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Technical Report

3rd Generation Partnership Project;

Technical Specification Group Radio Access Networks;

E-UTRA (Evolved Universal Terrestrial Radio Access) - NR Dual Connectivity (EN-DC) of 4 bands LTE inter-band Carrier aggregation (CA) (4 Down Link (DL) / 1 Up Link (UL)) and 1 NR band (1 DL / 1 UL)

(Release 16)

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Foreword

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# 1 Scope

The present document is a technical report for Dual Connectivity (EN-DC) of 4 LTE bands (4DL/1UL) and 1 NR band (1DL/1UL) under Rel-16 time frame. The purpose is to gather the relevant background information and studies in order to address Dual Connectivity (EN-DC) of 4 LTE band (4DL/1UL) and 1 NR band (1DL/1UL) for the Rel-16 band combinations. in Table 1-1 and Table 1-2. The co-existence analysis and RF front end requirements such as Delta RIB,C and TIB,C are described based on the band combination basis since such information have no difference between the EN-DC configulations consisting with the same E-UTRA band and the same NR band.

Table 1-1: Release 16 EN-DC of 4 LTE band (4DL/1UL) and 1 NR band (1DL/1UL) within FR1

|  |  |
| --- | --- |
| EN-DC configuration | Uplink EN-DC configuration |
| DC\_1A-3A-41A-42A\_n78A  DC\_1A-3A-41A-42C\_n78A  DC\_1A-3A-41C-42A\_n78A  DC\_1A-3A-41C-42C\_n78A | DC\_1A\_n78A  DC\_3A\_n78A  DC\_41A\_n78A |
| DC\_1A-3A-18A-42A\_n78A  DC\_1A-3A-18A-42C\_n78A | DC\_1A\_n78A  DC\_3A\_n78A  DC\_18A\_n78A |
| DC\_3A-19A-21A-42A\_n77A  DC\_3A-19A-21A-42A\_n77C  DC\_3A-19A-21A-42C\_n77A  DC\_3A-19A-21A-42C\_n77C | DC\_3A\_n77A  DC\_19A\_n77A  DC\_21A\_n77A |
| DC\_3A-19A-21A-42A\_n78A  DC\_3A-19A-21A-42A\_n78C  DC\_3A-19A-21A-42C\_n78A  DC\_3A-19A-21A-42C\_n78C | DC\_3A\_n78A  DC\_19A\_n78A  DC\_21A\_n78A |
| DC\_3A-19A-21A-42A\_n79A  DC\_3A-19A-21A-42A\_n79C  DC\_3A-19A-21A-42C\_n79A  DC\_3A-19A-21A-42C\_n79C | DC\_3A\_n79A  DC\_19A\_n79A  DC\_21A\_n79A |
| DC\_1A-3A-41A-42A\_n79A  DC\_1A-3A-41A-42C\_n79A  DC\_1A-3A-41C-42A\_n79A  DC\_1A-3A-41C-42C\_n79A | DC\_1A\_n79A  DC\_3A\_n79A  DC\_41A\_n79A |
| DC\_1A-3A-18A-42A\_n79A  DC\_1A-3A-18A-42C\_n79A | DC\_1A\_n79A  DC\_3A\_n79A  DC\_18A\_n79A |
| DC\_1A-3A-41A-42A\_n77A  DC\_1A-3A-41A-42C\_n77A  DC\_1A-3A-41C-42A\_n77A  DC\_1A-3A-41C-42C\_n77A | DC\_1A\_n77A  DC\_3A\_n77A  DC\_41A\_n77A |
| DC\_1A-3A-18A-42A\_n77A  DC\_1A-3A-18A-42C\_n77A | DC\_1A\_n77A  DC\_3A\_n77A  DC\_18A\_n77A |
| DC\_1A-3A-7A-8A\_n78A | DC\_1A\_n78A  DC\_3A\_n78A  DC\_7A\_n78A  DC\_8A\_n78A |
| DC\_1A-3A-7A-28A\_n78A  DC\_1A-3A-7C-28A\_n78A  DC\_1A-3C-7A-28A\_n78A  DC\_1A-3C-7C-28A\_n78A | DC\_1A\_n78A  DC\_3A\_n78A  DC\_3C\_n78A  DC\_7A\_n78A  DC\_7C\_n78A  DC\_28A\_n78A |
| DC\_1A-3A-5A-41A\_n79A | DC\_1A\_n79A  DC\_3A\_n79A  DC\_5A\_n79A  DC\_41A\_n79A |
| DC\_1A-3A-7A-28A\_n5A  DC\_1A-3C-7A-28A\_n5A  DC\_1A-3A-7C-28A\_n5A  DC\_1A-3C-7C-28A\_n5A | DC\_1A\_n5A  DC\_3A\_n5A  DC\_7A\_n5A  DC\_28A\_n5A |
| DC\_1A-3A-20A-38A\_n78A | DC\_3A\_n78A  DC\_20A\_n78A |
| DC\_1A-3A-8A-42A\_n77A  DC\_1A-3A-8A-42C\_n77A | DC\_1A\_n77A  DC\_3A\_n77A  DC\_8A\_n77A |
| DC\_2A-12A-30A-66A\_n2A | DC\_12A\_n2A  DC\_30A\_n2A  DC\_66A\_n2A |
| DC\_2A-7A-13A-66A\_n66A  DC\_2A-7C-13A-66A\_n66A | DC\_2A\_n66A  DC\_7A\_n66A  DC\_13A\_n66A  DC\_66A\_n66A4 |
| DC\_1A-3A-7A-28A\_n7A  DC\_1A-3C-7A-28A\_n7A  DC\_1A-1A-3A-7A-28A\_n7A  DC\_1A-1A-3A-3A-7A-28A\_n7A  DC\_1A-3A-3A-7A-28A\_n7A  DC\_1A-1A-3C-7A-28A\_n7A | DC\_1A\_n7A  DC\_3A\_n7A  DC\_3C\_n7A  DC\_7A\_n7A4  DC\_28A\_n7A |
| DC\_2A-12A-30A-66A\_n66A | DC\_2A\_n66A  DC\_12A\_n66A  DC\_30A\_n66A  DC\_66A\_n66A4 |
| DC\_1A-3A-7A-28A\_n40A | DC\_1A\_n40A  DC\_3A\_n40A  DC\_7A\_n40A  DC\_28A\_n40A |
| DC\_2A-29A-30A-66A\_n2A | DC\_2A\_n2A  DC\_30A\_n2A  DC\_66A\_n2A |
| DC\_1A-3A-7A-20A\_n8A | **DC\_1A\_n8A**  **DC\_3A\_n8A**  **DC\_7A\_n8A**  DC\_20A\_n8A |
| NOTE 1: Uplink EN-DC configurations are the configurations supported by the present release of specifications.  NOTE 2: Applicable for UE supporting inter-band EN-DC with mandatory simultaneous Rx/Tx capability  NOTE 3: The frequency range in band n28 is restricted for this band combination to 703-733 MHz for the UL and 758-788 MHz for the DL  NOTE 4: Only single switched UL is supported | |

Table 1-2: Release 16 EN-DC of 4 LTE band (4DL/1UL) and 1 NR band (1DL/1UL) including FR2

|  |  |
| --- | --- |
| EN-DC configuration | Uplink EN-DC configuration |
| DC\_2A-12A-30A-66A\_n260 | DC\_2A\_n260A  DC\_12A\_n260A  DC\_30A\_n260A  DC\_66A\_n260A |
| DC\_2A-5A-30A-66A\_n260 | DC\_2A\_n260A  DC\_5A\_n260A  DC\_30A\_n260A  DC\_66A\_n260A |
| DC\_1A-3A-41A-42A\_n257A  DC\_1A-3A-41A-42A\_n257F  DC\_1A-3A-41A-42A\_n257M  DC\_1A-3A-41A-42C\_n257A  DC\_1A-3A-41A-42C\_n257F  DC\_1A-3A-41A-42C\_n257M  DC\_1A-3A-41C-42A\_n257A  DC\_1A-3A-41C-42A\_n257F  DC\_1A-3A-41C-42A\_n257M  DC\_1A-3A-41C-42C\_n257A  DC\_1A-3A-41C-42C\_n257F  DC\_1A-3A-41C-42C\_n257M | DC\_1A\_n257A  DC\_3A\_n257A  DC\_41A\_n257A  DC\_42A\_n257A |
| DC\_1A-3A-18A-42A\_n257A  DC\_1A-3A-18A-42A\_n257F  DC\_1A-3A-18A-42A\_n257M  DC\_1A-3A-18A-42C\_n257A  DC\_1A-3A-18A-42C\_n257F  DC\_1A-3A-18A-42C\_n257M | DC\_1A\_n257A  DC\_3A\_n257A  DC\_18A\_n257A  DC\_42A\_n257A |
| DC\_1A-3A-5A-7A\_n257D  DC\_1A-3A-5A-7A\_n257E  DC\_1A-3A-5A-7A\_n257F  DC\_1A-3A-5A-7A\_n257G  DC\_1A-3A-5A-7A\_n257H  DC\_1A-3A-5A-7A\_n257I  DC\_1A-3A-5A-7A\_n257J  DC\_1A-3A-5A-7A\_n257K  DC\_1A-3A-5A-7A\_n257L  DC\_1A-3A-5A-7A\_n257M | DC\_1A\_n257A  DC\_3A\_n257A  DC\_5A\_n257A  DC\_7A\_n257A |
| DC\_1A-3A-5A-7A-7A\_n257D  DC\_1A-3A-5A-7A-7A\_n257E  DC\_1A-3A-5A-7A-7A\_n257F  DC\_1A-3A-5A-7A-7A\_n257G  DC\_1A-3A-5A-7A-7A\_n257H  DC\_1A-3A-5A-7A-7A\_n257I  DC\_1A-3A-5A-7A-7A\_n257J  DC\_1A-3A-5A-7A-7A\_n257K  DC\_1A-3A-5A-7A-7A\_n257L  DC\_1A-3A-5A-7A-7A\_n257M | DC\_1A\_n257A  DC\_3A\_n257A  DC\_5A\_n257A  DC\_7A\_n257A |
| DC\_2A-14A-30A-66A\_n260A  DC\_2A-14A-30A-66A\_n260G  DC\_2A-14A-30A-66A\_n260H  DC\_2A-14A-30A-66A\_n260I  DC\_2A-14A-30A-66A\_n260J  DC\_2A-14A-30A-66A\_n260K  DC\_2A-14A-30A-66A\_n260L  DC\_2A-14A-30A-66A\_n260M | DC\_2A\_n260A  DC\_2A\_n260G  DC\_2A\_n260H  DC\_2A\_n260I  DC\_2A\_n260J  DC\_2A\_n260K  DC\_2A\_n260L  DC\_2A\_n260M  DC\_14A\_n260A  DC\_14A\_n260G  DC\_14A\_n260H  DC\_14A\_n260I  DC\_14A\_n260J  DC\_14A\_n260K  DC\_14A\_n260L  DC\_14A\_n260M  DC\_30A\_n260A  DC\_30A\_n260G  DC\_30A\_n260H  DC\_30A\_n260I  DC\_30A\_n260J  DC\_30A\_n260K  DC\_30A\_n260L  DC\_30A\_n260M  DC\_66A\_n260A  DC\_66A\_n260G  DC\_66A\_n260H  DC\_66A\_n260I  DC\_66A\_n260J  DC\_66A\_n260K  DC\_66A\_n260L  DC\_66A\_n260M |
| DC\_3A-19A-21A-42A\_n257A  DC\_3A-19A-21A-42A\_n257D  DC\_3A-19A-21A-42A\_n257E  DC\_3A-19A-21A-42A\_n257F  DC\_3A-19A-21A-42C\_n257A  DC\_3A-19A-21A-42C\_n257D  DC\_3A-19A-21A-42C\_n257E  DC\_3A-19A-21A-42C\_n257F | DC\_3A\_n257A  DC\_19A\_n257A  DC\_21A\_n257A  DC\_3A\_n257D  DC\_19A\_n257D  DC\_21A\_n257D |

This TR contains only band specific combination part. The actual requirements are added to the corresponding technical specifications.

# 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non‑specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

# 3 Definitions, symbols and abbreviations

## 3.1 Definitions

For the purposes of the present document, the terms and definitions given in TR 21.905 [1] and the following apply.   
A term defined in the present document takes precedence over the definition of the same term, if any, in TR 21.905 [1].

## 3.2 Symbols

For the purposes of the present document, the following symbols apply:

<symbol> <Explanation>

## 3.3 Abbreviations

For the purposes of the present document, the abbreviations given in TR 21.905 [1] and the following apply.   
An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in TR 21.905 [1].

# 4 Background

The present document is a technical report for Dual Connectivity (EN-DC) of 4 LTE band (4DL/1UL) and 1 NR band (4DL/1UL) under Rel-16 time frame. It covers both the UE and BS side. The document is divided in two different parts:

- General part: this part covers BS and UE specific which is band combination independent.

- Specific band combination part: this part covers each band combination and its specific issues independently from each other (i.e. one subclause is defined per band combination)

The specific band combination parts are independent and therefore, the working speed also differs.

## 4.1 TR Maintenance

A single company is responsible for introducing all approved TPs in the current TR, i.e. TR editor. However, it is the responsibility of the contact person of each band combination to ensure that the TPs related to the band combination have been implemented.

# 5 EN-DC of 4 LTE band (4DL/1UL) + 1 NR band: Specific Band Combination Part

## 5.1 Inter-band EN-DC within FR1

### 5.1.1 Void

### 5.1.2 DC\_1-3-41-42\_n78

#### 5.1.2.1 Operating bands for EN-DC

Table 5.2B.4.4-1: Band combinations EN-DC (five bands)

| EN-DC band | E-UTRA CA band | NR band | Single UL allowed |
| --- | --- | --- | --- |
| DC\_1-3-41-42\_n78 | CA\_1-3-41-42 | n78 | DC\_3\_n78 |

#### 5.1.2.2 Configuration for EN-DC

Table 5.5B.4.4-1: Inter-band EN-DC configurations (five bands)

| EN-DC  configuration | Uplink EN-DC  configuration  (NOTE 1) | E-UTRA CA configuration | NR configuration |
| --- | --- | --- | --- |
| DC\_1A-3A-41A-42A\_n78A | DC\_1A\_n78A  DC\_3A\_n78A  DC\_41A\_n78A | CA\_ 1A-3A-41A-42A | n78A |
| DC\_1A-3A-41A-42C\_n78A | DC\_1A\_n78A  DC\_3A\_n78A  DC\_41A\_n78A | CA\_ 1A-3A-41A-42C | n78A |
| DC\_1A-3A-41C-42A\_n78A | DC\_1A\_n78A  DC\_3A\_n78A  DC\_41A\_n78A | CA\_ 1A-3A-41C-42A | n78A |
| DC\_1A-3A-41C-42C\_n78A | DC\_1A\_n78A  DC\_3A\_n78A  DC\_41A\_n78A | CA\_ 1A-3A-41C-42C | n78A |

#### 5.1.2.3 ∆TIB and ∆RIB values

Table 6.2B.4.2.3.4-1: ΔTIB,c due to EN-DC(five bands)

| EN-DC band | E-UTRA and NR Band | ΔTIB,c [dB] |
| --- | --- | --- |
| DC\_1-3-41-42\_n78 | 1 | 0.6 |
| 3 | 0.6 |
| 41 | 0.5 |
| 42 | 0.8 |
| n78 | 0.8 |

Table 7.3B.3.3.4-1: ΔRIB,c due to EN-DC (five bands)

| EN-DC band | E-UTRA and NR Band | ΔRIB [dB] |
| --- | --- | --- |
| DC\_1-3-41-42\_n78 | 1 | 0.2 |
| 3 | 0.2 |
| 41 | 0 |
| 42 | 0.5 |
| n78 | 0.5 |

### 5.1.3 DC\_1-3-18-42\_n78

#### 5.1.3.1 Operating bands for EN-DC

Table 5.2B.4.4-1: Band combinations EN-DC (five bands)

| EN-DC band | E-UTRA CA band | NR band | Single UL allowed |
| --- | --- | --- | --- |
| DC\_1-3-18-42\_n78 | CA\_1-3-18-42 | n78 | DC\_3\_n78 |

#### 5.1.3.2 Configuration for EN-DC

Table 5.5B.4.4-1: Inter-band EN-DC configurations (five bands)

| EN-DC  configuration | Uplink EN-DC  configuration  (NOTE 1) | E-UTRA CA configuration | NR configuration |
| --- | --- | --- | --- |
| DC\_1A-3A-18A-42A\_n78A | DC\_1A\_n78A  DC\_3A\_n78A  DC\_18A\_n78A | CA\_ 1A-3A-18A-42A | n78A |
| DC\_1A-3A-18A-42C\_n78A | DC\_1A\_n78A  DC\_3A\_n78A  DC\_18A\_n78A | CA\_ 1A-3A-18A-42C | n78A |

#### 5.1.3.3 ∆TIB and ∆RIB values

The same ∆TIB and ∆RIB values of DC\_1-3-19-42\_n78 can be applied.

Table 6.2B.4.2.3.4-1: ΔTIB,c due to EN-DC(five bands)

| EN-DC band | E-UTRA and NR Band | ΔTIB,c [dB] |
| --- | --- | --- |
| DC\_1-3-18-42\_n78 | 1 | 0.6 |
| 3 | 0.6 |
| 18 | 0.3 |
| 42 | 0.8 |
| n78 | 0.8 |

Table 7.3B.3.3.4-1: ΔRIB,c due to EN-DC (five bands)

| EN-DC band | E-UTRA and NR Band | ΔRIB [dB] |
| --- | --- | --- |
| DC\_1-3-18-42\_n78 | 1 | 0.2 |
| 3 | 0.2 |
| 18 | 0 |
| 42 | 0.5 |
| n78 | 0.5 |

### 5.1.4 DC\_3-19-21-42\_n77

#### 5.1.4.1 Operating bands for EN-DC

Table 5.2B.4.4-1: Band combinations EN-DC (five bands)

| EN-DC band | E-UTRA CA band | NR band | Single UL allowed |
| --- | --- | --- | --- |
| DC\_3-19-21-42\_n77 | CA\_3-19-21-42 | n77 | DC\_3\_n77 |
| NOTE 1: Applicable for UE supporting inter-band carrier aggregation with mandatory simultaneous Rx/Tx capability | | | |

#### 5.1.4.2 Configuration for EN-DC

Table 5.5B.4.4-1: Inter-band EN-DC configurations (five bands)

| EN-DC  configuration | Uplink EN-DC  configuration  (NOTE 1) | E-UTRA CA configuration | NR configuration |
| --- | --- | --- | --- |
| DC\_3A-19A-21A-42A\_n77A | DC\_3A\_n77A  DC\_19A\_n77A  DC\_21A\_n77A | CA\_3A-19A-21A-42A | n77A |
| DC\_3A-19A-21A-42A\_n77C | DC\_3A\_n77A  DC\_19A\_n77A  DC\_21A\_n77A | CA\_3A-19A-21A-42A | CA\_n77C |
| DC\_3A-19A-21A-42C\_n77A | DC\_3A\_n77A  DC\_19A\_n77A  DC\_21A\_n77A | CA\_3A-19A-21A-42C | n77A |
| DC\_3A-19A-21A-42C\_n77C | DC\_3A\_n77A  DC\_19A\_n77A  DC\_21A\_n77A | CA\_3A-19A-21A-42C | CA\_n77C |

#### 5.1.4.3 ∆TIB and ∆RIB values

Table 6.2B.4.2.3.4-1: ΔTIB,c due to EN-DC (five bands)

| Inter-band DC Configuration | E-UTRA and NR Band | ΔTIB,c [dB] |
| --- | --- | --- |
| DC\_3-19-21-42\_n77 | 3 | 0.8 |
| 19 | 0.3 |
| 21 | 0.9 |
| 42 | 0.8 |
| n77 | 0.8 |

Table 7.3B.3.3.4-1: ΔRIB,c due to EN-DC (five bands)

| Inter-band DC Configuration | E-UTRA and NR Band | ΔTIB,c [dB] |
| --- | --- | --- |
| DC\_3-19-21-42\_n77 | 3 | 0.3 |
| 21 | 0.5 |
| 42 | 0.5 |
| n77 | 0.5 |

### 5.1.5 DC\_3-19-21-42\_n78

#### 5.1.5.1 Operating bands for EN-DC

Table 5.2B.4.4-1: Band combinations EN-DC (five bands)

| EN-DC band | E-UTRA CA band | NR band | Single UL allowed |
| --- | --- | --- | --- |
| DC\_3-19-21-42\_n78 | CA\_3-19-21-42 | n78 | DC\_3\_n78 |
| NOTE 1: Applicable for UE supporting inter-band carrier aggregation with mandatory simultaneous Rx/Tx capability | | | |

#### 5.1.5.2 Configuration for EN-DC

Table 5.5B.4.4-1: Inter-band EN-DC configurations (five bands)

| EN-DC  configuration | Uplink EN-DC  configuration  (NOTE 1) | E-UTRA CA configuration | NR configuration |
| --- | --- | --- | --- |
| DC\_3A-19A-21A-42A\_n78A | DC\_3A\_n78A  DC\_19A\_n78A  DC\_21A\_n78A | CA\_3A-19A-21A-42A | n78A |
| DC\_3A-19A-21A-42A\_n78C | DC\_3A\_n78A  DC\_19A\_n78A  DC\_21A\_n78A | CA\_3A-19A-21A-42A | CA\_n78C |
| DC\_3A-19A-21A-42C\_n78A | DC\_3A\_n78A  DC\_19A\_n78A  DC\_21A\_n78A | CA\_3A-19A-21A-42C | n78A |
| DC\_3A-19A-21A-42C\_n78C | DC\_3A\_n78A  DC\_19A\_n78A  DC\_21A\_n78A | CA\_3A-19A-21A-42C | CA\_n78C |

#### 5.1.5.3 ∆TIB and ∆RIB values

Table 6.2B.4.2.3.4-1: ΔTIB,c due to EN-DC (five bands)

| Inter-band DC Configuration | E-UTRA and NR Band | ΔTIB,c [dB] |
| --- | --- | --- |
| DC\_3-19-21-42\_n78 | 3 | 0.8 |
| 19 | 0.3 |
| 21 | 0.9 |
| 42 | 0.8 |
| n78 | 0.8 |

Table 7.3B.3.3.4-1: ΔRIB,c due to EN-DC (five bands)

| Inter-band DC Configuration | E-UTRA and NR Band | ΔTIB,c [dB] |
| --- | --- | --- |
| DC\_3-19-21-42\_n78 | 3 | 0.3 |
| 21 | 0.5 |
| 42 | 0.5 |
| n78 | 0.5 |

### 5.1.6 DC\_3-19-21-42\_n79

#### 5.1.6.1 Operating bands for EN-DC

Table 5.2B.4.4-1: Band combinations EN-DC (five bands)

| EN-DC band | E-UTRA CA band | NR band | Single UL allowed |
| --- | --- | --- | --- |
| DC\_3-19-21-42\_n79 | CA\_3-19-21-42 | n79 | No |
| NOTE 1: Applicable for UE supporting inter-band carrier aggregation with mandatory simultaneous Rx/Tx capability | | | |

#### 5.1.6.2 Configuration for EN-DC

Table 5.5B.4.4-1: Inter-band EN-DC configurations (five bands)

| EN-DC  configuration | Uplink EN-DC  configuration  (NOTE 1) | E-UTRA CA configuration | NR configuration |
| --- | --- | --- | --- |
| DC\_3A-19A-21A-42A\_n79A | DC\_3A\_n79A  DC\_19A\_n79A  DC\_21A\_n79A | CA\_3A-19A-21A-42A | n79A |
| DC\_3A-19A-21A-42A\_n79C | DC\_3A\_n79A  DC\_19A\_n79A  DC\_21A\_n79A | CA\_3A-19A-21A-42A | CA\_n79C |
| DC\_3A-19A-21A-42C\_n79A | DC\_3A\_n79A  DC\_19A\_n79A  DC\_21A\_n79A | CA\_3A-19A-21A-42C | n79A |
| DC\_3A-19A-21A-42C\_n79C | DC\_3A\_n79A  DC\_19A\_n79A  DC\_21A\_n79A | CA\_3A-19A-21A-42C | CA\_n79C |

#### 5.1.6.3 ∆TIB and ∆RIB values

Table 6.2B.4.2.3.4-1: ΔTIB,c due to EN-DC (five bands)

| Inter-band DC Configuration | E-UTRA and NR Band | ΔTIB,c [dB] |
| --- | --- | --- |
| DC\_3-19-21-42\_n79 | 3 | 0.8 |
| 19 | 0.3 |
| 21 | 0.9 |
| 42 | 0.8 |

Table 7.3B.3.3.4-1: ΔRIB,c due to EN-DC (five bands)

| Inter-band DC Configuration | E-UTRA and NR Band | ΔTIB,c [dB] |
| --- | --- | --- |
| DC\_3-19-21-42\_n79 | 3 | 0.3 |
| 21 | 0.5 |
| 42 | 0.5 |

### 5.1.7 DC\_1-3-41-42\_n79

#### 5.1.7.1 Operating bands for EN-DC

Table 5.2B.4.4-1: Band combinations EN-DC (five bands)

| EN-DC band | E-UTRA CA band | NR band | Single UL allowed |
| --- | --- | --- | --- |
| DC\_1-3-41-42\_n79 | CA\_1-3-41-42 | n79 | No |

#### 5.1.7.2 Configuration for EN-DC

Table 5.5B.4.4-1: Inter-band EN-DC configurations (five bands)

| EN-DC  configuration | Uplink EN-DC  configuration  (NOTE 1) | E-UTRA CA configuration | NR configuration |
| --- | --- | --- | --- |
| DC\_1A-3A-41A-42A\_n79A | DC\_1A\_n79A  DC\_3A\_n79A  DC\_41A\_n79A | CA\_ 1A-3A-41A-42A | n79A |
| DC\_1A-3A-41A-42C\_n79A | DC\_1A\_n79A  DC\_3A\_n79A  DC\_41A\_n79A | CA\_ 1A-3A-41A-42C | n79A |
| DC\_1A-3A-41C-42A\_n79A | DC\_1A\_n79A  DC\_3A\_n79A  DC\_41A\_n79A | CA\_ 1A-3A-41C-42A | n79A |
| DC\_1A-3A-41C-42C\_n79A | DC\_1A\_n79A  DC\_3A\_n79A  DC\_41A\_n79A | CA\_ 1A-3A-41C-42C | n79A |

#### 5.1.7.3 ∆TIB and ∆RIB values

Table 6.2B.4.2.3.4-1: ΔTIB,c due to EN-DC(five bands)

| Inter-band DC Configuration | E-UTRA and NR Band | ΔTIB,c [dB] |
| --- | --- | --- |
| DC\_1-3-41-42\_n79 | 1 | 0.6 |
| 3 | 0.6 |
| 41 | 0.5 |
| 42 | 0.8 |
| n79 | 0 |

Table 7.3B.3.3.4-1: ΔRIB,c due to EN-DC (five bands)

| Inter-band DC Configuration | E-UTRA and NR Band | ΔRIB [dB] |
| --- | --- | --- |
| DC\_1-3-41-42\_n79 | 1 | 0.2 |
| 3 | 0.2 |
| 41 | 0 |
| 42 | 0.5 |
| n79 | 0 |

### 5.1.8 DC\_1-3-18-42\_n79

#### 5.1.8.1 Operating bands for EN-DC

Table 5.2B.4.4-1: Band combinations EN-DC (five bands)

| EN-DC band | E-UTRA CA band | NR band | Single UL allowed |
| --- | --- | --- | --- |
| DC\_1-3-18-42\_n79 | CA\_1-3-18-42 | n79 | No |

#### 5.1.8.2 Configuration for EN-DC

Table 5.5B.4.4-1: Inter-band EN-DC configurations (five bands)

| EN-DC  configuration | Uplink EN-DC  configuration  (NOTE 1) | E-UTRA CA configuration | NR configuration |
| --- | --- | --- | --- |
| DC\_1A-3A-18A-42A\_n79A | DC\_1A\_n79A  DC\_3A\_n79A  DC\_18A\_n79A | CA\_ 1A-3A-18A-42A | n79A |
| DC\_1A-3A-18A-42C\_n79A | DC\_1A\_n79A  DC\_3A\_n79A  DC\_18A\_n79A | CA\_ 1A-3A-18A-42C | n79A |

#### 5.1.8.3 ∆TIB and ∆RIB values

Table 6.2B.4.2.3.4-1: ΔTIB,c due to EN-DC(five bands)

| Inter-band DC Configuration | E-UTRA and NR Band | ΔTIB,c [dB] |
| --- | --- | --- |
| DC\_1-3-18-42\_n79 | 1 | 0.6 |
| 3 | 0.6 |
| 18 | 0.3 |
| 42 | 0.8 |
| n79 | 0 |

Table 7.3B.3.3.4-1: ΔRIB,c due to EN-DC (five bands)

| Inter-band DC Configuration | E-UTRA and NR Band | ΔRIB [dB] |
| --- | --- | --- |
| DC\_1-3-18-42\_n79 | 1 | 0.2 |
| 3 | 0.2 |
| 18 | 0 |
| 42 | 0.5 |
| n79 | 0 |

### 5.1.9 DC\_1-3-41-42\_n77

#### 5.1.9.1 Operating bands for EN-DC

Table 5.2B.4.4-1: Band combinations EN-DC (five bands)

| EN-DC band | E-UTRA CA band | NR band | Single UL allowed |
| --- | --- | --- | --- |
| DC\_1-3-41-42\_n77 | CA\_1-3-41-42 | n77 | DC\_1\_n77  DC\_3\_n77 |

#### 5.1.9.2 Configuration for EN-DC

Table 5.5B.4.4-1: Inter-band EN-DC configurations (five bands)

| EN-DC  configuration | Uplink EN-DC  configuration  (NOTE 1) | E-UTRA CA configuration | NR configuration |
| --- | --- | --- | --- |
| DC\_1A-3A-41A-42A\_n77A | DC\_1A\_n77A  DC\_3A\_n77A  DC\_41A\_n77A | CA\_ 1A-3A-41A-42A | n77A |
| DC\_1A-3A-41A-42C\_n77A | DC\_1A\_n77A  DC\_3A\_n77A  DC\_41A\_n77A | CA\_ 1A-3A-41A-42C | n77A |
| DC\_1A-3A-41C-42A\_n77A | DC\_1A\_n77A  DC\_3A\_n77A  DC\_41A\_n77A | CA\_ 1A-3A-41C-42A | n77A |
| DC\_1A-3A-41C-42C\_n77A | DC\_1A\_n77A  DC\_3A\_n77A  DC\_41A\_n77A | CA\_ 1A-3A-41C-42C | n77A |

#### 5.1.9.3 ∆TIB and ∆RIB values

The same values of DC\_1-3-41-42\_n78 can be applied.

Table 6.2B.4.2.3.4-1: ΔTIB,c due to EN-DC(five bands)

| Inter-band DC Configuration | E-UTRA and NR Band | ΔTIB,c [dB] |
| --- | --- | --- |
| DC\_1-3-41-42\_n77 | 1 | 0.6 |
| 3 | 0.6 |
| 41 | 0.5 |
| 42 | 0.8 |
| n77 | 0.8 |

Table 7.3B.3.3.4-1: ΔRIB,c due to EN-DC (five bands)

| Inter-band DC Configuration | E-UTRA and NR Band | ΔRIB [dB] |
| --- | --- | --- |
| DC\_1-3-41-42\_n77 | 1 | 0.2 |
| 3 | 0.2 |
| 41 | 0 |
| 42 | 0.5 |
| n77 | 0.5 |

### 5.1.10 DC\_1-3-18-42\_n77

#### 5.1.10.1 Operating bands for EN-DC

Table 5.2B.4.4-1: Band combinations EN-DC (five bands)

| EN-DC band | E-UTRA CA band | NR band | Single UL allowed |
| --- | --- | --- | --- |
| DC\_1-3-18-42\_n77 | CA\_1-3-18-42 | n77 | DC\_1\_n77  DC\_3\_n77 |

#### 5.1.10.2 Configuration for EN-DC

Table 5.5B.4.4-1: Inter-band EN-DC configurations (five bands)

| EN-DC  configuration | Uplink EN-DC  configuration  (NOTE 1) | E-UTRA CA configuration | NR configuration |
| --- | --- | --- | --- |
| DC\_1A-3A-18A-42A\_n77A | DC\_1A\_n77A  DC\_3A\_n77A  DC\_18A\_n77A | CA\_ 1A-3A-18A-42A | n77A |
| DC\_1A-3A-18A-42C\_n77A | DC\_1A\_n77A  DC\_3A\_n77A  DC\_18A\_n77A | CA\_ 1A-3A-18A-42C | n77A |

#### 5.1.10.3 ∆TIB and ∆RIB values

The same ∆TIB and ∆RIB values of DC\_1-3-18-42\_n78 can be applied.

Table 6.2B.4.2.3.4-1: ΔTIB,c due to EN-DC(five bands)

| Inter-band DC Configuration | E-UTRA and NR Band | ΔTIB,c [dB] |
| --- | --- | --- |
| DC\_1-3-18-42\_n77 | 1 | 0.6 |
| 3 | 0.6 |
| 18 | 0.3 |
| 42 | 0.8 |
| n77 | 0.8 |

Table 7.3B.3.3.4-1: ΔRIB,c due to EN-DC (five bands)

| Inter-band DC Configuration | E-UTRA and NR Band | ΔRIB [dB] |
| --- | --- | --- |
| DC\_1-3-18-42\_n77 | 1 | 0.2 |
| 3 | 0.2 |
| 18 | 0 |
| 42 | 0.5 |
| n77 | 0.5 |

### 5.1.11 DC\_1-3-7-28\_n78

#### 5.1.11.1 Operating bands for DC

Table 5.2B.4.4-1: Band combinations EN-DC (five bands)

| EN-DC band | E-UTRA Band | NR Band | Single UL allowed |
| --- | --- | --- | --- |
| DC\_1-3-7-28\_n781 | CA\_1-3-7-28 | n78 | DC\_3\_n78 |
| NOTE 1: Applicable for UE supporting inter-band carrier aggregation with mandatory simultaneous Rx/Tx capability | | | |

#### 5.1.11.2 Configuration for DC

Table 5.5B.4.4-1: Inter-band EN-DC configurations (five bands)

| EN-DC  configuration | Uplink EN-DC  configuration  (NOTE 1) | E-UTRA configuration | NR configuration |
| --- | --- | --- | --- |
| DC\_1A-3A-7A-28A\_n78A  DC\_1A-3A-7C-28A\_n78A  DC\_1A-3C-7A-28A\_n78A  DC\_1A-3C-7C-28A\_n78A | DC\_1A\_n78A  DC\_3A\_n78A  DC\_3C\_n78A  DC\_7A\_n78A  DC\_7C\_n78A  DC\_28A\_n78A | CA\_1A-3A-7A-28A  CA\_1A-3A-7C-28A  CA\_1A-3C-7A-28A  CA\_1A-3C-7C-28A | n78A |

#### 5.1.11.3 ∆TIB and ∆RIB values

For DC\_1-3-7-28\_n78 the TIB,c and RIB,c values are given in the tables below.

Table 6.2B.4.2.3.4-1: ΔTIB,c due to EN-DC (five bands)

| Inter-band DC Configuration | E-UTRA and NR Band | ΔTIB,c [dB] |
| --- | --- | --- |
| DC\_1-3-7-28\_n78 | 1 | 0.7 |
| 3 | 0.7 |
| 7 | 0.7 |
| 28 | 0.6 |
| n78 | 0.8 |

Table 7.3B.3.3.4-1: ΔRIB,c due to EN-DC (five bands)

| Inter-band DC Configuration | E-UTRA and NR Band | ΔRIB [dB] |
| --- | --- | --- |
| DC\_1-3-7-28\_n78 | 1 | 0.2 |
| 3 | 0.2 |
| 7 | 0.2 |
| 28 | 0.2 |
| n78 | 0.5 |

#### 5.1.11.4 REFSENS requirements

No further MSD are needed to be specified for DC\_1A-3A-7A-28A\_n78A, DC\_1A-3A-7C-28A\_n78A, DC\_1A-3C-7A-28A\_n78A and DC\_1A-3C-7C-28A\_n78A.

### 5.1.12 DC\_1-3-5-41\_n79

#### 5.1.12.1 Operating bands for EN-DC

Table 5.2B.4.4-1: Band combinations EN-DC (five bands)

| EN-DC Band | E-UTRA Band | NR Band | Single UL allowed |
| --- | --- | --- | --- |
| DC\_1-3-5-41\_n79 | CA\_1-3-5-41 | n79 | No |

#### 5.1.12.2 Configurations for EN-DC

Table 5.5B.4.4-1: Inter-band EN-DC configurations (five bands)

| EN-DC  configuration | Uplink EN-DC  configuration  (NOTE 1) | E-UTRA configuration | NR configuration |
| --- | --- | --- | --- |
| DC\_1A-3A-5A-41A\_n79A | DC\_1A\_n79A  DC\_3A\_n79A  DC\_5A\_n79A  DC\_41A\_n79A | CA\_1A-3A-5A-41A | n79A |

#### 5.1.12.3 ∆TIB and ∆RIB values

For DC\_1A-3A-5A-41A\_n79A, the TIB,c and RIB,c values are given in the tables below.

Table 6.2B.4.2.3.4-1: ΔTIB,c

| **Inter-band DC Configuration** | **E-UTRA and NR Band** | **ΔTIB,c [dB]** |
| --- | --- | --- |
| DC\_1-3-5-41\_n79 | 1 | 0.5 |
| 3 | 0.5 |
| 5 | 0.3 |
| 41 | 0.51 |
| 0.82 |
| n79 | 0 |
| NOTE 1: The requirement is applied for UE transmitting on the frequency range of 2545-2690MHz.  NOTE 2: The requirement is applied for UE transmitting on the frequency range of 2496-2545MHz. | | |

Table 7.3B.3.3.4-1: ΔRIB,c

| Inter-band DC Configuration | E-UTRA and NR Band | ΔRIB, c [dB] |
| --- | --- | --- |
| DC\_1-3-5-41\_n79 | 1 | 0 |
| 3 | 0 |
| 5 | 0 |
| 41 | 01 |
| 0.52 |
| n79 | 0 |
| NOTE 1: The requirement is applied for UE transmitting on the frequency range of 2545-2690MHz.  NOTE 2: The requirement is applied for UE transmitting on the frequency range of 2496-2545MHz. | | |

### 5.1.13 DC\_1-3-7-28\_n5

#### 5.1.13.1 Operating bands for DC

**Table 5.2B.4.4-1: Band combinations EN-DC (five bands)**

| **EN-DC band** | **E-UTRA Band** | **NR Band** | **Single UL allowed** |
| --- | --- | --- | --- |
| DC\_1-3-7-28\_n51 | CA\_1-3-7-28 | n5 | DC\_3\_n5  DC\_7\_n5 |
| NOTE 1: Applicable for UE supporting inter-band carrier aggregation with mandatory simultaneous Rx/Tx capability | | | |

#### 5.1.13.2 Configuration for DC

**Table 5.5B.4.4-1: Inter-band EN-DC configurations (5 bands)**

| **EN-DC**  **configuration** | **Uplink EN-DC**  **configuration**  **(NOTE 1)** | **E-UTRA configuration** | **NR configuration** |
| --- | --- | --- | --- |
| DC\_1A-3A-7A-28A\_n5A | DC\_1A\_n5A  DC\_3A\_n5A  DC\_7A\_n5A  DC\_28A\_n5A | CA\_1A-3A-7A-28A | n5A |
| DC\_1A-3C-7A-28A\_n5A | DC\_1A\_n5A  DC\_3A\_n5A  DC\_3C\_n5A  DC\_7A\_n5A  DC\_28A\_n5A | CA\_1A-3C-7A-28A | n5A |
| DC\_1A-3A-7C-28A\_n5A | DC\_1A\_n5A  DC\_3A\_n5A  DC\_7A\_n5A  DC\_7C\_n5A  DC\_28A\_n5A | CA\_1A-3A-7C-28A | n5A |
| DC\_1A-3C-7C-28A\_n5A | DC\_1A\_n5A  DC\_3A\_n5A  DC\_3C\_n5A  DC\_7A\_n5A  DC\_7C\_n5A  DC\_28A\_n5A | CA\_1A-3C-7C-28A | n5A |

#### 5.1.13.3 ∆TIB and ∆RIB values

For DC\_1-3-7-28A\_n5 the TIB,c and RIB,c values are given in the tables below.

**Table 6.2B.4.2.3.4-1: ΔTIB,c**

| Inter-band DC Configuration | E-UTRA and NR Band | ΔTIB,c [dB] |
| --- | --- | --- |
| DC\_1-3-7-28\_n5 | 1 | 0.6 |
| 3 | 0.6 |
| 7 | 0.6 |
| 28 | 0.6 |
| n5 | 0.6 |

**Table 7.3B.3.3.4-1: ΔRIB,c**

| Inter-band DC Configuration | E-UTRA and NR Band | ΔRIB [dB] |
| --- | --- | --- |
| DC\_1-3-7-28\_n5 | 1 | 0 |
| 3 | 0 |
| 7 | 0 |
| 28 | 0.2 |
| n5 | 0.2 |

#### 5.1.13.4 REFSENS requirements

No further MSD are needed to be specified for DC\_1A-3A-7A-28A\_n5A, DC\_1A-3C-7A-28A\_n5A, DC\_1A-3A-7C-28A\_n5A and DC\_1A-3C-7C-28A\_n5A.

### 5.1.14 DC\_1-3-7-8\_n78

#### 5.1.14.1 Operating bands for DC

Table 5.2B.4.4-1: Band combinations EN-DC (five bands)

| EN-DC band | E-UTRA Band | NR Band | Single UL allowed |
| --- | --- | --- | --- |
| DC\_1-3-7-8\_n781 | CA\_1-3-7-8 | n78 | DC\_3\_n78 |
| NOTE 1: Applicable for UE supporting inter-band carrier aggregation with mandatory simultaneous Rx/Tx capability | | | |

#### 5.1.14.2 Configuration for DC

Table 5.5B.4.4-1: Inter-band EN-DC configurations (five bands)

| EN-DC  configuration | Uplink EN-DC  configuration  (NOTE 1) | E-UTRA configuration | NR configuration |
| --- | --- | --- | --- |
| DC\_1A-3A-7A-8A\_n78A | DC\_1A\_n78A  DC\_3A\_n78A  DC\_7A\_n78A  DC\_8A\_n78A | CA\_1A-3A-7A-8A | n78A |

#### 5.1.14.3 ∆TIB and ∆RIB values

For DC\_1-3-7-8\_n78 the TIB,c and RIB,c values are given in the tables below.

Table 6.2B.4.2.3.4-1: ΔTIB,c due to EN-DC (five bands)

| Inter-band DC Configuration | E-UTRA and NR Band | ΔTIB,c [dB] |
| --- | --- | --- |
| DC\_1-3-7-8\_n78 | 1 | 0.6 |
| 3 | 0.6 |
| 7 | 0.6 |
| 8 | 0.6 |
| n78 | 0.8 |

Table 7.3B.3.3.4-1: ΔRIB,c due to EN-DC (five bands)

| Inter-band DC Configuration | E-UTRA and NR Band | ΔRIB [dB] |
| --- | --- | --- |
| DC\_1-3-7-8\_n78 | 1 | 0.2 |
| 3 | 0.2 |
| 7 | 0.2 |
| 8 | 0.2 |
| n78 | 0.5 |

#### 5.1.14.4 REFSENS requirements

REFSENS requirements are already covered in 2DL/2UL and 3DL/2UL fall-back modes. No additional REFSENS requirement is required.

### 5.1.15 DC\_3-28-41-42\_n78

#### 5.1.15.1 Operating bands for EN-DC

Table 5.2B.4.4-1: Band combinations EN-DC (five bands)

| EN-DC band | E-UTRA CA band | NR band | Single UL allowed |
| --- | --- | --- | --- |
| DC\_3-28-41-42\_n78 | CA\_3-28-41-42 | n78 | DC\_3\_n78 |

#### 5.1.15.2 Configuration for EN-DC

Table 5.5B.4.4-1: Inter-band EN-DC configurations (five bands)

| EN-DC  configuration | Uplink EN-DC  configuration  (NOTE 1) | E-UTRA CA configuration | NR configuration |
| --- | --- | --- | --- |
| DC\_3A-28A-41A-42A\_n78A  DC\_3A-28A-41A-42C\_n78A  DC\_3A-28A-41C-42A\_n78A  DC\_3A-28A-41C-42C\_n78A | DC\_1A\_n78A  DC\_3A\_n78A  DC\_41A\_n78A  DC\_41C\_n78A | CA\_ 3A-28A-41A-42A  CA\_ 3A-28A-41A-42C  CA\_ 3A-28A-41C-42A  CA\_ 3A-28A-41C-42C | n78A |

#### 5.1.15.3 ∆TIB and ∆RIB values

Table 6.2B.4.2.3.4-1: ΔTIB,c due to EN-DC (five bands)

| EN-DC band | E-UTRA and NR Band | ΔTIB,c [dB] |
| --- | --- | --- |
| DC\_3-28-41-42\_n78 | 3 | 1 |
| 28 | 0.5 |
| 41 | 0.31/0.82 |
| 42 | 0.8 |
| n78 | 0.8 |
| NOTE 1: The requirement is applied for UE transmitting on the frequency range of 2545 – 2690 MHz.  NOTE 2: The requirement is applied for UE transmitting on the frequency range of 2496 – 2545 MHz. | | |

Table 7.3B.3.3.4-1: ΔRIB,c due to EN-DC (five bands)

| EN-DC band | E-UTRA and NR Band | ΔRIB [dB] |
| --- | --- | --- |
| DC\_3-28-41-42\_n78 | 3 | 0.5 |
| 28 | 0.2 |
| 41 | 0.41/0.52 |
| 42 | 0.5 |
| n78 | 0.5 |
| NOTE 1: The requirement is applied for UE transmitting on the frequency range of 2545 – 2690 MHz.  NOTE 2: The requirement is applied for UE transmitting on the frequency range of 2496 – 2545 MHz. | | |

### 5.1.16 DC\_1-3-20-38\_n78

#### 5.1.16.1 Operating bands for EN-DC

Table 5.2B.4.4-1: Band combinations EN-DC (five bands)

| **EN-DC band** | **E-UTRA CA band** | **NR band** | **Single UL allowed** |
| --- | --- | --- | --- |
| DC\_1-3-20-38\_n78 | CA\_1-3-20-38 | n78 | NO |

#### 5.1.16.2 Configuration for EN-DC

Table 5.5B.4.4-1: Inter-band EN-DC configurations (five bands)

| **EN-DC**  **configuration** | **Uplink EN-DC**  **configuration**  **(NOTE 1)** | **E-UTRA CA configuration** | **NR band** |
| --- | --- | --- | --- |
| DC\_1A-3A-20A-38A\_n78A | DC\_3A\_n78A  DC\_20A\_n78A | CA\_1A-3A-20A-38A | n78 |

#### 5.1.16.3 ∆TIB and ∆RIB values

Table 6.2B.4.2.3.4-1: ΔTIB,c due to EN-DC (five bands)

| **Inter-band DC Configuration** | **E-UTRA and NR Band** | **ΔTIB,c [dB]** |
| --- | --- | --- |
| DC\_1-3-20-38\_n78 | 1 | 0.3 |
| 3 | 0.6 |
| 20 | 0.6 |
| 38 | 0 |
| n78 | 0.8 |

Table 7.3B.3.3.4-1: ΔRIB,c due to EN-DC (five bands)

| **Inter-band DC Configuration** | **E-UTRA and NR Band** | **ΔRIB,c [dB]** |
| --- | --- | --- |
| DC\_1-3-20-38\_n78 | 1 | 0 |
| 3 | 0.2 |
| 20 | 0 |
| 38 | 0.4 |
| n78 | 0.5 |

### 5.1.17 DC\_1-3-8-42\_n77

#### 5.1.17.1 Operating bands for EN-DC

**Table 5.1.17.1-1: Band combinations EN-DC (five bands)**

| **EN-DC Band** | **E-UTRA Band** | **NR Band** | **Single UL allowed** |
| --- | --- | --- | --- |
| DC\_1-3-8-42\_n77 | CA\_1-3-8-42 | n77 | DC\_1\_n77  DC\_3\_n77 |

#### 5.1.17.2 Configurations for EN-DC

**5.5B.4.4-1: Inter-band EN-DC configurations within FR1 (five bands)**

| **EN-DC**  **configuration** | **Uplink EN-DC**  **configuration**  **(NOTE 1)** | **E-UTRA configuration** | **NR configuration** |
| --- | --- | --- | --- |
| DC\_1A-3A-8A-42A\_n77A | DC\_1A\_n77A  DC\_3A\_n77A  DC\_8A\_n77A | CA\_1A-3A-8A-42A | n77A |
| DC\_1A-3A-8A-42C\_n77A | DC\_1A\_n77A  DC\_3A\_n77A  DC\_8A\_n77A | CA\_1A-3A-8A-42C | n77A |

#### 5.1.17.3 ∆TIB and ∆RIB values

For DC\_1-3-8-42\_n77, the TIB,c and RIB,c values are given in the tables below.

**6.2B.4.2.3.4-1: ΔTIB,c due to EN-DC (five bands)**

| Inter-band DC Configuration | E-UTRA and NR Band | ΔTIB,c [dB] |
| --- | --- | --- |
| DC\_1-3-8-42\_n77 | 1 | 0.6 |
| 3 | 0.6 |
| 8 | 0.6 |
| 42 | 0.8 |
| n77 | 0.8 |

**7.3B.3.3.4-1: ΔRIB,c due to EN-DC (five bands)**

| Inter-band DC Configuration | E-UTRA and NR Band | ΔRIB,c [dB] |
| --- | --- | --- |
| DC\_1-3-8-42\_n77 | 1 | 0.2 |
| 3 | 0.2 |
| 8 | 0.2 |
| 42 | 0.5 |
| n77 | 0.5 |

#### 5.1.17.4 REFSENS requirements

Co-existence study for DC\_1-3-8-42\_n77 was covered by the studies for the fallback modes of DC\_1-3-8\_n77, DC\_1-3-42\_n77, DC\_1-8-42\_n77 and DC\_3-8-42\_n77.

No additional MSD requirement need to be defined for this dual connectivity configuration.

### 5.1.18 DC\_2-12-30-66\_n2

#### 5.1.18.1 Operating bands for DC

**Table 5.1.18.1-1: Band combinations EN-DC (five bands)**

| **EN-DC Band** | **E-UTRA Band** | **NR Band** | **Single UL allowed** |
| --- | --- | --- | --- |
| DC\_2-12-30-66\_n2 | CA\_2-12-30-66 | n2 | No |

#### 5.1.18.2 Configuration for DC

**5.5B.4.4-1: Inter-band EN-DC configurations within FR1 (five bands)**

| EN-DC  configuration | Uplink EN-DC  configuration | E-UTRA configuration | NR configuration |
| --- | --- | --- | --- |
| DC\_2A-12A-30A-66A\_n2A | DC\_12A\_n2A  DC\_30A\_n2A  DC\_66A\_n2A | CA\_2A-12A-30A-66A | n2A |

#### 5.1.18.3 ∆TIB and ∆RIB values

For DC\_2-12-30\_n2, the TIB,c and RIB,c values are derived from CA\_2-2-12-30, CA\_2-2-12-66, CA\_2-30-66 and CA\_2-30-66 in TS 36.101.

Table 6.2B.4.2.3.3-1: ΔTIB,c due to EN-DC(five bands)

| E-UTRA and NR DC Configuration | E-UTRA and NR Band | ΔTIB,c [dB] |
| --- | --- | --- |
| DC\_2-12-30-66\_n2, | 2 | 0.5 |
| 12 | 0.8 |
| 30 | 0.3 |
| 66 | 0.5 |
| n2 | 0.5 |

Table 7.3B.3.3.3-1: ΔRIB,c due to EN-DC (five bands)

| E-UTRA and NR DC Configuration | E-UTRA and NR Band | ΔRIB,c [dB] |
| --- | --- | --- |
| DC\_2-12-30-66\_n2, | 2 | 0.4 |
| 12 | 0.5 |
| 30 | 0.5 |
| 66 | 0.4 |
| n2 | 0.4 |

### 5.1.19 DC\_2-7-13-66\_n66

#### 5.1.19.1 Configuration for EN-DC

Table 5.5B.4.4-1: Inter-band EN-DC configurations (five bands)

| EN-DC  configuration | Uplink EN-DC  configuration  (NOTE 1) |
| --- | --- |
| DC\_2A-7A-13A-66A\_n66A  DC\_2A-7C-13A-66A\_n66A | DC\_2A\_n66A  DC\_7A\_n66A  DC\_13A\_n66A  DC\_66A\_n66A4 |
| NOTE 4: Only single switched UL is supported | |

#### 5.1.19.2 ∆TIB and ∆RIB values

Table 6.2B.4.2.3.4-1: ΔTIB,c due to EN-DC (five bands)

| Inter-band DC Configuration | E-UTRA and NR Band | ΔTIB,c [dB] |
| --- | --- | --- |
| DC\_2-7-13-66\_n66 | 2 | 0.5 |
| 7 | 0.5 |
| 13 | 0.3 |
| 66 | 0.5 |
| n66 | 0.5 |

**Table 7.3B.3.3.4-1: ΔRIB,c due to EN-DC (five** bands)

| Inter-band DC Configuration | E-UTRA and NR Band | ΔRIB [dB] |
| --- | --- | --- |
| DC\_2-7-13-66\_n66 | 2 | 0.3 |
| 7 | 0.5 |
| 13 | 0 |
| 66 | 0.5 |
| n66 | 0.5 |

### 5.1.20 DC\_1-3-7-28\_n7

#### 5.1.20.1 Operating bands for DC

**Table 5.1.20.1-1: Band combinations EN-DC (four bands)**

| EN-DC band | E-UTRA Band | NR Band | Single UL allowed |
| --- | --- | --- | --- |
| DC\_1-3-7-28\_n7 | CA\_1-3-7-28 | n7 | No |
| NOTE 1: Applicable for UE supporting inter-band carrier aggregation with mandatory simultaneous Rx/Tx capability | | | |

#### 5.1.20.2 Configuration for DC

**Table 5.5B.4.4-1: Inter-band EN-DC configurations within FR1 (five bands)**

| EN-DC  configuration | Uplink EN-DC  configuration  (NOTE 1) | E-UTRA configuration | NR configuration |
| --- | --- | --- | --- |
| DC\_1A-3A-7A-28A\_n7A  DC\_1A-3C-7A-28A\_n7A | DC\_1A\_n7A  DC\_3A\_n7A  DC\_3C\_n7A  DC\_7A\_n7A4  DC\_28A\_n7A | CA\_1A-3A-7A-28A  CA\_1A-3C-7A-28A | n7A |
| DC\_1A-1A-3A-7A-28A\_n7A DC\_1A-1A-3A-3A-7A-28A\_n7A  DC\_1A-3A-3A-7A-28A\_n7A  DC\_1A-1A-3C-7A-28A\_n7A | DC\_1A\_n7A  DC\_3A\_n7A  DC\_3C\_n7A  DC\_7A\_n7A4  DC\_28A\_n7A | CA\_1A-1A-3A-7A-28A  CA\_1A-1A-3A-3A-7A-28A  CA\_1A-3A-3A-7A-28A  CA\_1A-1A-3C-7A-28A | n7A |
| NOTE 4: Only single switched UL is supported | | | |

#### 5.1.20.3 ∆TIB and ∆RIB values

For DC\_1-3-7-28\_n7 the TIB,c and RIB,c values are given in the tables below.

Table 6.2B.4.2.3.4-1: ΔTIB,c due to EN-DC (five bands)

| Inter-band DC Configuration | E-UTRA and NR Band | ΔTIB,c [dB] |
| --- | --- | --- |
| DC\_1-3-7-28\_n7 | 1 | 0.6 |
| 3 | 0.6 |
| 7 | 0.6 |
| 28 | 0.6 |
| n7 | 0.6 |

Table 7.3B.3.3.4-1: ΔRIB,c due to EN-DC (five bands)

| Inter-band DC Configuration | E-UTRA and NR Band | ΔRIB [dB] |
| --- | --- | --- |
| DC\_1-3-7-28\_n7 | 1 | 0 |
| 3 | 0 |
| 7 | 0 |
| 28 | 0.2 |
| n7 | 0 |

#### 5.1.20.4 REFSENS requirements

No further MSD are needed to be specified.

### 5.1.21 DC\_2A-12A-30A-66A\_n66A

#### 5.1.21.1 Operating bands for DC

Table 5.1.21.1-1: Band combinations EN-DC (four bands)

| EN-DC band | E-UTRA Band | NR Band | Single UL allowed |
| --- | --- | --- | --- |
| DC\_2-12-30-66\_n66 | CA\_2-12-30-66 | n66 | No |
| NOTE 1: Applicable for UE supporting inter-band carrier aggregation with mandatory simultaneous Rx/Tx capability | | | |

#### 5.1.21.2 Configuration for DC

**Table 5.5B.4.4-1: Inter-band EN-DC configurations within FR1 (five bands)**

| EN-DC  configuration | Uplink EN-DC  configuration  (NOTE 1) | E-UTRA configuration | NR configuration |
| --- | --- | --- | --- |
| DC\_2A-12A-30A-66A\_n66A | DC\_2A\_n66A  DC\_12A\_n66A  DC\_30A\_n66A  DC\_66A\_n66A4 | CA\_2A-12A-30A-66A | n66A |
| NOTE 4: Only single switched UL is supported | | | |

#### 5.1.21.3 ∆TIB and ∆RIB values

For DC\_2-12-30-66\_n66 the TIB,c and RIB,c values are given in the tables below.

Table 6.2B.4.2.3.4-1: ΔTIB,c due to EN-DC (five bands)

| Inter-band DC Configuration | E-UTRA and NR Band | ΔTIB,c [dB] |
| --- | --- | --- |
| DC\_2-12-30-66\_n66 | 2 | 0.5 |
| 12 | 0.8 |
| 30 | 0.3 |
| 66 | 0.5 |
| n66 | 0.5 |

Table 7.3B.3.3.4-1: ΔRIB,c due to EN-DC (five bands)

| Inter-band DC Configuration | E-UTRA and NR Band | ΔRIB [dB] |
| --- | --- | --- |
| DC\_2-12-30-66\_n66 | 2 | 0.4 |
| 12 | 0.5 |
| 30 | 0.5 |
| 66 | 0.4 |
| n66 | 0.4 |

#### 5.1.21.4 REFSENS requirements

No further MSD are needed to be specified.

### 5.1.22 DC\_1-3-7-28\_n40

#### 5.1.22.1 Operating bands for DC

Table 5.1.22.1-1: Band combinations EN-DC (five bands)

| EN-DC Band | E-UTRA Band | NR Band | Single UL allowed |
| --- | --- | --- | --- |
| DC\_1-3-7-28\_n40 | CA\_1-3-7-28 | n40 | No |

#### 5.1.22.2 Configuration for DC

Table 5.1.22.2-1: Inter-band EN-DC configurations (five bands)

| EN-DC  configuration | Uplink EN-DC  configuration | E-UTRA configuration | NR configuration |
| --- | --- | --- | --- |
| DC\_1A-3A-7A-28A\_n40A | DC\_1A\_n40A  DC\_3A\_n40A  DC\_7A\_n40A  DC\_28A\_n40A | CA\_1A-3A-7A-28A | n40A |

#### 5.1.22.3 ∆TIB and ∆RIB values

For DC\_1-3-7-28\_n40, the TIB,c and RIB,c values are derived from CA\_1-7-28-40 and CA\_3-7-28-40 in TS 36.101.

Table 6.2B.4.2.3.3-1: ΔTIB,c due to EN-DC(five bands)

| E-UTRA and NR DC Configuration | E-UTRA and NR Band | ΔTIB,c [dB] |
| --- | --- | --- |
| DC\_1-3-7-28\_n40 | 1 | 0.6 |
| 3 | 0.6 |
| 7 | 0.8 |
| 28 | 0.6 |
| n40 | 0.9 |

Table 7.3B.3.3.3-1: ΔRIB,c due to EN-DC (five bands)

| E-UTRA and NR DC Configuration | E-UTRA and NR Band | ΔRIB,c [dB] |
| --- | --- | --- |
| DC\_1-3-7-28\_n40 | 1 | 0 |
| 3 | 0 |
| 7 | 0.3 |
| 28 | 0.2 |
| n40 | 0.8 |

### 5.1.23 DC\_2-29-30-66\_n2

#### 5.1.23.1 Operating bands for EN-DC

Table 5.1.23.1-1: Band combinations EN-DC (five bands)

| EN-DC band | E-UTRA CA band | NR band | Single UL allowed |
| --- | --- | --- | --- |
| DC\_2-29-30-66\_n2 | CA\_2-29-30-66 | n2 |  |

#### 5.1.23.2 Configuration for DC

Table 5.1.23.2-1: Inter-band EN-DC configurations (five bands)

| EN-DC  configuration | Uplink EN-DC  configuration  (NOTE 1) | E-UTRA CA configuration | NR band |
| --- | --- | --- | --- |
| DC\_2A-29A-30A-66A\_n2A | DC\_2A\_n2A  DC\_30A\_n2A  DC\_66A\_n2A | CA\_2A-29A-30A-66A | **n2** |

#### 5.1.23.3 ∆TIB and ∆RIB values

For DC\_2-29-30-66\_n2 the TIB,c and RIB,c values are reused from EN-DC combination DC\_30-66\_n2, and are given in the tables below.

Table 5.1.23.3-1: ΔTIB,c

| Inter-band DC Configuration | E-UTRA and NR Band | ΔTIB,c [dB] |
| --- | --- | --- |
| DC\_2-29-30-66\_n2 | 2 | 0.5 |
| 29 | 0 |
| 30 | 0.3 |
| 66 | 0.5 |
| n2 | 0.5 |

Table 5.1.23.3-2: ΔRIB

| Inter-band DC Configuration | E-UTRA and NR Band | ΔRIB [dB] |
| --- | --- | --- |
| DC\_2-29-30-66\_n2 | 2 | 0.4 |
| 29 | 0 |
| 30 | 0.5 |
| 66 | 0.4 |
| n2 | 0.4 |

#### 5.1.23.4 REFSENS requirements

There is no additional REFSENS requirement for this band combination.

### 5.1.24 DC\_1-3-7-20\_n8

#### 5.1.24.1 Operating bands for EN-DC

Table 5.1.24.1-1: Band combinations EN-DC (five bands)

| EN-DC band | E-UTRA CA band | NR band | Single UL allowed |
| --- | --- | --- | --- |
| DC\_1-3-7-20\_n8 | CA\_1-3-7-20 | n8 |  |

#### 5.1.24.2 Configuration for EN-DC

Table 5.1.24.2-1: Inter-band EN-DC configurations (five bands)

| EN-DC  configuration | Uplink EN-DC  configuration  (NOTE 1) | E-UTRA CA configuration | NR band |
| --- | --- | --- | --- |
| DC\_1A-3A-7A-20A\_n8A | **DC\_1A\_n8A**  **DC\_3A\_n8A**  **DC\_7A\_n8A**  **DC\_20A\_n8A** | **CA\_1A-3A-7A-20A** | **n8** |

#### 5.1.24.3 ∆TIB and ∆RIB values

Table 5.1.24.3-1: ΔTIB,c due to EN-DC (five bands)

| Inter-band DC Configuration | E-UTRA and NR Band | ΔTIB,c [dB] |
| --- | --- | --- |
| DC\_1-3-7-20\_n8 | 1 | 0.6 |
| 3 | 0.6 |
| 7 | 0.6 |
| 20 | 0.6 |
| n8 | 0.6 |

Table 5.1.24.3-2: ΔRIB,c due to EN-DC (five bands)

| Inter-band DC Configuration | E-UTRA and NR Band | ΔRIB [dB] |
| --- | --- | --- |
| DC\_1-3-7-20\_n8 | 1 | 0 |
| 3 | 0 |
| 7 | 0 |
| 20 | 0 |
| n8 | 0 |

## 5.2 Inter-band EN-DC including FR2

Unless otherwise stated, ΔTIB,c for FR2 NR bands is set to zero, and ΔTIB,c for constituent E-UTRA bands for inter-band EN-DC defined in table 5.5B.5.4-1 is the same as those for the corresponding E-UTRA CA configuration specified in TS 36.101 [4], without the FR2 NR bands.

### 5.2.1 Void

### 5.2.2 DC\_2A-12A-30A-66A\_n260

#### 5.2.2.1 Operating bands for EN-DC

Table 5.2B.5.4-1: Band combinations EN-DC (five bands)

| EN-DC band | E-UTRA CA band | NR band | Single UL allowed |
| --- | --- | --- | --- |
| DC\_2-12-30-66\_n260 | CA\_2-12-30-66 | n260 |  |

#### 5.2.2.2 Configuration for DC

Table 5.5B.5.4-1: Inter-band EN-DC configurations (five bands)

| EN-DC  configuration | Uplink EN-DC  configuration  (NOTE 1) | E-UTRA CA configuration | NR configuration |
| --- | --- | --- | --- |
| DC\_2A-12A-30A-66A\_n260 | **DC\_2A\_n260A**  **DC\_12A\_n260A**  **DC\_30A\_n260A**  **DC\_66A\_n260A** | **CA\_2A-12A-30A-66A** | **n260A** |

#### 5.2.2.3 ∆TIB and ∆RIB values

Table 6.2B.4.2.4.4-1: ΔTIB,c

| EN-DC band | E-UTRA and NR Band | ΔTIB,c [dB] |
| --- | --- | --- |
| DC\_2-12-30-66\_n260 | 2 | 0.5 |
| 12 | 0.8 |
| 30 | 0.3 |
| 66 | 0.5 |
| n260 | 0 |

Table 7.3B.3.4.4-1-2: ΔRIB

| EN-DC band | E-UTRA and NR Band | ΔRIB [dB] |
| --- | --- | --- |
| DC\_2-12-30-66\_n260 | 2 | 0.4 |
| 12 | 0.5 |
| 30 | 0.5 |
| 66 | 0.4 |
| n260 | 0 |

### 5.2.3 DC\_2A-5A-30A-66A\_n260

#### 5.2.3.1 Operating bands for EN-DC

Table 5.2B.5.4-1: Band combinations EN-DC (five bands)

| EN-DC band | E-UTRA CA band | NR band | Single UL allowed |
| --- | --- | --- | --- |
| DC\_2-5-30-66\_n260 | CA\_2-5-30-66 | n260 |  |

#### 5.2.3.2 Configuration for DC

Table 5.5B.5.4-1: Inter-band EN-DC configurations (five bands)

| EN-DC  configuration | Uplink EN-DC  configuration  (NOTE 1) | E-UTRA CA configuration | NR configuration |
| --- | --- | --- | --- |
| DC\_2A-5A-30A-66A\_n260 | DC\_2A\_n260A  DC\_5A\_n260A  DC\_30A\_n260A  DC\_66A\_n260A | CA\_2A-5A-30A-66A | n260A |

#### 5.2.3.3 ∆TIB and ∆RIB values

Table 6.2B.4.2.4.4-1-1: ΔTIB,c

| EN-DC band | E-UTRA and NR Band | ΔTIB,c [dB] |
| --- | --- | --- |
| DC\_2-5-30-66\_n260 | 2 | 0.5 |
| 5 | 0.3 |
| 30 | 0.3 |
| 66 | 0.5 |
| n260 | 0 |

Table 7.3B.3.4.4-1-2: ΔRIB

| EN-DC band | E-UTRA and NR Band | ΔRIB [dB] |
| --- | --- | --- |
| DC\_2-5-30-66\_n260 | 2 | 0.4 |
| 5 | 0 |
| 30 | 0.5 |
| 66 | 0.4 |
| n260 | 0 |

### 5.2.4 DC\_1-3-41-42\_n257

#### 5.2.4.1 Operating bands for EN-DC

Table 5.2B.5.4-1: Band combinations EN-DC (five bands)

| EN-DC band | E-UTRA CA band | NR band | Single UL allowed |
| --- | --- | --- | --- |
| DC\_1-3-41-42\_n257 | CA\_1-3-41-42 | n257 |  |

#### 5.2.4.2 Configuration for EN-DC

Table 5.5B.5.4-1: Inter-band EN-DC configurations (five bands)

| EN-DC  configuration | Uplink EN-DC  configuration  (NOTE 1) | E-UTRA CA configuration | NR configuration |
| --- | --- | --- | --- |
| DC\_1A-3A-41A-42A\_n257A | DC\_1A\_n257A  DC\_3A\_n257A  DC\_41A\_n257A  DC\_42A\_n257A | CA\_ 1A-3A-41A-42A | n257A |
| DC\_1A-3A-41A-42A\_n257F | DC\_1A\_n257A  DC\_3A\_n257A  DC\_41A\_n257A  DC\_42A\_n257A | CA\_ 1A-3A-41A-42A | n257A |
| DC\_1A-3A-41A-42A\_n257M | DC\_1A\_n257A  DC\_3A\_n257A  DC\_41A\_n257A  DC\_42A\_n257A | CA\_ 1A-3A-41A-42A | n257A |
| DC\_1A-3A-41A-42C\_n257A | DC\_1A\_n257A  DC\_3A\_n257A  DC\_41A\_n257A  DC\_42A\_n257A | CA\_ 1A-3A-41A-42C | n257A |
| DC\_1A-3A-41A-42C\_n257F | DC\_1A\_n257A  DC\_3A\_n257A  DC\_41A\_n257A  DC\_42A\_n257A | CA\_ 1A-3A-41A-42C | n257A |
| DC\_1A-3A-41A-42C\_n257M | DC\_1A\_n257A  DC\_3A\_n257A  DC\_41A\_n257A  DC\_42A\_n257A | CA\_ 1A-3A-41A-42C | n257A |
| DC\_1A-3A-41C-42A\_n257A | DC\_1A\_n257A  DC\_3A\_n257A  DC\_41A\_n257A  DC\_42A\_n257A | CA\_ 1A-3A-41C-42A | n257A |
| DC\_1A-3A-41C-42A\_n257F | DC\_1A\_n257A  DC\_3A\_n257A  DC\_41A\_n257A  DC\_42A\_n257A | CA\_ 1A-3A-41C-42A | n257A |
| DC\_1A-3A-41C-42A\_n257M | DC\_1A\_n257A  DC\_3A\_n257A  DC\_41A\_n257A  DC\_42A\_n257A | CA\_ 1A-3A-41C-42A | n257A |
| DC\_1A-3A-41C-42C\_n257A | DC\_1A\_n257A  DC\_3A\_n257A  DC\_41A\_n257A  DC\_42A\_n257A | CA\_ 1A-3A-41C-42C | n257A |
| DC\_1A-3A-41C-42C\_n257F | DC\_1A\_n257A  DC\_3A\_n257A  DC\_41A\_n257A  DC\_42A\_n257A | CA\_ 1A-3A-41C-42C | n257A |
| DC\_1A-3A-41C-42C\_n257M | DC\_1A\_n257A  DC\_3A\_n257A  DC\_41A\_n257A  DC\_42A\_n257A | CA\_ 1A-3A-41C-42C | n257A |

#### 5.2.4.3 ∆TIB and ∆RIB values

Table 6.2B.4.2.4.4-1: ΔTIB,c due to EN-DC(five bands)

| EN-DC band | E-UTRA and NR Band | ΔTIB,c [dB] |
| --- | --- | --- |
| DC\_1-3-41-42\_n257 | 1 | 0.6 |
| 3 | 0.6 |
| 41 | 0.5 |
| 42 | 0.8 |
| n257 | 0 |

Table 7.3B.3.4.4-1: ΔRIB,c due to EN-DC (five bands)

| EN-DC band | E-UTRA and NR Band | ΔRIB [dB] |
| --- | --- | --- |
| DC\_1-3-41-42\_n257 | 1 | 0.2 |
| 3 | 0.2 |
| 41 | 0 |
| 42 | 0.5 |
| n257 | 0 |

### 5.2.5 DC\_1-3-18-42\_n257

#### 5.2.5.1 Operating bands for EN-DC

Table 5.2B.5.4-1: Band combinations EN-DC (five bands)

| EN-DC band | E-UTRA CA band | NR band | Single UL allowed |
| --- | --- | --- | --- |
| DC\_1-3-18-42\_n257 | CA\_1-3-18-42 | n257 |  |

#### 5.2.5.2 Configuration for EN-DC

Table 5.5B.5.4-1: Inter-band EN-DC configurations (five bands)

| EN-DC  configuration | Uplink EN-DC  configuration  (NOTE 1) | E-UTRA CA configuration | NR configuration |
| --- | --- | --- | --- |
| DC\_1A-3A-18A-42A\_n257A | DC\_1A\_n257A  DC\_3A\_n257A  DC\_18A\_n257A  DC\_42A\_n257A | CA\_ 1A-3A-18A-42A | n257A |
| DC\_1A-3A-18A-42A\_n257F | DC\_1A\_n257A  DC\_3A\_n257A  DC\_18A\_n257A  DC\_42A\_n257A | CA\_ 1A-3A-18A-42A | n257A |
| DC\_1A-3A-18A-42A\_n257M | DC\_1A\_n257A  DC\_3A\_n257A  DC\_18A\_n257A  DC\_42A\_n257A | CA\_ 1A-3A-18A-42A | n257A |
| DC\_1A-3A-18A-42C\_n257A | DC\_1A\_n257A  DC\_3A\_n257A  DC\_18A\_n257A  DC\_42A\_n257A | CA\_ 1A-3A-18A-42C | n257A |
| DC\_1A-3A-18A-42C\_n257F | DC\_1A\_n257A  DC\_3A\_n257A  DC\_18A\_n257A  DC\_42A\_n257A | CA\_ 1A-3A-18A-42C | n257A |
| DC\_1A-3A-18A-42C\_n257M | DC\_1A\_n257A  DC\_3A\_n257A  DC\_18A\_n257A  DC\_42A\_n257A | CA\_ 1A-3A-18A-42C | n257A |

#### 5.2.5.3 ∆TIB and ∆RIB values

The same ∆TIB and ∆RIB values of DC\_1-3-19-42\_n257 can be applied.

Table 6.2B.4.2.4.4-1: ΔTIB,c due to EN-DC(five bands)

| EN-DC band | E-UTRA and NR Band | ΔTIB,c [dB] |
| --- | --- | --- |
| DC\_1-3-18-42\_n257 | 1 | 0.6 |
| 3 | 0.6 |
| 18 | 0.3 |
| 42 | 0.8 |
| n257 | 0 |

Table 7.3B.3.4.4-1: ΔRIB,c due to EN-DC (five bands)

| EN-DC band | E-UTRA and NR Band | ΔRIB [dB] |
| --- | --- | --- |
| DC\_1-3-18-42\_n257 | 1 | 0.2 |
| 3 | 0.2 |
| 18 | 0 |
| 42 | 0.5 |
| n257 | 0 |

### 5.2.6 DC\_1A-3A-5A-7A\_n257

#### 5.2.6.1 Operating bands for DC

Table 5.2B.5.4-1: Band combinations EN-DC (five bands)

| EN-DC band | E-UTRA CA band | NR band | Single UL allowed |
| --- | --- | --- | --- |
| DC\_1-3-5-7\_n257 | CA\_1-3-5-7 | n257 | No |

#### 5.2.6.2 Configuration for DC

Table 5.5B.5.4-1: Inter-band EN-DC configurations (five bands)

| EN-DC  configuration | Uplink EN-DC  configuration  (NOTE 1) | E-UTRA CA configuration | NR configuration |
| --- | --- | --- | --- |
| DC\_1A-3A-5A-7A\_n257D  DC\_1A-3A-5A-7A\_n257E  DC\_1A-3A-5A-7A\_n257F  DC\_1A-3A-5A-7A\_n257G  DC\_1A-3A-5A-7A\_n257H  DC\_1A-3A-5A-7A\_n257I  DC\_1A-3A-5A-7A\_n257J  DC\_1A-3A-5A-7A\_n257K  DC\_1A-3A-5A-7A\_n257L  DC\_1A-3A-5A-7A\_n257M | DC\_1A\_n257A  DC\_3A\_n257A  DC\_5A\_n257A  DC\_7A\_n257A | CA\_1A-3A-5A-7A | CA\_n257D  CA\_n257E  CA\_n257F  CA\_n257G  CA\_n257H  CA\_n257I  CA\_n257J  CA\_n257K  CA\_n257L  CA\_n257M |

#### 5.2.6.3 ∆TIB and ∆RIB values

Table 6.2B.4.2.4.4-1: ΔTIB,c due to EN-DC(five bands)

| EN-DC band | E-UTRA and NR Band | ΔTIB,c [dB] |
| --- | --- | --- |
| DC\_1-3-5-7\_n257 | 1 | 0.6 |
| 3 | 0.6 |
| 5 | 0.3 |
| 7 | 0.6 |
| n257 | 0 |

Table 7.3B.3.4.3-1: ΔRIB,c due to EN-DC (five bands)

| EN-DC band | E-UTRA and NR Band | ΔTIB,c [dB] |
| --- | --- | --- |
| DC\_1-3-5-7\_n257 | 1 | 0 |
| 3 | 0 |
| 5 | 0 |
| 7 | 0 |
| n257 | 0 |

### 5.2.7 DC\_1A-3A-5A-7A-7A\_n257

#### 5.2.7.1 Operating bands for DC

Table 5.2B.5.4-1: Band combinations EN-DC (five bands)

| EN-DC band | E-UTRA CA band | NR band | Single UL allowed |
| --- | --- | --- | --- |
| DC\_1-3-5-7-7\_n257 | CA\_1-3-5-7-7 | n257 | No |

#### 5.2. 7.2 Configuration for DC

Table 5.5B.5.4-1: Inter-band EN-DC configurations (five bands)

| EN-DC  configuration | Uplink EN-DC  configuration  (NOTE 1) | E-UTRA CA configuration | NR configuration |
| --- | --- | --- | --- |
| DC\_1A-3A-5A-7A-7A\_n257D  DC\_1A-3A-5A-7A-7A\_n257E  DC\_1A-3A-5A-7A-7A\_n257F  DC\_1A-3A-5A-7A-7A\_n257G  DC\_1A-3A-5A-7A-7A\_n257H  DC\_1A-3A-5A-7A-7A\_n257I  DC\_1A-3A-5A-7A-7A\_n257J  DC\_1A-3A-5A-7A-7A\_n257K  DC\_1A-3A-5A-7A-7A\_n257L  DC\_1A-3A-5A-7A-7A\_n257M | DC\_1A\_n257A  DC\_3A\_n257A  DC\_5A\_n257A  DC\_7A\_n257A | CA\_1A-3A-5A-7A-7A | CA\_n257D  CA\_n257E  CA\_n257F  CA\_n257G  CA\_n257H  CA\_n257I  CA\_n257J  CA\_n257K  CA\_n257L  CA\_n257M |

#### 5.2.7.3 ∆TIB and ∆RIB values

Table 6.2B.4.2.4.4-1: ΔTIB,c due to EN-DC(five bands)

| EN-DC band | E-UTRA and NR Band | ΔTIB,c [dB] |
| --- | --- | --- |
| DC\_1-3A-5-7-7\_n257 | 1 | 0.6 |
| 3 | 0.6 |
| 5 | 0.3 |
| 7 | 0.6 |
| n257 | 0 |

Table 7.3B.3.4.3-1: ΔRIB,c due to EN-DC (five bands)

| EN-DC band | E-UTRA and NR Band | ΔTIB,c [dB] |
| --- | --- | --- |
| DC\_1-3-5-7-7\_n257 | 1 | 0 |
| 3 | 0 |
| 5 | 0 |
| 7 | 0 |
| n257 | 0 |

### 5.2.8 DC\_3-19-21-42\_n257

#### 5.2.8.1 Operating bands for EN-DC

Table 5.2B.5.4-1: Band combinations EN-DC (five bands)

| EN-DC band | E-UTRA CA band | NR band | Single UL allowed |
| --- | --- | --- | --- |
| DC\_3-19-21-42\_n257 | CA\_3-19-21-42 | n257 | No |
| NOTE 1: Applicable for UE supporting inter-band carrier aggregation with mandatory simultaneous Rx/Tx capability | | | |

#### 5.2.8.2 Configuration for EN-DC

Table 5.5B.5.4-1: Inter-band EN-DC configurations (five bands)

| EN-DC  configuration | Uplink EN-DC  configuration  (NOTE 1) | E-UTRA CA configuration | NR configuration |
| --- | --- | --- | --- |
| DC\_3A-19A-21A-42A\_n257A | DC\_3A\_n257A  DC\_19A\_n257A  DC\_21A\_n257A | CA\_3A-19A-21A-42A | n257A |
| DC\_3A-19A-21A-42A\_n257D | DC\_3A\_n257A  DC\_19A\_n257A  DC\_21A\_n257A  DC\_3A\_n257D  DC\_19A\_n257D  DC\_21A\_n257D | CA\_3A-19A-21A-42A | CA\_n257D |
| DC\_3A-19A-21A-42A\_n257E | DC\_3A\_n257A  DC\_19A\_n257A  DC\_21A\_n257A  DC\_3A\_n257D  DC\_19A\_n257D  DC\_21A\_n257D | CA\_3A-19A-21A-42A | CA\_n257E |
| DC\_3A-19A-21A-42A\_n257F | DC\_3A\_n257A  DC\_19A\_n257A  DC\_21A\_n257A  DC\_3A\_n257D  DC\_19A\_n257D  DC\_21A\_n257D | CA\_3A-19A-21A-42A | CA\_n257F |
| DC\_3A-19A-21A-42C\_n257A | DC\_3A\_n257A  DC\_19A\_n257A  DC\_21A\_n257A | CA\_3A-19A-21A-42C | n257A |
| DC\_3A-19A-21A-42C\_n257D | DC\_3A\_n257A  DC\_19A\_n257A  DC\_21A\_n257A  DC\_3A\_n257D  DC\_19A\_n257D  DC\_21A\_n257D | CA\_3A-19A-21A-42C | CA\_n257D |
| DC\_3A-19A-21A-42C\_n257E | DC\_3A\_n257A  DC\_19A\_n257A  DC\_21A\_n257A  DC\_3A\_n257D  DC\_19A\_n257D  DC\_21A\_n257D | CA\_3A-19A-21A-42C | CA\_n257E |
| DC\_3A-19A-21A-42C\_n257F | DC\_3A\_n257A  DC\_19A\_n257A  DC\_21A\_n257A  DC\_3A\_n257D  DC\_19A\_n257D  DC\_21A\_n257D | CA\_3A-19A-21A-42C | CA\_n257F |

#### 5.2.8.3 ∆TIB and ∆RIB values

Table 6.2B.4.2.4.4-1: ΔTIB,c due to EN-DC (five bands)

| Inter-band DC Configuration | E-UTRA and NR Band | ΔTIB,c [dB] |
| --- | --- | --- |
| DC\_3-19-21-42\_n257 | 3 | 0.8 |
| 19 | 0.3 |
| 21 | 0.9 |
| 42 | 0.8 |

Table 7.3B.3.4.4-1: ΔRIB,c due to EN-DC (five bands)

| Inter-band DC Configuration | E-UTRA and NR Band | ΔTIB,c [dB] |
| --- | --- | --- |
| DC\_3-19-21-42\_n257 | 3 | 0.3 |
| 21 | 0.5 |
| 42 | 0.5 |

### 5.1.9 DC\_2A-14A-30A-66A\_n260M

#### 5.1.9.1 Operating bands for DC

**Table 5.2B.5.4-1: Band combinations EN-DC (five bands)**

| EN-DC band | E-UTRA Band | NR Band | Single UL allowed |
| --- | --- | --- | --- |
| DC\_2-14-30-66\_n260 | CA\_2-14-30-66 | n260 | No |

#### 5.1.9.2 Configuration for DC

Table 5.5B.5.4-1: Inter-band EN-DC configurations (5 bands)

| EN-DC  configuration | Uplink EN-DC  configuration  (NOTE 1) | E-UTRA configuration | NR configuration |
| --- | --- | --- | --- |

|  |  |  |  |
| --- | --- | --- | --- |
| DC\_2A-14A-30A-66A\_n260A  DC\_2A-14A-30A-66A\_n260G  DC\_2A-14A-30A-66A\_n260H  DC\_2A-14A-30A-66A\_n260I  DC\_2A-14A-30A-66A\_n260J  DC\_2A-14A-30A-66A\_n260K  DC\_2A-14A-30A-66A\_n260L  DC\_2A-14A-30A-66A\_n260M | DC\_2A\_n260A  DC\_2A\_n260G  DC\_2A\_n260H  DC\_2A\_n260I  DC\_2A\_n260J  DC\_2A\_n260K  DC\_2A\_n260L  DC\_2A\_n260M  DC\_14A\_n260A  DC\_14A\_n260G  DC\_14A\_n260H  DC\_14A\_n260I  DC\_14A\_n260J  DC\_14A\_n260K  DC\_14A\_n260L  DC\_14A\_n260M  DC\_30A\_n260A  DC\_30A\_n260G  DC\_30A\_n260H  DC\_30A\_n260I  DC\_30A\_n260J  DC\_30A\_n260K  DC\_30A\_n260L  DC\_30A\_n260M  DC\_66A\_n260A  DC\_66A\_n260G  DC\_66A\_n260H  DC\_66A\_n260I  DC\_66A\_n260J  DC\_66A\_n260K  DC\_66A\_n260L  DC\_66A\_n260M | CA\_2A-14A-30A-66A | n260A  CA\_n260G  CA\_n260H  CA\_n260I  CA\_n260J  CA\_n260K  CA\_n260L  CA\_n260M |

#### 5.1.9.3 ∆TIB and ∆RIB values

For DC\_2-14-30-66\_n260 the TIB,c and RIB,c values are given in the tables below.

Table 6.2B.4.2.4.4-1: ΔTIB,c

| Inter-band DC Configuration | E-UTRA and NR Band | ΔTIB,c [dB] |
| --- | --- | --- |
| DC\_2-14-30-66\_n260 | 2 | 0.5 |
| 14 | 0.3 |
| 30 | 0.3 |
| 66 | 0.5 |
| n260 | 0 |

Table 7.3B.3.4.4-1: ΔRIB,c

| Inter-band DC Configuration | E-UTRA and NR Band | ΔRIB [dB] |
| --- | --- | --- |
| DC\_2-14-30-66\_n260 | 2 | 0.4 |
| 14 | 0 |
| 30 | 0.5 |
| 66 | 0.4 |
| n260 | 0 |

### 5.2.10 DC\_3-28-41-42\_n257

#### 5.2.10.1 Operating bands for EN-DC

Table 5.2B.5.4-1: Band combinations EN-DC (five bands)

| EN-DC band | E-UTRA CA band | NR band | Single UL allowed |
| --- | --- | --- | --- |
| DC\_3-28-41-42\_n257 | CA\_3-28-41-42 | n257 | no |

#### 5.2.10.2 Configuration for EN-DC

Table 5.5B.5.4-1: Inter-band EN-DC configurations (five bands)

| EN-DC  configuration | Uplink EN-DC  configuration  (NOTE 1) | E-UTRA CA configuration | NR configuration |
| --- | --- | --- | --- |
| DC\_3A-28A-41A-42A\_n257A  DC\_3A-28A-41A-42A\_n257G  DC\_3A-28A-41A-42A\_n257H  DC\_3A-28A-41A-42A\_n257I  DC\_3A-28A-41A-42C\_n257A  DC\_3A-28A-41A-42C\_n257G DC\_3A-28A-41A-42C\_n257H DC\_3A-28A-41A-42C\_n257I DC\_3A-28A-41C-42A\_n257A  DC\_3A-28A-41C-42A\_n257G DC\_3A-28A-41C-42A\_n257H DC\_3A-28A-41C-42A\_n257I DC\_3A-28A-41C-42C\_n257A  DC\_3A-28A-41C-42C\_n257G  DC\_3A-28A-41C-42C\_n257H  DC\_3A-28A-41C-42C\_n257I | DC\_1A\_n257A  DC\_1A\_n257G  DC\_1A\_n257H  DC\_1A\_n257I  DC\_3A\_n257A  DC\_3A\_n257G  DC\_3A\_n257H  DC\_3A\_n257I  DC\_41A\_n257A  DC\_41A\_n257G  DC\_41A\_n257H  DC\_41A\_n257I  DC\_41C\_n257A  DC\_41C\_n257G  DC\_41C\_n257H  DC\_41C\_n257I  DC\_42A\_n257A  DC\_42A\_n257G  DC\_42A\_n257H  DC\_42A\_n257I  DC\_42C\_n257A  DC\_42C\_n257G  DC\_42C\_n257H  DC\_42C\_n257I | CA\_ 3A-28A-41A-42A  CA\_ 3A-28A-41A-42C  CA\_ 3A-28A-41C-42A  CA\_ 3A-28A-41C-42C | n257A  CA\_n257G  CA\_n257H  CA\_n257I |

#### 5.2.10.3 ∆TIB and ∆RIB values

Table 6.2B.4.2.4.4-1: ΔTIB,c due to EN-DC(five bands)

| EN-DC band | E-UTRA and NR Band | ΔTIB,c [dB] |
| --- | --- | --- |
| DC\_3-28-41-42\_n257 | 3 | 1 |
| 28 | 0.5 |
| 41 | 0.31/0.82 |
| 42 | 0.8 |
| NOTE 1: The requirement is applied for UE transmitting on the frequency range of 2545 – 2690 MHz.  NOTE 2: The requirement is applied for UE transmitting on the frequency range of 2496 – 2545 MHz. | | |

Table 7.3B.3.4.4-1: ΔRIB,c due to EN-DC (five bands)

| EN-DC band | E-UTRA and NR Band | ΔRIB [dB] |
| --- | --- | --- |
| DC\_3-28-41-42\_n257 | 3 | 0.5 |
| 28 | 0.2 |
| 41 | 0.41/0.52 |
| 42 | 0.5 |
| NOTE 1: The requirement is applied for UE transmitting on the frequency range of 2545 – 2690 MHz.  NOTE 2: The requirement is applied for UE transmitting on the frequency range of 2496 – 2545 MHz. | | |

Annex A: Change history

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Change history** | | | | | | | |
| **Date** | **Meeting** | **TDoc** | **CR** | **Rev** | **Cat** | **Subject/Comment** | **New version** |
| 2018-08 | 3GPP RAN4#88 | R4-1811505 |  |  |  | Initial TR skeleton | 0.0.1 |
| 2018-10 | 3GPP RAN4#88 | R4-1811507  R4-1811508  R4-1811509  R4-1811510 |  |  |  | TP for TR 37.716-41-11 DC of 3-19-21-42\_n77  TP for TR 37.716-41-11 DC of 3-19-21-42\_n78  TP for TR 37.716-41-11 DC of 3-19-21-42\_n79  TP for TR 37.716-41-11 DC of 3-19-21-42\_n257 | 0.1.0 |
| 3GPP RAN4#88bis | R4-1813777  R4-1813778  R4-1812805  R4-1812806  R4-1812891  R4-1812909  R4-1813765 |  |  |  | TP for TR 37.716-41-11: DC\_1-3-41-42\_n78  TP for TR 37.716-41-11: DC\_1-3-18-42\_n78  TP for TR 37.716-41-11: 2A-12A-30A-66A\_n260  TP for TR 37.716-41-11: 2A-5A-30A-66A\_n260  TP for TR 37.716-41-11: DC\_1-3-41-42\_n257  TP for TR 37.716-41-11: DC\_1-3-18-42\_n257  TP for TR 37.716-41-11 DC\_4Bands\_n257 | 0.1.0 |
| 2019-02 | 3GPP RAN4#89 | R4-1814939  R4-1814945  R4-1816164  R4-1816165  R4-1816174  R4-1816225 |  |  |  | TP for TR 37.716-41-11: DC\_1-3-41-42\_n79  TP for TR 37.716-41-11: DC\_1-3-18-42\_n79  TP for TR 37.716-41-11: DC\_1-3-41-42\_n77  TP for TR 37.716-41-11: DC\_1-3-18-42\_n77  Addition of EN-DC configuration DC\_1A-3A-7A-28A\_n78A, DC\_1A-3A-7C-28A\_n78A and DC\_1A-3C-7A-28A\_n78A  DC band combination of Band 1, 3, 5, 41 and n79 | 0.2.0 |
| 2019-05 | 3GPP  RAN4#91 | R4-1907462  R4-1904454 |  |  |  | Update to table containing combinations in this TR  TP to TR 37.716-41-11: Addition of EN-DC configuration DC\_1A-3C-7C-28A\_n78A | 0.3.0 |
| 2019-08 | 3GPP  RAN4#92 | R4-1909261 R4-1904908  R4-1909825  R4-1909356R4-1909824 |  |  |  | Editorial clean up and addition of TPs:  TP for TR 37.716-41-11 to include include DC\_1-3-7-28\_n5  TP for TR 37.716-41-11: TP to correct 1A-3C-7C-28A\_n78A  TP for TR 37.716-41-11: DC\_1A-3A-7A-8A\_n78A  TP for TR 37.716-41-11: Addition of four EN-DC combination 2A-14A-30A-66A\_n260M | 0.4.0 |
| 2019-10 | 3GPP  RAN4#92bis | R4-1911675 |  |  |  | Updating the grouping of combinations | 0.5.0 |
| 2019-11 | 3GPP  RAN4#93 | R4-1914326  R4-1911663  R4-1911662 |  |  |  | Addition of TPs:  TP for TR 37.716-41-11: DC\_3-28-41-42\_n257  TP for TR 37.716-41-11: DC\_3-28-41-42\_n78 | 0.6.0 |
| 2020-02 | 3GPP RAN4#94-e | R4-2002608  R4-1913617  R4-1915642  R4-1914331  R4-1915643  R4-1915644  R4-1915645 |  |  |  | Updated example sections to reflect needed information for inclusion in 38.101-3 and addition of TPs:  TP for TR37.716-41-11\_ DC\_1A-3A-20A-38A\_n78A  TP for TR 37.716-41-11: EN-DC\_1-3-8-42\_n77  TP for 37.716-41-11 to introduce DC\_2-12-30-66\_n2  TP for TR 37.716-41-11: DC\_2-7-13-66\_n66  TP for TR 37.716-41-11: Addition of EN-DC configurations containing bands DC\_1-3-7-28\_n7  TP for TR 37.716-41-11: Addition of EN-DC configurations containing bands DC\_2-12-30-66\_n66. | 0.7.0 |
| 2020-04 | 3GPP RAN4#94bis-e | R4-2004218 |  |  |  | Editorial clean up and corrections since RAN4#94-e | 0.8.0 |
| 2020-05 | 3GPP RAN4#94bis-e | R4-2005872  R4-2004226 |  |  |  | Addition of TPs from RAN4#94bis-e and editorial clean up/corrections:  TP for 37.716-41-11 to introduce DC\_1-3-7-28\_n40 | 0.9.0 |
| 2020-06 | 3GPP RAN4#95e | R4-2007168  R4-2006509  R4-2008026 |  |  |  | Addition of TPs from RAN4#95-e and editorial clean up/corrections:  TP for TR 37.716-41-11:DC\_2A-29A-30A-66A\_n2A  TP for TR 37.716-41-11: DC\_1A-3A-7A-20A\_n8A | 0.10.0 |
| 2020-06 | 3GPP RAN#88e | RP-200650 |  |  |  | Approval at RAN | 1.0.0 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Change history** | | | | | | | |
| **Date** | **Meeting** | **TDoc** | **CR** | **Rev** | **Cat** | **Subject/Comment** | **New version** |
| 2020-06 | RAN#88 |  |  |  |  | Approved by plenary – Rel-16 spec under change control | 16.0.0 |