**3GPP TSG-RAN WG4 Meeting #112 R4-2412369**

**Maastricht, Netherlands, 19th August – 23th August 2024**

**Source:** Ericsson, Telstra

**Title:** TP for [38.719-02-01](https://eur02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fportal.3gpp.org%2Fdesktopmodules%2FSpecifications%2FSpecificationDetails.aspx%3FspecificationId%3D4338&data=05%7C02%7Cper.lindell%40ERICSSON.COM%7C8529224ef278401b13d508dcb09fc43c%7C92e84cebfbfd47abbe52080c6b87953f%7C0%7C0%7C638579447448518146%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C0%7C%7C%7C&sdata=7frzJqmVweFA%2FhslliG9Cl2UIKOBluj3I00CmaHTNkQ%3D&reserved=0) adding UL CA\_n78(2A) to DL CA\_n26A-n78(2A) and DL CA\_n26(2A)-n78(2A)

**Agenda item:** 7.3.3

**Document for:** Approval

# 1. Introduction

This contribution is a text proposal for TR [38.719-02-01](https://eur02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fportal.3gpp.org%2Fdesktopmodules%2FSpecifications%2FSpecificationDetails.aspx%3FspecificationId%3D4338&data=05%7C02%7Cper.lindell%40ERICSSON.COM%7C8529224ef278401b13d508dcb09fc43c%7C92e84cebfbfd47abbe52080c6b87953f%7C0%7C0%7C638579447448518146%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C0%7C%7C%7C&sdata=7frzJqmVweFA%2FhslliG9Cl2UIKOBluj3I00CmaHTNkQ%3D&reserved=0) adding UL CA\_n78(2A) to DL CA\_n26A-n78(2A) and DL CA\_n26(2A)-n78(2A).

# 2. Text Proposal

# ---Start of changes---

## 5.x CA\_n26-n78

### 5.x.1 Specific for 1 bands UL CA

#### 5.x.1.1 Operating bands for CA

CA\_n26-n78 has already been specified in TS 38.101-1 and this section does not need to be revisited.

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

UL CA\_n78(2A) need to be added to DL CA\_n26A-n78(2A) and DL CA\_n26(2A)-n78(2A) in the existing configuration table of 38.101-1. See Table 5.x.1.2-2 below.

Table 5.x.1.2-2: Supported bandwidths per CA band combination of band n26+n78

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| CA\_n26A-n78(2A) | CA\_n26A-n78A | n26 | 5, 10, 15, 20, 25, 30 | 0 |
|  |  | n78 | CA\_n78(2A)\_BCS0 |  |
|  | CA\_n78(2A) | n26 | n26 channel bandwidths in Table 5.3.5-1 | 4 and 5 |
|  |  | n78 | CA\_n78(2A)\_BCS4 and 5 |  |
| CA\_n26(2A)-n78(2A) | CA\_n26(2A)CA\_n78(2A)CA\_n26A-n78A | n26 | CA\_n26(2A)\_BCS0 | 0 |
|  |  | n78 | CA\_n78(2A)\_BCS0 |  |

#### 5.x.1.3 Co-existence studies

Table 5.x.2.2-3 gives a non-contiguous uplink IMD interference analysis

Table 5.x.2.2-3: Non-contiguous uplink IMD analysis

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| UE UL carriers | fx\_low = 3300 | fx\_high = 3320 | fy\_low = 3780 | fy\_high = 3800 |
| 2nd order IMD products | |fy\_low – fx\_high| | |fy\_high – fx\_low| | |fy\_low + fx\_low| | |fy\_high + fx\_high| |
| IMD frequency limits (MHz) |  460 – 500 |  7080 – 7120 |
| Two-tone 3rd order IMD products | |2\*fx\_low – fy\_high| | |2\*fx\_high – fy\_low| | |2\*fy\_low – fx\_high| | |2\*fy\_high – fx\_low| |
| IMD frequency limits (MHz) |  2800 – 2860 |  4240 – 4300 |
| Two-tone 3rd order IMD products | |2\*fx\_low + fy\_low| | |2\*fx\_high + fy\_high| | |2\*fy\_low + fx\_low| | |2\*fy\_high + fx\_high| |
| IMD frequency limits (MHz) |  10380 – 10440 |  10860 – 10920 |
| Two-tone 4th order IMD products | |3\*fx\_low –1\* fy\_high| | |3\*fx\_high – 1\*fy\_low| | |3\*fy\_low – 1\*fx\_high| | |3\*fy\_high – 1\*fx\_low| |
| IMD frequency limits (MHz) |  6100 – 6180 |  8020 – 8100 |
| Two-tone 4th order IMD products | |2\*fx\_low –2\* fy\_high| | |2\*fx\_high –2\* fy\_low| |  |  |
| IMD frequency limits (MHz) | 920 – 1000 |  |
| Two-tone 4th order IMD products | |3\*fx\_low +1\* fy\_low| | |3\*fx\_high + 1\*fy\_high| | |3\*fy\_low + 1\*fx\_low| | |3\*fy\_high + 1\*fx\_high| |
| IMD frequency limits (MHz) |  13680 – 13760 | 14640 – 14720 |
| Two-tone 4th order IMD products | |2\*fx\_low +2\* fy\_low| | |2\*fx\_high +2\* fy\_high| |  |  |
| IMD frequency limits (MHz) | 14160 – 14240 |  |
| Two-tone 5th order IMD products | |fx\_low – 4\*fy\_high| | |fx\_high – 4\*fy\_low| | |fy\_low – 4\*fx\_high| | |fy\_high – 4\*fx\_low| |
| IMD frequency limits (MHz) | 11800 – 11900 | 9400 – 9500 |
| Two-tone 5th order IMD products | |2\*fx\_low - 3\*fy\_high| | |2\*fx\_high - 3\*fy\_low| | |2\*fy\_low - 3\*fx\_high| | |2\*fy\_high -3\*fx\_low| |
| IMD frequency limits (MHz) | 4700 – 4800 | 2300 – 2400 |
| Two-tone 5th order IMD products | |fx\_low + 4\*fy\_low| | |fx\_high + 4\*fy\_high| | |fy\_low + 4\*fx\_low| | |fy\_high + 4\*fx\_high| |
| IMD frequency limits (MHz) | 18420 – 18520 | 16980 – 17080 |
| Two-tone 5th order IMD products | |2\*fx\_low + 3\*fy\_low| | |2\*fx\_high + 3\*fy\_high| | |2\*fy\_low + 3\*fx\_low| | |2\*fy\_high + 3\*fx\_high| |
| IMD frequency limits (MHz) | 17940 – 18040 | 17460 – 17560 |
| NOTE : For each IMD item, when two bound values before taking absolute have different signs, the relevant IMD range shall be set such that (1) the lower bound is 0 and (2) the upper bound is the bigger value of the two after taking absolute. The lowest even order and lowest odd order IMD MSDs shall be considered. |

Based on the table 5.x.2.2-3, there are no IMD products falling inside n26 DL.

#### 5.x.1.4 ∆TIB and ∆RIB values

CA\_n26-n78 has already been specified and this section does not need to be revisited.

#### 5.x.1.5 REFSENs requirements

Based on the co-existence studies there is no need to define MSD values.

---End of changes---

# Reference

[1] RP-241674, New WID: Rel-19 NR Carrier Aggregation (CA)/Dual Connectivity (DC) for x bands DL with y bands UL (x<7, y<3) and Supplementary Uplink (SUL) band combinations/CA band combinations with a single SUL or two SUL cells, Moderator (RAN4 Chair, Huawei)

[2] TS 38.101-1 v18.6.0