

# FCC RF EXPOSURE REPORT

## FCC ID: XMR2019SC650TNA

**Project No.** : 2001H013  
**Equipment** : Smart Module  
**Brand Name** : QUECTEL  
**Test Model** : SC650T-NA  
**Series Model** : N/A  
**Applicant** : Quectel Wireless Solutions Co., Ltd.  
**Address** : 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** : Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai, China 200233.  
**Date of Receipt** : Jan. 15, 2020  
**Date of Test** : Jan. 15, 2020~Feb. 27, 2020  
**Issued Date** : Mar. 16, 2020  
**Report Version** : R00  
**Test Sample** : Engineering Sample No.: SH2020011452  
**Standard(s)** : FCC Guidelines for Human Exposure IEEE C95.1 & FCC Part 2.1091  
FCC Title 47 Part 2.1091, OET Bulletin 65 Supplement C

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc.

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## REPORT ISSUED HISTORY

Report Version	Description	Issued Date
R00	Original Issue	Mar. 16, 2020

### 1. MPE CALCULATION METHOD

Calculation Method of RF Safety Distance:

$$S = \frac{PG}{4\pi r^2} = \frac{EIRP}{4\pi r^2}$$

where:

S = power density

P = power input to the antenna

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna

Table for Filed Antenna

#### For 2.4G Wifi

Ant.	Brand	Model Name	Antenna Type	Connector	Gain(dBi)
1	Saintenna	SAA31092A	Dipole	IPEX	5.38

#### For 5G Wifi

Ant.	Brand	Model Name	Antenna Type	Connector	Gain(dBi)
1	Saintenna	SAA31092A	Dipole	IPEX	5.05

#### For BT:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	Saintenna	SAA31092A	Dipole	IPEX	5.38

#### For LE

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	Saintenna	SAA31092A	Dipole	IPEX	5.38

#### For LTE Band 2

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	Saintenna	SAA30968A	Dipole	IPEX	1.59

#### For LTE Band 4

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	Saintenna	SAA30968A	Dipole	IPEX	2

**For LTE Band 5**

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	Saintenna	SAA30968A	Dipole	IPEX	2.53

**For LTE Band 7**

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	Saintenna	SAA30968A	Dipole	IPEX	3

**For LTE Band 12**

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	Saintenna	SAA30968A	Dipole	IPEX	3.95

**For LTE Band 13**

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	Saintenna	SAA30968A	Dipole	IPEX	4.45

**For LTE Band 14**

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	Saintenna	SAA30968A	Dipole	IPEX	4.45

**For LTE Band 25**

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	Saintenna	SAA30968A	Dipole	IPEX	1.59

**For LTE Band 26**

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	Saintenna	SAA30968A	Dipole	IPEX	3.19

**For LTE Band 66**

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	Saintenna	SAA30968A	Dipole	IPEX	2

## 2. TEST RESULTS

For BT:

Antenna Gain (dBi)	Antenna Gain (numeric)	Max. Peak Output Power (dBm)	Max. Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
5.38	3.4514	8	6.3096	0.00433	1	Complies

For LE:

Antenna Gain (dBi)	Antenna Gain (numeric)	Max. Peak Output Power (dBm)	Max. Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
5.38	3.4514	4	2.5119	0.00173	1	Complies

For 2.4GHz:

Antenna Gain (dBi)	Antenna Gain (numeric)	Max. Output Power (dBm)	Max. Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
5.38	3.4514	24	251.1886	0.17256	1	Complies

For 5GHz:

Antenna Gain (dBi)	Antenna Gain (numeric)	Max. Output Power (dBm)	Max. Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
5.05	3.1989	19	79.4328	0.05058	1	Complies

For LTE Band 2

Max EIRP (dBm)	Max EIRP (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density S) (mW/cm <sup>2</sup> )	Test Result
26.00	398.1072	0.07924	1	Complies

For LTE Band 4

Max EIRP (dBm)	Max EIRP (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density S) (mW/cm <sup>2</sup> )	Test Result
26.00	398.1072	0.07924	1	Complies

For LTE Band 7

Max EIRP (dBm)	Max EIRP (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density S) (mW/cm <sup>2</sup> )	Test Result
27.00	501.1872	0.09976	1	Complies

For LTE Band 66

Max EIRP (dBm)	Max EIRP (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density S) (mW/cm <sup>2</sup> )	Test Result
27.00	501.1872	0.09976	1	Complies

For LTE Band 25

Max EIRP (dBm)	Max EIRP (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
26.00	398.1072	0.07924	1	Complies

For LTE Band 5

ERP=EIRP-2.15

Max EIRP (dBm)	Max EIRP (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
26.15	412.0975	0.08203	1	Complies

For LTE Band 26

ERP=EIRP-2.15

Max EIRP (dBm)	Max EIRP (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
27.15	518.8000	0.10326	1	Complies

For LTE Band 12

ERP=EIRP-2.15

Max EIRP (dBm)	Max EIRP (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
28.15	653.1306	0.13000	1	Complies

For LTE Band 13

ERP=EIRP-2.15

Max EIRP (dBm)	Max EIRP (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
28.15	653.1306	0.13000	1	Complies

For LTE Band 14

ERP=EIRP-2.15

Max EIRP (dBm)	Max EIRP (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
28.15	653.1306	0.13000	1	Complies

**For the max simultaneous transmission MPE:**

BT+LE+2.4G+5G

Power Density (S) (mW/cm <sup>2</sup> )	Power Density (S) (mW/cm <sup>2</sup> )	Power Density (S) (mW/cm <sup>2</sup> )	Power Density (S) (mW/cm <sup>2</sup> )	Total	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
BT	2.4GHz	5GHz	LTE			
0.00433		0.05058	0.13000	0.18491	1	Complies
0.00433	0.17256		0.13000	0.30689	1	Complies

Note: The calculated distance is 20 cm.  
Output power including tune up tolerance.

**End of Test Report**