

TSG-RAN Meeting #8
Düsseldorf, Germany, 21 – 23 June 2000

RP-000228

Title: Agreed CRs to TR 25.922

Source: TSG-RAN WG2

Agenda item: 5.2.3

Doc-1st-	Status-	Spec	CR	Rev	Subject	Cat	Version	Versio
R2-001241	agreed	25.922	003	1	Stage 2 description for Handover to UTRAN	F	3.1.0	3.2.0

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.922 CR 003r1

Current Version: **3.1.0**

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ ↑ CR number as allocated by MCC support team

For submission to: **TSG-RAN #8** for approval strategic (for SMG use only)
list expected approval meeting # here ↑ for information non-strategic

Form: CR cover sheet, version 2 for 3GPP and SMG The latest version of this form is available from: <ftp://ftp.3gpp.org/Information/CR-Form-v2.doc>

Proposed change affects: (U)SIM ME UTRAN / Radio Core Network
(at least one should be marked with an X)

Source: TSG-RAN WG2 **Date:** 2000-05-25

Subject: Stage 2 description for handover to UTRAN

Work item: [Empty box]

Category:	F Correction	<input checked="" type="checkbox"/>	Release:	Phase 2	<input type="checkbox"/>
<i>(only one category shall be marked with an X)</i>	A Corresponds to a correction in an earlier release	<input type="checkbox"/>		Release 96	<input type="checkbox"/>
	B Addition of feature	<input type="checkbox"/>		Release 97	<input type="checkbox"/>
	C Functional modification of feature	<input type="checkbox"/>		Release 98	<input type="checkbox"/>
	D Editorial modification	<input type="checkbox"/>		Release 99	<input checked="" type="checkbox"/>
				Release 00	<input type="checkbox"/>

Reason for change: The following changes are proposed in the original revision of this CR

Handover to UTRAN

- Proposal is to add a stage 2 like description to facilitate discussion with other work groups involved in defining the procedures for handover to UTRAN e.g. SMG-2
- The included description highlights the transfer of RRC information with special focus on pre- defined configuration information

Clauses affected: 5.1.1.2 (NEW), 5.1.1.2.1 (NEW), 5.1.1.2.2 (NEW)

Other specs affected:	Other 3G core specifications	<input type="checkbox"/>	→ List of CRs:	[Empty box]
	Other GSM core specifications	<input type="checkbox"/>	→ List of CRs:	
	MS test specifications	<input type="checkbox"/>	→ List of CRs:	
	BSS test specifications	<input type="checkbox"/>	→ List of CRs:	
	O&M specifications	<input type="checkbox"/>	→ List of CRs:	

Other comments: [Empty box]

<----- double-click here for help and instructions on how to create a CR.

5.1.5 Inter System Radio Access Technology Handover

5.1.5.1 Handover 3G to 2G

The handover from UTRA to GSM offering world-wide coverage already today has been one of the main design criteria taken into account in the UTRA frame timing definition.

The handover from UTRA/FDD to GSM can be implemented without simultaneous use of two receiver chains. Although the frame length is different from GSM frame length, the GSM traffic channel and UTRA FDD channels use similar multi-frame structure.

A UE can do the measurements by using idle periods in the downlink transmission, where such idle periods are created by using the downlink Compressed Mode as defined in WG1 Specification. The Compressed Mode is under the control of the UTRAN, and the UTRAN should communicate to the UE which frame is slotted.

Alternatively independent measurements not relying on the Compressed Mode, but using a dual receiver approach can be performed, where the GSM receiver branch can operate independently of the UTRA FDD receiver branch.

The Handover from UTRA/TDD to GSM can be implemented without simultaneous use of two receiver chains. Although the frame length is different from GSM frame length, the GSM traffic channel and UTRA TDD channels rely on similar multi-frame structure.

A UE can do the measurements either by efficiently using idle slots or by getting assigned free continuous periods in the downlink part obtained by reducing the spreading factor and compressing in time TS occupation in a form similar to the FDD Compressed Mode. The low-cost constraint excludes the dual receiver approach.

For smooth inter-operation, inter-system information exchanges are needed in order to allow the UTRAN to notify the UE of the existing GSM frequencies in the area and vice versa. Further more integrated operation is needed for the actual handover where the current service is maintained, taking naturally into account the lower data rate capabilities in GSM when compared to UMTS maximum data rates reaching all the way to 2 Mbits/s.

5.1.1.2 Handover 2G to 3G

5.1.1.2.1 General

In order to reduce the size of certain size critical messages in UMTS, a network may download/ pre- define one or more radio configurations in a mobile. A predefined radio configuration mainly consists of radio bearer- and transport channels parameters. A network knowing that the UE has suitable predefined configurations stored can then refer to the stored configuration requiring only additional parameters to be transferred.

Predefined configurations may be applied when performing handover from another RAT to UTRAN. In the case of handover from GSM to UTRAN, the performance of handover to UTRAN is improved when it is possible to transfer the handover to UTRAN command within a non- segmented GSM air interface message.

Furthermore, it is important to note that it is a network option whether or not to use preconfiguration; the handover to UTRAN procedures also support transfer of a handover to UTRAN command including all parameters.

NOTE In case segmentation is used, subsequent segments can only be transferred after acknowledgement of earlier transmitted segments. In case of handover however, the quality of the UL may be quite poor resulting in a failure to transfer acknowledgements. This implies that it may be impossible to quickly transfer a segmented handover message. Segmentation over more than two GSM air interface messages will have a significantly detrimental, and unacceptable, impact on handover performance.

The UE shall be able to store upto 16 different predefined configurations, each of which is identified with a separate preconfiguration identity. The UE need not defer accessing the network until it has obtained all predefined configurations. The network may use different configurations for different services e.g. speech, circuit switched data. Moreover, different configurations may be needed because different UTRAN implementations may require service configurations to be customised e.g. different for micro and macro cells.

The predefined configurations stored within the UE are valid within the scope of a PLMN; the UE shall consider these configurations to be invalid upon PLMN re- selection. Furthermore, a value tag is associated with each individual pre-defined configuration. This value tag, that can have 16 values, is used by the UE and the network to ensure the stored pre-defined configuration(s) is the latest/required version.

The current facilities in 25.331 have focussed on the use of predefined configurations during handover from GSM to UTRAN. The same principles may also be applied for the handover procedures used within UTRAN e.g. handover including SRNC relocation. Use of predefined configurations in these cases may require extension of the currently defined RRC procedures.

5.1.1.2.2 Handover to UTRAN information flows, typical example

The handover to UTRAN procedure may include several subsequent information flows. The example described in this section is representative of a typical sequence of information flows. It should be noted that some procedures may actually be performed in parallel e.g. configuration of UTRA measurements and downloading of pre- defined configurations.

NOTE Since work is ongoing in this area, the names of the information flows provided in the following diagrams may not reflect the latest status of standards/ CRs.

The description includes the different network nodes and interfaces involved in the handover to UTRAN procedure.

Flow 1: Downloading of predefined configuration information within UTRA

If the mobile uses UTRA prior to entering another RAT, it may download predefined configuration information as shown in the following diagram. UTRAN broadcasts predefined configuration information within the system information. The UE should read and store all the configurations broadcast by UTRAN. The configurations should be used when re- entering UTRAN.

Flow 2: UE capability, security and pre- defined configuration information exchange

In order to prepare for handover to UTRAN, the BSS may retrieve UE capability, security and pre- defined configuration status information by means of the sequence shown below. This procedure may not only be invoked upon initial entry of a mobile supporting UTRA within GSM, but also when the mobile continues roaming within the GSM network. It should be noted that, the mobile could also send the information automatically by means of the early classmark change procedure.

Furthermore, pre- defined configuration status information may be transferred to the BSS during handover from UTRAN.

The BSS has to store the received information until the handover to UTRAN is invoked.

NOTE 1 During the handover procedure, the stored UE capability and security information is sent to the target RNC.

NOTE 2 Depending on the received predefined configuration status information, the BSS may need to invoke the procedure for downloading predefined configurations, as described in flow 4

Flow 3: Configuration of UTRA measurements

The BSS configures the UTRA measurements to be performed by the mobile, including the concerned thresholds and the reporting parameters, by means of the following information flow.

NOTE The BSS may possibly decide the measurement configuration to be used based upon previously received UE capability information (e.g. supported modes & bands)

NOTE The network may also provide information about neighbouring UTRAN cells within the CHANNEL RELEASE message.

Flow 4: Downloading of pre- defined radio bearer configurations within GSM

The pre-defined configuration status information (indicating which configurations are stored, as well as their value tags) is included in the UTRAN CLASSMARK CHANGE message This information may indicate that the UE does not have the required predefined configuration stored, in which case the BSS should initiate the transfer of these configurations by means of the information flow shown below.

Flow 5: Handover

When the BSS decides that handover to UTRAN should be performed, triggered by the reception of a measurement report, it initiates the handover procedure. Next, the CN requests resources by sending a Relocation request to the target RNC. This message should include the UE capability and security information previously obtained by the BSS. The pre- defined configuration status information should be included in the Relocation request also. The main reason for this it that when selecting the predefined configuration to be indicated within the handover to UTRAN command message, the target RNC should know if the UE has downloaded all predefined configurations or only a subset.

The relocation request includes an indication of the service type for which the handover is requested. This information is used by the target RNC to select the predefined configuration to be used by the UE, which is included within the handover to UTRAN command.