**3GPP TSG-RAN WG2 Meeting #131bis *R2-250xxxx***

**Prague, Czech Republic, 13 – 17 October 2025**

**Agenda item: 8.x.x**

**Source: Xiaomi**

**Title: Open issues of Rel-19 AIML air UE capabilities**

**Document for: Discussion and Decision**

# Introduction

As part of email discussion “[POST131][043][AI PHY] UE capabilities (Xiaomi)”, this document is to collect open issues on Rel-19 AIML air UE capabilities.

Phase 1: Companies are invited to provide input on open issue list no later than 19th Sep.

Phase 2: Rapporteur will further provide the resolution to each open issue afterwards. Companies further input on the open issue list and resolution are expected before 1st Oct.

|  |  |  |
| --- | --- | --- |
| **Company** | **Name** | **Email** |
| Samsung | Beom | s90.jeong@samsung.com |
| Lenovo | Congchi Zhang | zhangcc16@lenovo.com |
| Nokia | Sakira Hassan | sakira.hassan@nokia.com |
| Huawei | Seau Sian Lim | seau.sian.lim@huawei.com |
| Apple | Peng Cheng | Pcheng24@apple.com |

# Discussion

During previous discussion, rapporteur observes there’s only one open issue left:

***Open issue UECap-1: whether UE can support other memory sizes and indicate to network via optional capability signaling***

*Issue Description:*

This was discussed during the email discussion, and there are 5 companies think that UE can optionally indicate other AS layer memory sizes to network due to the following reasons:

- network flexibility for higher buffer threshold configuration

- common AS layer buffer might need larger memory size to support other use cases as well

4/9 companies don’t agree to indicate other memory size to network due to the following reasons:

- for Rel-19 data collection, no need for additional memory

- more memory size is up to UE implementation

- network can retrieve data based on UE buffer full indication

*Status in running CR:*

Not captured

Based on offline and online discussion, the supporting of additional memory sizes mainly motivated by supporting more flexible buffer-threshold based configuration. It seems reasonable to consider *dataThresholdAvailabiltyIndication-r19* as the prerequisite of this new capability (if introduced). If *dataThresholdAvailabiltyIndication-r19* is not supported, UE does not need to support additional memory size.

Therefore, rapporteur proposes with the following way-forward, where the candidate values consider memory size supported in *qoe-AdditionalMemoryMeasReport-r18* as baseline (except introducing a smaller value of 64kB):

**Proposal 1: Define *aiml-AdditionalMemoryReport-r19* to indicate the additional AS layer memory size the UE support for logged measurement of network-side data collection in addition to 64kB.**

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| --- | --- | --- | --- | --- |
| ***aiml-AdditionalMemoryReport-r19***  Indicates whether the UE supports the additional AS layer memory size the UE support for logged measurement of network-side data collection in addition to 64kB. Value kB64 means the UE supports at least 64 kilobytes for this purpose, and so on.  A UE supporting this feature shall also indicate support of *dataThresholdAvailabiltyIndication-r19*. | UE | No | No | No |

***AIML-Parameters* information element**

-- ASN1START

-- TAG-AIML-PARAMETERS-START

AIML-Parameters-r19 ::= SEQUENCE {

applicabilityReportingCSI-r19 ENUMERATED {supported} OPTIONAL,

applicabilityReportingOther-r19 ENUMERATED {supported} OPTIONAL,

loggedDataCollection-r19 ENUMERATED {supported} OPTIONAL,

eventBasedLoggedDataCollection-r19 ENUMERATED {supported} OPTIONAL,

dataThresholdAvailabilityIndication-r19 ENUMERATED {supported} OPTIONAL,

aiml-AdditionalMemoryReport-r19 ENUMERATED {kB64, kB128, kB256, kB512, kB1024}

OPTIONAL

}

-- TAG-AIML-PARAMETERS-STOP

-- ASN1STOP

**Q1: Do companies agree with above proposal and the relative TPs for this new introduced capability? Comment to the TP is also welcomed.**

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes/No** | **Comment** |
| Samsung | Yes but | We assume additional memory is also useful for NW to select the UE with large memory to collect much data, rather configuring multiple UEs. So, we agree with this proposal but some updates are suggested  1. The proposed values (64KB, 128KB, …1024KB) are in addition to 64KB. It means UE’s total memory would be like 64+64=128KB, 128+64= 192KB, 256+64=320KB,…. In our understanding, common UE implementation usually supports the memory size as power of 2. In that sense, these sizes (128KB, 192KB, 320KB…) are not preferred. So, we suggest the memory as power of 2. It could be achieved with the following update:   |  | | --- | | ***aiml-AdditionalMemoryReport-r19***  Indicates **~~whether the UE supports~~** the **~~additional~~** AS layer memory size the UE support**s** for logged measurement of network-side data collection **~~in addition to~~larger than** 64kB. Value kB**~~64~~128** means the UE supports at least **~~64~~128** kilobytes for this purpose, and so on. |   aiml-AdditionalMemoryReport-r19 ENUMERATED {**~~kB64~~**, kB128, kB256, kB512, kB1024}  OPTIONAL  }  2. We are not sure if this capability should be dependant to *dataThresholdAvailabiltyIndication*. We think this capability is still useful for NW’s UE selection with large buffer and other potential use-cases |
| Nokia | Yes with comments | 1. The use of the word ‘whether’ in the description is not clear 2. Supporting Samsung’s concern. That it is a bit misleading whether this capability to indicate additional memory along with what we are already supporting that is 64KB as default. It might be good to clarify that if UE is indicating this UE capability, then UE has the total memory of 64kB + 64kB = 128kB. 3. Our suggestion is to use similar text as in *qoe-AdditionaMemeoryMeasReport-r18*   Proposed changes:   |  | | --- | | ***aiml-AdditionalMemoryReport-r19***  Indicates ~~whether the UE supports the additional~~ the minimum AS layer memory size the UE supports for logged measurement of network-side data collection in addition to ~~64kB~~  the “AS layer memory size for logged measurement of network-side data collection”. Value ~~kB64~~  kB128 means the UE supports at least ~~64~~ 128 kilobytes for this purpose, and so on.  A UE supporting this feature shall also indicate support of *dataThresholdAvailabiltyIndication-r19*. | | ***AIML-Parameters* information element**  -- ASN1START  -- TAG-AIML-PARAMETERS-START  AIML-Parameters-r19 ::= SEQUENCE {  applicabilityReportingCSI-r19 ENUMERATED {supported} OPTIONAL,  applicabilityReportingOther-r19 ENUMERATED {supported} OPTIONAL,  loggedDataCollection-r19 ENUMERATED {supported} OPTIONAL,  eventBasedLoggedDataCollection-r19 ENUMERATED {supported} OPTIONAL,  dataThresholdAvailabilityIndication-r19 ENUMERATED {supported} OPTIONAL,  aiml-AdditionalMemoryReport-r19 ENUMERATED {~~kB64~~, kB128, kB256, kB512, kB1024}  OPTIONAL  }  -- TAG-AIML-PARAMETERS-STOP  -- ASN1STOP | |
| Huawei | Yes with comments | We agree with Samsung that there is no need to link this with dataThresholdAvailabiltyIndication-r19. Besides data threshold setting, it can also be used by the NW separately to select the UE for data collection. Furthermore, it can actually put additional requirement on the UE and so from UE perspective it is easier not to link and give the UE vendors implementation freedom in this case. Hence we would prefer to remove the following:  ~~A UE supporting this feature shall also indicate support of~~ *~~dataThresholdAvailabiltyIndication-r19~~*~~.~~  As on the exact values, if it is in additional to the 64 and to keep to power of 2, the values should be “64,192,448,960”. Alternatively, if we go with total memory as suggested by Samsung, it would be “128,256,512,1025” and the text will need to be updated as per Samsung’s suggestion. |
| Qualcomm | No | We do not agree to support indication of additional memory. Additional memory is up to UE implementation without signalling. |
| Apple | No | We have same view as QC that additional memory is not needed in Rel-19 (but we are open for Rel-20 AI mobility and CSI compression, depending on detailed analysis by then).   1. As we raised during online/offline discussion, the requirement to introduce additional memory in Rel-19 is not clear. In Rel-19, only L1 RSRP and beam ID are logged. Based on number provided by RAN1 reply LS (R1-2310681), we did an estimate that the typical training data size stored in AS layer memory is 100 bits×8 instances (Set B) + 500 bits×4 instances (Set A) = 2800 bits=0.35KB. Thus, 64KB is far beyond it. 2. In addition, as we agreed, the memory will be refreshed when entering IDLE/INACTIVE/RLF, which further alleviates the need of additional memory.   In all, we think proponent company should provide technique analysis on why the additional memory is needed instead of just repeating “it can be future proof”.  Furthermore, similar view as Samsung and Huawei, we also don’t see the need to couple additional memory and link this with dataThresholdAvailabiltyIndication-r19. In our understanding, they are totally separate topics. |

Besides the above open issue, companies are invited to describe any identified open issues in the table below.

|  |  |  |
| --- | --- | --- |
| **Company** | **Description of open issues and potential resolution** | **Rapporteur comment** |
| Samsung | Given we agreed to report applicability in RRCResumeComplete message, the following update is needed:   | Definitions for parameters | | --- | | ***applicabilityReportingCSI-r19***  Indicates whether the UE supports applicability reporting and/or its updates (via *RRCReconfigurationComplete* or via *UEAssistanceInformation* message or via RRCResumeComplete) based on inference configuration provided via *CSI-ReportConfig*, as specified in TS 38.331 [9].  It is mandatory if UE supports at least one of *aiml-BM-Case1-r19*, *aiml-BM-Case2-r19* and *aiml-CSI-Prediction-r19*. | | ***applicabilityReportingOther-r19***  Indicates whether the UE supports applicability reporting and/or its updates (via *RRCReconfigurationComplete* or via *UEAssistanceInformation* message or via RRCResumeComplete message) based on inference related configuration provided via *OtherConfig*, as specified in TS 38.331 [9].  It is mandatory if UE supports at least one of *aiml-BM-Case1-r19* and *aiml-BM-Case2-r19*. | | As Nokia suggested below, rapporteur suggests to remove the example signalling since the field description also refers to 331 spec. |
| Lenovo | [Terminology Alignment] 38.331  To align with stage 2 CR. Suggest “AI/ML-based” beam management and “AI/ML-based” CSI prediction. | Ok with the change |
| Lenovo | [Terminology Alignment] 38.306  Mixed use of “memory” and “buffer”  As raised also over email, we have been using "buffer" during our WI discussion. On the other hand, when it comes to spec terminology w.r.t logging, we notice the term "memory" is actually used in MDT/QoE description.  Suggest “full buffer indication”  “full memory indication”  It is also relevant to 38.331, 38.300. Depending on relevant rapporteurs, we can either decide here (since term “memory” and “buffer” differs from capability point of view) or in other discussion. | To be updated after checking all relevant specs. |
| Nokia | As Samsung brought to attention that we have additional agreements on reporting of applicability reporting with *RRCResumeComplete* message along with *UEAssistanceInformation* and *RRCReconfigurationComplete*, it would be better to remove the specific messaging details from the capability description, as these detailed information are already available in TS 38.331. Proposed changes:   | Definitions for parameters | | --- | | ***applicabilityReportingCSI-r19***  Indicates whether the UE supports applicability reporting and/or its updates ~~(via~~ *~~RRCReconfigurationComplete~~* ~~or via~~ *~~UEAssistanceInformation~~* ~~message)~~ based on inference configuration provided via *CSI-ReportConfig*, as specified in TS 38.331 [9].  It is mandatory if UE supports at least one of *aiml-BM-Case1-r19*, *aiml-BM-Case2-r19* and *aiml-CSI-Prediction-r19*. | | ***applicabilityReportingOther-r19***  Indicates whether the UE supports applicability reporting and/or its updates ~~(via~~ *~~RRCReconfigurationComplete~~* ~~or via~~ *~~UEAssistanceInformation~~* ~~message)~~ based on inference related configuration provided via *OtherConfig*, as specified in TS 38.331 [9].  It is mandatory if UE supports at least one of *aiml-BM-Case1-r19* and *aiml-BM-Case2-r19*. | | Agreed. |
| Huawei | Since the detailed messages for applicability reporting is already clear in TS38.331, we agree with Nokia that we can just remove ‘~~(via RRCReconfigurationComplete or via UEAssistanceInformation message)~~’. Furthermore, RRCResumeComplete cannot be added to ***applicabilityReportingOther-r19*** | Agreed. |
| Huawei | One editorial comment, otherwise the current description seems a bit incomplete.   |  |  |  |  |  | | --- | --- | --- | --- | --- | | ***loggedDataCollection-r19***  Indicates whether the UE supports logged measurements for network-side data collection, as specified in TS 38.331 [9]. The UE supporting this feature also supports periodical logging and providing full buffer indication and low power indication via *UEAssistanceInformation* message.  The minimum memory size for storing of logged measurement of network-side data collection is 64kB. | UE | No | No | No | | Ok with the change. |

# Conclusion

In this contribution, we collect open issues of Rel-19 AIML air UE capabilities. Based on above discussion, following open issues are identified: