**3GPP TSG-RAN4 Meeting #116 *R4-25xxxxx***

**Bengaluru, India, 25 – 29 August, 2025**

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **38.133** | **CR** | 5910 | **rev** | 1 | **Current version:** | **18.10.0** |  |
|  | | | | | | | | |
| *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 | **x** | Radio Access Network |  | Core Network |  |

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| ***Title:*** | (NR\_DualTxRx\_MUSIM-Core) CR on MUSIM gaps without priority | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei, HiSilicon | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_DualTxRx\_MUSIM-Core | | | | |  | ***Date:*** | | | 2025-08-05 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | F |  | | | | | ***Release:*** | | | Rel-18 |
|  | *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-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)  Rel-20 (Release 20)* | |
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| ***Reason for change:*** | | RAN4 requirements for MUSIM gaps are defined assuming NW will always configure priority for MUSIM gaps. However, this is conflicting with RAN2 assumption as indicated in LS R2-2503163. In RAN4#115, it is agreed in the reply LS R4-2508447 that “RAN4 requirements apply provided that MUSIM gaps are configured with the priority level, otherwise, no RAN4 requirements are defined”. | | | | | | | | |
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| ***Summary of change:*** | | Clarify handling of MUSIM gaps without priority in RAN4 spec. | | | | | | | | |
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| ***Consequences if not approved:*** | | Inconsistency between RAN2 and RAN4 spec, and RAN4#115 agreement are not captured in spec. | | | | | | | | |
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| ***Clauses affected:*** | | 9.1.10.2, 9.1.10.4, 9.1.10.5 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |

<Start of Change 1>

9.1.10.2 Priorities for MUSIM gaps

Priorities are applied for each periodic MUSIM gap. A UE shall request priorities for all requested periodic MUSIM gaps when the UE requests MUSIM gaps [2]. The UE shall request different priorities for each periodic MUSIM gap. Priorities of the configured MUSIM gaps may be configured. The configured priorities may differ from the priorities requested by the UE. The MUSIM requirements apply if the configured MUSIM gap priorities retain the same relative priorities among MUSIM gaps as requested by the UE.

The requirements in clause 9.1.10 apply provided different priorities are allocated to each periodic MUSIM gap and each measurement gap which is configured via *GapConfig-r17* without *preConfigInd-r17* or *ncsgInd-r17*.

An aperiodic MUSIM gap, when configured, is unconditionally kept in case of collisions with any other gap occasions, including MUSIM gaps and measurement gaps.

9.1.10.3 Keep solution for MUSIM gaps

The UE can request to keep all collided gaps for requested MUSIM gap(s) via *musim-GapKeepPreference* in 38.211 [2]. If the UE’s request is granted, the UE shall keep all collided periodic and aperiodic MUSIM gaps irrespectively of the configured priorities of the periodic MUSIM gaps.

9.1.10.4 Collisions between different MUSIM gaps

MUSIM gap occasions are considered colliding if at least one of the following conditions is met:

- the MUSIM gap occasions are fully overlapping in time domain, or

- the MUSIM gap occasions are partially overlapping in time domain, or

- the distance between the two MUSIM gap occasions is equal to or smaller than 4 ms.

The distance between two MUSIM gap occasions is defined as the time difference between the ending point of the first MUSIM gap occasion and the starting point of the second MUSIM gap occasion, where the first MUSIM gap occasion occurs earlier in time than the second MUSIM gap occasion.

When “keep solution” in clause 9.1.10.3 is not configured:

- the periodic MUSIM gap occasion colliding with an aperiodic MUSIM gap are dropped, and

- collisions between periodic MUSIM gap occasions are resolved based on the assigned MUSIM gap priorities. Collisions are resolved sequentially in order of decreasing priority, starting with the gap that has the highest priority. For each collision, the occasion of the MUSIM gap with higher priority shall be kept and the occasion of the MUSIM gap with lower priority shall be dropped.

9.1.10.5 Collisions between MUSIM gaps and measurement gaps

MUSIM gap and measurement gap occasions are considered colliding if at least one of the following conditions is met:

- the MUSIM gap and measurement gap occasions are fully overlapping in time domain, or

- the MUSIM gap and measurement gap occasions are partially overlapping in time domain, or

- the distance between any of the MUSM gap and the measurement gap occasion is equal to or smaller than 4 ms.

The distance between two gap occasions is defined as the time difference between the ending point of the first occasion and the starting point of the second occasion, where the first gap occasion occurs earlier in time than the second gap occasion. The gap occasion can be either a MUSIM gap occasion or a measurement gap occasion.

The measurement gap occasion colliding with an aperiodic MUSIM gap shall be dropped.

Collisions between MUSIM gaps with assigned priority and measurement gaps configured via *GapConfig-r17* with assigned priority but without *preConfigInd-r17* or *ncsgInd-r17* are resolved based on their assigned priorities:

- If ‘keep solution’ in clause 9.1.10.3 is not configured, collisions are resolved sequentially in order of decreasing priority, starting with the gap that has the highest priority. For each collision, the occasion of the MUSIM gap or measurement gap with higher priority shall be kept and the occasion of the MUSIM gap or measurement gap with lower priority shall be dropped. Any collisions between MUSIM gaps shall be addressed as specified in clauses 9.1.10.3 and 9.1.10.4.

- Otherwise if ‘keep solution’ in clause 9.1.10.3 is configured, keep solution is used for the remaining collided and non-dropped MUSIM gaps, after resolving the collisions between measurement gaps and MUSIM gaps based on their priorities.

Collisions between MUSIM gaps with assigned priority and measurement gaps configured via *GapConfig* or configured via *GapConfig-r17* without assigned priority are handled based on MGRP of the colliding gaps:

- If ‘keep solution’ in clause 9.1.10.3 is not configured, collisions are resolved sequentially in order of decreasing MGRP, starting with the gap that has the longest MGRP. For each collision, the occasion of the MUSIM gap or measurement gap with longer MGRP shall be kept and the occasion of the MUSIM gap or measurement gap with shorter MGRP shall be dropped. If the colliding MUSIM gap and measurement gap have the same MGRP, the requirements in clause 9 shall not apply to these gaps. Any collisions between MUSIM gaps shall be addressed as specified in clauses 9.1.10.3 and 9.1.10.4.

- Otherwise if ‘keep solution’ in clause 9.1.10.3 is configured, keep solution is used for the remaining collided and non-dropped MUSIM gaps, after resolving the collisions between measurement gaps and MUSIM gaps based on their MGRP following the above mentioned collision rule.

<End of Change 1>