# RF EVALUATION TEST REPORT

| | | |
|---|---|---|
| Applicant…… | : | Robert Bosch GmbH |
| Address……... | : | Robert-Bosch-Platz 1, 70839 Gerlingen, Germany |
| Manufacturer…….. | : | Robert Bosch GmbH |
| Address……... | : | Robert-Bosch-Platz 1, 70839 Gerlingen, Germany |
| Factory 1..... | : | Robert Bosch Malaysia |
| Address ..... | : | Phase 1 – Free Industrial Zone, 11900 Bayan Lepas, Penang, Malaysia |
| Factory 2..... | : | Bosch Automotive Electronics India Pvt.Ltd. |
| Address ..... | : | Hangar 703 Naganathapura, Electronic city PO, Bengaluru - 560100 |
| Product Name…… | : | Multimedia device with Bluetooth and WLAN |
| Brand Name…… | : | BOSCH |
| Model Name……... | : | 71U0 |
| FCC ID…….. | : | 2AUXS-71U0 |
| Measurement Standard……. | : | 47 CFR PART 2, Section 2.1091& 2.1093 |
| Receipt Date of Samples…. | : | February 18, 2025 |
| Date of Tested…… | : | February 18, 2025 to March 24, 2025 |
| Date of Report…… | : | March 25, 2025 |

This report shows that above equipment is technically compliant with the requirements of the standards above. All test results in this report apply only to the tested sample(s). Without prior written approval of Dongguan Nore Testing Center Co., Ltd, this report shall not be reproduced except in full.

Prepared by

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Approved by

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## Revision History

| Report Number | Description | Issued Date |
|---|---|---|
| NTC2502409F01 | Initial Issue | 2025-03-25 |
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## 1. General Description of EUT

| Product Information | |
|---|---|
| Product name: | Multimedia device with Bluetooth and WLAN |
| Main Model Name: | 71U0 |
| Additional Model Name: | N/A |
| Model Difference: | N/A |
| S/N: | 4c8117b1 (conducted sample) / 60c50fde (radiated sample) |
| Brand Name: | BOSCH |
| Hardware version: | DA3-002 |
| Software version: | D3I_51.6(S3R-01-00 (2024-51-6)) |
| Rating: | DC 10V to 16 V come from vehicle environment |
| Typical Arrangement: | Tabletop |
| I/O Port: | Refer to the user manual |
| Accessories Information | |
| Adapter: | N/A |
| Cable: | N/A |
| Other: | N/A |
| Additional information | |
| Note: | 1. The device has six variant versions, and all the versions have the same schematic, construction, PCB Layout, Bluetooth & WIFI RF module; the differences are software version and components populated in accordance with the function feature. Details refer to following the variant version description.<br>2. According to the version differences and the manufacturer, all tests are performed on version GEX w/DAB. |
| Remark: | All the information above are provided by the manufacturer. More detailed feature of the EUT please refers to the user manual. |

| Technical Specification (Bluetooth) | |
|---|---|
| Bluetooth Version: | V5.2 |
| Frequency Range: | 2402-2480MHz |
| Modulation Type: | GFSK, Π4/-DQPSK, 8DPSK |
| Number of Channel: | 79 for BDR+EDR<br>40 for BLE |
| Channel Space: | 1MHz for BDR+EDR<br>2MHz for BLE |
| Antenna Type: | Chip Antenna |
| Number of Antenna | 2 (BT & 5G WIFI x1, 2.4G & 5G WIFI x 1) |
| Antenna Gain: | 1.87 dBi (Declared by the manufacturer) |
| RF PHY Support: | 1Mbps, 2Mbps |

| Technical Specification (2.4G WLAN) | |
|---|---|
| Frequency Range: | 2412-2462MHz for IEEE 802.11b/g/n(HT20) |
| Modulation Technology: | DSSS, OFDM |
| Modulation Type: | CCK, DQPSK, DBPSK, 64-QAM, 16-QAM, QPSK, BPSK |
| Number of Channel: | 11 for IEEE 802.11b/g/n(HT20) |
| Channel Space: | 5MHz |
| Antenna Type: | Chip Antenna |
| Number of Antenna | 2 (BT & 5G WIFI x1, 2.4G & 5G WIFI x 1) |
| Antenna Gain: | 2.79 dBi (Declared by the manufacturer) |

| Technical Specification (5G WLAN) | |
|---|---|
| Frequency Range: | 5190MHz for U-NII-1<br>5755MHz for U-NII-3 |
| Modulation Technology: | OFDM |
| Modulation Type: | BPSK, QPSK, 16QAM, 64QAM |
| Number of Channel: | 1 for U-NII-1<br>802.11n(HT40) / ac(VHT40)<br><br>1 for U-NII-3<br>802.11n(HT40) / ac(VHT40) |
| Antenna Type: | Chip Antenna |
| Number of Antenna | 2 (BT & 5G WIFI x1, 2.4G & 5G WIFI x 1) |
| Antenna Gain: | ANT 1: 0.59 dBi maximum<br>ANT 2: 2.96 dBi maximum |
| Beamforming Gain: | Not support |
| Transmission Mode: | SISO and MIMO |
| Note: | The information above declared by the manufacturer. |

## Variant Version Description:

| Function | Versions | | | | | |
|---|---|---|---|---|---|---|
| | IND | GEX w/DAB | GEX with no 5GHz AP support | GEX w/o DAB | EU w/DAB | EU w/o DAB |
| AM | Yes | Yes | Yes | Yes | Yes | Yes |
| FM | Yes | Yes | Yes | Yes | Yes | Yes |
| DAB | --- | Yes | --- | --- | Yes | --- |
| DRM | Yes | --- | --- | --- | --- | --- |
| BT | Yes | Yes | Yes | Yes | Yes | Yes |
| BLE | Yes | Yes | Yes | Yes | Yes | Yes |
| Wifi Station (2.4 GHz) | Yes | Yes | Yes | Yes | Yes | Yes |
| GNSS | Yes | Yes | Yes | Yes | Yes | Yes |
| Wifi AP 2.4GHz | --- | --- | Yes | --- | --- | --- |
| Wifi AP 5GHz | Yes | Yes | --- | Yes | Yes | Yes |
| USB DCM | Yes | --- | --- | --- | Yes | Yes |
| USB | Yes | Yes | Yes | Yes | Yes | Yes |
| QZSS | Yes | Yes | Yes | Yes | Yes | Yes |
| RVC | Yes | Yes | Yes | Yes | Yes | Yes |
| Int SVS | Yes | Yes | Yes | Yes | --- | --- |
| Ext SVS | --- | --- | --- | --- | --- | --- |
| Audio (8 CH) | Yes | Yes | Yes | Yes | --- | --- |
| Audio (4 CH) | --- | --- | --- | --- | Yes | Yes |

Note: For wireless functions Bluetooth and WIFI, the hardware design is exactly the same. The WIFI bands and features are locked by the software at the factory and cannot be modified by the user.

## 2. Test Facility and Location

| Test Site | : | Dongguan Nore Testing Center Co., Ltd. (Dongguan NTC Co., Ltd.) |
|---|---|---|
| Accreditations and Authorizations | : | The Laboratory has been assessed and proved to be in compliance with CNAS/CL01<br>Listed by CNAS, August 13, 2018<br>The Certificate Registration Number is L5795.<br>The Certificate is valid until August 13, 2030<br><br>The Laboratory has been assessed and proved to be in compliance with ISO17025<br>Listed by A2LA, November 01, 2017<br>The Certificate Registration Number is 4429.01<br>The Certificate is valid until December 31, 2025<br><br>Listed by FCC, November 06, 2017<br>Test Firm Registration Number: 907417<br><br>Listed by Industry Canada, June 08, 2017<br>The Certificate Registration Number. Is 46405-9743A |
| Test Site Location | : | Building D, Gaosheng Science and Technology Park, Hongtu Road, Nancheng District, Dongguan City, Guangdong Province, China |

## 3. Applicable Standards and References

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

**Test Standards:**

47 CFR Part 1, 1.1307

47 CFR Part 2, 2.1091 & 2.1093

KDB 447498 D04 v01

## 4. Maximum Permissible Exposure Limit

According to 47 CFR Part 1, 1.1307, for single RF sources (i.e., any single fixed RF source, mobile device, or portable device, as defined in paragraph (b)(2) of this section): A single RF source is exempt if: 47 CFR Part 1, 1.1307

(A) The available maximum time- averaged power is no more than 1 mW, regardless of separation distance. This exemption may not be used in conjunction with other exemption criteria other than those in paragraph (b)(3)(ii)(A) of this section. Medical implant devices may only use this exemption and that in paragraph (b)(3)(ii)(A);

(B) Or the available maximum time- averaged power or effective radiated power (ERP), whichever is greater, is less than or equal to the threshold $P_{th}$ (mW) described in the following formula. This method shall only be used at separation distances (cm) from 0.5 centimeters to 40 centimeters and at frequencies from 0.3 GHz to 6 GHz (inclusive). $P_{th}$ is given by:

$$P_{th}\ (\text{mW}) = \begin{cases} ERP_{20\ cm}(d/20\ \text{cm})^{x} & d \le 20\ \text{cm} \\ ERP_{20\ cm} & 20\ \text{cm} < d \le 40\ \text{cm} \end{cases}$$

Where,

$$x = -\log_{10}\left(\frac{60}{ERP_{20\ cm}\sqrt{f}}\right) \text{ and } f \text{ is in GHz;}$$

And,

$$ERP_{20\ cm}\ (\text{mW}) = \begin{cases} 2040f & 0.3\ \text{GHz} \le f < 1.5\ \text{GHz} \\ 3060 & 1.5\ \text{GHz} \le f \le 6\ \text{GHz} \end{cases}$$

*d* = the minimum separation distance (cm) in any direction from any part of the device antenna(s) or radiating structure(s) to the body of the device user.

For multiple RF sources: Multiple RF sources are exempt if:

(A) The available maximum time- averaged power of each source is no more than 1 mW and there is a separation distance of two centimeters be-tween any portion of a radiating structure operating and the nearest portion of any other radiating structure in the same device, except if the sum of multiple sources is less than 1 mW during the time-averaging period, in which case they may be treated as a single source (separation is not required). This exemption may not be used in conjunction with other exemption criteria other than those is paragraph (b)(3)(i)(A) of this section. Medical implant devices may only use this exemption and that in paragraph (b)(3)(i)(A).

(B) in the case of fixed RF sources operating in the same time-averaging period, or of multiple mobile or portable RF sources within a device operating in the same time averaging period, if the sum of the fractional contributions to the applicable thresholds is less than or equal to 1 as indicated in the following equation.

$$\sum_{i=1}^{a}\frac{P_i}{P_{th,i}}+\sum_{j=1}^{b}\frac{ERP_j}{ERP_{th,j}}+\sum_{k=1}^{c}\frac{Evaluated_k}{Exposure\ Limit_k}\leq 1$$

Where,

*a* = number of fixed, mobile, or portable RF sources claiming exemption using para-graph (b)(3)(i)(B) of this section for $P_{th}$, including existing exempt transmitters and those being added.

*b* = number of fixed, mobile, or portable RF sources claiming exemption using para-graph (b)(3)(i)(C) of this section for Threshold ERP, including existing exempt transmitters and those being added.

*c* = number of existing fixed, mobile, or port-able RF sources with known evaluation for the specified minimum distance including existing evaluated transmitters.

$P_i$= the available maximum time-averaged power or the ERP, whichever is greater, for fixed, mobile, or portable RF source i at a distance between 0.5 cm and 40 cm (inclusive).

$P_{th,i}$= the exemption threshold power (Pth) ac-cording to paragraph (b)(3)(i)(B) of this section for fixed, mobile, or portable RF source i.

$ERP_j$= the ERP of fixed, mobile, or portable RF source j.

$ERP_{th,j}$= exemption threshold ERP for fixed, mobile, or portable RF source j, at a distance of at least λ/2π according to the applicable formula of paragraph (b)(3)(i)(C) of this section.

*Evaluated*$_k$= the maximum reported SAR or MPE of fixed, mobile, or portable RF source k either in the device or at the transmitter site from an existing evaluation at the location of exposure.

*Exposure Limit*$_k$= either the general population/uncontrolled maximum permissible exposure (MPE) or specific absorption rate (SAR) limit for each fixed, mobile, or portable RF source k, as applicable from §1.1310 of this chapter.

## 5. RF Exposure Evaluation Results

| Single RF Source | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Mode** | **Frequency (MHz)** | **Max. Conducted Power (dBm)** | **Antenna Gain (dBi)** | **Max. EIRP (dBm)** | **Max. ERP (dBm)** | **Max. ERP (mW)** | **Separation Distance (cm)** | **Part 1.1307 Option (B) $P_{th}$ (mW)** |
| Bluetooth | 2441 | 9.79 | 1.87 | 11.660 | 9.51 | 8.93 | 20 | 3060 |
| 2.4G WLAN | 2462 | 14.63 | 2.79 | 17.420 | 15.270 | 33.65 | 20 | 3060 |
| 5G WLAN (UNII-1) | 5190 | 10.38 | 2.96 | 13.340 | 11.190 | 13.15 | 20 | 3060 |
| 5G WLAN (UNII-3) | 5755 | 9.78 | 2.96 | 12.740 | 10.590 | 11.46 | 20 | 3060 |

| Multiple RF Source (Simultaneous Transmission ) | | | | |
|---|---|---|---|---|
| **5G WLAN (P/Pth Ratio)** | **2.4G WLAN (P/Pth Ratio)** | **Bluetooth (P/Pth Ratio)** | **Total Ratio** | **Limit** |
| 0.0043 | 0.0110 | 0.0029 | 0.0182 | 1.0 |
| Note: Where P = Max.ERP in mW | | | | |

**Conclusion:**

According to 47 CFR §1.1307 (b)(3)(i)(B), the RF exposure analysis concludes that the product is compliant with the FCC RF exposure requirements in mobile exposure condition.

---End---