

3GPP TR 38.717-01-01 V0.1.0 (2020-08)

Technical Report

**3rd Generation Partnership Project;
Technical Specification Group Radio Access Networks;
NR intra band Carrier Aggregation for xCC DL/yCC UL
including contiguous and non-contiguous spectrum ($x \geq y$).
(Release 17)**



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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 NR Intra-band Carrier Aggregation Rel-17 for xDL/yUL including contiguous and non-contiguous spectrum under Rel-17 time frame. The purpose is to gather the relevant background information and studies in order to address NR Intra-band Carrier Aggregation requirements for the Rel-17 band combinations in Table 1-1, Table 1-2, Table 1-3 and Table 1-4.

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] RP-200663, "New WID: NR intra band Carrier Aggregation for xCC DL/yCC UL including contiguous and non-contiguous spectrum (x>=y)", RAN#88-e

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>

4 Background

The present document is a technical report for NR Intra-band Carrier Aggregation under Rel-17 timeframe. The document covers each band combination specific issues (i.e. one sub-clause defined per band combination)

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 Intra-Band Contiguous Carrier Aggregation FR1: Specific Band Combination Part

5.1 CA_xDL_a_yUL_b

5.1.1 Channel bandwidths per operating band for CA

<Text will be added.>

5.1.2 UE co-existence studies

<Text will be added.>

6 Intra-Band Non-Contiguous Carrier Aggregation FR1: Specific Band Combination Part

6.1 CA_2DL_n71(2A)_1UL_n71A

6.1.1 Channel bandwidths per operating band for CA

Table 6.1.1-1: Supported bandwidth combinations for CA_n71(2A)

NR CA Configuration	Uplink Configurations	Channel bandwidths for carrier (MHz)	Channel bandwidths for carrier (MHz)	Channel bandwidths for carrier (MHz)	Channel bandwidths for carrier (MHz)	Maximum Aggregated bandwidth (MHz)	Bandwidth combination set
CA_n71(2A)	-	5,10,15,20	5,10,15, 20			30	0

6.1.2 UE co-existence studies

There are no co-existence issues for this combination.

6.1.3 REFSENS

REFSENS for CA_n71(2A) need to be added in below table of TS 38.101-1. MSD values proposed are tentative values for the RAN4 #96 meeting, and these will be crosschecked and to be concluded at the following RAN4 meeting.

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

CA configuration	SCS (kHz)	Aggregated channel bandwidth (PCC+SCC)	W_{gap} / [MHz]	UL PCC allocation	ΔR_{IBNC} (dB)	Duplex mode
CA_n71(2A)	15	25RB+25RB	$W_{\text{gap}} = 25.0$	[5]	[4.0]	FDD
			$W_{\text{gap}} = 5.0$	[20]	[0.0]	

7 Intra-Band Contiguous Carrier Aggregation FR2: Specific Band Combination Part

7.1 CA_xDL_a_yUL_b

7.1.1 Channel bandwidths per operating band for CA

<Text will be added.>

7.1.2 UE co-existence studies

<Text will be added.>

8 Intra-Band Non-Contiguous Carrier Aggregation FR2: Specific Band Combination Part

8.1 CA_xDL_a-a_yUL_b-b

8.1.1 Channel bandwidths per operating band for CA

<Text will be added.>

8.1.2 UE co-existence studies

<Text will be added.>

Annex A - Change history

Change history							
Date	Meeting	TDoc	CR	Rev	Cat	Subject/Comment	New version
2020-08	3GPP RAN4#96-e	R4- 2010680				TR skeleton	0.0.1
2020-08	3GPP RAN4#96-e	R4- 2011888				Implemented TP's from RAN4 #96-e: R4-2011619, "TP to TR 38.717-01-01 to include CA_n71(2A)", Ericsson, T-Mobile US	0.1.0
