3GPP TSG CN Plenary Meeting #14 **NP-010678**
Kyoto, Japan, 12th -14th December 2001

Source: **TSG CN WG 1**

Title: **CRs to R99 (with mirror CRs) on Work Item GSM/UMTS interworking towards 24.008, pack2**

Agenda item: **7.15**

Document for: **APPROVAL**

Introduction:

This document contains **6** CRs on **R99 (with mirror CRs) to** Work Item **" GSM/UMTS interworking"**, that have been agreed by **TSG CN WG1**, and are forwarded to TSG CN Plenary meeting #14 for approval.

Spec	CR	Rev	Phase	Subject	Cat	Version-Current	Version-New	Doc-2nd-Level
24.008	485	1	R99	Mapping of NAS procedures to RRC Establishment Causes	F	3.9.0	3.10.0	N1-011578
24.008	486	1	Rel-4	Mapping of NAS procedures to RRC Establishment Causes	A	4.4.0	4.5.0	N1-011579
24.008	487	1	Rel-5	Mapping of NAS procedures to RRC Establishment Causes	A	5.1.0	5.2.0	N1-011580
24.008	522	2	R99	Conditions for the deletion of the equal PLMN list	F	3.9.0	3.10.0	N1-012052
24.008	525	2	Rel-4	Conditions for the deletion of the equal PLMN list	A	4.4.0	4.5.0	N1-012053
24.008	528	2	Rel-5	Conditions for the deletion of the equal PLMN list	A	5.1.0	5.2.0	N1-012054

3GPP TSG-CN1 Meeting #20
Brighton, England, 15.-19. October 2001

Tdoc N1-011578
revsion of Tdoc N1-011466

CR-Form-v4

CHANGE REQUEST

⌘ **24.008** **CR** **485** ⌘ rev **1** ⌘ Current version: **3.9.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☒ Radio Access Network ☒ Core Network ☐

Title:	⌘	Mapping of NAS procedures to RRC Establishment Causes
Source:	⌘	Ericsson
Work item code:	⌘	GSM/UMTS Interworking
Date:	⌘	15th Oct 2001
Category:	⌘	**F**
Release:	⌘	R99

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

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

Reason for change: ⌘ This CR is to complete the outstanding items (ie. FFS enteries) on the mapping of NAS procedures to RRC Establishment Causes.

This CR proposes that the MS shall:

1. when requesting the re-establishment of RABs, the RRC establishment cause to be used shall be:-
   either 'Originating Conversational Call' or 'Originating Streaming Call' or 'Originating Interactive Call' or 'Originating Background Call' depending on the Traffic class in QoS of the most demanding PDP context for which the MS requests an re-establishment of the RAB.
2. when requesting new PDP context activation, the RRC establishment cause to be shall be:
   either 'Originating Conversational Call' or 'Originating Streaming Call' or 'Originating Interactive Call' or 'Originating Background Call'; depending on the Traffic class in QoS of the most demanding active PDP context and the PDP context to be established.
   If Traffic Class in QoS is not available, then the RRC Establishment Cause shall be 'Originating High Priority Signalling'.
3. when modifying an existing PDP context, the RRC establishment cause to be used shall be 'Originating High Priority Signalling'.
4. when deactivating a PDP context, the RRC establishment cause to be used shall be 'Originating High Priority Signalling'.
5. when performing a Routing Area Update resulting from a RRC connection release with cause 'Directed Signalling Connection Re-Establishment', the RRC Establishment Cause to be used shall be 'Call Re-Establishment'.

Summary of change: ⌘ Completing the mapping of the NAS procedures to RRC establishment causes in tables L.1.1 and L1.2.

Consequences if not approved:	⌘	As some of the mappings of the PS NAS procedures to RRC establishment causes have been left as 'FFS', the TS and the Work Item covering the RRC Establishment Causes are incompleted if this change request is not agreed. Additionally, without this CR, mobile implementation would not be able to provide the required RRC Establishment Causes for many of the Session Management procedures.

Clauses affected:	⌘	Annex L		
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	
Other comments:	⌘			

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

Annex L (normative): Establishment cause (Iu mode only)

This annex is normative.

L.1 Mapping of NAS procedure to RRC establishment cause (Iu mode only)

When MM requests the establishment of a RR connection, the RRC establishment cause used by the MS shall be selected according to the CS NAS procedure as specified in Table L.1.1.

Table L.1.1/3GPP TS 24.008: Mapping of CS NAS procedure to establishment cause

CS NAS procedure	RRC Establishment cause(according 3GPP TS 25.331)
Originating CS speech call	Originating Conversational Call
Originating CS data call	Originating Conversational Call
CS Emergency call	Emergency call
Call re-establishment	Call re-establishment
Location update	Registration
IMSI Detach	Detach
MO SMS via CS domain	Originating Low Priority Signalling
Supplementary Services	Originating High Priority Signalling
Answer to circuit switched paging	Set equal to the value of the paging cause used in the reception of paging in the RRC layer
Location services	Originating High Priority Signalling

When GMM requests the establishment of a PS signalling connection, the RRC establishment cause used by the MS shall be selected according to the PS NAS procedure as specified in Table L.1.2.

Table L.1.2/3GPP TS 24.008: Mapping of PS NAS procedure to establishment cause

PS NAS procedure	**RRC Establishment cause(according 3GPP TS 25.331)**
GPRS Attach	Registration
Routing Area Update – for the case of 'Directed Signalling Connection Re-Establishment (see chapter 4.7.2.5.)	Call Re-Establishment
Routing area Update – all cases other than 'Directed Signalling Connection Re-Establishment	Registration
GPRS Detach	Detach
Request to re-establish RABs	~~FFS~~ Either 'Originating Conversational Call' or 'Originating Streaming Call' or 'Originating Interactive Call' or 'Originating Background Call ' – depending on the Traffic Class in QoS of the "most demanding" RAB. (see Note 1)
~~Session Management procedures~~	~~FFS~~
Activate PDP Context	Either 'Originating Conversational Call' or 'Originating Streaming Call' or 'Originating Interactive Call' or 'Originating Background Call ' – depending on the Traffic Class in QoS of the "most demanding" RAB. (see Note 1) – If Traffic Class in QoS is not 'Conversational Class' or 'Streaming Class' or 'Interactive Class' or 'Background Class' but is 'Subscribed Traffic Class', then 'Originating High Priority Signalling' shall be used.
Modify PDP Context	Originating High Priority Signalling
Deactivate PDP Context	Originating High Priority Signalling
MO SMS via PS domain	Originating Low Priority Signalling
Answer to packet paging	Set equal to the value of the paging cause used in the reception of paging in the RRC layer
Note 1: For classification of "most demanding" Traffic Class the following ranking order applies: 'Conversational' followed by 'Streaming' followed by 'Interactive' followed by 'Background', where 'Conversational' is the most demanding Traffic class in terms of being delay sensitive. In chosing the "most demanding" Traffic Class all already active PDP Context together with the PDP Context to be activated shall be considered.	

NOTE: The RRC establishment cause may be used by the network to prioritise the connection establishment request from the MS at high load situations in the network.

3GPP TSG-CN1 Meeting #20 ***Tdoc N1-011579***
Brighton, England, 15.-19. October 2001 ***revision of Tdoc N1-011467***

CR-Form-v4

CHANGE REQUEST

⌘ **24.008** **CR** **486** ⌘ rev **1** ⌘ Current version: **4.4.0.** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE **X** Radio Access Network **X** Core Network ☐

Title:	⌘	Mapping of NAS procedures to RRC Establishment Causes
Source:	⌘	Ericsson
Work item code:	⌘	GSM/UMTS Interworking
Date:	⌘	15th Oct 2001
Category:	⌘	**A**
Release:	⌘	Rel4

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
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Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
REL-4 (Release 4)
REL-5 (Release 5)

Reason for change: ⌘ This CR is to complete the outstanding items (ie. FFS enteries) on the mapping of NAS procedures to RRC Establishment Causes.

This CR proposes that the MS shall:

1. when requesting the re-establishment of RABs, the RRC establishment cause to be used shall be:-
   either 'Originating Conversational Call' or 'Originating Streaming Call' or 'Originating Interactive Call' or 'Originating Background Call' depending on the Traffic class in QoS of the most demanding PDP context for which the MS requests an re-establishment of the RAB.
2. when requesting new PDP context activation, the RRC establishment cause to be shall be:
   either 'Originating Conversational Call' or 'Originating Streaming Call' or 'Originating Interactive Call' or 'Originating Background Call'; depending on the Traffic class in QoS of the most demanding active PDP context and the PDP context to be established.
   If Traffic Class in QoS is not available, then the RRC Establishment Cause shall be 'Originating High Priority Signalling'.
3. when modifying an existing PDP context, the RRC establishment cause to be used shall be 'Originating High Priority Signalling'.
4. when deactivating a PDP context, the RRC establishment cause to be used shall be 'Originating High Priority Signalling'.
5. when performing a Routing Area Update resulting from a RRC connection release with cause 'Directed Signalling Connection Re-Establishment', the RRC Establishment Cause to be used shall be 'Call Re-Establishment'.

Summary of change: ⌘ Completing the mapping of the NAS procedures to RRC establishment causes in tables L.1.1 and L1.2.

Consequences if not approved:	⌘	As some of the mappings of the PS NAS procedures to RRC establishment causes have been left as 'FFS', the TS and the Work Item covering the RRC Establishment Causes are incompleted if this change request is not agreed. Additionally, without this CR, mobile implementation would not be able to provide the required RRC Establishment Causes for many of the Session Management procedures.

Clauses affected:	⌘	Annex L		
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	
Other comments:	⌘			

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Annex L (normative): Establishment cause (Iu mode only)

This annex is normative.

L.1 Mapping of NAS procedure to RRC establishment cause (Iu mode only)

When MM requests the establishment of a RR connection, the RRC establishment cause used by the MS shall be selected according to the CS NAS procedure as specified in Table L.1.1.

Table L.1.1/3GPP TS 24.008: Mapping of CS NAS procedure to establishment cause

CS NAS procedure	RRC Establishment cause(according 3GPP TS 25.331)
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CS Emergency call	Emergency call
Call re-establishment	Call re-establishment
Location update	Registration
IMSI Detach	Detach
MO SMS via CS domain	Originating Low Priority Signalling
Supplementary Services	Originating High Priority Signalling
Answer to circuit switched paging	Set equal to the value of the paging cause used in the reception of paging in the RRC layer
Location services	Originating High Priority Signalling

When GMM requests the establishment of a PS signalling connection, the RRC establishment cause used by the MS shall be selected according to the PS NAS procedure as specified in Table L.1.2.

Table L.1.2/3GPP TS 24.008: Mapping of PS NAS procedure to establishment cause

PS NAS procedure	**RRC Establishment cause(according 3GPP TS 25.331)**
GPRS Attach	Registration
Routing Area Update – for the case of 'Directed Signalling Connection Re-Establishment (see chapter 4.7.2.5.)	Call Re-Establishment
Routing area Update – all cases other than 'Directed Signalling Connection Re-Establishment	Registration
GPRS Detach	Detach
Request to re-establish RABs	~~FFS~~ Either 'Originating Conversational Call' or 'Originating Streaming Call' or 'Originating Interactive Call' or 'Originating Background Call ' – depending on the Traffic Class in QoS of the "most demanding" RAB. (see Note 1)
~~Session Management procedures~~	~~FFS~~
Activate PDP Context	Either 'Originating Conversational Call' or 'Originating Streaming Call' or 'Originating Interactive Call' or 'Originating Background Call ' – depending on the Traffic Class in QoS of the "most demanding" RAB. (see Note 1) – If Traffic Class in QoS is not 'Conversational Class' or 'Streaming Class' or 'Interactive Class' or 'Background Class' but is 'Subscribed Traffic Class', then 'Originating High Priority Signalling' shall be used.
Modify PDP Context	Originating High Priority Signalling
Deactivate PDP Context	Originating High Priority Signalling
MO SMS via PS domain	Originating Low Priority Signalling
Answer to packet paging	Set equal to the value of the paging cause used in the reception of paging in the RRC layer
Note 1: For classification of "most demanding" Traffic Class the following ranking order applies: 'Conversational' followed by 'Streaming' followed by 'Interactive' followed by 'Background', where 'Conversational' is the most demanding Traffic class in terms of being delay sensitive. In chosing the "most demanding" Traffic Class all already active PDP Context together with the PDP Context to be activated shall be considered	

NOTE: The RRC establishment cause may be used by the network to prioritise the connection establishment request from the MS at high load situations in the network.

3GPP TSG-CN1 Meeting #20 ***Tdoc N1-011580***
Brighton, England, 15.-19. October 2001 ***revision of N1-011468***

CR-Form-v4

CHANGE REQUEST

⌘ **24.008** **CR** **487** ⌘ rev **1** ⌘ Current version: **5.1.0.** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☒ Radio Access Network ☒ Core Network ☐

Title:	⌘	Mapping of NAS procedures to RRC Establishment Causes
Source:	⌘	Ericsson
Work item code:	⌘	GSM/UMTS Interworking
Date:	⌘	15th Oct 2001
Category:	⌘	**A**
Release:	⌘	Rel5

Use one of the following categories:
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R98 (Release 1998)
R99 (Release 1999)
REL-4 (Release 4)
REL-5 (Release 5)

Reason for change: ⌘ This CR is to complete the outstanding items (ie. FFS enteries) on the mapping of NAS procedures to RRC Establishment Causes.

This CR proposes that the MS shall:

1. when requesting the re-establishment of RABs, the RRC establishment cause to be used shall be:-
   either 'Originating Conversational Call' or 'Originating Streaming Call' or 'Originating Interactive Call' or 'Originating Background Call' depending on the Traffic class in QoS of the most demanding PDP context for which the MS requests an re-establishment of the RAB.
2. when requesting new PDP context activation, the RRC establishment cause to be shall be:
   either 'Originating Conversational Call' or 'Originating Streaming Call' or 'Originating Interactive Call' or 'Originating Background Call'; depending on the Traffic class in QoS of the most demanding active PDP context and the PDP context to be established.
   If Traffic Class in QoS is not available, then the RRC Establishment Cause shall be 'Originating High Priority Signalling'.
3. when modifying an existing PDP context, the RRC establishment cause to be used shall be 'Originating High Priority Signalling'.
4. when deactivating a PDP context, the RRC establishment cause to be used shall be 'Originating High Priority Signalling'.
5. when performing a Routing Area Update resulting from a RRC connection release with cause 'Directed Signalling Connection Re-Establishment', the RRC Establishment Cause to be used shall be 'Call Re-Establishment'.

Summary of change: ⌘ Completing the mapping of the NAS procedures to RRC establishment causes in tables L.1.1 and L1.2.

Consequences if not approved:	⌘	As some of the mappings of the PS NAS procedures to RRC establishment causes have been left as 'FFS', the TS and the Work Item covering the RRC Establishment Causes are incompleted if this change request is not agreed. Additionally, without this CR, mobile implementation would not be able to provide the required RRC Establishment Causes for many of the Session Management procedures.

Clauses affected:	⌘	Annex L		
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	
Other comments:	⌘			

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Annex L (normative): Establishment cause (Iu mode only)

This annex is normative.

L.1 Mapping of NAS procedure to RRC establishment cause (Iu mode only)

When MM requests the establishment of a RR connection, the RRC establishment cause used by the MS shall be selected according to the CS NAS procedure as specified in Table L.1.1.

Table L.1.1/3GPP TS 24.008: Mapping of CS NAS procedure to establishment cause

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CS Emergency call	Emergency call
Call re-establishment	Call re-establishment
Location update	Registration
IMSI Detach	Detach
MO SMS via CS domain	Originating Low Priority Signalling
Supplementary Services	Originating High Priority Signalling
Answer to circuit switched paging	Set equal to the value of the paging cause used in the reception of paging in the RRC layer
Location services	Originating High Priority Signalling

When GMM requests the establishment of a PS signalling connection, the RRC establishment cause used by the MS shall be selected according to the PS NAS procedure as specified in Table L.1.2.

Table L.1.2/3GPP TS 24.008: Mapping of PS NAS procedure to establishment cause

PS NAS procedure	**RRC Establishment cause(according 3GPP TS 25.331)**
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Routing Area Update – for the case of 'Directed Signalling Connection Re-Establishment (see chapter 4.7.2.5.)	Call Re-Establishment
Routing area Update – all cases other than 'Directed Signalling Connection Re-Establishment	Registration
GPRS Detach	Detach
Request to re-establish RABs	~~FFS~~ Either 'Originating Conversational Call' or 'Originating Streaming Call' or 'Originating Interactive Call' or 'Originating Background Call ' – depending on the Traffic Class in QoS of the "most demanding" RAB. (see Note 1)
~~Session Management procedures~~	~~FFS~~
Activate PDP Context	Either 'Originating Conversational Call' or 'Originating Streaming Call' or 'Originating Interactive Call' or 'Originating Background Call ' – depending on the Traffic Class in QoS of the "most demanding" RAB. (see Note 1) – If Traffic Class in QoS is not 'Conversational Class' or 'Streaming Class' or 'Interactive Class' or 'Background Class' but is 'Subscribed Traffic Class', then 'Originating High Priority Signalling' shall be used.
Modify PDP Context	Originating High Priority Signalling
Deactivate PDP Context	Originating High Priority Signalling
MO SMS via PS domain	Originating Low Priority Signalling
Answer to packet paging	Set equal to the value of the paging cause used in the reception of paging in the RRC layer
Note 1: For classification of "most demanding" Traffic Class the following ranking order applies: 'Conversational' followed by 'Streaming' followed by 'Interactive' followed by 'Background', where 'Conversational' is the most demanding Traffic class in terms of being delay sensitive. In chosing the "most demanding" Traffic Class all already active PDP Context together with the PDP Context to be activated shall be considered.	

NOTE: The RRC establishment cause may be used by the network to prioritise the connection establishment request from the MS at high load situations in the network.

3GPP TSG-CN WG1 Meeting #21
Cancun, Mexico, 26 – 30 November 2001

Tdoc N1-012052

CR-Form-v4

CHANGE REQUEST

⌘ **TS 24.008 CR 522** ⌘ ev **2** ⌘ Current version: **3.9.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE **X** Radio Access Network ☐ Core Network ☐

Title:	⌘	Conditions for the deletion of the equivalent PLMN list
Source:	⌘	T-Mobil, one2one
Work item code:	⌘	GSM/UMTS Interworking
Date:	⌘	Nov., 30th 2001
Category:	⌘	**F**
Release:	⌘	R99

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
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Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
REL-4 (Release 4)
REL-5 (Release 5)

Reason for change: ⌘ When Equivalent PLMN was introduced, the principle then was when a MS is asked to move to another LA (as a result of a reject following Location or Routing Area Update), ie. Reject Cause #114, #15, the Equivalent PLMN lists should be maintained. The reason behind this is that the network would prefer the MS not to change the PLMN and along with that not to lose the Equivalent PLMN list that the MS has. Because of this principle, the ~~The~~ MS shall not delete the list of equivalent PLMNs when attach or update procedures are rejected with cause #12, #14 or #15.

For actions to be performed after reception of cause #12, #14 or #15 the MS shall use the list of equivalent PLMNs.

Summary of change: ⌘ New text states that MS shall delete the list of equivalent PLMNs after reception of reject causes other then #12, #14 and #15. In these causes the list of ePLMNs shall be maintained in order to be used by the MS.

Consequences if not approved: ⌘ The MS will delete the list of equivalent PLMNs after reject with any cause. . For certain cause where this is not the intention, this ~~This~~ would mean that the MS needs to wait for the reception of a new list of equivalent PLMNs before it can use cells belonging to an ePLMN e.g. for cell reselection.

Clauses affected: ⌘ 4.4.4.7, 4.7.3.1.4, 4.7.3.2.4, 4.7.5.1.4, 4.7.5.2.4

Other specs affected: ⌘
☐ Other core specifications ⌘
☐ Test specifications
☐ O&M Specifications

Other comments: ⌘

---------- **[first modified section]** ----------

4.4.4.7 Location updating not accepted by the network

If the location updating cannot be accepted the network sends a LOCATION UPDATING REJECT message to the mobile station. The mobile station receiving a LOCATION UPDATING REJECT message shall stop the timer T3210, store the reject cause, ~~delete the list of "equivalent PLMNs",~~ start T3240, enter state LOCATION UPDATING REJECTED await the release of the RR connection triggered by the network and for all causes except #12, #14 and #15 delete the list of "equivalent PLMNs".
Upon the release of the RR connection the mobile station shall take the following actions depending on the stored reject cause:

2: IMSI unknown in HLR;

3: Illegal MS; or

6: Illegal ME.

The mobile station shall set the update status to ROAMING NOT ALLOWED (and store it in the SIM according to clause 4.1.2.2), and delete any TMSI, stored LAI and ciphering key sequence number and shall consider the SIM as invalid for non-GPRS services until switch-off or the SIM is removed.

11: PLMN not allowed;

12: Location Area not allowed;

13: Roaming not allowed in this location area; or

15: No Suitable Cells In Location Area.

The mobile station shall delete any LAI, TMSI and ciphering key sequence number stored in the SIM, reset the attempt counter, set the update status to ROAMING NOT ALLOWED (and store it in the SIM according to clause 4.1.2.2). The mobile station shall store the LAI or the PLMN identity in the suitable forbidden list, i.e. in the "forbidden PLMN list" for cause #11, in the list of "forbidden location areas for regional provision of service" for cause #12, and in the list of "forbidden location areas for roaming" for cause #13 and #15. In addition, the MS shall memorize if cause #13 was received, so to perform a PLMN selection instead of a cell selection when back to the MM IDLE state. The MS shall search for a suitable cell in another location area in the same PLMN if cause #15 is received.

Other values are considered as abnormal cases and the specification of the mobile station behaviour in those cases is given in clause 4.4.4.9.

---------- **[next modified section]** ----------

4.7.3.1.4 GPRS attach not accepted by the network

If the attach request cannot be accepted by the network, an ATTACH REJECT message is transferred to the MS. The MS receiving the ATTACH REJECT message~~, deletes the list of "equivalent PLMNs"~~, stops timer T3310 and for all causes except #12, #14 and #15 delete the list of "equivalent PLMNs".
The MS shall then take~~s~~ one of the following actions depending upon the reject cause:

3 (Illegal MS); or

6 (Illegal ME)

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to clause 4.1.3.2) and shall delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number. The new GMM state is GMM-DEREGISTERED. The SIM shall be considered as invalid for GPRS services until switching off or the SIM is removed.

If the MS is IMSI attached via MM procedures, the MS shall in addition set the update status to U3 ROAMING NOT ALLOWED, shall delete any TMSI, LAI and ciphering key sequence number. The new MM state is MM IDLE. The SIM shall be considered as invalid also for non-GPRS services until switching off or the SIM is removed.

7 (GPRS services not allowed)

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to clause 4.1.3.2) and shall delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number. The SIM shall be considered as invalid for GPRS services until switching off or the SIM is removed. The new state is GMM-DEREGISTERED.

8 (GPRS services and non-GPRS services not allowed)

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (shall store it according to clause 4.1.3.2) and shall delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number. The new GMM state is GMM-DEREGISTERED. The new MM state is MM IDLE.

The MS shall set the update status to U3 ROAMING NOT ALLOWED, shall delete any TMSI, LAI and ciphering key sequence number. The SIM shall be considered as invalid for GPRS and non-GPRS services until switching off or the SIM is removed.

11 (PLMN not allowed);

12 (Location area not allowed);

13 (Roaming not allowed in this location area); or

15 (No Suitable Cells In Location Area).

The MS shall delete any RAI, P-TMSI, P-TMSI signature, and GPRS ciphering key sequence number stored, shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to clause 4.1.3.2), shall reset the GPRS attach attempt counter and shall change to state GMM-DEREGISTERED.

If the MS is IMSI attached via MM procedures, the MS shall in addition set the update status to U3 ROAMING NOT ALLOWED, shall delete any TMSI, LAI and ciphering key sequence number. and shall reset the location update attempt counter. The new MM state is MM IDLE.

The MS shall store the LAI or the PLMN identity in the appropriate forbidden list, i.e. in the "forbidden PLMN list" for cause #11, in the list of "forbidden location areas for regional provision of service" for cause #12, in the list of "forbidden location areas for roaming" for cause #13 or #15. If cause #11 or #13 was received, the MS shall perform a PLMN selection instead of a cell selection. If cause #15 was received the MS shall search for a suitable cell in a different location area on the same PLMN.

14 (GPRS services not allowed in this PLMN)

The MS shall delete any RAI, P-TMSI, P-TMSI signature, and GPRS ciphering key sequence number stored, shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to clause 4.1.3.2) and shall change to state GMM-DEREGISTERED.

The MS shall store the PLMN identity in the "forbidden PLMNs for GPRS service" list. A GPRS MS operating in MS operation mode C shall perform a PLMN selection instead of a cell selection.

A GPRS MS operating in MS operation mode A or B in network operation mode II or III, is still IMSI attached for CS services in the network.

Other values are considered as abnormal cases. The specification of the MS behaviour in those cases is specified in clause 4.7.3.1.5.

---------- [next modified section] ----------

4.7.3.2.4 Combined GPRS attach not accepted by the network

If the attach request can neither be accepted by the network for GPRS nor for non-GPRS services, an ATTACH REJECT message is transferred to the MS. The MS receiving the ATTACH REJECT message stops timer T3310, and for all causes except #12, #14 and #15 delete the list of "equivalent PLMNs". ~~deletes the list of equivalent PLMNs, and~~ The MS shall then takes one of the following actions depending upon the reject cause:

3 (Illegal MS);

6 (Illegal ME); or

8 (GPRS services and non-GPRS services not allowed)

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (shall store it according to clause 4.1.3.2) and shall delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number. The new GMM state is GMM-DEREGISTERED. The new MM state is MM IDLE.

The MS shall set the update status to U3 ROAMING NOT ALLOWED, shall delete any TMSI, LAI and ciphering key sequence number. The SIM shall be considered as invalid for GPRS and non-GPRS services until switching off or the SIM is removed.

7 (GPRS services not allowed)

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to clause 4.1.3.2) and shall delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number. The SIM shall be considered as invalid for GPRS services until switching off or the SIM is removed. The new GMM state is GMM-DEREGISTERED; the MM state is MM IDLE. A GPRS MS operating in MS operation mode A shall then perform an IMSI attach for non-GPRS services by use of the MM IMSI attach procedure; a GPRS MS operating in MS operation mode B shall then perform an IMSI attach for non-GPRS services by use of the MM IMSI attach procedure.

11 (PLMN not allowed);

12 (Location area not allowed);

13 (Roaming not allowed in this location area); or

15 (No Suitable Cells In Location Area).

The MS shall delete any RAI, P-TMSI, P-TMSI signature and GPRS ciphering key sequence number stored, shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to clause 4.1.3.2), shall reset the routing area updating attempt counter and reset the GPRS attach attempt counter and changes to state GMM-DEREGISTERED. The MS shall set the update status to U3 ROAMING NOT ALLOWED, reset the location update attempt counter and shall delete any TMSI, LAI and ciphering key sequence number. The new MM state is MM IDLE.

The MS shall store the LAI or the PLMN identity in the appropriate forbidden list, i.e. in the "forbidden PLMN list" for cause #11, in the list of "forbidden location areas for regional provision of service" for cause #12, or in the list of "forbidden location areas for roaming" for cause #13 or #15. If cause #11 or #13 was received, the MS shall perform a PLMN selection instead of a cell selection. If cause #15 was received the MS shall search for a suitable cell in a different location area on the same PLMN.

14 (GPRS services not allowed in this PLMN)

The MS shall delete any RAI, P-TMSI, P-TMSI signature, and GPRS ciphering key sequence number stored, shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to clause 4.1.3.2) and shall change to state GMM-DEREGISTERED.

The MS shall store the PLMN identity in the "forbidden PLMNs for GPRS service" list.

A GPRS MS operating in MS operation mode A or B shall then perform an IMSI attach for non-GPRS services by use of the MM IMSI attach procedure.

Other values are considered as abnormal cases. The specification of the MS behaviour in those cases is specified in clause 4.7.3.2.5.

---------- **[next modified section]** ----------

4.7.5.1.4 Normal and periodic routing area updating procedure not accepted by the network

If the routing area updating cannot be accepted, the network sends a ROUTING AREA UPDATE REJECT message to the MS. An MS that receives a ROUTING AREA UPDATE REJECT message, ~~deletes the list of "equivalent PLMNs",~~ and stops timer T3330 and for all causes except #12, #14 and #15 delete the list of "equivalent PLMNs". ~~-~~The MS shall then take different actions depending on the received reject cause value:

3 (Illegal MS);

6 (Illegal ME);

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to clause 4.1.3.2) and enter the state GMM-DEREGISTERED. Furthermore, it shall delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number and shall consider the SIM as invalid for GPRS services until switching off or the SIM is removed.

If the MS is IMSI attached via MM procedures, the MS shall in addition set the update status to U3 ROAMING NOT ALLOWED, shall delete any TMSI, LAI and ciphering key sequence number. The new MM

state is MM IDLE. The SIM shall be considered as invalid also for non-GPRS services until switching off or the SIM is removed.

7 (GPRS services not allowed);

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to clause 4.1.3.2.9) and shall delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number. The SIM shall be considered as invalid for GPRS services until switching off or the SIM is removed. The new state is GMM-DEREGISTERED.

If the update type is "periodic updating" a GPRS MS operating in MS operation mode A or B in network operation mode I shall set the timer T3212 to its initial value and restart it, if it is not already running.

9 (MS identity cannot be derived by the network);

The MS shall set the GPRS update status to GU2 NOT UPDATED (and shall store it according to clause 4.1.3.2), enter the state GMM-DEREGISTERED, and shall delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number. Subsequently, the MS may automatically initiate the GPRS attach procedure.

10 (Implicitly detached);

The MS shall change to state GMM-DEREGISTERED.NORMAL-SERVICE. The MS shall then perform a new attach procedure. The MS should also activate PDP context(s) to replace any previously active PDP contexts.

NOTE: In some cases, user interaction may be required and then the MS cannot activate the PDP context(s) automatically.

11 (PLMN not allowed);

12 (Location area not allowed);

13 (Roaming not allowed in this location area); or

15 (No Suitable Cells In Location Area);

- The MS shall delete any RAI, P-TMSI, P-TMSI signature and GPRS ciphering key sequence number, shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to clause 4.1.3.2) and enter the state GMM-DEREGISTERED.

  If the MS is IMSI attached via MM procedures, the MS shall in addition set the update status to U3 ROAMING NOT ALLOWED and shall delete any TMSI, LAI and ciphering key sequence number and shall reset the location update attempt counter. The new MM state is MM IDLE.

  The MS shall store the LAI or the PLMN identity in the appropriate forbidden list, i.e. in the "forbidden PLMN list" for cause #11, in the list of "forbidden location areas for regional provision of service" for cause #12, or in the list of "forbidden location areas for roaming" for cause #13 and #15. If #11or #13 was received, the MS shall perform a PLMN selection instead of a cell selection. If cause #15 was received the MS shall search for a suitable cell in a different location area on the same PLMN.

14 (GPRS services not allowed in this PLMN)

The MS shall delete any RAI, P-TMSI, P-TMSI signature, and GPRS ciphering key sequence number stored, shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to clause 4.1.3.2) and shall change to state GMM-DEREGISTERED.

The MS shall store the PLMN identity in the "forbidden PLMNs for GPRS service" list. A GPRS MS operating in MS operation mode C shall perform a PLMN selection instead of a cell selection.

If the update type is "periodic updating" a GPRS MS operating in MS operation mode A or B in network operation mode I shall set the timer T3212 to its initial value and restart it, if it is not already running.

A GPRS MS operating in MS operation mode A or B in network operation mode II or III, is still IMSI attached for CS services in the network.

Other values are considered as abnormal cases. The specification of the MS behaviour in those cases is described in clause 4.7.5.1.5.

---------- [next modified section] ----------

4.7.5.2.4 Combined routing area updating not accepted by the network

If the combined routing area updating cannot be accepted, the network sends a ROUTING AREA UPDATE REJECT message to the MS. An MS that receives a ROUTING AREA UPDATE REJECT message stops timer T3330, ~~deletes the list of equivalent PLMNs, and~~ enters state MM IDLE and for all causes except #12, #14 and #15 delete the list of "equivalent PLMNs".

~~.~~ The MS shall then take different actions depending on the received reject cause:

3 (Illegal MS);

6 (Illegal ME), or

8 (GPRS services and non GPRS services not allowed);

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED and the update status to U3 ROAMING NOT ALLOWED (and shall store it according to clause 4.1.3.2) and enter the state GMM-DEREGISTERED. Furthermore, it shall delete any P-TMSI, P-TMSI signature, TMSI, RAI, LAI, ciphering key sequence number and GPRS ciphering key sequence number and shall consider the SIM as invalid for GPRS and non GPRS services until switching off or the SIM is removed.

7 (GPRS services not allowed);

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to clause 4.1.3.2) and shall delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number. The SIM shall be considered as invalid for GPRS services until switching off or the SIM is removed. The new state is GMM-DEREGISTERED. If in the MS the timer T3212 is not already running, the timer shall be set to its initial value and restarted.

A GPRS MS operating in MS operation mode A or B in network operation mode I, is still IMSI attached for CS services in the network and shall then proceed with the appropriate MM specific procedure according to the MM service state.

9 (MS identity cannot be derived by the network);

The MS shall set the GPRS update status to GU2 NOT UPDATED (and shall store it according to clause 4.1.3.2), enter the state GMM-DEREGISTERED, and shall delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number. Subsequently, the MS may automatically initiate the GPRS attach procedure.

A GPRS MS operating in MS operation mode A or B in network operation mode I, is still IMSI attached for CS services in the network.

10 (Implicitly detached);

A GPRS MS operating in MS operation mode A or B in network operation mode I, is IMSI detached for both GPRS and CS services in the network.

The MS shall change to state GMM-DEREGISTERED.NORMAL-SERVICE. The MS shall then perform a new attach procedure. The MS should also activate PDP context(s) to replace any previously active PDP contexts.

NOTE: In some cases, user interaction may be required and then the MS cannot activate the PDP context(s) automatically.

11 (PLMN not allowed);

12 (Location area not allowed);

13 (Roaming not allowed in this location area); or

15 (No Suitable Cells In Location Area).

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED and the update status to U3 ROAMING NOT ALLOWED (and shall store it according to clause 4.1.3.2) and enter the state GMM-DEREGISTERED. Furthermore, it shall delete any P-TMSI, P-TMSI signature, TMSI, RAI, LAI, ciphering key sequence number GPRS ciphering key sequence number, and reset the location update attempt counter.

The MS shall store the LAI or the PLMN identity in the appropriate forbidden list, i.e. in the "forbidden PLMN list" for cause #11, in the list of "forbidden location areas for regional provision of service" for cause #12, or in the list of "forbidden location areas for roaming" for cause #13 and #15. If #11 or #13 was received, the MS

shall then perform a PLMN selection instead of a cell selection. If cause #15 was received the MS shall search for a suitable cell in a different location area on the same PLMN.

14 (GPRS services not allowed in this PLMN)

The MS shall delete any RAI, P-TMSI, P-TMSI signature, and GPRS ciphering key sequence number stored, shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to clause 4.1.3.2) and shall change to state GMM-DEREGISTERED. If in the MS the timer T3212 is not already running, the timer shall be set to its initial value and restarted.

The MS shall store the PLMN identity in the "forbidden PLMNs for GPRS service" list.

A GPRS MS operating in MS operation mode A or B in network operation mode I, is still IMSI attached for CS services in the network and shall then proceed with the appropriate MM specific procedure according to the MM service state.

Other values are considered as abnormal cases. The specification of the MS behaviour in those cases is described in clause 4.7.5.2.5.

3GPP TSG-CN WG1 Meeting #21
Cancun, Mexico, 26 – 30 November 2001

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CR-Form-v4

CHANGE REQUEST

⌘ **TS 24.008 CR 525** ⌘ ev **2** ⌘ Current version: **4.4.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Conditions for the deletion of the equivalent PLMN list
Source:	⌘	T-Mobil, one2one
Work item code:	⌘	GSM/UMTS Interworking
Date:	⌘	Nov., 30th 2001
Category:	⌘	**A**
Release:	⌘	Rel-4

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

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

Reason for change: ⌘ When Equivalent PLMN was introduced, the principle then was when a MS is asked to move to another LA (as a result of a reject following Location or Routing Area Update), ie. Reject Cause #114, #15, the Equivalent PLMN lists should be maintained. The reason behind this is that the network would prefer the MS not to change the PLMN and along with that not to lose the Equivalent PLMN list that the MS has. Because of this principle, the ~~The~~ MS shall not delete the list of equivalent PLMNs when attach or update procedures are rejected with cause #12, #14 or #15.

For actions to be performed after reception of cause #12, #14 or #15 the MS shall use the list of equivalent PLMNs.

Summary of change: ⌘ New text states that MS shall delete the list of equivalent PLMNs after reception of reject causes other then #12, #14 and #15. In these causes the list of ePLMNs shall be maintained in order to be used by the MS.

Consequences if not approved: ⌘ The MS will delete the list of equivalent PLMNs after reject with any cause. . For certain cause where this is not the intention, this ~~This~~ would mean that the MS needs to wait for the reception of a new list of equivalent PLMNs before it can use cells belonging to an ePLMN e.g. for cell reselection.

Clauses affected: ⌘ 4.4.4.7, 4.7.3.1.4, 4.7.3.2.4, 4.7.5.1.4, 4.7.5.2.4

Other specs affected: ⌘
☐ Other core specifications ⌘
☐ Test specifications
☐ O&M Specifications

Other comments: ⌘

---------- **[first modified section]** ----------

4.4.4.7 Location updating not accepted by the network

If the location updating cannot be accepted the network sends a LOCATION UPDATING REJECT message to the mobile station. The mobile station receiving a LOCATION UPDATING REJECT message shall stop the timer T3210, store the reject cause, ~~delete the list of "equivalent PLMNs",~~ start T3240, enter state LOCATION UPDATING REJECTED await the release of the RR connection triggered by the network and for all causes except #12, #14 and #15 delete the list of "equivalent PLMNs".
Upon the release of the RR connection the mobile station shall take the following actions depending on the stored reject cause:

2: IMSI unknown in HLR;

3: Illegal MS; or

6: Illegal ME.

The mobile station shall set the update status to ROAMING NOT ALLOWED (and store it in the SIM according to section 4.1.2.2), and delete any TMSI, stored LAI and ciphering key sequence number and shall consider the SIM as invalid for non-GPRS services until switch-off or the SIM is removed.

11: PLMN not allowed;

12: Location Area not allowed;

13: Roaming not allowed in this location area.; or

15: No Suitable Cells In Location Area.

The mobile station shall delete any LAI, TMSI and ciphering key sequence number stored in the SIM, reset the attempt counter, set the update status to ROAMING NOT ALLOWED (and store it in the SIM according to section 4.1.2.2). The mobile station shall store the LAI or the PLMN identity in the suitable forbidden list, i.e. in the "forbidden PLMN list" for cause #11, in the list of "forbidden location areas for regional provision of service" for cause #12, and in the list of "forbidden location areas for roaming" for cause #13 and #15. In addition, the MS shall memorize if cause #13 was received, so to perform a PLMN selection instead of a cell selection when back to the MM IDLE state. The MS shall search for a suitable cell in another location area in the same PLMN if cause #15 is received.

Other values are considered as abnormal cases and the specification of the mobile station behaviour in those cases is given in section 4.4.4.9.

---------- **[next modified section]** ----------

4.7.3.1.4 GPRS attach not accepted by the network

If the attach request cannot be accepted by the network, an ATTACH REJECT message is transferred to the MS. The MS receiving the ATTACH REJECT message, ~~deletes the list of "equivalent PLMNs",~~ stops timer T3310 and for all causes except #12, #14 and #15 delete the list of "equivalent PLMNs".
The MS shall then take~~s~~ one of the following actions depending upon the reject cause:

3 (Illegal MS);

6 (Illegal ME);

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2) and shall delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number. The new GMM state is GMM-DEREGISTERED. The SIM shall be considered as invalid for GPRS services until switching off or the SIM is removed.

If the MS is IMSI attached via MM procedures, the MS shall in addition set the update status to U3 ROAMING NOT ALLOWED, shall delete any TMSI, LAI and ciphering key sequence number. The new MM state is MM IDLE. The SIM shall be considered as invalid also for non-GPRS services until switching off or the SIM is removed.

7 (GPRS services not allowed);

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2) and shall delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number. The SIM shall be considered as invalid for GPRS services until switching off or the SIM is removed. The new state is GMM-DEREGISTERED.

8 (GPRS services and non-GPRS services not allowed);

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (shall store it according to section 4.1.3.2) and shall delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number. The new GMM state is GMM-DEREGISTERED. The new MM state is MM IDLE.

The MS shall set the update status to U3 ROAMING NOT ALLOWED, shall delete any TMSI, LAI and ciphering key sequence number. The SIM shall be considered as invalid for GPRS and non-GPRS services until switching off or the SIM is removed.

11 (PLMN not allowed);

12 (Location area not allowed);

13 (Roaming not allowed in this location area); or

15: No Suitable Cells In Location Area:

The MS shall delete any RAI, P-TMSI, P-TMSI signature, and GPRS ciphering key sequence number stored, shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2), shall reset the GPRS attach attempt counter and shall change to state GMM-DEREGISTERED.

If the MS is IMSI attached via MM procedures, the MS shall in addition set the update status to U3 ROAMING NOT ALLOWED, shall delete any TMSI, LAI and ciphering key sequence number. and shall reset the location update attempt counter. The new MM state is MM IDLE.

The MS shall store the LAI or the PLMN identity in the appropriate forbidden list, i.e. in the "forbidden PLMN list" for cause #11, in the list of "forbidden location areas for regional provision of service" for cause #12 or in the list of "forbidden location areas for roaming" for cause #13 and #15. If cause #11 or #13 was received, the MS shall perform a PLMN selection instead of a cell selection. If cause #15 was received the MS shall search for a suitable cell in a different location area on the same PLMN.

14 (GPRS services not allowed in this PLMN)

The MS shall delete any RAI, P-TMSI, P-TMSI signature, and GPRS ciphering key sequence number stored, shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2) and shall change to state GMM-DEREGISTERED.

The MS shall store the PLMN identity in the "forbidden PLMNs for GPRS service" list. A GPRS MS operating in MS operation mode C shall perform a PLMN selection instead of a cell selection.

A GPRS MS operating in MS operation mode A or B in network operation mode II or III, is still IMSI attached for CS services in the network.

Other values are considered as abnormal cases. The specification of the MS behaviour in those cases is specified in section 4.7.3.1.5.

---------- **[next modified section]** ----------

4.7.3.2.4 Combined GPRS attach not accepted by the network

If the attach request can neither be accepted by the network for GPRS nor for non-GPRS services, an ATTACH REJECT message is transferred to the MS. The MS receiving the ATTACH REJECT message stops timer T3310, and for all causes except #12, #14 and #15 delete the list of "equivalent PLMNs"~~deletes the list of equivalent PLMNs, and~~. The MS shall then take~~s~~ one of the following actions depending upon the reject cause:

3 (Illegal MS);

6 (Illegal ME), or

8 (GPRS services and non-GPRS services not allowed);

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (shall store it according to section 4.1.3.2) and shall delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number. The new GMM state is GMM-DEREGISTERED. The new MM state is MM IDLE.

The MS shall set the update status to U3 ROAMING NOT ALLOWED, shall delete any TMSI, LAI and ciphering key sequence number. The SIM shall be considered as invalid for GPRS and non-GPRS services until switching off or the SIM is removed.

7 (GPRS services not allowed);

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2) and shall delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number. The SIM shall be considered as invalid for GPRS services until switching off or the SIM is removed. The new GMM state is GMM-DEREGISTERED; the MM state is MM IDLE. A GPRS MS operating in MS operation mode A shall then perform an IMSI attach for non-GPRS services by use of the MM IMSI attach procedure; a GPRS MS operating in MS operation mode B shall then perform an IMSI attach for non-GPRS services by use of the MM IMSI attach procedure.

11 (PLMN not allowed);

12 (Location area not allowed);

13 (Roaming not allowed in this location area); or

15 (No Suitable Cells In Location Area);

The MS shall delete any RAI, P-TMSI, P-TMSI signature and GPRS ciphering key sequence number stored, shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2), shall reset the routing area updating attempt counter and reset the GPRS attach attempt counter and changes to state GMM-DEREGISTERED. The MS shall set the update status to U3 ROAMING NOT ALLOWED, reset the location update attempt counter and shall delete any TMSI, LAI and ciphering key sequence number. The new MM state is MM IDLE.

The MS shall store the LAI or the PLMN identity in the appropriate forbidden list, i.e. in the "forbidden PLMN list" for cause #11, in the list of "forbidden location areas for regional provision of service" for cause #12 or in the list of "forbidden location areas for roaming" for cause #13 and #15. If cause #11 or #13 was received, the MS shall perform a PLMN selection instead of a cell selection. If cause #15 was received the MS shall search for a suitable cell in a different location area on the same PLMN.

14 (GPRS services not allowed in this PLMN)

The MS shall delete any RAI, P-TMSI, P-TMSI signature, and GPRS ciphering key sequence number stored, shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2) and shall change to state GMM-DEREGISTERED.

The MS shall store the PLMN identity in the "forbidden PLMNs for GPRS service" list.

A GPRS MS operating in MS operation mode A or B shall then perform an IMSI attach for non-GPRS services by use of the MM IMSI attach procedure.

Other values are considered as abnormal cases. The specification of the MS behaviour in those cases is specified in section 4.7.3.2.5.

---------- **[next modified section]** ----------

4.7.5.1.4 Normal and periodic routing area updating procedure not accepted by the network

If the routing area updating cannot be accepted, the network sends a ROUTING AREA UPDATE REJECT message to the MS. An MS that receives a ROUTING AREA UPDATE REJECT message, ~~deletes the list of "equivalent PLMNs",~~ ~~and~~ stops timer T3330 and for all causes except #12, #14 and #15 delete the list of "equivalent PLMNs". The MS shall then take different actions depending on the received reject cause value:

3 (Illegal MS);

6 (Illegal ME);

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2) and enter the state GMM-DEREGISTERED. Furthermore, it shall delete any P-TMSI, P-TMSI

signature, RAI and GPRS ciphering key sequence number and shall consider the SIM as invalid for GPRS services until switching off or the SIM is removed.

If the MS is IMSI attached via MM procedures, the MS shall in addition set the update status to U3 ROAMING NOT ALLOWED, shall delete any TMSI, LAI and ciphering key sequence number. The new MM state is MM IDLE. The SIM shall be considered as invalid also for non-GPRS services until switching off or the SIM is removed.

7 (GPRS services not allowed);

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2.9) and shall delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number. The SIM shall be considered as invalid for GPRS services until switching off or the SIM is removed. The new state is GMM-DEREGISTERED.

If the update type is “periodic updating” a GPRS MS operating in MS operation mode A or B in networkoperation mode I shall set the timer T3212 to its initial value and restart it, if it is not already running.

9 (MS identity cannot be derived by the network);

The MS shall set the GPRS update status to GU2 NOT UPDATED (and shall store it according to section 4.1.3.2), enter the state GMM-DEREGISTERED, and shall delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number. Subsequently, the MS may automatically initiate the GPRS attach procedure.

10 (Implicitly detached);

The MS shall change to state GMM-DEREGISTERED.NORMAL-SERVICE. The MS shall then perform a new attach procedure. The MS should also activate PDP context(s) to replace any previously active PDP contexts.

NOTE: In some cases, user interaction may be required and then the MS cannot activate the PDP context(s) automatically.

11 (PLMN not allowed);

12 (Location area not allowed);

13 (Roaming not allowed in this location area); or

15 (No Suitable Cells In Location Area);

- The MS shall delete any RAI, P-TMSI, P-TMSI signature and GPRS ciphering key sequence number, shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2) and enter the state GMM-DEREGISTERED.

  If the MS is IMSI attached via MM procedures, the MS shall in addition set the update status to U3 ROAMING NOT ALLOWED and shall delete any TMSI, LAI and ciphering key sequence number and shall reset the location update attempt counter. The new MM state is MM IDLE.

  The MS shall store the LAI or the PLMN identity in the appropriate forbidden list, i.e. in the "forbidden PLMN list" for cause #11, in the list of "forbidden location areas for regional provision of service" for cause #12 or in the list of "forbidden location areas for roaming" for cause #13 and #15. If #11or #13 was received, the MS shall perform a PLMN selection instead of a cell selection. If cause #15 was received the MS shall search for a suitable cell in a different location area on the same PLMN.

14 (GPRS services not allowed in this PLMN)

The MS shall delete any RAI, P-TMSI, P-TMSI signature, and GPRS ciphering key sequence number stored, shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2) and shall change to state GMM-DEREGISTERED.

The MS shall store the PLMN identity in the "forbidden PLMNs for GPRS service" list. A GPRS MS operating in MS operation mode C shall perform a PLMN selection instead of a cell selection.

If the update type is “periodic updating” a GPRS MS operating in MS operation mode A or B in network operation mode I shall set the timer T3212 to its initial value and restart it, if it is not already running.

A GPRS MS operating in MS operation mode A or B in network operation mode II or III, is still IMSI attached for CS services in the network.

Other values are considered as abnormal cases. The specification of the MS behaviour in those cases is described in section 4.7.5.1.5.

---------- [next modified section] ----------

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4.7.5.2.4 Combined routing area updating not accepted by the network

If the combined routing area updating cannot be accepted, the network sends a ROUTING AREA UPDATE REJECT message to the MS. An MS that receives a ROUTING AREA UPDATE REJECT message stops timer T3330, ~~deletes the list of equivalent PLMNs, and~~ enters state MM IDLE and for all causes except #12, #14 and #15 delete the list of "equivalent PLMNs".

The MS shall then take different actions depending on the received reject cause:

3 (Illegal MS);

6 (Illegal ME), or

8 (GPRS services and non GPRS services not allowed);

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED and the update status to U3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2) and enter the state GMM-DEREGISTERED. Furthermore, it shall delete any P-TMSI, P-TMSI signature, TMSI, RAI, LAI, ciphering key sequence number and GPRS ciphering key sequence number and shall consider the SIM as invalid for GPRS and non GPRS services until switching off or the SIM is removed.

7 (GPRS services not allowed);

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2) and shall delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number. The SIM shall be considered as invalid for GPRS services until switching off or the SIM is removed. The new state is GMM-DEREGISTERED. If in the MS the timer T3212 is not already running, the timer shall be set to its initial value and restarted.

A GPRS MS operating in MS operation mode A or B in network operation mode I, is still IMSI attached for CS services in the network. and shall then proceed with the appropriate MM specific procedure according to the MM service state

9 (MS identity cannot be derived by the network);

The MS shall set the GPRS update status to GU2 NOT UPDATED (and shall store it according to section 4.1.3.2), enter the state GMM-DEREGISTERED, and shall delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number. Subsequently, the MS may automatically initiate the GPRS attach procedure.

A GPRS MS operating in MS operation mode A or B in network operation mode I, is still IMSI attached for CS services in the network.

10 (Implicitly detached);

A GPRS MS operating in MS operation mode A or B in network operation mode I, is IMSI detached for both GPRS and CS services in the network.

The MS shall change to state GMM-DEREGISTERED.NORMAL-SERVICE. The MS shall then perform a new attach procedure. The MS should also activate PDP context(s) to replace any previously active PDP contexts.

NOTE: In some cases, user interaction may be required and then the MS cannot activate the PDP context(s) automatically.

11 (PLMN not allowed);

12 (Location area not allowed);

13 (Roaming not allowed in this location area); or

15 (No Suitable Cells In Location Area);

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED and the update status to U3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2) and enter the state GMM-DEREGISTERED. Furthermore, it shall delete any P-TMSI, P-TMSI signature, TMSI, RAI, LAI, ciphering key sequence number GPRS ciphering key sequence number, and reset the location update attempt counter.

The MS shall store the LAI or the PLMN identity in the appropriate forbidden list, i.e. in the "forbidden PLMN list" for cause #11, in the list of "forbidden location areas for regional provision of service" for cause #12 or in the list of "forbidden location areas for roaming" for cause #13 and #15. If #11 or #13 was received, the MS shall then perform a PLMN selection instead of a cell selection. If cause #15 was received the MS shall search for a suitable cell in a different location area on the same PLMN.

14 (GPRS services not allowed in this PLMN)

The MS shall delete any RAI, P-TMSI, P-TMSI signature, and GPRS ciphering key sequence number stored, shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2) and shall change to state GMM-DEREGISTERED. If in the MS the timer T3212 is not already running, the timer shall be set to its initial value and restarted.

The MS shall store the PLMN identity in the "forbidden PLMNs for GPRS service" list.

A GPRS MS operating in MS operation mode A or B in network operation mode I, is still IMSI attached for CS services in the network and shall then proceed with the appropriate MM specific procedure according to the MM service state.

Other values are considered as abnormal cases. The specification of the MS behaviour in those cases is described in section 4.7.5.2.5.

3GPP TSG-CN WG1 Meeting #21
Cancun, Mexico, 26 – 30 November 2001

Tdoc N1-012054

CR-Form-v4

CHANGE REQUEST

⌘ **TS 24.008 CR 528** ⌘ ev **2** ⌘ Current version: **5.1.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE **X** Radio Access Network ☐ Core Network ☐

Title:	⌘	Conditions for the deletion of the equivalent PLMN list
Source:	⌘	T-Mobil, one2one
Work item code:	⌘	GSM/UMTS Interworking
Date:	⌘	Nov., 30th 2001
Category:	⌘	**A**
Release:	⌘	Rel-5

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

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

Reason for change:	⌘	When Equivalent PLMN was introduced, the principle thaent was when a MS is asked to move to another LA (as a result of a reject following Location or Routing Area Update), ie. Reject Cause #114, #15, the Equivalent PLMN lists should be maintained. The reason behind this is that the network would prefer the MS not to change the PLMN and along with that not to lose the Equivalent PLMN list that the MS has. Because of this principle, the The MS shall not delete the list of equivalent PLMNs when attach or update procedures are rejected with cause #12, #14 or #15. For actions to be performed after reception of cause #12, #14 or #15 the MS shall use the list of equivalent PLMNs.
Summary of change:	⌘	New text states that MS shall delete the list of equivalent PLMNs after reception of reject causes other then #12, #14 and #15. In these causes the list of ePLMNs shall be maintained in order to be used by the MS.
Consequences if not approved:	⌘	The MS will delete the list of equivalent PLMNs after reject with any cause. For certain cause where this is not the intention, this This would mean that the MS needs to wait for the reception of a new list of equivalent PLMNs before it can use cells belonging to an ePLMN e.g. for cell reselection.

Clauses affected:	⌘	4.4.4.7, 4.7.3.1.4, 4.7.3.2.4, 4.7.5.1.4, 4.7.5.2.4
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

---------- **[first modified section]** ----------

4.4.4.7 Location updating not accepted by the network

If the location updating cannot be accepted the network sends a LOCATION UPDATING REJECT message to the mobile station. The mobile station receiving a LOCATION UPDATING REJECT message shall stop the timer T3210, store the reject cause, ~~delete the list of "equivalent PLMNs",~~ start T3240, enter state LOCATION UPDATING REJECTED await the release of the RR connection triggered by the network and for all causes except #12, #14 and #15 delete the list of "equivalent PLMNs".
Upon the release of the RR connection the mobile station shall take the following actions depending on the stored reject cause:

2: IMSI unknown in HLR;

3: Illegal MS; or

6: Illegal ME.

The mobile station shall set the update status to ROAMING NOT ALLOWED (and store it in the SIM according to section 4.1.2.2), and delete any TMSI, stored LAI and ciphering key sequence number and shall consider the SIM as invalid for non-GPRS services until switch-off or the SIM is removed.

11: PLMN not allowed;

12: Location Area not allowed;

13: Roaming not allowed in this location area.; or

15: No Suitable Cells In Location Area.

The mobile station shall delete any LAI, TMSI and ciphering key sequence number stored in the SIM, reset the attempt counter, set the update status to ROAMING NOT ALLOWED (and store it in the SIM according to section 4.1.2.2). The mobile station shall store the LAI or the PLMN identity in the suitable forbidden list, i.e. in the "forbidden PLMN list" for cause #11, in the list of "forbidden location areas for regional provision of service" for cause #12, and in the list of "forbidden location areas for roaming" for cause #13 and #15. In addition, the MS shall memorize if cause #13 was received, so to perform a PLMN selection instead of a cell selection when back to the MM IDLE state. The MS shall search for a suitable cell in another location area in the same PLMN if cause #15 is received.

Other values are considered as abnormal cases and the specification of the mobile station behaviour in those cases is given in section 4.4.4.9.

---------- **[next modified section]** ----------

4.7.3.1.4 GPRS attach not accepted by the network

If the attach request cannot be accepted by the network, an ATTACH REJECT message is transferred to the MS. The MS receiving the ATTACH REJECT message, ~~deletes the list of "equivalent PLMNs",~~ stops timer T3310 and for all causes except #12, #14 and #15 delete the list of "equivalent PLMNs".
The MS shall then take~~s~~ one of the following actions depending upon the reject cause:

3 (Illegal MS);

6 (Illegal ME);

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2) and shall delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number. The new GMM state is GMM-DEREGISTERED. The SIM shall be considered as invalid for GPRS services until switching off or the SIM is removed.

If the MS is IMSI attached via MM procedures, the MS shall in addition set the update status to U3 ROAMING NOT ALLOWED, shall delete any TMSI, LAI and ciphering key sequence number. The new MM state is MM IDLE. The SIM shall be considered as invalid also for non-GPRS services until switching off or the SIM is removed.

7 (GPRS services not allowed);

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2) and shall delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number. The SIM shall be considered as invalid for GPRS services until switching off or the SIM is removed. The new state is GMM-DEREGISTERED.

8 (GPRS services and non-GPRS services not allowed);

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (shall store it according to section 4.1.3.2) and shall delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number. The new GMM state is GMM-DEREGISTERED. The new MM state is MM IDLE.

The MS shall set the update status to U3 ROAMING NOT ALLOWED, shall delete any TMSI, LAI and ciphering key sequence number. The SIM shall be considered as invalid for GPRS and non-GPRS services until switching off or the SIM is removed.

11 (PLMN not allowed);

12 (Location area not allowed);

13 (Roaming not allowed in this location area); or

15: No Suitable Cells In Location Area:

The MS shall delete any RAI, P-TMSI, P-TMSI signature, and GPRS ciphering key sequence number stored, shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2), shall reset the GPRS attach attempt counter and shall change to state GMM-DEREGISTERED.

If the MS is IMSI attached via MM procedures, the MS shall in addition set the update status to U3 ROAMING NOT ALLOWED, shall delete any TMSI, LAI and ciphering key sequence number. and shall reset the location update attempt counter. The new MM state is MM IDLE.

The MS shall store the LAI or the PLMN identity in the appropriate forbidden list, i.e. in the "forbidden PLMN list" for cause #11, in the list of "forbidden location areas for regional provision of service" for cause #12 or in the list of "forbidden location areas for roaming" for cause #13 and #15. If cause #11 or #13 was received, the MS shall perform a PLMN selection instead of a cell selection. If cause #15 was received the MS shall search for a suitable cell in a different location area on the same PLMN.

14 (GPRS services not allowed in this PLMN)

The MS shall delete any RAI, P-TMSI, P-TMSI signature, and GPRS ciphering key sequence number stored, shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2) and shall change to state GMM-DEREGISTERED.

The MS shall store the PLMN identity in the "forbidden PLMNs for GPRS service" list. A GPRS MS operating in MS operation mode C shall perform a PLMN selection instead of a cell selection.

A GPRS MS operating in MS operation mode A or B in network operation mode II or III, is still IMSI attached for CS services in the network.

Other values are considered as abnormal cases. The specification of the MS behaviour in those cases is specified in section 4.7.3.1.5.

---------- **[next modified section]** ----------

4.7.3.2.4 Combined GPRS attach not accepted by the network

If the attach request can neither be accepted by the network for GPRS nor for non-GPRS services, an ATTACH REJECT message is transferred to the MS. The MS receiving the ATTACH REJECT message stops timer T3310, and for all causes except #12, #14 and #15 delete the list of "equivalent PLMNs"~~deletes the list of equivalent PLMNs, and~~. The MS shall then take~~s~~ one of the following actions depending upon the reject cause:

3 (Illegal MS);

6 (Illegal ME), or

8 (GPRS services and non-GPRS services not allowed);

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (shall store it according to section 4.1.3.2) and shall delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number. The new GMM state is GMM-DEREGISTERED. The new MM state is MM IDLE.

The MS shall set the update status to U3 ROAMING NOT ALLOWED, shall delete any TMSI, LAI and ciphering key sequence number. The SIM shall be considered as invalid for GPRS and non-GPRS services until switching off or the SIM is removed.

7 (GPRS services not allowed);

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2) and shall delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number. The SIM shall be considered as invalid for GPRS services until switching off or the SIM is removed. The new GMM state is GMM-DEREGISTERED; the MM state is MM IDLE. A GPRS MS operating in MS operation mode A shall then perform an IMSI attach for non-GPRS services by use of the MM IMSI attach procedure; a GPRS MS operating in MS operation mode B shall then perform an IMSI attach for non-GPRS services by use of the MM IMSI attach procedure.

11 (PLMN not allowed);

12 (Location area not allowed);

13 (Roaming not allowed in this location area); or

15 (No Suitable Cells In Location Area);

The MS shall delete any RAI, P-TMSI, P-TMSI signature and GPRS ciphering key sequence number stored, shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2), shall reset the routing area updating attempt counter and reset the GPRS attach attempt counter and changes to state GMM-DEREGISTERED. The MS shall set the update status to U3 ROAMING NOT ALLOWED, reset the location update attempt counter and shall delete any TMSI, LAI and ciphering key sequence number. The new MM state is MM IDLE.

The MS shall store the LAI or the PLMN identity in the appropriate forbidden list, i.e. in the "forbidden PLMN list" for cause #11, in the list of "forbidden location areas for regional provision of service" for cause #12 or in the list of "forbidden location areas for roaming" for cause #13 and #15. If cause #11 or #13 was received, the MS shall perform a PLMN selection instead of a cell selection. If cause #15 was received the MS shall search for a suitable cell in a different location area on the same PLMN.

14 (GPRS services not allowed in this PLMN)

The MS shall delete any RAI, P-TMSI, P-TMSI signature, and GPRS ciphering key sequence number stored, shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2) and shall change to state GMM-DEREGISTERED.

The MS shall store the PLMN identity in the "forbidden PLMNs for GPRS service" list.

A GPRS MS operating in MS operation mode A or B shall then perform an IMSI attach for non-GPRS services by use of the MM IMSI attach procedure.

Other values are considered as abnormal cases. The specification of the MS behaviour in those cases is specified in section 4.7.3.2.5.

---------- **[next modified section]** ----------

4.7.5.1.4 Normal and periodic routing area updating procedure not accepted by the network

If the routing area updating cannot be accepted, the network sends a ROUTING AREA UPDATE REJECT message to the MS. An MS that receives a ROUTING AREA UPDATE REJECT message, ~~deletes the list of "equivalent PLMNs", and~~ stops timer T3330 and for all causes except #12, #14 and #15 delete the list of "equivalent PLMNs". The MS shall then take different actions depending on the received reject cause value:

3 (Illegal MS);

6 (Illegal ME);

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2) and enter the state GMM-DEREGISTERED. Furthermore, it shall delete any P-TMSI, P-TMSI

signature, RAI and GPRS ciphering key sequence number and shall consider the SIM as invalid for GPRS services until switching off or the SIM is removed.

If the MS is IMSI attached via MM procedures, the MS shall in addition set the update status to U3 ROAMING NOT ALLOWED, shall delete any TMSI, LAI and ciphering key sequence number. The new MM state is MM IDLE. The SIM shall be considered as invalid also for non-GPRS services until switching off or the SIM is removed.

7 (GPRS services not allowed);

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2.9) and shall delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number. The SIM shall be considered as invalid for GPRS services until switching off or the SIM is removed. The new state is GMM-DEREGISTERED.

If the update type is “periodic updating” a GPRS MS operating in MS operation mode A or B in networkoperation mode I shall set the timer T3212 to its initial value and restart it, if it is not already running.

9 (MS identity cannot be derived by the network);

The MS shall set the GPRS update status to GU2 NOT UPDATED (and shall store it according to section 4.1.3.2), enter the state GMM-DEREGISTERED, and shall delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number. Subsequently, the MS may automatically initiate the GPRS attach procedure.

10 (Implicitly detached);

The MS shall change to state GMM-DEREGISTERED.NORMAL-SERVICE. The MS shall then perform a new attach procedure. The MS should also activate PDP context(s) to replace any previously active PDP contexts.

NOTE: In some cases, user interaction may be required and then the MS cannot activate the PDP context(s) automatically.

11 (PLMN not allowed);

12 (Location area not allowed);

13 (Roaming not allowed in this location area); or

15 (No Suitable Cells In Location Area);

- The MS shall delete any RAI, P-TMSI, P-TMSI signature and GPRS ciphering key sequence number, shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2) and enter the state GMM-DEREGISTERED.

  If the MS is IMSI attached via MM procedures, the MS shall in addition set the update status to U3 ROAMING NOT ALLOWED and shall delete any TMSI, LAI and ciphering key sequence number and shall reset the location update attempt counter. The new MM state is MM IDLE.

  The MS shall store the LAI or the PLMN identity in the appropriate forbidden list, i.e. in the "forbidden PLMN list" for cause #11, in the list of "forbidden location areas for regional provision of service" for cause #12 or in the list of "forbidden location areas for roaming" for cause #13 and #15. If #11or #13 was received, the MS shall perform a PLMN selection instead of a cell selection. If cause #15 was received the MS shall search for a suitable cell in a different location area on the same PLMN.

14 (GPRS services not allowed in this PLMN)

The MS shall delete any RAI, P-TMSI, P-TMSI signature, and GPRS ciphering key sequence number stored, shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2) and shall change to state GMM-DEREGISTERED.

The MS shall store the PLMN identity in the "forbidden PLMNs for GPRS service" list. A GPRS MS operating in MS operation mode C shall perform a PLMN selection instead of a cell selection.

If the update type is “periodic updating” a GPRS MS operating in MS operation mode A or B in network operation mode I shall set the timer T3212 to its initial value and restart it, if it is not already running.

A GPRS MS operating in MS operation mode A or B in network operation mode II or III, is still IMSI attached for CS services in the network.

Other values are considered as abnormal cases. The specification of the MS behaviour in those cases is described in section 4.7.5.1.5.

---------- [next modified section] ----------

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4.7.5.2.4 Combined routing area updating not accepted by the network

If the combined routing area updating cannot be accepted, the network sends a ROUTING AREA UPDATE REJECT message to the MS. An MS that receives a ROUTING AREA UPDATE REJECT message stops timer T3330, ~~deletes the list of equivalent PLMNs, and~~ enters state MM IDLE and for all causes except #12, #14 and #15 delete the list of "equivalent PLMNs".

The MS shall then take different actions depending on the received reject cause:

3 (Illegal MS);

6 (Illegal ME), or

8 (GPRS services and non GPRS services not allowed);

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED and the update status to U3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2) and enter the state GMM-DEREGISTERED. Furthermore, it shall delete any P-TMSI, P-TMSI signature, TMSI, RAI, LAI, ciphering key sequence number and GPRS ciphering key sequence number and shall consider the SIM as invalid for GPRS and non GPRS services until switching off or the SIM is removed.

7 (GPRS services not allowed);

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2) and shall delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number. The SIM shall be considered as invalid for GPRS services until switching off or the SIM is removed. The new state is GMM-DEREGISTERED. If in the MS the timer T3212 is not already running, the timer shall be set to its initial value and restarted.

A GPRS MS operating in MS operation mode A or B in network operation mode I, is still IMSI attached for CS services in the network. and shall then proceed with the appropriate MM specific procedure according to the MM service state

9 (MS identity cannot be derived by the network);

The MS shall set the GPRS update status to GU2 NOT UPDATED (and shall store it according to section 4.1.3.2), enter the state GMM-DEREGISTERED, and shall delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number. Subsequently, the MS may automatically initiate the GPRS attach procedure.

A GPRS MS operating in MS operation mode A or B in network operation mode I, is still IMSI attached for CS services in the network.

10 (Implicitly detached);

A GPRS MS operating in MS operation mode A or B in network operation mode I, is IMSI detached for both GPRS and CS services in the network.

The MS shall change to state GMM-DEREGISTERED.NORMAL-SERVICE. The MS shall then perform a new attach procedure. The MS should also activate PDP context(s) to replace any previously active PDP contexts.

NOTE: In some cases, user interaction may be required and then the MS cannot activate the PDP context(s) automatically.

11 (PLMN not allowed);

12 (Location area not allowed);

13 (Roaming not allowed in this location area); or

15 (No Suitable Cells In Location Area);

The MS shall set the GPRS update status to GU3 ROAMING NOT ALLOWED and the update status to U3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2) and enter the state GMM-DEREGISTERED. Furthermore, it shall delete any P-TMSI, P-TMSI signature, TMSI, RAI, LAI, ciphering key sequence number GPRS ciphering key sequence number, and reset the location update attempt counter.

The MS shall store the LAI or the PLMN identity in the appropriate forbidden list, i.e. in the "forbidden PLMN list" for cause #11, in the list of "forbidden location areas for regional provision of service" for cause #12 or in the list of "forbidden location areas for roaming" for cause #13 and #15. If #11 or #13 was received, the MS shall then perform a PLMN selection instead of a cell selection. If cause #15 was received the MS shall search for a suitable cell in a different location area on the same PLMN.

14 (GPRS services not allowed in this PLMN)

The MS shall delete any RAI, P-TMSI, P-TMSI signature, and GPRS ciphering key sequence number stored, shall set the GPRS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2) and shall change to state GMM-DEREGISTERED. If in the MS the timer T3212 is not already running, the timer shall be set to its initial value and restarted.

The MS shall store the PLMN identity in the "forbidden PLMNs for GPRS service" list.

A GPRS MS operating in MS operation mode A or B in network operation mode I, is still IMSI attached for CS services in the network and shall then proceed with the appropriate MM specific procedure according to the MM service state.

Other values are considered as abnormal cases. The specification of the MS behaviour in those cases is described in section 4.7.5.2.5.