**3GPP TSG RAN WG4 Meeting #100-e R4-2112057**

**Online, 16th – 27th August 2021**

**Agenda item: 8.19.2**

**Source: SoftBank Corp.**

**Title: TP for TR 37.717-11-21: EN-DC\_8\_n28-n79**

**Document for: Approval**

# 1 Introduction

EN-DC of 1B LTE and 2B NR of DC\_8\_n28-n79 was approved in RAN#92 [1]. This TP is to capture the basic aspects for the EN-DC. The MSD exception value needs to be updated to complete the combo.

# 2 Text Proposal

**[Unchanged Parts Skipped]**

## 6.X DC\_8\_n28-n79

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

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

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| E-UTRA and NR DC Band combination | E-UTRA and NR DC 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\_8\_n28-n79 | 8 | 880 MHz | – | 915 MHz | 925 MHz | – | 960 MHz | FDD |
| n28 | 703 MHz | – | 748 MHz | 758 MHz | – | 803 MHz | FDD |
| n79 | 4400 MHz | – | 4500 MHz | 4400 MHz | – | 5000 MHz | TDD |

### 6.X.2 Channel bandwidths per operating band for DC

Table 6.X.2-1: Supported bandwidths per DC LTE 1DL/1UL + inter-band NR 2DL/1UL

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **DC operating / channel bandwidth** | | | | | | | | | | | | | | | | | |
| **E-UTRA and NR DC Configuration** | **UL Configurations** | **E-UTRA and NR Band** | **Subcarrier Spacing**  **[kHz]** | **5MHz** | **10**  **MHz** | **15**  **MHz** | **20**  **MHz** | **25**  **MHz** | **30**  **MHz** | **40**  **MHz** | **50**  **MHz** | **60**  **MHz** | **70**  **MHz** | **80**  **MHz** | **90**  **MHz** | **100**  **MHz** | **Maximum aggregated bandwidth For DL**  **[MHz]** |
| DC\_8A\_n28A-n79A | DC\_8A\_n28A  DC\_8A\_n79A | 8 | 15 | Yes | Yes |  |  |  |  |  |  |  |  |  |  |  | 140 |
| n28 | 15 | Yes | Yes | Yes | Yes |  | Yes |  |  |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes |  | Yes |  |  |  |  |  |  |  |
| 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n79 | 15 |  |  |  |  |  |  | Yes | Yes |  |  |  |  |  |
| 30 |  |  |  |  |  |  | Yes | Yes | Yes |  | Yes |  | Yes |
| 60 |  |  |  |  |  |  | Yes | Yes | Yes |  | Yes |  | Yes |

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

Based on the co-existence studies of DC\_8A-n28A and DC\_8A-n79A, 5th order IMD generated by dual uplink of Band 8 + Band n28 may also fall into own Rx of band n79 and 5th order IMD generated by dual uplink of Band 8 + Band n79 may also fall into own Rx of band n28.

### 6.X.4 ∆TIB and ∆RIB values

For DC\_8\_n28-n79, the ΔTIB,c and ΔRIB,c values are given in the tables below.

Table 6.X.4-1: ΔTIB,c

| Inter-band DC Configuration | E-UTRA and NR Band | ΔTIB,c [dB] |
| --- | --- | --- |
| DC\_8\_n28-n79 | 8 | 0.6 |
| n28 | 0.5 |
| n79 | 0.8 |

Table 6.X.4-2: ΔRIB

| Inter-band DC Configuration | E-UTRA and NR Band | ΔRIB [dB] |
| --- | --- | --- |
| DC\_8\_n28-n79 | 8 | 0.2 |
| n28 | 0.2 |
| n79 | 0.5 |

### 6.X.5 MSD

As mentioned in 6.X.3, IMD5 of B8 and n28 to Band n79 Rx and IMD5 of B8 and n79 to Band n28 Rx need to be addressed for REFSENS relaxation. The following values are proposed:

Table 5.1.x.5-1: Reference sensitivity exceptions 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)** | **Duplex mode** | **IMD order** |
| DC\_8A\_n28A-n79A | 8 | TBD | TBD | TBD | TBD | N/A | FDD | N/A |
| n28 | TBD | TBD | TBD | TBD | N/A | FDD | N/A |
| n79 | TBD | TBD | TBD | TBD | TBD | FDD | IMD5 |
| DC\_8A\_n28A-n79A | 8 | TBD | TBD | TBD | TBD | N/A | FDD | N/A |
| n79 | TBD | TBD | TBD | TBD | N/A | TDD | N/A |
| n28 | TBD | TBD | TBD | TBD | TBD | FDD | IMD5 |

**[Unchanged Parts Skipped]**

# 7. Reference

[1] RP-211043 Revised WID on DC of x bands (x=1,2,3,4) LTE inter-band CA (xDL/1UL) and 2 bands NR inter-band CA (2DL/1UL) in Rel-17, LG Electronics