

3GPP TSG-CN Meeting #23
10th - 12th March 2004. Phoenix, USA.

NP-040037

Source: TSG CN WG 1
Title: CRs to Rel-6 on Work Item TEI6 towards 23.122
Agenda item: 9.22
Document for: APPROVAL

Introduction:

This document contains 2 CRs, **Rel-6** on Work Item "TEI6", that have been agreed by **TSG CN WG1 in CN1#33 meeting**, and are forwarded to TSG CN Plenary meeting #23 for approval.

Spec	CR	Rev	Phase	Subject	Cat	Version-Current	Version-New	Doc-2nd-Level	Meeting-2nd-Level
23.122	067	1	Rel-6	Definition of MS idle mode	F	5.3.0	6.0.0	N1-040440	N1-33
23.122	068		Rel-6	Usage of HPLMNAct by the UE	F	5.3.0	6.0.0	N1-040242	N1-33

CR-Form-v7

CHANGE REQUEST

⌘ **23.122 CR 067** ⌘ rev **1** ⌘ Current version: **5.3.0** ⌘

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:	⌘ Definition of MS idle mode		
Source:	⌘ Nokia		
Work item code:	⌘ TEI-6	Date:	⌘ 6/2/2004
Category:	⌘ F	Release:	⌘ Rel-6
	Use <u>one</u> 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 <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) Rel-4 (Release 4) Rel-5 (Release 5) Rel-6 (Release 6)

Reason for change:	⌘ The MS Idle Mode functions defined in TS 23.122 also apply to the RRC connected mode when there is no dedicated channel allocated. This needs to be specified.
Summary of change:	⌘ The Scope is updated to specify that the MS Idle Mode functions also apply to some of the RRC connected modes. Reference to TS 25.331 is also included in the Scope of the specification.
Consequences if not approved:	⌘ MS Idle Mode functions are only applied when not in RRC connected mode and prevents PLMN reselection when there is loss of coverage.

Clauses affected:	⌘ 1										
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;">X</td> </tr> </table>	Y	N		X		X		X	Other core specifications Test specifications O&M Specifications	⌘
Y	N										
	X										
	X										
	X										
Other comments:	⌘ The corresponding RAN changes to 25.331 have been done already.										

How to create CRs using this form:

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

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

- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://ftp.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

1 Scope

The present document gives an overview of the tasks undertaken by the Core network protocols of a Mobile Station (MS) when in idle mode, that is, switched on but [typically](#) not having a dedicated channel allocated. It also describes the corresponding network functions. The idle mode functions are also performed by a GPRS MS as long as no dedicated channel is allocated to the MS. [The conditions when the idle mode functions are performed by an MS in the UTRA RRC connected mode states are specified in TS 25.331.](#)

This 3GPP TS outlines how the requirements of the 22 series Technical Specifications (especially 3GPP TS 22.011) on idle mode operation shall be implemented. Further details are given in 3GPP TS 24.008.

Clause 2 of this 3GPP TS gives a general description of the idle mode process. Clause 3 outlines the main requirements and technical solutions of those requirements. Clause 4 describes the processes used in idle mode. There is inevitably some overlap between these clauses.

CR-Form-v7

CHANGE REQUEST

⌘ **23.122 CR 068** ⌘ rev - ⌘ Current version: **5.3.0** ⌘

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:	⌘ Usage of HPLMNAcT by the UE		
Source:	⌘ Nokia		
Work item code:	⌘ TEI-6	Date:	⌘ 6/2/2004
Category:	⌘ F	Release:	⌘ Rel-6
	Use <u>one</u> 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 <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) Rel-4 (Release 4) Rel-5 (Release 5) Rel-6 (Release 6)

Reason for change:	⌘ In many cases the ME can find HPLMN well before the USIM initialisation is completed. Therefore mandatory requirement to wait until HPLMNAcT field can be read from USIM does not speed up finding HPLMN, but can sometimes delay it considerably.
Summary of change:	⌘ The HPLMNAcT field is still kept in the USIM, but the use of it is made optional. The priorities of different PLMNs in PLMN selection are not affected, since the MS still shall search for HPLMN in all supported access technologies and frequency bands.
Consequences if not approved:	⌘ Waste of user's time and MS battery drain in unnecessary PLMN scans.

Clauses affected:	⌘ 4.4.3.1.1.										
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="text-align: center;">Y</td> <td style="text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">X</td> <td style="text-align: center;"> </td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;">X</td> </tr> </table> Other core specifications Test specifications O&M Specifications	Y	N		X	X			X	⌘	3GPP TS 34.123-1, TC 6.2.1.2, possibly also 6.1.1.4, 6.2.1.1, 6.2.1.6 and 6.2.1.9
Y	N										
	X										
X											
	X										
Other comments:	⌘										

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4.4.3.1.1 Automatic Network Selection Mode Procedure

The MS selects and attempts registration on other PLMNs, if available and allowable, in the following order:

- i) HPLMN (if not previously selected);
- ii) each PLMN in the "User Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);
- iii) each PLMN in the "Operator Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);
- iv) other PLMN/access technology combinations with received high quality signal in random order;
- v) other PLMN/access technology combinations in order of decreasing signal quality.

When following the above procedure the following requirements apply:

- a) An MS with voice capability shall ignore PLMNs for which the MS has identified at least one GSM COMPACT.
- b) In A/Gb mode or GSM COMPACT, an MS with voice capability, or an MS not supporting packet services shall not search for CPBCCCH carriers.
- c) In ii and iii, the MS should limit its search for the PLMN to the access technology or access technologies associated with the PLMN in the appropriate PLMN Selector with Access Technology list (User Controlled or Operator Controlled selector list). An MS using a SIM without access technology information storage (i.e. the "User Controlled PLMN Selector with Access Technology" and the "Operator Controlled PLMN Selector with Access Technology" data fields are not present) shall instead use the "PLMN Selector" data field, for each PLMN in the "PLMN Selector" data field, the MS shall search for all access technologies it is capable of and shall assume GSM access technology as the highest priority radio access technology.
- d) In iv and v, the MS shall search for all access technologies it is capable of, before deciding which PLMN to select.
- e) In ii, and iii, a packet only MS which supports GSM COMPACT, but using a SIM without access technology information storage (i.e. the "User Controlled PLMN Selector with Access Technology" and the "Operator Controlled PLMN Selector with Access Technology" data fields are not present) shall instead use the "PLMN Selector" data field, for each PLMN in the "PLMN Selector" data field, the MS shall search for all access technologies it is capable of and shall assume GSM COMPACT access technology as the lowest priority radio access technology.
- f) In i, the MS shall search for all access technologies it is capable of. ~~The MS shall start its search using the access technologies stored in the "HPLMN Selector with Access Technology" data field on the SIM in priority order as defined in clause 4.4.3 (i.e. the PLMN/access technology combinations are listed in priority order, if an entry includes more than one access technology then a~~ No priority is defined for the preferred access technology and the priority is an implementation issue, but "HPLMN Selector with Access Technology" data field on the SIM may be used to optimise the procedure.
- g) In i, an MS using a SIM without access technology information storage (i.e. the "HPLMN Selector with Access Technology" data field is not present) shall search for all access technologies it is capable of and shall assume GSM access technology as the highest priority radio access technology. A packet only MS which supports GSM COMPACT using a SIM without access technology information storage shall also assume GSM COMPACT access technology as the lowest priority radio access technology.
- h) In v, the MS shall order the PLMN/access technology combinations in order of decreasing signal quality within each access technology. The order between PLMN/access technology combinations with different access technologies is an MS implementation issue.

NOTE 1: Requirements a) and b) apply also to requirement d), so a GSM voice capable MS should not search for GSM COMPACT PLMNs, even if capable of GSM COMPACT.

NOTE 2: Requirements a) and b) apply also to requirement f), so a GSM voice capable MS should not search for GSM COMPACT PLMNs, even if this is the only access technology on the "HPLMN Selector with Access Technology" data field on the SIM.

NOTE 3: High quality signal is defined in the appropriate AS specification.

If successful registration is achieved, the MS indicates the selected PLMN.

If registration cannot be achieved because no PLMNs are available and allowable, the MS indicates "no service" to the user, waits until a new PLMN is available and allowable and then repeats the procedure.

If there were one or more PLMNs which were available and allowable, but an LR failure made registration on those PLMNs unsuccessful or an entry in any of the lists "forbidden LAs for roaming", or "forbidden LAs for regional provision of service" prevented a registration attempt, the MS selects the first such PLMN again and enters a limited service state.