**3GPP TSG RAN Meeting #75 RP-171451**

**West Palm Beach, USA June 5 - 8, 2017 *In revision of RP-170832***

**Source: Huawei, Ericsson, Telecom Italia**

**Title: Revision of SI: Study on self-evaluation towards IMT-2020 submission**

**Document for: Approval**

**Agenda Item: 9.3.8**

3GPP™ Work Item Description

For guidance, see [3GPP Working Procedures](http://www.3gpp.org/About/WP.htm), article 39; and [3GPP TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm).  
Comprehensive instructions can be found at <http://www.3gpp.org/Work-Items>

# Title: New Study Item on Self Evaluation towards IMT-2020 Submission

## Acronym: FS\_5G\_eval

## Unique identifier:

NOTE: For new WIs/SIs leave the Unique identifier empty but you may make a proposal for an Acronym.

If this is a RAN WID including Core and Perf. part, then Title, Acronym and Unique identifier refer to the feature WI.

Please tick (X) the applicable box(es) in the table below:

Either:

|  |  |
| --- | --- |
| **This WID includes a Core part** |  |
| **This WID includes a Performance part** |  |

or:

|  |  |  |
| --- | --- | --- |
| **This WID includes a Testing part** | |  |
| **and it addresses the following 3GPP work area:** | **Radio Access** |  |
| **Core Network** |  |
| **Services** |  |

## 1 Impacts

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Affects:** | UICC apps | ME | AN | CN | Others (specify) |
| **Yes** |  | x | x |  |  |
| **No** | x |  |  | x | x |
| **Don't know** |  |  |  |  |  |

## 2 Classification of the Work Item and linked work items

### 2.1 Primary classification

This work item is a … *{Tick one box. "***Feature** */* **Building Block** */ Work Task" form a hierarchical structure. E.g. no Building Block can be proposed without a corresponding parent Feature. The full structure of all existing Work Items is shown in the 3GPP Work Plan in* [*ftp://ftp.3gpp.org/Information/WORK\_PLAN*](ftp://ftp.3gpp.org/Information/WORK_PLAN) *}*

|  |  |
| --- | --- |
|  | Feature |
|  | Building Block |
|  | *Work Task* |
| x | Study Item |

NOTE: Normally, Core/Perf./Testing parts in RAN WIDs are Building Blocks. Only if they are under an SA or CT umbrella, we define them as work tasks. If you are in doubt, please contact MCC.

### 2.2 Parent and child Work Items

*{For a* **Feature***: list here the children* **Building Blocks** *(optional) and* Work Tasks *(optional)}*

*{For a* **Building Block***: list here the parent* **Feature** *(mandatory) and children* Work Tasks *(optional)}*

*{For a* Work Task*: list here the parent* **Building Block** *(mandatory)}*

|  |  |  |
| --- | --- | --- |
| Parent and child Work Items | | |
| Unique ID | Title | Nature of relationship |
|  |  | *{mandatory text: "parent WID" or "child WID"}* |

NOTE: RAN agreed some time ago, that it describes the feature WI + Core/Perf. part WI or Testing part WI in one WID. Therefore the table above should just include the feature WI Unique ID and title and Nature of relationship is "parent WID".

### 2.3 Other related Work Items and dependencies

*{List here other Work Items which relate to the proposed one but are not part of the hierarchical structure.}*

|  |  |  |
| --- | --- | --- |
| Other related Work Items (if any) | | |
| Unique ID | Title | Nature of relationship |
| 700058 | Study on Scenarios and Requirements for Next Generation Access Technologies |  |
| 690060 | Study on channel model for frequency spectrum above 6 GHz |  |
| 710062 | Study on New Radio (NR) Access Technology |  |
|  | Work Item on New Radio Access Technology |  |

NOTE: Classical examples: List a preceding SI or a preceding WI (e.g. if you further enhance a topic). Also related or dependent WIs in other TSGs should be indicated.

**Dependency on non-3GPP (draft) specification**:

*{This section is to be typically used to identify the IETF dependencies. Delete the header "Dependency on non-3GPP (draft) specification:" if no such dependency.}*

## 3 Justification

ITU-R has commenced the process of developing ITU-R Recommendations for the terrestrial components of the IMT-2020 radio interface(s) since early 2016. At RAN#73 meeting in September 2016, 3GPP received a liaison statement RP-161363 from ITU-R Working Party (WP) 5D on invitation for submission of proposals for candidate radio interface technologies for the terrestrial components of the radio interface(s) for IMT-2020 and invitation to participate in their subsequent evaluation. In RP-161363, the Circular Letter and its Addendum 1 which provide detailed information related to IMT-2020 submission are enclosed.

In Circular Letter [5/LCCE/59](http://www.itu.int/md/R00-SG05-CIR-0059/en) issued by ITU-R, WP 5D kindly invites the submission of proposals for candidate radio interface technologies (RITs) or a set of RITs (SRITs) for the terrestrial components of IMT‑2020. It is shown that the submission of proposals is scheduled to begin at WP 5D meeting #28 (October 2017) and end at WP 5D meeting #32 (July 2019). In Addendum 1 of Circular Letter [5/LCCE/59](http://www.itu.int/md/R00-SG05-CIR-0059/en), further information is provided on Document [IMT-2020/2](http://www.itu.int/md/R15-IMT.2020-C-0002/en) “Submission and Evaluation Process and Consensus Building”, which describes the process and activities identified for the development of the IMT-2020 terrestrial components radio interface(s). In this document, nine steps are defined for Submission and Evaluation Process for IMT-2020. Proponents should ensure that all the necessary information for consideration of the submissions is made available according to the established schedule defined in Document IMT-2020/2.

Especially, in Step 3 “Submission/reception of the RIT and SRIT proposals and acknowledgement of receipt”, it is required that “the entity that proposes a candidate RIT or SRIT to the ITU-R (the proponent) shall include with it either an initial *self-evaluation* or the proponents’ endorsement of an initial evaluation submitted by another entity.” Therefore, any IMT-2020 proponent needs to provide initial evaluation along with the submission to ITU-R to complete Step 3. Additionally, the required conditions for a candidate RIT/SRIT to be considered and approved in the submission process are defined in Step 2, 6, and 7, respectively. Self evaluation should demonstrate the candidate RIT/SRIT could pass these required conditions.

Furthermore, candidate IMT-2020 RIT/SRIT should be tested against the technical performance requirements defined in Report ITU-R M.[IMT-2020. TECH PERF REQ], which was finalized at WP 5D#26 meeting. Other relevant Reports are under development in WP 5D, including Report ITU-R M.[IMT-2020. EVAL] and Report ITU-R M.[IMT-2020. SUBMISSION]. Self evaluation needs to be conducted following the evaluation guidelines defined by Report ITU-R M.[IMT-2020. EVAL], as well as fulfill the compliance template and description template defined in Report ITU-R M.[IMT-2020. SUBMISSION].

It is expected that 3GPP will be actively contributing to IMT-2020 radio interface(s) development, and make the submission to ITU-R WP 5D at appropriate time. Therefore it would be necessary for 3GPP to conduct self evaluation towards ITU submission to complete the submission and evaluation process for IMT-2020. The purpose of this study item is to provide self evaluation results towards IMT-2020 submission to ITU-R WP 5D against the technical performance requirements defined by Report ITU-R M.[IMT-2020. TECH PERF REQ], using the evaluation criteria defined in Report ITU-R M.[IMT-2020. EVAL], and completely fulfill the compliance template and description template defined in Report ITU-R M.[IMT-2020. SUBMISSION], so as to facilitate 3GPP to complete Step 3 of submission and evaluation process defined in Document IMT-2020/2.

## 4 Objective

### 4.1 Objective of SI or Core part WI or Testing part WI

This study item will provide self evaluation results towards IMT-2020 submission to ITU-R WP 5D against the technical performance requirements defined by Report ITU-R M.[IMT-2020. TECH PERF REQ], using the evaluation criteria defined in Report ITU-R M.[IMT-2020. EVAL], and complete the compliance template and description template defined in Report ITU-R M.[IMT-2020. SUBMISSION]. Candidate IMT-2020 RIT or SRIT developed by 3GPP, including NR and LTE-A Pro evolution, will be evaluated and included into the self evaluation results.

Detailed objectives of this study item include:

1. Provide self evaluation results against technical performance requirements for eMBB as per defined in Report ITU-R M.[IMT-2020. TECH PERF REQ] [RAN1, RAN2], including
   * Peak data rate
   * Peak spectral efficiency
   * Average spectral efficiency
   * 5th percentile user spectral efficiency
   * Area traffic capacity
   * User experienced data rate
   * Latency, including user plane latency and control plane latency
   * Energy efficiency, including network side and terminal side
   * Mobility
   * Mobility interruption time

1. Provide self evaluation results against technical performance requirements for URLLC as per defined in Report ITU-R M.[IMT-2020. TECH PERF REQ] [RAN1, RAN2], including
   * Reliability
   * Latency, including user plane latency and control plane latency
   * Mobility interruption time
2. Provide self evaluation results against technical performance requirements for mMTC as per defined in Report ITU-R M.[IMT-2020. TECH PERF REQ] [RAN1, RAN2], including
   * Connection density
3. Provide self evaluation results for other requirements (including bandwidth) as defined in Report ITU-R M.[IMT-2020. TECH PERF REQ] and Report ITU-R M.[IMT-2020. SUBMISSION] [RAN1, RAN2, RAN4]
4. Complete all required submission templates as defined in Report ITU-R M.[IMT-2020. SUBMISSION] [RAN ITU-R Ad-Hoc].

This study shall evaluate features of NR and LTE specified or studied in Rel-15 for the above aspects, following the relevant agreements and outcome made during the “Study on New Radio (NR) Access Technology”, the work item on New Radio Access Technology, and other relevant work and study items of NR and LTE.

This study shall have an appropriate RIT/SRIT adoption to demonstrate that 3GPP’s candidate IMT-2020 RIT/SRIT fulfils the required condition defined in Step 2, 6, and 7 in Document IMT-2020/2. The decision to make a submission as RIT(s) or SRIT is outside the scope of this study, but is needed for the completion of the study.

The study will produce documents used for the IMT-2020 submission to ITU-R based on the ITU-R templates and the self-evaluation results reported in TR37.910 created by this study.

The study will be done in coordination with the RAN ITU-R Ad-Hoc group. The study will start with a session at RAN#77, then the work will continue in the working groups after RAN#77.

The study aims to have a first submission before ITU-R WP 5D#31 (October 2018), in which meeting evaluation of IMT-2020 proposals by independent evaluation groups will be initiated. The study is expected to continue after June 2018 to aim for an update of the 3GPP submission to be completed before ITU-R WP 5D#32 (July 2019), the deadline of IMT-2020 proposal submission in ITU-R.

### 4.2 Objective of Performance part WI

NOTE: Leave empty if the WI proposal does not contain a RAN performance part.

### 4.3 RAN time budget request (not applicable to RAN5 WIs/SIs)

NOTE: For all RAN related WIs/SIs which are not led by RAN WG5 the WI/SI rapporteur has to fill out the attached Excel table to request time budgets for corresponding RAN WG meetings.  
The Excel table has to be filled out for all affected RAN WGs and up to the target date of the WI/SI.  
One time unit (TU) corresponds to ~ 2 hours in the meeting.  
If no TU is needed leave the field empty otherwise enter a number in the field.

For revisions of already approved WI/SI descriptions: Please remove the Excel table from the WID/SID's zip file. The time budgets are already recorded. If you want to modify them, then this has to be done via the status report and not via a revised WID/SID.

If this WID is covering Core and Performance part, then please fill out one line for each of them in the attached Excel table.

**additional comments to the time budget request in the attached Excel table:**

## 5 Expected Output and Time scale

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **New specifications** *{One line per specification. Create/delete lines as needed}* | | | | | |
| Proposed Spec no. or series | Type (see note 1) | Title | For info  at TSG# | For approval at TSG# | Remarks |
| 37.910 | External TR | Study on self evaluation towards IMT-2020 submission | RAN#79 (March 2018) | RAN#80 (June 2018) |  |

Note 1: Only TSs may contain normative provisions. Study Items shall create or impact only TRs.  
"Internal TR" is intended for 3GPP internal use only whereas "External TR" may be transposed by OPs.

NOTE: If this is a RAN WID including Core and Perf. part, then all new Core part specs have to be listed first and then all new Perf. part specs. Indicate "Core part" or "Perf. part" under Remarks for each spec.  
By default a new specs can only be new for one of both parts.

|  |  |  |  |
| --- | --- | --- | --- |
| **Impacted existing TS/TR** *{One line per specification. Create/delete lines as needed}* | | | |
| TS/TR No. | Description of change | Target completion plenary# | Remarks |
|  |  |  |  |

NOTE: If this is a RAN WID including Core and Perf. part, then all new Core part specs have to be listed first and then all new Perf. part specs. Indicate "Core part" or "Perf. part" under Remarks for each spec.  
If an existing spec is affected by both (Core part and Perf. part), then it has to be listed twice with appropriate approval dates.

## 6 Work item Rapporteur(s)

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## 7 Work item leadership

Primary: 3GPP RAN

Secondary: 3GPP RAN ITU-R Ad-Hoc, 3GPP RAN WG1, WG2, WG4

## 8 Aspects that involve other WGs

NOTE: For RAN WIDs: Section 8 applies only toWGs outside of TSG RAN because RAN WG aspects have to be covered in section 4.

## 9 Supporting Individual Members

|  |
| --- |
| Supporting IM name |
| Huawei |
| HiSilicon |
| Ericsson |
| IITH |
| IITM |
| CeWiT |
| Tejas Networks |
| Qualcomm |
| CATT |
| Telecom Italia |
| NTT DOCOMO |
| China Telecom |
| Sierra Wireless |
| Panasonic |
| Mediatek |
| Xilinx Inc |
| ZTE Corporation |
| Samsung |
| SoftBank |
| Deutsche Telekom |
| Telefónica |
| TELUS |
| KDDI |
| Verizon |
| British Telecom |