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| **Radiocommunication Study Groups** |  |
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| Source: Document 5D/TEMP/113(Rev.1) | **Document IMT-2020/42-E** |
| **27 February 2020** |
| **English only** |
| Working Party 5D | |
| SUMMARY RESULTS OF Evaluation by Alliance for Telecommunications Industry Solutions WTSC of IMT-2020 candidate technology submission in Documents IMT-2020/13, IMT-2020/14, IMT-2020/15, IMT-2020/16, and IMT-2020/17(Rev.1) (3GPP) | |
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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) (3GPP) from Alliance for Telecommunications Industry Solutions WTSC*.*

# 1 Background

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

The Alliance for Telecommunications Industry Solutions WTSC is a registered Independent Evaluation Group. At the 34th meeting of Working Party 5D, a final Evaluation Report on IMT‑2020 candidate technology submissions in Document(s) IMT-2020/13, IMT-2020/14, IMT‑2020/15, IMT-2020/16, and IMT-2020/17(Rev.1) (3GPP)was submitted by Alliance for Telecommunications Industry Solutions WTSC (Documents [5D/54](https://www.itu.int/md/R19-WP5D-C-0054/en), [55](https://www.itu.int/md/R19-WP5D-C-0055/en), [56](https://www.itu.int/md/R19-WP5D-C-0056/en), [57](https://www.itu.int/md/R19-WP5D-C-0057/en), [58](https://www.itu.int/md/R19-WP5D-C-0058/en), [59](https://www.itu.int/md/R19-WP5D-C-0059/en), [60](https://www.itu.int/md/R19-WP5D-C-0060/en), and [61](https://www.itu.int/md/R19-WP5D-C-0061/en)). WP 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 Report

| The number of the final evaluation report | The name of the final evaluation report | The files of the final evaluation report |
| --- | --- | --- |
| 5D/54 | Roadmap of final evaluation reports from ATIS WTSC IMT-2020 Independent Evaluation Group |  |
| 5D/55 | Detailed final evaluation analysis from ATIS WTSC IMT-2020 Independent Evaluation Group for 3GPP proponent submissions of SRIT (IMT‑2020/13) & RIT (IMT-2020/14) |  |
| 5D/56 | Final evaluation report for SRIT submission from 3GPP proponent (IMT-2020/13) |  |
| 5D/57 | Final evaluation report for SRIT submission from 3GPP proponent (IMT-2020/14) |  |
| 5D/58 | Final evaluation report for SRIT submission from China (IMT-2020/15) |  |
| 5D/59 | Final evaluation report for SRIT submission from Korea (IMT-2020/16) |  |
| 5D/60 | Final evaluation report for SRIT submission from ETSI (TC DECT), DECT Forum (IMT‑2020/17) for 3GPP component RIT only |  |
| 5D/61 | Final evaluation report for RIT submission from TSDSI (IMT-2020/19) for 3GPP portions only |  |

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