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

198 Kezhu Road, Scientech Park, Guangzhou Economic & Technological Development District, Guangzhou, China 510663

Telephone: +86 (0) 20 82155555
Fax: +86 (0) 20 82075059
Email: ee.guangzhou@sgs.com

TEST REPORT

Application No.:	GZEM1707004280CR
Applicant:	Guangdong Transtek Medical Electronics Co., Ltd.
Address of Applicant:	Zone A, No.105, Dongli Road, Torch Development District, Zhongshan, 528437, Guangdong, China
Manufacturer:	Guangdong Transtek Medical Electronics Co., Ltd.
Address of Manufacturer:	Zone A, No.105, Dongli Road, Torch Development District, Zhongshan, 528437, Guangdong, China
Factory:	Guangdong Transtek Medical Electronics Co., Ltd.
Address of Factory:	Zone B, No.105 ,Dongli Road, Torch Development District, Zhongshan, 528437, Guangdong, China
Equipment Under Test (EUT):	
EUT Name:	Activity Tracker
FCC ID:	OU9LS405-B02
Model No.:	LS405-B2
Trade Mark:	Transtek
Standards:	47 CFR Part 15, Subpart C 15.247
Date of Receipt:	2017-07-17
Date of Test:	2017-07-24 to 2017-07-25
Date of Issue:	2017-08-09
Test Result :	**Pass***

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

Ricky Liu
Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.
If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.
The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.

Revision Record				
Version	**Chapter**	**Date**	**Modifier**	**Remark**
00		2017-08-09		Original

Authorized for issue by:				
Tested By		Vico.Cui **Vico_Cui /Project Engineer**		2017-07-24 to 2017-07-25 **Date**
Checked By		Ricky Liu **Ricky_Liu /Reviewer**		2017-08-09 **Date**

2 Test Summary

Radio Spectrum Technical Requirement				
Item	**Standard**	**Method**	**Requirement**	**Result**
Antenna Requirement	47 CFR Part 15, Subpart C 15.247	N/A	47 CFR Part 15, Subpart C 15.203 & 15.247(c)	Pass

Radio Spectrum Matter Part				
Item	**Standard**	**Method**	**Requirement**	**Result**
Conducted Emissions at AC Power Line (150kHz-30MHz)	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 6.2	47 CFR Part 15, Subpart C 15.207	Pass
Minimum 6dB Bandwidth	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 11.8.1	47 CFR Part 15, Subpart C 15.247a(2)	Pass
Conducted Peak Output Power	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 11.9.1.1	47 CFR Part 15, Subpart C 15.247(b)(3)	Pass
Power Spectrum Density	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 11.10.2	47 CFR Part 15, Subpart C 15.247(e)	Pass
Conducted Band Edges Measurement	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 11.13.3.2	47 CFR Part 15, Subpart C 15.247(d)	Pass
Conducted Spurious Emissions	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 11.11	47 CFR Part 15, Subpart C 15.247(d)	Pass
Radiated Emissions which fall in the restricted bands	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 6.10.5	47 CFR Part 15, Subpart C 15.205 & 15.209	Pass
Radiated Spurious Emissions	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 6.4,6.5,6.6	47 CFR Part 15, Subpart C 15.205 & 15.209	Pass

3 Contents

4 General Information

4.1 Details of E.U.T.

Power Supply:	DC 3.7V internal rechargeable battery
	DC 5.0V for USB charging
Test Voltage:	DC 3.7V
Cable:	NA
Modulated / Un-Modulated:	Modulated
Modulation Technique:	DTS
Frequency Range:	2402-2480MHz
Antenna Type:	Integral chip Antenna
Antenna Gain:	-4dBi
Bluetooth Version:	4.0 BLE
Number of Channels:	40

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
NoteBook	IBM	T30	S/N78-3VMLX 06/01
BT test board	SGS EMC	RF 07	RF 07

4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	7.25 x 10-8
2	Duty cycle	0.37%
3	Occupied Bandwidth	3%
4	RF Conducted power	0.75dB
5	RF Power Density	2.84dB
6	Conducted Spurious Emissions	0.75dB
7	RF Radiated Power	4.5dB (below 1GHz)
		4.8dB (above 1GHz)
8	Radiated Spurious Emission Test	4.5dB (30MHz-1GHz)
		4.8dB (1GHz-18GHz)
8	Temperature	0.4℃
10	Humidity	1.3%
11	Supply Voltages	1.5%
12	Time	3%

4.4 Standards Applicable for Testing

Table 1 : Tests Carried Out Under 47 CFR Part 15, Subpart C 15.247

Item	Status
Antenna Requirement	√
Conducted Emissions at AC Power Line (150kHz-30MHz)	√
Minimum 6dB Bandwidth	√
Conducted Peak Output Power	√
20dB Bandwidth	×
Carrier Frequencies Separation	×
Hopping Channel Number	×
Dwell Time	×
Power Spectrum Density	√
Conducted Band Edges Measurement	√
Conducted Spurious Emissions	√
Radiated Emissions which fall in the restricted bands	√
Radiated Spurious Emissions	√
Other requirements Frequency Hopping Spread Spectrum System Hopping Sequence	×

× Indicates that the test is not applicable
√ Indicates that the test is applicable

4.5 Test Location

All tests were performed at:
SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou Branch EMC Laboratory,
198 Kezhu Road, Scientech Park, Guangzhou Economic & Technology Development District,
Guangzhou, China 510663
Tel: +86 20 82155555 Fax: +86 20 82075059
No tests were sub-contracted.

4.6 Test Facility

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

- **NVLAP (Lab Code: 200611-0)**

  SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0.

  The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

- **ACMA**

  SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our NVLAP accreditation.

- **SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO**

  Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.

- **CNAS (Lab Code: L0167)**

  SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been assessed and in compliance with CNAS-CL01:2006 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:2005 General Requirements) for the Competence of Testing Laboratories.

- **FCC Recognized 2.948 Listed Test Firm(Registration No.: 282399)**

  SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 282399, May 31, 2002.

- **FCC Recognized Accredited Test Firm(Registration No.: 486818)**

  SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been accredited and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Designation Number: CN5016, Test Firm Registration Number: 486818, Jul 13, 2017.

- **Industry Canada (Registration No.: 4620B-1)**

  The 3m/10m Alternate Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd., has been registered by Certification and Engineering of Industry Canada for radio equipment testing with Registration No. 4620B-1.

- **VCCI (Registration No.: R-2460, C-2584, G-449 and T-1179)**

  The 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co. Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-2460, C-2584, G-449 and T-1179 respectively.

- **CBTL (Lab Code: TL129)**

  SGS-CSTC Standards Technical Services Co., Ltd., E&E Laboratory has been assessed and fully comply with the requirements of ISO/IEC 17025:2005, the Basic Rules, IECEE 01 and Rules of procedure IECEE 02, and the relevant IECEE CB-Scheme Operational documents.

4.7 Deviation from Standards

None

4.8 Abnormalities from Standard Conditions

None

5 Equipment List

Conducted Emissions at AC Power Line (150kHz-30MHz)					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
Shielding Room	Zhong Yu	8m x 3m x 3.8m	EMC0306	N/A	N/A
Two-line v-netwok	R&S	ENV216	EMC0118	2017-01-20	2018-01-19
LISN	SCHAFFNER CHASE	MN2050D/1	EMC0102	2016-09-22	2017-09-21
EMI Test Receiver	Rohde & Schwarz	ESCS30	EMC0506	2016-12-02	2017-12-01
Coaxial Cable	HangTianXing	2m	EMC0107	2016-07-24	2018-07-23
Voltage Probe	SGS	N/A	EMC0106	2016-04-05	2018-04-04
Conical metal housing	SGS-EMC	N/A	EMC0167	2016-04-19	2018-04-18

Minimum 6dB Bandwidth					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
MXA Signal Analyzer	Agilent Technologies	N9020A	SEM004-10	2017-02-13	2018-02-12
ESG vector signal generator	KEYSIGHT	E4438C	SEM006-03	2017-04-14	2018-04-13
EXG Analog Signal Generator	Agilent Technologies	N5171B	SEM006-04	2014-08-27	2017-08-27
Power Meter	Agilent Technologies	U2021XA_Ch 2	SEM009-02	2016-10-09	2017-10-09
Power Meter	Agilent Technologies	U2021XA_Ch 3	SEM009-03	2016-10-09	2017-10-09

Conducted Peak Output Power					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
MXA Signal Analyzer	Agilent Technologies	N9020A	SEM004-10	2017-02-13	2018-02-12
ESG vector signal generator	KEYSIGHT	E4438C	SEM006-03	2017-04-14	2018-04-13
EXG Analog Signal Generator	Agilent Technologies	N5171B	SEM006-04	2014-08-27	2017-08-27
Power Meter	Agilent Technologies	U2021XA_Ch 2	SEM009-02	2016-10-09	2017-10-09
Power Meter	Agilent Technologies	U2021XA_Ch 3	SEM009-03	2016-10-09	2017-10-09

Power Spectrum Density					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
MXA Signal Analyzer	Agilent Technologies	N9020A	SEM004-10	2017-02-13	2018-02-12
ESG vector signal generator	KEYSIGHT	E4438C	SEM006-03	2017-04-14	2018-04-13
EXG Analog Signal Generator	Agilent Technologies	N5171B	SEM006-04	2014-08-27	2017-08-27
Power Meter	Agilent Technologies	U2021XA_Ch 2	SEM009-02	2016-10-09	2017-10-09
Power Meter	Agilent Technologies	U2021XA_Ch 3	SEM009-03	2016-10-09	2017-10-09

Conducted Band Edges Measurement					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
MXA Signal Analyzer	Agilent Technologies	N9020A	SEM004-10	2017-02-13	2018-02-12
ESG vector signal generator	KEYSIGHT	E4438C	SEM006-03	2017-04-14	2018-04-13
EXG Analog Signal Generator	Agilent Technologies	N5171B	SEM006-04	2014-08-27	2017-08-27
Power Meter	Agilent Technologies	U2021XA_Ch 2	SEM009-02	2016-10-09	2017-10-09
Power Meter	Agilent Technologies	U2021XA_Ch 3	SEM009-03	2016-10-09	2017-10-09

Radiated Emissions which fall in the restricted bands					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
MXA Signal Analyzer	Agilent Technologies	N9020A	SEM004-10	2017-02-13	2018-02-12
ESG vector signal generator	KEYSIGHT	E4438C	SEM006-03	2017-04-14	2018-04-13
EXG Analog Signal Generator	Agilent Technologies	N5171B	SEM006-04	2014-08-27	2017-08-27
Power Meter	Agilent Technologies	U2021XA_Ch 2	SEM009-02	2016-10-09	2017-10-09
Power Meter	Agilent Technologies	U2021XA_Ch 3	SEM009-03	2016-10-09	2017-10-09

Radiated Spurious Emissions					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
MXA Signal Analyzer	Agilent Technologies	N9020A	SEM004-10	2017-02-13	2018-02-12
ESG vector signal generator	KEYSIGHT	E4438C	SEM006-03	2017-04-14	2018-04-13
EXG Analog Signal Generator	Agilent Technologies	N5171B	SEM006-04	2014-08-27	2017-08-27
Power Meter	Agilent Technologies	U2021XA_Ch 2	SEM009-02	2016-10-09	2017-10-09
Power Meter	Agilent Technologies	U2021XA_Ch 3	SEM009-03	2016-10-09	2017-10-09

Conducted Spurious Emissions					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
MXA Signal Analyzer	Agilent Technologies	N9020A	SEM004-10	2017-02-13	2018-02-12
ESG vector signal generator	KEYSIGHT	E4438C	SEM006-03	2017-04-14	2018-04-13
EXG Analog Signal Generator	Agilent Technologies	N5171B	SEM006-04	2014-08-27	2017-08-27
Power Meter	Agilent Technologies	U2021XA_Ch 2	SEM009-02	2016-10-09	2017-10-09
Power Meter	Agilent Technologies	U2021XA_Ch 3	SEM009-03	2016-10-09	2017-10-09

General used equipment					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
DMM	Fluke	73	EMC0006	2016-09-01	2017-08-31
DMM	Fluke	73	EMC0007	2016-09-01	2017-08-31

6 Radio Spectrum Technical Requirement

6.1 E.U.T. Test Conditions

Test Voltage: DC 3.7V internal rechargeable battery for normal working
DC 5.0V for USB charging

Temperature: 20.0 -25.0 °C

Humidity: 38-50 % RH

Atmospheric Pressure: 1000 -1010 mbar

Requirements: **15.31(e):** For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage. For battery operated equipment, the equipment tests shall be performed using a new battery.

15.32: Power supplies and CPU boards used with personal computers and for which separate authorizations are required to be obtained shall be tested as follows: Testing shall be in accordance with the procedures specified in Section 15.31 of this part.

Test frequencies and frequency range: According to the 15.31(m) Measurements on intentional radiators or receivers, other than TV broadcast receivers, shall be performed and, if required, reported for each band in which the device can be operated with the device operating at the number of frequencies in each band specified in the following table:

According to the 15.33 (a) For an intentional radiator, the spectrum shall be investigated from the lowest radio frequency signal generated in the device, without going below 9 kHz, up to at least the frequency shown in the following table:

Number of fundamental frequencies to be tested in EUT transmit band

Frequency range in which device operates	Number of frequencies	Location in frequency range of operation
1 MHz or less	1	Middle
1 MHz to 10 MHz	2	1 near top and 1 near bottom
More than 10 MHz	3	1 near top, 1 near middle and 1 near bottom

Frequency range of radiated emission measurements

Lowest frequency generated in the device	Upper frequency range of measurement
9 kHz to below 10 GHz	10th harmonic of highest fundamental frequency or to 40 GHz, whichever is lower
At or above 10 GHz to below 30 GHz	5th harmonic of highest fundamental frequency or to 100 GHz, whichever is lower
At or above 30 GHz	5th harmonic of highest fundamental frequency or to 200 GHz, whichever is lower, unless otherwise specified

EUT channels and frequencies list:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	27	2456
1	2404	28	2458
2	2406	29	2460
3	2408	30	2462
4	2410	31	2464
5	2412	32	2466
6	2414	33	2468
7	2416	34	2470
8	2418	35	2472
9	2420	36	2474
10	2422	37	2476
11	2424	38	2478
12	2426	39	2480
13	2428	40	/
14	2430	41	/
15	2432	42	/
16	2434	43	/
17	2436	44	/
18	2438	45	/
19	2440	46	/
20	2442	47	/
21	2444	48	/
22	2446	49	/
23	2448	50	/
24	2450	51	/
25	2452	52	/
26	2454	53	/

Using the special software and development board we can enter the product for engineer mode then we can control the EUT to select the wanted channel for test as above list.

Test frequencies are the lowest channel: 0 channel(2402MHz), middle channel: 19 channel(2440MHz) and highest channel: 39 channel(2480MHz)

6.2 Antenna Requirement

6.2.1 Test Requirement:

47 CFR Part 15, Subpart C 15.247

6.2.2 Conclusion

Standard Requirment:

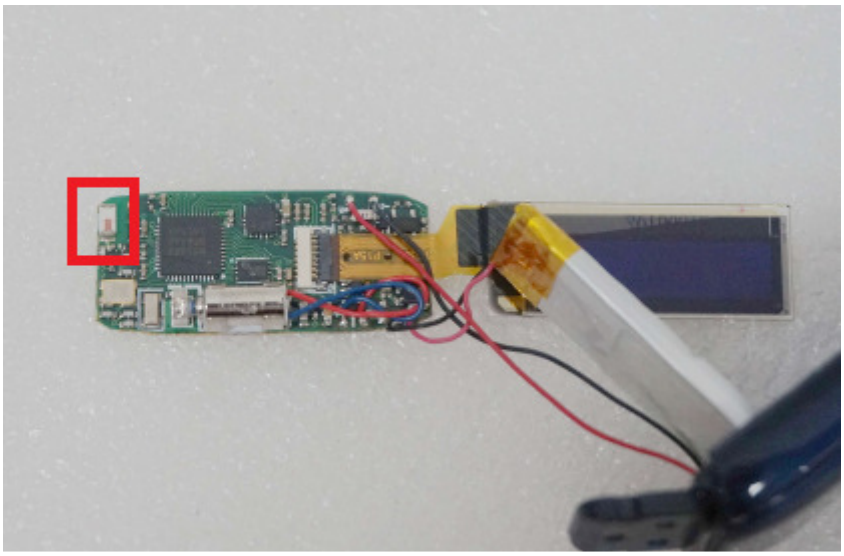
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

15.247(b) (4) requirement:

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

EUT Antenna:

The antenna is chip antenna and integrated on the main PCB no consideration of replacement. The best case gain of the antenna is -4dBi.



7 Radio Spectrum Matter Test Results

7.1 Conducted Emissions at AC Power Line (150kHz-30MHz)

Test Requirement: 47 CFR Part 15, Subpart C 15.247

Test Method: ANSI C63.10 (2013) Section 6.2

Limit:

Frequency of emission(MHz)	Conducted limit(dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50
*Decreases with the logarithm of the frequency.		

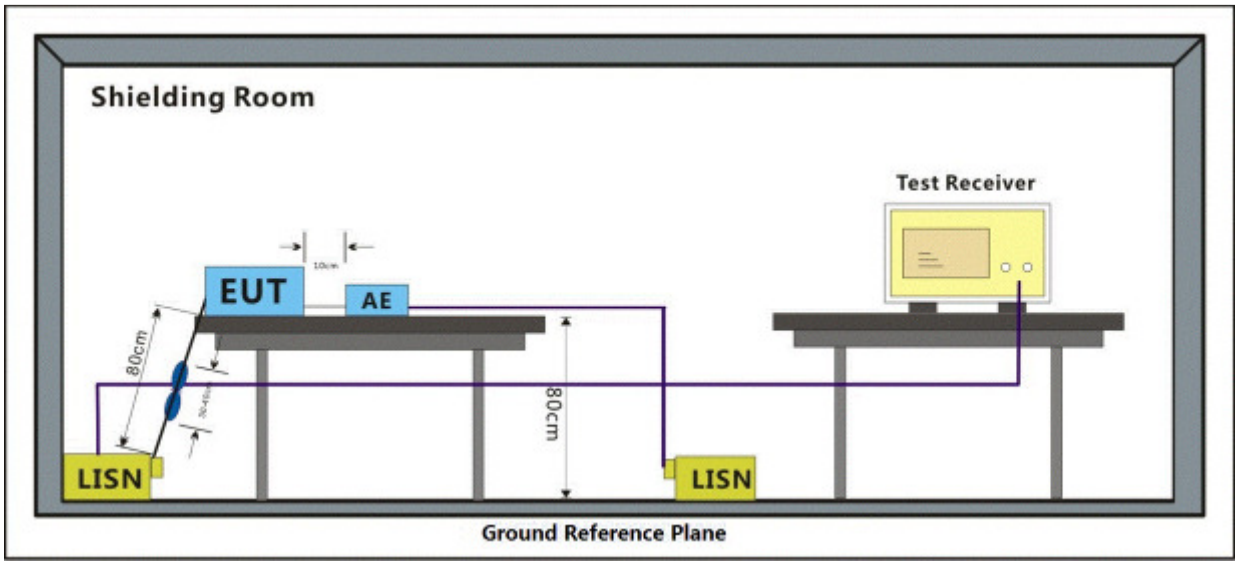
7.1.1 E.U.T. Operation

Operating Environment:

Temperature: 21 °C Humidity: 53 % RH Atmospheric Pressure: 1002 mbar

Test Mode: c: Charging + TX mode_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.

7.1.2 Test Setup Diagram



7.1.3 Measurement Data

1) The mains terminal disturbance voltage test was conducted in a shielded room.

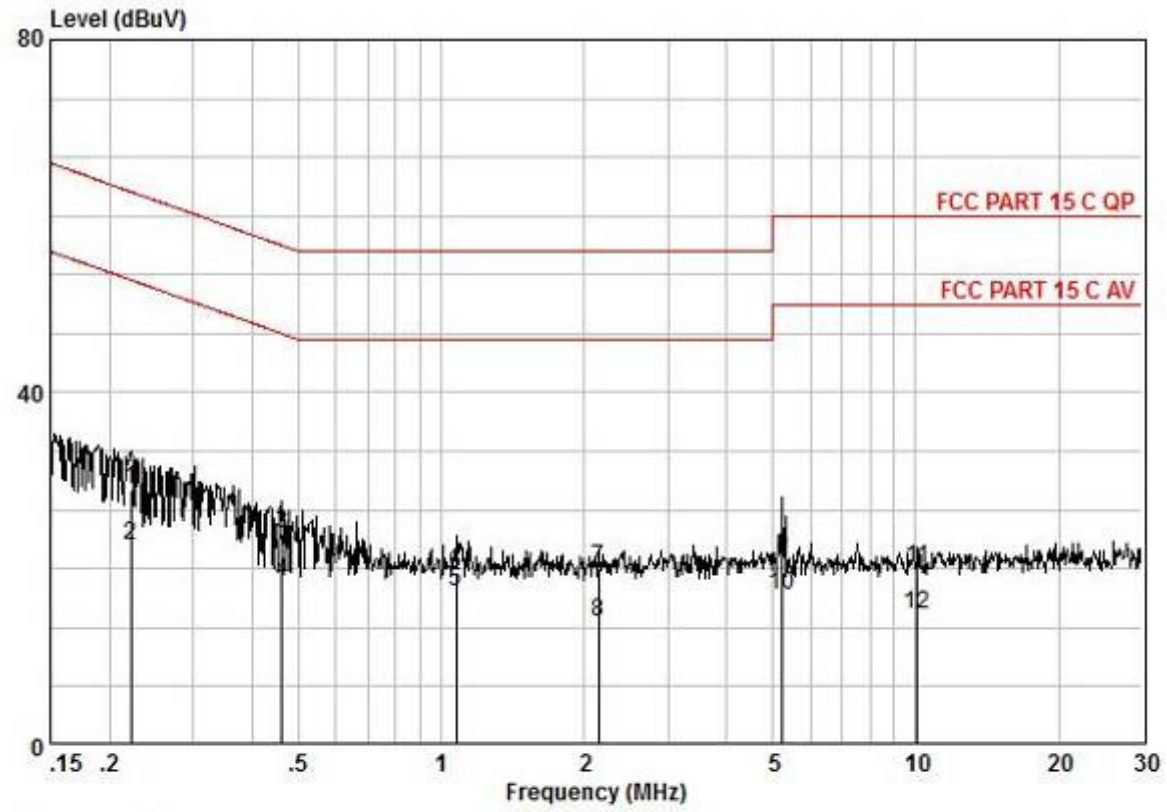
2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50ohm/50μH + 5ohm linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.

3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,

4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.

5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.

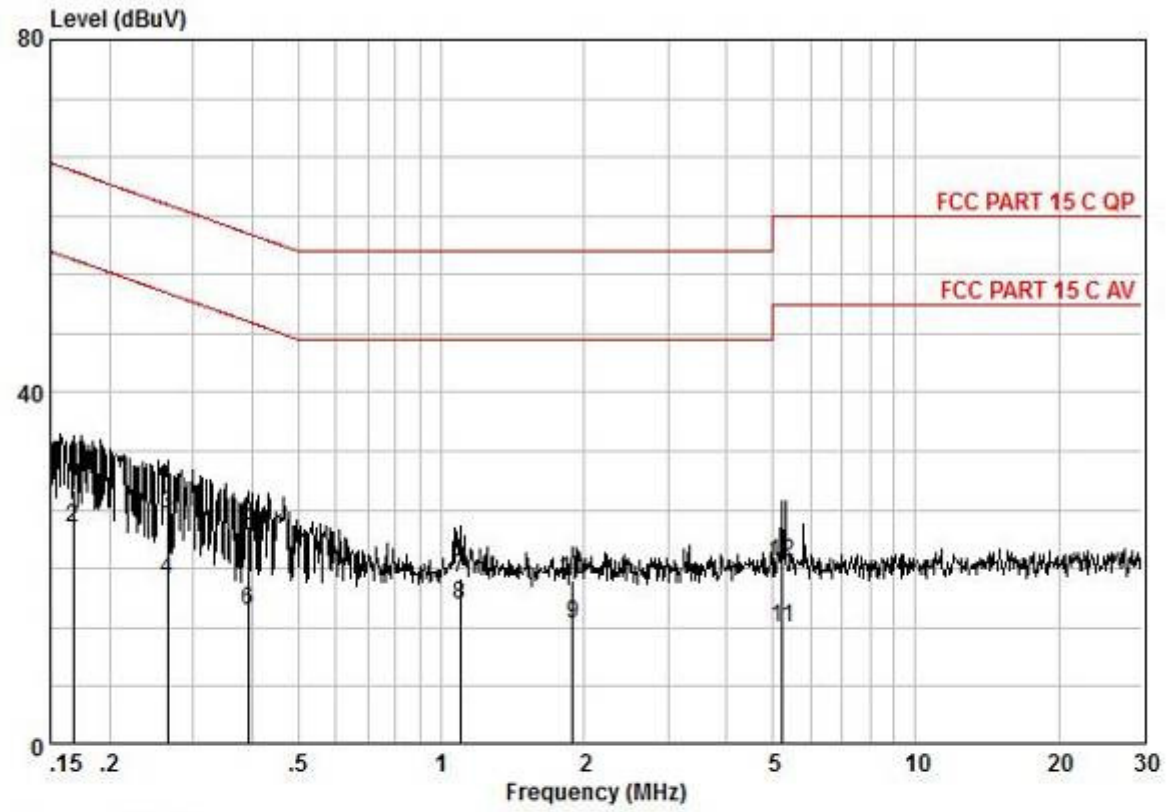
Mode:c; Line:Live Line



Pol :LIVE
No :
Model :

Frequency MHz	read level dBuV	Cable Loss dB	LISN Factor dB	Measured level dBuV	Limit Line dBuV	Over limit dB	Remark
0.22	19.30	0.11	9.64	29.05	62.74	-33.69	QP
0.22	12.91	0.11	9.64	22.66	52.74	-30.08	AVERAGE
0.46	14.18	0.19	9.64	24.01	56.67	-32.66	QP
0.46	8.77	0.19	9.64	18.60	46.67	-28.07	AVERAGE
1.08	7.39	0.30	9.66	17.35	46.00	-28.65	AVERAGE
1.08	9.52	0.30	9.66	19.48	56.00	-36.52	QP
2.14	9.86	0.42	9.66	19.95	56.00	-36.05	QP
2.14	3.89	0.42	9.66	13.98	46.00	-32.02	AVERAGE
5.25	10.88	0.69	9.71	21.28	60.00	-38.72	QP
5.25	6.70	0.69	9.71	17.10	50.00	-32.90	AVERAGE
10.07	9.58	0.60	9.80	19.98	60.00	-40.02	QP
10.07	4.37	0.60	9.80	14.77	50.00	-35.23	AVERAGE

Mode:c; Line:Neutral Line



Pol :NEUTRAL
No :
Model :

Frequency MHz	read level dBuV	Cable Loss dB	LISN Factor dB	Measured level dBuV	Limit Line dBuV	Over limit dB	Remark
0.17	19.32	0.10	9.67	29.09	65.08	-35.99	QP
0.17	14.80	0.10	9.67	24.57	55.08	-30.51	AVERAGE
0.26	16.44	0.13	9.66	26.23	61.29	-35.06	QP
0.26	8.89	0.13	9.66	18.68	51.29	-32.61	AVERAGE
0.39	15.10	0.17	9.67	24.94	58.03	-33.09	QP
0.39	5.44	0.17	9.67	15.28	48.03	-32.75	AVERAGE
1.09	8.94	0.30	9.68	18.92	56.00	-37.08	QP
1.09	5.91	0.30	9.68	15.89	46.00	-30.11	AVERAGE
1.89	3.77	0.38	9.68	13.83	46.00	-32.17	AVERAGE
1.89	8.74	0.38	9.68	18.80	56.00	-37.20	QP
5.25	2.96	0.69	9.74	13.39	50.00	-36.61	AVERAGE
5.25	10.20	0.69	9.74	20.63	60.00	-39.37	QP

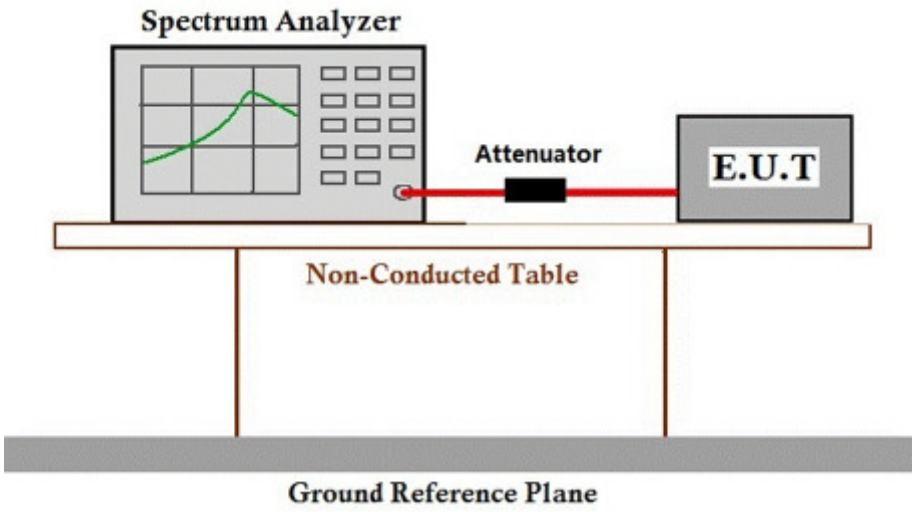
7.2 Minimum 6dB Bandwidth

Test Requirement: 47 CFR Part 15, Subpart C 15.247
Test Method: ANSI C63.10 (2013) Section 11.8.1
Limit: ⩾500 kHz

7.2.1 E.U.T. Operation

Operating Environment:
Temperature: 25 °C Humidity: 55 % RH Atmospheric Pressure: 1002 mbar
Test Mode: b: TX mode_Keep the EUT in continuously transmitting mode with GFSK modulation(power supplied by internal battery)

7.2.2 Test Setup Diagram



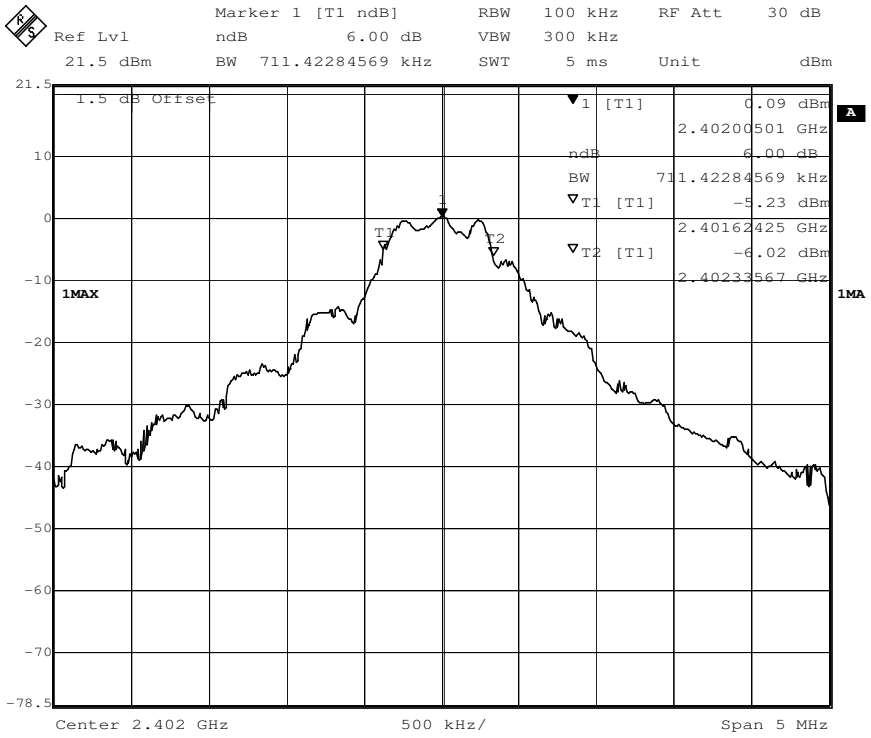
7.2.3 Measurement Data

Channel No.	Frequency (MHz)	Mode	Measured 6dB bandwidth (kHz)	Limit	Result
0	2402	GFSK	711.422	≥500KHz	Pass
19	2440		691.382		Pass
39	2480		691.382		Pass

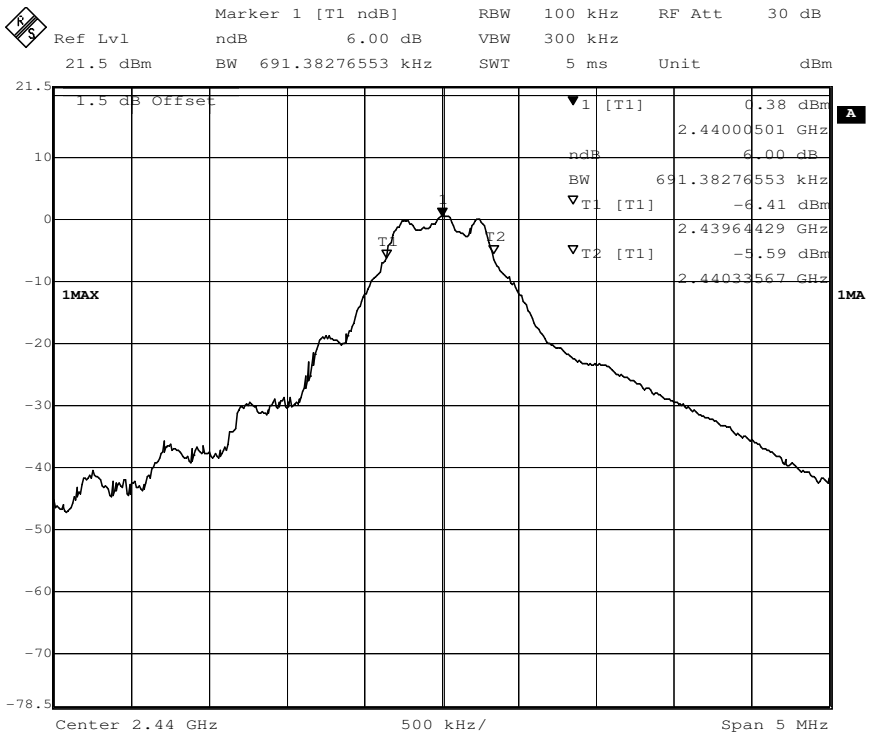
Test result: The unit does meet the FCC requirements.

Result plot as follows:

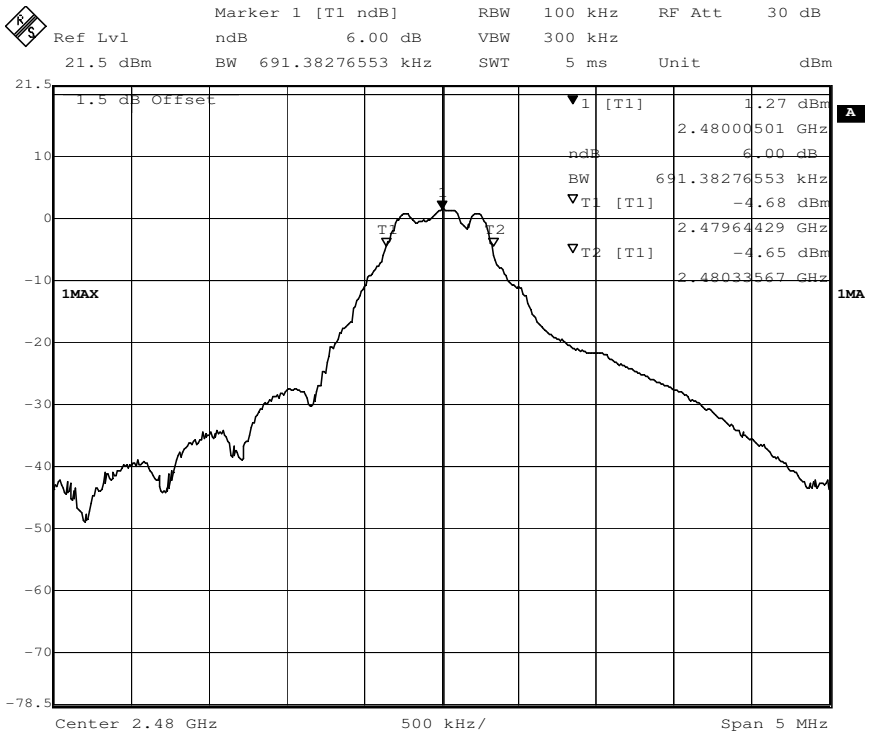
Channel 0:2.402GHz:



Channel 19:2.440GHz:



Channel 39:2.480GHz:



7.3 Conducted Peak Output Power

Test Requirement: 47 CFR Part 15, Subpart C 15.247

Test Method: ANSI C63.10 (2013) Section 11.9.1.1

Limit:

Frequency range(MHz)	Output power of the intentional radiator(watt)
902-928	1 for ≥50 hopping channels
	0.25 for 25≤ hopping channels <50
	1 for digital modulation
2400-2483.5	1 for ≥75 non-overlapping hopping channels
	0.125 for all other frequency hopping systems
	1 for digital modulation
5725-5850	1 for frequency hopping systems and digital modulation

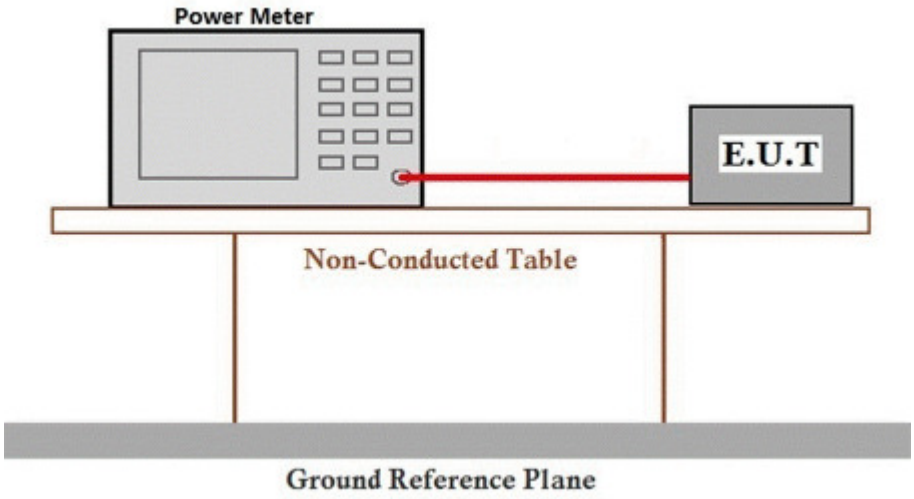
7.3.1 E.U.T. Operation

Operating Environment:

Temperature: 25 °C Humidity: 55 % RH Atmospheric Pressure: 1002 mbar

Test Mode: b: TX mode_Keep the EUT in continuously transmitting mode with GFSK modulation(power supplied by internal battery)

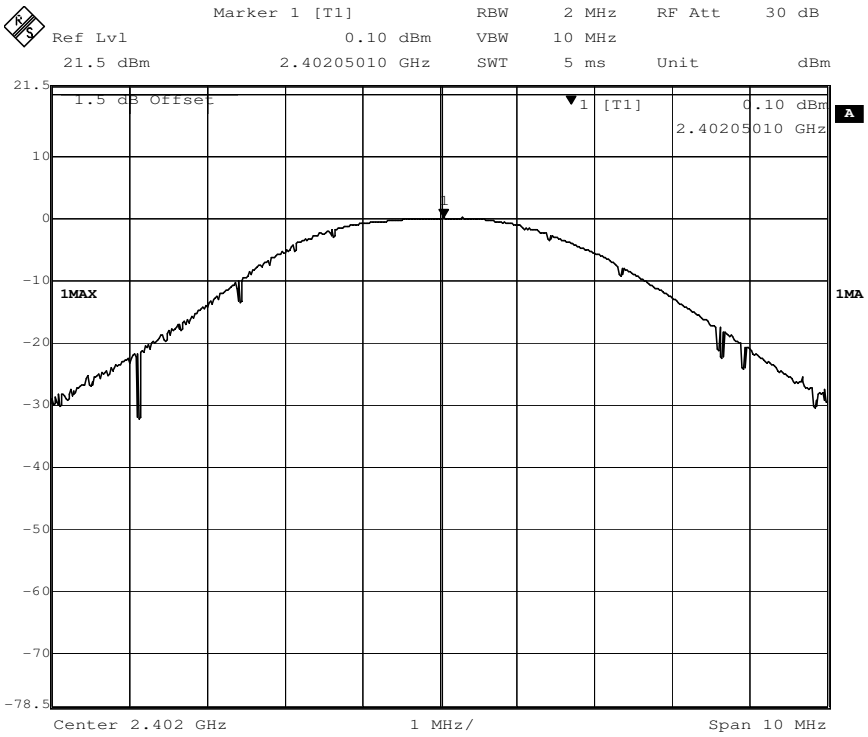
7.3.2 Test Setup Diagram



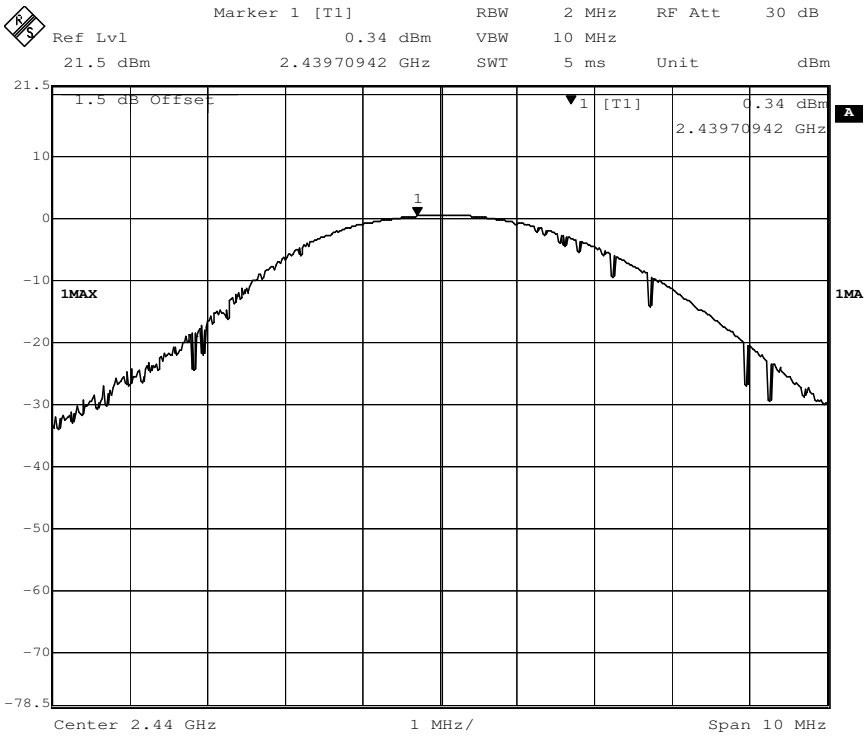
7.3.3 Measurement Data

Channel No.	Frequency (MHz)	Mode	Measured Channel Power (dBm)	Limit	Result
0	2402	GFSK	0.1	1W(30dBm)	Pass
19	2440		0.34		Pass
39	2480		-0.52		Pass

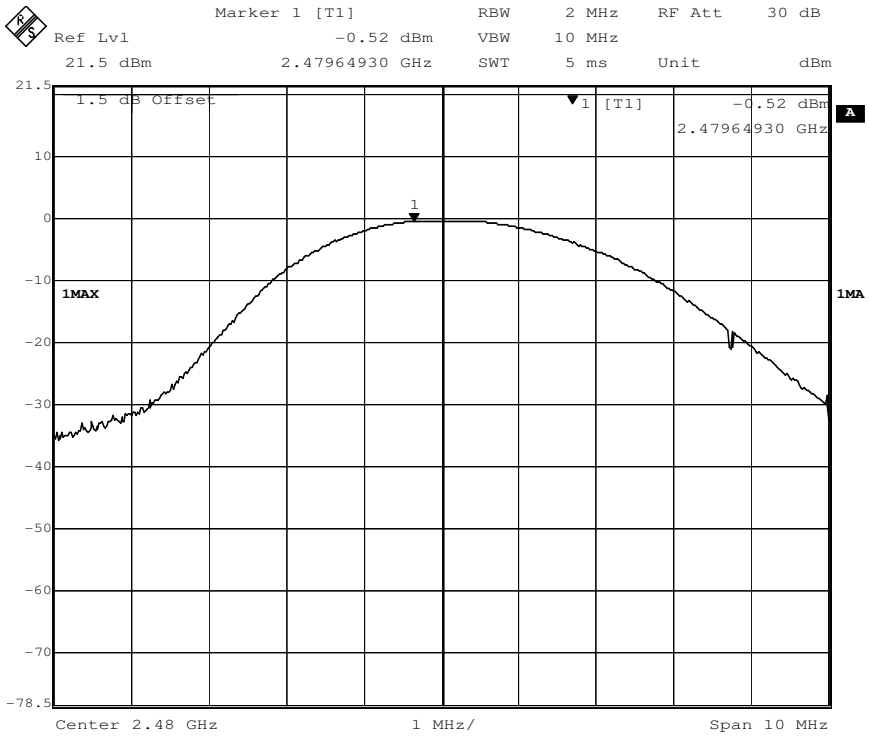
Result plot as follows:
Channel 0:2.402GHz:



Channel 19:2.440GHz:



Channel 39:2.480GHz:



7.4 Power Spectrum Density

Test Requirement: 47 CFR Part 15, Subpart C 15.247

Test Method: ANSI C63.10 (2013) Section 11.10.2

Limit: ≤8dBm in any 3 kHz band during any time interval of continuous transmission

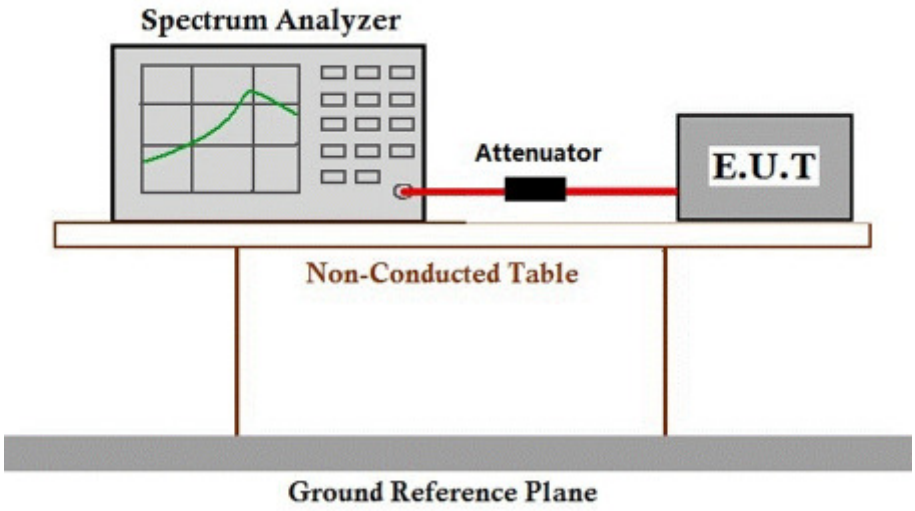
7.4.1 E.U.T. Operation

Operating Environment:

Temperature: 25 °C Humidity: 55 % RH Atmospheric Pressure: 1002 mbar

Test Mode: b: TX mode_Keep the EUT in continuously transmitting mode with GFSK modulation(power supplied by internal battery)

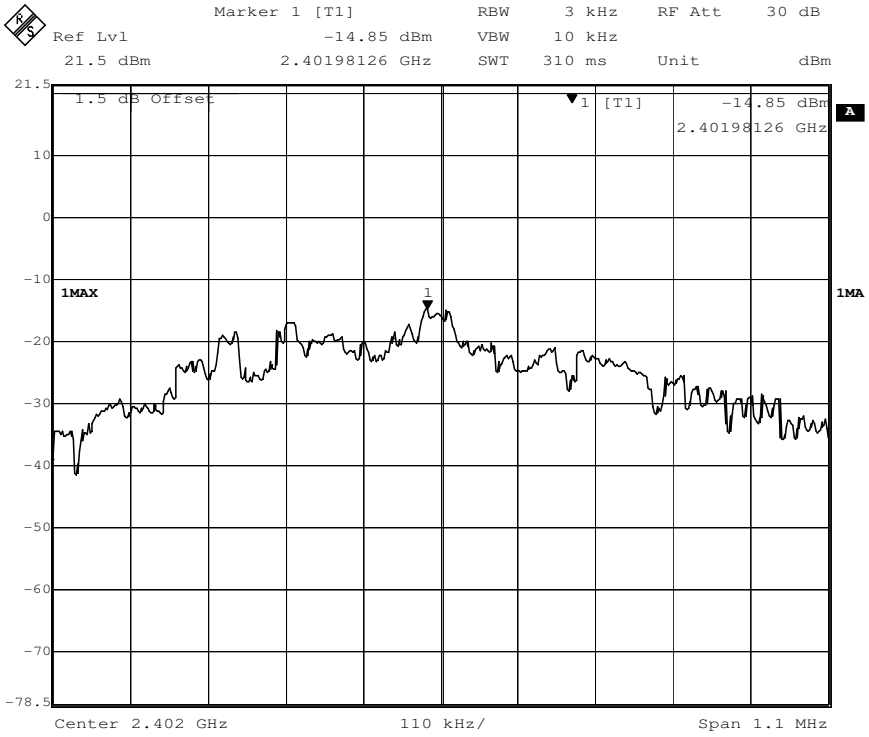
7.4.2 Test Setup Diagram



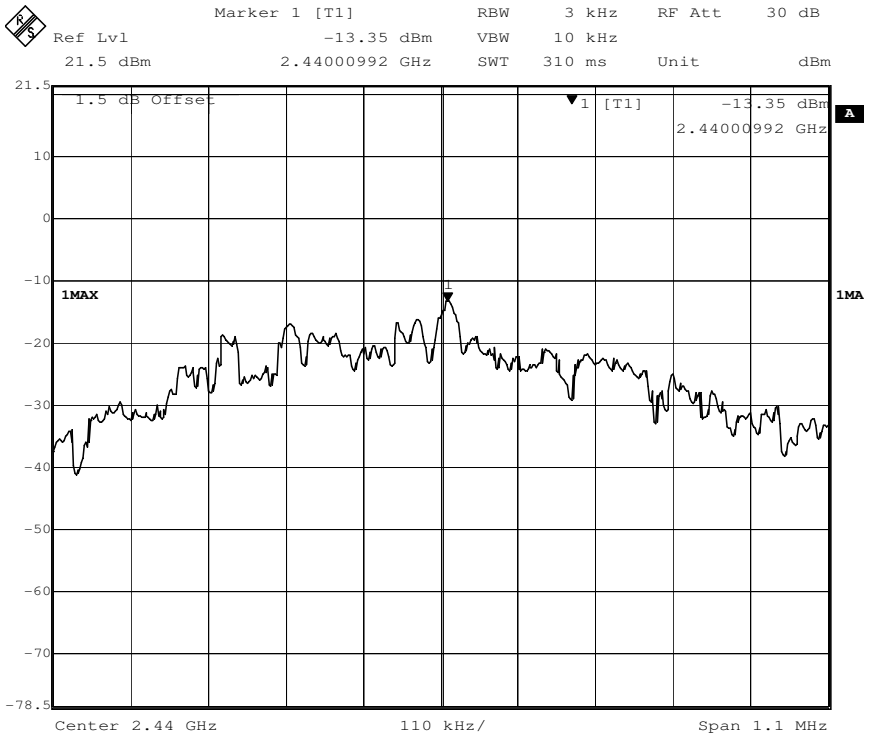
7.4.3 Measurement Data

Channel No.	Frequency (MHz)	Mode	Measured Peak Power Spectral Density (dBm/3KHz)	Limit	Result
0	2402	GFSK	-14.85	8dBm/3KHz	Pass
19	2440		-13.35		Pass
39	2480		-13.57		Pass

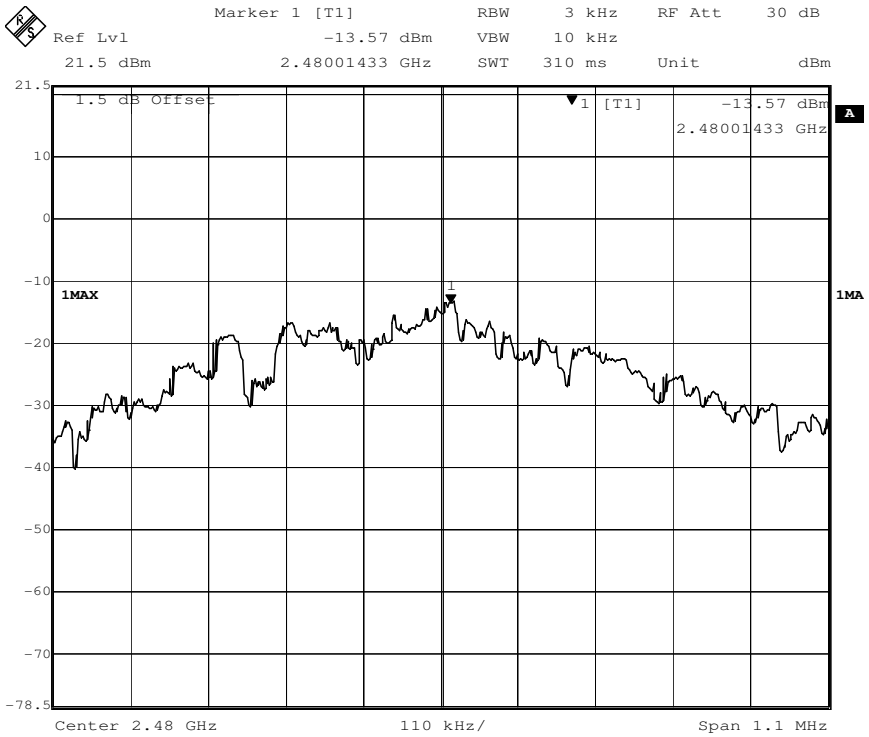
Result plot as follows:
Channel 0:2.402 GHz:



Channel 19:2.440 GHz:



Channel 39:2.480 GHz:



7.5 Conducted Band Edges Measurement

Test Requirement: 47 CFR Part 15, Subpart C 15.247
Test Method: ANSI C63.10 (2013) Section 11.13.3.2

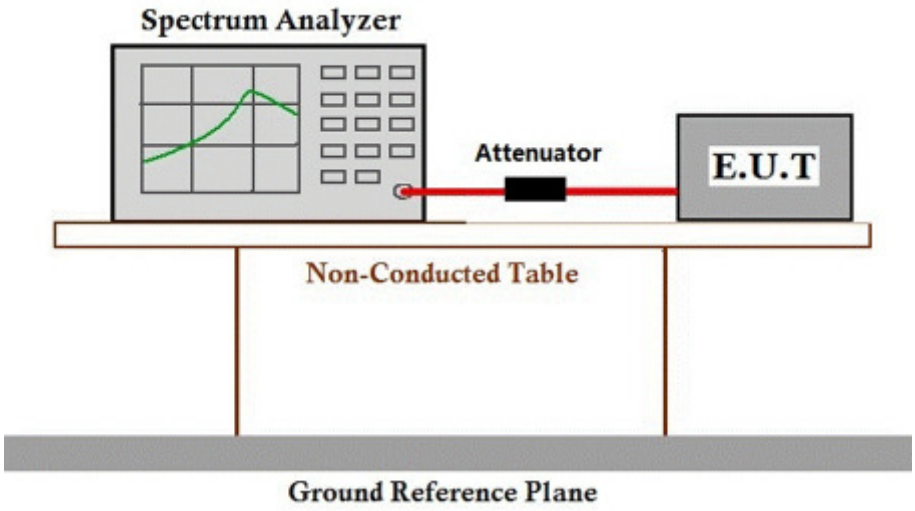
7.5.1 E.U.T. Operation

Operating Environment:

Temperature: 25 °C Humidity: 55 % RH Atmospheric Pressure: 1002 mbar

Test Mode: b: TX mode_Keep the EUT in continuously transmitting mode with GFSK modulation(power supplied by internal battery)

7.5.2 Test Setup Diagram

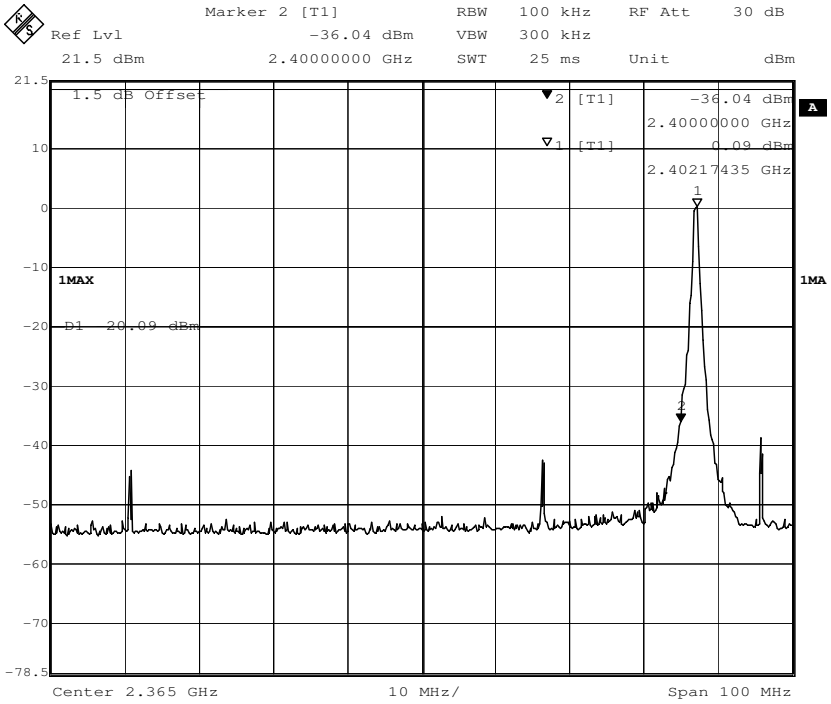


7.5.3 Measurement Data

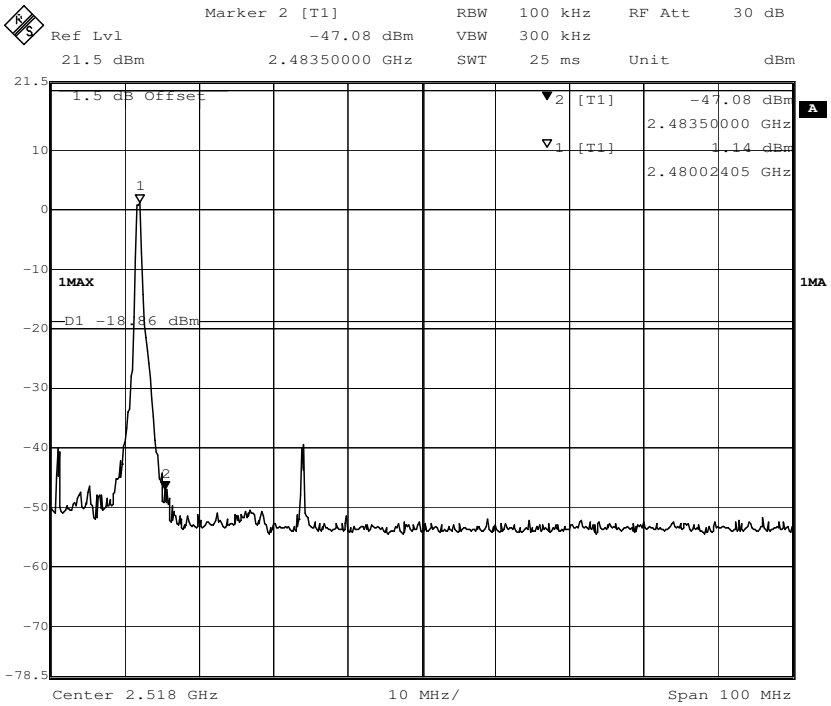
Compare with the output power of the lowest frequency, the Lower Edges attenuated more than 20dB
Compare with the output power of the highest frequency, the Upper Edges attenuated more than 20dB.

Result plot as follows:

Channel 0: 2.402 GHz



Channel 39: 2.480GHz



7.6 Conducted Spurious Emissions

Test Requirement:	47 CFR Part 15, Subpart C 15.247
Test Method:	ANSI C63.10 (2013) Section 11.11
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum 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.

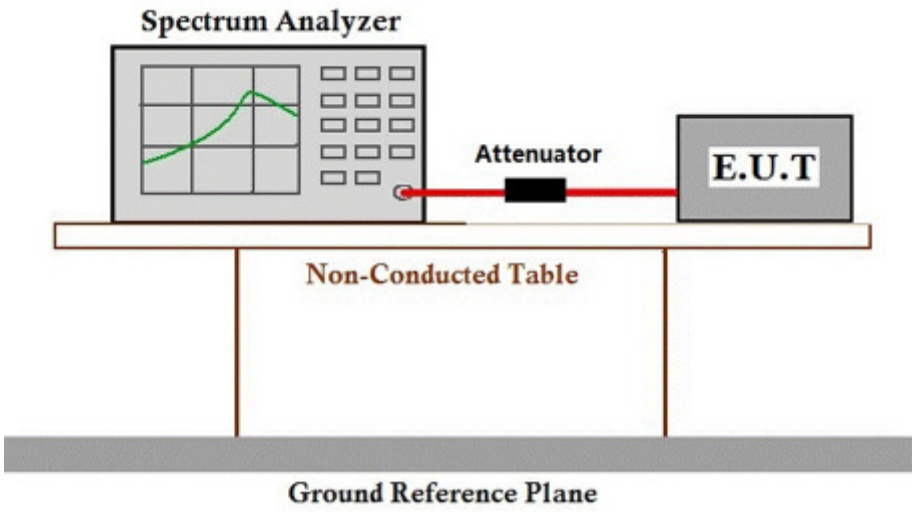
7.6.1 E.U.T. Operation

Operating Environment:

Temperature: 25 °C Humidity: 55 % RH Atmospheric Pressure: 1002 mbar

Test Mode: c: Charging + TX mode_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.

7.6.2 Test Setup Diagram

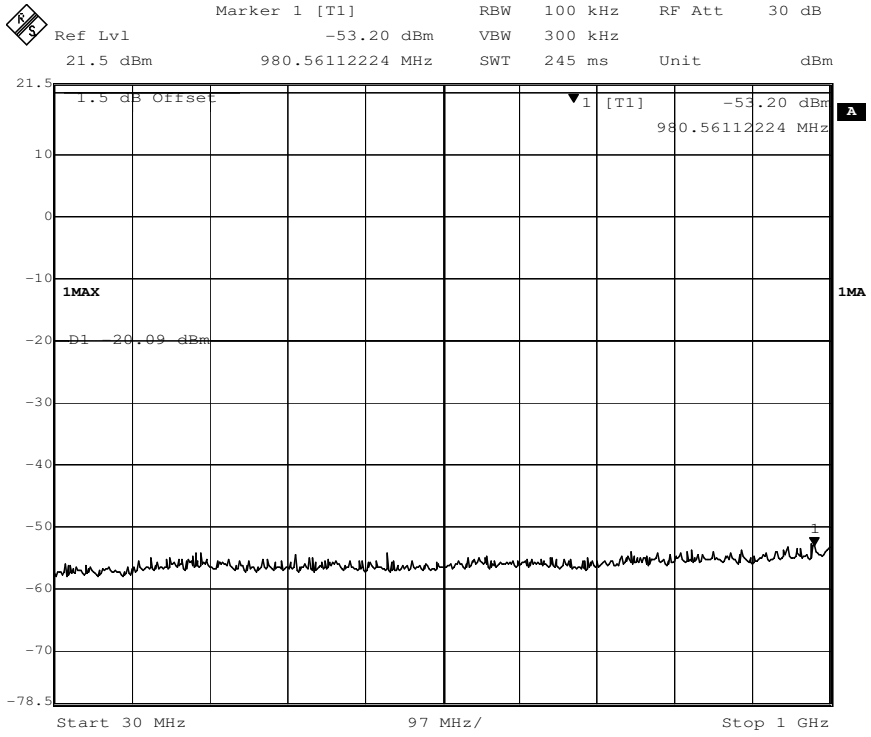


7.6.3 Measurement Data

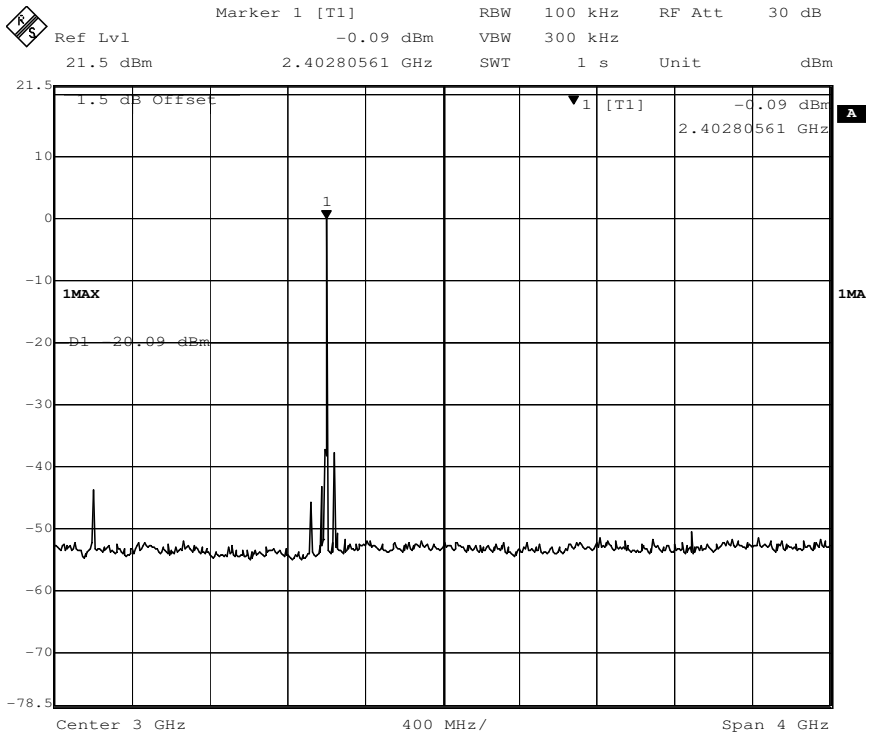
Result plot as follows:

Channel 0: 2.402 GHz

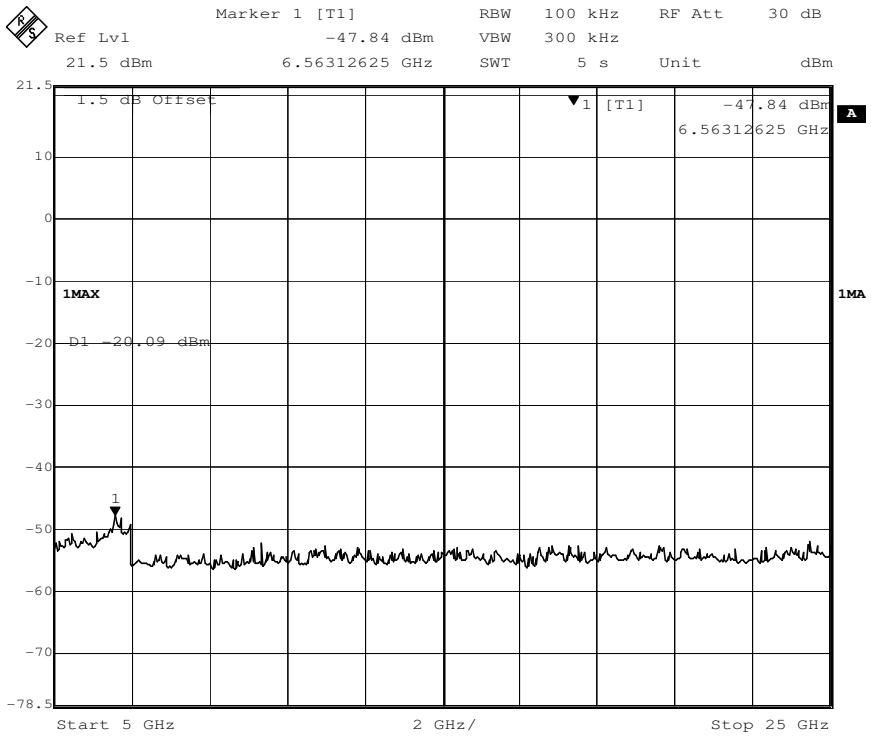
30 MHz to 1GHz



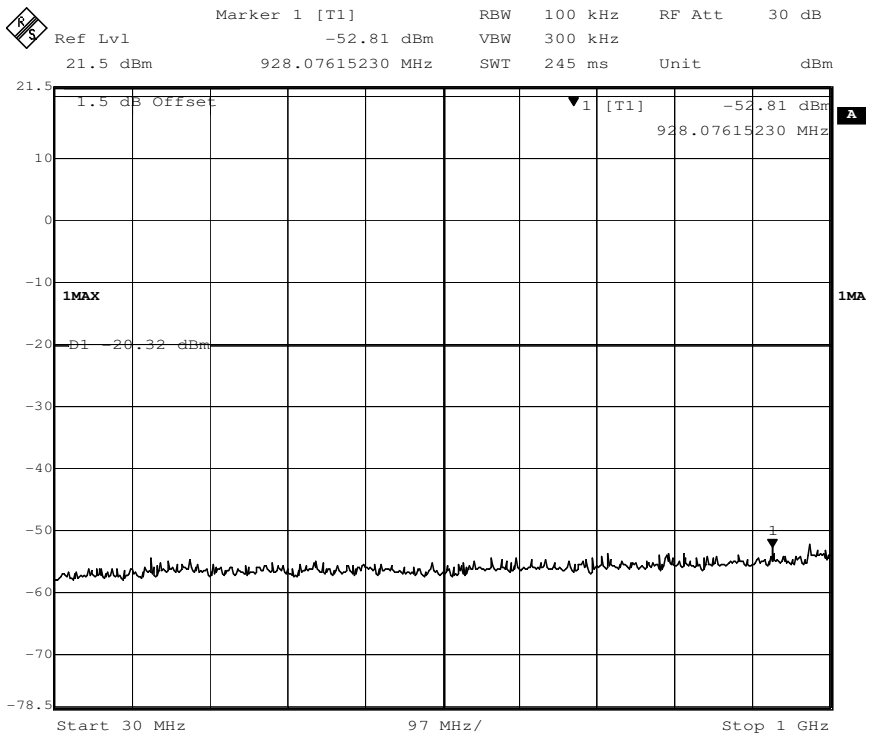
1GHz to 5GHz



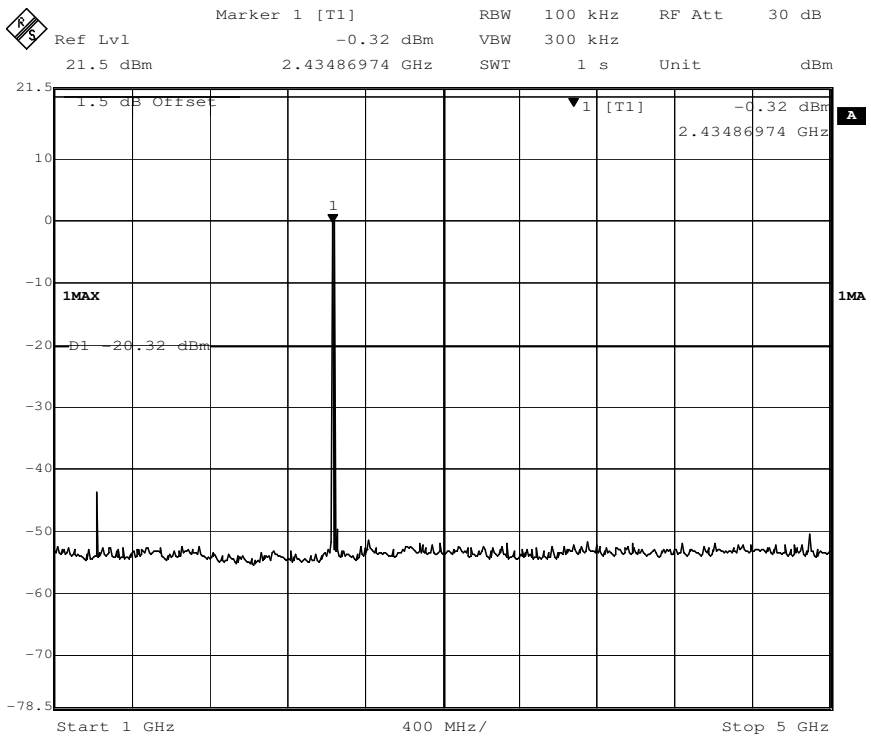
5GHz to 25GHz



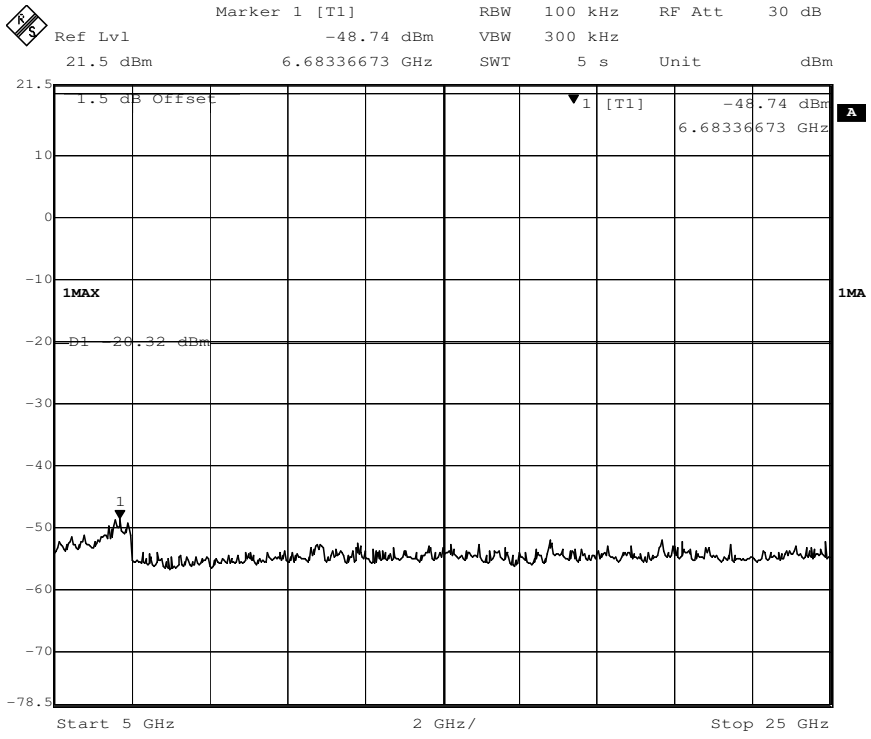
Channel 19:2.440GHz
30 MHz to 1GHz



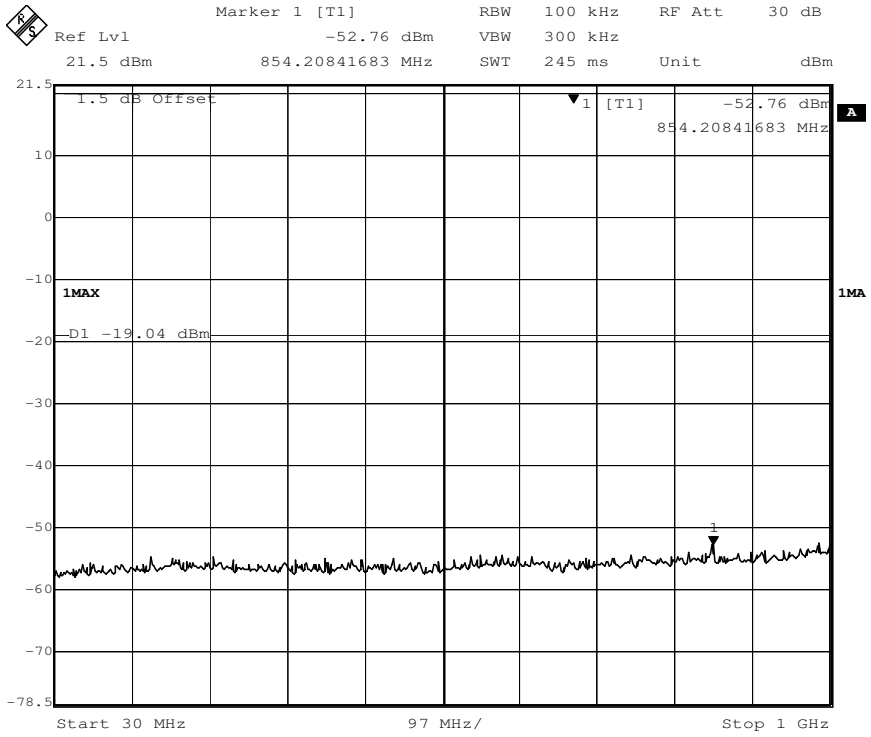
1GHz to 5GHz



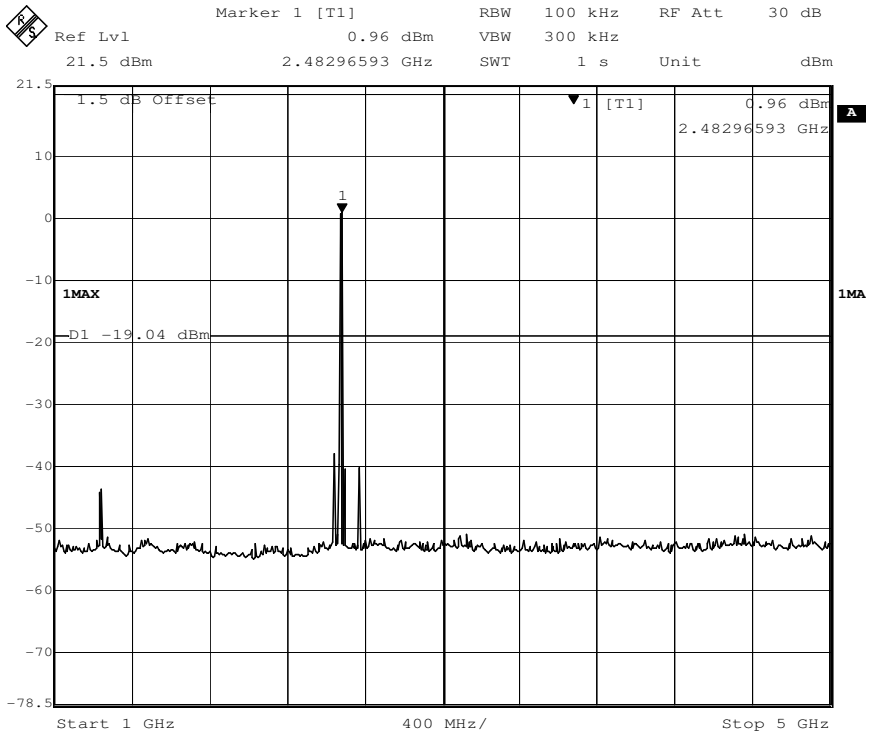
5GHz to 25GHz



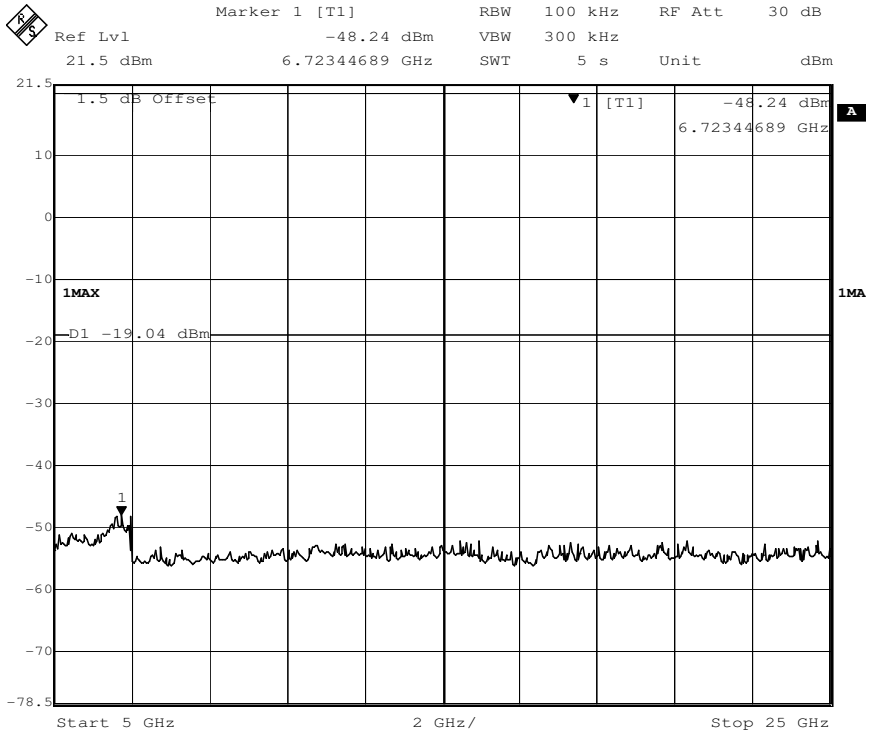
Channel 39:2.480GHz
30 MHz to 1GHz



1GHz to 5GHz



5GHz to 25GHz



7.7 Radiated Emissions which fall in the restricted bands

Test Requirement: 47 CFR Part 15, Subpart C 15.247
Test Method: ANSI C63.10 (2013) Section 6.10.5
Measurement Distance: 3m

7.7.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 55 % RH Atmospheric Pressure: 1002 mbar

Pretest these mode to find the worst case:	b: TX mode_Keep the EUT in continuously transmitting mode with GFSK modulation(power supplied by internal battery) c: Charging + TX mode_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.
The worst case for final test:	b: TX mode_Keep the EUT in continuously transmitting mode with GFSK modulation(power supplied by internal battery)

7.7.2 Test Setup Diagram

Figure 1. Below 30MHz

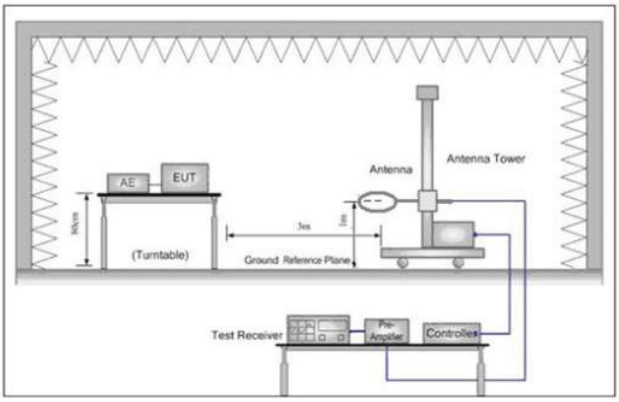


Figure 2. 30MHz to 1GHz

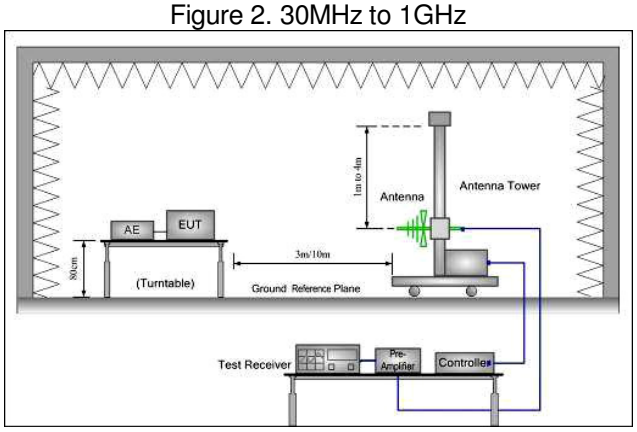
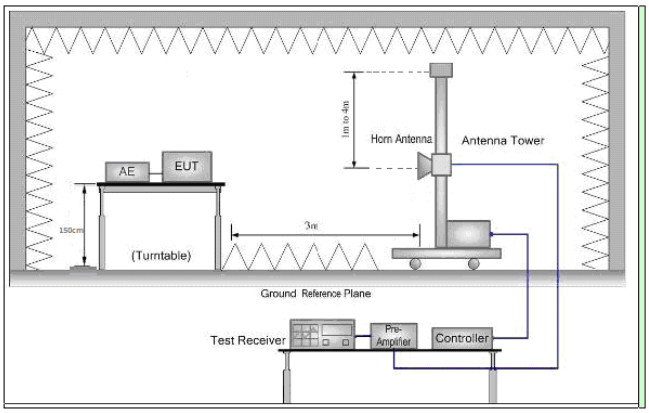


Figure 3. Above 1 GHz



7.7.3 Measurement Data

a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

d. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

g. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

h. Test the EUT in the lowest channel,the middle channel,the Highest channel.

i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.

j. Repeat above procedures until all frequencies measured was complete.

30 MHz to 1 GHz Measurement

The measurements with Log antenna were greater than 20dB below the limit, so the test data were not recorded in the test report.

Above 1GHz, Peak & Average Measurement

Mode:b; Polarization:Horizontal; Modulation Type:GFSK; ; Channel:Low

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2310.000	29.57	26.25	6.80	39.07	23.55	54.00	-30.45	HORIZONTAL	Average
2	2310.000	42.25	26.25	6.80	39.07	36.23	74.00	-37.77	HORIZONTAL	Peak
3	2390.000	45.68	26.43	6.87	39.10	39.88	54.00	-14.12	HORIZONTAL	Average
4	2390.000	62.09	26.43	6.87	39.10	56.29	74.00	-17.71	HORIZONTAL	Peak
5	2483.500	44.70	26.58	7.07	39.14	39.21	54.00	-14.79	HORIZONTAL	Average
6	2483.500	59.46	26.58	7.07	39.14	53.97	74.00	-20.03	HORIZONTAL	Peak
7	2500.000	39.50	26.60	7.10	39.14	34.06	54.00	-19.94	HORIZONTAL	Average
8	2500.000	53.11	26.60	7.10	39.14	47.67	74.00	-26.33	HORIZONTAL	Peak

Mode:b; Polarization:Vertical; Modulation Type:GFSK; ; Channel:Low

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2310.000	30.48	26.25	6.80	39.07	24.46	54.00	-29.54	VERTICAL	Average
2	2310.000	45.49	26.25	6.80	39.07	39.47	74.00	-34.53	VERTICAL	Peak
3	2390.000	46.45	26.43	6.87	39.10	40.65	54.00	-13.35	VERTICAL	Average
4	2390.000	64.19	26.43	6.87	39.10	58.39	74.00	-15.61	VERTICAL	Peak
5	2483.500	48.69	26.58	7.07	39.14	43.20	54.00	-10.80	VERTICAL	Average
6	2483.500	65.50	26.58	7.07	39.14	60.01	74.00	-13.99	VERTICAL	Peak
7	2500.000	32.67	26.60	7.10	39.14	27.23	54.00	-26.77	VERTICAL	Average
8	2500.000	55.73	26.60	7.10	39.14	50.29	74.00	-23.71	VERTICAL	Peak

Mode:b; Polarization:Horizontal; Modulation Type:GFSK; ; Channel:High

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2310.000	28.24	26.25	6.80	39.07	22.22	54.00	-31.78	HORIZONTAL	Average
2	2310.000	41.86	26.25	6.80	39.07	35.84	74.00	-38.16	HORIZONTAL	Peak
3	2390.000	40.23	26.43	6.87	39.10	34.43	54.00	-19.57	HORIZONTAL	Average
4	2390.000	53.47	26.43	6.87	39.10	47.67	74.00	-26.33	HORIZONTAL	Peak
5	2483.500	50.57	26.58	7.07	39.14	45.08	54.00	-8.92	HORIZONTAL	Average
6	2483.500	66.19	26.58	7.07	39.14	60.70	74.00	-13.30	HORIZONTAL	Peak
7	2500.000	37.60	26.60	7.10	39.14	32.16	54.00	-21.84	HORIZONTAL	Average
8	2500.000	48.07	26.60	7.10	39.14	42.63	74.00	-31.37	HORIZONTAL	Peak

Mode:b; Polarization:Vertical; Modulation Type:GFSK; ; Channel:High

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2310.000	33.47	26.25	6.80	39.07	27.45	54.00	-26.55	VERTICAL	Average
2	2310.000	49.16	26.25	6.80	39.07	43.14	74.00	-30.86	VERTICAL	Peak
3	2390.000	44.68	26.43	6.87	39.10	38.88	54.00	-15.12	VERTICAL	Average
4	2390.000	58.83	26.43	6.87	39.10	53.03	74.00	-20.97	VERTICAL	Peak
5	2483.500	50.68	26.58	7.07	39.14	45.19	54.00	-8.81	VERTICAL	Average
6	2483.500	68.68	26.58	7.07	39.14	63.19	74.00	-10.81	VERTICAL	Peak
7	2500.000	38.69	26.60	7.10	39.14	33.25	54.00	-20.75	VERTICAL	Average
8	2500.000	51.41	26.60	7.10	39.14	45.97	74.00	-28.03	VERTICAL	Peak

7.8 Radiated Spurious Emissions

Test Requirement: 47 CFR Part 15, Subpart C 15.247

Test Method: ANSI C63.10 (2013) Section 6.4,6.5,6.6

Measurement Distance: 3m

Limit:

Frequency(MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3
Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.		

7.8.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 55 % RH Atmospheric Pressure: 1002 mbar

Pretest these mode to find the worst case: b: TX mode_Keep the EUT in continuously transmitting mode with GFSK modulation(power supplied by internal battery)

c: Charging + TX mode_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.

The worst case for final test: b: TX mode_Keep the EUT in continuously transmitting mode with GFSK modulation(power supplied by internal battery)

7.8.2 Test Setup Diagram

Figure 1. Below 30MHz

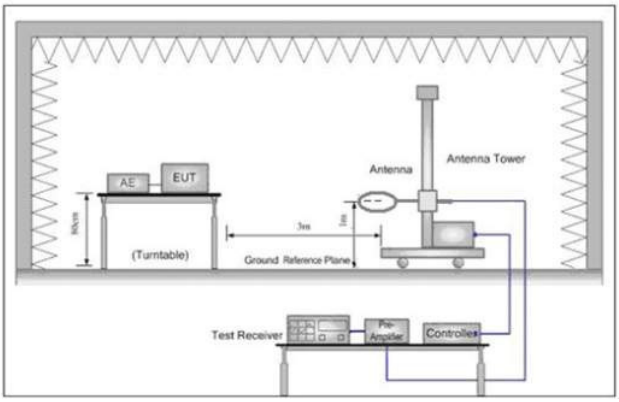


Figure 2. 30MHz to 1GHz

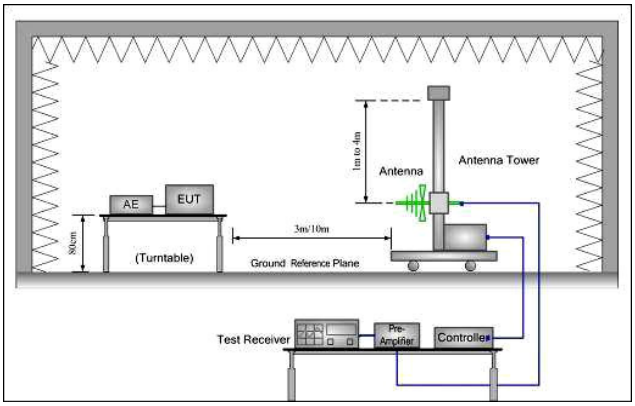
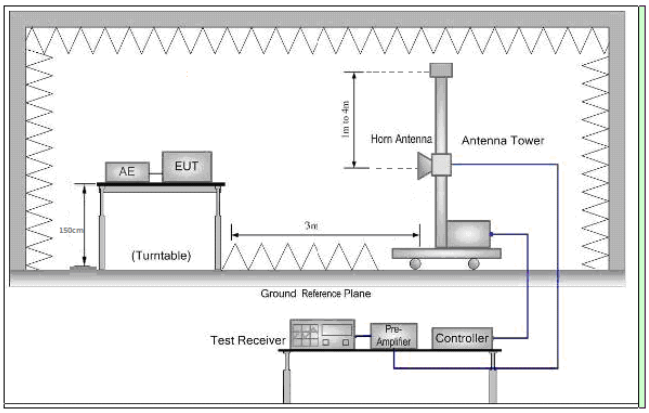


Figure 3. Above 1 GHz



7.8.3 Measurement Data

a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

d. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

g. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

h. Test the EUT in the lowest channel,the middle channel,the Highest channel.

i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.

j. Repeat above procedures until all frequencies measured was complete.

9KHz~30 MHz, Quasi-Peak Measurement

The measurements with Loop antenna and the amplitude of spurious emissions from the radiator are attenuated more than 20dB below the limit, so the test data were not recorded in the test report.

30MHz~1GHz, Quasi-Peak Measurement

Mode:b; Polarization:Horizontal; Modulation Type:GFSK; ; Channel:Low

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	48.163	23.06	14.42	1.26	27.00	11.74	40.00	-28.26	HORIZONTAL	QP
2	63.536	23.66	13.68	1.47	27.00	11.81	40.00	-28.19	HORIZONTAL	QP
3	177.509	37.98	12.78	2.55	26.67	26.64	43.50	-16.86	HORIZONTAL	QP
4	192.419	36.41	11.67	2.66	26.61	24.13	43.50	-19.37	HORIZONTAL	QP
5	379.914	26.59	16.04	3.80	27.00	19.43	46.00	-26.57	HORIZONTAL	QP
6	896.997	24.81	23.38	5.90	27.72	26.37	46.00	-19.63	HORIZONTAL	QP

Mode:b; Polarization:Vertical; Modulation Type:GFSK; ; Channel:Low

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	31.620	25.94	14.06	1.10	27.10	14.00	40.00	-26.00	VERTICAL	QP
2	53.882	26.09	14.36	1.30	27.00	14.75	40.00	-25.25	VERTICAL	QP
3	74.919	31.82	11.15	1.60	27.00	17.57	40.00	-22.43	VERTICAL	QP
4	147.921	25.27	13.26	2.29	26.80	14.02	43.50	-29.48	VERTICAL	QP
5	175.652	27.61	12.85	2.52	26.68	16.30	43.50	-27.20	VERTICAL	QP
6	863.056	29.10	23.10	5.84	27.83	30.21	46.00	-15.79	VERTICAL	QP

Above 1GHz, Peak & Average Measurement

Mode:b; Polarization:Horizontal; Modulation Type:GFSK; ; Channel:Low

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	3958.309	27.58	29.42	8.95	40.06	25.89	54.00	-28.11	HORIZONTAL	Averag
2	3958.309	41.01	29.42	8.95	40.06	39.32	74.00	-34.68	HORIZONTAL	Peak
3	4804.658	39.48	30.79	9.95	40.21	40.01	54.00	-13.99	HORIZONTAL	Averag
4	4804.658	54.22	30.79	9.95	40.21	54.75	74.00	-19.25	HORIZONTAL	Peak
5	7206.654	23.57	35.45	12.73	39.25	32.50	54.00	-21.50	HORIZONTAL	Averag
6	7206.654	36.01	35.45	12.73	39.25	44.94	74.00	-29.06	HORIZONTAL	Peak
7	9608.479	21.46	37.51	14.48	37.97	35.48	54.00	-18.52	HORIZONTAL	Averag
8	9608.479	31.40	37.51	14.48	37.97	45.42	74.00	-28.58	HORIZONTAL	Peak
9	12010.700	20.24	39.50	15.80	38.08	37.46	54.00	-16.54	HORIZONTAL	Averag
10	12010.700	32.35	39.50	15.80	38.08	49.57	74.00	-24.43	HORIZONTAL	Peak
11	14412.250	20.98	41.97	18.27	38.43	42.79	54.00	-11.21	HORIZONTAL	Averag
12	14412.250	32.69	41.97	18.27	38.43	54.50	74.00	-19.50	HORIZONTAL	Peak

Mode:b; Polarization:Vertical; Modulation Type:GFSK; ; Channel:Low

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	4804.568	33.25	30.79	9.95	40.21	33.78	54.00	-20.22	VERTICAL	Averag
2	4804.568	48.86	30.79	9.95	40.21	49.39	74.00	-24.61	VERTICAL	Peak
3	7206.658	27.37	35.45	12.73	39.25	36.30	54.00	-17.70	VERTICAL	Averag
4	7206.658	40.16	35.45	12.73	39.25	49.09	74.00	-24.91	VERTICAL	Peak
5	7943.838	24.25	36.47	13.47	39.11	35.08	54.00	-18.92	VERTICAL	Averag
6	7943.838	34.11	36.47	13.47	39.11	44.94	74.00	-29.06	VERTICAL	Peak
7	9608.354	22.57	37.51	14.48	37.97	36.59	54.00	-17.41	VERTICAL	Averag
8	9608.354	31.56	37.51	14.48	37.97	45.58	74.00	-28.42	VERTICAL	Peak
9	12010.660	22.19	39.50	15.80	38.08	39.41	54.00	-14.59	VERTICAL	Averag
10	12010.660	33.88	39.50	15.80	38.08	51.10	74.00	-22.90	VERTICAL	Peak
11	14412.690	20.08	41.97	18.27	38.43	41.89	54.00	-12.11	VERTICAL	Averag
12	14412.690	33.58	41.97	18.27	38.43	55.39	74.00	-18.61	VERTICAL	Peak

Mode:b; Polarization:Horizontal; Modulation Type:GFSK; ; Channel:middle

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	3879.027	28.68	29.24	8.86	40.04	26.74	54.00	-27.26	HORIZONTAL	Averag
2	3879.027	41.27	29.24	8.86	40.04	39.33	74.00	-34.67	HORIZONTAL	Peak
3	4882.347	40.65	30.95	10.02	40.22	41.40	54.00	-12.60	HORIZONTAL	Averag
4	4882.347	56.43	30.95	10.02	40.22	57.18	74.00	-16.82	HORIZONTAL	Peak
5	7323.199	23.90	35.74	12.93	39.22	33.35	54.00	-20.65	HORIZONTAL	Averag
6	7323.199	36.10	35.74	12.93	39.22	45.55	74.00	-28.45	HORIZONTAL	Peak
7	9764.294	20.45	37.70	14.45	37.90	34.70	54.00	-19.30	HORIZONTAL	Averag
8	9764.294	30.63	37.70	14.45	37.90	44.88	74.00	-29.12	HORIZONTAL	Peak
9	12205.350	21.44	39.21	16.05	38.10	38.60	54.00	-15.40	HORIZONTAL	Averag
10	12205.350	34.84	39.21	16.05	38.10	52.00	74.00	-22.00	HORIZONTAL	Peak
11	14646.250	20.99	41.52	18.30	38.45	42.36	54.00	-11.64	HORIZONTAL	Averag
12	14646.250	32.64	41.52	18.30	38.45	54.01	74.00	-19.99	HORIZONTAL	Peak

Mode:b; Polarization:Vertical; Modulation Type:GFSK; ; Channel:middle

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	4027.554	29.32	29.52	9.02	40.07	27.79	54.00	-26.21	VERTICAL	Averag
2	4027.554	41.13	29.52	9.02	40.07	39.60	74.00	-34.40	VERTICAL	Peak
3	4882.647	39.55	30.95	10.02	40.22	40.30	54.00	-13.70	VERTICAL	Averag
4	4882.647	53.64	30.95	10.02	40.22	54.39	74.00	-19.61	VERTICAL	Peak
5	7323.654	25.35	35.74	12.93	39.22	34.80	54.00	-19.20	VERTICAL	Averag
6	7323.654	37.72	35.74	12.93	39.22	47.17	74.00	-26.83	VERTICAL	Peak
7	9764.524	21.74	37.70	14.45	37.90	35.99	54.00	-18.01	VERTICAL	Averag
8	9764.524	34.33	37.70	14.45	37.90	48.58	74.00	-25.42	VERTICAL	Peak
9	12205.470	22.57	39.21	16.05	38.10	39.73	54.00	-14.27	VERTICAL	Averag
10	12205.470	32.55	39.21	16.05	38.10	49.71	74.00	-24.29	VERTICAL	Peak
11	14646.660	20.45	41.52	18.30	38.45	41.82	54.00	-12.18	VERTICAL	Averag
12	14646.660	31.14	41.52	18.30	38.45	52.51	74.00	-21.49	VERTICAL	Peak

Mode:b; Polarization:Horizontal; Modulation Type:GFSK; ; Channel:High

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	3981.257	29.14	29.46	8.98	40.06	27.52	54.00	-26.48	HORIZONTAL	Averag
2	3981.257	41.41	29.46	8.98	40.06	39.79	74.00	-34.21	HORIZONTAL	Peak
3	4960.354	43.70	31.05	10.07	40.23	44.59	54.00	-9.41	HORIZONTAL	Averag
4	4960.354	58.29	31.05	10.07	40.23	59.18	74.00	-14.82	HORIZONTAL	Peak
5	7440.247	23.30	35.92	13.04	39.20	33.06	54.00	-20.94	HORIZONTAL	Averag
6	7440.247	37.66	35.92	13.04	39.20	47.42	74.00	-26.58	HORIZONTAL	Peak
7	9920.526	21.97	37.92	14.41	37.84	36.46	54.00	-17.54	HORIZONTAL	Averag
8	9920.526	33.63	37.92	14.41	37.84	48.12	74.00	-25.88	HORIZONTAL	Peak
9	12400.140	20.13	38.93	16.29	38.12	37.23	54.00	-16.77	HORIZONTAL	Averag
10	12400.140	33.35	38.93	16.29	38.12	50.45	74.00	-23.55	HORIZONTAL	Peak
11	14880.270	22.48	40.62	18.30	38.47	42.93	54.00	-11.07	HORIZONTAL	Averag
12	14880.270	34.84	40.62	18.30	38.47	55.29	74.00	-18.71	HORIZONTAL	Peak

Mode:b; Polarization:Vertical; Modulation Type:GFSK; ; Channel:High

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	4015.929	29.89	29.51	9.01	40.07	28.34	54.00	-25.66	VERTICAL	Averag
2	4015.929	41.35	29.51	9.01	40.07	39.80	74.00	-34.20	VERTICAL	Peak
3	4960.354	40.23	31.05	10.07	40.23	41.12	54.00	-12.88	VERTICAL	Averag
4	4960.354	53.66	31.05	10.07	40.23	54.55	74.00	-19.45	VERTICAL	Peak
5	7440.354	25.70	35.92	13.04	39.20	35.46	54.00	-18.54	VERTICAL	Averag
6	7440.354	37.23	35.92	13.04	39.20	46.99	74.00	-27.01	VERTICAL	Peak
7	9920.368	19.66	37.92	14.41	37.84	34.15	54.00	-19.85	VERTICAL	Averag
8	9920.368	29.56	37.92	14.41	37.84	44.05	74.00	-29.95	VERTICAL	Peak
9	12400.370	20.73	38.93	16.29	38.12	37.83	54.00	-16.17	VERTICAL	Averag
10	12400.370	33.48	38.93	16.29	38.12	50.58	74.00	-23.42	VERTICAL	Peak
11	14880.150	20.75	40.62	18.30	38.47	41.20	54.00	-12.80	VERTICAL	Averag
12	14880.150	34.96	40.62	18.30	38.47	55.41	74.00	-18.59	VERTICAL	Peak

--End of Report--