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GSM PROTOCOL STACK

TEST SPECIFICATION

MM

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- [15] GSM 3.85, Closed User Group Supplementary Services - Stage 2
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- [19] GSM 4.05, Data Link Layer General Aspects
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- [38] Service Access Point MMREG
6147.100.96.100; Condat AG
- [39] Service Access Point MNCC
6147.101.96.100; Condat AG
- [40] Service Access Point MNSS
6147.102.96.100; Condat AG
- [41] Service Access Point MNSMS
6147.103.96.100; Condat AG
- [42] Service Access Point MMCC
6147.104.97.100; Condat AG
- [43] Service Access Point MMSS
6147.105.97.100; Condat AG
- [44] Service Access Point MMSMS
6147.106.97.100; Condat AG

[45]	Service Access Point RR 6147.107.97.100; Condat AG
[46]	Service Access Point SIM 6147.108.97.100; Condat AG
[47]	Service Access Point MPH 6147.109.96.100; Condat AG
[48]	Service Access Point DL 6147.110.96.100; Condat AG
[49]	Service Access Point MDL 6147.111.96.100; Condat AG
[50]	Service Access Point PH 6147.112.97.100; Condat AG
[51]	Service Access Point MMI 6147.113.96.100; Condat AG
[52]	Message Sequence Charts CC 6147.200.97.100; Condat AG
[53]	Message Sequence Charts SS 6147.201.97.100; Condat AG
[54]	Message Sequence Charts SMS 6147.202.97.100; Condat AG
[55]	Message Sequence Charts MM 6147.203.97.100; Condat AG
[56]	Message Sequence Charts RR 6147.204.96.100; Condat AG
[57]	Message Sequence Charts DL 6147.205.96.100; Condat AG
[58]	Users Guide 6147.300.96.100; Condat AG
[59]	Test Specification CC 6147.400.97.100; Condat AG
[60]	Test Specification SS 6147.401.97.100; Condat AG
[61]	Test Specification SMS 6147.402.97.100; Condat AG
[62]	Test Specification MM 6147.403.97.100; Condat AG
[63]	Test Specification RR 6147.404.97.100; Condat AG
[64]	Test Specification DL 6147.405.97.100; Condat AG
[65]	Test Specification CCD 6147.406.97.100; Condat AG
[66]	SDL Specification CC 6147.500.97.100; Condat AG
[67]	SDL Specification SS 6147.501.97.100; Condat AG

[68]	SDL Specification SMS 6147.502.97.100; Condat AG
[69]	SDL Specification MM 6147.503.97.100; Condat AG
[70]	SDL Specification RR 6147.504.97.100; Condat AG
[71]	SDL Specification DL 6147.505.97.100; Condat AG
[72]	Message Specification CC 6147.600.97.100; Condat AG
[73]	Message Specification SS 6147.601.97.100; Condat AG
[74]	Message Specification SMS 6147.602.97.100; Condat AG
[75]	Message Specification MM 6147.603.97.100; Condat AG
[76]	Message Specification RR 6147.604.97.100; Condat AG
[77]	Message Specification DL 6147.605.97.100; Condat AG
[78]	Technical Documentation CC 6147.700.97.100; Condat AG
[79]	Technical Documentation SS 6147.701.97.100; Condat AG
[80]	Technical Documentation SMS 6147.702.97.100; Condat AG
[81]	Technical Documentation MM 6147.703.97.100; Condat AG
[82]	Technical Documentation RR 6147.704.97.100; Condat AG
[83]	Technical Documentation DL 6147.705.97.100; Condat AG
[84]	Technical Documentation CCD 6147.706.97.100; Condat AG

1.2 Abbreviations

AGCH	Access Grant Channel
BCCH	Broadcast Control Channel
BS	Base Station
BSIC	Base Station Identification Code
CBCH	Cell Broadcast Channel
CBQ	Cell Bar Qualify
CC	Call Control
CCCH	Common Control Channel
CCD	Condat Coder Decoder
CKSN	Ciphering Key Sequence Number
C/R	Command / Response

C1	Path Loss Criterion
C2	Reselection Criterion
DCCH	Dedicated Control Channel
DISC	Disconnect Frame
DL	Data Link Layer
DM	Disconnected Mode Frame
EA	Extension Bit Address Field
EL	Extension Bit Length Field
EMMI	Electrical Man Machine Interface
F	Final Bit
FACCH	Fast Associated Control Channel
FHO	Forced Handover
GP	Guard Period
GSM	Global System for Mobile Communication
HPLMN	Home Public Land Mobile Network
I	Information Frame
IMEI	International Mobile Equipment Identity
IMSI	International Mobile Subscriber Identity
Kc	Authentication Key
L	Length Indicator
LAI	Location Area Information
LPD	Link Protocol Discriminator
M	More Data Bit
MCC	Mobile Country Code
MM	Mobility Management
MMI	Man Machine Interface
MNC	Mobile Network Code
MS	Mobile Station
NCC	National Colour Code
NECI	New Establishment Causes included
N(R)	Receive Number
N(S)	Send Number
OTD	Observed Time Difference
P	Poll Bit
PCH	Paging Channel
PDU	Protocol Description Unit
P/F	Poll / Final Bit
PL	Physical Layer
PLMN	Public Land Mobile Network
RACH	Random Access Channel
REJ	Reject Frame
RNR	Receive Not Ready Frame
RR	Radio Resource Management
RR	Receive Ready Frame
RTD	Real Time Difference
SABM	Set Asynchronous Balanced Mode
SACCH	Slow Associated Control Channel
SAP	Service Access Point
SAPI	Service Access Point Identifier
SDCCH	Slow Dedicated Control Channel
SIM	Subscriber Identity Module
SMS	Short Message Service
SMSCB	Short Message Service Cell Broadcast
SS	Supplementary Services
TCH	Traffic Channel
TCH/F	Traffic Channel Full Rate
TCH/H	Traffic Channel Half Rate
TDMA	Time Division Multiple Access
TMSI	Temporary Mobile Subscriber Identity

UA	Unnumbered Acknowledgement Frame
UI	Unnumbered Information Frame
VPLMN	Visiting Public Land Mobile Network
V(A)	Acknowledgement State Variable
V(R)	Receive State Variable
V(S)	Send State Variable

1.3 Terms

Entity:	Program which executes the functions of a layer
Message:	A message is a data unit which is transferred between the entities of the same layer (peer-to-peer) of the mobile and infrastructure side. Message is used as a synonym to protocol data unit (PDU). A message may contain several information elements.
Primitive:	A primitive is a data unit which is transferred between layers on one component (mobile station or infrastructure). The primitive has an operation code which identifies the primitive and its parameters.
Service Access Point	A Service Access Point is a data interface between two layers on one component (mobile station or infrastructure).

2 Overview

The Protocol Stacks are used to define the functionality of the GSM protocols for interfaces. The GSM specifications are normative when used to describe the functionality of interfaces, but the stacks and the subdivision of protocol layers does not imply or restrict any implementation.

The base of the Protocol Stack rests on the physical layer.

The Data Link Layer (DL) is used to handle an acknowledged connection between mobile and base station. The LAPDm protocol is used.

Radio Resource (RR) manages the resources of the air-interface. That means configuration of physical layer, cell selection and cell reselection, data transfer, RR-Connection handling.

Mobility Management (MM) handles registration aspects for the mobile station. It detects changes of location areas and updates a mobile station in the new location area.

Call Control (CC) provides the call functionality. This includes call establishment, call maintenance procedures like Hold, Retrieve or Modify, and call disconnection.

Supplementary Services (SS) handles all call independent supplementary services like call forwarding or call barring.

Short Message Services (SMS) is used for sending and receiving point-to-point short messages. Additionally the reception of cell broadcast short messages is included.

The man machine interface (MMI) is the interface to the user. Normally it is connected with a keypad as input device and a display as output device.

Between the several entities data interfaces are defined. These data interfaces are called Service Access Points (SAPs), indicating that an upper layer uses the services of a lower layer.

The GSM specification do not set out any implementation of the Protocol Stack. The following diagrams show the implementation described in all these documents for the mobile station. All entities except the Man Machine Interface and Physical Layer are implemented as part of the Protocol Stack.

Fehler! Es ist nicht möglich, durch die Bearbeitung von Feldfunktionen Objekte zu erstellen.

Figure 1: Mobile-station protocol architecture

This document describes the tests for Mobility Management.

3 Parameters

FIELD (RXLEVEL_20)	0x20
ENDFIELD (RXLEVEL_20, 1)	
FIELD (RXLEVEL_20_A)	12, /* Number of supported networks by SAPI*/ 0x20
ENDFIELD (RXLEVEL_20_A, 1)	
FIELD (RXLEVEL_20_18)	0x20, 0x18
ENDFIELD (RXLEVEL_20_18, 2)	
FIELD (RXLEVEL_20_18_A)	12, /* Number of supported networks by SAPI*/ 0x20, 0x18
ENDFIELD (RXLEVEL_20_18_A, 3)	
FIELD (PLMN_LIST_FORB)	V_PLMN_PRESENT, 1,2,3, 3,2
ENDFIELD (PLMN_LIST_FORB, 6)	
FIELD (PLMN_123_32_A)	V_PLMN_PRESENT, 1,2,3, 3,2
ENDFIELD (PLMN_123_32_A, 6)	
FIELD (PLMN_LIST_LPLMN)	V_PLMN_PRESENT, 1,2,3, 3,1
ENDFIELD (PLMN_LIST_LPLMN, 6)	
FIELD (PLMN_LIST_2_PLMN)	V_PLMN_PRESENT, 1,2,3, 3,3, V_PLMN_PRESENT, 1,2,3, 3,1,
ENDFIELD (PLMN_LIST_2_PLMN, 12)	
FIELD (PLMN_LIST_2_PLMN_1_NEW_FORB)	V_PLMN_PRESENT, 1,2,3, 4,4, V_PLMN_PRESENT, 1,2,3, 3,1,
ENDFIELD (PLMN_LIST_2_PLMN_1_NEW_FORB, 12)	
FIELD (PLMN_LIST_2_PLMN_A)	12, /* Number of supported networks by SAPI*/ V_PLMN_PRESENT, 1,2,3, 3,3, V_PLMN_PRESENT, 1,2,3, 3,1,
ENDFIELD (PLMN_LIST_2_PLMN_A, 13)	

```

FIELD (PLMN_LIST_2_PLMN_F)      V_PLMN_PRESENT,
                                1,2,3,
                                3,3,
                                V_PLMN_PRESENT,
                                1,2,3,
                                3,2,
ENDFIELD (PLMN_LIST_2_PLMN_F, 12)
FIELD (PLMN_LIST_2_PLMN_AF)      12, /* Number of supported networks by SAPI*/
                                V_PLMN_PRESENT,
                                1,2,3,
                                3,3,
                                V_PLMN_PRESENT,
                                1,2,3,
                                3,2,
ENDFIELD (PLMN_LIST_2_PLMN_AF, 13)
FIELD (PLMN_LIST_1_PLMN_A)      12, /* Number of supported networks by SAPI*/
                                V_PLMN_PRESENT,
                                1,2,3,
                                3,2,
ENDFIELD (PLMN_LIST_1_PLMN_A, 7)
FIELD (FORB_PLMN_ID)            12, /* Number of supported networks by SAPI*/
                                0,0
ENDFIELD (FORB_PLMN_ID, 3)
FIELD (FORB_PLMN_ID_F)          12, /* Number of supported networks by SAPI*/
                                0,1
ENDFIELD (FORB_PLMN_ID_F, 3)
FIELD (FORB_PLMN_ID_1F)         12, /* Number of supported networks by SAPI*/
                                0
ENDFIELD (FORB_PLMN_ID_1F, 2)
FIELD (CHM_NOT_PRESENT)         0xFF, 0xFF
ENDFIELD (CHM_NOT_PRESENT, 2)
FIELD (LOC_UPD_ACCEPT_2)        0x70, 0x00,
                                0x00, 0x00,
                                0x05, 0x02, 0x21, 0xf3, 0x33, 0x00, 0x02,
                                0x17, 0x05, 0xf0, 0x12, 0x34, 0x56, 0x78
ENDFIELD (LOC_UPD_ACCEPT_2, 18)
FIELD (LOC_UPD_ACCEPT_3)        0x78, 0x00,
                                0x00, 0x00,
                                0x05, 0x02, 0x21, 0xf3, 0x33, 0x00, 0x02,
                                0x17, 0x05, 0xf0, 0x12, 0x34, 0x56, 0x78,
                                0xA1
ENDFIELD (LOC_UPD_ACCEPT_3, 19)
FIELD (LOC_UPD_ACCEPT_4)        0x50, 0x00,
                                0x00, 0x00,
                                0x05, 0x02, 0x21, 0xf3, 0x33, 0x00, 0x02,
                                0x17, 0x00, 0xA1
ENDFIELD (LOC_UPD_ACCEPT_4, 14)
FIELD (LOC_UPD_ACCEPT_5)        0x58, 0x00,
                                0x00, 0x00,
                                0x05, 0x02, 0x21, 0xf3, 0x33, 0x00, 0x02,
                                0x17, 0x01, 0xF0, 0xA1
ENDFIELD (LOC_UPD_ACCEPT_5, 15)
FIELD (LOC_UPD_ACCEPT_6)        0x40, 0x00,
                                0x00, 0x00,

```

```
0x05, 0x02, 0x21, 0xf3, 0x33, 0x00, 0x02,
0xA1
ENDFIELD (LOC_UPD_ACCEPT_6, 12)
FIELD (LOC_UPD_ACCEPT_3_B) 0x70, 0x00,
0x00, 0x00,
0x05, 0x02, 0x21, 0xf3, 0x33, 0x00, 0x02,
0x17, 0x05, 0xf0, 0x12, 0x34, 0x56, 0x78
ENDFIELD (LOC_UPD_ACCEPT_3_B, 18)
FIELD (LOC_UPD_ACCEPT_4_B) 0x48, 0x00,
0x00, 0x00,
0x05, 0x02, 0x21, 0xf3, 0x33, 0x00, 0x02,
0x17, 0x00
ENDFIELD (LOC_UPD_ACCEPT_4_B, 13)
FIELD (LOC_UPD_ACCEPT_5_B) 0x50, 0x00,
0x00, 0x00,
0x05, 0x02, 0x21, 0xf3, 0x33, 0x00, 0x02,
0x17, 0x01, 0xF0
ENDFIELD (LOC_UPD_ACCEPT_5_B, 14)
FIELD (LOC_UPD_ACCEPT_6_B) 0x38, 0x00,
0x00, 0x00,
0x05, 0x02, 0x21, 0xf3, 0x33, 0x00, 0x02
ENDFIELD (LOC_UPD_ACCEPT_6_B, 11)
DECLARATION (BCCH_INF_2)
DECLARATION (EMPTY_IMSI)
DECLARATION (IMEI_DIGITS)
DECLARATION (IMEI_DIGITS_BCD)
DECLARATION (IMEISV_DIGITS)
DECLARATION (IMSI_1233347114912)
DECLARATION (INT_IMSI_001010123456789)
DECLARATION (PRI_IMSI_001010123456789)
DECLARATION (SIM_IMSI_001010123456789)
DECLARATION (MSG_IMSI_001010123456789)
DECLARATION (MIMSI_001010123456789)
DECLARATION (INT_IMSI_001010011223344)
DECLARATION (PRI_IMSI_001010011223344)
DECLARATION (SIM_IMSI_001010011223344)
DECLARATION (MSG_IMSI_001010011223344)
DECLARATION (MIMSI_001010011223344)
DECLARATION (INT_IMSI_001019876543210)
DECLARATION (PRI_IMSI_001019876543210)
DECLARATION (SIM_IMSI_001019876543210)
DECLARATION (MSG_IMSI_001019876543210)
DECLARATION (MIMSI_001019876543210)
DECLARATION (IE_FOLLOW_PROCEED)
DECLARATION (IMEI_DIGITS_CODED)
DECLARATION (KC_DELETED)
DECLARATION (KC_DELETED_SIM)
DECLARATION (KC_EMPTY)
DECLARATION (KC_VALUE_EMPTY)
DECLARATION (KC_11223344)
DECLARATION (KC_11223344_SIM)
DECLARATION (LOC_DELETED)
DECLARATION (LOC_INFO_123_33_FEFF)
DECLARATION (LOC_INFO_LAC_NOT_ALLOWED)
DECLARATION (LOC_INFO_PLMN_NOT_ALLOW)
DECLARATION (MCC_123)
DECLARATION (MCC_NONE)
DECLARATION (MIMSI_1233347114912)
DECLARATION (SRES_1)
```

DECLARATION (SRES_1_CODED)
DECLARATION (MNC_31)
DECLARATION (MNC_32)
DECLARATION (MNC_33)
DECLARATION (MNC_44)
DECLARATION (MNC_NONE)
DECLARATION (RAND_1)
DECLARATION (RAND_1_P)
DECLARATION (TMSI_34125708)

DECLARATION (AUTH_RAND_1)
DECLARATION (CC_MESSAGE)
DECLARATION (CIPH_KEY_NUM_01)
DECLARATION (CIPH_KEY_NUM_04)
DECLARATION (CIPH_KEY_NUM_RES)
DECLARATION (IDENT_TYPE_IMEI)
DECLARATION (IDENT_TYPE_IMEISV)
DECLARATION (IDENT_TYPE_IMSI)
DECLARATION (IDENT_TYPE_TMSI)
DECLARATION (LOC_AREA_ID_123_31_0002)
DECLARATION (LOC_AREA_ID_123_31_2147)
DECLARATION (LOC_AREA_ID_123_33_0001)
DECLARATION (LOC_AREA_ID_123_33_0002)
DECLARATION (LOC_AREA_ID_123_33_2147)
DECLARATION (LOC_AREA_ID_123_33_FEFF)
DECLARATION (LOC_AREA_ID_123_44_0002)
DECLARATION (LOC_UPD_TYPE_NORMAL)
DECLARATION (LOC_UPD_TYPE_NORMAL_FOL)
DECLARATION (LOC_UPD_TYPE_ATTACH)
DECLARATION (LOC_UPD_TYPE_PERIODIC)
DECLARATION (MOB_CLASS_1)
DECLARATION (MOB_CLASS_2)
DECLARATION (MOB_IDENT_IMEI)
DECLARATION (MOB_IDENT_IMEISV)
DECLARATION (MOB_IDENT_IMSI)
DECLARATION (MOB_IDENT_TMSI)
DECLARATION (MOB_IDENT_NEW_TMSI)

DECLARATION (ACC_CTRL_1)
DECLARATION (BCCH_INF_1)
DECLARATION (BCCH_INFO_1)
DECLARATION (BCCH_EMPTY_CHANNEL_LIST)
DECLARATION (BCCH_INFO_ECL)
DECLARATION (FORB_PLMN_NONE)
DECLARATION (FORB_PLMN_2)
DECLARATION (IMSI_FIELD_1)
DECLARATION (KCV_11223344)
DECLARATION (KCV_EMPTY)
DECLARATION (LOC_INFO_UPDATED_1)
DECLARATION (LOC_INFO_UPDATED_2)
DECLARATION (LOC_INFO_UPDATED_3)
DECLARATION (LOC_INFO_UPDATED_31_0002)
DECLARATION (LOC_INFO_UPDATED_31_2147)
DECLARATION (LOC_INFO_UPDATED_44)
DECLARATION (LOC_INFO_UPDATED_123_44_0002)
DECLARATION (LOC_INFO_UPDATED_4)
DECLARATION (LOC_INFO_UPDATED_5)
DECLARATION (LOC_INFO_DEL_SIM)
DECLARATION (LOC_INFO_DELETED)

DECLARATION (LOC_INFO_UPDATED_LPLMN)
DECLARATION (LOC_INFO_NOT_UPD_LPLMN)
DECLARATION (MM_INFO)
DECLARATION (MM_INFO_2)
DECLARATION (MM_INFO_ATT)
DECLARATION (MM_INFO_PER)
DECLARATION (MOB_ID_IMEI)
DECLARATION (MOB_ID_IMSI)
DECLARATION (MOB_ID_NEW_TMSI)
DECLARATION (MOB_ID_NO_ID)
DECLARATION (MS_CLASS_2)
DECLARATION (MS_CLASS_3_NOT_SET)
DECLARATION (OP_MODE_NO_SIM_NO_SERV)
DECLARATION (OP_MODE_NO_SIM_NO_SERV_M)
DECLARATION (OP_MODE_NO_SIM_LIM_SERV)
DECLARATION (OP_MODE_SIM_NO_SERV)
DECLARATION (OP_MODE_SIM_NO_SERV1)
DECLARATION (OP_MODE_SIM_NO_SERV4)
DECLARATION (OP_MODE_SIM_LIM_SERV4)
DECLARATION (OP_MODE_SIM_NO_SERV_M)
DECLARATION (OP_MODE_SIM_NO_SERV_M1)
DECLARATION (OP_MODE_SIM_NO_SERV_M2)
DECLARATION (OP_MODE_SIM_NO_SERV_A)
DECLARATION (OP_MODE_SIM_LIM_SERV_A)
DECLARATION (OP_MODE_SIM_SERV_A)
DECLARATION (OP_MODE_SIM_LIM_SERV)
DECLARATION (OP_MODE_SIM)
DECLARATION (OP_MODE_SIM_A)
DECLARATION (OP_MODE_SIM_M)
DECLARATION (OP_MODE_TEST_SIM)
DECLARATION (OP_MODE_TEST_SIM_NO_SERV)
DECLARATION (OP_MODE_NET_REQUEST)
DECLARATION (OP_MODE_SIM_1)
DECLARATION (OP_MODE_SIM_2)
DECLARATION (OP_MODE_SIM_3)
DECLARATION (OP_MODE_SIM_4)
DECLARATION (OP_SIM_MAN_MMI_SRCH_FS)
DECLARATION (OP_SIM_AUTO_MMI_SRCH_NS)
DECLARATION (OP_SIM_MAN_MMI_SRCH_NS)
DECLARATION (PLMN_123_33)
DECLARATION (PLMN_123_32)
DECLARATION (PLMN_123_31)
DECLARATION (PLMN_123_44)
DECLARATION (PLMN_NO_ID)
DECLARATION (PLMN_44)
DECLARATION (PREF_PLMN_NONE)
DECLARATION (PD_CC_AND_SAPI_0)
DECLARATION (FULL_NET_NAME)
DECLARATION (FULL_NAME)
DECLARATION (SHORT_NET_NAME)
DECLARATION (SHORT_NAME)
DECLARATION (NET_TEXT_A)
DECLARATION (NET_TZ)
DECLARATION (NTZ_MET)
DECLARATION (NET_TZ_AND_TIME)
DECLARATION (TIME)
DECLARATION (PLMN_SEL_NLPTT_PROX)
DECLARATION (EF_MSISDN)
DECLARATION (EF_PLMN_SEL)

```

DECLARATION (EF_PLMN_SEL_THPLMN)
DECLARATION (SIM_THPLMN_FF)
BYTE      NO_PLMN_FOUND      0
BYTE      ONE_PLMN_FOUND     1
BYTE      TWO_PLMN_FOUND     2
/*
 * accc (Access control)
 */
SHORT     ACC_2143            0x2143
SHORT     ACC_CLASS_0000     0x0000
/*
 * bcc (base station colour code)
 */
BYTE BCC_0                    0x00
/*
 * c_loc
 */
BYTE C_LOC_LEN_11            0x0B
/*
 * cid (Cell identity)
 */
SHORT     CELL_ID_1122       0x1122
SHORT     CELL_ID_1123       0x1123
SHORT     CELL_ID_0045       0x0045
/*
 * cksn
 */
BYTE CKSN_NO_KEY            0x07
BYTE CKSN_00                0x00
BYTE CKSN_01                0x01
BYTE CKSN_04                0x04
/*
 * lac (Location area code)
 */
SHORT     LAC_0001           0x0001
SHORT     LAC_0002           0x0002
SHORT     LAC_2147           0x2147
SHORT     LAC_FEFF           0xFFFE
/*
 * c_loc (length of loc_info)
 */
BYTE LOC_INFO_LEN_11        0x0B
/*
 * lut (Location updating type)
 */
BYTE LUT_NORMAL              0x00
BYTE LUT_ATTACH              0x02
BYTE LUT_PERIODIC            0x01
/*
 * ncc (National colour code)
 */
BYTE NCC_3                   0x03
/*
 * nreg_cs

```

```

*/
SHORT    NREG_AUTH_FAIL          0x8439
/*
* Reject cause
*/
BYTE RC_RETRY_UPON_NEW_CELL      0x32
BYTE MMR_RC_RETRY_UPON_NEW_CELL 0x30 /* 0x30 - 0x3f => 0x30 */
/*
* prio (priority)
*/
BYTE PRIO_NORM_CALL              0x0
/*
* thplmn (HPLMN time))
*/
BYTE     THPLMN_01               0x01
BYTE     THPLMN_FF               0xFF
BEGINARRAY (SIM_THPLMN_FF, 1)
        0xFF
ENDARRAY
BYTE     LENGTH_THPLMN           0x01
/*
* ss (SS screening indicator)
*/
BYTE     SS_IND_3                0x03
/*
* ti (Transaction identifier)
*/
BYTE TI_0  0x00
BYTE TI_2  0x02
BYTE TI_3  0x03
BYTE TI_4  0x04
BYTE TI_5  0x05
BYTE TI_6  0x06
/*
* ti (Transaction identifier)
*/
BYTE TMSI_34125708_ULONG         0x34125708
/*
* T3212 Periodic Time
*/
BYTE T3212_6_MIN                 1
/*
* Definitions for MM INFORMATION
*/
BYTE     YEAR_00                 0x00
BYTE     MONTH_02                0x02
BYTE     DAY_08                  0x08
BYTE     HOUR_15                 0x15
BYTE     MINUTE_55               0x55
BYTE     SECOND_10               0x10
BYTE     TZ_MET                  0x01
BYTE     CS_UCS2                 0x00
BYTE     NUM_SPARE_0             0x00
/*
* Definitions for EM

```



```

*/
LONG   Bitm_1           0x1000
LONG   Bitm_2           0x2000
BYTE   EM_ENTITY        0x04

/*
 * Definitions for SAT
 */
SHORT   FILE_CHG_1       0x01    /* Number of changed files */
SHORT   FILE_CHG_2       0x02
BYTE    OFFSET_0         0x0000  /* Offset of data field */
BYTE    MAX_LEN_PREF_PLMN (96)
BYTE    PLMN_SEL_LENGTH  0x06
BEGINARRAY (PLMN_SEL_NLPTT_PROX, 6)
        0x02, 0xF4, 0x80,
        0x02, 0xF6, 0x10
ENDARRAY
BEGINARRAY (EF_MSISDN, 2)
        0x40, 0x6f
ENDARRAY
BEGINARRAY (EF_PLMN_SEL, 2)
        0x30, 0x6f
ENDARRAY
BEGINARRAY (EF_PLMN_SEL_THPLMN, 4)
        0x30, 0x6f,
        0x31, 0x6f
ENDARRAY
/*
 * empty IMSI
 */
BEGINARRAY (EMPTY_IMSI, 16)
        0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
        0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00
ENDARRAY

/*
 * imei (IMEI BCD)
 */
BEGINARRAY (IMEI_DIGITS_BCD, 16) 0x01, 0x03, 0x05, 0x07, 0x09, 0x00, 0x02, 0x04,
        0x06, 0x08, 0x01, 0x01, 0x02, 0x02, 0xFF, 0xFF ENDARRAY
BEGINARRAY (IMEI_DIGITS_CODED, 15) 0x0E, 0x01, 0x03, 0x05, 0x07, 0x09, 0x00, 0x02,
        0x04, 0x06, 0x08, 0x01, 0x01, 0x02, 0x02 ENDARRAY

/*
 * imei (IMEI - Mobile identity)
 */
BEGINARRAY (IMEISV_DIGITS, 16)
        0x01, 0x03, 0x05, 0x07, 0x09, 0x00, 0x02, 0x04,
        0x06, 0x08, 0x01, 0x01, 0x02, 0x02, 0x07, 0x08
ENDARRAY

BEGINARRAY (IMEI_DIGITS, 15)
        0x01, 0x03, 0x05, 0x07, 0x09, 0x00, 0x02, 0x04,
        0x06, 0x08, 0x01, 0x01, 0x02, 0x02, 0x00
ENDARRAY

/*
 * imsi
 */
BEGINARRAY (IMSI_1233347114912, 16) 0x01, 0x02, 0x03, 0x03, 0x03, 0x04, 0x07, 0x01,
        0x01, 0x04, 0x09, 0x01, 0x02, 0x0F, 0x0F, 0xFF ENDARRAY

```

```
BEGINARRAY (LOC_DELETED, 11) 0xFF, 0xFF, 0xFF, 0xFF, 0x21, 0xF3, 0x33,
    0x00, 0x02, 0x00, 0x00 ENDARRAY
BEGINARRAY (MIMSI_1233347114912, 13) 0x01, 0x02, 0x03, 0x03, 0x03, 0x04, 0x07, 0x01,
    0x01, 0x04, 0x09, 0x01, 0x02 ENDARRAY

/*
 * imsi "001010123456789" as of GSM 11.11 subclause 27.22.4.7.4.2
 */
BEGINARRAY (SIM_IMSI_001010123456789, 9)
    0x08, 0x09, 0x10, 0x10, 0x10, 0x32, 0x54, 0x76, 0x98
ENDARRAY
BEGINARRAY (INT_IMSI_001010123456789, 16)
    0x00, 0x00, 0x01, 0x00, 0x01,
    0x00, 0x01, 0x02, 0x03, 0x04, 0x05, 0x06, 0x07, 0x08, 0x09, 0xFF
ENDARRAY
BEGIN_PSTRUCT("imsi", PRI_IMSI_001010123456789)
    SET_COMP ("v_mid", V_MID_PRESENT)
    SET_COMP ("id_type", TYPE_IMSI)
    SET_COMP ("id", INT_IMSI_001010123456789)
    SKIP_COMP ("tmsi_dig")
ENDSTRUCT
BEGINARRAY (MIMSI_001010123456789, 15)
    0x00, 0x00, 0x01, 0x00, 0x01,
    0x00, 0x01, 0x02, 0x03, 0x04, 0x05, 0x06, 0x07, 0x08, 0x09
ENDARRAY
BEGIN_MSTRUCT("mob_id", MSG_IMSI_001010123456789)
    SET_COMP ("ident_type", ID_TYPE_IMSI)
    SET_COMP ("odd_even", ODD)
    SET_COMP ("ident_dig", MIMSI_001010123456789)
    SKIP_COMP ("tmsi")
    SKIP_COMP ("dmy")
ENDSTRUCT
BEGIN_MSTRUCT("follow_proceed", IE_FOLLOW_PROCEED)
ENDSTRUCT

/*
 * imsi "001 01 00 11223344" as of GSM 11.11 subclause 27.22.4.7.4.2
 */
BEGINARRAY (SIM_IMSI_001010011223344, 9)
    0x08, 0x09, 0x10, 0x10, 0x00, 0x11, 0x22, 0x33, 0x44
ENDARRAY
BEGINARRAY (INT_IMSI_001010011223344, 16)
    0x00, 0x00, 0x01, 0x00, 0x01,
    0x00, 0x00, 0x01, 0x01, 0x02, 0x02, 0x03, 0x03, 0x04, 0x04, 0xFF
ENDARRAY
BEGIN_PSTRUCT("imsi", PRI_IMSI_001010011223344)
    SET_COMP ("v_mid", V_MID_PRESENT)
    SET_COMP ("id_type", TYPE_IMSI)
    SET_COMP ("id", INT_IMSI_001010011223344)
    SKIP_COMP ("tmsi_dig")
ENDSTRUCT
BEGINARRAY (MIMSI_001010011223344, 15)
    0x00, 0x00, 0x01, 0x00, 0x01,
    0x00, 0x00, 0x01, 0x01, 0x02, 0x02, 0x03, 0x03, 0x04, 0x04
ENDARRAY
BEGIN_MSTRUCT("mob_id", MSG_IMSI_001010011223344)
    SET_COMP ("ident_type", ID_TYPE_IMSI)
    SET_COMP ("odd_even", ODD)
    SET_COMP ("ident_dig", MIMSI_001010011223344)
    SKIP_COMP ("tmsi")
```

```
        SKIP_COMP ("dmy")
    ENDSTRUCT

/*
 * imsi "001 01 9876543210" as of GSM 11.11 subclause 27.22.4.7.4.2
 */
BEGINARRAY (SIM_IMSI_001019876543210, 9)
    0x08, 0x09, 0x10, 0x10, 0x89, 0x67, 0x45, 0x23, 0x01
ENDARRAY
BEGINARRAY (INT_IMSI_001019876543210, 16)
    0x00, 0x00, 0x01, 0x00, 0x01,
    0x09, 0x08, 0x07, 0x06, 0x05, 0x04, 0x03, 0x02, 0x01, 0x00, 0xFF
ENDARRAY
BEGIN_PSTRUCT("imsi", PRI_IMSI_001019876543210)
    SET_COMP ("v_mid",          V_MID_PRES)
    SET_COMP ("id_type",        TYPE_IMSI)
    SET_COMP ("id",             INT_IMSI_001019876543210)
    SKIP_COMP ("tmsi_dig")
ENDSTRUCT
BEGINARRAY (MIMSI_001019876543210, 15)
    0x00, 0x00, 0x01, 0x00, 0x01,
    0x09, 0x08, 0x07, 0x06, 0x05, 0x04, 0x03, 0x02, 0x01, 0x00, 0xFF
ENDARRAY
BEGIN_MSTRUCT("mob_id", MSG_IMSI_001019876543210)
    SET_COMP ("ident_type",      ID_TYPE_IMSI)
    SET_COMP ("odd_even",        ODD)
    SET_COMP ("ident_dig",       MIMSI_001019876543210)
    SKIP_COMP ("tmsi")
    SKIP_COMP ("dmy")
ENDSTRUCT

/*
 * sres (authentication parameter sres)
 */
BEGINARRAY (SRES_1, 4) 0x01, 0x02, 0x03, 0x04 ENDARRAY
BEGINARRAY (SRES_1_CODED, 8) 0x20, 0x00, 0x00, 0x00, 0x01, 0x02, 0x03, 0x04 ENDARRAY

/*
 * tmsi
 */
BEGINARRAY (TMSI_34125708, 8) 0x20, 0x00, 0x00, 0x00, 0x34, 0x12, 0x57, 0x08 ENDARRAY

/*
 * kc (KC value)
 */
BEGINARRAY (KC_DELETED, 8)
    0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00
ENDARRAY
BEGINARRAY (KC_DELETED_SIM, 9)
    0x08, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF
ENDARRAY
BEGINARRAY (KC_11223344, 8)
    0x01, 0x01, 0x02, 0x02, 0x03, 0x03, 0x04, 0x04
ENDARRAY
BEGINARRAY (KC_11223344_SIM, 9)
    0x08, 0x01, 0x01, 0x02, 0x02, 0x03, 0x03, 0x04, 0x04
ENDARRAY

/*
 * mcc (Mobile country code)
 */
```

```

BEGINARRAY (MCC_NONE, 3)      0x0F, 0x0F, 0x0F ENDARRAY
BEGINARRAY (MCC_123, 3) 0x01, 0x02, 0x03 ENDARRAY
/*
 * mnc (Mobile network code)
 */
BEGINARRAY (MNC_NONE, 3) 0x0F, 0x0F, 0x0F ENDARRAY
BEGINARRAY (MNC_33, 2) 0x03, 0x03 ENDARRAY
BEGINARRAY (MNC_32, 2) 0x02, 0x03 ENDARRAY
BEGINARRAY (MNC_31, 2) 0x03, 0x01 ENDARRAY
BEGINARRAY (MNC_44, 2) 0x04, 0x04 ENDARRAY
/*
 * imsi_field (International mobile subscriber identity - GSM 11.11)
 */
BEGINARRAY (IMSI_FIELD_1, 9)
    0x08, /* Length */
    0x19, 0x32, 0x33, /* MCC=123, MNC=33 is HPLMN*/
    0x74, 0x11, 0x94, 0x21, 0xFF
ENDARRAY
/*
 * loc_info (Location Info - GSM 11.11)
 */
BEGINARRAY (LOC_INFO_UPDATED_1, 12)
    0x0B, /* Length */
    0xFF, 0xFF, 0xFF, 0xFF, /* TMSI */
    0x21, 0xF3, 0x33, 0x21, 0x47, /* LAI: MCC=123, MNC=33, LAI=2147 */
    0x00, /* TMSI TIME */
    0x00 /* Location update status */
ENDARRAY
BEGINARRAY (LOC_INFO_UPDATED_2, 12)
    0x0B,
    0xFF, 0xFF, 0xFF, 0xFF,
    0x21, 0xF3, 0x33, 0x00, 0x02, /* LAI: MCC=123, MNC=33, LAI=0002 */
    0x00,
    0x00
ENDARRAY
BEGINARRAY (LOC_INFO_UPDATED_3, 12)
    0x0B,
    0x34, 0x12, 0x57, 0x08,
    0x21, 0xF3, 0x33, 0x00, 0x02, /* LAI: MCC=123, MNC=33, LAI=0002 */
    0x00,
    0x00
ENDARRAY
BEGINARRAY (LOC_INFO_UPDATED_31_2147, 12)
    0x0B,
    0x34, 0x12, 0x57, 0x08,
    0x21, 0xF3, 0x13, 0x21, 0x47, /* LAI: MCC=123, MNC=31, LAI=2147 */
    0x00,
    0x00
ENDARRAY
BEGINARRAY (LOC_INFO_UPDATED_31_0002, 12)
    0x0B,
    0x34, 0x12, 0x57, 0x08,
    0x21, 0xF3, 0x13, 0x00, 0x02, /* LAI: MCC=123, MNC=31, LAI=0002 */
    0x00,
    0x00
ENDARRAY
BEGINARRAY (LOC_INFO_UPDATED_44, 12)
    0x0B,
    0x34, 0x12, 0x57, 0x08,

```

```

        0x21, 0xF3, 0x44, 0x00, 0x02,      /* LAI: MCC= 123, MNC=44, LAI=0002 */
        0x00,
        0x00
    ENDARRAY
    BEGINARRAY (LOC_INFO_UPDATED_123_44_0002, 12)
        0x0B,
        0xFF, 0xFF, 0xFF, 0xFF,
        0x21, 0xF3, 0x44, 0x00, 0x02,      /* LAI: MCC= 123, MNC=44, LAI=0002 */
        0x00,
        0x00
    ENDARRAY
    BEGINARRAY (LOC_INFO_UPDATED_4, 12)
        0x0B,
        0x34, 0x12, 0x57, 0x08,
        0x21, 0xF3, 0x33, 0x00, 0x01,      /* LAI: MCC= 123, MNC=33, LAI=0001 */
        0x00,
        0x00
    ENDARRAY
    BEGINARRAY (LOC_INFO_UPDATED_5, 12)
        0x0B,
        0x34, 0x12, 0x57, 0x08,
        0x21, 0xF3, 0x33, 0x21, 0x47,      /* LAI: MCC= 123, MNC=33, LAI=2147 */
        0x00,
        0x00
    ENDARRAY
    BEGINARRAY (LOC_INFO_DELETED, 12)
        0x0B,
        0xFF, 0xFF, 0xFF, 0xFF,
        0x21, 0xF3, 0x33, 0x00, 0x02,      /* LAI: MCC= 123, MNC=33, LAI=0002 */
        0x00,
        0x00
    ENDARRAY
    BEGINARRAY (LOC_INFO_123_33_FEFF, 12)
        0x0B,
        0xFF, 0xFF, 0xFF, 0xFF,
        0x21, 0xF3, 0x33, 0xFF, 0xFE,      /* LAI: MCC= 123, MNC=33, LAI=deleted */
        0x00,
        0x01
    ENDARRAY
    BEGINARRAY (LOC_INFO_LAC_NOT_ALLOWED, 12)
        0x0B,
        0xFF, 0xFF, 0xFF, 0xFF,
        0xFF, 0xFF, 0xFF, 0xFF, 0xFE,      /* LAI deleted */
        0x00,
        0x03
    ENDARRAY
    BEGINARRAY (LOC_INFO_PLMN_NOT_ALLOW, 12)
        0x0B,
        0xFF, 0xFF, 0xFF, 0xFF,
        0x21, 0xF3, 0x33, 0xFF, 0xFE,      /* LAI: MCC= 123, MNC=33, LAI=deleted */
        0x00,
        0x03
    ENDARRAY
    BEGINARRAY (LOC_INFO_UPDATED_LPLMN, 12)
        0x0B, /* Length */
        0xFF, 0xFF, 0xFF, 0xFF,          /* TMSI */
        0x21, 0xF3, 0x13, 0x21, 0x47,    /* LAI: MNC= 123, MCC=31, LAI= 2147 */
        0x00, /* TMSI TIME */
        0x00 /* Location update status */
    
```

```

ENDARRAY
BEGINARRAY (LOC_INFO_NOT_UPD_LPLMN, 12)
    0x0B,
    0xFF, 0xFF, 0xFF, 0xFF,
    0x21, 0xF3, 0x32, 0x00, 0x02,      /* LAI: MNC= 123, MCC=32, LAI=0002 */
    0x00,
    0x01
ENDARRAY

/*
 * pref_plmn (Preferred plmns)
 */
BEGINARRAY (PREF_PLMN_NONE, 25)
    0x18,
    0xFF, 0xFF, 0xFF,
    0xFF, 0xFF, 0xFF,
    0xFF, 0xFF, 0xFF,
    0xFF, 0xFF, 0xFF,
    0xFF, 0xFF, 0xFF,
    0xFF, 0xFF, 0xFF,
    0xFF, 0xFF, 0xFF,
    0xFF, 0xFF, 0xFF,
    0xFF, 0xFF, 0xFF
ENDARRAY
/*
 * forb_plmn (Forbidden plmns)
 */
BEGINARRAY (FORB_PLMN_NONE, 13)
    0x0C,
    0xFF, 0xFF, 0xFF,
    0xFF, 0xFF, 0xFF,
    0xFF, 0xFF, 0xFF,
    0xFF, 0xFF, 0xFF
ENDARRAY
BEGINARRAY (FORB_PLMN_2, 13)
    0x0C,
    0x21, 0xF3, 0x23,
    0xFF, 0xFF, 0xFF,
    0xFF, 0xFF, 0xFF,
    0xFF, 0xFF, 0xFF
ENDARRAY
/*
 * acc_ctrl (Access control)
 */
BEGINARRAY (ACC_CTRL_1, 3) 0x02, 0x21, 0x43 ENDARRAY
/*
 * bcch_inf (BCCH information from SIM card)
 */
BEGINARRAY (BCCH_INF_1, 17) 0x10, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
    0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
    0x00 ENDARRAY
BEGINARRAY (BCCH_INF_2, 17) 0x10, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
    0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
    0x00 ENDARRAY
/*
 * rand (Authentication parameter RAND)
 */
BEGINARRAY (RAND_1, 16) 0x01, 0x02, 0x03, 0x04, 0x05, 0x06, 0x07, 0x08,
    0x09, 0x0A, 0x0B, 0x0C, 0x0D, 0x0E, 0x0F, 0x10 ENDARRAY

```

BEGINARRAY (RAND_1_P, 17) 0x10, 0x01, 0x02, 0x03, 0x04, 0x05, 0x06, 0x07, 0x08,
0x09, 0x0A, 0x0B, 0x0C, 0x0D, 0x0E, 0x0F, 0x10 ENDARRAY

```

/*
 * CC Message
 *
 *      0x10, 0x00,          length in bits
 *      0x18, 0x00,          offset in bits
 *      0x00, 0x00, 0x00,    not used
 *      0x23,                ti = 2, pd = CC
 *      0x01                 msg_type = CC_ALERTING
 */
BEGINARRAY (CC_MESSAGE, 9)      0x10, 0x00,
                                0x18, 0x00,
                                0x00, 0x00, 0x00,
                                0x23,
                                0x01
                                ENDARRAY

BEGINARRAY (NET_TEXT_A, 20)
                                0x00, 0x01,
                                0x00, 0x02,
                                0x00, 0x03,
                                0x00, 0x04,
                                0x00, 0x05,
                                0x00, 0x06,
                                0x00, 0x07,
                                0x00, 0x08,
                                0x00, 0x09,
                                0x00, 0x0a
                                ENDARRAY
BYTE      NET_TEXT_LEN_A      20
/*
 * auth_rand (Ciphering key sequence number)
 */
BEGIN_MSTRUCT ("auth_rand", AUTH_RAND_1)
      SET_COMP ("rand",      RAND_1)
ENDSTRUCT
/*
 * ciph_key_num (Ciphering key sequence number)
 */
BEGIN_MSTRUCT ("ciph_key_num", CIPH_KEY_NUM_RES)
      SET_COMP ("key_seq",    CKSN_RES)
ENDSTRUCT
BEGIN_MSTRUCT ("ciph_key_num", CIPH_KEY_NUM_01)
      SET_COMP ("key_seq",    CKSN_01)
ENDSTRUCT
BEGIN_MSTRUCT ("ciph_key_num", CIPH_KEY_NUM_04)
      SET_COMP ("key_seq",    CKSN_04)
ENDSTRUCT

/*
 * ident (identity type)
 */
BEGIN_MSTRUCT ("ident", IDENT_TYPE_IMEI)
      SET_COMP ("ident_type", ID_TYPE_IMEI)
ENDSTRUCT

```

```

BEGIN_MSTRUCT("ident", IDENT_TYPE_IMEISV)
    SET_COMP ("ident_type",          ID_TYPE_IMEISV)
ENDSTRUCT
BEGIN_MSTRUCT("ident", IDENT_TYPE_IMSI)
    SET_COMP ("ident_type",          ID_TYPE_IMSI)
ENDSTRUCT
BEGIN_MSTRUCT("ident", IDENT_TYPE_TMSI)
    SET_COMP ("ident_type",          ID_TYPE_TMSI)
ENDSTRUCT
/*
 * loc_upd_type(Location updating type)
 */
BEGIN_MSTRUCT ("loc_upd_type", LOC_UPD_TYPE_NORMAL)
    SET_COMP ("follow",          FOR_PENDING_NO)
    SET_COMP ("lut",             LUT_NORMAL)
ENDSTRUCT
BEGIN_MSTRUCT ("loc_upd_type", LOC_UPD_TYPE_NORMAL_FOL)
    SET_COMP ("follow",          FOR_PENDING_YES)
    SET_COMP ("lut",             LUT_NORMAL)
ENDSTRUCT
BEGIN_MSTRUCT ("loc_upd_type", LOC_UPD_TYPE_ATTACH)
    SET_COMP ("follow",          FOR_PENDING_NO)
    SET_COMP ("lut",             LUT_ATTACH)
ENDSTRUCT
BEGIN_MSTRUCT ("loc_upd_type", LOC_UPD_TYPE_PERIODIC)
    SET_COMP ("follow",          FOR_PENDING_NO)
    SET_COMP ("lut",             LUT_PERIODIC)
ENDSTRUCT
/*
 * loc_area_ident (Location area identification)
 */
BEGIN_MSTRUCT ("loc_area_ident", LOC_AREA_ID_123_33_0001)
    SET_COMP ("mcc",             MCC_123)
    SET_COMP ("mnc",             MNC_33)
    SET_COMP ("lac",             LAC_0001)
ENDSTRUCT
BEGIN_MSTRUCT ("loc_area_ident", LOC_AREA_ID_123_33_0002)
    SET_COMP ("mcc",             MCC_123)
    SET_COMP ("mnc",             MNC_33)
    SET_COMP ("lac",             LAC_0002)
ENDSTRUCT
BEGIN_MSTRUCT ("loc_area_ident", LOC_AREA_ID_123_31_0002)
    SET_COMP ("mcc",             MCC_123)
    SET_COMP ("mnc",             MNC_31)
    SET_COMP ("lac",             LAC_0002)
ENDSTRUCT
BEGIN_MSTRUCT ("loc_area_ident", LOC_AREA_ID_123_31_2147)
    SET_COMP ("mcc",             MCC_123)
    SET_COMP ("mnc",             MNC_31)
    SET_COMP ("lac",             LAC_2147)
ENDSTRUCT
BEGIN_MSTRUCT ("loc_area_ident", LOC_AREA_ID_123_33_2147)
    SET_COMP ("mcc",             MCC_123)
    SET_COMP ("mnc",             MNC_33)
    SET_COMP ("lac",             LAC_2147)
ENDSTRUCT
BEGIN_MSTRUCT ("loc_area_ident", LOC_AREA_ID_123_33_FEFF)
    SET_COMP ("mcc",             MCC_123)
    SET_COMP ("mnc",             MNC_33)

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        SET_COMP ("lac",                LAC_FEFF)
    ENDSTRUCT
    BEGIN_MSTRUCT ("loc_area_ident", LOC_AREA_ID_123_44_0002)
        SET_COMP ("mcc",                MCC_123)
        SET_COMP ("mnc",                MNC_44)
        SET_COMP ("lac",                LAC_0002)
    ENDSTRUCT

/*
 * mob_ident (Mobile identity)
 */
    BEGIN_MSTRUCT ("mob_id", MOB_IDENT_IMSI)
        SET_COMP ("ident_type",        ID_TYPE_IMSI)
        SET_COMP ("odd_even",          ODD)
        SET_COMP ("ident_dig",          MIMSI_1233347114912)
        SKIP_COMP ("tmsi")
        SKIP_COMP ("dmy")
    ENDSTRUCT
    BEGIN_MSTRUCT ("mob_id", MOB_IDENT_TMSI)
        SET_COMP ("ident_type",        ID_TYPE_TMSI)
        SET_COMP ("odd_even",          EVEN)
        SKIP_COMP ("ident_dig")
        SET_COMP ("tmsi", TMSI_34125708)
        SKIP_COMP ("dmy")
    ENDSTRUCT
    BEGIN_MSTRUCT ("mob_id", MOB_IDENT_IMEI)
        SET_COMP ("ident_type",        ID_TYPE_IMEI)
        SET_COMP ("odd_even",          ODD)
        SET_COMP ("ident_dig",          IMEI_DIGITS)
        SKIP_COMP ("tmsi")
        SKIP_COMP ("dmy")
    ENDSTRUCT
    BEGIN_MSTRUCT ("mob_id", MOB_IDENT_IMEISV)
        SET_COMP ("ident_type",        ID_TYPE_IMEISV)
        SET_COMP ("odd_even",          EVEN)
        SET_COMP ("ident_dig",          IMEISV_DIGITS)
        SKIP_COMP ("tmsi")
        SKIP_COMP ("dmy")
    ENDSTRUCT
/*
 * mob_class_1 (Mobile station Classmark 1)
 */
    BEGIN_MSTRUCT ("mob_class_1", MOB_CLASS_1)
        SET_COMP ("rev_lev",            PHASE_2)
        SET_COMP ("es_ind",             ES_IMPL_YES)
        SET_COMP ("a5_1",               A5_1_YES)
        SET_COMP ("rf_pow_cap",          RF_CLASS_2)
    ENDSTRUCT
/*
 * mob_class_2 (Mobile station Classmark 2)
 */
    BEGIN_MSTRUCT ("mob_class_2", MOB_CLASS_2)
        SET_COMP ("rev_lev",            PHASE_2)
        SET_COMP ("es_ind",             ES_IMPL_YES)
        SET_COMP ("a5_1",               A5_1_YES)
        SET_COMP ("rf_pow_cap",          RF_CLASS_2)
        SET_COMP ("ps_cap",              PS_CAP_YES)
        SET_COMP ("ss_screen",           SS_IND_3)
        SET_COMP ("sm_cap",              SM_CAP_YES)

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```

        SET_COMP ("freq_cap",      FREQ_CAP_NO)
        SET_COMP ("class_3",      MC2_CLASS_3_NO)
        SET_COMP ("cmsp",        CMSP_SUPPORTED_YES)
        SET_COMP ("a5_3",        A5_3_NO)
        SET_COMP ("a5_2",        A5_2_NO)
    ENDSTRUCT
    BEGIN_MSTRUCT("pd_and_sapi", PD_CC_AND_SAPI_0)
        SET_COMP ("sapi",        SAPI_0)
        SET_COMP ("pd",          PD_CC)
    ENDSTRUCT
/*
 * mob_id (Mobile identity)
 */
    BEGIN_MSTRUCT("mob_id", MOB_IDENT_NEW_TMSI)
        SET_COMP ("ident_type",    ID_TYPE_TMSI)
        SKIP_COMP ("odd_even")
        SKIP_COMP ("ident_dig")
        SET_COMP ("tmsi",          TMSI_34125708)
        SKIP_COMP ("dmy")
    ENDSTRUCT
    BEGIN_MSTRUCT("full_net_name", FULL_NET_NAME)
        SET_COMP ("cs",          CS_UCS2)
        SET_COMP ("add_ci",      ADD_CI_NO)
        SET_COMP ("num_spare",    NUM_SPARE_0)
        SET_COMP ("text",        NET_TEXT_A)
    ENDSTRUCT
    BEGIN_MSTRUCT("short_net_name", SHORT_NET_NAME)
        SET_COMP ("cs",          CS_UCS2)
        SET_COMP ("add_ci",      ADD_CI_NO)
        SET_COMP ("num_spare",    NUM_SPARE_0)
        SET_COMP ("text",        NET_TEXT_A)
    ENDSTRUCT
    BEGIN_MSTRUCT("net_tz", NET_TZ)
        SET_COMP ("tz",          TZ_MET)
    ENDSTRUCT
    BEGIN_MSTRUCT("net_tz_and_time", NET_TZ_AND_TIME)
        SET_COMP ("year",        YEAR_00)
        SET_COMP ("month",        MONTH_02)
        SET_COMP ("day",          DAY_08)
        SET_COMP ("hour",         HOUR_15)
        SET_COMP ("minute",       MINUTE_55)
        SET_COMP ("second",       SECOND_10)
        SET_COMP ("tz",          TZ_MET)
    ENDSTRUCT
/*
 * bcch_info (BCCH information - RR)
 */
    BEGIN_PSTRUCT("bcch_info", BCCH_INFO_1)
        SET_COMP ("v_bcch",      V_BCCH_NOT_PRES)
        SKIP_COMP ("bcch")
    ENDSTRUCT
    BEGINARRAY (BCCH_EMPTY_CHANNEL_LIST, 16)
        BCCH_CH_NOT_INCL,
        BCCH_CH_NOT_INCL,
        BCCH_CH_NOT_INCL,
        BCCH_CH_NOT_INCL,
        BCCH_CH_NOT_INCL,
        BCCH_CH_NOT_INCL,
        BCCH_CH_NOT_INCL,
        BCCH_CH_NOT_INCL,
        BCCH_CH_NOT_INCL,
        BCCH_CH_NOT_INCL,
        BCCH_CH_NOT_INCL,
        BCCH_CH_NOT_INCL,
        BCCH_CH_NOT_INCL,
        BCCH_CH_NOT_INCL,
        BCCH_CH_NOT_INCL,
        BCCH_CH_NOT_INCL,

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        BCCH_CH_NOT_INCL,
        BCCH_CH_NOT_INCL,
        BCCH_CH_NOT_INCL,
        BCCH_CH_NOT_INCL,
        BCCH_CH_NOT_INCL,
        BCCH_CH_NOT_INCL,
        BCCH_CH_NOT_INCL,
        BCCH_CH_NOT_INCL,
        BCCH_CH_NOT_INCL
    ENDARRAY
    BEGIN_PSTRUCT("bcch_info", BCCH_INFO_ECL)
        SET_COMP ("v_bcch",          V_BCCH_PRESENCE)
        SET_COMP ("bcch",             BCCH_EMPTY_CHANNEL_LIST)
    ENDSTRUCT
/*
 * imei/imsi/tmsi (Mobile identity)
 */
    BEGIN_PSTRUCT("imsi", MOB_ID_NO_ID)
        SET_COMP ("v_mid",          V_MID_NOT_PRESENT)
        SET_COMP ("id_type",        TYPE_NO_ID)
        SKIP_COMP("id")
        SKIP_COMP ("tmsi_dig")
    ENDSTRUCT
    BEGIN_PSTRUCT("imsi", MOB_ID_IMSI)
        SET_COMP ("v_mid",          V_MID_PRESENT)
        SET_COMP ("id_type",        TYPE_IMSI)
        SET_COMP ("id",             IMSI_1233347114912)
        SKIP_COMP ("tmsi_dig")
    ENDSTRUCT
    BEGIN_PSTRUCT("tmsi", MOB_ID_NEW_TMSI)
        SET_COMP ("v_mid",          V_MID_PRESENT)
        SET_COMP ("id_type",        TYPE_TMSI)
        SKIP_COMP ("id")
        SET_COMP ("tmsi_dig",       TMSI_34125708_ULON)
    ENDSTRUCT
/*
 * kcv (Authentication key)
 */
    BEGINARRAY (KC_EMPTY, 10)
        9, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0x07
    ENDARRAY
    BEGINARRAY (KC_VALUE_EMPTY, 8)
        0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF
    ENDARRAY
/*
 * kcv (Authentication key)
 */
    BEGIN_PSTRUCT("kcv", KCV_11223344)
        SET_COMP ("v_kc",          V_KC_PRESENT)
        SET_COMP ("kc",            KC_11223344)
    ENDSTRUCT
    BEGIN_PSTRUCT("kcv", KCV_EMPTY)
        SET_COMP ("v_kc",          V_KC_PRESENT)
        SET_COMP ("kc",            KC_VALUE_EMPTY)
    ENDSTRUCT
/*
 * loc_info (Location info)
 */
    BEGIN_PSTRUCT("loc_info", LOC_INFO_DEL_SIM)

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        SET_COMP ("c_loc",          LOC_INFO_LEN_11)
        SET_COMP ("loc",           LOC_DELETED)
    ENDSTRUCT
/*
 * mm_info (MM information)
 */
BEGIN_PSTRUCT("mm_info", MM_INFO)
    SET_COMP ("valid",             MM_INFO_PRES)
    SET_COMP ("la",                LA_NOT_IN_FRBD_LST_INCL)
    SET_COMP ("att",               ATT_NOT_ALLOW)
    SET_COMP ("re",                RE_NOT_ALLOW)
    SKIP_COMP ("band")
    SET_COMP ("ncc",               NCC_3)
    SET_COMP ("bcc",               BCC_0)
    SET_COMP ("t3212",             T3212_NO_PRD_UPDAT)
ENDSTRUCT
BEGIN_PSTRUCT("mm_info", MM_INFO_2)
    SET_COMP ("valid",             MM_INFO_PRES)
    SET_COMP ("la",                LA_NOT_IN_FRBD_LST_INCL)
    SET_COMP ("att",               ATT_NOT_ALLOW)
    SET_COMP ("re",                RE_ALLOW)
    SKIP_COMP ("band")
    SET_COMP ("ncc",               NCC_3)
    SET_COMP ("bcc",               BCC_0)
    SET_COMP ("t3212",             T3212_NO_PRD_UPDAT)
ENDSTRUCT
BEGIN_PSTRUCT("mm_info", MM_INFO_ATT)
    SET_COMP ("valid",             MM_INFO_PRES)
    SET_COMP ("la",                LA_NOT_IN_FRBD_LST_INCL)
    SET_COMP ("att",               ATT_ALLOW)
    SET_COMP ("re",                RE_NOT_ALLOW)
    SKIP_COMP ("band")
    SET_COMP ("ncc",               NCC_3)
    SET_COMP ("bcc",               BCC_0)
    SET_COMP ("t3212",             T3212_NO_PRD_UPDAT)
ENDSTRUCT
BEGIN_PSTRUCT("mm_info", MM_INFO_PER)
    SET_COMP ("valid",             MM_INFO_PRES)
    SET_COMP ("la",                LA_NOT_IN_FRBD_LST_INCL)
    SET_COMP ("att",               ATT_NOT_ALLOW)
    SET_COMP ("re",                RE_NOT_ALLOW)
    SKIP_COMP ("band")
    SET_COMP ("ncc",               NCC_3)
    SET_COMP ("bcc",               BCC_0)
    SET_COMP ("t3212",             T3212_6_MIN)
ENDSTRUCT
/*
 * op (Operation mode)
 */
BEGIN_PSTRUCT ("op", OP_MODE_SIM)
    SET_COMP ("v_op",              V_OP_PRES)
    SET_COMP ("ts",                TS_NO_AVAIL)
    SET_COMP ("m",                 M_AUTO)
    SET_COMP ("sim_ins",           SIM_INSRT)
    SET_COMP ("func",              FUNC_PLMN_SRCH)
    SET_COMP ("service",           FULL_SERVICE)
ENDSTRUCT
BEGIN_PSTRUCT ("op", OP_MODE_SIM_A)
    SET_COMP ("v_op",              V_OP_PRES)

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        SET_COMP ("ts",          TS_NO_AVAIL)
        SET_COMP ("m",          M_AUTO)
        SET_COMP ("sim_ins",    SIM_INSRT)
        SET_COMP ("func",      FUNC_NET_SRCH_BY_MMI)
        SET_COMP ("service",    NO_SERVICE)
    ENDSTRUCT
BEGIN_PSTRUCT ("op", OP_MODE_SIM_M)
    SET_COMP ("v_op",          V_OP_PRES)
    SET_COMP ("ts",          TS_NO_AVAIL)
    SET_COMP ("m",          M_MAN)
    SET_COMP ("sim_ins",    SIM_INSRT)
    SET_COMP ("func",      FUNC_PLMN_SRCH)
    SET_COMP ("service",    FULL_SERVICE)
ENDSTRUCT
BEGIN_PSTRUCT ("op", OP_MODE_SIM_SERV_A)
    SET_COMP ("v_op",          V_OP_PRES)
    SET_COMP ("ts",          TS_NO_AVAIL)
    SET_COMP ("m",          M_AUTO)
    SET_COMP ("sim_ins",    SIM_INSRT)
    SET_COMP ("func",      FUNC_NET_SRCH_BY_MMI)
    SET_COMP ("service",    FULL_SERVICE)
ENDSTRUCT
BYTE      NORMAL_SIM_INS      0x00
/* The following byte is documented in SIM.DOC as 0x01, to be corrected sometime */
BYTE      TEST_SIM_INS      0x81
BEGIN_PSTRUCT ("op", OP_MODE_SIM_NO_SERV)
    SET_COMP ("v_op",          V_OP_PRES)
    SET_COMP ("ts",          TS_NO_AVAIL)
    SET_COMP ("m",          M_AUTO)
    SET_COMP ("sim_ins",    SIM_INSRT)
    SET_COMP ("func",      FUNC_PLMN_SRCH)
    SET_COMP ("service",    NO_SERVICE)
ENDSTRUCT
BEGIN_PSTRUCT ("op", OP_MODE_SIM_NO_SERV1)
    SET_COMP ("v_op",          V_OP_PRES)
    SET_COMP ("ts",          TS_NO_AVAIL)
    SET_COMP ("m",          M_AUTO)
    SET_COMP ("sim_ins",    SIM_INSRT)
    SKIP_COMP ("func")
    SET_COMP ("service",    NO_SERVICE)
ENDSTRUCT
BEGIN_PSTRUCT ("op", OP_MODE_SIM_NO_SERV4)
    SET_COMP ("v_op",          V_OP_PRES)
    SET_COMP ("ts",          TS_NO_AVAIL)
    SET_COMP ("m",          M_AUTO)
    SET_COMP ("sim_ins",    SIM_INSRT)
    SET_COMP ("func",      FUNC_NET_SRCH_BY_MMI)
    SET_COMP ("service",    NO_SERVICE)
ENDSTRUCT
BEGIN_PSTRUCT ("op", OP_MODE_SIM_LIM_SERV4)
    SET_COMP ("v_op",          V_OP_PRES)
    SET_COMP ("ts",          TS_NO_AVAIL)
    SET_COMP ("m",          M_AUTO)
    SET_COMP ("sim_ins",    SIM_INSRT)
    SET_COMP ("func",      FUNC_NET_SRCH_BY_MMI)
    SET_COMP ("service",    LIMITED_SERVICE)
ENDSTRUCT
BEGIN_PSTRUCT ("op", OP_MODE_SIM_NO_SERV_M)
    SET_COMP ("v_op",          V_OP_PRES)

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        SET_COMP ("ts",          TS_NO_AVAIL)
        SET_COMP ("m",          M_MAN)
        SET_COMP ("sim_ins",    SIM_INSRT)
        SET_COMP ("func",      FUNC_NET_SRCH_BY_MMI)
        SET_COMP ("service",    NO_SERVICE)
    ENDSTRUCT
    BEGIN_PSTRUCT ("op", OP_MODE_SIM_NO_SERV_M1)
        SET_COMP ("v_op",      V_OP_PRES)
        SET_COMP ("ts",          TS_NO_AVAIL)
        SET_COMP ("m",          M_MAN)
        SET_COMP ("sim_ins",    SIM_INSRT)
        SKIP_COMP ("func")
        SET_COMP ("service",    NO_SERVICE)
    ENDSTRUCT
    BEGIN_PSTRUCT ("op", OP_MODE_SIM_NO_SERV_M2)
        SET_COMP ("v_op",      V_OP_PRES)
        SET_COMP ("ts",          TS_NO_AVAIL)
        SET_COMP ("m",          M_MAN)
        SET_COMP ("sim_ins",    SIM_INSRT)
        SET_COMP ("func",      FUNC_PLMN_SRCH)
        SET_COMP ("service",    NO_SERVICE)
    ENDSTRUCT
    BEGIN_PSTRUCT ("op", OP_MODE_SIM_NO_SERV_A)
        SET_COMP ("v_op",      V_OP_PRES)
        SET_COMP ("ts",          TS_NO_AVAIL)
        SET_COMP ("m",          M_AUTO)
        SET_COMP ("sim_ins",    SIM_INSRT)
        SET_COMP ("func",      FUNC_NET_SRCH_BY_MMI)
        SET_COMP ("service",    NO_SERVICE)
    ENDSTRUCT
    BEGIN_PSTRUCT ("op", OP_MODE_SIM_LIM_SERV_A)
        SET_COMP ("v_op",      V_OP_PRES)
        SET_COMP ("ts",          TS_NO_AVAIL)
        SET_COMP ("m",          M_AUTO)
        SET_COMP ("sim_ins",    SIM_INSRT)
        SET_COMP ("func",      FUNC_NET_SRCH_BY_MMI)
        SET_COMP ("service",    LIMITED_SERVICE)
    ENDSTRUCT
    BEGIN_PSTRUCT ("op", OP_MODE_SIM_LIM_SERV)
        SET_COMP ("v_op",      V_OP_PRES)
        SET_COMP ("ts",          TS_NO_AVAIL)
        SET_COMP ("m",          M_AUTO)
        SET_COMP ("sim_ins",    SIM_INSRT)
        SET_COMP ("func",      FUNC_PLMN_SRCH)
        SET_COMP ("service",    LIMITED_SERVICE)
    ENDSTRUCT
    BEGIN_PSTRUCT ("op", OP_MODE_TEST_SIM)
        SET_COMP ("v_op",      V_OP_PRES)
        SET_COMP ("ts",          TS_AVAIL)
        SET_COMP ("m",          M_AUTO)
        SET_COMP ("sim_ins",    SIM_INSRT)
        SET_COMP ("func",      FUNC_PLMN_SRCH)
        SET_COMP ("service",    FULL_SERVICE)
    ENDSTRUCT
    BEGIN_PSTRUCT ("op", OP_MODE_TEST_SIM_NO_SERV)
        SET_COMP ("v_op",      V_OP_PRES)
        SET_COMP ("ts",          TS_AVAIL)
        SET_COMP ("m",          M_AUTO)
        SET_COMP ("sim_ins",    SIM_INSRT)

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        SET_COMP ("func",          FUNC_PLMN_SRCH)
        SET_COMP ("service",       NO_SERVICE)
ENDSTRUCT
BEGIN_PSTRUCT ("op", OP_MODE_NO_SIM_NO_SERV)
    SET_COMP ("v_op",             V_OP_PRES)
    SET_COMP ("ts",               TS_NO_AVAIL)
    SET_COMP ("m",                M_AUTO)
    SET_COMP ("sim_ins",          SIM_NO_INSRT)
    SET_COMP ("func",             FUNC_LIM_SERV_ST_SRCH)
    SET_COMP ("service",          NO_SERVICE)
ENDSTRUCT
BEGIN_PSTRUCT ("op", OP_MODE_NO_SIM_NO_SERV_M)
    SET_COMP ("v_op",             V_OP_PRES)
    SET_COMP ("ts",               TS_NO_AVAIL)
    SET_COMP ("m",                M_MAN)
    SET_COMP ("sim_ins",          SIM_NO_INSRT)
    SET_COMP ("func",             FUNC_LIM_SERV_ST_SRCH)
    SET_COMP ("service",          NO_SERVICE)
ENDSTRUCT
BEGIN_PSTRUCT ("op", OP_MODE_NO_SIM_LIM_SERV)
    SET_COMP ("v_op",             V_OP_PRES)
    SET_COMP ("ts",               TS_NO_AVAIL)
    SET_COMP ("m",                M_AUTO)
    SET_COMP ("sim_ins",          SIM_NO_INSRT)
    SET_COMP ("func",             FUNC_LIM_SERV_ST_SRCH)
    SET_COMP ("service",          LIMITED_SERVICE)
ENDSTRUCT
BEGIN_PSTRUCT ("op", OP_MODE_NET_REQUEST)
    SET_COMP ("v_op",             V_OP_PRES)
    SET_COMP ("ts",               TS_NO_AVAIL)
    SET_COMP ("m",                M_AUTO)
    SET_COMP ("sim_ins",          SIM_INSRT)
    SET_COMP ("func",             FUNC_NET_SRCH_BY_MMI)
    SET_COMP ("service",          NO_SERVICE)
ENDSTRUCT
BEGIN_PSTRUCT ("op", OP_MODE_SIM_1)
    SET_COMP ("v_op",             V_OP_PRES)
    SET_COMP ("ts",               TS_NO_AVAIL)
    SET_COMP ("m",                M_MAN)
    SET_COMP ("sim_ins",          SIM_INSRT)
    SET_COMP ("func",             FUNC_NET_SRCH_BY_MMI)
    SET_COMP ("service",          NO_SERVICE)
ENDSTRUCT
BEGIN_PSTRUCT ("op", OP_MODE_SIM_2)
    SET_COMP ("v_op",             V_OP_PRES)
    SET_COMP ("ts",               TS_NO_AVAIL)
    SET_COMP ("m",                M_MAN)
    SET_COMP ("sim_ins",          SIM_INSRT)
    SET_COMP ("func",             FUNC_PLMN_SRCH)
    SET_COMP ("service",          NO_SERVICE)
ENDSTRUCT
BEGIN_PSTRUCT ("op", OP_MODE_SIM_3)
    SET_COMP ("v_op",             V_OP_PRES)
    SET_COMP ("ts",               TS_NO_AVAIL)
    SET_COMP ("m",                M_MAN)
    SET_COMP ("sim_ins",          SIM_INSRT)
    SET_COMP ("func",             FUNC_PLMN_SRCH)
    SET_COMP ("service",          FULL_SERVICE)
ENDSTRUCT

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BEGIN_PSTRUCT ("op", OP_MODE_SIM_4)
    SET_COMP ("v_op", V_OP_PRES)
    SET_COMP ("ts", TS_NO_AVAIL)
    SET_COMP ("m", M_MAN)
    SET_COMP ("sim_ins", SIM_INSRT)
    SET_COMP ("func", FUNC_PLMN_SRCH)
    SET_COMP ("service", LIMITED_SERVICE)
ENDSTRUCT
BEGIN_PSTRUCT ("op", OP_SIM_AUTO_MMI_SRCH_NS)
    SET_COMP ("v_op", V_OP_PRES)
    SET_COMP ("ts", TS_NO_AVAIL)
    SET_COMP ("m", M_AUTO)
    SET_COMP ("sim_ins", SIM_INSRT)
    SET_COMP ("func", FUNC_NET_SRCH_BY_MMI)
    SET_COMP ("service", NO_SERVICE)
ENDSTRUCT
BEGIN_PSTRUCT ("op", OP_SIM_MAN_MMI_SRCH_NS)
    SET_COMP ("v_op", V_OP_PRES)
    SET_COMP ("ts", TS_NO_AVAIL)
    SET_COMP ("m", M_MAN)
    SET_COMP ("sim_ins", SIM_INSRT)
    SET_COMP ("func", FUNC_NET_SRCH_BY_MMI)
    SET_COMP ("service", NO_SERVICE)
ENDSTRUCT
BEGIN_PSTRUCT ("op", OP_SIM_MAN_MMI_SRCH_FS)
    SET_COMP ("v_op", V_OP_PRES)
    SET_COMP ("ts", TS_NO_AVAIL)
    SET_COMP ("m", M_MAN)
    SET_COMP ("sim_ins", SIM_INSRT)
    SET_COMP ("func", FUNC_NET_SRCH_BY_MMI)
    SET_COMP ("service", FULL_SERVICE)
ENDSTRUCT
/*
 * plmn (PLMN identification - RR)
 */
BEGIN_PSTRUCT ("plmn", PLMN_123_33)
    SET_COMP ("v_plmn", V_PLMN_PRES)
    SET_COMP ("mcc", MCC_123)
    SET_COMP ("mnc", MNC_33)
ENDSTRUCT
BEGIN_PSTRUCT ("plmn", PLMN_123_32)
    SET_COMP ("v_plmn", V_PLMN_PRES)
    SET_COMP ("mcc", MCC_123)
    SET_COMP ("mnc", MNC_32)
ENDSTRUCT
BEGIN_PSTRUCT ("plmn", PLMN_123_31)
    SET_COMP ("v_plmn", V_PLMN_PRES)
    SET_COMP ("mcc", MCC_123)
    SET_COMP ("mnc", MNC_31)
ENDSTRUCT
BEGIN_PSTRUCT ("plmn", PLMN_123_44)
    SET_COMP ("v_plmn", V_PLMN_PRES)
    SET_COMP ("mcc", MCC_123)
    SET_COMP ("mnc", MNC_44)
ENDSTRUCT
BEGIN_PSTRUCT ("plmn", PLMN_NO_ID)
    SET_COMP ("v_plmn", V_PLMN_NOT_PRES)
    SET_COMP ("mcc", MCC_NONE)

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        SET_COMP ("mnc",                MNC_NONE)
ENDSTRUCT
BEGIN_PSTRUCT ("plmn", PLMN_44)
    SET_COMP ("v_plmn",                V_PLMN_PRESENT)
    SET_COMP ("mcc",                    MCC_123)
    SET_COMP ("mnc",                    MNC_44)
ENDSTRUCT
BEGIN_PSTRUCT ("full_name", FULL_NAME)
    SET_COMP ("v_name",                TRUE)
    SET_COMP ("cs",                    CS_UCS2)
    SET_COMP ("add_ci",                ADD_CI_NO)
    SET_COMP ("num_spare",              NUM_SPARE_0)
    SET_COMP ("c_text",                NET_TEXT_LEN_A)
    SET_COMP ("text",                  NET_TEXT_A)
ENDSTRUCT
BEGIN_PSTRUCT ("short_name", SHORT_NAME)
    SET_COMP ("v_name",                TRUE)
    SET_COMP ("cs",                    CS_UCS2)
    SET_COMP ("add_ci",                ADD_CI_NO)
    SET_COMP ("num_spare",              NUM_SPARE_0)
    SET_COMP ("c_text",                NET_TEXT_LEN_A)
    SET_COMP ("text",                  NET_TEXT_A)
ENDSTRUCT
BEGIN_PSTRUCT ("ntz", NTZ_MET)
    SET_COMP ("v_tz",                  TRUE)
    SET_COMP ("tz",                    TZ_MET)
ENDSTRUCT
BEGIN_PSTRUCT ("time", TIME)
    SET_COMP ("v_time",                TRUE)
    SET_COMP ("year",                  YEAR_00)
    SET_COMP ("month",                 MONTH_02)
    SET_COMP ("day",                   DAY_08)
    SET_COMP ("hour",                  HOUR_15)
    SET_COMP ("minute",                MINUTE_55)
    SET_COMP ("second",                SECOND_10)
ENDSTRUCT

```

4 TEST CASES

4.1 Internal Routing

4.1.1 MM001: Configure internal routing and PCO view

Description: Internal routing is configured and the duplication of primitives for performing the component tests with TAP and PCO view is carried out

Preamble: None

MMI / CM / SIM	MM	RR / DL
COMMAND (TAP RESET)		
COMMAND (MMI RESET)		
COMMAND (CC RESET)		
COMMAND (SS RESET)		
COMMAND (SMS RESET)		
COMMAND (MM RESET)		
COMMAND (RR RESET)		
COMMAND (DL RESET)		
COMMAND (SIM RESET)		
COMMAND (PL RESET)		
COMMAND (TAP REDIRECT CLEAR)		
COMMAND (MMI REDIRECT CLEAR)		
COMMAND (CC REDIRECT CLEAR)		
COMMAND (SS REDIRECT CLEAR)		
COMMAND (SMS REDIRECT CLEAR)		
COMMAND (MM REDIRECT CLEAR)		
COMMAND (RR REDIRECT CLEAR)		
COMMAND (DL REDIRECT CLEAR)		
COMMAND (SIM REDIRECT CLEAR)		
COMMAND (PL REDIRECT CLEAR)		
COMMAND (MMI REDIRECT MM NULL)		
COMMAND (MMI REDIRECT CC NULL)		
COMMAND (MMI REDIRECT SS NULL)		
COMMAND (MMI REDIRECT SMS NULL)		
COMMAND (MMI REDIRECT PL NULL)		
COMMAND (CC REDIRECT MMI NULL)		
COMMAND (CC REDIRECT MM NULL)		
COMMAND (SS REDIRECT MMI NULL)		
COMMAND (SS REDIRECT MM NULL)		
COMMAND (SMS REDIRECT MMI NULL)		
COMMAND (SMS REDIRECT MM NULL)		
COMMAND (MM REDIRECT MMI TAP)		
COMMAND (MM REDIRECT CC TAP)		
COMMAND (MM REDIRECT SS TAP)		
COMMAND (MM REDIRECT SMS TAP)		
COMMAND (MM REDIRECT SIM TAP)		
COMMAND (MM REDIRECT RR TAP)		
COMMAND (MM REDIRECT DL TAP)		
COMMAND (RR REDIRECT MM NULL)		

COMMAND (RR REDIRECT DL NULL)		
COMMAND (RR REDIRECT PL NULL)		
COMMAND (RR CONFIG NO_SYS_TIME)		
COMMAND (DL REDIRECT RR NULL)		
COMMAND (DL REDIRECT MM NULL)		
COMMAND (DL REDIRECT PL NULL)		
COMMAND (PL REDIRECT RR NULL)		
COMMAND (PL REDIRECT DL NULL)		
COMMAND (PL REDIRECT MMI NULL)		
COMMAND (SIM REDIRECT MM NULL)		
COMMAND (TAP REDIRECT TAP MM)		

Parametrization

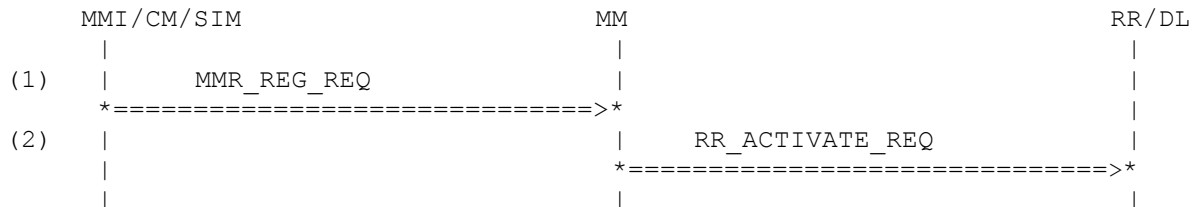
<u>Primitive</u>	<u>Parameter</u>	<u>Value</u>
History:	04.07.97	PZ
		Initial Registration

4.2 Registration

4.2.1 MM021: Registration without SIM card

Description: The reaction of MM to a request for registration with unplugged SIM card is tested. MM receives a MMR-REG request primitive and responds by issuing a RR-ACTIVATE request primitive in which the op field is set to 'limited service, no SIM'.

Preamble: MM001



Parametrization

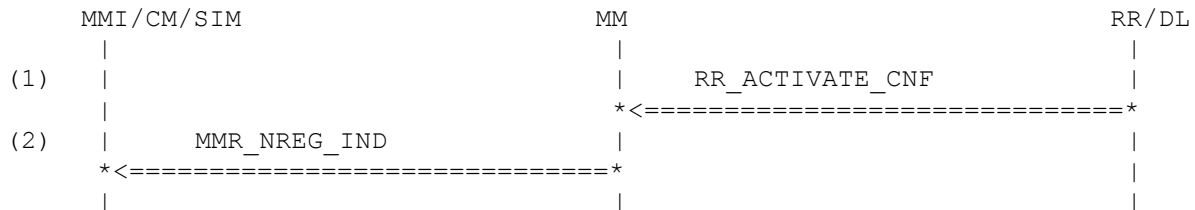
Primitive	Parameter	Value
(1) MMR_REG_REQ		
service_mode	SERVICE_MODE_FULL	
(2) RR_ACTIVATE_REQ		
plmn	PLMN_NO_ID	
op	OP_MODE_NO_SIM_NO_SERV	
cksn	CKSN_RES	
kcv	KC_DELETED	
acc	ACC_CLASS_0000	
imsi	MOB_ID_NO_ID	
tmsi	MOB_ID_NO_ID	
thplmn	THPLMN_FF	
bcch_info	NOT_USED	
cell_test	CELL_TEST_DISABLE	
gprs_indic	GPRS_NO	

History:	09.07.97	HK	Initial
	06.08.97	DL	Revised
	12.08.97	HK	Revised

4.2.2 MM022: Mobile station is synchronous to a Cell

Description: MM is informed by means of a RR-ACTIVATE confirmation primitive that the mobile station is synchronous to a cell. The network identification is forwarded to MMI as part of a MMR-NREG indication primitive.

Preamble: MM021



Parametrization

Primitive	Parameter	Value
(1) RR_ACTIVATE_CNF		
op	OP_MODE_NO_SIM_LIM_SERV	
mm_info	MM_INFO	
cid	CELL_ID_1122	
plmn	PLMN_123_44	
lac	LAC_0002	
power	RF_CLASS_2	
gprs_indic	GPRS_NO	
(2) MMR_NREG_IND		
nreg_cs	NREG_LIMITED_SERVICE	
search_running	SEARCH_NOT_RUNNING	
new_forb_plmn	PLMN_NO_ID	
limited_cause	MMR_SIM_INVALID_NOSIM	

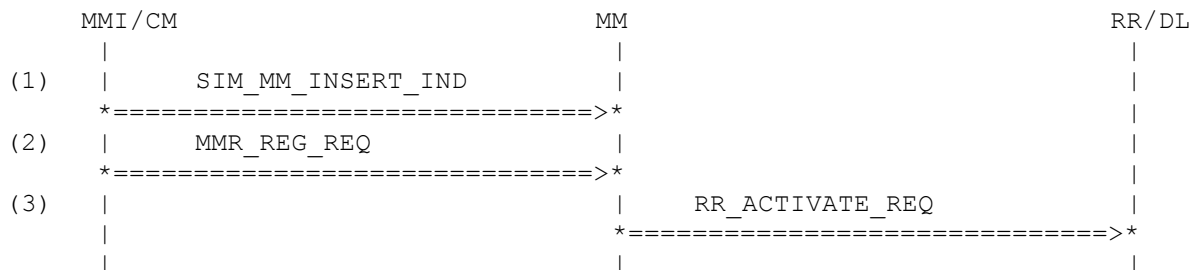
History:	09.07.97	HK	Initial
	06.08.97	DL	Revised
	12.08.97	HK	Revised
	02.03.00	HM	Revised (search_running)

4.2.3 MM023: SIM inserted - initiate cell selection

Description: MM receives a SIM-INSERT indication primitive and initiates cell selection by issuing a RR-ACTIVATE request primitive.

Preamble: MM022

Variants: <A>....



Parametrization

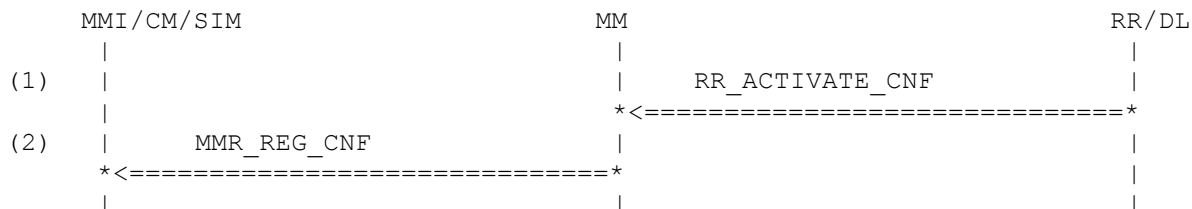
Primitive	Parameter	Value
(1) SIM_MM_INSERT_IND		
<A> op_mode	NORMAL_SIM_INS	
 op_mode	TEST_SIM_INS	
imsi_field	IMSI_FIELD_1	
loc_info	LOC_INFO_UPDATED_1	
acc_ctrl	ACC_CTRL_1	
bcch_inf	BCCH_INF_1	
kc_n	KC_EMPTY	
pref_plmn	PREF_PLMN_NONE	
forb_plmn	FORB_PLMN_NONE	
phase	PHASE_2_SIM	
hplmn	THPLMN_01	
(2) MMR_REG_REQ		
service_mode	SERVICE_MODE_FULL	
(3) RR_ACTIVATE_REQ		
plmn	PLMN_123_33	
<A> op	OP_MODE_SIM_NO_SERV	
 op	OP_MODE_TEST_SIM_NO_SERV	
cksn	CKSN_RES	
kcv	KCV_EMPTY	
acc	ACC_2143	
imsi	MOB_ID_IMSI	
tmsi	MOB_ID_NO_ID	
thplmn	THPLMN_01	
<A> bcch_info	BCCH_INFO_ECL	
 bcch_info	BCCH_INFO_1	
cell_test	CELL_TEST_DISABLE	
gprs_indic	GPRS_NO	

History:	07.07.97	HK	Initial
	06.08.97	DL	Revised
	12.08.97	HK	Revised
	24.02.00	HM	Revised
	12.04.00	HM	Revised

4.2.4 MM024: Successful conclusion of cell selection - cell with same LAI

Description: Successful conclusion of cell selection is signalled by the receipt of a RR-ACTIVATE confirmation primitive. MM forwards the PLMN identification to MMI in the form of a MMR-REG confirmation primitive.

Preamble: MM023A



Parametrization

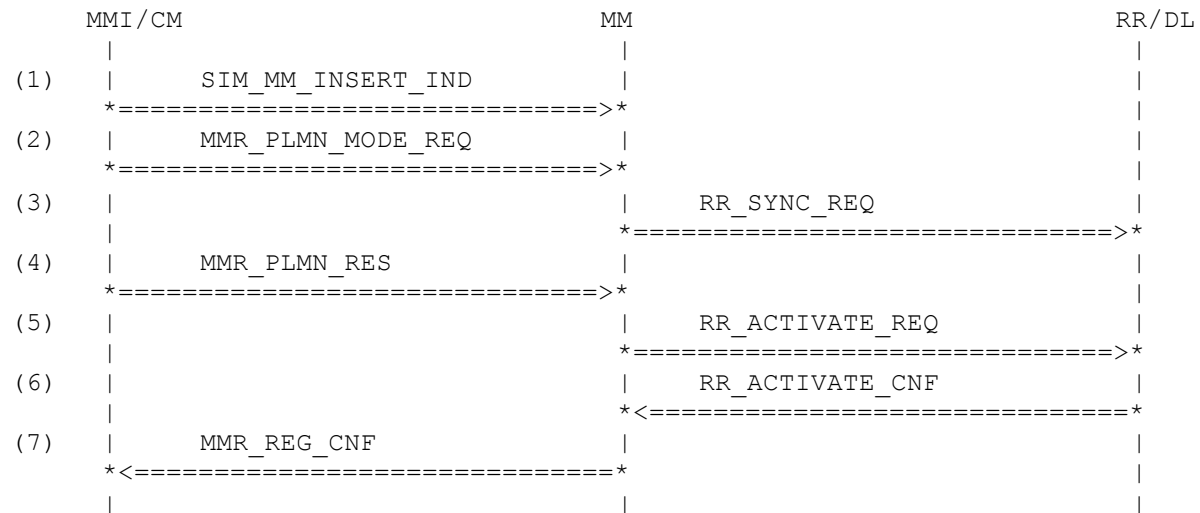
Primitive	Parameter	Value
(1) RR_ACTIVATE_CNF		
op	OP_MODE_SIM	
mm_info	MM_INFO_2	
cid	CELL_ID_1122	
plmn	PLMN_123_33	
lac	LAC_2147	
power	RF_CLASS_2	
gprs_indic	GPRS_NO	
(2) MMR_REG_CNF		
plmn	PLMN_123_33	

History: 09.07.97 HK Initial

4.2.5 MM025: SIM inserted - Search for specific network (no LUP)

Description: MM receives a SIM-INSERT indication primitive and initiates cell selection by issuing a RR-ACTIVATE request primitive after receiving a start trigger of MMI.

Preamble: MM022



Parametrization

Primitive	Parameter	Value
(1) SIM_MM_INSERT_IND		
op_mode	NORMAL_SIM_INS	
imsi_field	IMSI_FIELD_1	
loc_info	LOC_INFO_UPDATED_1	
acc_ctrl	ACC_CTRL_1	
bcch_inf	BCCH_INF_1	
kc_n	KC_EMPTY	
pref_plmn	PREF_PLMN_NONE	
forb_plmn	FORB_PLMN_NONE	
phase	PHASE_2_SIM	
hplmn	THPLMN_01	
(2) MMR_PLMN_MODE_REQ		
mode	MODE_MAN	
(3) RR_SYNC_REQ		
op	OP_MODE_SIM_NO_SERV_M1	
cksn	NOT_USED	
kcv	NOT_USED	
tmsi	NOT_USED	
plmn	NOT_USED	
lac	NOT_USED	
synccs	NOT_PRESENT_16BIT	
acc	NOT_USED	
thplmn	NOT_USED	
(4) MMR_PLMN_RES		
plmn	PLMN_123_33	
(5) RR_ACTIVATE_REQ		
plmn	PLMN_123_33	
op	OP_MODE_SIM_NO_SERV_M2	
cksn	CKSN_RES	

	kcv	KCV_EMPTY
	accc	ACC_2143
	imsi	MOB_ID_IMSI
	tmsi	MOB_ID_NO_ID
	thplmn	THPLMN_01
	bcch_info	BCCH_INFO_1
	cell_test	CELL_TEST_DISABLE
	gprs_indic	GPRS_NO
(6)	RR_ACTIVATE_CNF	
	op	OP_MODE_SIM_M
	mm_info	MM_INFO
	cid	CELL_ID_1122
	plmn	PLMN_123_33
	lac	LAC_2147
	power	RF_CLASS_2
	gprs_indic	GPRS_NO
(7)	MMR_REG_CNF	
	plmn	PLMN_123_33

History: 23.04.99 LE Initial

4.2.6 MM026: SIM inserted - Search for specific network (with LUP)

Description: MM receives a SIM-INSERT indication primitive and initiates cell selection by issuing a RR-ACTIVATE request primitive after receiving a start trigger of MMI. A location updating is necessary

Preamble: MM022

	MMI / CM	MM	RR / DL
(1)	SIM_MM_INSERT_IND		
	=====>		
(2)	MMR_PLMN_MODE_REQ		
	=====>		
(3)		RR_SYNC_REQ	
		=====>	
(4)	MMR_PLMN_RES		
	=====>		
(5)		RR_ACTIVATE_REQ	
		=====>	
(6)		RR_ACTIVATE_CNF	
		<=====	
(7)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		=====>	
(8)		RR_ESTABLISH_CNF	
		<=====	
(9)		RR_DATA_IND	
		(LOCATION UPDATING ACC)	
		<=====	
(10)		RR_DATA_REQ	
		(TMSI REALLOC COMPLETE)	
		=====>	
(11)		RR_SYNC_REQ	
		=====>	
(12)		RR_SYNC_REQ	
		=====>	
(13)	MMR_REG_CNF		
	<=====		
(14)	SIM_MM_UPDATE_REQ		
	<=====		

Parametrization

Primitive	Parameter	Value
(1) SIM_MM_INSERT_IND		
op_mode		NORMAL_SIM_INS
imsi_field		IMSI_FIELD_1
loc_info		LOC_INFO_UPDATED_1
acc_ctrl		ACC_CTRL_1
bcch_inf		BCCH_INF_1
kc_n		KC_EMPTY
pref_plmn		PREF_PLMN_NONE
forb_plmn		FORB_PLMN_NONE
phase		PHASE_2_SIM
hplmn		THPLMN_01
(2) MMR_PLMN_MODE_REQ		
mode		MODE_MAN

(3)	RR_SYNC_REQ	
	op	OP_MODE_SIM_NO_SERV_M1
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	NOT_USED
	plmn	NOT_USED
	lac	NOT_USED
	synccs	NOT_PRESENT_16BIT
	accc	NOT_USED
	thplmn	NOT_USED
(4)	MMR_PLMN_RES	
	plmn	PLMN_123_44
(5)	RR_ACTIVATE_REQ	
	plmn	PLMN_123_44
	op	OP_MODE_SIM_NO_SERV_M2
	cksn	CKSN_RES
	kcv	KCV_EMPTY
	accc	ACC_2143
	imsi	MOB_ID_IMSI
	tmsi	MOB_ID_NO_ID
	thplmn	THPLMN_01
	bcch_info	BCCH_INFO_1
	cell_test	CELL_TEST_DISABLE
	gprs_indic	GPRS_NO
(6)	RR_ACTIVATE_CNF	
	op	OP_MODE_SIM
	mm_info	MM_INFO
	cid	CELL_ID_1122
	plmn	PLMN_123_44
	lac	LAC_0002
	power	RF_CLASS_2
	gprs_indic	GPRS_NO
(7)	RR_ESTABLISH_REQ	
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti TI_0	
	loc_upd_type	LOC_UPD_TYPE_NORMAL
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_2147
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(8)	RR_ESTABLISH_CNF	
	param	NOT_USED
(9)	RR_DATA_IND	
	d1	NOT_USED
	d2	NOT_USED
	sdu	
	{	
	component	MM
	direction	DOWNLINK
	pd	D_LOC_UPD_ACCEPT

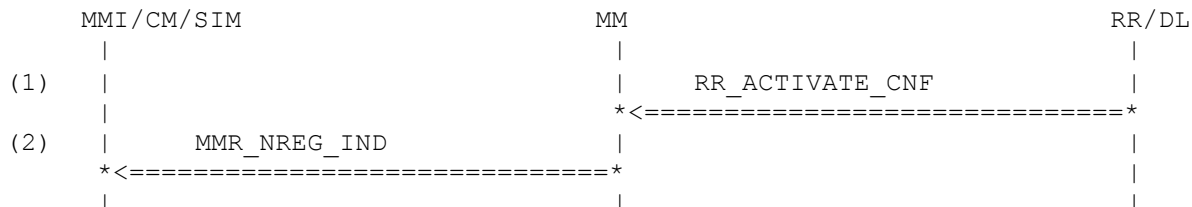
	ti TI_0	
	loc_area_ident	LOC_AREA_ID_123_44_0002
	mob_id	MOB_IDENT_NEW_TMSI
	follow_proceed	NOT_USED
	}	
(10)	RR_DATA_REQ	
	d1	NOT_USED
	d2	NOT_USED
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_TMSI_REALLOC_COMP
	ti TI_0	
	}	
(11)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	MOB_ID_NEW_TMSI
	plmn	NOT_USED
	lac	NOT_USED
	synccs	NOT_USED
	accc	NOT_USED
	thplmn	NOT_USED
(12)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	NOT_USED
	plmn	PLMN_123_44
	lac	LAC_0002
	synccs	SYNCCS_LAI_ALLOW
	accc	NOT_USED
	thplmn	NOT_USED
(13)	MMR_REG_CNF	
	plmn	PLMN_123_44
(14)	SIM_MM_UPDATE_REQ	
	loc_info	LOC_INFO_UPDATED_44
	bcch_inf	BCCH_INF_1
	forb_plmn	NOT_USED
	cksn	CKSN_RES
	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122

History: 23.04.99 LE Initial

4.2.7 MM027: Mobile station is synchronous to a Cell (reestablish allowed in cell)

Description: MM is informed by means of a RR-ACTIVATE confirmation primitive that the mobile station is synchronous to a cell. The network identification is forwarded to MMI as part of a MMR-NREG indication primitive. This testcase is equivalent to testcase MM022 with the difference that call reestablishment is allowed in the cell (MM_INFO -> MM_INFO_2).

Preamble: MM021



Parametrization

Primitive	Parameter	Value
(1) RR_ACTIVATE_CNF		
op	OP_MODE_NO_SIM_LIM_SERV	
mm_info	MM_INFO_2	
cid	CELL_ID_1122	
plmn	PLMN_123_44	
lac	LAC_0002	
power	RF_CLASS_2	
gprs_indic	GPRS_NO	
(2) MMR_NREG_IND		
nreg_cs	NREG_LIMITED_SERVICE	
search_running	SEARCH_NOT_RUNNING	
new_forb_plmn	PLMN_NO_ID	
limited_cause	MMR_SIM_INVALID_NOSIM	

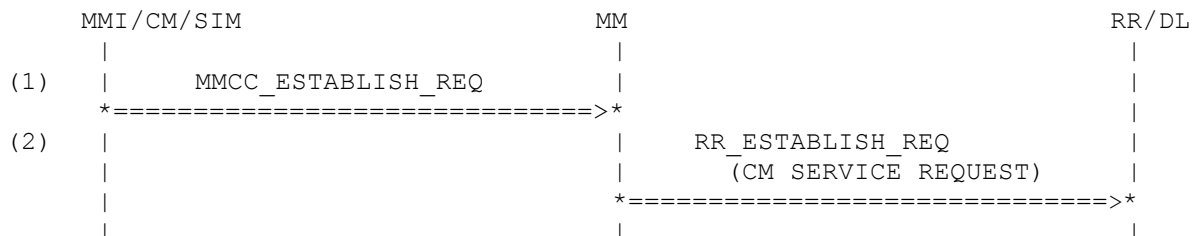
History:	16.02.00	HM	Initial
	02.03.00	HM	Revised (search_running)

4.3 Connection Establishment

4.3.1 MM041: Establish request prior to existing RR Connection

Description: MM receives a MMCC-ESTABLISH request primitive from CC and requests a RR connection by sending a CM SERVICE REQUEST message to RR as part of a RR-ESTABLISH request primitive.

Preamble: MM024



Parametrization

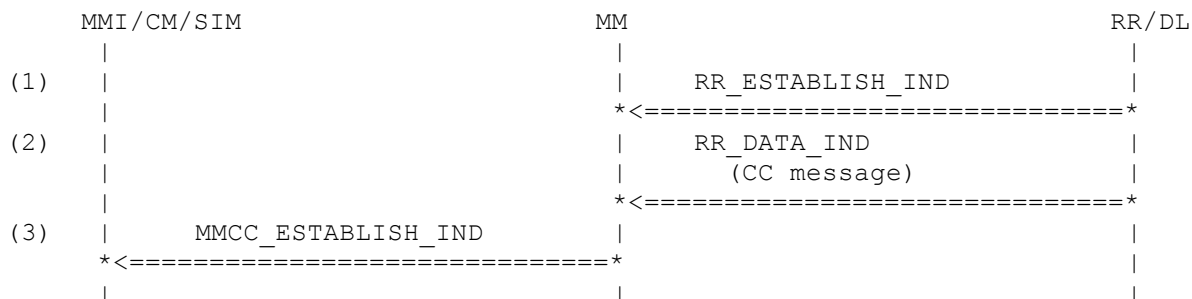
Primitive	Parameter	Value
(1) MMCC_ESTABLISH_REQ		
ti	TI_2	
prio	PRIO_NORM_CALL	
estcs	ESTCS_MOB_ORIG_SPCH	
(2) RR_ESTABLISH_REQ		
estcs	ESTCS_MOB_ORIG_SPCH_CAL_BY_CC	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_CM_SERV_REQ	
ti	TI_0	
cm_serv_type	ST_MOC	
ciph_key_num	CIPH_KEY_NUM_RES	
mob_class_2	MOB_CLASS_2	
mob_id	MOB_IDENT_IMSI	
}		

History: 08.07.97 HK Initial

4.3.2 MM042: Mobile terminated MM Connection

Description: MM is alerted of a mobile-terminated call by the receipt of a RR- ESTABLISH indication primitive followed by a CC message as part of a RR-DATA indication primitive. MM enters State 6 (MM Connection Active) and issues a MMCC-ESTABLISH indication primitive.

Preamble: MM024



Parametrization

Primitive	Parameter	Value
(1) RR_ESTABLISH_IND	param	NOT_USED
(2) RR_DATA_IND	d1	NOT_USED
	d2	NOT_USED
	sdu	CC_MESSAGE
(3) MMCC_ESTABLISH_IND	d1	NOT_USED
	d2	NOT_USED
	sdu	CC_MESSAGE
History:	09.07.97	HK Initial
	17.09.97	DL revised

4.3.3 MM043: Acknowledgement of MM Connection

Description: The MM connection is confirmed by the network in the form of a RR-ESTABLISH primitive followed by with a CM SERVICE ACCEPT message. MM changes to State 6 (MM Connection Active) and informs CC by issuing a MMCC-ESTABLISH confirmation primitive.

Preamble: MM041

	MMI / CM / SIM	MM	RR / DL
(1)		RR_ESTABLISH_CNF	
		<=====	
(2)		RR_DATA_IND	
		(CM SERVICE ACCEPT)	
		<=====	
(3)	MMCC_ESTABLISH_CNF		
	<=====		

Parametrization

	Primitive	Parameter	Value
(1)	RR_ESTABLISH_CNF param	NOT_USED	
(2)	RR_DATA_IND d1 d2 sdu { component direction pd ti }	NOT_USED NOT_USED MM DOWNLINK D_CM_SERV_ACCEPT TI_0	
(3)	MMCC_ESTABLISH_CNF ti	TI_2	

History: 08.07.97 HK Initial

4.3.4 MM044: Identity Request in State 5

Description: MM changes to State 5 (Wait for Outgoing MM Connection) on receipt of a RR-ESTABLISH confirmation primitive. An IDENTITY REQUEST message is received from the network, to which MM responds by issuing an IDENTITY RESPONSE message.

Preamble: MM041

	MMI / CM / SIM	MM	RR / DL
(1)		RR_ESTABLISH_CNF	
		<=====	
(2)		RR_DATA_IND	
		(IDENTITY REQUEST IMSI)	
		<=====	
(3)		RR_DATA_REQ	
		(IDENTITY RESPONSE)	
		=====>	
(4)		RR_DATA_IND	
		(IDENTITY REQUEST IMEI)	
		<=====	
(5)		RR_DATA_REQ	
		(IDENTITY RESPONSE)	
		=====>	
(6)		RR_DATA_IND	
		(ID REQUEST IMEISV)	
		<=====	
(7)		RR_DATA_REQ	
		(IDENTITY RESPONSE)	
		=====>	

Parametrization

Primitive	Parameter	Value
(1) RR_ESTABLISH_CNF		
param	NOT_USED	
(2) RR_DATA_IND		
d1	NOT_USED	
d2	NOT_USED	
sdu		
{		
component	MM	
direction	DOWNLINK	
pd	D_IDENT_REQ	
ti	TI_0	
ident	IDENT_TYPE_IMSI	
}		
(3) RR_DATA_REQ		
d1	NOT_USED	
d2	NOT_USED	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_IDENT_RES	
ti	TI_0	

mob_id	MOB_IDENT_IMSI
}	
(4) RR_DATA_IND	
d1	NOT_USED
d2	NOT_USED
sdu	
{	
component	MM
direction	DOWNLINK
pd	D_IDENT_REQ
ti	TI_0
ident	IDENT_TYPE_IMEI
}	
(5) RR_DATA_REQ	
d1	NOT_USED
d2	NOT_USED
sdu	
{	
component	MM
direction	UPLINK
pd	U_IDENT_RES
ti	TI_0
mob_id	MOB_IDENT_IMEI
}	
(6) RR_DATA_IND	
d1	NOT_USED
d2	NOT_USED
sdu	
{	
component	MM
direction	DOWNLINK
pd	D_IDENT_REQ
ti	TI_0
ident	IDENT_TYPE_IMEISV
}	
(7) RR_DATA_REQ	
d1	NOT_USED
d2	NOT_USED
sdu	
{	
component	MM
direction	UPLINK
pd	U_IDENT_RES
ti	TI_0
mob_id	MOB_IDENT_IMEISV
}	

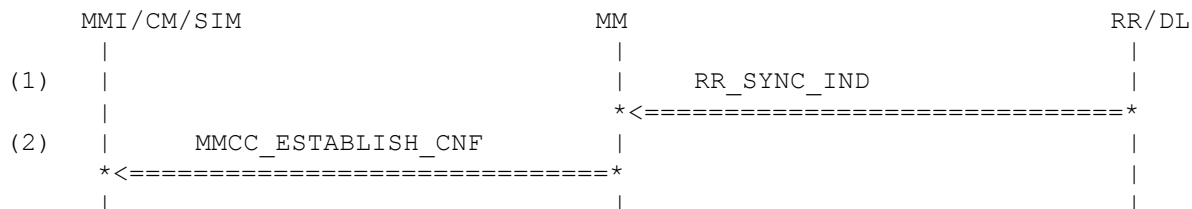
History:	08.07.97	HK	Initial
	07.11.00	HM	Revised

4.3.5 MM045: RR-MM Synchronization

Description: Synchronization by RR is signalled in the form of a RR-SYNC indication primitive. MM issues a MNCC-ESTABLISH confirmation primitive to CC.

Preamble: MM044

Variants: <A>....



Parametrization

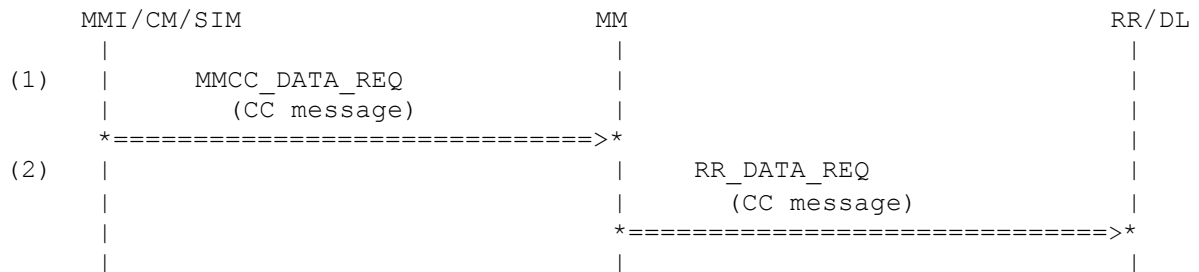
Primitive	Parameter	Value
(1) RR_SYNC_IND		
<A> ciph	CIPH_ON	
 ciph	CIPH_OFF	
mm_info	MM_INFO_2	
bcch_info	BCCH_INFO_1	
synccs	NOT_USED	
chm	CHM_NOT_PRESENT	
(2) MMCC_ESTABLISH_CNF		
ti	TI_2	

History: 09.07.97 HK Initial

4.3.6 MM047: Data Transfer from Mobile Station in State 6

Description: In State 6 (MM Connection Active) MM receives a CC message and forwards this to the network as part of a RR-DATA request primitive.

Preamble: MM043



Parametrization

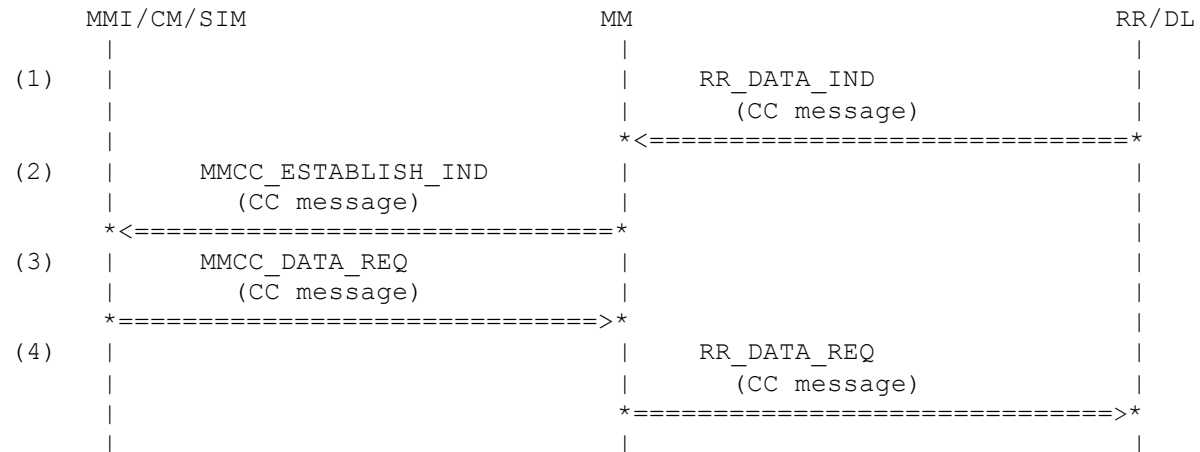
Primitive	Parameter	Value
(1) MMCC_DATA_REQ		
d1	NOT_USED	
d2	NOT_USED	
sdu	CC_MESSAGE	
(2) RR_DATA_REQ		
d1	NOT_USED	
d2	NOT_USED	
sdu	CC_MESSAGE	

History: 09.07.97 HK Initial

4.3.7 MM048: Data Transfer in both directions in State 6

Description: In State 6 (MM Connection Active) MM receives a CC message both from CC and the network. MM forwards the message from the network to CC as part of a MMCC-DATA indication primitive and to the network as part of a RR-DATA request primitive.

Preamble: MM043



Parametrization

Primitive	Parameter	Value
(1) RR_DATA_IND	d1	NOT_USED
	d2	NOT_USED
	sdu	CC_MESSAGE
(2) MMCC_ESTABLISH_IND	d1	NOT_USED
	d2	NOT_USED
	sdu	CC_MESSAGE
(3) MMCC_DATA_REQ	d1	NOT_USED
	d2	NOT_USED
	sdu	CC_MESSAGE
(4) RR_DATA_REQ	d1	NOT_USED
	d2	NOT_USED
	sdu	CC_MESSAGE

History: 09.07.97 HK Initial

4.3.8 MM049: Random Access Failed, internal auto redial

Description: RR responses with RR-RELEASE-IND to MM indicating a random access failure. MM starts one internal redialling.

Preamble: MM041

	MMI / CM / SIM	MM	RR / DL
(1)		RR_RELEASE_IND	
		<=====	
(2)		MDL_RELEASE_REQ	
		=====>	
(3)		RR_ESTABLISH_REQ	
		(CM SERVICE REQUEST)	
		=====>	
(4)		RR_RELEASE_IND	
		<=====	
(5)		MDL_RELEASE_REQ	
		=====>	
(6)	MMCC_RELEASE_IND		
	<=====		

Parametrization

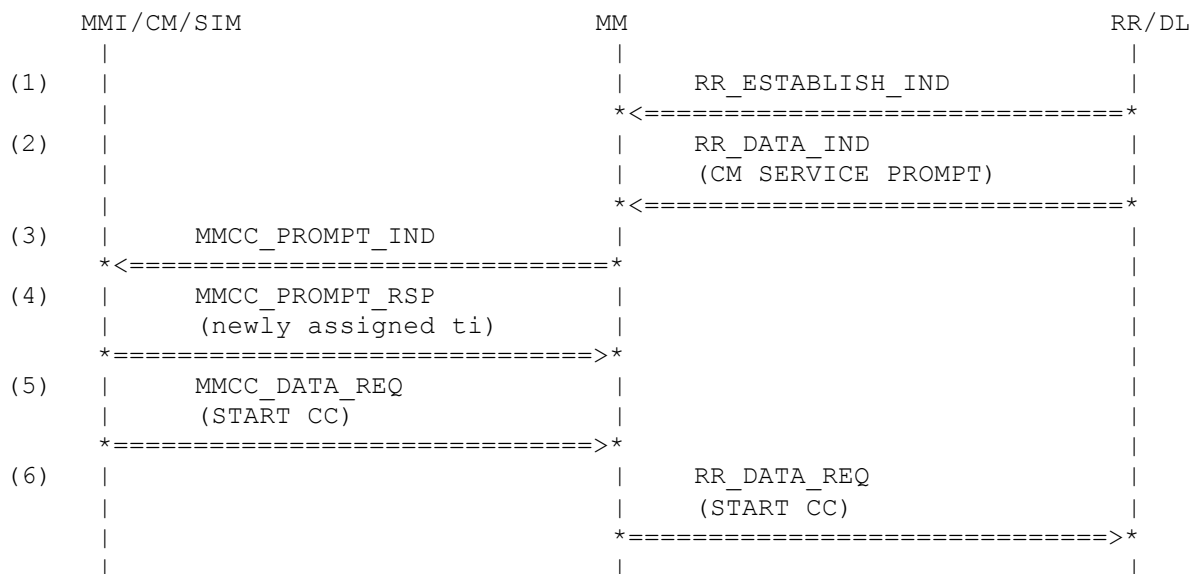
	Primitive	Parameter	Value
(1)	RR_RELEASE_IND		
	relcs	RELCS_RND_ACC_FAIL	
	sapi	SAPI_0	
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK	
(2)	MDL_RELEASE_REQ		
	ch_type	NOT_PRESENT_8BIT	
	sapi	SAPI_0	
(3)	RR_ESTABLISH_REQ		
	estcs	ESTCS_MOB_ORIG_SPCH_CAL_BY_CC	
	sdu		
	{		
	component	MM	
	direction	UPLINK	
	pd	U_CM_SERV_REQ	
	ti	TI_0	
	cm_serv_type	ST_MOC	
	ciph_key_num	CIPH_KEY_NUM_RES	
	mob_class_2	MOB_CLASS_2	
	mob_id	MOB_IDENT_IMSI	
	}		
(4)	RR_RELEASE_IND		
	relcs	RELCS_RND_ACC_FAIL	
	sapi	SAPI_0	
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK	
(5)	MDL_RELEASE_REQ		
	ch_type	NOT_PRESENT_8BIT	
	sapi	SAPI_0	
(6)	MMCC_RELEASE_IND		
	ti	TI_2	
	relcs	RELCS_RND_ACC_FAIL	

History: 08.07.97 HK Initial

4.3.9 MM050: Initiation of CCBS call back

Description: Network sends CM SERVICE PROMPT for CM entity CC and SAPI = 0. MM notifies CC by MMCC_PROMPT_IND and enters state MM_PROCESS_PROMPT. CC assigns a transaction identifier for the new MM connection by MMCC_PROMPT_RSP, from now CC is allowed to send CM messages. The first CM message for CCBS is a START CC message, this will be forwarded by MM to RR.

Preamble: MM024



Parametrization

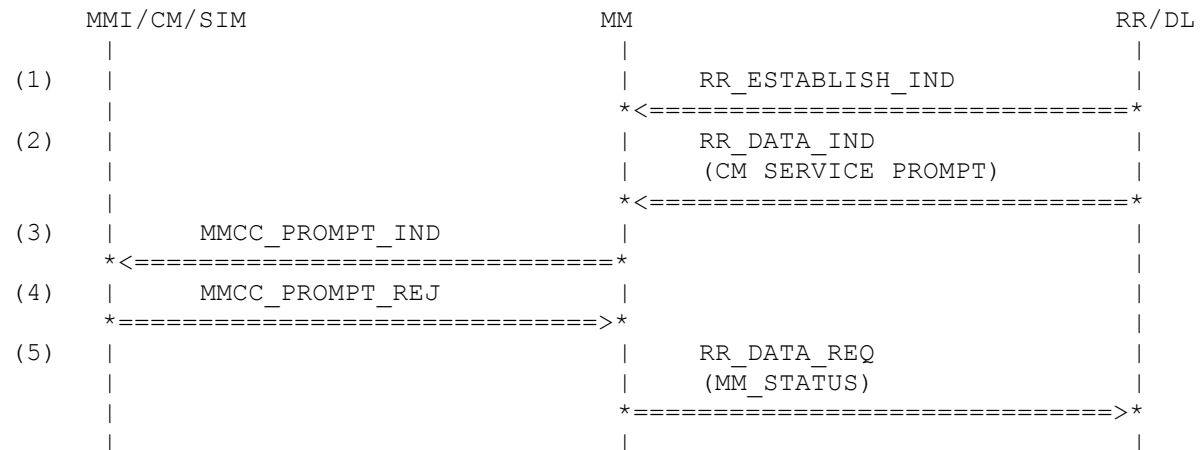
Primitive	Parameter	Value
(1) RR_ESTABLISH_IND param	NOT_USED	
(2) RR_DATA_IND d1 d2 sdu { component direction pd pd_and_sapi }	d1 NOT_USED	NOT_USED
(3) MMCC_PROMPT_IND		
(4) MMCC_PROMPT_RSP ti	TI_5	
(5) MMCC_DATA_REQ d1 d2 sdu	NOT_USED NOT_USED CC_MESSAGE	
(6) RR_DATA_REQ d1 d2 sdu	NOT_USED NOT_USED CC_MESSAGE	

History: 15.02.00 HM Initial

4.3.10 MM051: Initiation of CCBS call back, out of ti

Description: Network sends CM SERVICE PROMPT for CM entity CC and SAPI = 0. MM notifies CC by MMCC_PROMPT_IND and enters state MM_PROCESS_PROMPT. CC doesn't assign a transaction identifier for the new MM connection e.g. due to a lack of transaction identifiers. MM shall return to state MM_WAIT_FOR_NW_CMD and release the connection after timeout if no further messages are received by the network.

Preamble: MM024



Parametrization

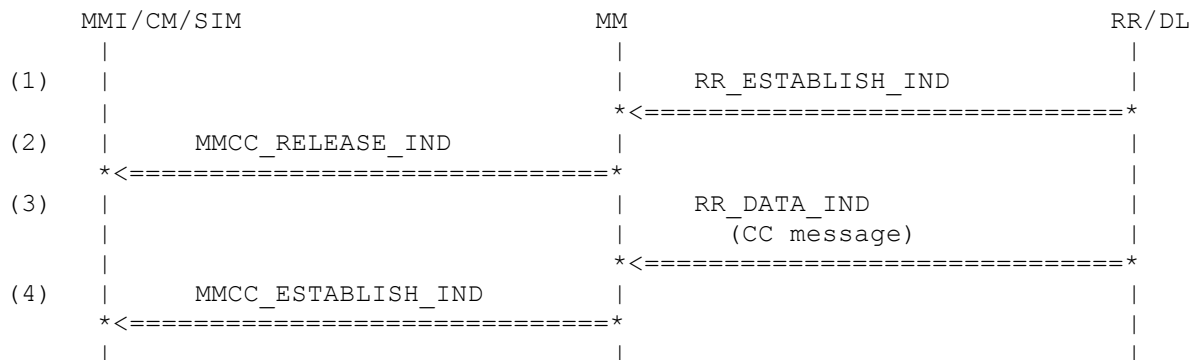
Primitive	Parameter	Value
(7) RR_ESTABLISH_IND param	NOT_USED	
(8) RR_DATA_IND d2 sdu { component direction pd pd_and_sapi }	d1 NOT_USED	NOT_USED
(9) MMCC_PROMPT_IND		
(10) MMCC_PROMPT_REJ		
(11) RR_DATA_REQ d1 d2 sdu { component direction pd rej_cause }	NOT_USED NOT_USED	
	MM UPLINK B_MM_STATUS RC_SERVICE_ORDER	

History: 15.02.00 HM Initial

4.3.11 MM055: RR_ESTABLISH_IND in state MM_WAIT_FOR_RR_CONN_MM

Description: MM receives a RR_ESTABLISH_IND in state MM_WAIT_FOR_RR_CONN_MM. This is a clash case. The MT connection has precedence, a MNCC_RELEASE_IND is sent for the MO connection and the MT connection is going to be established.

Preamble: MM041



Parametrization

Primitive	Parameter	Value
(1) RR_ESTABLISH_IND param	NOT_USED	
(2) MMCC_RELEASE_IND ti relcs	TI_2 RELCS_PREEMPT	
(3) RR_DATA_IND d1 d2 sdu	NOT_USED NOT_USED CC_MESSAGE	
(4) MMCC_ESTABLISH_IND d1 d2 sdu	NOT_USED NOT_USED CC_MESSAGE	
History:	19.04.00	HM Initial

4.3.12 MM056: RR_RELEASE_IND in state MM_WAIT_FOR_RR_CONN_MM

Description: MM receives a RR_RELEASE_IND in state MM_WAIT_FOR_RR_CONN_MM. This is a clash case. There is an incoming MT call already in RR, the MT connection has precedence, RR sends a RR_RELEASE_IND for the MO connection and then the MT connection is going to be established.

Preamble: MM041

	MMI / CM / SIM	MM	RR / DL
(1)		RR_RELEASE_IND	
		<=====	
(2)		RR_ESTABLISH_IND	
		<=====	
(3)	MMCC_RELEASE_IND		
	<=====		
(4)		RR_DATA_IND	
		(CC message)	
		<=====	
(5)	MMCC_ESTABLISH_IND		
	<=====		

Parametrization

Primitive	Parameter	Value
(5) RR_RELEASE_IND		
relcs	RELCS_MO_MT_COLL	
sapi	SAPI_0	
gprs_resumption	GPRS_RESUMPTION_NOT_ACK	
(6) RR_ESTABLISH_IND		
param	NOT_USED	
(7) MMCC_RELEASE_IND		
ti	TI_2	
relcs	RELCS_MO_MT_COLL	
(8) RR_DATA_IND		
d1	NOT_USED	
d2	NOT_USED	
sdu	CC_MESSAGE	
(9) MMCC_ESTABLISH_IND		
d1	NOT_USED	
d2	NOT_USED	
sdu	CC_MESSAGE	
History:	19.04.00	HM Initial

4.4 Emergency Call

4.4.1 MM061: Emergency Call in Idle State 19.2

Description: MM receives an establishment request from CC while in State 19.2 (Idle Attempting to Update). It then sends a CM SERVICE REQUEST message to the network. On receipt of a RR-ESTABLISH confirmation primitive from the network followed by a CM SERVICE ACCEPT message, MM issues as MMCC-ESTABLISH confirmation primitive.

Preamble: MM103

	MMI/CM/SIM	MM	RR/DL
(1)	 MMCC_ESTABLISH_REQ *=====>*	 	
(2)	 	RR_ESTABLISH_REQ (CM SERVICE REQUEST) *=====>*	
(3)	 	RR_ESTABLISH_CNF *<=====*	
(4)	 	RR_DATA_IND (CM SERVICE ACCEPT) *<=====*	
(5)	MMCC_ESTABLISH_CNF *<=====*	 	

Parametrization

	Primitive	Parameter	Value
(1)	MMCC_ESTABLISH_REQ		
	ti	TI_3	
	prio	PRIO_EMERG_CALL	
	estcs	ESTCS_MOB_ORIG_DATA	
(2)	RR_ESTABLISH_REQ		
	estcs	ESTCS_EMERG_CAL	
	sdu		
	{		
	component	MM	
	direction	UPLINK	
	pd	U_CM_SERV_REQ	
	ti	TI_0	
	cm_serv_type	ST_EMERGENCY	
	ciph_key_num	CIPH_KEY_NUM_RES	
	mob_class_2	MOB_CLASS_2	
	mob_id	MOB_IDENT_IMSI	
	}		
(3)	RR_ESTABLISH_CNF		
	param	NOT_USED	
(4)	RR_DATA_IND		
	d1	NOT_USED	
	d2	NOT_USED	

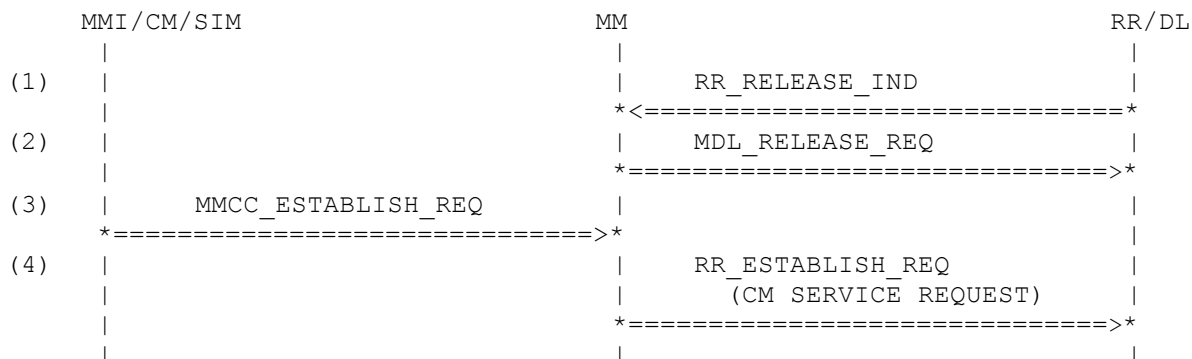
sdu	
{	
component	MM
direction	DOWNLINK
pd	D_CM_SERV_ACCEPT
ti	TI_0
}	
(5)	MMCC_ESTABLISH_CNF
ti	TI_3

History:	09.07.97	HK	Initial
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4.4.2 MM062: RR Release followed by Call Establishment Request

Description: Release of the RR connection is followed by an establishment request for an emergency call.

Preamble: MM101



Parametrization

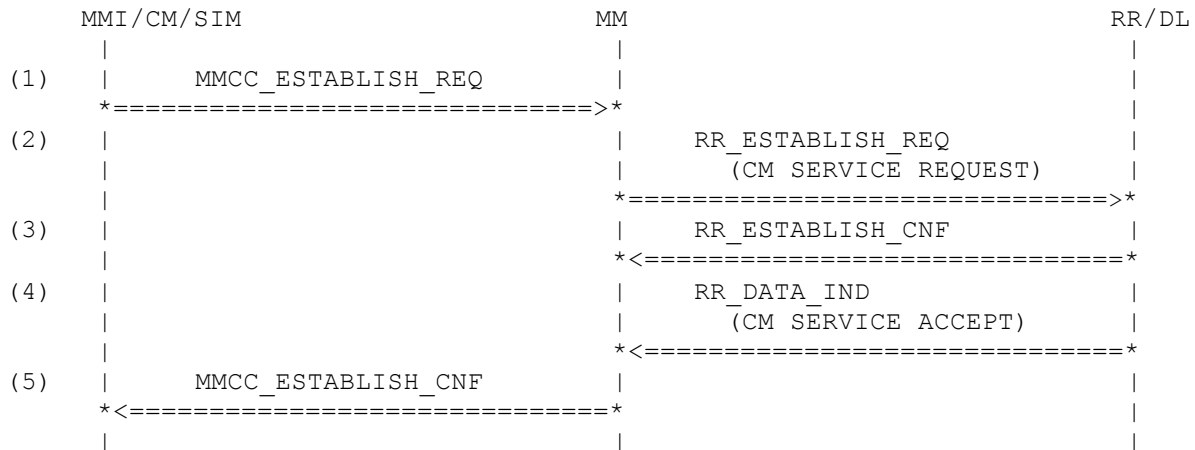
Primitive	Parameter	Value
(1) RR_RELEASE_IND		
relcs		RELCS_ACCESS_BARRED
sapi		SAPI_0
gprs_resumption		GPRS_RESUMPTION_NOT_ACK
(2) MDL_RELEASE_REQ		
ch_type		NOT_PRESENT_8BIT
sapi		SAPI_0
(3) MMCC_ESTABLISH_REQ		
ti		TI_6
prio		PRIO_EMERG_CALL
estcs		ESTCS_EMRG_CAL
(4) RR_ESTABLISH_REQ		
estcs		ESTCS_EMRG_CAL
sdu		
{		
component		MM
direction		UPLINK
pd		U_CM_SERV_REQ
ti		TI_0
cm_serv_type		ST_EMERGENCY
ciph_key_num		CIPH_KEY_NUM_RES
mob_class_2		MOB_CLASS_2
mob_id		MOB_IDENT_IMSI
}		

History: 09.07.97 HK Initial

4.4.3 MM063: Emergency Call in Idle State 19.4

Description: MM receives an establishment request from CC while in State 19.4 (Idle No IMSI). It then sends a CM SERVICE REQUEST message to the network. On receipt of a RR-ESTABLISH confirmation primitive from the network followed by a CM SERVICE ACCEPT message, MM issues as MMCC-ESTABLISH confirmation primitive.

Preamble: MM022



Parametrization

Primitive	Parameter	Value
(1) MMCC_ESTABLISH_REQ		
ti	TI_3	
prio	PRIQ_EMERG_CALL	
estcs	ESTCS_EMRG_CAL	
(2) RR_ESTABLISH_REQ		
estcs	ESTCS_EMRG_CAL	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_CM_SERV_REQ	
ti	TI_0	
cm_serv_type	ST_EMERGENCY	
ciph_key_num	CIPH_KEY_NUM_RES	
mob_class_2	MOB_CLASS_2	
mob_id	MOB_IDENT_IMEI	
}		
(3) RR_ESTABLISH_CNF		
param	NOT_USED	
(4) RR_DATA_IND		
d1	NOT_USED	
d2	NOT_USED	
sdu		
{		
component	MM	
direction	DOWNLINK	
pd	D_CM_SERV_ACCEPT	

ti		TI_0	
}			
(5) MMCC_ESTABLISH_CNF			
ti		TI_3	
History:	09.07.97	HK	Initial
	19.09.97	DL	revised

4.4.4 MM064: Reestablishment during EC (Emergency Call)

Description: MM receives an establishment request from CC while in State 19.2 (Idle Attempting to Update). It then sends a CM SERVICE REQUEST message to the network. On receipt of a RR-ESTABLISH confirmation primitive from the network followed by a CM SERVICE ACCEPT message, MM issues as MMCC-ESTABLISH confirmation. On receipt of a RR-ABORT indication primitive MDL_RELEASE_REQ MMCC_ERROR_IND.

Preamble: MM027

	MMI / CM / SIM	MM	RR / DL
(1)	MMCC_ESTABLISH_REQ		
	=====>		
(2)		RR_ESTABLISH_REQ (CM SERVICE REQUEST)	
		=====>	
(3)		RR_ESTABLISH_CNF	
		<=====	
(4)		RR_DATA_IND (CM SERVICE ACCEPT)	
		<=====	
(5)	MMCC_ESTABLISH_CNF		
	<=====		
(6)		RR_ABORT_IND	
		<=====	
(7)		MDL_RELEASE_REQ	
		=====>	
(8)	MMCC_ERROR_IND		
	<=====		

Parametrization

Primitive	Parameter	Value
(1) MMCC_ESTABLISH_REQ		
ti	TI_3	
prio	PRIO_EMERG_CALL	
estcs	ESTCS_MOB_ORIG_SPCH	
(2) RR_ESTABLISH_REQ		
estcs	ESTCS_EMERG_CAL	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_CM_SERV_REQ	
ti	TI_0	
cm_serv_type	ST_EMERGENCY	
ciph_key_num	CIPH_KEY_NUM_RES	
mob_class_2	MOB_CLASS_2	
mob_id	MOB_IDENT_IMEI	
}		
(3) RR_ESTABLISH_CNF		
param	NOT_USED	
(4) RR_DATA_IND		
d1	NOT_USED	

d2	NOT_USED		
sdu			
{			
component	MM		
direction	DOWNLINK		
pd	D_CM_SERV_ACCEPT		
ti	TI_0		
}			
(5) MMCC_ESTABLISH_CNF			
ti	TI_3		
(6) RR_ABORT_IND			
op	OP_MODE_TEST_SIM		
abcs	ABCS_RAD_LNK_FAIL		
plmn_avail	NOT_USED		
plmn	NOT_USED		
rxlevel	NOT_USED		
power	RF_CLASS_2		
(7) MDL_RELEASE_REQ			
ch_type	NOT_PRESENT_8BIT		
sapi	SAPI_0		
(8) MMCC_ERROR_IND			
ti	TI_3		
reest	REEST_ALLOW		
errcs	ERRCS_RADIO_LINK_FAIL		
History:	21.07.97	HK	Initial
	19.09.97	DL	revised
	16.02.00	HM	revised

4.4.5 MM065: Emergency Call in State 19.3

Description: An emergency call is started following an establishment request in State 19.3 (Idle, Limited Service).

Preamble: MM108

	MMI/CM/SIM	MM	RR/DL
(1)	MMCC_ESTABLISH_REQ		
	=====>		
(2)		RR_ESTABLISH_REQ (CM SERVICE REQUEST)	
		=====>	
(3)		RR_ESTABLISH_CNF	
		<=====	
(4)		RR_DATA_IND (CM SERVICE ACCEPT)	
		<=====	
(5)	MMCC_ESTABLISH_CNF		
	<=====		
(6)	MMCC_RELEASE_REQ		
	=====>		
(7)		RR_RELEASE_IND	
		<=====	
(8)		MDL_RELEASE_REQ	
		=====>	

Parametrization

Primitive	Parameter	Value
(1) MMCC_ESTABLISH_REQ		
ti	TI_3	
prio	PRIO_EMERG_CALL	
estcs	ESTCS_EMERG_CAL	
(2) RR_ESTABLISH_REQ		
estcs	ESTCS_EMERG_CAL	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_CM_SERV_REQ	
ti	TI_0	
cm_serv_type	ST_EMERGENCY	
ciph_key_num	CIPH_KEY_NUM_RES	
mob_class_2	MOB_CLASS_2	
mob_id	MOB_IDENT_IMSI	
}		
(3) RR_ESTABLISH_CNF		
param	NOT_USED	
(4) RR_DATA_IND		
d1	NOT_USED	
d2	NOT_USED	
sdu		

<pre> { component direction pd ti } </pre>		MM	
		DOWNLINK	
		D_CM_SERV_ACCEPT	
		TI_0	
(5)	MMCC_ESTABLISH_CNF		
	ti	TI_3	
(6)	MMCC_RELEASE_REQ		
	ti	TI_3	
(7)	RR_RELEASE_IND		
	relcs	RELCS_NORM	
	sapi	SAPI_0	
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK	
(8)	MDL_RELEASE_REQ		
	ch_type	NOT_PRESENT_8BIT	
	sapi	SAPI_0	
History:	09.07.97	HK	Initial

4.4.6 MM066: Calls after power cycle without SIM Remove

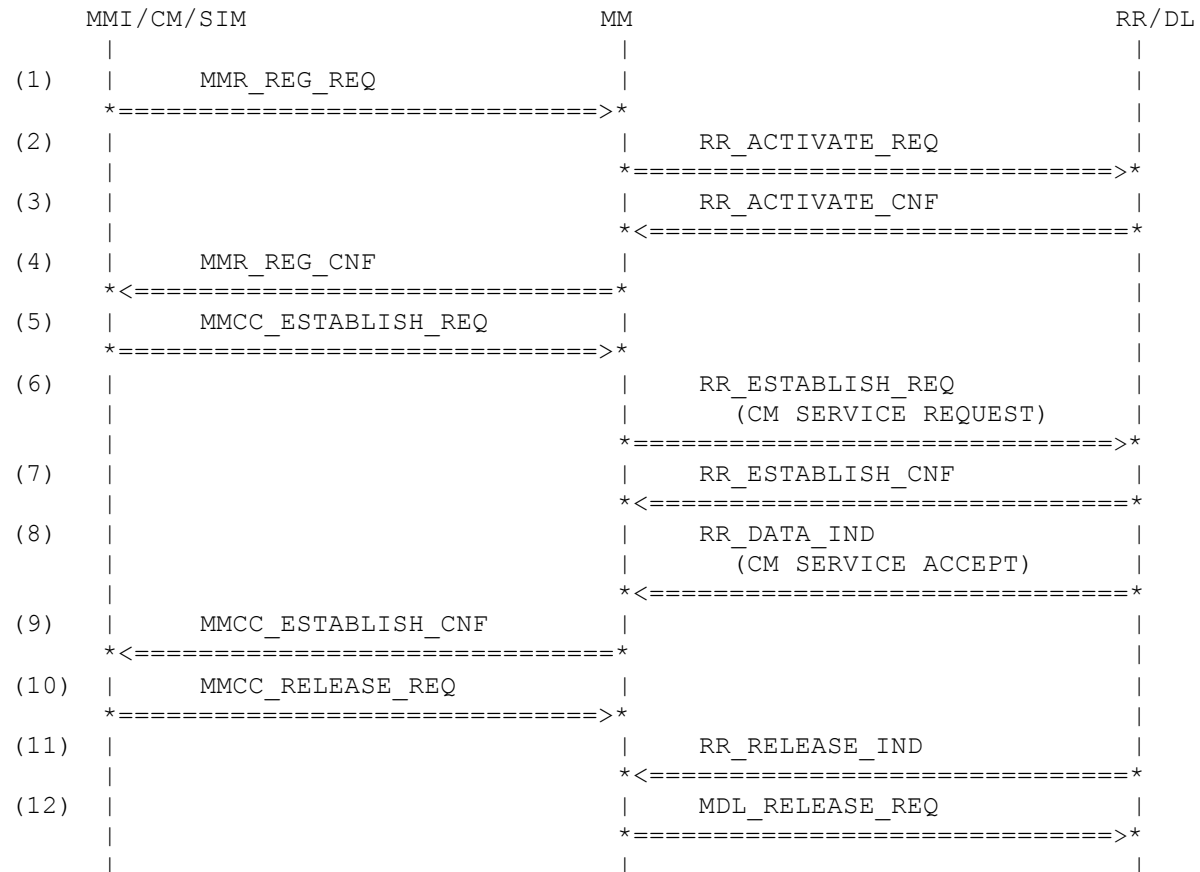
Description: Following a power off the mobile station the mobile station is reactivated in a cell where the mobile is updated, an IMSI ATTACH is not allowed by the network, a call is started.

<A> Emergency call

 Normal call

Preamble: MM202

Variants: <A>....



Parametrization

Primitive	Parameter	Value
(1) MMR_REG_REQ		
service_mode	SERVICE_MODE_FULL	
(2) RR_ACTIVATE_REQ		
plmn	PLMN_123_33	
op	OP_MODE_SIM_NO_SERV	
cksn	CKSN_RES	
kcv	KCV_EMPTY	
acc	ACC_2143	
imsi	MOB_ID_IMSI	
tmsi	MOB_ID_NO_ID	
thplmn	THPLMN_01	
bcch_info	BCCH_INFO_ECL	
cell_test	CELL_TEST_DISABLE	
gprs_indic	GPRS_NO	
(3) RR_ACTIVATE_CNF		
op	OP_MODE_SIM	

mm_info	MM_INFO_2	
cid	CELL_ID_1122	
plmn	PLMN_123_33	
lac	LAC_2147	
power	RF_CLASS_2	
gprs_indic	GPRS_NO	
(4) MMR_REG_CNF		
plmn	PLMN_123_33	
(5) MMCC_ESTABLISH_REQ		
ti	TI_3	
<A>	prio	PRI0_EMERG_CALL
<A>	estcs	ESTCS_EMERG_CAL
	prio	PRI0_NORM_CALL
	estcs	
ESTCS_MOB_ORIG_SPCH_CAL_BY_CC		
(6) RR_ESTABLISH_REQ		
<A>	estcs	ESTCS_EMERG_CAL
	estcs	
ESTCS_MOB_ORIG_SPCH_CAL_BY_CC		
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_CM_SERV_REQ	
ti	TI_0	
<A>	cm_serv_type	ST_EMERGENCY
	cm_serv_type	ST_MOC
ciph_key_num	CIPH_KEY_NUM_RES	
mob_class_2	NOT_USED	
mob_id	MOB_IDENT_IMSI	
}		
(7) RR_ESTABLISH_CNF		
param	NOT_USED	
(8) RR_DATA_IND		
d1	NOT_USED	
d2	NOT_USED	
sdu		
{		
component	MM	
direction	DOWNLINK	
pd	D_CM_SERV_ACCEPT	
ti	TI_0	
}		
(9) MMCC_ESTABLISH_CNF		
ti	TI_3	
(10) MMCC_RELEASE_REQ		
ti	TI_3	
(11) RR_RELEASE_IND		
relcs	RELCS_NORM	
sapi	SAPI_0	
gprs_resumption	GPRS_RESUMPTION_NOT_ACK	
(12) MDL_RELEASE_REQ		
ch_type	NOT_PRESENT_8BIT	
sapi	SAPI_0	

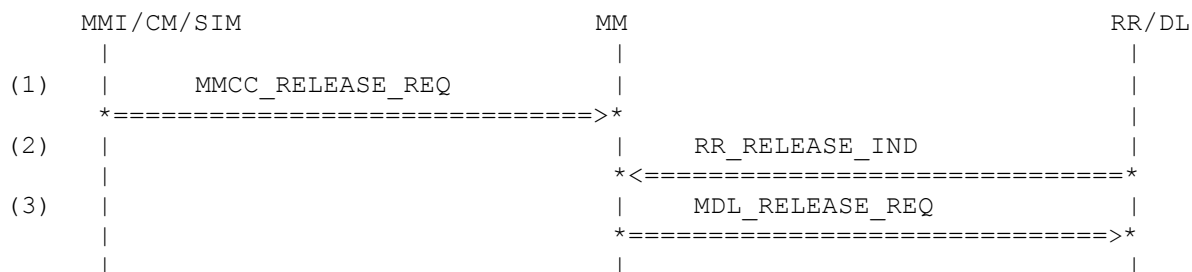
History:	22.07.97	HK	Initial
	02.03.00	HM	Revised (search_running)
	11.04.01	HM	Revised, now 2 subcases after
CFUN=4			

4.5 Connection Release

4.5.1 MM081: Release of Connection via MS

Description: Following the release of a connection M issues a MDL-RELEASE request primitive and returns to State 1 Idle Updated.

Preamble: MM043



Parametrization

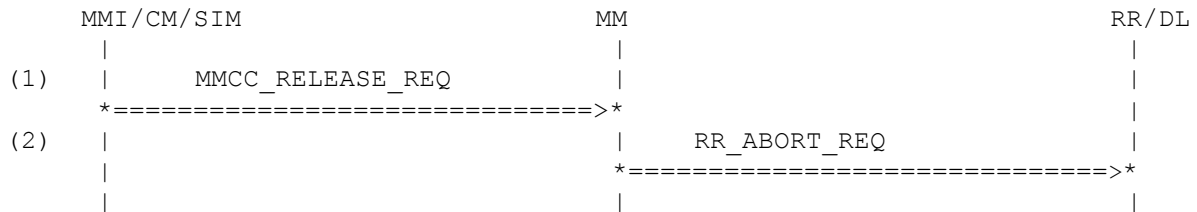
Primitive	Parameter	Value
(1) MMCC_RELEASE_REQ ti	TI_2	
(2) RR_RELEASE_IND relcs sapi gprs_resumption	RELCS_NORM SAPI_0 GPRS_RESUMPTION_NOT_ACK	
(3) MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	

History: 09.07.97 HK Initial

4.5.2 MM082: MMCC_REL_REQ in State 14

Description: MM receives a MMCC-RELEASE request primitive from CC before a RR connection has been made. MM issues a RR-ABORT request.

Preamble: MM041



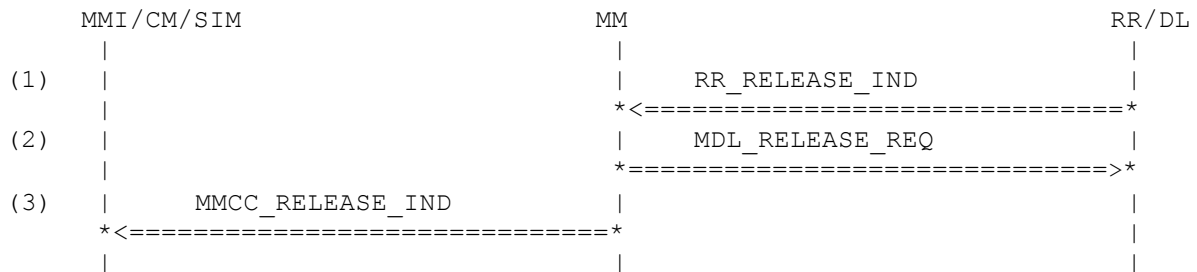
Parametrization

Primitive	Parameter	Value
(1) MMCC_RELEASE_REQ ti	TI_2	
(2) RR_ABORT_REQ abcs	ABCS_NORM	
History:	10.07.97	HK Initial

4.5.3 MM083: Release of Connection via BS

Description: MM receives a RR-RELEASE request primitive from RR. MM issues a a MDL-RELEASE request primitive to DL followed by a MMCC-RELEASE request primitive.

Preamble: MM043



Parametrization

Primitive	Parameter	Value
(1) RR_RELEASE_IND		
relcs	RELCS_NORM	
sapi	SAPI_0	
gprs_resumption	GPRS_RESUMPTION_NOT_ACK	
(2) MDL_RELEASE_REQ		
ch_type	NOT_PRESENT_8BIT	
sapi	SAPI_0	
(3) MMCC_RELEASE_IND		
ti	TI_2	
relcs	RELCS_NORM	
History:	09.07.97	HK Initial

4.6 Location Updating

4.6.1 MM101: MS in new Location Area

Description: A new location area is signalled to MM in the form of a RR-ACTIVATE confirmation primitive. MM starts normal Location Updating by issuing a LOCATION UPDATING REQ message as part of a RR-ESTABLISH request primitive and enters State 13 (Wait for RR-Connection - Location Updating).

Preamble: MM023A

MMI / CM	MM	RR / DL
(1)	RR_ACTIVATE_CNF	
(2)	MMR_REG_CNF	
(3)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	

Parametrization

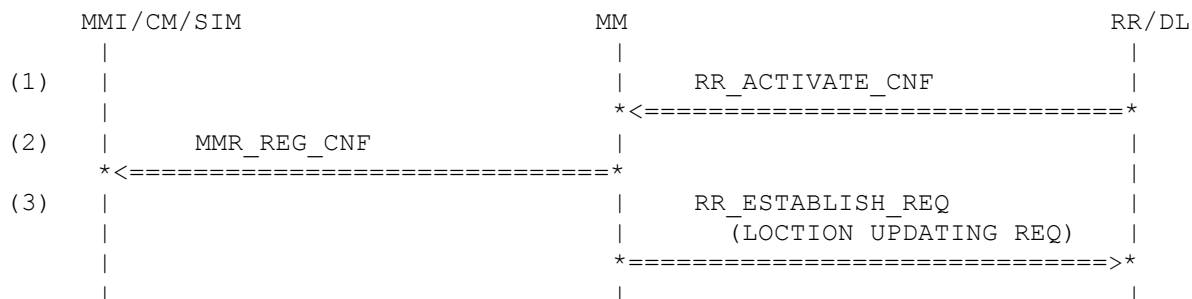
Primitive	Parameter	Value
(1) RR_ACTIVATE_CNF		
op	OP_MODE_SIM	
mm_info	MM_INFO	
cid	CELL_ID_1122	
plmn	PLMN_123_33	
lac	LAC_0002	
power	RF_CLASS_2	
gprs_indic	GPRS_NO	
(2) MMR_REG_CNF		
plmn	PLMN_123_33	
(3) RR_ESTABLISH_REQ		
estcs	ESTCS_SERV_REQ_BY_MM	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_LOC_UPD_REQ	
ti	TI_0	
loc_upd_type	LOC_UPD_TYPE_NORMAL	
ciph_key_num	CIPH_KEY_NUM_RES	
loc_area_ident	LOC_AREA_ID_123_33_2147	
mob_class_1	MOB_CLASS_1	
mob_id	MOB_IDENT_IMSI	
}		

History: 07.07.97 HK Initial

4.6.2 MM102: New LAI with Periodic Updating

Description: A new location area is signalled to MM in the form of a RR-ACTIVATE confirmation primitive. MM starts normal Location Updating by issuing a LOCATION UPDATING REQ message as part of a RR-ESTABLISH request primitive and enters State 13 (Wait for RR-Connection - Location Updating).

Preamble: MM023A



Parametrization

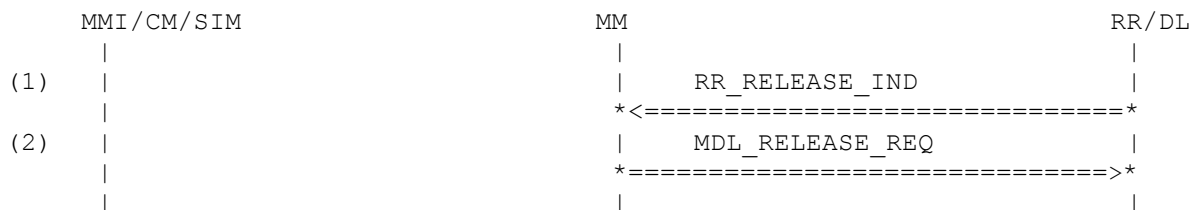
Primitive	Parameter	Value
(1) RR_ACTIVATE_CNF		
op	OP_MODE_TEST_SIM	
mm_info	MM_INFO_2	
cid	CELL_ID_1122	
plmn	PLMN_123_33	
lac	LAC_0001	
power	RF_CLASS_2	
gprs_indic	GPRS_NO	
(2) MMR_REG_CNF		
plmn	PLMN_123_33	
(3) RR_ESTABLISH_REQ	estcs	ESTCS_SERV_REQ_BY_MM
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_LOC_UPD_REQ	
ti	TI_0	
loc_upd_type	LOC_UPD_TYPE_NORMAL	
ciph_key_num	CIPH_KEY_NUM_RES	
loc_area_ident	LOC_AREA_ID_123_33_2147	
mob_class_1	MOB_CLASS_1	
mob_id	MOB_IDENT_IMSI	
}		

History:	08.07.97	HK	Initial
	04.08.97	DL	Revised

4.6.3 MM103: Access classes barred in State 13

Description: MM receives a RR-RELEASE indication primitive from RR; normal Location Updating cannot be carried out because the access classes in the chosen cell are barred. MM issues a MDL-RELEASE request primitive and changes to State 19.2 (Idle Attempting to Update).

Preamble: MM101



Parametrization

Primitive	Parameter	Value
(1) RR_RELEASE_IND		
relcs	RELCS_ACCESS_BARRED	
sapi	SAPI_0	
gprs_resumption	GPRS_RESUMPTION_NOT_ACK	
(2) MDL_RELEASE_REQ		
ch_type	NOT_PRESENT_8BIT	
sapi	SAPI_0	

History:	09.07.97	HK	Initial
----------	----------	----	---------

4.6.4 MM104: Random access delayed in State 13

Description: MM receives a RR-RELEASE indication primitive from RR; Normal Location Updating cannot be carried out because of random access delay. MM issues a MDL-RELEASE request primitive.

Preamble: MM101

	MMI / CM / SIM	MM	RR / DL
(1)		RR_RELEASE_IND	
		<=====	
(2)		MDL_RELEASE_REQ	
		=====>	

Parametrization

Primitive	Parameter	Value
(1) RR_RELEASE_IND		
relcs	RELCS_RND_ACC_DELAY	
sapi	SAPI_0	
gprs_resumption	GPRS_RESUMPTION_NOT_ACK	
(2) MDL_RELEASE_REQ		
ch_type	NOT_PRESENT_8BIT	
sapi	SAPI_0	

History: 09.07.97 HK Initial

4.6.5 MM105: Successful Location Updating

Description: Successful registration of the mobile station is signalled by the base station in the form of a RR-ESTABLISH confirmation primitive and the receipt of a LOCTION UPDATING ACC message. MM changes to State 9 (Wait for Network Command) and issues a TMSI REALLOC COMPLETE message followed by a RR-SYNC request, a MMR-REG confirmation and a SIM-MM-UPDATE request primitive.

Preamble: MM101

	MMI / CM / SIM	MM	RR / DL
(1)		RR_ESTABLISH_CNF	
		*<=====	
(2)		RR_DATA_IND	
		(LOCTION UPDATING ACC)	
		*<=====	
(3)		RR_DATA_REQ	
		(TMSI REALLOC COMPLETE)	
		*=====>	
(4)		RR_SYNC_REQ	
		*=====>	
(5)		RR_SYNC_REQ	
		*=====>	
(6)	SIM_MM_UPDATE_REQ		
	*<=====		
(7)		RR_RELEASE_IND	
		*<=====	
(8)		MDL_RELEASE_REQ	
		*=====>	

Parametrization

Primitive	Parameter	Value
(1) RR_ESTABLISH_CNF		
param	NOT_USED	
(2) RR_DATA_IND		
d1	NOT_USED	
d2	NOT_USED	
sdu		
{		
component	MM	
direction	DOWNLINK	
pd	D_LOC_UPD_ACCEPT	
ti	TI_0	
loc_area_ident	LOC_AREA_ID_123_33_0002	
mob_id	MOB_IDENT_NEW_TMSI	
follow_proceed	NOT_USED	
}		
(3) RR_DATA_REQ		
d1	NOT_USED	
d2	NOT_USED	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_TMSI_REALLOC_COMP	
ti	TI_0	
}		

(4) RR_SYNC_REQ		
op		NOT_USED
cksn		NOT_USED
kcv		NOT_USED
tmsi		MOB_ID_NEW_TMSI
plmn		NOT_USED
lac		NOT_USED
synccs		NOT_USED
accc		NOT_USED
thplmn		NOT_USED
(5) RR_SYNC_REQ		
op		NOT_USED
cksn		NOT_USED
kcv		NOT_USED
tmsi		NOT_USED
plmn		PLMN_123_33
lac		LAC_0002
synccs		SYNCCS_LAI_ALLOW
accc		NOT_USED
thplmn		NOT_USED
(6) SIM_MM_UPDATE_REQ		
loc_info		LOC_INFO_UPDATED_3
bcch_inf		BCCH_INF_1
forb_plmn		NOT_USED
cksn		CKSN_RES
kc		KC_DELETED_SIM
cell_identity		CELL_ID_1122
(7) RR_RELEASE_IND		
relcs		RELCS_NORM
sapi		SAPI_0
gprs_resumption		GPRS_RESUMPTION_NOT_ACK
(8) MDL_RELEASE_REQ		
ch_type		NOT_PRESENT_8BIT
sapi		SAPI_0

History:	08.07.97	HK	Initial
	31.07.97	DL	Revised
	12.08.97	HK	Revised
	30.05.00	HM	Revised

4.6.6 MM106: Location Accept without Mobile Identity

Description: Successful registration of the mobile station is signalled by the base station in the form of a RR-ESTABLISH confirmation primitive. MM changes to State 9 (Wait for Network Command) and issues a LOCTION UPDATING ACC message (without Mobile Identity) followed by a RR-SYNC request, a MMR-REG confirmation and a SIM-MM-UPDATE request primitive. Following receipt of a RR-RELEASE indication primitive, MM issues a MDL-RELEASE request primitive.

Preamble: MM101

	MMI / CM / SIM	MM	RR / DL
(1)		RR_ESTABLISH_CNF	
		<=====	
(2)		RR_DATA_IND	
		(LOCTION UPDATING ACC)	
		<=====	
(3)		RR_SYNC_REQ	
		=====>	
(4)	SIM_MM_UPDATE_REQ		
	<=====		
(5)		RR_RELEASE_IND	
		<=====	
(6)	MDL_RELEASE_REQ		
	<=====		

Parametrization

Primitive	Parameter	Value
(1) RR_ESTABLISH_CNF param	NOT_USED	
(2) RR_DATA_IND d1 d2 sdu { component direction pd ti loc_area_ident mob_id follow_proceed }	NOT_USED NOT_USED NOT_USED MM DOWNLINK D_LOC_UPD_ACCEPT TI_0 LOC_AREA_ID_123_33_0002 NOT_USED NOT_USED	
(3) RR_SYNC_REQ op cksn kcv tmsi plmn lac synccs acc thplmn	NOT_USED NOT_USED NOT_USED NOT_USED PLMN_123_33 LAC_0002 SYNCCS_LAI_ALLOW NOT_USED NOT_USED	
(4) SIM_MM_UPDATE_REQ loc_info	LOC_INFO_UPDATED_2	

bcch_inf	BCCH_INF_1
forb_plmn	NOT_USED
cksn	CKSN_RES
kc	KC_DELETED_SIM
cell_identity	CELL_ID_1122
(5) RR_RELEASE_IND	
relcs	RELCS_NORM
sapi	SAPI_0
gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(6) MDL_RELEASE_REQ	
ch_type	NOT_PRESENT_8BIT
sapi	SAPI_0

History: 10.07.97 HK Initial

4.6.7 MM606: Location Accept with empty Mobile Identity

Description: Same testcase as 106, but uses special coding of Anite-System, which shall be accepted by MM.

Preamble: MM101

	MMI/CM/SIM	MM	RR/DL
(1)		RR_ESTABLISH_CNF	
		<=====	
(2)		RR_DATA_IND	
		(LOCATION UPDATING ACC)	
		<=====	
(3)		RR_SYNC_REQ	
		=====>	
(4)	SIM_MM_UPDATE_REQ		
	<=====		
(5)		RR_RELEASE_IND	
		<=====	
(6)	MDL_RELEASE_REQ		
	<=====		

Parametrization

	Primitive	Parameter	Value
(1)	RR_ESTABLISH_CNF param	NOT_USED	
(2)	RR_DATA_IND d1 d2 sdu	NOT_USED NOT_USED LOC_UPD_ACCEPT_2	
(3)	RR_SYNC_REQ op cksn kcv tmsi plmn lac syncacs acc thplmn	NOT_USED NOT_USED NOT_USED NOT_USED PLMN_123_33 LAC_0002 SYNCCS_LAI_ALLOW NOT_USED NOT_USED	
(4)	SIM_MM_UPDATE_REQ loc_info bcch_inf forb_plmn cksn kc cell_identity	LOC_INFO_UPDATED_2 BCCH_INF_1 NOT_USED CKSN_RES KC_DELETED_SIM CELL_ID_1122	
(5)	RR_RELEASE_IND relcs sapi gprs_resumption	RELCS_NORM SAPI_0 GPRS_RESUMPTION_NOT_ACK	
(6)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	

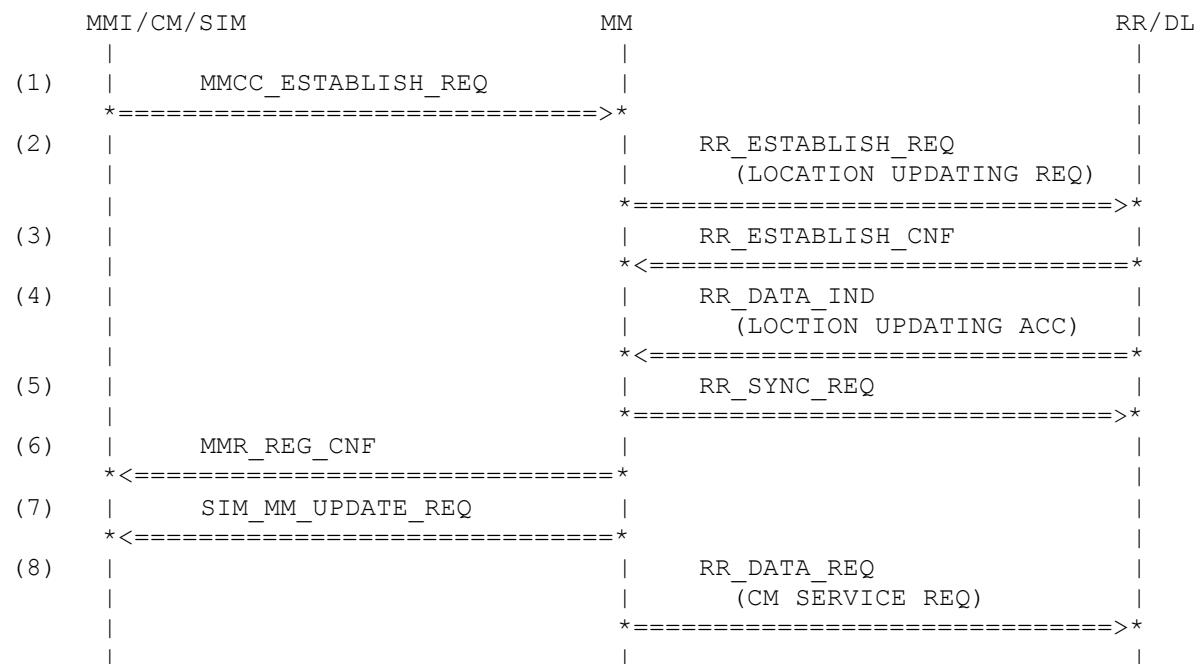
History: 10.07.97 HK Initial

4.6.8 MM907: Location Updating triggered by Normal Call in Idle State 19.2

Description: MM receives an establishment request from CC while in State 19.2 (Idle Attempting to Update). It starts a location updating. The location updating accept does contain the follow on proceed indication and the call attempt is started.

Preamble: MM112

Variants: <A>...<D>



Parametrization

Primitive	Parameter	Value
(7) MMCC_ESTABLISH_REQ		
ti	TI_3	
prio	PRIQ_NORM_CALL	
estcs	ESTCS_MOB_ORIG_DATA	
(8) RR_ESTABLISH_REQ		
estcs	ESTCS_SERV_REQ_BY_MM	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_LOC_UPD_REQ	
ti	TI_0	
loc_upd_type	LOC_UPD_TYPE_NORMAL_FOL	
ciph_key_num	CIPH_KEY_NUM_RES	
loc_area_ident	LOC_AREA_ID_123_33_FEFF	
mob_class_1	MOB_CLASS_1	
mob_id	MOB_IDENT_IMSI	
}		
(9) RR_ESTABLISH_CNF		
param	NOT_USED	

(10)	RR_DATA_IND	
d1	NOT_USED	
d2	NOT_USED	
<A>	sdu	LOC_UPD_ACCEPT_3
	sdu	LOC_UPD_ACCEPT_4
<C>	sdu	LOC_UPD_ACCEPT_5
<D>	sdu	LOC_UPD_ACCEPT_6
(11)	RR_SYNC_REQ	
op	NOT_USED	
cksn	NOT_USED	
kcv	NOT_USED	
tmsi	NOT_USED	
plmn	PLMN_123_33	
lac	LAC_0002	
syncchs	SYNCCS_LAI_ALLOW	
accc	NOT_USED	
thplmn	NOT_USED	
(12)	MMR_REG_CNF	
plmn	PLMN_123_33	
(13)	SIM_MM_UPDATE_REQ	
loc_info	LOC_INFO_UPDATED_2	
bcch_inf	BCCH_INF_1	
forb_plmn	NOT_USED	
cksn	CKSN_RES	
kc	KC_DELETED_SIM	
cell_identity	CELL_ID_1122	
(14)	RR_DATA_REQ	
d1	NOT_USED	
d2	NOT_USED	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_CM_SERV_REQ	
ti	TI_0	
cm_serv_type	ST_MOC	
ciph_key_num	CIPH_KEY_NUM_RES	
mob_class_2	MOB_CLASS_2	
mob_id	MOB_IDENT_IMSI	
}		

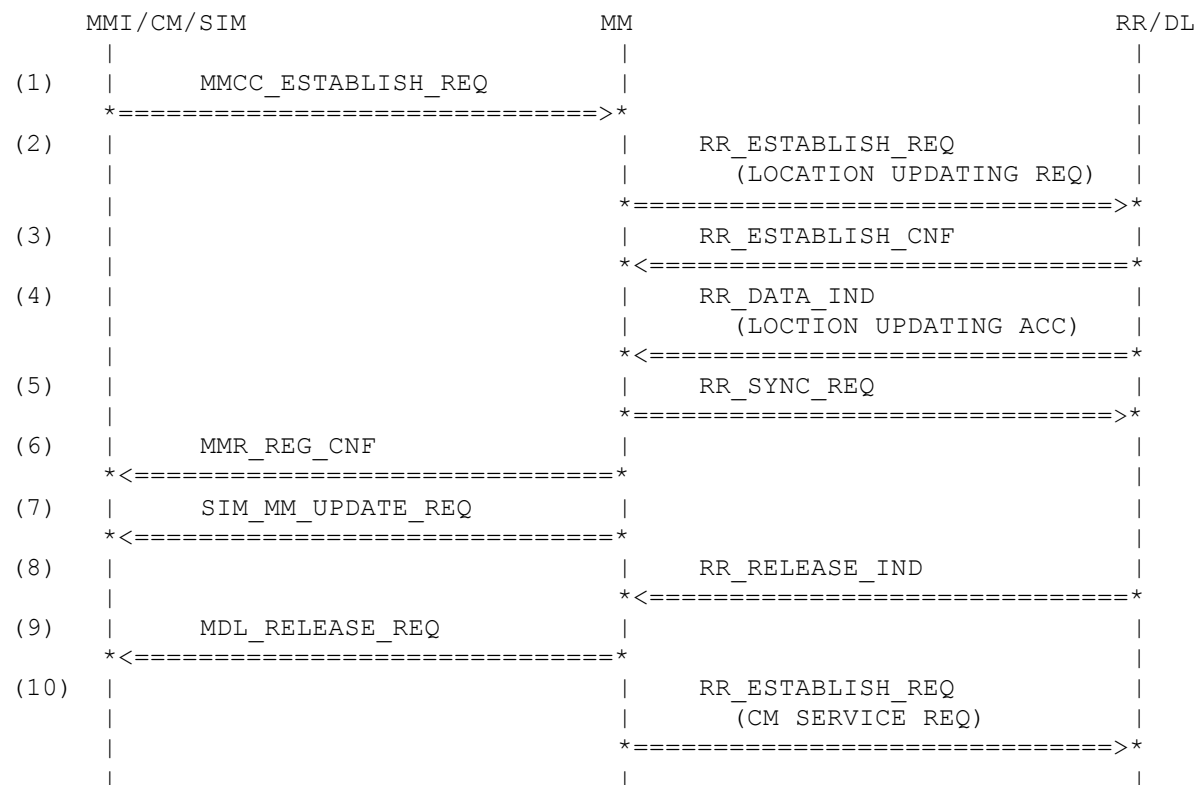
History: 09.07.97 HK Initial

4.6.9 MM908: Location Updating triggered by Normal Call in Idle State 19.2

Description: MM receives an establishment request from CC while in State 19.2 (Idle Attempting to Update). It starts a location updating. The location updating accept does not contain the follow on proceed indication and the call attempt is released.

Preamble: MM112

Variants: <A>...<D>



Parametrization

Primitive	Parameter	Value
(1) MMCC_ESTABLISH_REQ		
ti	TI_3	
prio	PRIORITY_CALL	
estcs	ESTCS_MOB_ORIG_DATA	
(2) RR_ESTABLISH_REQ		
estcs	ESTCS_SERV_REQ_BY_MM	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_LOC_UPD_REQ	
ti	TI_0	
loc_upd_type	LOC_UPD_TYPE_NORMAL_FOL	
ciph_key_num	CIPH_KEY_NUM_RES	
loc_area_ident	LOC_AREA_ID_123_33_FEFF	
mob_class_1	MOB_CLASS_1	
mob_id	MOB_IDENT_IMSI	
}		

(3)	RR_ESTABLISH_CNF param	NOT_USED	
(4)	RR_DATA_IND d1 d2 <A> <C> <D>	NOT_USED NOT_USED sdu sdu sdu sdu	LOC_UPD_ACCEPT_3_B LOC_UPD_ACCEPT_4_B LOC_UPD_ACCEPT_5_B LOC_UPD_ACCEPT_6_B
(5)	RR_SYNC_REQ op cksn kcv tmsi plmn lac synccs accc thplmn	NOT_USED NOT_USED NOT_USED NOT_USED PLMN_123_33 LAC_0002 SYNCCS_LAI_ALLOW NOT_USED NOT_USED	
(6)	MMR_REG_CNF plmn	PLMN_123_33	
(7)	SIM_MM_UPDATE_REQ loc_info bcch_inf forb_plmn cksn kc cell_identity	LOC_INFO_UPDATED_2 BCCH_INF_1 NOT_USED CKSN_RES KC_DELETED_SIM CELL_ID_1122	
(8)	RR_RELEASE_IND relcs sapi gprs_resumption	RELCS_NORM SAPI_0 GPRS_RESUMPTION_NOT_ACK	
(9)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(10)	estcs sdu { component direction pd ti cm_serv_type ciph_key_num mob_class_2 mob_id }	RR_ESTABLISH_REQ ESTCS_MOB_ORIG_DATA MM UPLINK U_CM_SERV_REQ TI_0 ST_MOC CIPH_KEY_NUM_RES MOB_CLASS_2 MOB_IDENT_IMSI	

History: 09.07.97 HK Initial

4.6.10 MM107: Connection request stored until Location Updating complete

Description: MM receives a MMCC-ESTABLISH request primitive from MM and a RR-ESTABLISH confirmation primitive from RR. MM stores the connection request until Location Updating has been completed. The mobile-terminated call is then processed (RR-SYNC request, MMR-REG confirmation primitive). Following completion of the MOT in the form of a RR-RELEASE indication primitive, RR releases the requested connection. After having completely released the RR connection, this is reestablished immediately to satisfy the pending connection request. For this test, a TEST SIM is inserted into the mobile.

Preamble: MM115

	MMI / CM / SIM	MM	RR / DL
(1)			
	MMCC_ESTABLISH_REQ		
	=====>		
(2)		RR_ESTABLISH_CNF	
		<=====	
(3)		RR_DATA_IND	
		(LOCATION UPDATING ACC)	
		<=====	
(4)		RR_DATA_REQ	
		(TMSI REALLOC COMPLETE)	
		=====>	
(5)		RR_SYNC_REQ	
		=====>	
(6)		RR_SYNC_REQ	
		=====>	
(7)	MMR_REG_CNF		
	<=====		
(8)	SIM_MM_UPDATE_REQ		
	<=====		
(9)		RR_RELEASE_IND	
		<=====	
(10)		MDL_RELEASE_REQ	
		=====>	
(11)		RR_ESTABLISH_REQ	
		(CM SERVICE REQUEST)	
		=====>	

Parametrization

Primitive	Parameter	Value
(1) MMCC_ESTABLISH_REQ		
ti	TI_4	
prio	PRIOR_NORM_CALL	
estcs	ESTCS_MOB_ORIG_SPCH	
(2) RR_ESTABLISH_CNF		
param	NOT_USED	
(3) RR_DATA_IND		
d1	NOT_USED	
d2	NOT_USED	
sdu		
{		
component	MM	
direction	DOWNLINK	
pd	D_LOC_UPD_ACCEPT	

ti	TI_0
loc_area_ident	LOC_AREA_ID_123_33_0002
mob_id	MOB_IDENT_NEW_TMSI
follow_proceed	NOT_USED
}	
(4) RR_DATA_REQ	
d1	NOT_USED
d2	NOT_USED
sdu	
{	
component	MM
direction	UPLINK
pd	U_TMSI_REALLOC_COMP
ti	TI_0
}	
(5) RR_SYNC_REQ	
op	NOT_USED
cksn	NOT_USED
kcv	NOT_USED
tmsi	MOB_ID_NEW_TMSI
plmn	NOT_USED
lac	NOT_USED
synccs	NOT_USED
accc	NOT_USED
thplmn	NOT_USED
(6) RR_SYNC_REQ	
op	NOT_USED
cksn	NOT_USED
kcv	NOT_USED
tmsi	NOT_USED
plmn	PLMN_123_33
lac	LAC_0002
synccs	SYNCCS_LAI_ALLOW
accc	NOT_USED
thplmn	NOT_USED
(7) MMR_REG_CNF	
plmn	PLMN_123_33
(8) SIM_MM_UPDATE_REQ	
loc_info	LOC_INFO_UPDATED_3
bcch_inf	BCCH_INF_1
forb_plmn	NOT_USED
cksn	CKSN_RES
kc	KC_DELETED_SIM
cell_identity	CELL_ID_1122
(9) RR_RELEASE_IND	
relcs	RELCS_UNSPECIFIED
sapi	SAPI_0
gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(10) MDL_RELEASE_REQ	
ch_type	NOT_PRESENT_8BIT
sapi	SAPI_0
(11) RR_ESTABLISH_REQ	
estcs	ESTCS_MOB_ORIG_SPCH_CAL_BY_CC
sdu	
{	

component	MM
direction	UPLINK
pd	U_CM_SERV_REQ
ti	TI_0
cm_serv_type	ST_MOC
ciph_key_num	CIPH_KEY_NUM_RES
mob_class_2	MOB_CLASS_2
mob_id	MOB_IDENT_TMSI
}	

History:	15.09.97	DL	Initial
	16.02.00	HM	Revised

4.6.11 MM108: Location Updating Reject (PLMN not allowed)

Description: A request for a RR connection for Location Updating is confirmed in the form of a RR-ESTABLISH confirmation primitive. MM changes to State 3 (Location Updating initiated). MM is then notified in the form of a LOCATION-UPDATING-REJECT message that PLMN roaming is not allowed for the mobile station. MM releases the RR connection by issuing a MDL-RELEASE request primitive and changes to State 11 (Idle Roaming not allowed). The PLMN for which the LOCATION UPDATING REJECT with cause PLMN NOT ALLOWED received is the HPLMN, thus it will *not* be added to the forbidden list.

Preamble: MM101

	MMI / CM / SIM	MM	RR / DL
(1)		RR_ESTABLISH_CNF	
		<=====	
(2)		RR_DATA_IND	
		(LOCATION UPDATING REJ)	
		<=====	
(3)		RR_RELEASE_IND	
		<=====	
(4)		MDL_RELEASE_REQ	
		=====>	
(5)		RR_SYNC_REQ	
		=====>	
(6)	SIM_MM_UPDATE_REQ		
	<=====		
(7)	MMR_NREG_IND		
	<=====		

Parametrization

	Primitive	Parameter	Value
(4)	RR_ESTABLISH_CNF param	NOT_USED	
(5)	RR_DATA_IND d1 d2 sdu { component direction pd ti rej_cause }	NOT_USED NOT_USED MM DOWNLINK D_LOC_UPD_REJ TI_0 RC_PLMN_NOT_ALLOWED	
(6)	RR_RELEASE_IND relcs sapi gprs_resumption	RELCS_NORM SAPI_0 GPRS_RESUMPTION_NOT_ACK	
(7)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(8)	RR_SYNC_REQ op	NOT_USED	

	cksn	NOT_USED	
	kcv	NOT_USED	
	tmsi	NOT_USED	
	plmn	NOT_USED	
	lac	NOT_USED	
	syncs	SYNCCS_TMSI_CKSN_KC_INVALID	
	accc	NOT_USED	
	thplmn	NOT_USED	
(9)	SIM_MM_UPDATE_REQ		
	loc_info	LOC_INFO_PLMN_NOT_ALLOW	
	bcch_inf	NOT_USED	
	forb_plmn	NOT_USED	
	cksn	CKSN_RES	
	kc	KC_DELETED_SIM	
	cell_identity	CELL_ID_1122	
(10)	MMR_NREG_IND		
	nreg_cs	NREG_LIMITED_SERVICE	
	search_running	SEARCH_NOT_RUNNING	
	new_forb_plmn	PLMN_NO_ID	
	limited_cause	RC_PLMN_NOT_ALLOWED	
History:	09.07.97	HK	Initial
	04.08.97	DL	Revised
	02.03.00	HM	Revised (search_running)
	22.05.00	HM	Revised

4.6.12 MM109: Change of Area in Update Status U3

Description: MM receives a RR-ACTIVATE indication primitive indicating a change of location area while in Update Status U3 (Roaming not allowed). MM starts Location Updating by sending a LOCATION UPDATING REQ message. After completion of the Location Updating, MM is in State 1 (Idle updated).

Preamble: MM108

	MMI / CM / SIM	MM	RR / <DL
(1)		RR_ACTIVATE_IND	
		*<=====	
(2)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		*=====>	
(3)		RR_ESTABLISH_CNF	
		*<=====	
(4)		RR_DATA_IND	
		(LOCATION UPDATING ACC)	
		*<=====	
(5)		RR_DATA_REQ	
		(TMSI REALLOC COMPLETE)	
		*=====>	
(6)		RR_SYNC_REQ	
		*=====>	
(7)		RR_SYNC_REQ	
		*=====>	
(8)	MMR_REG_CNF		
	*<=====		
(9)	SIM_MM_UPDATE_REQ		
	*<=====		
(10)		RR_RELEASE_IND	
		*<=====	
(11)		MDL_RELEASE_REQ	
		*=====>	

Parametrization

Primitive	Parameter	Value
(1) RR_ACTIVATE_IND		
op	OP_MODE_SIM	
mm_info	MM_INFO	
cid	CELL_ID_1122	
plmn	PLMN_123_44	
lac	LAC_0002	
power	RF_CLASS_2	
gprs_indic	GPRS_NO	
(2) RR_ESTABLISH_REQ		
estcs	ESTCS_SERV_REQ_BY_MM	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_LOC_UPD_REQ	
ti	TI_0	
loc_upd_type	LOC_UPD_TYPE_NORMAL	
ciph_key_num	CIPH_KEY_NUM_RES	
loc_area_ident	LOC_AREA_ID_123_33_FEFF	

mob_class_1	MOB_CLASS_1
mob_id	MOB_IDENT_IMSI
}	
(3) RR_ESTABLISH_CNF	
param	NOT_USED
(4) RR_DATA_IND	
d1	NOT_USED
d2	NOT_USED
sdu	
{	
component	MM
direction	DOWNLINK
pd	D_LOC_UPD_ACCEPT
ti	TI_0
loc_area_ident	LOC_AREA_ID_123_44_0002
mob_id	MOB_IDENT_NEW_TMSI
follow_proceed	NOT_USED
}	
(5) RR_DATA_REQ	
d1	NOT_USED
d2	NOT_USED
sdu	
{	
component	MM
direction	UPLINK
pd	U_TMSI_REALLOC_COMP
ti	TI_0
}	
(6) RR_SYNC_REQ	
op	NOT_USED
cksn	NOT_USED
kcv	NOT_USED
tmsi	MOB_ID_NEW_TMSI
plmn	NOT_USED
lac	NOT_USED
synccs	NOT_USED
accc	NOT_USED
thplmn	NOT_USED
(7) RR_SYNC_REQ	
op	NOT_USED
cksn	NOT_USED
kcv	NOT_USED
tmsi	NOT_USED
plmn	NOT_USED
lac	LAC_0002
synccs	SYNCCS_LAI_ALLOW
accc	NOT_USED
thplmn	NOT_USED
(8) MMR_REG_CNF	
plmn	PLMN_44
(9) SIM_MM_UPDATE_REQ	
loc_info	LOC_INFO_UPDATED_44
bcch_inf	NOT_USED
forb_plmn	NOT_USED
cksn	CKSN_RES

	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122
(10)	RR_RELEASE_IND	
	relcs	RELCS_NORM
	sapi	SAPI_0
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(11)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0

History:	09.07.97	HK	Initial
	05.08.97	DL	Revised

4.6.13 MM110: Location Updating Reject (LAI roaming not allowed)

Description: While in Update Status U3 (Roaming not allowed) MM receives a RR-ESTABLISH confirmation primitive followed by a LOCATION UPDATING REJECT message indicating that LAI roaming is not permitted for the mobile station. MM releases the RR connection and then issues a SIM-MM-UPDATE request primitive.

Preamble: MM101

	MMI / CM / SIM	MM	RR / DL
(1)		RR_ESTABLISH_CNF	
		<=====	
(2)		RR_DATA_IND	
		(LOCATION UPDATING REJ)	
		<=====	
(3)		RR_RELEASE_IND	
		<=====	
(4)		MDL_RELEASE_REQ	
		=====>	
(5)		RR_SYNC_REQ	
		=====>	
(6)		RR_SYNC_REQ	
		=====>	
(7)	SIM_MM_UPDATE_REQ		
	<=====		
(8)	MMR_NREG_IND		
	<=====		

Parametrization

	Primitive	Parameter	Value
(12)	RR_ESTABLISH_CNF param	NOT_USED	
(13)	RR_DATA_IND d1 d2 sdu { component direction pd ti rej_cause }	NOT_USED NOT_USED MM DOWNLINK D_LOC_UPD_REJ TI_0 RC_LA_NOT_ALLOWED	
(14)	RR_RELEASE_IND relcs sapi gprs_resumption	RELCS_NORM SAPI_0 GPRS_RESUMPTION_NOT_ACK	
(15)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(16)	RR_SYNC_REQ op cksn kcv	NOT_USED NOT_USED NOT_USED	

tmsi	NOT_USED
plmn	NOT_USED
lac	NOT_USED
synccts	SYNCCS_LAI_NOT_ALLOW
accc	NOT_USED
thplmn	NOT_USED
(17) RR_SYNC_REQ	
op	NOT_USED
cksn	NOT_USED
kcv	NOT_USED
tmsi	NOT_USED
plmn	NOT_USED
lac	NOT_USED
synccts	SYNCCS_TMSI_CKSN_KC_INVALID
accc	NOT_USED
thplmn	NOT_USED
(18) SIM_MM_UPDATE_REQ	
loc_info	LOC_INFO_PLMN_NOT_ALLOW
bcch_inf	BCCH_INF_1
forb_plmn	NOT_USED
cksn	CKSN_RES
kc	KC_DELETED_SIM
cell_identity	CELL_ID_1122
(19) MMR_NREG_IND	
nreg_cs	NREG_LIMITED_SERVICE
search_running	SEARCH_NOT_RUNNING
new_forb_plmn	PLMN_NO_ID
limited_cause	RC_LA_NOT_ALLOWED

History:	09.07.97	HK	Initial
	05.08.97	DL	Revised
	02.03.00	HM	Revised (search_running)

4.6.14 MM111: New Location Area Code in Update Status U3

Description: In Update Status U3 (Roaming not allowed) MM is . A new Location Updating is started by a change of cell. After completion of Location Updating MM is once more in State U1 Idle Updated.

Preamble: MM110

	MMI / CM / SIM	MM	RR / DL
(1)		RR_ACTIVATE_IND	
		*<=====	
(2)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		*=====>	
(3)		RR_ESTABLISH_CNF	
		*<=====	
(4)		RR_DATA_IND	
		(LOCATION UPDATING ACC)	
		*<=====	
(5)		RR_DATA_REQ	
		(TMSI REALLOC COMPLETE)	
		*=====>	
(6)		RR_SYNC_REQ	
		*=====>	
(7)		RR_SYNC_REQ	
		*=====>	
(8)	MMR_REG_CNF		
	*<=====		
(9)	SIM_MM_UPDATE_REQ		
	*<=====		
(10)		RR_RELEASE_IND	
		*<=====	
(11)	MDL_RELEASE_REQ		
	*<=====		

Parametrization

Primitive	Parameter	Value
(1) RR_ACTIVATE_IND		
op	OP_MODE_SIM	
mm_info	MM_INFO	
cid	CELL_ID_1122	
plmn	PLMN_123_33	
lac	LAC_0001	
power	RF_CLASS_2	
gprs_indic	GPRS_NO	
(2) RR_ESTABLISH_REQ		
estcs	ESTCS_SERV_REQ_BY_MM	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_LOC_UPD_REQ	
ti	TI_0	
loc_upd_type	LOC_UPD_TYPE_NORMAL	
ciph_key_num	CIPH_KEY_NUM_RES	
loc_area_ident	LOC_AREA_ID_123_33_FEFF	

mob_class_1	MOB_CLASS_1
mob_id	MOB_IDENT_IMSI
}	
(3) RR_ESTABLISH_CNF	
param	NOT_USED
(4) RR_DATA_IND	
d1	NOT_USED
d2	NOT_USED
sdu	
{	
component	MM
direction	DOWNLINK
pd	D_LOC_UPD_ACCEPT
ti	TI_0
loc_area_ident	LOC_AREA_ID_123_33_0001
mob_id	MOB_IDENT_NEW_TMSI
follow_proceed	NOT_USED
}	
(5) RR_DATA_REQ	
d1	NOT_USED
d2	NOT_USED
sdu	
{	
component	MM
direction	UPLINK
pd	U_TMSI_REALLOC_COMP
ti	TI_0
}	
(6) RR_SYNC_REQ	
op	NOT_USED
cksn	NOT_USED
kcv	NOT_USED
tmsi	MOB_ID_NEW_TMSI
plmn	NOT_USED
lac	NOT_USED
synccs	NOT_USED
accc	NOT_USED
thplmn	NOT_USED
(7) RR_SYNC_REQ	
op	NOT_USED
cksn	NOT_USED
kcv	NOT_USED
tmsi	NOT_USED
plmn	PLMN_123_33
lac	LAC_0001
synccs	SYNCCS_LAI_ALLOW
accc	NOT_USED
thplmn	NOT_USED
(8) MMR_REG_CNF	
plmn	PLMN_123_33
(9) SIM_MM_UPDATE_REQ	
loc_info	LOC_INFO_UPDATED_4
bcch_inf	BCCH_INF_1
forb_plmn	NOT_USED
cksn	CKSN_RES

	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122
(10)	RR_RELEASE_IND	
	relcs	RELCS_NORM
	sapi	SAPI_0
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(11)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0

History: 09.07.97 HK Initial

4.6.15 MM112: Normal Location Updating rejected four times

Description: A Normal Location Updating has been started in Update Status 2 (Idle not updated). A LOCATION UPDATING REJ message is received and MM releases the RR connection, initiates synchronization with RR and request SIM for an update. This sequence is carried out four times; each attempt is rejected (LOCATION UPDATING REJ message). Following the fourth attempt MM remains in Update Status 2 (Idle not Updated) and issues a MMR-NREG indication primitive.

Preamble: MM101

	MMI / CM / SIM	MM	RR / DL
(1)		RR_ESTABLISH_CNF	
		*<=====	
(2)		RR_DATA_IND	
		(LOCATION UPDATING REJ)	
		*<=====	
(3)		RR_RELEASE_IND	
		*<=====	
(4)		MDL_RELEASE_REQ	
		*=====>	
(5)		RR_SYNC_REQ	
		*=====>	
(6)	SIM_MM_UPDATE_REQ		
	*<=====		
TIMEOUT (10000)			
(7)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		*=====>	
(8)		RR_ESTABLISH_CNF	
		*<=====	
(9)		RR_DATA_IND	
		(LOCATION UPDATING REJ)	
		*<=====	
(10)		RR_RELEASE_IND	
		*<=====	
(11)		MDL_RELEASE_REQ	
		*=====>	
(12)		RR_SYNC_REQ	
		*=====>	
(13)	SIM_MM_UPDATE_REQ		
	*<=====		
TIMEOUT (10000)			
(14)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		*=====>	
(15)		RR_ESTABLISH_CNF	
		*<=====	
(16)		RR_DATA_IND	
		(LOCATION UPDATING REJ)	
		*<=====	
(17)		RR_RELEASE_IND	
		*<=====	
(18)		MDL_RELEASE_REQ	
		*=====>	
(19)		RR_SYNC_REQ	
		*=====>	
(20)	SIM_MM_UPDATE_REQ		
	*<=====		
TIMEOUT (10000)			

```

(21) | | RR_ESTABLISH_REQ |
      | | (LOCATION UPDATING REQ) |
      | | *=====>*
(22) | | RR_ESTABLISH_CNF |
      | | *<=====*
(23) | | RR_DATA_IND |
      | | (LOCATION UPDATING REJ) |
      | | *<=====*
(24) | | RR_RELEASE_IND |
      | | *<=====*
(25) | | MDL_RELEASE_REQ |
      | | *=====>*
(26) | | RR_SYNC_REQ |
      | | *=====>*
(27) | | SIM_MM_UPDATE_REQ |
      | | *<=====*
(28) | | MMR_NREG_IND |
      | | *<=====*
      | |

```

Parametrization

Primitive	Parameter	Value
(1) RR_ESTABLISH_CNF param	NOT_USED	
(2) RR_DATA_IND d1 d2 sdu { component direction pd ti rej_cause }	NOT_USED NOT_USED MM DOWNLINK D_LOC_UPD_REJ TI_0 RC_UNSPECIFIED	
(3) RR_RELEASE_IND relcs sapi gprs_resumption	RELCS_ABNORM_UNSPEC SAPI_0 GPRS_RESUMPTION_NOT_ACK	
(4) MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(5) RR_SYNC_REQ op cksn kcv tmsi plmn lac synccs accc thplmn	NOT_USED NOT_USED NOT_USED NOT_USED NOT_USED NOT_USED SYNCCS_TMSI_CKSN_KC_INVAL NOT_USED NOT_USED	
(6) SIM_MM_UPDATE_REQ loc_info bcch_inf	LOC_INFO_123_33_FEFF BCCH_INF_2	

forb_plmn	NOT_USED
cksn	CKSN_NO_KEY
kc	KC_DELETED_SIM
cell_identity	CELL_ID_1122
(7) RR_ESTABLISH_REQ	
estcs	ESTCS_SERV_REQ_BY_MM
sdu	
{	
component	MM
direction	UPLINK
pd	U_LOC_UPD_REQ
ti	TI_0
loc_upd_type	LOC_UPD_TYPE_NORMAL
ciph_key_num	CIPH_KEY_NUM_RES
loc_area_ident	LOC_AREA_ID_123_33_FEFF
mob_class_1	MOB_CLASS_1
mob_id	MOB_IDENT_IMSI
}	
(8) RR_ESTABLISH_CNF	
param	NOT_USED
(9) RR_DATA_IND	
d1	NOT_USED
d2	NOT_USED
sdu	
{	
component	MM
direction	DOWNLINK
pd	D_LOC_UPD_REJ
ti	TI_0
rej_cause	RC_UNSPECIFIED
}	
(10) RR_RELEASE_IND	
relcs	RELCS_ABNORM_UNSPEC
sapi	SAPI_0
gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(11) MDL_RELEASE_REQ	
ch_type	NOT_PRESENT_8BIT
sapi	SAPI_0
(12) RR_SYNC_REQ	
op	NOT_USED
cksn	NOT_USED
kcv	NOT_USED
tmsi	NOT_USED
plmn	NOT_USED
lac	NOT_USED
synccs	SYNCCS_TMSI_CKSN_KC_INVAL
accc	NOT_USED
thplmn	NOT_USED
(13) SIM_MM_UPDATE_REQ	
loc_info	LOC_INFO_123_33_FEFF
bcch_inf	BCCH_INF_2
forb_plmn	NOT_USED
cksn	CKSN_NO_KEY
kc	KC_DELETED_SIM
cell_identity	CELL_ID_1122

(14)	RR_ESTABLISH_REQ	estcs sdu { component direction pd ti loc_upd_type ciph_key_num loc_area_ident mob_class_1 mob_id }	ESTCS_SERV_REQ_BY_MM MM UPLINK U_LOC_UPD_REQ TI_0 LOC_UPD_TYPE_NORMAL CIPH_KEY_NUM_RES LOC_AREA_ID_123_33_FEFF MOB_CLASS_1 MOB_IDENT_IMSI
(15)	RR_ESTABLISH_CNF	param	NOT_USED
(16)	RR_DATA_IND	d1 d2 sdu { component direction pd ti rej_cause }	NOT_USED NOT_USED MM DOWNLINK D_LOC_UPD_REQ TI_0 RC_UNSPECIFIED
(17)	RR_RELEASE_IND	relcs sapi gprs_resumption	RELCS_ABNORM_UNSPEC SAPI_0 GPRS_RESUMPTION_NOT_ACK
(18)	MDL_RELEASE_REQ	ch_type sapi	NOT_PRESENT_8BIT SAPI_0
(19)	RR_SYNC_REQ	op cksn kcv tmsi plmn lac synccs acc thplmn	NOT_USED NOT_USED NOT_USED NOT_USED NOT_USED NOT_USED SYNCCS_TMSI_CKSN_KC_INVALID NOT_USED NOT_USED
(20)	SIM_MM_UPDATE_REQ	loc_info bcch_inf forb_plmn cksn kc cell_identity	LOC_INFO_123_33_FEFF BCCH_INF_2 NOT_USED CKSN_NO_KEY KC_DELETED_SIM CELL_ID_1122
(21)	RR_ESTABLISH_REQ	estcs sdu {	ESTCS_SERV_REQ_BY_MM

	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti	TI_0
	loc_upd_type	LOC_UPD_TYPE_NORMAL
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_FEFF
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(22)	RR_ESTABLISH_CNF	
	param	NOT_USED
(23)	RR_DATA_IND	
	d1	NOT_USED
	d2	NOT_USED
	sdu	
	{	
	component	MM
	direction	DOWNLINK
	pd	D_LOC_UPD_REQ
	ti	TI_0
	rej_cause	RC_UNSPECIFIED
	}	
(24)	RR_RELEASE_IND	
	relcs	RELCS_ABNORM_UNSPEC
	sapi	SAPI_0
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(25)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(26)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	NOT_USED
	plmn	NOT_USED
	lac	NOT_USED
	syncchs	SYNCCS_TMSI_CKSN_KC_INVAL
	accc	NOT_USED
	thplmn	NOT_USED
(27)	SIM_MM_UPDATE_REQ	
	loc_info	LOC_INFO_123_33_FEFF
	bcch_inf	BCCH_INF_2
	forb_plmn	NOT_USED
	cksn	CKSN_NO_KEY
	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122
(28)	MMR_NREG_IND	
	nreg_cs	NREG_LIMITED_SERVICE
	search_running	SEARCH_NOT_RUNNING
	new_forb_plmn	PLMN_NO_ID
	limited_cause	RC_UNSPECIFIED
History:	09.07.97	HK Initial
	02.03.00	HM Revised (search_running)

4.6.16 MM113: Re-attempt after time-out Location updating timer

Description: MM enters state 19.2 (Idle Attempting to Update). The registration timer is started. After expiry, a normal location update attempt is started.

Preamble: MM409

MMI/CM/SIM	MM	RR/DL
COMMAND (MM CONFIG TIMER_SET=<T_REG, 25000>)		
(1)	RR_ESTABLISH_CNF	
	<=====	
(2)	RR_RELEASE_IND	
	<=====	
(3)	MDL_RELEASE_REQ	
	=====>	
TIMEOUT (10000)		
(4)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
	=====>	
(5)	RR_ESTABLISH_CNF	
	<=====	
(6)	RR_RELEASE_IND	
	<=====	
(7)	MDL_RELEASE_REQ	
	=====>	
TIMEOUT (10000)		
(8)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
	=====>	
(9)	RR_ESTABLISH_CNF	
	<=====	
(10)	RR_RELEASE_IND	
	<=====	
(11)	MDL_RELEASE_REQ	
	=====>	
(12)	RR_SYNC_REQ	
	=====>	
(13)	SIM_MM_UPDATE_REQ	
	<=====	
(14)	MMR_NREG_IND	
	<=====	
TIMEOUT (30000)		
(15)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
	=====>	

Parametrization

Primitive	Parameter	Value
(1) RR_ESTABLISH_CNF param	NOT_USED	
(2) RR_RELEASE_IND relcs sapi gprs_resumption	RELCS_NORM SAPI_0 GPRS_RESUMPTION_NOT_ACK	

(3)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0
(4)	RR_ESTABLISH_REQ estcs sdu { component direction pd ti loc_upd_type ciph_key_num loc_area_ident mob_class_1 mob_id }	ESTCS_SERV_REQ_BY_MM MM UPLINK U_LOC_UPD_REQ TI_0 LOC_UPD_TYPE_ATTACH CIPH_KEY_NUM_RES LOC_AREA_ID_123_33_2147 MOB_CLASS_1 MOB_IDENT_IMSI
(5)	RR_ESTABLISH_CNF param	NOT_USED
(6)	RR_RELEASE_IND relcs sapi gprs_resumption	RELCS_NORM SAPI_0 GPRS_RESUMPTION_NOT_ACK
(7)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0
(8)	RR_ESTABLISH_REQ estcs sdu { component direction pd ti loc_upd_type ciph_key_num loc_area_ident mob_class_1 mob_id }	ESTCS_SERV_REQ_BY_MM MM UPLINK U_LOC_UPD_REQ TI_0 LOC_UPD_TYPE_ATTACH CIPH_KEY_NUM_RES LOC_AREA_ID_123_33_2147 MOB_CLASS_1 MOB_IDENT_IMSI
(9)	RR_ESTABLISH_CNF param	NOT_USED
(10)	RR_RELEASE_IND relcs sapi gprs_resumption	RELCS_NORM SAPI_0 GPRS_RESUMPTION_NOT_ACK
(11)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0
(12)	RR_SYNC_REQ op cksn kcv tmsi	NOT_USED NOT_USED NOT_USED NOT_USED

	plmn	NOT_USED
	lac	NOT_USED
	syncs	SYNCCS_TMSI_CKSN_KC_INVALID
	accc	NOT_USED
	thplmn	NOT_USED
(13)	SIM_MM_UPDATE_REQ	
	loc_info	LOC_INFO_123_33_FEFF
	bcch_inf	NOT_USED
	forb_plmn	NOT_USED
	cksn	CKSN_RES
	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122
(14)	MMR_NREG_IND	
	nreg_cs	NREG_LIMITED_SERVICE
	search_running	SEARCH_NOT_RUNNING
	new_forb_plmn	PLMN_NO_ID
	limited_cause	MMR_RC_NONE
(15)	RR_ESTABLISH_REQ	
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti	TI_0
	loc_upd_type	LOC_UPD_TYPE_NORMAL
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_FEFF
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	

History:	09.07.97	HK	Initial
	26.01.01	HM	Revised

4.6.17 MM114: Re-attempt after fieldstrength jump

Description: MM enters state 19.2 (Idle Attempting to Update). RR indicates a fieldstrength jump and a re-attempt is started, if a SIM card, but no Test-SIM card is inserted.

Preamble: MM409

MMI/CM/SIM	MM	RR/DL
COMMAND (MM CONFIG TIMER_SET=<T_REG, 25000>)		
(1)	RR_ESTABLISH_CNF	
	*<=====	
(2)	RR_RELEASE_IND	
	*<=====	
(3)	MDL_RELEASE_REQ	
	*=====>	
TIMEOUT (10000)		
(4)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
	*=====>	
(5)	RR_ESTABLISH_CNF	
	*<=====	
(6)	RR_RELEASE_IND	
	*<=====	
(7)	MDL_RELEASE_REQ	
	*=====>	
TIMEOUT (10000)		
(8)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
	*=====>	
(9)	RR_ESTABLISH_CNF	
	*<=====	
(10)	RR_RELEASE_IND	
	*<=====	
(11)	MDL_RELEASE_REQ	
	*=====>	
(12)	RR_SYNC_REQ	
	*=====>	
(13)	SIM_MM_UPDATE_REQ	
	*<=====	
(14)	MMR_NREG_IND	
	*<=====	
TIMEOUT (1000)		
(15)	RR_SYNC_IND	
	*<=====	
(16)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
	*=====>	

Parametrization

Primitive	Parameter	Value
(3) RR_ESTABLISH_CNF param	NOT_USED	
(4) RR_RELEASE_IND relcs	RELCS_NORM	
sapi	SAPI_0	
gprs_resumption	GPRS_RESUMPTION_NOT_ACK	

(5)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(6)	RR_ESTABLISH_REQ	
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti	TI_0
	loc_upd_type	LOC_UPD_TYPE_ATTACH
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_2147
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(7)	RR_ESTABLISH_CNF	
	param	NOT_USED
(8)	RR_RELEASE_IND	
	relcs	RELCS_NORM
	sapi	SAPI_0
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(9)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(10)	RR_ESTABLISH_REQ	
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti	TI_0
	loc_upd_type	LOC_UPD_TYPE_ATTACH
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_2147
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(11)	RR_ESTABLISH_CNF	
	param	NOT_USED
(12)	RR_RELEASE_IND	
	relcs	RELCS_NORM
	sapi	SAPI_0
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(13)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(14)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	NOT_USED

	plmn	NOT_USED
	lac	NOT_USED
	synccs	SYNCCS_TMSI_CKSN_KC_INVALID
	accc	NOT_USED
	thplmn	NOT_USED
(15)	SIM_MM_UPDATE_REQ	
	loc_info	LOC_INFO_123_33_FEFF
	bcch_inf	NOT_USED
	forb_plmn	NOT_USED
	cksn	CKSN_RES
	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122
(16)	MMR_NREG_IND	
	nreg_cs	NREG_LIMITED_SERVICE
	search_running	SEARCH_NOT_RUNNING
	new_forb_plmn	PLMN_NO_ID
	limited_cause	MMR_RC_NONE
(17)	RR_SYNC_IND	
	ciph	NOT_USED
	mm_info	NOT_USED
	bcch_info	NOT_USED
	synccs	SYNCCS_LUP_RETRY
	chm	CHM_NOT_PRESENT
(18)	RR_ESTABLISH_REQ	
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti	TI_0
	loc_upd_type	LOC_UPD_TYPE_NORMAL
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_FEFF
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	

History:	09.07.97	HK	Initial
	26.01.01	HM	Revised

4.6.18 MM115: MS in new Location Area (TEST SIM inserted)

Description: A new location area is signalled to MM in the form of a RR-ACTIVATE confirmation primitive. MM starts normal Location Updating by issuing a LOCATION UPDATING REQ message as part of a RR-ESTABLISH request primitive and enters State 13 (Wait for RR-Connection - Location Updating).

Preamble: MM023B

	MMI / CM	MM	RR / DL
(1)		RR_ACTIVATE_CNF	
		<=====	
(2)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		=====>	

Parametrization

Primitive	Parameter	Value
(12) RR_ACTIVATE_CNF		
op	OP_MODE_SIM	
mm_info	MM_INFO	
cid	CELL_ID_1122	
plmn	PLMN_123_33	
lac	LAC_0002	
power	RF_CLASS_2	
gprs_indic	GPRS_NO	
(13) RR_ESTABLISH_REQ		
estcs	ESTCS_SERV_REQ_BY_MM	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_LOC_UPD_REQ	
ti TI_0		
loc_upd_type	LOC_UPD_TYPE_NORMAL	
ciph_key_num	CIPH_KEY_NUM_RES	
loc_area_ident	LOC_AREA_ID_123_33_2147	
mob_class_1	MOB_CLASS_1	
mob_id	MOB_IDENT_IMSI	
}		
History:	15.02.00	HM Initial

4.6.19 MM116: Location Updating Reject (PLMN not allowed), not HPLMN

Description: A request for a RR connection for Location Updating is confirmed in the form of a RR-ESTABLISH confirmation primitive. MM changes to State 3 (Location Updating initiated). MM is then notified in the form of a LOCATION-UPDATING-REJECT message that PLMN roaming is not allowed for the mobile station. MM releases the RR connection by issuing a MDL-RELEASE request primitive and changes to State 11 (Idle Roaming not allowed). The PLMN for which the LOCATION UPDATING REJECT with cause PLMN NOT ALLOWED received is *not* the HPLMN, thus it *will* be added to the forbidden list.

Preamble: MM105

MMI / CM / SIM TIMEOUT (20000)	MM	RR / DL
(1)	RR_ACTIVATE_IND *<=====*	
(2)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ) *=====>*	
(3)	RR_ESTABLISH_CNF *<=====*	
(4)	RR_DATA_IND (LOCATION UPDATING REJ) *<=====*	
(5)	RR_RELEASE_IND *<=====*	
(6)	MDL_RELEASE_REQ *=====>*	
(7)	RR_SYNC_REQ *=====>*	
(8)	RR_SYNC_REQ *=====>*	
(9)	SIM_MM_UPDATE_REQ *<=====*	
(10)	MMR_NREG_IND *<=====*	

Parametrization

Primitive	Parameter	Value
(1) RR_ACTIVATE_IND		
op	OP_MODE_SIM	
mm_info	MM_INFO	
cid	CELL_ID_1122	
plmn	PLMN_123_44	
lac	LAC_0002	
power	RF_CLASS_2	
gprs_indic	GPRS_NO	
(2) RR_ESTABLISH_REQ		
estcs	ESTCS_SERV_REQ_BY_MM	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_LOC_UPD_REQ	
ti	TI_0	
loc_upd_type	LOC_UPD_TYPE_NORMAL	

ciph_key_num	CIPH_KEY_NUM_RES
loc_area_ident	LOC_AREA_ID_123_33_0002
mob_class_1	MOB_CLASS_1
mob_id	MOB_IDENT_NEW_TMSI
}	
(3) RR_ESTABLISH_CNF	
param	NOT_USED
(4) RR_DATA_IND	
d1	NOT_USED
d2	NOT_USED
sdu	
{	
component	MM
direction	DOWNLINK
pd	D_LOC_UPD_REJ
ti	TI_0
rej_cause	RC_PLMN_NOT_ALLOWED
}	
(5) RR_RELEASE_IND	
relcs	RELCS_NORM
sapi	SAPI_0
gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(6) MDL_RELEASE_REQ	
ch_type	NOT_PRESENT_8BIT
sapi	SAPI_0
(7) RR_SYNC_REQ	
op	NOT_USED
cksn	NOT_USED
kcv	NOT_USED
tmsi	NOT_USED
plmn	NOT_USED
lac	NOT_USED
synccs	SYNCCS_LIMITED_SERVICE
acc	NOT_USED
thplmn	NOT_USED
(8) RR_SYNC_REQ	
op	NOT_USED
cksn	NOT_USED
kcv	NOT_USED
tmsi	NOT_USED
plmn	NOT_USED
lac	NOT_USED
synccs	SYNCCS_TMSI_CKSN_KC_INVALID
acc	NOT_USED
thplmn	NOT_USED
(9) SIM_MM_UPDATE_REQ	
loc_info	LOC_INFO_PLMN_NOT_ALLOW
bcch_inf	NOT_USED
forb_plmn	NOT_USED
cksn	CKSN_RES
kc	KC_DELETED_SIM
cell_identity	CELL_ID_1122
(10) MMR_NREG_IND	
nreg_cs	NREG_LIMITED_SERVICE
search_running	SEARCH_NOT_RUNNING

	new_forb_plmn	PLMN_123_44	
	limited_cause	RC_PLMN_NOT_ALLOWED	
History:	30.05.00	HM	Initial

4.6.20 MM117: Location Updating Reject (PLMN not allowed), mode AUTO

Description: The mobile station is requested to register in automatic mode. The HPLMN is not present. The first PLMN the mobile station tries to register is forbidden and newly entered into the forbidden PLMN list. Then the second found PLMN is tried. It is expected that the registration attempt into the second found PLMN works and we enter full service state.

PLMN_123_44 First found PLMN, forbidden

PLMN_123_31 Second found PLMN, allowed

Preamble: MM001

	MMI / CM / SIM	MM	RR / DL
(1)	SIM_MM_INSERT_IND		
	=====>		
(2)	MMR_REG_REQ		
	=====>		
(3)		RR_ACTIVATE_REQ	
		=====>	
(4)		RR_ABORT_IND	
		<=====	
(5)		MDL_RELEASE_REQ	
		=====>	
(6)	MMR_NREG_IND		
	<=====		
(7)		RR_ACTIVATE_REQ	
		=====>	
(8)		RR_ACTIVATE_CNF	
		<=====	
(9)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		=====>	
(10)		RR_ESTABLISH_CNF	
		<=====	
(11)		RR_DATA_IND	
		(LOCATION UPDATING REJ)	
		<=====	
(12)		RR_RELEASE_IND	
		<=====	
(13)		MDL_RELEASE_REQ	
		=====>	
(14)		RR_SYNC_REQ	
		=====>	
(15)		RR_SYNC_REQ	
		=====>	
(16)	SIM_MM_UPDATE_REQ		
	<=====		
(17)	MMR_NREG_IND		
	<=====		
(18)		RR_ACTIVATE_REQ	
		=====>	
(19)		RR_ACTIVATE_CNF	
		<=====	
(20)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		=====>	
(21)		RR_ESTABLISH_CNF	
		<=====	
(22)		RR_DATA_IND	
		(LOCATION UPDATING ACC)	

```

(23) |                                     *<=====
      |      RR_DATA_REQ                |
      |      (TMSI_REALLOC_COMPLETE)    |
      |                                     *=====>*
(24) |      RR_SYNC_REQ                  |
      |                                     *=====>*
(25) |      RR_SYNC_REQ                  |
      |                                     *=====>*
(26) |      MMR_REG_CNF                  |
      | *<=====                        |
(27) |      SIM_MM_UPDATE_REQ            |
      | *<=====                        |
(28) |      RR_RELEASE_IND                |
      | *<=====                        |
(29) |      MDL_RELEASE_REQ              |
      | *=====>*
      |

```

Parametrization

Primitive	Parameter	Value
(11) SIM_MM_INSERT_IND		
op_mode		NORMAL_SIM_INS
imsi_field		IMSI_FIELD_1
loc_info		LOC_INFO_UPDATED_1
acc_ctrl		ACC_CTRL_1
bcch_inf		BCCH_INF_1
kc_n		KC_EMPTY
pref_plmn		PREF_PLMN_NONE
forb_plmn		FORB_PLMN_NONE
phase		PHASE_2_SIM
hplmn		THPLMN_01
(12) MMR_REG_REQ		
service_mode		SERVICE_MODE_FULL
(13) RR_ACTIVATE_REQ		
plmn		PLMN_123_33
op		OP_MODE_SIM_NO_SERV
cksn		CKSN_RES
kcv		KCV_EMPTY
acc		ACC_2143
imsi		MOB_ID_IMSI
tmsi		MOB_ID_NO_ID
thplmn		THPLMN_01
bcch_info		BCCH_INFO_ECL
cell_test		CELL_TEST_DISABLE
gprs_indic		GPRS_NO
(14) RR_ABORT_IND		
op		OP_MODE_SIM
abcs		ABCS_CEL_SEL_FAIL
plmn_avail		TWO_PLMN_FOUND
plmn		PLMN_LIST_2_PLMN_1_NEW_FORB
rxlevel		RXLEVEL_20_18
power		RF_CLASS_2
(15) MDL_RELEASE_REQ		
ch_type		NOT_PRESENT_8BIT
sapi		SAPI_0

(16)	MMR_NREG_IND nreg_cs search_running new_forb_plmn limited_cause	NREG_LIMITED_SERVICE SEARCH_RUNNING PLMN_NO_ID MMR_RC_NONE
(17)	RR_ACTIVATE_REQ plmn op cksn kcv accc imsi tmsi thplmn bcch_info cell_test gprs_indic	PLMN_123_44 OP_MODE_SIM_NO_SERV CKSN_RES KCV_EMPTY ACC_2143 MOB_ID_IMSI MOB_ID_NO_ID THPLMN_01 BCCH_INFO_1 CELL_TEST_DISABLE GPRS_NO
(18)	RR_ACTIVATE_CNF op mm_info cid plmn lac power gprs_indic	OP_MODE_SIM MM_INFO CELL_ID_1122 PLMN_123_44 LAC_2147 RF_CLASS_2 GPRS_NO
(19)	RR_ESTABLISH_REQ estcs sdu { component direction pd ti loc_upd_type ciph_key_num loc_area_ident mob_class_1 mob_id }	ESTCS_SERV_REQ_BY_MM MM UPLINK U_LOC_UPD_REQ TI_0 LOC_UPD_TYPE_NORMAL CIPH_KEY_NUM_RES LOC_AREA_ID_123_33_2147 MOB_CLASS_1 MOB_IDENT_IMSI
(20)	RR_ESTABLISH_CNF param	NOT_USED
(21)	RR_DATA_IND d1 d2 sdu { component direction pd ti rej_cause }	NOT_USED NOT_USED MM DOWNLINK D_LOC_UPD_REJ TI_0 RC_PLMN_NOT_ALLOWED
(22)	RR_RELEASE_IND relcs sapi gprs_resumption	RELCS_NORM SAPI_0 GPRS_RESUMPTION_NOT_ACK

(23)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(24)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	NOT_USED
	plmn	NOT_USED
	lac	NOT_USED
	synccs	SYNCCS_LIMITED_SERVICE
	accc	NOT_USED
	thplmn	NOT_USED
(25)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	NOT_USED
	plmn	NOT_USED
	lac	NOT_USED
	synccs	SYNCCS_TMSI_CKSN_KC_INVAL
	accc	NOT_USED
	thplmn	NOT_USED
(26)	SIM_MM_UPDATE_REQ	
	loc_info	LOC_INFO_PLMN_NOT_ALLOW
	bcch_inf	NOT_USED
	forb_plmn	NOT_USED
	cksn	CKSN_RES
	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122
(27)	MMR_NREG_IND	
	nreg_cs	NREG_LIMITED_SERVICE
	search_running	SEARCH_RUNNING
	new_forb_plmn	PLMN_123_44
	limited_cause	RC_PLMN_NOT_ALLOWED
(28)	RR_ACTIVATE_REQ	
	plmn	PLMN_123_31
	op	OP_MODE_SIM_NO_SERV
	cksn	CKSN_RES
	kcv	KCV_EMPTY
	accc	ACC_2143
	imsi	MOB_ID_IMSI
	tmsi	MOB_ID_NO_ID
	thplmn	THPLMN_01
	bcch_info	BCCH_INFO_1
	cell_test	CELL_TEST_DISABLE
	gprs_indic	GPRS_NO
(29)	RR_ACTIVATE_CNF	
	op	OP_MODE_SIM
	mm_info	MM_INFO
	cid	CELL_ID_1122
	plmn	PLMN_123_31
	lac	LAC_0002
	power	RF_CLASS_2
	gprs_indic	GPRS_NO

(30)	RR_ESTABLISH_REQ	estcs sdu { component direction pd ti loc_upd_type ciph_key_num loc_area_ident mob_class_1 mob_id }	ESTCS_SERV_REQ_BY_MM MM UPLINK U_LOC_UPD_REQ TI_0 LOC_UPD_TYPE_NORMAL CIPH_KEY_NUM_RES LOC_AREA_ID_123_33_FEFF MOB_CLASS_1 MOB_IDENT_IMSI
(31)	RR_ESTABLISH_CNF	param	NOT_USED
(32)	RR_DATA_IND	d1 d2 sdu { component direction pd ti loc_area_ident mob_id follow_proceed }	NOT_USED NOT_USED MM DOWNLINK D_LOC_UPD_ACCEPT TI_0 LOC_AREA_ID_123_31_0002 MOB_IDENT_NEW_TMSI NOT_USED
(33)	RR_DATA_REQ	d1 d2 sdu { component direction pd ti }	NOT_USED NOT_USED MM UPLINK U_TMSI_REALLOC_COMP TI_0
(34)	RR_SYNC_REQ	op cksn kcv tmsi plmn lac synccs accc thplmn	NOT_USED NOT_USED NOT_USED MOB_ID_NEW_TMSI NOT_USED NOT_USED NOT_USED NOT_USED NOT_USED
(35)	RR_SYNC_REQ	op cksn kcv tmsi plmn lac	NOT_USED NOT_USED NOT_USED NOT_USED PLMN_123_31 LAC_0002

	synccs	SYNCCS_LAI_ALLOW	
	acc	NOT_USED	
	thplmn	NOT_USED	
(36)	MMR_REG_CNF		
	plmn	PLMN_123_31	
(37)	SIM_MM_UPDATE_REQ		
	loc_info	LOC_INFO_UPDATED_31_0002	
	bcch_inf	BCCH_INF_1	
	forb_plmn	NOT_USED	
	cksn	CKSN_RES	
	kc	KC_DELETED_SIM	
	cell_identity	CELL_ID_1122	
(38)	RR_RELEASE_IND		
	relcs	RELCS_NORM	
	sapi	SAPI_0	
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK	
(39)	MDL_RELEASE_REQ		
	ch_type	NOT_PRESENT_8BIT	
	sapi	SAPI_0	
History:	30.05.00	HM	Initial
	07.01.01	HM	Revised, updating now into selected
cell			

4.6.21 MM118: Location Updating Reject (IMSI unknown in HLR), mode AUTO

Description: The mobile station is requested to register in automatic mode. The HPLMN is not present. The first PLMN the mobile station tries to register sends LOCATION UPDATING REJECT with cause #2 (IMSI unknown in HLR). It is expected that no further registration attempt will be tried into the second found PLMN, even if an RR_ACTIVATE_IND with op_mode OP_MODE_SIM will be received.

PLMN_123_44 First found PLMN, sends reject with cause #2

PLMN_123_31 Second found PLMN

Preamble: MM001

	MMI / CM / SIM	MM	RR / DL
(1)	SIM_MM_INSERT_IND		
	=====>		
(2)	MMR_REG_REQ		
	=====>		
(3)		RR_ACTIVATE_REQ	
		=====>	
(4)		RR_ABORT_IND	
		<=====	
(5)		MDL_RELEASE_REQ	
		=====>	
(6)	MMR_NREG_IND		
	<=====		
(7)		RR_ACTIVATE_REQ	
		=====>	
(8)		RR_ACTIVATE_CNF	
		<=====	
(9)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		=====>	
(10)		RR_ESTABLISH_CNF	
		<=====	
(11)		RR_DATA_IND	
		(LOCATION UPDATING REJ)	
		<=====	
(12)		RR_RELEASE_IND	
		<=====	
(13)		MDL_RELEASE_REQ	
		=====>	
(14)		RR_SYNC_REQ	
		=====>	
(15)	SIM_MM_UPDATE_REQ		
	<=====		
(16)	MMR_NREG_IND		
	<=====		
TIMEOUT (5000)			
(17)		RR_ACTIVATE_IND	
		<=====	
(18)	MMR_NREG_IND		
	<=====		
TIMEOUT (5000)			
(19)	MMR_NREG_REQ		
	=====>		
(20)		MDL_RELEASE_REQ	
		=====>	
(21)		RR_DEACTIVATE_REQ	
		=====>	
(22)	MMR_NREG_CNF		

<=====

Parametrization

Primitive	Parameter	Value
(40) SIM_MM_INSERT_IND		
op_mode		NORMAL_SIM_INS
imsi_field		IMSI_FIELD_1
loc_info		LOC_INFO_UPDATED_1
acc_ctrl		ACC_CTRL_1
bcch_inf		BCCH_INF_1
kc_n		KC_EMPTY
pref_plmn		PREF_PLMN_NONE
forb_plmn		FORB_PLMN_NONE
phase		PHASE_2_SIM
hplmn		THPLMN_01
(41) MMR_REG_REQ		
service_mode		SERVICE_MODE_FULL
(42) RR_ACTIVATE_REQ		
plmn		PLMN_123_33
op		OP_MODE_SIM_NO_SERV
cksn		CKSN_RES
kcv		KCV_EMPTY
accc		ACC_2143
imsi		MOB_ID_IMSI
tmsi		MOB_ID_NO_ID
thplmn		THPLMN_01
bcch_info		BCCH_INFO_ECL
cell_test		CELL_TEST_DISABLE
gprs_indic		GPRS_NO
(43) RR_ABORT_IND		
op		OP_MODE_SIM
abcs		ABCS_CEL_SEL_FAIL
plmn_avail		TWO_PLMN_FOUND
plmn		PLMN_LIST_2_PLMN_1_NEW_FORB
rxlevel		RXLEVEL_20_18
power		RF_CLASS_2
(44) MDL_RELEASE_REQ		
ch_type		NOT_PRESENT_8BIT
sapi		SAPI_0
(45) MMR_NREG_IND		
nreg_cs		NREG_LIMITED_SERVICE
search_running		SEARCH_RUNNING
new_forb_plmn		PLMN_NO_ID
limited_cause		MMR_RC_NONE
(46) RR_ACTIVATE_REQ		
plmn		PLMN_123_44
op		OP_MODE_SIM_NO_SERV
cksn		CKSN_RES
kcv		KCV_EMPTY
accc		ACC_2143
imsi		MOB_ID_IMSI
tmsi		MOB_ID_NO_ID
thplmn		THPLMN_01
bcch_info		BCCH_INFO_1

	cell_test	CELL_TEST_DISABLE
	gprs_indic	GPRS_NO
(47)	RR_ACTIVATE_CNF	
	op	OP_MODE_SIM
	mm_info	MM_INFO
	cid	CELL_ID_1122
	plmn	PLMN_123_44
	lac	LAC_2147
	power	RF_CLASS_2
	gprs_indic	GPRS_NO
(48)	RR_ESTABLISH_REQ	
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti	TI_0
	loc_upd_type	LOC_UPD_TYPE_NORMAL
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_2147
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(49)	RR_ESTABLISH_CNF	
	param	NOT_USED
(50)	RR_DATA_IND	
	d1	NOT_USED
	d2	NOT_USED
	sdu	
	{	
	component	MM
	direction	DOWNLINK
	pd	D_LOC_UPD_REJ
	ti	TI_0
	rej_cause	RC_IMSI_IN_HLR
	}	
(51)	RR_RELEASE_IND	
	relcs	RELCS_NORM
	sapi	SAPI_0
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(52)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(53)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	NOT_USED
	plmn	NOT_USED
	lac	NOT_USED
	synccs	SYNCCS_TMSI_CKSN_KC_INVALID_NO_PAG
	accc	NOT_USED
	thplmn	NOT_USED

(54)	SIM_MM_UPDATE_REQ	
	loc_info	LOC_INFO_PLMN_NOT_ALLOW
	bcch_inf	NOT_USED
	forb_plmn	NOT_USED
	cksn	CKSN_RES
	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122
(55)	MMR_NREG_IND	
	nreg_cs	NREG_LIMITED_SERVICE
	search_running	SEARCH_NOT_RUNNING
	new_forb_plmn	PLMN_NO_ID
	limited_cause	RC_IMSI_IN_HLR
(56)	RR_ACTIVATE_IND	
	op	OP_MODE_SIM
	mm_info	MM_INFO
	cid	CELL_ID_1122
	plmn	PLMN_123_33
	lac	LAC_0001
	power	RF_CLASS_2
	gprs_indic	GPRS_NO
(57)	MMR_NREG_IND	
	nreg_cs	NREG_LIMITED_SERVICE
	search_running	SEARCH_NOT_RUNNING
	new_forb_plmn	PLMN_NO_ID
	limited_cause	RC_IMSI_IN_HLR
(58)	MMR_NREG_REQ	
	cs	CS_POW_OFF
(59)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(60)	RR_DEACTIVATE_REQ	
	param	NOT_USED
(61)	MMR_NREG_CNF	
	cs	CS_POW_OFF

History: **04.01.01** **HM** **Initial**

4.7 Identity Request

4.7.1 MM121: Identity Request during Location Updating

Description: Connection is confirmed in the form of a RR-ESTABLISH confirmation primitive, whereupon MM changes to State 3 (Location Updating Initiated). In the course of Location Updating the network requests the identity of the MS. MM responds by issuing an Identity Response message as part of a RR-DATA indication primitive.

Preamble: MM101

MMI / CM / SIM	MM	RR / DL
(1)	RR_ESTABLISH_CNF	
(2)	RR_DATA_IND (IDENTITY REQUEST)	
(3)	RR_DATA_REQ (IDENTITY RESPONSE)	

Parametrization

Primitive	Parameter	Value
(1) RR_ESTABLISH_CNF param	NOT_USED	
(2) RR_DATA_IND d1 d2 sdu { component direction pd ti ident }	NOT_USED NOT_USED MM DOWNLINK D_IDENT_REQ TI_0 IDENT_TYPE_IMSI	
(3) RR_DATA_REQ d1 d2 sdu { component direction pd ti mob_id }	NOT_USED NOT_USED MM UPLINK U_IDENT_RES TI_0 MOB_IDENT_IMSI	

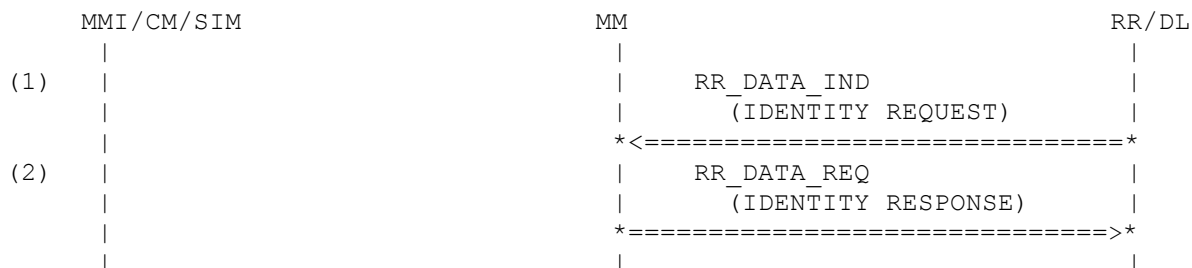
History: 09.07.97 HK Initial

4.7.2 MM122: Identity Request during MTC

Description: The mobile station receives an IDENTITY REQUEST message for the IMSI or IMEI from the network and responds by issuing a IDENTITY RESPONSE message containing the IMEI or IMSI, accordingly as requested.

Preamble: MM043

Variants: <A>....



Parametrization

Primitive	Parameter	Value
(1) RR_DATA_IND		
d1	NOT_USED	
d2	NOT_USED	
sdu		
{		
component	MM	
direction	DOWNLINK	
pd	D_IDENT_REQ	
ti	TI_0	
<A>	ident	IDENT_TYPE_IMSI
	ident	IDENT_TYPE_IMEI
}		
(2) RR_DATA_REQ		
d1	NOT_USED	
d2	NOT_USED	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_IDENT_RES	
ti	TI_0	
<A>	mob_id	MOB_IDENT_IMSI
	mob_id	MOB_IDENT_IMEI
}		

History:	07.07.97	HK	Initial
	31.07.97	DL	Revised
	18.04.01	HM	Revised

4.8 Authentication

4.8.1 MM141: Authentication Request

Description: The network confirms the request from the mobile station for a RR Connection in the form of a RR-ESTABLISH confirmation primitive. MM changes to State 3 ((Location Updating initiated) and issues an AUTHENTICATION REQ message and a SIM-AUTHENTICATION request primitive, initiating the authentication procedure with SIM.

Preamble: MM101

	MMI / CM	MM	RR / DL
(1)			
		RR_ESTABLISH_CNF	
		<=====	
(2)			
		RR_DATA_IND	
		(AUTHENTICATION REQ)	
		<=====	
(3)			
	SIM_AUTHENTICATION_REQ		
	<=====		

Parametrization

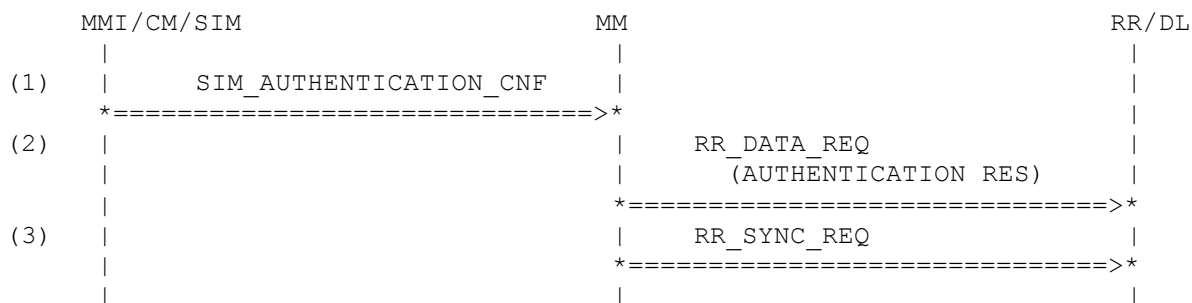
Primitive	Parameter	Value
(1) RR_ESTABLISH_CNF param	NOT_USED	
(2) RR_DATA_IND d1 d2 sdu { component direction pd ti ciph_key_num auth_rand }	NOT_USED NOT_USED MM DOWNLINK D_AUTH_REQ TI_0 CIPH_KEY_NUM_01 AUTH_RAND_1	
(3) SIM_AUTHENTICATION_REQ source rand cksn	SRC_MM RAND_1_P CKSN_01	

History:	07.07.97	HK	Initial
	31.07.97	DL	Revised

4.8.2 MM142: Authentication Response

Description: The authentication parameters are received from SIM in the form of a SIM-AUTHENTICATION confirmation primitive and are forwarded to the network as part of a AUTHENTICATION RES message. MM then commences synchronization with RR by issuing a RR-SYNC request primitive.

Preamble: MM141



Parametrization

Primitive	Parameter	Value
(1) SIM_AUTHENTICATION_CNF		
sres	SRES_1	
kc	KC_11223344	
(2) RR_DATA_REQ		
d1	NOT_USED	
d2	NOT_USED	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_AUTH_RES	
ti	TI_0	
auth_sres	SRES_1_CODED	
}		
(3) RR_SYNC_REQ		
op	NOT_USED	
cksn	CKSN_01	
kcv	KCV_11223344	
tmsi	NOT_USED	
plmn	NOT_USED	
lac	NOT_USED	
synccs	NOT_USED	
accc	NOT_USED	
thplmn	NOT_USED	

History:	07.07.97	HK	Initial
	31.07.97	DL	Revised

4.8.3 MM143: Authentication Request in State 6

Description: Authentication is requested by the network in the form of a AUTHENTICATION REQ message while the mobile station is in State 6 (MM Connection Active). Authentication is then sought and received from SIM (SIM-AUTHENTICATION request and confirmation primitives). MM sends this data to the network as part of a AUTHENTICATION RES message.

Preamble: MM043

	MMI / CM / SIM	MM	RR / DL
(1)		RR_DATA_IND (AUTHENTICATION REQ)	
		*<=====	
(2)	SIM_AUTHENTICATION_REQ		
	*<=====		
(3)	SIM_AUTHENTICATION_CNF		
	*=====>		
(4)		RR_DATA_REQ (AUTHENTICATION RES)	
		*=====>	
(5)		RR_SYNC_REQ	
		*=====>	
(6)		RR_DATA_IND (AUTHENTICATION REJ)	
		*<=====	
(7)	MMCC_RELEASE_IND		
	*<=====		
(8)		RR_SYNC_REQ	
		*=====>	
(9)	SIM_MM_UPDATE_REQ		
	*<=====		

Parametrization

Primitive	Parameter	Value
(1) RR_DATA_IND		
d1	NOT_USED	
d2	NOT_USED	
sdu		
{		
component	MM	
direction	DOWNLINK	
pd	D_AUTH_REQ	
ti	TI_0	
ciph_key_num	CIPH_KEY_NUM_01	
auth_rand	AUTH_RAND_1	
}		
(2) SIM_AUTHENTICATION_REQ		
source	SRC_MM	
rand	AUTH_RAND_1	
cksn	CKSN_01	
(3) SIM_AUTHENTICATION_CNF		
sres	SRES_1	
kc	KC_11223344	
(4) RR_DATA_REQ		
d1	NOT_USED	

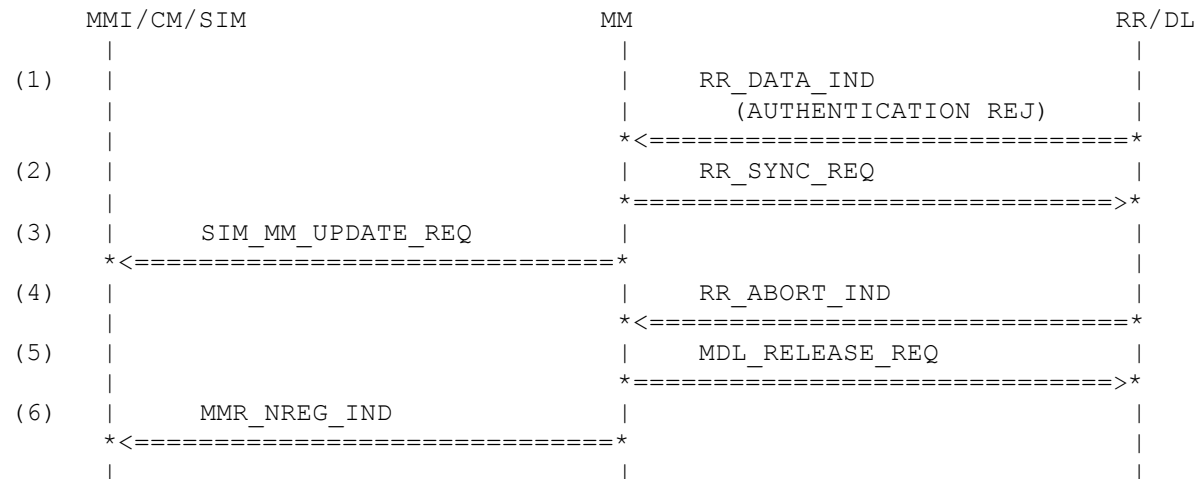
d2	NOT_USED
sdu	
{	
component	MM
direction	UPLINK
pd	U_AUTH_RES
ti	TI_0
auth_sres	SRES_1_CODED
}	
(5) RR_SYNC_REQ	
op	NOT_USED
cksn	CKSN_01
kcv	KCV_11223344
tmsi	NOT_USED
plmn	NOT_USED
lac	NOT_USED
synccs	NOT_USED
accc	NOT_USED
thplmn	NOT_USED
(6) RR_DATA_IND	
d1	NOT_USED
d2	NOT_USED
sdu	
{	
component	MM
direction	DOWNLINK
pd	D_AUTH_REJ
ti	TI_0
}	
(7) MMCC_RELEASE_IND	
ti	TI_2
relcs	RELCS_NO_REGISTRATION
(8) RR_SYNC_REQ	
op	NOT_USED
cksn	NOT_USED
kcv	NOT_USED
tmsi	NOT_USED
plmn	NOT_USED
lac	NOT_USED
synccs	SYNCCS_TMSI_CKSN_KC_INVALID_NO_PAG
accc	NOT_USED
thplmn	NOT_USED
(9) SIM_MM_UPDATE_REQ	
loc_info	LOC_INFO_PLMN_NOT_ALLOW
bcch_inf	NOT_USED
forb_plmn	NOT_USED
cksn	CKSN_RES
kc	KC_DELETED_SIM
cell_identity	CELL_ID_1122

History:	08.07.97	HK	Initial
	26.01.01	HM	Revised
	27.04.01	HM	Revised

4.8.4 MM144: Authentication Reject in State 3

Description: Authentication is rejected by the network in the form of a AUTHENTICATION REJ message followed by a RR-ABORT indication primitive while the mobile station is in State 3 (Location Updating Initiated). MM releases the RR connection and signals failure to MMI in the form of a MMR-NREG indication primitive with the negative registration cause set to 'authentication failure'.

Preamble: MM142



Parametrization

Primitive	Parameter	Value
(1) RR_DATA_IND		
d1	NOT_USED	
d2	NOT_USED	
sdu		
{		
component	MM	
direction	DOWNLINK	
pd	D_AUTH_REJ	
ti	TI_0	
}		
(2) RR_SYNC_REQ		
op	NOT_USED	
cksn	NOT_USED	
kcv	NOT_USED	
tmsi	NOT_USED	
plmn	NOT_USED	
lac	NOT_USED	
synccs	SYNCCS_TMSI_CKSN_KC_INVALID_NO_PAG	
accc	NOT_USED	
thplmn	NOT_USED	
(3) SIM_MM_UPDATE_REQ		
loc_info	LOC_INFO_PLMN_NOT_ALLOW	
bcch_inf	NOT_USED	
forb_plmn	NOT_USED	
cksn	CKSN_NO_KEY	
kc	KC_DELETED_SIM	
cell_identity	CELL_ID_1122	
(4) RR_ABORT_IND		
op	OP_MODE_TEST_SIM	

	abcs	ABCS_INT_PROT_ERR	
	plmn_avail	NOT_USED	
	plmn	NOT_USED	
	rxlevel	NOT_USED	
	power	RF_CLASS_2	
(5)	MDL_RELEASE_REQ		
	ch_type	NOT_PRESENT_8BIT	
	sapi	SAPI_0	
(6)	MMR_NREG_IND		
	nreg_cs	NREG_LIMITED_SERVICE	
	search_running	SEARCH_NOT_RUNNING	
	new_forb_plmn	PLMN_NO_ID	
	limited_cause	MMR_SIM_INVALID_AUTHREJ	
History:	09.07.97	HK	Initial
	02.03.00	HM	Revised (search_running)
	27.04.01	HM	Changed order of primitives

4.8.5 MM145: Authentication Reject and SIM Removal in State 3

Description: Authentication is rejected by the network in the form of a AUTHENTICATION REJ message while the mobile station is in State 3 (Location Updating Initiated). This is followed by the receipt of a SIM-REMOVE indication primitive. MM releases the RR connection and signals failure to MMI in the form of a MMR-NREG indication primitive with the negative registration cause set to 'authentication failure'.

Preamble: MM142

	MMI / CM / SIM	MM	RR / DL
(1)			
		RR_DATA_IND	
		(AUTHENTICATION REJ)	
		*<=====	
(2)		RR_SYNC_REQ	
		*=====	
(3)	SIM_MM_UPDATE_REQ		
	*<=====		
(4)	SIM_REMOVE_IND		
	*=====		
TIMEOUT (11000)			
(5)		RR_ABORT_REQ	
		*=====	
(6)		RR_RELEASE_IND	
		*<=====	
(7)		MDL_RELEASE_REQ	
		*=====	
(8)	MMR_NREG_IND		
	*<=====		

Parametrization

Primitive	Parameter	Value
(15)	RR_DATA_IND	
d1	NOT_USED	
d2	NOT_USED	
sdu		
{		
component	MM	
direction	DOWNLINK	
pd	D_AUTH_REJ	
ti	TI_0	
}		
(16)	RR_SYNC_REQ	
op	NOT_USED	
cksn	NOT_USED	
kcv	NOT_USED	
tmsi	NOT_USED	
plmn	NOT_USED	
lac	NOT_USED	
syncs	SYNCS_TMSI_CKSN_KC_INVALID_NO_PAG	
accc	NOT_USED	
thplmn	NOT_USED	
(17)	SIM_MM_UPDATE_REQ	
loc_info	LOC_INFO_PLMN_NOT_ALLOW	
bcch_inf	NOT_USED	
forb_plmn	NOT_USED	

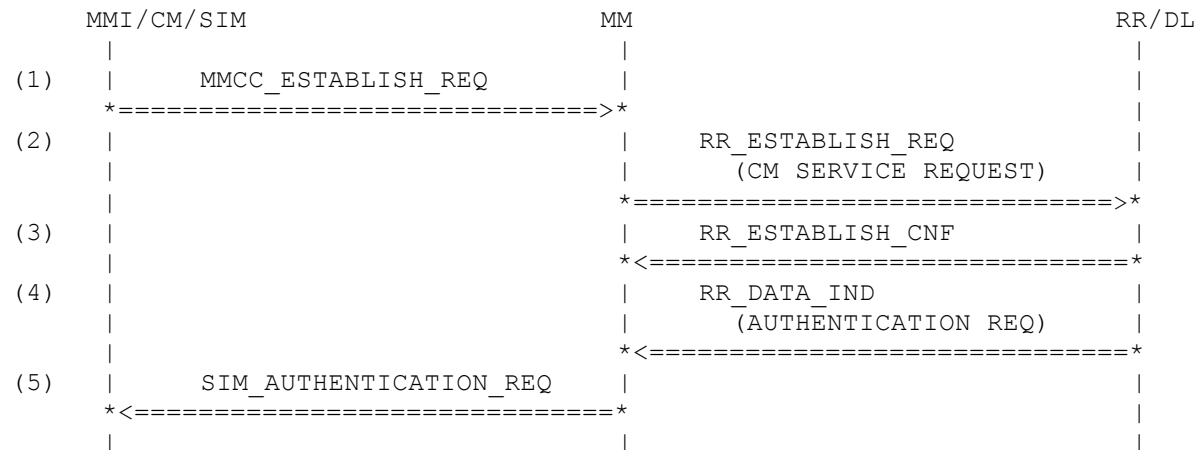
	cksn	CKSN_RES
	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122
(18)		SIM_REMOVE_IND
	error	NOT_USED
(19)		RR_ABORT_REQ
	abcs	ABCS_NORM
(20)		RR_RELEASE_IND
	relcs	RELCS_ABNORM_UNSPEC
	sapi	SAPI_0
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(21)		MDL_RELEASE_REQ
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(22)		MMR_NREG_IND
	nreg_cs	NREG_LIMITED_SERVICE
	search_running	SEARCH_NOT_RUNNING
	new_forb_plmn	PLMN_NO_ID
	limited_cause	MMR_SIM_INVALID_REMOVED

History:	08.07.97	HK	Initial
	03.03.00	HM	Revised (search_running)
	29.08.00	HM	Revised
	07.01.01	HM	Adaption caused by GPRS integration
	27.04.01	HM	Revised

4.8.6 MM146: Authentication Request in State 5

Description: In State 5 (Wait for Outgoing MM Connection) MM receives an establishment request from CC and sends CM SERVICE REQUEST message as part of a RR-ESTABLISH request primitive. The network commences the Authentication procedure in by sending a AUTHENTICATION REQ message and MM issues a SIM-AUTHENTICATION request primitive.

Preamble: MM024



Parametrization

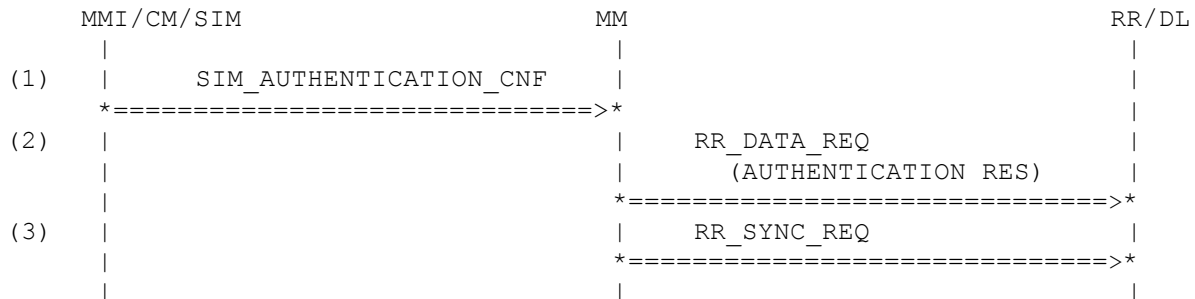
Primitive	Parameter	Value
(1) MMCC_ESTABLISH_REQ		
ti	TI_5	
prio	PRIO_NORM_CALL	
estcs	ESTCS_MOB_ORIG_SPCH	
(2) RR_ESTABLISH_REQ		
estcs	ESTCS_MOB_ORIG_SPCH	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_CM_SERV_REQ	
ti	TI_0	
cm_serv_type	ST_MOC	
ciph_key_num	CIPH_KEY_NUM_RES	
mob_class_2	MOB_CLASS_2	
mob_id	MOB_IDENT_IMSI	
}		
(3) RR_ESTABLISH_CNF		
param	NOT_USED	
(4) RR_DATA_IND		
d1	NOT_USED	
d2	NOT_USED	
sdu		
{		
component	MM	
direction	DOWNLINK	
pd	D_AUTH_REQ	
ti	TI_0	

	ciph_key_num	CIPH_KEY_NUM_04	
	auth_rand	AUTH_RAND_1	
	}		
(5)	SIM_AUTHENTICATION_REQ		
	source	NOT_USED	
	rand	AUTH_RAND_1	
	cksn	CKSN_04	
History:	08.07.97	HK	Initial

4.8.7 MM147: Response to Authentication Request in State 5

Description: In State 5 (Wait for outgoing MM Connection to the Network) MM receives a SIM-AUTHENTICATION confirmation primitive and sends the authentication parameters to the network in the form of an AUTHENTICATION RES message.

Preamble: MM146



Parametrization

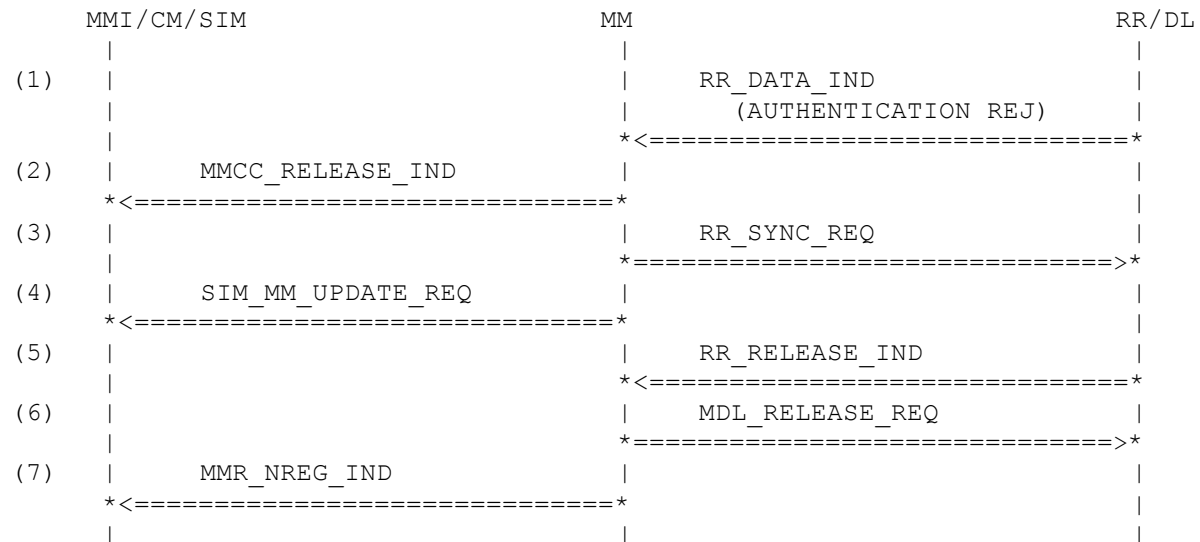
Primitive	Parameter	Value
(1) SIM_AUTHENTICATION_CNF		
sres	SRES_1	
kc	KC_11223344	
(2) RR_DATA_REQ		
d1	NOT_USED	
d2	NOT_USED	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_AUTH_RES	
ti	TI_0	
auth_sres	SRES_1_CODED	
}		
(3) RR_SYNC_REQ		
op	NOT_USED	
cksn	CKSN_04	
kcv	KCV_11223344	
tmsi	NOT_USED	
plmn	NOT_USED	
lac	NOT_USED	
syncchs	NOT_USED	
accc	NOT_USED	
thplmn	NOT_USED	

History: 08.07.97 HK Initial

4.8.8 MM148: Authentication Reject in State 5

Description: Authentication is rejected by the network in the form of a AUTHENTICATION REJ message while the mobile station is in State 5 (Wait for outgoing MM Connection). This is followed by the receipt of a SIM-REMOVE indication primitive. MM releases the RR connection and signals failure to MMI in the form of a MMR-NREG indication primitive with the negative registration cause set to 'authentication failure'.

Preamble: MM147



Parametrization

Primitive	Parameter	Value
(1) RR_DATA_IND		
d1	NOT_USED	
d2	NOT_USED	
sdu		
{		
component	MM	
direction	DOWNLINK	
pd	D_AUTH_REJ	
ti	TI_0	
}		
(2) MMCC_RELEASE_IND		
ti	TI_5	
relcs	RELCS_NO_REGISTRATION	
(3) RR_SYNC_REQ		
op	NOT_USED	
cksn	NOT_USED	
kcv	NOT_USED	
tmsi	NOT_USED	
plmn	NOT_USED	
lac	NOT_USED	
syncs	SYNCS_TMSI_CKSN_KC_INVALID_NO_PAG	
acc	NOT_USED	
thplmn	NOT_USED	
(4) SIM_MM_UPDATE_REQ		
loc_info	LOC_INFO_PLMN_NOT_ALLOW	
bcch_inf	NOT_USED	
forb_plmn	NOT_USED	

	cksn	CKSN_NO_KEY	
	kc	KC_DELETED_SIM	
	cell_identity	CELL_ID_1122	
(5)	RR_RELEASE_IND		
	relcs	RELCS_NORM	
	sapi	SAPI_0	
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK	
(6)	MDL_RELEASE_REQ		
	ch_type	NOT_PRESENT_8BIT	
	sapi	SAPI_0	
(7)	MMR_NREG_IND		
	nreg_cs	NREG_LIMITED_SERVICE	
	search_running	SEARCH_NOT_RUNNING	
	new_forb_plmn	PLMN_NO_ID	
	limited_cause	MMR_SIM_INVALID_AUTHREJ	
History:	08.07.97	HK	Initial
	02.03.00	HM	Revised (search_running)
	26.01.01	HM	Revised
	27.04.01	HM	Changed ordering of primitives

4.8.9 MM149: Authentication Reject during request for a second connection

Description: MM receives a second connection request from CC and sends a CM SERVICE REQUEST message to the network. This is followed by a AUTHENTICATION REQ message from the network; MM receives authentication confirmation for the previous authentication request (SIM-AUTHENTICATION confirmation primitive) and then seeks authentication for the second request. The data for the first authentication confirmation is forwarded to the network in the form of a AUTHENTICATION RES message. Authentication is rejected by the network in the form of a AUTHENTICATION REJ message. MM releases the RR connection and signals failure to MMI in the form of a MMR-NREG indication primitive with the negative registration cause set to 'authentication failure'. The reaction of MM to an Authentication failure during the Establishment of a second Connection is tested.

Preamble: MM045A

	MMI/CM/SIM	MM	RR/DL
(1)	MMCC_ESTABLISH_REQ		
	=====>		
(2)		RR_DATA_REQ (CM SERVICE REQUEST)	
		=====>	
(3)		RR_DATA_IND (AUTHENTICATION REQ)	
		<=====	
(4)	SIM_AUTHENTICATION_REQ		
	<=====		
(5)	SIM_AUTHENTICATION_CNF		
	=====>		
(6)		RR_DATA_REQ (AUTHENTICATION RES)	
		=====>	
(7)		RR_SYNC_REQ	
		=====>	
(8)		RR_DATA_IND (AUTHENTICATION REJ)	
		<=====	
(9)	MMCC_RELEASE_IND		
	<=====		
(10)	MMCC_RELEASE_IND		
	<=====		
(11)		RR_SYNC_REQ	
		=====>	
(12)	SIM_MM_UPDATE_REQ		
	<=====		
(13)		RR_RELEASE_IND	
		<=====	
(14)		MDL_RELEASE_REQ	
		=====>	
(15)	MMR_NREG_IND		
	<=====		

Parametrization

Primitive	Parameter	Value
(1) MMCC_ESTABLISH_REQ		
ti	TI_5	
prio	PRIO_NORM_CALL	
estcs	ESTCS_MOB_ORIG_SPCH	

(2)	RR_DATA_REQ	
	d1	NOT_USED
	d2	NOT_USED
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_CM_SERV_REQ
	ti	TI_0
	cm_serv_type	ST_MOC
	ciph_key_num	CIPH_KEY_NUM_RES
	mob_class_2	MOB_CLASS_2
	mob_id	MOB_IDENT_IMSI
	}	
(3)	RR_DATA_IND	
	d1	NOT_USED
	d2	NOT_USED
	sdu	
	{	
	component	MM
	direction	DOWNLINK
	pd	D_AUTH_REQ
	ti	TI_0
	ciph_key_num	CIPH_KEY_NUM_04
	auth_rand	AUTH_RAND_1
	}	
(4)	SIM_AUTHENTICATION_REQ	
	source	SRC_MM
	rand	AUTH_RAND_1
	cksn	CKSN_04
(5)	SIM_AUTHENTICATION_CNF	
	sres	SRES_1
	kc	KC_11223344
(6)	RR_DATA_REQ	
	d1	NOT_USED
	d2	NOT_USED
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_AUTH_RES
	ti	TI_0
	auth_sres	SRES_1_CODED
	}	
(7)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	CKSN_04
	kcv	KCV_11223344
	tmsi	NOT_USED
	plmn	NOT_USED
	lac	NOT_USED
	syncchs	NOT_USED
	accc	NOT_USED
	thplmn	NOT_USED
(8)	RR_DATA_IND	
	d1	NOT_USED

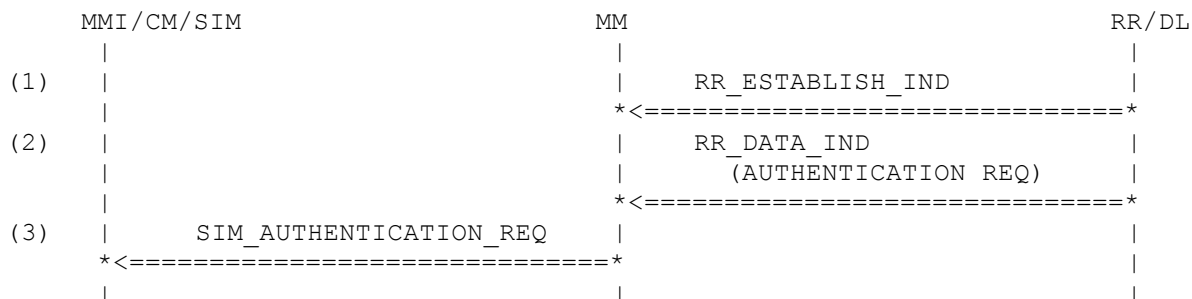
d2	NOT_USED
sdu	
{	
component	MM
direction	DOWNLINK
pd	D_AUTH_REJ
ti	TI_0
}	
(9) MMCC_RELEASE_IND	
ti	TI_2
relcs	RELCS_NO_REGISTRATION
(10) MMCC_RELEASE_IND	
ti	TI_5
relcs	RELCS_NO_REGISTRATION
(11) RR_SYNC_REQ	
op	NOT_USED
cksn	NOT_USED
kcv	NOT_USED
tmsi	NOT_USED
plmn	NOT_USED
lac	NOT_USED
synccs	SYNCCS_TMSI_CKSN_KC_INVALID_NO_PAG
accc	NOT_USED
thplmn	NOT_USED
(12) SIM_MM_UPDATE_REQ	
loc_info	LOC_INFO_PLMN_NOT_ALLOW
bcch_inf	NOT_USED
forb_plmn	NOT_USED
cksn	CKSN_NO_KEY
kc	KC_DELETED_SIM
cell_identity	CELL_ID_1122
(13) RR_RELEASE_IND	
relcs	RELCS_NORM
sapi	SAPI_0
gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(14) MDL_RELEASE_REQ	
ch_type	NOT_PRESENT_8BIT
sapi	SAPI_0
(15) MMR_NREG_IND	
nreg_cs	NREG_LIMITED_SERVICE
search_running	SEARCH_NOT_RUNNING
new_forb_plmn	PLMN_NO_ID
limited_cause	MMR_SIM_INVALID_AUTHREJ

History:	10.07.97	HK	Initial
	02.03.00	HM	Revised (search_running)
	26.01.01	HM	Revised
	27.04.01	HM	Changed ordering of primitives

4.8.10 MM150: Authentication in State 9

Description: In State 9 (Wait for Network Command) MM receives RR-ESTABLISH indication primitive and an AUTHENTICATION REQ message from the network. MM forwards the authentication request to SIM in the form of a SIM-AUTHENTICATION request primitive containing the ciphering key data received from the network.

Preamble: MM024



Parametrization

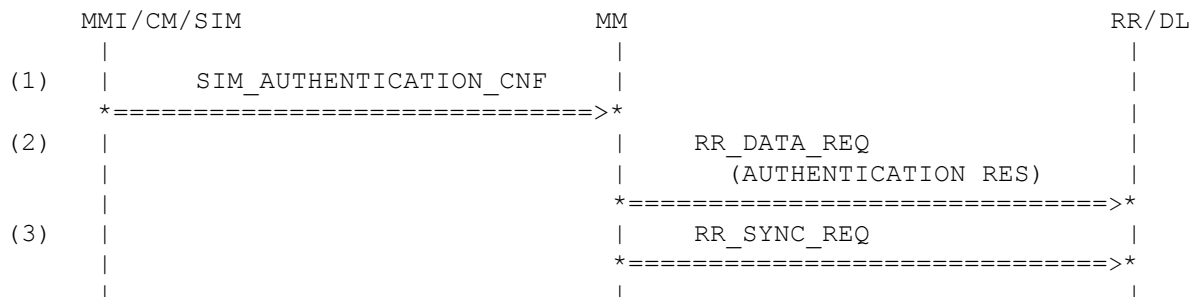
Primitive	Parameter	Value
(1) RR_ESTABLISH_IND		
param	NOT_USED	
(2) RR_DATA_IND		
d1	NOT_USED	
d2	NOT_USED	
sdu		
{		
component	MM	
direction	DOWNLINK	
pd	D_AUTH_REQ	
ti	TI_0	
ciph_key_num	CIPH_KEY_NUM_01	
auth_rand	AUTH_RAND_1	
}		
(3) SIM_AUTHENTICATION_REQ		
source	NOT_USED	
rand	AUTH_RAND_1	
cksn	CKSN_01	

History: 10.07.97 HK Initial

4.8.11 MM151: Response to Authentication Request in State 9

Description: In State 9 (Wait for Network Command) MM receives a SIM-AUTHENTICATION confirmation primitive and sends the authentication parameters to the network in the form of an AUTHENTICATION RES message.

Preamble: MM150



Parametrization

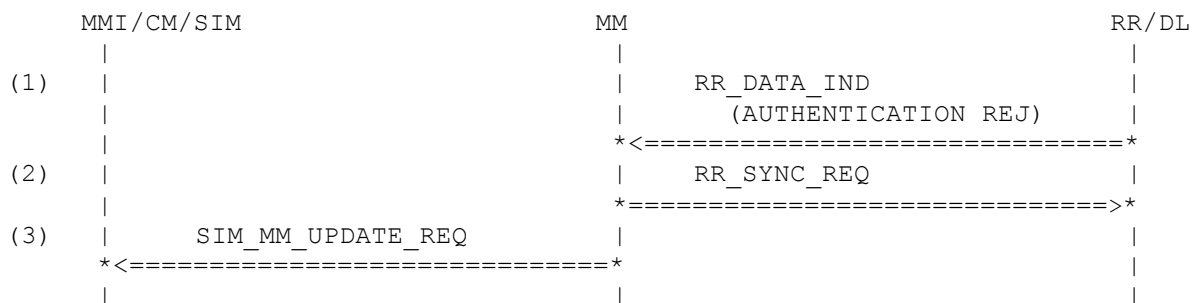
Primitive	Parameter	Value
(1) SIM_AUTHENTICATION_CNF		
sres	SRES_1	
kc	KC_11223344	
(2) RR_DATA_REQ		
d1	NOT_USED	
d2	NOT_USED	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_AUTH_RES	
ti	TI_0	
auth_sres	SRES_1_CODED	
}		
(3) RR_SYNC_REQ		
op	NOT_USED	
cksn	CKSN_01	
kcv	KCV_11223344	
tmsi	NOT_USED	
plmn	NOT_USED	
lac	NOT_USED	
syncchs	NOT_USED	
accc	NOT_USED	
thplmn	NOT_USED	

History: 10.07.97 HK Initial

4.8.12 MM152: Authentication Reject in State 9

Description: In State 9 Wait for Network command MM receives RR_DATA_IND with an Authentication Reject message. MM sets the flag "Authentication fail", invalidates the SIM in RR, informs the SIM entity about loss of registration, considers the SIM as not present in MM and stays in State 9 WAIT FOR NETWORK COMMAND until the RR connection is released.

Preamble: MM151



Parametrization

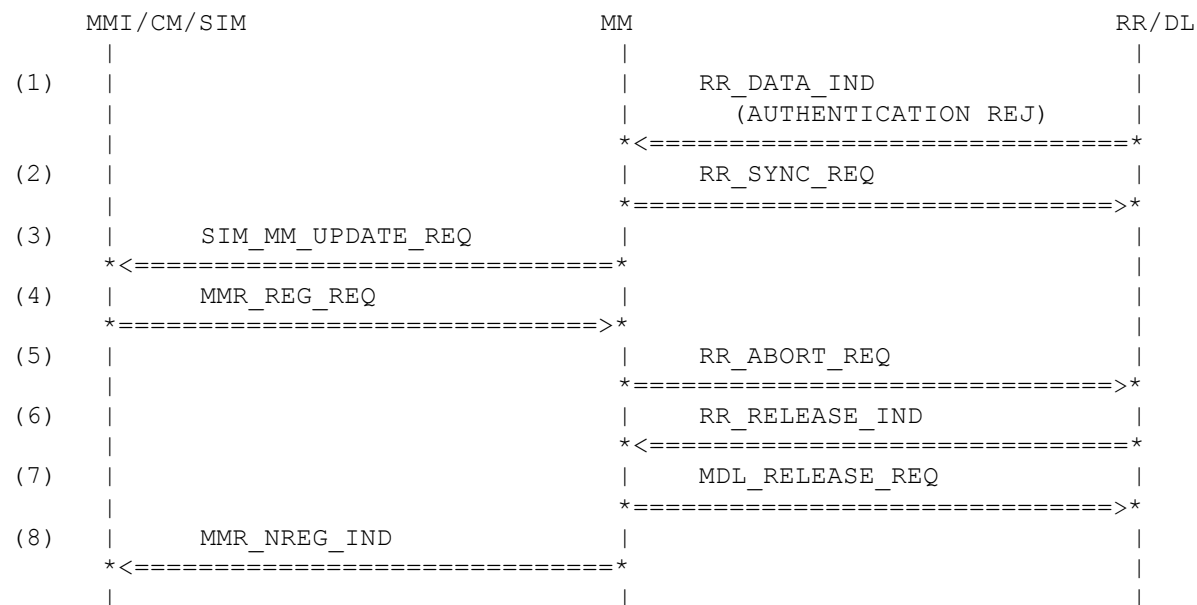
Primitive	Parameter	Value
(1) RR_DATA_IND		
d1	NOT_USED	
d2	NOT_USED	
sdu		
{		
component	MM	
direction	DOWNLINK	
pd	D_AUTH_REJ	
ti	TI_0	
}		
(2) RR_SYNC_REQ		
op	NOT_USED	
cksn	NOT_USED	
kcv	NOT_USED	
tmsi	NOT_USED	
plmn	NOT_USED	
lac	NOT_USED	
synccs	SYNCCS_TMSI_CKSN_KC_INVALID_NO_PAG	
accc	NOT_USED	
thplmn	NOT_USED	
(3) SIM_MM_UPDATE_REQ		
loc_info	LOC_INFO_PLMN_NOT_ALLOW	
bcch_inf	NOT_USED	
forb_plmn	NOT_USED	
cksn	CKSN_NO_KEY	
kc	KC_DELETED_SIM	
cell_identity	CELL_ID_1122	

History:	10.07.97	HK	Initial
	30.04.01	HM	Revised

4.8.13 MM153: Registration request following authorization failure

Description: Authentication is rejected by the network in the form of a AUTHENTICATION REJ message followed by a RR-ABORT indication primitive while the mobile station is in State 3 (Location Updating Initiated). MM releases the RR connection and signals failure to MMI in the form of a MMR-NREG indication primitive with the negative registration cause set to 'authentication failure'.

Preamble: MM142



Parametrization

Primitive	Parameter	Value
(1) RR_DATA_IND		
d1	NOT_USED	
d2	NOT_USED	
sdu		
{		
component	MM	
direction	DOWNLINK	
pd	D_AUTH_REJ	
ti	TI_0	
}		
(2) RR_SYNC_REQ		
op	NOT_USED	
cksn	NOT_USED	
kcv	NOT_USED	
tmsi	NOT_USED	
plmn	NOT_USED	
lac	NOT_USED	
syncs	SYNCS_TMSI_CKSN_KC_INVALID_NO_PAG	
acc	NOT_USED	
thplmn	NOT_USED	
(3) SIM_MM_UPDATE_REQ		
loc_info	LOC_INFO_PLMN_NOT_ALLOW	
bcch_inf	NOT_USED	
forb_plmn	NOT_USED	
cksn	CKSN_NO_KEY	

	kc	KC_DELETED_SIM	
	cell_identity	CELL_ID_1122	
(4)	MMR_REG_REQ		
	service_mode	SERVICE_MODE_FULL	
(5)	RR_ABORT_REQ		
	abcs	ABCS_NORM	
(6)	RR_RELEASE_IND		
	relcs	RELCS_ABNORM_UNSPEC	
	sapi	SAPI_0	
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK	
(7)	MDL_RELEASE_REQ		
	ch_type	NOT_PRESENT_8BIT	
	sapi	SAPI_0	
(8)	MMR_NREG_IND		
	nreg_cs	NREG_LIMITED_SERVICE	
	search_running	SEARCH_NOT_RUNNING	
	new_forb_plmn	PLMN_NO_ID	
	limited_cause	MMR_SIM_INVALID_AUTHREJ	
History:	21.07.97	HK	Initial
	02.03.00	HM	Revised (search_running)
	27.04.01	HM	Revised

4.8.14 MM154: LUP Rejection following AUTHENTICATION RESPONSE in State 3

Description: In State 3 (Location Updating Initiated) MM receives a LOCATION UPDATING REJ message. MM releases the RR connection and signals failure to MMI in the form of a MMR-NREG indication primitive. The PLMN for which the LOCATION UPDATING REJECT with cause PLMN NOT ALLOWED received is the HPLMN, thus it will *not* be added to the forbidden list.

Preamble: MM142

	MMI / CM / SIM	MM	RR / DL
(1)		RR_DATA_IND (LOCATION UPDATING REJ)	
		<=====	
(2)		RR_RELEASE_IND	
		<=====	
(3)		MDL_RELEASE_REQ	
		=====>	
(4)		RR_SYNC_REQ	
		=====>	
(5)	SIM_MM_UPDATE_REQ		
	<=====		
(6)	MMR_NREG_IND		
	<=====		

Parametrization

Primitive	Parameter	Value
(1) RR_DATA_IND		
d1	NOT_USED	
d2	NOT_USED	
sdu		
{		
component	MM	
direction	DOWNLINK	
pd	D_LOC_UPD_REJ	
ti	TI_0	
rej_cause	RC_PLMN_NOT_ALLOWED	
}		
(2) RR_RELEASE_IND		
relcs	RELCS_NORM	
sapi	SAPI_0	
gprs_resumption	GPRS_RESUMPTION_NOT_ACK	
(3) MDL_RELEASE_REQ		
ch_type	NOT_PRESENT_8BIT	
sapi	SAPI_0	
(4) RR_SYNC_REQ		
op	NOT_USED	
cksn	NOT_USED	
kcv	NOT_USED	
tmsi	NOT_USED	
plmn	NOT_USED	
lac	NOT_USED	
syncchs	SYNCCS_TMSI_CKSN_KC_INVALID	

acc	NOT_USED
thplmn	NOT_USED
(5) SIM_MM_UPDATE_REQ	
loc_info	LOC_INFO_PLMN_NOT_ALLOW
bcch_inf	NOT_USED
forb_plmn	NOT_USED
cksn	CKSN_NO_KEY
kc	KC_DELETED_SIM
cell_identity	CELL_ID_1122
(6) MMR_NREG_IND	
nreg_cs	NREG_LIMITED_SERVICE
search_running	SEARCH_NOT_RUNNING
new_forb_plmn	PLMN_NO_ID
limited_cause	RC_PLMN_NOT_ALLOWED

History:	21.07.97	HK	Initial
	02.03.00	HM	Revised (search_running)
	22.05.00	HM	Revised

4.8.15 MM155: LUP with MM INFORMATION

Description: The SIM card needs some time to process the SRES. This time may be used by the network to transfer some information to the mobile station, which is forwarded transparently to upper layers. The authentication parameters are received from SIM in the form of a SIM-AUTHENTICATION confirmation primitive and are forwarded to the network as part of a AUTHENTICATION RES message. MM then commences synchronization with RR by issuing a RR-SYNC request primitive. The purpose of this testcase is to test that all parameters of the MM INFORMATION message are correctly transmitted to the ACI. Derived from testcase MM142.

Preamble: MM141

Variants: <A>....

	MMI/CM/SIM	MM	RR/DL
(1)		RR_DATA_IND	
		(MM INFORMATION)	
		<=====	
(2)	MMR_INFO_IND		
	<=====		
(3)	SIM_AUTHENTICATION_CNF		
	=====>		
(4)		RR_DATA_REQ	
		(AUTHENTICATION RES)	
		=====>	
(5)		RR_SYNC_REQ	
		=====>	

Parametrization

Primitive	Parameter	Value
(1) RR_DATA_IND		
d1	NOT_USED	
d2	NOT_USED	
sdu		
{		
component	MM	

direction	DOWNLINK	
pd	D_MM_INFORMATION	
full_net_name	FULL_NET_NAME	
short_net_name	SHORT_NET_NAME	
<A>	net_tz	NET_TZ
<A>	net_tz_and_time	NOT_USED
	net_tz	NOT_USED
	net_tz_and_time	NET_TZ_AND_TIME
}		
(2) MMR_INFO_IND		
plmn	PLMN_123_33	
full_name	FULL_NAME	
short_name	SHORT_NAME	
ntz	NTZ_MET	
<A>	time	NOT_USED
	time	TIME
(3) SIM_AUTHENTICATION_CNF		
sres	SRES_1	
kc	KC_11223344	
(4) RR_DATA_REQ		
d1	NOT_USED	
d2	NOT_USED	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_AUTH_RES	
ti	TI_0	
auth_sres	SRES_1_CODED	
}		
(5) RR_SYNC_REQ		
op	NOT_USED	
cksn	CKSN_01	
kcv	KCV_11223344	
tmsi	NOT_USED	
plmn	NOT_USED	
lac	NOT_USED	
syncchs	NOT_USED	
accc	NOT_USED	
thplmn	NOT_USED	

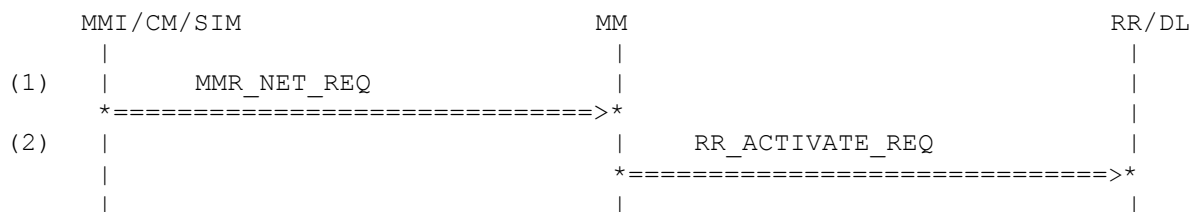
History: 08.03.00 HM Initial

4.9 Net Request

4.9.1 MM161: Net Request in State 19.4

Description: MM receives a MMR-NET request primitive in State 19.4 (Idle No IMSI). A RR-ACTIVATE request with an empty IMSI is issued and MM enters State 19.8 (Idle, PLMN Search, Normal Service).

Preamble: MM024



Parametrization

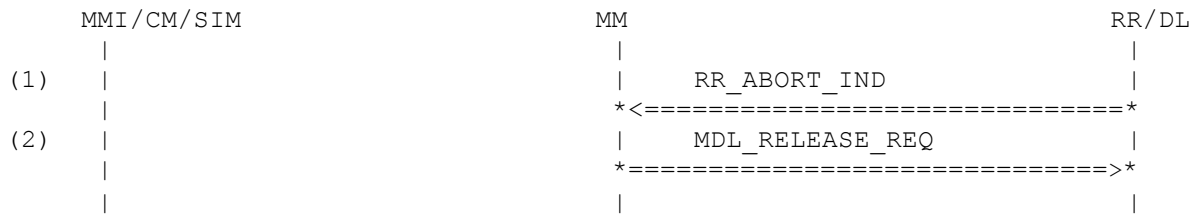
Primitive	Parameter	Value
(1) MMR_NET_REQ param	NOT_USED	
(2) RR_ACTIVATE_REQ plmn	PLMN_NO_ID	
op	OP_MODE_NET_REQUEST	
cksn	CKSN_NO_KEY	
kcv	KC_DELETED	
accc	ACC_CLASS_0000	
imsi	EMPTY_IMSI	
tmsi	NOT_USED	
thplmn	NOT_USED	
bcch_info	NOT_USED	
cell_test	CELL_TEST_DISABLE	
gprs_indic	GPRS_NO	

History:	10.07.97	HK	Initial
	17.09.97	DL	revised

4.9.2 MM162: RR_ABORT_IND in State 19

Description: MM receives a RR-ABORT indication primitive in State 19 (MM Idle). MM enters the limited service state.

Preamble: MM022



Parametrization

Primitive	Parameter	Value
(1) RR_ABORT_IND		
op	OP_MODE_TEST_SIM	
abcs	ABCS_CEL_SEL_FAIL	
plmn_avail	NOT_USED	
plmn	PLMN_123_44	
rxlevel	NOT_USED	
power	RF_CLASS_2	
(2) MDL_RELEASE_REQ		
ch_type	NOT_PRESENT_8BIT	
sapi	SAPI_0	
History:	10.07.97	HK Initial
	17.02.00	HM Revised

4.10 TMSI Reallocation

4.10.1 MM181: TMSI Reallocation in State 5

Description: RR connection is confirmed in the form of a RR-ESTABLISH confirmation primitive. This is followed by a TMSI REALLOCATION COMMAND message. MM issues a TMSI REALLOC COMPLETE message and begins synchronization with RR (RR-SYNC request primitive). On receiving a CM SERVICE ACCEPT message MM issues a MMCC-ESTABLISH confirmation primitive.

Preamble: MM041

	MMI / CM / SIM	MM	RR / DL
(1)		RR_ESTABLISH_CNF	
		<=====	
(2)		RR_DATA_IND	
		(TMSI_REALLOC_COMMAND)	
		<=====	
(3)		RR_SYNC_REQ	
		=====>	
(4)		RR_DATA_REQ	
		(TMSI_REALLOC_COMPLETE)	
		=====>	
(5)	SIM_MM_UPDATE_REQ		
	<=====		
(6)		RR_DATA_IND	
		(CM_SERVICE_ACCEPT)	
		<=====	
(7)	MMCC_ESTABLISH_CNF		
	<=====		

Parametrization

	Primitive	Parameter	Value
(1)	RR_ESTABLISH_CNF param	NOT_USED	
(2)	RR_DATA_IND d1 d2 sdu { component direction pd ti loc_area_ident mob_id }	NOT_USED NOT_USED NOT_USED MM DOWNLINK D_TMSI_REALLOC_CMD TI_0 LOC_AREA_ID_123_33_0001 MOB_IDENT_NEW_TMSI	
(3)	RR_SYNC_REQ op cksn kcv tmsi	NOT_USED NOT_USED NOT_USED MOB_ID_NEW_TMSI	

	plmn	NOT_USED
	lac	NOT_USED
	synccs	NOT_USED
	accc	NOT_USED
	thplmn	NOT_USED
(4)	RR_DATA_REQ	
	d1	NOT_USED
	d2	NOT_USED
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_TMSI_REALLOC_COMP
	ti	TI_0
	}	
(5)	SIM_MM_UPDATE_REQ	
	loc_info	LOC_INFO_UPDATED_5
	bcch_inf	NOT_USED
	forb_plmn	NOT_USED
	cksn	CKSN_RES
	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122
(6)	RR_DATA_IND	
	d1	NOT_USED
	d2	NOT_USED
	sdu	
	{	
	component	MM
	direction	DOWNLINK
	pd	D_CM_SERV_ACCEPT
	ti	TI_0
	}	
(7)	MMCC_ESTABLISH_CNF	
	ti	TI_2

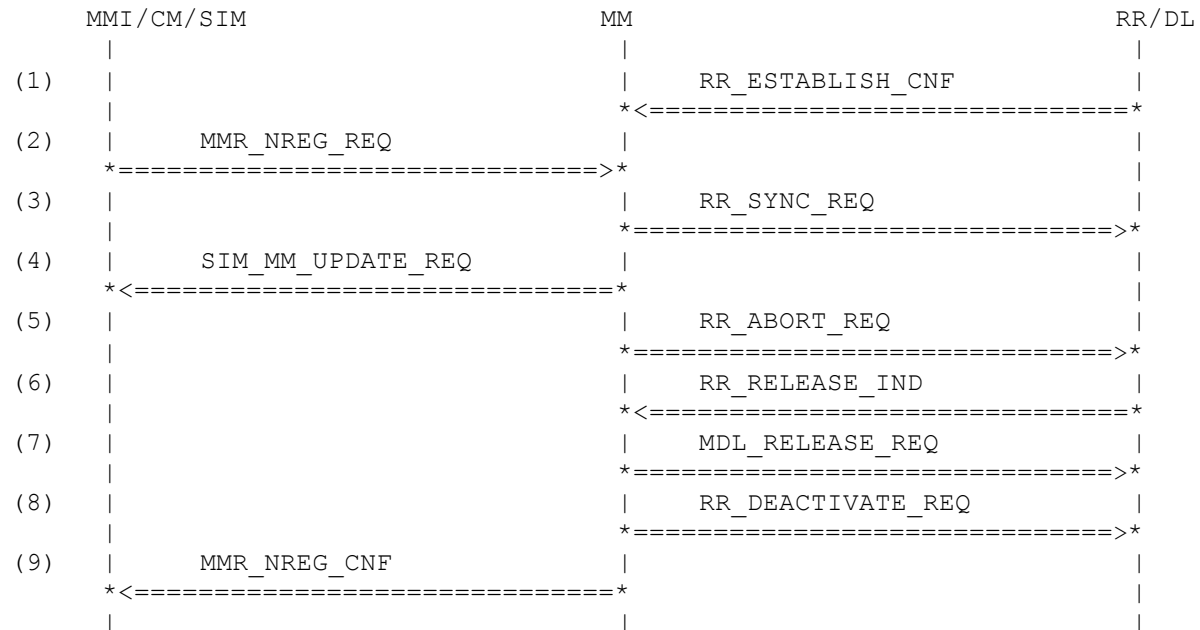
History: 09.07.97 HK Initial

4.11 Deregistration

4.11.1 MM201: MMR_NREG_REQ in State 3

Description: MM receives a RR-ESTABLISH confirmation primitive in State 3 (Location updating initiated). This is followed by a MMR-NREG request primitive. MM releases the RR connection and issues a MMR-NREG confirmation primitive with cause set to 'Power off'.

Preamble: MM101



Parametrization

Primitive	Parameter	Value
(1) RR_ESTABLISH_CNF param	NOT_USED	
(2) MMR_NREG_REQ cs	CS_POW_OFF	
(3) RR_SYNC_REQ op	NOT_USED	
cksn	NOT_USED	
kcv	NOT_USED	
tmsi	NOT_USED	
plmn	NOT_USED	
lac	NOT_USED	
synccs	SYNCCS_TMSI_INVALID	
acc	NOT_USED	
thplmn	NOT_USED	
(4) SIM_MM_UPDATE_REQ loc_info	LOC_INFO_123_33_FEFF	
bcch_inf	NOT_USED	
forb_plmn	NOT_USED	
cksn	CKSN_RES	
kc	KC_DELETED_SIM	
cell_identity	CELL_ID_1122	

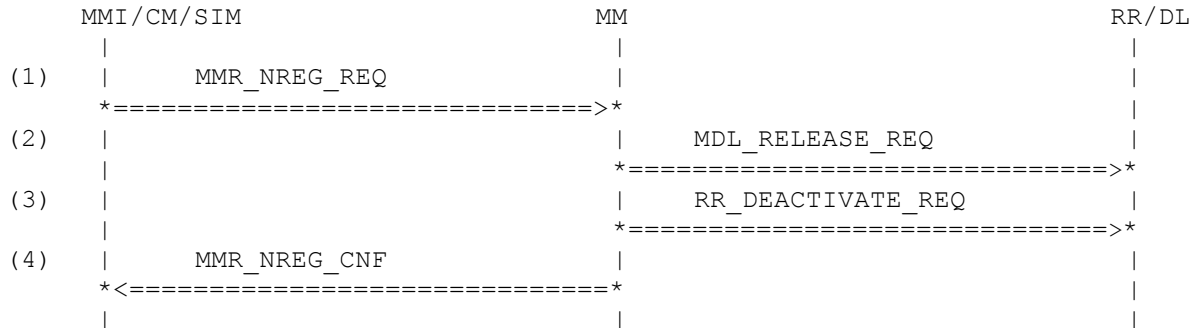
(5)	RR_ABORT_REQ abcs	ABCS_NORM
(6)	RR_RELEASE_IND relcs sapi gprs_resumption	RELCS_ABNORM_UNSPEC SAPI_0 GPRS_RESUMPTION_NOT_ACK
(7)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0
(8)	RR_DEACTIVATE_REQ param	NOT_USED
(9)	MMR_NREG_CNF cs	CS_POW_OFF

History:	09.07.97	HK	Initial
	15.09.97	DL	revised
	11.04.01	HM	Revised
	25.04.01	HM	Revised

4.11.2 MM202: Power Off in Ustate Status U1

Description: MM receives a MMR-NREG request primitive. MM issues a RR-DEACTIVATE request primitive and a MMR-NREG confirmation primitive with cause set to 'Power off' and changes to changes to State 0 (Null).

Preamble: MM023A



Parametrization

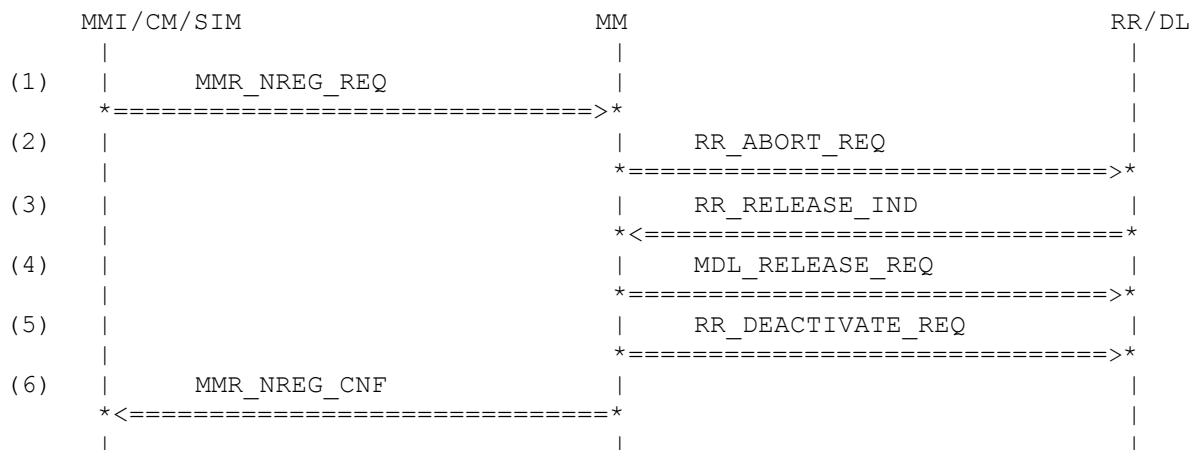
Primitive	Parameter	Value
(1) MMR_NREG_REQ cs	CS_POW_OFF	
(2) MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(3) RR_DEACTIVATE_REQ param	NOT_USED	
(4) MMR_NREG_CNF cs	CS_POW_OFF	

History: 08.07.97 HK Initial

4.11.3 MM203: Authentication Reject and Power off in State 6

Description: MM receives a MMR-NREG request primitive in State6 (MM Connection Active) and commences a shutdown.

Preamble: MM143



Parametrization

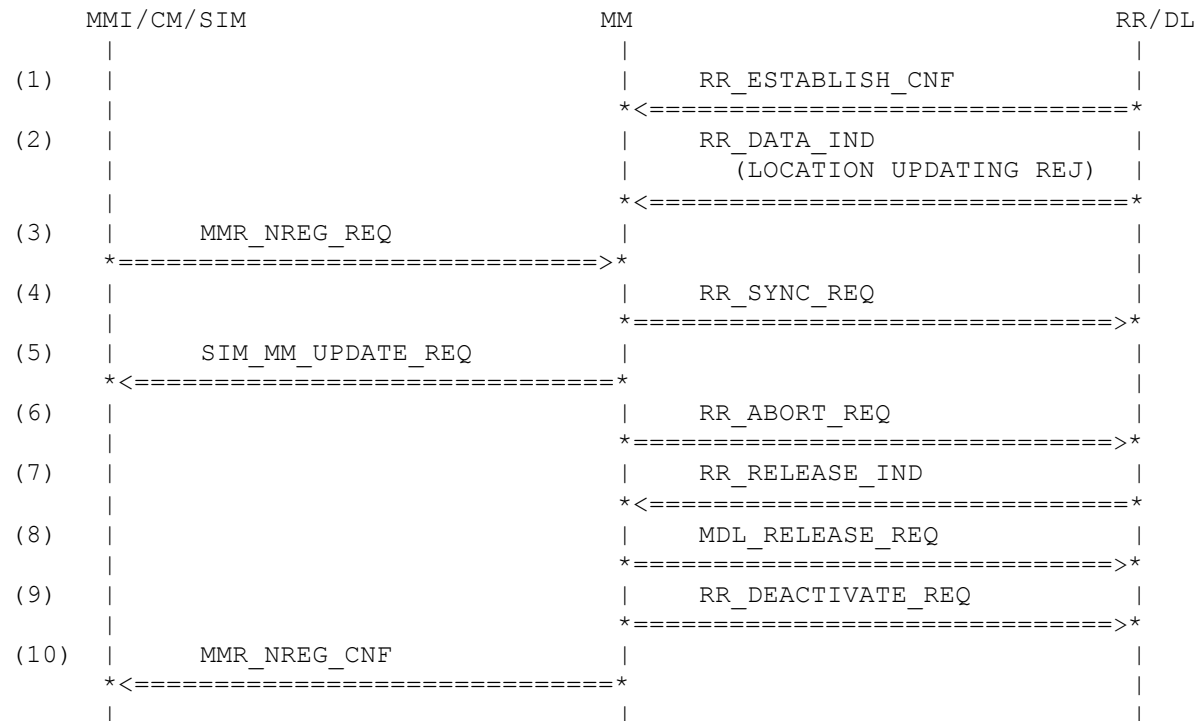
	Primitive	Parameter	Value
(1)	MMR_NREG_REQ cs	CS_POW_OFF	
(2)	RR_ABORT_REQ abcs	ABCS_NORM	
(3)	RR_RELEASE_IND relcs sapi gprs_resumption	RELCS_ABNORM_UNSPEC SAPI_0 GPRS_RESUMPTION_NOT_ACK	
(4)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(5)	RR_DEACTIVATE_REQ param	NOT_USED	
(6)	MMR_NREG_CNF cs	CS_POW_OFF	

History:	09.07.97	HK	Initial
	02.03.00	HM	Revised (search_running)
	26.01.01	HM	Revised
	30.04.01	HM	Revised

4.11.4 MM204: Power Off in State 10

Description: MM receives a MMR-NREG request primitive in State 10 (Location Update Rejected) and commences a shutdown.

Preamble: MM101



Parametrization

Primitive	Parameter	Value
(1) RR_ESTABLISH_CNF param	NOT_USED	
(2) RR_DATA_IND d1	NOT_USED	
d2	NOT_USED	
sdu		
{		
component	MM	
direction	DOWNLINK	
pd	D_LOC_UPD_REJ	
ti	TI_0	
rej_cause	RC_UNSPECIFIED	
}		
(3) MMR_NREG_REQ cs	CS_POW_OFF	
(4) RR_SYNC_REQ op	NOT_USED	
cksn	NOT_USED	
kcv	NOT_USED	
tmsi	NOT_USED	
plmn	NOT_USED	
lac	NOT_USED	
synccs	SYNCCS_TMSI_INVALID	

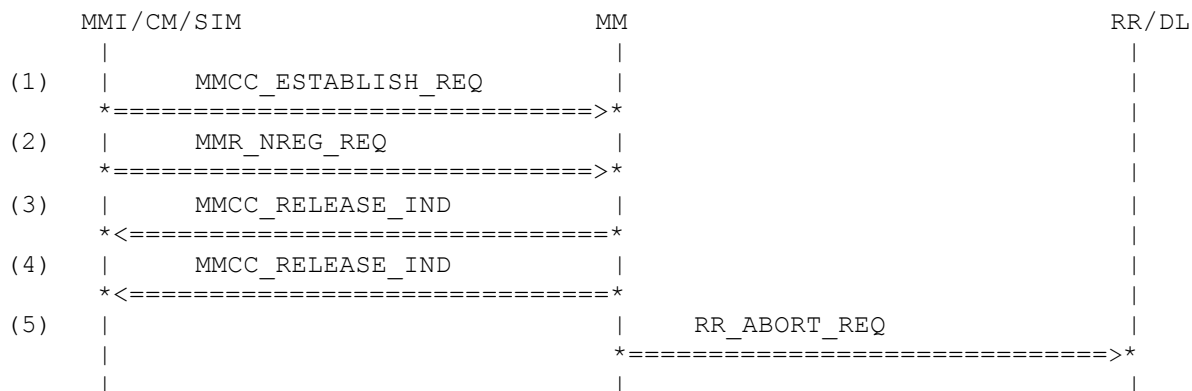
	accc	NOT_USED
	thplmn	NOT_USED
(5)	SIM_MM_UPDATE_REQ	
	loc_info	LOC_INFO_123_33_FEFF
	bcch_inf	NOT_USED
	forb_plmn	NOT_USED
	cksn	CKSN_RES
	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122
(6)	RR_ABORT_REQ	
	abcs	ABCS_NORM
(7)	RR_RELEASE_IND	
	relcs	RELCS_ABNORM_UNSPEC
	sapi	SAPI_0
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(8)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(9)	RR_DEACTIVATE_REQ	
	param	NOT_USED
(10)		
	cs	MMR_NREG_CNF
		CS_POW_OFF

History:	10.07.97	HK	Initial
	16.09.97	DL	revised
	11.04.01	HM	Revised
	25.04.01	HM	Revised

4.11.5 MM205: Power Off in State 14

Description: MM receives a MMR-NREG request primitive in State 14(Wait for RR Connection) and commences a shutdown.

Preamble: MM041



Parametrization

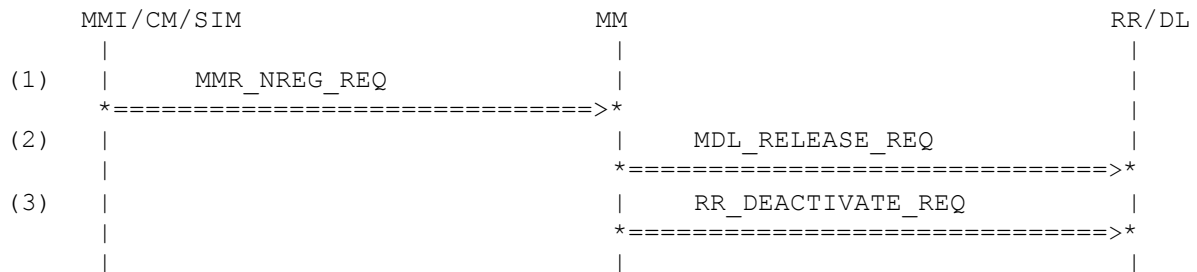
Primitive	Parameter	Value
(1) MMCC_ESTABLISH_REQ		
ti	TI_3	
prio	PRIO_NORM_CALL	
estcs	ESTCS_MOB_ORIG_DATA	
(2) MMR_NREG_REQ		
cs	CS_POW_OFF	
(3) MMCC_RELEASE_IND		
ti	TI_2	
relcs	RELCS_UNSPECIFIED	
(4) MMCC_RELEASE_IND		
ti	TI_3	
relcs	RELCS_UNSPECIFIED	
(5) RR_ABORT_REQ		
abcs	ABCS_NORM	

History:	10.07.97	HK	Initial
	16.09.97	DL	revised

4.11.6 MM206: Power Off in State 18

Description: MM receives a MMR-NREG request primitive in State 18 (Wait for RR Active) and issues a RR-DEACTIVATE request primitive.

Preamble: MM023A



Parametrization

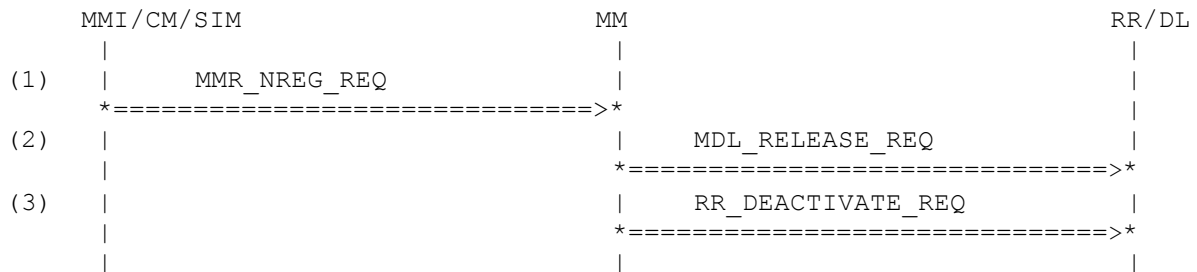
Primitive	Parameter	Value
(1) MMR_NREG_REQ cs	CS_POW_OFF	
(2) MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(3) RR_DEACTIVATE_REQ param	NOT_USED	

History: 10.07.97 HK Initial

4.11.7 MM207: Power Off Remove in State 19

Description: MM receives a a MMR-NREG request primitive in State 19 (MM Idle) and issues a RR-DEACTIVATE request primitive.

Preamble: MM161



Parametrization

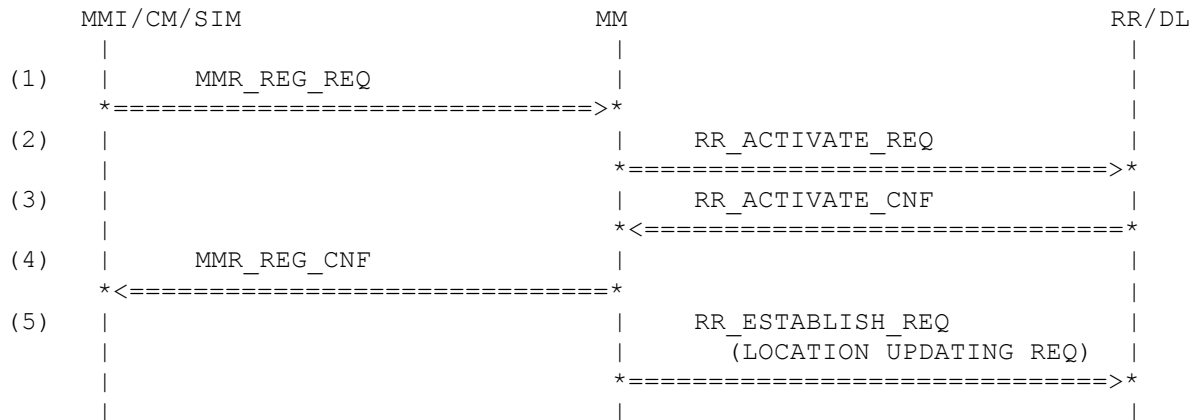
Primitive	Parameter	Value
(1) MMR_NREG_REQ cs	CS_POW_OFF	
(2) MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(3) RR_DEACTIVATE_REQ param	NOT_USED	

History: 10.07.97 HK Initial

4.11.8 MM208: Switch on after power off, IMSI ATTACH needed

Description: The mobile was switched off logically, but the power was not removed physically. This is the behaviour expected with the AT command AT+CFUN=4. The SIM data should have been preserved. After reactivation in the same location area, an IMSI ATTACH is needed.

Preamble: MM202



Parametrization

Primitive	Parameter	Value
(1) MMR_REG_REQ		
service_mode	SERVICE_MODE_FULL	
(2) RR_ACTIVATE_REQ		
plmn	PLMN_123_33	
op	OP_MODE_SIM_NO_SERV	
cksn	CKSN_RES	
kcv	KCV_EMPTY	
accc	ACC_2143	
imsi	MOB_ID_IMSI	
tmsi	MOB_ID_NO_ID	
thplmn	THPLMN_01	
bcch_info	BCCH_INFO_ECL	
cell_test	CELL_TEST_DISABLE	
gprs_indic	GPRS_NO	
(3) RR_ACTIVATE_CNF		
op	OP_MODE_SIM	
mm_info	MM_INFO_ATT	
cid	CELL_ID_1122	
plmn	PLMN_123_33	
lac	LAC_2147	
power	RF_CLASS_2	
gprs_indic	GPRS_NO	
(4) MMR_REG_CNF		
plmn	PLMN_123_33	
(5) RR_ESTABLISH_REQ		
estcs	ESTCS_SERV_REQ_BY_MM	
sdu		
{		
component	MM	
direction	UPLINK	

pd	U_LOC_UPD_REQ
ti	TI_0
loc_upd_type	LOC_UPD_TYPE_ATTACH
ciph_key_num	CIPH_KEY_NUM_RES
loc_area_ident	LOC_AREA_ID_123_33_2147
mob_class_1	MOB_CLASS_1
mob_id	MOB_IDENT_IMSI
}	

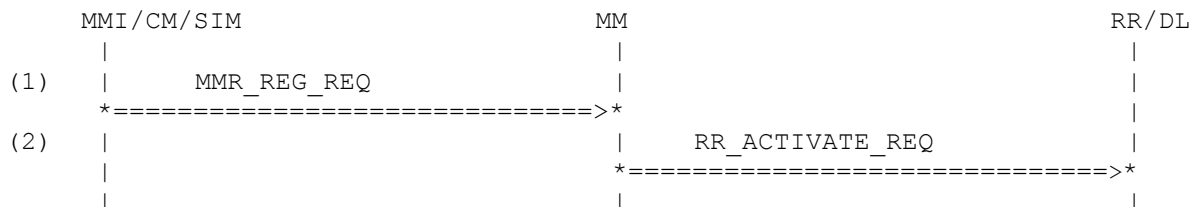
History:	11.04.01	HM	Initial
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4.12 Registration (REG_MS_OFF, no SIM Card)

4.12.1 MM300: Registration

Description: The reaction of MM to a request for registration with unplugged SIM card is tested. MM receives a MMR-REG request primitive and responds by issuing a RR-ACTIVATE request primitive in which the op field is set to 'limited service, no SIM'.

Preamble: MM001



Parametrization

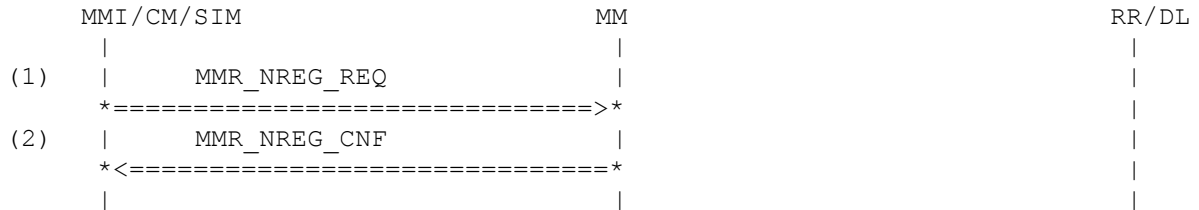
Primitive	Parameter	Value
(1) MMR_REG_REQ		
service_mode	SERVICE_MODE_FULL	
(2) RR_ACTIVATE_REQ		
plmn	PLMN_NO_ID	
op	OP_MODE_NO_SIM_NO_SERV	
cksn	CKSN_RES	
kcv	KC_DELETED	
acc	ACC_CLASS_0000	
imsi	MOB_ID_NO_ID	
tmsi	MOB_ID_NO_ID	
thplmn	THPLMN_FF	
bcch_info	NOT_USED	
cell_test	CELL_TEST_DISABLE	
gprs_indic	GPRS_NO	

History:	09.07.97	HK	Initial
	06.08.97	DL	Revised
	12.08.97	HK	Revised

4.12.2 MM301: Deregistration

Description: MM receives a MMR-NREG request primitive. MM is in NULL state, no lower layers are active. MM issues a MMR-NREG confirmation primitive with cause set to 'Power off'.

Preamble: MM001



Parametrization

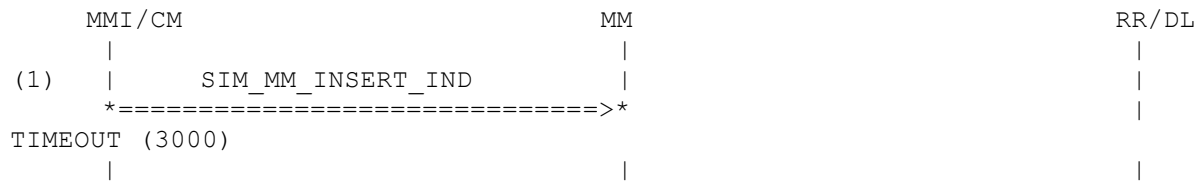
	Primitive	Parameter	Value
(1)	MMR_NREG_REQ cs	CS_POW_OFF	
(2)	MMR_NREG_CNF cs	CS_POW_OFF	

History:	09.07.97	HK	Initial
	15.09.97	DL	revised
	31.03.00	HM	Revised

4.12.3 MM302: SIM Insertion

Description: MM receives a SIM-INSERT indication primitive. It stores the parameters and waits for registration start by MMI.

Preamble: MM001



Parametrization

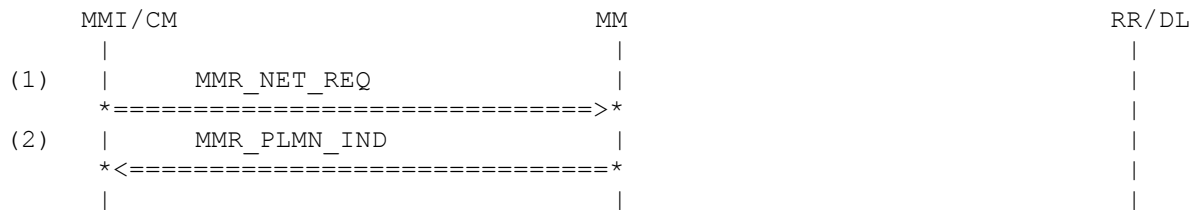
Primitive	Parameter	Value
(1) SIM_MM_INSERT_IND		
op_mode	OP_NORMAL_SIM	
imsi_field	IMSI_FIELD_1	
loc_info	LOC_INFO_UPDATED_1	
acc_ctrl	ACC_CTRL_1	
bcch_inf	BCCH_INF_1	
kc_n	KC_EMPTY	
pref_plmn	PREF_PLMN_NONE	
forb_plmn	FORB_PLMN_NONE	
phase	PHASE_2_SIM	
hplmn	THPLMN_01	

History:	07.07.97	HK	Initial
	06.08.97	DL	Revised
	12.08.97	HK	Revised

4.12.4 MM352: PLMN Available Request

Description: MMI requests a PLMN available list. There is no SIM inserted. This is not allowed.

Preamble: MM001



Parametrization

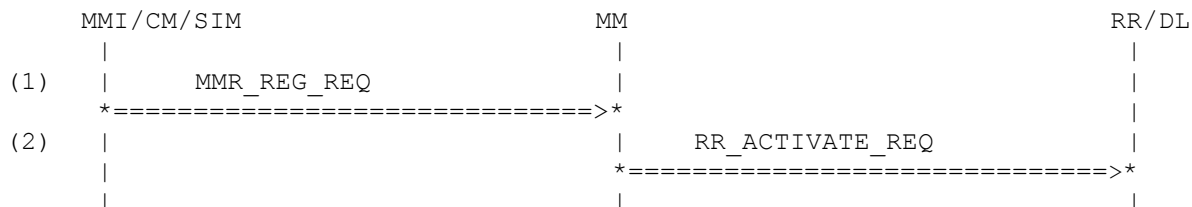
	Primitive	Parameter	Value
(1)	MMR_NET_REQ param	NOT_USED	
(2)	MMR_PLMN_IND res plmn forb_ind rxlevel	RES_REJ_NO_SIM_AVAIL NOT_USED NOT_USED NOT_USED	
History:	07.07.97 06.08.97 12.08.97	HK DL HK	Initial Revised Revised

4.13 Registration (REG_NO_SERVICE, no SIM Card)

4.13.1 MM303: Registration

Description: The reaction of MM to a request for registration with unplugged SIM card is tested. MM receives a MMR-REG request primitive and responds by issuing a RR-ACTIVATE request primitive in which the op field is set to 'limited service, no SIM'.

Preamble: MM300



Parametrization

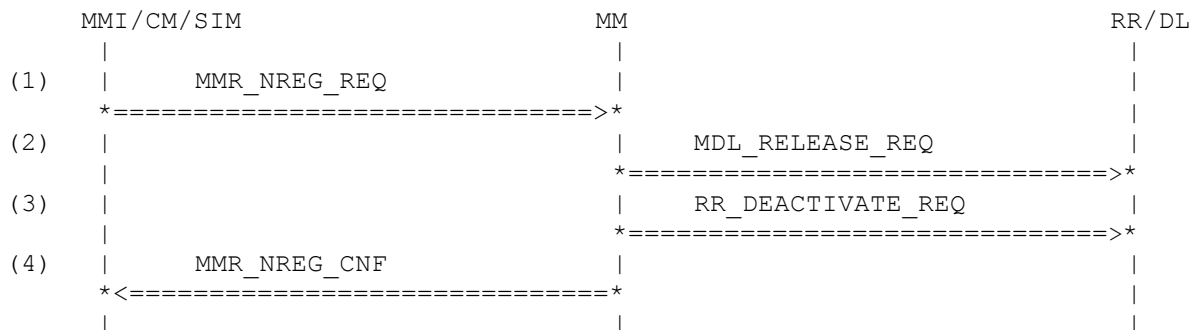
Primitive	Parameter	Value
(14) MMR_REG_REQ		
service_mode	SERVICE_MODE_FULL	
(15) RR_ACTIVATE_REQ		
plmn	PLMN_NO_ID	
op	OP_MODE_NO_SIM_NO_SERV	
cksn	CKSN_RES	
kcv	KC_DELETED	
acc	ACC_CLASS_0000	
imsi	MOB_ID_NO_ID	
tmsi	MOB_ID_NO_ID	
thplmn	THPLMN_FF	
bcch_info	NOT_USED	
cell_test	CELL_TEST_DISABLE	
gprs_indic	GPRS_NO	

History:	09.07.97	HK	Initial
	06.08.97	DL	Revised
	12.08.97	HK	Revised

4.13.2 MM304: Deregistration

Description: MM receives a MMR-NREG request primitive. MM issues a RR-DEACTIVATE request primitive and a MMR-NREG confirmation primitive with cause set to 'Power off' and changes to changes to State 0 (Null).

Preamble: MM300



Parametrization

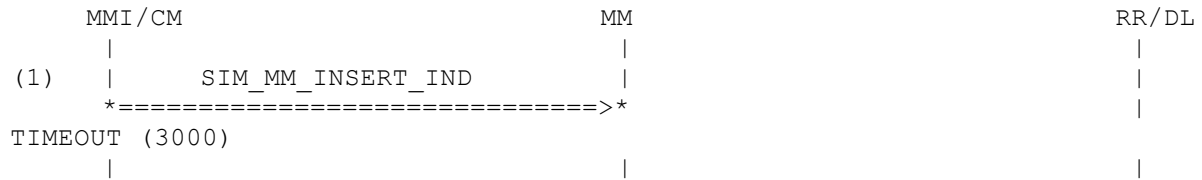
	Primitive	Parameter	Value
(1)	MMR_NREG_REQ cs	CS_POW_OFF	
(2)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(3)	RR_DEACTIVATE_REQ param	NOT_USED	
(4)	MMR_NREG_CNF cs	CS_POW_OFF	

History: 08.07.97 HK Initial

4.13.3 MM305: SIM Insertion

Description: MM receives a SIM-INSERT indication primitive. It stores the parameters and waits for registration start by MMI.

Preamble: MM300



Parametrization

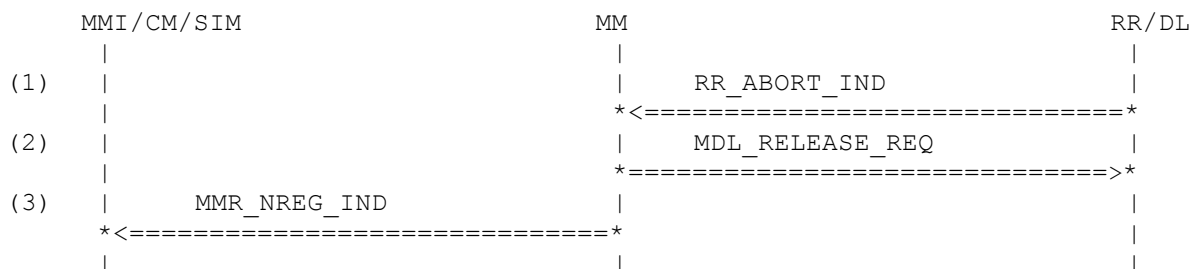
Primitive	Parameter	Value
(1) SIM_MM_INSERT_IND		
op_mode	OP_NORMAL_SIM	
imsi_field	IMSI_FIELD_1	
loc_info	LOC_INFO_UPDATED_1	
acc_ctrl	ACC_CTRL_1	
bcch_inf	BCCH_INF_1	
kc_n	KC_EMPTY	
pref_plmn	PREF_PLMN_NONE	
forb_plmn	FORB_PLMN_NONE	
phase	PHASE_2_SIM	
hplmn	THPLMN_01	

History:	07.07.97	HK	Initial
	06.08.97	DL	Revised
	12.08.97	HK	Revised

4.13.4 MM306: RR failure (No Service)

Description: MM receives a RR-ABORT indication primitive indicating No Service.

Preamble: MM300



Parametrization

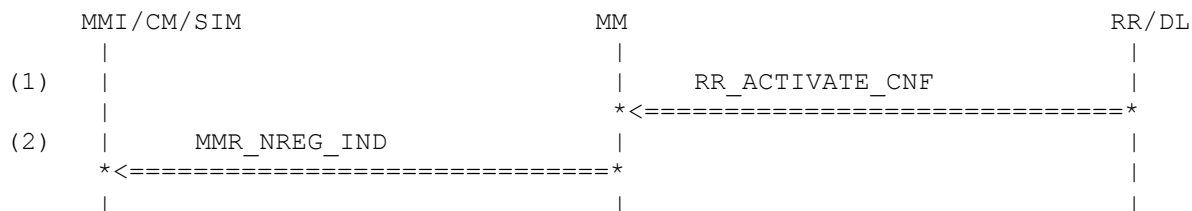
Primitive	Parameter	Value
(16) RR_ABORT_IND		
op	OP_MODE_NO_SIM_NO_SERV	
abcs	ABCS_CEL_SEL_FAIL	
plmn_avail	NO_PLMN_FOUND	
plmn	NOT_USED	
rxlevel	NOT_USED	
power	RF_CLASS_2	
(17) MDL_RELEASE_REQ		
ch_type	NOT_PRESENT_8BIT	
sapi	SAPI_0	
(18) MMR_NREG_IND		
nreg_cs	NREG_CELL_SELECTION_FAILED	
search_running	SEARCH_NOT_RUNNING	
new_forb_plmn	PLMN_NO_ID	
limited_cause	MMR_SIM_INVALID_NOSIM	

History:	10.07.97	HK	Initial
	02.03.00	HM	Revised (search_running)

4.13.5 MM307: MM Success (Limited Service)

Description: MM is informed by means of a RR-ACTIVATE confirmation primitive that the mobile station is synchronous to a cell. No SIM is inserted.

Preamble: MM300



Parametrization

Primitive	Parameter	Value
(20) RR_ACTIVATE_CNF		
op	OP_MODE_NO_SIM_LIM_SERV	
mm_info	MM_INFO	
cid	CELL_ID_1122	
plmn	PLMN_123_44	
lac	LAC_0002	
power	RF_CLASS_2	
gprs_indic	GPRS_NO	
(21) MMR_NREG_IND		
nreg_cs	NREG_LIMITED_SERVICE	
search_running	SEARCH_NOT_RUNNING	
new_forb_plmn	PLMN_NO_ID	
limited_cause	MMR_SIM_INVALID_NOSIM	
History:	09.07.97	HK Initial
	06.08.97	DL Revised
	12.08.97	HK Revised
	02.03.00	HM Revised (search_running)

4.13.6 MM353: PLMN Available Request

Description: MMI requests a PLMN available list. There is no SIM inserted. This is not allowed.

Preamble: MM300



Parametrization

Primitive	Parameter	Value
(1) MMR_NET_REQ		
param	NOT_USED	
(2) MMR_PLMN_IND		
res	RES_REJ_NO_SIM_AVAIL	
plmn	NOT_USED	

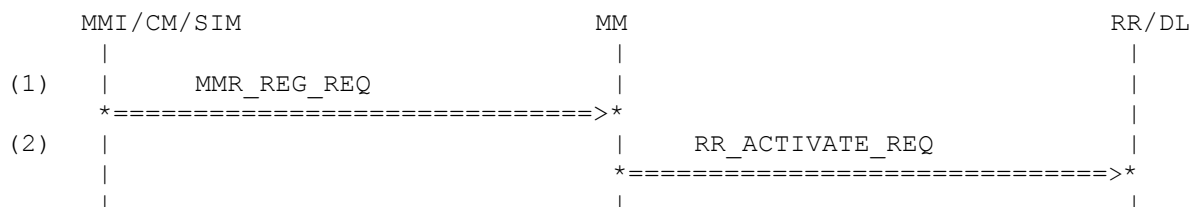
	forb_ind	NOT_USED	
	rxlevel	NOT_USED	
History:	07.07.97	HK	Initial
	06.08.97	DL	Revised
	12.08.97	HK	Revised

4.14 Registration (REG_LIMITED_SERVICE, no SIM Card)

4.14.1 MM308: Registration

Description: The reaction of MM to a request for registration with unplugged SIM card is tested. MM receives a MMR-REG request primitive and responds by issuing a RR-ACTIVATE request primitive in which the op field is set to 'limited service, no SIM'.

Preamble: MM307



Parametrization

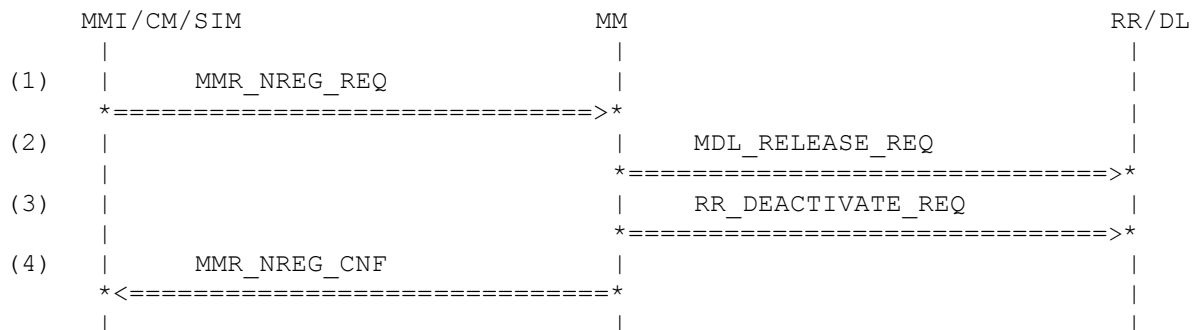
Primitive	Parameter	Value
(1) MMR_REG_REQ		
service_mode	SERVICE_MODE_FULL	
(2) RR_ACTIVATE_REQ		
plmn	PLMN_NO_ID	
op	OP_MODE_NO_SIM_NO_SERV	
cksn	CKSN_RES	
kcv	KC_DELETED	
acc	ACC_CLASS_0000	
imsi	MOB_ID_NO_ID	
tmsi	MOB_ID_NO_ID	
thplmn	THPLMN_FF	
bcch_info	NOT_USED	
cell_test	CELL_TEST_DISABLE	
gprs_indic	GPRS_NO	

History:	09.07.97	HK	Initial
	06.08.97	DL	Revised
	12.08.97	HK	Revised

4.14.2 MM309: Deregistration

Description: MM receives a MMR-NREG request primitive. MM issues a RR-DEACTIVATE request primitive and a MMR-NREG confirmation primitive with cause set to 'Power off' and changes to changes to State 0 (Null).

Preamble: MM307



Parametrization

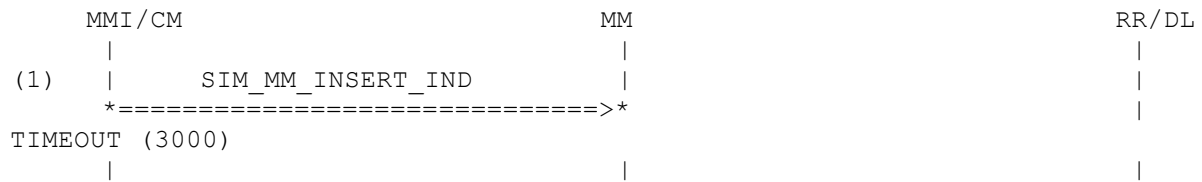
	Primitive	Parameter	Value
(1)	MMR_NREG_REQ cs	CS_POW_OFF	
(2)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(3)	RR_DEACTIVATE_REQ param	NOT_USED	
(4)	MMR_NREG_CNF cs	CS_POW_OFF	

History: 08.07.97 HK Initial

4.14.3 MM310: SIM Insertion

Description: MM receives a SIM-INSERT indication primitive. It stores the parameters and waits for registration start by MMI.

Preamble: MM307



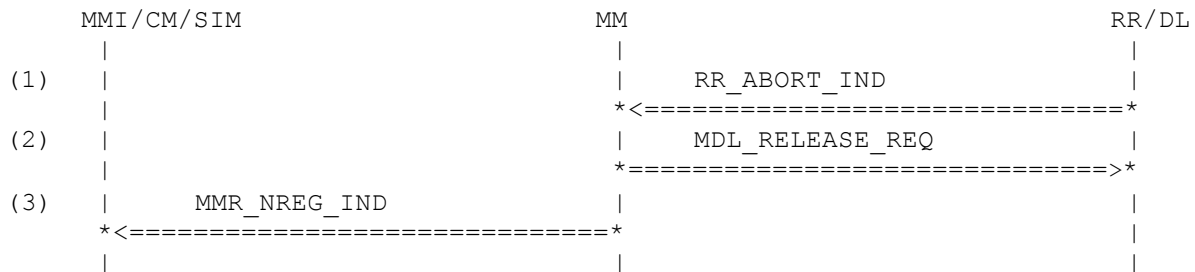
Parametrization

Primitive	Parameter	Value
(1) SIM_MM_INSERT_IND		
op_mode	OP_NORMAL_SIM	
imsi_field	IMSI_FIELD_1	
loc_info	LOC_INFO_UPDATED_1	
acc_ctrl	ACC_CTRL_1	
bcch_inf	BCCH_INF_1	
kc_n	KC_EMPTY	
pref_plmn	PREF_PLMN_NONE	
forb_plmn	FORB_PLMN_NONE	
phase	PHASE_2_SIM	
hplmn	THPLMN_01	
History:	07.07.97	HK Initial
	06.08.97	DL Revised
	12.08.97	HK Revised

4.14.4 MM311: RR failure (No Service)

Description: MM receives a RR-ABORT indication primitive indicating No Service. No SIM is inserted.

Preamble: MM307



Parametrization

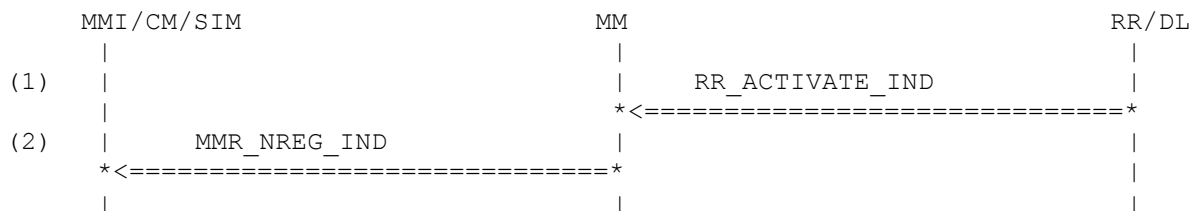
Primitive	Parameter	Value
(1) RR_ABORT_IND		
op	OP_MODE_NO_SIM_NO_SERV	
abcs	ABCS_CEL_SEL_FAIL	
plmn_avail	NO_PLMN_FOUND	
plmn	NOT_USED	
rxlevel	NOT_USED	
power	RF_CLASS_2	
(2) MDL_RELEASE_REQ		
ch_type	NOT_PRESENT_8BIT	
sapi	SAPI_0	
(3) MMR_NREG_IND		
nreg_cs	NREG_CELL_SELECTION_FAILED	
search_running	SEARCH_NOT_RUNNING	
new_forb_plmn	PLMN_NO_ID	
limited_cause	MMR_SIM_INVALID_NOSIM	

History:	10.07.97	HK	Initial
	02.03.00	HM	Revised (search_running)

4.14.5 MM312: MM Success (Limited Service)

Description: MM is informed by means of a RR-ACTIVATE indication primitive that the mobile station is synchronous to a cell. No SIM is inserted.

Preamble: MM307



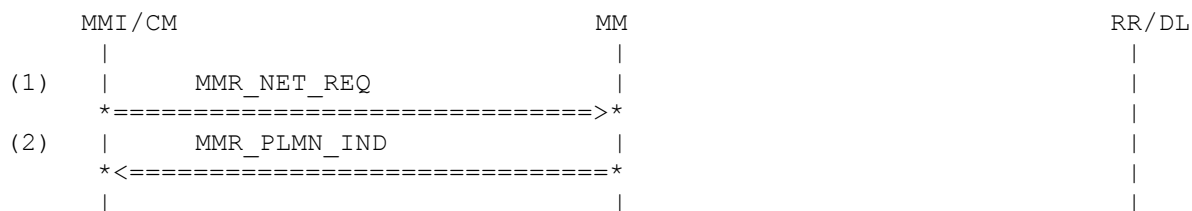
Parametrization

Primitive	Parameter	Value
(1) RR_ACTIVATE_IND		
op	OP_MODE_NO_SIM_LIM_SERV	
mm_info	MM_INFO	
cid	CELL_ID_0045	
plmn	PLMN_123_44	
lac	LAC_0002	
power	RF_CLASS_2	
gprs_indic	GPRS_NO	
(2) MMR_NREG_IND		
nreg_cs	NREG_LIMITED_SERVICE	
search_running	SEARCH_NOT_RUNNING	
new_forb_plmn	PLMN_NO_ID	
limited_cause	MMR_SIM_INVALID_NOSIM	
History:	09.07.97	HK Initial
	06.08.97	DL Revised
	12.08.97	HK Revised
	02.03.00	HM Revised (search_running)

4.14.6 MM354: PLMN Available Request

Description: MMI requests a PLMN available list. There is no SIM inserted. This is not allowed.

Preamble: MM307



Parametrization

	Primitive	Parameter	Value
(1)	MMR_NET_REQ param	NOT_USED	
(2)	MMR_PLMN_IND res plmn forb_ind rxlevel	RES_REJ_NO_SIM_AVAIL NOT_USED NOT_USED NOT_USED	
History:	07.07.97 06.08.97 12.08.97	HK DL HK	Initial Revised Revised

4.15 Registration (REG_MS_OFF, with SIM card)

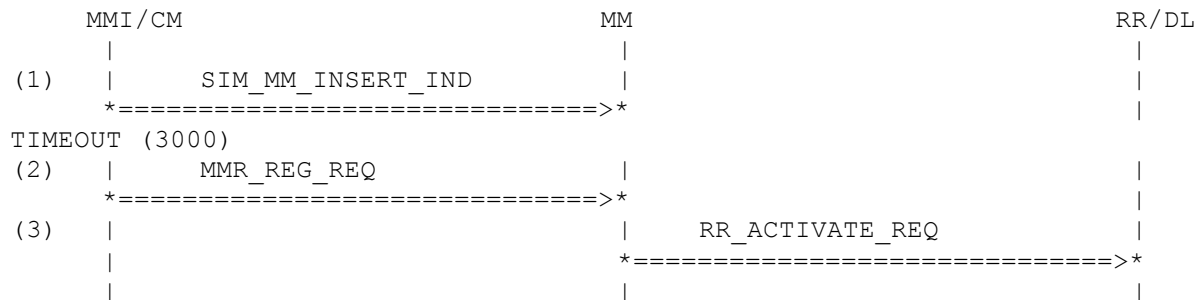
4.15.1 MM313: Registration

Description: MM receives SIM information followed by the registration start of MMI. The cell selection is started.

Variant A: not updated start with HPLMN
Variant B: updated, HPLMN start with HPLMN
Variant C: updated, not HPLMN start with LPLMN

Preamble: MM001

Variants: <A>....<C>



Parametrization

Primitive	Parameter	Value
(1) SIM_MM_INSERT_IND		
op_mode	OP_NORMAL_SIM	
imsi_field	IMSI_FIELD_1	
<A>	loc_info	LOC_INFO_NOT_UPD_LPLMN
	loc_info	LOC_INFO_UPDATED_1
<C>	loc_info	LOC_INFO_UPDATED_LPLMN
acc_ctrl	ACC_CTRL_1	
bcch_inf	BCCH_INF_1	
kc_n	KC_EMPTY	
pref_plmn	PREF_PLMN_NONE	
<A>	forb_plmn	FORB_PLMN_NONE
	forb_plmn	FORB_PLMN_2
<C>	forb_plmn	FORB_PLMN_NONE
phase	PHASE_2_SIM	
hplmn	THPLMN_01	
(2) MMR_REG_REQ		
service_mode	SERVICE_MODE_FULL	
(3) RR_ACTIVATE_REQ		
<A>	plmn	PLMN_123_33
	plmn	PLMN_123_33
<C>	plmn	PLMN_123_31
op	OP_MODE_SIM_NO_SERV	
cksn	CKSN_RES	
kcv	KCV_EMPTY	
acc	ACC_2143	
imsi	MOB_ID_IMSI	
tmsi	MOB_ID_NO_ID	
thplmn	THPLMN_01	
<A>	bcch_info	BCCH_INFO_1
	bcch_info	BCCH_INFO_ECL

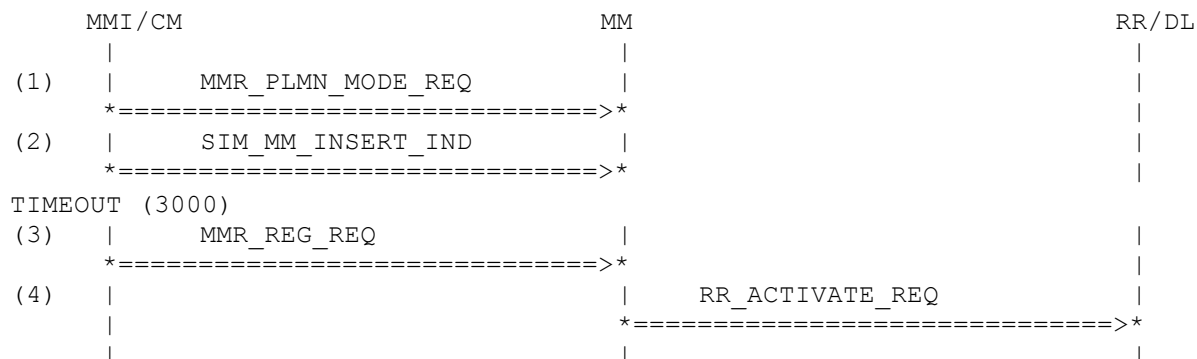
<C>	bcch_info	BCCH_INFO_ECL
cell_test	CELL_TEST_DISABLE	
gprs_indic	GPRS_NO	

History:	07.07.97	HK	Initial
	06.08.97	DL	Revised
	12.08.97	HK	Revised
	24.02.00	HM	Revised

4.15.2 MM314: PLMN Mode Change

Description: MMI changes the PLMN mode from automatic to manual. MM receives SIM information followed by the registration start of MMI. The cell selection is started.

Preamble: MM001



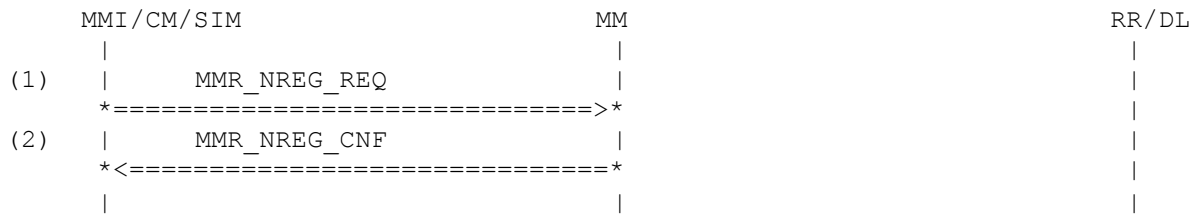
Parametrization

	Primitive	Parameter	Value
(1)	MMR_PLMN_MODE_REQ mode	MODE_MAN	
(2)	SIM_MM_INSERT_IND op_mode imsi_field loc_info acc_ctrl bcch_inf kc_n pref_plmn forb_plmn phase hplmn	OP_NORMAL_SIM IMSI_FIELD_1 LOC_INFO_NOT_UPD_LPLMN ACC_CTRL_1 BCCH_INF_1 KC_EMPTY PREF_PLMN_NONE FORB_PLMN_NONE PHASE_2_SIM THPLMN_01	
(3)	MMR_REG_REQ service_mode	SERVICE_MODE_FULL	
(4)	RR_ACTIVATE_REQ plmn op cksn kcv acc imsi tmsi thplmn bcch_info cell_test gprs_indic	PLMN_NO_ID OP_MODE_SIM_NO_SERV_M CKSN_RES KC_DELETED ACC_CLASS_0000 MOB_ID_NO_ID MOB_ID_NO_ID THPLMN_FF NOT_USED CELL_TEST_DISABLE GPRS_NO	
History:	07.07.97 06.08.97 12.08.97	HK DL HK	Initial Revised Revised

4.15.3 MM315: Deregistration (Power Off)

Description: MM receives a MMR-NREG request primitive. issues a MMR-NREG confirmation primitive with cause set to 'Power off'.

Preamble: MM302



Parametrization

	Primitive	Parameter	Value
(1)	MMR_NREG_REQ cs	CS_POW_OFF	
(2)	MMR_NREG_CNF cs	CS_POW_OFF	
History:	09.07.97 15.09.97	HK DL	Initial revised

4.15.4 MM316: Deregistration (SIM invalid)

Description: MM receives a MMR-NREG request primitive. issues a MMR-NREG confirmation primitive with cause set to 'SIM Remove'. This doesn't erase SIM data in MM, but MM now considers the SIM as invalid until MMR_REG_REQ with SERVICE_MODE_FULL is received.

Preamble: MM302

	MMI / CM / SIM	MM	RR / DL
(1)	MMR_NREG_REQ		
	=====>		
(2)	MMR_NREG_CNF		
	<=====		
(3)	MMR_REG_REQ		
	=====>		
(4)		RR_ACTIVATE_REQ	
		=====>	

Parametrization

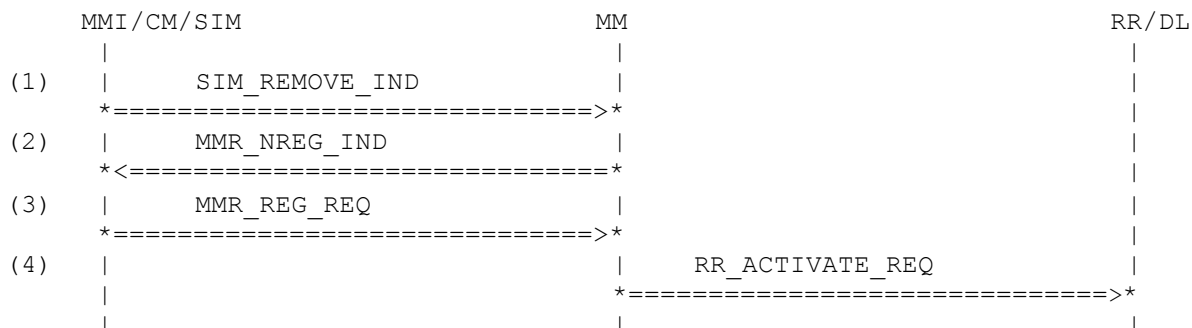
Primitive	Parameter	Value
(1) MMR_NREG_REQ cs	CS_SIM_REM	
(2) MMR_NREG_CNF cs	CS_SIM_REM	
(3) MMR_REG_REQ service_mode	SERVICE_MODE_LIMITED	
(4) RR_ACTIVATE_REQ plmn op cksn kcv acc imsi tmsi thplmn bcch_info cell_test gprs_indic	PLMN_NO_ID OP_MODE_NO_SIM_NO_SERV CKSN_RES KC_DELETED ACC_CLASS_0000 MOB_ID_NO_ID MOB_ID_NO_ID THPLMN_FF NOT_USED CELL_TEST_DISABLE GPRS_NO	

History:	09.07.97	HK	Initial
	15.09.97	DL	Revised
	26.04.00	HM	Revised

4.15.5 MM317: SIM Removal

Description: The SIM card is removed before starting with registration. MM is in NULL state, no lower layers are active in this state.

Preamble: MM302



Parametrization

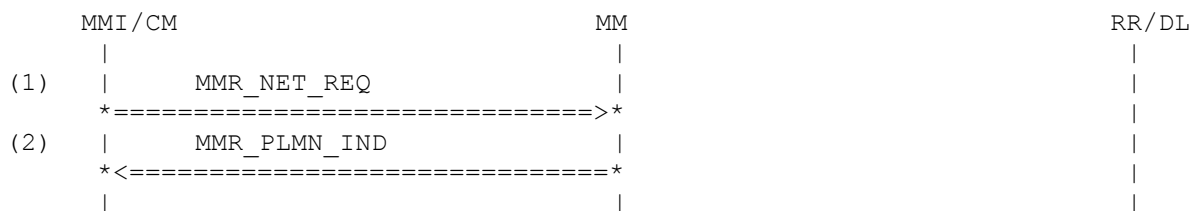
	Primitive	Parameter	Value
(1)	SIM_REMOVE_IND error	NOT_USED	
(2)	MMR_NREG_IND nreg_cs search_running new_forb_plmn limited_cause	NREG_CELL_SELECTION_FAILED SEARCH_NOT_RUNNING PLMN_NO_ID MMR_SIM_INVALID_REMOVED	
(3)	MMR_REG_REQ service_mode	SERVICE_MODE_FULL	
(4)	RR_ACTIVATE_REQ plmn op cksn kcv accc imsi tmsi thplmn bcch_info cell_test gprs_indic	PLMN_NO_ID OP_MODE_NO_SIM_NO_SERV CKSN_RES KC_DELETED ACC_CLASS_0000 MOB_ID_NO_ID MOB_ID_NO_ID THPLMN_FF NOT_USED CELL_TEST_DISABLE GPRS_NO	

History:	08.07.97	HK	Initial
	02.03.00	HM	Revised (search_running)
	31.08.00	HM	Revised

4.15.6 MM351: PLMN Available Request

Description: MMI requests a PLMN available list before starting registration. This is not allowed.

Preamble: MM302



Parametrization

	Primitive	Parameter	Value
(1)	MMR_NET_REQ param	NOT_USED	
(2)	MMR_PLMN_IND res plmn forb_ind rxlevel	RES_REJ_NOT_IDL_MOD NOT_USED NOT_USED NOT_USED	
History:	07.07.97 06.08.97 12.08.97	HK DL HK	Initial Revised Revised

4.16 Registration (REG_NO_SERVICE, with SIM card, automatic mode)

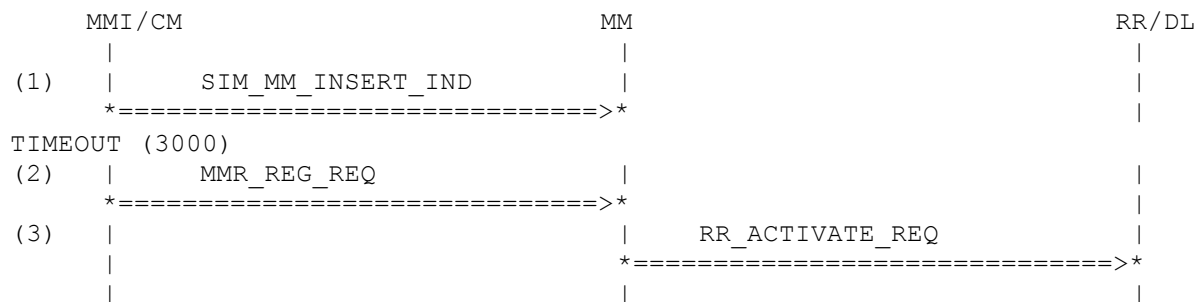
4.16.1 MM318: Registration

Description: MM receives SIM information followed by the registration start of MMI. The cell selection is started.

Variant A: not updated start with HPLMN
Variant B: updated, HPLMN start with HPLMN
Variant C: updated, not HPLMN start with LPLMN

Preamble: MM300

Variants: <A>....<C>



Parametrization

Primitive	Parameter	Value
(1) SIM_MM_INSERT_IND		
op_mode	OP_NORMAL_SIM	
imsi_field	IMSI_FIELD_1	
<A>	loc_info	LOC_INFO_NOT_UPD_LPLMN
	loc_info	LOC_INFO_UPDATED_1
<C>	loc_info	LOC_INFO_UPDATED_LPLMN
acc_ctrl	ACC_CTRL_1	
bcch_inf	BCCH_INF_1	
kc_n	KC_EMPTY	
pref_plmn	PREF_PLMN_NONE	
<A>	forb_plmn	FORB_PLMN_NONE
	forb_plmn	FORB_PLMN_2
<C>	forb_plmn	FORB_PLMN_NONE
phase	PHASE_2_SIM	
hplmn	THPLMN_01	
(2) MMR_REG_REQ		
service_mode	SERVICE_MODE_FULL	
(3) RR_ACTIVATE_REQ		
<A>	plmn	PLMN_123_33
	plmn	PLMN_123_33
<C>	plmn	PLMN_123_31
op	OP_MODE_SIM_NO_SERV	
cksn	CKSN_RES	
kcv	KCV_EMPTY	
accc	ACC_2143	
imsi	MOB_ID_IMSI	
tmsi	MOB_ID_NO_ID	
thplmn	THPLMN_01	
<A>	bcch_info	BCCH_INFO_1

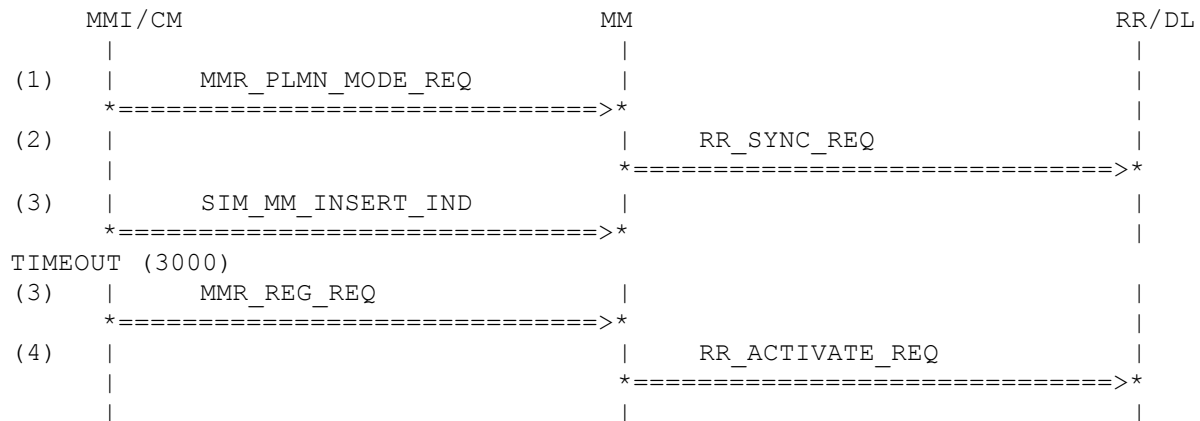
	bcch_info	BCCH_INFO_ECL
<C>	bcch_info	BCCH_INFO_ECL
cell_test	CELL_TEST_DISABLE	
gprs_indic	GPRS_NO	

History:	07.07.97	HK	Initial
	06.08.97	DL	Revised
	12.08.97	HK	Revised
	24.02.00	HM	Revised

4.16.2 MM319: PLMN Mode Change

Description: MMI changes the PLMN mode from automatic to manual. MM receives SIM information followed by the registration start of MMI. The cell selection is started.

Preamble: MM300



Parametrization

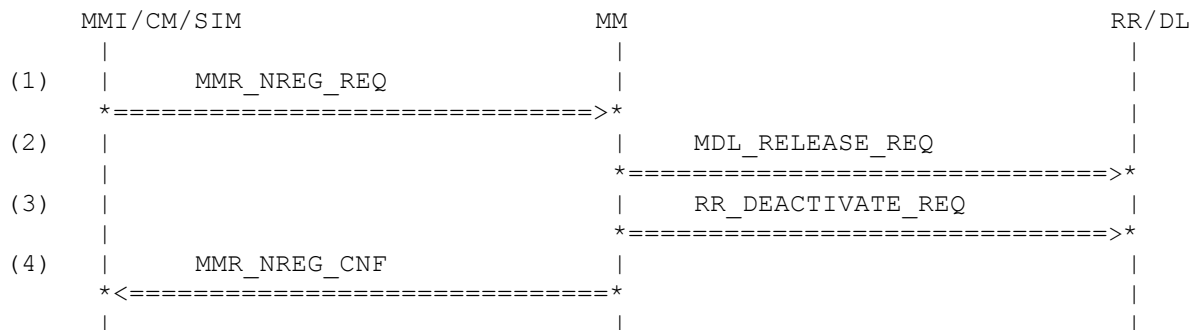
	Primitive	Parameter	Value
(1)	MMR_PLMN_MODE_REQ mode	MODE_MAN	
(2)	RR_SYNC_REQ op cksn kcv tmsi plmn lac synccs accc thplmn	OP_MODE_NO_SIM_NO_SERV_M NOT_USED NOT_USED NOT_USED NOT_USED NOT_USED NOT_PRESENT_16BIT NOT_USED NOT_USED	
(3)	SIM_MM_INSERT_IND op_mode imsi_field loc_info acc_ctrl bcch_inf kc_n pref_plmn forb_plmn phase hplmn	OP_NORMAL_SIM IMSI_FIELD_1 LOC_INFO_NOT_UPD_LPLMN ACC_CTRL_1 BCCH_INF_1 KC_EMPTY PREF_PLMN_NONE FORB_PLMN_NONE PHASE_2_SIM THPLMN_01	
(4)	MMR_REG_REQ service_mode	SERVICE_MODE_FULL	
(5)	RR_ACTIVATE_REQ plmn op cksn kcv accc imsi	PLMN_NO_ID OP_MODE_SIM_NO_SERV_M CKSN_RES KC_DELETED ACC_CLASS_0000 MOB_ID_NO_ID	

tmsi		MOB_ID_NO_ID	
thplmn		THPLMN_FF	
bcch_info		NOT_USED	
cell_test		CELL_TEST_DISABLE	
gprs_indic		GPRS_NO	
History:	07.07.97	HK	Initial
	06.08.97	DL	Revised
	12.08.97	HK	Revised

4.16.3 MM320: Deregistration (Power Off)

Description: MM receives a MMR-NREG request primitive. MM issues a RR-DEACTIVATE request primitive and a MMR-NREG confirmation primitive with cause set to 'Power off' and changes to changes to State 0 (Null).

Preamble: MM313A



Parametrization

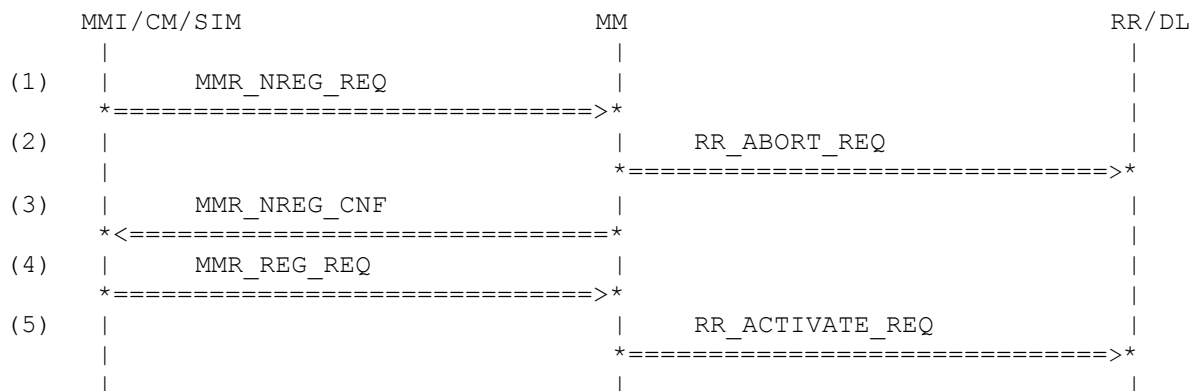
	Primitive	Parameter	Value
(1)	MMR_NREG_REQ cs	CS_POW_OFF	
(2)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(3)	RR_DEACTIVATE_REQ param	NOT_USED	
(4)	MMR_NREG_CNF cs	CS_POW_OFF	

History: 08.07.97 HK Initial

4.16.4 MM321: Deregistration (SIM invalid)

Description: MM receives a MMR-NREG request primitive. issues a MMR-NREG confirmation primitive with cause set to 'SIM Remove'.

Preamble: MM313A



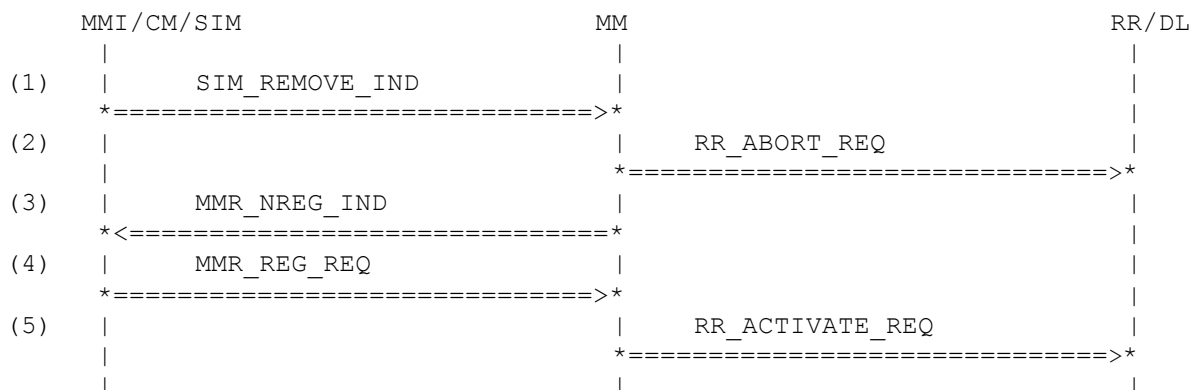
Parametrization

	Primitive	Parameter	Value
(1)	MMR_NREG_REQ cs	CS_SIM_REM	
(2)	RR_ABORT_REQ abcs	ABCS_SIM_REM	
(3)	MMR_NREG_CNF cs	CS_SIM_REM	
(4)	MMR_REG_REQ service_mode	SERVICE_MODE_FULL	
(5)	RR_ACTIVATE_REQ plmn op cksn kcv accc imsi tmsi thplmn bcch_info cell_test gprs_indic	PLMN_123_33 OP_MODE_SIM_NO_SERV CKSN_RES KCV_EMPTY ACC_2143 MOB_ID_IMSI MOB_ID_NO_ID THPLMN_01 BCCH_INFO_1 CELL_TEST_DISABLE GPRS_NO	
History:	09.07.97 15.09.97 30.08.00	HK DL HM	Initial revised Revised

4.16.5 MM322: SIM Removal

Description: The SIM card is removed before starting with registration.

Preamble: MM313A



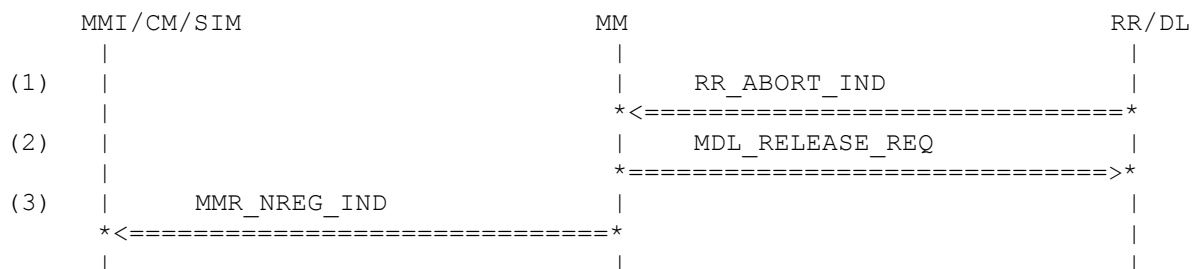
Parametrization

	Primitive	Parameter	Value
(1)	SIM_REMOVE_IND error	NOT_USED	
(2)	RR_ABORT_REQ abcs	ABCS_SIM_REM	
(3)	MMR_NREG_IND nreg_cs search_running new_forb_plmn limited_cause	NREG_NO_SERVICE SEARCH_NOT_RUNNING PLMN_NO_ID MMR_SIM_INVALID_REMOVED	
(4)	MMR_REG_REQ service_mode	SERVICE_MODE_FULL	
(5)	RR_ACTIVATE_REQ plmn op cksn kcv accc imsi tmsi thplmn bcch_info cell_test gprs_indic	PLMN_NO_ID OP_MODE_NO_SIM_NO_SERV CKSN_RES KC_DELETED ACC_CLASS_0000 MOB_ID_NO_ID MOB_ID_NO_ID THPLMN_FF NOT_USED CELL_TEST_DISABLE GPRS_NO	
History:	08.07.97 02.03.00 07.01.01	HK HM HM	Initial Revised (search_running) Adaption caused by GPRS integration

4.16.6 MM323: RR failure (No Service)

Description: MM receives a RR-ABORT indication primitive indicating No Service.

Preamble: MM313A



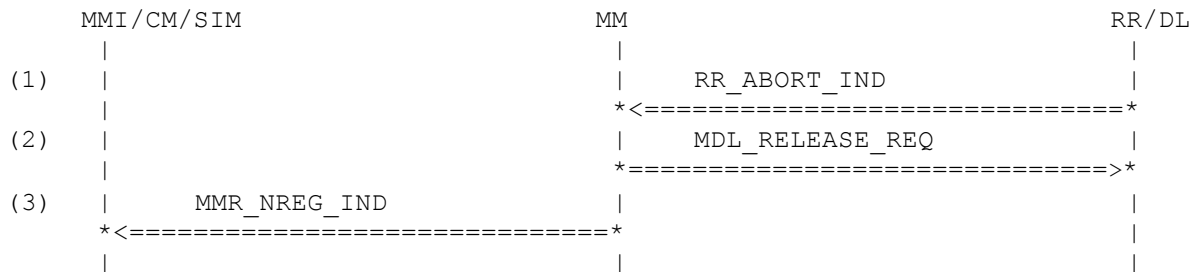
Parametrization

Primitive	Parameter	Value
(23)	RR_ABORT_IND	
op	OP_MODE_SIM_NO_SERV	
abcs	ABCS_CEL_SEL_FAIL	
plmn_avail	NO_PLMN_FOUND	
plmn	NOT_USED	
rxlevel	NOT_USED	
power	RF_CLASS_2	
(24)	MDL_RELEASE_REQ	
ch_type	NOT_PRESENT_8BIT	
sapi	SAPI_0	
(25)	MMR_NREG_IND	
nreg_cs	NREG_CELL_SELECTION_FAILED	
search_running	SEARCH_NOT_RUNNING	
new_forb_plmn	PLMN_NO_ID	
limited_cause	MMR_RC_NONE	
History:	10.07.97	HK Initial
	02.03.00	HM Revised (search_running)

4.16.7 MM324: RR failure (Limited Service, no further PLMNs)

Description: MM receives a RR-ABORT indication primitive indicating Limited Service. The one PLMN which was found is in the forbidden PLMN list and cannot be used.

Preamble: MM313B



Parametrization

Primitive	Parameter	Value
(26)	RR_ABORT_IND	
op	OP_MODE_SIM_LIM_SERV	
abcs	ABCS_CEL_SEL_FAIL	
plmn_avail	ONE_PLMN_FOUND	
plmn	PLMN_LIST_FORB	
rxlevel	RXLEVEL_20	
power	RF_CLASS_2	
(27)	MDL_RELEASE_REQ	
ch_type	NOT_PRESENT_8BIT	
sapi	SAPI_0	
(28)	MMR_NREG_IND	
nreg_cs	NREG_LIMITED_SERVICE	
search_running	SEARCH_NOT_RUNNING	
new_forb_plmn	PLMN_NO_ID	
limited_cause	MMR_RC_NONE	
History:	10.07.97	HK Initial
	03.03.00	HM Revised (search_running)

4.16.8 MM325: RR failure (Limited Service, further PLMNs available)

Description: MM receives a RR-ABORT indication primitive indicating Limited Service. The one PLMN which was found is not in the forbidden PLMN list and can be used.

Preamble: MM313A



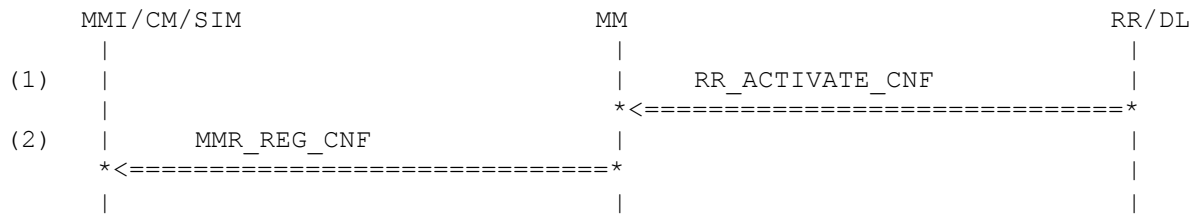
Parametrization

Primitive	Parameter	Value
(1) RR_ABORT_IND		
op	OP_MODE_SIM_LIM_SERV	
abcs	ABCS_CEL_SEL_FAIL	
plmn_avail	ONE_PLMN_FOUND	
plmn	PLMN_LIST_LPLMN	
rxlevel	RXLEVEL_20	
power	RF_CLASS_2	
(2) MDL_RELEASE_REQ		
ch_type	NOT_PRESENT_8BIT	
sapi	SAPI_0	
(3) MMR_NREG_IND		
nreg_cs	NREG_LIMITED_SERVICE	
search_running	SEARCH_RUNNING	
new_forb_plmn	PLMN_NO_ID	
limited_cause	MMR_RC_NONE	
(4) RR_ACTIVATE_REQ		
plmn	PLMN_123_31	
op	OP_MODE_SIM_NO_SERV	
cksn	CKSN_RES	
kcv	KCV_EMPTY	
acc	ACC_2143	
imsi	MOB_ID_IMSI	
tmsi	MOB_ID_NO_ID	
thplmn	THPLMN_01	
bcch_info	BCCH_INFO_1	
cell_test	CELL_TEST_DISABLE	
gprs_indic	GPRS_NO	
History:	10.07.97	HK Initial
	02.03.00	HM Revised (search_running)

4.16.9 MM326: MM Success

Description: MM is informed by means of a RR-ACTIVATE confirmation primitive that the mobile station is synchronous to a cell.

Preamble: MM313B



Parametrization

Primitive	Parameter	Value
(19) RR_ACTIVATE_CNF		
op	OP_MODE_SIM	
mm_info	MM_INFO	
cid	CELL_ID_1122	
plmn	PLMN_123_33	
lac	LAC_2147	
power	RF_CLASS_2	
gprs_indic	GPRS_NO	
(20) MMR_REG_CNF		
plmn	PLMN_123_33	

History:	09.07.97	HK	Initial
	06.08.97	DL	Revised
	12.08.97	HK	Revised

4.16.10 MM327: MM Failure

Description: MM is informed by means of a RR-ACTIVATE confirmation primitive that the mobile station is synchronous to a cell. A location updating is started. After four rejections limited service is indicated to the user.

Preamble: MM313B

	MMI/CM/SIM	MM	RR/DL
(1)		RR_ACTIVATE_CNF	
		*<=====	
(2)	MMR_REG_CNF		
	*<=====		
(3)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		*=====>	
(4)		RR_ESTABLISH_CNF	
		*<=====	
(5)		RR_DATA_IND	
		(LOCATION UPDATING REJ)	
		*<=====	
(6)		RR_RELEASE_IND	
		*<=====	
(7)		MDL_RELEASE_REQ	
		*=====>	
(8)		RR_SYNC_REQ	
		*=====>	
(9)	SIM_MM_UPDATE_REQ		
	*<=====		
TIMEOUT (10000)			
(10)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		*=====>	
(11)		RR_ESTABLISH_CNF	
		*<=====	
(12)		RR_DATA_IND	
		(LOCATION UPDATING REJ)	
		*<=====	
(13)		RR_RELEASE_IND	
		*<=====	
(14)		MDL_RELEASE_REQ	
		*=====>	
(15)		RR_SYNC_REQ	
		*=====>	
(16)	SIM_MM_UPDATE_REQ		
	*<=====		
TIMEOUT (10000)			
(17)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		*=====>	
(18)		RR_ESTABLISH_CNF	
		*<=====	
(19)		RR_DATA_IND	
		(LOCATION UPDATING REJ)	
		*<=====	
(20)		RR_RELEASE_IND	
		*<=====	
(21)		MDL_RELEASE_REQ	
		*=====>	
(22)		RR_SYNC_REQ	

```

(23) |                                     *=====>*
      |      SIM_MM_UPDATE_REQ         |
      | *<=====*                       |
TIMEOUT (10000)
(24) |                                     |
      |      RR_ESTABLISH_REQ           |
      |      (LOCATION UPDATING REQ)     |
      | *=====>*                       |
(25) |      RR_ESTABLISH_CNF           |
      | *<=====*                       |
(26) |      RR_DATA_IND               |
      |      (LOCATION UPDATING REJ)     |
      | *<=====*                       |
(27) |      RR_RELEASE_IND            |
      | *<=====*                       |
(28) |      MDL_RELEASE_REQ           |
      | *=====>*                       |
(29) |      RR_SYNC_REQ               |
      | *=====>*                       |
(30) |      SIM_MM_UPDATE_REQ         |
      | *<=====*                       |
(31) |      MMR_NREG_IND              |
      | *<=====*                       |
      |                                     |

```

Parametrization

Primitive	Parameter	Value
(19) RR_ACTIVATE_CNF		
op	OP_MODE_SIM	
mm_info	MM_INFO	
cid	CELL_ID_1122	
plmn	PLMN_123_33	
lac	LAC_0002	
power	RF_CLASS_2	
gprs_indic	GPRS_NO	
(20) MMR_REG_CNF		
plmn	PLMN_123_33	
(21) RR_ESTABLISH_REQ		
estcs	ESTCS_SERV_REQ_BY_MM	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_LOC_UPD_REQ	
ti	TI_0	
loc_upd_type	LOC_UPD_TYPE_NORMAL	
ciph_key_num	CIPH_KEY_NUM_RES	
loc_area_ident	LOC_AREA_ID_123_33_2147	
mob_class_1	MOB_CLASS_1	
mob_id	MOB_IDENT_IMSI	
}		
(22) RR_ESTABLISH_CNF		
param	NOT_USED	
(23) RR_DATA_IND		
d1	NOT_USED	
d2	NOT_USED	
sdu		

	{	
	component	MM
	direction	DOWNLINK
	pd	D_LOC_UPD_REJ
	ti	TI_0
	rej_cause	RC_UNSPECIFIED
	}	
(24)	RR_RELEASE_IND	
	relcs	RELCS_ABNORM_UNSPEC
	sapi	SAPI_0
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(25)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(26)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	NOT_USED
	plmn	NOT_USED
	lac	NOT_USED
	synccs	SYNCCS_TMSI_CKSN_KC_INVAL
	accc	NOT_USED
	thplmn	NOT_USED
(27)	SIM_MM_UPDATE_REQ	
	loc_info	LOC_INFO_123_33_FEFF
	bcch_inf	BCCH_INF_2
	forb_plmn	NOT_USED
	cksn	CKSN_NO_KEY
	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122
(28)	RR_ESTABLISH_REQ	
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti	TI_0
	loc_upd_type	LOC_UPD_TYPE_NORMAL
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_FEFF
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(29)	RR_ESTABLISH_CNF	
	param	NOT_USED
(30)	RR_DATA_IND	
	d1	NOT_USED
	d2	NOT_USED
	sdu	
	{	
	component	MM
	direction	DOWNLINK
	pd	D_LOC_UPD_REJ

	ti	TI_0
	rej_cause	RC_UNSPECIFIED
	}	
(31)	RR_RELEASE_IND	
	relcs	RELCS_ABNORM_UNSPEC
	sapi	SAPI_0
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(32)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(33)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	NOT_USED
	plmn	NOT_USED
	lac	NOT_USED
	synccs	SYNCCS_TMSI_CKSN_KC_INVAL
	accc	NOT_USED
	thplmn	NOT_USED
(34)	SIM_MM_UPDATE_REQ	
	loc_info	LOC_INFO_123_33_FEFF
	bcch_inf	BCCH_INF_2
	forb_plmn	NOT_USED
	cksn	CKSN_NO_KEY
	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122
(35)	RR_ESTABLISH_REQ	
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti	TI_0
	loc_upd_type	LOC_UPD_TYPE_NORMAL
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_FEFF
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(36)	RR_ESTABLISH_CNF	
	param	NOT_USED
(37)	RR_DATA_IND	
	d1	NOT_USED
	d2	NOT_USED
	sdu	
	{	
	component	MM
	direction	DOWNLINK
	pd	D_LOC_UPD_REJ
	ti	TI_0
	rej_cause	RC_UNSPECIFIED
	}	

(38)	RR_RELEASE_IND	
	relcs	RELCS_ABNORM_UNSPEC
	sapi	SAPI_0
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(39)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(40)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	NOT_USED
	plmn	NOT_USED
	lac	NOT_USED
	synccs	SYNCCS_TMSI_CKSN_KC_INVAL
	accc	NOT_USED
	thplmn	NOT_USED
(41)	SIM_MM_UPDATE_REQ	
	loc_info	LOC_INFO_123_33_FEFF
	bcch_inf	BCCH_INF_2
	forb_plmn	NOT_USED
	cksn	CKSN_NO_KEY
	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122
(42)	RR_ESTABLISH_REQ	
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti	TI_0
	loc_upd_type	LOC_UPD_TYPE_NORMAL
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_FEFF
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(43)	RR_ESTABLISH_CNF	
	param	NOT_USED
(44)	RR_DATA_IND	
	d1	NOT_USED
	d2	NOT_USED
	sdu	
	{	
	component	MM
	direction	DOWNLINK
	pd	D_LOC_UPD_REJ
	ti	TI_0
	rej_cause	RC_UNSPECIFIED
	}	
(45)	RR_RELEASE_IND	
	relcs	RELCS_ABNORM_UNSPEC
	sapi	SAPI_0
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK

(4 6)	MDL_RELEASE_REQ		
	ch_type	NOT_PRESENT_8BIT	
	sapi	SAPI_0	
(4 7)	RR_SYNC_REQ		
	op	NOT_USED	
	cksn	NOT_USED	
	kcv	NOT_USED	
	tmsi	NOT_USED	
	plmn	NOT_USED	
	lac	NOT_USED	
	synccs	SYNCCS_TMSI_CKSN_KC_INVALID	
	accc	NOT_USED	
	thplmn	NOT_USED	
(4 8)	SIM_MM_UPDATE_REQ		
	loc_info	LOC_INFO_123_33_FEFF	
	bcch_inf	BCCH_INF_2	
	forb_plmn	NOT_USED	
	cksn	CKSN_NO_KEY	
	kc	KC_DELETED_SIM	
	cell_identity	CELL_ID_1122	
(4 9)	MMR_NREG_IND		
	nreg_cs	NREG_LIMITED_SERVICE	
	search_running	SEARCH_NOT_RUNNING	
	new_forb_plmn	PLMN_NO_ID	
	limited_cause	RC_UNSPECIFIED	
History:	09.07.97	HK	Initial
	06.08.97	DL	Revised
	12.08.97	HK	Revised
	02.03.00	HM	Revised (search_running)

4.16.11 MM328: MM Authentication Failure

Description: MM is informed by means of a RR-ACTIVATE confirmation primitive that the mobile station is synchronous to a cell. A location updating is started. After authentication failure only limited service shall be allowed.

Preamble: MM313B

	MMI / CM / SIM	MM	RR / DL
(1)		RR_ACTIVATE_CNF	
		*<=====	
(2)	MMR_REG_CNF		
	*<=====		
(3)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		*=====>	
(4)		RR_ESTABLISH_CNF	
		*<=====	
(5)		RR_DATA_IND	
		(AUTHENTICATION REQ)	
		*<=====	
(6)	SIM_AUTHENTICATION_REQ		
	*<=====		
(7)	SIM_AUTHENTICATION_CNF		
	*=====>		
(8)		RR_DATA_REQ	
		(AUTHENTICATION RES)	
		*=====>	
(9)		RR_SYNC_REQ	
		*=====>	
(10)		RR_DATA_IND	
		(AUTHENTICATION REJ)	
		*<=====	
(11)		RR_SYNC_REQ	
		*=====>	
(12)	SIM_MM_UPDATE_REQ		
	*<=====		
(13)		RR_ABORT_IND	
		*<=====	
(14)		MDL_RELEASE_REQ	
		*=====>	
(15)	MMR_NREG_IND		
	*<=====		

Parametrization

Primitive	Parameter	Value
(21) RR_ACTIVATE_CNF		
op	OP_MODE_SIM	
mm_info	MM_INFO	
cid	CELL_ID_1122	
plmn	PLMN_123_33	
lac	LAC_0002	
power	RF_CLASS_2	
gprs_indic	GPRS_NO	
(22) MMR_REG_CNF		
plmn	PLMN_123_33	

(23)	RR_ESTABLISH_REQ	ESTCS_SERV_REQ_BY_MM
	estcs	
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti	TI_0
	loc_upd_type	LOC_UPD_TYPE_NORMAL
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_2147
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(24)	RR_ESTABLISH_CNF	
	param	NOT_USED
(25)	RR_DATA_IND	
	d1	NOT_USED
	d2	NOT_USED
	sdu	
	{	
	component	MM
	direction	DOWNLINK
	pd	D_AUTH_REQ
	ti	TI_0
	ciph_key_num	CIPH_KEY_NUM_01
	auth_rand	AUTH_RAND_1
	}	
(26)	SIM_AUTHENTICATION_REQ	
	source	SRC_MM
	rand	RAND_1_P
	cksn	CKSN_01
(27)	SIM_AUTHENTICATION_CNF	
	sres	SRES_1
	kc	KC_11223344
(28)	RR_DATA_REQ	
	d1	NOT_USED
	d2	NOT_USED
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_AUTH_RES
	ti	TI_0
	auth_sres	SRES_1_CODED
	}	
(29)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	CKSN_01
	kcv	KCV_11223344
	tmsi	NOT_USED
	plmn	NOT_USED
	lac	NOT_USED
	syncchs	NOT_USED
	accc	NOT_USED
	thplmn	NOT_USED

(30)	RR_DATA_IND	
	d1	NOT_USED
	d2	NOT_USED
	sdu	
	{	
	component	MM
	direction	DOWNLINK
	pd	D_AUTH_REJ
	ti	TI_0
	}	
(31)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	NOT_USED
	plmn	NOT_USED
	lac	NOT_USED
	synccs	SYNCCS_TMSI_CKSN_KC_INVALID_NO_PAG
	accc	NOT_USED
	thplmn	NOT_USED
(32)	SIM_MM_UPDATE_REQ	
	loc_info	LOC_INFO_PLMN_NOT_ALLOW
	bcch_inf	NOT_USED
	forb_plmn	NOT_USED
	cksn	CKSN_NO_KEY
	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122
(33)	RR_ABORT_IND	
	op	OP_MODE_TEST_SIM
	abcs	ABCS_RAD_LNK_FAIL
	plmn_avail	NOT_USED
	plmn	NOT_USED
	rxlevel	NOT_USED
	power	RF_CLASS_2
(34)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(35)	MMR_NREG_IND	
	nreg_cs	NREG_LIMITED_SERVICE
	search_running	SEARCH_NOT_RUNNING
	new_forb_plmn	PLMN_NO_ID
	limited_cause	MMR_SIM_INVALID_AUTHREJ

History:	09.07.97	HK	Initial
	06.08.97	DL	Revised
	12.08.97	HK	Revised
	02.03.00	HM	Revised (search_running)
	27.04.01	HM	Changed ordering of primitives

4.16.12 MM355: PLMN Available Request

Description: MM is in no service condition. MMI requests a PLMN available request and starts a PLMN search in RR. The result is forwarded to MMI.

[MMR_NREG_IND (cell selection failed) could cause display "NO SERVICE" in step 11. This may not be correct ...]

Preamble: MM300

Variants: <A>...<C>

MMI / CM	MM	RR / DL
(1)		
SIM_MM_INSERT_IND		
=====>		
(2)		
MMR_REG_REQ		
=====>		
(3)	RR_ACTIVATE_REQ	
	=====>	
(4)	RR_ABORT_IND	
	<=====	
(5)	MDL_RELEASE_REQ	
	=====>	
(6)		
MMR_NREG_IND		
<=====		
(7)		
MMR_NET_REQ		
=====>		
(8)	RR_ACTIVATE_REQ	
	=====>	
(9)	RR_ABORT_IND	
	<=====	
(10)		
MMR_PLMN_IND		
<=====		
(11)		
MMR_NREG_IND		
<=====		

Parametrization

Primitive	Parameter	Value
(1) SIM_MM_INSERT_IND		
op_mode	OP_NORMAL_SIM	
imsi_field	IMSI_FIELD_1	
<A>	loc_info	LOC_INFO_NOT_UPD_LPLMN
	loc_info	LOC_INFO_UPDATED_1
<C>	loc_info	LOC_INFO_UPDATED_LPLMN
acc_ctrl	ACC_CTRL_1	
bcch_inf	BCCH_INF_1	
kc_n	KC_EMPTY	
pref_plmn	PREF_PLMN_NONE	
<A>	forb_plmn	FORB_PLMN_NONE
	forb_plmn	FORB_PLMN_NONE
<C>	forb_plmn	FORB_PLMN_2
phase	PHASE_2_SIM	
hplmn	THPLMN_01	
(2) MMR_REG_REQ		
service_mode	SERVICE_MODE_FULL	
(3) RR_ACTIVATE_REQ		
<A>	plmn	PLMN_123_33
	plmn	PLMN_123_33

<C>	plmn	PLMN_123_31
op	OP_MODE_SIM_NO_SERV	
cksn	CKSN_RES	
kcv	KCV_EMPTY	
accc	ACC_2143	
imsi	MOB_ID_IMSI	
tmsi	MOB_ID_NO_ID	
thplmn	THPLMN_01	
<A>	bcch_info	BCCH_INFO_1
	bcch_info	BCCH_INFO_ECL
<C>	bcch_info	BCCH_INFO_ECL
cell_test	CELL_TEST_DISABLE	
gprs_indic	GPRS_NO	
(4) RR_ABORT_IND		
op	OP_MODE_SIM_NO_SERV	
abcs	ABCS_CEL_SEL_FAIL	
plmn_avail	NO_PLMN_FOUND	
plmn	NOT_USED	
rxlevel	NOT_USED	
power	RF_CLASS_2	
(5) MDL_RELEASE_REQ		
ch_type	NOT_PRESENT_8BIT	
sapi	SAPI_0	
(6) MMR_NREG_IND		
nreg_cs	NREG_CELL_SELECTION_FAILED	
search_running	SEARCH_NOT_RUNNING	
new_forb_plmn	PLMN_NO_ID	
' limited_cause	MMR_RC_NONE	
(7) MMR_NET_REQ		
param	NOT_USED	
(8) RR_ACTIVATE_REQ		
plmn	PLMN_NO_ID	
op	OP_MODE_SIM_NO_SERV_A	
cksn	CKSN_NO_KEY	
kcv	KC_DELETED	
accc	ACC_CLASS_0000	
imsi	EMPTY_IMSI	
tmsi	NOT_USED	
thplmn	NOT_USED	
bcch_info	NOT_USED	
cell_test	CELL_TEST_DISABLE	
gprs_indic	GPRS_NO	
(9) RR_ABORT_IND		
op	OP_MODE_SIM_NO_SERV4	
abcs	ABCS_CEL_SEL_FAIL	
<A>	plmn_avail	NO_PLMN_FOUND
	plmn_avail	TWO_PLMN_FOUND
<C>	plmn_avail	TWO_PLMN_FOUND
<A>	plmn	NOT_USED
	plmn	PLMN_LIST_2_PLMN
<C>	plmn	PLMN_LIST_2_PLMN_F
<A>	rxlevel	NOT_USED
	rxlevel	RXLEVEL_20_18
<C>	rxlevel	RXLEVEL_20_18
power	RF_CLASS_2	

(10) MMR_PLMN_IND

<A>	res	RES_OK_NO_PLMN_FND
	res	RES_OK_PLMN_LST_AVAIL
<C>	res	RES_OK_PLMN_LST_AVAIL
<A>	plmn	NOT_USED
	plmn	PLMN_LIST_2_PLMN_A
<C>	plmn	PLMN_LIST_2_PLMN_AF
<A>	forb_ind	NOT_USED
	forb_ind	FORB_PLMN_ID
<C>	forb_ind	FORB_PLMN_ID_F
<A>	rxlevel	NOT_USED
	rxlevel	RXLEVEL_20_18_A
<C>	rxlevel	RXLEVEL_20_18_A

(11) MMR_NREG_IND

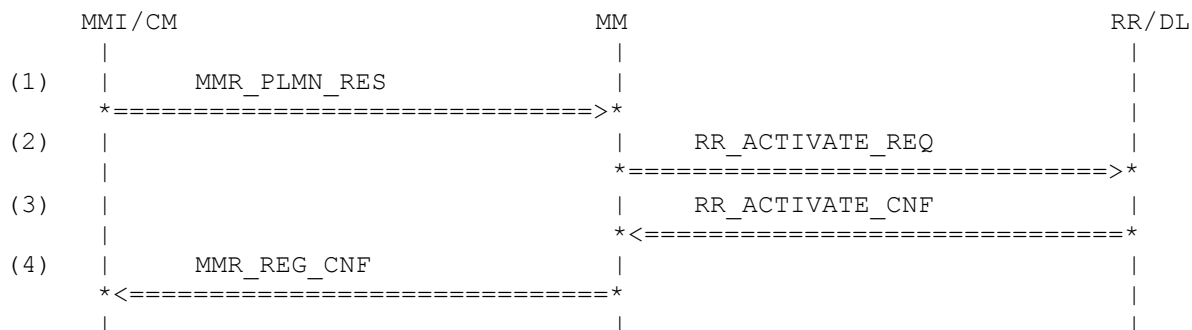
nreg_cs	NREG_CELL_SELECTION_FAILED
search_running	SEARCH_NOT_RUNNING
new_forb_plmn	PLMN_NO_ID
limited_cause	MMR_RC_NONE

History:	07.07.97	HK	Initial
	06.08.97	DL	Revised
	12.08.97	HK	Revised
	24.02.00	HM	Revised
	03.03.00	HM	Revised (search_running)

4.16.13 MM358: PLMN Selection successful

Description: MMI has requested a PLMN available list. It now selects a PLMN. The selection is successful.

Preamble: MM355B



Parametrization

Primitive	Parameter	Value
(1) MMR_PLMN_RES		
plmn	PLMN_123_33	
(2) RR_ACTIVATE_REQ		
plmn	PLMN_123_33	
op	OP_MODE_SIM_NO_SERV	
cksn	CKSN_RES	
kcv	KCV_EMPTY	
accc	ACC_2143	
imsi	MOB_ID_IMSI	
tmsi	MOB_ID_NO_ID	
thplmn	THPLMN_01	
bcch_info	BCCH_INFO_1	
cell_test	CELL_TEST_DISABLE	
gprs_indic	GPRS_NO	
(3) RR_ACTIVATE_CNF		
op	OP_MODE_SIM	
mm_info	MM_INFO	
cid	CELL_ID_1122	
plmn	PLMN_123_33	
lac	LAC_2147	
power	RF_CLASS_2	
gprs_indic	GPRS_NO	
(4) MMR_REG_CNF		
plmn	PLMN_123_33	

History:	07.07.97	HK	Initial
	06.08.97	DL	Revised
	12.08.97	HK	Revised

4.16.14 MM359: PLMN Selection unsuccessful

Description: MMI has requested a PLMN available list. It now selects a PLMN. The selection is unsuccessful.

Preamble: MM355B

	MMI / CM	MM	RR / DL
(1)	MMR_PLMN_RES		
	=====>		
(2)		RR_ACTIVATE_REQ	
		=====>	
(3)		RR_ABORT_IND	
		<=====	
(4)		MDL_RELEASE_REQ	
		=====>	
(5)	MMR_NREG_IND		
	<=====		
(6)		RR_ACTIVATE_REQ	
		=====>	

Parametrization

	Primitive	Parameter	Value
(1)	MMR_PLMN_RES plmn	PLMN_123_33	
(2)	RR_ACTIVATE_REQ plmn op cksn kcv accc imsi tmsi thplmn bcch_info cell_test gprs_indic	PLMN_123_33 OP_MODE_SIM_NO_SERV CKSN_RES KCV_EMPTY ACC_2143 MOB_ID_IMSI MOB_ID_NO_ID THPLMN_01 BCCH_INFO_1 CELL_TEST_DISABLE GPRS_NO	
(3)	RR_ABORT_IND op abcs plmn_avail plmn rxlevel power	OP_MODE_SIM_LIM_SERV ABCS_CEL_SEL_FAIL ONE_PLMN_FOUND PLMN_LIST_FORB RXLEVEL_20 RF_CLASS_2	
(4)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(5)	MMR_NREG_IND nreg_cs search_running new_forb_plmn limited_cause	NREG_LIMITED_SERVICE SEARCH_RUNNING PLMN_NO_ID MMR_RC_NONE	
(6)	RR_ACTIVATE_REQ plmn	PLMN_123_32_A	

op	OP_MODE_SIM_NO_SERV
cksn	CKSN_RES
kcv	KCV_EMPTY
accc	ACC_2143
imsi	MOB_ID_IMSI
tmsi	MOB_ID_NO_ID
thplmn	THPLMN_01
bcch_info	BCCH_INFO_1
cell_test	CELL_TEST_DISABLE
gprs_indic	GPRS_NO

History:	07.07.97	HK	Initial
	06.08.97	DL	Revised
	12.08.97	HK	Revised
	03.03.00	HM	Revised (search_running)

4.16.15 MM364: PLMN Available List to MMI

Description: MM has requested the list of available PLMNs. This list is forwarded to MMI.
[What about the last MMR_NREG_IND? Is this really correct here? ...]

Preamble: MM001

Variants: <A>...<C>

	MMI / CM	MM	RR / DL
(1)	MMR_PLMN_MODE_REQ		
	*=====>		
(2)	SIM_MM_INSERT_IND		
	*=====>		
	TIMEOUT (3000)		
(3)	MMR_REG_REQ		
	*=====>		
(4)		RR_ACTIVATE_REQ	
		*=====>	
(5)		RR_ABORT_IND	
		*<=====	
(6)	MMR_PLMN_IND		
	*<=====		
(7)	MMR_NREG_IND		
	*<=====		

Parametrization

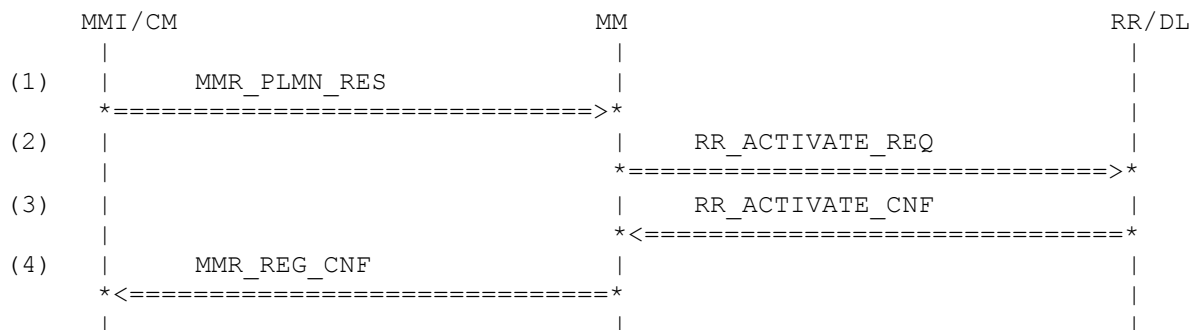
Primitive	Parameter	Value
(1) MMR_PLMN_MODE_REQ mode	MODE_MAN	
(2) SIM_MM_INSERT_IND op_mode imsi_field loc_info acc_ctrl bcch_inf kc_n pref_plmn <A> <C> phase hplmn	OP_NORMAL_SIM IMSI_FIELD_1 LOC_INFO_UPDATED_1 ACC_CTRL_1 BCCH_INF_1 KC_EMPTY PREF_PLMN_NONE forb_plmn forb_plmn forb_plmn PHASE_2_SIM THPLMN_01	FORB_PLMN_NONE FORB_PLMN_NONE FORB_PLMN_2
(3) MMR_REG_REQ service_mode	SERVICE_MODE_FULL	
(4) RR_ACTIVATE_REQ plmn op cksn kcv acc imsi tmsi thplmn bcch_info	PLMN_NO_ID OP_MODE_SIM_NO_SERV_M CKSN_RES KC_DELETED ACC_CLASS_0000 MOB_ID_NO_ID MOB_ID_NO_ID THPLMN_FF NOT_USED	

cell_test	CELL_TEST_DISABLE
gprs_indic	GPRS_NO
(5) RR_ABORT_IND	
op	OP_MODE_SIM_1
abcs	ABCS_CEL_SEL_FAIL
<A>	plmn_avail NO_PLMN_FOUND
	plmn_avail TWO_PLMN_FOUND
<C>	plmn_avail TWO_PLMN_FOUND
<A>	plmn NOT_USED
	plmn PLMN_LIST_2_PLMN
<C>	plmn PLMN_LIST_2_PLMN_F
<A>	rxlevel NOT_USED
	rxlevel RXLEVEL_20_18
<C>	rxlevel RXLEVEL_20_18
power	RF_CLASS_2
(6) MMR_PLMN_IND	
<A>	res RES_OK_NO_PLMN_FND
	res RES_OK_USR_MST_SEL_PLMN
<C>	res RES_OK_USR_MST_SEL_PLMN
<A>	plmn NOT_USED
	plmn PLMN_LIST_2_PLMN_A
<C>	plmn PLMN_LIST_2_PLMN_AF
<A>	forb_ind NOT_USED
	forb_ind FORB_PLMN_ID
<C>	forb_ind FORB_PLMN_ID_F
<A>	rxlevel NOT_USED
	rxlevel RXLEVEL_20_18_A
<C>	rxlevel RXLEVEL_20_18_A
(7) MMR_NREG_IND	
nreg_cs	NREG_CELL_SELECTION_FAILED
search_running	SEARCH_NOT_RUNNING
new_forb_plmn	PLMN_NO_ID
limited_cause	MMR_RC_NONE
History:	
07.07.97	HK Initial
06.08.97	DL Revised
12.08.97	HK Revised
02.03.00	HM Revised (search_running)

4.16.16 MM365: PLMN Selection successful (manual Mode)

Description: MMI has requested a PLMN available list. It now selects a PLMN. The selection is successful.

Preamble: MM364B



Parametrization

Primitive	Parameter	Value
(36) MMR_PLMN_RES		
plmn	PLMN_123_33	
(37) RR_ACTIVATE_REQ		
plmn	PLMN_123_33	
op	OP_MODE_SIM_2	
cksn	CKSN_RES	
kcv	KCV_EMPTY	
accc	ACC_2143	
imsi	MOB_ID_IMSI	
tmsi	MOB_ID_NO_ID	
thplmn	THPLMN_01	
bcch_info	BCCH_INFO_1	
cell_test	CELL_TEST_DISABLE	
gprs_indic	GPRS_NO	
(38) RR_ACTIVATE_CNF		
op	OP_MODE_SIM_3	
mm_info	MM_INFO	
cid	CELL_ID_1122	
plmn	PLMN_123_33	
lac	LAC_2147	
power	RF_CLASS_2	
gprs_indic	GPRS_NO	
(39) MMR_REG_CNF		
plmn	PLMN_123_33	

History:	07.07.97	HK	Initial
	06.08.97	DL	Revised
	12.08.97	HK	Revised

4.16.17 MM366: PLMN Selection unsuccessful (Manual Mode)

Description: MMI has requested a PLMN available list. It now selects a PLMN. The selection is unsuccessful.

Preamble: MM364B

	MMI / CM	MM	RR / DL
(1)	MMR_PLMN_RES		
	=====>		
(2)		RR_ACTIVATE_REQ	
		=====>	
(3)		RR_ABORT_IND	
		<=====	
(4)		MDL_RELEASE_REQ	
		=====>	
(5)	MMR_NREG_IND		
	<=====		
(6)	MMR_PLMN_IND		
	<=====		

Parametrization

Primitive	Parameter	Value
(1) MMR_PLMN_RES plmn	PLMN_123_33	
(2) RR_ACTIVATE_REQ plmn op cksn kcv accc imsi tmsi thplmn bcch_info cell_test gprs_indic	PLMN_123_33 OP_MODE_SIM_2 CKSN_RES KCV_EMPTY ACC_2143 MOB_ID_IMSI MOB_ID_NO_ID THPLMN_01 BCCH_INFO_1 CELL_TEST_DISABLE GPRS_NO	
(3) RR_ABORT_IND op abcs plmn_avail plmn rxlevel power	OP_MODE_SIM_4 ABCS_CEL_SEL_FAIL ONE_PLMN_FOUND PLMN_LIST_FORB RXLEVEL_20 RF_CLASS_2	
(4) MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(5) MMR_NREG_IND nreg_cs search_running new_forb_plmn limited_cause	NREG_LIMITED_SERVICE SEARCH_NOT_RUNNING PLMN_NO_ID MMR_RC_NONE	
(6) MMR_PLMN_IND res	RES_OK_USR_MST_SEL_PLMN	

plmn
forb_ind
rxlevel

PLMN_LIST_1_PLMN_A
FORB_PLMN_ID_1F
RXLEVEL_20_A

History:	07.07.97	HK	Initial
	06.08.97	DL	Revised
	12.08.97	HK	Revised
	02.03.00	HM	Revised (search_running)

4.17 Registration (REG_LIMITED_SERVICE, with SIM card, automatic mode)

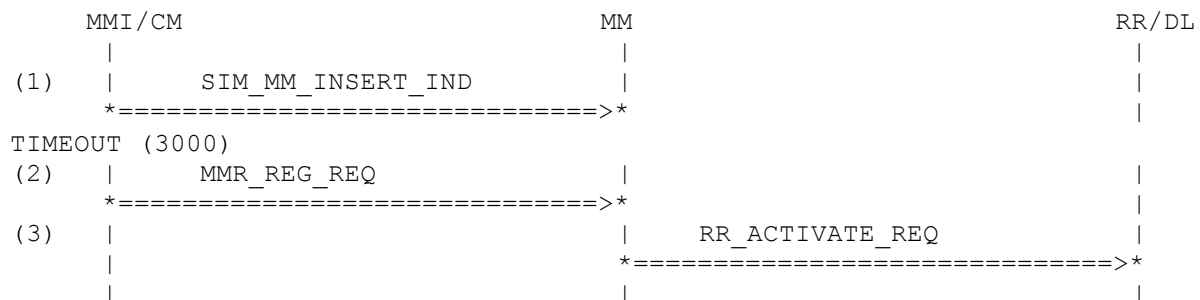
4.17.1 MM329: Registration

Description: MM receives SIM information followed by the registration start of MMI. The cell selection is started.

Variant A: not updated start with HPLMN
Variant B: updated, HPLMN start with HPLMN
Variant C: updated, not HPLMN start with LPLMN

Preamble: MM307

Variants: <A>....<C>



Parametrization

Primitive	Parameter	Value
(1) SIM_MM_INSERT_IND		
op_mode	OP_NORMAL_SIM	
imsi_field	IMSI_FIELD_1	
<A>	loc_info	LOC_INFO_NOT_UPD_LPLMN
	loc_info	LOC_INFO_UPDATED_1
<C>	loc_info	LOC_INFO_UPDATED_LPLMN
acc_ctrl	ACC_CTRL_1	
bcch_inf	BCCH_INF_1	
kc_n	KC_EMPTY	
pref_plmn	PREF_PLMN_NONE	
<A>	forb_plmn	FORB_PLMN_NONE
	forb_plmn	FORB_PLMN_2
<C>	forb_plmn	FORB_PLMN_NONE
phase	PHASE_2_SIM	
hplmn	THPLMN_01	
(2) MMR_REG_REQ		
service_mode	SERVICE_MODE_FULL	
(3) RR_ACTIVATE_REQ		
<A>	plmn	PLMN_123_33
	plmn	PLMN_123_33
<C>	plmn	PLMN_123_31
op	OP_MODE_SIM_NO_SERV	
cksn	CKSN_RES	
kcv	KCV_EMPTY	
accc	ACC_2143	
imsi	MOB_ID_IMSI	
tmsi	MOB_ID_NO_ID	
thplmn	THPLMN_01	
<A>	bcch_info	BCCH_INFO_1

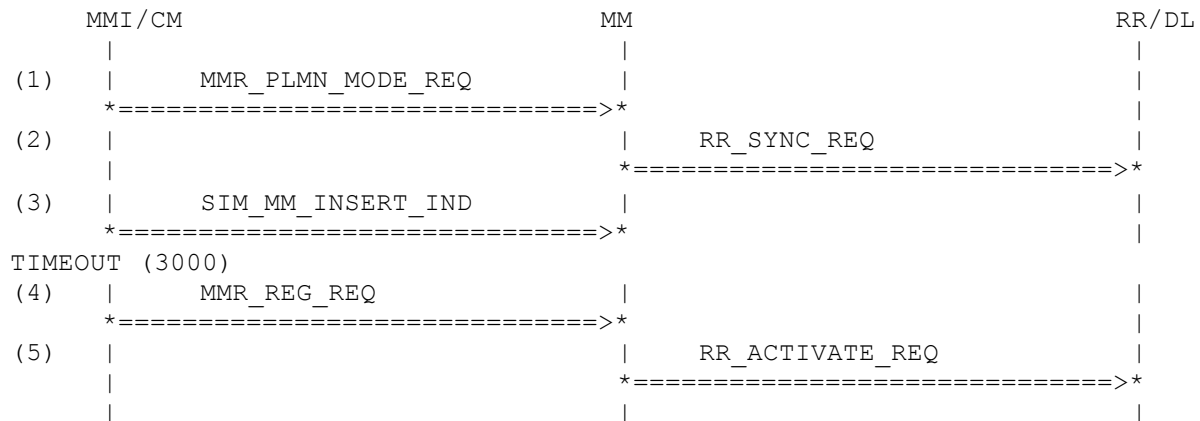
	bcch_info	BCCH_INFO_ECL
<C>	bcch_info	BCCH_INFO_ECL
cell_test	CELL_TEST_DISABLE	
gprs_indic	GPRS_NO	

History:	07.07.97	HK	Initial
	06.08.97	DL	Revised
	12.08.97	HK	Revised
	24.02.00	HM	Revised

4.17.2 MM330: PLMN Mode Change

Description: MMI changes the PLMN mode from automatic to manual. MM receives SIM information followed by the registration start of MMI. The cell selection is started.

Preamble: MM307



Parametrization

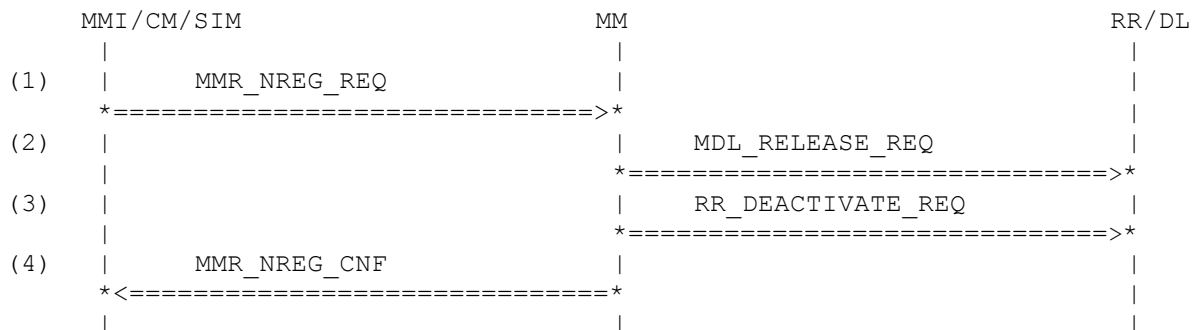
	Primitive	Parameter	Value
(1)	MMR_PLMN_MODE_REQ mode	MODE_MAN	
(2)	RR_SYNC_REQ op cksn kcv tmsi plmn lac synccs accc thplmn	OP_MODE_NO_SIM_NO_SERV_M NOT_USED NOT_USED NOT_USED NOT_USED NOT_USED NOT_PRESENT_16BIT NOT_USED NOT_USED	
(3)	SIM_MM_INSERT_IND op_mode imsi_field loc_info acc_ctrl bcch_inf kc_n pref_plmn forb_plmn phase hplmn	OP_NORMAL_SIM IMSI_FIELD_1 LOC_INFO_NOT_UPD_LPLMN ACC_CTRL_1 BCCH_INF_1 KC_EMPTY PREF_PLMN_NONE FORB_PLMN_NONE PHASE_2_SIM THPLMN_01	
(4)	MMR_REG_REQ service_mode	SERVICE_MODE_FULL	
(5)	RR_ACTIVATE_REQ plmn op cksn kcv accc imsi	PLMN_NO_ID OP_MODE_SIM_NO_SERV_M CKSN_RES KC_DELETED ACC_CLASS_0000 MOB_ID_NO_ID	

tmsi		MOB_ID_NO_ID	
thplmn		THPLMN_FF	
bcch_info		NOT_USED	
cell_test		CELL_TEST_DISABLE	
gprs_indic		GPRS_NO	
History:	07.07.97	HK	Initial
	06.08.97	DL	Revised
	12.08.97	HK	Revised

4.17.3 MM331: Deregistration (Power Off)

Description: MM receives a MMR-NREG request primitive. MM issues a RR-DEACTIVATE request primitive and a MMR-NREG confirmation primitive with cause set to 'Power off' and changes to changes to State 0 (Null).

Preamble: MM329A



Parametrization

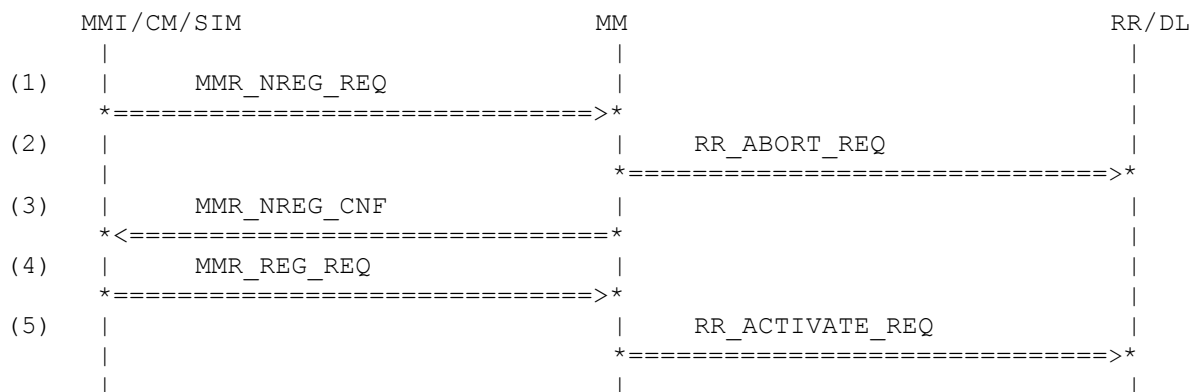
	Primitive	Parameter	Value
(1)	MMR_NREG_REQ cs	CS_POW_OFF	
(2)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(3)	RR_DEACTIVATE_REQ param	NOT_USED	
(4)	MMR_NREG_CNF cs	CS_POW_OFF	

History: 08.07.97 HK Initial

4.17.4 MM332: Deregistration (SIM invalid)

Description: MM receives a MMR-NREG request primitive. issues a MMR-NREG confirmation primitive with cause set to 'SIM Remove'. SIM data will not be deleted in MM, only a flag will be set that most of the data shall not be used anymore. If receiving a MMR_REG_REQ primitive with SERVICE_MODE_FULL indication, the SIM data will be revalidated.

Preamble: MM329A



Parametrization

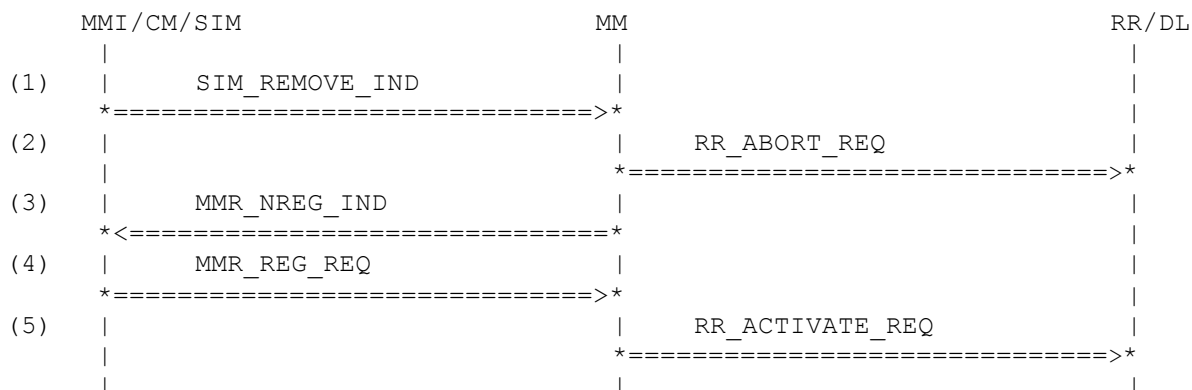
Primitive	Parameter	Value
(1) MMR_NREG_REQ cs	CS_SIM_REM	
(2) RR_ABORT_REQ abcs	ABCS_SIM_REM	
(3) MMR_NREG_CNF cs	CS_SIM_REM	
(4) MMR_REG_REQ service_mode	SERVICE_MODE_FULL	
(5) RR_ACTIVATE_REQ plmn op cksn kcv accc imsi tmsi thplmn bcch_info cell_test gprs_indic	PLMN_123_33 OP_MODE_SIM_NO_SERV CKSN_RES KCV_EMPTY ACC_2143 MOB_ID_IMSI MOB_ID_NO_ID THPLMN_01 BCCH_INFO_1 CELL_TEST_DISABLE GPRS_NO	

History:	09.07.97	HK	Initial
	15.09.97	DL	revised
	30.08.00	HM	Revised

4.17.5 MM333: SIM Removal

Description: The SIM card is removed before starting with registration.

Preamble: MM329A



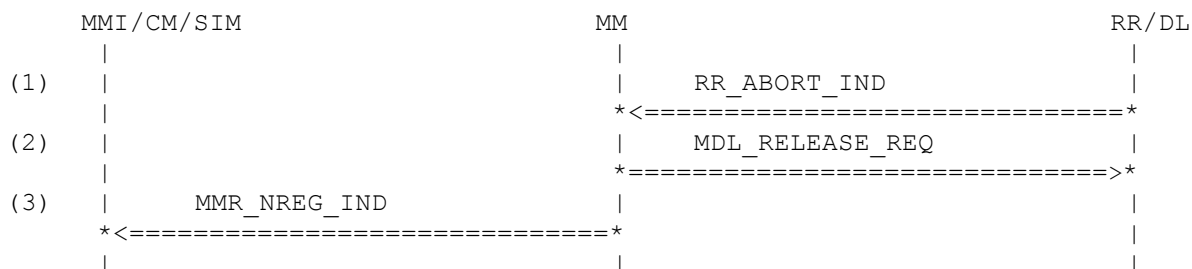
Parametrization

	Primitive	Parameter	Value
(1)	SIM_REMOVE_IND error	NOT_USED	
(2)	RR_ABORT_REQ abcs	ABCS_SIM_REM	
(3)	MMR_NREG_IND nreg_cs search_running new_forb_plmn limited_cause	NREG_NO_SERVICE SEARCH_NOT_RUNNING PLMN_NO_ID MMR_SIM_INVALID_REMOVED	
(4)	MMR_REG_REQ service_mode	SERVICE_MODE_FULL	
(5)	RR_ACTIVATE_REQ plmn op cksn kcv accc imsi tmsi thplmn bcch_info cell_test gprs_indic	PLMN_NO_ID OP_MODE_NO_SIM_NO_SERV CKSN_RES KC_DELETED ACC_CLASS_0000 MOB_ID_NO_ID MOB_ID_NO_ID THPLMN_FF NOT_USED CELL_TEST_DISABLE GPRS_NO	
History:	08.07.97 02.03.00 07.01.01	HK HM HM	Initial Revised (search_running) Adaption caused by GPRS integration

4.17.6 MM334: RR failure (No Service)

Description: MM receives a RR-ABORT indication primitive indicating No Service.

Preamble: MM329A



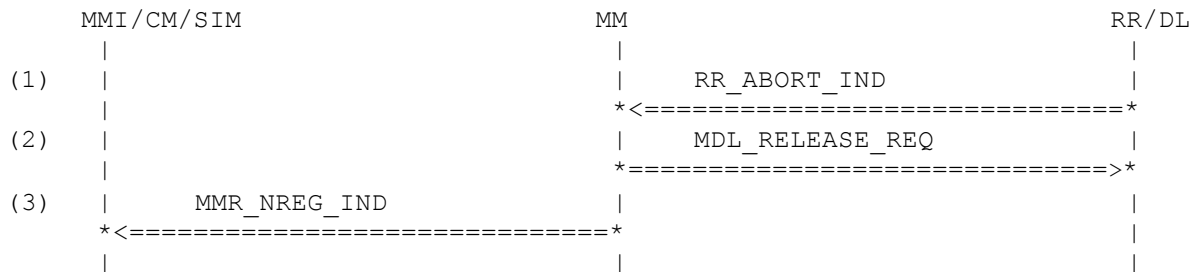
Parametrization

Primitive	Parameter	Value
(1) RR_ABORT_IND		
op	OP_MODE_SIM_NO_SERV	
abcs	ABCS_CEL_SEL_FAIL	
plmn_avail	NO_PLMN_FOUND	
plmn	NOT_USED	
rxlevel	NOT_USED	
power	RF_CLASS_2	
(2) MDL_RELEASE_REQ		
ch_type	NOT_PRESENT_8BIT	
sapi	SAPI_0	
(3) MMR_NREG_IND		
nreg_cs	NREG_CELL_SELECTION_FAILED	
search_running	SEARCH_NOT_RUNNING	
new_forb_plmn	PLMN_NO_ID	
limited_cause	MMR_RC_NONE	
History:	10.07.97	HK Initial
	02.03.00	HM Revised (search_running)

4.17.7 MM335: RR failure (Limited Service, no further PLMNs)

Description: MM receives a RR-ABORT indication primitive indicating Limited Service. The one PLMN which was found is in the forbidden PLMN list and cannot be used.

Preamble: MM329B



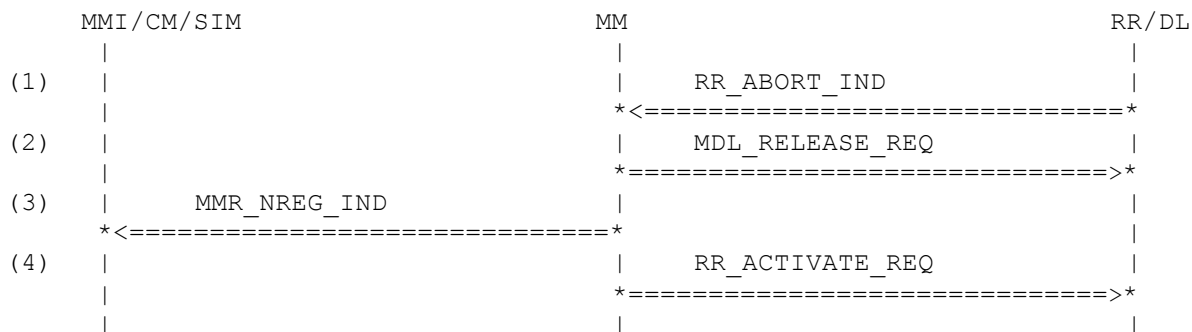
Parametrization

Primitive	Parameter	Value
(1) RR_ABORT_IND		
op	OP_MODE_SIM_LIM_SERV	
abcs	ABCS_CEL_SEL_FAIL	
plmn_avail	ONE_PLMN_FOUND	
plmn	PLMN_LIST_FORB	
rxlevel	RXLEVEL_20	
power	RF_CLASS_2	
(2) MDL_RELEASE_REQ		
ch_type	NOT_PRESENT_8BIT	
sapi	SAPI_0	
(3) MMR_NREG_IND		
nreg_cs	NREG_LIMITED_SERVICE	
search_running	SEARCH_NOT_RUNNING	
new_forb_plmn	PLMN_NO_ID	
limited_cause	MMR_RC_NONE	
History:	10.07.97	HK Initial
	02.03.00	HM Revised (search_running)

4.17.8 MM336: RR failure (Limited Service, further PLMNs available)

Description: MM receives a RR-ABORT indication primitive indicating Limited Service. The one PLMN which was found is not in the forbidden PLMN list and can be used. The MMI is informed about the fact that the stack currently is in limited service, but that the search for a network delivering full service still is going on.

Preamble: MM329A



Parametrization

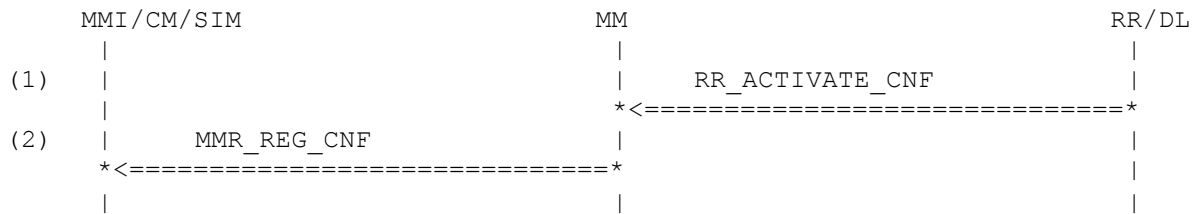
Primitive	Parameter	Value
(1) RR_ABORT_IND		
op	OP_MODE_SIM_LIM_SERV	
abcs	ABCS_CEL_SEL_FAIL	
plmn_avail	ONE_PLMN_FOUND	
plmn	PLMN_LIST_LPLMN	
rxlevel	RXLEVEL_20	
power	RF_CLASS_2	
(2) MDL_RELEASE_REQ		
ch_type	NOT_PRESENT_8BIT	
sapi	SAPI_0	
(3) MMR_NREG_IND		
nreg_cs	NREG_LIMITED_SERVICE	
search_running	SEARCH_RUNNING	
new_forb_plmn	PLMN_NO_ID	
limited_cause	MMR_RC_NONE	
(4) RR_ACTIVATE_REQ		
plmn	PLMN_123_31	
op	OP_MODE_SIM_NO_SERV	
cksn	CKSN_RES	
kcv	KCV_EMPTY	
acc	ACC_2143	
imsi	MOB_ID_IMSI	
tmsi	MOB_ID_NO_ID	
thplmn	THPLMN_01	
bcch_info	BCCH_INFO_1	
cell_test	CELL_TEST_DISABLE	
gprs_indic	GPRS_NO	

History:	10.07.97	HK	Initial
	02.03.00	HM	Revised (search_running)

4.17.9 MM337: MM Success

Description: MM is informed by means of a RR-ACTIVATE confirmation primitive that the mobile station is synchronous to a cell.

Preamble: MM329B



Parametrization

Primitive	Parameter	Value
(1) RR_ACTIVATE_CNF		
op	OP_MODE_SIM	
mm_info	MM_INFO	
cid	CELL_ID_1122	
plmn	PLMN_123_33	
lac	LAC_2147	
power	RF_CLASS_2	
gprs_indic	GPRS_NO	
(2) MMR_REG_CNF		
plmn	PLMN_123_33	

History:	09.07.97	HK	Initial
	06.08.97	DL	Revised
	12.08.97	HK	Revised

4.17.10 MM338: MM Failure

Description: MM is informed by means of a RR-ACTIVATE confirmation primitive that the mobile station is synchronous to a cell. A location updating is started. After four rejections limited service is indicated to the user.

Preamble: MM329B

	MMI / CM / SIM	MM	RR / DL
(1)		RR_ACTIVATE_CNF	
		*<=====	
(2)	MMR_REG_CNF		
	*<=====		
(3)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		*=====>	
(4)		RR_ESTABLISH_CNF	
		*<=====	
(5)		RR_DATA_IND	
		(LOCATION UPDATING REJ)	
		*<=====	
(6)		RR_RELEASE_IND	
		*<=====	
(7)		MDL_RELEASE_REQ	
		*=====>	
(8)		RR_SYNC_REQ	
		*=====>	
(9)	SIM_MM_UPDATE_REQ		
	*<=====		
TIMEOUT (10000)			
(10)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		*=====>	
(11)		RR_ESTABLISH_CNF	
		*<=====	
(12)		RR_DATA_IND	
		(LOCATION UPDATING REJ)	
		*<=====	
(13)		RR_RELEASE_IND	
		*<=====	
(14)		MDL_RELEASE_REQ	
		*=====>	
(15)		RR_SYNC_REQ	
		*=====>	
(16)	SIM_MM_UPDATE_REQ		
	*<=====		
TIMEOUT (10000)			
(17)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		*=====>	
(18)		RR_ESTABLISH_CNF	
		*<=====	
(19)		RR_DATA_IND	
		(LOCATION UPDATING REJ)	
		*<=====	
(20)		RR_RELEASE_IND	
		*<=====	
(21)		MDL_RELEASE_REQ	
		*=====>	
(22)		RR_SYNC_REQ	

```

|                                     *=====>*
(23) | SIM_MM_UPDATE_REQ |
|                                     *<=====*
TIMEOUT (10000)
(24) | | RR_ESTABLISH_REQ |
| | (LOCATION UPDATING REQ) |
| | *=====>*
(25) | | RR_ESTABLISH_CNF |
| | *<=====*
(26) | | RR_DATA_IND |
| | (LOCATION UPDATING REJ) |
| | *<=====*
(27) | | RR_RELEASE_IND |
| | *<=====*
(28) | | MDL_RELEASE_REQ |
| | *=====>*
(29) | | RR_SYNC_REQ |
| | *=====>*
(30) | SIM_MM_UPDATE_REQ |
| | *<=====*
(31) | MMR_NREG_IND |
| | *<=====*
| |

```

Parametrization

Primitive	Parameter	Value
(1) RR_ACTIVATE_CNF		
op	OP_MODE_SIM	
mm_info	MM_INFO	
cid	CELL_ID_1122	
plmn	PLMN_123_33	
lac	LAC_0002	
power	RF_CLASS_2	
gprs_indic	GPRS_NO	
(2) MMR_REG_CNF		
plmn	PLMN_123_33	
(3) RR_ESTABLISH_REQ		
estcs	ESTCS_SERV_REQ_BY_MM	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_LOC_UPD_REQ	
ti	TI_0	
loc_upd_type	LOC_UPD_TYPE_NORMAL	
ciph_key_num	CIPH_KEY_NUM_RES	
loc_area_ident	LOC_AREA_ID_123_33_2147	
mob_class_1	MOB_CLASS_1	
mob_id	MOB_IDENT_IMSI	
}		
(4) RR_ESTABLISH_CNF		
param	NOT_USED	
(5) RR_DATA_IND		
d1	NOT_USED	
d2	NOT_USED	
sdu		

	{	
	component	MM
	direction	DOWNLINK
	pd	D_LOC_UPD_REJ
	ti	TI_0
	rej_cause	RC_UNSPECIFIED
	}	
(6)	RR_RELEASE_IND	
	relcs	RELCS_ABNORM_UNSPEC
	sapi	SAPI_0
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(7)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(8)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	NOT_USED
	plmn	NOT_USED
	lac	NOT_USED
	syncs	SYNCCS_TMSI_CKSN_KC_INVAL
	accc	NOT_USED
	thplmn	NOT_USED
(9)	SIM_MM_UPDATE_REQ	
	loc_info	LOC_INFO_123_33_FEFF
	bcch_inf	BCCH_INF_2
	forb_plmn	NOT_USED
	cksn	CKSN_NO_KEY
	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122
(10)		RR_ESTABLISH_REQ
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti	TI_0
	loc_upd_type	LOC_UPD_TYPE_NORMAL
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_FEFF
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(11)		RR_ESTABLISH_CNF
	param	NOT_USED
(12)		RR_DATA_IND
	d1	NOT_USED
	d2	NOT_USED
	sdu	
	{	
	component	MM
	direction	DOWNLINK
	pd	D_LOC_UPD_REJ

	ti	TI_0
	rej_cause	RC_UNSPECIFIED
	}	
(13)		RR_RELEASE_IND
	relcs	RELCS_ABNORM_UNSPEC
	sapi	SAPI_0
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(14)		MDL_RELEASE_REQ
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(15)		RR_SYNC_REQ
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	NOT_USED
	plmn	NOT_USED
	lac	NOT_USED
	synccs	SYNCCS_TMSI_CKSN_KC_INVALID
	accc	NOT_USED
	thplmn	NOT_USED
(16)		SIM_MM_UPDATE_REQ
	loc_info	LOC_INFO_123_33_FEFF
	bcch_inf	BCCH_INF_2
	forb_plmn	NOT_USED
	cksn	CKSN_NO_KEY
	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122
(17)		RR_ESTABLISH_REQ
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti	TI_0
	loc_upd_type	LOC_UPD_TYPE_NORMAL
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_FEFF
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(18)		RR_ESTABLISH_CNF
	param	NOT_USED
(19)		RR_DATA_IND
	d1	NOT_USED
	d2	NOT_USED
	sdu	
	{	
	component	MM
	direction	DOWNLINK
	pd	D_LOC_UPD_REQ
	ti	TI_0
	rej_cause	RC_UNSPECIFIED
	}	

(20)	relcs sapi gprs_resumption	RR_RELEASE_IND RELCS_ABNORM_UNSPEC SAPI_0 GPRS_RESUMPTION_NOT_ACK
(21)	ch_type sapi	MDL_RELEASE_REQ NOT_PRESENT_8BIT SAPI_0
(22)	op cksn kcv tmsi plmn lac synccs accc thplmn	RR_SYNC_REQ NOT_USED NOT_USED NOT_USED NOT_USED NOT_USED NOT_USED SYNCCS_TMSI_CKSN_KC_INVAL NOT_USED NOT_USED
(23)	loc_info bcch_inf forb_plmn cksn kc cell_identity	SIM_MM_UPDATE_REQ LOC_INFO_123_33_FEFF BCCH_INF_2 NOT_USED CKSN_NO_KEY KC_DELETED_SIM CELL_ID_1122
(24)	estcs sdu { component direction pd ti loc_upd_type ciph_key_num loc_area_ident mob_class_1 mob_id }	RR_ESTABLISH_REQ ESTCS_SERV_REQ_BY_MM MM UPLINK U_LOC_UPD_REQ TI_0 LOC_UPD_TYPE_NORMAL CIPH_KEY_NUM_RES LOC_AREA_ID_123_33_FEFF MOB_CLASS_1 MOB_IDENT_IMSI
(25)	param	RR_ESTABLISH_CNF NOT_USED
(26)	d1 d2 sdu { component direction pd ti rej_cause }	RR_DATA_IND NOT_USED NOT_USED MM DOWNLINK D_LOC_UPD_REJ TI_0 RC_UNSPECIFIED
(27)	relcs sapi gprs_resumption	RR_RELEASE_IND RELCS_ABNORM_UNSPEC SAPI_0 GPRS_RESUMPTION_NOT_ACK

(28)	ch_type	MDL_RELEASE_REQ	
	sapi	NOT_PRESENT_8BIT	
		SAPI_0	
(29)	op	RR_SYNC_REQ	
	cksn	NOT_USED	
	kcv	NOT_USED	
	tmsi	NOT_USED	
	plmn	NOT_USED	
	lac	NOT_USED	
	synccs	SYNCCS_TMSI_CKSN_KC_INVALID	
	accc	NOT_USED	
	thplmn	NOT_USED	
(30)	loc_info	SIM_MM_UPDATE_REQ	
	bcch_inf	LOC_INFO_123_33_FEFF	
	forb_plmn	BCCH_INF_2	
	cksn	NOT_USED	
	kc	CKSN_NO_KEY	
	cell_identity	KC_DELETED_SIM	
		CELL_ID_1122	
(31)	nreg_cs	MMR_NREG_IND	
	search_running	NREG_LIMITED_SERVICE	
	new_forb_plmn	SEARCH_NOT_RUNNING	
	limited_cause	PLMN_NO_ID	
		RC_UNSPECIFIED	
History:	09.07.97	HK	Initial
	06.08.97	DL	Revised
	12.08.97	HK	Revised
	02.03.00	HM	Revised (search_running)

4.17.11 MM339: MM Authentication Failure

Description: MM is informed by means of a RR-ACTIVATE confirmation primitive that the mobile station is synchronous to a cell. A location updating is started. After authentication failure only limited service shall be allowed.

Preamble: MM329B

	MMI/CM/SIM	MM	RR/DL
(1)		RR_ACTIVATE_CNF	
		*<=====	
(2)	MMR_REG_CNF		
	*<=====		
(3)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		*=====>	
(4)		RR_ESTABLISH_CNF	
		*<=====	
(5)		RR_DATA_IND	
		(AUTHENTICATION REQ)	
		*<=====	
(6)	SIM_AUTHENTICATION_REQ		
	*<=====		
(7)	SIM_AUTHENTICATION_CNF		
	*=====>		
(8)		RR_DATA_REQ	
		(AUTHENTICATION RES)	
		*=====>	
(9)		RR_SYNC_REQ	
		*=====>	
(10)		RR_DATA_IND	
		(AUTHENTICATION REJ)	
		*<=====	
(11)		RR_SYNC_REQ	
		*=====>	
(12)	SIM_MM_UPDATE_REQ		
	*<=====		
(13)		RR_ABORT_IND	
		*<=====	
(14)		MDL_RELEASE_REQ	
		*=====>	
(15)	MMR_NREG_IND		
	*<=====		

Parametrization

Primitive	Parameter	Value
(1) RR_ACTIVATE_CNF		
op	OP_MODE_SIM	
mm_info	MM_INFO	
cid	CELL_ID_1122	
plmn	PLMN_123_33	
lac	LAC_0002	
power	RF_CLASS_2	
gprs_indic	GPRS_NO	
(2) MMR_REG_CNF		
plmn	PLMN_123_33	

(3)	RR_ESTABLISH_REQ	
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti	TI_0
	loc_upd_type	LOC_UPD_TYPE_NORMAL
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_2147
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(4)	RR_ESTABLISH_CNF	
	param	NOT_USED
(5)	RR_DATA_IND	
	d1	NOT_USED
	d2	NOT_USED
	sdu	
	{	
	component	MM
	direction	DOWNLINK
	pd	D_AUTH_REQ
	ti	TI_0
	ciph_key_num	CIPH_KEY_NUM_01
	auth_rand	AUTH_RAND_1
	}	
(6)	SIM_AUTHENTICATION_REQ	
	source	SRC_MM
	rand	RAND_1_P
	cksn	CKSN_01
(7)	SIM_AUTHENTICATION_CNF	
	sres	SRES_1
	kc	KC_11223344
(8)	RR_DATA_REQ	
	d1	NOT_USED
	d2	NOT_USED
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_AUTH_RES
	ti	TI_0
	auth_sres	SRES_1_CODED
	}	
(9)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	CKSN_01
	kcv	KCV_11223344
	tmsi	NOT_USED
	plmn	NOT_USED
	lac	NOT_USED
	syncchs	NOT_USED
	accc	NOT_USED
	thplmn	NOT_USED

- | | | |
|------|-------------------|------------------------------------|
| (10) | RR_DATA_IND | |
| | d1 | NOT_USED |
| | d2 | NOT_USED |
| | sdu | |
| | { | |
| | component | MM |
| | direction | DOWNLINK |
| | pd | D_AUTH_REJ |
| | ti | TI_0 |
| | } | |
| (11) | RR_SYNC_REQ | |
| | op | NOT_USED |
| | cksn | NOT_USED |
| | kcv | NOT_USED |
| | tmsi | NOT_USED |
| | plmn | NOT_USED |
| | lac | NOT_USED |
| | synccs | SYNCCS_TMSI_CKSN_KC_INVALID_NO_PAG |
| | accc | NOT_USED |
| | thplmn | NOT_USED |
| (12) | SIM_MM_UPDATE_REQ | |
| | loc_info | LOC_INFO_PLMN_NOT_ALLOW |
| | bcch_inf | NOT_USED |
| | forb_plmn | NOT_USED |
| | cksn | CKSN_NO_KEY |
| | kc | KC_DELETED_SIM |
| | cell_identity | CELL_ID_1122 |
| (13) | RR_ABORT_IND | |
| | op | OP_MODE_TEST_SIM |
| | abcs | ABCS_RAD_LNK_FAIL |
| | plmn_avail | NOT_USED |
| | plmn | NOT_USED |
| | rxlevel | NOT_USED |
| | power | RF_CLASS_2 |
| (14) | MDL_RELEASE_REQ | |
| | ch_type | NOT_PRESENT_8BIT |
| | sapi | SAPI_0 |
| (15) | MMR_NREG_IND | |
| | nreg_cs | NREG_LIMITED_SERVICE |
| | search_running | SEARCH_NOT_RUNNING |
| | new_forb_plmn | PLMN_NO_ID |
| | limited_cause | MMR_SIM_INVALID_AUTHREJ |

History:	09.07.97	HK	Initial
	06.08.97	DL	Revised
	12.08.97	HK	Revised
	02.03.00	HM	Revised (search_running)
	27.04.01	HM	Changed ordering of primitives

4.17.12 MM356: PLMN Available Request

Description: MM is in limited service condition. MMI requests a PLMN available request and starts a PLMN search in RR. The result is forwarded to MMI. Even if no PLMN is present in the list, the service delivered from RR decides whether it is limited or no service.

Preamble: MM300

Variants: <A>...<C>

	MMI / CM	MM	RR / DL
(1)	SIM_MM_INSERT_IND		
	=====>		
(2)	MMR_REG_REQ		
	=====>		
(3)		RR_ACTIVATE_REQ	
		=====>	
(4)		RR_ABORT_IND	
		<=====	
(5)		MDL_RELEASE_REQ	
		=====>	
(6)	MMR_NREG_IND		
	<=====		
(7)	MMR_NET_REQ		
	=====>		
(8)		RR_ACTIVATE_REQ	
		=====>	
(9)		RR_ABORT_IND	
		<=====	
(10)	MMR_PLMN_IND		
	<=====		
(11)	MMR_NREG_IND		
	<=====		

Parametrization

	Primitive	Parameter	Value
(1)	SIM_MM_INSERT_IND		
	op_mode	OP_NORMAL_SIM	
	imsi_field	IMSI_FIELD_1	
	<A>	loc_info	LOC_INFO_NOT_UPD_LPLMN
		loc_info	LOC_INFO_UPDATED_1
	<C>	loc_info	LOC_INFO_UPDATED_LPLMN
	acc_ctrl	ACC_CTRL_1	
	bcch_inf	BCCH_INF_1	
	kc_n	KC_EMPTY	
	pref_plmn	PREF_PLMN_NONE	
	<A>	forb_plmn	FORB_PLMN_NONE
		forb_plmn	FORB_PLMN_NONE
	<C>	forb_plmn	FORB_PLMN_2
	phase	PHASE_2_SIM	
	hplmn	THPLMN_01	
(1)	MMR_REG_REQ		
	service_mode	SERVICE_MODE_FULL	
(2)	RR_ACTIVATE_REQ		
	<A>	plmn	PLMN_123_33
		plmn	PLMN_123_33
	<C>	plmn	PLMN_123_31

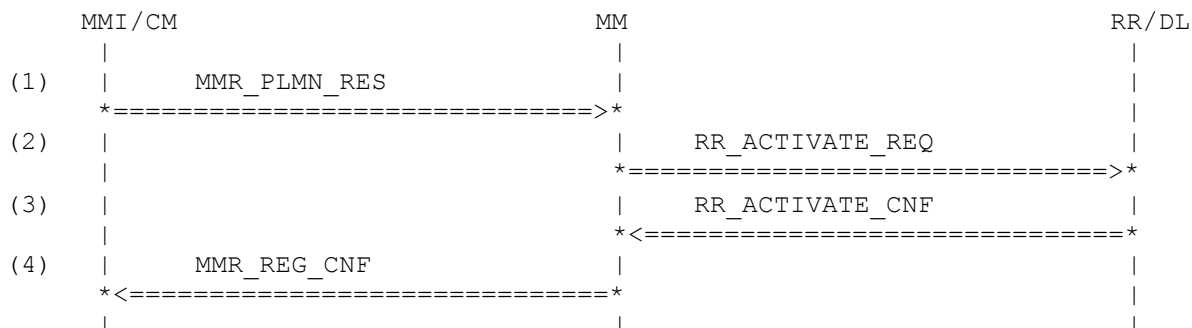
op	OP_MODE_SIM_NO_SERV
cksn	CKSN_RES
kcv	KCV_EMPTY
acc	ACC_2143
imsi	MOB_ID_IMSI
tmsi	MOB_ID_NO_ID
thplmn	THPLMN_01
<A>	bcch_info BCCH_INFO_1
	bcch_info BCCH_INFO_ECL
<C>	bcch_info BCCH_INFO_ECL
cell_test	CELL_TEST_DISABLE
gprs_indic	GPRS_NO
(3) RR_ABORT_IND	
op	OP_MODE_SIM_LIM_SERV
abcs	ABCS_CEL_SEL_FAIL
<A>	plmn_avail ONE_PLMN_FOUND
	plmn_avail ONE_PLMN_FOUND
<C>	plmn_avail NO_PLMN_FOUND
<A>	plmn PLMN_123_33
	plmn PLMN_123_33
<C>	plmn NOT_USED
rxlevel	RXLEVEL_20
power	RF_CLASS_2
(4) MDL_RELEASE_REQ	
ch_type	NOT_PRESENT_8BIT
sapi	SAPI_0
(5) MMR_NREG_IND	
nreg_cs	NREG_LIMITED_SERVICE
search_running	SEARCH_NOT_RUNNING
new_forb_plmn	PLMN_NO_ID
limited_cause	MMR_RC_NONE
(6) MMR_NET_REQ	
param	NOT_USED
(7) RR_ACTIVATE_REQ	
plmn	PLMN_NO_ID
op	OP_MODE_SIM_NO_SERV_A
cksn	CKSN_NO_KEY
kcv	KC_DELETED
acc	ACC_CLASS_0000
imsi	EMPTY_IMSI
tmsi	NOT_USED
thplmn	NOT_USED
bcch_info	NOT_USED
cell_test	CELL_TEST_DISABLE
gprs_indic	GPRS_NO
(8) RR_ABORT_IND	
op	OP_MODE_SIM_LIM_SERV4
abcs	ABCS_CEL_SEL_FAIL
<A>	plmn_avail NO_PLMN_FOUND
	plmn_avail TWO_PLMN_FOUND
<C>	plmn_avail TWO_PLMN_FOUND
<A>	plmn NOT_USED
	plmn PLMN_LIST_2_PLMN
<C>	plmn PLMN_LIST_2_PLMN_F
<A>	rxlevel NOT_USED
	rxlevel RXLEVEL_20_18

<div><C></div>	power	rxlevel RF_CLASS_2	RXLEVEL_20_18
(9) MMR_PLMN_IND			
<A>		res	RES_OK_NO_PLMN_FND
		res	RES_OK_PLMN_LST_AVAIL
<C>		res	RES_OK_PLMN_LST_AVAIL
<A>		plmn	NOT_USED
		plmn	PLMN_LIST_2_PLMN_A
<C>		plmn	PLMN_LIST_2_PLMN_AF
<A>		forb_ind	NOT_USED
		forb_ind	FORB_PLMN_ID
<C>		forb_ind	FORB_PLMN_ID_F
<A>		rxlevel	NOT_USED
		rxlevel	RXLEVEL_20_18_A
<C>		rxlevel	RXLEVEL_20_18_A
(10) MMR_NREG_IND			
	nreg_cs	NREG_LIMITED_SERVICE	
	search_running	SEARCH_NOT_RUNNING	
	new_forb_plmn	PLMN_NO_ID	
	limited_cause	MMR_RC_NONE	
History:	07.07.97	HK	Initial
	06.08.97	DL	Revised
	12.08.97	HK	Revised
	24.02.00	HM	Revised
	02.03.00	HM	Revised (search_running)
	15.03.01	HM	Revised

4.17.13 MM360: PLMN Selection successful

Description: MMI has requested a PLMN available list. It now selects a PLMN. The selection is successful.

Preamble: MM356B



Parametrization

Primitive	Parameter	Value
(1) MMR_PLMN_RES		
plmn	PLMN_123_33	
(2) RR_ACTIVATE_REQ		
plmn	PLMN_123_33	
op	OP_MODE_SIM_NO_SERV	
cksn	CKSN_RES	
kcv	KCV_EMPTY	
acc	ACC_2143	
imsi	MOB_ID_IMSI	
tmsi	MOB_ID_NO_ID	
thplmn	THPLMN_01	
bcch_info	BCCH_INFO_1	
cell_test	CELL_TEST_DISABLE	
gprs_indic	GPRS_NO	
(3) RR_ACTIVATE_CNF		
op	OP_MODE_SIM	
mm_info	MM_INFO	
cid	CELL_ID_1122	
plmn	PLMN_123_33	
lac	LAC_2147	
power	RF_CLASS_2	
gprs_indic	GPRS_NO	
(4) MMR_REG_CNF		
plmn	PLMN_123_33	
History:	07.07.97	HK Initial
	06.08.97	DL Revised
	12.08.97	HK Revised

4.17.14 MM361: PLMN Selection unsuccessful

Description: MMI has requested a PLMN available list. It now selects a PLMN. The selection is unsuccessful.

Preamble: MM356B

	MMI / CM	MM	RR / DL
(1)	MMR_PLMN_RES		
	=====>		
(2)		RR_ACTIVATE_REQ	
		=====>	
(3)		RR_ABORT_IND	
		<=====	
(4)		MDL_RELEASE_REQ	
		=====>	
(5)	MMR_NREG_IND		
	<=====		
(6)		RR_ACTIVATE_REQ	
		=====>	

Parametrization

Primitive	Parameter	Value
(1) MMR_PLMN_RES plmn	PLMN_123_33	
(2) RR_ACTIVATE_REQ plmn op cksn kcv accc imsi tmsi thplmn bcch_info cell_test gprs_indic	PLMN_123_33 OP_MODE_SIM_NO_SERV CKSN_RES KCV_EMPTY ACC_2143 MOB_ID_IMSI MOB_ID_NO_ID THPLMN_01 BCCH_INFO_1 CELL_TEST_DISABLE GPRS_NO	
(3) RR_ABORT_IND op abcs plmn_avail plmn rxlevel power	OP_MODE_SIM_LIM_SERV ABCS_CEL_SEL_FAIL ONE_PLMN_FOUND PLMN_LIST_FORB RXLEVEL_20 RF_CLASS_2	
(4) MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(5) MMR_NREG_IND nreg_cs search_running new_forb_plmn limited_cause	NREG_LIMITED_SERVICE SEARCH_RUNNING PLMN_NO_ID MMR_RC_NONE	
(6) RR_ACTIVATE_REQ plmn	PLMN_123_32_A	

op	OP_MODE_SIM_NO_SERV
cksn	CKSN_RES
kcv	KCV_EMPTY
accc	ACC_2143
imsi	MOB_ID_IMSI
tmsi	MOB_ID_NO_ID
thplmn	THPLMN_01
bcch_info	BCCH_INFO_1
cell_test	CELL_TEST_DISABLE
gprs_indic	GPRS_NO

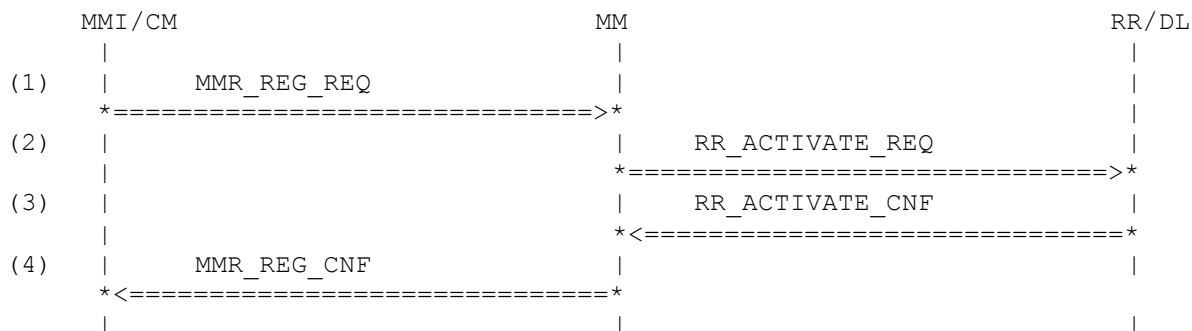
History:	07.07.97	HK	Initial
	06.08.97	DL	Revised
	12.08.97	HK	Revised
	02.03.00	HM	Revised

4.18 Registration (REG_FULL_SERVICE, with SIM card, automatic mode)

4.18.1 MM340: Registration

Description: MMI restarts registration. This is not allowed in full service. Instead a PLMN list must be requested by MMI and a selection must be done using MMR_PLMN_RES.

Preamble: MM337



Parametrization

Primitive	Parameter	Value
(1) MMR_REG_REQ		
service_mode	SERVICE_MODE_FULL	
(2) RR_ACTIVATE_REQ		
plmn	PLMN_123_33	
op	OP_MODE_SIM_NO_SERV	
cksn	CKSN_RES	
kcv	KCV_EMPTY	
accc	ACC_2143	
imsi	MOB_ID_IMSI	
tmsi	MOB_ID_NO_ID	
thplmn	THPLMN_01	
bcch_info	BCCH_INFO_ECL	
cell_test	CELL_TEST_DISABLE	
gprs_indic	GPRS_NO	
(3) RR_ACTIVATE_CNF		
op	OP_MODE_SIM	
mm_info	MM_INFO	
cid	CELL_ID_1122	
plmn	PLMN_123_33	
lac	LAC_2147	
power	RF_CLASS_2	
gprs_indic	GPRS_NO	
(4) MMR_REG_CNF		
plmn	PLMN_123_33	

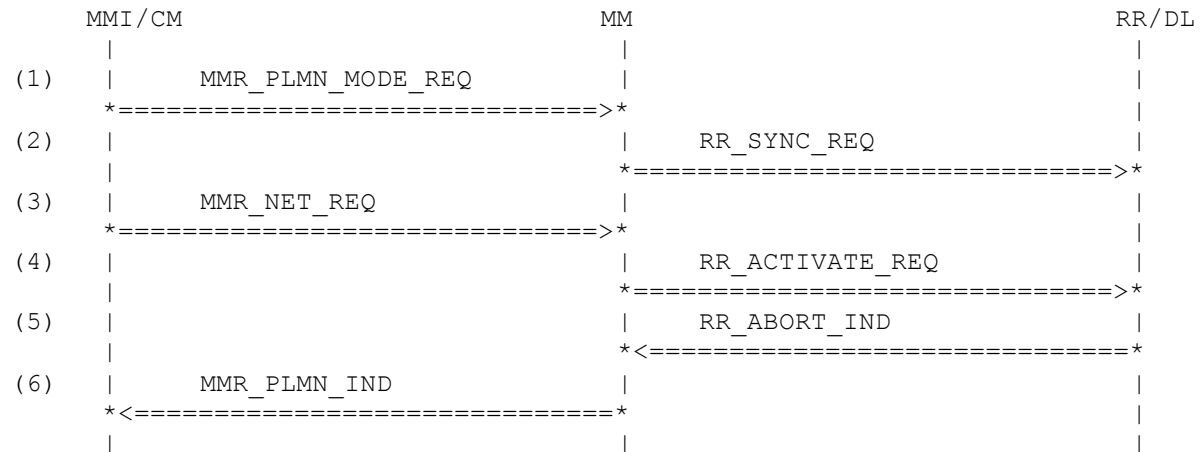
History:	07.07.97	HK	Initial
	06.08.97	DL	Revised
	12.08.97	HK	Revised
	02.05.01	HM	Revised

4.18.2 MM341: PLMN Mode Change

Description: MMI changes the PLMN mode from automatic to manual. MM receives SIM information followed by the registration start of MMI. The cell selection is started.

Preamble: MM337

Variants: <A>...



Parametrization

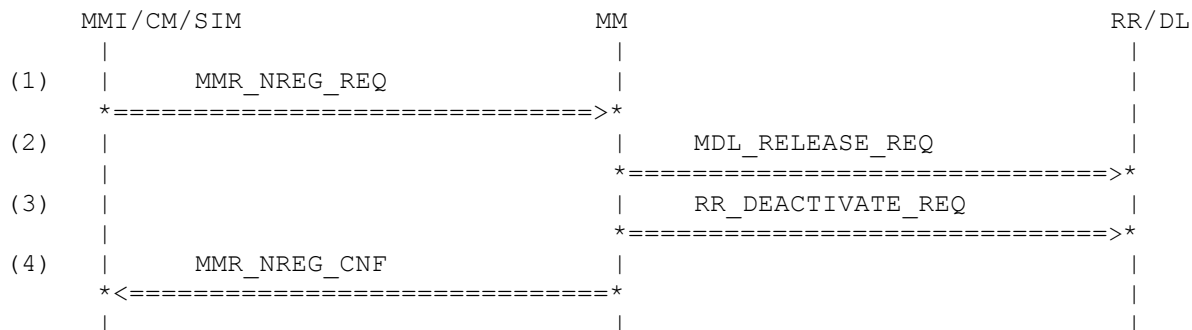
	Primitive	Parameter	Value
(1)	MMR_PLMN_MODE_REQ		
	mode	MODE_MAN	
(2)	RR_SYNC_REQ		
	op	OP_MODE_SIM_2	
	cksn	NOT_USED	
	kcv	NOT_USED	
	tmsi	NOT_USED	
	plmn	NOT_USED	
	lac	NOT_USED	
	synccs	NOT_PRESENT_16BIT	
	accc	NOT_USED	
	thplmn	NOT_USED	
(3)	MMR_NET_REQ		
	param	NOT_USED	
(4)	RR_ACTIVATE_REQ		
	plmn	PLMN_NO_ID	
	op	OP_MODE_SIM_NO_SERV_M	
	cksn	CKSN_NO_KEY	
	kcv	KC_DELETED	
	accc	ACC_CLASS_0000	
	imsi	EMPTY_IMSI	
	tmsi	NOT_USED	
	thplmn	NOT_USED	
	bcch_info	NOT_USED	
	cell_test	CELL_TEST_DISABLE	
	gprs_indic	GPRS_NO	
(5)	RR_ABORT_IND		
	op	OP_SIM_MAN_MMI_SRCH_FS	
	abcs	ABCS_CEL_SEL_FAIL	
	plmn_avail	TWO_PLMN_FOUND	

<A>	plmn	PLMN_LIST_2_PLMN
	plmn	PLMN_LIST_2_PLMN_F
rxlevel	RXLEVEL_20_18	
power	RF_CLASS_2	
(6) MMR_PLMN_IND		
res	RES_OK_USR_MST_SEL_PLMN	
<A>	plmn	PLMN_LIST_2_PLMN_A
	plmn	PLMN_LIST_2_PLMN_AF
<A>	forb_ind	FORB_PLMN_ID
	forb_ind	FORB_PLMN_ID_F
rxlevel	RXLEVEL_20_18_A	
History:	07.07.97	HK Initial
	06.08.97	DL Revised
	12.08.97	HK Revised

4.18.3 MM342: Deregistration (Power Off)

Description: MM receives a MMR-NREG request primitive. MM issues a RR-DEACTIVATE request primitive and a MMR-NREG confirmation primitive with cause set to 'Power off' and changes to changes to State 0 (Null).

Preamble: MM337



Parametrization

	Primitive	Parameter	Value
(1)	MMR_NREG_REQ cs	CS_POW_OFF	
(2)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(3)	RR_DEACTIVATE_REQ param	NOT_USED	
(4)	MMR_NREG_CNF cs	CS_POW_OFF	

History: 08.07.97 HK Initial

4.18.4 MM343: Deregistration (SIM invalid)

Description: MM receives a MMR-NREG request primitive and issues a MMR-NREG confirmation primitive with cause set to 'SIM Remove'. SIM data in MM will not be deleted, but only be considered invalid until a MMR_REG_REQ primitive with parameter SERVICE_MODE_FULL will be received. Compare this testcase with MM332.

Preamble: MM337

	MMI / CM / SIM	MM	RR / DL
(1)			
	MMR_NREG_REQ		
	=====>		
(2)		MDL_RELEASE_REQ	
		=====>	
(3)		RR_ABORT_REQ	
		=====>	
(4)	MMR_NREG_CNF		
	<=====		
(5)	MMR_REG_REQ		
	=====>		
(6)		RR_ACTIVATE_REQ	
		=====>	

Parametrization

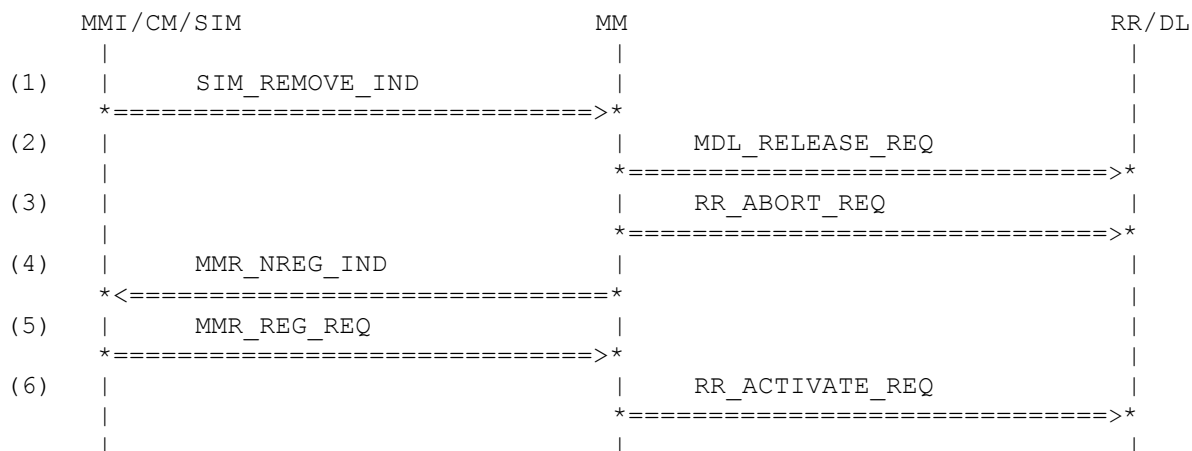
	Primitive	Parameter	Value
(62)	MMR_NREG_REQ		
	cs	CS_SIM_REM	
(63)	MDL_RELEASE_REQ		
	ch_type	NOT_PRESENT_8BIT	
	sapi	SAPI_0	
(64)	RR_ABORT_REQ		
	abcs	ABCS_SIM_REM	
(65)	MMR_NREG_CNF		
	cs	CS_SIM_REM	
(66)	MMR_REG_REQ		
	service_mode	SERVICE_MODE_FULL	
(67)	RR_ACTIVATE_REQ		
	plmn	PLMN_123_33	
	op	OP_MODE_SIM_NO_SERV	
	cksn	CKSN_RES	
	kcv	KCV_EMPTY	
	acc	ACC_2143	
	imsi	MOB_ID_IMSI	
	tmsi	MOB_ID_NO_ID	
	thplmn	THPLMN_01	
	bcch_info	BCCH_INFO_ECL	
	cell_test	CELL_TEST_DISABLE	
	gprs_indic	GPRS_NO	

History:	09.07.97	HK	Initial
	15.09.97	DL	revised
	30.08.00	HM	Revised

4.18.5 MM344: SIM Removal

Description: The SIM card is removed before starting with registration.

Preamble: MM337



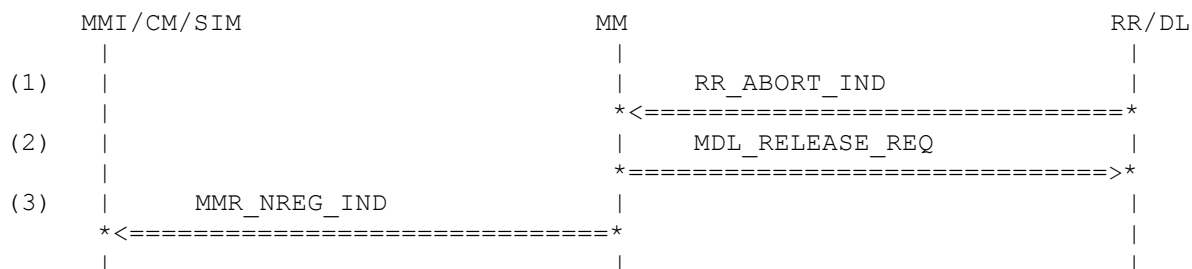
Parametrization

Primitive	Parameter	Value
(1) SIM_REMOVE_IND error	NOT_USED	
(2) MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(3) RR_ABORT_REQ abcs	ABCS_SIM_REM	
(4) MMR_NREG_IND nreg_cs search_running new_forb_plmn limited_cause	NREG_LIMITED_SERVICE SEARCH_NOT_RUNNING PLMN_NO_ID MMR_SIM_INVALID_REMOVED	
(5) MMR_REG_REQ service_mode	SERVICE_MODE_FULL	
(6) RR_ACTIVATE_REQ plmn op cksn kcv acc imsi tmsi thplmn bcch_info cell_test gprs_indic	PLMN_NO_ID OP_MODE_NO_SIM_NO_SERV CKSN_RES KC_DELETED ACC_CLASS_0000 MOB_ID_NO_ID MOB_ID_NO_ID THPLMN_FF NOT_USED CELL_TEST_DISABLE GPRS_NO	
History:	08.07.97 02.03.00 07.01.01	HK HM HM Initial Revised (search_running) Adaption caused by GPRS integration

4.18.6 MM345: RR failure (No Service)

Description: MM receives a RR-ABORT indication primitive indicating No Service.

Preamble: MM337



Parametrization

Primitive	Parameter	Value
(1) RR_ABORT_IND		
op	OP_MODE_SIM_NO_SERV	
abcs	ABCS_CEL_SEL_FAIL	
plmn_avail	NO_PLMN_FOUND	
plmn	NOT_USED	
rxlevel	NOT_USED	
power	RF_CLASS_2	
(2) MDL_RELEASE_REQ		
ch_type	NOT_PRESENT_8BIT	
sapi	SAPI_0	
(3) MMR_NREG_IND		
nreg_cs	NREG_CELL_SELECTION_FAILED	
search_running	SEARCH_NOT_RUNNING	
new_forb_plmn	PLMN_NO_ID	
limited_cause	MMR_RC_NONE	
History:	10.07.97	HK Initial
	02.03.00	HM Revised (search_running)

4.18.7 MM346: RR failure (Limited Service, no further PLMNs)

Description: MM receives a RR-ABORT indication primitive indicating Limited Service. The one PLMN which was found is in the forbidden PLMN list. This indication is forwarded to MMI.

Preamble: MM337

	MMI / CM / SIM	MM	RR / DL
(1)		RR_ABORT_IND	
		<=====	
(2)		MDL_RELEASE_REQ	
		=====>	
(3)	MMR_NREG_IND		
	<=====		

Parametrization

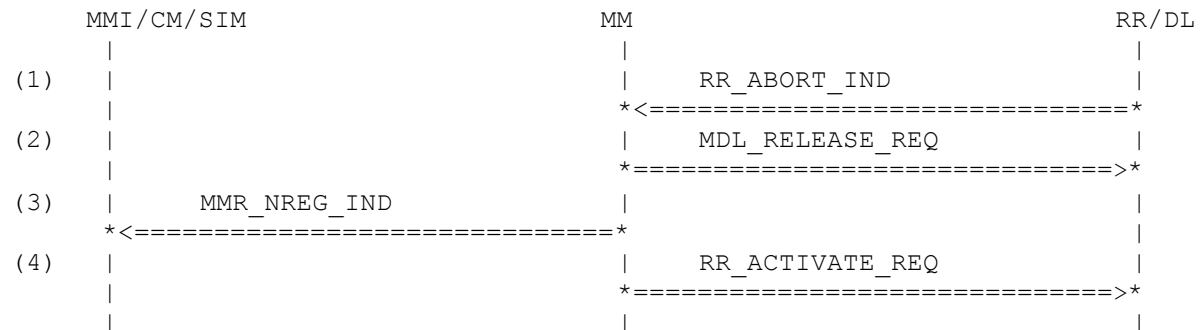
	Primitive	Parameter	Value
(1)	RR_ABORT_IND		
	op	OP_MODE_SIM_LIM_SERV	
	abcs	ABCS_CEL_SEL_FAIL	
	plmn_avail	ONE_PLMN_FOUND	
	plmn	PLMN_LIST_FORB	
	rxlevel	RXLEVEL_20	
	power	RF_CLASS_2	
(2)	MDL_RELEASE_REQ		
	ch_type	NOT_PRESENT_8BIT	
	sapi	SAPI_0	
(3)	MMR_NREG_IND		
	nreg_cs	NREG_LIMITED_SERVICE	
	search_running	SEARCH_NOT_RUNNING	
	new_forb_plmn	PLMN_NO_ID	
	limited_cause	MMR_RC_NONE	

History:	10.07.97	HK	Initial
	02.03.00	HM	Revised (search_running)

4.18.8 MM347: RR failure (Limited Service, further PLMNs available)

Description: MM receives a RR-ABORT indication primitive indicating Limited Service. This indication is forwarded to MMI.

Preamble: MM337



Parametrization

Primitive	Parameter	Value
(29)	RR_ABORT_IND	
op	OP_MODE_SIM_LIM_SERV	
abcs	ABCS_CEL_SEL_FAIL	
plmn_avail	ONE_PLMN_FOUND	
plmn	PLMN_LIST_LPLMN	
rxlevel	RXLEVEL_20	
power	RF_CLASS_2	
(30)	MDL_RELEASE_REQ	
ch_type	NOT_PRESENT_8BIT	
sapi	SAPI_0	
(31)	MMR_NREG_IND	
nreg_cs	NREG_LIMITED_SERVICE	
search_running	SEARCH_RUNNING	
new_forb_plmn	PLMN_NO_ID	
limited_cause	MMR_RC_NONE	
(4) RR_ACTIVATE_REQ		
plmn	PLMN_123_31	
op	OP_MODE_SIM_NO_SERV	
cksn	CKSN_RES	
kcv	KCV_EMPTY	
acc	ACC_2143	
imsi	MOB_ID_IMSI	
tmsi	MOB_ID_NO_ID	
thplmn	THPLMN_01	
bcch_info	BCCH_INFO_1	
cell_test	CELL_TEST_DISABLE	
gprs_indic	GPRS_NO	

History:	10.07.97	HK	Initial
	02.03.00	HM	Revised (search_running)
	14.03.01	HM	Revised

4.18.9 MM348: MM Success

Description: MM is informed about a cell change.

Preamble: MM337

	MMI/CM/SIM	MM	RR/DL
(1)		RR_ACTIVATE_IND	
		<=====	
(2)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		=====>	
(3)		RR_ESTABLISH_CNF	
		<=====	
(4)		RR_DATA_IND	
		(LOCATION UPDATING ACC)	
		<=====	
(5)		RR_DATA_REQ	
		(TMSI REALLOC COMPLETE)	
		=====>	
(6)		RR_SYNC_REQ	
		=====>	
(7)		RR_SYNC_REQ	
		=====>	
(8)	SIM_MM_UPDATE_REQ		
	<=====		

Parametrization

Primitive	Parameter	Value
(1) RR_ACTIVATE_IND		
op	OP_MODE_SIM	
mm_info	MM_INFO	
cid	CELL_ID_1122	
plmn	PLMN_123_31	
lac	LAC_2147	
power	RF_CLASS_2	
gprs_indic	GPRS_NO	
(2) RR_ESTABLISH_REQ		
estcs	ESTCS_SERV_REQ_BY_MM	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_LOC_UPD_REQ	
ti	TI_0	
loc_upd_type	LOC_UPD_TYPE_NORMAL	
ciph_key_num	CIPH_KEY_NUM_RES	
loc_area_ident	LOC_AREA_ID_123_33_2147	
mob_class_1	MOB_CLASS_1	
mob_id	MOB_IDENT_IMSI	
}		
(3) RR_ESTABLISH_CNF		
param	NOT_USED	
(4) RR_DATA_IND		
d1	NOT_USED	
d2	NOT_USED	

sdu	
{	
component	MM
direction	DOWNLINK
pd	D_LOC_UPD_ACCEPT
ti	TI_0
loc_area_ident	LOC_AREA_ID_123_31_2147
mob_id	MOB_IDENT_NEW_TMSI
follow_proceed	NOT_USED
}	
(5) RR_DATA_REQ	
d1	NOT_USED
d2	NOT_USED
sdu	
{	
component	MM
direction	UPLINK
pd	U_TMSI_REALLOC_COMP
ti	TI_0
}	
(6) RR_SYNC_REQ	
op	NOT_USED
cksn	NOT_USED
kcv	NOT_USED
tmsi	MOB_ID_NEW_TMSI
plmn	NOT_USED
lac	NOT_USED
syncs	NOT_USED
acc	NOT_USED
thplmn	NOT_USED
(7) RR_SYNC_REQ	
op	NOT_USED
cksn	NOT_USED
kcv	NOT_USED
tmsi	NOT_USED
plmn	PLMN_123_31
lac	LAC_2147
syncs	SYNCCS_LAI_ALLOW
acc	NOT_USED
thplmn	NOT_USED
(8) SIM_MM_UPDATE_REQ	
loc_info	LOC_INFO_UPDATED_31_2147
bcch_inf	BCCH_INF_1
forb_plmn	NOT_USED
cksn	CKSN_RES
kc	KC_DELETED_SIM
cell_identity	CELL_ID_1122

History:	09.07.97	HK	Initial
	06.08.97	DL	Revised
	12.08.97	HK	Revised

4.18.10 MM349: MM Failure

Description: MM is informed about a cell change. A location updating is started. After four rejections MM enters the state ATTEMPTING TO UPDATE and no further reactions are expected.

Preamble: MM337

	MMI/CM/SIM	MM	RR/DL
(1)		RR_ACTIVATE_IND	
		*<=====	
(2)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		*=====>	
(3)		RR_ESTABLISH_CNF	
		*<=====	
(4)		RR_DATA_IND	
		(LOCATION UPDATING REJ)	
		*<=====	
(5)		RR_RELEASE_IND	
		*<=====	
(6)		MDL_RELEASE_REQ	
		*=====>	
(7)		RR_SYNC_REQ	
		*=====>	
(8)	SIM_MM_UPDATE_REQ		
		*<=====	
TIMEOUT (10000)			
(9)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		*=====>	
(10)		RR_ESTABLISH_CNF	
		*<=====	
(11)		RR_DATA_IND	
		(LOCATION UPDATING REJ)	
		*<=====	
(12)		RR_RELEASE_IND	
		*<=====	
(13)		MDL_RELEASE_REQ	
		*=====>	
(14)		RR_SYNC_REQ	
		*=====>	
(15)	SIM_MM_UPDATE_REQ		
		*<=====	
TIMEOUT (10000)			
(16)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		*=====>	
(17)		RR_ESTABLISH_CNF	
		*<=====	
(18)		RR_DATA_IND	
		(LOCATION UPDATING REJ)	
		*<=====	
(19)		RR_RELEASE_IND	
		*<=====	
(20)		MDL_RELEASE_REQ	
		*=====>	
(21)		RR_SYNC_REQ	
		*=====>	
(22)	SIM_MM_UPDATE_REQ		

```

* <=====
TIMEOUT (10000)
(23) | | RR_ESTABLISH_REQ |
| | (LOCATION UPDATING REQ) |
| | *=====>*
(24) | | RR_ESTABLISH_CNF |
| | *=====>*
(25) | | RR_DATA_IND |
| | (LOCATION UPDATING REJ) |
| | *=====>*
(26) | | RR_RELEASE_IND |
| | *=====>*
(27) | | MDL_RELEASE_REQ |
| | *=====>*
(28) | | RR_SYNC_REQ |
| | *=====>*
(29) | SIM_MM_UPDATE_REQ |
| | *=====>*
(30) | MMR_NREG_IND |
| | *=====>*
| |

```

Parametrization

Primitive	Parameter	Value
(1) RR_ACTIVATE_IND		
op	OP_MODE_SIM	
mm_info	MM_INFO	
cid	CELL_ID_1122	
plmn	PLMN_123_31	
lac	LAC_2147	
power	RF_CLASS_2	
gprs_indic	GPRS_NO	
(2) RR_ESTABLISH_REQ		
estcs	ESTCS_SERV_REQ_BY_MM	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_LOC_UPD_REQ	
ti	TI_0	
loc_upd_type	LOC_UPD_TYPE_NORMAL	
ciph_key_num	CIPH_KEY_NUM_RES	
loc_area_ident	LOC_AREA_ID_123_33_2147	
mob_class_1	MOB_CLASS_1	
mob_id	MOB_IDENT_IMSI	
}		
(3) RR_ESTABLISH_CNF		
param	NOT_USED	
(4) RR_DATA_IND		
d1	NOT_USED	
d2	NOT_USED	
sdu		
{		
component	MM	
direction	DOWNLINK	
pd	D_LOC_UPD_REJ	

ti	TI_0
rej_cause	RC_UNSPECIFIED
}	
(5) RR_RELEASE_IND	
relcs	RELCS_ABNORM_UNSPEC
sapi	SAPI_0
gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(6) MDL_RELEASE_REQ	
ch_type	NOT_PRESENT_8BIT
sapi	SAPI_0
(7) RR_SYNC_REQ	
op	NOT_USED
cksn	NOT_USED
kcv	NOT_USED
tmsi	NOT_USED
plmn	NOT_USED
lac	NOT_USED
syncs	SYNCCS_TMSI_CKSN_KC_INVALID
acc	NOT_USED
thplmn	NOT_USED
(8) SIM_MM_UPDATE_REQ	
loc_info	LOC_INFO_123_33_FFFF
bcch_inf	BCCH_INF_2
forb_plmn	NOT_USED
cksn	CKSN_NO_KEY
kc	KC_DELETED_SIM
cell_identity	CELL_ID_1122
(9) RR_ESTABLISH_REQ	
estcs	ESTCS_SERV_REQ_BY_MM
sdu	
{	
component	MM
direction	UPLINK
pd	U_LOC_UPD_REQ
ti	TI_0
loc_upd_type	LOC_UPD_TYPE_NORMAL
ciph_key_num	CIPH_KEY_NUM_RES
loc_area_ident	LOC_AREA_ID_123_33_FFFF
mob_class_1	MOB_CLASS_1
mob_id	MOB_IDENT_IMSI
}	
(10) RR_ESTABLISH_CNF	
param	NOT_USED
(11) RR_DATA_IND	
d1	NOT_USED
d2	NOT_USED
sdu	
{	
component	MM
direction	DOWNLINK
pd	D_LOC_UPD_REQ
ti	TI_0
rej_cause	RC_UNSPECIFIED
}	

(12)	RR_RELEASE_IND	relcs sapi gprs_resumption	RELCS_ABNORM_UNSPEC SAPI_0 GPRS_RESUMPTION_NOT_ACK
(13)	MDL_RELEASE_REQ	ch_type sapi	NOT_PRESENT_8BIT SAPI_0
(14)	RR_SYNC_REQ	op cksn kcv tmsi plmn lac synccs accc thplmn	NOT_USED NOT_USED NOT_USED NOT_USED NOT_USED NOT_USED SYNCCS_TMSI_CKSN_KC_INVAL NOT_USED NOT_USED
(15)	SIM_MM_UPDATE_REQ	loc_info bcch_inf forb_plmn cksn kc cell_identity	LOC_INFO_123_33_FEFF BCCH_INF_2 NOT_USED CKSN_NO_KEY KC_DELETED_SIM CELL_ID_1122
(16)	RR_ESTABLISH_REQ	estcs sdu { component direction pd ti loc_upd_type ciph_key_num loc_area_ident mob_class_1 mob_id }	ESTCS_SERV_REQ_BY_MM MM UPLINK U_LOC_UPD_REQ TI_0 LOC_UPD_TYPE_NORMAL CIPH_KEY_NUM_RES LOC_AREA_ID_123_33_FEFF MOB_CLASS_1 MOB_IDENT_IMSI
(17)	RR_ESTABLISH_CNF	param	NOT_USED
(18)	RR_DATA_IND	d1 d2 sdu { component direction pd ti rej_cause }	NOT_USED NOT_USED MM DOWNLINK D_LOC_UPD_REJ TI_0 RC_UNSPECIFIED
(19)	RR_RELEASE_IND	relcs sapi gprs_resumption	RELCS_ABNORM_UNSPEC SAPI_0 GPRS_RESUMPTION_NOT_ACK

(20)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(21)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	NOT_USED
	plmn	NOT_USED
	lac	NOT_USED
	synccts	SYNCCS_TMSI_CKSN_KC_INVAL
	accc	NOT_USED
	thplmn	NOT_USED
(22)	SIM_MM_UPDATE_REQ	
	loc_info	LOC_INFO_123_33_FEFF
	bcch_inf	BCCH_INF_2
	forb_plmn	NOT_USED
	cksn	CKSN_NO_KEY
	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122
(23)	RR_ESTABLISH_REQ	
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti	TI_0
	loc_upd_type	LOC_UPD_TYPE_NORMAL
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_FEFF
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(24)	RR_ESTABLISH_CNF	
	param	NOT_USED
(25)	RR_DATA_IND	
	d1	NOT_USED
	d2	NOT_USED
	sdu	
	{	
	component	MM
	direction	DOWNLINK
	pd	D_LOC_UPD_REJ
	ti	TI_0
	rej_cause	RC_UNSPECIFIED
	}	
(26)	RR_RELEASE_IND	
	relcs	RELCS_ABNORM_UNSPEC
	sapi	SAPI_0
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(27)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0

(28)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	NOT_USED
	plmn	NOT_USED
	lac	NOT_USED
	synccs	SYNCCS_TMSI_CKSN_KC_INVALID
	accc	NOT_USED
	thplmn	NOT_USED

(29)	SIM_MM_UPDATE_REQ	
	loc_info	LOC_INFO_123_33_FEFF
	bcch_inf	BCCH_INF_2
	forb_plmn	NOT_USED
	cksn	CKSN_NO_KEY
	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122

(30)	MMR_NREG_IND	
	nreg_cs	NREG_LIMITED_SERVICE
	search_running	SEARCH_NOT_RUNNING
	new_forb_plmn	PLMN_NO_ID
	limited_cause	RC_UNSPECIFIED

History:	09.07.97	HK	Initial
	06.08.97	DL	Revised
	12.08.97	HK	Revised
	15.01.01	HM	Revised (last NREG_IND added)

4.18.11 MM350: MM Authentication Failure

Description: MM is informed by means of a RR-ACTIVATE confirmation primitive that the mobile station is synchronous to a cell. A location updating is started. After authentication failure only limited service shall be allowed.

Preamble: MM329B

	MMI / CM / SIM	MM	RR / DL
(1)		RR_ACTIVATE_CNF	
		*<=====	
(2)	MMR_REG_CNF		
	*<=====		
(3)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		*=====>	
(4)		RR_ESTABLISH_CNF	
		*<=====	
(5)		RR_DATA_IND	
		(AUTHENTICATION REQ)	
		*<=====	
(6)	SIM_AUTHENTICATION_REQ		
	*<=====		
(7)	SIM_AUTHENTICATION_CNF		
	*=====>		
(8)		RR_DATA_REQ	
		(AUTHENTICATION RES)	
		*=====>	
(9)		RR_SYNC_REQ	
		*=====>	
(10)		RR_DATA_IND	
		(AUTHENTICATION REJ)	
		*<=====	
(11)		RR_SYNC_REQ	
		*=====>	
(12)	SIM_MM_UPDATE_REQ		
	*<=====		
(13)		RR_ABORT_IND	
		*<=====	
(14)		MDL_RELEASE_REQ	
		*=====>	
(15)	MMR_NREG_IND		
	*<=====		

Parametrization

Primitive	Parameter	Value
(1) RR_ACTIVATE_CNF		
op	OP_MODE_SIM	
mm_info	MM_INFO	
cid	CELL_ID_1122	
plmn	PLMN_123_33	
lac	LAC_0002	
power	RF_CLASS_2	
gprs_indic	GPRS_NO	
(2) MMR_REG_CNF		
plmn	PLMN_123_33	

(3)	RR_ESTABLISH_REQ	
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti	TI_0
	loc_upd_type	LOC_UPD_TYPE_NORMAL
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_2147
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(4)	RR_ESTABLISH_CNF	
	param	NOT_USED
(5)	RR_DATA_IND	
	d1	NOT_USED
	d2	NOT_USED
	sdu	
	{	
	component	MM
	direction	DOWNLINK
	pd	D_AUTH_REQ
	ti	TI_0
	ciph_key_num	CIPH_KEY_NUM_01
	auth_rand	AUTH_RAND_1
	}	
(6)	SIM_AUTHENTICATION_REQ	
	source	SRC_MM
	rand	RAND_1_P
	cksn	CKSN_01
(7)	SIM_AUTHENTICATION_CNF	
	sres	SRES_1
	kc	KC_11223344
(8)	RR_DATA_REQ	
	d1	NOT_USED
	d2	NOT_USED
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_AUTH_RES
	ti	TI_0
	auth_sres	SRES_1_CODED
	}	
(9)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	CKSN_01
	kcv	KCV_11223344
	tmsi	NOT_USED
	plmn	NOT_USED
	lac	NOT_USED
	syncchs	NOT_USED
	accc	NOT_USED
	thplmn	NOT_USED

(10)	RR_DATA_IND	
	d1	NOT_USED
	d2	NOT_USED
	sdu	
	{	
	component	MM
	direction	DOWNLINK
	pd	D_AUTH_REJ
	ti	TI_0
	}	
(11)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	NOT_USED
	plmn	NOT_USED
	lac	NOT_USED
	synccs	SYNCCS_TMSI_CKSN_KC_INVALID_NO_PAG
	accc	NOT_USED
	thplmn	NOT_USED
(12)	SIM_MM_UPDATE_REQ	
	loc_info	LOC_INFO_PLMN_NOT_ALLOW
	bcch_inf	NOT_USED
	forb_plmn	NOT_USED
	cksn	CKSN_NO_KEY
	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122
(13)	RR_ABORT_IND	
	op	OP_MODE_TEST_SIM
	abcs	ABCS_RAD_LNK_FAIL
	plmn_avail	NOT_USED
	plmn	NOT_USED
	rxlevel	NOT_USED
	power	RF_CLASS_2
(14)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(15)	MMR_NREG_IND	
	nreg_cs	NREG_LIMITED_SERVICE
	search_running	SEARCH_NOT_RUNNING
	new_forb_plmn	PLMN_NO_ID
	limited_cause	MMR_SIM_INVALID_AUTHREJ

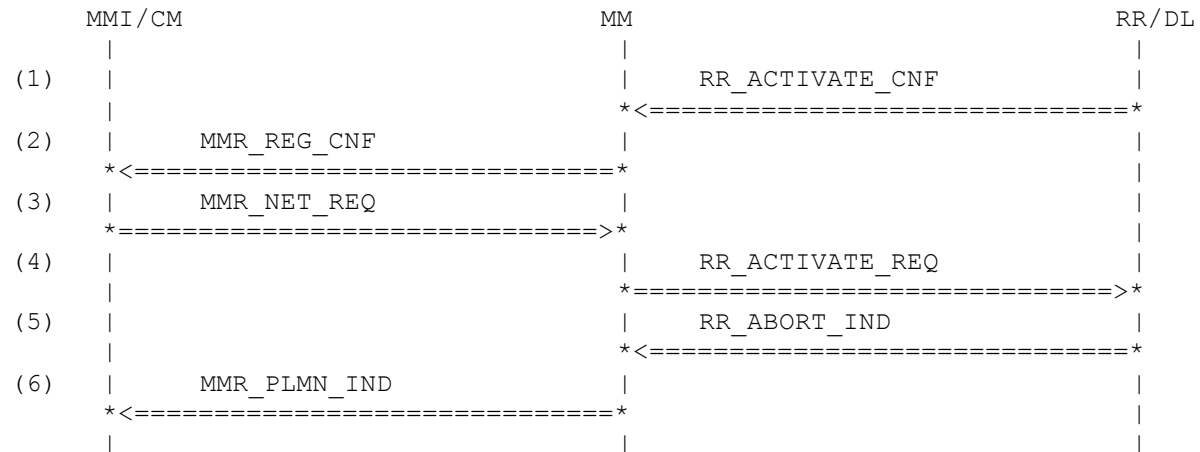
History:	09.07.97	HK	Initial
	06.08.97	DL	Revised
	12.08.97	HK	Revised
	02.03.00	HM	Revised (search_running)
	27.04.01	HM	Changed ordering of primitives

4.18.12 MM357: PLMN Available Request

Description: MM is in full service condition. MMI requests a PLMN available request and starts a PLMN search in RR. The result is forwarded to MMI.

Preamble: MM329B

Variants: <A>...<C>



Parametrization

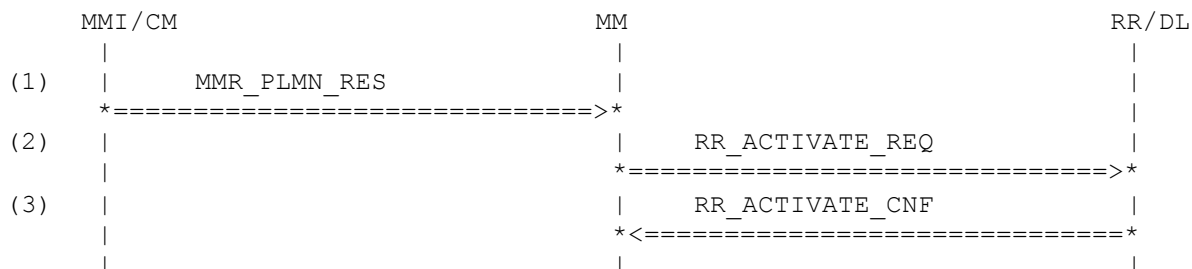
Primitive	Parameter	Value
(1) RR_ACTIVATE_CNF		
op	OP_MODE_SIM	
mm_info	MM_INFO	
cid	CELL_ID_1122	
plmn	PLMN_123_33	
lac	LAC_2147	
power	RF_CLASS_2	
gprs_indic	GPRS_NO	
(2) MMR_REG_CNF		
plmn	PLMN_123_33	
(3) MMR_NET_REQ		
param	NOT_USED	
(4) RR_ACTIVATE_REQ		
plmn	PLMN_NO_ID	
op	OP_MODE_SIM_A	
cksn	CKSN_NO_KEY	
kcv	KC_DELETED	
accc	ACC_CLASS_0000	
imsi	EMPTY_IMSI	
tmsi	NOT_USED	
thplmn	NOT_USED	
bcch_info	NOT_USED	
cell_test	CELL_TEST_DISABLE	
gprs_indic	GPRS_NO	
(5) RR_ABORT_IND		
op	OP_MODE_SIM_SERV_A	
abcs	ABCS_CEL_SEL_FAIL	
<A>	plmn_avail	NO_PLMN_FOUND
	plmn_avail	TWO_PLMN_FOUND
<C>	plmn_avail	TWO_PLMN_FOUND

<A>	plmn	NOT_USED
	plmn	PLMN_LIST_2_PLMN
<C>	plmn	PLMN_LIST_2_PLMN_F
<A>	rxlevel	NOT_USED
	rxlevel	RXLEVEL_20_18
<C>	rxlevel	RXLEVEL_20_18
power	RF_CLASS_2	
(6) MMR_PLMN_IND		
<A>	res	RES_OK_NO_PLMN_FND
	res	RES_OK_PLMN_LST_AVAIL
<C>	res	RES_OK_PLMN_LST_AVAIL
<A>	plmn	NOT_USED
	plmn	PLMN_LIST_2_PLMN_A
<C>	plmn	PLMN_LIST_2_PLMN_AF
<A>	forb_ind	NOT_USED
	forb_ind	FORB_PLMN_ID
<C>	forb_ind	FORB_PLMN_ID_F
<A>	rxlevel	NOT_USED
	rxlevel	RXLEVEL_20_18_A
<C>	rxlevel	RXLEVEL_20_18_A
History:		
	07.07.97	HK Initial
	06.08.97	DL Revised
	12.08.97	HK Revised

4.18.13 MM362: PLMN Selection successful

Description: MMI has requested a PLMN available list. It now selects a PLMN. The selection is successful.

Preamble: MM357B



Parametrization

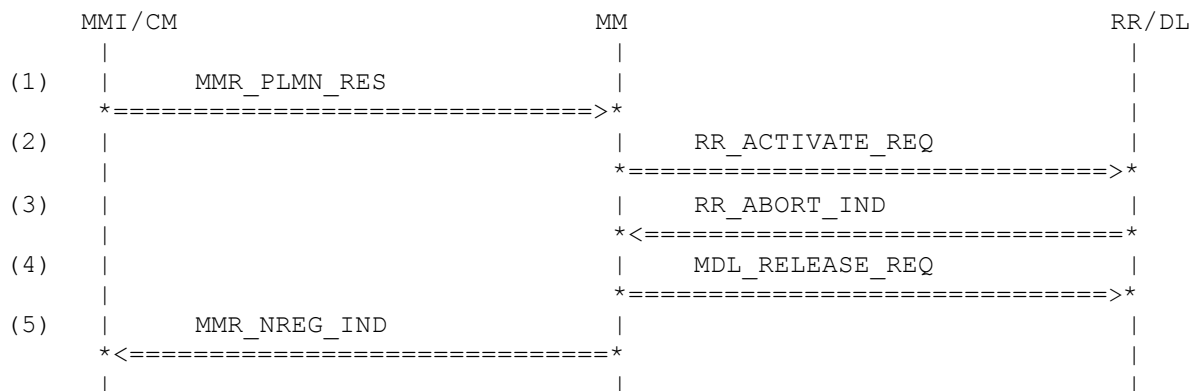
Primitive	Parameter	Value
(1) MMR_PLMN_RES plmn	PLMN_123_33	
(2) RR_ACTIVATE_REQ plmn op cksn kcv acc imsi tmsi thplmn bcch_info cell_test gprs_indic	PLMN_123_33 OP_MODE_SIM_NO_SERV CKSN_RES KCV_EMPTY ACC_2143 MOB_ID_IMSI MOB_ID_NO_ID THPLMN_01 BCCH_INFO_1 CELL_TEST_DISABLE GPRS_NO	
(3) RR_ACTIVATE_CNF op mm_info cid plmn lac power gprs_indic	OP_MODE_SIM MM_INFO CELL_ID_1122 PLMN_123_33 LAC_2147 RF_CLASS_2 GPRS_NO	

History:	07.07.97	HK	Initial
	06.08.97	DL	Revised
	12.08.97	HK	Revised
	24.03.00	HM	Revised

4.18.14 MM363: PLMN Selection unsuccessful

Description: MMI has requested a PLMN available list. It now selects a PLMN. The selection is unsuccessful.

Preamble: MM357B



Parametrization

	Primitive	Parameter	Value
(40)	MMR_PLMN_RES		
	plmn	PLMN_123_33	
(41)	RR_ACTIVATE_REQ		
	plmn	PLMN_123_33	
	op	OP_MODE_SIM_NO_SERV	
	cksn	CKSN_RES	
	kcv	KCV_EMPTY	
	acc	ACC_2143	
	imsi	MOB_ID_IMSI	
	tmsi	MOB_ID_NO_ID	
	thplmn	THPLMN_01	
	bcch_info	BCCH_INFO_1	
	cell_test	CELL_TEST_DISABLE	
	gprs_indic	GPRS_NO	
(42)	RR_ABORT_IND		
	op	OP_MODE_SIM_LIM_SERV	
	abcs	ABCS_CEL_SEL_FAIL	
	plmn_avail	ONE_PLMN_FOUND	
	plmn	PLMN_LIST_FORB	
	rxlevel	RXLEVEL_20	
	power	RF_CLASS_2	
(43)	MDL_RELEASE_REQ		
	ch_type	NOT_PRESENT_8BIT	
	sapi	SAPI_0	
(44)	MMR_NREG_IND		
	nreg_cs	NREG_LIMITED_SERVICE	
	search_running	SEARCH_NOT_RUNNING	
	new_forb_plmn	PLMN_NO_ID	
	limited_cause	MMR_RC_NONE	

History:	07.07.97	HK	Initial
	06.08.97	DL	Revised

12.08.97
02.03.00

HK
HM

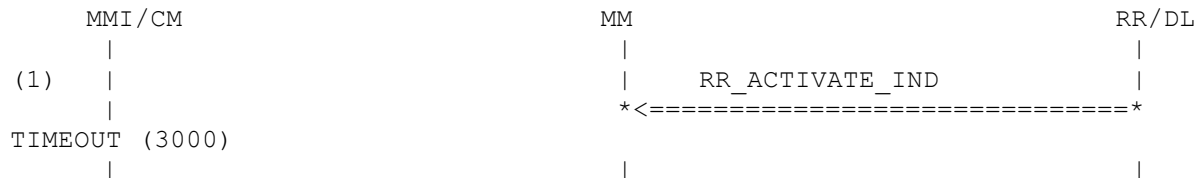
Revised
Revised (search_running)

4.19 MM Idle Mode Behaviour (Normal Service)

4.19.1 MM400: Normal Service, new cell, same location area

Description: MM is in service state NORMAL SERVICE. A new cell is entered in the same location area. The new cell indicates IMSI attach. It is assumed that no location updating is started.

Preamble: MM024



Parametrization

Primitive	Parameter	Value
(1) RR_ACTIVATE_IND		
op	OP_MODE_SIM	
mm_info	MM_INFO	
cid	CELL_ID_1123	
plmn	PLMN_123_33	
lac	LAC_2147	
power	RF_CLASS_2	
gprs_indic	GPRS_NO	

History: 03.05.99 LE Initial

4.19.2 MM401: Normal Service, new cell, new location area

Description: MM is in service state NORMAL SERVICE. A new cell is entered in a new location area. A normal location updating is started.

Preamble: MM024

	MMI / CM	MM	RR / DL
(1)		RR_ACTIVATE_IND	
		<=====	
(2)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		=====>	

Parametrization

	Primitive	Parameter	Value
(1)	RR_ACTIVATE_IND		
	op	OP_MODE_SIM	
	mm_info	MM_INFO	
	cid	CELL_ID_1122	
	plmn	PLMN_123_33	
	lac	LAC_0002	
	power	RF_CLASS_2	
	gprs_indic	GPRS_NO	
(2)	RR_ESTABLISH_REQ		
	estcs	ESTCS_SERV_REQ_BY_MM	
	sdu		
	{		
	component	MM	
	direction	UPLINK	
	pd	U_LOC_UPD_REQ	
	ti	TI_0	
	loc_upd_type	LOC_UPD_TYPE_NORMAL	
	ciph_key_num	CIPH_KEY_NUM_RES	
	loc_area_ident	LOC_AREA_ID_123_33_2147	
	mob_class_1	MOB_CLASS_1	
	mob_id	MOB_IDENT_IMSI	
	}		

History: 07.07.97 HK Initial

4.19.3 MM402: Normal Service, new cell, new PLMN identification

Description: MM is in service state NORMAL SERVICE. A new cell is entered in a new PLMN. A normal location updating is started.

Preamble: MM024

	MMI / CM	MM	RR / DL
(1)		RR_ACTIVATE_IND	
		<=====	
(2)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		=====>	

Parametrization

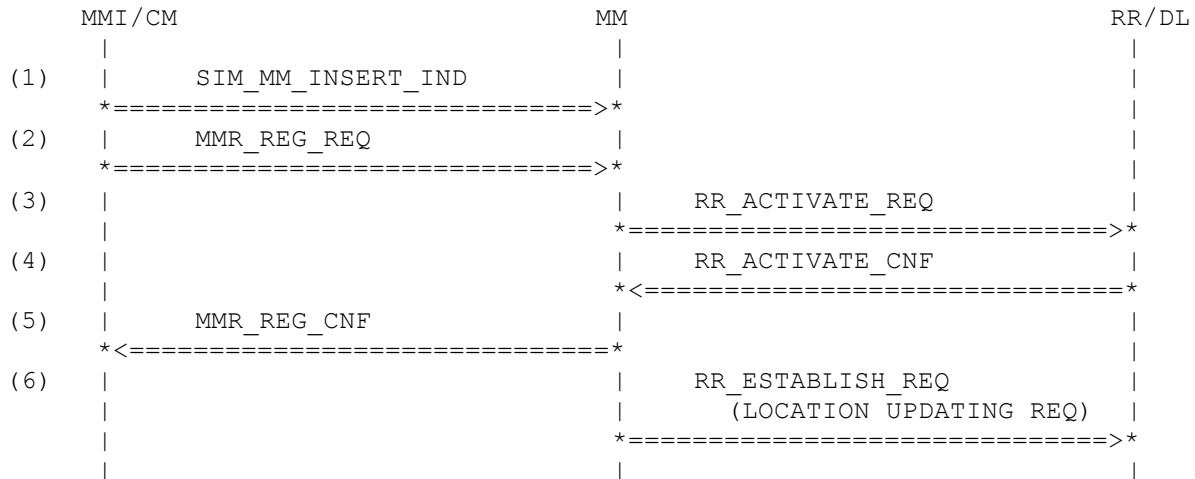
	Primitive	Parameter	Value
(1)	RR_ACTIVATE_IND		
	op	OP_MODE_SIM	
	mm_info	MM_INFO	
	cid	CELL_ID_1122	
	plmn	PLMN_123_44	
	lac	LAC_2147	
	power	RF_CLASS_2	
	gprs_indic	GPRS_NO	
(2)	RR_ESTABLISH_REQ		
	estcs	ESTCS_SERV_REQ_BY_MM	
	sdu		
	{		
	component	MM	
	direction	UPLINK	
	pd	U_LOC_UPD_REQ	
	ti	TI_0	
	loc_upd_type	LOC_UPD_TYPE_NORMAL	
	ciph_key_num	CIPH_KEY_NUM_RES	
	loc_area_ident	LOC_AREA_ID_123_33_2147	
	mob_class_1	MOB_CLASS_1	
	mob_id	MOB_IDENT_IMSI	
	}		

History: 07.07.97 HK Initial

4.19.4 MM403: Updated, IMSI Attach

Description: MM receives a SIM-INSERT indication primitive and initiates cell selection by issuing a RR-ACTIVATE request primitive. Successful conclusion of cell selection is signalled by the receipt of a RR-ACTIVATE confirmation primitive. MM forwards the PLMN identification to MMI in the form of a MMR-REG confirmation primitive. An IMSI attach is started.

Preamble: MM022



Parametrization

Primitive	Parameter	Value
(6) SIM_MM_INSERT_IND		
op_mode	NORMAL_SIM_INS	
imsi_field	IMSI_FIELD_1	
loc_info	LOC_INFO_UPDATED_1	
acc_ctrl	ACC_CTRL_1	
bcch_inf	BCCH_INF_1	
kc_n	KC_EMPTY	
pref_plmn	PREF_PLMN_NONE	
forb_plmn	FORB_PLMN_NONE	
phase	PHASE_2_SIM	
hplmn	THPLMN_01	
(7) MMR_REG_REQ		
service_mode	SERVICE_MODE_FULL	
(8) RR_ACTIVATE_REQ		
plmn	PLMN_123_33	
op	OP_MODE_SIM_NO_SERV	
cksn	CKSN_RES	
kcv	KCV_EMPTY	
accc	ACC_2143	
imsi	MOB_ID_IMSI	
tmsi	MOB_ID_NO_ID	
thplmn	THPLMN_01	
bcch_info	BCCH_INFO_ECL	
cell_test	CELL_TEST_DISABLE	
gprs_indic	GPRS_NO	
(9) RR_ACTIVATE_CNF		
op	OP_MODE_SIM	
mm_info	MM_INFO_ATT	

	cid	CELL_ID_1122
	plmn	PLMN_123_33
	lac	LAC_2147
	power	RF_CLASS_2
	gprs_indic	GPRS_NO
(10)	MMR_REG_CNF	
	plmn	PLMN_123_33
(11)	RR_ESTABLISH_REQ	
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti	TI_0
	loc_upd_type	LOC_UPD_TYPE_ATTACH
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_2147
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	

History:	04.05.99	LE	Initial
	24.02.00	HM	Revised

4.19.5 MM404: Normal Service, Timeout T3211, LUP Reject Cause #17

Description: The location updating is finished with a location updating reject message and the cause #17 network failure. The update status is UPDATED and the stored LAI is equal to the one received on the BCCH from the current serving cell and the attempt counter is smaller than 4. The MS shall keep the update status to UPDATED, the MM IDLE substate after the RR connection release is NORMAL SERVICE. The MS shall memorize the location updating type used in the location updating procedure. It shall start timer T3211 when the RR connection is released. When timer T3211 expires the location updating procedure is triggered again with the memorized location updating type.

Preamble: MM403

MMI / CM / SIM	MM	RR / DL
(1)	RR_ESTABLISH_CNF	
(2)	RR_DATA_IND (LOCATION UPDATING REJ)	
(3)	RR_RELEASE_IND	
(4)	MDL_RELEASE_REQ	
TIMEOUT (10000)		
(5)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	

Parametrization

Primitive	Parameter	Value
(1) RR_ESTABLISH_CNF param	NOT_USED	
(2) RR_DATA_IND d1 d2 sdu { component direction pd ti rej_cause }	NOT_USED NOT_USED NOT_USED MM DOWNLINK D_LOC_UPD_REJ TI_0 RC_NETWORK_FAILURE	
(3) RR_RELEASE_IND relcs sapi gprs_resumption	RELCS_NORM SAPI_0 GPRS_RESUMPTION_NOT_ACK	
(4) MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(5) RR_ESTABLISH_REQ estcs sdu {	ESTCS_SERV_REQ_BY_MM	

component	MM
direction	UPLINK
pd	U_LOC_UPD_REQ
ti	TI_0
loc_upd_type	LOC_UPD_TYPE_ATTACH
ciph_key_num	CIPH_KEY_NUM_RES
loc_area_ident	LOC_AREA_ID_123_33_2147
mob_class_1	MOB_CLASS_1
mob_id	MOB_IDENT_IMSI
}	

History:	04.05.99	LE	Initial
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4.19.6 MM405: Normal Service, Timeout T3211, LUP Reject Cause, 2.-4. attempt

Description: The location updating is finished with a location updating reject message and the cause #17 network failure. The update status is UPDATED and the stored LAI is equal to the one received on the BCCH from the current serving cell and the attempt counter is smaller than 4. The MS shall keep the update status to UPDATED, the MM IDLE substate after the RR connection release is NORMAL SERVICE. The MS shall memorize the location updating type used in the location updating procedure. It shall start timer T3211 when the RR connection is released. When timer T3211 expires the location updating procedure is triggered again with the memorized location updating type. After the 4. Attempt the MM IDLE substate ATTEMPTING TO UPDATE is entered.

Preamble: MM404

MMI/CM/SIM	MM	RR/DL
(1)	RR_ESTABLISH_CNF	
(2)	RR_DATA_IND (LOCATION UPDATING REJ)	
(3)	RR_RELEASE_IND	
(4)	MDL_RELEASE_REQ	
TIMEOUT (10000)		
(5)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
(6)	RR_ESTABLISH_CNF	
(7)	RR_DATA_IND (LOCATION UPDATING REJ)	
(8)	RR_RELEASE_IND	
(9)	MDL_RELEASE_REQ	
TIMEOUT (10000)		
(10)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
(11)	RR_ESTABLISH_CNF	
(12)	RR_DATA_IND (LOCATION UPDATING REJ)	
(13)	RR_RELEASE_IND	
(14)	MDL_RELEASE_REQ	
(15)	RR_SYNC_REQ	
(16)	SIM_MM_UPDATE_REQ	

Parametrization

Primitive	Parameter	Value
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(1)	RR_ESTABLISH_CNF param	NOT_USED
(2)	RR_DATA_IND d1 d2 sdu { component direction pd ti rej_cause }	NOT_USED NOT_USED MM DOWNLINK D_LOC_UPD_REJ TI_0 RC_NETWORK_FAILURE
(3)	RR_RELEASE_IND relcs sapi gprs_resumption	RELCS_NORM SAPI_0 GPRS_RESUMPTION_NOT_ACK
(4)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0
(5)	RR_ESTABLISH_REQ estcs sdu { component direction pd ti loc_upd_type ciph_key_num loc_area_ident mob_class_1 mob_id }	ESTCS_SERV_REQ_BY_MM MM UPLINK U_LOC_UPD_REQ TI_0 LOC_UPD_TYPE_ATTACH CIPH_KEY_NUM_RES LOC_AREA_ID_123_33_2147 MOB_CLASS_1 MOB_IDENT_IMSI
(6)	RR_ESTABLISH_CNF param	NOT_USED
(7)	RR_DATA_IND d1 d2 sdu { component direction pd ti rej_cause }	NOT_USED NOT_USED MM DOWNLINK D_LOC_UPD_REJ TI_0 RC_NETWORK_FAILURE
(8)	RR_RELEASE_IND relcs sapi gprs_resumption	RELCS_NORM SAPI_0 GPRS_RESUMPTION_NOT_ACK
(9)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0

(10)	RR_ESTABLISH_REQ	ESTCS_SERV_REQ_BY_MM
	estcs	
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti	TI_0
	loc_upd_type	LOC_UPD_TYPE_ATTACH
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_2147
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(11)	RR_ESTABLISH_CNF	
	param	NOT_USED
(12)	RR_DATA_IND	
	d1	NOT_USED
	d2	NOT_USED
	sdu	
	{	
	component	MM
	direction	DOWNLINK
	pd	D_LOC_UPD_REQ
	ti	TI_0
	rej_cause	RC_NETWORK_FAILURE
	}	
(13)	RR_RELEASE_IND	
	relcs	RELCS_NORM
	sapi	SAPI_0
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(14)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(15)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	NOT_USED
	plmn	NOT_USED
	lac	NOT_USED
	synccs	SYNCCS_TMSI_CKSN_KC_INVALID
	accc	NOT_USED
	thplmn	NOT_USED
(16)	SIM_MM_UPDATE_REQ	
	loc_info	LOC_INFO_123_33_FEFF
	bcch_inf	NOT_USED
	forb_plmn	NOT_USED
	cksn	CKSN_RES
	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122

History: 04.05.99 LE Initial

4.19.7 MM406: Updated, Periodic LUP

Description: MM receives a SIM-INSERT indication primitive and initiates cell selection by issuing a RR-ACTIVATE request primitive. Successful conclusion of cell selection is signalled by the receipt of a RR-ACTIVATE confirmation primitive. MM forwards the PLMN identification to MMI in the form of a MMR-REG confirmation primitive. The periodic location updating timer is started.

Preamble: MM022

	MMI / CM	MM	RR / DL
	COMMAND (MM CONFIG T3212_CNT=5)		
(1)	SIM_MM_INSERT_IND		
	=====>		
(2)	MMR_REG_REQ		
	=====>		
(3)		RR_ACTIVATE_REQ	
		=====>	
(4)		RR_ACTIVATE_CNF	
		<=====	
(5)	MMR_REG_CNF		
	<=====		
	TIMEOUT (55000)		
(6)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		=====>	

Parametrization

Primitive	Parameter	Value
(1) SIM_MM_INSERT_IND		
op_mode	NORMAL_SIM_INS	
imsi_field	IMSI_FIELD_1	
loc_info	LOC_INFO_UPDATED_1	
acc_ctrl	ACC_CTRL_1	
bcch_inf	BCCH_INF_1	
kc_n	KC_EMPTY	
pref_plmn	PREF_PLMN_NONE	
forb_plmn	FORB_PLMN_NONE	
phase	PHASE_2_SIM	
hplmn	THPLMN_01	
(2) MMR_REG_REQ		
service_mode	SERVICE_MODE_FULL	
(3) RR_ACTIVATE_REQ		
plmn	PLMN_123_33	
op	OP_MODE_SIM_NO_SERV	
cksn	CKSN_RES	
kcv	KCV_EMPTY	
acc	ACC_2143	
imsi	MOB_ID_IMSI	
tmsi	MOB_ID_NO_ID	
thplmn	THPLMN_01	
bcch_info	BCCH_INFO_ECL	
cell_test	CELL_TEST_DISABLE	
gprs_indic	GPRS_NO	

(4)	RR_ACTIVATE_CNF	
	op	OP_MODE_SIM
	mm_info	MM_INFO_PER
	cid	CELL_ID_1122
	plmn	PLMN_123_33
	lac	LAC_2147
	power	RF_CLASS_2
	gprs_indic	GPRS_NO
(5)	MMR_REG_CNF	
	plmn	PLMN_123_33
(6)	RR_ESTABLISH_REQ	
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti	TI_0
	loc_upd_type	LOC_UPD_TYPE_PERIODIC
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_2147
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	

History:	04.05.99	LE	Initial
	24.02.00	HM	Revised

4.19.8 MM407: Normal Service, Timeout T3211, LUP Reject Cause #17

Description: The location updating is finished with a location updating reject message and the cause #17 network failure. The update status is UPDATED and the stored LAI is equal to the one received on the BCCH from the current serving cell and the attempt counter is smaller than 4. The MS shall keep the update status to UPDATED, the MM IDLE substate after the RR connection release is NORMAL SERVICE. The MS shall memorize the location updating type used in the location updating procedure. It shall start timer T3211 when the RR connection is released. When timer T3211 expires the location updating procedure is triggered again with the memorized location updating type.

Preamble: MM406

MMI/CM/SIM	MM	RR/DL
(1)	RR_ESTABLISH_CNF	
(2)	RR_DATA_IND (LOCATION UPDATING REJ)	
(3)	RR_RELEASE_IND	
(4)	MDL_RELEASE_REQ	
TIMEOUT (10000)		
(5)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	

Parametrization

Primitive	Parameter	Value
(1) RR_ESTABLISH_CNF param	NOT_USED	
(2) RR_DATA_IND d1 d2 sdu { component direction pd ti rej_cause }	NOT_USED NOT_USED NOT_USED MM DOWNLINK D_LOC_UPD_REJ TI_0 RC_NETWORK_FAILURE	
(3) RR_RELEASE_IND relcs sapi gprs_resumption	RELCS_NORM SAPI_0 GPRS_RESUMPTION_NOT_ACK	
(4) MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(5) RR_ESTABLISH_REQ estcs sdu {	ESTCS_SERV_REQ_BY_MM	

component	MM
direction	UPLINK
pd	U_LOC_UPD_REQ
ti	TI_0
loc_upd_type	LOC_UPD_TYPE_PERIODIC
ciph_key_num	CIPH_KEY_NUM_RES
loc_area_ident	LOC_AREA_ID_123_33_2147
mob_class_1	MOB_CLASS_1
mob_id	MOB_IDENT_IMSI
}	

History:	04.05.99	LE	Initial
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4.19.9 MM408: Normal Service, Timeout T3211, LUP Reject Cause, 2.-4. attempt

Description: The location updating is finished with a location updating reject message and the cause #17 network failure. The update status is UPDATED and the stored LAI is equal to the one received on the BCCH from the current serving cell and the attempt counter is smaller than 4. The MS shall keep the update status to UPDATED, the MM IDLE substate after the RR connection release is NORMAL SERVICE. The MS shall memorize the location updating type used in the location updating procedure. It shall start timer T3211 when the RR connection is released. When timer T3211 expires the location updating procedure is triggered again with the memorized location updating type. After the 4. Attempt the MM IDLE substate ATTEMPTING TO UPDATE is entered.

Preamble: MM407

MMI/CM/SIM	MM	RR/DL
(1)	RR_ESTABLISH_CNF	
(2)	RR_DATA_IND (LOCATION UPDATING REJ)	
(3)	RR_RELEASE_IND	
(4)	MDL_RELEASE_REQ	
TIMEOUT (10000)		
(5)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
(6)	RR_ESTABLISH_CNF	
(7)	RR_DATA_IND (LOCATION UPDATING REJ)	
(8)	RR_RELEASE_IND	
(9)	MDL_RELEASE_REQ	
TIMEOUT (10000)		
(10)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
(11)	RR_ESTABLISH_CNF	
(12)	RR_DATA_IND (LOCATION UPDATING REJ)	
(13)	RR_RELEASE_IND	
(14)	MDL_RELEASE_REQ	
(15)	RR_SYNC_REQ	
(16)	SIM_MM_UPDATE_REQ	
(17)	MMR_NREG_IND	

Parametrization

	Primitive	Parameter	Value
(1)	RR_ESTABLISH_CNF param	NOT_USED	
(2)	RR_DATA_IND d1 d2 sdu { component direction pd ti rej_cause }	NOT_USED NOT_USED MM DOWNLINK D_LOC_UPD_REJ TI_0 RC_NETWORK_FAILURE	
(3)	RR_RELEASE_IND relcs sapi gprs_resumption	RELCS_NORM SAPI_0 GPRS_RESUMPTION_NOT_ACK	
(4)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(5)	RR_ESTABLISH_REQ estcs sdu { component direction pd ti loc_upd_type ciph_key_num loc_area_ident mob_class_1 mob_id }	ESTCS_SERV_REQ_BY_MM MM UPLINK U_LOC_UPD_REQ TI_0 LOC_UPD_TYPE_PERIODIC CIPH_KEY_NUM_RES LOC_AREA_ID_123_33_2147 MOB_CLASS_1 MOB_IDENT_IMSI	
(6)	RR_ESTABLISH_CNF param	NOT_USED	
(7)	RR_DATA_IND d1 d2 sdu { component direction pd ti rej_cause }	NOT_USED NOT_USED MM DOWNLINK D_LOC_UPD_REJ TI_0 RC_NETWORK_FAILURE	
(8)	RR_RELEASE_IND relcs sapi gprs_resumption	RELCS_NORM SAPI_0 GPRS_RESUMPTION_NOT_ACK	

(9)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0
(10)	RR_ESTABLISH_REQ estcs sdu { component direction pd ti loc_upd_type ciph_key_num loc_area_ident mob_class_1 mob_id }	ESTCS_SERV_REQ_BY_MM MM UPLINK U_LOC_UPD_REQ TI_0 LOC_UPD_TYPE_PERIODIC CIPH_KEY_NUM_RES LOC_AREA_ID_123_33_2147 MOB_CLASS_1 MOB_IDENT_IMSI
(11)	RR_ESTABLISH_CNF param	NOT_USED
(12)	RR_DATA_IND d1 d2 sdu { component direction pd ti rej_cause }	NOT_USED NOT_USED MM DOWNLINK D_LOC_UPD_REJ TI_0 RC_NETWORK_FAILURE
(13)	RR_RELEASE_IND relcs sapi gprs_resumption	RELCS_NORM SAPI_0 GPRS_RESUMPTION_NOT_ACK
(14)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0
(15)	RR_SYNC_REQ op cksn kcv tmsi plmn lac synccs acc thplmn	NOT_USED NOT_USED NOT_USED NOT_USED NOT_USED NOT_USED SYNCCS_TMSI_CKSN_KC_INVAL NOT_USED NOT_USED
(16)	SIM_MM_UPDATE_REQ loc_info bcch_inf forb_plmn cksn kc cell_identity	LOC_INFO_123_33_FEFF NOT_USED NOT_USED CKSN_RES KC_DELETED_SIM CELL_ID_1122

(17)	MMR_NREG_IND	
	nreg_cs	NREG_LIMITED_SERVICE
	search_running	SEARCH_NOT_RUNNING
	new_forb_plmn	PLMN_NO_ID
	limited_cause	RC_NETWORK_FAILURE

History:	04.05.99	LE	Initial
	15.01.01	HM	Revised (last NREG_IND added)

4.19.10 MM409: Normal Service, Timeout T3211, RR Release before end of proc

Description: The RR connection is established and released before receiving an answer by the network. The update status is UPDATED and the stored LAI is equal to the one received on the BCCH from the current serving cell and the attempt counter is smaller than 4. The MS shall keep the update status to UPDATED, the MM IDLE substate after the RR connection release is NORMAL SERVICE. The MS shall memorize the location updating type used in the location updating procedure. It shall start timer T3211 when the RR connection is released. When timer T3211 expires the location updating procedure is triggered again with the memorized location updating type.

Preamble: MM403

MMI / CM / SIM	MM	RR / DL
(1)	RR_ESTABLISH_CNF	
(2)	RR_RELEASE_IND	
(3)	MDL_RELEASE_REQ	
TIMEOUT (10000)		
(4)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	

Parametrization

Primitive	Parameter	Value
(1) RR_ESTABLISH_CNF param	NOT_USED	
(2) RR_RELEASE_IND relcs sapi gprs_resumption	RELCS_NORM SAPI_0 GPRS_RESUMPTION_NOT_ACK	
(3) MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(4) RR_ESTABLISH_REQ estcs sdu { component direction pd ti loc_upd_type ciph_key_num loc_area_ident mob_class_1 mob_id }	ESTCS_SERV_REQ_BY_MM MM UPLINK U_LOC_UPD_REQ TI_0 LOC_UPD_TYPE_ATTACH CIPH_KEY_NUM_RES LOC_AREA_ID_123_33_2147 MOB_CLASS_1 MOB_IDENT_IMSI	

History: 04.05.99 LE Initial

4.19.11 MM410: Normal Service, T3211, RR Release before end of proc, 2.-4. attempt

Description: The RR connection is established and released before receiving an answer by the network. The update status is UPDATED and the stored LAI is equal to the one received on the BCCH from the current serving cell and the attempt counter is smaller than 4. The MS shall keep the update status to UPDATED, the MM IDLE substate after the RR connection release is NORMAL SERVICE. The MS shall memorize the location updating type used in the location updating procedure. It shall start timer T3211 when the RR connection is released. When timer T3211 expires the location updating procedure is triggered again with the memorized location updating type. After the 4. Attempt the MM IDLE substate ATTEMPTING TO UPDATE is entered.

Preamble: MM409

MMI / CM / SIM	MM	RR / DL
(1)	RR_ESTABLISH_CNF	
	*<=====	*
(2)	RR_RELEASE_IND	
	*<=====	*
(3)	MDL_RELEASE_REQ	
	*=====>	*
TIMEOUT (10000)		
(4)	RR_ESTABLISH_REQ	
	(LOCATION UPDATING REQ)	
	*=====>	*
(5)	RR_ESTABLISH_CNF	
	*<=====	*
(6)	RR_RELEASE_IND	
	*<=====	*
(7)	MDL_RELEASE_REQ	
	*=====>	*
TIMEOUT (10000)		
(8)	RR_ESTABLISH_REQ	
	(LOCATION UPDATING REQ)	
	*=====>	*
(9)	RR_ESTABLISH_CNF	
	*<=====	*
(10)	RR_RELEASE_IND	
	*<=====	*
(11)	MDL_RELEASE_REQ	
	*=====>	*
(12)	RR_SYNC_REQ	
	*=====>	*
(13)	SIM_MM_UPDATE_REQ	
	*<=====	*
(14)	MMR_NREG_IND	
	*<=====	*

Parametrization

Primitive	Parameter	Value
(1) RR_ESTABLISH_CNF param	NOT_USED	
(2) RR_RELEASE_IND relcs	RELCS_NORM	

sapi	SAPI_0
gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(3) MDL_RELEASE_REQ	
ch_type	NOT_PRESENT_8BIT
sapi	SAPI_0
(4) RR_ESTABLISH_REQ	
estcs	ESTCS_SERV_REQ_BY_MM
sdu	
{	
component	MM
direction	UPLINK
pd	U_LOC_UPD_REQ
ti	TI_0
loc_upd_type	LOC_UPD_TYPE_ATTACH
ciph_key_num	CIPH_KEY_NUM_RES
loc_area_ident	LOC_AREA_ID_123_33_2147
mob_class_1	MOB_CLASS_1
mob_id	MOB_IDENT_IMSI
}	
(5) RR_ESTABLISH_CNF	
param	NOT_USED
(6) RR_RELEASE_IND	
relcs	RELCS_NORM
sapi	SAPI_0
gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(7) MDL_RELEASE_REQ	
ch_type	NOT_PRESENT_8BIT
sapi	SAPI_0
(8) RR_ESTABLISH_REQ	
estcs	ESTCS_SERV_REQ_BY_MM
sdu	
{	
component	MM
direction	UPLINK
pd	U_LOC_UPD_REQ
ti	TI_0
loc_upd_type	LOC_UPD_TYPE_ATTACH
ciph_key_num	CIPH_KEY_NUM_RES
loc_area_ident	LOC_AREA_ID_123_33_2147
mob_class_1	MOB_CLASS_1
mob_id	MOB_IDENT_IMSI
}	
(9) RR_ESTABLISH_CNF	
param	NOT_USED
(10) RR_RELEASE_IND	
relcs	RELCS_NORM
sapi	SAPI_0
gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(11) MDL_RELEASE_REQ	
ch_type	NOT_PRESENT_8BIT
sapi	SAPI_0
(12) RR_SYNC_REQ	
op	NOT_USED
cksn	NOT_USED

	kcv	NOT_USED
	tmsi	NOT_USED
	plmn	NOT_USED
	lac	NOT_USED
	synccs	SYNCCS_TMSI_CKSN_KC_INVALID
	accc	NOT_USED
	thplmn	NOT_USED
(13)	SIM_MM_UPDATE_REQ	
	loc_info	LOC_INFO_123_33_FEFF
	bcch_inf	NOT_USED
	forb_plmn	NOT_USED
	cksn	CKSN_RES
	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122
(14)	MMR_NREG_IND	
	nreg_cs	NREG_LIMITED_SERVICE
	search_running	SEARCH_NOT_RUNNING
	new_forb_plmn	PLMN_NO_ID
	limited_cause	MMR_RC_NONE

History:	04.05.99	LE	Initial
	25.01.01	HM	Revised (last MMR_NREG_IND
added)			

4.19.12 MM411: Normal Service, T3211, RR Release before end of proc

Description: The RR connection is established and released before receiving an answer by the network. The update status is UPDATED and the stored LAI is equal to the one received on the BCCH from the current serving cell and the attempt counter is smaller than 4. The MS shall keep the update status to UPDATED, the MM IDLE substate after the RR connection release is NORMAL SERVICE. The MS shall memorize the location updating type used in the location updating procedure. It shall start timer T3211 when the RR connection is released. When timer T3211 expires the location updating procedure is triggered again with the memorized location updating type.

Preamble: MM406

MMI / CM / SIM	MM	RR / DL
(1)	RR_ESTABLISH_CNF	
(2)	RR_RELEASE_IND	
(3)	MDL_RELEASE_REQ	
TIMEOUT (10000)		
(4)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	

Parametrization

Primitive	Parameter	Value
(1) RR_ESTABLISH_CNF param	NOT_USED	
(2) RR_RELEASE_IND relcs sapi gprs_resumption	RELCS_NORM SAPI_0 GPRS_RESUMPTION_NOT_ACK	
(3) MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(4) RR_ESTABLISH_REQ estcs sdu { component direction pd ti loc_upd_type ciph_key_num loc_area_ident mob_class_1 mob_id }	ESTCS_SERV_REQ_BY_MM MM UPLINK U_LOC_UPD_REQ TI_0 LOC_UPD_TYPE_PERIODIC CIPH_KEY_NUM_RES LOC_AREA_ID_123_33_2147 MOB_CLASS_1 MOB_IDENT_IMSI	

History: 04.05.99 LE Initial

4.19.13 MM412: Normal Service, T3211, RR Release before end of proc, 2.-4. attempt

Description: The RR connection is established and released before receiving an answer by the network. The update status is UPDATED and the stored LAI is equal to the one received on the BCCH from the current serving cell and the attempt counter is smaller than 4. The MS shall keep the update status to UPDATED, the MM IDLE substate after the RR connection release is NORMAL SERVICE. The MS shall memorize the location updating type used in the location updating procedure. It shall start timer T3211 when the RR connection is released. When timer T3211 expires the location updating procedure is triggered again with the memorized location updating type. After the 4. Attempt the MM IDLE substate ATTEMPTING TO UPDATE is entered.

Preamble: MM411

MMI / CM / SIM	MM	RR / DL
(1)	RR_ESTABLISH_CNF	
	*<=====	*
(2)	RR_RELEASE_IND	
	*<=====	*
(3)	MDL_RELEASE_REQ	
	*=====>	*
TIMEOUT (10000)		
(4)	RR_ESTABLISH_REQ	
	(LOCATION UPDATING REQ)	
	*=====>	*
(5)	RR_ESTABLISH_CNF	
	*<=====	*
(6)	RR_RELEASE_IND	
	*<=====	*
(7)	MDL_RELEASE_REQ	
	*=====>	*
TIMEOUT (10000)		
(8)	RR_ESTABLISH_REQ	
	(LOCATION UPDATING REQ)	
	*=====>	*
(9)	RR_ESTABLISH_CNF	
	*<=====	*
(10)	RR_RELEASE_IND	
	*<=====	*
(11)	MDL_RELEASE_REQ	
	*=====>	*
(12)	RR_SYNC_REQ	
	*=====>	*
(13)	SIM_MM_UPDATE_REQ	
	*<=====	*
(14)	MMR_NREG_IND	
	*<=====	*

Parametrization

Primitive	Parameter	Value
(1) RR_ESTABLISH_CNF param	NOT_USED	
(2) RR_RELEASE_IND relcs	RELCS_NORM	

	sapi	SAPI_0
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(3)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(4)	RR_ESTABLISH_REQ	
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti	TI_0
	loc_upd_type	LOC_UPD_TYPE_PERIODIC
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_2147
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(5)	RR_ESTABLISH_CNF	
	param	NOT_USED
(6)	RR_RELEASE_IND	
	relcs	RELCS_NORM
	sapi	SAPI_0
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(7)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(8)	RR_ESTABLISH_REQ	
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti	TI_0
	loc_upd_type	LOC_UPD_TYPE_PERIODIC
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_2147
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(9)	RR_ESTABLISH_CNF	
	param	NOT_USED
(10)	RR_RELEASE_IND	
	relcs	RELCS_NORM
	sapi	SAPI_0
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(11)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(12)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	NOT_USED

	kcv	NOT_USED
	tmsi	NOT_USED
	plmn	NOT_USED
	lac	NOT_USED
	synccs	SYNCCS_TMSI_CKSN_KC_INVALID
	accc	NOT_USED
	thplmn	NOT_USED
(13)	SIM_MM_UPDATE_REQ	
	loc_info	LOC_INFO_123_33_FEFF
	bcch_inf	NOT_USED
	forb_plmn	NOT_USED
	cksn	CKSN_RES
	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122
(14)	MMR_NREG_IND	
	nreg_cs	NREG_LIMITED_SERVICE
	search_running	SEARCH_NOT_RUNNING
	new_forb_plmn	PLMN_NO_ID
	limited_cause	MMR_RC_NONE

History:	04.05.99	LE	Initial
	25.01.01	HM	Revised (last MMR_NREG_IND
added)			

4.19.14 MM413: Normal Service, T3211, Timeout T3210

Description: The RR connection is established and no answer receives from the network. After timeout of T3210 the RR connection is aborted. The update status is UPDATED and the stored LAI is equal to the one received on the BCCH from the current serving cell and the attempt counter is smaller than 4. The MS shall keep the update status to UPDATED, the MM IDLE substate after the RR connection release is NORMAL SERVICE. The MS shall memorize the location updating type used in the location updating procedure. It shall start timer T3211 when the RR connection is released. When timer T3211 expires the location updating procedure is triggered again with the memorized location updating type.

Preamble: MM403

MMI/CM/SIM	MM	RR/DL
(1)	RR_ESTABLISH_CNF	
	<=====	
TIMEOUT (17000)		
(2)	RR_ABORT_REQ	
	=====>	
(3)	RR_RELEASE_IND	
	<=====	
(4)	MDL_RELEASE_REQ	
	=====>	
TIMEOUT (10000)		
(5)	RR_ESTABLISH_REQ	
	(LOCATION UPDATING REQ)	
	=====>	

Parametrization

Primitive	Parameter	Value
(1) RR_ESTABLISH_CNF param	NOT_USED	
(2) RR_ABORT_REQ abcs	ABCS_NORM	
(3) RR_RELEASE_IND relcs sapi gprs_resumption	RELCS_ABNORM_UNSPEC SAPI_0 GPRS_RESUMPTION_NOT_ACK	
(4) MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(5) RR_ESTABLISH_REQ estcs sdu { component direction pd ti loc_upd_type ciph_key_num loc_area_ident mob_class_1	ESTCS_SERV_REQ_BY_MM MM UPLINK U_LOC_UPD_REQ TI_0 LOC_UPD_TYPE_ATTACH CIPH_KEY_NUM_RES LOC_AREA_ID_123_33_2147 MOB_CLASS_1	

mob_id }		MOB_IDENT_IMSI	
History:	04.05.99	LE	Initial
	27.04.01	HM	Changed abort behaviour

4.19.15 MM414: Normal Service, T3211, Timeout T3210, 2.-4. attempt

Description: The RR connection is established and no answer of the network receives. After time-out of T3210 the connection is aborted. The update status is UPDATED and the stored LAI is equal to the one received on the BCCH from the current serving cell and the attempt counter is smaller than 4. The MS shall keep the update status to UPDATED, the MM IDLE substate after the RR connection release is NORMAL SERVICE. The MS shall memorize the location updating type used in the location updating procedure. It shall start timer T3211 when the RR connection is released. When timer T3211 expires the location updating procedure is triggered again with the memorized location updating type. After the 4. Attempt the MM IDLE substate ATTEMPTING TO UPDATE is entered.

Preamble: MM413

MMI/CM/SIM	MM	RR/DL
(1)		
	RR_ESTABLISH_CNF	
	*<=====	*
TIMEOUT (17000)		
(2)		
	RR_ABORT_REQ	
	*=====	*
(3)		
	RR_RELEASE_IND	
	*<=====	*
(4)		
	MDL_RELEASE_REQ	
	*=====	*
TIMEOUT (10000)		
(5)		
	RR_ESTABLISH_REQ	
	(LOCATION UPDATING REQ)	
	*=====	*
(6)		
	RR_ESTABLISH_CNF	
	*<=====	*
TIMEOUT (17000)		
(7)		
	RR_ABORT_REQ	
	*=====	*
(8)		
	RR_RELEASE_IND	
	*<=====	*
(9)		
	MDL_RELEASE_REQ	
	*=====	*
TIMEOUT (10000)		
(10)		
	RR_ESTABLISH_REQ	
	(LOCATION UPDATING REQ)	
	*=====	*
(11)		
	RR_ESTABLISH_CNF	
	*<=====	*
TIMEOUT (17000)		
(12)		
	RR_ABORT_REQ	
	*=====	*
(13)		
	RR_RELEASE_IND	
	*<=====	*
(14)		
	MDL_RELEASE_REQ	
	*=====	*
(15)		
	RR_SYNC_REQ	
	*=====	*
(16)		
	SIM_MM_UPDATE_REQ	
	*<=====	*
(17)		
	MMR_NREG_IND	
	*<=====	*

Parametrization

Primitive	Parameter	Value
(6) RR_ESTABLISH_CNF param	NOT_USED	
(7) RR_ABORT_REQ abcs	ABCS_NORM	
(8) RR_RELEASE_IND relcs sapi gprs_resumption	RELCS_ABNORM_UNSPEC SAPI_0 GPRS_RESUMPTION_NOT_ACK	
(9) MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(10) RR_ESTABLISH_REQ estcs sdu { component direction pd ti loc_upd_type ciph_key_num loc_area_ident mob_class_1 mob_id }	ESTCS_SERV_REQ_BY_MM MM UPLINK U_LOC_UPD_REQ TI_0 LOC_UPD_TYPE_ATTACH CIPH_KEY_NUM_RES LOC_AREA_ID_123_33_2147 MOB_CLASS_1 MOB_IDENT_IMSI	
(11) RR_ESTABLISH_CNF param	NOT_USED	
(12) RR_ABORT_REQ abcs	ABCS_NORM	
(13) RR_RELEASE_IND relcs sapi gprs_resumption	RELCS_ABNORM_UNSPEC SAPI_0 GPRS_RESUMPTION_NOT_ACK	
(14) MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(15) RR_ESTABLISH_REQ estcs sdu { component direction pd ti loc_upd_type ciph_key_num loc_area_ident mob_class_1 mob_id }	ESTCS_SERV_REQ_BY_MM MM UPLINK U_LOC_UPD_REQ TI_0 LOC_UPD_TYPE_ATTACH CIPH_KEY_NUM_RES LOC_AREA_ID_123_33_2147 MOB_CLASS_1 MOB_IDENT_IMSI	

(16)	RR_ESTABLISH_CNF param	NOT_USED
(17)	RR_ABORT_REQ abcs	ABCS_NORM
(18)	RR_RELEASE_IND relcs sapi gprs_resumption	RELCS_ABNORM_UNSPEC SAPI_0 GPRS_RESUMPTION_NOT_ACK
(19)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0
(20)	RR_SYNC_REQ op cksn kcv tmsi plmn lac synccs acc thplmn	NOT_USED NOT_USED NOT_USED NOT_USED NOT_USED NOT_USED NOT_USED SYNCCS_TMSI_CKSN_KC_INVALID NOT_USED NOT_USED
(21)	SIM_MM_UPDATE_REQ loc_info bcch_inf forb_plmn cksn kc cell_identity	LOC_INFO_123_33_FEFF NOT_USED NOT_USED CKSN_RES KC_DELETED_SIM CELL_ID_1122
(22)	MMR_NREG_IND nreg_cs search_running new_forb_plmn limited_cause	NREG_LIMITED_SERVICE SEARCH_NOT_RUNNING PLMN_NO_ID MMR_RC_NONE

History:	04.05.99	LE	Initial
	27.04.01	HM	Changed abort behaviour

4.19.16 MM415: Normal Service, T3211, Timeout T3210

Description: The RR connection is established and there is no answer by the network. After timeout of T3210 a connection abort is processed. The update status is UPDATED and the stored LAI is equal to the one received on the BCCH from the current serving cell and the attempt counter is smaller than 4. The MS shall keep the update status to UPDATED, the MM IDLE substate after the RR connection release is NORMAL SERVICE. The MS shall memorize the location updating type used in the location updating procedure. It shall start timer T3211 when the RR connection is released. When timer T3211 expires the location updating procedure is triggered again with the memorized location updating type.

Preamble: MM406

MMI/CM/SIM	MM	RR/DL
(1)	RR_ESTABLISH_CNF	
	*<=====	*
TIMEOUT (17000)		
(2)	RR_ABORT_REQ	
	*=====	*
(3)	RR_RELEASE_IND	
	*<=====	*
(4)	MDL_RELEASE_REQ	
	*=====	*
TIMEOUT (10000)		
(5)	RR_ESTABLISH_REQ	
	(LOCATION UPDATING REQ)	
	*=====	*

Parametrization

Primitive	Parameter	Value
(1) RR_ESTABLISH_CNF param	NOT_USED	
(2) RR_ABORT_REQ abcs	ABCS_NORM	
(3) RR_RELEASE_IND relcs sapi gprs_resumption	RELCS_ABNORM_UNSPEC SAPI_0 GPRS_RESUMPTION_NOT_ACK	
(4) MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(5) RR_ESTABLISH_REQ estcs sdu { component direction pd ti loc_upd_type ciph_key_num loc_area_ident mob_class_1	ESTCS_SERV_REQ_BY_MM MM UPLINK U_LOC_UPD_REQ TI_0 LOC_UPD_TYPE_PERIODIC CIPH_KEY_NUM_RES LOC_AREA_ID_123_33_2147 MOB_CLASS_1	

mob_id
}

MOB_IDENT_IMSI

History:	04.05.99	LE	Initial
	27.04.01	HM	Changed abort behaviour

4.19.17 MM416: Normal Service, T3211, Timeout T3210, 2.-4. attempt

Description: The RR connection is established and there is no answer by the network. After timeout T3210 the connection is aborted. The update status is UPDATED and the stored LAI is equal to the one received on the BCCH from the current serving cell and the attempt counter is smaller than 4. The MS shall keep the update status to UPDATED, the MM IDLE substate after the RR connection release is NORMAL SERVICE. The MS shall memorize the location updating type used in the location updating procedure. It shall start timer T3211 when the RR connection is released. When timer T3211 expires the location updating procedure is triggered again with the memorized location updating type. After the 4. Attempt the MM IDLE substate ATTEMPTING TO UPDATE is entered.

Preamble: MM415

MMI/CM/SIM	MM	RR/DL
(1)		
	RR_ESTABLISH_CNF	
	*<=====	*
TIMEOUT (17000)		
(2)		
	RR_ABORT_REQ	
	*=====	*
(3)		
	RR_RELEASE_IND	
	*<=====	*
(4)		
	MDL_RELEASE_REQ	
	*=====	*
TIMEOUT (10000)		
(5)		
	RR_ESTABLISH_REQ	
	(LOCATION UPDATING REQ)	
	*=====	*
(6)		
	RR_ESTABLISH_CNF	
	*<=====	*
TIMEOUT (17000)		
(7)		
	RR_ABORT_REQ	
	*=====	*
(8)		
	RR_RELEASE_IND	
	*<=====	*
(9)		
	MDL_RELEASE_REQ	
	*=====	*
TIMEOUT (10000)		
(10)		
	RR_ESTABLISH_REQ	
	(LOCATION UPDATING REQ)	
	*=====	*
(11)		
	RR_ESTABLISH_CNF	
	*<=====	*
TIMEOUT (17000)		
(12)		
	RR_ABORT_REQ	
	*=====	*
(13)		
	RR_RELEASE_IND	
	*<=====	*
(14)		
	MDL_RELEASE_REQ	
	*=====	*
(15)		
	RR_SYNC_REQ	
	*=====	*
(16)		
	SIM_MM_UPDATE_REQ	
	*<=====	*
(17)		
	MMR_NREG_IND	
	*<=====	*

Parametrization

	Primitive	Parameter	Value
(1)	RR_ESTABLISH_CNF param	NOT_USED	
(2)	RR_ABORT_REQ abcs	ABCS_NORM	
(3)	RR_RELEASE_IND relcs sapi gprs_resumption	RELCS_ABNORM_UNSPEC SAPI_0 GPRS_RESUMPTION_NOT_ACK	
(4)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(5)	RR_ESTABLISH_REQ estcs sdu { component direction pd ti loc_upd_type ciph_key_num loc_area_ident mob_class_1 mob_id }	ESTCS_SERV_REQ_BY_MM MM UPLINK U_LOC_UPD_REQ TI_0 LOC_UPD_TYPE_PERIODIC CIPH_KEY_NUM_RES LOC_AREA_ID_123_33_2147 MOB_CLASS_1 MOB_IDENT_IMSI	
(6)	RR_ESTABLISH_CNF param	NOT_USED	
(7)	RR_ABORT_REQ abcs	ABCS_NORM	
(8)	RR_RELEASE_IND relcs sapi gprs_resumption	RELCS_ABNORM_UNSPEC SAPI_0 GPRS_RESUMPTION_NOT_ACK	
(9)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(10)	RR_ESTABLISH_REQ estcs sdu { component direction pd ti loc_upd_type ciph_key_num loc_area_ident mob_class_1 mob_id }	ESTCS_SERV_REQ_BY_MM MM UPLINK U_LOC_UPD_REQ TI_0 LOC_UPD_TYPE_PERIODIC CIPH_KEY_NUM_RES LOC_AREA_ID_123_33_2147 MOB_CLASS_1 MOB_IDENT_IMSI	

(11)	RR_ESTABLISH_CNF param	NOT_USED
(12)	RR_ABORT_REQ abcs	ABCS_NORM
(13)	RR_RELEASE_IND relcs sapi gprs_resumption	RELCS_ABNORM_UNSPEC SAPI_0 GPRS_RESUMPTION_NOT_ACK
(14)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0
(15)	RR_SYNC_REQ op cksn kcv tmsi plmn lac synccs acc thplmn	NOT_USED NOT_USED NOT_USED NOT_USED NOT_USED NOT_USED NOT_USED SYNCCS_TMSI_CKSN_KC_INVAL NOT_USED NOT_USED
(16)	SIM_MM_UPDATE_REQ loc_info bcch_inf forb_plmn cksn kc cell_identity	LOC_INFO_123_33_FEFF NOT_USED NOT_USED CKSN_RES KC_DELETED_SIM CELL_ID_1122
(17)	MMR_NREG_IND nreg_cs search_running new_forb_plmn limited_cause	NREG_LIMITED_SERVICE SEARCH_NOT_RUNNING PLMN_NO_ID MMR_RC_NONE

History:	04.05.99	LE	Initial
	27.04.01	HM	Changed abort behaviour

4.19.18 MM417: Normal Service, T3211, RR connection failure

Description: The RR connection is established and released before receiving an answer by the network due to a radio link failure. The update status is UPDATED and the stored LAI is equal to the one received on the BCCH from the current serving cell and the attempt counter is smaller than 4. The MS shall keep the update status to UPDATED, the MM IDLE substate after the RR connection release is NORMAL SERVICE. The MS shall memorize the location updating type used in the location updating procedure. It shall start timer T3211 when the RR connection is released. When timer T3211 expires the location updating procedure is triggered again with the memorized location updating type.

Preamble: MM403

MMI / CM / SIM	MM	RR / DL
(1)	RR_ESTABLISH_CNF	
	<=====	
(2)	RR_ABORT_IND	
	<=====	
(3)	MDL_RELEASE_REQ	
	=====>	
TIMEOUT (10000)		
(4)	RR_ESTABLISH_REQ	
	(LOCATION UPDATING REQ)	
	=====>	

Parametrization

Primitive	Parameter	Value
(1) RR_ESTABLISH_CNF param	NOT_USED	
(2) RR_ABORT_IND op abcs plmn_avail plmn rxlevel power	OP_MODE_TEST_SIM ABCS_RAD_LNK_FAIL NOT_USED NOT_USED NOT_USED RF_CLASS_2	
(3) MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(4) RR_ESTABLISH_REQ estcs sdu { component direction pd ti loc_upd_type ciph_key_num loc_area_ident mob_class_1 mob_id }	ESTCS_SERV_REQ_BY_MM MM UPLINK U_LOC_UPD_REQ TI_0 LOC_UPD_TYPE_ATTACH CIPH_KEY_NUM_RES LOC_AREA_ID_123_33_2147 MOB_CLASS_1 MOB_IDENT_IMSI	

History: 04.05.99 LE Initial

4.19.19 MM418: Normal Service, T3211, RR Connection Failure, 2.-4. attempt

Description: The RR connection is established and released before receiving an answer by the network due to a radio link failure. The update status is UPDATED and the stored LAI is equal to the one received on the BCCH from the current serving cell and the attempt counter is smaller than 4. The MS shall keep the update status to UPDATED, the MM IDLE substate after the RR connection release is NORMAL SERVICE. The MS shall memorize the location updating type used in the location updating procedure. It shall start timer T3211 when the RR connection is released. When timer T3211 expires the location updating procedure is triggered again with the memorized location updating type. After the 4. Attempt the MM IDLE substate ATTEMPTING TO UPDATE is entered.

Preamble: MM417

MMI / CM / SIM	MM	RR / DL
(1)	RR_ESTABLISH_CNF	
(2)	RR_ABORT_IND	
(3)	MDL_RELEASE_REQ	
TIMEOUT (10000)		
(4)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
(5)	RR_ESTABLISH_CNF	
(5)	RR_ABORT_IND	
(6)	MDL_RELEASE_REQ	
TIMEOUT (10000)		
(7)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
(8)	RR_ESTABLISH_CNF	
(9)	RR_ABORT_IND	
(10)	MDL_RELEASE_REQ	
(11)	RR_SYNC_REQ	
(12)	SIM_MM_UPDATE_REQ	

Parametrization

Primitive	Parameter	Value
(1) RR_ESTABLISH_CNF param	NOT_USED	
(2) RR_ABORT_IND op abcs plmn_avail plmn	OP_MODE_TEST_SIM ABCS_RAD_LNK_FAIL NOT_USED NOT_USED	

	rxlevel	NOT_USED
	power	RF_CLASS_2
(3)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(4)	RR_ESTABLISH_REQ	
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti	TI_0
	loc_upd_type	LOC_UPD_TYPE_ATTACH
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_2147
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(5)	RR_ESTABLISH_CNF	
	param	NOT_USED
(6)	RR_ABORT_IND	
	op	OP_MODE_TEST_SIM
	abcs	ABCS_RAD_LNK_FAIL
	plmn_avail	NOT_USED
	plmn	NOT_USED
	rxlevel	NOT_USED
	power	RF_CLASS_2
(7)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(8)	RR_ESTABLISH_REQ	
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti	TI_0
	loc_upd_type	LOC_UPD_TYPE_ATTACH
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_2147
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(9)	RR_ESTABLISH_CNF	
	param	NOT_USED
(10)	RR_ABORT_IND	
	op	OP_MODE_TEST_SIM
	abcs	ABCS_RAD_LNK_FAIL
	plmn_avail	NOT_USED
	plmn	NOT_USED
	rxlevel	NOT_USED
	power	RF_CLASS_2

(11)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(12)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	NOT_USED
	plmn	NOT_USED
	lac	NOT_USED
	synccts	SYNCCS_TMSI_CKSN_KC_INVALID
	accc	NOT_USED
	thplmn	NOT_USED
(13)	SIM_MM_UPDATE_REQ	
	loc_info	LOC_INFO_123_33_FEFF
	bcch_inf	NOT_USED
	forb_plmn	NOT_USED
	cksn	CKSN_RES
	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122

History: 04.05.99 LE Initial

4.19.20 MM419: Normal Service, T3211, RR Connection Failure

Description: The RR connection is established and released before receiving an answer by the network due to a radio link failure. The update status is UPDATED and the stored LAI is equal to the one received on the BCCH from the current serving cell and the attempt counter is smaller than 4. The MS shall keep the update status to UPDATED, the MM IDLE substate after the RR connection release is NORMAL SERVICE. The MS shall memorize the location updating type used in the location updating procedure. It shall start timer T3211 when the RR connection is released. When timer T3211 expires the location updating procedure is triggered again with the memorized location updating type.

Preamble: MM406

MMI/CM/SIM	MM	RR/DL
(1)	RR_ESTABLISH_CNF	
(2)	RR_ABORT_IND	
(3)	MDL_RELEASE_REQ	
TIMEOUT (10000)		
(4)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	

Parametrization

Primitive	Parameter	Value
(1) RR_ESTABLISH_CNF param	NOT_USED	
(2) RR_ABORT_IND op abcs plmn_avail plmn rxlevel power	OP_MODE_TEST_SIM ABCS_RAD_LNK_FAIL NOT_USED NOT_USED NOT_USED RF_CLASS_2	
(3) MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(4) RR_ESTABLISH_REQ estcs sdu { component direction pd ti loc_upd_type ciph_key_num loc_area_ident mob_class_1 mob_id }	ESTCS_SERV_REQ_BY_MM MM UPLINK U_LOC_UPD_REQ TI_0 LOC_UPD_TYPE_PERIODIC CIPH_KEY_NUM_RES LOC_AREA_ID_123_33_2147 MOB_CLASS_1 MOB_IDENT_IMSI	

History: 04.05.99 LE Initial

4.19.21 MM420: Normal Service, T3211, RR Connection Failure, 2.-4. attempt

Description: The RR connection is established and released before receiving an answer by the network due to a radio link failure. The update status is UPDATED and the stored LAI is equal to the one received on the BCCH from the current serving cell and the attempt counter is smaller than 4. The MS shall keep the update status to UPDATED, the MM IDLE substate after the RR connection release is NORMAL SERVICE. The MS shall memorize the location updating type used in the location updating procedure. It shall start timer T3211 when the RR connection is released. When timer T3211 expires the location updating procedure is triggered again with the memorized location updating type. After the 4. Attempt the MM IDLE substate ATTEMPTING TO UPDATE is entered.

Preamble: MM419

MMI/CM/SIM	MM	RR/DL
(1)	RR_ESTABLISH_CNF	
(2)	RR_ABORT_IND	
(3)	MDL_RELEASE_REQ	
TIMEOUT (10000)		
(4)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
(5)	RR_ESTABLISH_CNF	
(6)	RR_ABORT_IND	
(7)	MDL_RELEASE_REQ	
TIMEOUT (10000)		
(8)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
(9)	RR_ESTABLISH_CNF	
(10)	RR_ABORT_IND	
(11)	MDL_RELEASE_REQ	
(12)	RR_SYNC_REQ	
(13)	SIM_MM_UPDATE_REQ	

Parametrization

Primitive	Parameter	Value
(1) RR_ESTABLISH_CNF param	NOT_USED	
(2) RR_ABORT_IND op abcs plmn_avail plmn	OP_MODE_TEST_SIM ABCS_RAD_LNK_FAIL NOT_USED NOT_USED	

	rxlevel	NOT_USED
	power	RF_CLASS_2
(3)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(4)	RR_ESTABLISH_REQ	
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti	TI_0
	loc_upd_type	LOC_UPD_TYPE_PERIODIC
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_2147
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(5)	RR_ESTABLISH_CNF	
	param	NOT_USED
(6)	RR_ABORT_IND	
	op	OP_MODE_TEST_SIM
	abcs	ABCS_RAD_LNK_FAIL
	plmn_avail	NOT_USED
	plmn	NOT_USED
	rxlevel	NOT_USED
	power	RF_CLASS_2
(7)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(8)	RR_ESTABLISH_REQ	
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti	TI_0
	loc_upd_type	LOC_UPD_TYPE_PERIODIC
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_2147
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(9)	RR_ESTABLISH_CNF	
	param	NOT_USED
(10)	RR_ABORT_IND	
	op	OP_MODE_TEST_SIM
	abcs	ABCS_RAD_LNK_FAIL
	plmn_avail	NOT_USED
	plmn	NOT_USED
	rxlevel	NOT_USED
	power	RF_CLASS_2

(11)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(12)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	NOT_USED
	plmn	NOT_USED
	lac	NOT_USED
	synccts	SYNCCS_TMSI_CKSN_KC_INVALID
	accc	NOT_USED
	thplmn	NOT_USED
(13)	SIM_MM_UPDATE_REQ	
	loc_info	LOC_INFO_123_33_FEFF
	bcch_inf	NOT_USED
	forb_plmn	NOT_USED
	cksn	CKSN_RES
	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122

History: 04.05.99 LE Initial

4.19.22 MM421: Normal Service, T3211, Random Access Failure

Description: An Random Access Failure occurs. After timeout T3213 the next attempt is started which fails with the same cause. The update status is UPDATED and the stored LAI is equal to the one received on the BCCH from the current serving cell and the attempt counter is smaller than 4. The MS shall keep the update status to UPDATED, the MM IDLE substate after the RR connection release is NORMAL SERVICE. The MS shall memorize the location updating type used in the location updating procedure. It shall start timer T3211 when the RR connection is released. When timer T3211 expires the location updating procedure is triggered again with the memorized location updating type.

Preamble: MM403

MMI/CM/SIM	MM	RR/DL
(1)	RR_RELEASE_IND	
	*<=====	*
(2)	MDL_RELEASE_REQ	
	*=====>	*
TIMEOUT (2000)		
(3)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
	*=====>	*
(4)	RR_RELEASE_IND	
	*<=====	*
(5)	MDL_RELEASE_REQ	
	*=====>	*
TIMEOUT (10000)		
(6)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
	*=====>	*

Parametrization

Primitive	Parameter	Value
(1) RR_RELEASE_IND		
relcs	RELCS_RND_ACC_FAIL	
sapi	SAPI_0	
gprs_resumption	GPRS_RESUMPTION_NOT_ACK	
(2) MDL_RELEASE_REQ		
ch_type	NOT_PRESENT_8BIT	
sapi	SAPI_0	
(3) RR_ESTABLISH_REQ		
estcs	ESTCS_SERV_REQ_BY_MM	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_LOC_UPD_REQ	
ti	TI_0	
loc_upd_type	LOC_UPD_TYPE_ATTACH	
ciph_key_num	CIPH_KEY_NUM_RES	
loc_area_ident	LOC_AREA_ID_123_33_2147	
mob_class_1	MOB_CLASS_1	
mob_id	MOB_IDENT_IMSI	
}		

(4)	RR_RELEASE_IND	
	relcs	RELCS_RND_ACC_FAIL
	sapi	SAPI_0
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(5)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(6)	RR_ESTABLISH_REQ	
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti	TI_0
	loc_upd_type	LOC_UPD_TYPE_ATTACH
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_2147
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	

History: 04.05.99 LE Initial

4.19.23 MM422: Normal Service, T3211, Random Access Failure, 2.-4. attempt

Description: A random access failure occurs. T3213 is started. The next attempt fails due to the same cause. The update status is UPDATED and the stored LAI is equal to the one received on the BCCH from the current serving cell and the attempt counter is smaller than 4. The MS shall keep the update status to UPDATED, the MM IDLE substate after the RR connection release is NORMAL SERVICE. The MS shall memorize the location updating type used in the location updating procedure. It shall start timer T3211 when the RR connection is released. When timer T3211 expires the location updating procedure is triggered again with the memorized location updating type. After the 4. Attempt the MM IDLE substate ATTEMPTING TO UPDATE is entered.

Preamble: MM421

MMI/CM/SIM	MM	RR/DL
(1)	RR_RELEASE_IND	
(2)	MDL_RELEASE_REQ	
TIMEOUT (2000)		
(3)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
(4)	RR_RELEASE_IND	
(5)	MDL_RELEASE_REQ	
TIMEOUT (10000)		
(6)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
(7)	RR_RELEASE_IND	
(8)	MDL_RELEASE_REQ	
TIMEOUT (2000)		
(9)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
(10)	RR_RELEASE_IND	
(11)	MDL_RELEASE_REQ	
TIMEOUT (10000)		
(12)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
(13)	RR_RELEASE_IND	
(14)	MDL_RELEASE_REQ	
TIMEOUT (2000)		
(15)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
(16)	RR_RELEASE_IND	
(17)	MDL_RELEASE_REQ	
(18)	RR_SYNC_REQ	

```

(19) |                                     *=====>*
      |      SIM_MM_UPDATE_REQ         |
      |*<=====*                       |
      |                                     |

```

Parametrization

Primitive	Parameter	Value
(1) RR_RELEASE_IND		
relcs	RELCS_RND_ACC_FAIL	
sapi	SAPI_0	
gprs_resumption	GPRS_RESUMPTION_NOT_ACK	
(2) MDL_RELEASE_REQ		
ch_type	NOT_PRESENT_8BIT	
sapi	SAPI_0	
(3) RR_ESTABLISH_REQ		
estcs	ESTCS_SERV_REQ_BY_MM	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_LOC_UPD_REQ	
ti	TI_0	
loc_upd_type	LOC_UPD_TYPE_ATTACH	
ciph_key_num	CIPH_KEY_NUM_RES	
loc_area_ident	LOC_AREA_ID_123_33_2147	
mob_class_1	MOB_CLASS_1	
mob_id	MOB_IDENT_IMSI	
}		
(4) RR_RELEASE_IND		
relcs	RELCS_RND_ACC_FAIL	
sapi	SAPI_0	
gprs_resumption	GPRS_RESUMPTION_NOT_ACK	
(5) MDL_RELEASE_REQ		
ch_type	NOT_PRESENT_8BIT	
sapi	SAPI_0	
(6) RR_ESTABLISH_REQ		
estcs	ESTCS_SERV_REQ_BY_MM	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_LOC_UPD_REQ	
ti	TI_0	
loc_upd_type	LOC_UPD_TYPE_ATTACH	
ciph_key_num	CIPH_KEY_NUM_RES	
loc_area_ident	LOC_AREA_ID_123_33_2147	
mob_class_1	MOB_CLASS_1	
mob_id	MOB_IDENT_IMSI	
}		
(7) RR_RELEASE_IND		
relcs	RELCS_RND_ACC_FAIL	
sapi	SAPI_0	
gprs_resumption	GPRS_RESUMPTION_NOT_ACK	

(8)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0
(9)	RR_ESTABLISH_REQ estcs sdu { component direction pd ti loc_upd_type ciph_key_num loc_area_ident mob_class_1 mob_id }	ESTCS_SERV_REQ_BY_MM MM UPLINK U_LOC_UPD_REQ TI_0 LOC_UPD_TYPE_ATTACH CIPH_KEY_NUM_RES LOC_AREA_ID_123_33_2147 MOB_CLASS_1 MOB_IDENT_IMSI
(10)	RR_RELEASE_IND relcs sapi gprs_resumption	RELCS_RND_ACC_FAIL SAPI_0 GPRS_RESUMPTION_NOT_ACK
(11)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0
(12)	RR_ESTABLISH_REQ estcs sdu { component direction pd ti loc_upd_type ciph_key_num loc_area_ident mob_class_1 mob_id }	ESTCS_SERV_REQ_BY_MM MM UPLINK U_LOC_UPD_REQ TI_0 LOC_UPD_TYPE_ATTACH CIPH_KEY_NUM_RES LOC_AREA_ID_123_33_2147 MOB_CLASS_1 MOB_IDENT_IMSI
(13)	RR_RELEASE_IND relcs sapi gprs_resumption	RELCS_RND_ACC_FAIL SAPI_0 GPRS_RESUMPTION_NOT_ACK
(14)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0
(15)	RR_ESTABLISH_REQ estcs sdu { component direction pd ti loc_upd_type ciph_key_num	ESTCS_SERV_REQ_BY_MM MM UPLINK U_LOC_UPD_REQ TI_0 LOC_UPD_TYPE_ATTACH CIPH_KEY_NUM_RES

	loc_area_ident	LOC_AREA_ID_123_33_2147
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(16)	RR_RELEASE_IND	
	relcs	RELCS_RND_ACC_FAIL
	sapi	SAPI_0
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(17)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(18)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	NOT_USED
	plmn	NOT_USED
	lac	NOT_USED
	synccs	SYNCCS_TMSI_CKSN_KC_INVALID
	accc	NOT_USED
	thplmn	NOT_USED
(19)	SIM_MM_UPDATE_REQ	
	loc_info	LOC_INFO_123_33_FEFF
	bcch_inf	NOT_USED
	forb_plmn	NOT_USED
	cksn	CKSN_RES
	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122

History: 04.05.99 LE Initial

4.19.24 MM423: Normal Service, T3211, Random Access Failure

Description: A random access failure occurs. T3213 is started. After timeout a new attempt is started. The attempt fails due to the same cause. The update status is UPDATED and the stored LAI is equal to the one received on the BCCH from the current serving cell and the attempt counter is smaller than 4. The MS shall keep the update status to UPDATED, the MM IDLE substate after the RR connection release is NORMAL SERVICE. The MS shall memorize the location updating type used in the location updating procedure. It shall start timer T3211 when the RR connection is released. When timer T3211 expires the location updating procedure is triggered again with the memorized location updating type.

Preamble: MM406

MMI/CM/SIM	MM	RR/DL
(1)	RR_RELEASE_IND	
	*<=====	*
(2)	MDL_RELEASE_REQ	
	*=====>	*
TIMEOUT (2000)		
(3)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
	*=====>	*
(4)	RR_RELEASE_IND	
	*<=====	*
(5)	MDL_RELEASE_REQ	
	*=====>	*
TIMEOUT (10000)		
(6)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
	*=====>	*

Parametrization

Primitive	Parameter	Value
(1) RR_RELEASE_IND		
relcs	RELCS_RND_ACC_FAIL	
sapi	SAPI_0	
gprs_resumption	GPRS_RESUMPTION_NOT_ACK	
(2) MDL_RELEASE_REQ		
ch_type	NOT_PRESENT_8BIT	
sapi	SAPI_0	
(3) RR_ESTABLISH_REQ		
estcs	ESTCS_SERV_REQ_BY_MM	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_LOC_UPD_REQ	
ti	TI_0	
loc_upd_type	LOC_UPD_TYPE_PERIODIC	
ciph_key_num	CIPH_KEY_NUM_RES	
loc_area_ident	LOC_AREA_ID_123_33_2147	
mob_class_1	MOB_CLASS_1	
mob_id	MOB_IDENT_IMSI	
}		

(4)	RR_RELEASE_IND	
	relcs	RELCS_RND_ACC_FAIL
	sapi	SAPI_0
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(5)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(6)	RR_ESTABLISH_REQ	
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti	TI_0
	loc_upd_type	LOC_UPD_TYPE_PERIODIC
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_2147
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	

History: 04.05.99 LE Initial

4.19.25 MM424: Normal Service, T3211, Random Access Failure, 2.-4. attempt

Description: A random access failure occurs. T3213 is started. The next attempt fails due to the same cause. The update status is UPDATED and the stored LAI is equal to the one received on the BCCH from the current serving cell and the attempt counter is smaller than 4. The MS shall keep the update status to UPDATED, the MM IDLE substate after the RR connection release is NORMAL SERVICE. The MS shall memorize the location updating type used in the location updating procedure. It shall start timer T3211 when the RR connection is released. When timer T3211 expires the location updating procedure is triggered again with the memorized location updating type. After the 4. Attempt the MM IDLE substate ATTEMPTING TO UPDATE is entered.

Preamble: MM423

MMI/CM/SIM	MM	RR/DL
(1)	RR_RELEASE_IND	
(2)	MDL_RELEASE_REQ	
TIMEOUT (2000)		
(3)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
(4)	RR_RELEASE_IND	
(5)	MDL_RELEASE_REQ	
TIMEOUT (10000)		
(6)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
(7)	RR_RELEASE_IND	
(8)	MDL_RELEASE_REQ	
TIMEOUT (2000)		
(9)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
(10)	RR_RELEASE_IND	
(11)	MDL_RELEASE_REQ	
TIMEOUT (10000)		
(12)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
(13)	RR_RELEASE_IND	
(14)	MDL_RELEASE_REQ	
TIMEOUT (2000)		
(15)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
(16)	RR_RELEASE_IND	
(17)	MDL_RELEASE_REQ	
(18)	RR_SYNC_REQ	

```

(19) |                                     *=====>*
      |      SIM_MM_UPDATE_REQ         |
      |*<=====*                       |
      |                                     |

```

Parametrization

Primitive	Parameter	Value
(1) RR_RELEASE_IND		
relcs	RELCS_RND_ACC_FAIL	
sapi	SAPI_0	
gprs_resumption	GPRS_RESUMPTION_NOT_ACK	
(2) MDL_RELEASE_REQ		
ch_type	NOT_PRESENT_8BIT	
sapi	SAPI_0	
(3) RR_ESTABLISH_REQ		
estcs	ESTCS_SERV_REQ_BY_MM	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_LOC_UPD_REQ	
ti	TI_0	
loc_upd_type	LOC_UPD_TYPE_PERIODIC	
ciph_key_num	CIPH_KEY_NUM_RES	
loc_area_ident	LOC_AREA_ID_123_33_2147	
mob_class_1	MOB_CLASS_1	
mob_id	MOB_IDENT_IMSI	
}		
(4) RR_RELEASE_IND		
relcs	RELCS_RND_ACC_FAIL	
sapi	SAPI_0	
gprs_resumption	GPRS_RESUMPTION_NOT_ACK	
(5) MDL_RELEASE_REQ		
ch_type	NOT_PRESENT_8BIT	
sapi	SAPI_0	
(6) RR_ESTABLISH_REQ		
estcs	ESTCS_SERV_REQ_BY_MM	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_LOC_UPD_REQ	
ti	TI_0	
loc_upd_type	LOC_UPD_TYPE_PERIODIC	
ciph_key_num	CIPH_KEY_NUM_RES	
loc_area_ident	LOC_AREA_ID_123_33_2147	
mob_class_1	MOB_CLASS_1	
mob_id	MOB_IDENT_IMSI	
}		
(7) RR_RELEASE_IND		
relcs	RELCS_RND_ACC_FAIL	
sapi	SAPI_0	
gprs_resumption	GPRS_RESUMPTION_NOT_ACK	

(8)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0
(9)	RR_ESTABLISH_REQ estcs sdu { component direction pd ti loc_upd_type ciph_key_num loc_area_ident mob_class_1 mob_id }	ESTCS_SERV_REQ_BY_MM MM UPLINK U_LOC_UPD_REQ TI_0 LOC_UPD_TYPE_PERIODIC CIPH_KEY_NUM_RES LOC_AREA_ID_123_33_2147 MOB_CLASS_1 MOB_IDENT_IMSI
(10)	RR_RELEASE_IND relcs sapi gprs_resumption	RELCS_RND_ACC_FAIL SAPI_0 GPRS_RESUMPTION_NOT_ACK
(11)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0
(12)	RR_ESTABLISH_REQ estcs sdu { component direction pd ti loc_upd_type ciph_key_num loc_area_ident mob_class_1 mob_id }	ESTCS_SERV_REQ_BY_MM MM UPLINK U_LOC_UPD_REQ TI_0 LOC_UPD_TYPE_PERIODIC CIPH_KEY_NUM_RES LOC_AREA_ID_123_33_2147 MOB_CLASS_1 MOB_IDENT_IMSI
(13)	RR_RELEASE_IND relcs sapi gprs_resumption	RELCS_RND_ACC_FAIL SAPI_0 GPRS_RESUMPTION_NOT_ACK
(14)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0
(15)	RR_ESTABLISH_REQ estcs sdu { component direction pd ti loc_upd_type ciph_key_num	ESTCS_SERV_REQ_BY_MM MM UPLINK U_LOC_UPD_REQ TI_0 LOC_UPD_TYPE_PERIODIC CIPH_KEY_NUM_RES

	loc_area_ident	LOC_AREA_ID_123_33_2147
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(16)	RR_RELEASE_IND	
	relcs	RELCS_RND_ACC_FAIL
	sapi	SAPI_0
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(17)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(18)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	NOT_USED
	plmn	NOT_USED
	lac	NOT_USED
	synccs	SYNCCS_TMSI_CKSN_KC_INVALID
	accc	NOT_USED
	thplmn	NOT_USED
(19)	SIM_MM_UPDATE_REQ	
	loc_info	LOC_INFO_123_33_FEFF
	bcch_inf	NOT_USED
	forb_plmn	NOT_USED
	cksn	CKSN_RES
	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122

History: 04.05.99 LE Initial

4.19.26 MM425: Random access delayed

Description: MM receives a RR-RELEASE indication primitive from RR; Normal Location Updating cannot be carried out because of random access delay. MM issues a MDL-RELEASE request primitive. After T3122 timeout in RR a new attempt is started.

Preamble: MM401

MMI / CM / SIM	MM	RR / DL
(1)	RR_RELEASE_IND	
	<=====	
(2)	MDL_RELEASE_REQ	
	=====>	
TIMEOUT (30000)		
(3)	RR_SYNC_IND	
	<=====	
(4)	RR_ESTABLISH_REQ	
	(LOCATION UPDATING REQ)	
	=====>	

Parametrization

Primitive	Parameter	Value
(1) RR_RELEASE_IND		
relcs	RELCS_RND_ACC_DELAY	
sapi	SAPI_0	
gprs_resumption	GPRS_RESUMPTION_NOT_ACK	
(2) MDL_RELEASE_REQ		
ch_type	NOT_PRESENT_8BIT	
sapi	SAPI_0	
(3) RR_SYNC_IND		
ciph	NOT_USED	
mm_info	NOT_USED	
bcch_info	NOT_USED	
synccs	SYNCCS_T3122_TIM_OUT	
chm	CHM_NOT_PRESENT	
(4) RR_ESTABLISH_REQ		
estcs	ESTCS_SERV_REQ_BY_MM	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_LOC_UPD_REQ	
ti	TI_0	
loc_upd_type	LOC_UPD_TYPE_NORMAL	
ciph_key_num	CIPH_KEY_NUM_RES	
loc_area_ident	LOC_AREA_ID_123_33_2147	
mob_class_1	MOB_CLASS_1	
mob_id	MOB_IDENT_IMSI	
}		

History: 09.07.97 HK Initial

4.19.27 MM426: Random access barred

Description: MM receives a RR-RELEASE indication primitive from RR; Normal Location Updating cannot be carried out because of access barred. MM issues a MDL-RELEASE request primitive. After access control class changes in RR a new attempt is started.

Preamble: MM401

MMI / CM / SIM	MM	RR / DL
(1)	RR_RELEASE_IND	
	<=====	
(2)	MDL_RELEASE_REQ	
	=====>	
TIMEOUT (30000)		
(3)	RR_SYNC_IND	
	<=====	
(4)	RR_ESTABLISH_REQ	
	(LOCATION_UPDATING_REQ)	
	=====>	

Parametrization

Primitive	Parameter	Value
(1) RR_RELEASE_IND		
relcs	RELCS_ACCESS_BARRED	
sapi	SAPI_0	
gprs_resumption	GPRS_RESUMPTION_NOT_ACK	
(2) MDL_RELEASE_REQ		
ch_type	NOT_PRESENT_8BIT	
sapi	SAPI_0	
(3) RR_SYNC_IND		
ciph	NOT_USED	
mm_info	NOT_USED	
bcch_info	NOT_USED	
synccs	SYNCCS_ACC_CLS_CHA	
chm	CHM_NOT_PRESENT	
(4) RR_ESTABLISH_REQ		
estcs	ESTCS_SERV_REQ_BY_MM	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_LOC_UPD_REQ	
ti	TI_0	
loc_upd_type	LOC_UPD_TYPE_NORMAL	
ciph_key_num	CIPH_KEY_NUM_RES	
loc_area_ident	LOC_AREA_ID_123_33_2147	
mob_class_1	MOB_CLASS_1	
mob_id	MOB_IDENT_IMSI	
}		

History: 09.07.97 HK Initial

4.19.28 MM427: Not Updated in Current LA, Start Normal Location Updating

Description: MM receives a SIM-INSERT indication primitive and initiates cell selection by issuing a RR-ACTIVATE request primitive. Successful conclusion of cell selection is signalled by the receipt of a RR-ACTIVATE confirmation primitive. MM forwards the PLMN identification to MMI in the form of a MMR-REG confirmation primitive. A normal location updating is started.

Preamble: MM022

MMI / CM	MM	RR / DL
COMMAND (MM CONFIG T3212_CNT=5)		
(1) SIM_MM_INSERT_IND		
(2) MMR_REG_REQ		
(3)	RR_ACTIVATE_REQ	
(4)	RR_ACTIVATE_CNF	
(5) MMR_REG_CNF		
(6)	RR_ESTABLISH_REQ	
	(LOCATION UPDATING REQ)	

Parametrization

Primitive	Parameter	Value
(22) SIM_MM_INSERT_IND		
op_mode		NORMAL_SIM_INS
imsi_field		IMSI_FIELD_1
loc_info		LOC_INFO_UPDATED_2
acc_ctrl		ACC_CTRL_1
bcch_inf		BCCH_INF_1
kc_n		KC_EMPTY
pref_plmn		PREF_PLMN_NONE
forb_plmn		FORB_PLMN_NONE
phase		PHASE_2_SIM
hplmn		THPLMN_01
(23) MMR_REG_REQ		
service_mode		SERVICE_MODE_FULL
(24) RR_ACTIVATE_REQ		
plmn		PLMN_123_33
op		OP_MODE_SIM_NO_SERV
cksn		CKSN_RES
kcv		KCV_EMPTY
acc		ACC_2143
imsi		MOB_ID_IMSI
tmsi		MOB_ID_NO_ID
thplmn		THPLMN_01
bcch_info		BCCH_INFO_ECL
cell_test		CELL_TEST_DISABLE
gprs_indic		GPRS_NO
(25) RR_ACTIVATE_CNF		
op		OP_MODE_SIM

mm_info	MM_INFO_PER
cid	CELL_ID_1122
plmn	PLMN_123_33
lac	LAC_2147
power	RF_CLASS_2
gprs_indic	GPRS_NO
(26) MMR_REG_CNF	
plmn	PLMN_123_33
(27) RR_ESTABLISH_REQ	
estcs	ESTCS_SERV_REQ_BY_MM
sdu	
{	
component	MM
direction	UPLINK
pd	U_LOC_UPD_REQ
ti	TI_0
loc_upd_type	LOC_UPD_TYPE_NORMAL
ciph_key_num	CIPH_KEY_NUM_RES
loc_area_ident	LOC_AREA_ID_123_33_0002
mob_class_1	MOB_CLASS_1
mob_id	MOB_IDENT_IMSI
}	

History:	04.05.99	LE	Initial
	24.02.00	HM	Revised

4.19.29 MM600: Normal Service, T3211, Anite Behaviour

Description: The radio link failure in the preamble is realized by the Anite by simply switching off the BCCH carrier. This leads to a cell reselection problem in RR and a cell selection failure is indicated to MM. RR retries the synchronisation and forwards a RR ACTIVATE IND to MM indicating that it is back to full service.

Preamble: MM406

	MMI / CM / SIM	MM	RR / DL
(1)		RR_ESTABLISH_CNF	
		*<=====	*
(2)		RR_ABORT_IND	
		*<=====	*
(3)		MDL_RELEASE_REQ	
		*=====>	*
TIMEOUT (10000)			
(4)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		*=====>	*
(5)		RR_ABORT_IND	
		*<=====	*
(6)		MDL_RELEASE_REQ	
		*=====>	*
(7)	MMR_NREG_IND		
		*<=====	*
TIMEOUT (20000)			
(8)		RR_ACTIVATE_IND	
		*<=====	*
(9)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		*=====>	*
(10)		RR_ESTABLISH_CNF	
		*<=====	*
(11)		RR_ABORT_IND	
		*<=====	*
(12)		MDL_RELEASE_REQ	
		*=====>	*
TIMEOUT (10000)			
(13)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		*=====>	*
(14)		RR_ESTABLISH_CNF	
		*<=====	*
(15)		RR_ABORT_IND	
		*<=====	*
(16)		MDL_RELEASE_REQ	
		*=====>	*
TIMEOUT (10000)			
(17)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		*=====>	*
(18)		RR_ESTABLISH_CNF	
		*<=====	*
(19)		RR_ABORT_IND	
		*<=====	*
(20)		MDL_RELEASE_REQ	
		*=====>	*
(21)		RR_SYNC_REQ	
		*=====>	*

(22)		SIM_MM_UPDATE_REQ		
		*<=====		
(23)		MMR_NREG_IND		
		*<=====		

Parametrization

	Primitive	Parameter	Value
(45)	RR_ESTABLISH_CNF param	NOT_USED	
(46)	RR_ABORT_IND op abcs plmn_avail plmn rxlevel power	OP_MODE_TEST_SIM ABCS_RAD_LNK_FAIL NOT_USED NOT_USED NOT_USED RF_CLASS_2	
(47)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(48)	RR_ESTABLISH_REQ estcs sdu { component direction pd ti loc_upd_type ciph_key_num loc_area_ident mob_class_1 mob_id }	ESTCS_SERV_REQ_BY_MM MM UPLINK U_LOC_UPD_REQ TI_0 LOC_UPD_TYPE_PERIODIC CIPH_KEY_NUM_RES LOC_AREA_ID_123_33_2147 MOB_CLASS_1 MOB_IDENT_IMSI	
(49)	RR_ABORT_IND op abcs plmn_avail plmn rxlevel power	OP_MODE_SIM_NO_SERV ABCS_CEL_SEL_FAIL NO_PLMN_FOUND NOT_USED NOT_USED RF_CLASS_2	
(50)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(51)	MMR_NREG_IND nreg_cs search_running new_forb_plmn limited_cause	NREG_NO_SERVICE SEARCH_NOT_RUNNING PLMN_NO_ID MMR_RC_NONE	
(52)	RR_ACTIVATE_IND op mm_info cid plmn	OP_MODE_SIM MM_INFO_PER CELL_ID_1122 PLMN_123_33	

	lac	LAC_2147
	power	RF_CLASS_2
	gprs_indic	GPRS_NO
(53)	RR_ESTABLISH_REQ	
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti	TI_0
	loc_upd_type	LOC_UPD_TYPE_PERIODIC
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_2147
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(54)	RR_ESTABLISH_CNF	
	param	NOT_USED
(55)	RR_ABORT_IND	
	op	OP_MODE_TEST_SIM
	abcs	ABCS_RAD_LNK_FAIL
	plmn_avail	NOT_USED
	plmn	NOT_USED
	rxlevel	NOT_USED
	power	RF_CLASS_2
(56)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(57)	RR_ESTABLISH_REQ	
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti	TI_0
	loc_upd_type	LOC_UPD_TYPE_PERIODIC
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_2147
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(58)	RR_ESTABLISH_CNF	
	param	NOT_USED
(59)	RR_ABORT_IND	
	op	OP_MODE_TEST_SIM
	abcs	ABCS_RAD_LNK_FAIL
	plmn_avail	NOT_USED
	plmn	NOT_USED
	rxlevel	NOT_USED
	power	RF_CLASS_2
(60)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0

(61)	RR_ESTABLISH_REQ	estcs sdu { component direction pd ti loc_upd_type ciph_key_num loc_area_ident mob_class_1 mob_id }	ESTCS_SERV_REQ_BY_MM MM UPLINK U_LOC_UPD_REQ TI_0 LOC_UPD_TYPE_PERIODIC CIPH_KEY_NUM_RES LOC_AREA_ID_123_33_2147 MOB_CLASS_1 MOB_IDENT_IMSI
(62)	RR_ESTABLISH_CNF	param	NOT_USED
(63)	RR_ABORT_IND	op abcs plmn_avail plmn rxlevel power	OP_MODE_TEST_SIM ABCS_RAD_LNK_FAIL NOT_USED NOT_USED NOT_USED RF_CLASS_2
(64)	MDL_RELEASE_REQ	ch_type sapi	NOT_PRESENT_8BIT SAPI_0
(65)	RR_SYNC_REQ	op cksn kcv tmsi plmn lac syncchs accc thplmn	NOT_USED NOT_USED NOT_USED NOT_USED NOT_USED NOT_USED SYNCCS_TMSI_CKSN_KC_INVALID NOT_USED NOT_USED
(66)	SIM_MM_UPDATE_REQ	loc_info bcch_inf forb_plmn cksn kc cell_identity	LOC_INFO_123_33_FEFF NOT_USED NOT_USED CKSN_RES KC_DELETED_SIM CELL_ID_1122
(67)	MMR_NREG_IND	nreg_cs search_running new_forb_plmn limited_cause	NREG_LIMITED_SERVICE SEARCH_NOT_RUNNING PLMN_NO_ID MMR_RC_NONE

History:	04.05.99	LE	Initial
	02.03.00	HM	Revised (search_running)
	18.06.01	HM	Revised

4.20 MM Idle Mode Behaviour (Attempt to Update)

4.20.1 MM428: Attempt to Update, Timeout T3211, LUP Reject Cause #17

Description: The location updating is finished with a location updating reject message and the cause #17 network failure. The update status is NOT UPDATED. The MS shall delete the location information and enter the MM IDLE substate ATTEMPTING TO UPDATE after the RR connection release. It shall start timer T3211 when the RR connection is released. When timer T3211 expires the location updating procedure is triggered again.

Preamble: MM427

	MMI / CM / SIM	MM	RR / DL
(1)		RR_ESTABLISH_CNF	
		<=====	
(2)		RR_DATA_IND	
		(LOCATION UPDATING REJ)	
		<=====	
(3)		RR_RELEASE_IND	
		<=====	
(4)		MDL_RELEASE_REQ	
		=====>	
(5)		RR_SYNC_REQ	
		=====>	
(6)	SIM_MM_UPDATE_REQ		
	<=====		
TIMEOUT (10000)			
(7)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		=====>	

Parametrization

	Primitive	Parameter	Value
(1)	RR_ESTABLISH_CNF param	NOT_USED	
(2)	RR_DATA_IND d1 NOT_USED d2 NOT_USED sdu { component direction pd D_LOC_UPD_REJ ti TI_0 rej_cause }	MM DOWNLINK RC_NETWORK_FAILURE	
(3)	RR_RELEASE_IND relcs sapi SAPI_0 gprs_resumption	RELCS_NORM GPRS_RESUMPTION_NOT_ACK	
(4)	MDL_RELEASE_REQ ch_type sapi SAPI_0	NOT_PRESENT_8BIT	

(5)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	NOT_USED
	plmn	NOT_USED
	lac	NOT_USED
	synccs	SYNCCS_TMSI_CKSN_KC_INVAL
	accc	NOT_USED
	thplmn	NOT_USED
(6)	SIM_MM_UPDATE_REQ	
	loc_info	LOC_INFO_123_33_FEFF
	bcch_inf	NOT_USED
	forb_plmn	NOT_USED
	cksn	CKSN_RES
	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122
(7)	RR_ESTABLISH_REQ	
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti	TI_0
	loc_upd_type	LOC_UPD_TYPE_NORMAL
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_FEFF
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	

History: 04.05.99 LE Initial

4.20.2 MM429: Attempt to update, Timeout T3211, LUP Reject Cause, 2.-4. attempt

Description: The location updating is finished with a location updating reject message and the cause #17 network failure. The update status is NOT UPDATED. The MS is in MM IDLE substate ATTEMPTING TO UPDATE after the RR connection release. It shall start timer T3211 when the RR connection is released. When timer T3211 expires the location updating procedure is triggered again. After the 4. Attempt the MM IDLE substate ATTEMPTING TO UPDATE is entered and no new location updating is triggered.

Preamble: MM428

	MMI / CM / SIM	MM	RR / DL
(1)		RR_ESTABLISH_CNF	
		*<=====	
(2)		RR_DATA_IND	
		(LOCATION UPDATING REJ)	
		*<=====	
(3)		RR_RELEASE_IND	
		*<=====	
(4)		MDL_RELEASE_REQ	
		*=====>	
(5)		RR_SYNC_REQ	
		*=====>	
(6)	SIM_MM_UPDATE_REQ		
	*<=====		
TIMEOUT (10000)			
(7)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		*=====>	
(8)		RR_ESTABLISH_CNF	
		*<=====	
(9)		RR_DATA_IND	
		(LOCATION UPDATING REJ)	
		*<=====	
(10)		RR_RELEASE_IND	
		*<=====	
(11)		MDL_RELEASE_REQ	
		*=====>	
(12)		RR_SYNC_REQ	
		*=====>	
(13)	SIM_MM_UPDATE_REQ		
	*<=====		
TIMEOUT (10000)			
(14)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		*=====>	
(15)		RR_ESTABLISH_CNF	
		*<=====	
(16)		RR_DATA_IND	
		(LOCATION UPDATING REJ)	
		*<=====	
(17)		RR_RELEASE_IND	
		*<=====	
(18)		MDL_RELEASE_REQ	
		*=====>	
(19)		RR_SYNC_REQ	
		*=====>	
(20)	SIM_MM_UPDATE_REQ		

```

* <=====
(21) |      MMR_NREG_IND      |
* <=====
TIMEOUT (20000)
|
|
|

```

Parametrization

	Primitive	Parameter	Value
(1)	RR_ESTABLISH_CNF param	NOT_USED	
(2)	RR_DATA_IND d1 NOT_USED d2 NOT_USED sdu { component direction pd D_LOC_UPD_REJ ti TI_0 rej_cause }	MM DOWNLINK RC_NETWORK_FAILURE	
(3)	RR_RELEASE_IND relcs sapi SAPI_0 gprs_resumption	RELCS_NORM GPRS_RESUMPTION_NOT_ACK	
(4)	MDL_RELEASE_REQ ch_type sapi SAPI_0	NOT_PRESENT_8BIT	
(5)	RR_SYNC_REQ op NOT_USED cksn NOT_USED kcv NOT_USED tmsi NOT_USED plmn lac NOT_USED synccs accc NOT_USED thplmn	NOT_USED SYNCCS_TMSI_CKSN_KC_INVALID NOT_USED	
(6)	SIM_MM_UPDATE_REQ loc_info bcch_inf forb_plmn cksn CKSN_RES kc KC_DELETED_SIM cell_identity	LOC_INFO_123_33_FEFF NOT_USED NOT_USED CELL_ID_1122	
(7)	RR_ESTABLISH_REQ estcs sdu { component direction pd U_LOC_UPD_REQ ti TI_0 loc_upd_type	ESTCS_SERV_REQ_BY_MM MM UPLINK LOC_UPD_TYPE_NORMAL	

	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_FEFF
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(8)	RR_ESTABLISH_CNF	
	param	NOT_USED
(9)	RR_DATA_IND	
	d1 NOT_USED	
	d2 NOT_USED	
	sdu	
	{	
	component	MM
	direction	DOWNLINK
	pd D_LOC_UPD_REJ	
	ti TI_0	
	rej_cause	RC_NETWORK_FAILURE
	}	
(10)	RR_RELEASE_IND	
	relcs	RELCS_NORM
	sapi SAPI_0	
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(11)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi SAPI_0	
(12)	RR_SYNC_REQ	
	op NOT_USED	
	cksnNOT_USED	
	kcv NOT_USED	
	tmsi NOT_USED	
	plmn	NOT_USED
	lac NOT_USED	
	synccs	SYNCCS_TMSI_CKSN_KC_INVAL
	acccNOT_USED	
	thplmn	NOT_USED
(13)	SIM_MM_UPDATE_REQ	
	loc_info	LOC_INFO_123_33_FEFF
	bcch_inf	NOT_USED
	forb_plmn	NOT_USED
	cksnCKSN_RES	
	kc KC_DELETED_SIM	
	cell_identity	CELL_ID_1122
(14)	RR_ESTABLISH_REQ	
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd U_LOC_UPD_REQ	
	ti TI_0	
	loc_upd_type	LOC_UPD_TYPE_NORMAL
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_FEFF
	mob_class_1	MOB_CLASS_1

	mob_id }	MOB_IDENT_IMSI
(15)	RR_ESTABLISH_CNF param	NOT_USED
(16)	RR_DATA_IND d1 NOT_USED d2 NOT_USED sdu { component direction pd D_LOC_UPD_REJ ti TI_0 rej_cause }	MM DOWNLINK RC_NETWORK_FAILURE
(17)	RR_RELEASE_IND relcs sapi SAPI_0 gprs_resumption	RELCS_NORM GPRS_RESUMPTION_NOT_ACK
(18)	MDL_RELEASE_REQ ch_type sapi SAPI_0	NOT_PRESENT_8BIT
(19)	RR_SYNC_REQ op NOT_USED cksnNOT_USED kcv NOT_USED tmsi NOT_USED plmn lac NOT_USED synccs acccNOT_USED thplmn	NOT_USED SYNCCS_TMSI_CKSN_KC_INVAL NOT_USED
(20)	SIM_MM_UPDATE_REQ loc_info bcch_inf forb_plmn cksnCKSN_RES kc KC_DELETED_SIM cell_identity	LOC_INFO_123_33_FEFF NOT_USED NOT_USED CELL_ID_1122
(21)	MMR_NREG_IND nreg_cs search_running new_forb_plmn limited_cause	NREG_LIMITED_SERVICE SEARCH_NOT_RUNNING PLMN_NO_ID RC_NETWORK_FAILURE

History:	04.05.99	LE	Initial
	02.03.00	HM	Revised (search_running)

4.20.3 MM430: Not Updated, Periodic LUP

Description: MM has processed four unsuccessful location updatings and stays in the MM idle sub-state ATTEMPTING TO UPDATE. After timeout of the periodic location updating timer a new set of normal location updatings is started.

Preamble: MM429

MMI / CM	MM	RR / DL
TIMEOUT (55000)		
(1)	RR_ESTABLISH_REQ	
	(LOCATION UPDATING REQ)	
	=====>	

Parametrization

Primitive	Parameter	Value
(1) RR_ESTABLISH_REQ		
estcs	ESTCS_SERV_REQ_BY_MM	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_LOC_UPD_REQ	
ti	TI_0	
loc_upd_type	LOC_UPD_TYPE_NORMAL	
ciph_key_num	CIPH_KEY_NUM_RES	
loc_area_ident	LOC_AREA_ID_123_33_FEFF	
mob_class_1	MOB_CLASS_1	
mob_id	MOB_IDENT_IMSI	
}		

History: 04.05.99 LE Initial

4.20.4 MM431: Periodic not updated, Timeout T3211, LUP Reject Cause #17

Description: The MS is not updated. After timeout of T3212 a new attempt is made. The MS remains in ATTEMPTING TO UPDATE state. It shall start timer T3211 when the RR connection is released. When timer T3211 expires the location updating procedure is triggered again

Preamble: MM430

	MMI / CM / SIM	MM	RR / DL
(1)		RR_ESTABLISH_CNF	
		<=====	
(2)		RR_DATA_IND	
		(LOCATION UPDATING REJ)	
		<=====	
(3)		RR_RELEASE_IND	
		<=====	
(4)		MDL_RELEASE_REQ	
		=====>	
(5)		RR_SYNC_REQ	
		=====>	
(6)	SIM_MM_UPDATE_REQ		
	<=====		
TIMEOUT (10000)			
(7)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		=====>	
(8)		RR_ESTABLISH_CNF	
		<=====	
(9)		RR_DATA_IND	
		(LOCATION UPDATING REJ)	
		<=====	
(10)		RR_RELEASE_IND	
		<=====	
(11)		MDL_RELEASE_REQ	
		=====>	
(12)		RR_SYNC_REQ	
		=====>	
(13)	SIM_MM_UPDATE_REQ		
	<=====		
TIMEOUT (10000)			
(14)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		=====>	
(15)		RR_ESTABLISH_CNF	
		<=====	
(16)		RR_DATA_IND	
		(LOCATION UPDATING REJ)	
		<=====	
(17)		RR_RELEASE_IND	
		<=====	
(18)		MDL_RELEASE_REQ	
		=====>	
(19)		RR_SYNC_REQ	
		=====>	
(20)	SIM_MM_UPDATE_REQ		
	<=====		
TIMEOUT (10000)			
(21)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	

```

(22) |                                     *=====>*
      | |      RR_ESTABLISH_CNF      |
      | |                                     *<=====*
(23) | |      RR_DATA_IND      |
      | |      (LOCATION UPDATING REJ) |
      | |                                     *<=====*
(24) | |      RR_RELEASE_IND      |
      | |                                     *<=====*
(25) | |      MDL_RELEASE_REQ      |
      | |                                     *=====>*
(26) | |      RR_SYNC_REQ      |
      | |                                     *=====>*
(27) | |      SIM_MM_UPDATE_REQ      |
      | *<=====*
(28) | |      MMR_NREG_IND      |
      | *<=====*
TIMEOUT (20000)
      |

```

Parametrization

Primitive	Parameter	Value
(1) RR_ESTABLISH_CNF param	NOT_USED	
(2) RR_DATA_IND d1 d2 sdu { component direction pd ti TI_0 rej_cause }	NOT_USED NOT_USED MM DOWNLINK D_LOC_UPD_REJ RC_NETWORK_FAILURE	
(3) RR_RELEASE_IND relcs sapi gprs_resumption	RELCS_NORM SAPI_0 GPRS_RESUMPTION_NOT_ACK	
(4) MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(5) RR_SYNC_REQ op cksn kcv tmsi plmn lac synccs accc thplmn	NOT_USED NOT_USED NOT_USED NOT_USED NOT_USED NOT_USED SYNCCS_TMSI_CKSN_KC_INVAL NOT_USED NOT_USED	
(6) SIM_MM_UPDATE_REQ loc_info bcch_inf forb_plmn	LOC_INFO_123_33_FEFF NOT_USED NOT_USED	

	cksn	CKSN_RES
	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122
(7)	RR_ESTABLISH_REQ	
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti TI_0	
	loc_upd_type	LOC_UPD_TYPE_NORMAL
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_FEFF
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(8)	RR_ESTABLISH_CNF	
	param	NOT_USED
(9)	RR_DATA_IND	
	d1	NOT_USED
	d2	NOT_USED
	sdu	
	{	
	component	MM
	direction	DOWNLINK
	pd	D_LOC_UPD_REJ
	ti TI_0	
	rej_cause	RC_NETWORK_FAILURE
	}	
(10)	RR_RELEASE_IND	
	relcs	RELCS_NORM
	sapi	SAPI_0
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(11)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(12)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	NOT_USED
	plmn	NOT_USED
	lac	NOT_USED
	synccts	SYNCCS_TMSI_CKSN_KC_INVALID
	accc	NOT_USED
	thplmn	NOT_USED
(13)	SIM_MM_UPDATE_REQ	
	loc_info	LOC_INFO_123_33_FEFF
	bcch_inf	NOT_USED
	forb_plmn	NOT_USED
	cksn	CKSN_RES
	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122

- (14) RR_ESTABLISH_REQ
- | | |
|----------------|-------------------------|
| estcs | ESTCS_SERV_REQ_BY_MM |
| sdu | |
| { | |
| component | MM |
| direction | UPLINK |
| pd | U_LOC_UPD_REQ |
| ti TI_0 | |
| loc_upd_type | LOC_UPD_TYPE_NORMAL |
| ciph_key_num | CIPH_KEY_NUM_RES |
| loc_area_ident | LOC_AREA_ID_123_33_FEFF |
| mob_class_1 | MOB_CLASS_1 |
| mob_id | MOB_IDENT_IMSI |
| } | |
- (15) RR_ESTABLISH_CNF
- | | |
|-------|----------|
| param | NOT_USED |
|-------|----------|
- (16) RR_DATA_IND
- | | |
|-----------|--------------------|
| d1 | NOT_USED |
| d2 | NOT_USED |
| sdu | |
| { | |
| component | MM |
| direction | DOWNLINK |
| pd | D_LOC_UPD_REQ |
| ti TI_0 | |
| rej_cause | RC_NETWORK_FAILURE |
| } | |
- (17) RR_RELEASE_IND
- | | |
|-----------------|-------------------------|
| relcs | RELCS_NORM |
| sapi | SAPI_0 |
| gprs_resumption | GPRS_RESUMPTION_NOT_ACK |
- (18) MDL_RELEASE_REQ
- | | |
|---------|------------------|
| ch_type | NOT_PRESENT_8BIT |
| sapi | SAPI_0 |
- (19) RR_SYNC_REQ
- | | |
|---------|-----------------------------|
| op | NOT_USED |
| cksn | NOT_USED |
| kcv | NOT_USED |
| tmsi | NOT_USED |
| plmn | NOT_USED |
| lac | NOT_USED |
| syncacs | SYNCCS_TMSI_CKSN_KC_INVALID |
| accc | NOT_USED |
| thplmn | NOT_USED |
- (20) SIM_MM_UPDATE_REQ
- | | |
|---------------|----------------------|
| loc_info | LOC_INFO_123_33_FEFF |
| bcch_inf | NOT_USED |
| forb_plmn | NOT_USED |
| cksn | CKSN_RES |
| kc | KC_DELETED_SIM |
| cell_identity | CELL_ID_1122 |
- (21) RR_ESTABLISH_REQ
- | | |
|-------|----------------------|
| estcs | ESTCS_SERV_REQ_BY_MM |
| sdu | |
| { | |

component	MM
direction	UPLINK
pd	U_LOC_UPD_REQ
ti TI_0	
loc_upd_type	LOC_UPD_TYPE_NORMAL
ciph_key_num	CIPH_KEY_NUM_RES
loc_area_ident	LOC_AREA_ID_123_33_FEFF
mob_class_1	MOB_CLASS_1
mob_id	MOB_IDENT_IMSI
}	
(22) RR_ESTABLISH_CNF	
param	NOT_USED
(23) RR_DATA_IND	
d1	NOT_USED
d2	NOT_USED
sdu	
{	
component	MM
direction	DOWNLINK
pd	D_LOC_UPD_REQ
ti TI_0	
rej_cause	RC_NETWORK_FAILURE
}	
(24) RR_RELEASE_IND	
relcs	RELCS_NORM
sapi	SAPI_0
gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(25) MDL_RELEASE_REQ	
ch_type	NOT_PRESENT_8BIT
sapi	SAPI_0
(26) RR_SYNC_REQ	
op	NOT_USED
cksn	NOT_USED
kcv	NOT_USED
tmsi	NOT_USED
plmn	NOT_USED
lac	NOT_USED
synccs	SYNCCS_TMSI_CKSN_KC_INVAL
accc	NOT_USED
thplmn	NOT_USED
(27) SIM_MM_UPDATE_REQ	
loc_info	LOC_INFO_123_33_FEFF
bcch_inf	NOT_USED
forb_plmn	NOT_USED
cksn	CKSN_RES
kc	KC_DELETED_SIM
cell_identity	CELL_ID_1122
(28) MMR_NREG_IND	
nreg_cs	NREG_LIMITED_SERVICE
search_running	SEARCH_NOT_RUNNING
new_forb_plmn	PLMN_NO_ID
limited_cause	RC_NETWORK_FAILURE

History:	04.05.99	LE	Initial
	02.03.00	HM	Revised (search_running)

4.20.5 MM432: Attempt to Update, Normal, T3211, RR Release before end of proc

Description: The RR connection is established and released before receiving an answer by the network. The MS shall start timer T3211 when the RR connection is released. When timer T3211 expires the location updating procedure is triggered again.

Preamble: MM428

	MMI/CM/SIM	MM	RR/DL
(1)		RR_ESTABLISH_CNF	
		<=====	
(2)		RR_RELEASE_IND	
		<=====	
(3)		MDL_RELEASE_REQ	
		=====>	
(4)		RR_SYNC_REQ	
		=====>	
(5)	SIM_MM_UPDATE_REQ		
	<=====		
	TIMEOUT (10000)		
(6)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		=====>	
(7)		RR_ESTABLISH_CNF	
		<=====	
(8)		RR_RELEASE_IND	
		<=====	
(9)		MDL_RELEASE_REQ	
		=====>	
(10)		RR_SYNC_REQ	
		=====>	
(11)	SIM_MM_UPDATE_REQ		
	<=====		
	TIMEOUT (10000)		
(12)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		=====>	
(13)		RR_ESTABLISH_CNF	
		<=====	
(14)		RR_RELEASE_IND	
		<=====	
(15)		MDL_RELEASE_REQ	
		=====>	
(16)		RR_SYNC_REQ	
		=====>	
(17)	SIM_MM_UPDATE_REQ		
	<=====		
(18)	MMR_NREG_IND		
	<=====		

Parametrization

	Primitive	Parameter	Value
(1)	RR_ESTABLISH_CNF param	NOT_USED	

(2)	RR_RELEASE_IND	
	relcs	RELCS_NORM
	sapi	SAPI_0
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(3)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(4)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	NOT_USED
	plmn	NOT_USED
	lac	NOT_USED
	synccs	SYNCCS_TMSI_CKSN_KC_INVALID
	accc	NOT_USED
	thplmn	NOT_USED
(5)	SIM_MM_UPDATE_REQ	
	loc_info	LOC_INFO_123_33_FEFF
	bcch_inf	NOT_USED
	forb_plmn	NOT_USED
	cksn	CKSN_RES
	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122
(6)	RR_ESTABLISH_REQ	
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti TI_0	
	loc_upd_type	LOC_UPD_TYPE_NORMAL
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_FEFF
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(7)	RR_ESTABLISH_CNF	
	param	NOT_USED
(8)	RR_RELEASE_IND	
	relcs	RELCS_NORM
	sapi	SAPI_0
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(9)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(10)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	NOT_USED
	plmn	NOT_USED
	lac	NOT_USED
	synccs	SYNCCS_TMSI_CKSN_KC_INVALID

	acc	NOT_USED
	thplmn	NOT_USED
(11)	SIM_MM_UPDATE_REQ	
	loc_info	LOC_INFO_123_33_FEFF
	bcch_inf	NOT_USED
	forb_plmn	NOT_USED
	cksn	CKSN_RES
	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122
(12)	RR_ESTABLISH_REQ	
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti TI_0	
	loc_upd_type	LOC_UPD_TYPE_NORMAL
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_FEFF
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(13)	RR_ESTABLISH_CNF	
	param	NOT_USED
(14)	RR_RELEASE_IND	
	relcs	RELCS_NORM
	sapi	SAPI_0
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(15)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(16)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	NOT_USED
	plmn	NOT_USED
	lac	NOT_USED
	synccs	SYNCCS_TMSI_CKSN_KC_INVALID
	acc	NOT_USED
	thplmn	NOT_USED
(17)	SIM_MM_UPDATE_REQ	
	loc_info	LOC_INFO_123_33_FEFF
	bcch_inf	NOT_USED
	forb_plmn	NOT_USED
	cksn	CKSN_RES
	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122
(18)	MMR_NREG_IND	
	nreg_cs	NREG_LIMITED_SERVICE
	search_running	SEARCH_NOT_RUNNING
	new_forb_plmn	PLMN_NO_ID
	limited_cause	MMR_RC_NONE

History:	04.05.99	LE	Initial
	02.03.00	HM	Revised (search_running)

4.20.6 MM433: Periodic, Attempt to Update, T3211, RR Release before end of proc

Description: After timeout of the periodic location updating timer a new set of four attempts for normal location updating is started.

Preamble: MM432

MMI/CM/SIM	MM	RR/DL
TIMEOUT (55000)		
(1)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
	=====>	
(2)	RR_ESTABLISH_CNF	
	<=====	
(3)	RR_RELEASE_IND	
	<=====	
(4)	MDL_RELEASE_REQ	
	=====>	
(5)	RR_SYNC_REQ	
	=====>	
(6)	SIM_MM_UPDATE_REQ	
	<=====	
TIMEOUT (10000)		
(7)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
	=====>	
(8)	RR_ESTABLISH_CNF	
	<=====	
(9)	RR_RELEASE_IND	
	<=====	
(10)	MDL_RELEASE_REQ	
	=====>	
(11)	RR_SYNC_REQ	
	=====>	
(12)	SIM_MM_UPDATE_REQ	
	<=====	
TIMEOUT (10000)		
(13)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
	=====>	
(14)	RR_ESTABLISH_CNF	
	<=====	
(15)	RR_RELEASE_IND	
	<=====	
(16)	MDL_RELEASE_REQ	
	=====>	
(17)	RR_SYNC_REQ	
	=====>	
(18)	SIM_MM_UPDATE_REQ	
	<=====	
TIMEOUT (10000)		
(19)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
	=====>	
(20)	RR_ESTABLISH_CNF	
	<=====	
(21)	RR_RELEASE_IND	
	<=====	
(22)	MDL_RELEASE_REQ	

```

(23) | | | *=====>*
      | | | | RR_SYNC_REQ |
      | | | *=====>*
(24) | | SIM_MM_UPDATE_REQ | |
      | *<=====*
(25) | | MMR_NREG_IND | |
      | *<=====*
      | | |

```

Parametrization

	Primitive	Parameter	Value
(1)	RR_ESTABLISH_REQ		
	estcs	ESTCS_SERV_REQ_BY_MM	
	sdu		
	{		
	component	MM	
	direction	UPLINK	
	pd	U_LOC_UPD_REQ	
	ti TI_0		
	loc_upd_type	LOC_UPD_TYPE_NORMAL	
	ciph_key_num	CIPH_KEY_NUM_RES	
	loc_area_ident	LOC_AREA_ID_123_33_FEFF	
	mob_class_1	MOB_CLASS_1	
	mob_id	MOB_IDENT_IMSI	
	}		
(2)	RR_ESTABLISH_CNF		
	param	NOT_USED	
(3)	RR_RELEASE_IND		
	relcs	RELCS_NORM	
	sapi	SAPI_0	
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK	
(4)	MDL_RELEASE_REQ		
	ch_type	NOT_PRESENT_8BIT	
	sapi	SAPI_0	
(5)	RR_SYNC_REQ		
	op	NOT_USED	
	cksn	NOT_USED	
	kcv	NOT_USED	
	tmsi	NOT_USED	
	plmn	NOT_USED	
	lac	NOT_USED	
	synccs	SYNCCS_TMSI_CKSN_KC_INVALID	
	accc	NOT_USED	
	thplmn	NOT_USED	
(6)	SIM_MM_UPDATE_REQ		
	loc_info	LOC_INFO_123_33_FEFF	
	bcch_inf	NOT_USED	
	forb_plmn	NOT_USED	
	cksn	CKSN_RES	
	kc	KC_DELETED_SIM	
	cell_identity	CELL_ID_1122	
(7)	RR_ESTABLISH_REQ		
	estcs	ESTCS_SERV_REQ_BY_MM	
	sdu		

	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti TI_0	
	loc_upd_type	LOC_UPD_TYPE_NORMAL
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_FEFF
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(8)	RR_ESTABLISH_CNF	
	param	NOT_USED
(9)	RR_RELEASE_IND	
	relcs	RELCS_NORM
	sapi	SAPI_0
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(10)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(11)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	NOT_USED
	plmn	NOT_USED
	lac	NOT_USED
	syncchs	SYNCCS_TMSI_CKSN_KC_INVALID
	accc	NOT_USED
	thplmn	NOT_USED
(12)	SIM_MM_UPDATE_REQ	
	loc_info	LOC_INFO_123_33_FEFF
	bcch_inf	NOT_USED
	forb_plmn	NOT_USED
	cksn	CKSN_RES
	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122
(13)	RR_ESTABLISH_REQ	
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti TI_0	
	loc_upd_type	LOC_UPD_TYPE_NORMAL
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_FEFF
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(14)	RR_ESTABLISH_CNF	
	param	NOT_USED
(15)	RR_RELEASE_IND	
	relcs	RELCS_NORM

	sapi	SAPI_0
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(16)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(17)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	NOT_USED
	plmn	NOT_USED
	lac	NOT_USED
	synccs	SYNCCS_TMSI_CKSN_KC_INVAL
	accc	NOT_USED
	thplmn	NOT_USED
(18)	SIM_MM_UPDATE_REQ	
	loc_info	LOC_INFO_123_33_FEFF
	bcch_inf	NOT_USED
	forb_plmn	NOT_USED
	cksn	CKSN_RES
	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122
(19)	RR_ESTABLISH_REQ	
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti TI_0	
	loc_upd_type	LOC_UPD_TYPE_NORMAL
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_FEFF
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(20)	RR_ESTABLISH_CNF	
	param	NOT_USED
(21)	RR_RELEASE_IND	
	relcs	RELCS_NORM
	sapi	SAPI_0
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(22)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(23)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	NOT_USED
	plmn	NOT_USED
	lac	NOT_USED
	synccs	SYNCCS_TMSI_CKSN_KC_INVAL
	accc	NOT_USED
	thplmn	NOT_USED

(24) SIM_MM_UPDATE_REQ	
loc_info	LOC_INFO_123_33_FEFF
bcch_inf	NOT_USED
forb_plmn	NOT_USED
cksn	CKSN_RES
kc	KC_DELETED_SIM
cell_identity	CELL_ID_1122
(19) MMR_NREG_IND	
nreg_cs	NREG_LIMITED_SERVICE
search_running	SEARCH_NOT_RUNNING
new_forb_plmn	PLMN_NO_ID
limited_cause	MMR_RC_NONE

History:	04.05.99	LE	Initial
	02.03.00	HM	Revised (search_running)

4.20.7 MM434: Attempt to Update, Normal, T3211, Timeout T3210

Description: The RR connection is established and no answer receives from the network. After timeout of T3210 the RR connection is aborted. The MS shall start timer T3211 when the RR connection is released. When timer T3211 expires the location updating procedure is triggered again.

Preamble: MM428

MMI/CM/SIM	MM	RR/DL
(1)	RR_ESTABLISH_CNF	
	<=====	
TIMEOUT (17000)		
(2)	RR_ABORT_REQ	
	=====>	
(3)	RR_RELEASE_IND	
	<=====	
(4)	MDL_RELEASE_REQ	
	=====>	
(5)	RR_SYNC_REQ	
	=====>	
(6)	SIM_MM_UPDATE_REQ	
	<=====	
TIMEOUT (10000)		
(7)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
	=====>	
(8)	RR_ESTABLISH_CNF	
	<=====	
TIMEOUT (17000)		
(9)	RR_ABORT_REQ	
	=====>	
(10)	RR_RELEASE_IND	
	<=====	
(11)	MDL_RELEASE_REQ	
	=====>	
(12)	RR_SYNC_REQ	
	=====>	
(13)	SIM_MM_UPDATE_REQ	
	<=====	
TIMEOUT (10000)		
(14)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
	=====>	
(15)	RR_ESTABLISH_CNF	
	<=====	
TIMEOUT (17000)		
(16)	RR_ABORT_REQ	
	=====>	
(17)	RR_RELEASE_IND	
	<=====	
(18)	MDL_RELEASE_REQ	
	=====>	
(19)	RR_SYNC_REQ	
	=====>	
(20)	SIM_MM_UPDATE_REQ	
	<=====	
(21)	MMR_NREG_IND	
	<=====	

Parametrization

	Primitive	Parameter	Value
(1)	RR_ESTABLISH_CNF param	NOT_USED	
(2)	RR_ABORT_REQ abcs	ABCS_NORM	
(3)	RR_RELEASE_IND relcs sapi gprs_resumption	RELCS_ABNORM_UNSPEC SAPI_0 GPRS_RESUMPTION_NOT_ACK	
(4)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(5)	RR_SYNC_REQ op cksn kcv tmsi plmn lac synccs accc thplmn	NOT_USED NOT_USED NOT_USED NOT_USED NOT_USED NOT_USED SYNCCS_TMSI_CKSN_KC_INVAL NOT_USED NOT_USED	
(6)	SIM_MM_UPDATE_REQ loc_info bcch_inf forb_plmn cksn kc cell_identity	LOC_INFO_123_33_FEFF NOT_USED NOT_USED CKSN_RES KC_DELETED_SIM CELL_ID_1122	
(7)	RR_ESTABLISH_REQ estcs sdu { component direction pd tiTI_0 loc_upd_type ciph_key_num loc_area_ident mob_class_1 mob_id }	ESTCS_SERV_REQ_BY_MM MM UPLINK U_LOC_UPD_REQ LOC_UPD_TYPE_NORMAL CIPH_KEY_NUM_RES LOC_AREA_ID_123_33_FEFF MOB_CLASS_1 MOB_IDENT_IMSI	
(8)	RR_ESTABLISH_CNF param	NOT_USED	
(9)	RR_ABORT_REQ abcs	ABCS_NORM	
(10)	RR_RELEASE_IND relcs sapi gprs_resumption	RELCS_ABNORM_UNSPEC SAPI_0 GPRS_RESUMPTION_NOT_ACK	

(11)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(12)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	NOT_USED
	plmn	NOT_USED
	lac	NOT_USED
	synccs	SYNCCS_TMSI_CKSN_KC_INVAL
	accc	NOT_USED
	thplmn	NOT_USED
(13)	SIM_MM_UPDATE_REQ	
	loc_info	LOC_INFO_123_33_FEFF
	bcch_inf	NOT_USED
	forb_plmn	NOT_USED
	cksn	CKSN_RES
	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122
(14)	RR_ESTABLISH_REQ	
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	tiTI_0	
	loc_upd_type	LOC_UPD_TYPE_NORMAL
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_FEFF
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(15)	RR_ESTABLISH_CNF	
	param	NOT_USED
(16)	RR_ABORT_REQ	
	abcs	ABCS_NORM
(17)	RR_RELEASE_IND	
	relcs	RELCS_ABNORM_UNSPEC
	sapi	SAPI_0
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(18)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(19)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	NOT_USED
	plmn	NOT_USED
	lac	NOT_USED
	synccs	SYNCCS_TMSI_CKSN_KC_INVAL
	accc	NOT_USED
	thplmn	NOT_USED

(20)	SIM_MM_UPDATE_REQ	
	loc_info	LOC_INFO_123_33_FEFF
	bcch_inf	NOT_USED
	forb_plmn	NOT_USED
	cksn	CKSN_RES
	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122
(21)	MMR_NREG_IND	
	nreg_cs	NREG_LIMITED_SERVICE
	search_running	SEARCH_NOT_RUNNING
	new_forb_plmn	PLMN_NO_ID
	limited_cause	MMR_RC_NONE

History:	04.05.99	LE	Initial
	02.03.00	HM	Revised (search_running)
	27.04.01	HM	Change of abort behaviour

4.20.8 MM435: Periodic, Attempt to Update, T3211, Timeout T3210

Description: After timeout of the periodic location updating timer a new set of four attempts for normal location updating is started.

Preamble: MM434

MMI/CM/SIM	MM	RR/DL
TIMEOUT (55000)		
(1)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
	=====>	
(2)	RR_ESTABLISH_CNF	
	<=====	
TIMEOUT (17000)		
(3)	RR_ABORT_REQ	
	=====>	
(4)	RR_RELEASE_IND	
	<=====	
(5)	MDL_RELEASE_REQ	
	=====>	
(6)	RR_SYNC_REQ	
	=====>	
(7)	SIM_MM_UPDATE_REQ	
	<=====	
TIMEOUT (10000)		
(8)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
	=====>	
(9)	RR_ESTABLISH_CNF	
	<=====	
TIMEOUT (17000)		
(10)	RR_ABORT_REQ	
	=====>	
(11)	RR_RELEASE_IND	
	<=====	
(12)	MDL_RELEASE_REQ	
	=====>	
(13)	RR_SYNC_REQ	
	=====>	
(14)	SIM_MM_UPDATE_REQ	
	<=====	
TIMEOUT (10000)		
(15)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
	=====>	
(16)	RR_ESTABLISH_CNF	
	<=====	
TIMEOUT (17000)		
(17)	RR_ABORT_REQ	
	=====>	
(18)	RR_RELEASE_IND	
	<=====	
(19)	MDL_RELEASE_REQ	
	=====>	
(20)	RR_SYNC_REQ	
	=====>	
(21)	SIM_MM_UPDATE_REQ	
	<=====	
TIMEOUT (10000)		

```

(22) | | RR_ESTABLISH_REQ |
      | | (LOCATION UPDATING REQ) |
      | | *=====>*
(23) | | RR_ESTABLISH_CNF |
      | | *<=====*
TIMEOUT (17000)
(24) | | RR_ABORT_REQ |
      | | *=====>*
(25) | | RR_RELEASE_IND |
      | | *<=====*
(26) | | MDL_RELEASE_REQ |
      | | *=====>*
(27) | | RR_SYNC_REQ |
      | | *=====>*
(28) | | SIM_MM_UPDATE_REQ |
      | | *<=====*
(29) | | MMR_NREG_IND |
      | | *<=====*
      | |
      | |

```

Parametrization

Primitive	Parameter	Value
(1) RR_ESTABLISH_REQ		
estcs	ESTCS_SERV_REQ_BY_MM	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_LOC_UPD_REQ	
ti	TI_0	
loc_upd_type	LOC_UPD_TYPE_NORMAL	
ciph_key_num	CIPH_KEY_NUM_RES	
loc_area_ident	LOC_AREA_ID_123_33_FEFF	
mob_class_1	MOB_CLASS_1	
mob_id	MOB_IDENT_IMSI	
}		
(2) RR_ESTABLISH_CNF		
param	NOT_USED	
(3) RR_ABORT_REQ		
abcs	ABCS_NORM	
(4) RR_RELEASE_IND		
relcs	RELCS_ABNORM_UNSPEC	
sapi	SAPI_0	
gprs_resumption	GPRS_RESUMPTION_NOT_ACK	
(5) MDL_RELEASE_REQ		
ch_type	NOT_PRESENT_8BIT	
sapi	SAPI_0	
(6) RR_SYNC_REQ		
op	NOT_USED	
cksn	NOT_USED	
kcv	NOT_USED	
tmsi	NOT_USED	
plmn	NOT_USED	
lac	NOT_USED	
synccs	SYNCCS_TMSI_CKSN_KC_INVAL	

acc	NOT_USED
thplmn	NOT_USED
(7) SIM_MM_UPDATE_REQ	
loc_info	LOC_INFO_123_33_FEFF
bcch_inf	NOT_USED
forb_plmn	NOT_USED
cksn	CKSN_RES
kc	KC_DELETED_SIM
cell_identity	CELL_ID_1122
(8) RR_ESTABLISH_REQ	
estcs	ESTCS_SERV_REQ_BY_MM
sdu	
{	
component	MM
direction	UPLINK
pd	U_LOC_UPD_REQ
ti	TI_0
loc_upd_type	LOC_UPD_TYPE_NORMAL
ciph_key_num	CIPH_KEY_NUM_RES
loc_area_ident	LOC_AREA_ID_123_33_FEFF
mob_class_1	MOB_CLASS_1
mob_id	MOB_IDENT_IMSI
}	
(9) RR_ESTABLISH_CNF	
param	NOT_USED
(10) RR_ABORT_REQ	
abcs	ABCS_NORM
(11) RR_RELEASE_IND	
relcs	RELCS_ABNORM_UNSPEC
sapi	SAPI_0
gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(12) MDL_RELEASE_REQ	
ch_type	NOT_PRESENT_8BIT
sapi	SAPI_0
(13) RR_SYNC_REQ	
op	NOT_USED
cksn	NOT_USED
kcv	NOT_USED
tmsi	NOT_USED
plmn	NOT_USED
lac	NOT_USED
syncs	SYNCCS_TMSI_CKSN_KC_INVAL
acc	NOT_USED
thplmn	NOT_USED
(14) SIM_MM_UPDATE_REQ	
loc_info	LOC_INFO_123_33_FEFF
bcch_inf	NOT_USED
forb_plmn	NOT_USED
cksn	CKSN_RES
kc	KC_DELETED_SIM
cell_identity	CELL_ID_1122
(15) RR_ESTABLISH_REQ	
estcs	ESTCS_SERV_REQ_BY_MM
sdu	

{	
component	MM
direction	UPLINK
pd	U_LOC_UPD_REQ
ti	TI_0
loc_upd_type	LOC_UPD_TYPE_NORMAL
ciph_key_num	CIPH_KEY_NUM_RES
loc_area_ident	LOC_AREA_ID_123_33_FEFF
mob_class_1	MOB_CLASS_1
mob_id	MOB_IDENT_IMSI
}	
(16) RR_ESTABLISH_CNF	
param	NOT_USED
(17) RR_ABORT_REQ	
abcs	ABCS_NORM
(18) RR_RELEASE_IND	
relcs	RELCS_ABNORM_UNSPEC
sapi	SAPI_0
gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(19) MDL_RELEASE_REQ	
ch_type	NOT_PRESENT_8BIT
sapi	SAPI_0
(20) RR_SYNC_REQ	
op	NOT_USED
cksn	NOT_USED
kcv	NOT_USED
tmsi	NOT_USED
plmn	NOT_USED
lac	NOT_USED
synccs	SYNCCS_TMSI_CKSN_KC_INVAL
accc	NOT_USED
thplmn	NOT_USED
(21) SIM_MM_UPDATE_REQ	
loc_info	LOC_INFO_123_33_FEFF
bcch_inf	NOT_USED
forb_plmn	NOT_USED
cksn	CKSN_RES
kc	KC_DELETED_SIM
cell_identity	CELL_ID_1122
(22) RR_ESTABLISH_REQ	
estcs	ESTCS_SERV_REQ_BY_MM
sdu	
{	
component	MM
direction	UPLINK
pd	U_LOC_UPD_REQ
ti	TI_0
loc_upd_type	LOC_UPD_TYPE_NORMAL
ciph_key_num	CIPH_KEY_NUM_RES
loc_area_ident	LOC_AREA_ID_123_33_FEFF
mob_class_1	MOB_CLASS_1
mob_id	MOB_IDENT_IMSI
}	
(23) RR_ESTABLISH_CNF	
param	NOT_USED

(24)	RR_ABORT_REQ	abcs	ABCS_NORM
(25)	RR_RELEASE_IND	relcs	RELCS_ABNORM_UNSPEC
		sapi	SAPI_0
		gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(26)	MDL_RELEASE_REQ	ch_type	NOT_PRESENT_8BIT
		sapi	SAPI_0
(27)	RR_SYNC_REQ	op	NOT_USED
		cksn	NOT_USED
		kcv	NOT_USED
		tmsi	NOT_USED
		plmn	NOT_USED
		lac	NOT_USED
		syncchs	SYNCCS_TMSI_CKSN_KC_INVALID
		accc	NOT_USED
		thplmn	NOT_USED
(28)	SIM_MM_UPDATE_REQ	loc_info	LOC_INFO_123_33_FEFF
		bcch_inf	NOT_USED
		forb_plmn	NOT_USED
		cksn	CKSN_RES
		kc	KC_DELETED_SIM
		cell_identity	CELL_ID_1122
(20)	MMR_NREG_IND	nreg_cs	NREG_LIMITED_SERVICE
		search_running	SEARCH_NOT_RUNNING
		new_forb_plmn	PLMN_NO_ID
		limited_cause	MMR_RC_NONE

History:	04.05.99	LE	Initial
	02.03.00	HM	Revised (search_running)
	27.04.01	HM	Changed abort behaviour

4.20.9 MM436: Attempt to Update, Normal, T3211, RR connection failure

Description: The RR connection is established and a radio link failure is detected. The MS shall start timer T3211 when the RR connection is released. When timer T3211 expires the location updating procedure is triggered again.

Preamble: MM428

	MMI/CM/SIM	MM	RR/DL
(1)		RR_ESTABLISH_CNF	
		*<=====	
(2)		RR_ABORT_IND	
		*<=====	
(3)		MDL_RELEASE_REQ	
		*=====>	
(4)		RR_SYNC_REQ	
		*=====>	
(5)	SIM_MM_UPDATE_REQ		
	*<=====		
TIMEOUT (10000)			
(6)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		*=====>	
(7)		RR_ESTABLISH_CNF	
		*<=====	
(8)		RR_ABORT_IND	
		*<=====	
(9)		MDL_RELEASE_REQ	
		*=====>	
(10)		RR_SYNC_REQ	
		*=====>	
(11)	SIM_MM_UPDATE_REQ		
	*<=====		
TIMEOUT (10000)			
(12)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		*=====>	
(13)		RR_ESTABLISH_CNF	
		*<=====	
(14)		RR_ABORT_IND	
		*<=====	
(15)		MDL_RELEASE_REQ	
		*=====>	
(16)		RR_SYNC_REQ	
		*=====>	
(17)	SIM_MM_UPDATE_REQ		
	*<=====		
(18)	MMR_NREG_IND		
	*<=====		

Parametrization

	Primitive	Parameter	Value
(29)	RR_ESTABLISH_CNF param	NOT_USED	
(30)	RR_ABORT_IND op	OP_MODE_TEST_SIM	

	abcs	ABCS_RAD_LNK_FAIL
	plmn_avail	NOT_USED
	plmn	NOT_USED
	rxlevel	NOT_USED
	power	RF_CLASS_2
(31)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(32)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	NOT_USED
	plmn	NOT_USED
	lac	NOT_USED
	synccs	SYNCCS_TMSI_CKSN_KC_INVAL
	accc	NOT_USED
	thplmn	NOT_USED
(33)	SIM_MM_UPDATE_REQ	
	loc_info	LOC_INFO_123_33_FEFF
	bcch_inf	NOT_USED
	forb_plmn	NOT_USED
	cksn	CKSN_RES
	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122
(34)	RR_ESTABLISH_REQ	
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti	TI_0
	loc_upd_type	LOC_UPD_TYPE_NORMAL
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_FEFF
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(35)	RR_ESTABLISH_CNF	
	param	NOT_USED
(36)	RR_ABORT_IND	
	op	OP_MODE_TEST_SIM
	abcs	ABCS_RAD_LNK_FAIL
	plmn_avail	NOT_USED
	plmn	NOT_USED
	rxlevel	NOT_USED
	power	RF_CLASS_2
(37)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(38)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED

tmsi	NOT_USED
plmn	NOT_USED
lac	NOT_USED
synccs	SYNCCS_TMSI_CKSN_KC_INVAL
accc	NOT_USED
thplmn	NOT_USED
(39) SIM_MM_UPDATE_REQ	
loc_info	LOC_INFO_123_33_FEFF
bcch_inf	NOT_USED
forb_plmn	NOT_USED
cksn	CKSN_RES
kc	KC_DELETED_SIM
cell_identity	CELL_ID_1122
(40) RR_ESTABLISH_REQ	
estcs	ESTCS_SERV_REQ_BY_MM
sdu	
{	
component	MM
direction	UPLINK
pd	U_LOC_UPD_REQ
ti	TI_0
loc_upd_type	LOC_UPD_TYPE_NORMAL
ciph_key_num	CIPH_KEY_NUM_RES
loc_area_ident	LOC_AREA_ID_123_33_FEFF
mob_class_1	MOB_CLASS_1
mob_id	MOB_IDENT_IMSI
}	
(41) RR_ESTABLISH_CNF	
param	NOT_USED
(42) RR_ABORT_IND	
op	OP_MODE_TEST_SIM
abcs	ABCS_RAD_LNK_FAIL
plmn_avail	NOT_USED
plmn	NOT_USED
rxlevel	NOT_USED
power	RF_CLASS_2
(43) MDL_RELEASE_REQ	
ch_type	NOT_PRESENT_8BIT
sapi	SAPI_0
(44) RR_SYNC_REQ	
op	NOT_USED
cksn	NOT_USED
kcv	NOT_USED
tmsi	NOT_USED
plmn	NOT_USED
lac	NOT_USED
synccs	SYNCCS_TMSI_CKSN_KC_INVAL
accc	NOT_USED
thplmn	NOT_USED
(45) SIM_MM_UPDATE_REQ	
loc_info	LOC_INFO_123_33_FEFF
bcch_inf	NOT_USED
forb_plmn	NOT_USED
cksn	CKSN_RES

kc	KC_DELETED_SIM
cell_identity	CELL_ID_1122
(4 6) MMR_NREG_IND	
nreg_cs	NREG_LIMITED_SERVICE
search_running	SEARCH_NOT_RUNNING
new_forb_plmn	PLMN_NO_ID
limited_cause	MMR_RC_NONE

History:	04.05.99	LE	Initial
	02.03.00	HM	Revised (search_running)

4.20.10 MM437: Periodic, Attempt to Update, T3211, RR Connection Failure

Description: After timeout of the periodic location updating timer a new set of four attempts for normal location updating is started.

Preamble: MM436

MMI/CM/SIM	MM	RR/DL
TIMEOUT (55000)		
(1)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
	=====>	
(2)	RR_ESTABLISH_CNF	
	<=====	
(3)	RR_ABORT_IND	
	<=====	
(4)	MDL_RELEASE_REQ	
	=====>	
(5)	RR_SYNC_REQ	
	=====>	
(6)	SIM_MM_UPDATE_REQ	
	<=====	
TIMEOUT (10000)		
(7)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
	=====>	
(8)	RR_ESTABLISH_CNF	
	<=====	
(9)	RR_ABORT_IND	
	<=====	
(10)	MDL_RELEASE_REQ	
	=====>	
(11)	RR_SYNC_REQ	
	=====>	
(12)	SIM_MM_UPDATE_REQ	
	<=====	
TIMEOUT (10000)		
(13)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
	=====>	
(14)	RR_ESTABLISH_CNF	
	<=====	
(15)	RR_ABORT_IND	
	<=====	
(16)	MDL_RELEASE_REQ	
	=====>	
(17)	RR_SYNC_REQ	
	=====>	
(18)	SIM_MM_UPDATE_REQ	
	<=====	
TIMEOUT (10000)		
(19)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
	=====>	
(20)	RR_ESTABLISH_CNF	
	<=====	
(21)	RR_ABORT_IND	
	<=====	
(22)	MDL_RELEASE_REQ	
	=====>	

```

(23) |                                     | RR_SYNC_REQ |
      |                                     *=====>*
(24) | SIM_MM_UPDATE_REQ |
      | *<=====*
(25) | MMR_NREG_IND |
      | *<=====*
      |

```

Parametrization

Primitive	Parameter	Value
(28) RR_ESTABLISH_REQ		
estcs	ESTCS_SERV_REQ_BY_MM	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_LOC_UPD_REQ	
ti	TI_0	
loc_upd_type	LOC_UPD_TYPE_NORMAL	
ciph_key_num	CIPH_KEY_NUM_RES	
loc_area_ident	LOC_AREA_ID_123_33_FEFF	
mob_class_1	MOB_CLASS_1	
mob_id	MOB_IDENT_IMSI	
}		
(29) RR_ESTABLISH_CNF		
param	NOT_USED	
(30) RR_ABORT_IND		
op	OP_MODE_TEST_SIM	
abcs	ABCS_RAD_LNK_FAIL	
plmn_avail	NOT_USED	
plmn	NOT_USED	
rxlevel	NOT_USED	
power	RF_CLASS_2	
(31) MDL_RELEASE_REQ		
ch_type	NOT_PRESENT_8BIT	
sapi	SAPI_0	
(32) RR_SYNC_REQ		
op	NOT_USED	
cksn	NOT_USED	
kcv	NOT_USED	
tmsi	NOT_USED	
plmn	NOT_USED	
lac	NOT_USED	
syncchs	SYNCCS_TMSI_CKSN_KC_INVAL	
accc	NOT_USED	
thplmn	NOT_USED	
(33) SIM_MM_UPDATE_REQ		
loc_info	LOC_INFO_123_33_FEFF	
bcch_inf	NOT_USED	
forb_plmn	NOT_USED	
cksn	CKSN_RES	
kc	KC_DELETED_SIM	
cell_identity	CELL_ID_1122	

(34)	RR_ESTABLISH_REQ	ESTCS_SERV_REQ_BY_MM
	estcs	
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti	TI_0
	loc_upd_type	LOC_UPD_TYPE_NORMAL
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_FEFF
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(35)	RR_ESTABLISH_CNF	NOT_USED
	param	
(36)	RR_ABORT_IND	
	op	OP_MODE_TEST_SIM
	abcs	ABCS_RAD_LNK_FAIL
	plmn_avail	NOT_USED
	plmn	NOT_USED
	rxlevel	NOT_USED
	power	RF_CLASS_2
(37)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(38)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	NOT_USED
	plmn	NOT_USED
	lac	NOT_USED
	syncchs	SYNCCS_TMSI_CKSN_KC_INVALID
	accc	NOT_USED
	thplmn	NOT_USED
(39)	SIM_MM_UPDATE_REQ	
	loc_info	LOC_INFO_123_33_FEFF
	bcch_inf	NOT_USED
	forb_plmn	NOT_USED
	cksn	CKSN_RES
	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122
(40)	RR_ESTABLISH_REQ	ESTCS_SERV_REQ_BY_MM
	estcs	
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti	TI_0
	loc_upd_type	LOC_UPD_TYPE_NORMAL
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_FEFF
	mob_class_1	MOB_CLASS_1

	mob_id }	MOB_IDENT_IMSI
(41)	RR_ESTABLISH_CNF param	NOT_USED
(42)	RR_ABORT_IND op abcs plmn_avail plmn rxlevel power	OP_MODE_TEST_SIM ABCS_RAD_LNK_FAIL NOT_USED NOT_USED NOT_USED RF_CLASS_2
(43)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0
(44)	RR_SYNC_REQ op cksn kcv tmsi plmn lac synccs accc thplmn	NOT_USED NOT_USED NOT_USED NOT_USED NOT_USED NOT_USED SYNCCS_TMSI_CKSN_KC_INVAL NOT_USED NOT_USED
(45)	SIM_MM_UPDATE_REQ loc_info bcch_inf forb_plmn cksn kc cell_identity	LOC_INFO_123_33_FEFF NOT_USED NOT_USED CKSN_RES KC_DELETED_SIM CELL_ID_1122
(46)	RR_ESTABLISH_REQ estcs sdu { component direction pd ti loc_upd_type ciph_key_num loc_area_ident mob_class_1 mob_id }	ESTCS_SERV_REQ_BY_MM MM UPLINK U_LOC_UPD_REQ TI_0 LOC_UPD_TYPE_NORMAL CIPH_KEY_NUM_RES LOC_AREA_ID_123_33_FEFF MOB_CLASS_1 MOB_IDENT_IMSI
(47)	RR_ESTABLISH_CNF param	NOT_USED
(48)	RR_ABORT_IND op abcs plmn_avail plmn rxlevel power	OP_MODE_TEST_SIM ABCS_RAD_LNK_FAIL NOT_USED NOT_USED NOT_USED RF_CLASS_2

(49)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(50)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	NOT_USED
	plmn	NOT_USED
	lac	NOT_USED
	syncchs	SYNCCS_TMSI_CKSN_KC_INVAL
	accc	NOT_USED
	thplmn	NOT_USED
(51)	SIM_MM_UPDATE_REQ	
	loc_info	LOC_INFO_123_33_FEFF
	bcch_inf	NOT_USED
	forb_plmn	NOT_USED
	cksn	CKSN_RES
	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122
(52)	MMR_NREG_IND	
	nreg_cs	NREG_LIMITED_SERVICE
	search_running	SEARCH_NOT_RUNNING
	new_forb_plmn	PLMN_NO_ID
	limited_cause	MMR_RC_NONE

History:	04.05.99	LE	Initial
	02.03.00	HM	Revised (search_running)

4.20.11 MM438: Attempt to Update, Normal, T3211, RR connection failure

Description: The RR connection establishment fails due to random access failure. After timeout of T3213 a second attempt is started. This attempt fails due to the same failure. The MS shall start timer T3211 when the RR connection is released. When timer T3211 expires the location updating procedure is triggered again.

Preamble: MM428

MMI / CM / SIM	MM	RR / DL
(1)	RR_RELEASE_IND	
	*<=====	*
(2)	MDL_RELEASE_REQ	
	*=====	>
TIMEOUT (2000)		
(3)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
	*=====	>
(4)	RR_RELEASE_IND	
	*<=====	*
(5)	MDL_RELEASE_REQ	
	*=====	>
(6)	RR_SYNC_REQ	
	*=====	>
(7)	SIM_MM_UPDATE_REQ	
	*<=====	*
TIMEOUT (10000)		
(8)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
	*=====	>
(9)	RR_RELEASE_IND	
	*<=====	*
(10)	MDL_RELEASE_REQ	
	*=====	>
TIMEOUT (2000)		
(11)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
	*=====	>
(12)	RR_RELEASE_IND	
	*<=====	*
(13)	MDL_RELEASE_REQ	
	*=====	>
(14)	RR_SYNC_REQ	
	*=====	>
(15)	SIM_MM_UPDATE_REQ	
	*<=====	*
TIMEOUT (10000)		
(16)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
	*=====	>
(17)	RR_RELEASE_IND	
	*<=====	*
(18)	MDL_RELEASE_REQ	
	*=====	>
TIMEOUT (2000)		
(19)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
	*=====	>
(20)	RR_RELEASE_IND	
	*<=====	*

```

(21) |                               | MDL_RELEASE_REQ |
      |                               | *=====> *
(22) |                               | RR_SYNC_REQ    |
      |                               | *=====> *
(23) | SIM_MM_UPDATE_REQ          |                 |
      | *<===== *
(24) | MMR_NREG_IND                |                 |
      | *<===== *
TIMEOUT (10000)
      |                               |

```

Parametrization

Primitive	Parameter	Value
(68) RR_RELEASE_IND		
relcs	RELCS_RND_ACC_FAIL	
sapi	SAPI_0	
gprs_resumption	GPRS_RESUMPTION_NOT_ACK	
(69) MDL_RELEASE_REQ		
ch_type	NOT_PRESENT_8BIT	
sapi	SAPI_0	
(70) RR_ESTABLISH_REQ		
estcs	ESTCS_SERV_REQ_BY_MM	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_LOC_UPD_REQ	
ti TI_0		
loc_upd_type	LOC_UPD_TYPE_NORMAL	
ciph_key_num	CIPH_KEY_NUM_RES	
loc_area_ident	LOC_AREA_ID_123_33_FEFF	
mob_class_1	MOB_CLASS_1	
mob_id	MOB_IDENT_IMSI	
}		
(71) RR_RELEASE_IND		
relcs	RELCS_RND_ACC_FAIL	
sapi	SAPI_0	
gprs_resumption	GPRS_RESUMPTION_NOT_ACK	
(72) MDL_RELEASE_REQ		
ch_type	NOT_PRESENT_8BIT	
sapi	SAPI_0	
(73) RR_SYNC_REQ		
op	NOT_USED	
cksn	NOT_USED	
kcv	NOT_USED	
tmsi	NOT_USED	
plmn	NOT_USED	
lac	NOT_USED	
syncchs	SYNCCS_TMSI_CKSN_KC_INVAL	
acc	NOT_USED	
thplmn	NOT_USED	
(74) SIM_MM_UPDATE_REQ		
loc_info	LOC_INFO_123_33_FEFF	
bcch_inf	NOT_USED	

	forb_plmn	NOT_USED
	cksn	CKSN_RES
	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122
(75)	RR_ESTABLISH_REQ	
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	tiTI_0	
	loc_upd_type	LOC_UPD_TYPE_NORMAL
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_FEFF
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(76)	RR_RELEASE_IND	
	relcs	RELCS_RND_ACC_FAIL
	sapi	SAPI_0
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(77)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(78)	RR_ESTABLISH_REQ	
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	tiTI_0	
	loc_upd_type	LOC_UPD_TYPE_NORMAL
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_FEFF
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(79)	RR_RELEASE_IND	
	relcs	RELCS_RND_ACC_FAIL
	sapi	SAPI_0
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(80)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(81)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	NOT_USED
	plmn	NOT_USED
	lac	NOT_USED
	syncchs	SYNCCS_TMSI_CKSN_KC_INVAL

	accc	NOT_USED
	thplmn	NOT_USED
(82)	SIM_MM_UPDATE_REQ	
	loc_info	LOC_INFO_123_33_FEFF
	bcch_inf	NOT_USED
	forb_plmn	NOT_USED
	cksn	CKSN_RES
	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122
(83)	RR_ESTABLISH_REQ	
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti TI_0	
	loc_upd_type	LOC_UPD_TYPE_NORMAL
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_FEFF
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(84)	RR_RELEASE_IND	
	relcs	RELCS_RND_ACC_FAIL
	sapi	SAPI_0
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(85)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(86)	RR_ESTABLISH_REQ	
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti TI_0	
	loc_upd_type	LOC_UPD_TYPE_NORMAL
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_FEFF
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(87)	RR_RELEASE_IND	
	relcs	RELCS_RND_ACC_FAIL
	sapi	SAPI_0
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(88)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(89)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED

tmsi	NOT_USED
plmn	NOT_USED
lac	NOT_USED
syncs	SYNCCS_TMSI_CKSN_KC_INVALID
accc	NOT_USED
thplmn	NOT_USED
(90) SIM_MM_UPDATE_REQ	
loc_info	LOC_INFO_123_33_FEFF
bcch_inf	NOT_USED
forb_plmn	NOT_USED
cksn	CKSN_RES
kc	KC_DELETED_SIM
cell_identity	CELL_ID_1122
(91) MMR_NREG_IND	
nreg_cs	NREG_LIMITED_SERVICE
search_running	SEARCH_NOT_RUNNING
new_forb_plmn	PLMN_NO_ID
limited_cause	MMR_RC_NONE

History:	04.05.99	LE	Initial
	02.03.00	HM	Revised (search_running)

4.20.12 MM439: Periodic, Attempt to Update, T3211, Random Access Failure

Description: After timeout of the periodic location updating timer a new set of four attempts for normal location updating is started.

Preamble: MM438

MMI/CM/SIM	MM	RR/DL
TIMEOUT (55000)		
(1)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
	=====>	
(2)	RR_RELEASE_IND	
	<=====	
(3)	MDL_RELEASE_REQ	
	=====>	
TIMEOUT (2000)		
(4)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
	=====>	
(5)	RR_RELEASE_IND	
	<=====	
(6)	MDL_RELEASE_REQ	
	=====>	
(7)	RR_SYNC_REQ	
	=====>	
(8)	SIM_MM_UPDATE_REQ	
	<=====	
TIMEOUT (10000)		
(9)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
	=====>	
(10)	RR_RELEASE_IND	
	<=====	
(11)	MDL_RELEASE_REQ	
	=====>	
TIMEOUT (2000)		
(12)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
	=====>	
(13)	RR_RELEASE_IND	
	<=====	
(14)	MDL_RELEASE_REQ	
	=====>	
(15)	RR_SYNC_REQ	
	=====>	
(16)	SIM_MM_UPDATE_REQ	
	<=====	
TIMEOUT (10000)		
(17)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
	=====>	
(18)	RR_RELEASE_IND	
	<=====	
(19)	MDL_RELEASE_REQ	
	=====>	
TIMEOUT (2000)		
(20)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
	=====>	


```

(21) | | RR_RELEASE_IND |
| | *<=====
(22) | | MDL_RELEASE_REQ |
| | *=====>*
(23) | | RR_SYNC_REQ |
| | *=====>*
(24) | SIM_MM_UPDATE_REQ |
| *<=====
TIMEOUT (10000)
(25) | | RR_ESTABLISH_REQ |
| | (LOCATION UPDATING REQ) |
| | *=====>*
(26) | | RR_RELEASE_IND |
| | *<=====
(27) | | MDL_RELEASE_REQ |
| | *=====>*
TIMEOUT (2000)
(28) | | RR_ESTABLISH_REQ |
| | (LOCATION UPDATING REQ) |
| | *=====>*
(29) | | RR_RELEASE_IND |
| | *<=====
(30) | | MDL_RELEASE_REQ |
| | *=====>*
(31) | | RR_SYNC_REQ |
| | *=====>*
(32) | SIM_MM_UPDATE_REQ |
| *<=====
(33) | MMR_NREG_IND |
| *<=====
| |

```

Parametrization

Primitive	Parameter	Value
(92) RR_ESTABLISH_REQ		
estcs	ESTCS_SERV_REQ_BY_MM	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_LOC_UPD_REQ	
ti TI_0		
loc_upd_type	LOC_UPD_TYPE_NORMAL	
ciph_key_num	CIPH_KEY_NUM_RES	
loc_area_ident	LOC_AREA_ID_123_33_FEFF	
mob_class_1	MOB_CLASS_1	
mob_id	MOB_IDENT_IMSI	
}		
(93) RR_RELEASE_IND		
relcs	RELCS_RND_ACC_FAIL	
sapi	SAPI_0	
gprs_resumption	GPRS_RESUMPTION_NOT_ACK	
(94) MDL_RELEASE_REQ		
ch_type	NOT_PRESENT_8BIT	
sapi	SAPI_0	

(95)	RR_ESTABLISH_REQ	ESTCS_SERV_REQ_BY_MM
	estcs	
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti TI_0	
	loc_upd_type	LOC_UPD_TYPE_NORMAL
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_FEFF
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(96)	RR_RELEASE_IND	RELCS_RND_ACC_FAIL
	relcs	
	sapi	SAPI_0
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(97)	MDL_RELEASE_REQ	NOT_PRESENT_8BIT
	ch_type	
	sapi	SAPI_0
(98)	RR_SYNC_REQ	NOT_USED
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	NOT_USED
	plmn	NOT_USED
	lac	NOT_USED
	synccs	SYNCCS_TMSI_CKSN_KC_INVALID
	acc	NOT_USED
	thplmn	NOT_USED
(99)	SIM_MM_UPDATE_REQ	LOC_INFO_123_33_FEFF
	loc_info	
	bcch_inf	NOT_USED
	forb_plmn	NOT_USED
	cksn	CKSN_RES
	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122
(100)	RR_ESTABLISH_REQ	ESTCS_SERV_REQ_BY_MM
	estcs	
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti TI_0	
	loc_upd_type	LOC_UPD_TYPE_NORMAL
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_FEFF
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(101)	RR_RELEASE_IND	RELCS_RND_ACC_FAIL
	relcs	
	sapi	SAPI_0
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK

(102) MDL_RELEASE_REQ	
ch_type	NOT_PRESENT_8BIT
sapi	SAPI_0
(103) RR_ESTABLISH_REQ	
estcs	ESTCS_SERV_REQ_BY_MM
sdu	
{	
component	MM
direction	UPLINK
pd	U_LOC_UPD_REQ
ti TI_0	
loc_upd_type	LOC_UPD_TYPE_NORMAL
ciph_key_num	CIPH_KEY_NUM_RES
loc_area_ident	LOC_AREA_ID_123_33_FEFF
mob_class_1	MOB_CLASS_1
mob_id	MOB_IDENT_IMSI
}	
(104) RR_RELEASE_IND	
relcs	RELCS_RND_ACC_FAIL
sapi	SAPI_0
gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(105) MDL_RELEASE_REQ	
ch_type	NOT_PRESENT_8BIT
sapi	SAPI_0
(106) RR_SYNC_REQ	
op	NOT_USED
cksn	NOT_USED
kcv	NOT_USED
tmsi	NOT_USED
plmn	NOT_USED
lac	NOT_USED
synccs	SYNCCS_TMSI_CKSN_KC_INVAL
accc	NOT_USED
thplmn	NOT_USED
(107) SIM_MM_UPDATE_REQ	
loc_info	LOC_INFO_123_33_FEFF
bcch_inf	NOT_USED
forb_plmn	NOT_USED
cksn	CKSN_RES
kc	KC_DELETED_SIM
cell_identity	CELL_ID_1122
(108) RR_ESTABLISH_REQ	
estcs	ESTCS_SERV_REQ_BY_MM
sdu	
{	
component	MM
direction	UPLINK
pd	U_LOC_UPD_REQ
ti TI_0	
loc_upd_type	LOC_UPD_TYPE_NORMAL
ciph_key_num	CIPH_KEY_NUM_RES
loc_area_ident	LOC_AREA_ID_123_33_FEFF
mob_class_1	MOB_CLASS_1
mob_id	MOB_IDENT_IMSI
}	

(109)	RR_RELEASE_IND	relcs sapi gprs_resumption	RELCS_RND_ACC_FAIL SAPI_0 GPRS_RESUMPTION_NOT_ACK
(110)	MDL_RELEASE_REQ	ch_type sapi	NOT_PRESENT_8BIT SAPI_0
(111)	RR_ESTABLISH_REQ	estcs sdu { component direction pd ti TI_0 loc_upd_type ciph_key_num loc_area_ident mob_class_1 mob_id }	ESTCS_SERV_REQ_BY_MM MM UPLINK U_LOC_UPD_REQ LOC_UPD_TYPE_NORMAL CIPH_KEY_NUM_RES LOC_AREA_ID_123_33_FEFF MOB_CLASS_1 MOB_IDENT_IMSI
(112)	RR_RELEASE_IND	relcs sapi gprs_resumption	RELCS_RND_ACC_FAIL SAPI_0 GPRS_RESUMPTION_NOT_ACK
(113)	MDL_RELEASE_REQ	ch_type sapi	NOT_PRESENT_8BIT SAPI_0
(114)	RR_SYNC_REQ	op cksn kcv tmsi plmn lac synccs accc thplmn	NOT_USED NOT_USED NOT_USED NOT_USED NOT_USED NOT_USED SYNCCS_TMSI_CKSN_KC_INVAL NOT_USED NOT_USED
(115)	SIM_MM_UPDATE_REQ	loc_info bcch_inf forb_plmn cksn kc cell_identity	LOC_INFO_123_33_FEFF NOT_USED NOT_USED CKSN_RES KC_DELETED_SIM CELL_ID_1122
(116)	RR_ESTABLISH_REQ	estcs sdu { component direction pd ti TI_0 loc_upd_type ciph_key_num	ESTCS_SERV_REQ_BY_MM MM UPLINK U_LOC_UPD_REQ LOC_UPD_TYPE_NORMAL CIPH_KEY_NUM_RES

loc_area_ident	LOC_AREA_ID_123_33_FEFF
mob_class_1	MOB_CLASS_1
mob_id	MOB_IDENT_IMSI
}	
(117) RR_RELEASE_IND	
relcs	RELCS_RND_ACC_FAIL
sapi	SAPI_0
gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(118) MDL_RELEASE_REQ	
ch_type	NOT_PRESENT_8BIT
sapi	SAPI_0
(119) RR_ESTABLISH_REQ	
estcs	ESTCS_SERV_REQ_BY_MM
sdu	
{	
component	MM
direction	UPLINK
pd	U_LOC_UPD_REQ
ti TI_0	
loc_upd_type	LOC_UPD_TYPE_NORMAL
ciph_key_num	CIPH_KEY_NUM_RES
loc_area_ident	LOC_AREA_ID_123_33_FEFF
mob_class_1	MOB_CLASS_1
mob_id	MOB_IDENT_IMSI
}	
(120) RR_RELEASE_IND	
relcs	RELCS_RND_ACC_FAIL
sapi	SAPI_0
gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(121) MDL_RELEASE_REQ	
ch_type	NOT_PRESENT_8BIT
sapi	SAPI_0
(122) RR_SYNC_REQ	
op	NOT_USED
cksn	NOT_USED
kcv	NOT_USED
tmsi	NOT_USED
plmn	NOT_USED
lac	NOT_USED
syncchs	SYNCCS_TMSI_CKSN_KC_INVAL
accc	NOT_USED
thplmn	NOT_USED
(123) SIM_MM_UPDATE_REQ	
loc_info	LOC_INFO_123_33_FEFF
bcch_inf	NOT_USED
forb_plmn	NOT_USED
cksn	CKSN_RES
kc	KC_DELETED_SIM
cell_identity	CELL_ID_1122
(124) MMR_NREG_IND	
nreg_cs	NREG_LIMITED_SERVICE
search_running	SEARCH_NOT_RUNNING
new_forb_plmn	PLMN_NO_ID
limited_cause	MMR_RC_NONE

History:	04.05.99	LE	Initial
	02.03.00	HM	Revised (search_running)

4.20.13 MM440: Random access delayed

Description: MM receives a RR-RELEASE indication primitive from RR; Normal Location Updating cannot be carried out because of random access delay. MM issues a MDL-RELEASE request primitive. After T3122 timeout in RR a new attempt is started.

Preamble: MM427

MMI / CM / SIM	MM	RR / DL
(1)	RR_RELEASE_IND	
	<=====	
(2)	MDL_RELEASE_REQ	
	=====>	
TIMEOUT (30000)		
(3)	RR_SYNC_IND	
	<=====	
(4)	RR_ESTABLISH_REQ	
	(LOCATION UPDATING REQ)	
	=====>	

Parametrization

Primitive	Parameter	Value
(125) RR_RELEASE_IND		
relcs	RELCS_RND_ACC_DELAY	
sapi	SAPI_0	
gprs_resumption	GPRS_RESUMPTION_NOT_ACK	
(126) MDL_RELEASE_REQ		
ch_type	NOT_PRESENT_8BIT	
sapi	SAPI_0	
(127) RR_SYNC_IND		
ciph	NOT_USED	
mm_info	NOT_USED	
bcch_info	NOT_USED	
synccs	SYNCCS_T3122_TIM_OUT	
chm	CHM_NOT_PRESENT	
(128) RR_ESTABLISH_REQ		
estcs	ESTCS_SERV_REQ_BY_MM	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_LOC_UPD_REQ	
ti TI_0		
loc_upd_type	LOC_UPD_TYPE_NORMAL	
ciph_key_num	CIPH_KEY_NUM_RES	
loc_area_ident	LOC_AREA_ID_123_33_0002	
mob_class_1	MOB_CLASS_1	
mob_id	MOB_IDENT_IMSI	
}		

History: 09.07.97 HK Initial

4.20.14 MM441: Random access barred

Description: MM receives a RR-RELEASE indication primitive from RR; Normal Location Updating cannot be carried out because of access barred. MM issues a MDL-RELEASE request primitive. After access control class changes in RR a new attempt is started.

Preamble: MM427

MMI / CM / SIM	MM	RR / DL
(1)	RR_RELEASE_IND	
(2)	MDL_RELEASE_REQ	
TIMEOUT (30000)		
(3)	RR_SYNC_IND	
(4)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	

Parametrization

Primitive	Parameter	Value
(129) RR_RELEASE_IND		
relcs	RELCS_ACCESS_BARRED	
sapi	SAPI_0	
gprs_resumption	GPRS_RESUMPTION_NOT_ACK	
(130) MDL_RELEASE_REQ		
ch_type	NOT_PRESENT_8BIT	
sapi	SAPI_0	
(131) RR_SYNC_IND		
ciph	NOT_USED	
mm_info	NOT_USED	
bcch_info	NOT_USED	
synccs	SYNCCS_ACC_CLS_CHA	
chm	CHM_NOT_PRESENT	
(132) RR_ESTABLISH_REQ		
estcs	ESTCS_SERV_REQ_BY_MM	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_LOC_UPD_REQ	
ti TI_0		
loc_upd_type	LOC_UPD_TYPE_NORMAL	
ciph_key_num	CIPH_KEY_NUM_RES	
loc_area_ident	LOC_AREA_ID_123_33_0002	
mob_class_1	MOB_CLASS_1	
mob_id	MOB_IDENT_IMSI	
}		

History: 09.07.97 HK Initial

4.20.15 MM442: Normal Service, IMSI Detach, Power OFF, Est Cnf

Description: MM is in IDLE Normal Service state. It is switched off. An IMSI Detach followed by the deactivation of the lower layer is started.

[=MM445]

Preamble: MM403

	MMI / CM / SIM	MM	RR / DL
(1)		RR_ESTABLISH_CNF	
		*<=====	
(2)		RR_DATA_IND	
		(LOCATION UPDATING REJ)	
		*<=====	
(3)		RR_RELEASE_IND	
		*<=====	
(4)		MDL_RELEASE_REQ	
		*=====>	
(5)	MMR_NREG_REQ		
	*=====>		
(6)		RR_ESTABLISH_REQ	
		*=====>	
(7)		RR_ESTABLISH_CNF	
		*<=====	
(8)		RR_ABORT_REQ	
		*=====>	
(9)		RR_RELEASE_IND	
		*<=====	
(10)		MDL_RELEASE_REQ	
		*=====>	
(11)		RR_DEACTIVATE_REQ	
		*=====>	
(12)	MMR_NREG_CNF		
	*<=====		

Parametrization

Primitive	Parameter	Value
(1) RR_ESTABLISH_CNF param	NOT_USED	
(2) RR_DATA_IND d1 d2 sdu { component direction pd ti rej_cause }	NOT_USED NOT_USED MM DOWNLINK D_LOC_UPD_REJ TI_0 RC_NETWORK_FAILURE	
(3) RR_RELEASE_IND relcs sapi gprs_resumption	RELCS_NORM SAPI_0 GPRS_RESUMPTION_NOT_ACK	

(4)	MDL_RELEASE_REQ	ch_type	NOT_PRESENT_8BIT
		sapi	SAPI_0
(5)	MMR_NREG_REQ	cs	CS_POW_OFF
(6)	RR_ESTABLISH_REQ	estcs	ESTCS_MOB_ORIG_CAL_BY_SS_SMS
		sdu	
		{	
		component	MM
		direction	UPLINK
		pd	U_IMSI_DETACH_IND
		ti	TI_0
		mob_class_1	MOB_CLASS_1
		mob_id	MOB_IDENT_IMSI
		}	
(7)	RR_ESTABLISH_CNF	param	NOT_USED
(8)	RR_ABORT_REQ	abcs	ABCS_NORM
(9)	RR_RELEASE_IND	relcs	RELCS_ABNORM_UNSPEC
		sapi	SAPI_0
		gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(10)	MDL_RELEASE_REQ	ch_type	NOT_PRESENT_8BIT
		sapi	SAPI_0
(11)	RR_DEACTIVATE_REQ	param	NOT_USED
(12)	MMR_NREG_CNF	cs	CS_POW_OFF
History:	05.05.99	LE	Initial
	30.08.00	HM	Revised
	27.04.01	HM	Changed T3220 behaviour

4.20.16 MM443: Normal Service, IMSI Detach, Power OFF, Rel Ind

Description: MM is in IDLE Normal Service state. It is switched off. An IMSI Detach followed by the deactivation of the lower layer is started.

Preamble: MM403

	MMI / CM / SIM	MM	RR / DL
(1)		RR_ESTABLISH_CNF	
		<=====	
(2)		RR_DATA_IND	
		(LOCATION UPDATING REJ)	
		<=====	
(3)		RR_RELEASE_IND	
		<=====	
(4)		MDL_RELEASE_REQ	
		=====>	
(5)	MMR_NREG_REQ		
	=====>		
(6)		RR_ESTABLISH_REQ	
		=====>	
(7)		RR_RELEASE_IND	
		<=====	
(8)		MDL_RELEASE_REQ	
		=====>	
(9)		RR_DEACTIVATE_REQ	
		=====>	
(10)	MMR_NREG_CNF		
	<=====		

Parametrization

	Primitive	Parameter	Value
(1)	RR_ESTABLISH_CNF param	NOT_USED	
(2)	RR_DATA_IND d1 d2 sdu { component direction pd ti TI_0 rej_cause }	NOT_USED NOT_USED MM DOWNLINK D_LOC_UPD_REJ RC_NETWORK_FAILURE	
(3)	RR_RELEASE_IND relcs sapi gprs_resumption	RELCS_NORM SAPI_0 GPRS_RESUMPTION_NOT_ACK	
(4)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(5)	MMR_NREG_REQ cs	CS_POW_OFF	

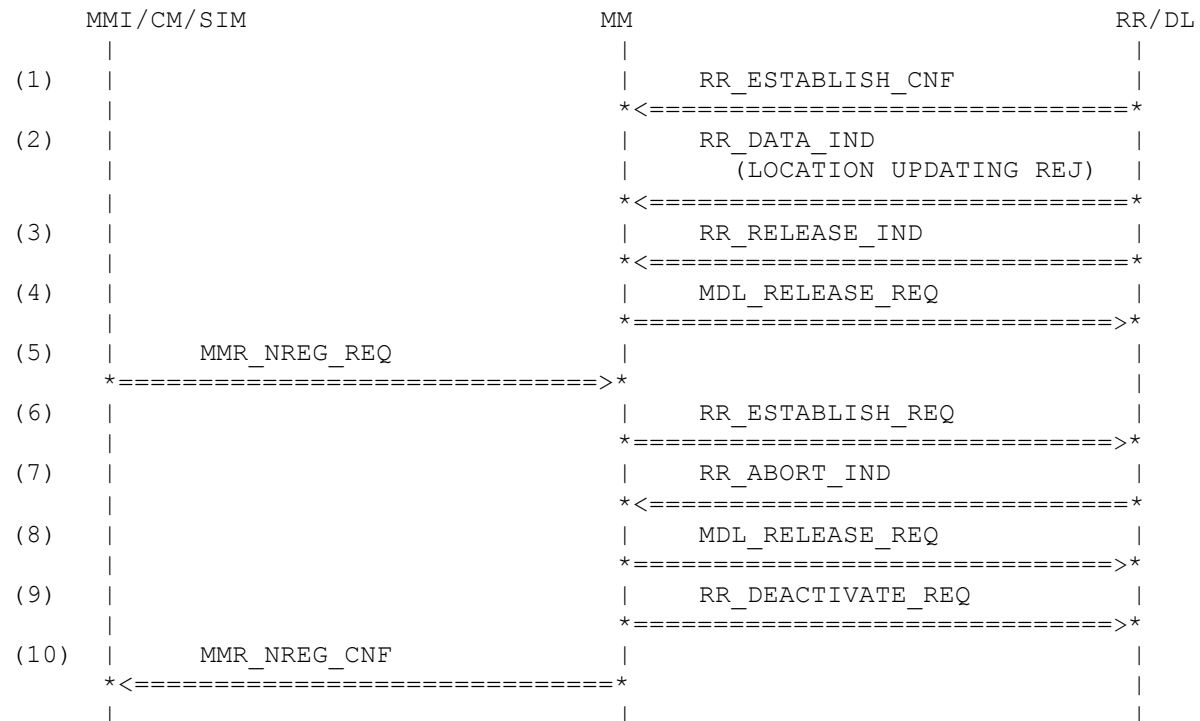
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|--------|-------------------|------------------------------|
| (6) | RR_ESTABLISH_REQ | |
| | estcs | ESTCS_MOB_ORIG_CAL_BY_SS_SMS |
| | sdu | |
| | { | |
| | component | MM |
| | direction | UPLINK |
| | pd | U_IMSI_DETACH_IND |
| | ti TI_0 | |
| | mob_class_1 | MOB_CLASS_1 |
| | mob_id | MOB_IDENT_IMSI |
| | } | |
| (7) | RR_RELEASE_IND | |
| | relcs | RELCS_NORM |
| | sapi | SAPI_0 |
| | gprs_resumption | GPRS_RESUMPTION_NOT_ACK |
| (8) | MDL_RELEASE_REQ | |
| | ch_type | NOT_PRESENT_8BIT |
| | sapi | SAPI_0 |
| (9) | RR_DEACTIVATE_REQ | |
| | param | NOT_USED |
| (10) | MMR_NREG_CNF | |
| | cs | CS_POW_OFF |

History:	05.05.99	LE	Initial
	30.08.00	HM	Revised

4.20.17 MM444: Normal Service, IMSI Detach, Power OFF, Radio Link Failure

Description: MM is in IDLE Normal Service state. It is switched off. An IMSI Detach followed by the deactivation of the lower layer is started.

Preamble: MM403



Parametrization

Primitive	Parameter	Value
(1) RR_ESTABLISH_CNF param	NOT_USED	
(2) RR_DATA_IND d1	NOT_USED	
d2	NOT_USED	
sdu		
{		
component	MM	
direction	DOWNLINK	
pd	D_LOC_UPD_REJ	
ti TI_0		
rej_cause	RC_NETWORK_FAILURE	
}		
(3) RR_RELEASE_IND relcs	RELCS_NORM	
sapi	SAPI_0	
gprs_resumption	GPRS_RESUMPTION_NOT_ACK	
(4) MDL_RELEASE_REQ ch_type	NOT_PRESENT_8BIT	
sapi	SAPI_0	
(5) MMR_NREG_REQ cs	CS_POW_OFF	

- | | | |
|--------|---------------------|------------------------------|
| (6) | RR_ESTABLISH_REQ | |
| | estcs | ESTCS_MOB_ORIG_CAL_BY_SS_SMS |
| | sdu | |
| | { | |
| | component | MM |
| | direction | UPLINK |
| | pd | U_IMSI_DETACH_IND |
| | ti TI_0 | |
| | mob_class_1 | MOB_CLASS_1 |
| | mob_id | MOB_IDENT_IMSI |
| | } | |
| (7) | RR_ABORT_IND | |
| | op OP_MODE_TEST_SIM | |
| | abcs | ABCS_RAD_LNK_FAIL |
| | plmn_avail | NOT_USED |
| | plmn | NOT_USED |
| | rxlevel | NOT_USED |
| | power | RF_CLASS_2 |
| (8) | MDL_RELEASE_REQ | |
| | ch_type | NOT_PRESENT_8BIT |
| | sapi | SAPI_0 |
| (9) | RR_DEACTIVATE_REQ | |
| | param | NOT_USED |
| (10) | MMR_NREG_CNF | |
| | cs | CS_POW_OFF |

History:	05.05.99	LE	Initial
	30.08.00	HM	Revised

4.20.18 MM446: Normal Service, IMSI Detach, SIM Remove by SIM, Est Cnf

Description: MM is in IDLE Normal Service state. The SIM manager has detected a SIM Remove. An IMSI Detach is processed. After timeout T3220 in state IMSI DETACH INITIATED; the MS enters the IDLE NO IMSI state.

[=MM449]

Preamble: MM403

	MMI / CM / SIM	MM	RR / DL
(1)		RR_ESTABLISH_CNF	
		*<=====	
(2)		RR_DATA_IND	
		(LOCATION UPDATING REJ)	
		*<=====	
(3)		RR_RELEASE_IND	
		*<=====	
(4)		MDL_RELEASE_REQ	
		*=====>	
(5)	SIM_REMOVE_IND		
	*=====>		
(6)		RR_ESTABLISH_REQ	
		*=====>	
(7)		RR_ESTABLISH_CNF	
		*<=====	
(8)		RR_ABORT_REQ	
		*=====>	
(9)		RR_RELEASE_IND	
		*<=====	
(10)		MDL_RELEASE_REQ	
		*=====>	
(11)		RR_ABORT_REQ	
		*=====>	
(12)	MMR_NREG_IND		
	*<=====		

Parametrization

Primitive	Parameter	Value
(133)	RR_ESTABLISH_CNF	
param	NOT_USED	
(134)	RR_DATA_IND	
d1	NOT_USED	
d2	NOT_USED	
sdu		
{		
component	MM	
direction	DOWNLINK	
pd	D_LOC_UPD_REJ	
ti	TI_0	
rej_cause	RC_NETWORK_FAILURE	
}		
(135)	RR_RELEASE_IND	
relcs	RELCS_NORM	
sapi	SAPI_0	
gprs_resumption	GPRS_RESUMPTION_NOT_ACK	

(136)	ch_type sapi	MDL_RELEASE_REQ NOT_PRESENT_8BIT SAPI_0
(137)	error	SIM_REMOVE_IND NOT_USED
(138)	estcs sdu { component direction pd ti mob_class_1 mob_id }	RR_ESTABLISH_REQ ESTCS_MOB_ORIG_CAL_BY_SS_SMS MM UPLINK U_IMSI_DETACH_IND TI_0 MOB_CLASS_1 MOB_IDENT_IMSI
(139)	param	RR_ESTABLISH_CNF NOT_USED
(140)	abcs	RR_ABORT_REQ ABCS_NORM
(141)	relcs sapi gprs_resumption	RR_RELEASE_IND RELCS_ABNORM_UNSPEC SAPI_0 GPRS_RESUMPTION_NOT_ACK
(142)	ch_type sapi	MDL_RELEASE_REQ NOT_PRESENT_8BIT SAPI_0
(143)	abcs	RR_ABORT_REQ ABCS_SIM_REM
(144)	nreg_cs search_running new_forb_plmn limited_cause	MMR_NREG_IND NREG_LIMITED_SERVICE SEARCH_NOT_RUNNING PLMN_NO_ID MMR_SIM_INVALID_REMOVED
History:	05.05.99 02.03.00 07.01.01 18.04.01 27.04.01	LE HM HM HM HM Initial Revised (search_running) Adaption caused by GPRS integration Revised (nreg_cs) Changed behaviour of T3220

4.20.19 MM447: Normal Service, IMSI Detach, SIM Remove by SIM, Rel Ind

Description: MM is in IDLE Normal Service state. The SIM manager has detected a SIM Remove. An IMSI Detach is processed. The RR connection establishment fails and the MS enters the IDLE NO IMSI state.

Preamble: MM403

	MMI / CM / SIM	MM	RR / DL
(1)		RR_ESTABLISH_CNF	
		*<=====	
(2)		RR_DATA_IND	
		(LOCATION UPDATING REJ)	
		*<=====	
(3)		RR_RELEASE_IND	
		*<=====	
(4)		MDL_RELEASE_REQ	
		*=====>	
(5)	SIM_REMOVE_IND		
	*=====>		
(6)		RR_ESTABLISH_REQ	
		*=====>	
(7)		RR_RELEASE_IND	
		*<=====	
(8)		MDL_RELEASE_REQ	
		*=====>	
(9)		RR_ABORT_REQ	
		*=====>	
(10)	MMR_NREG_IND		
	*<=====		

Parametrization

	Primitive	Parameter	Value
(1)	RR_ESTABLISH_CNF param	NOT_USED	
(2)	RR_DATA_IND d1 d2 sdu { component direction pd ti TI_0 rej_cause }	NOT_USED NOT_USED MM DOWNLINK D_LOC_UPD_REJ RC_NETWORK_FAILURE	
(3)	RR_RELEASE_IND relcs sapi gprs_resumption	RELCS_NORM SAPI_0 GPRS_RESUMPTION_NOT_ACK	
(4)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(5)	SIM_REMOVE_IND error	NOT_USED	

(6)	RR_ESTABLISH_REQ		
	estcs	ESTCS_MOB_ORIG_CAL_BY_SS_SMS	
	sdu		
	{		
	component	MM	
	direction	UPLINK	
	pd	U_IMSI_DETACH_IND	
	ti TI_0		
	mob_class_1	MOB_CLASS_1	
	mob_id	MOB_IDENT_IMSI	
	}		
(7)	RR_RELEASE_IND		
	relcs	RELCS_NORM	
	sapi	SAPI_0	
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK	
(8)	MDL_RELEASE_REQ		
	ch_type	NOT_PRESENT_8BIT	
	sapi	SAPI_0	
(9)	RR_ABORT_REQ		
	abcs	ABCS_SIM_REM	
(10)	MMR_NREG_IND		
	nreg_cs	NREG_LIMITED_SERVICE	
	search_running	SEARCH_NOT_RUNNING	
	new_forb_plmn	PLMN_NO_ID	
	limited_cause	MMR_SIM_INVALID_REMOVED	
History:	05.05.99	LE	Initial
	02.03.00	HM	Revised (search_running)
	07.01.01	HM	Adaption caused by GPRS integration
	18.04.01	HM	Revised (nreg_cs)

4.20.20 MM448: Normal Service, IMSI Detach, SIM Remove by SIM, Radio Link Fail

Description: MM is in IDLE Normal Service state. The SIM manager has detected a SIM Remove. An IMSI Detach is processed. After radio link failure, the MS enters the IDLE NO IMSI state.

Preamble: MM403

	MMI/CM/SIM	MM	RR/DL
(1)		RR_ESTABLISH_CNF	
		*<=====	
(2)		RR_DATA_IND	
		(LOCATION UPDATING REJ)	
		*<=====	
(3)		RR_RELEASE_IND	
		*<=====	
(4)		MDL_RELEASE_REQ	
		*=====>	
(5)	SIM_REMOVE_IND		
	*=====>		
(6)		RR_ESTABLISH_REQ	
		*=====>	
(7)		RR_ABORT_IND	
		*<=====	
(8)		MDL_RELEASE_REQ	
		*=====>	
(9)		RR_ABORT_REQ	
		*=====>	
(10)	MMR_NREG_IND		
	*<=====		

Parametrization

	Primitive	Parameter	Value
(1)	RR_ESTABLISH_CNF param	NOT_USED	
(2)	RR_DATA_IND d1 d2 sdu { component direction pd ti TI_0 rej_cause }	NOT_USED NOT_USED MM DOWNLINK D_LOC_UPD_REJ RC_NETWORK_FAILURE	
(3)	RR_RELEASE_IND relcs sapi gprs_resumption	RELCS_NORM SAPI_0 GPRS_RESUMPTION_NOT_ACK	
(4)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	

(5)	SIM_REMOVE_IND error	NOT_USED	
(6)	RR_ESTABLISH_REQ estcs sdu { component direction pd tiTI_0 mob_class_1 mob_id }	ESTCS_MOB_ORIG_CAL_BY_SS_SMS MM UPLINK U_IMSI_DETACH_IND MOB_CLASS_1 MOB_IDENT_IMSI	
(7)	RR_ABORT_IND op OP_MODE_TEST_SIM abcs plmn_avail plmn rxlevel power	ABCS_RAD_LNK_FAIL NOT_USED NOT_USED NOT_USED RF_CLASS_2	
(8)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(9)	RR_ABORT_REQ abcs	ABCS_SIM_REM	
(10)	MMR_NREG_IND nreg_cs search_running new_forb_plmn limited_cause	NREG_LIMITED_SERVICE SEARCH_NOT_RUNNING PLMN_NO_ID MMR_SIM_INVALID_REMOVED	
History:	05.05.99 02.03.00 07.01.01 18.04.01	LE HM HM HM	Initial Revised (search_running) Adaption caused by GPRS integration Revised (nreg_cs)

4.20.21 MM450: Normal Service, IMSI Detach, SIM Remove by MMI, Est Cnf

Description: MM is in IDLE Normal Service state. The MMI requests limited service. An IMSI Detach is processed. After timeout T3220 in state IMSI DETACH INITIATED; the MS enters the IDLE NO IMSI state.

[=MM453]

Preamble: MM403

	MMI / CM / SIM	MM	RR / DL
(1)		RR_ESTABLISH_CNF	
		*<=====	
(2)		RR_DATA_IND	
		(LOCATION UPDATING REJ)	
		*<=====	
(3)		RR_RELEASE_IND	
		*<=====	
(4)		MDL_RELEASE_REQ	
		*=====>	
(5)	MMR_NREG_REQ		
	*=====>		
(6)		RR_ESTABLISH_REQ	
		*=====>	
(7)		RR_ESTABLISH_CNF	
		*<=====	
(8)		RR_ABORT_REQ	
		*=====>	
(9)		RR_RELEASE_IND	
		*<=====	
(10)		MDL_RELEASE_REQ	
		*=====>	
(11)		RR_ABORT_REQ	
		*=====>	
(12)	MMR_NREG_CNF		
	*<=====		

Parametrization

Primitive	Parameter	Value
(1) RR_ESTABLISH_CNF param	NOT_USED	
(2) RR_DATA_IND d1	NOT_USED	
d2	NOT_USED	
sdu		
{		
component	MM	
direction	DOWNLINK	
pd	D_LOC_UPD_REJ	
ti	TI_0	
rej_cause	RC_NETWORK_FAILURE	
}		
(3) RR_RELEASE_IND relcs	RELCS_NORM	
sapi	SAPI_0	
gprs_resumption	GPRS_RESUMPTION_NOT_ACK	

(4)	MDL_RELEASE_REQ	ch_type	NOT_PRESENT_8BIT
		sapi	SAPI_0
(5)	MMR_NREG_REQ	cs	CS_SIM_REM
(6)	RR_ESTABLISH_REQ	estcs	ESTCS_MOB_ORIG_CAL_BY_SS_SMS
		sdu	
		{	
		component	MM
		direction	UPLINK
		pd	U_IMSI_DETACH_IND
		ti	TI_0
		mob_class_1	MOB_CLASS_1
		mob_id	MOB_IDENT_IMSI
		}	
(7)	RR_ESTABLISH_CNF	param	NOT_USED
(8)	RR_ABORT_REQ	abcs	ABCS_NORM
(9)	RR_RELEASE_IND	relcs	RELCS_ABNORM_UNSPEC
		sapi	SAPI_0
		gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(10)	MDL_RELEASE_REQ	ch_type	NOT_PRESENT_8BIT
		sapi	SAPI_0
(11)	RR_ABORT_REQ	abcs	ABCS_SIM_REM
(12)	MMR_NREG_CNF	cs	CS_SIM_REM
History:	05.05.99	LE	Initial
	30.08.00	HM	Revised
	30.04.01	HM	Revised

4.20.22 MM451: Normal Service, IMSI Detach, SIM Remove by MMI, Rel Ind

Description: MM is in IDLE Normal Service state. MMI requests limited service. An IMSI Detach is processed. The RR connection establishment is released by the network and the MS enters the IDLE NO IMSI state.

Preamble: MM403

	MMI / CM / SIM	MM	RR / DL
(1)		RR_ESTABLISH_CNF	
		<=====	
(2)		RR_DATA_IND	
		(LOCATION UPDATING REJ)	
		<=====	
(3)		RR_RELEASE_IND	
		<=====	
(4)		MDL_RELEASE_REQ	
		=====>	
(5)	MMR_NREG_REQ		
	=====>		
(6)		RR_ESTABLISH_REQ	
		=====>	
(7)		RR_ESTABLISH_CNF	
		<=====	
(8)		RR_RELEASE_IND	
		<=====	
(9)		MDL_RELEASE_REQ	
		=====>	
(10)		RR_ABORT_REQ	
		=====>	
(11)	MMR_NREG_CNF		
	<=====		

Parametrization

	Primitive	Parameter	Value
(1)	RR_ESTABLISH_CNF param	NOT_USED	
(2)	RR_DATA_IND d1 d2 sdu { component direction pd ti TI_0 rej_cause }	NOT_USED NOT_USED MM DOWNLINK D_LOC_UPD_REJ RC_NETWORK_FAILURE	
(3)	RR_RELEASE_IND relcs sapi gprs_resumption	RELCS_NORM SAPI_0 GPRS_RESUMPTION_NOT_ACK	
(4)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	

(5)	MMR_NREG_REQ cs	CS_SIM_REM	
(6)	RR_ESTABLISH_REQ estcs sdu { component direction pd tiTI_0 mob_class_1 mob_id }	ESTCS_MOB_ORIG_CAL_BY_SS_SMS MM UPLINK U_IMSI_DETACH_IND MOB_CLASS_1 MOB_IDENT_IMSI	
(7)	RR_ESTABLISH_CNF param	NOT_USED	
(8)	RR_RELEASE_IND relcs sapi gprs_resumption	RELCS_NORM SAPI_0 GPRS_RESUMPTION_NOT_ACK	
(9)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(10)	RR_ABORT_REQ abcs	ABCS_SIM_REM	
(11)	MMR_NREG_CNF cs	CS_SIM_REM	
History:	05.05.99 30.08.00	LE HM	Initial Revised

4.20.23 MM452: Normal Service, IMSI Detach, SIM Remove by MMI, Radio Link Fail

Description: MM is in IDLE Normal Service state. MMI has requested limited service. An IMSI Detach is processed. After radio link failure, the MS enters the IDLE NO IMSI state.

Preamble: MM403

	MMI/CM/SIM	MM	RR/DL
(1)		RR_ESTABLISH_CNF	
		*<=====	
(2)		RR_DATA_IND	
		(LOCATION UPDATING REJ)	
		*<=====	
(3)		RR_RELEASE_IND	
		*<=====	
(4)		MDL_RELEASE_REQ	
		*=====>	
(5)	MMR_NREG_REQ		
	*=====>		
(6)		RR_ESTABLISH_REQ	
		*=====>	
(7)		RR_ESTABLISH_CNF	
		*<=====	
(8)		RR_ABORT_IND	
		*<=====	
(9)		MDL_RELEASE_REQ	
		*=====>	
(10)		RR_ABORT_REQ	
		*=====>	
(11)	MMR_NREG_CNF		
	*<=====		

Parametrization

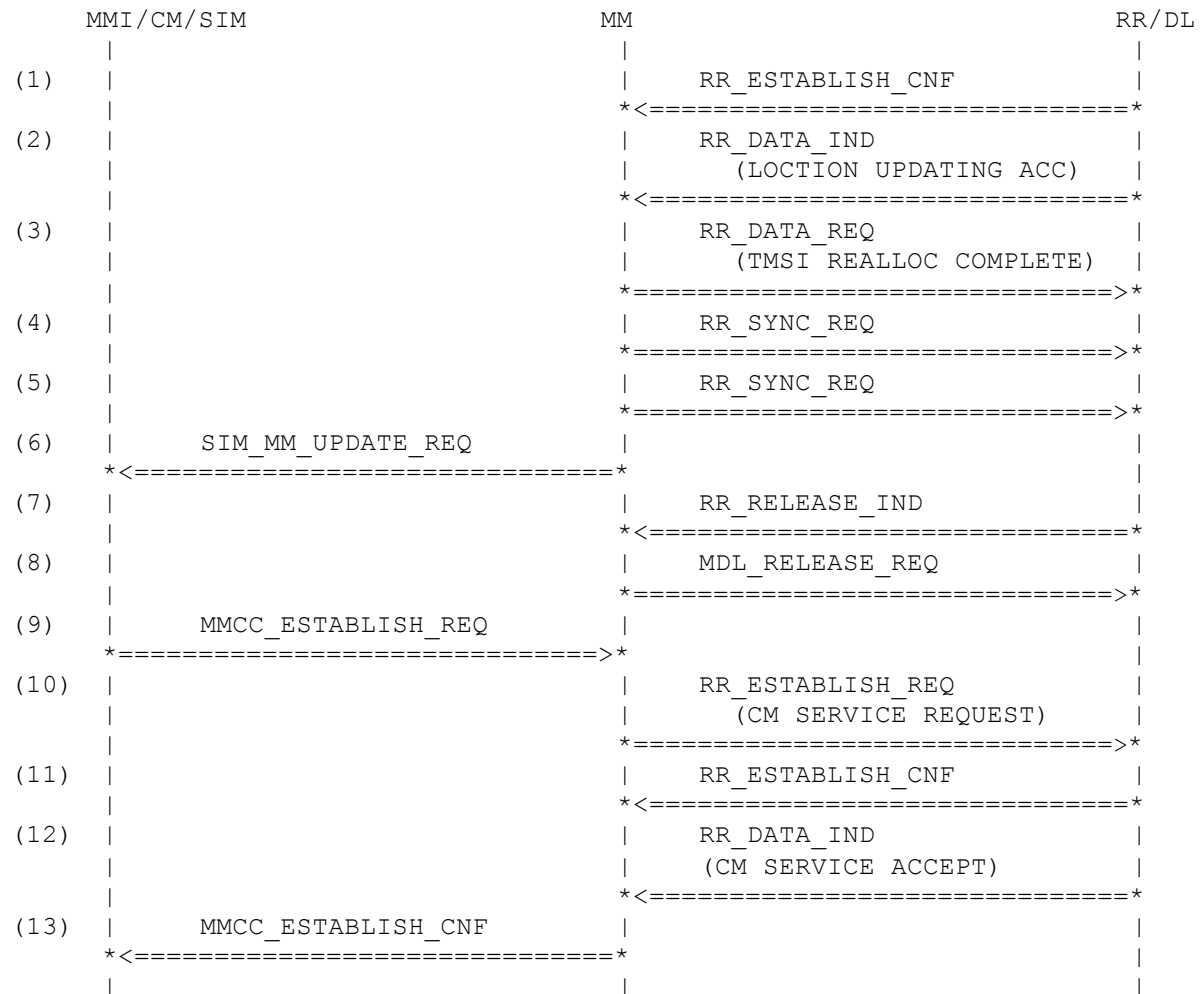
	Primitive	Parameter	Value
(1)	RR_ESTABLISH_CNF param	NOT_USED	
(2)	RR_DATA_IND d1 d2 sdu { component direction pd ti TI_0 rej_cause }	NOT_USED NOT_USED MM DOWNLINK D_LOC_UPD_REJ RC_NETWORK_FAILURE	
(3)	RR_RELEASE_IND relcs sapi gprs_resumption	RELCS_NORM SAPI_0 GPRS_RESUMPTION_NOT_ACK	
(4)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	

(5)	MMR_NREG_REQ cs	CS_SIM_REM
(6)	RR_ESTABLISH_REQ estcs sdu { component direction pd tiTI_0 mob_class_1 mob_id }	ESTCS_MOB_ORIG_CAL_BY_SS_SMS MM UPLINK U_IMSI_DETACH_IND MOB_CLASS_1 MOB_IDENT_IMSI
(7)	RR_ESTABLISH_CNF param	NOT_USED
(8)	RR_ABORT_IND op OP_MODE_TEST_SIM abcs plmn_avail plmn rxlevel power	ABCS_RAD_LNK_FAIL NOT_USED NOT_USED NOT_USED RF_CLASS_2
(9)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0
(10)	RR_ABORT_REQ abcs	ABCS_SIM_REM
(11)	MMR_NREG_CNF cs	CS_SIM_REM
History:	05.05.99 30.08.00	LE HM
		Initial Revised

4.20.24 MM454: IMSI Attach and CM Connection Establishment

Description: MM is switched on, processes an IMSI attach and starts a connection establishment.

Preamble: MM403



Parametrization

Primitive	Parameter	Value
(1) RR_ESTABLISH_CNF param	NOT_USED	
(2) RR_DATA_IND d1 NOT_USED d2 NOT_USED sdu { component direction pd D_LOC_UPD_ACCEPT ti TI_0 loc_area_ident mob_id follow_proceed }	MM DOWNLINK LOC_AREA_ID_123_33_2147 MOB_IDENT_NEW_TMSI NOT_USED	

- (3) RR_DATA_REQ
d1 NOT_USED
d2 NOT_USED
sdu
{
component MM
direction UPLINK
pd U_TMSI_REALLOC_COMP
ti TI_0
}
- (4) RR_SYNC_REQ
op NOT_USED
cksn NOT_USED
kcv NOT_USED
tmsi MOB_ID_NEW_TMSI
plmn NOT_USED
lac NOT_USED
synccs NOT_USED
accc NOT_USED
thplmn NOT_USED
- (5) RR_SYNC_REQ
op NOT_USED
cksn NOT_USED
kcv NOT_USED
tmsi NOT_USED
plmn PLMN_123_33
lac LAC_2147
synccs SYNC_CS_LAI_ALLOW
accc NOT_USED
thplmn NOT_USED
- (6) SIM_MM_UPDATE_REQ
loc_info LOC_INFO_UPDATED_5
bcch_inf BCCH_INF_1
forb_plmn NOT_USED
cksn CKSN_RES
kc KC_DELETED_SIM
cell_identity CELL_ID_1122
- (7) RR_RELEASE_IND
relcs RELCS_NORM
sapi SAPI_0
gprs_resumption GPRS_RESUMPTION_NOT_ACK
- (8) MDL_RELEASE_REQ
ch_type NOT_PRESENT_8BIT
sapi SAPI_0
- (9) MMCC_ESTABLISH_REQ
ti TI_2
prio PRIO_NORM_CALL
estcs ESTCS_MOB_ORIG_SPCH
- (10) RR_ESTABLISH_REQ
estcs ESTCS_MOB_ORIG_SPCH_CAL_BY_CC
sdu
{
component MM
direction UPLINK
pd U_CM_SERV_REQ

```

        ti    TI_0
        cm_serv_type      ST_MOC
        ciph_key_num      CIPH_KEY_NUM_RES
        mob_class_2       MOB_CLASS_2
        mob_id            MOB_IDENT_NEW_TMSI
    }

(11)      RR_ESTABLISH_CNF
        param              NOT_USED

(12)      RR_DATA_IND
        d1    NOT_USED
        d2    NOT_USED
        sdu
        {
            component      MM
            direction      DOWNLINK
            pd    D_CM_SERV_ACCEPT
            ti    TI_0
        }

(13)      MMCC_ESTABLISH_CNF
        ti    TI_2

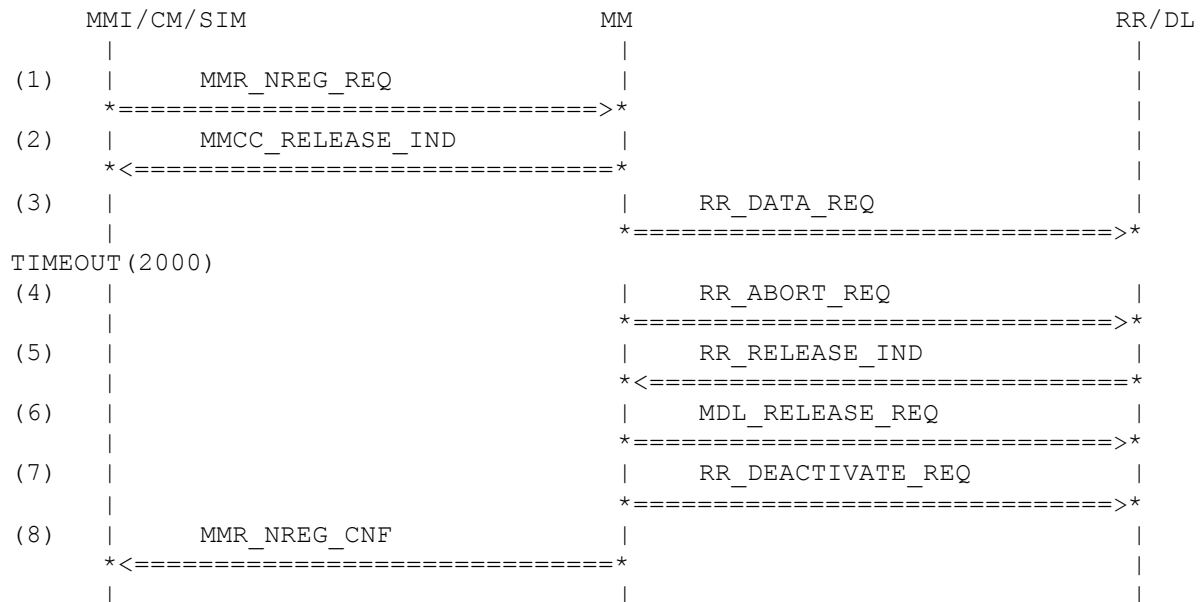
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History: 23.04.99 LE Initial

4.20.25 MM455: Connection Active, IMSI Detach, Power OFF, Timeout T3220

Description: MM is in Connection Active state. It is switched off. An IMSI Detach is started. After timeout of T3220 deactivation of the lower layer is started.

Preamble: MM454



Parametrization

Primitive	Parameter	Value
(1) MMR_NREG_REQ		
cs	CS_POW_OFF	
(2) MMCC_RELEASE_IND		
ti	TI_2	
relcs	NOT_USED	
(3) RR_DATA_REQ		
d1	NOT_USED	
d2	NOT_USED	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_IMSI_DETACH_IND	
ti	TI_0	
mob_class_1	MOB_CLASS_1	
mob_id	MOB_IDENT_NEW_TMSI	
}		
(4) RR_ABORT_REQ		
abcs	ABCS_NORM	
(5) RR_RELEASE_IND		
relcs	RELCS_ABNORM_UNSPEC	
sapi	SAPI_0	
gprs_resumption	GPRS_RESUMPTION_NOT_ACK	
(6) MDL_RELEASE_REQ		
ch_type	NOT_PRESENT_8BIT	
sapi	SAPI_0	

(7) RR_DEACTIVATE_REQ
param

NOT_USED

(8) MMR_NREG_CNF
cs

CS_POW_OFF

History:	05.05.99	LE	Initial
	30.08.00	HM	Revised
	27.04.01	HM	Changed T3220 behaviour

4.20.26 MM456: Connection Active, IMSI Detach, Power OFF, Rel Ind

Description: MM is in Connection Active state. It is switched off. An IMSI Detach is started. The network releases the RR-Connection .Deactivation of the lower layer is started.

Preamble: MM454

	MMI /CM/ SIM	MM	RR/DL
(1)	MMR_NREG_REQ		
	=====>		
(2)	MMCC_RELEASE_IND		
	<=====		
(3)		RR_DATA_REQ	
		=====>	
(4)		RR_RELEASE_IND	
		<=====	
(5)		MDL_RELEASE_REQ	
		=====>	
(6)		RR_DEACTIVATE_REQ	
		=====>	
(7)	MMR_NREG_CNF		
	<=====		

Parametrization

	Primitive	Parameter	Value
(68)	MMR_NREG_REQ		
	cs	CS_POW_OFF	
(69)	MMCC_RELEASE_IND		
	ti	TI_2	
	relcs	NOT_USED	
(70)	RR_DATA_REQ		
	d1	NOT_USED	
	d2	NOT_USED	
	sdu		
	{		
	component	MM	
	direction	UPLINK	
	pd	U_IMSI_DETACH_IND	
	ti	TI_0	
	mob_class_1	MOB_CLASS_1	
	mob_id	MOB_IDENT_NEW_TMSI	
	}		
(71)	RR_RELEASE_IND		
	relcs	RELCS_NORM	
	sapi	SAPI_0	
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK	
(72)	MDL_RELEASE_REQ		
	ch_type	NOT_PRESENT_8BIT	
	sapi	SAPI_0	
(73)	RR_DEACTIVATE_REQ		
	param	NOT_USED	
(74)	MMR_NREG_CNF		
	cs	CS_POW_OFF	

History:	05.05.99	LE	Initial
	30.08.00	HM	Revised

4.20.27 MM457: Connection Active, IMSI Detach, Power OFF, Radio Link Failure

Description: MM is in Connection Active state. It is switched off. An IMSI Detach is started. A radio link failure occurs. Deactivation of the lower layer is started.

Preamble: MM454

	MMI/CM/SIM	MM	RR/DL
(1)	MMR_NREG_REQ		
	=====>		
(2)	MMCC_RELEASE_IND		
	<=====		
(3)		RR_DATA_REQ	
		=====>	
(4)		RR_ABORT_IND	
		<=====	
(5)		MDL_RELEASE_REQ	
		=====>	
(6)		RR_DEACTIVATE_REQ	
		=====>	
(7)	MMR_NREG_CNF		
	<=====		

Parametrization

	Primitive	Parameter	Value
(1)	MMR_NREG_REQ		
	cs	CS_POW_OFF	
(2)	MMCC_RELEASE_IND		
	ti TI_2		
	relcs	NOT_USED	
(3)	RR_DATA_REQ		
	d1	NOT_USED	
	d2	NOT_USED	
	sdu		
	{		
	component	MM	
	direction	UPLINK	
	pd	U_IMSI_DETACH_IND	
	ti TI_0		
	mob_class_1	MOB_CLASS_1	
	mob_id	MOB_IDENT_NEW_TMSI	
	}		
(4)	RR_ABORT_IND		
	op	OP_MODE_TEST_SIM	
	abcs	ABCS_RAD_LNK_FAIL	
	plmn_avail	NOT_USED	
	plmn	NOT_USED	
	rxlevel	NOT_USED	
	power	RF_CLASS_2	
(5)	MDL_RELEASE_REQ		
	ch_type	NOT_PRESENT_8BIT	
	sapi	SAPI_0	
(6)	RR_DEACTIVATE_REQ		
	param	NOT_USED	

(7) MMR_NREG_CNF
 cs

CS_POW_OFF

History: 05.05.99
 30.08.00

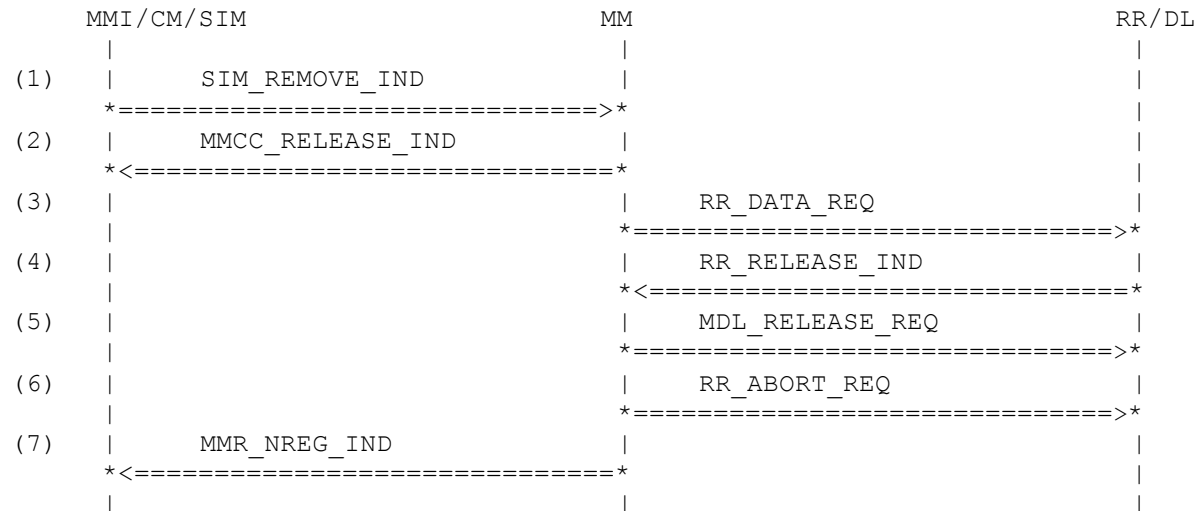
LE
HM

Initial
Revised

4.20.28 MM458: Active, IMSI Detach, SIM Remove by SIM, Rel Ind

Description: MM is in active state. The SIM manager has detected a SIM Remove. All CM connections are released. An IMSI Detach is processed. The network releases the RR connection and the MS enters the IDLE NO IMSI state.

Preamble: MM454



Parametrization

	Primitive	Parameter	Value
(1)	SIM_REMOVE_IND error	NOT_USED	
(2)	MMCC_RELEASE_IND ti TI_2 relcs	NOT_USED	
(3)	RR_DATA_REQ d1 d2 sdu { component direction pd ti TI_0 mob_class_1 mob_id }	MM UPLINK U_IMSI_DETACH_IND MOB_CLASS_1 MOB_IDENT_NEW_TMSI	
(4)	RR_RELEASE_IND relcs sapi gprs_resumption	RELCS_NORM SAPI_0 GPRS_RESUMPTION_NOT_ACK	
(5)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(6)	RR_ABORT_REQ abcs	ABCS_SIM_REM	
(7)	MMR_NREG_IND nreg_cs	NREG_LIMITED_SERVICE	

	search_running	SEARCH_NOT_RUNNING	
	new_forb_plmn	PLMN_NO_ID	
	limited_cause	MMR_SIM_INVALID_REMOVED	
History:	05.05.99	LE	Initial
	02.03.00	HM	Revised (search_running)
	07.01.01	HM	Adaption after GPRS integration

4.20.29 MM459: Active, IMSI Detach, SIM Remove by SIM, Radio Link Fail

Description: MM is in active state. The SIM manager has detected a SIM Remove. All CM connections are released. An IMSI Detach is processed. After radio link failure, the MS enters the IDLE NO IMSI state.

Preamble: MM454

	MMI / CM / SIM	MM	RR / DL
(1)	SIM_REMOVE_IND		
	=====>		
(2)	MMCC_RELEASE_IND		
	<=====		
(3)		RR_DATA_REQ	
		=====>	
(4)		RR_ABORT_IND	
		<=====	
(5)		MDL_RELEASE_REQ	
		=====>	
(6)		RR_ABORT_REQ	
		=====>	
(7)	MMR_NREG_IND		
	<=====		

Parametrization

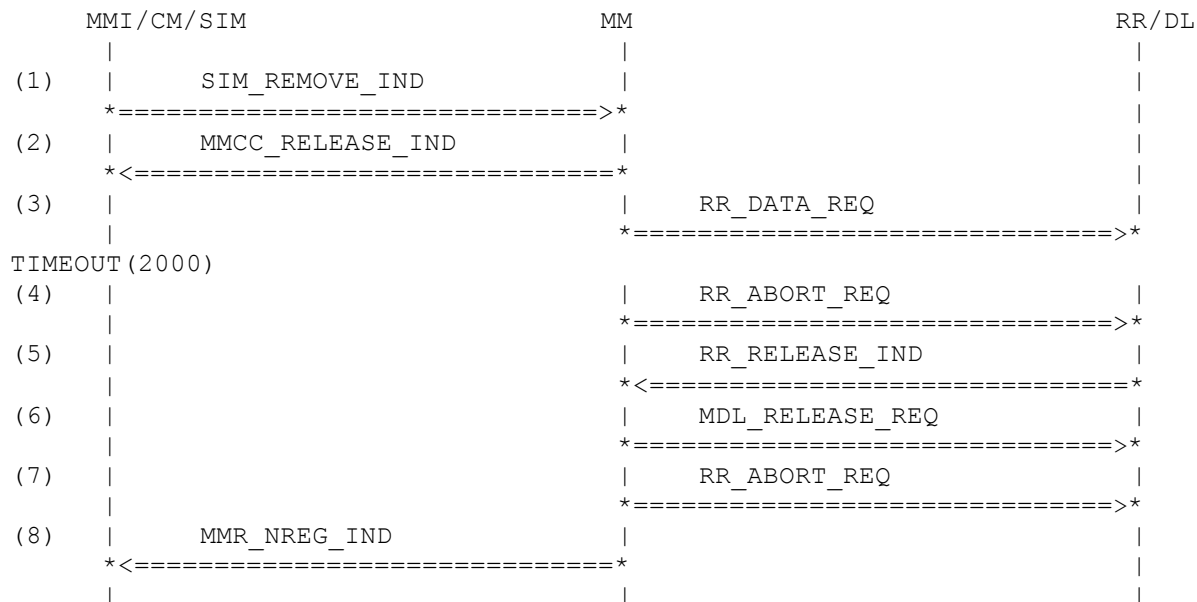
	Primitive	Parameter	Value
(1)	SIM_REMOVE_IND		
	error	NOT_USED	
(2)	MMCC_RELEASE_IND		
	ti TI_2		
	relcs	NOT_USED	
(3)	RR_DATA_REQ		
	d1	NOT_USED	
	d2	NOT_USED	
	sdu		
	{		
	component	MM	
	direction	UPLINK	
	pd	U_IMSI_DETACH_IND	
	ti TI_0		
	mob_class_1	MOB_CLASS_1	
	mob_id	MOB_IDENT_NEW_TMSI	
	}		
(4)	RR_ABORT_IND		
	op OP_MODE_TEST_SIM		
	abcs	ABCS_RAD_LNK_FAIL	
	plmn_avail	NOT_USED	
	plmn	NOT_USED	
	rxlevel	NOT_USED	
	power	RF_CLASS_2	
(5)	MDL_RELEASE_REQ		
	ch_type	NOT_PRESENT_8BIT	
	sapi	SAPI_0	
(6)	RR_ABORT_REQ		
	abcs	ABCS_SIM_REM	

(7)	MMR_NREG_IND		
	nreg_cs	NREG_LIMITED_SERVICE	
	search_running	SEARCH_NOT_RUNNING	
	new_forb_plmn	PLMN_NO_ID	
	limited_cause	MMR_SIM_INVALID_REMOVED	
History:	05.05.99	LE	Initial
	02.03.00	HM	Revised (search_running)
	07.01.01	HM	Adaption after GPRS integration

4.20.30 MM460: Active, IMSI Detach, SIM Remove by SIM, T3220 Timeout

Description: MM is in active state. The SIM manager has detected a SIM Remove. All CM connections are released. An IMSI Detach is processed. After timeout T3220, the MS enters the IDLE NO IMSI state.

Preamble: MM454



Parametrization

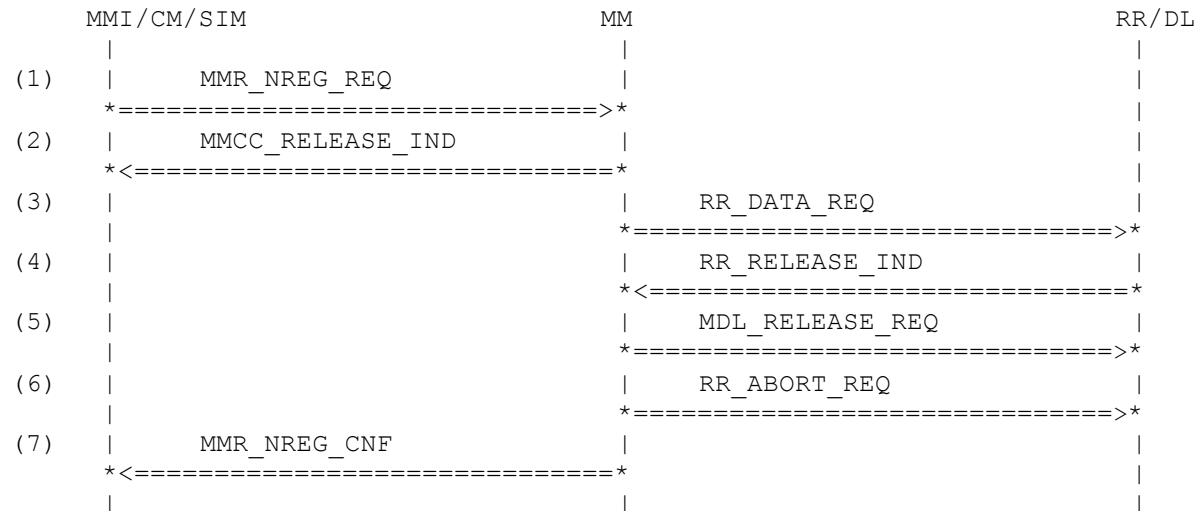
	Primitive	Parameter	Value
(1)	SIM_REMOVE_IND		
	error	NOT_USED	
(2)	MMCC_RELEASE_IND		
	ti TI_2		
	relcs	NOT_USED	
(3)	RR_DATA_REQ		
	d1	NOT_USED	
	d2	NOT_USED	
	sdu		
	{		
	component	MM	
	direction	UPLINK	
	pd	U_IMSI_DETACH_IND	
	ti TI_0		
	mob_class_1	MOB_CLASS_1	
	mob_id	MOB_IDENT_NEW_TMSI	
	}		
(4)	RR_ABORT_REQ		
	abcs	ABCS_NORM	
(5)	RR_RELEASE_IND		
	relcs	RELCS_ABNORM_UNSPEC	
	sapi	SAPI_0	
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK	
(6)	MDL_RELEASE_REQ		
	ch_type	NOT_PRESENT_8BIT	
	sapi	SAPI_0	

(7)	RR_ABORT_REQ		
	abcs	ABCS_SIM_REM	
(8)	MMR_NREG_IND		
	nreg_cs	NREG_LIMITED_SERVICE	
	search_running	SEARCH_NOT_RUNNING	
	new_forb_plmn	PLMN_NO_ID	
	limited_cause	MMR_SIM_INVALID_REMOVED	
History:	05.05.99	LE	Initial
	02.03.00	HM	Revised (search_running)
	07.01.01	HM	Adaption after GPRS integration
	27.04.01	HM	Changed T3220 behaviour

4.20.31 MM461: Active, IMSI Detach, SIM Remove by MMI, Rel Ind

Description: MM is in active state. MMI requests limited service. All CM connections are released. An IMSI Detach is processed. The RR connection is released by the network and the MS enters the IDLE NO IMSI state.

Preamble: MM454



Parametrization

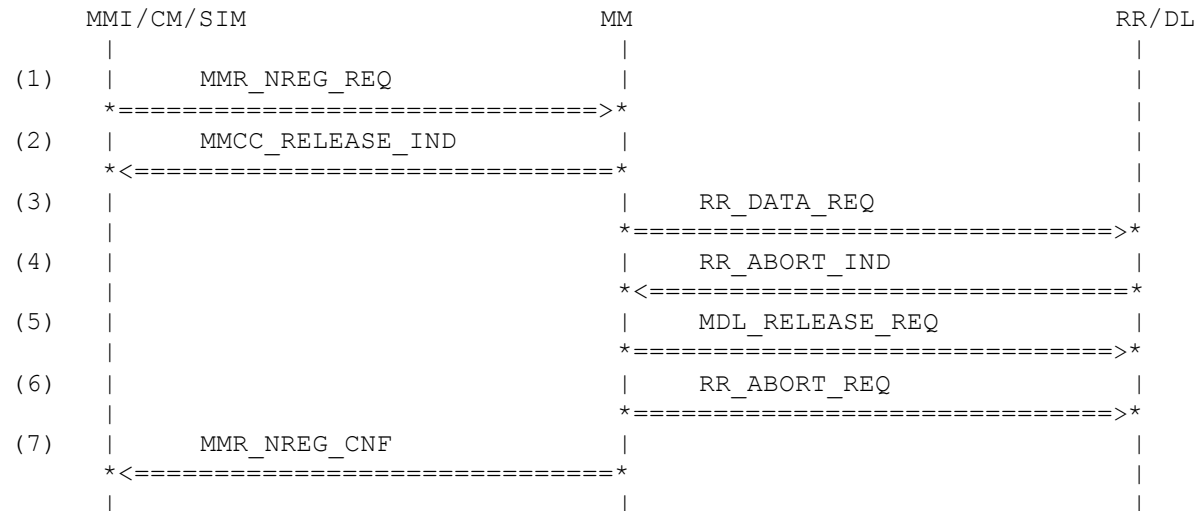
	Primitive	Parameter	Value
(1)	MMR_NREG_REQ cs	CS_SIM_REM	
(2)	MMCC_RELEASE_IND ti TI_2 relcs	NOT_USED	
(3)	RR_DATA_REQ d1 d2 sdu { component direction pd ti TI_0 mob_class_1 mob_id }	MM UPLINK U_IMSI_DETACH_IND MOB_CLASS_1 MOB_IDENT_NEW_TMSI	
(4)	RR_RELEASE_IND relcs sapi gprs_resumption	RELCS_NORM SAPI_0 GPRS_RESUMPTION_NOT_ACK	
(5)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(6)	RR_ABORT_REQ abcs	ABCS_SIM_REM	
(7)	MMR_NREG_CNF cs	CS_SIM_REM	

History:	05.05.99	LE	Initial
	31.08.00	HM	Revised

4.20.32 MM462: Active, IMSI Detach, SIM Remove by MMI, Radio Link Fail

Description: MM is in active state. MMI has requested limited service. All CM connections are released. An IMSI Detach is processed. After radio link failure, the MS enters the IDLE NO IMSI state.

Preamble: MM454



Parametrization

	Primitive	Parameter	Value
(1)	MMR_NREG_REQ		
	cs	CS_SIM_REM	
(2)	MMCC_RELEASE_IND		
	ti TI_2		
	relcs	NOT_USED	
(3)	RR_DATA_REQ		
	d1	NOT_USED	
	d2	NOT_USED	
	sdu		
	{		
	component	MM	
	direction	UPLINK	
	pd	U_IMSI_DETACH_IND	
	ti TI_0		
	mob_class_1	MOB_CLASS_1	
	mob_id	MOB_IDENT_NEW_TMSI	
	}		
(4)	RR_ABORT_IND		
	op OP_MODE_TEST_SIM		
	abcs	ABCS_RAD_LNK_FAIL	
	plmn_avail	NOT_USED	
	plmn	NOT_USED	
	rxlevel	NOT_USED	
	power	RF_CLASS_2	
(5)	MDL_RELEASE_REQ		
	ch_type	NOT_PRESENT_8BIT	
	sapi	SAPI_0	
(6)	RR_ABORT_REQ		
	abcs	ABCS_SIM_REM	

(7) MMR_NREG_CNF
 cs

CS_SIM_REM

History: 05.05.99
 31.08.00

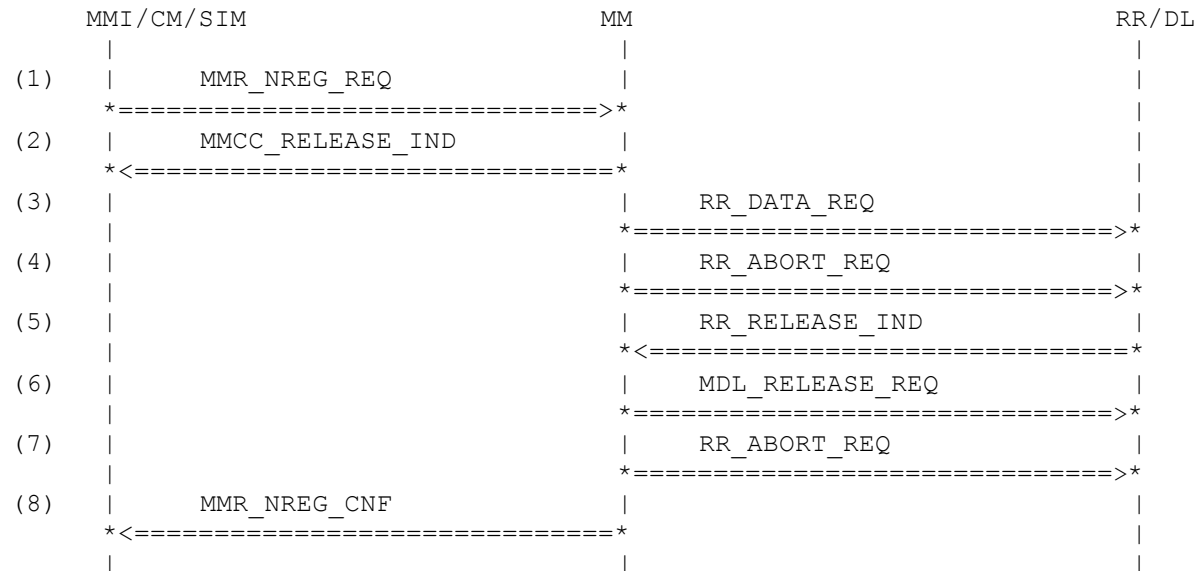
LE
HM

Initial
Revised

4.20.33 MM463: Active, IMSI Detach, SIM Remove by MMI, T3220 Timeout

Description: MM is in Active state. MMI has requested limited service. All CM connections are released. An IMSI Detach is processed. After timeout T3220, the MS enters the IDLE NO IMSI state.

Preamble: MM454



Parametrization

	Primitive	Parameter	Value
(1)	MMR_NREG_REQ		
	cs	CS_SIM_REM	
(2)	MMCC_RELEASE_IND		
	ti TI_2		
	relcs	NOT_USED	
(3)	RR_DATA_REQ		
	d1	NOT_USED	
	d2	NOT_USED	
	sdu		
	{		
	component	MM	
	direction	UPLINK	
	pd	U_IMSI_DETACH_IND	
	ti TI_0		
	mob_class_1	MOB_CLASS_1	
	mob_id	MOB_IDENT_NEW_TMSI	
	}		
(4)	RR_ABORT_REQ		
	abcs	ABCS_NORM	
(5)	RR_RELEASE_IND		
	relcs	RELCS_ABNORM_UNSPEC	
	sapi	SAPI_0	
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK	
(6)	MDL_RELEASE_REQ		
	ch_type	NOT_PRESENT_8BIT	
	sapi	SAPI_0	

4.20.34 MM464: Attempt to update, change of location area identification

Description: The MS is in attempting to update state. RR indicates a change of location area identification. A normal location updating is started.

Preamble: MM431

	MMI / CM / SIM	MM	RR / DL
(1)		RR_ACTIVATE_IND	
		<=====	
(2)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		=====>	

Parametrization

Primitive	Parameter	Value
(75) RR_ACTIVATE_IND		
op	OP_MODE_SIM	
mm_info	MM_INFO	
cid	CELL_ID_1122	
plmn	PLMN_123_33	
lac	LAC_0002	
power	RF_CLASS_2	
gprs_indic	GPRS_NO	
(76) RR_ESTABLISH_REQ		
estcs	ESTCS_SERV_REQ_BY_MM	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_LOC_UPD_REQ	
ti	TI_0	
loc_upd_type	LOC_UPD_TYPE_NORMAL	
ciph_key_num	CIPH_KEY_NUM_RES	
loc_area_ident	LOC_AREA_ID_123_33_FEFF	
mob_class_1	MOB_CLASS_1	
mob_id	MOB_IDENT_IMSI	
}		

History: 04.05.99 LE Initial

4.20.35 MM465: Attempt to update, change of cell, random access failure

Description: The MS is in attempting to update state. The state was entered due to random access failure. RR indicates a change of cell. A normal location updating is started.

Preamble: MM439

	MMI / CM / SIM	MM	RR / DL
(1)		RR_ACTIVATE_IND	
		<=====	
(2)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		=====>	

Parametrization

Primitive	Parameter	Value
(77) RR_ACTIVATE_IND		
op	OP_MODE_SIM	
mm_info	MM_INFO	
cid	CELL_ID_1123	
plmn	PLMN_123_33	
lac	LAC_2147	
power	RF_CLASS_2	
gprs_indic	GPRS_NO	
(78) RR_ESTABLISH_REQ		
estcs	ESTCS_SERV_REQ_BY_MM	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_LOC_UPD_REQ	
ti	TI_0	
loc_upd_type	LOC_UPD_TYPE_NORMAL	
ciph_key_num	CIPH_KEY_NUM_RES	
loc_area_ident	LOC_AREA_ID_123_33_FEFF	
mob_class_1	MOB_CLASS_1	
mob_id	MOB_IDENT_IMSI	
}		

History: 04.05.99 LE Initial

4.20.36 MM466: Attempt to update, change of cell, RR connection failure

Description: The MS is in attempting to update state. The state was entered due to RR connection failure. RR indicates a change of cell. A normal location updating is started.

Preamble: MM438

	MMI / CM / SIM	MM	RR / DL
(1)		RR_ACTIVATE_IND	
		<=====	
(2)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		=====>	

Parametrization

Primitive	Parameter	Value
(79) RR_ACTIVATE_IND		
op	OP_MODE_SIM	
mm_info	MM_INFO	
cid	CELL_ID_1123	
plmn	PLMN_123_33	
lac	LAC_2147	
power	RF_CLASS_2	
gprs_indic	GPRS_NO	
(80) RR_ESTABLISH_REQ		
estcs	ESTCS_SERV_REQ_BY_MM	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_LOC_UPD_REQ	
ti	TI_0	
loc_upd_type	LOC_UPD_TYPE_NORMAL	
ciph_key_num	CIPH_KEY_NUM_RES	
loc_area_ident	LOC_AREA_ID_123_33_FEFF	
mob_class_1	MOB_CLASS_1	
mob_id	MOB_IDENT_IMSI	
}		

History: 04.05.99 LE Initial

4.20.37 MM467: Attempt to update, change of cell, Release before end of proc

Description: The MS is in attempting to update state. The state was entered due to release before end of procedure with cause different to abnormal release, unspecified. RR indicates a change of cell. A normal location updating is started.

Preamble: MM432

	MMI / CM / SIM	MM	RR / DL
(1)		RR_ACTIVATE_IND	
		<=====	
(2)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		=====>	

Parametrization

Primitive	Parameter	Value
(1) RR_ACTIVATE_IND		
op	OP_MODE_SIM	
mm_info	MM_INFO	
cid	CELL_ID_1123	
plmn	PLMN_123_33	
lac	LAC_2147	
power	RF_CLASS_2	
gprs_indic	GPRS_NO	
(2) RR_ESTABLISH_REQ		
estcs	ESTCS_SERV_REQ_BY_MM	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_LOC_UPD_REQ	
ti	TI_0	
loc_upd_type	LOC_UPD_TYPE_NORMAL	
ciph_key_num	CIPH_KEY_NUM_RES	
loc_area_ident	LOC_AREA_ID_123_33_FEFF	
mob_class_1	MOB_CLASS_1	
mob_id	MOB_IDENT_IMSI	
}		

History: 04.05.99 LE Initial

4.20.38 MM468: Attempt to update, change of cell, Release before end of proc

Description: The MS is in attempting to update state. The state was entered due to release before end of procedure with cause to abnormal release, unspecified. RR indicates a change of cell. A normal location updating is started.

Preamble: MM428

	MMI/CM/SIM	MM	RR/DL
(1)		RR_ESTABLISH_CNF	
		*<=====	
(2)		RR_RELEASE_IND	
		*<=====	
(3)		MDL_RELEASE_REQ	
		*=====>	
(4)		RR_SYNC_REQ	
		*=====>	
(5)	SIM_MM_UPDATE_REQ		
	*<=====		
TIMEOUT (10000)			
(6)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		*=====>	
(7)		RR_ESTABLISH_CNF	
		*<=====	
(8)		RR_RELEASE_IND	
		*<=====	
(9)		MDL_RELEASE_REQ	
		*=====>	
(10)		RR_SYNC_REQ	
		*=====>	
(11)	SIM_MM_UPDATE_REQ		
	*<=====		
TIMEOUT (10000)			
(12)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		*=====>	
(13)		RR_ESTABLISH_CNF	
		*<=====	
(14)		RR_RELEASE_IND	
		*<=====	
(15)		MDL_RELEASE_REQ	
		*=====>	
(16)		RR_SYNC_REQ	
		*=====>	
(17)	SIM_MM_UPDATE_REQ		
	*<=====		
(18)		RR_ACTIVATE_IND	
		*<=====	
TIMEOUT (10000)			

Parametrization

Primitive	Parameter	Value
(1) RR_ESTABLISH_CNF param	NOT_USED	

(2)	RR_RELEASE_IND relcs sapi SAPI_0 gprs_resumption	RELCS_NORM GPRS_RESUMPTION_NOT_ACK
(3)	MDL_RELEASE_REQ ch_type sapi SAPI_0	NOT_PRESENT_8BIT
(4)	RR_SYNC_REQ op NOT_USED cksnNOT_USED kcv NOT_USED tmsi NOT_USED plmn lac NOT_USED synccs acccNOT_USED thplmn	NOT_USED SYNCCS_TMSI_CKSN_KC_INVAL NOT_USED
(5)	SIM_MM_UPDATE_REQ loc_info bcch_inf forb_plmn cksnCKSN_RES kc KC_DELETED_SIM cell_identity	LOC_INFO_123_33_FEFF NOT_USED NOT_USED CELL_ID_1122
(6)	RR_ESTABLISH_REQ estcs sdu { component direction pd U_LOC_UPD_REQ ti TI_0 loc_upd_type ciph_key_num loc_area_ident mob_class_1 mob_id }	ESTCS_SERV_REQ_BY_MM MM UPLINK LOC_UPD_TYPE_NORMAL CIPH_KEY_NUM_RES LOC_AREA_ID_123_33_FEFF MOB_CLASS_1 MOB_IDENT_IMSI
(7)	RR_ESTABLISH_CNF param	NOT_USED
(8)	RR_RELEASE_IND relcs sapi SAPI_0 gprs_resumption	RELCS_NORM GPRS_RESUMPTION_NOT_ACK
(9)	MDL_RELEASE_REQ ch_type sapi SAPI_0	NOT_PRESENT_8BIT
(10)	RR_SYNC_REQ op NOT_USED cksnNOT_USED kcv NOT_USED tmsi NOT_USED plmn lac NOT_USED synccs	NOT_USED SYNCCS_TMSI_CKSN_KC_INVAL

	acccNOT_USED	
	thplmn	NOT_USED
(11)	SIM_MM_UPDATE_REQ	
	loc_info	LOC_INFO_123_33_FEFF
	bcch_inf	NOT_USED
	forb_plmn	NOT_USED
	cksnCKSN_RES	
	kc KC_DELETED_SIM	
	cell_identity	CELL_ID_1122
(12)	RR_ESTABLISH_REQ	
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd U_LOC_UPD_REQ	
	ti TI_0	
	loc_upd_type	LOC_UPD_TYPE_NORMAL
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_FEFF
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(13)	RR_ESTABLISH_CNF	
	param	NOT_USED
(14)	RR_RELEASE_IND	
	relcs	RELCS_ABNORM_UNSPEC
	sapi SAPI_0	
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(15)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi SAPI_0	
(16)	RR_SYNC_REQ	
	op NOT_USED	
	cksnNOT_USED	
	kcv NOT_USED	
	tmsi NOT_USED	
	plmn	NOT_USED
	lac NOT_USED	
	synccs	SYNCCS_TMSI_CKSN_KC_INVALID
	acccNOT_USED	
	thplmn	NOT_USED
(17)	SIM_MM_UPDATE_REQ	
	loc_info	LOC_INFO_123_33_FEFF
	bcch_inf	NOT_USED
	forb_plmn	NOT_USED
	cksnCKSN_RES	
	kc KC_DELETED_SIM	
	cell_identity	CELL_ID_1122
(18)	RR_ACTIVATE_IND	
	op OP_MODE_SIM	
	mm_info	MM_INFO
	cid CELL_ID_1123	
	plmn	PLMN_123_33
	lac LAC_2147	

power
gprs_indic

RF_CLASS_2
GPRS_NO

History: 04.05.99 LE Initial

4.20.39 MM469: Attempt to update, change of cell, Location Updating Request

Description: The MS is in attempting to update state. The state was entered due to location updating request. with cause different from retry upon entry into a new cell. RR indicates a change of cell. No normal location updating shall be started.

Preamble: MM429

	MMI / CM / SIM	MM	RR / DL
(1)			
		RR_ACTIVATE_IND	
		<=====	

Parametrization

	Primitive	Parameter	Value
(1)	RR_ACTIVATE_IND		
	op	OP_MODE_SIM	
	mm_info	MM_INFO	
	cid	CELL_ID_1123	
	plmn	PLMN_123_33	
	lac	LAC_2147	
	power	RF_CLASS_2	
	gprs_indic	GPRS_NO	

History: 04.05.99 LE Initial

4.20.40 MM470: Attempt to update, change of cell, Location updating reject

Description: The MS is in attempting to update state. The state was entered due to location updating reject with the cause retry upon entry into a new cell. RR indicates a change of cell. A normal location updating is started.

Preamble: MM428

```

(1) | | RR_ESTABLISH_CNF |
| | *<=====
(2) | | RR_DATA_IND |
| | (LOCATION UPDATING REJ) |
| | *<=====
(3) | | RR_RELEASE_IND |
| | *<=====
(4) | | MDL_RELEASE_REQ |
| | *=====
(5) | | RR_SYNC_REQ |
| | *=====
(6) | SIM_MM_UPDATE_REQ |
| | *<=====
TIMEOUT (10000)
(7) | | RR_ESTABLISH_REQ |
| | (LOCATION UPDATING REQ) |
| | *=====
(8) | | RR_ESTABLISH_CNF |
| | *<=====
(9) | | RR_DATA_IND |
| | (LOCATION UPDATING REJ) |
| | *<=====
(10) | | RR_RELEASE_IND |
| | *<=====
(11) | | MDL_RELEASE_REQ |
| | *=====
(12) | | RR_SYNC_REQ |
| | *=====
(13) | SIM_MM_UPDATE_REQ |
| | *<=====
TIMEOUT (10000)
(14) | | RR_ESTABLISH_REQ |
| | (LOCATION UPDATING REQ) |
| | *=====
(15) | | RR_ESTABLISH_CNF |
| | *<=====
(16) | | RR_DATA_IND |
| | (LOCATION UPDATING REJ) |
| | *<=====
(17) | | RR_RELEASE_IND |
| | *<=====
(18) | | MDL_RELEASE_REQ |
| | *=====
(19) | | RR_SYNC_REQ |
| | *=====
(20) | SIM_MM_UPDATE_REQ |
| | *<=====
(21) | MMR_NREG_IND |
| | *<=====
TIMEOUT (20000)
(22) | | RR_ACTIVATE_IND |
| | *<=====
(23) | | RR_ESTABLISH_REQ |
| |

```

	(LOCATION UPDATING REQ)	
	*=====	

Parametrization

Primitive	Parameter	Value
(1) RR_ESTABLISH_CNF param	NOT_USED	
(2) RR_DATA_IND d1 NOT_USED d2 NOT_USED sdu { component direction pd D_LOC_UPD_REJ ti TI_0 rej_cause }	MM DOWNLINK RC_NETWORK_FAILURE	
(3) RR_RELEASE_IND relcs sapi SAPI_0 gprs_resumption	RELCS_NORM GPRS_RESUMPTION_NOT_ACK	
(4) MDL_RELEASE_REQ ch_type sapi SAPI_0	NOT_PRESENT_8BIT	
(5) RR_SYNC_REQ op NOT_USED cksn NOT_USED kcv NOT_USED tmsi NOT_USED plmn lac NOT_USED synccs accc NOT_USED thplmn	NOT_USED SYNCCS_TMSI_CKSN_KC_INVAL NOT_USED	
(6) SIM_MM_UPDATE_REQ loc_info bcch_inf forb_plmn cksn CKSN_RES kc KC_DELETED_SIM cell_identity	LOC_INFO_123_33_FEFF NOT_USED NOT_USED CELL_ID_1122	
(7) RR_ESTABLISH_REQ estcs sdu { component direction pd U_LOC_UPD_REQ ti TI_0 loc_upd_type ciph_key_num loc_area_ident	ESTCS_SERV_REQ_BY_MM MM UPLINK LOC_UPD_TYPE_NORMAL CIPH_KEY_NUM_RES LOC_AREA_ID_123_33_FEFF	

	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(8)	RR_ESTABLISH_CNF	
	param	NOT_USED
(9)	RR_DATA_IND	
	d1 NOT_USED	
	d2 NOT_USED	
	sdu	
	{	
	component	MM
	direction	DOWNLINK
	pd D_LOC_UPD_REJ	
	ti TI_0	
	rej_cause	RC_NETWORK_FAILURE
	}	
(10)	RR_RELEASE_IND	
	relcs	RELCS_NORM
	sapi SAPI_0	
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(11)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi SAPI_0	
(12)	RR_SYNC_REQ	
	op NOT_USED	
	cksnNOT_USED	
	kcv NOT_USED	
	tmsi NOT_USED	
	plmn	NOT_USED
	lac NOT_USED	
	synccs	SYNCCS_TMSI_CKSN_KC_INVAL
	acccNOT_USED	
	thplmn	NOT_USED
(13)	SIM_MM_UPDATE_REQ	
	loc_info	LOC_INFO_123_33_FEFF
	bcch_inf	NOT_USED
	forb_plmn	NOT_USED
	cksnCKSN_RES	
	kc KC_DELETED_SIM	
	cell_identity	CELL_ID_1122
(14)	RR_ESTABLISH_REQ	
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd U_LOC_UPD_REQ	
	ti TI_0	
	loc_upd_type	LOC_UPD_TYPE_NORMAL
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_FEFF
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	

(15)	RR_ESTABLISH_CNF	
	param	NOT_USED
(16)	RR_DATA_IND	
	d1	NOT_USED
	d2	NOT_USED
	sdu	
	{	
	component	MM
	direction	DOWNLINK
	pd	D_LOC_UPD_REJ
	ti	TI_0
	rej_cause	RC_RETRY_UPON_NEW_CELL
	}	
(17)	RR_RELEASE_IND	
	relcs	RELCS_NORM
	sapi	SAPI_0
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(18)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(19)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	NOT_USED
	plmn	NOT_USED
	lac	NOT_USED
	synccs	SYNCCS_TMSI_CKSN_KC_INVALID
	accc	NOT_USED
	thplmn	NOT_USED
(20)	SIM_MM_UPDATE_REQ	
	loc_info	LOC_INFO_123_33_FEFF
	bcch_inf	NOT_USED
	forb_plmn	NOT_USED
	cksn	CKSN_RES
	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122
(21)	MMR_NREG_IND	
	nreg_cs	NREG_LIMITED_SERVICE
	search_running	SEARCH_NOT_RUNNING
	new_forb_plmn	PLMN_NO_ID
	limited_cause	MMR_RC_RETRY_UPON_NEW_CELL
(22)	RR_ACTIVATE_IND	
	op	OP_MODE_SIM
	mm_info	MM_INFO
	cid	CELL_ID_1123
	plmn	PLMN_123_33
	lac	LAC_2147
	power	RF_CLASS_2
	gprs_indic	GPRS_NO
(23)	RR_ESTABLISH_REQ	
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM

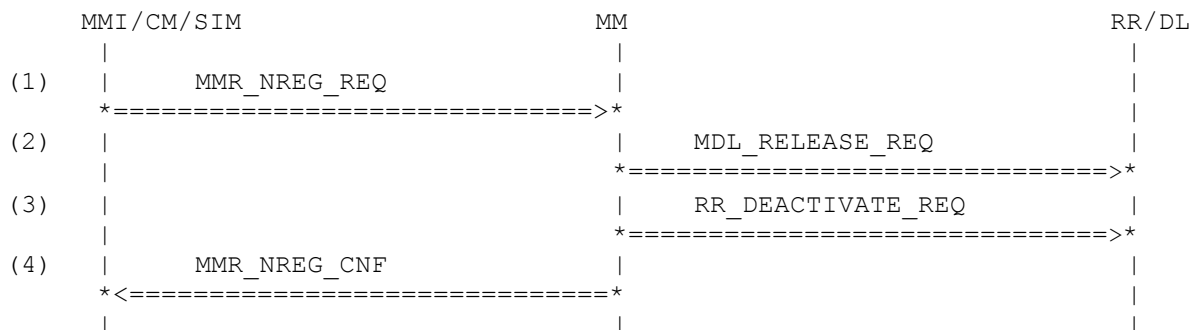
direction	UPLINK
pd U_LOC_UPD_REQ	
ti TI_0	
loc_upd_type	LOC_UPD_TYPE_NORMAL
ciph_key_num	CIPH_KEY_NUM_RES
loc_area_ident	LOC_AREA_ID_123_33_FEFF
mob_class_1	MOB_CLASS_1
mob_id	MOB_IDENT_IMSI
}	

History:	04.05.99	LE	Initial
	02.03.00	HM	Revised (search_running)

4.20.41 MM471: Attempt to Update, IMSI Detach, Power OFF

Description: MM is in IDLE Attempting to update state. It is switched off. MM shall not perform IMSI Detach. It shall only deactivate the lower layer.

Preamble: MM429



Parametrization

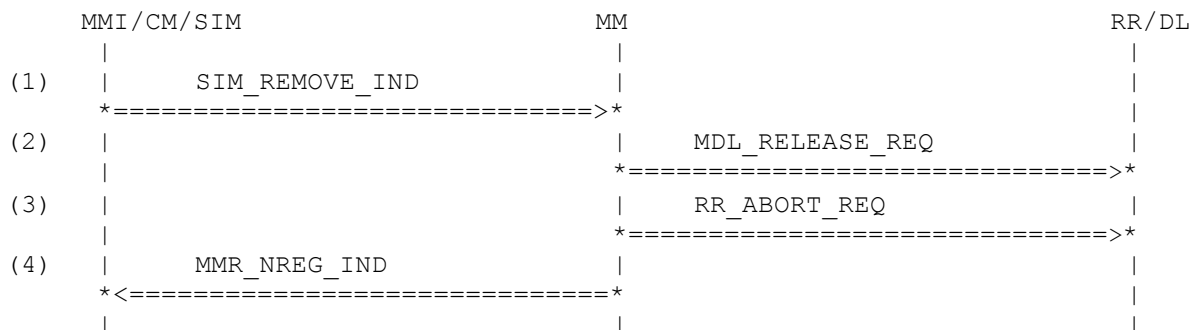
	Primitive	Parameter	Value
(1)	MMR_NREG_REQ cs	CS_POW_OFF	
(2)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(3)	RR_DEACTIVATE_REQ param	NOT_USED	
(4)	MMR_NREG_CNF cs	CS_POW_OFF	

History: 05.05.99 LE Initial

4.20.42 MM472: Attempt to Update, IMSI Detach, SIM Remove by SIM

Description: MM is in Attempt to update state. The SIM manager has detected a SIM Remove. MM shall not process IMSI Detach. MM enters the IDLE NO IMSI state.

Preamble: MM429



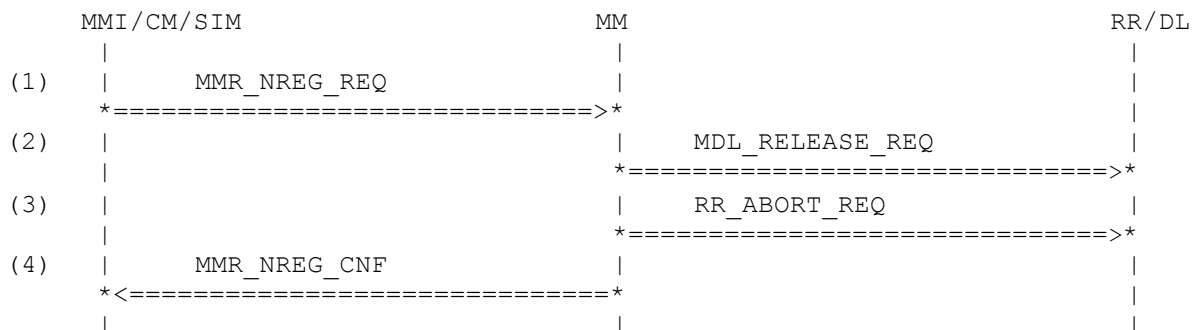
Parametrization

	Primitive	Parameter	Value
(11)	SIM_REMOVE_IND error	NOT_USED	
(12)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(13)	RR_ABORT_REQ abcs	ABCS_SIM_REM	
(14)	MMR_NREG_IND nreg_cs search_running new_forb_plmn limited_cause	NREG_LIMITED_SERVICE SEARCH_NOT_RUNNING PLMN_NO_ID MMR_SIM_INVALID_REMOVED	
History:	05.05.99 02.03.00 07.01.01 18.04.01	LE HM HM HM	Initial Revised (search_running) Adaption after GPRS integration Revised (nreg_cs)

4.20.43 MM473: Attempt to Update, IMSI Detach, SIM Remove by MMI

Description: MM is in Attempt to Update state. The MMI requests limited service. An IMSI Detach shall not be processed. The MS enters the IDLE NO IMSI state.

Preamble: MM429



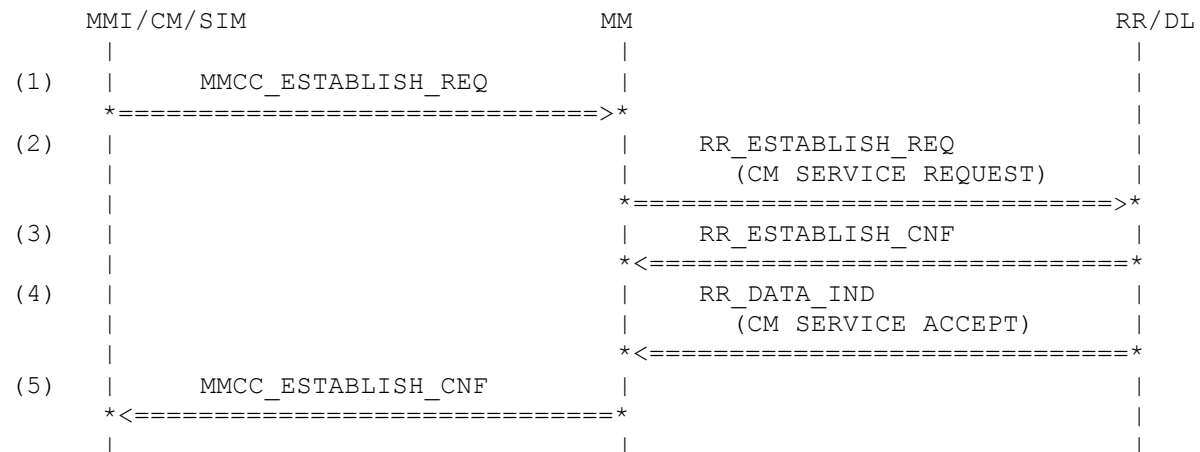
Parametrization

	Primitive	Parameter	Value
(1)	MMR_NREG_REQ cs	CS_SIM_REM	
(2)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(3)	RR_ABORT_REQ abcs	ABCS_SIM_REM	
(4)	MMR_NREG_CNF cs	CS_SIM_REM	
History:	05.05.99 31.08.00	LE HM	Initial Revised

4.20.44 MM474: Attempt to update, Emergency Call

Description: MM receives an establishment request from CC while in State 19.2 (Idle Attempting to Update). It then sends a CM SERVICE REQUEST message to the network. On receipt of a RR-ESTABLISH confirmation primitive from the network followed by a CM SERVICE ACCEPT message, MM issues as MMCC-ESTABLISH confirmation primitive.

Preamble: MM429



Parametrization

Primitive	Parameter	Value
(1) MMCC_ESTABLISH_REQ		
ti	TI_3	
prio	PRIO_EMERG_CALL	
estcs	ESTCS_MOB_ORIG_DATA	
(2) RR_ESTABLISH_REQ		
estcs	ESTCS_EMERG_CAL	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_CM_SERV_REQ	
ti	TI_0	
cm_serv_type	ST_EMERGENCY	
ciph_key_num	CIPH_KEY_NUM_RES	
mob_class_2	MOB_CLASS_2	
mob_id	MOB_IDENT_IMSI	
}		
(3) RR_ESTABLISH_CNF		
param	NOT_USED	
(4) RR_DATA_IND		
d1	NOT_USED	
d2	NOT_USED	
sdu		
{		
component	MM	
direction	DOWNLINK	

pd	D_CM_SERV_ACCEPT
ti	TI_0
}	
(5) MMCC_ESTABLISH_CNF	
ti	TI_3

History: 09.07.97 HK Initial

4.20.45 MM475: Attempt to update, CM connection request (I)

Description: MM receives a MMCC-ESTABLISH request primitive from CC in attempting to update state. This is a trigger to start location updating (with follow on request). MM stores the connection request until Location Updating has been completed. The location updating fails. After timeout in CC the connection attempt is cleared. In the next attempt the follow on request bit shall be cleared.

Preamble: MM429

	MMI / CM / SIM	MM	RR / DL
(1)			
	MMCC_ESTABLISH_REQ		
	=====>		
(2)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		=====>	
(3)		RR_ESTABLISH_CNF	
		<=====	
(4)		RR_DATA_IND	
		(LOCATION UPDATING REJ)	
		<=====	
(5)		RR_RELEASE_IND	
		<=====	
(6)		MDL_RELEASE_REQ	
		=====>	
(7)		RR_SYNC_REQ	
		=====>	
(8)	SIM_MM_UPDATE_REQ		
	<=====		
(9)	MMCC_RELEASE_REQ		
	=====>		
TIMEOUT (10000)			
(10)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		=====>	

Parametrization

	Primitive	Parameter	Value
(1)	MMCC_ESTABLISH_REQ		
	ti	TI_4	
	prio	PRIO_NORM_CALL	
	estcs	ESTCS_MOB_ORIG_SPCH	
(2)	RR_ESTABLISH_REQ		
	estcs	ESTCS_SERV_REQ_BY_MM	
	sdu		
	{		
	component	MM	
	direction	UPLINK	
	pd U_LOC_UPD_REQ		
	ti TI_0		
	loc_upd_type	LOC_UPD_TYPE_NORMAL_FOL	
	ciph_key_num	CIPH_KEY_NUM_RES	
	loc_area_ident	LOC_AREA_ID_123_33_FEFF	
	mob_class_1	MOB_CLASS_1	
	mob_id	MOB_IDENT_IMSI	
	}		

(3)	RR_ESTABLISH_CNF param	NOT_USED
(4)	RR_DATA_IND d1 NOT_USED d2 NOT_USED sdu { component direction pd D_LOC_UPD_REJ ti TI_0 rej_cause }	MM DOWNLINK RC_NETWORK_FAILURE
(5)	RR_RELEASE_IND relcs sapi SAPI_0 gprs_resumption	RELCS_NORM GPRS_RESUMPTION_NOT_ACK
(6)	MDL_RELEASE_REQ ch_type sapi SAPI_0	NOT_PRESENT_8BIT
(7)	RR_SYNC_REQ op NOT_USED cksnNOT_USED kcv NOT_USED tmsi NOT_USED plmn lac NOT_USED synccs acccNOT_USED thplmn	NOT_USED SYNCCS_TMSI_CKSN_KC_INVAL NOT_USED
(8)	SIM_MM_UPDATE_REQ loc_info bcch_inf forb_plmn cksnCKSN_RES kc KC_DELETED_SIM cell_identity	LOC_INFO_123_33_FEFF NOT_USED NOT_USED CELL_ID_1122
(9)	MMCC_RELEASE_REQ ti	TI_4
(10)	RR_ESTABLISH_REQ estcs sdu { component direction pd U_LOC_UPD_REQ ti TI_0 loc_upd_type ciph_key_num loc_area_ident mob_class_1 mob_id }	ESTCS_SERV_REQ_BY_MM MM UPLINK LOC_UPD_TYPE_NORMAL CIPH_KEY_NUM_RES LOC_AREA_ID_123_33_FEFF MOB_CLASS_1 MOB_IDENT_IMSI

History:	15.09.97	DL	Initial
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4.20.46 MM476: Attempt to update, CM connection request (II)

Description: MM receives a MMCC-ESTABLISH request primitive from CC in attempting to update state. This is a trigger to start location updating (with follow on request). MM stores the connection request until Location Updating has been completed. The location updating fails. After timeout a second attempt is started. The follow on request bit shall be set. The location updating is successful indicating no follow on proceed. MM sends the CM SERVICE REQUEST message after establishment a new RR-connection after the release of the old one.

Preamble: MM429

	MMI / CM / SIM	MM	RR / DL
(1)	MMCC_ESTABLISH_REQ		
	=====>		
(2)		RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
		=====>	
(3)		RR_ESTABLISH_CNF	
		<=====	
(4)		RR_DATA_IND (LOCATION UPDATING REJ)	
		<=====	
(5)		RR_RELEASE_IND	
		<=====	
(6)		MDL_RELEASE_REQ	
		=====>	
(7)		RR_SYNC_REQ	
		=====>	
(8)	SIM_MM_UPDATE_REQ		
	<=====		
TIMEOUT (10000)			
(9)		RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
		=====>	
(10)		RR_ESTABLISH_CNF	
		<=====	
(11)		RR_DATA_IND (LOCATION UPDATING ACC)	
		<=====	
(12)		RR_DATA_REQ (TMSI REALLOC COMPLETE)	
		=====>	
(13)		RR_SYNC_REQ	
		=====>	
(14)		RR_SYNC_REQ	
		=====>	
(15)	MMR_REG_CNF		
	<=====		
(16)	SIM_MM_UPDATE_REQ		
	<=====		
(17)		RR_RELEASE_IND	
		<=====	
(18)		MDL_RELEASE_REQ	
		=====>	
(19)		RR_ESTABLISH_REQ (CM SERVICE REQUEST)	
		=====>	
(20)		RR_ESTABLISH_CNF	
		<=====	

```

(21) | | RR_DATA_IND |
      | | (CM SERVICE ACCEPT) |
      | | *<=====* |
(22) | MMCC_ESTABLISH_CNF |
      | *<=====* |
      | | |

```

Parametrization

	Primitive	Parameter	Value
(1)	MMCC_ESTABLISH_REQ		
	ti	TI_4	
	prio	PRIOR_NORM_CALL	
	estcs	ESTCS_MOB_ORIG_SPCH	
(2)	RR_ESTABLISH_REQ		
	estcs	ESTCS_SERV_REQ_BY_MM	
	sdu		
	{		
	component	MM	
	direction	UPLINK	
	pd	U_LOC_UPD_REQ	
	ti	TI_0	
	loc_upd_type	LOC_UPD_TYPE_NORMAL_FOL	
	ciph_key_num	CIPH_KEY_NUM_RES	
	loc_area_ident	LOC_AREA_ID_123_33_FEFF	
	mob_class_1	MOB_CLASS_1	
	mob_id	MOB_IDENT_IMSI	
	}		
(3)	RR_ESTABLISH_CNF		
	param	NOT_USED	
(4)	RR_DATA_IND		
	d1	NOT_USED	
	d2	NOT_USED	
	sdu		
	{		
	component	MM	
	direction	DOWNLINK	
	pd	D_LOC_UPD_REJ	
	ti	TI_0	
	rej_cause	RC_NETWORK_FAILURE	
	}		
(5)	RR_RELEASE_IND		
	relcs	RELCS_NORM	
	sapi	SAPI_0	
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK	
(6)	MDL_RELEASE_REQ		
	ch_type	NOT_PRESENT_8BIT	
	sapi	SAPI_0	
(7)	RR_SYNC_REQ		
	op	NOT_USED	
	cksn	NOT_USED	
	kcv	NOT_USED	
	tmsi	NOT_USED	
	plmn	NOT_USED	
	lac	NOT_USED	

	synccs	SYNCCS_TMSI_CKSN_KC_INVAL
	accc	NOT_USED
	thplmn	NOT_USED
(8)	SIM_MM_UPDATE_REQ	
	loc_info	LOC_INFO_123_33_FEFF
	bcch_inf	NOT_USED
	forb_plmn	NOT_USED
	cksn	CKSN_RES
	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122
(9)	RR_ESTABLISH_REQ	
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti	TI_0
	loc_upd_type	LOC_UPD_TYPE_NORMAL_FOL
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_FEFF
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(10)		RR_ESTABLISH_CNF
	param	NOT_USED
(11)		RR_DATA_IND
	d1	NOT_USED
	d2	NOT_USED
	sdu	
	{	
	component	MM
	direction	DOWNLINK
	pd	D_LOC_UPD_ACCEPT
	ti	TI_0
	loc_area_ident	LOC_AREA_ID_123_33_2147
	mob_id	MOB_IDENT_NEW_TMSI
	follow_proceed	NOT_USED
	}	
(12)		RR_DATA_REQ
	d1	NOT_USED
	d2	NOT_USED
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_TMSI_REALLOC_COMP
	ti	TI_0
	}	
(13)		RR_SYNC_REQ
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	MOB_ID_NEW_TMSI
	plmn	NOT_USED
	lac	NOT_USED

	syncchs	NOT_USED
	accc	NOT_USED
	thplmn	NOT_USED
(14)		RR_SYNC_REQ
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	NOT_USED
	plmn	PLMN_123_33
	lac	LAC_2147
	syncchs	SYNCCS_LAI_ALLOW
	accc	NOT_USED
	thplmn	NOT_USED
(15)		MMR_REG_CNF
	plmn	PLMN_123_33
(16)		SIM_MM_UPDATE_REQ
	loc_info	LOC_INFO_UPDATED_5
	bcch_inf	BCCH_INF_1
	forb_plmn	NOT_USED
	cksn	CKSN_RES
	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122
(17)		RR_RELEASE_IND
	relcs	RELCS_NORM
	sapi	SAPI_0
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(18)		MDL_RELEASE_REQ
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(19)		RR_ESTABLISH_REQ
	estcs	ESTCS_MOB_ORIG_SPCH
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_CM_SERV_REQ
	ti	TI_0
	cm_serv_type	ST_MOC
	ciph_key_num	CIPH_KEY_NUM_RES
	mob_class_2	MOB_CLASS_2
	mob_id	MOB_IDENT_NEW_TMSI
	}	
(20)		RR_ESTABLISH_CNF
	param	NOT_USED
(21)		RR_DATA_IND
	d1	NOT_USED
	d2	NOT_USED
	sdu	
	{	
	component	MM
	direction	DOWNLINK
	pd	D_CM_SERV_ACCEPT
	ti	TI_0
	}	

(22)
ti MMCC_ESTABLISH_CNF
TI_4

History: 15.09.97 DL Initial

4.20.47 MM477: Attempt to update, CM connection request (III)

Description: MM receives a MMCC-ESTABLISH request primitive from CC in attempting to update state. This is a trigger to start location updating (with follow on request). MM stores the connection request until Location Updating has been completed. The follow on request bit shall be set. The location updating is successful indicating no follow on proceed. MM doesn't release the connection request, after release of RR and layer 2 connection a RR_ESTABLISH_REQ is sent to establish the call.

Preamble: MM429

	MMI / CM / SIM	MM	RR / DL
(1)	MMCC_ESTABLISH_REQ		
	=====>		
(2)		RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
		=====>	
(3)		RR_ESTABLISH_CNF	
		<=====	
(4)		RR_DATA_IND (LOCATION UPDATING ACC)	
		<=====	
(5)		RR_DATA_REQ (TMSI REALLOC COMPLETE)	
		=====>	
(6)		RR_SYNC_REQ	
		=====>	
(7)		RR_SYNC_REQ	
		=====>	
(8)	MMR_REG_CNF		
	<=====		
(9)	SIM_MM_UPDATE_REQ		
	<=====		
(10)		RR_RELEASE_IND	
		<=====	
(11)		MDL_RELEASE_REQ	
		=====>	
(12)		RR_ESTABLISH_REQ (CM SERVICE REQUEST)	
		=====>	

Parametrization

Primitive	Parameter	Value
(1) MMCC_ESTABLISH_REQ		
ti	TI_4	
prio	PRIQ_NORM_CALL	
estcs	ESTCS_MOB_ORIG_SPCH	
(2) RR_ESTABLISH_REQ		
estcs	ESTCS_SERV_REQ_BY_MM	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_LOC_UPD_REQ	
ti	TI_0	
loc_upd_type	LOC_UPD_TYPE_NORMAL_FOL	

	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_FEFF
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(3)	RR_ESTABLISH_CNF	
	param	NOT_USED
(4)	RR_DATA_IND	
	d1	NOT_USED
	d2	NOT_USED
	sdu	
	{	
	component	MM
	direction	DOWNLINK
	pd	D_LOC_UPD_ACCEPT
	ti	TI_0
	loc_area_ident	LOC_AREA_ID_123_33_2147
	mob_id	MOB_IDENT_NEW_TMSI
	follow_proceed	NOT_USED
	}	
(5)	RR_DATA_REQ	
	d1	NOT_USED
	d2	NOT_USED
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_TMSI_REALLOC_COMP
	ti	TI_0
	}	
(6)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	MOB_ID_NEW_TMSI
	plmn	NOT_USED
	lac	NOT_USED
	syncchs	NOT_USED
	accc	NOT_USED
	thplmn	NOT_USED
(7)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	NOT_USED
	plmn	PLMN_123_33
	lac	LAC_2147
	syncchs	SYNCCS_LAI_ALLOW
	accc	NOT_USED
	thplmn	NOT_USED
(8)	MMR_REG_CNF	
	plmn	PLMN_123_33
(9)	SIM_MM_UPDATE_REQ	
	loc_info	LOC_INFO_UPDATED_5
	bcch_inf	BCCH_INF_1

	forb_plmn	NOT_USED
	cksn	CKSN_RES
	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122
(10)		RR_RELEASE_IND
	relcs	RELCS_NORM
	sapi	SAPI_0
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(11)		MDL_RELEASE_REQ
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(12)		RR_ESTABLISH_REQ
	estcs	ESTCS_MOB_ORIG_SPCH_CAL_BY_CC
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_CM_SERV_REQ
	ti	TI_0
	cm_serv_type	ST_MOC
	ciph_key_num	CIPH_KEY_NUM_RES
	mob_class_2	MOB_CLASS_2
	mob_id	MOB_IDENT_TMSI
	}	

History:	15.09.97	DL	Initial
	16.02.00	HM	Revised

4.20.48 MM478: Attempt to update, CM connection request (IV)

Description: MM receives a MMCC-ESTABLISH request primitive from CC in attempting to update state. This is a trigger to start location updating (with follow on request). MM stores the connection request until Location Updating has been completed. The follow on request bit shall be set. The location updating is successful indicating follow on proceed. MM sends the CM SERVICE REQUEST on the existing RR-connection.

Preamble: MM429

	MMI / CM / SIM	MM	RR / DL
(1)	MMCC_ESTABLISH_REQ		
	=====>		
(2)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		=====>	
(3)		RR_ESTABLISH_CNF	
		<=====	
(4)		RR_DATA_IND	
		(LOCATION UPDATING ACC)	
		<=====	
(5)		RR_DATA_REQ	
		(TMSI REALLOC COMPLETE)	
		=====>	
(6)		RR_SYNC_REQ	
		=====>	
(7)		RR_SYNC_REQ	
		=====>	
(8)	MMR_REG_CNF		
	<=====		
(9)	SIM_MM_UPDATE_REQ		
	<=====		
(10)		RR_DATA_REQ	
		(CM SERVICE REQUEST)	
		=====>	
(11)		RR_DATA_IND	
		(CM SERVICE ACCEPT)	
		<=====	
(12)	MMCC_ESTABLISH_CNF		
	<=====		

Parametrization

	Primitive	Parameter	Value
(1)	MMCC_ESTABLISH_REQ		
	ti	TI_4	
	prio	PRIQ_NORM_CALL	
	estcs	ESTCS_MOB_ORIG_SPCH	
(2)	RR_ESTABLISH_REQ		
	estcs	ESTCS_SERV_REQ_BY_MM	
	sdu		
	{		
	component	MM	
	direction	UPLINK	
	pd	U_LOC_UPD_REQ	
	ti	TI_0	
	loc_upd_type	LOC_UPD_TYPE_NORMAL_FOL	

	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_FEFF
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(3)	RR_ESTABLISH_CNF	
	param	NOT_USED
(4)	RR_DATA_IND	
	d1	NOT_USED
	d2	NOT_USED
	sdu	
	{	
	component	MM
	direction	DOWNLINK
	pd	D_LOC_UPD_ACCEPT
	ti	TI_0
	loc_area_ident	LOC_AREA_ID_123_33_2147
	mob_id	MOB_IDENT_NEW_TMSI
	follow_proceed	TRUE
	}	
(5)	RR_DATA_REQ	
	d1	NOT_USED
	d2	NOT_USED
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_TMSI_REALLOC_COMP
	ti	TI_0
	}	
(6)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	MOB_ID_NEW_TMSI
	plmn	NOT_USED
	lac	NOT_USED
	syncchs	NOT_USED
	accc	NOT_USED
	thplmn	NOT_USED
(7)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	NOT_USED
	plmn	PLMN_123_33
	lac	LAC_2147
	syncchs	SYNCCS_LAI_ALLOW
	accc	NOT_USED
	thplmn	NOT_USED
(8)	MMR_REG_CNF	
	plmn	PLMN_123_33
(9)	SIM_MM_UPDATE_REQ	
	loc_info	LOC_INFO_UPDATED_5
	bcch_inf	BCCH_INF_1

	forb_plmn	NOT_USED
	cksn	CKSN_RES
	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122
(10)		RR_DATA_REQ
	d1	NOT_USED
	d2	NOT_USED
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_CM_SERV_REQ
	ti	TI_0
	cm_serv_type	ST_MOC
	cip_key_num	CIPH_KEY_NUM_RES
	mob_class_2	MOB_CLASS_2
	mob_id	MOB_IDENT_NEW_TMSI
	}	
(11)		RR_DATA_IND
	d1	NOT_USED
	d2	NOT_USED
	sdu	
	{	
	component	MM
	direction	DOWNLINK
	pd	D_CM_SERV_ACCEPT
	ti	TI_0
	}	
(12)		MMCC_ESTABLISH_CNF
	ti	TI_4

History: 15.09.97 DL Initial

4.21 MM Idle Mode Behaviour (Limited Service)

4.21.1 MM479: Limited Service State

Description: MM receives a SIM-INSERT indication primitive and initiates cell selection by issuing a RR-ACTIVATE request primitive. RR indicates only limited service. The periodic location updating timer shall not be started.

Preamble: MM022

MMI / CM	MM	RR / DL
COMMAND (MM CONFIG T3212_CNT=6)		
(1) SIM_MM_INSERT_IND		
=====>		
(2) MMR_REG_REQ		
=====>		
(3)	RR_ACTIVATE_REQ	
	=====>	
(4)	RR_ACTIVATE_CNF	
	<=====	
(5) MMR_NREG_IND		
<=====		

Parametrization

Primitive	Parameter	Value
(1) SIM_MM_INSERT_IND		
op_mode	NORMAL_SIM_INS	
imsi_field	IMSI_FIELD_1	
loc_info	LOC_INFO_UPDATED_1	
acc_ctrl	ACC_CTRL_1	
bcch_inf	BCCH_INF_1	
kc_n	KC_EMPTY	
pref_plmn	PREF_PLMN_NONE	
forb_plmn	FORB_PLMN_NONE	
phase	PHASE_2_SIM	
hplmn	THPLMN_01	
(2) MMR_REG_REQ		
service_mode	SERVICE_MODE_FULL	
(3) RR_ACTIVATE_REQ		
plmn	PLMN_123_33	
op	OP_MODE_SIM_NO_SERV	
cksn	CKSN_RES	
kcv	KCV_EMPTY	
acc	ACC_2143	
imsi	MOB_ID_IMSI	
tmsi	MOB_ID_NO_ID	
thplmn	THPLMN_01	
bcch_info	BCCH_INFO_ECL	
cell_test	CELL_TEST_DISABLE	
gprs_indic	GPRS_NO	
(4) RR_ACTIVATE_CNF		
op	OP_MODE_SIM_LIM_SERV	
mm_info	MM_INFO	
cid	CELL_ID_1122	
plmn	PLMN_123_44	

	lac	LAC_0002
	power	RF_CLASS_2
	gprs_indic	GPRS_NO
(5)	MMR_NREG_IND	
	nreg_cs	NREG_LIMITED_SERVICE
	search_running	SEARCH_NOT_RUNNING
	new_forb_plmn	PLMN_NO_ID
	limited_cause	MMR_RC_NONE

History:	04.05.99	LE	Initial
	24.02.00	HM	Revised
	02.03.00	HM	Revised (search_running)

4.21.2 MM480: Limited, not perform Periodic LUP

Description: The testcase waits 70 seconds. If the periodic LUP timer is started in the preamble, the testcase will fail, else MM has the expected behaviour. T3212 is decreased to 60 seconds by a dynamic config.

Preamble: MM479

MMI / CM	MM	RR / DL
TIMEOUT (70000)		

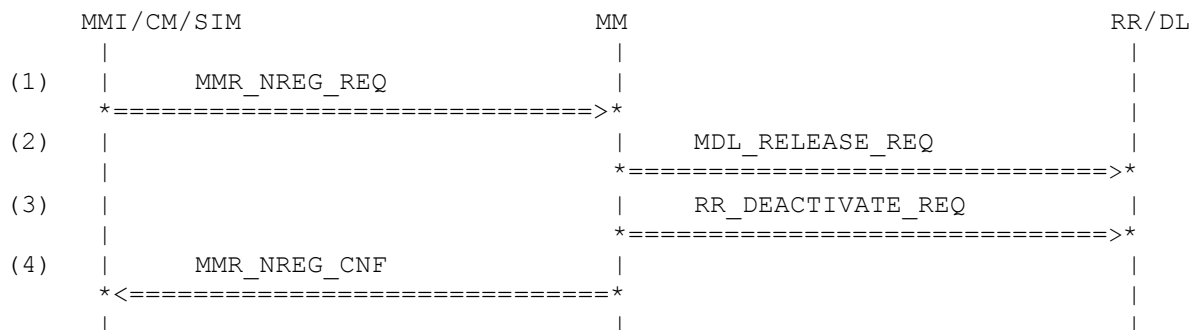
Parametrization

<u>Primitive</u>	<u>Parameter</u>	<u>Value</u>
History:	09.06.99	LE
		Initial

4.21.3 MM481: Limited, IMSI Detach, Power OFF

Description: MM is in IDLE limited service state. It is switched off. MM shall not perform IMSI Detach. It shall only deactivate the lower layer.

Preamble: MM479



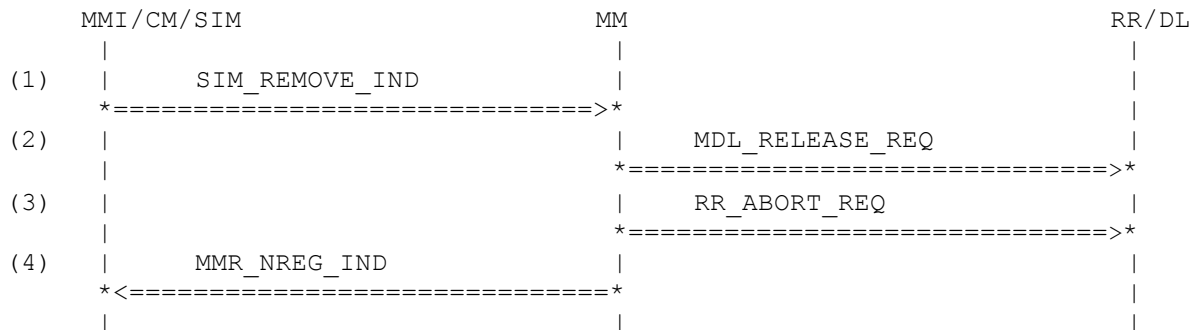
Parametrization

	Primitive	Parameter	Value
(1)	MMR_NREG_REQ cs	CS_POW_OFF	
(2)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(3)	RR_DEACTIVATE_REQ param	NOT_USED	
(4)	MMR_NREG_CNF cs	CS_POW_OFF	
History:	09.06.99	LE	Initial

4.21.4 MM482: Limited, IMSI Detach, SIM Remove by SIM

Description: MM is in Limited service state. The SIM manager has detected a SIM Remove. MM shall not process IMSI Detach. MM enters the IDLE NO IMSI state.

Preamble: MM479



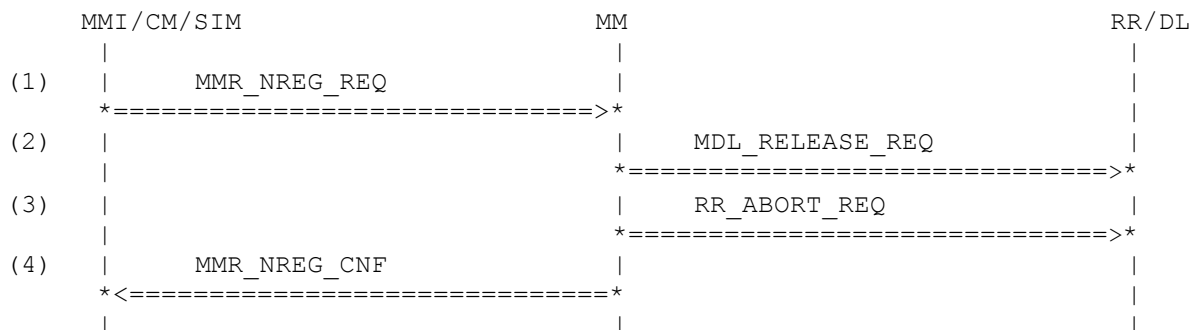
Parametrization

	Primitive	Parameter	Value
(1)	SIM_REMOVE_IND error	NOT_USED	
(2)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(3)	RR_ABORT_REQ abcs	ABCS_SIM_REM	
(4)	MMR_NREG_IND nreg_cs search_running new_forb_plmn limited_cause	NREG_LIMITED_SERVICE SEARCH_NOT_RUNNING PLMN_NO_ID MMR_SIM_INVALID_REMOVED	
History:	09.06.99 02.03.00 07.01.01	LE HM HM	Initial Revised (search_running) Adaption after GPRS integration

4.21.5 MM483: Limited, IMSI Detach, SIM Remove by MMI

Description: MM is in Limited service state. The MMI requests limited service. An IMSI Detach shall not be processed. The MS enters the IDLE NO IMSI state.

Preamble: MM479



Parametrization

	Primitive	Parameter	Value
(1)	MMR_NREG_REQ cs	CS_SIM_REM	
(2)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(3)	RR_ABORT_REQ abcs	ABCS_SIM_REM	
(4)	MMR_NREG_CNF cs	CS_SIM_REM	
History:	09.06.99 31.08.00	LE HM	Initial Revised

4.21.6 MM484: Limited, Call attempts, Emergency Calls

Description: MM is in idle limited service state. It shall reject all requests from CM entities except emergency calls. First the rejects are tested, then an emergency call. Then the whole sequence is tested again to check coming back in limited service state.

Preamble: MM479

	MMI/CM/SIM	MM	RR/DL
(1)	MMCC_ESTABLISH_REQ		
	=====>		
(2)	MMCC_RELEASE_IND		
	<=====		
(3)	MMSS_ESTABLISH_REQ		
	=====>		
(4)	MMSS_RELEASE_IND		
	<=====		
(5)	MMSMS_ESTABLISH_REQ		
	=====>		
(6)	MMSMS_RELEASE_IND		
	<=====		
(7)	MMCC_ESTABLISH_REQ		
	=====>		
(8)		RR_ESTABLISH_REQ	
		(CM SERVICE REQUEST)	
		=====>	
(9)		RR_ESTABLISH_CNF	
		<=====	
(10)		RR_DATA_IND	
		(CM SERVICE ACCEPT)	
		<=====	
(11)	MMCC_ESTABLISH_CNF		
	<=====		
(12)	MMCC_RELEASE_REQ		
	=====>		
TIMEOUT (5000)			
(13)		RR_ABORT_REQ	
		=====>	
(14)		RR_RELEASE_IND	
		<=====	
(15)		MDL_RELEASE_REQ	
		=====>	
(16)	MMCC_ESTABLISH_REQ		
	=====>		
(17)	MMCC_RELEASE_IND		
	<=====		
(18)	MMSS_ESTABLISH_REQ		
	=====>		
(19)	MMSS_RELEASE_IND		
	<=====		
(20)	MMSMS_ESTABLISH_REQ		
	=====>		
(21)	MMSMS_RELEASE_IND		
	<=====		
(22)	MMCC_ESTABLISH_REQ		
	=====>		
(23)		RR_ESTABLISH_REQ	
		(CM SERVICE REQUEST)	
		=====>	

```

(24) |                                     | RR_ESTABLISH_CNF |
      |                                     | *<=====*      |
(25) |                                     | RR_DATA_IND     |
      |                                     | (CM SERVICE ACCEPT) |
      |                                     | *<=====*      |
(26) | MMCC_ESTABLISH_CNF |                                     |
      | *<=====*      |                                     |
(27) | MMCC_RELEASE_REQ |                                     |
      | *=====>*      |                                     |
TIMEOUT (5000)
(28) |                                     | RR_ABORT_REQ    |
      |                                     | *=====>*      |
(29) |                                     | RR_RELEASE_IND  |
      |                                     | *<=====*      |
(30) |                                     | MDL_RELEASE_REQ |
      |                                     | *=====>*      |
      |                                     |                 |

```

Parametrization

Primitive	Parameter	Value
(1) MMCC_ESTABLISH_REQ		
ti	TI_4	
prio	PRIO_NORM_CALL	
estcs	ESTCS_MOB_ORIG_SPCH	
(2) MMCC_RELEASE_IND		
ti	TI_4	
relcs	RELCS_NO_REGISTRATION	
(3) MMSS_ESTABLISH_REQ		
ti	TI_3	
(4) MMSS_RELEASE_IND		
ti	TI_3	
relcs	RELCS_NO_REGISTRATION	
(5) MMSMS_ESTABLISH_REQ		
ti	TI_5	
(6) MMSMS_RELEASE_IND		
ti	TI_5	
relcs	RELCS_NO_REGISTRATION	
(7) MMCC_ESTABLISH_REQ		
ti	TI_3	
prio	PRIO_EMERG_CALL	
estcs	ESTCS_MOB_ORIG_DATA	
(8) RR_ESTABLISH_REQ		
estcs	ESTCS_EMERG_CAL	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_CM_SERV_REQ	
ti	TI_0	
cm_serv_type	ST_EMERGENCY	
ciph_key_num	CIPH_KEY_NUM_RES	
mob_class_2	MOB_CLASS_2	

	mob_id }	MOB_IDENT_IMSI
(9)	RR_ESTABLISH_CNF param	NOT_USED
(10)	d1 d2 sdu { component direction pd ti }	RR_DATA_IND NOT_USED NOT_USED MM DOWNLINK D_CM_SERV_ACCEPT TI_0
(11)	ti	MMCC_ESTABLISH_CNF TI_3
(12)	ti	MMCC_RELEASE_REQ TI_3
(13)	abcs	RR_ABORT_REQ ABCS_NORM
(14)	relcs sapi gprs_resumption	RR_RELEASE_IND RELCS_ABNORM_UNSPEC SAPI_0 GPRS_RESUMPTION_NOT_ACK
(15)	ch_type sapi	MDL_RELEASE_REQ NOT_PRESENT_8BIT SAPI_0
(16)	ti prio estcs	MMCC_ESTABLISH_REQ TI_4 PRIO_NORM_CALL ESTCS_MOB_ORIG_SPCH
(17)	ti relcs	MMCC_RELEASE_IND TI_4 RELCS_NO_REGISTRATION
(18)	ti	MMSS_ESTABLISH_REQ TI_3
(19)	ti relcs	MMSS_RELEASE_IND TI_3 RELCS_NO_REGISTRATION
(20)	ti	MMSMS_ESTABLISH_REQ TI_5
(21)	ti relcs	MMSMS_RELEASE_IND TI_5 RELCS_NO_REGISTRATION
(22)	ti prio estcs	MMCC_ESTABLISH_REQ TI_3 PRIO_EMERG_CALL ESTCS_MOB_ORIG_DATA
(23)	estcs	RR_ESTABLISH_REQ ESTCS_EMERG_CAL

	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_CM_SERV_REQ
	ti	TI_0
	cm_serv_type	ST_EMERGENCY
	ciph_key_num	CIPH_KEY_NUM_RES
	mob_class_2	MOB_CLASS_2
	mob_id	MOB_IDENT_IMSI
	}	
(24)	param	RR_ESTABLISH_CNF NOT_USED
(25)		RR_DATA_IND NOT_USED NOT_USED
	d1	
	d2	
	sdu	
	{	
	component	MM
	direction	DOWNLINK
	pd	D_CM_SERV_ACCEPT
	ti	TI_0
	}	
(26)		MMCC_ESTABLISH_CNF
	ti	TI_3
(27)		MMCC_RELEASE_REQ
	ti	TI_3
(28)		RR_ABORT_REQ
	abcs	ABCS_NORM
(29)		RR_RELEASE_IND
	relcs	RELCS_ABNORM_UNSPEC
	sapi	SAPI_0
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(30)		MDL_RELEASE_REQ
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0

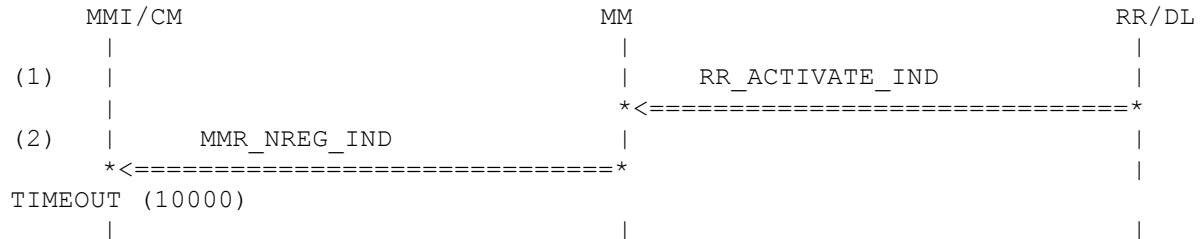
History:	09.06.99	LE	Initial
	26.01.01	HM	Revised

4.21.7 MM485: Limited, new cell, new LA, but only limited service

Description: MM is in service state Idle limited service. A.) A new cell is entered. B.) A new location area is entered. RR indicates only limited service. No reaction of MM is expected.

Preamble: MM479

Variants: <A>....



Parametrization

Primitive	Parameter	Value
(1) RR_ACTIVATE_IND		
op	OP_MODE_SIM_LIM_SERV	
mm_info	MM_INFO	
<A>	cid	CELL_ID_1123
	cid	CELL_ID_1122
plmn	PLMN_123_44	
<A>	lac	LAC_0002
	lac	LAC_0001
power	RF_CLASS_2	
gprs_indic	GPRS_NO	
(2) MMR_NREG_IND		
nreg_cs	NREG_LIMITED_SERVICE	
search_running	SEARCH_NOT_RUNNING	
new_forb_plmn	PLMN_NO_ID	
limited_cause	MMR_RC_NONE	
History:	09.06.99	LE Initial
	02.03.00	HM Revised (search_running, variants)

4.21.8 MM487: Limited, new location area, full service

Description: MM is in service state Idle limited service. A new location area is entered. RR indicates full service. MM shall start normal location updating.

Preamble: MM479

	MMI / CM	MM	RR / DL
(1)		RR_ACTIVATE_IND	
		<=====	
(2)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		=====>	

Parametrization

	Primitive	Parameter	Value
(1)	RR_ACTIVATE_IND		
	op	OP_MODE_SIM	
	mm_info	MM_INFO	
	cid	CELL_ID_1122	
	plmn	PLMN_123_33	
	lac	LAC_0002	
	power	RF_CLASS_2	
	gprs_indic	GPRS_NO	
(2)	RR_ESTABLISH_REQ		
	estcs	ESTCS_SERV_REQ_BY_MM	
	sdu		
	{		
	component	MM	
	direction	UPLINK	
	pd	U_LOC_UPD_REQ	
	ti	TI_0	
	loc_upd_type	LOC_UPD_TYPE_NORMAL	
	ciph_key_num	CIPH_KEY_NUM_RES	
	loc_area_ident	LOC_AREA_ID_123_33_2147	
	mob_class_1	MOB_CLASS_1	
	mob_id	MOB_IDENT_IMSI	
	}		

History: 09.06.99 LE Initial

4.21.9 MM488: Limited Service, LUP Reject Cause #17

Description: The location updating is finished with a location updating reject message and the cause #17 network failure. The update status is NOT UPDATED and the the MM IDLE substate after the RR connection release is idle attempting to update. The MS shall memorize the location updating type used in the location updating procedure. It shall start timer T3211 when the RR connection is released. When timer T3211 expires the location updating procedure is triggered again with the memorized location updating type.

Preamble: MM487

	MMI / CM / SIM	MM	RR / DL
(1)			
		RR_ESTABLISH_CNF	
		<=====	
(2)		RR_DATA_IND	
		(LOCATION UPDATING REJ)	
		<=====	
(3)		RR_RELEASE_IND	
		<=====	
(4)		MDL_RELEASE_REQ	
		=====>	
(5)		RR_SYNC_REQ	
		=====>	
(6)	SIM_MM_UPDATE_REQ		
	<=====		
TIMEOUT (10000)			
(7)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		=====>	

Parametrization

	Primitive	Parameter	Value
(1)	RR_ESTABLISH_CNF param	NOT_USED	
(2)	RR_DATA_IND d1 NOT_USED d2 NOT_USED sdu { component direction pd D_LOC_UPD_REJ ti TI_0 rej_cause }	MM DOWNLINK RC_NETWORK_FAILURE	
(3)	RR_RELEASE_IND relcs sapi SAPI_0 gprs_resumption	RELCS_NORM GPRS_RESUMPTION_NOT_ACK	
(4)	MDL_RELEASE_REQ ch_type sapi SAPI_0	NOT_PRESENT_8BIT	

(5)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	NOT_USED
	plmn	NOT_USED
	lac	NOT_USED
	synccs	SYNCCS_TMSI_CKSN_KC_INVAL
	accc	NOT_USED
	thplmn	NOT_USED
(6)	SIM_MM_UPDATE_REQ	
	loc_info	LOC_INFO_123_33_FEFF
	bcch_inf	NOT_USED
	forb_plmn	NOT_USED
	cksn	CKSN_RES
	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122
(7)	RR_ESTABLISH_REQ	
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti	TI_0
	loc_upd_type	LOC_UPD_TYPE_NORMAL
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_FEFF
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	

History: 09.06.99 LE Initial

4.21.10 MM489: Limited Service, Location updating accept

Description: MM is in idle limited service. After cell reselection a location updating is started. A connection establishment is started after successful location updating.

Preamble: MM487

	MMI/CM/SIM	MM	RR/DL
(1)		RR_ESTABLISH_CNF	
		<=====	
(2)		RR_DATA_IND	
		(LOCATION UPDATING ACC)	
		<=====	
(3)		RR_DATA_REQ	
		(TMSI REALLOC COMPLETE)	
		=====>	
(4)		RR_SYNC_REQ	
		=====>	
(5)		RR_SYNC_REQ	
		=====>	
(6)	MMR_REG_CNF		
	<=====		
(7)	SIM_MM_UPDATE_REQ		
	<=====		
(8)		RR_RELEASE_IND	
		<=====	
(9)		MDL_RELEASE_REQ	
		=====>	
(10)	MMCC_ESTABLISH_REQ		
	=====>		
(11)		RR_ESTABLISH_REQ	
		(CM SERVICE REQUEST)	
		=====>	
(12)		RR_ESTABLISH_CNF	
		<=====	
(13)		RR_DATA_IND	
		(CM SERVICE ACCEPT)	
		<=====	
(14)	MMCC_ESTABLISH_CNF		
	<=====		

Parametrization

Primitive	Parameter	Value
(1) RR_ESTABLISH_CNF param	NOT_USED	
(2) RR_DATA_IND d1 NOT_USED d2 NOT_USED sdu { component direction pd D_LOC_UPD_ACCEPT ti TI_0 loc_area_ident mob_id	MM DOWNLINK	LOC_AREA_ID_123_33_0002 MOB_IDENT_NEW_TMSI

	follow_proceed }	NOT_USED
(3)	RR_DATA_REQ d1 NOT_USED d2 NOT_USED sdu { component direction pd U_TMSI_REALLOC_COMP ti TI_0 }	MM UPLINK
(4)	RR_SYNC_REQ op NOT_USED cksn NOT_USED kcv NOT_USED tmsi MOB_ID_NEW_TMSI plmn lac NOT_USED synccs accc NOT_USED thplmn	NOT_USED NOT_USED NOT_USED NOT_USED
(5)	RR_SYNC_REQ op NOT_USED cksn NOT_USED kcv NOT_USED tmsi NOT_USED plmn lac LAC_0002 synccs accc NOT_USED thplmn	PLMN_123_33 SYNCCS_LAI_ALLOW NOT_USED
(6)	MMR_REG_CNF plmn	PLMN_123_33
(7)	SIM_MM_UPDATE_REQ loc_info bcch_inf forb_plmn cksn CKSN_RES kc KC_DELETED_SIM cell_identity	LOC_INFO_UPDATED_3 BCCH_INF_1 NOT_USED CELL_ID_1122
(8)	RR_RELEASE_IND relcs sapi SAPI_0 gprs_resumption	RELCS_NORM GPRS_RESUMPTION_NOT_ACK
(9)	MDL_RELEASE_REQ ch_type sapi SAPI_0	NOT_PRESENT_8BIT
(10)	MMCC_ESTABLISH_REQ ti TI_2 prio PRIO_NORM_CALL estcs	ESTCS_MOB_ORIG_SPCH
(11)	RR_ESTABLISH_REQ estcs	ESTCS_MOB_ORIG_SPCH_CAL_BY_CC


```

    sdu
    {
    component                MM
    direction                UPLINK
    pd  U_CM_SERV_REQ
    ti  TI_0
    cm_serv_type             ST_MOC
    ciph_key_num             CIPH_KEY_NUM_RES
    mob_class_2             MOB_CLASS_2
    mob_id                  MOB_IDENT_NEW_TMSI
    }

(12)    RR_ESTABLISH_CNF
    param                NOT_USED

(13)    RR_DATA_IND
    d1  NOT_USED
    d2  NOT_USED
    sdu
    {
    component                MM
    direction                DOWNLINK
    pd  D_CM_SERV_ACCEPT
    ti  TI_0
    }

(14)    MMCC_ESTABLISH_CNF
    ti  TI_2

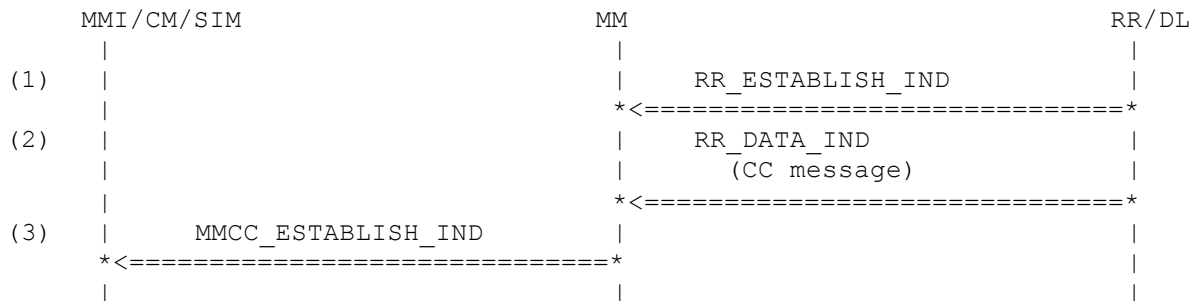
History:    09.06.99    LE    Initial

```

4.21.11 MM490: Limited Service, Mobile terminated Connection

Description: MM is in limited service state. RR will be paged. It is checked whether MM starts connection establishment.

Preamble: MM479



Parametrization

Primitive	Parameter	Value
(1) RR_ESTABLISH_IND param	NOT_USED	
(2) RR_DATA_IND d1	NOT_USED	
d2	NOT_USED	
sdu	CC_MESSAGE	
(3) MMCC_ESTABLISH_IND d1	NOT_USED	
d2	NOT_USED	
sdu	CC_MESSAGE	

History: 09.06.99 LE Initial

4.22 MM Idle Mode Behaviour (No IMSI Service)

4.22.1 MM491: No IMSI State

Description: MM is in state idle no imsi and initiates cell selection by issuing a RR-ACTIVATE request primitive. RR indicates only limited service. The periodic location updating timer shall not be started.

Preamble: MM022

MMI / CM	MM	RR / DL
COMMAND (MM CONFIG T3212_CNT=6)		
(1) MMR_REG_REQ		
=====>		
(2)	RR_ACTIVATE_REQ	
	=====>	
(3)	RR_ACTIVATE_CNF	
	<=====	
(4) MMR_NREG_IND		
<=====		

Parametrization

Primitive	Parameter	Value
(1) MMR_REG_REQ		
service_mode	SERVICE_MODE_FULL	
(2) RR_ACTIVATE_REQ		
plmn	PLMN_NO_ID	
op	OP_MODE_NO_SIM_NO_SERV	
cksn	CKSN_RES	
kcv	KC_DELETED	
acc	ACC_CLASS_0000	
imsi	MOB_ID_NO_ID	
tmsi	MOB_ID_NO_ID	
thplmn	THPLMN_FF	
bcch_info	NOT_USED	
cell_test	CELL_TEST_DISABLE	
gprs_indic	GPRS_NO	
(3) RR_ACTIVATE_CNF		
op	OP_MODE_NO_SIM_LIM_SERV	
mm_info	MM_INFO_PER	
cid	CELL_ID_1122	
plmn	PLMN_123_44	
lac	LAC_0002	
power	RF_CLASS_2	
gprs_indic	GPRS_NO	
(4) MMR_NREG_IND		
nreg_cs	NREG_LIMITED_SERVICE	
search_running	SEARCH_NOT_RUNNING	
new_forb_plmn	PLMN_NO_ID	
limited_cause	MMR_SIM_INVALID_NOSIM	

History:	04.05.99	LE	Initial
	02.03.00	HM	Revised (search_running)

4.22.2 MM492: No lmsi, not perform Periodic LUP

Description: The testcase waits 70 seconds. If the periodic LUP timer is started in the preamble, the testcase will fail, else MM has the expected behaviour. T3212 is decreased to 60 seconds by a dynamic config.

Preamble: MM491

MMI / CM	MM	RR / DL
TIMEOUT (70000)		

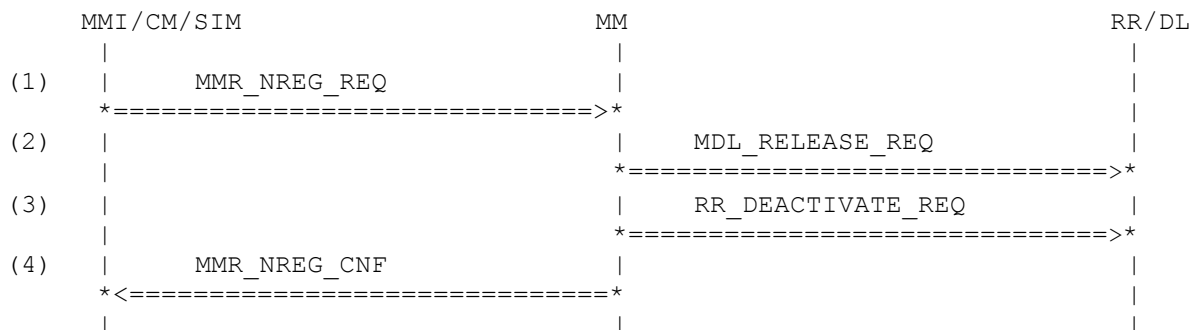
Parametrization

Primitive	Parameter	Value
History:	09.06.99	LE Initial

4.22.3 MM493: No IMSI, IMSI Detach, Power OFF

Description: MM is in IDLE No IMSI service state. It is switched off. MM shall not perform IMSI Detach. It shall only deactivate the lower layer.

Preamble: MM491



Parametrization

Primitive	Parameter	Value
(145) MMR_NREG_REQ cs	CS_POW_OFF	
(146) MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(147) RR_DEACTIVATE_REQ param	NOT_USED	
(148) MMR_NREG_CNF cs	CS_POW_OFF	
History:	09.06.99	LE Initial

4.22.4 MM494: No IMSI, Call attempts, Emergency Calls

Description: MM is in idle idle no IMSI service state. It shall reject all requests from CM entities except emergency calls. First the rejects are tested, then an emergency call. Then the whole sequence is tested again to check coming back in limited service state.

Preamble: MM491

	MMI/CM/SIM	MM	RR/DL
(1)	MMCC_ESTABLISH_REQ		
	=====>		
(2)	MMCC_RELEASE_IND		
	<=====		
(3)	MMSS_ESTABLISH_REQ		
	=====>		
(4)	MMSS_RELEASE_IND		
	<=====		
(5)	MMSMS_ESTABLISH_REQ		
	=====>		
(6)	MMSMS_RELEASE_IND		
	<=====		
(7)	MMCC_ESTABLISH_REQ		
	=====>		
(8)		RR_ESTABLISH_REQ	
		(CM SERVICE REQUEST)	
		=====>	
(9)		RR_ESTABLISH_CNF	
		<=====	
(10)		RR_DATA_IND	
		(CM SERVICE ACCEPT)	
		<=====	
(11)	MMCC_ESTABLISH_CNF		
	<=====		
(12)	MMCC_RELEASE_REQ		
	=====>		
TIMEOUT (5000)			
(13)		RR_ABORT_REQ	
		=====>	
(14)		RR_RELEASE_IND	
		<=====	
(15)		MDL_RELEASE_REQ	
		=====>	
(16)	MMCC_ESTABLISH_REQ		
	=====>		
(17)	MMCC_RELEASE_IND		
	<=====		
(18)	MMSS_ESTABLISH_REQ		
	=====>		
(19)	MMSS_RELEASE_IND		
	<=====		
(20)	MMSMS_ESTABLISH_REQ		
	=====>		
(21)	MMSMS_RELEASE_IND		
	<=====		
(22)	MMCC_ESTABLISH_REQ		
	=====>		
(23)		RR_ESTABLISH_REQ	
		(CM SERVICE REQUEST)	
		=====>	

```

(24) | | RR_ESTABLISH_CNF |
| | *<=====*
(25) | | RR_DATA_IND |
| | (CM SERVICE ACCEPT) |
| | *<=====*
(26) | MMCC_ESTABLISH_CNF |
| *<=====*
(27) | MMCC_RELEASE_REQ |
| *=====>*
TIMEOUT (5000)
(28) | | RR_ABORT_REQ |
| | *=====>*
(29) | | RR_RELEASE_IND |
| | *<=====*
(30) | | MDL_RELEASE_REQ |
| | *=====>*
| |

```

Parametrization

Primitive	Parameter	Value
(1) MMCC_ESTABLISH_REQ		
ti	TI_4	
prio	PRIO_NORM_CALL	
estcs	ESTCS_MOB_ORIG_SPCH	
(2) MMCC_RELEASE_IND		
ti	TI_4	
relcs	RELCS_NO_REGISTRATION	
(3) MMSS_ESTABLISH_REQ		
ti	TI_3	
(4) MMSS_RELEASE_IND		
ti	TI_3	
relcs	RELCS_NO_REGISTRATION	
(5) MMSMS_ESTABLISH_REQ		
ti	TI_5	
(6) MMSMS_RELEASE_IND		
ti	TI_5	
relcs	RELCS_NO_REGISTRATION	
(7) MMCC_ESTABLISH_REQ		
ti	TI_3	
prio	PRIO_EMERG_CALL	
estcs	ESTCS_MOB_ORIG_DATA	
(8) RR_ESTABLISH_REQ		
estcs	ESTCS_EMERG_CAL	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_CM_SERV_REQ	
ti	TI_0	
cm_serv_type	ST_EMERGENCY	
ciph_key_num	CIPH_KEY_NUM_RES	
mob_class_2	MOB_CLASS_2	

	mob_id }	MOB_IDENT_IMEI
(9)	RR_ESTABLISH_CNF param	NOT_USED
(10)	d1 d2 sdu { component direction pd ti }	RR_DATA_IND NOT_USED NOT_USED MM DOWNLINK D_CM_SERV_ACCEPT TI_0
(11)	ti	MMCC_ESTABLISH_CNF TI_3
(12)	ti	MMCC_RELEASE_REQ TI_3
(13)	abcs	RR_ABORT_REQ ABCS_NORM
(14)	relcs sapi gprs_resumption	RR_RELEASE_IND RELCS_ABNORM_UNSPEC SAPI_0 GPRS_RESUMPTION_NOT_ACK
(15)	ch_type sapi	MDL_RELEASE_REQ NOT_PRESENT_8BIT SAPI_0
(16)	ti prio estcs	MMCC_ESTABLISH_REQ TI_4 PRIO_NORM_CALL ESTCS_MOB_ORIG_SPCH
(17)	ti relcs	MMCC_RELEASE_IND TI_4 RELCS_NO_REGISTRATION
(18)	ti	MMSS_ESTABLISH_REQ TI_3
(19)	ti relcs	MMSS_RELEASE_IND TI_3 RELCS_NO_REGISTRATION
(20)	ti	MMSMS_ESTABLISH_REQ TI_5
(21)	ti relcs	MMSMS_RELEASE_IND TI_5 RELCS_NO_REGISTRATION
(22)	ti prio estcs	MMCC_ESTABLISH_REQ TI_3 PRIO_EMERG_CALL ESTCS_MOB_ORIG_DATA
(23)	estcs	RR_ESTABLISH_REQ ESTCS_EMERG_CAL

	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_CM_SERV_REQ
	ti	TI_0
	cm_serv_type	ST_EMERGENCY
	ciph_key_num	CIPH_KEY_NUM_RES
	mob_class_2	MOB_CLASS_2
	mob_id	MOB_IDENT_IMEI
	}	
(24)	param	RR_ESTABLISH_CNF NOT_USED
(25)		RR_DATA_IND NOT_USED NOT_USED
	d1	
	d2	
	sdu	
	{	
	component	MM
	direction	DOWNLINK
	pd	D_CM_SERV_ACCEPT
	ti	TI_0
	}	
(26)		MMCC_ESTABLISH_CNF
	ti	TI_3
(27)		MMCC_RELEASE_REQ
	ti	TI_3
(28)		RR_ABORT_REQ
	abcs	ABCS_NORM
(29)		RR_RELEASE_IND
	relcs	RELCS_ABNORM_UNSPEC
	sapi	SAPI_0
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(30)		MDL_RELEASE_REQ
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0

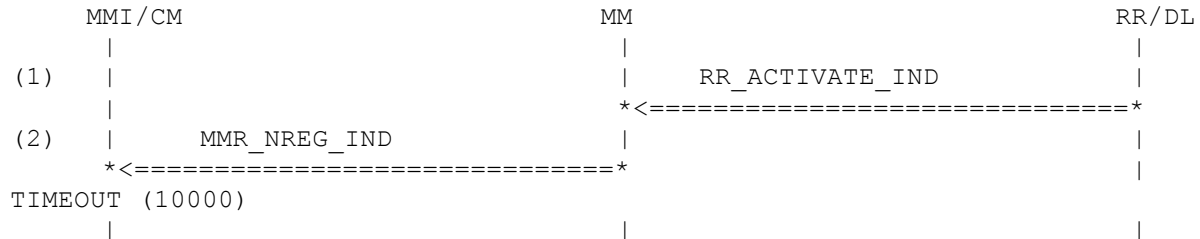
History:	09.06.99	LE	Initial
	26.01.01	HM	Revised

4.22.5 MM495: No IMSI, new cell, new LA, but only limited service

Description: MM is in service state Idle no IMSI. A.) A new cell is entered. B.) A new LA is entered. RR indicates only limited service. No reaction of MM is expected.

Preamble: MM491

Variants: <A>....



Parametrization

Primitive	Parameter	Value
(3) RR_ACTIVATE_IND		
op	OP_MODE_NO_SIM_LIM_SERV	
mm_info	MM_INFO	
<A>	cid	CELL_ID_1123
	cid	CELL_ID_1122
plmn	PLMN_123_44	
<A>	lac	LAC_0002
	lac	LAC_0001
power	RF_CLASS_2	
gprs_indic	GPRS_NO	
(4) MMR_NREG_IND		
nreg_cs	NREG_LIMITED_SERVICE	
search_running	SEARCH_NOT_RUNNING	
new_forb_plmn	PLMN_NO_ID	
limited_cause	MMR_SIM_INVALID_NOSIM	
History:	09.06.99	LE Initial
	02.03.00	HM Revised (search_running, variants)

4.23 MM Idle Mode Behaviour (No Cell available)

4.23.1 MM497: No Cell available indication from Normal Service

Description: MM is in state Idle Normal Service. RR indicates that no cell is available. MM enters the no cell available state.

Preamble: MM024

	MMI / CM / SIM	MM	RR / DL
(1)		RR_ABORT_IND	
		* <=====	
(2)		MDL_RELEASE_REQ	
		* =====>	
(3)	MMR_NREG_IND		
	* <=====		

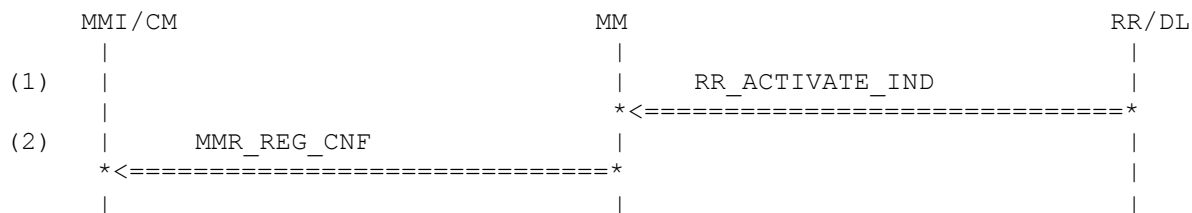
Parametrization

	Primitive	Parameter	Value
(1)	RR_ABORT_IND		
	op	OP_MODE_TEST_SIM_NO_SERV	
	abcs	ABCS_CEL_SEL_FAIL	
	plmn_avail	NOT_USED	
	plmn	NOT_USED	
	rxlevel	NOT_USED	
	power	RF_CLASS_2	
(2)	MDL_RELEASE_REQ		
	ch_type	NOT_PRESENT_8BIT	
	sapi	SAPI_0	
(3)	MMR_NREG_IND		
	nreg_cs	NREG_CELL_SELECTION_FAILED	
	search_running	SEARCH_NOT_RUNNING	
	new_forb_plmn	PLMN_NO_ID	
	limited_cause	MMR_RC_NONE	
History:	09.06.99	LE	Initial
	02.03.00	HM	Revised (search_running)

4.23.2 MM498: No Cell available, same cell

Description: MM is in service state No Cell available. RR indicates the availability of full service. It is the same cell as before. It is assumed that no location updating is started.

Preamble: MM497



Parametrization

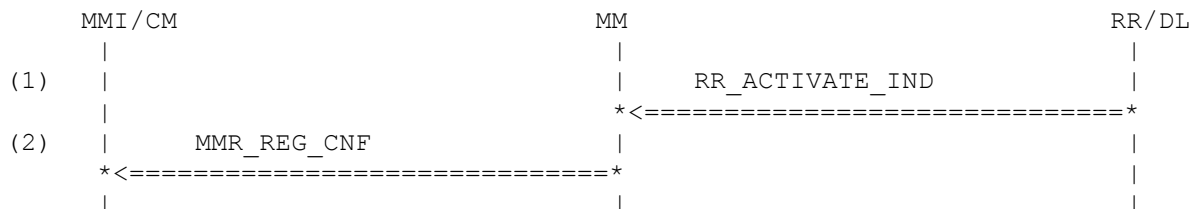
	Primitive	Parameter	Value
(1)	RR_ACTIVATE_IND		
	op	OP_MODE_TEST_SIM	
	mm_info	MM_INFO	
	cid	CELL_ID_1122	
	plmn	PLMN_123_33	
	lac	LAC_2147	
	power	RF_CLASS_2	
	gprs_indic	GPRS_NO	
(2)	MMR_REG_CNF		
	plmn	PLMN_123_33	

History: 03.05.99 LE Initial

4.23.3 MM499: No Cell available, same location area

Description: MM is in service state No Cell available. RR indicates the availability of full service. It is a different cell but the same location area. It is assumed that no location updating is started.

Preamble: MM497



Parametrization

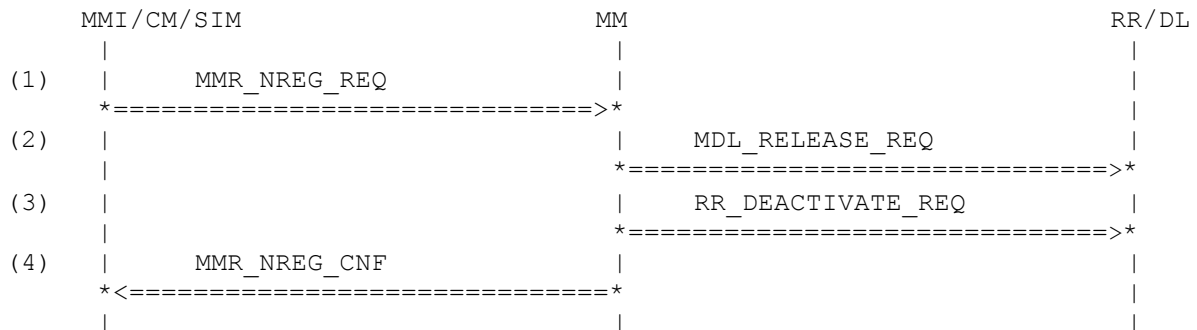
	Primitive	Parameter	Value
(1)	RR_ACTIVATE_IND		
	op	OP_MODE_TEST_SIM	
	mm_info	MM_INFO	
	cid	CELL_ID_1123	
	plmn	PLMN_123_33	
	lac	LAC_2147	
	power	RF_CLASS_2	
	gprs_indic	GPRS_NO	
(2)	MMR_REG_CNF		
	plmn	PLMN_123_33	

History: 03.05.99 LE Initial

4.23.4 MM500: No IMSI, IMSI Detach, Power OFF

Description: MM is in IDLE No cell available service state. It is switched off. MM shall not perform IMSI Detach. It shall only deactivate the lower layer.

Preamble: MM497



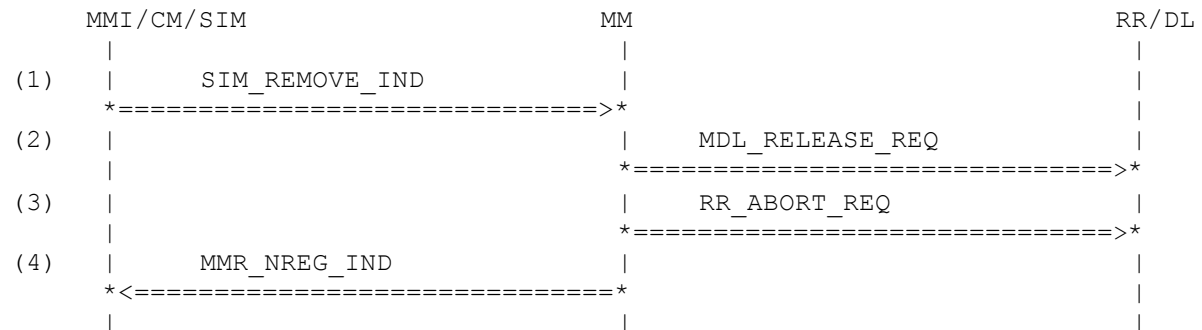
Parametrization

	Primitive	Parameter	Value
(1)	MMR_NREG_REQ cs	CS_POW_OFF	
(2)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(3)	RR_DEACTIVATE_REQ param	NOT_USED	
(4)	MMR_NREG_CNF cs	CS_POW_OFF	
History:	09.06.99	LE	Initial

4.23.5 MM501: No Cell available, no IMSI Detach, SIM Remove by SIM

Description: MM is in no cell available state. The SIM manager has detected a SIM Remove. MM shall not process IMSI Detach. MM remains in the same state.

Preamble: MM497



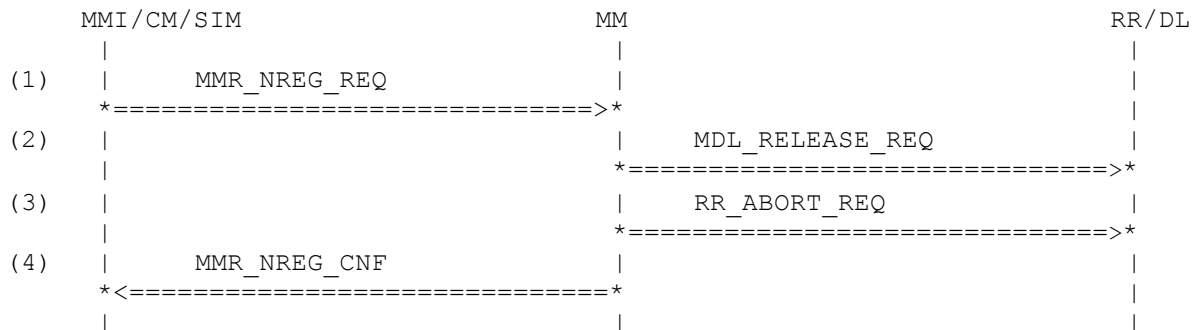
Parametrization

	Primitive	Parameter	Value
(50)	SIM_REMOVE_IND error	NOT_USED	
(51)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(52)	RR_ABORT_REQ abcs	ABCS_SIM_REM	
(53)	MMR_NREG_IND nreg_cs search_running new_forb_plmn limited_cause	NREG_NO_SERVICE SEARCH_NOT_RUNNING PLMN_NO_ID MMR_SIM_INVALID_REMOVED	
History:	05.05.99 02.03.00 07.01.01	LE HM HM	Initial Revised (search_running) Adaption after GPRS integration

4.23.6 MM502: No Cell available, IMSI Detach, SIM Remove by MMI

Description: MM is in no cell available state. The MMI requests limited service. An IMSI Detach shall not be processed. The MS remains in the same state.

Preamble: MM497



Parametrization

	Primitive	Parameter	Value
(1)	MMR_NREG_REQ cs	CS_SIM_REM	
(2)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(3)	RR_ABORT_REQ abcs	ABCS_SIM_REM	
(4)	MMR_NREG_CNF cs	CS_SIM_REM	
History:	05.05.99 31.08.00	LE HM	Initial Revised

4.23.7 MM503: No cell available, Call attempts by upper layer

Description: MM is in idle no cell available state. It shall reject all requests from CM entities including emergency calls.

Preamble: MM497

	MMI / CM / SIM	MM	RR / DL
(1)	MMCC_ESTABLISH_REQ		
	=====>		
(2)	MMCC_RELEASE_IND		
	<=====		
(3)	MMSS_ESTABLISH_REQ		
	=====>		
(4)	MMSS_RELEASE_IND		
	<=====		
(5)	MMSMS_ESTABLISH_REQ		
	=====>		
(6)	MMSMS_RELEASE_IND		
	<=====		
(7)	MMCC_ESTABLISH_REQ		
	=====>		
(8)	MMCC_RELEASE_IND		
	<=====		

Parametrization

	Primitive	Parameter	Value
(1)	MMCC_ESTABLISH_REQ		
	ti	TI_4	
	prio	PRIO_NORM_CALL	
	estcs	ESTCS_MOB_ORIG_SPCH	
(2)	MMCC_RELEASE_IND		
	ti	TI_4	
	relcs	RELCS_NO_REGISTRATION	
(3)	MMSS_ESTABLISH_REQ		
	ti	TI_3	
(4)	MMSS_RELEASE_IND		
	ti	TI_3	
	relcs	RELCS_NO_REGISTRATION	
(5)	MMSMS_ESTABLISH_REQ		
	ti	TI_5	
(6)	MMSMS_RELEASE_IND		
	ti	TI_5	
	relcs	RELCS_NO_REGISTRATION	
(7)	MMCC_ESTABLISH_REQ		
	ti	TI_3	
	prio	PRIO_EMERG_CALL	
	estcs	ESTCS_MOB_ORIG_DATA	
(8)	MMCC_RELEASE_IND		
	ti	TI_3	
	relcs	RELCS_NO_REGISTRATION	

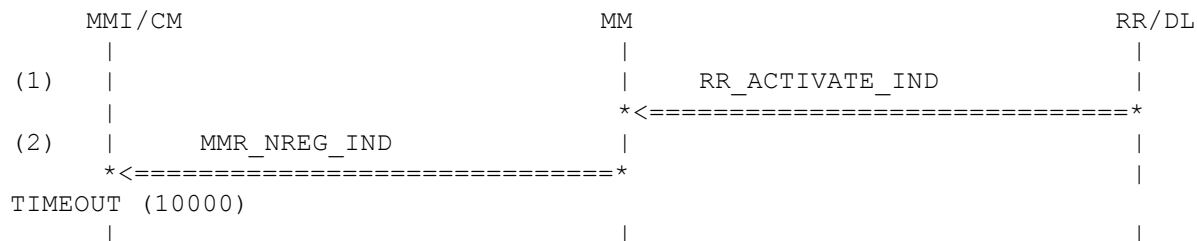
History: 09.06.99 LE Initial

4.23.8 MM504: No cell available, new cell, new LA, but only limited service

Description: MM is in service state Idle no cell available. A.) A new cell is entered. B.) A new LA is entered. RR indicates only limited service. No reaction of MM is expected.

Preamble: MM497

Variants: <A>....



Parametrization

Primitive	Parameter	Value
(1) RR_ACTIVATE_IND		
op	OP_MODE_SIM_LIM_SERV	
mm_info	MM_INFO	
<A>	cid	CELL_ID_1123
	cid	CELL_ID_1122
plmn	PLMN_123_44	
<A>	lac	LAC_0002
	lac	LAC_0001
power	RF_CLASS_2	
gprs_indic	GPRS_NO	
(2) MMR_NREG_IND		
nreg_cs	NREG_LIMITED_SERVICE	
search_running	SEARCH_NOT_RUNNING	
new_forb_plmn	PLMN_NO_ID	
limited_cause	MMR_RC_NONE	
History:	09.06.99	LE Initial
	02.03.00	HM Revised (search_running, variants)

4.23.9 MM506: No Cell available, new cell, new location area, full service

Description: MM is in service state No cell available. A new cell is entered in a new location area. A normal location updating is started.

Preamble: MM497

	MMI / CM	MM	RR / DL
(1)		RR_ACTIVATE_IND	
		<=====	
(2)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		=====>	

Parametrization

Primitive	Parameter	Value
(149) RR_ACTIVATE_IND		
op	OP_MODE_SIM	
mm_info	MM_INFO	
cid	CELL_ID_1122	
plmn	PLMN_123_33	
lac	LAC_0002	
power	RF_CLASS_2	
gprs_indic	GPRS_NO	
(150) RR_ESTABLISH_REQ		
estcs	ESTCS_SERV_REQ_BY_MM	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_LOC_UPD_REQ	
ti TI_0		
loc_upd_type	LOC_UPD_TYPE_NORMAL	
ciph_key_num	CIPH_KEY_NUM_RES	
loc_area_ident	LOC_AREA_ID_123_33_2147	
mob_class_1	MOB_CLASS_1	
mob_id	MOB_IDENT_IMSI	
}		
History:	09.06.99	LE Initial

4.24 Additional registration testcases

4.24.1 MM520: MM needs IMSI ATTACH after switch on. Cell temporary barred

Description: The mobile is switched on. A SIM is inserted. The mobile station is updated on the cell, but an IMSI ATTACH is needed. The cell is barred. After a short period of time, an access class change is indicated. A second attempt is expected. The difference between this and MM520 is that here no registration attempt is tried before the SIM is inserted.

<A> Previous registration to limited service without SIM

 No previous registration to limited service

Variants: <A>....

Preamble: <A> MM022

 MM001

	MMI / CM	MM	RR / DL
(1)	SIM_MM_INSERT_IND		
	=====>		
(2)	MMR_REG_REQ		
	=====>		
(3)		RR_ACTIVATE_REQ	
		=====>	
(4)		RR_ACTIVATE_CNF	
		<=====	
(5)	MMR_REG_CNF		
	<=====		
(6)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		=====>	
(7)		RR_RELEASE_IND	
		<=====	
(8)		MDL_RELEASE_REQ	
		=====>	
TIMEOUT (10000)			
(9)		RR_SYNC_IND	
		<=====	
(10)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		=====>	

Parametrization

Primitive	Parameter	Value
(15) SIM_MM_INSERT_IND		
op_mode	NORMAL_SIM_INS	
imsi_field	IMSI_FIELD_1	
loc_info	LOC_INFO_UPDATED_1	
acc_ctrl	ACC_CTRL_1	
bcch_inf	BCCH_INF_1	
kc_n	KC_EMPTY	
pref_plmn	PREF_PLMN_NONE	
forb_plmn	FORB_PLMN_NONE	
phase	PHASE_2_SIM	
hplmn	THPLMN_01	

(16)	MMR_REG_REQ service_mode	SERVICE_MODE_FULL
(17)	RR_ACTIVATE_REQ plmn op cksn kcv accc imsi tmsi thplmn bcch_info cell_test gprs_indic	PLMN_123_33 OP_MODE_SIM_NO_SERV CKSN_RES KCV_EMPTY ACCC_2143 MOB_ID_IMSI MOB_ID_NO_ID THPLMN_01 BCCH_INFO_ECL CELL_TEST_DISABLE GPRS_NO
(18)	RR_ACTIVATE_CNF op mm_info cid plmn lac power gprs_indic	OP_MODE_SIM MM_INFO_ATT CELL_ID_1122 PLMN_123_33 LAC_2147 RF_CLASS_2 GPRS_NO
(19)	MMR_REG_CNF plmn	PLMN_123_33
(20)	RR_ESTABLISH_REQ estcs sdu { component direction pd ti loc_upd_type ciph_key_num loc_area_ident mob_class_1 mob_id }	ESTCS_SERV_REQ_BY_MM MM UPLINK U_LOC_UPD_REQ TI_0 LOC_UPD_TYPE_ATTACH CIPH_KEY_NUM_RES LOC_AREA_ID_123_33_2147 MOB_CLASS_1 MOB_IDENT_IMSI
(21)	RR_RELEASE_IND relcs sapi gprs_resumption	RELCS_ACCESS_BARRED SAPI_0 GPRS_RESUMPTION_NOT_ACK
(22)	MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0
(23)	RR_SYNC_IND ciph mm_info bcch_info synccs chm	NOT_USED NOT_USED NOT_USED SYNCCS_ACC_CLS_CHA CHM_NOT_PRESENT
(24)	RR_ESTABLISH_REQ estcs sdu	ESTCS_SERV_REQ_BY_MM

{	
component	MM
direction	UPLINK
pd	U_LOC_UPD_REQ
ti	TI_0
loc_upd_type	LOC_UPD_TYPE_ATTACH
ciph_key_num	CIPH_KEY_NUM_RES
loc_area_ident	LOC_AREA_ID_123_33_2147
mob_class_1	MOB_CLASS_1
mob_id	MOB_IDENT_IMSI
}	

History:	19.02.01	HM	Initial
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4.24.2 MM521: MM needs IMSI ATTACH after switch on. Cell temporary barred

Description: The mobile is switched on. A SIM is inserted. The mobile station is updated on the cell, but an IMSI ATTACH is needed. The cell is barred. A call attempt is made and rejected due to the fact that the cell is barred. After a short period of time, an access class change is indicated. A second attempt is expected.

<A> Previous registration to limited service without SIM

 No previous registration to limited service

Variants: <A>....

Preamble: <A> MM022

 MM001

	MMI / CM	MM	RR / DL
(1)	SIM_MM_INSERT_IND		
	=====>		
(2)	MMR_REG_REQ		
	=====>		
(3)		RR_ACTIVATE_REQ	
		=====>	
(4)		RR_ACTIVATE_CNF	
		<=====	
(5)	MMR_REG_CNF		
	<=====		
(6)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		=====>	
(7)		RR_RELEASE_IND	
		<=====	
(8)		MDL_RELEASE_REQ	
		=====>	
(9)	MMCC_ESTABLISH_REQ		
	=====>		
(10)		RR_ESTABLISH_REQ	
		(CM SERVICE REQUEST)	
		=====>	
(11)		RR_RELEASE_IND	
		<=====	
(12)		MDL_RELEASE_REQ	
		=====>	
(13)	MMCC_RELEASE_IND		
	<=====		
TIMEOUT (10000)			
(14)		RR_SYNC_IND	
		<=====	
(15)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		=====>	

Parametrization

Primitive	Parameter	Value
(12) SIM_MM_INSERT_IND		
op_mode		NORMAL_SIM_INS
imsi_field		IMSI_FIELD_1
loc_info		LOC_INFO_UPDATED_1
acc_ctrl		ACC_CTRL_1
bcch_inf		BCCH_INF_1

	kc_n	KC_EMPTY
	pref_plmn	PREF_PLMN_NONE
	forb_plmn	FORB_PLMN_NONE
	phase	PHASE_2_SIM
	hplmn	THPLMN_01
(25)	MMR_REG_REQ	
	service_mode	SERVICE_MODE_FULL
(26)	RR_ACTIVATE_REQ	
	plmn	PLMN_123_33
	op	OP_MODE_SIM_NO_SERV
	cksn	CKSN_RES
	kcv	KCV_EMPTY
	accc	ACC_2143
	imsi	MOB_ID_IMSI
	tmsi	MOB_ID_NO_ID
	thplmn	THPLMN_01
	bcch_info	BCCH_INFO_ECL
	cell_test	CELL_TEST_DISABLE
	gprs_indic	GPRS_NO
(27)	RR_ACTIVATE_CNF	
	op	OP_MODE_SIM
	mm_info	MM_INFO_ATT
	cid	CELL_ID_1122
	plmn	PLMN_123_33
	lac	LAC_2147
	power	RF_CLASS_2
	gprs_indic	GPRS_NO
(28)	MMR_REG_CNF	
	plmn	PLMN_123_33
(29)	RR_ESTABLISH_REQ	
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti	TI_0
	loc_upd_type	LOC_UPD_TYPE_ATTACH
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_2147
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(30)	RR_RELEASE_IND	
	relcs	RELCS_ACCESS_BARRED
	sapi	SAPI_0
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(31)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(32)	MMCC_ESTABLISH_REQ	
	ti	TI_2
	prio	PRIOR_NORM_CALL
	estcs	ESTCS_MOB_ORIG_SPCH

- (33) RR_ESTABLISH_REQ
 estcs ESTCS_MOB_ORIG_SPCH_CAL_BY_CC
 sdu
 {
 component MM
 direction UPLINK
 pd U_CM_SERV_REQ
 ti TI_0
 cm_serv_type ST_MOC
 ciph_key_num CIPH_KEY_NUM_RES
 mob_class_2 MOB_CLASS_2
 mob_id MOB_IDENT_IMSI
 }
 (34) RR_RELEASE_IND
 relcs RELCS_ACCESS_BARRED
 sapi SAPI_0
 gprs_resumption GPRS_RESUMPTION_NOT_ACK
 (35) MDL_RELEASE_REQ
 ch_type NOT_PRESENT_8BIT
 sapi SAPI_0
 (36) MMCC_RELEASE_IND
 ti TI_2
 relcs RELCS_ACCESS_BARRED
 (37) RR_SYNC_IND
 ciph NOT_USED
 mm_info NOT_USED
 bcch_info NOT_USED
 synccs SYNCCS_ACC_CLS_CHA
 chm CHM_NOT_PRESENT
 (38) RR_ESTABLISH_REQ
 estcs ESTCS_SERV_REQ_BY_MM
 sdu
 {
 component MM
 direction UPLINK
 pd U_LOC_UPD_REQ
 ti TI_0
 loc_upd_type LOC_UPD_TYPE_ATTACH
 ciph_key_num CIPH_KEY_NUM_RES
 loc_area_ident LOC_AREA_ID_123_33_2147
 mob_class_1 MOB_CLASS_1
 mob_id MOB_IDENT_IMSI
 }

History: 19.02.01 HM Initial

4.24.3 MM522: MM doesn't find LPLMN, needs NORMAL UPDATE, cell barred

Description: The mobile is switched on. A SIM is inserted. The mobile station doesn't find the requested PLMN, but another PLMN is available. A location updating attempt is performed, but the cell is barred. After some time the change of the access class is indicated by RR; the location updating attempt is started immediately.

Preamble: MM001

MMI / CM	MM	RR / DL
(1) SIM_MM_INSERT_IND		
=====>		
(2) MMR_REG_REQ		
=====>		
(3)	RR_ACTIVATE_REQ	
	=====>	
(4)	RR_ABORT_IND	
	<=====	
(5)	MDL_RELEASE_REQ	
	=====>	
(6) MMR_NREG_IND		
<=====		
(7)	RR_ACTIVATE_REQ	
	=====>	
(8)	RR_ACTIVATE_CNF	
	<=====	
(9)	RR_ESTABLISH_REQ	
	(LOCATION UPDATING REQ)	
	=====>	
(10)	RR_RELEASE_IND	
	<=====	
(11)	MDL_RELEASE_REQ	
	=====>	
TIMEOUT (10000)		
(12)	RR_SYNC_IND	
	<=====	
(13)	RR_ESTABLISH_REQ	
	(LOCATION UPDATING REQ)	
	=====>	

Parametrization

Primitive	Parameter	Value
(39) SIM_MM_INSERT_IND		
op_mode		NORMAL_SIM_INS
imsi_field		IMSI_FIELD_1
loc_info		LOC_INFO_UPDATED_1
acc_ctrl		ACC_CTRL_1
bcch_inf		BCCH_INF_1
kc_n		KC_EMPTY
pref_plmn		PREF_PLMN_NONE
forb_plmn		FORB_PLMN_NONE
phase		PHASE_2_SIM
hplmn		THPLMN_01
(40) MMR_REG_REQ		
service_mode		SERVICE_MODE_FULL

(41)	RR_ACTIVATE_REQ	plmn op cksn kcv accc imsi tmsi thplmn bcch_info cell_test gprs_indic	PLMN_123_33 OP_MODE_SIM_NO_SERV CKSN_RES KCV_EMPTY ACC_2143 MOB_ID_IMSI MOB_ID_NO_ID THPLMN_01 BCCH_INFO_ECL CELL_TEST_DISABLE GPRS_NO
(42)	RR_ABORT_IND	op abcs plmn_avail plmn rxlevel power	OP_MODE_SIM_LIM_SERV ABCS_CEL_SEL_FAIL ONE_PLMN_FOUND PLMN_LIST_LPLMN RXLEVEL_20 RF_CLASS_2
(5)	MDL_RELEASE_REQ	ch_type sapi	NOT_PRESENT_8BIT SAPI_0
(6)	MMR_NREG_IND	nreg_cs search_running new_forb_plmn limited_cause	NREG_LIMITED_SERVICE SEARCH_RUNNING PLMN_NO_ID MMR_RC_NONE
(7)	RR_ACTIVATE_REQ	plmn op cksn kcv accc imsi tmsi thplmn bcch_info cell_test gprs_indic	PLMN_123_31 OP_MODE_SIM_NO_SERV CKSN_RES KCV_EMPTY ACC_2143 MOB_ID_IMSI MOB_ID_NO_ID THPLMN_01 BCCH_INFO_1 CELL_TEST_DISABLE GPRS_NO
(8)	RR_ACTIVATE_CNF	op mm_info cid plmn lac power gprs_indic	OP_MODE_SIM MM_INFO_ATT CELL_ID_1122 PLMN_123_31 LAC_2147 RF_CLASS_2 GPRS_NO
(9)	RR_ESTABLISH_REQ	estcs sdu { component direction pd ti loc_upd_type	ESTCS_SERV_REQ_BY_MM MM UPLINK U_LOC_UPD_REQ TI_0 LOC_UPD_TYPE_NORMAL

	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_2147
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(10)	RR_RELEASE_IND	
	relcs	RELCS_ACCESS_BARRED
	sapi	SAPI_0
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(11)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(12)	RR_SYNC_IND	
	ciph	NOT_USED
	mm_info	NOT_USED
	bcch_info	NOT_USED
	synccs	SYNCCS_ACC_CLS_CHA
	chm	CHM_NOT_PRESENT
(13)	RR_ESTABLISH_REQ	
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti	TI_0
	loc_upd_type	LOC_UPD_TYPE_NORMAL
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_2147
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	

History: 19.02.01 HM Initial

4.24.4 MM523: MM doesn't find LPLMN, needs NORMAL UPDATE, cell barred

Description: The mobile is switched on. A SIM is inserted. The mobile station doesn't find the requested PLMN, but another PLMN is available. A location updating attempt is performed, but the cell is barred. A call attempt is made and rejected due to the fact that the cell is barred. After some time the change of the access class is indicated by RR; the location updating attempt is started immediately.

Preamble: MM001

	MMI / CM	MM	RR / DL
(1)	SIM_MM_INSERT_IND		
	=====>		
(2)	MMR_REG_REQ		
	=====>		
(3)		RR_ACTIVATE_REQ	
		=====>	
(4)		RR_ABORT_IND	
		<=====	
(5)		MDL_RELEASE_REQ	
		=====>	
(6)	MMR_NREG_IND		
	<=====		
(7)		RR_ACTIVATE_REQ	
		=====>	
(8)		RR_ACTIVATE_CNF	
		<=====	
(9)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		=====>	
(10)		RR_RELEASE_IND	
		<=====	
(11)		MDL_RELEASE_REQ	
		=====>	
(12)	MMCC_ESTABLISH_REQ		
	=====>		
(13)		RR_ESTABLISH_REQ	
		(CM SERVICE REQUEST)	
		=====>	
(14)		RR_RELEASE_IND	
		<=====	
(15)		MDL_RELEASE_REQ	
		=====>	
(16)	MMCC_RELEASE_IND		
	<=====		
TIMEOUT (10000)			
(17)		RR_SYNC_IND	
		<=====	
(18)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		=====>	

Parametrization

Primitive	Parameter	Value
(13) SIM_MM_INSERT_IND		
op_mode	NORMAL_SIM_INS	
imsi_field	IMSI_FIELD_1	

	loc_info	LOC_INFO_UPDATED_1
	acc_ctrl	ACC_CTRL_1
	bcch_inf	BCCH_INF_1
	kc_n	KC_EMPTY
	pref_plmn	PREF_PLMN_NONE
	forb_plmn	FORB_PLMN_NONE
	phase	PHASE_2_SIM
	hplmn	THPLMN_01
(14)	MMR_REG_REQ	
	service_mode	SERVICE_MODE_FULL
(15)	RR_ACTIVATE_REQ	
	plmn	PLMN_123_33
	op	OP_MODE_SIM_NO_SERV
	cksn	CKSN_RES
	kcv	KCV_EMPTY
	acc	ACC_2143
	imsi	MOB_ID_IMSI
	tmsi	MOB_ID_NO_ID
	thplmn	THPLMN_01
	bcch_info	BCCH_INFO_ECL
	cell_test	CELL_TEST_DISABLE
	gprs_indic	GPRS_NO
(16)	RR_ABORT_IND	
	op	OP_MODE_SIM_LIM_SERV
	abcs	ABCS_CEL_SEL_FAIL
	plmn_avail	ONE_PLMN_FOUND
	plmn	PLMN_LIST_LPLMN
	rxlevel	RXLEVEL_20
	power	RF_CLASS_2
(17)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(18)	MMR_NREG_IND	
	nreg_cs	NREG_LIMITED_SERVICE
	search_running	SEARCH_RUNNING
	new_forb_plmn	PLMN_NO_ID
	limited_cause	MMR_RC_NONE
(19)	RR_ACTIVATE_REQ	
	plmn	PLMN_123_31
	op	OP_MODE_SIM_NO_SERV
	cksn	CKSN_RES
	kcv	KCV_EMPTY
	acc	ACC_2143
	imsi	MOB_ID_IMSI
	tmsi	MOB_ID_NO_ID
	thplmn	THPLMN_01
	bcch_info	BCCH_INFO_1
	cell_test	CELL_TEST_DISABLE
	gprs_indic	GPRS_NO
(20)	RR_ACTIVATE_CNF	
	op	OP_MODE_SIM
	mm_info	MM_INFO_ATT
	cid	CELL_ID_1122
	plmn	PLMN_123_31
	lac	LAC_2147

power	RF_CLASS_2
gprs_indic	GPRS_NO
(21) RR_ESTABLISH_REQ	
estcs	ESTCS_SERV_REQ_BY_MM
sdu	
{	
component	MM
direction	UPLINK
pd	U_LOC_UPD_REQ
ti	TI_0
loc_upd_type	LOC_UPD_TYPE_NORMAL
ciph_key_num	CIPH_KEY_NUM_RES
loc_area_ident	LOC_AREA_ID_123_33_2147
mob_class_1	MOB_CLASS_1
mob_id	MOB_IDENT_IMSI
}	
(22) RR_RELEASE_IND	
relcs	RELCS_ACCESS_BARRED
sapi	SAPI_0
gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(23) MDL_RELEASE_REQ	
ch_type	NOT_PRESENT_8BIT
sapi	SAPI_0
(24) MMCC_ESTABLISH_REQ	
ti	TI_2
prio	PRIO_NORM_CALL
estcs	ESTCS_MOB_ORIG_SPCH
(25) RR_ESTABLISH_REQ	
estcs	ESTCS_MOB_ORIG_SPCH_CAL_BY_CC
sdu	
{	
component	MM
direction	UPLINK
pd	U_CM_SERV_REQ
ti	TI_0
cm_serv_type	ST_MOC
ciph_key_num	CIPH_KEY_NUM_RES
mob_class_2	MOB_CLASS_2
mob_id	MOB_IDENT_IMSI
}	
(26) RR_RELEASE_IND	
relcs	RELCS_ACCESS_BARRED
sapi	SAPI_0
gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(27) MDL_RELEASE_REQ	
ch_type	NOT_PRESENT_8BIT
sapi	SAPI_0
(28) MMCC_RELEASE_IND	
ti	TI_2
relcs	RELCS_ACCESS_BARRED
(29) RR_SYNC_IND	
ciph	NOT_USED
mm_info	NOT_USED
bcch_info	NOT_USED

synccs	SYNCCS_ACC_CLS_CHA
chm	CHM_NOT_PRESENT
(30) RR_ESTABLISH_REQ	
estcs	ESTCS_SERV_REQ_BY_MM
sdu	
{	
component	MM
direction	UPLINK
pd	U_LOC_UPD_REQ
ti	TI_0
loc_upd_type	LOC_UPD_TYPE_NORMAL
ciph_key_num	CIPH_KEY_NUM_RES
loc_area_ident	LOC_AREA_ID_123_33_2147
mob_class_1	MOB_CLASS_1
mob_id	MOB_IDENT_IMSI
}	
History:	19.02.01
	HM
	Initial

4.24.5 MM524: MM needs IMSI ATTACH after switch on. Cell temporary barred

Description: The mobile is switched on. A SIM is inserted. The mobile station is updated on the cell, but an IMSI ATTACH is needed. The cell is barred. After a short period of time, the coverage is lost. After some time, coverage is gained again on the first cell. An IMSI ATTACH is expected.

<A> No service, access barred

 Limited service, access barred

<C> No service, random access failure

<D> Limited service, random access failure

[The newly introduced testcase currently doesn't run, the reason for this is a minor implementation problem in the protocol stack.]

Variants: <A>....<D>

Preamble: MM001

	MMI / CM	MM	RR / DL
(1)	SIM_MM_INSERT_IND		
	=====>		
(2)	MMR_REG_REQ		
	=====>		
(3)		RR_ACTIVATE_REQ	
		=====>	
(4)		RR_ACTIVATE_CNF	
		<=====	
(5)	MMR_REG_CNF		
	<=====		
(6)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		=====>	
(7)		RR_RELEASE_IND	
		<=====	
(8)		MDL_RELEASE_REQ	
		=====>	
(9)		RR_ABORT_IND	
		<=====	
(10)		MDL_RELEASE_REQ	
		=====>	
(11)	MMR_NREG_IND		
	<=====		
(12)		RR_ACTIVATE_IND	
		<=====	
(13)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		=====>	

Parametrization

Primitive	Parameter	Value
(31) SIM_MM_INSERT_IND		
op_mode		NORMAL_SIM_INS
imsi_field		IMSI_FIELD_1
loc_info		LOC_INFO_UPDATED_1
acc_ctrl		ACC_CTRL_1
bcch_inf		BCCH_INF_1
kc_n		KC_EMPTY
pref_plmn		PREF_PLMN_NONE
forb_plmn		FORB_PLMN_2

	phase	PHASE_2_SIM	
	hplmn	THPLMN_01	
(43)	MMR_REG_REQ		
	service_mode	SERVICE_MODE_FULL	
(44)	RR_ACTIVATE_REQ		
	plmn	PLMN_123_33	
	op	OP_MODE_SIM_NO_SERV	
	cksn	CKSN_RES	
	kcv	KCV_EMPTY	
	acc	ACC_2143	
	imsi	MOB_ID_IMSI	
	tmsi	MOB_ID_NO_ID	
	thplmn	THPLMN_01	
	bcch_info	BCCH_INFO_ECL	
	cell_test	CELL_TEST_DISABLE	
	gprs_indic	GPRS_NO	
(45)	RR_ACTIVATE_CNF		
	op	OP_MODE_SIM	
	mm_info	MM_INFO_ATT	
	cid	CELL_ID_1122	
	plmn	PLMN_123_33	
	lac	LAC_2147	
	power	RF_CLASS_2	
	gprs_indic	GPRS_NO	
(46)	MMR_REG_CNF		
	plmn	PLMN_123_33	
(47)	RR_ESTABLISH_REQ		
	estcs	ESTCS_SERV_REQ_BY_MM	
	sdu		
	{		
	component	MM	
	direction	UPLINK	
	pd	U_LOC_UPD_REQ	
	ti	TI_0	
	loc_upd_type	LOC_UPD_TYPE_ATTACH	
	ciph_key_num	CIPH_KEY_NUM_RES	
	loc_area_ident	LOC_AREA_ID_123_33_2147	
	mob_class_1	MOB_CLASS_1	
	mob_id	MOB_IDENT_IMSI	
	}		
(48)	RR_RELEASE_IND		
	<A>	relcs	RELCS_ACCESS_BARRED
		relcs	RELCS_ACCESS_BARRED
	<C>	relcs	RELCS_RND_ACC_FAIL
	<D>	relcs	RELCS_RND_ACC_FAIL
	sapi	SAPI_0	
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK	
(49)	MDL_RELEASE_REQ		
	ch_type	NOT_PRESENT_8BIT	
	sapi	SAPI_0	
(50)	RR_ABORT_IND		
	<A>	op	OP_MODE_SIM_NO_SERV
		op	OP_MODE_SIM_LIM_SERV
	<C>	op	OP_MODE_SIM_NO_SERV

<D>	op	OP_MODE_SIM_LIM_SERV
abcs	ABCS_CEL_SEL_FAIL	
<A>	plmn_avail	NO_PLMN_FOUND
	plmn_avail	ONE_PLMN_FOUND
<C>	plmn_avail	NO_PLMN_FOUND
<D>	plmn_avail	ONE_PLMN_FOUND
plmn	PLMN_LIST_FORB	
rxlevel	RXLEVEL_20	
power	RF_CLASS_2	
(51) MDL_RELEASE_REQ		
ch_type	NOT_PRESENT_8BIT	
sapi	SAPI_0	
(52) MMR_NREG_IND		
<A>	nreg_cs	
NREG_CELL_SELECTION_FAILED		
	nreg_cs	NREG_LIMITED_SERVICE
<C>	nreg_cs	
NREG_CELL_SELECTION_FAILED		
<D>	nreg_cs	NREG_LIMITED_SERVICE
search_running	SEARCH_NOT_RUNNING	
new_forb_plmn	PLMN_NO_ID	
limited_cause	MMR_RC_NONE	
(53) RR_ACTIVATE_IND		
op	OP_MODE_SIM	
mm_info	MM_INFO_ATT	
cid	CELL_ID_1122	
plmn	PLMN_123_33	
lac	LAC_2147	
power	RF_CLASS_2	
gprs_indic	GPRS_NO	
(54) RR_ESTABLISH_REQ		
estcs	ESTCS_SERV_REQ_BY_MM	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_LOC_UPD_REQ	
ti	TI_0	
loc_upd_type	LOC_UPD_TYPE_ATTACH	
ciph_key_num	CIPH_KEY_NUM_RES	
loc_area_ident	LOC_AREA_ID_123_33_2147	
mob_class_1	MOB_CLASS_1	
mob_id	MOB_IDENT_IMSI	
}		

History: 19.02.01 HM Initial

4.24.6 MM525: MM needs IMSI ATTACH after switch on in tunnel

Description: The mobile is switched on. A SIM was inserted which has an update state in the area. At switch on, there is no service as the switch on was in a tunnel. After some time, the mobile phone leaves the tunnel and MM receives an RR_ACTIVATE_IND which indicates a cell selection in the updated location area, but the IMSI ATTACH is of course still needed.

<A> No service after switch on
 Only limited service after switch on

Variants: <A>....

Preamble: MM001

	MMI / CM	MM	RR / DL
(1)	SIM_MM_INSERT_IND		
	=====>		
(2)	MMR_REG_REQ		
	=====>		
(3)		RR_ACTIVATE_REQ	
		=====>	
(4)		RR_ABORT_IND	
		<=====	
(5)		MDL_RELEASE_REQ	
		=====>	
(6)	MMR_NREG_IND		
	<=====		
(7)		RR_ACTIVATE_IND	
		<=====	
(8)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		=====>	

Parametrization

Primitive	Parameter	Value
(151)	SIM_MM_INSERT_IND	
op_mode	NORMAL_SIM_INS	
imsi_field	IMSI_FIELD_1	
loc_info	LOC_INFO_UPDATED_1	
acc_ctrl	ACC_CTRL_1	
bcch_inf	BCCH_INF_1	
kc_n	KC_EMPTY	
pref_plmn	PREF_PLMN_NONE	
forb_plmn	FORB_PLMN_2	
phase	PHASE_2_SIM	
hplmn	THPLMN_01	
(152)	MMR_REG_REQ	
service_mode	SERVICE_MODE_FULL	
(153)	RR_ACTIVATE_REQ	
plmn	PLMN_123_33	
op	OP_MODE_SIM_NO_SERV	
cksn	CKSN_RES	
kcv	KCV_EMPTY	
acc	ACC_2143	
imsi	MOB_ID_IMSI	
tmsi	MOB_ID_NO_ID	
thplmn	THPLMN_01	

bcch_info	BCCH_INFO_ECL
cell_test	CELL_TEST_DISABLE
gprs_indic	GPRS_NO
(154)	RR_ABORT_IND
<A>	op OP_MODE_SIM_NO_SERV
	op OP_MODE_SIM_LIM_SERV
abcs	ABCS_CEL_SEL_FAIL
<A>	plmn_avail NO_PLMN_FOUND
	plmn_avail ONE_PLMN_FOUND
plmn	PLMN_LIST_FORB
rxlevel	RXLEVEL_20
power	RF_CLASS_2
(155)	MDL_RELEASE_REQ
ch_type	NOT_PRESENT_8BIT
sapi	SAPI_0
(156)	MMR_NREG_IND
<A>	nreg_cs
NREG_CELL_SELECTION_FAILED	
	nreg_cs NREG_LIMITED_SERVICE
search_running	SEARCH_NOT_RUNNING
new_forb_plmn	PLMN_NO_ID
limited_cause	MMR_RC_NONE
(157)	RR_ACTIVATE_IND
op	OP_MODE_SIM
mm_info	MM_INFO_ATT
cid	CELL_ID_1122
plmn	PLMN_123_33
lac	LAC_2147
power	RF_CLASS_2
gprs_indic	GPRS_NO
(158)	RR_ESTABLISH_REQ
estcs	ESTCS_SERV_REQ_BY_MM
sdu	
{	
component	MM
direction	UPLINK
pd	U_LOC_UPD_REQ
ti	TI_0
loc_upd_type	LOC_UPD_TYPE_ATTACH
ciph_key_num	CIPH_KEY_NUM_RES
loc_area_ident	LOC_AREA_ID_123_33_2147
mob_class_1	MOB_CLASS_1
mob_id	MOB_IDENT_IMSI
}	

History: 22.02.01 HM Initial

4.24.7 MM526: MM IDLE updated, T3212 running, manual network search I

Description: The mobile is switched on. A SIM was inserted. An IMSI ATTACH update is performed. After a while the user starts a manual network search. It is checked that this does not restart T3212.

Preamble: MM022

MMI / CM	MM	RR / DL
COMMAND (MM CONFIG T3212_CNT=6)		
(1) SIM_MM_INSERT_IND		
=====>		
(2) MMR_REG_REQ		
=====>		
(3)	RR_ACTIVATE_REQ	
	=====>	
(4)	RR_ACTIVATE_CNF	
	<=====	
(5) MMR_REG_CNF		
<=====		
(6) MMR_PLMN_MODE_REQ		
=====>		
(7)	RR_SYNC_REQ	
	=====>	
(8) MMR_NET_REQ		
=====>		
(9)	RR_ACTIVATE_REQ	
	=====>	
(10)	RR_ABORT_IND	
	<=====	
(11) MMR_PLMN_IND		
<=====		
(12) MMR_PLMN_MODE_REQ		
=====>		
(13)	RR_SYNC_REQ	
	=====>	
TIMEOUT (55000)		
(14)	RR_ESTABLISH_REQ	
	(LOCATION UPDATING REQ)	
	=====>	

Parametrization

Primitive	Parameter	Value
(7) SIM_MM_INSERT_IND		
op_mode	NORMAL_SIM_INS	
imsi_field	IMSI_FIELD_1	
loc_info	LOC_INFO_UPDATED_1	
acc_ctrl	ACC_CTRL_1	
bcch_inf	BCCH_INF_1	
kc_n	KC_EMPTY	
pref_plmn	PREF_PLMN_NONE	
forb_plmn	FORB_PLMN_NONE	
phase	PHASE_2_SIM	
hplmn	THPLMN_01	
(55) MMR_REG_REQ		
service_mode	SERVICE_MODE_FULL	

(56)	RR_ACTIVATE_REQ	plmn op cksn kcv accc imsi tmsi thplmn bcch_info cell_test gprs_indic	PLMN_123_33 OP_MODE_SIM_NO_SERV CKSN_RES KCV_EMPTY ACC_2143 MOB_ID_IMSI MOB_ID_NO_ID THPLMN_01 BCCH_INFO_ECL CELL_TEST_DISABLE GPRS_NO
(57)	RR_ACTIVATE_CNF	op mm_info cid plmn lac power gprs_indic	OP_MODE_SIM MM_INFO_PER CELL_ID_1122 PLMN_123_33 LAC_2147 RF_CLASS_2 GPRS_NO
(58)	MMR_REG_CNF	plmn	PLMN_123_33
(59)	MMR_PLMN_MODE_REQ	mode	MODE_MAN
(60)	RR_SYNC_REQ	op cksn kcv tmsi plmn lac syncs accc thplmn	OP_MODE_SIM_2 NOT_USED NOT_USED NOT_USED NOT_USED NOT_USED NOT_PRESENT_16BIT NOT_USED NOT_USED
(61)	MMR_NET_REQ	param	NOT_USED
(62)	RR_ACTIVATE_REQ	plmn op cksn kcv accc imsi tmsi thplmn bcch_info cell_test gprs_indic	PLMN_NO_ID OP_MODE_SIM_NO_SERV_M CKSN_NO_KEY KC_DELETED ACC_CLASS_0000 EMPTY_IMSI NOT_USED NOT_USED NOT_USED CELL_TEST_DISABLE GPRS_NO
(63)	RR_ABORT_IND	op abcs plmn_avail plmn	OP_SIM_MAN_MMI_SRCH_FS ABCS_CEL_SEL_FAIL TWO_PLMN_FOUND PLMN_LIST_2_PLMN

	rxlevel	RXLEVEL_20_18
	power	RF_CLASS_2
(64)	MMR_PLMN_IND	
	res	RES_OK_USR_MST_SEL_PLMN
	plmn	PLMN_LIST_2_PLMN_A
	forb_ind	FORB_PLMN_ID
	rxlevel	RXLEVEL_20_18_A
(65)	MMR_PLMN_MODE_REQ	
	mode	MODE_AUTO
(66)	RR_SYNC_REQ	
	op	OP_SIM_AUTO_MMI_SRCH_NS
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	NOT_USED
	plmn	NOT_USED
	lac	NOT_USED
	synccs	NOT_PRESENT_16BIT
	accc	NOT_USED
	thplmn	NOT_USED
(67)	RR_ESTABLISH_REQ	
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti	TI_0
	loc_upd_type	LOC_UPD_TYPE_PERIODIC
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_2147
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	

History: 28.02.01 HM Initial

4.24.8 MM527: MM IDLE updated, T3212 running, manual network search II

Description: The mobile is switched on. A SIM was inserted. An IMSI ATTACH update is performed. After a while the user starts a manual network search. It is checked that this does not restart T3212.

Preamble: MM022

MMI/CM	MM	RR/DL
COMMAND (MM CONFIG T3212_CNT=6)		
(1) SIM_MM_INSERT_IND		
=====>		
(2) MMR_REG_REQ		
=====>		
(3)	RR_ACTIVATE_REQ	
	=====>	
(4)	RR_ACTIVATE_CNF	
	<=====	
(5) MMR_REG_CNF		
<=====		
TIMEOUT (35000)		
(6) MMR_PLMN_MODE_REQ		
=====>		
(7)	RR_SYNC_REQ	
	=====>	
(8) MMR_NET_REQ		
=====>		
(9)	RR_ACTIVATE_REQ	
	=====>	
(10)	RR_ABORT_IND	
	<=====	
(11) MMR_PLMN_IND		
<=====		
(12) MMR_PLMN_MODE_REQ		
=====>		
(13)	RR_SYNC_REQ	
	=====>	
TIMEOUT (20000)		
(14)	RR_ESTABLISH_REQ	
	(LOCATION UPDATING REQ)	
	=====>	

Parametrization

Primitive	Parameter	Value
(8) SIM_MM_INSERT_IND		
op_mode	NORMAL_SIM_INS	
imsi_field	IMSI_FIELD_1	
loc_info	LOC_INFO_UPDATED_1	
acc_ctrl	ACC_CTRL_1	
bcch_inf	BCCH_INF_1	
kc_n	KC_EMPTY	
pref_plmn	PREF_PLMN_NONE	
forb_plmn	FORB_PLMN_NONE	
phase	PHASE_2_SIM	
hplmn	THPLMN_01	

(68)	MMR_REG_REQ	SERVICE_MODE_FULL
	service_mode	
(69)	RR_ACTIVATE_REQ	
	plmn	PLMN_123_33
	op	OP_MODE_SIM_NO_SERV
	cksn	CKSN_RES
	kcv	KCV_EMPTY
	acc	ACC_2143
	imsi	MOB_ID_IMSI
	tmsi	MOB_ID_NO_ID
	thplmn	THPLMN_01
	bcch_info	BCCH_INFO_ECL
	cell_test	CELL_TEST_DISABLE
	gprs_indic	GPRS_NO
(70)	RR_ACTIVATE_CNF	
	op	OP_MODE_SIM
	mm_info	MM_INFO_PER
	cid	CELL_ID_1122
	plmn	PLMN_123_33
	lac	LAC_2147
	power	RF_CLASS_2
	gprs_indic	GPRS_NO
(71)	MMR_REG_CNF	
	plmn	PLMN_123_33
(72)	MMR_PLMN_MODE_REQ	
	mode	MODE_MAN
(73)	RR_SYNC_REQ	
	op	OP_MODE_SIM_2
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	NOT_USED
	plmn	NOT_USED
	lac	NOT_USED
	sync	NOT_PRESENT_16BIT
	acc	NOT_USED
	thplmn	NOT_USED
(74)	MMR_NET_REQ	
	param	NOT_USED
(75)	RR_ACTIVATE_REQ	
	plmn	PLMN_NO_ID
	op	OP_MODE_SIM_NO_SERV_M
	cksn	CKSN_NO_KEY
	kcv	KC_DELETED
	acc	ACC_CLASS_0000
	imsi	EMPTY_IMSI
	tmsi	NOT_USED
	thplmn	NOT_USED
	bcch_info	NOT_USED
	cell_test	CELL_TEST_DISABLE
	gprs_indic	GPRS_NO
(76)	RR_ABORT_IND	
	op	OP_SIM_MAN_MMI_SRCH_FS
	abcs	ABCS_CEL_SEL_FAIL
	plmn_avail	TWO_PLMN_FOUND

	plmn	PLMN_LIST_2_PLMN
	rxlevel	RXLEVEL_20_18
	power	RF_CLASS_2
(77)	MMR_PLMN_IND	
	res	RES_OK_USR_MST_SEL_PLMN
	plmn	PLMN_LIST_2_PLMN_A
	forb_ind	FORB_PLMN_ID
	rxlevel	RXLEVEL_20_18_A
(78)	MMR_PLMN_MODE_REQ	
	mode	MODE_AUTO
(79)	RR_SYNC_REQ	
	op	OP_SIM_AUTO_MMI_SRCH_NS
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	NOT_USED
	plmn	NOT_USED
	lac	NOT_USED
	synccs	NOT_PRESENT_16BIT
	accc	NOT_USED
	thplmn	NOT_USED
(80)	RR_ESTABLISH_REQ	
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti	TI_0
	loc_upd_type	LOC_UPD_TYPE_PERIODIC
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_2147
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	

History: 28.02.01 HM Initial

4.25 Network search

4.25.1 MM530: Aborted manual NW search in MM_IDLE_ATTEMPT_TO_UPDATE

Description: The mobile is in MM_IDLE_ATTEMPT_TO_UPDATE state, manual network mode selected. The user starts a manual PLMN search. While this is running, the user aborts the operation. It is not expected that MM really stops searching PLMNs, but if a call attempt will be made in the next testcase, MM has to remember that it came from MM_IDLE_ATTEMPT_TO_UPDATE state.

Preamble: MM410

	MMI / CM	MM	RR/DL
(1)			
	MMR_PLMN_MODE_REQ		
	=====>		
(2)		RR_SYNC_REQ	
		=====>	
(3)	MMR_NET_REQ		
	=====>		
(4)		RR_ACTIVATE_REQ	
		=====>	
(5)	MMR_PLMN_MODE_REQ		
	=====>		
(6)		RR_SYNC_REQ	
		=====>	

Parametrization

	Primitive	Parameter	Value
(81)	MMR_PLMN_MODE_REQ		
	mode	MODE_MAN	
(82)	RR_SYNC_REQ		
	op	OP_MODE_SIM_2	
	cksn	NOT_USED	
	kcv	NOT_USED	
	tmsi	NOT_USED	
	plmn	NOT_USED	
	lac	NOT_USED	
	synccs	NOT_PRESENT_16BIT	
	accc	NOT_USED	
	thplmn	NOT_USED	
(83)	MMR_NET_REQ		
	param	NOT_USED	
(84)	RR_ACTIVATE_REQ		
	plmn	PLMN_NO_ID	
	op	OP_MODE_SIM_NO_SERV_M	
	cksn	CKSN_NO_KEY	
	kcv	KC_DELETED	
	accc	ACC_CLASS_0000	
	imsi	EMPTY_IMSI	
	tmsi	NOT_USED	
	thplmn	NOT_USED	
	bcch_info	NOT_USED	

	cell_test	CELL_TEST_DISABLE
	gprs_indic	GPRS_NO
(85)	MMR_PLMN_MODE_REQ	
	mode	MODE_MAN
(86)	RR_SYNC_REQ	
	op	OP_SIM_MAN_MMI_SRCH_NS
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	NOT_USED
	plmn	NOT_USED
	lac	NOT_USED
	synccs	NOT_PRESENT_16BIT
	accc	NOT_USED
	thplmn	NOT_USED

History: 28.02.01 HM Initial

4.25.2 MM531: MM_IDLE_ATTEMPT_TO_UPDATE, MO call

Description: The mobile is in MM_IDLE_ATTEMPT_TO_UPDATE or MM_PLMN_SEARCH_NORMAL_SERVICE state. The user makes a call attempt. As the mobile station was in MM_IDLE_ATTEMPT_TO_UPDATE state if it was not searching and the searching is now really stopped by the call attempt, it is expected that before the actual call attempt is made first a location updating procedure is performed.

Variants: <A>....

Preamble: <A> MM410
 MM530

MMI / CM	MM	RR / DL
(1)	MMCC_ESTABLISH_REQ	
	=====>	
(2)	RR_ESTABLISH_REQ (LOCATION UPDATING REQ)	
	=====>	
(3)	RR_ESTABLISH_CNF	
	<=====	
(4)	RR_DATA_IND (LOCATION UPDATING ACC)	
	<=====	
(5)	RR_DATA_REQ (TMSI REALLOC COMPLETE)	
	=====>	
(6)	RR_SYNC_REQ	
	=====>	
(7)	RR_SYNC_REQ	
	=====>	
(8)	MMR_REG_CNF	
	<=====	
(9)	SIM_MM_UPDATE_REQ	
	<=====	
(10)	RR_DATA_REQ (CM SERVICE REQ)	
	=====>	

Parametrization

Primitive	Parameter	Value
(9) MMCC_ESTABLISH_REQ		
ti	TI_3	
prio	PRIO_NORM_CALL	
estcs	ESTCS_MOB_ORIG_DATA	
(10) RR_ESTABLISH_REQ		
estcs	ESTCS_SERV_REQ_BY_MM	
sdu		
{		
component	MM	
direction	UPLINK	
pd	U_LOC_UPD_REQ	
ti	TI_0	
loc_upd_type	LOC_UPD_TYPE_NORMAL_FOL	
ciph_key_num	CIPH_KEY_NUM_RES	
loc_area_ident	LOC_AREA_ID_123_33_FEFF	

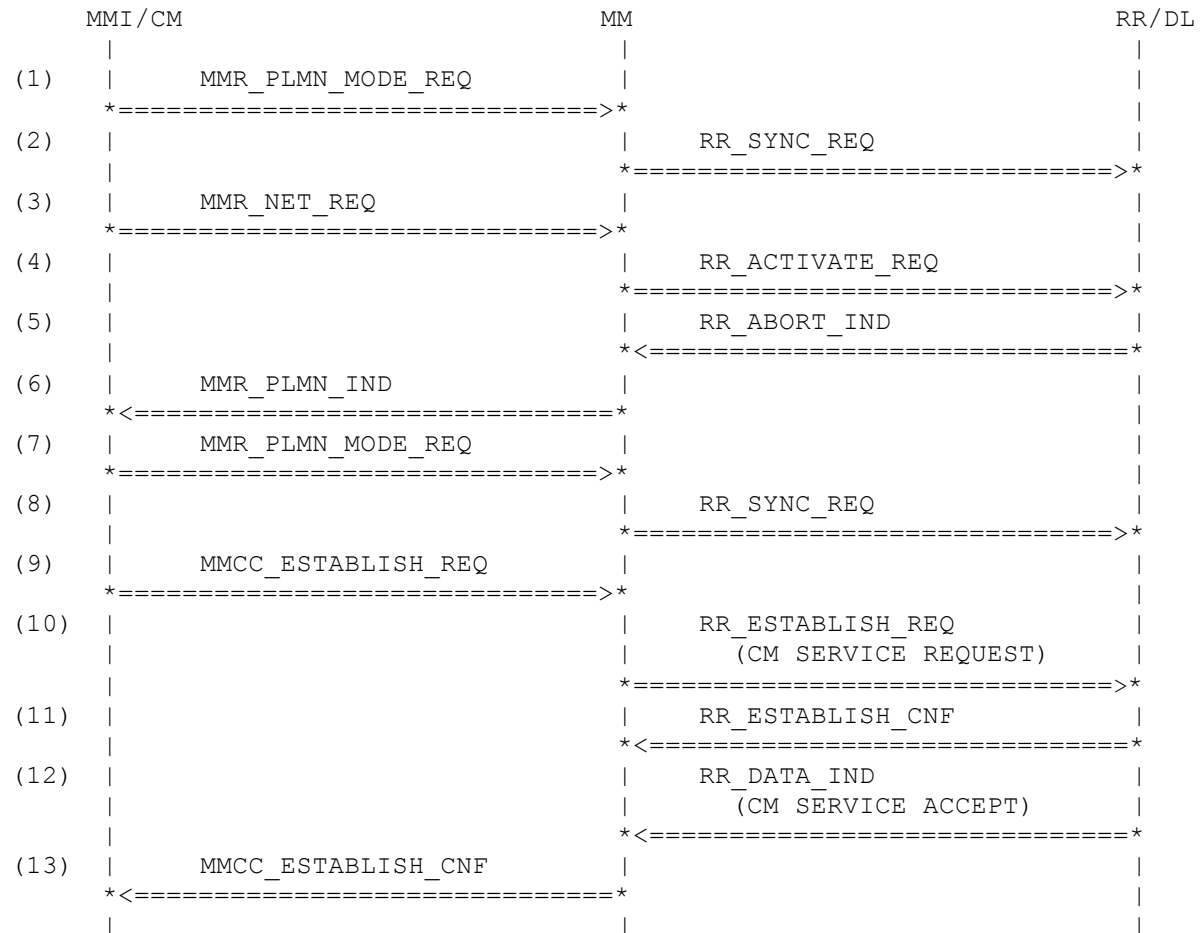
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(11)	RR_ESTABLISH_CNF	
	param	NOT_USED
(12)	RR_DATA_IND	
	d1	NOT_USED
	d2	NOT_USED
	sdu	
	{	
	component	MM
	direction	DOWNLINK
	pd	D_LOC_UPD_ACCEPT
	ti	TI_0
	loc_area_ident	LOC_AREA_ID_123_33_2147
	mob_id	MOB_IDENT_NEW_TMSI
	follow_proceed	IE_FOLLOW_PROCEED
	}	
(13)	RR_DATA_REQ	
	d1	NOT_USED
	d2	NOT_USED
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_TMSI_REALLOC_COMP
	ti	TI_0
	}	
(14)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	MOB_ID_NEW_TMSI
	plmn	NOT_USED
	lac	NOT_USED
	synccs	NOT_USED
	accc	NOT_USED
	thplmn	NOT_USED
(15)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	NOT_USED
	plmn	PLMN_123_33
	lac	LAC_2147
	synccs	SYNCCS_LAI_ALLOW
	accc	NOT_USED
	thplmn	NOT_USED
(16)	MMR_REG_CNF	
	plmn	PLMN_123_33
(17)	SIM_MM_UPDATE_REQ	
	loc_info	LOC_INFO_UPDATED_5
	bcch_inf	BCCH_INF_1
	forb_plmn	NOT_USED
	cksn	CKSN_RES

kc	KC_DELETED_SIM
cell_identity	CELL_ID_1122
(18) RR_DATA_REQ	
d1	NOT_USED
d2	NOT_USED
sdu	
{	
component	MM
direction	UPLINK
pd	U_CM_SERV_REQ
ti	TI_0
cm_serv_type	ST_MOC
ciph_key_num	CIPH_KEY_NUM_RES
mob_class_2	MOB_CLASS_2
mob_id	MOB_IDENT_NEW_TMSI
}	
History:	28.02.01
	HM
	Initial

4.25.3 MM532: Manual NW search in MM_IDLE_ATTEMPT_TO_UPDATE

Description: The mobile is in MM_IDLE_ATTEMPT_TO_UPDATE state, manual network mode selected. The user starts a manual PLMN search. After the search is finished, the user tries an emergency call.

Preamble: MM410



Parametrization

Primitive	Parameter	Value
(19) MMR_PLMN_MODE_REQ		
mode	MODE_MAN	
(20) RR_SYNC_REQ		
op	OP_MODE_SIM_2	
cksn	NOT_USED	
kcv	NOT_USED	
tmsi	NOT_USED	
plmn	NOT_USED	
lac	NOT_USED	
synccs	NOT_PRESENT_16BIT	
accc	NOT_USED	
thplmn	NOT_USED	
(21) MMR_NET_REQ		
param	NOT_USED	

(22)	RR_ACTIVATE_REQ	<ul style="list-style-type: none"> plmn op cksn kcv accc imsi tmsi thplmn bcch_info cell_test gprs_indic 	<ul style="list-style-type: none"> PLMN_NO_ID OP_MODE_SIM_NO_SERV_M CKSN_NO_KEY KC_DELETED ACC_CLASS_0000 EMPTY_IMSI NOT_USED NOT_USED NOT_USED CELL_TEST_DISABLE GPRS_NO
(23)	RR_ABORT_IND	<ul style="list-style-type: none"> op abcs plmn_avail plmn rxlevel power 	<ul style="list-style-type: none"> OP_SIM_MAN_MMI_SRCH_FS ABCS_CEL_SEL_FAIL TWO_PLMN_FOUND PLMN_LIST_2_PLMN RXLEVEL_20_18 RF_CLASS_2
(24)	MMR_PLMN_IND	<ul style="list-style-type: none"> res plmn forb_ind rxlevel 	<ul style="list-style-type: none"> RES_OK_USR_MST_SEL_PLMN PLMN_LIST_2_PLMN_A FORB_PLMN_ID RXLEVEL_20_18_A
(25)	MMR_PLMN_MODE_REQ	<ul style="list-style-type: none"> mode 	<ul style="list-style-type: none"> MODE_MAN
(26)	RR_SYNC_REQ	<ul style="list-style-type: none"> op cksn kcv tmsi plmn lac synccs accc thplmn 	<ul style="list-style-type: none"> OP_SIM_MAN_MMI_SRCH_NS NOT_USED NOT_USED NOT_USED NOT_USED NOT_USED NOT_PRESENT_16BIT NOT_USED NOT_USED
(27)	MMCC_ESTABLISH_REQ	<ul style="list-style-type: none"> ti prio estcs 	<ul style="list-style-type: none"> TI_3 PRIO_EMERG_CALL ESTCS_MOB_ORIG_DATA
(28)	RR_ESTABLISH_REQ	<ul style="list-style-type: none"> estcs sdu { <ul style="list-style-type: none"> component direction pd ti cm_serv_type ciph_key_num mob_class_2 mob_id 	<ul style="list-style-type: none"> ESTCS_EMERG_CAL MM UPLINK U_CM_SERV_REQ TI_0 ST_EMERGENCY CIPH_KEY_NUM_RES MOB_CLASS_2 MOB_IDENT_IMSI

(29)	RR_ESTABLISH_CNF	
	param	NOT_USED
(30)	RR_DATA_IND	
	d1	NOT_USED
	d2	NOT_USED
	sdu	
	{	
	component	MM
	direction	DOWNLINK
	pd	D_CM_SERV_ACCEPT
	ti	TI_0
	}	
(31)	MMCC_ESTABLISH_CNF	
	ti	TI_3

History: 28.02.01 HM Initial

4.26 Behaviour due to SAT activity

4.26.1 MM601: SIM insert indication by SAT .- IMSI change, detach/attach, automatic

Description: MM receives a SIM_MM_INSERT_IND with IMSI change. This shall cause a MM Re-start procedure. Automatic registration mode version.

Preamble: MM403

	MMI / CM	MM	RR / DL
(1)		RR_ESTABLISH_CNF	
		<=====	
(2)		RR_DATA_IND	
		(LOCATION UPDATING ACC)	
		<=====	
(3)		RR_DATA_REQ	
		(TMSI REALLOC COMPLETE)	
		=====>	
(4)		RR_SYNC_REQ	
		=====>	
(5)		RR_SYNC_REQ	
		=====>	
(6)	SIM_MM_UPDATE_REQ		
	<=====		
(7)		RR_RELEASE_IND	
		<=====	
(8)		MDL_RELEASE_REQ	
		=====>	
(9)	SIM_MM_INSERT_IND		
	=====>		
(10)		RR_ESTABLISH_REQ	
		=====>	
(11)		RR_ESTABLISH_CNF	
		<=====	
(12)		RR_RELEASE_IND	
		<=====	
(13)		MDL_RELEASE_REQ	
		=====>	
(14)		RR_ABORT_REQ	
		=====>	
(15)		RR_ACTIVATE_REQ	
		=====>	
(16)		RR_ACTIVATE_CNF	
		<=====	
(17)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		=====>	
(18)		RR_ESTABLISH_CNF	
		<=====	
(19)		RR_DATA_IND	
		(LOCATION UPDATING ACC)	
		<=====	
(20)		RR_DATA_REQ	
		(TMSI REALLOC COMPLETE)	
		=====>	
(21)		RR_SYNC_REQ	
		=====>	
(22)		RR_SYNC_REQ	

```

(23) |                                     *=====>*
      |      MMR_REG_CNF               |
      | *<=====*                     |
(24) |      SIM_MM_UPDATE_REQ         |
      | *<=====*                     |
(25) |                                     |
      |                                     |
      | *<=====*                     |
(26) |      MDL_RELEASE_REQ           |
      | *=====>*                     |
      |                                     |

```

Parametrization

Primitive	Parameter	Value
(87) RR_ESTABLISH_CNF param	NOT_USED	
(88) RR_DATA_IND d1 d2 sdu { component direction pd ti loc_area_ident mob_id follow_proceed }	NOT_USED NOT_USED NOT_USED MM DOWNLINK D_LOC_UPD_ACCEPT TI_0 LOC_AREA_ID_123_33_2147 MOB_IDENT_NEW_TMSI NOT_USED	
(89) RR_DATA_REQ d1 d2 sdu { component direction pd ti }	NOT_USED NOT_USED NOT_USED MM UPLINK U_TMSI_REALLOC_COMP TI_0	
(90) RR_SYNC_REQ op cksn kcv tmsi plmn lac synccs acc thplmn	NOT_USED NOT_USED NOT_USED MOB_ID_NEW_TMSI NOT_USED NOT_USED NOT_USED NOT_USED NOT_USED	
(91) RR_SYNC_REQ op cksn kcv tmsi plmn lac synccs	NOT_USED NOT_USED NOT_USED NOT_USED PLMN_123_33 LAC_2147 SYNCCS_LAI_ALLOW	

	acc	NOT_USED
	thplmn	NOT_USED
(92)	SIM_MM_UPDATE_REQ	
	loc_info	LOC_INFO_UPDATED_5
	bcch_inf	BCCH_INF_1
	forb_plmn	NOT_USED
	cksn	CKSN_RES
	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122
(93)	RR_RELEASE_IND	
	relcs	RELCS_NORM
	sapi	SAPI_0
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(94)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(95)	SIM_MM_INSERT_IND	
	op_mode	NORMAL_SIM_INS
	imsi_field	SIM_IMSI_001010123456789
	loc_info	LOC_INFO_UPDATED_1
	acc_ctrl	ACC_CTRL_1
	bcch_inf	BCCH_INF_1
	kc_n	KC_EMPTY
	pref_plmn	PREF_PLMN_NONE
	forb_plmn	FORB_PLMN_NONE
	phase	PHASE_2_SIM
	hplmn	THPLMN_01
(96)	RR_ESTABLISH_REQ	
	estcs	ESTCS_MOB_ORIG_CAL_BY_SS_SMS
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_IMSI_DETACH_IND
	ti	TI_0
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_TMSI
	}	
(97)	RR_ESTABLISH_CNF	
	param	NOT_USED
(98)	RR_RELEASE_IND	
	relcs	RELCS_NORM
	sapi	SAPI_0
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(99)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
(100)	RR_ABORT_REQ	
	abcs	ABCS_SIM_REM
(101)	RR_ACTIVATE_REQ	
	plmn	PLMN_123_33
	op	OP_MODE_SIM_NO_SERV

cksn	CKSN_RES
kcv	KCV_EMPTY
accc	ACC_2143
imsi	PRI_IMSI_001010123456789
tmsi	MOB_ID_NO_ID
thplmn	THPLMN_01
bcch_info	BCCH_INFO_ECL
cell_test	CELL_TEST_DISABLE
gprs_indic	GPRS_NO
(102) RR_ACTIVATE_CNF	
op	OP_MODE_SIM
mm_info	MM_INFO_ATT
cid	CELL_ID_1122
plmn	PLMN_123_33
lac	LAC_2147
power	RF_CLASS_2
gprs_indic	GPRS_NO
(103) RR_ESTABLISH_REQ	
estcs	ESTCS_SERV_REQ_BY_MM
sdu	
{	
component	MM
direction	UPLINK
pd	U_LOC_UPD_REQ
ti	TI_0
loc_upd_type	LOC_UPD_TYPE_ATTACH
ciph_key_num	CIPH_KEY_NUM_RES
loc_area_ident	LOC_AREA_ID_123_33_2147
mob_class_1	MOB_CLASS_1
mob_id	MSG_IMSI_001010123456789
}	
(104) RR_ESTABLISH_CNF	
param	NOT_USED
(105) RR_DATA_IND	
d1	NOT_USED
d2	NOT_USED
sdu	
{	
component	MM
direction	DOWNLINK
pd	D_LOC_UPD_ACCEPT
ti	TI_0
loc_area_ident	LOC_AREA_ID_123_33_2147
mob_id	MOB_IDENT_NEW_TMSI
follow_proceed	NOT_USED
}	
(106) RR_DATA_REQ	
d1	NOT_USED
d2	NOT_USED
sdu	
{	
component	MM
direction	UPLINK
pd	U_TMSI_REALLOC_COMP
ti	TI_0
}	

(107)	RR_SYNC_REQ	op	NOT_USED
		cksn	NOT_USED
		kcv	NOT_USED
		tmsi	MOB_ID_NEW_TMSI
		plmn	NOT_USED
		lac	NOT_USED
		synccs	NOT_USED
		accc	NOT_USED
		thplmn	NOT_USED
(108)	RR_SYNC_REQ	op	NOT_USED
		cksn	NOT_USED
		kcv	NOT_USED
		tmsi	NOT_USED
		plmn	PLMN_123_33
		lac	LAC_2147
		synccs	SYNCCS_LAI_ALLOW
		accc	NOT_USED
		thplmn	NOT_USED
(109)	MMR_REG_CNF	plmn	PLMN_123_33
(110)	SIM_MM_UPDATE_REQ	loc_info	LOC_INFO_UPDATED_5
		bcch_inf	BCCH_INF_1
		forb_plmn	NOT_USED
		cksn	CKSN_RES
		kc	KC_DELETED_SIM
		cell_identity	CELL_ID_1122
(111)	RR_RELEASE_IND	relcs	RELCS_NORM
		sapi	SAPI_0
		gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(112)	MDL_RELEASE_REQ	ch_type	NOT_PRESENT_8BIT
		sapi	SAPI_0
History:	10.04.00	HM	Initial
	14.02.01	HM	Revised

4.26.2 MM602: SIM insert indication by SAT - IMSI change, detach/attach, manual

Description: MM receives a SIM_MM_INSERT_IND with IMSI change. This shall cause a MM Restart procedure. In this testcase, no detach is required by cell. Manual mode. The mobile is updated by the SIM in another location area that the one the mobile is manual required to register to. A normal location updating on the manually selected PLMN is expected.

Preamble: MM022

	MMI / CM	MM	RR / DL
(1)	SIM_MM_INSERT_IND		
	=====>		
(2)	MMR_PLMN_MODE_REQ		
	=====>		
(3)		RR_SYNC_REQ	
		=====>	
(4)	MMR_PLMN_RES		
	=====>		
(5)		RR_ACTIVATE_REQ	
		=====>	
(6)		RR_ACTIVATE_CNF	
		<=====	
(7)		RR_ESTABLISH_REQ	
		(LOCATION UPDATING REQ)	
		=====>	
(8)		RR_ESTABLISH_CNF	
		<=====	
(9)		RR_DATA_IND	
		(LOCATION UPDATING ACC)	
		<=====	
(10)		RR_DATA_REQ	
		(TMSI REALLOC COMPLETE)	
		=====>	
(11)		RR_SYNC_REQ	
		=====>	
(12)		RR_SYNC_REQ	
		=====>	
(13)	MMR_REG_CNF		
	<=====		
(14)	SIM_MM_UPDATE_REQ		
	<=====		
(15)		RR_ESTABLISH_IND	
		<=====	
(16)		RR_DATA_IND	
		(Identity request)	
		<=====	
(17)		RR_DATA_REQ	
		(Identity response)	
		=====>	
(18)		RR_RELEASE_IND	
		<=====	
(19)		MDL_RELEASE_REQ	
		=====>	
(20)	SIM_MM_INSERT_IND		
	=====>		
(21)		RR_ESTABLISH_REQ	
		=====>	
(22)		RR_ESTABLISH_CNF	
		<=====	

```

(23) | | RR_RELEASE_IND |
| | *<=====*
(24) | | MDL_RELEASE_REQ |
| | *=====>*
(25) | | RR_ABORT_REQ |
| | *=====>*
(26) | | RR_ACTIVATE_REQ |
| | *=====>*
(27) | | RR_ACTIVATE_CNF |
| | *<=====*
(28) | | RR_ESTABLISH_REQ |
| | (LOCATION UPDATING REQ) |
| | *=====>*
(29) | | RR_ESTABLISH_CNF |
| | *<=====*
(30) | | RR_DATA_IND |
| | (LOCATION UPDATING ACC) |
| | *<=====*
(31) | | RR_DATA_REQ |
| | (TMSI REALLOC COMPLETE) |
| | *=====>*
(32) | | RR_SYNC_REQ |
| | *=====>*
(33) | | RR_SYNC_REQ |
| | *=====>*
(34) | MMR_REG_CNF |
| *<=====*
(35) | SIM_MM_UPDATE_REQ |
| *<=====*
(36) | | RR_RELEASE_IND |
| | *<=====*
(37) | | MDL_RELEASE_REQ |
| | *=====>*
| |

```

Parametrization

Primitive	Parameter	Value
(15) SIM_MM_INSERT_IND		
op_mode	NORMAL_SIM_INS	
imsi_field	IMSI_FIELD_1	
loc_info	LOC_INFO_UPDATED_1	
acc_ctrl	ACC_CTRL_1	
bcch_inf	BCCH_INF_1	
kc_n	KC_EMPTY	
pref_plmn	PREF_PLMN_NONE	
forb_plmn	FORB_PLMN_NONE	
phase	PHASE_2_SIM	
hplmn	THPLMN_01	
(16) MMR_PLMN_MODE_REQ		
mode	MODE_MAN	
(17) RR_SYNC_REQ		
op	OP_MODE_SIM_NO_SERV_M1	
cksn	NOT_USED	
kcv	NOT_USED	
tmsi	NOT_USED	
plmn	NOT_USED	
lac	NOT_USED	

	syncchs	NOT_PRESENT_16BIT
	accc	NOT_USED
	thplmn	NOT_USED
(18)	MMR_PLMN_RES	
	plmn	PLMN_123_33
(19)	RR_ACTIVATE_REQ	
	plmn	PLMN_123_33
	op	OP_MODE_SIM_NO_SERV_M2
	cksn	CKSN_RES
	kcv	KCV_EMPTY
	accc	ACC_2143
	imsi	MOB_ID_IMSI
	tmsi	MOB_ID_NO_ID
	thplmn	THPLMN_01
	bcch_info	BCCH_INFO_1
	cell_test	CELL_TEST_DISABLE
	gprs_indic	GPRS_NO
(20)	RR_ACTIVATE_CNF	
	op	OP_MODE_SIM
	mm_info	MM_INFO_ATT
	cid	CELL_ID_1122
	plmn	PLMN_123_33
	lac	LAC_2147
	power	RF_CLASS_2
	gprs_indic	GPRS_NO
(21)	RR_ESTABLISH_REQ	
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti	TI_0
	loc_upd_type	LOC_UPD_TYPE_ATTACH
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_33_2147
	mob_class_1	MOB_CLASS_1
	mob_id	MOB_IDENT_IMSI
	}	
(22)	RR_ESTABLISH_CNF	
	param	NOT_USED
(23)	RR_DATA_IND	
	d1	NOT_USED
	d2	NOT_USED
	sdu	
	{	
	component	MM
	direction	DOWNLINK
	pd	D_LOC_UPD_ACCEPT
	ti	TI_0
	loc_area_ident	LOC_AREA_ID_123_33_2147
	mob_id	MOB_IDENT_NEW_TMSI
	follow_proceed	NOT_USED
	}	

(24)	RR_DATA_REQ	
	d1	NOT_USED
	d2	NOT_USED
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_TMSI_REALLOC_COMP
	ti	TI_0
	}	
(25)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	MOB_ID_NEW_TMSI
	plmn	NOT_USED
	lac	NOT_USED
	synccs	NOT_USED
	accc	NOT_USED
	thplmn	NOT_USED
(26)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	NOT_USED
	kcv	NOT_USED
	tmsi	NOT_USED
	plmn	PLMN_123_33
	lac	LAC_2147
	synccs	SYNCCS_LAI_ALLOW
	accc	NOT_USED
	thplmn	NOT_USED
(27)	MMR_REG_CNF	
	plmn	PLMN_123_33
(28)	SIM_MM_UPDATE_REQ	
	loc_info	LOC_INFO_UPDATED_5
	bcch_inf	BCCH_INF_1
	forb_plmn	NOT_USED
	cksn	CKSN_RES
	kc	KC_DELETED_SIM
	cell_identity	CELL_ID_1122
(29)	RR_ESTABLISH_IND	
	param	NOT_USED
(30)	RR_DATA_IND	
	d1	NOT_USED
	d2	NOT_USED
	sdu	
	{	
	component	MM
	direction	DOWNLINK
	pd	D_IDENT_REQ
	ti	TI_0
	ident	IDENT_TYPE_IMSI
	}	
(31)	RR_DATA_REQ	
	d1	NOT_USED
	d2	NOT_USED

sdu	
{	
component	MM
direction	UPLINK
pd	U_IDENT_RES
ti	TI_0
mob_id	MOB_IDENT_IMSI
}	
(32) RR_RELEASE_IND	
relcs	RELCS_NORM
sapi	SAPI_0
gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(33) MDL_RELEASE_REQ	
ch_type	NOT_PRESENT_8BIT
sapi	SAPI_0
(34) SIM_MM_INSERT_IND	
op_mode	NORMAL_SIM_INS
imsi_field	SIM_IMSI_001010123456789
loc_info	LOC_INFO_UPDATED_123_44_0002
acc_ctrl	ACC_CTRL_1
bcch_inf	BCCH_INF_1
kc_n	KC_EMPTY
pref_plmn	PREF_PLMN_NONE
forb_plmn	FORB_PLMN_NONE
phase	PHASE_2_SIM
hplmn	THPLMN_01
(35) RR_ESTABLISH_REQ	
estcs	ESTCS_MOB_ORIG_CAL_BY_SS_SMS
sdu	
{	
component	MM
direction	UPLINK
pd	U_IMSI_DETACH_IND
ti	TI_0
mob_class_1	MOB_CLASS_1
mob_id	MOB_IDENT_TMSI
}	
(36) RR_ESTABLISH_CNF	
param	NOT_USED
(37) RR_RELEASE_IND	
relcs	RELCS_NORM
sapi	SAPI_0
gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(38) MDL_RELEASE_REQ	
ch_type	NOT_PRESENT_8BIT
sapi	SAPI_0
(39) RR_ABORT_REQ	
abcs	ABCS_SIM_REM
(40) RR_ACTIVATE_REQ	
plmn	PLMN_123_33
op	OP_MODE_SIM_NO_SERV_M2
cksn	CKSN_RES
kcv	KCV_EMPTY
accc	ACC_2143

	imsi	PRI_IMSI_001010123456789
	tmsi	MOB_ID_NO_ID
	thplmn	THPLMN_01
	bcch_info	BCCH_INFO_1
	cell_test	CELL_TEST_DISABLE
	gprs_indic	GPRS_NO
(41)	RR_ACTIVATE_CNF	
	op	OP_MODE_SIM_M
	mm_info	MM_INFO_ATT
	cid	CELL_ID_1122
	plmn	PLMN_123_33
	lac	LAC_2147
	power	RF_CLASS_2
	gprs_indic	GPRS_NO
(42)	RR_ESTABLISH_REQ	
	estcs	ESTCS_SERV_REQ_BY_MM
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_LOC_UPD_REQ
	ti	TI_0
	loc_upd_type	LOC_UPD_TYPE_NORMAL
	ciph_key_num	CIPH_KEY_NUM_RES
	loc_area_ident	LOC_AREA_ID_123_44_0002
	mob_class_1	MOB_CLASS_1
	mob_id	MSG_IMSI_001010123456789
	}	
(43)	RR_ESTABLISH_CNF	
	param	NOT_USED
(44)	RR_DATA_IND	
	d1	NOT_USED
	d2	NOT_USED
	sdu	
	{	
	component	MM
	direction	DOWNLINK
	pd	D_LOC_UPD_ACCEPT
	ti	TI_0
	loc_area_ident	LOC_AREA_ID_123_33_2147
	mob_id	MOB_IDENT_NEW_TMSI
	follow_proceed	NOT_USED
	}	
(45)	RR_DATA_REQ	
	d1	NOT_USED
	d2	NOT_USED
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_TMSI_REALLOC_COMP
	ti	TI_0
	}	
(46)	RR_SYNC_REQ	
	op	NOT_USED
	cksn	NOT_USED

	kcv	NOT_USED	
	tmsi	MOB_ID_NEW_TMSI	
	plmn	NOT_USED	
	lac	NOT_USED	
	synccs	NOT_USED	
	accc	NOT_USED	
	thplmn	NOT_USED	
(47)	RR_SYNC_REQ		
	op	NOT_USED	
	cksn	NOT_USED	
	kcv	NOT_USED	
	tmsi	NOT_USED	
	plmn	PLMN_123_33	
	lac	LAC_2147	
	synccs	SYNCCS_LAI_ALLOW	
	accc	NOT_USED	
	thplmn	NOT_USED	
(48)	MMR_REG_CNF		
	plmn	PLMN_123_33	
(49)	SIM_MM_UPDATE_REQ		
	loc_info	LOC_INFO_UPDATED_5	
	bcch_inf	BCCH_INF_1	
	forb_plmn	NOT_USED	
	cksn	CKSN_RES	
	kc	KC_DELETED_SIM	
	cell_identity	CELL_ID_1122	
(50)	RR_RELEASE_IND		
	relcs	RELCS_NORM	
	sapi	SAPI_0	
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK	
(51)	MDL_RELEASE_REQ		
	ch_type	NOT_PRESENT_8BIT	
	sapi	SAPI_0	
History:	30.03.00	HM	Initial
	14.02.01	HM	Revised

4.26.3 MM603: SIM insert indication by SAT - IMSI change, automatic mode

Description: MM receives a SIM_MM_INSERT_IND with IMSI change. This shall cause a MM Re-start procedure. In this testcase, no detach is required by cell and the mobile is in automatic mode. As the same cell is selected after the IMSI ATTACH, there is no need to indicate the full service condition to the MMI as there was never something else than full service indicated.

Preamble: MM024

	MMI / CM	MM	RR/DL
(1)		RR_ESTABLISH_IND	
		<=====	
(2)		RR_DATA_IND	
		(Identity request)	
		<=====	
(3)		RR_DATA_REQ	
		(Identity response)	
		=====>	
(4)		RR_RELEASE_IND	
		<=====	
(5)		MDL_RELEASE_REQ	
		=====>	
(6)	SIM_MM_INSERT_IND		
	=====>		
(7)		MDL_RELEASE_REQ	
		=====>	
(8)		RR_ABORT_REQ	
		=====>	
(9)		RR_ACTIVATE_REQ	
		=====>	
(10)		RR_ACTIVATE_CNF	
		<=====	
(11)		RR_ESTABLISH_IND	
		<=====	
(12)		RR_DATA_IND	
		(Identity request)	
		<=====	
(13)		RR_DATA_REQ	
		(Identity response)	
		=====>	
(14)		RR_RELEASE_IND	
		<=====	
(15)		MDL_RELEASE_REQ	
		=====>	

Parametrization

Primitive	Parameter	Value
(1) RR_ESTABLISH_IND param	NOT_USED	
(2) RR_DATA_IND d1	NOT_USED	
d2	NOT_USED	
sdu		
{		
component	MM	

direction	DOWNLINK
pd	D_IDENT_REQ
ti	TI_0
ident	IDENT_TYPE_IMSI
}	
(3) RR_DATA_REQ	
d1	NOT_USED
d2	NOT_USED
sdu	
{	
component	MM
direction	UPLINK
pd	U_IDENT_RES
ti	TI_0
mob_id	MOB_IDENT_IMSI
}	
(4) RR_RELEASE_IND	
relcs	RELCS_NORM
sapi	SAPI_0
gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(5) MDL_RELEASE_REQ	
ch_type	NOT_PRESENT_8BIT
sapi	SAPI_0
(6) SIM_MM_INSERT_IND	
op_mode	NORMAL_SIM_INS
imsi_field	SIM_IMSI_001010123456789
loc_info	LOC_INFO_UPDATED_1
acc_ctrl	ACC_CTRL_1
bcch_inf	BCCH_INF_1
kc_n	KC_EMPTY
pref_plmn	PREF_PLMN_NONE
forb_plmn	FORB_PLMN_NONE
phase	PHASE_2_SIM
hplmn	THPLMN_01
(7) MDL_RELEASE_REQ	
ch_type	NOT_PRESENT_8BIT
sapi	SAPI_0
(8) RR_ABORT_REQ	
abcs	ABCS_SIM_REM
(9) RR_ACTIVATE_REQ	
plmn	PLMN_123_33
op	OP_MODE_SIM_NO_SERV
cksn	CKSN_RES
kcv	KCV_EMPTY
acc	ACC_2143
imsi	PRI_IMSI_001010123456789
tmsi	MOB_ID_NO_ID
thplmn	THPLMN_01
bcch_info	BCCH_INFO_ECL
cell_test	CELL_TEST_DISABLE
gprs_indic	GPRS_NO
(10) RR_ACTIVATE_CNF	
op	OP_MODE_SIM_M
mm_info	MM_INFO
cid	CELL_ID_1122

	plmn	PLMN_123_33
	lac	LAC_2147
	power	RF_CLASS_2
	gprs_indic	GPRS_NO
(11)	RR_ESTABLISH_IND	
	param	NOT_USED
(12)	RR_DATA_IND	
	d1	NOT_USED
	d2	NOT_USED
	sdu	
	{	
	component	MM
	direction	DOWNLINK
	pd	D_IDENT_REQ
	ti	TI_0
	ident	IDENT_TYPE_IMSI
	}	
(13)	RR_DATA_REQ	
	d1	NOT_USED
	d2	NOT_USED
	sdu	
	{	
	component	MM
	direction	UPLINK
	pd	U_IDENT_RES
	ti	TI_0
	mob_id	MSG_IMSI_001010123456789
	}	
(14)	RR_RELEASE_IND	
	relcs	RELCS_NORM
	sapi	SAPI_0
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(15)	MDL_RELEASE_REQ	
	ch_type	NOT_PRESENT_8BIT
	sapi	SAPI_0
History:	14.02.01	HM Initial

4.26.4 MM604: SIM insert indication by SAT - IMSI change, manual mode

Description: MM receives a SIM_MM_INSERT_IND with IMSI change. This shall cause a MM Re-start procedure. In this testcase, no detach/attach is required by cell. As the same cell is selected after the IMSI ATTACH, there is no need to indicate the full service condition to the MMI as there was never something else than full service indicated.

Preamble: MM025

	MMI / CM	MM	RR / DL
(1)		RR_ESTABLISH_IND	
		<=====	
(2)		RR_DATA_IND	
		(Identity request)	
		<=====	
(3)		RR_DATA_REQ	
		(Identity response)	
		=====>	
(4)		RR_RELEASE_IND	
		<=====	
(5)		MDL_RELEASE_REQ	
		=====>	
(6)	SIM_MM_INSERT_IND		
	=====>		
(7)		MDL_RELEASE_REQ	
		=====>	
(8)		RR_ABORT_REQ	
		=====>	
(9)		RR_ACTIVATE_REQ	
		=====>	
(10)		RR_ACTIVATE_CNF	
		<=====	
(11)		RR_ESTABLISH_IND	
		<=====	
(12)		RR_DATA_IND	
		(Identity request)	
		<=====	
(13)		RR_DATA_REQ	
		(Identity response)	
		=====>	
(14)		RR_RELEASE_IND	
		<=====	
(15)		MDL_RELEASE_REQ	
		=====>	

Parametrization

Primitive	Parameter	Value
(1) RR_ESTABLISH_IND param	NOT_USED	
(2) RR_DATA_IND d1	NOT_USED	
d2	NOT_USED	
sdu		
{		
component	MM	
direction	DOWNLINK	

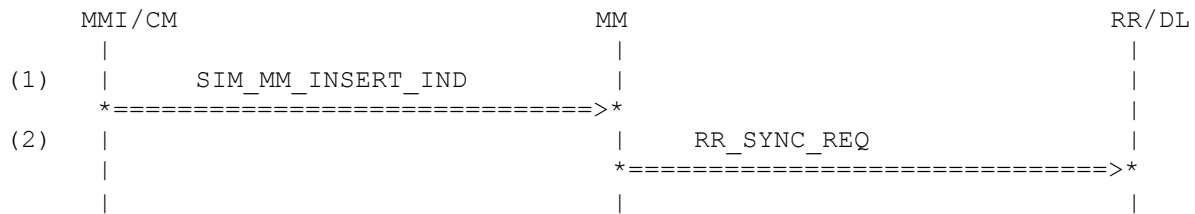
pd	D_IDENT_REQ
ti	TI_0
ident	IDENT_TYPE_IMSI
}	
(3) RR_DATA_REQ	
d1	NOT_USED
d2	NOT_USED
sdu	
{	
component	MM
direction	UPLINK
pd	U_IDENT_RES
ti	TI_0
mob_id	MOB_IDENT_IMSI
}	
(4) RR_RELEASE_IND	
relcs	RELCS_NORM
sapi	SAPI_0
gprs_resumption	GPRS_RESUMPTION_NOT_ACK
(5) MDL_RELEASE_REQ	
ch_type	NOT_PRESENT_8BIT
sapi	SAPI_0
(6) SIM_MM_INSERT_IND	
op_mode	NORMAL_SIM_INS
imsi_field	SIM_IMSI_001010123456789
loc_info	LOC_INFO_UPDATED_1
acc_ctrl	ACC_CTRL_1
bcch_inf	BCCH_INF_1
kc_n	KC_EMPTY
pref_plmn	PREF_PLMN_NONE
forb_plmn	FORB_PLMN_NONE
phase	PHASE_2_SIM
hplmn	THPLMN_01
(7) MDL_RELEASE_REQ	
ch_type	NOT_PRESENT_8BIT
sapi	SAPI_0
(8) RR_ABORT_REQ	
abcs	ABCS_SIM_REM
(9) RR_ACTIVATE_REQ	
plmn	PLMN_123_33
op	OP_MODE_SIM_NO_SERV_M2
cksn	CKSN_RES
kcv	KCV_EMPTY
acc	ACC_2143
imsi	PRI_IMSI_001010123456789
tmsi	MOB_ID_NO_ID
thplmn	THPLMN_01
bcch_info	BCCH_INFO_1
cell_test	CELL_TEST_DISABLE
gprs_indic	GPRS_NO
(10) RR_ACTIVATE_CNF	
op	OP_MODE_SIM_M
mm_info	MM_INFO
cid	CELL_ID_1122
plmn	PLMN_123_33

	lac	LAC_2147	
	power	RF_CLASS_2	
	gprs_indic	GPRS_NO	
(11)	RR_ESTABLISH_IND		
	param	NOT_USED	
(12)	RR_DATA_IND		
	d1	NOT_USED	
	d2	NOT_USED	
	sdu		
	{		
	component	MM	
	direction	DOWNLINK	
	pd	D_IDENT_REQ	
	ti	TI_0	
	ident	IDENT_TYPE_IMSI	
	}		
(13)	RR_DATA_REQ		
	d1	NOT_USED	
	d2	NOT_USED	
	sdu		
	{		
	component	MM	
	direction	UPLINK	
	pd	U_IDENT_RES	
	ti	TI_0	
	mob_id	MSG_IMSI_001010123456789	
	}		
(14)	RR_RELEASE_IND		
	relcs	RELCS_NORM	
	sapi	SAPI_0	
	gprs_resumption	GPRS_RESUMPTION_NOT_ACK	
(15)	MDL_RELEASE_REQ		
	ch_type	NOT_PRESENT_8BIT	
	sapi	SAPI_0	
History:	30.03.00	HM	Initial
	14.02.01	HM	Revised

4.26.5 MM605: SIM insert indication by SAT - no IMSI change, RR notification

Description: MM receives a SIM_MM_INSERT_IND without IMSI change. This shall not cause a MM Restart procedure, but there were fields changed which cause RR notification.

Preamble: MM025



Parametrization

Primitive	Parameter	Value
(53) SIM_MM_INSERT_IND		
op_mode	NORMAL_SIM_INS	
imsi_field	IMSI_FIELD_1	
loc_info	LOC_INFO_UPDATED_1	
acc_ctrl	ACC_CTRL_1	
bcch_inf	BCCH_INF_1	
kc_n	KC_EMPTY	
pref_plmn	PREF_PLMN_NONE	
forb_plmn	FORB_PLMN_NONE	
phase	PHASE_2_SIM	
hplmn	THPLMN_FF	
(54) RR_SYNC_REQ		
op	NOT_USED	
cksn	NOT_USED	
kcv	NOT_USED	
tmsi	NOT_USED	
plmn	NOT_USED	
lac	NOT_USED	
synccs	SYNCCS_ACCC_THPLMN	
accc	ACC_2143	
thplmn	THPLMN_FF	
History:	04.04.00	HM Initial

4.26.6 MM606: SIM inserted - File update by SAT

Description: MM receives a SIM_FILE_UPDATE_IND for some not interesting crap. MM does nothing special and confirms the request.

Preamble: MM025

	MMI / CM	MM	RR / DL
(1)	SIM_FILE_UPDATE_IND		
	*=====> *		
(2)	SIM_FILE_UPDATE_RES		
	*<===== *		

Parametrization

	Primitive	Parameter	Value
(1)	SIM_FILE_UPDATE_IND		
	val_nr	FILE_CHG_1	
	file_id	EF_MSISDN	
(2)	SIM_FILE_UPDATE_RES		
	source	SRC_MM	
	fu_rsc	SIM_FU_SUCCESS	
History:	14.02.01	HM	Initial

4.26.7 MM607: SIM inserted - File update by SAT

Description: MM receives a SIM_FILE_UPDATE_IND for the preferred PLMN list

Preamble: MM025

	MMI/CM	MM	RR/DL
(1)	SIM_FILE_UPDATE_IND		
	=====>		
(2)	SIM_READ_REQ		
	<=====		
(3)	SIM_READ_CNF		
	=====>		
(4)	SIM_FILE_UPDATE_RES		
	<=====		

Parametrization

	Primitive	Parameter	Value
(3)	SIM_FILE_UPDATE_IND		
	val_nr	FILE_CHG_1	
	file_id	EF_PLMN_SEL	
(4)	SIM_READ_REQ		
	source	SRC_MM	
	offset	OFFSET_0	
	datafield	SIM_PLMNSEL	
	length	NOT_PRESENT_8BIT	
	max_length	MAX_LEN_PREF_PLMN	
(5)	SIM_READ_CNF		
	datafield	SIM_PLMNSEL	
	error	SIM_NO_ERROR	
	length	PLMN_SEL_LENGTH	
	trans_data	PLMN_SEL_NLPTT_PROX	
(6)	SIM_FILE_UPDATE_RES		
	source	SRC_MM	
	fu_rsc	SIM_FU_SUCCESS	
History:	30.03.00	HM	Initial
	16.10.00	HM	Modified SIM_FILE_UPDATE_RES

4.26.8 MM608: File update by SAT, RR notification

Description: MM receives a SIM_FILE_UPDATE_IND for the HPLMN search period. RR has to be notified about the change

Preamble: MM025

	MMI / CM	MM	RR / DL
(1)	SIM_FILE_UPDATE_IND		
	=====>		
(2)	SIM_READ_REQ		
	<=====		
(3)	SIM_READ_CNF		
	=====>		
(4)	SIM_READ_REQ		
	<=====		
(5)	SIM_READ_CNF		
	=====>		
(6)		RR_SYNC_REQ	
		=====>	
(7)	SIM_FILE_UPDATE_RES		
	<=====		

Parametrization

	Primitive	Parameter	Value
(55)	SIM_FILE_UPDATE_IND		
	val_nr	FILE_CHG_2	
	file_id	EF_PLMN_SEL_THPLMN	
(7)	SIM_READ_REQ		
	source	SRC_MM	
	offset	OFFSET_0	
	datafield	SIM_HPLMN	
	length	NOT_PRESENT_8BIT	
	max_length	LENGTH_THPLMN	
(8)	SIM_READ_CNF		
	datafield	SIM_HPLMN	
	error	SIM_NO_ERROR	
	length	LENGTH_THPLMN	
	trans_data	SIM_THPLMN_FF	
(9)	SIM_READ_REQ		
	source	SRC_MM	
	offset	OFFSET_0	
	datafield	SIM_PLMNSEL	
	length	NOT_PRESENT_8BIT	
	max_length	MAX_LEN_PREF_PLMN	
(10)	SIM_READ_CNF		
	datafield	SIM_PLMNSEL	
	error	SIM_NO_ERROR	
	length	PLMN_SEL_LENGTH	
	trans_data	PLMN_SEL_NLPTT_PROX	
(56)	RR_SYNC_REQ		
	op	NOT_USED	
	cksn	NOT_USED	

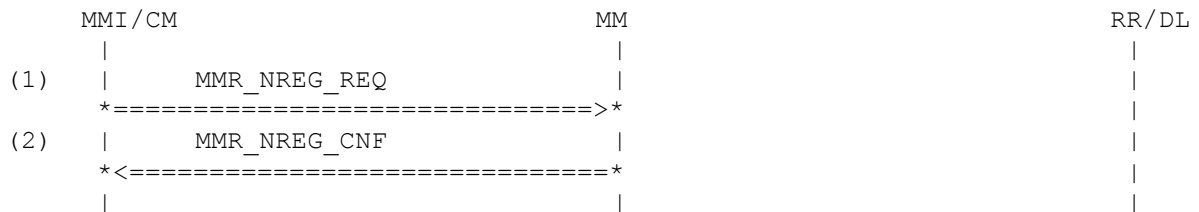
	kcv	NOT_USED	
	tmsi	NOT_USED	
	plmn	NOT_USED	
	lac	NOT_USED	
	synccs	SYNCCS_ACCC_THPLMN	
	accc	ACC_2143	
	thplmn	THPLMN_FF	
(11)	SIM_FILE_UPDATE_RES		
	source	SRC_MM	
	fu_rsc	SIM_FU_SUCCESS	
History:	30.03.00	HM	Initial
	16.10.00	HM	Modified SIM_FILE_UPDATE_RES

4.27 Switching service modes back and forth

4.27.1 MM620: SIM inserted - Deregistered -> Deregistered

Description: MM receives a SIM-INSERT indication primitive. Deregistering is required by the MMI.

Preamble: MM315



Parametrization

	Primitive	Parameter	Value
(47)	MMR_NREG_REQ cs	CS_POW_OFF	
(48)	MMR_NREG_CNF cs	CS_POW_OFF	
History:	25.04.00	HM	Initial

4.27.2 MM621: SIM inserted - Deregistered -> Limited

Description: A limited service search is required by the MMI. To prove MM is in a state not allowing normal calls, an establish attempt is tried. This will be refused by MM.

Preamble: MM620

	MMI / CM	MM	RR / DL
(1)	MMR_REG_REQ (SERVICE_MODE_LIMITED) *=====>*	 	
(2)	 	RR_ACTIVATE_REQ *=====>*	
(3)	 	RR_ACTIVATE_CNF *<=====*	
(4)	MMR_NREG_IND *<=====*	 	
(5)	MMCC_ESTABLISH_REQ *=====>*	 	
(6)	MMCC_RELEASE_IND *<=====*	 	

Parametrization

	Primitive	Parameter	Value
(54)	MMR_REG_REQ service_mode	SERVICE_MODE_LIMITED	
(55)	RR_ACTIVATE_REQ plmn op cksn kcv accc imsi tmsi thplmn bcch_info cell_test gprs_indic	PLMN_NO_ID OP_MODE_NO_SIM_NO_SERV CKSN_RES KC_DELETED ACC_CLASS_0000 MOB_ID_NO_ID MOB_ID_NO_ID THPLMN_FF NOT_USED CELL_TEST_DISABLE GPRS_NO	
(56)	RR_ACTIVATE_CNF op mm_info cid plmn lac power gprs_indic	OP_MODE_NO_SIM_LIM_SERV MM_INFO CELL_ID_1122 PLMN_123_44 LAC_0002 RF_CLASS_2 GPRS_NO	
(57)	MMR_NREG_IND nreg_cs search_running new_forb_plmn limited_cause	NREG_LIMITED_SERVICE SEARCH_NOT_RUNNING PLMN_NO_ID MMR_SIM_INVALID_MMIREQ	
(58)	MMCC_ESTABLISH_REQ ti prio estcs	TI_2 PRIO_NORM_CALL ESTCS_MOB_ORIG_SPCH	

(59) MMCC_RELEASE_IND
ti
relcs

TI_2
RELCS_NO_REGISTRATION

History: 25.04.00

HM

Initial

4.27.3 MM622: SIM inserted - Deregistered -> Full (automatic mode)

Description: A full service search in automatic mode is required by the MMI.

Preamble: MM620

	MMI / CM	MM	RR / DL
(1)	MMR_PLMN_MODE_REQ		
	=====>		
(2)	MMR_REG_REQ		
	=====>		
(3)		RR_ACTIVATE_REQ	
		=====>	
(4)		RR_ACTIVATE_CNF	
		<=====	
(5)	MMR_REG_CNF		
	<=====		

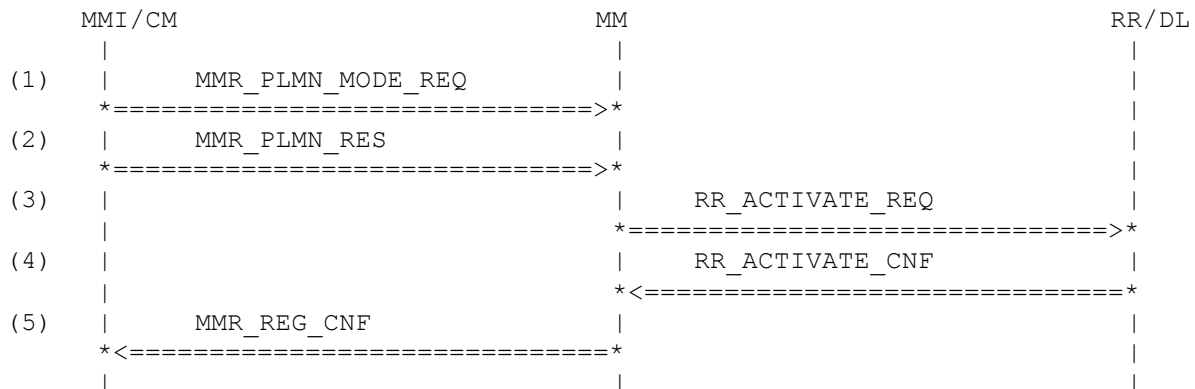
Parametrization

Primitive	Parameter	Value
(113) MMR_PLMN_MODE_REQ mode	MODE_AUTO	
(114) MMR_REG_REQ service_mode	SERVICE_MODE_FULL	
(115) RR_ACTIVATE_REQ plmn op cksn kcv accc imsi tmsi thplmn bcch_info cell_test gprs_indic	PLMN_123_33 OP_MODE_SIM_NO_SERV CKSN_RES KCV_EMPTY ACC_2143 MOB_ID_IMSI MOB_ID_NO_ID THPLMN_01 BCCH_INFO_ECL CELL_TEST_DISABLE GPRS_NO	
(116) RR_ACTIVATE_CNF op mm_info cid plmn lac power gprs_indic	OP_MODE_SIM MM_INFO_2 CELL_ID_1122 PLMN_123_33 LAC_2147 RF_CLASS_2 GPRS_NO	
(117) MMR_REG_CNF plmn	PLMN_123_33	
History:	20.04.00	HM Initial

4.27.4 MM623: SIM inserted - Deregistered -> Full (manual mode)

Description: MM receives a request to manual register in deregistered mode.

Preamble: MM620



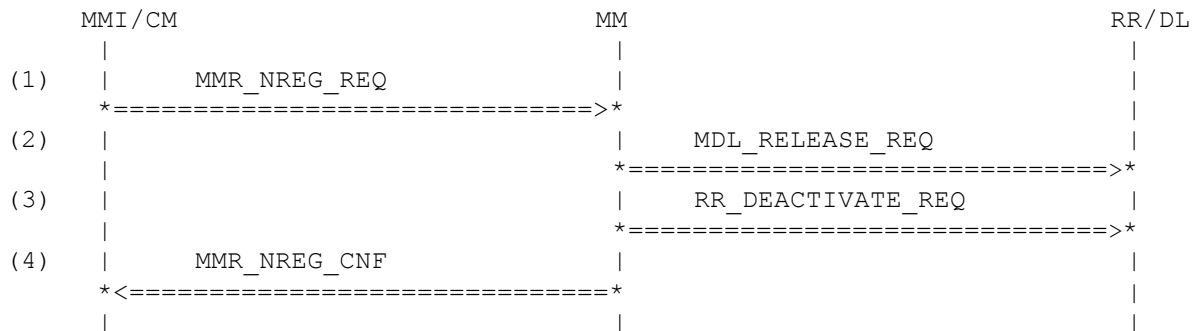
Parametrization

Primitive	Parameter	Value
(49) MMR_PLMN_MODE_REQ mode	MODE_MAN	
(118) MMR_PLMN_RES plmn	PLMN_123_33	
(119) RR_ACTIVATE_REQ plmn op cksn kcv accc imsi tmsi thplmn bcch_info cell_test gprs_indic	PLMN_123_33 OP_MODE_SIM_NO_SERV_M2 CKSN_RES KCV_EMPTY ACC_2143 MOB_ID_IMSI MOB_ID_NO_ID THPLMN_01 BCCH_INFO_1 CELL_TEST_DISABLE GPRS_NO	
(120) RR_ACTIVATE_CNF op mm_info cid plmn lac power gprs_indic	OP_MODE_SIM_M MM_INFO CELL_ID_1122 PLMN_123_33 LAC_2147 RF_CLASS_2 GPRS_NO	
(121) MMR_REG_CNF plmn	PLMN_123_33	
History:	25.04.00	HM Initial

4.27.5 MM624: SIM inserted - Limited -> Deregistered

Description: MM receives a request to deregister in limited service state.

Preamble: MM621



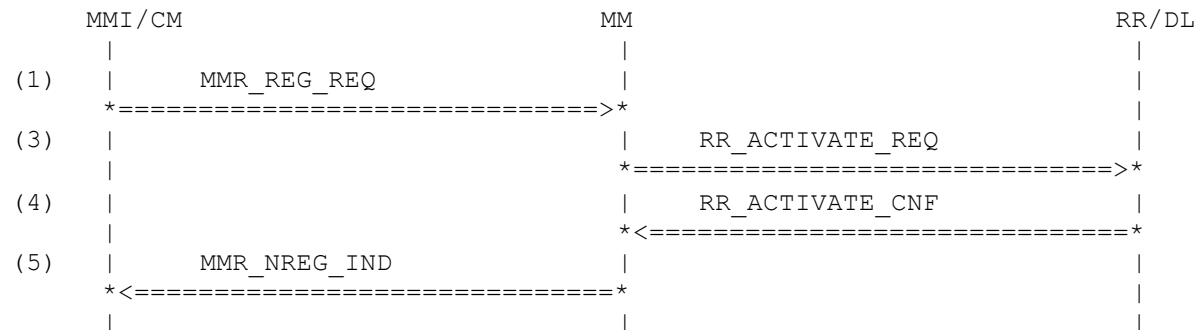
Parametrization

Primitive	Parameter	Value
(1) MMR_NREG_REQ cs	CS_POW_OFF	
(2) MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(3) RR_DEACTIVATE_REQ param	NOT_USED	
(4) MMR_NREG_CNF cs	CS_POW_OFF	
History:	25.04.00	HM Initial

4.27.6 MM625: SIM inserted - Limited -> Limited

Description: MM receives a request to register to limited service in limited service state. This is done by MMR_REG_REQ with parameter SERVICE_MODE_LIMITED here.

Preamble: MM621



Parametrization

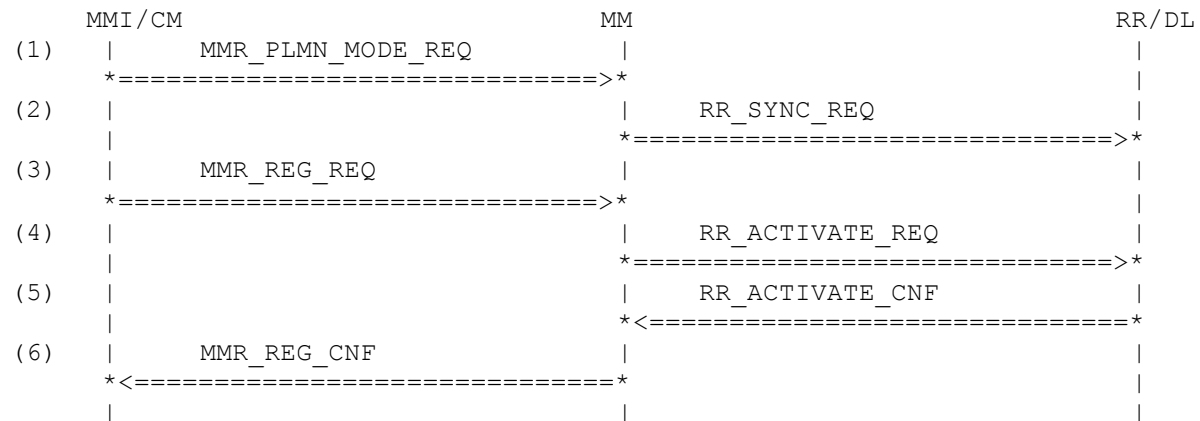
Primitive	Parameter	Value
(50) MMR_REG_REQ		
service_mode	SERVICE_MODE_LIMITED	
(122) RR_ACTIVATE_REQ		
plmn	PLMN_NO_ID	
op	OP_MODE_NO_SIM_NO_SERV	
cksn	CKSN_RES	
kcv	KC_DELETED	
accc	ACC_CLASS_0000	
imsi	MOB_ID_NO_ID	
tmsi	MOB_ID_NO_ID	
thplmn	THPLMN_FF	
bcch_info	NOT_USED	
cell_test	CELL_TEST_DISABLE	
gprs_indic	GPRS_NO	
(123) RR_ACTIVATE_CNF		
op	OP_MODE_NO_SIM_LIM_SERV	
mm_info	MM_INFO	
cid	CELL_ID_1122	
plmn	PLMN_123_44	
lac	LAC_0002	
power	RF_CLASS_2	
gprs_indic	GPRS_NO	
(51) MMR_NREG_IND		
nreg_cs	NREG_LIMITED_SERVICE	
search_running	SEARCH_NOT_RUNNING	
new_forb_plmn	PLMN_NO_ID	
limited_cause	MMR_SIM_INVALID_MMIREQ	

History: 27.04.00 HM Initial

4.27.7 MM626: SIM inserted - Limited -> Full (automatic mode)

Description: MM receives a request to register to full service in automatic mode. Currently MM is in limited service state.

Preamble: MM621



Parametrization

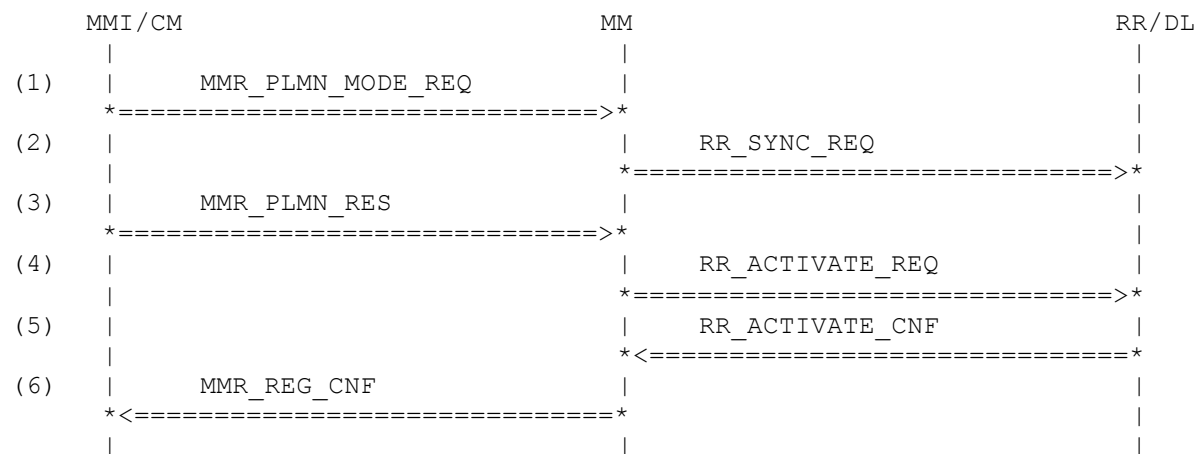
Primitive	Parameter	Value
(52) MMR_PLMN_MODE_REQ mode	MODE_AUTO	
(124) RR_SYNC_REQ op cksn kcv tmsi plmn lac syncchs accc thplmn	OP_MODE_SIM_NO_SERV1 NOT_USED NOT_USED NOT_USED NOT_USED NOT_USED NOT_PRESENT_16BIT NOT_USED NOT_USED	
(125) MMR_REG_REQ service_mode	SERVICE_MODE_FULL	
(126) RR_ACTIVATE_REQ plmn op cksn kcv accc imsi tmsi thplmn bcch_info cell_test gprs_indic	PLMN_123_33 OP_MODE_SIM_NO_SERV CKSN_RES KCV_EMPTY ACC_2143 MOB_ID_IMSI MOB_ID_NO_ID THPLMN_01 BCCH_INFO_ECL CELL_TEST_DISABLE GPRS_NO	
(127) RR_ACTIVATE_CNF op mm_info cid plmn lac	OP_MODE_SIM MM_INFO_2 CELL_ID_1122 PLMN_123_33 LAC_2147	

power		RF_CLASS_2	
gprs_indic		GPRS_NO	
(128) MMR_REG_CNF			
plmn		PLMN_123_33	
History:	25.04.00	HM	Initial

4.27.8 MM627: SIM inserted - Limited -> Full (manual mode)

Description: MM receives a request to manual register in limited service state.

Preamble: MM621



Parametrization

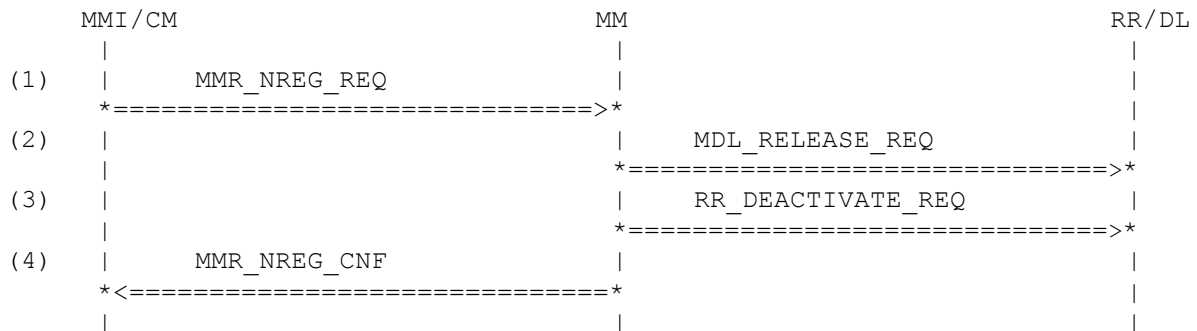
Primitive	Parameter	Value
(53) MMR_PLMN_MODE_REQ		
mode	MODE_MAN	
(129) RR_SYNC_REQ		
op	OP_MODE_SIM_NO_SERV_M1	
cksn	NOT_USED	
kcv	NOT_USED	
tmsi	NOT_USED	
plmn	NOT_USED	
lac	NOT_USED	
syncchs	NOT_PRESENT_16BIT	
accc	NOT_USED	
thplmn	NOT_USED	
(130) MMR_PLMN_RES		
plmn	PLMN_123_33	
(131) RR_ACTIVATE_REQ		
plmn	PLMN_123_33	
op	OP_MODE_SIM_NO_SERV_M2	
cksn	CKSN_RES	
kcv	KCV_EMPTY	
accc	ACC_2143	
imsi	MOB_ID_IMSI	
tmsi	MOB_ID_NO_ID	
thplmn	THPLMN_01	
bcch_info	BCCH_INFO_1	
cell_test	CELL_TEST_DISABLE	
gprs_indic	GPRS_NO	
(132) RR_ACTIVATE_CNF		
op	OP_MODE_SIM_M	
mm_info	MM_INFO	
cid	CELL_ID_1122	
plmn	PLMN_123_33	
lac	LAC_2147	

power		RF_CLASS_2	
gprs_indic		GPRS_NO	
(133) MMR_REG_CNF			
plmn		PLMN_123_33	
History:	25.04.00	HM	Initial

4.27.9 MM628: SIM inserted - Full (automatic mode) -> Deregistered

Description: MM receives a request to deregister in full service state.

Preamble: MM622



Parametrization

Primitive	Parameter	Value
(1) MMR_NREG_REQ cs	CS_POW_OFF	
(2) MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(3) RR_DEACTIVATE_REQ param	NOT_USED	
(4) MMR_NREG_CNF cs	CS_POW_OFF	
History:	25.04.00	HM Initial

4.27.10 MM629: SIM inserted - Full (automatic mode) -> Limited

Description: MM receives a request to register to limited service in full service state. This is done by MMR_REG_REQ with parameter SERVICE_MODE_LIMITED here.

Preamble: MM622

	MMI / CM	MM	RR / DL
(1)	MMR_REG_REQ (SERVICE_MODE_LIMITED) *=====>*		
(2)		RR_ACTIVATE_REQ *=====>*	
(3)		RR_ACTIVATE_CNF *<=====*	
(4)	MMR_NREG_IND *<=====*		
(5)	MMCC_ESTABLISH_REQ *=====>*		
(6)	MMCC_RELEASE_IND *<=====*		

Parametrization

	Primitive	Parameter	Value
(54)	MMR_REG_REQ service_mode	SERVICE_MODE_LIMITED	
(55)	RR_ACTIVATE_REQ plmn op cksn kcv accc imsi tmsi thplmn bcch_info cell_test gprs_indic	PLMN_NO_ID OP_MODE_NO_SIM_NO_SERV CKSN_RES KC_DELETED ACC_CLASS_0000 MOB_ID_NO_ID MOB_ID_NO_ID THPLMN_FF NOT_USED CELL_TEST_DISABLE GPRS_NO	
(56)	RR_ACTIVATE_CNF op mm_info cid plmn lac power gprs_indic	OP_MODE_NO_SIM_LIM_SERV MM_INFO CELL_ID_1122 PLMN_123_44 LAC_0002 RF_CLASS_2 GPRS_NO	
(57)	MMR_NREG_IND nreg_cs search_running new_forb_plmn limited_cause	NREG_LIMITED_SERVICE SEARCH_NOT_RUNNING PLMN_NO_ID MMR_SIM_INVALID_MMIREQ	
(58)	MMCC_ESTABLISH_REQ ti prio estcs	TI_2 PRIO_NORM_CALL ESTCS_MOB_ORIG_SPCH	

(59) MMCC_RELEASE_IND
ti
relcs

TI_2
RELCS_NO_REGISTRATION

History: 27.04.00

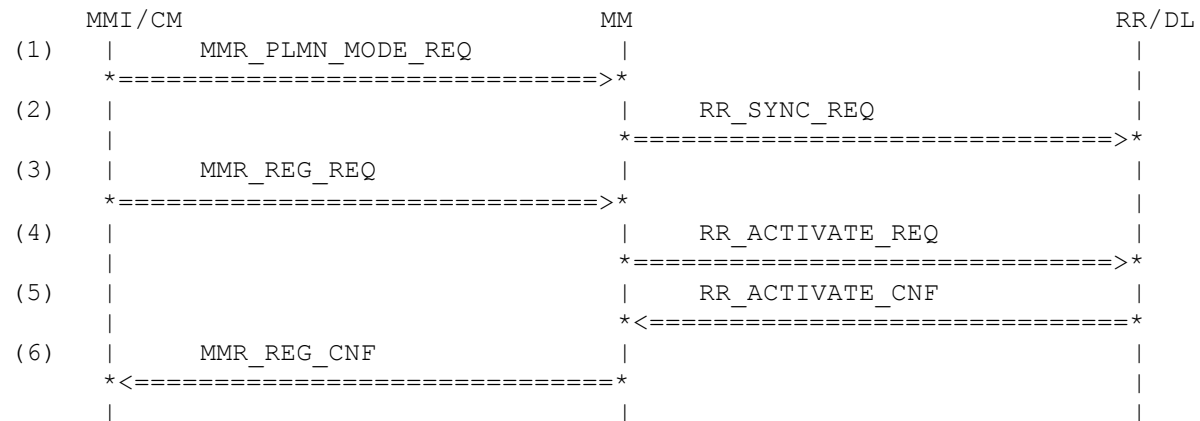
HM

Initial

4.27.11 MM630: SIM inserted - Full (automatic mode) -> Full (automatic mode)

Description: MM receives a request to register to full service in automatic mode. Currently MM already is in full service state (automatic mode).

Preamble: MM622



Parametrization

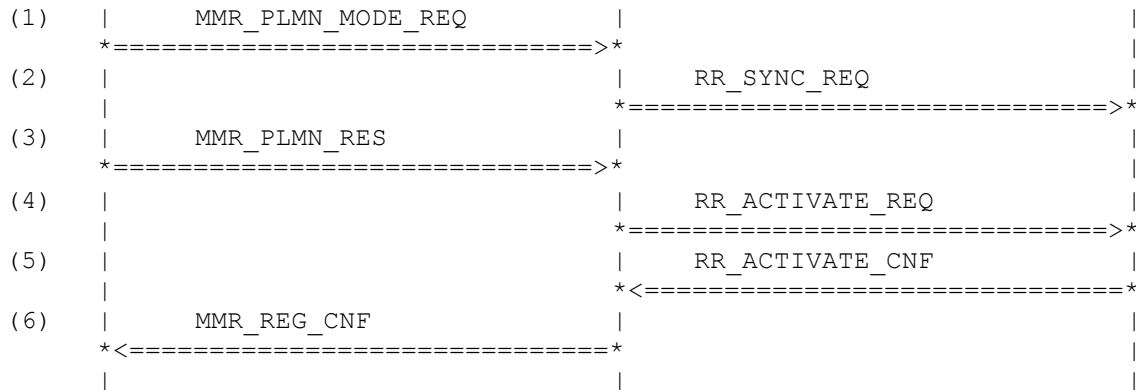
Primitive	Parameter	Value
(60) MMR_PLMN_MODE_REQ mode	MODE_AUTO	
(61) RR_SYNC_REQ op cksn kcv tmsi plmn lac synccs accc thplmn	OP_MODE_SIM_NO_SERV NOT_USED NOT_USED NOT_USED NOT_USED NOT_USED NOT_PRESENT_16BIT NOT_USED NOT_USED	
(62) MMR_REG_REQ service_mode	SERVICE_MODE_FULL	
(63) RR_ACTIVATE_REQ plmn op cksn kcv accc imsi tmsi thplmn bcch_info cell_test gprs_indic	PLMN_123_33 OP_MODE_SIM_NO_SERV CKSN_RES KCV_EMPTY ACC_2143 MOB_ID_IMSI MOB_ID_NO_ID THPLMN_01 BCCH_INFO_ECL CELL_TEST_DISABLE GPRS_NO	
(64) RR_ACTIVATE_CNF op mm_info cid plmn lac	OP_MODE_SIM MM_INFO_2 CELL_ID_1122 PLMN_123_33 LAC_2147	

	power	RF_CLASS_2	
	gprs_indic	GPRS_NO	
(65)	MMR_REG_CNF		
	plmn	PLMN_123_33	
History:	27.04.00	HM	Initial
	02.05.01	HM	Revised

4.27.12 MM631: SIM inserted - Full (automatic mode) -> Full (manual mode)

Description: MM receives a request to register to full service in manual mode. Currently MM is in full service state (automatic mode).

Preamble: MM622



Parametrization

Primitive	Parameter	Value
(60) MMR_PLMN_MODE_REQ mode	MODE_MAN	
(134) RR_SYNC_REQ op cksn kcv tmsi plmn lac synccs accc thplmn	OP_MODE_SIM_NO_SERV_M2 NOT_USED NOT_USED NOT_USED NOT_USED NOT_USED NOT_PRESENT_16BIT NOT_USED NOT_USED	
(135) MMR_PLMN_RES plmn	PLMN_123_33	
(136) RR_ACTIVATE_REQ plmn op cksn kcv accc imsi tmsi thplmn bcch_info cell_test gprs_indic	PLMN_123_33 OP_MODE_SIM_NO_SERV_M2 CKSN_RES KCV_EMPTY ACC_2143 MOB_ID_IMSI MOB_ID_NO_ID THPLMN_01 BCCH_INFO_1 CELL_TEST_DISABLE GPRS_NO	
(137) RR_ACTIVATE_CNF op mm_info cid plmn lac power gprs_indic	OP_MODE_SIM_M MM_INFO CELL_ID_1122 PLMN_123_33 LAC_2147 RF_CLASS_2 GPRS_NO	

(138) MMR_REG_CNF
plmn

PLMN_123_33

History: 27.04.00

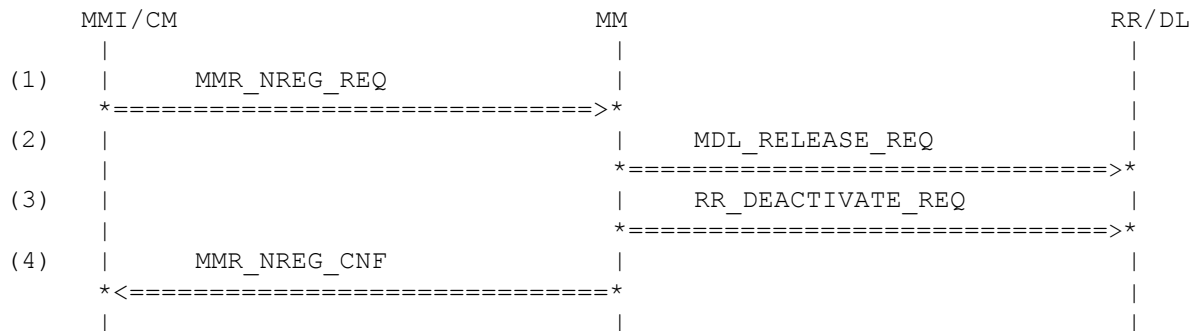
HM

Initial

4.27.13 MM632: SIM inserted - Full (manual mode) -> Deregistered

Description: MM receives a request to deregister in full service state.

Preamble: MM623



Parametrization

Primitive	Parameter	Value
(1) MMR_NREG_REQ cs	CS_POW_OFF	
(2) MDL_RELEASE_REQ ch_type sapi	NOT_PRESENT_8BIT SAPI_0	
(3) RR_DEACTIVATE_REQ param	NOT_USED	
(4) MMR_NREG_CNF cs	CS_POW_OFF	

History: 27.04.00 HM Initial

4.27.14 MM633: SIM inserted - Full (manual mode) -> Limited

Description: MM receives a request to register to limited service in full service state. This is done by MMR_REG_REQ with parameter SERVICE_MODE_LIMITED here.

Preamble: MM623

	MMI / CM	MM	RR / DL
(1)	MMR_REG_REQ (SERVICE_MODE_LIMITED) *=====>*	 	
(2)	 	RR_ACTIVATE_REQ *=====>*	
(3)	 	RR_ACTIVATE_CNF *<=====*	
(4)	MMR_NREG_IND *<=====*	 	
(5)	MMCC_ESTABLISH_REQ *=====>*	 	
(6)	MMCC_RELEASE_IND *<=====*	 	

Parametrization

	Primitive	Parameter	Value
(66)	MMR_REG_REQ service_mode	SERVICE_MODE_LIMITED	
(67)	RR_ACTIVATE_REQ plmn op cksn kcv accc imsi tmsi thplmn bcch_info cell_test gprs_indic	PLMN_NO_ID OP_MODE_NO_SIM_NO_SERV CKSN_RES KC_DELETED ACC_CLASS_0000 MOB_ID_NO_ID MOB_ID_NO_ID THPLMN_FF NOT_USED CELL_TEST_DISABLE GPRS_NO	
(68)	RR_ACTIVATE_CNF op mm_info cid plmn lac power gprs_indic	OP_MODE_NO_SIM_LIM_SERV MM_INFO CELL_ID_1122 PLMN_123_44 LAC_0002 RF_CLASS_2 GPRS_NO	
(69)	MMR_NREG_IND nreg_cs search_running new_forb_plmn limited_cause	NREG_LIMITED_SERVICE SEARCH_NOT_RUNNING PLMN_NO_ID MMR_SIM_INVALID_MMIREQ	
(70)	MMCC_ESTABLISH_REQ ti prio estcs	TI_2 PRIO_NORM_CALL ESTCS_MOB_ORIG_SPCH	

(71) MMCC_RELEASE_IND
ti
relcs

TI_2
RELCS_NO_REGISTRATION

History: 27.04.00

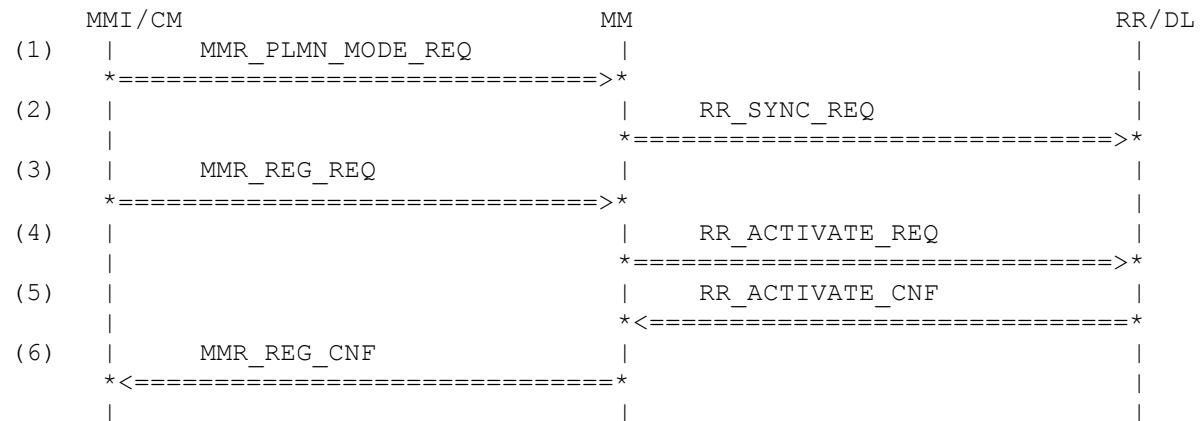
HM

Initial

4.27.15 MM634: SIM inserted - Full (manual mode) -> Full (automatic mode)

Description: MM receives a request to register to full service in automatic mode. Currently MM already is in full service state (manual mode).

Preamble: MM623



Parametrization

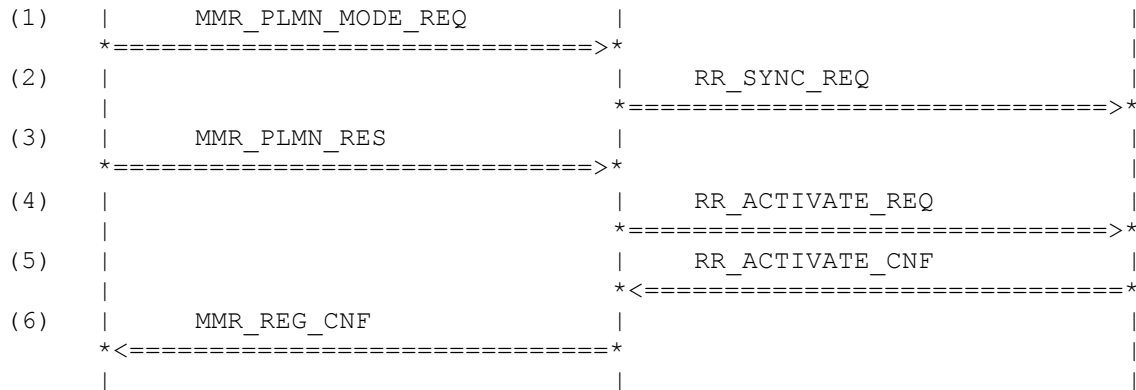
Primitive	Parameter	Value
(61) MMR_PLMN_MODE_REQ mode	MODE_AUTO	
(62) RR_SYNC_REQ op cksn kcv tmsi plmn lac synccs accc thplmn	OP_MODE_SIM_NO_SERV NOT_USED NOT_USED NOT_USED NOT_USED NOT_USED NOT_PRESENT_16BIT NOT_USED NOT_USED	
(63) MMR_REG_REQ service_mode	SERVICE_MODE_FULL	
(64) RR_ACTIVATE_REQ plmn op cksn kcv accc imsi tmsi thplmn bcch_info cell_test gprs_indic	PLMN_123_33 OP_MODE_SIM_NO_SERV CKSN_RES KCV_EMPTY ACC_2143 MOB_ID_IMSI MOB_ID_NO_ID THPLMN_01 BCCH_INFO_ECL CELL_TEST_DISABLE GPRS_NO	
(65) RR_ACTIVATE_CNF op mm_info cid plmn lac	OP_MODE_SIM MM_INFO_2 CELL_ID_1122 PLMN_123_33 LAC_2147	

	power	RF_CLASS_2	
	gprs_indic	GPRS_NO	
(66)	MMR_REG_CNF		
	plmn	PLMN_123_33	
History:	27.04.00	HM	Initial
	02.05.01	HM	Revised

4.27.16 MM635: SIM inserted - Full (manual mode) -> Full (manual mode)

Description: MM receives a request to register to full service in manual mode. Currently MM is in full service state (manual mode).

Preamble: MM623



Parametrization

Primitive	Parameter	Value
(159)	MMR_PLMN_MODE_REQ	
mode	MODE_MAN	
(160)	RR_SYNC_REQ	
op	OP_MODE_SIM_NO_SERV_M2	
cksn	NOT_USED	
kcv	NOT_USED	
tmsi	NOT_USED	
plmn	NOT_USED	
lac	NOT_USED	
synccs	NOT_PRESENT_16BIT	
accc	NOT_USED	
thplmn	NOT_USED	
(161)	MMR_PLMN_RES	
plmn	PLMN_123_33	
(162)	RR_ACTIVATE_REQ	
plmn	PLMN_123_33	
op	OP_MODE_SIM_NO_SERV_M2	
cksn	CKSN_RES	
kcv	KCV_EMPTY	
accc	ACC_2143	
imsi	MOB_ID_IMSI	
tmsi	MOB_ID_NO_ID	
thplmn	THPLMN_01	
bcch_info	BCCH_INFO_1	
cell_test	CELL_TEST_DISABLE	
gprs_indic	GPRS_NO	
(163)	RR_ACTIVATE_CNF	
op	OP_MODE_SIM_M	
mm_info	MM_INFO	
cid	CELL_ID_1122	
plmn	PLMN_123_33	
lac	LAC_2147	
power	RF_CLASS_2	
gprs_indic	GPRS_NO	

(164) MMR_REG_CNF
plmn PLMN_123_33
History: 27.04.00 HM Initial

4.28 Engineering mode

4.28.1 MM650: Identity Request during Location Updating

Description: Connection is confirmed in the form of a RR-ESTABLISH confirmation primitive, whereupon MM changes to State 3 (Location Updating Initiated). In the course of Location Updating the network requests the identity of the MS. MM responds by issuing an Identity Response message as part of a RR-DATA indication primitive.

Preamble: MM101

	MMI/CM/SIM	MM	RR/DL
(1)	EM_MM_EVENT_REQ		
	=====>		
(2)		RR_ESTABLISH_CNF	
		<=====	
(3)		RR_DATA_IND	
		(IDENTITY REQUEST)	
		<=====	
(4)		RR_DATA_REQ	
		(IDENTITY RESPONSE)	
		=====>	
(5)	EM_DATA_IND		
	<=====		

Parametrization

Primitive	Parameter	Value
(1) EM_MM_EVENT_REQ bitmask_mm	Bitm_1	
(2) RR_ESTABLISH_CNF param	NOT_USED	
(3) RR_DATA_IND d1	NOT_USED	
d2	NOT_USED	
sdu		
{		
component	MM	
direction	DOWNLINK	
pd	D_IDENT_REQ	
ti	TI_0	
ident	IDENT_TYPE_IMSI	
}		
(4) RR_DATA_REQ d1	NOT_USED	
d2	NOT_USED	
sdu		
{		
component	MM	
direction	UPLINK	

```

        pd
        ti
        mob_id
    }

(5) EM_DATA_IND
    entity
    EM_ENTITY

```

History: **09.07.97** **HK** **Initial**
 23-Oct-01 OT EM adaptations

4.28.2 MM651: Authentication Request

Description: The network confirms the request from the mobile station for a RR Connection in the form of a RR-ESTABLISH confirmation primitive. MM changes to State 3 ((Location Updating initiated) and issues an AUTHENTICATION REQ message and a SIM-AUTHENTICATION request primitive, initiating the authentication procedure with SIM.

Preamble: MM101

	MMI / CM	MM	RR / DL
(1)			
	EM_MM_EVENT_REQ		
	=====>		
(2)		RR_ESTABLISH_CNF	
		<=====	
(3)		RR_DATA_IND	
		(AUTHENTICATION REQ)	
		<=====	
(4)	SIM_AUTHENTICATION_REQ		
	<=====		
(5)	EM_DATA_IND		
	<=====		

Parametrization

	Primitive	Parameter	Value
(1)	EM_MM_EVENT_REQ		
	bitmask_mm	Bitm_2	
(2)	RR_ESTABLISH_CNF		
	param	NOT_USED	
(3)	RR_DATA_IND		
	d1	NOT_USED	
	d2	NOT_USED	
	sdu		
	{		
	component	MM	
	direction	DOWNLINK	
	pd	D_AUTH_REQ	
	ti	TI_0	
	ciph_key_num	CIPH_KEY_NUM_01	
	auth_rand	AUTH_RAND_1	
	}		
(4)	SIM_AUTHENTICATION_REQ		
	source	SRC_MM	

	rand cksn	RAND_1_P CKSN_01	
(5)	EM_DATA_IND entity	EM_ENTITY	
History:	07.07.97 31.07.97 23-Oct-01	HK DL OT	Initial Revised EM adaptations

Appendices

A. Acronyms

DS-WCDMA	Direct Sequence/Spread Wideband Code Division Multiple Access
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B. Glossary

International Mobile Telecommunication 2000 (IMT-2000/ITU-2000)	Formerly referred to as FPLMTS (Future Public Land-Mobile Telephone System), this is the ITU's specification/family of standards for 3G. This initiative provides a global infrastructure through both satellite and terrestrial systems, for fixed and mobile phone users. The family of standards is a framework comprising a mix/blend of systems providing global roaming. <URL: http://www.imt-2000.org/ >
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