**3GPP** **TSG CT WG1 Meeting 130-e Rev\_C1-213275**

**Electronic meeting, 20-28 May 2021**

Title: <draft> Reply LS to RAN2 on Small data transmission

Release: Release 17

Work Item: TEI17, <NR\_SmallData\_INACTIVE-Core>

Source: CT1

To: RAN2

CC: SA2

**Contact Person:**

Name: Vivek Gupta

E-mail Address: vivek\_g\_gupta at apple dot com

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

Attachments: None

**1. Overall Description:**

CT1 thanks RAN2 for their LS on Small data transmission in C1-212849 / R2-2104644. CT1 would like to provide the following feedback on points agreed by RAN2.

a) Regarding,

1. *SDT is transparent to NAS layer (i.e. NAS generates one of the existing resume causes and AS decides SDT vs non-SDT access)*

In order for the NAS (with RRC inactive indication) to pass any signaling message or uplink user data packet along with the request to transition to RRC-Connected state to the AS layer, there will be NAS impacts, as that is currently not specified.

Given the requirement from RAN2 LS that:

*g) When UE is in RRC\_INACTIVE, it should be possible to send multiple UL and DL packets as part of the same SDT mechanism and without transitioning to RRC\_CONNECTED.*

Some changes would be required in NAS-AS interaction, so that the access stratum remains in RRC\_INACTIVE and NAS layer remains in 5GMM\_CONNECTED mode with RRC inactive indication for subsequent small data transmissions or downlink NAS signalling.

When the UE is in 5GMM-CONNECTED mode with RRC inactive indication and the SDT session is ongoing (e.g., multiple uplink/downlink data), changes to NAS may be needed to move to 5GMM-IDLE mode if UE radio capability update is needed. In order to avoid the disruption of data transmission over SDT session, the NAS layer needs to know whether SDT session is ongoing or not. Hence, additional or new interactions between AS layer and NAS layer will likely be required.

b) Regarding handling of non-SDT data arrival after sending the first UL data packet and the following from RAN2 LS:

*3b) Switching from SDT to non-SDT is supported. UE receive indication from network to switch to non-SDT procedure. Network can send RRCResume to transit the UE to RRC\_CONNECTED during an ongoing SDT session.*

If the gNB resumes from SDT to non-SDT it is assumed that the existing resumption procedure to RRC\_CONNECTED is applied, i.e. NAS is informed and 5GMM\_CONNECTED is entered.

c) Regarding additional question from RAN2:

*RAN2 agreed that only radio bearers configured for SDT are resumed and additional UL and DL data can be exchanged between UE and network as part of a given SDT session while the UE is still in RRC\_INACTIVE (i.e. without transition to RRC\_CONNECTED). In this case, if new UL data or NAS message becomes available for non-SDT radio bearers (which are suspended), would it be possible that NAS triggers another request to transition into RRC\_CONNECTED and provides access category, access identities and resume cause.*

CT1 would like to point out that once small data transmission is initiated the UAC parameters (access category and access identity) for subsequent UL data for non-SDT DRBs in use will be the same as those for UL data for SDT DRBs. Further, NAS is agnostic to DRBs, as such cannot differentiate whether uplink data or signalling belongs to SDT DRBs or non-SDT DRBs. So for the use case specified above, NAS currently does not support triggering another request for lower layers to transition to RRC\_CONNECTED based on any knowledge of DRBs.

**2. Actions:**

**To RAN2:**

**ACTION:** CT1 kindly asks RAN2 to take the above into account and provide feeback if any.

**3. Date of Next CT1 Meetings:**

TSG-CT WG1#131-e Aug 19th – 27th, 2021 Online meeting

TSG-CT WG1#132-e Oct 11th – 15th, 2021 Online meeting