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| 3GPP TR 38.850 V1.2.0 (2024-03) |
| Technical Report |
| 3rd Generation Partnership Project;Technical Specification Group Radio Access Network;Rel-18 High power UE (power class 2) for a single FR1 NR FDD band in UL of NR intra-band and inter-band CA/DC combinations with y bands downlink (y=1,2,3,4,5,6) and x bands uplink (x=1); (Release 18) |
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Contents

Foreword 5

1 Scope 7

2 References 7

3 Definitions of terms, symbols and abbreviations 7

3.1 Terms 7

3.2 Symbols 7

3.3 Abbreviations 7

4 Background 8

4.1 TR Maintenance 8

5 High Power UE for Inter-band DL CA with PC2 on single FDD band 8

5.1 CA\_n1A-n78A 8

5.1.1 UE maximum output power 8

5.2 CA\_n3A-n78A 9

5.2.1 UE maximum output power 9

5.2.2 Reference sensitivity requirements 9

5.3 CA\_n25A-n77A 10

5.3.1 UE maximum output power 10

5.3.2 Reference sensitivity requirements 10

5.3.2.0 General 10

5.3.2.1 Reference sensitivity requirements with PC2 on n25 without TxD 10

5.3.2.2 Reference sensitivity requirements with PC2 on n25 with TxD 11

5.4 CA\_n25A-n71A 12

5.4.1 UE maximum output power 12

5.4.2 Reference sensitivity requirements 12

5.4.2.0 General 12

5.4.2.1 Reference sensitivity requirements with PC2 on n25 without TxD 12

5.4.2.2 Reference sensitivity requirements with PC2 on n25 with TxD 13

5.4.2.3 Reference sensitivity requirements with PC2 on n71 without TxD 13

5.4.2.4 Reference sensitivity requirements with PC2 on n25 with TxD 14

5.5 CA\_n41A-n71A 15

5.5.1 UE maximum output power 15

5.5.2 Reference sensitivity requirements 15

5.5.2.0 General 15

5.5.2.1 Reference sensitivity requirements with PC2 on n71 without TxD 15

5.5.2.2 Reference sensitivity requirements with PC2 on n71 with TxD 16

5.6 CA\_n66A-n77A 17

5.6.1 UE maximum output power 17

5.6.2 Reference sensitivity requirements 17

5.6.2.0 General 17

5.6.2.1 Reference sensitivity requirements with PC2 on n66 without TxD 17

5.6.2.2 Reference sensitivity requirements with PC2 on n66 with TxD 18

5.7 CA\_n71A-n77A 19

5.7.1 UE maximum output power 19

5.7.2 Reference sensitivity requirements 19

5.7.2.0 General 19

5.7.2.1 Reference sensitivity requirements with PC2 on n71 without TxD 19

5.7.2.2 Reference sensitivity requirements with PC2 on n66 with TxD 20

6 High Power UE for Intra-band DL CA with PC2 on single FDD band 21

6.1 CA\_n71(2A) 21

6.1.1 UE maximum output power 21

6.1.2 Reference sensitivity requirements 21

6.1.2.0 General 21

6.1.2.1 Reference sensitivity requirements with PC2 on n71 without TxD 21

6.1.2.2 Reference sensitivity requirements with PC2 on n71 with TxD 22

6.2 CA\_n25(2A) 23

6.2.1 UE maximum output power 23

6.2.2 Reference sensitivity requirements 23

6.2.2.0 General 23

6.2.2.1 Reference sensitivity requirements with PC2 on n71 without TxD 23

6.2.2.2 Reference sensitivity requirements with PC2 on n25 with TxD 24

6.3 CA\_n66(2A) 25

6.3.1 UE maximum output power 25

6.3.2 Reference sensitivity requirements 25

6.3.2.0 General 25

6.3.2.1 Reference sensitivity requirements with PC2 on n66 without TxD 25

6.3.2.2 Reference sensitivity requirements with PC2 on n66 with TxD 26

Annex <A> (informative): Change history 27

# Foreword

This Technical Report has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

x the first digit:

1 presented to TSG for information;

2 presented to TSG for approval;

3 or greater indicates TSG approved document under change control.

y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.

z the third digit is incremented when editorial only changes have been incorporated in the document.

In the present document, modal verbs have the following meanings:

**shall** indicates a mandatory requirement to do something

**shall not** indicates an interdiction (prohibition) to do something

The constructions "shall" and "shall not" are confined to the context of normative provisions, and do not appear in Technical Reports.

The constructions "must" and "must not" are not used as substitutes for "shall" and "shall not". Their use is avoided insofar as possible, and they are not used in a normative context except in a direct citation from an external, referenced, non-3GPP document, or so as to maintain continuity of style when extending or modifying the provisions of such a referenced document.

**should** indicates a recommendation to do something

**should not** indicates a recommendation not to do something

**may** indicates permission to do something

**need not** indicates permission not to do something

The construction "may not" is ambiguous and is not used in normative elements. The unambiguous constructions "might not" or "shall not" are used instead, depending upon the meaning intended.

**can** indicates that something is possible

**cannot** indicates that something is impossible

The constructions "can" and "cannot" are not substitutes for "may" and "need not".

**will** indicates that something is certain or expected to happen as a result of action taken by an agency the behaviour of which is outside the scope of the present document

**will not** indicates that something is certain or expected not to happen as a result of action taken by an agency the behaviour of which is outside the scope of the present document

**might** indicates a likelihood that something will happen as a result of action taken by some agency the behaviour of which is outside the scope of the present document

**might not** indicates a likelihood that something will not happen as a result of action taken by some agency the behaviour of which is outside the scope of the present document

In addition:

**is** (or any other verb in the indicative mood) indicates a statement of fact

**is not** (or any other negative verb in the indicative mood) indicates a statement of fact

The constructions "is" and "is not" do not indicate requirements.

# 1 Scope

The present document is a technical report for Rel-18 High power UE (power class 2) for FR1 NR FDD band in UL of NR inter-band CA/DC combinations with y bands downlink (y=2,3,4,5,6) and x bands uplink (x=1) under Rel-18 time-frame. The purpose is to gather the relevant background information and studies in order to complete the band combination specific requirements for the newly requested band combinations.

# 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".

[2] 3GPP TS 38.101-1: "NR; User Equipment (UE) radio transmission and reception; Part 1: Range 1 Standalone".

…

[x] <doctype> <#>[ ([up to and including]{yyyy[-mm]|V<a[.b[.c]]>}[onwards])]: "<Title>".

# 3 Definitions of terms, symbols and abbreviations

## 3.1 Terms

For the purposes of the present document, the terms given in 3GPP 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 3GPP TR 21.905 [1].

**example:** text used to clarify abstract rules by applying them literally.

## 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 3GPP 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 3GPP TR 21.905 [1].

<ABBREVIATION> <Expansion>

DL Downlink

FDD Frequency Division Duplex

MPR Allowed maximum power reduction

MSD Maximum Sensitivity Degradation

REFSENS Reference Sensitivity power level

UE User Equipment

UL Uplink

# 4 Background

At 3GPP RAN4#97-e meeting, a basket Work Item on “Rel-18 High power UE (power class 2) for FR1 NR FDD band in UL of NR inter-band CA/DC combinations with y bands downlink (y=2,3,4,5,6) and x bands uplink (x=1)” was approved for Rel-18. The objectives of the core part are as follows:

The objectives of the core part are as follows:

1. Specify the band-combination specific RF requirements for cases in the table below, including
	1. Maximum output power and Tx power tolerance.
	2. Self-desensitization, applicable ∆TIB, c and ∆RIB, c and reference sensitivity exceptions including MSD test cases.
	3. Other additional impact on the requirements, if identified.

Note: For the combinations with UL harmonic impact, the text proposals for the Work Item can be reviewed in non-block-approval agenda.

## 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/band combination to ensure that the TPs related to the band/band combination have been implemented.

# 5 High Power UE for Inter-band DL CA with PC2 on single FDD band

## 5.1 CA\_n1A-n78A

### 5.1.1 UE maximum output power

Table 5.5A.3.1-1: NR CA configurations and bandwidth combinations sets defined for inter-band CA (two bands)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| NR CA configuration | Uplink CA configuration or single uplink carrier10 | NR Band | Channel bandwidth (MHz) (NOTE 3) | Bandwidth combination set |
| CA\_n1A-n78A | n18n788CA\_n1A-n78A8 | n1 | 5, 10, 15, 20 | 0 |
|  |  | n78 | 10, 15, 20, 40, 50, 60, 80, 90, 100 |
|  |  | n1 | 5, 10, 15, 20, 25, 30, 40, 50 | 1 |
|  |  | n78 | 10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100 |
|  |  | n1 | 5, 10, 15, 20, 25, 30, 40 | 2 |
|  |  | n78 | 10, 15, 20, 40, 50, 60, 80, 90, 100 |
|  |  | n1 | 5, 10, 15, 20 | 3 |
|  |  | n78 | 10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100 |

NOTE 8: Power Class 2 is allowed for this uplink combination or single uplink carrier in this downlink/uplink combination.

NOTE 10: Only single uplink carriers with power class other than PC3 are listed.

## 5.2 CA\_n3A-n78A

### 5.2.1 UE maximum output power

Table 5.5A.3.1-1: NR CA configurations and bandwidth combinations sets defined for inter-band CA (two bands)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| NR CA configuration | Uplink CA configuration or single uplink carrier10 | NR Band | Channel bandwidth (MHz) (NOTE 3) | Bandwidth combination set |
| CA\_n3A-n78A | n38n788CA\_n3A-n78A8 | n3 | 5, 10, 15, 20, 25, 30 | 0 |
|  |  | n78 | 10, 15, 20, 40, 50, 60, 80, 90, 100 |
|  |  | n3 | 5, 10, 15, 20, 25, 30, 40, | 1 |
|  |  | n78 | 10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100 |

NOTE 8: Power Class 2 is allowed for this uplink combination or single uplink carrier in this downlink/uplink combination.

NOTE 10: Only single uplink carriers with power class other than PC3 are listed.

### 5.2.2 Reference sensitivity requirements

*<Editor’s note: This part will capture the Reference sensitivity degradation for specified band combination(s), please use the same table format as in 38101-1. >*

**Table 5.2.2-1: Reference sensitivity exceptions and uplink/downlink configurations due to UL harmonic from a PC2 aggressor NR UL band for NR DL CA FR1 for UE not supporting Tx Diversity**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Source** | **UL band** | **DL band** | **UL BW** | **SCS of UL band** | **UL RB Allocation** | **DL BW** | **MSD** | **UL/DL fc condition** | **UL/DL harmonic order** |
| **(MHz)** | **(kHz)** | **LCRB** | **(MHz)** | **(dB)** |
| R4-2215895 (ZTE, CU) | n3 | n78 | 5 | 15 | 25 (RBstart=0) | 10 | 26.2 | NOTE 2 | UL2/DL1direct-hit |
| R4-2215660 (Apple) | n3 | n78 | 5 | 15 | 25 (RBstart=0) | 10 | 28.1 | NOTE 2 | UL2/DL1direct-hit |
| R4- 2302731 (Huawei, HiSilicon) | n3 | n78 | 5 | 15 | 25 (RBstart=0) | 10 | 26.9 | NOTE 2 | UL2/DL1direct-hit |
| R4-2215895 (ZTE, CU) | n3 | n78 | 10 | 15 | 50 (RBstart=0) | 100 | 16.6 | NOTE 2 | UL2/DL1direct-hit |
|  | NOTE 2: The requirements should be verified for UL NR-ARFCN of the aggressor (high) band (superscript HB) such that in MHz and  with carrier frequency in the victim (lower) band in MHz and  the channel bandwidth configured in the higher band. |

**Table 5.2.2-2: Reference sensitivity exceptions and uplink/downlink configurations due to UL harmonic from a PC2 aggressor NR UL band for NR DL CA FR1 for UE supporting Tx Diversity**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Source** | **UL band** | **DL band** | **UL BW** | **SCS of UL band** | **UL RB Allocation** | **DL BW** | **MSD** | **UL/DL fc condition** | **UL/DL harmonic order** |
| **(MHz)** | **(kHz)** | **LCRB** | **(MHz)** | **(dB)** |
| R4-2215660 (Apple) | n3 | n78 | 5 | 15 | 25 (RBstart=0) | 10 | 35.4 | NOTE 2 | UL2/DL1direct-hit |
| R4- 2302731 (Huawei, HiSilicon) | n3 | n78 | 5 | 15 | 25 (RBstart=0) | 10 | 29.2 | NOTE 2 | UL2/DL1direct-hit |
|  | NOTE 2: The requirements should be verified for UL NR-ARFCN of the aggressor (high) band (superscript HB) such that in MHz and  with carrier frequency in the victim (lower) band in MHz and  the channel bandwidth configured in the higher band. |

## 5.3 CA\_n25A-n77A

### 5.3.1 UE maximum output power

Table 5.5A.3.1-1: NR CA configurations and bandwidth combinations sets defined for inter-band CA (two bands)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| NR CA configuration | Uplink CA configuration or single uplink carrier10 | NR Band | Channel bandwidth (MHz) (NOTE 3) | Bandwidth combination set |
| CA\_n25A-n77A | n258n778,9CA\_n25A-n77A8,14 | n25 | 5, 10, 15, 20 | 0 |
|  |  | n77 | 10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100 |  |
|  |  | n25 | 5, 10, 15, 20, 25, 30, 40 | 1 |
|  |  | n77 | 10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100 |  |
|  |  | n25 | n25 channel bandwidths in Table 5.3.5-1 | 4 and 5 |
|  |  | n77 | n77 channel bandwidths in Table 5.3.5-1 |  |

NOTE 8: Minimum requirements for Power Class 2 are applicable for this uplink combination with 1Tx antenna connector in each band or single uplink carrier with up to 2Tx antenna connectors in this downlink/uplink combination

NOTE 10: Only single uplink carriers with power class other than PC3 are listed.

### 5.3.2 Reference sensitivity requirements

#### 5.3.2.0 General

For PC2, CA\_n25-n77 has harmonic MSD for UL n25. This section will examine the existing PC3 MSD and propose MSD for PC2 FDD.

#### 5.3.2.1 Reference sensitivity requirements with PC2 on n25 without TxD

For CA\_n25-n77, this is the configuration and MSD for UL n25 with PC3

Table 7.3A.4-1: Reference sensitivity exceptions and uplink/downlink configurations due to UL harmonic from a PC3 aggressor NR UL band for NR DL CA FR1

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| UL band | DL band | UL BW | SCS of UL band | UL RB Allocation | DL BW | MSD | UL/DL fc condition | UL/DL harmonic order |
| (MHz) | (kHz) | LCRB | (MHz) | (dB) |
| n25 | n77 | 5 | 15 | 25 (RBstart=0) | 10 | 23.9 | NOTE 2 | UL2/DL1direct-hit |
| n25 | n77 | 10 | 15 | 50 (RBstart=0) | 100 | 13.8 | NOTE 2 | UL2/DL1direct-hit |
| n25 | n77 | 5 | 15 | 25 (RBstart=0) | 10 | 1.1 | NOTE 6 | UL2/DL1near-miss |

For PC3 MSD we have N+IPC3. For PC2 MSD we have N+IPC2. So, for PC2 compared to PC3, I increases by harmonic order \* 3 dB or 6 dB. For our other PC2 and PC1.5 MSD analysis we have been using the following approach:

MSD due to interference power *I* is given by:

where *N* is the noise spectral density and BW is the bandwidth of the carrier. If the initial MSD is known,

then we have:

 

If *I* is increased by *X* dB, then *MSD(X)* is given by







Using that approach, the following is proposed as a the PC2 MSD:

Table 7.3A.4-2a: Reference sensitivity exceptions and uplink/downlink configurations due to UL harmonic from a PC2 aggressor NR UL band for NR DL CA FR1 for UE not supporting Tx Diversity

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| UL band | DL band | UL BW | SCS of UL band | UL RB Allocation | DL BW | MSD | UL/DL fc condition | UL/DL harmonic order |
| (MHz) | (kHz) | LCRB | (MHz) | (dB) |
| n25 | n77 | 5 | 15 | 25 (RBstart=0) | 10 | 29.9 | NOTE 2 | UL2/DL1direct-hit |
| n25 | n77 | 10 | 15 | 50 (RBstart=0) | 100 | 19.7 | NOTE 2 | UL2/DL1direct-hit |
| n25 | n77 | 5 | 15 | 25 (RBstart=0) | 10 | 3.3 | NOTE 6 | UL2/DL1near-miss |

#### 5.3.2.2 Reference sensitivity requirements with PC2 on n25 with TxD

[TBD]

## 5.4 CA\_n25A-n71A

### 5.4.1 UE maximum output power

Table 5.5A.3.1-1: NR CA configurations and bandwidth combinations sets defined for inter-band CA (two bands)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| NR CA configuration | Uplink CA configuration or single uplink carrier10 | NR Band | Channel bandwidth (MHz) (NOTE 3) | Bandwidth combination set |
| CA\_n25A-n71A | n258n718CA\_n25A-n71A | n25 | 5, 10, 15, 20 | 0 |
|  |  | n71 | 5, 10, 15, 20 |
|  |  | n25 | 5, 10, 15, 20, 25, 30, 40 | 1 |
|  |  | n71 | 5, 10, 15, 20 |
|  |  | n25 | n25 channel bandwidths in Table 5.3.5-1 | 4 and 5 |
|  |  | n71 | n71 channel bandwidths in Table 5.3.5-1 |

NOTE 8: Minimum requirements for Power Class 2 are applicable for this uplink combination with 1Tx antenna connector in each band or single uplink carrier with up to 2Tx antenna connectors in this downlink/uplink combination

NOTE 10: Only single uplink carriers with power class other than PC3 are listed.

### 5.4.2 Reference sensitivity requirements

#### 5.4.2.0 General

For PC2, CA\_n25-n71 has harmonic mixing MSD for UL n25 and harmonic MSD for UL n71. This section will examine the existing PC3 MSD and propose MSD for PC2 FDD on each band.

#### 5.4.2.1 Reference sensitivity requirements with PC2 on n25 without TxD

For CA\_n25-n71, this is the configuration and MSD for UL n25 with PC3

**Table 7.3A.4-4: Reference sensitivity exceptions and uplink/downlink configurations due to harmonic mixing from a PC3 aggressor NR UL band for DL NR CA FR1**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **UL band** | **DL band** | **UL BW** | **SCS of UL band** | **UL RB Allocation** | **DL BW** | **MSD** | **UL/DL fc condition** | **UL/DL harmonic order** |
| **(MHz)** | **(kHz)** | **LCRB** | **(MHz)** | **(dB)** |
| n25 | n713 | 5 | 15 | 25 (RBstart=0) | 5 | 26.5 | NOTE 4 | UL1/DL3 |
| n25 | n713 | 20 | 15 | 100 (RBstart=0) | 20 | 15.3 | NOTE 4 | UL1/DL3 |

For PC3 MSD we have N+IPC3. For PC2 MSD we have N+IPC2. So, for PC2 compared to PC3, I increases by 3 dB. For our other PC2 and PC1.5 MSD analysis we have been using the following approach:

MSD due to interference power *I* is given by:

where *N* is the noise spectral density and BW is the bandwidth of the carrier. If the initial MSD is known,

then we have:

 

If *I* is increased by *X* dB, then *MSD(X)* is given by







Using that approach, the following is proposed as a the PC2 harmonic mixing MSD:

**Table 7.3A.4-4a: Reference sensitivity exceptions and uplink/downlink configurations due to harmonic mixing from a PC2 aggressor NR UL band for NR DL CA FR1**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **UL band** | **DL band** | **UL BW** | **SCS of UL band** | **UL RB Allocation** | **DL BW** | **MSD** | **UL/DL fc condition** | **UL/DL harmonic order** |
| **(MHz)** | **(kHz)** | **LCRB** | **(MHz)** | **(dB)** |
| n25 | n713 | 5 | 15 | 25 (RBstart=0) | 5 | 29.5 | NOTE 4 | UL1/DL3 |
| n25 | n713 | 20 | 15 | 100 (RBstart=0) | 20 | 18.2 | NOTE 4 | UL1/DL3 |

#### 5.4.2.2 Reference sensitivity requirements with PC2 on n25 with TxD

[TBD]

#### 5.4.2.3 Reference sensitivity requirements with PC2 on n71 without TxD

For CA\_n25-n71, this is the configuration and MSD for UL n71 with PC3

Table 7.3A.4-1: Reference sensitivity exceptions and uplink/downlink configurations due to UL harmonic from a PC3 aggressor NR UL band for NR DL CA FR1

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| UL band | DL band | UL BW | SCS of UL band | UL RB Allocation | DL BW | MSD | UL/DL fc condition | UL/DL harmonic order |
| (MHz) | (kHz) | LCRB | (MHz) | (dB) |
| n71 | n2510,11 | 5 | 15 | 8 (RBstart=0) | 5 | 10 | NOTE 3 | UL3/DL1direct-hit |
| n71 | n2510,11 | 5 | 15 | 8 (RBstart=0) | 40 | 2.1 | NOTE 3 | UL3/DL1direct-hit |

For PC3 MSD we have N+IPC3. For PC2 MSD we have N+IPC2. So, for PC2 compared to PC3, I increases by harmonic order \* 3 dB or 9 dB. For our other PC2 and PC1.5 MSD analysis we have been using the following approach:

MSD due to interference power *I* is given by:

where *N* is the noise spectral density and BW is the bandwidth of the carrier. If the initial MSD is known,

then we have:

 

If *I* is increased by *X* dB, then *MSD(X)* is given by







Using that approach, the following is proposed as a the PC2 MSD:

Table 7.3A.4-2a: Reference sensitivity exceptions and uplink/downlink configurations due to UL harmonic from a PC2 aggressor NR UL band for NR DL CA FR1 for UE not supporting Tx Diversity

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| UL band | DL band | UL BW | SCS of UL band | UL RB Allocation | DL BW | MSD | UL/DL fc condition | UL/DL harmonic order |
| (MHz) | (kHz) | LCRB | (MHz) | (dB) |
| n71 | n2510,11 | 5 | 15 | 8 (RBstart=0) | 5 | 18.6 | NOTE 3 | UL3/DL1direct-hit |
| n71 | n2510,11 | 5 | 15 | 8 (RBstart=0) | 40 | 7.7 | NOTE 3 | UL3/DL1direct-hit |
| NOTE 10: These requirements apply when the lower edge frequency of the 10 MHz, 15 MHz, or 20 MHz uplink channel in Band 71 is located at or below 668 MHz and the downlink channel in Band n25 is located with its upper edge at 1995 MHz.NOTE 11: These requirements apply when the lower edge frequency of the uplink channel in Band n71 is located at or below 668 MHz and the downlink channel in Band n25 is located with its upper edge at 1990 MHz. |

#### 5.4.2.4 Reference sensitivity requirements with PC2 on n25 with TxD

[TBD]

## 5.5 CA\_n41A-n71A

### 5.5.1 UE maximum output power

Table 5.5A.3.1-1: NR CA configurations and bandwidth combinations sets defined for inter-band CA (two bands)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| NR CA configuration | Uplink CA configuration or single uplink carrier10 | NR Band | Channel bandwidth (MHz) (NOTE 3) | Bandwidth combination set |
| CA\_n41A-n71A | n418,9n718CA\_n41A-n71A8, 13, 14 | n41 | 10, 15, 20, 40, 50, 60, 80, 90, 100 | 0 |
|  |  | n71 | 5, 10, 15, 20 |  |
|  |  | n41 | 10, 15, 20, 30, 40, 50, 60, 70, 80, 90, 100 | 1 |
|  |  | n71 | 5, 10, 15, 20 |  |
|  |  | n41 | n41 channel bandwidths in Table 5.3.5-1 | 4 and 5 |
|  |  | n71 | n71 channel bandwidths in Table 5.3.5-1 |  |

NOTE 8: Minimum requirements for Power Class 2 are applicable for this uplink combination with 1Tx antenna connector in each band or single uplink carrier with up to 2Tx antenna connectors in this downlink/uplink combination

NOTE 10: Only single uplink carriers with power class other than PC3 are listed.

### 5.5.2 Reference sensitivity requirements

#### 5.5.2.0 General

For PC2, CA\_ n41A-n71A has harmonic MSD for UL n71. This section will examine the existing PC3 MSD and propose MSD for PC2 FDD.

#### 5.5.2.1 Reference sensitivity requirements with PC2 on n71 without TxD

For CA\_n25-n71, this is the configuration and MSD for UL n71 with PC3

Table 7.3A.4-1: Reference sensitivity exceptions and uplink/downlink configurations due to UL harmonic from a PC3 aggressor NR UL band for NR DL CA FR1

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| UL band | DL band | UL BW | SCS of UL band | UL RB Allocation | DL BW | MSD | UL/DL fc condition | UL/DL harmonic order |
| (MHz) | (kHz) | LCRB | (MHz) | (dB) |
| n71 | n41 | 5 | 15 | 16 (RBstart=0) | 10 | 10.8 | NOTE 4 | UL4/DL1direct-hit |
| n71 | n41 | 5 | 15 | 25 (RBstart=0) | 100 | 1.4 | NOTE 4 | UL4/DL1direct-hit |

For PC3 MSD we have N+IPC3. For PC2 MSD we have N+IPC2. So, for PC2 compared to PC3, I increases by harmonic order \* 3 dB or 12 dB. For our other PC2 and PC1.5 MSD analysis we have been using the following approach:

MSD due to interference power *I* is given by:

where *N* is the noise spectral density and BW is the bandwidth of the carrier. If the initial MSD is known,

then we have:

 

If *I* is increased by *X* dB, then *MSD(X)* is given by







Using that approach, the following is proposed as a the PC2 MSD:

Table 7.3A.4-2a: Reference sensitivity exceptions and uplink/downlink configurations due to UL harmonic from a PC2 aggressor NR UL band for NR DL CA FR1 for UE not supporting Tx Diversity

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| UL band | DL band | UL BW | SCS of UL band | UL RB Allocation | DL BW | MSD | UL/DL fc condition | UL/DL harmonic order |
| (MHz) | (kHz) | LCRB | (MHz) | (dB) |
| n71 | n41 | 5 | 15 | 16 (RBstart=0) | 10 | 22.4 | NOTE 4 | UL4/DL1direct-hit |
| n71 | n41 | 5 | 15 | 25 (RBstart=0) | 100 | 8.5 | NOTE 4 | UL4/DL1direct-hit |

#### 5.5.2.2 Reference sensitivity requirements with PC2 on n71 with TxD

[TBD].

##  5.6 CA\_n66A-n77A

### 5.6.1 UE maximum output power

Table 5.5A.3.1-1: NR CA configurations and bandwidth combinations sets defined for inter-band CA (two bands)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| NR CA configuration | Uplink CA configuration or single uplink carrier10 | NR Band | Channel bandwidth (MHz) (NOTE 3) | Bandwidth combination set |
| CA\_n66A-n77A | n668n778,9CA\_n66A-n77A8 | n66 | 5, 10, 15, 20, 40 | 0 |
|  |  | n77 | 10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100 |  |
|  |  | n66 | 5, 10, 15, 20, 25, 30, 40 | 1 |
|  |  | n77 | 10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100 |  |
|  |  | n66 | n66 channel bandwidths in Table 5.3.5-1 | 4 and 5 |
|  |  | n77 | n77 channel bandwidths in Table 5.3.5-1 |  |

NOTE 8: Minimum requirements for Power Class 2 are applicable for this uplink combination with 1Tx antenna connector in each band or single uplink carrier with up to 2Tx antenna connectors in this downlink/uplink combination

NOTE 10: Only single uplink carriers with power class other than PC3 are listed.

### 5.6.2 Reference sensitivity requirements

#### 5.6.2.0 General

For PC2, CA\_ n66A-n77A has harmonic MSD for UL n66. This section will examine the existing PC3 MSD and propose MSD for PC2 FDD.

#### 5.6.2.1 Reference sensitivity requirements with PC2 on n66 without TxD

For CA\_n66-n77, this is the configuration and MSD for UL n66 with PC3

Table 7.3A.4-1: Reference sensitivity exceptions and uplink/downlink configurations due to UL harmonic from a PC3 aggressor NR UL band for NR DL CA FR1

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| UL band | DL band | UL BW | SCS of UL band | UL RB Allocation | DL BW | MSD | UL/DL fc condition | UL/DL harmonic order |
| (MHz) | (kHz) | LCRB | (MHz) | (dB) |
| n66 | n77 | 5 | 15 | 25 (RBstart=0) | 10 | 23.9 | NOTE 2 | UL2/DL1direct-hit |
| n66 | n77 | 20 | 15 | 100 (RBstart=0) | 100 | 13.8 | NOTE 2 | UL2/DL1direct-hit |
| n66 | n77 | 5 | 15 | 25 (RBstart=0) | 10 | 1.1 | NOTE 6 | UL2/DL1near-miss |

For PC3 MSD we have N+IPC3. For PC2 MSD we have N+IPC2. So, for PC2 compared to PC3, I increases by harmonic order \* 3 dB or 6 dB. For our other PC2 and PC1.5 MSD analysis we have been using the following approach:

MSD due to interference power *I* is given by:

where *N* is the noise spectral density and BW is the bandwidth of the carrier. If the initial MSD is known,

then we have:

 

If *I* is increased by *X* dB, then *MSD(X)* is given by







Using that approach, the following is proposed as a the PC2 MSD:

Table 7.3A.4-2a: Reference sensitivity exceptions and uplink/downlink configurations due to UL harmonic from a PC2 aggressor NR UL band for NR DL CA FR1 for UE not supporting Tx Diversity

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| UL band | DL band | UL BW | SCS of UL band | UL RB Allocation | DL BW | MSD | UL/DL fc condition | UL/DL harmonic order |
| (MHz) | (kHz) | LCRB | (MHz) | (dB) |
| n66 | n77 | 5 | 15 | 25 (RBstart=0) | 10 | 29.9 | NOTE 2 | UL2/DL1direct-hit |
| n66 | n77 | 20 | 15 | 100 (RBstart=0) | 100 | 19.7 | NOTE 2 | UL2/DL1direct-hit |
| n66 | n77 | 5 | 15 | 25 (RBstart=0) | 10 | 3.3 | NOTE 6 | UL2/DL1near-miss |

#### 5.6.2.2 Reference sensitivity requirements with PC2 on n66 with TxD

[TBD].

## 5.7 CA\_n71A-n77A

### 5.7.1 UE maximum output power

Table 5.5A.3.1-1: NR CA configurations and bandwidth combinations sets defined for inter-band CA (two bands)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| NR CA configuration | Uplink CA configuration or single uplink carrier10 | NR Band | Channel bandwidth (MHz) (NOTE 3) | Bandwidth combination set |
| CA\_n71A-n77A | n778, 9CA\_n71A-n77A8 | n71 | 5, 10, 15, 20 | 0 |
|  |  | n77 | 10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100 |  |
|  |  | n71 | n71 channel bandwidths in Table 5.3.5-1 | 4 and 5 |
|  |  | n77 | n77 channel bandwidths in Table 5.3.5-1 |  |

NOTE 8: Minimum requirements for Power Class 2 are applicable for this uplink combination with 1Tx antenna connector in each band or single uplink carrier with up to 2Tx antenna connectors in this downlink/uplink combination

NOTE 10: Only single uplink carriers with power class other than PC3 are listed.

### 5.7.2 Reference sensitivity requirements

#### 5.7.2.0 General

For PC2, CA\_ n71A-n77A has harmonic MSD for UL n71. This section will examine the existing PC3 MSD and propose MSD for PC2 FDD.

#### 5.7.2.1 Reference sensitivity requirements with PC2 on n71 without TxD

The MSD for CA\_n71-n77 is missing. CA\_n71-n77 should reuse the MSD for CA\_n71-n78 for UL n71 with PC3.

Table 7.3A.4-1: Reference sensitivity exceptions and uplink/downlink configurations due to UL harmonic from a PC3 aggressor NR UL band for NR DL CA FR1

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| UL band | DL band | UL BW | SCS of UL band | UL RB Allocation | DL BW | MSD | UL/DL fc condition | UL/DL harmonic order |
| (MHz) | (kHz) | LCRB | (MHz) | (dB) |
| n71 | n77 | 5 | 15 | 10 (RBstart=0) | 10 | 10.4 | NOTE 5 | UL5/DL1direct-hit |
| n71 | n78 | 5 | 15 | 10 (RBstart=0) | 10 | 10.4 | NOTE 5 | UL5/DL1direct-hit |

For PC3 MSD we have N+IPC3. For PC2 MSD we have N+IPC2. So, for PC2 compared to PC3, I increases by harmonic order \* 3 dB or 15 dB. For our other PC2 and PC1.5 MSD analysis we have been using the following approach:

MSD due to interference power *I* is given by:

where *N* is the noise spectral density and BW is the bandwidth of the carrier. If the initial MSD is known,

then we have:

 

If *I* is increased by *X* dB, then *MSD(X)* is given by







Using that approach, the following is proposed as a the PC2 MSD:

Table 7.3A.4-2a: Reference sensitivity exceptions and uplink/downlink configurations due to UL harmonic from a PC2 aggressor NR UL band for NR DL CA FR1 for UE not supporting Tx Diversity

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| UL band | DL band | UL BW | SCS of UL band | UL RB Allocation | DL BW | MSD | UL/DL fc condition | UL/DL harmonic order |
| (MHz) | (kHz) | LCRB | (MHz) | (dB) |
| n71 | n77 | 5 | 15 | 10 (RBstart=0) | 10 | 25.0 | NOTE 5 | UL5/DL1direct-hit |

#### 5.7.2.2 Reference sensitivity requirements with PC2 on n66 with TxD

[TBD].

# 6 High Power UE for Intra-band DL CA with PC2 on single FDD band

## 6.1 CA\_n71(2A)

### 6.1.1 UE maximum output power

Table 5.5A.2-1: NR CA configurations and bandwidth combination sets defined for intra-band non-contiguous CA

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| NR CA Configuration | Uplink CA Configurations or single uplink carrier5 | Channel bandwidths for carrier(MHz) | Channel bandwidths for carrier(MHz) | Channel bandwidths for carrier(MHz) | Channel bandwidths for carrier(MHz) | MaximumAggregated bandwidth(MHz) | Bandwidth combination set |
| CA\_n71(2A) | n713 | 5, 10, 15, 20 | 5,10,15, 20 |  |  | 30 | 0 |
|  |  | See n71 channel bandwidths in Table 5.3.5-1 for each carrier up to 25 MHz per carrier |  |  | 30 | 4 and 5 |
| NOTE 3: Minimum requirements for Power Class 2 are applicable for this uplink combination or single uplink carrier in this downlink/uplink combination |

### 6.1.2 Reference sensitivity requirements

#### 6.1.2.0 General

For PC2, CA\_n71(2A) has self-interference for UL n71. This section will examine the existing PC3 MSD and propose MSD for PC2 FDD.

#### 6.1.2.1 Reference sensitivity requirements with PC2 on n71 without TxD

For CA\_n71(2A), this is the configuration and MSD for UL n71 with PC3

Table 7.3A.2.2-1: Intra-band non-contiguous CA with one uplink configuration for reference sensitivity in FDD bands.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| CA configuration | SCS(PCC/SCC)(kHz) | Aggregated channel bandwidth (PCC+SCC) | Wgap / [MHz] | UL PCC allocation(LCRB) | ΔRIBNC (dB) | Duplex mode |
| CA\_n71(2A) | 15/15 | 5MHz + 5MHz | Wgap = 25.0 | 5 | 4.0 | FDD |
|  |  |  | Wgap = 5.0 | 20 | 0.0 |  |
|  |  | 10MHz + 5MHz | Wgap = 20.0 | 5 (RBstart = 9) | 4.6 |  |
|  |  |  | Wgap = 5.0 | 20 (RBstart = 9) | 2.3 |  |
|  |  | 15MHz + 10MHz | Wgap = 10.0 | 5 (RBstart = 2) | 22.2 |  |
|  |  |  | Wgap = 5.0 | 20 (RBstart = 19) | 5.2 |  |

For PC3 MSD we have N+IPC3. For PC2 MSD we have N+IPC2. So, for PC2 compared to PC3, I increases by 3 dB. For our other PC2 and PC1.5 MSD analysis we have been using the following approach:

MSD due to interference power *I* is given by:

where *N* is the noise spectral density and BW is the bandwidth of the carrier. If the initial MSD is known,

then we have:

 

If *I* is increased by *X* dB, then *MSD(X)* is given by







Using that approach, the following is proposed as a the PC2 MSD which would require a new table in 38.101-1:

Table 7.3A.2.2-1a: Intra-band non-contiguous CA with one PC2 uplink configuration for reference sensitivity in FDD bands.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| CA configuration | SCS(PCC/SCC)(kHz) | Aggregated channel bandwidth (PCC+SCC) | Wgap / [MHz] | UL PCC allocation(LCRB) | ΔRIBNC (dB) | Duplex mode |
| CA\_n71(2A) | 15/15 | 5MHz + 5MHz | Wgap = 25.0 | 5 | 6.0 | FDD |
|  |  |  | Wgap = 5.0 | 20 | 0.0 |  |
|  |  | 10MHz + 5MHz | Wgap = 20.0 | 5 (RBstart = 9) | 6.8 |  |
|  |  |  | Wgap = 5.0 | 20 (RBstart = 9) | 3.8 |  |
|  |  | 15MHz + 10MHz | Wgap = 10.0 | 5 (RBstart = 2) | 25.1 |  |
|  |  |  | Wgap = 5.0 | 20 (RBstart = 19) | 7.5 |  |

#### 6.1.2.2 Reference sensitivity requirements with PC2 on n71 with TxD

[TBD]

## 6.2 CA\_n25(2A)

### 6.2.1 UE maximum output power

Table 5.5A.2-1: NR CA configurations and bandwidth combination sets defined for intra-band non-contiguous CA

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| NR CA Configuration | Uplink CA Configurations or single uplink carrier5 | Channel bandwidths for carrier(MHz) | Channel bandwidths for carrier(MHz) | Channel bandwidths for carrier(MHz) | Channel bandwidths for carrier(MHz) | MaximumAggregated bandwidth(MHz) | Bandwidth combination set |
| CA\_n25(2A) | n253 | 5, 10, 15, 20 | 5, 10, 15, 20 |  |  | 40 | 0 |
|  |  | 5, 10, 15, 20, 25, 30, 40 | 5, 10, 15, 20, 25, 30, 40 |  |  | 60 | 1 |
|  |  | See n25 channel bandwidths in Table 5.3.5-1 for each carrier |  |  | 60 | 4 and 5 |
| NOTE 3: Minimum requirements for Power Class 2 are applicable for this uplink combination or single uplink carrier in this downlink/uplink combination |

### 6.2.2 Reference sensitivity requirements

#### 6.2.2.0 General

For PC2, CA\_n25(2a) has self-interference for UL n25. This section will examine the existing PC3 MSD and propose MSD for PC2 FDD.

#### 6.2.2.1 Reference sensitivity requirements with PC2 on n71 without TxD

For CA\_n25(2A), this is the configuration and MSD for UL n25 with PC3

Table 7.3A.2.2-1: Intra-band non-contiguous CA with one uplink configuration for reference sensitivity in FDD bands.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| CA configuration | SCS(PCC/SCC)(kHz) | Aggregated channel bandwidth (PCC+SCC) | Wgap / [MHz] | UL PCC allocation(LCRB) | ΔRIBNC (dB) | Duplex mode |
| CA\_n25(2A) 9 | 15/15 | 5MHz + 5MHz | Wgap = 55.0 | 105 | 5.0 | FDD |
|  |  |  | Wgap = 30.0 | 25 | 0.0 |  |
| CA\_n25(2A) 10CA\_n25(3A) | 15/15 | 40MHz + 5MHz | Wgap = 20.0 | 40 (RBstart = 176) | [24.6] 8 | FDD |

For PC3 MSD we have N+IPC3. For PC2 MSD we have N+IPC2. So, for PC2 compared to PC3, I increases by 3 dB. For our other PC2 and PC1.5 MSD analysis we have been using the following approach:

MSD due to interference power *I* is given by:

where *N* is the noise spectral density and BW is the bandwidth of the carrier. If the initial MSD is known,

then we have:

 

If *I* is increased by *X* dB, then *MSD(X)* is given by







Using that approach, the following is proposed as a the PC2 MSD which would require a new table in 38.101-1:

Table 7.3A.2.2-1a: Intra-band non-contiguous CA with one PC2 uplink configuration for reference sensitivity in FDD bands without Transmit Diversity.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| CA configuration | SCS(PCC/SCC)(kHz) | Aggregated channel bandwidth (PCC+SCC) | Wgap / [MHz] | UL PCC allocation(LCRB) | ΔRIBNC (dB) | Duplex mode |
| CA\_n25(2A) 9 | 15/15 | 5MHz + 5MHz | Wgap = 55.0 | 105 | 7.3 | FDD |
|  |  |  | Wgap = 30.0 | 25 | 0.0 |  |
| CA\_n25(2A) 10CA\_n25(3A) | 15/15 | 40MHz + 5MHz | Wgap = 20.0 | 40 (RBstart = 176) | [27.6] 8 | FDD |

#### 6.2.2.2 Reference sensitivity requirements with PC2 on n25 with TxD

[TBD]

## 6.3 CA\_n66(2A)

### 6.3.1 UE maximum output power

Table 5.5A.2-1: NR CA configurations and bandwidth combination sets defined for intra-band non-contiguous CA

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| NR CA Configuration | Uplink CA Configurations or single uplink carrier5 | Channel bandwidths for carrier(MHz) | Channel bandwidths for carrier(MHz) | Channel bandwidths for carrier(MHz) | Channel bandwidths for carrier(MHz) | MaximumAggregated bandwidth(MHz) | Bandwidth combination set |
| CA\_n66(2A) | n663 | 5, 10, 15, 20 | 5, 10, 15, 20, 40 |  |  | 60 | 0 |
|  |  | 5, 10, 15, 20, 25, 30, 40 | 5, 10, 15, 20, 25, 30, 40 |  |  | 80 | 1 |
|  |  | 5, 10, 15, 20, 40 | 5, 10, 15, 20, 40 |  |  | 80 |
|  |  | See n66 channel bandwidths in Table 5.3.5-1 for each carrier |  |  | 85 | 4 and 5 |
| NOTE 3: Minimum requirements for Power Class 2 are applicable for this uplink combination or single uplink carrier in this downlink/uplink combination |

### 6.3.2 Reference sensitivity requirements

#### 6.3.2.0 General

For PC2, CA\_n66(2A) has self-interference for UL n66. This section will examine the existing PC3 MSD and propose MSD for PC2 FDD.

#### 6.3.2.1 Reference sensitivity requirements with PC2 on n66 without TxD

For CA\_n66(2A), this is the configuration and MSD for UL n66 with PC3

Table 7.3A.2.2-1: Intra-band non-contiguous CA with one uplink configuration for reference sensitivity in FDD bands.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| CA configuration | SCS(PCC/SCC)(kHz) | Aggregated channel bandwidth (PCC+SCC) | Wgap / [MHz] | UL PCC allocation(LCRB) | ΔRIBNC (dB) | Duplex mode |
| CA\_n66(2A)CA\_n66(3A) | N/A | NOTE 1 | NOTE 2 | NOTE 3, NOTE 4 | 0.0 | FDD |

Due to the wide duplex gap, the following is proposed as a the PC2 MSD which would require a new table in 38.101-1:

Table 7.3A.2.2-1a: Intra-band non-contiguous CA with one PC2 uplink configuration for reference sensitivity in FDD bands without Transmit Diversity.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| CA configuration | SCS(PCC/SCC)(kHz) | Aggregated channel bandwidth (PCC+SCC) | Wgap / [MHz] | UL PCC allocation(LCRB) | ΔRIBNC (dB) | Duplex mode |
| CA\_n66(2A)CA\_n66(3A) | N/A | NOTE 1 | NOTE 2 | NOTE 3, NOTE 4 | 0.0 | FDD |
| NOTE 1: All combinations of channel bandwidths defined in Table 5.5A.2-1.NOTE 2: All applicable sub-block gap sizes.NOTE 3: The PCC allocation is same as Transmission bandwidth configuration NRB as defined in Table 5.3.2-1. NOTE 4: The carrier center frequency of PCC in the DL operating band is configured closer to the UL operating band.NOTE 5: Refers to the UL resource blocks shall be located as close as possible to the downlink operating band but confined within the transmission.NOTE 6: Wgap is the sub-block gap between the two sub-blocks.NOTE 7: The carrier centre frequency of SCC in the DL operating band is configured closer to the UL operating band.NOTE 8: For operation with three or more non-contiguous component carriers, ΔRIBNC applies to all secondary component carriers.NOTE 9: Bandwidth Combination Set 0.NOTE 10: Bandwidth Combination Set 1 |

#### 6.3.2.2 Reference sensitivity requirements with PC2 on n66 with TxD

Due to the wide Duplex gap, it is proposed that there is no MSD for CA\_66(2A) PC2 with Transmit Diversity

Table 7.3A.2.2-1b: Intra-band non-contiguous CA with one PC2 uplink configuration for reference sensitivity in FDD bands with Transmit Diversity.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| CA configuration | SCS(PCC/SCC)(kHz) | Aggregated channel bandwidth (PCC+SCC) | Wgap / [MHz] | UL PCC allocation(LCRB) | ΔRIBNC (dB) | Duplex mode |
| CA\_n66(2A)CA\_n66(3A) | N/A | NOTE 1 | NOTE 2 | NOTE 3, NOTE 4 | 0.0 | FDD |
| NOTE 1: All combinations of channel bandwidths defined in Table 5.5A.2-1.NOTE 2: All applicable sub-block gap sizes.NOTE 3: The PCC allocation is same as Transmission bandwidth configuration NRB as defined in Table 5.3.2-1. NOTE 4: The carrier center frequency of PCC in the DL operating band is configured closer to the UL operating band.NOTE 5: Refers to the UL resource blocks shall be located as close as possible to the downlink operating band but confined within the transmission.NOTE 6: Wgap is the sub-block gap between the two sub-blocks.NOTE 7: The carrier centre frequency of SCC in the DL operating band is configured closer to the UL operating band.NOTE 8: For operation with three or more non-contiguous component carriers, ΔRIBNC applies to all secondary component carriers.NOTE 9: Bandwidth Combination Set 0.NOTE 10: Bandwidth Combination Set 1 |

# Annex <A> (informative): Change history

|  |
| --- |
| **Change history** |
| **Date** | **Meeting** | **TDoc** | **CR** | **Rev** | **Cat** | **Subject/Comment** | **New version** |
| 2023-02 | RAN4 #106 | R4-2300172 |  |  |  | TR skeleton | 0.0.1 |
| 2023-03 | RAN4 #106 | R4-2300954 |  |  |  | Included TPs/pCRs:R4-2303457 PC2 for CA\_n1A\_n78AR4-2303457 PC2 for CA\_n3A\_n78A | 0.1.0 |
| 2023-04 | RAN4#106bis-e | R4-2304471 |  |  |  | Included TPs/pCRs:R4-2304470 | 0.2.0 |
| 2023-09 | RAN#101 | RP-232227 |  |  |  | Provided for information to RAN | 1.0.0 |
| 2024-03 | RAN4#110 | R4-2400351 |  |  |  | Included TPs/pCRs:R4-2403626 TP for TR 38.850: DL CA\_n25A-n77A UL n25 PC2R4-2402466 TP for TR 38.850: DL CA\_n71(2A) UL n71 PC2R4-2402464 TP for TR 38.850: DL CA\_n25(2A) UL n25 PC2R4-2402465 TP for TR 38.850: DL CA\_n66(2A) UL n77 PC2R4-2403670 TP for TR 38.850: DL CA\_n25A-n71A UL n25 PC2 and n71 PC2R4-2403671 TP for TR 38.850: DL CA\_n41A-n71A UL n71 PC2R4-2403672 TP for TR 38.850: DL CA\_n66A-n77A UL n66 PC2R4-2403673 TP for TR 38.850: DL CA\_n71A-n77A UL n71 PC2 | 1.2.0 |