TEST REPORT

Application No.:	SEWA2205000015RG
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:	5G Module
Model No.:	AG550Q-NA
Trade Mark:	Quectel
FCC ID:	XMR2022AG550QNA
Standards:	47 CFR Part 2.1091 FCC KDB 447498 D01 v06
Date of Receipt:	2022/06/10
Date of Issue:	2022/07/18
Test Result:	**PASS***

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

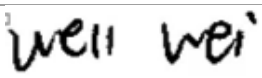
Authorized Signature:

Panta Sun

Panta Sun
Wireless Laboratory Manager

1 Version

Revision Record				
Version	**Chapter**	**Date**	**Modifier**	**Remark**
01		2022/07/18		Original

Prepared By		 **(Weller Liu) / Test Engineer**
Checked By		 **(Well Wei) / 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

2.3 General Description of EUT

EUT Description:	5G Module			
Model No.:	AG550Q-NA			
Trade Mark:	Quectel			
Hardware Version:	R1.0			
Software Version:	AG550QNAABR03A03M8G_OCPU			
Antenna Type:	External Antenna			
Antenna Gain*:	☒Provided by client			
	GSM1900:	0dBi(ANT0)		
	WCDMA Band II:	0dBi(ANT0)	WCDMA Band IV:	0.3dBi(ANT0)
	WCDMA Band V:	-0.42dBi(ANT0)		
	LTE Band 2:	0dBi(ANT0)	LTE Band 4:	0.3dBi(ANT0)
	LTE Band 5:	-0.42dBi(ANT0)	LTE Band 7:	0.42dBi(ANT0)
	LTE Band 12:	0.97dBi(ANT0)	LTE Band 13:	1.45dBi(ANT0)
	LTE Band 14:	1.18dBi(ANT0)	LTE Band 17:	0.97dBi(ANT0)
	LTE Band 25:	0.36dBi(ANT0)	LTE Band 26:	-0.42dBi(ANT0)
	LTE Band 41:	1.58dBi(ANT0)	LTE Band 48:	-3.65dBi(ANT1)
	LTE Band 66:	0.39dBi(ANT0)	LTE Band 71:	0.24dBi(ANT0)
	NR Band n2:	0dBi(ANT0)	0dBi(ANT2)	
	NR Band n5:	-0.42dBi(ANT0)		
	NR Band n25:	0.36dBi(ANT0)	0.36dBi(ANT2)	
	NR Band n41:	1.58dBi(ANT2)		
	NR Band n48:	-3.65dBi(ANT1)		
	NR Band n66:	0.39dBi(ANT0)	0.39dBi(ANT2)	
	NR Band n71:	0.24dBi(ANT0)		
	NR Band n77:	-3.65dBi(ANT2)		
	NR Band n78:	-3.65dBi(ANT2)		
ENDC:	ENDC: DC_2A-n5A, DC_2A-n78A, DC_5A-n78A, DC_7A-n78A, DC_12A-n78A, DC_13A-n2A, DC_13A-n66A, DC_66A-n2A, DC_66A-n5A, DC_66A-n78A, DC_2A-n77A, DC_5A-n77A, DC_7A-n77A, DC_12A-n77A, DC_66A-n77A, DC_2A_n66A, DC_5A_n66A, DC_12A_n66A			

Note: *Since the above data and/or information is provided by the client relevant results or conclusions of this report are only made for these data and/or information, SGS is not responsible for the authenticity, integrity and results of the data and information and/or the validity of the conclusion.
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.

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/cm2)	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

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 id 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.

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

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 2.0 / 2.0 in linear scale.
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 Average Output Power (dBm)	Output Power to Antenna (dBm)	EIRP(ERP) Limit (dBm)	Output Power to Antenna (mw)	Power Density at R = 20 cm (mW/cm2)	Limit (mW/cm2)	Gain according to EIRP (dBi)	Gain according to Pd (dBi)	Max Gain Allowed (dBi)	conclusion
GSM1900	1850.2	0	32.00	32.00	33.00	1584.8932	0.3153	1.0000	1.00	5.01	1.00	Pass
WCDMA Band II	1852.4	0	25.00	25.00	33.00	316.2278	0.0629	1.0000	8.00	12.01	8.00	Pass
WCDMA Band IV	1712.4	0.3	25.00	25.30	30.00	316.2278	0.0674	1.0000	5.00	12.01	5.00	Pass
WCDMA Band V	826.4	-0.42	25.00	24.58	38.45	316.2278	0.0571	0.5509	13.45	9.42	9.42	Pass
LTE B2/n2	1850.7	0.00	25.00	25.00	33.00	316.2278	0.0629	1.0000	8.00	12.01	8.00	Pass
LTE B4	1710.7	0.00	25.00	25.00	30.00	316.2278	0.0629	1.0000	5.00	12.01	5.00	Pass
LTE B5/n5	824.70	-0.42	25.00	24.58	38.45	316.2278	0.0571	0.5498	13.45	9.41	9.41	Pass
LTE B7	2502.50	0.42	25.00	25.42	33.00	316.2278	0.0693	1.0000	8.00	12.01	8.00	Pass
LTE B12	699.70	0.97	25.00	25.97	34.77	316.2278	0.0787	0.4665	9.77	8.70	8.70	Pass
LTE B13	779.50	1.45	25.00	26.45	34.77	316.2278	0.0878	0.5197	9.77	9.16	9.16	Pass
LTE B14	790.5	1.18	25.00	26.18	34.77	316.2278	0.0826	0.5270	9.77	9.23	9.23	Pass
LTE B17	706.5	0.97	25.00	25.97	34.77	316.2278	0.0787	0.4710	9.77	8.74	8.74	Pass
LTE B25/n25	1850.7	0.36	25.00	25.36	33.00	316.2278	0.0683	1.0000	8.00	12.01	8.00	Pass
LTE B26(814-824)	814.7	-0.42	25.00	24.58	NA	316.2278	0.0571	0.5431	NA	9.36	9.36	Pass
LTE B26(824-849)	824.7	-0.42	25.00	24.58	38.45	316.2278	0.0571	0.5498	13.45	9.41	9.41	Pass
LTE B41	2498.5	1.58	25.00	26.58	33.00	316.2278	0.0905	1.0000	8.00	12.01	8.00	Pass
LTE B48/n48	3552.5	-3.65	25.00	21.35	23.00	316.2278	0.0271	1.0000	-2.00	12.01	-2.00	Pass
LTE B66/n66	1710.7	0.39	25.00	25.39	30.00	316.2278	0.0688	1.0000	5.00	12.01	5.00	Pass
LTE B71/n71	665.5	0.24	25.00	25.24	34.77	316.2278	0.0665	0.4437	9.77	8.48	8.48	Pass
NR Band n41	2506.02	1.58	27.00	28.58	33.00	501.1872	0.1435	1.0000	6.00	10.01	6.00	Pass
NR Band n77	3455.01	-3.65	27.00	23.35	30.00	501.1872	0.0430	1.0000	3.00	10.01	3.00	Pass
NR Band n78	3460.02	-3.65	27.00	23.35	30.00	501.1872	0.0430	1.0000	3.00	10.01	3.00	Pass

Due to the EUT support NR ENDC
Both LTE and NR/LTE band can transmit simultaneously, the formula of the calculated the MPE is:

$$\sum_{i=1}^{n} \frac{S_{E_i}(duty\,factor)}{MPE_{E_i}} < 1$$

NOTE The corresponding MEs must be expressed in terms of power density in the above summation
Therefore, the worst-case(DC_13A-n66A) situation is 0.1689+0.0688=0.2377,which is less than “1”， this confirmed
that the device comply with MPE limit.

---End of Report---

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