

Gothenburg, Sweden 22nd - 26th August 2016

Title: Reply LS on RAN2 Agreements on Skipping Uplink Transmission
Response to: R1-166071 / R2-164554
Release: Rel-14
Work Item: LTE_LATRED_L2-Core

Source: RAN1
To: RAN2
Cc: -

Contact Person:

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1. Overall Description

RAN1 would like to thank RAN2 for their LS on agreements and assumptions made in the latency reduction WI. RAN1 has discussed the points requiring RAN1 input and conclusions are as follows:

Point b) in RAN2 LS:

RAN2 agreed to allow and prioritize non-adaptive retransmission over new transmission on SPS resource. RAN2 understands the eNB may not be able to distinguish between UL transmission and skipped UL transmission (i.e. DTX), thus if some PUSCH transmission detection is missed, the eNB may not always be able to combine retransmissions with implicitly increased RV as currently defined for non-adaptive retransmissions. Therefore, RAN2 took a working assumption that non-adaptive retransmissions on SPS resource are done based on RV 0.

As for point b, RAN1 discussed the RAN2 working assumption and also other aspects related to missed PUSCH transmissions on the SPS resource.

On the point of selection of RV for SPS retransmissions, RAN1 discussed the implications of either fixing the RV to 0 or not. RAN1's understanding is that an eNodeB trying all hypothesis in combining the (re)transmissions can avoid any ambiguity without any increase in the number of required decodes even if RV is not fixed. On the other hand, fixing RV to 0 allows for simpler eNodeB receiver implementation with limited number of hypothesis.

Regarding the eNodeB behaviour upon PUSCH reception, RAN1 identified a possible further issue in case a UE interprets a PHICH corresponding to a missed PUSCH as ACK (NACK-to-ACK or DTX-to-ACK error cases). Following alternatives were identified:

- No change to RAN1 specification: it is understood that the eNodeB may choose to report NACK on PHICH even if it did not receive a PUSCH to avoid ambiguity
- Define in RAN1 specifications: in case the eNodeB does not receive a PUSCH transmission on a SPS resource, the eNodeB shall indicate a NACK on the corresponding PHICH resource

Furthermore, RAN1 also discussed the possibility of defining in RAN2 an option to disable non-adaptive UL retransmissions in the case of UL skipping by RRC configuration to avoid ambiguity related to erroneous PHICH reception.

Point c) in RAN2 LS:

RAN2 assumes that if MAC does not generate a TB as a result of enabling UL skipping, the UCI should be sent on PUCCH even if there is a valid PUSCH allocation on that subframe. RAN2 would like RAN1 to confirm whether there is any concern from RAN1 point of view.

With respect to point C, RAN1 agreed the following:

- In the case of UL skipping, UCI consisting of HARQ-ACK, periodic CSI and/or scheduling request indicator is transmitted on PUCCH following the legacy rules for the case when there is no PUSCH transmission.
- An UL grant triggering Aperiodic CSI transmission is considered as a regular dynamic UL grant. UL skipping does not apply in this case.

2. Actions:

ACTION: RAN1 respectfully asks RAN2 to take the above considerations into account.

3. Date of Next RAN2 Meetings:

RAN1#86bis	10 th – 14 th October	Lisbon, Portugal
RAN1#87	14 th – 18 th November	Reno, Nevada, US