TSG-RAN Working Group 1 meeting #16   **TSGR1#16(00)1293**
Pusan, Korea
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Agenda item:

Source: RAN WG1

To: RAN WG2

CC: RAN WG3, RAN WG4

Title: LS on power control preamble length

Document for: Decision

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RAN WG1 has studied the radio link establishment procedures more carefully, and identified a problem:

When the UE starts DPCCH transmission, it will take some time before the Node B searcher has found the uplink signal. This delay could be several frames, depending on searcher implementation, and if information about propagation delay is available. Until the searching process is finalised, it is useless for the UE to start DPDCH transmission, since this data will not be received correctly. This will lead to lost data, or if acknowledged mode is used, retransmissions that may delay the message transfer significantly.

In order to solve this problem, RAN WG1 has identified the possibility to use the power control preamble (PCP). The current assumption is that the PCP length is 0 or 15 slots (this is considered not to be long enough). If the value range of this parameter was increased to e.g. 0, 1, …, 7, 8 radio frames the searcher could be given time to find the DPCCH before DPDCH transmission is started. This would mean that the signalling range would be changed from 0 or 15 up to 0 to 8 and the values are related to radio frames instead of time slots.

Hence, the PCP can be seen as a delayed start of the DPDCH in relation to the start of the DPCCH. Since the DPDCH transmission also is limited to start with TTIs in CFNs where $CFN \bmod TTI/10 = 0$, the PCP length indicates the earliest possible starting time of the DPDCH in relation to the DPCCH. This is already documented in TS 25.214, but with the restriction that the PCP length is 0 or 15 slots.

RAN WG1 would like RAN WG2 to consider if the proposed use of the PCP to delay the DPDCH start is acceptable. Further, RAN WG1 would like to know if the proposed modification of the value range for the PCP length parameter is acceptable.