**3GPP TSG-RAN WG4 Meeting #111 R4-2410693**

**Fukuoka, Japan, May 20 – 24, 2024**

**Title:** LS on intra-band EN-DC channel spacing

**Response to:**

**Release:** Rel-18

**Work Item:** NR\_newRAT-Core

**Source:** RAN4

**To:** RAN2

**Cc:**

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**Attachments**: R4-1813862

**1. Overall Description:**

In Rel-15, RAN4 sent the LS R4-1813862 to RAN2 for intra-band MR-DC band combination signaling, with the assumptions that if a UE supports intra-band non-contiguous EN-DC, it also supports contiguous in the same band.

And then the capability of *intraBandENDC-Support* was introduced in TS 38.306 as follows, with three states, including: contiguous (not include), non-contiguous and ‘both’. However, from RAN4’s perspective, UE implementing ‘non-contiguous’ needs more stringent capability. In this case, if a UE supports ‘non-contiguous’, it should not preclude the support of ‘contiguous’ in the same band. The capability UE reports should reflect the implementation UE can support, rather than just for configurations.

| Definitions for parameters | Per | M | FDD-TDD  DIFF | FR1-FR2  DIFF |
| --- | --- | --- | --- | --- |
| ***intraBandENDC-Support***  Indicates whether the UE supports intra-band (NG)EN-DC with only non-contiguous spectrum, or with both contiguous and non-contiguous spectrum for the (NG)EN-DC combination as specified in TS 38.101-3 [4].  If the UE does not include this field for an intra-band (NG)EN-DC combination the UE only supports the contiguous spectrum for the intra-band (NG)EN-DC combination.  If *intrabandENDC-Support-UL* is absent and the band combination supports intra-band (NG)EN-DC only in DL, this field indicates the DL capability. If *intrabandENDC-Support-UL* is absent and the band combination supports intra-band (NG)EN-DC in DL and UL, this field indicates the common capability for both DL and UL. If *intrabandENDC-Support-UL* is included, *intraBandENDC-Support* indicates the DL capability. | BC | No | N/A | N/A |

With the UE capability, it is noticed that in the field, some UEs indicating ‘non-contiguous’ via *intraBandENDC-Support* cannot access to the NW configuring intra-band contiguous EN-DC. The UE can only access to single carrier rather than intra-band EN-DC, which degrades the UE performance.

Considering the capability of *intraBandENDC-Support* has been implemented for several releases, to make up for the problem, RAN4 agrees to introduce the capability to support intra-band non-contiguous with nominal channel spacing. In RAN4 spec, nominal channel spacing between E-UTRA carrier and an adjacent NR carrier is defined for intra-band contiguous EN-DC.

**2. Actions:**

**To RAN2:**

**ACTION:** RAN4 respectfully asks RAN2 to introduce the capability to support intra-band non-contiguous EN-DC with nominal channel spacing.

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

TSG-RAN4 Meeting#112 19 – 23 August 2024 Maastricht, Netherlands

TSG-RAN4 Meeting#112bis 14 - 18 October 2024 China