**3GPP TSG RAN WG4 Meeting #98-e R4-2100642**

**Electronic Meeting, 25 Jan. - 5 Feb., 2021**

**Agenda item: 9.4.2**

**Source: SoftBank Corp., LG Electronics**

**Title: TP update for TR 37.717-21-11: EN-DC\_1-11\_n28**

**Document for: Approval**

# 1 Introduction

EN-DC of 2B LTE and 1B NR of DC\_1-11\_n28 was approved in RAN4#96[1][2] but REFSENS exceptions have TBD parts. This TP is to update the REFSENS exception results and reflect the REFSENS exception.

# 2 Text Proposal

**[Unchanged Parts Skipped]**

## 5.x DC\_1-11\_n28

5.x.1 Configurations for DC\_1-11\_n28

Table 5.x.1-1: Inter-band EN-DC configurations (three bands)

| EN-DC  configuration | Uplink EN-DC  configuration  (NOTE 1) | E-UTRA configuration | NR configuration |
| --- | --- | --- | --- |
| DC\_1A-11A\_n28A | DC\_1A\_n28A  DC\_11A\_n28A | CA\_1A-11A | n28A |

5.x.2 Co-existence studies

When Uplink EN-DC configuration is DC\_11A\_n28A, IMD2 and IMD3 of (B11 - n28) will fall into Rx band of Band 1. But considering the current situation that Band 11 is operated only by a certain operators in Japan, the frequency ranges can be limited as follows.

* Operator X: B11 (UL:1427.9-1437.9 / DL:1475.9-1485.9 MHz), B1 (UL:1960-1980 / DL:2150-2170 MHz), n28 (UL:738-748 / DL:793-803 MHz)
* Opeartor Y: B11 (UL:1437.9-1447.9 / DL:1485.9-1495.9 MHz), B1 (UL:1920-1940 / DL:2110-2130 MHz), n28 (UL:718-728 / DL:773-783 MHz)

Based on the existing frequency restriction in Japan, RAN4 only need to analyze the IMD2 problem as follow

* IMD2 by dual uplink DC\_11\_n28 will fall into the own Rx band of Band 1
* IMD3 by dual uplink DC\_11\_n28 is not specified due to the current operator spectrum holding.

5.x.3 ∆TIB and ∆RIB values

The following relaxation values are proposed:

Table 5.x.3-1: ΔTIB,c

| Inter-band EN-DC configuration | E-UTRA or NR Band | ΔTIB,c (dB) |
| --- | --- | --- |
| DC\_1-11\_n28 | 1 | 0.3 |
| 11 | 0.4 |
| n28 | 0.6 |

Table 5.x.3-2: ΔRIB

|  |  |  |
| --- | --- | --- |
| Inter-band EN-DC configuration | NR Band | ΔRIB,c (dB) |
| DC\_1-11\_n28 | 1 | 0 |
| 11 | 0 |
| n28 | 0.2 |

5.x.4 Reference sensitivity exceptions

As mentioned above, IMD2 of B11 and n28 to Band 1 Rx need to be addressed for REFSENS relaxation. The following values are proposed:

Table 5.x.4-1: 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\_1A-11A\_n28A | 11 | 1440 | 5 | 25 | 1488 | N/A | FDD | N/A |
| n28 | 710 | 5 | 25 | 765 | N/A | FDD | N/A |
| 1 | 1960 | 5 | 25 | 2150 | 28.3 | FDD | IMD2 |
| DC\_1A-11A\_n28A | 11 | 1440 | 5 | 5 | 1488 | N/A | FDD | N/A |
| n28 | 710 | 5 | 5 | 765 | N/A | FDD | N/A |
| 1 | 1975 | 5 | 5 | 2165 | N/A1 | FDD | IMD3 |
| NOTE1: REFSENS relaxation of IMD3 is not specified due to the spectrum allocation of existing operators. | | | | | | | | |

**[Unchanged Parts Skipped]**

# 7. Reference

[1] R4-2009992 TP for TR 37.717-21-11: EN-DC\_1-11\_n28, SoftBank Corp.

[2] R4-2016662 TP update for TR 37.717-21-11: EN-DC\_1-11\_n28, SoftBank Corp., LG Electronics