**3GPP TSG RAN WG2#126 *R2-240xxxx***

**Fukuoka, Japan, May 20th – 24th, 2024**

**Title: [DRAFT] LS on requirements for UL synchronization for contention based msg3 transmission**

**Response to:**

**Release: Rel-19**

**Work Item: IoT\_NTN\_Ph3-Core**

**Source: ZTE [To be TSG RAN WG2]**

**To: RAN4, RAN1**

**Cc: RAN3?**

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Attachments: none

**1. Overall Description:**

RAN2 has discussed the objective of uplink capacity enhancement for R19 IoT NTN and the following agreements have been achieved:

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| **Agreements (RAN2#125bis):**1. Both NB-IoT and eMTC are within scope of uplink capacity enhancements2. Both C-plane and U-plane solutions are within scope of uplink capacity enhancements.3. Only CIoT EPS is within scope of uplink capacity enhancements**Agreements (RAN2#126)** (To be updated at the end of the Thursday):1. RAN2 focusses the study on contention-based Msg3 transmission to complete an EDT-like transaction (FFS on the details of Msg3. FFS on the procedural steps, e.g. how much we reuse of EDT and PUR procedures. FFS on allocation of resources).2. RAN2 can continue the discussion on Diversity Slotted ALOHA (DSA) and Contention Resolution Diversity Slotted Aloha (CRDSA) for Msg3-EDT transmissions without msg1/ RAR, evaluating possible impacts on the specification, in the next RAN2 meeting (RAN2 might send an LS to RAN1 later on this)3. If an IoT NTN UE in IDLE state is to use the new R19 contention-based procedure, the UE needs to verify/update the uplink synchronization (e.g. get GNSS fix, acquire TA) just before sending msg3. |

RAN2 has agreed that the UE needs to verify/update the uplink synchronization (e.g. get GNSS fix, acquire TA) just before sending contention based Msg3 (e.g., without msg1/ Random Access Response (RAR)). Furthermore, RAN2 has agreed that the input from RAN4 and RAN1 would be needed on the requirements for determining the timing alignment validation before sending Msg3.

**2. Actions:**

**To RAN4 and RAN1:**

**ACTION:** RAN2 respectfully requests RAN4 and RAN1 to take above RAN2 progress into account and study the requirements for determining the timing alignment validation before sending contention based Msg3.

**3. Date of Next RAN2 Meetings:**

RAN2#127 August 19th – 23rd 2024 Maastricht, Netherlands

RAN2#127-bis October 14th – 18th, 2024 TBD, China