**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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| **Agreement:*** For RA-SDT, when PRACH occasions are separate between SDT and non-SDT, PRACH resource configurations/parameters for 4-step RACH and/or 2-step RACH should be re-used as much as possible for 4-step RACH and/or 2-step RACH based SDT, respectively.
	+ Note: It is up to RAN2 discussion on the RO configuration for RA-SDT in separate ROs.
* 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.
* **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.**
* 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.

**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
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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 requests RAN2 to provide more information on the necessity of the CG-SDT resource configured on a separate SDT BWP. Regarding the search space and L1 feedback for CG-SDT, RAN1 will continue the discussion.

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| **Agreement:*** RAN1 confirms the RAN2 agreement that CG-SDT resource can be configured on initial BWP
	+ FFS whether CG-SDT resource can be configured on a separate BWP.
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**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