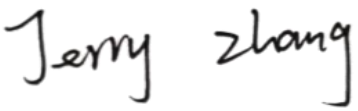
RF Test Report

Applicant:	Quectel Wireless Solutions Co., Ltd.
Address:	Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai, 200233 China
Product:	Wi-Fi & Bluetooth Module
Model No.:	FGS061N
Brand Name:	QUECTEL
FCC ID:	XMR2024FGS061N
Standards:	FCC CFR47 Part 2.1091 FCC KDB 447498 D01 v06
Report No.:	PD20240082RF13
Issue Date:	2024/07/27
Test Result:	PASS *

* **Testing performed at Hefei Panwin Technology Co., Ltd. on the above equipment indicates the product meets the requirements of the relevant standards.**



Reviewed By: Jerry Zhang **Approved By:** Alec Yang

Hefei Panwin Technology Co., Ltd.

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Revision History

Report No.	Version	Description	Issue Date	Note
PD20240082RF13	01	Initial Report	2024/07/27	Valid

Remark:

• The samples tested have been evaluated in accordance with 47 CFR Part 2.1091 and FCC KDB 447498 D01 v06, and have been proven to meet the applicable limit requirements.

CONTENTS

1 Test Laboratory

1.1 Notes of the Test Report

This report is invalid without signature of auditor and approver or with any alterations. The report shall not be partially reproduced without written approval of the testing company. Entrusted test results are only responsible for incoming samples. If there is any objection to the testing report, it shall be raised to the testing company within 15 days from the date of receiving the report. In the test results, "NA" means "not applicable", and the test items marked with "Δ" are subcontracted projects.

1.2 Testing Laboratory

Company Name	Hefei Panwin Technology Co., Ltd.
Address	Floor 1, Zone E, Plant 2#, Mingzhu Industrial Park, No.106 Chuangxin Avenue, High-tech Zone, Hefei City, Anhui Province,China
Telephone	+86-0551-63811775
Post Code	230031

2 General Description of Equipment under Test

2.1 Details of Application

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

2.2 Details of EUT

Product	Wi-Fi & Bluetooth Module
Model	FGS061N
HW Version	R1.0
SW Version	/
Antenna Type	External Antenna
Mode of Operation	Bluetooth Bluetooth LE Wi-Fi 2.4G Wi-Fi 5G
Max. Conducted Power	Bluetooth: 9.77dBm Bluetooth LE: 9.44dBm Wi-Fi 2.4G: 18.20dBm Wi-Fi 5G: 19.00dBm
Max Gain	Bluetooth & Bluetooth LE & Wi-Fi 2.4G: 0.20dBi Wi-Fi 5G: 5150MHz to 5250MHz: -0.70dBi Wi-Fi 5G: 5250MHz to 5350MHz: -0.80dBi Wi-Fi 5G: 5470MHz to 5725MHz: -1.20dBi Wi-Fi 5G: 5725MHz to 5850MHz: -1.50dBi
Rated Power Supply Voltage	Typical 3.3Vdc
Note : The declared of product specification for EUT and/or Antenna presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.	

3 Test Condition

3.1 Laboratory Environment

Temperature	Min.= 18℃, Max.=25℃
Relative Humidity	Min.= 30%, Max.=70%
Ground System Resistance	< 1 Ω

- Ambient noise is checked and found very low and in compliance with requirement of standards.
- Reflection of surrounding objects is minimized and in compliance with requirement of standards.

4 Maximum Permissible Exposure (EMF)

According to ANSI/IEEE C95.1-1992, the criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio frequency (RF) radiation as specified in §1.1310.

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/f2)	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/f2)	30
30-300	27.5	0.073	0.2	30
300-1500			f/1500	30
1500-100,000			1.0	30

The MPE was calculated at 20 cm to show compliance with the power density limit.
The following formula was used to calculate the Power Density:

$$S = PG/ 4\Pi R^2$$

Where:

S = Power density (in appropriate units, e.g. mW/cm^2)

P = Time-average maximum tune up procedure (in appropriate units, e.g., mW)

G = The numeric gain of the antenna

R = Distance to the center of radiation of the antenna (20 cm = limit for MPE)

Appendix A – Test Results

A.1 Maximum Measured Conducted Output Power and Antenna Gain

Band	TX Freq. (MHz)	Max. Conducted Power (dBm)	Antenna Gain (dBi)
Bluetooth	2402 to 2480	9.77	0.20
Wi-Fi 2.4G	2412 to 2462	18.20	0.20
Wi-Fi 5G	5150 to 5850	19.00	-0.70

A.2 Test Results of Maximum Permissible Exposure

Band	Max. Conducted Power (dBm)	Antenna Gain (dBi)	Maximum EIRP(dBm)	PG (mW)	Test Result (mW/cm^2)	Limit Value (mW/cm^2)	Result Ratio
Bluetooth	9.77	0.20	9.97	9.93	0.002	1.000	0.002
Wi-Fi 2.4G	18.20	0.20	18.40	69.18	0.014	1.000	0.014
Wi-Fi 5G	19.00	-0.70	18.30	67.61	0.013	1.000	0.013

According to the EUT characteristic,the simultaneous transmitting antenna pairs as below:

The EMF Ratio = **Test Result** / **Limit Value**

∑ **of EMF Ratios** = Bluetooth + Wi-Fi 5G
= 0.002 + 0.013 = 0.015 < 1

Note : For mobile or fixed location transmitters, minimum separation distance is 20cm, even if calculations indicate EMF distance is less.

Conclusion:
According to 47 CFR §2.1091, the RF exposure analysis concludes that the RF Exposure is FCC compliant.

Appendix B – The EUT Appearance

Refer to “Attachment A.1: External Photograph” and “ Attachment A.2: Internal Photograph” file.

****** End of the Report ******