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TSG-RAN Working Group 2 (Radio L2 and Radio L3)   R2-002464
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Source: TSG-RAN WG2

To: TSG-RAN WG1

Cc: TSG-RAN WG3, TSG-RAN WG4

Title: Response to LS (R1-001293) on Power control preamble length

Contact: Wolfgang.Granzow@eed.ericsson.se

RAN WG2 thanks RAN WG1 for their liaison Tdoc R1-001293 (R2-002173) on power control preamble (PCP) length.

RAN WG2 has discussed the issue both at its internal meeting WG2#17 and also at a joint meeting with RAN WG4, held on Nov. 15.

On the question asked to WG2, if the proposed modification of the value range for the PCP length parameter is acceptable, there was agreement that this is possible (the range of the "PC preamble" IE would need to be increased from currently 1 bit to 4 bits to cover the range requested by WG1).

On the other question, however, if the proposed use of the PCP to delay the DPDCH start is acceptable, no conclusion could be reached yet.

There was especially concern raised about the impact of an increased PCP length on speech delay. The understanding in RAN WG2 is that the delay at initial setup of e.g. a speech service will be increased by the duration of the PCP, and that at inter-frequency handover, an increased PCP accordingly increases the duration of service interruption. It was felt that identification of the requirements on acceptable delay requires more careful analysis, and involvement of RAN WG4. For this reason the issue was brought up at the joint WG2/WG4 meeting, where however no conclusion could be reached yet.

WG4 stated that until now DPCH initial synchronisation delay requirements have only been considered for the UE but not for the Node B.

In the discussions, a number of further questions were raised:

?? How exactly is the overall DPCH setup delay impacted by the PCP length and the various cases of TTI settings of DCHs?

?? The question was raised if the initial 40 ms period required for downlink DPCCH quality estimation in the UE (as described in R1-001274 CR 130r1 to 25.214 on radio link synchronisation) has impact on the uplink DPCH synchronisation.

?? The question was raised why the range of PCP length needs to be changed by this quite large amount, i.e. from 15 to up to 120 slots.

?? The PCP length is indicated in the RRC CONNECTION SETUP message to the UE and it can be indicated optionally in dedicated messages after connection setup. According to which criteria should the PCP length be set by RRC? Shall it be dependent only on searcher implementation in the Node B? Should the setting be made depending on service (e.g. short PCP length for conversational/speech, large for background packet data)?

?? What exactly is the consequence of a setting of PCP length too short to obtain DPCH synchronisation reliably, considering the propagation conditions/delay? How do propagation conditions impact initial synchronisation delay?

?? If prior information about propagation delay would be available in the Node B, would it help to reduce DPCH synchronisation delay or allow to adapt the PCP length?

?? If uplink DPDCH and DPCCH transmission would be started simultaneously, would it be feasible to reduce synchronisation delay by employing also the DPDCH in the searching procedure?

?? Should the name "power control preamble" be changed to e.g. "initial DPCH synchronisation preamble"?

?? Does an increase of PCP length have an impact on the Iub interface?

WG2 kindly asks WG1 to provide clarification on the above issues.

WG2 also would like to remind WG1 that the issue which TFCI shall be used during DPCH synchronisation is still open. The statements made in Tdoc R2-002133 (LS from WG2 to WG1 on TFCI in the case of invalid set of transport blocks and during DPCH synchronisation) are applicable also to the TFCI used during PCP transmission on the uplink. WG2 is aware that this issue is currently discussed on the WG1 mail reflector. WG2 would like to confirm that use of the all zero TFCI code during PCP transmission would be a reasonable choice from a higher layer perspective.