

# TEST REPORT

**Application No.:** HKEM2202000224AT  
**Applicant:** VALD Pty Ltd  
**Address of Applicant:** 115 Breakfast Creek Rd. Newstead QLD 4006, Australia  
**Equipment Under Test (EUT):**  
**EUT Name:** ForceDecks Dual Force Plate System  
**Model No.:** FDMini, FDLite, FDMax  
Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.  
**Trade Mark:** ForceDecks  
**FCC ID:** 2A6SF-FD  
**Standard(s) :** CFR 47 FCC Part 15, Subpart C  
**Date of Receipt:** 2022-02-25  
**Date of Test:** 2022-02-22 to 2022-03-15  
**Date of Issue:** 2022-03-20

<b>Test Result:</b>	In the configuration tested, the EUT complied with the standards specified above.
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**Law Man Kit**  
EMC Manager

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Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2022-03-20		Original

Authorized for issue by:			
			
		<b>Panny Leung</b> /Project Engineer	Date: 2022-03-20
			
		<b>Law Man Kit</b> /Reviewer	Date: 2022-03-20



## 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(b)(4)	Pass

Radio Spectrum Matter Part				
Item	Standard	Method	Requirement	Result
Conducted Disturbance at AC Power Line(150kHz-30MHz)	47 CFR Part 15, Subpart C 15.207	ANSI C63.10: 2013 Section 6.2	47 CFR FCC 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	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

### Declaration of EUT Family Grouping:

Item no.: FDMini, FDLite, FDMax

According to the confirmation from the applicant, the above models are identical in circuitry design, PCB layout, electrical components used, internal wiring and functions, only differ in decoration, and battery.

FDMax + FD Lite	FD Mini
Meinovo 186502P1S 5.2Ah Li-Ion battery pack with thermistor	Meinovo SJYPN525060 2.0Ah Li-Ion battery pack with thermistor

Therefore, only the model FDMini was tested in this report.



Abbreviation:

Tx: In this whole report Tx (or tx) means Transmitter.  
Rx: In this whole report Rx (or rx) means Receiver.  
RF: In this whole report RF means Radiated Frequency.  
CH: In this whole report CH means channel.  
Volt: In this whole report Volt means Voltage.  
Temp: In this whole report Temp means Temperature.  
Humid: In this whole report Humid means humidity.  
Press: In this whole report Press means Pressure.  
N/A: In this whole report not application.

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## 4 General Information

### 4.1 Details of E.U.T.

Power supply:	USB5VDC  Or Rechargeable Li-ion Battery Model: SJYPN525060 Rated Capacity: 2Ah Rated Voltage: 3.7V Charging Voltage: 4.2V
Test voltage:	AC 120V or DC 3.7V
Cable:	N/A
Antenna Gain:	1.6 dBi
Antenna Type:	Dipole
Bluetooth Version:	5.0
Channel Spacing:	2MHz
Modulation Type:	GFSK
Number of Channels:	40
Operation Frequency:	2402MHz to 2480MHz
Series number:	A1
Hardware Version:	V3.5
Software Version:	V2.6

#### Frequency List

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

Remark: 1. Testing Channels are highlighted in **bold**.

## 4.2 Description of Support Units

The EUT has been tested with corresponding accessories as below:

Supplied by client

Description	Manufacturer	Model No.	SN/Certificate NO
nRF Connect for Desktop software	NORDIC SEMICONDUCTORS	V2.0.1	N/A

Supplied by SGS:

Description	Manufacturer	Model No.	SN/Certificate NO
NoteBook (EMC4)	Dell	P75F	N/A

### 4.3 Modulation configure

RF software:	nRF Connect for Desktop - Direct test mode			
Modulation	Packet	Packet Type	Packet Size	Power
GFSK	Default	Default	Default	4
Remark: 1. default value was set in test software as maximum output power setting.				

### 4.4 Measurement Uncertainty

RF

No.	Item	Measurement Uncertainty
1	Conduction emission	2.8dB (9kHz to 150kHz)
		2.8dB (150kHz to 30MHz)
2	Radio Frequency	$\pm 7.25 \times 10^{-8}$
3	Duty cycle	$\pm 0.37\%$
4	Occupied Bandwidth	$\pm 3\%$
5	RF conducted power (30MHz-40GHz)	1.5dB
6	RF power density	1.5dB
7	Conducted Spurious emissions	1.5dB
8	RF Radiated power & Radiated Spurious emission test	4.5dB (30MHz-1GHz)
		4.7dB (1GHz-6GHz)
		4.7dB (6GHz-18GHz)
		5.7dB (18GHz-40GHz)
9	Temperature test	$\pm 1^\circ\text{C}$
10	Humidity test	$\pm 3\%$
11	Supply voltages	$\pm 1.5\%$
12	Time	$\pm 3\%$

Remark:

The  $U_{\text{lab}}$  (lab Uncertainty) is less than  $U_{\text{CISPR}}$  (CISPR Uncertainty), so the test results

- compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.

According to decision rule based on Clause 4.2 of CISPR 16-4-2, the EUT complied with the standards specified above.

#### 4.5 Test Location

All tests were performed at:

SGS Hong Kong Limited  
Unit 2 and 3, G/F, Block A, Po Lung Centre,  
11 Wang Chiu Road, Kowloon Bay, Kowloon, Hong Kong  
Tel: +852 2305 2570 Fax: +852 2756 4480

No tests were sub-contracted.

#### 4.6 Test Facility

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

• **HOKLAS (Lab Code: 009)**

SGS Hong Kong Limited has been accepted by HKAS Executive, on the recommendation of the Accreditation Advisory Board, as a HOKLAS Accredited Laboratory, this laboratory meets the requirements of ISO/IEC 17025:2017 and it has been accredited for performing specific test as listed in the scope of accreditation within the test category of Electrical and Electronic Products.

• **IAS Accreditation (Lab Code: TL-817)**

SGS Hong Kong Limited has met the requirements of AC89, IAS Accreditation Criteria for Testing Laboratories, and has demonstrated compliance with ISO/IEC Standard 17025:2017, General requirements for the competence of testing and calibration laboratories. This organization is accredited to provide the services specified in the scope of accreditation maintained on the IAS website ([www.iasonline.org](http://www.iasonline.org)).

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

• **FCC Recognized Accredited Test Firm(CAB Registration No.: 514599)**

SGS Hong Kong Limited 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: HK0015, Test Firm Registration Number: 514599.

• **Industry Canada (Site Registration No.: 26103; CAB Identifier No.: HK0015)**

SGS Hong Kong Limited has been recognized by Department of Innovation, Science and Economic Development (ISED) Canada as a wireless testing laboratory. The acceptance letter from the ISED is maintained in our files. CAB Identifier No: HK0015, Site Registration Number: 26103.

#### 4.7 Deviation from Standards

None

#### 4.8 Abnormalities from Standard Conditions

None

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## 5 Equipment List

Conducted Emissions at Mains Terminals (150kHz-30MHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EMI Test Receiver 9kHz to 3.6GHz	Rohde & Schwarz	ESR3 / 102326	E231	2021/08/17	2022/08/16
Artificial Mains Network (LISN)	Schwarzbeck	NSLK 8127 / 8127312	E005	2021/04/13	2022/04/12
Impulse Limiter	Rohde & Schwarz	ESH-3-Z2 / 357881052	E028	2021/07/15	2022/07/14
EMC32 Test Software	R&S	Version 10	N/A	--	--

Radiated Spurious Emissions					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
3m Semi-Anechoic Chamber	ChamPro	N/A	E229	2021/08/09	2022/08/08
Coaxial Cable	SGS	N/A	E167	2021/07/15	2022/07/14
EMI Test Receiver 9kHz to 7GHz	Rohde & Schwarz	ESR7 / 102298	E314	2021/04/26	2022/04/25
TRILOG Super Broadb. Test Antenna, (25) 30-1000 MHz	Schwarzbeck	9168-1110	E264	2021/10/18	2023/10/17
EMC32 Test software	Rohde & Schwarz	Version 10	N/A	N/A	N/A
Signal and Spectrum Analyzer 2Hz - 26.5GHz	Rohde & Schwarz	FSW26	E296	2021/08/16	2022/08/15
Horn Antenna 1 - 18GHz	Schwarzbeck	BBHA9120D	E211	2022/03/03	2024/03/02
Preamplifier 33dB, 1 - 18GHz	Schwarzbeck	BBV9718	E214	2021/04/09	2022/04/08
RF cable SMA to SMA 10000mm	HUBER+SUHNER	SF104- 26.5/2*11SMA 45	E207-1	2021/09/17	2022/09/16
Boresight Mast Controller	ChamPro	AM-BS-4500-E	E237	N/A	N/A
Turntable with Controller	ChamPro	EM1000	E238	N/A	N/A
Highpass Filter 7.1 - 26.5GHz	SHW	HP7.1-26.5	E326	2020/09/28	2022/09/27
Highpass Filter 3 - 18GHz	Mircowave Circuits	H3G018G1	E325	2020/09/28	2022/09/27
5GHz Band Reject Filter	MICRO-TRONICS	BRC20534	E323	2020/09/28	2022/09/27
Band Reject Filter 2.4 - 2.5GHz	MICRO-TRONICS	BRM50702	E324	2020/09/28	2022/09/27
Loop Antenna	Schwarzbeck	FMZB 1513	E327	2020/11/23	2022/11/22

<b>Radiated Spurious Emissions (above 1GHz)</b>					
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No</b>	<b>Inventory No</b>	<b>Cal Date</b>	<b>Cal Due Date</b>
3m Semi-Anechoic Chamber	ChamPro	N/A	E229	2021/08/09	2022/08/08
Coaxial Cable	SGS	N/A	E167	2021/07/15	2022/07/14
EMI Test Receiver 9kHz to 7GHz	Rohde & Schwarz	ESR7 / 102298	E314	2021/05/18	2022/05/17
TRILOG Super Broadb. Test Antenna, (25) 30-1000 MHz	Schwarzbeck	9168-1110	E264	2021/10/18	2023/10/17
Signal and Spectrum Analyzer 2Hz - 26.5GHz	Rohde & Schwarz	FSW26	E296	2021/08/16	2022/08/15
Horn Antenna 1 - 18GHz	Schwarzbeck	BBHA9120D	E211	2022/03/03	2024/03/02
Preamplifier 33dB, 1 - 18GHz	Schwarzbeck	BBV9718	E214	2019/04/24	2022/04/23
Broadband Coaxial Preamplifier typ. 30 dB, 18-40 GHz	Schwarzbeck	BBV 9721	E266	2020/08/31	2022/08/30
Highpass Filter 7.1 - 26.5GHz	SHW	HP7.1-26.5	E326	2020/09/28	2022/09/27
Highpass Filter 3 - 18GHz	Mircowave Circuits	H3G018G1	E325	2020/09/28	2022/09/27
RF cable SMA to SMA 10000mm	HUBER+SUHNER	SF104- 26.5/2*11SMA 45	E207-1	2021/09/17	2022/09/16
Boresight Mast Controller	ChamPro	AM-BS-4500-E	E237	N/A	N/A
Turntable with Controller	ChamPro	EM1000	E238	N/A	N/A

<b>6dB Bandwidth, Conducted Peak Output Power, Power Spectrum Density, Conducted Band Edges Measurement,</b>					
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No</b>	<b>Inventory No</b>	<b>Cal Date</b>	<b>Cal Due Date</b>
SMBV100A VECTOR SIGNAL GENERATOR	Rohde & Schwarz	SMBV100A	E234	2021/08/16	2022/08/15
FSV40 SIGNAL ANALYZER 40GHz	Rohde & Schwarz	FSV40	E235	2021/08/16	2022/08/15
Wireless Conn. Tester (CMW)	Rohde & Schwarz	CMW270	E240	2021/08/16	2022/08/15
OSP	Rohde & Schwarz	OSP-B157W8	E242	2021/08/16	2022/08/15
Cable	Rohde & Schwarz	J12J103539- 00-2	E239	2021/07/15	2022/07/14
WMS32 Test Software	R&S	Version 10	N/A	--	--



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General used equipment					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Digital temperature & humidity data logger	SATO	SK-L200TH II	E232	2021/08/16	2022/08/15
Electronic Digital Thermometer with Hygrometer	nil	2074/2075	E159	2021/08/16	2022/08/15
Barometer with digital thermometer	SATO	7612-00	E218	2021/03/29	2022/03/28
Conditional Chamber	Zhong Zhi Testing Instruments	CZ-E-608D	E216	2021/08/17	2022/08/16

## 6 Radio Spectrum Technical Requirement

### 6.1 Antenna Requirement

#### 6.1.1 Test Requirement:

47 CFR Part 15, Subpart C 15.203 & 15.247(b)(4)

RSS-Gen Section 6.8

#### 6.1.2 Conclusion

Standard Requirement:

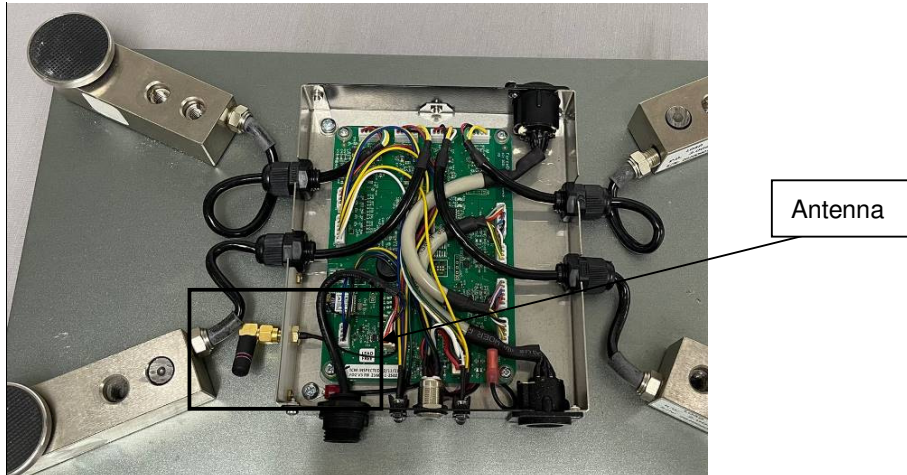
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit 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 1.6 dBi.



Antenna location: Refer to internal photo.

## 7 Radio Spectrum Matter Test Results

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

Test Requirement 47 CFR Part 15, Subpart C 15.207, RSS-Gen Section 8.8

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.

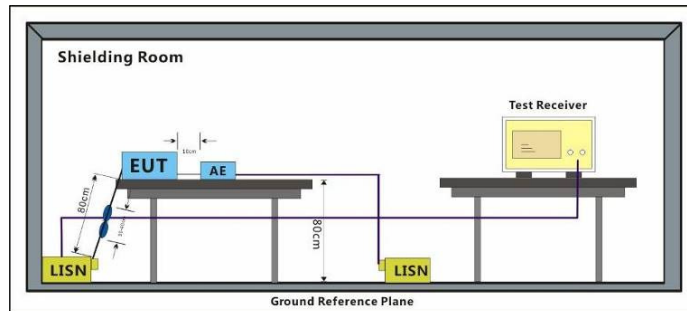
#### 7.1.1 E.U.T. Operation

Operating Environment:

Temperature: 22.5 °C Humidity: 51.2 % RH :

Test mode a :TX mode\_Keep the EUT in continuously transmitting mode with all modulation types. Only the data of worst case is recorded in the report.

#### 7.1.2 Test Setup Diagram



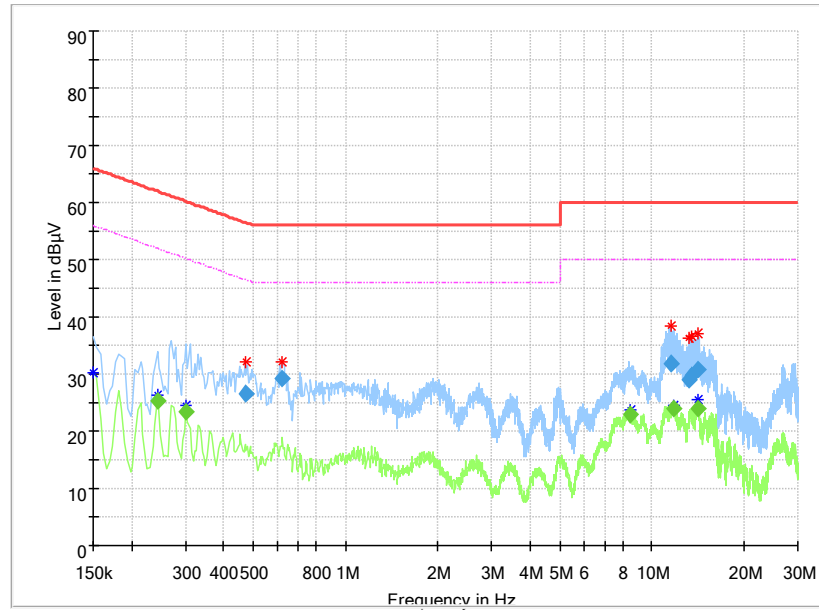
#### 7.1.3 Measurement Procedure and Data

- 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.

Remark: LISN=Read Level+ Cable Loss+ LISN Factor

Mode:a;  
Line: Live Line

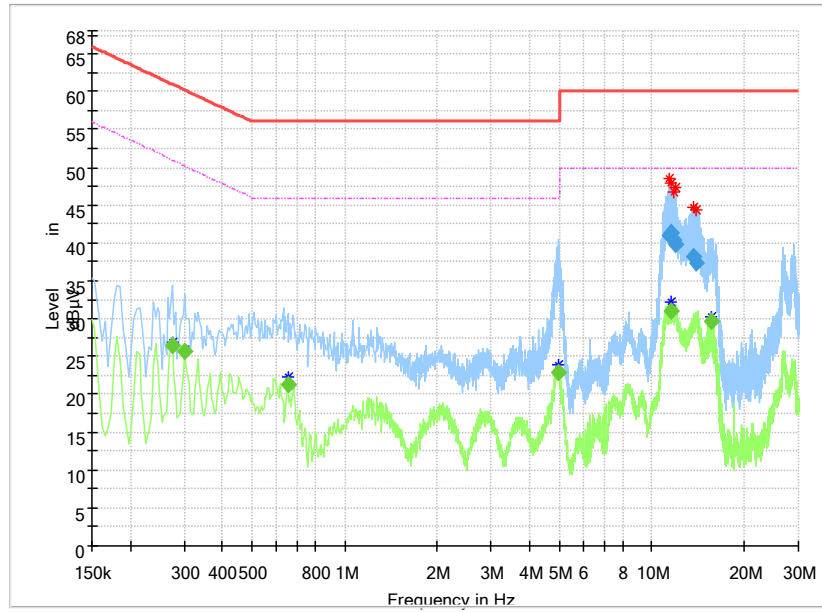
Full Spectrum



Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Corr. (dB)	Result
0.242000	---	25.33	52.03	26.70	11.0	Pass
0.302000	---	23.55	50.19	26.64	11.0	Pass
0.470000	26.49	---	56.51	30.02	10.8	Pass
0.622000	29.16	---	56.00	26.84	10.7	Pass
8.478000	---	22.98	50.00	27.02	10.3	Pass
11.486000	31.80	---	60.00	28.20	10.3	Pass
11.858000	---	23.95	50.00	26.05	10.3	Pass
13.186000	29.04	---	60.00	30.96	10.4	Pass
13.458000	29.84	---	60.00	30.16	10.4	Pass
14.046000	---	24.05	50.00	25.95	10.4	Pass
14.178000	30.83	---	60.00	29.17	10.4	Pass
0.242000	---	25.33	52.03	26.70	11.0	Pass

Mode:a;  
Line: Neutral Line

Full Spectrum



Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Corr. (dB)	Result
0.274000	---	26.45	51.00	24.54	11.0	Pass
0.302000	---	25.65	50.19	24.54	11.0	Pass
0.654000	---	21.18	46.00	24.82	10.6	Pass
4.938000	---	22.80	46.00	23.20	10.2	Pass
11.438000	41.06	---	60.00	18.94	10.4	Pass
11.506000	---	30.92	50.00	19.08	10.4	Pass
11.510000	41.29	---	60.00	18.71	10.4	Pass
11.846000	40.31	---	60.00	19.69	10.4	Pass
11.938000	39.67	---	60.00	20.33	10.4	Pass
13.610000	38.19	---	60.00	21.81	10.4	Pass
14.010000	37.36	---	60.00	22.64	10.4	Pass
15.630000	---	29.61	50.00	20.39	10.4	Pass

## 7.2 99% Bandwidth

Test Requirement RSS-Gen Section 6.6

Test Method: ANSI C63.10 Section 6.9.3

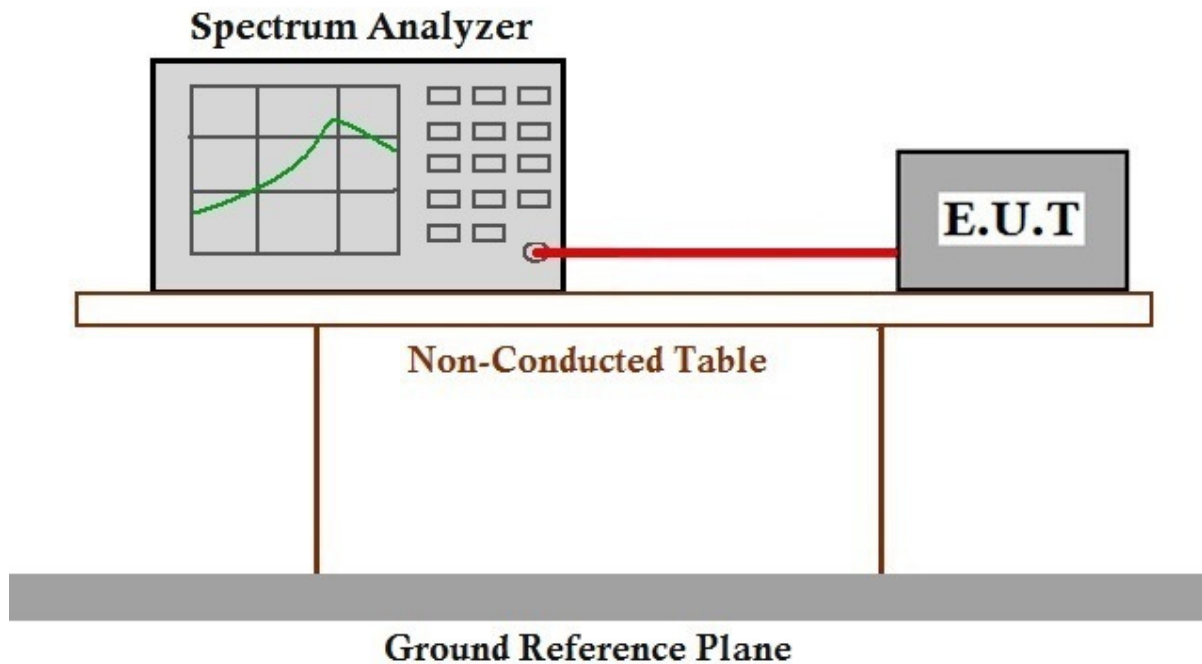
### 7.2.1 E.U.T. Operation

Operating Environment:

Temperature: 20.0 °C Humidity: 48.0 % RH :

Test mode a:TX mode\_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 2Mbps is the worst case

### 7.2.2 Test Setup Diagram



### 7.2.3 Measurement Procedure and Data

The detailed test data see section 9: Appendix

## 7.3 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:  $\geq 500$  kHz

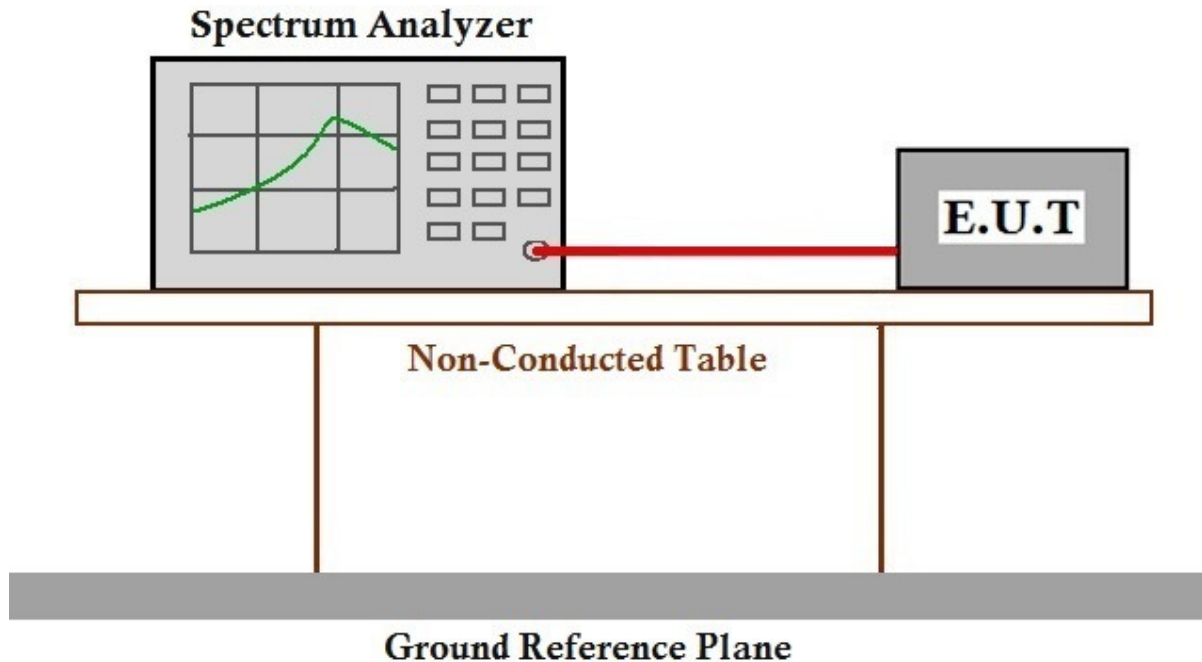
### 7.3.1 E.U.T. Operation

Operating Environment:

Temperature: 22.5 °C Humidity: 51.3 % RH :

Test mode a:TX mode\_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 2Mbps is the worst case

### 7.3.2 Test Setup Diagram



### 7.3.3 Measurement Procedure and Data

The detailed test data see section 9: Appendix

## 7.4 Conducted Peak Output Power

Test Requirement 47 CFR Part 15 Subpart C 15.247:2019(b)(1) & 15.247(b)(3),  
RSS-247 Section 5.4(b)

Test Method: ANSI C63.10 (2013) Section 7.8.5

Limit:

Frequency range(MHz)	Output power of the intentional radiator(watt)
902-928	1 for $\geq 50$ hopping channels
	0.25 for $25 \leq$ hopping channels $< 50$
	1 for digital modulation
2400-2483.5	1 for $\geq 75$ 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

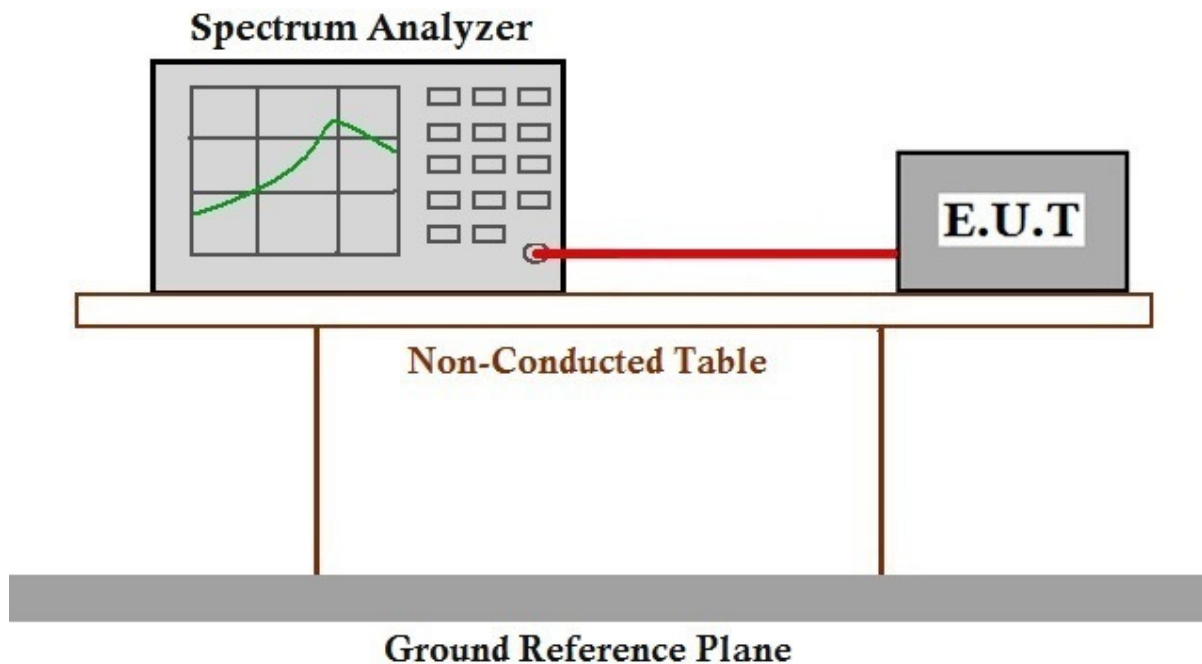
### 7.4.1 E.U.T. Operation

Operating Environment:

Temperature: 22.5 °C Humidity: 51.9 % RH :

Test mode a:TX mode\_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 2Mbps is the worst case

### 7.4.2 Test Setup Diagram



### 7.4.3 Measurement Procedure and Data

The detailed test data see section 9: Appendix

## 7.5 Power Spectrum Density

Test Requirement 47 CFR Part 15, Subpart C 15.247(e), RSS-247 Clause 5.2(b)  
Test Method: ANSI C63.10 (2013) Section 11.10.2  
Limit:  $\leq 8\text{dBm}$  in any 3 kHz band during any time interval of continuous transmission

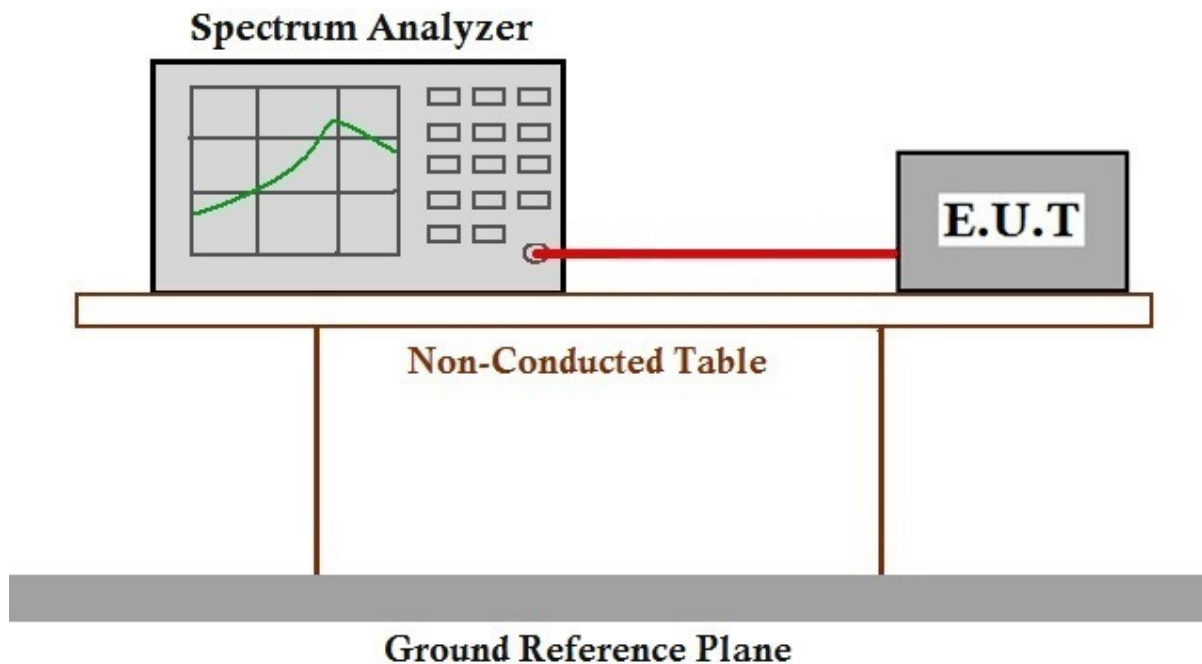
### 7.5.1 E.U.T. Operation

Operating Environment:

Temperature: 22.5 °C Humidity: 51.2 % RH :

Test mode a:TX mode\_ Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 2Mbps is the worst case

### 7.5.2 Test Setup Diagram



### 7.5.3 Measurement Procedure and Data

The detailed test data see section 9: Appendix

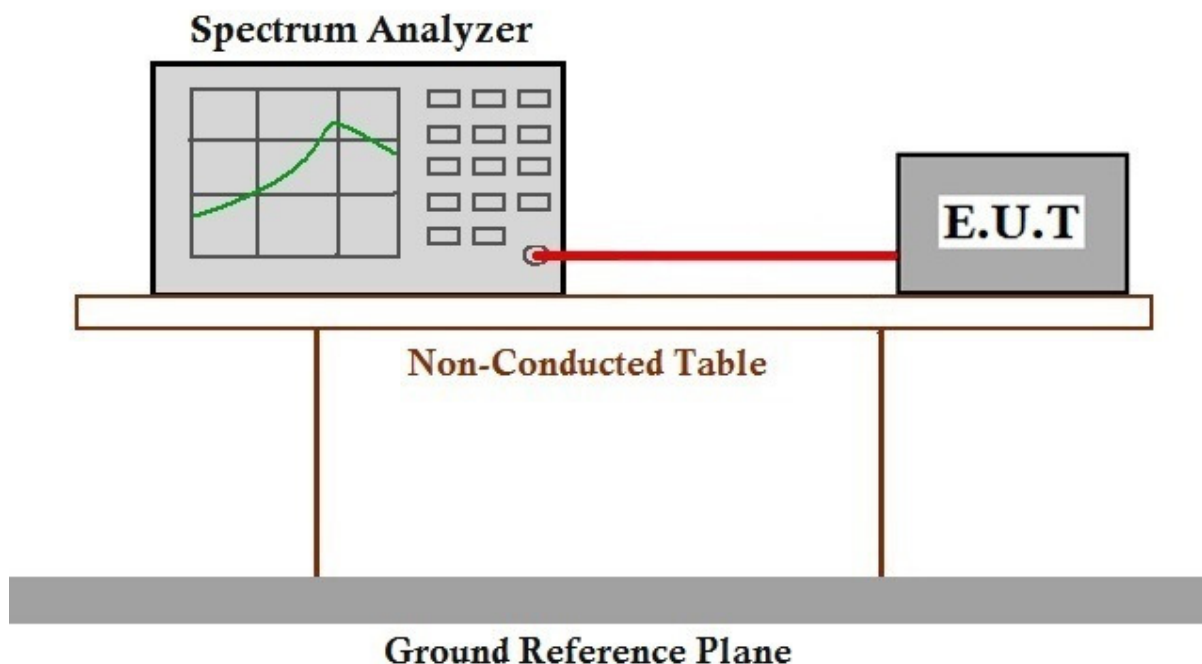
## 7.6 Conducted Band Edges Measurement

Test Requirement	47 CFR Part 15, Subpart C 15.247:2019(d), RSS-247 Section 5.5
Test Method:	ANSI C63.10 (2013) Section 7.8.6
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))

### 7.6.1 E.U.T. Operation

Operating Environment:				
Temperature:	22.5 °C	Humidity:	51.9 % RH	:
Test mode	a:TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 2Mbps is the worst case			

### 7.6.2 Test Setup Diagram



### 7.6.3 Measurement Procedure and Data

The detailed test data see section 9: Appendix



## 7.7 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))

FCC Part 15 C Section 15.205 Restricted bands of operation.

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

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
<sup>1</sup> 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	
13.36 - 13.41			

RSS-Gen Section 8.10 Restricted bands of operation.

Restricted frequency bands, identified in table 7, are designated primarily for safety-of-life services (distress calling and certain aeronautical activities), certain satellite downlinks, radio astronomy and some government uses. Except where otherwise indicated, the following conditions related to the restricted frequency bands apply:

(a) The transmit frequency, including fundamental components of modulation, of licence-exempt radio

apparatus shall not fall within the restricted frequency bands listed in table 7 except for apparatus compliant with RSS-287, *Emergency Position Indicating Radio Beacons (EPIRB)*, *Emergency Locator Transmitters (ELT)*, *Personal Locator Beacons (PLB)*, and *Maritime Survivor Locator Devices (MSLD)*.

(b) Unwanted emissions that fall into restricted frequency bands listed in table 7 shall comply with the limits specified in table 5 and table 6.

(c) Unwanted emissions that do not fall within the restricted frequency bands listed in table 7 shall comply either with the limits specified in the applicable RSS or with those specified in table 5 and table 6.

<b>Table 7 – Restricted frequency bands* MHz</b>	<b>MHz</b>	<b>GHz</b>
0.090 - 0.110	149.9 - 150.05	9.0 - 9.2
0.495 - 0.505	156.52475 - 156.52525	9.3 - 9.5
2.1735 - 2.1905	156.7 - 156.9	10.6 - 12.7
3.020 - 3.026	162.0125 - 167.17	13.25 - 13.4
4.125 - 4.128	167.72 - 173.2	14.47 - 14.5
4.17725 - 4.17775	240 - 285	15.35 - 16.2
4.20725 - 4.20775	322 - 335.4	17.7 - 21.4
5.677 - 5.683	399.9 - 410	22.01 - 23.12
6.215 - 6.218	608 - 614	23.6 - 24.0
6.26775 - 6.26825	960 - 1427	31.2 - 31.8
6.31175 - 6.31225	1435 - 1626.5	36.43 - 36.5
8.291 - 8.294	1645.5 - 1646.5	Above 38.6
8.362 - 8.366	1660 - 1710	* Certain frequency bands listed in table 7 and in bands above 38.6 GHz are designated for licence-exempt applications. These frequency bands and the requirements that apply to related devices are set out in the 200 and 300 series of RSSs.
8.37625 - 8.38675	1718.8 - 1722.2	
8.41425 - 8.41475	2200 - 2300	
12.29 - 12.293	2310 - 2390	
12.51975 - 12.52025	2483.5 - 2500	
12.57675 - 12.57725	2655 - 2900	
13.36 - 13.41	3260 - 3267	
16.42 - 16.423	3332 - 3339	
16.69475 - 16.69525	3345.8 - 3358	
16.80425 - 16.80475	3500 - 4400	
25.5 - 25.67	4500 - 5150	
37.5 - 38.25	5350 - 5460	
73 - 74.6	7250 - 7750	
74.8 - 75.2	8025 - 8500	
108 - 138	--	

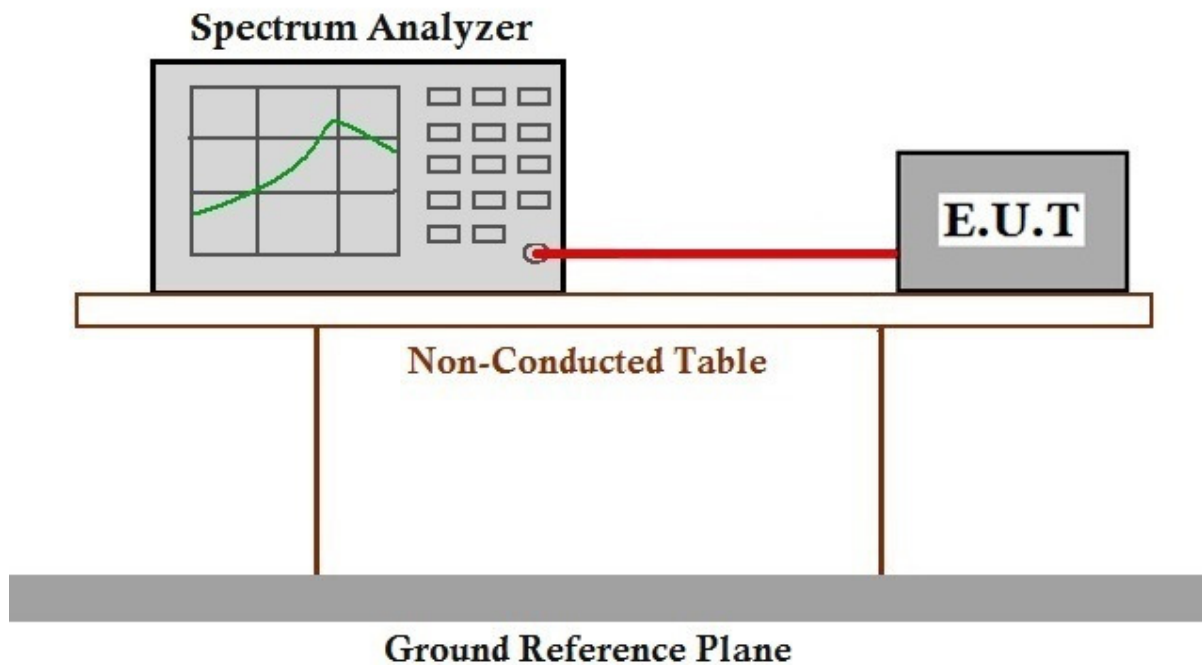
## 7.7.1 E.U.T. Operation

Operating Environment:

Temperature: 22.5 °C Humidity: 51.9 % RH :

Test mode a:TX mode\_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 2Mbps is the worst case

## 7.7.2 Test Setup Diagram



## 7.7.3 Measurement Procedure and Data

The detailed test data see section 9: Appendix

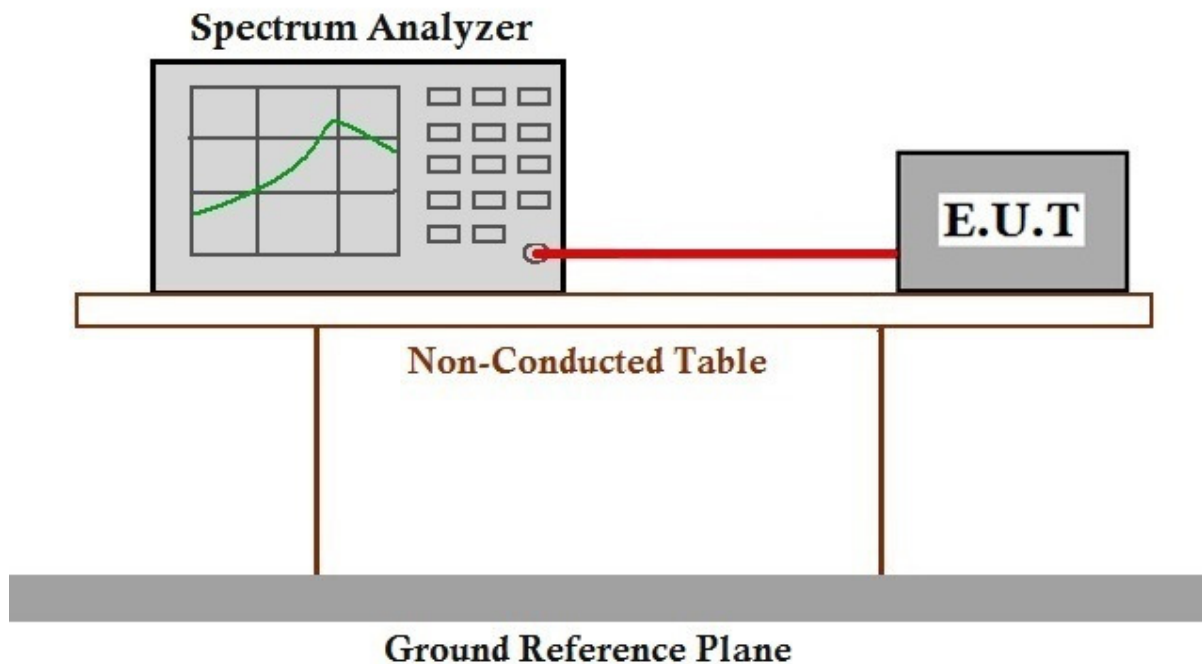
## 7.8 Conducted Spurious Emissions

Test Requirement	47 CFR Part 15, Subpart C 15.247:2019(d), RSS-247 Section 5.5
Test Method:	ANSI C63.10 (2013) Section 7.8.8
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced 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 that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under section 5.4(d), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

### 7.8.1 E.U.T. Operation

Operating Environment:				
Temperature:	22.5 °C	Humidity:	51.2 % RH	:
Test mode	a:TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 2Mbps is the worst case			

### 7.8.2 Test Setup Diagram



### 7.8.3 Measurement Procedure and Data

The detailed test data see section 9: Appendix



## 7.9 Radiated Emissions which fall in the restricted bands

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.209, Section 3.3

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.

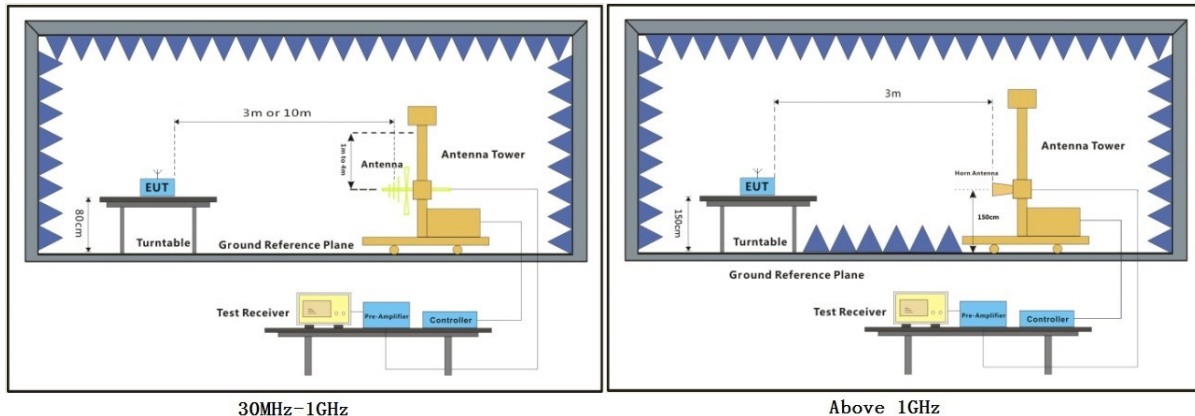
## 7.9.1 E.U.T. Operation

Operating Environment:

Temperature: 22.5 °C Humidity: 51.4 % RH :

Test mode a:TX mode\_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 2Mbps is the worst case

## 7.9.2 Test Setup Diagram



## 7.9.3 Measurement Procedure and Data

- 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.
- 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.
- 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.
- 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.
- 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.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- 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.
- Test the EUT in the lowest channel, the middle channel, the Highest channel.
- 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.
- 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.



Worse test result as shown below:

Frequency (MHz)	Antenna Polarization	Emission Level (dB $\mu$ V/m)		Limit (dB $\mu$ V/m)		Result
		Peak	Average	Peak	Average	
2390.000	H	51.3	/	74.0	54.0	Pass
2483.500	H	53.4	/	74.0	54.0	Pass
2390.000	V	52.2	/	74.0	54.0	Pass
2483.500	V	53.8	/	74.0	54.0	Pass

## 7.10 Radiated Spurious Emissions

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.209, Section 3.3 & RSS-Gen Section 8.9

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.

**Table 5 - General field strength limits at frequencies above 30 MHz**

Frequency (MHz)	Field strength ( $\mu$ V/m at 3 m)
30 - 88	100
88 - 216	150
216 - 960	200
Above 960	500

**Table 6 - General field strength limits at frequencies below 30 MHz**

Frequency	Magnetic field strength (H-Field) ( $\mu$ A/m)	Measurement distance (m)
9 - 490 kHz 1	6.37/F (F in kHz)	300
490 - 1705 kHz	63.7/F (F in kHz)	30
1.705 - 30 MHz	0.08	30

**Note 1:** The emission limits for the ranges 9-90 kHz and 110-490 kHz are based on measurements employing a linear average detector.

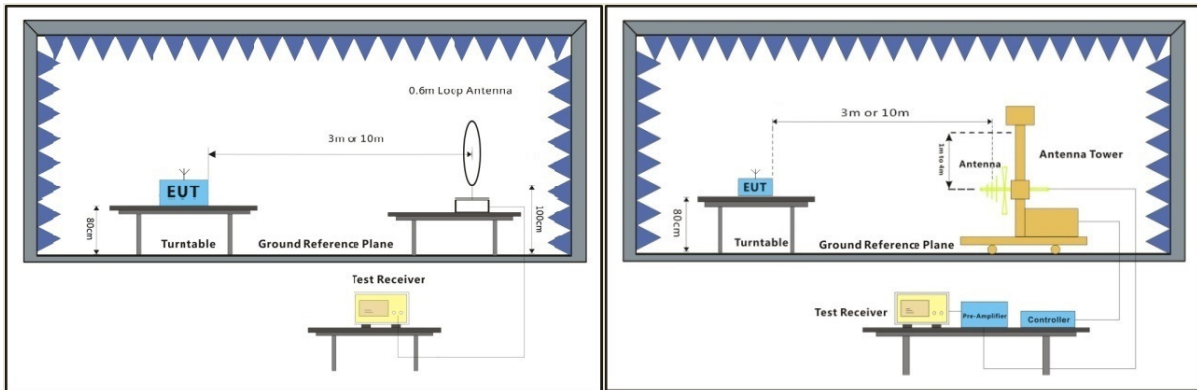
### 7.10.1 E.U.T. Operation

Operating Environment:

Temperature: 22.5 °C Humidity: 51.0 % RH :

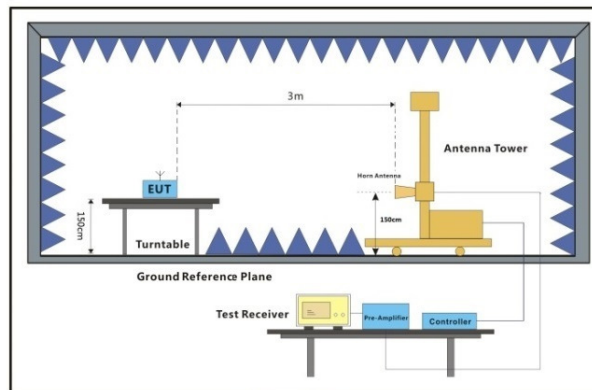
Test mode a:TX mode\_Keep the EUT in continuously transmitting mode with GFSK modulation

### 7.10.2 Test Setup Diagram



Below 30MHz

30MHz-1GHz



Above 1GHz

### 7.10.3 Measurement Procedure and Data

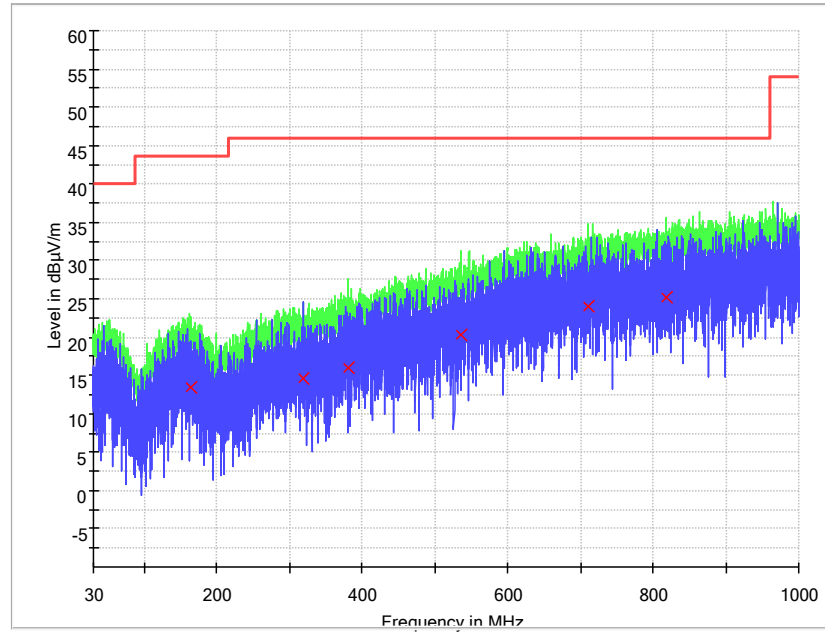
- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 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 in the report.

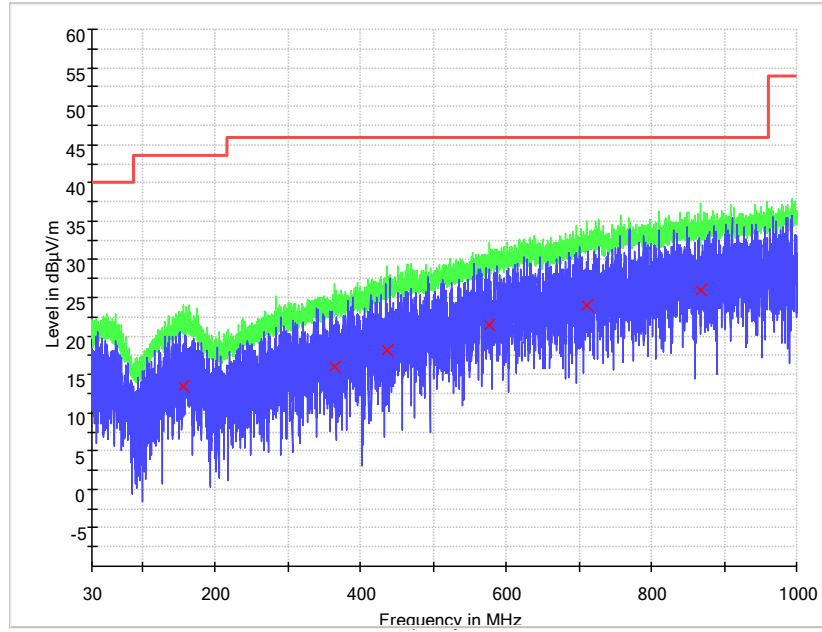
## Radiated emission below 1GHz

Mode:a; Polarization:Horizontal;



Frequency (MHz)	QuasiPeak (dBμV/m)	Pol.	Corr. (dB/m)	Margin (dB)	Limit (dBμV/m)	Result
163.742500	13.5	H	14.5	30.0	43.5	Pass
319.645000	14.6	H	15.3	31.5	46.0	Pass
380.095000	16.1	H	16.9	29.9	46.0	Pass
534.925000	20.3	H	20.3	25.7	46.0	Pass
710.620000	24.1	H	23.6	21.9	46.0	Pass
817.480000	25.2	H	25.0	20.8	46.0	Pass

Mode:a; Polarization:Vertical;



Frequency (MHz)	QuasiPeak (dBμV/m)	Pol.	Corr. (dB/m)	Margin (dB)	Limit (dBμV/m)	Result
155.260000	13.5	V	14.6	30.0	43.5	Pass
364.592500	15.9	V	16.6	30.1	46.0	Pass
436.937500	18.2	V	18.4	27.8	46.0	Pass
576.265000	21.5	V	21.1	24.5	46.0	Pass
711.302500	24.1	V	23.6	21.9	46.0	Pass
868.180000	25.9	V	25.4	20.1	46.0	Pass

**Above 1GHz**

Channel:Low

Frequency (MHz)	Antenna Polarization	Emission Level (dB $\mu$ V/m)		Limit (dB $\mu$ V/m)		Result
		Peak	Average	Peak	Average	
1937.429	H	38.2	/	74.0	54.0	PASS
2975.643	H	43.8	/	74.0	54.0	PASS
4823.179	H	46.9	/	74.0	54.0	PASS
5187.464	V	47.0	/	74.0	54.0	PASS
7911.107	V	55.0	40.9	74.0	54.0	PASS
10928.000	V	59.6	45.3	74.0	54.0	PASS

Channel:Middle

Frequency (MHz)	Antenna Polarization	Emission Level (dB $\mu$ V/m)		Limit (dB $\mu$ V/m)		Result
		Peak	Average	Peak	Average	
2984.750	V	46.2	/	74.0	54.0	PASS
3231.857	H	42.1	/	74.0	54.0	PASS
4503.821	H	47.0	/	74.0	54.0	PASS
5117.642	H	47.1	/	74.0	54.0	PASS
7993.678	H	55.1	41.6	74.0	54.0	PASS
7974.250	V	55.0	41.5	74.0	54.0	PASS

Channel: High

Frequency (MHz)	Antenna Polarization	Emission Level (dB $\mu$ V/m)		Limit (dB $\mu$ V/m)		Result
		Peak	Average	Peak	Average	
1534.893	V	38.7	/	74.0	54.0	PASS
2996.893	H	43.2	/	74.0	54.0	PASS
4537.214	H	45.6	/	74.0	54.0	PASS
7001.607	H	53.4	/	74.0	54.0	PASS
7980.321	V	55.3	41.6	74.0	54.0	PASS
10778.643	V	59.1	45.0	74.0	54.0	PASS



## **8 Photographs**

### **8.1 EUT Constructional Details (EUT Photos)**

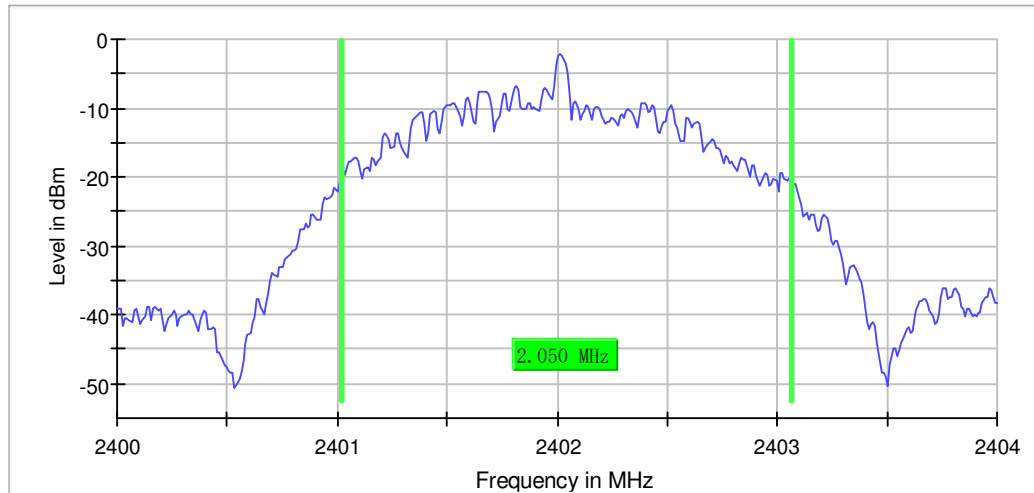
Refer to the appendices setup, external and internal photos.

## 9 Appendix

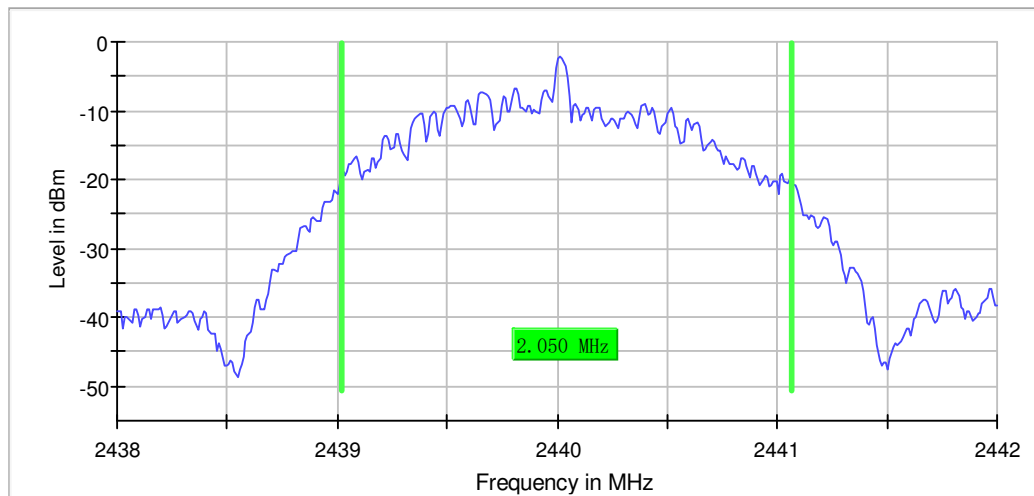
### 9.1 99% Bandwidth

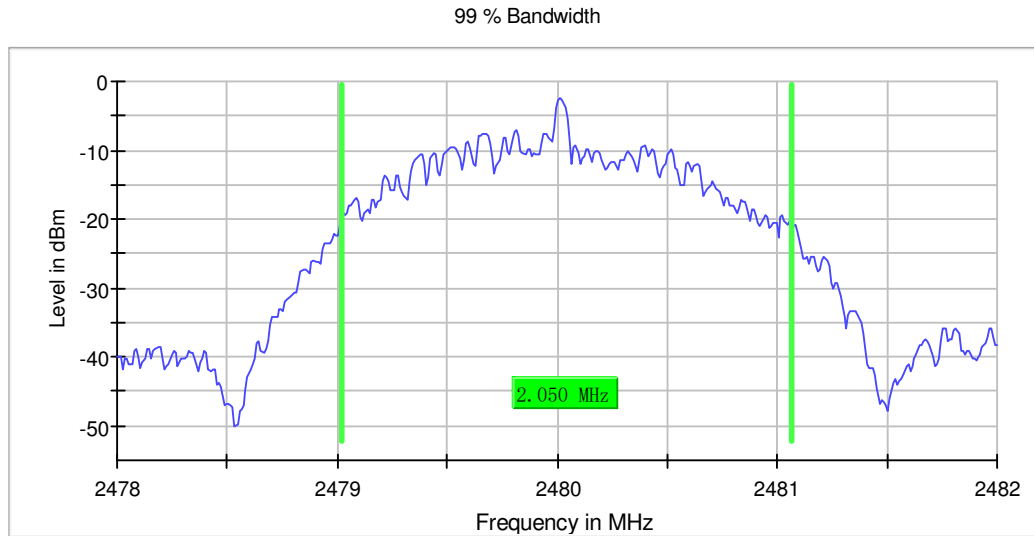
DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2402.000000	2.050000	---	---	2401.015000	2403.065000
2440.000000	2.050000	---	---	2439.015000	2441.065000
2480.000000	2.050000	---	---	2479.015000	2481.065000

99 % Bandwidth



99 % Bandwidth





## Measurement

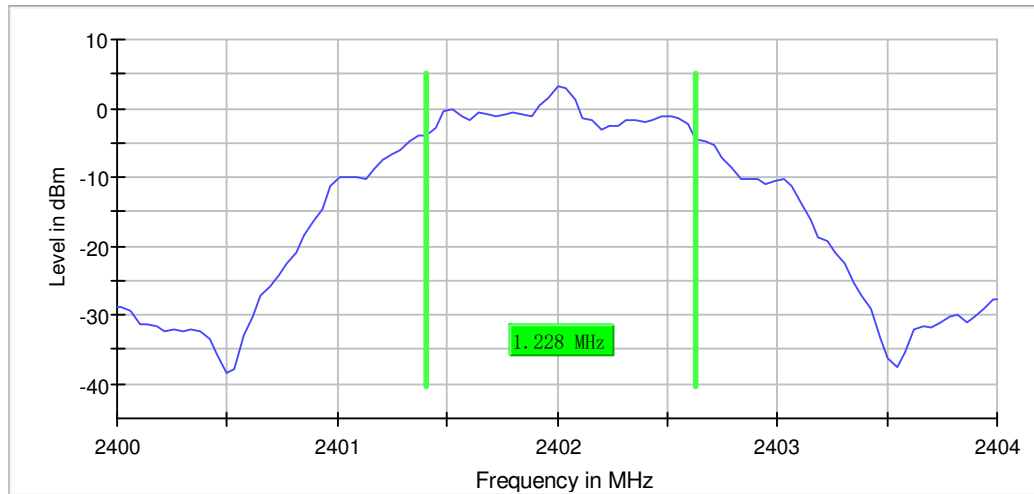
Setting	Instrument Value	Target Value
Span	4.000 MHz	4.000 MHz
RBW	20.000 kHz	$\geq 20.000$ kHz
VBW	100.000 kHz	$\geq 60.000$ kHz
SweepPoints	400	$\sim 400$
SweepTime	94.824 $\mu$ s	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamplifier	off	off
StableMode	Trace	Trace
StableValue	0.30 dB	0.30 dB
Run	7 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.27 dB	0.30 dB

Remark: Cable loss 0.8dB was considered and set in system configuration.

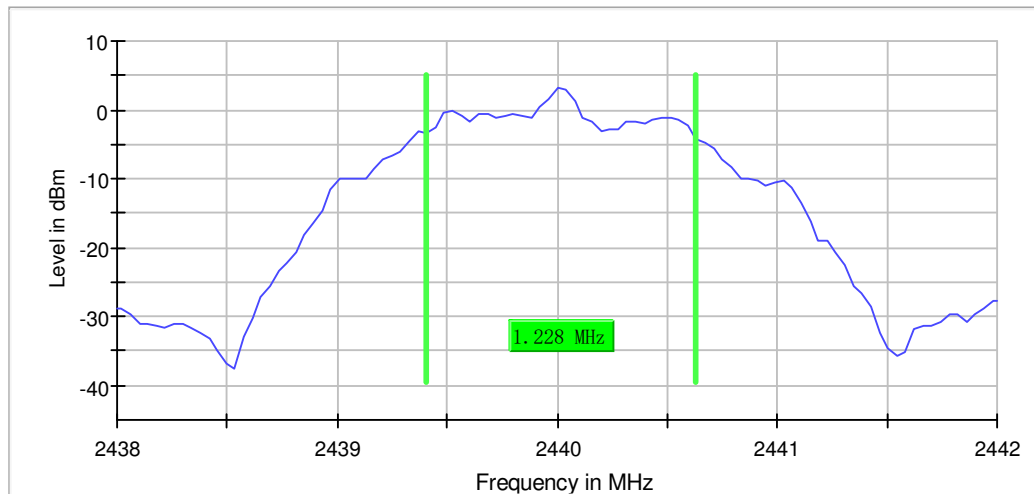
## 9.2 Minimum Emission Bandwidth 6 dB

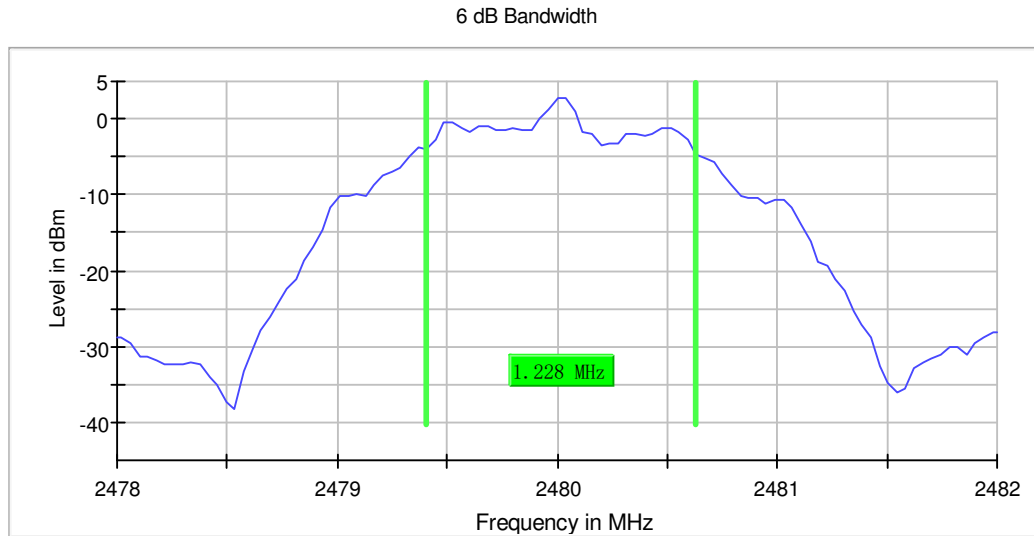
DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2402.000000	1.227722	0.500000	---	2401.405941	2402.633663
2440.000000	1.227722	0.500000	---	2439.405941	2440.633663
2480.000000	1.227722	0.500000	---	2479.405941	2480.633663

6 dB Bandwidth



6 dB Bandwidth





## Measurement

Setting	Instrument Value	Target Value
Span	4.000 MHz	4.000 MHz
RBW	100.000 kHz	~ 100.000 kHz
VBW	300.000 kHz	~ 300.000 kHz
SweepPoints	101	~ 80
SweepTime	18.938 us	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	10 / max. 150	max. 150
Stable	5 / 5	5
Max Stable Difference	0.08 dB	0.50 dB

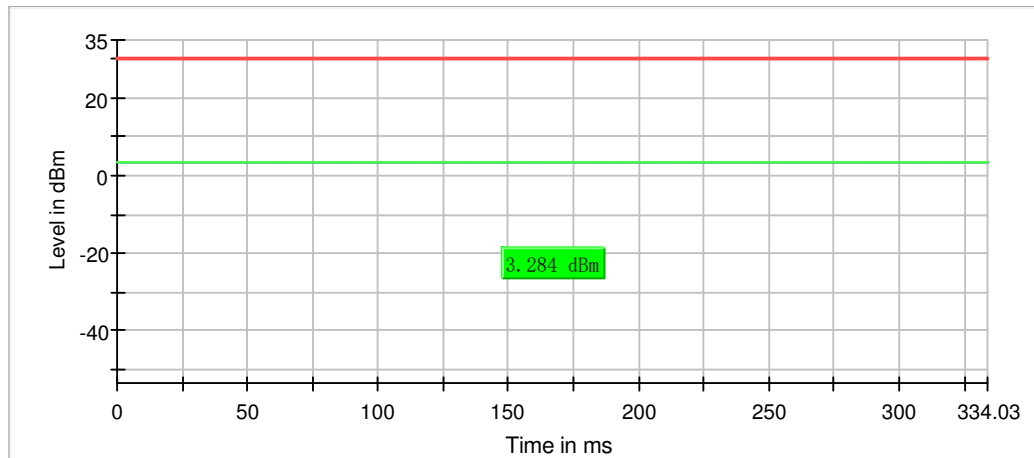
Remark: Cable loss 0.8dB was considered and set in system configuration.

### 9.3 Peak conducted output power

DUT Frequency (MHz)	Peak Power (dBm)	Limit Max (dBm)	Result
2402.000000	3.284	30.0	PASS
2440.000000	3.221	30.0	PASS
2480.000000	3.043	30.0	PASS

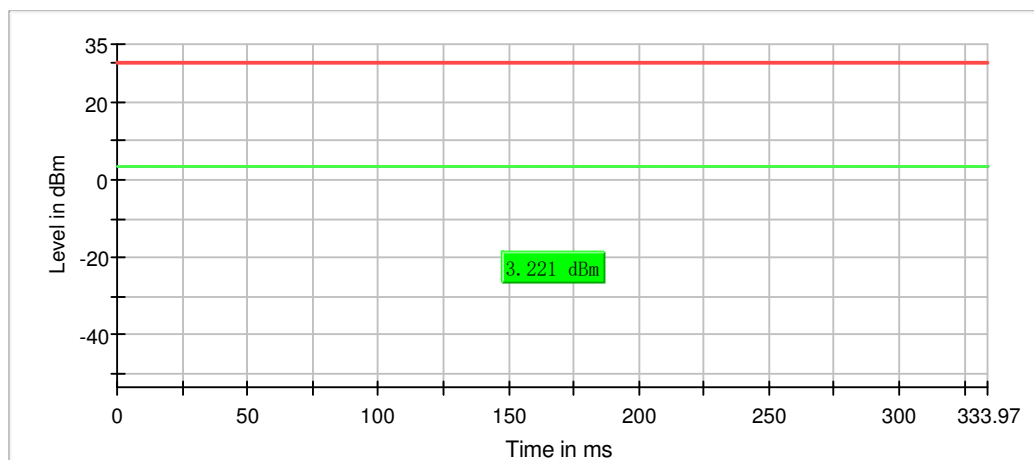
Remark: Antenna gain is 1.6 dBi

Gated Trace

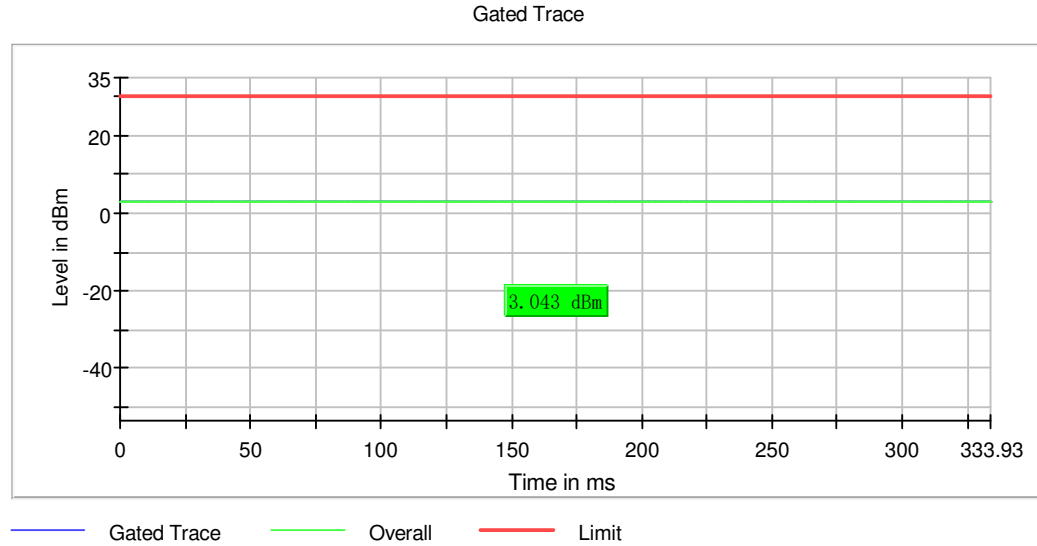


— Gated Trace — Overall — Limit

Gated Trace



— Gated Trace — Overall — Limit



## Measurement

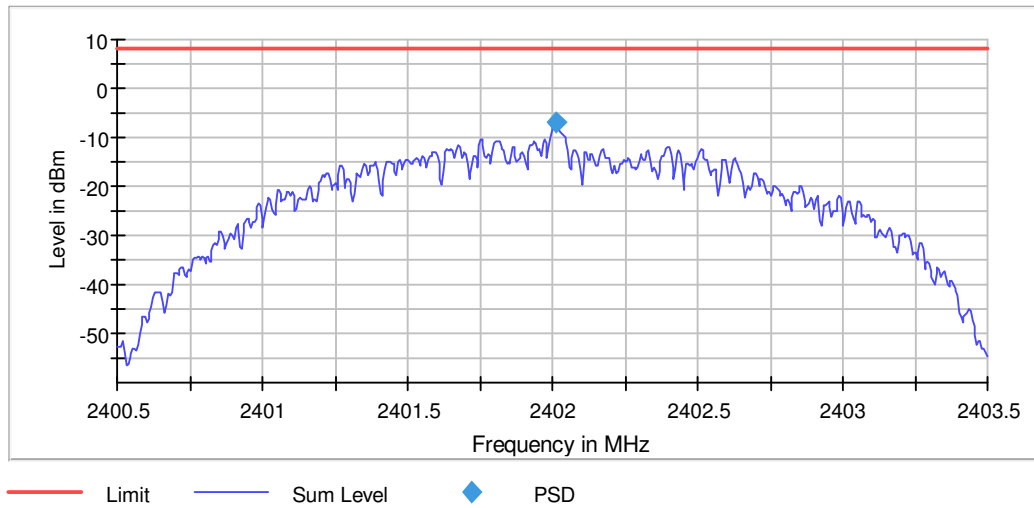
Setting	Instrument Value	Target Value
Span	ZeroSpan	ZeroSpan
RBW	1.000 MHz	$\geq 752.477$ kHz
VBW	3.000 MHz	$\geq 3.000$ MHz
SweepPoints	101	~ 101
SweepTime	2.000 s	2.000 s
Reference Level	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	10	10
Filter	Channel	Channel
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamplifier	off	off

Remark: Cable loss 0.8dB was considered and set in system configuration.

#### 9.4 Power Spectrum Density

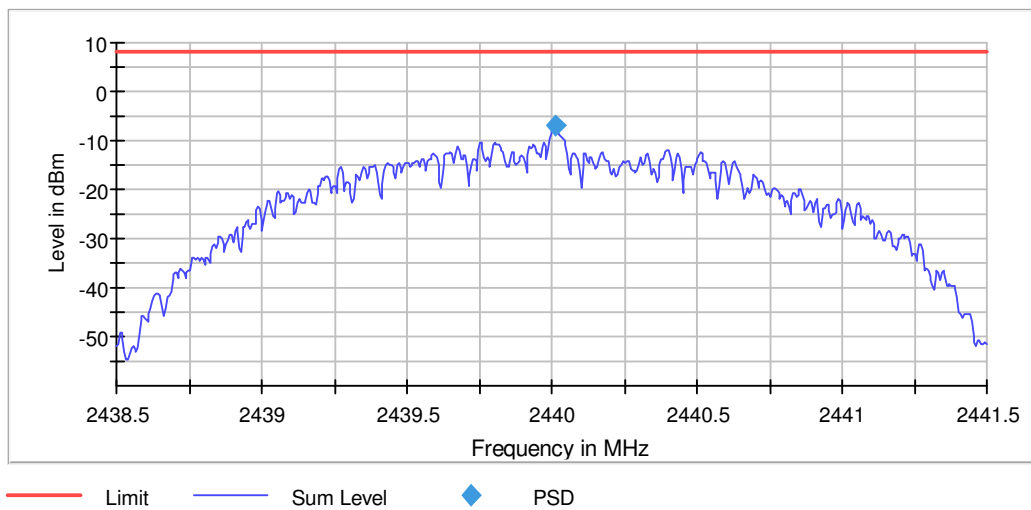
DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2402.000000	2402.012500	-6.926	8.0	PASS

Peak Power Spectral Density



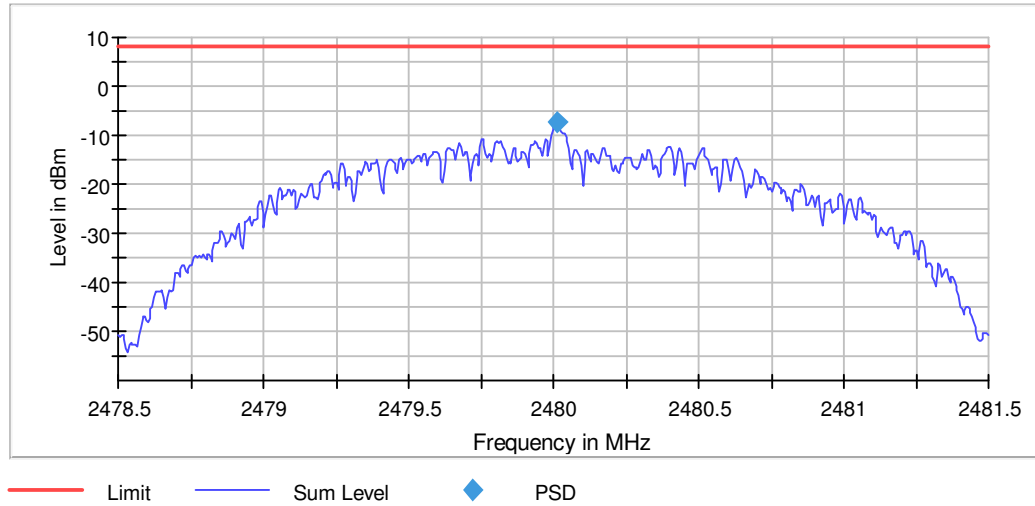
DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2440.000000	2440.012500	-6.821	8.0	PASS

Peak Power Spectral Density



DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2480.000000	2480.012500	-7.196	8.0	PASS

Peak Power Spectral Density



## Measurement

Setting	Instrument Value	Target Value
Span	3.000 MHz	3.000 MHz
RBW	10.000 kHz	<= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	600	~ 600
SweepTime	12.000 ms	12.000 ms
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	RMS	RMS
SweepCount	1	1
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	Sweep
Preamplifier	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	27 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.26 dB	0.50 dB

Remark: Cable loss 0.8dB was considered and set in system configuration.

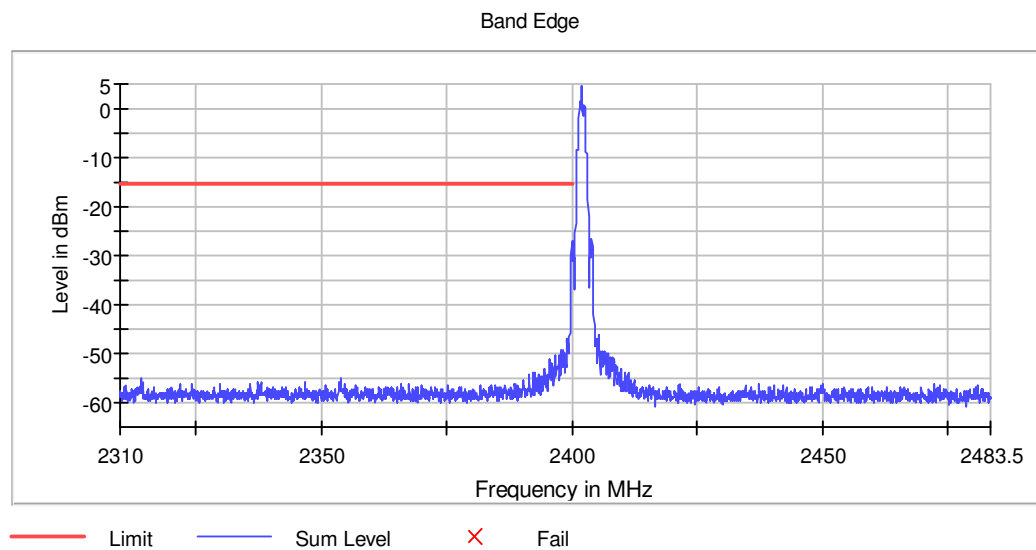
## 9.5 Conducted Band Edge Measurement

### Inband Peak

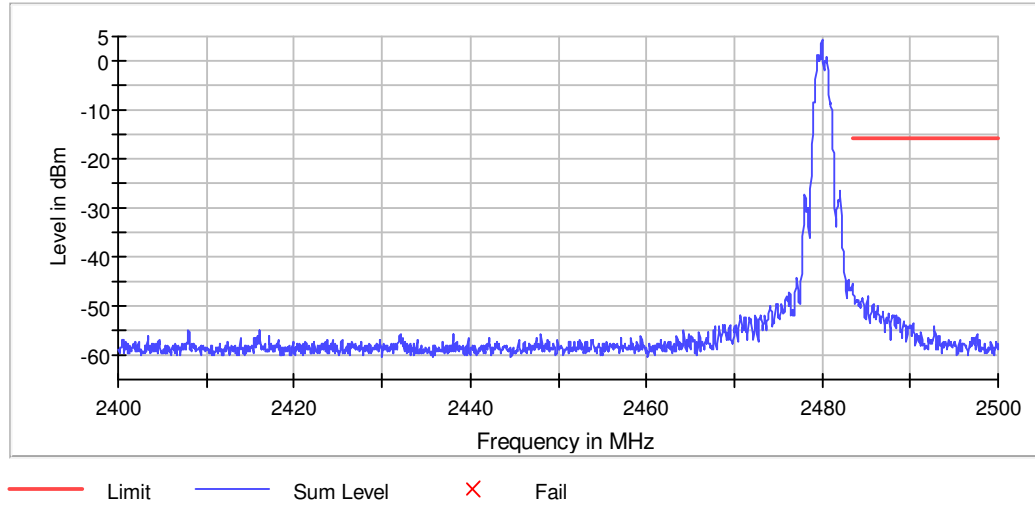
Frequency (MHz)	Level (dBm)
2401.950000	3.5
2479.975000	3.3

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2399.975000	-26.7	12.3	-16.5	PASS
2483.525000	-46.3	31.6	-16.7	PASS

Remark: Limit = Inband peak – 20dB



Band Edge

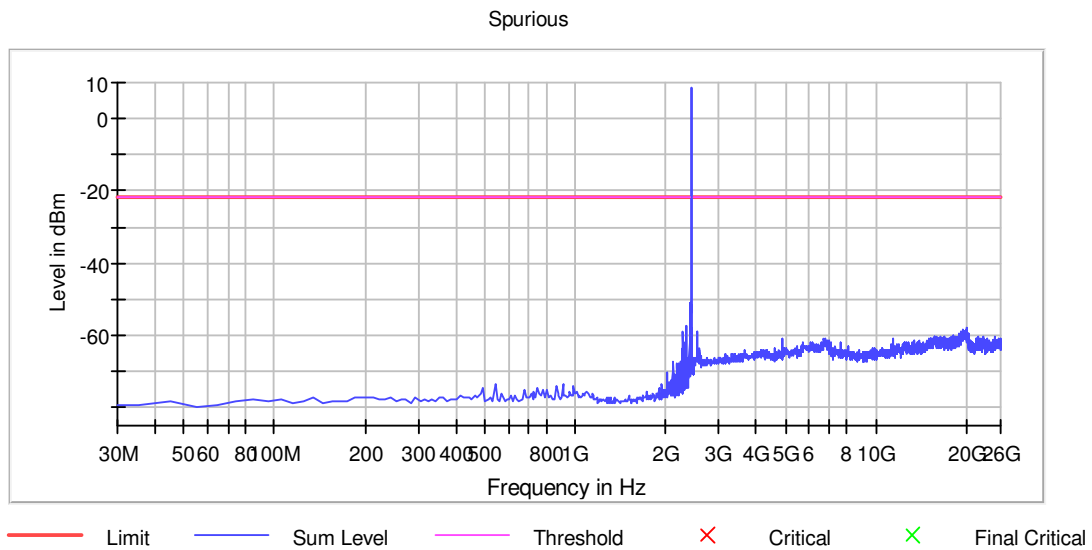
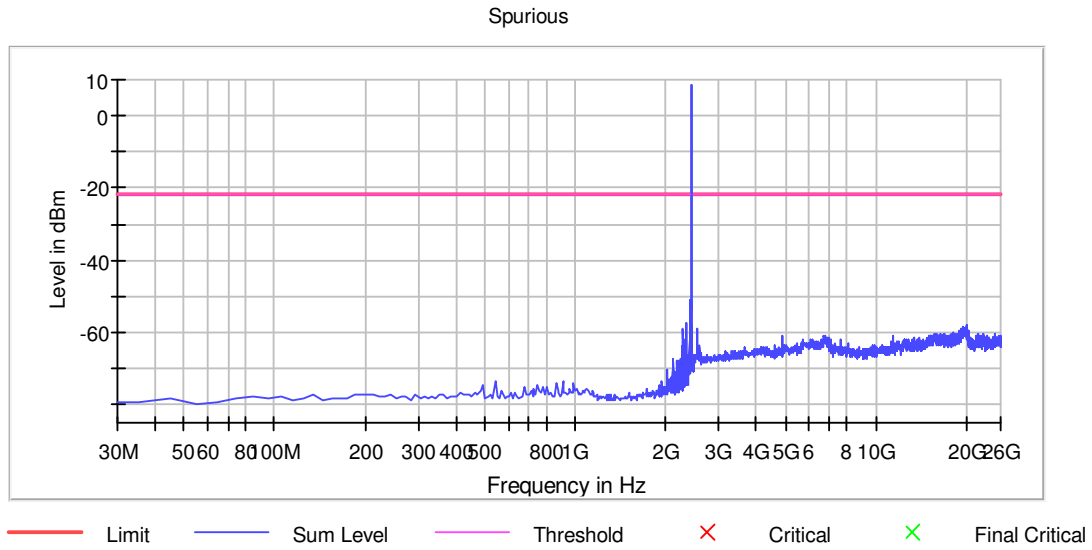


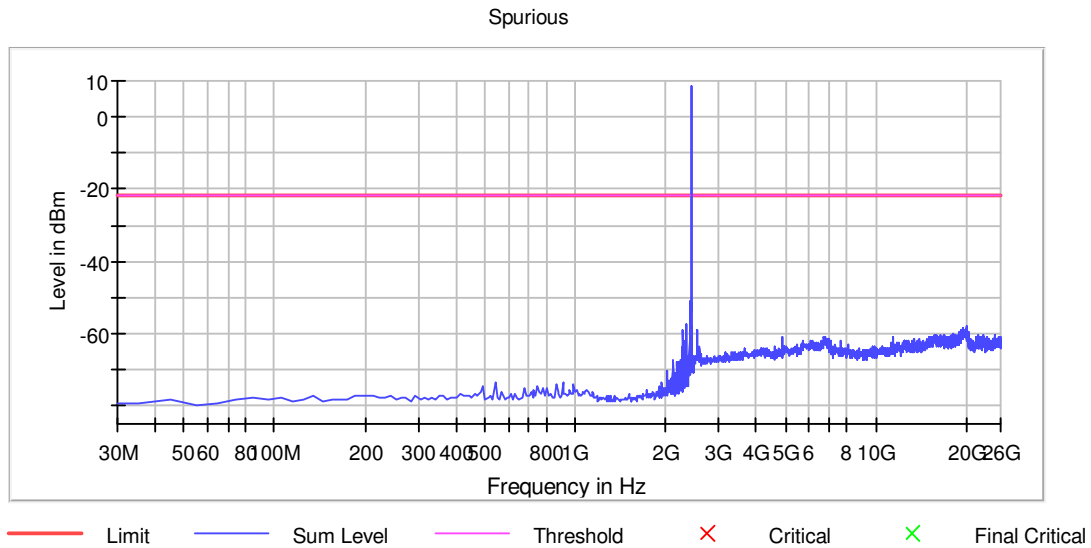
## Measurement 1

Setting	Instrument Value	Target Value
Start Frequency	2.40000 GHz	2.40000 GHz
Stop Frequency	2.48350 GHz	2.48350 GHz
Span	83.500 MHz	83.500 MHz
RBW	100.000 kHz	$\leq 100.000$ kHz
VBW	300.000 kHz	$\geq 300.000$ kHz
SweepPoints	1670	~ 1670
SweepTime	1.670 ms	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamplifier	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	8 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.06 dB	0.50 dB

Remark: Cable loss 0.8dB was considered and set in system configuration.

## 9.6 Conducted Spurious Emission





Limit= Inband peak – 30 dB

## Measurement 1

Setting	Instrument Value	Target Value
RBW	100.000 kHz	$\leq 100.000$ kHz
VBW	300.000 kHz	$\geq 300.000$ kHz
SweepPoints	238	~ 238
SweepTime	23.700 ms	AUTO
Reference Level	-30.000 dBm	-30.000 dBm
Attenuation	0.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	3	3
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamplifier	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	24 / max. 40	max. 40
Stable	3 / 3	3
Max Stable Difference	0.00 dB	0.50 dB

Remark: Cable loss 0.8dB was considered and set in system configuration.

- End of the Report -