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| **Radiocommunication Study Groups** |  |
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| Source: Documents 5D/TEMP/500 and 5D/TEMP/501 | **Document IMT-2020/73-E** |
| **8 November2021** |
| **English only** |
| ITU-R Working Party 5D | |
| Draft Summary of rewind Step 4 of the IMT-2020 Process for Evaluation of IMT-2020 Candidate Technology Submissions IMT-2020/17(Rev.1), IMT-2020/18(Rev.1) | |
|  | |

Introduction

This document provides composite summary tables of the detailed information based on the final evaluation reports provided to ITU-R under rewind Step 4 (evaluation) of the IMT-2020 process provided in Document [IMT-2020/2(Rev.2](https://www.itu.int/md/R15-IMT.2020-C-0002/en)), IMT-2020/52, IMT-2020/53 and IMT-2020/54 related to IMT-2020 candidate technology re-evaluations based on Reports ITU-R M.2410, ITU‑R M.2411 and ITU-R M.2412. The information in this summary is based upon the documents indicated in Table 1.

Table 1

Index of documents related to IEG Final Evaluation Reports   
for the Candidate Technology Submissions of IMT-2020 IMT-2020/17(Rev.1), IMT-2020/18(Rev.1)   
Under rewind Step 4

| IMT-2020/73 | Summary of rewind Step 4 of the IMT-2020 Process for Evaluation of IMT‑2020 Candidate Technology Submissions | | |
| --- | --- | --- | --- |
|  | | | |
| Registered Independent Evaluation Group | 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](https://www.itu.int/md/R19-WP5D-C-0576/en) (DECT) | IMT-2020/55(Rev.1) |
| [Wireless World Research Forum](https://www.itu.int/oth/R0A06000073/en) | IMT-2020/72 | 5D/736 (DECT)  5D/120\*(Nufront)  5D/659 (Nufront)  5D/743 (Nufront)  5D/760 (Nufront) | IMT-2020/56(Rev.2) |
| [Africa Evaluation Group](https://www.itu.int/oth/R0A06000085/en) | IMT-2020/67 | [5D/630](https://www.itu.int/md/R19-WP5D-C-0630/en) (NUFRONT) | IMT-2020/59 |
| [Beijing National Research Center for Information Science and Technology (Bnrist EG)](https://www.itu.int/oth/R0A0600009B/en) | IMT-2020/68 | [5D/652](https://www.itu.int/md/R19-WP5D-C-0652/en) (Nufront) | IMT-2020/60 |
| [Canadian Evaluation Group](https://www.itu.int/oth/R0A06000072/en) | IMT-2020/69 | 5D/90\*(DECT&Nufront)  5D/624 (DECT&Nufront)  5D/738 (DECT&Nufront) | IMT-2020/61(Rev.1) |
| [5G India Forum](https://www.itu.int/oth/R0A06000083/en) | IMT-2020/65 | 5D/741 (DECT)  5D/136\*(Nufront)  5D/666 (Nufront)  5D/742 (Nufront)  5D/826 (Nufront) | IMT-2020/65 |
| [The Fifth Generation Mobile Communications Promotion Forum, Japan](https://www.itu.int/oth/R0A06000076/en) | IMT-2020/66 | 5D/739 (DECT)  5D/754 (DECT)  5D/700(Nufront)  5D/740 (Nufront)  5D/753 (Nufront)  5D/755 (Nufront)  5D/756 (Nufront) | IMT-2020/66 |
| [TTA 5G Technology Evaluation Special Project Group](https://www.itu.int/oth/R0A0600007D/en) | IMT-2020/71 | [5D/707](https://www.itu.int/md/R19-WP5D-C-0707/en) (DECT)  [5D/708](https://www.itu.int/md/R19-WP5D-C-0708/en) (NUFRONT) | IMT-2020/64 |

Section 1: Summary composite tables by candidate technology submission *(starting next page)*

Section 1: Summary composite tables by candidate technology submission

The tables in this section were compiled to reflect to the extent possible in a uniform manner the information indicated in the evaluation.

Table A

Candidate Technology – Proponent ETSI (TC DECT) & DECT Forum SRIT (IMT2020/17(Rev.1))

# A. Candidate Technology – DECT SRIT (IMT2020/17 rev.1)

**Sources**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CEG | 5GIF | ETSI | TTA SPG33 | WWRF | 5GMF |
| 5D/90(#34)  5D/624 (#38)  5D/738 (Aug) | 5D/741 (Aug) | 5D/576 (#38) | 5D/707 (#38) | 5D/736 (Aug) | 5D/739 (Aug)  5D/754 (#39) |

*Note: the result with asterisk was from the year 2020 and confirmed still valid in “way forward Option 2” by IEGs*

#### 5.2.4.1 Compliance template **for** services[[1]](#footnote-1) (both RIT components)

TABLE A.1

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Service capability requirements | CEG | 5GIF | ETSI | TTA SPG33 | WWRF | 5GMF |
| **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.(1) | Yes  (DECT 2020 NR RIT component) |  | Yes | Yes | Yes | SRIT : Yes  3GPP-NR RIT: Yes  DECT-NR RIT: Yes |

#### 5.2.4.2 Compliance **template** for spectrum (both RIT components)

TABLE A.2

|  | Spectrum capability requirements | CEG | 5GIF | ETSI | TTA SPG33 | WWRF | 5GMF |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **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*\**  (DECT 2020 NR RIT component) | Yes  (DECT2020 NR component) | Yes | Yes | Yes | SRIT : Yes  3GPP-NR RIT: Yes  DECT-NR RIT: 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 1 – In the case of the candidate SRIT, at least one of the component RITs need to fulfil this requirement. | Yes*\**  (DECT 2020 NR RIT component) | **Yes** | Yes | Yes | Yes | SRIT: Yes  3GPP-NR RIT: Yes |

#### 5.2.4.3 Compliance template for **technical** performance (DECT 2020 NR RIT component)

TABLE A.3c

| Minimum technical performance requirements item (5.2.4.3.x), units, and Report ITU-R M.2410-0 section reference(1) | Category | | | Required value | CEG | 5GIF | ETSI | TTA SPG33 | WWRF | 5GMF |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Usage scenario | Test environment | Downlink or uplink |  |  |  |  |  |  |  |
| **5.2.4.3.7** User plane latency (ms) *(4.7.1)* | URLLC | Not applicable | Uplink and Downlink | 1 |  | Yes | Yes |  | Yes |  |
| **5.2.4.3.8** Control plane latency (ms) *(4.7.2)* | URLLC | Not applicable | Not applicable | 20 |  | Yes | Yes | Yes | Yes |  |
| **5.2.4.3.9** Connection density (devices/km2) *(4.8)* | mMTC | Urban Macro – mMTC | Uplink | 1 000 000 | Yes | Yes | Yes |  | Yes | Yes |
| **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 | UL: Yes*\*,* DL: Yes\* |  | Yes |  | Yes |  |
| **5.2.4.3.14** Mobility interruption time (ms) *(4.12)* | eMBB and URLLC | Not applicable | Not applicable | 0 |  |  | Yes | Yes | Yes |  |
| **5.2.4.3.15** Bandwidth and Scalability *(4.13)* | Not applicable | Not applicable | Not applicable | At least 100 MHz | Yes*\** | Yes | Yes | Yes | Yes |  |
| Up to 1 GHz |  |  |  |  |  |  |
| Support of multiple different bandwidth values(4) | Yes*\** | Yes | Yes | Yes | Yes |  |

Table B

Candidate Technology – Proponent Nufront RIT (IMT-2020/18(Rev.1))

# B. Candidate Technology – EUHT RIT (IMT-2020/18)

Sources

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| CEG | WWRF | 5GMF | 5GIF | AEG | Bnrist | TTA SPG33 |
| 5D/90(#34)  5D/624 (#38)  5D/738 (Aug) | 5D/120 (#34)  5D/659 (#38)  5D/743 (Aug)  5D/760 (#39) | 5D/700 (#38)  5D/740 (Aug)  5D/753 (#39)  5D/755 (#39)  5D/756 (#39) | 5D/136 (#35)  5D/666 (#38)  5D/742 (Aug)  5D/826 (#39) | 5D/630 (#38) | 5D/652 (#38) | 5D/708 (#38) |

*Note: the result with asterisk was from the year 2020 and confirmed still valid in “way forward Option 2” by IEGs*

#### 5.2.4.1 Compliance template for services

TABLE B.1

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Service capability requirements | CEG | WWRF | 5GMF | 5GIF | AEG | Bnrist | TTA SPG33 |
| **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.(1) |  |  | NO | NO | Yes | YES | Yes |

#### 5.2.4.2 Compliance **template** for spectrum

TABLE B.2

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Spectrum capability requirements | CEG | WWRF | 5GMF | 5GIF | AEG | Bnrist | TTA SPG33 |
| **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*\** |  | **Yes** | Yes | Yes | YES | 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 1 – In the case of the candidate SRIT, at least one of the component RITs need to fulfil this requirement. | Yes*\** |  | **Yes** | Yes | Yes | YES | Yes |

#### 5.2.4.3 Compliance template for **technical** performance

TABLE B.3

| Minimum technical performance requirements item (5.2.4.3.x), units, and Report ITU-R M.2410-0 section reference(1) | Category | | | Required value | CEG | WWRF | 5GMF | 5GIF | AEG | Bnrist | TTA SPG33 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 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*\** |  |  | No | Yes | YES | Yes |
| Uplink | 10 | Yes*\** |  |  | Yes | Yes | YES | Yes |
| **5.2.4.3.2** Peak spectral efficiency (bit/s/Hz) *(4.2)* | eMBB | Not applicable | Downlink | 30 | Yes*\** |  |  | Yes | Yes | YES | Yes |
| Uplink | 15 | Yes*\** |  |  | Yes | Yes | YES | Yes |
| **5.2.4.3.3** User experienced data rate (Mbit/s) *(4.3)* | eMBB | Dense Urban – eMBB | Downlink | 100 |  |  | No | No | Yes | YES |  |
| Uplink | 50 |  |  | No | No | Yes | YES |  |
| **5.2.4.3.4** 5th percentile user spectral efficiency (bit/s/Hz) *(4.4)* | eMBB | Indoor Hotspot – eMBB | Downlink | 0.3 |  |  | No | No*\** | Yes | YES |  |
| Uplink | 0.21 |  |  | No | No*\** | Yes | YES |  |
| eMBB | Dense Urban – eMBB | Downlink | 0.225 |  |  |  | Yes*\** | Yes | YES |  |
| Uplink | 0.15 |  |  | No | No*\** | Yes | YES |  |
| eMBB | Rural – eMBB | Downlink | 0.12 |  |  |  |  | Yes | YES |  |
| Uplink | 0.045 |  |  | No |  | Yes | YES |  |
| **5.2.4.3.5** Average spectral efficiency (bit/s/Hz/ TRxP) *(4.5)* | eMBB | Indoor Hotspot – eMBB | Downlink | 9 |  |  | No | No*\** | Yes | YES |  |
| Uplink | 6.75 |  |  | No | No*\** | Yes | YES |  |
| eMBB | Dense Urban – eMBB | Downlink | 7.8 |  |  | No | No*\** | Yes | YES |  |
|  |  |  | Uplink | 5.4 |  |  | No for 4GHz  No\* for 30GHz | No\* | Yes | YES |  |
| eMBB | Rural – eMBB | Downlink | 3.3 |  |  |  |  | Yes  (Config B) | YES  Configuration B |  |
|  |  |  |  | Yes  (Config C) | YES  Configuration C |  |
| Uplink | 1.6 |  |  | Yes  (Config A&B) |  | Yes  (Config B) | YES  Configuration B |  |
|  |  |  |  | Yes  (Config C) | YES  Configuration C |  |
| **5.2.4.3.6** Area traffic capacity (Mbit/s/m2) *(4.6)* | eMBB | Indoor-Hotspot – eMBB | Downlink | 10 |  |  | No | No\* | Yes | YES |  |
| **5.2.4.3.7** User plane latency (ms) *(4.7.1)* | eMBB | Not applicable | Uplink and Downlink | 4 |  |  |  |  | Yes | YES | Yes |
| URLLC | Not applicable | Uplink and Downlink | 1 |  |  |  |  | Yes | YES | Yes |
| **5.2.4.3.8** Control plane latency (ms) *(4.7.2)* | eMBB | Not applicable | Not applicable | 20 |  |  |  |  | Yes | YES | Yes |
| URLLC | Not applicable | Not applicable | 20 |  |  |  |  | Yes | YES | Yes |
| **5.2.4.3.9** Connection density (devices/km2) *(4.8)* | mMTC | Urban Macro – mMTC | Uplink | 1 000 000 |  |  |  |  | Yes | YES |  |
| **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 | Yes\* |  |  |  |  | YES | Yes |
| **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 |  | DL: No | UL: No  DL: No | No\* | Yes | YES |  |
| **5.2.4.3.12** Mobility classes *(4.11)* | eMBB | Indoor Hotspot – eMBB | Uplink | Stationary, Pedestrian |  |  |  |  | - | YES |  |
| eMBB | Dense Urban – eMBB | Uplink | Stationary, Pedestrian, Vehicular (up to 30 km/h) |  |  |  |  | - | YES |  |
| eMBB | Rural – eMBB | Uplink | Pedestrian, Vehicular, High speed vehicular |  |  |  |  | - | YES |  |
| **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) |  |  |  |  | - | YES |  |
| eMBB | Dense Urban – eMBB | Uplink | 1.12 (30 km/h) |  |  |  |  | - | YES |  |
| eMBB | Rural – eMBB | Uplink | 0.8 (120 km/h) |  |  |  |  | - | YES |  |
| 0.45 (500 km/h) |  | Yes\* |  |  | - | YES |  |
| **5.2.4.3.14** Mobility interruption time (ms)  *(4.12)* | eMBB and URLLC | Not applicable | Not applicable | 0 |  |  |  |  | Yes | YES | Yes |
| **5.2.4.3.15** Bandwidth and Scalability *(4.13)* | Not applicable | Not applicable | Not applicable | At least 100 MHz | Yes\* |  |  | Yes | Yes | YES | Yes |
| Up to 1 GHz | Yes\* |  | No | No | Yes | YES | Yes |
| Support of multiple different bandwidth values(4) | Yes\* |  |  | Yes | Yes | YES | Yes |

Note: The cells to 5th percentile user spectral efficiency- dense urban DL+UL and average spectral efficiency – dense urban DL from 5GMF are blank while evaluation results were provided by their final evaluation report. The reason is that those evaluation results are in the range of below the requirement to above the requirement and the IEG cannot conclude whether it can fulfil the requirement or not.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. If a proponent determines that a specific question does not apply, the proponent should indicate that this is the case and provide a rationale for why it does not apply. [↑](#footnote-ref-1)