3GPP TSG-RAN WG4 Meeting # 101-e draft R4-2120830

Electronic Meeting, November 01-12, 2021

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **37.941** | **CR** | **-** | **rev** | **-** | **Current version:** | **16.3.0** |  |
|  | | | | | | | | |
| *For* [***HE******LP***](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:*** | Big CR for TR 37.941 maintenance (Rel-16, CAT F) | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | MCC, Huawei | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | OTA\_BS\_testing | | | | |  | ***Date:*** | | | 2021-11-16 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-16 |
|  | *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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | This big CR merges endorsed draft CRs.  The reason for change in each endorsed draft CR is copied below:   * R4-2119133: There are still [] found in table 11.2.6.3-1, which shall be removed. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | The summary of change in each endorsed draft CR is copied below:   * R4-2119133: Removal of outstanding []. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The consequences if not approved in each endorsed draft CR is copied below:   * R4-2119133: Ambiguous [] would kept in the MU derivation table. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 11.2.6.3 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **x** | Other core specifications | | | |  | | |
| ***affected:*** | |  | **X** | Test specifications | | | |  | | |
| ***(show related CRs)*** | |  | **x** | O&M Specifications | | | |  | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

*------------------------------ Modified section ------------------------------*

#### 11.2.6.3 MU value derivation, FR1

Table 11.2.6.3-1 captures derivation of the expanded measurement uncertainty values for OTA BS output power measurements in PWS.

Table 11.2.6.3-1: PWS MU value derivation for OTA BS output power

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| UID | Uncertainty source | Uncertainty value (dB) | | | Distribution of the | Divisor based on | *ci* | Standard uncertainty *ui* (dB) | | |
|  |  | f ≤ 3 GHz | 3 < f ≤ 4.2 GHz | 4.2 < f ≤ 6 GHz | probability | distribution shape |  | f ≤ 3 GHz | 3 < f ≤ 4.2 GHz | 4.2 < f ≤ 6 GHz |
| Stage 2: BS measurement | | | | | | | | | | |
| A7-1a | Misalignment and pointing error of BS | 0.10 | 0.10 | 0.10 | Rectangular | 1.73 | 1 | 0.06 | 0.06 | 0.06 |
| C1-1 | Uncertainty of the RF power measurement equipment (e.g. spectrum analyzer, power meter) | 0.14 | 0.26 | 0.26 | Gaussian | 1.00 | 1 | 0.14 | 0.26 | 0.26 |
| A7-2a | Longitudinal position uncertainty (i.e. standing wave and imperfect field synthesis) for BS antenna | 0.05 | 0.14 | 0.20 | Rectangular | 1.73 | 1 | 0.03 | 0.08 | 0.12 |
| A7-3 | RF leakage (calibration antenna connector terminated) | 0.09 | 0.09 | 0.09 | Gaussian | 1.00 | 1 | 0.09 | 0.09 | 0.09 |
| A7-4a | QZ ripple experienced by BS | 0.42 | 0.43 | 0.57 | Rectangular | 1.73 | 1 | 0.24 | 0.25 | 0.33 |
| A7-5 | Miscellaneous uncertainty | 0.00 | 0.00 | 0.00 | Gaussian | 1.00 | 1 | 0.00 | 0.00 | 0.00 |
| A7-14 | System non-linearity | 0.10 | 0.10 | 0.15 | Rectangular | 1.73 | 1 | 0.06 | 0.06 | 0.09 |
| A7-13 | Frequency flatness of test system | 0.13 | 0.13 | 0.13 | Rectangular | 1.73 | 1 | 0.08 | 0.08 | 0.08 |
| Stage 1: Calibration measurement | | | | | | | | | | |
| C1-3 | Uncertainty of the network analyzer | 0.13 | 0.20 | 0.20 | Gaussian | 1.00 | 1 | 0.13 | 0.20 | 0.20 |
| A7-6 | Mismatch (i.e. reference antenna, network analyser and reference cable) | 0.13 | 0.33 | 0.33 | U-shaped | 1.41 | 1 | 0.09 | 0.23 | 0.23 |
| A7-7 | Insertion loss of receiver chain | 0.18 | 0.18 | 0.18 | Rectangular | 1.73 | 1 | 0.10 | 0.10 | 0.10 |
| A7-3 | RF leakage (calibration antenna connector terminated) | 0.09 | 0.09 | 0.09 | Gaussian | 1.00 | 1 | 0.09 | 0.09 | 0.09 |
| A7-8 | Influence of the calibration antenna feed cable | 0.10 | 0.10 | 0.10 | Rectangular | 1.73 | 1 | 0.06 | 0.06 | 0.06 |
| C1-4 | Uncertainty of the absolute gain of the reference antenna | 0.50 | 0.43 | 0.43 | Rectangular | 1.73 | 1 | 0.29 | 0.25 | 0.25 |
| A7-9 | Misalignment of positioning system | 0.00 | 0.00 | 0.00 | Exp. normal | 2.00 | 1 | 0.00 | 0.00 | 0.00 |
| A7-1b | Misalignment and pointing error of calibration antenna | 0.05 | 0.05 | 0.05 | Rectangular | 1.73 | 1 | 0.03 | 0.03 | 0.03 |
| A7-10 | Rotary joints | 0.00 | 0.00 | 0.00 | U-shaped | 1.73 | 1 | 0.00 | 0.00 | 0.00 |
| A7-2b | Longitudinal position uncertainty (i.e. standing wave and imperfect field synthesis) for calibration antenna | 0.12 | 0.12 | 0.15 | Rectangular | 1.73 | 1 | 0.07 | 0.07 | 0.09 |
| A7-4b | QZ ripple experienced by calibration antenna | 0.20 | 0.20 | 0.20 | Rectangular | 1.73 | 1 | 0.12 | 0.12 | 0.12 |
| A7-11 | Switching uncertainty | 0.02 | 0.02 | 0.02 | Rectangular | 1.73 | 1 | 0.01 | 0.01 | 0.01 |
| A7-12 | Field repeatability | 0.06 | 0.12 | 0.15 | Gaussian | 1.00 | 1 | 0.06 | 0.12 | 0.15 |
| Combined standard uncertainty (1σ) (dB) | | | | | | | | 0.50 | 0.60 | 0.66 |
| Expanded uncertainty (1.96σ - confidence interval of 95 %) (dB) | | | | | | | | 0.98 | 1.18 | 1.29 |
| TRP summation error | | | | | | | | 0.75 | 0.75 | 0.75 |
| Total MU | | | | | | | | 1.24 | 1.40 | 1.49 |

*----------------------------- End of modified section ------------------------------*