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

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

## Status Report to TSG

**Agenda item:** 9.2.3

|  |  |
| --- | --- |
| **WI / SI Name** |  |
| included in this status report | Study Item: Yes | Core part: No | Performance part:No | Testing part:No |
| **Acronym** | FS\_NR\_AIML\_air\_Ph2 |
| **Unique ID** | 1020093 |
| **TSG Tdoc of latest approved WI/SI description (if any)** | RP-243245 |
| **Target Completion Date****(indicate if changed)** | Study Item: Sept ‘25 | Core part: NA | Performance part: NA | Testing part: NA |
| **Overall Completion level** | Study Item: XX% | Core part: NA | Performance Part: NA | 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) |
| **Company** | Qualcomm; CAICT; Ericsson |
| **Email** | juanm@qti.qualcomm.com; liuxiaofeng1@caict.ac.cn; marco.belleschi@ericsson.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?** | 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 the topic of **model transfer/delivery**, focusing on the evaluation of the feasibility of solutions related to the transfer of dataset/model parameters of two-sided models that RAN1 identified in the LS to RAN2 (R1-2410922). However, no agreement was reached on this topic.

The topic of CN/OAM/OTT collection of UE-sided model training data was not discussed.

Further, related to the topic of model transfer/delivery, the following post-meeting email discussions was agreed:

* [POST129][029][AI Phy] Model transfer (Xiaomi/Ericsson)

 Intended outcome: Identify the options for OTA and non-OTA, based on TR, contributions and considering data collection discussion.

 Deadline: Mar. 21st 10:00 UTC

#### 2.2.2 Remaining Open issues

Related to the topic of model transfer/delivery, RAN2 can continue the discussion on the feasibility evaluation of the RAN1 solutions in the RAN1 LS (R1-2410922).
Related to the topic of CN/OAM/OTT collection of UE-sided model training data, RAN2 can continue the discussion based on the SID.

## 2.3 RAN3

#### 2.3.1 Agreements

#### 2.3.2 Remaining Open issues

## 2.4 RAN4

#### 2.4.1 Agreements

##### 2.4.1.1 RAN4#114

**Topic 1: Post-deployment testing**

Way forward:

The following table presents the description of options 1 and 2 and sub-options as already agreed.

* A new name for “option 1” and “option 2” is proposed to reduce ambiguity when discussing in the future.
* The descriptions of the options are the same as the already agreed description.
* The “further potential clarifications” box captures issues that have been raised that could further clarify the options. It does not represent any agreement on the issues, or that all are relevant, but is intended to stimulate input and discussion to future meetings.
* The “significant issues” line is intended to capture issues that have been raised that should be answered in order to make a decision.

|  |  |  |
| --- | --- | --- |
|  | Option 1 | Option 2 |
| New name | Pre-activation functionality/model update testing | Post deployment management based on LCM |
| Description | Conduct the validation of a change in AI functionality before its deployment/activation in already deployed UEs • Validation takes into account the UE hardware in which the model is to be deployed/activated. | Using performance monitoring and LCM procedures• Performance monitoring will be designed in other groups• RAN4 may consider the need and feasibility of requirements and tests to ensure consistency and accuracy of monitoring metrics or other monitoring related data sent from the UE, and set requirements as feasible/needed. |
| Sub-options | Possible collection of input data to a model during conformance testing for use later on. |  |
| Further potential clarifications (not resolved) | The following proposals have been made for option 1 but not discussed. o Whether the testing of a new model is on a device or in a lab.o Whether models that have been updated post conformancetesting should be kept in a device.o Whether parallel operating of one model and (in-device) testing of another can be assumed.o Whether signaling from a UE of changes/updates are needed.* Whether there is any relation to GCF procedures.
* Whether it is possible to differentiate “major” and “minor” model changes and only apply option 1 to major changes.
	+ Definition of Fine-tuning and Model update
		- Model update can have a performance impact.
		- Fine-tuning might have little performance impact.
* Hybrid Validation approach
	+ A hybrid approach integrating both pre-activation functionality/model update testing (Option 1) and post-deployment management based on LCM (Option 2) aims to provide a balanced validation strategy.
 | The following proposals have been made for option 1 but not discussed. * Whether the metric used for performance testing and the metric used for monitoring can be aligned.
* Whether monitoring used for post-deployment testing should be NW sided only.
 |
| Significant issues | Whether the option is reasonable or would cause too much complexity and test time burden when introducing updates. | Whether LCM monitoring can actually unambiguously identify individual model performance with reasonable complexity (considering other variations due to e.g. channel, interference, scheduling, other AI models etc.)Whether LCM monitoring can have RAN4 requirements to ensure consistent monitoring between different UEs. |

**Topic 2: Testing for one sided models**

**Issue 4-1: Baseline test setup**

**Agreement**:

* Discuss both single AoA based and multiple AoA based set up
	+ Continue to study the two multiple AoA candidate setups
		- One option to continue the discussion proposed as following:
			* Multi AoA setup – evaluation of already feasible systems for AI/ML BM testing suitability
				+ AI/ML BM performance centric, not CDL channel emulation centric.
				+ Define test system candidates which are already feasible
			* Perform system level simulations including the probe layout of candidate systems to address the impact on the UE AI ML BM performance.
	+ Start with the set up with Set A = 32 beams, Set B = 8 beams, and develop the test procedures with single AoA and multiple AoAs

**Issue 4-2: Channel model**

**Agreement**:

 Use CDL-based channel model as starting point

**Topic 3: CSI compression**

**Sub-topic 1: Refinement of option 3 track 1**

**Agreements on quantization:**

Companies shall provide decoders with 2 bit quantization, and with no quantization

* No quantization aware training when model is unquantized
* Quantization aware training when model is quantized
* For the model with quantization:
	+ Agree on a scaling and quantization codebook
	+ Include Sigmoid in model file in the encoder, and inverse Sigmoid in the decoder
	+ Codebook (1/8, 3/8, 5/8, 7/8) in model file
	+ Do not including mapping to 2 bits. Quantizer function of converting to 2 bits should not be in the model file
* For the model without quantization
	+ For no quantization models, do not include sigmoid at the model output and no inverse Sigmoid in the decoder

**Agreements regarding the input / output dimensionality:**

* define Encoder Input and Decoder Output as data dimension (n, 2, 13, 32) with data type float32 where n is the dynamic batch size
* define Encoder Output and Decoder Input as data dimension (n, 32) with data type float
* No additional inputs

How to continue with track 1 until RAN4#114bis

* Companies should provide quantized and unquantized models according to the advice above, in particular Samsung, CATT and Huawei.
* Each company is encouraged to train own encoder using the fixed decoder and their own dataset, and then test with every companies datasets, in order to check for consistency in results

**Sub-topic 2: Refinement of option 3 track 2**

**Dataset agreement:**

Take mixed dataset comprising Mediatek, Ericsson, Vivo, Oppo, Nokia

How to continue with track 2 until RAN4#114bis:

The mixed dataset will be revised such that it comprises data from the 5 above companies and uploaded to the folder for RAN4#114.

Companies requested to provide new models based on this mixed dataset together with SGCS **within 2 weeks**

The model with median SGCS will be selected for the frozen decoder. If an even number, choose the model below the median

Once the frozen decoder is selected, companies are invited to train their own encoders using the mixed dataset or/and private dataset and test using the mixed test dataset

**Sub-topic 3: Refinement of option 4**

**Agreement**

The following update to the procedure description to option 4 is agreed

**Option 4a(Dataset based) for 2-sided model**

* + - Step 1-3: Reuse results of Option 3
		- Step 4: Select one or more Eigenvalue dataset(s) for further analysis based option 3
			* Selection criteria: select the dataset(s) generated from the selected encoder and decoder pair(s) from Option 3 track 1
			* Or mixed dataset from track 2
			* If multiple datasets are selected (as was the case of Option 3 track 1), the subsequent steps of the feasibility procedure will be applied on each one of the selected datasets separately
		- Step 5: Label selected dataset with encoder input/output using encoder corresponding to the selected test decoder from option 3.
		- Step 6: Companies bring results for training of “own encoder(s) and decoder(s)” with selected dataset(s)
		- Performance alignment to be checked/discussedStep 7: Conclude on overall feasibility of Option 4a
			* feasibility criteria to be discussed (e.g. Perform testing of all the UE encoders using all test decoders (replicating the process of testing UE’s against RAN4 requirements with different TE vendor decoders, others given in R4-2415376, etc ).
			* Dataset for feasibility evaluation to be discussed; may be common test dataset or own test dataset

**Option 4b (encoder based) for 2-sided model**

* Step 1-3: Reuse results of Option 3
* Step 4: Select one or more encoder(s) for further analysis based on option 3
	+ Selection criteria: select the encoder(s) from the selected encoder and decoder pair(s) of Option 3 track 1
	+ Or encoder(s) from the selected encoder and decoder pair(s) of Option 3 track 2
* Step 5: Company brings results for training of “own decoder(s)” with selected encoder(s)
	+ Performance alignment to be checked/discussed
	+ FFS what is the dataset assumed for the training
* Step 6: Company trains “own encoder(s)” with “own decoder(s)” from step 5
	+ FFS what is the dataset assumed for the training
* Step 7: Conclude on overall feasibility of Option 4b
	+ Feasibility criteria to be discussed (e.g. Perform testing of all the UE encoders using all test decoders (replicating the process of testing UE’s against RAN4 requirements with different TE vendor decoders, others given in R4-2415376, etc ).
	+ Dataset for feasibility evaluation to be discussed; may be common test dataset or own test dataset

Encoder in step 5 should at least have the agreed structure. Companies can also bring analysis/results with other encoders (using different structures)

**Sub-topic 4: What would be standardized for option 3**

By definition, a test decoder is standardized for option 3. The need to define a reference encoder was discussed and the following agreement reached

**Agreement:**

* To verify the performance of CSI compression test decoder for calibration of test equipment, agree to define the reference encoder including encoder structure and parameters in RAN4
	+ FFS on whether to specify it in TS or TR, and capture the conclusion in the TR conclusion part
	+ FFS on criterion for selection of reference encoder
	+ FFS on decision whether RAN4 or RAN5 will specify it

Way forward:

There was also a discussion on whether to capture a training dataset, but no agreements. Some open questions from the discussion (not agreements):

* Whether it is useful to capture a training dataset
* Where and how the training dataset would be captured (TR, TS, some other public place…)

#### 2.4.2 Remaining Open issues

* General aspects
	+ Post deployment handling
	+ Granularity for RAN4 requirements LCM handling
	+ LCM related requirements
	+ Relation to legacy
* Testing for one sided models
	+ Baseline test setup
	+ Channel model
	+ Set B and Set A beams
	+ Other requirements for the test setup
	+ Positioning test feasibility for case 1
* Testability and interoperability issues for CSI compression
	+ Simulation results
	+ ”Track 1” further refinement
	+ ”Track 2” further refinement
	+ Option 3 other considerations
		- Need for reference encoder
		- Need for training dataset
		- Representation of models
		- Model structure
		- Principles for defining test decoders
	+ Option 4 procedure
	+ Other option 4 considerations
		- What should be specified for option 4a
		- What should be specified for option 4b
		- Variation of test decoder and encoder structures
	+ Other considerations that are independent of option 3 / option 4
		- Generalization
		- Monitoring
		- Storage of data/models
		- Capture model parameters in the TR

## 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**

[**R4-2500230**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2500230.zip) **Discussion on General Aspects on Work Plan**

 *Type: discussion For: Discussion
 Source: Apple*

**Decision: Noted.**

[**R4-2501096**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2501096.zip) **Discussion on general aspects for study on AI/ML**

 *Type: discussion For: Discussion
 Source: CMCC*

**Decision: Noted.**

[**R4-2501530**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2501530.zip) **Discussion on general aspects on AIML for NR air interface phase 2**

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

**Decision: Noted.**

[**R4-2501958**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2501958.zip) **General aspects of AI/ML for NR air interface Phase 2**

 *Type: discussion For: Discussion
 Source: Nokia*

**Decision: Noted.**

**// Testing framework and procedure for one-sided models**

[**R4-2500167**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2500167.zip) **FR2 test setup for AI/ML beam management evaluation**

 *Type: other For: Approval
 Source: Anritsu Corporation*

**Abstract:**

In this contribution, we share our findings regarding the associated discussion on AI/ML beam management evaluation among RAN1 and RAN4, and we provide our views on them.

**Decision: Noted.**

[**R4-2500226**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2500226.zip) **Testing framework and procedure for one-sided models**

 *Type: discussion For: Discussion
 Source: Apple*

**Decision: Noted.**

[**R4-2500273**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2500273.zip) **Testing framework and procedure for one-sided models**

 *Type: other For: Approval
 Source: OPPO*

**Decision: Noted.**

[**R4-2500403**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2500403.zip) **Testability for AI/ML beam management**

 *Type: other For: Approval
 Source: Qualcomm Incorporated*

**Decision: Noted.**

[**R4-2500617**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2500617.zip) **Discussion on test framework and procedure for AI beam management**

 *Type: discussion For: Discussion
 Source: Xiaomi*

**Decision: Noted.**

[**R4-2500825**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2500825.zip) **Discussion on testing framework and procedure for one-sided models**

 *Type: discussion For: Discussion
 Source: vivo*

**Decision: Noted.**

[**R4-2500889**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2500889.zip) **Discussion on testing framework and procedure for one-sided models**

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

**Decision: Noted.**

[**R4-2501038**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2501038.zip) **Discussion on testing framework and procedure for one-sided models**

 *Type: discussion For: Discussion
 Source: CATT*

**Decision: Noted.**

[**R4-2501097**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2501097.zip) **Discussion on testing framework and procedure for one-sided models**

 *Type: discussion For: Discussion
 Source: CMCC*

**Decision: Noted.**

[**R4-2501531**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2501531.zip) **Discussion on testing framework and procedure for one-sided models**

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

**Decision: Noted.**

[**R4-2501959**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2501959.zip) **Testing framework and procedure for one-sided models**

 *Type: discussion For: Discussion
 Source: Nokia*

**Decision: Noted.**

[**R4-2501965**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2501965.zip) **Discussion on testing framework and procedure for AI-BM**

 *Type: other For: Approval
 Source: Samsung*

**Decision: Noted.**

[**R4-2502174**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2502174.zip) **On Test Systems and Testability Aspects for FR2 AI/ML Beam**

 *Type: other For: Approval
 Source: Keysight Technologies UK Ltd*

**Decision: Noted.**

**//** **Testing issues for CSI compression two-sided models**

[**R4-2500227**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2500227.zip) **Study on CSI Compression: Testability and Interoperability issues**

 *Type: discussion For: Discussion
 Source: Apple*

**Decision: Noted.**

[**R4-2500271**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2500271.zip) **Testing issues for CSI compression two-sided models**

 *Type: other For: Approval
 Source: OPPO*

**Decision: Noted.**

[**R4-2500339**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2500339.zip) **Discussion on Testing issues for CSI compression two-sided models**

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

**Decision: Noted.**

[**R4-2500826**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2500826.zip) **Discussion on testing issues for CSI compression two-sided models**

 *Type: discussion For: Discussion
 Source: vivo*

**Decision: Noted.**

[**R4-2501039**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2501039.zip) **Discussion on testing issues for CSI compression two-sided models**

 *Type: discussion For: Discussion
 Source: CATT*

**Decision: Noted.**

[**R4-2501098**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2501098.zip) **Discussion on testing issues for CSI compression two-sided models**

 *Type: discussion For: Discussion
 Source: CMCC*

**Decision: Noted.**

[**R4-2501497**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2501497.zip) **On 2-sided compression study and simulations**

 *Type: discussion For: Discussion
 Source: Ericsson*

**Abstract:**

Presents simulation results and some further considerations for 2-sided CSI

**Decision: Noted.**

[**R4-2501509**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2501509.zip) **Discussion on testability and interoperability issues for CSI compression**

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

**Decision: Noted.**

[**R4-2501532**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2501532.zip) **Discussion on testing issues for CSI compression two-sided models**

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

**Decision: Noted.**

[**R4-2501960**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2501960.zip) **Testing issues for CSI compression two-sided models**

 *Type: discussion For: Discussion
 Source: Nokia*

**Decision: Noted.**

[**R4-2501966**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2501966.zip) **Study on testing issues for CSI compression two-sided models**

 *Type: other For: Approval
 Source: Samsung*

**Decision: Noted.**

[**R4-2502169**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2502169.zip) **CSI Compression: Testability and Interoperability**

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

**Decision: Noted.**

**// Moderator summary and conclusions**

[**R4-2500684**](file:///D%3A%5CRAN4%23114%5CDocs%5CR4-2500684.zip) **Topic summary for [114][132] NR\_AIML\_air\_part2**

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

**Abstract:**

Summary for AI 7.19.1, 7.20, 7.20.1, 7.20.3

**Decision: Noted.**

**Newly allocated tdocs in the first round**

[**R4-2503011**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2503011.zip) **Ad hoc minutes on AI/ML topic thread [132]**

 *Type: other For: Approval
 Source: Ericsson*

**Decision: Noted.**

[**R4-2502953**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2502953.zip) **WF on AI/ML air interface study**

 *Type: other For: Approval
 Source: Ericsson*

**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 on Wednesday:

<https://www.3gpp.org/ftp/tsg_ran/WG4_Radio/TSGR4_114/Inbox/Drafts/%5B114%5D%5B100%5D%20Main%20Session/3.Wednesday/2.%5B132%5D_R4-2500684%20Moderator%20summary%20for%20%5B114%5D%5B132%5D%20NR_AIML_air_part2_v03.docx>

Please refer to the hyperlink below for the detailed minutes of the first round on Friday:

 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