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| **Report ITU-R M.2498-0**  **(12/2021)** |
| **The outcome of ‘Way Forward’ Option 2 for “ETSI (TC DECT) and DECT Forum Proponent” of the evaluation, consensus building and decision of the IMT-2020 process (Steps 4 to 7), including characteristics of IMT-2020 radio interfaces** |
| **M Series**  **Mobile, radiodetermination, amateur**  **and related satellite services** |

Foreword

The role of the Radiocommunication Sector is to ensure the rational, equitable, efficient and economical use of the radio-frequency spectrum by all radiocommunication services, including satellite services, and carry out studies without limit of frequency range on the basis of which Recommendations are adopted.

The regulatory and policy functions of the Radiocommunication Sector are performed by World and Regional Radiocommunication Conferences and Radiocommunication Assemblies supported by Study Groups.

# Policy on Intellectual Property Right (IPR)

ITU-R policy on IPR is described in the Common Patent Policy for ITU-T/ITU-R/ISO/IEC referenced in Resolution ITU‑R 1. Forms to be used for the submission of patent statements and licensing declarations by patent holders are available from <http://www.itu.int/ITU-R/go/patents/en> where the Guidelines for Implementation of the Common Patent Policy for ITU‑T/ITU‑R/ISO/IEC and the ITU-R patent information database can also be found.

|  |  |
| --- | --- |
| Series of ITU-R Reports  (Also available online at <http://www.itu.int/publ/R-REP/en>) | |
| **Series** | Title |
| **BO** | Satellite delivery |
| **BR** | Recording for production, archival and play-out; film for television |
| **BS** | Broadcasting service (sound) |
| **BT** | Broadcasting service (television) |
| **F** | Fixed service |
| **M** | Mobile, radiodetermination, amateur and related satellite services |
| **P** | Radiowave propagation |
| **RA** | Radio astronomy |
| **RS** | Remote sensing systems |
| **S** | Fixed-satellite service |
| **SA** | Space applications and meteorology |
| **SF** | Frequency sharing and coordination between fixed-satellite and fixed service systems |
| **SM** | Spectrum management |

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| ***Note****: This ITU-R Report was approved in English by the Study Group under the procedure detailed in Resolution ITU-R 1.* |

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Geneva, 2022

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REPORT ITU-R M.2498-0

The outcome of ‘Way Forward’ Option 2 for “ETSI (TC DECT) and DECT Forum Proponent” of the evaluation, consensus building and decision   
of the IMT-2020 process (Steps 4 to 7), including characteristics   
of IMT-2020 radio interfaces

(2021)

TABLE OF CONTENTS

Page

[Policy on Intellectual Property Right (IPR) ii](#_Toc93655929)

[1 Introduction 2](#_Toc93655930)

[2 Scope 3](#_Toc93655931)

[3 Related text references 3](#_Toc93655932)

[3.1 List of acronyms and abbreviations 4](#_Toc93655933)

[4 Summary of submissions 4](#_Toc93655934)

[5 Conclusion for Steps 4 to 7 4](#_Toc93655935)

[5.1 Results of Steps 4, “Evaluation of candidate RITs or SRITs by Evaluation Groups” and Step 5, “Review and coordination of outside   
evaluation activities” 4](#_Toc93655936)

[5.2 Results of Step 6, “Review to assess compliance with minimum requirements” 6](#_Toc93655937)

[5.3 Result of Step 7, “Consideration of evaluation results, consensus building and decision” 8](#_Toc93655938)

[6 Characteristics of the technologies and basis of the specifications for Step 8 8](#_Toc93655939)

[6.1 Detailed specifications for the radio interface technologies for IMT‑2020 in Step 8 9](#_Toc93655940)

[Annex 1 Index of IMT-2020 documents for each final submission in ‘way forward’ Opt 2 10](#_Toc93655941)

[Annex 2 Summary and details of Evaluation Reports from Independent Evaluation Groups in ‘way forward’ Opt 2 11](#_Toc93655942)

[Annex 3 Detailed compliance template summaries in ‘way forward’ Option 2 12](#_Toc93655943)

[A Candidate submission from ETSI (TC DECT) and DECT Forum (Document IMT‑2020/17(Rev.1)) in ‘way forward’ Option 2 12](#_Toc93655944)

# 1 Introduction

As recorded in Report ITU-R M.2483-0, there were six relevant evaluation reports received on the ETSI (TC DECT) and DECT Forum candidate submission in IMT-2020/17(Rev.1). In light of these reports and subsequent discussions, a ‘Way Forward’ Option 2 evaluation was agreed for the candidate at the Working Party (WP) 5D meeting #36*e* andrecorded in Document [IMT-2020/52](https://www.itu.int/md/R15-IMT.2020-C-0052/en), representing an approach respecting both Resolution ITU-R 65 and the IMT-2020 process developed from Resolution ITU-R 65.

In the ‘Way Forward’ Option 2 evaluation, ITU-R had determined that the candidate SRIT submission from ETSI (TC DECT) and DECT Forum would require additional evaluation to conclude the final assessment through Steps 6 and 7 of the IMT-2020 process. The candidate technology submission proposal referenced above would on an exceptional basis continue in the process, rewinding to the start of Step 4 in order to consider additional material and the subsequent Steps 5 to 8 of the ‘Way Forward’ Option 2.

The candidate technology submission proposal referenced above would consequentially be included in a timely revision to the published first release of Recommendation ITU-R M.2150. The detailed schedule of critical items and milestones for the ‘Way Forward’ Option 2 towards a focused revision 1 (as indicated in Document [IMT-2020/52 Part 1](https://www.itu.int/dms_pub/itu-r/md/15/imt.2020/c/R15-IMT.2020-C-0052!P1!PDF-E.pdf)) of the published initial release of Recommendation ITU-R M.2150 – Detailed specifications of the radio interfaces of IMT-2020 were included in Document [IMT-2020/53](https://www.itu.int/md/R15-IMT.2020-C-0053/en) and illustrated in Fig. 1 from that document, reproduced here for reference in understanding the steps of the ‘Way Forward’ Option 2 process*.*

The registered Independent Evaluation Groups (IEGs) participating in the IMT-2020 process were invited to re-engage in the ‘Way Forward’ Option 2 evaluation Step 4 work for the candidate technology submission, while the schedule and actions of the proponent and WP 5D were also provided in Document IMT-2020/53. There were six IEGs that had re-engaged in the ‘Way Forward’ Option 2 evaluation for the candidate technology submission from ETSI (TC DECT) and DECT Forum.

The agreed approach for consideration of evaluation reports prior to ‘Way Forward’ Option 2 and those resulting from ‘Way Forward’ Option 2 in the re-evaluation process was listed in Document [IMT-2020/54](https://www.itu.int/md/R15-IMT.2020-C-0054/en), which was the guideline for the ‘Way Forward’ Option 2 evaluation.

The work undertaken for the ‘Way Forward’ Option 2 shall also continue to adhere to the relevant IMT-2020 process guidance documents found in:

– Resolution [ITU-R 65](https://www.itu.int/pub/R-RES-R.65) – Principles for the process of future development of IMT for 2020 and beyond,

– Document [IMT-2020/2(Rev.2](https://www.itu.int/md/R15-IMT.2020-C-0002/en)) – Submission, evaluation process and consensus building for IMT-2020,

– Report ITU-R [M.2410](https://www.itu.int/pub/R-REP-M.2410) – Minimum requirements related to technical performance for IMT‑2020 radio interface(s),

– Report ITU-R [M.2411](https://www.itu.int/pub/R-REP-M.2411) – Requirements, evaluation criteria and submission templates for the development of IMT-2020, and particularly

– Report ITU-R [M.2412](https://www.itu.int/pub/R-REP-M.2412) – Guidelines for evaluation of radio interface technologies for IMT‑2020.

FIGURE 1

Executive Summary of proposed ‘Way Forward’ Option 2

Diagram, timeline

Description automatically generated

# 2 Scope

The Report is the record of the work performed after receipt of complete proposals for IMT-2020 candidate SRIT (IMT-2020/17(Rev.1))[[1]](#footnote-1), including evaluation activity and consensus building according to IMT 2020/52, IMT-2020/53 and IMT-2020/54 in the ‘Way Forward’ Option 2. This Report contains outcome and conclusions of the rewound Steps 4 to 7 of the ‘Way Forward’ Option 2. These steps correspond to:

– Step 4: Evaluation of candidate RITs or 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.

The details of these steps are provided in Document IMT-2020/2(Rev.2).

# 3 Related text references

Recommendation ITU-R M.2150 Detailed specifications of the terrestrial radio interfaces of International Mobile Telecommunications-2020 (IMT-2020)

Report ITU-R M.2410 Requirements related to technical performance for IMT-2020 radio interface(s)

Report ITU-R M.2411 Requirements, evaluation criteria and submission templates for the development of IMT-2020

Report ITU-R M.2412 Guidelines for evaluation of radio interface technologies for IMT‑2020

Report ITU-R M.2483-0 [The outcome of the evaluation, consensus building and decision of the IMT-2020 process (Steps 4 to 7), including characteristics of IMT-2020 radio interfaces](https://www.itu.int/net4/ITU-T/search/api/redirection?dest=http%3A%2F%2Fhandle.itu.int%2F11.1002%2Fpub%2F8164d123-en%3Flocatt%3Did%3A0&position=10&page=1)

Document IMT-2020/2(Rev.2) Submission and evaluation process and consensus building for IMT-2020

Document IMT-2020/52 Agreed 'way forward' Option 2 for "ETSI (TC DECT) and DECT Forum proponent" and "Nufront proponent" candidate technology submissions for IMT-2020

Document IMT-2020/53 Detailed schedule and actions for 'Way Forward' Option 2 related to “ETSI (TC DECT) and DECT Forum Proponent” and “Nufront Proponent” candidate technology submissions for IMT-2020

Document IMT-2020/54 Approach for consideration of Evaluation Reports prior to Option 2 and those resulting from Option 2 in the re-evaluation process

Resolution ITU-R 65 Principles for the process of development of IMT for 2020 and beyond

## 3.1 List of acronyms and abbreviations

IMT International Mobile Telecommunications

RIT Radio interface technology

SRIT Set of radio interface technologies

# 4 Summary of submissions

Following the guidelines of the IMT-2020 process, the candidate technology submissions accepted by ITU-R under Step 3[[2]](#footnote-2) were reviewed and the following was acknowledged as ‘complete’[[3]](#footnote-3) candidate technology submission as per § 5 of Report ITU-R M.2411:

– [IMT-2020/17](https://www.itu.int/md/R15-IMT.2020-C-0017/en)(Rev.1) – Acknowledgement of candidate SRIT submission from ETSI (TC DECT) and DECT Forum under step 3 of the IMT-2020 process.

For convenience, this submission is attached to Annex 1 of this Report.

# 5 Conclusion for Steps 4 to 7

## 5.1 Results of Steps 4, “Evaluation of candidate RITs or SRITs by Evaluation Groups” and Step 5, “Review and coordination of outside evaluation activities”

Under Step 4 (re-evaluation) of the ‘Way Forward’ Option 2, “ETSI (TC DECT) and DECT Forum Proponent” candidate technology submission was evaluated by Independent Evaluation Groups (IEG) that registered with the ITU-R in conformance with the process. In this step, the candidate technology submission was re-evaluated based on Reports ITU-R [M.2411](https://www.itu.int/pub/R-REP-M.2411) and ITU‑R [M.2412](https://www.itu.int/pub/R-REP-M.2412).

An Evaluation Group discussion area was opened during Step 4 of the ‘Way Forward’ Option 2 between June 2020 and October 2021 to facilitate activities among IEGs and the proponents, and among IEGs.

Six IEGs re-engaged in re-evaluation of the candidate technology submission. The evaluation reports received from six IEGs were considered by ITU-R under Steps 4 and 5 of the ‘Way Forward’ Option 2, as appropriate. These evaluation reports, including their revisions, are included in Annex 2 of this Report.

The list of the evaluation reports of the IEGs and a summary of the mapping of the candidate technology submissions is shown in Table 1.

TABLE 1

Index of documents related to IEG Evaluation Reports   
for the Candidate Technology Submissions of IMT-2020/17(Rev.1)   
under Step 4 of the ‘Way Forward’ Option 2

|  |  |  |  |
| --- | --- | --- | --- |
| IMT-2020/xx | Summary of rewind Step 4 of the IMT-2020 Process for Evaluation of IMT-2020 Candidate Technology Submissions IMT‑2020/17(Rev.1) | | |
| Registered Independent Evaluation Group/summary | Summary of IEG Evaluation Results | Based on or References IEG Contributions  Docs. 5D/ | Evaluation Reports History Documents |
| [ETSI Evaluation Group](https://www.itu.int/oth/R0A0600007B/en) | IMT-2020/70 | 5D/576 (DECT) | IMT-2020/55(Rev.1) |
| [Wireless World Research Forum](https://www.itu.int/oth/R0A06000073/en) | IMT-2020/56 Rev 2 | 5D/736 (DECT) | IMT-2020/56(Rev.2) |
| [Canadian Evaluation Group](https://www.itu.int/oth/R0A06000072/en) | IMT-2020/69 | 5D/90 (DECT)  5D/624 (DECT)  5D/738 (DECT) | IMT-2020/61(Rev.1) |
| [5G India Forum](https://www.itu.int/oth/R0A06000083/en) | IMT-2020/65 | 5D/741 (DECT) | IMT-2020/62(Rev.1) |
| [The Fifth Generation Mobile Communications Promotion Forum, Japan](https://www.itu.int/oth/R0A06000076/en) | IMT-2020/66 | 5D/739 (DECT)  5D/754 (DECT) | IMT-2020/63(Rev.1) |
| [TTA 5G Technology Evaluation Special Project Group](https://www.itu.int/oth/R0A0600007D/en) | IMT-2020/71 | 5D/707 (DECT) | IMT-2020/64 |

The IEGs utilized the defined ITU-R evaluation methodology and criteria established in the relevant ITU-R Reports covering IMT-2020. ITU-R concluded that the IEGs had fulfilled their role in the ‘Way Forward’ Option 2 and that the inclusion of views from organizations external to the ITU‑R had been useful to the work on ‘Way Forward’ Option 2 and had contributed to the success of the ‘Way Forward’ Option 2 process.

Considering the requirements, evaluation criteria and submission templates for the development of IMT-2020 included in [Report ITU-R M.2411](https://www.itu.int/pub/R-REP-M.2411), the minimum requirements related to technical performance for IMT‑2020 radio interface(s) included in Report ITU-R [M.2410](https://www.itu.int/pub/R-REP-M.2410), and the guidelines for evaluation of radio interface technologies for IMT‑2020 included in [Report ITU‑R [M.2412](https://www.itu.int/pub/R-REP-M.2412)](https://www.itu.int/pub/R-REP-M.2412), the following conclusions have been reached.

### 5.1.1 Summary of the evaluations received for the candidate SRIT submission from ETSI (TC DECT) and DECT Forum (Document IMT-2020/17(Rev.1))

There were relevant evaluation reports received from six IEGs for the “DECT 2020 NR RIT” component of ETSI (TC DECT) and DECT Forum proposal in Document IMT-2020/17(Rev.1). Based on the evaluation results for DECT 2020 NR RIT component, which applies only to Urban Macro-URLLC and Urban Macro-mMTC test environments,

– Three IEGs were of the opinion that the ‘DECT 2020 NR RIT’ component of the candidate ETSI (TC DECT) and DECT Forum proposal in IMT-2020/17(Rev.1) met the minimum requirements of Urban Macro-URLLC and Urban Macro-mMTC test environments.

– Two IEGs were of the opinion that the ‘DECT 2020 NR RIT’ component of the candidate ETSI (TC DECT) and DECT Forum proposal in IMT-2020/17(Rev.1) met the minimum requirements of Urban Macro-mMTC test environment. These two IEGs cannot reach conclusion whether the ‘DECT 2020 NR RIT’ component met the minimum requirements on Urban Macro-URLLC test environment.

– One received evaluation report did not contain a conclusion whether the ‘DECT 2020 NR RIT’ component met the minimum requirements of Urban Macro-mMTC and Urban Macro-URLLC test environments.

#### 5.1.1.1 References to evaluation reports for the candidate SRIT submission (Document IMT-2020/17(Rev.1)) from ETSI (TC DECT) and DECT Forum

The ITU-R views of the relevant evaluation reports from the IEGs and the individual IEG analyses for the ETSI (TC DECT) and DECT Forum technology, included in Annex 2 of this Report, are as follows:

– IMT-2020/70 – Summary results of evaluation of IMT-2020 candidate technology submission in Document(s) IMT-2020/17(Rev.1) by ETSI EG.

– IMT-2020/66 – Summary results of evaluation of IMT-2020 candidate technology submission in Documents IMT 2020/17(Rev.1) by The Fifth Generation Mobile Communications Promotion Forum.

– IMT-2020/56(Rev.2) – Summary results of evaluation of IMT-2020 candidate technology submissions in Documents IMT-2020/17(Rev.1) by Wireless World Research Forum IEG.

– IMT-2020/71 – Summary results of evaluation of IMT-2020 candidate technology submission in Document(s) IMT-2020/17(Rev.1) by TTA SPG33.

– IMT-2020/65 – Summary results of evaluation of IMT-2020 candidate technology submission in Document(s) IMT-2020/17(Rev.1) by 5G India Forum IEG.

– IMT-2020/69 – Summary results of evaluation of IMT-2020 candidate technology submissions in Documents IMT-2020/17(Rev.1) by the Canadian Evaluation Group (CEG).

## 5.2 Results of Step 6, “Review to assess compliance with minimum requirements”

Under Step 6 of the ‘Way Forward’ Option 2 and guidelines, an assessment of each proposal was made as to whether it met a version of the minimum technical requirements and evaluation criteria of the IMT-2020 process in force as described in Report ITU-R M.2411. The evaluation methodology is described in Report ITU-R M.2412. The version of the minimum technical requirements used is described in Report ITU-R M.2410.

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

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

Based on a review of the evaluations carried out by the IEGs as well as the self-evaluations from the proponents, the conclusions of the ITU-R for Step 6 are presented in the following sub-sections. Thus, the summary view of the evaluations indicated in § 5.1 are directly relevant to this assessment.

Each candidate technology submission is separately addressed for compliance with regard to services, spectrum and technical performance and for confirmation as a qualifying RIT/SRIT.

### 5.2.1 Results of assessment in Step 6 for the candidate SRIT submission (Document [IMT‑2020/17](https://www.itu.int/md/R15-IMT.2020-C-0013/en)(Rev.1)) from ETSI (TC DECT) and DECT Forum Proponent

The ITU-R summary view of the candidate technology submission from the ETSI (TC DECT) and DECT Forum ([IMT‑2020/17](https://www.itu.int/md/R15-IMT.2020-C-0013/en)(Rev.1)) is presented below. The individual detailed analysis of compliance for each of the items defined in Report ITU‑R [M.2411](https://www.itu.int/pub/R-REP-M.2411) is included in the Tables in Annex 3 to the present Report.

Compliance related to services

*3GPP Component* meets the minimum requirements for services.

*ETSI (TC DECT) and DECT Component* meets the minimum requirements for services.

The technology proposed by ETSI (TC DECT) and DECT (IMT-2020/17(Rev.1))meets the minimum requirements for services.

Compliance related to spectrum

*3GPP Component* meets the minimum requirements for spectrum.

*ETSI (TC DECT) and DECT Component* meets the minimum requirements for spectrum.

The technology proposed by ETSI (TC DECT) and DECT (IMT-2020/17(Rev.1)) meets the minimum requirements for spectrum.

Compliance related to technical performance

*3GPP Component* meets the minimum requirements for technical performance.

*ETSI (TC DECT) and DECT Component* meets the minimum requirements for technical performance.

The technology proposed by ETSI (TC DECT) and DECT (IMT-2020/17(Rev.1)) meets the minimum requirements for technical performance.

Assessment of the candidate technology proposal as a qualifying RIT/SRIT

ITU-R confirms that the SRIT of the candidate technology submission in IMT-2020/17(Rev.1) meets the minimum requirements of the Indoor Hotspot-eMBB test environment.

ITU-R confirms that the SRIT of the candidate technology submission in IMT-2020/17(Rev.1) meets the minimum requirements of the Dense Urban-eMBB test environment.

ITU-R confirms that the SRIT of the candidate technology submission in IMT-2020/17(Rev.1) meets the minimum requirements of the Rural-eMBB test environment.

ITU-R confirms that the SRIT of the candidate technology submission in IMT-2020/17(Rev.1) meets the minimum requirements of the Urban Macro-mMTC test environment.

ITU-R confirms that the SRIT of the candidate technology submission in IMT-2020/17(Rev.1) meets the minimum requirements of the Urban Macro-URLLC test environment

This is specifically indicated for each of component RITs for Urban Macro-mMTC and Urban Macro-URLLC environments as shown below:

ITU-R confirms that the *3GPP Component RIT* of the candidate technology submission in IMT‑2020/17(Rev.1) meets the minimum requirements of the Urban Macro-mMTC test environment.

ITU-R confirms that the *ETSI (TC DECT) and DECT Compon*ent *RIT* of the candidate technology submission in IMT-2020/17(Rev.1) meets the minimum requirements of the Urban Macro-mMTC test environment.

ITU-R confirms that *3GPP Component RIT* of the candidate technology submission in IMT-2020/17(Rev.1) meets the minimum requirements of the Urban Macro-URLLC test environment.

ITU-R confirms that the *ETSI (TC DECT) and DECT Component RIT* of the candidate technology submission in IMT-2020/17(Rev.1) meets the minimum requirements of the Urban Macro-URLLC test environment.

**Step 6 Assessment for SRIT proposal (Document IMT-2020/17(Rev.1)) from ETSI (TC DECT) and DECT Forum:**

*The evaluated candidate SRIT proposal (Document IMT-2020/17(Rev.1)) from ETSI (TC DECT) and DECT Forum is assessed by ITU-R as satisfactorily fulfilling the minimum requirements for the five test environments comprising the three usage scenarios with each component RIT of the SRIT also fulfilling the minimum requirements of at least two test environments. Thus, this ETSI (TC DECT) and DECT Forum SRIT proposal is ‘a qualifying SRIT’ and therefore will go forward for further consideration in Step 7.*

## 5.3 Result of Step 7, “Consideration of evaluation results, consensus building and decision”

### 5.3.1 Consideration of evaluation results

The candidate technology submission proposals that has entered Step 7 is acknowledged and listed below (and their respective SRIT or RITs) has individually satisfied the requirements of Resolution ITU-R-65, resolves 6 e) and f) *fulfilling the minimum requirements for the five test environments comprising the three usage scenarios[[4]](#footnote-4).*

Therefore, the IMT-2020 candidate technology submission proposal listed below will be accepted for inclusion in the standardization phase described in Step 8.

– IMT-2020/17(Rev.1) – Acknowledgement of candidate SRIT submission from ETSI (TC DECT) and DECT Forum under step 3 of the IMT-2020 process

### 5.3.2 Consensus building and decision

Based on the above consensus views, the following table summarizes the candidate submission and the conclusions, including any consensus building.

|  |  |
| --- | --- |
| Radio Interface Technologies: | *NAME: DECT 5G – SRIT* |
| **Proponent (submission in):** | IMT-2020/17(Rev.1) |
| **Determination whether the RIT or SRIT meets the requirements of Res. ITU‑R 65, *resolves* 6 e) and f), for the five test environments comprising the three usage scenarios** | YES (Requirements met for five test environments) |
| **Inclusion in the standardization phase described in Step 8** | YES |

# 6 Characteristics of the technologies and basis of the specifications for Step 8

In Step 8, a (set of) IMT-2020 terrestrial component radio interface Recommendation(s) is (are) developed within the ITU-R based on the results of Step 7, sufficiently detailed to enable worldwide compatibility of operation and equipment, including roaming.

## 6.1 Detailed specifications for the radio interface technologies for IMT‑2020 in Step 8

Under Step 8 of the IMT-2020 process, the detailed technical specifications for the Terrestrial Radio Interface Technologies in IMT-2020 will be provided in a Recommendation to be developed[[5]](#footnote-5) (“Detailed specifications of the terrestrial radio interfaces of IMT-2020”).

### 6.1.1 Characteristics of radio interface technologies for IMT-2020 in Step 8 for the candidate SRIT submission (Document [IMT‑2020/17(Rev.1)](https://www.itu.int/md/R15-IMT.2020-C-0013/en)) from ETSI (TC DECT) and DECT Forum

Based on the consensus views in in § 5.3, *“DECT 5G – SRIT”* is accepted for Step 8. The basis for specifying the *“DECT 5G – SRIT”* technology in Step 8 is Document IMT-2020/17(Rev.1).

As provided for in IMT-2020/20 Process and the use of Global Core Specification (GCS), References and Related Certifications in Conjunction with Recommendation ITU‑R M.2150, the *GCS Proponent* for the *“DECT 5G – SRIT”* in Step 8 is “*ETSI (TC DECT) and DECT Forum”.*

Annex 1  
  
Index of IMT-2020 documents for each final submission[[6]](#footnote-6) in ‘way forward’ Opt 2

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| RIT/SRIT Proponent | Acknowledgement of submission (IMT-2020/YYY) | | Observations of SWG evaluation | | Submission history | |
| **ETSI (TC DECT) and DECT Forum** | Document [IMT‑2020/17](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=R15-IMT.2020-C-0017) (Rev.1) | Acknowledgement of candidate SRIT submission from ETSI (TC DECT) and DECT Forum under Step 3 of the IMT-2020 process | Document [IMT‑2020/26](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=R15-IMT.2020-C-0026) (Rev.1) | Observations of SWG Evaluation - IMT-2020 submission in Documents 5D/1230 and 5D/1253 (Proponents ETSI (TC DECT) and DECT Forum) | Document [IMT‑2020/6 (Rev.4)](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=R15-IMT.2020-C-0006) | Submission received for proposals of Candidate Radio Interface Technologies from Proponent ‘ETSI’ and ‘DECT Forum’ under step 3 of the IMT-2020 process |

Annex 2  
  
Summary and details of Evaluation Reports from   
Independent Evaluation Groups in ‘way forward’ Opt 2

IMT-2020/70

Summary results of evaluation by ETSI EG of IMT-2020 candidate technology submission in Document(s) IMT-2020/17(Rev.1).

IMT-2020/66

Summary results of evaluation by The Fifth Generation Mobile Communications Promotion Forum of IMT-2020 candidate technology submission in Documents IMT-2020/17(Rev.1) and IMT‑2020/18(Rev.1).

IMT-2020/56 Rev 2

Summary results of evaluation by Wireless World Research Forum IEG of IMT-2020 candidate technology submissions in Documents IMT-2020/17(Rev.1) and IMT-2020/18(Rev.1).

IMT-2020/71

Summary results of evaluation by TTA SPG33 of IMT-2020 candidate technology submission in Document(s) IMT-2020/17(Rev.1) and IMT-2020/18(Rev.1).

IMT-2020/65

Summary results of evaluation by 5G India Forum IEG of IMT-2020 candidate technology submission in Document(s) IMT-2020/17(Rev.1) and IMT-2020/18(Rev.1).

IMT-2020/69

Summary results of evaluation by the Canadian Evaluation Group (CEG) of IMT-2020 candidate technology submissions in Documents IMT-2020/17(Rev.1) and IMT-2020/18(Rev.1).

Annex 3  
  
Detailed compliance template summaries[[7]](#footnote-7) in ‘way forward’ Option 2

# A Candidate submission from ETSI (TC DECT) and DECT Forum (Document [IMT‑2020/](https://www.itu.int/md/R15-IMT.2020-C-0015/en)17(Rev.1)) in ‘way forward’ Option 2

TABLE 2

Compliance template for services in ‘way forward’ Option 2

|  |  |  |
| --- | --- | --- |
|  | Service capability requirements | ITU-R confirmation that the requirement is met by the candidate technology proposal |
| **5.2.4.1.1** | **Support for wide range of services**  Is the proposal able to support a range of services across different usage scenarios (eMBB, URLLC, and mMTC)?   YES / NO  Specify which usage scenarios (eMBB, URLLC, and mMTC) the candidate RIT or candidate SRIT can support. | Yes |

TABLE 3

Compliance template for spectrum in ‘way forward’ Option 2

|  |  |  |
| --- | --- | --- |
|  | Spectrum capability requirements | ITU-R confirmation that the requirement is met by the candidate technology proposal |
| **5.2.4.2.1** | **Frequency bands identified for IMT**  Is the proposal able to utilize at least one frequency band identified for IMT in the ITU Radio Regulations?  YES / NO  Specify in which band(s) the candidate RIT or candidate SRIT can be deployed. | Yes |
| **5.2.4.2.2** | **Higher Frequency range/band(s)**  Is the proposal able to utilize the higher frequency range/band(s) above 24.25 GHz? YES / NO  Specify in which band(s) the candidate RIT or candidate SRIT can be deployed.  NOTE – In the case of the candidate SRIT, at least one of the component RITs need to fulfil this requirement. |

TABLE 4

Compliance template for technical performance in ‘way forward’ Option 2

| Minimum technical performance requirements item (5.2.4.3.x), units, and Report ITU-R [M.2410](https://www.itu.int/pub/R-REP-M.2410) section reference | Category | | | Required  value | ITU-R confirmation that the requirement is met by the candidate technology proposal |
| --- | --- | --- | --- | --- | --- |
| Usage scenario | Test environment | Downlink or uplink |
| **5.2.4.3.1** Peak data rate (Gbit/s) *(4.1)* | eMBB | Not applicable | Downlink | 20 | Yes |
| Uplink | 10 |
| **5.2.4.3.2** Peak spectral efficiency (bit/s/Hz) *(4.2)* | eMBB | Not applicable | Downlink | 30 |
| Uplink | 15 |
| **5.2.4.3.3** User experienced data rate (Mbit/s) *(4.3)* | eMBB | Dense urban – eMBB | Downlink | 100 |
| Uplink | 50 |
| **5.2.4.3.4** 5th percentile user spectral efficiency (bit/s/Hz) *(4.4)* | eMBB | Indoor hotspot – eMBB | Downlink | 0.3 | YES |
| Uplink | 0.21 |
| eMBB | Dense urban – eMBB | Downlink | 0.225 |
| Uplink | 0.15 |
| eMBB | Rural – eMBB | Downlink | 0.12 |
| Uplink | 0.045 |
| **5.2.4.3.5** Average spectral efficiency (bit/s/Hz/ TRxP) *(4.5)* | eMBB | Indoor hotspot – eMBB | Downlink | 9 |
| Uplink | 6.75 |
| eMBB | Dense urban – eMBB | Downlink | 7.8 |
| Uplink | 5.4 |
| eMBB | Rural – eMBB | Downlink | 3.3 |
| Uplink | 1.6 |
| **5.2.4.3.6** Area traffic capacity (Mbit/s/m2) *(4.6)* | eMBB | Indoor-hotspot – eMBB | Downlink | 10 |
| **5.2.4.3.7** User plane latency (ms) *(4.7.1)* | eMBB | Not applicable | Uplink and Downlink | 4 |
| URLLC | Not applicable | Uplink and Downlink | 1 |
| **5.2.4.3.8** Control plane latency (ms) *(4.7.2)* | eMBB | Not applicable | Not applicable | 20 |
| URLLC | Not applicable | Not applicable | 20 |
| **5.2.4.3.9** Connection density (devices/km2) *(4.8)* | mMTC | Urban macro – mMTC | Uplink | 1 000 000 |
| **5.2.4.3.10** Energy efficiency *(4.9)* | eMBB | Not applicable | Not applicable | Capability to support a high sleep ratio and long sleep duration |

TABLE 4 (*end*)

| Minimum technical performance requirements item (5.2.4.3.x), units, and Report ITU-R [M.2410](https://www.itu.int/pub/R-REP-M.2410) section reference | Category | | | Required  value | ITU-R confirmation that the requirement is met by the candidate technology proposal |
| --- | --- | --- | --- | --- | --- |
| Usage scenario | Test environment | Downlink or uplink |
| **5.2.4.3.11** Reliability *(4.10)* | URLLC | Urban macro –URLLC | Uplink or Downlink | 1-10−5 success probability of transmitting a layer 2 PDU (protocol data unit) of size 32 bytes within 1 ms in channel quality of coverage edge | **YES** |
| **5.2.4.3.12** Mobility classes *(4.11)* | eMBB | Indoor hotspot – eMBB | Uplink | Stationary, Pedestrian |
| eMBB | Dense urban – eMBB | Uplink | Stationary, Pedestrian, Vehicular (up to 30 km/h) |
| eMBB | Rural – eMBB | Uplink | Pedestrian, Vehicular, High speed vehicular |
| **5.2.4.3.13**  Mobility Traffic channel link data rates (bit/s/Hz) *(4.11)* | eMBB | Indoor hotspot – eMBB | Uplink | 1.5 (10 km/h) |
| eMBB | Dense urban – eMBB | Uplink | 1.12 (30 km/h) |
| eMBB | Rural – eMBB | Uplink | 0.8 (120 km/h) |
| 0.45 (500 km/h) |
| **5.2.4.3.14** Mobility interruption time (ms)  *(4.12)* | eMBB and URLLC | Not applicable | Not applicable | 0 |
| **5.2.4.3.15** Bandwidth and Scalability *(4.13)* | Not applicable | Not applicable | Not applicable | At least 100 MHz |
| Up to 1 GHz |
| Support of multiple different bandwidth values |

1. IMT-2020 documents referred to in this Report are found on the ITU-R web page: “IMT-2020 submission and evaluation process” (<https://www.itu.int/en/ITU-R/study-groups/rsg5/rwp5d/imt-2020/Pages/submission-eval.aspx>). [↑](#footnote-ref-1)
2. As announced in [Circular Letter 5/LCCE/59 Addendum 5](https://www.itu.int/dms_pub/itu-r/md/00/sg05/cir/R00-SG05-CIR-0059!A5!MSW-E.docx). [↑](#footnote-ref-2)
3. In the IMT-2020 process, an acknowledgement of a “complete” submission under Step 3 does not imply any conclusions on the results of the formal evaluation under Steps 4 to 7. A submission is acknowledged as ‘complete’ if it fulfilled, for that candidate technology submission, supplying all requested information in the format specified following the guidance of Report ITU-R M.2411 – Requirements, evaluation criteria and submission templates for the development of IMT-2020. [↑](#footnote-ref-3)
4. In order to reach Step 7, each component RIT of the SRIT needed to still fulfil the minimum requirements of at least two test environments to be assessed as a ‘qualifying SRIT’ in Step 6. [↑](#footnote-ref-4)
5. Once the Recommendation has been developed the exact reference to the Recommendation will be added as an editorial action. [↑](#footnote-ref-5)
6. Source: Report on the Thirty-third Meeting of Working Party 5D (Geneva, 10-13 December 2019) [Document 5D/37 Chapter 1](https://www.itu.int/dms_ties/itu-r/md/19/wp5d/c/R19-WP5D-C-0037!H01!MSW-E.docx), § 3.4.3. [↑](#footnote-ref-6)
7. Reference Report ITU-R [M.2411](https://www.itu.int/pub/R-REP-M.2411), § 5.2.4. [↑](#footnote-ref-7)