Radiocommunication Study Groups

Working Party 5D

SUBMISSION, EVALUATION PROCESS AND CONSENSUS BUILDING FOR IMT-2020

This document describes the process and activities identified for the development of the IMT-2020 terrestrial components radio interface Recommendations.

1   Time schedule

The time schedule described below applies to the first invitation for candidate RITs or SRITs[1]. Subsequent time schedules will be decided according to the submissions of proposals.

Submission of proposals may begin at 28th meeting of Working Party 5D (WP 5D) (currently planned to be 3-11 October 2017) and contribution to the meeting needs to be submitted by 1600 hours UTC, 7 calendar days prior to the start of the meeting. The final deadline for submissions is 1600 hours UTC, 7 calendar days prior to the start of the 32nd meeting of WP 5D in July 2019. The evaluation of the proposed RITs and SRITs by the independent evaluation groups and the consensus-building process will be performed throughout this time period and thereafter. The detailed schedule can be found in Figure 1.

BR Secretariat note: At the November 2017 meeting of Study Group 5 the following draft Reports were approved:
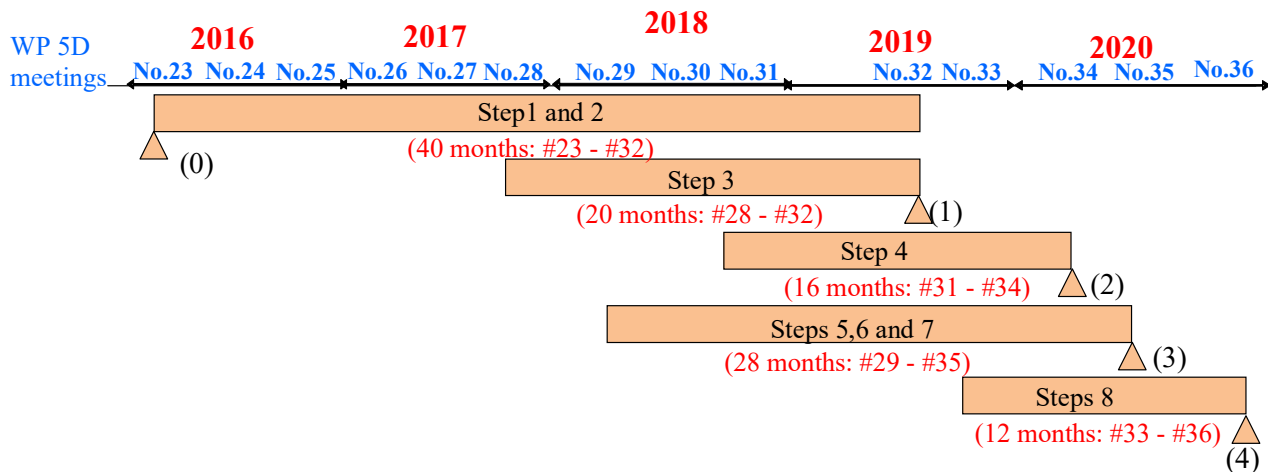
Report ITU-R M.[IMT-2020.EVAL]   => Report ITU-R M.2412-0

Report ITU-R M.[IMT-2020.SUBMISSION]   => Report ITU-R M.2411-0

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[1]   The term RIT stands for Radio Interface Technology. The term SRIT stands for Set of RITs.

FIGURE 1

Schedule for the development of IMT-2020 radio interface Recommendations

WP 5D meetings

2016 No.23 No.24 No.25 **2017** No.26 No.27 No.28 **2018** No.29 No.30 No.31 **2019** No.32 No.33 **2020** No.34 No.35 No.36

Step1 and 2
(40 months: #23 - #32)
(0)

Step 3
(20 months: #28 - #32)
(1)

Step 4
(16 months: #31 - #34)
(2)

Steps 5,6 and 7
(28 months: #29 - #35)
(3)

Steps 8
(12 months: #33 - #36)
(4)

Steps in radio interface development process:

Step 1: Issuance of the circular letter
Step 2: Development of candidate RITs and SRITs
Step 3: Submission/Reception of the RIT and SRIT proposals and acknowledgement of receipt
Step 4: Evaluation of candidate RITs and SRITs by Independent Evaluation Groups

Step 5: Review and coordination of outside evaluation activities
Step 6: Review to assess compliance with minimum requirements
Step 7: Consideration of evaluation results, consensus building and decision
Step 8: Development of radio interface Recommendation(s)

Critical milestones in radio interface development process:

(0): Issue an invitation to propose RITs — March 2016
(1): ITU proposed cut off for submission of candidate RIT and SRIT proposals — July 2019
(2): Cut off for evaluation report to ITU — February 2020
(3): WP 5D decides framework and key characteristics of IMT-2020 RIT and SRIT — June 2020
(4): WP 5D completes development of radio interface specification Recommendations — October 2020

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2   Process

2.1   General

Resolution ITU-R 65 on the "Principles for the process for future development of IMT for 2020 and beyond" outlines the essential criteria and principles that will be used in the process of developing the Recommendations and Reports for IMT-2020, including Recommendation(s) for the radio interface specification.

Recommendation ITU-R M.2083, "IMT Vision –Framework and overall objectives of the future development of IMT for 2020 and beyond" identifies three usage scenarios for IMT-2020 and envisions a broad variety of capabilities, tightly coupled with intended usage scenarios and applications for IMT-2020, resulting in a great diversity/variety of requirements. Recommendation ITU-R M.2083 also identifies the capabilities of IMT-2020, recognising that they will have different relevance and applicability for the different use cases and scenarios addressed by IMT-2020, some of which are currently not foreseen. In addition, IMT-2020 can be applied in a variety of scenarios, and therefore different test environments are to be considered for evaluation purposes.

A test environment is defined as the combination of usage scenario and geographic environment as described in the draft new Report ITU-R M.[IMT-2020.EVAL][2].
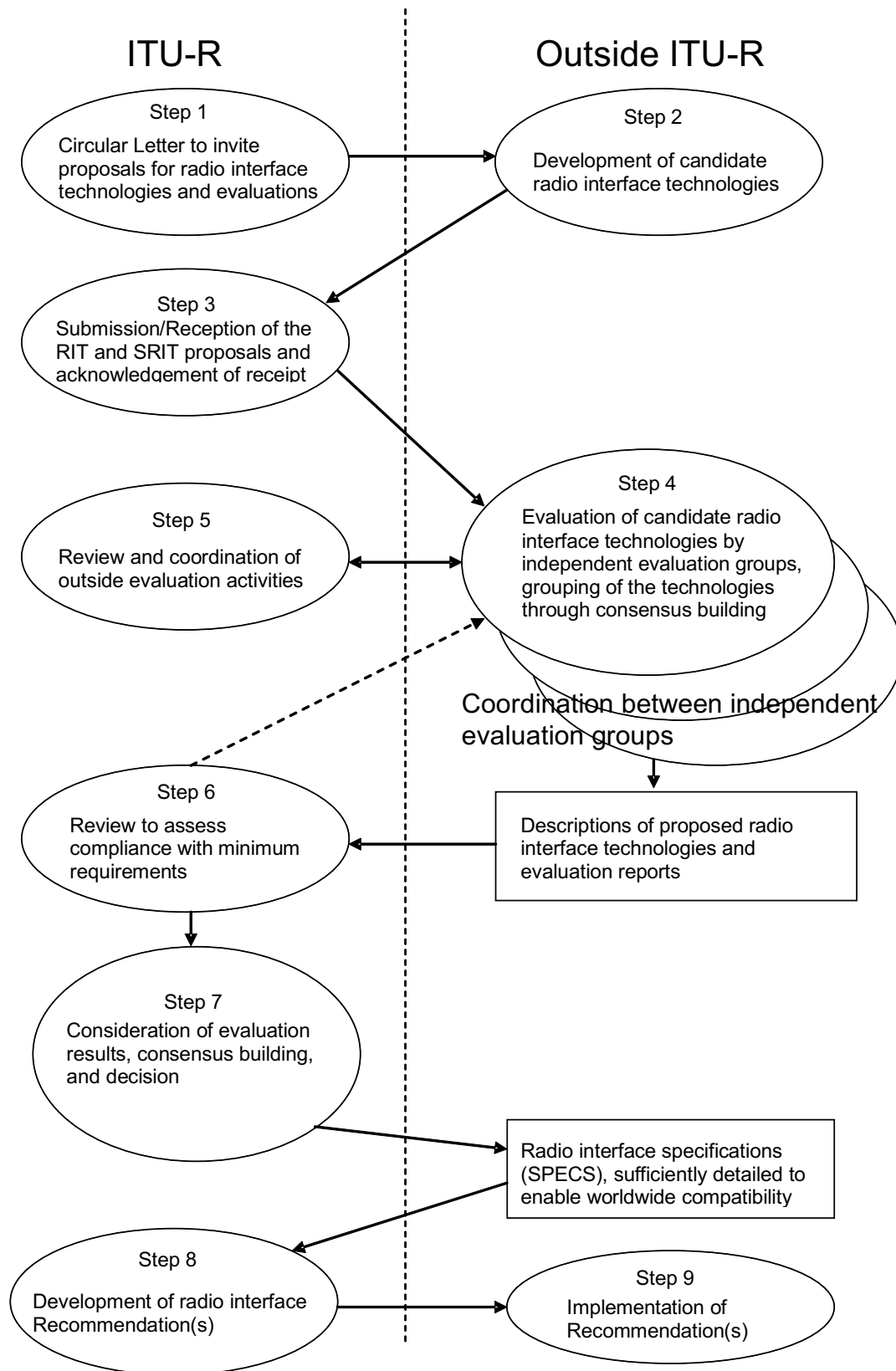
2.2   Detailed procedure

The detailed procedure is illustrated in Figure 2 and is described below. Some activities are external to ITU-R and others are internal.

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[2]   The draft new Report ITU-R M.[IMT-2020.EVAL] is under development and will be finalized in June 2017 for subsequent submission to Study Group 5 in November 2017.

FIGURE 2

IMT-2020 terrestrial component radio interface development process

ITU-R   Outside ITU-R

Step 1

Circular Letter to invite proposals for radio interface technologies and evaluations

Step 2

Development of candidate radio interface technologies

Step 3

Submission/Reception of the RIT and SRIT proposals and acknowledgement of receipt

Step 4

Evaluation of candidate radio interface technologies by independent evaluation groups, grouping of the technologies through consensus building

Step 5

Review and coordination of outside evaluation activities

Coordination between independent evaluation groups

Step 6

Review to assess compliance with minimum requirements

Descriptions of proposed radio interface technologies and evaluation reports

Step 7

Consideration of evaluation results, consensus building, and decision

Radio interface specifications (SPECS), sufficiently detailed to enable worldwide compatibility

Step 8

Development of radio interface Recommendation(s)

Step 9

Implementation of Recommendation(s)

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Step 1 – Circular Letter to invite proposals for radio interface technologies and evaluations

The Radiocommunication Bureau, through Circular Letter 5/LCCE/59, invites the submission of candidate RITs or SRITs addressing the terrestrial component of IMT-2020. Addenda to the Circular Letter provide further details on the invitation for submission of proposals (including technical performance requirements, evaluation criteria and template for submission of candidate technologies).

This Circular Letter and its Addenda also invite subsequent submission of evaluation reports on these candidate RITs or SRITs by registered independent evaluation groups in addition to the initial evaluation report endorsed by the proponent.

Step 2 – Development of candidate RITs or SRITs

In this step, which is typically external to ITU-R, candidate terrestrial component RITs or SRITs are developed to satisfy a version of the minimum technical performance requirements and evaluation criteria of IMT-2020 currently in force (as defined in Resolution ITU-R 65, *resolves* 6 *g)*) that will be described in the draft new Report ITU-R M.[IMT-2020.SUBMISSION][3].

The required number of test environments for an RIT or SRIT to be fulfilled is as follows:

An RIT needs to fulfil the minimum requirements for at least three test environments; two test environments under eMBB and one test environment under mMTC or URLLC.

An SRIT consists of a number of component RITs complementing each other, with each component RIT fulfilling the minimum requirements of at least two test environments and together as an SRIT fulfilling the minimum requirements of at least four test environments comprising the three usage scenarios.

Step 3 – Submission/reception of the RIT and SRIT proposals and acknowledgement of receipt

The proponents of RITs or SRITs may be Member States, Sector Members, and Associates of ITU-R Study Group 5, or other organizations in accordance with Resolution ITU-R 9-5.

The submission of each candidate RIT or SRIT must include completed templates (these templates will be provided in draft new Report ITU-R M.[IMT-2020.SUBMISSION], together with any additional inputs which the proponent may consider relevant to the evaluation. Each proposal must indicate the version of the minimum technical performance requirements and evaluation criteria of the IMT-2020 currently in force that it is intended for and make reference to the associated requirements.

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. The submission will not be considered complete without an initial self-evaluation or the proponents' endorsement of an initial evaluation submitted by another entity.

Proponents and IPR holders should indicate their compliance with the ITU policy on intellectual property rights, as specified in the Common Patent Policy for ITU-T/ITU-R/ISO/IEC available at: http://www.itu.int/ITU-T/dbase/patent/patent-policy.html (see Note 2 in Section A2.6 of Resolution ITU-R 1-7).

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[3] The draft new Report ITU-R M.[IMT-2020.SUBMISSION] is under development and will be finalized in June 2017.

The Radiocommunication Bureau (BR) receives the submission of technical information on the candidate RITs and SRITs and acknowledges its receipt[4].

Submissions should be addressed to the Counsellor for ITU-R Study Group 5, Mr. Sergio Buonomo (sergio.buonomo@itu.int). These submissions will be prepared as inputs to ITU-R Working Party (WP 5D) and will also be made available on the ITU web page for the IMT-2020 submission and evaluation process.

Step 4 – Evaluation of candidate RITs or SRITs by independent evaluation groups

Candidate RITs or SRITs will be evaluated. The ITU-R membership, standards organizations, and other organizations are invited to proceed with the evaluation. Organizations wishing to become independent evaluation groups are requested to register with ITU-R[5] preferably before the end of 2017. The independent evaluation groups are kindly requested to submit evaluation reports to the ITU-R. The evaluation reports will be considered in the development of the ITU-R Recommendation describing the radio interface specifications.

The evaluation guidelines, including criteria and test models, will be provided in draft new Report ITU-R M.[IMT-2020.SUBMISSION] as announced in Circular Letter 5/LCCE/59 and its Addenda.

In this step the candidate RITs or SRITs will be assessed based on draft new Report ITU-R M.[IMT-2020.SUBMISSION]. If necessary, additional evaluation methodologies may be developed by each independent evaluation group to complement the evaluation guidelines in draft new Report ITU-R M.[IMT-2020.SUBMISSION]. Any such additional methodology should be shared between independent evaluation groups and sent to the BR for information to facilitate consideration of the evaluation results by ITU-R.

Coordination between independent evaluation groups is strongly encouraged to facilitate comparison and consistency of results, to assist ITU-R in developing an understanding of differences in evaluation results achieved by the independent evaluation groups and to form some preliminary consensus on the evaluation results. Consensus building is encouraged, such as grouping and/or syntheses by proponents in order to better meet the requirements of IMT-2020.

Each independent evaluation group will report its conclusions to the ITU-R. Evaluation reports should be addressed to the Counsellor for ITU-R Study Group 5, Mr. Sergio Buonomo (sergio.buonomo@itu.int).

The evaluation reports will be prepared as inputs to WP 5D and will also be made available on the ITU web page for the IMT-2020 submission and evaluation process.

The technical performance requirements and evaluation criteria for IMT-2020 are subject to reviews which may introduce changes to the technical performance requirements and evaluation criteria for IMT-2020. Proponents may request evaluation against any of the existing versions of the technical performance requirements and evaluation criteria that are currently in force for IMT-2020.

Step 5 – Review and coordination of outside evaluation activities

WP 5D will act as the focal point for coordination between the various independent evaluation groups. In this step, WP 5D monitors the progress of the evaluation activities, and provides appropriate responses to problems or requests for guidance to facilitate consensus building.

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[4] Provides the confirmation to the sender that the submission was received by the BR and that the submission will be forwarded to WP 5D for subsequent consideration.

[5] Independent evaluation group registration forms are available at:
http://www.itu.int/en/ITU-R/study-groups/rsg5/rwp5d/imt-2020/Pages/submission-eval.aspx.

Step 6 – Review to assess compliance with minimum requirements

In this step WP 5D makes an assessment of the proposal as to whether it meets a version of the minimum technical performance requirements and evaluation criteria of the IMT-2020 in draft new Report ITU-R M.[IMT-2020.SUBMISSION].

In this step, the evaluated proposal for an RIT/SRIT is assessed as a qualifying RIT/SRIT, if an RIT/SRIT fulfils the minimum requirements for the five test environments comprising the three usage scenarios.

Such a qualified RIT/SRIT[6] will go forward for further consideration in Step 7.

According to the decision of the proponents, earlier steps may be revisited to complement, revise, clarify and include possible consensus-building for candidate RITs or SRITs including those that initially do not fulfil the minimum requirements of IMT-2020 that will be described in the draft new Report ITU-R M.[IMT-2020.SUBMISSION].

WP 5D will prepare a document on the activities of this step and assemble the reviewed proposals and relevant documentation. WP 5D will keep the proponents informed of the status of the assessment.

Such documentation and feedback resulting from this step can facilitate consensus building that might take place external to the ITU-R in support of Step 7.

Step 7 – Consideration of evaluation results, consensus building and decision

In this step WP 5D will consider the evaluation results of those RITs or SRITs that have satisfied the review process in Step 6.

Consensus building is performed during Steps 4, 5, 6 and 7 with the objective of achieving global harmonization and having the potential for wide industry support for the radio interfaces that are developed for IMT-2020. This may include grouping of RITs or modifications to RITs to create SRITs that better meet the objectives of IMT-2020.

An RIT or SRIT[6] will be accepted for inclusion in the standardization phase described in Step 8 if, as the result of deliberation by ITU-R, it is determined that the RIT or SRIT meets the requirements of Resolution ITU-R 65, *resolves* 6 *e)* and *f)* for the five test environments comprising the three usage scenarios.

Step 8 – Development of radio interface Recommendation(s)

In this step a (set of) IMT-2020 terrestrial component radio interface Recommendation(s) is developed within the ITU-R on the basis of the results of Step 7, sufficiently detailed to enable worldwide compatibility of operation and equipment, including roaming.

This work may proceed in cooperation with relevant organizations external to ITU in order to complement the work within ITU-R, using the principles set out in Resolution ITU-R 9-5.

Step 9 – Implementation of Recommendation(s)

In this step, activities external to ITU-R include the development of supplementary standards (if appropriate), equipment design and development, testing, field trials, type approval (if appropriate), development of relevant commercial aspects such as roaming agreements, manufacture and deployment of IMT-2020 infrastructure leading to commercial service.

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[6] As defined in Step 2, each component RIT of the SRIT needs to still fulfil the minimum requirements of at least two test environments.