

Status Report for WI to TSG

Work Item Name: FDD Enhanced Uplink – Physical Layer

SOURCE: WG1 Rapporteur (Karri Ranta-aho, Nokia)

TSG: RAN **WG:** 1

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Ref. to WI sheet: RAN_Work_Items.doc

Progress Report since the last TSG (for all involved WGs):

The WI was discussed the first time in Montreal in RAN WG1 meeting #37. RAN WG1 spent two days discussing this WI, one of which was a joint session with RAN2.

There were around 90 documents submitted with RAN1 tdoc number, 25 of them were treated, 8 of which in the RAN1/RAN2 joint session. The main discussion topics were transport channel processing, hybrid ARQ and E-DCH transmission power and uplink transmission timing alignment.

RAN1 TR25.808 structure and scope were also subject to discussion. The debate was on how much of such RAN1 agreements that should be captured in the RAN2 maintained TS25.309 should first be captured in the RAN1 TR for RAN2's review. The discussion on the structure and scope of the RAN1 TR is expected to continue.

The decisions are listed below. Partial overlapping with RAN2 report should happen.

Transport channel structure decisions (partially jointly with RAN2)

- One CCTrCH of E-DCH type per UE
- One E-DCH per CCTrCH of E-DCH type
- Data arrives to the transport channel processing unit in form of one transport block once per transmission time interval (TTI). The following processing steps can be identified:
 - Add CRC to the transport block. CRC facilitates detection of error in E-DCH decoding at Node B.
 - Code block segmentation. The value of maximum code block size $Z = 5114$ for turbo coding shall be used.
 - Channel coding. The rate 1/3 turbo coding shall be used.
 - Physical layer hybrid ARQ and rate matching. This block generates transmitted bit pattern extracted from the output of the channel coding and matches the number of input bits to the number of available physical channel bits within the TTI.
 - Interleaving and physical channel mapping. Input bits are interleaved and mapped to physical channel(s) allocated for E-DCH TTI transmission.
- One TrBlock per TTI
- MAC-e MUX
- 10 ms TTI. 2ms FFS.

HARQ operation decisions (partially jointly with RAN2)

- Stop and wait HARQ similar to HSDPA.
- Synchronous ACK/NACKs
- IR with chase as a sub-case, when and how IR can be used is FFS (e.g. wrt. SHO status)
- Re-ordering entity in the SRNC
- HARQ/E-DCH in SHO
 - Intra-Node-B "softer" HO supported for E-DCH
 - Inter-Node-B soft HO should be supported

Uplink transmission timing decisions

- E-DCH to be time aligned either to DPCCCH or to HS-DPCCCH, no new timing bases should be introduced.

List of Completed elements (for complex work items):

List of open issues:

Estimates of the level of completion (when possible):

WI completion date review resulting from the discussion at the working group:
December 2004

References to WG's internal documentation and/or TRs:

[1] R1-040658, TR25-808, FDD Enhanced Uplink; Physical Layer Aspects, v0.0.1