3GPP TSG-RAN WG4 Meeting #110bis R4-2404229

Changsha, China, 15th - 19th April 2024

Title: TP for TR38.718-03-01 Support of CA\_n1-n77-n79

Source: Softbank

Agenda Item: 5.11.2

Document for: Approval

# **Introduction**

This contribution is a text proposal for TR 38.718-03-01[5] to include the following NRCA combinations as requested in RAN4#109.

* CA\_n1-n77-n79

# **Reference**

[1] 3GPP TR 21.905 Vocabulary for 3GPP Specifications (Release 17) V17.1.0

[5] TR38.718-03-01, Rel-18 NR inter-band Carrier Aggregation/Dual Connectivity for 3 bands DL with x bands UL(x=1,2) V0.10.0

# **Text Proposal**

# **-- Start of TP –**

**-- Unaffected parts omitted –**

* 5.x CA\_n1- n77-n79
* 5.x.1 Common for 1 band UL and 2 bands UL CA
* 5.x.1.1 Operating bands for CA

**Table 5.x.1.1-1: Inter-band CA operating bands involving FR1 (three bands)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **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\_n1-n77-n79 | n1 | 1920 MHz | – | 1980 MHz | 2110 MHz | – | 2170 MHz | FDD |
| n77 | 3300 MHz | – | 4200 MHz | 3300 MHz | – | 4200 MHz | TDD |
| n79 | 4400 MHz | – | 5000 MHz | 4400 MHz | – | 5000 MHz | TDD |

* 5.x.1.2 Channel bandwidths per operating band for CA

**Table 5.x.1.2-1: Supported bandwidths per CA band combination of band n1+n40+n77**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **NR CA configuration** | **Uplink CA configuration or single uplink carrier** | **NR Band** | **Channel bandwidth (MHz)** | **Bandwidth combination set** |
| CA\_n1A-n77(2A)-n79 | CA\_ n77(2A) | n1 | 5, 10, 15, 20, 30, 40, 45, 50 | 0 |
|  |  | n77 | CA\_n77(2A)\_BCS1 |  |
|  |  | n79 | 40, 50, 60, 70, 80, 90, 100 |  |

* 5.x.1.3 ∆TIB,c and ∆RIB,c values

For CA\_n1-n40-n77, the ΔTIB,c and ΔRIB,c values are reused from CA\_n1-n40-n78 and are given in the tables below.

**Table 5.x.1.3-1: ΔTIB,c due to NR CA (three bands)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Inter-band CA combination** | **ΔTIB,c for NR bands (dB)8** | | |
| **Component band in order of bands in configuration9** | | |
| CA\_n1-n77-n79 | 0.6 | 0.8 | 0.5 |

**Table 5.x.1.3-2: ΔRIB,c due to NR CA (three bands)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Inter-band CA combination** | **ΔRIB,c for NR bands (dB)9** | | |
| **Component band in order of bands in configuration10** | | |
| CA\_n1-n77-n79 | 0.2 | 0.5 | - |

* 5.x.2 Specific for 2 bands UL CA
* 5.x.2.1 UE co-existence studies

UL n77-n79 gives IMD into DL n1.

* 5.x.2.2 REFSENS requirements

Based on the co-existence studies there are a need to define MSD values. MSD values from CA\_n1-n77-n79 are reused.

**Table 5.x.2.2-1: 3DL/2UL inter-band Reference sensitivity QPSK PREFSENS and uplink/downlink configurations**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Band / Channel bandwidth / NRB / Duplex mode** | | | | | | | | **Source of IMD** |
| **NR CA band combination** | **NR band** | **UL Fc  (MHz)** | **UL/DL BW  (MHz)** | **UL  CLRB** | **DL Fc (MHz)** | **MSD  (dB)** | **Duplex mode** |  |
| CA\_1A-n77(2A)-n79A | n1 | N/A | 5 | N/A | 2140 | 6.0 | FDD |  |
|  | n77 | 3400 | 10 | 50 | 3400 | N/A | TDD | N/A |
|  | n79 | 4660 | 40 | 216 | 4660 | N/A | TDD | N/A |
| NOTE 1:This band is subject to IMD3 also which MSD is not specified.  NOTE 2:For DC\_3A\_n3A-n77A, DC\_3A\_n3A-n78A paired with UL\_DC\_3A\_n3A, the 3rd DL bands n77/n78 are subject to IMD2 which  MSD is not specified | | | | | | | | |

**-- Unaffected parts omitted --**

**-- End of TP --**