**3GPP TSG RAN WG2 #116-e R2-211xxxx**

**e-Meeting, 1-12 Nov, 2021**

**Title: [DRAFT] Reply LS on the physical layer aspects of small data transmission**

**Response to: R2-2111219**

**Release: Rel-17**

**Work Item: NR\_SmallData\_INACTIVE-Core**

**Source: to be RAN2**

**To: RAN1**

**Cc:**

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**Send any reply LS to: 3GPP Liaisons Coordinator,** **mailto:3GPPLiaison@etsi.org**

# Overall description

RAN2 would like to thank RAN1 for the LS on the physical layer aspects of small data transmission in R2-2111219.

RAN2 has made the following agreements for SDT at RAN2#116-e.

**Agreements for RA-SDT and CG-SDT**

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| => RAN2 changes the agreements and as a baseline we will focus on initial BWP for RA and CG SDT. FFS if further work on CG SDT for non-initial BWP will be needed, based on RAN1 consensus.  |

For the configuration of CG-SDT resources on non-initial BWP, some companies supported this as this will reduce the congestion on UL initial BWP, whilst others expressed concerns on the complexity and paging/system information monitoring.

Regarding RAN1’s question on the necessity of the CG-SDT resource on non-initial BWP, RAN2 earlier agreement (i.e. CG-SDT resource can be configured on non-initial BWP) was made based on the following benefit:

 - reduce the congestion on initial BWP

 - provide enough bandwidth for SDT data

 - provide flexibility of allocation of CG resource

Therefore, RAN2 would like to request RAN1 to attempt to reach a consensus on whether CG-SDT resource can be configured on separate SDT BWP.

**Agreements for CG-SDT**

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| => Assumption that we won’t have L1 feedback as a functionality**Agreements**1. The Rel-16 CG configuration mechanism in licensed band is reused the baseline for CG-SDT.
2. At least for initial transmission we will have a mechanism to allow the UE to transmit the message again. FFS for retransmission for subsequent.
3. The UE uses/selects the same HARQ process for retransmission
4. The “CG-SDT timer” starts at the first “valid” PDCCH occasion from the end of the CG-SDT PUSCH transmission. The first “valid” PDCCH occasion is defined in RAN1
5. The “CG-SDT timer” can be started/restarted during for initial and subsequent transmissions
6. The UE restarts the “CG-SDT timer” at least:
* upon the PUSCH retransmission indicated by the CS-RNTI PDCCH
* after each CG-SDT transmission

7. The “CG-SDT timer” stops at least:* When the UE receives RRC feedback messages (e.g. RRCResume, RRCSetup, RRCRelease and RRCReject)

8. The Rel-16 calculation on the HARQ process ID of the CG type-1 for licensed band is reused as the baseline for CG-SDT9. The UE is allowed to initiate subsequent UL data transmission only after the reception of confirmation of initial transmission from the gNB10. The UE can use multiple CG resources for the HARQ initial transmission as Rel-16 in the subsequent CG transmission phase11. The following CG-SDT configurations are per UE:* The new TA timer in RRC\_INACTIVE
* The RSRP change threshold for TA validation mechanism in SDT
* The SSB RSRP threshold for beam selection

12. The R15/R16 PUSCH skipping mechanism is supported for CG-SDT13. Highest N SSBs of all SSBs actually transmitted as indicated in SIB1 is used for RSRP based TA validation |

# Actions

**To RAN1**

**ACTION:** RAN2 respectfully asks RAN1 to take the above information into account and inform RAN2 if RAN1 has any feedback.

# Dates of next TSG RAN2 meetings

RAN2#116-bis-e 17 – 25 January 2022 E-meeting

RAN2#117-e 21 February – 3 March 2022 E-meeting