3GPP TSG RAN WG2 #37   **Tdoc R2-032028**

Budapest, Hungary, 25-29 August 2003.

Title:	**LS on "out of service area" in CELL_FACH state**
Response to:	**LS (R4-030849) on "out of service area" in CELL_FACH state from RAN4**
Release:	**Release 99**
Work Item:	**TEI**

Source:	**RAN WG2**
To:	**RAN, RAN WG4**
Cc:	-

Contact Person:

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Attachments: R2-032047 / CR on 25.133 - CELL_DCH to CELL_FACH/CELL_PCH/URA_PCH transition when a suitable UTRA cell is not found.

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1. Overall Description:

RAN2 thank RAN4 for their LS in R4-030849/R2-031829.

RAN2 has discussed the case when a UE in CELL_DCH moves to CELL_FACH state when a serving cell is not available. RAN2 has also discussed the similar scenario when a UE in CELL_DCH moves to CELL_PCH/URA_PCH. RAN2 agree that this case needs to be described in the specifications. The UE behaviour is proposed in a CR to 25.133 attach to this LS.

No new RAN2 parameters need to be considered by RAN4.

RAN2 believes that it would be beneficial if this CR could be agreed by RAN4 before the RAN#21 plenary.

2. Actions:

To TSG-RAN4

ACTION:

RAN2 asks RAN4 to consider the proposed changes to 25.133 provided in the attached CR. If the changes are agreed, then RAN4 may provide the CR to TSG-RAN#21 for approval.

3. Date of Next TSG-RAN2 Meetings:

TSG-RAN WG2 Meeting #38	06-10 October 2003, Sophia-Antipolis, France.
TSG-RAN WG2 Meeting #39	17-21 November, San-Diego, California, USA.

CR-Form-v7

CHANGE REQUEST

⌘ **25.133 CR CRNum** ⌘**rev** **-** ⌘ Current version: **3.14.0** ⌘

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 ☐

Title: ⌘	CELL_DCH to CELL_FACH/CELL_PCH/URA_PCH transition when a suitable UTRA cell is not found.
Source: ⌘	
Work item code: ⌘	*Date:* ⌘ 28/08/2003
Category: ⌘ **F**	*Release:* ⌘ R99

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: ⌘	When the UE moves from CELL_DCH to CELL/FACH/CELL_PCH/URA_PCH the RRC specification requires the UE to 'select a suitable UTRA cell'. However, no UE behaviour is described for the case that no suitable UTRA cell can be found. If the UE were to continue to search for a UTRA cell indefinitely then it would not be able to find 2G cells of the RPLMN, or cells of other PLMNs if available. In this case the UE would not be able to make an emergency call even if other cells are available.
Summary of change: ⌘	It is proposed that if a suitable UTRA cell is not found then after 4s then the UE moves to 'out of service' and performs actions according to 25.331. The actions described in 25.331 require an 'out of service' UE to perform cell selection on the RPLMN and after some further time to perform a search for other PLMNs.
Consequences if not approved: ⌘	On transition from CELL_DCH to CELL/FACH/CELL_PCH/URA_PCH, a UE could search for a suitable UTRA cell indefinitely and so could be denied access to emergency calls on 2G cells or cells of other PLMNs that might be available.

Clauses affected: ⌘	4.2.2.1, 5.5.2.3

	Y	N	
Other specs affected: ⌘			Other core specifications ⌘
			Test specifications
			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.

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.

4.2.2.1   Measurement and evaluation of cell selection criteria S of serving cell

The UE shall measure the CPICH Ec/Io and CPICH RSCP level of the serving cell and evaluate the cell selection criterion S defined in [1] for the serving cell at least every DRX cycle. The UE shall filter the CPICH Ec/Io and CPICH RSCP measurements of the serving cell using at least 2 measurements, which are taken so that the time difference between the measurements is at least $T_{measureFDD}/2$ (see table 4.1).

If the UE has evaluated in N_{serv} consecutive DRX cycles that the serving cell does not fulfil the cell selection criterion S, the UE shall initiate the measurements of all neighbour cells indicated in the measurement control system information, regardless of the measurement rules currently limiting UE measurement activities.

If the UE has not found any new suitable cell based on searches and measurements of the neighbour cells indicated in the measurement control system information for 12 s, the UE shall initiate cell selection procedures for the selected PLMN as defined in [1]

After this 12 s period a UE in Cell:PCH or URA_PCH is considered to be "out of service area" and shall perform actions according to 25.331.

On transition from CELL_DCH to CELL_PCH/URA_PCH, if a UE has not found a suitable UTRA cell after [TBD]s then it is considered to be "out of service area" and shall perform actions according to 25.331.

5.5.2.3 Measurement and evaluation of cell selection criteria S of serving cell

The S-criteria detection delay is defined as the time between the occurrence of an event which leads to that the cell selection criteria S for serving cell is not fulfilled and the moment in time when the UE detects that the cell selection criteria S for serving cell is not fulfilled.

The UE shall filter the CPICH Ec/Io and CPICH RSCP measurements used for cell selection criteria S evaluation of the serving cell over at least 3 measurement periods $T_{Measurement\_Period\ Intra}$.

The S-critera detection delay in CELL_FACH state shall be less than:

$$T_{S\text{-criteria}} = 5 \times T_{Measurement\_Period\ Intra}\ ms$$

where

$T_{Measurement\_Period\ Intra}$ = Specified in 8.4.2.2.2.

The UE is "out of service area" if the UE has evaluated for 4 s that that the serving cell does not fulfil the cell selection criterion S and if the UE has not found any new suitable cell based on searches and measurements of the neighbour cells indicated in the measurement control system information during these 4 s. When the UE is "out of service area" it shall initiate cell selection procedures for the selected PLMN as defined in [1].

On transition from CELL_DCH to CELL_FACH, if a UE has not found a suitable UTRA cell after [TBD]s then it is considered to be "out of service area" and shall perform actions according to 25.331.