3GPP TSG-RAN WG4 Meeting # 98-e R4-2100276

Electronic Meeting, 25th January – 5th February, 2021

Source: Verizon, MediaTek, LGE, Ericsson

Title: TP for TR38.xxx for PC2 CA\_n66A-n77A

Agenda item: 9.19.2

Document for: Approval

# **Introduction**

This contribution is a text proposal to introduce PC2 2DL/2UL CA\_n66-n77 according to the request in [1].

# **Reference**

[1] RP-202373, Revised basket WID: High power UE for NR inter-band Carrier Aggregation with 2 bands downlink and x bands uplink (x =1,2)

# **Text Proposal**

**<Start of Text Proposal>**

## 5.x CA\_n66-n77

### 5.x.1 Configurations

**Table 5.x.1-1: NR CA configurations and bandwidth combinations sets for supporting power class 2**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| NR CA configuration | Uplink CA configuration | NR Band | SCS  (kHz) | 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\_n66A-n77A  CA\_n66A-n77(2A) | CA\_n66A-n77A | n66 | 15 | Yes | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  | 0 |
| 30 |  | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |
| n77 | 15 |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes4 | Yes | Yes4 | Yes |
| 60 |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes4 | Yes | Yes4 | Yes |
| NOTE 4: This UE channel bandwidth is optional in this release of the specification | | | | | | | | | | | | | | | | | |

### 5.x.2 Maximum output power

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Uplink CA configuration** | **Power class 2 cases for CA\_n66A-n77A** | **CA power class** | **Carrier n66 power class** | **Carrier n77 power class** |
| CA\_n66A-n77A | Case a | 26dBm | 23dBm | 23dBm |
| Case b | 26dBm | 23dBm | 26dBm |

The tolerance +2/-3 dB is applied. Also when the transmission bandwidths confined within FUL\_low and FUL\_low + 4 MHz or FUL\_high – 4 MHz and FUL\_high, the maximum output power requirement is relaxed by reducing the lower tolerance limit by 1.5 dB.

### 5.x.3 REFSENS requirements

According to the PC3 CA\_n66A-n77A study in TR 37.717-11-11, the 2nd and 5th order IMD products generated from dual uplinks of band 66 and n77 may fall into band 66 Rx frequency range. Thus additional MSD should be considered to mitigate the impact of the interference for the PC2 CA\_n66A-n77A combination.

#### 5.x.3.1 Power class 2 case a

The additional MSD due to intermodulation for PC2 CA\_n66A-n77A are defined in table 5.x.3.1-1.

Table 5.x.3.1-1: MSD test points for PCell due to dual uplink operation for PC2 NR CA in NR FR1 (two bands)

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Band / Channel bandwidth / NRB / Duplex mode** | | | | | | | | |  |  |
| **NR CA** | **NR band** | **UL Fc** | **UL/DL BW** | **UL** | **DL Fc (MHz)** | **MSD for PC2** | **Duplex mode** | **Source of IMD** |
| **Configuration** | **(MHz)** | **(MHz)** | **CLRB** | **(dB)** |
| CA\_n66A-n77A  CA\_n66A-n77(2A) | n66 | 1730 | 5 | 25 | 2130 | 34.33 | FDD | IMD2 |
| n77 | 3860 | 10 | 50 | 3860 | N/A | TDD | N/A |
| n66 | 1730 | 5 | 25 | 2130 | 11.27 | FDD | IMD5 |
| n77 | 3660 | 10 | 50 | 3660 | N/A | TDD | N/A |

#### 5.x.3.2 Power class 2 case b

The additional MSD due to intermodulation for PC2 CA\_n66A-n77A are defined in table 5.x.3.2-1.

Table 5.x.3.2-1: MSD test points for PCell due to dual uplink operation for PC2 NR CA in NR FR1 (two bands)

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Band / Channel bandwidth / NRB / Duplex mode** | | | | | | | | |  |  |
| **NR CA** | **NR band** | **UL Fc** | **UL/DL BW** | **UL** | **DL Fc (MHz)** | **MSD for PC2** | **Duplex mode** | **Source of IMD** |
| **Configuration** | **(MHz)** | **(MHz)** | **CLRB** | **(dB)** |
| CA\_n66A-n77A  CA\_n66A-n77(2A) | n66 | 1730 | 5 | 25 | 2130 | 37.33 | FDD | IMD2 |
| n77 | 3850 | 10 | 50 | 3860 | N/A | TDD | N/A |
| n66 | 1730 | 5 | 25 | 2130 | 14.27 | FDD | IMD5 |
| n77 | 3660 | 10 | 50 | 3660 | N/A | TDD | N/A |

### 5.x.4 ∆TIB and ∆RIB values

For the ∆TIB,c and ∆RIB,c values, same PC3 CA\_n66A-n77A requirements are applied for PC2 CA\_n66A-n77A.

**<End of Text Proposal>**