3GPP TSG CT Meeting #28 **CP-050068**
1st – 3rd June 2005. Quebec, CANADA.

Source: **TSG CT WG1**

Title: **CRs to Rel-6 WI "TEI6" for TS 23.122 and 24.011**

Agenda item: **9.24**

Document for: **APPROVAL**

This document contains 3**CR for Rel-6 WI "TEI6"**, that have been agreed by TSG CT WG1 meeting #38 and forwarded to TSG CT Plenary meeting #28 for approval.

TDoc #	Tdoc Title	Spec	CR #	Rev	CAT	C_Version	WI	Rel
C1-050491	Correction of the PLMN Selection State diagram (automatic mode)	23.122	90		F	6.4.0	TEI6	Rel-6
C1-050492	Correction of the PLMN Selection State diagram (automatic mode)	23.122	91		A	7.1.0	TEI6	Rel-7
C1-050546	Multiple SMS via Gb mode	24.011	33		F	6.0.0	TEI6	Rel-6

3GPP TSG–CT1 Meeting #38
Cancun, Mexico 25th to 29th April 2005

***Tdoc* ⌘C1-050491**

CR-Form-v7

CHANGE REQUEST

⌘ **23.122** **CR** **90** ⌘ **rev** **-** ⌘ Current version: **6.4.0** ⌘

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

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

Title:	⌘	Correction of the PLMN Selection State diagram (automatic mode)
Source:	⌘	Vodafone, Swisscom
Work item code:	⌘	TEI6
Date:	⌘	13/04/2005
Category:	⌘	**F**
Release:	⌘	REL-6

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

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)
Rel-7 (Release 7)

Reason for change:	⌘	In Section 4.4.3.3 it is stated that if the MS is in a VPLMN, the MS shall periodically attempt to obtain service on its HPLMN or higher priority PLMN/access technology PLMN...". However, the text in Figure 2a in Section 5 does not reflect this requirement while it stated that a HPLMN search has to be performed only in "home country" VPLMNs.
Summary of change:	⌘	In Bullet f) of Section 4.4.3.3: A reference of subclause 4.4.3.1.1 is added. In Figure 2a: a) "Home country" is deleted, b) "Initiate HPLMN search" is changed to "Higher priority PLMN search", c) "HPLMN search in progress" is changed to "PLMN background search", d) "HPLMN not found" is changed to "Higher priority PLMN not found", e) "HPLMN found" is changed to "Higher priority PLMN found" f) A box containing text "Select HPLMN" is deleted, g) One knot marked with "F" is deleted and the other is replaced by "A".
Consequences if not approved:	⌘	Inconsistant specification.

Clauses affected:	⌘	4.4.3.3, 5
Other specs	⌘	Y ☐ N ☒ Other core specifications ⌘

affected:			
		X	Test specifications
		X	O&M Specifications

Other comments: ⌘

How to create CRs using this form:

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

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

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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.

*** FIRST CHANGE ***

4.4.3.3 In VPLMN

If the MS is in a VPLMN, the MS shall periodically attempt to obtain service on its HPLMN or higher priority PLMN/access technology combination listed in "user controlled PLMN selector" or "operator controlled PLMN selector" by scanning in accordance with the requirements that are applicable to i), ii) and iii) as defined in the Automatic Network Selection Mode in clause 4.4.3.1.1. In the case that the mobile has a stored "Equivalent PLMNs" list the mobile shall only select a PLMN if it is of a higher priority than those of the same country as the current serving PLMN which are stored in the "Equivalent PLMNs" list. For this purpose, a value T minutes may be stored in the SIM, T is either in the range 6 minutes to 8 hours in 6 minute steps or it indicates that no periodic attempts shall be made. If no value is stored in the SIM, a default value of 60 minutes is used.

The attempts to access the HPLMN or higher priority PLMN shall be as specified below:

a) The periodic attempts shall only be performed in automatic mode when the MS is roaming;

b) After switch on, a period of at least 2 minutes and at most T minutes shall elapse before the first attempt is made;

c) The MS shall make an attempt if the MS is on the VPLMN at time T after the last attempt;

d) Periodic attempts shall only be performed by the MS while in idle mode;

e) If the HPLMN or higher priority PLMN is not found, the MS shall remain on the VPLMN.

f) In steps i), ii) and iii) of subclause 4.4.3.1.1 the MS shall limit its attempts to access higher priority PLMN/access technology combinations to PLMN/access technology combinations of the same country as the current serving VPLMN, as defined in Annex B.

g) Only the priority levels of Equivalent PLMNs of the same country as the current serving VPLMN, as defined in Annex B, shall be taken into account to compare with the priority level of a selected PLMN.

h) If the PLMN of the highest priority PLMN/access technology combination available is the current VPLMN, or one of the PLMNs in the "Equivalent PLMNs" list, the MS shall remain on the current PLMN/access technology combination.

*** END OF FIRST CHANGE ***

*** SECOND CHANGE ***

5 Tables and Figures

Table 1: Effect of LR Outcomes on PLMN Registration

Location Registration Task State	Registration Status	Registered PLMN is
Updated	Successful	Indicated in the stored registration area identity
Idle, No IMSI	Unsuccessful	No registered PLMN (3) (4)
Roaming not allowed:		
a) PLMN not allowed	Unsuccessful	No registered PLMN (4)
b) LA not allowed	Indeterminate(1)	No registered PLMN (4)
c) Roaming not allowed in this LA	Indeterminate (2)	No registered PLMN (4)
d) No Suitable Cells In Location Area	Indeterminate (5)	No registered PLMN (4)
Not updated	Unsuccessful	No registered PLMN (4)

1) The MS will eventually either enter a different state when the registration status will be determined, or fail to be able to camp on a cell, when registration will be unsuccessful.
2) The MS will select the HPLMN if in automatic mode and will enter Automatic Network Selection Mode Procedure of clause 4.4.3.1. If in manual mode, the MS will display the list of available PLMNs and follow the Manual Network Selection Mode Procedure of clause 4.4.3.1.2 If the appropriate process does not result in registration, the MS will eventually enter the limited service state.
3) A MS may have different update states for GPRS and non-GPRS. A PLMN is registered when at least one of both update states is updated.
4) If there is no registered PLMN, the stored list of equivalent PLMNs is invalid.
5) The MS will attempt registration on another LA of the same PLMN if one is available otherwise it will enter either the Automatic Network Selection Mode procedure of clause 4.4.3.1 or follow the Manual Network Selection Mode procedure of clause 4.4.3.1.2. If the appropriate process does not result in registration, the MS will eventually enter the limited service state.

NOTE 1: MSs capable of GPRS and non-GPRS services may have different registration status for GPRS and for non-GPRS.
NOTE 2: The registered PLMN is determined by looking at the stored registration area identity and stored location registration status.

Table 2: LR Process States and Allowed Actions

Location registration task state	New LR request when				Normal Calls Supported (1)	Paging responded to
	Changing Cell	Changing registration area	Changing PLMN	Other		
Null (4)	No	Yes	Yes	No	No	No
Updated, (5)	No	Yes	Yes	(2)	Yes	Yes
Idle, No IMSI (7)	No	No	No	No	No	No
Roaming not allowed:						
a) Idle, PLMN not allowed	No	No	Yes	No	No	Optional if with IMSI
b) Idle, LA not allowed	No	Yes(6)	Yes	No	No	Optional if with IMSI
c) Idle, Roaming not allowed in this LA	No	Yes(6)	Yes	No	No	Optional if with IMSI
d) No Suitable Cells In Location Area	No	Yes(6)	Yes	No	No	Optional if with IMSI
Not updated	Yes	Yes	Yes	(2)&(3)	(3)	Yes if with IMSI

1): Emergency calls may always be made, subject to access control permitting it.
2): A new LR is made when the periodic registration timer expires.
3): If a normal call request is made, an LR request is made. If successful the updated state is entered and the call may be made.
4): The MS is in the null state from switch on until it has camped on a cell and either made an LR attempt or decided that no LR attempt is needed.
5): In this state, IMSI detach is performed if the MS is deactivated and the BCCH indicates that IMSI attach/detach shall be used. An LR request indicating IMSI attach is performed if the MS is activated in the same registration area in which it was deactivated while being in this state.
6): A MS shall not perform a new LR when the new routing area is part of a LA contained in any of the lists "forbidden LAs for roaming", or "forbidden LAs for regional provision of service".
7): The GPRS registration status "Idle, no IMSI" is entered when LR is rejected with cause "GPRS not allowed". The non-GPRS registration status "Idle, no IMSI" is entered when the cause "IMSI unknown in HLR" is received.

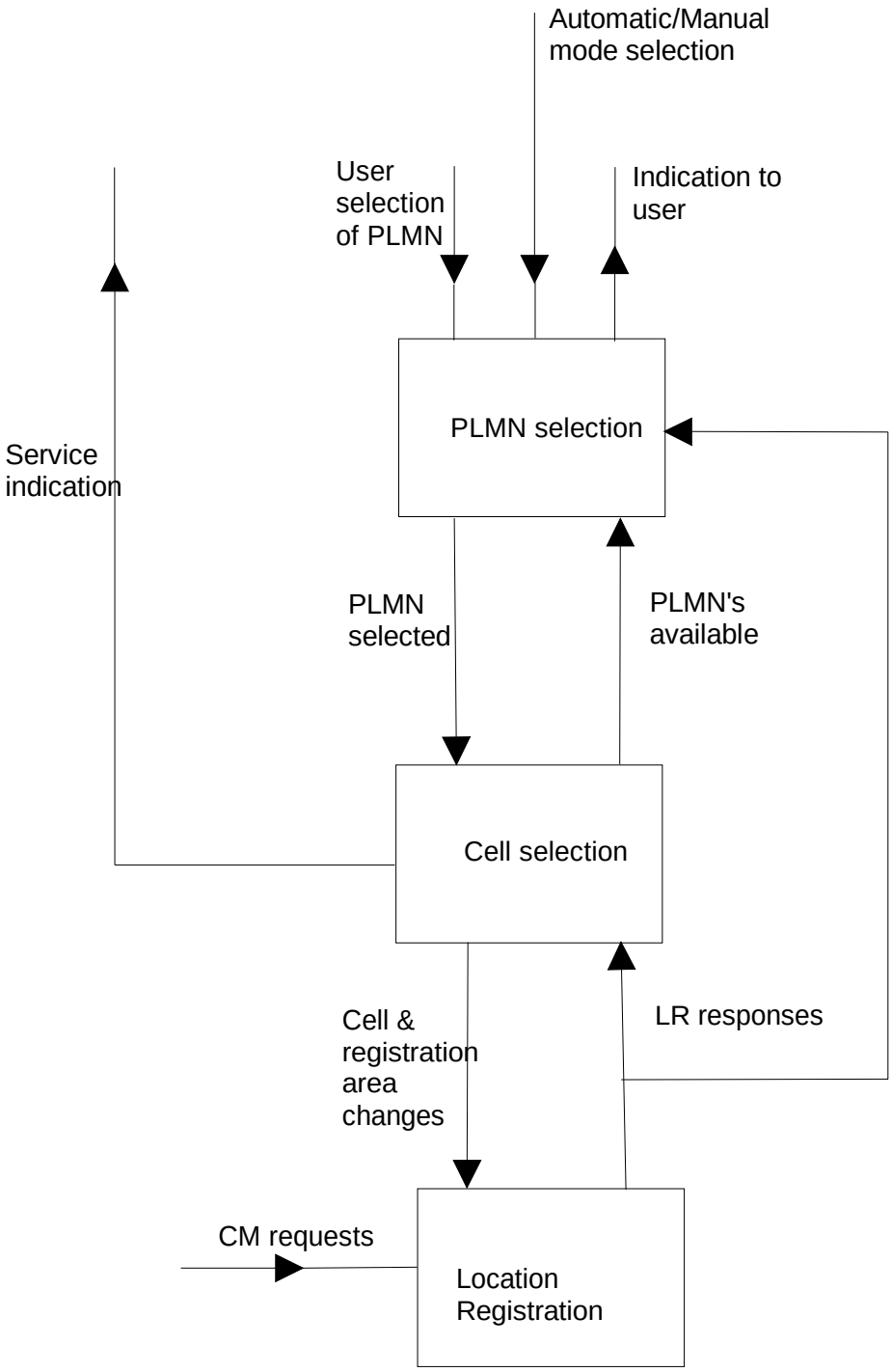
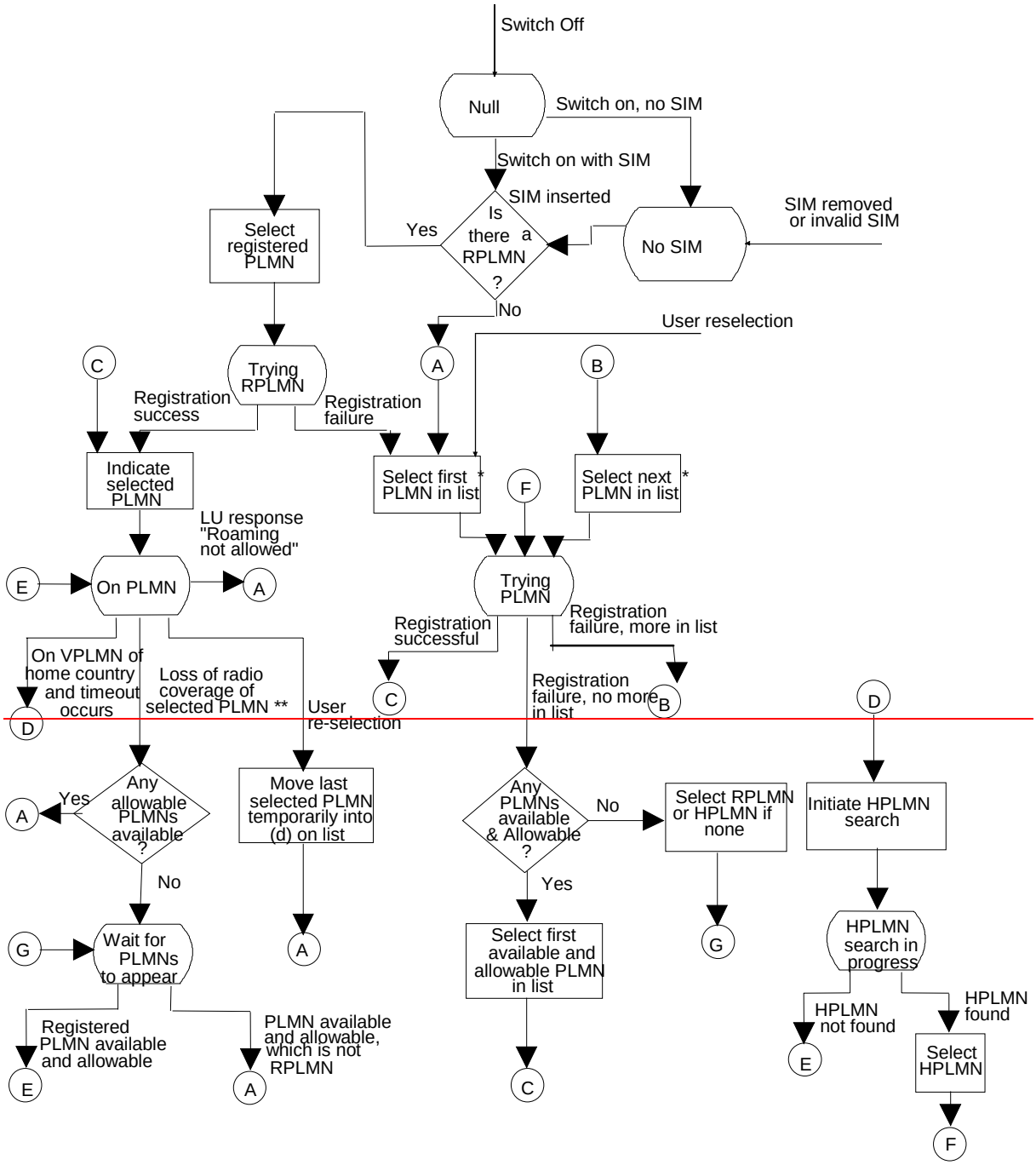


Figure 1: Overall Idle Mode process



* "List" consists of points i) to v) as defined in section 4.4.3.1.1 except in case of a user re-selection in which case "list" consists of points i) to vi) as defined in section 4.4.3.2.1

** Includes effective loss of coverage due to LAs being forbidden in all potentially suitable cells

~~Figure 2a: PLMN Selection State diagram (automatic mode)~~

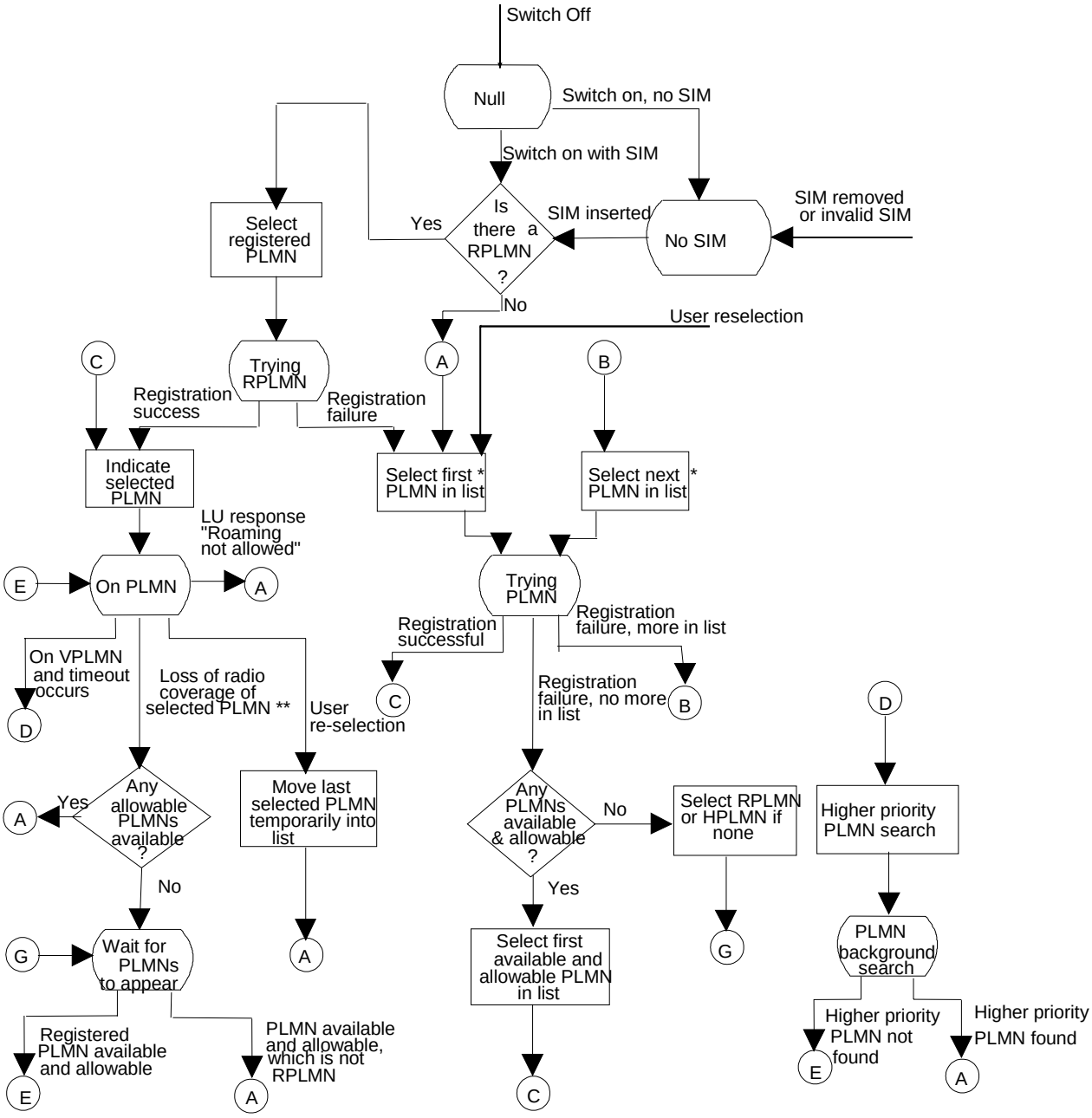


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Figure 2a: PLMN Selection State diagram (automatic mode)

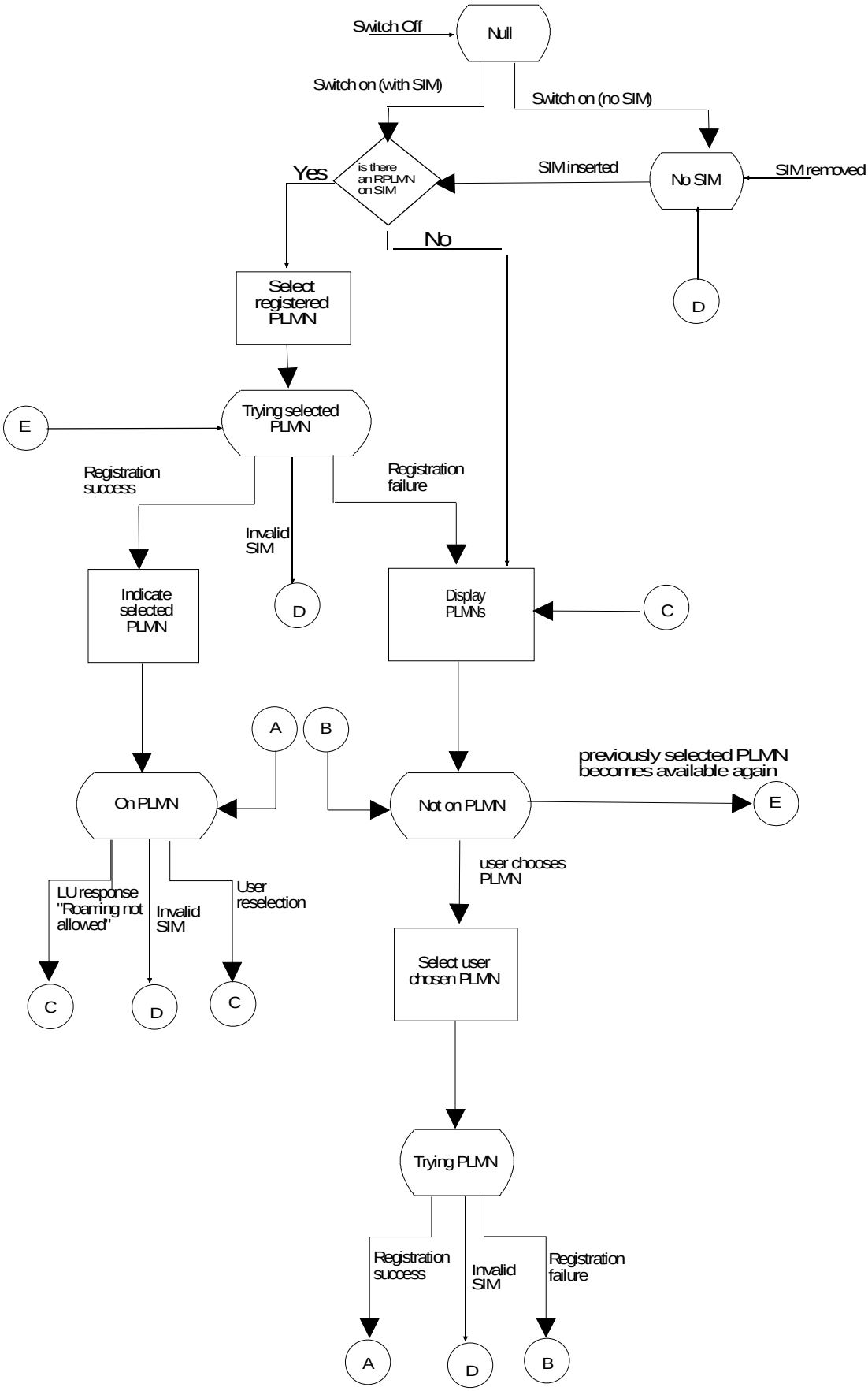
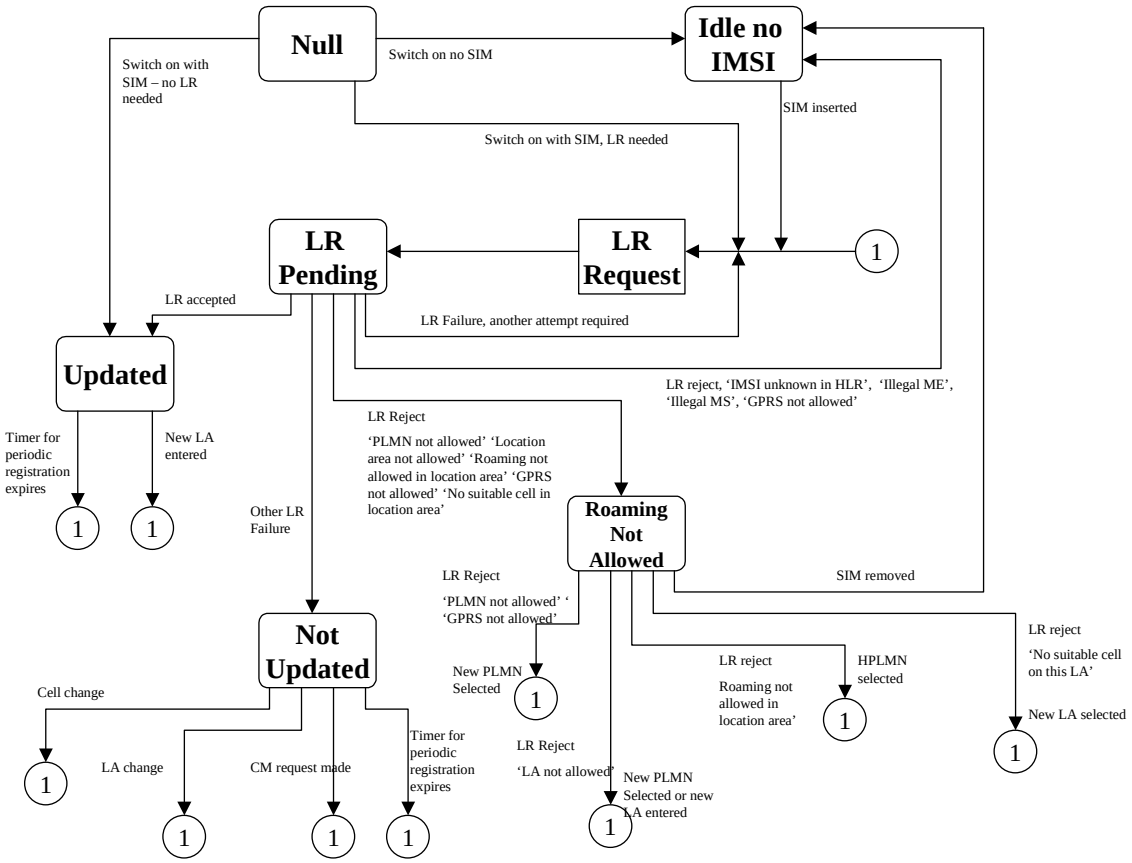


Figure 2b: PLMN Selection State diagram (manual mode)



NOTE 1: Whenever the MS goes to connected mode and then returns to idle mode again the MS selects appropriate state.

NOTE 2: A MS capable of GPRS and non-GPRS services has two Task State machines one for GPRS and one for non-GPRS operation.

Figure 3: Location Registration Task State diagram

*** END OF SECOND CHANGE ***

3GPP TSG–CT1 Meeting #38
Cancun, Mexico 25th to 29th April 2005

***Tdoc* ⌘C1-050492**

CR-Form-v7

CHANGE REQUEST

⌘ **23.122** **CR** **91** ⌘**rev** **-** ⌘ Current version: **7.1.0** ⌘

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

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

Title:	⌘	Correction of the PLMN Selection State diagram (automatic mode)
Source:	⌘	Vodafone, Swisscom
Work item code:	⌘	TEI6
Date:	⌘	13/04/2005
Category:	⌘	**A**
Release:	⌘	REL-7

Use one of the following categories:
F *(correction)*
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R97 (Release 1997)
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Rel-6 (Release 6)
Rel-7 (Release 7)

Reason for change: ⌘ In Section 4.4.3.3 it is stated that "if the MS is in a VPLMN, the MS shall periodically attempt to obtain service on its HPLMN or higher priority PLMN/access technology PLMN…". However, the text in Figure 2a in Section 5 does not reflect this requirement while it stated that a HPLMN search has to be performed only in "home country" VPLMNs.

Summary of change: ⌘ In Bullet f) of Section 4.4.3.3:

A reference of subclause 4.4.3.1.1 is added.

In Figure 2a:

a) "Home country" is deleted,
b) "Initiate HPLMN search" is changed to "Higher priority PLMN search",
c) "HPLMN search in progress" is changed to "PLMN background search",
d) "HPLMN not found" is changed to "Higher priority PLMN not found",
e) "HPLMN found" is changed to "Higher priority PLMN found",
f) A box containing text "Select HPLMN" is deleted,
g) One knot marked with "F" is deleted and the other is replaced by "A".

Consequences if not approved: ⌘ Inconsistant specification.

Clauses affected: ⌘ 4.4.3.3, 5

		Y	N		
Other specs	⌘		X	Other core specifications	⌘

affected:			
		X	Test specifications
		X	O&M Specifications

Other comments: ⌘

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*** FIRST CHANGE ***

4.4.3.3 In VPLMN

If the MS is in a VPLMN, the MS shall periodically attempt to obtain service on one of its EHPLMNs or higher priority PLMN/access technology combinations listed in "user controlled PLMN selector" or "operator controlled PLMN selector" by scanning in accordance with the requirements that are applicable to i), ii) and iii) as defined in the Automatic Network Selection Mode in clause 4.4.3.1.1. In the case that the mobile has a stored "Equivalent PLMNs" list the mobile shall only select a PLMN if it is of a higher priority than those of the same country as the current serving PLMN which are stored in the "Equivalent PLMNs" list. For this purpose, a value T minutes may be stored in the SIM, T is either in the range 6 minutes to 8 hours in 6 minute steps or it indicates that no periodic attempts shall be made. If no value is stored in the SIM, a default value of 60 minutes is used.

The attempts to access the EHPLMN or higher priority PLMN shall be as specified below:

a) The periodic attempts shall only be performed in automatic mode when the MS is roaming;

b) After switch on, a period of at least 2 minutes and at most T minutes shall elapse before the first attempt is made;

c) The MS shall make an attempt if the MS is on the VPLMN at time T after the last attempt;

d) Periodic attempts shall only be performed by the MS while in idle mode;

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g) Only the priority levels of Equivalent PLMNs of the same country as the current serving VPLMN, as defined in Annex B, shall be taken into account to compare with the priority level of a selected PLMN.

h) If the PLMN of the highest priority PLMN/access technology combination available is the current VPLMN, or one of the PLMNs in the "Equivalent PLMNs" list, the MS shall remain on the current PLMN/access technology combination.

*** END OF FIRST CHANGE ***

*** SECOND CHANGE ***

5 Tables and Figures

Table 1: Effect of LR Outcomes on PLMN Registration

Location Registration Task State	Registration Status	Registered PLMN is
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Not updated	Unsuccessful	No registered PLMN (4)

1) The MS will eventually either enter a different state when the registration status will be determined, or fail to be able to camp on a cell, when registration will be unsuccessful.
2) The MS will select the HPLMN if in automatic mode and will enter Automatic Network Selection Mode Procedure of clause 4.4.3.1. If in manual mode, the MS will display the list of available PLMNs and follow the Manual Network Selection Mode Procedure of clause 4.4.3.1.2 If the appropriate process does not result in registration, the MS will eventually enter the limited service state.
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Idle, No IMSI (7)	No	No	No	No	No	No
Roaming not allowed:						
a) Idle, PLMN not allowed	No	No	Yes	No	No	Optional if with IMSI
b) Idle, LA not allowed	No	Yes(6)	Yes	No	No	Optional if with IMSI
c) Idle, Roaming not allowed in this LA	No	Yes(6)	Yes	No	No	Optional if with IMSI
d) No Suitable Cells In Location Area	No	Yes(6)	Yes	No	No	Optional if with IMSI
Not updated	Yes	Yes	Yes	(2)&(3)	(3)	Yes if with IMSI

1): Emergency calls may always be made, subject to access control permitting it.
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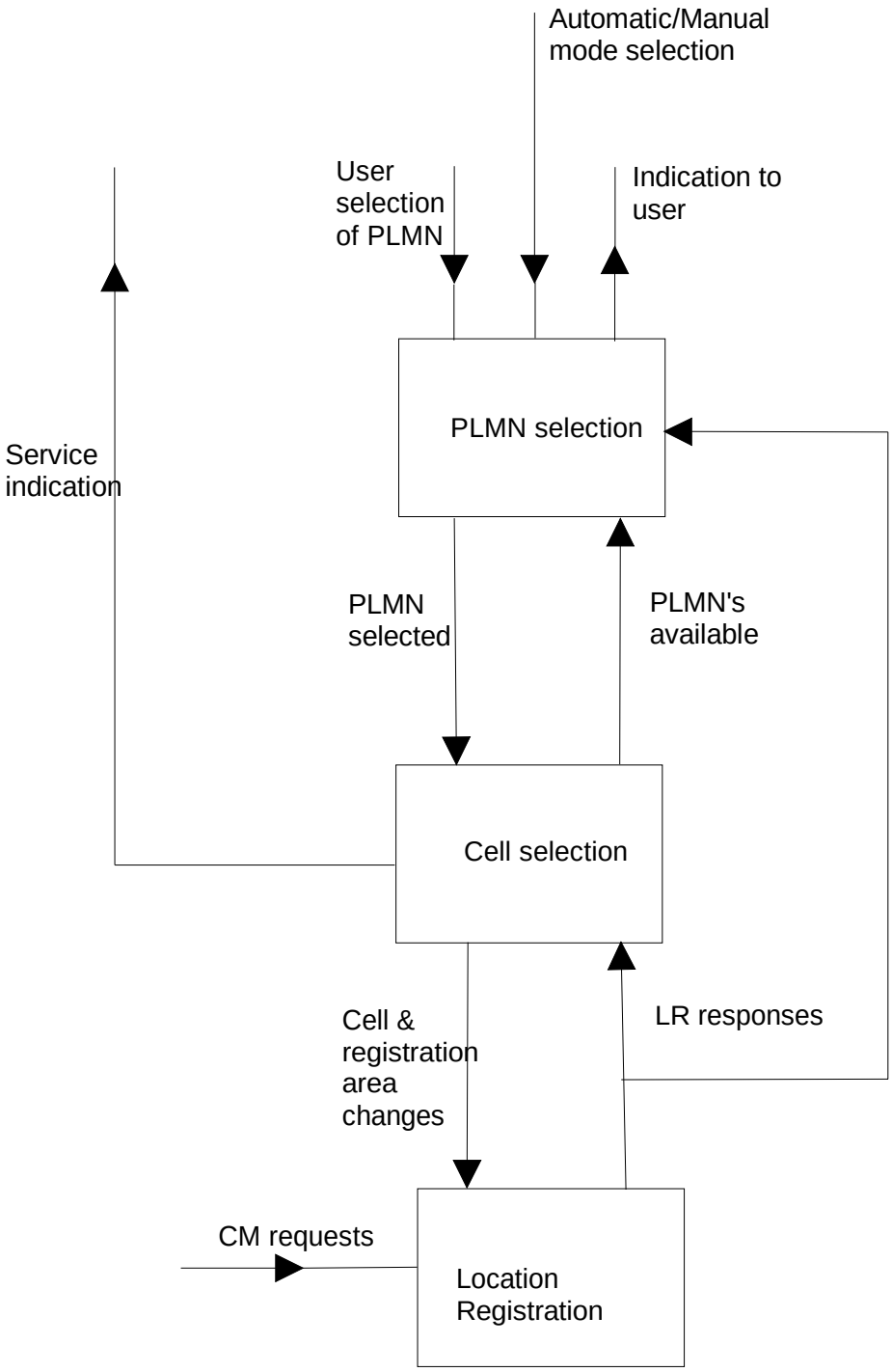
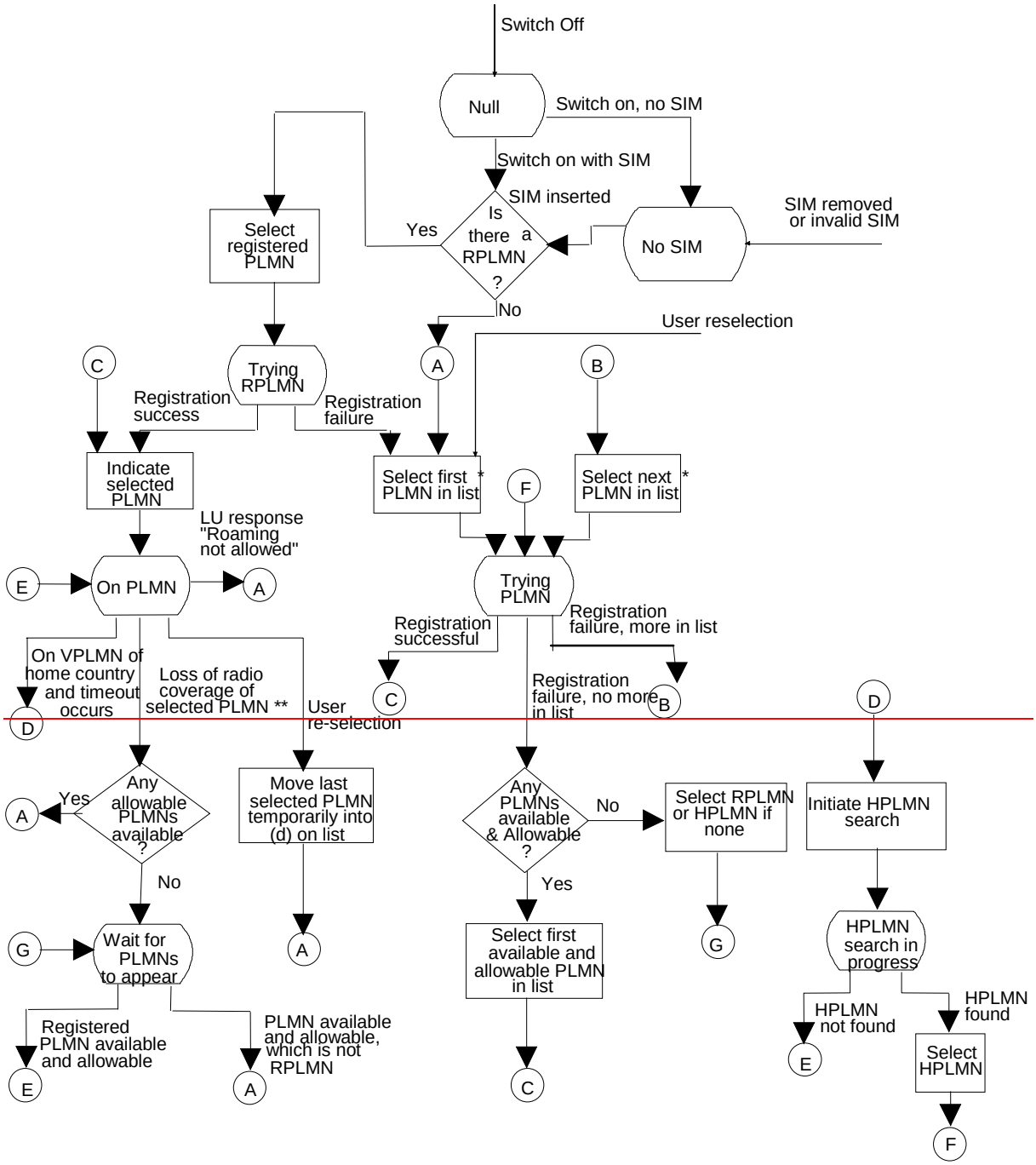


Figure 1: Overall Idle Mode process



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** Includes effective loss of coverage due to LAs being forbidden in all potentially suitable cells

~~**Figure 2a: PLMN Selection State diagram (automatic mode)**~~

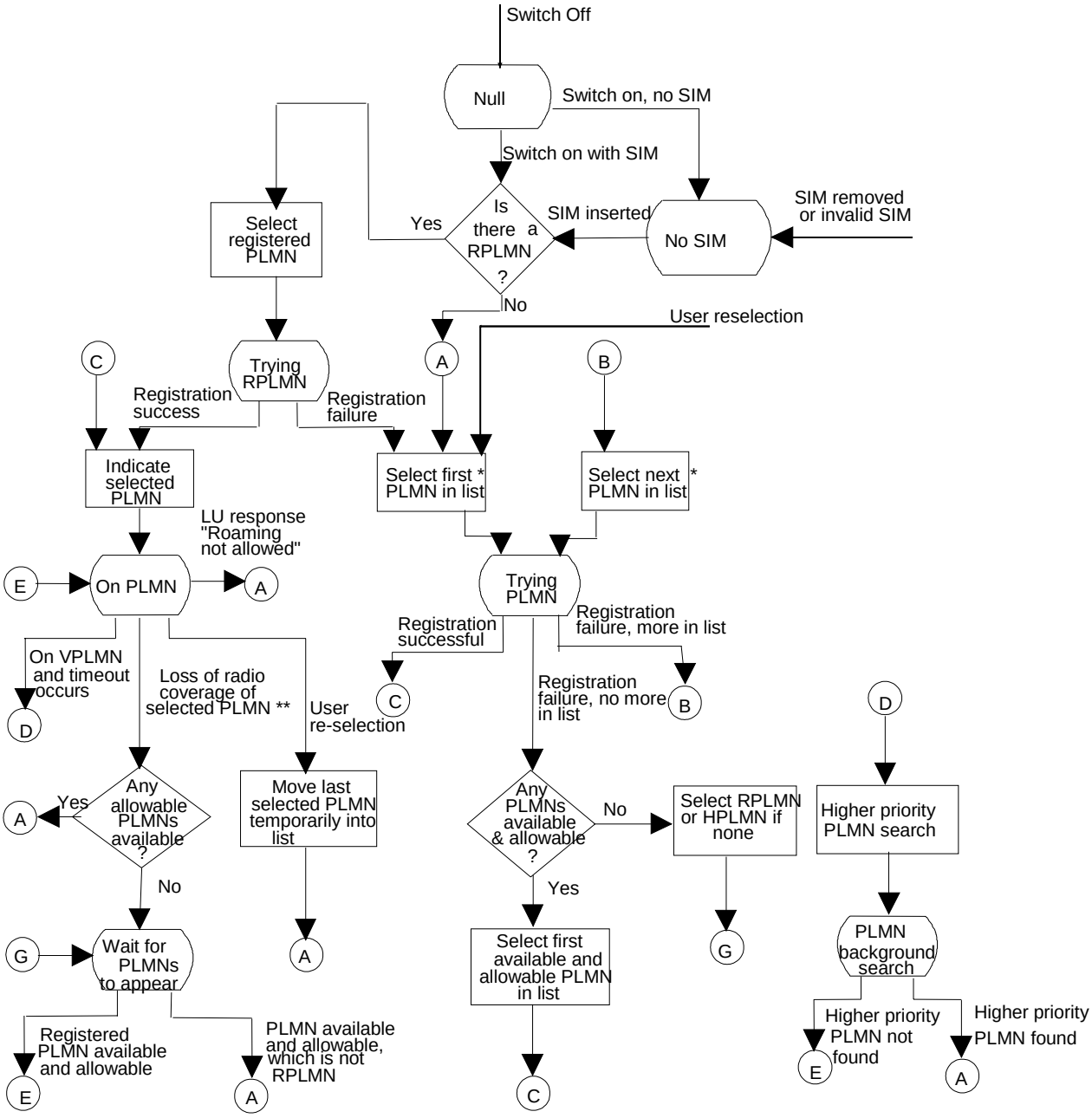

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Figure 2a: PLMN Selection State diagram (automatic mode)

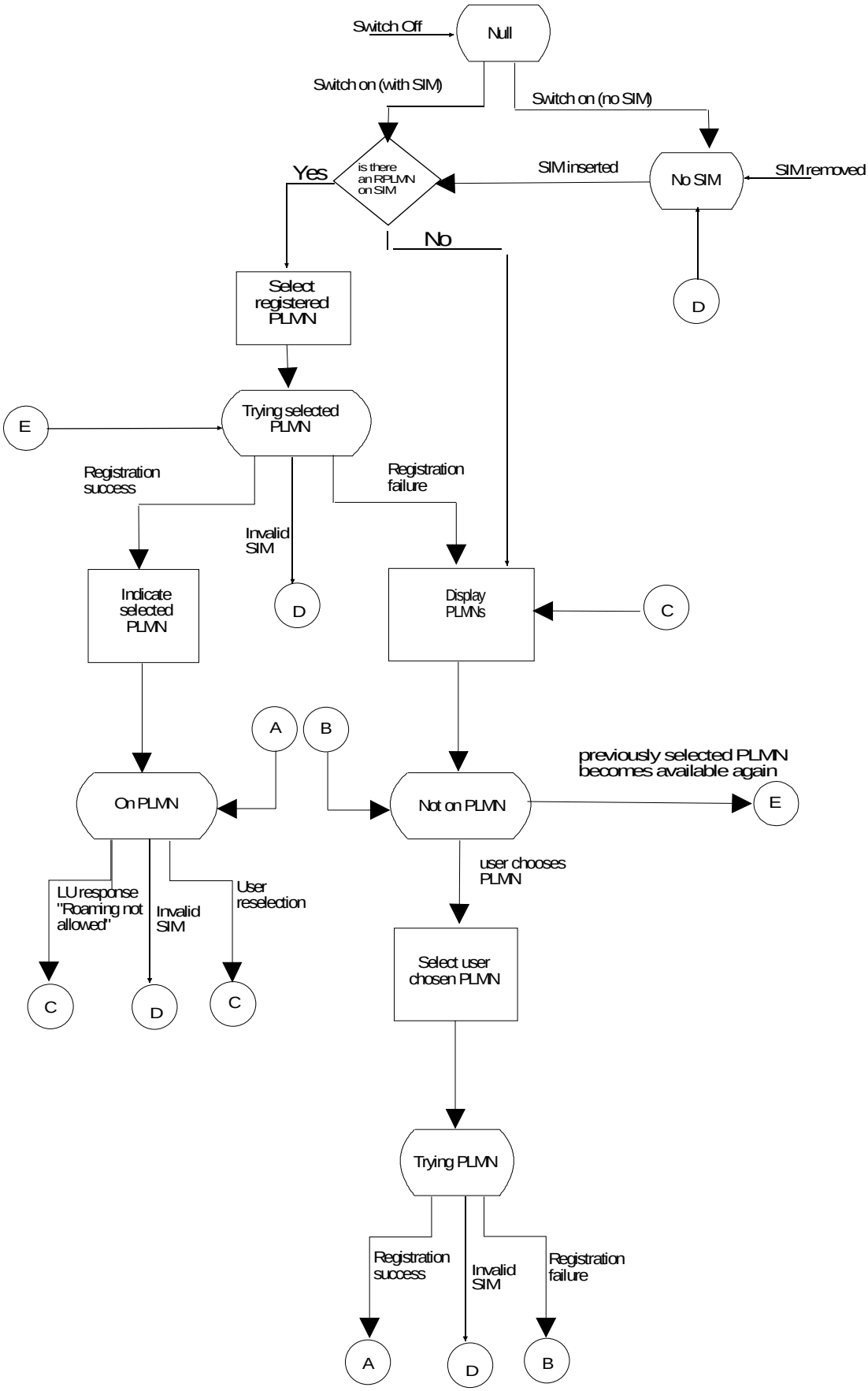
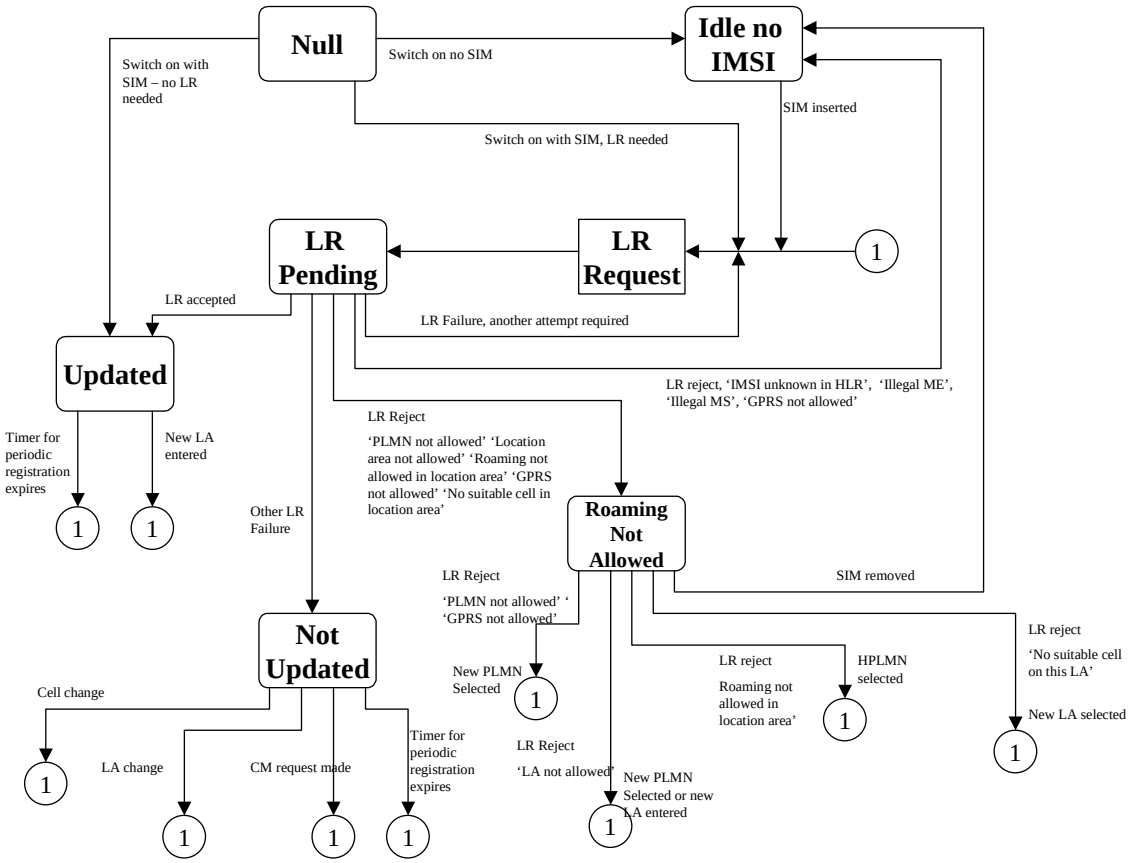


Figure 2b: PLMN Selection State diagram (manual mode)



NOTE 1: Whenever the MS goes to connected mode and then returns to idle mode again the MS selects appropriate state.

NOTE 2: A MS capable of GPRS and non-GPRS services has two Task State machines one for GPRS and one for non-GPRS operation.

Figure 3: Location Registration Task State diagram

*** END OF SECOND CHANGE ***

3GPP TSG-CT1 Meeting #38
Cancun, Mexico, 25-29 April 2005

Tdoc C1-050546

CR-Form-v7.1

CHANGE REQUEST

⌘ **24.011** **CR** **33** ⌘ **rev** **-** ⌘ Current version: **6.0.0** ⌘

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

Proposed change affects: UICC apps⌘ [ ] ME [X] Radio Access Network [ ] Core Network [X]

Title:	⌘	Multiple SMS via Gb mode
Source:	⌘	Siemens, Infineon
Work item code:	⌘	TEI6
Date:	⌘	13.04.2005
Category:	⌘	**F**
Release:	⌘	Rel-6

Use one of the following categories:
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Use one of the following releases:

Ph2	*(GSM Phase 2)*
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R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*
Rel-7	*(Release 7)*

Reason for change:	⌘	With the 24.011 CR 021 in Tdoc N1-010066 the MS behaviour for Multiple SMS transfer over the PS domain was introduced. Unfortunately only the Iu mode was mentioned in the PS case. The Gb case was not mentioned explicitly.
Summary of change:	⌘	The Gb case is added to the description.
Consequences if not approved:	⌘	It is unclear whether also in the Gb case, the MS shall not transmit the final CP-ACK.

Clauses affected:	⌘	5.4

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

Other comments:	⌘	

5.4 Concatenating short message or notification transfers

If an entity has more than one short message or notification to send, then it is useful to maintain the Radio Resource (RR) connection (in A/Gb mode) or the signalling connection (in Iu mode) in between transfers. For mobile terminated short messages this is simple because the network decides when, and whether, to release the RR connection (in A/Gb mode) or the signalling connection (in Iu mode). However, for mobile originated transfers, the network does not know whether or not the mobile has more messages to transfer.

If another short message or a memory available notification is to be sent, an originating SMR entity in the MS may choose to continue to use the same RR connection (in A/Gb mode) or the same signalling connection (in Iu mode).

In the case of a SMS transfer via the CS domain, when the MS chooses to use the same RR connection (in A/Gb mode) or CS signalling connection (in Iu mode), then:

- the MS shall transmit a CM SERVICE REQUEST for the new CM connection before the final CP-ACK (i.e. the one that acknowledges the CP-DATA that carried the RP-ACK) for the old MM connection is transmitted;
- before transmission of the first CP-DATA on the new MM connection, the MS may transmit the CP-ACK for the old MM connection; the MS shall not transmit the final CP-ACK after the new CP-DATA;
- the Transaction Identifier used on the new MM connection shall be different to that used on the old MM connection; and
- the MS shall not initiate establishment of the new MM connection before the final CP-DATA (e.g. the one carrying the RP-ACK) has been received.

In the case of a SMS transfer via the PS domain, when the MS chooses to use the same PS signalling connection (in Iu mode); or in the case of a SMS transfer via the PS domain in A/Gb mode, then:

- the MS shall transmit the CP-DATA for the successive RPDU and shall not transmit the final CP-ACK for the current SMS (i.e. the one that acknowledges the CP-DATA that carried the RP-ACK);
- the Transaction Identifier used for the successive RPDU shall be different to that used for the current RPDU; and
- the MS shall not transmit the CP-DATA for the successive RPDU before the final CP-DATA (i.e. the one that carried the RP-ACK) has been received.

NOTE: When an MS sends successive memory available notifications and/or mobile originated short messages on different RR connections (in A/Gb mode) or signalling connections (in Iu mode), the MS is strongly recommended to use different Transaction Identifiers for the old and new MM connections.

It is possible that the final CP-ACK of a short message transfer may not be received (e.g. due to transmission errors and/or hand overs).

For mobile terminated transfers, if the CP-ACK is lost, the reception of a CP-DATA with a different transaction identifier and carrying an RPDU shall be interpreted as the implicit reception of the awaited CP-ACK followed by the reception of the new CP-DATA message.

For mobile originated transfers, if the CP-ACK is lost or not sent by the MS, the following events shall be interpreted as the implicit reception of the awaited CP-ACK:

- in the case of a SMS transfer via the CS domain,, the reception of a CM SERVICE REQUEST followed by a CP-DATA with a different transaction identifier and carrying an RPDU; or
- in the case of a SMS transfer via the PS domain, the reception of a CP-DATA with a different transaction identifier and carrying an RPDU.