**3GPP TSG RAN meeting #102 RP-23xxxx**

**Edinburgh, Scotland, December 11-15, 2023**

## Status Report to TSG

**Agenda item:** 9.3.2.3

|  |  |
| --- | --- |
| **WI / SI Name** | **Dual Transmission/Reception (Tx/Rx) Multi-SIM for NR** |
| included in this status report | Study Item: No | Core part: Yes | Performance part:Yes | Testing part:- |
| **Acronym** | NR\_DualTxRx\_MUSIM |
| **Unique ID** | 941001 |
| **TSG Tdoc of latest approved WI/SI description (if any)** | RP-231461 |
| **Target Completion Date****(indicate if changed)** | Study Item: - | Core part: 12/2023 | Performance part: 06/2024 | Testing part: - |
| **Overall Completion level** | Study Item: - | Core part: Overall: 100%  | Performance Part: -Overall: 10% | Testing part: - |

Note: Overall completion level percentage numbers should use one of the colors below:

* xx%: Normal progress, no RAN plenary action needed
* xx%: Progress behind schedule, may need RAN plenary intervention. If so, SR should clearly define requested action
* xx%: Progress critically behind, RAN plenary shall intervene. SR should define requested action

**Source:**

|  |  |
| --- | --- |
| **Leading WG** | RAN2  |
| **Rapporteur** | **Name** | Xiaodong Yang |
| **Company** | vivo |
| **Email** | Yangxiaodong5g@vivo.com |

## 1 Work plan related evaluation

|  |  |
| --- | --- |
| **Do you want to modify the time budget for this WI/SI compared to what was endorsed at the last RAN meeting?** |  |

*If you answered No: Then please remove the Excel file from the zip file of this status report.*

*If you answered Yes: Then please fill out the attached Excel template to request a modification of the time budgets for your WI /SI. The Excel table has to be filled out for all affected RAN WGs and up to the target date of the WI/SI. The basis are the endorsed time budgets of the last RAN meeting. Please highlight all changes of the values.
 One time unit (TU) corresponds to ~ 2 hours in the meeting.
 If this status report covers a WI with Core and Performance part, then please have one line for each in the attached Excel table.
 Note: If no Excel table is attached, then this means no time budget change.*

## 2. Detailed progress in RAN WGs since last TSG meeting (for all involved WGs)

 NOTE: Agreements and Open issues impacted cross-TSG aspects shall be explicitly highlighted

## 2.1 RAN1

#### 2.1.1 Agreements

#### 2.1.2 Remaining Open issues

## 2.2 RAN2

#### 2.2.1 Agreements

**RAN2 123bis**

**Temporary capability restriction**

* For proactive UE temporary capability reporting, UE reporting of the information regarding its impacted frequency is sufficient.
* UE can indicate impacted band(s)/frequencies in a BC for the proactive reporting, detailed signalling is FFS.
* UE is allowed to only report the impacted band(s)/frequencies based on a frequency/band filter list (e.g. frequencies/bands), if configured by the network.
* UAI based signalling is also used for proactive reporting of temporary UE capability restriction.
* One configuration is used to control all temporary capabilities update
* We will introduce ‘wait timer’ for the reactive approach
	+ - The UE starts the timer when the UE requests a temporary restriction to the network if the timer is configured. We assume network configures the length for this timer.
		- Stop: if UE receives reconfiguration that does not exceed the capabilities that UE suggested via capability restriction report
		- Expiry: UE can apply the temporary UE capability restriction upon the timer expiry.
* We will introduce ‘prohibit timer’ for the proactive approach (Network can set zero value for this timer, details can be handled in spec drafting phase)
* The UE can remove the MUSIM capability restriction information by not including any fields in capability restriction report (details will be handled in the specification drafting).
* Working assumption: Early capability restriction indication is provided in Msg5. Detailed UE behaviour, if any, can be further discussed.
* The UE can indicate the temporary capability restriction of measurement gap for R18 MUSIM purpose in the UAI by using the existing NeedForGapInfoNR.
* It is confirmed that the previous agreement that Maximum MIMO layers restriction (and bandwidth restriction, if supported) is reported per CC at least applies for the reactive approach.
* Baseline for the proactive approach: Maximum MIMO layers restriction (and bandwidth restriction, if supported) is reported *per FSPC (per cc per BC)*.
* For Rel-18 MUSIM dual active operation, UE is configured with the band-filter list by the NW A in the OtherConfig for forbidden/affected band signalling.
* For Rel-18 MUSIM dual active operation, UE indicates its forbidden/affected band combinations (or band(s)) based on the network configured band-filter list, in the UAI signalling to NW A.
* For Rel-18 MUSIM dual active operation, UE signals its temporary capabilities restrictions as forbidden band combinations with band indexed to the band-filter list and/or affected band combinations with band indexed to the band-filter list along with explicit fields for restricted (lower) capabilities e.g. maximum MIMO layers.

**R17 MUSIM Gap coordination**

* RAN2 confirms that no need to request gap priority or configure gap priority for aperiodic gap. Below editor note from running CR could be removed.

•Editor’s Note: FFS musim-GapPriorityToAddModList-r18 is for aperodic MUSIM gap.

* Introduce single bit indication in MUSIM assistance information to indicate the UE preference of “keep” option.
* Reuse existing control flag (i.e. musim-GapPriorityAssistanceConfig-r18 in running CR) to indicate whether the UE could include “keep” option for MUSIM gap.
* The prohibit timer configuration for R17 MUSIM gap preference (i.e. musim-GapProhibitTimer) is also apply to R18 MUSIM gap priority preference.
* FFS if any other configuration or related behaviour is needed.

**UE capability**

* For the proactive approach, the MN can indicate the forbidden/affected band information (for the MUSIM purpose) to the SN. FFS for the reactive case.

**RAN2 124**

**Temporary capability restriction**

* The MN can indicate the forbidden band entries (for the MUSIM purpose) info to the SN. Detailed signaling FFS.
* For the affected bands with restricted capabilities, the MN can also indicate the SN about the capability restriction info.
* To solve MUSIM band conflict issue, the UE can indicate the temporary supported channel bandwidth restriction.
* We use the ASN.1 coding in P4a in R2-2311845 as baseline for the temporary supported channel bandwidth restriction indication
* UE temporary capability restrictions indication via SRB3 for MUSIM purpose is not supported in this release.
* Early capability restriction indication is provided in Msg5
* Add the following NOTE in clause of 5.3.13.11 of TS 38.331 (exact wording can be improved during the RRC CR review):

-NOTE: If configured by the NW to send early indication (i.e., via SIB1), and if the UE support MUSIM temporary capability restriction, the UE does not apply above failure handling in case it does not apply any part of the configuration for MUSIM purpose. It is up to UE implementation how to apply it. If UE does not go to IDLE in this case, UE still considers the received configuration as the current configuration as the baseline for delta configuration for future reconfigurations.

* The MN can indicate the proactive/reactive temporary capabilities restriction (e.g. musim-CapRestriction-r18) to the SN together with the musim-candidateBandList-r18 (only for the proactive case).
* MUSIM temporary capability restriction reporting on measurement gap requirement is not supported in NR-DC.
* For MUSIM capability restriction reporting, the UE can indicate the temporary maximum number of CCs per DL/UL to the network via UAI.

**R17 MUSIM Gap coordination**

* After UE indicates its preference for gap priority “keep” solution option, NW can configure UE to use “keep” solution option or not.
* The configuration of gap priority and the “Keep solution indication” can be transferred from the MN to the SN node in the CG-ConfigInfo inter-node message.

**UE capability**

* Reuse the agreed Rel-18 UE capability bit for MUSIM gap priority configuration and preference to indicate whether the UE supports providing the UE preference of “keep solution” in MUSIM assistance information.
* Introduce 1 optional per-UE capability bit without xDD/FRx differentiation to indicate whether the UE supports providing MUSIM assistance information with temporary capability restriction and early indication in Msg5.

#### 2.2.2 Remaining Open issues

None

## 2.3 RAN3

#### 2.3.1 Agreements

**RAN3#123**

Introduce the “*musim-CapabilityRestrictionIndication*” IE in the CU to DU RRC Information in the UE context setup request message.

#### Remaining Open issues

None

## 2.4 RAN4

#### 2.4.1 Agreements

**RAN4 108bis**

**Issue 1-1-2: Pre-MG and NCSG in Rel-18 MUSIM WI**

*Agreement:* Pre-MG and NCSG are not considered in Rel-18 MUSIM WI.

**Issue 1-1-3: Others**

*Agreement:* No further requirement and specification work are needed related to number of MUSIM gaps UE can request

**Issue 2-1-3: Alignment on RAN2/4 agreements on priority request by a UE**

Agreement: UE shall always request priorities for all of its requested periodic MUSIM gaps

**Issue 2-2-2: Clarification on collision for aperiodic gaps**

* Proposals
	+ P1: When “keep solution” is granted by NW A and when periodic MUSIM gaps collide with an aperiodic MUSIM gap, the periodic MUSIM gaps which collide with aperiodic MUSIM gaps will be kept. When “keep solution” is not requested or not granted, the periodic MUSIM gaps colliding with an aperiodic MUSIM gap are dropped (vivo Apple)
	+ P2: When aperiodic MUSIM gap collides with legacy gap for NW A, the legacy gap for NW A is dropped. (Apple)

*Agreement:*  P1 and P2

**Issue 2-3-1 Clarifications on collision between Type-2 MG and MUSIM gaps**

**Issue 2-3-1-1 When number of colliding gaps is more than two with mix of MUSIM gaps and MGs, when priority based solution is used for handling MUSIM gap collision**

*Agreement:*

*Collisions between gaps are resolved sequentially in order of decreasing priority, starting with the gap that has the highest priority.*

**Issue 2-3-1-2 When number of colliding gaps is more than two with mix of MUSIM gaps and MGs, when “keep solution” is used to handling MUSIM gap collision**

*Agreement:*

*Collisions between gaps are resolved sequentially in order of decreasing priority, starting with the gap that has the highest priority. “Keep solution” is used for the remaining non-dropped MUSIM gaps.*

**Issue 2-4-1: Collision between SMTC and MUSIM gaps for handover**

*Agreement:*

* When MUSIM gaps are configured, UE is still required to meet handover RRM requirements for NW-A. FFS whether to capture this conclusion in the specifications.
	+ - No test case will be defined to verify this case

**RAN4 109**

**Issue 1-1-3: Use of term “GAP” for MUSIM gaps**

* Proposals
	+ P1: Do not include MUSIM gaps in term “GAP”. (Huawei, QC, Nokia)

*Agreement: P1*

**Issue 1-1-4: UE capability**

*Agreement:*

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Features** | **Index** | **Feature group** | **Components** | **Prerequisite feature groups** | **Need for the gNB to know if the feature is supported** | **Applicable to the capability signalling exchange between UEs (V2X WI only)”.** | **Consequence if the feature is not supported by the UE** | **Type****(the ‘type’ definition from UE features should be based on the granularity of 1) Per UE or 2) Per Band or 3) Per BC or 4) Per FS or 5) Per FSPC)** | **Need of FDD/TDD differentiation** | **Need of FR1/FR2 differentiation** | **Capability interpretation for mixture of FDD/TDD and/or FR1/FR2** | **Note** | **Mandatory/Optional** |
| 43.NR\_DualTxRx\_MUSIM | 43-1 | Collision handling and signalling solution for handling collisions  between MUSIM gaps and between measurement gaps and MUSIM gaps  |  UE supports indication ofMUSIM gap priority; collision handling between MUSIM gaps and between measurement gaps and MUSIM gaps  | musim-GapPreference-r17 | YES |  | UE is not capable to meet Rel-18 MUSIM requirement | Per UE | No | No | N/A |   | Optional with UE capability |

**Issue 2-2-1: UE behaviour when “keep solution” is indicated by UE and NW A rejects the ‘keep solution’ indication**

* Proposals
	+ P2: Priority based solution is used (fallback to priority based solution) when “keep solution” is not granted (Apple, Xiaomi, China Telecom, CMCC, Ericsson, vivo, oppo, Nokia, ZTE, MTK)

*Agreement:* P2

**Issue 2-2-4: On scheduling when MUSIM gaps are not overlapping and the distance between the two MUSIM occasions is equal to or smaller than 4ms**

Agreement:

UE can be scheduled between kept MUSIM gaps for keep solution.

**Issue 2-3-2: Solutions for collision between MUSIM gap and any measurement gap without assigned priority**

Agreement:

* + P2: Collision is handled based on the MGRP of the collided gaps
		- P2-1: In a collision, the gap occasion with longer MGRP will be kept when any measurement gaps in the collision gaps is not assigned a priority; and the gap occasion with shorter MGRP will be dropped.
		- P2-2: No requirements apply if any of the two gaps in a collision have the same MGRP.

**Issue 3-1-1: MUSIM gap impact on NTN**

* Proposals
	+ P1: Exclude MUSIM gaps impact on NTN requirements in R18

*Agreement: P1*

**Issue 4-1-2: Network B requirements framework**

Agreement: RAN4 not to define requirement for network B in Rel-18 due to no consensus on how to define the requirement.

#### 2.4.2 Remaining Open issues

None

## 3. Detailed progress in SA/CT WGs since last TSG meeting (for all involved WGs)

NOTE: This section only needs to be filled in for WI/SIs where there is a corresponding relevant WI/SI in SA/CT.

## 3.1 SAx/CTs

#### 3.1.1 Agreements with cross-TSG impacts

#### 3.1.2 Remaining Open issues with cross-TSG impacts

NOTE: This section should also flag any critical dependencies that need TSG attention.

## 4. RAN Plenary Intervention

## 5. References

NOTE: This can be e.g. a list of all related Tdocs in the affected WGs since last TSG, references to LSs, produced TRs/TSs, the work/study item description or status reports of previous TSGs.

**RAN2 #123 bis**

R2-2309461 LS on Dual Tx/Rx Multi-SIM (R4-2314465; contact: MediaTek) RAN4 LS in Rel-18 NR\_DualTxRx\_MUSIM-Core To:RAN2

R2-2309789 [Post123][MUSIM] Remaining Open Issues (vivo) vivo other Rel-18 NR\_DualTxRx\_MUSIM-Core

R2-2309790 Running RRC CR for NR MUSIM enhancements vivo draftCR Rel-18 38.331 17.6.0 NR\_DualTxRx\_MUSIM-Core

R2-2309891 Draft running CR to 38.331 for MUSIM UE Capabilities Huawei, HiSilicon draftCR Rel-17 38.331 17.6.0 NR\_DualTxRx\_MUSIM-Core

R2-2309892 Draft running CR to 38.306 for MUSIM UE Capabilities Huawei, HiSilicon draftCR Rel-17 38.306 17.6.0 NR\_DualTxRx\_MUSIM-Core

R2-2310918 38.300 Running CR for NR MUSIM enhancements China Telecommunications draftCR Rel-18 38.300 17.6.0 NR\_DualTxRx\_MUSIM-Core

R2-2310921 38.300 Running CR for NR MUSIM enhancements China Telecommunications draftCR Rel-17 38.300 17.6.0 NR\_DualTxRx\_MUSIM-Core Withdrawn

R2-2311040 37.340 Running CR for Introduction of MUSIM ZTE Corporation, Sanechips draftCR Rel-18 37.340 17.6.0 NR\_DualTxRx\_MUSIM-Core

R2-2309553 Remaining Issues on Procedures for MUSIM Temporary Capability Restriction OPPO discussion Rel-18 NR\_DualTxRx\_MUSIM-Core

R2-2309715 Further discussion on the MUSIM temporary capability restriction China Telecom Corporation Ltd. discussion Rel-18 NR\_DualTxRx\_MUSIM-Core

R2-2309791 Report of [Post123][234][MUSIM] UE preferred frequency (vivo) vivo report Rel-18 NR\_DualTxRx\_MUSIM-Core

R2-2309792 Discussion on temporary capability restriction for Rel-18 Multi-SIM vivo discussion Rel-18 NR\_DualTxRx\_MUSIM-Core

R2-2309793 Procedures for MUSIM temporary capability restriction vivo discussion Rel-18 NR\_DualTxRx\_MUSIM-Core

R2-2309890 Discussion on procedures for temporary capability restriction Huawei, HiSilicon discussion Rel-18

R2-2310031 Early capability restriction indication in ResumeRequest Intel Corporation discussion Rel-18 NR\_DualTxRx\_MUSIM-Core

R2-2310171 Control signaling for Dual-Active MUSIM Qualcomm Incorporated discussion

R2-2310318 Procedures for MUSIM temporary capability restriction Apple discussion Rel-18 NR\_DualTxRx\_MUSIM-Core

R2-2310583 Timer control for capability restriction Xiaomi discussion Rel-18 NR\_DualTxRx\_MUSIM-Core

R2-2310592 Discussion on temporary capability restriction Samsung discussion

R2-2310648 Procedures for MUSIM temporary capability restriction NEC discussion Rel-18 NR\_DualTxRx\_MUSIM-Core

R2-2310966 Indication of restricted capabilities at RRC Setup and Resume by MUSIM UE Ericsson discussion Rel-18 NR\_DualTxRx\_MUSIM-Core Revised

R2-2310967 Discussion on MUSIM timers Ericsson discussion Rel-18 NR\_DualTxRx\_MUSIM-Core

R2-2311014 Further analysis on signalling procedure for capability restriction Nokia, Nokia Shanghai Bell discussion

R2-2311041 Consideration on the Temporary Capability Reporting procedure ZTE Corporation, Sanechips discussion Rel-18 NR\_DualTxRx\_MUSIM-Core

R2-2311098 Supporting Proactive cases in other scenarios LG Electronics Inc. discussion Rel-18 NR\_DualTxRx\_MUSIM-Core R2-2308788

R2-2311099 Procedures for MUSIM temporary capability restriction DENSO CORPORATION discussion NR\_DualTxRx\_MUSIM-Core

R2-2311107 Timer based restriction in MUSIM LG Electronics France discussion Rel-18 NR\_DualTxRx\_MUSIM-Core Late

R2-2311108 Timer based restriction in MUSIM LG Electronics Deutschland discussion Rel-18 NR\_DualTxRx\_MUSIM-Core

R2-2311238 Indication of restricted capabilities at RRC Setup and Resume by MUSIM UE Ericsson discussion Rel-18 R2-2310966

R2-2309554 Allowed MUSIM Temporary Capability Restrictions OPPO discussion Rel-18 NR\_DualTxRx\_MUSIM-Core

R2-2309843 Details of allowed MUSIM temporary capability restrictions Huawei, HiSilicon discussion Rel-18 NR\_DualTxRx\_MUSIM-Core

R2-2310090 Allowed MUSIM temporary capability restrictions Samsung R&D Institute India discussion Rel-18

R2-2310319 Aspects of allowed MUSIM temporary capability restriction Apple discussion Rel-18 NR\_DualTxRx\_MUSIM-Core

R2-2310582 Clarification on srs-TxSwitch and MIMO-layer for MUSIM Xiaomi, vivo discussion Rel-18 NR\_DualTxRx\_MUSIM-Core

R2-2310965 On some restricted capabilities for Rel-18 MUSIM UE Ericsson discussion Rel-18 NR\_DualTxRx\_MUSIM-Core

R2-2311015 On specific capabilities for restriction and feature interworking scenarios Nokia, Nokia Shanghai Bell discussion

R2-2311042 Consideration on the Temporary Capability Reporting ZTE Corporation, Sanechips discussion Rel-18 NR\_DualTxRx\_MUSIM-Core

R2-2309794 Discussion on MUSIM gap priorities vivo discussion Rel-18 NR\_DualTxRx\_MUSIM-Core

R2-2309844 Discussion on MUSIM gaps and UE capabilities Huawei, HiSilicon discussion Rel-18 NR\_DualTxRx\_MUSIM-Core

R2-2310032 Feature interaction between R17 and R18 MUSIM Intel Corporation discussion Rel-18 NR\_DualTxRx\_MUSIM-Core

R2-2310038 Further discussion on MUSIM gap priorities Samsung Electronics Czech discussion Rel-18 NR\_DualTxRx\_MUSIM-Core

R2-2310584 Remaining issues of MUSIM gap Xiaomi discussion Rel-18 NR\_DualTxRx\_MUSIM-Core

R2-2310917 MUSIM gap priority handlling China Telecommunications discussion

R2-2311016 MUSIM Gap collision handling Nokia, Nokia Shanghai Bell discussion

R2-2311043 Consideration on the MN-SN Coordination for the MUSIM ZTE Corporation, Sanechips discussion Rel-18 NR\_DualTxRx\_MUSIM-Core

R2-2311135 Discussion on MUSIM gap priority MediaTek Inc. discussion

**RAN2 #124**

R2-2311844 Running RRC CR for NR MUSIM enhancements vivo draftCR Rel-18 38.331 17.6.0 NR\_DualTxRx\_MUSIM-Core Withdrawn

R2-2311845 [Post123bis][205][MUSIM] RRC Running CR and further discussions (vivo) vivo other Rel-18 NR\_DualTxRx\_MUSIM-Core

R2-2311933 Running RRC CR for NR MUSIM enhancements vivo CR Rel-18 38.331 17.6.0 4399 - B NR\_DualTxRx\_MUSIM-Core Withdrawn

R2-2311936 Introduction of NR MUSIM enhancements vivo CR Rel-18 38.331 17.6.0 4401 - B NR\_DualTxRx\_MUSIM-Core

R2-2312077 Introduction of R18 MUSIM UE Capabilities Huawei, HiSilicon CR Rel-18 38.331 17.6.0 4408 - B NR\_DualTxRx\_MUSIM-Core

R2-2312081 Introduction of R18 MUSIM UE Capabilities Huawei, HiSilicon CR Rel-18 38.306 17.6.0 0976 - B NR\_DualTxRx\_MUSIM-Core

R2-2313240 38.300 Running CR for NR MUSIM enhancements China Telecom Corporation Ltd. CR Rel-18 38.300 17.6.0 0741 - B NR\_DualTxRx\_MUSIM-Core

R2-2313330 37.340 running CR for introduction of DualTxRx\_MUSIM ZTE Corporation, Sanechips CR Rel-18 37.340 17.6.0 0373 - B NR\_DualTxRx\_MUSIM-Core

R2-2311802 Procedures and signalling for MUSIM temporary capability restriction OPPO discussion Rel-18 NR\_DualTxRx\_MUSIM-Core

R2-2311846 Discussion on the remaining issue of MUSIM temporary capability restriction vivo report Rel-18 NR\_DualTxRx\_MUSIM-Core

R2-2312154 Discussion on WA and Capturing Early indication for ResumeReq Intel Corporation discussion Rel-18 NR\_DualTxRx\_MUSIM-Core

R2-2312303 Leftover issues on MUSIM temporary capability restriction Apple discussion Rel-18 NR\_DualTxRx\_MUSIM-Core

R2-2312304 Clarification on the gap information reporting Apple discussion Rel-18 NR\_DualTxRx\_MUSIM-Core

R2-2312305 Early MUSIM indication during RRC resume procedure Apple discussion Rel-18 NR\_DualTxRx\_MUSIM-Core

R2-2312395 Discussion on solution of early indication of temporary capability restriction NEC discussion Rel-18 NR\_DualTxRx\_MUSIM-Core

R2-2312430 Remaining consideration on MUSIM early indication DENSO CORPORATION discussion NR\_DualTxRx\_MUSIM-Core

R2-2312642 Discussion on remaining issues for temporary capability restriction Huawei, HiSilicon discussion Rel-18 NR\_DualTxRx\_MUSIM-Core

R2-2312729 Discussion on MUSIM temporary capability restriction in NR-DC Huawei, HiSilicon discussion

R2-2312816 On some restricted capabilities for Rel-18 MUSIM UE Ericsson discussion Rel-18 NR\_DualTxRx\_MUSIM-Core

R2-2312817 Indication of restricted capabilities at RRC Setup and Resume by MUSIM UE Ericsson discussion Rel-18 NR\_DualTxRx\_MUSIM-Core

R2-2312818 Discussion on remaining open issues on capability restriction Ericsson discussion Rel-18 NR\_DualTxRx\_MUSIM-Core

R2-2312862 Further analysis on signalling procedure for capability restriction Nokia, Nokia Shanghai Bell discussion

R2-2312863 Capability restriction for specific capabilities and Interworking issues with existing features Nokia, Nokia Shanghai Bell discussion

R2-2313064 Control signaling for Dual-Active MUSIM Qualcomm Incorporated discussion

R2-2313068 Early Indication in RRC Resume procedure LG Electronics discussion Rel-18 NR\_DualTxRx\_MUSIM-Core

R2-2313069 Supporting Proactive cases in other scenarios LG Electronics discussion Rel-18 NR\_DualTxRx\_MUSIM-Core R2-2311098

R2-2313237 Procedure for MUSIM temporary capability restriction China Telecom Corporation Ltd. discussion

R2-2313289 Considerations on Wait Timer Configuration and Handling Samsung discussion Rel-18

R2-2313332 Consideration on the Reactive Procedure ZTE Corporation, Sanechips discussion Rel-18 NR\_DualTxRx\_MUSIM-Core

R2-2313333 Consideration on the Temporory Capability Reporting ZTE Corporation, Sanechips discussion Rel-18 NR\_DualTxRx\_MUSIM-Core

R2-2313334 Consideration on the MN-SN Coordination for the MUSIM ZTE Corporation, Sanechips discussion Rel-18 NR\_DualTxRx\_MUSIM-Core

R2-2313350 Discussion on temporary capability restriction Samsung discussion Rel-18

R2-2313386 Clarification on the wait timer for capability restriction Xiaomi discussion Rel-18 NR\_DualTxRx\_MUSIM-Core

R2-2313387 Capability restriction for the proactive approach Xiaomi discussion Rel-18 NR\_DualTxRx\_MUSIM-Core

R2-2313388 Required UE capability bits for Rel-18 MUSIM Xiaomi discussion Rel-18 NR\_DualTxRx\_MUSIM-Core

R2-2311847 Discussion on UE capability for MUSIM features vivo discussion Rel-18 NR\_DualTxRx\_MUSIM-Core

R2-2311848 Discussion on MUSIM gap priorities vivo discussion Rel-18 NR\_DualTxRx\_MUSIM-Core

R2-2312643 Discussion on MUSIM UE capabilities Huawei, HiSilicon, Nokia discussion Rel-18 NR\_DualTxRx\_MUSIM-Core

R2-2312864 MUSIM Gap collision handling and MUSIM capability interactions Nokia, Nokia Shanghai Bell discussion

R2-2313420 Further discussion on UE capabilities and MN-SN coordination Samsung discussion Rel-18 NR\_DualTxRx\_MUSIM-Core

**RAN3 #122**

[R3-237770](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_122%5CInbox%5CR3-237770.zip): Introduction of early capability restriction for Multi-SIM Huawei, Qualcomm Incorporated, Nokia, Nokia Shanghai Bell, ZTE, Samsung, Ericsson

**RAN4 #108bis**

R4-2315211 On remaining issues on general aspects for MUSIM gaps vivo

R4-2315212 On remaining issues for collisions between gaps and priority rules for MUSIM gaps vivo

R4-2315213 On remaining issues for network B RRM requirements of MUSIM gaps vivo

R4-2315279 Discussion on the general aspects of MUSIM gaps MediaTek inc.

R4-2315280 Discussion on RRM requirements for MUSIM gaps collision handling MediaTek inc.

R4-2315281 Discussion on NW A RRM requirements for MUSIM MediaTek inc.

R4-2315282 Discussion on NW B RRM requirements for MUSIM MediaTek inc.

R4-2315283 Draft CR on Rel-18 Intra-frequency measurement impact due to MUSIM gap MediaTek inc.

R4-2315284 Draft CR on Rel-18 Inter-frequency measurement impact due to MUSIM gap MediaTek inc.

R4-2315285 Draft CR on Rel-18 Inter-RAT measurement impact due to MUSIM gap MediaTek inc.

R4-2315339 Discussion on collisions between gaps and priority rules for MUSIM gaps CMCC

R4-2315340 Discussion on network A requirements for MUSIM gaps CMCC

R4-2315341 Discussion on network B requirements for MUSIM gaps CMCC

R4-2315342 Discussion on open issues for MUSIM gaps CMCC

R4-2315419 Discussion on Collisions between gaps and priority rules Xiaomi

R4-2315420 Discussion on network A requirements Xiaomi

R4-2315421 draftCR on impact on RLM and link recovery due to MUSIM gaps Xiaomi

R4-2315422 Discussion on network B requirements Xiaomi

R4-2315682 Discussions on general issues in MUSIM gaps Ericsson

R4-2315683 Discussions on collision between MUSIM gaps Ericsson

R4-2315684 Discussions on NW-A and NW-B’s requirement in MUSIM gaps Ericsson

R4-2315685 Draft CR on MUSIM NW-B requirement Ericsson

R4-2315716 On requirements for Rel-17 MUSIM gaps - Gap collisions Qualcomm Incorporated

R4-2315717 On requirements for Rel-17 MUSIM gaps - Network A requirements Qualcomm Incorporated

R4-2315718 On requirements for Rel-17 MUSIM gaps - Network B requirements Qualcomm Incorporated

R4-2315758 Discussion on collisions between gaps and priority rules ZTE Corporation

R4-2315760 [NR\_DualTxRx\_MUSIM-Core]: Measurement gap related requirements of MUSIM gaps. ZTE Corporation

R4-2315761 [NR\_DualTxRx\_MUSIM-Core]: Positioning measurement impacted by MUSIM gap ZTE Corporation

R4-2315935 Discussion on collisions between gaps and priority rules China Telecom

R4-2315945 Discussion on network B requirements for MUSIM gaps China Telecom

R4-2315947 Draft CR on CSI-RS based L3 measurement impact due to MUSIM gap China Telecom

R4-2316043 Discussion on general issues related to MUSIM gaps Huawei, HiSilicon

R4-2316044 Discussion on collision handling for MUSIM gaps Huawei, HiSilicon

R4-2316045 draftCR on NW A L1 measurement requirements with MUSIM gaps Huawei, HiSilicon

R4-2316046 Discussion on NW B requirements with MUSIM gaps Huawei, HiSilicon

R4-2316181 Discussion on general RRM requirements for Rel-17 MUSIM gaps OPPO

R4-2316182 Draft CR on Measurement for Propagation Delay Compensation due to MUSIM gap OPPO

R4-2316183 Discussion on collision between gap and priority rules OPPO

R4-2316184 Discussion on network B requirements OPPO

R4-2316565 Discussion on general aspects of R18 MUSIM Apple

R4-2316566 Discussion on collisions between gaps and priority rules of R18 MUSIM Apple

R4-2316567 Discussion on network A requirements of R18 MUSIM Apple

R4-2316568 Discussion on network B requirements of R18 MUSIM Apple

R4-2316569 CR for NW B inactive state requirements Apple

R4-2316670 General aspects Nokia, Nokia Shanghai Bell

R4-2316671 Collisions between gaps and priority rules Nokia, Nokia Shanghai Bell

R4-2316672 On network A requirements Nokia, Nokia Shanghai Bell

R4-2316673 On network B requirements Nokia, Nokia Shanghai Bell

R4-2316674 DraftCR on Measurement for Propagation Delay Compensation Nokia, Nokia Shanghai Bell

R4-2316832 Discussion on collisions between gaps and priority rules of MUSIM Charter Communications, Inc

R4-2317213 Topic summary for [108-bis][221] NR\_DualTxRx\_MUSIM Moderator (Vivo)

R4-2317367 Draft CR on Rel-18 Intra-frequency measurement impact due to MUSIM gap MediaTek inc.

R4-2317368 Draft CR on Rel-18 Inter-frequency measurement impact due to MUSIM gap MediaTek inc.

R4-2317369 Draft CR on Rel-18 Inter-RAT measurement impact due to MUSIM gap MediaTek inc.

R4-2317370 draftCR on NW A L1 measurement requirements with MUSIM gaps Huawei, HiSilicon

R4-2317425 WF on NR\_DualTxRx\_MUSIM vivo

R4-2317437 Draft Big CR to TS 38.133 on Dual Tx/Rx Multi-SIM for NR vivo

**RAN4 #109**

R4-2318181 Topic summary for [109][225] NR\_DualTxRx\_MUSIM Moderator (vivo)

R4-2318610 Discussion on general aspects of R18 MUSIM Apple

R4-2318611 Discussion on collisions between gaps and priority rules of R18 MUSIM Apple

R4-2318612 Discussion on network A requirements of R18 MUSIM Apple

R4-2318613 Discussion on network B requirements of R18 MUSIM Apple

R4-2318614 CR for NW B inactive state requirements Apple

R4-2318867 Discussion on Collisions between gaps and priority rules Xiaomi

R4-2318868 draftCR on impact on RLM and link recovery due to MUSIM gaps Xiaomi

R4-2318869 Discussion on network B requirements Xiaomi

R4-2319033 Discussion on collisions between gaps and priority rules China Telecom

R4-2319034 Discussion on network B requirements for MUSIM gaps China Telecom

R4-2319035 Draft CR on CSI-RS based L3 measurement impact due to MUSIM gap China Telecom

R4-2319101 Discussion on collisions between gaps and priority rules for MUSIM gaps CMCC

R4-2319102 Discussion on network B requirements for MUSIM gaps CMCC

R4-2319103 Discussion on open issues for MUSIM gaps CMCC

R4-2319104 Discussion on performance requirements for MUSIM gaps CMCC

R4-2319136 Discussions on general issues in MUSIM gaps Ericsson

R4-2319137 Discussions on collision between MUSIM gaps Ericsson

R4-2319138 Discussions on NW-A’s requirement in MUSIM gaps Ericsson

R4-2319139 Discussions on NW-B’s requirement in MUSIM gaps Ericsson

R4-2319140 Draft CR on MUSIM NW-B requirement Ericsson

R4-2319141 Discussions on test cases in MUSIM gaps Ericsson

R4-2319238 Work plan on RRM performance part for R18 MUSIM vivo

R4-2319239 On remaining issues for general aspects for MUSIM gaps vivo

R4-2319240 On remaining issues for collisions between gaps and priority rules for MUSIM gaps vivo

R4-2319241 On remaining issues for network A RRM requirements of MUSIM gaps vivo

R4-2319242 On remaining issues for network B RRM requirements of MUSIM gaps vivo

R4-2319243 Discussion on RRM performance requirements for MUSIM vivo

R4-2319244 draft CR on genearl aspects for MUSIM gaps and collision handling vivo

R4-2319245 Big CR to TS 38.133 on Dual TxRx Multi-SIM for NR vivo

R4-2319489 Discussion on general RRM requirements for Rel-17 MUSIM gaps OPPO

R4-2319490 Discussion on collision between gap and priority rules OPPO

R4-2319491 [NR\_DualTxRx\_MUSIM-Core] CR on TRP specific Link Recovery Procedures due to MUSIM gaps OPPO

R4-2319492 Discussion on network B requirements OPPO

R4-2319984 Discussion on general issues related to MUSIM gaps Huawei, HiSilicon

R4-2319985 Discussion on collision handling for MUSIM gaps Huawei, HiSilicon

R4-2319986 Discussion on NW A requirements with MUSIM gaps Huawei, HiSilicon

R4-2319987 draftCR on NW A L1 measurement requirements with MUSIM gaps Huawei, HiSilicon

R4-2319988 Discussion on NW B requirements with MUSIM gaps Huawei, HiSilicon

R4-2319989 Discussion on RRM test cases for MUSIM Huawei, HiSilicon

R4-2320292 General aspects, terminology Nokia, Nokia Shanghai Bell

R4-2320293 General aspects Nokia, Nokia Shanghai Bell

R4-2320294 Collisions between gaps and priority rules Nokia, Nokia Shanghai Bell

R4-2320295 On network A requirements Nokia, Nokia Shanghai Bell

R4-2320296 Network B requirements Nokia, Nokia Shanghai Bell

R4-2320297 NR\_DualTxRx\_MUSIM-Core DraftCR on Measurement for Propagation Delay Compensation Nokia, Nokia Shanghai Bell

R4-2320298 RRM performance requirements for NR\_DualTxRx\_MUSIM Nokia, Nokia Shanghai Bell

R4-2320559 Discussion on collisions between gaps and priority rules ZTE Corporation

R4-2320561 [NR\_DualTxRx\_MUSIM-Core]: Measurement gap related requirements of MUSIM gaps. ZTE Corporation

R4-2320562 [NR\_DualTxRx\_MUSIM-Core]: Positioning measurement impacted by MUSIM gap ZTE Corporation

R4-2320757 Discussion on general aspects for MUSIM Charter Communications, Inc

R4-2320907 On requirements for Rel-17 MUSIM gaps - Gap collisions Qualcomm Incorporated

R4-2320908 On requirements for Rel-17 MUSIM gaps - Network B requirements Qualcomm Incorporated

R4-2320909 Scope of RRM performance for Rel-17 MUSIM gaps Qualcomm Incorporated

R4-2321007 Discussion on the general aspects of MUSIM gaps MediaTek inc.

R4-2321008 Discussion on RRM requirements for MUSIM gaps collision handling MediaTek inc.

R4-2321009 Discussion on NW A RRM requirements for MUSIM MediaTek inc.

R4-2321010 Discussion on NW B RRM requirements for MUSIM MediaTek inc.

R4-2321337 Ad-hoc minutes on NR\_DualTxRx\_MUSIM WI Vivo

R4-2321404 draft CR on genearl aspects for MUSIM gaps and collision handling vivo

R4-2321405 Big CR to TS 38.133 on Dual TxRx Multi-SIM for NR vivo

R4-2321406 [NR\_DualTxRx\_MUSIM-Core]: Measurement gap related requirements of MUSIM gaps. ZTE Corporation

R4-2321407 [NR\_DualTxRx\_MUSIM-Core]: Positioning measurement impacted by MUSIM gap ZTE Corporation

R4-2321408 Draft CR on MUSIM NW-B requirement Ericsson

R4-2321409 NR\_DualTxRx\_MUSIM-Core DraftCR on Measurement for Propagation Delay Compensation Nokia, Nokia Shanghai Bell

R4-2321410 Draft CR on CSI-RS based L3 measurement impact due to MUSIM gap China Telecom

R4-2321411 draftCR on impact on RLM and link recovery due to MUSIM gaps Xiaomi

R4-2321412 [NR\_DualTxRx\_MUSIM-Core] CR on TRP specific Link Recovery Procedures due to MUSIM gaps OPPO

R4-2321413 draftCR on NW A L1 measurement requirements with MUSIM gaps Huawei, HiSilicon

R4-2321414 CR for NW B inactive state requirements Apple

R4-2321613 WF on NR\_DualTxRx\_MUSIM WI vivo