3GPP TSG-RAN WG4 Meeting #109 R4-2318265

Chicago, US, 13th – 17th November 2023

Title: TP for TR37.718-11-21 Support of DC\_8A\_n1A-n79A

Source: Softbank

Agenda Item: 7.6.2

Document for: Approval

# **Introduction**

This contribution is a text proposal for TR 37.718-11-21[5] combinations as requested in RAN4#108.

* EN-DC 8\_n1-n79 (1 band LTE (1 DL / 1 UL)) and 2 NR bands (2 DL / 1 UL))

# **Reference**

[1] 3GPP TR 21.905 Vocabulary for 3GPP Specifications (Release 17) V17.1.0

[5] 3GPP TS37.718-11-21 Rel-18 DC of x bands (x=1,2,3,4) LTE inter-band CA (xDL/1UL) and 2 bands NR inter-band CA (2DL/1UL) (Release 18) V0.8.0

[6] 3GPP TS37.716-21-11 Dual Connectivity (EN-DC) of 2 bands LTE inter-band CA (2DL/1UL) and 1 NR band (1DL/1UL) (Release 16) V16.1.0

[7] 3GPP TS38.101-1 User Equipment (UE) radio transmission and reception; Part 1: Range 1 Standalone (Release 18) V18.3.0

# **Text Proposal**

# **-- Start of TP –**

**-- Unaffected parts omitted –**

## 6.x DC\_8\_n1-n79

### 6.x.1 Operating bands for DC

Table 6.x.1-1: DC band combination of one LTE band + NR 2DL/1UL

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **E-UTRA and NR DC Band** | **E-UTRA and NR Band** | **Uplink (UL) band** | | | **Downlink (DL) band** | | | **Duplex**  **mode** |
| **BS receive / UE transmit** | | | **BS transmit / UE receive** | | |
| **FUL\_low – FUL\_high** | | | **FDL\_low – FDL\_high** | | |
| DC\_8A\_n1A-n79A | 8 | 880 MHz |  | 915 MHz | 925 MHz | – | 960 MHz | FDD |
| n1 | 1920 MHz | – | 1980 MHz | 2110 MHz | – | 2170 MHz | FDD |
| n79 | 4400 MHz | – | 5000 MHz | 4400 MHz | – | 5000 MHz | TDD |
|  | | | | | | | | |

### 6.x.2 configuration for DC

Table 6.32.2-1: Inter-band EN-DC configurations within FR1 (three bands)

| **EN-DC**  **configuration** | **Uplink EN-DC**  **configuration**  **(NOTE 1)** |
| --- | --- |
| DC\_8A\_n1A-n79A | DC\_8A\_n79A |

### 6.x.3 Co-existence studies

For DC\_8\_n1-n79, the harmonic and IMD issues are reused from DC\_1-8\_n79 referring to 5.1.16.3 in TR37.716-21-11[6].

When Uplink EN-DC configuration is DC\_8A\_n79A, IMD4 of (3\*B8-n79) will fall into Rx band of n1.

### 6.x.4 ∆TIB and ∆RIB values

For DC\_8\_n1-n79, the ΔTIB and ΔRIB values are given tables below.

Table 6.x.4-1: ΔTIB,c

| Inter-band EN-DC configuration | ΔTIB,c for E-UTRA band / NR band (dB)6 | | |
| --- | --- | --- | --- |
| Component band in order of bands in configuration7 | | |
| DC\_8\_n1-n79 | 0.3 | 0.3 | 0 |
| NOTE 6: “-” denotes ΔTIB,c = 0.  NOTE 7: The component band order in the configuration should be listed by the order of E-UTRA band and NR band respectively, such as for DC\_66\_(n)12 the band order from left to right is 12, 66 and n12. | | | |

Table 6.x.4-2: ΔRIB

| **nter-band EN-DC configuration** | ΔRIB,c for E-UTRA band / NR band (dB)7 | | |
| --- | --- | --- | --- |
| Component band in order of bands in configuration8 | | |
| DC\_8\_n1-n79 | 0 | 0 | 0 |
| NOTE 7: “-” denotes ΔRIB,c = 0.  NOTE 8: The component band order in the configuration should be listed by the order of E-UTRA band and NR band respectively, such as for DC\_5\_(n)12 the band order from left to right is 5, 12 and n12. | | | |

### 6.x.5 MSD

For DC\_8\_n1-n79, the MSD value is reused from DC\_1-8\_n79 referring to 5.1.16.3 in TR37.716-21-11[6].

Table 6.x.5-1: MSD test points for Scell due to dual uplink operation for EN-DC in NR FR1 (three bands)

| NR or E-UTRA Band / Channel bandwidth / NRB / MSD | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| EN-DC Configuration | EUTRA / NR band | UL Fc  (MHz) | UL/DL BW  (MHz) | UL  LCRB | DL Fc (MHz) | MSD  (dB) | IMD order |
| DC\_8A\_n1A-n79A | 8 | 900 | 5 | 25 | 945 | N/A | N/A |
|  | n1 | 1955 | 5 | 25 | 2145 | 8.2 | IMD4 |
|  | n79 | 4845 | 40 | 216 | 4845 | N/A | N/A |

**-- Unaffected parts omitted –**

**-- End of TP --**