**3GPP TSG-RAN4 Meeting # 116 R4-2510942**

**Bangalore, IN. 25th – 29th, 2025**

Source: ZTE Corporation, Verizon, Nokia, Samsung

Title: TP for TR 38.746 HPUE CA\_n66-n77

Agenda Item: 6.8.3

Document for: Approval

# **Introduction**

In the last WID, the following configurations were included.

|  |  |  |
| --- | --- | --- |
| CA\_n66A-n77C | n77 | PC2 |
| CA\_n66A-n77C | n77 | PC1.5 |
| CA\_n66A-n77C | CA\_n77C | PC2 |
| CA\_n66A-n77C | CA\_n77C | PC1.5 |
| CA\_n66(2A)-n77C | n77 | PC2 |
| CA\_n66(2A)-n77C | n77 | PC1.5 |
| CA\_n66(2A)-n77C | CA\_n77C | PC2 |
| CA\_n66(2A)-n77C | CA\_n77C | PC1.5 |

In this contribution, a TP to TR38.746 is provided to introduce the above configurations of PC2/PC1.5 UL single carrier and PC2 intra-band UL CA .

# **Reference**

[1] TR 38.746, High power UE (power class 1.5 or 2) for NR inter-band Carrier Aggregation (CA) / Dual Connectivity (DC) with/without Supplementary Uplink (SUL) with high power on TDD band(s); (Release 19), v0.4.0

# Text Proposal

***----- Start of TP -----***

5.x CA\_n66-n77

5.x.1 Operating bands for CA

**Table 5.x.1-1: NR CA configurations and bandwidth combinations sets defined for inter-band CA (two bands)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| NR CA configuration | Uplink CA configuration or single uplink carrier10 | NR Band | Channel bandwidth (MHz) (NOTE 3) | Bandwidth combination set |
| CA\_n66A-n77C | n778,9CA\_n77C8CA\_n66A-n77A8 | n66 | 5, 10, 15, 20, 25, 30, 40 | 0 |
|  |  | n77 | CA\_n77C\_BCS1 |  |
|  |  | n66 | 5, 10, 15, 20, 25, 30, 40 | 1 |
|  |  | n77 | CA\_n77C\_BCS1 |  |
|  | n778,9CA\_n77C8CA\_n66A-n77ACA\_n66A-n77C | n66 | n66 channel bandwidths in Table 5.3.5-1 | 4 and 5 |
|  |  | n77 | CA\_n77C\_BCS 4 and 5 |  |
| CA\_n66(2A)-n77C | n778,9CA\_n77C8CA\_n66A-n77A8 | n66 | CA\_n66(2A)\_BCS0 | 0 |
|  |  | n77 | CA\_n77C\_BCS1 |  |
|  |  | n66 | CA\_n66(2A)\_BCS1 | 1 |
|  |  | n77 | CA\_n77C\_BCS1 |  |
|  | n778,9CA\_n77C8CA\_n66A-n77ACA\_n66A-n77C | n66 | CA\_n66(2A)\_BCS 4 and 5 | 4 and 5 |
|  |  | n77 | CA\_n77C\_BCS 4 and 5 |  |

Note: The above foot-script note number is same as clause 5.5A.3.1 in TS38.101-1

Note: On top of the existing specification, the new added configurations are highlighted in yellow for convenience.

5.x.2 MSD scenario studies

For harmonic MSD by HPUE n77:

- According to the co-existence study in TR38.719-02-01, there is an issue found at n66 UL2 harmonic falls into n77 DL. However, due to the power of band n66 is still kept as PC3, so there is no additional harmonic MSD need to be defined comparing to the existing harmonic MSD requirements in the TS38.101-1.

For harmonic mixing MSD caused by HPUE n77:

- According to the co-existence study in TR38.719-02-01, the frequency range of n77 UL2 is from 6600~8400MHz, while the frequency range of n66 DL3 is from 6330~6600MHz, it can be seen that the lower edge of n77 UL2 is exact the same as the upper edge of n66 DL3. However, according to the following guidelines,

- When a collision is detected with an overlap >0Hz between the ULx with DLy frequency ranges, the
ULx/DLy cell is marked “D” for direct hitnWhen the gap between ULx and DLy frequency range is from 0Hz to x\*MinULCBW, the ULx/DLy cell is marked “N” for Near miss.

- For harmonic mixing, near-miss cases only apply for UL1 and odd DLy orders.

We can see that there is no need to define the near-missing harmonic mixing MSD for HPUE n77 for CA\_n66-n77 for BCS0, 1, 4 and5.

For cross-band isolation MSD by HPUE n77

- According to the co-existence study in TR38.719-02-01, there is no issue found for cross-band isolation MSD although the UL n77 is HPUE.

For IMD MSD caused by PC2 CA\_n77C

- According to the co-existence study in TR38.719-02-01, IMD 13 of n77 falls into n66. however, due to n66 and n77 are not the two bands in adjacent band group, there is no need to check IMD 13 MSD according to the following guidance due to n66 and n77 are not the two bands in adjacent band group

- For intra-band ULCA within a FDD band, IMD order up to 13 should be considered for bands in the same band group and MPR is not assumed. If justified by poor filtering performance, higher order IMD may need to be specified.

5.x.3 REFSENS requirements

5.x.3.1 REFSENS requirements for total power class 2

Comparing the existing MSD in TS38.101-1, there are no additional MSD requirement needed to be specified.

5.x.3.2 REFSENS requirements for total power class 1.5

Comparing the existing MSD in TS38.101-1, there are no additional MSD requirement needed to be specified.

***----- End of TP -----***