered by previous SECURITY MODE COMMAND.

1 Before sending one of the SRNS relocation related messages

```
CRLC_SecurityMode_Config_REQ
        startValue = OMIT (no COUNT-I re-initialization)
        integrityKey = OMIT or value maintained by TTCN (no key change)
        cn_DomainIdentity = CS or PS
CRLC_Integrity_Activate_REQ (CN domain concerned)
        integrityProtectionModeCommand = Start (FRESH)
        integrityProtectionAlgorithm = selected value
        -- downlink integrity protection starts immediately
CRLC_Integrity_Activate_REQ (CN domain concerned)
        ul_IntegProtActivationInfo = value (now)
```

2 Sending one of the SRNS relocation related messages

3 Re-establishing RB2 and re-initialize COUNT-C for RB2

```
CRLC_SequenceNumber_REQ
CRLC_SequenceNumber_CNF
        newHFN = MAX(HFN of DL COUNT-C of RB2, HFN of UL COUNT-C of RB2) + 1
CRLC_Config_REQ
    -- Release RB2
CRLC_Config_REQ
    -- Setup RB2
CRLC_SecurityMode_Config_REQ
        startValue = newHFN
        cn_DomainIdentity = CS or PS concerned
CRLC_Ciphering_Activate_REQ (CN domain concerned)
        if CIPHERING_STATUS= NotStarted
            cipheringModeCommand = NULL (no ciphering)
        if CIPHERING_STATUS = Started
            cipheringModeCommand = Start/Restart (existing algorithm)
        rb_DL_CiphActivationTimeInfo = now (RB2 only)
        incHFN = NotInc
CRLC_Ciphering_Activate_REQ (CN domain concerned)
        rb_UL_CipheringActivationTimeInfo = now (RB2 only)
        incHFN = NotInc
```

4 Receiving the response message

5 Re-establishing all RBs and SRBs (except SRB2) and re-initialize COUNT-C for all RBs and SRBs (except SRB2)

```
CRLC_Config_REQ
    -- Release all RBs and all SRBs (except SRB2)
CRLC_Config_REQ
    -- Setup all RB's and all SRB's (except RB2)
 CRLC_SecurityMode_Config_REQ
        startValue = value received in the response message
        integrityKey = value maintained by TTCN
        cn_DomainIdentity = CS or PS
CRLC_Ciphering_Activate_REQ
        if CIPHERING_STATUS= NotStarted
            cipheringModeCommand = NULL (no ciphering)
        if CIPHERING_STATUS = Started
            cipheringModeCommand = Start/Restart (existing algorithm)
        rb_DL_CiphActivationTimeInfo = now (except SRB2)
        incHFN = NotInc
```

```
CRLC_Ciphering_Activate_REQ
        rb_UL_CiphActivationTimeInfo = now (except SRB2)
        incHFN = NotInc
```

8.5.4.5.2.2 Pending security configuration (new keys)

A pending security configuration is triggered by the previous SECURITY MODE COMMAND (new Key).

1 Before sending one of the SRNS relocation related messages

```
CRLC_SecurityMode_Config_REQ
        startValue = 0 (new key)
        integrityKey = new key
        cn_DomainIdentity = CS or PS
CRLC_Integrity_Activate_REQ
        IntegrityProtectionModeCommand = Start (FRESH)
        IntegrityProtectionAlgorithm = selected value (downlink integrity protection starts
        immediately)
CRLC_Integrity_Activate_REQ
        ul_IntegProtActivationInfo = value (now)
```

2 Send one of the SRNS relocation related messages

3 Re-establish RB2 and re-initialize COUNT-C for RB2

```
CRLC_SequenceNumber_REQ
CRLC_SequenceNumber_CNF
        HFN = MAX(HFN of DL/UL COUNT-C of RB2) + 1
CRLC_Config_REQ
        Release RB2
CRLC_Config_REQ
        Setup RB2
CRLC_SecurityMode_Config_REQ
        startValue = HFN calculated above
        cipheringKey = new key
        cn_DomainIdentity = CS or PS
CRLC_Ciphering_Activate_REQ
        if CIPHERING_STATUS= NotStarted
            cipheringModeCommand = NULL (no ciphering)
        if CIPHERING_STATUS = Started
            cipheringModeCommand = Start/Restart (existing algorithm)
        rb_DL_CiphActivationTimeInfo = now (RB2 only)
        incHFN = NotInc
CRLC_Ciphering_Activate_REQ
        rb_UL_CipheringActivationTimeInfo = now (RB2 only)
        incHFN = NotInc
```

4 Receive the response message

5 Re-establish all RBs and SRBs (except RB2) and re-initialize COUNT-C for all RBs and SRBs (except RB2)

```
CRLC_Config_REQ
        Release all RB's and SRB's (except RB2)
CRLC_Config_REQ
        Setup all RB's and SRB's (except RB2)
CRLC_SecurityMode_Config_REQ
        startValue = value received in the response message
        integrityKey = new key
        cipheringKey = new key
        cn_DomainIdentity = CS or PS
CRLC_Ciphering_Activate _REQ
        if CIPHERING_STATUS= NotStarted
            cipheringModeCommand = NULL (no ciphering)
        if CIPHERING_STATUS = Started
            cipheringModeCommand = Start/Restart (existing algorithm)
        rb_DL_CiphActivationTimeInfo = now (except RB2)
        incHFN = NotInc
CRLC_Ciphering_Activate_REQ
        rb_UL_CiphActivationTimeInfo = now (except RB2)
        incHFN = NotInc
```

6 Re-initialize COUNT-I for all RB's and SRB's (except RB2)

```
CRLC_SecurityMode_Config_REQ
        startValue = 0 (new key)
        integrityKey = new key
        cn_DomainIdentity = CS or PS
CRLC_Integrity_Activate_REQ
        IntegrityProtectionModeCommand = Start (FRESH)
        IntegrityProtectionAlgorithm = selected value (downlink integrity protection starts
        immediately)
CRLC_Integrity_Activate_REQ
        ul_IntegProtActivationInfo = value (now)
```

8.5.4.5.2.3 Pending security configuration (no new keys)

A pending security configuration is triggered by the previous SECURITY MODE COMMAND (no new keys).

1 Before sending one of the SRNS relocation related messages

```
CRLC_SecurityMode_Config_REQ
        startValue = OMIT (no COUNT-I re-initialization)
        integrityKey = OMIT or value maintained by TTCN (no key change) cn_DomainIdentity = CS
        or PS
CRLC_Integrity_Activate_REQ
        SS_IntegrityProtectionModeCommand = Start (FRESH)
        IntegrityProtectionAlgorithm = selected value (downlink integrity protection starts
        immediately)
CRLC_Integrity_Activate_REQ
        ul_IntegProtActivationInfo = value (now)
```

2 Send one of the SRNS relocation related messages

3 Re-establish RB2 and re-initialize COUNT-C for RB2

```
CRLC_SequenceNumber_REQ
CRLC_SequenceNumber_CNF
        HFN = MAX(HFN of DL/UL COUNT-C of RB2) + 1
CRLC_Config_REQ
        Release RB2
CRLC_Config_REQ
        Setup RB2
CRLC_SecurityMode_Config_REQ
        startValue = HFN calculated above
        cn_DomainIdentity = CS or PS
CRLC_Ciphering_Activate_REQ
        if CIPHERING_STATUS= NotStarted
            cipheringModeCommand = NULL (no ciphering)
        if CIPHERING_STATUS = Started
            cipheringModeCommand = Start/Restart (existing algorithm)
        rb_DL_CiphActivationTimeInfo = now (RB2 only)
        incHFN = NotInc
CRLC_Ciphering_Activate_REQ
        rb_UL_CipheringActivationTimeInfo = now (RB2 only)
        incHFN = NotInc
```

4 Receive the response message

5 Re-establish all RBs and SRBs (except RB2) and re-initialize COUNT-C for all RBs and SRBs (except RB2)

```
CRLC_Config_REQ
        Release all RB's and SRB's (except RB2)
CRLC_Config_REQ
        Setup all RB's and SRB's (except RB2)
CRLC_SecurityMode_Config_REQ
        startValue = value received in the response message
        integrityKey = value maintained by TTCN
        cn_DomainIdentity = CS or PS
CRLC_Ciphering_Activate_REQ
        if CIPHERING_STATUS= NotStarted
            cipheringModeCommand = NULL (no ciphering)
        if CIPHERING_STATUS = Started
            cipheringModeCommand = Start/Restart (existing algorithm)
        rb_DL_CiphActivationTimeInfo = now (except RB2)
        incHFN = NotInc
```

```
CRLC_Ciphering_Activate_REQ
        rb_UL_CiphActivationTimeInfo = now (except RB2)
        incHFN = NotInc
```

6 Re-initialize COUNT-I for all RB's and SRB's (except RB2)

```
CRLC_SecurityMode_Config_REQ
        startValue = value received in the response message
        integrityKey = value maintained by TTCN
        cn_DomainIdentity = CS or PS
CRLC_Integrity_Activate_REQ
        IntegrityProtectionModeCommand = Start (FRESH)
        IntegrityProtectionAlgorithm = selected value (downlink integrity protection starts
        immediately)
CRLC_Integrity_Activate_REQ
        ul_IntegProtActivationInfo = value (now)
```

8.5.4.5.3 Presence of "Integrity protection mode info" and "Ciphering mode info" IE

```
CIPHERING_STATUS = Started  for the CN domain concerned,
SRNS relocation related message with "Integrity protection mode info" IE containing
integrityProtectionModeCommand = Start, and "Ciphering mode info" IE containing cipheringModeCommand
= Start/Restart (change ciphering algorithm, no "Radio bearer downlink ciphering activation time
info")
```

8.5.4.5.3.1 No security configuration pending

1 Before sending one of the SRNS relocation related messages

```
CRLC_SecurityMode_Config_REQ
        startValue = OMIT (no COUNT-I re-initialization)
        integrityKey = OMIT or value maintained by TTCN (no key change)
        cn_DomainIdentity = CS or PS
CRLC_Integrity_Activate_REQ
        SS_IntegrityProtectionModeCommand = Start (FRESH)
        IntegrityProtectionAlgorithm = selected value (downlink integrity protection starts
        immediately)
CRLC_Integrity_Activate_REQ
        ul_IntegProtActivationInfo = value (now)
```

2 Send one of the SRNS relocation related messages

3 Re-establish RB2 and re-initialize COUNT-C for RB2

```
CRLC_SequenceNumber_REQ
CRLC_SequenceNumber_CNF
        HFN = MAX(HFN of DL/UL COUNT-C of RB2) + 1
CRLC_Config_REQ
        Release RB2
CRLC_Config_REQ
        Setup RB2
CRLC_SecurityMode_Config_REQ
        startValue = HFN calculated above
        cn_DomainIdentity = CS or PS
CRLC_Ciphering_Activate_REQ
        if CIPHERING_STATUS= NotStarted
            cipheringModeCommand = NULL (no ciphering)
        if CIPHERING_STATUS = Started
            cipheringModeCommand = Start/Restart (existing algorithm)
        rb_DL_CiphActivationTimeInfo = now (RB2 only)
        incHFN = NotInc
CRLC_Ciphering_Activate_REQ
        rb_UL_CipheringActivationTimeInfo = now (RB2 only)
        incHFN = NotInc
```

4 Receive the response message

5 Re-establish all RBs and SRBs (except RB2) and re-initialize COUNT-C for all RBs and SRBs (except RB2)

```
CRLC_Config_REQ
        Release all RB's and SRB's (except RB2)
CRLC_Config_REQ
        Setup all RB's and SRB's (except RB2)
```

```
CRLC_SecurityMode_Config_REQ
        startValue = value received in the response message
        integrityKey = value maintained by TTCN
        cn_DomainIdentity = CS or PS
CRLC_Ciphering_Activate_REQ
        cipheringModeCommand = Start/Restart (new algorithm)
        rb_DL_CiphActivationTimeInfo = now (except RB2)
        incHFN = NotInc
CRLC_Ciphering_Activate_REQ
        rb_UL_CiphActivationTimeInfo = now (except RB2)
        incHFN = NotInc
```

8.5.4.5.3.2 Pending security configuration (new keys)

1 Before sending one of the SRNS relocation related messages

```
CRLC_SecurityMode_Config_REQ
        startValue = 0 (new key)
        integrityKey = new key
        cn_DomainIdentity = CS or PS
CRLC_Integrity_Activate_REQ
        SS_IntegrityProtectionModeCommand = Start (FRESH)
        IntegrityProtectionAlgorithm = selected value (downlink integrity protection starts
        immediately)
CRLC_Integrity_Activate_REQ
        ul_IntegProtActivationInfo = value (now)
```

2 Send one of the SRNS relocation related messages

3 Re-establish RB2 and re-initialize COUNT-C for RB2

```
CRLC_SequenceNumber_REQ
        CRLC_SequenceNumber_CNF
        HFN = MAX(HFN of DL/UL COUNT-C of RB2) + 1
CRLC_Config_REQ
        Release RB2
CRLC_Config_REQ
        Setup RB2
CRLC_SecurityMode_Config_REQ
        startValue = HFN calculated above
        cn_DomainIdentity = CS or PS
CRLC_Ciphering_Activate_REQ
        cipheringModeCommand = NULL (no ciphering status change)
        rb_DL_CiphActivationTimeInfo = now (RB2 only)
        incHFN = NotInc
CRLC_Ciphering_Activate_REQ
        rb_UL_CipheringActivationTimeInfo = now (RB2 only)
        incHFN = NotInc
```

4 Receive the response message

5 Re-establish all RBs and SRBs (except RB2) and re-initialize COUNT-C for all RBs and SRBs (except RB2)

```
CRLC_Config_REQ
        Release all RB's and SRB's (except RB2)
CRLC_Config_REQ
        Setup all RB's and SRB's (except RB2)
CRLC_SecurityMode_Config_REQ
        startValue = 0
        integrityKey = new key
        cn_DomainIdentity = CS or PS
CRLC_Ciphering_Activate _REQ
        cipheringModeCommand = Start/Restart (new algorithm)
        rb_DL_CiphActivationTimeInfo = now (except RB2)
        incHFN = NotInc
CRLC_Ciphering_Activate_REQ
        rb_UL_CiphActivationTimeInfo = now (except RB2)
        incHFN = NotInc
```

6 Re-initialize COUNT-I for all RBs and SRBs (except RB2)

```
CRLC_SecurityMode_Config_REQ
        startValue = 0 (new key)
        integrityKey = new key
        cn_DomainIdentity = CS or PS
```

```
CRLC_Integrity_Activate_REQ
        IntegrityProtectionModeCommand = Start (FRESH)
        IntegrityProtectionAlgorithm = selected value (downlink integrity protection starts
        immediately)
CRLC_Integrity_Activate_REQ
        ul_IntegProtActivationInfo = value (now)
```

8.5.4.5.3.3 Pending security configuration (no new key)

1 Before sending one of the SRNS relocation related messages

```
CRLC_SecurityMode_Config_REQ
        startValue = OMIT (no COUNT-I re-initialization)
        integrityKey = OMIT or value maintained by TTCN (no key change)
        cn_DomainIdentity = CS or PS
CRLC_Integrity_Activate_REQ
        SS_IntegrityProtectionModeCommand = Start (FRESH)
        IntegrityProtectionAlgorithm = selected value (downlink integrity protection starts
        immediately)
CRLC_Integrity_Activate_REQ
        ul_IntegProtActivationInfo = value (now)
```

2 Send one of the SRNS relocation related messages

3 Re-establish RB2 and re-initialize COUNT-C for RB2

```
CRLC_SequenceNumber_REQ
        CRLC_SequenceNumber_CNF
        HFN = MAX(HFN of DL/UL COUNT-C of RB2) + 1
CRLC_Config_REQ
        Release RB2
CRLC_Config_REQ
        Setup RB2
CRLC_SecurityMode_Config_REQ
        startValue = HFN calculated above
        n_DomainIdentity = CS or PS
CRLC_Ciphering_Activate_REQ
        if CIPHERING_STATUS= NotStarted
            cipheringModeCommand = NULL (no ciphering)
        if CIPHERING_STATUS = Started
            cipheringModeCommand = Start/Restart (existing algorithm)
        rb_DL_CiphActivationTimeInfo = now (RB2 only)
        incHFN = NotInc
CRLC_Ciphering_Activate_REQ
        rb_UL_CipheringActivationTimeInfo = now (RB2 only)
        incHFN = NotInc
```

4 Receive the response message

5 Re-establish all RBs and SRBs (except RB2) and re-initialize COUNT-C for all RBs and SRBs (except RB2)

```
CRLC_Config_REQ
        Release all RB's and SRB's (except RB2)
CRLC_Config_REQ
        Setup all RB's and SRB's (except RB2)
CRLC_SecurityMode_Config_REQ
        startValue = value received in the response mesage
        integrityKey = value maintained by TTCN
        cn_DomainIdentity = CS or PS
CRLC_ Ciphering_Activate _REQ
        cipheringModeCommand = Start/Restart (new algorithm)
        rb_DL_CiphActivationTimeInfo = now (except RB2)
CRLC_ Ciphering_Activate _REQ
        rb_UL_CiphActivationTimeInfo = now (except RB2)
```

6 Re-initialize COUNT-I for all RBs and SRBs (except RB2)

```
CRLC_SecurityMode_Config_REQ
        startValue = value received in the response message
        integrityKey = value maintained by TTCN
        cn_DomainIdentity = CS or PS
CRLC_Integrity_Activate_REQ
        IntegrityProtectionModeCommand = Start (FRESH)
        IntegrityProtectionAlgorithm = selected value (downlink integrity protection starts
        immediately)
```

```
    CRLC_Integrity_Activate_REQ
            ul_IntegProtActivationInfo = value (now)
```

8.5.4.6 CELL/URA update

8.5.4.6.1 RLC re-establish (RB2, RB3, RB4)

"RLC re-establish (RB2, RB3, RB4)" in CELL UPDATE CONFIRM message is set to TRUE CIPHERING_STATUS = Started for the CN domain concerned

1. After sending CELL UPDATE CONFIRM message, re-establish the RB2, RB3 and RB4 (if established)

```
    CRLC_SecurityMode_Config_REQ
            startValue = value received from CELL UPDATE message
            cipheringKey = value maintained by TTCN
            cn_DomainIdentity = CS or PS
    CRLC_Ciphering_Activate_REQ (CN domain concerned)
            cipheringModeCommand = Start/Restart (existing algorithm)
            rb_DL_CiphActivationTimeInfo = now (RB2, RB3, RB4)
            incHFN = NotInc
    CRLC_Ciphering_Activate_REQ (CN domain concerned)
            rb_UL_CipheringActivationTimeInfo = now (RB2, RB3, RB4)
            incHFN = NotInc
```

8.5.4.6.2 RLC re-establish (RAB)

"RLC re-establish (RB5 and upwards)" in CELL UPDATE CONFIRM message is set to TRUE CIPHERING_STATUS = Started for the CN domain concerned

1. After sending CELL UPDATE CONFIRM message, re-establish the RAB

```
    CRLC_SecurityMode_Config_REQ
            startValue = value received from CELL UPDATE message
            cipheringKey = value maintained by TTCN
            cn_DomainIdentity = CS or PS
    CRLC_Ciphering_Activate_REQ (CN domain concerned)
            cipheringModeCommand = Start/Restart (existing algorithm)
            rb_DL_CiphActivationTimeInfo = now (RB5 and upwards)
            incHFN = NotInc
    CRLC_Ciphering_Activate_REQ (CN domain concerned)
            rb_UL_CipheringActivationTimeInfo = now (RB5 and upwards)
            incHFN = NotInc
```

8.5.4.7 Inter RAT handover to UTRAN

8.5.4.7.1 ciphering has not been activated

ciphering has not been started in the radio access technology from which inter RAT handover is performed.TM mode radio bearer will be established in the UTRAN.

1. Sending HANDOVER TO UTRAN COMMAND in a RAT different from UTRAN

2. After receiving HANDOVER TO UTRAN COMPLETE message

```
    CMAC_SecurityMode_Config_REQ
            startValue = value received in HANDOVER TO UTRAN COMPLETE message
            cn_DomainIdentity = CS or PS
    CMAC_Ciphering_Activate_REQ (CN domain concerned)
            incHFN = NotInc
            cipheringModeCommand = NULL
            activationTimeForDPCH = now
    CRLC_SecurityMode_Config_REQ
            startValue = value received in HANDOVER TO UTRAN COMPLETE
            cn_DomainIdentity = CS or PS
    CRLC_Ciphering_Activate_REQ (CN domain concerned)
            cipheringModeCommand = NULL
            rb_DL_CiphActivationTimeInfo = now (RB1, RB2, RB3, RB4)
            incHFN = Inc    CRLC_Ciphering_Activate_REQ (CN domain concerned)
            rb_UL_CipheringActivationTimeInfo = now (RB1, RB2, RB3, RB4)
            incHFN = Inc
```

8.5.4.7.2 ciphering has been activated

ciphering has been started in the radio access technology from which inter RAT handover is performed.TM mode radio bearer will be established in the UTRAN.

1. Before sending HANDOVER TO UTRAN COMMAND

```
    CRLC_SecurityMode_Config_REQ
            startValue = "START" value included in the IE "UE security information" in the variable
"INTER_RAT_HANDOVER_INFO_TRANSFERRED"
            cipheringKey = value generated in authentication procedure in GRAN
            cn_DomainIdentity = CS or PS
    CRLC_Ciphering_Activate_REQ (CN domain concerned)
           cipheringModeCommand = Start/Restart (algorithm in HANDOVER TO UTRAN COMMAND)
            rb_DL_CiphActivationTimeInfo = now (RB1, RB2, RB3, RB4)
            incHFN = NotInc
    CRLC_Ciphering_Activate_REQ (CN domain concerned)
            rb_UL_CipheringActivationTimeInfo = now (RB1, RB2, RB3, RB4)
            incHFN = NotInc
    CMAC_SecurityMode_Config_REQ
            startValue = "START" value included in the IE "UE security information" in the variable
"INTER_RAT_HANDOVER_INFO_TRANSFERRED"
            cipheringKey = value generated in authentication procedure in GRAN
            cn_DomainIdentity = CS or PS
    CMAC_Ciphering_Activate_REQ (CN domain concerned)
            incHFN = NotInc
           cipheringModeCommand = Start/Restart (algorithm algorithm in HANDOVER TO UTRAN COMMAND)
            activationTimeForDPCH = now
```

2. Sending HANDOVER TO UTRAN COMMAND in a RAT different from UTRAN

3. After receiving HANDOVER TO UTRAN COMPLETE message

```
    CMAC_SecurityMode_Config_REQ
            startValue = value received in the response message
            cipheringKey = value maitained by TTCN
            cn_DomainIdentity = CS or PS
    CMAC_Ciphering_Activate_REQ (CN domain concerned)
           cipheringModeCommand = Start/Restart (algorithm) in HANDOVER TO UTRAN COMMAND)
            activationTimeForDPCH = value in "COUNT-C activation time"
            incHFN = IncByOne_IncPerCFN_Cycle
    CRLC_SecurityMode_Config_REQ
            startValue = value received in HANDOVER TO UTRAN COMPLETE
           cipheringKey = value generated in authentication procedure in GRAN
           cn_DomainIdentity = CS or PS
    CRLC_Ciphering_Activate_REQ (CN domain concerned)
            cipheringModeCommand = Start/Restart (algorithm in HANDOVER TO UTRAN COMMAND)
            rb_DL_CiphActivationTimeInfo = now (RB1, RB2, RB3, RB4)
            incHFN = Inc
    CRLC_Ciphering_Activate_REQ (CN domain concerned)
            rb_UL_CipheringActivationTimeInfo = now (RB1, RB2, RB3, RB4)
            incHFN = Inc
```

8.5.4.8 Hard handover

Ciphering is activated for any TM radio bearer;
"Downlink DPCH info for all RL" in a message performing timing re-initialized hard handover or;
"Downlink DPCH info for all RL" in a message other than RADIO BEARER SETUP tranfering UE to Cell_DCH from non-Cell_DCH state.

1. Before sending the message

```
    CMAC_SecurityMode_Config_REQ
            startValue = value most recently received
            cipheringKey = value maitained by TTCN
            cn_DomainIdentity = CS or PS
    CMAC_Ciphering_Activate_REQ (CN domain concerned)
            incHFN = NotInc
            cipheringModeCommand = Start/Restart (existing algorithm)
            activationTimeForDPCH = now
```

2. Send the message for hard HO

3. After receiving the response message

```
CMAC_SecurityMode_Config_REQ
        startValue = value received in the response message
        cipheringKey = value maitained by TTCN
        cn_DomainIdentity = CS or PS
CMAC_Ciphering_Activate_REQ (CN domain concerned)
        cipheringModeCommand = Start/Restart (existing algorithm)
        activationTimeForDPCH = value in "COUNT-C activation time"
        incHFN = IncByOne_IncPerCFN_Cycle
```

8.5.5 Test USIM configurations

The default test USIM is defined in 3GPP TS 34.108 [**Error! Reference source not found.**]. This clause specifies a number of specific test USIM configurations which are used for the concerned test cases.

8.5.5.1 Test USIM for Idle mode tests

The PLMN 1-12 identities used below have been defined in 3GPP TS 34.123-1 [**Error! Reference source not found.**], table 6.2. Clause numbers refer to 3GPP TS 34.123-1 [**Error! Reference source not found.**].

Test USIM is configured as bellow for PLMN selection of RPLMN, HPLMN, UPLMN and OPLMN in TC_6_1_1_1 and TC_6_1_1_4.

Table 110

USIM field	Priority	PLMN	Access Technology Identifier
EF_{LOCI}		PLMN 1	
$EF_{PLMNwAcT}$	1st	PLMN 3	UTRAN
	2nd	PLMN 4	UTRAN
$EF_{OPLMNwAcT}$	1st	PLMN 5	UTRAN
	2nd	PLMN 6	UTRAN
EF_{FPLMN}	PLMN 3		

Test USIM is configured as bellow for PLMN selection of PLMN selection of other PLMN with access technology combinations in TC_6_1_1_2 and TC_6_1_1_5.

Table 111

USIM field	Priority	PLMN	Access Technology Identifier
EF_{LOCI}		PLMN 1	
$EF_{HPLMNwAcT}$	1st	PLMN 2	UTRAN
$EF_{PLMNwAcT}$	1st	PLMN 3	UTRAN
	2nd	PLMN 4	UTRAN
$EF_{OPLMNwAcT}$	1st	PLMN 5	UTRAN
	2nd	PLMN 6	UTRAN
EF_{FPLMN}	PLMN 10		

Test USIM is configured as bellow for manual PLMN selection independent of RF level and preferred PLMN in TC_6_1_1_3.

Table 112

USIM field	Priority	PLMN	Access Technology Identifier
EF_{LOCI}			
$EF_{PLMNwAcT}$	1st	PLMN 3	UTRAN

Test USIM for emergency calls requires that all the BCCH cells belong to the same PLMN, which is not the UE's home PLMN and is in the USIM's forbidden PLMN's list. This specific USIM requirement applies to TC_6_1_2_6.

Test USIMs are configured as bellow for Selection of the correct PLMN and associated RAT in TC_6_2_1_1. Two test USIMs are needed for the test.

Table 113: USIM A

USIM field	Priority	PLMN	Access Technology Identifier
EF_{LOCI}			
$EF_{HPLMNwAcT}$	1st		GSM
$EF_{HPLMNwAcT}$	2nd		UTRAN

Table 114: USIM B

USIM field	Priority	PLMN	Access Technology Identifier
EF_{LOCI}			
$EF_{HPLMNwAcT}$	1st		UTRAN
	2nd		GSM

Test USIMs are configured as bellow for Selection of RAT for HPLMN in TC_6_2_1_2. Two test USIMs are needed for the test.

Table 115: USIM A

USIM field	Priority	PLMN	Access Technology Identifier
EF_{LOCI}		PLMN 1	
$EF_{HPLMNwAcT}$	1st		UTRAN
	2nd		GSM

Table 116: USIM B

USIM field	Priority	PLMN	Access Technology Identifier
EF_{LOCI}		PLMN 1	
$EF_{HPLMNwAcT}$	1st		UTRAN
	2nd		

Test USIMs are configured as bellow for Selection of RAT for HPLMN in TC_6_2_1_6. Two test USIMs are needed for the test.

Table 115a: USIM A

USIM field	Priority	PLMN	Access Technology Identifier
EF_{LOCI}		PLMN 1	
$EF_{HPLMNwAcT}$	1st		UTRAN
	2nd		GSM
$EF_{PLMNwAcT}$	1st	PLMN3	UTRAN

Table 116a: USIM B

USIM field	Priority	PLMN	Access Technology Identifier
EF_{LOCI}		PLMN 1	
$EF_{HPLMNwAcT}$	1st		UTRAN
	2nd		
$EF_{PLMNwAcT}$	1st	PLMN3	UTRAN

Test USIM for Selection of RAT for UPLMN or OPLMN in TC_6_2_1_3, TC_6_2_1_4, TC_6_2_1_7, TC_6_2_1_8 and for Selection of Other PLMN with access technology combinations"; Automatic mode in TC_6_2_1_9.

Table 117

USIM field	Priority	PLMN	Access Technology Identifier
EF_{LOCI}		PLMN 1	
$EF_{HPLMNwAcT}$	1st		UTRAN
	2nd		GSM
$EF_{PLMNwAcT}$	1st	PLMN 3	UTRAN
	2nd	PLMN 4	GSM
$EF_{OPLMNwAcT}$	1st	PLMN 5	UTRAN
	2nd	PLMN 6	GSM

Test USIM are configured as bellow for manual selection of other PLMN with access technology combinations in TC_6_2_1_5.

Table 118

USIM field	Priority	PLMN	Access Technology Identifier
EF_{LOCI}		PLMN 1	
$EF_{HPLMNwAcT}$	1st	PLMN 2	UTRAN
	2nd		GSM
$EF_{PLMNwAcT}$	1st	PLMN 3	UTRAN
	2nd	PLMN 4	GSM
$EF_{OPLMNwAcT}$	1st	PLMN 5	UTRAN
	2nd	PLMN 6	GSM
EF_{FPLMN}	PLMN 7		
	PLMN 12		

Test USIM for cell reselection if cell becomes barred or for cell reselection timings requires that the USIM does not contain any preferred RAT. This specific test USIM applies to TC_6_2_2_1, TC_6_2_2_2 and TC_6_2_2_3.

8.6 Downlink power setting in SS

Refer to 3GPP TS 34.108 [**Error! Reference source not found.**] clause 6.1.5.

8.7 Test suite operation definitions

8.7.1 Test suite operation definitions in the module BasicM

Table 119: TSO definitions in BasicM

TSO Name	Description

o_AuthRspChk	**Type of the result:** BOOLEAN
	Parameters:
	p_AuthRsp : AuthRsp
	p_AuthRspExt : AuthRspExt
	p_K : BITSTRING
	p_RAND : BITSTRING
	p_Ext : BOOLEAN
	
	Description
	Checks the input parameter p_AuthRsp and p_AuthRspExt, both received in an Authentication Response, according to the authentication algorithm defined in the following procedure.
	The extension, p_AuthRspExt, is optional. Its presence is indicated by p_Ext.
	Returns TRUE if the Authentication Response contained in parameters p_AuthRsp and eventually p_AuthRspExt is correct, FALSE otherwise.
	The value of tcv_Auth_n indicates whether the AuthRspExt has been provided by the UE or not (n=31, or 31 < n < 128). See 3GPP TS 34.108 [**Error! Reference source not found.**] clause 8.1.2.
	If not the parameter p_AuthRspExt is not to be used.
	
	Algorithm (without the knowledge of tcv_Auth_n):
	==========
	if NOT p_Ext EvaluateAuthRsp else EvaluateAuthRspAndAuthRspExt
	EvaluateAuthRsp:
	==========
	resultbitstring = o_BitstringXOR(XRES, AuthRsp)
	if resultbitstring is all 0s then there is a match.
	EvaluateAuthRspAndAuthRspExt:
	==========
	XREShigh = o_BitstringXtract(XRES, 32, 32, 0)
	/* XRES divides into 2 parts: the higher part of 32 bits related to AuthRsp and the lower part related to AuthRspExt */
	/* SourceLength of 32 is only to ensure usage of the procedure */
	resultbitstring = o_BitstringXOR(XREShigh, AuthRsp)
	if resultbitstring is all 0s then there is a match for the first 32 bits:EvaluateAuthRspExt
	else Authentication failed.
	EvaluateAuthRspExt:
	==========
	/* As AuthRespExt may not be octet aligned the last octet indicated in AuthRspExt is not used for checking */
	if (AuthRspExt.iel = 1)
	then Authentication passed
	/* there was only 1 possibly incomplete octet which is not used */
	else
	{
	AuthRspExthigh = o_BitstringXtract(AuthRspExt.authRsp, ((AuthRspExt.iel -1)* 8), (AuthRspExt.iel -1)* 8, 0)
	/* extract (AuthRspExt.iel -1)* 8 bits starting from bit 0 */
	XRESlow = o_BitstringXtract(XRES, ((AuthRspExt.iel -1)* 8 + 32), (AuthRspExt.iel -1)* 8, 32)
	/* extract (AuthRspExt.iel -1)* 8 bits starting from bit 32 */
	resultbitstring = o_BitstringXOR(XRESlow, AuthRspExthigh, (AuthRspExt.iel -1)* 8)
	if resultbitstring is all 0s then there is a match for the bits following the first 32 bits else Authentication failed

TSO Name	Description
o_BCD_ToInt	**Type of the result:** INTEGER **Parameters:** p_bcdstring:HEXSTRING **Description** The operation OC_BCDtoInt converts an HEXSTRING containing BCD coded digits to an integer representation of these relevant digits. EXAMPLE: OC_BCDtoInt('12345'H) := 12345
o_BitstringChange	**Type of the result:** BITSTRING **Parameters:** P_Str: BITSTRING p_Len: INTEGER p_Offset: INTEGER **Description** Performs the manipulation of a bitstring by toggling the bit identified by p_Offset. The length of the string to be manipulated is specified in p_Len. This is only provided to help ensure that the p_Offset is less than p_Len. Returns a resulting bitstring of length p_Len. EXAMPLE 1: o_BitstringChange('010101'B, 6, 5) produces '010100'B. EXAMPLE 2: o_BitstringChange('010101'B, 6, 0) produces '110101'B.
o_BitstringConcat	**Type of the result:** BITSTRING **Parameters:** P_Str1: BITSTRING p_Str2: BITSTRING p_Len1: INTEGER p_Len2: INTEGER **Description** Performs the concatenation of 2 bitstrings of possibly different lengths. The bit significance is from left to right, ie the MSB is at the lefthand side. Returns a resulting bitstring p_Str1 || p_Str2 of length p_ Len1 + p_Len. EXAMPLE: o_BitstringConcat('010101'B,'11'B) produces '01010111'B of length 6 + 2 = 8.
o_BitstringXOR	**Type of the result:** BITSTRING **Parameters:** P_Str1: BITSTRING p_Str2: BITSTRING p_Len: INTEGER **Description** Performs an XOR operation using 2 bitstrings of the same length (p_Len). Returns a resulting Bitstring of length p_Len. EXAMPLE: o_BitstringXOR('0011'B, '0101'B, 4) produces '0110'B.
o_BitstringXtract	**Type of the result**: BITSTRING **Parameters:** P_Str: BITSTRING p_SrcLen: INTEGER p_TargetLen: INTEGER p_Offset: INTEGER **Description** Performs the wrap around extract of a bitstring. The length of the string from which extraction is to be made is specified in p_SrcLen. The length of the bitstring to be extracted is indicated as p_TargetLen, the offset in the original string is indicated in p_Offset. The bit position 0 is at the left side. Returns a resulting bitstring of length p_TargetLen. EXAMPLE 1: o_BitstringXtract('101010'B, 6, 2, 1) produces '01'B. EXAMPLE 2: o_BitstringXtract('101010'B, 6, 4, 3) produces '0101'B, wrapping around. EXAMPLE 3: o_BitstringXtract('111000'B, 6, 4, 3) produces '0111'B, wrapping around.

TSO Name	Description
o_BitToOct	**Type of the result**: OCTETSTRING **Parameters:** p_Str: BITSTRING **Description** This TSO is used to convert the given BITSTRING into an OCTETSTRING. If the bitstring length is not a multiple of 8, 1 to 7 padding bits are added at the end to fill the final octet.
o_BMC_DrxScheduling	**Type of the result**: BMC_ResultOfSchedulingLevel2 **Parameters:** p_BMC_CBS_Message1 : BMCCBSMESSAGE p_BMC_CBS_Message2 : BMCCBSMESSAGE p_BMC_CB_RepPeriod : INTEGER p_BMC_NoOfBroadcast_Req : INTEGER p_Offset : BMC_DRX_Offset **Description** This TSO shall calculate all BMC CBS schedule Messages for the CBS messages as described in 3GPP TS 34.123-1, clause 7.4.3.1. The TSO has to precalculate the CTCH Block SETs needed, i.e. it shall have all necessary knowledge (RLC segmentation, MAC handling, if needed) to predict the CTCH with BMC contents for the given input to be sent. The TSO shall consider the BMC CBS Scheduling Level2 as described in 3GPP TS 25.324 [**Error! Reference source not found.**], 3GPP TR 25.925 [**Error! Reference source not found.**] and the description of BMC test architecture and test method in the present document, clause 6.8. The TSO calculates the BMC CBS Schedule messages to predict its next BlockSet to be sent. In addition, a DRX scheduling Bitmap is created for each CTCH allocated TTI alligned to the pre-calculated offset in between 2 CTCH Block Sets. The prinziple of DRX shall be followed by this TSO. I.e. BMC Messages shall be sent blockwise (CTCH Block Set) with predicted offset in between 2 Block Sets. The TSO shall consider the following aspects to calculate the DRX Selection Bitmap and to create the BMC CBS Schedule messages: 1. The first CTCH Block Set consists of the first BMC CBS Schedule message predicting the offset, length and content of the following Block Set where the BMC CBS Message1 shall be send as new message. 2. The BMC CBS Message1 shall be repeated for p_BMC_CB_RepPeriod multiplied by p_BMC_NoOfBroadcast_Req times before the BMC CBS Message2 is broadcasted. 3. The BMC CBS Schedule Messages shall be the last message of a CTCH Block Set, i.e. on the end of a Block Set. 4. If no further repetition of BMC CBS Messages is needed, no further BMC CBS Schedule message shall be created. output parameter: DrxSelectionBitmap: The TSO creates a Bitmap as Octetstring for scheduled CTCH allocated TTI as described in 3GPP TS 34.123-3: clause 6.8.2 BMC test method and architecture. CBS_Schedule_Message01, CBS_Schedule_Message02, CBS_Schedule_Message03:Considering the given BMC PDUs BMC_DRX_Offset and BMCCBSMESSAGE to be sent, the BMC Schedule messages have to be created according the given parameter.
o_CheckStringStartWith	**Type of the result:**BOOLEAN **Parameters:** p_SourceString: IA5String p_StartString : IA5String **Description** o_CheckStringStartWith returns TRUE if the p_sourceString start with the p_StartString. Otherwise it returns FALSE. EXAMPLE: o_CheckStringStartWith ("+CLCC:1,0,0,2,0;", "+CLCC:1,0,0")=TRUE */.

TSO Name	Description
o_ComputeSM_Contents	**Type of the result:** OCTETSTRING **Parameters:** p_NumOfChars: INTEGER **Description** This operation provides a short message's contents with a specified number of characters 'p_NumOfChars', each represented by 7 bits. As possibly different characters are sent, the characters are those corresponding to the 7-bit representation of 0, 1, 2, ... up to ('p_NumOfChars' - 1). If more than 128 characters are sent, the rest of the characters is the corresponding to 0, 1, ... up to ('p_NumOfChars' - 128 - 1), e.g. for 160 characters: 0, 1, ..., 127, 0, 1, ..., 31. The bits are arranged acc. to 3GPP TS 23.038 [**Error! Reference source not found.**], clause 6.1.2.1.1. max. 160 characters, i.e. 140 octets.
o_ComputeSM_ContentsSpec	**Type of the result:** OCTETSTRING **Parameters:** p_NumOfChars: INTEGER p_Text: IA5String **Description** This operation provides a short message's contents with a specified number of characters 'p_NumOfChars', each represented by 7 bits. 'p_Text' is used as contents of the short message. If 'p_Text' contains less than 'p_NumOfChars' characters, 'p_Text' is repeated until the short message reaches the 'p_NumOfChars' characters long.The bits are arranged acc. to 3GPP TS 23.038 [**Error! Reference source not found.**], clause 6.1.2.1.1. max. 160 characters, i.e. 140 octets.
o_ConcatStrg	**Type of the result:** IA5String **Parameters:** P_String1: IA5String p_String2: IA5String **Description** o_ConcatString concatenates 'p_String1' and 'p_String2' and returns the resulting string. EXAMPLE: o_ConcatString ("AT+CBST=0" , ",0") = "AT+CBST=0,0"
o_ConvertIMSI	**Type of the result:** IMSI_GSM_MAP **Parameters:** P_Imsi : HEXSTRING The input parameter `p_Imsi` is a BCD string (subset of HEXSTRING), the result is of type IMSI_GSM_MAP.
o_ConvertTMSI	**Type of the result:**TMSI_GSM_MAP **Parameters:** p_Tmsi : OCTETSTRING **Description** The input parameter 'p_Tmsi' is an OCTETSTRING; the result is of type TMSI_GSM_MAP.
o_ConvertPTMSI	**Type of the result:** P_TMSI_GSM_MAP **Parameters:** p_PTMSI : OCTETSTRING **Description** The input parameter `PTMSI` is a OCTETSTRING, the result is of type P_TMSI_GSM_MAP.

TSO Name	Description
o_ConvtPLMN	**Type of the result:**TMSI_GSM_MAP **Parameters:** OCTETSTRING p_MCC, p_MNC : HEXSTRING **Description** the functions of o_ConvtPLMN are as following: 1. The least significant HEX of p_MNC is removed from p_MNC and inserted into p_MCC in the position left to the third HEX to form a new p_MCC of 4 HEXs, then swap the first HEX (left most, most siginificant Hex) with the second HEX of the new p_MCC. 2. Swap the first Hex with the second HEX of the remaining part of p_MNC and append it to the new p_MCC formed in Step1 above. EXAMPLE 1: o_ConvtPLMN('123'H, '456'H) = '216354'O. EXAMPLE 2: o_ConvtPLMN ('234'H, '01F'H) = '32F410'O.
o_ConvtAndConcatStr	**Type of the result:**OCTETSTRING **Parameters:** p_MCC, p_MNC : HEXSTRING; p_LAC : OCTETSTRING; p_RAC : OCTETSTRING **Description** functions of o_ConvtAndConcatStr are as following: 1. The least significant HEX of p_MNC is removed from p_MNC and inserted into p_MCC in the position left to the third HEX to form a new p_MCC of 4 HEXs, then swap the first HEX (left most, most siginificant Hex) with the second HEX of the new p_MCC. 2. Swap the first Hex with the second HEX of the remaining part of p_MNC and append it to the new p_MCC formed in Step1 above. 3. Append p_LAC to the result of Step 2, this is the final result if p_RAC is omitted. 4. Append p_RAC to the result of Step 3, this is the final result. NOTE 1: Steps 1 and 2 are identical to o_ConvtPLMN. NOTE 2: If p_RAC is omitted, 5 octets of Location Area Identification are produced (for SysInfo sending). If p_RAC is not omitted, 6 octets of Routing Area Identification are produced (for SysInfo sending). EXAMPLE 1: o_ConvtAndConcatStr ('123'H, '456'H, '0001'O, '01'O) = '216354000101'O. EXAMPLE 2: o_ConvtAndConcatStr ('234'H, '01F'H, '0005'O, OMIT) = '32F4100005'O.
o_DrawRandomNo	**Type of the result:** INTEGER **Parameters:** p_LowerBound, p_UpperBound: INTEGER **Description** This operation draws a random number in the range of p_LowerBound and p_UpperBound.The result is in the range p_LowerBound, p_LowerBound+1, ..., p_UpperBound.
o_FirstDigit	**Type of the result:** B4 **Parameters:** p_BCDdigits : HEXSTRING **Description** The input parameter p_BCDdigits shall be a BCD string (subset of HEXSTRING), the resut is a BITSTRING[4] of a binary representation of one BCD digit. The function of the o_FirstDigit is to return the first (most significant) digit of the input parameter 'p_BCDdigits'. EXAMPLE 1: o_FirstDigit('12345') = '0001'B. EXAMPLE 2: o_FirstDigit('012345678') = '0000'B.

TSO Name	Description
o_GetBit	**Type of the result:** BITSTRING **Parameters:** p_Source: BITSTRING p_DataLength:INTEGER **Description** o_GetBit returns the BITSTRING of length p_DataLength extracted from p_Source. The extraction shall start in the bit position 0 (at the left).
3GPP TSG RAN WG5 (Testing)	**Type of the result:**OCTETSTRING **Parameters:** p_Start, p_N: INTEGER **Description** This operation returns N octets from a repeated pseudo random bit sequence, starting with octet position p_Start. The PRBS is the 2047 bit pseudo random test pattern defined in ITU-T Recommendation O.153 [**Error! Reference source not found.**] for measurements at 64 kbit/s and N x 64 kbit/s o_GetN_OctetsFromPRBS(p_Start, p_N) generates an OCTETSTRING containing p_N octets starting from octet number p_Start in the PRBS. Requirements p_Start ≥ 0 p_N ≥ 1 Definition Define the 2 047 bit PRBS sequence b(i) as an m-sequence produced by using the following primitive (over GF(2)) generator polynomial of degree 11: X^11 + X^9 + 1 This sequence is defined recursively as: b(i) = 1 , i = 0,1,...,10 b(i) = b(i - 2) + b(i - 11) modulo 2 , i = 11,16,...,2046 The OCTETSTRING, o(j) generated by the present TSO is produced by extracting p_N octets from the repeated sequence b(i) as follows: o(j,k) = b(((n_Start + j) * 8 + k) modulo 2047) where: j = 0,1,..,p_N - 1 k = 0,1,..7 o(j,k) is the kth bit of the jth octet in o(j), o(j,0) is the MSB of the jth octet in o(j), o(j,7) is the LSB of the jth octet in o(j), Example results: o_GetN_OctetsFromPRBS(0, 25) and o_GetN_OctetsFromPRBS(2047, 25) both return: 'FFE665A5C5CA3452085408ABEECE4B0B813FD337873F2CD1E2'O o_GetN_OctetsFromPRBS(255, 25) and o_GetN_OctetsFromPRBS(255 + 2047, 25) both return '01FFCCCB4B8B9468A410A81157DD9C9617027FA66F0E7E59A3'O
o_GetPI	**Type of the result:** BITSTRING **Parameters:** p_Imsi : **HEXSTRING** p_Np: INTEGER **Description** The PI is calculated as following: PI = drx_index mod np The drx_index is calculated as described hereafter: drx_index = (p_Imsi / 8192) This calculation is defined in 3GPP TS 25.304 [**Error! Reference source not found.**] clause 8.3. NOTE: The IMSI is passed as HEXSTRING, the relevant conversion shall be done.

TSO Name	Description
o_GetSC_TimeStamp	**Type of the result:** TP_ServCentreTimeSt **Parameters:** p_timezone : TZONES This operation provides the hexstring containing the Service Center Time Stamp (SCTS) according to 3GPP TS 23.040 [**Error! Reference source not found.**], clauses 9.2.2.1 and 9.2.3.11. The TSO reads the current time of the test systems clock and transforms the time in combination with the input parameter 'timezone' into a service center time stamp. Example: 2002 April 18, 15:32:46, timezone=4 o_GetSC_TimeStamp returns 20408151236440 TPSCTS is HEXSTRING[14]
o_HexToDigitsMCC	**Type of the result:**MCC **Parameters:** p_BCDdigits : HEXSTRING **Description** The input parameter p_BCDdigits shall be a BCD string (subset of HEXSTRING), the result is a SEQUENCE (SIZE(3)) OF digit (MCC). NOTE: The length of p_BCDdigits shall be 3. User shall take the responsibility of fulfilling this requirement. EXAMPLE 1: o_HexToDigitsMCC('111'H) = {1, 1, 1}. EXAMPLE 2: o_HexToDigitsMCC('123'H) = {1, 2, 3}.
o_HexToDigitsMNC	**Type of the result:**MNC **Parameters:** p_BCDdigits : HEXSTRING **Description** The function of this operation is: 1. The least significant HEX is removed if it is 'F' and the operation returns SEQUENCE (SIZE(2)) OF Digit. 2. The operation returns SEQUENCE (SIZE(3)) OF Digit if all 3 HEX digits in p_BCDdigits are BCD Digit. EXAMPLE 1: o_HexToDigitsMNC('123'H) = {1, 2, 3}. EXAMPLE 2: o_HexToDigitsMNC('13F'H) = {1, 3}.
o_HexToIA5	**Type of the result:** IA5String **Parameters:** p_String: HEXSTRING **Description** o_HEX_TO_IA5 converts hexadecimal string 'p_String' to an IA5 String EXAMPLE: o_HEX_TO_IA5 ('15A'H) = "15A".
o_IA5_ToOct	**Type of the result:**OCTETSTRING **Parameters:** p_String : IA5String **Description** o_IA5_ToOct converts the string p_String from IA5String type to OCTETSTRING. Each character is mapped onto an octet, and bit 8 is set to 0. This TSO shall be used to convert Access Point Numbers for example. See 3GPP TS 24008, clause 10.5.6.1 EXAMPLE: o_IA5_ToOct ("15A") = '313541'O.

TSO Name	Description
o_IA5_BMC_ToOct	**Type of the result:**OCTETSTRING **Parameters:** p_String :IA5String_BMC p_DCS: TP_DataCodingScheme **Description** o_IA5_BMC_ToOct converts the string p_String from IA5String_BMC type to OCTETSTRING. p_DCS determines how this is done (refer to 3GPP TS 23.038 [**Error! Reference source not found.**] clause 5). If a 7 bit packing is to be applied then proceed as described in 3GPP TS 23.038 [**Error! Reference source not found.**] clause 6.1.2.2.1 and clause 6.2.1. This is the default case. If 8bit data is to be used then proceed as described in 3GPP TS 23.038 [**Error! Reference source not found.**] clause 6.2.2. If UCS2is to be used then proceed as described in 3GPP TS 23.038 [**Error! Reference source not found.**] clause 6.2.3. The type IA5_BMC implies that the length of p_String is restricted to 1 246 octets. (Refer to 3GPP TS 23.041 [**Error! Reference source not found.**], 3GPP TS 23.038 [**Error! Reference source not found.**], 3GPP TS 25.324 [**Error! Reference source not found.**]) EXAMPLE 1: o_IA5_ BMC_ToOct ("15A", '0F'O) = 'B15A10'O ('0F'O is the default codepoint, GSM 7 bit packed). EXAMPLE 2: o_IA5_ BMC_ToOct ("15A", '00'O) = 'B15A10'O (German Language, GSM 7 bit packed). EXAMPLE 3: o_IA5_ BMC_ToOct ("15A", '01'O) = 'B15A10'O (English Language, GSM 7 bit packed). EXAMPLE 4: o_IA5_ BMC_ToOct ("15A", 'F0'O) = 'B15A10'O (Data coding, no msg class, GSM 7 bit packed). EXAMPLE 5: o_IA5_ BMC_ToOct ("15A", 'F1'O) = 'B15A10'O (Data coding, class 1, GSM 7 bit packed). EXAMPLE 6: o_IA5_ BMC_ToOct ("15A", 'F2'O) = <8 bit data is user defined> (Data coding, no msg class, 8 bit data).
o_IA5_IP_ToOct	**Type of the result:**OCTETSTRING **Parameters:** p_String: IA5String p_IP_V4: BOOLEAN **Description** o_IA5_IP_ToOct converts the string p_String from IA5String type to OCTETSTRING. p_String represents an IP address consisting of a number of fields of digits, separated by dots. Each one of the numbers of which the IP address consists is converted into one octet. The dots separating the numbers are ignored. p_IP_V4 is a BOOLEAN. When TRUE, an IP Version 4 address is to be converted, the maximum length of which is 4 octets, otherwise an IP Version 6 address is to be converted, the maximum length of which is 16 octets. See 3GPP TS 24.008 [**Error! Reference source not found.**], clause 10.5.6.4. EXAMPLE 1: o_IA5_IP_ToOct ("200.1.1.80", TRUE) = 'C8010150'O. EXAMPLE 2: o_IA5_IP_ToOct ("200.1.1.80.100", TRUE) should result in an appropriate error message. EXAMPLE 3: o_IA5_IP_ToOct ("300.1.1.80", TRUE) should result in an appropriate error message.
o_IA5_DigitsToOct	**Type of the result:**OCTETSTRING **Parameters:** p_String: IA5String **Description** o_IA5_DigitsToOct converts the string p_String from IA5String type to OCTETSTRING. Each pair of characters is considered a pair of numbers to be mapped onto 1 octet. Each character of p_String shall represent a digit (0..9). In case the number of characters is odd, then a filler '1111'B is used to fill the last octet required to represent the digits. See 3GPP TS 24.008 [**Error! Reference source not found.**], clause 10.5.4.7.

TSO Name	Description
	EXAMPLE 1: o_IA5_DigitsToOct ("0613454120") = '6031541402'O. EXAMPLE 2: o_IA5_DigitsToOct ("06134541209") = '6031541402F9'O. EXAMPLE 3: o_IA5_DigitsToOct ("A6134541209") should result in an appropriate error message.
o_IntToOct	**Type of the result:**OCTETSTRING **Parameters:** p_N : INTEGER p_L: INTEGER **Description** o_IntToOct converts the INTEGER `p_N` into OCTETSTRING with length = 'p_L'. EXAMPLE 1: o_IntToOct(14,1) = '0E'O. EXAMPLE 2: o_IntToOct(18,1) = '12'O. EXAMPLE 3: o_IntToOct(18,2) = '0012'O.
o_IntToIA5	**Type of the result:**IA5String **Parameters:** p_N : INTEGER; p_L: INTEGER **Description** o_IntToIA5 converts the INTEGER `p_N` into IA5 String with length = 'p_L'. EXAMPLE 1: o_IntToIA5(160,3) = "160"; EXAMPLE 2: o_IntToIA5(160,4) = " 160"; EXAMPLE 3: o_IntToIA5(160,2) = "60".
o_OctetstringConcat	**Type of the result:**OCTETSTRING **Parameters:** p_Str1, p_Str2: OCTETSTRING **Description** o_OctetstringConcat Performs the concatenation of 2 octetstrings of possibly different lengths. The octet significance is from left to right, i.e. the MSB is at the lefthand side. Returns a resulting octetstring p_Str1 || p_Str2. EXAMPLE: o_OctetstringConcat('135'O, '9A38'O) = '1359A38'O.
o_OctToBit	**Type of the result:** BITSTRING **Parameters:** p_OctetStr: OCTETSTRING **Description** Converts an OCTETSTRING into a BITSTRING. The size of the resulting BITSTRING is 8 times the size of the input OCTETSTRING.
o_OctToInt	**Type of the result:** INTEGER **Parameters:** p_oct : OCTETSTRING **Description** Transform an OCTETSTRING of length 1 to 4 into an unsigned 32 bits IINTEGER value. If the input octet string is larger than 4, then only the first 4 octets shall be considered.
o_OctToIA5	**Type of the result:** IA5String **Parameters:** p_String: OCTETSTRING **Description** o_OctToIA5 converts hexadecimal string 'p_String' to an IA5 String EXAMPLE: o_OctToIA5 ('2A15AF'O) = "2A15AF".

TSO Name	Description
o_OeBit	**Type of the result:**BITSTRING **Parameters:** p_BCDdigits: HEXSTRING **Description** The input parameter 'p_BCDdigits' is a BCD string (subset of HEXSTRING), the result is BITSTRING[1]. The function of the o_OeBit is as the follows: 1. It returns '1'B, if the length of the 'p_BCDdigits' is odd. 2. It returns '0'B, if the length of the 'p_BCDdigits' is even. EXAMPLE 1: o_OeBit('12583') = '1'B. EXAMPLE 2: o_OeBit('87259957') ='0'B.
o_OtherDigits	**Type of the result:**OCTETSTRING **Parameters:** p_BCDdigits : HEXSTRING **Description** The input parameter ` p_BCDdigits ` is a BCD string (subset of HEXSTRING), the result is an even string of BCD digits, with eventually a filler 'F'H used. */ The function of the o_OtherDigits is as the follows: 1. If the number of the 'p_BCDdigits' is odd, the operation removes the most significant digit, and then reverses the order of each pair of digits. 2. If the number of the 'p_BCDdigits' is even, first the operation suffixes the `bcddigits` with 'F'H, then removes the most significant digit, and then reverses the order of each pair of digits. EXAMPLE 1: o_OtherDigi('12345') = '3254', EXAMPLE 2: o_OtherDigi('12345678') ='325476F8'. See o_FirstDigit for the handling of the first digit.
o_RoutingParameterIMSIResponsePaging	**Type of the result**: RoutingParameter **Parameters:** p_IMSI : HEXSTRING **Description** The input parameter p_Imsi is a BCD string (subset of HEXSTRING), the result is of type RoutingParameter. The tso returns the RoutingParameter, which consists of DecimalToBinary [(IMSI div 10) mod 1000]. The bits of the result are numbered from b0 to b9, with bit b0 being the least significant.
o_SendInSameFrame	**Type of the result:** BOOLEAN **Parameters:** p_NumberMsg : INTEGER **Description** o_SendInSameFrame is called to request SS to send the p_NumberMsg messages in the same frame. Then it returns TRUE.

TSO Name	Description

o_SIB_PER_Encoding	**Type of the result:**BITSTRING
	Parameters:
	p_SIB : SIB
	
	Description
	It returns the unaligned PER encoding (BIT STRING) of the input system information block p_SIB (without "Encoder added (1-7) bits padding"). The bits corresponding to the encoding of the CHOICE of the SIB type shall be removed.
	Example:
	for the following SIBType1 value:
	`SysInfoType1 ::=`
	`{ cn-CommonGSM-MAP-NAS-SysInfo '32F4100001'H,`
	`cn-DomainSysInfoList`
	`{ { cn-DomainIdentity ps-domain,`
	`cn-Type gsm-MAP : '0000'H,`
	`cn-DRX-CycleLengthCoeff 7},`
	`{cn-DomainIdentity cs-domain,`
	`cn-Type gsm-MAP : '0001'H,`
	`cn-DRX-CycleLengthCoeff 7}},`
	
	`ue-ConnTimersAndConstants`
	`{ t-304 ms100,`
	`n-304 7,`
	`t-308 ms40,`
	`t-309 8,`
	`t-313 15,`
	`n-313 s200,`
	`t-314 s20,`
	`t-315 s1800,`
	`n-315 s1000},`
	`ue-IdleTimersAndConstants`
	`{ t-300 ms400,`
	`n-300 7,`
	`t-312 10,`
	`n-312 s200},`
	`nonCriticalExtensions { }`
	`}`
	The operation returns BITSTRING:
	"10000110010111101000010000000000000000001011000100000000000000000100001000000000000000010100001100110000011111000001110011111111111111111110101111010011"

o_SIB_Segmentation	**Type of the result:** SegmentsOfSysInfoBlock **Parameters:** p_SIBBitString : BITSTRING **Description** The function of the o_SIB_Segmentation is as following: 1. If the p_SIBBitString is less than or equal to 226 bits, the bit string is fit into a complete segment. If the segment is less than 226 bits but more than 214 bits,the segment shall be padded to 226 bits long with padding bits set to '0'B. 2. If the input operand p_SIBBitString is longer than 226 bits it is segmented from left to right into segments, each segment except the last one is 222 bits. The last segment may be 222 bits or shorter. If the length of last segment is greater than 214 bits pad it to 222 bits with padding bits set to '0'B. 3. The number of segments is assigned to segCount field of the result. 4. The first segment is assigned to seg1 field of the result, the second segment is assigned to the seg2 field of the result, the third segment is assigned to the seg3 field of the result, and so on till the last segment.

TSO Name	Description
o_SIB_SegmentationFirstSpecial	**Type of the result:** SegmentsOfSysInfoBlock **Parameters:** p_SIB_BitString : BITSTRING p_FirstSegLength : INTEGER **Description** The function of the o_SIB_Segmentation_FirstShort is as following: 1. If the p_SIB_BitString is less than or equal to p_FirstSegLength bits, the bit string is fit into one segment. 2. If the input operand p_SIB_BitString is longer than p_FirstSegLength bits it is segmented from left to right into segments, each segment except the first one and the last one is 222 bits . The first one is p_FirstSegLength long. The last segment may be 222 bits or shorter. If the length of last segment is greater than 214 bits pad it to 222 bits with padding bits set to '0'B. 3. The number of segments is assigned to segCount field of the result. 4. The first segment is assigned to seg1 field of the result, the second segment is assigned to the seg2 field of the result, the third segment is assigned to the seg3 field of the result, and so on till the last segment. 5. The value of parameter p_FirstSegLength shall be less than 197.
o_CheckPDUsAcknowledged	**Type of the result:** BOOLEAN **Parameters:** p_NackList: NackList Contains a list of integers (possibly empty), each of which corresponds to a PDU SN. Negative acknowledgement is expected for each of these PDUs. p_FSN: INTEGER Contains an integer representing the first SN expected to be acknowledged. p_LSN: INTEGER Contains an integer representing the last SN expected to be acknowledged. p_SUFI_List: SuperFields This parameter contains the received SUFI list to be checked. **Description:** This TSO is used to check that the given SUFI list contains any combination of SUFIs that fulfils the following requirements: 1. Negatively acknowledges all PDUs whose sequence numbers are in p_NackList. Note that the list may be empty. 2. Positively acknowledges all other PDUs with sequence numbers greater thatn or equal to p_FSN, and less than or equal to p_LSN. **Output:** This TSO returns a BOOLEAN value of TRUE if the SUFI list meets all of the requirements based on the given parameters. Otherwise the TSO returns FALSE.

8.7.1.1 Specific test suite operation for RLC defined in BasicM

This TSO is defined in BasicM, it is used by RLC and MAC ATSs.

Table 120: TSO definitions for RLC SUFI handling

TSO Name	Description
o_SUFI_Handler	**Type of the result:** ResAndSUFIs **Parameters:** p_SUFI_Params: SUFI_Params p_SUFI_String: HEXSTRING **Conditions**: Inputs: p_SUFI_Params: the list of checking criteria to be applied by the TSO p_SUFI_String: the HEXSTRING received containing the SUFIs Outputs: the BOOLEAN result of the TSO: TRUE if all checking and the filling of the SuperFields structure were successful; FALSE otherwise; in this case the TSO shall produce sufficient output to allow problem analysis

Table 121: ResAndSUFIs type and Processing of the SUFI parameters input to the TSO

Parameter	Type	Setting	Meaning	Comment
Lower Bound (**LB)** Upper Bound (**UB)**	BITSTRING [12]	OMIT	Do not use !	
		AnyOrOmit	Do not use !	
		Any	Do not use !	
		Value	Use !	
NackList Element i (**Nacki)**	BITSTRING [12]	OMIT	Do not use !	
		AnyOrOmit	Do not use !	
		Any	Do not use !	
		Value	Use !	Check negative ack
Window Size SUFI presence (**WSN_ presence)**	BOOLEAN	OMIT	Use !	Check absence
		AnyOrOmit	Do not use !	
		Any	Use !	Check presence
		Value	Use !	Check presence
MRW SUFI presence (**MRW_ presence)**	BOOLEAN	OMIT	Use !	Check absence
		AnyOrOmit	Do not use !	
		Any	Use !	Check presence
		Value	Use !	Check presence

8.7.1.1.1 Pseudocode in a C like notation

The pseudocode defined below can be written in a more compact fashion. The code herafter is to allow easy identification of the TSO's tasks. All situations leading to a FALSE result must produce a log. This is not shown in the code hereafter. Possible wrap arounds are not shown in this section. These have to be accounted for at the appropriate places.

```
/* INITIALIZATION */
Initialize_ResAndSUFIs();                       /* RESULT := TRUE, all SUFI fields are AnyOrOmit */

/* EXTRACTION OF SUFIs AND TRANSFER INTO THE TTCN SUFI STRUCUTRE */
i = 0;
if (p_SUFI_String == NULL)
{
RESULT := FALSE;                                /* No SUFIs -> Result is FALSE */
RETURN;
}
SUFI := Extract_SUFI(i);                        /* Let n SUFI be numbered from 0 to n-1 */
while (SUFI != NULL)                            /* TRUE when there is a SUFI */
{
```

```
    Set_SUFI_ListRec(SUFI);                     /* Put the SUFI at the correct place in the
resulting */
/* SUFI structure; overwrite if the SUFI type has */
/* already been extracted except LIST SUFIs which all are to be collected */
    i++;
    SUFI := Extract_SUFI(i);                    /* Get next SUFI */
}

/* FOR ALL SUFI TYPES: IF EXISTING, PERFORM CONSISTENCY CHECK */
if Exists_SUFI (ACK) AND NOT CheckConsistency (ACK)
RESULT := FALSE;                                /* ACK SUFI inconsistent -> Result is FALSE */
.....
if Exists_SUFI (WINDOW) AND NOT CheckConsistency (WINDOW)
RESULT := FALSE;                                /* WINDOW SUFI inconsistent -> Result is FALSE */


/* TAKE THE INDIVIDUAL CHECKING PARAMETERS & PERFORM THE EXPECTED CHECKING */
/* PART 1: EXISTENCE CHECKS */
if ((WSN_presence == Any) OR (WSN_presence == TRUE) OR (WSN_presence == FALSE)) AND NOT
Exists_SUFI(WINDOW)
RESULT := FALSE;                                /* WINDOW not ex. but should -> Result is FALSE */
if ((MRW_presence == Any) OR (MRW_presence == TRUE) OR (MRW_presence == FALSE)) AND NOT
Exists_SUFI(MRW)
RESULT := FALSE;                                /* MRW not ex. but should -> Result is FALSE */


/* PART 2: RANGE AND NACK CHECKS OF SUFI CONTENTS*/
/* ACK: LB <= LSN received <= UB */
if NOT (LB <= Extract_SUFI_Value(ACK) -1 AND Extract_SUFI_Value(ACK) -1 <= UB)
RESULT := FALSE;                                /* ACK value not in the expected range */
                                                /* LB: first SN acceptable as LSN received */
                                                /* UB: last SN acceptable as LSN received */
                                                /* LSN received acks SNs upto LSN received -1 */


/* Bitmap */
/* for all SNs between between LB and UB */
{
if (ExtractBitmap(FSN extracted, LENGTH extracted, Bitmap extracted, SN) == 1) AND (SN in NackList)
RESULT := FALSE;                                /* if the bit in the Bitmap is not 0 */
if (ExtractBitmap(FSN extracted, LENGTH extracted, Bitmap extracted, SN) == 0) AND (SN NOT in
NackList)
RESULT := FALSE;                                /* if the bit in the Bitmap is not 0 */
}


/* LIST */
/* The (SNi,Li) pairs identify AMD PDUs which have not been correctly received. */
/* Therefore the (SNi,Li) pairs have to be consistent with the NackList. */
/* The (SNi,Li) pairs may be contained in multiple LIST SUFIs conveyed in one STATUS PDU */

/* RLIST */

/* The CWs represent the distance between the previous indicated erroneous AMD PDU */
/* up to and including the next erroneous AMD PDU, starting from the FSN contained in the RLIST
SUFI. */
/* Therefore the FSN and the Codewords have to be consistent with the NackList. */
/* Error burst indicator has to be treated as a separate case. May not have to be implemented
currently. */
/* MRW */
/* LENGTH = 0 */
/* 1 SN_MRWi is present and the RLC SDU to be discarded extends above the configured transmission
window in the sender */
/* LENGTH = 1 ... 15 */
/* 1 ...15 SN_MRWi */
/* a) MRW configured ➔ an SN_MRWi indicates the end of each discarded RLC SDU */
/* n SN_MRWs ➔ n RLC SDUs discarded */
/* b) MRW not configured ➔ an SN_MRWi indicates end of last RLC SDU to be discarded */
/* in the receiver */

/* To be implemented as far as required by the RLC ATS */
/* MRW ACK */
/* The SN_ACK must be consistent with the information sent in a previous MRW SUFI upon which the */
/* MRW_ACK represents the answer. */
/* NO MORE */
/* no checking required */
/* SUBFUNCTIONS USED*/
Check_Consistency (SUFI_type)                   /* returns TRUE when the type fulfills the */
```

```
/* requirements of the spec. TS 25.322*/
Exists_SUFI (SUFI_type)                          /* returns TRUE when the specified */

/* type has been extracted, therefore exists*/
ExtractBitmap(FSN extracted, LENGTH extracted, Bitmap extracted, Criterion)
                                        /* Extract the value in the Bitmap at position Criterion */
                                        /* Calculation based on information receivd in the */
                                        /* Bitmap SUFI */
Extract_SUFI (Counter)                  /* returns the SUFI extracted at position counter */

/* from the input p_SUFI_String; */
/* n SUFIs from positions 0 to n-1 */
/* returns NULL if there is no further SUFI */
Extract_SUFI_Value (SUFI_type, field_type )     /* extract the value of specific field type */

/* contained in a specific SUFI type */
/* There will be several flavours depending upon the */
/* result (field) type */
Initialize_ResAndSUFIs ()                       /* Initialize RESULT and all SUFI fields */
Set_SUFI_ListRec(SUFI)                          /* set return values RESULT and */
                                                /* SUFI structure SUFI_ListRec */
```

8.7.2 Specific test suite operation definitions for Multi RAT Handover testing

Table 122: TSO definitions for Multi RAT handover

TSO Name	Description
o_O_CheckClassmark3	**Type of the result:** BOOLEAN **Parameters:** p_FromUE : OCTETSTRING p_FDD, p_TDD, p_P_GSM_900_BAND, p_E_GSM_900_BAND : BOOLEAN p_R_GSM_900_BAND, p_DCS_1800_BAND, p_GSM_450_BAND : BOOLEAN p_GSM_480_BAND, p_GSM_850_BAND, p_TypeGSMClass2 : BOOLEAN p_TypeGSMClass3, p_TypeGSMClass4, p_TypeGSMClass5 : BOOLEAN p_TypeDCSClass1, p_TypeDCSClass2, p_TypeDCSClass3 : BOOLEAN p_TypePCSClass1, p_TypePCSClass2, p_TypePCSClass3 : BOOLEAN p_TypeGSM850Class2, p_TypeGSM850Class3, p_TypeGSM850Class4 : BOOLEAN p_TypeGSM850Class5, p_DTM_Multislotclass5, p_DTM_Multislotclass9 : BOOLEAN p_DTM_SingleSlotAllocation, p_EOTD_Assist, p_A_GPS_Assist : BOOLEAN p_A_GPS_Based, p_Conv_GPS, p_EOTD_Based : BOOLEAN p_MultiSlotClass, p_EGPRS_MultiSlotClass : B5 p_SMS_Value, p_SM_Value, p_GSM400_RadioCapability : B4 p_RGSM_RadioCapability : B3 p_DTM_EGPRS_MultiSlotSubClass, p_EDGEPwrCap1, p_EDGEPwrCap2 : B2 p_MS_ClsmkA5_4, p_MS_ClsmkA5_5, p_MS_ClsmkA5_6, p_MS_ClsmkA5_7 : B1 p_CDMA2000, p_ExtMeasCap, p_ModulationCapability, p_UCS2Treatment : B1 **Description** This is exactly the same as o_P_CheckClassmark3 except the first parameter is different. This version is used when UE sends an OCTETSTRING in UE Capability Information To check each bit of the received octetstring from the UE against the CSN.1 format constraint. The format of the Classmark3 IE is as follows: <Classmark 3 Value part> ::= < spare bit > {< Multiband supported : { 000 } > < A5 bits > |< Multiband supported : { 101 | 110 } > < A5 bits > < Associated Radio Capability 2 : bit(4) > < Associated Radio Capability 1 : bit(4) > |< Multiband supported : { 001 | 010 | 100 } > < A5 bits > < spare bit >(4) < Associated Radio Capability 1 : bit(4) > }

TSO Name	Description
	{ 0 | 1 < R Support > } { 0 | 1 < Multi Slot Capability > } < UCS2 treatment: bit > < Extended Measurement Capability : bit > { 0 | 1 < MS measurement capability > } { 0 | 1 < MS Positioning Method Capability > } { 0 | 1 < EDGE Multi Slot Capability > } { 0 | 1 < EDGE Struct > } { 0 | 1 < GSM 400 Bands Supported : { 01 | 10 | 11 } > < GSM 400 Associated Radio Capability: bit(4) > } { 0 | 1 <GSM 850 Associated Radio Capability : bit(4) > } { 0 | 1 <GSM 1900 Associated Radio Capability : bit(4) > } < UMTS FDD Radio Access Technology Capability : bit > < UMTS TDD Radio Access Technology Capability : bit > < CDMA 2000 Radio Access Technology Capability : bit > { 0 | 1 < DTM GPRS Multi Slot Sub-Class : bit(2) > < Single Slot DTM : bit > { 0 | 1< DTM EGPRS Multi Slot Sub-Class : bit(2) > } } { 0 | 1 < Single Band Support > } < spare bit >** ; < A5 bits > ::= < A5/7 : bit > < A5/6 : bit > < A5/5 : bit > < A5/4 : bit > ; <R Support>::= < R-GSM band Associated Radio Capability : bit(3) > ; < Multi Slot Capability > ::= < Multi Slot Class : bit(5) > ; < MS Measurement capability > ::= < SMS_VALUE : bit (4) > < SM_VALUE : bit (4) > ; < MS Positioning Method Capability > ::= < MS Positioning Method : bit(5) > ; < EDGE Multi Slot Capability > ::= < EDGE Multi Slot Class : bit(5) > ; <EDGE Struct> : := < Modulation Capability : bit > { 0 | 1 < EDGE RF Power Capability 1: bit(2) > } { 0 | 1 < EDGE RF Power Capability 2: bit(2) > } ; < Single Band Support > ::= < GSMBand : bit(4) > ;
o_P_CheckClassmark3	**Type of the result:** BOOLEAN **Parameters:** p_FromUE : MSCLSMK3 p_FDD, p_TDD, p_P_GSM_900_BAND, p_E_GSM_900_BAND : BOOLEAN p_R_GSM_900_BAND, p_DCS_1800_BAND, p_GSM_450_BAND : BOOLEAN p_GSM_480_BAND, p_GSM_850_BAND, p_TypeGSMClass2 : BOOLEAN p_TypeGSMClass3, p_TypeGSMClass4, p_TypeGSMClass5 : BOOLEAN p_TypeDCSClass1, p_TypeDCSClass2, p_TypeDCSClass3 : BOOLEAN p_TypePCSClass1, p_TypePCSClass2, p_TypePCSClass3 : BOOLEAN p_TypeGSM850Class2, p_TypeGSM850Class3, p_TypeGSM850Class4 : BOOLEAN p_TypeGSM850Class5, p_DTM_Multislotclass5, p_DTM_Multislotclass9 : BOOLEAN p_DTM_SingleSlotAllocation, p_EOTD_Assist, p_A_GPS_Assist : BOOLEAN p_A_GPS_Based, p_Conv_GPS, p_EOTD_Based : BOOLEAN p_MultiSlotClass, p_EGPRS_MultiSlotClass : B5 p_SMS_Value, p_SM_Value, p_GSM400_RadioCapability : B4 p_RGSM_RadioCapability : B3 p_DTM_EGPRS_MultiSlotSubClass, p_EDGEPwrCap1, p_EDGEPwrCap2 : B2 p_MS_ClsmkA5_4, p_MS_ClsmkA5_5, p_MS_ClsmkA5_6, p_MS_ClsmkA5_7 : B1 p_CDMA2000, p_ExtMeasCap, p_ModulationCapability, p_UCS2Treatment : B1 **Description** This is exactly the same as o_O_CheckClassmark3 except the first parameter is different. This version is used when UE sends the MSCLSMK3 PDU in CLASSMARK CHANGE To check each bit of the received octetstring from the UE against the CSN.1 format constraint. The format of the Classmark3 IE is as follows: <Classmark 3 Value part> ::=

TSO Name	Description
	< spare bit > {< Multiband supported : { 000 } > < A5 bits > |< Multiband supported : { 101 | 110 } > < A5 bits > < Associated Radio Capability 2 : bit(4) > < Associated Radio Capability 1 : bit(4) > |< Multiband supported : { 001 | 010 | 100 } > < A5 bits > < spare bit >(4) < Associated Radio Capability 1 : bit(4) > } { 0 | 1 < R Support > } { 0 | 1 < Multi Slot Capability > } < UCS2 treatment: bit > < Extended Measurement Capability : bit > { 0 | 1 < MS measurement capability > } { 0 | 1 < MS Positioning Method Capability > } { 0 | 1 < EDGE Multi Slot Capability > } { 0 | 1 < EDGE Struct > } { 0 | 1 < GSM 400 Bands Supported : { 01 | 10 | 11 } > < GSM 400 Associated Radio Capability: bit(4) > } { 0 | 1 <GSM 850 Associated Radio Capability : bit(4) > } { 0 | 1 <GSM 1900 Associated Radio Capability : bit(4) > } < UMTS FDD Radio Access Technology Capability : bit > < UMTS TDD Radio Access Technology Capability : bit > < CDMA 2000 Radio Access Technology Capability : bit > { 0 | 1 < DTM GPRS Multi Slot Sub-Class : bit(2) > < Single Slot DTM : bit > { 0 | 1< DTM EGPRS Multi Slot Sub-Class : bit(2) > } } { 0 | 1 < Single Band Support > } < spare bit >** ; < A5 bits > ::= < A5/7 : bit > < A5/6 : bit > < A5/5 : bit > < A5/4 : bit > ; <R Support>::= < R-GSM band Associated Radio Capability : bit(3) > ; < Multi Slot Capability > ::= < Multi Slot Class : bit(5) > ; < MS Measurement capability > ::= < SMS_VALUE : bit (4) > < SM_VALUE : bit (4) > ; < MS Positioning Method Capability > ::= < MS Positioning Method : bit(5) > ; < EDGE Multi Slot Capability > ::= < EDGE Multi Slot Class : bit(5) > ; <EDGE Struct> : := < Modulation Capability : bit > { 0 | 1 < EDGE RF Power Capability 1: bit(2) > } { 0 | 1 < EDGE RF Power Capability 2: bit(2) > } ; < Single Band Support > ::= < GSMBand : bit(4) > ;
o_PacketPagingGroupCalculate	**Type of the result:** INTEGER **Parameters:** IMSI : HEXSTRING KC_Conf : INTEGER M : INTEGER N : INTEGER SplitPGCycle : B8 **Description:** It returns the calculated Packet Paging Group, according to: PAGING_GROUP (0 ... M-1) = (((IMSI mod 1000) div (KC*N)) * N + (IMSI mod 1000) mod N + Max((m * M) div SPLIT_PG_CYCLE, m)) mod M for m = 0, ... , Min(M, SPLIT_PG_CYCLE) -1 where KC = number of (P)CCCH in the cell = BS_PCC_CHANS for PCCCH or BS_CC_CHANS

TSO Name	Description
	for CCCH M = number of paging blocks "available" on one (P)CCCH = (12 - BS_PAG_BLKS_RES - BS_PBCCH_BLKS) * 64 for PCCCH (9 - BS_AG_BLKS_RES) * 64 for CCCH not combined (3 - BS_AG_BLKS_RES) * 64 for CCCH + SDCCH combined N=1 for PCCCH (9 - BS_AG_BLKS_RES)*BS_PA_MFRMS for CCCH not combined (3 - BS_AG_BLKS_RES)*BS_PA_MFRMS for CCCH/SDCCH combined SPLIT_PG_CYCLE is an MS specific parameter negotiated at GPRS attach (see 3GPP TS 04.60) IMSI = International Mobile Subscriber Identity, as defined in 3GPP TS 03.03.
o_PagingGroupCalculate	**Type of the result:** INTEGER **Parameters:** p_IMSI : HEXSTRING p_CCCH_Conf : B_3 p_N : INTEGER **Description** Calculate the PAGING_GROUP (0 .. N?1) = ((IMSI mod 1000) mod (BS_CC_CHANS x N)) mod N where : N = number of paging blocks "available" on one CCCH = (number of paging blocks "available" in a 51-multiframe on one CCCH) x BS_PA_MFRMS. IMSI = International Mobile Subscriber Identity, as defined in 3GPP TS 23.003 [**Error! Reference source not found.**]. mod = Modulo. div = Integer division.
o_SecondDigit	**Type of the result:** B4 **Parameters:** p_digits : HEXSTRING **Description** The input parameter bcddigits shall be a BCD string (subset of HEXSTRING) except the third digit can take value 'F'H, the resut is a BITSTRING[4] of a binary representation of one digit in the input string. The function of the o_SecondDigit is to return the second digit of the input parameter p_digits. EXAMPLE 1: o_G_FirstDigit('123') = '0010'B. EXAMPLE 2: o_G_FirstDigit('01F') = '0001'B.
o_ThirdDigit	**Type of the result:** B4 **Parameters:** p_digits : HEXSTRING **Description** The input parameter bcddigits shall be a BCD string (subset of HEXSTRING) except the third digit can take value 'F'H, the resut is a BITSTRING[4] of a binary representation of one digit in the input string. The function of the o_ThirdDigit is to return the third digit of the input parameter p_digits. EXAMPLE 1: o_G_FirstDigit('123') = '0011'B. EXAMPLE 2: o_G_FirstDigit('01F') = '1111'B.
o_TTCN_HO_CommandTo Bitstring	**Type of the result:** BITSTRING **Parameters:** p_PDU : PDU Description The function of the o_TTCN_HOCommandToBitstring is as the follows: - It returns the bitstring representation of the input HANDOVERCOMMAND p_PDU.

8.7.3 Specific test suite operation for Multi RAB testing

Table 123: TSO definitions for Multi RAB testing

TSO Name	Description
o_SendContinuousData	**Type of the result:** BOOLEAN **Parameters:** p_RAB_Tx_Info : RAB_Tx_Info **Conditions**: Inputs: p_RAB_Tx_Info: test data, number of RBs, and RB info of each RB (RB id, SDU size and number of SDUs to be transmitted in consecutive TTIs **Outputs:** The BOOLEAN result of the TSO: TRUE if system simulator accepts the information sent from TTCN FALSE if system simulator rejects the information sent from TTCN. **Description** When sending the data through the TSO, after the CMAC_Restriction_REQ, the TFC under test will be one corresponding the maximum CTFC value in the Restricted list, so that SS can select the number of Transport blocks and the size of Transport blocks on individual Transport channels derived from this CTFC. Starting from the beginning of the raw data buffer given in the TSO: Data to be sent on a particular RbId is the first (number of SDUs * SDU_Size) bits All calls to TSO o_sendContinuosData in a test will always specify the exact same set of RbIds.

Table 124: RAB_Tx_Info type

Structure Type Definition			
Type Name: RAB_Tx_Info			
Encoding Variation:			
Comments: To provide the information to SS to send data in every TTI on each RAB. Number of RBs depends on specific requirement. SS shall take care about all kind of discard info in all RLC modes and final aim is DL TFCs under test shall be selected in downlink for each TTI.			
Element name	**Type Definition**	**Field Encoding**	**Comments**
test data	BITSTRING		The raw test data buffer
no_of_rbs	INTEGER		No of Radio Bearers
rb_tx_info1	RB_Tx_Info		Info about RB id, SDU size and number of SDUs
rb_tx_info2	RB_Tx_Info		Info about RB id, SDU size and number of SDUs
rb_tx_info3	RB_Tx_Info		Info about RB id, SDU size and number of SDUs
rb_tx_info4	RB_Tx_Info		Info about RB id, SDU size and number of SDUs
rb_tx_info5	RB_Tx_Info		Info about RB id, SDU size and number of SDUs
rb_tx_info6	RB_Tx_Info		Info about RB id, SDU size and number of SDUs

Table 125: RB_Tx_Info type

Structure Type Definition			
Type Name: RB_Tx_Info			
Encoding Variation:			
Comments:			
Element name	Type Definition	Field Encoding	Comments
rb_id	INTEGER		
sdu_size	INTEGER		
no_of_sdus	INTEGER		

8.7.4 Specific test suite operation for InterSystem Handover testing

Table 126: TSO definitions for InterSystem testing

TSO Name	Description
o_CheckClassmark2	**Type of the result:** BOOLEAN **Parameters**: FromUE : OCTETSTRING Constraint : MS_Clsmk2 **Description:** To check each bit of the received octetstring from the UE against the tabular format constraint. All fields in the IE are mandatory, therefore every bit has to match for a TRUE result to be achieved.
o_HO_PER_Encoding	**Type of the result:** BITSTRING **Parameters:** p_Msg : DL_DCCH_Message **Description:** It returns the unaligned PER encoding (BIT STRING) of the input downlink DCCH message p_Msg (without "Encoder added (1-7) bits padding").
OC_LeastBits	**Type of the result:** BITSTRING **Parameters:** bstring : BITSTRING lg : INTEGER **Description:** It returns the `lg` least significant bits of the original `bstring`. for example: OC_LeastBits('110011000101010'B, 3) = '010'B, OC_LeastBits('110011000101010'B, 6) = '101010'B.
OC_MostBits	**Type of the result:** BITSTRING **Parameters:** bstring : BITSTRING lg : INTEGER **Description:** It returns the `lg` most significant bits of the original `bstring`. for example: OC_ MostBits ('110011000101010'B, 3) = '010'B, OC_ MostBits ('110011000101010'B, 6) = '101010'B.

8.8 AT commands

Table 127 shows a list of AT commands. By using these commands the ATSs communicate with the SS for an automatic execution. The column "ATS" indicates in which ATS the command is used.

Table 127: AT commands used in 3GPP ATSs

Command	Reference	ATS
+CGACT	3GPP TS 27.007 [**Error! Reference source not found.**]	BMC, MAC, NAS, RAB, RLC, RRC, PDCP, SMS
+CGATT	3GPP TS 27.007 [**Error! Reference source not found.**]	BMC, MAC, NAS, RAB, RLC, RRC, PDCP, SMS

+CGCMOD	3GPP TS 27.007 [**Error! Reference source not found.**]	NAS
+CGDCONT	3GPP TS 27.007 [**Error! Reference source not found.**]	BMC, MAC, NAS, RAB, RLC, RRC, PDCP, SMS
+CGDSCONT	3GPP TS 27.007 [**Error! Reference source not found.**]	NAS
+CGEQREQ	3GPP TS 27.007 [**Error! Reference source not found.**]	BMC, MAC, NAS, RAB, RLC, RRC, PDCP, SMS
+CLCC	3GPP TS 27.007 [**Error! Reference source not found.**]	NAS
+VTS	3GPP TS 27.007 [**Error! Reference source not found.**]	NAS
H	3GPP TS 27.007 [**Error! Reference source not found.**]	NAS, RAB, RRC, SMS
+CBST	3GPP TS 27.007 [**Error! Reference source not found.**]	NAS, RAB, RRC, SMS
+CMOD	3GPP TS 27.007 [**Error! Reference source not found.**]	NAS, RAB, RRC, SMS
A	3GPP TS 27.007 [**Error! Reference source not found.**]	NAS, RAB, RRC, SMS
D	3GPP TS 27.007 [**Error! Reference source not found.**]	BMC, MAC, NAS, RAB, RLC, RRC, PDCP, SMS
+CGMD	3GPP TS 27.005 [**Error! Reference source not found.**]	SMS
+CGMF	3GPP TS 27.005 [**Error! Reference source not found.**]	SMS
+CGMR	3GPP TS 27.005 [**Error! Reference source not found.**]	SMS
+CMGW	3GPP TS 27.005 [**Error! Reference source not found.**]	SMS
+CMSS	3GPP TS 27.005 [**Error! Reference source not found.**]	NAS, RAB, RRC, SMS
+CPMS	3GPP TS 27.005 [**Error! Reference source not found.**]	SMS
+CSCA	3GPP TS 27.005 [**Error! Reference source not found.**]	SMS
+CSCS	3GPP TS 27.005 [**Error! Reference source not found.**]	SMS
+CSMS	3GPP TS 27.005 [**Error! Reference source not found.**]	SMS

8.8.1 AT command lists in ATSs

8.8.1.1 AT commands in IR_U ATS:

Command	Syntax in TTCN	Comments
CBST	AT+CBST=[<speed>[,<name>[,<ce>]]]<CR> <speed>=0,7,12,14,15,16,17,39,43,47,48,49,50,51,71,75,79,80,81,82,83,84,115,116,120,121 <name>=0,1,4,5 <ce>=0,1	Select bearer service type, TS 27.007 clause 6.7
CGACT	AT+CGACT=1,1<CR> AT+CGACT=0,1<CR>	PDP context activate or deactivate, TS 27.007 clause 10.1.10
CGATT	AT+CGATT=1<CR>	PS attach or detach, TS 27.007 clause 10.1.9
CGDSCONT	AT+CGDSCONT= 1,<CR> AT+ CGDSCONT=1 , 1, “IP”, 0,0,<CR>	Establish secondary PDP Context, TS 27.007 clause 10.1.2
CGEQREQ	AT+CGEQREQ=1,2,64,64,,,1,320,”1E4”,”1E5”,1,,3<CR> AT+CGEQREQ=1,3,64,64,,,1,320,”1E4”,”1E5”,1,,<CR>	Quality of Service Profile (Requested), TS 27.007 clause 10.1.4
CMOD	AT+CMOD=0<CR> AT+CMOD=1<CR>	Call mode, TS 27.007 clause 6.4
CMSS	AT+CMSS=000<CR> AT+CMSS=001<CR> AT+CMSS=002<CR>	Send Message from Storage, TS 27.005 clause 3.5.2

8.8.1.2 AT commands in MAC and RLC ATS:

Command	Syntax in TTCN	Comments
CGATT	AT+CGATT=1<CR>	PS attach or detach, TS 27.007 clause 10.1.9

8.8.1.3 AT commands in NAS ATS:

Command	Syntax in TTCN	Comments
CBST	AT+CBST=[<speed>[,<name>[,<ce>]]]<CR> <speed>=0,7,12,14,15,16,17,39,43,47,48,49,50,51,71,75,79,80,81,82,83,84,115,116,120,121 <name>=0,1,4,5 <ce>=0,1	Select bearer service type, TS 27.007 clause 6.7
CGACT	AT+CGACT=1,1<CR> AT+CGACT=0,1<CR>	PDP context activate or deactivate, TS 27.007 clause 10.1.10
CGATT	AT+CGATT=1<CR> AT+CGATT=0<CR>	PS attach or detach, TS 27.007 clause 10.1.9
CGDATA	AT+CGDATA=PPP,1<CR>	Enter data state, TS 27.007 clause 10.1.12
CGDCONT	AT+CGDCONT=1,"IP","ABCDEF","200.1.1.80",0,0<CR> AT+CGDCONT=1,"IP","GHIJK","200.1.1.90",0,0<CR>	Define PDP Context, TS 27.007 clause 10.1.1
CGDSCONT	AT+CGDSCONT= 1,<CR> AT+ CGDSCONT=1 , 1, "IP", 0,0,<CR>	Establish secondary PDP Context, TS 27.007 clause 10.1.2
CGEQMIN	AT+CGEQMIN=1,3,32,32,,,1,320,”1E3”,”4E3”,1,,<CR> AT+CGEQMIN=1,3,64,64,,,1,320,”1E3”,”4E3”,1,,<CR> AT+CGEQMIN=1,2,32, 32, 32, 32, 1, 320, 1E4,6E8,1,,,<CR> AT+CGEQMIN=1,3,32, 32, 32, 32, 1, 320, 1E4,6E8,1,,,<CR> AT+CGEQMIN=1,2,32, 32, 32, 32, 1, 320, 1E3,6E8,1,,,<CR> AT+CGEQMIN=1,3,32, 32, 32, 32, 1, 320, 1E3,6E8,1,,,<CR> AT+CGEQMIN=1,2,64, 64, 64, 64, 1, 320, 1E3,6E8,1,,,<CR> AT+CGEQMIN=1,3,64, 64, 64, 64, 1, 320, 1E3,6E8,1,,,<CR>	Quality of Service Profile (Minimum acceptable), TS 27.007 clause 10.1.4
CGEQREQ	AT+CGEQREQ=1,2,64,64,,,1,320,"1E4","1E5",1,,3<CR> AT+CGEQREQ=1,3,64,64,,,1,320,"1E4","1E5",1,,<CR> AT+CGEQREQ=1,2,64, 64, 64, 64, 1, 320, 1E4,6E8,1,,,<CR> AT+CGEQREQ=1,3,64, 64, 64, 64, 1, 320, 1E4,6E8,1,,,<CR>	Quality of Service Profile (Requested), TS 27.007 clause 10.1.4
CLCC	AT+CLCC<CR>	List current calls, TS 27.007 clause 7.18
CMOD	AT+CMOD=0<CR> AT+CMOD=1<CR>	Call mode, TS 27.007 clause 6.4
CMSS	AT+CMSS=000<CR> AT+CMSS=001<CR> AT+CMSS=002<CR>	Send Message from Storage, TS 27.005 clause 3.5.2
VTS	AT+VTS=0,100<CR> AT+VTS=1,50<CR> AT+VTS=2,60<CR> AT+VTS=3,40<CR> AT+VTS=4,50<CR> AT+VTS=5,60<CR> AT+VTS=6,70<CR> AT+VTS=7,80<CR> AT+VTS=8,90<CR> AT+VTS=9,100<CR> AT+VTS=#,110<CR> AT+VTS=*,120<CR> AT+VTS=A,130<CR> AT+VTS=B,140<CR> AT+VTS=C,150<CR> AT+VTS=D,200<CR>	DTMF and tone generation, TS 27.007 clause C.2.11

8.8.1.4 AT commands in RAB ATS:

Command	Syntax in TTCN	Comments
CBST	AT+CBST=[<speed>[,<name>[,<ce>]]]<CR> <speed>=0,7,12,14,15,16,17,39,43,47,48,49,50,51,71,75,79,80,81,82,83,84,115,116,120,121 <name>=0,1,4,5 <ce>=0,1	Select bearer service type, TS 27.007 clause 6.7
CGACT	AT+CGACT=1,1<CR> AT+CGACT=0,1<CR>	PDP context activate or deactivate, TS 27.007 clause 10.1.10
CGATT	AT+CGATT=1<CR>	PS attach or detach, TS 27.007 clause 10.1.9
CGDCONT	AT+CGDCONT=1,"IP","ABCDEF","200.1.1.80",0,0<CR> AT+CGDCONT=1,"IP","GHIJK","200.1.1.90",0,0<CR>	Define PDP Context, TS 27.007 clause 10.1.1
CGDSCONT	AT+CGDSCONT= 1,<CR> AT+ CGDSCONT=1 , 1, “IP”, 0,0,<CR>	Establish secondary PDP Context, TS 27.007 clause 10.1.2
CGEQREQ	AT+CGEQREQ=1,2,64,64,,,1,320,”1E4”,”1E5”,1,,3<CR> AT+CGEQREQ=1,3,64,64,,,1,320,”1E4”,”1E5”,1,,<CR>	Quality of Service Profile (Requested), TS 27.007 clause 10.1.4
CMOD	AT+CMOD=0<CR> AT+CMOD=1<CR>	Call mode, TS 27.007 clause 6.4
CMSS	AT+CMSS=000<CR> AT+CMSS=001<CR> AT+CMSS=002<CR>	Send Message from Storage, TS 27.005 clause 3.5.2

8.8.1.5 AT commands in RRC ATS:

Command	Syntax in TTCN	Comments
ATA	ATA<CR>	Answer a call, TS 27.007 clause 6.35
ATD	ATD0123456902;<CR> ATD112;<CR> ATD0123456902<CR>	Originates a call, TS 27.007 clause 6.31
ATH	ATH<CR>	Hang-up a single mode call, TS 27.007 clause 6.36
CBST	AT+CBST=[<speed>[,<name>[,<ce>]]]<CR> <speed>=0,7,12,14,15,16,17,39,43,47,48,49,50,51,71,75,79,80,81,82,83,84,115,116,120,121 <name>=0,1,4,5 <ce>=0,1	Select bearer service type, TS 27.007 clause 6.7
CGACT	AT+CGACT=1,1<CR> AT+CGACT=0,1<CR>	PDP context activate or deactivate, TS 27.007 clause 10.1.10
CGATT	AT+CGATT=1<CR>	PS attach or detach, TS 27.007 clause 10.1.9
CGDCONT	AT+CGDCONT=1,"IP","ABCDEF","200.1.1.80",0,0<CR> AT+CGDCONT=1,"IP","GHIJK","200.1.1.90",0,0<CR>	Define PDP Context, TS 27.007 clause 10.1.1
CGDSCONT	AT+CGDSCONT= 1,<CR> AT+ CGDSCONT=1 , 1, “IP”, 0,0,<CR>	Establish secondary PDP Context, TS 27.007 clause 10.1.2
CGEQREQ	AT+CGEQREQ=1,2,64,64,,,1,320,”1E4”,”1E5”,1,,3<CR> AT+CGEQREQ=1,3,64,64,,,1,320,”1E4”,”1E5”,1,,<CR>	Quality of Service Profile (Requested), TS 27.007 clause 10.1.4
CMOD	AT+CMOD=0<CR> AT+CMOD=1<CR>	Call mode, TS 27.007 clause 6.4
CMSS	AT+CMSS=000<CR> AT+CMSS=001<CR> AT+CMSS=002<CR>	Send Message from Storage, TS 27.005 clause 3.5.2

8.8.1.6 AT commands SMS ATS:

Command	Syntax in TTCN	Comments
CBST	AT+CBST=[<speed>[,<name>[,<ce>]]]<CR> <speed>=0,7,12,14,15,16,17,39,43,47,48,49,50,51,71,75,79,80,81,82,83,84,115,116,120,121 <name>=0,1,4,5 <ce>=0,1	Select bearer service type, TS 27.007 clause 6.7
CGACT	AT+CGACT=1,1<CR> AT+CGACT=0,1<CR>	PDP context activate or deactivate, TS 27.007 clause 10.1.10
CGATT	AT+CGATT=1<CR>	PS attach or detach, TS 27.007 clause 10.1.9
CGDCONT	AT+CGDCONT=1,"IP","ABCDEF","200.1.1.80",0,0<CR> AT+CGDCONT=1,"IP","GHIJK","200.1.1.90",0,0<CR>	Define PDP Context, TS 27.007 clause 10.1.1
CGDSCONT	AT+CGDSCONT= 1,<CR> AT+ CGDSCONT=1 , 1, "IP", 0,0,<CR>	Establish secondary PDP Context, TS 27.007 clause 10.1.2
CGEQREQ	AT+CGEQREQ=1,2,64,64,,,1,320,”1E4”,”1E5”,1,,3<CR> AT+CGEQREQ=1,3,64,64,,,1,320,”1E4”,”1E5”,1,,<CR>	Quality of Service Profile (Requested), TS 27.007 clause 10.1.4
CGSMS	AT+CGSMS=1<CR> AT+CGSMS=0<CR>	Select service for MO SMS messages, TS 27.007 clause 10.1.20
CMGD	AT+CMGD=001<CR> AT+CMGD=1,4<CR>	Delete Message, TS 27.005 clause 3.5.4
CMGF	AT+CMGF=1<CR>	Message Format, TS 27.005 clause 3.2.3
CMGR	AT+CMGR=001<CR> AT+CMGR=002<CR> AT+CMGR=003<CR> AT+CMGR=004<CR>	Read Message, TS 27.005 clause 3.4.3
CMGW	AT+CMGW= “1111111111”,129, "The quick brown fox jumps over the lazy dog's back. Kaufen Sie Ihrer Frau vier bequeme Pelze. - 0123456789 - THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG'S BACK."<CR>	Write Message to Memory, TS 27.005 clause 3.5.3
CMMS	AT+CMMS=1<CR>	More Messages to Send, TS 27.005 clause 3.5.6
CMOD	AT+CMOD=0<CR> AT+CMOD=1<CR>	Call mode, TS 27.007 clause 6.4
CMSS	AT+CMSS=000<CR> AT+CMSS=001<CR> AT+CMSS=002<CR>	Send Message from Storage, TS 27.005 clause 3.5.2
CPMS	AT+CPMS=”SM,”SM”,”MT”<CR> AT+CPMS=“CB”,”CB”,”CB”<CR>	Preferred Message Storage, TS 27.005 clause 3.2.2
CSCA	AT+CSCA="2222222222",129<CR>	Service Centre Address, TS 27.005 clause 3.3.1
CSCS	AT+CSCS="GSM"<CR>	Select TE character set, TS 27.007 clause 5.5
CSMS	AT+CSMS=0<CR>	Select Message Service, TS 27.005 clause 3.2.1

8.9 Bit padding

Three different kinds of bit padding at the RRC layer are defined in 3GPP TS 25.331 [**Error! Reference source not found.**].

If a bit string is defined in ASN.1 and is an output from a (PER) encoder, it may need the segmentation and padding. One example is that each SIB message is PER-encoded and becomes a (PER) bit-string. A long bit-string is segmented in fixed length, for example with 222 bits. The (1 ... 7) padding bits shall be added at the last segment if it's lengh is between 215 and 211.

No bit padding shall be generated by the PER encoder. Contrary to ITU-T Recommendation X.691 [**Error! Reference source not found.**], the unaligned PER encoder shall not generate any padding bit to achieve octet alignment at the end of a PER bit string.

RRC padding. The RRC padding bits shall be generated after PER encoder. If the PER bit strings are exchanged via AM or UM SAP, the (1 ... 7) padding bits shall be added to ensure the octed alignment. If the PER bit strings are exchanged via TR SAP, before the exchanges, RRC shall select the smallest transport format that fits the RRC PDU and shall add the lowest number of padding bits required to fit the size specified for the selected transport format. The RRC padding bits shall be taken into account at the calculation of the integrity checksum.

8.9.1 Requirements for implementation

The different kinds of bit padding occur at the different places in the testing architecture. Care must be taken, in order to ensure the correct implementation.

The bit padding for the embedded bit string in ASN.1shall be resolved in TTCN. It is under the responsibility of the TTCN writer. Several TSO defined can resolve the necessary bit padding in the downlink direction.

The unaligned PER encoder used for TTCN shall not implement the octet alignment at the end of a PER bit string in the downlink direction.

The RRC padding should be implemented at the SS in the downlink direction both for AM/UM and TR modes according to 3GPP TS 25.331 [**Error! Reference source not found.**], clause 12.1.3.

The SS PER decoder compliant with R99, Release 4 and Release 5 has no need to distinguish the extension and padding parts in the UL direction, and shall match and accept RRC PDUs with any bit string in the extension and padding parts. The remaining part of the received bit string shall be discarded regardless of the RLC mode.

8.10 Test PDP contexts

Table 128 defines test PDP contexts used in the generic procedures for the PS establishment and other SM tests. The test PDP contextDch1 is the default Test PDP context used in the test cases where no particular Test PDP contexts are specified and UE is in DCH state. The test PDP contextFach is the default Test PDP context used in the test cases where no particular Test PDP contexts are specified and UE is in FACH state.

Table 128: Test PDP contexts

	PDP ContextDch	**PDP ContextFach**	**PDP Context3**
NSAPI	Selected by UE in Activate PDP Context Request	Selected by UE in Activate PDP Context Request	Selected by UE in Activate PDP Context Request
LLC SAPI	0	0	0
QoS	QoSDch-UL64kAM-DL64kAM	QoSFach- UL32kAM-DL32kAM	QoS- UL8kAM-DL8kAM
PDP address	PIXIT	PIXIT	PIXIT
Radio Priority	1	1	1
Access Point Name	PIXIT	PIXIT	PIXIT
Protocol configuration options	-	-	-
Packet Flow Identifier	Best Effort	Best Effort	Best Effort

Table 129: Test QoS

	QoSDch-UL64kAM-DL64kAM	QoSFach- UL32kAM-DL32kAM	QoS- UL8kAM-DL8kAM
Reliability class	'011'B Unacknowledged GTP, LLC, and acknowledged RLC; Protected data	'011'B Unacknowledged GTP, LLC, and acknowledged RLC; Protected data	'001' Acknowledged GTP, LLC, and RLC; Protected data
Delay class	'011'B / '100'B 3 / 4 (Best effort)	'011'B / '100'B 3 / 4 (Best effort)	'100' Best effort
Precedence class	UL:'000'B, Subscribed DL:'011'B Class 3	UL:'000'B, Subscribed DL:'011'B Class 3	'100' Normal Class
Peak throughput	'0100'B 8 000 Octets/s	'0011' Up to 4 000 octet/s	'0110' Up to 32 000 octet/s
Mean throughput	'11111'B Best Effort	'11111'B Best Effort	'11111'B Best Effort
Delivery of erroneous SDU	'010' B Erroneous SDUs are delivered ('yes')	'010' B Erroneous SDUs are delivered ('yes')	'010' B Erroneous SDUs are delivered ('yes')
Delivery order	'01'B With delivery order ('yes')	'01'B With delivery order ('yes')	'01'B With delivery order ('yes')
Traffic class	'011' B / '100'B Interactive / Background	'011' B / '100'B Interactive / Background	'011' B Interactive class
Maximum SDU size	'20' O 320 bits]	'20'O 320 bits	'20'O 320 bits
Maximum bit rate for uplink	'40' O 64 kbps	'20'O 32 kbps	'08'O 32 kbps
Maximum bit rate for downlink	'40' O 64 kbps	'20'O 32 kbps	'08'O 32 kbps
Residual BER	'0111' 1X10E-5	'0111' 1X10E-5	'1001' 6X10E-3
SDU error ratio	'0100'B 1X10E-4	'0100'B 1X10E-4	'0011' 1X10E-3
Traffic Handling priority	UL: '00'B for Interactive, Any for Background DL: '11' B (for Interactive, for Background to be neglected by UE)	UL: '00'B for Interactive, Any for Background DL: '11' B (for Interactive, for Background to be neglected by UE)	'11' B Needs to be neglected by UE
Transfer delay	UL: Any DL: '111111' B spare (not applicable for Interactive / Background)	UL: Any DL: '111111' B spare (not applicable for Interactive / Background)	'111111' B spare (not applicable for Interactive / Background)
Guaranteed bit rate for uplink	UL: Any DL: '10' O 16 kbps	UL: Any DL: '10'O 32 kbps	'08'O 32 kbps
Guaranteed bit rate for downlink	UL: Any DL: '10' O 16 kbps	UL: Any DL: '10'O 16 kbps	'08'O 8 kbps
NOTE: Residual BER 1X10E-5 corresponds to CRC 16.			

8.11 DCH-DSCH Configurations

1. Configure PDSCH physical channel

```
    CPHY_RL_Setup_REQ(
        physicalChannelIdentity,
        pDSCHInfo)
-- set up the scrambling code and transmission power level for the PDSCH identified by
PhysicalChannelIdentity, and establishes the mapping between the spreading factor(and channelization
codes) used for the PDSCH and TFCI(field2) transmitted in associated PDCH
```

2. Configure DSCH transport channels

```
    CPHY_TrCH_Config_REQ(
        physicalChannelIdentity,
```

```
        dlconnectedTrCHList,
        dlTFCS)
-- set up TFS for each of DSCH's carried by the PDSCH defined in step 1 and TFCS (will be presented
in TFCI(field2) of PDCH configured in step 5) for the CCTrCH consisting of these DSCH's
```

3. Configure MAC entity for DSCH

```
    CMAC_Config_REQ(
        physicalChannelIdentity,
        uE_Info,
        dlconnectedTrCHList,
        dlTFCS)
-- set up TFS, DSCH-RNTI and TFCS (which will be presented in TFCI(field2) of PDCH configured in
step 5) for DSCH's, and map logical channel to DSCH transport channel
```

4. Configure RLC entity for DTCHs

```
    CRLC_Config_REQ(
        physicalChannelIdentity,
        rBInfo)
-- set up RLC entity on top of  DTCH logical channel which is mapped onto DSCH
```

5. Configure DPCH physical channel

```
    CPHY_RL_Setup_REQ(
        physicalChannelIdentity,
        dPCHInfo)
```

6. Configure DCH transport channels

```
    CPHY_TrCH_Config_REQ(
        physicalChannelIdentity,
        dlconnectedTrCHList,
        dlTFCS)
-- set up TFS for each DCH carried by the DPCH defined in step 5 and TFCS (TFCI(field1 and field2))
for the CCTrCH consisting of all DCH's mapped on the DPCH.
```

7. Configure MAC entity for DCH

```
    CMAC_Config_REQ(
        physicalChannelIdentity,
        dlconnectedTrCHList,
        dlTFCS)
-- set up TFS and TFCS (TFCI(field1) for DCH's, and TFCI(field2) for associated DSCH), and map
logical channel to DCH transport channel.
```

8. Configure RLC for DTCH, DCCH

```
    CRLC_Config_REQ(
        physicalChannelIdentity,
        rBInfo)
-- set up RLC entity on top of  DTCH and DCCH logical channels which are mapped onto DCH
```

8.11a DCH with HS-DSCH Configurations (~~later than r4~~Rel-5 or later)

1. Configure DPCH physical channel

```
    CPHY_RL_Setup_REQ(
        physicalChannelIdentity,
        dPCHInfo_r5)
-- hs_DPCCHInd is present in the dPCHInfo ( only for HS-DSCH serving cell)
-- set up the DPCH associated with HS-PDSCH
-- set up the HS-DPCCH which is associated with the HS-PDSCH (this is done only for HS-DSCH serving
-- cell).
```

2. Configure DCH transport channels

```
    CPHY_TrCH_Config_REQ(
        physicalChannelIdentity,
        dlconnectedTrCHList,
        dlTFCS)
```

```
-- set up TFS for each DCH carried by the DPCH defined in step 5 and TFCS for the CCTrCH consisting
 of all DCH's mapped on the DPCH.
```

3. Configure MAC entity for DCH

```
    CMAC_Config_REQ(
        physicalChannelIdentity,
        dlconnectedTrCHList,
        dlTFCS)
-- set up TFS and TFCS for DCH's, and map logical channel to DCH transport channel.
```

4. Configure RLC for DCCH

```
    CRLC_Config_REQ(
        rB_Identity,
        rBInfo)
-- set up RLC entity on top of  DCCH logical channels which are mapped onto DCH
```

5. Configure HS-PDSCH physical channel

```
    CPHY_RL_Setup_REQ(
        physicalChannelIdentity,
        hs_PDSCHInfo)
-- set up the HS-PDSCH identified by PhysicalChannelIdentity
--   for the HS-PDSCH the configurable parameters are: the scrambling code, and
-- set up the HS-SCCH which is associated with the HS-PDSCH without physicalChannelIdentity
--   for the HS-SCCH the configurable parameters are: channelisation code set and H-RNTI
        hSDSCHPhysicalLayerCategory     HSDSCH_physical_layer_category,
        h_RNTI                          H_RNTI,
        dlHSPDSCHInformation            DL_HSPDSCH_Information,
        ackNackRepetitionFactor         ACK_NACK_repetitionFactor,
        sttd_Indicator                  BOOLEAN
```

6. Configure HS-DSCH transport channels

```
    CPHY_TrCH_Config_REQ(
        physicalChannelIdentity,
        hsDSCHMacdFlows)
-- set up the HS-DSCH tramsport channel which carries MAC_d flows identified by Mac_dFlowId
   in the hsDSCHMacdFlows.
--   for each MAC_d flow the number of process queues of the MAC-d flow and their queue identities
     are configurable;
--   for each MAChsQueue the configurable parameters are: machsQueueId; priority;
     mac_hsPduSizeInfoList; reorderingReleaseTimer, discardTimer and the MAC-dFlow identity to which
     this MAChsQueue belongs.
```

7. Configure MAC_hs entity for HS-DSCH

```
    CMAC_MAChs_TFRCconfigre_REQ(
        explicit TRFC config mode with:
            modulationScheme,
            channelisationCodeOffset,
            noOfChannelisatonCodes,
            tbSizeIndexOnHS_SCCH,
            minimumInterTTIinterval,
            redundancyVersion,
            hs_PDSCH_TxPower)

    CMAC_Config_REQ(
        physicalChannelIdentity,
        uE_Info,
        hsDSCHMacdFlows)
-- the hsDSCHMacdFlows shall be same as that used in CPHY_TrCH_Config_REQ.
-- set up MAC_d flows identified by Mac_dFlowId in the hsDSCHMacdFlows.
--   for each MAC_d flow the number of process queues of the MAC-d flow and their queue identities
     are configurable;
--   for each MAChsQueue the configurable parameters are: machsQueueId; priority;
     mac_hsPduSizeInfoList; reorderingReleaseTimer, discardTimer and the MAC-dFlow identity to which
     this MAChsQueue belongs.
-- set up the mapping between each MAC_d flow and the logical channels which mapped on the flow.
```

8. Configure RLC entity for DTCHs which is mapped on HS-DSCH

```
    CRLC_Config_REQ(
```

```
        rB_Identity,
        rBInfo)
-- set up RLC entity on top of  DTCH logical channel which is mapped onto MAC_d flow
```

9. MAC-hs reset, release of SS resources for HSDPA

```
    MAC-hs reset:
        CMAC_MAChs_Reset_REQ(
            cellId)

    RL release:
        CPHY_RL_Release_REQ(
            cellId, phyChId)
-- phyChid is the identity of HS-PDSCH physical channel or the associated DPCH channel
-- the HS-SSCH physical channel shall be also released when HS-PDSCH is released
-- the HS-DPCCH physical channel shall be released when the associated DPCH is released

    TrCH release:
        CPHY_TrCH_Release_REQ(
            cellId, phyChId)
-- phyChid is the identity of HS-PDSCH physical channel

    MAChs release:
        CMAC_Config_REQ(
            cellId, phyChId)
-- phyChid is the identity of HS-PDSCH physical channel

    RLC release:
        CRLC_Config_REQ(
            cellId, rbId)
-- rbid is the identity of the radio bearer providing HSDPA service
```

3GPP TSG-RAN WG5 Meeting #27
Bath, UK, 25th – 29th April 2005

R5-050955

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-3** **CR** **1335** ⌘ **rev** **-** ⌘ Current version: **5.0.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☐

Title:	⌘	Modifying AT Commands, ASPs, TSOs and PIXITs
Source:	⌘	3GPP TSG RAN WG5 (Testing)
Work item code:	⌘	TEI
Date:	⌘	18/04/2005
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change: ⌘

1. MAC HS ASP definition changed to facilitate TTCN implementation

2. New RAB configurations are required for HSDPA MAC testing

3. SIB configuration references for Inter-RAT tests changed according to T1-050019

4. Correction of inconsistency in test USIM configurations used in idle mode test cases

5. TSO definition requires clarifying and new TSOs are required for testing the HSDPA RABs

6. Handling AT commands in TTCN shall be unique. This allows the SS to implement and to map the different kinds of AT commands according to the UE implementation. This rule is followed in TTCN, but has not been documented. Proper documentaion is required. New AT commands added according to prose CR T1-050445

7. Test procedure for verification of HSDPA configuration is required.

8. Alignment of PIXIT parameters with the TTCN

9. Further clarification of wildcard usage is required

Additional modification with R5-050457:

The PIXIT px_OperationBandSupp is deleted. It is used in idle test cases but it is redundant with px_FDD_OperationBand that shall be used instead.

Summary of change:	⌘ 1. Added new modulationScheme type in clause 7.2.3.2.2.17a 2. New HSDPA RAB configurations are added in clause 8.3.34 and 8.3.35 3. SIB configuration references updated to match 34.108 in clause 8.4 4. USIM tables updated to conform to 34.123-1 in clause 8.5.5 5. o_GetPI definition updated in clause 8.7.1 and TSOs used for testing HSDPA RABs are added in clause 8.7.5 6. A new clause 8.8.2 is added for AT command handling in TTCN. AT Command list updated to support AT+CHUP and AT+CVHU in clause 8.8.1. 7. A new clause 8.11b is added 8. PIXIT parameter tables are updated in Annex B. 9. Updated clause E3.7 Additional modification with R5-050457: 10. px_OperationBand is deleted in table B.8
Consequences if not approved:	⌘

Clauses affected:	⌘	7.2.3.2.2.17a, 8.3.34, 8.3.35, 8.4, 8.5.5, 8.7.1, 8.7.5, 8.8, 8.11b, B1.1, B1.2, B1.3, B1.4, B1.5, B1.8, B1.9, B1.10, B1.11, B1.12, E3.7		
Other specs affected:	⌘	**Y** / **N** X X X	Other core specifications Test specifications O&M Specifications	⌘
Other comments:	⌘	The additional modification item 10 is having impact on RRC idle test cases in TTCN.		

7.3.2.2.17a CMAC_MAChs_TFRCconfigure (later than r4)

ASN.1 ASP Type Definition	
Type Name	CMAC_MAChs_TFRCconfigure_CNF
PCO Type	CSAP
Comment	Applicable later than r4 Confirm a previous CMAC_MAChs_TFRCconfigure_REQ being successful.
Type Definition	

```
SEQUENCE {
        cellId              INTEGER(-1..63)
}
```

ASN.1 ASP Type Definition	
Type Name	CMAC_MAChs_TFRCconfigure_REQ
PCO Type	CSAP
Comment	Applicable later than r4 To configure the TFRC selection in the MAC-hs entity, channelisationCodeOffset + noOfChannelisationCodes shall not be great than 15. If explicit is selected in `tfrcConfigMode`, the SS shall use all the parameter values specified to configure a correct transport format and radio resources. If sS_Configured is selected, the parameter value range is specified. SS shall dynamically select the suitable values for the parameters “modulationScheme”, “channelisationCodeOffset”, “noOfChannelisatonCodes “, tbSizeIndexOnHS_SCCH”, “redundancyVersion” and “hs_PDSCH_TxPower” according to UE’s capability category and CQI information reported by the UE.
Type Definition	

```
SEQUENCE    {
    cellId              INTEGER(-1..63),
    tfrcConfigMode      CHOICE {
        explicit            SEQUENCE {
            modulationScheme                ~~ENUMERATED {qpsk (0), qam16 (1)}~~ModulationScheme,
            channelisationCodeOffset        INTEGER (1..14),
            noOfChannelisatonCodes          INTEGER (1..15),
            tbSizeIndexOnHS_SCCH            INTEGER (0..63),
            minimumInterTTIinterval         INTEGER (1..3),
            redundancyVersion               INTEGER (0..7),
            hs_PDSCH_TxPower                DL TxPower  -- default offset related
                                                        -- to p-CPICH or s-CPICH
                                        },
        sS_Configured       SEQUENCE {
            minChannelisationCodeOffset     INTEGER (1..14),
            maxNoOfChannelisatonCodes       INTEGER (1..15),
            iniHS_PDSCH_TxPower             DL TxPower  -- default offset related
                                                        -- to p-CPICH or s-CPICH
                                        }
}
}
```

ASN.1 Type Definition	
Type Name	ModulationScheme
Comment	
Type Definition	

```
ENUMERATED {qpsk (0), qam16 (1)}
```

ASN.1 ASP Type Definition	
Type Name	CMAC_MAChs_HARQprocAsign_CNF
PCO Type	CSAP
Comment	Applicable later than r4 Confirm a previous CMAC_MAChs_HARQprocAsign_REQ being successful.
Type Definition	

```
SEQUENCE {
        cellId              INTEGER(-1..63)
}
```

ASN.1 ASP Type Definition	
Type Name	CMAC_MAChs_HARQprocAsign_REQ
PCO Type	CSAP
Comment	Applicable later than r4 To assign a HARQ process handling the next MAC-hs PDU transmission. This ASP provides TTCN the ability to select an HARQ process serving the next MAC-hs PDU which follows the ASP. After successful transmission the MAC-hs returns back to normal operation. In the normal operation a suitable HARQ process is selected by HARQ entity in the MAC-hs to serve the MAC-hs PDU without TTCN intervening.
Type Definition	

SEQUENCE {
cellId INTEGER(-1..63),
harqProcessId INTEGER(0..7)
}	

ASN.1 ASP Type Definition	
Type Name	CMAC_MAChs_Reset_CNF
PCO Type	CSAP
Comment	Applicable later than r4 Confirm a previous CMAC_MAChs_Reset_REQ being successful.
Type Definition	

SEQUENCE {
cellId INTEGER(-1..63)
}	

ASN.1 ASP Type Definition	
Type Name	CMAC_MAChs_Reset_REQ
PCO Type	CSAP
Comment	Applicable later than r4 To reset the MAC-hs entity.
Type Definition	

SEQUENCE {
cellId INTEGER(-1..63)
}	

End of Modified Section

Next Modified Section

8.3.34 Configuration of Cell_DCH_HS_DSCH (Rel-5 or later)

The configuration is based on 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.5.1 or 6.10.2.4.5.2. The RB0/UM-CCCH is referred to 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.3.2.1.2 and RB0/TM-CCCH is referred to 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.4.1.1.1. The configuration is applied to those RRC and NAS signalling tests in the DCH state where a PS RAB on DTCH mapped on HS-DSCH is setup for the interactive or background service class.

Table ??: Uplink configuration of Cell_DCH_HS_DSCH

RB Identity	tsc_RB25 (25)	Same as uplink configuration of Cell_DCH_StandAloneSRB on DPCH	Same as uplink configuration of Cell_DCH_StandAloneSRB on PRACH
LogCh Type	DTCH		
LogCh Identity	tsc_UL_DTCH1 (7)		
RLC mode	AM		
TrCH Type	DCH		
TrCH identity	tsc_UL_DCH1 (1)		
PhyCh Type	DPDCH		PRACH
PhyCH identity	tsc_UL_DPCH1 (20)		tsc_PRACH1 (8)

Table ??: Downlink configuration of Cell_DCH_HS_DSCH

RB Identity	tsc_RB25 (25)	Same as downlink configuration of Cell_DCH_StandAloneSRB on DPCH	Same as downlink configuration of Cell_DCH_StandAloneSRB on sCCPCH
LogCh Type	DTCH		
LogCh Identity	tsc_DL_DTCH1 (7)		
RLC mode	AM		
MAC priority	1		
TrCH Type	HS-DSCH		
TrCH identity /QueueID	0		
PhyCh Type	PDSCH	DPCH	Secondary CCPCH
PhyCH identity	tsc_HSPDSCH (18)	tsc_DL_DPCH1 (26)	tsc_S_CCPCH1 (5)

8.3.35 Configuration of cell_One_DTCH_HS_DSCH_MAC (Rel-5 or later)

The configuration is based on 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.5.1. The RB0/UM-CCCH is referred to 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.3.2.1.2 and RB0/TM-CCCH is referred to 3GPP TS 34.108 [**Error! Reference source not found.**], clause 6.10.2.4.4.1.1.1. The configuration is applied to those MAC-HS Signalling tests in the DCH state where a PS RAB on DTCH mapped on HS-DSCH is setup for the interactive or background service class.

Table ??: Uplink configuration of cell_One_DTCH_HS_DSCH_MAC

RB Identity	tsc_RB_MAC_HS (-25)	Same as uplink configuration of Cell_DCH_StandAloneSRB on DPCH	Same as uplink configuration of Cell_DCH_StandAloneSRB on PRACH
LogCh Type	DTCH		
LogCh Identity	tsc_UL_DTCH1 (7)		
RLC mode	TM		
TrCH Type	DCH		
TrCH identity	tsc_UL_DCH1 (1)		
PhyCh Type	DPDCH		PRACH
PhyCH identity	tsc_UL_DPCH1 (20)		tsc_PRACH1 (8)

Table ??: Downlink configuration of Cell_DCH_HS_DSCH

RB Identity	tsc_RB_MAC_HS (-25)	Same as downlink configuration of Cell_DCH_StandAloneSRB on DPCH	Same as downlink configuration of Cell_DCH_StandAloneSRB on sCCPCH
LogCh Type	DTCH		
LogCh Identity	tsc_DL_DTCH1 (7)		
RLC mode	TM		
MAC priority	8		
TrCH Type	HS-DSCH		
TrCH identity /QueueID	0		
PhyCh Type	PDSCH	DPCH	Secondary CCPCH
PhyCH identity	tsc_HSPDSCH (18)	tsc_DL_DPCH1 (26)	tsc_S_CCPCH1 (5)

End of Modified Section

Next Modified Section

8.4 System information blocks scheduling

All SIBs specified in 3GPP TS 34.108 [**Error! Reference source not found.**] are broadcast for all test cases in the present document. The repeat period of broadcasting of a complete SIB configuration is 64 frames (0,64 s) as the default configuration.

Except MIB and SB1, they have the highest scheduling rates, SIB 7 has also a higher scheduling rate.

According to the default SIB contents in 3GPP TS 34.108 [**Error! Reference source not found.**], SIB 11 and SIB12 have 3 segments. SIB 5 has 4 segments for FDD and 5 segments for 1.28 Mcps TDD. SIB 6 has 4 segments. MIB, SB1, SIB1, SIB 2, SIB 3, SIB 4, SIB 7 and SIB18 are not segmented, i.e. one segment for each. For the PDCP tests, SIB16 has 7 segments.

Use CMAC_SYSINFO_CONFIG_REQ, CMAC_SYSINFO_CONFIG_CNF and RLC_TR_DATA_REQ as interface to SS for broadcasting.

Two TSOs are defined, one for PER encoding function, the other for segmentation function. The TSOs shall be implemented in the tester.

8.4.1 Grouping SIBs for testing

Table 130

Mandatory in 3GPP TS 34.108 [Error! Reference source not found.**]**	**Used in Idle Mode**	MIB, SB1, (SB2), SIB1, SIB2, SIB3, SIB5, SIB7, SIB11
	Used in Connected Mode	SIB4, SIB6, SIB12
Mandatory for FDD CPCH		SIB8, SIB9
Mandatory for FDD DRAC		SIB10
Mandatory for TDD		SIB14 (for 3.84 Mcps TDD), SIB17
Mandatory for LCS		SIB15, SIB15.1, SIB15.2, SIB15.3
Mandatory for ANSI-41 system		SIB13, SIB13.1, SIB13.2, SIB13.3, SIB13.4
Mandatory for InterSys HO GERAN to UTRAN		SIB16
Mandatory for Cell reselection		SIB18

8.4.2 SIB configurations

Currently the ATS contains three SIB configurations, Configuration 1 is default for UTRAN/FDD SYSTEM, UTRAN/TDD, UTRAN/FDD + GERAN SYSTEM (not involving inter-RAT handover) and Inter-RAT UTRAN to GERAN. Configuration 2 is for test cases which need two S_CCPCH or two PRACH. Configuration 3 is for inter-RAT GERAN to UTRAN handover test cases.

Table 131

Configuration 1	MIB, SB1, SIB1, SIB2, SIB3, SIB4, SIB5, SIB6, SIB7, SIB11, SIB12, SIB18
Configuration 2	MIB, SB1, SIB1, SIB2, SIB3, SIB4, SIB5, SIB7, SIB11, SIB12, SIB18
Configuration 3	MIB, SB1, SIB1, SIB2, SIB3, SIB4, SIB5, SIB7, SIB11, SIB16, SIB18

8.4.3 Test SIB default schedule

Table 132

Frame No.	0	2	4	6	8	10	12	14
REP-POS	0	1	2	3	4	5	6	7
Block Type	MIB	SB1	SIB7	SIB6	MIB	SIB6	SIB6	SIB6

Frame No.	16	18	20	22	24	26	28	30
REP-POS	8	9	10	11	12	13	14	15
Block Type	MIB	SB1	SIB7/SIB3	SIB1/SIB 2	MIB	SIB12	SIB12	SIB12

Frame No.	32	34	36	38	40	42	44	46
REP-POS	16	17	18	19	20	21	22	23
Block Type	MIB	SB1	SIB7/SIB1 8	SIB5	MIB	SIB5	SIB5	SIB5

Frame No.	48	50	52	54	56	58	60	62
REP-POS	24	25	26	27	28	29	30	31
Block Type	MIB	SB1	SIB7/SIB4	- (FDD) SIB5(LCR TDD)	MIB	SIB11	SIB11	SIB11

SIB-repeat period (in frame)

Table 133

Block Type	MIB	SB1	SIB1	SIB2	SIB3	SIB4	SIB5	SIB6	SIB7	SIB11	SIB12	SIB18
SIB Rep	8	16	64	64	64	64	64	64	16	64	64	64
Max. No of seg.	1	1	1	1	1	1	4(FDD) 5(LCR TDD)	4	1	3	3	1

8.4.3.1 Test SIB schedule for idle mode, ~~and measurment~~measurement and Inter-RAT UTRAN to GERAN test cases

Table 134

Frame No.	0	2	4	6	8	10	12	14
REP-POS	0	1	2	3	4	5	6	7
Block Type	MIB	SB1	SIB6	SIB6	MIB	SIB6	SIB6	SIB7/SIB 3

Frame No.	16	18	20	22	24	26	28	30
REP-POS	8	9	10	11	12	13	14	15
Block Type	MIB	SB1	SIB1/SIB2	SIB12	MIB	SIB12	SIB12	SIB7/SIB 12

Frame No.	32	34	36	38	40	42	44	46
REP-POS	16	17	18	19	20	21	22	23
Block Type	MIB	SB1	SIB5	SIB5	MIB	SIB5	SIB5	SIB7/SIB 18

Frame No.	48	50	52	54	56	58	60	62
REP-POS	24	25	26	27	28	29	30	31
Block Type	MIB	SB1	SIB11	SIB11	MIB	SIB11	SIB11	SIB7/SIB 4

SIB-repeat period (in frame)

Table 135

Block Type	MIB	SB1	SIB1	SIB2	SIB3	SIB4	SIB5	SIB6	SIB7	SIB11	SIB12	SIB18
SIB Rep	8	16	64	64	64	64	64	64	16	64	64	64
Max. No of seg.	1	1	1	1	1	1	4(FDD) 5(LCR TDD)	4(FDD) 3(LCR TDD)	1	4	4	1

8.4.4 Test SIB special schedule

8.4.4.1 Test SIB schedule for two S-CCPCH or two PRACH

Table 136

Frame No.	0	2	4	6	8	10	12	14
REP-POS	0	1	2	3	4	5	6	7
Block Type	MIB	SB1	SB1		MIB	SIB1	SIB18	SIB2

Frame No.	16	18	20	22	24	26	28	30
REP-POS	8	9	10	11	12	13	14	15
Block Type	MIB	SB1	SB1	SIB7	MIB	SIB3		SIB4

Frame No.	32	34	36	38	40	42	44	46
REP-POS	16	17	18	19	20	21	22	23
Block Type	MIB	SB1	SB1	SIB5	MIB	SIB5	SIB5	SIB5

Frame No.	48	50	52	54	56	58	60	62
REP-POS	24	25	26	27	28	29	30	31
Block Type	MIB	SB1	SB1	SIB7	MIB	SIB11	SIB11	SIB11

Frame No.	64	66	68	70	72	74	76	78
REP-POS	32	33	34	35	36	37	38	39
Block Type	MIB	SB1	SB1	SIB5	MIB	SIB5	SIB5	SIB5

Frame No.	80	82	84	86	88	90	92	94
REP-POS	40	41	42	43	44	45	46	47
Block Type	MIB	SB1	SB1	SIB7	MIB	SIB3		SIB4

Frame No.	96	98	100	102	104	106	108	110
REP-POS	48	49	50	51	52	53	54	55
Block Type	MIB	SB1	SB1		MIB			

Frame No.	112	114	116	118	120	122	124	126
REP-POS	56	57	58	59	60	61	62	63
Block Type	MIB	SB1	SB1	SIB7	MIB	SIB12	SIB12	SIB12

SIB-repeat period (in frame)

Table 137

Block Type	MIB	SB1	SIB1	SIB2	SIB3	SIB4	SIB5	SIB7	SIB11	SIB12	SIB18
SIB Rep	8	16	128	128	64	64	128	32	128	128	128
Max. No of seg.	1	2	1	1	1	1	8	1	3	3	1

8.4.4.2 Test SIB schedule for Inter-Rat Handover from GERAN to UTRAN Test

Table 138

Frame No.	0	2	4	6	8	10	12	14
REP-POS	0	1	2	3	4	5	6	7
Block Type	MIB	SB1	SB1		MIB	SIB1	SIB18	SIB2

Frame No.	16	18	20	22	24	26	28	30
REP-POS	8	9	10	11	12	13	14	15
Block Type	MIB	SB1	SB1	SIB7	MIB	SIB3		SIB4

Frame No.	32	34	36	38	40	42	44	46
REP-POS	16	17	18	19	20	21	22	23
Block Type	MIB	SB1	SB1	SIB5	MIB	SIB5	SIB5	SIB5

Frame No.	48	50	52	54	56	58	60	62
REP-POS	24	25	26	27	28	29	30	31
Block Type	MIB	SB1	SB1	SIB7	MIB	SIB11	SIB11	SIB11

Frame No.	64	66	68	70	72	74	76	78
REP-POS	32	33	34	35	36	37	38	39
Block Type	MIB	SB1	SB1	SIB16	MIB	SIB16	SIB16	SIB16

Frame No.	80	82	84	86	88	90	92	94
REP-POS	40	41	42	43	44	45	46	47
Block Type	MIB	SB1	SB1	SIB7	MIB	SIB3		SIB4

Frame No.	96	98	100	102	104	106	108	110
REP-POS	48	49	50	51	52	53	54	55
Block Type	MIB	SB1	SB1	SIB16	MIB	SIB16	SIB16	SIB16

Frame No.	112	114	116	118	120	122	124	126
REP-POS	56	57	58	59	60	61	62	63
Block Type	MIB	SB1	SB1	SIB7	MIB			

SIB-repeat period (in frame)

Table 139

Block Type	MIB	SB1	SIB1	SIB2	SIB3	SIB4	SIB5	SIB7	SIB11	SIB16	SIB18
SIB Rep	8	16	128	128	64	64	128	32	128	128	128
Max. No of seg.	1	2	1	1	1	1	4	1	3	8	1

End of Modified Section

Next Modified Section

8.5.5 Test USIM configurations

The default test USIM is defined in 3GPP TS 34.108 [**Error! Reference source not found.**]. This clause specifies a number of specific test USIM configurations which are used for the concerned test cases.

8.5.5.1 Test USIM for Idle mode tests

The PLMN 1-12 identities used below have been defined in 3GPP TS 34.123-1 [**Error! Reference source not found.**], table 6.2. Clause numbers refer to 3GPP TS 34.123-1 [**Error! Reference source not found.**].

Test USIM is configured as bellow for PLMN selection of RPLMN, HPLMN, UPLMN and OPLMN in TC_6_1_1_1 and TC_6_1_1_4.

Table 140

USIM field	Priority	PLMN	Access Technology Identifier
EF_{LOCI}		PLMN 1	
$EF_{PLMNwAcT}$	1st	PLMN 3	UTRAN
	2nd	PLMN 4	UTRAN
$EF_{OPLMNwAcT}$	1st	PLMN 5	UTRAN
	2nd	PLMN 6	UTRAN
EF_{FPLMN}	PLMN 3		

Test USIM is configured as bel~~l~~ow for PLMN selection ~~of PLMN selection~~ of other PLMN with access technology combinations in TC_6_1_1_2 ~~and TC_6_1_1_5~~.

Table 141

USIM field	Priority	PLMN	Access Technology Identifier
EF_{LOCI}		PLMN ~~1~~6	
~~$EF_{HPLMNwAcT}$~~	~~1st~~	~~PLMN 2~~	~~UTRAN~~
~~$EF_{PLMNwAcT}$~~	~~1st~~	~~PLMN 3~~	~~UTRAN~~
	~~2nd~~	~~PLMN 4~~	~~UTRAN~~
~~$EF_{OPLMNwAcT}$~~	~~1st~~	~~PLMN 5~~	~~UTRAN~~
	~~2nd~~	~~PLMN 6~~	~~UTRAN~~
EF_{FPLMN}	PLMN 10		

Test USIM is configured as below for automatic PLMN selection of other PLMN with access technology combinations in TC_6_1_1_5.

Table 113a

USIM field	Priority	PLMN	Access Technology Identifier
EF_{LOCI}		PLMN 6	

Test USIM is configured as bellow for manual PLMN selection independent of RF level and preferred PLMN in TC_6_1_1_3.

Table 142

USIM field	Priority	PLMN	Access Technology Identifier
EF_{LOCI}			
$EF_{PLMNwAcT}$	1st	PLMN 3	UTRAN

Test USIM is configured as below for emergency calls ~~requires that all the BCCH cells belong to the same PLMN, which is not the UE's home PLMN and is in the USIM's forbidden PLMN's list. This specific USIM requirement applies to~~ in TC_6_1_2_6.

Table 114a

USIM field	Priority	PLMN
EF_{LOCI}		PLMN1
EF_{FPLMN}	PLMN 3	

Test USIMs are configured as bellow for Selection of the correct PLMN and associated RAT in TC_6_2_1_1. Two test USIMs are needed for the test.

Table 143: USIM A

USIM field	Priority	PLMN	Access Technology Identifier
EF_{LOCI}			
$EF_{HPLMNwAcT}$	1st		GSM
$EF_{HPLMNwAcT}$	2nd		UTRAN

Table 144: USIM B

USIM field	Priority	PLMN	Access Technology Identifier
EF_{LOCI}			
$EF_{HPLMNwAcT}$	1st		UTRAN
	2nd		GSM

Test USIMs are configured as bellow for Selection of RAT for HPLMN in TC_6_2_1_2. Two test USIMs are needed for the test.

Table 145: USIM A

USIM field	Priority	PLMN	Access Technology Identifier
EF_{LOCI}		PLMN 1	
$EF_{HPLMNwAcT}$	1st		UTRAN
	2nd		GSM

Table 146: USIM B

USIM field	Priority	PLMN	Access Technology Identifier
EF_{LOCI}		PLMN 1	
$EF_{HPLMNwAcT}$	1st		UTRAN
	2nd		

Test USIMs are configured as bellow for Selection of RAT for HPLMN in TC_6_2_1_6. Two test USIMs are needed for the test.

Table 115a: USIM A

USIM field	Priority	PLMN	Access Technology Identifier
EF_{LOCI}		PLMN 1	
$EF_{HPLMNwAcT}$	1st		UTRAN
	2nd		GSM
$EF_{PLMNwAcT}$	1st	PLMN3	UTRAN

Table 116a: USIM B

USIM field	Priority	PLMN	Access Technology Identifier
EF_{LOCI}		PLMN 1	
$EF_{HPLMNwAcT}$	1st		UTRAN
	2nd		
$EF_{PLMNwAcT}$	1st	PLMN3	UTRAN

Test USIM for Selection of RAT for UPLMN or OPLMN in TC_6_2_1_3, TC_6_2_1_4, TC_6_2_1_7, TC_6_2_1_8 and for Selection of Other PLMN with access technology combinations"; Automatic mode in TC_6_2_1_9.

Table 147

USIM field	Priority	PLMN	Access Technology Identifier
EF_{LOCI}		PLMN 1	
$EF_{HPLMNwAcT}$	1st		UTRAN
	2nd		GSM
$EF_{PLMNwAcT}$	1st	PLMN 3	UTRAN
	2nd	PLMN 4	GSM
$EF_{OPLMNwAcT}$	1st	PLMN 5	UTRAN
	2nd	PLMN 6	GSM

Test USIM are configured as bellow for manual selection of other PLMN with access technology combinations in TC_6_2_1_5.

Table 148

USIM field	Priority	PLMN	Access Technology Identifier
EF_{LOCI}		PLMN ~~1~~7	
~~$EF_{HPLMNwAcT}$~~	~~1st~~	~~PLMN 2~~	~~UTRAN~~
	~~2nd~~		~~GSM~~
~~$EF_{PLMNwAcT}$~~	~~1st~~	~~PLMN 3~~	~~UTRAN~~
	~~2nd~~	~~PLMN 4~~	~~GSM~~
~~$EF_{OPLMNwAcT}$~~	~~1st~~	~~PLMN 5~~	~~UTRAN~~
	~~2nd~~	~~PLMN 6~~	~~GSM~~
EF_{FPLMN}	PLMN 8~~7~~		
	PLMN 9~~12~~		

Test USIM for cell reselection if cell becomes barred or for cell reselection timings requires that the USIM does not contain any preferred RAT. This specific test USIM applies to TC_6_2_2_1, TC_6_2_2_2 and TC_6_2_2_3.

End of Modified Section

Next Modified Section

8.7.1 Test suite operation definitions in the module BasicM

Table 149: TSO definitions in BasicM

TSO Name	Description

o_AuthRspChk	**Type of the result:** BOOLEAN
	Parameters:
	p_AuthRsp : AuthRsp
	p_AuthRspExt : AuthRspExt
	p_K : BITSTRING
	p_RAND : BITSTRING
	p_Ext : BOOLEAN
	
	Description
	Checks the input parameter p_AuthRsp and p_AuthRspExt, both received in an Authentication Response, according to the authentication algorithm defined in the following procedure.
	The extension, p_AuthRspExt, is optional. Its presence is indicated by p_Ext.
	Returns TRUE if the Authentication Response contained in parameters p_AuthRsp and eventually p_AuthRspExt is correct, FALSE otherwise.
	The value of tcv_Auth_n indicates whether the AuthRspExt has been provided by the UE or not (n=31, or 31 < n < 128). See 3GPP TS 34.108 [**Error! Reference source not found.**] clause 8.1.2.
	If not the parameter p_AuthRspExt is not to be used.
	
	Algorithm (without the knowledge of tcv_Auth_n):
	==========
	if NOT p_Ext EvaluateAuthRsp else EvaluateAuthRspAndAuthRspExt
	EvaluateAuthRsp:
	==========
	resultbitstring = o_BitstringXOR(XRES, AuthRsp)
	if resultbitstring is all 0s then there is a match.
	EvaluateAuthRspAndAuthRspExt:
	==========
	XREShigh = o_BitstringXtract(XRES, 32, 32, 0)
	/* XRES divides into 2 parts: the higher part of 32 bits related to AuthRsp and the lower part related to AuthRspExt */
	/* SourceLength of 32 is only to ensure usage of the procedure */
	resultbitstring = o_BitstringXOR(XREShigh, AuthRsp)
	if resultbitstring is all 0s then there is a match for the first 32 bits:EvaluateAuthRspExt
	else Authentication failed.
	EvaluateAuthRspExt:
	==========
	/* As AuthRespExt may not be octet aligned the last octet indicated in AuthRspExt is not used for checking */
	if (AuthRspExt.iel = 1)
	then Authentication passed
	/* there was only 1 possibly incomplete octet which is not used */
	else
	{
	AuthRspExthigh = o_BitstringXtract(AuthRspExt.authRsp, ((AuthRspExt.iel -1)* 8), (AuthRspExt.iel -1)* 8, 0)
	/* extract (AuthRspExt.iel -1)* 8 bits starting from bit 0 */
	XRESlow = o_BitstringXtract(XRES, ((AuthRspExt.iel -1)* 8 + 32), (AuthRspExt.iel -1)* 8, 32)
	/* extract (AuthRspExt.iel -1)* 8 bits starting from bit 32 */
	resultbitstring = o_BitstringXOR(XRESlow, AuthRspExthigh, (AuthRspExt.iel -1)* 8)
	if resultbitstring is all 0s then there is a match for the bits following the first 32 bits else Authentication failed

TSO Name	Description
o_BCD_ToInt	**Type of the result:** INTEGER **Parameters:** p_bcdstring:HEXSTRING **Description** The operation OC_BCDtoInt converts an HEXSTRING containing BCD coded digits to an integer representation of these relevant digits. EXAMPLE: OC_BCDtoInt('12345'H) := 12345
o_BitstringChange	**Type of the result:** BITSTRING **Parameters:** P_Str: BITSTRING p_Len: INTEGER p_Offset: INTEGER **Description** Performs the manipulation of a bitstring by toggling the bit identified by p_Offset. The length of the string to be manipulated is specified in p_Len. This is only provided to help ensure that the p_Offset is less than p_Len. Returns a resulting bitstring of length p_Len. EXAMPLE 1: o_BitstringChange('010101'B, 6, 5) produces '010100'B. EXAMPLE 2: o_BitstringChange('010101'B, 6, 0) produces '110101'B.
o_BitstringConcat	**Type of the result:** BITSTRING **Parameters:** P_Str1: BITSTRING p_Str2: BITSTRING p_Len1: INTEGER p_Len2: INTEGER **Description** Performs the concatenation of 2 bitstrings of possibly different lengths. The bit significance is from left to right, ie the MSB is at the lefthand side. Returns a resulting bitstring p_Str1 || p_Str2 of length p_ Len1 + p_Len. EXAMPLE: o_BitstringConcat('010101'B,'11'B) produces '01010111'B of length 6 + 2 = 8.
o_BitstringXOR	**Type of the result:** BITSTRING **Parameters:** P_Str1: BITSTRING p_Str2: BITSTRING p_Len: INTEGER **Description** Performs an XOR operation using 2 bitstrings of the same length (p_Len). Returns a resulting Bitstring of length p_Len. EXAMPLE: o_BitstringXOR('0011'B, '0101'B, 4) produces '0110'B.
o_BitstringXtract	**Type of the result**: BITSTRING **Parameters:** P_Str: BITSTRING p_SrcLen: INTEGER p_TargetLen: INTEGER p_Offset: INTEGER **Description** Performs the wrap around extract of a bitstring. The length of the string from which extraction is to be made is specified in p_SrcLen. The length of the bitstring to be extracted is indicated as p_TargetLen, the offset in the original string is indicated in p_Offset. The bit position 0 is at the left side. Returns a resulting bitstring of length p_TargetLen. EXAMPLE 1: o_BitstringXtract('101010'B, 6, 2, 1) produces '01'B. EXAMPLE 2: o_BitstringXtract('101010'B, 6, 4, 3) produces '0101'B, wrapping around. EXAMPLE 3: o_BitstringXtract('111000'B, 6, 4, 3) produces '0111'B, wrapping around.

TSO Name	Description
o_BitToOct	**Type of the result**: OCTETSTRING **Parameters:** p_Str: BITSTRING **Description** This TSO is used to convert the given BITSTRING into an OCTETSTRING. If the bitstring length is not a multiple of 8, 1 to 7 padding bits are added at the end to fill the final octet.
o_BMC_DrxScheduling	**Type of the result**: BMC_ResultOfSchedulingLevel2 **Parameters:** p_BMC_CBS_Message1 : BMCCBSMESSAGE p_BMC_CBS_Message2 : BMCCBSMESSAGE p_BMC_CB_RepPeriod : INTEGER p_BMC_NoOfBroadcast_Req : INTEGER p_Offset : BMC_DRX_Offset **Description** This TSO shall calculate all BMC CBS schedule Messages for the CBS messages as described in 3GPP TS 34.123-1, clause 7.4.3.1. The TSO has to precalculate the CTCH Block SETs needed, i.e. it shall have all necessary knowledge (RLC segmentation, MAC handling, if needed) to predict the CTCH with BMC contents for the given input to be sent. The TSO shall consider the BMC CBS Scheduling Level2 as described in 3GPP TS 25.324 [**Error! Reference source not found.**], 3GPP TR 25.925 [**Error! Reference source not found.**] and the description of BMC test architecture and test method in the present document, clause 6.8. The TSO calculates the BMC CBS Schedule messages to predict its next BlockSet to be sent. In addition, a DRX scheduling Bitmap is created for each CTCH allocated TTI alligned to the pre-calculated offset in between 2 CTCH Block Sets. The prinziple of DRX shall be followed by this TSO. I.e. BMC Messages shall be sent blockwise (CTCH Block Set) with predicted offset in between 2 Block Sets. The TSO shall consider the following aspects to calculate the DRX Selection Bitmap and to create the BMC CBS Schedule messages: 1. The first CTCH Block Set consists of the first BMC CBS Schedule message predicting the offset, length and content of the following Block Set where the BMC CBS Message1 shall be send as new message. 2. The BMC CBS Message1 shall be repeated for p_BMC_CB_RepPeriod multiplied by p_BMC_NoOfBroadcast_Req times before the BMC CBS Message2 is broadcasted. 3. The BMC CBS Schedule Messages shall be the last message of a CTCH Block Set, i.e. on the end of a Block Set. 4. If no further repetition of BMC CBS Messages is needed, no further BMC CBS Schedule message shall be created. output parameter: DrxSelectionBitmap: The TSO creates a Bitmap as Octetstring for scheduled CTCH allocated TTI as described in 3GPP TS 34.123-3: clause 6.8.2 BMC test method and architecture. CBS_Schedule_Message01, CBS_Schedule_Message02, CBS_Schedule_Message03:Considering the given BMC PDUs BMC_DRX_Offset and BMCCBSMESSAGE to be sent, the BMC Schedule messages have to be created according the given parameter.
o_CheckStringStartWith	**Type of the result:**BOOLEAN **Parameters:** p_SourceString: IA5String p_StartString : IA5String **Description** o_CheckStringStartWith returns TRUE if the p_sourceString start with the p_StartString. Otherwise it returns FALSE. EXAMPLE: o_CheckStringStartWith ("+CLCC:1,0,0,2,0;", "+CLCC:1,0,0")=TRUE */.

TSO Name	Description
o_ComputeSM_Contents	**Type of the result:** OCTETSTRING **Parameters:** p_NumOfChars: INTEGER **Description** This operation provides a short message's contents with a specified number of characters 'p_NumOfChars', each represented by 7 bits. As possibly different characters are sent, the characters are those corresponding to the 7-bit representation of 0, 1, 2, ... up to ('p_NumOfChars' - 1). If more than 128 characters are sent, the rest of the characters is the corresponding to 0, 1, ... up to ('p_NumOfChars' - 128 - 1), e.g. for 160 characters: 0, 1, ..., 127, 0, 1, ..., 31. The bits are arranged acc. to 3GPP TS 23.038 [**Error! Reference source not found.**], clause 6.1.2.1.1. max. 160 characters, i.e. 140 octets.
o_ComputeSM_ContentsSpec	**Type of the result:** OCTETSTRING **Parameters:** p_NumOfChars: INTEGER p_Text: IA5String **Description** This operation provides a short message's contents with a specified number of characters 'p_NumOfChars', each represented by 7 bits. 'p_Text' is used as contents of the short message. If 'p_Text' contains less than 'p_NumOfChars' characters, 'p_Text' is repeated until the short message reaches the 'p_NumOfChars' characters long.The bits are arranged acc. to 3GPP TS 23.038 [**Error! Reference source not found.**], clause 6.1.2.1.1. max. 160 characters, i.e. 140 octets.
o_ConcatStrg	**Type of the result:** IA5String **Parameters:** P_String1: IA5String p_String2: IA5String **Description** o_ConcatString concatenates 'p_String1' and 'p_String2' and returns the resulting string. EXAMPLE: o_ConcatString ("AT+CBST=0" , ",0") = "AT+CBST=0,0"
o_ConvertIMSI	**Type of the result:** IMSI_GSM_MAP **Parameters:** P_Imsi : HEXSTRING The input parameter `p_Imsi` is a BCD string (subset of HEXSTRING), the result is of type IMSI_GSM_MAP.
o_ConvertTMSI	**Type of the result:**TMSI_GSM_MAP **Parameters:** p_Tmsi : OCTETSTRING **Description** The input parameter 'p_Tmsi' is an OCTETSTRING; the result is of type TMSI_GSM_MAP.
o_ConvertPTMSI	**Type of the result:** P_TMSI_GSM_MAP **Parameters:** p_PTMSI : OCTETSTRING **Description** The input parameter `PTMSI` is a OCTETSTRING, the result is of type P_TMSI_GSM_MAP.

TSO Name	Description
o_ConvtPLMN	**Type of the result:**TMSI_GSM_MAP **Parameters:** OCTETSTRING p_MCC, p_MNC : HEXSTRING **Description** the functions of o_ConvtPLMN are as following: 1. The least significant HEX of p_MNC is removed from p_MNC and inserted into p_MCC in the position left to the third HEX to form a new p_MCC of 4 HEXs, then swap the first HEX (left most, most siginificant Hex) with the second HEX of the new p_MCC. 2. Swap the first Hex with the second HEX of the remaining part of p_MNC and append it to the new p_MCC formed in Step1 above. EXAMPLE 1: o_ConvtPLMN('123'H, '456'H) = '216354'O. EXAMPLE 2: o_ConvtPLMN ('234'H, '01F'H) = '32F410'O.
o_ConvtAndConcatStr	**Type of the result:**OCTETSTRING **Parameters:** p_MCC, p_MNC : HEXSTRING; p_LAC : OCTETSTRING; p_RAC : OCTETSTRING **Description** functions of o_ConvtAndConcatStr are as following: 1. The least significant HEX of p_MNC is removed from p_MNC and inserted into p_MCC in the position left to the third HEX to form a new p_MCC of 4 HEXs, then swap the first HEX (left most, most siginificant Hex) with the second HEX of the new p_MCC. 2. Swap the first Hex with the second HEX of the remaining part of p_MNC and append it to the new p_MCC formed in Step1 above. 3. Append p_LAC to the result of Step 2, this is the final result if p_RAC is omitted. 4. Append p_RAC to the result of Step 3, this is the final result. NOTE 1: Steps 1 and 2 are identical to o_ConvtPLMN. NOTE 2: If p_RAC is omitted, 5 octets of Location Area Identification are produced (for SysInfo sending). If p_RAC is not omitted, 6 octets of Routing Area Identification are produced (for SysInfo sending). EXAMPLE 1: o_ConvtAndConcatStr ('123'H, '456'H, '0001'O, '01'O) = '216354000101'O. EXAMPLE 2: o_ConvtAndConcatStr ('234'H, '01F'H, '0005'O, OMIT) = '32F4100005'O.
o_DrawRandomNo	**Type of the result:** INTEGER **Parameters:** p_LowerBound, p_UpperBound: INTEGER **Description** This operation draws a random number in the range of p_LowerBound and p_UpperBound.The result is in the range p_LowerBound, p_LowerBound+1, ..., p_UpperBound.
o_FirstDigit	**Type of the result:** B4 **Parameters:** p_BCDdigits : HEXSTRING **Description** The input parameter p_BCDdigits shall be a BCD string (subset of HEXSTRING), the resut is a BITSTRING[4] of a binary representation of one BCD digit. The function of the o_FirstDigit is to return the first (most significant) digit of the input parameter 'p_BCDdigits'. EXAMPLE 1: o_FirstDigit('12345') = '0001'B. EXAMPLE 2: o_FirstDigit('012345678') = '0000'B.

TSO Name	Description
o_GetBit	**Type of the result:** BITSTRING **Parameters:** p_Source: BITSTRING p_DataLength:INTEGER **Description** o_GetBit returns the BITSTRING of length p_DataLength extracted from p_Source. The extraction shall start in the bit position 0 (at the left).
3GPP TSG RAN WG5 (Testing)	**Type of the result:**OCTETSTRING **Parameters:** p_Start, p_N: INTEGER **Description** This operation returns N octets from a repeated pseudo random bit sequence, starting with octet position p_Start. The PRBS is the 2047 bit pseudo random test pattern defined in ITU-T Recommendation O.153 [**Error! Reference source not found.**] for measurements at 64 kbit/s and N x 64 kbit/s o_GetN_OctetsFromPRBS(p_Start, p_N) generates an OCTETSTRING containing p_N octets starting from octet number p_Start in the PRBS. Requirements p_Start ≥ 0 p_N ≥ 1 Definition Define the 2 047 bit PRBS sequence b(i) as an m-sequence produced by using the following primitive (over GF(2)) generator polynomial of degree 11: X^11 + X^9 + 1 This sequence is defined recursively as: b(i) = 1 , i = 0,1,...,10 b(i) = b(i - 2) + b(i - 11) modulo 2 , i = 11,16,...,2046 The OCTETSTRING, o(j) generated by the present TSO is produced by extracting p_N octets from the repeated sequence b(i) as follows: o(j,k) = b(((n_Start + j) * 8 + k) modulo 2047) where: j = 0,1,..,p_N - 1 k = 0,1,..7 o(j,k) is the kth bit of the jth octet in o(j), o(j,0) is the MSB of the jth octet in o(j), o(j,7) is the LSB of the jth octet in o(j), Example results: o_GetN_OctetsFromPRBS(0, 25) and o_GetN_OctetsFromPRBS(2047, 25) both return: 'FFE665A5C5CA3452085408ABEECE4B0B813FD337873F2CD1E2'O o_GetN_OctetsFromPRBS(255, 25) and o_GetN_OctetsFromPRBS(255 + 2047, 25) both return '01FFCCCB4B8B9468A410A81157DD9C9617027FA66F0E7E59A3'O
o_GetPI	**Type of the result:** BITSTRING **Parameters:** p_Imsi : **HEXSTRING** p_Np: INTEGER **Description** The PI is calculated as following: PI = drx_index mod np The drx_index is calculated as described hereafter: drx_index = (o_BCD_ToInt (p_Imsi) / 8192) This calculation is defined in 3GPP TS 25.304 [**Error! Reference source not found.**] clause 8.3. 0_GetPI = “0000000…0000” B with length of Np (18, 36, 72 or 144), except the PIth bit shall be set to “1”B. For example, if PI is calculated as 2, the b2 is set to “1”B. The b0 is LSB that corresponds to when PI=0. ~~NOTE: The IMSI is passed as HEXSTRING, the relevant conversion shall be done.~~

TSO Name	Description
o_GetSC_TimeStamp	**Type of the result:** TP_ServCentreTimeSt **Parameters:** p_timezone : TZONES This operation provides the hexstring containing the Service Center Time Stamp (SCTS) according to 3GPP TS 23.040 [**Error! Reference source not found.**], clauses 9.2.2.1 and 9.2.3.11. The TSO reads the current time of the test systems clock and transforms the time in combination with the input parameter 'timezone' into a service center time stamp. Example: 2002 April 18, 15:32:46, timezone=4 o_GetSC_TimeStamp returns 20408151236440 TPSCTS is HEXSTRING[14]
o_HexToDigitsMCC	**Type of the result:**MCC **Parameters:** p_BCDdigits : HEXSTRING **Description** The input parameter p_BCDdigits shall be a BCD string (subset of HEXSTRING), the result is a SEQUENCE (SIZE(3)) OF digit (MCC). NOTE: The length of p_BCDdigits shall be 3. User shall take the responsibility of fulfilling this requirement. EXAMPLE 1: o_HexToDigitsMCC('111'H) = {1, 1, 1}. EXAMPLE 2: o_HexToDigitsMCC('123'H) = {1, 2, 3}.
o_HexToDigitsMNC	**Type of the result:**MNC **Parameters:** p_BCDdigits : HEXSTRING **Description** The function of this operation is: 1. The least significant HEX is removed if it is 'F' and the operation returns SEQUENCE (SIZE(2)) OF Digit. 2. The operation returns SEQUENCE (SIZE(3)) OF Digit if all 3 HEX digits in p_BCDdigits are BCD Digit. EXAMPLE 1: o_HexToDigitsMNC('123'H) = {1, 2, 3}. EXAMPLE 2: o_HexToDigitsMNC('13F'H) = {1, 3}.
o_HexToIA5	**Type of the result:** IA5String **Parameters:** p_String: HEXSTRING **Description** o_HEX_TO_IA5 converts hexadecimal string 'p_String' to an IA5 String EXAMPLE: o_HEX_TO_IA5 ('15A'H) = "15A".
o_IA5_ToOct	**Type of the result:**OCTETSTRING **Parameters:** p_String : IA5String **Description** o_IA5_ToOct converts the string p_String from IA5String type to OCTETSTRING. Each character is mapped onto an octet, and bit 8 is set to 0. This TSO shall be used to convert Access Point Numbers for example. See 3GPP TS 24008, clause 10.5.6.1 EXAMPLE: o_IA5_ToOct ("15A") = '313541'O.

TSO Name	Description
o_IA5_BMC_ToOct	**Type of the result:**OCTETSTRING **Parameters:** p_String :IA5String_BMC p_DCS: TP_DataCodingScheme **Description** o_IA5_BMC_ToOct converts the string p_String from IA5String_BMC type to OCTETSTRING. p_DCS determines how this is done (refer to 3GPP TS 23.038 [**Error! Reference source not found.**] clause 5). If a 7 bit packing is to be applied then proceed as described in 3GPP TS 23.038 [**Error! Reference source not found.**] clause 6.1.2.2.1 and clause 6.2.1. This is the default case. If 8bit data is to be used then proceed as described in 3GPP TS 23.038 [**Error! Reference source not found.**] clause 6.2.2. If UCS2is to be used then proceed as described in 3GPP TS 23.038 [**Error! Reference source not found.**] clause 6.2.3. The type IA5_BMC implies that the length of p_String is restricted to 1 246 octets. (Refer to 3GPP TS 23.041 [**Error! Reference source not found.**], 3GPP TS 23.038 [**Error! Reference source not found.**], 3GPP TS 25.324 [**Error! Reference source not found.**]) EXAMPLE 1: o_IA5_ BMC_ToOct ("15A", '0F'O) = 'B15A10'O ('0F'O is the default codepoint, GSM 7 bit packed). EXAMPLE 2: o_IA5_ BMC_ToOct ("15A", '00'O) = 'B15A10'O (German Language, GSM 7 bit packed). EXAMPLE 3: o_IA5_ BMC_ToOct ("15A", '01'O) = 'B15A10'O (English Language, GSM 7 bit packed). EXAMPLE 4: o_IA5_ BMC_ToOct ("15A", 'F0'O) = 'B15A10'O (Data coding, no msg class, GSM 7 bit packed). EXAMPLE 5: o_IA5_ BMC_ToOct ("15A", 'F1'O) = 'B15A10'O (Data coding, class 1, GSM 7 bit packed). EXAMPLE 6: o_IA5_ BMC_ToOct ("15A", 'F2'O) = <8 bit data is user defined> (Data coding, no msg class, 8 bit data).
o_IA5_IP_ToOct	**Type of the result:**OCTETSTRING **Parameters:** p_String: IA5String p_IP_V4: BOOLEAN **Description** o_IA5_IP_ToOct converts the string p_String from IA5String type to OCTETSTRING. p_String represents an IP address consisting of a number of fields of digits, separated by dots. Each one of the numbers of which the IP address consists is converted into one octet. The dots separating the numbers are ignored. p_IP_V4 is a BOOLEAN. When TRUE, an IP Version 4 address is to be converted, the maximum length of which is 4 octets, otherwise an IP Version 6 address is to be converted, the maximum length of which is 16 octets. See 3GPP TS 24.008 [**Error! Reference source not found.**], clause 10.5.6.4. EXAMPLE 1: o_IA5_IP_ToOct ("200.1.1.80", TRUE) = 'C8010150'O. EXAMPLE 2: o_IA5_IP_ToOct ("200.1.1.80.100", TRUE) should result in an appropriate error message. EXAMPLE 3: o_IA5_IP_ToOct ("300.1.1.80", TRUE) should result in an appropriate error message.
o_IA5_DigitsToOct	**Type of the result:**OCTETSTRING **Parameters:** p_String: IA5String **Description** o_IA5_DigitsToOct converts the string p_String from IA5String type to OCTETSTRING. Each pair of characters is considered a pair of numbers to be mapped onto 1 octet. Each character of p_String shall represent a digit (0..9). In case the number of characters is odd, then a filler '1111'B is used to fill the last octet required to represent the digits. See 3GPP TS 24.008 [**Error! Reference source not found.**], clause 10.5.4.7.

TSO Name	Description
	EXAMPLE 1: o_IA5_DigitsToOct ("0613454120") = '6031541402'O. EXAMPLE 2: o_IA5_DigitsToOct ("06134541209") = '6031541402F9'O. EXAMPLE 3: o_IA5_DigitsToOct ("A6134541209") should result in an appropriate error message.
o_IntToOct	**Type of the result:**OCTETSTRING **Parameters:** p_N : INTEGER p_L: INTEGER **Description** o_IntToOct converts the INTEGER `p_N` into OCTETSTRING with length = 'p_L'. EXAMPLE 1: o_IntToOct(14,1) = '0E'O. EXAMPLE 2: o_IntToOct(18,1) = '12'O. EXAMPLE 3: o_IntToOct(18,2) = '0012'O.
o_IntToIA5	**Type of the result:**IA5String **Parameters:** p_N : INTEGER; p_L: INTEGER **Description** o_IntToIA5 converts the INTEGER `p_N` into IA5 String with length = 'p_L'. EXAMPLE 1: o_IntToIA5(160,3) = "160"; EXAMPLE 2: o_IntToIA5(160,4) = " 160"; EXAMPLE 3: o_IntToIA5(160,2) = "60".
o_OctetstringConcat	**Type of the result:**OCTETSTRING **Parameters:** p_Str1, p_Str2: OCTETSTRING **Description** o_OctetstringConcat Performs the concatenation of 2 octetstrings of possibly different lengths. The octet significance is from left to right, i.e. the MSB is at the lefthand side. Returns a resulting octetstring p_Str1 || p_Str2. EXAMPLE: o_OctetstringConcat('135'O, '9A38'O) = '1359A38'O.
o_OctToBit	**Type of the result:** BITSTRING **Parameters:** p_OctetStr: OCTETSTRING **Description** Converts an OCTETSTRING into a BITSTRING. The size of the resulting BITSTRING is 8 times the size of the input OCTETSTRING.
o_OctToInt	**Type of the result:** INTEGER **Parameters:** p_oct : OCTETSTRING **Description** Transform an OCTETSTRING of length 1 to 4 into an unsigned 32 bits IINTEGER value. If the input octet string is larger than 4, then only the first 4 octets shall be considered.
o_OctToIA5	**Type of the result:** IA5String **Parameters:** p_String: OCTETSTRING **Description** o_OctToIA5 converts hexadecimal string 'p_String' to an IA5 String EXAMPLE: o_OctToIA5 ('2A15AF'O) = "2A15AF".

TSO Name	Description
o_OeBit	**Type of the result:**BITSTRING **Parameters:** p_BCDdigits: HEXSTRING **Description** The input parameter 'p_BCDdigits' is a BCD string (subset of HEXSTRING), the result is BITSTRING[1]. The function of the o_OeBit is as the follows: 1. It returns '1'B, if the length of the 'p_BCDdigits' is odd. 2. It returns '0'B, if the length of the 'p_BCDdigits' is even. EXAMPLE 1: o_OeBit('12583') = '1'B. EXAMPLE 2: o_OeBit('87259957') ='0'B.
o_OtherDigits	**Type of the result:**OCTETSTRING **Parameters:** p_BCDdigits : HEXSTRING **Description** The input parameter ` p_BCDdigits ` is a BCD string (subset of HEXSTRING), the result is an even string of BCD digits, with eventually a filler 'F'H used. */ The function of the o_OtherDigits is as the follows: 1. If the number of the 'p_BCDdigits' is odd, the operation removes the most significant digit, and then reverses the order of each pair of digits. 2. If the number of the 'p_BCDdigits' is even, first the operation suffixes the `bcddigits` with 'F'H, then removes the most significant digit, and then reverses the order of each pair of digits. EXAMPLE 1: o_OtherDigi('12345') = '3254', EXAMPLE 2: o_OtherDigi('12345678') ='325476F8'. See o_FirstDigit for the handling of the first digit.
o_RoutingParameterIMSIResponsePaging	**Type of the result**: RoutingParameter **Parameters:** p_IMSI : HEXSTRING **Description** The input parameter p_Imsi is a BCD string (subset of HEXSTRING), the result is of type RoutingParameter. The tso returns the RoutingParameter, which consists of DecimalToBinary [(IMSI div 10) mod 1000]. The bits of the result are numbered from b0 to b9, with bit b0 being the least significant.
o_SendInSameFrame	**Type of the result:** BOOLEAN **Parameters:** p_NumberMsg : INTEGER **Description** o_SendInSameFrame is called to request SS to send the p_NumberMsg messages in the same frame. Then it returns TRUE.

TSO Name	Description

o_SIB_PER_Encoding	**Type of the result:**BITSTRING
	Parameters:
	p_SIB : SIB
	
	Description
	It returns the unaligned PER encoding (BIT STRING) of the input system information block p_SIB (without "Encoder added (1-7) bits padding"). The bits corresponding to the encoding of the CHOICE of the SIB type shall be removed.
	Example:
	for the following SIBType1 value:
	`SysInfoType1 ::=`
	`{ cn-CommonGSM-MAP-NAS-SysInfo '32F4100001'H,`
	`cn-DomainSysInfoList`
	`{ { cn-DomainIdentity ps-domain,`
	`cn-Type gsm-MAP : '0000'H,`
	`cn-DRX-CycleLengthCoeff 7},`
	`{cn-DomainIdentity cs-domain,`
	`cn-Type gsm-MAP : '0001'H,`
	`cn-DRX-CycleLengthCoeff 7}},`
	
	`ue-ConnTimersAndConstants`
	`{ t-304 ms100,`
	`n-304 7,`
	`t-308 ms40,`
	`t-309 8,`
	`t-313 15,`
	`n-313 s200,`
	`t-314 s20,`
	`t-315 s1800,`
	`n-315 s1000},`
	`ue-IdleTimersAndConstants`
	`{ t-300 ms400,`
	`n-300 7,`
	`t-312 10,`
	`n-312 s200},`
	`nonCriticalExtensions { }`
	`}`
	The operation returns BITSTRING:
	"1000011001011110100001000000000000000000010110001000000000000000010000100000000000000010100001100110000011111000001110011111111111111111110101111010011"

o_SIB_Segmentation	**Type of the result:** SegmentsOfSysInfoBlock **Parameters:** p_SIBBitString : BITSTRING **Description** The function of the o_SIB_Segmentation is as following: 1. If the p_SIBBitString is less than or equal to 226 bits, the bit string is fit into a complete segment. If the segment is less than 226 bits but more than 214 bits,the segment shall be padded to 226 bits long with padding bits set to '0'B. 2. If the input operand p_SIBBitString is longer than 226 bits it is segmented from left to right into segments, each segment except the last one is 222 bits. The last segment may be 222 bits or shorter. If the length of last segment is greater than 214 bits pad it to 222 bits with padding bits set to '0'B. 3. The number of segments is assigned to segCount field of the result. 4. The first segment is assigned to seg1 field of the result, the second segment is assigned to the seg2 field of the result, the third segment is assigned to the seg3 field of the result, and so on till the last segment.

TSO Name	Description
o_SIB_SegmentationFirstSpecial	**Type of the result:** SegmentsOfSysInfoBlock **Parameters:** p_SIB_BitString : BITSTRING p_FirstSegLength : INTEGER **Description** The function of the o_SIB_Segmentation_FirstShort is as following: 1. If the p_SIB_BitString is less than or equal to p_FirstSegLength bits, the bit string is fit into one segment. 2. If the input operand p_SIB_BitString is longer than p_FirstSegLength bits it is segmented from left to right into segments, each segment except the first one and the last one is 222 bits . The first one is p_FirstSegLength long. The last segment may be 222 bits or shorter. If the length of last segment is greater than 214 bits pad it to 222 bits with padding bits set to '0'B. 3. The number of segments is assigned to segCount field of the result. 4. The first segment is assigned to seg1 field of the result, the second segment is assigned to the seg2 field of the result, the third segment is assigned to the seg3 field of the result, and so on till the last segment. 5. The value of parameter p_FirstSegLength shall be less than 197.
o_CheckPDUsAcknowledged	**Type of the result:** BOOLEAN **Parameters:** p_NackList: NackList Contains a list of integers (possibly empty), each of which corresponds to a PDU SN. Negative acknowledgement is expected for each of these PDUs. p_FSN: INTEGER Contains an integer representing the first SN expected to be acknowledged. p_LSN: INTEGER Contains an integer representing the last SN expected to be acknowledged. p_SUFI_List: SuperFields This parameter contains the received SUFI list to be checked. **Description:** This TSO is used to check that the given SUFI list contains any combination of SUFIs that fulfils the following requirements: 1. Negatively acknowledges all PDUs whose sequence numbers are in p_NackList. Note that the list may be empty. 2. Positively acknowledges all other PDUs with sequence numbers greater thatn or equal to p_FSN, and less than or equal to p_LSN. **Output:** This TSO returns a BOOLEAN value of TRUE if the SUFI list meets all of the requirements based on the given parameters. Otherwise the TSO returns FALSE.

End of Modified Section

Next Modified Section

8.7.5 Specific test suite operation for RAB_HS testing

Table 150: TSO definitions for RAB_HS testing

TSO Name	Description
o_CalculateTestPoint656	**Type of the result:** HSDPA_TestPoint **Parameters**: p_PhyCat:HSDSCH_physical_layer_category p_ModScheme:ModulationScheme p_NumOfPDU: INTEGER **Description:** TSO implements tables 14.1.3.4.1 for category 1 to 6, 14.1.3.4.2 for category 7 and 8, 14.1.3.4.3 for category 9, 14.1.3.4.4 for Category 10 and 14.1.3.4.5 for category 11 and 12. It accepts UE category(1 to 12), Modulation scheme(qpsk or qam16) andnumber of MAC-D PDU's(1 to 70) as input. If a test point is not defined for this combination of inpute, then returns flag = FALSE noOfChannelisatonCodes =0 tbSizeIndexOnHS_SCCH =0 If a test point is defined for the combination of inputs, it returns, flag = TRUE noOfChannelisatonCodes =value as per relvant table tbSizeIndexOnHS_SCCH =TFRI value as per relvant table example: if input is physical category =1,modScheme=qpsk,Num Of PDU's =5 TSO returns flag = TRUE noOfChannelisatonCodes =5 tbSizeIndexOnHS_SCCH =43 If input is category =1,modScheme=qpsk,Num Of PDU's =10 TSO returns flag = FALSE noOfChannelisatonCodes =0 tbSizeIndexOnHS_SCCH =0
o_CalculateTestPoint336	**Type of the result:** HSDPA_TestPoint **Parameters**: p_PhyCat:HSDSCH_physical_layer_category p_ModScheme:ModulationScheme p_NumOfPDU: INTEGER **Description:** TSO implements tables 14.1.3.3.1 for category 1 to 6, 14.1.3.3.2 for category 7 and 8, 14.1.3.3.3 for category 9, 14.1.3.3.4 for Category 10 and 14.1.3.3.5 for category 11 and 12. It accepts UE category(1 to 12), Modulation scheme(qpsk or qam16) andnumber of MAC-D PDU's(1 to 70) as input. If a test point is not defined for this combination of inpute, then returns flag = FALSE noOfChannelisatonCodes =0 tbSizeIndexOnHS_SCCH =0 If a test point is defined for the combination of inputs, it returns, flag = TRUE noOfChannelisatonCodes =value as per relvant table tbSizeIndexOnHS_SCCH =TFRI value as per relvant table example: if input is physical category =1,modScheme=qpsk,Num Of PDU's =10 TSO returns flag = TRUE noOfChannelisatonCodes =5 tbSizeIndexOnHS_SCCH =45 If input is category =1,modScheme=qpsk,Num Of PDU's =17 TSO returns flag = FALSE noOfChannelisatonCodes =0

	tbSizeIndexOnHS_SCCH =0

Table ???: HSDPA_TestPoint

Structure Type Definition			
Type Name: HSDPA_TestPoint			
Encoding Variation:			
Comments: To provide the information to SS to send data in every TTI on each RAB. Number of RBs depends on specific requirement. SS shall take care about all kind of discard info in all RLC modes and final aim is DL TFCs under test shall be selected in downlink for each TTI.			
Element name	**Type Definition**	**Field Encoding**	**Comments**
flag	BOOLEAN		TRUE if test point is applicable
noOfChannelisatonCodes	INTEGER		Range 1 to 15 Valid value ifflag =TRUE
tbSizeIndexOnHS_SCCH	INTEGER		

End of Modified Section

Next Modified Section

8.8 AT commands

Table 127 shows a list of AT commands. By using these commands the ATSs communicate with the SS for an automatic execution. The column "ATS" indicates in which ATS the command is used.

Table 151: AT commands used in 3GPP ATSs

Command	Reference	ATS
+CGACT	3GPP TS 27.007 [**Error! Reference source not found.**]	BMC, MAC, NAS, RAB, RLC, RRC, PDCP, SMS
+CGATT	3GPP TS 27.007 [**Error! Reference source not found.**]	BMC, MAC, NAS, RAB, RLC, RRC, PDCP, SMS
+CGCMOD	3GPP TS 27.007 [**Error! Reference source not found.**]	NAS
+CGDCONT	3GPP TS 27.007 [**Error! Reference source not found.**]	BMC, MAC, NAS, RAB, RLC, RRC, PDCP, SMS
+CGDSCONT	3GPP TS 27.007 [**Error! Reference source not found.**]	NAS
+CGEQREQ	3GPP TS 27.007 [**Error! Reference source not found.**]	BMC, MAC, NAS, RAB, RLC, RRC, PDCP, SMS
+CLCC	3GPP TS 27.007 [**Error! Reference source not found.**]	NAS
+VTS	3GPP TS 27.007 [**Error! Reference source not found.**]	NAS
H	3GPP TS 27.007 [**Error! Reference source not found.**]	NAS, RAB, RRC, SMS
+CBST	3GPP TS 27.007 [**Error! Reference source not found.**]	NAS, RAB, RRC, SMS
+CMOD	3GPP TS 27.007	NAS, RAB, RRC, SMS

	[**Error! Reference source not found.**]	
A	3GPP TS 27.007 [**Error! Reference source not found.**]	NAS, RAB, RRC, SMS
D	3GPP TS 27.007 [**Error! Reference source not found.**]	BMC, MAC, NAS, RAB, RLC, RRC, PDCP, SMS
+CGMD	3GPP TS 27.005 [**Error! Reference source not found.**]	SMS
+CGMF	3GPP TS 27.005 [**Error! Reference source not found.**]	SMS
+CGMR	3GPP TS 27.005 [**Error! Reference source not found.**]	SMS
+CMGW	3GPP TS 27.005 [**Error! Reference source not found.**]	SMS
+CMSS	3GPP TS 27.005 [**Error! Reference source not found.**]	NAS, RAB, RRC, SMS
+CPMS	3GPP TS 27.005 [**Error! Reference source not found.**]	SMS
+CSCA	3GPP TS 27.005 [**Error! Reference source not found.**]	SMS
+CSCS	3GPP TS 27.005 [**Error! Reference source not found.**]	SMS
+CSMS	3GPP TS 27.005 [**Error! Reference source not found.**]	SMS
+CVHU	3GPP TS 27.005 [22]	NAS, RAB, RRC, SMS, IR_U, IR_G
+CHUP	3GPP TS 27.005 [22]	NAS, RAB, RRC, SMS, IR_U, IR_G

8.8.1 AT command lists in ATSs

8.8.1.1 AT commands in IR_U ATS:

Command	Syntax in TTCN	Comments
CBST	AT+CBST=[<speed>[,<name>[,<ce>]]]<CR> <speed>=0,7,12,14,15,16,17,39,43,47,48,49,50,51,71,75,79,80,81,82,83,84,115,116,120,121 <name>=0,1,4,5 <ce>=0,1	Select bearer service type, TS 27.007 clause 6.7
CGACT	AT+CGACT=1,1<CR> AT+CGACT=0,1<CR>	PDP context activate or deactivate, TS 27.007 clause 10.1.10
CGATT	AT+CGATT=1<CR>	PS attach or detach, TS 27.007 clause 10.1.9
CGDSCONT	AT+CGDSCONT= 1,<CR> AT+ CGDSCONT=1 , 1, “IP”, 0,0,<CR>	Establish secondary PDP Context, TS 27.007 clause 10.1.2
CGEQREQ	AT+CGEQREQ=1,2,64,64,,,1,320,”1E4”,”1E5”,1,,3<CR> AT+CGEQREQ=1,3,64,64,,,1,320,”1E4”,”1E5”,1,,<CR>	Quality of Service Profile (Requested), TS 27.007 clause 10.1.4
CHUP	AT+CHUP<CR>	Hang up call, TS 27.007 clause 6.5
CMOD	AT+CMOD=0<CR> AT+CMOD=1<CR>	Call mode, TS 27.007 clause 6.4
CMSS	AT+CMSS=000<CR> AT+CMSS=001<CR> AT+CMSS=002<CR>	Send Message from Storage, TS 27.005 clause 3.5.2
CVHU	AT+CVHU=0<CR>	Voice Hang up control, TS 27.007 clause 6.20

8.8.1.2 AT commands in MAC and RLC ATS:

Command	Syntax in TTCN	Comments
CGATT	AT+CGATT=1<CR>	PS attach or detach, TS 27.007 clause 10.1.9

8.8.1.3 AT commands in NAS ATS:

Command	Syntax in TTCN	Comments
CBST	AT+CBST=[<speed>[,<name>[,<ce>]]]<CR> <speed>=0,7,12,14,15,16,17,39,43,47,48,49,50,51,71,75,79,80,81,82,83,84,115,116,120,121 <name>=0,1,4,5 <ce>=0,1	Select bearer service type, TS 27.007 clause 6.7
CGACT	AT+CGACT=1,1<CR> AT+CGACT=0,1<CR>	PDP context activate or deactivate, TS 27.007 clause 10.1.10
CGATT	AT+CGATT=1<CR> AT+CGATT=0<CR>	PS attach or detach, TS 27.007 clause 10.1.9
CGDATA	AT+CGDATA=PPP,1<CR>	Enter data state, TS 27.007 clause 10.1.12
CGDCONT	AT+CGDCONT=1,"IP","ABCDEF","200.1.1.80",0,0<CR> AT+CGDCONT=1,"IP","GHIJK","200.1.1.90",0,0<CR>	Define PDP Context, TS 27.007 clause 10.1.1
CGDSCONT	AT+CGDSCONT= 1,<CR> AT+ CGDSCONT=1 , 1, "IP", 0,0,<CR>	Establish secondary PDP Context, TS 27.007 clause 10.1.2
CGEQMIN	AT+CGEQMIN=1,3,32,32,,,1,320,”1E3”,”4E3”,1,,<CR> AT+CGEQMIN=1,3,64,64,,,1,320,”1E3”,”4E3”,1,,<CR> AT+CGEQMIN=1,2,32, 32, 32, 32, 1, 320, 1E4,6E8,1,,,<CR> AT+CGEQMIN=1,3,32, 32, 32, 32, 1, 320, 1E4,6E8,1,,,<CR> AT+CGEQMIN=1,2,32, 32, 32, 32, 1, 320, 1E3,6E8,1,,,<CR> AT+CGEQMIN=1,3,32, 32, 32, 32, 1, 320, 1E3,6E8,1,,,<CR> AT+CGEQMIN=1,2,64, 64, 64, 64, 1, 320, 1E3,6E8,1,,,<CR> AT+CGEQMIN=1,3,64, 64, 64, 64, 1, 320, 1E3,6E8,1,,,<CR>	Quality of Service Profile (Minimum acceptable), TS 27.007 clause 10.1.4
CGEQREQ	AT+CGEQREQ=1,2,64,64,,,1,320,"1E4","1E5",1,,3<CR> AT+CGEQREQ=1,3,64,64,,,1,320,"1E4","1E5",1,,<CR> AT+CGEQREQ=1,2,64, 64, 64, 64, 1, 320, 1E4,6E8,1,,,<CR> AT+CGEQREQ=1,3,64, 64, 64, 64, 1, 320, 1E4,6E8,1,,,<CR>	Quality of Service Profile (Requested), TS 27.007 clause 10.1.4
CHUP	AT+CHUP<CR>	Hang up call, TS 27.007 clause 6.5
CLCC	AT+CLCC<CR>	List current calls, TS 27.007 clause 7.18
CMOD	AT+CMOD=0<CR> AT+CMOD=1<CR>	Call mode, TS 27.007 clause 6.4
CMSS	AT+CMSS=000<CR> AT+CMSS=001<CR> AT+CMSS=002<CR>	Send Message from Storage, TS 27.005 clause 3.5.2
VTS	AT+VTS=0,100<CR> AT+VTS=1,50<CR> AT+VTS=2,60<CR> AT+VTS=3,40<CR> AT+VTS=4,50<CR> AT+VTS=5,60<CR> AT+VTS=6,70<CR> AT+VTS=7,80<CR> AT+VTS=8,90<CR> AT+VTS=9,100<CR> AT+VTS=#,110<CR> AT+VTS=*,120<CR> AT+VTS=A,130<CR> AT+VTS=B,140<CR> AT+VTS=C,150<CR> AT+VTS=D,200<CR>	DTMF and tone generation, TS 27.007 clause C.2.11
CVHU	AT+CVHU=0<CR>	Voice Hang up control, TS 27.007 clause 6.20

8.8.1.4 AT commands in RAB ATS:

Command	Syntax in TTCN	Comments
CBST	AT+CBST=[<speed>[,<name>[,<ce>]]]<CR> <speed>=0,7,12,14,15,16,17,39,43,47,48,49,50,51,71,75,79,80,81,82,83,84,115,116,120,121 <name>=0,1,4,5 <ce>=0,1	Select bearer service type, TS 27.007 clause 6.7
CGACT	AT+CGACT=1,1<CR> AT+CGACT=0,1<CR>	PDP context activate or deactivate, TS 27.007 clause 10.1.10
CGATT	AT+CGATT=1<CR>	PS attach or detach, TS 27.007 clause 10.1.9
CGDCONT	AT+CGDCONT=1,"IP","ABCDEF","200.1.1.80",0,0<CR> AT+CGDCONT=1,"IP","GHIJK","200.1.1.90",0,0<CR>	Define PDP Context, TS 27.007 clause 10.1.1
CGDSCONT	AT+CGDSCONT= 1,<CR> AT+ CGDSCONT=1 , 1, "IP", 0,0,<CR>	Establish secondary PDP Context, TS 27.007 clause 10.1.2
CGEQREQ	AT+CGEQREQ=1,2,64,64,,,1,320,"1E4","1E5",1,,3<CR> AT+CGEQREQ=1,3,64,64,,,1,320,"1E4","1E5",1,,<CR>	Quality of Service Profile (Requested), TS 27.007 clause 10.1.4
CHUP	AT+CHUP<CR>	Hang up call, TS 27.007 clause 6.5
CMOD	AT+CMOD=0<CR> AT+CMOD=1<CR>	Call mode, TS 27.007 clause 6.4
CMSS	AT+CMSS=000<CR> AT+CMSS=001<CR> AT+CMSS=002<CR>	Send Message from Storage, TS 27.005 clause 3.5.2
CVHU	AT+CVHU=0<CR>	Voice Hang up control, TS 27.007 clause 6.20

8.8.1.5 AT commands in RRC ATS:

Command	Syntax in TTCN	Comments
ATA	ATA<CR>	Answer a call, TS 27.007 clause 6.35
ATD	ATD0123456902;<CR> ATD112;<CR> ATD0123456902<CR>	Originates a call, TS 27.007 clause 6.31
ATH	ATH<CR>	Hang-up a single mode call, TS 27.007 clause 6.36
CBST	AT+CBST=[<speed>[,<name>[,<ce>]]]<CR> <speed>=0,7,12,14,15,16,17,39,43,47,48,49,50,51,71,75,79,80,81,82,83,84,115,116,120,121 <name>=0,1,4,5 <ce>=0,1	Select bearer service type, TS 27.007 clause 6.7
CGACT	AT+CGACT=1,1<CR> AT+CGACT=0,1<CR>	PDP context activate or deactivate, TS 27.007 clause 10.1.10
CGATT	AT+CGATT=1<CR>	PS attach or detach, TS 27.007 clause 10.1.9
CGDCONT	AT+CGDCONT=1,"IP","ABCDEF","200.1.1.80",0,0<CR> AT+CGDCONT=1,"IP","GHIJK","200.1.1.90",0,0<CR>	Define PDP Context, TS 27.007 clause 10.1.1
CGDSCONT	AT+CGDSCONT= 1,<CR> AT+ CGDSCONT=1 , 1, "IP", 0,0,<CR>	Establish secondary PDP Context, TS 27.007 clause 10.1.2
CGEQREQ	AT+CGEQREQ=1,2,64,64,,,1,320,"1E4","1E5",1,,3<CR> AT+CGEQREQ=1,3,64,64,,,1,320,"1E4","1E5",1,,<CR>	Quality of Service Profile (Requested), TS 27.007 clause 10.1.4
CHUP	AT+CHUP<CR>	Hang up call, TS 27.007 clause 6.5
CMOD	AT+CMOD=0<CR> AT+CMOD=1<CR>	Call mode, TS 27.007 clause 6.4
CMSS	AT+CMSS=000<CR> AT+CMSS=001<CR> AT+CMSS=002<CR>	Send Message from Storage, TS 27.005 clause 3.5.2
CVHU	AT+CVHU=0<CR>	Voice Hang up control, TS

Command	Syntax in TTCN	Comments
		27.007 clause 6.20

8.8.1.6 AT commands SMS ATS:

Command	Syntax in TTCN	Comments
CBST	AT+CBST=[<speed>[,<name>[,<ce>]]]<CR> <speed>=0,7,12,14,15,16,17,39,43,47,48,49,50,51,71,75,79,80,81,82,83,84,115,116,120,121 <name>=0,1,4,5 <ce>=0,1	Select bearer service type, TS 27.007 clause 6.7
CGACT	AT+CGACT=1,1<CR> AT+CGACT=0,1<CR>	PDP context activate or deactivate, TS 27.007 clause 10.1.10
CGATT	AT+CGATT=1<CR>	PS attach or detach, TS 27.007 clause 10.1.9
CGDCONT	AT+CGDCONT=1,"IP","ABCDEF","200.1.1.80",0,0<CR> AT+CGDCONT=1,"IP","GHIJK","200.1.1.90",0,0<CR>	Define PDP Context, TS 27.007 clause 10.1.1
CGDSCONT	AT+CGDSCONT= 1,<CR> AT+ CGDSCONT=1 , 1, "IP", 0,0,<CR>	Establish secondary PDP Context, TS 27.007 clause 10.1.2
CGEQREQ	AT+CGEQREQ=1,2,64,64,,,1,320,"1E4","1E5",1,,3<CR> AT+CGEQREQ=1,3,64,64,,,1,320,"1E4","1E5",1,,<CR>	Quality of Service Profile (Requested), TS 27.007 clause 10.1.4
CGSMS	AT+CGSMS=1<CR> AT+CGSMS=0<CR>	Select service for MO SMS messages, TS 27.007 clause 10.1.20
CHUP	AT+CHUP<CR>	Hang up call, TS 27.007 clause 6.5
CMGD	AT+CMGD=001<CR> AT+CMGD=1,4<CR>	Delete Message, TS 27.005 clause 3.5.4
CMGF	AT+CMGF=1<CR>	Message Format, TS 27.005 clause 3.2.3
CMGR	AT+CMGR=001<CR> AT+CMGR=002<CR> AT+CMGR=003<CR> AT+CMGR=004<CR>	Read Message, TS 27.005 clause 3.4.3
CMGW	AT+CMGW= "1111111111",129, "The quick brown fox jumps over the lazy dog's back. Kaufen Sie Ihrer Frau vier bequeme Pelze. - 0123456789 - THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG'S BACK."<CR>	Write Message to Memory, TS 27.005 clause 3.5.3
CMMS	AT+CMMS=1<CR>	More Messages to Send, TS 27.005 clause 3.5.6
CMOD	AT+CMOD=0<CR> AT+CMOD=1<CR>	Call mode, TS 27.007 clause 6.4
CMSS	AT+CMSS=000<CR> AT+CMSS=001<CR> AT+CMSS=002<CR>	Send Message from Storage, TS 27.005 clause 3.5.2
CPMS	AT+CPMS="SM","SM","MT"<CR> AT+CPMS="CB","CB","CB"<CR>	Preferred Message Storage, TS 27.005 clause 3.2.2
CSCA	AT+CSCA="2222222222",129<CR>	Service Centre Address, TS 27.005 clause 3.3.1
CSCS	AT+CSCS="GSM"<CR>	Select TE character set, TS 27.007 clause 5.5
CSMS	AT+CSMS=0<CR>	Select Message Service, TS 27.005 clause 3.2.1
CVHU	AT+CVHU=0<CR>	Voice Hang up control, TS 27.007 clause 6.20

8.8.2 AT Command Handling in TTCN

8.8.2.1 AT Command Interface

The AT Command Interface resides between the UE and the System Simulator (SS). The implementation of AT commands in the UE is optional[3]. It is agreed, however, that it is the responsibility of the SS – not the ATS – to map

AT commands onto appropriate MMI commands. This means that the ATSs issue AT commands which have to be mapped appropriately and forwarded to the UE, and vice versa.

The ATSs have been implemented in such a way that AT commands are to be answered immediately. This means that the TTCN expects the answers right away and progresses only afterwards. As a consequence only positive AT responses are assumed.

There is only one exception from the rule of immediate answering: the CGACT command. For this command the TTCN does not expect an immediate AT response. Once the CGACT command has been issued a subsequent UE behaviour is expected. The AT response is issued by the UE only after execution of the AT command, and it will only then be accounted for by the ATSs.

8.8.2.2 AT Command Dialogues

In some cases AT commands trigger a dialogue between the AT command interface and the UE. An example used in the SMS ATS is the CMGW command.

Example:

```
AT+CMGW="9501231234"     (write message)
> This is the message body^Z
+CMGW: 7                 (index number in storage returned)
OK
```

A special character (^Z) marks the end of the dialogue.

The ATSs generate information to be sent to the UE as one block. If the command mapping function cannot proceed with the dialogue that way, it has to divide the received block into the appropriate pieces prior to forwarding them.

8.8.2.3 AT Response Types

The term 'response type' shall allow a distinction between different types of contents to answer upon an AT command issued by the TTCN.

8.8.2.3.1 'OK' Response

Most AT commands are to be answered with 'OK'. All exceptions are according to 27.007, for example +CGDATA is to be answered with 'CONNECT'.

8.8.2.3.2 Name String

There are a number of AT commands which, in the positive case, trigger an answer string from UEs. Such strings start with the command which is being answered.

Example:

```
AT+CPMS?                 (check memory settings)
+CPMS: "ME",4,10,"ME",4,10,"ME",4,10
OK
```

The implementation of this type of AT commands is such that the TTCN expects and checks the beginning of the response string. This would (later) facilitate possible direct connections between SS and UE.

8.8.2.3.3 Error strings

There are situations when the UE cannot react positively upon an AT command. Different types of reactions are foreseen. The strings 'ERROR' or 'CMS ERROR: <err>' may be issued by UEs.

"...subparameter values of a command are not accepted by the TA (or command itself is invalid, or command cannot be performed for some reason), result code <CR><LF>ERROR<CR><LF> is sent to the TE and no subsequent commands in the command line are processed."

"Final result code +CMS ERROR: <err> indicates an error related to mobile equipment or network. The operation is similar to ERROR result code. None of the following commands in the same command line is executed. Neither ERROR nor OK result code shall be returned. ERROR is returned normally when error is related to syntax or invalid parameters."

The chosen way of realisation prevents, in general, that error strings generated by the UE are passed to the SS. This holds for both intended and unintended errors (from the tester perspective).

8.8.2.4 AT Command Parameters And Options

Many AT commands take parameters some of which are optional. Thus, there is a degree of freedom left to the UEs. This freedom is widely used in the AT commands used in the SMS ATS. To allow flexible parametrization PIXIT items can be used to set the parameters as understood by the UEs.

An example of such parameters are the preferred memories to be used when testing.

End of Modified Section

Next Modified Section

8.11b HS-DSCH Configuration Verification

In most HSDPA test cases although the HSDPA channels (HS-SCCH, HS-PDSCH, HS-DSCH & HS-DPCCH) are set up and reconfigured using RRC peer messages, no data is sent on HS-DSCH and all the signalling is transmitted through the associated DPCH physical channel.

In order to ensure that the HS-DPCCH channel has been configured, the SS shall, upon request, forward one CQI report to the TTCN.

End of Modified Section

Next Modified Section

B.1 Parameter values

B.1.1 BasicM test suite parameter declarations

The following parameters are common to all ATSs.

Table B.1: BasicM PIXIT

Parameter name	Description	Type	Default value	Supported value
px_AuthAMF	Authentication Management Field (16 bits). The value shall be different from '1111 1111 1111 1111'B (AMFresynch).	BITSTRING	See note 2	
px_AuthK	Authentication Key (128 bits)	BITSTRING	'0101111001001 0101011001101 0110001001000 1001101110101 1101001010101 1101110100000 0100101110011 0011111000011 0000100110100 11000101001'B	
px_AuthN	Value of n to initialize tcv_Auth_n (length of extended response)	INTEGER	127	

Parameter name	Description	Type	Default value	Supported value
	min 31, max 127 (3GPP TS 34.108 [**Error! Reference source not found.**] clause 8.1.2)			
px_AuthRAND	Random Challenge (128 bits)	BITSTRING	'01010101…01'B	
px_CipherAlg	Cipher algorithm.	B3	Default value: (A5/1) '000'B	
px_CipheringOnOff	Security mode - TRUE if ciphering is applicable	BOOLEAN	TRUE	
px_CN_DomainTested	CN domain to be tested. This parameter is used in test cases that handle both PS and CS domains.	CN_DomainIdentity	cs_domain	
px_DL_MaxCC_TB_bits	Maximum sum of number of bits of all convolutionally coded transport blocks being received at an arbitrary time instant.	MaxNoBits	b163840	
px_DL_MaxCCTrCH	Maximum number of Simultaneous CCTrCH for downlink	MaxSimultaneousCCTrCH_Count	8	
px_DL_MaxTB_bits	Maximum sum of number of bits of all transport blocks being received at an arbitrary time instant.	MaxNoBits	b163840	
px_DL_MaxTF	Maximum number of TF for downlink	MaxNumberOfTF	tf1024	
px_DL_MaxTFS	Maximum number of TFC in the TFCS for downlink	MaxNumberOfTFC_DL	tfc1024	
px_DL_MaxTrCHs	Maximum number of simultaneous transport channels for downlink.	MaxSimultaneousTransChsDL	e32	
px_DL_MaxTTI_TB	Maximum total number of transport blocks received within TTIs that end within the same 10 ms interval.	MaxTransportBlocksDL	tb512	
px_FRESH	Value for FRESH	Fresh	See note 1	
px_FDD_OperationBand	Applicable for FDD The operation band under test as defined in 34.108 clause 5.1.1	INTEGER	1, see note 3	Band 1 – Band 6 All other values are not defined.
px_IMSI_Def	Default IMSI value	HEXSTRING	'001010123456063'H	
px_PriScrmCode	Applicable for FDD Primary scrambling code	PrimaryScramblingCode	100	
px_MaxAM_EntityNumberRLC_Cap	Maximum AM Entity Number for RLC.	MaximumAM_EntityNumberRLC_Cap	am30	
px_MaxNoDPCH_BitsTransmitted	Part of UL_PhysChCapabilityFDD	MaxNoDPDCH_BitsTransmitted	b57600	
px_MaxNoDPCH_PDSCH_Codes	Part of DL_PhysChCapabilityFDD. INTEGER (1..8).	INTEGER	8	px_MaxNoDPCH_PDSCH_Codes
px_MaxNoPhysChBitsReceived	Part of DL_PhysChCapabilityFDD.	MaxNoPhysChBitsReceived	b76800	px_MaxNoPhysChBitsReceived
px_MaxRLC_WindowSize	Maximum RLC window size.	MaximumRLC_WindowSize	mws4095	
px_MS_ClsmkESIND	default Early Sending Indication	B1	'0'B	
px_MS_ClsmkRevLvl	default Revision Level	B2	'10'B	
px_MS_ClsmkRF_PwrCap	default RF Power Capability	B3	'000'B	
px_PTMSI_Def	default PTMSI	OCTETSTRING	'12345678'O	
px_PTMSI_SigDef	default PTMSI signature (3 octets, 3GPP 24.008 [**Error! Reference source not found.**], clause 10.5.5.8).	OCTETSTRING	'AB1234'O	

Parameter name	Description	Type	Default value	Supported value
px_RAT	Applicable for FDD This parameter is used to specify which radio access technology is being used for the current test execution. Valid values: fdd and tdd	RatType	fdd	
px_RRC_CS_ServTested	CS service to be tested for RRC test cases.	RRC_ServTested	Speech	
px_RRC_PS_ServTested	PS service to be tested for RRC test cases.	RRC_ServTested	Speech	
px_SRNC_Id	SRNC Id	SRNC_Identity	'0000 0000 0001'B	
px_SRNTI	S RNTI	S_RNTI	'0000 0000 0000 0000 0001'B	
px_TCellA	TCell value for cell A	Tcell	0	
px_TCellB	TCell value for cell B	Tcell	512	
px_TCellC	TCell value for cell C	Tcell	1536	
px_TCellD	TCell value for cell D	Tcell	321	
px_TCellE	TCell value for cell E	Tcell	833	
px_TCellF	TCell value for cell F	Tcell	6577	
px_TCellG	TCell value for cell G	Tcell	7253	
px_TCellH	TCell value for cell H	Tcell	4351	
px_TMSI_Def	Default TMSI	OCTETSTRING	'12345678'O	
px_TotalRLC_AM_BufferSize	Total RLC AM buffer size.	TotalRLC_AM_BufferSize	NA	
~~px_UARFCN_High~~	~~Applicable for LCR TDD High range UARFCN value.~~	~~INTEGER~~	~~9596~~	~~The value shall be set within the operation band supported~~
~~px_UARFCN_Low~~	~~Applicable for LCR TDD Low range UARFCN value.~~	~~INTEGER~~	~~9504~~	~~The value shall be set within the operation band supported~~
~~px_UARFCN_Mid~~	~~Applicable for LCR TDD Middle range UARFCN value~~	~~INTEGER~~	~~9550~~	~~The value shall be set within the operation band supported~~
px_UARFCN_D_Mid	Applicable for FDD Mid Range downlink UARFCN value	INTEGER	10700	
px_UARFCN_D_Low	Applicable for FDD Low Range downlink UARFCN value	INTEGER	10563	
px_UARFCN_D_High	Applicable for FDD High Range downlink UARFCN value	INTEGER	10837	
px_UARFCN_U_High	Applicable for FDD High Range uplink UARFCN value. This value shall be set based on the operation band supported.	INTEGER	9887	
px_UARFCN_U_Low	Applicable for FDD Low Range uplink UARFCN value. This value shall be set based on the operation band supported.	INTEGER	9613	
px_UARFCN_U_Mid	Applicable for FDD Mid Range uplink UARFCN value. This value shall be set based on the operation band supported.	INTEGER	9750	
px_UE_OpModeDef	Default UE operation mode (either opModeA or opModeC). (For most UEs this corresponds class-A or class-C, and can not be changed by the user)	UE_OperationMode	opModeA	
px_UE_PositioningNetworkAssistedGPS_Sup	UE positioning capability: supports the network assisted GPS	NetworkAssistedGPS_Supported	networkBased	
px_UE_PowerClass	UE_PowerClass value.	UE_PowerCl	1	px_UE_PowerCla

Parameter name	Description	Type	Default value	Supported value
		ass		ss
px_UL_MaxCC_TB_bits	Maximum sum of number of bits of all convolutionally coded transport blocks being transmitted at an arbitrary time instant.	MaxNoBits	b163840	
px_UL_MaxTB_bits	Maximum sum of number of bits of all transport blocks being transmitted at an arbitrary time instant.	MaxNoBits	b163840	
px_UL_MaxTF	Maximum number of TF for uplink.	MaxNumberOfTF	tf1024	
px_UL_MaxTFS	Maximum number of TFC in the TFCS for uplink.	MaxNumberOfTFC_DL	tfc1024	
px_UL_MaxTrCHs	Maximum number of simultaneous transport channels for uplink.	MaxSimultaneousTransChsUL	e32	
px_UL_MaxTTI_TB	Maximum total number of transport blocks transmitted within TTIs that start at the same time.	MaxTransportBlocksUL	tb512	
px_UL_ScramblingCode	Applicable for FDD UL scrambling code value to be used by UE.	UL_ScramblingCode	0	
px_UTRAN_GERAN	This parameter is used to specify for which environment region the system information blocks are broadcast in the test execution. Valid values: "UTRAN only" and "UTRAN and GERAN".	Region	"UTRAN and GERAN"	
NOTE 1: No default value can be proposed (Manufacturer defined value). NOTE 2: No default value can be proposed, because not enough information is available in 3GPP TS 34.109 [**Error! Reference source not found.**] clause 8.1.2. NOTE 3: This value shall be set in synchronisation with the values that are being set for the 6 other pixits viz: px_UARFCN_D_High,px_UARFCN_U_High, px_UARFCN_D_Mid,px_UARFCN_L_Mid, px_UARFCN_D_Low, px_UARFCN_U_Low				

B.1.2 L3M test suite parameters declarations

The following parameters are commonly used in the RRC and NAS ATSs.

Table B.2: L3M PIXIT

Parameter name	Description	Type	Default value	Supported value
px_BcapDataCompression	Data compression supported (used in the Bearer Capability)	B1	'0'B	
px_BcapFNUR	Fixed Network User rate supported: '00001'B: FNUR 9.6 kbit/s '00010'B: FNUR 14.4 kbit/s '00011'B: FNUR 19.2 kbit/s '00100'B: FNUR 28.8 kbit/s '00101'B: FNUR 38.4 kbit/s '00110'B: FNUR 48.0 kbit/s '00111'B: FNUR 56.0 kbit/s '01000'B: FNUR 64.0 kbit/s '01001'B: FNUR 33.6 kbit/s '01010'B: FNUR 32.0 kbit/s	B5	'00001'B	
px_BcapITC	Information transfer capability supported (used for the generation of the Bearer Capability) 0 - UDI 1 - RDI 2 - 31 kHz Audio 3 - Other	ItcInt	2	
px_BcapModemType	Modem type supported (used in the Bearer Capability)	B5	'00110'B	
px_BcapNumberDataBits	Number of data bits supported (used in the Bearer Capability)	B1	'1'B	
px_BcapNumberStopBits	Number of Stops bits supported (used in the Bearer Capability)	B1	'1'B	

Parameter name	Description	Type	Default value	Supported value
px_BcapOtherModemType	Other modem type supported (used in the Bearer Capability)	B2	'10'B	
px_BcapParity	Parity supported (used in the Bearer Capability)	B3	'011'B	
px_BcapSACP	Signalling access protocol supported (used in the Bearer Capability)	B3	'001'B	
px_BcapSyncAsync	Synchronous '0'B or Asynchronous '1'B mode supported by IUT	B1	'1'B	
px_BcapUeFlowControl	UE flow control. 0-outband, 1-inband, 2-no flow control. 3- X.25 4- X.75 Default: 0, outband flow control	FlowControl	0	
px_CC_CallDiallingDigits	Dialling digits used to initiate a CC MO call (used with the AT dial D command).	IA5String	"0123456902"	
px_CC_Serv	Service selected for Mobile Originated calls and Mobile Terminated calls. The possible values are ("Telephony", "EmergencyCall", "31kHz", "V110", "V120", "PIAFS", "FTM", "X31", "BTM", "MmediaCall")	Services	"31kHz"	
px_DeltaSS_DelayTime	Tdelta value (refer to 34.108 clause 4.2.3) in ms.	INTEGER	55ms	
px_IMEI_Def	Default IMEI value	HEXSTRING	See note 1	
px_IMEISV_Def	Default IMEISV value	HEXSTRING	See note 1	
px_IMSI_Diff	Different IMSI from the IMSI stored in the USIM	HEXSTRING	'001010654321063'H	
px_NwOrgPDP_Support	This indicates if the UE implementation supports network originated PDP Context. TRUE indicates, supported FALSE indicate, not supported	BOOLEAN	FALSE	
px_PDP_IP_AddrInfoDCH	A string parameter that identifies the MT in the address space applicable to the PDP for DCH.	IA5String	"200.1.1.80"	
px_PDP_IP_AddrInfoFACH	A string parameter that identifies the MT in the address space applicable to the PDP for FACH.	IA5String	"200.1.1.90"	
px_PTMSI_2	Second PTMSI used for testing.	OCTETSTRING	'09876543'O	
px_PTMSI_Sig2	Second PTMSI signature used for testing.	OCTETSTRING	'AB1234'O	
px_TMSI_2	Second TMSI value for testing	OCTETSTRING	'09876543'O	
px_SMS_IndexOffset	SMS index offset for the numbering of short messages, value range: (0,1)	INTEGER	0	
NOTE 1: No default value can be proposed (Manufacturer defined value).				

B.1.3 NAS test suite parameters declarations

The following parameters are commonly used in the NAS ATS.

Table B.3: NAS PIXIT

Parameter name	Description	Type	Default value	Supported value
px_AuthRAND_2	A second Random Challenge (128 bits)	BITSTRING	'1010101…10'B	
px_AutocallingBlacklistNumber	Number of B-party numbers that can be stored in the list of blacklisted numbers	INTEGER	20	
px_AutocallingCause1or2	Cause value of category 1 or 2 to be	INTEGER	18	

Parameter name	Description	Type	Default value	Supported value
	used in TC_17_1_3			
px_AutocallingNumber	Called number to be used for auto calling	IA5String	"0613454120"	
px_AutocallingRepeatCat1or2	Number of repeat attempt done for the category 1 or 2 to be used in TC_17_1_3	INTEGER	10	
px_CC_ServNotSupp	Not supported service selected for Mobile Originated calls and Mobile Terminated calls. The possible values are ("Telephony", "EmergencyCall", "31kHz", "V110", "V120", "PIAFS", "FTM", "X31", "BTM", "MmediaCall")	Services	"BTM"	
px_DTMF_BasicCharSet	TRUE if DMTF Chars 0-9, *, # supported	BOOLEAN	TRUE	
px_DTMF_OtherCharSet	TRUE if DMTF Chars A, B, C, D supported	BOOLEAN	TRUE	
px_DTMF_ToneInd	TRUE if UE support DTMF tone indication	BOOLEAN	TRUE	
px_EmergencyCallNumber	Emergency Number used by UE to initiate an emergency call	EmergencyNumber	"112"	
px_PTMSI_Sig3	Second PTMSI signature used for testing	OCTETSTRING	'AB1239'O	
px_UuInfo	User-user information for TC 10_3	OCTETSTRING	'01020304'O	
px_Uupd	User-user protocol discriminator for TC 10_3	B8	'00000100'B	
px_VTS_AT_CommandSupp	TRUE if the AT command +VTS is supported	BOOLEAN	TRUE	

B.1.4 SMS test suite parameters declarations

These parameters are used in the SMS ATS.

Table B.4: SMS PIXIT

Parameter name	Description	Type	Default value	Supported value
px_BMC_CB_RepPeriod01	CB repetition period for CB message 1	INTEGER	2	
px_BMC_CB_RepPeriod02	CB repetition period for CB message 2	INTEGER	2	
px_BMC_NoOfBC_Req01	No of broadcasts requested for CB message 1	INTEGER	2	
px_BMC_NoOfBC_Req02	No of broadcasts requested for CB message 2	INTEGER	2	
px_MaxCP_DataRetx	max. number of CP data retransmissions for SMS	INTEGER	3	
~~px_MaxNumOfChars~~	~~max. number of characters in a MO SMS~~	~~INTEGER~~	~~160~~	
px_SMS_CB_Data01	Contents of the first Cell Broadcast Message sent will be converted to an OCTETSTRING	IA5String	"First Cell Broadcast Message"	
px_SMS_CB_Data02	Contents of the second Cell Broadcast Message sent will be converted to an OCTETSTRING	IA5String	"Second Cell Broadcast Message"	
px_SMS_CB_MsgId01	Message Id to be used for the first Cell Broadcast Message sent	B16	'0000000000000001'B	
px_SMS_CB_MsgId02	Message Id to be used for the second Cell Broadcast Message sent	B16	'0000000000000010'B	
px_SMS_MsgFrmt	SMS Message Format <mode> of TS 27.005 cl. 3.2.3	IA5String	"0"	
px_SMS_PrefMem1	SMS Preferred Memory 1 <mem1> of TS 27.005 cl. 3.1	IA5String	"SM"	
px_SMS_PrefMem2	SMS Preferred Memory 2 <mem2> of TS 27.005 cl. 3.1	IA5String	"SM"	
px_SMS_PrefMem3	SMS Preferred Memory 3 <mem3> of TS 27.005 cl. 3.1	IA5String	"MT"	
px_SMS_Service	SMS Service <service> of TS 27.005 cl. 3.2.1	IA5String	"0"	
px_TC1M	Value for timer TC1M, to be declared by the manufacturer	INTEGER	10000	

B.1.5 RRC_M test suite parameters declarations

These parameters are used in the RRC and RAB ATS.

Table B.5: RRC and RAB PIXIT

Parameter name	Description	Type	Default value	Supported value
~~px_DL_MaxCC_TB_bits~~	~~Maximum sum of number of bits of all convolutionally coded transport blocks being received at an arbitrary time instant.~~	~~MaxNoBits~~	~~b163840~~	
~~px_DL_MaxCCTrCH~~	~~Maximum number of Simultaneous CCTrCH for downlink~~	~~MaxSimultaneousCCTrCH_Count~~	~~8~~	
~~px_DL_MaxTB_bits~~	~~Maximum sum of number of bits of all transport blocks being received at an arbitrary time instant.~~	~~MaxNoBits~~	~~b163840~~	

Parameter name	Description	Type	Default value	Supported value
px_DL_MaxTC_TB_bits	Maximum sum of number of bits of all turbo coded transport blocks being received at an arbitrary time instant.	MaxNoBits	b163840	
~~px_DL_MaxTF~~	~~Maximum number of TF for downlink~~	~~MaxNumberOfTF~~	~~tf1024~~	
~~px_DL_MaxTFS~~	~~Maximum number of TFC in the TFCS for downlink~~	~~MaxNumberOfTFC_DL~~	~~tfc1024~~	
~~px_DL_MaxTrCHs~~	~~Maximum number of simultaneous transport channels for downlink.~~	~~MaxSimultaneousTransChsDL~~	~~e32~~	
~~px_DL_MaxTTI_TB~~	~~Maximum total number of transport blocks received within TTIs that end within the same 10 ms interval.~~	~~MaxTransportBlocksDL~~	~~tb512~~	
~~px_MaxAM_EntityNumberRLC_Cap~~	~~Maximum AM Entity Number for RLC.~~	~~MaximumAM_EntityNumberRLC_Cap~~	~~am30~~	
px_MaxHcContextSpace	MaxHcContextSpace if RFC 2507 [**Error! Reference source not found.**] is supported.	MaxHcContextSpace	by512	
~~px_MaxNoDPCH_PDSCH_Codes~~	~~Part of DL_PhysChCapabilityFDD. INTEGER (1..8).~~	~~INTEGER~~	~~8~~	
~~px_MaxNoDPDCH_BitsTransmitted~~	~~Part of UL_PhysChCapabilityFDD.~~	~~MaxNoDPDCH_BitsTransmitted~~	~~b57600~~	
~~px_MaxNoPhysChBitsReceived~~	~~Part of DL_PhysChCapabilityFDD.~~	~~MaxNoPhysChBitsReceived~~	~~b76800~~	
px_MaxNoSCCPCH_RL	Part of SimultaneousSCCPCH_DPCH_Reception.	MaxNoSCCPCH_RL	rl1	
~~px_MaxRLC_WindowSize~~	~~Maximum RLC window size.~~	~~MaximumRLC_WindowSize~~	~~mws4095~~	
~~px_TotalRLC_AM_BufferSize~~	~~Total RLC AM buffer size.~~	~~TotalRLC_AM_BufferSize~~	~~NA~~	
~~px_UE_PowerClass~~	~~UE_PowerClass value.~~	~~UE_PowerClass~~	~~1~~	
~~px_UL_MaxCC_TB_bits~~	~~Maximum sum of number of bits of all convolutionally coded transport blocks being transmitted at an arbitrary time instant.~~	~~MaxNoBits~~	~~b163840~~	
~~px_UL_MaxTB_bits~~	~~Maximum sum of number of bits of all transport blocks being transmitted at an arbitrary time instant.~~	~~MaxNoBits~~	~~b163840~~	
px_UL_MaxTC_TB_bits	Maximum sum of number of bits of all turbo coded transport blocks being transmitted at an arbitrary time instant.	MaxNoBits	b163840	
~~px_UL_MaxTF~~	~~Maximum number of TF for uplink.~~	~~MaxNumberOfTF~~	~~tf1024~~	
~~px_UL_MaxTFS~~	~~Maximum number of TFC in the TFCS for uplink.~~	~~MaxNumberOfTFC_DL~~	~~tfc1024~~	
~~px_UL_MaxTrCHs~~	~~Maximum number of simultaneous transport channels for uplink.~~	~~MaxSimultaneousTransChsUL~~	~~e32~~	
~~px_UL_MaxTTI_TB~~	~~Maximum total number of transport blocks transmitted within TTIs that start at the same time.~~	~~MaxTransportBlocksUL~~	~~tb512~~	
~~px_UE_PositioningNetworkAssistedGPS_Sup~~	~~UE positioning capability: supports network assisted by GPS~~	~~NetworkAssistedGPS_Supported~~	~~networkBased~~	

End of Modified Section

Next Modified Section

B.1.8 RRC test suite parameters declarations

These parameters are used in the RRC ATS.

Table B.8: RRC PIXIT

Parameter name	Description	Type	Default value	Supported value
~~px_OperationBandSupp~~	~~Operating Band supported (1, 2 or 3).~~	~~INTEGER~~	~~1~~	
~~px_RB_DataStreaming_14_4~~	~~Data to be sent~~	~~BITSTRING~~	~~INT_TO_BIT (2473304159874563214258, 576)~~	
~~px_RB_DataStreaming_28_8~~	~~Data to be sent.~~	~~BITSTRING~~	~~58966325147895411444477884547777, 1152)~~	
~~px_RB_InteractiveOrBackground~~	~~Data to be sent for RB test~~	~~BITSTRING~~	~~INT_TO_BIT (1535898745698746521331326650, 1344)~~	
~~Px_CipherAlg~~	~~Cipher algorithm.~~	~~B3~~	~~Default value: (A5/1) '000'B~~	
~~Px_CipherKey~~	~~Cipher key (64 bits)~~	~~B64~~	~~Default value: '0101111001001010101100110101100010010000100011011011010111010010101010'B~~	

B.1.9 RAB test suite parameters declarations

These parameters are used in the RAB ATS.

Table B.9: RAB PIXIT

Parameter Name	Description	Type	Default Value	Supported Value
px_CB_Data1	the operator shall define CBS data as IA5String together with the CB message ID used for transmitting this CB data, which is indicated by the UE after reception in a clear way according to the capabilities stored on the SIM. Furthermore, the operator shall describe the indication on the UE side (e.g. certain CBS traffic information)	IA5String_BMC		the CB data range is 1..1246 Octets which refers to a IA5String of 1..1246
px_DSCH_RNTI	DSCH RNTI	DSCH_RNTI	'0000 0000 0000 0010'B	
px_SMS_CB_MsgId01	the operator shall define the CB Message ID for the CB data1 used for transmitting this CB data, different to CB-Data 2 IXIT	MsgIdType	'000'H	
px_gS01	used in the Serial No. of the CB_Data01 given as PIXIT, which differentiates between CBS messages from the same source and type	B2	'00'B	
px_MsgCode01	used in the Serial No. of the CB_Data01 given as PIXIT, which is theGeographical Scope indicates the area over which the msg code is unique	MsgCodeType	'0000000000'B	
px_UpdateNumber01	used in the Serial No. of the CB_Data01 given as PIXIT, which indicates a change of the message content of the same CBS message	B4	'0000'B	
px_PowerDSCH	transmission power level of DSCH	DL_TxPower		

B.1.10 RLC & MAC test suite parameters declarations

These parameters are used in the MAC ATS.

Table B.10: RLC & MAC PIXIT

Parameter Name	Description	Type	Default Value	Supported Value
px_NumOfSegInPagResOrServReq	This Pixit is used in MAC test cases 7.1.1.2, 7.1.1.3, 7.1.1.4, 7.1.1.5 and 7.1.1.8 This indicates the number of RLC segments the Paging Response (CS Domain) or Service Request (PS domain) will be segmented in.	INTEGER	2	
px_RLC_SDU_buffering~~OrDiscard~~	Is used in RLC TC 7.2.3.13, indicating the way to handle RLC SDU data for UL transmission when the transmission window is full	~~INTEGER~~ BOOLEAN(~~1~~TRUE for buffering, ~~2~~ FALSE for discard)	~~1~~	

B.1.11 Multi RAT test suite parameters declarations

These parameters are used in the MultiRAT ATS.

Table B.11: MultiRAT PIXIT

Parameter name	Description	Type	Default value	Supported value
px_GSM_BandUnderTest	indicates which band is under test:	INTEGER		1 -> GSM450; 2 -> GSM480; 3 -> GSM700; 4 -> GSM850; 5 -> GSM-P-900; 6-> GSM-E-900; 7-> DCS1800; 8 -> PCS1900. 9 -> 450 & 900 MultiBand test 10 -> 450 & 1800 MultiBand test 11 -> 480 & 900 MultiBand test 12 -> 480 & 1800 MultiBand test 13 -> 900 & 1800 MultiBand test
px_GSM_CipheringOnOff	GSM Ciphering to be started or not	B1	1	
px_CipherKey	Cipher key (64 bits)	B64	'0101111001001010101100110101100010010001001101110101110100101010'B	
px_MS_TXPWR_MAX_CCH	MS_TXPWR_MAX_CCH	B5	'01010'B	
px_RXLEV_ACCESS_MIN	minimum received signal level at MS	B6	'000000'B	
px_SplitOnCCCH	split paging cycle on CCCH supported indication	B1	'0'B not supported	
px_TSC	Training sequence code for traffic channels	B3	'011'B	

px_PowerLevel	power level value for L1 header	B5		
px_TimingAdvance	Timing advance value for L1 header	B1	‘0000000’B	
px_CDMA2000	UE support of CDMA2000, used in classmark3	B1	‘0’B	
px_EDGEPwrCap1	EDGE Power Class used in classmark3	B2		
px_EDGEPwrCap2	EDGE Power Class used in classmark3	B2		
px_EOTD_Based	Support of MS based EOTD used in classmark3	BOOLEAN		
px_ExtDTM_MultislotClass	Used in Classmark 3	B2		
px_ExtDTM_EGPRS_MultislotClass	Used in Classmark 3	B2		
px_ExtMeasCap	UE support of Extended Measurements used in classmark3	B1		
px_8PSKPowerProfile	Used in classmark3	B2		
px_GMSKPowerProfile	Used in classmark3	B2		
px_GSM400_RadioCapability	Used in classmark3	B4		
px_HighMultiSlotCap	Used in Classmark 3	B2		
px_RGSM_RadioCapability	Used in classmark3	B3		
px_ModulationCapability	Used in classmark3 to specify supported modulation schemes other than GMSK	B1		0 = 8PSK supported for downlink only, 1 = 8PSK supported for uplink and downlink
px_MultiSlotClass	used in classmark3 to define the multislotclass supported by the UE	B5		
px_EGPRS_MultiSlotClass	used in classmark3 to define the EDGE multislotclass supported by the UE	B5		
px_DTM_EDGE_MultiSlotSubClass	indicates DTM EGPRS capabilities of the UE, used in classmark3	B2		
px_SM_Value	indicates the time needed for the UE to switch from one radio channel to another and perform a neighbour cell power measurement, used in classmark3	B4		Switch-Measure Value
px_SMS_Value	indicates the time needed for the UE to switch from one radio channel to another, perform a neighbour cell power measurement and then switch from that radio channel to another radio channel, used in classmark3	B4		Switch-Measure-Switch Value

B.1.121 MMI questions

Table B.11 requests additional information needed for the excution of the MMI commands used in the ATSs, the column 'ATS' indicates in which ATS the question is used.

Table B.121: MMI questions

Required information for MMI question	ATS
How to switch the PLMN selection mode of the UE to automatic selection?	All ATSs
How to switch the PLMN selection mode of the UE to manual selection?	All ATSs
How to select a given PLMN manually?	All ATSs
How to power off the UE?	All ATSs
How to power on the UE?	All ATSs
How to switch off the UE?	All ATSs
How to switch on the UE?	All ATSs
How to insert the USIM card into the UE?	All ATSs
How to remove the USIM card from the UE?	All ATSs
How to check that DTCH is trough connected ?	RRC, SMS, NAS
How to configure UE for a MO telephony call?	RRC, SMS, NAS
How to configure UE for an emergency call?	RRC, SMS, NAS
How to configure UE for a MT telephony call?	RRC, SMS, NAS
How to send any NAS message in order for RRC to receive data?	RRC, SMS, NAS
How to initiate a non call related supplementary service which is supported by the UE?	NAS
How to initiate sending of a mobile originated short message from the UE?	NAS
How to insert 2nd SIM card with short IMSI?	NAS
How to initiate an autocalling call with a given number?	NAS
How to initiate an autocalling call for a number that will be put in the blacklisted list?	NAS
How to reset the autocalling list of blacklisted numbers?	NAS
How to check that the DTMF tone indication has been generated?	NAS
How to enable call refusal on the UE?	NAS
How to check the contents of the received CBS?	SMS
How to check that the Memory Capacity Exceeded Flag has been set to the USIM simulator?	SMS
How to check if the Memory Capacity Exceeded Flag has been unset on the USIM simulator?	SMS
How to check the length and the contents of a given received Short Message ?	SMS
How to check whether the USIM simulator indicated an attempt made by the ME to store the short message in the USIM and return the status response 'Memory Problem'('92 40')?	SMS
How to check whether the USIM simulator indicates an attempt made by the ME to store the short message in the USIM and returns the status response 'OK' ('90 00')?	SMS
How to connect the USIM simulator to the UE?	SMS
How to send an SMS COMMAND message containing a request to delete the previously submitted Short Message?	SMS
How to send an SMS COMMAND message containing an enquiry about the previously submitted SM?	SMS
How to check that NO recalled short Message is displayed?	SMS
How to reply to a short Message with a given length?	SMS
How to insert a USIM card of type B into the UE?	MAC

E.3.7 Wildcards in PDU constraints for structured types should not be used

Contrary to popular belief, TR 101 666 [**Error! Reference source not found.**] does not support the use of wildcards for TTCN ASP parameters, or TTCN PDU fields whose type is structured. It is not clearly stated if wildcards are permitted for TTCN structured type elements whose type is structured but it is assumed that they are not permitted because the semantics for this are not clearly specified.

Note that this does not apply to ASN.1 Type definitions, ASPs, or PDUs.

Most tools do support wildcards for TTCN ASP parameters / TTCN PDU fields / TTCN structured type elements whose type is structured, but there is ambiguity between implementations since the semantics are not clearly specified in the core specification.

This feature is commonly used by TTCN developers, and is present in many existing test suites, including the 3GPP test suite, and in constraints that are being re-used from GERAN tests.

One problem with values '?' and '*' in constraints where they are used to indicate values of structured types, is that they would allow any combinations of values - even incorrect ones - which is not admissible according to the specifications. It is to be kept in mind that in tabular form each field is optional! It would be better to create and use an "any"-constraint which would deal with all the fields in detail (mandatory, IF PRESENT, etc.).

For the purpose of the present annex, the following rules shall apply:

1. '?' shall not be used to indicate values of TTCN ASP parameters / TTCN PDU fields / TTCN structured type elements whose type is structured. Known TTCN implementations differ significantly in their implementation of this feature.

2. '*' shall not be used for TTCN PDU fields, or TTCN ASP parameters whose type is structured (i.e. at the top level).

   2.1 Usage of wildcards should be avoided in structured type identifiers. Only simple type fields should use * or ?

3. '*' is permitted but discouraged for structured type elements whose type is structured. Note that this may result in ambiguous behaviour between TTCN implementations because the semantics are not specified in TR 101 666 [**Error! Reference source not found.**].

4. One of the following two options shall be used as an alternative to using a '?' for a TTCN ASP parameter / TTCN PDU field / TTCN structured type element whose type is structured.

   4.1 Option 1: Use '*' instead (only applicable to structured type elements due to rules 2 and 3 above).

   WARNING: This may result in the situation where a UE omits a mandatory field, but passes the test anyway, and / or different behaviour depending on the TTCN tool used.

   4.2 Option 2 (preferred option; supported by TR 101 666 [**Error! Reference source not found.**]): Use an 'any' constraint, in conjunction with IF PRESENT if appropriate (whole TTCN ASP parameters / TTCN PDU fields / TTCN structured type elements may be omitted according to TR 101 666 [**Error! Reference source not found.**]). This means that the constraint value specified for the parameter / field / element shall be a reference to another constraint of the appropriate structured type, which may in turn use wildcards for each of it's elements according to the rules specified in the present annex.

5. A structured type formal parameter should not be used together with the IF_PRESENT indication inside a structured type constraint. If this is required, then this shall be clearly commented.

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-3** **CR** **1336** ⌘ **rev** **-** ⌘ Current version: **5.0.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘ HSDPA ASP Modification		
Source:	⌘ 3GPP TSG RAN WG5 (Testing)		
Work item code:	⌘ TEI	***Date:*** ⌘	14/04/2005
Category:	⌘ **F**	***Release:*** ⌘	Rel-5
	Use one of the following categories: ***F*** *(correction)* ***A*** *(corresponds to a correction in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)* Detailed explanations of the above categories can be found in 3GPP TR 21.900.		*Use one of the following releases:* *2* *(GSM Phase 2)* *R96* *(Release 1996)* *R97* *(Release 1997)* *R98* *(Release 1998)* *R99* *(Release 1999)* *Rel-4* *(Release 4)* *Rel-5* *(Release 5)* *Rel-6* *(Release 6)*

Reason for change: ⌘	In the current ASP definitions, HS-DPCCH channel is enabled in the Uplink CPHY_RL_Setup_REQ or CPHY_RL_Modify_REQ ASP's by setting the OPTIONAL field hs_DPCCHInd to truevalue. This means that we only inform SS that there is an associated HS-DPCCH to the UL-DPCH. UE is using HS-DPCCH to send the AckNack and CQI indication; therefore we need to configure the HS-DPCCH in SS using CQI and AckNack repetition factors to correctly detect the signals. In the current ASP, CQI and AckNack repetition factors are defined in the DOWNLINK CPHY_RL_Setup_REQ (or CPHY_RL_Modify_REQ) and the DOWNLINK CPHY_TrCh_Config_REQ ASP's. This means that we need to "remember" parameters from one primitive to another. Therefore, to facilitate the ASP implementation, it is proposed to change the DPCHInfo_r5 ASP element to duplicate the CQI and AckNack.
Summary of change: ⌘	Modification of DPCHInfo_r5 and creation of HS_DPCCHInfo.
Consequences if not approved: ⌘	The implementation of HSDPA ASP in SS will be untidy.

Clauses affected:	⌘	7.3.2.2.11			
Other specs affected:	⌘	**Y**	**N**		
			X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘	TTCN changes required.			

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

7.3.2.2.11 CPHY_RL_Setup

ASN.1 ASP Type Definition	
Type Name	CPHY_RL_Setup_CNF
PCO Type	CSAP
Comment	To confirm to setup the Radio Link

Type Definition

```
SEQUENCE    {
            cellId                      INTEGER(0..63),
            routingInfo                 RoutingInfo
}
```

ASN.1 ASP Type Definition	
Type Name	CPHY_RL_Setup_REQ
PCO Type	CSAP
Comment	To request to setup the associated transport channels and the Radio Link itself.

Type Definition

```
SEQUENCE     {
            cellId                      INTEGER(0..63),
            routingInfo                 RoutingInfo,
            ratType                     RatType,
            setupMessage                CphyRlSetupReq
}
```

ASN.1 Type Definition	
Type Name	CphyRlSetupReq
Comment	To request to setup the Radio Link

Type Definition

```
SEQUENCE    {
        physicalChannelInfo         CHOICE      {
            primaryCPICHInfo            PrimaryCPICHInfo,
            secondaryCPICHInfo          SecondaryCPICHInfo,
            primarySCHInfo              PrimarySCHInfo,
            secondarySCHInfo            SecondarySCHInfo,
            primaryCCPCHInfo            PrimaryCCPCHInfo,
            secondaryCCPCHInfo          SecondaryCCPCHInfo,
            pRACHInfo                   PRACHInfo,
            pICHInfo                    PICHInfo,
            aICHInfo                    AICHInfo,
            dPCHInfo                    DPCHInfo,









            pDSCHInfo                   PDSCHInfo,
            dPCHInfo_r5                 DPCHInfo_r5,    -- later than r4
            hS_PDSCHInfo                HS_PDSCHInfo    -- later than r4

    }
}
```

ASN.1 Type Definition	
Type Name	PrimaryCPICHInfo
Comment	

Type Definition

```
SEQUENCE    {
            dl_TxPower_PCPICH           DL_TxPower_PCPICH,
            tx_diversityIndicator       BOOLEAN
}
```

ASN.1 Type Definition	
Type Name	SecondaryCPICHInfo
Comment	

Type Definition

```
SEQUENCE {
            scramblingCode              INTEGER(0..15),
            dl ChannelizationCode       SF512 AndCodeNumber,
            dl_TxPower                  DL_TxPower
}
```

ASN.1 Type Definition	
Type Name	PrimarySCHInfo
Comment	

Type Definition

```
SEQUENCE {
            tstdIndicator               BOOLEAN,
            dl TxPower                  DL TxPower
}
```

ASN.1 Type Definition	
Type Name	SecondarySCHInfo
Comment	

Type Definition

```
SEQUENCE    {
            tstdIndicator               BOOLEAN,
            dl_TxPower                  DL_TxPower
}
```

ASN.1 Type Definition	
Type Name	PrimaryCCPCHInfo
Comment	

Type Definition

```
SEQUENCE    {
            sttd_Indicator              BOOLEAN,
            dl_TxPower                  DL_TxPower




}
```

ASN.1 Type Definition	
Type Name	SecondaryCCPCHInfo
Comment	The range for powerOffsetOfTFCI_PO1 and powerOffsetOfPILOT_PO3 is 0-6 dB, 0.25 dB per step.

Type Definition

```
SEQUENCE {
            scramblingCode              INTEGER(0..15),
            dl_ChannelizationCode       SF256_AndCodeNumber,
            sCCPCHSlotFormat            SCCPCHSlotFormat,
            timingOffset                INTEGER (0..149),
            positionFixedOrFlexible     PositionFixedOrFlexible,
            sttd_Indicator              BOOLEAN,
            dl_TxPower                  DL_TxPower,
            powerOffsetOfTFCI_PO1       INTEGER (0..24),
            powerOffsetOfPILOT_PO3      INTEGER (0..24)









}
```

ASN.1 Type Definition	
Type Name	PRACHInfo
Comment	

Type Definition

```
SEQUENCE {
            fdd_tdd                 CHOICE  {
            fdd
                SEQUENCE   {
                    preambleSignature               AvailableSignatures,
                    spreadingFactorForDataPart      SF_PRACH,
                    preambleScramblingCode          PreambleScramblingCodeWordNumber,
                    puncturingLimit                 PuncturingLimit,
                    accessSlot                      AvailableSubChannelNumbers
                },
            tdd
                SEQUENCE   {
                    -- timeSlot                     TimeSlot,
                    -- spreadingCode                SpreadingCode,
                    -- midambleCode                 MidambleCode,
                }
            }
}
```

ASN.1 Type Definition	
Type Name	PICHInfo
Comment	

Type Definition

```
SEQUENCE    {
            pichinfo                    PICH Info,
            dl_TxPower                  PICH_PowerOffset,
            sccpchId_associated         INTEGER (0..31)
}
```

ASN.1 Type Definition	
Type Name	AICHInfo
Comment	

Type Definition

```
SEQUENCE    {
            aichinfo                    AICH Info,
            dl_TxPower                  AICH_PowerOffset
}
```

ASN.1 Type Definition	
Type Name	DPCHInfo
Comment	At least one of the fields shall be present.

Type Definition

```
SEQUENCE    {
            ul_DPCH_Info                UL_DPCH_Info    OPTIONAL,
            dl_DPCHInfo                 DL_DPCHInfo     OPTIONAL
}
```

ASN.1 Type Definition	
Type Name	DL_DPCHInfo
Comment	The range for powerOffsetOfTPC_PO2 and powerOffsetOfTFCI_PO1 and powerOffsetOfPILOT_PO3 is 0 dB to 6 dB, 0,25 dB per step.

Type Definition

```
SEQUENCE    {
            dl_CommonInformation        DL_CommonInformation,
            dl_DPCH_InfoPerRL           DL_DPCH_InfoPerRL,
            powerOffsetOfTFCI_PO1       INTEGER (0..24),
            powerOffsetOfTPC_PO2        INTEGER (0..24),
            powerOffsetOfPILOT_PO3      INTEGER (0..24),
            dl_TxPower                  DL_TxPower,
            dl_TxPowerMax               DL_TxPower,
            dl_TxPowerMin               DL_TxPower
}
```

ASN.1 Type Definition	
Type Name	DPCHInfo_r5
Comment	Applicable later than r4 At least one of the first two fields shall be present. Presence of hs_DPCCHInd (value = truevalue) means that the HS-DPCCH shall be configured in the uplink DPCH. If hs_DPCCHInd is absent no HS-DPCCH shall be configured in the uplink DPCH, or the configured HS-DPCCH shall be removed in the modify ASP. In the active set which has radio links from more than one cell the HS-DPCCH is configured only in the HS-DSCH serving cell. Three combinations are valid: ul_DPCH_Info only, dl_DPCHInfo only and ul_DPCH_Info + hs_DPCCHInd.
Type Definition	

SEQUENCE {
ul_DPCH_Info UL_DPCH_Info_r5 OPTIONAL,
dl_DPCHInfo DL_DPCHInfo_r5 OPTIONAL,
hs_DPCCHInd HS_DPCCHInfo~~ENUMERATED {truevalue (0)}~~
OPTIONAL
}	

ASN.1 Type Definition	
Type Name	HS_DPCCHInfo
Comment	
Type Definition	

SEQUENCE{
cqi_RepetitionFactor CQI_RepetitionFactor,
ackNackRepetitionFactor ACK_NACK_repetitionFactor
}	

ASN.1 Type Definition	
Type Name	DL_DPCHInfo_r5
Comment	Applicable later than r4
Type Definition	

SEQUENCE {
dl_CommonInformation DL_CommonInformation_r5,
dl_DPCH_InfoPerRL DL_DPCH_InfoPerRL_r5,
powerOffsetOfTFCI_PO1 INTEGER (0..24),
powerOffsetOfTPC PO2 INTEGER (0..24),
powerOffsetOfPILOT PO3 INTEGER (0..24),
dl_TxPower DL_TxPower,
dl_TxPowerMax DL_TxPower,
dl_TxPowerMin DL_TxPower
}	

ASN.1 Type Definition	
Type Name	HS_PDSCHInfo
Comment	Applicable later than r4 When CHY_RL_Setup_REQ is called with CHOICE of hS_PDSCHInfo HS_PDSCH and HS-SCCH shall be configured in SS. The following HS-DSCH related parameters are passed to the SS implicitly by HSDSCH_physical_layer_category: - Maximum number of HS-DSCH codes can be received by UE, - Minimum inter-TTI interval, - Maximum number of bits of an HS-DSCH transport block within an HS-DSCH TTI - Total number of soft channel bits". HSDSCH_physical_Layer_category is also used for interpretation of the meaning of CQI value.

Type Definition

```
SEQUENCE    {
    hSDSCHPhysicalLayerCategory     HSDSCH_physical_layer_category,
    h_RNTI                          H_RNTI,
    dlHSPDSCHInformation            DL HSPDSCH Information,
    sttd Indicator                  BOOLEAN,
    hs SCCH TxPower                 DL TxPower  -- offset related to pilot bits
                                                -- on DL-DPCCH (25.433, 9.2.2.18I)
}
```

ASN.1 Type Definition	
Type Name	DL_TxPower_PCPICH
Comment	Absolute Tx Power of PCPICH

Type Definition

```
INTEGER (-60..-30)
```

ASN.1 Type Definition	
Type Name	DL_TxPower
Comment	Downlink Tx Power relative to PCPICH

Type Definition

```
INTEGER (-35..+15)
```

ASN.1 Type Definition	
Type Name	SCCPCHSlotFormat
Comment	Reference to 3GPP TS25.211 [**Error! Reference source not found.**]

Type Definition

```
INTEGER (0..17)
```

ASN.1 Type Definition	
Type Name	PDSCHInfo
Comment	

Type Definition

```
SEQUENCE {
    fdd tdd         CHOICE  {
            fdd     SEQUENCE    {
                        pdsch CodeMapping       PDSCH CodeMapping
                                },
            tdd     SEQUENCE    {
                        --pdsch_Identity        PDSCH_Identity,
                        --pdsch Info            PDSCH Info,
                        --pdsch PowerControlInfo    PDSCH PowerControlInfo  OPTIONAL
                                },
                    },
    dl_TxPower          DL_TxPower
}
```

CR-Form-v7

CHANGE REQUEST

⌘ 34.123-3 CR 1337 ⌘rev - ⌘ Current version: 5.0.0 ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☐

Title:	⌘	Modifying G_L2_SYSINFO_REQ ASP
Source:	⌘	Anite, MCC task 160
Work item code:	⌘	TEI
Date:	⌘	28/04/2005
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	On test cases 6.2.2.2, 20.25.3 and others, it is required to send the SI2q on the BCCH Ext, while on other "normal" test cases, SI2q should be sent on the BCCH Norm. In order to send this system information message, the G_L2_SYSINFO_REQ ASP is used in all test cases regardless of where it should be sent. In the detailed comment section of that ASP, it is specified that "SI13, SI2bis and SI2quater are scheduled in TC=4 on BCCH norm not on BCCH Ext".
Summary of change:	⌘	Add the field 'BCCHExt' to G_L2_SYSINFO_REQ ASP
Consequences if not approved:	⌘	SS has no way of knowing when SI2quater message is to be sent and Test cases 20.25.3 and 6.2.2.2 cannot be performed correctly

Clauses affected:	⌘	7.3.4.3.1.1

		Y	N			
Other specs affected:	⌘		X	Other core specifications	⌘	34.123-3 (TTCN)
		X		Test specifications		
			X	O&M Specifications		

Other comments:	⌘	This CR requires TTCN changes

7.3.4.3.1.1 ASPs for data transmission and reception through GERAN L2

ASP Name	G_L2_DATA_REQ		
PCO Type	G_DSAP		
Comments	The ASP is used to send L3 signalling message on the signalling channels or user data on the traffic channels to the UE/MS in acknowledged mode.		
Parameter Name		**Parameter Type**	**Comments**
CellId		CellId	
SAPI		SAPI	0 or 3
PhysicalChId		PhysicalChId	Channel identifier
g_LogicChType		G_LogicChType	
SubChannel		SubChannelNumber	Valid only for logical channel types: TCH/H, FACCH/H, SACCH/TH, SDCCH/8, SACCH/C8, SDCCH/4, and SACCH/C4. For TCH/H, FACCH/H and SACCH/TH value is (0..1); For SDCCH/8 and SACCH/C8 value is (0..7); for SDCCH/4 and SACCH/C4 value is (0..3). This field is not applicable and the SS shall ignore it if this field is coded as 15.
Rfn		RFN	The reduced frame number of the first frame on which this message is sent. This field is not applicable and the SS shall ignore it if the field t2 of rfn is coded as '11111'B.
Msg		PDU	Signalling message or user data to be sent
Detailed Comments	Parameter rfn is only used in the test cases that require L3 message to be sent on specified frame number.		

ASP Name	G_L2_DATA_IND		
PCO Type	G_DSAP		
Comments	The ASP is used to receive a L3 signalling message on the signalling channels or user data on the traffic channels from the UE/MS in acknowledged mode.		
Parameter Name		**Parameter Type**	**Comments**
CellId		CellId	
SAPI		SAPI	0 or 3
PhysicalChId		PhysicalChId	Channel identifier
g_LogicChType		G_LogicChType	
SubChannel		SubChannelNumber	Valid only for logical channel types: TCH/H, FACCH/H, SACCH/TH, SDCCH/8, SACCH/C8, SDCCH/4, and SACCH/C4. For TCH/H, FACCH/H and SACCH/TH value is (0..1); For SDCCH/8 and SACCH/C8 value is (0..7); for SDCCH/4 and SACCH/C4 value is (0..3). This field is not applicable and the SS shall ignore it if this field is coded as 15.
Rfn		RFN	The reduced frame number of the first frame carrying the message
msg		PDU	Signalling message or user data received
Detailed Comments			

ASP Name	G_L2_L2Estab_IND		
PCO Type	G_DSAP		
Comments	The ASP is used to receive an indication of that L2 multiple frame operation on the specified channel has been established.		
Parameter Name		**Parameter Type**	**Comments**
CellId		CellId	
PhysicalChId		PhysicalChId	Channel identifier
g_LogicChType		G_LogicChType	
SubChannel		SubChannelNumber	Valid only for logical channel types: FACCH/H, SDCCH/8 and SDCCH/4, This field shall be coded as 15 if it is not applicable.
SAPI		SAPI	0,3
establish_mode		OCTETSTRING[1]	
Rfn		RFN	The reduced frame number of the first frame carries the L2 SABM frame
Msg		PDU	this field is present only when the establish mode is CoRes (collision resolution)
Detailed Comments	see 3GPP TS 44.006 [**Error! Reference source not found.**] clauses 7.1.1 and 7.1.3		

ASP Name	G_L2_UNITDATA_REQ		
PCO Type	G_DSAP		
Comments	The ASP is used to send L3 signalling message on the signalling channels or send user data on the traffic channels to the UE/MS in unacknowledged mode.		
Parameter Name		**Parameter Type**	**Comments**
CellId		CellId	
SAPI		SAPI	0 or 3
PhysicalChId		PhysicalChId	Channel identifier
g_LogicChType		G_LogicChType	
SubChannel		SubChannelNumber	Valid only for logical channel types: TCH/H, FACCH/H, SACCH/TH, SDCCH/8, SACCH/C8, SDCCH/4, and SACCH/C4. For TCH/H, FACCH/H and SACCH/TH value is (0..1); For SDCCH/8 and SACCH/C8 value is (0..7); for SDCCH/4 and SACCH/C4 value is (0..3). This field is not applicable and the SS shall ignore it if this field is coded as 15.
Rfn		RFN	The reduced frame number of the first frame on which this message is sent. This field is not applicable and the SS shall ignore it if the field t2 of rfn is coded as '11111'B.
msg		PDU	Signalling message or user data to be sent
Detailed Comments	Parameter fn is only used in the test cases that require specific L3 message to be sent on specified frame number.		

ASP Name	G_L2_UNITDATA_IND		
PCO Type	G_DSAP		
Comments	The ASP is used to receive a L3 signalling message on the signalling channels or user data on the traffic channels from the UE/MS in unacknowledged mode.		
Parameter Name		**Parameter Type**	**Comments**
CellId		CellId	
sAPI		SAPI	0 or 3
PhysicalChId		PhysicalChId	Channel identifier
g_LogicChType		G_LogicChType	
SubChannel		SubChannelNumber	Valid only for logical channel types: TCH/H, FACCH/H, SACCH/TH, SDCCH/8, SACCH/C8, SDCCH/4, and SACCH/C4. For TCH/H, FACCH/H and SACCH/TH value is (0..1); For SDCCH/8 and SACCH/C8 value is (0..7); for SDCCH/4 and SACCH/C4 value is (0..3). This field is not applicable and the SS shall ignore it if this field is coded as 15.
Rfn		RFN	The reduced frame number of the first frame carrying the message
msg		PDU	Signalling message or user data received
Detailed Comments			

ASP Name	G_L2_ACCESS_IND		
PCO Type	G_DSAP		
Comments	The ASP is used to receive a random access or handover access burst on the specified channel.		
Parameter Name		**Parameter Type**	**Comments**
CellId		CellId	
PhysicalChId		PhysicalChId	Channel identifier
g_LogicChType		G_LogicChType	RACH, FACCH, SDCCH/8, SDCCH/4. RACH is used for random access burst; others are used for handover access burst
SubChannel		SubChannelNumber	Valid only for logical channel types: FACCH/H, SDCCH/8, SDCCH/4. This field is not applicable and the SS shall ignore it if this field is coded as 15.
Rfn		RFN	The reduced frame number of the first frame carrying the burst
Burst		PDU	Random access burst or handover access burst
Detailed Comments			

ASP Name	G_L2_Paging_REQ		
PCO Type	G_DSAP		
Comments	The ASP is used to send a paging message on the specified paging group of the specified paging channel to the UE/MS, when the UE/MS is in idle mode or the UE/MS not supporting SPLIT_PG_CYCLE on CCCH is in GPRS attached mode and PCCCH is absent.		
Parameter Name		**Parameter Type**	**Comments**
CellId		CellId	
SAPI		SAPI	0
PhysicalChId		PhysicalChId	Channel identifier of the right CCCH_GROUP
g_LogicChType		G_LogicChType	PCH
PagingGroup		PAGING_GROUP	
PagingMode		PagingMode	0-normal paging; 1-extended paging; 2-paging reorganization.
msg		PDU	Paging message
Detailed Comments	The SS is required to send valid layer 3 messages continuously on all paging subchannels on CCCH where paging can appear. For "normal paging" the SS send the paging message in the specified pagingGroup; For "extended paging" " the SS send the paging message in the specified pagingGroup and in the "next but one" position on the PCH, following the block corresponding to pagingGroup; For "paging reorganization" the SS send the paging message in all paging subchannels. The required 51-multiframe occurs when: pagingGroup div (N div BS_PA_MFRMS) = (FN div 51) mod (BS_PA_MFRMS) The index to the required paging block in the 51-multiframe determined above: Paging block index = pagingGroup mod (N div BS_PA_MFRMS) N = (9-BS_AG_BLKS_RES) * BS_PA_MFRMS CCCH not combined or N = (3-BS_AG_BLKS_RES) * BS_PA_MFRMS CCCH + SDCCH combined		

ASP Name	G_L2_PagingGPRS_REQ		
PCO Type	G_DSAP		
Comments	The ASP is used to send a paging message on the specified paging group of the specified paging channel to the UE/MS, when the UE/MS supporting SPLIT_PG_CYCLE on CCCH is in GPRS attached mode and PCCCH absent.		
Parameter Name		**Parameter Type**	**Comments**
CellId		CellId	
SAPI		SAPI	0
PhysicalChId		PhysicalChId	Channel identifier of the right CCCH_GROUP
g_LogicChType		G_LogicChType	PCH
PagingGroup		PAGING_GROUP	
PagingMode		PagingMode	0-normal paging; 1-extended paging; 2-paging reorganization.
msg		PDU	Paging message
Detailed Comments	The SS is required to send valid layer 3 messages continuously on all paging subchannels on CCCH where paging can appear. For "normal paging" the SS send the paging message in the specified pagingGroup; For "extended paging" " the SS send the paging message in the specified pagingGroup and in the "next but one" position on the PCH, following the block corresponding to pagingGroup; For "paging reorganization" the SS send the paging message in all paging subchannels. The required 51-multiframe occurs when: pagingGroup div (M div 64) = (FN div 51) mod 64 The index to the required paging block in the 51-multiframe determined above: Paging block index = pagingGroup mod (M div 64) M = (9-BS_AG_BLKS_RES) × 64 CCCH not combined or M = (3-BS_AG_BLKS_RES) × 64 CCCH + SDCCH combined		
NOTE: This ASP may not be implemented if the MS/UE does not support SPLIT_PG_CYCLE on CCCH.			

Type Name	CellId
Type Definition	INTEGER
Type Encoding	
Comments	

Type Name	SAPI
Type Definition	INTEGER
Type Encoding	
Comments	Service access point identifier for GERAN L2 and LLC

Type Name	PhysicalChId
Type Definition	INTEGER(0..31)
Type Encoding	
Comments	Physical channel identifier in GERAN

Type Name	G_LogicChType
Type Definition	INTEGER
Type Encoding	
Comments	GERAN logical channel type: 0-BCCH; 1-RACH; 2-PCH; 3-AGCH; 4-SDCCH/4; 5-SACCH/C4; 6-SDCCH/8; 7-SACCH/C8; 8-TCH/F; 9-FACCH/F; 10-SACCH/TF; 11-TCH/H; 12-FACCH/H; 13-SACCH/TH; 14-PBCCH; 15-PRACH; 16-PPCH; 17-PAGCH; 18-PDTCH/F; 19-PACCH/F; 20-PTCCH/F; 21-E-TCH/F; 22-E-IACCH/F; 23-E-FACCH/F; 24-SACCH/M; 25-SACCH/MD

Type Name	SubChannelNumber
Type Definition	INTEGER
Type Encoding	
Comments	Subchannel number for TCH/H, FACCH/H, SACCH/TH, SDCCH/4, SDCCH/C4, SDCCH/8 and SDCCH/C8. For TCH/H, FACCH/H and SACCH/TH value is (0..1); For SDCCH/8 and SACCH/C8 value is (0..7); For SDCCH/4 and SACCH/C4 value is (0..3).

Type Name	PAGING_GROUP
Type Definition	INTEGER
Type Encoding	
Comments	3GPP TS 05.02 or 3GPP TS 45.002 [**Error! Reference source not found.**] clauses 6.5.2 and 6.5.6

Type Name	PagingMode
Type Definition	INTEGER
Type Encoding	
Comments	0 - normal paging; 1 - extended paging; 2 - paging reorganization.

Type Name	RFN		
Encoding Variation			
Comments	The reduced frame number, its range is 0 -- 42431 (FN modulo 42432) about 195.8 s		
Element Name	**Type Definition**	**Field Encoding**	**Comments**
t1_	BITSTRING[5]		(FN div 1326) mod 32
t3	BITSTRING[6]		FN mod 51
t2	BITSTRING[5]		FN mod 26
Detailed Comments	see 3GPP TS 04.18 or 3GPP TS 44.018 [**Error! Reference source not found.**] clause 10.5.2.38. The reduced frame number, FN modulo 42432 can be calculated in the following formula: 51 × ((t3 - t2) mod 26) + t3 + 1326 × t1_. RFN is used for starting time and TBF starting time.		

ASP Name	G_L2_Release_CNF	
PCO Type	G_DSAP	
Comments	This ASP from L2, indicates that the multiple frame operation release was successful. This means that the UA message was received in response to L2 DISC command.	
Parameter Name	**Parameter Type**	**Comments**
CellId	CellId	
SAPI	SAPI	0 or 3
PhysicalChId	PhysicalChId	Channel identifier
g_LogicChType	G_LogicChType	
SubChannel	SubChannelNumber	For SDCCH/8 and SACCH/C8 value is (0..7); for SDCCH/4 and SACCH/C4 value is (0..3). This field is not applicable and the SS shall ignore it if this field is coded as 15.
ReleaseMode	BITSTRING[1]	0 = normal release; 1 = local release.
Detailed Comments		

ASP Name	G_L2_Release_REQ	
PCO Type	G_DSAP	
Comments	This ASP requests L2 to send Layer 2 DISC command on the indicated SAPI.	
Parameter Name	**Parameter Type**	**Comments**
CellId	CellId	
SAPI	SAPI	0 or 3
PhysicalChId	PhysicalChId	Channel identifier
g_LogicChType	G_LogicChType	
SubChannel	SubChannelNumber	For SDCCH/8 and SACCH/C8 value is (0..7); for SDCCH/4 and SACCH/C4 value is (0..3). This field is not applicable and the SS shall ignore it if this field is coded as 15.
ReleaseMode	BITSTRING[1]	0 = normal release; 1 = local release.
Detailed Comments		

ASP Name	G_L2_Release_IND		
PCO Type	G_DSAP		
Comments	The ASP is used to receive an indication of the termination of an established multiple frame operation or an indication of an unsuccessful establishment attempt.		
Parameter Name		**Parameter Type**	**Comments**
CellId		CellId	
SAPI		SAPI	0
PhysicalChId		PhysicalChId	Channel identifier
g_LogicChType		G_LogicChType	
SubChannel		SubChannelNumber	Valid only for logical channel types: TCH/H, FACCH/H, SACCH/TH, SDCCH/8, SACCH/C8, SDCCH/4, and SACCH/C4. For TCH/H, FACCH/H and SACCH/TH value is (0..1); for SDCCH/8 and SACCH/C8 value is (0..7); for SDCCH/4 and SACCH/C4 value is (0..3).
ReleaseMode		BITSTRING[1]	0 = normal release; 1 = local end release
outstanding_Indicator		BOOLEAN	whether or not there are outstanding acknowledgements or unsolved G_L2_DATA_REQ primitives.
Detailed Comments			

ASP Name	G_L2_SYSINFO_REQ		
PCO Type	G_DSAP		
Comments	The ASP is used to send system information messages to the lower layer emulator.		
Parameter Name		**Parameter Type**	**Comments**
CellId		CellId	
SAPI		SAPI	0
PhysicalChId		PhysicalChId	
g_LogicChType		G_LogicChType	BCCH or SACCH
InstanceIndex		INTEGER	To indicate the instance of the system information messages. For SYSTEM INFORMATION Type 2ter, 18, 19, 20 the value is (0..7); for type 14, 15 the value is (0..3); for type 2quater the value is (0..15); for all other type the value is 0.
SysInfoType		SysInfoType	SYSTEM INFORMATION Type 5, 5bis, 5ter, and 6 are sent on SACCH, the other SYSTEM INFORMATION 's are sent on BCCH.
BCCHExt		B1	'0' indicates message sent on BCCH Norm, '1' indicates message sent on BCCH Ext. Only valid for SI 2quater, 7, 8, 13, 16, 17. Default value '0'
msg		PDU	This field contains SYSTEM INFORMATION message. See 3GPP TS 44.018 [43] clause 9.1.31 to clause 9.1.43h for SYSTEM INFORMATION message definitions.
Detailed Comments	The lower layer emulator shall store the SYSTEM INFORMATION's, and transmit them periodically according to the rules specified in clause 6.3.1.3 of 3GPP TS 05.02 or 3GPP TS 45.002 [**Error! Reference source not found.**]. The msg shall override the same type system information message previous stored in the lower layer emulator.		

Type Name	SysInfoType
Type Definition	INTEGER
Type Encoding	
Comments	25--SYSTEM INFORMATION TYPE 1 26--SYSTEM INFORMATION TYPE 2 2 -- SYSTEM INFORMATION TYPE 2bis 3 -- SYSTEM INFORMATION TYPE 2ter 7 -- SYSTEM INFORMATION TYPE 2quater 27--SYSTEM INFORMATION TYPE 3 28--SYSTEM INFORMATION TYPE 4 29--SYSTEM INFORMATION TYPE 5 5 -- SYSTEM INFORMATION TYPE 5bis 6 -- SYSTEM INFORMATION TYPE 5ter 30--SYSTEM INFORMATION TYPE 6 31--SYSTEM INFORMATION TYPE 7 24--SYSTEM INFORMATION TYPE 8 4 -- SYSTEM INFORMATION TYPE 9 0 -- SYSTEM INFORMATION TYPE 13 61--SYSTEM INFORMATION TYPE 16 62--SYSTEM INFORMATION TYPE 17 64--SYSTEM INFORMATION TYPE 18 65--SYSTEM INFORMATION TYPE 19 66--SYSTEM INFORMATION TYPE 20

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CR-Form-v7

CHANGE REQUEST

⌘ **34.123-3** **CR** **1338** ⌘**rev** **-** ⌘ Current version: **5.0.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	CR to 34.123-3 Rel-5: Addition of a new ASP required for test case tc_8_1_7_1d
Source:	⌘	Rohde & Schwarz
Work item code:	⌘	TEI
Date:	⌘	26/04/2005
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change: ⌘

- In test case tc_8_1_7_1d a timer of 120 msec is used to assume that a message has been transferred successfully to the UE. Then the radio bearer is stopped to leave the procedure being executed (Security Mode procedure) incomplete.
- The timer used is smaller than the timer tolerance allowed per 3G TS 34.108. In practice the results achieved when running the test case proved to be unreliable: UE failures because of timing problems occurred.
- A specific ASP shall be used which ensures that messages are transmitted successfully, but the acknowledgement from the UE is left unsuccessful.

Summary of change: ⌘

An ASP shall be used to achieve that

1. It is ensured that messages sent by the SS are transmitted successfully to the UE.

2. Acknowledgements sent by the UE thereupon are not confirmed by the SS at the RLC level.

This CR proposes ASP for this purpose.

Consequences if not approved:	⌘	The test is unreliable and may fail conformant UEs.

Clauses affected:	⌘	7.3.2.2.26b			
Other specs affected:	⌘	**Y** / **N**	Other core specifications	⌘	
			Test specifications		34.123-1
			O&M Specifications		
Other comments:	⌘	Affects R99, Rel-4 and Rel-5.			

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to .
2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request

<START OF NEW SECTION>

CRLC_NotAckNxtRxSDU

ASN.1 ASP Type Definition	
Type Name	CRLC_NotAckNxtRxSDU_CNF
PCO Type	CSAP
Comment	To confirm that the next received SDU has not been acknowledged.
Type Definition	

```
SEQUENCE    {
            cellId                  INTEGER(-1..63),
            routingInfo             RoutingInfo
}
```

ASN.1 ASP Type Definition	
Type Name	CRLC_NotAckNxtRxSDU_REQ
PCO Type	CSAP
Comment	To request that the next received SDU is not acknowledged. The received SDU is passed to the upper layers.
Type Definition	

```
SEQUENCE    {
            cellId                  INTEGER(-1..63),
            routingInfo             RoutingInfo,
            mode                    ENUMERATED{start(0)}
}
```

<END OF MODIFIED SECTION>