To:	TSG-R WG2
Source:	TSG-R WG1
Title:	Draft liaison statement on the status of HARQ type II/III work item in RAN WG1
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TSG-R WG1 would like to inform TSG-R WG2 about the status of HARQ type II/III work item discussions in TSG-R WG1. During the past few meetings several contributions on the work item has been received and discussed in the WG1 [1, 2, 3, 4, 5, 6, 7, 8, 9]. The contributions have focused on the performance, UE and UTRAN implementation complexity aspects and on the impacts that HARQ type II/III has got on the physical layer. Although the simulations indicate that HARQ type II/III could have some performance gain over the Rel.-99 HARQ type I solution [3, 4], concerns have been raised on the implementation complexity and physical layer aspects.

HARQ type II/III solutions will increase the receiver memory requirements at the UE [4, 6]. The amount of additional memory needed for buffering depends e.g. on the assumed bit rate, FER level and retransmission and NACK latencies. In some cases the additional memory required when compared to HARQ type I can be big. Additionally, in [6], a receiver buffer memory comparison between fast HARQ proposed in High speed Downlink Packet Access study item and the RLC level HARQ were presented indicating clearly reduced memory requirements for fast HARQ.

HARQ type II/III solutions will also impact the UTRAN side implementation complexity [6]. According to the simulation results presented to WG1 in [4] high FER level (in the order of 50-90 %) are required to get performance gain over Rel.-99 HARQ type I solution. Under these assumptions, traffic volume over the I_{ub} interface can be about 50 % higher than in Rel.-99 ARQ solution.

In [5] proposal for the support ofHARQ type II/III on the physical layer were presented. However, in [8], several concerns were raised on the issue. Specifically, impact on the multiplexing and channel coding solutions and possible restrictions onto the MAC scheduling wereidentified.

Because of the various concerns raised in the several contributions, there is currently no recommendation by WG1 on how to proceed with the work item HARQ. As WG1 anticipates severe impacts for the physical layer when HARQ is to be supported, WG1 recommends WG2 to take into account the concerns raised in WG1 and to closely coordinate the further process. WG1 prepared some material for possible inclusion in the Technical report 25.385 which is under the responsibility of WG2 if found appropriate by WG2 and provided that assumptions of WG1 are in line with WG2's current assumptions. The corresponding material is available in the attached references [6][9][10].

REFERENCES

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[10] Nortel, Proposal for inclusion of text on Impact of Hybrid type II/III ARQ on the physical layer in the Technical report 25.835. TSG-R WG1 document, TSGR1#15(00)1147, 22-25th, August, 2000, Berlin, Germany.