# EN 50665:2017
# EN IEC 62311:2020
# BS EN 50665:2017
# BS EN IEC 62311:2020

ASSESSMENT REPORT

For

## Renesas Design Korea Inc.

7th SiliconPark, 35 Pangyo-ro 255 beon-gil Bundang-gu, Seongnam-si, Gyeonggi-do, 13486 Republic of Korea

**Tested Model: RRQ61001-009**
**Multiple Models: RRQ61001-010**

| **Report Type:** | **Product Type:** |
|---|---|
| Original Report | RRQ61001 Module |

| | |
|---|---|
| **Report Number:** | 2602P42655E |
| **Report Date:** | 2026/3/11 |
| **Reviewed By:** | Carlos Wu<br>Project Engineer |
| **Approved By:** | Rocky Xiao<br>RF Supervisor |
| **Test Laboratory:** | Bay Area Compliance Laboratories Corp. (Dongguan)<br>(No.12, Pulong East 1st Road, Tangxia Town, Dongguan, Guangdong, China)<br>Tel: +86-769-86858888<br>Fax: +86-769-86858891<br>www.baclcorp.com.cn |

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# DOCUMENT REVISION HISTORY

| Revision Number | Report Number | Description of Revision | Date of Revision |
|---|---|---|---|
| 1.0 | 2602P42655E | Original Report | 2026/3/11 |

# GENERAL INFORMATION

## Product Description for Equipment under Test (EUT)

| | |
|---|---|
| **Product Name:** | RRQ61001 Module |
| **EUT Model:** | RRQ61001-009 |
| **Multiple Models:** | RRQ61001-010 |
| **Model Difference:** | Refer to Dos |
| **Rated Input Voltage:** | 1.8~3.6Vdc (Typical:3.3Vdc) |
| **Serial Number:** | 3GD9-2 |
| **EUT Received Date:** | 2026/1/20 |
| **EUT Received Status:** | Good |

## Objective

This report is prepared on behalf of ***Renesas Design Korea Inc.*** in accordance with EN 50665:2017 and BS EN 50665:2017 Generic standard for assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz - 300 GHz);
EN IEC 62311:2020 and BS EN IEC 62311:2020 Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz to 300 GHz).

The objective is to determine the compliance of EUT with EN 50665:2017, EN IEC 62311:2020, BS EN 50665:2017, BS EN IEC 62311:2020.

## Test Methodology

All measurements contained in this report were conducted with EN IEC 62311:2020, BS EN IEC 62311:2020.

## Test Facility

The test site used by Bay Area Compliance Laboratories Corp. (Dongguan) to collect test data is located on the No.12, Pulong East 1st Road, Tangxia Town, Dongguan, Guangdong, China.

## Declarations

The information marked ▲ is provided by the applicant, the laboratory is not responsible for its authenticity and this information can affect the validity of the result in the test report.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.

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Each test item follows test standards and with no deviation.

## Technical Requirements Specification in EN IEC 62311 & BS EN IEC 62311

### General Description of Applied Standards

In general, the basic restrictions shall be used as exposure limits for the assessment of compliance. However, in most cases reference levels are used as limits. Such reference levels for exposure to electric, magnetic and electromagnetic fields are derived from the basic restrictions using realistic worst-case assumptions about exposure. If the reference levels are met, then the basic restrictions will also be met; if the reference levels are exceeded, that does not necessarily mean that the basic restrictions are exceeded. In some situations, it may be possible to show compliance with the basic restrictions directly. It may also be possible to derive compliance criteria that allow a simple measurement or calculation to demonstrate compliance with the basic restrictions. Often these compliance criteria can be derived using realistic assumptions about conditions under which exposures from a device may occur, rather than the conservative assumptions that are the basis for the reference levels.

### RF Exposure Evaluation

### Limit:

According to EN 50665:2017 & BS EN 50665:2017, the criteria listed in the below table shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified table 2 of Council Recommendation 1999/519/EC.

Reference levels for electric, magnetic and electromagnetic fields
(0 Hz to 300 GHz, unperturbed rms values)

| Frequency range | E-field strength (V/m) | H-field strength (A/m) | B-field(μT) | Equivalent plane wave power density $S_{eq}(W/m^2)$ |
|---|---|---|---|---|
| 0-1 Hz | - | $3{,}2 \times 10^4$ | $4 \times 10^4$ | - |
| 1-8 Hz | 10 000 | $3{,}2 \times 10^4/f^2$ | $4 \times 10^4/f^2$ | - |
| 8-25 Hz | 10 000 | 4 000/f | 5 000/f | - |
| 0,025-0,8 kHz | 250/f | 4/f | 5/f | - |
| 0,8-3 kHz | 250/f | 5 | 6,25 | - |
| 3-150 kHz | 87 | 5 | 6,25 | - |
| 0,15-1 MHz | 87 | 0,73/f | 0,92/f | - |
| 1-10 MHz | $87/f^{1/2}$ | 0,73/f | 0,92/f | - |
| 10-400 MHz | 28 | 0,073 | 0,092 | 2 |
| 400-2 000 MHz | $1{,}375\ f^{1/2}$ | $0{,}0037\ f^{1/2}$ | $0{,}0046\ f^{1/2}$ | f/200 |
| 2-300 GHz | 61 | 0,16 | 0,20 | 10 |

Notes:

1. f as indicated in the frequency range column.

## Test method

**Far Field:**
The antenna of the product, under normal use condition is at least 20cm away from the body of the user. So, this product under normal use is located on electromagnetic far field between the human body.

**Far Field Calculation Formula**

$$E = \frac{\sqrt{30PG(\theta,\phi)}}{r}$$

Where:
P= Tune-up average conducted power
G= antenna gain relative to an isotropic antenna
$\theta,\phi$ = elevation and azimuth angles to point of investigation
r= distance from observation point to the antenna

**Equivalent plane wave power density:**

**Equivalent plane wave power density Seq Calculation Formula**

Power density Seq= PG/(4 π $r^2$)

Where:
P= Tune-up average conducted power
G= antenna gain relative to an isotropic antenna
r= distance from observation point to the antenna

**Exposure from sources with multiple frequencies:**

For ICNIRP there are two separate summation regimes of different frequencies: 1 Hz to 10 MHz for stimulation effects and 100 kHz to 300 GHz for thermal effects. Additivity should be examined separately for the effects of thermal and electrical stimulation, and the basic restrictions should be met.
All values and formulas in this clause are based on the ICNIRP 1998 Guidelines [2]. The quantities are RMS values.

**Basic restrictions – ICNIRP Guidelines 1998**

In this frequency range, the exposure standard is based on the avoidance of thermal effects.The basic restrictions are on *SAR* and power density, and summation of these quantities should follow the formula:

$$\sum_{i=100\text{kHz}}^{10\text{GHz}} \frac{SAR_i}{SAR_L} + \sum_{i>10\text{GHz}}^{300\text{GHz}} \frac{S_i}{S_L} \leq 1$$

where
$SAR_i$ is the *SAR* caused by exposure at frequency *i*;
$SAR_L$ is the *SAR* basic restriction;
$S_i$ is the power density at frequency *i*;
$S_L$ is the power density basic restriction.

The values of *SAR* in the above formula can be for the whole body or part of the body. Values of partial-body *SAR* should be summed together; whole-body *SAR* should be summed together. Partial-body should not be summed with whole-body.

**Field reference levels – ICNIRP Guidelines 1998**

Exposure field strengths can be compared to the reference levels on a sum square basis:

$$\sum_{i=100\text{kHz}}^{1\text{MHz}} \left( \frac{E_i}{c} \right)^2 + \sum_{i>1\text{MHz}}^{300\text{GHz}} \left( \frac{E_i}{E_{\text{L},i}} \right)^2 \leq 1$$

and

$$\sum_{i=100\text{kHz}}^{1\text{MHz}} \left( \frac{H_i}{d} \right)^2 + \sum_{i>1\text{MHz}}^{300\text{GHz}} \left( \frac{H_i}{H_{\text{L},i}} \right)^2 \leq 1$$

where
$E_i$ is the electric field strength at frequency $i$;
$E_{\text{L},i}$ is the electric field reference level;
$H_i$ is the magnetic field strength at frequency $i$;
$H_{\text{L},i}$ is the magnetic field reference level;
$c$ is $610/f$ V/m ($f$ in MHz) for occupational exposure and $87/f^{1/2}$ V/m ($f$ in MHz) for general public exposure;
$d$ is $1{,}6/f$ A/m ($f$ in MHz) for occupational exposure and $0{,}73/f$ A/m ($f$ in MHz) for general public exposure.

NOTE The values $c$ and $d$ are only examples.

**Test Data** (Far Field Calculation)

| RF Mode | Frequency | Maximum Measured Power (EIRP) | Tune-up power (EIRP)▲ | E-Field Strength | Limit | Result |
|---|---|---|---|---|---|---|
| | (MHz) | (dBm) | (dBm) | (V/m) | (V/m) | |
| Wi-Fi 2.4G | 2412-2472 | 19.97 | 20 | 8.66 | 61 | Pass |
| Wi-Fi 5.2G | 5180-5240 | 21.154 | 22 | 10.9 | 61 | Pass |
| Wi-Fi 5.3G | 5260-5320 | 21.356 | 22 | 10.9 | 61 | Pass |
| Wi-Fi 5.6G | 5500-5700 | 20.468 | 21 | 9.72 | 61 | Pass |
| Wi-Fi 5.8G | 5745-5825 | 13.971 | 13.98 | 4.33 | 61 | Pass |

***Note:***

1. **General Public/Uncontrolled Environment Exposure Limits** applied to the EUT;
2. The distance from observation point to the antenna is 20cm.
3. The **Tune-up Power** was provided by the applicant, which not exceed 2dB of the test data.

**Conclusion:** Compliant

# EXHIBIT A – EUT PHOTOGRAPHS

For photos in this section, please refer to report No.: 2602P42655E-22A EXHIBIT A.

# DECLARATION OF SIMILARITY LETTER

Renesas Design Korea Inc.
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## DECLARATION OF SIMILARITY

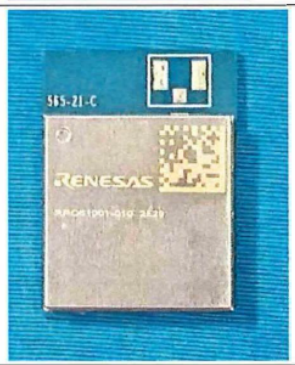
Date: 2026-01-19

To whom it may concern

Dear Sir or Madam:

We, Renesas Design Korea Inc., hereby declare that the product, named RRQ61001 Module, model RRQ61001-010 is electrically similar with the model RRQ61001-009 which was tested by Bay Area Compliance Laboratories Corp.(Dongguan).

The differences between those models and that are declared similar are as follows:

| Model | Difference | | Other |
|---|---|---|---|
| RRQ61001-009 |  | With external antenna port | Only the different model name and with or without external antenna port. The software is same. |
| RRQ61001-010 |  | Without external antenna port | |

Please contact me should there be need for any additional clarification or information.

Best Regards,

Signature:
Printed Name: Kui Nam Kim
Title: Vice President

*******END OF REPORT*******