

# GSM Protocol Stack

# Multilayer Test Specification

# MM

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## 0 Document Control

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### 0.1 Document History

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6147.403.97.102	27-Mar-01	HM	Changed behaviour of stack and MMM074
6147.403.97.103	17-Apr-01	HM	Last LUP ACCEPT for correct LA in various testcases
6147.403.97.104	16-May-01	HM	Added testcases for customer, fixed MMM101
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6147.403.97.106	09-Aug-01	HM	Revised MMM001, added MMM500
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6147.403.97.117	24-Mar-03	HM	Added MMM151 to check roaming #13, more than one network sends #13 and 3rd VPLMN avail
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6147.403.97.119	28-Aug-03	HM	Added MMM122 for issue #11860
6147.403.97.120	08-Jan-04	HM	CC Capabilities included in CALL CONFIRMED
6147.403.97.121	18-Mar-04	HM	CKSN handling at RR_ABORT_IND corrected

## 0.2 References

- [1] GSM 04.08, Mobile Radio Interface Layer 3 Specification  
ETS 300 557, ETSI, January 1996
- [2] GSM 11.10-1, Mobile Station (MS) conformance specification; Part 1: Conformance specification  
ETS 300 607-1, ETSI, November 1996

## 0.3 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

## 0.4 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).

## 1 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.

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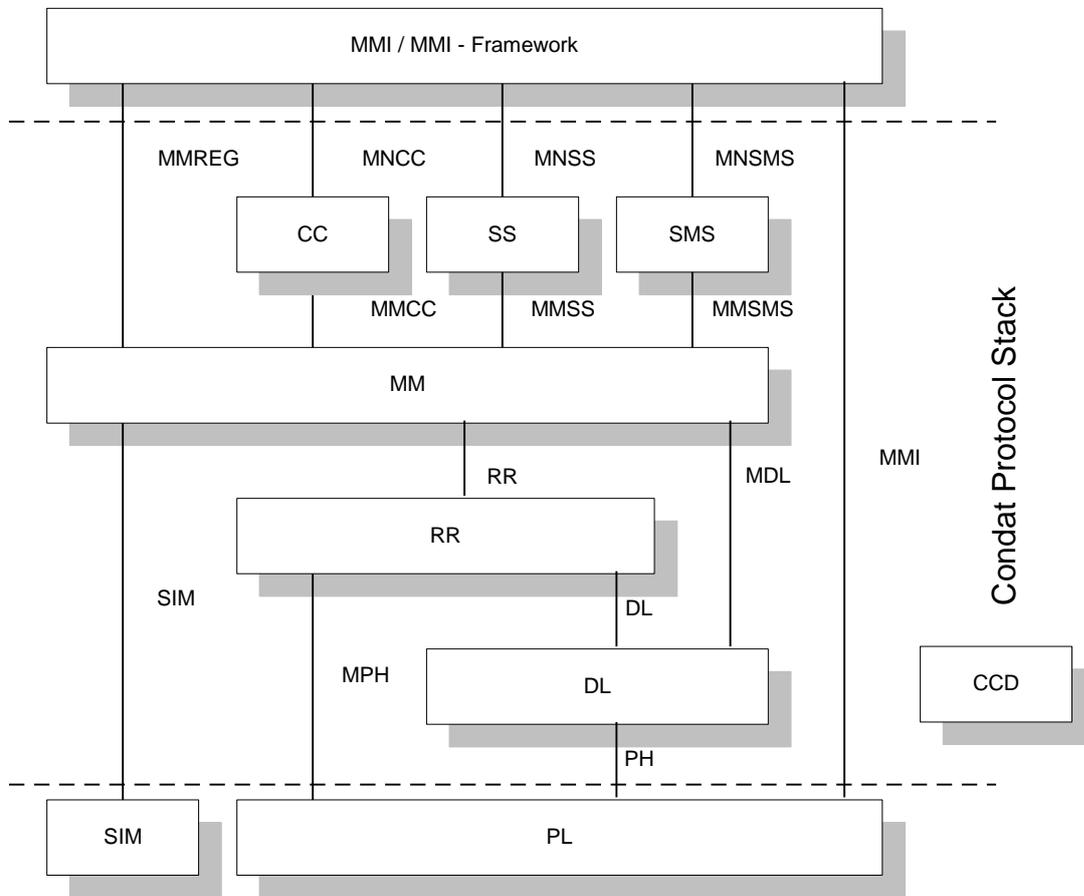


Figure 1: Mobile-station protocol architecture

This document describes the mulilayer tests for Mobility Management as set out in [2], §26.7.

## 2 Parameters

```
#include <tcs1.h>

/*
=====

                        S E T T I N G S

=====
*/

#define REST_OCTET                MAKE_BYTE (0,0,1,0,1,0,1,1 )

/*
=====

Default settings for Cells A and B (Ref.: [2], §26.6.14 )

=====
*/

#define ARFCN_BCCH      20
#define ARFCN_BCCH_B   40
#define ARFCN_BCCH_B2  99
#define ARFCN_BCCH_C   60
#define ARFCN_TCH      30
#define ARFCN_BCCH_D   80
#define ARFCN_BCCH_1800 530

/*
=====

Other system settings

=====
*/

#define NCC          0x2          /* note : ncc_permitted (Ref.: [1], §10.5.2.27) */
#define BCC          0x5          /* note : Ref.: [2], 26.6.14, IMMEDIATE ASSIGNMENT */
#define BSIC         ((NCC<<3 )|(BCC ) )
#define BSIC_B       BSIC+1
#define BSIC_C       BSIC+2
#define CKSN_1       3           /* ciphering key sequence number (1 ) */
#define CKSN_2       6           /* ciphering key sequence number (2 ) */
#define CKSN_NONE    7
#define RFN          0
#define TI_0         0           /* transaction identifier */
#define TIMESLOT_TCH 3
#define TYPE_IMSI    1
#define TYPE_TMSI    4
#define TYPE_IMEI    2
#define LAC_A        0x0001
#define LAC_B        0x0002
#define LAC_C        0x0003
#define LAC_D        0x0004
#define LAC_E        0x0005
#define LAC_F        0x0006
```

```

/*
=====
I N F O R M A T I O N   E L E M E N T S
=====
*/

/*
=====
Common IEs
=====
*/

IE_BEGIN( spare_half_octet )      /* Ref.: [1], §10.5.1.8 */
  BF( 4, 0, ACT_CHECK, ANONYMOUS, SILENT )
IE_END( spare_half_octet )

IE_BEGIN( rach )                  /* Ref.: [1], §9.1.8; [2], 26.6.14 */
  BF( 3, M3(1,0,0), ACT_CHECK, establishment_cause, "paging ind. any channel" )
  BF( 5, 0, ACT_SHOW, random_reference, "not checked" )
IE_END( rach )

IE_BEGIN( rach_5bit )
  BF( 5, 0, ACT_CHECK, establishment_cause, "" )
  BF( 3, 0, ACT_SHOW, random_reference, "not checked" )
IE_END( rach_5bit )

IE_BEGIN( transaction_identifier ) /* Ref.: [1], §10.3.2 */
  BF( 4, TI_0, ACT_CHECK, ANONYMOUS, SILENT )
IE_END( transaction_identifier )

IE_BEGIN( cell_identity )         /* Ref.: [1], §10.5.1.1; [2], 26.6.14 */
  BF( 16, 0x0001, ACT_CHECK, ANONYMOUS, "0001h" )
IE_END( cell_identity )

IE_BEGIN( ciphering_key_sequence_number ) /* Ref.: [1], §10.5.1.2; [2], §26.6.14 */
  BF( 1, 0, ACT_CHECK, spare, SILENT )
  BF( 3, CKSN_1, ACT_CHECK, key_sequence, "chosen arbitrarily by the test house" )
IE_END( ciphering_key_sequence_number )

IE_BEGIN( ciphering_key_sequence_number_none )
  BF( 1, 0, ACT_CHECK, spare, SILENT )
  BF( 3, CKSN_NONE, ACT_CHECK, key_sequence, "CKSN not available" )
IE_END( ciphering_key_sequence_number_none )

IE_BEGIN( cm_service_type )       /* Ref.: [1], §10.5.3.3; [2], §26.6.14 */
  BF( 4, M4( 0,0,0,1 ), ACT_CHECK, service, "Mobile originating call establishment" )
IE_END( cm_service_type )

IE_BEGIN( cm_service_type_ec )    /* Ref.: [1], §10.5.3.3; [2], §26.6.14 */
  BF( 4, M4( 0,0,1,0 ), ACT_CHECK, service, "Emergency Call establishment" )
IE_END( cm_service_type_ec )

IE_BEGIN( cm_service_type_ss )    /* Ref.: [1], §10.5.3.3; [2], §26.6.14 */
  BF( 4, M4( 1,0,0, 0 ), ACT_CHECK, service, "Mobile originating call
establishment" )
IE_END( cm_service_type_ss )

/*
* Make it possible without too much effort to test 3-digit-MNC for North America
*/

//#define NORTH_AMERICA

```

```

/*
 * NORTH_AMERICA needs a temporary changed SIM entity,
 * the following fields have to be changed in sim_csf.c temporary
 * to test 3-digit-MNC functionality: imsi, short_imsi_nr and loc_info
 */

#ifdef NORTH_AMERICA

IE_BEGIN( location_area_identification ) /* Ref.: [1], §10.5.1.3; [2], §26.6.14 */
BF( 4, 1, ACT_CHECK, mcc_dig_2, "digit 2 of mobile country code" )
BF( 4, 3, ACT_CHECK, mcc_dig_1, "digit 1 of mobile country code" )
BF( 4, 6, ACT_CHECK, mnc_dig_3, "digit 3 of mobile network code" )
BF( 4, 2, ACT_CHECK, mcc_dig_3, "digit 3 of mobile country code" )
BF( 4, 5, ACT_CHECK, mnc_dig_2, "digit 2 of mobile network code" )
BF( 4, 4, ACT_CHECK, mnc_dig_1, "digit 1 of mobile network code" )
BF( 16, LAC_A, ACT_CHECK, lac, "Location area code" )
IE_END( location_area_identification )

IE_BEGIN( location_area_identification_deleted )
BF( 4, 1, ACT_CHECK, mcc_dig_2, "digit 2 of mobile country code" )
BF( 4, 3, ACT_CHECK, mcc_dig_1, "digit 1 of mobile country code" )
BF( 4, 6, ACT_CHECK, mnc_dig_3, "digit 3 of mobile network code" )
BF( 4, 2, ACT_CHECK, mnc_dig_3, "digit 3 of mobile country code" )
BF( 4, 5, ACT_CHECK, mnc_dig_2, "digit 2 of mobile network code" )
BF( 4, 4, ACT_CHECK, mnc_dig_1, "digit 1 of mobile network code" )
BF( 16, 0xFFFE, ACT_CHECK, lac, "LAI deleted" )
IE_END( location_area_identification_deleted )

IE_BEGIN( lai_cell_b )
BF( 4, 1, ACT_CHECK, mcc_dig_2, "digit 2 of mobile country code" )
BF( 4, 3, ACT_CHECK, mcc_dig_1, "digit 1 of mobile country code" )
BF( 4, 6, ACT_CHECK, mnc_dig_3, "digit 3 of mobile network code" )
BF( 4, 2, ACT_CHECK, mcc_dig_3, "digit 3 of mobile country code" )
BF( 4, 5, ACT_CHECK, mnc_dig_2, "digit 2 of mobile network code" )
BF( 4, 4, ACT_CHECK, mnc_dig_1, "digit 1 of mobile network code" )
BF( 16, LAC_B, ACT_CHECK, lac, "Location area code - Cell B" )
IE_END( lai_cell_b )

IE_BEGIN( lai_cell_c )
BF( 4, 1, ACT_CHECK, mcc_dig_2, "digit 2 of mobile country code" )
BF( 4, 3, ACT_CHECK, mcc_dig_1, "digit 1 of mobile country code" )
BF( 4, 6, ACT_CHECK, mnc_dig_3, "digit 3 of mobile network code" )
BF( 4, 2, ACT_CHECK, mcc_dig_3, "digit 3 of mobile country code" )
BF( 4, 5, ACT_CHECK, mnc_dig_2, "digit 2 of mobile network code" )
BF( 4, 4, ACT_CHECK, mnc_dig_1, "digit 1 of mobile network code" )
BF( 16, LAC_C, ACT_CHECK, lac, "Location area code - Cell C" )
IE_END( lai_cell_c )

IE_BEGIN( lai_cell_A_PLMN2 )
BF( 4, 0, ACT_CHECK, mcc_dig_2, "digit 2 of mobile country code" )
BF( 4, 0, ACT_CHECK, mcc_dig_1, "digit 1 of mobile country code" )
BF( 4, 0xF, ACT_CHECK, mnc_dig_3, "digit 3 of mobile network code" )
BF( 4, 1, ACT_CHECK, mcc_dig_3, "digit 3 of mobile country code" )
BF( 4, 1, ACT_CHECK, mnc_dig_2, "digit 2 of mobile network code" )
BF( 4, 0, ACT_CHECK, mnc_dig_1, "digit 1 of mobile network code" )
BF( 16, LAC_A, ACT_CHECK, lac, "Location area code - Cell A" )
IE_END( lai_cell_A_PLMN2 )

IE_BEGIN( lai_cell_A_PLMN3 )
BF( 4, 1, ACT_CHECK, mcc_dig_2, "digit 2 of mobile country code" )
BF( 4, 3, ACT_CHECK, mcc_dig_1, "digit 1 of mobile country code" )
BF( 4, 7, ACT_CHECK, mnc_dig_3, "digit 3 of mobile network code" )
BF( 4, 2, ACT_CHECK, mcc_dig_3, "digit 3 of mobile country code" )
BF( 4, 5, ACT_CHECK, mnc_dig_2, "digit 2 of mobile network code" )
BF( 4, 4, ACT_CHECK, mnc_dig_1, "digit 1 of mobile network code" )

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BF( 16, LAC_A,      ACT_CHECK, lac,          "Location area code - Cell A" )
IE_END( lai_cell_A_PLMN3 )

IE_BEGIN( lai_cell_A_HMCC )
BF( 4, 1,          ACT_CHECK, mcc_dig_2,     "digit 2 of mobile country code" )
BF( 4, 3,          ACT_CHECK, mcc_dig_1,     "digit 1 of mobile country code" )
BF( 4, 7,          ACT_CHECK, mnc_dig_3,     "digit 3 of mobile network code" )
BF( 4, 2,          ACT_CHECK, mcc_dig_3,     "digit 3 of mobile country code" )
BF( 4, 5,          ACT_CHECK, mnc_dig_2,     "digit 2 of mobile network code" )
BF( 4, 4,          ACT_CHECK, mnc_dig_1,     "digit 1 of mobile network code" )
BF( 16, LAC_A,     ACT_CHECK, lac,          "Location area code - Cell A" )
IE_END( lai_cell_A_HMCC )

IE_BEGIN( lai_cell_B_PLMN2 )
BF( 4, 0,          ACT_CHECK, mcc_dig_2,     "digit 2 of mobile country code" )
BF( 4, 0,          ACT_CHECK, mcc_dig_1,     "digit 1 of mobile country code" )
BF( 4, 0xF,        ACT_CHECK, mnc_dig_3,     "digit 3 of mobile network code" )
BF( 4, 1,          ACT_CHECK, mcc_dig_3,     "digit 3 of mobile country code" )
BF( 4, 1,          ACT_CHECK, mnc_dig_2,     "digit 2 of mobile network code" )
BF( 4, 0,          ACT_CHECK, mnc_dig_1,     "digit 1 of mobile network code" )
BF( 16, LAC_B,     ACT_CHECK, lac,          "Location area code - Cell B" )
IE_END( lai_cell_B_PLMN2 )

IE_BEGIN( lai_cell_B_HMCC )
BF( 4, 1,          ACT_CHECK, mcc_dig_2,     "digit 2 of mobile country code" )
BF( 4, 3,          ACT_CHECK, mcc_dig_1,     "digit 1 of mobile country code" )
BF( 4, 7,          ACT_CHECK, mnc_dig_3,     "digit 3 of mobile network code" )
BF( 4, 2,          ACT_CHECK, mcc_dig_3,     "digit 3 of mobile country code" )
BF( 4, 5,          ACT_CHECK, mnc_dig_2,     "digit 2 of mobile network code" )
BF( 4, 4,          ACT_CHECK, mnc_dig_1,     "digit 1 of mobile network code" )
BF( 16, LAC_B,     ACT_CHECK, lac,          "Location area code - Cell B" )
IE_END( lai_cell_B_HMCC )

IE_BEGIN( lai_cell_C_HMCC )
BF( 4, 1,          ACT_CHECK, mcc_dig_2,     "digit 2 of mobile country code" )
BF( 4, 3,          ACT_CHECK, mcc_dig_1,     "digit 1 of mobile country code" )
BF( 4, 7,          ACT_CHECK, mnc_dig_3,     "digit 3 of mobile network code" )
BF( 4, 2,          ACT_CHECK, mcc_dig_3,     "digit 3 of mobile country code" )
BF( 4, 5,          ACT_CHECK, mnc_dig_2,     "digit 2 of mobile network code" )
BF( 4, 4,          ACT_CHECK, mnc_dig_1,     "digit 1 of mobile network code" )
BF( 16, LAC_C,     ACT_CHECK, lac,          "Location area code - Cell C" )
IE_END( lai_cell_C_HMCC )

IE_BEGIN( lai_cell_D_HMCC )
BF( 4, 1,          ACT_CHECK, mcc_dig_2,     "digit 2 of mobile country code" )
BF( 4, 3,          ACT_CHECK, mcc_dig_1,     "digit 1 of mobile country code" )
BF( 4, 7,          ACT_CHECK, mnc_dig_3,     "digit 3 of mobile network code" )
BF( 4, 2,          ACT_CHECK, mcc_dig_3,     "digit 3 of mobile country code" )
BF( 4, 5,          ACT_CHECK, mnc_dig_2,     "digit 2 of mobile network code" )
BF( 4, 4,          ACT_CHECK, mnc_dig_1,     "digit 1 of mobile network code" )
BF( 16, LAC_D,     ACT_CHECK, lac,          "Location area code - Cell D" )
IE_END( lai_cell_D_HMCC )

IE_BEGIN( lai_cell_E_HMCC )
BF( 4, 1,          ACT_CHECK, mcc_dig_2,     "digit 2 of mobile country code" )
BF( 4, 3,          ACT_CHECK, mcc_dig_1,     "digit 1 of mobile country code" )
BF( 4, 7,          ACT_CHECK, mnc_dig_3,     "digit 3 of mobile network code" )
BF( 4, 2,          ACT_CHECK, mcc_dig_3,     "digit 3 of mobile country code" )
BF( 4, 5,          ACT_CHECK, mnc_dig_2,     "digit 2 of mobile network code" )
BF( 4, 4,          ACT_CHECK, mnc_dig_1,     "digit 1 of mobile network code" )
BF( 16, LAC_E,     ACT_CHECK, lac,          "Location area code - Cell E" )
IE_END( lai_cell_E_HMCC )

IE_BEGIN( lai_cell_F_HMCC )
BF( 4, 1,          ACT_CHECK, mcc_dig_2,     "digit 2 of mobile country code" )

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BF( 4, 3, ACT_CHECK, mcc_dig_1, "digit 1 of mobile country code" )
BF( 4, 7, ACT_CHECK, mnc_dig_3, "digit 3 of mobile network code" )
BF( 4, 2, ACT_CHECK, mcc_dig_3, "digit 3 of mobile country code" )
BF( 4, 5, ACT_CHECK, mnc_dig_2, "digit 2 of mobile network code" )
BF( 4, 4, ACT_CHECK, mnc_dig_1, "digit 1 of mobile network code" )
BF( 16, LAC_F, ACT_CHECK, lac, "Location area code - Cell F" )
IE_END( lai_cell_F_HMCC )

IE_BEGIN( lai_cell_HMCC )
BF( 4, 1, ACT_CHECK, mcc_dig_2, "digit 2 of mobile country code" )
BF( 4, 3, ACT_CHECK, mcc_dig_1, "digit 1 of mobile country code" )
BF( 4, 7, ACT_CHECK, mnc_dig_3, "digit 3 of mobile network code" )
BF( 4, 2, ACT_CHECK, mcc_dig_3, "digit 3 of mobile country code" )
BF( 4, 5, ACT_CHECK, mnc_dig_2, "digit 2 of mobile network code" )
BF( 4, 4, ACT_CHECK, mnc_dig_1, "digit 1 of mobile network code" )
BF( 16, 0xFFFE, ACT_CHECK, lac, "Location area code - deleted" )
IE_END( lai_cell_HMCC )

IE_BEGIN( lai_cell_C_PLMN1 )
BF( 4, 1, ACT_CHECK, mcc_dig_2, "digit 2 of mobile country code" )
BF( 4, 3, ACT_CHECK, mcc_dig_1, "digit 1 of mobile country code" )
BF( 4, 7, ACT_CHECK, mnc_dig_3, "digit 3 of mobile network code" )
BF( 4, 2, ACT_CHECK, mcc_dig_3, "digit 3 of mobile country code" )
BF( 4, 5, ACT_CHECK, mnc_dig_2, "digit 2 of mobile network code" )
BF( 4, 4, ACT_CHECK, mnc_dig_1, "digit 1 of mobile network code" )
BF( 16, LAC_C, ACT_CHECK, lac, "Location area code - Cell C" )
IE_END( lai_cell_C_PLMN1 )

IE_BEGIN( mobile_identity_imsi )
BF( 8, 7, ACT_CHECK, length, "seven octets to come" )
BF( 4, 3, ACT_CHECK, digit_1, SILENT )
BF( 1, 1, ACT_CHECK, odd_even, SILENT )
BF( 3, M3(0,0,1), ACT_CHECK, type, "IMSI" )
BF( 4, 2, ACT_CHECK, digit_3, SILENT )
BF( 4, 1, ACT_CHECK, digit_2, SILENT )
BF( 4, 5, ACT_CHECK, digit_5, SILENT )
BF( 4, 4, ACT_CHECK, digit_4, SILENT )
BF( 4, 7, ACT_CHECK, digit_7, SILENT )
BF( 4, 6, ACT_CHECK, digit_6, SILENT )
BF( 4, 1, ACT_CHECK, digit_9, SILENT )
BF( 4, 1, ACT_CHECK, digit_8, SILENT )
BF( 4, 9, ACT_CHECK, digit_11, SILENT )
BF( 4, 4, ACT_CHECK, digit_10, SILENT )
BF( 4, 2, ACT_CHECK, digit_13, SILENT )
BF( 4, 1, ACT_CHECK, digit_12, SILENT )
IE_END( mobile_identity_imsi )

IE_BEGIN( mobile_identity_short_imsi )
BF( 8, 5, ACT_CHECK, length, "five octets to come" )
BF( 4, 3, ACT_CHECK, digit_1, SILENT )
BF( 1, 1, ACT_CHECK, odd_even, SILENT )
BF( 3, M3(0,0,1), ACT_CHECK, type, "IMSI" )
BF( 4, 2, ACT_CHECK, digit_3, SILENT )
BF( 4, 1, ACT_CHECK, digit_2, SILENT )
BF( 4, 5, ACT_CHECK, digit_5, SILENT )
BF( 4, 4, ACT_CHECK, digit_4, SILENT )
BF( 4, 2, ACT_CHECK, digit_7, SILENT )
BF( 4, 6, ACT_CHECK, digit_6, SILENT )
BF( 4, 4, ACT_CHECK, digit_9, SILENT )
BF( 4, 3, ACT_CHECK, digit_8, SILENT )
IE_END( mobile_identity_short_imsi )

IE_BEGIN( mobile_identity_imsi_iei )
BF( 8, 0x17, ACT_CHECK, iei, "Mobile Identity IEI" )

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BF( 8, 7, ACT_CHECK, length, "seven octets to come" )
BF( 4, 3, ACT_CHECK, digit_1, SILENT )
BF( 1, 1, ACT_CHECK, odd_even, SILENT )
BF( 3, M3(0,0,1), ACT_CHECK, type,"IMSI" )
BF( 4, 2, ACT_CHECK, digit_3, SILENT )
BF( 4, 1, ACT_CHECK, digit_2, SILENT )
BF( 4, 5, ACT_CHECK, digit_5, SILENT )
BF( 4, 4, ACT_CHECK, digit_4, SILENT )
BF( 4, 7, ACT_CHECK, digit_7, SILENT )
BF( 4, 6, ACT_CHECK, digit_6, SILENT )
BF( 4, 1, ACT_CHECK, digit_9, SILENT )
BF( 4, 1, ACT_CHECK, digit_8, SILENT )
BF( 4, 9, ACT_CHECK, digit_11, SILENT )
BF( 4, 4, ACT_CHECK, digit_10, SILENT )
BF( 4, 2, ACT_CHECK, digit_13, SILENT )
BF( 4, 1, ACT_CHECK, digit_12, SILENT )
IE_END( mobile_identity_imsi_iei )

#else

IE_BEGIN( location_area_identification ) /* Ref.: [1], §10.5.1.3; [2], §26.6.14 */
BF( 4, 6, ACT_CHECK, mcc_dig_2, "digit 2 of mobile country code" )
BF( 4, 2, ACT_CHECK, mcc_dig_1, "digit 1 of mobile country code" )
BF( 4, 0xF, ACT_CHECK, mnc_dig_3, "digit 3 of mobile network code" )
BF( 4, 2, ACT_CHECK, mcc_dig_3, "digit 3 of mobile country code" )
BF( 4, 1, ACT_CHECK, mnc_dig_2, "digit 2 of mobile network code" )
BF( 4, 0, ACT_CHECK, mnc_dig_1, "digit 1 of mobile network code" )
BF( 16, LAC_A, ACT_CHECK, lac, "Location area code" )
IE_END( location_area_identification )

IE_BEGIN( location_area_identification_deleted )
BF( 4, 6, ACT_CHECK, mcc_dig_2, "digit 2 of mobile country code" )
BF( 4, 2, ACT_CHECK, mcc_dig_1, "digit 1 of mobile country code" )
BF( 4, 0xF, ACT_CHECK, mnc_dig_3, "digit 3 of mobile network code" )
BF( 4, 2, ACT_CHECK, mcc_dig_3, "digit 3 of mobile country code" )
BF( 4, 1, ACT_CHECK, mnc_dig_2, "digit 2 of mobile network code" )
BF( 4, 0, ACT_CHECK, mnc_dig_1, "digit 1 of mobile network code" )
BF( 16, 0xFFFFE, ACT_CHECK, lac, "LAI deleted" )
IE_END( location_area_identification_deleted )

IE_BEGIN( lai_cell_b )
BF( 4, 6, ACT_CHECK, mcc_dig_2, "digit 2 of mobile country code" )
BF( 4, 2, ACT_CHECK, mcc_dig_1, "digit 1 of mobile country code" )
BF( 4, 0xF, ACT_CHECK, mnc_dig_3, "digit 3 of mobile network code" )
BF( 4, 2, ACT_CHECK, mcc_dig_3, "digit 3 of mobile country code" )
BF( 4, 1, ACT_CHECK, mnc_dig_2, "digit 2 of mobile network code" )
BF( 4, 0, ACT_CHECK, mnc_dig_1, "digit 1 of mobile network code" )
BF( 16, LAC_B, ACT_CHECK, lac, "Location area code - Cell B" )
IE_END( lai_cell_b )

IE_BEGIN( lai_cell_c )
BF( 4, 6, ACT_CHECK, mcc_dig_2, "digit 2 of mobile country code" )
BF( 4, 2, ACT_CHECK, mcc_dig_1, "digit 1 of mobile country code" )
BF( 4, 0xF, ACT_CHECK, mnc_dig_3, "digit 3 of mobile network code" )
BF( 4, 2, ACT_CHECK, mcc_dig_3, "digit 3 of mobile country code" )
BF( 4, 1, ACT_CHECK, mnc_dig_2, "digit 2 of mobile network code" )
BF( 4, 0, ACT_CHECK, mnc_dig_1, "digit 1 of mobile network code" )
BF( 16, LAC_C, ACT_CHECK, lac, "Location area code - Cell C" )
IE_END( lai_cell_c )

IE_BEGIN( lai_cell_A_PLMN2 )
BF( 4, 0, ACT_CHECK, mcc_dig_2, "digit 2 of mobile country code" )
BF( 4, 0, ACT_CHECK, mcc_dig_1, "digit 1 of mobile country code" )
BF( 4, 0xF, ACT_CHECK, mnc_dig_3, "digit 3 of mobile network code" )
BF( 4, 1, ACT_CHECK, mcc_dig_3, "digit 3 of mobile country code" )

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BF( 4, 1, ACT_CHECK, mnc_dig_2, "digit 2 of mobile network code" )
BF( 4, 0, ACT_CHECK, mnc_dig_1, "digit 1 of mobile network code" )
BF( 16, LAC_A, ACT_CHECK, lac, "Location area code - Cell A" )
IE_END( lai_cell_A_PLMN2 )

IE_BEGIN( lai_cell_A_PLMN3 )
BF( 4, 6, ACT_CHECK, mcc_dig_2, "digit 2 of mobile country code" )
BF( 4, 2, ACT_CHECK, mcc_dig_1, "digit 1 of mobile country code" )
BF( 4, 0xF, ACT_CHECK, mnc_dig_3, "digit 3 of mobile network code" )
BF( 4, 2, ACT_CHECK, mcc_dig_3, "digit 3 of mobile country code" )
BF( 4, 2, ACT_CHECK, mnc_dig_2, "digit 2 of mobile network code" )
BF( 4, 0, ACT_CHECK, mnc_dig_1, "digit 1 of mobile network code" )
BF( 16, LAC_A, ACT_CHECK, lac, "Location area code - Cell A" )
IE_END( lai_cell_A_PLMN3 )

IE_BEGIN( lai_cell_A_HMCC )
BF( 4, 6, ACT_CHECK, mcc_dig_2, "digit 2 of mobile country code" )
BF( 4, 2, ACT_CHECK, mcc_dig_1, "digit 1 of mobile country code" )
BF( 4, 0xF, ACT_CHECK, mnc_dig_3, "digit 3 of mobile network code" )
BF( 4, 2, ACT_CHECK, mcc_dig_3, "digit 3 of mobile country code" )
BF( 4, 2, ACT_CHECK, mnc_dig_2, "digit 2 of mobile network code" )
BF( 4, 0, ACT_CHECK, mnc_dig_1, "digit 1 of mobile network code" )
BF( 16, LAC_A, ACT_CHECK, lac, "Location area code - Cell A" )
IE_END( lai_cell_A_HMCC )

IE_BEGIN( lai_cell_B_PLMN2 )
BF( 4, 0, ACT_CHECK, mcc_dig_2, "digit 2 of mobile country code" )
BF( 4, 0, ACT_CHECK, mcc_dig_1, "digit 1 of mobile country code" )
BF( 4, 0xF, ACT_CHECK, mnc_dig_3, "digit 3 of mobile network code" )
BF( 4, 1, ACT_CHECK, mcc_dig_3, "digit 3 of mobile country code" )
BF( 4, 1, ACT_CHECK, mnc_dig_2, "digit 2 of mobile network code" )
BF( 4, 0, ACT_CHECK, mnc_dig_1, "digit 1 of mobile network code" )
BF( 16, LAC_B, ACT_CHECK, lac, "Location area code - Cell B" )
IE_END( lai_cell_B_PLMN2 )

IE_BEGIN( lai_cell_B_HMCC )
BF( 4, 6, ACT_CHECK, mcc_dig_2, "digit 2 of mobile country code" )
BF( 4, 2, ACT_CHECK, mcc_dig_1, "digit 1 of mobile country code" )
BF( 4, 0xF, ACT_CHECK, mnc_dig_3, "digit 3 of mobile network code" )
BF( 4, 2, ACT_CHECK, mcc_dig_3, "digit 3 of mobile country code" )
BF( 4, 2, ACT_CHECK, mnc_dig_2, "digit 2 of mobile network code" )
BF( 4, 0, ACT_CHECK, mnc_dig_1, "digit 1 of mobile network code" )
BF( 16, LAC_B, ACT_CHECK, lac, "Location area code - Cell B" )
IE_END( lai_cell_B_HMCC )

IE_BEGIN( lai_cell_C_HMCC )
BF( 4, 6, ACT_CHECK, mcc_dig_2, "digit 2 of mobile country code" )
BF( 4, 2, ACT_CHECK, mcc_dig_1, "digit 1 of mobile country code" )
BF( 4, 0xF, ACT_CHECK, mnc_dig_3, "digit 3 of mobile network code" )
BF( 4, 2, ACT_CHECK, mcc_dig_3, "digit 3 of mobile country code" )
BF( 4, 2, ACT_CHECK, mnc_dig_2, "digit 2 of mobile network code" )
BF( 4, 0, ACT_CHECK, mnc_dig_1, "digit 1 of mobile network code" )
BF( 16, LAC_C, ACT_CHECK, lac, "Location area code - Cell C" )
IE_END( lai_cell_C_HMCC )

IE_BEGIN( lai_cell_D_HMCC )
BF( 4, 6, ACT_CHECK, mcc_dig_2, "digit 2 of mobile country code" )
BF( 4, 2, ACT_CHECK, mcc_dig_1, "digit 1 of mobile country code" )
BF( 4, 0xF, ACT_CHECK, mnc_dig_3, "digit 3 of mobile network code" )
BF( 4, 2, ACT_CHECK, mcc_dig_3, "digit 3 of mobile country code" )
BF( 4, 2, ACT_CHECK, mnc_dig_2, "digit 2 of mobile network code" )
BF( 4, 0, ACT_CHECK, mnc_dig_1, "digit 1 of mobile network code" )
BF( 16, LAC_D, ACT_CHECK, lac, "Location area code - Cell D" )
IE_END( lai_cell_D_HMCC )

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IE_BEGIN( lai_cell_E_HMCC )
  BF( 4, 6, ACT_CHECK, mcc_dig_2, "digit 2 of mobile country code" )
  BF( 4, 2, ACT_CHECK, mcc_dig_1, "digit 1 of mobile country code" )
  BF( 4, 0xF, ACT_CHECK, mnc_dig_3, "digit 3 of mobile network code" )
  BF( 4, 2, ACT_CHECK, mcc_dig_3, "digit 3 of mobile country code" )
  BF( 4, 2, ACT_CHECK, mnc_dig_2, "digit 2 of mobile network code" )
  BF( 4, 0, ACT_CHECK, mnc_dig_1, "digit 1 of mobile network code" )
  BF( 16, LAC_E, ACT_CHECK, lac, "Location area code - Cell E" )
IE_END( lai_cell_E_HMCC )

IE_BEGIN( lai_cell_F_HMCC )
  BF( 4, 6, ACT_CHECK, mcc_dig_2, "digit 2 of mobile country code" )
  BF( 4, 2, ACT_CHECK, mcc_dig_1, "digit 1 of mobile country code" )
  BF( 4, 0xF, ACT_CHECK, mnc_dig_3, "digit 3 of mobile network code" )
  BF( 4, 2, ACT_CHECK, mcc_dig_3, "digit 3 of mobile country code" )
  BF( 4, 2, ACT_CHECK, mnc_dig_2, "digit 2 of mobile network code" )
  BF( 4, 0, ACT_CHECK, mnc_dig_1, "digit 1 of mobile network code" )
  BF( 16, LAC_F, ACT_CHECK, lac, "Location area code - Cell F" )
IE_END( lai_cell_F_HMCC )

IE_BEGIN( lai_cell_HMCC )
  BF( 4, 6, ACT_CHECK, mcc_dig_2, "digit 2 of mobile country code" )
  BF( 4, 2, ACT_CHECK, mcc_dig_1, "digit 1 of mobile country code" )
  BF( 4, 0xF, ACT_CHECK, mnc_dig_3, "digit 3 of mobile network code" )
  BF( 4, 2, ACT_CHECK, mcc_dig_3, "digit 3 of mobile country code" )
  BF( 4, 2, ACT_CHECK, mnc_dig_2, "digit 2 of mobile network code" )
  BF( 4, 0, ACT_CHECK, mnc_dig_1, "digit 1 of mobile network code" )
  BF( 16, 0xFFFFE, ACT_CHECK, lac, "Location area code - deleted" )
IE_END( lai_cell_HMCC )

IE_BEGIN( lai_cell_C_PLMN1 )
  BF( 4, 6, ACT_CHECK, mcc_dig_2, "digit 2 of mobile country code" )
  BF( 4, 2, ACT_CHECK, mcc_dig_1, "digit 1 of mobile country code" )
  BF( 4, 0xF, ACT_CHECK, mnc_dig_3, "digit 3 of mobile network code" )
  BF( 4, 2, ACT_CHECK, mcc_dig_3, "digit 3 of mobile country code" )
  BF( 4, 2, ACT_CHECK, mnc_dig_2, "digit 2 of mobile network code" )
  BF( 4, 0, ACT_CHECK, mnc_dig_1, "digit 1 of mobile network code" )
  BF( 16, LAC_C, ACT_CHECK, lac, "Location area code - Cell C" )
IE_END( lai_cell_C_PLMN1 )

IE_BEGIN( lai_cell_A_EPLUS )
  BF( 4, 6, ACT_CHECK, mcc_dig_2, "digit 2 of mobile country code" )
  BF( 4, 2, ACT_CHECK, mcc_dig_1, "digit 1 of mobile country code" )
  BF( 4, 0xF, ACT_CHECK, mnc_dig_3, "digit 3 of mobile network code" )
  BF( 4, 2, ACT_CHECK, mcc_dig_3, "digit 3 of mobile country code" )
  BF( 4, 3, ACT_CHECK, mnc_dig_2, "digit 2 of mobile network code" )
  BF( 4, 0, ACT_CHECK, mnc_dig_1, "digit 1 of mobile network code" )
  BF( 16, LAC_A, ACT_CHECK, lac, "Location area code - Cell A" )
IE_END( lai_cell_A_EPLUS )

IE_BEGIN( lai_cell_A_VIAG )
  BF( 4, 6, ACT_CHECK, mcc_dig_2, "digit 2 of mobile country code" )
  BF( 4, 2, ACT_CHECK, mcc_dig_1, "digit 1 of mobile country code" )
  BF( 4, 0xF, ACT_CHECK, mnc_dig_3, "digit 3 of mobile network code" )
  BF( 4, 2, ACT_CHECK, mcc_dig_3, "digit 3 of mobile country code" )
  BF( 4, 7, ACT_CHECK, mnc_dig_2, "digit 2 of mobile network code" )
  BF( 4, 0, ACT_CHECK, mnc_dig_1, "digit 1 of mobile network code" )
  BF( 16, LAC_A, ACT_CHECK, lac, "Location area code - Cell A" )
IE_END( lai_cell_A_VIAG )

IE_BEGIN( mobile_identity_imsi )
  BF( 8, 7, ACT_CHECK, length, "seven octets to come" )
  BF( 4, 2, ACT_CHECK, digit_1, SILENT )
  BF( 1, 1, ACT_CHECK, odd_even, SILENT )
  BF( 3, M3(0,0,1), ACT_CHECK, type, "IMSI" )

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BF( 4, 2,          ACT_CHECK, digit_3,          SILENT )
BF( 4, 6,          ACT_CHECK, digit_2,          SILENT )
BF( 4, 1,          ACT_CHECK, digit_5,          SILENT )
BF( 4, 0,          ACT_CHECK, digit_4,          SILENT )
BF( 4, 7,          ACT_CHECK, digit_7,          SILENT )
BF( 4, 4,          ACT_CHECK, digit_6,          SILENT )
BF( 4, 1,          ACT_CHECK, digit_9,          SILENT )
BF( 4, 1,          ACT_CHECK, digit_8,          SILENT )
BF( 4, 9,          ACT_CHECK, digit_11,         SILENT )
BF( 4, 4,          ACT_CHECK, digit_10,         SILENT )
BF( 4, 2,          ACT_CHECK, digit_13,         SILENT )
BF( 4, 1,          ACT_CHECK, digit_12,         SILENT )
IE_END( mobile_identity_imsi )

IE_BEGIN( mobile_identity_short_imsi )
BF( 8, 5,          ACT_CHECK, length,           "five octets to come" )
BF( 4, 2,          ACT_CHECK, digit_1,          SILENT )
BF( 1, 1,          ACT_CHECK, odd_even,         SILENT )
BF( 3, M3(0,0,1) , ACT_CHECK, type,            "IMSI" )
BF( 4, 2,          ACT_CHECK, digit_3,          SILENT )
BF( 4, 6,          ACT_CHECK, digit_2,          SILENT )
BF( 4, 1,          ACT_CHECK, digit_5,          SILENT )
BF( 4, 0,          ACT_CHECK, digit_4,          SILENT )
BF( 4, 2,          ACT_CHECK, digit_7,          SILENT )
BF( 4, 1,          ACT_CHECK, digit_6,          SILENT )
BF( 4, 4,          ACT_CHECK, digit_9,          SILENT )
BF( 4, 3,          ACT_CHECK, digit_8,          SILENT )
IE_END( mobile_identity_short_imsi )

IE_BEGIN( mobile_identity_imsi_iei )
BF( 8, 0x17,       ACT_CHECK,iei,              "Mobile Identity IEI" )
BF( 8, 7,          ACT_CHECK, length,           "seven octets to come" )
BF( 4, 2,          ACT_CHECK, digit_1,          SILENT )
BF( 1, 1,          ACT_CHECK, odd_even,         SILENT )
BF( 3, M3(0,0,1) , ACT_CHECK, type,"IMSI" )
BF( 4, 2,          ACT_CHECK, digit_3,          SILENT )
BF( 4, 6,          ACT_CHECK, digit_2,          SILENT )
BF( 4, 1,          ACT_CHECK, digit_5,          SILENT )
BF( 4, 0,          ACT_CHECK, digit_4,          SILENT )
BF( 4, 7,          ACT_CHECK, digit_7,          SILENT )
BF( 4, 4,          ACT_CHECK, digit_6,          SILENT )
BF( 4, 1,          ACT_CHECK, digit_9,          SILENT )
BF( 4, 1,          ACT_CHECK, digit_8,          SILENT )
BF( 4, 9,          ACT_CHECK, digit_11,         SILENT )
BF( 4, 4,          ACT_CHECK, digit_10,         SILENT )
BF( 4, 2,          ACT_CHECK, digit_13,         SILENT )
BF( 4, 1,          ACT_CHECK, digit_12,         SILENT )
IE_END( mobile_identity_imsi_iei )

#endif

IE_BEGIN( mobile_identity_tmsi ) /* Ref.: [1], §10.5.1.4 ; [2], §26.6.14 */
BF( 8, 5,          ACT_CHECK, length,           "five octets to come" )
BF( 4, M4(1,1,1,1) , ACT_CHECK,                ANONYMOUS,        "bits 5-8 of octet
3 = '1111'" )
BF( 1, 0,          ACT_CHECK, odd_even,         "as applicable for TMSI" )
BF( 3, M3(1,0,0) , ACT_CHECK, type,            "TMSI" )
BF( 8, 0x12,       ACT_CHECK, tmsi_1,          SILENT )
BF( 8, 0x34,       ACT_CHECK, tmsi_2,          SILENT )
BF( 8, 0x56,       ACT_CHECK, tmsi_3,          SILENT )
BF( 8, 0x78,       ACT_CHECK, tmsi_4,          SILENT )
IE_END( mobile_identity_tmsi )

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IE_BEGIN( mobile_identity_tmsi_iei )
  BF( 8, 0x17, ACT_CHECK, iei, "Mobile Identity IEI" )
  BF( 8, 5, ACT_CHECK, length, "five octets to come" )
  BF( 4, M4(1,1,1,1), ACT_CHECK, ANONYMOUS, "bits 5-8 of octet
3 = '1111'" )
  BF( 1, 0, ACT_CHECK, odd_even, "as applicable for TMSI" )
  BF( 3, M3(1,0,0), ACT_CHECK, type, "TMSI" )
  BF( 8, 0x12, ACT_CHECK, tmsi_1, SILENT )
  BF( 8, 0x34, ACT_CHECK, tmsi_2, SILENT )
  BF( 8, 0x56, ACT_CHECK, tmsi_3, SILENT )
  BF( 8, 0x78, ACT_CHECK, tmsi_4, SILENT )
IE_END( mobile_identity_tmsi_iei )

IE_BEGIN( mobile_identity_imei ) /* has 9 octets */
  BF( 8, 8, ACT_CHECK, length, "eight octets to come" )
  BF( 4, 1, ACT_CHECK, digit_1, SILENT )
  BF( 1, 1, ACT_CHECK, odd_even, SILENT )
  BF( 3, M3(0,1,0), ACT_CHECK, type, "IMEI" )
  BF( 4, 5, ACT_CHECK, digit_3, SILENT )
  BF( 4, 3, ACT_CHECK, digit_2, SILENT )
  BF( 4, 9, ACT_CHECK, digit_5, SILENT )
  BF( 4, 7, ACT_CHECK, digit_4, SILENT )
  BF( 4, 2, ACT_CHECK, digit_7, SILENT )
  BF( 4, 0, ACT_CHECK, digit_6, SILENT )
  BF( 4, 6, ACT_CHECK, digit_9, SILENT )
  BF( 4, 4, ACT_CHECK, digit_8, SILENT )
  BF( 4, 1, ACT_CHECK, digit_11, SILENT )
  BF( 4, 8, ACT_CHECK, digit_10, SILENT )
  BF( 4, 2, ACT_CHECK, digit_13, SILENT )
  BF( 4, 1, ACT_CHECK, digit_12, SILENT )
  BF( 4, 0, ACT_CHECK, digit_15, SILENT )
  BF( 4, 2, ACT_CHECK, digit_14, SILENT )
IE_END( mobile_identity_imei )

IE_BEGIN( mobile_identity_imeisv ) /* has 10 octets */
  BF( 8, 9, ACT_CHECK, length, "nine octets to come" )
  BF( 4, 1, ACT_CHECK, digit_1, SILENT )
  BF( 1, 0, ACT_CHECK, odd_even, SILENT )
  BF( 3, M3(0,1,1), ACT_CHECK, type, "IMEISV" )
  BF( 4, 5, ACT_CHECK, digit_3, SILENT )
  BF( 4, 3, ACT_CHECK, digit_2, SILENT )
  BF( 4, 9, ACT_CHECK, digit_5, SILENT )
  BF( 4, 7, ACT_CHECK, digit_4, SILENT )
  BF( 4, 2, ACT_CHECK, digit_7, SILENT )
  BF( 4, 0, ACT_CHECK, digit_6, SILENT )
  BF( 4, 6, ACT_CHECK, digit_9, SILENT )
  BF( 4, 4, ACT_CHECK, digit_8, SILENT )
  BF( 4, 1, ACT_CHECK, digit_11, SILENT )
  BF( 4, 8, ACT_CHECK, digit_10, SILENT )
  BF( 4, 2, ACT_CHECK, digit_13, SILENT )
  BF( 4, 1, ACT_CHECK, digit_12, SILENT )
  BF( 4, 7, ACT_CHECK, digit_15, SILENT )
  BF( 4, 2, ACT_CHECK, digit_14, SILENT )
  BF( 4, 0xF, ACT_CHECK, digit_17, SILENT )
  BF( 4, 8, ACT_CHECK, digit_16, SILENT )
IE_END( mobile_identity_imeisv )

IE_BEGIN( mobile_station_classmark_1 ) /* Ref.: [1], §10.5.1.5 */
  BF( 1, 0, ACT_CHECK, ANONYMOUS, "spare" )
  BF( 2, M2(0,1), ACT_CHECK, rev_lev, "Used by phase 2 MSs" )
  BF( 1, 1, ACT_CHECK, es_ind, "Controlled Early Classmark Sending
implemented" )
  BF( 1, 0, ACT_CHECK, a5_1, "encryption algorithm A5/1 available" )

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BF( 3,  M3(0,1,1 ), ACT_CHECK, rf_pow_cap,          "RF power capability = Class 4" )
IE_END( mobile_station_classmark_1 )

IE_BEGIN( mobile_station_classmark_2 ) /* Ref.: [1], §10.5.1.6 ; [2], §26.6.14 */
BF( 8,  3,          ACT_CHECK, length,             SILENT )
BF( 1,  0,          ACT_CHECK, spare,              SILENT )
BF( 2,  M2(0,1 ),  ACT_CHECK, revision_level,      "phase 2 MS" )
BF( 1,  1,          ACT_CHECK, es_ind,             "'Contr. Early Classmark Send.'" )
BF( 1,  0,          ACT_CHECK, a5_1,              "encryption algorithm A5/1
available" )
BF( 3,  M3(0,1,1 ), ACT_CHECK, rf_power_capability, "class 4" )
BF( 1,  0,          ACT_CHECK, spare2,             SILENT )
BF( 1,  0,          ACT_CHECK, ps_capability,      "pseudo-synch capability" )
BF( 2,  M2(0,1 ),  ACT_CHECK, ss_screening_indicator, SILENT )
BF( 1,  1,          ACT_CHECK, sm_capability,      "point to point SMS" )
BF( 1,  0,          ACT_CHECK, vbs,              "no VBS cap. or no notific. wanted"
)
BF( 1,  0,          ACT_CHECK, vgcs,              "no VGCS cap. or no notific.
wanted" )
BF( 1,  0,          ACT_CHECK, frequency_capability, "no extention band G1" )
BF( 1,  1,          ACT_CHECK, classmark_3,        "add. MS cap. information" )
BF( 1,  0,          ACT_CHECK, spare3,            SILENT)
BF( 1,  0,          ACT_CHECK, lcsva,             "LCS not supported")
BF( 1,  1,          ACT_CHECK, ucs2,             SILENT)
BF( 1,  0,          ACT_CHECK, solsa,            "The ME does not support SoLSA")
BF( 1,  1,          ACT_CHECK, cmsp,             "CM Service Prompt")
BF( 1,  0,          ACT_CHECK, a5_3,             "A5/3 not available" )
BF( 1,  1,          ACT_CHECK, a5_2,             "A5/2 available" )
IE_END( mobile_station_classmark_2 )

IE_BEGIN( transaction_identifier_source )          /* Ref.: [1], §10.3.2 */
BF( 4,  M4(0,0,0,0 ), ACT_CHECK, ANONYMOUS,      SILENT )
IE_END( transaction_identifier_source )

IE_BEGIN( transaction_identifier_dest )           /* Ref.: [1], §10.3.2 */
BF( 4,  M4(1,0,0,0 ), ACT_CHECK, ti,            SILENT )
IE_END( transaction_identifier_dest )

/*
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RR IEs

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*/

IE_BEGIN( cell_channel_description ) /* Ref.: [1], §10.5.2.1b; [2], §26.6.14 */
BF( 2,  0,          ACT_CHECK, format_id,         "bit map 0 " )
BF( 2,  0,          ACT_CHECK, spare,            " " )
BF( 28, 0x00000000, ACT_CHECK, chan_124_thru_097, " " )
BF( 32, 0x00000020, ACT_CHECK, chan_096_thru_065, " 70 " )
BF( 32, 0x00020000, ACT_CHECK, chan_064_thru_033, " 50 " )
BF( 32, 0x20080000, ACT_CHECK, chan_032_thru_001, " 30 20 " )
IE_END( cell_channel_description )

IE_BEGIN( cell_channel_description_B_XX )
BF( 2,  0,          ACT_CHECK, format_id,         "bit map 0 " )
BF( 2,  0,          ACT_CHECK, spare,            " " )
BF( 28, 0x00000000, ACT_CHECK, chan_124_thru_097, " " )
BF( 32, 0x00000008, ACT_CHECK, chan_096_thru_065, " 68 " )
BF( 32, 0x00008000, ACT_CHECK, chan_064_thru_033, " 48 " )
BF( 32, 0x08020000, ACT_CHECK, chan_032_thru_001, " 28 18 " )
IE_END( cell_channel_description_B_XX )

IE_BEGIN( cell_options ) /* Ref.: [1], §10.5.2.3; [2], 26.6.14 */
BF( 1,  0,          ACT_CHECK, ANONYMOUS,        "spare " )

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BF( 1, 0, ACT_CHECK,pwrc, "power control indicator is not
set" )
BF( 2, 2, ACT_CHECK,dtx, "MS shall not use DTX " )
BF( 4, 1, ACT_CHECK,radio_link_timeout, "8 SACCH blocks " )
IE_END( cell_options )

IE_BEGIN( cell_selection_parameter ) /* Ref.: [1], §10.5.2.4; [2], 26.6.14 */
BF( 3, M3(1,1,0 ), ACT_CHECK, cell_reselect_hysteresis,"12 dB" )
BF( 5, 31, ACT_CHECK, ms_txpwr_max_cch, "minimum level (5 dBm )" )
BF( 1, 0, ACT_CHECK, acs, "no add cell params (SI4 ), 0 in SI3" )
BF( 1, 0, ACT_CHECK, neci, "New establishment cause not supported" )
BF( 6, 0, ACT_CHECK, rxlev_access_min, "minimum level (less than -111 dBm
)" )
IE_END( cell_selection_parameter )

IE_BEGIN( cell_selection_parameter_no_crh ) /* Ref.: [1], §10.5.2.4; [2], 26.6.14 */
BF( 0, M3(0,0,0 ), ACT_CHECK, cell_reselect_hysteresis,"none" )
BF( 5, 31, ACT_CHECK, ms_txpwr_max_cch, "minimum level (5 dBm )" )
BF( 1, 0, ACT_CHECK, acs, "no add cell params (SI4 ), 0 in SI3" )
BF( 1, 0, ACT_CHECK, neci, "New establishment cause not supported" )
BF( 6, 0, ACT_CHECK, rxlev_access_min, "minimum level (less than -111 dBm
)" )
IE_END( cell_selection_parameter_no_crh )

IE_BEGIN( channel_description ) /* Ref.: [1], §10.5.2.5; [2], 26.6.14 */
BF( 5, M5(0,0,1,0,1 ), ACT_CHECK, channel_type, "SDCCH/SACCH 4(1 )" )
BF( 3, 0, ACT_CHECK, time_slot_number, "zero " )
BF( 3, BCC, ACT_CHECK, training_sequence_code, "same as BCCH " )
BF( 1, 0, ACT_CHECK, hopping, "No hopping" )
BF( 2, 0, ACT_CHECK, spare, SILENT )
BF( 10, ARFCN_BCCH, ACT_CHECK, arfcn, "ARFCN of the BCCH" )
IE_END( channel_description )

IE_BEGIN( channel_description_saved ) /* Ref.: [1], §10.5.2.5; [2], 26.6.14 */
BF( 5, M5(0,0,0,0,1 ), ACT_CHECK, channel_type,"Bm + ACCHs (TCH/F+ACCHs )"
)
BF( 3, TIMESLOT_TCH, ACT_CHECK, time_slot_number,"chosen arbitrarily by
the test house" )
BF( 3, BCC, ACT_CHECK, training_sequence_code,"chosen arbitrarily by the test house"
)
BF( 1, 0, ACT_CHECK, hopping, "single RF channel " )
BF( 2, 0, ACT_CHECK, spare, SILENT )
BF( 10, ARFCN_TCH, ACT_CHECK, arfcn, "channel number 30" )
IE_END( channel_description_saved )

IE_BEGIN( channel_needed ) /* Ref.: [1], §10.5.2.8; [2], §26.6.14 */
BF( 2, 0, ACT_CHECK, second_channel, "spare, any channel" )
BF( 2, 0, ACT_CHECK, first_channel, "spare, any channel" )
IE_END( channel_needed )

IE_BEGIN( ciphering_mode_setting )
BF( 3, M3(0,0,0 ), ACT_CHECK, algorithm_identifier, "A5/1 " )
BF( 1, 1,ACT_CHECK, start_ciphering, "Start ciphering" )
IE_END( ciphering_mode_setting )

IE_BEGIN( cipher_response )
BF( 3, 0, ACT_CHECK, spare, SILENT )
BF( 1, 0, ACT_CHECK, cipher_response, "IMEISV shall not be included" )
IE_END( cipher_response )

IE_BEGIN( control_channel_description ) /* Ref.: [1], §10.5.2.11; [2], §26.6.14 */
BF( 1, 0, ACT_CHECK, ANONYMOUS, "spare " )
BF( 1, 0, ACT_CHECK, att, "attach/detach not allowed" )
BF( 3, 0, ACT_CHECK, bs_ag_blks_res, "0 blocks reserved for access
grant" )
BF( 3, M3(0,0,1 ), ACT_CHECK, ccch_conf, "1 physical channel combined with SDCCHs" )

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BF( 5, 0, ACT_CHECK, ANONYMOUS, "spare " )
BF( 3, 3, ACT_CHECK, bs_pa_mfrms, "m/frames periods for tx of paging
messages" )
BF( 8, 1, ACT_CHECK, t3212, "6 minutes" )
IE_END( control_channel_description )

IE_BEGIN( control_channel_description_att )
BF( 1, 0, ACT_CHECK, ANONYMOUS, "spare " )
BF( 1, 1, ACT_CHECK, att, "attach/detach allowed" )
BF( 3, 0, ACT_CHECK, bs_ag_blks_res, "0 blocks reserved for access
grant" )
BF( 3, M3(0,0,1), ACT_CHECK, ccch_conf, "1 physical channel combined with SDCCHs" )
BF( 5, 0, ACT_CHECK, ANONYMOUS, "spare " )
BF( 3, 3, ACT_CHECK, bs_pa_mfrms, "m/frames periods for tx of paging
messages" )
BF( 8, 1, ACT_CHECK, t3212, "6 minutes" )
IE_END( control_channel_description_att )

IE_BEGIN( control_channel_description_no_att_no_per ) /* Ref.: [1] §26.1.1 */
BF( 1, 0, ACT_CHECK, ANONYMOUS, "spare " )
BF( 1, 0, ACT_CHECK, att, "attach/detach not allowed" )
BF( 3, 0, ACT_CHECK, bs_ag_blks_res, "0 blocks reserved for access
grant" )
BF( 3, M3(0,0,1), ACT_CHECK, ccch_conf, "1 physical channel combined with SDCCHs" )
BF( 5, 0, ACT_CHECK, ANONYMOUS, "spare " )
BF( 3, 3, ACT_CHECK, bs_pa_mfrms, "m/frames periods for tx of paging
messages" )
BF( 8, 0, ACT_CHECK, t3212, "infinite" )
IE_END( control_channel_description_no_att_no_per )

IE_BEGIN( control_channel_description_att_no_per )
BF( 1, 0, ACT_CHECK, ANONYMOUS, "spare " )
BF( 1, 1, ACT_CHECK, att, "attach/detach allowed" )
BF( 3, 0, ACT_CHECK, bs_ag_blks_res, "0 blocks reserved for access
grant" )
BF( 3, M3(0,0,1), ACT_CHECK, ccch_conf, "1 physical channel combined with SDCCHs" )
BF( 5, 0, ACT_CHECK, ANONYMOUS, "spare " )
BF( 3, 3, ACT_CHECK, bs_pa_mfrms, "m/frames periods for tx of paging
messages" )
BF( 8, 0, ACT_CHECK, t3212, "infinite" )
IE_END( control_channel_description_att_no_per )

IE_BEGIN( control_channel_description_att_30 )
BF( 1, 0, ACT_CHECK, ANONYMOUS, "spare " )
BF( 1, 1, ACT_CHECK, att, "attach/detach allowed" )
BF( 3, 0, ACT_CHECK, bs_ag_blks_res, "0 blocks reserved for access
grant" )
BF( 3, M3(0,0,1), ACT_CHECK, ccch_conf, "1 physical channel combined with SDCCHs" )
BF( 5, 0, ACT_CHECK, ANONYMOUS, "spare " )
BF( 3, 3, ACT_CHECK, bs_pa_mfrms, "m/frames periods for tx of paging
messages" )
BF( 8, 5, ACT_CHECK, t3212, "30 minutes" )
IE_END( control_channel_description_att_30 )

IE_BEGIN( control_channel_description_att_12 )
BF( 1, 0, ACT_CHECK, ANONYMOUS, "spare " )
BF( 1, 1, ACT_CHECK, att, "attach/detach allowed" )
BF( 3, 0, ACT_CHECK, bs_ag_blks_res, "0 blocks reserved for access
grant" )
BF( 3, M3(0,0,1), ACT_CHECK, ccch_conf, "1 physical channel combined with SDCCHs" )
BF( 5, 0, ACT_CHECK, ANONYMOUS, "spare " )
BF( 3, 3, ACT_CHECK, bs_pa_mfrms, "m/frames periods for tx of paging
messages" )

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BF( 8, 2, ACT_CHECK, t3212, "12 minutes" )
IE_END( control_channel_description_att_12 )

IE_BEGIN( ia_rest_octets ) /* Ref.: [1], §10.5.2.16; [2], §26.6.14 */
BF( 8, REST_OCTET, ACT_CHECK, ANONYMOUS, SILENT ) /* 0 */
BF( 8, REST_OCTET, ACT_CHECK, ANONYMOUS, SILENT ) /* 1 */
BF( 8, REST_OCTET, ACT_CHECK, ANONYMOUS, SILENT ) /* 2 */
BF( 8, REST_OCTET, ACT_CHECK, ANONYMOUS, SILENT ) /* 3 */
BF( 8, REST_OCTET, ACT_CHECK, ANONYMOUS, SILENT ) /* 4 */
BF( 8, REST_OCTET, ACT_CHECK, ANONYMOUS, SILENT ) /* 5 */
BF( 8, REST_OCTET, ACT_CHECK, ANONYMOUS, SILENT ) /* 6 */
BF( 8, REST_OCTET, ACT_CHECK, ANONYMOUS, SILENT ) /* 7 */
BF( 8, REST_OCTET, ACT_CHECK, ANONYMOUS, SILENT ) /* 8 */
BF( 8, REST_OCTET, ACT_CHECK, ANONYMOUS, SILENT ) /* 9 */
BF( 8, REST_OCTET, ACT_CHECK, NONONYMOUS, SILENT ) /* 10 */
IE_END( ia_rest_octets )

IE_BEGIN( iar_rest_octets ) /* Ref.: [1], §10.5.2.17 */
BF( 8, REST_OCTET, ACT_CHECK, ANONYMOUS, SILENT ) /* 0 */
BF( 8, REST_OCTET, ACT_CHECK, ANONYMOUS, SILENT ) /* 1 */
BF( 8, REST_OCTET, ACT_CHECK, ANONYMOUS, SILENT ) /* 2 */
IE_END( iar_rest_octets )

IE_BEGIN( l2_pseudo_length_9 ) /* Ref.: [1], §10.5.2.16 */
BF( 6, 9, ACT_CHECK, ANONYMOUS, SILENT )
BF( 1, 0, ACT_CHECK, ANONYMOUS, SILENT )
BF( 1, 1, ACT_CHECK, ANONYMOUS, SILENT )
IE_END( l2_pseudo_length_9 )

IE_BEGIN( l2_pseudo_length_11 ) /* Ref.: [1], §10.5.2.19 */
BF( 6, 11, ACT_CHECK, ANONYMOUS, SILENT )
BF( 1, 0, ACT_CHECK, ANONYMOUS, SILENT )
BF( 1, 1, ACT_CHECK, ANONYMOUS, SILENT )
IE_END( l2_pseudo_length_11 )

IE_BEGIN( l2_pseudo_length_12 ) /* Ref.: [1], §10.5.2.19 */
BF( 6, 12, ACT_CHECK, ANONYMOUS, SILENT )
BF( 1, 0, ACT_CHECK, ANONYMOUS, SILENT )
BF( 1, 1, ACT_CHECK, ANONYMOUS, SILENT )
IE_END( l2_pseudo_length_12 )

IE_BEGIN( l2_pseudo_length_18 ) /* Ref.: [1], §10.5.2.19 */
BF( 6, 18, ACT_CHECK, ANONYMOUS, SILENT )
BF( 1, 0, ACT_CHECK, ANONYMOUS, SILENT )
BF( 1, 1, ACT_CHECK, ANONYMOUS, SILENT )
IE_END( l2_pseudo_length_18 )

IE_BEGIN( l2_pseudo_length_19 ) /* Ref.: [1], §10.5.2.19 */
BF( 6, 19, ACT_CHECK, ANONYMOUS, SILENT )
BF( 1, 0, ACT_CHECK, ANONYMOUS, SILENT )
BF( 1, 1, ACT_CHECK, ANONYMOUS, SILENT )
IE_END( l2_pseudo_length_19 )

IE_BEGIN( l2_pseudo_length_21 ) /* Ref.: [1], §10.5.2.19 */
BF( 6, 21, ACT_CHECK, ANONYMOUS, SILENT )
BF( 1, 0, ACT_CHECK, ANONYMOUS, SILENT )
BF( 1, 1, ACT_CHECK, ANONYMOUS, SILENT )
IE_END( l2_pseudo_length_21 )

IE_BEGIN( l2_pseudo_length_22 ) /* Ref.: [1], §10.5.2.19 */
BF( 6, 22, ACT_CHECK, ANONYMOUS, SILENT )
BF( 1, 0, ACT_CHECK, ANONYMOUS, SILENT )
BF( 1, 1, ACT_CHECK, ANONYMOUS, SILENT )
IE_END( l2_pseudo_length_22 )
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IE_BEGIN( mobile_allocation ) /* Ref.: [1], §10.5.2.21; [2], §26.6.14 */
  BF( 8, 0, ACT_CHECK, length, "length 0 due to hopping disabled"
)
IE_END( mobile_allocation )

IE_BEGIN( ncc_permitted ) /* Ref.: [1], §10.5.2.27; [2], §26.6.14 */
  BF( 8, M8(0,0,0,0,0,1,0,0), ACT_CHECK, ncc_permit, "0000 0100 (NCC==2 only )" )
IE_END( ncc_permitted )

IE_BEGIN( neighbour_cell_description ) /* Ref.: [1], §10.5.2.22; [2], §26.6.14 */
  BF( 2, 0, ACT_CHECK, format_id, "bit map 0 " )
  BF( 1, 0, ACT_CHECK, ext_int, "this IE carries the complete BA "
)
  BF( 1, 0, ACT_CHECK, ba_int, "BCCH allocation sequence " )
  BF( 28, 0x0802008, ACT_CHECK, ANONYMOUS, "channel numbers: 120 110 100 "
)
  BF( 32, 0x02008000, ACT_CHECK, ANONYMOUS, "channel numbers: 90 80 " )
  BF( 32, 0x00000080, ACT_CHECK, ANONYMOUS, "channel numbers: 40 " )
  BF( 32, 0x00080200, ACT_CHECK, ANONYMOUS, "channel numbers: 20 10 " )
IE_END( neighbour_cell_description )

IE_BEGIN( neighbour_cell_description_B_XX )
  BF( 2, 0, ACT_CHECK, format_id, "bit map 0 " )
  BF( 1, 0, ACT_CHECK, ext_int, "this IE carries the complete BA "
)
  BF( 1, 0, ACT_CHECK, ba_int, "BCCH allocation sequence " )
  BF( 28, 0x0200802, ACT_CHECK, ANONYMOUS, "channel numbers: 118 108 98 "
)
  BF( 32, 0x00802000, ACT_CHECK, ANONYMOUS, "channel numbers: 88 78 " )
  BF( 32, 0x00000020, ACT_CHECK, ANONYMOUS, "channel numbers: 38 " )
  BF( 32, 0x00020080, ACT_CHECK, ANONYMOUS, "channel numbers: 18 8 " )
IE_END( neighbour_cell_description_B_XX )

IE_BEGIN( pl_rest_octets ) /* Ref.: [1], §10.5.2.23; [2], §26.6.14 */
  BF( 8, REST_OCTET, ACT_CHECK, ANONYMOUS, SILENT ) /* 0 */
  BF( 8, REST_OCTET, ACT_CHECK, ANONYMOUS, SILENT ) /* 1 */
  BF( 8, REST_OCTET, ACT_CHECK, ANONYMOUS, SILENT ) /* 2 */
  BF( 8, REST_OCTET, ACT_CHECK, ANONYMOUS, SILENT ) /* 3 */
  BF( 8, REST_OCTET, ACT_CHECK, ANONYMOUS, SILENT ) /* 4 */
  BF( 8, REST_OCTET, ACT_CHECK, ANONYMOUS, SILENT ) /* 5 */
  BF( 8, REST_OCTET, ACT_CHECK, ANONYMOUS, SILENT ) /* 6 */
  BF( 8, REST_OCTET, ACT_CHECK, ANONYMOUS, SILENT ) /* 7 */
  BF( 8, REST_OCTET, ACT_CHECK, ANONYMOUS, SILENT ) /* 8 */
  BF( 8, REST_OCTET, ACT_CHECK, ANONYMOUS, SILENT ) /* 9 */
  BF( 8, REST_OCTET, ACT_CHECK, ANONYMOUS, SILENT ) /* 10 */
  BF( 8, REST_OCTET, ACT_CHECK, ANONYMOUS, SILENT ) /* 11 */
  BF( 8, REST_OCTET, ACT_CHECK, ANONYMOUS, SILENT ) /* 12 */
IE_END( pl_rest_octets )

IE_BEGIN( page_mode ) /* Ref.: [1], §10.5.2.26; [2], §26.6.14 */
  BF( 2, 0, ACT_CHECK, spare, "two spare bits " )
  BF( 2, 0, ACT_CHECK, pm, "Normal Paging" )
IE_END( page_mode )

IE_BEGIN( rach_control_parameter ) /* Ref.: [1], §10.5.2.29; [2], §26.6.14 */
  BF( 2, 0, ACT_CHECK, max_retrans, "max 1 retrans " )
  BF( 4, M4(0,0,1,0), ACT_CHECK, tx_integer, "5 slots used " )
  BF( 1, 0, ACT_CHECK, cell_bar_access, "cell is not barred " )
  BF( 1, 0, ACT_CHECK, call_re_establishment, "Allowed " )
  BF( 5, 0, ACT_CHECK, access_control_class_15_11, "access is not barred" )
  BF( 1, 0, ACT_CHECK, emergency_call, "allowed " )
  BF( 10, 0, ACT_CHECK, access_control_class_09_00, "access is not barred" )
IE_END( rach_control_parameter )

```

```

IE_BEGIN( request_reference ) /* Ref.: [1], §10.5.2.30; [2], §26.6.14 */
  BF( 3, M3(1,0,0), ACT_SHOW, random_access_info, "As in CHAN REQ" )
  BF( 5, M5(1,1,1,1,1), ACT_SHOW, ref, SILENT )
  BF( 5, 0, ACT_SHOW, t1, SILENT )
  BF( 6, 0, ACT_SHOW, t3, SILENT )
  BF( 5, 0, ACT_SHOW, t2, SILENT )
IE_END( request_reference )

IE_BEGIN( request_reference_2 ) /* Ref.: [1], §10.5.2.30; [2], §26.6.14 */
  BF( 3, M3(1,0,0), ACT_SHOW, random_access_info, SILENT )
  BF( 5, M5(1,1,1,1,1), ACT_SHOW, ref, "as in non of the CHAN REQ sent by the MS!" )
  BF( 5, 0, ACT_SHOW, t1, SILENT )
  BF( 6, 0, ACT_SHOW, t3, SILENT )
  BF( 5, 0, ACT_SHOW, t2, SILENT )
IE_END( request_reference_2 )

IE_BEGIN( rr_cause ) /* Ref.: [1], §10.5.2.31; [2], 26.6.14 */
  BF( 8, M8(0,0,0,0,0,0,0,0), ACT_CHECK, cause, "normal event" )
IE_END( rr_cause )

IE_BEGIN( si_1_rest_octets ) /* Ref.: [1], §10.5.2.32; [2], 26.6.14 */
  BF( 8, REST_OCTET, ACT_CHECK, spare, "not used (all bits are set to spare )" )
IE_END( si_1_rest_octets )

IE_BEGIN( si_3_rest_octets /* Ref.: [1], §10.5.2.34; [2], 26.6.14 */ )
  BF( 8, REST_OCTET, ACT_CHECK, ANONYMOUS, SILENT )
IE_END( si_3_rest_octets )

IE_BEGIN( si_3_rest_octets_no_reselect /* guaranteed no cell reselection */ )
  BF( 8, M8(1,0,0,0,0,0,0,0), ACT_CHECK, ANONYMOUS, SILENT )
  BF( 8, M8(1,1,1,1,1,1,1,0), ACT_CHECK, ANONYMOUS, SILENT )
  BF( 8, REST_OCTET, ACT_CHECK, ANONYMOUS, SILENT )
  BF( 8, REST_OCTET, ACT_CHECK, ANONYMOUS, SILENT )
IE_END( si_3_rest_octets_no_reselect )

IE_BEGIN( si_4_rest_octets ) /* Ref.: [1], §10.5.2.35; [2], 26.6.14 */
  BF( 8, REST_OCTET, ACT_CHECK, ANONYMOUS, SILENT )
  BF( 8, REST_OCTET, ACT_CHECK, ANONYMOUS, SILENT )
IE_END( si_4_rest_octets )

IE_BEGIN( timing_advance ) /* Ref.: [1], §10.5.2.40; [2], §26.6.14 */
  BF( 2, 0, ACT_CHECK, spare, SILENT )
  BF( 6, 30, ACT_CHECK, timing_advance, "30 bit periods" )
IE_END( timing_advance )

IE_BEGIN( wait_indication ) /* Ref.: [1], §10.5.2.43; [2], §26.6.14 */
  BF( 8, 0, ACT_CHECK, ANONYMOUS, "0 seconds" )
IE_END( wait_indication )

/*
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*/

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IE_BEGIN( authentication_parameter_rand )           /* Ref.: [1], §10.5.3.1 */
  BF( 8, 0x01, ACT_SHOW, rand_value, "Arbitrarily chosen by the test house: 1"
)
  BF( 8, 0x02, ACT_SHOW, rand_value, "2" )
  BF( 8, 0x03, ACT_SHOW, rand_value, "3" )
  BF( 8, 0x04, ACT_SHOW, rand_value, "4" )
  BF( 8, 0x05, ACT_SHOW, rand_value, "5" )
  BF( 8, 0x06, ACT_SHOW, rand_value, "6" )
  BF( 8, 0x07, ACT_SHOW, rand_value, "7" )
  BF( 8, 0x08, ACT_SHOW, rand_value, "8" )
  BF( 8, 0x09, ACT_SHOW, rand_value, "9" )
  BF( 8, 0x0A, ACT_SHOW, rand_value, "10" )
  BF( 8, 0x0B, ACT_SHOW, rand_value, "11" )
  BF( 8, 0x0C, ACT_SHOW, rand_value, "12" )
  BF( 8, 0x0D, ACT_SHOW, rand_value, "13" )
  BF( 8, 0x0E, ACT_SHOW, rand_value, "14" )
  BF( 8, 0x0F, ACT_SHOW, rand_value, "15" )
  BF( 8, 0x10, ACT_SHOW, rand_value, "16" )
IE_END( authentication_parameter_rand )

IE_BEGIN( authentication_parameter_sres )           /* Ref.: [1], §10.5.3.2; [2],
§26.6.14 */
  BF( 32, 0x01010101, ACT_SHOW, sres_031_000, "" )
IE_END( authentication_parameter_sres )

IE_BEGIN( follow_on_proceed )                       /* Ref.: [1], §10.5.3.7 */
  BF( 8, 0xA1, ACT_CHECK, ANONYMOUS, "" )
IE_END( follow_on_proceed )

IE_BEGIN( identity_type_imsi )                       /* Ref.: [1], §10.5.3.4 */
  BF( 1, 0, ACT_CHECK, ANONYMOUS, "spare" )
  BF( 3, TYPE_IMSI, ACT_CHECK, type, "IMSI" )
IE_END( identity_type_imsi )

IE_BEGIN( identity_type_tmsi )
  BF( 1, 0, ACT_CHECK, ANONYMOUS, "spare" )
  BF( 3, TYPE_TMSI, ACT_CHECK, type, "TMSI" )
IE_END( identity_type_tmsi )

IE_BEGIN( identity_type_imei )
  BF( 1, 0, ACT_CHECK, ANONYMOUS, "spare" )
  BF( 3, TYPE_IMEI, ACT_CHECK, type, "IMEI" )
IE_END( identity_type_imei )

IE_BEGIN( identity_type_imeisv )
  BF( 1, 0, ACT_CHECK, ANONYMOUS, "spare" )
  BF( 3, 3, ACT_CHECK, type, "IMEISV" )
IE_END( identity_type_imeisv )

IE_BEGIN( location_updating_type )                 /* Ref.: [1], §10.5.3.5 */
  BF( 1, 0, ACT_CHECK, fo_req, "no follow-on request pending" )
  BF( 1, 0, ACT_CHECK, ANONYMOUS, "spare" )
  BF( 2, M2( 0,0 ), ACT_CHECK, lut, "normal location updating" )
IE_END( location_updating_type )

IE_BEGIN( location_updating_type_att )             /* Ref.: [1], §10.5.3.5 */
  BF( 1, 0, ACT_CHECK, fo_req, "no follow-on request pending" )
  BF( 1, 0, ACT_CHECK, ANONYMOUS, "spare" )
  BF( 2, M2( 1,0 ), ACT_CHECK, lut, "IMSI attach" )
IE_END( location_updating_type_att )

IE_BEGIN( location_updating_type_f )             /* Ref.: [1], §10.5.3.5 */
  BF( 1, 1, ACT_CHECK, fo_req, "follow-on request pending" )
  BF( 1, 0, ACT_CHECK, ANONYMOUS, "spare" )
  BF( 2, M2( 0,0 ), ACT_CHECK, lut, "normal location updating" )
IE_END( location_updating_type_f )

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IE_BEGIN( reject_cause )
    BF( 8, 0x21, ACT_CHECK, reject_cause, /* Ref.: [1], §10.5.3.6 */
    "Service option not subscribed" )
IE_END( reject_cause )

IE_BEGIN( network_name_long )
    BF( 8, 0x43, ACT_CHECK, iei, "Full name for network IEI" )
    BF( 8, 101, ACT_CHECK, length, "Length of IE" )
    BF( 1, 1, ACT_CHECK, ext, "Extension bit" )
    BF( 3, 1, ACT_CHECK, cs, "UCS2 encoding" )
    BF( 1, 0, ACT_CHECK, add_ci, "Add Country information" )
    BF( 3, 0, ACT_CHECK, num_spare, "spare bits in last octett" )
    BF( 16, 0x0000, ACT_CHECK, ANONYMOUS, "" )
    BF( 16, 0x0001, ACT_CHECK, ANONYMOUS, "" )
    BF( 16, 0x0002, ACT_CHECK, ANONYMOUS, "" )
    BF( 16, 0x0003, ACT_CHECK, ANONYMOUS, "" )
    BF( 16, 0x0004, ACT_CHECK, ANONYMOUS, "" )
    BF( 16, 0x0005, ACT_CHECK, ANONYMOUS, "" )
    BF( 16, 0x0006, ACT_CHECK, ANONYMOUS, "" )
    BF( 16, 0x0007, ACT_CHECK, ANONYMOUS, "" )
    BF( 16, 0x0008, ACT_CHECK, ANONYMOUS, "" )
    BF( 16, 0x0009, ACT_CHECK, ANONYMOUS, "" )
    BF( 16, 0x0100, ACT_CHECK, ANONYMOUS, "" )
    BF( 16, 0x0101, ACT_CHECK, ANONYMOUS, "" )
    BF( 16, 0x0102, ACT_CHECK, ANONYMOUS, "" )
    BF( 16, 0x0103, ACT_CHECK, ANONYMOUS, "" )
    BF( 16, 0x0104, ACT_CHECK, ANONYMOUS, "" )
    BF( 16, 0x0105, ACT_CHECK, ANONYMOUS, "" )
    BF( 16, 0x0106, ACT_CHECK, ANONYMOUS, "" )
    BF( 16, 0x0107, ACT_CHECK, ANONYMOUS, "" )
    BF( 16, 0x0108, ACT_CHECK, ANONYMOUS, "" )
    BF( 16, 0x0109, ACT_CHECK, ANONYMOUS, "" )
    BF( 16, 0x0200, ACT_CHECK, ANONYMOUS, "" )
    BF( 16, 0x0201, ACT_CHECK, ANONYMOUS, "" )
    BF( 16, 0x0202, ACT_CHECK, ANONYMOUS, "" )
    BF( 16, 0x0203, ACT_CHECK, ANONYMOUS, "" )
    BF( 16, 0x0204, ACT_CHECK, ANONYMOUS, "" )
    BF( 16, 0x0205, ACT_CHECK, ANONYMOUS, "" )
    BF( 16, 0x0206, ACT_CHECK, ANONYMOUS, "" )
    BF( 16, 0x0207, ACT_CHECK, ANONYMOUS, "" )
    BF( 16, 0x0208, ACT_CHECK, ANONYMOUS, "" )
    BF( 16, 0x0209, ACT_CHECK, ANONYMOUS, "" )
    BF( 16, 0x0300, ACT_CHECK, ANONYMOUS, "" )
    BF( 16, 0x0301, ACT_CHECK, ANONYMOUS, "" )
    BF( 16, 0x0302, ACT_CHECK, ANONYMOUS, "" )
    BF( 16, 0x0303, ACT_CHECK, ANONYMOUS, "" )
    BF( 16, 0x0304, ACT_CHECK, ANONYMOUS, "" )
    BF( 16, 0x0305, ACT_CHECK, ANONYMOUS, "" )
    BF( 16, 0x0306, ACT_CHECK, ANONYMOUS, "" )
    BF( 16, 0x0307, ACT_CHECK, ANONYMOUS, "" )
    BF( 16, 0x0308, ACT_CHECK, ANONYMOUS, "" )
    BF( 16, 0x0309, ACT_CHECK, ANONYMOUS, "" )
    BF( 16, 0x0400, ACT_CHECK, ANONYMOUS, "" )
    BF( 16, 0x0401, ACT_CHECK, ANONYMOUS, "" )
    BF( 16, 0x0402, ACT_CHECK, ANONYMOUS, "" )
    BF( 16, 0x0403, ACT_CHECK, ANONYMOUS, "" )
    BF( 16, 0x0404, ACT_CHECK, ANONYMOUS, "" )
    BF( 16, 0x0405, ACT_CHECK, ANONYMOUS, "" )
    BF( 16, 0x0406, ACT_CHECK, ANONYMOUS, "" )
    BF( 16, 0x0407, ACT_CHECK, ANONYMOUS, "" )
    BF( 16, 0x0408, ACT_CHECK, ANONYMOUS, "" )
    BF( 16, 0x0409, ACT_CHECK, ANONYMOUS, "" )
IE_END( network_name_long )

```

```

IE_BEGIN( network_time_zone )
  BF( 8, 0x46, ACT_CHECK, iei, "Network timezone" )
  BF( 8, 0x01, ACT_CHECK, tz, "Time Zone" )
IE_END( network_time_zone )

/*
=====

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*/

#if 0
/*
 * G23 now always includes at least octet 3a,
 * even with a FR only mobile
 */
IE_BEGIN( bearer_capability ) /* Ref.: [1], §10.5.4.5 */
  BF( 8, 1, ACT_CHECK, length, SILENT )
  BF( 1, 1, ACT_CHECK, ext3, SILENT )
  BF( 2, 1, ACT_CHECK, radio_channel_requirement, SILENT )
  BF( 1, 0, ACT_CHECK, coding_standard, SILENT )
  BF( 1, 0, ACT_CHECK, transfer_mode, SILENT )
  BF( 3, 0, ACT_CHECK, info_transfer_capability, SILENT )
IE_END( bearer_capability )
#endif

/*
 * And from end of July 2002, full rate only is sent as
 * AMR full rate, AMR half rate, GSM full rate
 */
IE_BEGIN( bearer_capability ) /* Ref.: [1], §10.5.4.5 */
  BF( 8, 2, ACT_CHECK, length, SILENT )
  BF( 1, 0, ACT_CHECK, ext3, SILENT )
  BF( 2, 1, ACT_CHECK, radio_channel_requirement, SILENT )
  BF( 1, 0, ACT_CHECK, coding_standard, SILENT )
  BF( 1, 0, ACT_CHECK, transfer_mode, SILENT )
  BF( 3, 0, ACT_CHECK, info_transfer_capability, SILENT )
  BF( 1, 1, ACT_CHECK, ext3a_1, SILENT )
  BF( 1, 0, ACT_CHECK, ext_other_1, SILENT )
  BF( 2, 0, ACT_CHECK, spare3a_1, SILENT )
  BF( 4, 0, ACT_CHECK, speech_version_indication_1, SILENT )
IE_END( bearer_capability )

IE_BEGIN( bearer_capability_mobile ) /* Ref.: [1], §10.5.4.5 */
  BF( 8, 4, ACT_CHECK, length, SILENT )
  BF( 1, 0, ACT_CHECK, ext3, SILENT )
  BF( 2, 1, ACT_CHECK, radio_channel_requirement, SILENT )
  BF( 1, 0, ACT_CHECK, coding_standard, SILENT )
  BF( 1, 0, ACT_CHECK, transfer_mode, SILENT )
  BF( 3, 0, ACT_CHECK, info_transfer_capability, SILENT )

  BF( 1, 0, ACT_CHECK, ext3a_1, SILENT )
  BF( 1, 0, ACT_CHECK, ext_other_1, SILENT )
  BF( 2, 0, ACT_CHECK, spare3a_1, SILENT )
  BF( 4, 4, ACT_CHECK, speech_version_indication_1, "AMR full rate" )

  BF( 1, 0, ACT_CHECK, ext3a_2, SILENT )
  BF( 1, 0, ACT_CHECK, ext_other_2, SILENT )
  BF( 2, 0, ACT_CHECK, spare3a_2, SILENT )
  BF( 4, 5, ACT_CHECK, speech_version_indication_2, "AMR half rate" )

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BF( 1, 1,          ACT_CHECK, ext3a_3,          SILENT)
BF( 1, 0,          ACT_CHECK, ext_other_3,      SILENT)
BF( 2, 0,          ACT_CHECK, spare3a_3,        SILENT)
BF( 4, 0,          ACT_CHECK, speech_version_indication_1, "GSM full rate")
IE_END( bearer_capability_mobile )

IE_BEGIN( called_party_bcd_number )              /* Ref.: [1], §10.5.4.7 */
BF( 8, 5,          ACT_CHECK, length,          "length of IE" )
BF( 1, 1,          ACT_CHECK, ext              , "Extension Bit" )
BF( 3, 0,          ACT_CHECK, type_of_number,    "Unknown" )
BF( 4, 1,          ACT_CHECK, numbering_plan,    "ISDN/telephony" )
BF( 4, 9,          ACT_CHECK, digit_8,          "Digit 2" )
BF( 4, 6,          ACT_CHECK, digit_7,          "Digit 1" )
BF( 4, 9,          ACT_CHECK, digit_10,         "Digit 4" )
BF( 4, 6,          ACT_CHECK, digit_9,          "Digit 3" )
BF( 4, 5,          ACT_CHECK, digit_12,         "Digit 6" )
BF( 4, 5,          ACT_CHECK, digit_11,         "Digit 5" )
BF( 4, 0xF,        ACT_CHECK, digit_14,         "Digit 8" )
BF( 4, 4,          ACT_CHECK, digit_11,         "Digit 7" )
IE_END( called_party_bcd_number )

IE_BEGIN( call_control_capabilities )
BF( 8, 1,          ACT_CHECK, length,          SILENT)
BF( 6, 0,          ACT_CHECK, spare,           SILENT)
BF( 1, 1,          ACT_CHECK, pcp,             SILENT)
BF( 1, 1,          ACT_CHECK, dtmf,           SILENT)
IE_END( call_control_capabilities )

IE_BEGIN( cc_cause ) /* Ref.: [1], §10.5.4.11 */
BF( 8, 0x02,       ACT_CHECK, length,          "2 bytes" )
BF( 1, 0x01,       ACT_CHECK, ext1,            "Extension" )
BF( 2, 0x03,       ACT_CHECK, cs,              "CS_GSM_PLMN" )
BF( 1, 0,          ACT_CHECK, ANONYMOUS,       "spare" )
BF( 4, 0,          ACT_CHECK, loc,             "USER" )
BF( 1, 0x01,       ACT_CHECK, ext2,            "extension flag" )
BF( 7, 58,         ACT_CHECK, cause,           "Cause bearer cap authoriz" )
IE_END( cc_cause )

IE_BEGIN( cc_cause_81 ) /* Ref.: [1], §10.5.4.11 */
BF( 8, 0x02,       ACT_CHECK, length,          "2 bytes" )
BF( 1, 0x01,       ACT_CHECK, ext1,            "Extension" )
BF( 2, 0x03,       ACT_CHECK, cs,              "CS_GSM_PLMN" )
BF( 1, 0,          ACT_CHECK, ANONYMOUS,       "spare" )
BF( 4, 0,          ACT_CHECK, loc,             "USER" )
BF( 1, 0x01,       ACT_CHECK, ext2,            "extension flag" )
BF( 7, 0x51,       ACT_CHECK, cause,           "invalid TI value" )
IE_END( cc_cause_81 )

IE_BEGIN( iei_04 )
BF( 8, 0x04,       ACT_CHECK, ANONYMOUS,       SILENT )
IE_END( iei_04 )

IE_BEGIN( iei_08 )
BF( 8, 0x08,       ACT_CHECK, ANONYMOUS,       SILENT )
IE_END( iei_08 )

IE_BEGIN( iei_5E )
BF( 8, 0x5E,       ACT_CHECK, ANONYMOUS,       SILENT )
IE_END( iei_5E )

IE_BEGIN( iei_15 )
BF( 8, 0x15,       ACT_CHECK, ANONYMOUS,       SILENT )
IE_END( iei_15 )

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IE_BEGIN(iei_1C)
    BF(8,0x1C,ACT_CHECK,ANONYMOUS,SILENT)
IE_END(iei_1C)

IE_BEGIN(iei_7F)
    BF(8,0x7F,ACT_CHECK,ANONYMOUS,SILENT)
IE_END(iei_7F)

IE_BEGIN(ss_version)
    BF(8,    1,ACT_CHECK,length,SILENT)
    BF(8,    0,ACT_SHOW, version,SILENT)
IE_END(ss_version)

/*
IE_BEGIN(facility_req)
    BF(8,    0x13,ACT_CHECK,length_of_fac_ie_content,SILENT)
    BF(8,    0xA1,ACT_CHECK,component_type_tag,"INVOKE")
    BF(8,    0x11,ACT_CHECK,component_length, SILENT)
    BF(8,    0x02,ACT_CHECK,invoke_id_tag, SILENT)
    BF(8,    0x01,ACT_CHECK,invoke_id_length, SILENT)
    BF(8,    0x00,ACT_CHECK,invoke_id, SILENT)
    BF(8,    0x02,ACT_CHECK,operation_code_tag, SILENT)
    BF(8,    0x01,ACT_CHECK,operation_code_length, SILENT)
    BF(8,    0x0A,ACT_CHECK,operation_code, "RegisterSS")
    BF(8,    0x30,ACT_CHECK,register_SS_Arg, SILENT)
    BF(8,    0x09,ACT_CHECK,register_SS_Arg_length, SILENT)
    BF(8,    0x04,ACT_CHECK,ss_code_tag, SILENT)
    BF(8,    0x01,ACT_CHECK,ss_code_length, SILENT)
    BF(8,    0x29,ACT_CHECK,ss_code, "CFNC")
    BF(8,    0x82,ACT_CHECK,basic_service_code_id, SILENT)
    BF(8,    0x01,ACT_CHECK,teleservice_length, SILENT)
    BF(8,    0x60,ACT_CHECK,teleservice_code, SILENT)
    BF(8,    0x84,ACT_CHECK,forwardedToNumber_id, SILENT)
    BF(8,    0x02,ACT_CHECK,forwardedToNumber_length, SILENT)
    BF(8,    0x05,ACT_CHECK,address_type, "International Number")
IE_END(facility_req)
*/

IE_BEGIN(facility_req)
    BF(8,    0x14, ACT_CHECK, length_of_fac_ie_content,SILENT)
    BF(8,    0xA1, ACT_CHECK, component_type_tag,"INVOKE")
    BF(8,    0x12, ACT_CHECK, component_length, SILENT)
    BF(8,    0x02, ACT_CHECK, invoke_id_tag, SILENT)
    BF(8,    0x01, ACT_CHECK, invoke_id_length, SILENT)
    BF(8,    0x00, ACT_CHECK, invoke_id, SILENT)
    BF(8,    0x02, ACT_CHECK, operation_code_tag, SILENT)
    BF(8,    0x01, ACT_CHECK, operation_code_length, SILENT)
    BF(8,    0x0A, ACT_CHECK, operation_code, "RegisterSS")
    BF(8,    0x30, ACT_CHECK, register_SS_Arg, SILENT)
    BF(8,    0x0A, ACT_CHECK, register_SS_Arg_length, SILENT)
    BF(8,    0x04, ACT_CHECK, ss_code_tag, SILENT)
    BF(8,    0x01, ACT_CHECK, ss_code_length, SILENT)
    BF(8,    0x21, ACT_CHECK, ss_code, "CFU")
    BF(8,    0x84, ACT_CHECK, forwardedToNumber_id, SILENT)
    BF(8,    0x05, ACT_CHECK, forwardedToNumber_length, SILENT)
    BF(8,    0x81, ACT_CHECK, address_type, SILENT)
    BF(4,    0x03, ACT_CHECK, digit_2, SILENT)
    BF(4,    0x00, ACT_CHECK, digit_1, SILENT)
    BF(4,    0x03, ACT_CHECK, digit_4, SILENT)
    BF(4,    0x00, ACT_CHECK, digit_3, SILENT)
    BF(4,    0x00, ACT_CHECK, digit_6, SILENT)

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    BF(4,    0x09, ACT_CHECK, digit_5, SILENT)
    BF(4,    0x04, ACT_CHECK, digit_8, SILENT)
    BF(4,    0x09, ACT_CHECK, digit_7, SILENT)
IE_END(facility_req)
/*
=====
M E S S A G E S
=====
*/
/*
=====
RR messages
=====
*/
/* message types                                     /* Ref.: [1], §10.4 */
IE_BEGIN( rr_management_protocol_discriminator )
  BF( 4,  6,ACT_CHECK,ANONYMOUS,SILENT )
IE_END( rr_management_protocol_discriminator )
IE_BEGIN(supplementary_services_protocol_discriminator)
  BF(4,  M4(1,0,1,1),ACT_CHECK,ANONYMOUS,SILENT)
IE_END(supplementary_services_protocol_discriminator)

IE_BEGIN(ss_register_message_type)
  BF(1,    0,ACT_CHECK,ANONYMOUS,SILENT)
  BF(1,    0,ACT_SHOW, ANONYMOUS,SILENT)
  BF(6,  0x3B,ACT_CHECK,ANONYMOUS,SILENT)
IE_END(ss_register_message_type)

IE_BEGIN( skip_indicator )
  BF( 4,  0,ACT_CHECK,ANONYMOUS,SILENT )
IE_END( skip_indicator )

IE_BEGIN( channel_release_message_type )
  BF( 8,  0x0D,ACT_CHECK,ANONYMOUS,SILENT )
IE_END( channel_release_message_type )

IE_BEGIN( ciphering_mode_command_message_type )
  BF( 8,  0x35,ACT_CHECK,ANONYMOUS,SILENT )
IE_END( ciphering_mode_command_message_type )

IE_BEGIN( ciphering_mode_complete_message_type )
BF( 8,  0x32,ACT_CHECK,ANONYMOUS,SILENT )
IE_END( ciphering_mode_complete_message_type )

IE_BEGIN( paging_request_type_1_message_type )
  BF( 8,  0x21,ACT_CHECK,ANONYMOUS,SILENT )
IE_END( paging_request_type_1_message_type )

IE_BEGIN( immediate_assignment_message_type )
  BF( 8,  0x3F,ACT_CHECK,ANONYMOUS,SILENT )
IE_END( immediate_assignment_message_type )

IE_BEGIN( immediate_assignment_reject_message_type )
  BF( 8,  0x3A,ACT_CHECK,ANONYMOUS,SILENT )
IE_END( immediate_assignment_reject_message_type )

IE_BEGIN( paging_response_message_type )
  BF( 8,  0x27,ACT_CHECK,ANONYMOUS,SILENT )
IE_END( paging_response_message_type )

```

```
IE_BEGIN( system_information_type_1_message_type )
  BF( 8, 0x19,ACT_CHECK,ANONYMOUS,SILENT )
IE_END( system_information_type_1_message_type )

IE_BEGIN( system_information_type_2_message_type )
  BF( 8, 0x1A,ACT_CHECK,ANONYMOUS,SILENT )
IE_END( system_information_type_2_message_type )

IE_BEGIN( system_information_type_3_message_type )
  BF( 8, 0x1B,ACT_CHECK,ANONYMOUS,SILENT )
IE_END( system_information_type_3_message_type )

IE_BEGIN( system_information_type_4_message_type )
  BF( 8, 0x1C,ACT_CHECK,ANONYMOUS,SILENT )
IE_END( system_information_type_4_message_type )

IE_BEGIN( system_information_type_5_message_type )
  BF( 8, 0x1D,ACT_CHECK,ANONYMOUS,SILENT )
IE_END( system_information_type_5_message_type )

IE_BEGIN( system_information_type_6_message_type )
  BF( 8, 0x1E,ACT_CHECK,ANONYMOUS,SILENT )
IE_END( system_information_type_6_message_type )

MSG3_BEGIN( channel_release )          /* Ref.: [1], §9.1.7; [2], §26.6.14 */
  IE( skip_indicator )
  IE( rr_management_protocol_discriminator )
  IE( channel_release_message_type )
  IE( rr_cause )
MSG3_END( channel_release )

MSG3_BEGIN( channel_request )          /* Ref.: [1], §9.1.8; [2], §26.6.14 */
  IE( rach )
MSG3_END( channel_request )

MSG3_BEGIN( channel_request_5bit )
  IE( rach_5bit )
MSG3_END( channel_request_5bit )

MSG3_BEGIN( ciphering_mode_command )  /* Ref.: [1], §9.1.9; [2], §26.6.14 */
  IE( skip_indicator )
  IE( rr_management_protocol_discriminator )
  IE( ciphering_mode_command_message_type )
  IE( ciphering_mode_setting )
  IE( cipher_response )
MSG3_END( ciphering_mode_command )

MSG3_BEGIN( ciphering_mode_complete ) /* Ref.: [1], §9.1.10; [2], §26.6.14 */
  IE( skip_indicator )
  IE( rr_management_protocol_discriminator )
  IE( ciphering_mode_complete_message_type )
MSG3_END( ciphering_mode_complete )

MSG3_BEGIN( immediate_assignment )    /* Ref.: [1], §9.1.18; [2], §26.6.14 */
  IE( l2_pseudo_length_21 )
  IE( skip_indicator )
  IE( rr_management_protocol_discriminator )
  IE( immediate_assignment_message_type )
  IE( spare_half_octet )
  IE( page_mode )
  IE( channel_description )
  IE( request_reference )
  IE( timing_advance )
  IE( mobile_allocation )
```

```
    IE( ia_rest_octets )
MSG3_END( immediate_assignment )

MSG3_BEGIN( immediate_assignment_reject ) /* Ref.: [1], 9.1.19; [2], §26.6.14 */
    IE( l2_pseudo_length_19 )
    IE( skip_indicator )
    IE( rr_management_protocol_discriminator )
    IE( immediate_assignment_reject_message_type )
    IE( spare_half_octet )
    IE( page_mode )
    IE( request_reference )
    IE( wait_indication )
    IE( request_reference_2 )
    IE( wait_indication )
    IE( request_reference_2 )
    IE( wait_indication )
    IE( request_reference_2 )
    IE( wait_indication )
    IE( iar_rest_octets )
MSG3_END( immediate_assignment_reject )

MSG3_BEGIN( paging_request_type_1 ) /* Ref.: [1], §9.1.22; [2], §26.6.14 */
    IE( l2_pseudo_length_11 )
    IE( skip_indicator )
    IE( rr_management_protocol_discriminator )
    IE( paging_request_type_1_message_type )
    IE( channel_needed )
    IE( page_mode )
    IE( mobile_identity_tmsi )
    IE( p1_rest_octets )
MSG3_END( paging_request_type_1 )

MSG3_BEGIN( paging_request_type_1_imsi ) /* Ref.: [1], §9.1.22; [2], §26.6.14 */
    IE( l2_pseudo_length_9 )
    IE( skip_indicator )
    IE( rr_management_protocol_discriminator )
    IE( paging_request_type_1_message_type )
    IE( channel_needed )
    IE( page_mode )
    IE( mobile_identity_imsi )
    IE( p1_rest_octets )
MSG3_END( paging_request_type_1_imsi )

MSG3_BEGIN( paging_request_type_1_short_imsi ) /* Ref.: [1], §9.1.22; [2],
§26.6.14 */
    IE( l2_pseudo_length_9 )
    IE( skip_indicator )
    IE( rr_management_protocol_discriminator )
    IE( paging_request_type_1_message_type )
    IE( channel_needed )
    IE( page_mode )
    IE( mobile_identity_short_imsi )
    IE( p1_rest_octets )
MSG3_END( paging_request_type_1_short_imsi )

MSG3_BEGIN( paging_response ) /* Ref.: [1], §9.1.25; [2], §26.6.14 */
    IE( skip_indicator )
    IE( rr_management_protocol_discriminator )
    IE( paging_response_message_type )
    IE( spare_half_octet )
    IE( ciphering_key_sequence_number )
    IE( mobile_station_classmark_2 )
    IE( mobile_identity_tmsi )
MSG3_END( paging_response )
```

```
MSG3_BEGIN( paging_response_imsi )
  IE( skip_indicator )
  IE( rr_management_protocol_discriminator )
  IE( paging_response_message_type )
  IE( spare_half_octet )
  IE( ciphering_key_sequence_number )
  IE( mobile_station_classmark_2 )
  IE( mobile_identity_imsi )
MSG3_END( paging_response_imsi )

MSG3_BEGIN( paging_response_short_imsi )
  IE( skip_indicator )
  IE( rr_management_protocol_discriminator )
  IE( paging_response_message_type )
  IE( spare_half_octet )
  IE( ciphering_key_sequence_number )
  IE( mobile_station_classmark_2 )
  IE( mobile_identity_short_imsi )
MSG3_END( paging_response_short_imsi )

MSG3_BEGIN( system_information_type_1 ) /* Ref.: [1], 9.1.31; [2], §26.6.14 */
  IE( l2_pseudo_length_21 )
  IE( skip_indicator )
  IE( rr_management_protocol_discriminator )
  IE( system_information_type_1_message_type )
  IE( cell_channel_description )
  IE( rach_control_parameter )
  IE( si_1_rest_octets )
MSG3_END( system_information_type_1 )

MSG3_BEGIN( system_information_type_1_B_XX )
  IE( l2_pseudo_length_21 )
  IE( skip_indicator )
  IE( rr_management_protocol_discriminator )
  IE( system_information_type_1_message_type )
  IE( cell_channel_description_B_XX )
  IE( rach_control_parameter )
  IE( si_1_rest_octets )
MSG3_END( system_information_type_1_B_XX )

MSG3_BEGIN( system_information_type_2 ) /* Ref.: [1], §9.1.32; [2], §26.6.14 */
  IE( l2_pseudo_length_22 )
  IE( skip_indicator )
  IE( rr_management_protocol_discriminator )
  IE( system_information_type_2_message_type )
  IE( neighbour_cell_description )
  IE( ncc_permitted )
  IE( rach_control_parameter )
MSG3_END( system_information_type_2 )

MSG3_BEGIN( system_information_type_2_B_XX )
  IE( l2_pseudo_length_22 )
  IE( skip_indicator )
  IE( rr_management_protocol_discriminator )
  IE( system_information_type_2_message_type )
  IE( neighbour_cell_description_B_XX )
  IE( ncc_permitted )
  IE( rach_control_parameter )
MSG3_END( system_information_type_2_B_XX )

MSG3_BEGIN( system_information_type_3 ) /* Ref.: [1], §9.1.35; [2], §26.6.14 */
  IE( l2_pseudo_length_18 )
  IE( skip_indicator )
  IE( rr_management_protocol_discriminator )
  IE( system_information_type_3_message_type )
```

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    IE( cell_identity )
    IE( location_area_identification )
    IE( control_channel_description )
    IE( cell_options )
    IE( cell_selection_parameter )
    IE( rach_control_parameter )
    IE( si_3_rest_octets )
MSG3_END( system_information_type_3 )

MSG3_BEGIN( system_information_type_3_015 )           /* Ref.: [1], §9.1.35; [2],
$26.6.14 */
    IE( l2_pseudo_length_18 )
    IE( skip_indicator )
    IE( rr_management_protocol_discriminator )
    IE( system_information_type_3_message_type )
    IE( cell_identity )
    IE( location_area_identification )
    IE( control_channel_description )
    IE( cell_options )
    IE( cell_selection_parameter_no_crh )
    IE( rach_control_parameter )
    IE( si_3_rest_octets )
MSG3_END( system_information_type_3_015 )

MSG3_BEGIN( system_information_type_3_HMCC )
    IE( l2_pseudo_length_18 )
    IE( skip_indicator )
    IE( rr_management_protocol_discriminator )
    IE( system_information_type_3_message_type )
    IE( cell_identity )
    IE( lai_cell_A_HMCC )
    IE( control_channel_description_att )
    IE( cell_options )
    IE( cell_selection_parameter )
    IE( rach_control_parameter )
    IE( si_3_rest_octets )
MSG3_END( system_information_type_3_HMCC )

MSG3_BEGIN( system_information_type_3_HMCC_2 )
    IE( l2_pseudo_length_18 )
    IE( skip_indicator )
    IE( rr_management_protocol_discriminator )
    IE( system_information_type_3_message_type )
    IE( cell_identity )
    IE( lai_cell_A_HMCC )
    IE( control_channel_description_att_12 )
    IE( cell_options )
    IE( cell_selection_parameter )
    IE( rach_control_parameter )
    IE( si_3_rest_octets )
MSG3_END( system_information_type_3_HMCC_2 )

MSG3_BEGIN( system_information_type_3_B_12 )
    IE( l2_pseudo_length_18 )
    IE( skip_indicator )
    IE( rr_management_protocol_discriminator )
    IE( system_information_type_3_message_type )
    IE( cell_identity )
    IE( location_area_identification )
    IE( control_channel_description_att_12 )
    IE( cell_options )
    IE( cell_selection_parameter )
    IE( rach_control_parameter )

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```
    IE( si_3_rest_octets )
MSG3_END( system_information_type_3_B_12 )

MSG3_BEGIN( system_information_type_3_B_HMCC )
    IE( l2_pseudo_length_18 )
    IE( skip_indicator )
    IE( rr_management_protocol_discriminator )
    IE( system_information_type_3_message_type )
    IE( cell_identity )
    IE( lai_cell_B_HMCC )
    IE( control_channel_description_att )
    IE( cell_options )
    IE( cell_selection_parameter )
    IE( rach_control_parameter )
    IE( si_3_rest_octets )
MSG3_END( system_information_type_3_B_HMCC )

MSG3_BEGIN( system_information_type_3_B_HMCC_XX )
    IE( l2_pseudo_length_18 )
    IE( skip_indicator )
    IE( rr_management_protocol_discriminator )
    IE( system_information_type_3_message_type )
    IE( cell_identity )
    IE( lai_cell_B_HMCC )
    IE( control_channel_description_no_att_no_per )
    IE( cell_options )
    IE( cell_selection_parameter )
    IE( rach_control_parameter )
    IE( si_3_rest_octets )
MSG3_END( system_information_type_3_B_HMCC_XX )

MSG3_BEGIN( system_information_type_3_C_HMCC )
    IE( l2_pseudo_length_18 )
    IE( skip_indicator )
    IE( rr_management_protocol_discriminator )
    IE( system_information_type_3_message_type )
    IE( cell_identity )
    IE( lai_cell_C_HMCC )
    IE( control_channel_description_att )
    IE( cell_options )
    IE( cell_selection_parameter )
    IE( rach_control_parameter )
    IE( si_3_rest_octets )
MSG3_END( system_information_type_3_C_HMCC )

MSG3_BEGIN( system_information_type_3_D_HMCC )
    IE( l2_pseudo_length_18 )
    IE( skip_indicator )
    IE( rr_management_protocol_discriminator )
    IE( system_information_type_3_message_type )
    IE( cell_identity )
    IE( lai_cell_D_HMCC )
    IE( control_channel_description_att )
    IE( cell_options )
    IE( cell_selection_parameter )
    IE( rach_control_parameter )
    IE( si_3_rest_octets )
MSG3_END( system_information_type_3_D_HMCC )

MSG3_BEGIN( system_information_type_3_E_HMCC )
    IE( l2_pseudo_length_18 )
    IE( skip_indicator )
    IE( rr_management_protocol_discriminator )
    IE( system_information_type_3_message_type )
```

```
IE( cell_identity )
IE( lai_cell_E_HMCC )
IE( control_channel_description_att )
IE( cell_options )
IE( cell_selection_parameter )
IE( rach_control_parameter )
IE( si_3_rest_octets )
MSG3_END( system_information_type_3_E_HMCC )

MSG3_BEGIN( system_information_type_3_F_HMCC )
IE( l2_pseudo_length_18 )
IE( skip_indicator )
IE( rr_management_protocol_discriminator )
IE( system_information_type_3_message_type )
IE( cell_identity )
IE( lai_cell_F_HMCC )
IE( control_channel_description_att )
IE( cell_options )
IE( cell_selection_parameter )
IE( rach_control_parameter )
IE( si_3_rest_octets )
MSG3_END( system_information_type_3_F_HMCC )

MSG3_BEGIN( system_information_type_3_EPLUS )
IE( l2_pseudo_length_18 )
IE( skip_indicator )
IE( rr_management_protocol_discriminator )
IE( system_information_type_3_message_type )
IE( cell_identity )
IE( lai_cell_A_EPLUS )
IE( control_channel_description_att )
IE( cell_options )
IE( cell_selection_parameter )
IE( rach_control_parameter )
IE( si_3_rest_octets )
MSG3_END( system_information_type_3_EPLUS )

MSG3_BEGIN( system_information_type_3_VIAG )
IE( l2_pseudo_length_18 )
IE( skip_indicator )
IE( rr_management_protocol_discriminator )
IE( system_information_type_3_message_type )
IE( cell_identity )
IE( lai_cell_A_VIAG )
IE( control_channel_description_att )
IE( cell_options )
IE( cell_selection_parameter )
IE( rach_control_parameter )
IE( si_3_rest_octets )
MSG3_END( system_information_type_3_VIAG )

MSG3_BEGIN( system_information_type_3_att )
IE( l2_pseudo_length_18 )
IE( skip_indicator )
IE( rr_management_protocol_discriminator )
IE( system_information_type_3_message_type )
IE( cell_identity )
IE( location_area_identification )
IE( control_channel_description_att )
IE( cell_options )
IE( cell_selection_parameter )
IE( rach_control_parameter )
IE( si_3_rest_octets )
MSG3_END( system_information_type_3_att )
```

```
MSG3_BEGIN( system_information_type_3_att_no_reselect )
  IE( l2_pseudo_length_18 )
  IE( skip_indicator )
  IE( rr_management_protocol_discriminator )
  IE( system_information_type_3_message_type )
  IE( cell_identity )
  IE( location_area_identification )
  IE( control_channel_description_att )
  IE( cell_options )
  IE( cell_selection_parameter )
  IE( rach_control_parameter )
  IE( si_3_rest_octets_no_reselect )
MSG3_END( system_information_type_3_att_no_reselect )

MSG3_BEGIN( system_information_type_3_att_12 )
  IE( l2_pseudo_length_18 )
  IE( skip_indicator )
  IE( rr_management_protocol_discriminator )
  IE( system_information_type_3_message_type )
  IE( cell_identity )
  IE( location_area_identification )
  IE( control_channel_description_att_12 )
  IE( cell_options )
  IE( cell_selection_parameter )
  IE( rach_control_parameter )
  IE( si_3_rest_octets )
MSG3_END( system_information_type_3_att_12 )

MSG3_BEGIN( system_information_type_3_att_P )
  IE( l2_pseudo_length_18 )
  IE( skip_indicator )
  IE( rr_management_protocol_discriminator )
  IE( system_information_type_3_message_type )
  IE( cell_identity )
  IE( lai_cell_A_PLMN2 )
  IE( control_channel_description_att )
  IE( cell_options )
  IE( cell_selection_parameter )
  IE( rach_control_parameter )
  IE( si_3_rest_octets )
MSG3_END( system_information_type_3_att_P )

MSG3_BEGIN( system_information_type_3_att_P_2 )
  IE( l2_pseudo_length_18 )
  IE( skip_indicator )
  IE( rr_management_protocol_discriminator )
  IE( system_information_type_3_message_type )
  IE( cell_identity )
  IE( lai_cell_A_PLMN3 )
  IE( control_channel_description_att )
  IE( cell_options )
  IE( cell_selection_parameter )
  IE( rach_control_parameter )
  IE( si_3_rest_octets )
MSG3_END( system_information_type_3_att_P_2 )

MSG3_BEGIN( system_information_type_3_att_no_per )
  IE( l2_pseudo_length_18 )
  IE( skip_indicator )
  IE( rr_management_protocol_discriminator )
  IE( system_information_type_3_message_type )
  IE( cell_identity )
  IE( location_area_identification )
  IE( control_channel_description_att_no_per )
```

```
    IE( cell_options )
    IE( cell_selection_parameter )
    IE( rach_control_parameter )
    IE( si_3_rest_octets )
MSG3_END( system_information_type_3_att_no_per )

MSG3_BEGIN( system_information_type_3_att_30 )
    IE( l2_pseudo_length_18 )
    IE( skip_indicator )
    IE( rr_management_protocol_discriminator )
    IE( system_information_type_3_message_type )
    IE( cell_identity )
    IE( location_area_identification )
    IE( control_channel_description_att_30 )
    IE( cell_options )
    IE( cell_selection_parameter )
    IE( rach_control_parameter )
    IE( si_3_rest_octets )
MSG3_END( system_information_type_3_att_30 )

MSG3_BEGIN( system_information_type_3_B )
    IE( l2_pseudo_length_18 )
    IE( skip_indicator )
    IE( rr_management_protocol_discriminator )
    IE( system_information_type_3_message_type )
    IE( cell_identity )
    IE( lai_cell_b )
    IE( control_channel_description )
    IE( cell_options )
    IE( cell_selection_parameter )
    IE( rach_control_parameter )
    IE( si_3_rest_octets )
MSG3_END( system_information_type_3_B )

MSG3_BEGIN( system_information_type_3_B_015 )
    IE( l2_pseudo_length_18 )
    IE( skip_indicator )
    IE( rr_management_protocol_discriminator )
    IE( system_information_type_3_message_type )
    IE( cell_identity )
    IE( lai_cell_b )
    IE( control_channel_description )
    IE( cell_options )
    IE( cell_selection_parameter_no_crh )
    IE( rach_control_parameter )
    IE( si_3_rest_octets )
MSG3_END( system_information_type_3_B_015 )

MSG3_BEGIN( system_information_type_3_B_att )
    IE( l2_pseudo_length_18 )
    IE( skip_indicator )
    IE( rr_management_protocol_discriminator )
    IE( system_information_type_3_message_type )
    IE( cell_identity )
    IE( lai_cell_b )
    IE( control_channel_description_att )
    IE( cell_options )
    IE( cell_selection_parameter )
    IE( rach_control_parameter )
    IE( si_3_rest_octets )
MSG3_END( system_information_type_3_B_att )

MSG3_BEGIN( system_information_type_3_B_att_P )
    IE( l2_pseudo_length_18 )
```

```
IE( skip_indicator )
IE( rr_management_protocol_discriminator )
IE( system_information_type_3_message_type )
IE( cell_identity )
IE( lai_cell_B_PLMN2 )
IE( control_channel_description_att )
IE( cell_options )
IE( cell_selection_parameter )
IE( rach_control_parameter )
IE( si_3_rest_octets )
MSG3_END( system_information_type_3_B_att_P )

MSG3_BEGIN( system_information_type_3_C )
IE( l2_pseudo_length_18 )
IE( skip_indicator )
IE( rr_management_protocol_discriminator )
IE( system_information_type_3_message_type )
IE( cell_identity )
IE( lai_cell_c )
IE( control_channel_description )
IE( cell_options )
IE( cell_selection_parameter )
IE( rach_control_parameter )
IE( si_3_rest_octets )
MSG3_END( system_information_type_3_C )

MSG3_BEGIN( system_information_type_3_C_att )
IE( l2_pseudo_length_18 )
IE( skip_indicator )
IE( rr_management_protocol_discriminator )
IE( system_information_type_3_message_type )
IE( cell_identity )
IE( lai_cell_c )
IE( control_channel_description_att )
IE( cell_options )
IE( cell_selection_parameter )
IE( rach_control_parameter )
IE( si_3_rest_octets )
MSG3_END( system_information_type_3_C_att )

MSG3_BEGIN( system_information_type_3_C_P )
IE( l2_pseudo_length_18 )
IE( skip_indicator )
IE( rr_management_protocol_discriminator )
IE( system_information_type_3_message_type )
IE( cell_identity )
IE( lai_cell_C_PLMN1 )
IE( control_channel_description )
IE( cell_options )
IE( cell_selection_parameter )
IE( rach_control_parameter )
IE( si_3_rest_octets )
MSG3_END( system_information_type_3_C_P )

MSG3_BEGIN( system_information_type_4 ) /* Ref.: [1], §9.1.36; [2], §26.6.14 */
IE( l2_pseudo_length_12 )
IE( skip_indicator )
IE( rr_management_protocol_discriminator )
IE( system_information_type_4_message_type )
IE( location_area_identification )
IE( cell_selection_parameter )
IE( rach_control_parameter )
IE( si_4_rest_octets )
MSG3_END( system_information_type_4 )
```

```
MSG3_BEGIN( system_information_type_4_015 )          /* Ref.: [1], §9.1.36; [2],
$26.6.14 */
  IE( l2_pseudo_length_12 )
  IE( skip_indicator )
  IE( rr_management_protocol_discriminator )
  IE( system_information_type_4_message_type )
  IE( location_area_identification )
  IE( cell_selection_parameter_no_crh )
  IE( rach_control_parameter )
  IE( si_4_rest_octets )
MSG3_END( system_information_type_4_015 )

MSG3_BEGIN( system_information_type_4_HMCC )          /* Ref.: [1], §9.1.36; [2],
$26.6.14 */
  IE( l2_pseudo_length_12 )
  IE( skip_indicator )
  IE( rr_management_protocol_discriminator )
  IE( system_information_type_4_message_type )
  IE( lai_cell_A_HMCC )
  IE( cell_selection_parameter )
  IE( rach_control_parameter )
  IE( si_4_rest_octets )
MSG3_END( system_information_type_4_HMCC )

MSG3_BEGIN( system_information_type_4_B_HMCC )        /* Ref.: [1], §9.1.36; [2],
$26.6.14 */
  IE( l2_pseudo_length_12 )
  IE( skip_indicator )
  IE( rr_management_protocol_discriminator )
  IE( system_information_type_4_message_type )
  IE( lai_cell_B_HMCC )
  IE( cell_selection_parameter )
  IE( rach_control_parameter )
  IE( si_4_rest_octets )
MSG3_END( system_information_type_4_B_HMCC )

MSG3_BEGIN( system_information_type_4_C_HMCC )        /* Ref.: [1], §9.1.36; [2],
$26.6.14 */
  IE( l2_pseudo_length_12 )
  IE( skip_indicator )
  IE( rr_management_protocol_discriminator )
  IE( system_information_type_4_message_type )
  IE( lai_cell_C_HMCC )
  IE( cell_selection_parameter )
  IE( rach_control_parameter )
  IE( si_4_rest_octets )
MSG3_END( system_information_type_4_C_HMCC )

MSG3_BEGIN( system_information_type_4_D_HMCC )        /* Ref.: [1], §9.1.36; [2],
$26.6.14 */
  IE( l2_pseudo_length_12 )
  IE( skip_indicator )
  IE( rr_management_protocol_discriminator )
  IE( system_information_type_4_message_type )
  IE( lai_cell_D_HMCC )
  IE( cell_selection_parameter )
  IE( rach_control_parameter )
  IE( si_4_rest_octets )
MSG3_END( system_information_type_4_D_HMCC )

MSG3_BEGIN( system_information_type_4_E_HMCC )        /* Ref.: [1], §9.1.36; [2],
$26.6.14 */
  IE( l2_pseudo_length_12 )
  IE( skip_indicator )
```

```
    IE( rr_management_protocol_discriminator )
    IE( system_information_type_4_message_type )
    IE( lai_cell_E_HMCC )
    IE( cell_selection_parameter )
    IE( rach_control_parameter )
    IE( si_4_rest_octets )
MSG3_END( system_information_type_4_E_HMCC )

MSG3_BEGIN( system_information_type_4_F_HMCC )           /* Ref.: [1], §9.1.36; [2],
§26.6.14 */
    IE( l2_pseudo_length_12 )
    IE( skip_indicator )
    IE( rr_management_protocol_discriminator )
    IE( system_information_type_4_message_type )
    IE( lai_cell_F_HMCC )
    IE( cell_selection_parameter )
    IE( rach_control_parameter )
    IE( si_4_rest_octets )
MSG3_END( system_information_type_4_F_HMCC )

MSG3_BEGIN( system_information_type_4_EPLUS )
    IE( l2_pseudo_length_12 )
    IE( skip_indicator )
    IE( rr_management_protocol_discriminator )
    IE( system_information_type_4_message_type )
    IE( lai_cell_A_EPLUS )
    IE( cell_selection_parameter )
    IE( rach_control_parameter )
    IE( si_4_rest_octets )
MSG3_END( system_information_type_4_EPLUS )

MSG3_BEGIN( system_information_type_4_VIAG )
    IE( l2_pseudo_length_12 )
    IE( skip_indicator )
    IE( rr_management_protocol_discriminator )
    IE( system_information_type_4_message_type )
    IE( lai_cell_A_VIAG )
    IE( cell_selection_parameter )
    IE( rach_control_parameter )
    IE( si_4_rest_octets )
MSG3_END( system_information_type_4_VIAG )

MSG3_BEGIN( system_information_type_4_P ) /* Ref.: [1], §9.1.36; [2], §26.6.14 */
    IE( l2_pseudo_length_12 )
    IE( skip_indicator )
    IE( rr_management_protocol_discriminator )
    IE( system_information_type_4_message_type )
    IE( lai_cell_A_PLMN2 )
    IE( cell_selection_parameter )
    IE( rach_control_parameter )
    IE( si_4_rest_octets )
MSG3_END( system_information_type_4_P )

MSG3_BEGIN( system_information_type_4_P_2 )           /* Ref.: [1], §9.1.36; [2],
§26.6.14 */
    IE( l2_pseudo_length_12 )
    IE( skip_indicator )
    IE( rr_management_protocol_discriminator )
    IE( system_information_type_4_message_type )
    IE( lai_cell_A_PLMN3 )
    IE( cell_selection_parameter )
    IE( rach_control_parameter )
    IE( si_4_rest_octets )
MSG3_END( system_information_type_4_P_2 )
```

```
MSG3_BEGIN( system_information_type_4_B )
  IE( l2_pseudo_length_12 )
  IE( skip_indicator )
  IE( rr_management_protocol_discriminator )
  IE( system_information_type_4_message_type )
  IE( lai_cell_b )
  IE( cell_selection_parameter )
  IE( rach_control_parameter )
  IE( si_4_rest_octets )
MSG3_END( system_information_type_4_B )

MSG3_BEGIN( system_information_type_4_B_12 )
  IE( l2_pseudo_length_12 )
  IE( skip_indicator )
  IE( rr_management_protocol_discriminator )
  IE( system_information_type_4_message_type )
  IE( location_area_identification )
  IE( cell_selection_parameter )
  IE( rach_control_parameter )
  IE( si_4_rest_octets )
MSG3_END( system_information_type_4_B_12 )

MSG3_BEGIN( system_information_type_4_B_015 )
  IE( l2_pseudo_length_12 )
  IE( skip_indicator )
  IE( rr_management_protocol_discriminator )
  IE( system_information_type_4_message_type )
  IE( lai_cell_b )
  IE( cell_selection_parameter_no_crh )
  IE( rach_control_parameter )
  IE( si_4_rest_octets )
MSG3_END( system_information_type_4_B_015 )

MSG3_BEGIN( system_information_type_4_B_P )
  IE( l2_pseudo_length_12 )
  IE( skip_indicator )
  IE( rr_management_protocol_discriminator )
  IE( system_information_type_4_message_type )
  IE( lai_cell_B_PLMN2 )
  IE( cell_selection_parameter )
  IE( rach_control_parameter )
  IE( si_4_rest_octets )
MSG3_END( system_information_type_4_B_P )

MSG3_BEGIN( system_information_type_4_C )
  IE( l2_pseudo_length_12 )
  IE( skip_indicator )
  IE( rr_management_protocol_discriminator )
  IE( system_information_type_4_message_type )
  IE( lai_cell_c )
  IE( cell_selection_parameter )
  IE( rach_control_parameter )
  IE( si_4_rest_octets )
MSG3_END( system_information_type_4_C )

MSG3_BEGIN( system_information_type_4_C_P )
  IE( l2_pseudo_length_12 )
  IE( skip_indicator )
  IE( rr_management_protocol_discriminator )
  IE( system_information_type_4_message_type )
  IE( lai_cell_C_PLMN1 )
  IE( cell_selection_parameter )
  IE( rach_control_parameter )
```

```
    IE( si_4_rest_octets )
MSG3_END( system_information_type_4_C_P )

MSG3_BEGIN( system_information_type_5 )      /* Ref.: [1], 9.1.37; [2], §26.6.14 */
    IE( skip_indicator )
    IE( rr_management_protocol_discriminator )
    IE( system_information_type_5_message_type )
    IE( neighbour_cell_description )
MSG3_END( system_information_type_5 )

MSG3_BEGIN( system_information_type_5_B_XX )
    IE( skip_indicator )
    IE( rr_management_protocol_discriminator )
    IE( system_information_type_5_message_type )
    IE( neighbour_cell_description_B_XX )
MSG3_END( system_information_type_5_B_XX )

MSG3_BEGIN( system_information_type_6 )      /* Ref.: [1], §9.1.40; [2], §26.6.14 */
    IE( skip_indicator )
    IE( rr_management_protocol_discriminator )
    IE( system_information_type_6_message_type )
    IE( cell_identity )
    IE( location_area_identification )
    IE( cell_options )
    IE( ncc_permitted )
MSG3_END( system_information_type_6 )

MSG3_BEGIN( system_information_type_6_HMCC )      /* Ref.: [1], §9.1.40; [2],
§26.6.14 */
    IE( skip_indicator )
    IE( rr_management_protocol_discriminator )
    IE( system_information_type_6_message_type )
    IE( cell_identity )
    IE( lai_cell_A_HMCC )
    IE( cell_options )
    IE( ncc_permitted )
MSG3_END( system_information_type_6_HMCC )

MSG3_BEGIN( system_information_type_6_B_HMCC )      /* Ref.: [1], §9.1.40; [2],
§26.6.14 */
    IE( skip_indicator )
    IE( rr_management_protocol_discriminator )
    IE( system_information_type_6_message_type )
    IE( cell_identity )
    IE( lai_cell_B_HMCC )
    IE( cell_options )
    IE( ncc_permitted )
MSG3_END( system_information_type_6_B_HMCC )

MSG3_BEGIN( system_information_type_6_C_HMCC )      /* Ref.: [1], §9.1.40; [2],
§26.6.14 */
    IE( skip_indicator )
    IE( rr_management_protocol_discriminator )
    IE( system_information_type_6_message_type )
    IE( cell_identity )
    IE( lai_cell_C_HMCC )
    IE( cell_options )
    IE( ncc_permitted )
MSG3_END( system_information_type_6_C_HMCC )

MSG3_BEGIN( system_information_type_6_EPLUS )
    IE( skip_indicator )
    IE( rr_management_protocol_discriminator )
    IE( system_information_type_6_message_type )
    IE( cell_identity )
```

```
    IE( lai_cell_A_EPLUS )
    IE( cell_options )
    IE( ncc_permitted )
MSG3_END( system_information_type_6_EPLUS )

MSG3_BEGIN( system_information_type_6_VIAG )
    IE( skip_indicator )
    IE( rr_management_protocol_discriminator )
    IE( system_information_type_6_message_type )
    IE( cell_identity )
    IE( lai_cell_A_VIAG )
    IE( cell_options )
    IE( ncc_permitted )
MSG3_END( system_information_type_6_VIAG )

MSG3_BEGIN( system_information_type_6_P ) /* Ref.: [1], §9.1.40; [2], §26.6.14 */
    IE( skip_indicator )
    IE( rr_management_protocol_discriminator )
    IE( system_information_type_6_message_type )
    IE( cell_identity )
    IE( lai_cell_A_PLMN2 )
    IE( cell_options )
    IE( ncc_permitted )
MSG3_END( system_information_type_6_P )

MSG3_BEGIN( system_information_type_6_P_2 ) /* Ref.: [1], §9.1.40; [2],
§26.6.14 */
    IE( skip_indicator )
    IE( rr_management_protocol_discriminator )
    IE( system_information_type_6_message_type )
    IE( cell_identity )
    IE( lai_cell_A_PLMN3 )
    IE( cell_options )
    IE( ncc_permitted )
MSG3_END( system_information_type_6_P_2 )

MSG3_BEGIN( system_information_type_6_B )
    IE( skip_indicator )
    IE( rr_management_protocol_discriminator )
    IE( system_information_type_6_message_type )
    IE( cell_identity )
    IE( lai_cell_A_PLMN3 )
    IE( cell_options )
    IE( ncc_permitted )
MSG3_END( system_information_type_6_B )

MSG3_BEGIN( system_information_type_6_B_12)
    IE( skip_indicator )
    IE( rr_management_protocol_discriminator )
    IE( system_information_type_6_message_type )
    IE( cell_identity )
    IE( location_area_identification )
    IE( cell_options )
    IE( ncc_permitted )
MSG3_END( system_information_type_6_B_12)

MSG3_BEGIN( system_information_type_6_B_P )
    IE( skip_indicator )
    IE( rr_management_protocol_discriminator )
    IE( system_information_type_6_message_type )
    IE( cell_identity )
    IE( lai_cell_B_PLMN2 )
    IE( cell_options )
    IE( ncc_permitted )
MSG3_END( system_information_type_6_B_P )
```

```

MSG3_BEGIN( system_information_type_6_C )
  IE( skip_indicator )
  IE( rr_management_protocol_discriminator )
  IE( system_information_type_6_message_type )
  IE( cell_identity )
  IE( lai_cell_c )
  IE( cell_options )
  IE( ncc_permitted )
MSG3_END( system_information_type_6_C )

MSG3_BEGIN( system_information_type_6_C_P )
  IE( skip_indicator )
  IE( rr_management_protocol_discriminator )
  IE( system_information_type_6_message_type )
  IE( cell_identity )
  IE( lai_cell_C_PLMN1 )
  IE( cell_options )
  IE( ncc_permitted )
MSG3_END( system_information_type_6_C_P )

/*
=====
* CC messages
=====
*/

/* message types                                     /* Ref.: [1], §10.4 */

IE_BEGIN( call_confirmed_message_type )
  BF( 1, 0,ACT_CHECK, ANONYMOUS, SILENT)
  BF( 1, 0,ACT_SHOW, ANONYMOUS, SILENT)
  BF( 6, 0x08,ACT_CHECK,ANONYMOUS,SILENT )
IE_END( call_confirmed_message_type )

IE_BEGIN( call_control_protocol_discriminator )
  BF( 4, 3,ACT_CHECK,ANONYMOUS,SILENT )
IE_END( call_control_protocol_discriminator )

IE_BEGIN( disconnect_message_type )
  BF( 1, 0,ACT_CHECK, ANONYMOUS, SILENT)
  BF( 1, 0,ACT_SHOW, ANONYMOUS, SILENT)
  BF( 6, 0x25,ACT_CHECK,ANONYMOUS,SILENT )
IE_END( disconnect_message_type )

IE_BEGIN( emergency_setup_message_type )
  BF( 1, 0,ACT_CHECK, ANONYMOUS, SILENT)
  BF( 1, 0,ACT_SHOW, ANONYMOUS, SILENT)
  BF( 6, 0x0E,ACT_CHECK,ANONYMOUS,SILENT )
IE_END( emergency_setup_message_type )

IE_BEGIN( release_complete_message_type )
  BF( 1, 0,ACT_CHECK, ANONYMOUS, SILENT)
  BF( 1, 0,ACT_SHOW, ANONYMOUS, SILENT)
  BF( 6, 0x2A,ACT_CHECK,ANONYMOUS,SILENT )
IE_END( release_complete_message_type )

IE_BEGIN( setup_message_type )
  BF( 1, 0,ACT_CHECK, ANONYMOUS, SILENT)
  BF( 1, 0,ACT_SHOW, ANONYMOUS, SILENT)
  BF( 6, 0x05,ACT_CHECK,ANONYMOUS,SILENT )
IE_END( setup_message_type )

MSG3_BEGIN( call_confirmed )                                     /* Ref.: [1], §9.3.2 */
  IE( transaction_identifier_dest )

```

```
    IE( call_control_protocol_discriminator )
    IE( call_confirmed_message_type )
    IE( iei_15 )
    IE( call_control_capabilities )
MSG3_END( call_confirmed )

MSG3_BEGIN( disconnect )           /* Ref.: [1], §9.3.7 */
    IE( transaction_identifier )
    IE( call_control_protocol_discriminator )
    IE( disconnect_message_type )
    IE( cc_cause )
MSG3_END( disconnect )

MSG3_BEGIN( emergency_setup )     /* Ref.: [1], §9.3.8 */
    IE( transaction_identifier )
    IE( call_control_protocol_discriminator )
    IE( emergency_setup_message_type )
MSG3_END( emergency_setup )

MSG3_BEGIN( release_complete )    /* Ref.: [1], §9.3.19 */
    IE( transaction_identifier )
    IE( call_control_protocol_discriminator )
    IE( release_complete_message_type )
    IE( cc_cause )
MSG3_END( release_complete )

MSG3_BEGIN( release_complete_81 ) /* Ref.: [1], §9.3.19 */
    IE( transaction_identifier_dest )
    IE( call_control_protocol_discriminator )
    IE( release_complete_message_type )
    IE( iei_08 )
    IE( cc_cause_81 )
MSG3_END( release_complete_81 )

MSG3_BEGIN( release_complete_to_ms ) /* Ref.: [1], §9.3.19 */
    IE( transaction_identifier_dest )
    IE( call_control_protocol_discriminator )
    IE( release_complete_message_type )
    IE( cc_cause )
MSG3_END( release_complete_to_ms )

MSG3_BEGIN( setup )              /* Ref.: [1], §9.3.23 */
    IE( transaction_identifier_source )
    IE( call_control_protocol_discriminator )
    IE( setup_message_type )
    IE( iei_04 )
    IE( bearer_capability )
    IE( iei_5E )
    IE( called_party_bcd_number )
    IE( iei_15 )
    IE( call_control_capabilities )
MSG3_END( setup )

MSG3_BEGIN( setup_moc )          /* Ref.: [1], §9.3.23 */
    IE( transaction_identifier_source )
    IE( call_control_protocol_discriminator )
    IE( setup_message_type )
    IE( iei_04 )
    IE( bearer_capability_mobile )
    IE( iei_5E )
    IE( called_party_bcd_number )
    IE( iei_15 )
    IE( call_control_capabilities )
MSG3_END( setup_moc )
```

```
/*
=====
MM messages
=====
*/
/* message types                                     /* Ref.: [1], §10.4 */
IE_BEGIN( mobility_management_protocol_discriminator )
    BF( 4, 5,ACT_CHECK,ANONYMOUS,SILENT )
IE_END( mobility_management_protocol_discriminator )

IE_BEGIN( abort_message_type )
    BF( 1, 0,ACT_CHECK, ANONYMOUS, SILENT)
    BF( 1, 0,ACT_SHOW, ANONYMOUS, SILENT)
    BF( 6, 0x29,ACT_CHECK,ANONYMOUS,SILENT )
IE_END( abort_message_type )

IE_BEGIN( authentication_reject_message_type )
    BF( 1, 0,ACT_CHECK, ANONYMOUS, SILENT)
    BF( 1, 0,ACT_SHOW, ANONYMOUS, SILENT)
    BF( 6, 0x11,ACT_CHECK,ANONYMOUS,SILENT )
IE_END( authentication_reject_message_type )

IE_BEGIN( authentication_request_message_type )
    BF( 1, 0,ACT_CHECK, ANONYMOUS, SILENT)
    BF( 1, 0,ACT_SHOW, ANONYMOUS, SILENT)
    BF( 6, 0x12,ACT_CHECK,ANONYMOUS,SILENT )
IE_END( authentication_request_message_type )

IE_BEGIN( authentication_response_message_type )
    BF( 1, 0,ACT_CHECK, ANONYMOUS, SILENT)
    BF( 1, 0,ACT_SHOW, ANONYMOUS, SILENT)
    BF( 6, 0x14,ACT_CHECK,ANONYMOUS,SILENT )
IE_END( authentication_response_message_type )

IE_BEGIN( cm_reestablishment_request_message_type )
    BF( 1, 0,ACT_CHECK, ANONYMOUS, SILENT)
    BF( 1, 0,ACT_SHOW, ANONYMOUS, SILENT)
    BF( 6, 0x28,ACT_CHECK,ANONYMOUS,SILENT )
IE_END( cm_reestablishment_request_message_type )

IE_BEGIN( cm_service_accept_message_type )
    BF( 1, 0,ACT_CHECK, ANONYMOUS, SILENT)
    BF( 1, 0,ACT_SHOW, ANONYMOUS, SILENT)
    BF( 6, 0x21,ACT_CHECK,ANONYMOUS,SILENT )
IE_END( cm_service_accept_message_type )

IE_BEGIN( cm_service_request_message_type )
    BF( 1, 0,ACT_CHECK, ANONYMOUS, SILENT)
    BF( 1, 0,ACT_SHOW, ANONYMOUS, SILENT)
    BF( 6, 0x24,ACT_CHECK,ANONYMOUS,SILENT )
IE_END( cm_service_request_message_type )

IE_BEGIN( cm_service_reject_message_type )
    BF( 1, 0,ACT_CHECK, ANONYMOUS, SILENT)
    BF( 1, 0,ACT_SHOW, ANONYMOUS, SILENT)
    BF( 6, 0x22,ACT_CHECK,ANONYMOUS,SILENT )
IE_END( cm_service_reject_message_type )

IE_BEGIN( identity_request_message_type )
    BF( 1, 0,ACT_CHECK, ANONYMOUS, SILENT)
    BF( 1, 0,ACT_SHOW, ANONYMOUS, SILENT)
    BF( 6, 0x18,ACT_CHECK,ANONYMOUS,SILENT )
IE_END( identity_request_message_type )
```

```
IE_BEGIN( identity_response_message_type )
  BF( 1, 0,ACT_CHECK, ANONYMOUS, SILENT)
  BF( 1, 0,ACT_SHOW, ANONYMOUS, SILENT)
  BF( 6, 0x19,ACT_CHECK,ANONYMOUS,SILENT )
IE_END( identity_response_message_type )

IE_BEGIN( imsi_detach_indication_message_type )
  BF( 1, 0,ACT_CHECK, ANONYMOUS, SILENT)
  BF( 1, 0,ACT_SHOW, ANONYMOUS, SILENT)
  BF( 6, 0x01,ACT_CHECK,ANONYMOUS,SILENT )
IE_END( imsi_detach_indication_message_type )

IE_BEGIN( location_updating_accept_message_type )
  BF( 1, 0,ACT_CHECK, ANONYMOUS, SILENT)
  BF( 1, 0,ACT_SHOW, ANONYMOUS, SILENT)
  BF( 6, 0x02,ACT_CHECK,ANONYMOUS,SILENT )
IE_END( location_updating_accept_message_type )

IE_BEGIN( location_updating_reject_message_type )
  BF( 1, 0,ACT_CHECK, ANONYMOUS, SILENT)
  BF( 1, 0,ACT_SHOW, ANONYMOUS, SILENT)
  BF( 6, 0x04,ACT_CHECK,ANONYMOUS,SILENT )
IE_END( location_updating_reject_message_type )

IE_BEGIN( location_updating_request_message_type )
  BF( 1, 0,ACT_CHECK, ANONYMOUS, SILENT)
  BF( 1, 0,ACT_SHOW, ANONYMOUS, SILENT)
  BF( 6, 0x08,ACT_CHECK,ANONYMOUS,SILENT )
IE_END( location_updating_request_message_type )

IE_BEGIN( mm_status_message_type )
  BF( 1, 0,ACT_CHECK, ANONYMOUS, SILENT)
  BF( 1, 0,ACT_SHOW, ANONYMOUS, SILENT)
  BF( 6, 0x31,ACT_CHECK,ANONYMOUS,SILENT )
IE_END( mm_status_message_type )

IE_BEGIN( tmsi_reallocation_command_message_type )
  BF( 1, 0,ACT_CHECK, ANONYMOUS, SILENT)
  BF( 1, 0,ACT_SHOW, ANONYMOUS, SILENT)
  BF( 6, 0x1A,ACT_CHECK,ANONYMOUS,SILENT )
IE_END( tmsi_reallocation_command_message_type )

IE_BEGIN( tmsi_reallocation_complete_message_type )
  BF( 1, 0,ACT_CHECK, ANONYMOUS, SILENT)
  BF( 1, 0,ACT_SHOW, ANONYMOUS, SILENT)
  BF( 6, 0x1B,ACT_CHECK,ANONYMOUS,SILENT )
IE_END( tmsi_reallocation_complete_message_type )

IE_BEGIN( mm_information_message_type )
  BF( 1, 0, ACT_CHECK, ANONYMOUS, SILENT )
  BF( 1, 0, ACT_SHOW, ANONYMOUS, SILENT )
  BF( 6, 0x32, ACT_CHECK, ANONYMOUS, SILENT )
IE_END( mm_information_message_type )

MSG3_BEGIN( abort ) /* Ref.: [1], §9.2.8 */
  IE( skip_indicator )
  IE( mobility_management_protocol_discriminator )
  IE( abort_message_type )
  IE( reject_cause )
MSG3_END( abort )

MSG3_BEGIN( authentication_reject ) /* Ref.: [1], §9.2.1 */
  IE( skip_indicator )
  IE( mobility_management_protocol_discriminator )
  IE( authentication_reject_message_type )
MSG3_END( authentication_reject )
```

```
MSG3_BEGIN( authentication_request )      /* Ref.: [1], §9.2.2 */
  IE( skip_indicator )
  IE( mobility_management_protocol_discriminator )
  IE( authentication_request_message_type )
  IE( spare_half_octet )
  IE( ciphering_key_sequence_number )
  IE( authentication_parameter_rand )
MSG3_END( authentication_request )

MSG3_BEGIN( authentication_response )     /* Ref.: [1], §9.2.3 */
  IE( skip_indicator )
  IE( mobility_management_protocol_discriminator )
  IE( authentication_response_message_type )
  IE( authentication_parameter_sres )
MSG3_END( authentication_response )

MSG3_BEGIN( cm_reestablishment_request )  /* Ref.: [1], §9.2.4 */
  IE( skip_indicator )
  IE( mobility_management_protocol_discriminator )
  IE( cm_reestablishment_request_message_type )
  IE( spare_half_octet )
  IE( ciphering_key_sequence_number )
  IE( mobile_station_classmark_2 )
  IE( mobile_identity_imsi )
MSG3_END( cm_reestablishment_request )

MSG3_BEGIN( cm_reestablishment_request_short_imsi ) /* Ref.: [1], §9.2.4 */
  IE( skip_indicator )
  IE( mobility_management_protocol_discriminator )
  IE( cm_reestablishment_request_message_type )
  IE( spare_half_octet )
  IE( ciphering_key_sequence_number )
  IE( mobile_station_classmark_2 )
  IE( mobile_identity_short_imsi )
MSG3_END( cm_reestablishment_request_short_imsi )

MSG3_BEGIN( cm_service_accept )          /* Ref.: [1], §9.2.5; [2], §26.6.14 */
  IE( skip_indicator )
  IE( mobility_management_protocol_discriminator )
  IE( cm_service_accept_message_type )
MSG3_END( cm_service_accept )

MSG3_BEGIN( cm_service_reject )          /* Ref.: [1], §9.2.6; [2], §26.6.14 */
  IE( skip_indicator )
  IE( mobility_management_protocol_discriminator )
  IE( cm_service_reject_message_type )
  IE( reject_cause )
MSG3_END( cm_service_reject )

MSG3_BEGIN( cm_service_request )         /* Ref.: [1], §9.2.9; [2], §26.6.14 */
  IE( skip_indicator )
  IE( mobility_management_protocol_discriminator )
  IE( cm_service_request_message_type )
  IE( ciphering_key_sequence_number )
  IE( cm_service_type )
  IE( mobile_station_classmark_2 )
  IE( mobile_identity_tmsi )
MSG3_END( cm_service_request )

MSG3_BEGIN( cm_service_request_imsi )    /* Ref.: [1], §9.2.9; [2], §26.6.14 */
  IE( skip_indicator )
  IE( mobility_management_protocol_discriminator )
  IE( cm_service_request_message_type )
  IE( ciphering_key_sequence_number )
  IE( cm_service_type )
```

```
    IE( mobile_station_classmark_2 )
    IE( mobile_identity_imsi )
MSG3_END( cm_service_request_imsi )

MSG3_BEGIN( cm_service_request_ec )          /* Ref.: [1], §9.2.9; [2], §26.6.14 */
    IE( skip_indicator )
    IE( mobility_management_protocol_discriminator )
    IE( cm_service_request_message_type )
    IE( ciphering_key_sequence_number_none )
    IE( cm_service_type_ec )
    IE( mobile_station_classmark_2 )
    IE( mobile_identity_imei )
MSG3_END( cm_service_request_ec )

MSG3_BEGIN( cm_service_request_ec_imsi )
    IE( skip_indicator )
    IE( mobility_management_protocol_discriminator )
    IE( cm_service_request_message_type )
    IE( ciphering_key_sequence_number_none )
    IE( cm_service_type_ec )
    IE( mobile_station_classmark_2 )
    IE( mobile_identity_imsi )
MSG3_END( cm_service_request_ec_imsi )

MSG3_BEGIN( cm_service_request_short_imsi )
    IE( skip_indicator )
    IE( mobility_management_protocol_discriminator )
    IE( cm_service_request_message_type )
    IE( ciphering_key_sequence_number )
    IE( cm_service_type )
    IE( mobile_station_classmark_2 )
    IE( mobile_identity_short_imsi )
MSG3_END( cm_service_request_short_imsi )

MSG3_BEGIN( cm_service_request_ss )          /* Ref.: [1], §9.2.9; [2], §26.6.14 */
    IE( skip_indicator )
    IE( mobility_management_protocol_discriminator )
    IE( cm_service_request_message_type )
    IE( ciphering_key_sequence_number )
    IE( cm_service_type_ss )
    IE( mobile_station_classmark_2 )
    IE( mobile_identity_tmsi )
MSG3_END( cm_service_request_ss )

MSG3_BEGIN( identity_request_imsi )          /* Ref.: [1], §9.2.10 */
    IE( skip_indicator )
    IE( mobility_management_protocol_discriminator )
    IE( identity_request_message_type )
    IE( spare_half_octet )
    IE( identity_type_imsi )
MSG3_END( identity_request_imsi )

MSG3_BEGIN( identity_request_tmsi )          /* Ref.: [1], §9.2.10 */
    IE( skip_indicator )
    IE( mobility_management_protocol_discriminator )
    IE( identity_request_message_type )
    IE( spare_half_octet )
    IE( identity_type_tmsi )
MSG3_END( identity_request_tmsi )

MSG3_BEGIN( identity_request_imei )          /* Ref.: [1], §9.2.10 */
    IE( skip_indicator )
    IE( mobility_management_protocol_discriminator )
    IE( identity_request_message_type )
    IE( spare_half_octet )
```

```
    IE( identity_type_imei )
MSG3_END( identity_request_imei )

MSG3_BEGIN( identity_request_imeisv )      /* Ref.: [1], §9.2.10 */
    IE( skip_indicator )
    IE( mobility_management_protocol_discriminator )
    IE( identity_request_message_type )
    IE( spare_half_octet )
    IE( identity_type_imeisv )
MSG3_END( identity_request_imeisv )

MSG3_BEGIN( identity_response_imsi )      /* Ref.: [1], §9.2.11 */
    IE( skip_indicator )
    IE( mobility_management_protocol_discriminator )
    IE( identity_response_message_type )
    IE( mobile_identity_imsi )
MSG3_END( identity_response_imsi )

MSG3_BEGIN( identity_response_short_imsi ) /* Ref.: [1], §9.2.11 */
    IE( skip_indicator )
    IE( mobility_management_protocol_discriminator )
    IE( identity_response_message_type )
    IE( mobile_identity_short_imsi )
MSG3_END( identity_response_short_imsi )

MSG3_BEGIN( identity_response_imei )      /* Ref.: [1], §9.2.11 */
    IE( skip_indicator )
    IE( mobility_management_protocol_discriminator )
    IE( identity_response_message_type )
    IE( mobile_identity_imei )
MSG3_END( identity_response_imei )

MSG3_BEGIN( identity_response_imeisv )    /* Ref.: [1], §9.2.11 */
    IE( skip_indicator )
    IE( mobility_management_protocol_discriminator )
    IE( identity_response_message_type )
    IE( mobile_identity_imeisv )
MSG3_END( identity_response_imeisv )

MSG3_BEGIN( identity_response_tmsi )      /* Ref.: [1], §9.2.11 */
    IE( skip_indicator )
    IE( mobility_management_protocol_discriminator )
    IE( identity_response_message_type )
    IE( mobile_identity_tmsi )
MSG3_END( identity_response_tmsi )

MSG3_BEGIN( imsi_detach_indication )      /* Ref.: [1], §9.2.12 */
    IE( skip_indicator )
    IE( mobility_management_protocol_discriminator )
    IE( imsi_detach_indication_message_type )
    IE( mobile_station_classmark_1 )
    IE( mobile_identity_imsi )
MSG3_END( imsi_detach_indication )

MSG3_BEGIN( imsi_detach_indication_tmsi ) /* Ref.: [1], §9.2.12 */
    IE( skip_indicator )
    IE( mobility_management_protocol_discriminator )
    IE( imsi_detach_indication_message_type )
    IE( mobile_station_classmark_1 )
    IE( mobile_identity_tmsi )
MSG3_END( imsi_detach_indication_tmsi )

MSG3_BEGIN( imsi_detach_indication_short_imsi ) /* Ref.: [1], §9.2.12 */
    IE( skip_indicator )
    IE( mobility_management_protocol_discriminator )
    IE( imsi_detach_indication_message_type )
```

```
    IE( mobile_station_classmark_1 )
    IE( mobile_identity_short_imsi )
MSG3_END( imsi_detach_indication_short_imsi )

MSG3_BEGIN( location_updating_accept )      /* Ref.: [1], §9.2.13 */
    IE( skip_indicator )
    IE( mobility_management_protocol_discriminator )
    IE( location_updating_accept_message_type )
    IE( location_area_identification )
MSG3_END( location_updating_accept )

MSG3_BEGIN( location_updating_accept_tmsi )
    IE( skip_indicator )
    IE( mobility_management_protocol_discriminator )
    IE( location_updating_accept_message_type )
    IE( location_area_identification )
    IE( mobile_identity_tmsi_iei )
    IE( follow_on_proceed )
MSG3_END( location_updating_accept_tmsi )

MSG3_BEGIN( location_updating_accept_tmsi_no_follow )
    IE( skip_indicator )
    IE( mobility_management_protocol_discriminator )
    IE( location_updating_accept_message_type )
    IE( location_area_identification )
    IE( mobile_identity_tmsi_iei )
MSG3_END( location_updating_accept_tmsi_no_follow )

MSG3_BEGIN( location_updating_accept_tmsi_C )
    IE( skip_indicator )
    IE( mobility_management_protocol_discriminator )
    IE( location_updating_accept_message_type )
    IE( lai_cell_C_PLMN1 )
    IE( mobile_identity_tmsi_iei )
    IE( follow_on_proceed )
MSG3_END( location_updating_accept_tmsi_C )

MSG3_BEGIN( location_updating_accept_tmsi_A_HMCC )
    IE( skip_indicator )
    IE( mobility_management_protocol_discriminator )
    IE( location_updating_accept_message_type )
    IE( lai_cell_A_HMCC )
    IE( mobile_identity_tmsi_iei )
    IE( follow_on_proceed )
MSG3_END( location_updating_accept_tmsi_A_HMCC )

MSG3_BEGIN( location_updating_accept_A_HMCC )
    IE( skip_indicator )
    IE( mobility_management_protocol_discriminator )
    IE( location_updating_accept_message_type )
    IE( lai_cell_A_HMCC )
    IE( follow_on_proceed )
MSG3_END( location_updating_accept_A_HMCC )

MSG3_BEGIN( location_updating_accept_B_HMCC )
    IE( skip_indicator )
    IE( mobility_management_protocol_discriminator )
    IE( location_updating_accept_message_type )
    IE( lai_cell_B_HMCC )
    IE( follow_on_proceed )
MSG3_END( location_updating_accept_B_HMCC )

MSG3_BEGIN( location_updating_accept_C_HMCC )
    IE( skip_indicator )
    IE( mobility_management_protocol_discriminator )
    IE( location_updating_accept_message_type )
```

```
    IE( lai_cell_B_HMCC )
    IE( follow_on_proceed )
MSG3_END( location Updating_Accept_C_HMCC )

MSG3_BEGIN( location Updating_Accept_TMSI_B_HMCC )
    IE( skip_indicator )
    IE( mobility_management_protocol_discriminator )
    IE( location Updating_Accept_Message_Type )
    IE( lai_cell_B_HMCC )
    IE( mobile_identity_tmsi_iei )
    IE( follow_on_proceed )
MSG3_END( location Updating_Accept_TMSI_B_HMCC )

MSG3_BEGIN( location Updating_Accept_IMSI )
    IE( skip_indicator )
    IE( mobility_management_protocol_discriminator )
    IE( location Updating_Accept_Message_Type )
    IE( location_area_identification )
    IE( mobile_identity_imsi_iei )
    IE( follow_on_proceed )
MSG3_END( location Updating_Accept_IMSI )

MSG3_BEGIN( location Updating_Reject )
    IE( skip_indicator )
    IE( mobility_management_protocol_discriminator )
    IE( location Updating_Reject_Message_Type )
    IE( reject_cause )
MSG3_END( location Updating_Reject )

MSG3_BEGIN( location Updating_Request ) /* Ref.: [1], §9.2.15 */
    IE( skip_indicator )
    IE( mobility_management_protocol_discriminator )
    IE( location Updating_Request_Message_Type )
    IE( ciphering_key_sequence_number )
    IE( location Updating_Type )
    IE( location_area_identification )
    IE( mobile_station_classmark_1 )
    IE( mobile_identity_tmsi )
MSG3_END( location Updating_Request )

MSG3_BEGIN( location Updating_Request_IMSI )
    IE( skip_indicator )
    IE( mobility_management_protocol_discriminator )
    IE( location Updating_Request_Message_Type )
    IE( ciphering_key_sequence_number )
    IE( location Updating_Type )
    IE( location_area_identification )
    IE( mobile_station_classmark_1 )
    IE( mobile_identity_imsi )
MSG3_END( location Updating_Request_IMSI )

MSG3_BEGIN( location Updating_Request_IMSI_No_CKSN )
    IE( skip_indicator )
    IE( mobility_management_protocol_discriminator )
    IE( location Updating_Request_Message_Type )
    IE( ciphering_key_sequence_number_none )
    IE( location Updating_Type )
    IE( location_area_identification )
    IE( mobile_station_classmark_1 )
    IE( mobile_identity_imsi )
MSG3_END( location Updating_Request_IMSI_No_CKSN )

MSG3_BEGIN( location Updating_Request_Short_IMSI )
    IE( skip_indicator )
    IE( mobility_management_protocol_discriminator )
```

```
    IE( location Updating Request Message Type )
    IE( ciphering key sequence number )
    IE( location Updating Type )
    IE( location Area Identification )
    IE( mobile station classmark_1 )
    IE( mobile identity short IMSI )
MSG3_END( location Updating Request Short IMSI )

MSG3_BEGIN( location Updating Request Short IMSI Del )
    IE( skip indicator )
    IE( mobility management protocol discriminator )
    IE( location Updating Request Message Type )
    IE( ciphering key sequence number none )
    IE( location Updating Type )
    IE( location Area Identification Deleted )
    IE( mobile station classmark_1 )
    IE( mobile identity short IMSI )
MSG3_END( location Updating Request Short IMSI Del )

MSG3_BEGIN( location Updating Request Short IMSI Att )
    IE( skip indicator )
    IE( mobility management protocol discriminator )
    IE( location Updating Request Message Type )
    IE( ciphering key sequence number )
    IE( location Updating Type Att )
    IE( location Area Identification )
    IE( mobile station classmark_1 )
    IE( mobile identity short IMSI )
MSG3_END( location Updating Request Short IMSI Att )

MSG3_BEGIN( location Updating Request Del )
    IE( skip indicator )
    IE( mobility management protocol discriminator )
    IE( location Updating Request Message Type )
    IE( ciphering key sequence number none )
    IE( location Updating Type )
    IE( location Area Identification Deleted )
    IE( mobile station classmark_1 )
    IE( mobile identity IMSI )
MSG3_END( location Updating Request Del )

MSG3_BEGIN( location Updating Request Del F )
    IE( skip indicator )
    IE( mobility management protocol discriminator )
    IE( location Updating Request Message Type )
    IE( ciphering key sequence number none )
    IE( location Updating Type F )
    IE( location Area Identification Deleted )
    IE( mobile station classmark_1 )
    IE( mobile identity IMSI )
MSG3_END( location Updating Request Del F )

MSG3_BEGIN( location Updating Request PLMN1 Del )
    IE( skip indicator )
    IE( mobility management protocol discriminator )
    IE( location Updating Request Message Type )
    IE( ciphering key sequence number none )
    IE( location Updating Type )
    IE( LAI Cell C PLMN1 )
    IE( mobile station classmark_1 )
    IE( mobile identity IMSI )
MSG3_END( location Updating Request PLMN1 Del )

MSG3_BEGIN( location Updating Request TMSI PLMN1 )
    IE( skip indicator )
```

```
    IE( mobility_management_protocol_discriminator )
    IE( location Updating_request_message_type )
    IE( ciphering_key_sequence_number )
    IE( location Updating_type )
    IE( lai_cell_C_PLMN1 )
    IE( mobile_station_classmark_1 )
    IE( mobile_identity_tmsi )
MSG3_END( location Updating_request_tmsi_PLMN1 )

MSG3_BEGIN( location Updating_request_tmsi_A_HMCC )
    IE( skip_indicator )
    IE( mobility_management_protocol_discriminator )
    IE( location Updating_request_message_type )
    IE( ciphering_key_sequence_number )
    IE( location Updating_type )
    IE( lai_cell_A_HMCC )
    IE( mobile_station_classmark_1 )
    IE( mobile_identity_tmsi )
MSG3_END( location Updating_request_tmsi_A_HMCC )

MSG3_BEGIN( location Updating_request_A_HMCC )
    IE( skip_indicator )
    IE( mobility_management_protocol_discriminator )
    IE( location Updating_request_message_type )
    IE( ciphering_key_sequence_number_none )
    IE( location Updating_type )
    IE( lai_cell_A_HMCC )
    IE( mobile_station_classmark_1 )
    IE( mobile_identity_imsi )
MSG3_END( location Updating_request_A_HMCC )

MSG3_BEGIN( location Updating_request_tmsi_B_HMCC )
    IE( skip_indicator )
    IE( mobility_management_protocol_discriminator )
    IE( location Updating_request_message_type )
    IE( ciphering_key_sequence_number )
    IE( location Updating_type )
    IE( lai_cell_B_HMCC )
    IE( mobile_station_classmark_1 )
    IE( mobile_identity_tmsi )
MSG3_END( location Updating_request_tmsi_B_HMCC )

MSG3_BEGIN( location Updating_request_A_HMCC_del )
    IE( skip_indicator )
    IE( mobility_management_protocol_discriminator )
    IE( location Updating_request_message_type )
    IE( ciphering_key_sequence_number_none )
    IE( location Updating_type )
    IE( lai_cell_HMCC )
    IE( mobile_station_classmark_1 )
    IE( mobile_identity_imsi )
MSG3_END( location Updating_request_A_HMCC_del )

MSG3_BEGIN( location Updating_request_B_HMCC_del )
    IE( skip_indicator )
    IE( mobility_management_protocol_discriminator )
    IE( location Updating_request_message_type )
    IE( ciphering_key_sequence_number_none )
    IE( location Updating_type )
    IE( lai_cell_HMCC )
    IE( mobile_station_classmark_1 )
    IE( mobile_identity_imsi )
MSG3_END( location Updating_request_B_HMCC_del )
```

```
MSG3_BEGIN( location_updating_request_imsi_att )
  IE( skip_indicator )
  IE( mobility_management_protocol_discriminator )
  IE( location_updating_request_message_type )
  IE( ciphering_key_sequence_number )
  IE( location_updating_type_att )
  IE( location_area_identification )
  IE( mobile_station_classmark_1 )
  IE( mobile_identity_imsi )
MSG3_END( location_updating_request_imsi_att )

MSG3_BEGIN( location_updating_request_tmsi_att )
  IE( skip_indicator )
  IE( mobility_management_protocol_discriminator )
  IE( location_updating_request_message_type )
  IE( ciphering_key_sequence_number )
  IE( location_updating_type_att )
  IE( location_area_identification )
  IE( mobile_station_classmark_1 )
  IE( mobile_identity_tmsi )
MSG3_END( location_updating_request_tmsi_att )

MSG3_BEGIN( mm_status ) /* Ref.: [1], §9.2.16 */
  IE( skip_indicator )
  IE( mobility_management_protocol_discriminator )
  IE( mm_status_message_type )
  IE( reject_cause )
MSG3_END( mm_status )

MSG3_BEGIN( tmsi_reallocation_command_tmsi ) /* Ref.: [1], §9.2.17 */
  IE( skip_indicator )
  IE( mobility_management_protocol_discriminator )
  IE( tmsi_reallocation_command_message_type )
  IE( location_area_identification )
  IE( mobile_identity_tmsi )
MSG3_END( tmsi_reallocation_command_tmsi )

MSG3_BEGIN( tmsi_reallocation_command_imsi )
  IE( skip_indicator )
  IE( mobility_management_protocol_discriminator )
  IE( tmsi_reallocation_command_message_type )
  IE( location_area_identification )
  IE( mobile_identity_imsi )
MSG3_END( tmsi_reallocation_command_imsi )

MSG3_BEGIN( tmsi_reallocation_complete ) /* Ref.: [1], §9.2.18 */
  IE( skip_indicator )
  IE( mobility_management_protocol_discriminator )
  IE( tmsi_reallocation_complete_message_type )
MSG3_END( tmsi_reallocation_complete )

MSG3_BEGIN ( mm_information_long ) /* Ref.: [1] §9.2.15a */
  IE ( skip_indicator )
  IE ( mobility_management_protocol_discriminator )
  IE ( mm_information_message_type )
  IE ( network_name_long )
  IE ( network_time_zone )
MSG3_END ( mm_information_long )

/* dummy message */

MSG3_BEGIN( dummy_message )
  IE( skip_indicator )
MSG3_END( dummy_message )

/* remainders */
```

```
IE_BEGIN( alerting_message_type )
  BF( 1, 0,ACT_CHECK,ANONYMOUS,SILENT )
  BF( 1, 0,ACT_SHOW,ANONYMOUS,SILENT )
  BF( 6, 0x01,ACT_CHECK,ANONYMOUS,SILENT )
IE_END( alerting_message_type )

IE_BEGIN( assignment_command_message_type )
  BF( 8, 0x2E,ACT_CHECK,ANONYMOUS,SILENT )
IE_END( assignment_command_message_type )

IE_BEGIN( assignment_complete_message_type )
  BF( 8, 0x29,ACT_CHECK,ANONYMOUS,SILENT )
IE_END( assignment_complete_message_type )

IE_BEGIN( connect_message_type )
  BF( 1, 0,ACT_CHECK,ANONYMOUS,SILENT )
  BF( 1, 0,ACT_SHOW,ANONYMOUS,SILENT )
  BF( 6, 0x07,ACT_CHECK,ANONYMOUS,SILENT )
IE_END( connect_message_type )

IE_BEGIN( connect_acknowledge_message_type )
  BF( 1, 0,ACT_CHECK,ANONYMOUS,SILENT )
  BF( 1, 0,ACT_SHOW,ANONYMOUS,SILENT )
  BF( 6, 0x0F,ACT_CHECK,ANONYMOUS,SILENT )
IE_END( connect_acknowledge_message_type )

IE_BEGIN( description_of_the_first_channel_after_time )
  BF( 5, M5( 0,0,0,0,1 ), ACT_CHECK, channel_type,"TCH " )
  BF( 3, 3,ACT_CHECK, time_slot_number,"three" )
  BF( 3, BCC,ACT_CHECK,training_sequence_code,"same as BCCH" )
  BF( 1, 0,ACT_CHECK, hopping,"No " )
  BF( 2, 0,ACT_CHECK, spare,SILENT )
  BF( 10, ARFCN_BCCH,ACT_CHECK, arfcn,"ARFCN of the BCCH" )
IE_END( description_of_the_first_channel_after_time )

IE_BEGIN( iei_63 )
  BF( 8,0x63,ACT_CHECK,ANONYMOUS,SILENT )
IE_END( iei_63 )

IE_BEGIN( mode_of_the_first_channel )
  BF( 8,1,ACT_CHECK,mode,"Speech full rate" )
IE_END( mode_of_the_first_channel )

IE_BEGIN( power_command )
  BF( 8,10,ACT_CHECK,power,SILENT )
IE_END( power_command )

MSG3_BEGIN( alerting )
  IE( transaction_identifier_dest )
  IE( call_control_protocol_discriminator )
  IE( alerting_message_type )
MSG3_END( alerting )

MSG3_BEGIN( assignment_command )
  IE( skip_indicator )
  IE( rr_management_protocol_discriminator )
  IE( assignment_command_message_type )
  IE( description_of_the_first_channel_after_time )
  IE( power_command )
  IE( iei_63 )
  IE( mode_of_the_first_channel )
MSG3_END( assignment_command )

MSG3_BEGIN( assignment_complete )
  IE( skip_indicator )
  IE( rr_management_protocol_discriminator )
  IE( assignment_complete_message_type )
```

```
    IE( rr_cause )
MSG3_END( assignment_complete )

MSG3_BEGIN( connect )
    IE( transaction_identifier_dest )
    IE( call_control_protocol_discriminator )
    IE( connect_message_type )
MSG3_END( connect )

MSG3_BEGIN( connect_acknowledge )
    IE( transaction_identifier_source )
    IE( call_control_protocol_discriminator )
    IE( connect_acknowledge_message_type )
MSG3_END( connect_acknowledge )

MSG3_BEGIN(ss_register)
    IE(transaction_identifier_source)
    IE(supplementary_services_protocol_discriminator)
    IE(ss_register_message_type)
    IE(iei_1C)
    IE(facility_req)
    IE(iei_7F)
    IE(ss_version)
MSG3_END(ss_register)
```

### 3 TEST CASES

#### 3.1 Initialization

##### 3.1.1 MMM001: Initialize IUT (1 cell) attach with TMSI

**Description:**

**Preamble:** None

**Script:**

```

ISS_INIT          ( 4 )

BS_SET_SYS_INFO  ( 0, system_information_type_1 )
BS_SET_SYS_INFO  ( 0, system_information_type_2 )
BS_SET_SYS_INFO  ( 0, system_information_type_3_att )
BS_SET_SYS_INFO  ( 0, system_information_type_4 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_6 )

BS_SET_SCH       ( 0,BSIC , RFN )
BS_SET_ARFCN     ( 0,ARFCN_BCCH )
BS_SET_POWER     ( 0,-60 )
BS_ON_OFF        ( 0,TRUE )

AT_SEND ("AT+CFUN=1", "switch on");
AT_SEND ("AT+COPS=0", "automatic registration");

SET_TIMEOUT      ( 30000 )

BS_RACH_AWAIT_BEGIN ( 0, channel_request, "MMM001 (1)" )
  BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND      ( 0, immediate_assignment, "MMM001 (2)" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 0, location Updating request IMSI,
                      "MMM001 (3)" )
  BF_SET_VAL      ( lut, M2( 1, 0 ), "" )
BS_MSG3_AWAIT_END( )
BS_MSG3_SEND      ( 0, location Updating accept TMSI, "MMM001 (4)" )
BS_MSG3_AWAIT     ( 0, tmsi_reallocation_complete, "MMM007 (5)" )
BS_MSG3_SEND      ( 0, channel_release, "MMM001 (6)" )

ISS_DELAY        ( 10000 )

```

History:	18.12.97	DL	Initial
	08.08.01	HM	Revised

### 3.1.2 MMM002: Initialize IUT (1 cell) attach with short IMSI

#### Description:

**Preamble:** None

#### Script:

```

ISS_INIT          ( 4 )

BS_SET_SYS_INFO  ( 0, system_information_type_1 )
BS_SET_SYS_INFO  ( 0, system_information_type_2 )
BS_SET_SYS_INFO  ( 0, system_information_type_3_att_no_per )
BS_SET_SYS_INFO  ( 0, system_information_type_4 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_6 )

BS_SET_SCH       ( 0,BSIC , RFN )
BS_SET_ARFCN     ( 0,ARFCN_BCCH )
BS_SET_POWER     ( 0,-60 )
BS_ON_OFF        ( 0,TRUE )

COMMAND          ( "SIM CONFIG MODE=49" )
AT_SEND ("AT+CFUN=1", "switch on");
AT_SEND ("AT+COPS=0", "automatic registration");

SET_TIMEOUT      ( 30000 )

BS_RACH_AWAIT_BEGIN ( 0, channel_request, "MMM002 (1)" )
  BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND      ( 0, immediate_assignment, "MMM002 (2)" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT     ( 0, location_updating_request_short_imsi_att, "MMM002 (3)" )
BS_MSG3_SEND      ( 0, location_updating_accept_imsi, "MMM002 (4)" )
BS_MSG3_SEND      ( 0, channel_release, "MMM002 (5)" )

ISS_DELAY        ( 10000 )

```

History: 18.12.97 DL Initial

### 3.1.3 MMM003: Initialize IUT (1 cell) with attach

#### Description:

Preamble: None

#### Script:

```

ISS_INIT          ( 4 )

BS_SET_SYS_INFO   ( 0, system_information_type_1 )
BS_SET_SYS_INFO   ( 0, system_information_type_2 )
BS_SET_SYS_INFO   ( 0, system_information_type_3_att )
BS_SET_SYS_INFO   ( 0, system_information_type_4 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_6 )

BS_SET_SCH        ( 0,BSIC , RFN )
BS_SET_ARFCN      ( 0,ARFCN_BCCH )
BS_SET_POWER      ( 0,-60 )
BS_ON_OFF         ( 0,TRUE )

COMMAND           ("MM CONFIG T3212_CNT=6") /* T3212 = 60 sec. - should be 6 min.
                                                !*/

AT_SEND ("AT+CFUN=1", "switch on");
AT_SEND ("AT+COPS=0", "automatic registration");

SET_TIMEOUT       ( 30000 )

BS_RACH_AWAIT_BEGIN ( 0, channel_request, "MMM003 (1)" )
  BF_SET_VAL      ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND      ( 0, immediate_assignment, "MMM003 (3)" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT     ( 0, location_updating_request_imsi_att, "MMM003 (3)" )
BS_MSG3_SEND      ( 0, location_updating_accept_tmsi, "MMM003 (4)" )
BS_MSG3_SEND      ( 0, channel_release, "MMM003 (5)" )

ISS_DELAY         ( 10000 )

```

History: 18.12.97

DL

Initial

### 3.1.4 MMM004: Initialize IUT (2 cells), Select Cell A

**Description:****Preamble:** None**Script:**

```
ISS_INIT (4)

BS_SET_SYS_INFO ( 0, system_information_type_1 )
BS_SET_SYS_INFO ( 0, system_information_type_2 )
BS_SET_SYS_INFO ( 0, system_information_type_3 )
BS_SET_SYS_INFO ( 0, system_information_type_4 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_6 )

BS_SET_SCH ( 0, BSIC, RFN )
BS_SET_ARFCN ( 0, ARFCN_BCCH )
BS_SET_POWER ( 0, -60 )
BS_ON_OFF ( 0, TRUE )

BS_SET_SYS_INFO ( 1, system_information_type_1 )
BS_SET_SYS_INFO ( 1, system_information_type_2 )
BS_SET_SYS_INFO ( 1, system_information_type_3_B )
BS_SET_SYS_INFO ( 1, system_information_type_4_B )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_6_B )

BS_SET_SCH ( 1, BSIC_B, RFN )
BS_SET_ARFCN ( 1, ARFCN_BCCH_B )
BS_SET_POWER ( 1, -70 )
BS_ON_OFF ( 1, TRUE )

AT_SEND ("AT+CFUN=1", "switch on");
AT_SEND ("AT+COPS=0", "automatic registration");
ISS_DELAY (20000);
```

History: 18.12.97 DL Initial

### 3.1.5 MMM005: Initialize IUT (2 cells), Select Cell B

**Description:****Preamble:** None**Script:**

```
ISS_INIT (4)

BS_SET_SYS_INFO ( 0, system_information_type_1 )
BS_SET_SYS_INFO ( 0, system_information_type_2 )
BS_SET_SYS_INFO ( 0, system_information_type_3 )
BS_SET_SYS_INFO ( 0, system_information_type_4 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_6 )

BS_SET_SCH ( 0, BSIC, RFN )
BS_SET_ARFCN ( 0, ARFCN_BCCH )
BS_SET_POWER ( 0, -70 )
BS_ON_OFF ( 0, TRUE )

BS_SET_SYS_INFO ( 1, system_information_type_1 )
BS_SET_SYS_INFO ( 1, system_information_type_2 )
BS_SET_SYS_INFO ( 1, system_information_type_3_B )
BS_SET_SYS_INFO ( 1, system_information_type_4_B )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_6_B )
BS_SET_SCH ( 1, BSIC_B, RFN )
BS_SET_ARFCN ( 1, ARFCN_BCCH_B )
BS_SET_POWER ( 1, -60 )
BS_ON_OFF ( 1, TRUE )

AT_SEND ("AT+CFUN=1", "switch on");
AT_SEND ("AT+COPS=0", "automatic registration");

ISS_DELAY (20000);
```

History: 18.12.97 DL Initial

### 3.1.6 MMM006: Initialize IUT (3 cells), Cell A

#### Description:

Preamble: None

#### Script:

```

ISS_INIT (4)

BS_SET_SYS_INFO ( 0, system_information_type_1 )
BS_SET_SYS_INFO ( 0, system_information_type_2 )
BS_SET_SYS_INFO ( 0, system_information_type_3_att_P)
BS_SET_SYS_INFO ( 0, system_information_type_4_P )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_6_P )

BS_SET_SCH ( 0, BSIC, RFN )
BS_SET_ARFCN ( 0, ARFCN_BCCH )
BS_SET_POWER ( 0, -70 )
BS_ON_OFF ( 0, FALSE )

BS_SET_SYS_INFO ( 1, system_information_type_1 )
BS_SET_SYS_INFO ( 1, system_information_type_2 )
BS_SET_SYS_INFO ( 1, system_information_type_3_B_att_P)
BS_SET_SYS_INFO ( 1, system_information_type_4_B_P )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_6_B_P )

BS_SET_SCH ( 1, BSIC_B, RFN )
BS_SET_ARFCN ( 1, ARFCN_BCCH_B )
BS_SET_POWER ( 1, -60 )
BS_ON_OFF ( 1, FALSE )

BS_SET_SYS_INFO ( 2, system_information_type_1 )
BS_SET_SYS_INFO ( 2, system_information_type_2 )
BS_SET_SYS_INFO ( 2, system_information_type_3_C_P )
BS_SET_SYS_INFO ( 2, system_information_type_4_C_P )
BS_SET_SYS_INFO_SACCH ( 2, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 2, system_information_type_6_C_P )

BS_SET_SCH ( 2, BSIC_C, RFN )
BS_SET_ARFCN ( 2, ARFCN_BCCH_C )
BS_SET_POWER ( 2, -50 )
BS_ON_OFF ( 2, TRUE )

AT_SEND ("AT+CFUN=1", "switch on");
AT_RECEIVE ("OK", SILENT);
AT_SEND ("AT+COPS=0", "automatic registration");

SET_TIMEOUT ( 50000 )

BS_RACH_AWAIT_BEGIN ( 2, channel_request, "MMM006 (1)" )
  BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END()
BS_STORE_RACH_PARAMS ( 2, 0 )
BS_CONFIG_CHANNEL ( 2, AGCH, UNACK, SAPI_0 )
BS_MSG3_SEND ( 2, immediate_assignment, "MMM006 (2)" )
BS_CONFIG_CHANNEL ( 2, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT ( 2, location_updating_request_imsi, "MMM006 (3)" )
BS_MSG3_SEND ( 2, location_updating_accept_tmsi_C, "MMM006 (4)" )
BS_MSG3_AWAIT ( 2, tmsi_reallocation_complete, "MMM006 (5)" )
AT_RECEIVE ("OK", SILENT);

```

BS\_MSG3\_SEND ( 2, channel\_release, "MMM006 (6)" )

ISS\_DELAY ( 10000 )

History: 18.12.97 DL Initial  
18.03.04 HM CKSN corrected in step (3)

### 3.1.7 MMM007: Initialize IUT (2 cells) with Location Updating, Cell B

#### Description:

**Preamble:** None

#### Script:

```

ISS_INIT (4)

BS_SET_SYS_INFO ( 0, system_information_type_1 )
BS_SET_SYS_INFO ( 0, system_information_type_2 )
BS_SET_SYS_INFO ( 0, system_information_type_3 )
BS_SET_SYS_INFO ( 0, system_information_type_4 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_6 )

BS_SET_SCH ( 0, BSIC, RFN )
BS_SET_ARFCN ( 0, ARFCN_BCCH )
BS_SET_POWER ( 0, -70 )
BS_ON_OFF ( 0, TRUE )

BS_SET_SYS_INFO ( 1, system_information_type_1 )
BS_SET_SYS_INFO ( 1, system_information_type_2 )
BS_SET_SYS_INFO ( 1, system_information_type_3_B )
BS_SET_SYS_INFO ( 1, system_information_type_4_B )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_6_B )

BS_SET_SCH ( 1, BSIC_B, RFN )
BS_SET_ARFCN ( 1, ARFCN_BCCH_B )
BS_SET_POWER ( 1, -60 )
BS_ON_OFF ( 1, TRUE )

AT_SEND ("AT+CFUN=1", "switch on");
AT_SEND ("AT+COPS=0", "automatic registration");

SET_TIMEOUT ( 30000 )

BS_RACH_AWAIT_BEGIN ( 1, channel_request, "MMM007 (1)" )
  BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND ( 1, immediate_assignment, "MMM007 (2)" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT ( 1, location_updating_request_imsi, "MMM007 (3)" )
BS_MSG3_SEND_BEGIN ( 1, location_updating_accept_tmsi,
  "MMM007 (4)" )
  BF_SET_VAL ( lac, LAC_B, "LAI = b" )
BS_MSG3_SEND_END ( )
BS_MSG3_AWAIT ( 1, tmsi_reallocation_complete, "MMM007 (5)" )
BS_MSG3_SEND ( 1, channel_release, "MMM007 (6)" )

ISS_DELAY ( 10000 )

```

History: 18.12.97 DL Initial

### 3.1.8 MMM008: Initialize IUT (2 cells) with attach, Cell B, Authentication

#### Description:

Preamble: None

#### Script:

```

ISS_INIT (4)

BS_SET_SYS_INFO ( 0, system_information_type_1 )
BS_SET_SYS_INFO ( 0, system_information_type_2 )
BS_SET_SYS_INFO ( 0, system_information_type_3_att )
BS_SET_SYS_INFO ( 0, system_information_type_4 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_6 )

BS_SET_SCH ( 0, BSIC, RFN )
BS_SET_ARFCN ( 0, ARFCN_BCCH )
BS_SET_POWER ( 0, -70 )
BS_ON_OFF ( 0, TRUE )

BS_SET_SYS_INFO ( 1, system_information_type_1 )
BS_SET_SYS_INFO ( 1, system_information_type_2 )
BS_SET_SYS_INFO ( 1, system_information_type_3_B_att )
BS_SET_SYS_INFO ( 1, system_information_type_4_B )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_6_B )

BS_SET_SCH ( 1, BSIC_B, RFN )
BS_SET_ARFCN ( 1, ARFCN_BCCH_B )
BS_SET_POWER ( 1, -60 )
BS_ON_OFF ( 1, TRUE )

AT_SEND ("AT+CFUN=1", "switch on");
AT_RECEIVE ("OK", SILENT);
AT_SEND ("AT+COPS=0", "automatic registration");

SET_TIMEOUT ( 30000 )

COMMAND ("MM CONFIG T3212_CNT=6") /* T3212 = 60 sec. - should be 6 min.
!*/

BS_RACH_AWAIT_BEGIN ( 1, channel_request, "MMM008 (1)" )
BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND ( 1, immediate_assignment, "MMM008 (2)" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT ( 1, location_updating_request_imsi, "MMM008 (3)" )
BS_MSG3_SEND_BEGIN ( 1, authentication_request,
"MMM008 (4)" )
BF_SET_VAL ( key_sequence, CKSN_2, "CKSN 2" )
BS_MSG3_SEND_END ( )
BS_MSG3_AWAIT ( 1, authentication_response, "MMM008 (5)" )
BS_MSG3_SEND_BEGIN ( 1, location_updating_accept_tmsi, "5:
Mobile identity =TMSI1 ), LAI = b." )
BF_SET_VAL ( lac, LAC_B, "LAI = b" )
BS_MSG3_SEND_END ( )
BS_MSG3_AWAIT ( 1, tmsi_reallocation_complete, "MMM008 (6)" )
AT_RECEIVE ("OK", SILENT);
BS_MSG3_SEND ( 1, channel_release, "MMM008 (7)" )

```

ISS\_DELAY ( 10000 )

History: 18.12.97 DL Initial

### 3.1.9 MMM009: Initialize IUT (2 cells), Select Cell A, Location Updating

#### Description:

Preamble: None

#### Script:

```

ISS_INIT (4)

BS_SET_SYS_INFO ( 0, system_information_type_1 )
BS_SET_SYS_INFO ( 0, system_information_type_2 )
BS_SET_SYS_INFO ( 0, system_information_type_3_C_att )
BS_SET_SYS_INFO ( 0, system_information_type_4_C )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_6_C )

BS_SET_SCH ( 0, BSIC, RFN )
BS_SET_ARFCN ( 0, ARFCN_BCCH )
BS_SET_POWER ( 0, -60 )
BS_ON_OFF ( 0, TRUE )

BS_SET_SYS_INFO ( 1, system_information_type_1 )
BS_SET_SYS_INFO ( 1, system_information_type_2 )
BS_SET_SYS_INFO ( 1, system_information_type_3_B_att )
BS_SET_SYS_INFO ( 1, system_information_type_4_B )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_6_B )

BS_SET_SCH ( 1, BSIC_B, RFN )
BS_SET_ARFCN ( 1, ARFCN_BCCH_B )
BS_SET_POWER ( 1, -70 )
BS_ON_OFF ( 1, TRUE )

AT_SEND ("AT+CFUN=1", "switch on");
AT_SEND ("AT+COPS=0", "automatic registration");

SET_TIMEOUT ( 30000 )

BS_RACH_AWAIT_BEGIN ( 0, channel_request, "MMM009 (1)" )
  BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND ( 0, immediate_assignment, "MMM009 (2)" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT ( 0, location_updating_request_imsi, "MMM009 (3)" )
BS_MSG3_SEND_BEGIN ( 0, authentication_request,
  "MMM009 (4)" )
  BF_SET_VAL ( key_sequence, CKSN_2, "CKSN 2" )
BS_MSG3_SEND_END ( )
BS_MSG3_AWAIT ( 0, authentication_response, "MMM009 (5)" )
BS_MSG3_SEND_BEGIN ( 0, location_updating_accept_tmsi,
  "MMM009 (6)" )
  BF_SET_VAL ( lac, LAC_C, "LAI = c" )
BS_MSG3_SEND_END ( )
BS_MSG3_AWAIT ( 0, tmsi_reallocation_complete, "MMM009 (7)" )
BS_MSG3_SEND ( 0, channel_release, "MMM009 (8)" )

ISS_DELAY ( 10000 )

```

History: 18.12.97 DL Initial

### 3.1.10 MMM010: Initialize IUT (2 cells) with Location Updating, Cell B, HMCC

#### Description:

**Preamble:** None

#### Script:

```

ISS_INIT (4)

BS_SET_SYS_INFO ( 0, system_information_type_1 )
BS_SET_SYS_INFO ( 0, system_information_type_2 )
BS_SET_SYS_INFO ( 0, system_information_type_3_HMCC )
BS_SET_SYS_INFO ( 0, system_information_type_4_HMCC )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_6_HMCC )

BS_SET_SCH ( 0, BSIC, RFN )
BS_SET_ARFCN ( 0, ARFCN_BCCH )
BS_SET_POWER ( 0, -70 )
BS_ON_OFF ( 0, TRUE )

BS_SET_SYS_INFO ( 1, system_information_type_1 )
BS_SET_SYS_INFO ( 1, system_information_type_2 )
BS_SET_SYS_INFO ( 1, system_information_type_3_B_HMCC )
BS_SET_SYS_INFO ( 1, system_information_type_4_B_HMCC )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_6_B_HMCC )

BS_SET_SCH ( 1, BSIC_B, RFN )
BS_SET_ARFCN ( 1, ARFCN_BCCH_B )
BS_SET_POWER ( 1, -60 )
BS_ON_OFF ( 1, TRUE )

AT_SEND ("AT+CFUN=1", "switch on");
AT_RECEIVE ("OK", SILENT);
AT_SEND ("AT+COPS=0", "automatic registration");

SET_TIMEOUT ( 30000 )

BS_RACH_AWAIT_BEGIN ( 1, channel_request, "MMM010 (1)" )
  BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND ( 1, immediate_assignment, "MMM010 (2)" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT ( 1, location_updating_request_imsi, "MMM010 (3)" )
BS_MSG3_SEND ( 1, location_updating_accept_tmsi_B_HMCC, "MMM010 (4)" )
BS_MSG3_AWAIT ( 1, tmsi_reallocation_complete, "MMM010 (5)" )
AT_RECEIVE ("OK", SILENT);
BS_MSG3_SEND ( 1, channel_release, "MMM010 (6)" )

ISS_DELAY ( 10000 )

```

History:	18.12.97	DL	Initial
	18.03.04	HM	CKSN corrected in step (3)

### 3.1.11 MMM011: Initialize IUT (2 cells) with attach, Cell A, Cell B different PLMN

**Description:** Cell 0 is 262 01, Cell 1 is 001 01 (non-NA case)

**Preamble:** None

**Script:**

```
ISS_INIT (4)

BS_SET_SYS_INFO ( 0, system_information_type_1 )
BS_SET_SYS_INFO ( 0, system_information_type_2 )
BS_SET_SYS_INFO ( 0, system_information_type_3_HMCC )
BS_SET_SYS_INFO ( 0, system_information_type_4_HMCC )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_6_HMCC )

BS_SET_SCH ( 0, BSIC, RFN )
BS_SET_ARFCN ( 0, ARFCN_BCCH )
BS_SET_POWER ( 0, -60 )
BS_ON_OFF ( 0, TRUE )

BS_SET_SYS_INFO ( 1, system_information_type_1 )
BS_SET_SYS_INFO ( 1, system_information_type_2 )
BS_SET_SYS_INFO ( 1, system_information_type_3_att_P )
BS_SET_SYS_INFO ( 1, system_information_type_4_P )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_6_P )

BS_SET_SCH ( 1, BSIC_B, RFN )
BS_SET_ARFCN ( 1, ARFCN_BCCH_B2 )
BS_SET_POWER ( 1, -70 )
BS_ON_OFF ( 1, FALSE )
```

History: 18.12.97

DL

Initial

### 3.1.12 MMM012: Initialize IUT (3 cells) with Location Updating, Cell A, HMCC

#### Description:

**Preamble:** None

#### Script:

```

ISS_INIT (4)

BS_SET_SYS_INFO ( 0, system_information_type_1 )
BS_SET_SYS_INFO ( 0, system_information_type_2 )
BS_SET_SYS_INFO ( 0, system_information_type_3_HMCC )
BS_SET_SYS_INFO ( 0, system_information_type_4_HMCC )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_6_HMCC )

BS_SET_SCH ( 0, BSIC, RFN )
BS_SET_ARFCN ( 0, ARFCN_BCCH )
BS_SET_POWER ( 0, -40 )
BS_ON_OFF ( 0, TRUE )

BS_SET_SYS_INFO ( 1, system_information_type_1 )
BS_SET_SYS_INFO ( 1, system_information_type_2 )
BS_SET_SYS_INFO ( 1, system_information_type_3_B_HMCC )
BS_SET_SYS_INFO ( 1, system_information_type_4_B_HMCC )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_6_B_HMCC )

BS_SET_SCH ( 1, BSIC_B, RFN )
BS_SET_ARFCN ( 1, ARFCN_BCCH_B )
BS_SET_POWER ( 1, -50 )
BS_ON_OFF ( 1, TRUE )

BS_SET_SYS_INFO ( 2, system_information_type_1 )
BS_SET_SYS_INFO ( 2, system_information_type_2 )
BS_SET_SYS_INFO ( 2, system_information_type_3_C_HMCC )
BS_SET_SYS_INFO ( 2, system_information_type_4_C_HMCC )
BS_SET_SYS_INFO_SACCH ( 2, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 2, system_information_type_6_C_HMCC )

BS_SET_SCH ( 2, BSIC_C, RFN )
BS_SET_ARFCN ( 2, ARFCN_BCCH_C )
BS_SET_POWER ( 2, -60 )
BS_ON_OFF ( 2, TRUE )

COMMAND          ("MM CONFIG T3212_CNT=6") /* T3212 = 60 sec. - should be 6 min.
                                                    !*/

AT_SEND ("AT+CFUN=1", "switch on");
AT_RECEIVE ("OK", SILENT);
AT_SEND ("AT+COPS=0", "automatic registration");

SET_TIMEOUT      ( 30000 )

BS_RACH_AWAIT_BEGIN ( 0, channel_request, "MMM012 (1)" )
  BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND      ( 0, immediate_assignment, "MMM012 (2)" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT     ( 0, location_updating_request_imsi, "MMM012 (3)" )
BS_MSG3_SEND      ( 0, location_updating_accept_tmsi_A_HMCC, "MMM012 (4)" )

```

```
BS_MSG3_AWAIT      ( 0, tmsi_reallocation_complete, "MMM012 (5)" )
AT_RECEIVE ("OK", SILENT);
BS_MSG3_SEND       ( 0, channel_release,          "MMM012 (6)" )

ISS_DELAY          ( 20000 )
```

History:	18.12.97	DL	Initial
	18.03.04	HM	CKSN corrected in step (3)

### 3.1.13 MMM013: Initialize IUT (1 cell) with attach

**Description:****Preamble:** None**Script:**

```
ISS_INIT          ( 4 )

BS_SET_SYS_INFO  ( 0, system_information_type_1 )
BS_SET_SYS_INFO  ( 0, system_information_type_2 )
BS_SET_SYS_INFO  ( 0, system_information_type_3_att_30 )
BS_SET_SYS_INFO  ( 0, system_information_type_4 )
BS_SET_SYS_INFO_SACCH      ( 0, system_information_type_5 )
BS_SET_SYS_INFO_SACCH      ( 0, system_information_type_6 )

BS_SET_SCH        ( 0,BSIC , RFN )
BS_SET_ARFCN      ( 0,ARFCN_BCCH )
BS_SET_POWER      ( 0,-60 )
BS_ON_OFF         ( 0,TRUE )
```

History: 18.12.97 DL Initial

### 3.1.14 MMM014: Initialize IUT (2 cells) with Location Updating, Cell B, HMCC

**Description:****Preamble:** None**Script:**

```
ISS_INIT (4)

BS_SET_SYS_INFO ( 0, system_information_type_1 )
BS_SET_SYS_INFO ( 0, system_information_type_2 )
BS_SET_SYS_INFO ( 0, system_information_type_3 )
BS_SET_SYS_INFO ( 0, system_information_type_4 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_6 )

BS_SET_SCH ( 0, BSIC, RFN )
BS_SET_ARFCN ( 0, 45 )
BS_SET_POWER ( 0, -70 )
BS_ON_OFF ( 0, FALSE )

BS_SET_SYS_INFO ( 1, system_information_type_1 )
BS_SET_SYS_INFO ( 1, system_information_type_2_B_XX )
BS_SET_SYS_INFO ( 1, system_information_type_3_B_HMCC_XX )
BS_SET_SYS_INFO ( 1, system_information_type_4_B_HMCC )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_5_B_XX )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_6_B_HMCC )

BS_SET_SCH ( 1, BSIC_B, RFN )
BS_SET_ARFCN ( 1, ARFCN_BCCH_B )
BS_SET_POWER ( 1, -60 )
BS_ON_OFF ( 1, TRUE )

SET_TIMEOUT (30000)
```

History:	18.12.97	DL	Initial
	22.01.01	HM	Revised

### 3.1.15 MMM015: Initialize IUT (2 cells) with Location Updating, Cell B

#### Description:

Preamble: None

#### Script:

```

ISS_INIT (4)

BS_SET_SYS_INFO ( 0, system_information_type_1 )
BS_SET_SYS_INFO ( 0, system_information_type_2 )
BS_SET_SYS_INFO ( 0, system_information_type_3_015 )
BS_SET_SYS_INFO ( 0, system_information_type_4_015 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_6 )

BS_SET_SCH ( 0, BSIC, RFN )
BS_SET_ARFCN ( 0, ARFCN_BCCH )
BS_SET_POWER ( 0, -70 )
BS_ON_OFF ( 0, TRUE )

BS_SET_SYS_INFO ( 1, system_information_type_1 )
BS_SET_SYS_INFO ( 1, system_information_type_2 )
BS_SET_SYS_INFO ( 1, system_information_type_3_B_015 )
BS_SET_SYS_INFO ( 1, system_information_type_4_B_015 )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_6_B )

BS_SET_SCH ( 1, BSIC_B, RFN )
BS_SET_ARFCN ( 1, ARFCN_BCCH_B )
BS_SET_POWER ( 1, -60 )
BS_ON_OFF ( 1, TRUE )

AT_SEND ("AT+CFUN=1", "switch on");
AT_RECEIVE ("OK", SILENT);
AT_SEND ("AT+COPS=0", "automatic registration");

SET_TIMEOUT ( 30000 )

BS_RACH_AWAIT_BEGIN ( 1, channel_request, "MMM015 (1)" )
  BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND ( 1, immediate_assignment, "MMM015 (2)" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT ( 1, location_updating_request_imsi, "MMM015 (3)" )
BS_MSG3_SEND_BEGIN ( 1, location_updating_accept_tmsi,
  "MMM015 (4)" )
  BF_SET_VAL ( lac, LAC_B, "LAI = b" )
BS_MSG3_SEND_END ( )
BS_MSG3_AWAIT ( 1, tmsi_reallocation_complete, "MMM015 (5)" )
AT_RECEIVE ("OK", SILENT);
BS_MSG3_SEND ( 1, channel_release, "MMM015 (6)" )

ISS_DELAY ( 10000 )

```

History: 18.12.97 DL Initial

### 3.1.16 MMM016: Initialize IUT (2 cells) with attach, Cell , Cell B is forbidden

**Description:** 2 cells available, none of them being the HPLMN.

**Preamble:** MMM011

**Script:**

```

SET_TIMEOUT          ( 30000 )

COMMAND              ("MM CONFIG T3212_CNT=6") /* T3212 = 60 sec. - should be 6 min.
                                                    !*/

BS_SET_POWER ( 1, -50 )
BS_SET_POWER ( 0, -70 )
BS_ON_OFF (1, TRUE)

AT_SEND ("AT+CFUN=1", "switch on");
AT_RECEIVE ("OK", SILENT);
AT_SEND ("AT+COPS=0", "automatic registration");
/*
 * Add Cell B to Forbidden PLMN List
 */
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "P1: Establishment
                      cause: Location updating." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "P2" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT     ( 1, location_updating_request_imsi, "P3")
BS_MSG3_SEND_BEGIN ( 1, location_updating_reject, "P4:
                    Reject cause = PLMN not allowed." )
    BF_SET_VAL      ( reject_cause, 0x0B, "PLMN not allowed" )
BS_MSG3_SEND_END( )
BS_MSG3_SEND      ( 1, channel_release, "P5: After the sending of this message,
                    the SS waits for the disconnection of
                    the main signalling link." )

AT_SEND ("ABORT\r\n", "Abort registration");
AT_RECEIVE ("OK", SILENT);

AT_SEND ("AT+CFUN=0", "switch off");
AT_RECEIVE ("OK", SILENT);

BS_SET_POWER ( 1, -70 )
BS_SET_POWER ( 0, -50 )
BS_ON_OFF (1, TRUE)

NOT_IMPLEMENTED     ( "P6: The MS is activated in automatic
                      network selection mode." )

AT_SEND ("AT+CFUN=1", "switch on");
AT_SEND ("AT+COPS=0", "automatic registration");

BS_RACH_AWAIT_BEGIN ( 0, channel_request, "P7:" )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND      ( 0, immediate_assignment, "P8" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 );

```

```

BS_MSG3_AWAIT_BEGIN          ( 0, location Updating request IMSI,
                               "P9")
    BF_SET_VAL                ( key_sequence, 7, "CKSN = reserved" )
    BF_SET_VAL                ( lac, 0xffff, "LAI deleted" )
BS_MSG3_AWAIT_END ( )
BS_MSG3_SEND                 ( 0, location Updating accept_A_HMCC, "P10")
BS_MSG3_SEND                 ( 0, channel_release, "P11: After the sending of this message,
                               the SS waits for the disconnection of
                               the main signalling link." )

ISS_DELAY                    ( 3000 )

```

History:	18.12.97	DL	Initial
	18.03.04	HM	CKSN corrected in step P3

### 3.1.17 MMM017: Initialize IUT (2 cells) with attach, Cell A, Cell B different PLMN

**Description:**

**Preamble:** None

**Script:**

```
ISS_INIT (4)

BS_SET_SYS_INFO ( 0, system_information_type_1 )
BS_SET_SYS_INFO ( 0, system_information_type_2 )
BS_SET_SYS_INFO ( 0, system_information_type_3_HMCC_2 )
BS_SET_SYS_INFO ( 0, system_information_type_4_HMCC )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_6_HMCC )

BS_SET_SCH ( 0, BSIC, RFN )
BS_SET_ARFCN ( 0, ARFCN_BCCH )
BS_SET_POWER ( 0, -60 )
BS_ON_OFF ( 0, TRUE )

BS_SET_SYS_INFO ( 1, system_information_type_1 )
BS_SET_SYS_INFO ( 1, system_information_type_2 )
BS_SET_SYS_INFO ( 1, system_information_type_3_att_P )
BS_SET_SYS_INFO ( 1, system_information_type_4_P )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_6_P )

BS_SET_SCH ( 1, BSIC_B, RFN )
BS_SET_ARFCN ( 1, ARFCN_BCCH_B2 )
BS_SET_POWER ( 1, -70 )
BS_ON_OFF ( 1, FALSE )
```

History:

18.12.97

DL

Initial

### 3.1.18 MMM018: Initialize IUT (2 cells) with attach, Cell A, Cell B different PLMN

**Description:****Preamble:** None**Script:**

```
ISS_INIT (4)

BS_SET_SYS_INFO ( 0, system_information_type_1 )
BS_SET_SYS_INFO ( 0, system_information_type_2 )
BS_SET_SYS_INFO ( 0, system_information_type_3_B_12 )
BS_SET_SYS_INFO ( 0, system_information_type_4_B_12 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_6_B_12 )

BS_SET_SCH ( 0, BSIC, RFN )
BS_SET_ARFCN ( 0, ARFCN_BCCH )
BS_SET_POWER ( 0, -60 )
BS_ON_OFF ( 0, TRUE )

BS_SET_SYS_INFO ( 1, system_information_type_1 )
BS_SET_SYS_INFO ( 1, system_information_type_2 )
BS_SET_SYS_INFO ( 1, system_information_type_3_att_P_2 )
BS_SET_SYS_INFO ( 1, system_information_type_4_P_2 )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_6_P )

BS_SET_SCH ( 1, BSIC_B, RFN )
BS_SET_ARFCN ( 1, ARFCN_BCCH_B )
BS_SET_POWER ( 1, -70 )
BS_ON_OFF ( 1, FALSE )
```

**History:**

18.12.97

DL

Initial

### 3.1.19 MMM019: Initialize IUT (2 cells) with attach, Cell B, Authentication

#### Description:

Preamble: None

#### Script:

```

ISS_INIT (4)

BS_SET_SYS_INFO ( 0, system_information_type_1 )
BS_SET_SYS_INFO ( 0, system_information_type_2 )
BS_SET_SYS_INFO ( 0, system_information_type_3_att )
BS_SET_SYS_INFO ( 0, system_information_type_4 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_6 )

BS_SET_SCH ( 0, BSIC, RFN )
BS_SET_ARFCN ( 0, ARFCN_BCCH )
BS_SET_POWER ( 0, -70 )
BS_ON_OFF ( 0, TRUE )

BS_SET_SYS_INFO ( 1, system_information_type_1 )
BS_SET_SYS_INFO ( 1, system_information_type_2 )
BS_SET_SYS_INFO ( 1, system_information_type_3_B_att )
BS_SET_SYS_INFO ( 1, system_information_type_4_B )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_6_B )

BS_SET_SCH ( 1, BSIC_B, RFN )
BS_SET_ARFCN ( 1, ARFCN_BCCH_B )
BS_SET_POWER ( 1, -60 )
BS_ON_OFF ( 1, TRUE )

AT_SEND ("AT+CFUN=1", "switch on");
AT_SEND ("AT+COPS=0", "automatic registration");

SET_TIMEOUT ( 40000 )

BS_RACH_AWAIT_BEGIN ( 1, channel_request, "MMM019 (1)" )
  BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND ( 1, immediate_assignment, "MMM019 (2)" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT ( 1, location_updating_request_imsi, "MMM019 (3)" )
BS_MSG3_SEND_BEGIN ( 1, authentication_request,
  "MMM019 (4)" )
  BF_SET_VAL ( key_sequence, CKSN_2, "CKSN 2" )
BS_MSG3_SEND_END ( )
BS_MSG3_AWAIT ( 1, authentication_response, "MMM019 (5)" )
BS_MSG3_SEND_BEGIN ( 1, location_updating_accept_tmsi, "5:
  Mobile identity =TMSI1 ), LAI = b." )
  BF_SET_VAL ( lac, LAC_B, "LAI = b" )
BS_MSG3_SEND_END ( )
BS_MSG3_AWAIT ( 1, tmsi_reallocation_complete, "MMM019 (6)" )
BS_MSG3_SEND ( 1, channel_release, "MMM019 (7)" )

ISS_DELAY ( 10000 )

```

History: 18.12.97

DL

Initial

### 3.1.20 MMM020: Initialize IUT (3 cells) with Location Updating, VPLMN + HPLMN

**Description:** Cell A, B VPLMN. Cell C HPLM. Cell C is the weakest cell.

**Preamble:** None

**Script:**

```

ISS_INIT (4)

BS_SET_SYS_INFO ( 0, system_information_type_1 )
BS_SET_SYS_INFO ( 0, system_information_type_2 )
BS_SET_SYS_INFO ( 0, system_information_type_3_HMCC )
BS_SET_SYS_INFO ( 0, system_information_type_4_HMCC )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_6_HMCC )

BS_SET_SCH ( 0, BSIC, RFN )
BS_SET_ARFCN ( 0, ARFCN_BCCH )
BS_SET_POWER ( 0, -70 )
BS_ON_OFF ( 0, TRUE )

BS_SET_SYS_INFO ( 1, system_information_type_1 )
BS_SET_SYS_INFO ( 1, system_information_type_2 )
BS_SET_SYS_INFO ( 1, system_information_type_3_B_HMCC )
BS_SET_SYS_INFO ( 1, system_information_type_4_B_HMCC )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_6_B_HMCC )

BS_SET_SCH ( 1, BSIC_B, RFN )
BS_SET_ARFCN ( 1, ARFCN_BCCH_B )
BS_SET_POWER ( 1, -60 )
BS_ON_OFF ( 1, TRUE )

BS_SET_SYS_INFO ( 2, system_information_type_1 )
BS_SET_SYS_INFO ( 2, system_information_type_2 )
BS_SET_SYS_INFO ( 2, system_information_type_3_att )
BS_SET_SYS_INFO ( 2, system_information_type_4 )
BS_SET_SYS_INFO_SACCH ( 2, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 2, system_information_type_6 )

BS_SET_SCH ( 2, BSIC, RFN )
BS_SET_ARFCN ( 2, ARFCN_BCCH_C )
BS_SET_POWER ( 2, -80 )
BS_ON_OFF ( 2, TRUE )

AT_SEND ("AT+CFUN=1", "switch on");
AT_SEND ("AT+COPS=0", "automatic registration");

SET_TIMEOUT ( 30000 )

BS_RACH_AWAIT_BEGIN ( 2, channel_request, "MMM003 (1)" )
  BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 2, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 2, 0 )
BS_MSG3_SEND ( 2, immediate_assignment, "MMM003 (3)" )
BS_CONFIG_CHANNEL ( 2, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT ( 2, location_updating_request_imsi_att, "MMM003 (3)" )
BS_MSG3_SEND ( 2, location_updating_accept_tmsi, "MMM003 (4)" )
BS_MSG3_SEND ( 2, channel_release, "MMM003 (5)" )

ISS_DELAY ( 10000 )

```

History:            26.02.03                            HM                            Initial

### 3.1.21 MMM021: Initialize IUT (4 cells) with Location Updating, VPLMN + HPLMN

**Description:** Cell A, B VPLMN. Cell C, D HPLM. Cell D is a cell of the HPLMN which has initially a C2 of -127. This preamble is used to reproduce the issue #11860 seen in the field.

**Preamble:** None

**Script:**

```
ISS_INIT (4)

BS_SET_SYS_INFO ( 0, system_information_type_1 )
BS_SET_SYS_INFO ( 0, system_information_type_2 )
BS_SET_SYS_INFO ( 0, system_information_type_3_HMCC )
BS_SET_SYS_INFO ( 0, system_information_type_4_HMCC )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_6_HMCC )

BS_SET_SCH ( 0, BSIC, RFN )
BS_SET_ARFCN ( 0, ARFCN_BCCH )
BS_SET_POWER ( 0, -70 )
BS_ON_OFF ( 0, TRUE )

BS_SET_SYS_INFO ( 1, system_information_type_1 )
BS_SET_SYS_INFO ( 1, system_information_type_2 )
BS_SET_SYS_INFO ( 1, system_information_type_3_B_HMCC )
BS_SET_SYS_INFO ( 1, system_information_type_4_B_HMCC )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_6_B_HMCC )

BS_SET_SCH ( 1, BSIC_B, RFN )
BS_SET_ARFCN ( 1, ARFCN_BCCH_B )
BS_SET_POWER ( 1, -60 )
BS_ON_OFF ( 1, TRUE )

BS_SET_SYS_INFO ( 2, system_information_type_1 )
BS_SET_SYS_INFO ( 2, system_information_type_2 )
BS_SET_SYS_INFO ( 2, system_information_type_3_att )
BS_SET_SYS_INFO ( 2, system_information_type_4 )
BS_SET_SYS_INFO_SACCH ( 2, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 2, system_information_type_6 )

BS_SET_SCH ( 2, BSIC, RFN )
BS_SET_ARFCN ( 2, ARFCN_BCCH_C )
BS_SET_POWER ( 2, -120 )
BS_ON_OFF ( 2, FALSE )

BS_SET_SYS_INFO ( 3, system_information_type_1 )
BS_SET_SYS_INFO ( 3, system_information_type_2 )
BS_SET_SYS_INFO ( 3, system_information_type_3_att_no_reselect )
BS_SET_SYS_INFO ( 3, system_information_type_4 )
BS_SET_SYS_INFO_SACCH ( 3, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 3, system_information_type_6 )

BS_SET_SCH ( 3, BSIC, RFN )
BS_SET_ARFCN ( 3, ARFCN_BCCH_D )
BS_SET_POWER ( 3, -120 )
BS_ON_OFF ( 3, FALSE )

AT_SEND ("AT+CFUN=1", "switch on");
AT_RECEIVE ("OK", SILENT );
AT_SEND ("AT+COPS=0", "automatic registration");
```

```

/*
 * Enter the foreign PLMN into the forbidden list
 */
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "1: Establishment
                      cause: Location updating." )
    BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND ( 1, immediate_assignment, "2" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT ( 1, location_updating_request_imsi, "3" )
BS_MSG3_SEND_BEGIN ( 1, location_updating_reject, "4:
                    Reject cause IE is Roaming not allowed
                    in this location area." )
    BF_SET_VAL ( reject_cause, 0x0B, "PLMN not allowed" )
BS_MSG3_SEND_END( )
BS_MSG3_SEND ( 1, channel_release, "5: After the sending of this message,
                    the SS waits for the disconnection of
                    the main signalling link." )

AT_RECEIVE ("ERROR", "6" );

AT_SEND ("AT+CREG=1", "enable network registration unsolicited result code +CREG:");
AT_RECEIVE ("OK", SILENT );

ISS_DELAY (3000)

/*
 * Switch on HPLMN
 */
BS_SET_POWER ( 2, -80 )
BS_ON_OFF ( 2, TRUE )

SET_TIMEOUT ( 30000 )

BS_RACH_AWAIT_BEGIN ( 2, channel_request, "7" )
    BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 2, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 2, 0 )
BS_MSG3_SEND ( 2, immediate_assignment, "8" )
BS_CONFIG_CHANNEL ( 2, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT ( 2, location_updating_request_del, "9" )
BS_MSG3_SEND ( 2, location_updating_accept_tmsi, "10" )
AT_RECEIVE (" +CREG: 1", "Idle updated on HPLMN" );
BS_MSG3_SEND ( 2, channel_release, "11" )

ISS_DELAY ( 3000 )

```

History:	28.08.03	HM	Initial
	18.03.04	HM	CKSN corrected in step 3

### 3.1.22 MMM067: Initialize IUT (2 cells) with attach, Cell A, Cell B different Band

**Description:**

**Preamble:** None

**Script:**

```
ISS_INIT (4)

BS_SET_SYS_INFO ( 0, system_information_type_1 )
BS_SET_SYS_INFO ( 0, system_information_type_2 )
BS_SET_SYS_INFO ( 0, system_information_type_3_att_12 )
BS_SET_SYS_INFO ( 0, system_information_type_4 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_6 )

BS_SET_SCH ( 0, BSIC, RFN )
BS_SET_ARFCN ( 0, ARFCN_BCCH )
BS_SET_POWER ( 0, -60 )
BS_ON_OFF ( 0, TRUE )

BS_SET_SYS_INFO ( 1, system_information_type_1 )
BS_SET_SYS_INFO ( 1, system_information_type_2 )
BS_SET_SYS_INFO ( 1, system_information_type_3_att_12 )
BS_SET_SYS_INFO ( 1, system_information_type_4 )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_6 )

BS_SET_SCH ( 1, BSIC_B, RFN )
BS_SET_ARFCN ( 1, ARFCN_BCCH_1800 )
BS_SET_POWER ( 1, -70 )
BS_ON_OFF ( 1, FALSE )
```

History:

18.12.97

DL

Initial

## 3.2 TMSI reallocation

### 3.2.1 MMM025: §26.7.1, TMSI reallocation

Description: (Ref.: [2], §26.7.1)

Preamble: MMM007

Script:

```

SET_TIMEOUT          ( 30000 )

BS_CONFIG_CHANNEL ( 1, PCH, UNACK, SAPI_0 )
BS_MSG3_SEND       ( 1, paging_request_type_1, "1: Mobile identity = TMSI1." )
BS_RACH_AWAIT      ( 1, channel_request,      "2: Est Cause: Answer to paging." )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND       ( 1, immediate_assignment, "3" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 );
BS_MSG3_AWAIT      ( 1, paging_response,      "4" )
BS_MSG3_SEND       ( 1, ciphering_mode_command, "5: The SS starts deciphering."
)
BS_MSG3_AWAIT      ( 1, ciphering_mode_complete, "6: The SS starts enciphering."
)
BS_MSG3_SEND_BEGIN ( 1, tmsi_reallocation_command_tmsi,
"7: Mob identity = new TMSI (TMSI2 )." )
    BF_SET_VAL      ( lac, LAC_B, "location area identification cell B" )
    BF_SET_VAL      ( tmsi_3, 0x57, "tmsi 3 changed: 0x56 -> 0x57" )
    BF_SET_VAL      ( tmsi_4, 0x08, "tmsi 4 changed: 0x78 -> 0x08" )
BS_MSG3_SEND_END( )
BS_MSG3_AWAIT      ( 1, tmsi_reallocation_complete, "(8: Mob id = new TMSI (TMSI2 )." )
BS_MSG3_SEND       ( 1, channel_release,      "9: disc of the main signalling link." )

NOT_IMPLEMENTED    ( "10a: MS is switched off for 10 second."
)

AT_SEND ("AT+CFUN=0", "switch off");
ISS_DELAY (10000);
AT_SEND ("AT+CFUN=1", "switch on");
AT_SEND ("AT+COPS=0", "automatic registration");
ISS_DELAY (20000 )
BS_CONFIG_CHANNEL ( 1, PCH, UNACK, SAPI_0 )
BS_MSG3_SEND_BEGIN ( 1, paging_request_type_1, "13: Mobile
identity = TMSI2." )
    BF_SET_VAL      ( tmsi_3, 0x57, "tmsi 3 changed: 0x56 -> 0x57" )
    BF_SET_VAL      ( tmsi_4, 0x08, "tmsi 4 changed: 0x78 -> 0x08" )
BS_MSG3_SEND_END( )
BS_RACH_AWAIT      ( 1, channel_request,      "14: Est Cause: Answer to paging." )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND       ( 1, immediate_assignment, "15" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 );
BS_MSG3_AWAIT_BEGIN ( 1, paging_response, "16: Mobile
identity =TMSI2" )
    BF_SET_VAL      ( tmsi_3, 0x57, "tmsi 3 changed: 0x56 -> 0x57" )
    BF_SET_VAL      ( tmsi_4, 0x08, "tmsi 4 changed: 0x78 -> 0x08" )
BS_MSG3_SEND_END( )
BS_MSG3_SEND       ( 1, channel_release,      "17: The disconnection of the main
signalling link. The following messages
are sent and shall be received on cell
A" )
NOT_IMPLEMENTED    ( "18: The RF level of cell B is lowered
until the MS selects cell A. The RF

```

```

level of cell B is set sufficiently low
to ensure that cell B is not suitable
as defined in GSM 05.08 section 6.6.2."
)

BS_SET_POWER ( 1, -120 )
BS_SET_POWER ( 0, -60 )

SET_TIMEOUT (30000);
BS_RACH_AWAIT_BEGIN ( 0, channel_request,      "19: Establishment cause: Location
    updating." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND      ( 0, immediate_assignment, "20" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 );
BS_MSG3_AWAIT_BEGIN ( 0, location_updating_request,      "21:
    location updating type = normal,
    ciphering key sequence number = CKSN,
    LAI = b, mobile identity = TMSI2." )

BF_SET_VAL      ( tmsi_3, 0x57,      "tmsi 3" )
    BF_SET_VAL      ( tmsi_4, 0x08,      "tmsi 4" )
    BF_SET_VAL      ( lac, LAC_B,      "LAI = b" )
BS_RACH_AWAIT_END( )
BS_MSG3_SEND      ( 0, tmsi_reallocation_command_tmsi,      "22: TMSI = TMSI1" )
BS_MSG3_AWAIT      ( 0, tmsi_reallocation_complete,      "23" )
BS_MSG3_SEND      ( 0, location_updating_accept,      "24: This message does not
    contain the optional Mobile Identity
    field." )

BS_MSG3_SEND      ( 0, channel_release,      "25: After the sending of this message,
    the SS waits for the disconnection of
    the main signalling link. The SS waits
    an amount of time which is enough to
    guarantee that the MS is idle." )

ISS_DELAY (5000);

BS_CONFIG_CHANNEL ( 0, PCH, UNACK, SAPI_0 )
BS_MSG3_SEND      ( 0, paging_request_type_1,      "26: Mobile identity IE contains the
    new TMSI (= TMSI1 )." )
BS_RACH_AWAIT      ( 0, channel_request,      "27: Establishment cause: Answer to
    paging." )

BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND      ( 0, immediate_assignment, "28" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 );
BS_MSG3_AWAIT      ( 0, paging_response,      "29: Mob ID with new TMSI(= TMSI1 )." )
BS_MSG3_SEND      ( 0, channel_release,      "30: disc of the main signalling link."
    )

History:          28.11.97          DL          Initial
                  25.01.02          HM          Revised

```

### 3.3 Authentication

#### 3.3.1 MMM026: Authentication accepted

**Description:** The MS is paged. After the MS has sent a PAGING RESPONSE message to the SS, the SS initiates an authentication procedure and checks the value SRES sent by the MS in the AUTHENTICATION RESPONSE message. The channel is released. The MS is paged and the SS checks the value of the ciphering key sequence number sent by the MS in the PAGING RESPONSE message. (Ref.: [2], §26.7.2.1)

**Preamble:** MMM004

**Script:**

```

SET_TIMEOUT          ( 30000 )

BS_CONFIG_CHANNEL ( 0, PCH, UNACK, SAPI_0 )
BS_MSG3_SEND       ( 0, paging_request_type_1_imsi, "1" )
BS_RACH_AWAIT      ( 0, channel_request, "2: Establishment Cause = Answer to
                    paging." )

BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND       ( 0, immediate_assignment, "3" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 );
BS_MSG3_AWAIT      ( 0, paging_response_imsi, "4: CKSN = CKSN1" )

BS_MSG3_SEND_BEGIN ( 0, authentication_request, "5:
                    The SS initiates authentication
                    withCKSN2 different from CKSN1." )

    BF_SET_VAL      ( key_sequence, CKSN_2, "CKSN 2" )
BS_MSG3_SEND_END( )
BS_MSG3_AWAIT      ( 0, authentication_response, "6: Auth. parameter SRES IE
                    shall be bit exact with the value as
                    produced by the authentication
                    algorithm." )

BS_MSG3_SEND       ( 0, channel_release, "7: After the sending of this message,
                    the SS waits for the disconnection of
                    the main signalling link. The SS waits
                    an amount of time which is enough to
                    guarantee that the MS is in service." )

ISS_DELAY          ( 20000 )
BS_CONFIG_CHANNEL ( 0, PCH, UNACK, SAPI_0 )
BS_MSG3_SEND       ( 0, paging_request_type_1_imsi, "8" )
BS_RACH_AWAIT      ( 0, channel_request, "9: Establishment Cause = Answer to
                    paging." )

BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND       ( 0, immediate_assignment, "10" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 );

BS_MSG3_AWAIT_BEGIN ( 0, paging_response_imsi, "11:
                    Ciphering key sequence number shall be
                    the same as the value that was sent in
                    the last AUTHENTICATION REQUEST message
                    (= CKSN2 )." )

    BF_SET_VAL      ( key_sequence, CKSN_2, "CKSN 2" )
BS_MSG3_AWAIT_END( )
BS_MSG3_SEND       ( 0, channel_release, "12: After the sending of this message,
                    the SS waits for the disconnection of
                    the main signalling link." )

```

History: 19.11.97

DL

Initial

### 3.3.2 MMM027: §26.7.2.2, Authentication rejected

**Description:** The SS rejects an authentication. The channel is released. The SS checks that the MS has entered the state MM IDLE substate NO IMSI, i.e. does not perform normal location updating, does not perform periodic updating, does not respond to paging, rejects any requests from CM entities except emergency calls and does not perform IMSI detach if SIM detachment is performed, switch off is performed, or the power is removed, depending on the MS (see PICS/PIXIT).(Ref.: [2], §26.7.2.2)

**Preamble:** MMM008

**Script:**

```

SET_TIMEOUT          ( 30000 )

NOT_IMPLEMENTED      (
    "The following messages are sent and
    shall be received on cell B." )

BS_CONFIG_CHANNEL   ( 1, PCH, UNACK, SAPI_0 )
BS_MSG3_SEND        ( 1, paging_request_type_1, "1" )
BS_RACH_AWAIT       ( 1, channel_request,
    "2: Establishment Cause = Answer to
    paging." )

BS_CONFIG_CHANNEL   ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND        ( 1, immediate_assignment, "3" )
BS_CONFIG_CHANNEL   ( 1, SDCCH, ACK, SAPI_0 );
BS_MSG3_AWAIT_BEGIN ( 1, paging_response, "4: Ciphering key
    sequence number shall be the same as
    the value that was sent in the last
    AUTHENTICATION REQUEST message (= CKSN2
    )." )

    BF_SET_VAL       ( key_sequence, CKSN_2, "CKSN 2" )
BS_MSG3_AWAIT_END   ( )

BS_MSG3_SEND_BEGIN  ( 1, authentication_request, "5" )
    BF_SET_VAL       ( key_sequence, CKSN_2, "CKSN 2" )
BS_MSG3_AWAIT_END   ( )
BS_MSG3_AWAIT       ( 1, authentication_response, "6" )
BS_MSG3_SEND        ( 1, authentication_reject, "7" )
BS_MSG3_SEND        ( 1, channel_release,
    "8: After the sending of this message,
    the SS waits for the disconnection of
    the main signalling link." )

ISS_DELAY           ( 10000 )
BS_CONFIG_CHANNEL   ( 1, PCH, UNACK, SAPI_0 )
BS_MSG3_SEND        ( 1, paging_request_type_1, "9: The MS is paged in cell B. Mobile
    identity IE contains TMSI." )

NOT_IMPLEMENTED      (
    "10: The MS shall ignore this message.
    This is verified during 3 seconds." )

ISS_DELAY           ( 3000 )
NOT_IMPLEMENTED      (
    "11: The SS waits for at least for 15
    s." )

ISS_DELAY           ( 15000 )
NOT_IMPLEMENTED      (
    "12: A MO CM connection is attempted." )
AT_SEND ("ATD6969554;", "dial");
NOT_IMPLEMENTED      (
    "13: The MS shall not initiate an RR
    connection establishment on cell A or
    cell B. This is checked during 3
    seconds." )

ISS_DELAY           ( 3000 )
NOT_IMPLEMENTED      (
    "14: If the MS supports speech (see PICS
    ), an emergency call is attempted." )

AT_SEND ("ATD112;", "dial emergency number");

```

```

BS_RACH_AWAIT_BEGIN ( 1, channel_request, "15: Establishment
                    cause: Emergency call." )
    BF_SET_VAL ( establishment_cause, M3(1,0,1) , "Emergency call" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND ( 1, immediate_assignment, "16" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 );
BS_MSG3_AWAIT ( 1, cm_service_request_ec, "17: CM service type: Emergency call
                    establishment. Mobile identity: type of
                    identity is set to IMEI." )

BS_MSG3_SEND ( 1, cm_service_accept, "18" )
BS_MSG3_AWAIT ( 1, emergency_setup, "19" )
BS_MSG3_SEND ( 1, release_complete_to_ms, "20: Cause = unassigned number."
                )
BS_MSG3_SEND ( 1, channel_release, "21: After the sending of this message,
                    the SS waits for the disconnection of
                    the main signalling link. The following
                    messages are sent and shall be received
                    on cell A." )

NOT_IMPLEMENTED ( "22: The RF levels are changed to make
                    the MS reselect the cell A." )

BS_SET_POWER ( 1, -120 )
BS_SET_POWER ( 0, -50 )
ISS_DELAY ( 30000 )
NOT_IMPLEMENTED ( "23: The MS performs cell reselection
                    according to procedure as specified in
                    GSM 05.08 (this however is not checked
                    until step 29) . The MS shall not
                    initiate an RR connection establishment
                    on cell A or on cell B." )

NOT_IMPLEMENTED ( "24: The SS waits at least 7 minutes for
                    a possible periodic updating." )
NOT_IMPLEMENTED ( "25: The MS shall not initiate an RR
                    connection establishment on cell A or
                    on cell B." )
NOT_IMPLEMENTED ( "26: If possible (see PICS ) SIM
                    detachment is performed. Otherwise if
                    possible (see PICS ) switch off is
                    performed. Otherwise the power is
                    removed." )

AT_SEND ("AT+CFUN=0", "switch off");
NOT_IMPLEMENTED ( "27: The MS shall not initiate an RR
                    connection establishment on cell A or
                    on cell B. This is checked during 3
                    seconds." )

ISS_DELAY ( 15000 )
NOT_IMPLEMENTED ( "28: Depending on what has been
                    performed in step 26 the MS is brought
                    back to operation." )

AT_SEND ("AT+CFUN=1", "switch on");
AT_SEND ("AT+COPS=0", "automatic registration");

BS_RACH_AWAIT_BEGIN ( 0, channel_request, "29: Establishment
                    cause: Location updating." )
    BF_SET_VAL ( establishment_cause, M3(0,0,0) , "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND ( 0, immediate_assignment, "30" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 );

```

```
BS_MSG3_AWAIT      ( 0, location Updating request del,      "31: location updating type
                    = normal, CKSN = no key available,
                    Mobile Identity = IMSI, LAI = deleted
                    LAI (the MCC and MNC hold the previous
                    values, the LAC is coded FFFE )." )
BS_MSG3_SEND       ( 0, authentication request,      "32: CKSN = CKSN1." )
BS_MSG3_AWAIT      ( 0, authentication response,    "33" )
BS_MSG3_SEND       ( 0, location Updating accept tmsi, "34: Mobile Identity = TMSI." )
BS_MSG3_AWAIT      ( 0, tmsi reallocation complete, "35" )
BS_MSG3_SEND       ( 0, channel release,           "36: After the sending of this message,
                    the SS waits for the disconnection of
                    the main signalling link." )
```

History:            19.11.97                            DL                            Initial

### 3.4 General Identification

#### 3.4.1 MMM031: §26.7.2.3.1, Identification - Test 1

**Description:** The SS requests identity information from the MS:  
 - IMSI in non ciphering mode,  
 - allocated TMSI in non ciphering mode,  
 - IMEI in ciphering mode. (Ref.: [2], §26.7.2.3.1)

**Preamble:** MMM007

**Script:**

```

SET_TIMEOUT          ( 30000 )

BS_CONFIG_CHANNEL ( 1, PCH, UNACK, SAPI_0 )
BS_MSG3_SEND      ( 1, paging_request_type_1, "1" )
BS_RACH_AWAIT     ( 1, channel_request,      "2: Establishment Cause = Answer to
                    paging." )

BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "3" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 );
BS_MSG3_AWAIT     ( 1, paging_response,      "4" )

BS_MSG3_SEND      ( 1, identity_request_imsi, "5: Identity type IE is IMSI." )
BS_MSG3_AWAIT     ( 1, identity_response_imsi, "6: Mobile identity IE specifies
                    the IMSI of the MS." )

BS_MSG3_SEND      ( 1, identity_request_tmsi, "7: Identity type IE is TMSI." )
BS_MSG3_AWAIT     ( 1, identity_response_tmsi, "8: Mobile identity IE specifies
                    the allocated TMSI of the MS." )

BS_MSG3_SEND      ( 1, ciphering_mode_command, "9" )
BS_MSG3_AWAIT     ( 1, ciphering_mode_complete, "10" )
BS_MSG3_SEND      ( 1, identity_request_imei, "11: Identity type IE is IMEI." )
BS_MSG3_AWAIT     ( 1, identity_response_imei, "12: Mobile identity IE specifies
                    the IMEI stored in the Mobile
                    Equipment." )

BS_MSG3_SEND      ( 1, channel_release,      "13: After the sending of this message,
                    the SS waits for the disconnection of
                    the main signalling link." )

```

**History:**

26.11.97

DL

Initial

### 3.4.2 MMM032: §26.7.2.3.1, Identification - Test 2

**Description:** The SS requests identity information from the MS:

- IMEI in non ciphering mode;
- IMEISV in non ciphering mode.

(Ref.: [2], §26.7.2.3.1)

**Preamble:** MMM007

**Script:**

```

SET_TIMEOUT          ( 30000 )

BS_CONFIG_CHANNEL ( 1, PCH, UNACK, SAPI_0 )
BS_MSG3_SEND      ( 1, paging_request_type_1, "1" )
BS_RACH_AWAIT     ( 1, channel_request,      "2: Establishment Cause = Answer to
                    paging." )

BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "3" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 );
BS_MSG3_AWAIT     ( 1, paging_response,      "4" )

BS_MSG3_SEND      ( 1, identity_request_imei, "5 Identity type IE is IMEI." )
BS_MSG3_AWAIT     ( 1, identity_response_imei, "6: Mobile identity IE specifies
                    the IMEI of the MS." )
BS_MSG3_SEND      ( 1, identity_request_imeisv, "7: Identity type IE is IMEISV."
                    )
BS_MSG3_AWAIT     ( 1, identity_response_imeisv, "8: Mobile identity IE specifies
                    the IMEISV of the MS." )
BS_MSG3_SEND      ( 1, channel_release,      "9: After the sending of this message,
                    the SS waits for the disconnection of
                    the main signalling link." )

```

History: 26.11.97

DL

Initial

### 3.4.3 MMM033: §26.7.3.2, Handling of IMSI shorter than the maximum length

**Description:** The MS is paged with its IMSI. The MS shall answer to paging and include the correct IMSI in the PAGING RESPONSE message. During call establishment, the SS asks for the IMSI of the MS. The MS shall answer by an IDENTITY RESPONSE message including the correct IMSI. During the active phase of the call, the SS stops sending valid SACCH frames. The MS performs call re-establishment. The MS shall include the correct IMSI in the CM RE-ESTABLISHMENT message. A TMSI REALLOCATION COMMAND including a TMSI is sent to the MS. The MS acknowledges this message. The call is release.

The MS is paged with its TMSI. The MS shall answer to paging and includes its TMSI in the PAGING RESPONSE message. During call establishment, the SS sends a TMSI REALLOCATION COMMAND including the IMSI to the MS. The MS shall acknowledge this message. The MS shall erase its TMSI. The call is released.

The MS is switched off or has its power source removed. The MS performs IMSI detach. The MS shall include the correct IMSI in the IMSI DETACH INDICATION message.

The MS is switched on or powered on. The MS performs IMSI attach. The MS shall include the correct IMSI in the LOCATION UPDATING REQUEST message. A TMSI is allocated to the MS.

The LAC of the cell is changed. The MS performs location updating. The SS includes the IMSI in the LOCATION UPDATING ACCEPT message.

A mobile originated CM connection is attempted. The MS shall include the correct IMSI in the CM SERVICE REQUEST message.

(Ref.: [2], §26.7.3.2)

**Preamble:** MMM002

**Script:**

```

SET_TIMEOUT          ( 30000 )

BS_CONFIG_CHANNEL ( 0, PCH, UNACK, SAPI_0 )
BS_MSG3_SEND      ( 0, paging_request_type_1_short_imsi, "1" )
BS_RACH_AWAIT     ( 0, channel_request, "2: Establishment Cause = Answer to
                    paging." )

BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND      ( 0, immediate_assignment, "3" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 );
BS_MSG3_AWAIT     ( 0, paging_response_short_imsi, "4" )

BS_MSG3_SEND      ( 0, identity_request_imsi, "5: identity type IE is IMSI." )
BS_MSG3_AWAIT     ( 0, identity_response_short_imsi, "6: mobile identity IE contains
                    the IMSI of the MS." )

NOT_IMPLEMENTED    ( "7: The call is established using the
                    sequence of the generic terminating
                    call set-up procedure." )

BS_MSG3_SEND (0,authentication_request, "7a");
BS_MSG3_AWAIT(0,authentication_response, "7b");
BS_MSG3_SEND (0,ciphering_mode_command, "7c");
BS_MSG3_AWAIT(0,ciphering_mode_complete, "7d");
BS_MSG3_SEND (0,setup, "7e");
BS_MSG3_AWAIT(0,call_confirmed, "7f");
BS_MSG3_SEND (0,assignment_command, "7g");
BS_CONFIG_CHANNEL (0, FACCH, 1, SAPI_0);
BS_MSG3_AWAIT(0,assignment_complete, "7h");
BS_MSG3_AWAIT(0,alerting, "7i");
AT_SEND ("ATA","Hook Off");
BS_MSG3_AWAIT (0,connect, "7j");
BS_MSG3_SEND (0,connect_acknowledge, "7k");
ISS_DELAY (20000);

```

```

NOT_IMPLEMENTED ( "8: The SS stops sending valid SACCH
                  frames." )
BS_SET_ERROR ( 0, 4 ); /* Radio Link Failure */

BS_RACH_AWAIT_BEGIN ( 0, channel_request, "9:
                  Establishment Cause = reest." )
    BF_SET_VAL ( establishment_cause, M3(1,1,0), "Reestablishment" )
BS_RACH_AWAIT_END( )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_MSG3_SEND ( 0, immediate_assignment, "10" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT ( 0, cm_reestablishment_request_short_imsi, "11: mobile
                  identity IE contains IMSI of the MS." )
BS_MSG3_SEND ( 0, tmsi_reallocation_command_tmsi, "12: mobile identity
                  contains a TMSI." )
BS_MSG3_AWAIT ( 0, tmsi_reallocation_complete, "13" )
BS_MSG3_SEND ( 0, channel_release, "14: After sending this message, the SS
                  waits for the disconnection of the main
                  signalling link." )

ISS_DELAY (10000)
BS_CONFIG_CHANNEL ( 0, PCH, UNACK, SAPI_0 )
BS_MSG3_SEND ( 0, paging_request_type_1, "15" )
BS_RACH_AWAIT ( 0, channel_request, "16: Establishment Cause = Answer to
                  paging." )

BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND ( 0, immediate_assignment, "17" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 );
BS_MSG3_AWAIT ( 0, paging_response, "18" )

BS_MSG3_SEND ( 0, authentication_request, "19" )
BS_MSG3_AWAIT ( 0, authentication_response, "20" )
BS_MSG3_SEND ( 0, tmsi_reallocation_command_imsi, "21: mobile identity
                  contains a IMSI of MS." )
BS_MSG3_AWAIT ( 0, tmsi_reallocation_complete, "22" )
BS_MSG3_SEND ( 0, channel_release, "23" )
NOT_IMPLEMENTED ( "24: If possible (see PICS ) the MS is
                  switched off, otherwise the MS has its
                  power source removed." )

ISS_DELAY (10000)

AT_SEND ("AT+CFUN=0", "switch off");

BS_RACH_AWAIT_BEGIN ( 0, channel_request, "25: If the MS was
                  switched off it performs IMSI detach."
                  )
    BF_SET_VAL ( establishment_cause, M3(1,1,1), "IMSI Detach" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND ( 0, immediate_assignment, "26" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 );
BS_MSG3_AWAIT ( 0, imsi_detach_indication_short_imsi, "27: mobile identity
                  contains IMSI of MS." )
BS_MSG3_SEND ( 0, channel_release, "28" )

ISS_DELAY (10000);

COMMAND ( "SIM CONFIG MODE=49" )
AT_SEND ("AT+CFUN=1", "switch on");
AT_SEND ("AT+COPS=0", "automatic registration");

```

```

NOT_IMPLEMENTED ( "29: The MS is switched on or has power
                  restored." )

BS_RACH_AWAIT_BEGIN ( 0, channel_request, "30" )
  BF_SET_VAL ( establishment_cause, M3(0,0,0), "IMSI Attach" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND ( 0, immediate_assignment, "31" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 );
BS_MSG3_AWAIT ( 0, location_updating_request_short_imsi_att, "32: mobile
                  identity contains IMSI of MS." )
BS_MSG3_SEND ( 0, location_updating_accept_tmsi, "33: mobile identity
                  contains a TMSI." )
BS_MSG3_AWAIT ( 0, tmsi_reallocation_complete, "34" )
BS_MSG3_SEND ( 0, channel_release, "35" )
ISS_DELAY (5000);

NOT_IMPLEMENTED ( "36: The SS changes the LAC of the
                  cell." )
NOT_IMPLEMENTED ( "37: The SS waits for at least 30
                  seconds." )
BS_SET_SYS_INFO ( 0, system_information_type_3_C ); /* MCC=262, MNC=01, LAC=0003 */
BS_SET_SYS_INFO ( 0, system_information_type_4_C );

SET_TIMEOUT (50000);

BS_RACH_AWAIT_BEGIN ( 0, channel_request, "38" )
  BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location Updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND ( 0, immediate_assignment, "39" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 );
BS_MSG3_AWAIT ( 0, location_updating_request, "40: mobile identity contains
                  TMSI of the MS." )
BS_MSG3_SEND_BEGIN ( 0, location_updating_accept_imsi,
                    "41: mobile identity contains
                    IMSI of the MS." )
  BF_SET_VAL ( lac, LAC_C, "LAI = c" )
BS_MSG3_SEND_END ( )
BS_MSG3_SEND ( 0, channel_release, "42" )
NOT_IMPLEMENTED ( "43: a mobile originated CM connection
                  is attempted." )

ISS_DELAY (10000);

AT_SEND ("ATD6969554;", "dial");

BS_RACH_AWAIT_BEGIN ( 0, channel_request, "44" )
  BF_SET_VAL ( establishment_cause, M3(1,1,1), "Mobile Originated Call" )
BS_RACH_AWAIT_END( )

BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND ( 0, immediate_assignment, "45" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 );
BS_MSG3_AWAIT ( 0, cm_service_request_short_imsi, "46: mobile identity
                  contains IMSI of the MS." )
BS_MSG3_SEND ( 0, channel_release, "47" )

```

History:	27.11.97	DL	Initial
	09.01.01	HM	Revised

## 3.5 Location Updating

### 3.5.1 MMM041: §26.7.4.1, Location updating accepted

**Description:** The MS is made to select cell B. A normal location updating with TMSI reallocation is performed in cell B. The channel is released. The SS checks, by paging, that the MS has stored the newly allocated TMSI. The channel is released. The MS is made to select cell A. A normal location updating is performed in cell A. The LOCATION UPDATING ACCEPT message contains neither IMSI nor TMSI. The SS checks, by paging, that the MS has kept the old TMSI. The channel is released. The MS is made to select cell B. A normal location updating is performed in cell B. The LOCATION UPDATING ACCEPT message contains an IMSI. The SS checks, by paging, that the MS has deleted its TMSI and responds to paging with IMSI. (Ref.: [2], §26.7.4.1)

**Preamble:** MMM004

**Script:**

```

SET_TIMEOUT          ( 30000 )

NOT_IMPLEMENTED      (                               "1: The RF level of cell A is lowered
                                                       until the MS selects cell B." )

BS_SET_POWER         ( 0, -120 )
ISS_DELAY            ( 6000 )
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "2: Establishment
                                                       cause: Location updating." )
    BF_SET_VAL        ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL    ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND         ( 1, immediate_assignment, "3" )
BS_CONFIG_CHANNEL    ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT        ( 1, location_updating_request_imsi, "4: location updating type =
                                                       normal, CKSN = CKSN1, location area
                                                       identification = a, mobile station
                                                       classmark 1 as given by the PICS and
                                                       mobile identity = TMSI1." )
BS_MSG3_SEND_BEGIN   ( 1, location_updating_accept_tmsi, "5:
                                                       Mobile identity = new TMSI (=TMSI2),
                                                       LAI = b." )
    BF_SET_VAL        ( tmsi_3, 0x57, "tmsi 3 changed: 0x56 -> 0x57" )
    BF_SET_VAL        ( tmsi_4, 0x08, "tmsi 4 changed: 0x78 -> 0x08" )
    BF_SET_VAL        ( lac, LAC_B, "LAI = b" )
BS_MSG3_SEND_END( )
BS_MSG3_AWAIT        ( 1, tmsi_reallocation_complete, "6" )
BS_MSG3_SEND         ( 1, channel_release, "7: After the sending of this message,
                                                       the SS waits for the disconnection of
                                                       the main signalling link. The SS waits
                                                       an amount of time which is enough to
                                                       guarantee that the MS is in service." )

ISS_DELAY            ( 6000 )
BS_CONFIG_CHANNEL    ( 1, PCH, UNACK, SAPI_0 )
BS_MSG3_SEND_BEGIN   ( 1, paging_request_type_1, "8: Mobile
                                                       identity IE contains the new TMSI (=
                                                       TMSI2)." )
    BF_SET_VAL        ( tmsi_3, 0x57, "tmsi 3" )
    BF_SET_VAL        ( tmsi_4, 0x08, "tmsi 4" )
BS_MSG3_SEND_END( )
BS_RACH_AWAIT        ( 1, channel_request, "9" )
BS_CONFIG_CHANNEL    ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND         ( 1, immediate_assignment, "10" )
BS_CONFIG_CHANNEL    ( 1, SDCCH, ACK, SAPI_0 )

```

```

BS_MSG3_AWAIT_BEGIN ( 1, paging_response, "11: Mobile
                    identity IE contains the new TMSI (=
                    TMSI2 )." )
    BF_SET_VAL ( tmsi_3, 0x57, "tmsi 3" )
    BF_SET_VAL ( tmsi_4, 0x08, "tmsi 4" )
BS_MSG3_AWAIT_END ( )
BS_MSG3_SEND ( 1, channel_release, "12: After the sending of this message,
                    the SS waits for the disconnection of
                    the main signalling link." )

ISS_DELAY (6000)
NOT_IMPLEMENTED ( "13: The RF level of cell B is lowered
                    until the MS selects cell A." )

BS_SET_POWER ( 1, -120 )
BS_SET_POWER ( 0, -60 )

BS_RACH_AWAIT_BEGIN ( 0, channel_request, "14: Establishment
                    cause: Location updating" )
    BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND ( 0, immediate_assignment, "15" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 0, location_updating_request, "16:
                    location updating type = normal, CKSN =
                    CKSN1, location area identification =
                    b, mobile station classmark 1 as given
                    by the PICS and mobile identity =
                    TMSI2." )
    BF_SET_VAL ( tmsi_3, 0x57, "tmsi 3" )
    BF_SET_VAL ( tmsi_4, 0x08, "tmsi 4" )
    BF_SET_VAL ( lac, LAC_B, "LAI = b" )
BS_RACH_AWAIT_END ( )
BS_MSG3_SEND ( 0, location_updating_accept, "17: Mobile identity IE not
                    included." )
BS_MSG3_SEND ( 0, channel_release, "18: After the sending of this message,
                    the SS waits for the disconnection of
                    the main signalling link. The SS waits
                    an amount of time which is enough to
                    guarantee that the MS is in service." )

ISS_DELAY ( 6000 )
BS_CONFIG_CHANNEL ( 0, PCH, UNACK, SAPI_0 )
BS_MSG3_SEND_BEGIN ( 0, paging_request_type_1, "19: Mobile
                    identity IE contains the TMSI (= TMSI2
                    )." )
    BF_SET_VAL ( tmsi_3, 0x57, "tmsi 3" )
    BF_SET_VAL ( tmsi_4, 0x08, "tmsi 4" )
BS_MSG3_SEND_END ( )
BS_RACH_AWAIT ( 0, channel_request, "20" )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND ( 0, immediate_assignment, "21" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 0, paging_response, "22: Mobile identity IE contains the
                    TMSI (=TMSI2 )." )
    BF_SET_VAL ( tmsi_3, 0x57, "tmsi 3" )
    BF_SET_VAL ( tmsi_4, 0x08, "tmsi 4" )
BS_MSG3_AWAIT_END ( )

```

```

BS_MSG3_SEND      ( 0, channel_release,      "23: After the sending of this message,
                                                         the SS waits for the disconnection of
                                                         the main signalling link." )

ISS_DELAY         ( 6000 )
NOT_IMPLEMENTED   (
BS_SET_POWER      ( 0, -120 )
BS_SET_POWER      ( 1, -60 )
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "25: Establishment
                                                         cause: Location updating." )
    BF_SET_VAL     ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "26" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 1, location_updating_request, "27:
                                                         location updating type = normal, CKSN =
                                                         CKSN1, location area identification =
                                                         a, mobile station classmark 1 as given
                                                         by the PICS and mobile identity =
                                                         TMSI2." )
    BF_SET_VAL     ( tmsi_3, 0x57,          "tmsi 3" )
    BF_SET_VAL     ( tmsi_4, 0x08,          "tmsi 4" )
BS_MSG3_AWAIT_END ( )

BS_MSG3_SEND_BEGIN ( 1, location_updating_accept_imsi,
                                                         "28: Mobile identity IE contains
                                                         IMSI." )
    BF_SET_VAL     ( lac, LAC_B,            "LAI = b" )
BS_MSG3_SEND_END ( )

BS_MSG3_SEND      ( 1, channel_release,      "29: After the sending of this message,
                                                         the SS waits for the disconnection of
                                                         the main signalling link. The SS waits
                                                         an amount of time which is enough to
                                                         guarantee that the MS is in service." )

ISS_DELAY (10000)

BS_CONFIG_CHANNEL ( 1, PCH, UNACK, SAPI_0 )
BS_MSG3_SEND_BEGIN ( 1, paging_request_type_1, "30: Mobile
                                                         identity IE contains the old TMSI (=
                                                         TMSI2 )." )
    BF_SET_VAL     ( tmsi_3, 0x57,          "tmsi 3" )
    BF_SET_VAL     ( tmsi_4, 0x08,          "tmsi 4" )
BS_MSG3_SEND_END ( )
NOT_IMPLEMENTED   (
BS_MSG3_SEND      ( 1, paging_request_type_1_imsi, "31: The MS shall ignore this message.
                                                         This is checked during 5 seconds." )
BS_MSG3_SEND      ( 1, paging_request_type_1_imsi, "32: Mobile identity IE contains
                                                         the IMSI." )

BS_RACH_AWAIT     ( 1, channel_request,      "33" )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "34" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT     ( 1, paging_response_imsi, "35: Mobile identity IE contains the
                                                         IMSI."
)
BS_MSG3_SEND      ( 1, channel_release,      "36: After the sending of this message,
                                                         the SS waits for the disconnection of
                                                         the main signalling link." )

```

History:	27.11.97	DL	Initial
	26.01.98	DL	revised
	08.03.01	HM	Revised

### 3.5.2 MMM042: §26.7.4.2.1, Location updating rejected: IMSI unknown in HLR

**Description:** The SS rejects a normal location updating with the cause value "IMSI unknown in HLR". The channel is released. The SS checks that the MS has entered the state MM IDLE and the substate NO IMSI, i.e. does not perform normal location updating when a new cell of the same or another PLMN is entered, does not perform periodic updating, does not respond to paging, rejects any requests from CM entities except emergency calls and does not perform IMSI detach if it is switched off or has its power source removed. (Ref.: [2], §26.7.4.2.1 )

**Preamble:** MMM004

**Script:**

```

SET_TIMEOUT          ( 30000 )

COMMAND              ("MM CONFIG T3212_CNT=6") /* T3212 = 60 sec. - should be 6 min.
!*/

NOT_IMPLEMENTED     ( "The following messages are sent and
shall be received on cell B." )

NOT_IMPLEMENTED     ( "1: The RF level of cell A is lowered
until the MS selects cell B." )

BS_SET_POWER        ( 0, -120 )
ISS_DELAY           ( 10000 )
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "2: Establishment
cause: Location updating." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END   ( )
BS_CONFIG_CHANNEL   ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND        ( 1, immediate_assignment, "3" )
BS_CONFIG_CHANNEL   ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT       ( 1, location_updating_request_imsi, "4" )
BS_MSG3_SEND_BEGIN  ( 1, location_updating_reject, "5:
Reject cause IE is IMSI unknown in HLR
for k = 1, Illegal MS for k = 2,
Illegal ME for k = 3." )
    BF_SET_VAL      ( reject_cause, 0x02, "IMSI unknown in HLR" )
BS_MSG3_SEND_END    ( )
BS_MSG3_SEND        ( 1, channel_release, "6: After the sending of this message,
the SS waits for the disconnection of
the main signalling link." )

ISS_DELAY (10000)

NOT_IMPLEMENTED     ( "7: The RF levels are then changed again
to make the MS reselect the cell A." )

BS_SET_POWER        ( 0, -60 )
BS_SET_POWER        ( 1, -120 )

NOT_IMPLEMENTED     ( "8: The MS performs cell reselection
according to procedure as specified in
GSM 05.08 (this however is not checked
until step 18 ). The MS shall not
initiate an RR connection establishment
on cell A or on cell B." )

NOT_IMPLEMENTED     ( "9: The SS waits at least 7 minutes for
a possible periodic updating." )

ISS_DELAY (60000)
NOT_IMPLEMENTED     ( "10: The MS shall not initiate an RR
connection establishment on cell A or
on cell B." )

BS_CONFIG_CHANNEL   ( 0, PCH, UNACK, SAPI_0 )

```

```

BS_MSG3_SEND      ( 0, paging_request_type_1_imsi , "11: The MS is paged in cell A.
                  Mobile identity IE contains IMSI." )
NOT_IMPLEMENTED   ( "12: The MS shall ignore this message.
                  This is verified during 3 seconds." )
ISS_DELAY (3000)
BS_MSG3_SEND      ( 0, paging_request_type_1, "13: The MS is paged in cell A. Mobile
                  identity IE contains TMSI." )
NOT_IMPLEMENTED   ( "14: The MS shall ignore this message.
                  This is verified during 3 seconds." )
ISS_DELAY (3000)
NOT_IMPLEMENTED   ( "15: A MO CM connection is attempted." )
NOT_IMPLEMENTED   ( "16: The MS shall not initiate an RR
                  connection establishment on cell A or
                  on cell B. This is checked during 3
                  seconds." )

ISS_DELAY (3000)
NOT_IMPLEMENTED   ( "17: If the MS supports speech (see PICS
                  ), it is made to perform an emergency
                  call." )

AT_SEND ("ATD112;", "dial emergency number");
BS_RACH_AWAIT_BEGIN      ( 0, channel_request, "18: Establishment
                  cause: Emergency call. This message is
                  sent in cell A." )
    BF_SET_VAL      ( establishment_cause, M3(1,0,1) , "Emergency call" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 );
BS_MSG3_SEND      ( 0, immediate_assignment, "19" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN      ( 0, cm_service_request_ec, "20: CM
                  service type: Emergency call
                  establishment. Mobile identity: type of
                  identity is set to IMEI." )
    BF_SET_VAL      ( service, M4(0,0,1,0) , "Emergency call" )
BS_MSG3_AWAIT_END( )
BS_MSG3_SEND      ( 0, cm_service_accept, "21" )
BS_MSG3_AWAIT     ( 0, emergency_setup, "22" )
BS_MSG3_SEND      ( 0, release_complete_to_ms, "23: Cause = unassigned number."
                  )
BS_MSG3_SEND      ( 0, channel_release, "24: After the sending of this message,
                  the SS waits for the disconnection of
                  the main signalling link." )

ISS_DELAY (5000)

AT_SEND ("AT+CFUN=0", "switch off");

ISS_DELAY (10000);

NOT_IMPLEMENTED   ( "25: The MS is switched on or has power
                  restored." )

AT_SEND ("AT+CFUN=1", "switch on");
AT_SEND ("AT+COPS=0", "automatic registration");

BS_RACH_AWAIT_BEGIN      ( 0, channel_request, "26" )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0) , "Normal Location Updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND      ( 0, immediate_assignment, "27" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 );

```

```
BS_MSG3_AWAIT      ( 0, location Updating request del,      "28: mobile identity  
                    contains IMSI of MS." )  
BS_MSG3_SEND       ( 0, authentication request,      "29" )  
BS_MSG3_AWAIT      ( 0, authentication response,     "30" )  
BS_MSG3_SEND       ( 0, location Updating accept tmsi, "31: mobile identity  
                    contains a TMSI." )  
BS_MSG3_AWAIT      ( 0, tmsi reallocation complete,  "32" )  
BS_MSG3_SEND       ( 0, channel release,             "33" )
```

History:

27.11.97

DL

Initial

### 3.5.3 MMM043: §26.7.4.2.1, Location updating rejected: Illegal MS

**Description:** The SS rejects a normal location updating with the cause value "Illegal MS". The channel is released. The SS checks that the MS has entered the state MM IDLE and the substate NO IMSI, i.e. does not perform normal location updating when a new cell of the same or another PLMN is entered, does not perform periodic updating, does not respond to paging, rejects any requests from CM entities except emergency calls and does not perform IMSI detach if it is switched off or has its power source removed. (Ref.: [2], §26.7.4.2.1)

**Preamble:** MMM004

**Script:**

```

SET_TIMEOUT          ( 30000 )

COMMAND              ("MM CONFIG T3212_CNT=6") /* T3212 = 60 sec. - should be 6 min.
!*/

NOT_IMPLEMENTED     (
                    "The following messages are sent and
                    shall be received on cell B." )

NOT_IMPLEMENTED     (
                    "1: The RF level of cell A is lowered
                    until the MS selects cell B." )

BS_SET_POWER        ( 0, -120 )
ISS_DELAY           ( 10000 )
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "2: Establishment
                    cause: Location updating." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END   ( )
BS_CONFIG_CHANNEL   ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND        ( 1, immediate_assignment, "3" )
BS_CONFIG_CHANNEL   ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT       ( 1, location_updating_request_imsi, "4" )
BS_MSG3_SEND_BEGIN  ( 1, location_updating_reject, "5:
                    Reject cause IE is IMSI unknown in HLR
                    for k = 1, Illegal MS for k = 2,
                    Illegal ME for k = 3." )
    BF_SET_VAL      ( reject_cause, 0x03, "Illegal MS" )
BS_MSG3_SEND_END    ( )
BS_MSG3_SEND        ( 1, channel_release, "6: After the sending of this message,
                    the SS waits for the disconnection of
                    the main signalling link." )

ISS_DELAY (10000)

NOT_IMPLEMENTED     (
                    "7: The RF levels are then changed again
                    to make the MS reselect the cell A." )

BS_SET_POWER        ( 0, -60 )
BS_SET_POWER        ( 1, -120 )

NOT_IMPLEMENTED     (
                    "8: The MS performs cell reselection
                    according to procedure as specified in
                    GSM 05.08 (this however is not checked
                    until step 18). The MS shall not
                    initiate an RR connection establishment
                    on cell A or on cell B." )

NOT_IMPLEMENTED     (
                    "9: The SS waits at least 7 minutes for
                    a possible periodic updating." )

ISS_DELAY (60000)
NOT_IMPLEMENTED     (
                    "10: The MS shall not initiate an RR
                    connection establishment on cell A or
                    on cell B." )

BS_CONFIG_CHANNEL   ( 0, PCH, UNACK, SAPI_0 )
BS_MSG3_SEND        ( 0, paging_request_type_1_imsi, "11: The MS is paged in cell A.
                    Mobile identity IE contains IMSI." )

```

```

NOT_IMPLEMENTED ( "12: The MS shall ignore this message.
                  This is verified during 3 seconds." )

ISS_DELAY (3000)
BS_MSG3_SEND ( 0, paging_request_type_1, "13: The MS is paged in cell A. Mobile
                  identity IE contains TMSI." )

NOT_IMPLEMENTED ( "14: The MS shall ignore this message.
                  This is verified during 3 seconds." )

ISS_DELAY (3000)
NOT_IMPLEMENTED ( "15: A MO CM connection is attempted." )
NOT_IMPLEMENTED ( "16: The MS shall not initiate an RR
                  connection establishment on cell A or
                  on cell B. This is checked during 3
                  seconds." )

ISS_DELAY (3000)
NOT_IMPLEMENTED ( "17: If the MS supports speech (see PICS
                  ), it is made to perform an emergency
                  call." )

AT_SEND ("ATD112;", "dial emergency number");
BS_RACH_AWAIT_BEGIN ( 0, channel_request, "18: Establishment
                  cause: Emergency call. This message is
                  sent in cell A." )

    BF_SET_VAL ( establishment_cause, M3(1,0,1), "Emergency call" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND ( 0, immediate_assignment, "19" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 0, cm_service_request_ec, "20: CM
                  service type: Emergency call
                  establishment. Mobile identity: type of
                  identity is set to IMEI." )

    BF_SET_VAL ( service, M4(0,0,1,0), "Emergency call" )
BS_MSG3_AWAIT_END( )
BS_MSG3_SEND ( 0, cm_service_accept, "21" )
BS_MSG3_AWAIT ( 0, emergency_setup, "22" )
BS_MSG3_SEND ( 0, release_complete_to_ms, "23: Cause = unassigned number."
                  )
BS_MSG3_SEND ( 0, channel_release, "24: After the sending of this message,
                  the SS waits for the disconnection of
                  the main signalling link." )

ISS_DELAY (5000)

AT_SEND ("AT+CFUN=0", "switch off");

ISS_DELAY (10000);

NOT_IMPLEMENTED ( "25: The MS is switched on or has power
                  restored." )

AT_SEND ("AT+CFUN=1", "switch on");
AT_SEND ("AT+COPS=0", "automatic registration");

BS_RACH_AWAIT_BEGIN ( 0, channel_request, "26" )
    BF_SET_VAL ( establishment_cause, M3(0,0,0), "Normal Location Updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND ( 0, immediate_assignment, "27" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 );
BS_MSG3_AWAIT ( 0, location Updating_request_del, "28: mobile identity
                  contains IMSI of MS." )
BS_MSG3_SEND ( 0, authentication_request, "29" )

```

```
BS_MSG3_AWAIT ( 0, authentication_response, "30" )
BS_MSG3_SEND ( 0, location Updating_accept_tmsi, "31: mobile identity
              contains a TMSI." )
BS_MSG3_AWAIT ( 0, tmsi_reallocation_complete, "32" )
BS_MSG3_SEND ( 0, channel_release, "33" )
```

History: 27.11.97 DL Initial

### 3.5.4 MMM044: §26.7.4.2.1, Location updating rejected: Illegal ME

**Description:** The SS rejects a normal location updating with the cause value "Illegal ME". The channel is released. The SS checks that the MS has entered the state MM IDLE and the substate NO IMSI, i.e. does not perform normal location updating when a new cell of the same or another PLMN is entered, does not perform periodic updating, does not respond to paging, rejects any requests from CM entities except emergency calls and does not perform IMSI detach if it is switched off or has its power source removed. (Ref.: [2], §26.7.4.2.1)

**Preamble:** MMM004

**Script:**

```

SET_TIMEOUT          ( 30000 )

COMMAND              ("MM CONFIG T3212_CNT=6") /* T3212 = 60 sec. - should be 6 min.
!*/
NOT_IMPLEMENTED     (
NOT_IMPLEMENTED     (
BS_SET_POWER        ( 0, -120 )
ISS_DELAY           ( 10000 )
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "2: Establishment
cause: Location updating." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL   ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND        ( 1, immediate_assignment, "3" )
BS_CONFIG_CHANNEL   ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT       ( 1, location_updating_request_imsi, "4" )
BS_MSG3_SEND_BEGIN  ( 1, location_updating_reject, "5:
Reject cause IE is IMSI unknown in HLR
for k = 1, Illegal MS for k = 2,
Illegal ME for k = 3." )
    BF_SET_VAL      ( reject_cause, 0x06, "Illegal ME" )
BS_MSG3_SEND_END( )
BS_MSG3_SEND        ( 1, channel_release, "6: After the sending of this message,
the SS waits for the disconnection of
the main signalling link." )

ISS_DELAY (10000)

NOT_IMPLEMENTED     (
BS_SET_POWER        ( 0, -60 )
BS_SET_POWER        ( 1, -120 )

NOT_IMPLEMENTED     (
NOT_IMPLEMENTED     (
ISS_DELAY (60000)
NOT_IMPLEMENTED     (
BS_CONFIG_CHANNEL   ( 0, PCH, UNACK, SAPI_0 )
BS_MSG3_SEND        ( 0, paging_request_type_1_imsi, "11: The MS is paged in cell A.
Mobile identity IE contains IMSI." )

```

```

NOT_IMPLEMENTED ( "12: The MS shall ignore this message.
                  This is verified during 3 seconds." )

ISS_DELAY (3000)
BS_MSG3_SEND ( 0, paging_request_type_1, "13: The MS is paged in cell A. Mobile
                  identity IE contains TMSI." )

NOT_IMPLEMENTED ( "14: The MS shall ignore this message.
                  This is verified during 3 seconds." )

ISS_DELAY (3000)
NOT_IMPLEMENTED ( "15: A MO CM connection is attempted." )
NOT_IMPLEMENTED ( "16: The MS shall not initiate an RR
                  connection establishment on cell A or
                  on cell B. This is checked during 3
                  seconds." )

ISS_DELAY (3000)
NOT_IMPLEMENTED ( "17: If the MS supports speech (see PICS
                  ), it is made to perform an emergency
                  call." )

AT_SEND ("ATD112;", "dial emergency number");
BS_RACH_AWAIT_BEGIN ( 0, channel_request, "18: Establishment
                  cause: Emergency call. This message is
                  sent in cell A." )

    BF_SET_VAL ( establishment_cause, M3(1,0,1), "Emergency call" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 );
BS_MSG3_SEND ( 0, immediate_assignment, "19" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 0, cm_service_request_ec, "20: CM
                  service type: Emergency call
                  establishment. Mobile identity: type of
                  identity is set to IMEI." )

    BF_SET_VAL ( service, M4(0,0,1,0), "Emergency call" )
BS_MSG3_AWAIT_END( )
BS_MSG3_SEND ( 0, cm_service_accept, "21" )
BS_MSG3_AWAIT ( 0, emergency_setup, "22" )
BS_MSG3_SEND ( 0, release_complete_to_ms, "23: Cause = unassigned number."
                  )
BS_MSG3_SEND ( 0, channel_release, "24: After the sending of this message,
                  the SS waits for the disconnection of
                  the main signalling link." )

ISS_DELAY (5000)

AT_SEND ("AT+CFUN=0", "switch off");

ISS_DELAY (10000);

NOT_IMPLEMENTED ( "25: The MS is switched on or has power
                  restored." )

AT_SEND ("AT+CFUN=1", "switch on");
AT_SEND ("AT+COPS=0", "automatic registration");

BS_RACH_AWAIT_BEGIN ( 0, channel_request, "26" )
    BF_SET_VAL ( establishment_cause, M3(0,0,0), "Normal Location Updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND ( 0, immediate_assignment, "27" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 );
BS_MSG3_AWAIT ( 0, location Updating_request_del, "28: mobile identity
                  contains IMSI of MS." )
BS_MSG3_SEND ( 0, authentication_request, "29" )

```

```
BS_MSG3_AWAIT      ( 0, authentication_response,      "30" )
BS_MSG3_SEND       ( 0, location Updating_accept_tmsi,      "31: mobile identity
                    contains a TMSI." )
BS_MSG3_AWAIT      ( 0, tmsi_reallocation_complete,        "32" )
BS_MSG3_SEND       ( 0, channel_release,                    "33" )
```

History:            27.11.97                            DL                            Initial

### 3.5.5 MMM045: §26.7.4.2.2.3.1, Location updating rejected: PLMN not allowed/Test 1

**Description:** The SS rejects a normal location updating with the cause value "PLMN not allowed". The channel is released. The SS checks that the MS does not perform periodic updating, does not perform IMSI detach, does not perform IMSI attach if activated in the same location area, rejects any request for CM connection establishment other than emergency call, accepts a request for an emergency call and performs normal location updating only when a new PLMN is entered. (Ref.: [2], §26.7.4.2.2.3.1)

**Preamble:** MMM006

**Script:**

```

SET_TIMEOUT          ( 30000 )

NOT_IMPLEMENTED      (                               "The following message are sent and
                                                         shall be received on cell B." )

BS_ON_OFF            ( 0, TRUE )
BS_ON_OFF            ( 1, TRUE )
BS_ON_OFF            ( 2, FALSE )

AT_SEND ("AT+CFUN=0", "switch off");
NOT_IMPLEMENTED      (                               "12: The MS shall not initiate an RR
                                                         connection establishment on cell A or
                                                         on cell B. This is checked during 3
                                                         seconds." )

ISS_DELAY            ( 10000 )
NOT_IMPLEMENTED      (                               "13: Depending on what has been
                                                         performed in step 11 the MS is brought
                                                         back to operation. The MS is not made
                                                         to select PLMN 2." )

AT_SEND ("AT+CFUN=1", "Switch on");
AT_SEND ("AT+COPS=1,2,\"00101\", \"manual registration\");

BS_RACH_AWAIT_BEGIN ( 1, channel_request, "4: Establishment
                                                         cause: Location updating." )
    BF_SET_VAL        ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL    ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND         ( 1, immediate_assignment, "5" )
BS_CONFIG_CHANNEL    ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT        ( 1, location_updating_request_tmsi_PLMN1, "6" )
BS_MSG3_SEND_BEGIN   ( 1, location_updating_reject, "7:
                                                         Reject cause = PLMN not allowed." )
    BF_SET_VAL        ( reject_cause, 0x0B, "PLMN not allowed" )
BS_MSG3_SEND_END( )
COMMAND              ("MM CONFIG T3212_CNT=6") /* T3212 = 60 sec. - should be 6 min.
                                                         !*/
BS_MSG3_SEND         ( 1, channel_release, "8: After the sending of this message,
                                                         the SS waits for the disconnection of
                                                         the main signalling link." )

NOT_IMPLEMENTED      (                               "9: The SS waits for a possible periodic
                                                         updating for 7 minutes." )
NOT_IMPLEMENTED      (                               "10: The MS shall not initiate an RR
                                                         connection establishment on cell A or
                                                         on cell B." )

ISS_DELAY            ( 70000 )
NOT_IMPLEMENTED      (                               "11: If possible (see PICS ) SIM
                                                         detachment is performed. Otherwise if
                                                         possible (see PICS ) switch off is

```

```

performed. Otherwise the power is
removed." )

AT_SEND ("AT+CFUN=0", "switch off");
NOT_IMPLEMENTED ( "12: The MS shall not initiate an RR
connection establishment on cell A or
on cell B. This is checked during 3
seconds." )

ISS_DELAY ( 10000 )
NOT_IMPLEMENTED ( "13: Depending on what has been
performed in step 11 the MS is brought
back to operation. The MS is not made
to select PLMN 2." )

AT_SEND ("AT+CFUN=1", "switch on");
AT_SEND ("AT+COPS=0", "automatic registration");
NOT_IMPLEMENTED ( "14: The MS shall not initiate an RR
connection establishment. This is
checked during 3 seconds. The following
message are sent and shall be received
on cell A " )

ISS_DELAY ( 20000 )

NOT_IMPLEMENTED ( "15: The RF level of cell B is lowered
to make the MS reselect cell A." )

BS_SET_POWER ( 1, -120 )
BS_SET_POWER ( 0, -60 )
BS_SET_ERROR ( 1, 7 )
NOT_IMPLEMENTED ( "16: No access to the network shall be
registered by the SS within one
minute." )

ISS_DELAY ( 60000 )
NOT_IMPLEMENTED ( "17: If the MS supports speech (see PICS
) it is made to perform an emergency
call." )

AT_SEND ("ATD112;", "dial emergency number");

BS_RACH_AWAIT_BEGIN ( 0, channel_request, "18: Establishment
cause: Emergency call." )
BF_SET_VAL ( establishment_cause, M3(1,0,1), "Emergency call" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 );
BS_MSG3_SEND ( 0, immediate_assignment, "19" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT ( 0, cm_service_request_ec_imsi, "20: CM service type = Emergency
call establishment." )
BS_MSG3_SEND ( 0, cm_service_accept, "21" )
BS_MSG3_AWAIT ( 0, emergency_setup, "22" )
BS_MSG3_SEND ( 0, release_complete_to_ms, "23: Cause IE: unassigned
number." )
BS_MSG3_SEND ( 0, channel_release, "24: After the sending of this message,
the SS waits for the disconnection of
the main signalling link." )

ISS_DELAY ( 5000 )
NOT_IMPLEMENTED ( "25: A MO CM connection is attempted." )
NOT_IMPLEMENTED ( "26: The MS shall not initiate an RR
connection establishment. This is
checked during 3 seconds." )

AT_SEND ("ATD39094117;", "Dial");
BS_RACH_EXPECT_TIMEOUT( 0, 15000 )

```

```

NOT_IMPLEMENTED ( "The following messages are sent and
                  shall be received on cell C." )
NOT_IMPLEMENTED ( "27: The MS is switched off." )
AT_SEND ("AT+CFUN=0", "switch off");
NOT_IMPLEMENTED ( "28: The SS activates cell C and
                  deactivates cells A and B." )

ISS_DELAY (10000);
BS_ON_OFF ( 0, FALSE )
BS_ON_OFF ( 1, FALSE )
BS_ON_OFF ( 2, TRUE )
BS_SET_POWER ( 2, -70 )
NOT_IMPLEMENTED ( "29: The MS is switched on. If necessary
                  the MS is placed into the automatic
                  mode." )

AT_SEND ("AT+CFUN=1", "switch on");
AT_SEND ("AT+COPS=0", "automatic registration");
/*          ?          */

BS_RACH_AWAIT_BEGIN ( 2, channel_request, "30: Establishment
                     cause: Location updating." )
    BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 2, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 2, 0 )
BS_MSG3_SEND ( 2, immediate_assignment, "31" )
BS_CONFIG_CHANNEL ( 2, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 2,
                     location_updating_request_PLMN1_del,
                     "32: location updating type =
                     normal, CKSN = no key available, LAI =
                     deleted LAI (the MCC and MNC hold the
                     values of PLMN1, the LAC is coded FFFE
                     ) mobile identity = IMSI." )
    BF_SET_VAL ( lac, 0xFFFE, "deleted LAC" )
BS_MSG3_AWAIT_END ( )
BS_MSG3_SEND ( 2, location_updating_accept_tmsi_C, "33: Mobile identity =
               TMSI." )
BS_MSG3_AWAIT ( 2, tmsi_reallocation_complete, "34" )
BS_MSG3_SEND ( 2, channel_release, "35: After the sending of this message,
               the SS waits for the disconnection of
               the main signalling link." )

History:          27.11.97          DL          Initial

```

### 3.5.6 MMM046: Location updating rejected: PLMN not allowed / Test 2

**Description:** The SS rejects a normal location updating with the cause value "PLMN not allowed". The channel is released. Then the PLMN from which this rejection was received is manually selected and the SS checks that a normal location updating is performed. (Ref.: [2], §26.7.4.2.2.3.2)

**Preamble:** MMM006

**Script:**

```

SET_TIMEOUT      ( 30000 )

NOT_IMPLEMENTED  (                               "The following messages are sent and
                                                    shall be received on cell B." )

NOT_IMPLEMENTED  (                               "1: The MS is switched off (or power is
                                                    removed )." )

AT_SEND ("AT+CFUN=0", "switch off");
ISS_DELAY (10000);
NOT_IMPLEMENTED  (                               "2: The SS activates cells A and B and
                                                    deactivates cell C. Cell B has a level
                                                    higher by at least 5 dB than cell A." )

BS_ON_OFF        ( 0, TRUE )
BS_ON_OFF        ( 1, TRUE )
BS_ON_OFF        ( 2, FALSE )
BS_SET_ERROR     ( 2, 7 )                       /* Make MS recognize BS is off, damned
                                                    */

NOT_IMPLEMENTED  (                               "3: The MS is switched on (or power is
                                                    reapplied )." )

NOT_IMPLEMENTED  (                               "3a: If the MS is in manual mode, it
                                                    shall offer the new PLMN as available
                                                    to the user. In this case the PLMN is
                                                    manually selected." )

AT_SEND ("AT+CFUN=1", "Switch on");
AT_SEND ("AT+COPS=1,2,\"00101\"", "manual registration");
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "4: Establishment
                                                    cause: Location updating." )

    BF_SET_VAL    ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "5" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT     ( 1, location_updating_request_tmsi_PLMN1, "6" )
BS_MSG3_SEND_BEGIN ( 1, location_updating_reject, "7:
                                                    Reject cause = PLMN not allowed." )

    BF_SET_VAL    ( reject_cause, 0x0B, "PLMN not allowed" )
BS_MSG3_SEND_END( )
BS_MSG3_SEND      ( 1, channel_release, "8: After the sending of this message,
                                                    the SS waits for the disconnection of
                                                    the main signalling link." )

ISS_DELAY        ( 6000 )
NOT_IMPLEMENTED  (                               "9: The MS is made to search for PLMNs
                                                    and the PLMN indicated by the SS is
                                                    manually selected." )

AT_SEND ("AT+COPS=?\r\n", "Request available PLMNs");
ISS_DELAY (20000);
AT_SEND ("AT+COPS=1,2,\"00101\"", "manual registration");

/*          ?          */
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "4: Establishment
                                                    cause: Location updating." )

    BF_SET_VAL    ( establishment_cause, M3(0,0,0), "Location updating" )

```

```

BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "5" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 1,
                        location_updating_request_PLMN1_del,
                        "32: location updating type =
                          normal, CKSN = no key available, LAI =
                          deleted LAI (the MCC and MNC hold the
                          values of PLMN1, the LAC is coded FFFE
                          ) mobile identity = IMSI." )
    BF_SET_VAL      ( lac, 0xFFFE, "deleted LAC" )
BS_MSG3_AWAIT_END ( )
BS_MSG3_SEND      ( 1, channel_release,
                    "8: After the sending of this message,
                     the SS waits for the disconnection of
                     the main signalling link." )

AT_SEND ("ABORT\r\n", "Abort request available PLMNs");

ISS_DELAY      ( 6000 )
AT_SEND ("AT+CFUN=0", "switch off");

ISS_DELAY (10000);

NOT_IMPLEMENTED ( "15: The SS activates cell C and
                  deactivates cells A and B." )

BS_ON_OFF      ( 0, FALSE )
BS_ON_OFF      ( 1, FALSE )
BS_ON_OFF      ( 2, TRUE )
BS_SET_POWER   ( 2, -70 )
NOT_IMPLEMENTED ( "29: The MS is switched on. If necessary
                  the MS is placed into the automatic
                  mode." )

AT_SEND ("AT+CFUN=1", "switch on");
AT_SEND ("AT+COPS=0", "automatic registration");
/*          ?          */

BS_RACH_AWAIT_BEGIN ( 2, channel_request, "30: Establishment
                        cause: Location updating." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 2, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 2, 0 )
BS_MSG3_SEND      ( 2, immediate_assignment, "31" )
BS_CONFIG_CHANNEL ( 2, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 2,
                        location_updating_request_PLMN1_del,
                        "32: location updating type =
                          normal, CKSN = no key available, LAI =
                          deleted LAI (the MCC and MNC hold the
                          values of PLMN1, the LAC is coded FFFE
                          ) mobile identity = IMSI." )
    BF_SET_VAL      ( lac, 0xFFFE, "deleted LAC" )
BS_MSG3_AWAIT_END ( )
BS_MSG3_SEND      ( 2, location_updating_accept_tmsi_C,
                    "33: Mobile identity =
                     TMSI." )
BS_MSG3_AWAIT     ( 2, tmsi_reallocation_complete, "34" )
BS_MSG3_SEND      ( 2, channel_release,
                    "35: After the sending of this message,
                     the SS waits for the disconnection of
                     the main signalling link." )

```

History:	27.11.97	DL	Initial
	18.02.00	HM	Revised
	01.12.00	HM	Revised

### 3.5.7 MMM047: §26.7.4.2.3, Location updating rejected: location area not allowed

**Description:** The SS rejects a normal location updating with the cause value "Location Area not allowed". The channel is released. The SS checks that the MS does not perform periodic updating, does not respond to paging with TMSI, rejects any requests from CM entities for MM-connections except emergency calls, does not perform IMSI detach, performs normal location updating when a new location area is entered and deletes the list of forbidden LAs when switched off.

Different types of MS may use different methods to periodically clear the list of forbidden location areas (e.g. every day at 12am). If the list is cleared while the test is being run, it may be necessary to re-run the test (Ref.: [2], §26.7.4.2.3)

**Preamble:** MMM009

**Script:**

```

SET_TIMEOUT          ( 50000 )

NOT_IMPLEMENTED     (
                                "1: The RF level of cell A is lowered so
                                that cell B is selected, while keeping
                                the C1 and C2 of cell A greater than
                                10." )

BS_SET_POWER        ( 0, -100 )

BS_RACH_AWAIT_BEGIN          ( 1, channel_request, "2: Establishment
                                cause: Location updating." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "3" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN          ( 1, location_updating_request, "4" )
    BF_SET_VAL      ( key_sequence, 0x06, "from Authentication" )
    BF_SET_VAL      ( lac, LAC_C, "" )
BS_MSG3_AWAIT_END( )
BS_MSG3_SEND_BEGIN          ( 1, location_updating_reject, "5:
                                Reject cause = Location Area not
                                allowed." )
    BF_SET_VAL      ( reject_cause, 0x0C, "Location Area not allowed" )
BS_MSG3_SEND_END( )
BS_MSG3_SEND      ( 1, channel_release, "6: After the sending of this message,
                                the SS waits for the disconnection of
                                the main signalling link." )

NOT_IMPLEMENTED     (
                                "7: The SS waits for a possible location
                                updating for 7 minutes." )

ISS_DELAY (60000)
NOT_IMPLEMENTED     (
                                "8: The MS shall not initiate an RR-
                                connection establishment either on cell
                                A or cell B." )

BS_CONFIG_CHANNEL ( 1, PCH, UNACK, SAPI_0 )
BS_MSG3_SEND      ( 1, paging_request_type_1, "9: The MS is paged in cell B. Mobile
                                identity = TMSI." )

NOT_IMPLEMENTED     (
                                "10: The MS shall ignore this message.
                                This is checked during 3 seconds." )

ISS_DELAY (5000)
NOT_IMPLEMENTED     (
                                "11: A MO CM connection is attempted." )
AT_SEND ("ATD6969554;", "dial");
NOT_IMPLEMENTED     (
                                "12: The MS shall not initiate an RR
                                connection establishment on cell A or

```

```

cell B. This is checked during 3
seconds." )

ISS_DELAY (5000)
NOT_IMPLEMENTED ( "13: If the MS supports speech (see PICS
) , it is made to perform an emergency
call." )

AT_SEND ("ATD112;", "dial emergency number");
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "14: Establishment
cause: Emergency call." )
    BF_SET_VAL ( establishment_cause, M3(1,0,1) , "Emergency call" )
BS_RACH_AWAIT_END( )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_MSG3_SEND ( 1, immediate_assignment, "15" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT ( 1, cm_service_request_ec_imsi, "16: CM service type: Emergency
call establishment." )
BS_MSG3_SEND ( 1, cm_service_accept, "17" )
BS_MSG3_AWAIT ( 1, emergency_setup, "18" )
BS_MSG3_SEND ( 1, release_complete_to_ms, "19: Cause: unassigned number."
)
BS_MSG3_SEND ( 1, channel_release, "20: After the sending of this message,
the SS waits for the disconnection of
the main signalling link." )

NOT_IMPLEMENTED ( "21: If possible (see PICS ) switch off
is performed. Otherwise the power is
removed." )

ISS_DELAY (10000);
AT_SEND ("AT+CFUN=0", "switch off");
NOT_IMPLEMENTED ( "22: The MS shall not initiate an RR
connection establishment on cell A or
on cell B (check for IMSI detach ) This
is checked during 3 seconds." )

ISS_DELAY ( 10000 )
NOT_IMPLEMENTED ( "23: Depending on what has been
performed in step 21 the MS is brought
back to operation." )

AT_SEND ("AT+CFUN=1", "switch on");
AT_SEND ("AT+COPS=0", "automatic registration");
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "24: Establishment
cause: Location updating." )
    BF_SET_VAL ( establishment_cause, M3(0,0,0) , "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND ( 1, immediate_assignment, "25" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT ( 1, location_updating_request_del, "26: location updating type
= normal, CKSN = no key available, LAI =
deleted LAI, mobile identity = IMSI
(This checks the deletion of the
forbidden lists )" )
BS_MSG3_SEND_BEGIN ( 1, location_updating_reject, "5:
Reject cause = Location Area not
allowed." )
    BF_SET_VAL ( reject_cause, 0x0C, "Location Area not allowed" )
BS_MSG3_SEND_END( )
BS_MSG3_SEND ( 1, channel_release, "28: After the sending of this message,
the SS waits for the disconnection of
the main signalling link. The following

```

```

messages are sent and shall be received
on cell A." )

ISS_DELAY      ( 10000 )
NOT_IMPLEMENTED (
"29: The RF level of cell B is lowered
until the MS selects cell A." )

BS_SET_POWER   ( 1, -120 )
BS_SET_POWER   ( 0, -60 )
BS_RACH_AWAIT_BEGIN ( 0, channel_request, "30: Establishment
cause: Location updating." )
    BF_SET_VAL ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND ( 0, immediate_assignment, "31" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT ( 0, location_updating_request_del, "32" )
BS_MSG3_SEND ( 0, authentication_request, "33" )
BS_MSG3_AWAIT ( 0, authentication_response, "34" )
BS_MSG3_SEND_BEGIN ( 0, location_updating_accept_tmsi,
"35: Mobile identity = TMSI." )
    BF_SET_VAL ( lac, LAC_C, "LAI = c" )
BS_MSG3_SEND_END ( )
BS_MSG3_AWAIT ( 0, tmsi_reallocation_complete, "36" )
BS_MSG3_SEND ( 0, channel_release, "37: After the sending of this message,
the SS waits for the disconnection of
the main signalling link." )

```

History:	27.11.97	DL	Initial
	12.04.01	HM	Last LUP ACCEPT for correct LA

### 3.5.8 MMM048: §26.7.4.2.4, LUP rejected: no roaming in this location area (Proc. 1)

**Description:** The SS rejects a normal location updating with the cause value "Roaming not allowed in this area". The channel is released. The SS checks that the MS does not perform periodic location updating procedure. The MS is turned off and then on. The SS checks that the MS performs location updating on the cell on which its location update request had been rejected (this checks that the LA is not the forbidden list after switch on). This procedure is performed another time but the deletion of the list is checked while removing the SIM (instead of turning off the MS). (Ref.: [2], §26.7.4.2.4)

**Preamble:** MMM010

**Script:**

```

SET_TIMEOUT          ( 30000 )

NOT_IMPLEMENTED     (                               "The following messages are sent and
                                                       shall be received on cell A." )
NOT_IMPLEMENTED     (                               "1: The RF level of cell B is lowered
                                                       until cell B is no more suitable and
                                                       the MS selects cell A." )

BS_SET_POWER        ( 1, -120 )

BS_RACH_AWAIT_BEGIN                               ( 0, channel_request, "2: Establishment
                                                       cause: Location updating." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL  ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND       ( 0, immediate_assignment, "3" )
BS_CONFIG_CHANNEL  ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT      ( 0, location_updating_request_tmsi_B_HMCC, "4" )
BS_MSG3_SEND_BEGIN                               ( 0, location_updating_reject, "5:
                                                       Reject cause IE is Roaming not allowed
                                                       in this location area." )
    BF_SET_VAL      ( reject_cause, 0x0D, "Roaming not allowed in this location area" )
BS_MSG3_SEND_END( )
BS_MSG3_SEND       ( 0, channel_release, "6: After the sending of this message,
                                                       the SS waits for the disconnection of
                                                       the main signalling link." )

NOT_IMPLEMENTED     (                               "7: The SS waits at least 7 minutes for
                                                       a possible location updating." )

ISS_DELAY (10000)
NOT_IMPLEMENTED     (                               "8: The MS shall not initiate an RR
                                                       connection establishment on cell A or
                                                       on cell B." )

NOT_IMPLEMENTED     (                               "9: If possible (see PICS ) the MS is
                                                       switched off. Otherwise if possible the
                                                       power is removed." )

AT_SEND ("AT+CFUN=0", "switch off");
NOT_IMPLEMENTED     (                               "10: Depending on what has been
                                                       performed in step 9 the MS is brought
                                                       back to operation and placed in a
                                                       automatic mode." )

ISS_DELAY (10000)
AT_SEND ("AT+CFUN=1", "switch on");
AT_SEND ("AT+COPS=0", "automatic registration");
BS_RACH_AWAIT_BEGIN                               ( 0, channel_request, "11: Establishment
                                                       cause: Location updating." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL  ( 0, AGCH, UNACK, SAPI_0 )

```

```
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND      ( 0, immediate_assignment, "12" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT     ( 0, location_updating_request_B_HMCC_del,      "13: Location
Updating Type = normal." )
BS_MSG3_SEND      ( 0, location_updating_accept_A_HMCC,      "14: IE Mobile Identity not
present." )
BS_MSG3_SEND      ( 0, channel_release,      "15: After the sending of this message,
the SS waits for the disconnection of
the main signalling link." )
```

History:	01.12.97	DL	Initial
	12.04.01	HM	Last LUP ACCEPT for correct LA

### 3.5.9 MMM049: §26.7.4.2.4, LUP rejected: no roaming in this location area (Proc. 2)

**Description:** The SS rejects a normal location updating with the cause value "Roaming not allowed in this area". The channel is released. The SS checks that the MS does not answer to a paging message with TMSI, rejects a request from CM entity but supports an emergency call. (Ref.: [2], §26.7.4.2.4)

**Preamble:** MMM010

**Script:**

```

SET_TIMEOUT          ( 30000 )

NOT_IMPLEMENTED      (                               "The following messages are sent and
                                                         shall be received on cell A." )
NOT_IMPLEMENTED      (                               "1: The RF level of cell B is lowered
                                                         until cell B is no more suitable and
                                                         the MS selects cell A." )

BS_SET_POWER         ( 0, -50 )
BS_SET_POWER         ( 1, -80 )

BS_RACH_AWAIT_BEGIN ( 0, channel_request, "2: Establishment
                                                         cause: Location updating." )
    BF_SET_VAL        ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL    ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND         ( 0, immediate_assignment, "3" )
BS_CONFIG_CHANNEL    ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT        ( 0, location_updating_request_tmsi_B_HMCC, "4" )
BS_MSG3_SEND_BEGIN   ( 0, location_updating_reject, "5:
                                                         Reject cause IE is Roaming not allowed
                                                         in this location area." )
    BF_SET_VAL        ( reject_cause, 0x0D, "Roaming not allowed in this location area" )
BS_MSG3_SEND_END( )
BS_MSG3_SEND         ( 0, channel_release, "6: After the sending of this message,
                                                         the SS waits for the disconnection of
                                                         the main signalling link." )

NOT_IMPLEMENTED      (                               "The following messages are sent and
                                                         shall be received on cell B." )
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "7: Establishment
                                                         cause: Location updating." )
    BF_SET_VAL        ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL    ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND         ( 1, immediate_assignment, "8" )
BS_CONFIG_CHANNEL    ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 1,
                                                         location_updating_request_B_HMCC_del,
                                                         "9" )
    BF_SET_VAL        ( lac, 0xFFFFE, "LAI = deleted" )
BS_MSG3_AWAIT_END( )
BS_MSG3_SEND_BEGIN   ( 1, location_updating_reject, "10:
                                                         Reject cause IE is Roaming not allowed
                                                         in this location area." )
    BF_SET_VAL        ( reject_cause, 0x0D, "Roaming not allowed in this location area" )
BS_MSG3_SEND_END( )
BS_MSG3_SEND         ( 1, channel_release, "11: After the sending of this message,
                                                         the SS waits for the disconnection of
                                                         the main signalling link." )

```

```

NOT_IMPLEMENTED ( "12: The SS waits for a possible
                  location updating procedure on both
                  cells A and B for 2 minutes." )
NOT_IMPLEMENTED ( "13: The MS shall not initiate an RR
                  connection establishment on cell A or
                  on cell B within 2 minutes after the
                  end of step 11." )

ISS_DELAY (120000)
BS_CONFIG_CHANNEL ( 1, PCH, UNACK, SAPI_0 )
BS_MSG3_SEND ( 1, paging_request_type_1, "14a: The MS is paged in cell B." )
NOT_IMPLEMENTED ( "15a: The MS shall ignore this message.
                  This is checked during 3 seconds." )

ISS_DELAY (3000)
BS_CONFIG_CHANNEL ( 0, PCH, UNACK, SAPI_0 )
BS_MSG3_SEND ( 0, paging_request_type_1, "14a: The MS is paged in cell A." )
NOT_IMPLEMENTED ( "15a: The MS shall ignore this message.
                  This is checked during 3 seconds." )

ISS_DELAY (3000)
NOT_IMPLEMENTED ( "16: A MO CM connection is attempted." )
AT_SEND ("ATD6969554;", "dial");
NOT_IMPLEMENTED ( "17: The MS shall not initiate an RR
                  connection establishment on cell A or
                  cell B. This is checked during 3
                  seconds." )

ISS_DELAY (3000)
NOT_IMPLEMENTED ( "18: If the MS supports speech (see PICS
                  ), it is made to perform an emergency
                  call." )

AT_SEND ("ATD112;", "dial emergency number");
BS_RACH_AWAIT_BEGIN ( 0, channel_request, "19: Establishment
                    cause: Emergency call." )
    BF_SET_VAL ( establishment_cause, M3(1,0,1 ), "Emergency call" )
BS_RACH_AWAIT_END( )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_MSG3_SEND ( 0, immediate_assignment, "20" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT ( 0, cm_service_request_ec_imsi, "21: CM service type: Emergency
                    call establishment." )
BS_MSG3_SEND ( 0, cm_service_accept, "22" )
BS_MSG3_AWAIT ( 0, emergency_setup, "23" )
BS_MSG3_SEND ( 0, release_complete_to_ms, "24: Cause: unassigned number."
                    )
BS_MSG3_SEND ( 0, channel_release, "25: After the sending of this message,
                    the SS waits for the disconnection of
                    the main signalling link." )

```

History: 01.12.97 DL Initial

### 3.5.10 MMM050: §26.7.4.2.4, LUP rejected: no roaming in this location area (Proc. 3)

**Description:** The SS rejects a normal location updating with the cause value "Roaming not allowed in this area". This is done for 6 different location areas. Then the SS checks that the MS does not attempt to begin a location updating procedure on the non-allowed location areas. (Ref.: [2], §26.7.4.2.4)

**Preamble:** MMM010

**Script:**

```

SET_TIMEOUT          ( 30000 )

NOT_IMPLEMENTED      (                               "The following messages are sent and
                                                         shall be received on cell A." )
NOT_IMPLEMENTED      (                               "1: The RF level of cell B is lowered
                                                         until cell B is no more suitable and
                                                         the MS selects cell A." )

BS_SET_POWER         ( 0, -50 )
BS_SET_POWER         ( 1, -80 )

BS_RACH_AWAIT_BEGIN ( 0, channel_request, "2: Establishment
                                                         cause: Location updating." )
    BF_SET_VAL        ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL    ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND         ( 0, immediate_assignment, "3" )
BS_CONFIG_CHANNEL    ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT        ( 0, location_updating_request_tmsi_B_HMCC, "4" )
BS_MSG3_SEND_BEGIN   ( 0, location_updating_reject, "5:
                                                         Reject cause IE is Roaming not allowed
                                                         in this location area." )
    BF_SET_VAL        ( reject_cause, 0x0D, "Roaming not allowed in this location area" )
BS_MSG3_SEND_END( )
BS_MSG3_SEND         ( 0, channel_release, "6: After the sending of this message,
                                                         the SS waits for the disconnection of
                                                         the main signalling link." )

NOT_IMPLEMENTED      (                               "The following messages are sent and
                                                         shall be received on cell B." )
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "9: Establishment
                                                         cause: Location updating." )
    BF_SET_VAL        ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL    ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND         ( 1, immediate_assignment, "10" )
BS_CONFIG_CHANNEL    ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 1,
                                                         location_updating_request_B_HMCC_del,
                                                         "11" )
    BF_SET_VAL        ( lac, 0xFFFE, "LAI = deleted" )
BS_MSG3_AWAIT_END( )
BS_MSG3_SEND_BEGIN   ( 1, location_updating_reject, "12:
                                                         Reject cause IE is Roaming not allowed
                                                         in this location area." )
    BF_SET_VAL        ( reject_cause, 0x0D, "Roaming not allowed in this location area" )
BS_MSG3_SEND_END( )

BS_SET_SYS_INFO      ( 0, system_information_type_3_C_HMCC )
BS_SET_SYS_INFO      ( 0, system_information_type_4_C_HMCC )

```

```

BS_MSG3_SEND      ( 1, channel_release,      "13: After the sending of this message,
                                                         the SS waits for the disconnection of
                                                         the main signalling link." )
NOT_IMPLEMENTED   (
                                                         "14: Change_LAI ( A ) within 5 seconds
                                                         after step 12. The following messages
                                                         are sent and shall be received on cell
                                                         A." )

BS_RACH_AWAIT_BEGIN ( 0, channel_request, "17: Establishment
                                                         cause: Location updating." )
    BF_SET_VAL     ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND      ( 0, immediate_assignment, "18" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 0,
                                                         location_updating_request_B_HMCC_del,
                                                         "19" )
    BF_SET_VAL     ( lac, 0xFFFE,          "LAI = deleted" )
BS_MSG3_AWAIT_END( )
BS_MSG3_SEND_BEGIN ( 0, location_updating_reject, "20:
                                                         Reject cause IE is Roaming not allowed
                                                         in this location area." )
    BF_SET_VAL     ( reject_cause, 0x0D, "Roaming not allowed in this location area" )
BS_MSG3_SEND_END( )

BS_SET_SYS_INFO   ( 1, system_information_type_3_D_HMCC )
BS_SET_SYS_INFO   ( 1, system_information_type_4_D_HMCC )

BS_MSG3_SEND      ( 0, channel_release,      "21: After the sending of this message,
                                                         the SS waits for the disconnection of
                                                         the main signalling link." )
NOT_IMPLEMENTED   (
                                                         "22: Change_LAI ( B ) within 5 seconds
                                                         after step 20. The following messages
                                                         are sent and shall be received on cell
                                                         B." )
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "25: Establishment
                                                         cause: Location updating." )
    BF_SET_VAL     ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "26" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 1,
                                                         location_updating_request_B_HMCC_del,
                                                         "27" )
    BF_SET_VAL     ( lac, 0xFFFE,          "LAI = deleted" )
BS_MSG3_AWAIT_END( )
BS_MSG3_SEND_BEGIN ( 1, location_updating_reject, "28:
                                                         Reject cause IE is Roaming not allowed
                                                         in this location area." )
    BF_SET_VAL     ( reject_cause, 0x0D, "Roaming not allowed in this location area" )
BS_MSG3_SEND_END( )

BS_SET_SYS_INFO   ( 0, system_information_type_3_E_HMCC )
BS_SET_SYS_INFO   ( 0, system_information_type_4_E_HMCC )

```

```

BS_MSG3_SEND      ( 1, channel_release,      "29: After the sending of this message,
the SS waits for the disconnection of
the main signalling link." )

NOT_IMPLEMENTED   (

"30: Change_LAI (A ) within 5 seconds
after step 28. The following messages
are sent and shall be received on cell
A." )

BS_RACH_AWAIT_BEGIN ( 0, channel_request, "33: Establishment
cause: Location updating." )

    BF_SET_VAL      ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND      ( 0, immediate_assignment, "34" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 0,
location_updating_request_B_HMCC_del,
"35" )

    BF_SET_VAL      ( lac, 0xFFFE,          "LAI = deleted" )
BS_MSG3_AWAIT_END( )
BS_MSG3_SEND_BEGIN ( 0, location_updating_reject,      "36:
Reject cause IE is Roaming not allowed
in this location area." )

    BF_SET_VAL      ( reject_cause, 0x0D, "Roaming not allowed in this location area" )
BS_MSG3_SEND_END( )

BS_SET_SYS_INFO   ( 1, system_information_type_3_F_HMCC )
BS_SET_SYS_INFO   ( 1, system_information_type_4_F_HMCC )

BS_MSG3_SEND      ( 0, channel_release,      "37 After the sending of this message,
the SS waits for the disconnection of
the main signalling link." )

NOT_IMPLEMENTED   (

"38: Change_LAI (B ) within 5 seconds
after step 28. The following messages
are sent and shall be received on cell
B." )

BS_RACH_AWAIT_BEGIN ( 1, channel_request, "41: Establishment
cause: Location updating." )

    BF_SET_VAL      ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "42" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 1,
location_updating_request_B_HMCC_del,
"43" )

    BF_SET_VAL      ( lac, 0xFFFE,          "LAI = deleted" )
BS_MSG3_AWAIT_END( )
BS_MSG3_SEND_BEGIN ( 1, location_updating_reject,      "44:
Reject cause IE is Roaming not allowed
in this location area." )

    BF_SET_VAL      ( reject_cause, 0x0D, "Roaming not allowed in this location area" )
BS_MSG3_SEND_END( )
BS_MSG3_SEND      ( 1, channel_release,      "45: After the sending of this message,
the SS waits for the disconnection of
the main signalling link." )

```

```
NOT_IMPLEMENTED ( "46: The SS waits for a possible
                    location updating procedure on both
                    cells A and B for 7 minutes." )

ISS_DELAY (30000)
NOT_IMPLEMENTED ( "47: The MS shall not initiate an RR
                    connection establishment on cell A or
                    on cell B within 7 minutes after the
                    end of step 45." )
```

History:            02.12.97                    DL                    Initial

### 3.5.11 MMM051: §26.7.4.2.4, LUP rejected: no roaming in this LA (Proc. 4)

**Description:** The SS accepts a normal location updating on a cell not belonging to the HPLMN. Then when the MS attempts to perform a periodic location updating to this cell, the SS rejects this location updating with the cause value "Roaming not allowed in this area". Two cells are then available, one belonging to the HPLMN but with the weakest level. It is checked that the MS returns to its HPLMN. (Ref.: [2], §26.7.4.2.4)  
 [Testcase passes, but there is an ASSERT at the end of the testcase in MM. Probably the stack is okay, but the testcase needs to be reworked as soon as possible. HM, 12-Apr-01]

**Preamble:** MMM012

**Script:**

```

/* SET_TIMEOUT      ( 40000 ) */
SET_TIMEOUT        ( 61000 )

NOT_IMPLEMENTED    (
                                "The following messages are sent and
                                shall be received on cell A." )
NOT_IMPLEMENTED    (
                                "1: The SS waits for a periodic location
                                updating procedure on cell A for 7
                                minutes after the initial conditions
                                have been established." )
BS_RACH_AWAIT_BEGIN ( 0, channel_request, "2:" )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0) , "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND      ( 0, immediate_assignment, "3" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 );
BS_MSG3_AWAIT_BEGIN ( 0,
                                location_updating_request_tmsi_A_HMCC,
                                "4" )
BF_SET_VAL        ( lut, M2( 0,1 ) , "periodic updating" )
    BF_SET_VAL      ( lac, LAC_A, "LAI = A" )
BS_MSG3_AWAIT_END( )
BS_MSG3_SEND_BEGIN ( 0, location_updating_accept_A_HMCC,
                                "5" )
    BF_SET_VAL      ( lac, LAC_A, "LAI = A" )
BS_MSG3_SEND_END( )
BS_MSG3_SEND      ( 0, channel_release,
                                "6: After the sending of this message,
                                the SS waits for the disconnection of
                                the main signalling link." )
NOT_IMPLEMENTED    (
                                "7: The location area identity of cell C
                                shall be changed to that of a location
                                area in the Home PLMN." )

BS_SET_SYS_INFO   ( 2, system_information_type_3 )
BS_SET_SYS_INFO   ( 2, system_information_type_4 )

NOT_IMPLEMENTED    (
                                "8: The SS waits for a periodic location
                                updating procedure on cell A for 7
                                minutes." )

ISS_DELAY (30000)

BS_RACH_AWAIT_BEGIN ( 0, channel_request, "9:" )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0) , "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND      ( 0, immediate_assignment, "10" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 );

```

```

BS_MSG3_AWAIT_BEGIN          ( 0,
                               location_updating_request_tmsi_A_HMCC,
                               "11")
BF_SET_VAL      ( lut, M2( 0,1 ), "periodic updating" )
BF_SET_VAL      ( lac, LAC_A,     "LAI = A" )
BS_MSG3_AWAIT_END( )
BS_MSG3_SEND_BEGIN          ( 0, location_updating_reject,      "12:
                               Reject cause IE is Roaming not allowed
                               in this location area." )
BF_SET_VAL      ( reject_cause, 0x0D, "Roaming not allowed in this location area" )
BS_MSG3_SEND_END( )
BS_MSG3_SEND      ( 0, channel_release, "13: After the sending of this message,
                               the SS waits for the disconnection of
                               the main signalling link." )
BS_RACH_AWAIT_BEGIN          ( 2, channel_request, "16: Establishment
                               cause: Location updating." )
BF_SET_VAL      ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 2, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 2, 0 )
BS_MSG3_SEND      ( 2, immediate_assignment, "17" )
BS_CONFIG_CHANNEL ( 2, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN          ( 2,
                               location_updating_request_A_HMCC_del,
                               "18" )
BF_SET_VAL      ( lac, 0xFFFE,     "LAI = deleted" )
BS_MSG3_AWAIT_END( )
BS_MSG3_SEND      ( 2, location_updating_accept_A_HMCC, "19: IE Mobile Identity not
                               present." )
BS_MSG3_SEND      ( 2, channel_release, "20: After the sending of this message,
                               the SS waits for the disconnection of
                               the main signalling link." )

```

History:	02.12.97	DL	Initial
	18.02.00	HM	Revision (increased initial timeout)
	18.03.04	HM	CKSN corrected

### 3.5.12 MMM052: §26.7.4.2.4, LUP rejected: no roaming in this LA (Proc. 5)

**Description:** If SIM removal is possible while MS is powered:  
The SS rejects a normal location updating with the cause value "Roaming not allowed in this area". The channel is released. The SS checks that the MS does not perform periodic location updating procedure. The SIM is removed and inserted in the MS. The SS checks that the MS performs location updating on the cell on which its location update request had been rejected (this checks that the LA is not the forbidden list after switch on). (Ref.: [2], §26.7.4.2.4)

**Preamble:** MMM010

**Script:**

```

SET_TIMEOUT      ( 30000 )
COMMAND          ("MM CONFIG T3212_CNT=6") /* T3212 = 60 sec. - should be 6 min.
!*/

NOT_IMPLEMENTED (                               "The following messages are sent and
                                                shall be received on cell A." )

BS_SET_POWER     ( 0, -50 )
BS_SET_POWER     ( 1, -120 )
NOT_IMPLEMENTED (                               "1: The RF level of cell B is lowered
                                                until cell B is no longer suitable and
                                                the MS selects cell A." )
BS_RACH_AWAIT_BEGIN ( 0, channel_request, "2: Establishment
                                                cause: Location updating" )
    BF_SET_VAL    ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND     ( 0, immediate_assignment, "3" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT    ( 0, location_updating_request_tmsi_B_HMCC, "4" )
BS_MSG3_SEND_BEGIN ( 0, location_updating_reject, "5:
                                                Reject cause IE is Roaming not allowed
                                                in this location area." )
    BF_SET_VAL    ( reject_cause, 0x0D, "Roaming not allowed in this location area" )
BS_MSG3_SEND_END( )
BS_MSG3_SEND     ( 0, channel_release, "6: After the sending of this message,
                                                the SS waits for the disconnection of
                                                the main signalling link." )

NOT_IMPLEMENTED (                               "7: The SS waits at least 7 minutes for
                                                a possible location updating." )

ISS_DELAY (60000)
NOT_IMPLEMENTED (                               "8: The MS shall not initiate an RR
                                                connection establishment on cell A or
                                                on cell B." )

NOT_IMPLEMENTED (                               "9: The MS is switched off." )
AT_SEND ("AT+CFUN=0", "switch off");
NOT_IMPLEMENTED (                               "10: Depending on what has been
                                                performed in step 9 the MS is brought
                                                back to operation and placed in a
                                                automatic mode." )

ISS_DELAY (10000)
AT_SEND ("AT+CFUN=1", "switch on");
AT_SEND ("AT+COPS=0", "automatic registration");

BS_RACH_AWAIT_BEGIN ( 0, channel_request, "11: Establishment
                                                cause: Location updating." )
    BF_SET_VAL    ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )

```

```
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND      ( 0, immediate_assignment, "12" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT     ( 0, location_updating_request_B_HMCC_del, "13: Location
Updating Type = normal." )
BS_MSG3_SEND      ( 0, location_updating_accept_A_HMCC, "14: IE Mobile Identity not
present." )
BS_MSG3_SEND      ( 0, channel_release, "15: After the sending of this message,
the SS waits for the disconnection of
the main signalling link." )
```

History:	02.12.97	DL	Initial
	17.04.01	HM	Last LUP ACCEPT for correct LA

### 3.5.13 MMM053: §26.7.4.3.1, Abnormal cases: random access fails

**Description:** The SS causes a random access failure in the MS during a normal location updating procedure. After the expiry of T3213 and when the cell reselection procedure is finished the MS will try to restart the normal location updating procedure.  
The test is repeated but the original cause of the location updating procedure has disappeared. The SS then checks that the MS will not restart the location updating procedure. (Ref.: [2], §26.7.4.3.1)

**Preamble:** MMM015

**Script:**

```

SET_TIMEOUT          ( 30000 )

/* COMMAND ("MM CONFIG TIMER_SET=<T3213, 200>")          T3213 = 10 sec. */
NOT_IMPLEMENTED     (                               "The following messages are sent and
                                                    shall be received on cell A." )
NOT_IMPLEMENTED     (                               "1: The RF level of cell B is lowered
                                                    until the MS selects cell A. The RF
                                                    level of cell B is set sufficiently low
                                                    to ensure that cell B is not suitable
                                                    as defined in GSM 05.08 section 6.6.2."
                                                    )
BS_SET_POWER        ( 1, -80 )

BS_RACH_AWAIT_BEGIN ( 0, channel_request, "2a: Establishment
                                                    cause: Location updating. This message
                                                    is sent by the MS (Max_Retrans + 1 )
                                                    times." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_RACH_AWAIT_BEGIN ( 0, channel_request, "2b: Establishment
                                                    cause: Location updating. This message
                                                    is sent by the MS (Max_Retrans + 1 )
                                                    times." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )

NOT_IMPLEMENTED     (                               "3: The SS waits for 4 seconds." )
NOT_IMPLEMENTED     (                               "4: The MS shall not send any layer 3
                                                    message during this time." )
BS_RACH_AWAIT_BEGIN ( 0, channel_request, "5a: Establishment
                                                    cause: Location updating. The time
                                                    difference between this message and the
                                                    last CHANNEL REQUEST sent in step 2
                                                    shall be in the range 4 s - 9 s." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND       ( 0, immediate_assignment, "6: " )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 0, location_updating_request, "7:
                                                    location updating type = normal, CKSN =
                                                    initial value, LAI = b, mobile station
                                                    classmark 1 and mobile identity =
                                                    TMSI." )
    BF_SET_VAL      ( lac, LAC_B, "LAI = b" )
BS_MSG3_AWAIT_END( )
BS_MSG3_SEND       ( 0, location_updating_accept, "8: Optional IE Mobile Identity
                                                    not included" )

```

```

BS_MSG3_SEND      ( 0, channel_release,      "9: After the sending of this message,
                                                         the SS waits for the disconnection of
                                                         the main signalling link." )

ISS_DELAY         ( 30000 )
NOT_IMPLEMENTED   (
NOT_IMPLEMENTED   (
                                                         "The following messages are sent and
                                                         shall be received on cell B." )
                                                         "10: The RF level of cell A is lowered
                                                         until the MS selects cell B. The RF
                                                         level of cell A is set sufficiently low
                                                         to ensure that cell A is not suitable
                                                         as defined in GSM 05.08 section 6.6.2."
                                                         )

BS_SET_POWER      ( 0, -80 )
BS_SET_POWER      ( 1, -60 )
BS_RACH_AWAIT_BEGIN
                                                         ( 1, channel_request, "11: Establishment
                                                         cause: Location updating. This message
                                                         is sent by the MS (Max_Retrans + 1 )
                                                         times." )
    BF_SET_VAL     ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END( )
BS_RACH_AWAIT_BEGIN
                                                         ( 1, channel_request, "11: Establishment
                                                         cause: Location updating. This message
                                                         is sent by the MS (Max_Retrans + 1 )
                                                         times." )
    BF_SET_VAL     ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END( )
NOT_IMPLEMENTED   (
                                                         "12: Immediately after the end of step
                                                         11 the RF level of cell A is set to the
                                                         same value as for cell B." )

BS_SET_POWER      ( 0, -60 )
NOT_IMPLEMENTED   (
                                                         "13: The MS shall not initiate an RR
                                                         connection establishment on cell A or
                                                         on cell B. This is checked during 15
                                                         s." )

BS_RACH_EXPECT_TIMEOUT ( 0, 15000)

BS_CONFIG_CHANNEL ( 1, PCH, UNACK, SAPI_0 )
BS_MSG3_SEND      ( 1, paging_request_type_1, "1: Mobile identity = TMSI1." )

BS_RACH_EXPECT_TIMEOUT ( 1, 10000)

```

History:            02.12.97                            DL                            Initial

### 3.5.14 MMM054: §26.7.4.3.2, Abnormal cases: attempt counter <= 4, LAI differs

**Description:** The MS is made to perform a normal location updating procedure. Four types of failure cases are triggered:

- sending of a Location Updating Reject with cause randomly chosen between all defined cause values except 2, 3, 6, 11, 12 and 13 (which trigger a different action) (case g of GSM 04.08 section 4.4.4.9);
- RR-connection failure (case d);
- sending of a CHANNEL RELEASE message before the normal end of the procedure (case f);
- T3210 time-out (case e).

As there is no stored LAI or the stored LAI is different from the broadcast LAI, and the attempt counter in the MS shall be lower than 4, the MS enters the state MM IDLE and substate ATTEMPTING TO UPDATE and waits for T3211 seconds before trying again a location updating procedure.

Then the behaviour of the MS in the MM IDLE ATTEMPTING TO UPDATE SERVICE state is checked, that is:

- not answer to paging with TMSI;
- not perform an IMSI detach procedure;
- support request for emergency call;
- use requests from CM layer other than emergency call as triggering of a normal location updating procedure;
- perform normal location updating procedure when a new cell is entered.

(Ref.: [2], §26.7.4.3.2)

**Preamble:** MMM009

**Script:**

```

SET_TIMEOUT          ( 30000 )

NOT_IMPLEMENTED      (
NOT_IMPLEMENTED      (
    "The following messages are sent and
    shall be received on cell B." )
    "1: The RF level of cell A is lowered
    until the MS selects cell B. The RF
    level of cell A is set sufficiently low
    to ensure that cell A is not suitable
    as defined in GSM 05.08 section 6.6.2."
)

BS_SET_POWER         ( 0, -120 )
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "2: Establishment
    cause: Location updating." )
    BF_SET_VAL        ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL    ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND         ( 1, immediate_assignment, "3" )
BS_CONFIG_CHANNEL    ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 1, location_updating_request, "4:
    location updating type = normal, CKSN =
    initial value, LAI = a, mobile station
    classmark 1 as given by the PICS and
    mobile identity = TMSI. " )
    BF_SET_VAL        ( key_sequence, CKSN_2, "CKSN 2" )
    BF_SET_VAL        ( lac, LAC_C, "LAI = c" )
BS_MSG3_AWAIT_END( )
BS_MSG3_SEND         ( 1, location_updating_reject, "5: IE Reject cause is set to a
    value arbitrarily chosen: * in table
    10.66 of [1], causes #2, #3, #6, #11,
    #12 and #13 being excluded." )
BS_MSG3_SEND         ( 1, channel_release, "6: After the sending of this message,
    the SS waits for the disconnection of
    the main signalling link." )

```

```

NOT_IMPLEMENTED (
    "7: The MS shall not initiate an RR
    connection establishment on cell A or
    on cell B during T3211 seconds at least
    after the channel release." )
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "8: Establishment
    cause: Location updating." )
    BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND ( 1, immediate_assignment, "9" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT ( 1, location_updating_request_del,
    "10: location updating type
    = normal, CKSN = no key available, LAI
    = deleted LAI (the MCC and MNC hold the
    previous values, the LAC is coded FFFE
    ), Mobile Identity = IMSI." )
NOT_IMPLEMENTED (
    "11: The SS deactivates the SACCH on the
    dedicated channel. The SS waits until
    there are no more SACCH frames in the
    uplink direction. This release
    connection is done within 8 SACCH
    frames." )
BS_SET_ERROR (1, 4) /* radio link failure */
NOT_IMPLEMENTED (
    "12: The MS shall not initiate an RR
    connection establishment on cell A or
    on cell B within T3211 +
    RadioLinkTimeout after the SS
    deactivates the SACCH." )
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "13: Establishment
    cause: Location updating." )
    BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND ( 1, immediate_assignment, "14" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT ( 1, location_updating_request_del,
    "15: location updating type
    = normal, CKSN = no key available, LAI
    = deleted LAI (the MCC and MNC hold the
    previous values, the LAC is coded FFFE
    ), Mobile Identity = IMSI." )
BS_MSG3_SEND ( 1, channel_release,
    "16: After the sending of this message,
    the SS waits for the disconnection of
    the main signalling link." )
NOT_IMPLEMENTED (
    "17: The MS shall not initiate an RR
    connection establishment on cell A or
    on cell B during T3211 seconds at least
    after the channel release." )
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "18: Establishment
    cause: Location updating." )
    BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND ( 1, immediate_assignment, "19" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 1, location_updating_request_imsi,
    "20: location updating type =
    normal, CKSN = no key available, LAI =

```

```

deleted LAI (the MCC and MNC hold the
previous values, the LAC is coded FFFE
), Mobile Identity = IMSI." )
BF_SET_VAL      ( key_sequence, CKSN_NONE, "CKSN not available" )
BF_SET_VAL      ( lac, 0xFFFE,           "LAI deleted" )
BS_MSG3_AWAIT_END( )
BS_MSG3_SEND    ( 1, authentication_request,      "21: CKSN = initial CKSN." )
BS_MSG3_AWAIT   ( 1, authentication_response,     "22" )
BS_MSG3_SEND_BEGIN ( 1, location Updating_accept_tmsi,
                    "23: IE mobile Identity = new
                    TMSI." )
BF_SET_VAL      ( tmsi_3, 0x57,           "tmsi 3 changed: 0x56 -> 0x57" )
BF_SET_VAL      ( tmsi_4, 0x08,           "tmsi 4 changed: 0x78 -> 0x08" )
BF_SET_VAL      ( lac, LAC_B,            "LAI = B" )
BS_MSG3_SEND_END( )
BS_MSG3_AWAIT   ( 1, tmsi_reallocation_complete, "24" )
BS_MSG3_SEND    ( 1, channel_release,         "25: After the sending of this message,
                    the SS waits for the disconnection of
                    the main signalling link. MS is now
                    'idle updated' in cell B." )

ISS_DELAY (5000)

NOT_IMPLEMENTED (
NOT_IMPLEMENTED (
                    "The following messages are sent and
                    shall be received on cell A." )
                    "26: The RF level of cell B is lowered
                    until the MS selects cell A. The RF
                    level of cell B is set sufficiently low
                    to ensure that cell B is not suitable
                    as defined in GSM 05.08 section 6.6.2."
                    )

BS_SET_POWER    ( 1, -120 )
BS_SET_POWER    ( 0, -60 )
BS_SET_ERROR    ( 0, 7) /* downlink Error */
BS_RACH_AWAIT_BEGIN ( 0, channel_request, "27: Establishment
                    cause: Location updating." )
BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND    ( 0, immediate_assignment, "28" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 0, location Updating_request, "29:
                    location updating type = normal, CKSN =
                    initial value, LAI = b, mobile station
                    classmark 1 as given by the PICS and
                    mobile identity = TMSI." )
BF_SET_VAL      ( tmsi_3, 0x57,           "tmsi 3 changed: 0x56 -> 0x57" )
BF_SET_VAL      ( tmsi_4, 0x08,           "tmsi 4 changed: 0x78 -> 0x08" )
BF_SET_VAL      ( lac, LAC_B,            "LAC B" )
BS_MSG3_AWAIT_END( )
NOT_IMPLEMENTED (
                    "30: performs step 5 with reject cause
                    #100 and step 6." )

BS_MSG3_SEND    ( 0, location Updating_reject, "" )
BS_MSG3_SEND    ( 0, channel_release, "" )

ISS_DELAY (5000)

BS_MSG3_SEND    ( 0, paging_request_type_1, "31: Mobile identity = old TMSI of the
                    MS. This message is sent continuously
                    to the MS during 8 seconds." )

```

```

NOT_IMPLEMENTED ( "32: The SS checks that there is no
                    answer from the MS during 12 seconds."
                  )
NOT_IMPLEMENTED ( "33: If during steps 31 and 32 the MS
                    attempts to perform a location updating
                    procedure the SS will perform step 30
                    and then continue the procedure." )
NOT_IMPLEMENTED ( "34: If possible (see PICS ) SIM
                    detachment is performed. Otherwise if
                    possible (see PICS ) mobile switch off
                    is performed. Otherwise the power is
                    removed." )

AT_SEND ("AT+CFUN=0", "switch off");

NOT_IMPLEMENTED ( "35: The MS shall not initiate an RR
                    connection establishment on cell A or
                    on cell B. This is checked during 30
                    seconds." )

ISS_DELAY ( 5000 )
NOT_IMPLEMENTED ( "36: Depending on what has been
                    performed in step 34 the MS is brought
                    back to operation." )

AT_SEND ("AT+CFUN=1", "switch on");
AT_SEND ("AT+COPS=0", "automatic registration");

BS_RACH_AWAIT_BEGIN ( 0, channel_request, "37: Establishment
                       cause: Location updating." )
    BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND ( 0, immediate_assignment, "38" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT ( 0, location_updating_request_del,
                "39: location updating type
                 = normal, CKSN = no key available, LAI
                 = deleted LAI (the MCC and MNC hold the
                 previous values, the LAC is coded FFFE
                 ), Mobile Identity = IMSI." )
BS_MSG3_SEND ( 0, authentication_request, "40: CKSN = initial CKSN." )
BS_MSG3_AWAIT ( 0, authentication_response, "41" )
BS_MSG3_SEND_BEGIN ( 0, location_updating_accept_tmsi,
                    "42: IE mobile Identity = new
                     TMSI." )
    BF_SET_VAL ( tmsi_3, 0x57, "tmsi 3 changed: 0x56 -> 0x57" )
    BF_SET_VAL ( tmsi_4, 0x08, "tmsi 4 changed: 0x78 -> 0x08" )
    BF_SET_VAL ( lac, LAC_C, "LAI = c" )
BS_MSG3_SEND_END( )
BS_MSG3_AWAIT ( 0, tmsi_reallocation_complete, "43" )
BS_MSG3_SEND ( 0, channel_release, "44: After the sending of this message,
                                     the SS waits for the disconnection of
                                     the main signalling link. MS is now
                                     'idle updated' in cell A." )

ISS_DELAY (5000)

NOT_IMPLEMENTED ( "45: The RF level of cell A is lowered
                    until the MS selects cell B. The RF
                    level of cell A is set sufficiently low
                    to ensure that cell A is not suitable
                    as defined in GSM 05.08 section 6.6.2."
                  )

BS_SET_POWER ( 0, -120 )

```

```

BS_SET_POWER      ( 1, -60 )

BS_RACH_AWAIT_BEGIN      ( 1, channel_request, "46: Establishment
                           cause: Location updating." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "47" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN      ( 1, location_updating_request, "48:
                           location updating type = normal, CKSN =
                           initial value, LAI = a, mobile station
                           classmark 1 as given by the PICS and
                           mobile identity = TMSI." )
    BF_SET_VAL      ( tmsi_3, 0x57, "tmsi 3 changed: 0x56 -> 0x57" )
    BF_SET_VAL      ( tmsi_4, 0x08, "tmsi 4 changed: 0x78 -> 0x08" )
    BF_SET_VAL      ( lac, LAC_C, "LAI = c" )
BS_MSG3_AWAIT_END ( )
BS_MSG3_SEND      ( 1, authentication_request, "49" )
BS_MSG3_AWAIT      ( 1, authentication_response, "50: steps 49 and 50 are
                           performed N times. N shall be chosen in
                           such a way that T3210 expires." )

BS_MSG3_SEND      ( 1, authentication_request, "49" )
BS_MSG3_AWAIT      ( 1, authentication_response, "50: steps 49 and 50 are
                           performed N times. N shall be chosen in
                           such a way that T3210 expires." )

BS_MSG3_SEND      ( 1, authentication_request, "49" )
BS_MSG3_AWAIT      ( 1, authentication_response, "50: steps 49 and 50 are
                           performed N times. N shall be chosen in
                           such a way that T3210 expires." )

BS_MSG3_SEND      ( 1, authentication_request, "49" )
BS_MSG3_AWAIT      ( 1, authentication_response, "50: steps 49 and 50 are
                           performed N times. N shall be chosen in
                           such a way that T3210 expires." )

NOT_IMPLEMENTED ( "51: The SS checks that there is no more
activity from the MS on the channel." )
NOT_IMPLEMENTED ( "52: If the MS supports speech it is
made to perform an emergency call." )

ISS_DELAY ( 5000 )

AT_SEND ("ATD112;", "dial emergency number");

BS_RACH_AWAIT_BEGIN      ( 1, channel_request, "53: Establishment
                           cause: Emergency call." )
    BF_SET_VAL      ( establishment_cause, M3(1,0,1), "Emergency call" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "54" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN      ( 1, cm_service_request_ec_imsi, "55:
                           CM service type = Emergency call
                           establishment; CKSN = no key available;
                           Mobile Identity = IMSI." )
    BF_SET_VAL      ( service, M4(0,0,1,0), "Emergency call" )
BS_MSG3_AWAIT_END( )
BS_MSG3_SEND      ( 1, cm_service_accept, "56" )
BS_MSG3_AWAIT      ( 1, emergency_setup, "57" )
BS_MSG3_SEND      ( 1, release_complete_to_ms, "58: Cause = unassigned number."
                           )
BS_MSG3_SEND      ( 1, channel_release, "59" )

```

```

BS_RACH_AWAIT_BEGIN          ( 1, channel_request, "60: Establishment
                               cause: Location updating The SS will
                               wait at most 15 seconds for this
                               message." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "61" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT     ( 1, location_updating_request_del,
                    "62: location updating type
                    = normal, CKSN = no key available, LAI
                    = deleted LAI (the MCC and MNC hold the
                    previous values, the LAC is coded FFFE
                    ), Mobile Identity = IMSI." )
BS_MSG3_SEND      ( 1, authentication_request,
                    "63: CKSN = initial CKSN." )
BS_MSG3_AWAIT     ( 1, authentication_response,
                    "64" )
BS_MSG3_SEND_BEGIN ( 1, location_updating_accept_tmsi,
                    "65: IE mobile Identity = new
                    TMSI." )
    BF_SET_VAL      ( tmsi_3, 0x57,
                    "tmsi 3 changed: 0x56 -> 0x57" )
    BF_SET_VAL      ( tmsi_4, 0x08,
                    "tmsi 4 changed: 0x78 -> 0x08" )
    BF_SET_VAL      ( lac, LAC_B,
                    "lac B" )
BS_MSG3_SEND_END( )
BS_MSG3_AWAIT     ( 1, tmsi_reallocation_complete,
                    "66" )
BS_MSG3_SEND      ( 1, channel_release,
                    "67: After the sending of this message,
                    the SS waits for the disconnection of
                    the main signalling link. MS is now
                    'idle updated' in cell B." )

NOT_IMPLEMENTED (
                    "68: The RF level of cell B is lowered
                    until the MS selects cell A. The RF
                    level of cell B is set sufficiently low
                    to ensure that cell B is not suitable
                    as defined in GSM 05.08 section 6.6.2."
                    )

BS_SET_POWER      ( 1, -120 )
BS_SET_POWER      ( 0, -60 )
SET_TIMEOUT (30000);

BS_RACH_AWAIT_BEGIN          ( 0, channel_request, "69: Establishment
                               cause: Location updating." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND      ( 0, immediate_assignment, "70" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 0, location_updating_request,
                    "71:
                    location updating type = normal, CKSN =
                    initial value, LAI = b, mobile station
                    classmark 1 as given by the PICS and
                    mobile identity = TMSI." )
    BF_SET_VAL      ( tmsi_3, 0x57,
                    "tmsi 3 changed: 0x56 -> 0x57" )
    BF_SET_VAL      ( tmsi_4, 0x08,
                    "tmsi 4 changed: 0x78 -> 0x08" )
    BF_SET_VAL      ( lac, LAC_B,
                    "lac B" )
BS_MSG3_AWAIT_END ( )
BS_SET_ERROR (0, 4)
ISS_DELAY (4000);
/* radio link failure */

```

```

NOT_IMPLEMENTED ( "73: A MO CM connection is attempted
                  before T3211 expiry." )

AT_SEND ("ATD6969554;", "dial");

BS_RACH_AWAIT_BEGIN ( 0, channel_request, "74: Establishment
                    cause: Location updating." )
    BF_SET_VAL ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND ( 0, immediate_assignment, "75" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT ( 0, location_updating_request_del_f, "76: location updating type
            = normal, CKSN = no key available, LAI
            = deleted LAI (the MCC and MNC hold the
            previous values, the LAC is coded FFFE
            ), Mobile Identity = IMSI." )

BS_MSG3_SEND_BEGIN ( 0,
                    location_updating_accept_tmsi_no_follow
                    , "77: IE mobile Identity = new TMSI."
                    )
    BF_SET_VAL ( tmsi_3, 0x57, "tmsi 3 changed: 0x56 -> 0x57" )
    BF_SET_VAL ( tmsi_4, 0x08, "tmsi 4 changed: 0x78 -> 0x08" )
    BF_SET_VAL ( lac, LAC_C, "LAI = C" )
BS_MSG3_SEND_END ( )
BS_MSG3_AWAIT ( 0, tmsi_reallocation_complete, "78" )
BS_MSG3_SEND ( 0, channel_release, "79: Steps 80 to 83 are optional as the
            MS may have memorized the request for
            CM connection attempt Wait 10 s to
            decide whether to go directly to step
            84." )

/*
* BS_RACH_AWAIT_BEGIN ( 0, channel_request, "80: Establishment
                    cause: MOC" )
* BF_SET_VAL ( establishment_cause, M3(1,1,1 ), "Mobile Originated Call" )
* BS_RACH_AWAIT_END ( )
* BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
* BS_STORE_RACH_PARAMS ( 0, 0 )
* BS_MSG3_SEND ( 0, immediate_assignment, "81" )
* BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
* BS_MSG3_AWAIT_BEGIN ( 0, cm_service_request, "82: CKSN =
                    no key available, Mobile identity =
                    TMSI." )
* BF_SET_VAL ( tmsi_3, 0x57, "tmsi 3 changed: 0x56 -> 0x57" )
* BF_SET_VAL ( tmsi_4, 0x08, "tmsi 4 changed: 0x78 -> 0x08" )
* BF_SET_VAL ( key_sequence, CKSN_NONE, "CKSN not available" )
* BS_MSG3_AWAIT_END ( )
* BS_MSG3_SEND ( 0, channel_release, "83: After the sending of this message,
            the SS waits for the disconnection of
            the main signalling link. MS is now
            'idle updated' in cell A." )

*/
NOT_IMPLEMENTED ( "84: The RF level of cell A is lowered
                  until the MS selects cell B. The RF
                  level of cell A is set sufficiently low
                  to ensure that cell A is not suitable
                  as defined in GSM 05.08 section 6.6.2."
                  )

ISS_DELAY (10000)
BS_SET_POWER ( 0, -90 )

```

```

BS_ON_OFF          ( 1, TRUE )
BS_SET_POWER       ( 1, -60 )

BS_RACH_AWAIT_BEGIN ( 1, channel_request, "85: Establishment
                        cause: Location updating." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND       ( 1, immediate_assignment, "86" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 1, location_updating_request, "87:
                        location updating type = normal, CKSN =
                        no key available LAI = a, mobile
                        station classmark 1 as given by the
                        PICS and mobile identity = TMSI." )
    BF_SET_VAL      ( tmsi_3, 0x57, "tmsi 3 changed: 0x56 -> 0x57" )
    BF_SET_VAL      ( tmsi_4, 0x08, "tmsi 4 changed: 0x78 -> 0x08" )
    BF_SET_VAL      ( key_sequence, CKSN_NONE, "CKSN not available" )
    BF_SET_VAL      ( lac, LAC_C, "LAI = c" )
BS_MSG3_AWAIT_END ( )
NOT_IMPLEMENTED    ( "88: performs step 16 and notes the time
                        when the CHANNEL RELEASE message is
                        sent." )
BS_MSG3_SEND       ( 1, channel_release, "" )

ISS_DELAY (5000)

NOT_IMPLEMENTED    ( "89: The RF level of cell B is lowered
                        until the MS selects cell A. The RF
                        level of cell B is set sufficiently low
                        to ensure that cell B is not suitable
                        as defined in GSM 05.08 section 6.6.2." )

BS_ON_OFF          ( 1, FALSE )
BS_SET_ERROR       ( 1, 7) /* downlink Error */
BS_SET_POWER       ( 0, -60 )

BS_RACH_AWAIT_BEGIN ( 0, channel_request, "90: Establishment
                        cause: Location updating The time
                        interval between the last CHANNEL
                        RELEASE message and this message shall
                        be less than 0,8*T3211." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND       ( 0, immediate_assignment, "91" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT      ( 0, location_updating_request_del, "92: location updating type
                        = normal, CKSN = no key available , LAI
                        = deleted LAI (the MCC and MNC hold the
                        previous values, the LAC is coded FFFE
                        ), mobile station classmark 1 as given
                        by the PICS and mobile identity =
                        IMSI." )
BS_MSG3_SEND       ( 0, authentication_request, "93: CKSN = initial CKSN." )
BS_MSG3_AWAIT      ( 0, authentication_response, "94" )
BS_MSG3_SEND_BEGIN ( 0, location_updating_accept_tmsi,
                        "95: Mobile identity = TMSI." )
    BF_SET_VAL      ( lac, LAC_C, "LAI = c" )
BS_MSG3_SEND_END ( )

```

```

BS_MSG3_AWAIT      ( 0, tmsi_reallocation_complete, "96" )
BS_MSG3_SEND       ( 0, channel_release,      "97: After the sending of this message,
the SS waits for the disconnection of
the main signalling link. MS is now
'Idle updated' in cell A." )
    
```

History:	02.12.97	DL	Initial
	24.01.01	HM	Changed delay after step 50
	17.04.01	HM	Last LUP ACCEPT for correct LA
	22.05.02	HM	TIMEOUT added before step 69

### 3.5.15 MMM055: §26.7.4.3.3, Abnormal cases: attempt counter = 4

**Description:** The MS is made to perform a normal location updating. The SS triggers a failure in this procedure. After T3211 expiry the MS will try again the location updating procedure. The SS triggers again a failure. This is done again 2 times. At this point the attempt counter shall be equal to 4. It is then checked that T3212 has been started and that at its expiry the MS will try a normal location updating procedure. It is verified that the MS has reset its attempt counter after timer T3212 expiry.

Then it is checked that, when the attempt counter has reached the value of 4, the MS is in the MM IDLE state and ATTEMPTING TO UPDATE substate, that is:

- not perform an IMSI detach procedure;
- support request for emergency call;
- use requests from CM layer other than emergency call as triggering of a normal location updating procedure;
- perform normal location updating procedure when a new cell is entered. (Ref.: [2], §26.7.4.3.3)

**Preamble:** MMM015

#### Script:

```

SET_TIMEOUT          ( 60000 )

COMMAND              ("MM CONFIG T3212_CNT=6") /* T3212 = 60 sec. - should be 6 min.
!*/

NOT_IMPLEMENTED     ( "The following messages are sent and
shall be received on cell A." )
NOT_IMPLEMENTED     ( "1: The RF level of cell B is lowered
until the MS selects cell A. The RF
level of cell B is set sufficiently low
to ensure that cell B is not suitable
as defined in GSM 05.08 section 6.6.2."
)

BS_SET_POWER        ( 1, -120 )
ISS_DELAY           ( 5000 )

BS_RACH_AWAIT_BEGIN ( 0, channel_request, "2: Establishment
cause: Location updating." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL   ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND        ( 0, immediate_assignment, "3" )
BS_CONFIG_CHANNEL   ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 0, location_updating_request, "4:
location updating type = normal, CKSN =
initial value, LAI = b, mobile station
classmark 1 as given by the PICS and
mobile identity = TMSI. " )
    BF_SET_VAL      ( lac, LAC_B, "LAI = b" )
BS_RACH_AWAIT_END( )
BS_MSG3_SEND_BEGIN  ( 0, location_updating_reject, "5:
IE Reject cause is set to #22 * in
table 10.66 of [1], causes #2, #3, #6,
#11, #12 and #13 being excluded." )
    BF_SET_VAL      ( reject_cause, 0x16, "Service option temporarily out of
order" )
BS_MSG3_SEND_END( )
BS_MSG3_SEND        ( 0, channel_release, "6: The SS waits for the disconnection
of the main signalling link." )

```

```

NOT_IMPLEMENTED (
    "7: The MS shall not initiate an RR
    connection establishment on cell A or
    on cell B within T3211." )
BS_RACH_AWAIT_BEGIN ( 0, channel_request, "8: Establishment
    cause: Location updating." )
    BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND ( 0, immediate_assignment, "9" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT ( 0, location_updating_request_del, "10: location updating type
    = normal, CKSN = no key available, LAI
    = deleted LAI (the MCC and MNC hold the
    previous values, the LAC is coded FFFE
    ), Mobile Identity = IMSI." )
NOT_IMPLEMENTED (
    "11: The SS deactivates the SACCH on the
    dedicated channel and waits until there
    are no more SACCH frames in the uplink.
    This is done within 8 SACCH frames." )
BS_SET_ERROR ( 0, 4 ) /* Radio Link Timeout Error */
NOT_IMPLEMENTED (
    "12: The MS shall not initiate an RR
    connection establishment on cell A or
    on cell B with T3211 + RadioLinkTimeout
    after the SS deactivates the SACCH." )
BS_RACH_AWAIT_BEGIN ( 0, channel_request, "13: Establishment
    cause: Location updating." )
    BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND ( 0, immediate_assignment, "14" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT ( 0, location_updating_request_del, "15: location updating type =
    normal, CKSN = no key available, LAI =
    deleted LAI (the MCC and MNC hold the
    previous values, the LAC is coded FFFE
    ), Mobile Identity = IMSI." )
REPEAT_BEGIN( N, 4 )
    BS_MSG3_SEND ( 0, authentication_request, "16" )
    BS_MSG3_AWAIT ( 0, authentication_response, "17: these steps (16 and 17 )
        are performed N times. N shall be
        chosen in such a way that T3210
        expires." )
REPEAT_END( N )
NOT_IMPLEMENTED (
    "18: The MS shall cease transmission and
    then shall not initiate an RR
    connection establishment on cell A or
    on cell B during T3211 seconds at least
    after the expiry of T3210." )
BS_RACH_AWAIT_BEGIN ( 0, channel_request, "19: Establishment
    cause: Location updating." )
    BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND ( 0, immediate_assignment, "20: " )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT ( 0, location_updating_request_del, "21: location updating type =
    normal, CKSN = no key available, LAI =
    deleted LAI (the MCC and MNC hold the

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previous values, the LAC is coded FFFE
), Mobile Identity = IMSI." )
BS_MSG3_SEND      ( 0, channel_release, "22: The SS waits for the disconnection
of the main signalling link." )

NOT_IMPLEMENTED   ( "23: The MS shall not initiate an RR
connection establishment on cell A or
on cell B during T3212 (tolerance -15s;
45s ) at least after the channel
release." )

ISS_DELAY (25000)
BS_RACH_AWAIT_BEGIN      ( 0, channel_request, "24: Establishment
cause: Location updating." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND      ( 0, immediate_assignment, "25" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT     ( 0, location_updating_request_del, "26: location updating type:
normal location update CKSN = no key
available, LAI = deleted LAI (the MCC
and MNC hold the previous values, the
LAC is coded FFFE ) mobile station
classmark 1 as given by the PICS and
mobile identity = IMSI." )
BS_MSG3_SEND_BEGIN      ( 0, location_updating_reject, "27: IE
Reject cause = #17 network failure." )
    BF_SET_VAL      ( reject_cause, 0x11, "network failure" )
BS_MSG3_SEND_END( )
BS_MSG3_SEND      ( 0, channel_release, "28: The SS waits for the disconnection
of the main signalling link." )

NOT_IMPLEMENTED   ( "29: The MS shall not initiate an RR
connection establishment on cell A or
on cell B during T3211 seconds at least
after the channel release." )

BS_RACH_AWAIT_BEGIN      ( 0, channel_request, "30: Establishment
cause: Location updating." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND      ( 0, immediate_assignment, "31" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT     ( 0, location_updating_request_del, "32: location updating type =
normal, CKSN = no key available, LAI =
deleted LAI (the MCC and MNC hold the
previous values, the LAC is coded FFFE
) mobile station classmark 1 as given
by the PICS and mobile identity =
IMSI." )
BS_MSG3_SEND      ( 0, authentication_request, "33: CKSN = initial CKSN." )
BS_MSG3_AWAIT     ( 0, authentication_response, "34" )
BS_MSG3_SEND_BEGIN      ( 0, location_updating_accept_tmsi,
"35: IE mobile Identity = new
TMSI." )
    BF_SET_VAL      ( tmsi_3, 0x57, "tmsi 3 changed: 0x56 -> 0x57" )
    BF_SET_VAL      ( tmsi_4, 0x08, "tmsi 4 changed: 0x78 -> 0x08" )
BS_MSG3_SEND_END( )
BS_MSG3_AWAIT     ( 0, tmsi_reallocation_complete, "36" )

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BS_MSG3_SEND      ( 0, channel_release,      "37: After the sending of this message,
                                                    the SS waits for the disconnection of
                                                    the main signalling link. MS is now
                                                    idle, updated in cell A." )

NOT_IMPLEMENTED   (

"38: The RF level of cell A is lowered
until the MS selects cell B. The RF
level of cell A is set sufficiently low
to ensure that cell A is not suitable
as defined in GSM 05.08 section 6.6.2."
)

ISS_DELAY        ( 3000 )
BS_SET_POWER     ( 0, -120 )
BS_SET_POWER     ( 1, -60 )
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "39: Establishment
                                                    cause: Location updating." )
    BF_SET_VAL    ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND     ( 1, immediate_assignment, "40" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 1, location_updating_request, "41:
                                                    location updating type = normal, CKSN =
                                                    initial value, LAI = a, mobile station
                                                    classmark 1 as given by the PICS and
                                                    mobile identity = TMSI." )
    BF_SET_VAL    ( tmsi_3, 0x57, "tmsi 3 changed: 0x56 -> 0x57" )
    BF_SET_VAL    ( tmsi_4, 0x08, "tmsi 4 changed: 0x78 -> 0x08" )
BS_MSG3_AWAIT_END( )
BS_MSG3_SEND_BEGIN ( 1, location_updating_reject, "42:
                                                    IE Reject cause is set to #42 * in
                                                    table 10.66 of [1], causes #2, #3, #6,
                                                    #11, #12 and #13 being excluded." )
    BF_SET_VAL    ( reject_cause, 0x2A, "?" )
BS_MSG3_SEND_END( )
BS_MSG3_SEND     ( 1, channel_release,      "43: The SS waits for the disconnection
                                                    of the main signalling link." )

NOT_IMPLEMENTED   (

"44: The MS shall not initiate an RR
connection establishment on cell A or
on cell B during T3211 seconds at least
after the channel release." )

BS_RACH_AWAIT_BEGIN ( 1, channel_request, "45: Establishment
                                                    cause: Location updating." )
    BF_SET_VAL    ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND     ( 1, immediate_assignment, "46" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT     ( 1, location_updating_request_del, "47: location updating type =
                                                    normal, CKSN = no key available, LAI =
                                                    deleted LAI (the MCC and MNC hold the
                                                    previous values, the LAC is coded FFFE
                                                    ), Mobile Identity = IMSI." )

NOT_IMPLEMENTED   (

"48: The SS deactivates the SACCH on the
dedicated channel and waits until there
is no more SACCH frames in the uplink.
This is done within 8 SACCH frames." )

BS_SET_ERROR     ( 1, 4) /* Radio Link Timeout Error */

```

```

NOT_IMPLEMENTED ( "48a: The MS shall not initiate an RR
                  connection establishment on cell A or
                  on cell B within T3211 +
                  RadioLinkTimeout after the SS
                  deactivates the SACCH." )

BS_RACH_AWAIT_BEGIN ( 1, channel_request, "49: Establishment
                    cause: Location updating." )
    BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND ( 1, immediate_assignment, "50" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT ( 1, location_updating_request_del, "51: location updating type =
          normal, CKSN = no key available, LAI =
          deleted LAI (the MCC and MNC hold the
          previous values, the LAC is coded FFFE
          ), Mobile Identity = IMSI." )

BS_MSG3_SEND ( 1, channel_release, "52: The SS waits for the disconnection
          of the main signalling link." )

NOT_IMPLEMENTED ( "53: The MS shall not initiate an RR
                  connection establishment on cell A or
                  on cell B during T3211 seconds at least
                  after the channel release." )

BS_RACH_AWAIT_BEGIN ( 1, channel_request, "54: Establishment
                    cause: Location updating." )
    BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND ( 1, immediate_assignment, "55" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT ( 1, location_updating_request_del, "56: location updating type
          = normal, CKSN = no key available, LAI
          = deleted LAI (the MCC and MNC hold the
          previous values, the LAC is coded FFFE
          ) mobile station classmark 1 as given
          by the PICS and mobile identity =
          IMSI." )

NOT_IMPLEMENTED ( "57: performs step 42 with cause #38
                  and step 43." )

BS_MSG3_SEND_BEGIN ( 1, location_updating_reject, "57:
                  performs step 42 with cause #38 and
                  step 43." )
    BF_SET_VAL ( reject_cause, 0x26, "call cannot be identified" )
BS_MSG3_SEND_END( )
BS_MSG3_SEND ( 1, channel_release, "" )

ISS_DELAY ( 3000 )
NOT_IMPLEMENTED ( "58: If the MS supports speech, it is
                  made to perform an emergency call." )

AT_SEND ("ATD112;", "dial emergency number");
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "59: Establishment
                    cause: Emergency call." )
    BF_SET_VAL ( establishment_cause, M3(1,0,1), "Emergency call" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND ( 1, immediate_assignment, "60" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 );

```

```

BS_MSG3_AWAIT      ( 1, cm_service_request_ec_imsi,      "61: CM service type = Emergency
                    call establishment; CKSN = no key
                    available; Mobile Identity = IMSI." )
BS_MSG3_SEND       ( 1, cm_service_accept,               "62" )
BS_MSG3_AWAIT      ( 1, emergency_setup,                 "63" )
BS_MSG3_SEND_BEGIN ( 1, release_complete_to_ms,          "64:
                    Cause = unassigned number." )
    BF_SET_VAL      ( cause, 0x03,                       "unassigned number" )
BS_MSG3_AWAIT_END ( )
BS_MSG3_SEND       ( 1, channel_release,                 "65: The SS waits for the disconnection
                    of the main signalling link." )

NOT_IMPLEMENTED    (                                     "66: If possible (see PICS ) SIM
                    detachment is performed. Otherwise if
                    possible (see PICS ) switch off is
                    performed. Otherwise the power is
                    removed." )

AT_SEND ("AT+CFUN=0", "switch off");
NOT_IMPLEMENTED    (                                     "67: The MS shall not initiate an RR
                    connection establishment on cell A or
                    on cell B. This is checked during 3
                    seconds." )

BS_RACH_EXPECT_TIMEOUT (1, 5000)
ISS_DELAY          ( 10000 )
NOT_IMPLEMENTED    (                                     "68: Depending on what has been
                    performed in step 66 the MS is brought
                    back to operation." )

AT_SEND ("AT+CFUN=1", "switch on");
AT_SEND ("AT+COPS=0", "automatic registration");
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "69: Establishment
                    cause: Location updating." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND       ( 1, immediate_assignment, "70" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT      ( 1, location_updating_request_del,   "71: location updating type
                    = normal, CKSN = no key available, LAI
                    = deleted LAI (the MCC and MNC hold the
                    previous values, the LAC is coded FFFE
                    ), Mobile Identity = IMSI." )
BS_MSG3_SEND       ( 1, authentication_request,          "72: CKSN = initial CKSN." )
BS_MSG3_AWAIT      ( 1, authentication_response,         "73" )
BS_MSG3_SEND_BEGIN ( 1, location_updating_accept_tmsi,   "74: IE mobile Identity = new
                    TMSI." )
    BF_SET_VAL      ( tmsi_3, 0x57,                     "tmsi 3 changed: 0x56 -> 0x57" )
    BF_SET_VAL      ( tmsi_4, 0x08,                     "tmsi 4 changed: 0x78 -> 0x08" )
    BF_SET_VAL      ( lac, LAC_B,                       "LAC B" )
BS_MSG3_SEND_END ( )
BS_MSG3_AWAIT      ( 1, tmsi_reallocation_complete,     "75" )
BS_MSG3_SEND       ( 1, channel_release,                 "76: After the sending of this message,
                    the SS waits for the disconnection of
                    the main signalling link. MS is now
                    idle, updated in cell B." )

NOT_IMPLEMENTED    (                                     "77: The RF level of cell B is lowered
                    until the MS selects cell A. The RF
                    level of cell B is set sufficiently low
                    to ensure that cell B is not suitable

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as defined in GSM 05.08 section 6.6.2."
)
ISS_DELAY      ( 3000 )
BS_SET_POWER   ( 1, -120 )
BS_SET_POWER   ( 0, -60 )
BS_RACH_AWAIT_BEGIN ( 0, channel_request, "78: Establishment
cause: Location updating." )
    BF_SET_VAL   ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND     ( 0, immediate_assignment, "79" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 0, location_updating_request, "80:
location updating type = normal, CKSN =
initial value, LAI = b, mobile station
classmark 1 as given by the PICS and
mobile identity = TMSI." )
    BF_SET_VAL   ( tmsi_3, 0x57, "tmsi 3 changed: 0x56 -> 0x57" )
    BF_SET_VAL   ( tmsi_4, 0x08, "tmsi 4 changed: 0x78 -> 0x08" )
    BF_SET_VAL   ( lac, LAC_B, "LAC B" )
BS_MSG3_AWAIT_END( )
BS_MSG3_SEND_BEGIN ( 0, location_updating_reject, "81: IE
Reject cause is set to #38 * in table
10.66 of [1], causes #2, #3, #6, #11,
#12, and #13 being excluded." )
    BF_SET_VAL   ( reject_cause, 0x26, "call cannot be identified" )
BS_MSG3_SEND_END( )
BS_MSG3_SEND     ( 0, channel_release, "82: The SS waits for the disconnection
of the main signalling link." )

NOT_IMPLEMENTED ( "83: The MS shall not initiate an RR
connection establishment on cell A or
on cell B during T3211 seconds at least
after the channel release." )

BS_RACH_AWAIT_BEGIN ( 0, channel_request, "84: Establishment
cause: Location updating." )
    BF_SET_VAL   ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND     ( 0, immediate_assignment, "85" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT     ( 0, location_updating_request_del, "86: location updating type =
normal, CKSN = no key available, LAI =
deleted LAI (the MCC and MNC hold the
previous values, the LAC is coded FFFE
), Mobile Identity = IMSI." )

NOT_IMPLEMENTED ( "87: The SS deactivates the SACCH on the
dedicated channel and waits until there
is no more SACCH frames in the uplink.
This is done within 8 SACCH frames." )
/* Radio Link Timeout Error */
BS_SET_ERROR (0, 4)
NOT_IMPLEMENTED ( "88: The MS shall not initiate an RR
connection establishment on cell A or
on cell B within T3211
+RadioLinkTimeout seconds after the SS
deactivates the SACCH." )

BS_RACH_AWAIT_BEGIN ( 0, channel_request, "89: Establishment
cause: Location updating." )
    BF_SET_VAL   ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )

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BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND      ( 0, immediate_assignment, "90" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT    ( 0, location_updating_request_del, "91: location updating type =
                    normal, CKSN = no key available, LAI =
                    deleted LAI (the MCC and MNC hold the
                    previous values, the LAC is coded FFFE
                    ), Mobile Identity = IMSI." )
BS_MSG3_SEND      ( 0, channel_release, "92: The SS waits for the disconnection
                    of the main signalling link." )

NOT_IMPLEMENTED   ( "93: The MS shall not initiate an RR
                    connection establishment on cell A or
                    on cell B during T3211 seconds at least
                    after the channel release." )
BS_RACH_AWAIT_BEGIN ( 0, channel_request, "94: Establishment
                    cause: Location updating." )
    BF_SET_VAL     ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND      ( 0, immediate_assignment, "95" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT    ( 0, location_updating_request_del, "96: location updating type
                    = normal, CKSN = no key available, LAI
                    = deleted LAI (the MCC and MNC hold the
                    previous values, the LAC is coded FFFE
                    ) mobile station classmark 1 as given
                    by the PICS and mobile identity =
                    IMSI." )
NOT_IMPLEMENTED   ( "97: performs step 48." )
BS_SET_ERROR (0, 8) /* Radio Link Timeout, 8 SACCH frames
                    req.*/
NOT_IMPLEMENTED   ( "98: A MO CM connection is attempted." )
ISS_DELAY         ( 25000 )
AT_SEND ("ATD6969554;", "dial");
BS_RACH_AWAIT_BEGIN ( 0, channel_request, "99: Establishment
                    cause: Location updating." )
    BF_SET_VAL     ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND      ( 0, immediate_assignment, "100" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 0, location_updating_request_del,
                    "101: location updating type =
                    normal, CKSN = no key available, LAI =
                    deleted LAI (the MCC and MNC hold the
                    previous values, the LAC is coded FFFE
                    ), Mobile Identity = IMSI." )
    BF_SET_VAL     ( fo_req, 1, "follow on req pending" )
BS_MSG3_AWAIT_END ( )

NOT_IMPLEMENTED   ( "102: performs step 52." )
BS_MSG3_SEND      ( 0, channel_release, "" )

NOT_IMPLEMENTED   ( "103: The MS shall not initiate an RR
                    connection establishment on cell A or
                    on cell B during T3211 seconds at least
                    after the channel release." )

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BS_RACH_AWAIT_BEGIN ( 0, channel_request, "104: Establishment
                    cause: Location updating." )
    BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND ( 0, immediate_assignment, "105" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 0, location_updating_request_del,
                    "106: location updating type =
                    normal, CKSN = no key available, LAI =
                    deleted LAI (the MCC and MNC hold the
                    previous values, the LAC is coded FFFE
                    ), Mobile Identity = IMSI." )
    BF_SET_VAL ( fo_req, 1, "follow on req pending" )
BS_MSG3_AWAIT_END( )
BS_MSG3_SEND ( 0, authentication_request, "107: CKSN = initial CKSN." )
BS_MSG3_AWAIT ( 0, authentication_response, "108" )
ISS_DELAY (7000)
BS_MSG3_SEND_BEGIN ( 0, location_updating_accept_tmsi,
                    "109: IE mobile Identity = new
                    TMSI." )
    BF_SET_VAL ( tmsi_3, 0x57, "tmsi 3 changed: 0x56 -> 0x57" )
    BF_SET_VAL ( tmsi_4, 0x08, "tmsi 4 changed: 0x78 -> 0x08" )
BS_MSG3_SEND_END( )
BS_MSG3_AWAIT ( 0, tmsi_reallocation_complete, "110" )
BS_MSG3_SEND ( 0, channel_release, "111: MS is now idle, updated in cell A
                    The MS may or may not have memorized
                    the request for CM connection. The
                    steps 112 to 116 are therefore optional
                    for the MS. The SS waits 10 second
                    whether to decide to go directly to
                    step 117." )

BS_RACH_AWAIT_BEGIN ( 0, channel_request, "112: Establishment
                    cause: MOC" )
    BF_SET_VAL ( establishment_cause, M3(1,1,1), "Mobile Originated Call" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND ( 0, immediate_assignment, "113" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 0, cm_service_request, "114: CKSN =
                    initial value, Mobile identity = TMSI." )
    BF_SET_VAL ( tmsi_3, 0x57, "tmsi 3 changed: 0x56 -> 0x57" )
    BF_SET_VAL ( tmsi_4, 0x08, "tmsi 4 changed: 0x78 -> 0x08" )
BS_MSG3_AWAIT_END( )
BS_MSG3_SEND_BEGIN ( 0, cm_service_reject, "115: cause
                    #17 (network failure)." )
    BF_SET_VAL ( reject_cause, 0x11, "Network failure (#17)" )
BS_MSG3_SEND_END( )
BS_MSG3_SEND ( 0, channel_release, "116: The SS waits for the disconnection
                    of the main signalling link." )

NOT_IMPLEMENTED ( "117: The RF level of cell A is lowered
                    until the MS selects cell B. The RF
                    level of cell A is set sufficiently low
                    to ensure that cell A is not suitable
                    as defined in GSM 05.08 section 6.6.2." )

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ISS_DELAY          ( 3000 )
BS_SET_POWER      ( 0, -120 )
BS_SET_POWER      ( 1, -60 )
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "118: Establishment
                        cause: Location updating." )
    BF_SET_VAL     ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "119" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 1, location_updating_request, "120:
                        location updating type = normal, CKSN =
                        initial value, LAI = a, mobile station
                        classmark 1 as given by the PICS and
                        mobile identity = TMSI." )
    BF_SET_VAL     ( tmsi_3, 0x57, "tmsi 3 changed: 0x56 -> 0x57" )
    BF_SET_VAL     ( tmsi_4, 0x08, "tmsi 4 changed: 0x78 -> 0x08" )
BS_MSG3_SEND_END( )
BS_MSG3_SEND_BEGIN ( 1, location_updating_reject, "121:
                        IE Reject cause is set to #38 * in
                        table 10.66 of [1], causes #2, #3, #6,
                        #11, #12 and #13 being excluded." )
    BF_SET_VAL     ( reject_cause, 0x26, "call cannot be identified" )
BS_MSG3_SEND_END( )
BS_MSG3_SEND      ( 1, channel_release, "122: The SS waits for the disconnection
                        of the main signalling link " )

NOT_IMPLEMENTED   ( "123: The MS shall not initiate an RR
                        connection establishment on cell A or
                        on cell B during T3211 seconds at least
                        after the channel release." )

BS_RACH_AWAIT_BEGIN ( 1, channel_request, "124: Establishment
                        cause: Location updating." )
    BF_SET_VAL     ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "125" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT      ( 1, location_updating_request_del, "126: location updating
                        type = normal, CKSN = no key available,
                        LAI = deleted LAI (the MCC and MNC hold
                        the previous values, the LAC is coded
                        FFFE), Mobile Identity = IMSI." )
NOT_IMPLEMENTED   ( "127: The SS stops any RF transmission
                        on the dedicated channel and waits
                        until there is no more SACCH in the
                        uplink." )

BS_SET_ERROR (1, 4)
NOT_IMPLEMENTED   ( "128: The MS shall not initiate an RR
                        connection establishment on cell A or
                        on cell B within T3211 +
                        RadioLinkTimeout seconds after the SS
                        stops RF transmission." )

BS_RACH_AWAIT_BEGIN ( 1, channel_request, "129: Establishment
                        cause: Location updating." )
    BF_SET_VAL     ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )

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BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "130" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT     ( 1, location_updating_request_del, "131: location updating type =
normal, CKSN = no key available, LAI =
deleted LAI (the MCC and MNC hold the
previous values, the LAC is coded FFFE
), Mobile Identity = IMSI." )
BS_MSG3_SEND      ( 1, channel_release, "132: The SS waits for the disconnection
of the main signalling link." )

NOT_IMPLEMENTED   ( "133: The MS shall not initiate an RR
connection establishment on cell A or
on cell B during T3211 seconds at least
after the channel release." )

BS_RACH_AWAIT_BEGIN ( 1, channel_request, "134: Establishment
cause: Location updating." )
    BF_SET_VAL     ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "135" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT     ( 1, location_updating_request_del, "136: location updating
type = normal, CKSN = no key available,
LAI = deleted LAI (the MCC and MNC hold
the previous values, the LAC is coded
FFFE ) mobile station classmark 1 as
given by the PICS and mobile identity =
IMSI." )

NOT_IMPLEMENTED   ( "137: performs steps 42 and 43." )
BS_MSG3_SEND_BEGIN ( 1, location_updating_reject, "" )
    BF_SET_VAL     ( reject_cause, 0x2A, "?" )
BS_MSG3_SEND_END( )
BS_MSG3_SEND      ( 1, channel_release, "" )
NOT_IMPLEMENTED   ( "138: The RF level of cell B is lowered
until the MS selects cell A. The RF
level of cell B is set sufficiently low
to ensure that cell B is not suitable
as defined in GSM 05.08 section 6.6.2."
)

ISS_DELAY         ( 3000 )
BS_SET_POWER      ( 1, -120 )
BS_SET_POWER      ( 0, -60 )
BS_RACH_AWAIT_BEGIN ( 0, channel_request, "139: Establishment
cause: Location updating." )
    BF_SET_VAL     ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND      ( 0, immediate_assignment, "140" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT     ( 0, location_updating_request_del, "141: location updating
type = normal, CKSN = no key available
, LAI = deleted LAI (the MCC and MNC
hold the previous values, the LAC is
coded FFFE ) mobile station classmark 1
as given by the PICS and mobile
identity = IMSI." )

NOT_IMPLEMENTED   ( "142: performs the step 48." )
BS_SET_ERROR      ( 0, 4 )

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NOT_IMPLEMENTED (
    "143: The MS shall not initiate an RR
    connection establishment on cell A or
    on cell B until T3211 +
    RadioLinkTimeout after the SS
    deactivates the SACCH." )
BS_RACH_AWAIT_BEGIN ( 0, channel_request, "144: Establishment
    cause: Location updating." )
    BF_SET_VAL ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND ( 0, immediate_assignment, "145" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT ( 0, location_updating_request_del,
    "146: location updating
    type = normal, CKSN = no key available,
    LAI = deleted LAI (the MCC and MNC hold
    the previous values, the LAC is coded
    FFFE ), Mobile Identity = IMSI." )
BS_MSG3_SEND ( 0, authentication_request,
    "147: CKSN = initial CKSN." )
BS_MSG3_AWAIT ( 0, authentication_response,
    "148" )
BS_MSG3_SEND ( 0, location_updating_accept_tmsi,
    "149: IE mobile Identity =
    new TMSI." )
BS_MSG3_AWAIT ( 0, tmsi_reallocation_complete,
    "150" )
BS_MSG3_SEND ( 0, channel_release,
    "151: After the sending of this message,
    the SS waits for the disconnection of
    the main signalling link. MS is now
    idle, updated in cell A." )

```

History:	02.12.97	DL	Initial
	19.01.01	HM	Revised (ISS_DELAY before step 99)
	23.05.02	HM	Revised (steps 112-116 enabled)

**3.5.16 MMM056: §26.7.4.3.4, Abnormal cases: attempt counter <= 4**

**Description:** A failure during the periodic location updating is triggered: as the broadcast LAI is equal to the stored LAI, the MS is still in the MM IDLE state and NORMAL SERVICE substate and timer T3211 is started. A CM connection other than for emergency call is attempted. It is checked that this is possible and that T3211 is stopped. Same test is performed with a failure during an IMSI attach procedure. Then failures are triggered during the periodic location updating to let the attempt counter to reach the value of 4. The MS shall enter the MM IDLE LIMITED SERVICE state and delete any TMSI, stored LAI, ciphering key sequence number and ciphering key. When the attempt counter reaches the value of 4, timer T3212 shall be started. At timer T3212 expiry a location updating procedure is started. A request for CM connection other than for emergency call shall trigger a location updating procedure. Same tests are performed when the failures are triggered during an IMSI attach procedure. (Ref.: [2], §26.7.4.3.4)

**Preamble:** MMM008

**Script:**

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BS_ON_OFF ( 0, FALSE)

SET_TIMEOUT      ( 80000 )

NOT_IMPLEMENTED  (                               "1: The SS shall wait at most T3212 + 45
                                                    seconds." )
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "2: Establishment
                                                    cause: Location updating." )
    BF_SET_VAL    ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "3" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 1, location_updating_request, "4:
                                                    location updating type = periodic, CKSN
                                                    = initial value, LAI = b, mobile
                                                    station classmark 1 as given by the
                                                    PICS and mobile identity = TMSI." )
    BF_SET_VAL( lut, M2( 0,1 ), "periodic updating" )
    BF_SET_VAL    ( lac, LAC_B, "LAI = b" )
    BF_SET_VAL    ( key_sequence, CKSN_2, "CKSN 2" )
BS_MSG3_AWAIT_END( )
NOT_IMPLEMENTED  (                               "5: performs step 5, of 26.7.4.3.2 with
                                                    cause #17 and step 6 of 26.7.4.3.2." )
BS_MSG3_SEND_BEGIN ( 1, location_updating_reject, "" )
    BF_SET_VAL    ( reject_cause, 0x11, "Network failure" )
BS_MSG3_SEND_END( )
BS_MSG3_SEND      ( 1, channel_release, "" )

ISS_DELAY (3000);
NOT_IMPLEMENTED  (                               "6: A MO CM connection is attempted." )
AT_SEND ("ATD6969554;", "dial");
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "7" )
    BF_SET_VAL    ( establishment_cause, M3(1,1,1 ), "MOC & TCH/F" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "8" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 1, cm_service_request, "9: CKSN =
                                                    initial CKSN, Mobile Identity = TMSI." )
    BF_SET_VAL    ( key_sequence, CKSN_2, "CKSN 2" )

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BS_MSG3_AWAIT_END ( )
BS_MSG3_SEND      ( 1, cm_service_accept,    "10" )
BS_MSG3_AWAIT     ( 1, setup_moc,           "11" )
BS_MSG3_SEND      ( 1, channel_release,     "12: The SS waits for the disconnection
of the main signalling link." )

ISS_DELAY         ( 3000 )
NOT_IMPLEMENTED   (                               "13: The MS shall not initiate an RR
connection establishment. This is
checked during 2*T3211." )

ISS_DELAY         ( 30000 )
NOT_IMPLEMENTED   (                               "14: If possible (see PICS ) SIM
detachement is performed. Otherwise if
possible (see PICS ) switch off is
performed. Otherwise the power is
removed." )

AT_SEND ("AT+CFUN=0", "switch off");
NOT_IMPLEMENTED   (                               "Steps 15 to 19 are optional." )
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "15" )
  BF_SET_VAL      ( establishment_cause, M3(1,1,1 ), "IMSI Detach" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "16" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT     ( 1, imsi_detach_indication_tmsi, "17" )
BS_MSG3_SEND      ( 1, channel_release,     "18" )
AT_RECEIVE ("OK", SILENT );

ISS_DELAY         ( 10000 )
NOT_IMPLEMENTED   (                               "19: Depending on what has been
performed in step 14 the MS is brought
back to operation." )

COMMAND           ("MM CONFIG T3212_CNT=6") /* T3212 = 60 sec. - should be 6 min.
!*/

AT_SEND ("AT+CFUN=1", "switch on");
AT_RECEIVE ("OK", SILENT );
AT_SEND ("AT+COPS=0", "automatic registration");
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "20: Establishment
cause: Location updating." )
  BF_SET_VAL      ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END ( )
AT_RECEIVE ("OK", SILENT );
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "21" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 1, location_updating_request_tmsi_att,
"22: location updating type = IMSI
attach, CKSN = initial value, LAI = b,
mobile station classmark 1 as given by
the PICS and mobile identity = TMSI." )
  BF_SET_VAL      ( lac, LAC_B, "LAI = b" )
  BF_SET_VAL      ( key_sequence, CKSN_2, "CKSN 2" )
BS_MSG3_AWAIT_END ( )
NOT_IMPLEMENTED   (                               "23: performs step 11 of 26.7.4.3.2
(The SS deactivates the SACCH on the
dedicated channel. The SS waits until
there are no more SACCH frames in the
uplink direction. This release
connection is done within 8 SACCH
frames)" )

```

```

BS_SET_ERROR ( 1, 4) /* radio link failure */
ISS_DELAY (10000)

NOT_IMPLEMENTED ( "24: A MO CM connection is attempted." )
AT_SEND ("ATD6969554;", "dial");
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "25" )
    BF_SET_VAL ( establishment_cause, M3(1,1,1 ), "Mobile originated call" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND ( 1, immediate_assignment, "26" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 1, cm_service_request, "27: CKSN =
    initial CKSN, Mobile Identity = TMSI."
)
    BF_SET_VAL ( key_sequence, CKSN_2, "CKSN 2" )
BS_MSG3_AWAIT_END( )
BS_MSG3_SEND ( 1, ciphering_mode_command, "28" )
BS_MSG3_AWAIT ( 1, ciphering_mode_complete, "29" )

BS_MSG3_AWAIT ( 1, setup_moc, "30" )

BS_MSG3_SEND ( 1, channel_release, "31: The SS waits for the disconnection
    of the main signalling link." )

ISS_DELAY ( 3000 )
NOT_IMPLEMENTED ( "32: The MS shall not initiate an RR
    connection establishment. This is
    checked during 2*T3211 MS is 'idle
    updated' in cell B." )

ISS_DELAY ( 30000 )
NOT_IMPLEMENTED ( "33: The SS shall wait at most T3212 +
    15 seconds." )

ISS_DELAY ( 3000 )
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "34: Establishment
    cause: Location updating." )
    BF_SET_VAL ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND ( 1, immediate_assignment, "35" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 1, location_updating_request, "36:
    location updating type = periodic, CKSN
    = initial value, LAI = b, mobile
    station classmark 1 as given by the
    PICS and mobile identity = TMSI." )
    BF_SET_VAL ( lut, M2( 0,1 ), "periodic updating" )
    BF_SET_VAL ( lac, LAC_B, "LAI = b" )
    BF_SET_VAL ( key_sequence, CKSN_2, "CKSN 2" )
BS_MSG3_AWAIT_END( )
NOT_IMPLEMENTED ( "37: performs step 16 of 26.7.4.3.2." )
BS_MSG3_SEND ( 1, channel_release, "" )

NOT_IMPLEMENTED ( "38: The MS shall not initiate an RR
    connection establishment during T3211
    at least after the channel release." )

ISS_DELAY ( 3000 )
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "39: Establishment
    cause: Location updating." )
    BF_SET_VAL ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END( )

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BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "40" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 1, location_updating_request, "41:
location updating type = periodic, CKSN
= initial value, LAI = b, mobile
station classmark 1 as given by the
PICS and mobile identity = TMSI." )
    BF_SET_VAL      ( lut, M2( 0,1 ), "periodic updating" )
    BF_SET_VAL      ( lac, LAC_B, "LAI = b" )
    BF_SET_VAL      ( key_sequence, CKSN_2, "CKSN 2" )
BS_MSG3_AWAIT_END ( )
NOT_IMPLEMENTED   ( "42: performs step 5 of 26.7.4.3.2 with
cause #17 and step 6 of 26.7.4.3.2." )
BS_MSG3_SEND_BEGIN ( 1, location_updating_reject, "" )
    BF_SET_VAL      ( reject_cause, 0x11, "Network failure" )
BS_MSG3_SEND_END ( )
BS_MSG3_SEND      ( 1, channel_release, "" )

NOT_IMPLEMENTED   ( "43: The MS shall not initiate an RR
connection establishment during T3211
at least after the channel release." )

ISS_DELAY        ( 3000 )
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "44: Establishment
cause: Location updating." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "45" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 1, location_updating_request, "46:
location updating type = periodic, CKSN
= initial value, LAI = b, mobile
station classmark 1 as given by the
PICS and mobile identity = TMSI." )
    BF_SET_VAL      ( lut, M2( 0,1 ), "periodic updating" )
    BF_SET_VAL      ( lac, LAC_B, "LAI = b" )
    BF_SET_VAL      ( key_sequence, CKSN_2, "CKSN 2" )
BS_MSG3_AWAIT_END ( )
NOT_IMPLEMENTED   ( "47: performs step 11 of 26.7.4.3.2.
(The SS deactivates the SACCH on the
dedicated channel. The SS waits until
there are no more SACCH frames in the
uplink direction. This release
connection is done within 8 SACCH
frames)" )
BS_SET_ERROR      ( 1, 4 ) /* radio link failure */
NOT_IMPLEMENTED   ( "48: The MS shall not initiate an RR
connection establishment within T3211 +
RadioLinkTimeout after the SS
deactivates the SACCH." )

ISS_DELAY        ( 3000 )
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "49: Establishment
cause: Location updating." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "50" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )

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BS_MSG3_AWAIT_BEGIN ( 1, location_updating_request, "51:
                    location updating type = periodic, CKSN
                    = initial value, LAI = b, mobile
                    station classmark 1 as given by the
                    PICS and mobile identity = TMSI." )
    BF_SET_VAL      ( lut, M2( 0,1 ), "periodic updating" )
    BF_SET_VAL      ( lac, LAC_B, "LAI = b" )
    BF_SET_VAL      ( key_sequence, CKSN_2, "CKSN 2" )
BS_MSG3_AWAIT_END ( )
NOT_IMPLEMENTED ( "52: performs step 16 of 26.7.4.3.2." )
BS_MSG3_SEND      ( 1, channel_release, "" )

NOT_IMPLEMENTED ( "53: The MS shall not initiate an RR
                    connection establishment during T3212 -
                    15 seconds at least after the channel
                    release." )

ISS_DELAY          ( 45000 )
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "54: Establishment
                    cause: Location updating." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "55" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT      ( 1, location_updating_request_del, "56: location updating type =
                    periodic or normal (see Note 1 ), CKSN
                    = no key available, LAI = deleted LAI
                    (the MCC and MNC hold the previous
                    values, the LAC is coded FFFE ) mobile
                    station classmark 1 as given by the
                    PICS and mobile identity = IMSI." )
BS_MSG3_SEND      ( 1, authentication_request, "57" )
BS_MSG3_AWAIT      ( 1, authentication_response, "58" )
BS_MSG3_SEND_BEGIN ( 1, location_updating_accept_tmsi,
                    "59: IE mobile Identity = TMSI."
                    )
    BF_SET_VAL      ( lac, LAC_B, "LAI = b" )
BS_MSG3_SEND_END ( )
BS_MSG3_SEND      ( 1, channel_release, "60: The SS waits for the disconnection
                    of the main signalling link." )

NOT_IMPLEMENTED ( "61: The MS shall no initiate an RR
                    connection establishment earlier than
                    T3212 - 15 seconds after the
                    transmission of the CHANNEL RELEASE in
                    step 60." )

ISS_DELAY          ( 45000 )
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "62: Establishment
                    cause: Location updating." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "63" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 1, location_updating_request, "64:
                    location updating type = periodic, CKSN
                    = initial value, LAI = b, mobile
                    station classmark 1 as given by the
                    PICS and mobile identity = TMSI." )
    BF_SET_VAL      ( lut, M2( 0,1 ), "periodic updating" )

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        BF_SET_VAL      ( lac, LAC_B,          "LAI = b" )
BS_MSG3_AWAIT_END( )
NOT_IMPLEMENTED      (          "65: performs step 5 of 26.7.4.3.2 with
                                cause #17 and step 6 of 26.7.4.3.2." )
BS_MSG3_SEND_BEGIN
        BF_SET_VAL      ( reject_cause, 0x11,  "Network failure" )
BS_MSG3_SEND_END( )
BS_MSG3_SEND      ( 1, channel_release,      "" )

NOT_IMPLEMENTED      (          "66: The MS shall not initiate an RR
                                connection establishment during T3211
                                at least after the channel release." )

ISS_DELAY           ( 3000 )
BS_RACH_AWAIT_BEGIN      ( 1, channel_request, "67: Establishment
                                cause: Location updating." )
        BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "68" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN      ( 1, location Updating request, "69:
                                location updating type = periodic, CKSN
                                = initial value, LAI = b, mobile
                                station classmark 1 as given by the
                                PICS and mobile identity = TMSI." )
        BF_SET_VAL      ( lut,          M2( 0,1 ), "periodic updating" )
        BF_SET_VAL      ( lac, LAC_B,    "LAI = b" )
BS_MSG3_AWAIT_END( )
NOT_IMPLEMENTED      (          "70: performs step 11 of 26.7.4.3.2.
                                (The SS deactivates the SACCH on the
                                dedicated channel. The SS waits until
                                there are no more SACCH frames in the
                                uplink direction. This release
                                connection is done within 8 SACCH
                                frames)" )
BS_SET_ERROR (1, 4) /* radio link failure */
NOT_IMPLEMENTED      (          "71: The MS shall not initiate an RR
                                connection establishment within T3211 +
                                RadioLinkTimeout after the SS
                                deactivates the SACCH." )

ISS_DELAY           ( 3000 )
BS_RACH_AWAIT_BEGIN      ( 1, channel_request, "72: Establishment
                                cause: Location updating." )
        BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "73" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN      ( 1, location Updating request, "74:
                                location updating type = periodic, CKSN
                                = initial value, LAI = b, mobile
                                station classmark 1 as given by the
                                PICS and mobile identity = TMSI." )
        BF_SET_VAL      ( lut,          M2( 0,1 ), "periodic updating" )
        BF_SET_VAL      ( lac, LAC_B,    "LAI = b" )
BS_MSG3_AWAIT_END( )
NOT_IMPLEMENTED      (          "75: performs step 16 of 26.7.4.3.2." )
BS_MSG3_SEND      ( 1, channel_release,      "" )

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NOT_IMPLEMENTED ( "76: The MS shall not initiate an RR
                  connection establishment during T3211
                  at least after the channel release." )

ISS_DELAY ( 3000 )
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "77: Establishment
                    cause: Location updating." )
    BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND ( 1, immediate_assignment, "78" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 1, location_updating_request, "79:
                    location updating type = periodic, CKSN
                    = initial value, LAI = b, mobile
                    station classmark 1 as given by the
                    PICS and mobile identity = TMSI." )
    BF_SET_VAL ( lut, M2( 0,1 ), "periodic updating" )
    BF_SET_VAL ( lac, LAC_B, "LAI = b" )
BS_MSG3_AWAIT_END( )
NOT_IMPLEMENTED ( "80: performs step 5 of 26.7.4.3.2 with
                  cause #17 and step 6 of 26.7.4.3.2." )
BS_MSG3_SEND_BEGIN ( 1, location_updating_reject, "" )
    BF_SET_VAL ( reject_cause, 0x11, "Network failure" )
BS_MSG3_SEND_END( )
BS_MSG3_SEND ( 1, channel_release, "" )

ISS_DELAY (5000)
NOT_IMPLEMENTED ( "81: A MO CM connection is attempted." )
AT_SEND ("ATD6969554;", "dial");
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "82: Establishment
                    cause: Location updating." )
    BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location Updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND ( 1, immediate_assignment, "83" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 1, location_updating_request_del, "84:
                    location updating type = normal, CKSN =
                    no key available, LAI = deleted LAI
                    (the MCC and MNC hold the previous
                    values, the LAC is coded FFFE ) mobile
                    station classmark 1 as given by the
                    PICS and mobile identity = IMSI." )
    BF_SET_VAL ( fo_req, 1, "follow on req" )
BS_MSG3_AWAIT_END( )
BS_MSG3_SEND_BEGIN ( 1,
                    location_updating_accept_tmsi_no_follow,
                    "85: IE mobile identity = TMSI." )
    BF_SET_VAL ( lac, LAC_B, "LAI = b" )
BS_MSG3_SEND_END( )
BS_MSG3_AWAIT ( 1, tmsi_reallocation_complete, "86" )
BS_MSG3_SEND ( 1, channel_release, "87" )
NOT_IMPLEMENTED ( "Steps 88 to 92 are optional Wait 10 s
                  to decide whether to go directly to
                  step 93." )
/*BS_RACH_AWAIT_BEGIN ( 1, channel_request, "88" )
    BF_SET_VAL ( establishment_cause, M3(1,1,1), "Mobile originated call" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )

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BS_MSG3_SEND      ( 1, immediate_assignment, "89" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 1, cm_service_request, "90: CKSN =
no key available, Mobile identity =
TMSI" )
    BF_SET_VAL      ( key_sequence, CKSN_NONE, "no CKSN" )
BS_MSG3_AWAIT_END ( )
BS_MSG3_SEND_BEGIN ( 1, cm_service_reject, "91: cause
#17 (network failure)." )
    BF_SET_VAL      ( reject_cause, 0x11, "network failure" )
BS_MSG3_SEND_END ( )
BS_MSG3_SEND      ( 1, channel_release, "92" )

NOT_IMPLEMENTED   ( "93: If possible (see PICS ) SIM
detachment is performed. Otherwise if
possible (see PICS ) switch off is
performed. Otherwise the power is
removed." )

*/

ISS_DELAY (7000)

/* The following ABORT is required! */
/* But the question is: Which pending command is aborted here? ... */
/* AT_SEND ("ABORT\r\n", "Abort any pending AT command"); */
ISS_DELAY (6000)

AT_SEND ("AT+CFUN=0", "switch off");
NOT_IMPLEMENTED   ( "Steps 94 to 97 are optional." )
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "94" )
    BF_SET_VAL      ( establishment_cause, M3(1,1,1 ), "IMSI Detach" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "95" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT      ( 1, imsi_detach_indication_tmsi, "96" )
BS_MSG3_SEND      ( 1, channel_release, "97" )

ISS_DELAY (10000)
NOT_IMPLEMENTED   ( "98: Depending on what has been
performed in step 97 the MS is brought
back to operation." )

COMMAND           ("MM CONFIG T3212_CNT=6") /* T3212 = 60 sec. - should be 6 min.
!*/

AT_SEND ("AT+CFUN=1", "switch on");
AT_SEND ("AT+COPS=0", "automatic registration");
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "99: Establishment
cause: Location updating." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "100" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 1, location_updating_request_tmsi_att,
"101: location updating type = IMSI
attach, CKSN = no key available, LAI =
b, mobile station classmark 1 as given
by the PICS and mobile identity =
TMSI." )
    BF_SET_VAL      ( key_sequence, CKSN_NONE, "CKSN not available" )

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    BF_SET_VAL      ( lac, LAC_B,          "LAI = b" )
BS_MSG3_SEND_END  ( )
NOT_IMPLEMENTED   (                      "102: performs step 11 of 26.7.4.3.2.
                                           (The SS deactivates the SACCH on the
                                           dedicated channel. The SS waits until
                                           there are no more SACCH frames in the
                                           uplink direction. This release
                                           connection is done within 8 SACCH
                                           frames)" )

BS_SET_ERROR (1, 4)                               /* radio link failure */

NOT_IMPLEMENTED   (                      "103: The MS shall not initiate an RR
                                           connection establishment within T3211 +
                                           RadioLinkTimeout after the SS
                                           deactivates the SACCH." )

ISS_DELAY        ( 3000 )
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "104: Establishment
                                           cause: Location updating." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "105" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 1, location_updating_request_tmsi_att,
                                           "106: location updating type = IMSI
                                           attach, CKSN = no key available, LAI =
                                           b, mobile station classmark 1 as given
                                           by the PICS and mobile identity =
                                           TMSI." )
    BF_SET_VAL      ( key_sequence, CKSN_NONE, "CKSN not available" )
    BF_SET_VAL      ( lac, LAC_B,          "LAI = b" )
BS_MSG3_SEND_END  ( )
BS_MSG3_SEND      ( 1, channel_release,    "107: After the sending of the message
                                           the SS waits for the disconnection of
                                           the main signalling link." )

NOT_IMPLEMENTED   (                      "108: The MS shall not initiate an RR
                                           connection establishment during T3211
                                           at least after the channel release." )

ISS_DELAY        ( 3000 )
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "109: Establishment
                                           cause: Location updating." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "110" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 1, location_updating_request_tmsi_att,
                                           "111: location updating type = IMSI
                                           attach, CKSN = no key available, LAI =
                                           b, mobile station classmark 1 as given
                                           by the PICS and mobile identity =
                                           TMSI." )
    BF_SET_VAL      ( key_sequence, CKSN_NONE, "CKSN not available" )
    BF_SET_VAL      ( lac, LAC_B,          "LAI = b" )
BS_MSG3_SEND_END  ( )
BS_MSG3_SEND_BEGIN ( 1, location_updating_reject,
                                           "112a: IE Reject cause is set to
                                           a value arbitrarily chosen: * in table

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10.66 of [1], causes #2, #3, #6, #11,
#12, and #13 being excluded." )
    BF_SET_VAL      ( reject_cause, 0x11, "Network failure" )
BS_MSG3_SEND_END( )
BS_MSG3_SEND      ( 1, channel_release, "112b: After the sending of this
message, the SS waits for the
disconnection of the main signalling
link." )

NOT_IMPLEMENTED  ( "113: The MS shall not initiate an RR
connection establishment during T3211
at least after the channel release." )

ISS_DELAY        ( 3000 )
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "114: Establishment
cause: Location updating." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "115" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 1, location_updating_request_tmsi_att,
"116: location updating type = IMSI
attach, CKSN = no key available, LAI =
b, mobile station classmark 1 as given
by the PICS and mobile identity =
TMSI." )
    BF_SET_VAL      ( key_sequence, CKSN_NONE, "CKSN not available" )
    BF_SET_VAL      ( lac, LAC_B, "LAI = b" )
BS_MSG3_SEND_END( )
NOT_IMPLEMENTED  ( "117: performs step 11 of 26.7.4.3.2.
(The SS deactivates the SACCH on the
dedicated channel. The SS waits until
there are no more SACCH frames in the
uplink direction. This release
connection is done within 8 SACCH
frames)" )
BS_SET_ERROR (1, 4) /* radio link failure */
NOT_IMPLEMENTED  ( "118: The MS shall not initiate an RR
connection establishment during T3212 -
15 seconds at least after the channel
release." )

ISS_DELAY        ( 45000 )
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "119: Establishment
cause: Location updating." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "120" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT      ( 1, location_updating_request_del, "121: location updating
type = periodic or normal or IMSI
attach (see Note 2), CKSN = no key
available, LAI = deleted LAI (the MCC
and MNC hold the previous values, the
LAC is coded FFFE) mobile station
classmark 1 as given by the PICS and
mobile identity = IMSI." )
BS_MSG3_SEND      ( 1, authentication_request, "122" )
BS_MSG3_AWAIT      ( 1, authentication_response, "123" )

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BS_MSG3_SEND_BEGIN ( 1, location_updating_accept_tmsi,
                    "124: IE mobile Identity = TMSI." )
    BF_SET_VAL ( lac, LAC_B, "LAI = b" )
BS_MSG3_SEND_END ( )
BS_MSG3_AWAIT ( 1, tmsi_reallocation_complete, "125" )
BS_MSG3_SEND ( 1, channel_release, "126" )
NOT_IMPLEMENTED ( "127: If possible (see PICS ) SIM
                  detachment is performed. Otherwise if
                  possible (see PICS ) switch off is
                  performed. Otherwise the power is
                  removed." )

ISS_DELAY (5000)
AT_SEND ("AT+CFUN=0", "switch off");
NOT_IMPLEMENTED ( "Steps 128 to 131 are optional." )
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "128" )
    BF_SET_VAL ( establishment_cause, M3(1,1,1 ), "IMSI Detach" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND ( 1, immediate_assignment, "129" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT ( 1, imsi_detach_indication_tmsi, "130" )
BS_MSG3_SEND ( 1, channel_release, "131" )

ISS_DELAY (5000)
NOT_IMPLEMENTED ( "132: Depending on what has been
                  performed in step 130 the MS is brought
                  back to operation." )

COMMAND ("MM CONFIG T3212_CNT=6") /* T3212 = 60 sec. - should be 6 min.
                                  !*/

AT_SEND ("AT+CFUN=1", "switch on");
AT_SEND ("AT+COPS=0", "automatic registration");
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "133: Establishment
                    cause: Location updating." )
    BF_SET_VAL ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND ( 1, immediate_assignment, "134" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 1, location_updating_request_tmsi_att,
                    "135: location updating type = IMSI
                    attach, CKSN = initial value, LAI = b,
                    mobile station classmark 1 as given by
                    the PICS and mobile identity = TMSI." )
    BF_SET_VAL ( lac, LAC_B, "LAI = b" )
    BF_SET_VAL ( key_sequence, CKSN_1, "CKSN 1" )
BS_MSG3_AWAIT_END ( )
NOT_IMPLEMENTED ( "136: performs step 16 of 26.7.4.3.2." )
BS_MSG3_SEND ( 1, channel_release, "" )
NOT_IMPLEMENTED ( "137: The MS shall not initiate an RR
                  connection establishment during T3211
                  at least after the channel release." )

ISS_DELAY (10000)
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "138: Establishment
                    cause: Location updating." )
    BF_SET_VAL ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND ( 1, immediate_assignment, "139" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )

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BS_MSG3_AWAIT_BEGIN ( 1, location_updating_request_tmsi_att,
                    "140: location updating type = IMSI
                    attach, CKSN = no key available, LAI =
                    b, mobile station classmark 1 as given
                    by the PICS and mobile identity =
                    TMSI." )
    BF_SET_VAL      ( key_sequence, CKSN_1, "CKSN 1" )
    BF_SET_VAL      ( lac, LAC_B, "LAI = b" )
BS_MSG3_SEND_END ( )
NOT_IMPLEMENTED ( "141: performs step 5 of 26.7.4.3.2 with
                  cause #17 and step 6 of 26.7.4.3.2." )
BS_MSG3_SEND_BEGIN ( 1, location_updating_reject, "IE
                  Reject cause is set to a value
                  arbitrarily chosen: * in table 10.66 of
                  [1], causes #2, #3, #6, #11, #12, and
                  #13 being excluded." )
    BF_SET_VAL      ( reject_cause, 17, "Network failure" )
BS_MSG3_SEND_END ( )
BS_MSG3_SEND ( 1, channel_release, "After the sending of this message, the
                  SS waits for the disconnection of the
                  main signalling link." )
NOT_IMPLEMENTED ( "142: The MS shall not initiate an RR
                  connection establishment during T3211
                  at least after the channel release." )
ISS_DELAY ( 3000 )
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "143: Establishment
                  cause: Location updating." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND ( 1, immediate_assignment, "144" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 1, location_updating_request_tmsi_att,
                    "145: location updating type = IMSI
                    attach, CKSN = initial value , LAI = b,
                    mobile station classmark 1 as given by
                    the PICS and mobile identity = TMSI." )
    BF_SET_VAL      ( key_sequence, CKSN_1, "CKSN 1" )
    BF_SET_VAL      ( lac, LAC_B, "LAI = b" )
BS_MSG3_SEND_END ( )
NOT_IMPLEMENTED ( "146: performs step 11 of 26.7.4.3.2." )
NOT_IMPLEMENTED ( "147: The MS shall not initiate an RR
                  connection establishment within T3211 +
                  RadioLinkTimeout after the SS
                  deactivates the SACCH." )
BS_SET_ERROR (1, 4)
ISS_DELAY ( 3000 )
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "148: Establishment
                  cause: Location updating." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND ( 1, immediate_assignment, "149" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 1, location_updating_request_tmsi_att,
                    "150: location updating type = IMSI
                    attach, CKSN = initial value, LAI = b,
                    mobile station classmark 1 as given by
                    the PICS and mobile identity = TMSI." )
    BF_SET_VAL      ( key_sequence, CKSN_1, "CKSN 1" )

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    BF_SET_VAL      ( lac, LAC_B,          "LAI = b" )
BS_MSG3_SEND_END  ( )
NOT_IMPLEMENTED   (          "151: performs step 16 of 26.7.4.3.2." )
BS_MSG3_SEND      ( 1, channel_release,   "" )

ISS_DELAY (5000)
NOT_IMPLEMENTED   (          "152: The MS is made to perform a MO
                             call." )

AT_SEND ("ATD6969554;", "dial");
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "153: Establishment
                             cause: Location updating." )
    BF_SET_VAL      ( establishment_cause, M3(0, 0, 0), "Location Updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "154" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 1, location_updating_request_del,
                             "155: location updating type =
                             normal, CKSN = no key available, LAI =
                             deleted LAI (the MCC and MNC hold the
                             previous values, the LAC is coded FFFE
                             ) mobile station classmark 1 as given
                             by the PICS and mobile identity =
                             IMSI." )
    BF_SET_VAL      ( fo_req, 1, "follow-on request pending" )
BS_MSG3_AWAIT_END ( )
BS_MSG3_SEND      ( 1, authentication_request, "156" )
BS_MSG3_AWAIT     ( 1, authentication_response, "157" )

BS_MSG3_SEND_BEGIN ( 1,
                             location_updating_accept_tmsi_no_follow
                             , "158: IE mobile Identity =
                             TMSI." )
    BF_SET_VAL      ( lac, LAC_B,          "LAI = b" )
BS_MSG3_SEND_END  ( )

BS_MSG3_AWAIT     ( 1, tmsi_reallocation_complete, "159" )
BS_MSG3_SEND      ( 1, channel_release, "160" )

NOT_IMPLEMENTED   (          "Steps 161 to 166 are optional." )
NOT_IMPLEMENTED   (          "161: An MO CM connection is attempted."
                             )

BS_RACH_AWAIT_BEGIN ( 1, channel_request, "162" )
    BF_SET_VAL      ( establishment_cause, M3(1,1,1), "Mobile originated call" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "163" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT     ( 1, cm_service_request, "164: CKSN = initial value, Mobile
                             identity = TMSI." )
BS_MSG3_SEND_BEGIN ( 1, cm_service_reject, "165: cause
                             #17 (network failure)." )
    BF_SET_VAL      ( reject_cause, 0x11, "Network failure (#17)" )
BS_MSG3_SEND_END  ( )
BS_MSG3_SEND      ( 1, channel_release, "166" )

```

History:	02.12.97	DL	Initial
	22.02.00	HM	Revised
	10.01.01	HM	Revised

16.01.02	HM	Revised
23.05.02	HM	Revised (AT_RECEIVE ("OK", SILENT))

### 3.5.17 MMM156: §26.7.4.3.4, Abnormal cases: attempt counter <= 4, real time version

**Description:** A failure during the periodic location updating is triggered: as the broadcast LAI is equal to the stored LAI, the MS is still in the MM IDLE state and NORMAL SERVICE substate and timer T3211 is started. A CM connection other than for emergency call is attempted. It is checked that this is possible and that T3211 is stopped. Same test is performed with a failure during an IMSI attach procedure.

Then failures are triggered during the periodic location updating to let the attempt counter to reach the value of 4. The MS shall enter the MM IDLE LIMITED SERVICE state and delete any TMSI, stored LAI, ciphering key sequence number and ciphering key. When the attempt counter reaches the value of 4, timer T3212 shall be started. At timer T3212 expiry a location updating procedure is started. A request for CM connection other than for emergency call shall trigger a location updating procedure.

Same tests are performed when the failures are triggered during an IMSI attach procedure. (Ref.: [2], §26.7.4.3.4)

**Preamble:** MMM019

**Script:**

```

BS_ON_OFF ( 0, FALSE)

SET_TIMEOUT      ( 80000 )
ISS_DELAY (60000)
ISS_DELAY (60000)
ISS_DELAY (60000)
ISS_DELAY (60000)
ISS_DELAY (60000)

NOT_IMPLEMENTED ( "1: The SS shall wait at most T3212 + 45
                  seconds." )
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "2: Establishment
                      cause: Location updating." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "3" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 1, location_updating_request, "4:
                    location updating type = periodic, CKSN
                    = initial value, LAI = b, mobile
                    station classmark 1 as given by the
                    PICS and mobile identity = TMSI." )
    BF_SET_VAL( lut, M2( 0,1 ), "periodic updating" )
    BF_SET_VAL ( lac, LAC_B, "LAI = b" )
    BF_SET_VAL ( key_sequence, CKSN_2, "CKSN 2" )
BS_MSG3_AWAIT_END( )
NOT_IMPLEMENTED ( "5: performs step 5, of 26.7.4.3.2 with
                  cause #17 and step 6 of 26.7.4.3.2." )
BS_MSG3_SEND_BEGIN ( 1, location_updating_reject, "" )
    BF_SET_VAL ( reject_cause, 0x11, "Network failure" )
BS_MSG3_SEND_END( )
BS_MSG3_SEND      ( 1, channel_release, "" )

ISS_DELAY (3000);
NOT_IMPLEMENTED ( "6: A MO CM connection is attempted." )
AT_SEND ("ATD6969554;", "dial");
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "7" )
    BF_SET_VAL      ( establishment_cause, M3(1,1,1), "MOC & TCH/F" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )

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BS_MSG3_SEND      ( 1, immediate_assignment, "8" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 1, cm_service_request, "9: CKSN =
                    initial CKSN, Mobile Identity = TMSI."
                    )
    BF_SET_VAL      ( key_sequence, CKSN_2, "CKSN 2" )
BS_MSG3_AWAIT_END ( )
BS_MSG3_SEND      ( 1, cm_service_accept, "10" )
BS_MSG3_AWAIT     ( 1, setup_moc, "11" )
BS_MSG3_SEND      ( 1, channel_release, "12: The SS waits for the disconnection
                    of the main signalling link." )

ISS_DELAY         ( 3000 )
NOT_IMPLEMENTED   ( "13: The MS shall not initiate an RR
                    connection establishment. This is
                    checked during 2*T3211." )

ISS_DELAY         ( 30000 )
NOT_IMPLEMENTED   ( "14: If possible (see PICS ) SIM
                    detachment is performed. Otherwise if
                    possible (see PICS ) switch off is
                    performed. Otherwise the power is
                    removed." )

AT_SEND ("AT+CFUN=0", "switch off");
NOT_IMPLEMENTED   ( "Steps 15 to 19 are optional." )
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "15" )
    BF_SET_VAL      ( establishment_cause, M3(1,1,1), "IMSI Detach" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "16" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT     ( 1, imsi_detach_indication_tmsi, "17" )
BS_MSG3_SEND      ( 1, channel_release, "18" )

ISS_DELAY         ( 10000 )
NOT_IMPLEMENTED   ( "19: Depending on what has been
                    performed in step 14 the MS is brought
                    back to operation." )

AT_SEND ("AT+CFUN=1", "switch on");
AT_SEND ("AT+COPS=0", "automatic registration");
AT_RECEIVE ("OK", SILENT );
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "20: Establishment
                    cause: Location updating." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "21" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 1, location_updating_request_tmsi_att,
                    "22: location updating type = IMSI
                    attach, CKSN = initial value, LAI = b,
                    mobile station classmark 1 as given by
                    the PICS and mobile identity = TMSI." )
    BF_SET_VAL      ( lac, LAC_B, "LAI = b" )
    BF_SET_VAL      ( key_sequence, CKSN_2, "CKSN 2" )
BS_MSG3_AWAIT_END ( )
NOT_IMPLEMENTED   ( "23: performs step 11 of 26.7.4.3.2
                    (The SS deactivates the SACCH on the
                    dedicated channel. The SS waits until
                    there are no more SACCH frames in the
                    uplink direction. This release

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                                connection is done within 8 SACCH
                                frames)" )
BS_SET_ERROR ( 1, 4)           /* radio link failure */
ISS_DELAY (10000)

NOT_IMPLEMENTED (              "24: A MO CM connection is attempted." )
AT_SEND ("ATD6969554;", "dial");
BS_RACH_AWAIT_BEGIN           ( 1, channel_request, "25" )
    BF_SET_VAL ( establishment_cause, M3(1,1,1 ), "Mobile originated call" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND ( 1, immediate_assignment, "26" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN          ( 1, cm_service_request, "27: CKSN =
                                initial CKSN, Mobile Identity = TMSI."
                                )
    BF_SET_VAL ( key_sequence, CKSN_2, "CKSN 2" )
BS_MSG3_AWAIT_END( )
BS_MSG3_SEND ( 1, ciphering_mode_command, "28" )
BS_MSG3_AWAIT ( 1, ciphering_mode_complete, "29" )

BS_MSG3_AWAIT ( 1, setup_moc, "30" )

BS_MSG3_SEND ( 1, channel_release, "31: The SS waits for the disconnection
                                of the main signalling link." )

ISS_DELAY ( 3000 )
NOT_IMPLEMENTED (              "32: The MS shall not initiate an RR
                                connection establishment. This is
                                checked during 2*T3211 MS is 'idle
                                updated' in cell B." )

NOT_IMPLEMENTED (              "33: The SS shall wait at most T3212 +
                                15 seconds." )

ISS_DELAY ( 60000 )
ISS_DELAY (60000)
ISS_DELAY (60000)
ISS_DELAY (60000)
ISS_DELAY (60000)

BS_RACH_AWAIT_BEGIN          ( 1, channel_request, "34: Establishment
                                cause: Location updating." )
    BF_SET_VAL ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND ( 1, immediate_assignment, "35" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN          ( 1, location_updating_request, "36:
                                location updating type = periodic, CKSN
                                = initial value, LAI = b, mobile
                                station classmark 1 as given by the
                                PICS and mobile identity = TMSI." )
    BF_SET_VAL ( lut, M2( 0,1 ), "periodic updating" )
    BF_SET_VAL ( lac, LAC_B, "LAI = b" )
    BF_SET_VAL ( key_sequence, CKSN_2, "CKSN 2" )
BS_MSG3_AWAIT_END( )
NOT_IMPLEMENTED (              "37: performs step 16 of 26.7.4.3.2." )
BS_MSG3_SEND ( 1, channel_release, "" )

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NOT_IMPLEMENTED (
    "38: The MS shall not initiate an RR
    connection establishment during T3211
    at least after the channel release." )

ISS_DELAY ( 3000 )
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "39: Establishment
    cause: Location updating." )
    BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND ( 1, immediate_assignment, "40" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 1, location_updating_request, "41:
    location updating type = periodic, CKSN
    = initial value, LAI = b, mobile
    station classmark 1 as given by the
    PICS and mobile identity = TMSI." )
    BF_SET_VAL ( lut, M2( 0,1 ), "periodic updating" )
    BF_SET_VAL ( lac, LAC_B, "LAI = b" )
    BF_SET_VAL ( key_sequence, CKSN_2, "CKSN 2" )
BS_MSG3_AWAIT_END( )
NOT_IMPLEMENTED (
    "42: performs step 5 of 26.7.4.3.2 with
    cause #17 and step 6 of 26.7.4.3.2." )
BS_MSG3_SEND_BEGIN ( 1, location_updating_reject, "" )
    BF_SET_VAL ( reject_cause, 0x11, "Network failure" )
BS_MSG3_SEND_END( )
BS_MSG3_SEND ( 1, channel_release, "" )

NOT_IMPLEMENTED (
    "43: The MS shall not initiate an RR
    connection establishment during T3211
    at least after the channel release." )

ISS_DELAY ( 3000 )
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "44: Establishment
    cause: Location updating." )
    BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND ( 1, immediate_assignment, "45" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 1, location_updating_request, "46:
    location updating type = periodic, CKSN
    = initial value, LAI = b, mobile
    station classmark 1 as given by the
    PICS and mobile identity = TMSI." )
    BF_SET_VAL ( lut, M2( 0,1 ), "periodic updating" )
    BF_SET_VAL ( lac, LAC_B, "LAI = b" )
    BF_SET_VAL ( key_sequence, CKSN_2, "CKSN 2" )
BS_MSG3_AWAIT_END( )
NOT_IMPLEMENTED (
    "47: performs step 11 of 26.7.4.3.2.
    (The SS deactivates the SACCH on the
    dedicated channel. The SS waits until
    there are no more SACCH frames in the
    uplink direction. This release
    connection is done within 8 SACCH
    frames)" )
BS_SET_ERROR (1, 4) /* radio link failure */
NOT_IMPLEMENTED (
    "48: The MS shall not initiate an RR
    connection establishment within T3211 +
    RadioLinkTimeout after the SS
    deactivates the SACCH." )

ISS_DELAY ( 3000 )

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BS_RACH_AWAIT_BEGIN ( 1, channel_request, "49: Establishment
                      cause: Location updating." )
    BF_SET_VAL ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND ( 1, immediate_assignment, "50" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 1, location_updating_request, "51:
                      location updating type = periodic, CKSN
                      = initial value, LAI = b, mobile
                      station classmark 1 as given by the
                      PICS and mobile identity = TMSI." )
    BF_SET_VAL ( lut, M2( 0,1 ), "periodic updating" )
    BF_SET_VAL ( lac, LAC_B, "LAI = b" )
    BF_SET_VAL ( key_sequence, CKSN_2, "CKSN 2" )
BS_MSG3_AWAIT_END( )
NOT_IMPLEMENTED ( "52: performs step 16 of 26.7.4.3.2." )
BS_MSG3_SEND ( 1, channel_release, "" )

NOT_IMPLEMENTED ( "53: The MS shall not initiate an RR
                  connection establishment during T3212 -
                  15 seconds at least after the channel
                  release." )

ISS_DELAY ( 60000 )
ISS_DELAY ( 60000 )
ISS_DELAY ( 60000 )
ISS_DELAY ( 60000 )
ISS_DELAY ( 60000 )
ISS_DELAY ( 45000 ) /* T3212 - 15 seconds after CHANNEL RELEASE */
SET_TIMEOUT ( 60000 )

BS_RACH_AWAIT_BEGIN ( 1, channel_request, "54: Establishment
                      cause: Location updating." )
    BF_SET_VAL ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND ( 1, immediate_assignment, "55" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT ( 1, location_updating_request_del, "56: location updating type =
                      periodic or normal (see Note 1 ), CKSN
                      = no key available, LAI = deleted LAI
                      (the MCC and MNC hold the previous
                      values, the LAC is coded FFFE ) mobile
                      station classmark 1 as given by the
                      PICS and mobile identity = IMSI." )
BS_MSG3_SEND ( 1, authentication_request, "57" )
BS_MSG3_AWAIT ( 1, authentication_response, "58" )
BS_MSG3_SEND_BEGIN ( 1, location_updating_accept_tmsi,
                    "59: IE mobile Identity = TMSI."
                    )
    BF_SET_VAL ( lac, LAC_B, "LAI = b" )
BS_MSG3_SEND_END ( )
BS_MSG3_SEND ( 1, channel_release, "60: The SS waits for the disconnection
                      of the main signalling link." )

NOT_IMPLEMENTED ( "61: The MS shall no initiate an RR
                  connection establishment earlier than
                  T3212 - 15 seconds after the
                  transmission of the CHANNEL RELEASE in
                  step 60." )

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ISS_DELAY          ( 60000 )
ISS_DELAY          ( 45000 ) /* T3212 - 15 seconds after CHANNEL RELEASE */
SET_TIMEOUT        ( 60000 )

BS_RACH_AWAIT_BEGIN          ( 1, channel_request, "62: Establishment
                              cause: Location updating." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "63" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN          ( 1, location_updating_request, "64:
                              location updating type = periodic, CKSN
                              = initial value, LAI = b, mobile
                              station classmark 1 as given by the
                              PICS and mobile identity = TMSI." )
    BF_SET_VAL      ( lut, M2( 0,1 ), "periodic updating" )
    BF_SET_VAL      ( lac, LAC_B, "LAI = b" )
BS_MSG3_AWAIT_END( )
NOT_IMPLEMENTED ( "65: performs step 5 of 26.7.4.3.2 with
                  cause #17 and step 6 of 26.7.4.3.2." )
BS_MSG3_SEND_BEGIN          ( 1, location_updating_reject, "" )
    BF_SET_VAL      ( reject_cause, 0x11, "Network failure" )
BS_MSG3_SEND_END( )
BS_MSG3_SEND      ( 1, channel_release, "" )

NOT_IMPLEMENTED ( "66: The MS shall not initiate an RR
                  connection establishment during T3211
                  at least after the channel release." )

ISS_DELAY          ( 3000 )
BS_RACH_AWAIT_BEGIN          ( 1, channel_request, "67: Establishment
                              cause: Location updating." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "68" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN          ( 1, location_updating_request, "69:
                              location updating type = periodic, CKSN
                              = initial value, LAI = b, mobile
                              station classmark 1 as given by the
                              PICS and mobile identity = TMSI." )
    BF_SET_VAL      ( lut, M2( 0,1 ), "periodic updating" )
    BF_SET_VAL      ( lac, LAC_B, "LAI = b" )
BS_MSG3_AWAIT_END( )
NOT_IMPLEMENTED ( "70: performs step 11 of 26.7.4.3.2.
                  (The SS deactivates the SACCH on the
                  dedicated channel. The SS waits until
                  there are no more SACCH frames in the
                  uplink direction. This release
                  connection is done within 8 SACCH
                  frames)" )

BS_SET_ERROR (1, 4) /* radio link failure */
NOT_IMPLEMENTED ( "71: The MS shall not initiate an RR
                  connection establishment within T3211 +

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RadioLinkTimeout after the SS
deactivates the SACCH." )

ISS_DELAY          ( 3000 )
BS_RACH_AWAIT_BEGIN          ( 1, channel_request, "72: Establishment
                               cause: Location updating." )
    BF_SET_VAL          ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND          ( 1, immediate_assignment, "73" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN          ( 1, location_updating_request, "74:
                               location updating type = periodic, CKSN
                               = initial value, LAI = b, mobile
                               station classmark 1 as given by the
                               PICS and mobile identity = TMSI." )
    BF_SET_VAL          ( lut, M2( 0,1 ), "periodic updating" )
    BF_SET_VAL          ( lac, LAC_B, "LAI = b" )
BS_MSG3_AWAIT_END( )
NOT_IMPLEMENTED ( "75: performs step 16 of 26.7.4.3.2." )
BS_MSG3_SEND          ( 1, channel_release, "" )

NOT_IMPLEMENTED ( "76: The MS shall not initiate an RR
                               connection establishment during T3211
                               at least after the channel release." )

ISS_DELAY          ( 3000 )
BS_RACH_AWAIT_BEGIN          ( 1, channel_request, "77: Establishment
                               cause: Location updating." )
    BF_SET_VAL          ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND          ( 1, immediate_assignment, "78" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN          ( 1, location_updating_request, "79:
                               location updating type = periodic, CKSN
                               = initial value, LAI = b, mobile
                               station classmark 1 as given by the
                               PICS and mobile identity = TMSI." )
    BF_SET_VAL          ( lut, M2( 0,1 ), "periodic updating" )
    BF_SET_VAL          ( lac, LAC_B, "LAI = b" )
BS_MSG3_AWAIT_END( )
NOT_IMPLEMENTED ( "80: performs step 5 of 26.7.4.3.2 with
                               cause #17 and step 6 of 26.7.4.3.2." )
BS_MSG3_SEND_BEGIN          ( 1, location_updating_reject, "" )
    BF_SET_VAL          ( reject_cause, 0x11, "Network failure" )
BS_MSG3_SEND_END( )
BS_MSG3_SEND          ( 1, channel_release, "" )

ISS_DELAY (5000)
NOT_IMPLEMENTED ( "81: A MO CM connection is attempted." )
AT_SEND ("ATD6969554;", "dial");
BS_RACH_AWAIT_BEGIN          ( 1, channel_request, "82: Establishment
                               cause: Location updating." )
    BF_SET_VAL          ( establishment_cause, M3(0,0,0), "Location Updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND          ( 1, immediate_assignment, "83" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN          ( 1, location_updating_request_del, "84:
                               location updating type = normal, CKSN =

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no key available, LAI = deleted LAI
(the MCC and MNC hold the previous
values, the LAC is coded FFFE ) mobile
station classmark 1 as given by the
PICS and mobile identity = IMSI." )
BF_SET_VAL      ( fo_req, 1,
BS_MSG3_AWAIT_END( )
BS_MSG3_SEND_BEGIN
( 1,
location Updating Accept TMSI no follow
, "85: IE mobile identity = TMSI." )
BF_SET_VAL      ( lac, LAC_B,
"LAI = b" )
BS_MSG3_SEND_END ( )
BS_MSG3_AWAIT   ( 1, tmsi_reallocation_complete, "86" )
BS_MSG3_SEND    ( 1, channel_release, "87" )
NOT_IMPLEMENTED (
"Steps 88 to 92 are optional Wait 10 s
to decide whether to go directly to
step 93." )
/*BS_RACH_AWAIT_BEGIN
( 1, channel_request, "88" )
BF_SET_VAL      ( establishment_cause, M3(1,1,1), "Mobile originated call" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND    ( 1, immediate_assignment, "89" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN
( 1, cm_service_request, "90: CKSN =
no key available, Mobile identity =
TMSI" )
BF_SET_VAL      ( key_sequence, CKSN_NONE, "no CKSN" )
BS_MSG3_AWAIT_END ( )
BS_MSG3_SEND_BEGIN
( 1, cm_service_reject, "91: cause
#17 (network failure)." )
BF_SET_VAL      ( reject_cause, 0x11,
"network failure" )
BS_MSG3_SEND_END( )
BS_MSG3_SEND    ( 1, channel_release, "92" )
NOT_IMPLEMENTED (
"93: If possible (see PICS ) SIM
detachment is performed. Otherwise if
possible (see PICS ) switch off is
performed. Otherwise the power is
removed." )
*/
ISS_DELAY (7000)
/* The following ABORT is required! */
/* But the question is: Which pending command is aborted here? ... */
/* AT_SEND ("ABORT\r\n", "Abort any pending AT command"); */
ISS_DELAY      ( 6000 ) /* Give some time for command abortion */
AT_SEND ("AT+CFUN=0", "switch off");
NOT_IMPLEMENTED (
"Steps 94 to 97 are optional." )
BS_RACH_AWAIT_BEGIN
( 1, channel_request, "94" )
BF_SET_VAL      ( establishment_cause, M3(1,1,1), "IMSI Detach" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND    ( 1, immediate_assignment, "95" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT   ( 1, imsi_detach_indication_tmsi, "96" )
BS_MSG3_SEND    ( 1, channel_release, "97" )
ISS_DELAY (10000)

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NOT_IMPLEMENTED ( "98: Depending on what has been
                  performed in step 97 the MS is brought
                  back to operation." )

AT_SEND ("AT+CFUN=1", "switch on");
AT_SEND ("AT+COPS=0", "automatic registration");
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "99: Establishment
                    cause: Location updating." )
    BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND ( 1, immediate_assignment, "100" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 1, location Updating request tmsi_att,
                    "101: location updating type = IMSI
                    attach, CKSN = no key available, LAI =
                    b, mobile station classmark 1 as given
                    by the PICS and mobile identity =
                    TMSI." )
    BF_SET_VAL ( key_sequence, CKSN_NONE, "CKSN not available" )
    BF_SET_VAL ( lac, LAC_B, "LAI = b" )
BS_MSG3_SEND_END ( )
NOT_IMPLEMENTED ( "102: performs step 11 of 26.7.4.3.2.
                  (The SS deactivates the SACCH on the
                  dedicated channel. The SS waits until
                  there are no more SACCH frames in the
                  uplink direction. This release
                  connection is done within 8 SACCH
                  frames)" )

BS_SET_ERROR (1, 4) /* radio link failure */

NOT_IMPLEMENTED ( "103: The MS shall not initiate an RR
                  connection establishment within T3211 +
                  RadioLinkTimeout after the SS
                  deactivates the SACCH." )

ISS_DELAY ( 3000 )
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "104: Establishment
                    cause: Location updating." )
    BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND ( 1, immediate_assignment, "105" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 1, location Updating request tmsi_att,
                    "106: location updating type = IMSI
                    attach, CKSN = no key available, LAI =
                    b, mobile station classmark 1 as given
                    by the PICS and mobile identity =
                    TMSI." )
    BF_SET_VAL ( key_sequence, CKSN_NONE, "CKSN not available" )
    BF_SET_VAL ( lac, LAC_B, "LAI = b" )
BS_MSG3_SEND_END ( )
BS_MSG3_SEND ( 1, channel_release, "107: After the sending of the message
                    the SS waits for the disconnection of
                    the main signalling link." )

NOT_IMPLEMENTED ( "108: The MS shall not initiate an RR
                  connection establishment during T3211
                  at least after the channel release." )

ISS_DELAY ( 3000 )

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BS_RACH_AWAIT_BEGIN ( 1, channel_request, "109: Establishment
                    cause: Location updating." )
    BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND ( 1, immediate_assignment, "110" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 1, location_updating_request_tmsi_att,
                    "111: location updating type = IMSI
                    attach, CKSN = no key available, LAI =
                    b, mobile station classmark 1 as given
                    by the PICS and mobile identity =
                    TMSI." )
    BF_SET_VAL ( key_sequence, CKSN_NONE, "CKSN not available" )
    BF_SET_VAL ( lac, LAC_B, "LAI = b" )
BS_MSG3_SEND_END ( )
BS_MSG3_SEND_BEGIN ( 1, location_updating_reject,
                    "112a: IE Reject cause is set to
                    a value arbitrarily chosen: * in table
                    10.66 of [1], causes #2, #3, #6, #11,
                    #12, and #13 being excluded." )
    BF_SET_VAL ( reject_cause, 0x11, "Network failure" )
BS_MSG3_SEND_END ( )
BS_MSG3_SEND ( 1, channel_release,
                "112b: After the sending of this
                message, the SS waits for the
                disconnection of the main signalling
                link." )

NOT_IMPLEMENTED ( "113: The MS shall not initiate an RR
                  connection establishment during T3211
                  at least after the channel release." )

ISS_DELAY ( 3000 )
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "114: Establishment
                    cause: Location updating." )
    BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND ( 1, immediate_assignment, "115" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 1, location_updating_request_tmsi_att,
                    "116: location updating type = IMSI
                    attach, CKSN = no key available, LAI =
                    b, mobile station classmark 1 as given
                    by the PICS and mobile identity =
                    TMSI." )
    BF_SET_VAL ( key_sequence, CKSN_NONE, "CKSN not available" )
    BF_SET_VAL ( lac, LAC_B, "LAI = b" )
BS_MSG3_SEND_END ( )
NOT_IMPLEMENTED ( "117: performs step 11 of 26.7.4.3.2.
                  (The SS deactivates the SACCH on the
                  dedicated channel. The SS waits until
                  there are no more SACCH frames in the
                  uplink direction. This release
                  connection is done within 8 SACCH
                  frames)" )

BS_SET_ERROR (1, 4) /* radio link failure */
NOT_IMPLEMENTED ( "118: The MS shall not initiate an RR
                  connection establishment during T3212 -
                  15 seconds at least after the channel
                  release." )

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ISS_DELAY          ( 60000 )
ISS_DELAY          ( 45000 ) /* T3212 - 15 seconds after CHANNEL RELEASE */
SET_TIMEOUT        ( 60000 )

BS_RACH_AWAIT_BEGIN          ( 1, channel_request, "119: Establishment
                               cause: Location updating." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0) , "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "120" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT     ( 1, location_updating_request_del,
                    "121: location updating
                    type = periodic or normal or IMSI
                    attach (see Note 2) , CKSN = no key
                    available, LAI = deleted LAI (the MCC
                    and MNC hold the previous values, the
                    LAC is coded FFFE ) mobile station
                    classmark 1 as given by the PICS and
                    mobile identity = IMSI." )
BS_MSG3_SEND      ( 1, authentication_request, "122" )
BS_MSG3_AWAIT     ( 1, authentication_response, "123" )
BS_MSG3_SEND_BEGIN ( 1, location_updating_accept_tmsi,
                    "124: IE mobile Identity = TMSI." )
    BF_SET_VAL      ( lac, LAC_B, "LAI = b" )
BS_MSG3_SEND_END ( )
BS_MSG3_AWAIT     ( 1, tmsi_reallocation_complete, "125" )
BS_MSG3_SEND      ( 1, channel_release, "126" )
NOT_IMPLEMENTED   ( "127: If possible (see PICS ) SIM
                    detachment is performed. Otherwise if
                    possible (see PICS ) switch off is
                    performed. Otherwise the power is
                    removed." )

ISS_DELAY (5000)
AT_SEND ("AT+CFUN=0", "switch off");
NOT_IMPLEMENTED ( "Steps 128 to 131 are optional." )
BS_RACH_AWAIT_BEGIN          ( 1, channel_request, "128" )
    BF_SET_VAL      ( establishment_cause, M3(1,1,1) , "IMSI Detach" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "129" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT     ( 1, imsi_detach_indication_tmsi, "130" )
BS_MSG3_SEND      ( 1, channel_release, "131" )

ISS_DELAY (5000)
NOT_IMPLEMENTED ( "132: Depending on what has been
                    performed in step 130 the MS is brought
                    back to operation." )

AT_SEND ("AT+CFUN=1", "switch on");
AT_SEND ("AT+COPS=0", "automatic registration");
BS_RACH_AWAIT_BEGIN          ( 1, channel_request, "133: Establishment
                               cause: Location updating." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0) , "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )

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BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "134" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 1, location_updating_request_tmsi_att,
    "135: location updating type = IMSI
    attach, CKSN = initial value, LAI = b,
    mobile station classmark 1 as given by
    the PICS and mobile identity = TMSI." )
    BF_SET_VAL      ( lac, LAC_B, "LAI = b" )
    BF_SET_VAL      ( key_sequence, CKSN_1, "CKSN 1" )
BS_MSG3_AWAIT_END ( )
NOT_IMPLEMENTED   ( "136: performs step 16 of 26.7.4.3.2." )
BS_MSG3_SEND      ( 1, channel_release, "" )
NOT_IMPLEMENTED   ( "137: The MS shall not initiate an RR
    connection establishment during T3211
    at least after the channel release." )

ISS_DELAY (10000)
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "138: Establishment
    cause: Location updating." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "139" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 1, location_updating_request_tmsi_att,
    "140: location updating type = IMSI
    attach, CKSN = no key available, LAI =
    b, mobile station classmark 1 as given
    by the PICS and mobile identity =
    TMSI." )
    BF_SET_VAL      ( key_sequence, CKSN_1, "CKSN 1" )
    BF_SET_VAL      ( lac, LAC_B, "LAI = b" )
BS_MSG3_SEND_END ( )
NOT_IMPLEMENTED   ( "141: performs step 5 of 26.7.4.3.2 with
    cause #17 and step 6 of 26.7.4.3.2." )
BS_MSG3_SEND_BEGIN ( 1, location_updating_reject, "IE
    Reject cause is set to a value
    arbitrarily chosen: * in table 10.66 of
    [1], causes #2, #3, #6, #11, #12, and
    #13 being excluded." )
    BF_SET_VAL      ( reject_cause, 17, "Network failure" )
BS_MSG3_SEND_END ( )
BS_MSG3_SEND      ( 1, channel_release, "After the sending of this message, the
    SS waits for the disconnection of the
    main signalling link." )
NOT_IMPLEMENTED   ( "142: The MS shall not initiate an RR
    connection establishment during T3211
    at least after the channel release." )

ISS_DELAY ( 3000 )
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "143: Establishment
    cause: Location updating." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "144" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 1, location_updating_request_tmsi_att,
    "145: location updating type = IMSI
    attach, CKSN = initial value , LAI = b,

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mobile station classmark 1 as given by
the PICS and mobile identity = TMSI." )
    BF_SET_VAL      ( key_sequence, CKSN_1, "CKSN 1" )
    BF_SET_VAL      ( lac, LAC_B, "LAI = b" )
BS_MSG3_SEND_END ( )
NOT_IMPLEMENTED ( "146: performs step 11 of 26.7.4.3.2." )
NOT_IMPLEMENTED ( "147: The MS shall not initiate an RR
connection establishment within T3211 +
RadioLinkTimeout after the SS
deactivates the SACCH." )
/* radio link failure */
BS_SET_ERROR (1, 4)
ISS_DELAY      ( 3000 )
BS_RACH_AWAIT_BEGIN      ( 1, channel_request, "148: Establishment
cause: Location updating." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "149" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN      ( 1, location_updating_request_tmsi_att,
"150: location updating type = IMSI
attach, CKSN = initial value, LAI = b,
mobile station classmark 1 as given by
the PICS and mobile identity = TMSI." )
    BF_SET_VAL      ( key_sequence, CKSN_1, "CKSN 1" )
    BF_SET_VAL      ( lac, LAC_B, "LAI = b" )
BS_MSG3_SEND_END ( )
NOT_IMPLEMENTED ( "151: performs step 16 of 26.7.4.3.2." )
BS_MSG3_SEND      ( 1, channel_release, "" )

ISS_DELAY (5000)
NOT_IMPLEMENTED ( "152: The MS is made to perform a MO
call." )

AT_SEND ("ATD6969554;", "dial");
BS_RACH_AWAIT_BEGIN      ( 1, channel_request, "153: Establishment
cause: Location updating." )
    BF_SET_VAL      ( establishment_cause, M3(0, 0, 0), "Location Updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "154" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN      ( 1, location_updating_request_del,
"155: location updating type =
normal, CKSN = no key available, LAI =
deleted LAI (the MCC and MNC hold the
previous values, the LAC is coded FFFE
) mobile station classmark 1 as given
by the PICS and mobile identity =
IMSI." )
    BF_SET_VAL      ( fo_req, 1, "follow-on request pending" )
BS_MSG3_AWAIT_END ( )
BS_MSG3_SEND      ( 1, authentication_request, "156" )
BS_MSG3_AWAIT      ( 1, authentication_response, "157" )

BS_MSG3_SEND_BEGIN      ( 1,
location_updating_accept_tmsi_no_follow
, "158: IE mobile Identity =
TMSI." )
    BF_SET_VAL      ( lac, LAC_B, "LAI = b" )
BS_MSG3_SEND_END ( )

```

```

BS_MSG3_AWAIT      ( 1, tmsi_reallocation_complete, "159" )
BS_MSG3_SEND       ( 1, channel_release, "160" )

NOT_IMPLEMENTED    ( "Steps 161 to 166 are optional." )
NOT_IMPLEMENTED    ( "161: An MO CM connection is attempted." )
                    )

BS_RACH_AWAIT_BEGIN      ( 1, channel_request, "162" )
  BF_SET_VAL           ( establishment_cause, M3(1,1,1), "Mobile originated call" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND         ( 1, immediate_assignment, "163" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT        ( 1, cm_service_request, "164: CKSN = initial value, Mobile
                    identity = TMSI." )
BS_MSG3_SEND_BEGIN     ( 1, cm_service_reject, "165: cause
                    #17 (network failure)." )
  BF_SET_VAL           ( reject_cause, 0x11, "Network failure (#17)" )
BS_MSG3_SEND_END( )
BS_MSG3_SEND          ( 1, channel_release, "166" )

```

History:	02.12.97	DL	Initial
	25.02.00	HM	Revised
	03.03.00	HM	Added delay after ABORT before step 94
	10.01.01	HM	Revised
	16.01.02	HM	Revised

**3.5.18 MMM057: §26.7.4.4, Release: expiry of T3240**

**Description:** A normal location updating procedure is performed. The RR-connection is not released by the SS within the timer T3240. It is checked that the MS aborts the RR-connection. (Ref.: [2], §26.7.4.4)

**Preamble:** MMM009

**Script:**

```

SET_TIMEOUT          ( 30000 )

BS_SET_POWER         ( 0,-120 )
BS_SET_POWER         ( 1, -60 )
NOT_IMPLEMENTED      (
                                "1: The RF level of cell A is lowered
                                until the MS selects cell B." )
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "2: Establishment
                                cause: Location updating." )
    BF_SET_VAL        ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL    ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND         ( 1, immediate_assignment, "3" )
BS_CONFIG_CHANNEL    ( 1, SDCCH, ACK, SAPI_0 );
BS_MSG3_AWAIT_BEGIN ( 1, location_updating_request, "4" )
    BF_SET_VAL        ( key_sequence, 6, "" )
    BF_SET_VAL        ( lac, 3, "" )
BS_MSG3_AWAIT_END( )
BS_MSG3_SEND_BEGIN   ( 1, location_updating_accept, "5" )
    BF_SET_VAL        ( lac, LAC_B, "LAI = b" )
BS_MSG3_SEND_END( )
NOT_IMPLEMENTED      (
                                "6: The SS waits T3240 expiry." )
NOT_IMPLEMENTED      (
                                "7: The MS shall abort the RR connection
                                (disconnection of layer 2).")

ISS_DELAY (30000)

```

History:	02.12.97	DL	Initial
	17.04.01	HM	Last LUP ACCEPT for correct LA

### 3.5.19 MMM058: §26.7.4.5.1, Periodic spread

**Description:** The MS is activated. It performs IMSI attach. 3 minutes after the end of the IMSI attach procedure, the value of T3212 is set to 6 minutes. The MS shall perform periodic location updating 6 minutes after the end of the IMSI attach procedure.

Then, the IMSI attach/detach is forbidden. T3212 is still set to 6 minutes.

The MS is deactivated. The MS is reactivated. It is checked that the MS performs a periodic location updating during the 6 minutes following activation. (Ref.: [2], §26.7.4.5.1)

**Preamble:** MMM013

**Script:**

```

SET_TIMEOUT (40000)
NOT_IMPLEMENTED ( "1: The MS is activated." )
AT_SEND ("AT+CFUN=1", "switch on");
AT_SEND ("AT+COPS=0", "automatic registration");
BS_RACH_AWAIT_BEGIN ( 0, channel_request, "2: Establishment
cause: Location updating." )
    BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND ( 0, immediate_assignment, "3" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 );
BS_MSG3_AWAIT ( 0, location_updating_request_imsi_att, "4: lup type: IMSI
attach." )

BS_MSG3_SEND ( 0, location_updating_accept, "5" )
BS_MSG3_SEND ( 0, channel_release, "6: After the sending of this message,
the SS waits for the disconnection of
the main signalling link." )

ISS_DELAY (180000)
NOT_IMPLEMENTED ( "7: 3 minutes after step 6 the value of
T3212 is set to 6 minutes." )
BS_SET_SYS_INFO ( 0, system_information_type_3)
ISS_DELAY (150000)
BS_RACH_AWAIT_BEGIN ( 0, channel_request, "8: Establishment
cause: Location updating This message
shall be sent by the MS between
5minutes 45s and 6minutes 15s after
step 6." )
    BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND ( 0, immediate_assignment, "9" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 );
BS_MSG3_AWAIT_BEGIN ( 0, location_updating_request_imsi,
"10: location updating type: periodic
updating." )
    BF_SET_VAL ( lut, M2( 0,1 ), "periodic updating" )
BS_MSG3_AWAIT_END( )
BS_MSG3_SEND ( 0, location_updating_accept, "11" )
BS_MSG3_SEND ( 0, channel_release, "12: After the sending of this message,
the SS waits for the disconnection of
the main signalling link." )

ISS_DELAY (10000)
NOT_IMPLEMENTED ( "13: IMSI attach/detach is not allowed."
)
NOT_IMPLEMENTED ( "14: The MS is deactivated." )
AT_SEND ("AT+CFUN=0", "switch off");

```

```

ISS_DELAY          ( 10000 )
NOT_IMPLEMENTED   (                               "15: The MS is activated." )
AT_SEND ("AT+CFUN=1", "switch on");
AT_SEND ("AT+COPS=0", "automatic registration");
NOT_IMPLEMENTED   (                               "16: The SS waits until the periodic
                                                    location updating." )

SET_TIMEOUT (400000)
BS_RACH_AWAIT_BEGIN ( 0, channel_request, "17: Establishment
cause: Location updating This message
shall arrive during the 7 minutes
following the MS activation." )

    BF_SET_VAL      ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND      ( 0, immediate_assignment, "18" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 );
BS_MSG3_AWAIT_BEGIN ( 0, location_updating_request_imsi,
"19: Location updating type =
periodic." )

    BF_SET_VAL      ( lut, M2( 0,1 ), "periodic updating" )
BS_MSG3_AWAIT_END ( )
BS_MSG3_SEND      ( 0, location_updating_accept, "20" )
BS_MSG3_SEND      ( 0, channel_release, "21: After the sending of this message,
the SS waits for the disconnection of
the main signalling link." )

```

History:

03.12.97

DL

Initial

### 3.5.20 MMM059: §26.7.4.5.2, Periodic normal (Test 1 )

**Description:** An MS originated MM connection is established and cleared. The channel is released. It is checked that the MS performs a periodic location updating 12 minutes after the release of the channel. One minute after the periodic location updating, the MS is paged, it sends a CHANNEL REQUEST message and the SS responds with an IMMEDIATE ASSIGNMENT message, a call is established and then cleared. It is checked that the MS performs a periodic location updating 12 minutes after the release of the link. (Ref.: [2], §26.7.4.5.2)

**Preamble:** MMM003

**Script:**

```

SET_TIMEOUT          ( 80000 )

NOT_IMPLEMENTED     (                               "1: A MO CM connection is attempted." )
AT_SEND ("ATD6969554;", "dial");
BS_RACH_AWAIT_BEGIN( 0,channel_request,           "2:" )
  BF_SET_VAL        ( establishment_cause, M3(1,1,1 ),"MOC & TCH/F" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 );
BS_MSG3_SEND       ( 0, immediate_assignment, "3" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT      ( 0, cm_service_request,   "4" )
BS_MSG3_SEND_BEGIN ( 0, cm_service_reject,    "5: cause
#17 (network failure )." )
  BF_SET_VAL        ( reject_cause, 0x11,     "Network failure (#17)" )
BS_MSG3_SEND_END( )
BS_MSG3_SEND       ( 0, channel_release,      "6: After the sending of this message,
the SS waits for the disconnection of
the main signalling link." )

NOT_IMPLEMENTED     (                               "7: The SS waits until the periodic
location updating." )

ISS_DELAY (30000)
BS_RACH_AWAIT_BEGIN ( 0, channel_request, "8: Establishment
cause: Location updating This message
shall arrive between 11 minutes 45 s
and 12 minutes 15 s after the last
release of the RR connection by the
SS." )
  BF_SET_VAL        ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND       ( 0, immediate_assignment, "9" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 );
BS_MSG3_AWAIT_BEGIN ( 0, location_updating_request, "10:
Location updating type = periodic." )
  BF_SET_VAL        ( lut, M2( 0,1 ),        "periodic updating" )
BS_MSG3_AWAIT_END( )
BS_MSG3_SEND       ( 0, location_updating_accept, "11" )
BS_MSG3_SEND       ( 0, channel_release,      "12: After the sending of this message,
the SS waits for the disconnection of
the main signalling link." )

ISS_DELAY (20000)
NOT_IMPLEMENTED     (                               "13: The SS waits 1 minute." )
BS_CONFIG_CHANNEL ( 0, PCH, UNACK, SAPI_0 )
BS_MSG3_SEND       ( 0, paging_request_type_1, "14: Mobile identity = IMSI." )
BS_RACH_AWAIT      ( 0, channel_request,      "15: Establishment cause: Answer to
paging." )

```

```

BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND      ( 0, immediate_assignment, "16" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 );
BS_MSG3_AWAIT     ( 0, paging_response,      "17" )
BS_MSG3_SEND      ( 0, authentication_request, "18" )
BS_MSG3_AWAIT     ( 0, authentication_response, "19" )
BS_MSG3_SEND      ( 0, channel_release,      "20: After the sending of this message,
the SS waits for the disconnection of
the main signalling link." )

ISS_DELAY (20000);
NOT_IMPLEMENTED ( "21: The SS waits until the periodic
location updating." )

BS_RACH_AWAIT_BEGIN ( 0, channel_request, "22: Establishment
cause: Location updating This message
shall arrive between 11 minutes 45 s
and 12 minutes 15 s after the last
release of the RR connection by the
SS." )

    BF_SET_VAL      ( establishment_cause, M3(0,0,0) , "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND      ( 0, immediate_assignment, "23" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 );
BS_MSG3_AWAIT_BEGIN ( 0, location Updating request, "24: Location updating type =
periodic." )
    BF_SET_VAL      ( lut, M2( 0,1 ) , "periodic updating" )
BS_MSG3_AWAIT_END( )
BS_MSG3_SEND      ( 0, location Updating accept, "25" )
BS_MSG3_SEND      ( 0, channel_release,      "26: After the sending of this message,
the SS waits for the disconnection of
the main signalling link." )

```

History:

03.12.97

DL

Initial

### 3.5.21 MMM060: §26.7.4.5.3, Periodic normal (Test 2)

**Description:** A normal location updating is performed. The channel is released. One minute later, the MS is deactivated, then reactivated in the same cell. It is checked that the MS performs an IMSI attach and a periodic location updating 6 minutes after the IMSI attach. (Ref.: [2], §26.7.4.5.3)

**Preamble:** MMM009

**Script:**

```

SET_TIMEOUT          ( 80000 )
COMMAND              ("MM CONFIG T3212_CNT=6") /* T3212 = 60 sec. - should be 6 min.
                                                    !*/

BS_SET_POWER        ( 0,-120 )
BS_SET_POWER        ( 1, -60 )
NOT_IMPLEMENTED     (
BS_RACH_AWAIT_BEGIN
    BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL   ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND        ( 1, immediate_assignment, "3" )
BS_CONFIG_CHANNEL   ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN
    ( 1, location_updating_request, "4:
location updating type = normal." )
    BF_SET_VAL      ( lac, LAC_C, "LAI = c" )
    BF_SET_VAL      ( key_sequence, CKSN_2, "CKSN = 6" )
BS_MSG3_AWAIT_END ( )
BS_MSG3_SEND_BEGIN
    ( 1, location_updating_accept_tmsi, "5"
)
    BF_SET_VAL      ( lac, LAC_B, "LAI = b" )
BS_MSG3_SEND_END ( )
BS_MSG3_AWAIT      ( 1, tmsi_reallocation_complete, "5a" )
BS_MSG3_SEND        ( 1, channel_release, "6: After the sending of this message,
the SS waits for the disconnection of
the main signalling link." )

ISS_DELAY (5000)
NOT_IMPLEMENTED     (
BS_RACH_AWAIT_BEGIN
    ( 1, channel_request, "8: Establishment
cause: Location updating." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL   ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND        ( 1, immediate_assignment, "9" )
BS_CONFIG_CHANNEL   ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN
    ( 1, location_updating_request, "10:
location updating type = periodic." )
    BF_SET_VAL      ( lut, M2( 0,1 ), "periodic updating" )
    BF_SET_VAL      ( lac, LAC_B, "LAI = b" )
    BF_SET_VAL      ( key_sequence, CKSN_2, "CKSN = 6" )
BS_MSG3_AWAIT_END ( )
BS_MSG3_SEND_BEGIN
    ( 1, location_updating_accept_tmsi, "11"
)
    BF_SET_VAL      ( lac, LAC_B, "LAI = b" )
BS_MSG3_SEND_END ( )
BS_MSG3_AWAIT      ( 1, tmsi_reallocation_complete, "11a" )

```

```

BS_MSG3_SEND      ( 1, channel_release,      "12: After the sending of this message,
                                                    the SS waits for the disconnection of
                                                    the main signalling link." )

ISS_DELAY (10000)
NOT_IMPLEMENTED   (
                                                    "13: If possible (see PICS ) SIM removal
                                                    is performed. Otherwise if possible
                                                    (see PICS ) switch off is performed.
                                                    Otherwise the power is removed. steps
                                                    14 to 17 may be performed or not
                                                    depending on the action made in step
                                                    13." )

AT_SEND ("AT+CFUN=0", "switch off");

BS_RACH_AWAIT_BEGIN ( 1, channel_request, "14: Establishment
                                                    cause: Location updating." )
    BF_SET_VAL      ( establishment_cause, M3(1,1,1 ), "SDCCH procedure" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "15" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT     ( 1, imsi_detach_indication_tmsi, "16" )
BS_MSG3_SEND      ( 1, channel_release,      "17: After the sending of this message,
                                                    the SS waits for the disconnection of
                                                    the main signalling link." )

ISS_DELAY (10000)
NOT_IMPLEMENTED   (
                                                    "18: Depending on what has been
                                                    performed in step 13 the MS is brought
                                                    back to operation." )

AT_SEND ("AT+CFUN=1", "switch on");
AT_SEND ("AT+COPS=0", "automatic registration");
COMMAND      ("MM CONFIG T3212_CNT=6") /* T3212 = 60 sec. - should be 6 min.
!*/

BS_RACH_AWAIT_BEGIN ( 1, channel_request, "19: Establishment
                                                    cause: Location updating." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "20" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 1, location_updating_request, "21:"
)
    BF_SET_VAL( lut, M2( 1,0 ), "IMSI attach" )
    BF_SET_VAL ( lac, LAC_B, "LAI = b" )
    BF_SET_VAL ( key_sequence, CKSN_2, "CKSN = 6" )
BS_MSG3_AWAIT_END ( )
BS_MSG3_SEND_BEGIN ( 1, location_updating_accept_tmsi, "22"
)
    BF_SET_VAL      ( lac, LAC_B, "LAI = b" )
BS_MSG3_SEND_END ( )
BS_MSG3_AWAIT     ( 1, tmsi_reallocation_complete, "22a" )
BS_MSG3_SEND      ( 1, channel_release,      "23: After the sending of this message,
                                                    the SS waits for the disconnection of
                                                    the main signalling link." )

ISS_DELAY (5000)
NOT_IMPLEMENTED   (
                                                    "24: The SS waits until the periodic
                                                    location updating." )

BS_RACH_AWAIT_BEGIN ( 1, channel_request, "25: Establishment
                                                    cause: Location updating." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END ( )

```

```
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "26" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 1, location Updating request, "27:
                    location updating type = periodic." )
    BF_SET_VAL      ( lut, M2( 0,1 ), "periodic updating" )
    BF_SET_VAL      ( lac, LAC_B, "LAI = b" )
    BF_SET_VAL      ( key_sequence, CKSN_2, "CKSN = 6" )
BS_MSG3_AWAIT_END ( )
BS_MSG3_SEND_BEGIN ( 1, location Updating accept_tmsi, "28"
                    )
    BF_SET_VAL      ( lac, LAC_B, "LAI = b" )
BS_MSG3_SEND_END ( )
BS_MSG3_AWAIT     ( 1, tmsi_reallocation_complete, "28a" )
BS_MSG3_SEND      ( 1, channel_release, "29: After the sending of this message,
                    the SS waits for the disconnection of
                    the main signalling link." )
```

History:            03.12.97            DL            Initial

### 3.5.22 MMM061: §26.7.4.5.4.1, Periodic HPLMN search - MS waits time T

**Description:** Only Cell B shall be broadcasting. The MS shall be switched on either by using the Power Switch or by applying power. A normal location updating is performed on Cell B. Cell A shall be made available after 8 minutes, thus ensuring the MS fails to find the HPLMN during its first attempt. It is verified that the MS performs a location update request on Cell A, within 6 minutes after broadcasting of Cell A. (Ref.: [2], §26.7.4.5.4.1)

**Preamble:** MMM014

**Script:**

```

SET_TIMEOUT          ( 30000 )

AT_SEND ("AT+CFUN=1", "switch on");
AT_RECEIVE ("OK", SILENT);
AT_SEND ("AT+COPS=0", "automatic registration");

NOT_IMPLEMENTED (
    "The following messages shall be sent
    and received on Cell B." )
NOT_IMPLEMENTED (
    "1: The MS is switched on by either
    using the Power Switch or by applying
    power." )
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "2: Establish
    cause: Location updating." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "3" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT     ( 1, location_updating_request_imsi, "4" )
BS_MSG3_SEND      ( 1, location_updating_accept_B_HMCC, "5" )
AT_RECEIVE ("OK", SILENT);
BS_MSG3_SEND      ( 1, channel_release,
    "6: After sending this message the SS
    waits for the disconnection of the main
    signalling link. The SS waits a period
    of 8 minutes, this allowing the MS to
    make its first periodic search." )

ISS_DELAY (480000)
NOT_IMPLEMENTED (
    "8: Cell A is made available. Within 8
    minutes after step 8 the following
    messages shall be sent and received on
    Cell A." )

BS_ON_OFF (0, TRUE)
SET_TIMEOUT (480000)
BS_RACH_AWAIT_BEGIN ( 0, channel_request, "9: Establish
    cause: Location updating." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND      ( 0, immediate_assignment, "10" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
SET_TIMEOUT      ( 30000 )
BS_MSG3_AWAIT_BEGIN ( 0, location_updating_request_imsi,
    "11" )

#ifdef NORTH_AMERICA
    BF_SET_VAL      ( mnc_dig_3, 7, "PLMN = 312 457" )
#else
    BF_SET_VAL      ( mnc_dig_2, 2, "PLMN = 262 02" )
#endif
#endif

```

```

    BF_SET_VAL      ( lac, LAC_B,                "Location area code - Cell B" )
BS_MSG3_AWAIT_END( )
BS_MSG3_SEND      ( 0, location Updating_accept, "12" )
BS_MSG3_SEND      ( 0, channel_release,        "13: After sending this message the SS
                                                waits for the disconnection of the main
                                                signalling link." )

```

History:	03.12.97	DL	Initial
	21.02.00	HM	Expecting LAI deleted in step 10
	10.01.00	HM	Revised
	24.01.00	HM	Revised, made conformant to GSM 11.10
	28.08.01	HM	NORTH_AMERICA variant added
	18.03.04	HM	CKSN corrected in step 4 and step 11

### 3.5.23 MMM062: §26.7.4.5.4.2, Periodic HPLMN search - MS in manual mode

**Description:** Only Cell B shall be broadcasting. The MS shall be switched on either by using the Power Switch or by applying power. A normal location updating is performed on Cell B. The MS is forced into manual selection mode. Cell A is made available. It is verified that the MS does not attempt to perform a location update on Cell A. (Ref.: [2], §26.7.4.5.4.2)

**Preamble:** MMM014

**Script:**

```

SET_TIMEOUT      ( 30000 )

AT_SEND ("AT+CFUN=1", "switch on");
AT_RECEIVE ("OK", SILENT);
AT_SEND ("AT+COPS=0", "automatic registration");

NOT_IMPLEMENTED ( "The following messages shall be sent
                  and received on Cell B." )
NOT_IMPLEMENTED ( "1: The MS is switched on by either
                  using the Power Switch or by applying
                  power." )
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "2: Establish
                     cause: Location updating." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "3" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT     ( 1, location_updating_request_imsi, "4" )
BS_MSG3_SEND      ( 1, location_updating_accept_B_HMCC, "5" )
AT_RECEIVE ("OK", SILENT);
BS_MSG3_SEND      ( 1, channel_release, "6: After sending this message the SS
                  waits for the disconnection of the main
                  signalling link." )

ISS_DELAY (5000)

#ifdef NORTH_AMERICA
AT_SEND ( "AT+COPS=1,2,\"26202\"", "The MS is forced into manual selection mode" );
#else
AT_SEND ( "AT+COPS=1,2,\"312457\"", "The MS is forced into manual selection mode" );
#endif

NOT_IMPLEMENTED ( "8: Cell A is made available." )
BS_ON_OFF (0, TRUE)
ISS_DELAY (80000)
BS_MSG3_EXPECT_TIMEOUT (0, 80000)
NOT_IMPLEMENTED ( "10: The SS waits a period of 7 minutes.
                  During this time no messages shall be
                  received on Cell A." )

```

History:	03.12.97	DL	Initial
	11.01.01	HM	Revised, using +COPS instead %NRG
	12.04.01	HM	Last LUP ACCEPT for correct LA
	28.08.01	HM	NORTH_AMERICA variant added
	18.03.04	HM	CKSN corrected in step 4

**3.5.24 MMM063: §26.7.4.5.4.3, Per. HPLMN search - MS waits min. 2 min, max. T min**

**Description:** Only Cell B shall be broadcasting. The MS shall be switched on either by using the Power Switch or by applying power. A normal location updating is performed on Cell B. Cell A is made available. It is verified that the MS attempts to perform a location update on Cell A, after at least 2 minutes and at most T minutes have passed following power on. (Ref.: [2], §26.7.4.5.4.3)

**Preamble:** MMM014

**Script:**

```

SET_TIMEOUT      ( 30000 )

AT_SEND ("AT+CFUN=1", "switch on");
AT_RECEIVE ("OK", SILENT);
AT_SEND ("AT+COPS=0", "automatic registration");

NOT_IMPLEMENTED ( "The following messages shall be sent
                  and received on Cell B." )
NOT_IMPLEMENTED ( "1: The MS is switched on by either
                  using the Power Switch or by applying
                  power." )
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "2: Establish
                      cause: Location updating." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "3" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT     ( 1, location_updating_request_imsi, "4" )
BS_MSG3_SEND      ( 1, location_updating_accept_B_HMCC, "5" )
AT_RECEIVE ("OK", SILENT);
BS_MSG3_SEND      ( 1, channel_release, "6: After sending this message the SS
                  waits for the disconnection of the main
                  signalling link." )
NOT_IMPLEMENTED ( "8: Cell A is made available." )
NOT_IMPLEMENTED ( "9: The SS waits a period of 2 minutes
                  after the MS is switched on. During
                  this time no messages shall be received
                  on Cell A. The following messages
                  shall be sent and received on cell A.
                  Within T minutes after the MS is
                  switched on the following messages
                  shall be sent and received on cell A."
                  )
BS_ON_OFF ( 0, TRUE )
ISS_DELAY ( 120000 ) /* 2 minutes no random attempt on cell A
                    */
SET_TIMEOUT ( 300000 ) /* Up to 7 minutes after step 9 */

BS_RACH_AWAIT_BEGIN ( 0, channel_request, "10: Establish
                      cause: Location updating." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND      ( 0, immediate_assignment, "11" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
SET_TIMEOUT      ( 30000 )
BS_MSG3_AWAIT_BEGIN ( 0, location_updating_request_imsi,
                      "12" )

#ifdef NORTH_AMERICA

```

```
    BF_SET_VAL      ( mnc_dig_3, 7,          "PLMN = 312 457" )
#else
    BF_SET_VAL      ( mnc_dig_2, 2,          "PLMN = 262 02" )
#endif
    BF_SET_VAL      ( lac, LAC_B,           "Location area code - Cell B" )
BS_MSG3_AWAIT_END( )
BS_MSG3_SEND       ( 0, location_updating_accept, "13" )
BS_MSG3_SEND       ( 0, channel_release,    "14: After sending this message the SS
                                         waits for the disconnection of the main
                                         signalling link." )
```

History:	03.12.97	DL	Initial
	21.02.00	HM	Revised, timeout increased
	19.01.01	HM	Revised, made conformant to GSM 11.10
	24.01.01	HM	Revised, LUP accept & request
	28.08.01	HM	NORTH_AMERICA variant added
	18.03.04	HM	CKSN corrected in step 4 and step 12

### 3.5.25 MMM064: §26.7.4.6, Interworking of attach and periodic

**Description:** The MS is activated and placed in automatic network selection mode. It performs IMSI attach. 1 minute after the end of the IMSI attach procedure, cell a is switched off. The MS shall not location update on cell b. 8 minutes after the end of the IMSI attach procedure, cell a is switched on. The MS shall not location update on cell a before 11,75 minutes after the end of the IMSI attach procedure. The MS shall perform a periodic location update on cell a between 11,75 minutes and 12,25 minutes after the end of the IMSI attach procedure.  
3 minutes after the end of the periodic location updating procedure, cell a is switched off. The MS shall not location update on cell b. 14 minutes after the end of the periodic location updating procedure, cell a is switched on and cell b is switched off. The MS shall perform a location update on cell a before 17 minutes after the end of the periodic location updating procedure. (Ref.: [2], §26.7.4.6)

**Preamble:** MMM017

#### Script:

```

SET_TIMEOUT          ( 120000 )

BS_SET_POWER ( 1, -50 )
BS_SET_POWER ( 0, -70 )
BS_ON_OFF (1, TRUE)

AT_SEND ("AT+CFUN=1\r\n", "Power On");
AT_RECEIVE ("OK", SILENT);
AT_SEND ("AT+COPS=0\r\n", "Start Registration");
/*
 * Add Cell B to Forbidden PLMN List
 */
BS_RACH_AWAIT_BEGIN          ( 1, channel_request, "P1: Establishment
                               cause: Location updating." )
    BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND ( 1, immediate_assignment, "P2" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT ( 1, location_updating_request_imsi, "P3")
BS_MSG3_SEND_BEGIN          ( 1, location_updating_reject, "P4:
                               Reject cause = PLMN not allowed." )
    BF_SET_VAL ( reject_cause, 0x0B, "PLMN not allowed" )
BS_MSG3_SEND_END ( )
BS_MSG3_SEND ( 1, channel_release, "P5: After the sending of this message,
                               the SS waits for the disconnection of
                               the main signalling link." )

BS_RACH_AWAIT_BEGIN          ( 0, channel_request, "P6:" )
    BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND ( 0, immediate_assignment, "P7" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 );
BS_MSG3_AWAIT_BEGIN          ( 0, location_updating_request_imsi,
                               "P8")
    BF_SET_VAL ( key_sequence, 7, "cksn = reserved" )
    BF_SET_VAL ( lac, 0xfffe, "LAI deleted" )
BS_MSG3_AWAIT_END ( )
BS_MSG3_SEND ( 0, location_updating_accept_A_HMCC, "P9")
AT_RECEIVE ("OK", SILENT);

```

```

BS_MSG3_SEND      ( 0, channel_release,      "P11: After the sending of this message,
the SS waits for the disconnection of
the main signalling link." )

ISS_DELAY         ( 5000 )
AT_SEND ("AT+CFUN=0\r\n", "Power Off");

BS_RACH_AWAIT_BEGIN      ( 0, channel_request, "P12:" )
  BF_SET_VAL      ( establishment_cause, M3(1,1,1 ), "IMSI Detach" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND      ( 0, immediate_assignment, "P13" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 );
BS_MSG3_AWAIT     ( 0, imsi_detach_indication,      "P14: mobile identity contains
IMSI of MS." )
BS_MSG3_SEND      ( 0, channel_release,      "P15" )
AT_RECEIVE ("OK", SILENT);

ISS_DELAY         ( 8000 )

NOT_IMPLEMENTED   (      "1: The MS is activated in automatic
network selection mode." )

AT_SEND ("AT+CFUN=1\r\n", "Power On");
AT_RECEIVE ("OK", SILENT);
AT_SEND ("AT+COPS=0\r\n", "Start Registration");
BS_RACH_AWAIT_BEGIN      ( 0, channel_request, "2:" )
  BF_SET_VAL      ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END( )
AT_RECEIVE ("OK", "Immediate response for COPS=0 for IMSI ATTACH");
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND      ( 0, immediate_assignment, "3" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 );
BS_MSG3_AWAIT_BEGIN     ( 0, location_updating_request_imsi,
"4")
  BF_SET_VAL      ( key_sequence, 7,      "cksn = reserved" )
#ifdef NORTH_AMERICA
  BF_SET_VAL      ( mnc_dig_3, 7,      "PLMN = 312 457" )
#else
  BF_SET_VAL      ( mnc_dig_2, 2,      "PLMN = 262 02" )
#endif
  BF_SET_VAL      ( lut, 2,      "IMSI attach" )
BS_MSG3_AWAIT_END( )
BS_MSG3_SEND      ( 0, location_updating_accept_A_HMCC, "5")
BS_MSG3_SEND      ( 0, channel_release,      "6: After the sending of this message,
the SS waits for the disconnection of
the main signalling link." )

NOT_IMPLEMENTED   (      "7: 1 minute after step 6, cell a is
switched off." )

ISS_DELAY (60000)
BS_ON_OFF      ( 0, FALSE )
BS_SET_ERROR   ( 0, 7)      /* downlink Error */

ISS_DELAY (60000)

```

```

NOT_IMPLEMENTED ( "8: 8 minutes after step 6, cell a is
                  switched on." )

BS_ON_OFF ( 0, TRUE )
ISS_DELAY (60000 )
ISS_DELAY (60000 )
ISS_DELAY (80000 )

BS_RACH_AWAIT_BEGIN ( 0, channel_request, "9:" )
  BF_SET_VAL ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND ( 0, immediate_assignment, "10" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 );
BS_MSG3_AWAIT_BEGIN ( 0, location_updating_request_A_HMCC,
                    "11")
  BF_SET_VAL ( lut, M2( 0,1 ), "periodic updating" )
#ifdef NORTH_AMERICA
  BF_SET_VAL ( mnc_dig_3, 7, "PLMN = 312 457" )
#else
  BF_SET_VAL ( mnc_dig_2, 2, "PLMN = 262 02" )
#endif
  BF_SET_VAL ( key_sequence, 7, "cksn = reserved" )
BS_MSG3_AWAIT_END( )
BS_MSG3_SEND ( 0, location_updating_accept_A_HMCC, "12" )
BS_MSG3_SEND ( 0, channel_release, "13: After the sending of this message,
                  the SS waits for the disconnection of
                  the main signalling link." )

NOT_IMPLEMENTED ( "14: 3 minutes after step 13, cell a is
                  switched off." )

ISS_DELAY (60000)
ISS_DELAY (60000)
ISS_DELAY (60000)
BS_ON_OFF ( 0, FALSE )
BS_SET_ERROR ( 0, 7) /* downlink Error */
NOT_IMPLEMENTED ( "15: 14 minutes after step 13, cell a is
                  switched on and cell b is switched
                  off." )

ISS_DELAY (60000)

BS_ON_OFF ( 1, FALSE )
BS_ON_OFF ( 0, TRUE )
BS_SET_ERROR ( 1, 7) /* downlink Error */

SET_TIMEOUT ( 120000 )

BS_RACH_AWAIT_BEGIN ( 0, channel_request, "16:" )
  BF_SET_VAL ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )

```

```

BS_MSG3_SEND      ( 0, immediate_assignment, "17" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 );
BS_MSG3_AWAIT_BEGIN      ( 0, location_updating_request_A_HMCC,
                           "18")
    BF_SET_VAL      ( lut, M2( 0,1 ),          "periodic updating" )
#ifdef NORTH_AMERICA
    BF_SET_VAL      ( mnc_dig_3, 7,          "PLMN = 312 457" )
#else
    BF_SET_VAL      ( mnc_dig_2, 2,          "PLMN = 262 02" )
#endif
    BF_SET_VAL      ( key_sequence, 7,       "cksn = reserved" )
BS_MSG3_AWAIT_END( )
BS_MSG3_SEND      ( 0, location_updating_accept_A_HMCC, "19" )
BS_MSG3_SEND      ( 0, channel_release,     "22: After the sending of this message,
                                             the SS waits for the disconnection of
                                             the main signalling link." )

```

History:	03.12.97	DL	Initial
	28.08.01	HM	NORTH_AMERICA variant added
	18.03.04	HM	CKSN corrected in step P3

### 3.5.26 MMM065: §26.7.4.6, Interworking of attach and periodic

**Description:** Same like MMM064. But in the Anite-Version. See GSM 11.10 subclause 26.7.4.6.

**Preamble:** MMM018

**Script:**

```

SET_TIMEOUT          ( 90000 )

BS_SET_POWER ( 1, -70 )
BS_SET_POWER ( 0, -50 )
BS_ON_OFF ( 0, FALSE)
BS_ON_OFF ( 1, TRUE)

AT_SEND ("AT+CFUN=1", "switch on");
AT_RECEIVE ("OK", SILENT);
AT_SEND ("AT+COPS=0", "automatic registration");
/*
 * Add Cell B to Forbidden PLMN List
 */
BS_RACH_AWAIT_BEGIN          ( 1, channel_request, "P1: Establishment
                              cause: Location updating." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "P2" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT     ( 1, location_updating_request_imsi, "P3")
BS_MSG3_SEND_BEGIN          ( 1, location_updating_reject,      "P4:
                              Reject cause = PLMN not allowed." )
    BF_SET_VAL      ( reject_cause, 0x0B,      "PLMN not allowed" )
BS_MSG3_SEND_END( )
BS_MSG3_SEND      ( 1, channel_release,      "P5: After the sending of this message,
                              the SS waits for the disconnection of
                              the main signalling link." )

AT_RECEIVE ("ERROR", "Response of AT+COPS=0");

BS_ON_OFF ( 0, TRUE)

BS_RACH_AWAIT_BEGIN          ( 0, channel_request, "P6:" )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND      ( 0, immediate_assignment, "P7" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 );
BS_MSG3_AWAIT_BEGIN          ( 0, location_updating_request_imsi,
                              "P8")
    BF_SET_VAL      ( key_sequence, 7,      "cksn = reserved" )
    BF_SET_VAL      ( lac, 0xfffe,      "LAI deleted" )
BS_MSG3_AWAIT_END( )
BS_MSG3_SEND      ( 0, location_updating_accept, "P9")
BS_MSG3_SEND      ( 0, channel_release,      "P11: After the sending of this message,
                              the SS waits for the disconnection of
                              the main signalling link." )

ISS_DELAY          ( 5000 )
AT_SEND ("AT+CFUN=0", "switch off");
BS_RACH_AWAIT_BEGIN          ( 0, channel_request, "P12:" )
    BF_SET_VAL      ( establishment_cause, M3(1,1,1), "IMSI Detach" )
BS_RACH_AWAIT_END( )

```

```

BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND      ( 0, immediate_assignment, "P13" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 );
BS_MSG3_AWAIT     ( 0, imsi_detach_indication,          "P14: mobile identity contains
                                                           IMSI of MS." )
BS_MSG3_SEND      ( 0, channel_release,          "P15" )
AT_RECEIVE ("OK", "Response of AT+CFUN=0 ");

ISS_DELAY         ( 8000 )

NOT_IMPLEMENTED   (                                     "1: The MS is activated in automatic
                                                           network selection mode." )

AT_SEND ("AT+CFUN=1", "switch on");
AT_RECEIVE ("OK", SILENT);
AT_SEND ("AT+COPS=0", "automatic registration");
BS_RACH_AWAIT_BEGIN ( 0, channel_request, "2:" )
  BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
AT_RECEIVE ("OK", "Response of AT+COPS=0 immediately, IMSI ATTACH");
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND      ( 0, immediate_assignment, "3" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 );
BS_MSG3_AWAIT_BEGIN ( 0, location_updating_request_imsi,
                                                           "4")
  BF_SET_VAL      ( key_sequence, 7,          "cksn = reserved" )
  BF_SET_VAL      ( lut, 2,          "IMSI attach" )
BS_MSG3_AWAIT_END( )
BS_MSG3_SEND      ( 0, location_updating_accept, "5")
BS_MSG3_SEND      ( 0, channel_release,          "6: After the sending of this message,
                                                           the SS waits for the disconnection of
                                                           the main signalling link." )

NOT_IMPLEMENTED   (                                     "7: 1 minute after step 6, cell a is
                                                           switched off." )

ISS_DELAY (60000)
BS_SET_POWER      ( 0, -110 )
BS_ON_OFF         ( 0, FALSE )

ISS_DELAY (60000)
NOT_IMPLEMENTED   (                                     "8: 8 minutes after step 6, cell a is
                                                           switched on." )

BS_SET_POWER      ( 0, -50 )
BS_ON_OFF         ( 0, TRUE )
ISS_DELAY (60000 )
ISS_DELAY (60000 )
ISS_DELAY (80000 )

BS_RACH_AWAIT_BEGIN ( 0, channel_request, "9:" )
  BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND      ( 0, immediate_assignment, "10" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 );

```

```

BS_MSG3_AWAIT_BEGIN ( 0, location_updating_request_imsi,
                    "11")
    BF_SET_VAL ( lut, M2( 0,1 ), "periodic updating" )
    BF_SET_VAL ( key_sequence, 7, "cksn = reserved" )
BS_MSG3_AWAIT_END( )
BS_MSG3_SEND ( 0, location_updating_accept, "12" )
BS_MSG3_SEND ( 0, channel_release, "13: After the sending of this message,
the SS waits for the disconnection of
the main signalling link." )

NOT_IMPLEMENTED ( "14: 3 minutes after step 13, cell a is
switched off." )

ISS_DELAY (60000)
ISS_DELAY (60000)
ISS_DELAY (60000)
BS_SET_POWER ( 0, -120 )
BS_ON_OFF ( 0, FALSE )
BS_SET_ERROR ( 0, 7 ) /* Make MS recognize BS is off, damned
*/

NOT_IMPLEMENTED ( "15: 14 minutes after step 13, cell a is
switched on and cell b is switched
off." )

ISS_DELAY (60000)
ISS_DELAY (60000) /* 14 minutes after step 13 */

BS_SET_POWER ( 0, -50 )
BS_ON_OFF ( 0, TRUE )
BS_ON_OFF ( 1, FALSE )
BS_SET_ERROR ( 1, 7 ) /* Make MS recognize BS is off, damned
*/

SET_TIMEOUT (180000) /* 3 minutes timeout as required in 11.10 */

BS_RACH_AWAIT_BEGIN ( 0, channel_request, "16:" )
    BF_SET_VAL ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND ( 0, immediate_assignment, "17" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 );
BS_MSG3_AWAIT_BEGIN ( 0, location_updating_request_imsi,
                    "18")
    BF_SET_VAL ( lut, M2( 0,1 ), "periodic updating" )
    BF_SET_VAL ( key_sequence, 7, "cksn = reserved" )
BS_MSG3_AWAIT_END( )
BS_MSG3_SEND ( 0, location_updating_accept, "19" )
BS_MSG3_SEND ( 0, channel_release, "22: After the sending of this message,
the SS waits for the disconnection of
the main signalling link." )

```

History:	03.12.97	DL	Initial
	25.02.00	HM	Changed timeout before step 16
	18.03.04	HM	CKSN corrected in step P3

### 3.5.27 MMM066: §26.7.4.6, Interworking of attach and periodic (Multiband 26.11.3.1.2)

**Description:** The MS is activated and placed in automatic network selection mode. It performs IMSI attach. 1 minute after the end of the IMSI attach procedure, cell a is switched off. The MS shall not location update on cell b. 8 minutes after the end of the IMSI attach procedure, cell a is switched on. The MS shall not location update on cell a before 11,75 minutes after the end of the IMSI attach procedure. The MS shall perform a periodic location update on cell a between 11,75 minutes and 12,25 minutes after the end of the IMSI attach procedure.  
3 minutes after the end of the periodic location updating procedure, cell a is switched off. The MS shall not location update on cell b. 14 minutes after the end of the periodic location updating procedure, cell a is switched on and cell b is switched off. The MS shall perform a location update on cell a before 17 minutes after the end of the periodic location updating procedure. (Ref.: [2], §26.7.4.6)

**Preamble:** MMM067

**Script:**

```

SET_TIMEOUT          ( 120000 )

AT_SEND ("AT+CFUN=1\r\n", "Power On");
AT_SEND ("AT+COPS=0\r\n", "Start Registration");

BS_RACH_AWAIT_BEGIN          ( 0, channel_request, "P6:" )
  BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND      ( 0, immediate_assignment, "P7" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 );
BS_MSG3_AWAIT     ( 0, location_updating_request_imsi_att, "P8")
BS_MSG3_SEND      ( 0, location_updating_accept, "P9")
BS_MSG3_SEND      ( 0, channel_release,
                    "P11: After the sending of this message,
                    the SS waits for the disconnection of
                    the main signalling link." )

ISS_DELAY          ( 5000 )
NOT_IMPLEMENTED    (
                    "7: 1 minute after step 6, cell a is
                    switched off." )

ISS_DELAY (60000)
BS_ON_OFF          ( 0, FALSE )
BS_SET_ERROR       ( 0, 7) /* downlink Error */

ISS_DELAY (60000)
NOT_IMPLEMENTED    (
                    "8: 8 minutes after step 6, cell b is
                    switched on." )

BS_ON_OFF          ( 1, TRUE )
ISS_DELAY (60000 )
ISS_DELAY (60000 )
ISS_DELAY (80000 )

BS_RACH_AWAIT_BEGIN          ( 1, channel_request, "9:" )
  BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "10" )

```

```

BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 );
BS_MSG3_AWAIT_BEGIN ( 1, location_updating_request_imsi,
    "11")
    BF_SET_VAL ( lut, M2( 0,1 ), "periodic updating" )
BS_MSG3_AWAIT_END( )
BS_MSG3_SEND ( 1, location_updating_accept, "12" )
BS_MSG3_SEND ( 1, channel_release, "13: After the sending of this message,
    the SS waits for the disconnection of
    the main signalling link." )

NOT_IMPLEMENTED ( "14: 3 minutes after step 13, cell b is
    switched off." )

ISS_DELAY (60000)
ISS_DELAY (60000)
ISS_DELAY (60000)
BS_ON_OFF ( 1, FALSE )
BS_SET_ERROR ( 1, 7) /* downlink Error */
NOT_IMPLEMENTED ( "15: 14 minutes after step 13, cell a is
    switched on and cell b is switched
    off." )

ISS_DELAY (60000)

BS_ON_OFF ( 0, TRUE )

SET_TIMEOUT ( 120000 )

BS_RACH_AWAIT_BEGIN ( 0, channel_request, "16:" )
    BF_SET_VAL ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND ( 0, immediate_assignment, "17" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 );
BS_MSG3_AWAIT_BEGIN ( 0, location_updating_request_imsi,
    "18")
    BF_SET_VAL ( lut, M2( 0,1 ), "periodic updating" )
BS_MSG3_AWAIT_END( )
BS_MSG3_SEND ( 0, location_updating_accept, "19" )
BS_MSG3_SEND ( 0, channel_release, "22: After the sending of this message,
    the SS waits for the disconnection of
    the main signalling link." )

```

History:	03.12.97	DL	Initial
	01.12.00	HM	Revised

## 3.6 MM Connection

### 3.6.1 MMM071: §26.7.5.2, Establishment with cipher

**Description:** A mobile originating CM connection is initiated. After the MS has sent the CM SERVICE REQUEST message to the SS, an authentication procedure and a ciphering mode setting procedure are performed. Then, the MS sends a CM message and the SS clears the call and releases the channel.(Ref.: [2], §26.7.5.2 )

**Preamble:** MMM001

**Script:**

```

SET_TIMEOUT          ( 30000 )

NOT_IMPLEMENTED      (                               "1: A MO CM connection is attempted." )
AT_SEND ("ATD6969554;", "dial");

BS_RACH_AWAIT_BEGIN( 0,channel_request,           "2:" )
  BF_SET_VAL         ( establishment_cause, M3(1,1,1 ),"MOC & TCH/F" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL   ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 );
BS_MSG3_SEND        ( 0, immediate_assignment, "3" )
BS_CONFIG_CHANNEL   ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT       ( 0, cm_service_request,   "4" )
BS_MSG3_SEND        ( 0, authentication_request, "5" )
BS_MSG3_AWAIT       ( 0, authentication_response, "6" )
BS_MSG3_SEND        ( 0, ciphering_mode_command, "7: The SS starts deciphering."
)
BS_MSG3_AWAIT       ( 0, ciphering_mode_complete, "8: The SS starts enciphering."
)
BS_MSG3_AWAIT       ( 0, setup_moc,            "A9" )
BS_MSG3_SEND        ( 0, release_complete_to_ms, "A10: Cause IE: unassigned
number." )

/*
NOT TESTED
BS_MSG3_AWAIT       ( 0, register,             "B9" )
BS_MSG3_SEND        ( 0, release_complete,     "B10" )
BS_MSG3_AWAIT       ( 0, cp_data,             "C9" )
BS_MSG3_SEND        ( 0, cp_ack,              "C10" )
BS_MSG3_SEND        ( 0, cp_data,             "C11" )
BS_MSG3_AWAIT       ( 0, cp_ack,              "C12" )
NOT TESTED
*/
BS_MSG3_SEND        ( 0, channel_release,      "13: After the sending of this message,
the SS waits for the disconnection of
the main signalling link." )

```

**History:**

03.12.97

DL

Initial

### 3.6.2 MMM072: §26.7.5.3, Establishment without cipher

**Description:** A mobile originating CM connection is attempted. The MM-connection is established without invoking the ciphering mode setting procedure.  
Then, the MS sends a CM message and the SS releases the channel. (Ref.: [2], §26.7.5.3)

**Preamble:** MMM001

**Script:**

```

SET_TIMEOUT          ( 30000 )

NOT_IMPLEMENTED      (                               "1: A MO CM connection is attempted." )
AT_SEND ("ATD6969554;", "dial");

BS_RACH_AWAIT_BEGIN( 0,channel_request,           "2:" )
  BF_SET_VAL         ( establishment_cause, M3(1,1,1) ,"MOC & TCH/F" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 );
BS_MSG3_SEND       ( 0, immediate_assignment, "3" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT      ( 0, cm_service_request,   "4" )
BS_MSG3_SEND       ( 0, cm_service_accept,    "5" )
BS_MSG3_AWAIT      ( 0, setup_moc,           "A6" )
/*
NOT TESTED
BS_MSG3_AWAIT      ( 0, register,              "B6" )
BS_MSG3_AWAIT      ( 0, cp_data,              "C6" )
BS_MSG3_SEND       ( 0, cp_ack,              "C7" )
BS_MSG3_SEND       ( 0, cp_data,              "C8" )
BS_MSG3_AWAIT      ( 0, cp_ack,              "C9" )
NOT TESTED
*/
BS_MSG3_SEND       ( 0, channel_release,      "10: After the sending of this message,
the SS waits for the disconnection of
the main signalling link." )

```

History:

03.12.97

DL

Initial

### 3.6.3 MMM073: §26.7.5.4, Establishment rejected

**Description:** A mobile originating CM connection is attempted. After the MS has sent the CM SERVICE REQUEST message to the SS, the SS responds with a CM SERVICE REJECT message with reject cause "requested service option not subscribed". It is checked that the MS does not send a layer 3 message. (Ref.: [2], §26.7.5.4)

**Preamble:** MMM002

**Script:**

```

SET_TIMEOUT          ( 30000 )

NOT_IMPLEMENTED      (                               "1: A MO CM connection is attempted." )
AT_SEND ("ATD6969554;", "dial");

BS_RACH_AWAIT_BEGIN( 0,channel_request,           "2:" )
  BF_SET_VAL          ( establishment_cause, M3(1,1,1 ),"MOC & TCH/F" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 );
BS_MSG3_SEND        ( 0, immediate_assignment, "3" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT       ( 0, cm_service_request_short_imsi, "4" )
BS_MSG3_SEND        ( 0, cm_service_reject,      "5: Reject cause IE: requested service
                                                    option not subscribed." )
NOT_IMPLEMENTED      (                               "6: The MS shall not send a layer 3
                                                    message. This is checked during 5
                                                    seconds." )
BS_MSG3_SEND        ( 0, channel_release,        "7: After the sending of this message,
                                                    the SS waits for the disconnection of
                                                    the main signalling link." )

```

History: 03.12.97 DL Initial

### 3.6.4 MMM074: §26.7.5.5, Establishment rejected Cause 4

**Description:** A mobile originating CM connection is attempted. After the MS has sent the CM SERVICE REQUEST message to the SS, the SS responds with a CM SERVICE REJECT message with reject cause "IMSI unknown in VLR". On receipt of this message, the MS shall delete any TMSI, LAI, cipher key and cipher key sequence number. The channel is released. It is checked that the MS performs a normal location updating procedure. (Ref.: [2], §26.7.5.5)

**Preamble:** MMM002

**Script:**

```

SET_TIMEOUT          ( 30000 )

NOT_IMPLEMENTED      (                               "1: A MO CM connection is attempted." )
AT_SEND ("ATD6969554;", "dial");

BS_RACH_AWAIT_BEGIN ( 0,channel_request,           "2:" )
  BF_SET_VAL         ( establishment_cause, M3(1,1,1 ),"MOC & TCH/F" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL   ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 );
BS_MSG3_SEND        ( 0, immediate_assignment, "3" )
BS_CONFIG_CHANNEL   ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT       ( 0, cm_service_request_short_imsi, "4" )
BS_MSG3_SEND_BEGIN  ( 0, cm_service_reject, "5: Reject
                    cause = IMSI unknown in VLR." )
  BF_SET_VAL         ( reject_cause, 0x04, "IMSI unknown in VLR" )
BS_MSG3_SEND_END( )
BS_MSG3_SEND        ( 0, channel_release, "6: After the sending of this message,
                    the SS waits for the disconnection of
                    the main signalling link." )

BS_RACH_AWAIT_BEGIN ( 0, channel_request, "7: Establishment
                    cause: Location updating." )
  BF_SET_VAL         ( establishment_cause, M3( 0,0,0 ),"Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL   ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 );
BS_MSG3_SEND        ( 0, immediate_assignment, "8" )
BS_CONFIG_CHANNEL   ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT       ( 0, location Updating request short_imsi_del, "9: Ciphering key
                    sequence number = No key is available.
                    Mobile identity = IMSI. Location area
                    identification = deleted LAI (the MCC
                    and MNC hold the previous values, the
                    LAC is coded FFFE )." )
BS_MSG3_SEND        ( 0, authentication_request, "10" )
BS_MSG3_AWAIT       ( 0, authentication_response, "11" )
BS_MSG3_SEND        ( 0, location Updating accept_tmsi, "12: Mobile identity = new
                    TMSI." )
BS_MSG3_AWAIT       ( 0, tmsi_reallocation_complete, "13" )
BS_MSG3_SEND        ( 0, channel_release, "14: After the sending of this message,
                    the SS waits for the disconnection of
                    the main signalling link." )

```

History:	03.12.97	DL	Initial
	27.03.01	HM	No follow on request in LUP anymore

### 3.6.5 MMM075: §26.7.5.6, Expiry T3230

**Description:** A mobile originating CM connection is attempted. After the MS has sent the CM SERVICE REQUEST message to the SS, the SS waits for expiry of timer T3230. It is checked that the MS does not send a layer 3 message but waits for the release of the RR-connection. (Ref.: [2], §26.7.5.6)

**Preamble:** MMM003

**Script:**

```

SET_TIMEOUT          ( 30000 )

NOT_IMPLEMENTED     (                               "1: A MO CM connection is attempted." )
AT_SEND ("ATD6969554;", "dial");

BS_RACH_AWAIT_BEGIN( 0, channel_request,          "2:" )
  BF_SET_VAL        ( establishment_cause, M3(1,1,1), "MOC & TCH/F" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 );
BS_MSG3_SEND      ( 0, immediate_assignment, "3" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT     ( 0, cm_service_request,      "4" )

NOT_IMPLEMENTED     (                               "5: The SS waits for expiry of timer
                                                    T3230." )

ISS_DELAY          ( 17000 )
BS_MSG3_SEND      ( 0, cm_service_accept,      "6" )
BS_MSG3_AWAIT_BEGIN ( 0, mm_status,           "7: Reject cause IE
                                                    is message not compatible with the call
                                                    state or not implemented." )
  BF_SET_VAL        ( reject_cause, 0x65,      "message not compatible with the
                                                    protocol state" )
BS_MSG3_AWAIT_END ( )
BS_MSG3_SEND      ( 0, channel_release,        "8: After the sending of this message,
                                                    the SS waits for the disconnection of
                                                    the main signalling link." )

```

History: 03.12.97

DL

Initial

### 3.6.6 MMM076: §26.7.5.7.1, Abortion by the network - Cause #6

**Description:** A mobile originating CM connection is attempted. Upon reception of the AUTHENTICATION RESPONSE message, the SS sends an ABORT message with cause #6. The SS waits for 5 seconds. The MS shall not send any layer 3 message. The SS releases the RR connection.  
The SS checks that the MS has entered the state MM IDLE substate NO IMSI, i.e. does not perform normal location updating, does not perform periodic updating, does not respond to paging, rejects any requests from CM entities except emergency calls and does not perform IMSI detach if deactivated. (Ref.: [2], §26.7.5.7.1)

**Preamble:** MMM008

**Script:**

```

SET_TIMEOUT      ( 30000 )

NOT_IMPLEMENTED  (                               "The following messages are sent and
                                                    shall be received on cell B" )
NOT_IMPLEMENTED  (                               "1: A mobile originating CM connection
                                                    is attempted." )

AT_SEND ("ATD6969554;", "dial");
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "2" )
  BF_SET_VAL ( establishment_cause, M3(1,1,1 ), "MOC & TCH/F" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 );
BS_MSG3_SEND ( 1, immediate_assignment, "3" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 1, cm_service_request, "4" )
  BF_SET_VAL ( key_sequence, CKSN_2, "CKSN 2" )
BS_MSG3_AWAIT_END( )
BS_MSG3_SEND ( 1, authentication_request, "5" )
BS_MSG3_AWAIT ( 1, authentication_response, "6" )
BS_MSG3_SEND_BEGIN ( 1, abort, "7: reject cause = #6." )
  BF_SET_VAL ( reject_cause, 0x06, "Illegal ME" )
BS_MSG3_SEND_END( )
NOT_IMPLEMENTED  (                               "8: The SS waits for 5 seconds." )
ISS_DELAY (5000)
NOT_IMPLEMENTED  (                               "9: The MS shall not send any layer 3
                                                    message during that time." )
BS_MSG3_SEND ( 1, channel_release, "10: After the sending of this message,
                                                    the SS waits for the disconnection of
                                                    the main signalling link." )

ISS_DELAY (3000)
NOT_IMPLEMENTED  (                               "The following messages are sent and
                                                    shall be received on cell A" )
NOT_IMPLEMENTED  (                               "11: The RF levels are changed to make
                                                    the MS reselect cell A." )

BS_SET_POWER ( 1, -120 )
BS_SET_POWER ( 0, -60 )
ISS_DELAY ( 30000 )
NOT_IMPLEMENTED  (                               "12: The MS performs cell reselection
                                                    according to procedure as specified in
                                                    GSM 05.08 (this however is not checked
                                                    until step 22 ). The MS shall not
                                                    initiate an RR connection establishment
                                                    on cell A or on cell B." )

NOT_IMPLEMENTED  (                               "13: The SS waits at least 7 minutes for
                                                    a possible periodic updating." )
NOT_IMPLEMENTED  (                               "14: The MS shall not initiate an RR
                                                    connection establishment on cell A or
                                                    on cell B." )

```

```

BS_MSG3_SEND      ( 0, paging_request_type_1, "15: Mobile identity IE contains TMSI."
)
NOT_IMPLEMENTED   ( "16: The MS shall not initiate an RR
                    connection establishment on cell A or
                    on cell B. This is verified during 3
                    seconds." )

ISS_DELAY         ( 3000 )
NOT_IMPLEMENTED   ( "17: A MO CM connection is attempted." )
AT_SEND ("ATD6969554;", "dial");
NOT_IMPLEMENTED   ( "18: The MS shall not initiate an RR
                    connection establishment on cell A or
                    on cell B. This is checked during 3
                    seconds." )

ISS_DELAY         ( 3000 )
NOT_IMPLEMENTED   ( "19: If the MS supports speech (see PICS
                    ), an emergency call is attempted." )
AT_SEND ("ATD112;", "dial emergency number");
BS_RACH_AWAIT_BEGIN ( 0, channel_request, "20: Establishment
                    cause: Emergency call." )
    BF_SET_VAL     ( establishment_cause, M3(1,0,1), "Emergency call" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 );
BS_MSG3_SEND      ( 0, immediate_assignment, "21" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT     ( 0, cm_service_request_ec, "22: CM service type: Emergency call
                    establishment." )
/*
BS_MSG3_AWAIT_BEGIN ( 0, cm_service_request, "22: CM
                    service type: Emergency call
                    establishment." )
    BF_SET_VAL     ( service, M4(0,0,1,0), "Emergency call" )
BS_MSG3_AWAIT_END ( )
*/
BS_MSG3_SEND      ( 0, cm_service_accept, "23" )
BS_MSG3_AWAIT     ( 0, emergency_setup, "24" )
BS_MSG3_SEND_BEGIN ( 0, release_complete_to_ms, "25:
                    Cause = unassigned number." )
    BF_SET_VAL     ( cause, 0x01, "unassigned number" )
BS_MSG3_AWAIT_END ( )
BS_MSG3_SEND      ( 0, channel_release, "26: After the sending of this message,
                    the SS waits for the disconnection of
                    the main signalling link." )

NOT_IMPLEMENTED   ( "27: If possible (see PICS ) SIM
                    detachment is performed. Otherwise if
                    possible (see PICS ) switch off is
                    performed. Otherwise the power is
                    removed." )

ISS_DELAY (5000)
AT_SEND ("AT+CFUN=0", "switch off");
NOT_IMPLEMENTED   ( "28: The MS shall not initiate an RR
                    connection establishment on cell A or
                    on cell B. This is checked during 3
                    seconds." )

ISS_DELAY         ( 5000 )
NOT_IMPLEMENTED   ( "29: Depending on what has been
                    performed in step 29 the MS is brought
                    back to operation." )

AT_SEND ("AT+CFUN=1", "switch on");
AT_SEND ("AT+COPS=0", "automatic registration");

```

```

BS_RACH_AWAIT_BEGIN          ( 0, channel_request, "30: Establishment
                             cause: Location updating." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND      ( 0, immediate_assignment, "31" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 );
BS_MSG3_AWAIT     ( 0, location_updating_request_del,      "32: location updating type
                             = normal, CKSN = no key available,
                             Mobile Identity = IMSI, LAI = deleted
                             LAI (the MCC and MNC hold the previous
                             values, the LAC is coded FFFE )." )

BS_MSG3_SEND      ( 0, authentication_request,      "33: CKSN = CKSN1." )
BS_MSG3_AWAIT     ( 0, authentication_response,     "34" )
BS_MSG3_SEND      ( 0, location_updating_accept_tmsi,  "35: Mobile Identity =
                             TMSI." )
BS_MSG3_AWAIT     ( 0, tmsi_reallocation_complete,  "36" )
BS_MSG3_SEND      ( 0, channel_release,             "37: After the sending of this message,
                             the SS waits for the disconnection of
                             the main signalling link." )

```

History:	03.12.97	DL	Initial
	21.02.00	HM	Revised

### 3.6.7 MMM077: §26.7.5.7.2, Abortion by the network - Cause <> #6

**Description:** A non call related supplementary service operation is attempted at the MS. Upon reception of the REGISTER message, the SS sends an ABORT message with cause # 17. The SS sends a DISCONNECT using the TI of the mobile terminating call. The MS shall send a RELEASE COMPLETE message with the PD and TI of the DISCONNECT message and with cause #81. The SS releases the RR connection. (Ref.: [2], §26.7.5.7.2)

**Preamble:** MMM072

**Script:**

```

SET_TIMEOUT          ( 30000 )

BS_MSG3_SEND        ( 0, connect,          "" )
BS_MSG3_AWAIT       ( 0, connect_acknowledge, "" )
ISS_DELAY           ( 3000 )
NOT_IMPLEMENTED     (                               "1: A non call related supplementary
                                                    service operation is attempted at the
                                                    MS." )

/* AT_SEND ("ATD*#30#", "initialize supplementary service"); */
AT_SEND ("ATD*21*03039094#", "initialize supplementary service");
BS_RACH_AWAIT_BEGIN (0, channel_request, "")
    BF_SET_VAL      ( establishment_cause, M3( 1, 1, 1 ), "SS" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL (0, AGCH, UNACK, SAPI_0)
BS_STORE_RACH_PARAMS (0, 0)
BS_MSG3_SEND      ( 0, immediate_assignment, "" )

BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT     ( 0, cm_service_request_ss, "2" )
BS_MSG3_SEND      ( 0, cm_service_accept,   "3" )
BS_MSG3_AWAIT     ( 0, ss_register,        "4" )
BS_MSG3_SEND_BEGIN ( 0, abort, "5: reject cause = #17." )
    BF_SET_VAL     ( reject_cause, 0x11, "Network failure" )
BS_MSG3_SEND_END( )
BS_MSG3_SEND      ( 0, disconnect,          "6: with the TI of the mobile
                                                    terminating call." )

BS_MSG3_AWAIT     ( 0, release_complete_81, "7: cause = #81. Same PD and TI as the
                                                    DISCONNECT message." )

BS_MSG3_SEND      ( 0, channel_release,     "8: After the sending of this message,
                                                    the SS waits for the disconnection of
                                                    the main signalling link." )

```

History:	03.12.97	DL	Initial
	24.02.00	HM	Revised

### 3.6.8 MMM078: §26.7.5.8.1, Follow-on request pending (Test 1)

**Description:** The MS is activated and a CM connection is attempted during the location updating procedure. The SS does not include the follow on proceed information element in the LOCATION UPDATING ACCEPT message. The SS waits for at least 8 seconds. The MS shall not send any layer 3 message for 8 seconds. (Ref.: [2], §26.7.5.8.1)

**Preamble:** None

**Script:**

```

ISS_INIT          ( 4 )

BS_SET_SYS_INFO   ( 0, system_information_type_1 )
BS_SET_SYS_INFO   ( 0, system_information_type_2 )
BS_SET_SYS_INFO   ( 0, system_information_type_3_att )
BS_SET_SYS_INFO   ( 0, system_information_type_4 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_6 )

BS_SET_SCH        ( 0,BSIC , RFN )
BS_SET_ARFCN      ( 0,ARFCN_BCCH )
BS_SET_POWER      ( 0,-60 )
BS_ON_OFF         ( 0,TRUE )

COMMAND           ("MM CONFIG T3212_CNT=6") /* T3212 = 60 sec. - should be 6 min.
                                                !*/

AT_SEND ("AT+CFUN=1", "switch on");
AT_SEND ("AT+COPS=0", "automatic registration");

SET_TIMEOUT       ( 30000 )

BS_RACH_AWAIT_BEGIN ( 0, channel_request, "2:" )
  BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 );
BS_MSG3_SEND      ( 0, immediate_assignment, "3" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 0, location_updating_request_imsi,
  "4:" )
  BF_SET_VAL      ( lut, 2, "type = imsi attach" )
BS_MSG3_AWAIT_END ( )

AT_SEND ("ATD03039094","Dial");
ISS_DELAY (5000)
BS_MSG3_SEND      ( 0, location_updating_accept, "5: follow on proceed IE not
  included." )
NOT_IMPLEMENTED   ( "6: The SS wait for at least 8 seconds." )
NOT_IMPLEMENTED   ( "7: The MS shall not send any layer 3
  message for 8 seconds after reception
  of the LOCATION UPDATING ACCEPT
  message." )
BS_MSG3_SEND      ( 0, channel_release, "8: After the sending of this message,
  the SS waits for the disconnection of
  the main signalling link." )

```

History: 03.12.97

DL

Initial

### 3.6.9 MMM079: §26.7.5.8.2, Follow-on request pending (Test 2)

**Description:** The MS is activated and a CM connection is attempted during the location updating procedure. The SS includes the follow on proceed information element in the LOCATION UPDATING ACCEPT message. The SS waits for at least 8 seconds.

If the MS supports the follow on request procedure:

The MS shall send a CM SERVICE REQUEST. Upon reception of that message, the SS sends a CM SERVICE ACCEPT message. The MS shall send an initial CM message. Upon reception of that message, the SS releases the RR connection.

If the MS does not support the follow on request procedure:

The MS shall not send any layer 3 message for 8 seconds.

(Ref.: [2], §26.7.5.8.2)

**Preamble:** None

**Script:**

```

/* #if 0          Test not runnable and not part of testhouse test suite */

ISS_INIT        ( 4 )

BS_SET_SYS_INFO ( 0, system_information_type_1 )
BS_SET_SYS_INFO ( 0, system_information_type_2 )
BS_SET_SYS_INFO ( 0, system_information_type_3_att )
BS_SET_SYS_INFO ( 0, system_information_type_4 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_6 )

BS_SET_SCH      ( 0, BSIC , RFN )
BS_SET_ARFCN    ( 0, ARFCN_BCCH )
BS_SET_POWER    ( 0, -60 )
BS_ON_OFF       ( 0, TRUE )

COMMAND         ("MM CONFIG T3212_CNT=6") /* T3212 = 60 sec. - should be 6 min.
                                           !*/

AT_SEND ("AT+CFUN=1", "switch on");
AT_SEND ("AT+COPS=0", "automatic registration");

SET_TIMEOUT     ( 30000 )

NOT_IMPLEMENTED (                               "1: The MS is activated." )
BS_RACH_AWAIT_BEGIN ( 0, channel_request, "2:" )
  BF_SET_VAL     ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 );
BS_MSG3_SEND     ( 0, immediate_assignment, "3" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 0, location_updating_request_imsi,
                      "4:" )
  BF_SET_VAL     ( lut, 2, "type = normal lup" )
BS_MSG3_AWAIT_END ( )

AT_SEND ("ATD03039094;", "Dial");
ISS_DELAY (5000)
BS_MSG3_SEND     ( 0, location_updating_accept_tmsi, "5: follow on proceed IE
                                                    included." )
BS_MSG3_AWAIT    ( 0, tmsi_reallocation_complete, "5A: confirm TMSI allocation")
NOT_IMPLEMENTED (                               "If the MS supports the follow on
                                                    request procedure (see PICS ) steps A6
                                                    to A8 are performed, otherwise steps B6
                                                    to B7 are performed." )

```

```
BS_MSG3_AWAIT      ( 0, cm_service_request, "A6" )
BS_MSG3_SEND       ( 0, cm_service_accept, "A7" )
BS_MSG3_SEND       ( 0, channel_release, "9: After the sending of this message,
                    the SS waits for the disconnection of
                    the main signalling link." )

/* #endif */
```

History:	03.12.97	DL	Initial
	24.03.00	HM	Test deactivated
	11.03.2004	HZ	Test reactivated and fixed

### 3.6.10 MMM080: §26.7.5.8.3, Follow-on request pending (Test 3)

**Description:** The MS is activated. The MS performs location updating. The MS shall set the FOR bit to No follow-on request pending in the LOCATION UPDATING REQUEST message. The SS includes the follow on proceed information element in the LOCATION UPDATING ACCEPT message. The SS waits for 5 seconds. The MS shall not send any layer 3 message for 5 seconds. The SS sends a SETUP message to the MS requesting a basic service supported by the MS. The MS shall send either a CALL CONFIRMED message if it supports a service on TCH or a RELEASE COMPLETE with cause #88. (Ref.: [2], §26.7.5.8.3)

**Preamble:** None

**Script:**

```

ISS_INIT          ( 4 )

BS_SET_SYS_INFO  ( 0, system_information_type_1 )
BS_SET_SYS_INFO  ( 0, system_information_type_2 )
BS_SET_SYS_INFO  ( 0, system_information_type_3_att )
BS_SET_SYS_INFO  ( 0, system_information_type_4 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_6 )

BS_SET_SCH       ( 0,BSIC , RFN )
BS_SET_ARFCN     ( 0,ARFCN_BCCH )
BS_SET_POWER     ( 0,-60 )
BS_ON_OFF        ( 0,TRUE )

COMMAND          ("MM CONFIG T3212_CNT=6") /* T3212 = 60 sec. - should be 6 min.
                                           !*/

AT_SEND ("AT+CFUN=1", "switch on");
AT_SEND ("AT+COPS=0", "automatic registration");

SET_TIMEOUT      ( 30000 )

NOT_IMPLEMENTED  ( "1: The MS is activated." )
BS_RACH_AWAIT_BEGIN ( 0, channel_request, "2:" )
  BF_SET_VAL     ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 );
BS_MSG3_SEND     ( 0, immediate_assignment, "3" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 0, location_updating_request_imsi,
  "4:" )
  BF_SET_VAL     ( lut, 2, "type = normal lup" )
BS_MSG3_AWAIT_END ( )
BS_MSG3_SEND     ( 0, location_updating_accept_tmsi, "5: follow on proceed IE is
  included." )
BS_MSG3_AWAIT    ( 0, tmsi_reallocation_complete, "5A: confirm TMSI allocation")
NOT_IMPLEMENTED  ( "6: The SS wait for 5 seconds." )
NOT_IMPLEMENTED  ( "7: The MS shall not send any layer 3
  message for 5 seconds after reception
  of the LOCATION UPDATING ACCEPT
  message." )

ISS_DELAY (5000)
BS_MSG3_SEND     ( 0, setup, "8" )
NOT_IMPLEMENTED  ( "If the MS supports a basic service on
  TCH." )
BS_MSG3_AWAIT    ( 0, call_confirmed, "A9" )
/*
NOT_IMPLEMENTED  ( "If the MS does not support any basic
  service on TCH." )

```

```
          NOT TESTED
BS_MSG3_AWAIT ( 0, release_complete, "B9: cause #88." )
          NOT TESTED
*/
BS_MSG3_SEND ( 0, channel_release, "10: After the sending of this message,
                                     the SS waits for the disconnection of
                                     the main signalling link." )
```

History: 03.12.97 DL Initial

### 3.7 Additional MM Multi Layer Tests

#### 3.7.1 MMM100: IMSI attach/detach

**Description:** The MS is activated in location area B and in state UPDATED. IMSI attach/detach is not required in the cell. Then the mobile is switched off. No IMSI detach is expected now. While switched off, the BCCH parameters in the cell are changed to IMSI attach/detach required. After switched on, an IMSI attach is expected.

GSM 04.08, subclause 4.4.3:

The IMSI attach/detach procedure is invoked if the detach/attach procedures are required by the network and an IMSI is activated in a mobile station (i.e. activation if a mobile station with plug-in SIM, insertion of a card in a card-operated mobile station etc.) within coverage area from the network or a mobile station with an IMSI activated outside the coverage area enters the coverage area.

There seems to be no reason to do an IMSI attach if a mobile station has a loss of coverage in a cell where IMSI attach/detach is not required and entering a cell in the same location area where IMSI attach/detach is not required.

**Preamble:** MMM007

**Script:**

```

SET_TIMEOUT          ( 30000 )

AT_SEND ("AT+CFUN=0", "switch off");

/* No IMSI detach allowed, no messages expected. */
ISS_DELAY (20000)

/* Change ATT to IMSI attach/detach required */
BS_ON_OFF ( 0, FALSE )
BS_ON_OFF ( 1, FALSE )
BS_SET_SYS_INFO ( 1, system_information_type_3_B_att )
BS_ON_OFF ( 0, TRUE )
BS_ON_OFF ( 1, TRUE )

/* Switch on mobile, update status is "UPDATED" in this moment */
AT_SEND ("AT+CFUN=1", "switch on");
AT_SEND ("AT+COPS=0", "automatic registration");

SET_TIMEOUT          ( 30000 )

BS_RACH_AWAIT_BEGIN          ( 1, channel_request, "1:" )
  BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND ( 1, immediate_assignment, "2:" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN          ( 1, location_updating_request_tmsi_att,
                               "3:" )
  BF_SET_VAL ( lac, LAC_B, "LAI = b" )
BS_MSG3_AWAIT_END ( )
BS_MSG3_SEND_BEGIN          ( 1, location_updating_accept_tmsi, "4:"
                               )
  BF_SET_VAL ( lac, LAC_B, "LAI = b" )
BS_MSG3_SEND_END ( )
BS_MSG3_AWAIT ( 1, tmsi_reallocation_complete, "5:" )
BS_MSG3_SEND ( 1, channel_release, "6:" )

ISS_DELAY ( 10000 )

```

History:	09.03.98	LE	Initial
	22.02.00	HM	Revised

### 3.7.2 MMM101: No Service Detection

**Description:** The MS is activated. All BCCH carriers are switched off. It is expected that the MS goes to NO SERVICE state. After a while a carrier is switched on. It is expected that the MS goes to NORMAL SERVICE and starts a periodic location updating.

The preamble was formerly MMM016, but as we need realtime conditions here, T3212 is not reconfigured here.

**Preamble:** MMM011

**Script:**

```

SET_TIMEOUT ( 30000 )

/* Need realtime conditions here */
/* COMMAND ("MM CONFIG T3212_CNT=6") */ /* T3212 = 60 sec. - should be 6 min.
!*/

BS_SET_POWER ( 1, -50 )
BS_SET_POWER ( 0, -70 )
BS_ON_OFF ( 0, FALSE)
BS_ON_OFF ( 1, TRUE)

AT_SEND ("AT+CFUN=1", "switch on");
AT_SEND ("AT+COPS=0", "automatic registration");
/*
* Add Cell B to Forbidden PLMN List
*/
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "P1: Establishment
cause: Location updating." )
BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND ( 1, immediate_assignment, "P2" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT ( 1, location_updating_request_imsi, "P3")
BS_MSG3_SEND_BEGIN ( 1, location_updating_reject, "P4:
Reject cause = PLMN not allowed." )
BF_SET_VAL ( reject_cause, 0x0B, "PLMN not allowed" )
BS_MSG3_SEND_END( )
BS_MSG3_SEND ( 1, channel_release, "P5: After the sending of this message,
the SS waits for the disconnection of
the main signalling link." )

ISS_DELAY ( 5000 )
AT_SEND ("AT+CFUN=0", "switch off");

ISS_DELAY ( 5000 )

BS_SET_POWER ( 1, -70 )
BS_SET_POWER ( 0, -50 )
BS_ON_OFF ( 0, TRUE)
BS_ON_OFF ( 1, TRUE)

NOT_IMPLEMENTED ( "P6: The MS is activated in automatic
network selection mode." )

AT_SEND ("AT+CFUN=1", "switch on");

```

```

AT_SEND ("AT+COPS=0", "automatic registration");

BS_RACH_AWAIT_BEGIN ( 0, channel_request, "P7:" )
  BF_SET_VAL ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND ( 0, immediate_assignment, "P8" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 );
BS_MSG3_AWAIT_BEGIN ( 0, location_updating_request_imsi,
  "P9")
  BF_SET_VAL ( key_sequence, 7, "cksn = reserved" )
  BF_SET_VAL ( lac, 0xfffe, "LAI deleted" )
BS_MSG3_AWAIT_END( )
BS_MSG3_SEND ( 0, location_updating_accept_A_HMCC, "P10")
BS_MSG3_SEND ( 0, channel_release, "P11: After the sending of this message,
  the SS waits for the disconnection of
  the main signalling link." )

ISS_DELAY ( 3000 )

/* Start of actual test */

BS_ON_OFF ( 0, FALSE )
BS_SET_ERROR (0, 7) /* Downlink Error */

BS_ON_OFF ( 1, FALSE )
BS_SET_ERROR (1, 7) /* Downlink Error */

ISS_DELAY (20000);

BS_ON_OFF ( 0, TRUE )

ISS_DELAY (60000)
ISS_DELAY (60000)
ISS_DELAY (60000)
ISS_DELAY (60000)
ISS_DELAY (60000)
SET_TIMEOUT ( 120000 )

BS_RACH_AWAIT_BEGIN ( 0, channel_request, "1:" )
  BF_SET_VAL ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND ( 0, immediate_assignment, "2:" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 0,
  location_updating_request_PLMN1_del,
  "3:" )
  BF_SET_VAL ( lut, 1, "type = periodic lup" )
  BF_SET_VAL ( lac, LAC_A, "LAI = A" )
BS_MSG3_AWAIT_END ( )
BS_MSG3_SEND_BEGIN ( 0,
  location_updating_accept_tmsi_A_HMCC,
  "4:" )
  BF_SET_VAL ( lac, LAC_A, "LAI = A" )
BS_MSG3_SEND_END ( )
BS_MSG3_AWAIT ( 0, tmsi_reallocation_complete, "5:" )
BS_MSG3_SEND ( 0, channel_release, "6:" )

ISS_DELAY ( 10000 )

```

History:	09.03.98	LE	Initial
	22.02.00	HM	Revised
	12.04.01	HM	Last LUP ACCEPT for correct LA
	16.05.01	HM	Revised (ensured cell 0 off at beginning)
	18.03.04	HM	CKSN corrected in step P3

### 3.7.3 MMM102: Paging during Net Search

**Description:** The MS is activated. A Net Search is started to determine the available PLMNs. During the search a Paging receives. The mobile terminated call establishment shall be started.

**Preamble:** None

**Script:**

```

ISS_INIT          ( 4 )

BS_SET_SYS_INFO  ( 0, system_information_type_1 )
BS_SET_SYS_INFO  ( 0, system_information_type_2 )
BS_SET_SYS_INFO  ( 0, system_information_type_3_att )
BS_SET_SYS_INFO  ( 0, system_information_type_4 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_6 )

BS_SET_SCH       ( 0,BSIC , RFN )
BS_SET_ARFCN     ( 0,ARFCN_BCCH )
BS_SET_POWER     ( 0,-60 )
BS_ON_OFF        ( 0,TRUE )

COMMAND          ("MM CONFIG T3212_CNT=6") /* T3212 = 60 sec. - should be 6 min.
                                           !*/

AT_SEND ("AT+CFUN=1", "switch on");
AT_SEND ("AT+COPS=0", "automatic registration");

SET_TIMEOUT      ( 30000 )

NOT_IMPLEMENTED  (                               "1: The MS is activated." )
BS_RACH_AWAIT_BEGIN ( 0, channel_request, "2:" )
  BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 );
BS_MSG3_SEND     ( 0, immediate_assignment, "3" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 0, location_updating_request_imsi,
                      "4:" )
  BF_SET_VAL      ( lut, 2, "type = normal lup" )
BS_MSG3_AWAIT_END ( )
BS_MSG3_SEND     ( 0, location_updating_accept_tmsi, "5: follow on proceed IE is
                      included." )
BS_MSG3_AWAIT    ( 0, tmsi_reallocation_complete, "5A: confirm TMSI allocation")
NOT_IMPLEMENTED  (                               "6: The SS wait for 5 seconds." )
NOT_IMPLEMENTED  (                               "7: The MS shall not send any layer 3
                      message for 5 seconds after reception
                      of the LOCATION UPDATING ACCEPT
                      message." )
BS_MSG3_SEND     ( 0, channel_release, "10: After the sending of this message,
                      the SS waits for the disconnection of
                      the main signalling link." )

ISS_DELAY (10000)

```

```

COMMAND          ( "MMI CONFIG AT+COPS=?" )
BS_CONFIG_CHANNEL ( 0, PCH, UNACK, SAPI_0 )
BS_MSG3_SEND     ( 0, paging_request_type_1, "26: Mobile identity IE contains the
new TMSI (= TMSI1 )." )
BS_RACH_AWAIT    ( 0, channel_request,      "27: Establishment cause: Answer to
paging." )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND     ( 0, immediate_assignment, "28" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 );
BS_MSG3_AWAIT    ( 0, paging_response,      "29: Mob ID with new TMSI(= TMSI1 )." )
ISS_DELAY (5000)
BS_MSG3_SEND     ( 0, setup,                "8" )
NOT_IMPLEMENTED  (                          "If the MS supports a basic service on
TCH." )
BS_MSG3_AWAIT    ( 0, call_confirmed,       "A9" )
BS_MSG3_SEND     ( 0, channel_release,      "30: disc of the main signalling link."
)

```

History:            03.12.97                            DL                            Initial

### 3.7.4 MMM103: MM INFORMATION with longer network name as foressen

**Description:**     Derived from MMM107, check behaviour if network name sent in MM information is longer as expected in message definition.

**Preamble:**        None

**Script:**

```

ISS_INIT (4)

BS_SET_SYS_INFO ( 0, system_information_type_1 )
BS_SET_SYS_INFO ( 0, system_information_type_2 )
BS_SET_SYS_INFO ( 0, system_information_type_3 )
BS_SET_SYS_INFO ( 0, system_information_type_4 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_6 )

BS_SET_SCH ( 0, BSIC, RFN )
BS_SET_ARFCN ( 0, ARFCN_BCCH )
BS_SET_POWER ( 0, -70 )
BS_ON_OFF ( 0, TRUE )

BS_SET_SYS_INFO ( 1, system_information_type_1 )
BS_SET_SYS_INFO ( 1, system_information_type_2 )
BS_SET_SYS_INFO ( 1, system_information_type_3_B )
BS_SET_SYS_INFO ( 1, system_information_type_4_B )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_6_B )

BS_SET_SCH ( 1, BSIC_B, RFN )
BS_SET_ARFCN ( 1, ARFCN_BCCH_B )
BS_SET_POWER ( 1, -60 )
BS_ON_OFF ( 1, TRUE )

AT_SEND ("AT+CFUN=1", "switch on");
AT_SEND ("AT+COPS=0", "automatic registration");

SET_TIMEOUT ( 30000 )

```

```

BS_RACH_AWAIT_BEGIN ( 1, channel_request, "MMM007 (1)" )
  BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND ( 1, immediate_assignment, "MMM007 (2)" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT ( 1, location_updating_request_imsi, "MMM007 (3)" )

/* --- */
BS_MSG3_SEND ( 1, mm_information_long, "!!!" )
/* --- */

BS_MSG3_SEND_BEGIN ( 1, location_updating_accept_tmsi,
  "MMM007 (4)" )
  BF_SET_VAL ( lac, LAC_B, "LAI = b" )
BS_MSG3_SEND_END ( )
BS_MSG3_AWAIT ( 1, tmsi_reallocation_complete, "MMM007 (5)" )
BS_MSG3_SEND ( 1, channel_release, "MMM007 (6)" )

ISS_DELAY ( 10000 )

```

History: 07.03.00 HM Initial

### 3.7.5 MMM104: Registration problem reported by customer (I)

**Description:** Testcase written to reproduce problem report from customer in simulation. Two cells, one forbidden cell, user updated in automatic mode in HPLMN.  
This testcase can be edited to show the field and the test house behaviour. Normally, the test shows the test house behaviour, it should pass if the stack is not patched.

**Preamble:** None

#### Script:

```

ISS_INIT (4)

BS_SET_SYS_INFO ( 0, system_information_type_1 )
BS_SET_SYS_INFO ( 0, system_information_type_2 )
BS_SET_SYS_INFO ( 0, system_information_type_3_att )
BS_SET_SYS_INFO ( 0, system_information_type_4 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_6 )

BS_SET_SCH ( 0, BSIC, RFN )
BS_SET_ARFCN ( 0, ARFCN_BCCH )
BS_SET_POWER ( 0, -50 )
BS_ON_OFF ( 0, TRUE )

/* --- */
BS_SET_SYS_INFO ( 1, system_information_type_1 )
BS_SET_SYS_INFO ( 1, system_information_type_2 )
BS_SET_SYS_INFO ( 1, system_information_type_3_B_HMCC )
BS_SET_SYS_INFO ( 1, system_information_type_4_B_HMCC )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_6_B_HMCC )

BS_SET_SCH ( 1, BSIC_B, RFN )
BS_SET_ARFCN ( 1, ARFCN_BCCH_B2 )
BS_SET_POWER ( 1, -60 )

```

```

BS_ON_OFF ( 1, TRUE )
/* --- */

AT_SEND ("AT+CFUN=1", "switch on");
AT_SEND ("AT+COPS=0", "automatic registration");

SET_TIMEOUT ( 30000 )

AT_RECEIVE( "OK", "User receives OK, updated, but still not IMSI ATTACHED" );

BS_RACH_AWAIT_BEGIN ( 0, channel_request, "CHANNEL REQUEST on
HPLMN" )
    BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND ( 0, immediate_assignment, "IMM ASS FOR LUP" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )

/* "This message contains the LOCATION UPDATE REQ message to be sent to the network"
*/
BS_MSG3_AWAIT_BEGIN ( 0, location_updating_request_imsi, "1:
ATTACH on HPLMN" )
    BF_SET_VAL ( lut, M2( 1, 0 ), "" )
BS_MSG3_AWAIT_END( )

/* "This message contains the LOCATION UPDATE ACC response from the network" */
BS_MSG3_SEND ( 0, location_updating_accept_tmsi, "2: HPLMN ATTACH acceptet" )
BS_MSG3_SEND ( 0, channel_release, "CHANNEL RELEASE, HPLMN" )

ISS_DELAY ( 1000 )

/* The user goes into the Menu and initiates Manual PLMN search */
AT_SEND ( "AT+COPS=?", "6: Request list of available operators" );
SET_TIMEOUT ( 30000 )
/* MM passes the result of the PLMN search to the MMI. This list is presented to the
user */
AT_RECEIVE ( "+COPS: (2,\"T-Mobile D\", \"TMO D\", \"26201\"), (1, \"Vodafone.de\", \"Vodafone\", \"26202\"), SILENT );
AT_RECEIVE ( "OK", "7: List presented to the user" );

/* The user selects a non-valid PLMN, manual mode */
#ifdef NORTH_AMERICA
AT_SEND ( "AT+COPS=1,2,\"312457\"", "9, 10: Manually select forbidden PLMN" );
#else
AT_SEND ( "AT+COPS=1,2,\"26202\"", "9, 10: Manually select forbidden PLMN" );
#endif
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "CHANNEL REQUEST on
forbidden network" )
    BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND ( 1, immediate_assignment, "IMM ASS forbidden network" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )

/* This message contains the LOCATION UPDATING REQUEST to be sent to the network */
BS_MSG3_AWAIT ( 1, location_updating_request, "11: Normal LUP on forbidden
network" )

/* This message contains the LOCATION UPDATING REJECT response from the network */
BS_MSG3_SEND_BEGIN ( 1, location_updating_reject, "12:
Reject cause = PLMN not allowed." )
    BF_SET_VAL ( reject_cause, 0x0B, "PLMN not allowed" )

```

```

BS_MSG3_SEND_END( )

/* The MMI is informed about the Registration failure */
AT_RECEIVE      ( "ERROR", "13: PLMN not allowed" )

BS_MSG3_SEND    ( 1, channel_release,      "CHANNEL RELEASE forbidden network" )

ISS_DELAY      ( 1000 )

NOT_IMPLEMENTED (                               "15: The list is presented again by
                                                MMI" )

AT_SEND ( "AT+COPS=1,2,\"26201\"", "16, 17: Manual selection of HPLMN" );
BS_RACH_AWAIT_BEGIN      ( 0, channel_request, "CHANNEL REQUEST on
                                                HPLMN" )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0) , "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND      ( 0, immediate_assignment, "IMM ASS for HPLMN" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT     ( 0, location_updating_request_del, "18: Normal LUP on HPLMN" )
BS_MSG3_SEND      ( 0, location_updating_accept_tmsi, "HPLMN accepted" )
BS_MSG3_SEND      ( 0, channel_release,      "CHANNEL RELEASE, HPLMN" )

ISS_DELAY      ( 5000 )

AT_SEND ("ATD6969554;", "22, 23: The user attempts a call setup");
BS_RACH_AWAIT_BEGIN      ( 0, channel_request, SILENT ) /* This
                                                may not happen ... */
    BF_SET_VAL      ( establishment_cause, M3(1,1,1) , "Mobile Originated Call" )
BS_RACH_AWAIT_END( )

BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND      ( 0, immediate_assignment, "IMM ASS for MOC" )

```

History:	17.03.00	HM	Initial
	28.08.01	HM	NORTH_AMERICA variant added
	16.01.02	HM	Revised

### 3.7.6 MMM105: Registration problem reported by customer (II)

**Description:** Testcase written to reproduce problem report from customer in simulation. Two cells, user switches on mobile station and performs manual selection.

**Preamble:** None

**Script:**

```

ISS_INIT (4)

BS_SET_SYS_INFO ( 0, system_information_type_1 )
BS_SET_SYS_INFO ( 0, system_information_type_2 )
BS_SET_SYS_INFO ( 0, system_information_type_3_att )
BS_SET_SYS_INFO ( 0, system_information_type_4 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_6 )

BS_SET_SCH      ( 0, BSIC , RFN )
BS_SET_ARFCN    ( 0, ARFCN_BCCH )
BS_SET_POWER    ( 0, -50 )
BS_ON_OFF      ( 0, TRUE )

```

```

/* --- */
BS_SET_SYS_INFO ( 1, system_information_type_1 )
BS_SET_SYS_INFO ( 1, system_information_type_2 )
BS_SET_SYS_INFO ( 1, system_information_type_3_B_HMCC )
BS_SET_SYS_INFO ( 1, system_information_type_4_B_HMCC )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_6_B_HMCC )

BS_SET_SCH ( 1, BSIC_B, RFN )
BS_SET_ARFCN ( 1, ARFCN_BCCH_B2 )
BS_SET_POWER ( 1, -60 )
BS_ON_OFF ( 1, TRUE )
/* --- */

AT_SEND ("AT+CFUN=1", "switch on");
ISS_DELAY ( 5000 )

/* The user goes into the Menu and initiates Manual PLMN search */
AT_SEND ( "AT+COPS=?", "1: Request list of available operators" );
SET_TIMEOUT ( 30000 )

#ifdef NORTH_AMERICA
AT_RECEIVE ( "+COPS: (1,\"\",\"\","\"312456\"), (1,\"\",\"\","\"312457\"), SILENT );
#else
AT_RECEIVE ( "+COPS: (1,\"T-Mobile D\", \"TMO D\", \"26201\"), (1,\"Vodafone.de\", \"Vodafone\", \"26202\"), SILENT );
#endif

AT_RECEIVE ( "OK", "2: List presented to the user" );

/* The user selects D1-TELEKOM / NA HPLMN manually */
#ifdef NORTH_AMERICA
AT_SEND ( "AT+COPS=1,2,\"312456\"", "3: Manually select NA HPLMN" );
#else
AT_SEND ( "AT+COPS=1,2,\"26201\"", "3: Manually select D1-TELEKOM" );
#endif

BS_RACH_AWAIT_BEGIN ( 0, channel_request, "CHANNEL REQUEST
for D1" )
    BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
AT_RECEIVE( "OK", "4: User receives OK, updated, but still not IMSI ATTACHED" );
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND ( 0, immediate_assignment, "IMM ASS from D1" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 0, location_updating_request_imsi,
"ATTACH on D1" )
    BF_SET_VAL ( lut, M2( 1, 0 ), "" )
BS_MSG3_AWAIT_END( )

BS_MSG3_SEND ( 0, location_updating_accept_tmsi, "D1 IMSI ATTACH accepted" )
/*
* MM enters state WAIT_FOR_NW_CMD and starts T3240 with 10 seconds until expiry.
* The network needs some time to send the CHANNEL RELEASE message.
*/

#ifdef NORTH_AMERICA
AT_SEND ( "AT+COPS=1,2,\"312467\"", "5: Manually select NA non-HPLMN" );
#else
AT_SEND ( "AT+COPS=1,2,\"26202\"", "5: Manually select D2" );
#endif

```

```

/*
 * Race condition: Manual selection of D2 started before CHANNEL RELEASE of D1
 *                   received.
 * The CHANNEL RELEASE message of the D1 network will not be received because the
 *                   mobile
 * station doesn't listen to the D1 cell anymore, it already selected the D2 cells!
 */
/* BS_MSG3_SEND ( 0, channel_release, "CHANNEL RELEASE from D1" ) */

/* --- */
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "CHANNEL REQUEST on
D2" )
    BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND ( 1, immediate_assignment, "IMMEDIATE ASSIGNMENT from D2" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT ( 1, location_updating_request, "Normal LUP on D2" )
BS_MSG3_SEND ( 1, location_updating_accept_tmsi_B_HMCC, "D2 IMSI ATTACH
accepted" )

AT_RECEIVE ( "OK", SILENT )
BS_MSG3_SEND ( 1, channel_release, "CHANNEL RELEASE D2" )

ISS_DELAY ( 5000 )

AT_SEND ("ATD6969554;", "The user attempts a call setup");
BS_RACH_AWAIT_BEGIN ( 1, channel_request, SILENT )
    BF_SET_VAL ( establishment_cause, M3(1,1,1), "Mobile Originated Call" )
BS_RACH_AWAIT_END( )

BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND ( 1, immediate_assignment, "IMM ASS for MOC" )

```

History:	20.03.00	HM	Initial
	10.01.01	HM	Revised
	28.08.01	HM	NORTH_AMERICA variant added
	16.01.02	HM	Revised

### 3.7.7 MMM106: Registration problem reported by customer (IIa)

**Description:** Testcase written to reproduce problem report from customer in simulation. Two cells, user switches on mobile station and performs manual selection. This testcase was written to ensure that the changes which were made doesn't cause a LUP if the same PLMN is selected as registered with full service.

**Preamble:** None

**Script:**

```

ISS_INIT (4)

BS_SET_SYS_INFO ( 0, system_information_type_1 )
BS_SET_SYS_INFO ( 0, system_information_type_2 )
BS_SET_SYS_INFO ( 0, system_information_type_3_att )
BS_SET_SYS_INFO ( 0, system_information_type_4 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_6 )

BS_SET_SCH ( 0, BSIC, RFN )
BS_SET_ARFCN ( 0, ARFCN_BCCH )
BS_SET_POWER ( 0, -50 )

```

```

BS_ON_OFF          ( 0,TRUE )

/* --- */
BS_SET_SYS_INFO ( 1, system_information_type_1 )
BS_SET_SYS_INFO ( 1, system_information_type_2 )
BS_SET_SYS_INFO ( 1, system_information_type_3_B_HMCC )
BS_SET_SYS_INFO ( 1, system_information_type_4_B_HMCC )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_6_B_HMCC )

BS_SET_SCH ( 1, BSIC_B, RFN )
BS_SET_ARFCN ( 1, ARFCN_BCCH_B2 )
BS_SET_POWER ( 1, -60 )
BS_ON_OFF ( 1, TRUE )
/* --- */

AT_SEND ("AT+CFUN=1", "switch on");
ISS_DELAY          ( 5000 )

/* The user goes into the Menu and initiates Manual PLMN search */
AT_SEND ( "AT+COPS=?", "1: Request list of available operators" );
SET_TIMEOUT ( 30000 )

#ifdef NORTH_AMERICA
AT_RECEIVE ( "+COPS: (1,\"\", \"\", \"312456\")", (1,\"\", \"\", \"312457\")", SILENT );
#else
AT_RECEIVE ( "+COPS: (1,\"T-Mobile D\", \"TMO D\", \"26201\")", (1,\"Vodafone.de\", \"Vodafone\", \"26202\")", SILENT );
#endif

AT_RECEIVE ( "OK", "2: List presented to the user" );

/* The user selects D1-TELEKOM / NA HPLMN manually */
#ifdef NORTH_AMERICA
AT_SEND ( "AT+COPS=1,2,\"312456\"", "3: Manually select NA HPLMN" );
#else
AT_SEND ( "AT+COPS=1,2,\"26201\"", "3: Manually select D1-TELEKOM" );
#endif

BS_RACH_AWAIT_BEGIN          ( 0, channel_request, "CHANNEL REQUEST
                                for D1" )
    BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
AT_RECEIVE( "OK", "4: User receives OK, updated, but still not IMSI ATTACHED" );
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND ( 0, immediate_assignment, "IMM ASS from D1" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN          ( 0, location_updating_request_imsi,
                                "ATTACH on D1" )
    BF_SET_VAL ( lut, M2( 1, 0 ), "" )
BS_MSG3_AWAIT_END( )

BS_MSG3_SEND ( 0, location_updating_accept_tmsi, "D1 IMSI ATTACH accepted" )
/*
 * MM enters state WAIT_FOR_NW_CMD and starts T3240 with 10 seconds until expiry.
 * The network needs some time to send the CHANNEL RELEASE message.
 */

/* Nothing should happen by executing this command */
#ifdef NORTH_AMERICA
AT_SEND ( "AT+COPS=1,2,\"312456\"", "5: Manually select NA HPLMN a second time" );
#else

```

```

AT_SEND ( "AT+COPS=1,2,\"26201\"", "5: Manually select D1 a second time" );
#endif

AT_RECEIVE ( "OK", SILENT )

/* Race condition: Manual selection of D1 started before CHANNEL RELEASE received. */
BS_MSG3_SEND      ( 0, channel_release,      "CHANNEL RELEASE from D1" )

ISS_DELAY          ( 5000 )

AT_SEND ("ATD6969554;", "The user attempts a call setup");
BS_RACH_AWAIT_BEGIN      ( 0, channel_request, SILENT )
  BF_SET_VAL      ( establishment_cause, M3(1,1,1 ), "Mobile Originated Call" )
BS_RACH_AWAIT_END( )

BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND      ( 0, immediate_assignment, "IMM ASS for MOC" )

```

History:	20.03.00	HM	Initial
	28.08.01	HM	NORTH_AMERICA variant added
	16.01.02	HM	Revised

### 3.7.8 MMM107: Registration problem reported by customer (Illa)

**Description:** Testcase written to check whether it is possible to abort a running manual PLMN selection and to start another one. Two cells, user switches on mobile station and performs manual selection. Then the command is aborted, the user selects the other PLMN.

**Preamble:** None

**Script:**

```

ISS_INIT (4)

BS_SET_SYS_INFO ( 0, system_information_type_1 )
BS_SET_SYS_INFO ( 0, system_information_type_2 )
BS_SET_SYS_INFO ( 0, system_information_type_3_att )
BS_SET_SYS_INFO ( 0, system_information_type_4 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_6 )

BS_SET_SCH      ( 0, BSIC , RFN )
BS_SET_ARFCN    ( 0, ARFCN_BCCH )
BS_SET_POWER    ( 0, -50 )
BS_ON_OFF       ( 0, TRUE )

/* --- */
BS_SET_SYS_INFO ( 1, system_information_type_1 )
BS_SET_SYS_INFO ( 1, system_information_type_2 )
BS_SET_SYS_INFO ( 1, system_information_type_3_B_HMCC )
BS_SET_SYS_INFO ( 1, system_information_type_4_B_HMCC )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_6_B_HMCC )

BS_SET_SCH ( 1, BSIC_B, RFN )
BS_SET_ARFCN ( 1, ARFCN_BCCH_B2 )
BS_SET_POWER ( 1, -60 )
BS_ON_OFF ( 1, TRUE )
/* --- */

AT_SEND ("AT+CFUN=1", "switch on");
AT_RECEIVE ( "OK", SILENT );

```

```

/* The user goes into the Menu and initiates Manual PLMN search */
AT_SEND ( "AT+COPS=?", "1: Request list of available operators" );
SET_TIMEOUT ( 30000 )

#ifdef NORTH_AMERICA
AT_RECEIVE ( "+COPS: (1,\"\",\"\", \"312456\"), (1,\"\",\"\", \"312457\"), SILENT );
#else
AT_RECEIVE ( "+COPS: (1,\"T-Mobile D\", \"TMO D\", \"26201\"), (1,\"Vodafone.de\", \"Vodafone\", \"26202\"), SILENT );
#endif

AT_RECEIVE ( "OK", "2: List presented to the user" );

/* The user selects D1-TELEKOM / NA HPLMN manually */
#ifdef NORTH_AMERICA
AT_SEND ( "AT+COPS=1,2,\"312456\"", "3: Manually select NA HPLMN" );
#else
AT_SEND ( "AT+COPS=1,2,\"26201\"", "3: Manually select D1-TELEKOM" );
#endif

/*ISS_DELAY (1000)*/ /* Bring G23 to cell selection */
AT_SEND ("ABORT\r\n", "4: Abort any pending AT command");
AT_RECEIVE ( "OK", "5: Command abortion OK" );

#ifdef NORTH_AMERICA
AT_SEND ( "AT+COPS=1,2,\"312457\"", "6: Manually select non-HPLMN NA network" );
#else
AT_SEND ( "AT+COPS=1,2,\"26202\"", "6: Manually select D2" );
#endif

BS_RACH_AWAIT_BEGIN ( 1, channel_request, "CHANNEL REQUEST on
D2" )
    BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND ( 1, immediate_assignment, "IMMEDIATE ASSIGNMENT from D2" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT ( 1, location_updating_request_imsi, "LUP on D2" )
BS_MSG3_SEND ( 1, location_updating_accept_tmsi_B_HMCC, "D2 IMSI ATTACH
accepted" )

AT_RECEIVE ( "OK", SILENT )
BS_MSG3_SEND ( 1, channel_release, "CHANNEL RELEASE D2" )

ISS_DELAY ( 5000 )

AT_SEND ("ATD6969554;", "The user attempts a call setup");
BS_RACH_AWAIT_BEGIN ( 1, channel_request, SILENT )
    BF_SET_VAL ( establishment_cause, M3(1,1,1), "Mobile Originated Call" )
BS_RACH_AWAIT_END( )

BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND ( 1, immediate_assignment, "IMM ASS for MOC" )

History:      23.03.00      HM      Initial
              24.01.01      HM      Revised
              28.08.01      HM      NORTH_AMERICA variant added
              12.01.04      HM      Delay decreased, test system restriction

```

### 3.7.9 MMM108: Registration problem reported by customer (IIIb)

**Description:** Testcase written to check whether it is possible to abort a running manual PLMN selection and to start another one. Two cells, user switches on mobile station and performs manual selection. Then the command is aborted, the user selects the other PLMN.

**Preamble:** None

**Script:**

```
ISS_INIT (4)

BS_SET_SYS_INFO ( 0, system_information_type_1 )
BS_SET_SYS_INFO ( 0, system_information_type_2 )
BS_SET_SYS_INFO ( 0, system_information_type_3_att )
BS_SET_SYS_INFO ( 0, system_information_type_4 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_6 )

BS_SET_SCH ( 0, BSIC , RFN )
BS_SET_ARFCN ( 0, ARFCN_BCCH )
BS_SET_POWER ( 0, -50 )
BS_ON_OFF ( 0, TRUE )

/* --- */
BS_SET_SYS_INFO ( 1, system_information_type_1 )
BS_SET_SYS_INFO ( 1, system_information_type_2 )
BS_SET_SYS_INFO ( 1, system_information_type_3_B_HMCC )
BS_SET_SYS_INFO ( 1, system_information_type_4_B_HMCC )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_6_B_HMCC )

BS_SET_SCH ( 1, BSIC_B, RFN )
BS_SET_ARFCN ( 1, ARFCN_BCCH_B2 )
BS_SET_POWER ( 1, -60 )
BS_ON_OFF ( 1, TRUE )
/* --- */

AT_SEND ("AT+CFUN=1", "switch on");
AT_RECEIVE ( "OK", SILENT );
ISS_DELAY ( 5000 )

/* The user goes into the Menu and initiates Manual PLMN search */
AT_SEND ( "AT+COPS=?", "1: Request list of available operators" );
SET_TIMEOUT ( 30000 )

#ifdef NORTH_AMERICA
AT_RECEIVE ( "+COPS: (1,\"\",\"\", \"312456\"), (1,\"\", \"\", \"312457\"), SILENT );
#else
AT_RECEIVE ( "+COPS: (1,\"T-Mobile D\", \"TMO D\", \"26201\"), (1,\"Vodafone.de\", \"Vodafone\", \"26202\"), SILENT );
#endif
AT_RECEIVE ( "OK", "2: List presented to the user" );

/* The user selects D1-TELEKOM / NA HPLMN manually */
#ifdef NORTH_AMERICA
AT_SEND ( "AT+COPS=1,2,\"312456\"", "3: Manually select NA HPLMN" );
#else
AT_SEND ( "AT+COPS=1,2,\"26201\"", "3: Manually select D1-TELEKOM" );
#endif

BS_RACH_AWAIT_BEGIN ( 0, channel_request, "CHANNEL REQUEST
for D1" )
BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END ( )
AT_RECEIVE ( "OK", "4: Updated on the cell, only IMSI ATTACH needed" );
```

```

BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND      ( 0, immediate_assignment, "IMM ASS from D1" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN
                                ( 0, location_updating_request_imsi,
                                "ATTACH on D1" )
        BF_SET_VAL
                                ( lut, M2( 1, 0 ), "" )
BS_MSG3_AWAIT_END( )

#ifdef NORTH_AMERICA
AT_SEND ( "AT+COPS=1,2,\"312457\"", "5: Manually select non-home NA PLMN" );
#else
AT_SEND ( "AT+COPS=1,2,\"26202\"", "5: Manually select D2" );
#endif

BS_RACH_AWAIT_BEGIN
                                ( 1, channel_request, "CHANNEL REQUEST on
                                D2" )
        BF_SET_VAL      ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "IMMEDIATE ASSIGNMENT from D2" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT     ( 1, location_updating_request_imsi, "LUP on D2")
BS_MSG3_SEND      ( 1, location_updating_accept_tmsi_B_HMCC, "D2 accepted" )
AT_RECEIVE        ( "OK", SILENT )
BS_MSG3_SEND      ( 1, channel_release, "CHANNEL RELEASE D2" )

ISS_DELAY         ( 5000 )

AT_SEND ("ATD6969554;", "The user attempts a call setup");
BS_RACH_AWAIT_BEGIN
                                ( 1, channel_request, SILENT )
        BF_SET_VAL      ( establishment_cause, M3(1,1,1), "Mobile Originated Call" )
BS_RACH_AWAIT_END( )

BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "IMM ASS for MOC" )

```

History:	23.03.00	HM	Initial
	10.01.01	HM	Revised
	28.08.01	HM	NORTH_AMERICA variant added

### 3.7.10 MMM109: Registration problem reported by customer (IV)

**Description:** Testcase written to check whether in manual network selection mode, the mobile stays on the selected network even if this network has been lost  
There is a lack in the features of the testcase specification language. It cannot be tested whether the mobile station is silent for a specific amount of time. So this has to be checked manually at the end of the testcase.

**Preamble:** None

#### Script:

```

ISS_INIT (4)

BS_SET_SYS_INFO ( 0, system_information_type_1 )
BS_SET_SYS_INFO ( 0, system_information_type_2 )
BS_SET_SYS_INFO ( 0, system_information_type_3_att )
BS_SET_SYS_INFO ( 0, system_information_type_4 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_6 )

```

```

BS_SET_SCH      ( 0,BSIC , RFN )
BS_SET_ARFCN   ( 0,ARFCN_BCCH )
BS_SET_POWER   ( 0,-50 )
BS_ON_OFF      ( 0,TRUE )

/* --- */
BS_SET_SYS_INFO ( 1, system_information_type_1 )
BS_SET_SYS_INFO ( 1, system_information_type_2 )
BS_SET_SYS_INFO ( 1, system_information_type_3_B_HMCC )
BS_SET_SYS_INFO ( 1, system_information_type_4_B_HMCC )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_6_B_HMCC )

BS_SET_SCH ( 1, BSIC_B, RFN )
BS_SET_ARFCN ( 1, ARFCN_BCCH_B2 )
BS_SET_POWER ( 1, -60 )
BS_ON_OFF ( 1, TRUE )
/* --- */

AT_SEND ("AT+CFUN=1", "switch on");
AT_RECEIVE ( "OK", SILENT );
ISS_DELAY ( 5000 )

/* The user goes into the Menu and initiates Manual PLMN search */
AT_SEND ( "AT+COPS=?", "1: Request list of available operators" );
SET_TIMEOUT ( 30000 )

#ifdef NORTH_AMERICA
AT_RECEIVE ( "+COPS: (1,\"\",\"\", \"312456\"), (1,\"\",\"\", \"312457\"), SILENT );
#else
AT_RECEIVE ( "+COPS: (1,\"T-Mobile D\", \"TMO D\", \"26201\"), (1,\"Vodafone.de\", \"Vodafone\", \"26202\"), SILENT );
#endif

AT_RECEIVE ( "OK", "2: List presented to the user" );

/* The user selects D1-TELEKOM manually */
#ifdef NORTH_AMERICA
AT_SEND ( "AT+COPS=1,2,\"312456\"", "3: Manually select NA HPLMN" );
#else
AT_SEND ( "AT+COPS=1,2,\"26201\"", "3: Manually select D1-TELEKOM" );
#endif

BS_RACH_AWAIT_BEGIN ( 0, channel_request, "CHANNEL REQUEST
for D1" )
    BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
AT_RECEIVE("OK", "User receives OK, updated, but still not IMSI ATTACHED" );

BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND ( 0, immediate_assignment, "IMM ASS from D1" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 0, location_updating_request_imsi,
"ATTACH on D1" )
    BF_SET_VAL ( lut, M2( 1, 0 ), "" )
BS_MSG3_AWAIT_END( )

BS_MSG3_SEND ( 0, location_updating_accept_tmsi, "D1 IMSI ATTACH accepted" )
BS_MSG3_SEND ( 0, channel_release, "CHANNEL RELEASE D2" )

ISS_DELAY ( 5000 )

```

```

BS_SET_POWER ( 0, -120 ) /* The reception level is lowered until the mobile selects
                               D2 */
BS_SET_ERROR ( 0, 7 ) /* downlink Error */
BS_ON_OFF ( 0, FALSE ) /* Now the cell is dead, but really */

ISS_DELAY (60000)
ISS_DELAY (60000)
ISS_DELAY (60000)

/*
 * It has to be checked manually that the mobile station was silent after the last
 * location update, especially that no location updating was tried on D2
 */

```

History:	23.10.00	HM	Initial
	28.08.01	HM	NORTH_AMERICA variant added
	16.01.02	HM	Revised

### 3.7.11 MMM110: Registration problem seen in laboratory, internal FTA (I)

**Description:** The mobile is switched on, automatic registration mode is selected. The HPLMN is not available, a location update on D2 is tried. The attempt is rejected by the network with the reason "PLMN not allowed". The mobile station enters limited service registration state. After a while, the HPLMN becomes available. It is tested whether, after a limited period of time, the mobile station will try a location update on the now available HPLMN and enters full service registration mode in the end.

**Preamble:** None

#### Script:

```

ISS_INIT (4)

BS_SET_SYS_INFO ( 0, system_information_type_1 )
BS_SET_SYS_INFO ( 0, system_information_type_2 )
BS_SET_SYS_INFO ( 0, system_information_type_3_att )
BS_SET_SYS_INFO ( 0, system_information_type_4 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_6 )

BS_SET_SCH ( 0, BSIC , RFN )
BS_SET_ARFCN ( 0, ARFCN_BCCH )
BS_SET_POWER ( 0, -50 )
BS_ON_OFF ( 0, FALSE )

/* --- */
BS_SET_SYS_INFO ( 1, system_information_type_1 )
BS_SET_SYS_INFO ( 1, system_information_type_2 )
BS_SET_SYS_INFO ( 1, system_information_type_3_B_HMCC )
BS_SET_SYS_INFO ( 1, system_information_type_4_B_HMCC )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_6_B_HMCC )

BS_SET_SCH ( 1, BSIC_B, RFN )
BS_SET_ARFCN ( 1, ARFCN_BCCH_B2 )
BS_SET_POWER ( 1, -60 )
BS_ON_OFF ( 1, TRUE )
/* --- */

AT_SEND ("AT+CFUN=1", "switch on");
AT_RECEIVE ("OK", SILENT);
AT_SEND ("AT+COPS=0", "automatic registration");

```

```

BS_RACH_AWAIT_BEGIN                ( 1, channel_request, "CHANNEL REQUEST
                                     for D2" )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND      ( 1, immediate_assignment, "IMM ASS from D1" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT     ( 1, location_updating_request_imsi, "ATTACH on D2" )

BS_MSG3_SEND_BEGIN                ( 1, location_updating_reject,
                                     "Reject cause = PLMN not
                                     allowed." )
    BF_SET_VAL      ( reject_cause, 0x0B, "PLMN not allowed" )
BS_MSG3_SEND_END( )
BS_MSG3_SEND      ( 1, channel_release, "After the sending of this message, the
                                     SS waits for the disconnection of the
                                     main signalling link." )

ISS_DELAY (120000)
BS_ON_OFF ( 0, TRUE )              /* Make D1 available again (HPLMN) */

SET_TIMEOUT (120000)
BS_RACH_AWAIT_BEGIN                ( 0, channel_request, "CHANNEL REQUEST
                                     for D1" )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND      ( 0, immediate_assignment, "IMM ASS from D1" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT     ( 0, location_updating_request_del, "Update on D1" )
BS_MSG3_SEND      ( 0, location_updating_accept_tmsi, "D1 Update accepted" )
BS_MSG3_SEND      ( 0, channel_release, "CHANNEL RELEASE D2" )

ISS_DELAY          ( 5000 )

History:           25.10.00           HM           Initial
                  12.01.04           HM           Wrong ISS_DELAY removed
                  18.03.04           HM           CKSN in ATTACH corrected

```

### 3.7.12 MMM111: Registration problem seen at test house (I)

**Description:** The mobile is switched on, automatic registration mode is selected. The HPLMN is not available, a location update on D2 is tried. The attempt is rejected by the network with the reason "PLMN not allowed". The mobile station enters limited service registration state. After a while, the HPLMN becomes available. It is tested whether, after a limited period of time, the mobile station will try a location update on the now available HPLMN and enters full service registration mode in the end.

**Preamble:** None

#### Script:

```

ISS_INIT (4)

BS_SET_SYS_INFO ( 0, system_information_type_1 )
BS_SET_SYS_INFO ( 0, system_information_type_2 )
BS_SET_SYS_INFO ( 0, system_information_type_3_att )
BS_SET_SYS_INFO ( 0, system_information_type_4 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_6 )

```

```

BS_SET_SCH      ( 0, BSIC , RFN )
BS_SET_ARFCN   ( 0, ARFCN_BCCH )
BS_SET_POWER   ( 0, -50 )
BS_ON_OFF      ( 0, FALSE )

/* --- */
BS_SET_SYS_INFO ( 1, system_information_type_1 )
BS_SET_SYS_INFO ( 1, system_information_type_2 )
BS_SET_SYS_INFO ( 1, system_information_type_3_B_HMCC )
BS_SET_SYS_INFO ( 1, system_information_type_4_B_HMCC )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_6_B_HMCC )

BS_SET_SCH ( 1, BSIC_B, RFN )
BS_SET_ARFCN ( 1, ARFCN_BCCH_B2 )
BS_SET_POWER ( 1, -60 )
BS_ON_OFF ( 1, TRUE )
/* --- */

AT_SEND ("AT+CFUN=1", "switch on");
AT_RECEIVE ("OK", SILENT );
AT_SEND ("AT+COPS=0", "automatic registration");

BS_RACH_AWAIT_BEGIN ( 1, channel_request, "CHANNEL REQUEST
                        for D2" )
    BF_SET_VAL ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND ( 1, immediate_assignment, "IMM ASS from D1" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT ( 1, location_updating_request_imsi, "ATTACH on D2" )

BS_MSG3_SEND ( 1, location_updating_accept_tmsi_B_HMCC, "Accept LUP on D2"
              )
BS_MSG3_SEND ( 1, channel_release, "After the sending of this message, the
              SS waits for the disconnection of the
              main signalling link." )

ISS_DELAY ( 5000 )

BS_SET_POWER ( 1, -120 ) /* The reception level is lowered until
                          cell unusable */
BS_SET_ERROR ( 1, 7 ) /* downlink Error */
BS_ON_OFF ( 1, FALSE ) /* Now D2 is dead, but really */
BS_ON_OFF ( 0, TRUE ) /* Make D1 available again (HPLMN) */

SET_TIMEOUT ( 180000 )
BS_RACH_AWAIT_BEGIN ( 0, channel_request, "CHANNEL REQUEST
                        for D1" )
    BF_SET_VAL ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND ( 0, immediate_assignment, "IMM ASS from D1" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT ( 0, location_updating_request_tmsi_B_HMCC, "Update on D1" )
BS_MSG3_SEND ( 0, location_updating_accept_tmsi, "D1 Update accepted" )
BS_MSG3_SEND ( 0, channel_release, "CHANNEL RELEASE D2" )

ISS_DELAY ( 5000 )

```

History:	27.11.00	HM	Initial
	01.01.00	HM	Revised
	12.01.04	HM	Wrong ISS_DELAY removed
	18.03.04	HM	CKSN in ATTACH corrected

### 3.7.13 MMM120: Problems with forbidden LA's seen in field

**Description:** The mobile is switched on, automatic registration mode is selected. Two cells, same PLMN, different LA. The mobile tries to update on the better cell and receives cause #13. After that, it is expected that after full network search the mobile selects the also suitable cell of the other LA. A normal (and successful) location updating procedure is performed. To force a cell reselection in RR, a normal call is tried and the CHANNEL REQUEST message is sent to the network, but the network doesn't answer this by IMMEDIATE ASSIGNMENT and keeps silent. This is to force a cell reselection. It is checked that the cell of the forbidden LA is not selected by the mobile by performing a second call attempt which shall be successful.

**Preamble:** None

**Script:**

```
ISS_INIT (4)

BS_SET_SYS_INFO ( 0, system_information_type_1 )
BS_SET_SYS_INFO ( 0, system_information_type_2 )
BS_SET_SYS_INFO ( 0, system_information_type_3_B )
BS_SET_SYS_INFO ( 0, system_information_type_4_B )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_6_B )

BS_SET_SCH ( 0, BSIC_B, RFN )
BS_SET_ARFCN ( 0, ARFCN_BCCH_B )
BS_SET_POWER ( 0, -60 )
BS_ON_OFF ( 0, TRUE )

BS_SET_SYS_INFO ( 1, system_information_type_1 )
BS_SET_SYS_INFO ( 1, system_information_type_2 )
BS_SET_SYS_INFO ( 1, system_information_type_3_C )
BS_SET_SYS_INFO ( 1, system_information_type_4_C )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_6_C )

BS_SET_SCH ( 1, BSIC_C, RFN )
BS_SET_ARFCN ( 1, ARFCN_BCCH_C )
BS_SET_POWER ( 1, -70 )
BS_ON_OFF ( 1, TRUE )

AT_SEND ("AT+CFUN=1", "switch on");
AT_SEND ("AT+COPS=0", "automatic registration");

SET_TIMEOUT ( 30000 )

BS_RACH_AWAIT_BEGIN ( 0, channel_request, "MMM120 (1)" )
  BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND ( 0, immediate_assignment, "MMM120 (2)" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT ( 0, location_updating_request_imsi, "MMM120 (3)" )
```

```

BS_MSG3_SEND_BEGIN          ( 0, location_updating_reject,
                             "MM120 (4)" )
    BF_SET_VAL              ( reject_cause, 0x0D, "Roaming not allowed in this LA" )
BS_MSG3_SEND_END( )
BS_MSG3_SEND                ( 0, channel_release, "MM120 (5) After the sending of this
                             message, the SS waits for the
                             disconnection of the main signalling
                             link." )

BS_RACH_AWAIT_BEGIN        ( 1, channel_request, "MMM120 (6)" )
    BF_SET_VAL              ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL          ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS      ( 1, 0 )
BS_MSG3_SEND               ( 1, immediate_assignment, "MMM120 (7)" )
BS_CONFIG_CHANNEL          ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT              ( 1, location_updating_request_del, "MMM120 (8)" )
BS_MSG3_SEND_BEGIN        ( 1, authentication_request,
                             "MMM120 (9)" )
    BF_SET_VAL              ( key_sequence, CKSN_2, "CKSN 2" )
BS_MSG3_SEND_END( )
BS_MSG3_AWAIT              ( 1, authentication_response, "MMM120 (10)" )
BS_MSG3_SEND_BEGIN        ( 1, location_updating_accept_tmsi,
                             "MMM120 (11)" )
    BF_SET_VAL              ( lac, LAC_C, "LAI = C" )
BS_MSG3_SEND_END( )
BS_MSG3_AWAIT              ( 1, tmsi_reallocation_complete, "MMM120 (12)" )
BS_MSG3_SEND               ( 1, channel_release, "MMM120 (13)" )

ISS_DELAY                  ( 10000 )

AT_SEND ("ATD39094117;", "Dial, MMM120 (14)");
AT_RECEIVE ("OK", SILENT );
AT_RECEIVE ("NO CARRIER", SILENT );

ISS_DELAY                  ( 10000 )

AT_SEND ("ATD6969554;", "Dial, MMM120 (15)");
BS_RACH_AWAIT_BEGIN        ( 1, channel_request, "MMM120 (16)" )
    BF_SET_VAL              ( establishment_cause, M3(1,1,1), "MOC & TCH/F" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL          ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS      ( 1, 0 )
BS_MSG3_SEND               ( 1, immediate_assignment, "MMM120 (17)" )
BS_CONFIG_CHANNEL          ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN        ( 1, cm_service_request, "MMM120
                             (18): CKSN = initial CKSN, Mobile
                             Identity = TMSI." )
    BF_SET_VAL              ( key_sequence, CKSN_2, "CKSN 2" )
BS_MSG3_AWAIT_END( )
BS_MSG3_SEND               ( 1, cm_service_accept, "MMM120 (19)" )
BS_MSG3_AWAIT              ( 1, setup_moc, "MMM120 (20)" )
BS_MSG3_SEND               ( 1, channel_release, "MMM120 (21): The SS waits for the
                             disconnection of the main signalling
                             link." )

```

History:	04.05.01	HM	Initial
	27.06.01	HM	Revised after protocol stack change

### 3.7.14 MMM121: Problems with forbidden LA's suspected

**Description:** The mobile is switched on, automatic registration mode is selected. Only one cell. The mobile tries to update on the cell and receives cause #13. After that, it is expected that after full network search the mobile enters limited service state, informs the MMI about this fact and doesn't update on the forbidden LA.

**Preamble:** None

**Script:**

```
ISS_INIT ( 4 )

BS_SET_SYS_INFO ( 0, system_information_type_1 )
BS_SET_SYS_INFO ( 0, system_information_type_2 )
BS_SET_SYS_INFO ( 0, system_information_type_3_B )
BS_SET_SYS_INFO ( 0, system_information_type_4_B )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_6_B )

BS_SET_SCH ( 0, BSIC_B, RFN )
BS_SET_ARFCN ( 0, ARFCN_BCCH_B )
BS_SET_POWER ( 0, -60 )
BS_ON_OFF ( 0, TRUE )

AT_SEND ("AT+CFUN=1", "switch on");
AT_SEND ("AT+COPS=0", "automatic registration");

SET_TIMEOUT ( 30000 )

BS_RACH_AWAIT_BEGIN ( 0, channel_request, "MMM120 (1)" )
  BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND ( 0, immediate_assignment, "MMM120 (2)" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT ( 0, location_updating_request_imsi, "MMM120 (3)" )
BS_MSG3_SEND_BEGIN ( 0, location_updating_reject,
                    "MM120 (4)" )
  BF_SET_VAL ( reject_cause, 0x0D, "Roaming not allowed in this LA" )
BS_MSG3_SEND_END ( )
BS_MSG3_SEND ( 0, channel_release, "MMM120 (5) After the sending of this
message, the SS waits for the
disconnection of the main signalling
link." )

AT_RECEIVE ("ERROR", SILENT );

ISS_DELAY ( 30000 )
```

History: 04.05.01 HM Initial

### 3.7.15 MMM122: Two forbidden PLMN cells available + 2 HPLMN cell

**Description:** The mobile is IMSI ATTACHED and IDLE UPDATED on the HPLMN. The HPLMN becomes unavailable. Two forbidden PLMN cells available, it is tried to force cell reselection between those cells.

The HPLMN becomes available again on a cell for a while, but C2 = -127 on this cell (cell 3). This is essential to force the problem seen in field.

The HPLMN becomes available on cell 2, cell suitable. At the same time the cell 3 with the C2 of -127 is switched off.

It is expected that full service is regained.

This testcase has been created to reproduce issue #11860 seen in the field.

**Preamble:** MMM021

**Script:**

```

SET_TIMEOUT      ( 30000 )

BS_SET_POWER     ( 2, -120 ) /* HPLMN disappears */
BS_ON_OFF        ( 2, FALSE )
SET_TIMEOUT      ( 30000 )

AT_RECEIVE ("+CREG: 2", "not registered, searching" );

BS_SET_POWER (0, -60)
BS_SET_POWER (1, -100)
ISS_DELAY (30000)

BS_SET_POWER (0, -100)
BS_SET_POWER (1, -60)
ISS_DELAY (32000)

BS_SET_POWER (0, -60)
BS_SET_POWER (1, -100)
ISS_DELAY (34000)

BS_SET_POWER (0, -100)
BS_SET_POWER (1, -60)
ISS_DELAY (36000)

BS_SET_POWER (0, -60)
BS_SET_POWER (1, -100)
BS_SET_POWER (3, -70) /* Offer a HPLMN cell which has C2=-127 */
BS_ON_OFF (3, TRUE)

ISS_DELAY (38000)

BS_SET_POWER (3, -120) /* Stop disturbing */
BS_ON_OFF (3, FALSE)

BS_SET_POWER ( 2, -80 ) /* HPLMN suitable again on cell 2 */
BS_ON_OFF ( 2,TRUE )

ISS_DELAY ( 30000 )

AT_SEND ("ATD6969554;", "dial");
BS_RACH_AWAIT_BEGIN      ( 2, channel_request, "Prove full
                           service" )
    BF_SET_VAL      ( establishment_cause, M3(1,1,1 ), "Mobile Originated Call" )
BS_RACH_AWAIT_END()

ISS_DELAY (3000)

```

History: 28.08.03 HM Initial

### 3.7.16 MMM123: Two forbidden PLMN cells available + 2 HPLMN cell

**Description:** Variant of MMM122 for manual network selection for the curious.

Preamble: MMM021

**Script:**

```

SET_TIMEOUT      ( 30000 )

AT_SEND ("AT+COPS=1,2,\"26201\", \"Manual selection on the HPLMN\");
AT_RECEIVE ("OK", "SILENT" );

BS_SET_POWER     ( 2, -120 ) /* HPLMN disappears */
BS_ON_OFF        ( 2, FALSE )
SET_TIMEOUT      ( 30000 )

AT_RECEIVE ("+CREG: 2", "not registered, searching" );

BS_SET_POWER (0, -60)
BS_SET_POWER (1, -100)
ISS_DELAY (30000)

BS_SET_POWER (0, -100)
BS_SET_POWER (1, -60)
ISS_DELAY (32000)

BS_SET_POWER (0, -60)
BS_SET_POWER (1, -100)
ISS_DELAY (34000)

BS_SET_POWER (0, -100)
BS_SET_POWER (1, -60)
ISS_DELAY (36000)

BS_SET_POWER (0, -60)
BS_SET_POWER (1, -100)
BS_SET_POWER (3, -70) /* Offer a HPLMN cell which has C2=-127 */
BS_ON_OFF (3, TRUE)

ISS_DELAY (38000)

BS_SET_POWER (3, -120) /* Stop disturbing */
BS_ON_OFF (3, FALSE)

BS_SET_POWER ( 2, -80 ) /* HPLMN suitable again on cell 2 */
BS_ON_OFF ( 2,TRUE )

ISS_DELAY ( 30000 )

AT_SEND ("ATD6969554;", "dial");
BS_RACH_AWAIT_BEGIN      ( 2, channel_request, "Prove full
                           service" )
    BF_SET_VAL      ( establishment_cause, M3(1,1,1 ), "Mobile Originated Call" )
BS_RACH_AWAIT_END()

ISS_DELAY (3000)

```

History: 28.08.03 HM Initial

### 3.7.17 MMM130: MMI net search shortly after registration attempt (automatic)

**Description:** The MS is activated. A Net Search is started to determine the available PLMNs shortly after a registration attempt. MM is still in state 18. It was seen in field that the layers below RR didn't survive this interrupted PLMN search.

**Preamble:** None

## Script:

```

ISS_INIT (4)

BS_SET_SYS_INFO (0, system_information_type_1 )
BS_SET_SYS_INFO (0, system_information_type_2 )
BS_SET_SYS_INFO (0, system_information_type_3_att )
BS_SET_SYS_INFO (0, system_information_type_4 )
BS_SET_SYS_INFO_SACCH (0, system_information_type_5 )
BS_SET_SYS_INFO_SACCH (0, system_information_type_6 )

BS_SET_SCH (0, BSIC, RFN )
BS_SET_ARFCN (0, ARFCN_BCCH )
BS_SET_POWER (0, -50 )
BS_ON_OFF (0, TRUE )

/* --- */
BS_SET_SYS_INFO (1, system_information_type_1 )
BS_SET_SYS_INFO (1, system_information_type_2 )
BS_SET_SYS_INFO (1, system_information_type_3_B_HMCC )
BS_SET_SYS_INFO (1, system_information_type_4_B_HMCC )
BS_SET_SYS_INFO_SACCH (1, system_information_type_5 )
BS_SET_SYS_INFO_SACCH (1, system_information_type_6_B_HMCC )

BS_SET_SCH (1, BSIC_B, RFN )
BS_SET_ARFCN (1, ARFCN_BCCH_B2 )
BS_SET_POWER (1, -60 )
BS_ON_OFF (1, TRUE )
/* --- */

AT_SEND ("AT+CFUN=1", "1: switch on");
AT_RECEIVE ("OK", SILENT );
ISS_DELAY (2000) /* Don't want to be disturbed by SIM traces in critical phase */
AT_SEND ("AT+COPS=0", "2: automatic registration");

SET_TIMEOUT (1000 )

AT_SEND ("ABORT\r\n", "3: Abort any pending AT command");
AT_RECEIVE ("OK", "4: Command abortion OK" );
AT_SEND ("AT+COPS=?", "4: Request list of available operators" );
SET_TIMEOUT (30000 )
/* MM passes the result of the PLMN search to the MMI. This list is presented to the
user */
AT_RECEIVE ("COPS: (1,\"T-Mobile D\", \"TMO D\", \"26201\"), (1,\"Vodafone.de\", \"Vodafone\", \"26202\")", SILENT );
AT_RECEIVE ("OK", "5: List presented to the user" );

/* ---- */

NOT_IMPLEMENTED ( "1: The MS is activated." )
BS_RACH_AWAIT_BEGIN (0, channel_request, "2:")
BF_SET_VAL (establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END()
BS_CONFIG_CHANNEL (0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS (0, 0 );
BS_MSG3_SEND (0, immediate_assignment, "3" )
BS_CONFIG_CHANNEL (0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN (0, location_updating_request_imsi, "4:")
BF_SET_VAL (lut, 2, "type = normal lup" )
BS_MSG3_AWAIT_END()
BS_MSG3_SEND (0, location_updating_accept_tmsi, "5: follow on proceed IE is included." )
BS_MSG3_AWAIT (0, tmsi_reallocation_complete, "5A: confirm TMSI allocation")

```

```

NOT_IMPLEMENTED ( "6: The SS wait for 5 seconds." )
NOT_IMPLEMENTED ( "7: The MS shall not send any layer 3
                  message for 5 seconds after reception
                  of the LOCATION UPDATING ACCEPT
                  message." )
BS_MSG3_SEND ( 0, channel_release, "10: After the sending of this message,
                                     the SS waits for the disconnection of
                                     the main signalling link." )

ISS_DELAY (10000)
COMMAND ( "MMI CONFIG AT+COPS=?" )
BS_CONFIG_CHANNEL ( 0, PCH, UNACK, SAPI_0 )
BS_MSG3_SEND ( 0, paging_request_type_1, "26: Mobile identity IE contains the
                                           new TMSI (= TMSI1 )." )
BS_RACH_AWAIT ( 0, channel_request, "27: Establishment cause: Answer to
                                      paging." )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND ( 0, immediate_assignment, "28" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 );
BS_MSG3_AWAIT ( 0, paging_response, "29: Mob ID with new TMSI (= TMSI1 )." )
ISS_DELAY (5000)
BS_MSG3_SEND ( 0, setup, "8" )
NOT_IMPLEMENTED ( "If the MS supports a basic service on
                  TCH." )
BS_MSG3_AWAIT ( 0, call_confirmed, "A9" )
BS_MSG3_SEND ( 0, channel_release, "30: disc of the main signalling link."
                                     )

```

History: 23.01.02 HM Initial

### 3.7.18 MMM131: MMI net search shortly after registration attempt (manual)

**Description:** The MS is activated. A Net Search is started to determine the available PLMNs shortly after a registration attempt. MM is still in state 18. It was seen in field that the layers below RR didn't survive this interrupted PLMN search.

**Preamble:** None

**Script:**

```

ISS_INIT (4)

BS_SET_SYS_INFO ( 0, system_information_type_1 )
BS_SET_SYS_INFO ( 0, system_information_type_2 )
BS_SET_SYS_INFO ( 0, system_information_type_3_att )
BS_SET_SYS_INFO ( 0, system_information_type_4 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_6 )

BS_SET_SCH ( 0, BSIC, RFN )
BS_SET_ARFCN ( 0, ARFCN_BCCH )
BS_SET_POWER ( 0, -50 )
BS_ON_OFF ( 0, TRUE )

/* --- */
BS_SET_SYS_INFO ( 1, system_information_type_1 )
BS_SET_SYS_INFO ( 1, system_information_type_2 )
BS_SET_SYS_INFO ( 1, system_information_type_3_B_HMCC )
BS_SET_SYS_INFO ( 1, system_information_type_4_B_HMCC )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_6_B_HMCC )

```

```

BS_SET_SCH ( 1, BSIC_B, RFN )
BS_SET_ARFCN ( 1, ARFCN_BCCH_B2 )
BS_SET_POWER ( 1, -60 )
BS_ON_OFF ( 1, TRUE )
/* --- */

AT_SEND ("AT+CFUN=1", "1: switch on");
AT_RECEIVE ("OK", SILENT );
ISS_DELAY (2000) /* Don't want to be disturbed by SIM traces in critical phase */
/* AT_SEND ("AT+COPS=0", "2: automatic registration"); */
/* The user selects D1-TELEKOM / NA HPLMN manually */
#ifdef NORTH_AMERICA
AT_SEND ( "AT+COPS=1,2,\"312456\"", "2: Manually select NA HPLMN" );
#else
AT_SEND ( "AT+COPS=1,2,\"26201\"", "2: Manually select D1-TELEKOM" );
#endif

SET_TIMEOUT ( 1000 )

AT_SEND ("ABORT\r\n", "3: Abort any pending AT command");
AT_RECEIVE ( "OK", "4: Command abortion OK" );
AT_SEND ( "AT+COPS=?", "4: Request list of available operators" );
SET_TIMEOUT ( 30000 )
/* MM passes the result of the PLMN search to the MMI. This list is presented to the
user */
AT_RECEIVE ( "+COPS: (1,\"T-Mobile D\", \"TMO D\", \"26201\"), (1,\"Vodafone.de\", \"Vodafone\", \"26202\")", SILENT );
AT_RECEIVE ( "OK", "5: List presented to the user" );

/* ---- */

NOT_IMPLEMENTED ( "1: The MS is activated." )
BS_RACH_AWAIT_BEGIN ( 0, channel_request, "2:" )
BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 );
BS_MSG3_SEND ( 0, immediate_assignment, "3" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT_BEGIN ( 0, location_updating_request_imsi, "4:" )
BF_SET_VAL ( lut, 2, "type = normal lup" )
BS_MSG3_AWAIT_END ( )
BS_MSG3_SEND ( 0, location_updating_accept_tmsi, "5: follow on proceed IE is included." )
BS_MSG3_AWAIT ( 0, tmsi_reallocation_complete, "5A: confirm TMSI allocation")
NOT_IMPLEMENTED ( "6: The SS wait for 5 seconds." )
NOT_IMPLEMENTED ( "7: The MS shall not send any layer 3 message for 5 seconds after reception of the LOCATION UPDATING ACCEPT message." )
BS_MSG3_SEND ( 0, channel_release, "10: After the sending of this message, the SS waits for the disconnection of the main signalling link." )

ISS_DELAY (10000)
COMMAND ( "MMI CONFIG AT+COPS=?" )
BS_CONFIG_CHANNEL ( 0, PCH, UNACK, SAPI_0 )
BS_MSG3_SEND ( 0, paging_request_type_1, "26: Mobile identity IE contains the new TMSI (= TMSI1)." )
BS_RACH_AWAIT ( 0, channel_request, "27: Establishment cause: Answer to paging." )

```

```

BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND      ( 0, immediate_assignment, "28" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 );
BS_MSG3_AWAIT     ( 0, paging_response,      "29: Mob ID with new TMSI(= TMSI1 )." )
ISS_DELAY (5000)
BS_MSG3_SEND      ( 0, setup,                "8" )
NOT_IMPLEMENTED   (                               "If the MS supports a basic service on
                                                    TCH." )
BS_MSG3_AWAIT     ( 0, call_confirmed,       "A9" )
BS_MSG3_SEND      ( 0, channel_release,      "30: disc of the main signalling link."
                                                    )

```

History:            23.01.02                            HM                            Initial

### 3.7.19 MMM149: LUP rejected: no roaming in this location area (I)

**Description:**     The mobile is IMSI ATTACHED and IDLE UPDATED on the HPLMN. The HPLMN becomes unavailable. The mobile tries to register on a location area where roaming is not allowed. It selects another cell in another location area where roaming also is not allowed. After 1 minute the HPLMN becomes available again. A normal location updating is expected after another minute.  
Note: For the purpose of the test it does not play any role whether the two VPLMN cells are located in two different, for roaming forbidden location areas. What is important is that there are two forbidden cells and the HPLMN available in the end.

**Preamble:**        MMM020

#### Script:

```

SET_TIMEOUT      ( 30000 )

NOT_IMPLEMENTED  (                               "The following messages are sent and
                                                    shall be received on cell A." )
NOT_IMPLEMENTED  (                               "1: The RF level of cell B is lowered
                                                    until cell B is no more suitable and
                                                    the MS selects cell A." )

BS_SET_POWER     ( 0, -50 )
BS_SET_POWER     ( 1, -80 )
BS_SET_POWER     ( 2, -120 )
BS_ON_OFF        ( 2, FALSE )

BS_RACH_AWAIT_BEGIN ( 0, channel_request, "2: Establishment
                                                    cause: Location updating." )
    BF_SET_VAL    ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND      ( 0, immediate_assignment, "3" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT     ( 0, location_updating_request, "4" )
BS_MSG3_SEND_BEGIN ( 0, location_updating_reject, "5:
                                                    Reject cause IE is Roaming not allowed
                                                    in this location area." )
    BF_SET_VAL    ( reject_cause, 0x0D, "Roaming not allowed in this location area" )
BS_MSG3_SEND_END( )
BS_MSG3_SEND      ( 0, channel_release,      "6: After the sending of this message,
                                                    the SS waits for the disconnection of
                                                    the main signalling link." )

```

```

NOT_IMPLEMENTED ( "The following messages are sent and
                  shall be received on cell B." )
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "7: Establishment
                    cause: Location updating." )
    BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND ( 1, immediate_assignment, "8" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT ( 1, location_updating_request_del, "9" )
BS_MSG3_SEND_BEGIN ( 1, location_updating_reject, "10:
                   Reject cause IE is Roaming not allowed
                   in this location area." )
    BF_SET_VAL ( reject_cause, 0x0D, "Roaming not allowed in this location area" )
BS_MSG3_SEND_END( )
BS_MSG3_SEND ( 1, channel_release, "11: After the sending of this message,
                    the SS waits for the disconnection of
                    the main signalling link." )
NOT_IMPLEMENTED ( "12: The SS waits for a possible
                  location updating procedure on both
                  cells A and B for 2 minutes." )
NOT_IMPLEMENTED ( "13: The MS shall not initiate an RR
                  connection establishment on cell A or
                  on cell B within 2 minutes after the
                  end of step 11." )

ISS_DELAY (120000)
BS_CONFIG_CHANNEL ( 1, PCH, UNACK, SAPI_0 )
BS_MSG3_SEND ( 1, paging_request_type_1, "14a: The MS is paged in cell B." )
NOT_IMPLEMENTED ( "15a: The MS shall ignore this message.
                  This is checked during 3 seconds." )

ISS_DELAY (3000)
BS_CONFIG_CHANNEL ( 0, PCH, UNACK, SAPI_0 )
BS_MSG3_SEND ( 0, paging_request_type_1, "14a: The MS is paged in cell A." )
NOT_IMPLEMENTED ( "15a: The MS shall ignore this message.
                  This is checked during 3 seconds." )

ISS_DELAY (3000)
NOT_IMPLEMENTED ( "16: A MO CM connection is attempted." )
AT_SEND ("ATD6969554;", "dial");
NOT_IMPLEMENTED ( "17: The MS shall not initiate an RR
                  connection establishment on cell A or
                  cell B. This is checked during 3
                  seconds." )

ISS_DELAY (3000)
NOT_IMPLEMENTED ( "18: If the MS supports speech (see PICS
                  ), it is made to perform an emergency
                  call." )
AT_SEND ("ATD112;", "dial emergency number");
BS_RACH_AWAIT_BEGIN ( 0, channel_request, "19: Establishment
                    cause: Emergency call." )
    BF_SET_VAL ( establishment_cause, M3(1,0,1), "Emergency call" )
BS_RACH_AWAIT_END( )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_MSG3_SEND ( 0, immediate_assignment, "20" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT ( 0, cm_service_request_ec_imsi, "21: CM service type: Emergency
                    call establishment." )
BS_MSG3_SEND ( 0, cm_service_accept, "22" )
BS_MSG3_AWAIT ( 0, emergency_setup, "23" )
BS_MSG3_SEND ( 0, release_complete_to_ms, "24: Cause: unassigned number." )
)

```

```

BS_MSG3_SEND      ( 0, channel_release,      "25: After the sending of this message,
the SS waits for the disconnection of
the main signalling link." )

ISS_DELAY (30000)

BS_SET_POWER      ( 2, -85 )
BS_ON_OFF ( 2, TRUE )

SET_TIMEOUT      ( 30000 )

BS_RACH_AWAIT_BEGIN      ( 2, channel_request, "26" )
  BF_SET_VAL      ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 2, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 2, 0 )
BS_MSG3_SEND      ( 2, immediate_assignment, "27" )
BS_CONFIG_CHANNEL ( 2, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT     ( 2, location_updating_request_del, "28" )
BS_MSG3_SEND      ( 2, location_updating_accept_tmsi, "29" )
BS_MSG3_SEND      ( 2, channel_release,      "30" )

ISS_DELAY (3000)

```

History:                    26.02.03                    HM                    Initial

### 3.7.20 MMM150: LUP rejected: no roaming in this location area (II)

**Description:** This is as the previous test, but all non-necessary ballast removed. The mobile is IMSI ATTACHED and IDLE UPDATED on the HPLMN. The HPLMN becomes unavailable. The mobile tries to register on a location area where roaming is not allowed. It selects another cell in another location area where roaming also is not allowed. After 1 minute the HPLMN becomes available again. A normal location updating is expected after another minute.

Note: For the purpose of the test it does not play any role whether the two VPLMN cells are located in two different, for roaming forbidden location areas. What is important is that there are two forbidden cells and the HPLMN available in the end.

**Preamble:**            MMM020

#### Script:

```

SET_TIMEOUT      ( 30000 )

NOT_IMPLEMENTED  (
NOT_IMPLEMENTED  (
"1: The RF level of cell B is lowered
until cell B is no more suitable and
the MS selects cell A." )

BS_SET_POWER     ( 0, -50 )
BS_SET_POWER     ( 1, -80 )
BS_SET_POWER     ( 2, -120 )
BS_ON_OFF ( 2, FALSE )

BS_RACH_AWAIT_BEGIN      ( 0, channel_request, "2: Establishment
cause: Location updating." )
  BF_SET_VAL      ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND      ( 0, immediate_assignment, "3" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )

```

```

BS_MSG3_AWAIT      ( 0, location Updating request,      "4" )
BS_MSG3_SEND_BEGIN ( 0, location Updating reject,      "5:
                    Reject cause IE is Roaming not allowed
                    in this location area." )
    BF_SET_VAL      ( reject_cause, 0x0D, "Roaming not allowed in this location area" )
BS_MSG3_SEND_END( )
BS_MSG3_SEND       ( 0, channel_release,                "6: After the sending of this message,
                    the SS waits for the disconnection of
                    the main signalling link." )

NOT_IMPLEMENTED    (                                     "The following messages are sent and
                    shall be received on cell B." )
BS_RACH_AWAIT_BEGIN ( 1, channel_request, "7: Establishment
                    cause: Location updating." )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 1, 0 )
BS_MSG3_SEND       ( 1, immediate_assignment, "8" )
BS_CONFIG_CHANNEL ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT      ( 1, location Updating request_del,  "9" )
BS_MSG3_SEND_BEGIN ( 1, location Updating reject,      "10:
                    Reject cause IE is Roaming not allowed
                    in this location area." )
    BF_SET_VAL      ( reject_cause, 0x0D, "Roaming not allowed in this location area" )
BS_MSG3_SEND_END( )
BS_MSG3_SEND       ( 1, channel_release,                "11: After the sending of this message,
                    the SS waits for the disconnection of
                    the main signalling link." )
NOT_IMPLEMENTED    (                                     "12: The SS waits for a possible
                    location updating procedure on both
                    cells A and B for 2 minutes." )
NOT_IMPLEMENTED    (                                     "13: The MS shall not initiate an RR
                    connection establishment on cell A or
                    on cell B within 2 minutes after the
                    end of step 11." )

ISS_DELAY (120000)

BS_SET_POWER       ( 2, -85 )
BS_ON_OFF          ( 2, TRUE )

SET_TIMEOUT        ( 45000 )

BS_RACH_AWAIT_BEGIN ( 2, channel_request, "14" )
    BF_SET_VAL      ( establishment_cause, M3(0,0,0 ), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL ( 2, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 2, 0 )
BS_MSG3_SEND       ( 2, immediate_assignment, "15" )
BS_CONFIG_CHANNEL ( 2, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT      ( 2, location Updating request_del, "16" )
BS_MSG3_SEND       ( 2, location Updating accept_tmsi, "17" )
BS_MSG3_SEND       ( 2, channel_release,                "18" )

ISS_DELAY (3000)

```

History: 26.02.03

HM

Initial

### 3.7.21 MMM151: Initialize IUT (3 cells) with Location Updating, VPLMNs only

**Description:** Cell A, B, C different VPLMNs. The HPLMN is not available. There are initially two different VPLMNs available, both send location updating reject cause #13. After some time a third VPLMN becomes available, this is the weakest PLMN but is able to offer full service. It is checked that after some time a location updating attempt on this VPLMN is tried.

**Preamble:** None

**Script:**

```
ISS_INIT (4)

BS_SET_SYS_INFO ( 0, system_information_type_1 )
BS_SET_SYS_INFO ( 0, system_information_type_2 )
BS_SET_SYS_INFO ( 0, system_information_type_3_EPLUS )
BS_SET_SYS_INFO ( 0, system_information_type_4_EPLUS )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_6_EPLUS )

BS_SET_SCH ( 0, BSIC, RFN )
BS_SET_ARFCN ( 0, ARFCN_BCCH )
BS_SET_POWER ( 0, -80 )
BS_ON_OFF ( 0, TRUE )

BS_SET_SYS_INFO ( 1, system_information_type_1 )
BS_SET_SYS_INFO ( 1, system_information_type_2 )
BS_SET_SYS_INFO ( 1, system_information_type_3_VIAG )
BS_SET_SYS_INFO ( 1, system_information_type_4_VIAG )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_6_VIAG )

BS_SET_SCH ( 1, BSIC_B, RFN )
BS_SET_ARFCN ( 1, ARFCN_BCCH_B )
BS_SET_POWER ( 1, -90 )
BS_ON_OFF ( 1, TRUE )

BS_SET_SYS_INFO ( 2, system_information_type_1 )
BS_SET_SYS_INFO ( 2, system_information_type_2 )
BS_SET_SYS_INFO ( 2, system_information_type_3_HMCC )
BS_SET_SYS_INFO ( 2, system_information_type_4_HMCC )
BS_SET_SYS_INFO_SACCH ( 2, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 2, system_information_type_6_HMCC )

BS_SET_SCH ( 2, BSIC_C, RFN )
BS_SET_ARFCN ( 2, ARFCN_BCCH_C )
BS_SET_POWER ( 2, -100 )
BS_ON_OFF ( 2, FALSE ) /* D2 initially not available */

AT_SEND ("AT+CFUN=1", "switch on");
AT_RECEIVE ("OK", SILENT );
AT_SEND ("AT+COPS=0", "automatic registration");

SET_TIMEOUT ( 30000 )

/* Try update on EPLUS - won't work (#13) */
BS_RACH_AWAIT_BEGIN ( 0, channel_request, "CHANNEL REQUEST on
EPLUS for LUP" )
    BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END ( )
BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND ( 0, immediate_assignment, "IMM ASS on EPLUS for LUP" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT ( 0, location_updating_request_imsi, "LUP REQUEST on EPLUS" )
```

```

BS_MSG3_SEND_BEGIN          ( 0, location_updating_reject,
                             "Reject cause = Roaming not
                             allowed." )
    BF_SET_VAL              ( reject_cause, 0x0D, "Roaming not allowed" )
BS_MSG3_SEND_END( )
BS_MSG3_SEND                ( 0, channel_release, "after EPLUS attempt" )

/* Try update on VIAG - won't work (#13) */
BS_RACH_AWAIT_BEGIN        ( 1, channel_request, "CHANNEL REQUEST on
                             VIAG for LUP" )
    BF_SET_VAL              ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL          ( 1, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS      ( 1, 0 )
BS_MSG3_SEND              ( 1, immediate_assignment, "IMM ASS on VIAG for LUP" )
BS_CONFIG_CHANNEL          ( 1, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT             ( 1, location_updating_request_del, "LUP REQUEST on VIAG" )
BS_MSG3_SEND_BEGIN        ( 1, location_updating_reject,
                             "Reject cause = Roaming not
                             allowed." )
    BF_SET_VAL              ( reject_cause, 0x0D, "Roaming not allowed" )
BS_MSG3_SEND_END( )
BS_MSG3_SEND              ( 1, channel_release, "after VIAG attempt" )
AT_RECEIVE ("ERROR", SILENT );

ISS_DELAY                  ( 30000 )

/* Make a suitable VPLMN available as the weakest PLMN */
BS_ON_OFF                  ( 2, TRUE )

/* SET_TIMEOUT            ( 30000 ) */

/* Try update on D2 - should work */
BS_RACH_AWAIT_BEGIN        ( 2, channel_request, "CHANNEL REQUEST on
                             D2 for LUP" )
    BF_SET_VAL              ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END( )
BS_CONFIG_CHANNEL          ( 2, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS      ( 2, 0 )
BS_MSG3_SEND              ( 2, immediate_assignment, "IMM ASS on D2 for LUP" )
BS_CONFIG_CHANNEL          ( 2, SDCCH, ACK, SAPI_0 )
BS_MSG3_AWAIT             ( 2, location_updating_request_del, "LUP REQUEST on D2" )
BS_MSG3_SEND              ( 2, location_updating_accept_tmsi_A_HMCC, "Success" )
BS_MSG3_AWAIT             ( 2, tmsi_reallocation_complete, "Ack. TMSI" )
BS_MSG3_SEND              ( 2, channel_release, "IDLE entry with full service on D2" )

```

History:	24.03.03	HM	Initial
	18.03.04	HM	CKSN corrected

### 3.7.22 MMM500: GPRS attach after IMSI attach in GSM only environment

**Description:** The mobile is switched on, automatic registration mode is selected. Only one cell. The mobile is IMSI attached on the cell. The user decides he wants also to have GPRS services. This testcase is not applicable with a GPRS protocol stack

**Preamble:** MMM001

**Script:**

```
#ifdef MMGMM_REG_REQ /* GPRS protocol stack */
```

```

AT_SEND ("AT+CGATT=1", "GPRS attach");
AT_RECEIVE ("ERROR", "No GPRS services" );
#endif

```

History:	08.08.01	HM	Initial
	23.01.02	HM	Revised, GPRS only

### 3.7.23 MMM501: AT+COPS=? problems seen during regression with GPRS

**Description:** There were some problems seen towith more than one AT+COPS=0, AT+COPS=?. It is tested that these problems no longer exist.

**Preamble:** None

**Script:**

```

ISS_INIT (4)

BS_SET_SYS_INFO ( 0, system_information_type_1 )
BS_SET_SYS_INFO ( 0, system_information_type_2 )
BS_SET_SYS_INFO ( 0, system_information_type_3_att )
BS_SET_SYS_INFO ( 0, system_information_type_4 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_5 )
BS_SET_SYS_INFO_SACCH ( 0, system_information_type_6 )

BS_SET_SCH ( 0, BSIC , RFN )
BS_SET_ARFCN ( 0, ARFCN_BCCH )
BS_SET_POWER ( 0, -50 )
BS_ON_OFF ( 0, TRUE )

/* --- */
BS_SET_SYS_INFO ( 1, system_information_type_1 )
BS_SET_SYS_INFO ( 1, system_information_type_2_B_XX )
BS_SET_SYS_INFO ( 1, system_information_type_3_B_HMCC_XX )
BS_SET_SYS_INFO ( 1, system_information_type_4_B_HMCC )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_5_B_XX )
BS_SET_SYS_INFO_SACCH ( 1, system_information_type_6_B_HMCC )

/* BS_SET_SYS_INFO ( 1, system_information_type_1 ) */
/* BS_SET_SYS_INFO ( 1, system_information_type_2 ) */
/* BS_SET_SYS_INFO ( 1, system_information_type_3_B_HMCC ) */
/* BS_SET_SYS_INFO ( 1, system_information_type_4_B_HMCC ) */
/* BS_SET_SYS_INFO_SACCH ( 1, system_information_type_5 ) */
/* BS_SET_SYS_INFO_SACCH ( 1, system_information_type_6_B_HMCC ) */

BS_SET_SCH ( 1, BSIC_B, RFN )
BS_SET_ARFCN ( 1, ARFCN_BCCH_B2 )
BS_SET_POWER ( 1, -60 )
BS_ON_OFF ( 1, TRUE )
/* --- */

AT_SEND ("AT+CFUN=1", "switch on");
AT_SEND ("AT+COPS=0", "automatic registration");

SET_TIMEOUT ( 30000 )

AT_RECEIVE ( "OK", "User receives OK, updated, but still not IMSI ATTACHED" );

BS_RACH_AWAIT_BEGIN ( 0, channel_request, "CHANNEL REQUEST on HPLMN" )
    BF_SET_VAL ( establishment_cause, M3(0,0,0), "Location updating" )
BS_RACH_AWAIT_END ( )

```

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BS_CONFIG_CHANNEL ( 0, AGCH, UNACK, SAPI_0 )
BS_STORE_RACH_PARAMS ( 0, 0 )
BS_MSG3_SEND      ( 0, immediate_assignment, "IMM ASS FOR LUP" )
BS_CONFIG_CHANNEL ( 0, SDCCH, ACK, SAPI_0 )

/* "This message contains the LOCATION UPDATE REQ message to be sent to the network"
*/
BS_MSG3_AWAIT_BEGIN      ( 0, location_updating_request_imsi, "1:
                           ATTACH on HPLMN" )
                           BF_SET_VAL      ( lut, M2( 1, 0 ), "" )
BS_MSG3_AWAIT_END( )

/* "This message contains the LOCATION UPDATE ACC response from the network" */
BS_MSG3_SEND      ( 0, location_updating_accept_tmsi, "2: HPLMN ATTACH acceptet" )
BS_MSG3_SEND      ( 0, channel_release, "CHANNEL RELEASE, HPLMN" )

ISS_DELAY      ( 1000 )

AT_SEND ("AT+COPS=?", "Search for available networks");
SET_TIMEOUT ( 30000 )
/* MM passes the result of the PLMN search to the MMI. This list is presented to the
user */
AT_RECEIVE ( "+COPS: (2,\"T-Mobile D\", \"TMO D\", \"26201\"), (1, \"Vodafone.de\", \"Vodafone\", \"26202\"), SILENT );
AT_RECEIVE ( "OK", "List presented to the user, first" );

AT_SEND ("AT+COPS=0", "Registration attempt in full service, first");
AT_RECEIVE ("OK", SILENT);

AT_SEND ("AT+COPS=0", "Registration attempt in full service, second");
AT_RECEIVE ("OK", SILENT);

AT_SEND ("AT+COPS=?", "Search for available networks");
SET_TIMEOUT ( 30000 )
/* MM passes the result of the PLMN search to the MMI. This list is presented to the
user */
AT_RECEIVE ( "+COPS: (2,\"T-Mobile D\", \"TMO D\", \"26201\"), (1, \"Vodafone.de\", \"Vodafone\", \"26202\"), SILENT );
AT_RECEIVE ( "OK", "List presented to the user, second" );

```

History:	24.08.01	HM	Initial
	16.01.02	HM	Revised