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Guangzhou Branch

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TEST REPORT

Application No.:	GZEM1804001707CR
Applicant:	Zhongshan Transtek Electronics Co.,Ltd
Address of Applicant:	No. 23, Jin'an Road, Minzhong, Zhongshan, Guangdong, China
Manufacturer:	Zhongshan Transtek Electronics Co.,Ltd
Address of Manufacturer:	No. 23, Jin'an Road, Minzhong, Zhongshan, Guangdong, China
Factory:	Zhongshan Transtek Electronics Co.,Ltd
Address of Factory:	No. 23, Jin'an Road, Minzhong, Zhongshan, Guangdong, China
Equipment Under Test (EUT):	
FCC ID:	2AOJNGBS-1270-B2
EUT Name:	Bluetooth Body Scale
Model No.:	GBS-1270-B2
Standard(s) :	47 CFR Part 15, Subpart C 15.247
Date of Receipt:	2018-04-09
Date of Test:	2018-04-16 to 2018-04-21
Date of Issue:	2018-04-24
Test Result:	**Pass***

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

Kobe Jian
EMC Laboratory 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.

Revision Record				
Version	**Chapter**	**Date**	**Modifier**	**Remark**
01		2018-04-24		Original

Authorized for issue by:				
Tested By		Vico_Cui /Project Engineer		2018-04-16 to 2018-04-21 **Date**
Checked By		Ricky_Liu /Reviewer		2018-04-24 **Date**

2 Test Summary

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

Radio Spectrum Matter Part				
Item	**Standard**	**Method**	**Requirement**	**Result**
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 15.247(a)(2)	Pass
Conducted Peak Output Power	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 11.9.1	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.

Operating Frequency:	2402MHz to 2480MHz
Modulation:	GFSK
Number of Channels:	40
Channel Separation:	2MHz
Antenna Type:	Integrated PCB Antenna
Antenna Gain:	1 dBi
Bluetooth Version:	4.0 BLE
Fixed Fre. Software	nRFgo Studio v1.21.1
Function:	Body Scale with Bluetooth function for data transmission.
Power Supply:	DC 6V (4 x DC 1.5V size of "AAA" batteries)
Test Voltage:	DC 6.0V
Cable:	N/A
Power Class	< 10 mW

4.2 Environment parameter

Environment Parameter	Selected Values During Tests	
Relative Humidity	Ambient	
Value	Temperature(℃)	Voltage(V)
TNVN	25	6
TLVN	-10	6
THVN	45	6

Note:

VN: Normal Voltage

TN: Normal Temperature

TL: Low Extreme Test Temperature

TH: High Extreme Test Temperature

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

Using test software was control EUT work in continuous transmitter and receiver mode.and select test channel as below:

Channel	Frequency
The lowest channel (CH0)	2402MHz
The middle channel (CH20)	2442MHz
The highest channel (CH39)	2480MHz

4.3 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
iPad	Apple	A1432	/
Netbook	IBM	T30	S/N78-3VMLX06/01

4.4 Measurement Uncertainty

RF

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

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

RF Conducted Test					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
MXA Signal Analyzer	AgilentTechnologies	N9020A	SEM004-10	2018-03-10	2019-03-09
ESG Vector Signal Generator	Keysight	E4438C	SEM006-03	2017-04-14	2018-12-13
EXG Analog Signal Generator	AgilentTechnologies	N5171B	SEM006-04	2017-07-26	2020-07-25
Power Meter	AgilentTechnologies	U2021XA_Ch2	SEM009-02	2017-09-19	2018-09-18
Power Meter	AgilentTechnologies	U2021XA_Ch3	SEM009-03	2017-09-19	2018-09-18
EXA Signal Analzer	AgilentTechnologies	N9010A	EMC2138	2017-11-15	2018-11-14
ATTENUATOR	HP	8941A	EMC2062	2018-04-12	2020-04-12

Radiated Emissions which fall in the restricted bands					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
EMI Test Receiver	Rohde & Schwarz	ESIB26	EMC0522	2018-01-19	2019-01-18
EMI Test Receiver	Rohde & Schwarz	ESCI	EMC0056	2018-01-19	2019-01-18
RI High Frequency Cable	SGS	20 m	EMC0528	2016-04-19	2018-04-18
Trilog Broadband Antenna 30MHz-1GHz	SCHWARZBECKMESS-ELEKTRONIK	VULB 9160	EMC2025	2016-09-08	2019-09-07
Bi-log Type Antenna	Schaffner -Chase	CBL6112B	EMC0524	2016-09-08	2019-09-07
Bi-log Type Antenna	Schaffner -Chase	CBL6143	EMC0519	2017-05-04	2020-05-03
Horn Antenna 1GHz-18GHz	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120D	EMC2026	2016-09-09	2019-09-08
1GHz-26.5 GHz Pre-Amplifier	Agilent	8449B	EMC0521	2018-01-08	2019-01-07
Amplifier	HP	8447F	EMC2065	2017-06-19	2018-06-18
Pre-Amplifier MH648A	ANRITSU CORP	MH648A	EMC2086	2017-11-20	2018-11-19
Active Loop Antenna	EMCO	6502	EMC0523	2018-02-24	2019-02-23
High Pass Filter(915MHz)	FSY MICROWAVE	HM1465-9SS	EMC2079	2018-01-19	2019-01-18
2.4GHz Filter	Micro-Tronics	BRM 50702	EMC2069	2018-01-08	2019-01-07
10m Semi-Anechoic Chamber	ETS	N/A	EMC0530	2016-04-30	2018-04-29
966 Anechoic Chamber	C.R.T	9m x 6m x 6m	EMC2142	2017-11-29	2018-11-28
MXE EMI Receiver	Keysight	N9038A	EMC2139	2017-11-15	2018-11-14
EXA Signal Analyzer	Keysight	N9010A	EMC2138	2017-11-15	2018-11-14

Radiated Spurious Emissions					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
EMI Test Receiver	Rohde & Schwarz	ESIB26	EMC0522	2018-01-19	2019-01-18
EMI Test Receiver	Rohde & Schwarz	ESCI	EMC0056	2018-01-19	2019-01-18
RI High Frequency Cable	SGS	20 m	EMC0528	2016-04-19	2018-04-18
Trilog Broadband Antenna 30MHz-1GHz	SCHWARZBECKMESS-ELEKTRONIK	VULB 9160	EMC2025	2016-09-08	2019-09-07
Bi-log Type Antenna	Schaffner -Chase	CBL6112B	EMC0524	2016-09-08	2019-09-07
Bi-log Type Antenna	Schaffner -Chase	CBL6143	EMC0519	2017-05-04	2020-05-03
Horn Antenna 1GHz-18GHz	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120D	EMC2026	2016-09-09	2019-09-08
1GHz-26.5 GHz Pre-Amplifier	Agilent	8449B	EMC0521	2018-01-08	2019-01-07
Amplifier	HP	8447F	EMC2065	2017-06-19	2018-06-18
Pre-Amplifier MH648A	ANRITSU CORP	MH648A	EMC2086	2017-11-20	2018-11-19
Active Loop Antenna	EMCO	6502	EMC0523	2018-02-24	2019-02-23
High Pass Filter(915MHz)	FSY MICROWAVE	HM1465-9SS	EMC2079	2018-01-19	2019-01-18
2.4GHz Filter	Micro-Tronics	BRM 50702	EMC2069	2018-01-08	2019-01-07
10m Semi-Anechoic Chamber	ETS	N/A	EMC0530	2016-04-30	2018-04-29
966 Anechoic Chamber	C.R.T	9m x 6m x 6m	EMC2142	2017-11-29	2018-11-28
MXE EMI Receiver	Keysight	N9038A	EMC2139	2017-11-15	2018-11-14
EXA Signal Analyzer	Keysight	N9010A	EMC2138	2017-11-15	2018-11-14

General used equipment					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
DMM	Fluke	73	EMC0006	2017-07-26	2018-07-25
DMM	Fluke	73	EMC0007	2017-07-26	2018-07-25

6 Radio Spectrum Technical Requirement

6.1 Antenna Requirement

6.1.1 Test Requirement:

47 CFR Part 15, Subpart C 15.203 & 15.247(c)

6.1.2 Conclusion

Standard Requirement:

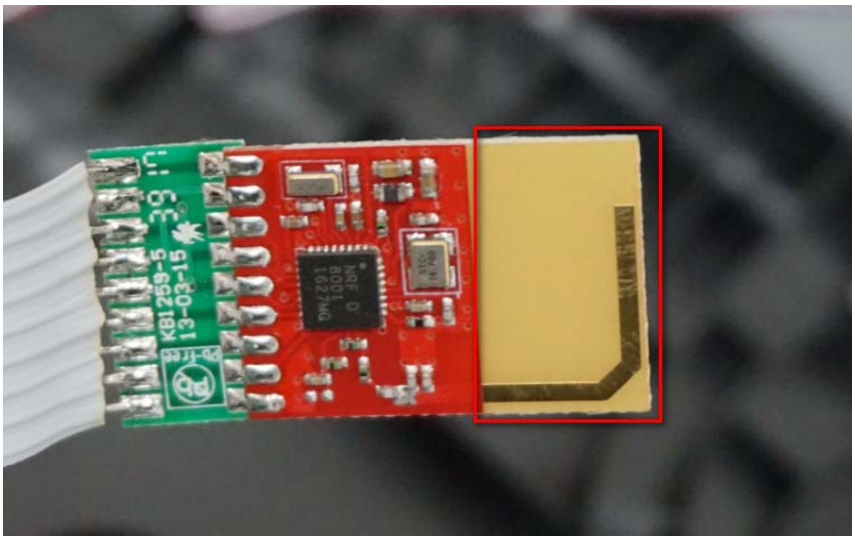
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit 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 integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 1dBi.



Test Result: The unit does meet the FCC requirement.

7 Radio Spectrum Matter Test Results

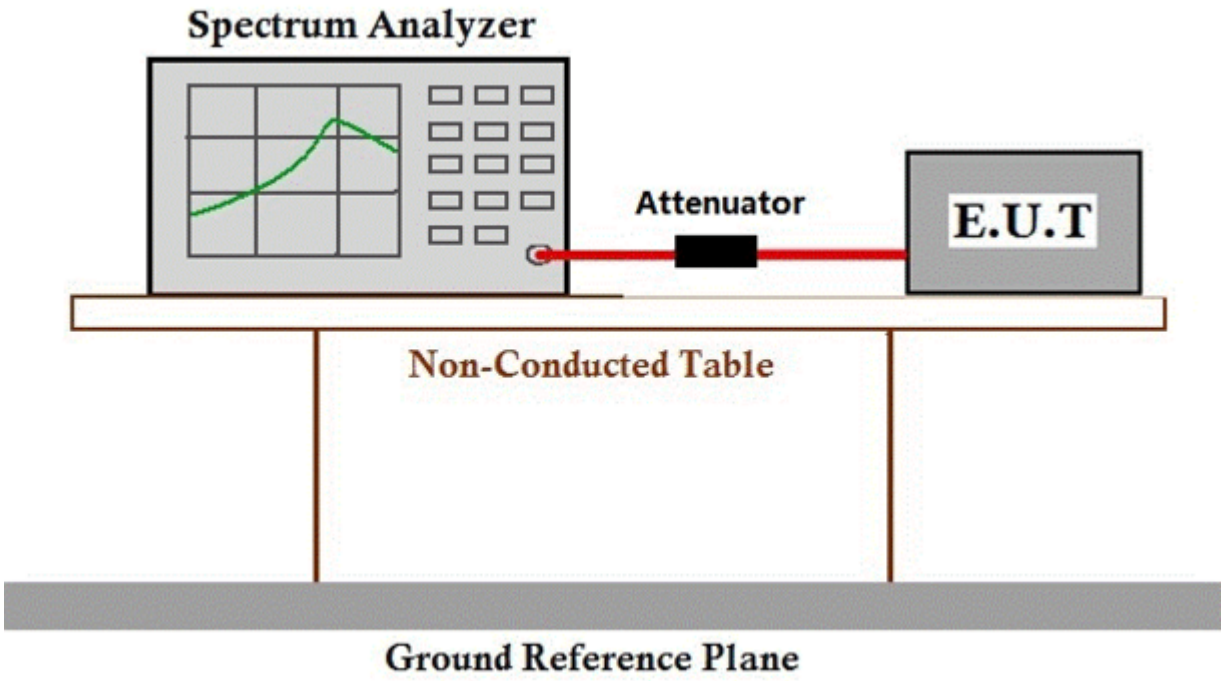
7.1 Minimum 6dB Bandwidth

Test Requirement 47 CFR Part 15, Subpart C 15.247a(2)
Test Method: ANSI C63.10 (2013) Section 11.8.1
Limit: ⩾500 kHz

7.1.1 E.U.T. Operation

Operating Environment:
Temperature: 22.8 °C Humidity: 49.4 % RH Atmospheric Pressure: 1020 mbar
Test mode b:TX mode_Keep the EUT in continuously transmitting mode with GFSK modulation. Enter test mode for the product, test in channel lowest(2402MHz), middle(2442MHz) and highest(2480MHz).

7.1.2 Test Setup Diagram



7.1.3 Measurement Procedure and Data

The detailed test data see: Appendix 15.247

7.2 Conducted Peak Output Power

Test Requirement 47 CFR Part 15, Subpart C 15.247(b)(3)

Test Method: ANSI C63.10 (2013) Section 11.9.1

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

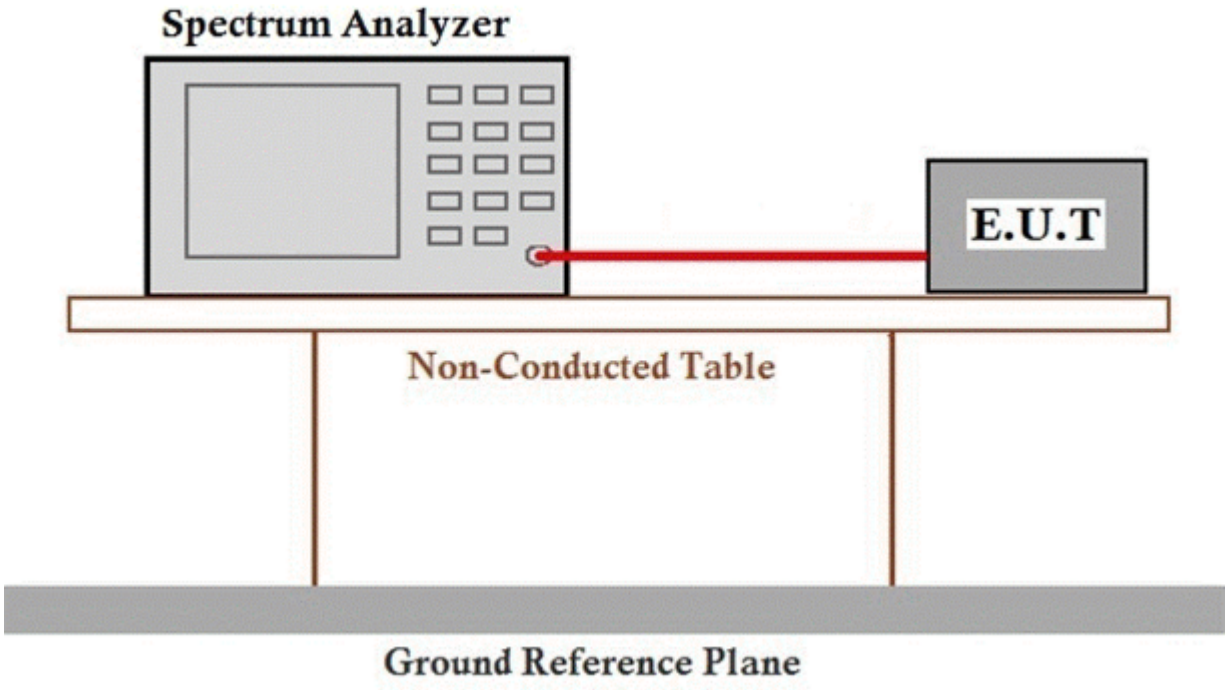
7.2.1 E.U.T. Operation

Operating Environment:

Temperature: 22.8 °C Humidity: 49.4 % RH Atmospheric Pressure: 1020 mbar

Test mode b:TX mode_Keep the EUT in continuously transmitting mode with GFSK modulation. Enter test mode for the product, test in channel lowest(2402MHz), middle(2442MHz) and highest(2480MHz).

7.2.2 Test Setup Diagram



7.2.3 Measurement Procedure and Data

The detailed test data see: Appendix 15.247

7.3 Power Spectrum Density

Test Requirement	47 CFR Part 15, Subpart C 15.247(e)
Test Method:	ANSI C63.10 (2013) Section 11.10.2
Limit:	≤8dBm in any 3 kHz band during any time interval of continuous transmission

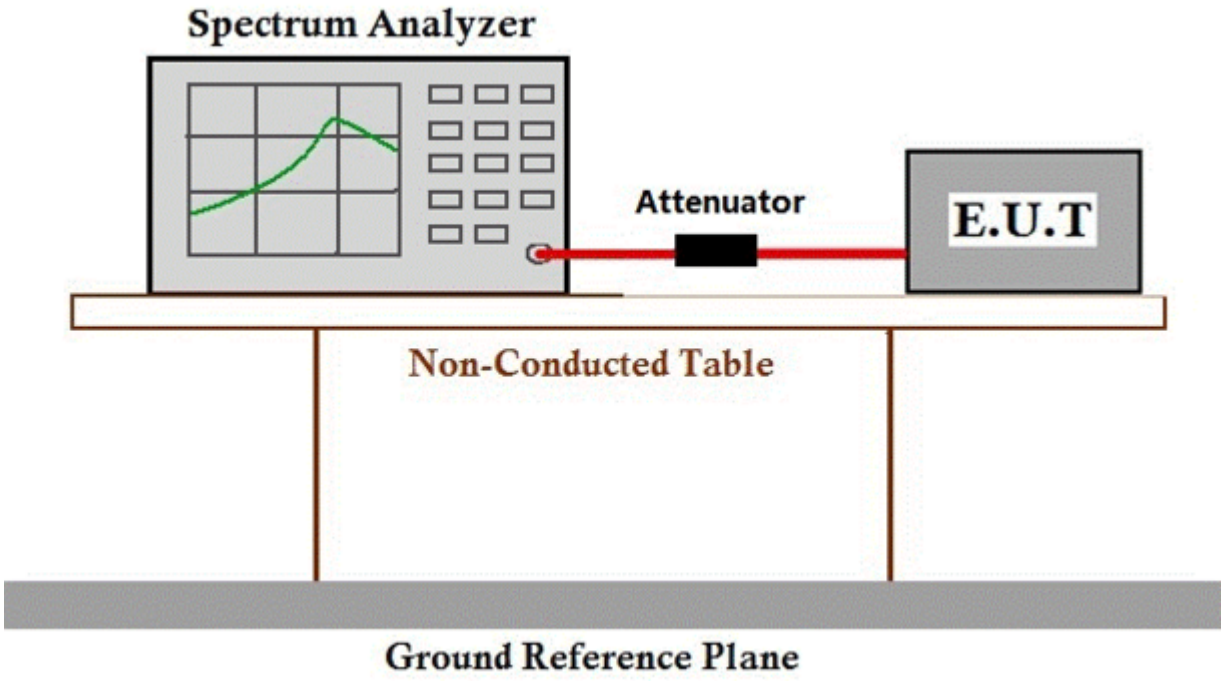
7.3.1 E.U.T. Operation

Operating Environment:

Temperature: 22.8 °C Humidity: 49.4 % RH Atmospheric Pressure: 1020 mbar

Test mode b:TX mode_Keep the EUT in continuously transmitting mode with GFSK modulation. Enter test mode for the product, test in channel lowest(2402MHz), middle(2442MHz) and highest(2480MHz).

7.3.2 Test Setup Diagram



7.3.3 Measurement Procedure and Data

The detailed test data see: Appendix 15.247

7.4 Conducted Band Edges Measurement

Test Requirement	47 CFR Part 15, Subpart C 15.247(d)
Test Method:	ANSI C63.10 (2013) Section 11.13.3.2
Limit:	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 §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)

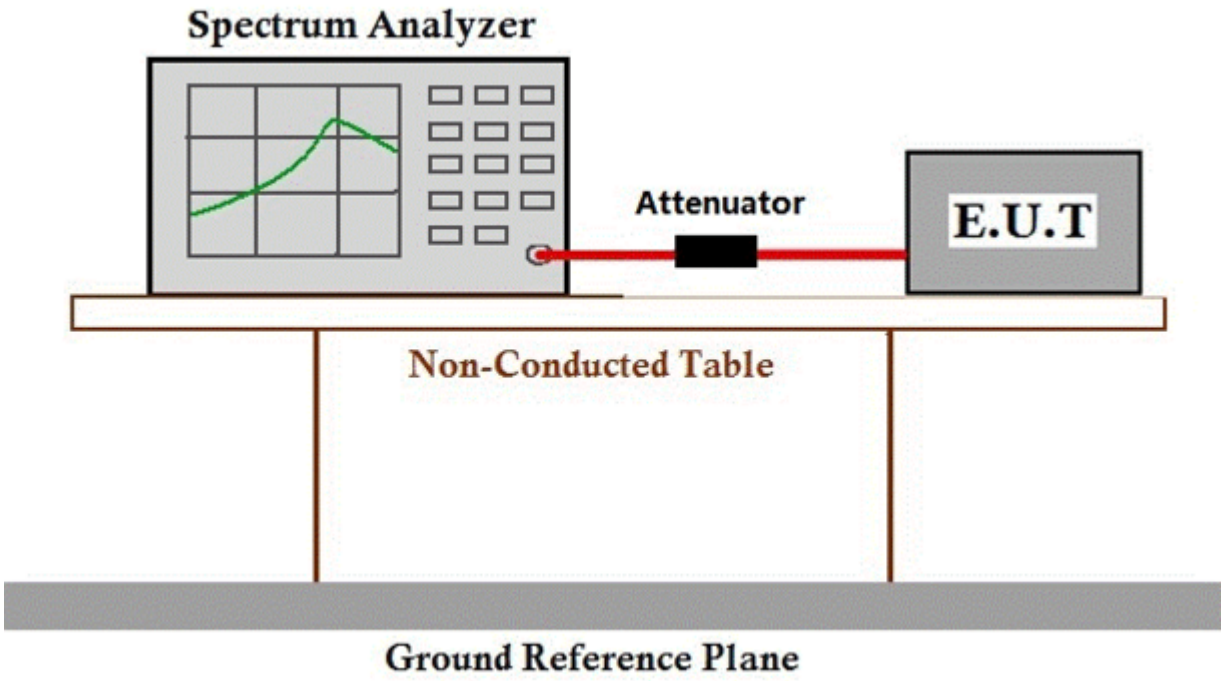
7.4.1 E.U.T. Operation

Operating Environment:

Temperature: 22.8 °C Humidity: 49.4 % RH Atmospheric Pressure: 1020 mbar

Test mode b:TX mode_Keep the EUT in continuously transmitting mode with GFSK modulation. Enter test mode for the product, test in channel lowest(2402MHz), middle(2442MHz) and highest(2480MHz).

7.4.2 Test Setup Diagram



7.4.3 Measurement Procedure and Data

The detailed test data see: Appendix 15.247

7.5 Conducted Spurious Emissions

Test Requirement: 47 CFR Part 15, Subpart C 15.247(d)

Test Method: ANSI C63.10 (2013) Section 11.11

Limit: 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 §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)

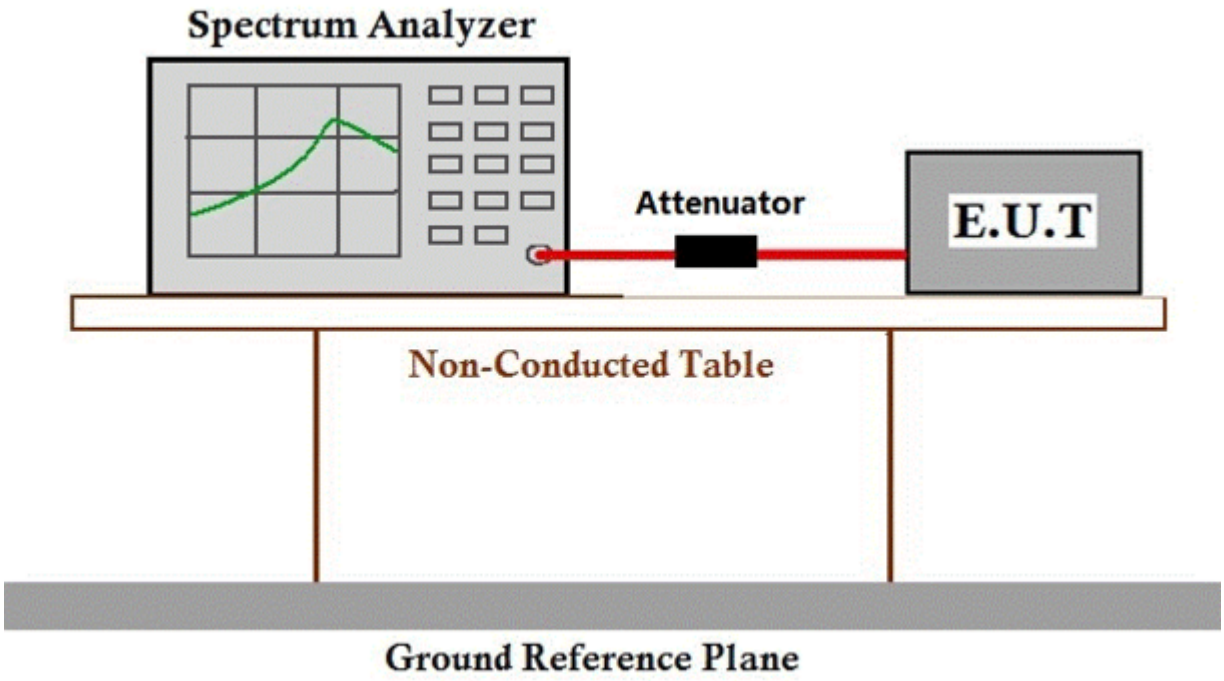
7.5.1 E.U.T. Operation

Operating Environment:

Temperature: 22.8 °C Humidity: 49.4 % RH Atmospheric Pressure: 1020 mbar

Test mode: b:TX mode_Keep the EUT in continuously transmitting mode with GFSK modulation. Enter test mode for the product, test in channel lowest(2402MHz), middle(2442MHz) and highest(2480MHz).

7.5.2 Test Setup Diagram



7.5.3 Measurement Procedure and Data

The detailed test data see: Appendix 15.247

7.6 Radiated Emissions which fall in the restricted bands

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.209
Test Method: ANSI C63.10 (2013) Section 6.10.5
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.		

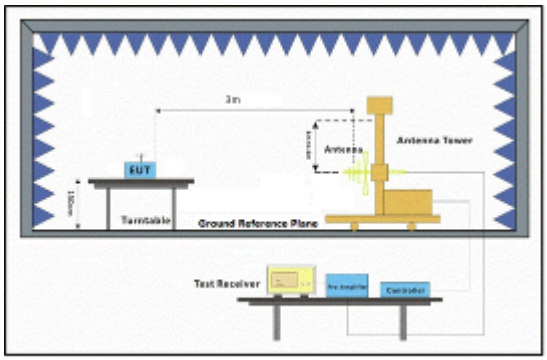
7.6.1 E.U.T. Operation

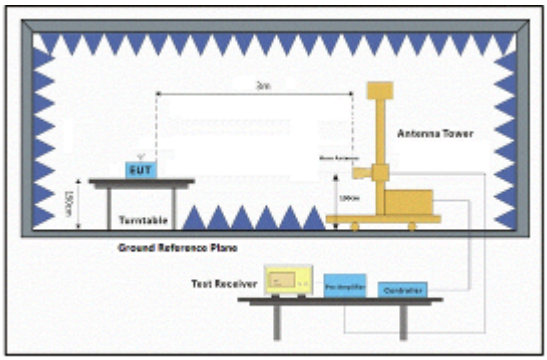
Operating Environment:

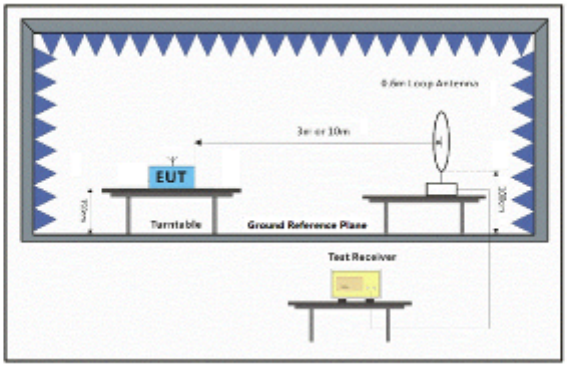
Temperature: 23 °C Humidity: 55 % RH Atmospheric Pressure: 1020 mbar

Test mode b:TX mode_Keep the EUT in continuously transmitting mode with GFSK modulation. Enter test mode for the product, test in channel lowest(2402MHz) and highest(2480MHz).

7.6.2 Test Setup Diagram







7.6.3 Measurement Procedure and 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.

Remark 1: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

Remark 2: For frequencies above 1GHz, the field strength limits are based on average limits. However, 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. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.

Mode:b; Polarization:Horizontal; Modulation: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	36.67	26.25	5.03	37.44	30.51	54.00	-23.49	HORIZONTAL	Average
2	2310.000	46.98	26.25	5.03	37.44	40.82	74.00	-33.18	HORIZONTAL	Peak
3	2390.000	36.61	26.43	4.88	37.42	30.50	54.00	-23.50	HORIZONTAL	Average
4	2390.000	47.45	26.43	4.88	37.42	41.34	74.00	-32.66	HORIZONTAL	Peak
5	2483.500	33.98	26.58	5.23	37.40	28.39	54.00	-25.61	HORIZONTAL	Average
6	2483.500	44.57	26.58	5.23	37.40	38.98	74.00	-35.02	HORIZONTAL	Peak
7	2500.000	37.48	26.60	4.95	37.39	31.64	54.00	-22.36	HORIZONTAL	Average
8	2500.000	47.30	26.60	4.95	37.39	41.46	74.00	-32.54	HORIZONTAL	Peak

Mode:b; Polarization:Vertical; Modulation: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	35.05	26.25	5.03	37.44	28.89	54.00	-25.11	VERTICAL	Average
2	2310.000	45.91	26.25	5.03	37.44	39.75	74.00	-34.25	VERTICAL	Peak
3	2390.000	35.20	26.43	4.88	37.42	29.09	54.00	-24.91	VERTICAL	Average
4	2390.000	45.52	26.43	4.88	37.42	39.41	74.00	-34.59	VERTICAL	Peak
5	2483.500	34.17	26.58	5.23	37.40	28.58	54.00	-25.42	VERTICAL	Average
6	2483.500	44.97	26.58	5.23	37.40	39.38	74.00	-34.62	VERTICAL	Peak
7	2500.000	35.09	26.60	4.95	37.39	29.25	54.00	-24.75	VERTICAL	Average
8	2500.000	47.88	26.60	4.95	37.39	42.04	74.00	-31.96	VERTICAL	Peak

Mode:b; Polarization:Horizontal; Modulation: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	37.01	26.25	5.03	37.44	30.85	54.00	-23.15	HORIZONTAL	Average
2	2310.000	46.99	26.25	5.03	37.44	40.83	74.00	-33.17	HORIZONTAL	Peak
3	2390.000	36.21	26.43	4.88	37.42	30.10	54.00	-23.90	HORIZONTAL	Average
4	2390.000	46.72	26.43	4.88	37.42	40.61	74.00	-33.39	HORIZONTAL	Peak
5	2483.500	34.68	26.58	5.23	37.40	29.09	54.00	-24.91	HORIZONTAL	Average
6	2483.500	44.76	26.58	5.23	37.40	39.17	74.00	-34.83	HORIZONTAL	Peak
7	2500.000	34.93	26.60	4.95	37.39	29.09	54.00	-24.91	HORIZONTAL	Average
8	2500.000	45.72	26.60	4.95	37.39	39.88	74.00	-34.12	HORIZONTAL	Peak

Mode:b; Polarization:Vertical; Modulation: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	36.53	26.25	5.03	37.44	30.37	54.00	-23.63	VERTICAL	Average
2	2310.000	46.77	26.25	5.03	37.44	40.61	74.00	-33.39	VERTICAL	Peak
3	2390.000	34.15	26.43	4.88	37.42	28.04	54.00	-25.96	VERTICAL	Average
4	2390.000	44.76	26.43	4.88	37.42	38.65	74.00	-35.35	VERTICAL	Peak
5	2483.500	33.83	26.58	5.23	37.40	28.24	54.00	-25.76	VERTICAL	Average
6	2483.500	43.79	26.58	5.23	37.40	38.20	74.00	-35.80	VERTICAL	Peak
7	2500.000	36.46	26.60	4.95	37.39	30.62	54.00	-23.38	VERTICAL	Average
8	2500.000	45.86	26.60	4.95	37.39	40.02	74.00	-33.98	VERTICAL	Peak

7.7 Radiated Spurious Emissions

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.209
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.		

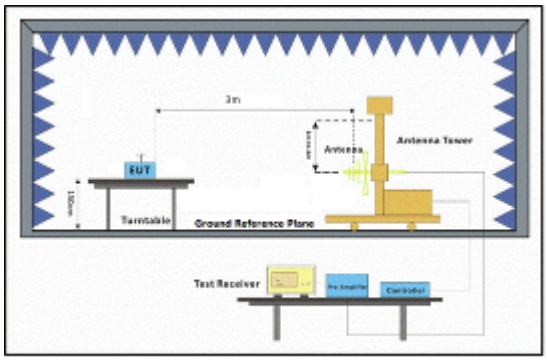
7.7.1 E.U.T. Operation

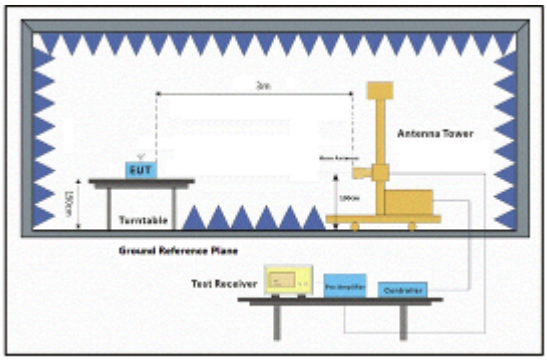
Operating Environment:

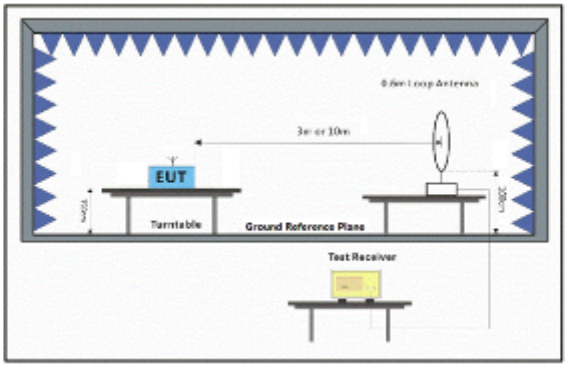
Temperature: 23 °C Humidity: 55 % RH Atmospheric Pressure: 1020 mbar

Test mode b:TX mode_Keep the EUT in continuously transmitting mode with GFSK modulation. Enter test mode for the product, test in channel lowest(2402MHz), middle(2442MHz) and highest(2480MHz).

7.7.2 Test Setup Diagram







7.7.3 Measurement Procedure and 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.

Remark:

1) For emission below 1GHz, through pre-scan found the worst case is the lowest channel. Only the worst case is recorded in the report.

2) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor

3) Scan from 9kHz to 25GHz, the disturbance above 18GHz and below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

4) For frequencies above 1GHz, the field strength limits are based on average limits. However, 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. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown

Mode:b; Polarization:Horizontal; Modulation: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	48.502	40.13	12.97	0.63	24.78	28.95	40.00	-11.05	HORIZONTAL	QP
2	96.099	47.85	8.97	0.85	27.01	30.66	43.50	-12.84	HORIZONTAL	QP
3	239.147	45.51	12.38	1.56	29.20	30.25	46.00	-15.75	HORIZONTAL	QP
4	336.035	46.08	14.73	1.92	29.45	33.28	46.00	-12.72	HORIZONTAL	QP
5	383.932	42.88	16.20	2.17	29.75	31.50	46.00	-14.50	HORIZONTAL	QP
6	468.876	45.60	17.85	2.04	29.48	36.01	46.00	-9.99	HORIZONTAL	QP

Mode:b; Polarization:Horizontal; Modulation: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	4027.554	36.05	29.52	7.17	36.90	35.84	54.00	-18.16	HORIZONTAL	Average
2	4027.554	45.60	29.52	7.17	36.90	45.39	74.00	-28.61	HORIZONTAL	Peak
3	4804.999	34.73	30.79	5.87	36.94	34.45	54.00	-19.55	HORIZONTAL	Average
4	4804.999	44.58	30.79	5.87	36.94	44.30	74.00	-29.70	HORIZONTAL	Peak
5	5046.062	33.94	31.15	8.08	36.97	36.20	54.00	-17.80	HORIZONTAL	Average
6	5046.062	44.07	31.15	8.08	36.97	46.33	74.00	-27.67	HORIZONTAL	Peak
7	7206.254	29.81	35.45	7.34	36.93	35.67	54.00	-18.33	HORIZONTAL	Average
8	7206.254	41.13	35.45	7.34	36.93	46.99	74.00	-27.01	HORIZONTAL	Peak
9	9608.925	27.20	37.51	8.15	37.08	35.78	54.00	-18.22	HORIZONTAL	Average
10	9608.925	36.73	37.51	8.15	37.08	45.31	74.00	-28.69	HORIZONTAL	Peak
11	12010.560	21.28	39.50	10.67	37.20	34.25	54.00	-19.75	HORIZONTAL	Average
12	12010.560	33.02	39.50	10.67	37.20	45.99	74.00	-28.01	HORIZONTAL	Peak

Mode:b; Polarization:Vertical; Modulation: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	48.502	36.69	12.97	0.63	24.78	25.51	40.00	-14.49	VERTICAL	QP
2	96.099	42.02	8.97	0.85	27.01	24.83	43.50	-18.67	VERTICAL	QP
3	144.335	40.95	13.15	1.09	28.15	27.04	43.50	-16.46	VERTICAL	QP
4	167.824	36.73	13.14	1.30	28.09	23.08	43.50	-20.42	VERTICAL	QP
5	239.147	36.70	12.38	1.56	29.20	21.44	46.00	-24.56	VERTICAL	QP
6	312.179	38.58	14.18	1.80	29.34	25.22	46.00	-20.78	VERTICAL	QP

Mode:b; Polarization:Vertical; Modulation: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	3465.510	37.27	27.90	5.76	36.96	33.97	54.00	-20.03	VERTICAL	Average
2	3465.510	46.84	27.90	5.76	36.96	43.54	74.00	-30.46	VERTICAL	Peak
3	4242.641	37.54	29.80	6.53	36.91	36.96	54.00	-17.04	VERTICAL	Average
4	4242.641	46.16	29.80	6.53	36.91	45.58	74.00	-28.42	VERTICAL	Peak
5	4804.662	37.96	30.79	5.87	36.94	37.68	54.00	-16.32	VERTICAL	Average
6	4804.662	45.50	30.79	5.87	36.94	45.22	74.00	-28.78	VERTICAL	Peak
7	7206.617	31.81	35.45	7.34	36.93	37.67	54.00	-16.33	VERTICAL	Average
8	7206.617	40.45	35.45	7.34	36.93	46.31	74.00	-27.69	VERTICAL	Peak
9	9608.278	27.62	37.51	8.15	37.08	36.20	54.00	-17.80	VERTICAL	Average
10	9608.278	37.78	37.51	8.15	37.08	46.36	74.00	-27.64	VERTICAL	Peak
11	12010.800	24.20	39.50	10.67	37.20	37.17	54.00	-16.83	VERTICAL	Average
12	12010.800	35.26	39.50	10.67	37.20	48.23	74.00	-25.77	VERTICAL	Peak

Mode:b; Polarization:Horizontal; Modulation: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	48.502	40.13	12.97	0.63	24.78	28.95	40.00	-11.05	HORIZONTAL	QP
2	96.099	47.85	8.97	0.85	27.01	30.66	43.50	-12.84	HORIZONTAL	QP
3	239.147	45.51	12.38	1.56	29.20	30.25	46.00	-15.75	HORIZONTAL	QP
4	336.035	46.08	14.73	1.92	29.45	33.28	46.00	-12.72	HORIZONTAL	QP
5	383.932	42.88	16.20	2.17	29.75	31.50	46.00	-14.50	HORIZONTAL	QP
6	468.876	45.60	17.85	2.04	29.48	36.01	46.00	-9.99	HORIZONTAL	QP

Mode:b; Polarization:Horizontal; Modulation: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	3834.438	35.14	29.12	7.80	36.91	35.15	54.00	-18.85	HORIZONTAL	Average
2	3834.438	45.77	29.12	7.80	36.91	45.78	74.00	-28.22	HORIZONTAL	Peak
3	4884.928	35.56	30.95	6.86	36.95	36.42	54.00	-17.58	HORIZONTAL	Average
4	4884.928	45.49	30.95	6.86	36.95	46.35	74.00	-27.65	HORIZONTAL	Peak
5	6432.732	33.48	34.09	7.02	36.99	37.60	54.00	-16.40	HORIZONTAL	Average
6	6432.732	43.98	34.09	7.02	36.99	48.10	74.00	-25.90	HORIZONTAL	Peak
7	7326.267	33.64	35.74	7.39	36.92	39.85	54.00	-14.15	HORIZONTAL	Average
8	7326.267	41.37	35.74	7.39	36.92	47.58	74.00	-26.42	HORIZONTAL	Peak
9	9768.838	28.52	37.74	8.37	37.09	37.54	54.00	-16.46	HORIZONTAL	Average
10	9768.838	37.33	37.74	8.37	37.09	46.35	74.00	-27.65	HORIZONTAL	Peak
11	12210.160	24.34	39.21	10.98	37.06	37.47	54.00	-16.53	HORIZONTAL	Average
12	12210.160	34.67	39.21	10.98	37.06	47.80	74.00	-26.20	HORIZONTAL	Peak

Mode:b; Polarization:Vertical; Modulation: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	48.502	36.69	12.97	0.63	24.78	25.51	40.00	-14.49	VERTICAL	QP
2	96.099	42.02	8.97	0.85	27.01	24.83	43.50	-18.67	VERTICAL	QP
3	144.335	40.95	13.15	1.09	28.15	27.04	43.50	-16.46	VERTICAL	QP
4	167.824	36.73	13.14	1.30	28.09	23.08	43.50	-20.42	VERTICAL	QP
5	216.024	35.03	11.46	1.03	28.68	18.84	46.00	-27.16	VERTICAL	QP
6	312.179	38.58	14.18	1.80	29.34	25.22	46.00	-20.78	VERTICAL	QP

Mode:b; Polarization:Vertical; Modulation: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	3790.361	35.78	28.97	7.83	36.92	35.66	54.00	-18.34	VERTICAL	Average
2	3790.361	44.51	28.97	7.83	36.92	44.39	74.00	-29.61	VERTICAL	Peak
3	4884.339	34.59	30.95	6.86	36.95	35.45	54.00	-18.55	VERTICAL	Average
4	4884.339	45.55	30.95	6.86	36.95	46.41	74.00	-27.59	VERTICAL	Peak
5	5746.982	35.53	32.10	7.05	36.99	37.69	54.00	-16.31	VERTICAL	Average
6	5746.982	45.03	32.10	7.05	36.99	47.19	74.00	-26.81	VERTICAL	Peak
7	7326.429	31.37	35.74	7.39	36.92	37.58	54.00	-16.42	VERTICAL	Average
8	7326.429	41.11	35.74	7.39	36.92	47.32	74.00	-26.68	VERTICAL	Peak
9	9768.164	26.03	37.74	8.37	37.09	35.05	54.00	-18.95	VERTICAL	Average
10	9768.164	37.46	37.74	8.37	37.09	46.48	74.00	-27.52	VERTICAL	Peak
11	12210.130	34.07	39.21	10.98	37.06	47.20	74.00	-26.80	VERTICAL	Peak
12	12210.130	24.60	39.21	10.98	37.06	37.73	54.00	-16.27	VERTICAL	Average

Mode:b; Polarization:Horizontal; Modulation: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	48.502	40.13	12.97	0.63	24.78	28.95	40.00	-11.05	HORIZONTAL	QP
2	84.405	39.99	8.09	0.83	26.18	22.73	40.00	-17.27	HORIZONTAL	QP
3	120.277	43.00	11.52	0.92	28.19	27.25	43.50	-16.25	HORIZONTAL	QP
4	216.024	50.03	11.46	1.03	28.68	33.84	46.00	-12.16	HORIZONTAL	QP
5	312.179	45.39	14.18	1.80	29.34	32.03	46.00	-13.97	HORIZONTAL	QP
6	383.932	42.88	16.20	2.17	29.75	31.50	46.00	-14.50	HORIZONTAL	QP

Mode:b; Polarization:Horizontal; Modulation: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	4098.010	36.31	29.58	6.92	36.90	35.91	54.00	-18.09	HORIZONTAL	Average
2	4098.010	46.03	29.58	6.92	36.90	45.63	74.00	-28.37	HORIZONTAL	Peak
3	4960.662	34.16	31.05	7.84	36.96	36.09	54.00	-17.91	HORIZONTAL	Average
4	4960.662	45.13	31.05	7.84	36.96	47.06	74.00	-26.94	HORIZONTAL	Peak
5	5898.442	34.39	32.24	7.42	37.00	37.05	54.00	-16.95	HORIZONTAL	Average
6	5898.442	44.67	32.24	7.42	37.00	47.33	74.00	-26.67	HORIZONTAL	Peak
7	7440.349	31.41	35.92	7.43	36.92	37.84	54.00	-16.16	HORIZONTAL	Average
8	7440.349	40.52	35.92	7.43	36.92	46.95	74.00	-27.05	HORIZONTAL	Peak
9	9920.880	28.69	37.92	8.63	37.10	38.14	54.00	-15.86	HORIZONTAL	Average
10	9920.880	38.76	37.92	8.63	37.10	48.21	74.00	-25.79	HORIZONTAL	Peak
11	12400.780	24.87	38.93	11.17	36.90	38.07	54.00	-15.93	HORIZONTAL	Average
12	12400.780	34.97	38.93	11.17	36.90	48.17	74.00	-25.83	HORIZONTAL	Peak

Mode:b; Polarization:Vertical; Modulation: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	48.502	36.69	12.97	0.63	24.78	25.51	40.00	-14.49	VERTICAL	QP
2	96.099	42.02	8.97	0.85	27.01	24.83	43.50	-18.67	VERTICAL	QP
3	144.335	40.95	13.15	1.09	28.15	27.04	43.50	-16.46	VERTICAL	QP
4	239.147	36.70	12.38	1.56	29.20	21.44	46.00	-24.56	VERTICAL	QP
5	312.179	38.58	14.18	1.80	29.34	25.22	46.00	-20.78	VERTICAL	QP
6	550.948	34.04	19.57	2.10	29.57	26.14	46.00	-19.86	VERTICAL	QP

Mode:b; Polarization:Vertical; Modulation: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	3958.309	34.47	29.42	7.35	36.90	34.34	54.00	-19.66	VERTICAL	Average
2	3958.309	44.07	29.42	7.35	36.90	43.94	74.00	-30.06	VERTICAL	Peak
3	4960.921	35.37	31.05	7.84	36.96	37.30	54.00	-16.70	VERTICAL	Average
4	4960.921	45.44	31.05	7.84	36.96	47.37	74.00	-26.63	VERTICAL	Peak
5	6507.536	32.83	34.30	7.07	36.98	37.22	54.00	-16.78	VERTICAL	Average
6	6507.536	43.05	34.30	7.07	36.98	47.44	74.00	-26.56	VERTICAL	Peak
7	7440.210	31.37	35.92	7.43	36.92	37.80	54.00	-16.20	VERTICAL	Average
8	7440.210	41.35	35.92	7.43	36.92	47.78	74.00	-26.22	VERTICAL	Peak
9	9920.543	29.82	37.92	8.63	37.10	39.27	54.00	-14.73	VERTICAL	Average
10	9920.543	39.19	37.92	8.63	37.10	48.64	74.00	-25.36	VERTICAL	Peak
11	12400.920	23.84	38.93	11.17	36.90	37.04	54.00	-16.96	VERTICAL	Average
12	12400.920	34.84	38.93	11.17	36.90	48.04	74.00	-25.96	VERTICAL	Peak

8 Appendix

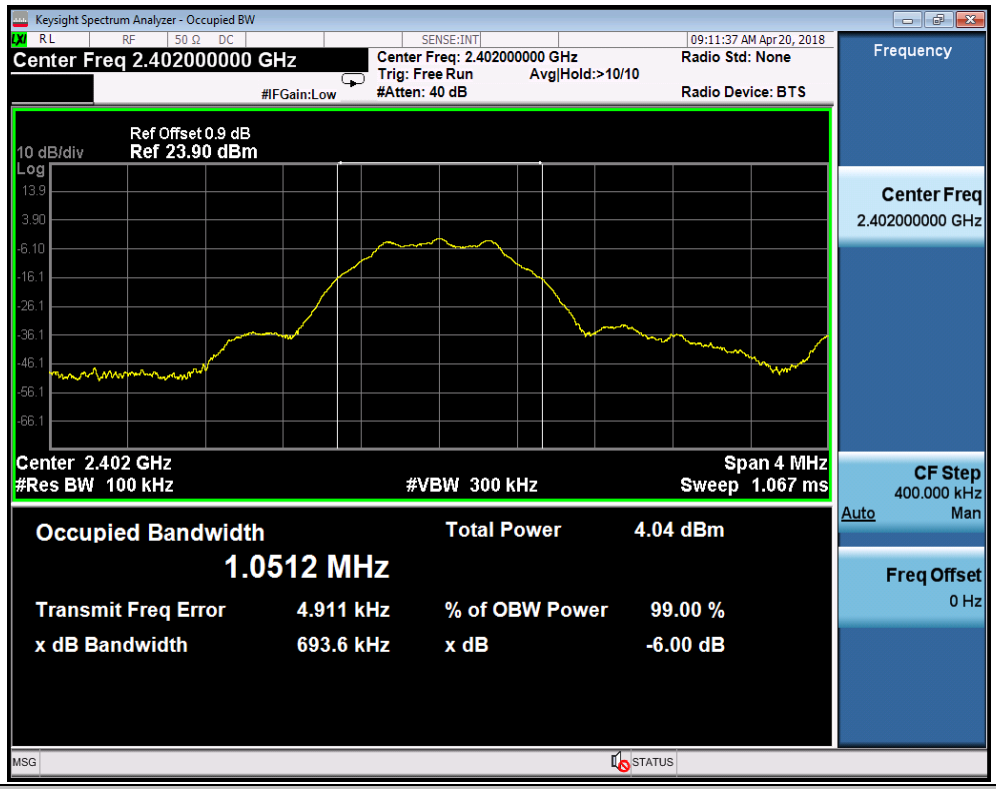
8.1 Appendix 15.247

1.6dB Bandwidth

Test Mode	Test Channel	Ant	OBW[MHz]	EBW[MHz]	Limit	Verdict
BLE	2402	Ant1	1.0512	0.6936	0.5	PASS
BLE	2442	Ant1	1.0449	0.6882	0.5	PASS
BLE	2480	Ant1	1.0509	0.6929	0.5	PASS

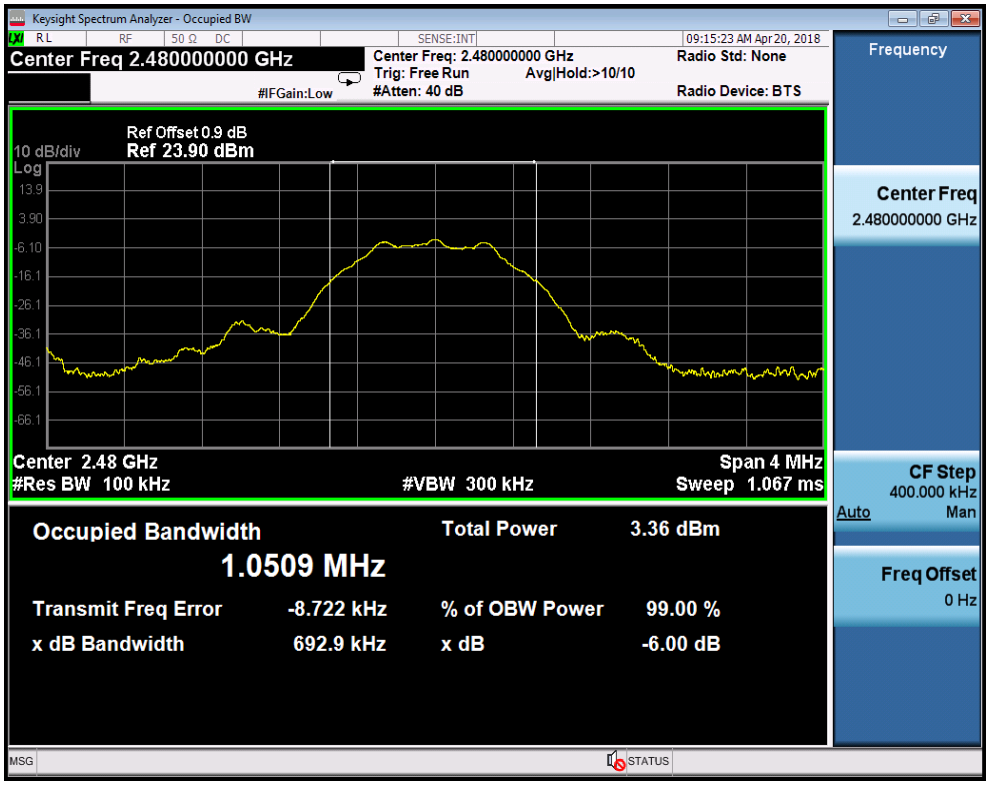
TEST PLOT

6dB Bandwidth_BLE_2402_Ant1



6dB Bandwidth_BLE_2442_Ant1

6dB Bandwidth_BLE_2480_Ant1

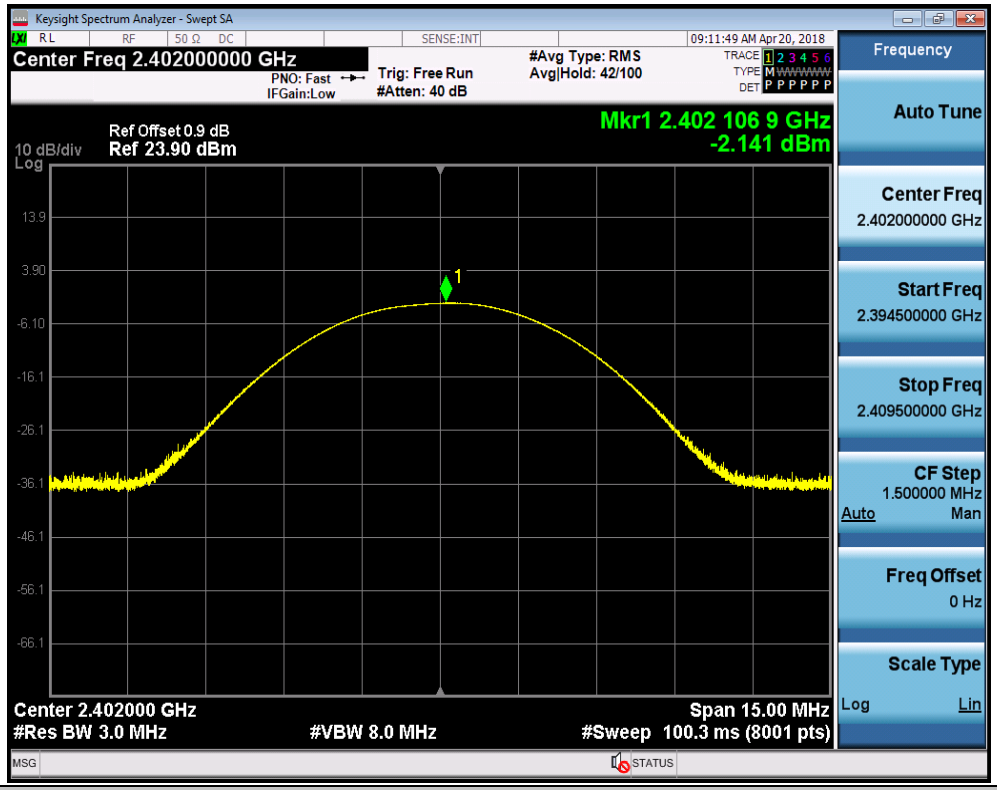


2.Maximum peak conducted output power

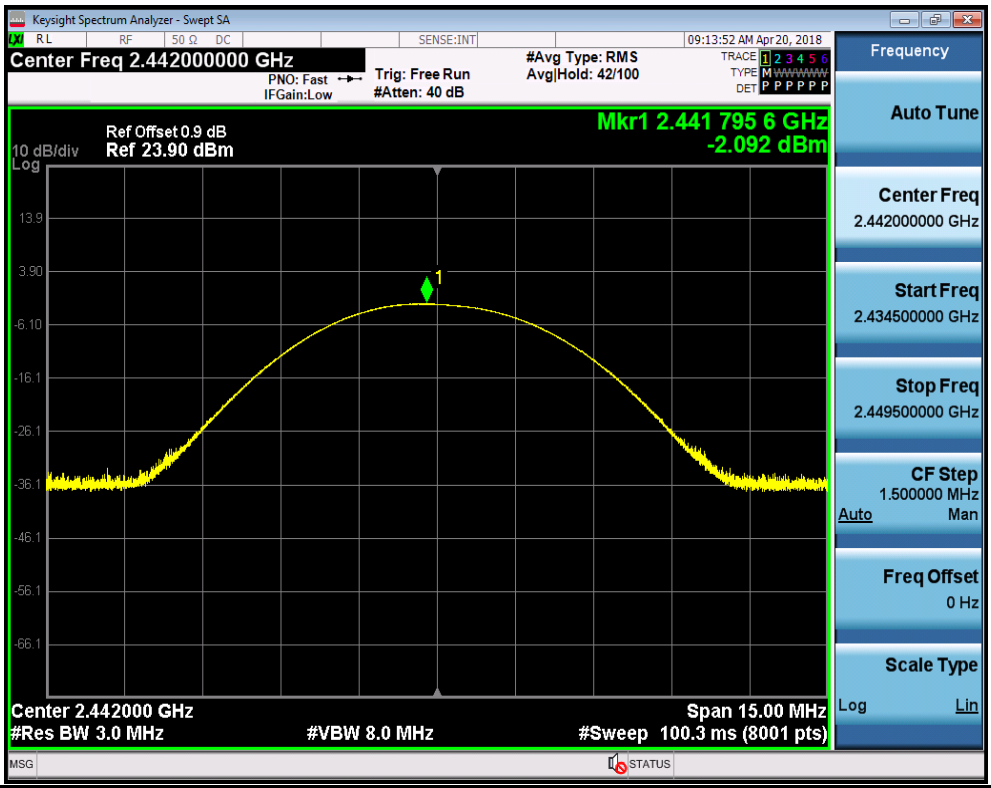
Test Mode	Test Channel	Ant	Power[dBm]	Limit[dBm]	Verdict
BLE	2402	Ant1	-2.141	30	PASS
BLE	2442	Ant1	-2.092	30	PASS
BLE	2480	Ant1	-2.814	30	PASS

TEST PLOT

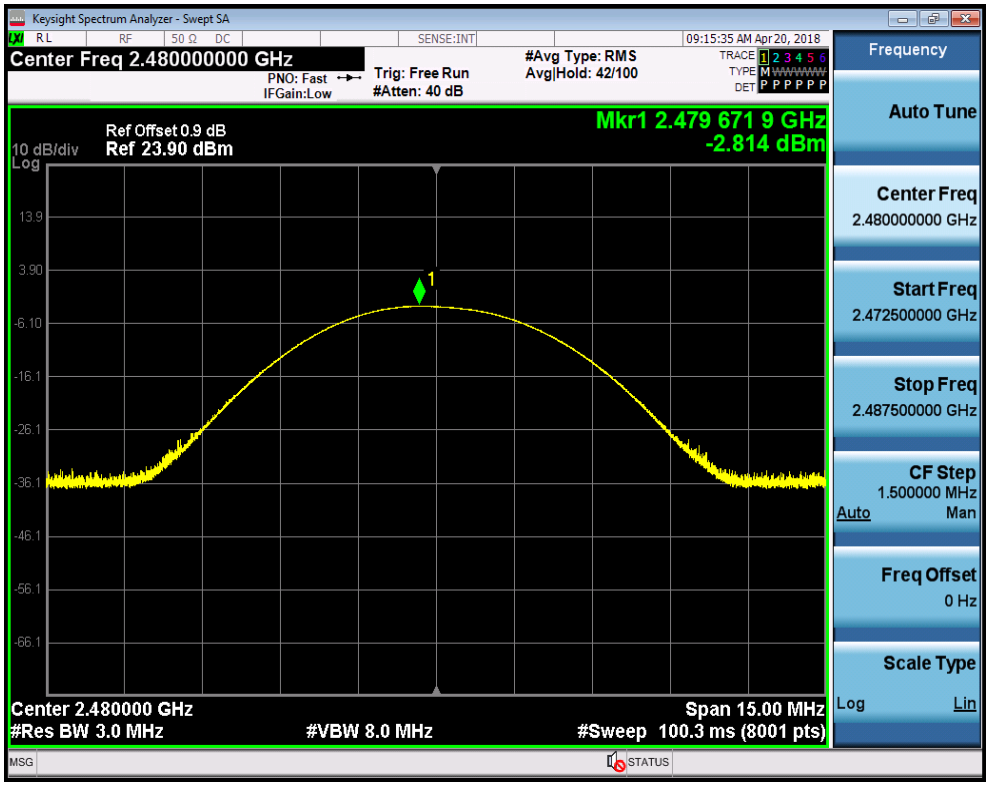
Maximum peak conducted output power_BLE_2402_Ant1



Maximum peak conducted output power_BLE_2442_Ant1



Maximum peak conducted output power_BLE_2480_Ant1

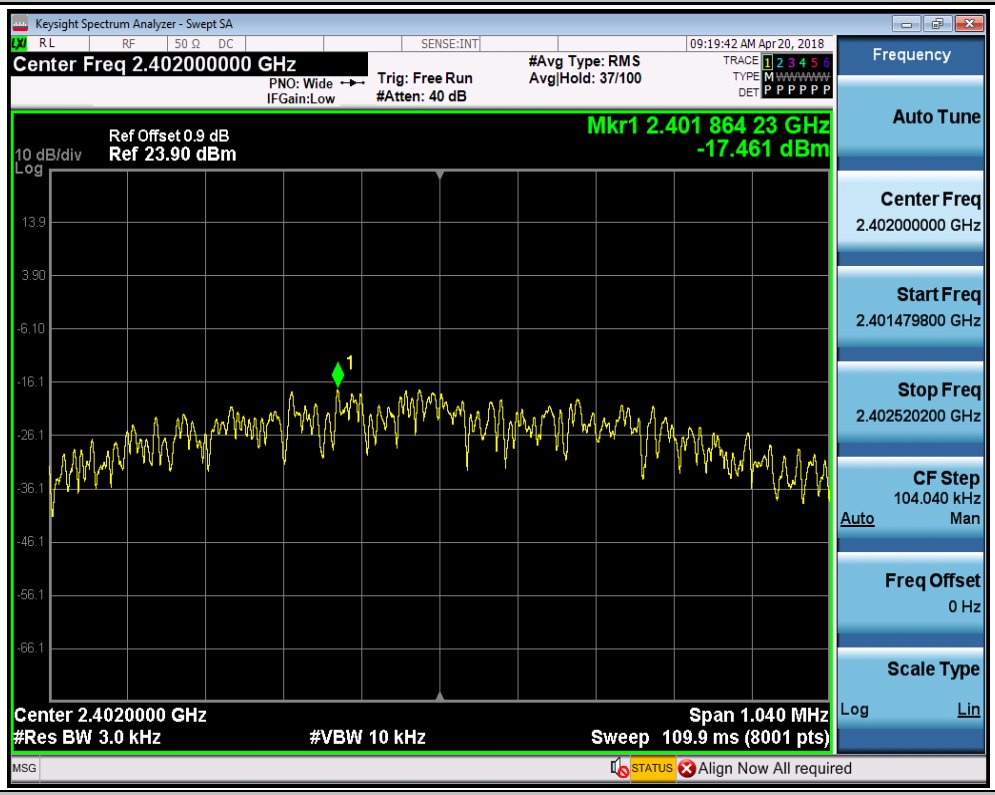


3.Maximum Peak power spectral density

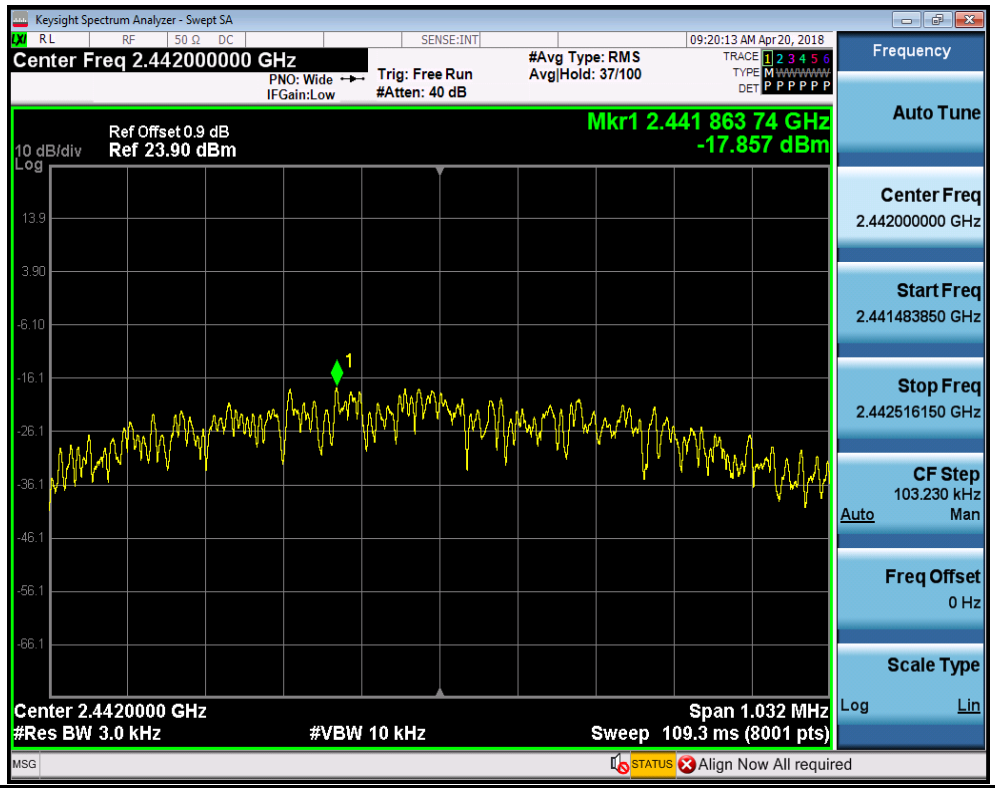
Test Mode	Test Channel	Ant	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE	2402	Ant1	-17.461	8.00	PASS
BLE	2442	Ant1	-17.857	8.00	PASS
BLE	2480	Ant1	-18.575	8.00	PASS

TEST PLOT

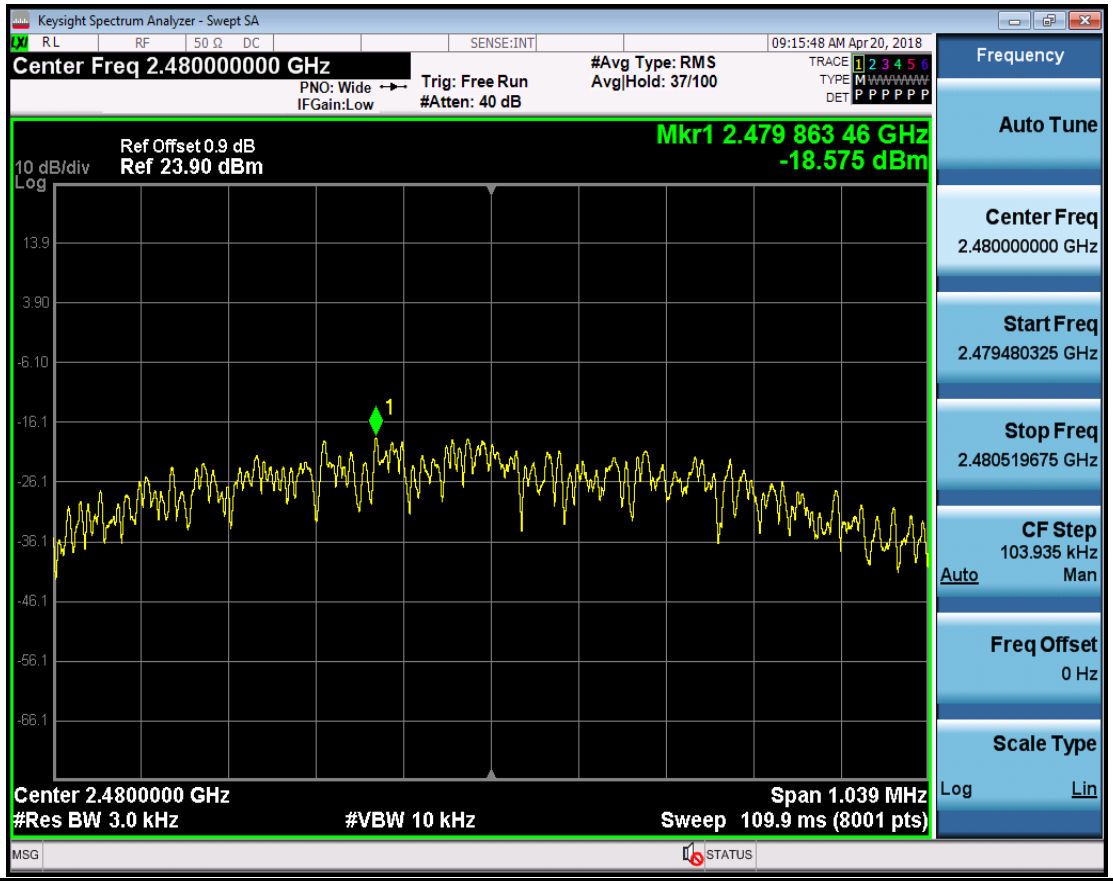
Maximum Peak power spectral density_BLE_2402_Ant1



Maximum Peak power spectral density_BLE_2442_Ant1



Maximum Peak power spectral density_BLE_2480_Ant1

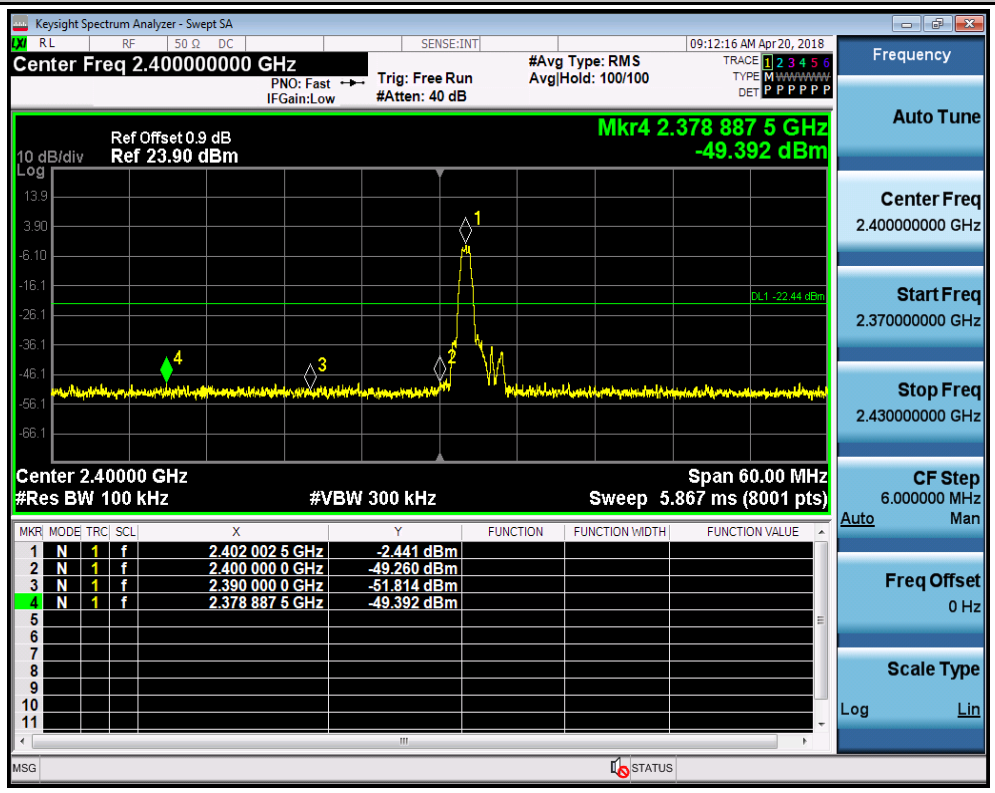


4.Band-edge for RF Conducted Emissions

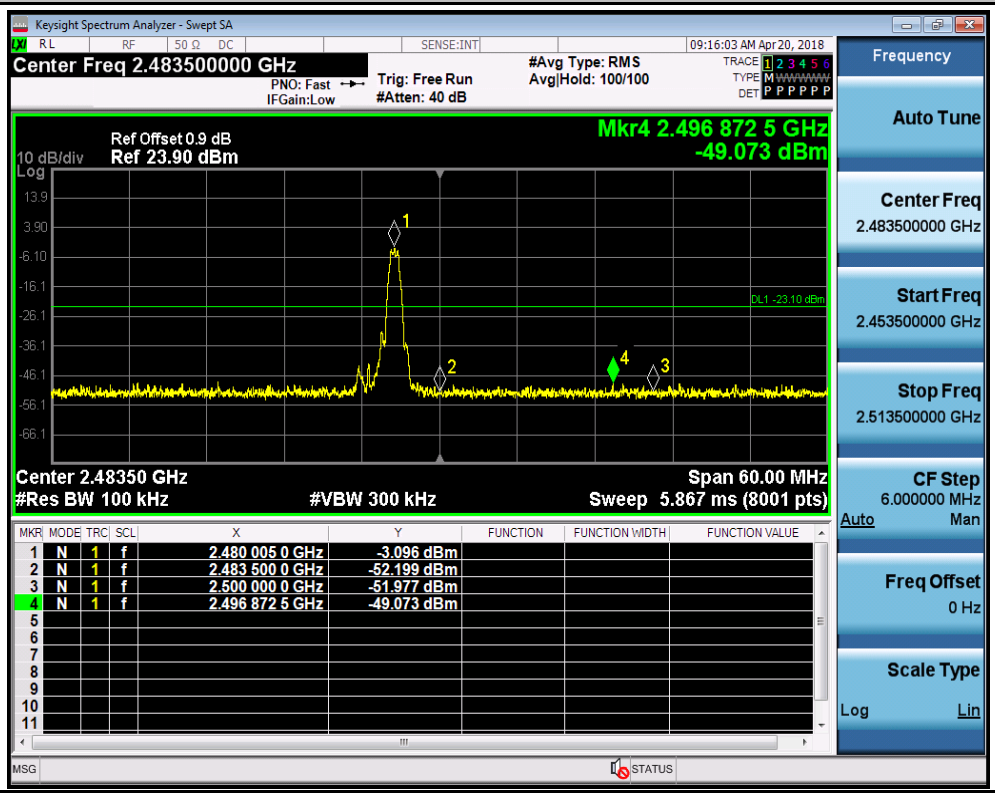
Test Mode	Test Channel	Ant	Carrier Power[dBm]	Max. Spurious Level [dBm]	Limit [dBm]	Verdict
BLE	2402	Ant1	-2.441	-49.392	-22.44	PASS
BLE	2480	Ant1	-3.096	-49.073	-23.10	PASS

TEST PLOT

Band-edge for RF Conducted Emissions_BLE_2402_Ant1



Band-edge for RF Conducted Emissions_BLE_2480_Ant1

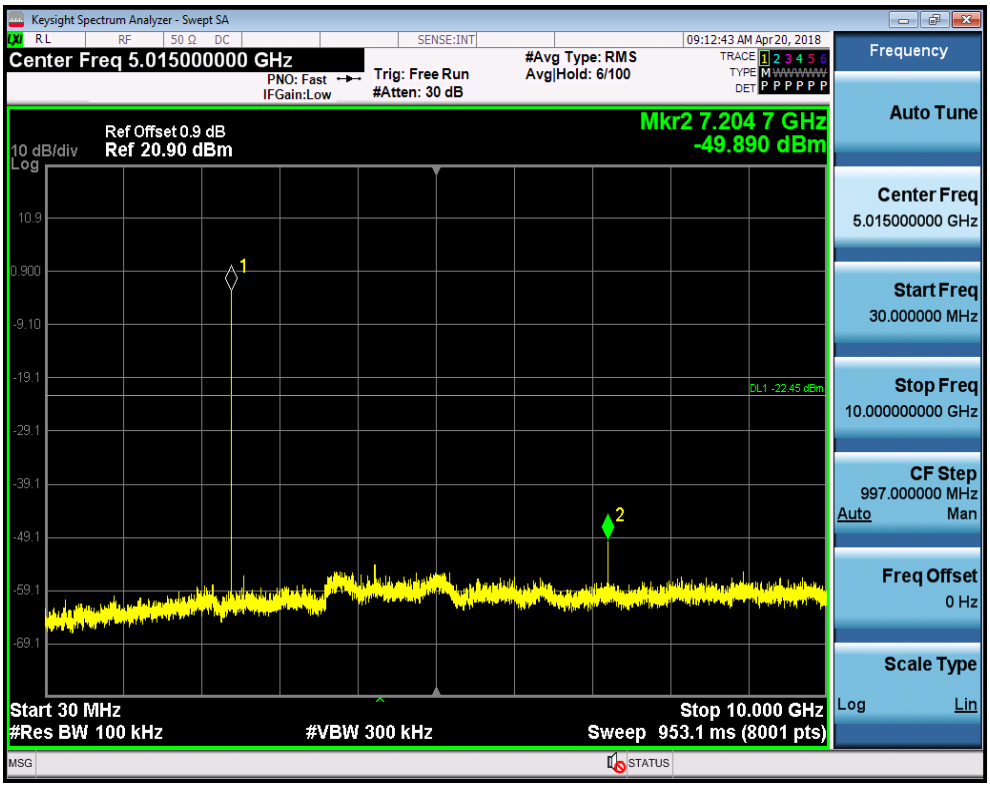


5.RF Conducted Spurious Emissions

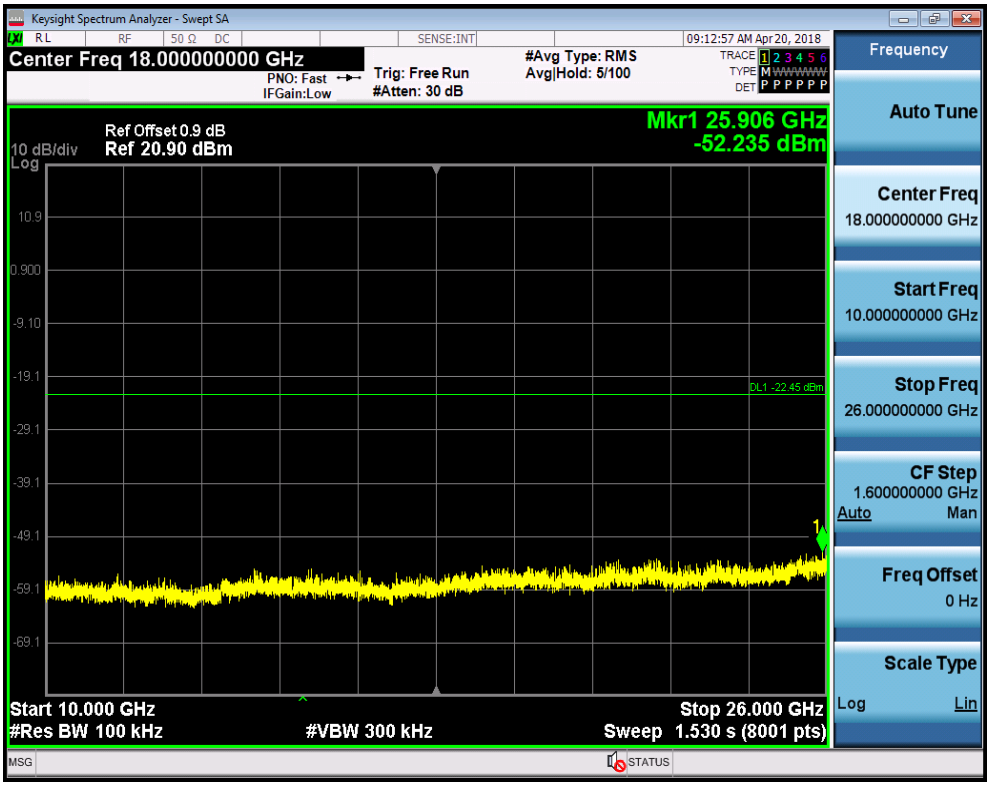
Test Mode	Test Channel	Ant	StartFre [MHz]	StopFre [MHz]	RBW [kHz]	VBW [kHz]	Pref[dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
BLE	2402	Ant1	30	10000	100	300	-2.447	-49.890	<-22.447	PASS
BLE	2402	Ant1	10000	26000	100	300	-2.447	-52.235	<-22.447	PASS
BLE	2442	Ant1	30	10000	100	300	-2.412	-51.444	<-22.412	PASS
BLE	2442	Ant1	10000	26000	100	300	-2.412	-52.413	<-22.412	PASS
BLE	2480	Ant1	30	10000	100	300	-3.118	-51.027	<-23.118	PASS
BLE	2480	Ant1	10000	26000	100	300	-3.118	-52.662	<-23.118	PASS

TEST PLOT	
RF Conducted Spurious Emissions_BLE_2402_Ant1	
Pref	

CSE_1

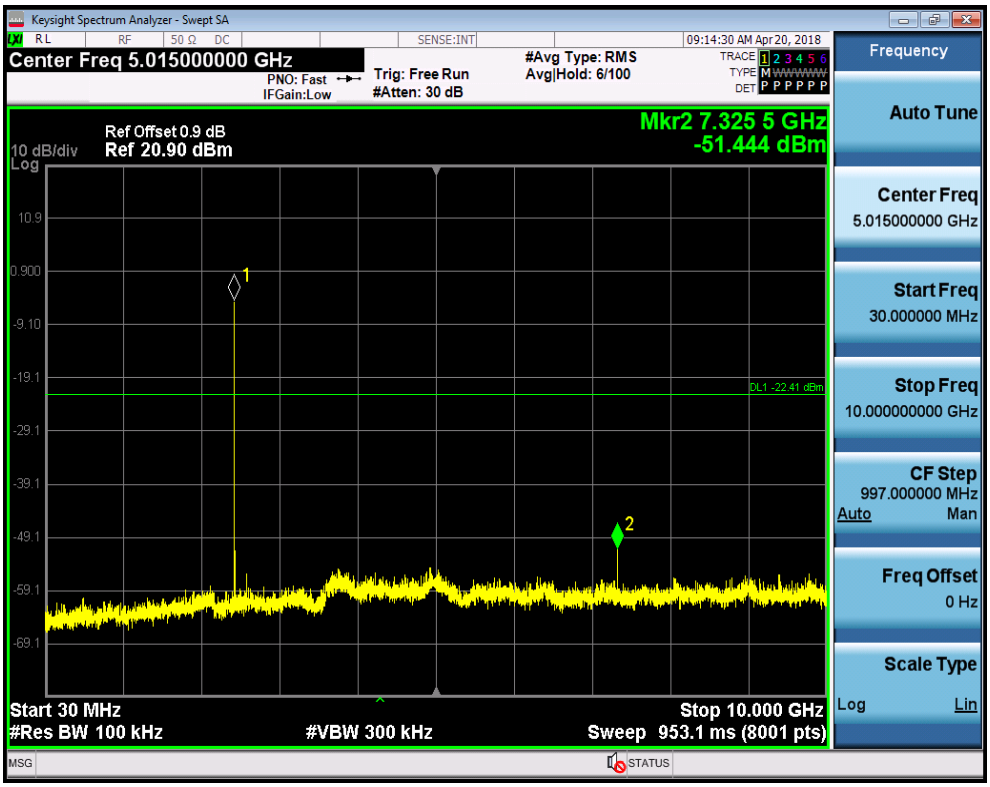


CSE_2

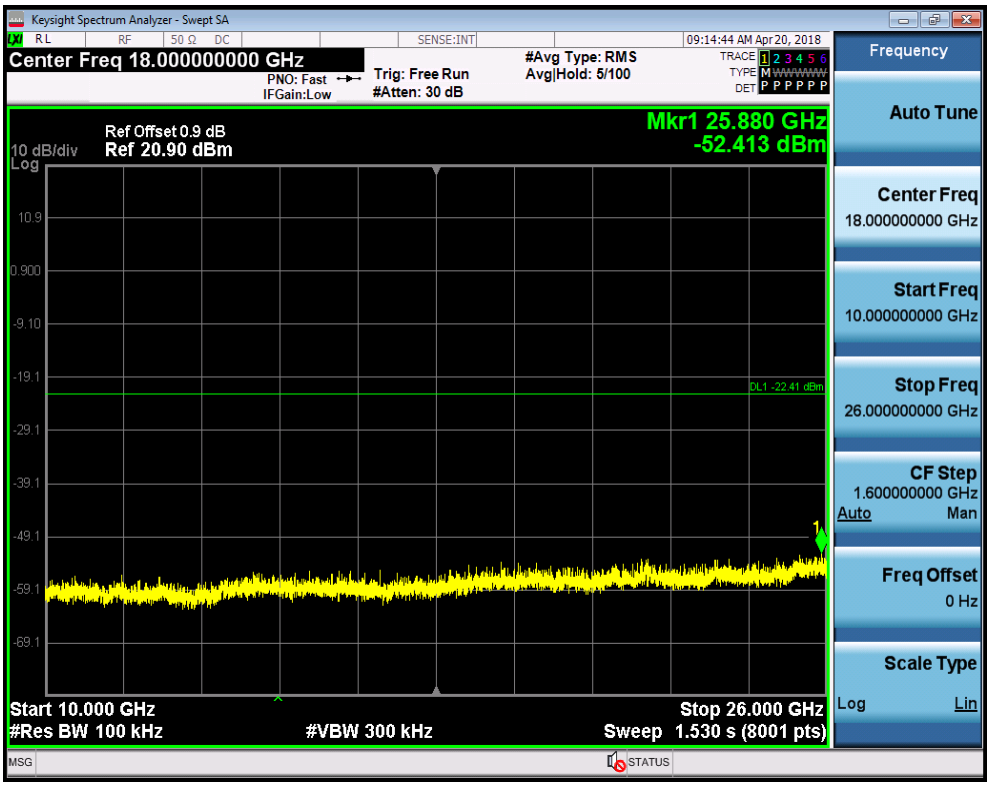


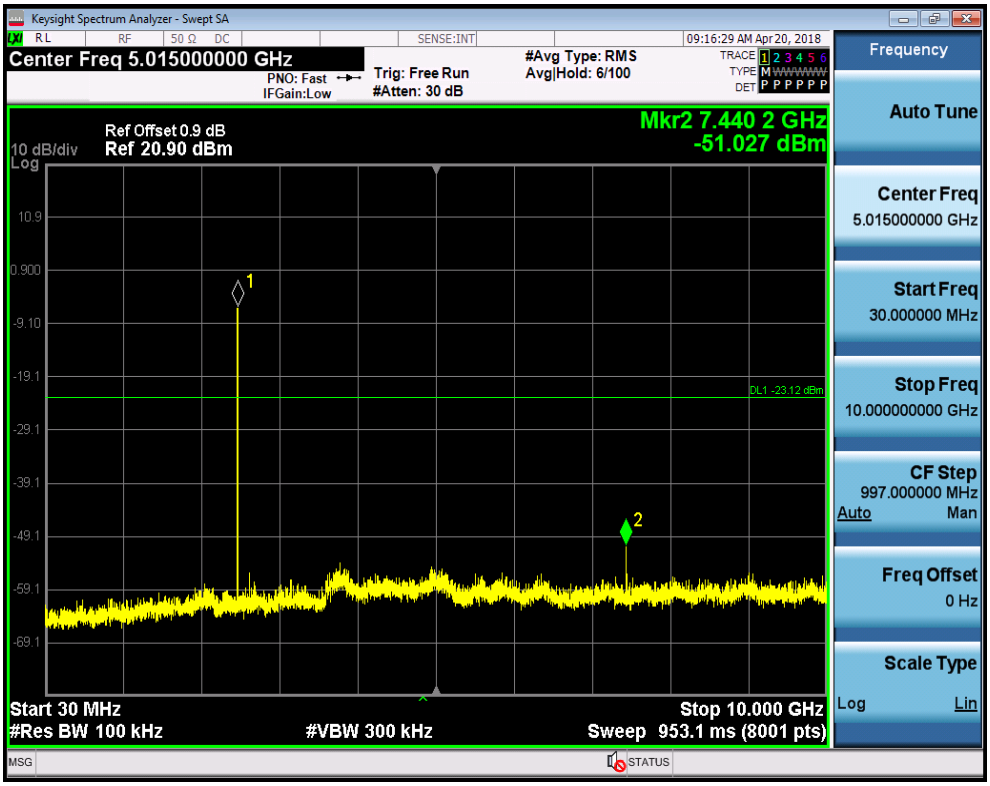
RF Conducted Spurious Emissions_BLE_2442_Ant1	
Pref	

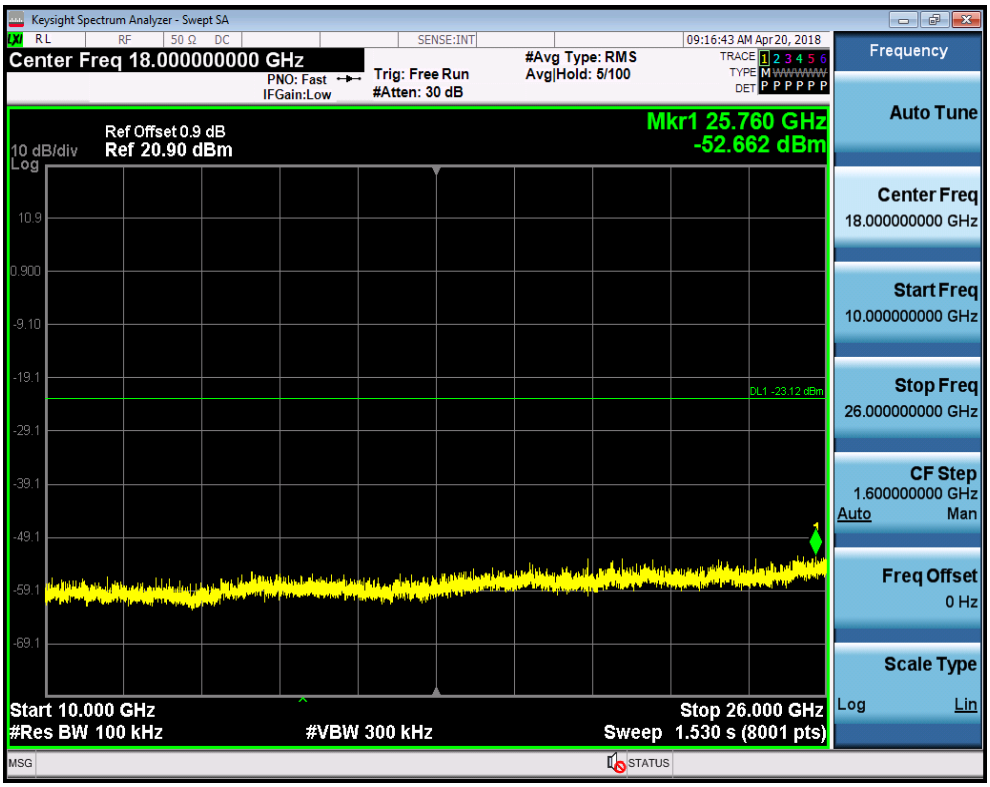
CSE_1



CSE_2



RF Conducted Spurious Emissions_BLE_2480_Ant1	
Pref	
CSE_1	

CSE_2	

--End of Report—