**3GPP TSG- Meeting #110 *R4-2403897***

**Athens, GR, 26 Feb – 01 Mar, 2024**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  |  | **CR** | **0005** | **rev** |  | **Current version:** |  |  |
|  | | | | | | | | |
| *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 | **X** | Radio Access Network |  | Core Network |  |

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| ***Title:*** | CR to 38.751 on update of UE orientation | | | | | | | | | |
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| ***Source to WG:*** | vivo | | | | | | | | | |
| ***Source to TSG:*** |  | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_FR2\_multiRX\_DL-Core | | | | |  | ***Date:*** | | |  |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | |  |
|  | *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-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | In RAN4#109, 3 additional UE orientations are agreed to be added for multiRx verificaiton, the TR should be updated accordingly | | | | | | | | |
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| ***Summary of change:*** | | Update the agreement on UE orientations | | | | | | | | |
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| ***Consequences if not approved:*** | | The wording in TR is not align with the agreement | | | | | | | | |
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| ***Clauses affected:*** | | 6.3.4 | | | | | | | | |
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|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | | **X** |  | Test specifications | | | | TS 38.521-2 | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

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6.3.4 UE orientation

For the legacy 1AoA UE RF requirement and test for FR2, various UE alignment options (referred as orientations in this TR from these points onwards) are allowed as illustrated in the Figures in the Tables J.2-1 through J.2-3 of TS 38.101-2 Annex J. In theory, the test results with different UE orientations should be the same without considering the measurement grid uncertainty, because the 3D scan of 1AoA test is sampling UE’s sphere with test ‘point’. However, the 3D scan of 2AoA test is sampling UE’s sphere with test ‘vector’ corresponding to AoA pair. Different UE orientations will lead to different test ‘vector’ even at the same test point, and thus different 2AoA performance is expected.

Companies’ simulation results as provided in Annex A show that different UE orientations lead to significantly different 2AoA spherical coverage performance. Depending on different UE implementations, no standardized UE orientation could be found suitable for 2AoA performance test. RAN4 has agreed to specify the 2AoA spherical coverage performance in implementation agnostic manner, the most feasible way is to adopt the declaration approach.

Based on the theoretical analysis and simulation results, RAN4 achieves following conclusion:

1. UE requirement applies to UE declared orientation(s).

2. The UE RF requirement is derived assuming each UE is evaluated in the orientation that yields the best metric value.

3. All the candidate orientations (9 in total) discussed in this section for UE to choose from correspond to the ‘Alignment Options’ in Annex J (J.2) of TS 38.101-2.4. 3 additional orientations should be considered. One example missing variant for alignment option 1 is shown in Figure 6.3.4-1

A white rectangular object with black text

Description automatically generated

**Figure 6.3.4-1 An example missing alignment option**

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