3GPP TSG-RAN WG4 Meeting # 102-e R4-2205266

Electronic Meeting, 21 February– 3 March, 2022

**Source:** Huawei, HiSilicon

**Title:** TP for TR 38.717-02-01 CA\_n38A-n79A CA\_n38A-n79C

**Agenda item:** 9.8.2

**Document for:** Approval

# 1 Background

This contribution provides text proposal on the NR CA band combination CA\_n1A-n38A as defined in New WID on NR Inter-band Carrier Aggregation/Dual Connectivity for 2 bands DL with x bands UL (x=1,2) RP-212887 [1].

# 2 Text Proposal

##### ---Start of changes---

## 6.X CA\_n38-n79

### 6.X.1 Common for 1 band UL and 2 bands UL CA

#### 6.X.1.1 Operating bands for CA

Table 6.X.1.1-1: CA band combination CA\_n1A-n74A

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **NR CA Band Combination** | **NR Band** | **Uplink (UL) band** | | | **Downlink (DL) band** | | | **Duplex**  **mode** |
| **BS receive / UE transmit** | | | **BS transmit / UE receive** | | |
| **FUL\_low – FUL\_high** | | | **FDL\_low – FDL\_high** | | |
| CA\_n38-n791 | n38 | 2570 MHz | – | 2620 MHz | 2570 MHz | – | 2620 MHz | TDD |
| n79 | 4400 MHz | – | 5000 MHz | 4400 MHz | – | 5000 MHz | TDD |
| NOTE 1: Applicable for UE supporting inter-band carrier aggregation with mandatory simultaneous Rx/Tx capability. | | | | | | | | |

#### 6.X.1.2 Channel bandwidths per operating band for CA

Table 6.X.1.2-1: Supported bandwidths per CA band combination CA\_n1A-n74A

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| NR CA configuration | Uplink CA configuration | NR Band | Channel bandwidth (MHz) (NOTE 3) | | | | | | | | | | | | | Bandwidth combination set |
|  |  |  | 5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |  |
| CA\_n38A-n79A | - | n38 | 5 | 10 | 15 | 20 | 25 | 30 | 40 |  |  |  |  |  |  | 0 |
|  |  | n79 |  |  |  |  |  |  | 40 | 50 | 60 |  | 80 |  | 100 |  |
| CA\_n38A-n79C | - | n38 | 5 | 10 | 15 | 20 | 25 | 30 | 40 |  |  |  |  |  |  | 0 |
|  |  | n79 | See CA\_n79C Bandwidth Combination Set 0 in Table 5.5A.1-1 | | | | | | | | | | | | |  |

#### 6.X.1.3 UE Co-existence studies

Table 6.X.1.3-1/2 summarizes frequency ranges where harmonics and/or harmonics mixing occur for CA\_n38-n79.

**Table 6.X.1.3-1: Impact of UL/DL Harmonic**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  | **2nd Harmonic** | | **3rd Harmonic** | | **4th Harmonic** | |
| **Band** | **UL Low Band Edge** | UL High Band Edge | DL Low Band Edge | DL High Band Edge | UL Low Band Edge | UL High Band Edge | UL Low Band Edge | UL High Band Edge | UL Low Band Edge | UL High Band Edge |
| n38 | 2570 | 2620 | 2570 | 2620 | 5140 | 5240 | 7710 | 7860 | 10280 | 10480 |
| n79 | 4400 | 5000 | 4400 | 5000 | 8800 | 10000 | 13200 | 15000 | 17600 | 20000 |

Based on above table, there is no harmonic interference issue.

**Table 6.X.1.3-2: Impact of UL/DL Harmonic mixing**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  | **2nd Harmonic** | | **3rd Harmonic** | | **4th Harmonic** | |
| **Band** | **UL Low Band Edge** | UL High Band Edge | DL Low Band Edge | DL High Band Edge | DL Low Band Edge | DL High Band Edge | DL Low Band Edge | DL High Band Edge | DL Low Band Edge | DL High Band Edge |
| n38 | 2570 | 2620 | 2570 | 2620 | 5140 | 5240 | 7710 | 7860 | 10280 | 10480 |
| n79 | 4400 | 5000 | 4400 | 5000 | 8800 | 10000 | 13200 | 15000 | 17600 | 20000 |

Based on above table, there is no harmonic mixing issue.

#### 6.X.1.4 ∆TIB and ∆RIB values

For CA\_n38-n79, the ∆TIB,c and ∆RIB,c values are given in the tables below which refer to TS 38.101-1 CA\_n41-n79.

Table 6.X.1.4-1: ΔTIB,c

| Inter-band CA Configuration | NR Band | ΔTIB,c [dB] |
| --- | --- | --- |
| CA\_n38-n79 | n38 | 0.3 |
| n79 | 0.8 |
|  | | |

Table 6.X.1.4-2: ΔRIB

| Inter-band CA Configuration | NR Band | ΔRIB [dB] |
| --- | --- | --- |
| CA\_n38-n79 | n38 | 0.5 |
| n79 | 0.5 |
|  | | |

#### 6.X.1.5 REFSENs requirements

There is no REFSENS degradation for this band combination.

#### 6.X.1.6 OOB blocking exception requirements

There is no OOB blocking exception requirement for CA\_n38-n79.

##### ---End of changes---

# Reference

[1] RP-212887, “Revised WID on Rel-17 NR Inter-band Carrier Aggregation/Dual Connectivity for 2 bands DL with x bands UL (x=1,2)”, ZTE Corporation