**3GPP TSG-RAN WG4 Meeting # 97-e R4-2016817**

**Electronic Meeting, Nov .2nd – 13th 2020**

**Title: [Draft]LS on DC location reporting f or intra-band UL CA**

**Response to:**

**Release:** Rel-16

**Work Item:** NR\_RF\_FR1-Core

**Source:** RAN4

**To:** RAN2

**Cc:** RAN1

**Contact Person:**

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**Attachments:**

**1. Overall Description:**

RAN4 further discussed how to handle TX DC location for intra band UL CA and at least reached the following two consensuses.

First, RAN4 agreed to only define DC reporting mechanism for FR1 intra-band UL CA and adopt RRC based solution which report each TX DC location based on permutations of all possible simultaneously activated BWPs within configured BWPs as baseline in Rel16. RAN4 also discusses further enhancement in Rel17 not restricting prior RRC based solution, if necessary.

Secondary, RAN4 identified at least three advanced RRC based solutions to reduce the amount of signalling overhead are feasible for the case that the number of DC location is one at an instant.

1. Combination of setting up the rule for default DC location for the most likely cases(R4-2015212) and other reporting method(s) described later.
   * Set up the rule to for NW to identify DC location for the two most likely cases as default without UE reporting
     + UE DC location can be considered by default in the center calculated by the lower edge of the lowest CC and the higher edge of the highest CC among all the active CCs
     + UE DC location can be considered by default in the center of the lower edge of the lowest active BWP and the higher edge of the highest active BWP among all the active CCs by UE with a capability
   * Increase the above capability bit strings and/or allow UE to report DC location by other reporting solution(s) for the cases not covered by the default rule such as
     + the lower edge of the lowest configured BWP and the higher edge of the highest configured BWP among all the configured CCs, etc.
2. Reporting methods:
   1. A UE reports each UL DC location per permutation for all possible simultaneously activated BWPs pairs. (R4-2016514)
   2. A UE informs a network of UL DC locations by referring to a list including simultaneously activated BWP permutations provided by the NW (R4-2014714)

Note that in case DC location report is not time critical, gNB may request UE to report.

In case the number of DC location is two at an instant, the information on mapping between each DC location and associated cluster of CCs (or CC). Each of the DC location can be reported based on one DC location method(s).

**2. Actions:**

**To RAN1 and RAN2 group.**

**ACTION:**

RAN4 respectfully asks RAN2 to take into account the above agreements to generate signalling mechanism.

**3. Date of Next TSG–RAN4 Meetings:**

TSG RAN WG4 Meeting #98-e Jan. 25 – Feb.5, 2021 Online