**3GPP TSG-RAN WG4 Meeting #96-e R4-2011700**

**Electronic Meeting, 17 Aug – 28 Aug, 2020**

**Title:** LS reply to RAN1on UE capability on wideband carrier operation for NR-U

**Response to:** LS on UE capability on wideband carrier operation for NR-U (R1-2004965)

**Release:** Rel-16

**Work Item:** NR\_unlic-core

**Source:** RAN WG4

**To:** RAN WG1, RAN WG2

**Cc:** -

**Contact Person:**

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**Attachments:** -

**1. Overall Description:**

RAN4 would like to thank RAN1 for the reply LS on UE capability on wideband carrier operation for NR-U. In RAN4#96-e meeting, RAN4 has discussed RAN1’s questions and agreed on the following response.

**Question 1:** Is there any difference in DL reception among DL Cases 1, 2a, 2b, 2, and 3 with respect to AGC when at least one of the sub-bands of a [BW or carrier] is not part of gNB’s acquired channel occupancy and contains interference from devices other than the UE’s serving gNB e.g. near-by WiFi AP? Does RAN4 think AGC issues may prevent UE to meet RAN4 requirements for Mode 2 and Mode 3?

* **RAN4 response**: Performance degradation is expected if the subband is occupied by interference from devices other than the UE’s serving gNB, e.g., near-by WiFi AP, for Case 2a/2b/3/4. RAN4 has not defined corresponding RF in-channel selectivity requirements nor RRM requirements for filter adaptation for Case 2a/2b/3/4 in Rel-16.

**Question 2a:** Is there a difference in UE capability between any of DL Cases 2a/2b and DL Case 3?

* **RAN4 response**: Yes, as indicated by the UE feature 4-1 in R4-2011680. UE could support DL Case 3 only if 4-1 is supported when DL intra-band guard bands are configured.

**Question 2b:** Is there a difference in UE capability between any of DL Cases 2a/2b/3 and DL Case 4?

* **RAN4 response**: RAN4 has not reached consensus yet.

**Question 2c:** Is there a difference in UE capability between any of DL Cases 2a/2b/3/4 and DL Case 1?

* **RAN4 response**: Yes. DL Case 1 (CA) is an independent UE capability.

**Question 3:** From RAN4 point of view, does “all LBT sub-bands” for Mode 1 refer to LBT sub-bands of configured carrier or BWP?

* **RAN4 response**: Current NR considers requirements related to the carrier and not the BWP. RAN4 are of the understanding that it shall be all LBT sub-bands per configured carrier for DL.

**Question 4:** Is change of transmit filtering required (as shown in Figure 1 for WB Mode 2B) to meet RAN4 requirements for any of UL Cases 1-3?

* **RAN4 response**: No for all cases

**Question 5:** Is there any difference if intra-cell GBs between scheduled contiguous sub-bands are scheduled or not?

* **RAN4 response**: There is no difference in RF requirement if intra-cell GBs between scheduled contiguous sub-bands are scheduled or not. RAN4 has removed the capability for UE transmission in UL intra-cell GBs. It can be assumed that there is no restriction in scheduling within the intra-cell GB between two scheduled adjacent RB-sets.

Finally, if the answer to any of Questions 2a/2b/2c/4/5 is yes and capabilities for any of the cases are deemed needed, RAN1 would like to request RAN4 to define the corresponding UE capabilities.

* **RAN4 response**: RAN4 would like to further understand RAN1’s intention of the action in the LS: whether RAN1 is asking RAN4 to confirm the feature groups [10-19a], [10-19b], [10-19c], [10-19d], [10-19e], [10-19f] in RAN1 feature list R1-2004970 or RAN1 is asking RAN4 to define new UE capabilities in RAN4 feature list, if needed.

**2. To RAN WG1 and WG2 group.**

**ACTION:** RAN4 kindly ask RAN1 and RAN2 take above information in to consideration.

**3. Date of Next TSG-RAN WG4 Meetings:**

TSG RAN WG4 Meeting #97-e 26 Oct – 13 Nov 2020 E-meeting