**3GPP TSG-RAN WG4 Meeting # 113 *R4-241xxxx***

**Orlando, US, 18th – 22nd November, 2024**

**Source:** Huawei, HiSilicon, CATT

**Title:** TP for TR 37.719-21-11 on introduction of DC\_41A\_n1A-n41A

**Agenda item:** 6.2.3

**Document for:** Approval

# 1 Background

This contribution provides text proposal on the NR band combination DC\_41A\_n1A-n41A.

# 2 Text Proposal

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

## 7.X DC\_41\_n1-n41

### 7.X.1 Configurations for DC

Table 7.X.1-1: Inter-band EN-DC configurations within FR1 (three bands)

| EN-DC  configuration | Uplink EN-DC  configuration  (NOTE X) |
| --- | --- |
| DC\_41A\_n1A-n41A | DC\_41A\_n41A  DC\_1A\_n41A |

### 7.X.2 Co-existence analysis for DC

Table 7.X.2-1: Band n1 and Band 41 UL IMD products

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **UE UL carriers** | **fx\_low** | **fx\_high** | **fy\_low** | **fy\_high** |
| 2nd order IMD products | |fy\_low – fx\_high| | |fy\_high – fx\_low| | |fy\_low + fx\_low| | |fy\_high + fx\_high| |
| IMD frequency limits (MHz) | 516 - 770 | | 4416 - 4670 | |
| 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) | 3012 - 3460 | | 1150 - 1464 | |
| 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) | 6912 - 7360 | | 6336 - 6650 | |
| 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) | 5508 - 6150 | | 3070 | 3444 |
| Two-tone 4th order IMD products | |2\*fx\_low –2\* fy\_high| | |2\*fx\_high –2\* fy\_low| |  |  |
| IMD frequency limits (MHz) | 1032 - 1540 | |  |  |
| 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) | 9408 - 10050 | | 8256 - 8630 | |
| Two-tone 4th order IMD products | |2\*fx\_low +2\* fy\_low| | |2\*fx\_high +2\* fy\_high| |  |  |
| IMD frequency limits (MHz) | 8832 - 9340 | |  |  |
| 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) | 4990 - 5424 | | 8004 - 8840 | |
| 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) | 380 - 948 | | 3528 - 4230 | |
| 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) | 10176 - 10610 | | 11904 - 12740 | |
| 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) | 10752 - 11320 | | 11328 - 12030 | |
| NOTE 1: 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.  NOTE 2: The lowest even order and lowest odd order IMD MSDs shall be considered. | | | | |

Based on Table 7.X.2-1, no IMD may fall into Rx frequencies of band n41.

### 7.X.3 ∆TIB and ∆RIB values

Table 7.X.3-1: ΔTIB,c due to EN-DC

| Inter-band EN-DC configuration | ΔTIB,c for E-UTRA band / NR band (dB)\* | | |
| --- | --- | --- | --- |
| Component band in order of bands in configuration\*\* | | |
| DC\_41\_n1-n41 | 0.5 | 0.5 | 0.5 |
| NOTE \*: “-” denotes ΔTIB,c = 0.  NOTE \*\*: The component band order in the configuration should be listed by the order of E-UTRA band and NR band respectively. | | | |

Table 7.X.3-2: ΔRIB,c due to EN-DC

| **Inter-band EN-DC configuration** | ΔRIB,c for E-UTRA band / NR band (dB)\* | | |
| --- | --- | --- | --- |
| Component band in order of bands in configuration\*\* | | |
| DC\_41\_n1-n41 | - | - | - |
| NOTE \*: “-” denotes ΔRIB,c = 0.  NOTE \*\*: The component band order in the configuration should be listed by the order of E-UTRA band and NR band respectively. | | | |

### 7.X.4 Analysis of MSD requirements

There is no IMD issue for DC\_41A\_n1A-n41A.

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

# Reference

[1] RP-241786, “Revised WID for for Rel-19 Dual connectivity (DC) of x LTE band(s), y NR band(s) (1<=x<6, 1<=y<6, x+y<=6) and single or two NR Supplementary Uplink (SUL) bands”, Nokia, CHTTL, LGE, Samsung