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*Technical Specification*

**3rd Generation Partnership Project;**

**Technical Specification Group Radio Access Network;**

**NR;**

**User Equipment (UE) conformance specification;**

**Applicability of radio transmission, radio reception and radio resource management test cases**

**(Release 16)**



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Foreword

This Technical Specification 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.

The present document is one part of a multi-part Technical Specification (TS) covering the New Radio (NR) User Equipment (UE) conformance specification, which is divided in the following parts:

3GPP TS 38.521-1 [1]: NR; User Equipment (UE) conformance specification; Radio transmission and reception; Part 1: Range 1 Standalone;

3GPP TS 38.521-2 [2]: NR; User Equipment (UE) conformance specification; Radio transmission and reception; Part 2: Range 2 Standalone;

3GPP TS 38.521-3 [3]: NR; User Equipment (UE) conformance specification; Radio transmission and reception; Part 3: Range 1 and Range 2 Interworking operation with other radios;

3GPP TS 38.521-4 [4]: NR; User Equipment conformance specification; Radio transmission and reception; Part 4: Performance;

**3GPP TS 38.522: NR; User Equipment (UE) conformance specification; Applicability of RF and RRM test cases;**

3GPP TS 38.533 [5]: NR; User Equipment (UE) conformance specification; Radio resource management;

# 1 Scope

The present document specifies the recommended applicability statement and completion status for the test cases included in 3GPP TS 38.521-1 [1], TS 38.521-2 [2], TS 38.521-3 [3], TS 38.521-4 [4] and TS 38.533 [5]. These applicability statements are based on the features implemented in the UE.

Special conformance testing functions can be found in 3GPP TS 38.509 [6] and the common test environments are included in 3GPP TS 38.508-1 [7]. Common implementation conformance statement (ICS) proforma can be found in 3GPP TS 38.508-2 [8].

The present document is valid for UE implemented according to 3GPP releases starting from Release 15 up to the Release indicated on the cover page of the present document.

# 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 unless the context in which the reference is made suggests a different Release is relevant (information on the applicable release in a particular context can be found in e.g. test case title, description or applicability, message description or content).

[1] 3GPP TS 38.521-1: NR; User Equipment (UE) conformance specification; Radio transmission and reception; Part 1: Range 1 Standalone

[2] 3GPP TS 38.521-2: NR; User Equipment (UE) conformance specification; Radio transmission and reception; Part 2: Range 2 Standalone

[3] 3GPP TS 38.521-3: NR; User Equipment (UE) conformance specification; Radio transmission and reception; Part 3: Range 1 and Range 2 Interworking operation with other radios

[4] 3GPP TS 38.521-4: NR; User Equipment conformance specification; Radio transmission and reception; Part 4: Performance

[5] 3GPP TS 38.533: NR; User Equipment (UE) conformance specification; Radio resource management

[6] 3GPP TS 38.509: 5GS; Special conformance testing functions for User Equipment (UE)

[7] 3GPP TS 38.508-1: 5GS; User Equipment (UE) conformance specification; Part 1: Common test environment

[8] 3GPP TS 38.508-2: 5GS; User Equipment (UE) conformance specification; Part 2: Common Implementation Conformance Statement (ICS) proforma

[9] 3GPP TR 21.905: Vocabulary for 3GPP Specifications

[10] 3GPP TS 36.521-2: Evolved Universal Terrestrial Radio Access (E-UTRA); User Equipment (UE) conformance specification; Radio transmission and reception; Part 2: Implementation Conformance Statement (ICS)

[11] 3GPP TS 38.331: "NR; Radio Resource Control (RRC) protocol specification".

# 3 Definitions, symbols and abbreviations

## 3.1 Definitions

For the purposes of the present document, the terms and definitions given in TR 21.905 [9] 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 [9].

**EIRP(Link=Link angle, Meas=Link angle):** measurement of the UE such that the link angle is aligned with the measurement angle. EIRP (indicator to be measured) can be replaced by EIS, Frequency, EVM, carrier Leakage, In-band emission and OBW. Beam peak search grids, TX beam peak direction, and RX beam peak direction can be selected to describe Link.

**EIRP(Link=Link angle, Meas=beam peak direction):** measurement of the EIRP of the UE such that the measurement angle is aligned with the beam peak direction within an acceptable measurement error uncertainty.

**Implementation Conformance Statement (ICS):** statement made by the supplier of an implementation or system claimed to conform to a given specification, stating which capabilities have been implemented

**ICS proforma:** document, in the form of a questionnaire, which when completed for an implementation or system becomes an ICS

**Implementation extra Information for Testing (IXIT):** A statement made by a supplier or implementer of an UEUT which contains or references all of the information (in addition to that given in the ICS) related to the UEUT and its testing environment, which will enable the test laboratory to run an appropriate test suite against the UEUT

**Inter-band carrier aggregation:** Carrier aggregation of component carriers in different operating bands.

NOTE: Carriers aggregated in each band can be contiguous or non-contiguous.

**Intra-band contiguous carrier aggregation:** Contiguous carriers aggregated in the same operating band.

**Intra-band non-contiguous carrier aggregation:** Non-contiguous carriers aggregated in the same operating band.

**IXIT proforma:** A document, in the form of a questionnaire, which when completed for an UEUT becomes an IXIT

**Protocol Implementation Conformance Statement (PICS):** An ICS for an implementation or system claimed to conform to a given protocol specification

**Protocol Implementation eXtra Information for Testing (PIXIT):** An IXIT related to testing for conformance to a given protocol specification

**Static conformance review**: A review of the extent to which the static conformance requirements are claimed to be supported by the UEUT, by comparing the answers in the ICS(s) with the static conformance requirements expressed in the relevant specification(s)

**TRP(Link=Link angle):** measurement of the TRP of the UE such that the measurement angle is aligned with the beam peak direction within an acceptable measurement uncertainty. TX beam peak direction and RX beam peak direction can be selected to describe Link.

NOTE: For requirements based on EIRP/EIS, the radiated interface boundary is associated to the far-field region

## 3.2 Symbols

No specific symbols have been identified so far.

## 3.3 Abbreviations

For the purposes of the present document, the abbreviations given in TR 21.905 [9] 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 [9].

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

CA Carrier Aggregation

EN-DC E-UTRA NR-Dual Connection

FR1 Frequency Range 1 (410 MHz - 7125 MHz)

FR2 Frequency Range 2 (24250 MHz - 52600 MHz)

ICS Implementation Conformance Statement

IXIT Implementation eXtra Information for Testing

NR New Radio

PIXIT Protocol Implementation eXtra Information for Testing

SCS System Conformance Statement

SUL Supplementary UpLink

TC Test Case

TRP Total Radiated Power

UEUT User Equipment Under Test

# 4 Recommended test case applicability

The applicability of each individual test is identified in the tables 4.1.1-1 / 4.1.2-1 / 4.1.3-1 / 4.1.4-1 / 4.2-1 / 4.2-2 / 4.2-3 / 4.2-4. This is just a recommendation based on the purpose for which the test case was written.

The applicability of every test is formally expressed by the use of Boolean expressions that are based on parameters (ICS). The parameters (ICS) included in TS 38.508-2 [8] are used in the test case applicability condition without reference. Parameters (ICS) specified in TS 36.521-2 [10] shall be referred with proper reference.

Selection criteria of tested bands and tested CA configurations for each applicable test is formally expressed using group theory based on parameters (ICS) included in annex A of TS 38.508-2 [8] without reference.

Additional information related to the Test Case (TC), e.g. affecting its dynamic behaviour or its execution may be provided as well.

The columns in tables 4.1.1-1 / 4.1.2-1 / 4.1.3-1 / 4.1.4-1 / 4.2-1 / 4.2-2 / 4.2-3 / 4.2-4 have the following meaning:

Clause

The clause column indicates the clause number in TS 38.521-1 [1], TS 38.521-2 [2], TS 38.521-3 [3], TS 38.521-4 [4] and TS 38.533 [5] that contains the test body.

TC Title

The TC Title column describes the name of the test and contains the clause title of the clause in TS 38.521-1 [1], TS 38.521-2 [2], TS 38.521-3 [3], TS 38.521-4 [4] and TS 38.533 [5] that contains the test body.

Release

The release column indicates the earliest release from which each test case is applicable. It may also indicate a range of releases or a single release to which a test case is applicable.

Applicability - Condition

The following notations are used for the applicability column:

R recommended - the test case is recommended to all terminals supporting NR

O optional - the test case is optional

N/A not applicable - in the given context, the test case is not recommended.

Ci conditional - the test is recommended ("R") or not ("N/A") depending on the support of other items. "i" is an integer identifying a unique conditional status expression which is defined in Table 4.0-1. For nested conditional expressions, the syntax "IF ... THEN (IF ... THEN ... ELSE...) ELSE ..." is used to avoid ambiguities.

Applicability - Comment

This comment column contains a verbal description of the condition included in the applicability column.

Tested Bands / CA/DC Configurations Selection

This column defines a set of bands / CA/DC Configurations the test is to be run for, if the test is applicable. If the set is empty, the test is considered as not applicable.

The following notations are used in the tested bands selection column:

Di Derive the set based on Band Selection Criteria Di defined in table 4.0-2.

Ei Derive the set based on CA/DC Configurations Selection Criteria Ei defined in table 4.0-3.

TBD Band selection not defined at this time, in the meantime test all Bands / CA/DC Configurations

Text For more complex selection criteria, or if the criteria are already specified somewhere else in the spec, text reference to the clause is given.

Branch

This column contains indication if the test case may perform differently depending on the UE capabilities.

NOTE 1: Void.

NOTE 2: Void.

Additional Information

This column contains indication if the test case may perform differently depending on the UE capabilities and the measurement execution.

This column also contains indication of the completion status of the test case.

## 4.0 Test case conditions and selection criteria

For the purposes of the present document, the applicability of conformance test cases conditions given in Table 4.0-1 apply. The ICS proformas used in Table 4.0-1, Table 4.0-2 and Table 4.0-3 are defined in TS 38.508-2 [8] unless otherwise stated.

Table 4.0-1: Applicability of conformance test cases conditions

|  |
| --- |
| C001 IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 THEN R ELSE N/A |
| C001a IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.1-7/3 THEN R ELSE N/A |
| C002 IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.1-2/3 OR A.4.1-2/5) THEN R ELSE N/A |
| C003 IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.3.2-1/14 OR A.4.3.2-1/15) THEN R ELSE N/A |
| C004 IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.1-4A/1 OR A.4.1-4A/2 OR A.4.1-4A/5) AND A.4.3.2A.1-2/1 THEN R ELSE N/A |
| C005 IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.1-4A/5 AND A.4.1-2/4 AND A.4.3.2A.1-1/1 AND A.4.1-3/1 THEN R ELSE N/A |
| C006 IF A.4.1-1/2 AND A.4.1-2/8 AND (A.4.1-3/1 OR A.4.1-3/4) THEN R ELSE N/A |
| C007 IF A.4.1-1/2 AND A.4.1-2/8 AND (A.4.1-3/1 OR A.4.1-3/4) AND A.4.3.2-1/22 THEN R ELSE N/A |
| C008 IF A.4.1-1/2 AND A.4.1-2/8 AND (A.4.1-3/1 OR A.4.1-3/4) AND NOT(A.4.3.2-1/22) THEN R ELSE N/A |
| C009 IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.1-4/1 AND A.4.3.2B.2.0-2/1 THEN R ELSE N/A |
| C009a IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.1-4/1 AND A.4.3.2B.2.0-1/1 THEN R ELSE N/A |
| C009z IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.1-4/1 AND A.4.3.2B.2.0-2/1 AND A.4.3.2-1/25 THEN R ELSE N/A |
| C010 IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.1-4/2 AND A.4.3.2B.2.0-2/1 THEN R ELSE N/A |
| C010a IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.1-4/2 AND A.4.3.2B.2.0-1/1 THEN R ELSE N/A |
| C010z IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.1-4/2 AND A.4.3.2B.2.0-2/1 AND A.4.3.2-1/25 THEN R ELSE N/A |
| C011 IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.1-4/3 AND A.4.3.2B.2.0-2/1 THEN R ELSE N/A |
| C011a IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.1-4/3 AND A.4.3.2B.2.0-1/1 THEN R ELSE N/A |
| C011z IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.1-4/3 AND A.4.3.2B.2.0-2/1 AND A.4.3.2-1/25 THEN R ELSE N/A |
| C012 IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.1-4/4 AND A.4.3.2B.2.0-2/1 THEN R ELSE N/A |
| C012a IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.1-4/4 AND A.4.3.2B.2.0-1/1 THEN R ELSE N/A |
| C012b IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.1-4/4 AND A.4.3.2B.2.0-2/2 AND A.4.3.2B.2.0-2A/2 THEN R ELSE N/A |
| C012c IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.1-4/4 AND A.4.3.2B.2.0-2/3 AND A.4.3.2B.2.0-2A/3 THEN R ELSE N/A |
| C012d IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.1-4/4 AND A.4.3.2B.2.0-2/4 AND A.4.3.2B.2.0-2A/4 THEN R ELSE N/A |
| C012e IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.1-4/4 AND A.4.3.2B.2.0-1/2 AND A.4.3.2B.2.0-1A/2 THEN R ELSE N/A |
| C012z IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.1-4/4 AND A.4.3.2B.2.0-2/1 AND A.4.3.2-1/25 THEN R ELSE N/A |
| C013 IF (A.4.1-1/1 OR A.4.1-1/2) AND (A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND (A.4.1-4/3 OR A.4.1-4/4) THEN R ELSE N/A |
| C014 IF (A.4.1-1/1 OR A.4.1-1/2) AND (A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) AND (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3 OR A.4.1-4/4) THEN R ELSE N/A |
| C015 IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/4 OR A.4.1-3/5) AND NOT (A.4.3.9-4a/1 OR A.4.3.9-4a/2 OR A.4.3.9-4a/3 OR A.4.3.9-4a/7 OR A.4.3.9-4a/28 OR A.4.3.9-4a/30 OR A.4.3.9-4a/66 OR A.4.3.9-4a/70 OR A.4.3.9-4a/71) THEN R ELSE N/A |
| C015b IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/4 OR A.4.1-3/5) AND A.4.3.2-1/6 AND NOT (A.4.3.9-4a/1 OR A.4.3.9-4a/2 OR A.4.3.9-4a/3 OR A.4.3.9-4a/7 OR A.4.3.9-4a/28 OR A.4.3.9-4a/30 OR A.4.3.9-4a/66 OR A.4.3.9-4a/70 OR A.4.3.9-4a/71) THEN R ELSE N/A |
| C015x IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/4 OR A.4.1-3/5) AND A.4.3.9-1/1 AND NOT (A.4.3.9-4a/1 OR A.4.3.9-4a/2 OR A.4.3.9-4a/3 OR A.4.3.9-4a/7 OR A.4.3.9-4a/28 OR A.4.3.9-4a/30 OR A.4.3.9-4a/66 OR A.4.3.9-4a/70 OR A.4.3.9-4a/71) THEN R ELSE N/A |
| C015y IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/4 OR A.4.1-3/5) AND A.4.3.2-1/20 AND NOT (A.4.3.9-4a/1 OR A.4.3.9-4a/2 OR A.4.3.9-4a/3 OR A.4.3.9-4a/7 OR A.4.3.9-4a/28 OR A.4.3.9-4a/30 OR A.4.3.9-4a/66 OR A.4.3.9-4a/70 OR A.4.3.9-4a/71) THEN R ELSE N/A |
| C016 IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/4 OR A.4.1-3/5) AND NOT (A.4.3.9-4b/34 OR A.4.3.9-4b/38 OR A.4.3.9-4b/39 OR A.4.3.9-4b/40 OR A.4.3.9-4b/41 OR A.4.3.9-4b/48 OR A.4.3.9-4b/77 OR A.4.3.9-4b/78 OR A.4.3.9-4b/79) THEN R ELSE N/A |
| C016b IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/4 OR A.4.1-3/5) AND A.4.3.2-1/6 AND NOT (A.4.3.9-4b/34 OR A.4.3.9-4b/38 OR A.4.3.9-4b/39 OR A.4.3.9-4b/40 OR A.4.3.9-4b/41 OR A.4.3.9-4b/48 OR A.4.3.9-4b/77 OR A.4.3.9-4b/78 OR A.4.3.9-4b/79)THEN R ELSE N/A |
| C016x IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/4 OR A.4.1-3/5) AND A.4.3.9-1/1 AND NOT (A.4.3.9-4b/34 OR A.4.3.9-4b/38 OR A.4.3.9-4b/39 OR A.4.3.9-4b/40 OR A.4.3.9-4b/41 OR A.4.3.9-4b/48 OR A.4.3.9-4b/77 OR A.4.3.9-4b/78 OR A.4.3.9-4b/79)THEN R ELSE N/A |
| C017 IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/4 OR A.4.1-3/5) AND (NOT A.4.3.9-1/2 AND A.4.3.9-4a/7 OR (A.4.3.9-4a/1 OR A.4.3.9-4a/2 OR A.4.3.9-4a/3 OR A.4.3.9-4a/66 OR A.4.3.9-4a/70)) THEN R ELSE N/A |
| C017b IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/4 OR A.4.1-3/5) AND (NOT A.4.3.9-1/2 AND A.4.3.9-4a/7 OR (A.4.3.9-4a/1 OR A.4.3.9-4a/2 OR A.4.3.9-4a/3 OR A.4.3.9-4a/66 OR A.4.3.9-4a/70)) AND A.4.3.2-1/6 THEN R ELSE N/A |
| C017x IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/4 OR A.4.1-3/5) AND (NOT A.4.3.9-1/2 AND A.4.3.9-4a/7 OR (A.4.3.9-4a/1 OR A.4.3.9-4a/2 OR A.4.3.9-4a/3 OR A.4.3.9-4a/66 OR A.4.3.9-4a/70)) AND A.4.3.9-1/1 THEN R ELSE N/A |
| C017y IF A.4.1-1/1 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/4 OR A.4.1-3/5) AND (NOT A.4.3.9-1/2 AND A.4.3.9-4a/7 OR (A.4.3.9-4a/1 OR A.4.3.9-4a/2 OR A.4.3.9-4a/3 OR A.4.3.9-4a/66 OR A.4.3.9-4a/70)) AND A.4.3.2-1/20 THEN R ELSE N/A |
| C018 IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND 4.3.2-1/9 THEN R ELSE N/A |
| C019 IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/4 OR A.4.1-3/5) AND (NOT A.4.3.9-1/2 AND (A.4.3.9-4b/38 OR A.4.3.9-4b/41 OR A.4.3.9-4b/77 OR A.4.3.9-4b/78 OR A.4.3.9-4b/79) OR (A.4.3.9-4b/34 OR A.4.3.9-4b/39 OR A.4.3.9-4b/40 OR A.4.3.9-4b/48)) THEN R ELSE N/A |
| C019b IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/4 OR A.4.1-3/5) AND (NOT A.4.3.9-1/2 AND (A.4.3.9-4b/38 OR A.4.3.9-4b/41 OR A.4.3.9-4b/77 OR A.4.3.9-4b/78 OR A.4.3.9-4b/79) OR (A.4.3.9-4b/34 OR A.4.3.9-4b/39 OR A.4.3.9-4b/40 OR A.4.3.9-4b/48)) AND A.4.3.2-1/6 THEN R ELSE N/A |
| C019x IF A.4.1-1/2 AND (A.4.1-3/1 OR A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/4 OR A.4.1-3/5) AND (NOT A.4.3.9-1/2 AND (A.4.3.9-4b/38 OR A.4.3.9-4b/41 OR A.4.3.9-4b/77 OR A.4.3.9-4b/78 OR A.4.3.9-4b/79) OR (A.4.3.9-4b/34 OR A.4.3.9-4b/39 OR A.4.3.9-4b/40 OR A.4.3.9-4b/48)) AND A.4.3.9-1/1 THEN R ELSE N/A |
| C020 IF (A.4.1-1/1 OR A.4.1-1/2) AND (A.4.1-3/2 OR A.4.1-3/3 OR A.4.1-3/5) THEN R ELSE N/A |
| C021 IF (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3 OR A.4.1-4/5) AND A.4.1-3/2 THEN R ELSE N/A |
| C022 IF (A.4.1-4/4 OR A.4.1-4/5) AND A.4.1-3/2 THEN R ELSE N/A |
| C023 IF A.4.1-4/5 AND A.4.1-3/2 THEN R ELSE N/A |
| C024 IF A.4.1-1/1 AND A.4.1-2/7 AND A.4.1-3/1 THEN R ELSE N/A |
| C025 IF ((A.4.1-1/1 AND [10]A.4.1-1/1) OR (A.4.1-1/1 AND [10]A.4.1-1/2) OR (A.4.1-1/2 AND [10]A.4.1-1/1) OR (A.4.1-1/2 AND [10]A.4.1-1/2)) AND A.4.1-3/1 THEN R ELSE N/A |
| C026 IF (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3 OR A.4.1-4/5) AND A.4.1-3/2 AND 4.3.6-1/11 THEN R ELSE N/A |
| C027 IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/1 THEN R ELSE N/A |
| C028 IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/1 AND 4.3.6-1/11 THEN R ELSE N/A |
| C029 IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/1 AND 4.3.2-1/9 THEN R ELSE N/A |
| C030 IF (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3 OR A.4.1-4/5) AND A.4.1-3/2 AND 4.3.2-1/9 THEN R ELSE N/A |
| C031 IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.1-4A/1 OR A.4.1-4A/2 OR A.4.1-4A/5) AND A.4.3.2A.1-1/1 THEN R ELSE N/A |
| C032 IF (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3 OR A.4.1-4/5) AND A.4.1-3/2 AND (A.4.1-2/3 OR A.4.1-2/5) THEN R ELSE N/A |
| C033 IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.1-4A/1 OR A.4.1-4A/2 OR A.4.1-4A/5) AND A.4.3.2A.1-1/2 THEN R ELSE N/A |
| C034 IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND A.4.3.6-1/6 THEN R ELSE N/A |
| C035 IF (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3 OR A.4.1-4/5) AND A.4.1-3/2 AND A.4.3.6-1/6 THEN R ELSE N/A |
| C036 IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.1-4A/1 OR A.4.1-4A/2 OR A.4.1-4A/5) AND A.4.3.2A.1-1/3 THEN R ELSE N/A |
| C037 IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.1-4A/1 OR A.4.1-4A/2 OR A.4.1-4/5 OR A.4.1-4/7) AND A.4.1-5/1 AND A.4.3.6-1/41 THEN R ELSE N/A |
| C038 IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/2 AND (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3 OR A.4.1-4/5) AND A.4.3.6-1/41 THEN R ELSE N/A |
| C039 IF A.4.1-1/1 AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.1-4A/1 OR A.4.1-4A/2 OR A.4.1-4/5 OR A.4.1-4/7) AND A.4.1-5/1 AND A.4.3.6-1/41 THEN R ELSE N/A |
| C040 IF A.4.1-1/1 AND A.4.1-2/7 AND A.4.1-3/2 AND (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3 OR A.4.1-4/5) AND A.4.3.6-1/41 THEN R ELSE N/A |
| C041 IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND (A.4.1-4A/1 OR A.4.1-4A/2 OR A.4.1-4/5 OR A.4.1-4/7) AND A.4.1-5/1 AND A.4.3.2-1/34 AND A.4.3.6-1/41 THEN R ELSE N/A |
| C042 IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/2 AND (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3 OR A.4.1-4/5) AND A.4.3.2-1/34 AND A.4.3.6-1/41 THEN R ELSE N/A |
| C043 IF (A.4.1-4/1 OR A.4.1-4/2 OR A.4.1-4/3 OR A.4.1-4/5) AND A.4.1-3/2 AND (4.3.6-1/43 OR 4.3.6-1/44) THEN R ELSE N/A |
| C044 IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-2/7 AND A.4.1-3/1 AND 4.3.6-1/42 THEN R ELSE N/A |
| C045 IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.3.2B.2.0-1/2 AND (A.4.1-4/1 OR (A.4.1-4/3 AND A.4.3.2B.2.0-1A/2)) THEN R ELSE N/A |
| C046 IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.3.2B.2.0-1/3 AND (A.4.1-4/1 OR (A.4.1-4/3 AND A.4.3.2B.2.0-1A/3)) THEN R ELSE N/A |
| C047 IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.3.2B.2.0-1/4 AND (A.4.1-4/3 AND A.4.3.2B.2.0-1A/4) THEN R ELSE N/A |
| C048 IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.3.2B.2.0-1/2 AND A.4.1-4/1 THEN R ELSE N/A |
| C049 IF (A.4.1-1/1 OR A.4.1-1/2) AND A.4.1-3/2 AND A.4.3.2B.2.0-1/3 AND A.4.1-4/1 THEN R ELSE N/A |
| NOTE 1: Cxxxx applicability is defined for enhanced type 1 receiver for NR related tests (A.4.3.9-1/1).  NOTE 2: Cxxxy applicability is defined for alternative additional DMRS position for co-existence with LTE CRS related tests (A.4.3.2-1/20).  NOTE 3: Cxxxz applicability is defined for modified MPR behaviour related test (A.4.3.2-1/25). |

For the purposes of the present document, the tested bands selection criteria given in Table 4.0-2 apply. The ICS proformas used in Table 4.0-2 are defined in TS 38.508-2 [8] unless otherwise stated.

Table 4.0-2: Tested Bands Selection Criteria

|  |  |  |
| --- | --- | --- |
| Code | Tested Bands Selection Criteria | Comment |
| D001 | (A.4.3.1-1 OR A.4.3.1-2) AND NOT (A.4.3.1-5 OR A.4.3.1-6) | All supported FR1 Bands without SUL/SDL bands |
| D002 | A.4.3.1-4 | All supported FR1 PC2 Bands |
| D003 | A.4.3.1-5 | All supported FR1 SUL Bands |
| D004 | {1,2,3,5,7,8,12,14,20,25,28,30,34,38,39,40,41,50,51,65,66,70,71,74,75,76} | UE supported bands among n1,n2,n3,n5,n7,n8,n12,n14,n20,n25,n28,n30,n34,n38,n39,n40,n41,n50,n51,n65,n66,n70,n71,n74,n75,n76 |
| D005 | A.4.3.1-3 | All supported FR2 Bands |
| D006 | A.4.3.1-1 OR A.4.3.1-2 | All supported FR1 Bands |
| D007 | A.4.3.1-1 OR A.4.3.1-2 OR A.4.3.1-3 | All supported NR Bands |
| D008 | ANY((A.4.3.1-1 OR A.4.3.1-2) AND 10MHz) | Any band within the set supporting 10 MHz UE Channel BW |
| D009 | ANY((A.4.3.1-2) AND 20MHz) | Any TDD FR1 band within the set supporting 20 MHz UE Channel BW |
| D010 | ANY((A.4.3.1-2) AND 40MHz) | Any TDD FR1 band within the set supporting 40 MHz UE Channel BW |
| D011 | A.4.3.9-4a, A.4.3.9-4b | All supported 4 Rx antenna ports Bands |
| NOTE 1: Band Selection is based on set theory. For each feature, item number shall correspond to the Band number. The result is the set of bands for which the test shall be conducted. The following operators are used:  AND: Set intersection ( ). {1,2} AND {2,3} = {2}  OR: Set union ( ). {1,2} OR {2,3} = {1,2,3}  NOT: Set complement (\), full set being all bands. NOT{1} = {2 ...256}  Also note that this is set without repetitions so {1} AND {1} = {1}  The following basic sets are used:  {1,2}: Explicitly given band set  10MHz: All bands supporting 10 MHz The following sets derived from pro-forma tables are also used: TBD | | |

For the purposes of the present document, the tested CA/DC configuration selection criteria given in Table 4.0-3 apply. The ICS proformas used in Table 4.0-3 are defined in TS 38.508-2 [8] unless otherwise stated.

Table 4.0-3: Tested CA/DC Configuration Selection Criteria

|  |  |  |
| --- | --- | --- |
| Code | Tested CA Configuration Selection Criteria | Comment |
| E001 | A.4.3.2A.2.1-3 AND A.4.3.2B.2.0-1/1 AND NOT UL(A.4.3.2A.2.1-2) | All supported intra-band contiguous CA Configurations with 2 carriers in DL but no CA in UL |
| E002 | A.4.3.2A.4.1-1 AND A.4.3.2B.2.0-1/1 AND NOT UL(A.4.3.2A.4.1-2) | All supported inter-band CA Configurations with 2 carriers in DL but no CA in UL |
| E003 | UL(A.4.3.2B.2.1-2) AND A.4.3.2B.2.0-2/1 | All supported Intra-band contiguous EN-DC configurations in FR1(2UL CCs) |
| E003a | A.4.3.2B.2.1-2 AND A.4.3.2B.2.0-1/1 | All supported Intra-band contiguous EN-DC configurations in FR1(2DL CCs) |
| E004 | UL(A.4.3.2B.2.2-2) AND A.4.3.2B.2.0-2/1 | All supported Intra-band non-contiguous EN-DC configurations in FR1(2UL CCs) |
| E004a | A.4.3.2B.2.2-2 AND A.4.3.2B.2.0-1/1 | All supported Intra-band non-contiguous EN-DC configurations in FR1(2DL CCs) |
| E005 | UL(A.4.3.2B.2.3.1-2 OR A.4.3.2B.2.3.2-2 OR A.4.3.2B.2.3.3-2 OR A.4.3.2B.2.3.4-2 OR A.4.3.2B.2.3.5-2) AND A.4.3.2B.2.0-2/1 | All supported Inter-band EN-DC configurations within FR1 (2UL CCs) |
| E005a | A.4.3.2B.2.3.1-2 AND A.4.3.2B.2.0-1/1 | All supported Inter-band EN-DC configurations within FR1 (2DL CCs) |
| E006 | (A.4.3.2B.2.1-2 OR A.4.3.2B.2.2-2 OR A.4.3.2B.2.3.1-2 OR A.4.3.2B.2.3.2-2) AND A.4.3.2B.2.0-1/2 | All supported EN-DC configurations within FR1 (3DL CCs) |
| E007 | (A.4.3.2B.2.1-2 OR A.4.3.2B.2.2-2 OR A.4.3.2B.2.3.1-2 OR A.4.3.2B.2.3.2-2 OR A.4.3.2B.2.3.3-2) AND A.4.3.2B.2.0-1/3 | All supported EN-DC configurations within FR1 (4DL CCs) |
| E008 | (A.4.3.2B.2.1-2 OR A.4.3.2B.2.2-2 OR A.4.3.2B.2.3.1-2 OR A.4.3.2B.2.3.2-2 OR A.4.3.2B.2.3.3-2 OR A.4.3.2B.2.3.4-2) AND A.4.3.2B.2.0-1/4 | All supported EN-DC configurations within FR1 (5DL CCs) |
| E009 | (A.4.3.2B.2.1-2 OR A.4.3.2B.2.2-2 OR A.4.3.2B.2.3.1-2 OR A.4.3.2B.2.3.2-2 OR A.4.3.2B.2.3.3-2 OR A.4.3.2B.2.3.4-2 OR A.4.3.2B.2.3.5-2) AND A.4.3.2B.2.0-1/5 | All supported EN-DC configurations within FR1 (6DL CCs) |
| E010 | UL(A.4.3.2B.2.3.6-2 OR A.4.3.2B.2.3.7-2 OR A.4.3.2B.2.3.8-2 OR A.4.3.2B.2.3.9-2 OR A.4.3.2B.2.3.10-2) AND A.4.3.2B.2.0-2/1 | All supported Inter-band EN-DC configurations including FR2 (2UL CCs) |
| E010a | A.4.3.2B.2.3.6-2 AND A.4.3.2B.2.0-1/1 | All supported Inter-band EN-DC configurations including FR2 (2DL CCs) |
| E011 | UL(A.4.3.2B.2.3.6-2 OR A.4.3.2B.2.3.7-3) AND A.4.3.2B.2.0-2/2 AND A.4.3.2B.2.0-2A/2 | All supported Inter-band EN-DC configurations including FR2 (3UL CCs(2NR UL CCs)) |
| E011a | (A.4.3.2B.2.3.6-2 OR A.4.3.2B.2.3.7-3) AND A.4.3.2B.2.0-1/2 AND A.4.3.2B.2.0-1A/2 | All supported Inter-band EN-DC configurations including FR2 (3DL CCs(2NR DL CCs)) |
| E012 | UL(A.4.3.2B.2.3.1-2 OR A.4.3.2B.2.3.2-2 OR A.4.3.2B.2.3.3-2) AND A.4.3.2B.2.0-2/3 AND NR\_A.4.3.2B.2.0-2A/3 | All supported Inter-band EN-DC configurations including FR2 (4UL CCs(3NR UL CCs)) |
| E012a | (A.4.3.2B.2.3.1-2 OR A.4.3.2B.2.3.2-2 OR A.4.3.2B.2.3.3-2) AND A.4.3.2B.2.0-1/3 AND A.4.3.2B.2.0-1A/3 | All supported Inter-band EN-DC configurations including FR2 (4DL CCs(3NR DL CCs)) |
| E013 | UL(A.4.3.2B.2.3.1-2 OR A.4.3.2B.2.3.2-2 OR A.4.3.2B.2.3.3-2 OR A.4.3.2B.2.3.4-2) AND A.4.3.2B.2.0-2/4 AND A.4.3.2B.2.0-2A/4 | All supported Inter-band EN-DC configurations including FR2 (5UL CCs(4NR UL CCs)) |
| E013a | (A.4.3.2B.2.3.1-2 OR A.4.3.2B.2.3.2-2 OR A.4.3.2B.2.3.3-2 OR A.4.3.2B.2.3.4-2) AND A.4.3.2B.2.0-1/4 AND A.4.3.2B.2.0-1A/4 | All supported Inter-band EN-DC configurations including FR2 (5DL CCs(4NR DL CCs)) |
| E014 | (A.4.3.2B.2.3.1-2 OR A.4.3.2B.2.3.2-2 OR A.4.3.2B.2.3.3-2 OR A.4.3.2B.2.3.4-2 OR A.4.3.2B.2.3.5-2) AND A.4.3.2B.2.0-1/5 AND A.4.3.2B.2.0-1A/5 | All supported Inter-band EN-DC configurations including FR2 (6DL CCs(5NR DL CCs)) |
| E015 | UL(A.4.3.2A.2.1-3 OR A.4.3.2A.3.1-3 OR A.4.3.2A.4.1-3 OR A.4.3.2A.4.2-3) AND A.4.3.2B.2.0-2/1 | All supported FR1 2UL CA configurations |
| E016 | (A.4.3.2A.2.1-3 OR A.4.3.2A.3.1-3 OR A.4.3.2A.4.1-3) AND A.4.3.2B.2.0-1/1 | All supported FR1 2DL CA configurations |
| E017 | (A.4.3.2A.2.1-3 OR A.4.3.2A.3.1-3 OR A.4.3.2A.4.1-3 OR A.4.3.2A.4.2-3) AND A.4.3.2B.2.0-1/2 | All supported FR1 3DL CA configurations |
| E018 | (A.4.3.2A.2.1-3 OR A.4.3.2A.3.1-3 OR A.4.3.2A.4.1-3 OR A.4.3.2A.4.2-3) AND A.4.3.2B.2.0-1/3 | All supported FR1 4DL CA configurations |

## 4.1 RF conformance test cases

NOTE: To determine applicability of a test case, supported CBW and SCS in the *RF-Parameters* IE (see TS 38.331 [11]) which conveys RF related capabilities for NR operation is taken into account.

### 4.1.1 FR1 standalone conformance test cases

Table 4.1.1-1: Applicability of RF SA FR1 conformance test cases, ref. TS 38.521-1 [1]

| Clause | TC Title | Release | Applicability | | Tested Bands/CA-Configurations Selection | Branch | Additional Information |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | Condition | Comment |  |  |  |
| **6** | **Transmitter Characteristics** |  |  |  |  |  |  |
| 6.2.1 | UE maximum output power | Rel-15 | C001 | UEs supporting 5GS FR1 | D001 | PC1  PC2  PC3 |  |
| 6.2.2 | Maximum Power Reduction (MPR) | Rel-15 | C001 | UEs supporting 5GS FR1 | D001 | PC2  PC3 | Test execution is not necessary if TS 38.521-1 6.5.2.4.1 is executed.  Skip TC 6.2.2 if UE supports NSA and TS 38.521-3 TC 6.2B.2.3 has been executed. |
| 6.2.3 | UE additional maximum output power reduction | Rel-15 | C001 | UEs supporting 5GS FR1 PC3 | D001 | PC2  PC3 | Test execution is not necessary if TS 38.521-1 6.5.2.3 and 6.5.3.3 are executed.  Skip TC 6.2.3 if UE supports NSA and TS 38.521-3 TC 6.2B.3.3 has been executed. |
| 6.2.4 | Configured transmitted power | Rel-15 | C001 | UEs supporting 5GS FR1 | D001 |  |  |
| 6.2A.1.1 | UE maximum output power for CA (2UL CA) | Rel-15 | C004 | UEs supporting 5GS FR1 and CA (2UL CA) | E015 |  |  |
| 6.2A.2.1 | Maximum Power Reduction (MPR) for CA (2 UL CA) | Rel-15 | C004 | UEs supporting 5GS FR1 and CA (2UL CA) | E015 |  | Test execution is not necessary if TS 38.521-1 6.5A.2.4.1.1 is executed. |
| 6.2A.3.1 | UE additional maximum output power reduction for CA (2 UL CA) | Rel-15 | C004 | UEs supporting 5GS FR1 and CA (2UL CA) | E015 |  | Test execution is not necessary if TS 38.521-1 6.5A.2.3 and 6.5A.3.3 are executed. |
| 6.2A.4.1 | Configured transmitted power for CA (2 UL CA) | Rel-15 | C004 | Ues supporting 5GS FR1 and CA (2UL CA) | E015 |  |  |
| 6.2C.1 | Configured transmitted power for SUL | Rel-15 | C002 | UEs supporting 5GS FR1 and SUL | D003 |  |  |
| 6.2C.3 | UE maximum output power for SUL | Rel-15 | C002 | UEs supporting 5GS FR1 and SUL | D003 |  |  |
| 6.2C.4 | UE maximum output power reduction for SUL | Rel-15 | C002 | UEs supporting 5GS FR1 and SUL | D003 |  |  |
| 6.2C.5 | UE additional maximum output power reduction for SUL | Rel-15 | C002 | UEs supporting 5GS FR1 and SUL | D003 |  |  |
| 6.2D.1 | UE maximum output power for UL-MIMO | Rel-15 | N/A | Not recommended due to no test points are defined since there is no configuration satisfying MPR=0dB requirements in RAN4. | D001 |  | Maximum Output Power for UL-MIMO is tested as part of the MPR test case with using MPR=1.5dB suggested by RAN4. |
| 6.2D.2 | UE maximum output power reduction for UL-MIMO | Rel-15 | C003 | UEs supporting 5GS FR1 and UL-MIMO | D001 |  | Test execution is not necessary if TS 38.521-1 6.5D.2.4.1 is executed. |
| 6.2D.3 | UE additional maximum output power reduction for UL-MIMO | Rel-15 | C003 | UEs supporting 5GS FR1 and UL-MIMO | D001 |  | Test execution is not necessary if TS 38.521-1 6.5D.2.3 and 6.5D.3.3 are executed. |
| 6.2D.4 | Configured transmitted power for UL-MIMO | Rel-15 | C003 | UEs supporting 5GS FR1 and UL-MIMO | D001 |  |  |
| 6.3.1 | Minimum output power | Rel-15 | C001 | UEs supporting 5GS FR1 | D001 |  | Skip TC 6.3.1 if UE supports NSA and TS 38.521-3 TC 6.3B.1.1 or 6.3B.1.2 or 6.3B.1.3 has been executed. |
| 6.3.3.2 | General ON/OFF time mask | Rel-15 | C001 | UEs supporting 5GS FR1 | D001 |  | Skip TC 6.3.3.2 if UE supports NSA and TS 38.521-3 TC 6.3B.3.1 or 6.3B.3.2 or 6.3B.3.3 has been executed. |
| 6.3.3.4 | PRACH time mask | Rel-15 | C001 | UEs supporting 5GS FR1 | D001 |  | Skip TC 6.3.3.4 if UE supports NSA and TS 38.521-3 TC 6.3B.4.1 or 6.3B.4.2 or 6.3B.4.3 has been executed. |
| 6.3.3.6 | SRS time mask | Rel-15 | C001 | UEs supporting 5GS FR1 | D001 |  |  |
| 6.3.4.2 | Absolute power tolerance | Rel-15 | C001 | UEs supporting 5GS FR1 | D001 |  |  |
| 6.3.4.3 | Relative power tolerance | Rel-15 | C001 | UEs supporting 5GS FR1 | D001 |  |  |
| 6.3.4.4 | Aggregate power tolerance | Rel-15 | C001 | UEs supporting 5GS FR1 | D001 |  |  |
| 6.3A.1.1 | Minimum output power for CA (2UL CA) | Rel-15 | C004 | UEs supporting 5GS FR1 and CA (2UL CA) | E015 |  |  |
| 6.3A.3.1 | Transmit ON/OFF time mask for CA (2UL CA) | Rel-15 | C004 | UEs supporting 5GS FR1 and CA (2UL CA) | E015 |  |  |
| 6.3C.1 | Minimum output power for SUL | Rel-15 | C002 | UEs supporting 5GS FR1 and SUL | D003 |  |  |
| 6.3C.3 | Transmit ON/OFF time mask for SUL | Rel-15 | C002 | UEs supporting 5GS FR1 and SUL | D003 |  |  |
| 6.3C.4.1 | Absolute power tolerance for SUL | Rel-15 | C002 | UEs supporting 5GS FR1 and SUL | D003 |  |  |
| 6.3C.4.2 | Power Control Relative power tolerance for SUL | Rel-15 | C002 | UEs supporting 5GS FR1 and SUL | D003 |  |  |
| 6.3C.4.3 | Aggregate power tolerance for SUL | Rel-15 | C002 | UEs supporting 5GS FR1 and SUL | D003 |  |  |
| 6.3D.1 | Minimum output power for UL-MIMO | Rel-15 | C003 | UEs supporting 5GS FR1 and UL-MIMO | D001 |  |  |
| 6.3D.3 | Transmit ON/OFF time mask for UL-MIMO | Rel-15 | C003 | UEs supporting 5GS FR1 and UL-MIMO | D001 |  |  |
| 6.3D.4.1 | Absolute power tolerance for UL-MIMO | Rel-15 | C003 | UEs supporting 5GS FR1 and UL-MIMO | D001 |  |  |
| 6.3D.4.2 | Relative power tolerance for UL-MIMO | Rel-15 | C003 | UEs supporting 5GS FR1 and UL-MIMO | D001 |  |  |
| 6.3D.4.3 | Aggregate power tolerance for UL-MIMO | Rel-15 | C003 | UEs supporting 5GS FR1 and UL-MIMO | D001 |  |  |
| 6.4.1 | Frequency error | Rel-15 | C001 | UEs supporting 5GS FR1 | D001 |  | Skip TC 6.4.1 if UE supports NSA and TS 38.521-3 TC 6.4B.1.1 or 6.4B.1.2 or 6.4B.1.3 has been executed. |
| 6.4.2.1 | Error Vector Magnitude | Rel-15 | C001 | UEs supporting 5GS FR1 | D001 |  | Skip TC 6.4.2.1 if UE supports NSA and TS 38.521-3 TC 6.4B.2.1.1 or 6.4B.2.2.1 or 6.4B.2.3.1 has been executed. |
| 6.4.2.2 | Carrier leakage | Rel-15 | C001 | UEs supporting 5GS FR1 | D001 |  | Skip TC 6.4.2.2 if UE supports NSA and TS 38.521-3 TC 6.4B.2.1.2 or 6.4B.2.2.2 or 6.4B.2.3.2 has been executed. |
| 6.4.2.3 | In-band emissions | Rel-15 | C001 | UEs supporting 5GS FR1 | D001 |  | Skip TC 6.4.2.3 if UE supports NSA and TS 38.521-3 TC 6.4B.2.2.3 or 6.4B.2.3.3 has been executed. |
| 6.4.2.4 | EVM equalizer spectrum flatness | Rel-15 | C001 | UEs supporting 5GS FR1 | D001 |  | Skip TC 6.4.2.4 if UE supports NSA and TS 38.521-3 TC 6.4B.2.1.4 or 6.4B.2.2.4 or 6.4B.2.3.4 has been executed. |
| 6.4.2.5 | EVM equalizer spectrum flatness for Pi/2 BPSK | Rel-15 | C001 | UEs supporting 5GS FR1 | D001 |  |  |
| 6.4A.1.1 | Frequency error for CA (2UL CA) | Rel-15 | FFS | UEs supporting 5GS FR1 and CA (2UL CA) | FFS |  | NOTE 1 |
| 6.4A.2.1.1 | Error Vector Magnitude for CA (2UL CA) | Rel-15 | FFS | UEs supporting 5GS FR1 and CA (2UL CA) | FFS |  | NOTE 1 |
| 6.4A.2.2.1 | Carrier leakage for CA (2UL CA) | Rel-15 | FFS | UEs supporting 5GS FR1 and CA (2UL CA) | FFS |  | NOTE 1 |
| 6.4A.2.3.1 | In-band emissions for CA (2UL CA) | Rel-15 | FFS | UEs supporting 5GS FR1 and CA (2UL CA) | FFS |  | NOTE 1 |
| 6.4C.1 | Frequency error for SUL | Rel-15 | C002 | UEs supporting 5GS FR1 and SUL | D003 |  |  |
| 6.4C.2.1 | Error Vector Magnitude for SUL | Rel-15 | C002 | UEs supporting 5GS FR1 and SUL | D003 |  |  |
| 6.4C.2.2 | Carrier leakage for SUL | Rel-15 | C002 | UEs supporting 5GS FR1 and SUL | D003 |  |  |
| 6.4C.2.3 | In-band emissions for SUL | Rel-15 | C002 | UEs supporting 5GS FR1 and SUL | D003 |  |  |
| 6.4C.2.4 | EVM equalizer spectrum flatness for SUL | Rel-15 | C002 | UEs supporting 5GS FR1 and SUL | D003 |  |  |
| 6.4D.1 | Frequency error for UL-MIMO | Rel-15 | C003 | UEs supporting 5GS FR1 and UL-MIMO | D001 |  |  |
| 6.4D.2.1 | Error Vector Magnitude for UL-MIMO | Rel-15 | C003 | UEs supporting 5GS FR1 and UL-MIMO | D001 |  |  |
| 6.4D.2.2 | Carrier leakage for UL-MIMO | Rel-15 | C003 | UEs supporting 5GS FR1 and UL-MIMO | D001 |  |  |
| 6.4D.2.3 | In-band emissions for UL-MIMO | Rel-15 | C003 | UEs supporting 5GS FR1 and UL-MIMO | D001 |  |  |
| 6.4D.2.4 | EVM equalizer spectrum flatness for UL-MIMO | Rel-15 | C003 | UEs supporting 5GS FR1 and UL-MIMO | D001 |  |  |
| 6.4D.3 | Time alignment error for UL-MIMO | Rel-15 | C003 | UEs supporting 5GS FR1 and UL-MIMO | D001 |  |  |
| 6.4D.4 | Requirements for coherent UL MIMO | FFS | FFS | FFS | FFS |  | NOTE 1 |
| 6.5.1 | Occupied bandwidth | Rel-15 | C001 | UEs supporting 5GS FR1 | D001 |  | Skip TC 6.5.1 if UE supports NSA and TS 38.521-3 TC 6.5B.1.2 or 6.5B.1.3 has been executed. |
| 6.5.2.2 | Spectrum Emission Mask | Rel-15 | C001 | UEs supporting 5GS FR1 | D001 | PC2  PC3 | Skip TC 6.5.2.2 if UE supports NSA and TS 38.521-3 TC 6.5B.2.2.1 or 6.5B.2.3.1 has been executed. |
| 6.5.2.3 | Additional spectrum emission mask | Rel-15 | C001 | UEs supporting 5GS FR1 | D001 | PC2  PC3 | NOTE 1  Skip TC 6.5.2.3 if UE supports NSA and TS 38.521-3 TC 6.5B.2.3.2 has been executed. |
| 6.5.2.4.1 | NR ACLR | Rel-15 | C001 | UEs supporting 5GS FR1 | D001 | PC2  PC3 | Skip TC 6.5.2.4.1 if UE supports NSA and TS 38.521-3 TC 6.5B.2.2.3 or 6.5B.2.3.3 has been executed. |
| 6.5.2.4.2 | UTRA ACLR | Rel-15 | C001a | UEs supporting 5GS FR1 PC3 | D001 |  |  |
| 6.5.3.1 | General spurious emissions | Rel-15 | C001 | UEs supporting 5GS FR1 | D001 |  | Skip TC 6.5.3.1 if UE supports NSA and TS 38.521-3 TC 6.5B.3.1.1 or 6.5B.3.2.1 has been executed. |
| 6.5.3.2 | Spurious emission for UE co-existence | Rel-15 | C001 | UEs supporting 5GS FR1 | D001 |  |  |
| 6.5.3.3 | Additional spurious emissions | Rel-15 | C001 | UEs supporting 5GS FR1 | D001 |  | Skip TC 6.5.3.3 if UE supports NSA and TS 38.521-3 TC 6.5B.4.3 has been executed. |
| 6.5.4 | Transmit intermodulation | Rel-15 | C001 | UEs supporting 5GS FR1 | D001 |  | Skip TC 6.5.4 if UE supports NSA and TS 38.521-3 TC 6.5B.5.3 has been executed. |
| 6.5A.1.1 | Occupied bandwidth for CA (2UL CA) | Rel-15 | C004 | UEs supporting 5GS FR1 and CA (2UL CA) | FFS |  | NOTE 1 |
| 6.5A.2.2.1 | Spectrum emission mask for CA (2UL CA) | Rel-15 | FFS | UEs supporting 5GS FR1 and CA (2UL CA) | FFS |  | NOTE 1 |
| 6.5A.2.4.1.1 | NR ACLR for CA (2UL CA) | Rel-15 | FFS | UEs supporting 5GS FR1 and CA (2UL CA) | FFS |  | NOTE 1 |
| 6.5A.2.4.2.1 | UTRA ACLR for CA (2UL CA) | Rel-15 | FFS | UEs supporting 5GS FR1 and CA (2UL CA) | FFS |  | NOTE 1 |
| 6.5A.3.1.1 | General spurious emissions for CA (2UL CA) | Rel-15 | FFS | UEs supporting 5GS FR1 and CA (2UL CA) | FFS |  | NOTE 1 |
| 6.5A.3.2.1 | Spurious emissions for UE co-existence for CA (2UL CA) | Rel-15 | FFS | UEs supporting 5GS FR1 and CA (2UL CA) | FFS |  | NOTE 1 |
| 6.5A.4.1 | Transmit intermodulation for CA (2UL CA) | Rel-15 | FFS | UEs supporting 5GS FR1 and CA (2UL CA) | FFS |  | NOTE 1 |
| 6.5C.1 | Occupied bandwidth for SUL | Rel-15 | C002 | UEs supporting 5GS FR1 and SUL | D003 |  |  |
| 6.5C.2.2 | Spectrum Emission Mask for SUL | Rel-15 | C002 | UEs supporting 5GS FR1 and SUL | D003 |  |  |
| 6.5C.2.3 | Additional spectrum emission mask for SUL | Rel-15 | C002 | UEs supporting 5GS FR1 and SUL | D003 |  |  |
| 6.5C.2.4.1 | NR ACLR for SUL | Rel-15 | C002 | UEs supporting 5GS FR1 and SUL | D003 |  |  |
| 6.5C.2.4.2 | UTRA ACLR for SUL | Rel-15 | C002 | UEs supporting 5GS FR1 and SUL | D003 |  |  |
| 6.5C.3.1 | General spurious emissions for SUL | Rel-15 | C002 | UEs supporting 5GS FR1 and SUL | D003 |  |  |
| 6.5C.3.2 | Spurious emission for UE co-existence for SUL | Rel-15 | C002 | UEs supporting 5GS FR1 and SUL | D003 |  |  |
| 6.5C.3.3 | Additional spurious emissions for SUL | Rel-15 | C002 | UEs supporting 5GS FR1 and SUL | D003 |  |  |
| 6.5C.4 | Transmit intermodulation for SUL | Rel-15 | C002 | UEs supporting 5GS FR1 and SUL | D003 |  |  |
| 6.5D.1 | Occupied bandwidth for UL-MIMO | Rel-15 only | C003 | UEs supporting 5GS FR1 and UL-MIMO | D001 |  |  |
| 6.5D.1\_1 | Occupied bandwidth for UL MIMO (Rel-16 onward) | Rel-16 | FFS | UEs supporting 5GS FR1 and UL-MIMO and ULFPTx | FFS |  | NOTE 1 |
| 6.5D.2.2 | Spectrum Emission Mask for UL-MIMO | Rel-15 | C003 | UEs supporting 5GS FR1 and UL-MIMO | D001 |  |  |
| 6.5D.2.3 | Additional spectrum emission mask for UL-MIMO | Rel-15 | C003 | UEs supporting 5GS FR1 and UL-MIMO | D001 |  |  |
| 6.5D.2.4.1 | NR ACLR for UL-MIMO | Rel-15 | C003 | UEs supporting 5GS FR1 and UL-MIMO | D001 |  |  |
| 6.5D.2.4.2 | UTRA ACLR for UL-MIMO | Rel-15 | C003 | UEs supporting 5GS FR1 and UL-MIMO | D001 |  |  |
| 6.5D.3.1 | General spurious emissions for UL-MIMO | Rel-15 only | C003 | UEs supporting 5GS FR1 and UL-MIMO | D001 |  |  |
| 6.5D.3.2 | Spurious emission for UE co-existence for UL-MIMO | Rel-15 only | C003 | UEs supporting 5GS FR1 and UL-MIMO | D001 |  |  |
| 6.5D.3.3 | Additional spurious emissions for UL-MIMO | Rel-15 only | C003 | UEs supporting 5GS FR1 and UL-MIMO | D001 |  |  |
| 6.5D.4 | Transmit intermodulation for UL-MIMO | Rel-15 | C003 | UEs supporting 5GS FR1 and UL-MIMO | D001 |  |  |
| **7** | **Receiver Characteristics** |  |  |  |  |  |  |
| 7.3.2 | Reference sensitivity power level | Rel-15 | C001 | UEs supporting 5GS FR1 | D001 | 2Rx  4Rx |  |
| 7.3A.1 | Reference sensitivity power level for 2DL CA without exception | Rel-15 | C031 | UEs supporting 5GS FR1 and CA (2DL CA) | E016 |  |  |
| 7.3A.2 | Reference sensitivity level for CA (3DL CA) | FFS | FFS | FFS | FFS |  | NOTE 1 |
| 7.3A.3 | Reference sensitivity level for CA (4DL CA) | FFS | FFS | FFS | FFS |  | NOTE 1 |
| 7.3C.2 | Reference sensitivity power level for SUL | Rel-15 | C002 | UEs supporting 5GS FR1 and SUL | D003 |  | NOTE 1 |
| 7.3D.2 | Reference sensitivity power level for UL-MIMO | Rel-15 | C003 | UEs supporting 5GS FR1 and UL-MIMO | D001 |  |  |
| 7.4 | Maximum input level | Rel-15 | C001 | UEs supporting 5GS FR1 | D001 |  | Skip TC 7.4 if UE supports NSA and TS 38.521-3 TC 7.4B.3 or 7.4B.4 has been executed. |
| 7.4A.1 | Maximum input level for CA (2DL CA) | Rel-15 | C031 | UEs supporting 5GS FR1 and CA (2DL CA) | E016 |  |  |
| 7.4A.2 | Maximum input level for CA (3DL CA) | Rel-16 | C033 | UEs supporting 5GS FR1 and CA (3DL CA) | E017 |  |  |
| 7.4A.3 | Maximum input level for CA (4DL CA) | FFS | FFS | FFS | FFS |  | NOTE 1 |
| 7.4D | Maximum input level for UL-MIMO | Rel-15 | C003 | UEs supporting 5GS FR1 and UL-MIMO | D001 |  |  |
| 7.5 | Adjacent channel selectivity | Rel-15 | C001 | UEs supporting 5GS FR1 | D001 |  | NOTE 1  Skip TC 7.5 if UE supports NSA and TS 38.521-3 TC 7.5B.2 or 7.5B.3 has been executed. |
| 7.5A.1 | Adjacent channel selectivity for 2DL CA | Rel-15 | C031 | UEs supporting 5GS FR1 and CA (2DL CA) | E016 |  |  |
| 7.5A.2 | Adjacent channel selectivity for 3DL CA | FFS | FFS | FFS | FFS |  | NOTE 1 |
| 7.5A.3 | Adjacent channel selectivity for 4DL CA | FFS | FFS | FFS | FFS |  | NOTE 1 |
| 7.5D | Adjacent channel selectivity for UL-MIMO | FFS | FFS | FFS | FFS |  |  |
| 7.6.2 | Inband Blocking | Rel-15 | C001 | UEs supporting 5GS FR1 | D001 |  | Skip TC 7.6.2 if UE supports NSA and TS 38.521-3 TC 7.6B.2.2 or 7.6B.2.3 has been executed. |
| 7.6.3 | Out-of-band blocking | Rel-15 | C001 | UEs supporting 5GS FR1 | D001 |  |  |
| 7.6.4 | Narrow band blocking | Rel-15 | C001 | UEs supporting 5GS FR1 | D004 |  | Skip TC 7.6.4 if UE supports NSA and TS 38.521-3 TC 7.6B.4.2 or 7.6B.4.3 has been executed. |
| 7.6A.2.1 | In-band Blocking for CA (2DL CA) | Rel-15 | C031 | UEs supporting 5GS FR1 and CA (2DL CA) | E016 |  |  |
| 7.6A.2.2 | Inband blocking for CA (3DL CA) | Rel-16 | C033 | UEs supporting 5GS FR1 and CA (3DL CA) | E017 |  |  |
| 7.6A.2.3 | Inband blocking for CA (4DL CA) | Rel-16 | C036 | UEs supporting 5GS FR1 and CA (4DL CA) | E018 |  | NOTE 1  Skip TC 7.6A.2.3 if UE supports NSA and TS 38.521-3 TC 7.6B.2.3\_1.3 has been executed. |
| 7.6A.3.1 | Out-of-band blocking for CA (2DL CA) | Rel-15 | C031 | UEs supporting 5GS FR1 and CA (2DL CA) | E016 |  |  |
| 7.6A.3.2 | Out-of-band blocking for CA (3DL CA) | Rel-16 | C033 | UEs supporting 5GS FR1 and CA (3DL CA) | E017 |  |  |
| 7.6A.3.3 | Out-of-band blocking for CA (4DL CA) | Rel-16 | C036 | UEs supporting 5GS FR1 and CA (4DL CA) | E018 |  |  |
| 7.6A.4.1 | Narrow band blocking for CA (2DL CA) | Rel-15 | C031 | UEs supporting 5GS FR1 and CA (2DL CA) | E016 |  |  |
| 7.6A.4.2 | Narrow band blocking for CA (3DL CA) | Rel-16 | C033 | UEs supporting 5GS FR1 and CA (3DL CA) | E017 |  |  |
| 7.6A.4.3 | Narrow band blocking for CA (4DL CA) | Rel-16 | C036 | UEs supporting 5GS FR1 and CA (4DL CA) | E018 |  | Skip TC 7.6A.4.3 if UE supports NSA and TS 38.521-3 TC 7.6B.4.3\_1.3 has been executed. |
| 7.6C.2 | Inband blocking for SUL | Rel-15 | C002 | UEs supporting 5GS FR1 and SUL | D003 |  |  |
| 7.6C.3 | Out-of-band blocking for SUL | Rel-15 | C002 | UEs supporting 5GS FR1 and SUL | D003 |  |  |
| 7.6D.2 | Inband blocking for UL-MIMO | Rel-15 | C003 | UEs supporting 5GS FR1 and UL-MIMO | D001 |  |  |
| 7.6D.3 | Out-of-band blocking for UL-MIMO | Rel-15 | C003 | UEs supporting 5GS FR1 and UL-MIMO | D001 |  |  |
| 7.6D.4 | Narrow band blocking for UL-MIMO | Rel-15 | C003 | UEs supporting 5GS FR1 and UL-MIMO | D001 |  |  |
| 7.7 | Spurious response | Rel-15 | C001 | UEs supporting 5GS FR1 | D001 |  |  |
| 7.7A.1 | Spurious response for CA (2DL CA) | Rel-15 | C031 | UEs supporting 5GS FR1 and CA (2DL CA) | E016 |  |  |
| 7.7A.2 | Spurious response for CA (3DL CA) | Rel-16 | FFS | UEs supporting 5GS FR1 and CA (3DL CA) | FFS |  | NOTE 1 |
| 7.7A.3 | Spurious response for CA (4DL CA) | Rel-16 | FFS | UEs supporting 5GS FR1 and CA (4DL CA) | FFS |  | NOTE 1 |
| 7.7D | Spurious response for UL-MIMO | Rel-15 | C003 | UEs supporting 5GS FR1 and UL-MIMO | D001 |  |  |
| 7.8.2 | Wide band Intermodulation | Rel-15 | C001 | UEs supporting 5GS FR1 | D001 |  | Skip TC 7.8.2 if UE supports NSA and TS 38.521-3 TC 7.8B.2.2 or 7.8B.2.3 has been executed. |
| 7.8A.2.1 | Wide band Intermodulation for CA (2DL CA) | Rel-15 | C031 | UEs supporting 5GS FR1 and CA (2DL CA) | E016 |  |  |
| 7.8A.2.2 | Wide band Intermodulation for CA (3DL CA) | Rel-16 | C033 | UEs supporting 5GS FR1 and CA (3DL CA) | E017 |  |  |
| 7.8A.2.3 | Wide band Intermodulation for CA (4DL CA) | Rel-16 | C036 | UEs supporting 5GS FR1 and CA (4DL CA) | E018 |  |  |
| 7.8D.2 | Wide band Intermodulation for UL-MIMO | Rel-15 | C003 | UEs supporting 5GS FR1 and UL-MIMO | D001 |  |  |
| 7.9 | Spurious emissions | Rel-15 | C001 | UEs supporting 5GS FR1 | D001 |  | Skip TC 7.9 if UE supports NSA and TS 38.521-3 TC 7.9B.1 or 7.9B.2 or 7.9B.3 has been executed. |
| 7.9A.1 | Spurious emission for 2DL CA | Rel-15 | C005 | UEs supporting 5GS FR1 and inter-band 2DL CA with a DL-only band | E002 |  |  |
| NOTE 1: The test case/branch is incomplete for any Band/CA/DC Configuration but has basic test configurations already. NOTE 1 can be removed only when the test case/branch is complete for at least one Band / CA/DC Configuration for at least one feature included in the test case/branch. Detailed completion status can be found in the corresponding test case section in 38.521-1. | | | | | | | |

Table 4.1.1-1a: Void

Table 4.1.1-1b: Void

Table 4.1.1-1c: Void

### 4.1.2 FR2 standalone conformance test cases

Table 4.1.2-1: Applicability of RF SA FR2 conformance test cases, ref. TS 38.521-2 [2]

| Clause | TC Title | Release | Applicability | | Tested Bands/CA-Configurations Selection | Branch | Additional Information |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | Condition | Comment |  |  |  |
| **6** | **Transmitter Characteristics** |  |  |  |  |  |  |
| 6.2.1.1 | UE maximum output power - EIRP and TRP | Rel-15 | C006 | UEs supporting 5GS FR2 | D005 |  | Skip TC 6.2.1.1 if UE supports NSA and TS 38.521-3 TC 6.2B.1.4.1 has been executed. |
| 6.2.1.2 | UE maximum output power - Spherical coverage | Rel-15 | C007 | UEs supporting 5GS FR2 and beam correspondence without UL beam sweeping | D005 |  | NOTE 1 |
| 6.2.2 | UE maximum output power reduction | FFS | FFS | FFS |  |  | NOTE 1  Skip TC 6.2.2 if UE supports NSA and TS 38.521-3 TC 6.2B.2.4 has been executed. |
| 6.2.3 | UE maximum output power with additional requirements | Rel-15 | C006 | UEs supporting 5GS FR2 | D005 |  | NOTE 1  Skip TC 6.2.3 if UE supports NSA and TS 38.521-3 TC 6.2B.3.4 has been executed. |
| 6.2A.1.1.1 | UE maximum output power - EIRP and TRP for CA (2UL CA) | FFS | FFS | FFS | FFS |  | NOTE 1  Skip TC 6.2A.1.1.1 if UE supports NSA and TS 38.521-3 TC 6.2B.1.4\_1.1.1 has been executed. |
| 6.2A.1.1.2 | UE maximum output power - EIRP and TRP for CA (3UL CA) | FFS | FFS | FFS | FFS |  | NOTE 1  Skip TC 6.2A.1.1.2 if UE supports NSA and TS 38.521-3 TC 6.2B.1.4\_1.2.1 has been executed. |
| 6.2A.1.1.3 | UE maximum output power - EIRP and TRP for CA (4UL CA) | FFS | FFS | FFS | FFS |  | NOTE 1  Skip TC 6.2A.1.1.3 if UE supports NSA and TS 38.521-3 TC 6.2B.1.4\_1.3.1 has been executed. |
| 6.3.1 | Minimum output power | Rel-15 | C006 | UEs supporting 5GS FR2 | D005 |  | NOTE 1  Skip TC 6.3.1 if UE supports NSA and TS 38.521-3 TC 6.3B.1.4 has been executed. |
| 6.3.2 | Transmit OFF power | FFS | FFS | FFS | FFS |  | NOTE 1 |
| 6.3.3.2 | General ON/OFF time mask | Rel-15 | C006 | UEs supporting 5GS FR2 | D005 |  | NOTE 1 |
| 6.3.3.4 | PRACH time mask | Rel-15 | C006 | UEs supporting 5GS FR2 | D005 |  | NOTE 1 |
| 6.3.4.2 | Absolute power tolerance | Rel-15 | C006 | UEs supporting 5GS FR2 | D005 |  | NOTE 1 |
| 6.3.4.3 | Relative power tolerance | Rel-15 | C006 | UEs supporting 5GS FR2 | D005 |  | NOTE 1 |
| 6.3.4.4 | Aggregate power tolerance | Rel-15 | C006 | UEs supporting 5GS FR2 | D005 |  | NOTE 1 |
| 6.3A.1.1 | Minimum output power for CA (2UL CA) | FFS | FFS | FFS | FFS |  | NOTE 1 |
| 6.3A.2.1 | Transmit OFF power for CA (2UL CA) | FFS | FFS | FFS | FFS |  | NOTE 1  Skip TC 6.3A.2.1 if UE supports NSA and TS 38.521-3 TC 6.3B.2.4\_1.1 has been executed. |
| 6.3A.2.2 | Transmit OFF power for CA (3UL CA) | FFS | FFS | FFS | FFS |  | NOTE 1  Skip TC 6.3A.2.2 if UE supports NSA and TS 38.521-3 TC 6.3B.2.4\_1.2 has been executed. |
| 6.3A.2.3 | Transmit OFF power for CA (4UL CA) | FFS | FFS | FFS | FFS |  | NOTE 1  Skip TC 6.3A.2.3 if UE supports NSA and TS 38.521-3 TC 6.3B.2.4\_1.3 has been executed. |
| 6.3D.3.4 | SRS time mask for UL-MIMO | FFS | FFS | FFS | FFS |  | NOTE 1 |
| 6.4.1 | Frequency error | Rel-15 | C006 | UEs supporting 5GS FR2 | D005 |  | Skip TC 6.4.1 if UE supports NSA and TS 38.521-3 TC 6.4B.1.4 has been executed. |
| 6.4.2.1 | Error vector magnitude | Rel-15 | C006 | UEs supporting 5GS FR2 | D005 |  | NOTE 1  Skip TC 6.4.2.1 if UE supports NSA and TS 38.521-3 TC 6.4B.2.4.1 has been executed. |
| 6.4.2.2 | Carrier leakage | Rel-15 | C006 | UEs supporting 5GS FR2 | D005 |  | NOTE 1  Skip TC 6.4.2.2 if UE supports NSA and TS 38.521-3 TC 6.4B.2.4.2 has been executed. |
| 6.4.2.3 | In-band emissions | Rel-15 | C006 | UEs supporting 5GS FR2 | D005 |  | NOTE 1  Skip TC 6.4.2.3 if UE supports NSA and TS 38.521-3 TC 6.4B.2.4.3 has been executed. |
| 6.4.2.4 | EVM equalizer spectrum flatness | Rel-15 | C006 | UEs supporting 5GS FR2 | D005 |  | NOTE 1  Skip TC 6.4.2.4 if UE supports NSA and TS 38.521-3 TC 6.4B.2.4.4 has been executed. |
| 6.4.2.5 | EVM spectral flatness for pi/2 BPSK modulation | Rel-15 | C006 | UEs supporting 5GS FR2 | D005 |  | NOTE 1 |
| 6.4A.1.1 | Frequency error for CA (2UL CA) | FFS | FFS | FFS | FFS |  | NOTE 1 |
| 6.4A.1.2 | Frequency error for CA (3UL CA) | FFS | FFS | FFS | FFS |  | NOTE 1 |
| 6.4A.1.3 | Frequency error for CA (4UL CA) | FFS | FFS | FFS | FFS |  | NOTE 1 |
| 6.4A.2.3.1 | In-band emissions for CA (2UL CA) | Rel-15 | FFS | UEs supporting 5GS FR2 CA (2UL CA) | FFS |  | NOTE 1 |
| 6.5.1 | Occupied bandwidth | Rel-15 | C006 | UEs supporting 5GS FR2 | D005 |  | NOTE 1  Skip TC 6.5.1 if UE supports NSA and TS 38.521-3 TC 6.5B.1.4 has been executed. |
| 6.5.2.1 | Spectrum Emission Mask | Rel-15 | C006 | UEs supporting 5GS FR2 | D005 |  | Skip TC 6.5.2.1 if UE supports NSA and TS 38.521-3 TC 6.5B.2.4.1 has been executed. |
| 6.5.2.3 | Adjacent channel leakage ratio | Rel-15 | C006 | UEs supporting 5GS FR2 | D005 |  | Skip TC 6.5.2.3 if UE supports NSA and TS 38.521-3 TC 6.5B.2.4.3 has been executed. |
| 6.5.3.1 | Transmitter Spurious emissions | Rel-15 | C006 | UEs supporting 5GS FR2 | D005 |  | Skip TC 6.5.3.1 if UE supports NSA and TS 38.521-3 TC 6.5B.3.4.1 has been executed. |
| 6.5.3.2 | Spurious emission band UE co-existence | FFS | FFS | FFS | FFS |  | NOTE 1 |
| 6.5A.1.1 | Occupied bandwidth for CA (2UL CA) | FFS | FFS | FFS | FFS |  | NOTE 1  Skip TC 6.5A.1.1 if UE supports NSA and TS 38.521-3 TC 6.5B.1.4\_1.1 has been executed. |
| 6.5A.1.2 | Occupied bandwidth for CA (3UL CA) | FFS | FFS | FFS | FFS |  | NOTE 1  Skip TC 6.5A.1.2 if UE supports NSA and TS 38.521-3 TC 6.5B.1.4\_1.2 has been executed. |
| 6.5A.1.3 | Occupied bandwidth for CA (4UL CA) | FFS | FFS | FFS | FFS |  | NOTE 1  Skip TC 6.5A.1.3 if UE supports NSA and TS 38.521-3 TC 6.5B.1.4\_1.3 has been executed. |
| 6.5A.2.1.1 | Spectrum Emission Mask for CA (2UL CA) | FFS | FFS | FFS | FFS |  | NOTE 1  Skip TC 6.5A.2.1.1 if UE supports NSA and TS 38.521-3 TC 6.5B.2.4.1\_1.1 has been executed. |
| 6.5A.2.1.2 | Spectrum Emission Mask for CA (3UL CA) | FFS | FFS | FFS | FFS |  | NOTE 1  Skip TC 6.5A.2.1.2 if UE supports NSA and TS 38.521-3 TC 6.5B.2.4.1\_1.2 has been executed. |
| 6.5A.2.1.3 | Spectrum Emission Mask for CA (4UL CA) | FFS | FFS | FFS | FFS |  | NOTE 1  Skip TC 6.5A.2.1.3 if UE supports NSA and TS 38.521-3 TC 6.5B.2.4.1\_1.3 has been executed. |
| 6.5A.2.2.1 | Adjacent channel leakage ratio for CA (2UL CA) | FFS | FFS | FFS | FFS |  | NOTE 1  Skip TC 6.5A.2.2.1 if UE supports NSA and TS 38.521-3 TC 6.5B.2.4.3\_1.1 has been executed. |
| 6.5A.2.2.2 | Adjacent channel leakage ratio for CA (3UL CA) | FFS | FFS | FFS | FFS |  | NOTE 1  Skip TC 6.5A.2.2.2 if UE supports NSA and TS 38.521-3 TC 6.5B.2.4.3\_1.2 has been executed. |
| 6.5A.2.2.3 | Adjacent channel leakage ratio for CA (4UL CA) | FFS | FFS | FFS | FFS |  | NOTE 1  Skip TC 6.5A.2.2.3 if UE supports NSA and TS 38.521-3 TC 6.5B.2.4.3\_1.3 has been executed. |
| 6.5A.3.1.1 | Transmitter Spurious emissions for CA (2UL CA) | FFS | FFS | FFS | FFS |  | NOTE 1  Skip TC 6.5A.3.1.1 if UE supports NSA and TS 38.521-3 TC 6.5B.3.4.1\_1.1 has been executed. |
| 6.5A.3.1.2 | Transmitter Spurious emissions for CA (3UL CA) | FFS | FFS | FFS | FFS |  | NOTE 1  Skip TC 6.5A.3.1.2 if UE supports NSA and TS 38.521-3 TC 6.5B.3.4.1\_1.2 has been executed. |
| 6.5A.3.1.3 | Transmitter Spurious emissions for CA (4UL CA) | FFS | FFS | FFS | FFS |  | NOTE 1  Skip TC 6.5A.3.1.3 if UE supports NSA and TS 38.521-3 TC 6.5B.3.4.1\_1.3 has been executed. |
| 6.6 | Beam correspondence | Rel-15 | C008 | UEs supporting 5GS FR2 and not beam correspondence without UL beam sweeping | D005 |  | NOTE 1 |
| **7** | **Receiver Characteristics** |  |  |  |  |  |  |
| 7.3.2 | Reference sensitivity power level | Rel-15 | C006 | UEs supporting 5GS FR2 | D005 |  | Skip TC 7.3.2 if UE supports NSA and TS 38.521-3 TC 7.3B.2.4 has been executed. |
| 7.3.4 | EIS spherical coverage | FFS | FFS | FFS | FFS |  | NOTE 1 |
| 7.4 | Maximum input level | Rel-15 | N/A | not recommended due to testability issues | N/A |  | NOTE 1 |
| 7.5 | Adjacent channel selectivity | Rel-15 | C006 | UEs supporting 5GS FR2 | D005 |  | NOTE 1  Skip TC 7.5 if UE supports NSA and TS 38.521-3 TC 7.5B.4.1 has been executed. |
| 7.6.2 | In-band Blocking | Rel-15 | C006 | UEs supporting 5GS FR2 | D005 |  | NOTE 1  Skip TC 7.6.2 if UE supports NSA and TS 38.521-3 TC 7.6B.2.4 has been executed. |
| 7.9 | Spurious emissions | Rel-15 | C006 | UEs supporting 5GS FR2 | D005 |  | Skip TC 7.9 if UE supports NSA and TS 38.521-3 TC 7.9B.4 has been executed. |
| NOTE 1: The test case/branch is incomplete for any Band/CA/DC Configuration but has basic test configurations already. NOTE 1 can be removed only when the test case/branch is complete for at least one Band / CA/DC Configuration for at least one feature included in the test case/branch. Detailed completion status can be found in the corresponding test case section in 38.521-2.  NOTE 2: Void.  NOTE 3: Void.  NOTE 4: Void. | | | | | | | |

Table 4.1.2-1a: Void

Table 4.1.2-1b: Void

Table 4.1.2-1c: Void

### 4.1.3 NR interworking between NR FR1 and NR FR2 and between NR and LTE conformance test cases

Table 4.1.3-1: Applicability of RF EN-DC FR1 and FR2 conformance test cases, ref. TS 38.521-3 [3]

| Clause | TC Title | Release | Applicability | | Tested Bands/CA/DC-Configurations Selection | Branch | Additional Information |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | Condition | Comment |  |  |  |
| **6** | **Transmitter Characteristics** |  |  |  |  |  |  |
| **6.2** | **Transmitter power** |  |  |  |  |  |  |
| **6.2B** | **Transmitter power for DC** |  |  |  |  |  |  |
| **6.2B.1** | **UE Maximum Output Power for EN-DC** |  |  |  |  |  |  |
| 6.2B.1.1 | UE Maximum Output Power for Intra-Band Contiguous EN-DC | Rel-15 | C009 | UEs supporting Intra-Band Contiguous EN-DC (2UL CCs) | E003 |  | NOTE 1 |
| 6.2B.1.2 | UE Maximum Output Power for Intra-Band Non-Contiguous EN-DC | Rel-15 | C010 | UEs supporting Intra-Band non-contiguous EN-DC (2UL CCs) | E004 |  | NOTE 1 |
| 6.2B.1.3 | UE Maximum Output Power for Inter-Band EN-DC within FR1 | Rel-15 | C011 | UEs supporting Inter-Band EN-DC within FR1 (2UL CCs) | E005 | PC3  PC2 |  |
| **6.2B.1.4** | **UE Maximum Output Power for Inter-Band EN-DC including FR2** |  |  |  |  |  |  |
| 6.2B.1.4.1 | UE Maximum Output Power for Inter-Band EN-DC including FR2 - EIRP and TRP | Rel-15 | C012 | UEs supporting Inter-Band EN-DC including FR2 (2UL CCs) | E010 |  | NOTE 5  Skip TC 6.2B.1.4.1 if UE supports SA and TSC 38.521-2 TC 6.2.1.1 has been executed. |
| 6.2B.1.4.2 | UE Maximum Output Power for Inter-Band EN-DC including FR2 - Spherical Coverage | Rel-15 | C012 | UEs supporting Inter-Band EN-DC including FR2 (2UL CCs) | E010 |  | NOTE 1 |
| **6.2B.1.4\_1** | **UE Maximum Output Power for Inter-Band EN-DC including FR2 (>2 CCs)** |  |  |  |  |  |  |
| **6.2B.1.4\_1.1** | **UE Maximum Output Power for Inter-Band EN-DC including FR2 (3 CCs)** |  |  |  |  |  |  |
| 6.2B.1.4\_1.1.1 | UE Maximum Output Power for Inter-Band EN-DC including FR2 (3 CCs) - EIRP and TRP | Rel-15 | FFS | FFS | FFS |  | NOTE 1  NOTE 5  Skip TC 6.2B.1.4\_1.1.1 if UE supports SA and TS 38.521-2 TC 6.2A.1.1.1 has been executed. |
| 6.2B.1.4\_1.1.2 | UE Maximum Output Power for Inter-Band EN-DC including FR2 (3 CCs) - Spherical Coverage | Rel-15 | FFS | FFS | FFS |  | NOTE 1 |
| **6.2B.1.4\_1.2** | **UE Maximum Output Power for Inter-Band EN-DC including FR2 (4 CCs)** |  |  |  |  |  |  |
| 6.2B.1.4\_1.2.1 | UE Maximum Output Power for Inter-Band EN-DC including FR2 (4 CCs) - EIRP and TRP | Rel-15 | FFS | FFS | FFS |  | NOTE 1  NOTE 5  Skip TC 6.2B.1.4\_1.2.1 if UE supports SA and TS 38.521-2 TC 6.2A.1.1.2 has been executed. |
| 6.2B.1.4\_1.2.2 | UE Maximum Output Power for Inter-Band EN-DC including FR2 (4 CCs) - Spherical Coverage | Rel-15 | FFS | FFS | FFS |  | NOTE 1 |
| **6.2B.1.4\_1.3** | **UE Maximum Output Power for Inter-Band EN-DC including FR2 (5 CCs)** |  |  |  |  |  |  |
| 6.2B.1.4\_1.3.1 | UE Maximum Output Power for Inter-Band EN-DC including FR2 (5 CCs) - EIRP and TRP | Rel-15 | FFS | FFS | FFS |  | NOTE 1  NOTE 5  Skip TC 6.2B.1.4\_1.3.1 if UE supports SA and TS 38.521-2 TC 6.2A.1.1.3 has been executed. |
| 6.2B.1.4\_1.3.2 | UE Maximum Output Power for Inter-Band EN-DC including FR2 (5 CCs) - Spherical Coverage | Rel-15 | FFS | FFS | FFS |  | NOTE 1 |
| **6.2B.2** | **UE Maximum Output Power reduction for EN-DC** |  |  |  |  |  |  |
| 6.2B.2.1 | UE Maximum Output Power reduction for Intra-Band Contiguous EN-DC | Rel-15 | C009z | UEs supporting Intra-Band Contiguous EN-DC (2UL CCs) and modified MPR behaviour | E003 |  |  |
| 6.2B.2.2 | UE Maximum Output Power reduction for Intra-Band Non-Contiguous EN-DC | Rel-15 | C010z | UEs supporting Intra-Band non-contiguous EN-DC (2UL CCs) and modified MPR behaviour | E004 |  |  |
| 6.2B.2.3 | UE Maximum Output Power reduction for Inter-Band EN-DC within FR1 | Rel-15 | C011z | UEs supporting Inter-Band EN-DC within FR1 (2UL CCs) and modified MPR behaviour | E005 | PC3  PC2 | NOTE 5  Skip TC 6.2B.2.3 if UE supports SA and TS 38.521-1 TC 6.2.2 has been executed. |
| 6.2B.2.4 | UE Maximum Output Power reduction for Inter-Band EN-DC including FR2 | Rel-15 | C012z | UEs supporting Inter-Band EN-DC including FR2 (2UL CCs) and modified MPR behaviour | E010 |  | NOTE 1  NOTE 5  Skip TC 6.2B.2.4 if UE supports SA and TS 38.521-2 TC 6.2.2 has been executed. |
| **6.2B.3** | **UE additional maximum output power reduction for EN-DC** |  |  |  |  |  |  |
| 6.2B.3.1 | UE Additional Maximum Output Power reduction for Intra-band contiguous EN-DC | Rel-15 | C009z | UEs supporting Intra-Band Contiguous EN-DC (2UL CCs) and modified MPR behaviour | E003 |  |  |
| 6.2B.3.2 | UE Additional Maximum Output Power reduction for Intra-Band Non-Contiguous EN-DC | Rel-15 | FFS | FFS | FFS |  | NOTE 1 |
| 6.2B.3.3 | UE additional Maximum Output power reduction for inter-band EN-DC within FR1 | Rel-15 | FFS | FFS | E005 | PC3  PC2 | NOTE 1  NOTE 5  Skip TC 6.2B.3.3 if UE supports SA and TS 38.521-1 TC 6.2.3 has been executed. |
| 6.2B.3.4 | UE Additional Maximum Output Power reduction for Inter-Band EN-DC including FR2 | Rel-15 | FFS | FFS | FFS |  | NOTE 1  NOTE 5  Skip TC 6.2B.3.4 if UE supports SA and TS 38.521-2 TC 6.2.3 has been executed. |
| **6.2B.4** | **Configured output power for EN-DC** |  |  |  |  |  |  |
| **6.2B.4.1** | **Configured output power level for EN-DC** |  |  |  |  |  |  |
| 6.2B.4.1.1 | Configured Output Power Level for Intra-Band Contiguous EN-DC | Rel-15 | C009 | UEs supporting Intra-Band Contiguous EN-DC (2UL CCs) | E003 |  | NOTE 1 |
| 6.2B.4.1.2 | Configured Output Power for Intra-Band Non-Contiguous EN-DC | Rel-15 | C010 | UEs supporting Intra-Band Non-Contiguous EN-DC (2UL CCs) | E004 |  | NOTE 1 |
| 6.2B.4.1.3 | Configured Output Power for Inter-Band EN-DC within FR1 | Rel-15 | C011 | UEs supporting Inter-Band EN-DC within FR1 (2UL CCs) | E005 |  | NOTE 1 |
| **6.3** | **Output power dynamics** |  |  |  |  |  |  |
| **6.3B** | **Output power dynamics for EN-DC** |  |  |  |  |  |  |
| **6.3B.1** | **Minimum Output Power for EN-DC** |  |  |  |  |  |  |
| 6.3B.1.1 | Minimum Output power for intra-band contiguous EN-DC | Rel-15 | C009 | UEs supporting intra-band contiguous EN-DC (2UL CCs) | E003 |  | NOTE 5  Skip TC 6.3B.1.1 if UE supports SA and TS 38.521-1 TC 6.3.1 has been executed. |
| 6.3B.1.2 | Minimum output power for intra-band non-contiguous EN-DC | Rel-15 | C010 | UEs supporting intra-band non-contiguous EN-DC (2UL CCs) | E004 |  | NOTE 5  Skip TC 6.3B.1.2 if UE supports SA and TS 38.521-1 TC 6.3.1 has been executed. |
| 6.3B.1.3 | Minimum output power for inter-band EN-DC within FR1 | Rel-15 | C011 | UEs supporting inter-band EN-DC within FR1 (2UL CCs) | E005 |  | NOTE 5  Skip TC 6.3B.1.3 if UE supports SA and TS 38.521-1 TC 6.3.1 has been executed. |
| 6.3B.1.4 | Minimum Output Power for EN-DC Interband including FR2 | Rel-15 | FFS | FFS | FFS |  | NOTE 1  NOTE 5  Skip TC 6.3B.1.4 if UE supports SA and TS 38.521-2 TC 6.3.1 has been executed. |
| **6.3B.2** | **Transmit OFF Power for EN-DC** |  |  |  |  |  |  |
| **6.3B.2.4\_1** | **Transmit OFF Power for inter-band EN-DC including FR2 (>2 CCs)** |  |  |  |  |  |  |
| 6.3B.2.4\_1.1 | Transmit OFF Power for inter-band EN-DC including FR2 (3 CCs) | Rel-15 | FFS | FFS | FFS |  | NOTE 1  NOTE 5  Skip TC 6.3B.2.4\_1.1 if UE supports SA and TS 38.521-2 TC 6.3A.2.1 has been executed. |
| 6.3B.2.4\_1.2 | Transmit OFF Power for inter-band EN-DC including FR2 (4 CCs) | Rel-15 | FFS | FFS | FFS |  | NOTE 1  NOTE 5  Skip TC 6.3B.2.4\_1.2 if UE supports SA and TS 38.521-2 TC 6.3A.2.2 has been executed. |
| 6.3B.2.4\_1.3 | Transmit OFF Power for inter-band EN-DC including FR2 (5 CCs) | Rel-15 | FFS | FFS | FFS |  | NOTE 1  NOTE 5  Skip TC 6.3B.2.4\_1.3 if UE supports SA and TS 38.521-2 TC 6.3A.2.3 has been executed. |
| **6.3B.3** | **Tx ON/OFF time mask for EN-DC** |  |  |  |  |  |  |
| 6.3B.3.1 | Tx ON/OFF time mask for intra-band contiguous EN-DC | Rel-15 | C009 | UEs supporting intra-band contiguous EN-DC (2UL CCs) | E003 |  | NOTE 5  Skip TC 6.3B.3.1 if UE supports SA and TS 38.521-1 TC 6.3.3.2 has been executed. |
| 6.3B.3.2 | Tx ON/OFF time mask for intra-band non-contiguous EN-DC | Rel-15 | C010 | UEs supporting intra-band non-contiguous EN-DC (2UL CCs) | E004 |  | NOTE 5  Skip TC 6.3B.3.2 if UE supports SA and TS 38.521-1 TC 6.3.3.2 has been executed. |
| 6.3B.3.3 | Tx ON/OFF time mask for inter-band EN-DC within FR1 | Rel-15 | C011 | UEs supporting inter-band EN-DC within FR1 (2UL CCs) | E005 |  | NOTE 5  Skip TC 6.3B.3.3 if UE supports SA and TS 38.521-1 TC 6.3.3.2 has been executed. |
| 6.3B.3.4 | Tx ON/OFF time mask for inter-band EN-DC including FR2 | Rel-15 | FFS | FFS | FFS |  | NOTE 1 |
| **6.3B.4** | **PRACH Time Mask** |  |  |  |  |  |  |
| 6.3B.4.1 | PRACH time mask for intra-band contiguous EN-DC | Rel-15 | C009 | UEs supporting intra-band contiguous EN-DC (2UL CCs) | E003 |  | NOTE 5  Skip TC 6.3B.4.1 if UE supports SA and TS 38.521-1 TC 6.3.3.4 has been executed. |
| 6.3B.4.2 | PRACH Time Mask for intra-band non-contiguous EN-DC | Rel-15 | C010 | UEs supporting intra-band non-contiguous EN-DC (2UL CCs) | E004 |  | NOTE 5  Skip TC 6.3B.4.2 if UE supports SA and TS 38.521-1 TC 6.3.3.4 has been executed. |
| 6.3B.4.3 | PRACH Time Mask for inter-band EN-DC within FR1 | Rel-15 | C011 | UEs supporting inter-band EN-DC within FR1 (2UL CCs) | E005 |  | NOTE 5  Skip TC 6.3B.4.3 if UE supports SA and TS 38.521-1 TC 6.3.3.4 has been executed. |
| **6.3B.8** | **Power control for EN-DC** |  |  |  |  |  |  |
| **6.3B.8.1** | **Absolute power tolerance for EN-DC** |  |  |  |  |  |  |
| 6.3B.8.1.1 | Absolute Power Tolerance for intra-band contiguous EN-DC | Rel-15 | C009 | UEs supporting intra-band contiguous EN-DC (2 UL CCs) | E003 |  | NOTE 5  Skip TC 6.3B.8.1.1 if UE supports SA and TS 38.521-1 TC 6.3.4.2 has been executed. |
| 6.3B.8.1.2 | Absolute Power Tolerance for intra-band non-contiguous EN-DC | Rel-15 | C010 | UEs supporting intra-band non-contiguous EN-DC (2 UL CCs) | E004 |  | NOTE 5  Skip TC 6.3B.8.1.2 if UE supports SA and TS 38.521-1 TC 6.3.4.2 has been executed. |
| 6.3B.8.1.3 | Absolute Power Tolerance for inter-band EN-DC within FR1 | Rel-15 | C011 | UEs supporting inter-band EN-DC within FR1 (2 UL CCs) | E005 |  | NOTE 5  Skip TC 6.3B.8.1.3 if UE supports SA and TS 38.521-1 TC 6.3.4.2 has been executed. |
| 6.3B.8.1.4 | Absolute Power Tolerance for inter-band EN-DC including FR2 | Rel-15 | FFS | FFS | FFS |  | NOTE 1 |
| **6.3B.8.2** | **Relative power tolerance for EN-DC** |  |  |  |  |  |  |
| 6.3B.8.2.1 | Relative Power Tolerance for intra-band contiguous EN-DC | Rel-15 | C009 | UEs supporting intra-band contiguous EN-DC (2 UL CCs) | E003 |  | NOTE 5  Skip TC 6.3B.8.2.1 if UE supports SA and TS 38.521-1 TC 6.3.4.3 has been executed. |
| 6.3B.8.2.2 | Relative Power Tolerance for intra-band non-contiguous EN-DC | Rel-15 | C010 | UEs supporting intra-band non-contiguous EN-DC (2 UL CCs) | E004 |  | NOTE 5  Skip TC 6.3B.8.2.2 if UE supports SA and TS 38.521-1 TC 6.3.4.3 has been executed. |
| 6.3B.8.2.3 | Relative Power Tolerance for inter-band EN-DC within FR1 | Rel-15 | C011 | UEs supporting inter-band EN-DC within FR1 (2 UL CCs) | E005 |  | NOTE 5  Skip TC 6.3B.8.2.3 if UE supports SA and TS 38.521-1 TC 6.3.4.3 has been executed. |
| 6.3B.8.2.4 | Relative Power Tolerance for inter-band EN-DC including FR2 | Rel-15 | FFS | FFS | FFS |  | NOTE 1 |
| **6.3B.8.1** | **Aggregate power tolerance for EN-DC** |  |  |  |  |  |  |
| 6.3B.8.3.1 | Aggregate Power Tolerance for intra-band contiguous EN-DC | Rel-15 | C009 | UEs supporting intra-band contiguous EN-DC (2 UL CCs) | E003 |  | NOTE 5  Skip TC 6.3B.8.3.1 if UE supports SA and TS 38.521-1 TC 6.3.4.4 has been executed. |
| 6.3B.8.3.2 | Aggregate Power Tolerance for intra-band non-contiguous EN-DC | Rel-15 | C010 | UEs supporting intra-band non-contiguous EN-DC (2 UL CCs) | E004 |  | NOTE 5  Skip TC 6.3B.8.3.2 if UE supports SA and TS 38.521-1 TC 6.3.4.4 has been executed. |
| 6.3B.8.3.3 | Aggregate Power Tolerance for inter-band EN-DC within FR1 | Rel-15 | C011 | UEs supporting inter-band EN-DC within FR1 (2 UL CCs) | E005 |  | NOTE 5  Skip TC 6.3B.8.3.3 if UE supports SA and TS 38.521-1 TC 6.3.4.4 has been executed. |
| 6.3B.8.3.4 | Aggregate Power Tolerance for inter-band EN-DC including FR2 | Rel-15 | FFS | FFS | FFS |  | NOTE 1 |
| **6.4** | **Transmit signal quality** |  |  |  |  |  |  |
| **6.4B** | **Transmit Signal Quality for EN-DC** |  |  |  |  |  |  |
| **6.4B.1** | **Frequency Error for EN-DC** |  |  |  |  |  |  |
| 6.4B.1.1 | Frequency Error for intra-band contiguous EN-DC | Rel-15 | C009 | UEs supporting Intra-Band Contiguous EN-DC (2UL CCs) | E003 |  | NOTE 5  Skip TC 6.4B.1.1 if UE supports SA and TS 38.521-1 TC 6.4.1 has been executed. |
| 6.4B.1.2 | Frequency Error for intra-band non-contiguous EN-DC | Rel-15 | C010 | UEs supporting intra-band non-contiguous EN-DC (2UL CCs) | E004 |  | NOTE 5  Skip TC 6.4B.1.2 if UE supports SA and TS 38.521-1 TC 6.4.1 has been executed. |
| 6.4B.1.3 | Frequency error for Inter-band EN-DC within FR1 | Rel-15 | FFS | FFS | FFS |  | NOTE 1  NOTE 5  Skip TC 6.4B.1.3 if UE supports SA and TS 38.521-1 TC 6.4.1 has been executed. |
| 6.4B.1.4 | Frequency Error for inter-band EN-DC including FR2 | Rel-15 | C012 | UEs supporting Inter-Band EN-DC including FR2 (2UL CCs) | E010 |  | NOTE 5  Skip TC 6.4B.1.4 if UE supports SA and TS 38.521-2 TC 6.4.1 has been executed. |
| **6.4B.1.4\_1** | **Frequency Error for inter-band EN-DC including FR2 (>2 CCs)** |  |  |  |  |  |  |
| 6.4B.1.4\_1.1 | Frequency Error for inter-band EN-DC including FR2 (3 CCs) | Rel-15 | C012b | UEs supporting Inter-Band EN-DC including FR2 with 3 UL CCs (2NR UL CCs) | E011 |  | NOTE 1  NOTE 5 |
| 6.4B.1.4\_1.2 | Frequency Error for inter-band EN-DC including FR2 (4 CCs) | Rel-15 | C012c | UEs supporting Inter-Band EN-DC including FR2 with 4 UL CCs (3NR UL CCs) | E012 |  | NOTE 1  NOTE 5 |
| 6.4B.1.4\_1.3 | Frequency Error for inter-band EN-DC including FR2 (5 CCs) | Rel-15 | C012d | UEs supporting Inter-Band EN-DC including FR2 with 5 UL CCs (4NR UL CCs) | E013 |  | NOTE 1  NOTE 5 |
| **6.4B.2** | **Transmit Modulation Quality EN-DC** |  |  |  |  |  |  |
| **6.4B.2.1** | **Transmit Modulation Quality for intra-band contiguous EN-DC** |  |  |  |  |  |  |
| 6.4B.2.1.1 | Error Vector Magnitude for intra-band contiguous EN-DC | Rel-15 | C009 | UEs supporting intra-band contiguous EN-DC (2UL CCs) | E003 |  | NOTE 5  Skip TC 6.4B.2.1.1 if UE supports SA and TS 38.521-1 TC 6.4.2.1 has been executed. |
| 6.4B.2.1.2 | Carrier Leakage for intra-band contiguous EN-DC | Rel-15 | C009 | UEs supporting intra-band contiguous EN-DC (2UL CCs) | E003 |  | NOTE 5  Skip TC 6.4B.2.1.2 if UE supports SA and TS 38.521-1 TC 6.4.2.2 has been executed. |
| 6.4B.2.1.3 | In-band Emissions for intra-band contiguous EN-DC | Rel-15 | C009 | UEs supporting intra-band contiguous EN-DC (2UL CCs) | E003 |  |  |
| 6.4B.2.1.4 | EVM Equalizer Flatness for intra-band contiguous EN-DC | Rel-15 | C009 | UEs supporting intra-band contiguous EN-DC (2UL CCs) | E003 |  | NOTE 5  Skip TC 6.4B.2.1.4 if UE supports SA and TS 38.521-1 TC 6.4.2.4 has been executed. |
| **6.4B.2.2** | **Transmit Modulation Quality for intra-band non-contiguous EN-DC** |  |  |  |  |  |  |
| 6.4B.2.2.1 | Error Vector Magnitude for intra-band non-contiguous EN-DC | Rel-15 | C010 | UEs supporting intra-band non-contiguous EN-DC (2UL CCs) | E004 |  | NOTE 5  Skip TC 6.4B.2.2.1 if UE supports SA and TS 38.521-1 TC 6.4.2.1 has been executed. |
| 6.4B.2.2.2 | Carrier Leakage for intra-band non-contiguous EN-DC | Rel-15 | C010 | UEs supporting intra-band non-contiguous EN-DC (2UL CCs) | E004 |  | NOTE 5  Skip TC 6.4B.2.2.2 if UE supports SA and TS 38.521-1 TC 6.4.2.2has been executed. |
| 6.4B.2.2.3 | In-band Emissions for intra-band non-contiguous EN-DC | Rel-15 | C010 | UEs supporting intra-band non-contiguous EN-DC (2UL CCs) | E004 |  | NOTE 5  Skip TC 6.4B.2.2.3 if UE supports SA and TS 38.521-1 TC 6.4.2.3 has been executed. |
| 6.4B.2.2.4 | EVM Equalizer Flatness for intra-band non-contiguous EN-DC | Rel-15 | C010 | UEs supporting intra-band non-contiguous EN-DC (2UL CCs) | E004 |  | NOTE 5  Skip TC 6.4B.2.2.4 if UE supports SA and TS 38.521-1 TC 6.4.2.4 has been executed. |
| **6.4B.2.3** | **Transmit Modulation Quality for inter-band EN-DC within FR1** |  |  |  |  |  |  |
| 6.4B.2.3.1 | Error Vector Magnitude for inter-band EN-DC within FR1 | Rel-15 | C011 | UEs supporting inter-band EN-DC within FR1 (2UL CCs) | E005 |  | NOTE 5  Skip TC 6.4B.2.3.1 if UE supports SA and TS 38.521-1 TC 6.4.2.1 has been executed. |
| 6.4B.2.3.2 | Carrier Leakage for inter-band EN-DC within FR1 | Rel-15 | C011 | UEs supporting inter-band EN-DC within FR1 (2UL CCs) | E005 |  | NOTE 5  Skip TC 6.4B.2.3.2 if UE supports SA and TS 38.521-1 TC 6.4.2.2 has been executed. |
| 6.4B.2.3.3 | In-band Emissions for inter-band EN-DC within FR1 | Rel-15 | C011 | UEs supporting inter-band EN-DC within FR1 (2UL CCs) | E005 |  | NOTE 5  Skip TC 6.4B.2.3.3 if UE supports SA and TS 38.521-1 TC 6.4.2.3 has been executed. |
| 6.4B.2.3.4 | EVM Equalizer Flatness for inter-band EN-DC within FR1 | Rel-15 | C011 | UEs supporting inter-band EN-DC within FR1 (2UL CCs) | E005 |  | NOTE 5  Skip TC 6.4B.2.3.4 if UE supports SA and TS 38.521-1 TC 6.4.2.4 has been executed. |
| **6.4B.2.4** | **Transmit Modulation Quality for inter-band EN-DC including FR2** |  |  |  |  |  |  |
| 6.4B.2.4.1 | Error Vector Magnitude for inter-band EN-DC including FR2 | Rel-15 | C012 | UEs supporting Inter-band including FR2 (2UL CCs) | E010 |  | NOTE 1  NOTE 5  Skip TC 6.4B.2.4.1 if UE supports SA and TS 38.521-2 TC 6.4.2.1 has been executed. |
| 6.4B.2.4.2 | Carrier Leakage for inter-band EN-DC including FR2 | Rel-15 | C012 | UEs supporting Inter-band including FR2 (2UL CCs) | E010 |  | NOTE 1  NOTE 5  Skip TC 6.4B.2.4.2 if UE supports SA and TS 38.521-2 TC 6.4.2.2 has been executed. |
| 6.4B.2.4.3 | In-band Emissions for inter-band EN-DC including FR2 | Rel-15 | C012 | UEs supporting Inter-band including FR2 (2UL CCs) | E010 |  | NOTE 1  NOTE 5  Skip TC 6.4B.2.4.3 if UE supports SA and TS 38.521-2 TC 6.4.2.3 has been executed. |
| 6.4B.2.4.4 | EVM Equalizer Flatness for inter-band EN-DC including FR2 | Rel-15 | C012 | UEs supporting Inter-band including FR2 (2UL CCs) | E010 |  | NOTE 1  NOTE 5  Skip TC 6.4B.2.4.4 if UE supports SA and TS 38.521-2 TC 6.4.2.4 has been executed. |
| **6.5B** | **Output RF spectrum emissions for EN-DC** |  |  |  |  |  |  |
| **6.5B.1** | **Occupied bandwidth for EN-DC** |  |  |  |  |  |  |
| 6.5B.1.1 | Occupied bandwidth for Intra-Band Contiguous EN-DC | Rel-15 | C009 | UEs supporting intra-band contiguous EN-DC (2UL CCs) | E003 |  | NOTE 1 |
| 6.5B.1.2 | Occupied bandwidth for Intra-Band Non-Contiguous EN-DC | Rel-15 | C010 | UEs supporting intra-band non-contiguous EN-DC (2UL CCs) | E004 |  | NOTE 1  NOTE 5  Skip TC6.5B.1.2 if UE supports SA and TS 38.521-1 TC 6.5.1 has been executed. |
| 6.5B.1.3 | Occupied bandwidth for Inter-Band EN-DC within FR1 | Rel-15 | C011 | UEs supporting inter-band EN-DC within FR1 (2UL CCs) | E005 |  | NOTE 5  Skip TC6.5B.1.3 if UE supports SA and TS 38.521-1 TC 6.5.1 has been executed. |
| 6.5B.1.4 | Occupied bandwidth for Inter-Band EN-DC including FR2 | Rel-15 | C012 | UEs supporting Inter-band including FR2 (2UL CCs) | E010 |  | NOTE 1  NOTE 5  Skip TC 6.5B.1.4 if UE supports SA and TS 38.521-2 TC 6.5.1 has been executed. |
| **6.5B.1.4\_1** | **Occupied bandwidth for inter-band EN-DC including FR2 (>2 CCs)** |  |  |  |  |  |  |
| 6.5B.1.4\_1.1 | Occupied bandwidth for inter-band EN-DC including FR2 (3 CCs) | Rel-15 | FFS | FFS | FFS |  | NOTE 1  NOTE 5  Skip TC 6.5B.1.4\_1.1 if UE supports SA and TS 38.521-2 TC 6.5A.1.1 has been executed. |
| 6.5B.1.4\_1.2 | Occupied bandwidth for inter-band EN-DC including FR2 (4 CCs) | Rel-15 | FFS | FFS | FFS |  | NOTE 1  NOTE 5  Skip TC 6.5B.1.4\_1.2 if UE supports SA and TS 38.521-2 TC 6.5A.1.2 has been executed. |
| 6.5B.1.4\_1.3 | Occupied bandwidth for inter-band EN-DC including FR2 (5 CCs) | Rel-15 | FFS | FFS | FFS |  | NOTE 1  NOTE 5  Skip TC 6.5B.1.4\_1.3 if UE supports SA and TS 38.521-2 TC 6.5A.1.3 has been executed. |
| **6.5B.2** | **Out of Band emissions for EN-DC** |  |  |  |  |  |  |
| **6.5B.2.1** | **Out of Band Emissions for intra-band contiguous EN-DC** |  |  |  |  |  |  |
| 6.5B.2.1.1 | Spectrum emissions mask for intra-band contiguous EN-DC | Rel-15 | C009 | UEs supporting intra-band contiguous EN-DC (2UL CCs) | E003 |  |  |
| 6.5B.2.1.2 | Additional spectrum emissions mask for intra-band contiguous EN-DC | Rel-15 | C009 | UEs supporting intra-band contiguous EN-DC (2UL CCs) | E003 |  |  |
| 6.5B.2.1.3 | Adjacent channel leakage ratio for intra-band contiguous EN-DC | Rel-15 | C009 | UEs supporting intra-band contiguous EN-DC (2UL CCs) | E003 |  |  |
| **6.5B.2.2** | **Out-of-band emissions for Intra-band non-contiguous EN-DC** |  |  |  |  |  |  |
| 6.5B.2.2.1 | Spectrum emissions mask for intra-band non-contiguous EN-DC | Rel-15 | C010 | UEs supporting intra-band non-contiguous EN-DC (2UL CCs) | E004 |  | NOTE 1  NOTE 5  Skip TC 6.5B.2.2.1 if UE supports SA and TS 38.521-1 TC 6.5.2.2 has been executed. |
| 6.5B.2.2.3 | Adjacent channel leakage ratio for intra-band non-contiguous EN-DC | Rel-15 | C010 | UEs supporting intra-band non-contiguous EN-DC (2UL CCs) | E004 |  | NOTE 1  NOTE 5  Skip TC 6.5B.2.2.3 if UE supports SA and TS 38.521-1 TC 6.5.2.4.1 has been executed. |
| **6.5B.2.3** | **Out-of-band emissions for Inter-band EN-DC within FR1** |  |  |  |  |  |  |
| 6.5B.2.3.1 | Spectrum emissions mask for Inter-band EN-DC within FR1 | Rel-15 | C011 | UEs supporting Inter-band EN-DC within FR1 (2UL CCs) | E005 |  | NOTE 5  Skip TC 6.5B.2.3.1 if UE supports SA and TS 38.521-1 6.5.2.2 has been executed. |
| 6.5B.2.3.2 | Additional Spectrum emissions mask for Inter-band EN-DC within FR1 | Rel-15 | FFS | FFS | FFS |  | NOTE 1  NOTE 5  Skip TC 6.5B.2.3.2 if UE supports SA and TS 38.521-1 6.5.2.2 has been executed. |
| 6.5B.2.3.3 | Adjacent channel leakage ratio for inter-band EN-DC within FR1 | Rel-15 | C011 | UEs supporting Inter-band EN-DC within FR1 (2UL CCs) | E005 |  | NOTE 5  Skip TC 6.5B.2.3.3 if UE supports SA and TS 38.521-1 6.5.2.4.1 has been executed. |
| **6.5B.2.4** | **Out-of-band emissions for Inter-band EN-DC including FR2** |  |  |  |  |  |  |
| 6.5B.2.4.1 | Spectrum emissions mask for Inter-band EN-DC including FR2 | Rel-15 | C012 | UEs supporting Inter-band including FR2 (2UL CCs) | E010 |  | NOTE 5  Skip TC 6.5B.2.4.1 if UE supports SA and TS 38.521-2 TC 6.5.2.1 has been executed. |
| **6.5B.2.4.1\_1** | **Spectrum emissions mask for Inter-band EN-DC including FR2 (>2 CCs)** |  |  |  |  |  |  |
| 6.5B.2.4.1\_1.1 | Spectrum emissions mask for Inter-band EN-DC including FR2 (3 CCs) | Rel-15 | FFS | FFS | FFS |  | NOTE 1  NOTE 5  Skip TC 6.5B.2.4.1\_1.1 if UE supports SA and TS 38.521-2 TC 6.5A.2.1.1 has been executed. |
| 6.5B.2.4.1\_1.2 | Spectrum emissions mask for Inter-band EN-DC including FR2 (4 CCs) | Rel-15 | FFS | FFS | FFS |  | NOTE 1  NOTE 5  Skip TC 6.5B.2.4.1\_1.2 if UE supports SA and TS 38.521-2 TC 6.5A.2.1.2 has been executed. |
| 6.5B.2.4.1\_1.3 | Spectrum emissions mask for Inter-band EN-DC including FR2 (5 CCs) | Rel-15 | FFS | FFS | FFS |  | NOTE 1  NOTE 5  Skip TC 6.5B.2.4.1\_1.3 if UE supports SA and TS 38.521-2 TC 6.5A.2.1.3 has been executed. |
| 6.5B.2.4.3 | Adjacent channel leakage ratio for Inter-band EN-DC including FR2 (2 CCs) | Rel-15 | C012 | UEs supporting Inter-band including FR2 (2UL CCs) | E010 |  | NOTE 1  NOTE 5  Skip TC 6.5B.2.4.3 if UE supports SA and TS 38.521-2 TC 6.5.2.3 has been executed. |
| **6.5B.2.4.3\_1** | **Adjacent channel leakage ratio for Inter-band EN-DC including FR2 (>2 CCs)** |  |  |  |  |  |  |
| 6.5B.2.4.3\_1.1 | Adjacent channel leakage ratio for Inter-band EN-DC including FR2 (3 CCs) | Rel-15 | FFS | FFS | FFS |  | NOTE 1  NOTE 5  Skip TC 6.5B.2.4.3\_1.1 if UE supports SA and TS 38.521-2 TC 6.5A.2.2.1 has been executed. |
| 6.5B.2.4.3\_1.2 | Adjacent channel leakage ratio for Inter-band EN-DC including FR2 (4 CCs) | Rel-15 | FFS | FFS | FFS |  | NOTE 1  NOTE 5  Skip TC 6.5B.2.4.3\_1.2 if UE supports SA and TS 38.521-2 TC 6.5A.2.2.2 has been executed. |
| 6.5B.2.4.3\_1.3 | Adjacent channel leakage ratio for Inter-band EN-DC including FR2 (5 CCs) | Rel-15 | FFS | FFS | FFS |  | NOTE 1  NOTE 5  Skip TC 6.5B.2.4.3\_1.3 if UE supports SA and TS 38.521-2 TC 6.5A.2.2.3 has been executed. |
| **6.5B.3** | **Spurious emissions for EN-DC** |  |  |  |  |  |  |
| **6.5B.3.1** | **Spurious Emissions for intra-band contiguous EN-DC** |  |  |  |  |  |  |
| 6.5B.3.1.1 | General spurious emissions for intra-band contiguous EN-DC | Rel-15 | C009 | UEs supporting intra-band contiguous EN-DC (2UL CCs) | E003 |  | NOTE 5  Skip TC 6.5B.3.1.1 if UE supports SA and TS 38.521-1 TC 6.5.3.1 has been executed. |
| 6.5B.3.1.2 | Spurious emission band UE co-existence for intra-band contiguous EN-DC | Rel-15 | C009 | UEs supporting intra-band contiguous EN-DC (2UL CCs) | E003 |  |  |
| **6.5B.3.2** | **Spurious Emissions for intra-band non-contiguous EN-DC** |  |  |  |  |  |  |
| 6.5B.3.2.1 | General spurious emissions for intra-band non-contiguous EN-DC | Rel-15 | C010 | UEs supporting intra-band non-contiguous EN-DC (2UL CCs) | E004 |  | NOTE 5  Skip TC 6.5B.3.2.1 if UE supports SA and TS 38.521-1 TC 6.5.3.1 has been executed. |
| 6.5B.3.2.2 | Spurious emission band UE co-existence for intra-band non-contiguous EN-DC | Rel-15 | FFS | FFS | FFS |  | NOTE 1 |
| **6.5B.3.3** | **Spurious emissions for Inter-band EN-DC within FR1** |  |  |  |  |  |  |
| 6.5B.3.3.1 | General spurious emissions for Inter-band EN-DC within FR1 | Rel-15 | C011 | UEs supporting Inter-band EN-DC within FR1 (2UL CCs) | E005 |  |  |
| 6.5B.3.3.2 | Spurious emission band UE co-existence for Inter-band within FR1 | Rel-15 | C011 | UEs supporting Inter-band EN-DC within FR1 (2UL CCs) | E005 |  |  |
| **6.5B.3.4** | **Spurious emissions for Inter-band including FR2** |  |  |  |  |  |  |
| 6.5B.3.4.1 | General Spurious Emissions for Inter-band including FR2 | Rel-15 | C012 | UEs supporting Inter-band including FR2 (2UL CCs) | E010 |  | NOTE 1  NOTE 5  Skip TC 6.5B.3.4.1 if UE supports SA and TS 38.521-2 TC 6.5.3.1 has been executed. |
| **6.5B.3.4.1\_1** | **General Spurious Emissions for Inter-band including FR2 (>2 CCs)** |  |  |  |  |  |  |
| 6.5B.3.4.1\_1.1 | General Spurious Emissions for Inter-band including FR2 (3 CCs) | Rel-15 | FFS | FFS | FFS |  | NOTE 1  NOTE 5  Skip TC 6.5B.3.4.1\_1.1 if UE supports SA and TS 38.521-2 TC 6.5A.3.1.1 has been executed. |
| 6.5B.3.4.1\_1.2 | General Spurious Emissions for Inter-band including FR2 (4 CCs) | Rel-15 | FFS | FFS | FFS |  | NOTE 1  NOTE 5  Skip TC 6.5B.3.4.1\_1.2 if UE supports SA and TS 38.521-2 TC 6.5A.3.1.2 has been executed. |
| 6.5B.3.4.1\_1.3 | General Spurious Emissions for Inter-band including FR2 (5 CCs) | Rel-15 | FFS | FFS | FFS |  | NOTE 1  NOTE 5  Skip TC 6.5B.3.4.1\_1.3 if UE supports SA and TS 38.521-2 TC 6.5A.3.1.3 has been executed. |
| 6.5B.3.4.2 | Spurious emission band UE co-existence for Inter-band including FR2 | Rel-15 | C012 | UEs supporting Inter-band including FR2 (2UL CCs) | E010 |  | NOTE 1 |
| **6.5B.4** | **Additional Spurious Emissions** |  |  |  |  |  |  |
| 6.5B.4.1 | Additional Spurious Emissions for Intra-band contiguous EN-DC | Rel-15 | C009 | UEs supporting intra-band contiguous EN-DC (2UL CCs) | E003 |  |  |
| 6.5B.4.2 | Additional Spurious Emissions for Intra-band non-contiguous EN-DC | Rel-15 | C010 | UEs supporting intra-band non-contiguous EN-DC (2UL CCs) | E004 |  | NOTE 1 |
| 6.5B.4.3 | Additional Spurious Emissions for Inter-band EN-DC | Rel-15 | C011 | UEs supporting inter-band EN-DC within FR1 (2UL CCs) | E005 |  | NOTE 5  Skip TC 6.5B.4.3 if UE supports SA and TC 38.521-1 TC 6.5.3.3 has been executed. |
| **6.5B.5** | **Transmit Intermodulation** |  |  |  |  |  |  |
| 6.5B.5.3 | Transmit Intermodulation for Inter-band EN-DC within FR1 | Rel-15 | C011 | UEs supporting Inter-band EN-DC within FR1 (2UL CCs) | E005 |  | NOTE 5  Skip TC 6.5B.5.3 if UE supports SA and TC 38.521-1 TC 6.5.4 has been executed. |
| **7** | **Receiver Characteristics** |  |  |  |  |  |  |
| **7.3** | **Reference sensitivity** |  |  |  |  |  |  |
| **7.3A** | **Reference sensitivity for CA without EN-DC** |  |  |  |  |  |  |
| **7.3B** | **Reference sensitivity level for DC** |  |  |  |  |  |  |
| **7.3B.2** | **Reference Sensitivity for EN-DC** |  |  |  |  |  |  |
| 7.3B.2.1 | Reference sensitivity for intra-band contiguous EN-DC (2 CCs) | Rel-15 | C009a | UEs supporting intra-band contiguous EN-DC (2DL CCs) | E003a |  |  |
| 7.3B.2.2 | Reference sensitivity for Intra-band non-contiguous EN-DC (2 CCs) | Rel-15 | C010a | UEs supporting intra-band non-contiguous EN-DC (2DL CCs) | E004a |  | NOTE 5  Skip TC 7.3B.2.2 if UE supports SA and TS 38.521-1 TC 7.3.2 has been executed. |
| 7.3B.2.3 | Reference sensitivity for Inter-band EN-DC within FR1 | Rel-15 | C011a | UEs supporting inter-band EN-DC within FR1 (2DL CCs) | E005a |  |  |
| **7.3B.2.3\_1** | **Reference sensitivity for EN-DC within FR1 (>2 CCs)** |  |  |  |  |  |  |
| 7.3B.2.3\_1.1 | Reference sensitivity for EN-DC within FR1 (3 CCs) | Rel-15 | FFS | FFS | FFS |  |  |
| 7.3B.2.4 | Reference sensitivity for Inter-band EN-DC including FR2 (2 CCs) | Rel-15 | C012a | UEs supporting inter-band EN-DC including FR2 (2DL CCs) | E010a |  | NOTE 5  Skip TC 7.3B.2.4 if UE supports SA and TS 38.521-2 TC 7.3.2 has been executed. |
| **7.3B.2.4\_1** | **Reference sensitivity for Inter-band EN-DC including FR2 (>2 CCs)** |  |  |  |  |  |  |
| 7.3B.2.4\_1.1 | Reference sensitivity for Inter-band EN-DC including FR2 (3 CCs) | Rel-15 | C012e | UEs supporting inter-band EN-DC including FR2 with 3 DL CCs (2NR DL CCs) | E011a |  | NOTE 5  Skip TC 7.3B.2.4\_1.1 if UE supports SA and TS 38.521-2 TC 7.3A.2.1 has been executed. |
| **7.4** | **Maximum Input Level** |  |  |  |  |  |  |
| **7.4B** | **Maximum Input Level for EN-DC** |  |  |  |  |  |  |
| 7.4B.1 | Maximum Input Level for Intra-Band Contiguous EN-DC (2 CCs) | Rel-15 | C009a | UEs supporting Intra-Band Contiguous EN-DC (2DL CCs) | E003a |  |  |
| 7.4B.2 | Maximum Input Level for Intra-Band Non-Contiguous EN-DC (2 CCs) | Rel-15 | C010a | UEs supporting Intra-Band Non-Contiguous EN-DC (2DL CCs) | E004a |  |  |
| 7.4B.3 | Maximum Input Level for Inter-band EN-DC within FR1 | Rel-15 | C011a | UEs supporting Inter-band EN-DC within FR1 (2DL CCs) | E005a |  | NOTE 5  Skip TC 7.4B.3 if UE supports SA and TS 38.521-1 TC 7.4 has been executed. |
| 7.4B.4 | Maximum Input Level for inter-band EN-DC including FR2 (2 CCs) | Rel-15 | C012a | UEs supporting Inter-band including FR2 (2DL CCs) | E010a |  | NOTE 1  NOTE 5  Skip TC 7.4B.4 if UE supports SA and TS 38.521-1 7.4 has been executed. |
| 7.5B.1 | Adjacent Channel Selectivity for intra-band contiguous EN-DC (2 CCs) | Rel-15 | C009a | UEs supporting intra-band contiguous EN-DC (2DL CCs) | E003a |  | NOTE 1 |
| 7.5B.2 | Adjacent Channel Selectivity for intra-band non-contiguous EN-DC (2 CCs) | Rel-15 | C010a | UEs supporting intra-band non-contiguous EN-DC (2DL CCs) | E004a |  | NOTE 5  Skip TC 7.5B.2 if UE supports SA and TS 38.521-1 TC 7.5 has been executed. |
| 7.5B.3 | Adjacent Channel Selectivity for inter-band EN-DC within FR1 (2 CCs) | Rel-15 | C011a | UEs supporting inter-band EN-DC within FR1 (2DL CCs) | E005a |  | NOTE 5  Skip TC 7.5B.3 if UE supports SA and TS 38.521-1 TC 7.5 has been executed. |
| **7.5B.4** | **Adjacent Channel Selectivity for inter-band EN-DC including FR2** |  |  |  |  |  |  |
| 7.5B.4.1 | Adjacent Channel Selectivity for inter-band EN-DC including FR2 (2 CCs) | Rel-15 | FFS | FFS | FFS |  | NOTE 1  NOTE 5  Skip TC 7.5B.4 if UE supports SA and TS 38.521-2 TC 7.5 has been executed. |
| **7.5B.4\_1** | **Adjacent Channel Selectivity for inter-band EN-DC including FR2 (>2 CCs)** |  |  |  |  |  |  |
| 7.5B.4\_1.1 | Adjacent Channel Selectivity for inter-band EN-DC including FR2 (3 CCs) | Rel-15 | FFS | FFS | FFS |  | NOTE 1  NOTE 5  Skip TC 7.5B.4\_1.1 if UE supports SA and TS 38.521-2 TC 7.5A.1 has been executed. |
| 7.5B.4\_1.2 | Adjacent Channel Selectivity for inter-band EN-DC including FR2 (4 CCs) | Rel-15 | FFS | FFS | FFS |  | NOTE 1  NOTE 5  Skip TC 7.5B.4\_1.2 if UE supports SA and TS 38.521-2 TC 7.5A.2 has been executed. |
| 7.5B.4\_1.3 | Adjacent Channel Selectivity for inter-band EN-DC including FR2 (5 CCs) | Rel-15 | FFS | FFS | FFS |  | NOTE 1  NOTE 5  Skip TC 7.5B.4\_1.3 if UE supports SA and TS 38.521-2 TC 7.5A.3 has been executed. |
| 7.5B.4\_1.4 | Adjacent Channel Selectivity for inter-band EN-DC including FR2 (6 CCs) | Rel-15 | FFS | FFS | FFS |  | NOTE 1  NOTE 5  Skip TC 7.5B.4\_1.4 if UE supports SA and TS 38.521-2 TC 7.5A.4 has been executed. |
| 7.6A | Blocking Characteristics for CA | Rel-15 | FFS | FFS | FFS |  | NOTE 1 |
| **7.6B** | **Blocking Characteristics for EN-DC in FR1** |  |  |  |  |  |  |
| **7.6B.2** | **Inband blocking for EN-DC within FR1** |  |  |  |  |  |  |
| 7.6B.2.1 | Inband blocking for intra-band contiguous EN-DC (2 CCs) | Rel-15 | C009a | UEs supporting Intra-Band Contiguous EN-DC (2DL CCs) | E003a |  |  |
| 7.6B.2.2 | Inband blocking for intra-band non-contiguous EN-DC (2 CCs) | Rel-15 | C010a | UEs supporting Intra-Band Non-Contiguous EN-DC (2DL CCs) | E004a |  | NOTE 5  Skip TC 7.6B.2.2 if UE supports SA and TS 38.521-1 TC 7.6.2 has been executed. |
| 7.6B.2.3 | Inband blocking for inter-band EN-DC within FR1 (2 CCs) | Rel-15 | C011a | UEs supporting Inter-band EN-DC within FR1 (2DL CCs) | E005a |  | NOTE 5  Skip TC 7.6B.2.3 if UE supports SA and TS 38.521-1 TC 7.6.2 has been executed. |
| 7.6B.2.3\_1.1 | Inband blocking for EN-DC within FR1 (3 CCs) | Rel-15 | C045 | UEs supporting intra-band contiguous EN-DC within FR1 with 3 DL CCs or inter-band EN-DC within FR1 with 3 DL CCs (2NR DL CCs) | E006 |  |  |
| 7.6B.2.3\_1.2 | Inband blocking for EN-DC within FR1 (4 CCs) | Rel-15 | C046 | UEs supporting intra-band contiguous EN-DC within FR1 with 4 DL CCs or inter-band EN-DC within FR1 with 4 DL CCs (3NR DL CCs) | E007 |  |  |
| 7.6B.2.3\_1.3 | Inband blocking for EN-DC within FR1 (5 CCs) | Rel-16 | C047 | UEs supporting inter-band EN-DC within FR1 with 5 DL CCs (4 NR DL CCs) | E008 |  | NOTE 1  Skip TC 7.6B.2.3\_1.3 if UE supports NSA and TS 38.521-1 TC 7.6A.2.3 has been executed. |
| 7.6B.2.4 | Inband blocking for inter-band EN-DC including FR2 (2 CCs) | Rel-15 | FFS | FFS | FFS |  | NOTE 1  NOTE 5  Skip TC 7.6B.2.4 if UE supports SA and TS 38.521-2 TC 7.6.2 has been executed. |
| **7.6B.3** | **Out-of-band blocking for EN-DC in FR1** |  |  |  |  |  |  |
| 7.6B.3.1 | Out-of-band blocking for intra-band contiguous EN-DC (2 CCs) | Rel-15 | C009a | UEs supporting Intra-Band Contiguous EN-DC (2DL CCs) | E003a |  |  |
| 7.6B.3.2 | Out-of-band blocking for intra-band non-contiguous EN-DC (2 CCs) | Rel-15 | C010a | UEs supporting Intra-Band Non-Contiguous EN-DC (2DL CCs) | E004a |  | NOTE 5  Skip TC 7.6B.3.2 if UE supports SA and TS 38.521-1 TC 7.6.3 has been executed. |
| 7.6B.3.3 | Out-of-band blocking for inter-band EN-DC within FR1 (2 CCs) | Rel-15 | C011a | UEs supporting Inter-band EN-DC within FR1 (2DL CCs) | E005a |  |  |
| 7.6B.3.3\_1.1 | Out-of-band blocking for EN-DC within FR1 (3 CCs) | Rel-15 | C048 | UEs supporting intra-band contiguous EN-DC in FR1 with 3 DL CCs | E006 |  |  |
| 7.6B.3.3\_1.2 | Out-of-band blocking for EN-DC within FR1 (4 CCs) | Rel-15 | C049 | UEs supporting intra-band contiguous EN-DC in FR1 with 4 DL CCs | E007 |  |  |
| **7.6B.4** | **Narrow band blocking for EN-DC in FR1** |  |  |  |  |  |  |
| 7.6B.4.1 | Narrow band blocking for intra-band contiguous EN-DC (2 CCs) | Rel-15 | C009a | UEs supporting Intra-Band Contiguous EN-DC (2DL CCs) | E003a |  |  |
| 7.6B.4.2 | Narrow band blocking for intra-band non-contiguous EN-DC (2 CCs) | Rel-15 | C010a | UEs supporting Intra-Band Non-Contiguous EN-DC (2DL CCs) | E004a |  | NOTE 5  Skip TC 7.6B.4.2 if UE supports SA and TS 38.521-1 TC 7.6.4 has been executed. |
| 7.6B.4.3 | Narrow band blocking for inter-band EN-DC within FR1 (2 CCs) | Rel-15 | C011a | UEs supporting Inter-band EN-DC within FR1 (2DL CCs) | E005a |  | NOTE 5  Skip TC 7.6B.4.3 if UE supports SA and TS 38.521-1 TC 7.6.4 has been executed. |
| 7.6B.4.3\_1.1 | Narrow band blocking for EN-DC within FR1 (3 CCs) | Rel-15 | C045 | UEs supporting intra-band contiguous EN-DC within FR1 with 3 DL CCs or inter-band EN-DC within FR1 with 3 DL CCs (2NR DL CCs) | E006 |  |  |
| 7.6B.4.3\_1.2 | Narrow band blocking for EN-DC within FR1 (4 CCs) | Rel-15 | C046 | UEs supporting intra-band contiguous EN-DC within FR1 with 4 DL CCs or inter-band EN-DC within FR1 with 4 DL CCs (3NR DL CCs) | E007 |  |  |
| 7.6B.4.3\_1.3 | Narrow band blocking for EN-DC within FR1 (5 CCs) | Rel-16 | C047 | UEs supporting inter-band EN-DC within FR1 with 5 DL CCs (4 NR DL CCs) | E008 |  | Skip TC 7.6B.4.3\_1.3 if UE supports NSA and TS 38.521-1 TC 7.6A.4.3 has been executed. |
| **7.7** | **Spurious Response** |  |  |  |  |  |  |
| **7.7B** | **Spurious Response for EN-DC in FR1** |  |  |  |  |  |  |
| 7.7B.1 | Spurious Response for intra-band contiguous EN-DC (2 CCs) | Rel-15 | C009a | UEs supporting Intra-Band Contiguous EN-DC (2DL CCs) | E003a |  |  |
| 7.7B.2 | Spurious Response for intra-band non-contiguous EN-DC (2 CCs) | Rel-15 | C010a | UEs supporting Intra-Band Non-Contiguous EN-DC (2DL CCs) | E004a |  | NOTE 5  Skip TC 7.7B.2 if UE supports SA and TS 38.521-1 TC 7.7 has been executed. |
| 7.7B.3 | Spurious Response for inter-band EN-DC within FR1 (2 CCs) | Rel-15 | C011a | UEs supporting Inter-band EN-DC within FR1 (2DL CCs) | E005a |  |  |
| 7.7B.3\_1.1 | Spurious Response for EN-DC within FR1 (3 CCs) | Rel-15 | C048 | UEs supporting intra-band contiguous EN-DC in FR1 with 3 DL CCs | E006 |  |  |
| 7.7B.3\_1.2 | Spurious Response for EN-DC within FR1 (4 CCs) | Rel-15 | C049 | UEs supporting intra-band contiguous EN-DC in FR1 with 4 DL CCs | E007 |  |  |
| **7.8** | **Intermodulation Characteristics** |  |  |  |  |  |  |
| **7.8B** | **Intermodulation Characteristics for EN-DC in FR1** |  |  |  |  |  |  |
| **7.8B.2** | **Wideband Intermodulation** |  |  |  |  |  |  |
| 7.8B.2.1 | Wideband Intermodulation for intra-band contiguous EN-DC in FR1 | Rel-15 | C009a | UEs supporting Intra-Band Contiguous EN-DC (2DL CCs) | E003a |  | NOTE 1 |
| 7.8B.2.2 | Wideband Intermodulation for intra-band non-contiguous EN-DC in FR1 | Rel-15 | C010a | UEs supporting Intra-Band non-contiguous EN-DC (2DL CCs) | E004a |  | NOTE 5  Skip TC 7.8B.2.2 if UE supports SA and TS 38.521-1 TC 7.8.2 has been executed. |
| 7.8B.2.3 | Wideband Intermodulation for inter-band EN-DC in FR1 (2 CCs) | Rel-15 | C011a | UEs supporting inter-band EN-DC within FR1 (2DL CCs) | E005a |  | NOTE 5  Skip TC 7.8B.2.3 if UE supports SA and TS 38.521-1 TC 7.8.2 has been executed. |
| **7.8B.2.3\_1** | **Wideband Intermodulation for inter-band EN-DC within FR1 (>2 CCs)** |  |  |  |  |  |  |
| 7.8B.2.3\_1.1 | Wideband Intermodulation for EN-DC within FR1 (3 CCs) | Rel-15 | FFS | FFS | FFS |  | NOTE 1  NOTE 5  Skip TC 7.8B.2.3\_1.1 if UE supports SA and TS 38.521-1 TC 7.8A.2.1 has been executed. |
| **7.9** | **Spurious Emissions** |  |  |  |  |  |  |
| **7.9B** | **Spurious Emissions for EN-DC in FR1** |  |  |  |  |  |  |
| 7.9B.1 | Spurious Emissions for intra-band contiguous EN-DC in FR1(2 CCs) | Rel-15 | C009a | UEs supporting Intra-Band Contiguous EN-DC (2DL CCs) | E003a |  | NOTE 5  Skip TC 7.9B.1 if UE supports SA and TS 38.521-1 TC 7.9 has been executed. |
| 7.9B.2 | Spurious Emissions for intra-band non-contiguous EN-DC in FR1(2 CCs) | Rel-15 | C010a | UEs supporting Intra-Band non-contiguous EN-DC (2DL CCs) | E004a |  | NOTE 5  Skip TC 7.9B.2 if UE supports SA and TS 38.521-1 TC 7.9 has been executed. |
| 7.9B.3 | Spurious Emissions for inter-band EN-DC within FR1 (2 CCs) | Rel-15 | C011a | UEs supporting inter-band EN-DC within FR1 (2DL CCs) | E005a |  | NOTE 5  Skip TC 7.9B.3 if UE supports SA and TS 38.521-1 TC 7.9 has been executed. |
| **7.9B.3\_1** | **Spurious Emissions for inter-band EN-DC within FR1 (>2 CCs)** |  |  |  |  |  |  |
| 7.9B.4 | Spurious Emissions for inter-band EN-DC including FR2 (2 CCs) | Rel-15 | FFS | FFS | FFS |  | NOTE 1 |
| **7.9B.4\_1** | **Spurious Emissions for inter-band EN-DC including FR2 (>2 CCs)** |  |  |  |  |  |  |
| 7.9B.4\_1.1 | Spurious Emissions for inter-band EN-DC including FR2 (3 CCs) | Rel-15 | FFS | FFS | FFS |  | NOTE 1 |
| 7.9B.4\_1.2 | Spurious Emissions for inter-band EN-DC including FR2 (4 CCs) | Rel-15 | FFS | FFS | FFS |  | NOTE 1 |
| 7.9B.4\_1.3 | Spurious Emissions for inter-band EN-DC including FR2 (5 CCs) | Rel-15 | FFS | FFS | FFS |  | NOTE 1 |
| 7.9B.4\_1.4 | Spurious Emissions for inter-band EN-DC including FR2 (6 CCs) | Rel-15 | FFS | FFS | FFS |  | NOTE 1 |
| NOTE 1: The test case/branch is incomplete for any Band/CA/DC Configuration but has basic test configurations already. NOTE 1 can be removed only when the test case/branch is complete for at least one Band / CA/DC Configuration for at least one feature included in the test case/branch. Detailed completion status can be found in the corresponding test case section in 38.521-3.  NOTE 2: Void.  NOTE 3: Void.  NOTE 4: Void.  NOTE 5: Test only one EN-DC combination per 5G NR band as LTE anchor agnostic approach is applied. | | | | | | | |

Table 4.1.3-1a: Void

Table 4.1.3-1b: Void

Table 4.1.3-1c: Void

### 4.1.4 Performance conformance test cases

Table 4.1.4-1: Applicability of performance test cases, ref. TS 38.521-4 [4]

| Clause | TC Title | Release | Applicability | | Tested Bands Selection | Additional Information |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | Condition | Comment |  |  |
| **5** | **Demodulation performance requirements (Conducted requirements)** |  |  |  |  |  |
| **5.2** | **PDSCH demodulation requirements** |  |  |  |  |  |
| 5.2.2.1.1\_1 | 2Rx FDD FR1 PDSCH mapping Type A performance - 2x2 MIMO with baseline receiver for both SA and NSA | Rel-15 | C015 | UEs supporting 5GS FDD FR1 but not supporting FDD bands with 4Rx UE capability | D008  D010 |  |
| 5.2.2.1.1\_2 | 2Rx FDD FR1 PDSCH mapping Type A performance - 2x2 MIMO with enhanced receiver type 1 for both SA and NSA | Rel-15 | C015x | UEs supporting 5GS FDD FR1 and Enhanced Receiver Type 1 but not supporting FDD bands with 4Rx UE capability | D008 |  |
| 5.2.2.1.2\_1 | 2Rx FDD FR1 PDSCH mapping Type A and CSI-RS overlapped with PDSCH performance - 2x2 MIMO with baseline receiver for both SA and NSA | Rel-15 | C015 | UEs supporting 5GS FDD FR1 but not supporting FDD bands with 4Rx UE capability | D008 |  |
| 5.2.2.1.3\_1 | 2Rx FDD FR1 PDSCH mapping Type B performance - 2x2 MIMO with baseline receiver for both SA and NSA | Rel-15 | C015b | UEs supporting 5GS FDD FR1 and PDSCH mapping Type B but not supporting FDD bands with 4Rx UE capability | D008 |  |
| 5.2.2.1.4\_1 | 2Rx FDD FR1 PDSCH Mapping Type A and LTE-NR coexistence performance - 4x2 MIMO with baseline receiver for both SA and NSA | Rel-15 | C015y | UEs supporting 5GS FDD FR1 and additional DMRS for coexistence with LTE CRS but not supporting FDD bands with 4Rx UE capability | D008 |  |
| 5.2.2.2.1\_1 | 2Rx TDD FR1 PDSCH mapping Type A performance - 2x2 MIMO with baseline receiver for both SA and NSA | Rel-15 | C016 | UEs supporting 5GS TDD FR1 but not supporting TDD bands with 4Rx UE capability | D009  D010 |  |
| 5.2.2.2.1\_2 | 2Rx TDD FR1 PDSCH mapping Type A performance - 2x2 MIMO with enhanced receiver type 1 for both SA and NSA | Rel-15 | C016x | UEs supporting 5GS TDD FR1 and Enhanced Receiver Type 1 but not supporting TDD bands with 4Rx UE capability | D010 |  |
| 5.2.2.2.2\_1 | 2Rx TDD FR1 PDSCH mapping Type A and CSI-RS overlapped with PDSCH performance - 2x2 MIMO with baseline receiver for both SA and NSA | Rel-15 | C016 | UEs supporting 5GS TDD FR1 but not supporting TDD bands with 4Rx UE capability | D010 |  |
| 5.2.2.2.3\_1 | 2Rx TDD FR1 PDSCH mapping Type B performance -– 2x2 MIMO with baseline receiver for both SA and NSA | Rel-15 | C016b | UEs supporting 5GS TDD FR1 and PDSCH mapping Type B but not supporting TDD bands with 4Rx UE capability | D010 |  |
| 5.2.2.2.4\_1 | 2Rx TDD FR1 PDSCH Mapping Type A and LTE-NR coexistence performance - 4x2 MIMO with baseline receiver for both SA and NSA | Rel-16 | FFS | FFS | FFS | NOTE 1 |
| 5.2.3.1.1\_1 | 4Rx FDD FR1 PDSCH mapping Type A performance - 2x4 MIMO baseline receiver for both SA and NSA | Rel-15 | C017 | UEs supporting 5GS FDD FR1 and 4Rx antenna ports | D008  D009 |  |
| 5.2.3.1.1\_2 | 4Rx FDD FR1 PDSCH mapping Type A performance - 4x4 MIMO baseline receiver for both SA and NSA | Rel-15 | C017 | UEs supporting 5GS FDD FR1 and 4Rx antenna ports | D008  D009 |  |
| 5.2.3.1.1\_4 | 4Rx FDD FR1 PDSCH mapping Type A performance - 4x4 MIMO with enhanced receiver type 1 for both SA and NSA | Rel-15 | C017x | UEs supporting 5GS FDD FR1 and 4Rx antenna ports and Enhanced Receiver Type 1 | D008 |  |
| 5.2.3.1.2\_1 | 4Rx FDD FR1 PDSCH mapping Type A and CSI-RS overlapped with PDSCH performance - 4x4 MIMO with baseline receiver for both SA and NSA | Rel-15 | C017 | UEs supporting 5GS FDD FR1 and 4Rx antenna ports | D008 |  |
| 5.2.3.1.3\_1 | 4Rx FDD FR1 PDSCH mapping Type B performance - 2x4 MIMO with baseline receiver for both SA and NSA | Rel-15 | C017b | UEs supporting 5GS FDD FR1 and 4Rx antenna ports and PDSCH mapping Type B | D008  D011 |  |
| 5.2.3.1.4\_1 | 4Rx FDD FR1 PDSCH Mapping Type A and LTE-NR coexistence performance - 4x4 MIMO with baseline receiver for both SA and NSA | Rel-15 | C017y | UEs supporting 5GS FDD FR1 and 4Rx antenna ports and LTE-NR coexistence | D008 |  |
| 5.2.3.2.1\_1 | 4Rx TDD FR1 PDSCH mapping Type A performance - 2x4 MIMO with baseline receiver for both SA and NSA | Rel-15 | C019 | UEs supporting 5GS TDD FR1 and 4Rx antenna ports | D009  D010 |  |
| 5.2.3.2.1\_2 | 4Rx TDD FR1 PDSCH mapping Type A performance - 4x4 MIMO with baseline receiver for both SA and NSA | Rel-15 | C019 | UEs supporting 5GS TDD FR1 and 4Rx antenna ports | D010 |  |
| 5.2.3.2.1\_4 | 4Rx TDD FR1 PDSCH mapping Type A performance - 4x4 MIMO with enhanced receiver type 1 for both SA and NSA | Rel-15 | C019x | UEs supporting 5GS TDD FR1 and Enhanced Receiver Type 1 and 4Rx antenna ports | D010 |  |
| 5.2.3.2.2\_1 | 4Rx TDD FR1 PDSCH mapping Type A and CSI-RS overlapped with PDSCH performance - 2x4 MIMO with baseline receiver for both SA and NSA | Rel-15 | C019 | UEs supporting 5GS TDD FR1 and 4Rx antenna ports | D009  D010 |  |
| 5.2.3.2.3\_1 | 4Rx TDD FR1 PDSCH mapping Type B performance - 2x4 MIMO with baseline receiver for both SA and NSA | Rel-15 | C019b | UEs supporting 5GS TDD FR1 and 4Rx antenna ports and PDSCH mapping Type B | D009  D011 |  |
| 5.3.2.1.1 | 2Rx FDD FR1 PDCCH 1 Tx antenna performance for both SA and NSA | Rel-15 | C015 | UEs supporting 5GS FDD FR1 but not supporting FDD bands with 4Rx UE capability | D008 |  |
| 5.3.2.1.2 | 2Rx FDD FR1 PDCCH 2 Tx antenna performance for both SA and NSA | Rel-15 | C015 | UEs supporting 5GS FDD FR1 but not supporting FDD bands with 4Rx UE capability | D008 |  |
| 5.3.2.2.1 | 2Rx TDD FR1 PDCCH 1 Tx antenna performance for both SA and NSA | Rel-15 | C016 | UEs supporting 5GS TDD FR1 but not supporting TDD bands with 4Rx UE capability | D010 |  |
| 5.3.2.2.2 | 2Rx TDD FR1 PDCCH 2 Tx antenna performance for both SA and NSA | Rel-15 | C016 | UEs supporting 5GS TDD FR1 but not supporting TDD bands with 4Rx UE capability | D010 |  |
| 5.3.3.1.1 | 4Rx FDD FR1 PDCCH 1 Tx antenna performance for both SA and NSA | Rel-15 | C017 | UEs supporting 5GS FDD FR1 and 4Rx antenna ports | D008 |  |
| 5.3.3.1.2 | 4Rx FDD FR1 PDCCH 2 Tx antenna performance for both SA and NSA | Rel-15 | C017 | UEs supporting 5GS FDD FR1 and 4Rx antenna ports | D008 |  |
| 5.3.3.2.1 | 4Rx TDD FR1 PDCCH 1 Tx antenna performance for both SA and NSA | Rel-15 | C019 | UEs supporting 5GS TDD FR1 and 4Rx antenna ports | D010 |  |
| 5.3.3.2.2 | 4Rx TDD FR1 PDCCH 2 Tx antenna performance for both SA and NSA | Rel-15 | C019 | UEs supporting 5GS TDD FR1 and 4Rx antenna ports | D010 |  |
| 5.5.1 | FR1 Sustained downlink data rate performance for single carrier | Rel-15 | C001 | UEs supporting 5GS FDD FR1 or TDD FR1 (SA) | D008  D009  D010 |  |
| **6** | **CSI reporting requirements (Conducted requirements)** |  |  |  |  |  |
| 6.2.2.1.1.1 | 2Rx FDD FR1 periodic CQI reporting under AWGN conditions for both SA and NSA | Rel-15 | C015 | UEs supporting 5GS FDD FR1 but not supporting FDD bands with 4Rx UE capability | D008 |  |
| 6.2.2.1.2.1 | 2Rx FDD FR1 periodic wideband CQI reporting under fading conditions for both SA and NSA | Rel-15 | C015 | UEs supporting 5GS FDD FR1 but not supporting FDD bands with 4Rx UE capability | D008 |  |
| 6.2.2.1.2.2 | 2Rx FDD FR1 aperiodic subband CQI reporting under fading conditions for both SA and NSA | Rel-15 | C015 | UEs supporting 5GS FDD FR1 but not supporting FDD bands with 4Rx UE capability | D008 |  |
| 6.2.2.2.1.1 | 2Rx TDD FR1 periodic CQI reporting under AWGN conditions for both SA and NSA | Rel-15 | C016 | UEs supporting 5GS TDD FR1 but not supporting TDD bands with 4Rx UE capability | D010 |  |
| 6.2.2.2.2.1 | 2Rx TDD FR1 periodic wideband CQI reporting under fading conditions for both SA and NSA | Rel-15 | C016 | UEs supporting 5GS TDD FR1 but not supporting TDD bands with 4Rx UE capability | D010 |  |
| 6.2.2.2.2.2 | 2Rx TDD FR1 aperiodic subband CQI reporting under fading conditions for both SA and NSA | Rel-15 | C016 | UEs supporting 5GS TDD FR1 but not supporting TDD bands with 4Rx UE capability | D010 |  |
| 6.2.3.1.1.1 | 4Rx FDD FR1 periodic CQI reporting under AWGN conditions for both SA and NSA | Rel-15 | C017 | UEs supporting 5GS FDD FR1 and 4Rx antenna ports | D008 |  |
| 6.2.3.1.2.1 | 4Rx FDD FR1 periodic wideband CQI reporting under fading conditions for both SA and NSA | Rel-15 | C017 | UEs supporting 5GS FDD FR1 and 4Rx antenna ports | D008 |  |
| 6.2.3.1.2.2 | 4Rx FDD FR1 aperiodic subband CQI reporting under fading conditions for both SA and NSA | Rel-15 | C017 | UEs supporting 5GS FDD FR1 and 4Rx antenna ports | D008 |  |
| 6.2.3.2.1.1 | 4Rx TDD FR1 periodic CQI reporting under AWGN conditions for both SA and NSA | Rel-15 | C019 | UEs supporting 5GS TDD FR1 and 4Rx antenna ports | D010 |  |
| 6.2.3.2.2.1 | 4Rx TDD FR1 periodic wideband CQI reporting under fading conditions for both SA and NSA | Rel-15 | C019 | UEs supporting 5GS TDD FR1 and 4Rx antenna ports | D010 |  |
| 6.2.3.2.2.2 | 4Rx TDD FR1 aperiodic subband CQI reporting under fading conditions for both SA and NSA | Rel-15 | C019 | UEs supporting 5GS TDD FR1 and 4Rx antenna ports | D010 |  |
| 6.3.2.1.1 | 2Rx FDD FR1 Single PMI with 4Tx TypeI – SinglePanel codebook for both SA and NSA | Rel-15 | C015 | UEs supporting 5GS FDD FR1 but not supporting FDD bands with 4Rx UE capability | D008 |  |
| 6.3.2.1.2 | 2Rx FDD FR1 Single PMI with 8Tx TypeI – SinglePanel codebook for both SA and NSA | Rel-15 | C015 | UEs supporting 5GS FDD FR1 but not supporting FDD bands with 4Rx UE capability | D008 |  |
| 6.3.2.2.1 | 2Rx TDD FR1 Single PMI with 4Tx Type1 - SinglePanel codebook for both SA and NSA | Rel-15 | C016 | UEs supporting 5GS TDD FR1 but not supporting TDD bands with 4Rx UE capability | D010 |  |
| 6.3.2.2.2 | 2Rx TDD FR1 Single PMI with 8Tx Type1 - SinglePanel codebook for both SA and NSA | Rel-15 | C016 | UEs supporting 5GS TDD FR1 but not supporting TDD bands with 4Rx UE capability | D010 |  |
| 6.3.3.1.1 | 4Rx FDD FR1 Single PMI with 4Tx Type1 -– SinglePanel codebook for both SA and NSA | Rel-15 | C017 | UEs supporting 5GS FDD FR1 and 4Rx antenna ports | D008  D011 |  |
| 6.3.3.1.2 | 4Rx FDD FR1 Single PMI with 8Tx Type1 -– SinglePanel codebook for both SA and NSA | Rel-15 | C017 | UEs supporting 5GS FDD FR1 and 4Rx antenna ports | D008  D011 |  |
| 6.3.3.2.1 | 4Rx TDD FR1 Single PMI with 4Tx Type1 -– SinglePanel codebook for both SA and NSA | Rel-15 | C019 | UEs supporting 5GS FDD FR1 and 4Rx antenna ports | D010  D011 |  |
| 6.3.3.2.2 | 4Rx TDD FR1 Single PMI with 8Tx Type1 -– SinglePanel codebook for both SA and NSA | Rel-15 | C019 | UEs supporting 5GS FDD FR1 and 4Rx antenna ports | D010  D011 |  |
| 6.4.2.1\_1 | 2Rx FDD FR1 RI reporting for both SA and NSA | Rel-15 | C015 | UEs supporting 5GS FDD FR1 but not supporting FDD bands with 4Rx UE capability | D008 |  |
| 6.4.2.2\_1 | 2Rx TDD FR1 RI reporting for both SA and NSA | Rel-15 | C016 | UEs supporting 5GS TDD FR1 but not supporting TDD bands with 4Rx UE capability | D010 |  |
| 6.4.3.1\_1 | 4Rx FDD FR1 RI reporting for both SA and NSA | Rel-15 | C017 | UEs supporting 5GS FDD FR1 and 4Rx antenna ports | D008  D011 |  |
| 6.4.3.2\_1 | 4Rx TDD FR1 RI reporting for both SA and NSA | Rel-15 | C019 | UEs supporting 5GS TDD FR1 and 4Rx antenna ports | D010  D011 |  |
| **7** | **Demodulation performance requirements (Radiated requirements)** |  |  |  |  |  |
| 7.2.2.2.1\_1 | 2Rx TDD FR2 PDSCH mapping Type A performance - 2x2 MIMO with baseline receiver for SA and NSA | FFS | FFS | FFS | FFS | NOTE 1 |
| 7.2.2.2.1\_2 | 2Rx TDD FR2 PDSCH mapping Type A performance - 2x2 MIMO with enhanced type 1 receiver for SA and NSA | FFS | FFS | FFS | FFS | NOTE 1 |
| 7.3.2.2.1 | 2Rx TDD FR2 PDCCH 1 Tx antenna performance for both SA and NSA | FFS | FFS | FFS | FFS | NOTE 1 |
| 7.3.2.2.2 | 2Rx TDD FR2 PDCCH 2 Tx antenna performance for both SA and NSA | FFS | FFS | FFS | FFS | NOTE 1 |
| **8** | **CSI reporting requirements (Radiated requirements)** |  |  |  |  |  |
| 8.3.2.2.1 | 2Rx TDD FR2 Single PMI with 2Tx Type1 -– SinglePanel codebook for both SA and NSA | FFS | FFS | FFS | FFS | NOTE 1 |
| **9** | **Demodulation performance requirements for interworking** |  |  |  |  |  |
| 9.4B.1.1 | SDR test for sustained downlink data rate performance for EN-DC within FR1 | Rel-15 | C020 | UEs supporting 5GS FDD FR1 or TDD FR1 (NSA) | D008  D009  D010 |  |
| **10** | **CSI reporting requirements for interworking** |  |  |  |  |  |
| NOTE 1: The test case/branch is incomplete for any Band/CA/DC Configuration but has basic test configurations already. NOTE 1 can be removed only when the test case/branch is complete for at least one Band / CA/DC Configuration for at least one feature included in the test case/branch. Detailed completion status can be found in the corresponding test case section in 38.521-4.  NOTE 2: Void.  NOTE 3: Void. | | | | | | |

Table 4.1.4-1a: Void

Table 4.1.4-1b: Void

Table 4.1.4-1c: Void

## 4.2 RRM conformance test cases

Table 4.2-1: Applicability of RRM EN-DC FR1 conformance test cases, ref. TS 38.533 [5]

| Clause | TC Title | Release | Applicability | | Additional Information | Branch |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | Condition | Comment |  |  |
| **4.3** | **RRC\_CONNECTED state mobility** |  |  |  |  |  |
| **4.3.2** | **RRC connection mobility control** |  |  |  |  |  |
| **4.3.2.2** | **Random access** |  |  |  |  |  |
| 4.3.2.2.1 | Contention based random access test in FR1 for PSCell in EN-DC | FFS | FFS | FFS |  |  |
| 4.3.2.2.2 | Non-contention based random access test in FR1 for PSCell in EN-DC | Rel-15 | C030 | UEs supporting EN-DC FR1 and CSI-RS based PRACH |  |  |
| **4.4** | **Timing** |  |  |  |  |  |
| **4.4.1** | **UE Transmit Timing** |  |  |  |  |  |
| 4.4.1.1 | EN-DC FR1 UE transmit timing accuracy | Rel-15 | C021 | UEs supporting EN-DC FR1 |  |  |
| **4.4.2** | **UE timer accuracy** |  |  |  |  |  |
| **4.4.3** | **Timing Advance** |  |  |  |  |  |
| 4.4.3.1 | EN-DC FR1 timing advance adjustment accuracy | Rel-15 | C021 | UEs supporting EN-DC FR1 |  |  |
| **4.5** | **Signalling characteristics** |  |  |  |  |  |
| **4.5.1** | **Radio link monitoring** |  |  |  |  |  |
| 4.5.1.1 | EN-DC FR1 radio link monitoring out-of-sync test for PSCell configured with SSB-based RLM RS in non-DRX mode | Rel-15 | C021 | UEs supporting EN-DC FR1 |  |  |
| 4.5.1.2 | EN-DC FR1 radio link monitoring in-sync test for PSCell configured with SSB-based RLM RS in non-DRX mode | Rel-15 | C021 | UEs supporting EN-DC FR1 |  |  |
| 4.5.1.3 | EN-DC FR1 radio link monitoring out-of-sync test for PSCell configured with SSB-based RLM RS in DRX mode | Rel-15 | C021 | UEs supporting EN-DC FR1 |  |  |
| 4.5.1.4 | EN-DC FR1 radio link monitoring in-sync test for PSCell configured with SSB-based RLM RS in DRX mode | Rel-15 | C021 | UEs supporting EN-DC FR1 |  |  |
| 4.5.1.5 | EN-DC FR1 radio link monitoring out-of-sync test for PSCell configured with CSI-RS-based RLM RS in non-DRX mode | Rel-15 | C038 | UEs supporting EN-DC FR1 and CSI-RS-based RLM |  |  |
| 4.5.1.6 | EN-DC FR1 radio link monitoring in-sync test for PSCell configured with CSI-RS-based RLM RS in non-DRX mode | Rel-15 | C038 | UEs supporting EN-DC FR1 and CSI-RS-based RLM |  |  |
| 4.5.1.7 | EN-DC FR1 radio link monitoring out-of-sync test for PSCell configured with CSI-RS-based RLM RS in DRX mode | Rel-15 | C038 | UEs supporting EN-DC FR1 and CSI-RS-based RLM |  |  |
| 4.5.1.8 | EN-DC FR1 radio link monitoring in-sync test for PSCell configured with CSI-RS-based RLM RS in DRX mode | Rel-15 | C038 | UEs supporting EN-DC FR1 and CSI-RS-based RLM |  |  |
| **4.5.2** | **Interruption** |  |  |  |  |  |
| 4.5.2.1 | EN-DC FR1 interruptions at transitions between active and non-active during DRX in synchronous EN-DC | Rel-15 | C021 | UEs supporting EN-DC FR1 |  |  |
| 4.5.2.2 | EN-DC FR1 interruptions at transitions between active and non-active during DRX in asynchronous EN-DC | Rel-15 | C021 | UEs supporting EN-DC FR1 |  |  |
| 4.5.2.3 | EN-DC FR1 interruptions during measurements on deactivated NR SCC in synchronous EN-DC | Rel-15 | C021 | UEs supporting EN-DC FR1 |  |  |
| 4.5.2.4 | EN-DC FR1 interruptions during measurements on deactivated NR SCC in asynchronous EN-DC | Rel-15 | C021 | UEs supporting EN-DC FR1 |  |  |
| 4.5.2.5 | EN-DC FR1 interruptions during measurements on deactivated E-UTRAN SCC in synchronous EN-DC | Rel-15 | C021 | UEs supporting EN-DC FR1 |  |  |
| 4.5.2.6 | EN-DC FR1 interruptions during measurements on deactivated E-UTRAN SCC in asynchronous EN-DC | Rel-15 | C021 | UEs supporting EN-DC FR1 |  |  |
| **4.5.3** | **SCell activation and deactivation delay** |  |  |  |  |  |
| 4.5.3.1 | EN-DC FR1 SCell activation and deactivation of known SCell in non-DRX for 160ms SCell measurement cycle | Rel-15 | C021 | UEs supporting EN-DC FR1 |  |  |
| 4.5.3.2 | EN-DC FR1 SCell activation and deactivation of known SCell in non-DRX for 320ms SCell measurement cycle | Rel-15 | C021 | UEs supporting EN-DC FR1 |  |  |
| 4.5.3.3 | EN-DC FR1 SCell activation and deactivation of unknown SCell in non-DRX | Rel-15 | C021 | UEs supporting EN-DC FR1 |  |  |
| **4.5.4** | **UE UL carrier RRC reconfiguration delay** |  |  |  |  |  |
| 4.5.4.1 | EN-DC FR1 UE UL carrier RRC reconfiguration delay | Rel-15 | C032 | UEs supporting EN-DC FR1 and SUL |  |  |
| **4.5.5** | **Beam failure detection and link recovery procedures** |  |  |  |  |  |
| 4.5.5.1 | EN-DC FR1 SSB-based beam failure detection and link recovery in non-DRX | Rel-15 | C021 | UEs supporting EN-DC FR1 |  |  |
| 4.5.5.2 | EN-DC FR1 SSB-based beam failure detection and link recovery in DRX | Rel-15 | C021 | UEs supporting EN-DC FR1 |  |  |
| 4.5.5.3 | EN-DC FR1 CSI-RS-based beam failure detection and link recovery in non-DRX | Rel-15 | C021 | UEs supporting EN-DC FR1 |  |  |
| 4.5.5.4 | EN-DC FR1 CSI-RS-based beam failure detection and link recovery in DRX | Rel-15 | C021 | UEs supporting EN-DC FR1 |  |  |
| **4.5.6** | **Active BWP switch delay** |  |  |  |  |  |
| **4.5.6.1** | **DCI-based and timer-based active BWP switch** |  |  |  |  |  |
| 4.5.6.1.1 | EN-DC FR1 DCI-based DL active BWP switch in non-DRX in synchronous EN-DC | Rel-15 | C021 | UEs supporting EN-DC FR1 |  |  |
| 4.5.6.1.2 | EN-DC FR1 DCI-based DL active BWP switch with SCell in non-DRX in synchronous EN-DC | Rel-15 | C021 | UEs supporting EN-DC FR1 |  |  |
| **4.5.6.2** | **RRC-based active BWP switch** |  |  |  |  |  |
| 4.5.6.2.1 | EN-DC FR1 RRC-based DL active BWP switch in non-DRX in synchronous EN-DC | Rel-15 | C021 | UEs supporting EN-DC FR1 |  |  |
| **4.5.7** | **PSCell addition and release delay** |  |  |  |  |  |
| 4.5.7.1 | EN-DC FR1 addition and release delay of known PSCell | Rel-15 | C021 | UEs supporting EN-DC FR1 | NOTE 1 |  |
| **4.6** | **Measurement procedures** |  |  |  |  |  |
| **4.6.1** | **Intra-frequency measurements** |  |  |  |  |  |
| 4.6.1.1 | EN-DC FR1 event-triggered reporting without gap in non-DRX | Rel-15 | C021 | UEs supporting EN-DC FR1 |  |  |
| 4.6.1.2 | EN-DC FR1 event-triggered reporting without gap in DRX | Rel-15 | C021 | UEs supporting EN-DC FR1 |  |  |
| 4.6.1.3 | EN-DC FR1 event-triggered reporting with gap in non-DRX | Rel-15 | C042 | UEs supporting EN-DC FR1 and CSI-RS-based RLM and BWP operation without bandwidth restriction |  |  |
| 4.6.1.4 | EN-DC FR1 event-triggered reporting with gap in DRX | Rel-15 | C042 | UEs supporting EN-DC FR1 and CSI-RS-based RLM and BWP operation without bandwidth restriction |  |  |
| 4.6.1.5 | EN-DC FR1 event-triggered reporting without gap in non-DRX with SSB time index detection | Rel-15 | C021 | UEs supporting EN-DC FR1 |  |  |
| 4.6.1.6 | EN-DC FR1 event-triggered reporting with gap in non-DRX with SSB time index detection | Rel-15 | C042 | UEs supporting EN-DC FDD FR1 and CSI-RS based RLM and BWP operation without bandwidth restriction |  |  |
| **4.6.2** | **Inter-frequency measurements** |  |  |  |  |  |
| 4.6.2.1 | EN-DC FR1-FR1 event-triggered reporting in non-DRX | Rel-15 | C021 | UEs supporting EN-DC FR1 |  |  |
| 4.6.2.2 | EN-DC FR1-FR1 event-triggered reporting in DRX | Rel-15 | C021 | UEs supporting EN-DC FR1 |  |  |
| 4.6.2.5 | EN-DC FR1-FR1 event-triggered reporting in non-DRX with SSB time index detection | Rel-15 | C021 | UEs supporting EN-DC FR1 |  |  |
| 4.6.2.6 | EN-DC FR1-FR1 event-triggered reporting in DRX with SSB time index detection | Rel-15 | C021 | UEs supporting EN-DC FR1 |  |  |
| **4.6.4** | **L1-RSRP for beam reporting** |  |  |  |  |  |
| 4.6.4.1 | EN-DC FR1 SSB-based L1-RSRP measurement in non-DRX | Rel-15 | C021 | UEs supporting EN-DC FR1 |  |  |
| 4.6.4.2 | EN-DC FR1 SSB-based L1-RSRP measurement in DRX | Rel-15 | C021 | UEs supporting EN-DC FR1 |  |  |
| 4.6.4.3 | EN-DC FR1 CSI-RS-based L1-RSRP measurement in non-DRX | Rel-15 | C021 | UEs supporting EN-DC FR1 |  |  |
| 4.6.4.4 | EN-DC FR1 CSI-RS-based L1-RSRP measurement in DRX | Rel-15 | C021 | UEs supporting EN-DC FR1 |  |  |
| **4.7** | **Measurement performance requirements** |  |  |  |  |  |
| **4.7.1** | **SS-RSRP** |  |  |  |  |  |
| **4.7.1.1** | **Intra-frequency measurements** |  |  |  |  |  |
| 4.7.1.1.1 | EN-DC FR1 SS-RSRP absolute measurement accuracy | Rel-15 | C021 | UEs supporting EN-DC FR1 |  |  |
| 4.7.1.1.2 | EN-DC FR1 SS-RSRP relative measurement accuracy | Rel-15 | C021 | UEs supporting EN-DC FR1 |  |  |
| **4.7.1.2** | **Inter-frequency measurements** |  |  |  |  |  |
| 4.7.1.2.1 | EN-DC FR1-FR1 SS-RSRP absolute measurement accuracy | Rel-15 | C021 | UEs supporting EN-DC FR1 |  |  |
| 4.7.1.2.2 | EN-DC FR1-FR1 SS-RSRP relative measurement accuracy | Rel-15 | C021 | UEs supporting EN-DC FR1 |  |  |
| **4.7.2** | **SS-RSRQ** |  |  |  |  |  |
| 4.7.2.1 | EN-DC FR1 SS-RSRQ measurement accuracy | Rel-15 | C021 | UEs supporting EN-DC FR1 |  |  |
| 4.7.2.2.1 | EN-DC FR1-FR1 SS-RSRQ absolute measurement accuracy | Rel-15 | C021 | UEs supporting EN-DC FR1 |  |  |
| 4.7.2.2.2 | EN-DC FR1-FR1 SS-RSRQ relative measurement accuracy | Rel-15 | C021 | UEs supporting EN-DC FR1 |  |  |
| **4.7.3** | **SS-SINR** |  |  |  |  |  |
| 4.7.3.1 | EN-DC FR1 SS-SINR measurement accuracy | Rel-15 | C035 | UEs supporting EN-DC FR1 and SS-SINR-meas |  |  |
| 4.7.3.2.1 | EN-DC FR1-FR1 SS-SINR absolute measurement accuracy | Rel-15 | C035 | UEs supporting EN-DC FR1 and SS-SINR-meas |  |  |
| 4.7.3.2.2 | EN-DC FR1-FR1 SS-SINR relative measurement accuracy | Rel-15 | C035 | UEs supporting EN-DC FR1 and SS-SINR-meas |  |  |
| **4.7.4** | **L1-RSRP** |  |  |  |  |  |
| 4.7.4.1.1 | EN-DC FR1 SSB-based L1-RSRP absolute measurement accuracy | Rel-15 | C021 | UEs supporting EN-DC FR1 |  |  |
| 4.7.4.1.2 | EN-DC FR1 SSB-based L1-RSRP relative measurement accuracy | Rel-15 | C021 | UEs supporting EN-DC FR1 |  |  |
| 4.7.4.2.1 | EN-DC FR1 CSI-RS-based L1-RSRP absolute measurement accuracy | Rel-15 | C021 | UEs supporting EN-DC FR1 |  |  |
| 4.7.4.2.2 | EN-DC FR1 CSI-RS-based L1-RSRP relative measurement accuracy | Rel-15 | C021 | UEs supporting EN-DC FR1 |  |  |
| **4.7.5** | **SFTD** |  |  |  |  |  |
| 4.7.5.1 | EN-DC FR1 SFTD measurement accuracy | Rel-15 | C043 | UEs supporting EN-DC FR1 and SFTD measurements between E-UTRA PCell and NR PSCell |  |  |
| NOTE 1: The test case/branch is incomplete for any Band/CA/DC Configuration but has basic test configurations already. NOTE 1 can be removed only when the test case/branch is complete for at least one Band / CA/DC Configuration for at least one feature included in the test case/branch. Detailed completion status can be found in the corresponding test case section in 38.533.  NOTE 2: Test X refers to the corresponding Sub-Test as defined in TS 38.533 [5]. | | | | | | |

Table 4.2-1a: Void

Table 4.2-2: Applicability of RRM EN-DC FR2 conformance test cases, ref. TS 38.533 [5]

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Clause | TC Title | Release | Applicability | | Additional Information | Branch |
|  |  |  | Condition | Comment |  |  |
| **5.3** | **RRC\_CONNECTED state mobility** |  |  |  |  |  |
| **5.3.2** | **RRC connection mobility control** |  |  |  |  |  |
| **5.3.2.2** | **Random access** |  |  |  |  |  |
| **5.4** | **Timing** |  |  |  |  |  |
| **5.4.1** | **UE transmit timing** |  |  |  |  |  |
| 5.4.1.1 | EN-DC FR2 UE transmit timing accuracy | FFS | FFS | FFS | NOTE 1 |  |
| **5.4.2** | **UE timer accuracy** |  |  |  |  |  |
| **5.4.3** | **Timing advance** |  |  |  |  |  |
| 5.4.3.1 | EN-DC FR2 timing advance adjustment accuracy | FFS | FFS | FFS | NOTE 1 |  |
| **5.5** | **Signalling characteristics** |  |  |  |  |  |
| **5.5.1** | **Radio link monitoring** |  |  |  |  |  |
| 5.5.1.1 | EN-DC FR2 radio link monitoring out-of-sync test for PSCell configured with SSB-based RLM RS in non-DRX mode | FFS | FFS | FFS | NOTE 1 |  |
| 5.5.1.2 | EN-DC FR2 radio link monitoring in-sync test for PSCell configured with SSB-based RLM RS in non-DRX mode | FFS | FFS | FFS | NOTE 1 |  |
| 5.5.1.3 | EN-DC FR2 radio link monitoring out-of-sync test for PSCell configured with SSB-based RLM RS in DRX mode | FFS | FFS | FFS | NOTE 1 |  |
| 5.5.1.4 | EN-DC FR2 radio link monitoring in-sync test for PSCell configured with SSB-based RLM RS in DRX mode | FFS | FFS | FFS | NOTE 1 |  |
| **5.5.2** | **Interruption** |  |  |  |  |  |
| 5.5.2.1 | EN-DC FR2 interruptions at transitions between active and non-active during DRX in synchronous EN-DC | FFS | FFS | FFS | NOTE 1 |  |
| 5.5.2.2 | EN-DC FR2 interruptions at transitions between active and non-active during DRX in asynchronous EN-DC | FFS | FFS | FFS | NOTE 1 |  |
| 5.5.2.3 | EN-DC FR2 interruptions during measurements on deactivated NR SCC in synchronous EN-DC | FFS | FFS | FFS | NOTE 1 |  |
| 5.5.2.4 | EN-DC FR2 interruptions during measurements on deactivated NR SCC in asynchronous EN-DC | FFS | FFS | FFS | NOTE 1 |  |
| 5.5.2.5 | EN-DC FR2 interruptions during measurements on deactivated E-UTRAN SCC in synchronous EN-DC | FFS | FFS | FFS | NOTE 1 |  |
| 5.5.2.6 | EN-DC FR2 interruptions during measurements on deactivated E-UTRAN SCC in asynchronous EN-DC | FFS | FFS | FFS | NOTE 1 |  |
| **5.5.3** | **SCell activation and deactivation delay** |  |  |  |  |  |
| 5.5.3.1 | EN-DC FR2 SCell activation and deactivation intra-band in non-DRX | FFS | FFS | FFS | NOTE 1 |  |
| **5.5.4** | **UE UL carrier RRC reconfiguration delay** |  |  |  |  |  |
| **5.5.5** | **Beam failure detection and link recovery procedures** |  |  |  |  |  |
| 5.5.5.5 | EN-DC FR2 scheduling available restriction during SSB-based beam failure detection and link recovery in non-DRX | Rel-15 | C022 | UEs supporting EN-DC FR2 | NOTE 1 |  |
| **5.5.6** | **Active BWP switch delay** |  |  |  |  |  |
| **5.5.6.1** | **DCI-based and timer-based active BWP switch** |  |  |  |  |  |
| 5.5.6.1.1 | EN-DC FR2 DCI-based DL active BWP switch in non-DRX in synchronous EN-DC | FFS | FFS | FFS | NOTE 1 |  |
| 5.5.6.1.2 | EN-DC FR2 DCI-based DL active BWP switch with SCell in non-DRX in synchronous EN-DC | FFS | FFS | FFS | NOTE 1 |  |
| **5.5.6.2** | **RRC-based active BWP switch** |  |  |  |  |  |
| 5.5.6.2.1 | EN-DC FR2 RRC-based DL active BWP switch in non-DRX in synchronous EN-DC | FFS | FFS | FFS | NOTE 1 |  |
| **5.5.7** | **PSCell addition and release delay** |  |  |  |  |  |
| 5.5.7.1 | EN-DC FR2 addition and release delay of known PSCell | FFS | FFS | FFS | NOTE 1 |  |
| **5.5.8** | **Active TCI state switch delay** |  |  |  |  |  |
| 5.5.8.1 | EN-DC FR2 MAC-CE based active TCI state switch | Rel-15 | C022 | UEs supporting EN-DC FR2 | NOTE 1 |  |
| 5.5.8.2 | EN-DC FR2 RRC based active TCI state switch | Rel-15 | C022 | UEs supporting EN-DC FR2 | NOTE 1 |  |
| **5.6** | **Measurement procedures** |  |  |  |  |  |
| **5.6.1** | **Intra-frequency measurements** |  |  |  |  |  |
| **5.6.2** | **Inter-frequency measurements** |  |  |  |  |  |
| 5.6.2.1 | EN-DC FR2-FR2 event-triggered reporting in non-DRX | Rel-15 | C022 | UEs supporting EN-DC FR2 | NOTE 1 |  |
| 5.6.2.2 | EN-DC FR2-FR2 event-triggered reporting in DRX | Rel-15 | C022 | UEs supporting EN-DC FR2 | NOTE 1 |  |
| 5.6.2.3 | EN-DC FR2-FR2 event-triggered reporting in non-DRX with SSB time index detection | Rel-15 | C022 | UEs supporting EN-DC FR2 | NOTE 1 |  |
| 5.6.2.4 | EN-DC FR2-FR2 event-triggered reporting in DRX with SSB time index detection | Rel-15 | C022 | UEs supporting EN-DC FR2 | NOTE 1 |  |
| 5.6.2.5 | EN-DC FR1-FR2 event-triggered reporting in non-DRX | Rel-15 | C023 | UEs supporting EN-DC FR1 and FR2 | NOTE 1 |  |
| 5.6.2.6 | EN-DC FR1-FR2 event-triggered reporting in DRX | Rel-15 | C023 | UEs supporting EN-DC FR1 and FR2 | NOTE 1 |  |
| 5.6.2.7 | EN-DC FR1-FR2 event-triggered reporting in non-DRX with SSB time index detection | Rel-15 | C023 | UEs supporting EN-DC FR1 and FR2 | NOTE 1 |  |
| 5.6.2.8 | EN-DC FR1-FR2 event-triggered reporting in DRX with SSB time index detection | Rel-15 | C023 | UEs supporting EN-DC FR1 and FR2 | NOTE 1 |  |
| **5.6.3** | **L1-RSRP for beam reporting** |  |  |  |  |  |
| 5.6.3.1 | EN-DC FR2 SSB-based L1-RSRP measurement in non-DRX | Rel-15 | C022 | UEs supporting EN-DC FR2 | NOTE 1 |  |
| 5.6.3.2 | EN-DC FR2 SSB-based L1-RSRP measurement in DRX | Rel-15 | C022 | UEs supporting EN-DC FR2 | NOTE 1 |  |
| 5.6.3.3 | EN-DC FR2 CSI-RS-based L1-RSRP measurement in non-DRX | Rel-15 | C022 | UEs supporting EN-DC FR2 | NOTE 1 |  |
| 5.6.3.4 | EN-DC FR2 CSI-RS-based L1-RSRP measurement in DRX | Rel-15 | C022 | UEs supporting EN-DC FR2 | NOTE 1 |  |
| **5.7** | **Measurement performance requirements** |  |  |  |  |  |
| **5.7.1** | **SS-RSRP** |  |  |  |  |  |
| **5.5.7.1** | **EN-DC FR2 addition and release delay of known PSCell** | **FFS** | **FFS** | **FFS** | **NOTE 1** |  |
| 5.7.1.1 | EN-DC FR2 SS-RSRP measurement accuracy | FFS | FFS | FFS | NOTE 1 |  |
| 5.7.1.2 | EN-DC FR2-FR2 SS-RSRP measurement accuracy | FFS | FFS | FFS | NOTE 1 |  |
| **5.7.1.3** | **Inter-frequency measurements between FR1 and FR2** |  |  |  |  |  |
| 5.7.1.3.1 | EN-DC FR1-FR2 SS-RSRP absolute measurement accuracy | FFS | FFS | FFS | NOTE 1 |  |
| 5.7.1.3.2 | EN-DC FR1-FR2 SS-RSRP relative measurement accuracy | FFS | FFS | FFS | NOTE 1 |  |
| **5.7.2** | **SS-RSRQ** |  |  |  |  |  |
| **5.7.3** | **SS-SINR** |  |  |  |  |  |
| **5.7.4** | **L1-RSRP for beam reporting** |  |  |  |  |  |
| NOTE 1: The test case/branch is incomplete for any Band/CA/DC Configuration but has basic test configurations already. NOTE 1 can be removed only when the test case/branch is complete for at least one Band / CA/DC Configuration for at least one feature included in the test case/branch. Detailed completion status can be found in the corresponding test case section in 38.533.  NOTE 2: Void.  NOTE 3: Void. | | | | | | |

Table 4.2-2a: Void

Table 4.2-3: Applicability of RRM NR SA FR1 conformance test cases, ref. TS 38.533 [5]

| Clause | TC Title | Release | Applicability | | Additional Information | Branch |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | Condition | Comment |  |  |
| **6.1** | **RRC\_IDLE state mobility** |  |  |  |  |  |
| **6.1.1** | **NR cell re-selection** |  |  |  |  |  |
| 6.1.1.1 | NR SA FR1 cell re-selection | Rel-15 | C001 | UEs supporting 5GS NR SA FR1 |  |  |
| 6.1.1.2 | NR SA FR1-FR1 cell re-selection | Rel-15 | C001 | UEs supporting 5GS NR SA FR1 |  |  |
| **6.1.2** | **NR – E-UTRA cell re-selection** |  |  |  |  |  |
| 6.1.2.1 | NR SA FR1 – E-UTRA cell re-selection to higher priority E-UTRA | Rel-15 | C025 | UEs supporting 5GS NR SA FR1 and E-UTRA |  |  |
| 6.1.2.2 | NR SA FR1 – E-UTRA cell re-selection to lower priority E-UTRA | Rel-15 | C025 | UEs supporting 5GS NR SA FR1 and E-UTRA |  |  |
| **6.2** | **RRC\_INACTIVE state mobility** |  |  |  |  |  |
| **6.3** | **RRC\_CONNECTED state mobility** |  |  |  |  |  |
| **6.3.1** | **Handover** |  |  |  |  |  |
| 6.3.1.1 | NR SA FR1 handover with known target cell | Rel-15 | C027 | UEs supporting 5GS NR SA FR1 |  |  |
| 6.3.1.2 | NR SA FR1 handover with unknown target cell | Rel-15 | C027 | UEs supporting 5GS NR SA FR1 |  |  |
| 6.3.1.3 | NR SA FR1-FR1 handover with unknown target cell | Rel-15 | C027 | UEs supporting 5GS NR SA FR1 |  |  |
| 6.3.1.4 | NR SA FR1 – E-UTRA handover with known target cell | Rel-15 | C025 | UEs supporting 5GS NR SA FR1 and E-UTRA |  |  |
| 6.3.1.5 | NR SA FR1 – E-UTRA handover with unknown target cell | Rel-15 | C025 | UEs supporting 5GS NR SA FR1 and E-UTRA |  |  |
| **6.3.2** | **RRC connection mobility control** |  |  |  |  |  |
| **6.3.2.1** | **RRC re-establishment** |  |  |  |  |  |
| 6.3.2.1.1 | NR SA FR1 RRC re-establishment | Rel-15 | C001 | UEs supporting 5GS NR SA FR1 |  |  |
| 6.3.2.1.2 | NR SA FR1 - FR1 RRC re-establishment | Rel-15 | C001 | UEs supporting 5GS NR SA FR1 |  |  |
| 6.3.2.1.3 | NR SA FR1 - FR1 RRC re-establishment without serving cell timing | Rel-15 | C001 | UEs supporting 5GS NR SA FR1 | NOTE 1 |  |
| **6.3.2.2** | **Random access** |  |  |  |  |  |
| 6.3.2.2.1 | Contention based random access test in FR1 for NR standalone | Rel-15 | C001 | UEs supporting 5GS NR SA FR1 |  |  |
| 6.3.2.2.2 | Non-Contention based random access test in FR1 for NR standalone | Rel-15 | C029 | UEs supporting 5GS NR SA FR1 and CSI-RS based PRACH |  |  |
| **6.3.2.3** | **RRC connection release with redirection** |  |  |  |  |  |
| 6.3.2.3.1 | NR SA FR1 RRC connection release with redirection | Rel-15 | C001 | UEs supporting 5GS NR SA FR1 |  |  |
| 6.3.2.3.2 | NR SA FR1 – E-UTRA RRC connection release with redirection | Rel-15 | C025 | UEs supporting 5GS NR SA FR1 and E-UTRA |  |  |
| **6.4** | **Timing** |  |  |  |  |  |
| **6.4.1** | **UE transmit timing** |  |  |  |  |  |
| 6.4.1.1 | NR SA FR1 transmit timing accuracy | Rel-15 | C027 | UEs supporting 5GS NR SA FR1 |  |  |
| **6.4.2** | **UE timer accuracy** |  |  |  |  |  |
| **6.4.3** | **Timing advance** |  |  |  |  |  |
| 6.4.3.1 | NR SA FR1 timing advance adjustment accuracy | Rel-15 | C027 | UEs supporting 5GS NR SA FR1 |  |  |
| **6.5** | **Signalling characteristics** |  |  |  |  |  |
| **6.5.1** | **Radio Link Monitoring** |  |  |  |  |  |
| 6.5.1.1 | NR SA FR1 radio link monitoring out-of-sync test for PCell configured with SSB-based RLM RS in non-DRX mode | Rel-15 | C027 | UEs supporting 5GS NR SA FR1 |  |  |
| 6.5.1.2 | NR SA FR1 radio link monitoring in-sync test for PCell configured with SSB-based RLM RS in non-DRX mode | Rel-15 | C027 | UEs supporting 5GS NR SA FR1 |  |  |
| 6.5.1.3 | NR SA FR1 radio link monitoring out-of-sync test for PCell configured with SSB-based RLM RS in DRX mode | Rel-15 | C027 | UEs supporting 5GS NR SA FR1 |  |  |
| 6.5.1.4 | NR SA FR1 radio link monitoring in-sync test for PCell configured with SSB-based RLM RS in DRX mode | Rel-15 | C027 | UEs supporting 5GS NR SA FR1 |  |  |
| 6.5.1.5 | NR SA FR1 radio link monitoring out-of-sync test for PSCell configured with CSI-RS-based RLM RS in non-DRX mode | Rel-15 | C037 | UEs supporting 5GS NR SA FR1 and CSI-RS-based RLM |  |  |
| 6.5.1.6 | NR SA FR1 radio link monitoring in-sync test for PSCell configured with CSI-RS-based RLM RS in non-DRX mode | Rel-15 | C037 | UEs supporting 5GS NR SA FR1 and CSI-RS-based RLM |  |  |
| 6.5.1.7 | NR SA FR1 radio link monitoring out-of-sync test for PSCell configured with CSI-RS-based RLM RS in DRX mode | Rel-15 | C037 | UEs supporting 5GS NR SA FR1 and CSI-RS-based RLM |  |  |
| 6.5.1.8 | NR SA FR1 radio link monitoring in-sync test for PSCell configured with CSI-RS-based RLM RS in DRX mode | Rel-15 | C037 | UEs supporting 5GS NR SA FR1 and CSI-RS-based RLM |  |  |
| **6.5.2** | **Interruption** |  |  |  |  |  |
| 6.5.2.1 | NR SA FR1 interruptions during measurements on deactivated NR SCC | Rel-15 | C001 | UEs supporting 5GS NR SA FR1 | NOTE 1 |  |
| **6.5.3** | **Scell activation and deactivation delay** |  |  |  |  |  |
| 6.5.3.1 | NR SA FR1 SCell activation and deactivation of known SCell in non-DRX for 160ms SCell measurement cycle | Rel-15 | C001 | UEs supporting 5GS NR SA FR1 | NOTE 1 |  |
| 6.5.3.2 | NR SA FR1 SCell activation and deactivation of known SCell in non-DRX for 320ms SCell measurement cycle | Rel-15 | C001 | UEs supporting 5GS NR SA FR1 | NOTE 1 |  |
| 6.5.3.3 | NR SA FR1 SCell activation and deactivation of unknown SCell in non-DRX | Rel-15 | C001 | UEs supporting 5GS NR SA FR1 | NOTE 1 |  |
| **6.5.4** | **UE UL carrier RRC reconfiguration delay** |  |  |  |  |  |
| 6.5.4.1 | NR SA FR1 UE UL carrier RRC reconfiguration delay | FFS | FFS | FFS | NOTE 1 |  |
| **6.5.5** | **Link recovery procedures** |  |  |  |  |  |
| 6.5.5.1 | NR SA FR1 SSB-based beam failure detection and link recovery in non-DRX | Rel-15 | C001 | UEs supporting 5GS NR SA FR1 | NOTE 1 |  |
| 6.5.5.2 | NR SA FR1 SSB-based beam failure detection and link recovery in DRX | Rel-15 | C001 | UEs supporting 5GS NR SA FR1 | NOTE 1 |  |
| 6.5.5.3 | NR SA FR1 CSI-RS-based beam failure detection and link recovery in non-DRX | Rel-15 | C001 | UEs supporting 5GS NR SA FR1 | NOTE 1 |  |
| 6.5.5.4 | NR SA FR1 CSI-RS-based beam failure detection and link recovery in DRX | Rel-15 | C001 | UEs supporting 5GS NR SA FR1 | NOTE 1 |  |
| **6.5.6** | **Active BWP switch delay** |  |  |  |  |  |
| **6.5.6.1** | **DCI-based and timer-based active BWP switch** |  |  |  |  |  |
| 6.5.6.1.1 | NR SA FR1 DCI-based DL active BWP switch in non-DRX | Rel-15 | C001 | UEs supporting 5GS NR SA FR1 | NOTE 1 |  |
| 6.5.6.1.2 | NR SA FR1 DCI-based DL active BWP switch in non-DRX | Rel-15 | C001 | UEs supporting 5GS NR SA FR1 | NOTE 1 |  |
| **6.5.6.2** | **RRC-based active BWP switch** |  |  |  |  |  |
| 6.5.6.2.1 | NR SA FR1 RRC-based DL active BWP switch in non-DRX | Rel-15 | C001 | UEs supporting 5GS NR SA FR1 | NOTE 1 |  |
| **6.6** | **Measurement procedures** |  |  |  |  |  |
| **6.6.1** | **Intra-frequency measurements** |  |  |  |  |  |
| 6.6.1.1 | NR SA FR1 event-triggered reporting without gap in non-DRX | Rel-15 | C027 | UEs supporting 5GS NR SA FR1 |  |  |
| 6.6.1.2 | NR SA FR1 event-triggered reporting without gap in DRX | Rel-15 | C027 | UEs supporting 5GS NR SA FR1 |  |  |
| 6.6.1.3 | NR SA FR1 event-triggered reporting with gap in non-DRX | Rel-15 | C041 | UEs supporting 5GS NR SA FR1 and CSI-RS-based RLM and BWP operation without bandwidth restriction |  |  |
| 6.6.1.4 | NR SA FR1 event-triggered reporting with gap in DRX | Rel-15 | C041 | UEs supporting 5GS NR SA FR1 and CSI-RS-based RLM and BWP operation without bandwidth restriction |  |  |
| 6.6.1.5 | NR SA FR1 event-triggered reporting without gap in non-DRX with SSB index reading | Rel-15 | C024 | UEs supporting 5GS NR FDD SA FR1 |  |  |
| 6.6.1.6 | NR SA FR1 event-triggered reporting with gap in non-DRX with SSB index reading | Rel-15 | C041 | UEs supporting 5GS NR FDD SA FR1 and CSI-RS-based RLM and BWP operation without bandwidth restriction |  |  |
| **6.6.2** | **Inter-frequency measurements** |  |  |  |  |  |
| 6.6.2.1 | NR SA FR1-FR1 event-triggered reporting in non-DRX | Rel-15 | C001 | UEs supporting 5GS NR SA FR1 |  |  |
| 6.6.2.2 | NR SA FR1-FR1 event-triggered reporting in DRX | Rel-15 | C001 | UEs supporting 5GS NR SA FR1 |  |  |
| 6.6.2.5 | NR SA FR1-FR1 event-triggered reporting in non-DRX with SSB time index detection | Rel-15 | C001 | UEs supporting 5GS NR SA FR1 |  |  |
| 6.6.2.6 | NR SA FR1-FR1 event-triggered reporting in DRX with SSB time index detection | Rel-15 | C001 | UEs supporting 5GS NR SA FR1 |  |  |
| **6.6.3** | **Inter-RAT measurements** |  |  |  |  |  |
| 6.6.3.1 | NR SA FR1 – E-UTRAN event-triggered reporting in non-DR | Rel-15 | C025 | UEs supporting 5GS NR SA FR1 and E-UTRAN |  |  |
| 6.6.3.2 | NR SA FR1 – E-UTRAN event-triggered reporting in DRX | Rel-15 | C025 | UEs supporting 5GS NR SA FR1 and E-UTRAN |  |  |
| **6.6.4** | **L1-RSRP for beam reporting** |  |  |  |  |  |
| 6.6.4.1 | NR SA FR1 SSB-based L1-RSRP measurement in non-DRX | Rel-15 | C001 | UEs supporting 5GS NR SA FR1 |  |  |
| 6.6.4.2 | NR SA FR1 SSB-based L1-RSRP measurement in DRX | Rel-15 | C001 | UEs supporting 5GS NR SA FR1 |  |  |
| 6.6.4.3 | NR SA FR1 CSI-RS-based L1-RSRP measurement in non-DRX | Rel-15 | C001 | UEs supporting 5GS NR SA FR1 |  |  |
| 6.6.4.4 | NR SA FR1 CSI-RS-based L1-RSRP measurement in DRX | Rel-15 | C001 | UEs supporting 5GS NR SA FR1 |  |  |
| **6.7** | **Measurement performance requirements** |  |  |  |  |  |
| **6.7.1** | **SS-RSRP** |  |  |  |  |  |
| **6.7.1.1** | **Intra-frequency measurements** |  |  |  |  |  |
| 6.7.1.1.1 | NR SA FR1 SS-RSRP absolute measurement accuracy | Rel-15 | C001 | UEs supporting 5GS NR SA FR1 |  |  |
| 6.7.1.1.2 | NR SA FR1 SS-RSRP relative measurement accuracy | Rel-15 | C001 | UEs supporting 5GS NR SA FR1 |  |  |
| **6.7.1.2** | **Inter-frequency measurements** |  |  |  |  |  |
| 6.7.1.2.1 | NR SA FR1-FR1 SS-RSRP absolute measurement accuracy | Rel-15 | C001 | UEs supporting 5GS NR SA FR1 |  |  |
| 6.7.1.2.2 | NR SA FR1-FR1 SS-RSRP relative measurement accuracy | Rel-15 | C001 | UEs supporting 5GS NR SA FR1 |  |  |
| **6.7.2** | **SS-RSRQ** |  |  |  |  |  |
| 6.7.2.1 | NR SA FR1 SS-RSRQ measurement accuracy | Rel-15 | C001 | UEs supporting 5GS NR SA FR1 |  |  |
| 6.7.2.2.1 | NR SA FR1-FR1 SS-RSRQ absolute measurement accuracy | Rel-15 | C001 | UEs supporting 5GS NR SA FR1 |  |  |
| 6.7.2.2.2 | NR SA FR1-FR1 SS-RSRQ relative measurement accuracy | Rel-15 | C001 | UEs supporting 5GS NR SA FR1 |  |  |
| **6.7.3** | **SS-SINR** |  |  |  |  |  |
| 6.7.3.1 | NR SA FR1 SS-SINR measurement accuracy | Rel-15 | C034 | UEs supporting 5GS NR SA FR1 and SS-SINR-meas |  |  |
| 6.7.3.2.1 | NR SA FR1-FR1 SS-SINR absolute measurement accuracy | Rel-15 | C034 | UEs supporting 5GS NR SA FR1 and SS-SINR-meas |  |  |
| 6.7.3.2.2 | NR SA FR1-FR1 SS-SINR relative measurement accuracy | Rel-15 | C034 | UEs supporting 5GS NR SA FR1 and SS-SINR-meas |  |  |
| **6.7.4** | **L1-RSRP for beam reporting** |  |  |  |  |  |
| 6.7.4.1.1 | NR SA FR1 SSB-based L1-RSRP absolute measurement accuracy | Rel-15 | C001 | UEs supporting 5GS NR SA FR1 |  |  |
| 6.7.4.1.2 | NR SA FR1 SSB-based L1-RSRP relative measurement accuracy | Rel-15 | C001 | UEs supporting 5GS NR SA FR1 |  |  |
| 6.7.4.2.1 | NR SA FR1 CSI-RS-based L1-RSRP absolute measurement accuracy | Rel-15 | C001 | UEs supporting 5GS NR SA FR1 |  |  |
| 6.7.4.2.2 | NR SA FR1 CSI-RS-based L1-RSRP relative measurement accuracy | Rel-15 | C001 | UEs supporting 5GS NR SA FR1 |  |  |
| **6.7.5** | **E-UTRAN RSRP** |  |  |  |  |  |
| 6.7.5.1 | NR SA FR1 – E-UTRAN RSRP absolute measurement accuracy | Rel-15 | C001 | UEs supporting 5GS NR SA FR1 |  |  |
| **6.7.6** | **E-UTRAN RSRQ** |  |  |  |  |  |
| 6.7.6.1 | NR SA FR1 – E-UTRAN RSRQ absolute measurement accuracy | Rel-15 | C001 | UEs supporting 5GS NR SA FR1 |  |  |
| **6.7.7** | **E-UTRAN RS-SINR** |  |  |  |  |  |
| 6.7.7.1 | NR SA FR1 – E-UTRAN RS-SINR absolute measurement accuracy | Rel-15 | C001 | UEs supporting 5GS NR SA FR1 |  |  |
| NOTE 1: The test case/branch is incomplete for any Band/CA/DC Configuration but has basic test configurations already. NOTE 1 can be removed only when the test case/branch is complete for at least one Band / CA/DC Configuration for at least one feature included in the test case/branch. Detailed completion status can be found in the corresponding test case section in 38.533.  NOTE 2: Test X refers to the corresponding Sub-Test as defined in TS 38.533 [5]. | | | | | | |

Table 4.2-3a: Void

Table 4.2-4: Applicability of RRM NR SA FR2 conformance test cases, ref. TS 38.533 [5]

| Clause | TC Title | Release | Applicability | | Additional Information | Branch |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | Condition | Comment |  |  |
| **7.1** | **RRC\_IDLE state mobility** |  |  |  |  |  |
| **7.1.1** | **NR cell re-selection** |  |  |  |  |  |
| 7.1.1.1 | NR SA FR2 cell re-selection | FFS | FFS | FFS | NOTE 1 |  |
| 7.1.1.2 | NR SA FR2-FR2 cell re-selection | FFS | FFS | FFS | NOTE 1 |  |
| **7.2** | **RRC\_INACTIVE state mobility** |  |  |  |  |  |
| **7.3** | **RRC\_CONNECTED state mobility** |  |  |  |  |  |
| **7.3.1** | **Handover** |  |  |  |  |  |
| **7.3.2** | **RRC connection mobility control** |  |  |  |  |  |
| **7.3.2.1** | **RRC re-establishment** |  |  |  |  |  |
| 7.3.2.1.1 | NR SA FR2 RRC re-establishment | Rel-15 | C006 | UEs supporting 5GS NR SA FR2 | NOTE 1 |  |
| 7.3.2.1.2 | NR SA FR2 - FR2 RRC re-establishment | Rel-15 | C006 | UEs supporting 5GS NR SA FR2 | NOTE 1 |  |
| 7.3.2.1.3 | NR SA FR2 - FR2 RRC re-establishment without serving cell timing | Rel-15 | C006 | UEs supporting 5GS NR SA FR2 | NOTE 1 |  |
| **7.3.2.2** | **Random access** |  |  |  |  |  |
| **7.3.2.3** | **RRC connection release with redirection** |  |  |  |  |  |
| 7.3.2.3.1 | NR SA FR2 RRC connection release with redirection | FFS | FFS | FFS | NOTE 1 |  |
| **7.4** | **Timing** |  |  |  |  |  |
| **7.4.1** | **UE transmit timing** |  |  |  |  |  |
| **7.4.2** | **UE timer accuracy** |  |  |  |  |  |
| **7.4.3** | **Timing advance** |  |  |  |  |  |
| **7.5** | **Signalling characteristics** |  |  |  |  |  |
| **7.5.1** | **Radio Link Monitoring** |  |  |  |  |  |
| 7.5.1.9 | NR SA FR2 radio link monitoring UE scheduling restrictions | Rel-15 | C006 | UEs supporting 5GS NR SA FR2 | NOTE 1 |  |
| **7.5.2** | **Interruption** |  |  |  |  |  |
| **7.5.3** | **Scell activation and deactivation delay** |  |  |  |  |  |
| **7.5.4** | **UE UL carrier RRC reconfiguration delay** |  |  |  |  |  |
| **7.5.5** | **Beam failure detection and link recovery procedures** |  |  |  |  |  |
| 7.5.5.1 | NR SA FR2 SSB-based beam failure detection and link recovery in non-DRX | Rel-15 | C006 | UEs supporting 5GS NR SA FR2 | NOTE 1 |  |
| 7.5.5.2 | NR SA FR2 SSB-based beam failure detection and link recovery in DRX | Rel-15 | C006 | UEs supporting 5GS NR SA FR2 | NOTE 1 |  |
| 7.5.5.3 | NR SA FR2 CSI-RS-based beam failure detection and link recovery in non-DRX | Rel-15 | C006 | UEs supporting 5GS NR SA FR2 | NOTE 1 |  |
| 7.5.5.4 | NR SA FR2 CSI-RS-based beam failure detection and link recovery in DRX | Rel-15 | C006 | UEs supporting 5GS NR SA FR2 | NOTE 1 |  |
| 7.5.5.5 | NR SA FR2 scheduling availability restriction during SSB-based beam failure detection and link recovery in non-DRX | Rel-15 | C006 | UEs supporting 5GS NR SA FR2 | NOTE 1 |  |
| **7.5.6** | **Active BWP switch delay** |  |  |  |  |  |
| **7.5.6.1** | **Intra-frequency measurements** |  |  |  |  |  |
| 7.5.6.1.1 | NR SA FR2 2DL CA DCI-based DL active BWP switch in non-DRX | FFS | FFS | FFS | NOTE 1 |  |
| 7.5.6.1.2 | NR SA FR1-FR2 DCI-based DL active BWP switch in non-DRX | FFS | FFS | FFS | NOTE 1 |  |
| 7.5.6.1.3 | NR SA FR2 DCI-based DL active BWP switch in non-DRX | Rel-15 | C006 | UEs supporting 5GS NR SA FR2 | NOTE 1 |  |
| **7.5.6.2** | **RRC-based active BWP switch** |  |  |  |  |  |
| 7.5.6.2.1 | NR SA FR2 RRC-based DL active BWP switch in non-DRX | FFS | FFS | FFS | NOTE 1 |  |
| **7.6** | **Measurement procedures** |  |  |  |  |  |
| **7.6.1** | **Intra-frequency measurements** |  |  |  |  |  |
| 7.6.1.1 | NR SA FR2 event-triggered reporting without gap in non-DRX | Rel-15 | C006 | UEs supporting 5GS NR SA FR2 | NOTE 1 |  |
| 7.6.1.2 | NR SA FR2 event-triggered reporting without gap in DRX | Rel-15 | C006 | UEs supporting 5GS NR SA FR2 | NOTE 1 |  |
| 7.6.1.3 | NR SA FR2 event-triggered reporting with gap in non-DRX | Rel-15 | C006 | UEs supporting 5GS NR SA FR2 | NOTE 1 |  |
| 7.6.1.4 | NR SA FR2 event-triggered reporting with gap in DRX | Rel-15 | C006 | UEs supporting 5GS NR SA FR2 | NOTE 1 |  |
| **7.6.2** | **Inter-frequency measurements** |  |  |  |  |  |
| 7.6.2.1 | NR SA FR2-FR2 event-triggered reporting in non-DRX | Rel-15 | C006 | UEs supporting 5GS NR SA FR2 | NOTE 1 |  |
| 7.6.2.2 | NR SA FR2-FR2 event-triggered reporting in DRX | Rel-15 | C006 | UEs supporting 5GS NR SA FR2 | NOTE 1 |  |
| 7.6.2.3 | NR SA FR2-FR2 event-triggered reporting in non-DRX with SSB time index detection | Rel-15 | C006 | UEs supporting 5GS NR SA FR2 | NOTE 1 |  |
| 7.6.2.4 | NR SA FR2-FR2 event-triggered reporting in DRX with SSB time index detection | Rel-15 | C006 | UEs supporting 5GS NR SA FR2 | NOTE 1 |  |
| 7.6.2.5 | NR SA FR1-FR2 event-triggered reporting in non-DRX | Rel-15 | C006 | UEs supporting 5GS NR SA FR2 | NOTE 1 |  |
| 7.6.2.6 | NR SA FR1-FR2 event-triggered reporting in DRX | Rel-15 | C006 | UEs supporting 5GS NR SA FR2 | NOTE 1 |  |
| 7.6.2.7 | NR SA FR1-FR2 event-triggered reporting in non-DRX with SSB time index detection | Rel-15 | C006 | UEs supporting 5GS NR SA FR2 | NOTE 1 |  |
| 7.6.2.8 | NR SA FR1-FR2 event-triggered reporting in DRX with SSB time index detection | Rel-15 | C006 | UEs supporting 5GS NR SA FR2 | NOTE 1 |  |
| **7.6.3** | **L1-RSRP for beam reporting** |  |  |  |  |  |
| 7.6.3.1 | NR SA FR2 SSB-based L1-RSRP measurement in non-DRX | Rel-15 | C006 | UEs supporting 5GS NR SA FR2 | NOTE 1 |  |
| 7.6.3.2 | NR SA FR2 SSB-based L1-RSRP measurement in DRX | Rel-15 | C006 | UEs supporting 5GS NR SA FR2 | NOTE 1 |  |
| 7.6.3.3 | NR SA FR2 CSI-RS-based L1-RSRP measurement in non-DRX | Rel-15 | C006 | UEs supporting 5GS NR SA FR2 | NOTE 1 |  |
| 7.6.3.4 | NR SA FR2 CSI-RS-based L1-RSRP measurement in DRX | Rel-15 | C006 | UEs supporting 5GS NR SA FR2 | NOTE 1 |  |
| **7.7** | **Measurement performance requirements** |  |  |  |  |  |
| **7.7.1** | **SS-RSRP** |  |  |  |  |  |
| 7.7.1.1 | NR SA FR2 SS-RSRP measurement accuracy | FFS | FFS | FFS | NOTE 1 |  |
| 7.7.1.2 | NR SA FR2-FR2 SS-RSRP measurement accuracy | FFS | FFS | FFS | NOTE 1 |  |
| **7.7.1.3** | **Inter-frequency measurements between FR1 and FR2** |  |  |  |  |  |
| 7.7.1.3.1 | NR SA FR1-FR2 SS-RSRP measurement accuracy | FFS | FFS | FFS | NOTE 1 |  |
| **7.7.2** | **SS-RSRQ** |  |  |  |  |  |
| **7.7.3** | **SS-SINR** |  |  |  |  |  |
| **7.7.4** | **L1-RSRP for beam reporting** |  |  |  |  |  |
| NOTE 1: The test case/branch is incomplete for any Band/CA/DC Configuration but has basic test configurations already. NOTE 1 can be removed only when the test case/branch is complete for at least one Band / CA/DC Configuration for at least one feature included in the test case/branch. Detailed completion status can be found in the corresponding test case section in 38.533.  NOTE 2: Void.  NOTE 3: Void. | | | | | | |

Table 4.2-4a: Void

Table 4.2-5: Applicability of E-UTRA – NR Inter-RAT conformance test cases, ref. TS 38.533 [5]

| Clause | TC Title | Release | Applicability | | Additional Information | Branch |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | Condition | Comment |  |  |
| **8.2** | **RRC\_IDLE state mobility** |  |  |  |  |  |
| **8.2.1** | **Inter-RAT cell re-selection** |  |  |  |  |  |
| 8.2.1.1 | E-UTRA – NR FR1 cell re-selection to higher priority NR target cell | Rel-15 | C025 | UEs supporting 5GS NR SA FR1 and E-UTRA |  |  |
| **8.3** | **RRC\_CONNECTED state mobility** |  |  |  |  |  |
| **8.3.1** | **Inter-RAT cell handover** |  |  |  |  |  |
| 8.3.1.1 | E-UTRA – NR FR1 handover with known target cell | Rel-15 | C025 | UEs supporting 5GS NR SA FR1 and E-UTRA |  |  |
| **8.4** | **Measurement procedures** |  |  |  |  |  |
| **8.4.1** | **SFTD measurement delay** |  |  |  |  |  |
| 8.4.1.1 | E-UTRA – NR FR1 SFTD measurement delay in non-DRX | Rel-15 | C025 | UEs supporting 5GS NR SA FR1 and E-UTRA |  |  |
| 8.4.1.2 | E-UTRA – NR FR1 SFTD measurement delay in DRX | Rel-15 | C025 | UEs supporting 5GS NR SA FR1 and E-UTRA |  |  |
| **8.4.2** | **Inter-RAT measurements** |  |  |  |  |  |
| 8.4.2.1 | E-UTRA – NR FR1 event-triggered reporting without SSB time index detection in non-DRX | Rel-15 | C025 | UEs supporting 5GS NR SA FR1 and E-UTRA |  |  |
| 8.4.2.2 | E-UTRA – NR FR1 event-triggered reporting without SSB time index detection in DRX | Rel-15 | C025 | UEs supporting 5GS NR SA FR1 and E-UTRA |  |  |
| 8.4.2.3 | E-UTRA – NR FR1 event-triggered reporting with SSB time index detection in non-DRX | Rel-15 | C025 | UEs supporting 5GS NR SA FR1 and E-UTRA |  |  |
| 8.4.2.4 | E-UTRA – NR FR1 event-triggered reporting with SSB time index detection in DRX | Rel-15 | C025 | UEs supporting 5GS NR SA FR1 and E-UTRA |  |  |
| **8.5** | **Measurement performance requirements** |  |  |  |  |  |
| **8.5.1** | **SFTD measurement accuracy** |  |  |  |  |  |
| 8.5.1.1 | E-UTRA – NR FR1 SFTD measurement accuracy | Rel-15 | C025 | UEs supporting 5GS NR SA FR1 and E-UTRA | NOTE 1 |  |
| NOTE 1: The test case/branch is incomplete for any Band/CA/DC Configuration but has basic test configurations already. NOTE 1 can be removed only when the test case/branch is complete for at least one Band / CA/DC Configuration for at least one feature included in the test case/branch. Detailed completion status can be found in the corresponding test case section in 38.533. | | | | | | |

Annex A (informative): Change history

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Change history** | | | | | | | |
| **Date** | **Meeting** | **TDoc** | **CR** | **Rev** | **Cat** | **Subject/Comment** | **New version** |
| 2017-08 | RAN5#76 | R5-173911 | - | - | - | Draft skeleton | 0.0.1 |
| 2018-01 | RAN5#1-5G-NR Adhoc | R5-180107 | - | - | - | Updated after [RAN5#1-5G-NR Adhoc](http://portal.3gpp.org/webapp/meetingCalendar/MeetingDetails.asp?m_id=33216):  - Foreword, scope, references, definitions, symbols and abbreviations, recommended test case applicability updated  - clause 4.1.1, 4.1.2, 4.1.3 and 4.1.4 added  - change history added | 0.1.0 |
| 2018-03 | RAN5 #78 | R5-181687 | - | - | - | TP for Clause 4.1.1 Range 1 standalone conformance test cases | 0.2.0 |
| 2018-03 | RAN5 #78 | R5-181688 | - | - | - | TP for Clause 4.1.2 Range 2 standalone conformance test cases | 0.2.0 |
| 2018-03 | RAN5 #78 | R5-181689 | - | - | - | TP for Clause 4.1.3 NR interworking between NR range1 and NR range2 and between NR and LTE conformance test cases | 0.2.0 |
| 2018-04 | RAN5#2-5G-NR Adhoc | R5-182013 | - | - | - | TP for Clause 3 Definitions, symbols and abbreviations | 0.3.0 |
| 2018-04 | RAN5#2-5G-NR Adhoc | R5-182047 | - | - | - | TP for Clause 4 Recommended test case applicability | 0.3.0 |
| 2018-08 | RAN5#80 | R5-185209 | - | - | - | TP for Clause 4.1.1 of TS 38.522 | 1.0.1 |
| 2018-08 | RAN5#80 | R5-185210 | - | - | - | TP for Clause 4.1.2 of TS 38.522 | 1.0.1 |
| 2018-08 | RAN5#80 | R5-185211 | - | - | - | TP for Clause 4.1.3 of TS 38.522 | 1.0.1 |
| 2018-09 | RAN#81 | - | - | - | - | raised to v15.0.0 with editorial changes only | 15.0.0 |
| 2018-12 | RAN#82 | R5-186501 | 0013 | - | F | Applicability rules implementation in 38.522 | 15.1.0 |
| 2018-12 | RAN#82 | R5-188223 | 0015 | - | F | Applicability for RRM NR tests | 15.1.0 |
| 2018-12 | RAN#82 | R5-187566 | 0016 | - | F | Update note in section 4.1 to include CBW and SCS in RF test applicability | 15.1.0 |
| 2018-12 | RAN#82 | R5-187849 | 0014 | 1 | F | Adding applicability for new 38.521-1 CA TCs | 15.1.0 |
| 2018-12 | RAN#82 | R5-187881 | 0008 | 1 | F | Update Clause 1 Scope of TS 38.522 | 15.1.0 |
| 2018-12 | RAN#82 | R5-187884 | 0011 | 1 | F | TP for Clause 4.1.2 of TS 38.522 | 15.1.0 |
| 2018-12 | RAN#82 | R5-187922 | 0017 | - | F | Removing FR2 test case 7.4 from TS 38.522 due to testability issue | 15.1.0 |
| 2019-01 | RAN#82 | R5-187882 | 0009 | 1 | F | Update Clause 3 of TS 38.522 | 15.1.1 |
| 2019-01 | RAN#82 | R5-187883 | 0010 | 1 | F | TP for Clause 4.1.1 of TS 38.522 | 15.1.1 |
| 2019-01 | RAN#82 | R5-187885 | 0012 | 1 | F | TP for Clause 4.1.3 of TS 38.522 | 15.1.1 |
| 2019-03 | RAN#83 | R5-191722 | 0021 | - | F | addition of applicability for BFD and measurement | 15.2.0 |
| 2019-03 | RAN#83 | R5-192507 | 0020 | 1 | F | TP for TS 38.522 | 15.2.0 |
| 2019-03 | RAN#83 | R5-192508 | 0022 | 1 | F | Addition of RRM Test Cases Applicability | 15.2.0 |
| 2019-06 | RAN#84 | R5-195444 | 0027 | 1 | F | TP for TS 38.522 | 15.3.0 |
| 2019-06 | RAN#84 | - | - | - | - | Administrative release upgrade to match the release of 3GPP TS 38.508-1 and TS 38.521-1 which were upgraded at RAN#84 to Rel-16 due to Rel-16 relevant CR(s) | 16.0.0 |
| 2019-06 | RAN#84 | - | - | - | - | Addition of missing Table part of R5-195444 and part of a note. | 16.0.1 |
| 2019-06 | RAN#84 | - | - | - | - | Formatted big tables to landscape | 16.0.2 |
| 2019-09 | RAN#85 | R5-197650 | 0030 | 1 | - | TP for TS 38.522 | 16.1.0 |
| 2019-09 | RAN#85 | R5-197650 | 0030 | 1 | - | Added missing changes of R5-197650 | 16.1.1 |
| 2019-12 | RAN#86 | R5-199089 | 0032 | 2 | - | TP for TS 38.522 | 16.2.0 |
| 2020-03 | RAN#87 | R5-201036 | 0033 | 1 | F | TP and format updated for TS 38.522 | 16.3.0 |
| 2020-06 | RAN#88 | R5-202958 | 0040 | 1 | F | R16 TDD ENDC PC2 TP for TS 38.522 | 16.4.0 |
| 2020-06 | RAN#88 | R5-203114 | 0037 | 2 | F | TP updated to applicability table | 16.4.0 |
| 2020-09 | RAN#89 | R5-204098 | 0046 | - | F | Correct applicability EN-DC event-triggered inter-frequency tests | 16.5.0 |
| 2020-09 | RAN#89 | R5-204099 | 0047 | - | F | Correct applicability NR SA event-triggered inter-frequency tests | 16.5.0 |
| 2020-09 | RAN#89 | R5-204939 | 0043 | 1 | F | TP for TS 38.522 | 16.5.0 |
| 2020-09 | RAN#89 | R5-204940 | 0044 | 1 | F | Correction of 38.522 | 16.5.0 |
| 2020-12 | RAN#90 | R5-206905 | 0051 | 1 | F | Update to applicability spec for 5G test cases | 16.6.0 |