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| **Radiocommunication Study Groups** |  |
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| Source: Document 5D/TEMP/134 | **Revision 1 to Document IMT-2020/39-E** |
| **14 July 2020** |
| **English only** |
| Working Party 5D | |
| SUMMARY RESULTS OF Evaluation by 5G India Forum (5GIF) Evaluation Group of IMT‑2020 candidate technology submission in Documents IMT‑2020/13, IMT-2020/14, IMT-2020/15, IMT‑2020/16, IMT‑2020/17(Rev.1) and IMT-2020/18(Rev.1) | |
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This document summarizes the evaluation results and activities identified for the IMT-2020 candidate technology submission(s) in Documents [IMT-2020/13](https://www.itu.int/md/R15-IMT.2020-C-0013/en), [IMT-2020/14](https://www.itu.int/md/R15-IMT.2020-C-0014/en), [IMT-2020/15](https://www.itu.int/md/R15-IMT.2020-C-0015/en), [IMT-2020/16](https://www.itu.int/md/R15-IMT.2020-C-0016/en) and [IMT-2020/17(Rev.1)](https://www.itu.int/md/R15-IMT.2020-C-0017/en) [IMT-2020/18(Rev.1)](https://www.itu.int/md/R15-IMT.2020-C-0018/en) from 5G India Forum (5GIF) Evaluation Group*.*

# 1 Background

The period from October 2018 (the 31st meeting of Working Party 5D) to February 2020 (the 34th meeting of Working Party 5D) has been designated for evaluation of the IMT-2020 candidate technology submissions by Independent Evaluation Groups.

The 5G India Forum (5GIF) Evaluation group is a registered Independent Evaluation Group. At the 33rd meeting of Working Party 5D, an Evaluation Report on IMT-2020 candidate technology submissions in Documents IMT-2020/13, IMT-2020/14, IMT-2020/15, IMT-2020/16 and IMT‑2020/17(Rev.1) (3GPP) was submitted by 5G India Forum (5GIF) Evaluation Group (Doc. [5D/27](https://www.itu.int/md/R19-WP5D-C-0027/en)).

At the 35th meeting of WP 5D, the final Evaluation Report was submitted by 5GIF for IMT-2020 candidate technology submissions in Documents IMT-2020/17(Rev.1) (DECT) and IMT-2020/18(Rev.1) additionally (Doc. 5D/136)[[1]](#footnote-1).

Working Party 5D has reviewed the evaluation report and will consider it further in the IMT-2020 development process.

# 2 Evaluation summary for an SRIT for IMT-2020 candidate technology in Document IMT-2020/13

## 2.1 Use of information in Report ITU-R M.2412

Does Independent Evaluation Group confirm use of Report ITU-R M.2412 in their work?

☑ Yes 🞎 No

## 2.2 Provision of compliance templates

Provision of compliance template for services (section 5.2.4.1 of Report ITU-R M.2411)

🞎 Yes ☑ No

Provision of compliance template for spectrum (section 5.2.4.2 of Report ITU-R M.2411)

🞎 Yes ☑ No

Provision of compliance template for technical performance (section 5.2.4.3 of Report ITU-R M.2411)

🞎 Yes ☑ No

## 2.3 Summary of conclusions of the evaluation report

Does the Evaluation Report indicate that the candidate technology meet minimum service and spectrum requirements?

Service requirements: ☑ Yes 🞎 No

Spectrum requirements: 🞎 Yes 🞎 No

Which test environments have been considered in the evaluation report? What is outcome of the evaluation?

|  |  |
| --- | --- |
| Test environment | Does the evaluation report indicate that the minimum technical performance requirements are met in the test environment?  Yes: all technical performance requirements are met.  No: at least one technical performance requirement is not met. |
| ☑ Indoor Hotspot – eMBB | 🞎 Yes 🞎 No |
| ☑ Dense Urban – eMBB | 🞎 Yes 🞎 No |
| ☑ Rural – eMBB | 🞎 Yes 🞎 No |
| ☑ Urban Macro – mMTC | ☑ Yes 🞎 No |
| ☑ Urban Macro – URLLC | 🞎 Yes 🞎 No |

## 2.4 Additional evaluation methodologies and assumptions

Have any additional evaluation methodologies or assumptions that had not been included in the Report ITU-R M.2412 been used in evaluation?

🞎 Yes ☑ No

# 3 Evaluation summary for a component RIT for IMT-2020 candidate technology in Document IMT-2020/13 (NR)

## 3.1 Use of information in Report ITU-R M.2412

Does Independent Evaluation Group confirm use of Report ITU-R M.2412 in their work?

☑ Yes 🞎 No

## 3.2 Provision of compliance templates

Provision of compliance template for services (section 5.2.4.1 of Report ITU-R M.2411)

☑ Yes 🞎 No

Provision of compliance template for spectrum (section 5.2.4.2 of Report ITU-R M.2411)

☑ Yes 🞎 No

Provision of compliance template for technical performance (section 5.2.4.3 of Report ITU-R M.2411)

☑ Yes 🞎 No

## 3.3 Summary of conclusions of the evaluation report

Does the Evaluation Report indicate that the candidate technology meet minimum service and spectrum requirements?

Service requirements: ☑ Yes 🞎 No

Spectrum requirements: ☑ Yes 🞎 No

Which test environments have been considered in the evaluation report? What is outcome of the evaluation?

|  |  |
| --- | --- |
| Test environment | Does the evaluation report indicate that the minimum technical performance requirements are met in the test environment?  Yes: all technical performance requirements are met.  No: at least one technical performance requirement is not met. |
| ☑ Indoor Hotspot – eMBB | ☑ Yes 🞎 No |
| ☑ Dense Urban – eMBB | ☑ Yes 🞎 No |
| ☑ Rural – eMBB | ☑ Yes 🞎 No |
| ☑ Urban Macro – mMTC | ☑ Yes 🞎 No |
| ☑ Urban Macro – URLLC | ☑ Yes 🞎 No |

## 3.4 Additional evaluation methodologies and assumptions

Have any additional evaluation methodologies or assumptions that had not been included in the Report ITU-R M.2412 been used in evaluation?

🞎 Yes ☑ No

# 4 Evaluation summary for a component RIT for IMT-2020 candidate technology in Document IMT-2020/13 (LTE)

## 4.1 Use of information in Report ITU-R M.2412

Does Independent Evaluation Group confirm use of Report ITU-R M.2412 in their work?

☑ Yes 🞎 No

## 4.2 Provision of compliance templates

Provision of compliance template for services (section 5.2.4.1 of Report ITU-R M.2411)

🞎 Yes ☑ No

Provision of compliance template for spectrum (section 5.2.4.2 of Report ITU-R M.2411)

🞎 Yes ☑ No

Provision of compliance template for technical performance (section 5.2.4.3 of Report ITU-R M.2411)

🞎 Yes ☑ No

## 4.3 Summary of conclusions of the evaluation report

Does the Evaluation Report indicate that the candidate technology meet minimum service and spectrum requirements?

Service requirements: 🞎 Yes 🞎 No

Spectrum requirements: 🞎 Yes 🞎 No

Which test environments have been considered in the evaluation report? What is outcome of the evaluation?

|  |  |
| --- | --- |
| Test environment | Does the evaluation report indicate that the minimum technical performance requirements are met in the test environment?  Yes: all technical performance requirements are met.  No: at least one technical performance requirement is not met. |
| 🞎 Indoor Hotspot – eMBB | 🞎 Yes 🞎 No |
| 🞎 Dense Urban – eMBB | 🞎 Yes 🞎 No |
| 🞎 Rural – eMBB | 🞎 Yes 🞎 No |
| ☑ Urban Macro – mMTC | ☑ Yes 🞎 No |
| 🞎 Urban Macro – URLLC | 🞎 Yes 🞎 No |

## 4.4 Additional evaluation methodologies and assumptions

Have any additional evaluation methodologies or assumptions that had not been included in the Report ITU-R M.2412 been used in evaluation?

🞎 Yes ☑ No

# 5 Evaluation summary for a RIT for IMT-2020 candidate technology in Document IMT-2020/14

## 5.1 Use of information in Report ITU-R M.2412

Does Independent Evaluation Group confirm use of Report ITU-R M.2412 in their work?

☑ Yes 🞎 No

## 5.2 Provision of compliance templates

Provision of compliance template for services (section 5.2.4.1 of Report ITU-R M.2411)

☑ Yes 🞎 No

Provision of compliance template for spectrum (section 5.2.4.2 of Report ITU-R M.2411)

☑ Yes 🞎 No

Provision of compliance template for technical performance (section 5.2.4.3 of Report ITU-R M.2411)

☑ Yes 🞎 No

## 5.3 Summary of conclusions of the evaluation report

Does the Evaluation Report indicate that the candidate technology meet minimum service and spectrum requirements?

Service requirements: ☑ Yes 🞎 No

Spectrum requirements: ☑ Yes 🞎 No

Which test environments have been considered in the evaluation report? What is outcome of the evaluation?

|  |  |
| --- | --- |
| Test environment | Does the evaluation report indicate that the minimum technical performance requirements are met in the test environment?  Yes: all technical performance requirements are met.  No: at least one technical performance requirement is not met. |
| ☑ Indoor Hotspot – eMBB | ☑ Yes 🞎 No |
| ☑ Dense Urban – eMBB | ☑ Yes 🞎 No |
| ☑ Rural – eMBB | ☑ Yes 🞎 No |
| ☑ Urban Macro – mMTC | ☑ Yes 🞎 No |
| ☑ Urban Macro – URLLC | ☑ Yes 🞎 No |

## 5.4 Additional evaluation methodologies and assumptions

Have any additional evaluation methodologies or assumptions that had not been included in the Report ITU-R M.2412 been used in evaluation?

🞎 Yes ☑ No

# 6 Evaluation summary for a RIT for IMT-2020 candidate technology in Document IMT-2020/15

## 6.1 Use of information in Report ITU-R M.2412

Does Independent Evaluation Group confirm use of Report ITU-R M.2412 in their work?

☑ Yes 🞎 No

## 6.2 Provision of compliance templates

Provision of compliance template for services (section 5.2.4.1 of Report ITU-R M.2411)

☑ Yes 🞎 No

Provision of compliance template for spectrum (section 5.2.4.2 of Report ITU-R M.2411)

☑ Yes 🞎 No

Provision of compliance template for technical performance (section 5.2.4.3 of Report ITU-R M.2411)

☑ Yes 🞎 No

## 6.3 Summary of conclusions of the evaluation report

Does the Evaluation Report indicate that the candidate technology meet minimum service and spectrum requirements?

Service requirements: ☑ Yes 🞎 No

Spectrum requirements: ☑ Yes 🞎 No

Which test environments have been considered in the evaluation report? What is outcome of the evaluation?

|  |  |
| --- | --- |
| Test environment | Does the evaluation report indicate that the minimum technical performance requirements are met in the test environment?  Yes: all technical performance requirements are met.  No: at least one technical performance requirement is not met. |
| ☑ Indoor Hotspot – eMBB | ☑ Yes 🞎 No |
| ☑ Dense Urban – eMBB | ☑ Yes 🞎 No |
| ☑ Rural – eMBB | ☑ Yes 🞎 No |
| ☑ Urban Macro – mMTC | ☑ Yes 🞎 No |
| ☑ Urban Macro – URLLC | ☑ Yes 🞎 No |

## 6.4 Additional evaluation methodologies and assumptions

Have any additional evaluation methodologies or assumptions that had not been included in the Report ITU-R M.2412 been used in evaluation?

🞎 Yes ☑ No

# 7 Evaluation summary for a RIT for IMT-2020 candidate technology in Document(s) IMT-2020/16

## 7.1 Use of information in Report ITU-R M.2412

Does Independent Evaluation Group confirm use of Report ITU-R M.2412 in their work?

☑ Yes 🞎 No

## 7.2 Provision of compliance templates

Provision of compliance template for services (section 5.2.4.1 of Report ITU-R M.2411)

☑ Yes 🞎 No

Provision of compliance template for spectrum (section 5.2.4.2 of Report ITU-R M.2411)

☑ Yes 🞎 No

Provision of compliance template for technical performance (section 5.2.4.3 of Report ITU-R M.2411)

☑ Yes 🞎 No

## 7.3 Summary of conclusions of the evaluation report

Does the Evaluation Report indicate that the candidate technology meet minimum service and spectrum requirements?

Service requirements: ☑ Yes 🞎 No

Spectrum requirements: ☑ Yes 🞎 No

Which test environments have been considered in the evaluation report? What is outcome of the evaluation?

|  |  |
| --- | --- |
| Test environment | Does the evaluation report indicate that the minimum technical performance requirements are met in the test environment?  Yes: all technical performance requirements are met.  No: at least one technical performance requirement is not met. |
| ☑ Indoor Hotspot – eMBB | ☑ Yes 🞎 No |
| ☑ Dense Urban – eMBB | ☑ Yes 🞎 No |
| ☑ Rural – eMBB | ☑ Yes 🞎 No |
| ☑ Urban Macro – mMTC | ☑ Yes 🞎 No |
| ☑ Urban Macro – URLLC | ☑ Yes 🞎 No |

## 7.4 Additional evaluation methodologies and assumptions

Have any additional evaluation methodologies or assumptions that had not been included in the Report ITU-R M.2412 been used in evaluation?

🞎 Yes ☑ No

# 8 Evaluation summary for a component RIT for IMT-2020 candidate technology in Document(s) IMT-2020/17(Rev.1) (3GPP NR)

## 8.1 Use of information in Report ITU-R M.2412

Does Independent Evaluation Group confirm use of Report ITU-R M.2412 in their work?

☑ Yes 🞎 No

## 8.2 Provision of compliance templates

Provision of compliance template for services (section 5.2.4.1 of Report ITU-R M.2411)

☑ Yes 🞎 No

Provision of compliance template for spectrum (section 5.2.4.2 of Report ITU-R M.2411)

☑ Yes 🞎 No

Provision of compliance template for technical performance (section 5.2.4.3 of Report ITU-R M.2411)

☑ Yes 🞎 No

## 8.3 Summary of conclusions of the evaluation report

Does the Evaluation Report indicate that the candidate technology meet minimum service and spectrum requirements?

Service requirements: 🞎 Yes 🞎 No

Spectrum requirements: ☑ Yes 🞎 No

Which test environments have been considered in the evaluation report? What is outcome of the evaluation?

|  |  |
| --- | --- |
| Test environment | Does the evaluation report indicate that the minimum technical performance requirements are met in the test environment?  Yes: all technical performance requirements are met.  No: at least one technical performance requirement is not met. |
| ☑ Indoor Hotspot – eMBB | ☑ Yes 🞎 No |
| ☑ Dense Urban – eMBB | ☑ Yes 🞎 No |
| ☑ Rural – eMBB | ☑ Yes 🞎 No |
| 🞎 Urban Macro – mMTC | 🞎 Yes 🞎 No |
| 🞎 Urban Macro – URLLC | 🞎 Yes 🞎 No |

## 8.4 Additional evaluation methodologies and assumptions

Have any additional evaluation methodologies or assumptions that had not been included in the Report ITU-R M.2412 been used in evaluation?

🞎 Yes ☑ No

# 9 Evaluation summary for a component RIT for IMT-2020 candidate technology in Document(s) IMT-2020/17(Rev.1) (DECT-2020 NR)

**9.1 Use of information in Report ITU-R M.2412**

Does Independent Evaluation Group confirm use of Report ITU-R M.2412 in their work?

☑ Yes 🞎 No

**9.2 Provision of compliance templates**

Provision of compliance template for services (section 5.2.4.1 of Report ITU-R M.2411)

☑ Yes 🞎 No

Provision of compliance template for spectrum (section 5.2.4.2 of Report ITU-R M.2411)

☑ Yes 🞎 No

Provision of compliance template for technical performance (section 5.2.4.3 of Report ITU-R M.2411)

☑ Yes 🞎 No

**9.3 Summary of conclusions of the evaluation report**

Does the Evaluation Report indicate that the candidate technology meet minimum service and spectrum requirements?

Service requirements: 🞎 Yes 🞎 No

Spectrum requirements: ☑ Yes 🞎 No

Which test environments have been considered in the evaluation report? What is outcome of the evaluation?

|  |  |
| --- | --- |
| Test environment | Does the evaluation report indicate that the minimum technical performance requirements are met in the test environment?  Yes: all technical performance requirements are met.  No: at least one technical performance requirement is not met. |
| 🞎 Indoor Hotspot – eMBB | 🞎 Yes 🞎 No |
| 🞎 Dense Urban – eMBB | 🞎 Yes 🞎 No |
| 🞎 Rural – eMBB | 🞎 Yes 🞎 No |
| ☑ Urban Macro – mMTC | 🞎 Yes 🞎 No (Inconclusive) |
| ☑ Urban Macro – URLLC | 🞎 Yes ☑ No |

**9.4 Additional evaluation methodologies and assumptions**

Have any additional evaluation methodologies or assumptions that had not been included in the Report ITU-R M.2412 been used in evaluation?

🞎 Yes ☑ No

# 10 Evaluation summary for a RIT for IMT-2020 candidate technology in Document(s) IMT-2020/18(Rev.1)

**10.1 Use of information in Report ITU-R M.2412**

Does Independent Evaluation Group confirm use of Report ITU-R M.2412 in their work?

☑ Yes 🞎 No

**10.2 Provision of compliance templates**

Provision of compliance template for services (section 5.2.4.1 of Report ITU-R M.2411)

☑ Yes 🞎 No

Provision of compliance template for spectrum (section 5.2.4.2 of Report ITU-R M.2411)

☑ Yes 🞎 No

Provision of compliance template for technical performance (section 5.2.4.3 of Report ITU-R M.2411)

☑ Yes 🞎 No

**10.3 Summary of conclusions of the evaluation report**

Does the Evaluation Report indicate that the candidate technology meet minimum service and spectrum requirements?

Service requirements: 🞎 Yes ☑ No

Spectrum requirements: 🞎 Yes 🞎 No

Which test environments have been considered in the evaluation report? What is outcome of the evaluation?

|  |  |
| --- | --- |
| Test environment | Does the evaluation report indicate that the minimum technical performance requirements are met in the test environment?  Yes: all technical performance requirements are met.  No: at least one technical performance requirement is not met. |
| ☑ Indoor Hotspot – eMBB | 🞎 Yes ☑ No |
| ☑ Dense Urban – eMBB | 🞎 Yes ☑ No |
| 🞎 Rural – eMBB | 🞎 Yes 🞎 No |
| 🞎 Urban Macro – mMTC | 🞎 Yes 🞎 No |
| ☑ Urban Macro – URLLC | 🞎 Yes ☑ No |

**10.4 Additional evaluation methodologies and assumptions**

Have any additional evaluation methodologies or assumptions that had not been included in the Report ITU-R M.2412 been used in evaluation?

🞎 Yes ☑ No

# 11 Evaluation Report

|  |  |  |
| --- | --- | --- |
| The number of the evaluation report | The name of the final evaluation report | The files of the final evaluation report |
| 5D/27 | Interim evaluation results for 3GPP proponent's candidate RIT submission (IMT-2020/14) |  |
| 5D/136**1** | Final evaluation report from 5G India Forum Independent Evaluation Group  *Doc. 5D/136 has replaced Doc 5D/27 in its entirety.* |  |

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1. *Doc. 5D/136 has replaced Doc 5D/27 in its entirety.* At WP 5D #34 meeting, the conclusions of the final evaluation report have been already available through invited verbal interventions of 5GIF and preliminarily reflected in the relevant outcome of Step 4 (Document IMT-2020/38). At Meeting #34 it was agreed that WP 5D would review the information and the **[ ]** status in Meeting #35. WP 5D #35 meeting reviewed and confirmed the results previously reflected in **[ ]** in Document IMT-2020/38 and has therefore revised Documents IMT-2020/38 and IMT-2020/39 based on the final evaluation report accordingly. [↑](#footnote-ref-1)