



1 Cover Page

RF Exposure Evaluation Report

Application No.: SHEM1910017717CR
FCC ID: YQD-T-PANEL201
Applicant: Queclink Wireless Solutions Co., Ltd.
Address of Applicant: 3F, No. 717 Yishan Road, Xuhui District, Shanghai, China. 200233
Equipment Under Test (EUT):
EUT Name: IoT device
Model No.: T-Panel 201
Trade Mark: ninebot
Standard(s) : FCC Rules 47 CFR §2.1091
 KDB447498 D01 General RF Exposure Guidance v06
 RSS-102 Issue 5 (March 2015)
Date of Receipt: 2019-10-08
Date of Test: 2019-10-22 to 2019-11-13
Date of Issue: 2019-11-28

Test Result:	Pass*
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* In the configuration tested, the EUT complied with the standards specified above.

Parlan Zhan

Parlan Zhan
E&E Section Manager

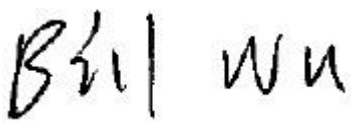
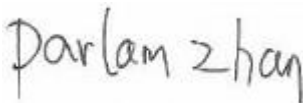
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Attention: To check the authenticity of testing/inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com



Revision Record			
Version	Description	Date	Remark
00	Original	2019-11-28	/

Authorized for issue by:			
			
		_____ Bill Wu / Project Engineer	
			
		_____ Parlam Zhan /Reviewer	



2 Contents

	Page
1 COVER PAGE	1
2 CONTENTS	3
3 GENERAL INFORMATION	4
3.1 GENERAL DESCRIPTION OF E.U.T.	4
3.2 TECHNICAL SPECIFICATIONS	4
3.3 TEST LOCATION	5
3.4 TEST FACILITY.....	5
4 TEST STANDARDS AND LIMITS.....	6
4.1 FCC RADIOFREQUENCY RADIATION EXPOSURE LIMITS:	6
5 MEASUREMENT AND CALCULATION	6
5.1 MAXIMUM TRANSMIT POWER.....	6
5.2 MPE CALCULATION	7

3 General Information

3.1 General Description of E.U.T.

Power supply:	DC 36V 1A
Test voltage:	AC 120V/60Hz For DC Source

3.2 Technical Specifications

BLE

Antenna Gain	Antenna: 2.19dBi
Antenna Type	Integral Antenna
Channel Spacing	2MHz
Modulation Type	GFSK
Number of Channels	40
Operation Frequency	2402MHz to 2480MHz



3.3 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd. Shanghai Branch

588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China.

Tel: +86 21 6191 5666

Fax: +86 21 6191 5678

3.4 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

• **CNAS (No. CNAS L0599)**

CNAS has accredited SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

• **NVLAP (Certificate No. 201034-0)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. is accredited by the National Voluntary Laboratory Accreditation Program(NVLAP). Certificate No. 201034-0.

• **FCC –Designation Number: CN5033**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been recognized as an accredited testing laboratory.

Designation Number: CN5033. Test Firm Registration Number: 479755.

• **Innovation, Science and Economic Development Canada**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

IC Registration No.: 8617A-1. CAB Identifier: CN0020.

• **VCCI (Member No.: 3061)**

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-13868, C-14336, T-12221, G-10830 respectively.

4 Test Standards and Limits

4.1 FCC Radiofrequency radiation exposure limits:

According to §1.1310, the limit for general population/uncontrolled exposures

Frequency	Power density(mW/cm ²)	Averaging time(minutes)
300MHz~1.5GHz	f/1500	30
1.5GHz~100GHz	1.0	30

5 Measurement and Calculation

5.1 Maximum transmit power

The Power Data is based on the RF Test Report SHEM191001771701

Channel	Antenna Power[dBm]	Antenna Power[mW]
2402	-3.65	0.43
2440	-2.89	0.51
2480	-2.19	0.60

The power for LTE modular refer certificate of FCC ID: XMR201707BG96

5.2 MPE Calculation

According to the formula $S=P/4\pi R^2$, we can calculate S which is MPE.

Note:

- 1) P (mW)
- 2) R = distance to the center of radiation of antenna (in meter) = 20cm
- 3) MPE limit = 1mW/cm²

For BLE

The max. antenna gain is 2.19 dBi

Max. Conducted Power P(mW)	Gain in Linear Scale G	Operation Distance R(cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)	Result
0.6	1.656	20	0.00020	1	Pass

The max EIPR is 1mW

For LTE modular based on original module grantee,

The max Antenna Gain is 1.2dBi

Frequency for 824.2-848.8MHz: the max EIPR is 0.890W;

Frequency for 669.7-715.3MHz: the max EIPR is 0.816W.

Frequency for 779.5-784.5MHz: the max EIPR is 0.776W.

Frequency for 1711.5-1753.5MHz: the max EIPR is 1.311W.

Frequency for 1850.2-1909.8MHz: the max EIPR is 1.220W;

For FCC

LTE Module:

$$\text{Frequency for 824.2-848.8MHz: } S = \frac{PG}{4R^2\pi} = 890/(4*400*3.14) = 0.177 \text{ mW/cm}^2$$

$$\text{Frequency for 669.7-715.3MHz: } S = \frac{PG}{4R^2\pi} = 816/(4*400*3.14) = 0.162 \text{ mW/cm}^2$$

$$\text{Frequency for 779.5-784.5MHz: } S = \frac{PG}{4R^2\pi} = 776/(4*400*3.14) = 0.154 \text{ mW/cm}^2$$

$$\text{Frequency for 1711.5-1753.5MHz: } S = \frac{PG}{4R^2\pi} = 1311/(4*400*3.14) = 0.261 \text{ mW/cm}^2$$

$$\text{Frequency for 1850.2-1909.8MHz: } S = \frac{PG}{4R^2\pi} = 1220/(4*400*3.14) = 0.243 \text{ mW/cm}^2$$

LTE Module and BLE module can simultaneous transmitting, so the maximum rate of MPE is,

$$\text{Frequency for 824.2-848.8MHz: } 0.0002/1 + 0.177/0.55 = 0.32 \leq 1.0.$$

$$\text{Frequency for 669.7-715.3MHz: } 0.0002/1 + 0.162/0.45 = 0.36 \leq 1.0.$$

$$\text{Frequency for 779.5-784.5MHz: } 0.0002/1 + 0.154/0.52 = 0.30 \leq 1.0.$$

$$\text{Frequency for 1711.5-1753.5MHz: } 0.0002/1 + 0.261/1 = 0.26 \leq 1.0.$$



Frequency for 1850.2-1909.8MHz: $0.0002/1+0.243/1 = 0.24 \leq 1.0$.

So the device is exclusion from SAR test.

--End of the Report--