



RF Exposure Evaluation Declaration

FCC ID: XMR2022EM120KGL
Applicant: Quectel Wireless Solutions Company Limited
Product: LTE-A Cat 12 M.2 Module
Model No.: EM120K-GL
Brand Name: Quectel
FCC Rule Part(s) FCC Part 2.1091

Reviewed By:

Sunny Sun

Approved By:

Robin Wu



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standards through the calibration of the equipment and evaluated measurement uncertainty herein.

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Revision History

Report No.	Version	Description	Issue Date	Note
2203RSU046-U7	Rev. 01	Initial Report	2022-05-28	Valid

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1. GENERAL INFORMATION

1.1. Applicant

Quectel Wireless Solutions Company Limited

Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai,
China 200233

1.2. Manufacturer

Quectel Wireless Solutions Company Limited

Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai,
China 200233

1.3. Testing Facility

☒	Test Site - MRT Suzhou Laboratory				
	Laboratory Location (Suzhou - Wuzhong)				
	D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China				
	Laboratory Location (Suzhou - SIP)				
	4b Building, Liando U Valley, No.200 Xingpu Rd., Shengpu Town, Suzhou Industrial Park, China				
	Laboratory Accreditations				
A2LA: 3628.01		CNAS: L10551			
FCC: CN1166		ISED: CN0001			
VCCI:	☐ R-20025	☐ G-20034	☐ C-20020	☐ T-20020	
	☐ R-20141	☐ G-20134	☐ C-20103	☐ T-20104	
☐	Test Site - MRT Shenzhen Laboratory				
	Laboratory Location (Shenzhen)				
	1G, Building A, Junxiangda Building, Zhongshanyuan Road West, Nanshan District, Shenzhen, China				
	Laboratory Accreditations				
	A2LA: 3628.02		CNAS: L10551		
FCC: CN1284		ISED: CN0105			
☐	Test Site - MRT Taiwan Laboratory				
	Laboratory Location (Taiwan)				
	No. 38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)				
	Laboratory Accreditations				
	TAF: L3261-190725		ISED: TW3261		

1.4. Product Information

Product Name	LTE-A Cat 12 M.2 Module
Model No.	EM120K-GL
Brand Name	Quectel
IMEI	861293060003570
UTRA Specification	Band 2, 4, 5
E-UTRA Specification	FDD Band: 2, 4, 5, 7, 12, 13, 14, 17, 25, 26, 30, 66, 71 TDD Band: 38, 41, 46
GNSS Specification	GPS, GLONASS, Bei Dou, Galileo
Supply Voltage	3.135 ~ 4.4Vdc, typical 3.7Vdc
Operating Temperature:	-25 ~ 75 °C
Remark: The information of EUT was provided by the manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer.	

2. RF Exposure Evaluation

2.1. Limits

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Average Time (Minutes)
(A) Limits for Occupational/ Control Exposures				
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6
(B) Limits for General Population/ Uncontrolled Exposures				
300-1500	--	--	f/1500	6
1500-100,000	--	--	1	30

f= Frequency in MHz

Calculation Formula: $P_d = (P_{out} * G) / (4 * \pi * r^2)$

Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

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

P_d is the limit of MPE, 1mW/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.

2.2. Test Result of RF Exposure Evaluation

Product	LTE-A Cat 12 M.2 Module
Test Item	RF Exposure Evaluation

Test Mode	Frequency Band (MHz)	Tune-up Power (dBm)	Antenna Gain (dBi)	ERP (dBm)	Power Density at 20cm (mW/cm ²)	Limit (mW/cm ²)
LTE Band 2	1850 ~ 1910	25.00	8.00	30.85	0.2420	1.0000
LTE Band 4	1710 ~ 1755	25.00	8.00	30.85	0.1213	1.0000
LTE Band 5	824 ~ 849	25.00	5.00	27.85	0.2420	0.5493
LTE Band 7	2500 ~ 2570	25.00	8.00	30.85	0.1213	1.0000
LTE Band 12	699 ~ 716	25.00	5.00	27.85	0.1213	0.4660
LTE Band 13	777 ~ 787	25.00	5.00	27.85	0.1213	0.5180
LTE Band 14	788 ~ 798	25.00	5.00	27.85	0.1213	0.5253
LTE Band 17	704~ 716	25.00	5.00	27.85	0.2420	0.4693
LTE Band 25	1850 ~ 1915	25.00	8.00	30.85	0.1213	1.0000
LTE Band 26	814~849	25.00	5.00	27.85	0.2420	0.5427
LTE Band 30	2305 ~ 2315	25.00	8.00	30.85	0.2420	1.0000
LTE Band 38	2570 ~ 2620	25.00	8.00	30.85	0.2420	1.0000
LTE Band 41	2496 ~ 2690	25.00	8.00	30.85	0.2420	1.0000
LTE Band 66	1710 ~ 1780	25.00	8.00	30.85	0.1213	1.0000
LTE Band 71	663 ~ 698	25.00	5.00	27.85	0.3046	0.4420
WCDMA B2	1850 ~ 1910	26.00	8.00	31.85	0.3046	1.0000
WCDMA B4	1710 ~ 1755	26.00	8.00	31.85	0.1527	1.0000
WCDMA B5	824 ~ 849	26.00	5.00	28.85	0.2420	0.5493

Note: ERP = Tune-up power + Antenna Gain - 2.15.

Appendix A – EUT Photograph

Refer to “2203RSU046-UE” file.

The End