3GPP TSG-RAN WG2 Meeting #125bis R2-24xxxxx

Changsha, China, April 15th – 19th, 2024

Source: Rapporteur (vivo)

Title: [AT125bis][201][MUSIM] Offline discussion on the remaining RILs and other issues (vivo)

Introduction

* [AT125bis][201][MUSIM] Offline discussion on the remaining RILs and other issues (vivo)

Scope: Discuss the remaining RILs for MUSIM

 Intended outcome: Agreeable proposal for handling the RILs or other critical open issues if any, summary in R2-2403741

 Deadline: before Wednesday CB session

Discussion

**Issue 1: Granurality of musim-MaxCC of H104**

R2-2403728 [H104][H105][H106][H108][H109] Discussion on MUSIM RILs Huawei, HiSilicon

* Included in offline

Based on online discussion two options were identified:

**Proposal 1: R2-240372 suggests (RIL H104) to: support maximum number of CCs reported in per-FR per-CG level.**

**Proposal 2: support maximum number of CCs reported per-FR level.**

**Solution:**

* **Option 1: agree on the TP from R2-240372, i.e.,**

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| MUSIM-MaxCC-r18 ::= SEQUENCE { musim-MaxCC-FR1-MCG-DL-r18 INTEGER (1..32) OPTIONAL,musim-MaxCC-FR1-MCG-UL-r18 INTEGER (1..32) OPTIONAL, musim-MaxCC-FR2-MCG-DL-r18 INTEGER (1..32) OPTIONAL, musim-MaxCC-FR2-MCG-UL-r18 INTEGER (1..32) OPTIONAL, musim-MaxCC-FR1-SCG-DL-r18 INTEGER (1..32) OPTIONAL, musim-MaxCC-FR1-SCG-UL-r18 INTEGER (1..32) OPTIONAL, musim-MaxCC-FR2-SCG-DL-r18 INTEGER (1..32) OPTIONAL, musim-MaxCC-FR2-SCG-UL-r18 INTEGER (1..32) OPTIONAL} |

* **Option 2: Add additional optional maximum number of CCs values.**

**ZTE: we still want to go for Prop2, i.e., per FR simply.**

* RIL H104 agreed, as baseline we go for support maximum number of CCs reported per-FR level.

QC: it would better to go for per F1/F2 additionally, this would give simplicity on the design and choice for UE perspective.

Sam: wonder whether NW can understand what is restriction per band.

* Option 2 is baseline. Detail can be discussed during CR update. FFS whether to make some restriction on how whether UE report per FRx/UE only or UE can report both at the same time.

**Issue 2: Correction for needForGapsInfoNR-r16/ ueAssistanceInformation field in HandoverPreparationInformation IE of H108/H109**

R2-2403728 [H104][H105][H106][H108][H109] Discussion on MUSIM RILs Huawei, HiSilicon

* Included in offline

**Proposal 3: RAN2 to discuss the following options for RILs [H108][H109]:**

* **Option 1: Agree RILs [H108][H109], in *HandoverPreparationInformation* message, the Source Node always transmits the latest measurement gap requirement in *needForGapsInfoNR-r16* field considering *RRCReconfigurationComplete*, *RRCResumeComplete* and UAI message, and does not need to include measurement gap requirement in *ueAssistanceInformation* field.**
* **Option 2: Agree intention of RIL [H108] and change it to normative text, and RIL [109] can be rejected. The wording can be:**

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| ***needForGapsInfoNR***Includes measurement gap requirement information of the UE for NR target bands. The field considers measurement gap requirement information last reported by the UE in *RRCReconfigurationComplete* message, *RRCResumeComplete* message and *UEAssistanceInformation* message for MUSIM, if any. |

Based on online discussion, There are two IEs with the measurement gap are included in the signaling between MN and SN , one in “*needForGapsInfoNR*” another in “MUSIM UAI”.

The rapporteur understands there are three network implementations for this coordination between MN and SN.

**Network implementation1**: the MN modifies the gap information in “*needForGapsInfoNR*” based on gap information in “MUSIM UAI”, to align two measurement gap. i.e., the change in RILs [H108][H109]

**Network implementation 2**: the MN only sends the one gap information to SN, i.e., by “*needForGapsInfoNR*” or by “MUSIM UAI”, the MN knows which one is the latest gap information.

**Network implementation 3**: if the MN sends the measurement gap information in UAI information only the SN can used it, because the MN knows that the gap information in UAI is the latest one, if the MN sends the both gap information in “*needForGapsInfoNR*” and in “MUSIM UAI” the SN knows that the gap information in “*needForGapsInfoNR*” is the latest one because the MN just transfers MUSIM UAI without any change.

**Proposal: Based on different network implementations, do we still need capture one kind of the network implementation, e.g., proposed change in RILs [H108][H109]?**

***needForGapsInfoNR***

Includes measurement gap requirement information of the UE for NR target bands. The field considers measurement gap requirement information last reported by the UE in *RRCReconfigurationComplete* message, *RRCResumeComplete* message and *UEAssistanceInformation* message for MUSIM, if any.

* RIL H108 agreed with rewording of the TP and H109 reject. The TP “The field considers measurement gap requirement information last reported by the UE in RRCReconfigurationComplete message, RRCResumeComplete message and UEAssistanceInformation message for MUSIM, if any.” Taken as baseline with detail clarification in the field description for *needForGapsInfoNR* in inter-node message .

**Issue 3: Wait timer issue when performing Handover**

R2-2403522 [L012] Wait timer issue when performing Handover LG Electronics Inc. discussion

* -Included in offline

Based on online discussion, there is a need to clarify the criticality of the issue of wait timer during HO:

**Issue case 1. The UE decides NOT to re-transmit UAI for temporary capability restriction during handover**

**Issue case 2. The UE decides to re-transmit UAI for temporary capability restriction during handover**

**Proposal 1. RAN2 determines one of the following options for stopping the wait timer when initiating the mobility:**

**Option 1. The UE stop the wait timer if a mobility is initiated within 1 second after transmitting the UAI to the network for temporary capability restriction.**

**Option 2. The UE stop the wait timer whenever a mobility is initiated.**

**Proposal 2. RAN2 is also asked to consider two TPs in Annex for the wait timer handling: 5.1 for Option 1 and 5.2 for Option 2.**

LG: for case 1 the issue case 1 is not valid. And issue case 2 seems not very convincing.

Rapp: Whether to discuss include text procedure for stopping Timer may be considered, if necessary.

Sam explain that the previous agreement was made as a compromise text in table 7.1.1..

**Rapp: Whether to move the text in table 7.1.1. (or just reflect it) to RRC Reconfig procedure part can be further investigated.**

* RIL L012 is rejected.

**Issue 4: Modification to the R18 MUSIM UAI structure**

R2-2403739 [Z116][ Consideration on the MUSIM UAI Reporting ZTE Corporation, Sanechips discussion Rel-18 NR\_DualTxRx\_MUSIM-Core

* Included in offline

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| **Problem description in the Z116:**In the current structure all the r18 MUSIM UAI are packaged together, which means once one trigger condition (e.g. Gap priority, Cap Restriction or needforGap) was satisfied, the UE has to include all of the R18 MUSIM UAI. Now there is no prohibit timer for the needforGap, the prohibit timer for the Proactive Cap restriction/Gap priority reporting would be disabled (for that even the UAI was triggered by needforGap, the UE would still include other R18 MUSIM UAI with current ASN.11 structure and procedure description) |

**Proposal 1: Agree with the modification to the R18 MUSIM UAI structure as in the TP1.**

**Proposal 2: Agree with the modification to the R18 MUSIM UAI setting procedure as in the TP2.**

Sam: we do not want to change the ASN. 1 procedure. Prefer to keep current procedures, but can consider decoupling need for gap and capability IEs.

* Z116 agreed for just the intention of procedure part. Detail of procedure to be discussed during CR update.

**Issue 5: Dependency of Musim-NeedForGaps with Nr-NeedForGap**

R2-2403150 Corrections on need for gap for MUSIM purpose OPPO discussion Rel-18

R2-2403262 Dependency of Musim-NeedForGaps with Nr-NeedForGap-Reporting capability Samsung

**=> included in offline**

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| R[2-2400619](file:///E%3A%5C3GPP%E6%96%87%E6%A1%A3%5C%E4%BC%9A%E8%AE%AE%E6%96%87%E7%A8%BF%5C2024%5CRAN2%20125%5CR2-2400619.zip) [RIL-S852] Remaining issues for Musim-NeedForGaps Samsung discussion- Nokia wonders whether intra freq gap really impact MU-SIM UAI report.* P1 and P2 is agreed in principle, TP1 is taken as baseline. Exact wording will be discussed in the post meeting email, if needed.
* P4 and P5 are postponed.
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**Proposal 1: For a UE which supports musim-CapabilityRestriction, nr-NeedForGap-Reporting also indicates whether UE supports reporting of measurement gap requirements in UAI (as given in TP1).**

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| --- | --- | --- | --- | --- |
| ***musim-CapabilityRestriction-r18***Indicates whether the UE supports providing MUSIM assistance information with temporary capability restriction and capability restriction indication (i.e., *musim-CapRestrictionInd*), as defined in TS 38.331 [9]. UE can report *musim-NeedForGapsInfoNR* as defined in TS 38.331 [9] only if UE also indicates its support of *nr-NeedForGap-Reporting-r16*. | UE | No | No | No |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Definitions for parameters | Per | M | FDD-TDD DIFF | FR1-FR2 DIFF |
| ***nr-NeedForGap-Reporting-r16***Indicates whether the UE supports reporting the measurement gap requirement information for NR target in the UE response to a network configuration RRC message. For a UE supporting *musim-CapabilityRestriction-r18*, this field also indicates whether UE supports reporting of measurement gap requirement information for NR target in UAI as specified in TS 38.33. | UE | No | No | No |

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* Option 1 one seems more aligned with legacy, i.e.,updating musim-CapabilityRestriction-r18. The following TP is taken as baseline: For a UE supporting nr-NeedForGap-Reporting-r16, this field also indicates UE supports musim-NeedForGapsInfoNR-r18 as defined in TS 38.331 [9].,
* This should be captured in TS 38.306 by CR Rapporteur, to be checked with Intel.

**Issue 6: keeping MUSIM gaps when collision**

R2-2403151 Corrections on the feature for keeping MUSIM gaps when collision OPPO discussion Rel-18Included in offline

**Proposal: RAN2 is kindly requested to agree the corresponding TP in this contribution.**

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|  its preference to transition out of RRC\_CONNECTED state for MUSIM operation; or- its preference on the MUSIM gaps; or- its preference on the MUSIM gap priority; or- its preference on keeping the collided MUSIM gaps; or- its preference on the MUSIM temporary capability restriction; or- its relaxation state for RLM measurements; or -----Skip---- |

OPPO, a part from last change i.e,.

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| 4> set *musim-GapLength* and *musim-GapRepetitionAndOffset* in the *musim-GapInfo* IEto the values of the length and the repetition/offset of the gap(s), respectively, the UE prefers to be configured with;3> if UE has a preference for MUSIM gap priority;4> include the *musim-GapPriorityPreferenceList* the UE prefers to be configured;3> if the UE has preference to keep all collided MUSIM gaps for periodic MUSIM gap(s);4> include the *musim-GapKeepPreference*; |

* The rest of the TP can be merge to Rapp CR and detail would be discussed

“collided” -> “colliding”

**Issue 7: Fallback Relationship for the Affected Band Combinations**

R2-2403429 Consideration on the Fallback Relationship for the Affected Band Combinations ZTE included in offline

**Proposal 1: For an affected BC, if the parent BC (the BC that include more bands than the affected BC) has the different capability restriction on some bands, this parent BC shall be reported explicitly.**

**Proposal 1a: For an affected BC, if the parent BC (the BC that include more bands than the affected BC) has the same capability restriction as the affected BC, this parent BC shall not be reported, but the network would take the same capability restriction (as the reported affected BC) for such kinds of parent BC.**

**Proposal 2: For an affected BC, the UE need to report its fallback BC/Band (if it has temporary capability restriction) explicitly. (The fallback BC/Band means the BC/Band that each band is included in the affected BC but has less band number)**

**Proposal 3: Agree with the TP in the annex**

***musim-AffectedBandsList***

Indicates the UE's preference on the band(s) and/or combination(s) of bands with restricted capability for MUSIM operation. UE explicitly indicates each band and each combination of bands to be affected. Network should take these capability restrictions also for the band combinations that contain these bands and/or combination of bands.

Vivo: we are concern whether UE and NW would have same understanding by implementing this TP.

E///: we are supporting of this such kind of TP description.

* Agree to capture the description on how UE report so that NW can understand, but detail TP should be discussed in CR update. As baseline the following TP is considered “UE explicitly indicates each band and each combination of bands to be affected. Network should take these capability restrictions also for the band combinations that contain these bands and/or combination of bands.”

Conclusion

Based on offline discussion, the following agreement are considered as WF:

**Proposal 1:**

* RIL H104 agreed, as baseline maximum number of CCs reported per-FR level.
* Option 2, i.e., “add additional optional values for maximum number of CCs reported per-FR level” is baseline. Details can be discussed during CR update. FFS whether to make some restriction on how whether UE report per FRx/UE only or UE can report both at the same time.

**Proposal 2: RIL H108 is agreed with rewording of the corresponding TP in R2-2403728 and H109 reject. The TP “*The field considers measurement gap requirement information last reported by the UE in RRCReconfigurationComplete message, RRCResumeComplete message and UEAssistanceInformation message for MUSIM, if any*.” Is taken as baseline with detail clarification in the field description for *needForGapsInfoNR* in inter-node message.**

**Proposal 3: RIL L012 is rejected.**

**Proposal 4: RIL Z116 is agreed for just the intention of procedure part. Detail of procedure to be discussed during CR update.**

**Proposal 5:**

* Option 1, i.e., updating *musim-CapabilityRestriction-r18* IE in TS38.306 is Way Forward. The following TP is taken as baseline: “*For a UE supporting nr-NeedForGap-Reporting-r16, this field also indicates UE supports musim-NeedForGapsInfoNR-r18 as defined in TS 38.331 [9].*”
* This should be captured in TS 38.306 by CR Rapporteur, to be checked with Intel.

**Proposal 6: The TP in R2-2403151 can be merged to Rapporteur CR for CR update, except the following part:**

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| 4> set *musim-GapLength* and *musim-GapRepetitionAndOffset* in the *musim-GapInfo* IEto the values of the length and the repetition/offset of the gap(s), respectively, the UE prefers to be configured with;3> if UE has a preference for MUSIM gap priority;4> include the *musim-GapPriorityPreferenceList* the UE prefers to be configured;3> if the UE has preference to keep all collided MUSIM gaps for periodic MUSIM gap(s);4> include the *musim-GapKeepPreference*; |

**Proposal 7: To capture the description on how UE report musim-AffectedBandsList so that NW can fully understand UE. As baseline the following TP is considered “UE explicitly indicates each band and each combination of bands to be affected. Network should take these capability restrictions also for the band combinations that contain these bands and/or combination of bands.” Detail TP will be discussed in CR update.**