TSG-RAN Working Group 3 *R3#7(99)C40*

Meeting #7

Sophia-Antipolis, France 20 - 24 September 1999

Agenda Item:	15.1
Source:	Raporteur
Title:	Report on out-of-sync detection study item
Document for:	Approval

The Raporteur proposed an idea of using FP control frames in order to notify SRNC of out-of-sync in NodeB. This idea is based on R3-99984.

The following items are listed by the raporteur for rationale of FP control frames.

- "Out-Of-Sync" shall be defined as an occasion when all RLs of the whole active set lose their "DPCCH frames" after MDC in SRNC.
- SRNC is the most appropriate node that acknowledges the radio condition (Sync or Out-Of-Sync) taking the whole set of RLs into consideration; if, at least one out of a few RLs are alive (i.e. DPCCH is received), service quality is satisfied.
- DPCCH losses may occur quite frequently; NBAP and RNSAP are not durable enough to cope with sending these messages for every DPCCH loss

A concern was expressed by Nokia on how to cope with a case when DHO is in DRNC. Nokia stated that it is much of complexity that the DRNC has to receive control frames for all the RL combined in DRNC and send a control frame to SRNC as counters expire. Nokia also expressed their view that the out-of-sync indication shall be done by NBAP and RNSAP.

The Raporteur stated that the control frames have to be terminated in DRNC but the DHO in DRNC does not have to prepare a counter. However, after a clarification, it is a working assumption that the UL FP control frames are transparently sent from NodeB to SRNC, never terminated in DRNC.

After a while, the Raporteur has announced that usage of FP control frames causes difficulty performing detection of out-of-sync indication in the SRNC. Raporteur has withdrawn his idea of usage of control frames.

The Raporteur has clarified that there are two alternatives how to notify SRNC of out-of-sync situation in NodeB : either by **L3 protocol**, or by **FP user frames**

Nokia stated that usage of user frames would create many empty frames. Nokia insists on L3 method since the SRNC can detect out-of-sync per RL basis.

Nokia proposed to add the following description to both RNSAP and NBAP:

```
"The RL failure procedure is also used to notify the non achievement or loss
of UL synchronisation: the message is sent when the UL synchronisation of
the radio link is not achieved after T_init_synch from the RL setup, or it
is lost for more than T_out_of_synch".

"When the failure situation is over, the DRNC (Node B) sends the RL RESTORE
message to the SRNC(RNC). The message is not sent if a RNSAP(NBAP)
procedures to modify or remove the RL have been activated in the DRNC
(NodeB)."
```