**3GPP TSG-RAN WG4 Meeting #94bis-e Draft *R4-2005565***

**Electronic Meeting, April 20th – April 30th**

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **37.113** | **CR** | **-** | **rev** | **<->** | **Current version:** | **15.8.0** |  |
|  | | | | | | | | |
| *For* [***HELP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network | **X** | Core Network |  |

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| ***Title:*** | Draft CR to 37.113 Introducing Reverberation Chamber | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Ericsson, ZTE | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_newRAT-Core | | | | |  | ***Date:*** | | | 2020-04-20 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | F |  | | | | | ***Release:*** | | | Rel-15 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) Rel-12 (Release 12) Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | In this Draft CR, reverberation chamber use is included to TS 37.113 | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Introducing Reverberation Chamber to TS 37.113. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Possible misalignment with ETSI EMC Standard. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 2; 9.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

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# 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 25.104: "Base Station (BS) radio transmission and reception (FDD)".

[3] 3GPP TS 25.105: "Base Station (BS) radio transmission and reception (TDD)".

[4] 3GPP TS 36.104: "Evolved Universal Terrestrial Radio Access (E-UTRA); Base Station (BS) radio transmission and reception ".

[5] 3GPP TS 45.005: "Radio transmission and reception".

[6] 3GPP TS 37.104: "NR, E-UTRA, UTRA and GSM/EDGE; Multi-Standard Radio (MSR) Base Station (BS) radio transmission and reception".

[7] 3GPP TS 25.141: "Base Station (BS) conformance testing (FDD)".

[8] 3GPP TS 25.142: "Base Station (BS) conformance testing (TDD)".

[9] 3GPP TS 36.141: "Evolved Universal Terrestrial Radio Access (E-UTRA); Base Station (BS) conformance testing".

[10] 3GPP TS 51.021: "Base Station System (BSS) equipment specification; Radio aspects".

[11] 3GPP TS 37.141: "NR, E-UTRA, UTRA and GSM/EDGE; Multi-Standard Radio (MSR) Base Station (BS) conformance testing".

[12] IEC 61000-6-1: 2005: "Electromagnetic compatibility (EMC) - Part 6-1: Generic standards –Immunity for residential, commercial and light-industrial environments".

[13] IEC 61000-6-3: 2006/AMD1:2010: "Electromagnetic compatibility (EMC) - Part 6-3: Generic standards – Emission standard for residential, commercial and light-industrial environments".

[14] IEC 60050-161: "International Electrotechnical Vocabulary (IEV) - Part 161: Electromagnetic compatibility".

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

[16] ITU-R Recommendation SM.1539-1 (2001): "Variation of the boundary between the out-of-band and spurious domains required for the application of Recommendations ITU-R SM.1541 and ITU-R SM.329".

[17] Void

[18] Void

[19] IEC 61000-3-2 (2004): "Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current ≤ 16 A)".

[20] IEC 61000-3-12 (2005): "Electromagnetic compatibility (EMC) - Part 3-12: Limits - Limits for harmonic current produced by equipment connected to public low-voltage system with input current >16 A and ≤ 75 A".

[21] IEC 61000-3-3 (2002): "Electromagnetic compatibility (EMC) - Part 3-3: Limits - Limitation of voltage fluctuations and flicker in low-voltage supply systems for equipment with rated current ≤ 16 A".

[22] IEC 61000-3-11 (2000): "Electromagnetic compatibility (EMC) - Part 3-11: Limits – Limitation of voltage fluctuations and flicker in low-voltage supply systems for equipment with rated current ≤ 75 A and subject to conditional connections".

[23] IEC 61000-4-3: "Electromagnetic compatibility (EMC) - Part 4-3: Testing and measurement techniques - Radiated, radio-frequency electromagnetic field immunity test".

[24] IEC 61000-4-2: "Electromagnetic compatibility (EMC) - Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test".

[25] IEC 61000-4-4: "Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test".

[26] IEC 61000-4-6: "Electromagnetic compatibility (EMC) - Part 4-6: Testing and measurement techniques - Immunity to contacted disturbances, induced by radio frequency fields".

[27] IEC 61000-4-11: "Electromagnetic compatibility (EMC) - Part 4-11: Testing and measurement techniques - Voltage dips, short interruptions and voltage variations. Immunity tests".

[28] IEC 61000-4-5: "Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test".

[29] 3GPP TS 25.101: "User Equipment (UE) radio transmission and reception (FDD)".

[30] 3GPP TS 25.102: "User Equipment (UE) radio transmission and reception (TDD)".

[31] 3GPP TS 36.101: "Evolved Universal Terrestrial Radio Access (E-UTRA); User Equipment (UE) radio transmission and reception".

[32] 3GPP TS 45.008: "Radio subsystem link control".

[33] 3GPP TS 51.010-1: " Mobile Station (MS) conformance specification; Part 1: Conformance specification".

[34] CISPR 32: "Electromagnetic compatibility of multimedia equipment - Emission requirements".

[35] 3GPP TS 38.104: "NR; Base Station (BS) radio transmission and reception".

[36] 3GPP TS 38.141-1: "NR; Base Station (BS) conformance testing; Part 1: Conducted conformance testing".

[37] 3GPP TS 38.141-2: "NR; Base Station (BS) conformance testing; Part 2: Radiated conformance testing".

[38] 3GPP TS 38.101-4: "NR; User Equipment (UE) radio transmission and reception; Part 4: Performance requirements".

[39] 3GPP TS 37.114: "Active Antenna System (AAS) Base Station (BS), Electromagnetic Compatibility (EMC) ".

[40] IEC 61000-4-21: “Electromagnetic Compatibility (EMC) Part 4-21: Testing And Measurement Techniques Reverberation Chamber Test Methods”.

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## 9.2 RF electromagnetic field (80 MHz - 6000 MHz)

The test shall be performed on a representative configuration of the equipment, the associated ancillary equipment, or representative configuration of the combination of radio and ancillary equipment.

### 9.2.1 Definition

This test assesses the ability of radio equipment and ancillary equipment to operate as intended in the presence of a radio frequency electromagnetic field disturbance at the enclosure.

### 9.2.2 Test method and level

The test method shall be in accordance with IEC 61000‑4‑3 [23]. The use of reverberation chamber test method according to IEC 61000-4-21 [40], clause 6.1 and Annex D is allowed:

- for transmitters, receivers and transceivers the following requirements shall apply:

- the test level shall be 3 V/m amplitude modulated to a depth of 80 % by a sinusoidal audio signal of 1 kHz;

- the stepped frequency increments shall be 1 % of the momentary frequency;

- the test shall be performed over the frequency range 80 MHz - 6000 MHz with the exception of the exclusion band for receivers (see subclause 4.4);

- responses in stand-alone receivers or receivers which are part of transceivers occurring at discrete frequencies which are narrow band responses, shall be disregarded, see subclause 4.3;

- the frequencies selected during the test shall be recorded in the test report.

- If necessary because of limited physical size of RC, for small size equipment with dimensions below λ/4 of start frequency, start frequency is allowed to be increased.

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NOTE 1: In case an increased RC start frequency is utilized, increase of stop frequency for RF Conducted Immunity test up to equal to RC start frequency shall be done. According to EN 61000-4-6, Annex B stop frequency can be extended from 80 MHz to a frequency not greater than 230 MHz.

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