**3GPP TSG-RAN WG4 Meeting #111 R4-24xxxxx**

**Fukuoka, Japan, 20 – 24 May 2024**

**Source:** Ericsson, T-Mobile USA

**Title:** TP for 38.718-03-01 to add UL CA\_n25A-n41C and CA\_n41C-n77A for CA\_n25A-n41C-n77A

**Agenda item:** 6.10.2

**Document for:** Approval

# 1. Introduction

This contribution is a text proposal for 38.718-03-01 to add UL CA\_n25A-n41C and CA\_n41C-n77A for CA\_n25A-n41C-n77A.

# 2. Text Proposal

# ---Start of changes---

## 5.x CA\_n25-n41-n77

#### 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 n25+n41+n77NR CA configuration | Uplink CA configuration or single uplink carrier | NR Band | Channel bandwidth (MHz) | Bandwidth combination set |
| CA\_n25A-n41C-n77A | n417,9n777,9CA\_n25A-n41A7CA\_n25A-n77A7CA\_n41A-n77A7CA\_n41C7CA\_n25A-n41CCA\_n41C-n77A | n25 | 5, 10, 15, 20, 25, 30, 40 | 0 |
|  |  | n41 | CA\_n41C\_BCS0 |  |
|  |  | n77 | 10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100 |  |
|  |  | n25 | 5, 10, 15, 20, 25, 30, 40 | 1 |
|  |  | n41 | CA\_n41C\_BCS2 |  |
|  |  | n77 | 10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100 |  |
|  |  | n25 | n25 channel bandwidths in Table 5.3.5-1 | 4 and 5 |
|  |  | n41 | CA\_n41C BCS 4 and 5 |  |
|  |  | n77 | n77 channel bandwidths in Table 5.3.5-1 |  |

### 5.x.2 Specific for 2 bands UL CA

#### 5.x.2.1 UE co-existence studies

Table 5.x.2.1-1 lists Band n25A + Band n41C 2UL bands CA 1st order triple beat (IMD3) related to 2UL band 3CC (one band support intra-band ULCA) for the UE-to-UE coexistence analysis into the third receive band of Band n77, where Band n41C is the uplink band supporting two uplink carriers and Band n25 is the single uplink carrier.

**Table 5.x.2.1-1: Band n25 and Band n41 triple beat IMD products**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| CC location | fU1L | fU2L | fU3L | fU1H |  | CBW |
| Frequency | 2496 | 2506 | 2686 | 2690 |  | 10 |
| CC location | fSCCL | fSCCH | fU2H | fU3H |  | Min ch. separation |
| Frequency | 1850 | 1915 | 2680 | 2500 |  | 0 |
| 1st order TB | IfU3L -fU1L- fSCCL| | IfU2L -fU1L + fSCCL| | IfU2L -fU1L- fSCCH| | IfU3L -fU1L + fSCCH| |  | Max ch. separation |
| Ranges | 1660 | 1860 | 1905 | 2105 |  | 190 |
| 1st order TB | IfU2L+fU1L-fSCCH| | IfU1H+fU2H-fSCCL| | IfU2L +fU1L+fSCCL| | IfU1H +fU2H+fSCCH| |  |  |
| Ranges | 3087 | 3520 | 6852 | 7285 |  |  |

Based on Table 5.x.2.1-1, 1st order triple beat IMD is falling inside band n77.

Table 5.x.2.1-2 lists Band n77A + Band n41C 2UL bands CA 1st order triple beat (IMD3) related to 2UL band 3CC (one band support intra-band ULCA) for the UE-to-UE coexistence analysis into the third receive band of Band n25, where Band n41C is the uplink band supporting two uplink carriers and Band n77 is the single uplink carrier.

**Table 5.x.2.1-2: Band n41 and Band n77 triple beat IMD products**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| CC location | fU1L | fU2L | fU3L | fU1H |  | CBW |
| Frequency | 2496 | 2506 | 2686 | 2690 |  | 10 |
| CC location | fSCCL | fSCCH | fU2H | fU3H |  | Min ch. separation |
| Frequency | 3300 | 4200 | 2680 | 2500 |  | 0 |
| 1st order TB | IfU3L -fU1L- fSCCL| | IfU2L -fU1L + fSCCL| | IfU2L -fU1L- fSCCH| | IfU3L -fU1L + fSCCH| |  | Max ch. separation |
| Ranges | 3110 | 3310 | 4190 | 4390 |  | 190 |
| 1st order TB | IfU2L+fU1L-fSCCH| | IfU1H+fU2H-fSCCL| | IfU2L +fU1L+fSCCL| | IfU1H +fU2H+fSCCH| |  |  |
| Ranges | 802 | 2070 | 8302 | 9570 |  |  |

Based on Table 5.x.2.1-2, 1st order triple beat IMD is falling inside band n25.

#### 5.x.2.2 REFSENS requirements

Based on the triple beat analysis of the added ULCA, 1st order triple beat IMD falls into bands n25 and n77. However since MSD values for IMD3 for both bands for CA\_n25A-n41A-n77A combination are already defined in TS 38.101-1, there is no need to add additional REFSENS requirements.

---End of changes---

# Reference

[1] RP-24xxxx, Revised WID:Rel-18 NR Inter-band Carrier Aggregation/Dual Connectivity for 2 bands DL with x bands UL (x=1,2), ZTE