**3GPP TSG- Meeting #111**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  |  | **CR** |  | **rev** | **1** | **Current version:** |  |  |
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| *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 | **X** | Core Network |  |

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| ***Title:*** |  | | | | | | | | | |
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| ***Source to WG:*** |  | | | | | | | | | |
| ***Source to TSG:*** |  | | | | | | | | | |
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| ***Work item code:*** |  | | | | |  | ***Date:*** | | |  |
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| ***Category:*** |  |  | | | | | ***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)* | |
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| ***Reason for change:*** | | In a normative clauses introduced by CR3907r1, what is intended to be a UE requirement has been phrased as “the UE is expected to”. However, the Forword section of TS 38.133 specifies that for requirements, the word “shall” is to be used. Similarly, what is a necessary side condition has been phrased as to be “expected” to be fulfilled.  The error shall be corrected in order to comply with the specification drafting rules (TR 21.801), particularly with the following objectives: to be consistent, clear and accurate, and to be comprehensible to qualified persons who have not participated in its preparation. | | | | | | | | |
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| ***Summary of change:*** | | Clause 9.1.12.4:  The requirement is phrased as that the UE “is expected to” perform an action. As “expected to” is not a requirement, it is changed to “shall”.  Clause 9.1.13.2:  The side condition is phrased as to be “expected to” fulfill something. “Expected to” is too vague, hence it is changed to “shall […] for the requirement to apply”. | | | | | | | | |
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| ***Consequences if not approved:*** | | The specification will remain inconsistent and unclear to those who have not participated in its preparation. The specification quality will degrade further over time as the errors will be copied when new requirements are added. | | | | | | | | |
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| ***Clauses affected:*** | | 9.1.12.4, 9.1.13.2 | | | | | | | | |
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|  | | **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 ... | | |
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| ***Other comments:*** | | Corresponding changes are proposed across the normative part of TS 38.133 in related CRs: R4-2407783 (Cat F), R4-2407784 (Cat A), R4-2407785 (Cat F), R4-2407786 (Cat F), R4-2407787 (Cat F), R4-2407788 (Cat F) , R4-2407789 (Cat F). | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | Rev.1: Changed “shall be able to” to ”shall”. | | | | | | | | |

1st CORRECTION

9.1.12.4 Collision between Pre-MG activation/deactivation and measurement gap

A measurement gap occasion and a Pre-MG activation/deactivation procedure collide when the ending point of the Pre-MG activation/deactivation procedure occurs anywhere within a time period starting 4ms before the starting point of the gap occasion and ending 4ms after the ending point of the gap occasion. The ending point of the Pre-MG activation/deactivation procedure is defined in clause 8.19.5.3.

When a collision occurs between a measurement gap occasion and a Pre-MG activation procedure, and the Pre-MG is configured with higher priority, the UE shall perform measurements during the measurement gap occasion and the activation of the Pre-MG is delayed until 5ms after the ending point of the measurement gap occasion.

When a collision occurs between a measurement gap occasion and a Pre-MG deactivation procedure, and the Pre-MG is configured with higher priority, the measurement gap occasion shall be dropped. The measurement gap occasion shall remain to be dropped until the ending point of the Pre-MG deactivation procedure.

When the activated Pre-MG and measurement gap meets the collision rule defined in 9.1.8.3 and the Pre-MG is configured with lower priority, the UE shall perform measurements in the occasion of the measurement gap regardless of whether colliding with the Pre-MG activation procedure.

The UE shall transmit PUCCH/PUSCH/SRS or receive PDCCH/PDSCH/TRS/CSI-RS for CQI in the corresponding NR serving cells in the slots of the configured Pre-MG that are dropped according to the requirements in clause 9.1.8.4.

2nd CORRECTION

9.1.13.2 Requirements

If the UE requires measurement gaps and/or NCSG to identify and measure intra-frequency cells and/or inter-frequency cells and/or inter-RAT E-UTRAN cells, and the UE supports [*concurrentNCSGPerUE-OnlyMeasGapwithNCSG-r18*] but does not support independent measurement gap patterns for different frequency ranges as specified in [14], in order for the requirements in the following clauses to apply, the network can provide one per-UE measurement gap and one per-UE NCSG or at most two per-UE NCSGs for monitoring of all frequency layers.

If the UE requires measurement gaps and/or NCSG to identify and measure intra-frequency cells and/or inter-frequency cells and/or inter-RAT E-UTRAN cells, and the UE supports[*concurrentNCSGPerUE-PerFRCombMeasGapwithNCSG-r18*] as specified in [14], in order for the requirements defined for concurrent measurement gaps with NCSG to apply, the network can provide the measurement gap with NCSG pattern combinations specified in Table 9.1.13-1 for monitoring of all frequency layers.

**Table 9.1.13-1: The number of Gap Combination Configurations by UE supporting both concurrent measurement gap with NCSG patterns, per-FR NCSG patterns and independent measurement gap patterns**

|  |  |  |  |
| --- | --- | --- | --- |
| **Gap Combination**  **Configuration Id** | **The number of simultaneous configured measurement gap patterns** | | |
| **Per-FR1 [measurement gap]** | **Per-FR2 [measurement gap]** | **Per-UE [measurement gap]** |
| 0 | 2 | 1 | 0 |
| 1 | 1 | 2 | 0 |
| 2 | 0 | 0 | 2 |
| 3Note 1 | 1 | 0 | 1 |
| 4Note 1 | 0 | 1 | 1 |
| 5Note 1 | 1 | 1 | 1 |
| 6 | 2 | 0 | 0 |
| 7 | 0 | 2 | 0 |
| Note 1: Gap Combination Configuration Id #3, #4, #5 will be only applied when the per-UE measurement gap with NCSG is concurrent MG (and cannot be NCSG) is associated to measure PRS for any RSTD, PRS-RSRP, UE Rx-Tx time difference and PRS-RSRPP measurement defined in TS 38.215 [4], and when the per-FR measurement gap with NCSG in an FR is NCSG.  [Note 2: In Gap Combination Configuration Id #0, #1, #6, #7, one per-FR measurement gap in an FR (and cannot be NCSG) can be associated to measure PRS for any RSTD, PRS-RSRP, UE Rx-Tx time difference and PRS-RSRPP measurement defined in TS 38.215 [4] provided that UE supports *independentGapConfigPRS-r17*.]  Note 3: In Gap Combination Configuration Id #0, #1, #2, #6, #7, one FR can be configured with up to 2 NCSGs, regardless they are per-UE or per-FR configured. Otherwise, the gaps can only be configured as Gap(s) configured via *GapConfig* without suffix or Gap(s) configured via *GapConfig-r17* without *preConfigInd-r17* or *ncsgInd-r17*. | | | |

For UE configured in the SA operation mode, when monitoring of multiple inter-RAT E-UTRAN carrier frequency layers and inter-frequency NR carrier frequency layers as configured by PCell using gaps, each monitored carrier frequency layer, including following measurement types:

- a measurement object with SSB based measurement,

- a measurement object with CSI-RS based measurement,

- E-UTRA inter-RAT measurement object,

can be associated to either one measurement gap pattern or one NCSG pattern, while the following measurement types:

- E-UTRAN inter-RAT RSTD measurement,

- NR PRS-based positioning measurements,

can be only associated to one measurement gap pattern. Requirements for [concurrent measurement gaps with NCSG] apply provided that each frequency layer is only associated with one concurrent measurement gap or one NCSG, and at least one of the gaps is NCSG. There can be one or more frequency layers associated with each concurrent measurement gap or each NCSG. [Furthermore, if the UE is not capable of [concurrentMeasGapEUTRA-r17][2], all E-UTRAN measurement objects shall be associated with a single measurement gap or NCSG for the requirement to apply.]

When UE supports concurrent measurement gap with NCSG , where at least one of the concurrent gaps is NCSG, supported measurement gap patterns are listed in Table 9.1.2-1 based on the applicability specified in table 9.1.2-3, while supported NCSG patterns are listed in Table 9.1.9.3-1 based on the applicability specified in table 9.1.9.3-2.

The requirements in clause 9.1.2 are also applicable for the UE capable of and configured with multiple [concurrent measurement gap with NCSG] patterns within one measurement gap pattern. The requirements in clause 9.1.9 are also applicable for the UE capable of and configured with multiple [concurrent measurement gap with NCSG] patterns within each NCSG pattern.

END OF CORRECTIONS