TSG-RAN Working Group 2 (Radio layer 2 and Radio layer 3) ***TSGR2#6(99)837***

Sophia Antipolis, France, 16th to 20th August 1999

Agenda Item: 5 resp 14.4

Source: Philips

Title: Open issues in the FAUSCH parameters discussion

Document for: Decision

Due to lack of time not all aspects of FAUSCH parameters were able to be covered during the RRC parameters e-mail discussion. Open questions were necessity of FAUSCH in

- Handover Command message
- URA Update Confirm

and whether the FAUSCH support info become part of UE CAPABILITY INFORMATION.

This document is meant to explain the necessity for FAUSCH parameter conveyance in these three messages:

1. **Handover Command message:** The Handover Command Message is used in the context of inter-frequency hard handover. In this case the UE will be handed over to a cell with different frequency, in which it should also be able to use FAUSCH. In this new cell, however, new FAUSCH parameters (access slot, preamble code and signature) are valid. This is why the UTRAN has to inform the UE about the new FAUSCH parameters (if available) in this new cell. This feature is already included in the textual description of the Hard Handover (section 8.3.2) in 25.331.

2. **URA Update Confirm message:** According to 25.303 (5.5.2.1), "Any activity causes the UE to be transferred to RACH/FACH or RACH+FAUSCH/FACH substate of the Cell Connected State [from the URA connected state]. Uplink access is performed by either RACH or FAUSCH, if a FAUSCH transport channel for the current cell has been allocated.", i.e. the UE can use the FAUSCH also from URA connected state.
   Therefore, it is necessary also to be able to update the FAUSCH transport channels when a new URA is entered. Hence, the URA Update Confirm message should contain the IE "PRACH info for FAUSCH". This IE contains a list with a mapping of cell identifiers and the corresponding FAUSCH channels allocated to the UE in each of these cells. This list can contain FAUSCH channels for all cells in the URA or only a number of cells in the URA, e.g. the cells that are neighbours to the cell from which the UE has delivered the URA update message.

   Providing FAUSCH channels also in URA connected states allows a fast access to high-end UEs also in URA connected state, hence increasing the benefit for UEs (fast access) and for the network (reduced interference).

3. **FAUSCH support info** was proposed in the email discussion by Nokia to be shifted from INITIAL UE CAPABILIY in RRC CONNECTION REQUEST message to UE CAPABILITY INFORMATION because it was feared that the RRC CONNECTION REQUEST message might become too long. Since the **FAUSCH support info** will only need 3 to 4 bits as a maximum (e.g. with 3 bits 8 different states can be represented: 0 = no FAUSCH support, 1 = FAUSCH support for allocating a DCH, 2 = FAUSCH support for allocating capacity in a USCH), the argument of the message length is not really enforcing. If it is still decided that **FAUSCH support info** should be part of UE CAPABILITY INFORMATION, there is a need also for **FAUSCH info** in the UE CAPABILITY INFORMATION CONFIRM mes-

sage, which was originally included in the RRC CONNECTION SETUP message, and states about the FAUSCH channel(s) to be used by the UE.

Proposal

1. It is proposed to add the PRACH info for FAUSCH for the two messages **Handover Command** and **URA Update Confirm** to the parameter lists.
2. Since in 25.331, the URA update procedure does not yet contain a mention concerning the FAUSCH usage for URA Update, it is furthermore proposed to add to the description of the URA update procedure (8.3.7) in 25.331 the following sentence:

   "The URA UPDATE CONFIRM message can also include an update, on which FAUSCH channels can be used in all cells or a number of cells of the new URA to support FAUSCH usage of fast moving UEs."
3. If it is still decided that **FAUSCH support info** become part of UE CAPABILITY INFORMATION, add **FAUSCH info** in the UE CAPABILITY INFORMATION CONFIRM message.
   If **FAUSCH support info** remains part of the UE INITIAL CAPABILITY, add **FAUSCH info again** to the RRC CONNECTION SETUP message.