APPLICATION CERTIFICATION FCC Part 15C
On Behalf of
Triamp Technology., Ltd.

Smart Temperature & Humidity Data Logger
Model No.: TH-1

FCC ID: Q9OTH-1

Prepared for	:	Triamp Technology., Ltd.
Address	:	3F, No. 2, Alley 16, Lane 235, Bao-Chiao Road, Hsin Tien, Taipei, Taiwan 231
Prepared by	:	Shenzhen Accurate Technology Co., Ltd.
Address	:	1/F., Building A, Changyuan New Material Port, Science & Industry Park, Nanshan District, Shenzhen, Guangdong, P.R. China Tel: (0755) 26503290 Fax: (0755) 26503396

Report No.	:	ATE20181353
Date of Test	:	July 28-August 2, 2018
Date of Report	:	August 2, 2018

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Test Report Certification

Applicant	:	Triamp Technology., Ltd.
Manufacturer	:	Triamp Technology., Ltd.
EUT Description	:	Smart Temperature & Humidity Data Logger
Model No.	:	TH-1
Trade Name	:	ViseeO

Measurement Procedure Used:

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

The EUT was tested according to DTS test procedure of Apr 05, 2017 KDB558074 D01 DTS Meas Guidance v04 for compliance to FCC 47CFR 15.247 requirements

The device described above is tested by Shenzhen 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 Shenzhen 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 Shenzhen Accurate Technology Co., Ltd.

Date of Test :	July 28-August 2, 2018
Date of Report :	August 2, 2018
Test Engineer :	(Frank Lü, Engineer)
Prepared by :	(St Yang, Engineer)
Approved & Authorized Signer :	(Sean Liu, Manager)

1. GENERAL INFORMATION

1.1.Description of Device (EUT)

EUT	:	Smart Temperature & Humidity Data Logger
Model Number	:	TH-1
Bluetooth version	:	V4.1 BLE
Frequency Range	:	2402MHz-2480MHz
Number of Channels	:	40
Antenna Gain	:	0dBi
Antenna type	:	Ceramic antenna
Power Supply	:	DC 3.7V (Powered by Lithium battery) or DC 5.0V (Powered by USB port)
Modulation mode	:	GFSK
Hardware version	:	V1.7
Software version	:	V2
Applicant	:	Triamp Technology., Ltd.
Address	:	3F, No. 2, Alley 16, Lane 235, Bao-Chiao Road, Hsin Tien, Taipei, Taiwan 231
Manufacturer	:	Triamp Technology., Ltd.
Address	:	3F, No. 2, Alley 16, Lane 235, Bao-Chiao Road, Hsin Tien, Taipei, Taiwan 231

1.2.Carrier Frequency of Channels

Channel	Frequceny (MHz)	Channel	Frequceny (MHz)	Channel	Frequceny (MHz)	Channe l	Frequceny (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

AC/DC Power Adapter (provided by laboratory)	:	Model:TEKA006-0501000UKU
		Input: 100-240V~50/60Hz 0.3A
		Output: DC 5V/1A

1.4.Description of Test Facility

EMC Lab : Recognition of accreditation by Federal Communications Commission (FCC)
The Designation Number is CN1189
The Registration Number is 708358

Listed by Innovation, Science and Economic Development Canada (ISEDC)
The Registration Number is 5077A-2

Accredited by China National Accreditation Service for Conformity Assessment (CNAS)
The Registration Number is CNAS L3193

Accredited by American Association for Laboratory Accreditation (A2LA)
The Certificate Number is 4297.01

Name of Firm : Shenzhen Accurate Technology Co., Ltd.

Site Location : 1/F., Building A, Changyuan New Material Port, Science & Industry Park, Nanshan District, Shenzhen, Guangdong, P.R. China

1.5.Measurement Uncertainty

Conducted Emission Expanded Uncertainty = 2.23dB, k=2

Radiated emission expanded uncertainty (9kHz-30MHz) = 3.08dB, k=2

Radiated emission expanded uncertainty (30MHz-1000MHz) = 4.42dB, k=2

Radiated emission expanded uncertainty (Above 1GHz) = 4.06dB, k=2

2. MEASURING DEVICE AND TEST EQUIPMENT

Table 1: List of Test and Measurement Equipment

Kind of equipment	Manufacturer	Type	S/N	Calibrated dates	Calibrated until
EMI Test Receiver	Rohde&Schwarz	ESCS30	100307	Jan. 06, 2018	1 Year
EMI Test Receiver	Rohde& Schwarz	ESR	101817	Jan. 06, 2018	1 Year
Spectrum Analyzer	Rohde&Schwarz	FSV40	101495	Jan. 06, 2018	1 Year
Pre-Amplifier	Rohde&Schwarz	CBLU1183540-01	3791	Jan. 06, 2018	1 Year
Loop Antenna	Schwarzbeck	FMZB1516	1516131	Jan. 06, 2018	1 Year
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	Jan. 06, 2018	1 Year
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	Jan. 06, 2018	1 Year
Horn Antenna	Schwarzbeck	BBHA9170	9170-359	Jan. 06, 2018	1 Year
LISN	Schwarzbeck	NSLK8126	8126431	Jan. 06, 2018	1 Year
Highpass Filter	Wainwright Instruments	WHKX3.6/18G-10SS	N/A	Jan. 06, 2018	1 Year
Band Reject Filter	Wainwright Instruments	WRCG2400/2485-2375/2510-60/11SS	N/A	Jan. 06, 2018	1 Year
RF COAXIAL CABLE	SUHNER	N-5m(Frequency range:9KHz-26.5GHz)	NO.3	Jan. 06, 2018	1 Year
RF COAXIAL CABLE	SUHNER	N-5m(Frequency range:9KHz-26.5GHz)	NO.4	Jan. 06, 2018	1 Year
RF COAXIAL CABLE	SUHNER	N-1m(Frequency range:9KHz-26.5GHz)	NO.5	Jan. 06, 2018	1 Year
RF COAXIAL CABLE	SUHNER	N-1m(Frequency range:9KHz-26.5GHz)	NO.6	Jan. 06, 2018	1 Year
Temporary antenna connector	NTGS	14AE	N/A	July 30, 2018	N/A

Note: The temporary antenna connector is soldered on the PCB board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.

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

Note: The equipment under test (EUT) was tested under fully-charged battery.
The Bluetooth has been tested under continuous transmission mode.
Its duty cycle setting is greater than 98%.

EUT is connected to a computer through the usb-serial controller tool and Use test software to set the test mode.
Test software is (SmartSnippets™ Studio)

3.2.Configuration and peripherals

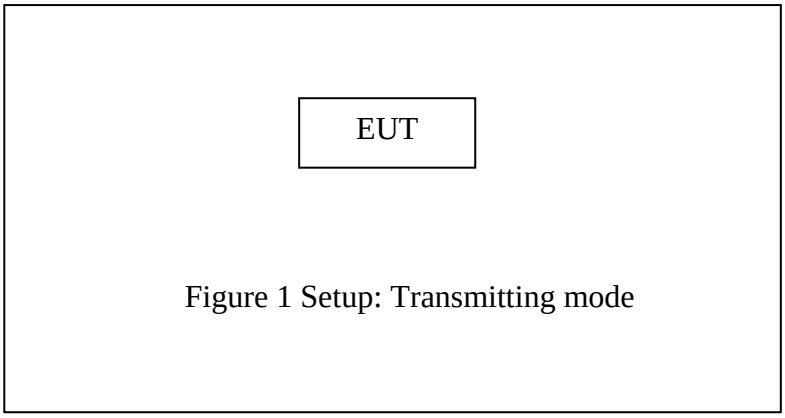


Figure 1 Setup: Transmitting mode

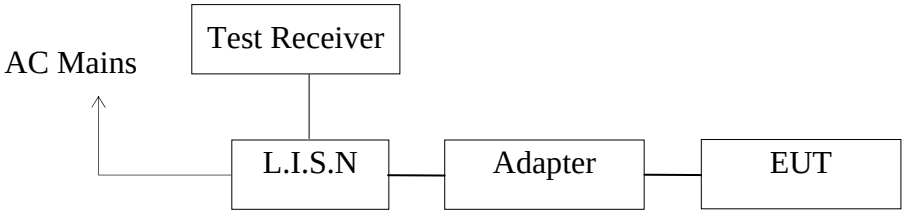
4. TEST PROCEDURES AND RESULTS

FCC Rules	Description of Test	Result
Section 15.247(a)(2)	6dB Bandwidth Test	Compliant
Section 15.247(e)	Power Spectral Density Test	Compliant
Section 15.247(b)(3)	Maximum Peak Output Power Test	Compliant
Section 15.247(d)	Band Edge Compliance Test	Compliant
Section 15.247(d) Section 15.209	Radiated Spurious Emission Test	Compliant
Section 15.207	AC Power Line Conducted Emission Test	Compliant
Section 15.203	Antenna Requirement	Compliant

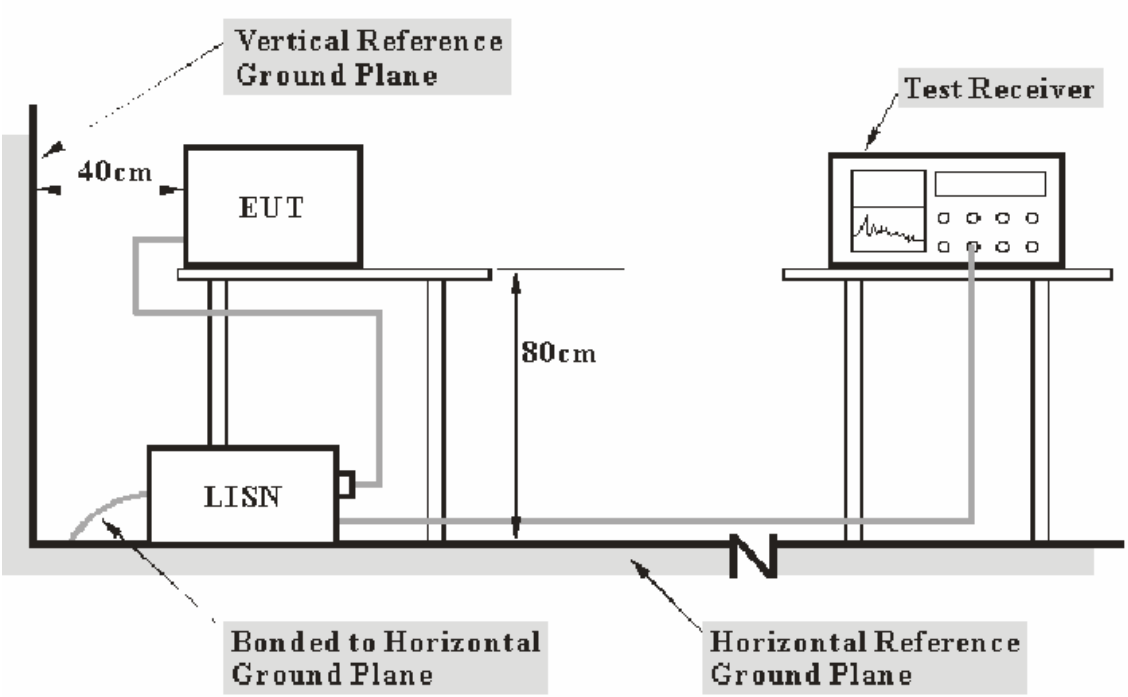
5. POWER LINE CONDUCTED MEASUREMENT

5.1.Block Diagram of Test Setup

5.1.1.Block diagram of connection between the EUT and simulators



5.1.2. Test System Setup



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

5.2.Power Line Conducted Emission Measurement Limits

Frequency (MHz)	Limit dB(μV)	
	Quasi-peak Level	Average Level
0.15 - 0.50	66.0 – 56.0 *	56.0 – 46.0 *
0.50 - 5.00	56.0	46.0
5.00 - 30.00	60.0	50.0
NOTE1: The lower limit shall apply at the transition frequencies. NOTE2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.		

5.3.Configuration of EUT on Measurement

The equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner, which tends to maximize its emission characteristics in a 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 test mode and measure it.

5.5.Test Procedure

The EUT is put on the plane 0.8 m high above the ground by insulating support and is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC lines are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.10: 2013 on Conducted Emission Measurement.
The bandwidth of test receiver (R & S ESCS30) is set at 9kHz.

The frequency range from 150kHz to 30MHz is checked.

5.6.Data Sample

Frequency (MHz)	Transducer value (dB)	QuasiPeak Level (dBμV)	Average Level (dBμV)	QuasiPeak Limit (dBμV)	Average Limit (dBμV)	QuasiPeak Margin (dB)	Average Margin (dB)	Remark (Pass/Fail)
X.XX	11.1	41.8	32.0	56.0	46.0	14.2	14.0	Pass

Frequency(MHz) = Emission frequency in MHz
Transducer value(dB) = Insertion loss of LISN + Cable Loss
Level(dBμV) = Quasi-peak Reading/Average Reading + Transducer value
Limit (dBμV) = Limit stated in standard
Margin = Limit (dBμV) - Level (dBμV)

Calculation Formula:
Margin = Limit (dBμV) - Level (dBμV)

5.7.Power Line Conducted Emission Measurement Results

Pass.

Test Lab: Shielding room
Test Engineer: Frank

The frequency range from 150kHz to 30MHz is checked.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.
Emissions attenuated more than 20 dB below the permissible value are not reported.

All data was recorded in the Quasi-peak and average detection mode.

The spectral diagrams are attached as below.

ACCURATE TECHNOLOGY CO.,LTD

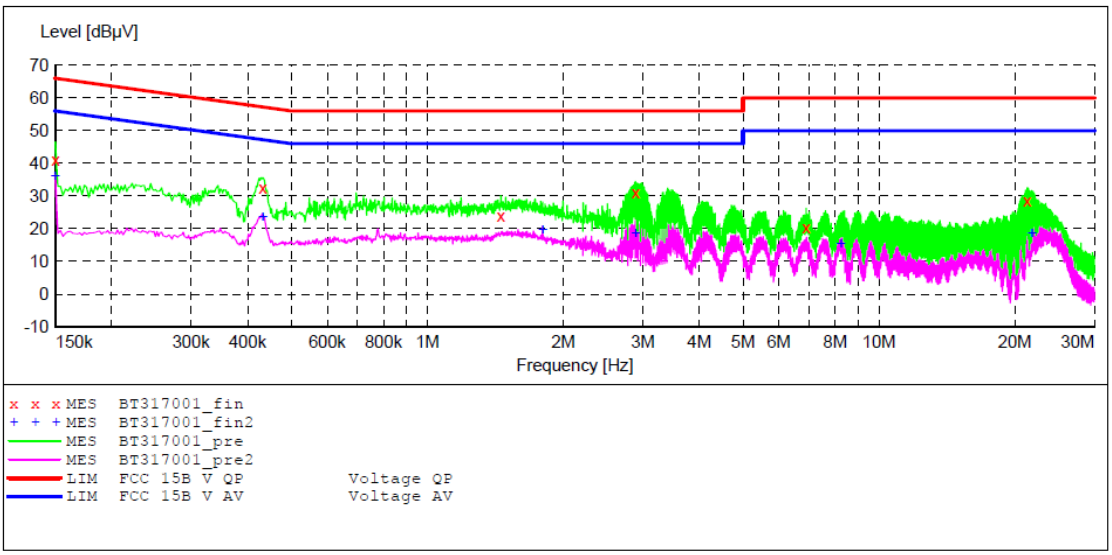
CONDUCTED EMISSION STANDARD FCC PART 15C

EUT: Smart Temperature & Humidity Data Logger M/N:TH-1
Manufacturer: Triamp Technology.,Ltd
Operating Condition: BT Communication
Test Site: 2#Shielding Room
Operator: Frank
Test Specification: N 240V/60Hz
Comment: Report No.:ATE20181353
Start of Test: 2018-7-28 / 9:32:33

SCAN TABLE: "V 150K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	30.0 MHz	4.5 kHz	QuasiPeak Average	1.0 s	9 kHz	NSLK8126 2008



MEASUREMENT RESULT: "BT317001_fin"

2018-7-28 9:35

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.150000	41.10	10.8	66	24.9	QP	N	GND
0.432000	32.50	11.0	57	24.7	QP	N	GND
1.456000	24.00	11.2	56	32.0	QP	N	GND
2.890000	31.20	11.3	56	24.8	QP	N	GND
6.905000	20.40	11.5	60	39.6	QP	N	GND
21.310000	28.50	11.7	60	31.5	QP	N	GND

MEASUREMENT RESULT: "BT317001_fin2"

2018-7-28 9:35

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.150000	36.00	10.8	56	20.0	AV	N	GND
0.432000	23.60	11.0	47	23.6	AV	N	GND
1.800000	19.50	11.2	46	26.5	AV	N	GND
2.890000	18.60	11.3	46	27.4	AV	N	GND
8.235000	15.40	11.5	50	34.6	AV	N	GND
21.855000	18.70	11.7	50	31.3	AV	N	GND

ACCURATE TECHNOLOGY CO.,LTD

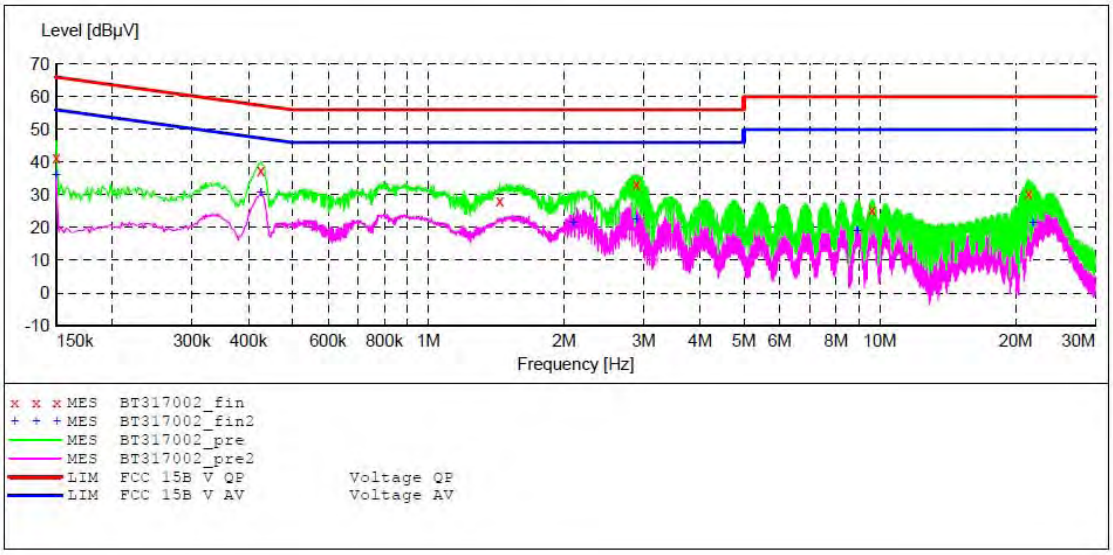
CONDUCTED EMISSION STANDARD FCC PART 15C

EUT: Smart Temperature & Humidity Data Logger M/N:TH-1
Manufacturer: Triamp Technology.,Ltd
Operating Condition: BT Communication
Test Site: 2#Shielding Room
Operator: Frank
Test Specification: L 240V/60Hz
Comment: Report No.:ATE20181353
Start of Test: 2018-7-28 / 9:36:11

SCAN TABLE: "V 150K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	30.0 MHz	4.5 kHz	QuasiPeak Average	1.0 s	9 kHz	NSLK8126 2008



MEASUREMENT RESULT: "BT317002_fin"

2018-7-28 9:38

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.150000	41.30	10.8	66	24.7	QP	L1	GND
0.426000	37.60	11.0	57	19.7	QP	L1	GND
1.440000	28.20	11.2	56	27.8	QP	L1	GND
2.890000	33.30	11.3	56	22.7	QP	L1	GND
9.620000	25.20	11.6	60	34.8	QP	L1	GND
21.380000	30.30	11.7	60	29.7	QP	L1	GND

MEASUREMENT RESULT: "BT317002_fin2"

2018-7-28 9:38

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.150000	36.00	10.8	56	20.0	AV	L1	GND
0.426000	30.60	11.0	47	16.7	AV	L1	GND
2.095000	21.40	11.3	46	24.6	AV	L1	GND
2.890000	22.70	11.3	46	23.3	AV	L1	GND
8.910000	18.90	11.5	50	31.1	AV	L1	GND
21.830000	21.40	11.7	50	28.6	AV	L1	GND

ACCURATE TECHNOLOGY CO.,LTD

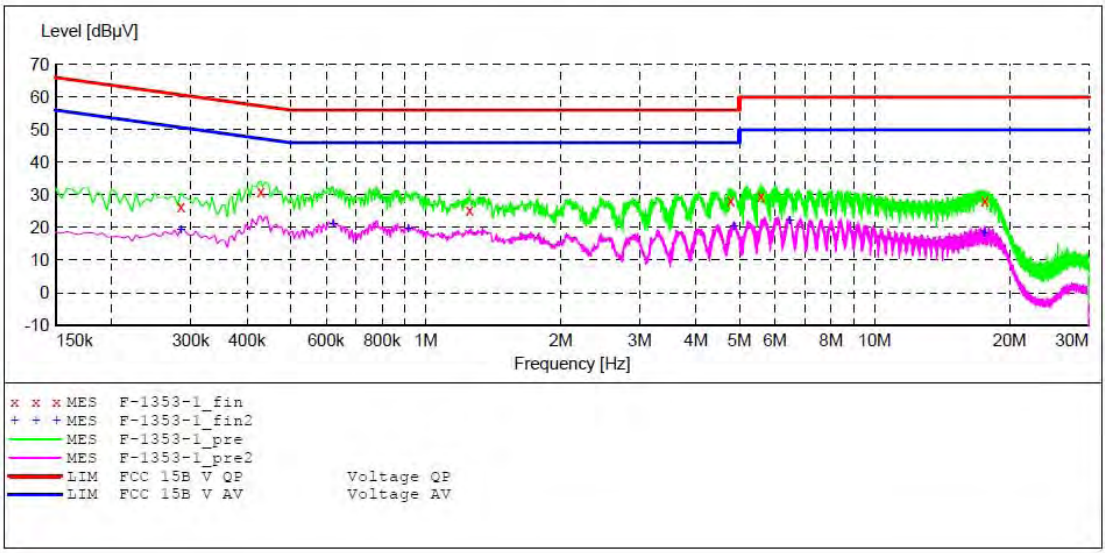
CONDUCTED EMISSION STANDARD FCC PART 15C

EUT:	Smart Temperature & Humidity Data Logger M/N:TH-1
Manufacturer:	Triamp Technology.,Ltd
Operating Condition:	BT Communication
Test Site:	2#Shielding Room
Operator:	Frank
Test Specification:	N 120V/60Hz
Comment:	Report NO.:ATE20181353
Start of Test:	2018-7-28 / 14:02:57

SCAN TABLE: "V 150K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	30.0 MHz	4.5 kHz	QuasiPeak Average	1.0 s	9 kHz	NSLK8126 2008



MEASUREMENT RESULT: "F-1353-1_fin"

2018-7-28 14:05

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.285000	26.30	10.9	61	34.4	QP	N	GND
0.429000	31.00	11.0	57	26.3	QP	N	GND
1.252500	25.50	11.2	56	30.5	QP	N	GND
4.785000	28.30	11.4	56	27.7	QP	N	GND
5.590500	29.60	11.5	60	30.4	QP	N	GND
17.592000	28.30	11.7	60	31.7	QP	N	GND

MEASUREMENT RESULT: "F-1353-1_fin2"

2018-7-28 14:05

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.285000	19.30	10.9	51	31.4	AV	N	GND
0.622500	21.00	11.0	46	25.0	AV	N	GND
0.915000	19.80	11.1	46	26.2	AV	N	GND
4.861500	20.20	11.4	46	25.8	AV	N	GND
6.472500	22.10	11.5	50	27.9	AV	N	GND
17.565000	18.40	11.7	50	31.6	AV	N	GND

ACCURATE TECHNOLOGY CO.,LTD

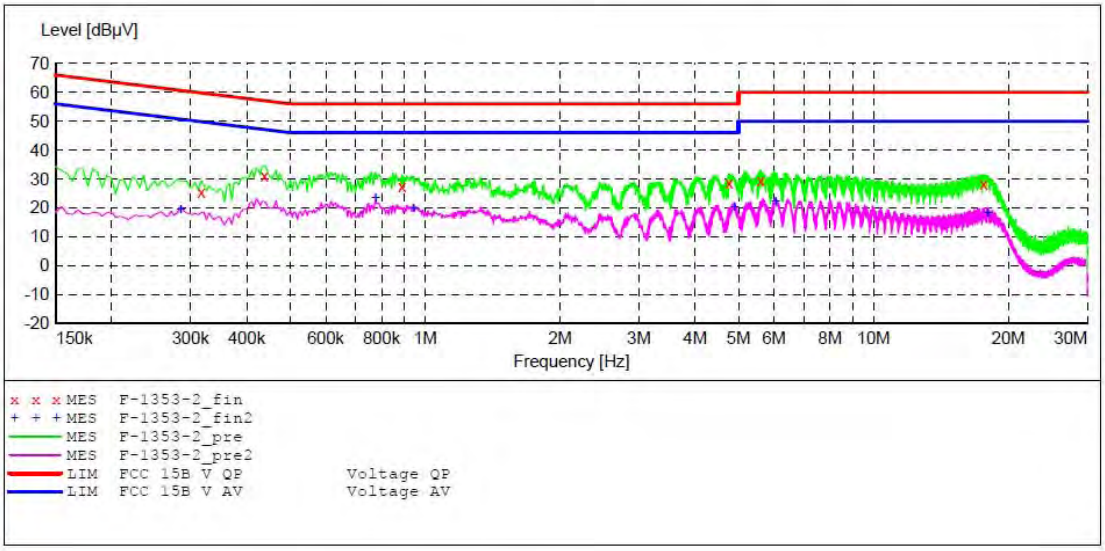
CONDUCTED EMISSION STANDARD FCC PART 15C

EUT:	Smart Temperature & Humidity Data Logger M/N:TH-1
Manufacturer:	Triamp Technology.,Ltd
Operating Condition:	BT Communication
Test Site:	2#Shielding Room
Operator:	Frank
Test Specification:	L 120V/60Hz
Comment:	Report NO.:ATE20181353
Start of Test:	2018-7-28 / 14:05:54

SCAN TABLE: "V 150K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	30.0 MHz	4.5 kHz	QuasiPeak Average	1.0 s	9 kHz	NSLK8126 2008



MEASUREMENT RESULT: "F-1353-2_fin"

2018-7-28 14:09

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.316500	25.20	10.9	60	34.6	QP	L1	GND
0.438000	31.10	11.0	57	26.0	QP	L1	GND
0.888000	27.20	11.1	56	28.8	QP	L1	GND
4.762500	28.50	11.4	56	27.5	QP	L1	GND
5.604000	29.50	11.5	60	30.5	QP	L1	GND
17.596500	28.40	11.7	60	31.6	QP	L1	GND

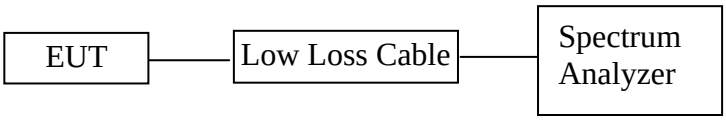
MEASUREMENT RESULT: "F-1353-2_fin2"

2018-7-28 14:09

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.285000	19.40	10.9	51	31.3	AV	L1	GND
0.775500	23.20	11.1	46	22.8	AV	L1	GND
0.942000	19.90	11.1	46	26.1	AV	L1	GND
4.897500	20.10	11.4	46	25.9	AV	L1	GND
6.049500	22.20	11.5	50	27.8	AV	L1	GND
17.988000	18.10	11.7	50	31.9	AV	L1	GND

6. 6DB BANDWIDTH MEASUREMENT

6.1.Block Diagram of Test Setup



6.2.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.

6.3.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.

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.Set RBW of spectrum analyzer to 100 kHz and VBW to 300 kHz.

6.5.3.The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

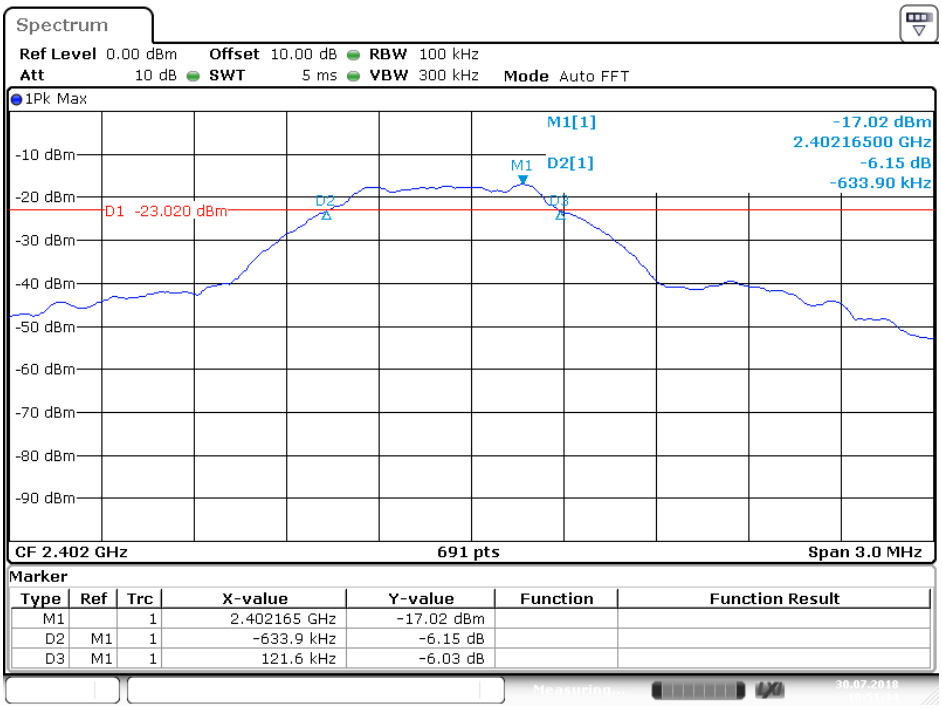
6.6.Test Result

Test Lab: Shielding room
Test Engineer: Frank

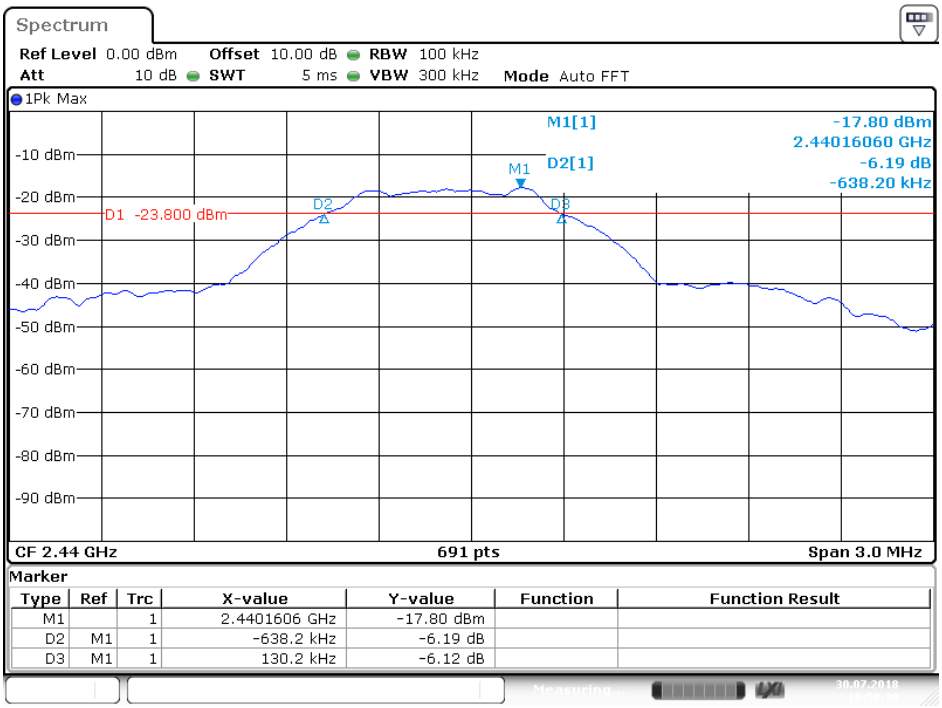
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit(MHz)	Pass/Fail
0	2402	0.756	0.5	Pass
19	2440	0.768	0.5	Pass
39	2480	0.764	0.5	Pass

The spectrum analyzer plots are attached as below.

channel 0

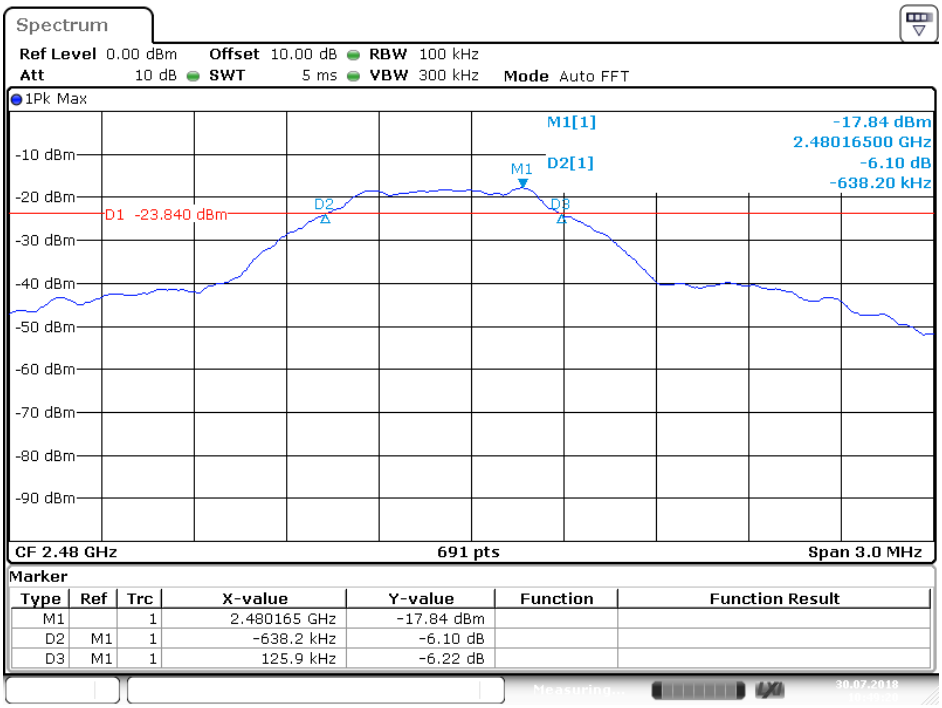


channel 19



Date: 30.JUL.2018 10:50:30

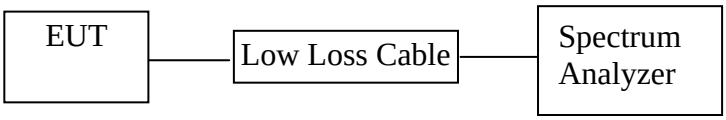
channel 39



Date: 30.JUL.2018 10:49:20

7. MAXIMUM PEAK OUTPUT POWER

7.1.Block Diagram of Test Setup



7.2.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.

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.

7.5.Test Procedure

7.5.1.The transmitter output was connected to the spectrum analyzer through a low loss cable.

7.5.2.Set RBW of spectrum analyzer to 1 MHz and VBW to 3MHz.

7.5.3.Measurement the maximum peak output power.

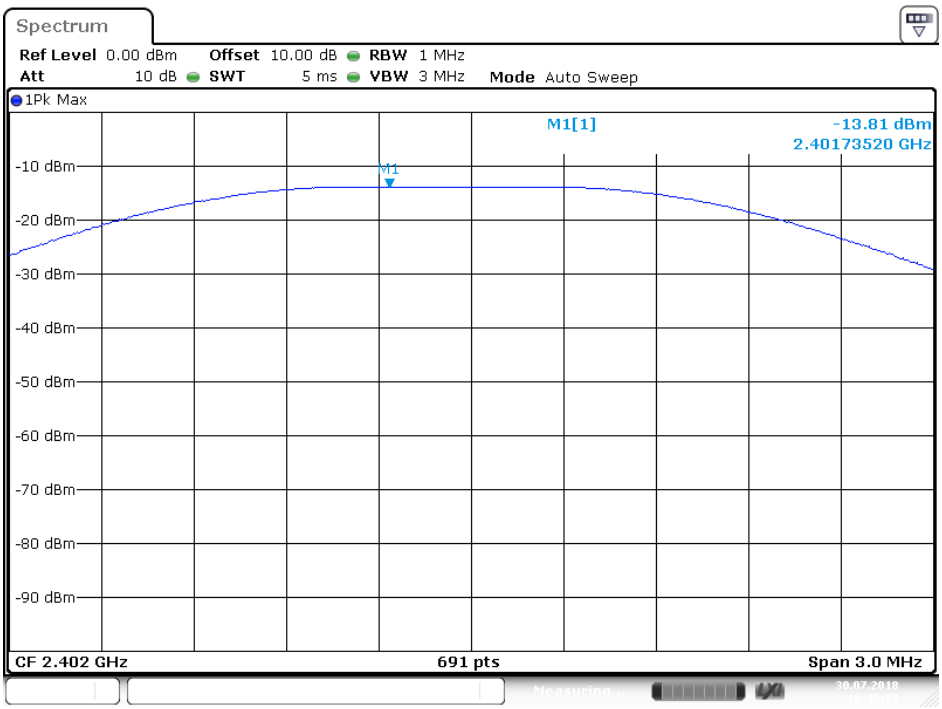
7.6.Test Result

Test Lab: Shielding room
Test Engineer: Frank

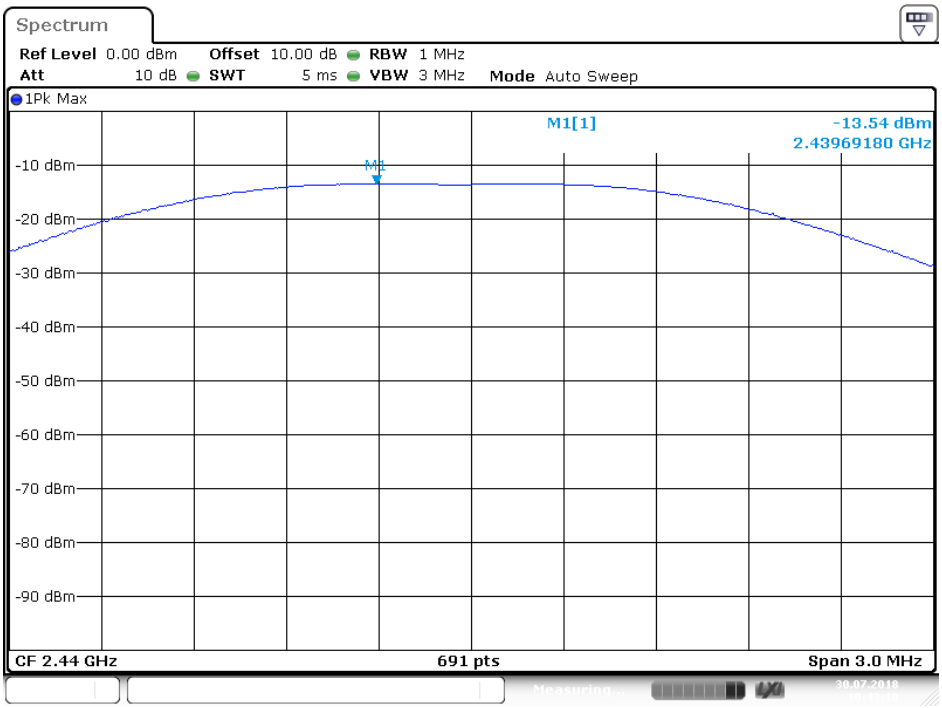
Channel	Frequency (MHz)	Peak Power Output (dBm)	Peak Power Limit (dBm)	Pass / Fail
0	2402	-13.81	30	Pass
19	2440	-13.54	30	Pass
39	2480	-13.59	30	Pass

The spectrum analyzer plots are attached as below.

channel 0

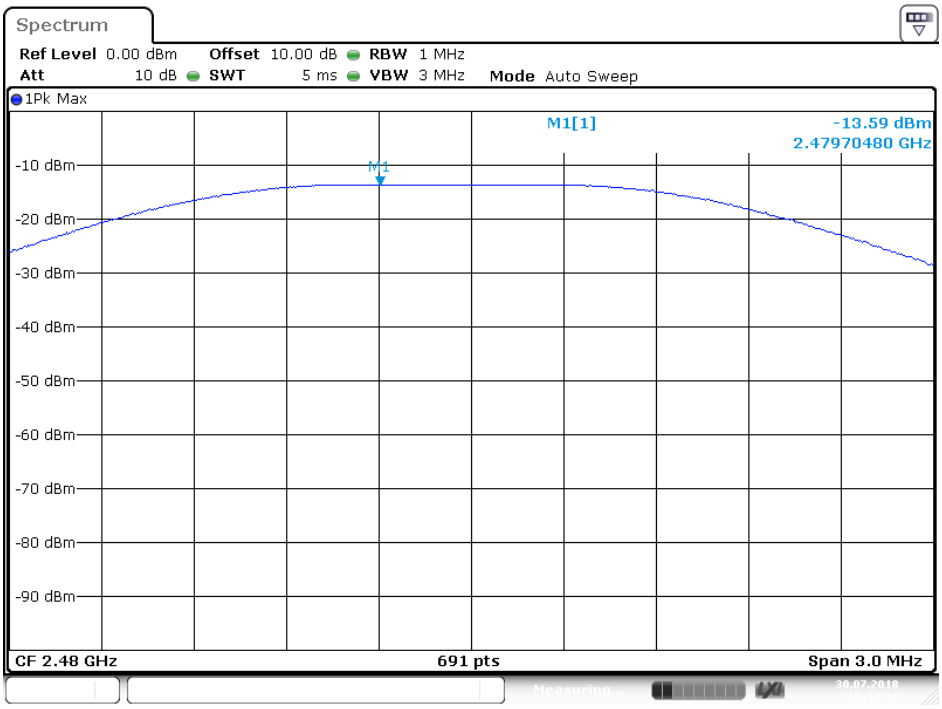


channel 19



Date: 30.JUL.2018 10:43:10

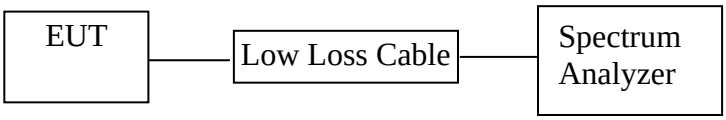
channel 39



Date: 30.JUL.2018 10:44:48

8. POWER SPECTRAL DENSITY MEASUREMENT

8.1.Block Diagram of Test Setup



8.2.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.

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, 2440MHz, and 2480MHz TX frequency to transmit.

8.5.Test Procedure

8.5.1.The transmitter output was connected to the spectrum analyzer through a low loss cable.

8.5.2.Measurement Procedure PKPSD:

8.5.3.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 kHz ≤ RBW ≤ 100 kHz.
4. Set the VBW ≥ 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 3kHz) and repeat.

8.5.4.Measurement the maximum power spectral density.

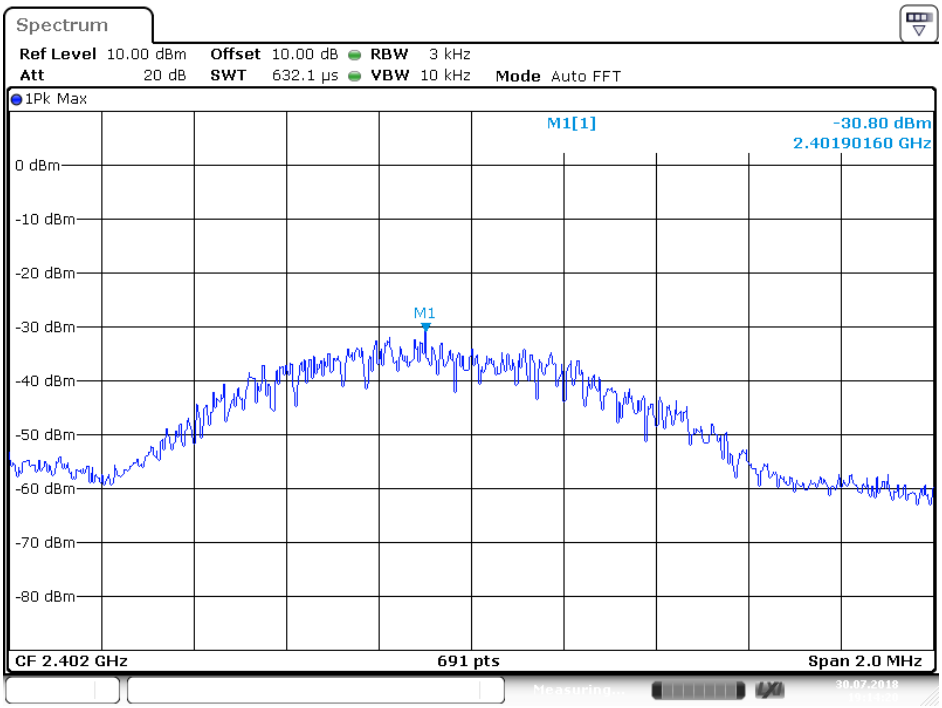
8.6.Test Result

Test Lab: Shielding room
Test Engineer: Frank

Channel	Frequency (MHz)	PSD (dBm/3KHz)	Limit (dBm/3KHz)	Pass/Fail
0	2402	-30.08	8	Pass
19	2440	-29.44	8	Pass
39	2480	-28.11	8	Pass

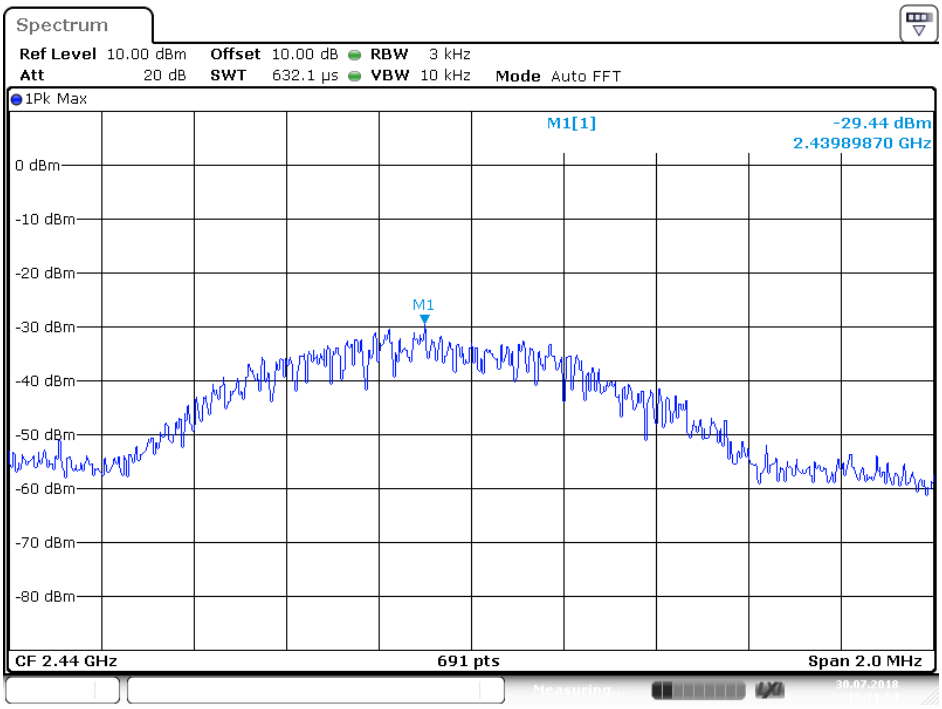
The spectrum analyzer plots are attached as below.

channel 0



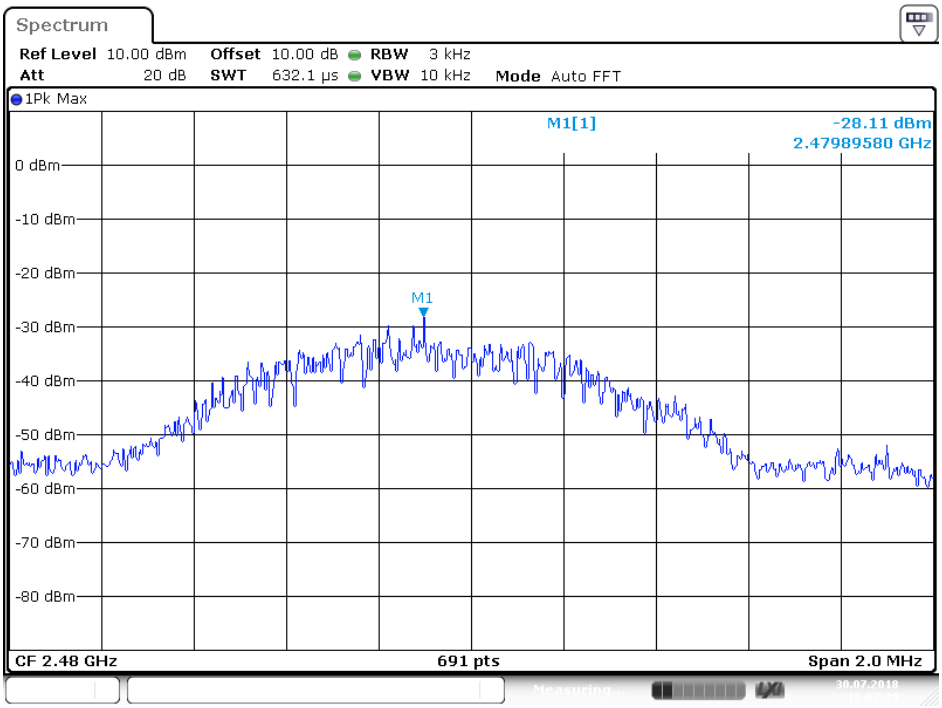
Date: 30.JUL.2018 19:14:20

channel 19



Date: 30.JUL.2018 19:11:55

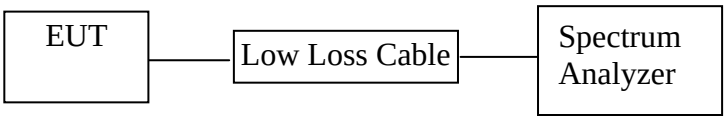
channel 39



Date: 30.JUL.2018 19:07:40

9. BAND EDGE COMPLIANCE TEST

9.1.Block Diagram of Test Setup



9.2.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).

9.3.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.

9.4.Operating Condition of EUT

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

9.4.2.Turn on the power of all equipment.

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

9.5. Test Procedure

Conducted Band Edge:

9.5.1. The transmitter output was connected to the spectrum analyzer via a low loss cable.

9.5.2. Set RBW of spectrum analyzer to 100 kHz and VBW to 300 kHz.

Radiate Band Edge:

9.5.3. The EUT is placed on a turntable, which is 1.5m above the ground plane and worked at highest radiated power.

9.5.4. The turntable was rotated for 360 degrees to determine the position of maximum emission level.

9.5.5. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.

9.5.6. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:

9.5.7. RBW=1MHz, VBW=1MHz

9.5.8. The band edges was measured and recorded.

9.6. Test Result

Pass.

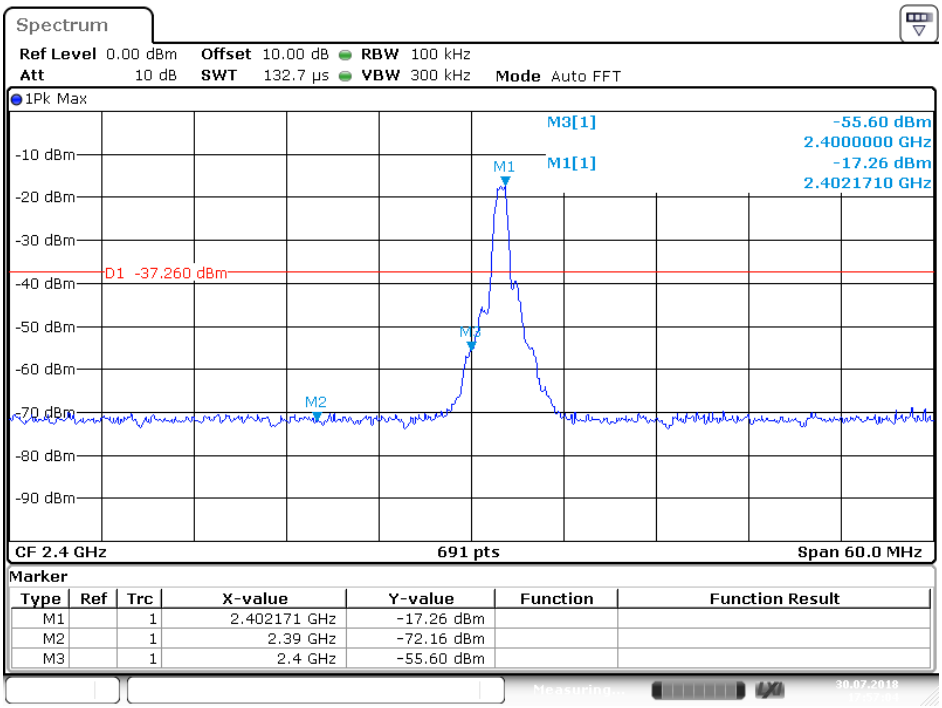
Test Lab: Shielding room
Test Engineer: Frank

Conducted Band Edge Result

Channel	Frequency (MHz)	Delta peak to band emission	Limit(dBc)
0	2400.0	38.34	20
39	2483.5	52.16	20

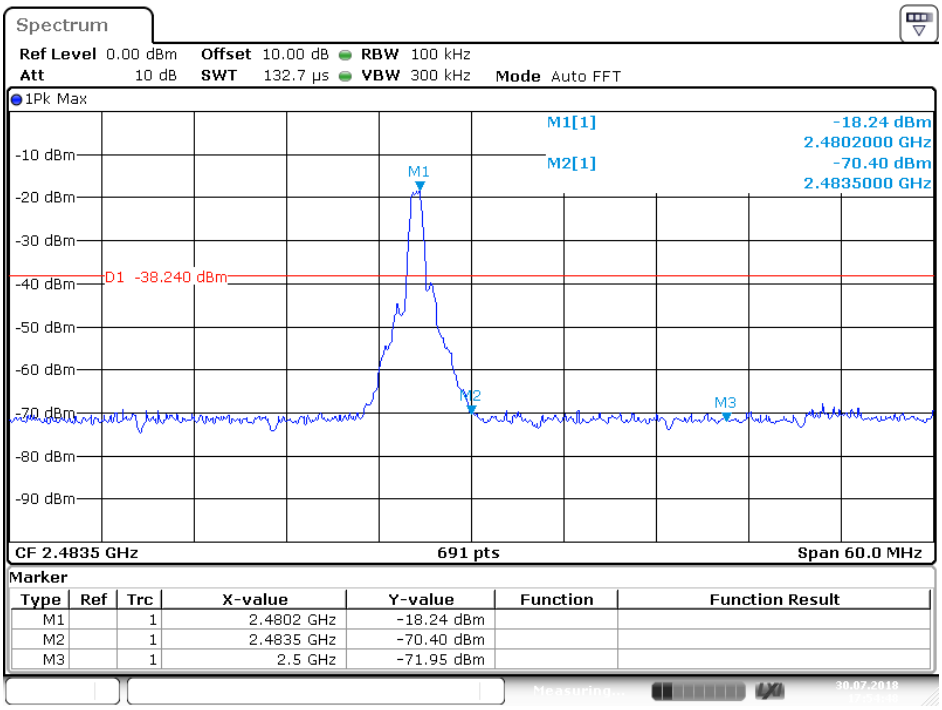
The spectrum analyzer plots are attached as below.

channel 0



Date: 30.JUL.2018 17:57:04

channel 39



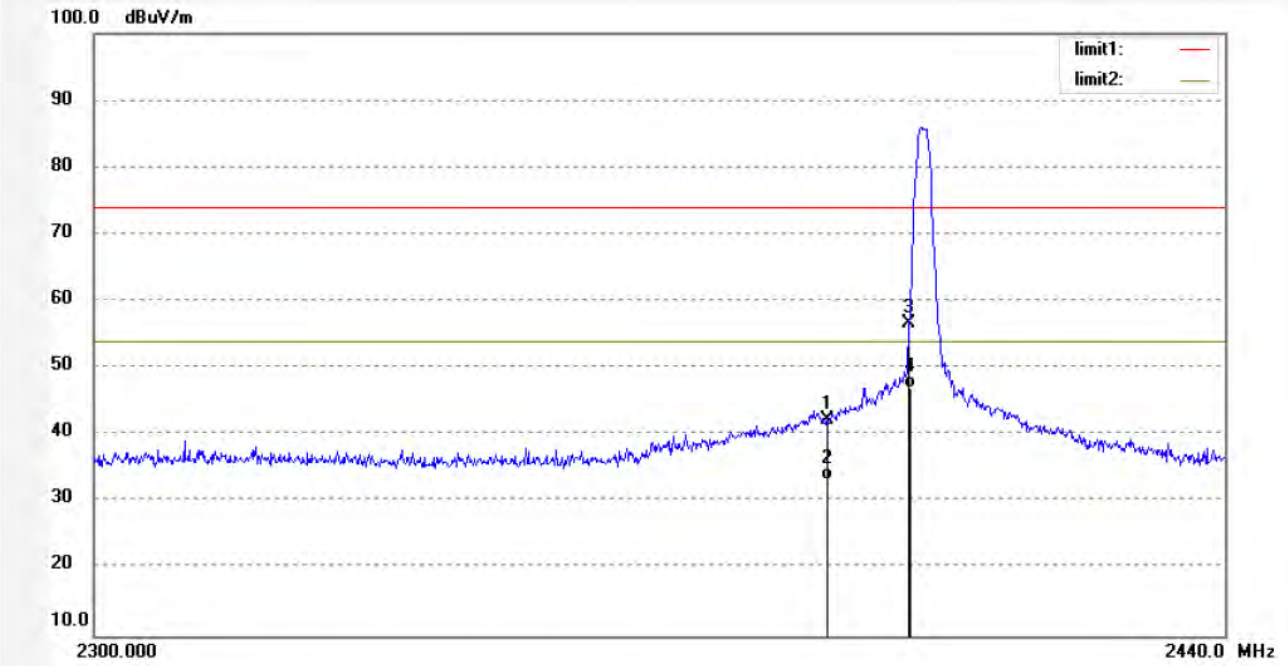
Date: 30.JUL.2018 17:54:48

Radiated Band Edge Result

ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: FRANK2018 #587	Polarization: Horizontal
Standard: FCC PK	Power Source: DC 3.7V
Test item: Radiation Test	Date: 18/07/30/
Temp.(C)/Hum.(%) 23 C / 48 %	Time: 10/07/23
EUT: Smart Temperature & Humidity Data Logger	Engineer Signature:
Mode: TX 2402MHz	Distance: 3m
Model: TH-1	
Manufacturer: Triamp Technology.,Ltd	

Note: Report NO.:ATE20171353

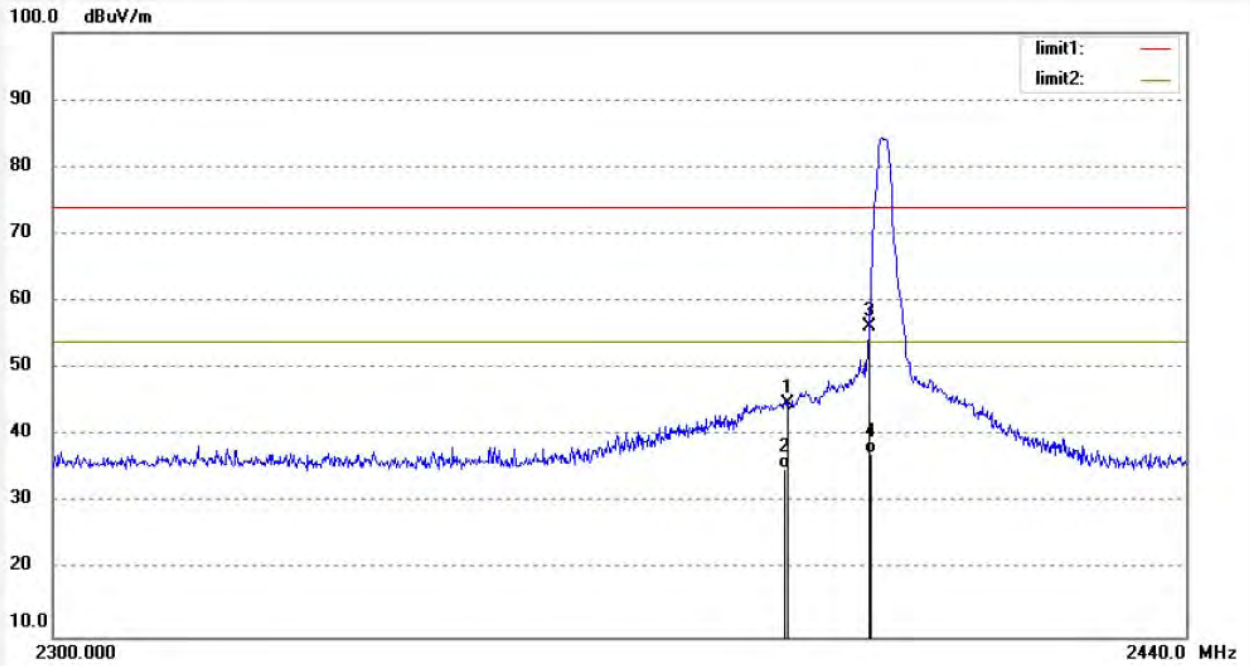


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	41.56	0.79	42.35	74.00	-31.65	peak	250	156	
2	2390.000	32.55	0.79	33.34	54.00	-20.66	AVG	250	65	
3	2400.000	55.71	0.88	56.59	74.00	-17.41	peak	250	123	
4	2400.000	46.13	0.88	47.01	54.00	-6.99	AVG	250	102	

ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: FRANK2018 #586	Polarization: Vertical
Standard: FCC PK	Power Source: DC 3.7V
Test item: Radiation Test	Date: 18/07/30/
Temp.(C)/Hum.(%) 23 C / 48 %	Time: 10/06/28
EUT: Smart Temperature & Humidity Data Logger	Engineer Signature:
Mode: TX 2402MHz	Distance: 3m
Model: TH-1	
Manufacturer: Triamp Technology.,Ltd	

Note: Report NO.:ATE20171353

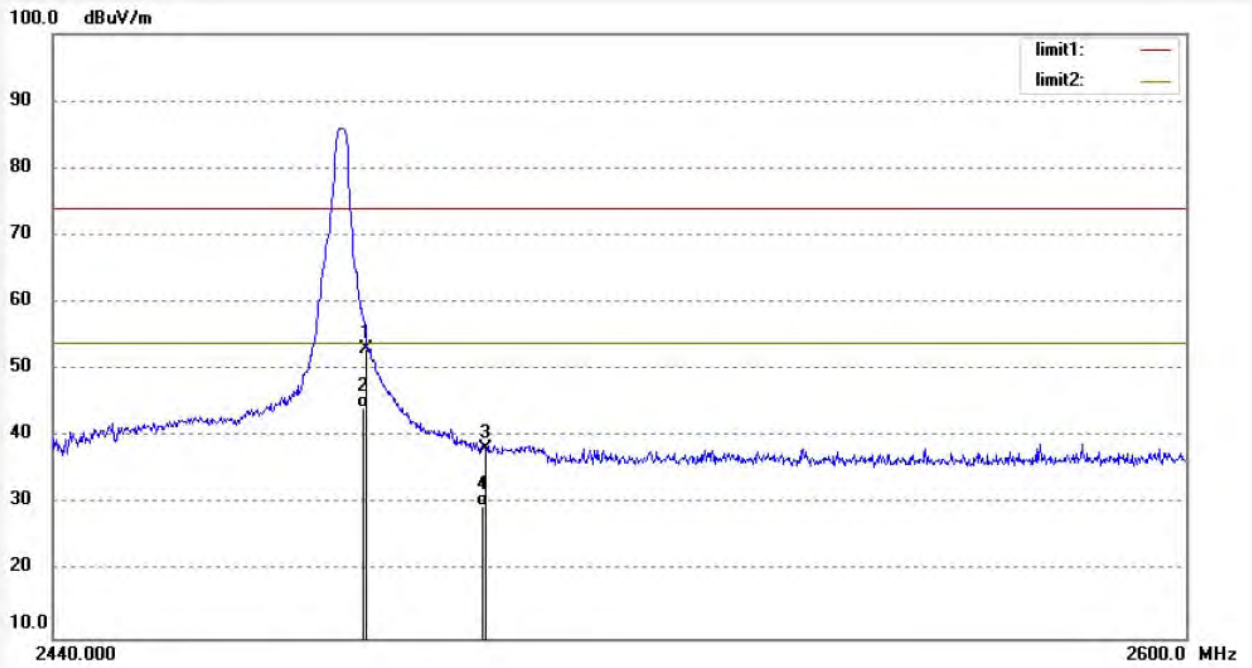


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	43.87	0.79	44.66	74.00	-29.34	peak	200	301	
2	2390.000	34.26	0.79	35.05	54.00	-18.95	AVG	150	221	
3	2400.000	55.37	0.88	56.25	74.00	-17.75	peak	200	66	
4	2400.000	36.46	0.88	37.34	54.00	-16.66	AVG	150	266	

ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: FRANK2018 #584	Polarization: Horizontal
Standard: FCC PK	Power Source: DC 3.7V
Test item: Radiation Test	Date: 18/07/30/
Temp.(C)/Hum.(%) 23 C / 48 %	Time: 10/04/17
EUT: Smart Temperature & Humidity Data Logger	Engineer Signature:
Mode: TX 2480MHz	Distance: 3m
Model: TH-1	
Manufacturer: Triamp Technology.,Ltd	

Note: Report NO.:ATE20171353

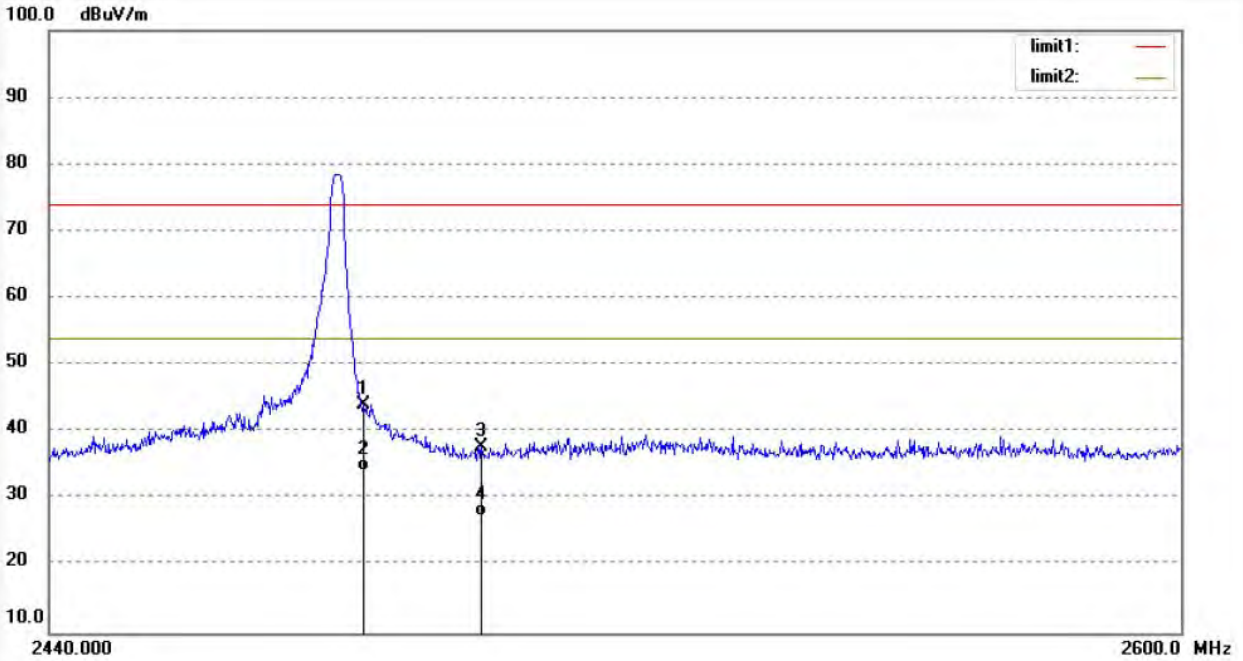


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	52.08	1.10	53.18	74.00	-20.82	peak	250	301	
2	2483.500	43.12	1.10	44.22	54.00	-9.78	AVG	200	56	
3	2500.000	37.11	1.10	38.21	74.00	-35.79	peak	250	123	
4	2500.000	28.65	1.10	29.75	54.00	-24.25	AVG	200	61	

ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: FRANK2018 #585	Polarization: Vertical
Standard: FCC PK	Power Source: DC 3.7V
Test item: Radiation Test	Date: 18/07/30/
Temp.(C)/Hum.(%) 23 C / 48 %	Time: 10/05/06
EUT: Smart Temperature & Humidity Data Logger	Engineer Signature:
Mode: TX 2480MHz	Distance: 3m
Model: TH-1	
Manufacturer: Triamp Technology.,Ltd	

Note: Report NO.:ATE20171353



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	42.89	1.10	43.99	74.00	-30.01	peak	200	132	
2	2483.500	33.16	1.10	34.26	54.00	-19.74	AVG	150	54	
3	2500.000	36.59	1.10	37.69	74.00	-36.31	peak	200	166	
4	2500.000	26.45	1.10	27.55	54.00	-26.45	AVG	150	110	

Note:

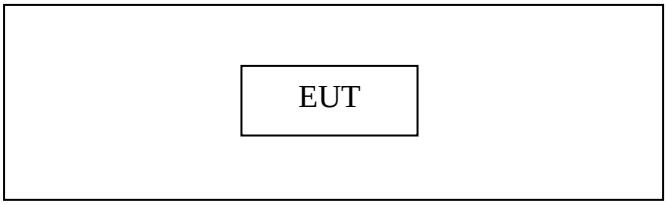
1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is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

   Result = Reading + Corrected Factor

10.RADIATED SPURIOUS EMISSION TEST

10.1.Block Diagram of Test Setup

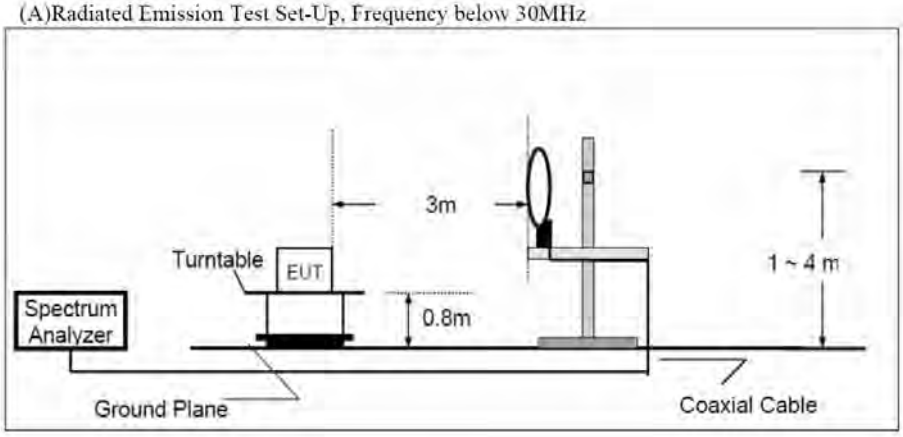
10.1.1.Block diagram of connection between the EUT and peripherals



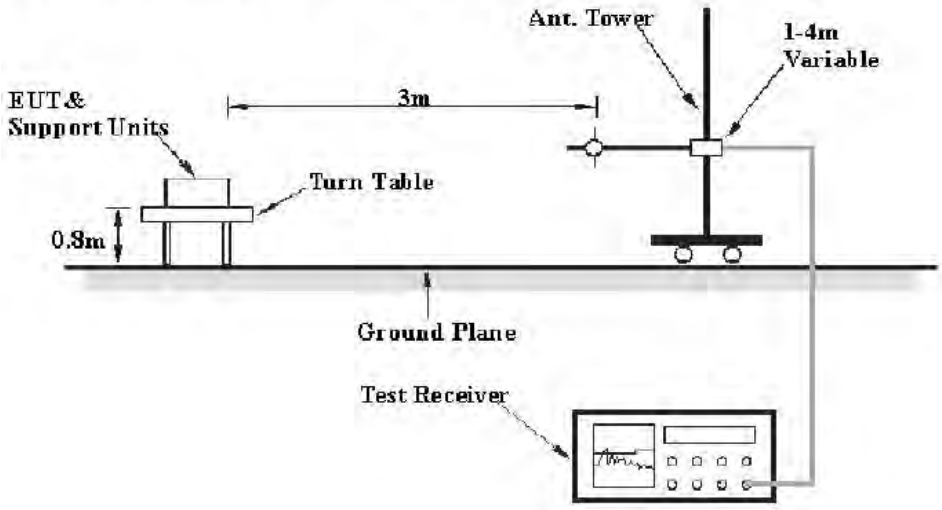
Setup: Transmitting mode

10.1.2.Semi-Anechoic Chamber Test Setup Diagram

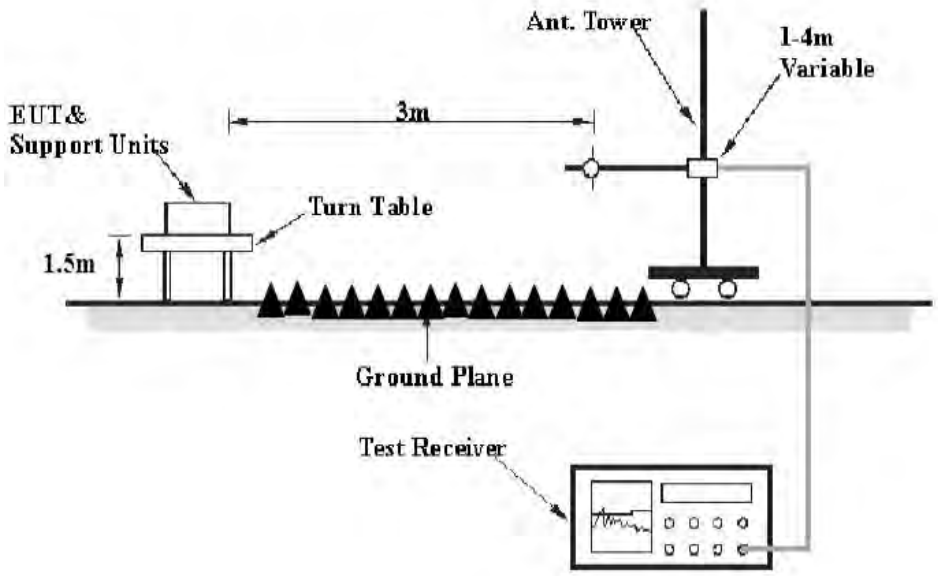
(A)Radiated Emission Test Set-Up, Frequency below 30MHz



(B)Radiated Emission Test Set-Up, Frequency 30MHz-1GHz



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



10.2.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).

10.3. Restricted bands of operation

10.3.1. 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	([2])
13.36-13.41			

[1]Until February 1, 1999, this restricted band shall be 0.490-0.510
[2]Above 38.6

(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.

10.4. 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.

10.5. Operating Condition of EUT

10.5.1. Setup the EUT and simulator as shown as Section 10.1.

10.5.2. Turn on the power of all equipment.

10.5.3. 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.

10.6. 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. This EUT was tested in 3 orthogonal positions and the worst case position data was reported.

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 26.5GHz 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.

10.7.Data Sample

Frequency (MHz)	Reading (dBμv)	Factor (dB/m)	Result (dBμv/m)	Limit (dBμv/m)	Margin (dB)	Remark
X.XX	43.85	-22.22	21.63	43.5	-21.87	QP

Frequency(MHz) = Emission frequency in MHz
Reading(dBμv) = Uncorrected Analyzer/Receiver reading
Factor (dB/m) = Antenna factor + Cable Loss – Amplifier gain
Result(dBμv/m) = Reading(dBμv) + Factor(dB/m)
Limit (dBμv/m) = Limit stated in standard
Margin (dB) = Result(dBμv/m) - Limit (dBμv/m)
QP = Quasi-peak Reading

Calculation Formula:
Margin(dB) = Result (dBμV/m)–Limit(dBμV/m)
Result(dBμV/m)= Reading(dBμV)+ Factor(dB/m)

The "Margin" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dB means the emission is 7dB below the limit.

10.8.The Field Strength of Radiation Emission Measurement Results

Pass.

Test Lab: 3m Anechoic chamber
Test Engineer: Frank

The frequency range from 9kHz to 26.5GHz is checked.

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 9kHz-30MHz and 18-26.5GHz are not reported, because the test values lower than the limits of 20dB.

The spectrum analyzer plots are attached as below.

Below 1GHz

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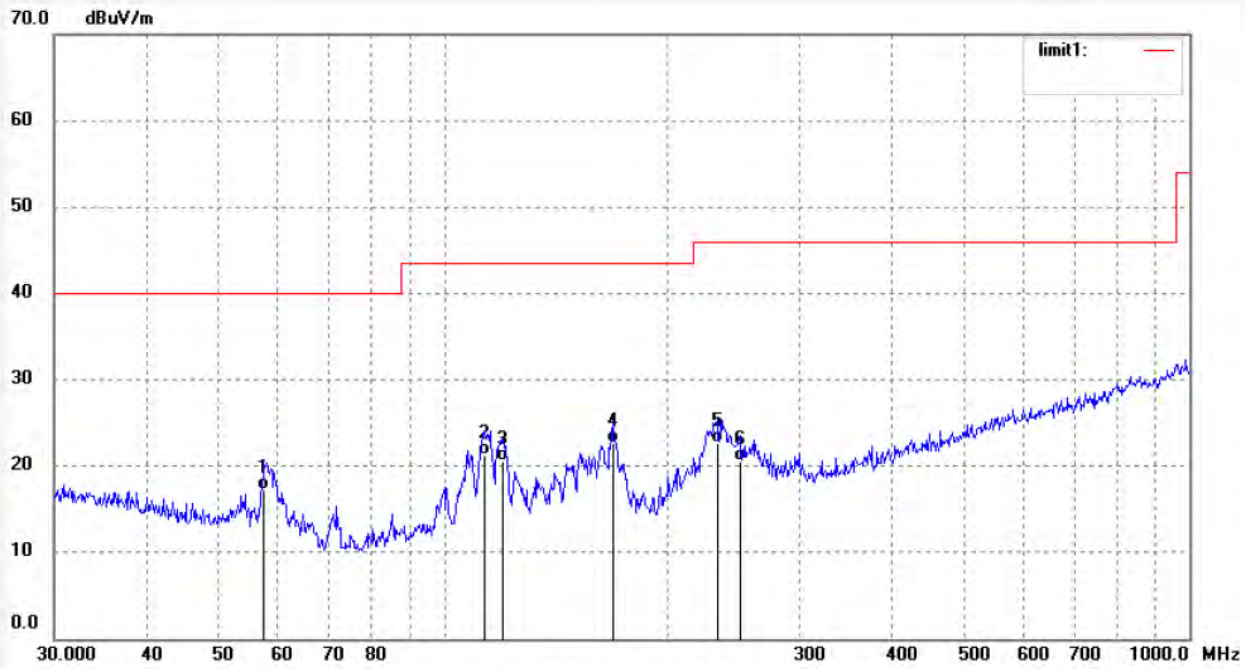
Fax:+86-0755-26503396

Job No.: FRANK2018 #523	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V
Test item: Radiation Test	Date: 18/07/28/
Temp.(C)/Hum.(%) 23 C / 48 %	Time: 14/33/55
EUT: Smart Temperature & Humidity Data Logger	Engineer Signature:
Mode: TX 2402MHz	Distance: 3m
Model: TH-1	
Manufacturer: Triamp Technology.,Ltd	

Note: Report NO.:ATE20171353



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	57.3922	30.64	-13.41	17.23	40.00	-22.77	QP	200	156	
2	113.3162	34.62	-13.32	21.30	43.50	-22.20	QP	200	320	
3	119.8555	33.61	-13.06	20.55	43.50	-22.95	QP	200	102	
4	168.4138	36.46	-13.79	22.67	43.50	-20.83	QP	200	56	
5	232.5318	33.56	-10.97	22.59	46.00	-23.41	QP	200	23	
6	249.4250	31.02	-10.54	20.48	46.00	-25.52	QP	200	102	

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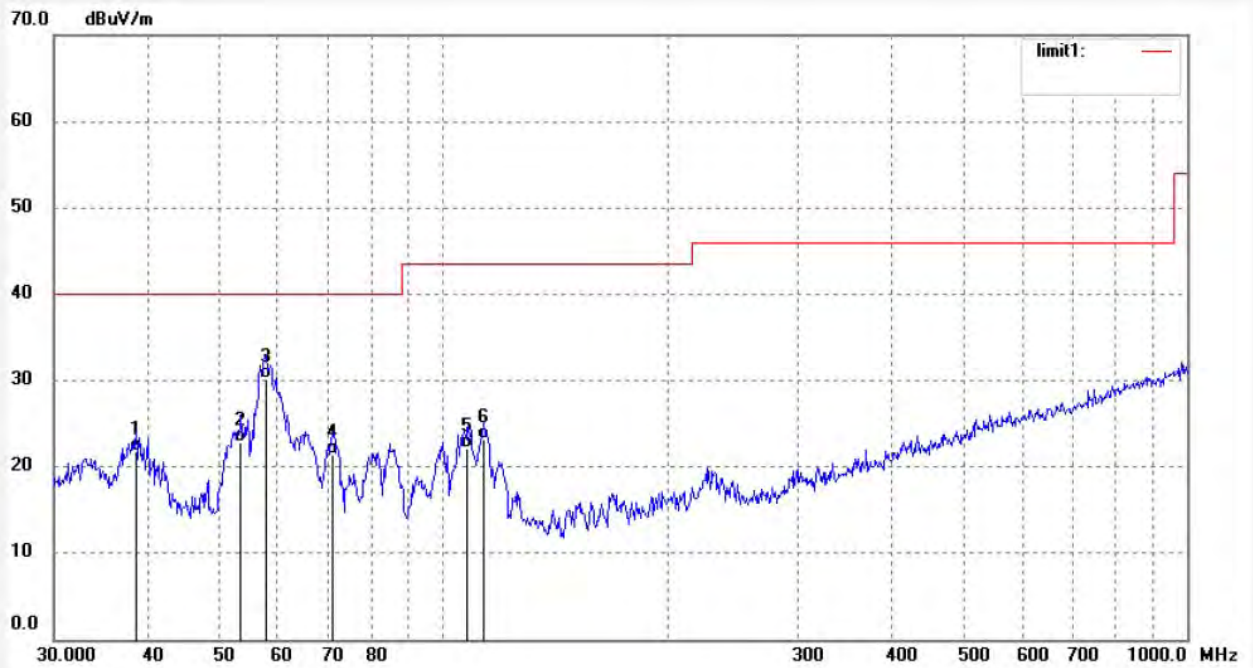
Fax:+86-0755-26503396

Job No.: FRANK2018 #524	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V
Test item: Radiation Test	Date: 18/07/28/
Temp.(C)/Hum.(%) 23 C / 48 %	Time: 14/34/59
EUT: Smart Temperature & Humidity Data Logger	Engineer Signature:
Mode: TX 2402MHz	Distance: 3m
Model: TH-1	
Manufacturer: Triamp Technology.,Ltd	

Note: Report NO.:ATE20171353



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	38.7518	33.01	-11.25	21.76	40.00	-18.24	QP	100	305	
2	53.5052	35.65	-12.85	22.80	40.00	-17.20	QP	100	145	
3	57.7961	43.65	-13.49	30.16	40.00	-9.84	QP	100	48	
4	71.0802	37.65	-16.21	21.44	40.00	-18.56	QP	100	56	
5	107.8876	35.94	-13.84	22.10	43.50	-21.40	QP	100	130	
6	113.3162	36.45	-13.32	23.13	43.50	-20.37	QP	100	102	

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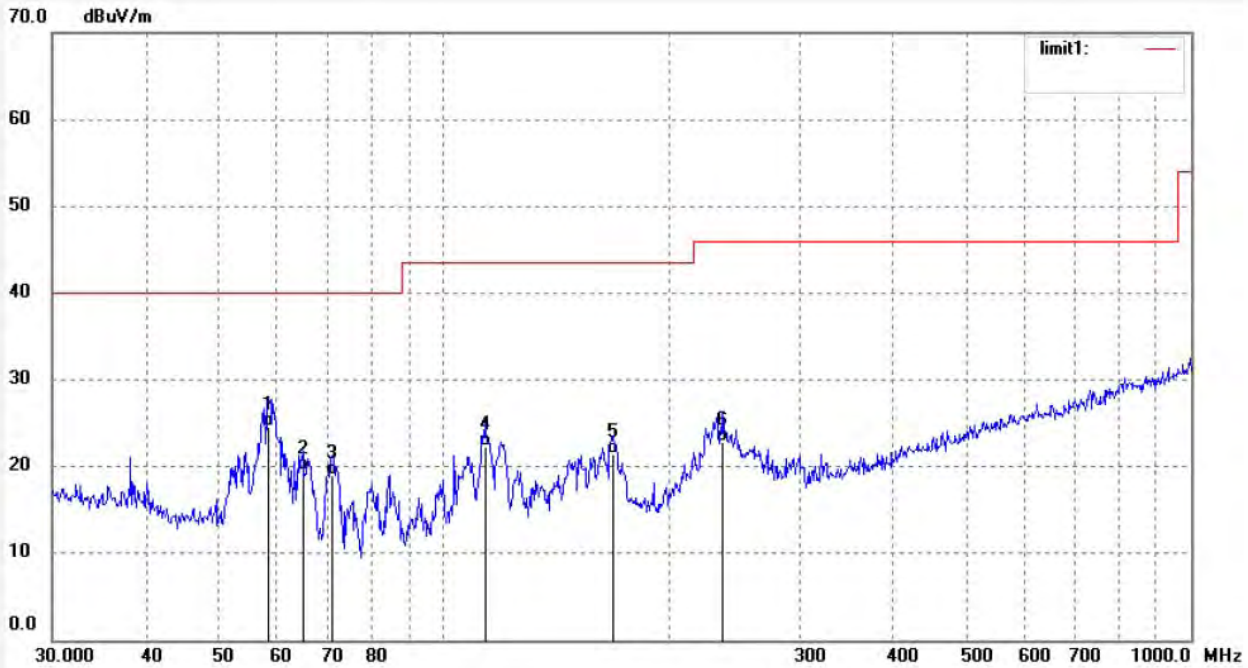
Fax:+86-0755-26503396

Job No.: FRANK2018 #526	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V
Test item: Radiation Test	Date: 18/07/28/
Temp.(C)/Hum.(%) 23 C / 48 %	Time: 14/36/22
EUT: Smart Temperature & Humidity Data Logger	Engineer Signature:
Mode: TX 2440MHz	Distance: 3m
Model: TH-1	
Manufacturer: Triamp Technology.,Ltd	

Note: Report NO.:ATE20171353



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	58.4074	38.15	-13.60	24.55	40.00	-15.45	QP	200	102	
2	64.8865	35.20	-15.65	19.55	40.00	-20.45	QP	200	132	
3	71.0803	35.13	-16.21	18.92	40.00	-21.08	QP	200	61	
4	113.7143	35.62	-13.25	22.37	43.50	-21.13	QP	200	102	
5	169.0054	35.16	-13.70	21.46	43.50	-22.04	QP	200	94	
6	236.6447	33.65	-10.77	22.88	46.00	-23.12	QP	200	120	

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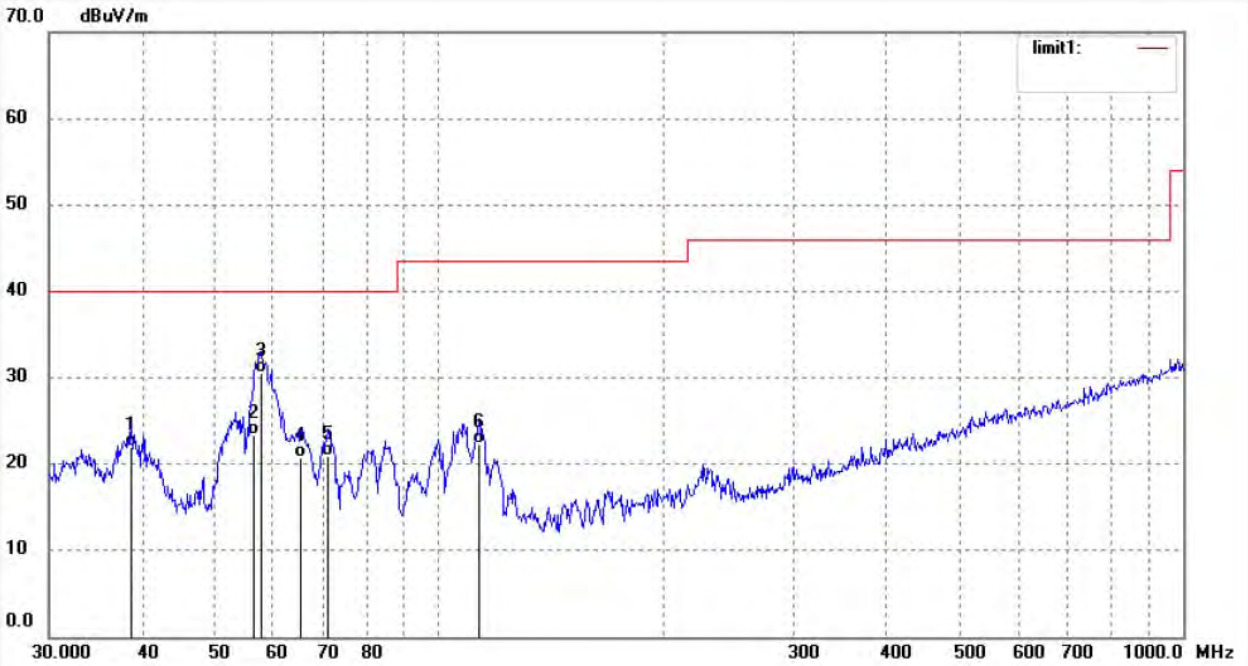
Fax:+86-0755-26503396

Job No.: FRANK2018 #525	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V
Test item: Radiation Test	Date: 18/07/28/
Temp.(C)/Hum.(%) 23 C / 48 %	Time: 14/35/15
EUT: Smart Temperature & Humidity Data Logger	Engineer Signature:
Mode: TX 2440MHz	Distance: 3m
Model: TH-1	
Manufacturer: Triamp Technology.,Ltd	

Note: Report NO.:ATE20171353



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	38.6160	33.25	-11.22	22.03	40.00	-17.97	QP	100	40	
2	56.0007	36.46	-13.14	23.32	40.00	-16.68	QP	100	305	
3	57.7961	43.96	-13.49	30.47	40.00	-9.53	QP	100	46	
4	65.3431	36.45	-15.72	20.73	40.00	-19.27	QP	100	105	
5	71.0802	37.16	-16.21	20.95	40.00	-19.05	QP	100	123	
6	113.3162	35.61	-13.32	22.29	43.50	-21.21	QP	100	132	

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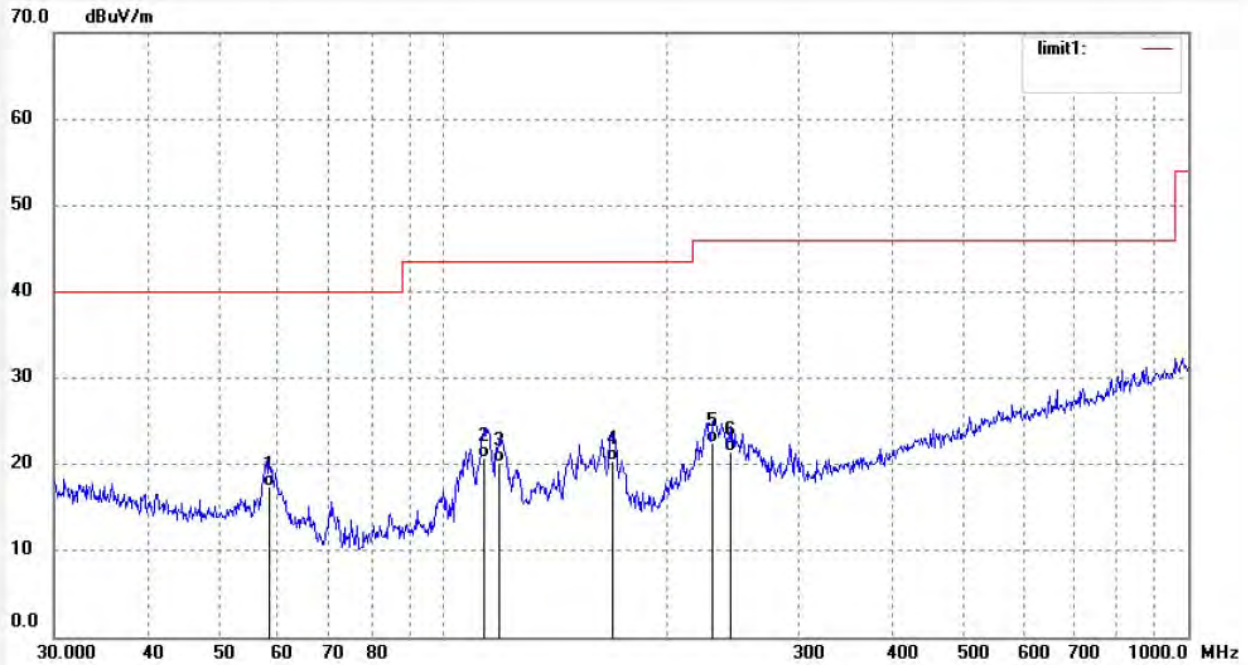
Fax:+86-0755-26503396

Job No.: FRANK2018 #527	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V
Test item: Radiation Test	Date: 18/07/28/
Temp.(C)/Hum.(%) 23 C / 48 %	Time: 14/37/58
EUT: Smart Temperature & Humidity Data Logger	Engineer Signature:
Mode: TX 2480MHz	Distance: 3m
Model: TH-1	
Manufacturer: Triamp Technology.,Ltd	

Note: Report NO.:ATE20171353



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	58.4074	31.02	-13.60	17.42	40.00	-22.58	QP	200	304	
2	113.3162	34.13	-13.32	20.81	43.50	-22.69	QP	200	212	
3	119.0180	33.26	-13.06	20.20	43.50	-23.30	QP	200	40	
4	168.4138	34.25	-13.79	20.46	43.50	-23.04	QP	200	166	
5	230.0985	33.65	-11.11	22.54	46.00	-23.46	QP	200	23	
6	242.5252	31.95	-10.60	21.35	46.00	-24.65	QP	200	103	

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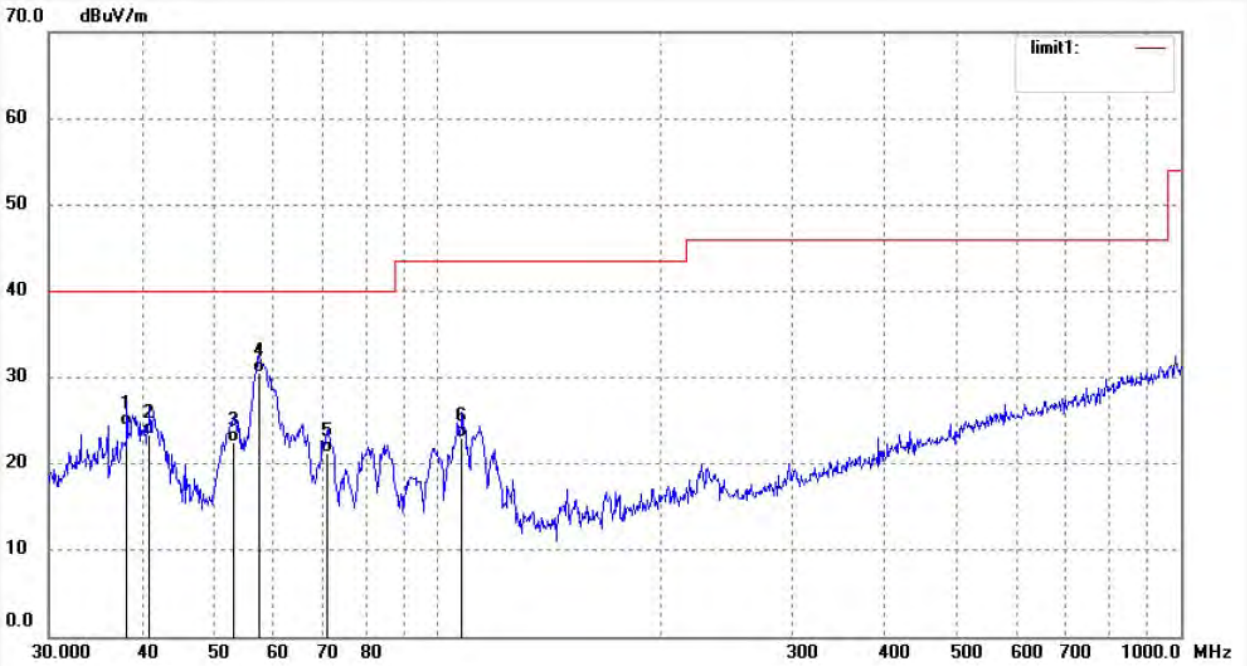
Fax:+86-0755-26503396

Job No.: FRANK2018 #528	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V
Test item: Radiation Test	Date: 18/07/28/
Temp.(C)/Hum.(%) 23 C / 48 %	Time: 14/39/12
EUT: Smart Temperature & Humidity Data Logger	Engineer Signature:
Mode: TX 2480MHz	Distance: 3m
Model: TH-1	
Manufacturer: Triamp Technology.,Ltd	

Note: Report NO.:ATE20171353



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	38.2120	35.61	-11.13	24.48	40.00	-15.52	QP	100	111	
2	40.9881	35.12	-11.75	23.37	40.00	-16.63	QP	100	90	
3	53.1313	35.26	-12.81	22.45	40.00	-17.55	QP	100	156	
4	57.5938	43.95	-13.45	30.50	40.00	-9.50	QP	100	61	
5	71.0802	37.46	-16.21	21.25	40.00	-18.75	QP	100	102	
6	107.8876	36.85	-13.84	23.01	43.50	-20.49	QP	100	320	

Above 1GHz

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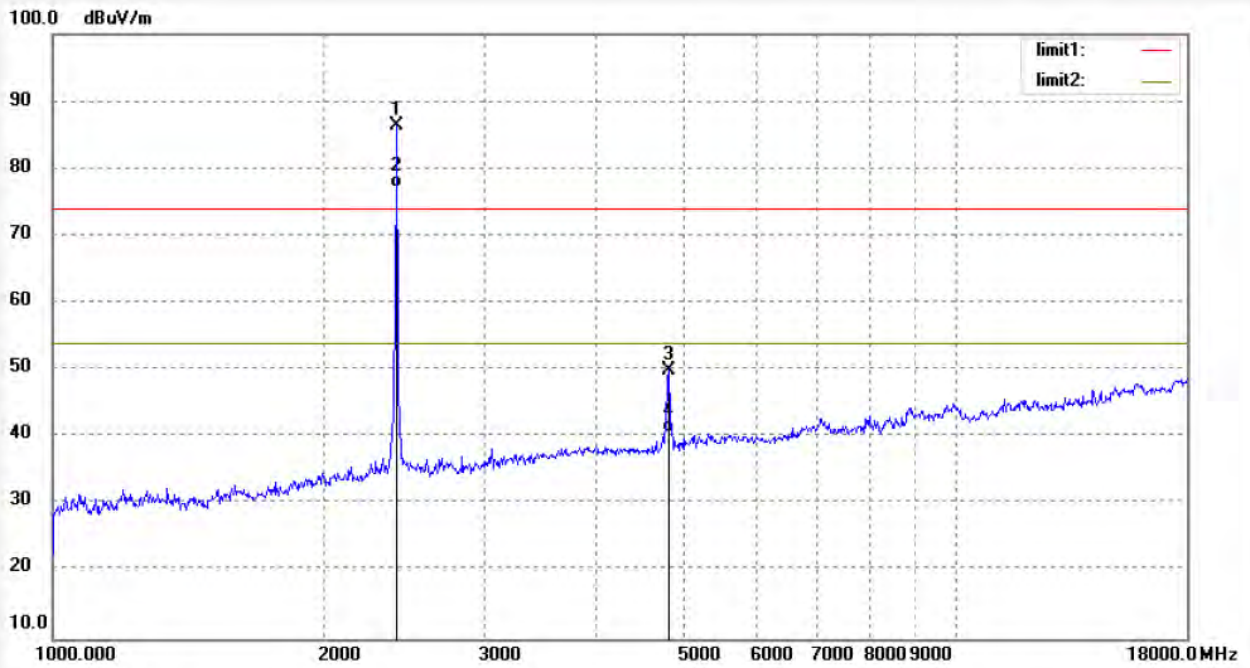
Fax:+86-0755-26503396

Job No.: FRANK2018 #575	Polarization: Horizontal
Standard: FCC PK	Power Source: DC 3.7V
Test item: Radiation Test	Date: 18/07/30/
Temp.(C)/Hum.(%) 23 C / 48 %	Time: 9/56/36
EUT: Smart Temperature & Humidity Data Logger	Engineer Signature:
Mode: TX 2402MHz	Distance: 3m
Model: TH-1	
Manufacturer: Triamp Technology.,Ltd	

Note: Report NO.:ATE20171353



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2402.053	85.57	0.88	86.45			peak	250	302	
2	2402.053	76.26	0.88	77.14			AVG	200	126	
3	4804.110	42.57	7.40	49.97	74.00	-24.03	peak	250	95	
4	4804.110	33.26	7.40	40.66	54.00	-13.34	AVG	200	46	

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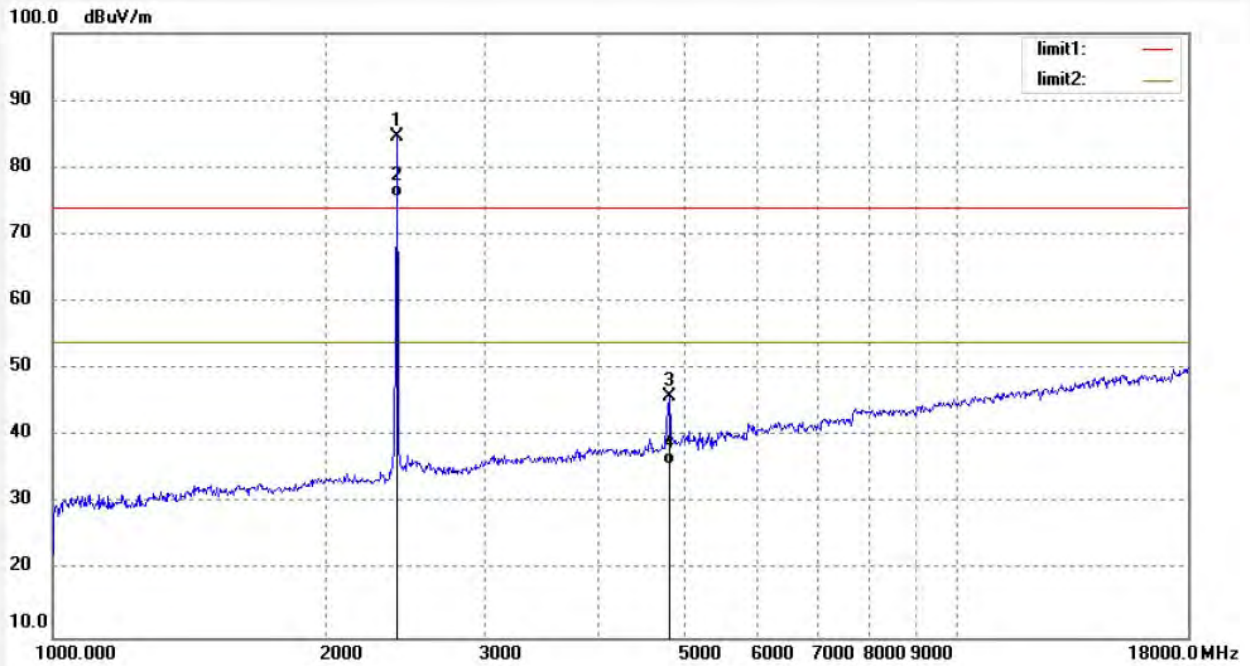
Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: FRANK2018 #576	Polarization: Vertical
Standard: FCC PK	Power Source: DC 3.7V
Test item: Radiation Test	Date: 18/07/30/
Temp.(C)/Hum.(%) 23 C / 48 %	Time: 9/57/00
EUT: Smart Temperature & Humidity Data Logger	Engineer Signature:
Mode: TX 2402MHz	Distance: 3m
Model: TH-1	
Manufacturer: Triamp Technology.,Ltd	

Note: Report NO.:ATE20171353



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2402.053	83.76	0.88	84.64			peak	200	302	
2	2402.053	74.64	0.88	75.52			AVG	150	133	
3	4804.110	38.55	7.40	45.95	74.00	-28.05	peak	200	29	
4	4804.110	28.46	7.40	35.86	54.00	-18.14	AVG	150	169	

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Site: 2# Chamber
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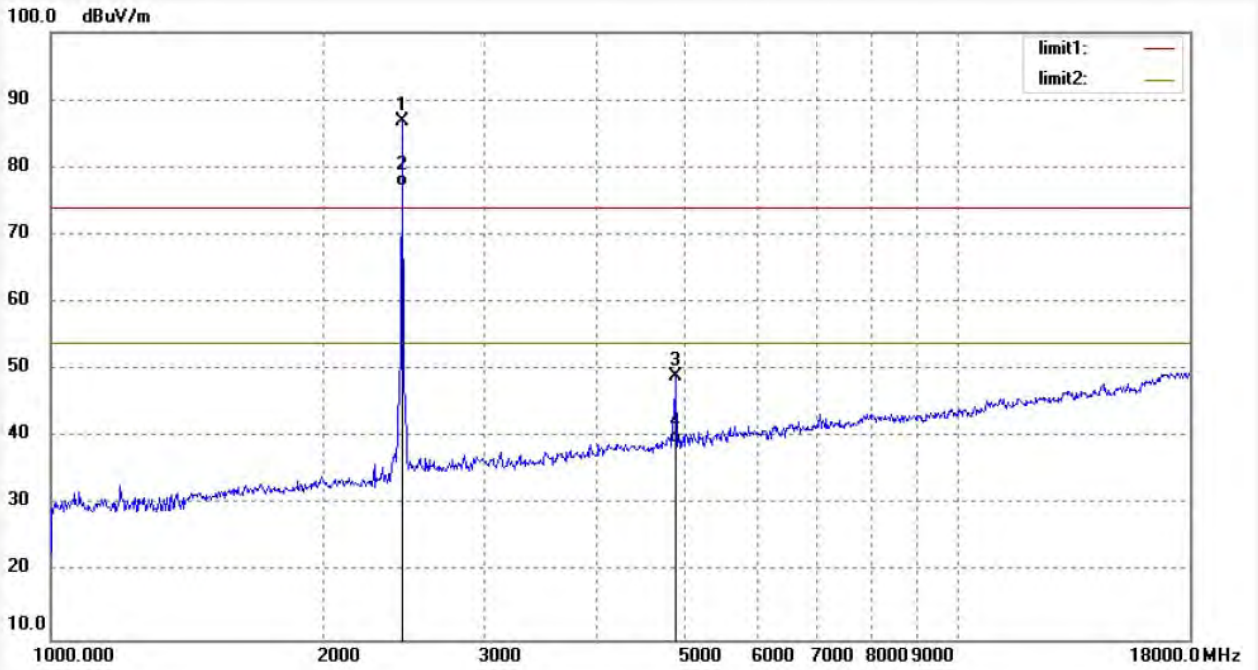
Fax:+86-0755-26503396

Job No.: FRANK2018 #578	Polarization: Horizontal
Standard: FCC PK	Power Source: DC 3.7V
Test item: Radiation Test	Date: 18/07/30/
Temp.(C)/Hum.(%) 23 C / 48 %	Time: 9/59/37
EUT: Smart Temperature & Humidity Data Logger	Engineer Signature:
Mode: TX 2440MHz	Distance: 3m
Model: TH-1	
Manufacturer: Triamp Technology.,Ltd	

Note: Report NO.:ATE20171353



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2440.001	85.72	1.03	86.75			peak	250	302	
2	2440.001	76.23	1.03	77.26			AVG	200	156	
3	4880.151	40.84	8.17	49.01	74.00	-24.99	peak	250	49	
4	4880.151	31.02	8.17	39.19	54.00	-14.81	AVG	200	95	

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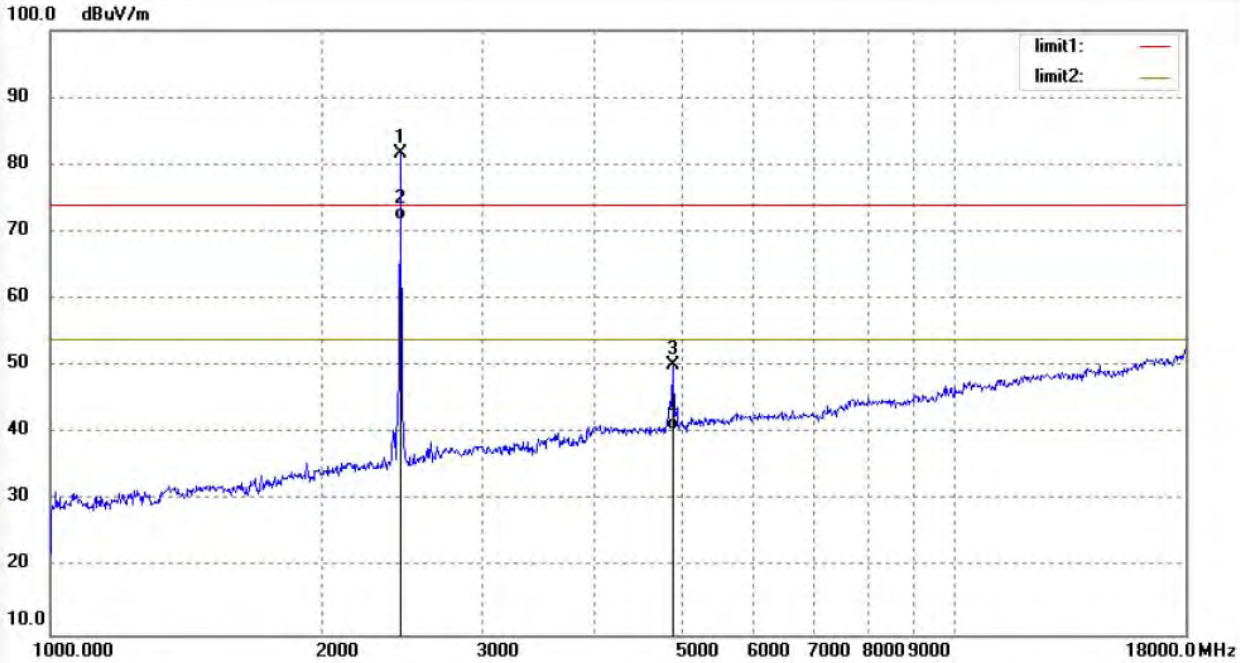
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: FRANK2018 #577	Polarization: Vertical
Standard: FCC PK	Power Source: DC 3.7V
Test item: Radiation Test	Date: 18/07/30/
Temp.(C)/Hum.(%) 23 C / 48 %	Time: 9/59/02
EUT: Smart Temperature & Humidity Data Logger	Engineer Signature:
Mode: TX 2440MHz	Distance: 3m
Model: TH-1	
Manufacturer: Triamp Technology.,Ltd	

Note: Report NO.:ATE20171353



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2440.001	80.68	1.03	81.71			peak	200	302	
2	2440.001	70.64	1.03	71.67			AVG	150	16	
3	4880.042	42.19	8.04	50.23	74.00	-23.77	peak	200	94	
4	4880.042	32.46	8.04	40.50	54.00	-13.50	AVG	150	156	

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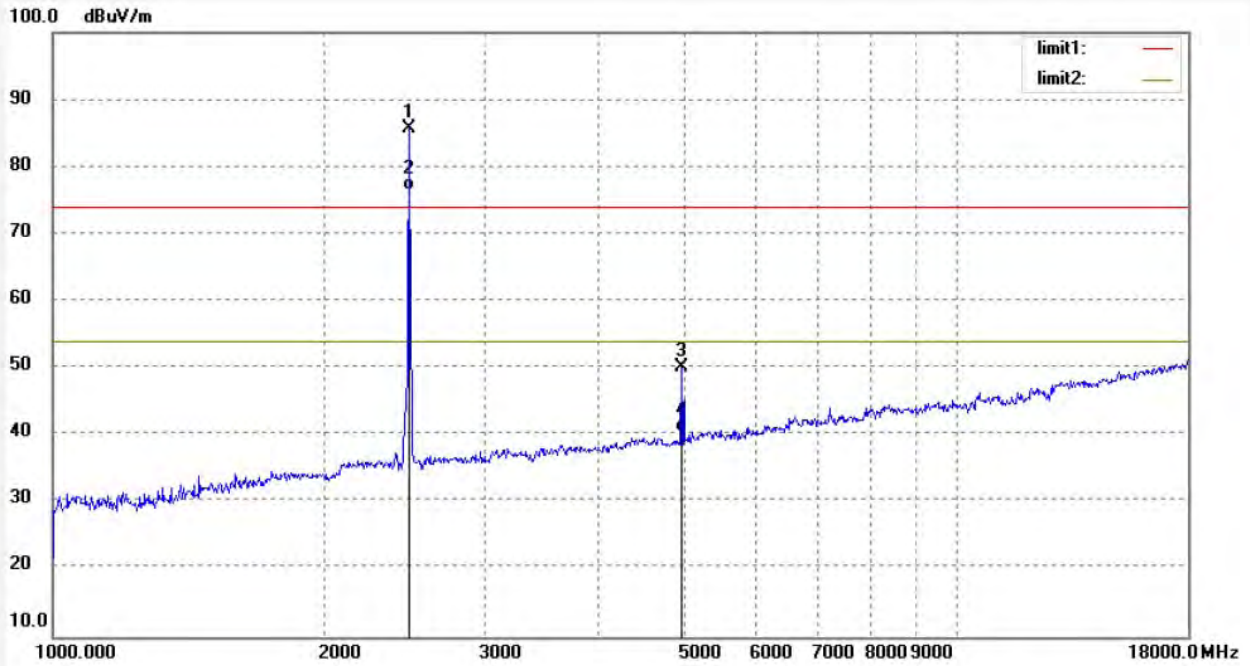
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: FRANK2018 #579	Polarization: Horizontal
Standard: FCC PK	Power Source: DC 3.7V
Test item: Radiation Test	Date: 18/07/30/
Temp.(C)/Hum.(%) 23 C / 48 %	Time: 10/01/06
EUT: Smart Temperature & Humidity Data Logger	Engineer Signature:
Mode: TX 2480MHz	Distance: 3m
Model: TH-1	
Manufacturer: Triamp Technology.,Ltd	

Note: Report NO.:ATE20171353



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2480.310	84.72	1.09	85.81			peak	200	65	
2	2480.310	75.32	1.09	76.41			AVG	250	115	
3	4960.307	41.51	8.58	50.09	74.00	-23.91	peak	200	97	
4	4960.307	32.01	8.58	40.59	54.00	-13.41	AVG	250	51	

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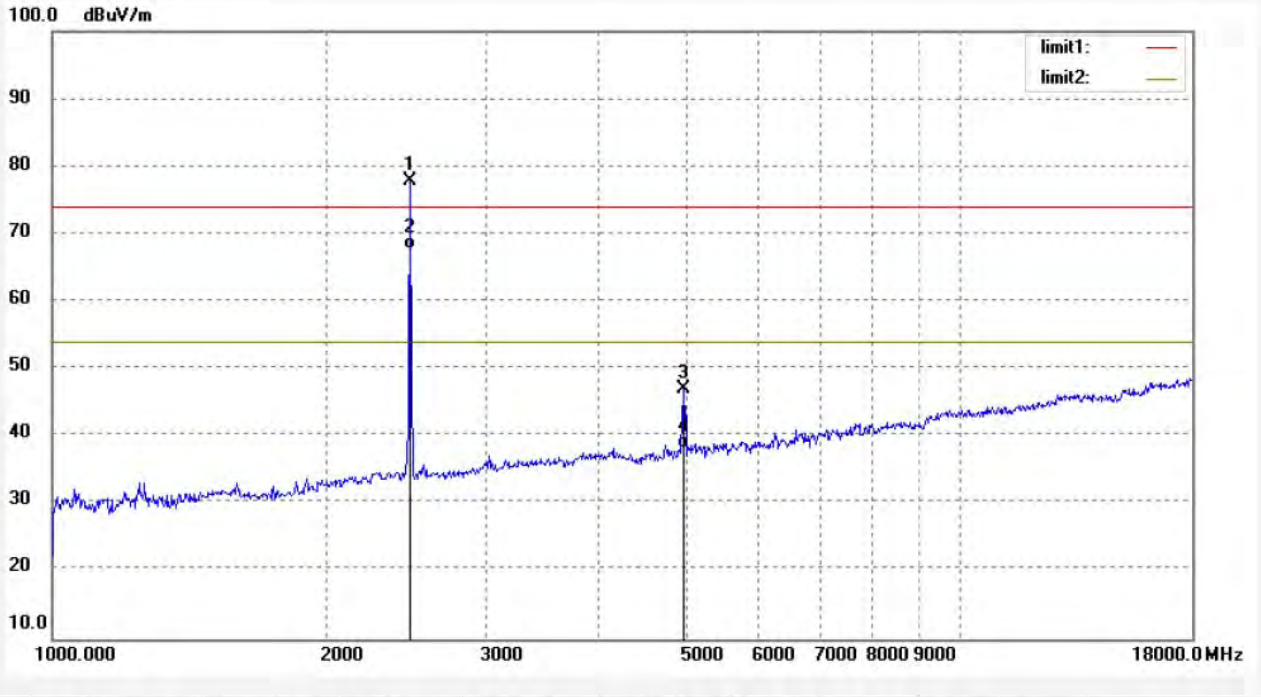
Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: FRANK2018 #580	Polarization: Vertical
Standard: FCC PK	Power Source: DC 3.7V
Test item: Radiation Test	Date: 18/07/30/
Temp.(C)/Hum.(%) 23 C / 48 %	Time: 10/01/39
EUT: Smart Temperature & Humidity Data Logger	Engineer Signature:
Mode: TX 2480MHz	Distance: 3m
Model: TH-1	
Manufacturer: Triamp Technology.,Ltd	

Note: Report NO.:ATE20171353



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2480.310	76.77	1.09	77.86			peak	150	321	
2	2480.310	66.57	1.09	67.66			AVG	150	123	
3	4960.307	38.50	8.58	47.08	74.00	-26.92	peak	150	268	
4	4960.307	29.63	8.58	38.21	54.00	-15.79	AVG	150	99	

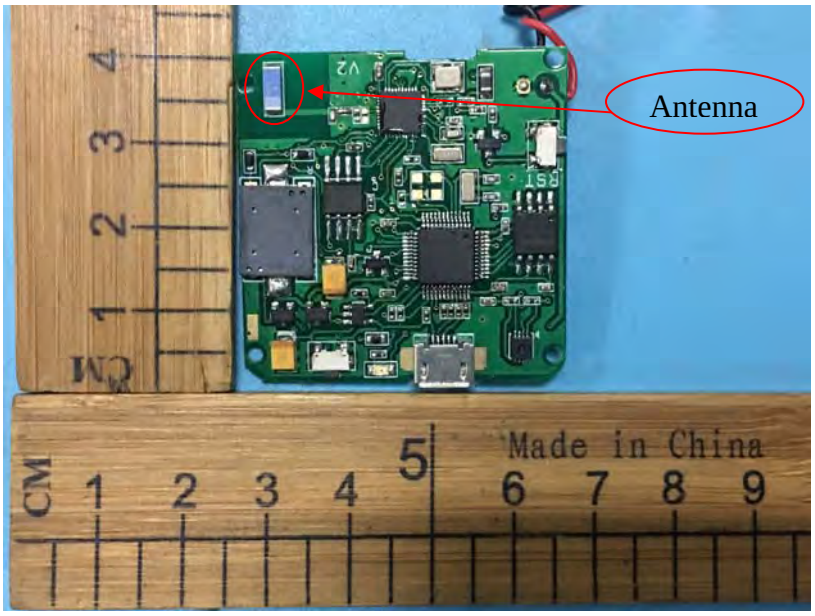
11. ANTENNA REQUIREMENT

11.1. 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.

11.2. Antenna Construction

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



******* End of Test Report *******