**3GPP T****SG-RAN WG4 Meeting#99 Rev 1 of R4-2109412**

**E-meeting, 19th – 27th May, 2021**

**Title: TP to TR 38.717-03-02 Addition of CA\_n12A-n66A-n77A**

**Source: AT&T, Nokia**

**Agenda item: 8.13.2**

**Document for: Approval**

# 1 Introduction

This contribution is a TP to TR 38.717-03-02 to introduce CA\_n12A-n66A-n77A.

# 2 Text Proposal

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of the TP \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### 5.1.x CA\_n12-n66-n77

#### 5.1.x.1 Operating bands for CA

Table 5.1.x.1-1: CA band combination

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| NR CA Band | NR Band | Uplink (UL) operating band | | | Downlink (DL) operating band | | | Duplex  mode |
| BS receive / UE transmit | | | BS transmit / UE receive | | |
| FUL\_low – FUL\_high | | | FDL\_low – FDL\_high | | |
| CA\_n12-n66-n77 | n12 | 699 MHz | – | 716 MHz | 729 MHz | – | 746 MHz | FDD |
| n66 | 1710 MHz | – | 1780 MHz | 2110 MHz | – | 2200 MHz | FDD |
| n77 | 3300 MHz | – | 4200 MHz | 3300 MHz | – | 4200 MHz | TDD |

#### 5.1.x.2 Channel bandwidths per operating band for CA

Table 5.1.x.2-1: Supported channel bandwidths per CA configuration

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| NR CA configuration | Uplink CA  configuration | NR Band | 5  MHz | 10  MHz | 15  MHz | 20  MHz | 25  MHz | 30  MHz | 40 MHz | 50 MHz | 60 MHz | 70 MHz | 80 MHz | 90 MHz | 100 MHz | Bandwidth combination set |
| CA\_n12A-n66A-n77A | CA\_n12A-n66A, CA\_n12A-n77A, CA\_n66A-n77A | n12 | 5 | 10 | 15 |  |  |  |  |  |  |  |  |  |  | 0 |
| n66 | 5 | 10 | 15 | 20 |  |  | 40 |  |  |  |  |  |  |
| n77 |  | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |

#### 5.1.x.3 Co-existence studies

For 3DL/2UL NR CA, only the IMD issues due to dual uplink operation of two bands falling into the DL of the third band shall be verified.

Co-existence studies for dual uplink operation of two bands, i.e. CA\_n12A-n66A, CA\_n12A-n77A and CA\_n66A-n77A have been captured in TR 38.716-02-00 and TR 38.717-02-01, where:

- IMD3, IMD4, and IMD5 products are produced by Band n12 and n66 that might fall in Rx of band n77.

- IMD3 products are produced by Band n12 and n77 that might fall in Rx of band n66.

- IMD3 products are produced by Band n66 and n77 might fall in Rx of band n12.

#### 5.1.x.4 REFSENS requirements

The required MSD values for n12 are derived from DC\_13A-66A\_n77A. The required MSD values for n66 are derived from DC\_5A-66A\_n77A. The required MSD values for n77 are derived from CA\_n5-n25-n77.

Table 5.1.x.4-1: MSD for the CA configuration

| NR CA Configuration | NR band | UL Fc  (MHz) | UL/DL BW  (MHz) | UL  LCRB | DL Fc (MHz) | MSD  (dB) | Duplex mode | IMD order |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| CA\_n12A-n66A-n77A | n12 | 710 | 5 | 25 | 740 | 15.2 | FDD | IMD3 |
| n66 | 1720 | 5 | 25 | 2120 | N/A | FDD | N/A |
| n77 | 4180 | 10 | 50 | 4180 | N/A | TDD | N/A |
| n12 | 707 | 5 | 25 | 737 | N/A | FDD | N/A |
| n66 | 1746 | 5 | 25 | 2146 | 13.2 | FDD | IMD3 |
| n77 | 3560 | 10 | 50 | 3560 | N/A | TDD | N/A |
| n12 | 704 | 5 | 25 | 734 | N/A | FDD | N/A |
| n66 | 1723 | 5 | 25 | 2123 | N/A | FDD | N/A |
| n77 | 4150 | 10 | 50 | 4150 | 16.0 | TDD | IMD31,2 |
| NOTE 1: This band is subject to IMD5 also which MSD is not specified.  NOTE 2: This band is subject to IMD4 also which MSD is not specified. | | | | | | | | |

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# 3 References