3GPP TSG-RAN WG4 Meeting # 98-e R4-2101605

Electronic Meeting, 25th January– 5th Febuary, 2021

**Source:** Huawei, HiSilicon

**Title:** TP for TR 37.717-00-00 for CA\_n79A\_SUL\_n41A-n83A

**Agenda Item:** 9.8.2

**Document for:** Approval

# 1 Introduction

The WID for SUL band combinations was updated in RAN #90 meeting. This contribution provides a TP for CA\_n79A\_SUL\_n41A-n83A for TR 37.717-00-00.

# References

[1] RP-202611, “New WID on Rel-17 Band combinations for SA NR Supplementary uplink (SUL), NSA NR SUL, NSA NR SUL with UL sharing from the UE perspective (ULSUP)”, Huawei, HiSilicon

# Text Proposal

**<TP for TR 37.717-00-00>**

5.x CA\_n79A\_SUL\_n41A-n83A

5.x.1 Operating bands

**Table 5.x.1-1: SUL band combination**

|  |  |
| --- | --- |
| NR Band combination for SUL | NR Band  (Table 5.2-1) |
| CA\_n79\_SUL\_n41-n83 | n41, n79, n83 |
| NOTE 1: If a UE is configured with both NR UL and NR SUL carriers in a cell, the switching time between NR UL carrier and NR SUL carrier is 0 us.  NOTE 2: For UE supporting SUL band combination simultaneous Rx/Tx capability is mandatory. | |

5.x.2 Channel bandwidths per operating band

**Table 5.x.2-1: Supported bandwidths per SUL band combination**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **SUL band combination with CA** | **UL configuration** | **NR Band** | **Subcarrier spacing**  **(kHz)** | **5**  **MHz** | **10**  **MHz** | **15**  **MHz** | **20**  **MHz** | **25 MHz** | **30 MHz** | **40**  **MHz** | **50**  **MHz** | **60**  **MHz** | **70**  **MHz** | **80**  **MHz** | 90  MHz | **100 MHz** | **Bandwidth combination set** |
| CA\_n79A\_SUL\_n41A-n83A | SUL\_n41A-n83A | n41 | 15 |  | Yes | Yes | Yes |  | Yes | Yes | Yes |  |  |  |  |  | 0 |
| 30 |  | Yes | Yes | Yes |  | Yes | Yes | Yes | Yes |  | Yes | Yes | Yes |
| 60 |  | Yes | Yes | Yes |  | Yes | Yes | Yes | Yes |  | Yes | Yes | Yes |
| n79 | 15 |  |  |  |  |  |  | Yes | Yes |  |  |  |  |  |
| 30 |  |  |  |  |  |  | Yes | Yes | Yes |  | Yes |  | Yes |
| 60 |  |  |  |  |  |  | Yes | Yes | Yes |  | Yes |  | Yes |
| n83 | 15 | Yes | Yes | Yes | Yes |  | Yes |  |  |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes |  | Yes |  |  |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes |  | Yes |  |  |  |  |  |  |  |

5.x.3 Maximum output power

There is only single UL in uplink so the requirement for each band in clause 6.2.1 from 38.101-1 is applicable.

5.x.4 Spurious emission band UE co-existence

There is only single UL in uplink so this requirement specified in clause 6.5.3.2 from 38.101-1 is applicable.

Table 5.x.4-1 summarizes frequency ranges where harmonics and/or harmonics mixing occur for CA\_n79\_SUL\_n41-n83.

**Table 5.x.4-1: Impact of UL/DL Harmonic/Harmonic mixing**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  | **2nd Harmonic** | | **3rd Harmonic** | | **4th Harmonic** | |
| **Band** | | **Low Band Edge** | High Band Edge | Low Band Edge | High Band Edge | Low Band Edge | High Band Edge | Low Band Edge | High Band Edge |
| n41 | UL/DL frequency range | 2496 | 2690 | 4992 | 5380 | 7488 | 8070 | 9984 | 10760 |
| n79 | DL frequency range | 4400 | 5000 | 8800 | 10000 | 13200 | 15000 | 17600 | 20000 |
| n83 | UL frequency range | 703 | 748 | 1406 | 1496 | 2109 | 2244 | 2812 | 2992 |

UL 2nd harmonic may fall into Rx of band n79.

5.x.5 REFSENS requirements

For SUL operation with CA, the reference receive sensitivity (REFSENS) requirement for downlink bands specified in clause 7.3A.2 from TS 38.101-1 shall be met when supplementary uplink configuration for reference sensitivity are specified in 7.3C.2-1 from TS 38.101-1.

UL 2nd harmonic between band n41 and n79 can follow current RAN4’s agreement of the fallback CA\_n41-n79.

5.x.6 ∆TIB and ∆RIB values

For CA\_n79\_SUL\_n41-n83, the ΔTIB,c and ΔRIB,c values are given in the tables below.

**Table 5.x.6-1: ΔTIB,c**

| SUL Band combination | NR Band | ΔTIB,c [dB] |
| --- | --- | --- |
| CA\_n79\_SUL\_n41-n83 | n41 | 0.3 |
| n79 | 0.8 |
| n83 | 0.5 |
|  | | |

**Table 5.x.6-2: ΔRIB,c**

| SUL Band combination | NR Band | ΔRIB,c [dB] |
| --- | --- | --- |
| CA\_n79\_SUL\_n41-n83 | n41 | 0 |
| n79 | 0.5 |

**<End of TP >**