**3GPP TSG RAN WG1 #106-e R1-21xxxxx**

**e-Meeting, August 16th – 27th, 2021**

**Title: Draft reply LS on** **physical layer aspects of small data transmission**

**Response to:** **R2-2106561**

**Release: Rel-17**

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

**Source:** **RAN1**

**To:** **RAN2**

**Cc:**

**Attachments:**

**Contact Person:**

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**1. Overall Description:**

RAN1 would like to thank RAN2 for the LS on physical layer aspects of small data transmission in R2-2106561.

Regarding RA-SDT, RAN1 discussed the configuration parameters for the PRACH resource configuration when PRACH occasions are shared between SDT and non-SDT and when PRACH occasions are separately configured for SDT and non-SDT. RAN1 made the following agreements/conclusion for RA-SDT.

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| **Proposal 1:** For RA-SDT, when PRACH occasions are separate between SDT and non-SDT, ~~the existing~~ PRACH resource configurations/parameters for 4-step RACH and/or 2-step RACH ~~can~~ should be re-used as much as possible for ~~can be separately configured, including~~ 4-step RACH and/or 2-step RACH based SDT, respectively.  -       Note: It is up to RAN2 discussion on the RO ~~design~~ configuration for RA-SDT in separate ROs.  **Proposal 2:** For RA-SDT, when PRACH occasions are shared between SDT and non-SDT, at least following parameters can be configured, including 4-step RACH and/or 2-step RACH based SDT operation.   * Number of contention-based preambles for SDT per SSB per valid RO   Note: whether starting position of the preambles for SDT per SSB per valid RO needs to be configured for RA-SDT in shared ROs is up to RAN2 discussion.  **Conclusion:** Further discuss on the case when ROs are shared between SDT and non-SDT, but different RACH types have separate ROs after RAN2’s decision  **Proposal 3: For RA-SDT, when PRACH occasions are shared between SDT and non-SDT, a PRACH mask can be configured to indicate a subset of ROs for RA-SDT.**  **Proposal 4:** For RA-SDT in shared ROs and separate ROs with non-SDT, the power control parameters follow those for non-SDT,   * i.e. preambleReceivedTargetPower and power ramping setting follow those for non-SDT. |

Regarding the questions for CG-SDT on the working assumption and agreements, RAN1 made the following agreements on BWP for CG-SDT resource. RAN1 kindly asks RAN2 to provide more information on the necessity for separate SDT BWP. Regarding the search space and L1 feedback for CG-SDT, RAN1 will continue the discussion.

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| BWP for CG-SDT resource  **Proposal 6:** RAN1 confirms the RAN2 agreement that CG-SDT resource can be configured on ~~either~~ initial BWP  -       FFS whether CG-SDT resource can be configured on a separate BWP.  ~~-       , but for or separate SDT BWP, it could be feasible from RAN1perspective but some companies see non-negligible spec effort needs to spend on. Thus, RAN1 kindly ask RAN2 to provide more information on the necessity explicit motivation for needing separate SDT BWP and any related work for RAN1~~ |

**2. Actions:**

RAN1 respectfully asks RAN2 to take into account the above information.

**3. Date of Next RAN1 Meetings:**

TSG-RAN WG1 Meeting #106b-e 11th Oct – 19th Oct 2021 e-meeting

TSG-RAN WG1 Meeting #107-e 11th Nov – 19th Nov 2021 e-meeting