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5G;

NR, E-UTRA, UTRA and GSM/EDGE;

Multi-Standard Radio (MSR) Base Station (BS)

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Foreword

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1 Scope

The present document specifies the Radio Frequency (RF) test methods and conformance requirements for NR, E-UTRA, UTRA, GSM/EDGE and NB-IoT Multi-Standard Radio (MSR) Base Station (BS). These have been derived from, and are consistent with the NR, E-UTRA, UTRA, GSM/EDGE and NB-IoT MSR BS specification defined in [2].

2 References

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

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

- [1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".
- [2] 3GPP TS 37.104: "E-UTRA, UTRA and GSM/EDGE; Multi-Standard Radio (MSR) Base Station (BS) radio transmission and reception".
- [3] 3GPP TS 25.104: "Base Station (BS) radio transmission and reception (FDD) ".
- [4] 3GPP TS 25.105: "Base Station (BS) radio transmission and reception (TDD) ".
- [5] 3GPP TS 36.104: "Evolved Universal Terrestrial Radio Access (E-UTRA); Base Station (BS) radio transmission and reception".
- [6] 3GPP TS 45.005: "Radio transmission and reception".
- [7] ITU-R Recommendation M.1545, "Measurement uncertainty as it applies to test limits for the terrestrial component of International Mobile Telecommunications-2000".
- [8] "Title 47 of the Code of Federal Regulations (CFR)", Federal Communications Commission.
- [9] 3GPP TS 36.141: "Evolved Universal Terrestrial Radio Access (E-UTRA); Base Station (BS) conformance testing".
- [10] 3GPP TS 25.141: "Base Station (BS) conformance testing (FDD) ".
- [11] 3GPP TS 51.021: "Base Station System (BSS) equipment specification; Radio aspects".
- [12] 3GPP TS 25.142: "Base Station (BS) conformance testing (TDD) ".
- [13] Recommendation ITU-R SM.329-10, "Unwanted emissions in the spurious domain".
- [14] 3GPP TR 25.942: "Radio Frequency (RF) system scenarios".
- [15] ITU-R recommendation SM.328: "Spectra and bandwidth of emissions".
- [16] IEC 60721: "Classification of environmental conditions".
- [17] IEC 60721-3-3: "Classification of environmental conditions - Part 3-3: Classification of groups of environmental parameters and their severities - Stationary use at weather protected locations".
- [18] IEC 60721-3-4: "Classification of environmental conditions - Part 3: Classification of groups of environmental parameters and their severities - Section 4: Stationary use at non-weather protected locations".

- [19] ETSI EN 300 019-1-3, *European Standard (Telecommunications series)*, “Environmental Engineering (EE); Environmental conditions and environmental tests for telecommunications equipment; Part 1-3: Classification of environmental conditions; Stationary use at weather protected locations”
- [20] ETSI EN 300 019-1-4, *European Standard (Telecommunications series)*, “Environmental Engineering (EE); Environmental conditions and environmental tests for telecommunications equipment; Part 1-4: Classification of environmental conditions; Stationary use at non-weather protected locations”.
- [21] IEC 60068-2-1 (2007): "Environmental testing - Part 2: Tests. Tests A: Cold".
- [22] IEC 60068-2-2 (2007): "Environmental testing - Part 2: Tests. Tests B: Dry heat".
- [23] IEC 60068-2-6 (2007): "Environmental testing - Part 2: Tests - Test Fc: Vibration (sinusoidal)".
- [24] CEPT ECC Decision (13)03, "The harmonised use of the frequency band 1452-1492 MHz for Mobile/Fixed Communications Networks Supplemental Downlink (MFCN SDL)".
- [25] CEPT ECC Decision (17)06, “The harmonised use of the frequency bands 1427-1452 MHz and 1492-1518 MHz for Mobile/Fixed Communications Networks Supplemental Downlink (MFCN SDL)”.
- [26] 3GPP TS 38.141-1: "NR; Base Station (BS) conformance testing Part 1: Conducted conformance testing".
- [27] 3GPP TS 38.104: "NR; Base Station (BS) radio transmission and reception".
- [28] Void.
- [29] 3GPP TS 38.101-1: "NR; User Equipment (UE) radio transmission and reception; Part 1: Range 1 Standalone"

3 Definitions, symbols and abbreviations

3.1 Definitions

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

Band category: group of operating bands for which the same MSR scenarios apply.

Base Station RF Bandwidth: RF bandwidth in which a base station transmits and/or receives single or multiple carrier(s) and/or RATs simultaneously within a supported operating band.

NOTE: In single carrier operation, the Base Station RF Bandwidth is equal to the channel bandwidth.

Base Station RF Bandwidth edge: frequency of one of the edges of the Base Station RF Bandwidth.

Carrier: modulated waveform conveying the NR, E-UTRA, UTRA or GSM/EDGE physical channels.

Carrier aggregation: aggregation of two or more NR or E-UTRA component carriers in order to support wider transmission bandwidths.

Carrier aggregation band: set of one or more operating bands across which multiple NR or E-UTRA carriers are aggregated with a specific set of technical requirements.

NOTE: Carrier aggregation band(s) for an E-UTRA BS is declared by the manufacturer according to the designations in Tables 5.5-2 to 5.5-4 of TS 36.104 [5].

Channel bandwidth: RF bandwidth supporting a single NR, E-UTRA, UTRA or GSM/EDGE RF carrier with the transmission bandwidth configured in the uplink or downlink of a cell.