

TEST REPORT

Application No.: SEWM2306000197RG
Applicant: Quectel Wireless Solutions Co., Ltd.
Address of Applicant: Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai, China 200233
Manufacturer: Quectel Wireless Solutions Co., Ltd.
Address of Manufacturer: Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai, China 200233
EUT Description: Wi-Fi & Bluetooth Module
Model No.: FCS950R
Trade Mark: Quectel
FCC ID: XMR2023FCS950R
Standards: 47 CFR Part 2.1091
 FCC KDB 447498 D01 v06
Date of Receipt: 2023/06/13
Date of Issue: 2023/07/13

| | |
|---------------------|--------------|
| Test Result: | PASS* |
|---------------------|--------------|

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Well Wei
 Wireless Laboratory Manager



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Report No.: SEWM2306000197RG06

Rev.: 01

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1 Version

| Revision Record | | | | |
|-----------------|---------|------------|----------|----------|
| Version | Chapter | Date | Modifier | Remark |
| 01 | | 2023/07/13 | | Original |

| | | |
|--------------------|--|-------------------------------------|
| Prepared By | | <hr/> (Nick Hu) / Test Engineer |
| Checked By | | <hr/> (Stone Gu) / Reviewer |



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2 General Information

2.1 Client Information

| | |
|--------------------------|---|
| Applicant: | Quectel Wireless Solutions Co., Ltd. |
| Address of Applicant: | Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai, China 200233 |
| Manufacturer: | Quectel Wireless Solutions Co., Ltd. |
| Address of Manufacturer: | Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai, China 200233 |

2.2 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

• **A2LA (Certificate No. 6336.01)**

SGS-CSTC STANDARDS TECHNICAL SERVICES (SUZHOU) CO., LTD. is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 6336.01.

• **Innovation, Science and Economic Development Canada**

SGS-CSTC STANDARDS TECHNICAL SERVICES (SUZHOU) CO., LTD. has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0120.

IC#: 27594.

• **FCC –Designation Number: CN1312**

SGS-CSTC STANDARDS TECHNICAL SERVICES (SUZHOU) CO., LTD. has been recognized as an accredited testing laboratory.

Designation Number: CN1312.

Test Firm Registration Number: 717327



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2.3 General Description of EUT

| | |
|-------------------|---|
| EUT Description: | Wi-Fi & Bluetooth Module |
| Model No.: | FCS950R |
| Trade Mark: | Quectel |
| Hardware Version: | R1.0 |
| Software Version: | NA |
| Antenna Type: | Dipole Antenna |
| Antenna Gain: | BT/BLE: 0.73dBi (Ant0) |
| | 2.4GWIFI: 0.73dBi (Ant0) |
| | 5150MHz to 5250MHz: 1.14dBi (Ant0); |
| | 5250MHz to 5350MHz: 1.14dBi (Ant0); |
| | 5470MHz to 5725MHz: 1.14dBi (Ant0); |
| | 5725MHz to 5850MHz: 1.14dBi (Ant0); |
| | Note: The antenna gain are derived from the gain information report provided by the manufacturer. |
| Remark: | As above information is provided and confirmed by the applicant. SGS is not liable to the accuracy, suitability, reliability or/and integrity of the information. |



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3 RF Exposure Evaluation

3.1 RF Exposure Compliance Requirement

3.1.1 Limits

| Frequency range (MHz) | Electric field strength (V/m) | Magnetic field strength (A/m) | Power density (mW/cm ²) | Averaging time (minutes) |
|--|-------------------------------|-------------------------------|-------------------------------------|--------------------------|
| (A) Limits for Occupational/Controlled Exposures | | | | |
| 0.3-3.0 | 614 | 1.63 | *(100) | 6 |
| 3.0-30 | 1842/f | 4.89/f | *(900/f ²) | 6 |
| 30-300 | 61.4 | 0.163 | 1.0 | 6 |
| 300-1500 | / | / | f/300 | 6 |
| 1500-100,000 | / | / | 5 | 6 |
| (B) Limits for General Population/Uncontrolled Exposure | | | | |
| 0.3-1.34 | 614 | 1.63 | *(100) | 30 |
| 1.34-30 | 824/f | 2.19/f | *(180/f ²) | 30 |
| 30-300 | 27.5 | 0.073 | 0.2 | 30 |
| 300-1500 | / | / | f/1500 | 30 |
| 1500-100,000 | / | / | 1.0 | 30 |

F=frequency in MHz

*=Plane-wave equivalent power density

RF exposure compliance will need to be determined with respect to 1.1307(c) and (d) of the FCC rules. The emissions should be within the limits at 300kHz in Table 1 of 1.1310(use the 300kHz limits for 150kHz:614V/m,1.63A/m).

Friis Formula

Friis transmission formula: $Pd = (Pout * G) / (4 * \pi * R^2)$

Where

Pd = power density in mW/cm²

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

R = distance between observation point and center of the radiator in cm

Pd is the limit of MPE, 1 mW/cm². If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.



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3.1.2 Test Procedure

Software provided by client enabled the EUT to transmit data at lowest, middle and highest channel individually

3.1.3 EUT RF Exposure Evaluation

Output Power Into Antenna & RF Exposure Evaluation Distance:

This confirmed that the device comply with MPE limit.

| Operating Band | Frequency (MHz) | Antenna Gain (dBi) | Max Conducted Power (dBm) | EIRP(ERP) (dBm) | EIRP(ERP) Limit (dBm) | Power Density at R = 20 cm (mW/cm2) | Limit (mW/cm2) | Gain according to EIRP(ERP) (dBi) | Gain according to Pd (dBi) | Max Gain Allowed (dBi) | conclusion |
|----------------|-----------------|--------------------|---------------------------|-----------------|-----------------------|-------------------------------------|----------------|-----------------------------------|----------------------------|------------------------|------------|
| BT | 2402.0 | 0.73 | 10.50 | 11.23 | 30.00 | 0.0026 | 1.0000 | NA | NA | NA | Pass |
| 2.4GWIFI | 2412.0 | 0.73 | 23.50 | 24.23 | 30.00 | 0.0527 | 1.0000 | NA | NA | NA | Pass |
| 5GWIFI | 5180.0 | 1.14 | 18.50 | 19.64 | 30.00 | 0.0183 | 1.0000 | NA | NA | NA | Pass |

---End of Report---



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