

## MPE TEST REPORT

<b>Applicant</b>	Quectel Wireless Solutions Company Limited
<b>FCC ID</b>	XMR202507FC20
<b>Product</b>	Wi-Fi & Bluetooth Module
<b>Brand</b>	Quectel
<b>Marketing Name</b>	Quectel FC20
<b>Model</b>	FC20
<b>Report No.</b>	EFTA25040033-IE-13-M1
<b>Issue Date</b>	July 21, 2025

Eurofins TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **§2.1091 and FCC 47 CFR Part 1 1.1310**. The test results show that the equipment tested can demonstrate the compliance with the requirements as documented in this report.

*Prepared by: Wei Fangying*

*Approved by: Xu Kai*

**Eurofins TA Technology (Shanghai) Co., Ltd.**

*Building 3, No.145, Jintang Rd, Pudong Shanghai, P.R.China*

*TEL: +86-021-50791141/2/3*

*FAX: +86-021-50791141/2/3-8000*

## Table of Contents

1	Test Laboratory .....	3
1.1	Notes of the Test Report.....	3
1.2	Test Facility .....	3
1.3	Testing Location.....	3
1.4	Laboratory Environment .....	3
2	Description of Equipment Under Test .....	4
3	Maximum Output Power and Tune Up.....	5
4	MPE Limit.....	6
5	RF Exposure Evaluation Result.....	8
	ANNEX A: The EUT Appearance .....	9

## 1 Test Laboratory

### 1.1 Notes of the Test Report

This report shall not be reproduced in full or partial, without the written approval of **Eurofins TA Technology (Shanghai) Co., Ltd.** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of the applicable standards stated above.

### 1.2 Test Facility

#### FCC (Designation number: CN1179, Test Firm Registration Number: 446626)

Eurofins TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform measurements.

### 1.3 Testing Location

Company: Eurofins TA Technology (Shanghai) Co., Ltd.  
Address: Building 3, No.145, Jintang Rd, Pudong Shanghai, P.R.China  
City: Shanghai  
Post code: 201201  
Country: P. R. China  
Contact: Xu Kai  
Telephone: +86-021-50791141/2/3  
Fax: +86-021-50791141/2/3-8000  
Website: <https://www.eurofins.com/electrical-and-electronics>  
E-mail: Kain.Xu@cpt.eurofinscn.com

### 1.4 Laboratory Environment

Temperature	Min. = 18°C, Max. = 25°C
Relative humidity	Min. = 20%, Max. = 80%
Ground system resistance	< 0.5 $\Omega$
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.	

## 2 Description of Equipment Under Test

### Client Information

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

### General Technologies

EUT Description			
Model	FC20		
IMEI	MP824DK0H001102		
Hardware Version	R1.2		
Software Version	NA		
Frequency	Band	TX (MHz)	RX (MHz)
	Wi-Fi 2.4G	2400 ~ 2483.5	2400 ~ 2483.5
	Wi-Fi 5GHz (U-NII-1)	5150 ~ 5250	5150 ~ 5250
	Wi-Fi 5GHz (U-NII-2A)	5250 ~ 5350	5250 ~ 5350
	Wi-Fi 5GHz (U-NII-2C)	5470 ~ 5725	5470 ~ 5725
	Wi-Fi 5GHz (U-NII-3)	5725 ~ 5850	5725 ~ 5850
	Bluetooth	2400 ~ 2483.5	2400 ~ 2483.5
	Bluetooth LE	2400 ~ 2483.5	2400 ~ 2483.5
Date of Testing	July 1, 2025 ~ July 3, 2025		
Date of Sample Received	July 1, 2025		
Note: 1. The EUT is sent from the applicant to Eurofins TA and the information of the EUT is declared by the applicant. 2. All indications of Pass/Fail in this report are opinions expressed by Eurofins TA Technology (Shanghai) Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only.			

### 3 Maximum Output Power and Tune Up

Band	Maximum Output Power		Maximum Tune Up(dBm)
	(dBm)	(mW)	
Wi-Fi 2.4G	18.300	67.608	20.000
Wi-Fi 5GHz (U-NII-1)	15.350	34.277	17.000
Wi-Fi 5GHz (U-NII-2A)	15.500	35.481	17.000
Wi-Fi 5GHz (U-NII-2C)	15.020	31.769	17.000
Wi-Fi 5GHz (U-NII-3)	14.650	29.174	17.000
Bluetooth	9.130	8.185	10.000
Bluetooth LE	-2.810	0.524	1.000

## 4 MPE Limit

According to section 1.1310 of FCC 47 CFR Part 1, limits for maximum permissible exposure (MPE) are as following.

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm <sup>2</sup> )	Averaging time (minutes)
(i) LIMITS FOR OCCUPATIONAL/CONTROLLED EXPOSURE				
0.3-3.0	614	1.63	*(100)	≤6
3.0-30	1842/f	4.89/f	*(900/f <sup>2</sup> )	<6
30-300	61.4	0.163	1.0	<6
300-1,500			f/300	<6
1,500-100,000			5	<6
(ii) 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 <sup>2</sup> )	<30
30-300	27.5	0.073	0.2	<30
300-1,500			f/1500	<30
1,500-100,000			1.0	<30

*f = frequency in MHz. \* = Plane-wave equivalent power density.*

Note1. Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational / controlled limits apply provided he or she is made aware of the potential for exposure.

Note2: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

The maximum permissible exposure for 1500~100,000MHz is 1.0. So

Band	The Maximum Permissible Exposure (mW/cm <sup>2</sup> )
Wi-Fi 2.4GHz	1.000
Wi-Fi 5GHz	1.000
Bluetooth	1.000
Bluetooth LE	1.000

## 5 RF Exposure Evaluation Result

RF exposure evaluation method is based on KDB 447498 D01, this calculation is based on the conducted power, maximum power and antenna gain with provides the minimum separation distance. The formula shown below is from OET Bulletin 65 Edition 97-01 Per KDB 447498 D01:

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

Where: S = power density (in appropriate units, e.g. mW/cm<sup>2</sup>)

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)

Band	Maximum Tune Up (dBm)	Antenna Gain (dBi)	PG (mW)	Result (mW/cm <sup>2</sup> )	Limit Value (mW/cm <sup>2</sup> )	Conclusion
Wi-Fi 2.4G	20.000	0.470	20.470	0.222	1.0000	Pass
Wi-Fi 5GHz (U-NII-1)	17.000	-0.760	16.240	0.084	1.0000	Pass
Wi-Fi 5GHz (U-NII-2A)	17.000	-0.190	16.810	0.095	1.0000	Pass
Wi-Fi 5GHz (U-NII-2C)	17.000	1.280	18.280	0.134	1.0000	Pass
Wi-Fi 5GHz (U-NII-3)	17.000	1.100	18.100	0.128	1.0000	Pass
Bluetooth	10.000	0.470	10.470	0.022	1.0000	Pass
Bluetooth LE	1.000	0.470	1.470	0.003	1.0000	Pass
Note: R = 20cm π= 3.1416						

Note: For transmitters, minimum separation distance is 20cm, even if calculations indicate MPE distance is less.



## ANNEX A: The EUT Appearance

The EUT Appearance are submitted separately.

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