**3GPP TSG RAN meeting #107 RP-25xxxx**

**Incheon, Korea, March 12-14, 2025**

## Status Report to TSG

**Agenda item:** 9.3.1.3

|  |  |
| --- | --- |
| **WI / SI Name** |  |
| included in this status report | Study Item: No | Core part: Yes | Performance part:Yes | Testing part:No |
| **Acronym** | NR\_AIML\_air |
| **Unique ID** | 1020093 |
| **TSG Tdoc of latest approved WI/SI description (if any)** | RP-243244 |
| **Target Completion Date****(indicate if changed)** | Study Item: NA | Core part: Sept ‘25 | Performance part: March ‘26 | Testing part: NA |
| **Overall Completion level** | Study Item: NA | Core part: xx% | Performance Part: 0% | Testing part: NA |

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** | TSG RAN WG1 |
| **Rapporteur** | **Name** | Juan Montojo (RAN1); Xiaofeng Liu (RAN4); Marco Belleschi (RAN2/RAN3) |
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## 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?** | No |

*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.*

**Additional explanations/motivations for the time budget changes in the attached Excel table:**

## 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

##### 2.2.1.1 RAN2#129

RAN2#129 discussed **LCM for UE-sided model for Beam Management use case** and made the following agreements:

* Inference configuration/parameters can be signalled in step 3 and/or Inference configuration can be signalled in step 5 (i.e. option a and option b from RAN1).
* The full inference configuration is sent in CSI-ReportConfig
* Upon receiving a full inference configuration, the UE sends the initial applicability report in RRCReconfigurationComplete. UAI can be sent to update applicability
* FFS signaling details for option B (e.g. whether it is signaling in CSI-Report Config or otherconfig)
* Support the explicit reporting of applicability/inapplicability in initial report and subsequent reporting it reports only applicability it changed. FFS if we report explicit cause
* If option A is configured in Step 3, for periodic CSI reporting, the UE autonomously activate the applicable functionalities upon reporting applicable functionalities via RRCReconfigurationComplete in step 4 (i.e. without need to wait RRCReconfiguration in Step 5).
* The provided periodic CSI configuration should be consistent with reported UE capabilities
* FFS option B
* Semi-persistent and aperiodic CSI reporting of applicable functionality is activated following legacy CSI framework:
	+ Semi-persistent reporting, activated by MAC CE/DCI
	+ Aperiodic CSI reporting, activated by DCI

RAN2#129 discussed **NW-side data collection** for the beam management use case, and made the following agreements:

* Support the use of L3 measurement event triggered (i.e. L3 serving cell measurements becoming worse/better than a threshold for TTT) to determine whether the UE performs logging or not. L1 measurement event triggered will not be supported. FFS what to log
* Low power bit indication is supported
* Data availability indication is supported. FFS when this would be triggered
* As baseline, the UEInformationResponse contains one or more logged measurement entries in chronological order (i.e. starting from the oldest measurement entries stored in the UE memory), and an availability indication if there are further data available for transmission. Same principles as for logged MDT.
* UE retains logged data during handover (HO). FFS if there is scenarios where the UE needs to release the data and how does the UE know and if control from network is needed
* UE indicates availability of logged data during handover (i.e., within the RRCReconfigurationComplete message) (if data is retained in the UE).
* FFS how to handle idle/inactive and RLF cases and whether we have a unified

RAN2#129 discussed **UE-side data collection** for the beam management use case, focusing on data collection configuration, and made the following agreements:

* Extend the following agreements on data collection configuration in AI/ML based beam management to general UE-side data collection configuration:
	+ Data collection related configuration(s) and associated ID(s)(if needed) can be included in training data collection configuration.
	+ For data collection configuration UE-side model training, the UE can send a request for data collection (e.g. start/stop). FFS whether a suggested data collection configuration/associated IDs (if specified)/parameters can be provided to the network.
	+ The network can provide or release the data collection configuration (at any point in time), with or without UE request.
	+ The following methods for network control of the initiation and configuration for data collection:
		- The network can decide when to start/stop the data collection and send configuration.
		- The network can configure whether UE is allowed to initiate request for data collection (e.g. start/stop indication).

RAN2#129 discussed **LCM for UE-sided model for Positioning use case** and made the following agreements:

* RAN2 has not and will not study Case 2a and Case 2b in Rel-19. An LS was sent to SA2 to notify this agreement (LS available in R2-2501507)
* Introduce AI/ML positioning Case 1 as a new positioning method
* Existing LPP procedures related to Location Information Transfer (RequestLocationInformation/ ProvideLocationInformation messages) are used for providing and requesting the results of the UE sided model inference operation. The detail stage 3 message extention can be disucssed while drafting the stage 3 CR.
* FFS UE autonomous switching between AI/ML and non-AI/ML methods is not allowed. FFS if this is unconditional or linked to condition of multiple positioning method are not configured in RequestLocationInformation.
* The content of error cause is discussed while drafting stage3 CRs.
* As a baseline, UE receives the needed assistance data for calculating UE location for AI/ML in step3 (ProvideAssistanceData) and UE receives the instruction to perform the inference in step 5 (RequestLocationInformation). The content of Assistance Data and the content of request location information is based upon RAN1 parameter list.
* UE reports the applicable functionality to the LMF by the LPP provide capabilities message if there is a change of applicable functionality. FFS if any additional LMF control is needed.

RAN2 also discussed organizational aspects related to the handling of running CRs.

Further, the following post-meeting email discussions were agreed:

* [POST129][024][AI PHY] Stage 2 running CR (Vivo)

 Intended outcome: update running CR to be submitted to next meeting

 Deadline: Mar. 21st 10:00 UTC

* [POST129][025][AI PHY] RRC running CR (Ericsson)

 Intended outcome: update running CR to be submitted to next meeting

 Deadline: Mar. 21st 10:00 UTC

#### 2.2.2 Remaining Open issues

Related to the topic of LCM for UE-sided model for Beam Management use case, RAN2 can continue analyzing the details of LCM-related signalling procedures, focusing on the FFS agreed during RAN2#129. Further, RAN2 should start the discussion on how to capture in normative procedures the agreements reached so far on this topic, with focus on the running CRs for TS 38.300 and TS 38.331.

Related to the topic of NW-side data collection, RAN2 can continue the discussion on configuration and reporting mechanisms to enable NW-side data collection, focusing on the FFS agreed during RAN2#129. Further, RAN2 should start the discussion on how to capture in normative procedures the agreements reached so far on this topic, with focus on the running CRs for TS 38.300 and TS 38.331.

Related to the topic of LCM for Positioning use case, RAN2 can continue the discussion on the FFS agreed during RAN2#129, e.g. on how to switch between AIML and non-AIML positioning methods.

Related to the topic of UE-side data collection, RAN2 can continue the discussion on the mechanisms to configure the UE for the UE-side data collection. Further, RAN2 should start the discussion on how to capture in normative procedures the agreements reached so far on this topic, with focus on the running CRs for TS 38.300 and TS 38.331.

## 2.3 RAN3

#### 2.3.1 Agreements

##### 2.3.1.1 RAN3#127

RAN3#127 discussed the topic of **Positioning Accuracy Enhancements,** a work plan was presented in R3-250488.

A summary of discussion is available in R3-250873. Based on the discussion, RAN3 made the following agreements:

* Turn the “WA: The LMF starts a NRPPa transaction. The gNB determines that data collection is needed.” to an agreement.
* For case 3a, it should be possible to collect data in both an “opportunistic” (gNB collects available data from ongoing positioning sessions) and “proactive” (gNB triggers data collection at the LMF, e.g., which may trigger positioning) manner.
* For case 3a, it should be possible for the gNB to collect data for both served and non-served UEs.
* WA: For case 3a data collection, Part A is known internally by the gNB and is not necessarily signalled outside the gNB
* To be continued: Stage 2 (TS 38.305) text proposals for case 3a data collection. Companies are encouraged to consolidate solutions, if possible

Further, RAN3 agreed to send an LS to SA2 (Cc: RAN1, RAN2), on LMF-based AI/ML Positioning for case 3b responding to SA2 questions on the editor’s notes in TS 23.273 pending RAN3 signalling. The LS is available in R3-250796.

#### 2.3.2 Remaining Open issues

Related to the topic of Positioning Accuracy Enhancements, RAN3 should continue the discussion on the following FFSs discussed during RAN3#127:

* FFS how to support data collection in case 3a
* Continue the discussion on the stage 2 (TS 38.305) and stage 3 text proposals for support of case 3a and case 3b

## 2.4 RAN4

#### 2.4.1 Agreements

##### 2.4.1.1 RAN4#114

**CSI reporting requirement framework for CSI prediction**

**Issue 1-2: Reference model for CSI prediction**

**Agreement:**

* Assume no reference AI model for CSI prediction as baseline
	+ If it is difficult to align the results corresponding to test metric, RAN4 will discuss the reference model.

**Issue 1-3: Training and test data consistency**

**Agreement:**

* further discuss the following options
	+ Option 1: Consistency between training data and test data should be ensured
		- RAN4 to study how to ensure consistency between training data(simulation) and test data (conformance test) and whether anything special should be done during the test
	+ Option 2: Consistency will be implicit as test emulated channel will be very similar to the one used in RAN4 simulations

**Issue 1-4: Generalization**

**Agreement:**

* Postpone this discussion until the requirement and test definition is clear

**Issue 1-5: Simulation parameters**

**Agreement:**

Simulation assumptions for CSI prediction is agreed in R4-2503026

**Testability and interoperability issues for beam management**

**Issue 2-1: Metrics/KPIs for beam prediction**

**Agreement:**

If RSRP and beam ID are reported:

* RSRP accuracy will be one of the KPIs.
	+ How option 1 is applied is FFS
* Beam ID prediction accuracy will be one of the KPIs
	+ FFS whether beam ID prediction accuracy refers to a combination of Option 2 and/or Option 3 or modified Option 2/3 or other options

If only beam ID is reported:

* Beam ID prediction accuracy will be used as the KPI
	+ FFS whether beam ID prediction accuracy refers to a combination of Option 2 and/or Option 3 or modified Option 2/3 or other options

**Issue 2-4: QCL Source RS for TCI states**

**Agreement:**

wait for RAN1 discussion to conclude without sending any LS

**Issue 2-6: Simulation results**

**Agreement:**

Updated simulation assumptions for beam prediction is agreed in R4-2503021

**Requirements for positioning**

**Issue 3-4: Report mapping for UL SRS-RSRP**

**Agreement:**

* Reuse the report mapping for UL SRS-RSRP to Case 3a

#### 2.4.2 Remaining Open issues

* CSI reporting requirement framework for CSI prediction
	+ Test baseline
	+ Reference model for alignment
	+ Training data and test consistency
	+ Generalization
	+ Parameters for simulations/tests
* Requirements for Beam managements
	+ Beam prediction KPIs
	+ Relative RSRP accuracy
	+ Measurement period for inference
	+ QCL source RS for TCI states
	+ Requirements based on relative difference
	+ Simulation results
	+ Measurement error modelling
* Requirements for Positioning Simulation results
	+ Requirements for case 1
	+ LOS/NLOS indicator requirements
	+ Timing information reporting from UE/gNB to LMF
	+ Report mapping for UL SRS-RSRP for Case 3a/3b

## 2.5 RAN5

#### 2.5.1 Agreements

#### 2.5.2 Remaining Open issues

#### 2.5.3 Remaining Open issues with cross-WG dependencies

## 2.6 RAN6

#### 2.6.1 Agreements

#### 2.6.2 Remaining Open issues

## 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. 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.

## 4.1 RAN1

## 4.2 RAN2

## 4.3 RAN4

#### 4.3.1 RAN4#114

// **General aspects**

[**R4-2500045**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2500045.zip) **Discussion on general aspects for AI/ML air**

 *Type: discussion For: Discussion
 Source: Korea Testing Laboratory*

**Decision: Noted.**

[**R4-2500224**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2500224.zip) **Discussion on General Aspects on AI/ML for NR Air Interface**

 *Type: discussion For: Discussion
 Source: Apple*

**Decision: Noted.**

[**R4-2500511**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2500511.zip) **Discussion on general aspects of AI/ML for NR air interface**

 *Type: discussion For: Discussion
 Source: CAICT*

**Decision: Noted.**

[**R4-2500616**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2500616.zip) **Discussion on general aspect for AI**

 *Type: discussion For: Discussion
 Source: Xiaomi*

**Decision: Noted.**

[**R4-2500821**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2500821.zip) **Discussion on general aspects for AIML**

 *Type: discussion For: Discussion
 Source: vivo*

**Decision: Noted.**

[**R4-2501034**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2501034.zip) **Discussion on general aspects for AIML for NR air**

 *Type: discussion For: Discussion
 Source: CATT*

**Decision: Noted.**

[**R4-2501094**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2501094.zip) **Discussion on general aspects**

 *Type: discussion For: Discussion
 Source: CMCC*

**Decision: Noted.**

[**R4-2501172**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2501172.zip) **Discussion on the AI/ML general aspects**

 *Type: other For: Approval
 Source: ZTECorporation,Sanechips*

**Decision: Noted.**

[**R4-2501526**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2501526.zip) **Discussion on general aspects on AIML for NR air interface**

 *Type: discussion For: Discussion
 Source: Huawei, HiSilicon*

**Decision: Noted.**

[**R4-2501610**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2501610.zip) **On LCM requirements for AI/ML**

 *Type: discussion For: Discussion
 Source: Ericsson*

**Abstract:**

On LCM requirements for AI/ML

**Decision: Noted.**

[**R4-2501956**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2501956.zip) **General aspects of AI/ML for NR Air interface**

 *Type: discussion For: Discussion
 Source: Nokia*

**Decision: Noted.**

[**R4-2502167**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2502167.zip) **Post Deployment Testing of AI-ML**

 *Type: discussion For: Discussion
 Source: Qualcomm Incorporated*

**Decision: Noted.**

**//** **CSI reporting requirement framework for CSI prediction**

[**R4-2500228**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2500228.zip) **Discussion on CSI Prediction: CSI reporting requirement framework for CSI prediction**

 *Type: discussion For: Discussion
 Source: Apple*

**Decision: Noted.**

[**R4-2500270**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2500270.zip) **CSI reporting requirement framework for CSI prediction**

 *Type: other For: Approval
 Source: OPPO*

**Decision: Noted.**

[**R4-2500338**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2500338.zip) **Discussion on CSI reporting requirement framework for CSI prediction**

 *Type: discussion For: Discussion
 Source: MediaTek inc.*

**Decision: Noted.**

[**R4-2500512**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2500512.zip) **Discussion on RRM core requirement for CSI prediction**

 *Type: discussion For: Discussion
 Source: CAICT*

**Decision: Noted.**

[**R4-2500822**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2500822.zip) **Discussion on CSI reporting requirement framework for CSI prediction**

 *Type: discussion For: Discussion
 Source: vivo*

**Decision: Noted.**

[**R4-2501035**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2501035.zip) **Discussion on CSI reporting requirement framework for CSI prediction**

 *Type: discussion For: Discussion
 Source: CATT*

**Decision: Noted.**

[**R4-2501093**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2501093.zip) **Discussion on CSI prediction**

 *Type: discussion For: Discussion
 Source: CMCC*

**Decision: Noted.**

[**R4-2501499**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2501499.zip) **Discussion on CSI prediction**

 *Type: discussion For: Discussion
 Source: Ericsson*

**Abstract:**

This contribution discusses the AI/ML-based CSI prediction.

**Decision: Noted.**

[**R4-2501508**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2501508.zip) **Discussion on testability and interoperability issues for CSI prediction**

 *Type: other For: Approval
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

[**R4-2501527**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2501527.zip) **Discussion on CSI reporting requirement framework for AIML CSI predictio**

 *Type: discussion For: Discussion
 Source: Huawei, HiSilicon*

**Decision: Noted.**

[**R4-2502032**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2502032.zip) **View on CSI reporting requirements framework for CSI prediction**

 *Type: discussion For: Discussion
 Source: Samsung*

**Decision: Noted.**

[**R4-2502070**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2502070.zip) **CSI reporting requirement framework for CSI prediction**

 *Type: discussion For: Discussion
 Source: Nokia*

**Decision: Noted.**

[**R4-2502166**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2502166.zip) **CSI Prediction: Core Requirements and Testability Issues**

 *Type: discussion For: Discussion
 Source: Qualcomm Incorporated*

**Decision: Noted.**

**//** **RRM core requirement for beam management**

[**R4-2500085**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2500085.zip) **Views on outstanding Testability and Interoperability Issues for Beam Management**

 *Type: discussion For: Discussion
 Source: VIAVI Solutions*

**Decision: Noted.**

[**R4-2500225**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2500225.zip) **Discussion on Beam Management: RRM Core Requirements**

 *Type: discussion For: Discussion
 Source: Apple*

**Decision: Noted.**

[**R4-2500274**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2500274.zip) **RRM core requirement for beam management**

 *Type: other For: Approval
 Source: OPPO*

**Decision: Noted.**

[**R4-2500513**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2500513.zip) **Discussion on RRM core requirements for beam management**

 *Type: discussion For: Discussion
 Source: CAICT*

**Decision: Noted.**

[**R4-2500593**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2500593.zip) **Discussions on RRM core requirement for beam management**

 *Type: discussion For: Discussion
 Source: NTT DOCOMO, INC.*

**Decision: Noted.**

[**R4-2500612**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2500612.zip) **Discussion on RRM requirement for beam management**

 *Type: discussion For: Discussion
 Source: Jio*

**Decision: Noted.**

[**R4-2500618**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2500618.zip) **Discussion on core part requirement for AI beam management**

 *Type: discussion For: Discussion
 Source: Xiaomi*

**Decision: Noted.**

[**R4-2500823**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2500823.zip) **Discussion on RRM core requirements for beam management**

 *Type: discussion For: Discussion
 Source: vivo*

**Decision: Noted.**

[**R4-2500888**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2500888.zip) **Discussion on RRM core requirements of AI/ML BM use case**

 *Type: discussion For: Discussion
 Source: MediaTek Inc.*

**Decision: Noted.**

[**R4-2501036**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2501036.zip) **Discussion on RRM core requirements for BM**

 *Type: discussion For: Discussion
 Source: CATT*

**Decision: Noted.**

[**R4-2501092**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2501092.zip) **Discussion on RRM requirements for beam management**

 *Type: discussion For: Discussion
 Source: CMCC*

**Decision: Noted.**

[**R4-2501170**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2501170.zip) **Discussion on the RRM requirements of AI/ML Beam management**

 *Type: other For: Approval
 Source: ZTECorporation,Sanechips*

**Decision: Noted.**

[**R4-2501284**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2501284.zip) **Discussion on RRM core requirements for beam management**

 *Type: discussion For: Discussion
 Source: Ericsson*

**Abstract:**

Discussion on RRM core requirements for beam management

**Decision: Noted.**

[**R4-2501528**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2501528.zip) **Discussion on RRM core requirement for AIML Beam management**

 *Type: discussion For: Discussion
 Source: Huawei, HiSilicon*

**Decision: Noted.**

[**R4-2501692**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2501692.zip) **RRM core requirement for AI/ML based beam management**

 *Type: discussion For: Discussion
 Source: Tejas Network Limited*

**Decision: Noted.**

[**R4-2501726**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2501726.zip) **Discussion on test setup for AI/ML based beam management**

 *Type: discussion For: Discussion
 Source: Rohde & Schwarz*

**Decision: Noted.**

[**R4-2501957**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2501957.zip) **RRM core requirements for AI/ML Based Beam Management**

 *Type: discussion For: Discussion
 Source: Nokia*

**Decision: Noted.**

[**R4-2501964**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2501964.zip) **Further discussion on beam management core requirements**

 *Type: other For: Approval
 Source: Samsung*

**Decision: Noted.**

[**R4-2502165**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2502165.zip) **RRM Core Requirements for AI/ML Beam Management**

 *Type: discussion For: Discussion
 Source: Qualcomm Incorporated*

**Decision: Noted.**

**//** **RRM core requirement for Positioning accuracy enhancement**

[**R4-2500229**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2500229.zip) **Discussion on RRM Core Requirements for positioning accuracy enhancement**

 *Type: discussion For: Discussion
 Source: Apple*

**Decision: Noted.**

[**R4-2500272**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2500272.zip) **RRM core requirement for Positioning accuracy enhancement**

 *Type: other For: Approval
 Source: OPPO*

**Decision: Noted.**

[**R4-2500514**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2500514.zip) **Discussion on RRM core requirements for positioning**

 *Type: discussion For: Discussion
 Source: CAICT*

**Decision: Noted.**

[**R4-2500824**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2500824.zip) **Discussion on RRM core requirements for positioning accuracy enhancement**

 *Type: discussion For: Discussion
 Source: vivo*

**Decision: Noted.**

[**R4-2501037**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2501037.zip) **Discussion on RRM core requirements for positioning**

 *Type: discussion For: Discussion
 Source: CATT*

**Decision: Noted.**

[**R4-2501095**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2501095.zip) **Discussion on RRM requirements for positioning**

 *Type: discussion For: Discussion
 Source: CMCC*

**Decision: Noted.**

[**R4-2501171**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2501171.zip) **Discussion on the RRM requirements of AI/ML positioning**

 *Type: other For: Approval
 Source: ZTECorporation,Sanechips*

**Decision: Noted.**

[**R4-2501529**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2501529.zip) **Discussion on RRM core requirement for AIML Positioning**

 *Type: discussion For: Discussion
 Source: Huawei, HiSilicon*

**Decision: Noted.**

[**R4-2501758**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2501758.zip) **On requirements for AI/ML based positioning**

 *Type: other For: Approval
 Source: Ericsson*

**Abstract:**

This paper discusses issues related to the AI/ML based positioning.

**Decision: Noted.**

[**R4-2502071**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2502071.zip) **RRM core requirements for AI/ML positioning accuracy enhancement**

 *Type: discussion For: Discussion
 Source: Nokia*

**Decision: Noted.**

[**R4-2502168**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2502168.zip) **RRM Core Requirements for Positioning Accuracy**

 *Type: discussion For: Discussion
 Source: Qualcomm Incorporated*

**Decision: Noted.**

**// Moderator summary and conclusions**

[**R4-2500683**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2500683.zip) **Topic summary for [114][131] NR\_AIML\_air\_part1**

 *Type: other For: Information
 Source: Moderator(Qualcomm)*

**Abstract:**

Summary for AI 7.19, 7.19.2, 7.19.3, 7.19.4, 7.20.2

**Decision: Noted.**

**Newly allocated tdocs in the first round**

[**R4-2503012**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2503012.zip) **Ad hoc minutes on AI/ML topic thread [131]**

 *Type: other For: Approval
 Source: Qualcomm*

**Decision: Noted.**

[**R4-2502855**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2502855.zip) **Summary of simulation results for AI beam prediction**

 *Type: other For: Information
 Source: Vivo*

**Decision: Noted.**

[**R4-2503020**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2503020.zip) **Summary of simulation results for AI beam prediction**

 *Type: other For: Information
 Source: Vivo*

**Decision: Withdrawn.**

[**R4-2502856**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2502856.zip) **WF on the requirements for AI/ML air interface**

 *Type: other For: Approval
 Source: Qualcomm*

**Decision: Approved.**

[**R4-2502969**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2502969.zip) **Updated simulation assumptions for beam prediction**

 *Type: other For: Approval
 Source: Vivo*

**Decision: Revised to R4-2503021 (from R4-2502969).**

[**R4-2503021**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2503021.zip) **Updated simulation assumptions for beam prediction**

 *Type: other For: Approval
 Source: vivo, NTU, Nokia, Ericsson, Qualcomm, Xiaomi, Huawei, Hisilicon, Mediatek, OPPO, APPLE, Rohde & Schwarz, CATT, Samsung, Intel, ZTE Corporation, Sanechips, CAICT*

**Decision: Approved.**

[**R4-2502970**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2502970.zip) **Way forward on simulation assumptions for CSI prediction**

 *Type: other For: Approval
 Source:* *OPPO, CAICT, vivo, Nokia, Ericsson, Qualcomm, Huawei, Hisilicon, Mediatek, CATT, Samsung, ZTE Corporation, Apple*

*Qualcomm: add option 4 PC7 for CSI overhead.*

**Decision: Revised to R4-2503026 (from R4-2502970).**

[**R4-2503026**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2503026.zip) **Way forward on simulation assumptions for CSI prediction**

 *Type: other For: Approval
 Source:* *OPPO, CAICT, vivo, Nokia, Ericsson, Qualcomm, Huawei, Hisilicon, Mediatek, CATT, Samsung, ZTE Corporation, Apple*

**Decision: Approved.**

**Minutes and agreements in the online session and ad hoc**

Please refer to the hyperlink below for the detailed minutes of the first round discussions on Wednesday

<https://www.3gpp.org/ftp/tsg_ran/WG4_Radio/TSGR4_114/Inbox/Drafts/%5B114%5D%5B100%5D%20Main%20Session/3.Wednesday/1.%5B131%5D_R4-2500683_online.docx>

 16.02.2024 minor adaptations for RAN #103

 10.11.2023 minor adaptations for RAN #102

 02.08.2023 minor adaptations for RAN #101

 26.04.2023 minor adaptations for RAN #100

 01.02.2023 minor adaptations for RAN #99

 27.10.2022 minor adaptations for RAN #98e

 01.08.2022 minor adaptations for RAN #97e

 21.05.2022 minor adaptations for RAN #96

 10.01.2022 minor adaptations for RAN #95e

 04.10.2021 minor adaptations for RAN #94e

 08.08.2021 minor adaptations for RAN #93e

 17.05.2021 minor adaptations for RAN #92e

 28.01.2021 minor adaptations for RAN #91e

 09.11.2020 minor adaptations for RAN #90e

 31.08.2020 minor adaptations for RAN #89e

 20.04.2020 minor adaptations for RAN #88e

 18.02.2020 minor adaptations for RAN #87e

 14.11.2019 minor adaptations for RAN #86

 18.08.2019 minor adaptations for RAN #85

 12.05.2019 minor adaptations for RAN #84

 27.02.2019 minor adaptations for RAN #83

 21.11.2018 completion levels with colours added (for RAN #82)

v04.81 31.07.2018 simplification of template and addition of cross-TSG aspects (for RAN #81)

v04.80 21.05.2018 minor adaptations for RAN #80

v04.79 26.02.2018 minor adaptations for RAN #79

v04.78 18.11.2017 minor adaptations for RAN #78

v04.77 06.08.2017 minor adaptations for RAN #77

v04.76 15.05.2017 minor adaptations for RAN #76

v04.75 31.01.2017 minor adaptations for RAN #75

v04.74 28.10.2016 minor adaptations for RAN #74

v04.73 01.09.2016 adaptations for RAN #73 (time units in extra Excel table, RAN6 reporting included)

v04.72 26.05.2016 adaptations for RAN #72 (introduction of NR & GERAN TUs)

v04.71 10.02.2016 minor adaptations for RAN #71

v04.70 30.10.2015 minor adaptations for RAN #70

v04.69 12.08.2015 minor adaptations for RAN #69

v04.68 21.05.2015 minor adaptations for RAN #68

v04.67 01.02.2015 minor adaptations for RAN #67

v04.66 16.11.2014 minor adaptations for RAN #66

v04.65 16.08.2014 minor adaptations for RAN #65

v04.64 22.05.2014 minor adaptations for RAN #64

v04.63 24.01.2014 restructuring for RAN #63 to cover Core & Perf. in one doc file

v03.62 11.11.2013 section 1.2.3 adapted for RAN #62

v03 11.08.2013 section 1.2.3 added on time budget

v02 07.05.2010 history added, some spelling corrections

v01 13.11.2009 First version of the template