**3GPP TSG-SA5 Meeting #145-e *S5-225324rev1***

e-meeting, 15 – 24 August 2022

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| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **28.313** | **CR** | **0050** | **rev** | **1** | **Current version:** | **17.5.0** |  |
|  |
| *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 | **X** |

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| ***Title:***  | Rel-17 CR 28.313 Correction of intra-RAT and inter-RAT too early and too late handover failures description  |
|  |  |
| ***Source to WG:*** | Nokia, Nokia Shanghai Bell  |
| ***Source to TSG:*** | S5 |
|  |  |
| ***Work item code:*** | ePM\_KPI\_5G |  | ***Date:*** | 2022-08-05 |
|  |  |  |  |  |
| ***Category:*** | **A** |  | ***Release:*** | Rel-17 |
|  | *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 canbe 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)* |
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| ***Reason for change:*** | Description of intra-RAT and inter-RAT too early and too late handover failures is not correct and not aligned with TS 38.300. |
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| ***Summary of change:*** | Correct description of intra-RAT and inter-RAT too early and too late handover failures. |
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| ***Consequences if not approved:*** | Description of intra-RAT and inter-RAT too early and too late handover failures is not correct and not aligned with TS 38.300. |
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| ***Clauses affected:*** | 7.1.2.3.1 |
|  |  |
|  | **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:*** | The mirrored Rel-16 CR is S5-225323 (CR 0049). |
|  |  |
| ***This CR's revision history:*** |  |

***First changes***

#### 7.1.2.3 MnS Component Type C definition

##### 7.1.2.3.1 Performance measurements

Performance measurements related MRO are captured in Table 7.1.2.3.1.-1:

Table 7.1.2.3.1-1. MRO related performance measurements

| Performance measurements | Description | Related targets |
| --- | --- | --- |
| Number of handover events | Includes all successful and unsuccessful handover events (see clause 5.1.1.6 in TS 28.552 [5]).  | Total handover failure rate |
| Number of handover failures | Includes unsuccessful handover events with failure causes (see clause 5.1.1.6 in TS 28.552 [5]). | Total handover failure rate |
| Number of intra-RAT handover events | Includes all successful and unsuccessful intra-RAT handover events (see clauses 5.1.1.6.1 and 5.1.1.6.2 in TS 28.552 [5]). | Total intra-RAT handover failure rate |
| Number of intra-RAT handover failures | Includes unsuccessful intra-RAT handover events with failure causes (see clauses 5.1.1.6.1 and 5.1.1.6.2 in TS 28.552 [5]). | Total intra-RAT handover failure rate |
| Number of inter-RAT handover events | Includes all successful and unsuccessful inter-RAT handover events (see clause 5.1.1.6.3 in TS 28.552 [5]).  | Total inter-RAT handover failure rate |
| Number of inter-RAT handover failures | Includes unsuccessful inter-RAT handover events with failure causes (see clause 5.1.1.6.3 in TS 28.552 [5]). | Total inter-RAT handover failure rate |
| Number of intra-RAT too late handover failures | Detected when an RLF occurs after the UE has stayed for a long period of time in the source cell; the UE attempts to re-establish the radio link connection in the target cell (see clause 5.1.1.25.1 in TS 28.552 [5]). |  |
| Number of intra-RAT too early handover failures | Detected when an RLF occurs shortly after a successful handover from a source cell to a target cell or a handover failure occurs during the handover procedure; the UE attempts to re-establish the radio link connection in the source cell (see clause 5.1.1.25.1 in TS 28.552 [5]). |  |
| Number of intra-RAT handover failures to wrong cell | Detected when an RLF occurs shortly after a successful handover from a source cell to a target cell or a handover failure occurs during the handover procedure; the UE attempts to re-establish the radio link connection in a cell other than the source cell or the target cell (see clause 5.1.1.25.1 in TS 28.552 [5]). |  |
| Number of intra-RAT too late handover failures per source beam | Detected when an RLF occurs after the UE has stayed for a long period of time in the source cell; the UE attempts to re-establish the radio link connection in the target cell (see clause 5.1.1.25.5 in TS 28.552 [5]). |  |
| Number of intra-RAT too early handover failures per source beam | Detected when an RLF occurs shortly after a successful handover from a source cell to a target cell or a handover failure occurs during the handover procedure; the UE attempts to re-establish the radio link connection in the source cell (see clause 5.1.1.25.5 in TS 28.552 [5]). |  |
| Number of intra-RAT handover failures to wrong cell per source beam | Detected when an RLF occurs shortly after a successful handover from a source cell to a target cell or a handover failure occurs during the handover procedure; the UE attempts to re-establish the radio link connection in a cell other than the source cell or the target cell (see clause 5.1.1.25.5 in TS 28.552 [5]). |  |
|  |  |  |
| Number of inter-RAT too late handover failures | Detected when an RLF occurs after the UE has stayed in an NG-RAN cell for a long period of time; the UE attempts to reconnect to a cell belonging to an E-UTRAN node (see clause 5.1.1.25.2 in TS 28.552 [5]). |  |
| Number of inter-RAT too early handover failures | Detected when an RLF occurs shortly after a successful handover from an E-UTRAN cell to a target cell in a NG-RAN node (see clause 5.1.1.25.2 in TS 28.552 [5]). |  |
| Number of unnecessary handover to another RAT | Detected when a UE is handed over from NG-RAN to other system (e.g. UTRAN) even though quality of the NG-RAN coverage was sufficient for the service used by the UE (see clause 5.1.1.25.3 in TS 28.552 [5]). |  |
| Number of inter-RAT handover ping pong | Detected when an UE is handed over from a cell in a source system (e.g. NG-RAN) to a cell in a target system different from the source system (e.g. E-UTRAN), then within a predefined limited time the UE is handed over back to a cell in the source system, while the coverage of the source system was sufficient for the service used by the UE (see clause 5.1.1.25.4 in TS 28.552 [5]). |  |

***End of changes***