**3GPP TSG-RAN WG4 Meeting # 111 R4-2410550**

**Fukuoka Meeting, May 20th – May 24th, 2024**

**Title: TP to TR 38.850 to add HP-NRCA n3-n7-n78**

**Source: Nokia, BT plc**

**Agenda item: 6.18.2**

**Document for: Approval**

# 1 Introduction

This contribution is a text proposal for TR38.850[1] for adding PC2 of n3 and n7 in CA\_n3A-n7A-n78A and CA\_n3A-n7A-n78(2A).

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of TP\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

5.x CA\_n3A-n7A-n78A and CA\_n3A-n7A-n78(2A)

5.x.1 UE maximum output power

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **NR CA configuration** | **Uplink CA configuration or**  **single uplink carrier** | **NR Band** | **Channel bandwidth (MHz)** | **Bandwidth combination set** |
| CA\_n3A-n7A-n78A | n37  n77  CA\_n3A-n7A  CA\_n3A-n78A  CA\_n7A-n78A | n3 | 5, 10, 15, 20, 25, 30 | 0 |
|  |  | n7 | 5, 10, 15, 20, 25, 30, 40, 50 |  |
|  |  | n78 | 10, 15, 20, 25, 30, 40, 50, 60, 80, 90, 100 |  |
|  |  | n3 | 5, 10, 15, 20, 25, 30, 40 | 1 |
|  |  | n7 | 5, 10, 15, 20, 25, 30, 40, 50 |  |
|  |  | n78 | 10, 15, 20, 25, 30, 40, 50, 60, 704, 80, 90, 100 |  |
|  |  | n3 | n3 channel bandwidths in Table 5.3.5-1 | 4 and 5 |
|  |  | n7 | n7 channel bandwidths in Table 5.3.5-1 |  |
|  |  | n78 | n78 channel bandwidths in Table 5.3.5-1 |  |
| CA\_n3A-n7A-n78(2A) | n37  n77  CA\_n78(2A)  CA\_n3A-n7A  CA\_n3A-n78A  CA\_n7A-n78A | n3 | 5, 10, 15, 20, 25, 30, 40 | 0 |
|  |  | n7 | 5, 10, 15, 20, 25, 30, 40, 50 |  |
|  |  | n78 | CA\_n78(2A)\_BCS2 |  |
| NOTE 4: The minimum requirements only apply for non-simultaneous Tx/Rx between all carriers for TDD combinations.  NOTE 7: Power Class 2 is allowed for this uplink combination or single uplink carrier in this downlink/uplink combination | | | | |

5.x.2 Reference sensitivity requirements

For single UL PC2 n7 in CA\_n3A-n7A:

- The harmonic uplink and mixing interference of n7 does not fall into Rx frequencies of n3.

- Cross band isolation interference of PC2 n7 does not fall into n3.

For single UL PC2 n3 in CA\_n3A-n7A:

- The harmonic uplink and mixing interference of n3 does not fall into Rx frequencies of n7.

- Cross band isolation interference of PC2 n3 does not fall into n7.

For single UL PC2 n3 in CA\_n3A-n78A:

- The harmonic uplink interference of n3 falls into Rx frequencies of n78.

- Cross band isolation interference of PC2 n3 does not fall into n78.

For single UL PC2 n7 in CA\_n7A-n78A:

- The harmonic mixing interference of n7 falls into Rx frequencies of n78

- Cross band isolation interference of PC2 n7 does not fall into n78.

#### 5.x.2.1 Reference sensitivity requirements with PC2 on n3 and n7 without TxD

For CA\_n3A-n78A, reference sensitivity exception due to harmonic UL interference are captured in the related PC2 fallback.

For CA\_n7A-n78A, reference sensitivity exception due to harmonic mixing is not recorded in PC3, so some arguments must exist why UL3/DL2 was not included. Similar there’s no harm mixing for CA\_n7A-n77A either, so there must be an argument that UL3/DL2 have been omitted, while the UL2/DL3 of n77 is defined. An earlier harmonic mixing rule must have been considered:

Rule a thumb for harmonic mixing:

nxDL=mxUL

n=1,3,5 but n=2 should be considered for DL freq>2GHz

Therefore, no MSD in PC2 is declared either.

#### 5.x.2.2 Reference sensitivity requirements with PC2 on n3 and n7 with TxD

For CA\_n3A-n78A, reference sensitivity exception due to harmonic UL interference are captured in the related PC2 fallback.

For CA\_n7A-n78A, there is same concern as in the above discussion for the requirement without TxD.

### 5.3.4 ∆TIB and ∆RIB values

Not applicable

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# References

[1] 3GPP TR38.850 “Rel-18 High power UE (power class 2) for a single FR1 NR FDD band in UL of NR intra-band and inter-band CA/DC combinations with y bands downlink (y=1,2,3,4,5,6) and x bands uplink (x=1); (Release 18)”, v1.3.0