

TAC 007
ISSUE 3
DECEMBER 2021

**TYPE ACCEPTANCE CRITERIA FOR
5G NEW RADIO BASE STATION EQUIPMENT
OPERATING BELOW 6 GHz BAND**



AMENDMENT TABLE

Item	Issue No.	Paragraph	Descriptions
1	Issue 1 November 2019	All	First release
2	Issue 2 December 2020	2	Addition of the paired band 832.5 – 837.5 MHz / 877.5 – 882.5 MHz for 5G NR base station equipment operating below 6 GHz band
3	Issue 3 December 2021	1	Updating of the scope to clarify the base station equipment type covered by this type acceptance criteria
		2	Addition of the paired band 703 – 738 MHz / 758 – 793 MHz, extension of the paired 850 MHz band to 825 – 837.5 MHz / 870 – 882.5 MHz and extension of the unpaired 4.9 GHz band to 4800 – 4960 MHz for 5G NR base station equipment operating below 6 GHz band
		3.1	Addition of 3GPP specification TS 38.141-2 to the technical requirements
		3.1(a)	Split of the original test item on unwanted emissions into three, i.e. test items 3.1(a)(ii), (iii) and (iv)
		3.1(b)	Addition of new test item 3.1(b)(i)
		3.1(c)	Addition of new test item 3.1(c)(i) and (ii), and renaming of test item 3.1(c)(iii) from “in-band selectivity and blocking” to “in-band blocking”
		3.1(d)	Addition of new test item 3.1(d)(i)

1. SCOPE

This document sets out the criteria for type acceptance of 5G New Radio (NR) base station (BS) equipment operating in frequency bands below 6 GHz band of BS type 1-C and BS type 1-H¹ (hereafter referred to as “the equipment”).

2. OPERATING FREQUENCIES

The equipment shall operate in the following frequency bands:

Band Arrangement	Downlink (Base Station Transmit)	Uplink (Base Station Receive)
Paired Band	758 – 793 MHz	703 – 738 MHz
	870 – 882.5 MHz	825 – 837.5 MHz
	925 – 960 MHz	880 – 915 MHz
	1805 – 1880 MHz	1710 – 1785 MHz
	2110 – 2170 MHz	1920 – 1980 MHz
	2620 – 2690 MHz	2500 – 2570 MHz
Unpaired Band	2300 – 2390 MHz	
	3300 – 3400 MHz	
	3400 – 3600 MHz	
	4800 – 4960 MHz	

3. TECHNICAL REQUIREMENTS

3.1 The equipment shall meet the technical requirements as stipulated in the specifications TS 38.141-1 titled “3rd Generation Partnership Project; Technical Specification Group RAN; NR; Base Station (BS) Conformance Testing, Part 1: Conducted Conformance Testing” and TS 38.141-2 titled “3rd Generation Partnership Project; Technical Specification Group RAN; NR; Base Station (BS) Conformance Testing, Part 2: Radiated Conformance Testing” published by the Third Generation Partnership Project (3GPP) in respect of the following:

(a) Transmitter (conducted requirements applicable to BS type 1-C and BS type 1-H)

Item	Transmitter Characteristics	Relevant Clause in 3GPP TS 38.141-1
(i)	Base station output power	Clause 6.2
(ii)	Adjacent channel leakage power ratio (ACLR)	Clause 6.6.3
(iii)	Operating band unwanted emissions	Clause 6.6.4 excluding sub-clause 6.6.4.5.6 on basic limits for additional requirements
(iv)	Transmitter spurious emissions	Clause 6.6.5 excluding sub-clause 6.6.5.5.1.4 on co-location with other base stations
(v)	Transmitter intermodulation	Clause 6.7

¹ BS type 1-C and BS type 1-H are defined in 3GPP specifications TS 38.141-1 and TS 38.141-2.

(b) Transmitter (radiated requirements applicable to BS type 1-H only)

<i>Item</i>	<i>Transmitter Characteristics</i>	<i>Relevant Clause in 3GPP TS 38.141-2</i>
(i)	Radiated transmit power	Clause 6.2

(c) Receiver (conducted requirements applicable to BS type 1-C and BS type 1-H)

<i>Item</i>	<i>Receiver Characteristics</i>	<i>Relevant Clause in 3GPP TS 38.141-1</i>
(i)	Reference sensitivity level	Clause 7.2
(ii)	Adjacent channel selectivity (ACS)	Clause 7.4.1
(iii)	In-band blocking	Clause 7.4.2
(iv)	Out-of-band blocking	Clause 7.5 excluding sub-clause 7.5.5.2 on co-location requirements
(v)	Receiver spurious emissions	Clause 7.6
(vi)	Receiver intermodulation	Clause 7.7

(d) Receiver (radiated requirements applicable to BS type 1-H only)

<i>Item</i>	<i>Receiver Characteristics</i>	<i>Relevant Clause in 3GPP TS 38.141-2</i>
(i)	OTA sensitivity	Clause 7.2

3.2 Additional Spurious Emissions Requirements

The spurious emissions falling onto the 3.7 – 4.2 GHz band shall not exceed – 52 dBm/MHz.

4. EVALUATION METHOD

Compliance of the equipment with the technical requirements shall be evaluated in accordance with the procedures specified in the corresponding 3GPP specifications as given in clause 3.1 above.

5. REFERENCE

3GPP TS 38.104 titled "3rd Generation Partnership Project; Technical Specification Group Radio Access Network; NR; Base Station (BS) radio transmission and reception"

3GPP TS 38.141-1 titled "3rd Generation Partnership Project; Technical Specification Group RAN; NR; Base Station (BS) conformance testing, Part 1: Conducted conformance testing"

3GPP TS 38.141-2 titled “3rd Generation Partnership Project; Technical Specification Group RAN; NR; Base Station (BS) conformance testing, Part 2: Radiated conformance testing”

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