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APPLICATION CERTIFICATION FCC Part 15C On Behalf of

Zero Friction LLC.

Distance Pro

Model No.: GS00001, GL20001, GL20011, GL21001, GL21011, GL22001, GL22011

FCC ID: 2AJY2-GS00001

Prepared for Zero Friction LLC.

Address 1 Trans Am Plaza Drive, Suite 540, Oakbrook

Terrace, IL, United States 60181

Prepared by ACCURATE TECHNOLOGY CO., LTD

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Guangdong P.R. China

Tel: (0755) 26503290 Fax: (0755) 26503396

Report No. : ATE20162128

Date of Test : Oct 08, 2016--Oct 16, 2016

Date of Report : Oct 17, 2016

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Test Report Certification

Applicant : Zero Friction LLC.

Manufacturer : Latitude Ltd. EUT Description : Distance Pro

(A) MODEL NO.: GS00001, GL20001, GL20011, GL21001,

GL21011, GL22001, GL22011

(B) TRADE NAME.: Zero Friction

(C) Test Voltage: DC 3V

Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart C Section 15.247:2015 ANSI C63.10: 2013

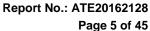
The EUT was tested according to DTS test procedure of Apr 08, 2016 KDB558074 D01 DTS Meas Guidance v03r05 for compliance to FCC 47CFR 15.247 requirements

The device described above is tested by ACCURATE TECHNOLOGY CO. LTD to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C Section 15.247 limits. The measurement results are contained in this test report and ACCURATE TECHNOLOGY CO. LTD is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of ACCURATE TECHNOLOGY CO. LTD.

Date of Test:	Oct 08, 2016Oct 16, 2016
Date of Report:	Oct 17, 2016
Prepared by :	7 in 2harg (Tim.zhang, Engineer)
	(g,g,
Approved & Authorized Signer : _	Lemil
	(Sean Liu, Manager)







1. GENERAL INFORMATION

1.1.Description of Device (EUT)

EUT : Distance Pro

Model Number : GS00001, GL20001, GL20011, GL21001,

GL21011, GL22001, GL22011

Bluetooth version : BT V4.0 LE mode

Frequency Range : 2402MHz-2480MHz

Number of Channels : 40

Antenna Gain(Max) : 0dBi

Antenna type : FPC Antenna

Trade Name : Zero Friction

Input Voltage : DC 3.0V

Modulation mode : GFSK

Applicant : Zero Friction LLC.

Address : 1 Trans Am Plaza Drive, Suite 540, Oakbrook Terrace,

IL, United States 60181.

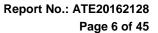
Manufacturer : Latitude Ltd.

Address : 7/F, Southeast Industrial Building, 611-619,

Castle Peak Road, Tsuen Wan, N.T., Hong Kong.

Date of sample received: Oct 08, 2016

Date of Test : Oct 08, 2016--Oct 16, 2016





1.2. Carrier Frequency of Channels

Channel	Frequeeny (MHz)	Channel	Frequeeny (MHz)	Channel	Frequeeny (MHz)	Channe 1	Frequeeny (MHz)
0	2402	10	2422	20	2442	30	2462
1	2404	11	2424	21	2444	31	2464
2	2406	12	2426	22	2446	32	2466
3	2408	13	2428	23	2448	33	2468
4	2410	14	2430	24	2450	34	2470
5	2412	15	2432	25	2452	35	2472
6	2414	16	2434	26	2454	36	2474
7	2416	17	2436	27	2456	37	2476
8	2418	18	2438	28	2458	38	2478
9	2420	19	2440	29	2460	39	2480

1.3. Special Accessory and Auxiliary Equipment N/A



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1.4.Description of Test Facility

EMC Lab : Accredited by TUV Rheinland Shenzhen

Listed by FCC

The Registration Number is 752051

Listed by Industry Canada

The Registration Number is 5077A-2

Accredited by China National Accreditation Committee

for Laboratories

The Certificate Registration Number is L3193

Name of Firm : ACCURATE TECHNOLOGY CO. LTD

Site Location : F1, Bldg. A, Changyuan New Material Port, Keyuan Rd.

Science & Industry Park, Nanshan, Shenzhen, Guangdong

P.R. China

1.5.Measurement Uncertainty

Conducted Emission Expanded Uncertainty = 2.23dB, k=2

Radiated emission expanded uncertainty = 3.08dB, k=2

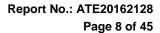
(9kHz-30MHz)

Radiated emission expanded uncertainty = 4.42dB, k=2

(30MHz-1000MHz)

Radiated emission expanded uncertainty = 4.06dB, k=2

(Above 1GHz)

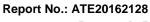




2. MEASURING DEVICE AND TEST EQUIPMENT

Table 1: List of Test and Measurement Equipment

Kind of equipment	Manufacturer	Туре	S/N	Calibrated dates	Calibrated until
EMI Test Receiver	Rohde&Schwarz	ESCS30	100307	Jan. 10, 2016	Jan. 09, 2017
EMI Test Receiver	Rohde&Schwarz	ESPI3	101526/003	Jan. 10, 2016	Jan. 09, 2017
Spectrum Analyzer	Agilent	E7405A	MY45115511	Jan. 10, 2016	Jan. 09, 2017
Pre-Amplifier	Rohde&Schwarz	CBLU118354 0-01	3791	Jan. 10, 2016	Jan. 09, 2017
Loop Antenna	Schwarzbeck	FMZB1516	1516131	Jan. 14, 2016	Jan. 13, 2017
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	Jan. 14, 2016	Jan. 13, 2017
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	Jan. 14, 2016	Jan. 13, 2017
Horn Antenna	Schwarzbeck	BBHA9170	9170-359	Jan. 14, 2016	Jan. 13, 2017
LISN	Rohde&Schwarz	ESH3-Z5	100305	Jan. 10, 2016	Jan. 09, 2017
LISN	Schwarzbeck	NSLK8126	8126431	Jan. 10, 2016	Jan. 09, 2017
Highpass Filter	Wainwright	WHKX3.6/18	N/A	Jan. 10, 2016	Jan. 09, 2017
	Instruments	G-10SS			
Band Reject Filter	Wainwright	WRCG2400/2	N/A	Jan. 10, 2016	Jan. 09, 2017
	Instruments	485-2375/2510			
		-60/11SS			





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3. OPERATION OF EUT DURING TESTING

3.1. Operating Mode

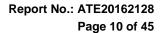
The mode is used: **BLE Transmitting mode**

Low Channel: 2402MHz Middle Channel: 2440MHz High Channel: 2480MHz

3.2.Configuration and peripherals

EUT

Figure 1 Setup: Transmitting mode





4. TEST PROCEDURES AND RESULTS

Description of Test	Result
6dB Bandwidth Test	Compliant
Power Spectral Density Test	Compliant
Maximum Peak Output Power Test	Compliant
Band Edge Compliance Test	Compliant
Radiated Spurious Emission Test	Compliant
Conducted Spurious Emission Test	Compliant
AC Power Line Conducted Emission Test	N/A
Antenna Requirement	Compliant
	6dB Bandwidth Test Power Spectral Density Test Maximum Peak Output Power Test Band Edge Compliance Test Radiated Spurious Emission Test Conducted Spurious Emission Test AC Power Line Conducted Emission Test

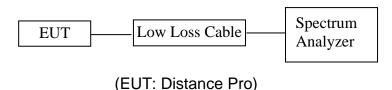
Note: The power supply mode of the EUT is DC 3V, According to the FCC standard requirements, conducted emission is not applicable



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5. 6DB BANDWIDTH MEASUREMENT

5.1.Block Diagram of Test Setup



5.2. The Requirement For Section 15.247(a)(2)

Section 15.247(a)(2): Systems using digital modulation techniques may operate in the 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

5.3.EUT Configuration on Measurement

The equipment is installed on the emission measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

5.4. Operating Condition of EUT

- 5.4.1. Setup the EUT and simulator as shown as Section 5.1.
- 5.4.2. Turn on the power of all equipment.
- 5.4.3.Let the EUT work in TX modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2440MHz, and 2480MHz TX frequency to transmit.

5.5.Test Procedure

- 5.5.1. The transmitter output was connected to the spectrum analyzer through a low loss cable.
- 5.5.2.Set RBW of spectrum analyzer to 100 kHz and VBW to 300 kHz.
- 5.5.3. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

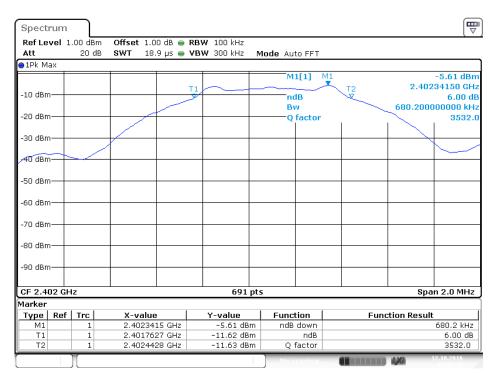


5.6.Test Result

Channel	Frequency (MHz)	6 dB Bandwith (MHz)	Minimum Limit(MHz)	PASS/FAIL
0	2402	0.680	0.5	PASS
19	2440	0.692	0.5	PASS
39	2480	0.645	0.5	PASS

The spectrum analyzer plots are attached as below.

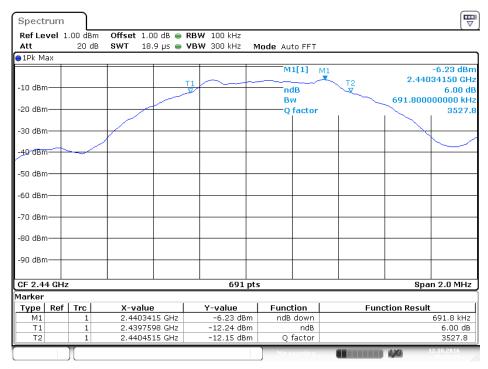
channel 0



Date: 12.OCT.2016 18:26:59

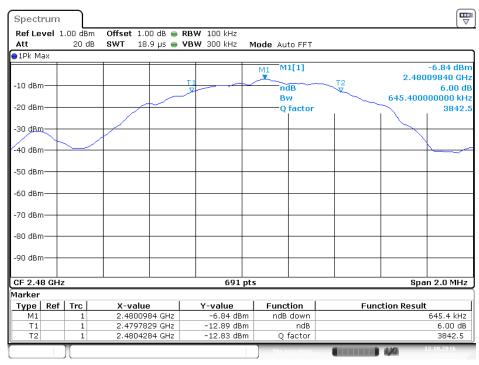


channel 19



Date: 12.OCT.2016 18:25:45

channel 39



Date: 12.OCT.2016 18:28:28

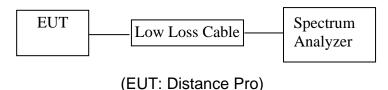


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6. MAXIMUM PEAK OUTPUT POWER

6.1.Block Diagram of Test Setup



6.2. The Requirement For Section 15.247(b)(3)

Section 15.247(b)(3): For systems using digital modulation in the 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz bands: 1 Watt.

6.3.EUT Configuration on Measurement

The equipment are installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

6.4. Operating Condition of EUT

- 6.4.1. Setup the EUT and simulator as shown as Section 6.1.
- 6.4.2. Turn on the power of all equipment.
- 6.4.3.Let the EUT work in TX modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2440MHz, and 2480MHz TX frequency to transmit.

6.5. Test Procedure

- 6.5.1. The transmitter output was connected to the spectrum analyzer through a low loss cable.
- 6.5.2. Test method is options 1 from KDB558074 D01 DTS Meas Guidance v03r05
- 6.5.3.Set RBW of spectrum analyzer to 1 MHz and VBW to 3 MHz.
- 6.5.4. Measurement the maximum peak output power.

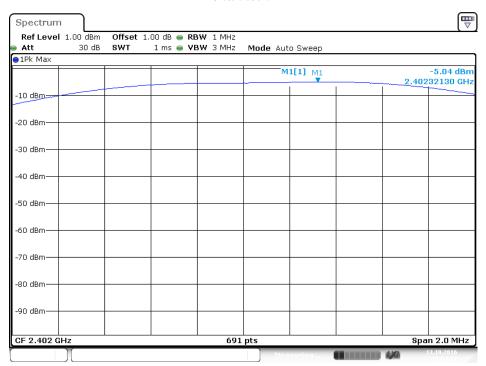


6.6.Test Result

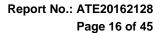
Channel	Frequency (MHz)	Peak Power Output (dBm)	Peak Power Limit (dBm)	Pass / Fail
0	0 2402		30	PASS
19	19 2440		30	PASS
39	39 2480		30	PASS

The spectrum analyzer plots are attached as below.

channel 0

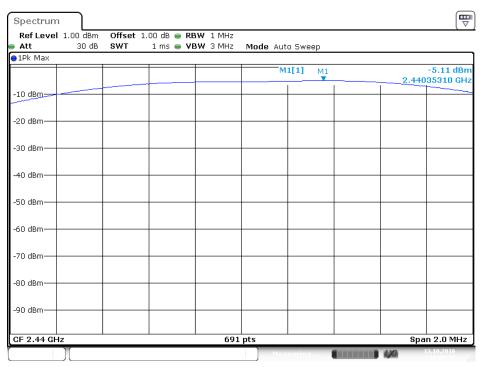


Date: 13.OCT.2016 10:04:26



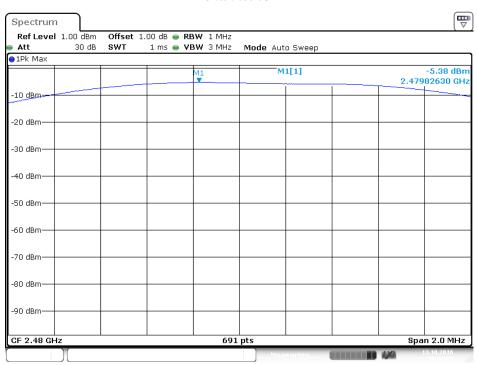


channel 19

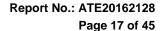


Date: 13.OCT.2016 10:07:38

channel 39



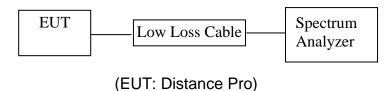
Date: 13.OCT.2016 10:14:38





7. POWER SPECTRAL DENSITY MEASUREMENT

7.1.Block Diagram of Test Setup



7.2. The Requirement For Section 15.247(e)

Section 15.247(e): For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

7.3.EUT Configuration on Measurement

The equipment are installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

7.4. Operating Condition of EUT

- 7.4.1. Setup the EUT and simulator as shown as Section 7.1.
- 7.4.2. Turn on the power of all equipment.
- 7.4.3.Let the EUT work in TX modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2440MHz, and 2480MHz TX frequency to transmit.

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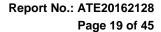
7.5.Test Procedure

- 7.5.1.The EUT was tested according to DTS test procedure of Apr 08, 2016 KDB558074 D01 DTS Meas Guidance v03r05 for compliance to FCC 47CFR 15.247 requirements.
- 7.5.2. The transmitter output was connected to the spectrum analyzer through a low loss cable.
- 7.5.3. Measurement Procedure PKPSD:
- 7.5.4. This procedure must be used if maximum peak conducted output power was used to demonstrate compliance to the fundamental output power limit, and is optional if the maximum (average) conducted output power was used to demonstrate compliance.
 - 1. Set analyzer center frequency to DTS channel center frequency.
 - 2. Set the span to 1.5 times the DTS channel bandwidth.
 - 3. Set the RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
 - 4. Set the VBW \geq 3 x RBW.
 - 5. Detector = peak.
 - 6. Sweep time = auto couple.
 - 7. Trace mode = max hold.
 - 8. Allow trace to fully stabilize.
 - 9. Use the peak marker function to determine the maximum amplitude level.
 - 10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.
- 7.5.5.Measurement the maximum power spectral density.

7.6.Test Result

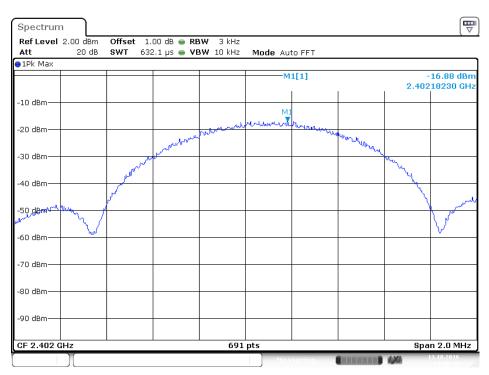
CHANNEL NUMBER	FREQUENCY (MHz)	PSD (dBm/3KHz)	LIMIT (dBm/3KHz)	PASS/FAIL
0	2402	-16.88	8	PASS
19	2440	-16.73	8	PASS
39	2480	-17.63	8	PASS

The spectrum analyzer plots are attached as below.





channel 0



Date: 13.OCT.2016 14:40:38

channel 19



Date: 13.OCT.2016 14:41:56



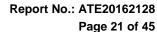


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channel 39



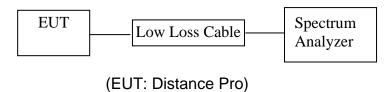
Date: 13.OCT.2016 14:45:34





8. BAND EDGE COMPLIANCE TEST

8.1.Block Diagram of Test Setup



8.2. The Requirement For Section 15.247(d)

Section 15.247(d): In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

8.3.EUT Configuration on Measurement

The equipment are installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

8.4. Operating Condition of EUT

- 8.4.1. Setup the EUT and simulator as shown as Section 8.1.
- 8.4.2. Turn on the power of all equipment.
- 8.4.3.Let the EUT work in TX modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2480MHz TX frequency to transmit.



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8.5.Test Procedure

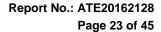
Conducted Band Edge:

- 8.5.1. The transmitter output was connected to the spectrum analyzer via a low loss cable.
- 8.5.2.Set RBW of spectrum analyzer to 100 kHz and VBW to 300 kHz.
- 8.5.3. Radiate Band Edge:
- 8.5.4. The EUT is placed on a turntable, which is 1.5m above the ground plane and worked at highest radiated power.
- 8.5.5. The turntable was rotated for 360 degrees to determine the position of maximum emission level.
- 8.5.6.EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
- 8.5.7.Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:
- 8.5.8.RBW=1MHz, VBW=1MHz
- 8.5.9. The band edges was measured and recorded.

8.6.Test Result

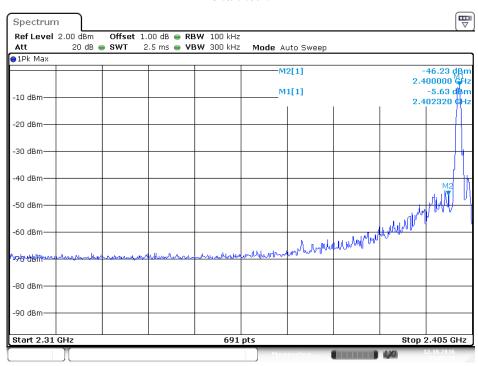
Pass

	Channel	Frequency	Delta peak to band emission	Limit(dBc)
	0	2.4GHz	40.60	20
Ī	39	2.4835GHz	46.32	20



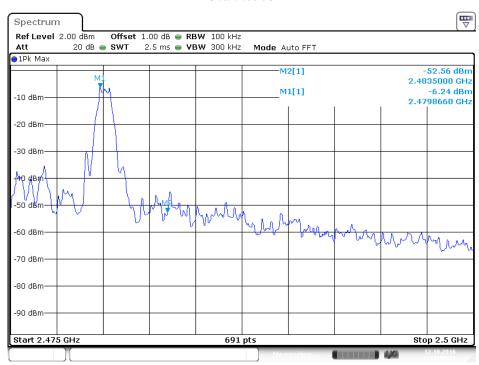


channel 0



Date: 12.OCT.2016 19:05:14

channel 39



Date: 12.OCT.2016 19:06:19



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Radiated Band Edge Result

Date of Test:Oct 14, 2016Temperature:25°CEUT:Distance ProHumidity:50%Model No.:GS00001Power Supply:DC 3VTest Mode:TX (2402MHz) GFSKTest Engineer:Ding

Frequency	Reading(dBµV/m)		Factor(dB)	Result(dBµV/m)		Limit(dBµV/m)		Margin(dB)		Polarization
(MHz)	AV	PEAK	Corr.	AV	PEAK	AV	PEAK	AV	PEAK	
2390.000	33.40	40.80	-8.00	25.40	32.80	54.00	74.00	-28.60	-41.20	Vertical
2400.000	47.40	55.78	-7.97	39.43	47.81	54.00	74.00	-14.57	-26.19	Vertical
2390.000	32.40	41.20	-8.00	24.40	33.20	54.00	74.00	-29.60	-40.80	Horizontal
2400.000	49.78	57.34	-7.97	41.81	49.37	54.00	74.00	-12.19	-24.63	Horizontal

Date of Test:Oct 14, 2016Temperature:25°CEUT:Distance ProHumidity:50%Model No.:GS00001Power Supply:DC 3VTest Mode:TX (2480MHz) GFSKTest Engineer:Ding

Frequency	Reading(dBµV/m)		Factor(dB)	Result(dBµV/m)		Limit(dBµV/m)		Margin(dB)		Polarization
(MHz)	AV	PEAK	Corr.	AV	PEAK	AV	PEAK	AV	PEAK	
2483.500	40.14	48.46	-7.76	32.38	40.70	54.00	74.00	-21.62	-33.30	Vertical
2500.000	34.67	42.41	-7.71	26.92	34.70	54.00	74.00	-27.04	-39.30	Vertical
2483.500	41.79	49.05	-7.76	34.03	41.29	54.00	74.00	-19.97	-32.71	Horizontal
2500.000	33.22	41.12	-7.71	25.51	33.41	54.00	74.00	-28.49	-40.59	Horizontal

Note:

- 1. Emissions attenuated more than 20 dB below the permissible value are not reported.
- 2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:

 Result = Reading + Corrected Factor
- 3. Display the measurement of peak values.





F1,Bldg,A,Changyuan New Material Port Keyuan Rd, Science & Industry Park,Nanshan Shenzhen,P.R.China Site: 1# Chamber Tel:+86-0755-26503290

Fax:+86-0755-26503396

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Job No.: DING2016 #252 Polarization: Horizontal Standard: FCC PK Power Source: DC 3V

 Test item:
 Radiation Test
 Date: 16/10/12/

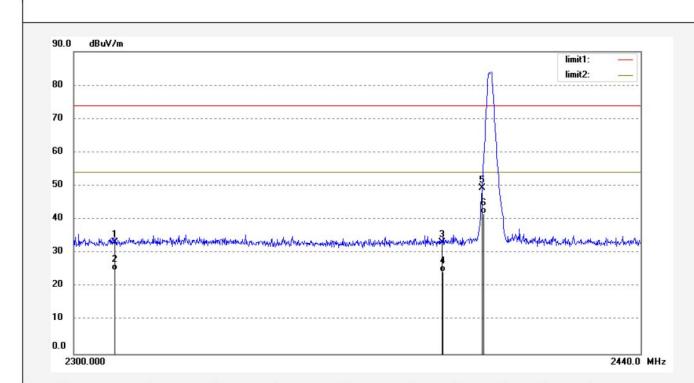
 Temp.(C)/Hum.(%)
 25 C / 55 %
 Time: 11/40/38

EUT: Distance Pro Engineer Signature: Ding
Mode: TX 2402MHz Distance: 3m

Mode: TX 2402MHz Distance: 3m Model: GS00001

Note: Report No.:ATE20162128

Manufacturer: LATITUDE



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	41.39	-8.21	33.18	74.00	-40.82	peak			
2	2310.000	33.00	-8.21	24.79	54.00	-29.21	AVG			
3	2390.000	41.20	-8.00	33.20	74.00	-40.80	peak		-0	
4	2390.000	32.40	-8.00	24.40	54.00	-29.60	AVG			
5	2400.000	57.34	-7.97	49.37	74.00	-24.63	peak			
6	2400.000	49.78	-7.97	41.81	54.00	-12.19	AVG			



F1,Bldg,A,Changyuan New Material Port Keyuan Rd, Science & Industry Park,Nanshan Shenzhen,P.R.China Page 26 of 45
Site: 1# Chamber

Tel:+86-0755-26503290 Fax:+86-0755-26503396

Report No.: ATE20162128

Job No.: DING2016 #253 Polarization: Vertical Standard: FCC PK Power Source: DC 3V

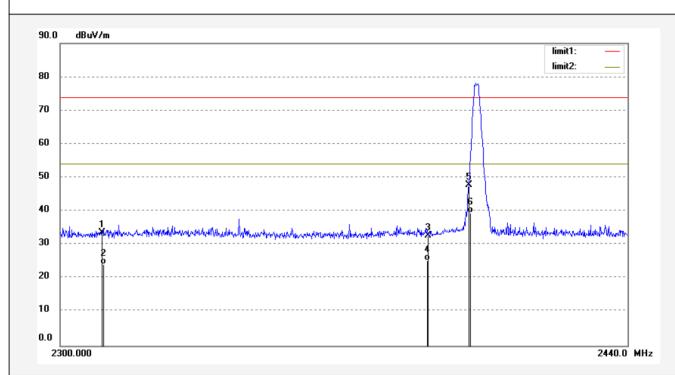
Test item: Radiation Test Date: 16/10/12/
Temp.(C)/Hum.(%) 25 C / 55 % Time: 11/44/38

EUT: Bluetooth Smart Module Engineer Signature: Ding Mode: TX 2402MHz Distance: 3m

Mode: TX 2402MHz

Model: GS00001

Manufacturer: LATITUDE



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	41.89	-8.21	33.68	74.00	-40.32	peak			
2	2310.000	32.47	-8.21	24.26	54.00	-29.74	AVG			
3	2390.000	40.80	-8.00	32.80	74.00	-41.20	peak			
4	2390.000	33.40	-8.00	25.40	54.00	-28.60	AVG			
5	2400.000	55.78	-7.97	47.81	74.00	-26.19	peak			
6	2400.000	47.40	-7.97	39.43	54.00	-14.57	AVG			



F1,Bldg,A,Changyuan New Material Port Keyuan Rd, Science & Industry Park,Nanshan Shenzhen,P.R.China Page 27 of 45
Site: 1# Chamber

Report No.: ATE20162128

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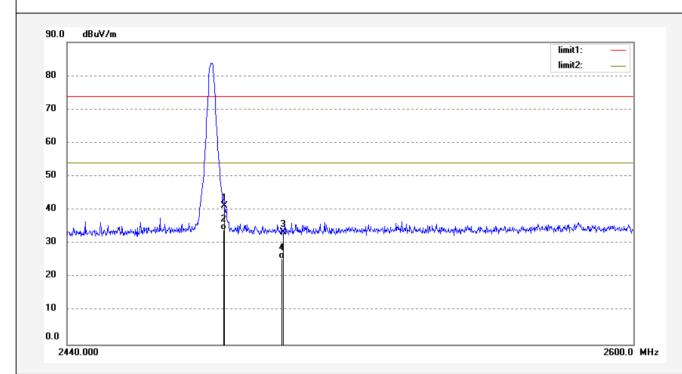
Job No.:DING2016 #254Polarization:HorizontalStandard:FCC PKPower Source:DC 3V

 Test item:
 Radiation Test
 Date: 16/10/12/

 Temp.(C)/Hum.(%)
 25 C / 55 %
 Time: 11/48/54

EUT: Bluetooth Smart Module Engineer Signature: Ding
Mode: TX 2480MHz Distance: 3m

Model: GS00001 Manufacturer: LATITUDE



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	49.05	-7.76	41.29	74.00	-32.71	peak			
2	2483.500	41.79	-7.76	34.03	54.00	-19.97	AVG			
3	2500.000	41.12	-7.71	33.41	74.00	-40.59	peak			
4	2500.000	33.22	-7.71	25.51	54.00	-28.49	AVG			





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Report No.: ATE20162128

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Job No.: DING2016 #255 Polarization: Vertical Standard: FCC PK Power Source: DC 3V

 Test item:
 Radiation Test
 Date: 16/10/12/

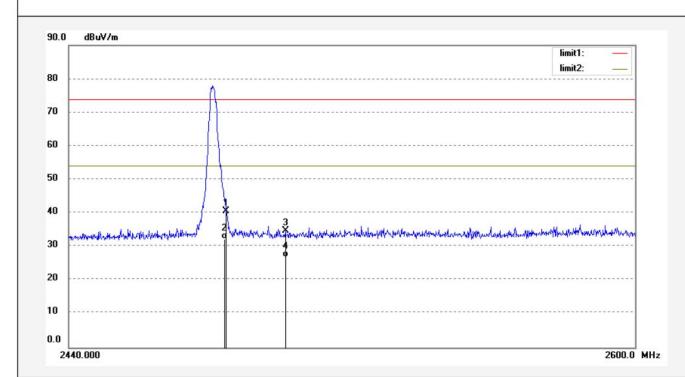
 Temp.(C)/Hum.(%)
 25 C / 55 %
 Time: 11/53/51

EUT: Bluetooth Smart Module Engineer Signature: Ding
Mode: TX 2480MHz Distance: 3m

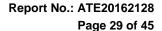
Mode: TX 2480MHz

Model: GS00001

Manufacturer: LATITUDE



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	48.46	-7.76	40.70	74.00	-33.30	peak			
2	2483.500	40.14	-7.76	32.38	54.00	-21.62	AVG			
3	2500.000	42.41	-7.71	34.70	74.00	-39.30	peak			
4	2500.000	34.67	-7.71	26.96	54.00	-27.04	AVG			

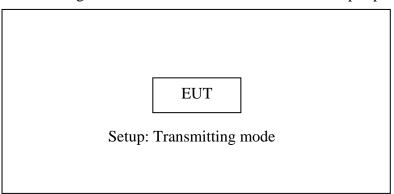




9. RADIATED SPURIOUS EMISSION TEST

9.1.Block Diagram of Test Setup

9.1.1.Block diagram of connection between the EUT and peripherals



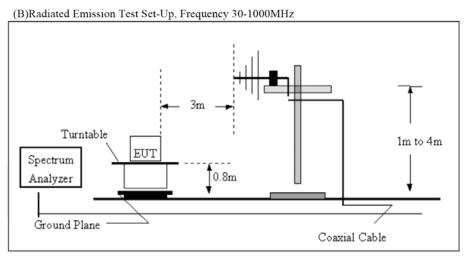
(EUT: Distance Pro)

9.1.2.Semi-Anechoic Chamber Test Setup Diagram

(A)Radiated Emission Test Set-Up, Frequency below 30MHz

Turntable EUT 1 ~ 4 m

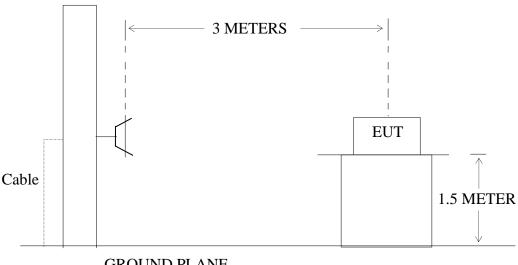
Spectrum Analyzer Coaxial Cable



Report No.: ATE20162128 Page 30 of 45



(C) Radiated Emission Test Set-Up, Frequency above 1GHz



GROUND PLANE

9.2. The Limit For Section 15.247(d)

Section 15.247(d): In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).



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9.3.1.FCC Part 15.205 Restricted bands of operation

(a) Except as shown in paragraph (d) of this section, Only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
¹ 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	$\binom{2}{}$
13.36-13.41			

¹Until February 1, 1999, this restricted band shall be 0.490-0.510

(b) Except as provided in paragraphs (d) and (e), the field strength of emission appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000MHz, Compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000MHz, compliance with the emission limits in Section15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

9.4. Configuration of EUT on Measurement

The equipment are installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

9.5. Operating Condition of EUT

9.5.1. Setup the EUT and simulator as shown as Section 9.1.

²Above 38.6



Report No.: ATE20162128 Page 32 of 45

9.5.2. Turn on the power of all equipment.

9.5.3.Let the EUT work in TX modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2440MHz, and 2480MHz TX frequency to transmit.

9.6.Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground(Below 1GHz). The EUT and its simulators are placed on a turntable, which is 1.5 meter high above ground(Above 1GHz). The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bi-log antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the EUT location must be manipulated according to ANSI C63.10:2013 on radiated emission measurement. The EUT was tested in 3 orthogonal planes.

The bandwidth of test receiver is set at 9 kHz in below 30MHz. and set at 120 kHz in 30-1000MHz, and 1MHz in above 1000MHz.

The frequency range from 9 kHz to 25GHz is checked.

The final measurement in band 9-90 kHz, 110-490 kHz and above 1000MHz is performed with Average detector. Except those frequency bands mention above, the final measurement for frequencies below 1000MHz is performed with Quasi Peak detector.

The field strength is calculated by adding the antenna factor, and cable loss, and subtracting the amplifier gain from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

Where Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain

9.7. The Field Strength of Radiation Emission Measurement Results **PASS.**

Note: 1. Emissions attenuated more than 20 dB below the permissible value are not reported.

- 2. *: Denotes restricted band of operation.
- 3. The radiation emissions from 18-25GHz are not reported, because the test values lower than the limits of 20dB.



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Distance: 3m

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Site: 1# Chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Report No.: ATE20162128

Job No.: DING #2474 Polarization: Horizontal Standard: FCC Class B 3M Radiated Power Source: DC 3V

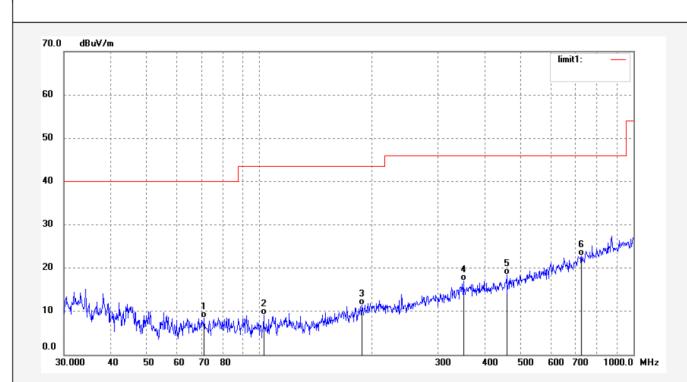
Test item: Radiation Test Date: 16/10/13/

Temp.(C)/Hum.(%) 25 C / 55 % Time: 14/20/04
EUT: Distance Pro Engineer Signature: DING

Mode: TX 2402MHz

Model: GS00001

Manufacturer: LATITUDE



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	71.2032	31.35	-22.92	8.43	40.00	-31.57	QP			
2	102.6116	32.90	-23.68	9.22	43.50	-34.28	QP			
3	187.7831	32.05	-20.58	11.47	43.50	-32.03	QP			
4	350.9721	32.41	-15.36	17.05	46.00	-28.95	QP			
5	458.3987	31.93	-13.43	18.50	46.00	-27.50	QP			
6	726.3405	30.44	-7.65	22.79	46.00	-23.21	QP			



Temp.(C)/Hum.(%) 25 C / 55 %

ACCURATE TECHNOLOGY CO., LTD.

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Page 34 of 45 Site: 1# Chamber

Tel:+86-0755-26503290 Fax:+86-0755-26503396

Report No.: ATE20162128

Job No.: DING #2475 Polarization: Vertical Power Source: DC 3V

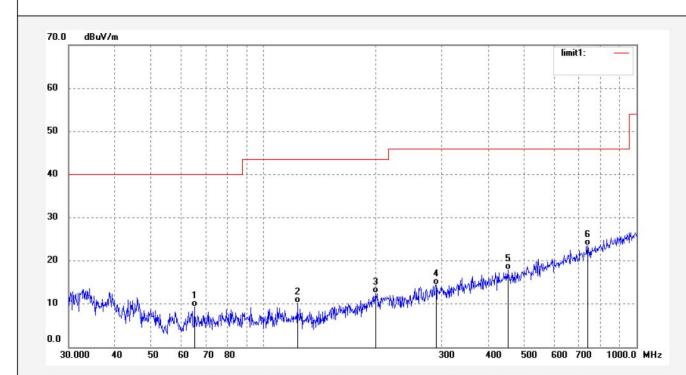
> Date: 16/10/13/ Time: 14/22/21

Engineer Signature: DING

Distance: 3m

Standard: FCC Class B 3M Radiated Test item: Radiation Test

EUT: Distance Pro Mode: TX 2402MHz Model: GS00001 Manufacturer: LATITUDE



10					A	M				
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	65.2156	32.11	-22.69	9.42	40.00	-30.58	QP			
2	123.1814	33.20	-22.96	10.24	43.50	-33.26	QP			
3	199.3415	32.17	-19.68	12.49	43.50	-31.01	QP			
4	290.3170	31.71	-17.32	14.39	46.00	-31.61	QP			
5	452.0013	31.49	-13.61	17.88	46.00	-28.12	QP			
6	739.2136	30.90	-7.31	23.59	46.00	-22.41	QP			





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Report No.: ATE20162128

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Job No.: DING #2477

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Distance Pro Mode: TX 2440MHz Model: GS00001

Manufacturer: LATITUDE

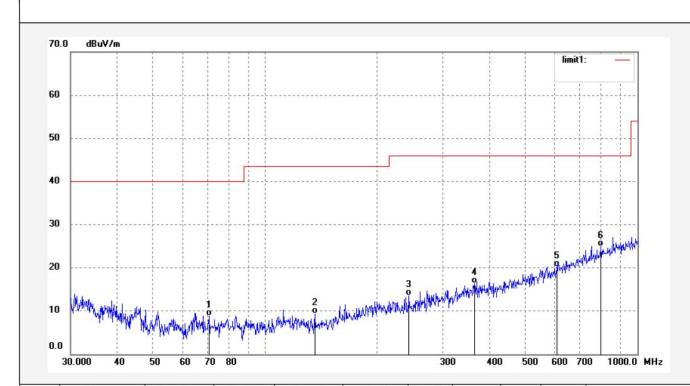
Note: Report NO.:ATE20162128

Polarization: Horizontal Power Source: DC 3V

Date: 16/10/13/ Time: 14/28/54

Engineer Signature: DING

Distance: 3m



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	70.7047	31.80	-22.89	8.91	40.00	-31.09	QP			
2	135.9163	32.51	-23.21	9.30	43.50	-34.20	QP			
3	243.5431	32.62	-19.11	13.51	46.00	-32.49	QP			
4	364.8025	31.44	-15.00	16.44	46.00	-29.56	QP			
5	607.1806	30.42	-10.20	20.22	46.00	-25.78	QP			
6	798.6204	31.06	-6.16	24.90	46.00	-21.10	QP			





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Time: 14/26/33

Distance: 3m

Site: 1# Chamber Tel:+86-0755-26503290 Fax:+86-0755-26503396

Report No.: ATE20162128

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Job No.: DING #2476 Polarization: Vertical Standard: FCC Class B 3M Radiated Power Source: DC 3V

Standard: FCC Class B 3M Radiated Power Source: DC 3V Test item: Radiation Test Date: 16/10/13/

EUT: Distance Pro Engineer Signature: DING

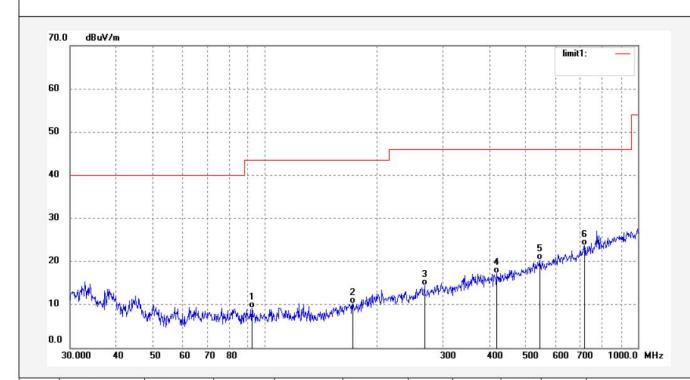
Mode: TX 2440MHz

Model: GS00001

Manufacturer: LATITUDE

Note: Report NO.:ATE20162128

Temp.(C)/Hum.(%) 25 C / 55 %



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	92.3461	32.06	-22.91	9.15	43.50	-34.35	QP			
2	171.9921	31.69	-21.47	10.22	43.50	-33.28	QP			
3	267.7787	32.53	-18.06	14.47	46.00	-31.53	QP			
4	418.3783	31.73	-14.41	17.32	46.00	-28.68	QP			
5	546.4366	32.07	-11.72	20.35	46.00	-25.65	QP			
6	718.7246	31.49	-7.86	23.63	46.00	-22.37	QP			





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Report No.: ATE20162128

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Job No.: DING #2478 Polarization: Horizontal Standard: FCC Class B 3M Radiated Power Source: DC 3V

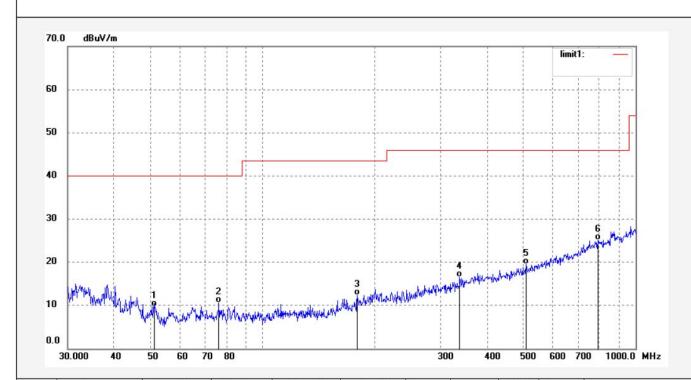
Standard: FCC Class B 3M Radiated Power Source: DC 3V
Test item: Radiation Test Date: 16/10/13/
Temp.(C)/Hum.(%) 25 C / 55 %
Time: 14/30/18

EUT: Distance Pro Engineer Signature: DING
Mode: TX 2480MHz Distance: 3m

Mode: TX 2480MHz

Model: GS00001

Manufacturer: LATITUDE



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	51.5363	31.62	-21.86	9.76	40.00	-30.24	QP			
2	76.3868	33.65	-23.05	10.60	40.00	-29.40	QP			
3	179.3989	33.73	-21.35	12.38	43.50	-31.12	QP			
4	337.6660	32.33	-15.85	16.48	46.00	-29.52	QP			
5	509.3559	32.12	-12.60	19.52	46.00	-26.48	QP			
6	793.0280	31.33	-6.24	25.09	46.00	-20.91	QP			



F1,Bldg,A,Changyuan New Material Port Keyuan Rd, Science & Industry Park,Nanshan Shenzhen,P.R.China Page 38 of 45
Site: 1# Chamber

Report No.: ATE20162128

Tel:+86-0755-26503290 Fax:+86-0755-26503396

Job No.: DING #2479 Polarization: Vertical Standard: FCC Class B 3M Radiated Power Source: DC 3V

Power Source: DC 3
Date: 16/10/13/

 Test item:
 Radiation Test
 Date: 16/10/13/

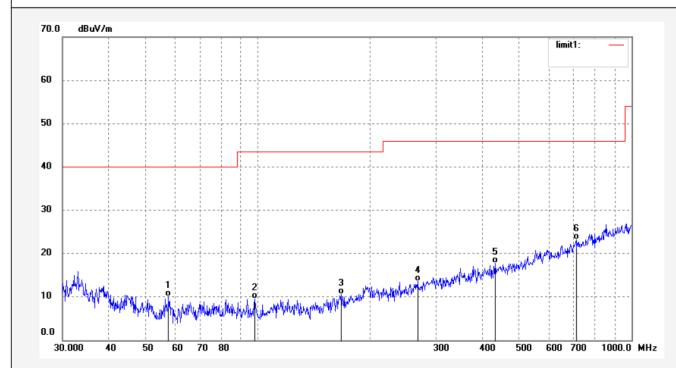
 Temp.(C)/Hum.(%)
 25 C / 55 %
 Time: 14/32/39

Engineer Signature: DING

Distance: 3m

EUT: Distance Pro Mode: TX 2480MHz Model: GS00001

Manufacturer: LATITUDE



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	57.6692	32.55	-22.51	10.04	40.00	-29.96	QP			
2	98.0301	32.96	-23.34	9.62	43.50	-33.88	QP			
3	167.2249	32.11	-21.56	10.55	43.50	-32.95	QP			
4	267.7787	31.54	-18.06	13.48	46.00	-32.52	QP			
5	431.8197	31.86	-14.12	17.74	46.00	-28.26	QP			
6	711.1884	31.30	-8.05	23.25	46.00	-22.75	QP			





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Distance: 3m

Site: 1# Chamber Tel:+86-0755-26503290 Fax:+86-0755-26503396

Report No.: ATE20162128

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Job No.: DING2016 #631 Polarization: Horizontal Standard: FCC Class B 3M Radiated Power Source: DC 3V

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

Date: 16/10/12/

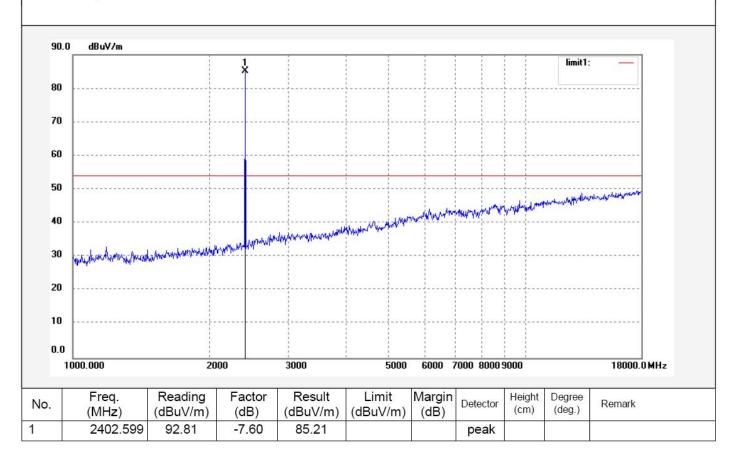
Time: 10/35/42

EUT: Distance Pro Engineer Signature: star

Mode: TX 2402MHz

Model: GS00001

Manufacturer: LATITUDE







F1,Bldg,A,Changyuan New Material Port Keyuan Rd, Science & Industry Park, Nanshan Shenzhen, P.R. China

Site: 1# Chamber Tel:+86-0755-26503290 Fax:+86-0755-26503396

Report No.: ATE20162128

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Job No.: DING2016 #632 Polarization: Vertical Standard: FCC Class B 3M Radiated Power Source: DC 3V

Date: 16/10/12/ Time: 10/40/14

Engineer Signature: star

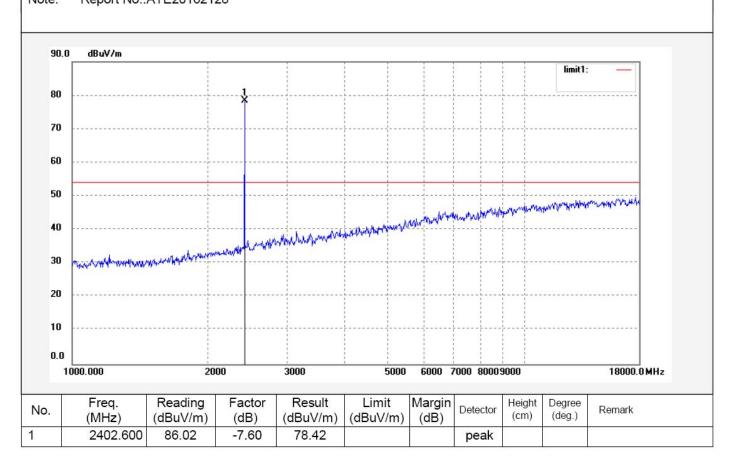
Distance: 3m

Test item: Radiation Test

EUT: Distance Pro Mode: TX 2402MHz Model: GS00001 Manufacturer: LATITUDE

Note: Report No.:ATE20162128

Temp.(C)/Hum.(%) 25 C / 55 %







F1,Bldg,A,Changyuan New Material Port Keyuan Rd, Science & Industry Park,Nanshan Shenzhen,P.R.China Site: 1# Chamber Tel:+86-0755-26503290 Fax:+86-0755-26503396

Report No.: ATE20162128

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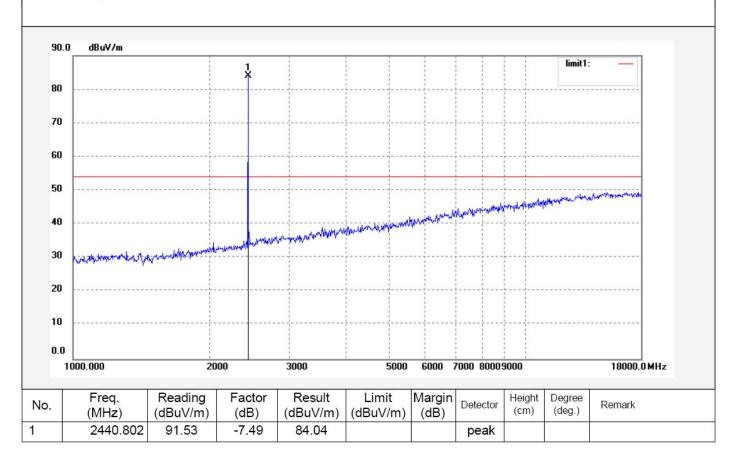
Job No.: DING2016 #634 Polarization: Horizontal Standard: FCC Class B 3M Radiated Power Source: DC 3V

Test item: Radiation Test Date: 16/10/12/
Temp.(C)/Hum.(%) 25 C / 55 % Time: 10/51/19

EUT: Distance Pro Engineer Signature: star Mode: TX 2440MHz Distance: 3m

Model: GS00001

Manufacturer: LATITUDE





Report No.: ATE20162128 Page 42 of 45

Site: 1# Chamber Tel:+86-0755-26503290 Fax:+86-0755-26503396

F1,Bldg,A,Changyuan New Material Port Keyuan Rd, Science & Industry Park,Nanshan Shenzhen,P.R.China

Job No.: DING2016 #633 Polarization: Vertical Standard: FCC Class B 3M Radiated Power Source: DC 3V

 Test item:
 Radiation Test
 Date: 16/10/12/

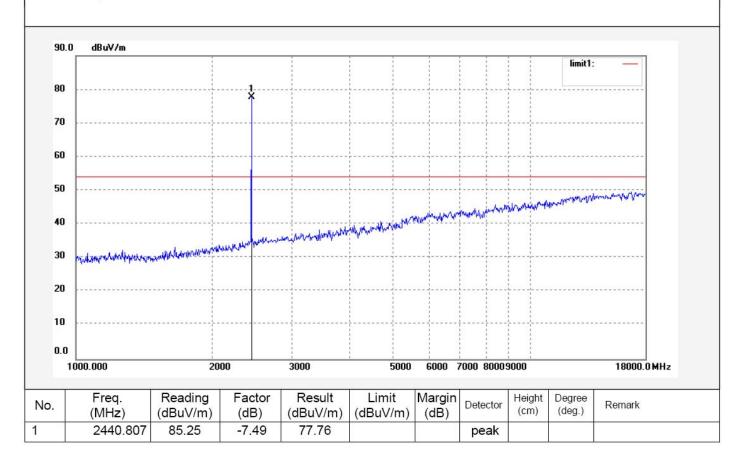
 Temp.(C)/Hum.(%)
 25 C / 55 %
 Time: 10/46/25

EUT: Distance Pro Engineer Signature: star Mode: TX 2440MHz Distance: 3m

Model: GS00001

Note: Report No.:ATE20162128

Manufacturer: LATITUDE







F1,Bldg,A,Changyuan New Material Port Keyuan Rd, Science & Industry Park, Nanshan Shenzhen, P.R. China

Site: 1# Chamber Tel:+86-0755-26503290

Fax:+86-0755-26503396

Report No.: ATE20162128

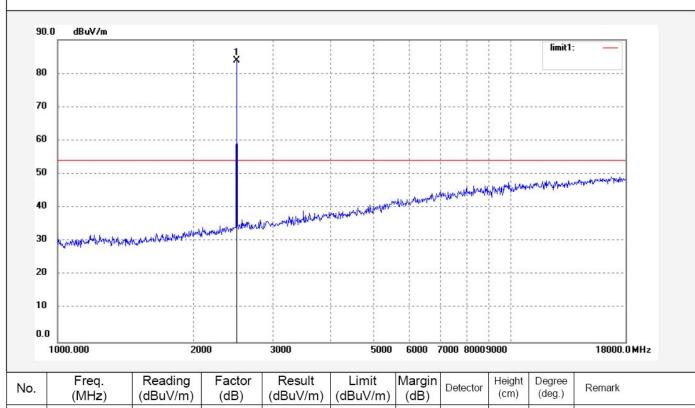
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Job No.: DING2016 #635 Polarization: Horizontal Standard: FCC Class B 3M Radiated Power Source: DC 3V

Test item: Radiation Test Date: 16/10/12/ Temp.(C)/Hum.(%) 25 C / 55 % Time: 10/56/32

EUT: Distance Pro Engineer Signature: star Mode: TX 2480MHz Distance: 3m

GS00001 Model: Manufacturer: LATITUDE





F1,Bldg,A,Changyuan New Material Port Keyuan Rd, Science & Industry Park,Nanshan Shenzhen,P.R.China Site: 1# Chamber Tel:+86-0755-26503290 Fax:+86-0755-26503396

Report No.: ATE20162128

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Job No.: DING2016 #636

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Distance Pro Mode: TX 2480MHz

Model: GS00001

Manufacturer: LATITUDE

Note: Demant No. ATEQUAG

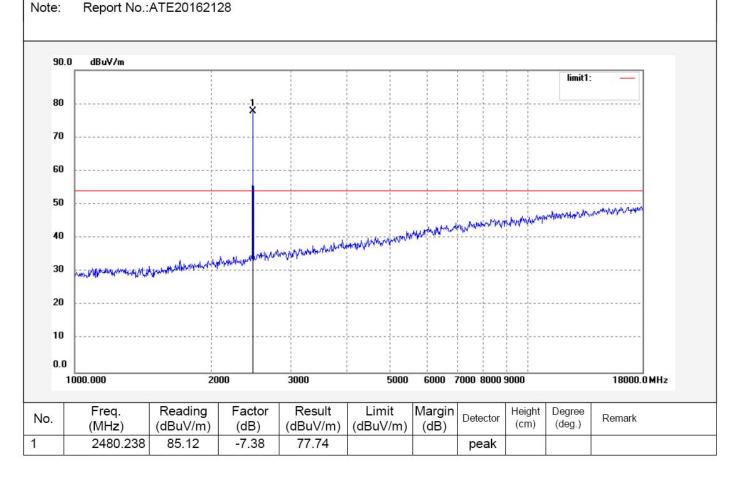
Polarization: Vertical

Power Source: DC 3V

Date: 16/10/12/ Time: 11/01/45

Engineer Signature: star

Distance: 3m





10.ANTENNA REQUIREMENT

10.1.The Requirement

According to Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

10.2.Antenna Construction

Device is equipped with permanent attached antenna, which isn't displaced by other antenna. The Max Antenna gain of EUT is 0dBi. Therefore, the equipment complies with the antenna requirement of Section 15.203.



Antenna