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Contents

Foreword

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1 Scope

The present document specifies the Radio Frequency (RF) test methods and conformance requirements for E-UTRA Base Stations (BS) operating either in the FDD mode (used in paired bands) or the TDD mode (used in unpaired bands). These have been derived from, and are consistent with the E-UTRA Base Station (BS) specifications 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 36 104: "E-UTRA Base Station (BS) radio transmission and reception".

[3] ITU-R Recommendation M.1545, "Measurement uncertainty as it applies to test limits for the terrestrial component of International Mobile Telecommunications-2000".

[4] ITU-R recommendation SM.328: "Spectra and bandwidth of emissions".

[5] ITU-R recommendation SM.329: "Unwanted emissions in the spurious domain ".

[6] IEC 60721-3-3 (2002): "Classification of environmental conditions - Part 3: Classification of groups of environmental parameters and their severities - Section 3: Stationary use at weather protected locations".

[7] IEC 60721-3-4 (1995): "Classification of environmental conditions - Part 3: Classification of groups of environmental parameters and their severities - Section 4: Stationary use at non-weather protected locations".

[8] IEC 60068-2-1 (2007): "Environmental testing - Part 2: Tests. Tests A: Cold".

[9] IEC 60068-2-2 (2007): "Environmental testing - Part 2: Tests. Tests B: Dry heat".

[10] IEC 60068-2-6 (2007): "Environmental testing - Part 2: Tests - Test Fc: Vibration (sinusoidal)".

[11] 3GPP TR 25.942: "RF system scenarios".

[12] 3GPP TS 36.211: "Evolved Universal Terrestrial Radio Access (E-UTRA); Physical Channels and Modulation".

[13] 3GPP TS 36.212: "Evolved Universal Terrestrial Radio Access (E-UTRA); Multiplexing and channel coding".

[14] 3GPP TR 36.942: "E-UTRA RF system scenarios".

[15] 3GPP TS 25.104: "UTRA (BS) FDD; Radio transmission and Reception".

[16] 3GPP TS 36.213: "Evolved Universal Terrestrial Radio Access (E-UTRA); Physical layer procedures".

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].

Base station receive period: The time during which the base station is receiving data subframes or UpPTS.

Carrier: The modulated waveform conveying the E-UTRA or UTRA (WCDMA) physical channels

Channel bandwidth: The RF bandwidth supporting a single E-UTRA RF carrier with the transmission bandwidth configured in the uplink or downlink of a cell. The channel bandwidth is measured in MHz and is used as a reference for transmitter and receiver RF requirements.

Channel edge: The lowest and highest frequency of the E-UTRA carrier, separated by the channel bandwidth.

DL RS power: The resource element power of Downlink Reference Symbol.

Downlink operating band: The part of the operating band designated for downlink.

Maximum output power: The mean power level per carrier of the base station measured at the antenna connector in a specified reference condition.

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Maximum throughput: The maximum achievable throughput for a reference measurement channel.

Mean power: When applied to E-UTRA transmission this is the power measured in the channel bandwidth of the carrier. The period of measurement shall be at least one subframe (1ms), unless otherwise stated.

Multi-carrier transmission configuration: A set of one or more contiguous carriers that a BS is able to transmit simultaneously according to the manufacturer's specification.

Occupied bandwidth: The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage $\beta/2$ of the total mean power of a given emission.

Operating band: A frequency range (paired or unpaired) that is defined with a specific set of technical requirements, in which E-UTRA operates.

NOTE: The operating band(s) for an E-UTRA BS is declared by the manufacturer according to the designations in Table 5.5-1.

Output power: The mean power of one carrier of the base station, delivered to a load with resistance equal to the nominal load impedance of the transmitter.

Rated output power: Rated output power of the base station is the mean power level per carrier that the manufacturer has declared to be available at the antenna connector.

RE power control dynamic range: The difference between the power of a RE and the average RE power for a BS at maximum output power for a specified reference condition.

Reference bandwidth: The bandwidth in which an emission level is specified.

RRC filtered mean power: The mean power as measured through a root raised cosine filter with roll-off factor α and a bandwidth equal to the chip rate of the radio access mode.

NOTE 1: The RRC filtered mean power of a perfectly modulated W-CDMA signal is 0.246 dB lower than the mean power of the same signal.

Throughput: The number of payload bits successfully received per second for a reference measurement channel in a specified reference condition.