
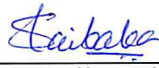


Produkte  
 Products

<b>Prüfbericht - Nr.:</b>		<b>19660358 001</b>		Seite 1 von 50	
Test Report No.:				Page 1 of 50	
<b>Auftraggeber:</b> Client:		American Megatrends India Private Limited Kumaran Nagar, Semmanchery, Off. Old Mahabalipuram Road Chennai-600119, India			
<b>Gegenstand der Prüfung:</b> Test item:		Wireless Vital Monitor			
<b>Bezeichnung:</b> Identification:		VA06	<b>Serien-Nr.:</b> Serial No.	Engineering Sample	
<b>Wareneingangs-Nr.:</b> Receipt No.:		1803279621	<b>Eingangsdatum:</b> Date of receipt:	11.12.2017	
<b>Prüfört:</b> Testing location:		Refer Page 5 of 50 for Test site details			
<b>Prüfgrundlage:</b> Test specification:		FCC Part 15 Subpart C 15.247 ANSI C63.10-2013			
<b>Prüfergebnis:</b> Test Result:		Der Prüfgegenstand entspricht oben genannter Prüfgrundlage(n). The test items passed the test specification(s).			
<b>Prüflaboratorium:</b> Testing Laboratory:		TÜV Rheinland (India) Pvt. Ltd. 82/A, 3rd Main, West Wing, Electronic City Phase 1 Hosur Road, Bangalore – 560 100. India FCC Test Site Registration no.: 496599			
<b>geprüft / tested by:</b>			<b>kontrolliert / reviewed by:</b>		
05.01.2018	Girish Kumar G Engineer		04.02.2018	Saibaba Siddapur Assistant Manager	
<b>Datum</b> Date	<b>Name/Stellung</b> Name/Position	<b>Unterschrift</b> Signature	<b>Datum</b> Date	<b>Name/Stellung</b> Name/Position	<b>Unterschrift</b> Signature
<b>Sonstiges / Other Aspects:</b>		FCC ID : 2AFV6-AMI-BU-02			
<b>Abkürzungen:</b>		P(ass) = entspricht Prüfgrundlage F(ail) = entspricht nicht Prüfgrundlage N/A = nicht anwendbar N/T = nicht getestet		<b>Abbreviations:</b>	
				P(ass) = passed F(ail) = failed N/A = not applicable N/T = not tested	
<p><b>Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.</b></p> <p><i>This test report relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any safety mark on this or similar products.</i></p>					

 TÜV Rheinland India Pvt. Ltd. 82/A, 3rd Main, West Wing Electronic City Phase 1, Hosur Road, Bangalore-560100,  
 India Tel.: +9180 6723 3500 · Fax: +9180 6723 3542 · Web: <https://www.tuv.com>

### Test Summary

Section	Test item	Result	Remarks
15.247 (b)	Maximum Peak Conducted Output Power	Pass	
15.247 (a) (1)	20dB Bandwidth	Pass	
15.247 (a) (1)(III)	Number of Hopping Channels	Pass	
15.247 (a)(1)	Carrier Frequency Separation	Pass	
15.247 (a)(1)(III)	Time of Occupancy (Dwell Time)	Pass	
15.247 (d)	Band Edge Compliance of RF Conducted Emissions	Pass	
15.247 (d) / (15.209 & 15.205)	Restricted bands of Emissions & Restricted Bands of Operation	Pass	
15.207	Conducted Emission Test on A.C Power Lines	Pass	

## Document History:

Version	Remarks
1.0	Issued for FCC Part 15 Subpart C

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# 1 GENERAL REMARKS

## Complimentary Materials

All attachments are integral part of this test report. This applies especially to the following appendix:

**APPENDIX 1:** TEST SETUP PHOTOS

**APPENDIX 2:** EUT EXTERNAL PHOTOS

**APPENDIX 3:** EUT INTERNAL PHOTOS

**APPENDIX 4:** FCC LABEL AND LABEL LOCATION

**APPENDIX 5:** BLOCK DIAGRAM

**APPENDIX 6:** SPECIFICATION OF EUT

**APPENDIX 7:** SCHEMATIC DIAGRAM

**APPENDIX 8:** BILL OF MATERIAL

**APPENDIX 9:** USER MANUAL

**APPENDIX 10:** SAR EXCLUSION CALCULATION

## 2 TEST SITES

### Testing Facilities

TUV Rheinland (India) Private Limited  
108 , Beside ISBR Business School,  
Electronic city Phase I  
Bangalore - 560 100

### List of Test and Measurement Instruments

**Table 1: List of test and measurement instruments**

Equipment	Manufacturer	Model Name	Serial Number	Calibration Due Date	Periodicity	Used for Test Items
Spectrum Analyser	Agilent Technologies	E4407B	US411927 72	13.02.2018	Yearly	Antenna - Port Measurements
EMI Test Receiver	Rohde & Schwarz	ESU 40	100288	24-10-2018	Yearly	Radiated Spurious Emission
Active loop antenna	Frankonia	LAX-10	LAX-10- 800	13-04-2018	Yearly	
Biconical Antenna	Schwarzbeck mess-elektronik	VHBB-9124 / BBA-9106	9124-656	09-01-18	Yearly	
Log-Periodic Antenna	Schwarzbeck mess-elektronik	VUSLP-9111B	9111B-111	10-01-18	Yearly	
Broadband Horn Antenna	Frankonia	HAX-18	HAX18-802	16-03-2018	Yearly	
Emission Horn Antenna	ETS Lindgren	116706	00107323	22-06-2018	Yearly	
Semi Anechoic Chamber	Frankonia	-	-	-	-	
EMI Test Receiver	Rohde & Schwarz	ESR7	101133	16.01.2018	Yearly	Conducted Emission on AC Power Lines
Two Line V-Network (LISN)	Rohde & Schwarz	ENV216	100022	05.09.2018	Yearly	

### 3 GENERAL PRODUCT INFORMATION

#### Product Function and Intended Use

B.O.L.T is a Non Invasive medical gadget with NiBP (Non-invasive Blood Pressure), SpO2 (Pulse Oximeter) Infrared Thermometer (IRT) and Gluchobin combined into a small form factor device which gets controlled from a mobile device. B.O.L.T is a cloud enabled solution. With B.O.L.T your health vitals can be stored in your personal health cloud. For B.O.L.T to be in your hands, all you need is any leading mobile device that operates with the compatible Operating System. It is used to measure the vital signs like Blood Pressure, Body temperature, Blood oxygen saturation level & Blood glucose, hemoglobin, cholesterol levels.

#### Ratings and System Details

**Table 2: Ratings and System Details**

Operating Frequency Range	2400 MHz – 2483.5 MHz;
Radio Protocol	Bluetooth ( BDR+EDR)
Verified RF Power	4.416 dBm
Channel Spacing	1 MHz
Modulation	BDR (GFSK), EDR ( Pi/4-DQPSK, 8DPSK)
Number of antennas	1
Antenna Type & gain	Chip Antenna & 0.5 dBi
Supply Voltage to Product	5 VDC from Power adaptor
Environmental conditions	Storage Condition: 10°C to 55°C Operational conditions : 16°C to 35°C

**Measurement Uncertainty:**
**Table 3: Measurement Uncertainty**

Parameter	Uncertainty
Occupied Channel Bandwidth	±5 %
RF output power, conducted	±1.5 dB
Power Spectral Density, conducted	±3 dB
Unwanted Emissions, conducted	±3 dB
All emissions, radiated	±6 dB
Temperature	±3 °C
Supply Voltages	±3 %
Time	±5 %

**Antenna Details**
**Table 4 : Antenna Details**

<b>Make</b>	Johanson Technology , Inc
<b>Model</b>	P/N 2450AT18A100
<b>Antenna Gain</b>	0.5 dBi
<b>Type</b>	Chip
<b>Data Sheet</b>	<a href="https://www.johansontechnology.com/datasheets/antennas/2450AT18A100.pdf">https://www.johansontechnology.com/datasheets/antennas/2450AT18A100.pdf</a>

## 4 TEST SET-UP AND OPERATION MODE

### Principle of Configuration Selection

Transmission was enabled with hopping mode / highest possible duty cycle transmission on low, mid and high channel.

### Test Operation and Test Software

Testing software was used to enable the continuous transmission on low/mid/high channels on the EUT for the tests in this report.

### Special Accessories and Auxiliary Equipment

- None

### Countermeasures to achieve EMC Compliance

- None

### Test modes – data rates and modulations

For Radiated spurious emissions, the tests were performed for all data rates and only worst case results are reported in this report.



**List of frequencies**
**Table 5: List of Center Frequencies**

Frequency Band (MHz)	Channel No.	Channel Frequency (MHz)
<b>2400 – 2483.5 BT(BDR+EDR)</b>	0	2402
	1	2403
	2	2404
	3	2405
	:	:
	:	:
	:	:
	37	2439
	38	2440
	39	2441
	40	2442
	:	:
	:	:
	:	:
	74	2476
	75	2477
	76	2478
	77	2479
78	2480	

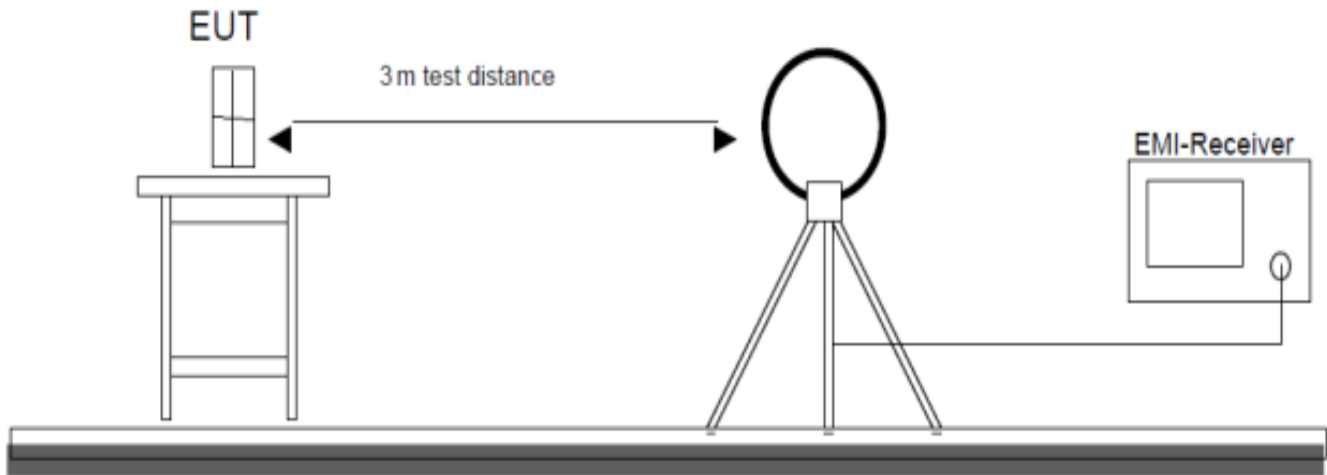
## 5 TEST METHODOLOGY

### Radiated Emission Test

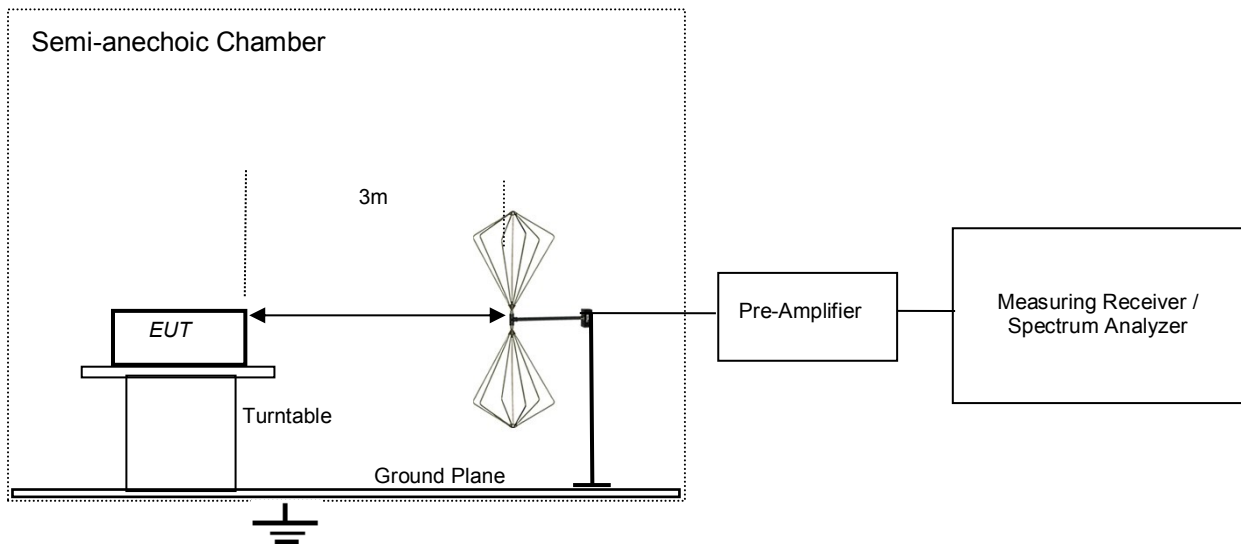
The radiated emission measurement was performed according to the procedures in ANSI C63.10-2013. The equipment under test (EUT) was placed at the middle of the 80 cm high turntable for below 1 GHz & 1.5 m height for above 1 GHz measurement, and the EUT is 3 meters far from the measuring antenna. The turntable was rotated 360° for obtaining the maximum emission. The height of the measuring antennas was scanned between 1 m and 4 m, and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations. Repeat the measurement steps until the maximum emissions were obtained. The measurement above 1000 MHz was performed by horn antenna, The measurement below 30 MHz was performed by loop antenna, Measurement from 30 MHz to 200 MHz was performed by Baloon and Biconical Antenna, and mesurement from 200 MHz to 1 GHz was performed by Log-Periodic Antenna.

The EUT was rotated around the X-, Y-, and Z-Axis and the results from worst case axis are recorded.

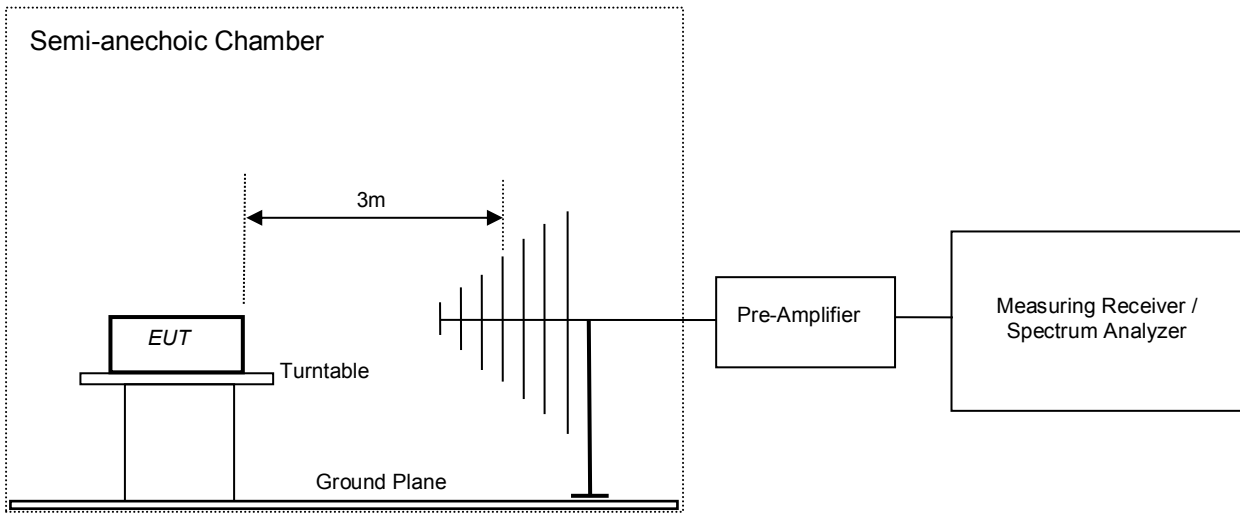
**5.1.1 Test Setup Configuration**



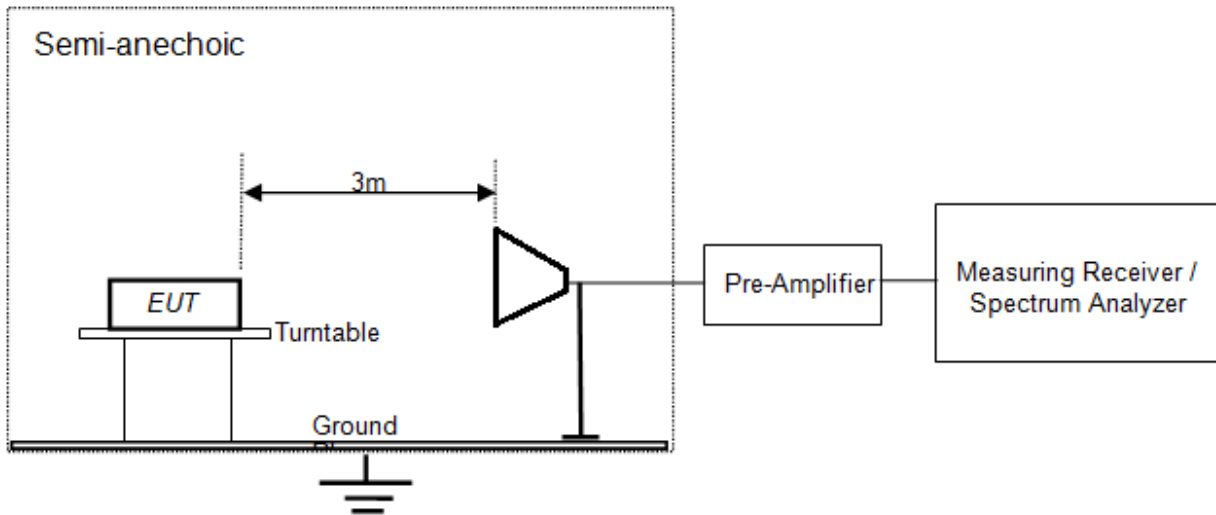
**Figure 1: Frequency Range 9 kHz- 30 MHz**



**Figure 2: Frequency Range 30 MHz – 200 MHz**



**Figure 3: Frequency Range 200 MHz - 1GHz**



**Figure 4: Frequency Range above 1 GHz**

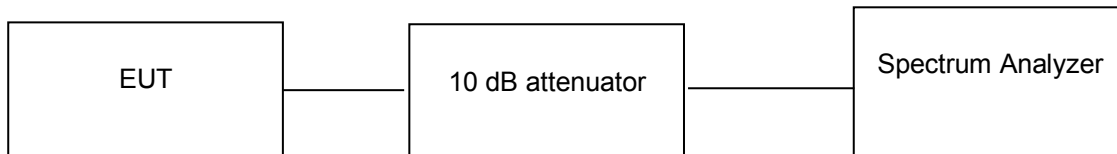
## 6 TEST RESULTS

### Maximum Peak Conducted Output Power

**Result**

**Pass**

Test Specification	FCC part 15 Subpart C 15.247 (b)(1)
Measurement Bandwidth	1MHz
Detector	Peak
Requirement	<125 mw



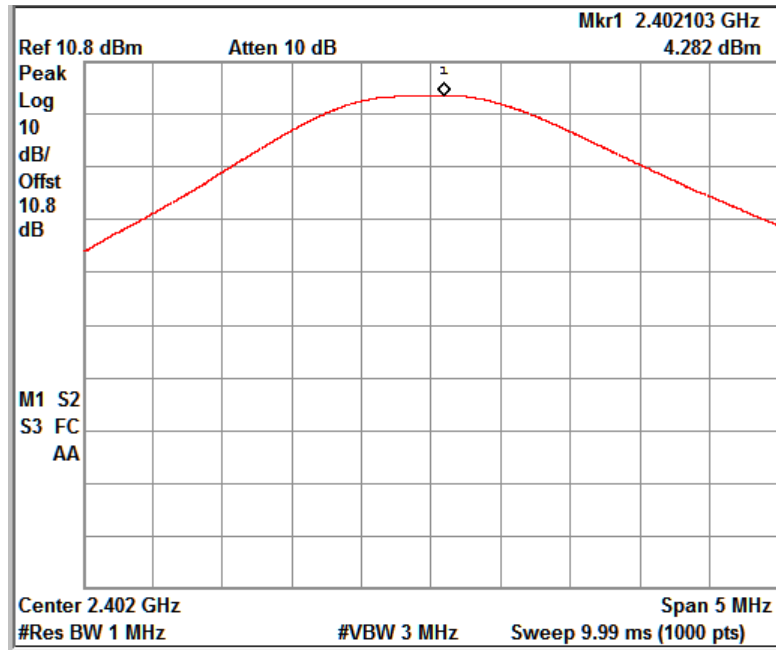
**Test results:**

Note: Measurements are done as per FCC / DA-00-705, Filing and Measurement Guidelines for 15.247 Frequency Hopping Spread Spectrum (FHSS) Systems Mar.30, 2000 mentioned in ANSI C63.10-2013.

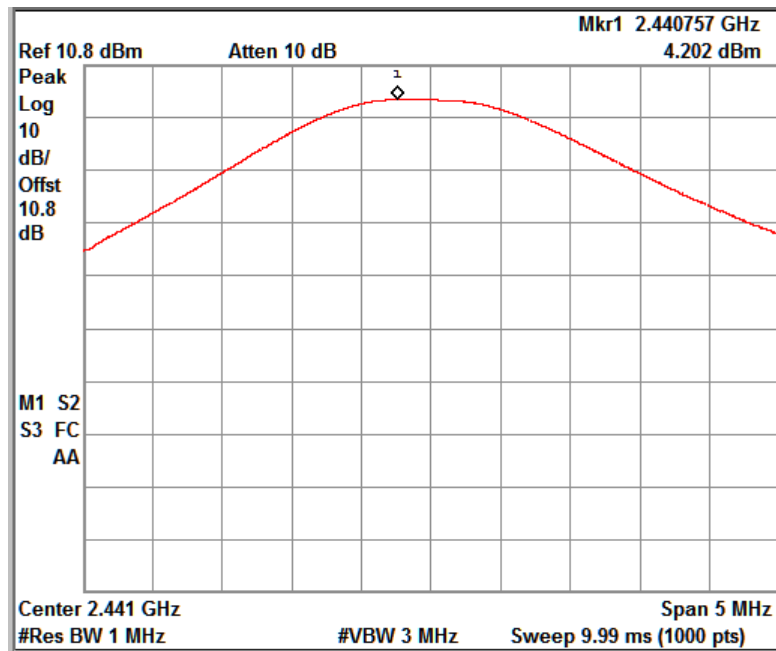
10 dB attenuator + 0.8 Cable loss = 10.8 dB offset is considered in below result

**Table 6: Maximum peak conducted output power verified Test Results**

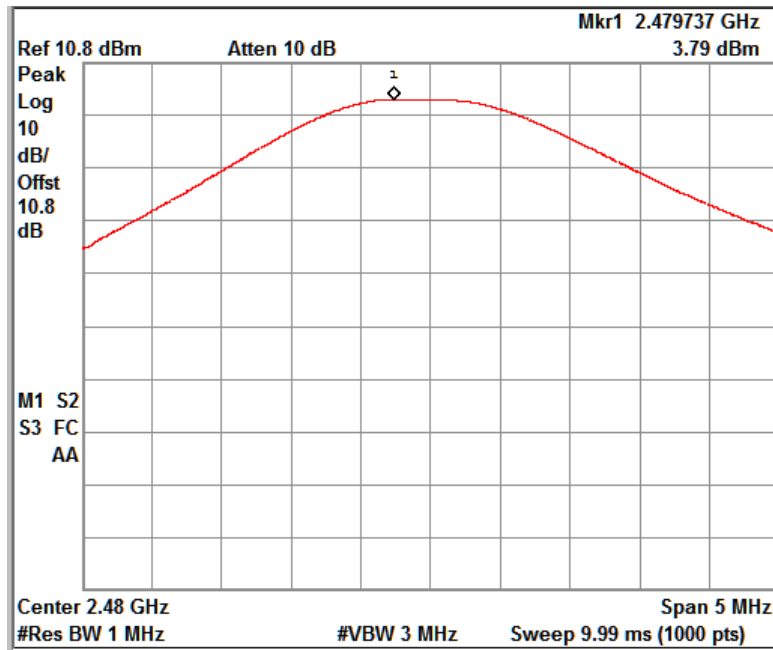
Modulation Type	Channel Frequency (MHz)	Output power (dBm)	Limit (dBm)
1 Mbps	2402	4.282	30.00
	2441	4.202	30.00
	2480	3.790	30.00
2 Mbps	2402	4.411	20.96
	2441	1.732	20.96
	2480	1.531	20.96
3 Mbps	2402	4.416	20.96
	2441	4.247	20.96
	2480	3.973	20.96



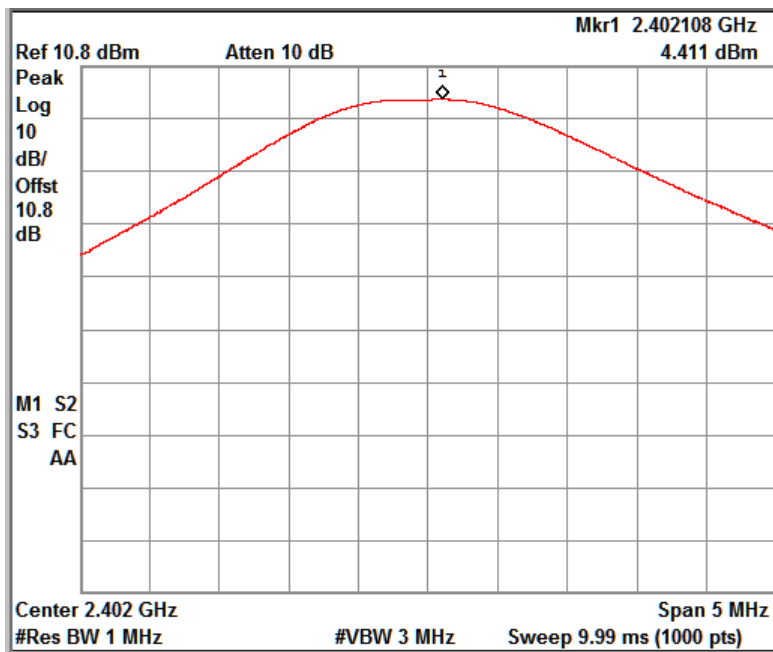
**1 Mbps Channel low – 2402 MHz**



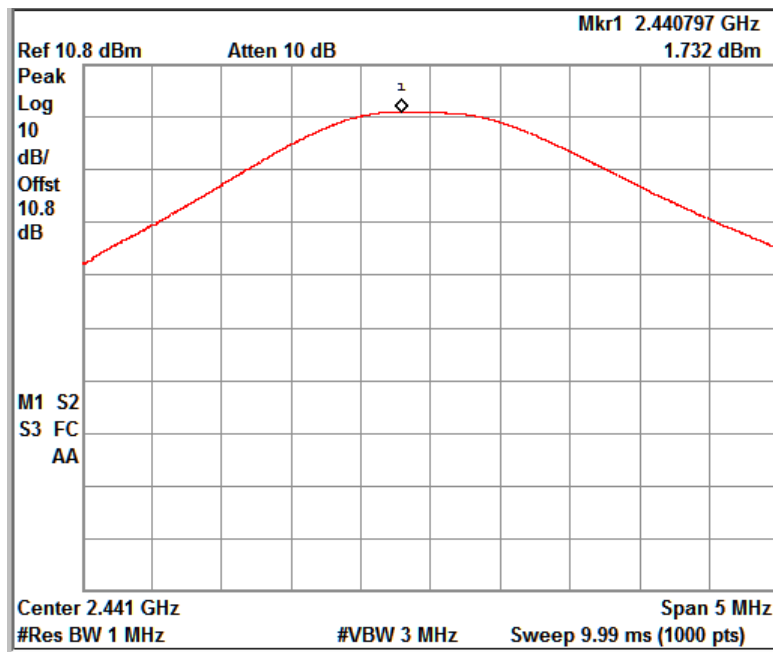
**1 Mbps Channel mid – 2441 MHz**



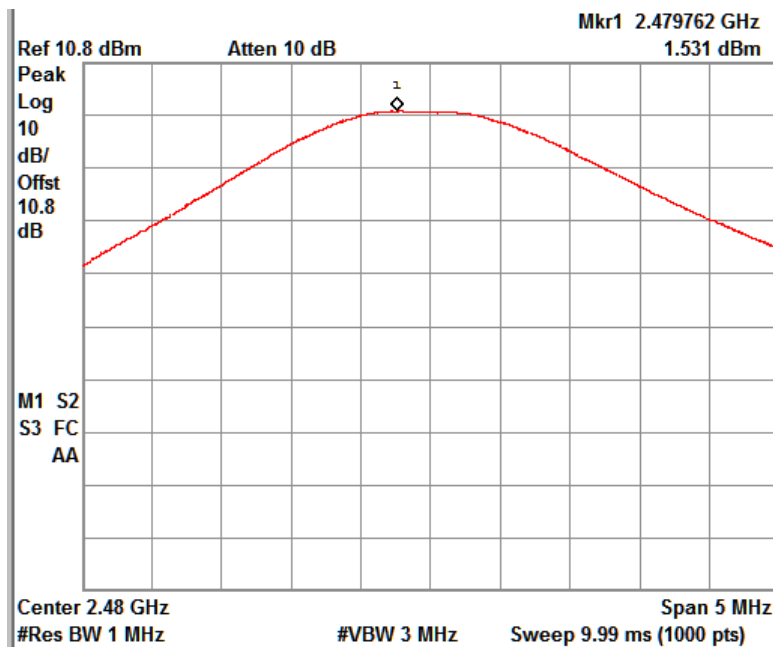
**1 Mbps Channel high – 2480 MHz**



**2 Mbps Channel low – 2402 MHz**

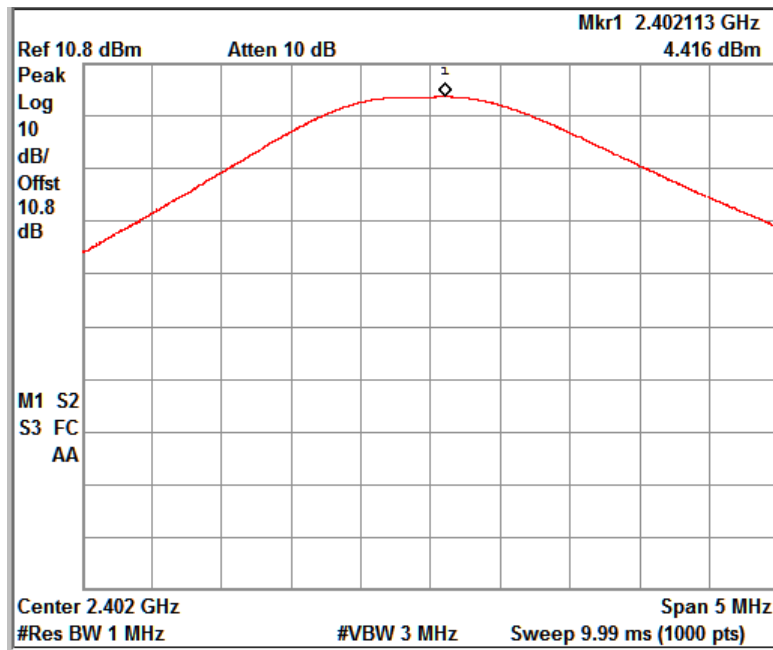


**2 Mbps Channel mid – 2441 MHz**

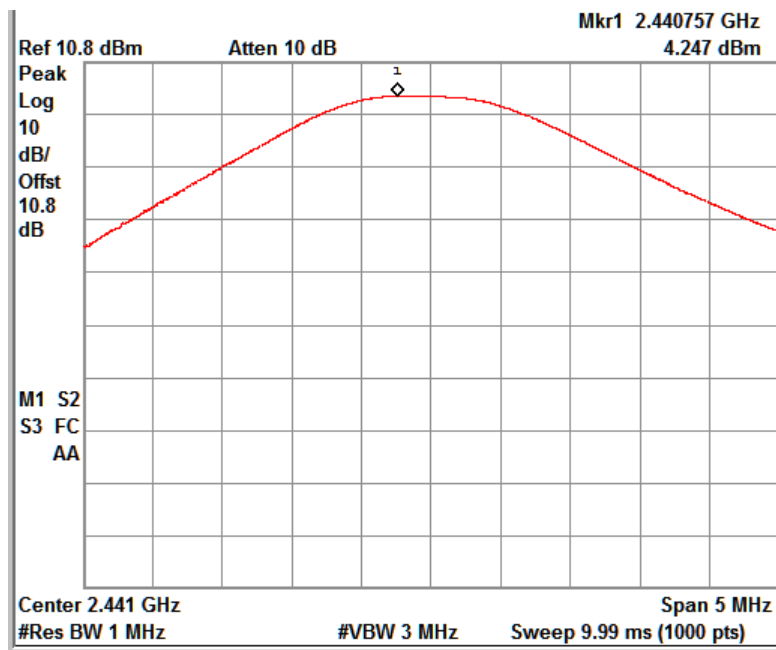


**2 Mbps Channel high – 2480 MHz**

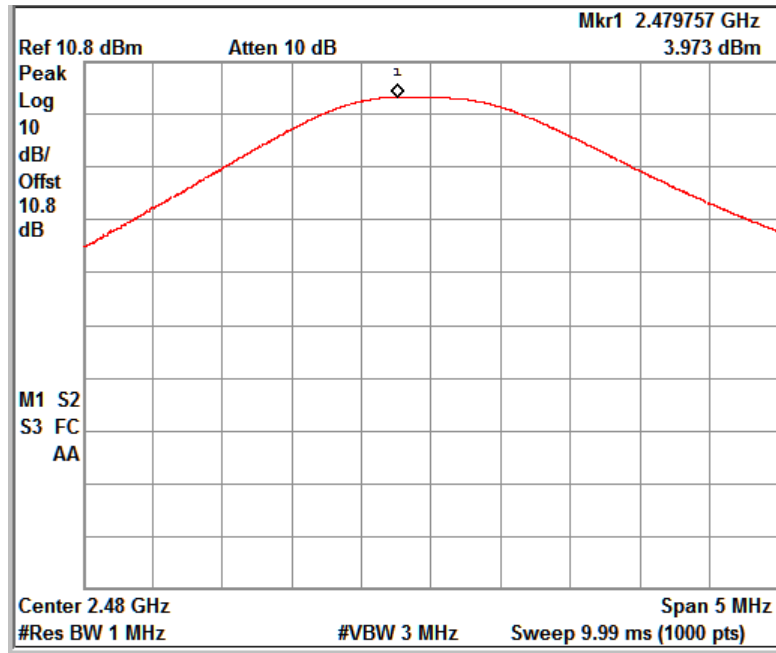




**3 Mbps Channel low – 2402 MHz**



**3 Mbps Channel mid – 2441 MHz**



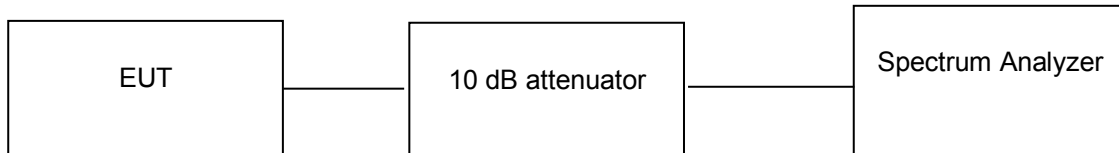
**3 Mbps Channel high – 2480 MHz**

**20 dB Bandwidth**

**Result**

**Pass**

Test Specification                      FCC part 15 Subpart C Section 15.247 (a)(1)  
 Detector                                      Peak  
 Port of testing                              Antenna Port  
 Requirement                                The bandwidth of frequency hopping channel is the 20 dB emission bandwidth , measured with the hopping stopped. The system RF bandwidth is equal to the channel bandwidth multiplied by the number of channels in the hopset. The hopset shall be such that the near-term distribution of frequencies appears random , with sequential hops randomly distributed in both direction and magnitude of change in the hopset while the long-term distribution appears evenly distributed.



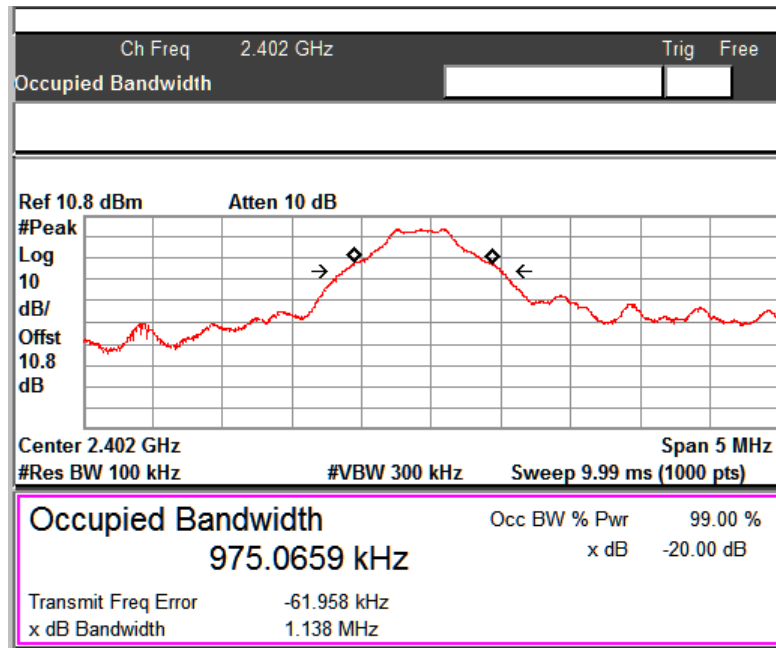
**Test results:**

Note: Measurements are done as per FCC / DA-00-705, Filing and Measurement Guidelines for 15.247 Frequency Hopping Spread Spectrum (FHSS) Systems Mar.30, 2000 mentioned in ANSI C63.10-2013.

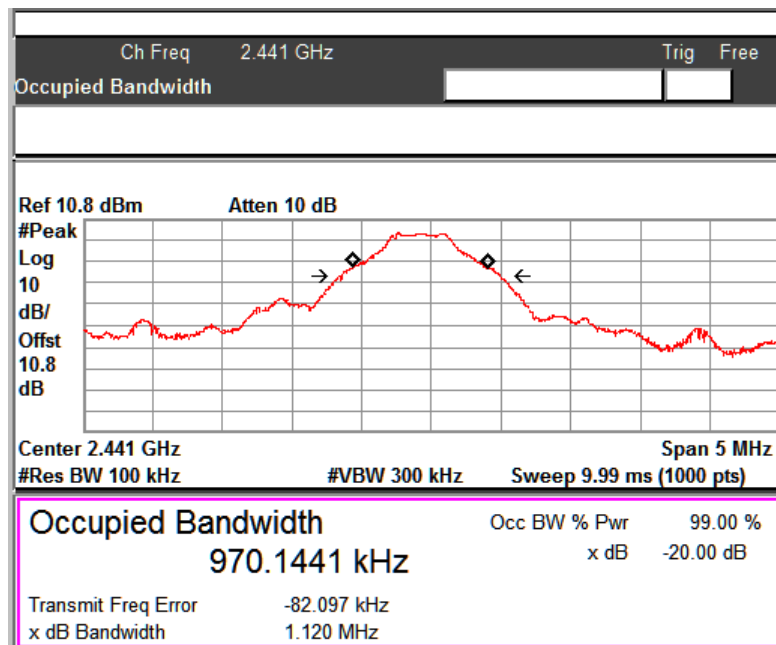
10 dB attenuator + 0.8 Cable loss = 10.8 dB offset is considered in below result

**Table 7: 20dB Bandwidth and Occupied Bandwidth Test Results**

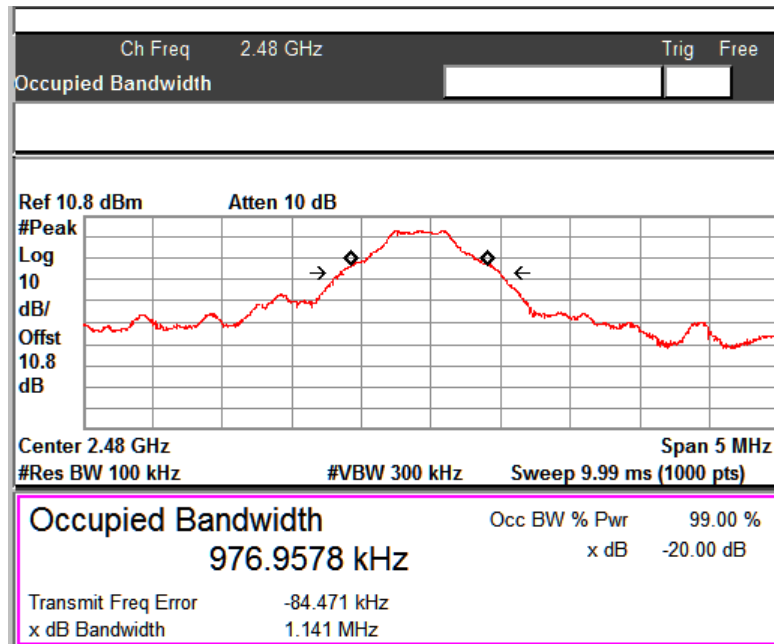
Modulation type	Channel Frequency (MHz)	20dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
1 Mbps	2402	1.138	0.975
	2441	1.120	0.970
	2480	1.141	0.976
2 Mbps	2402	1.140	0.983
	2441	1.139	0.977
	2480	1.139	0.985
3 Mbps	2402	1.386	1.231
	2441	1.402	1.232
	2480	1.335	1.190



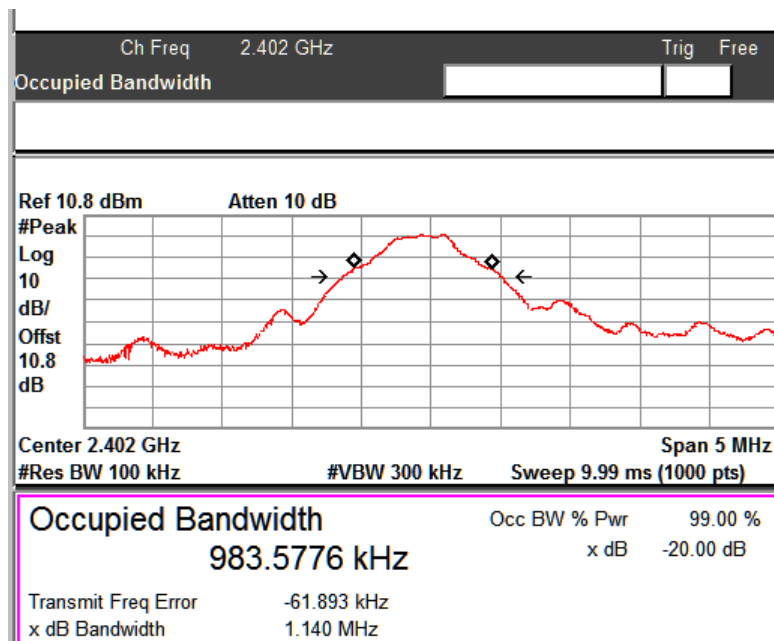
**1 Mbps Channel low**



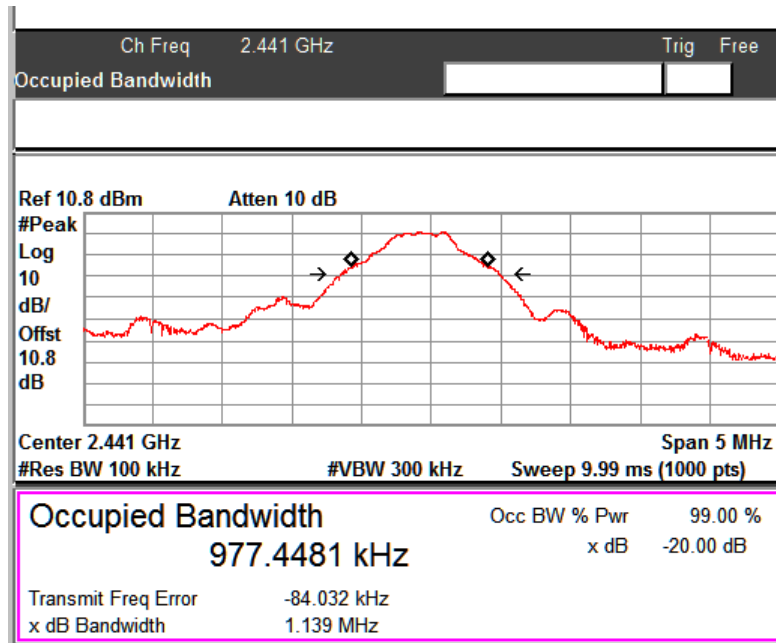
**1 Mbps Channel mid**



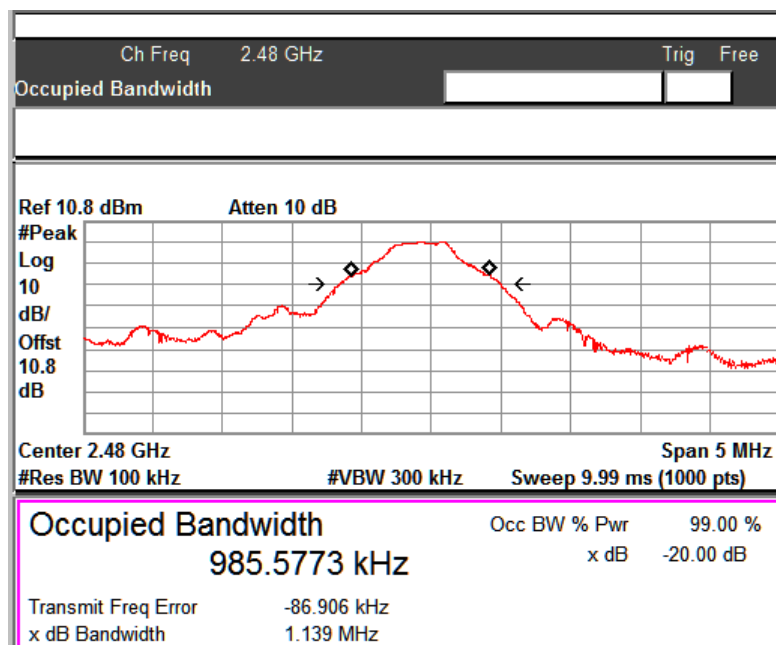
**1 Mbps Channel high**



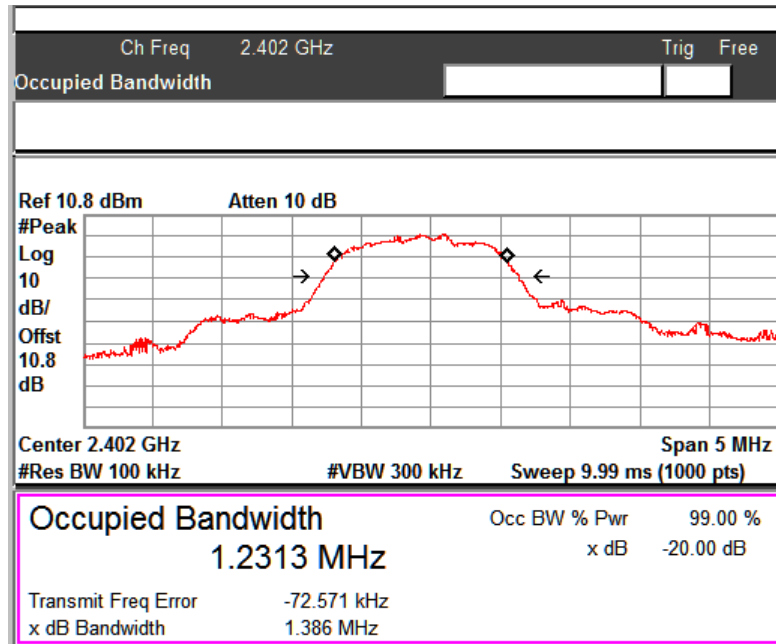
**2 Mbps Channel low**



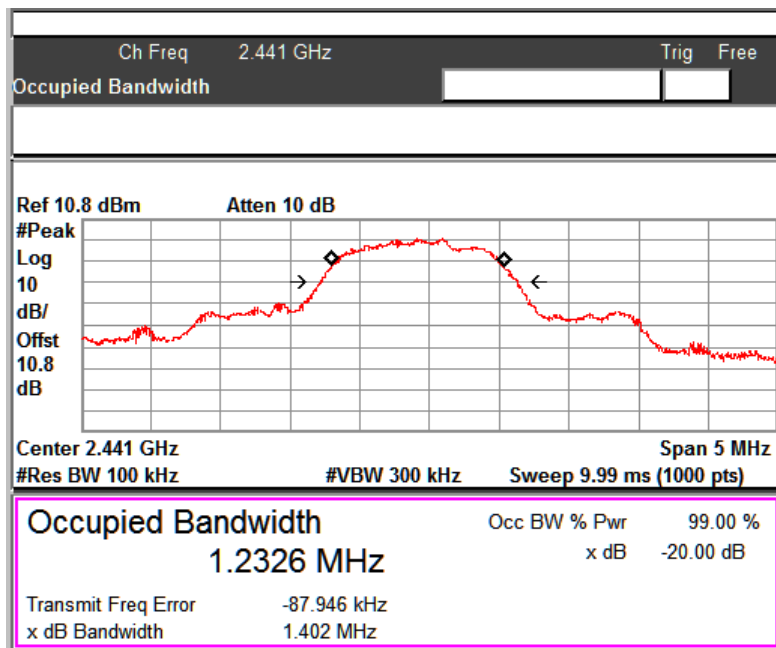
**2 Mbps Channel mid**



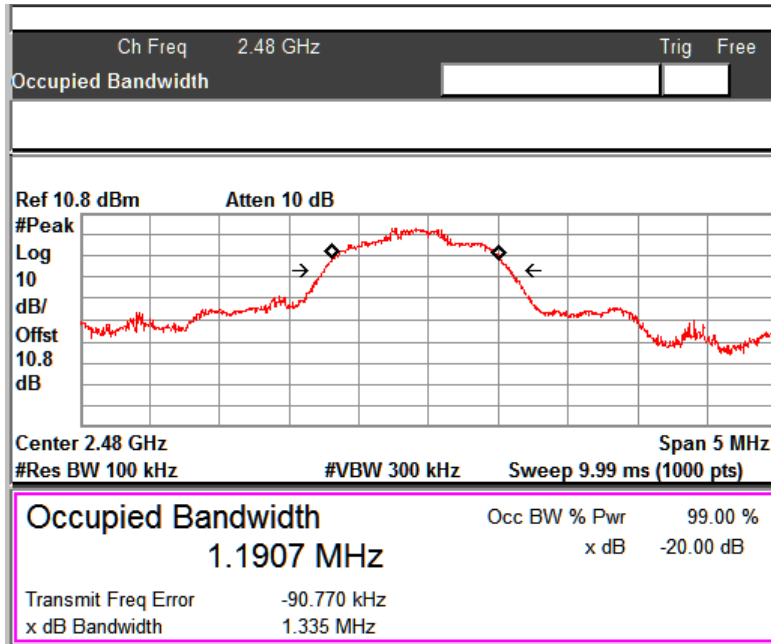
**2 Mbps Channel high**



**3 Mbps Channel low**



**3 Mbps Channel mid**



**3 Mbps Channel high**



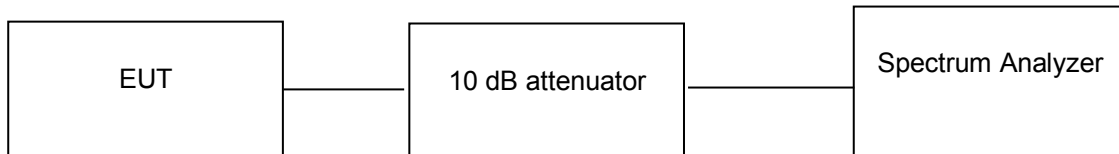
**Number of Hopping Channels**

**Result**

**Pass**

Test Specification	FCC Part 15 Subpart C Section 15.247 (a) (1)
Detector Function	Peak
Port of testing	Antenna port
Requirement	Frequency hopping systems operating in the band 2400-2483.5 MHz shall use at least 15 hopping channels

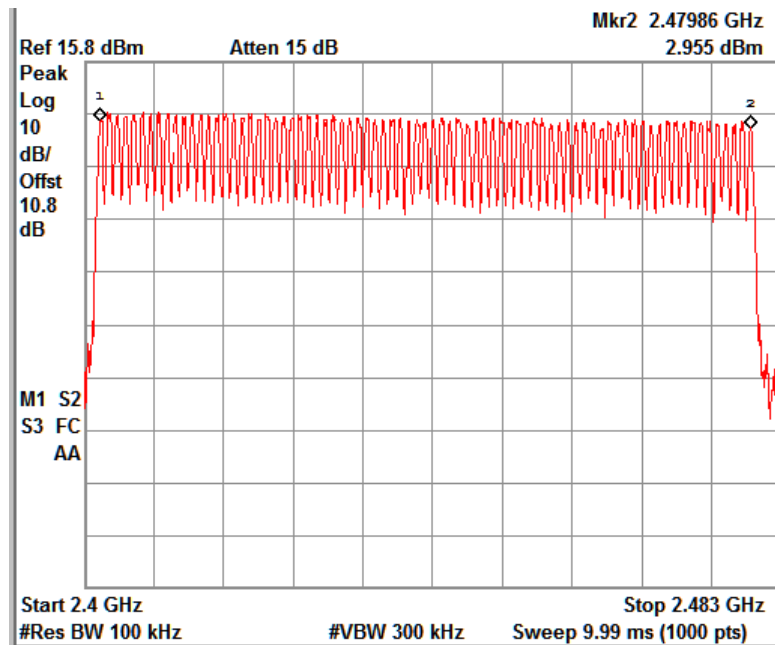
**Test Method:**



Note: Measurements are done as per FCC / DA-00-705, Filing and Measurement Guidelines for 15.247 Frequency Hopping Spread Spectrum (FHSS) Systems Mar.30, 2000 mentioned in ANSI C63.10-2013.

10 dB attenuator + 0.8 Cable loss = 10.8 dB offset is considered in below result

**Test results:**



**Total Number of hopping channels = 79**

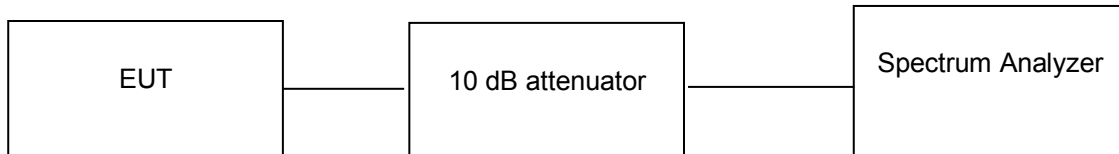
**Carrier Frequency Separation**

**Result**

**Pass**

Test Specification	FCC Part 15 Subpart C Section 15.247 (a) (1)
Detector Function	Peak
Port of testing	Antenna port
Requirement	Frequency hopping systems shall have hopping channel carrier frequency separated by a minimum of 25kHz or the 20dB bandwidth of the hopping channel, whichever is greater

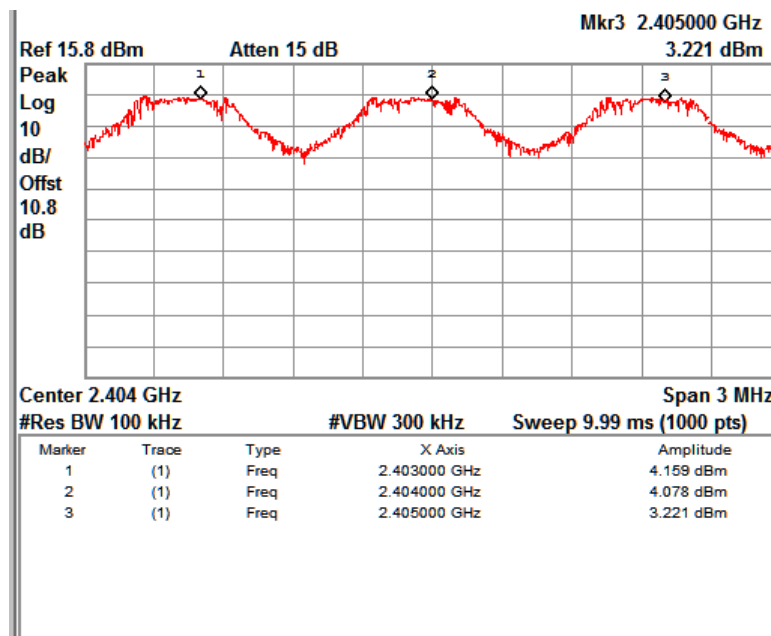
**Test Method:**



Note: Measurements are done as per FCC / DA-00-705, Filing and Measurement Guidelines for 15.247 Frequency Hopping Spread Spectrum (FHSS) Systems Mar.30, 2000 mentioned in ANSI C63.10-2013.

10 dB attenuator + 0.8 Cable loss = 10.8 dB offset is considered in below result

**Test results:**



**Channel Separation**

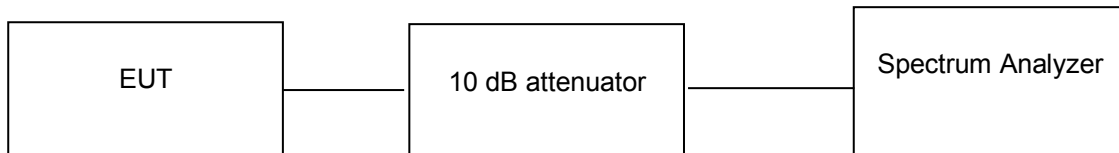
**Time of Occupancy (Dwell Time)**

**Result**

**Pass**

Test Specification	FCC Part 15 Subpart C Section 15.247 (a) (1)
Detector Function	Peak
Port of testing	Antenna port
Requirement	The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Transmissions on particular hopping frequencies may be avoided or suppressed provided that a minimum of 15 hopping channels are used.

**Test Method:**



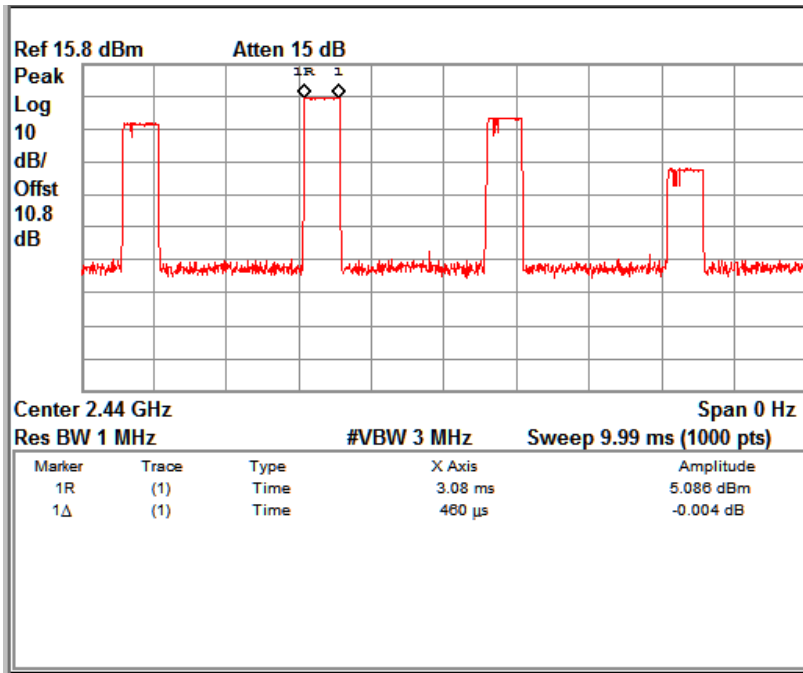
**Test Result:**

Time slot		Time Slot (s)
DH	Measurement Value (sec)	
DH5	0.00046	0.049
2DH5	0.00285	0.303
3DH5	0.00287	0.306

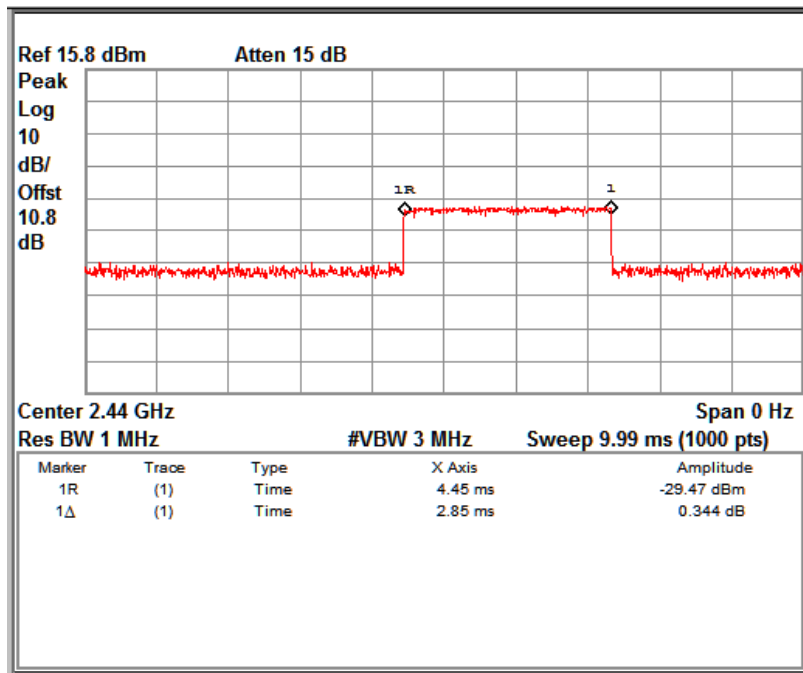
**Measurement Method**

Period Time = 0.4(sec)\*79 (hopping channel) = 31.6 s

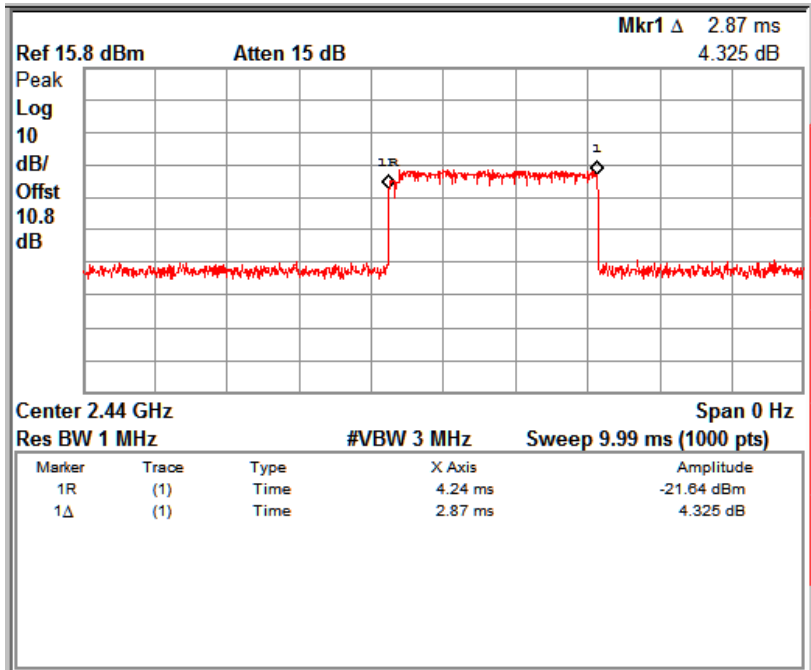
DH Time slot = Measurement value (Sec)\*(1600/ (6\*79))\*Period time



DH5



2DH5



3DH5

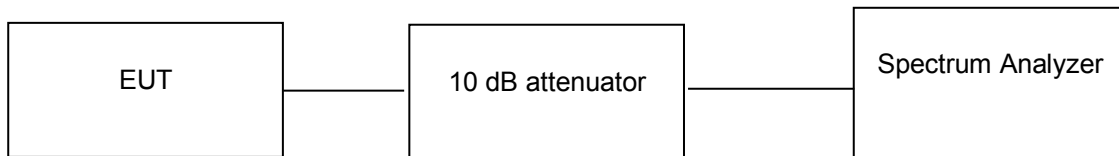
**Band- edge Compliance of RF Conducted Emissions**

**Result**

**Pass**

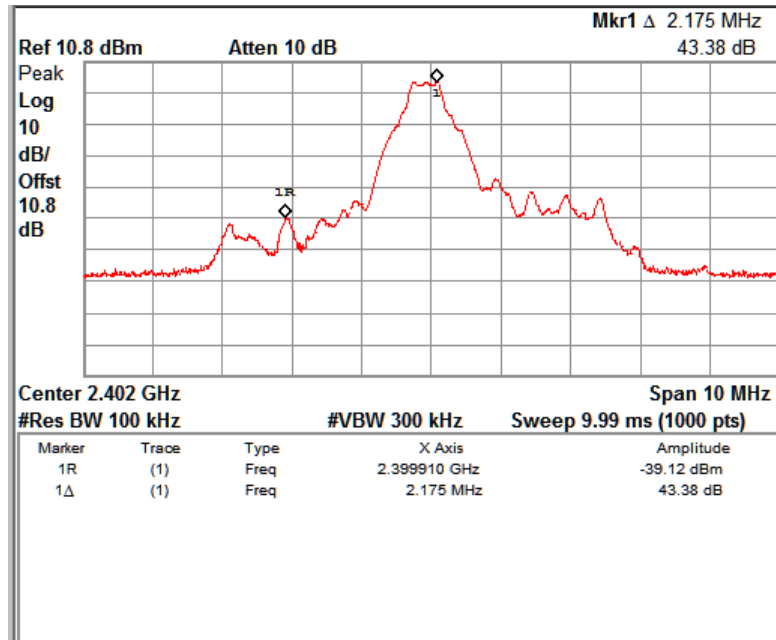
Test Specification                      FCC Part 15 Subpart C Section 15.247 (a) (1)  
 Detector Function                      Peak  
 Port of testing                          Antenna port  
 Requirement                          In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz 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.

**Test Method:**

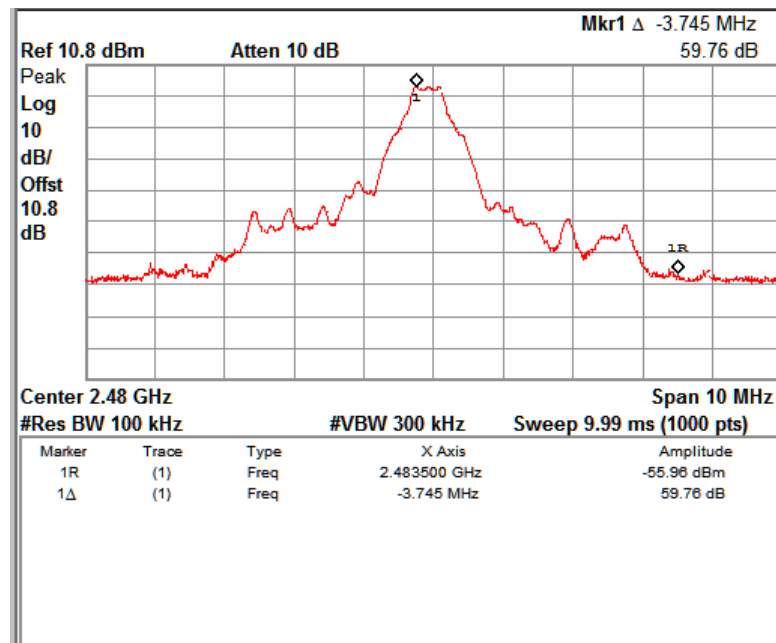


**Test Result:**

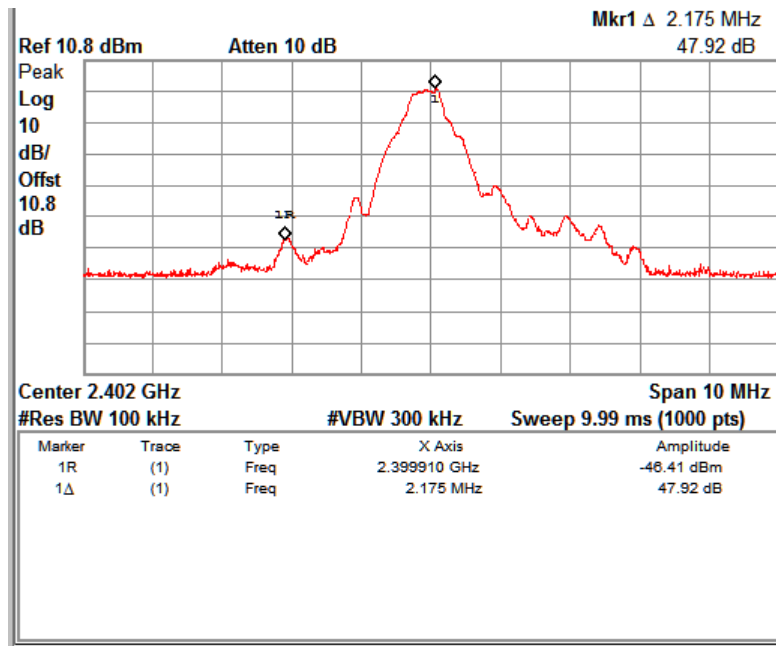
Modulation type	Channel	Fundamental Frequency (MHz)	Value at Band Edge		Limit (dB)
			Frequency (MHz)	Value (dB)	
1 Mbps	Low	2402	2399.9	-43.38	-20
	High	2480	2483.5	-59.76	-20
2 Mbps	Low	2402	2399.9	-47.92	-20
	High	2480	2483.5	-59.37	-20
3 Mbps	Low	2402	2399.9	-43.32	-20
	High	2480	2483.5	-59.66	-20



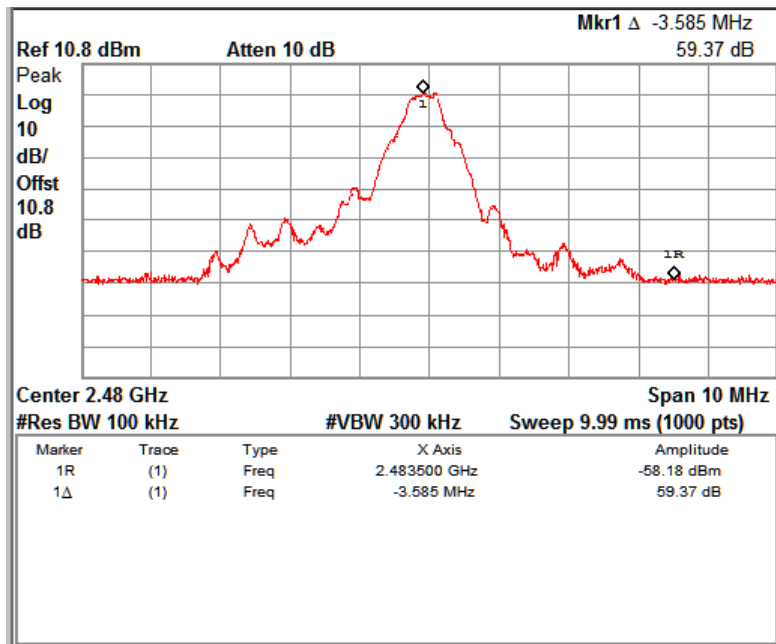
**1 Mbps Channel low**



**1 Mbps Channel high**

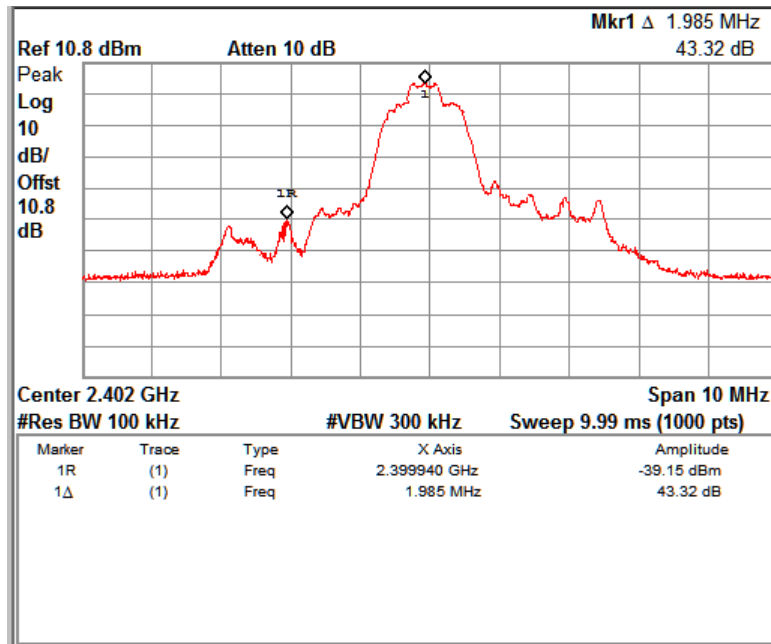


2 Mbps Channel low

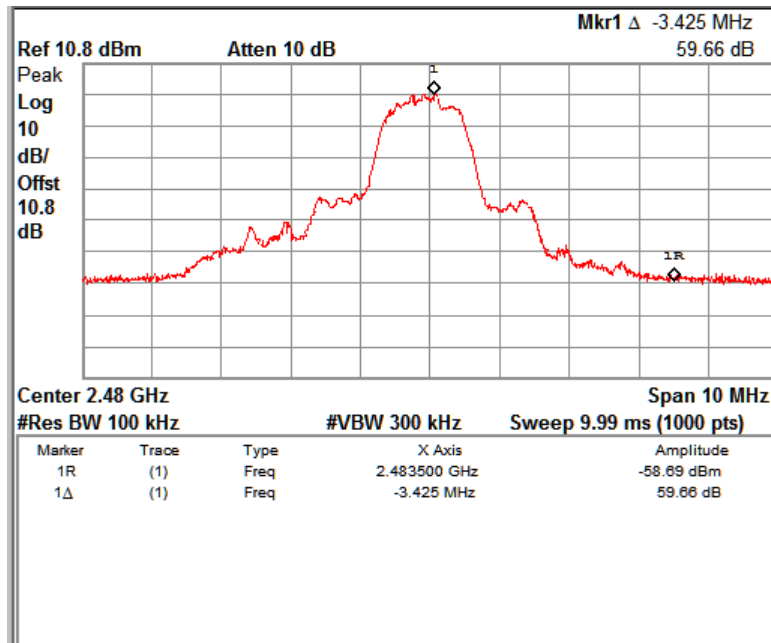


2 Mbps Channel high



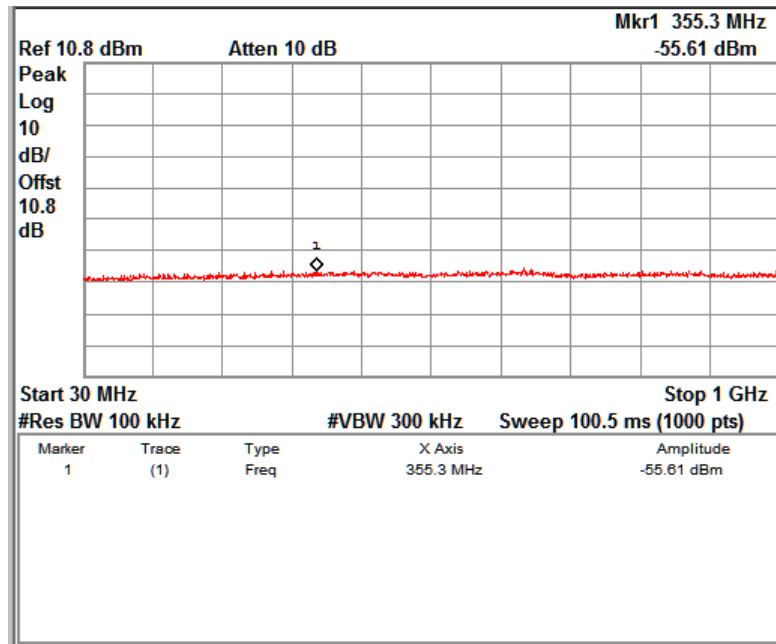


**3 Mbps Channel low**

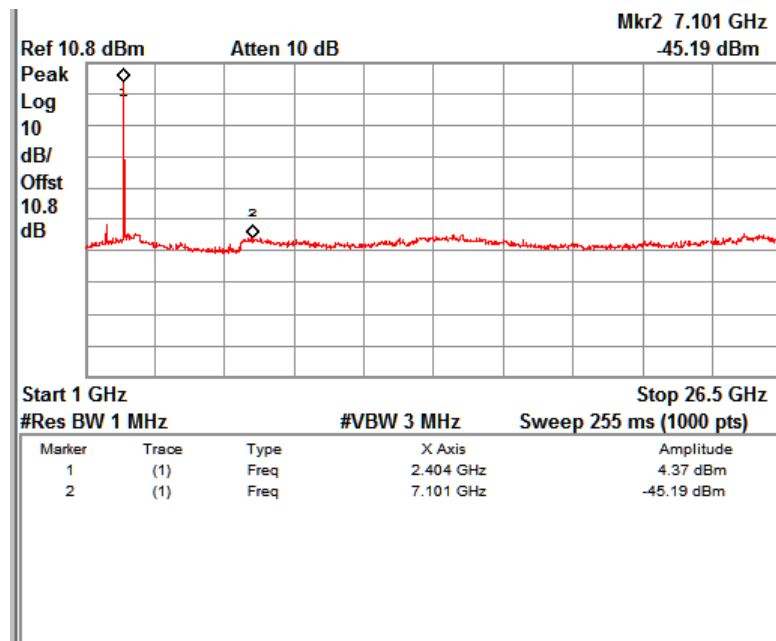


**3 Mbps Channel high**

**Conducted Spurious Emissions**



**30MHz to 1GHz Spurious Emissions**



**1 GHz to 26.5 GHz Spurious Emissions**

**Restricted bands of Emissions & Restricted Bands of Operation****Result****Pass**

Test Specification	FCC part 15 Subpart C Section 15.247 (d) / (15.209 & 15.205)
Test Method	ANSI C 63.10 – 2013
Measurement Location	Semi Anechoic Chamber
Measuring Distance	3 m
Detector	QP for frequency below 1 GHz, average for frequency above 1 GHz
Requirement	As per the limits mentioned in the below table

**Table 8: Transmitter limits for Radiated emission of Section 15.209**

Frequency (MHz)	Field strength ( $\mu\text{V}/\text{m}$ )	Field strength ( $\text{dB}\mu\text{V}/\text{m}$ )	Distance of Measurement (m)
0.009 – 0.490	2400/F(kHz)	48.50 – 13.80	300*
0.490 – 1.705	24000/F(kHz)	33.80 – 23.00	30*
1.705 -30	30	29.54	30*
30-88	100	40.0	3
88-216	150	43.5	3
216-960	200	46.0	3
Above 960	500	54.0	3

Remark: \* The limit shows in the table above of frequency range 0.009 – 0.490, 0.490 – 1.705 MHz and 1.705-30MHz is at 300 meter, 30 meter and 30 meter range respectively, which corresponds to 128.51 – 93.80, 73.80 – 62.96 and 69.54  $\text{dB}\mu\text{V}/\text{m}$  at 3m range by extrapolation calculation and the measurement of loop antenna.

The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz Radiated emission limits in these three bands are based on measurements employing an average detector.

**Test Conditions:**

Supply Voltage: 5VDC from Power adaptor

**Environmental conditions:**

Temperature: +24.5 °C    RH: 61.9 %

**Test results:**

No emissions found in frequency 9 kHz to 30 MHz

**Test results for frequencies in the range 30 MHz - 200 MHz****Adapter 1 with Battery 1 combination**

Polarization	Frequency (MHz)	Measured value (dBuV/m)	Limit (dBuV/m)	Margin (dB)
V	30.09	33	40	-7.00
	123.02	34.37	43.5	-09.13
H	30.87	32.42	40	-07.58
	124.28	32.77	43.5	-10.73

**Adapter 1 with Battery 2 combination**

Polarization	Frequency (MHz)	Measured value (dBuV/m)	Limit (dBuV/m)	Margin (dB)
V	38.84	27.82	40	-12.18
	123	35.77	43.5	-07.73
H	35.45	22	40	-18.00
	124.29	35.06	43.5	-08.44

**Adapter 2 with Battery 1 combination**

Polarization	Frequency (MHz)	Measured value (dBuV/m)	Limit (dBuV/m)	Margin (dB)
V	33.21	27.76	40	-12.24
	123	35.88	43.5	-07.62
H	34.11	21.23	40	-18.77
	124.29	35.18	43.5	-08.32

**Adapter 2 with Battery 2 combination**

Polarization	Frequency (MHz)	Measured value (dBuV/m)	Limit (dBuV/m)	Margin (dB)
V	36.25	26.92	40	-13.08
	123	35.91	43.5	-07.59
H	30.62	23.77	40	-16.23
	123	34.74	43.5	-08.76

## Test results for frequencies in the range 200 MHz to 1 GHz

## Adapter 1 with Battery 1 combination

Polarization	Frequency (MHz)	Measured value (dBuV/m)	Limit (dBuV/m)	Margin (dB)
V	684.84	39.2	46	-6.8
	802.7	40.41	46	-5.59
H	600.74	36.83	46	-9.17
	762.93	40.81	46	-5.19

## Adapter 1 with Battery 2 combination

Polarization	Frequency (MHz)	Measured value (dBuV/m)	Limit (dBuV/m)	Margin (dB)
V	270.16	27.6	46	-18.4
	797.76	40.67	46	-5.33
H	239.92	30.86	46	-15.14
	795.04	41.81	46	-4.19

## Adapter 2 with Battery 1 combination

Polarization	Frequency (MHz)	Measured value (dBuV/m)	Limit (dBuV/m)	Margin (dB)
V	203.65	34.73	43.5	-8.77
	779.51	40.72	46	-5.28
H	207.51	41.35	43.5	-2.00
	824.23	40.75	46	-5.25

## Adapter 2 with Battery 2 combination

Polarization	Frequency (MHz)	Measured value (dBuV/m)	Limit (dBuV/m)	Margin (dB)
V	203.68	34.77	43.5	-8.73
	779.52	40.75	46	-5.25
H	207.52	41.38	43.5	-2.12
	824.24	40.77	46	-5.23

**Test results for the frequencies in the range 1 GHz to 26.5 GHz.**

Data Rate: 1 Mbps

Channel Frequency(MHz)	Polarization	Measured Frequency (MHz)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2402	Vertical	2390(Pk)	37.86	74	-36.14
		2390(Av)	25.99	54	-28.01
		2402(Pk)	88.53	-	*
		2402(Av)	79.86	-	*
		4804(Pk)	53.89	74	-20.11
		4804(Av)	42.5	54	-11.5
	Horizontal	2390(Pk)	37.69	74	-36.31
		2390(Av)	26.23	54	-27.77
		2402(Pk)	91.65	-	*
		2402(Av)	82.77	-	*
		4804(Pk)	50.73	74	-23.27
		4804(Av)	38.64	54	-15.36
2441	Vertical	2441(Pk)	87.27	-	*
		2441(Av)	78.3	-	*
		4882(Pk)	55.2	74	-18.8
		4882(Av)	44.31	54	-9.69
	Horizontal	2441(Pk)	90.58	-	*
		2441(Av)	81.85	-	*
		4882(Pk)	51.28	74	-22.72
		4882(Av)	38.82	54	-15.18
2480	Vertical	2480(Pk)	86.36	-	*
		2480(Av)	77.75	-	*
		4960(Pk)	55.95	74	-18.05
		4960(Av)	43.64	54	-10.36
		2483.5(Pk)	38.48	74	-35.52
		2483.5(Av)	26.35	54	-27.65
	Horizontal	2480(Pk)	91.7	-	*
		2480(Av)	82.62	-	*
		4960(Pk)	54.3	74	-19.7
		4960(Av)	42.49	54	-11.51
		2483.5(Pk)	39.08	74	-34.92
		2483.5(Av)	26.52	54	-27.48

**Data Rate: 2 Mbps**

Channel Frequency(MHz)	Polarization	Measured Frequency (MHz)	Field Strength (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)
2402	Vertical	2390(Pk)	38.34	74	-35.66
		2390(Av)	26.23	54	-27.77
		2402(Pk)	81.56	-	*
		2402(Av)	72.68	-	*
		4804(Pk)	51.65	74	-22.35
		4804(Av)	39.51	54	-14.49
	Horizontal	2390(Pk)	38.32	74	-35.68
		2390(Av)	26.38	54	-27.62
		2402(Pk)	89.15	-	*
		2402(Av)	80.45	-	*
		4804(Pk)	50.31	74	-23.69
		4804(Av)	37.42	54	-16.58
2441	Vertical	2441(Pk)	85.16	-	*
		2441(Av)	76.36	-	*
		4882(Pk)	51.75	74	-22.25
		4882(Av)	38.94	54	-15.06
	Horizontal	2441(Pk)	90.44	-	*
		2441(Av)	81.7	-	*
		4882(Pk)	50.17	74	-23.83
		4882(Av)	37.31	54	-16.69
2480	Vertical	2480(Pk)	81.85	-	*
		2480(Av)	72.52	-	*
		4960(Pk)	50.07	74	-23.93
		4960(Av)	38.32	54	-15.68
		2483.5(Pk)	38.29	74	-35.71
		2483.5(Av)	26.15	54	-27.85
	Horizontal	2480(Pk)	87.56	-	*
		2480(Av)	78.62	-	*
		4960(Pk)	51.21	74	-22.79
		4960(Av)	36.33	54	-17.67
		2483.5(Pk)	37.86	74	-36.14
		2483.5(Av)	26.41	54	-27.59

**Data Rate: 3 Mbps**

Channel Frequency(MHz)	Polarization	Measured Frequency (MHz)	Field Strength (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)
2402	Vertical	2390(Pk)	37.87	74	-36.13
		2390(Av)	26.8	54	-27.2
		2402(Pk)	84.85	-	*
		2402(Av)	81.07	-	*
		4804(Pk)	51.58	74	-22.42
		4804(Av)	39.72	54	-14.28
	Horizontal	2390(Pk)	38.22	74	-35.78
		2390(Av)	26.92	54	-27.08
		2402(Pk)	91.34	-	*
		2402(Av)	87.73	-	*
		4804(Pk)	50.25	74	-23.75
		4804(Av)	37.86	54	-16.14
2441	Vertical	2441(Pk)	82.97	-	*
		2441(Av)	79.87	-	*
		4882(Pk)	53.66	74	-20.34
		4882(Av)	41.58	54	-12.42
	Horizontal	2441(Pk)	87.69	-	*
		2441(Av)	83.97	-	*
		4882(Pk)	50.93	74	-23.07
		4882(Av)	38.23	54	-15.77
2480	Vertical	2480(Pk)	83.1	-	*
		2480(Av)	79.52	-	*
		4960(Pk)	51.69	74	-22.31
		4960(Av)	40.92	54	-13.08
		2483.5(Pk)	38.54	74	-35.46
		2483.5(Av)	26.38	54	-27.62
	Horizontal	2480(Pk)	86.61	-	*
		2480(Av)	82.9	-	*
		4960(Pk)	50.73	74	-23.27
		4960(Av)	38.41	54	-15.59
		2483.5(Pk)	38.23	74	-35.77
		2483.5(Av)	26.65	54	-27.35



**Conducted Emission Test on A.C. Power Line**
**Result**
**Pass**

Test Specification : FCC Part 15 Section 15.207  
 Test Method : ANSI C63.10-2013  
 Testing Location : Screened room  
 Measurement Bandwidth : 9kHz  
 Frequency Range : 150kHz – 30MHz  
 Supply Voltage : 120VAC,60Hz

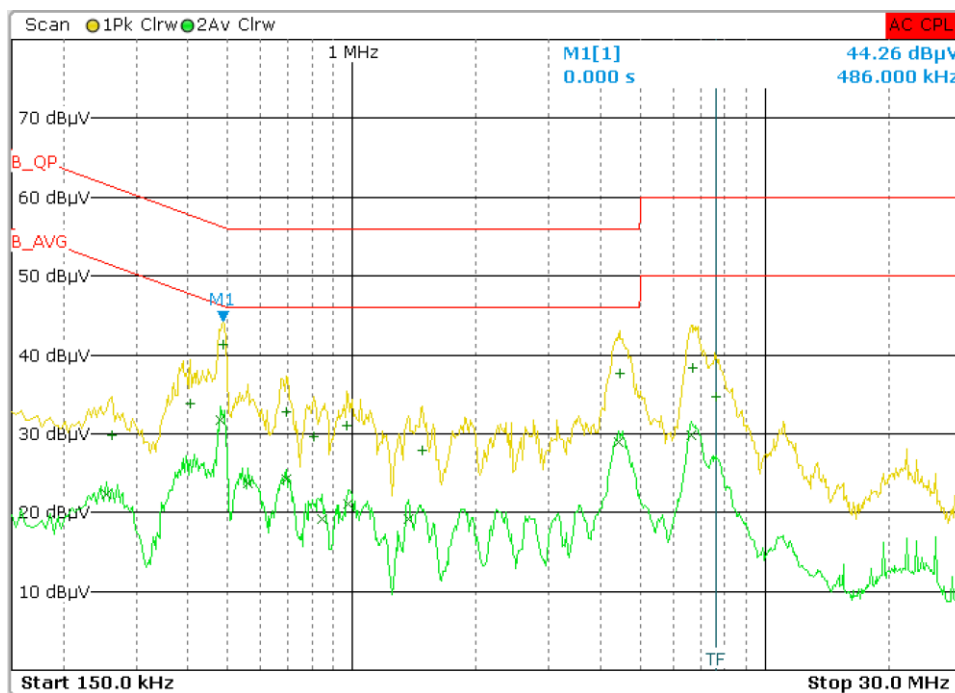
**Limit of section 15.207**

Frequency of emission (MHz)	QP Limit (dB $\mu$ V)	AV Limit (dB $\mu$ V/m)
0.15 – 0.5	66 – 56*	56 – 46*
0.5 – 5	56	46
5 – 30	60	50

\* Decreases with the logarithm of the frequency

**Test Result: LINE Graphs and Tables**

**110v AC , 60Hz - Adapter 1 with Battery 1 combination**

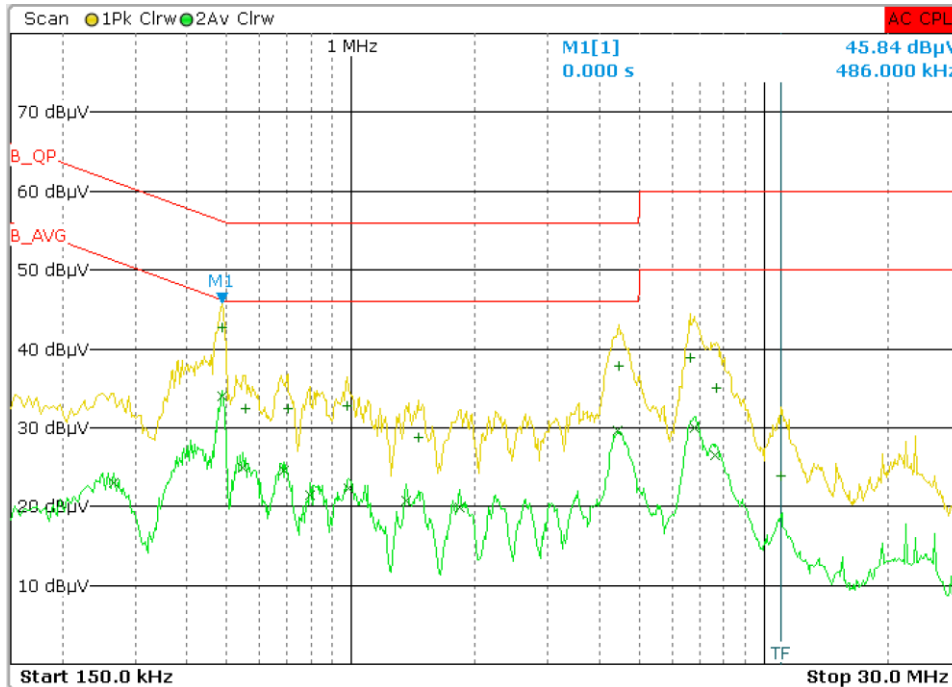


**Line Graph**

Detector	Frequency	Level (dBµV)	Limit (dBµV)	Margin (dB)
Quasi Peak	262.00 kHz	29.73	61.25	-31.52
Quasi Peak	406.00 kHz	33.81	57.52	-23.71
Quasi Peak	486.00 kHz	41.36	55.99	-14.63
Quasi Peak	694.00 kHz	32.77	56.00	-23.23
Quasi Peak	810.00 kHz	29.7	56.00	-26.3
Quasi Peak	974.00 kHz	30.94	56.00	-25.06
Quasi Peak	1.478 MHz	27.91	56.00	-28.09
Quasi Peak	4.442 MHz	37.58	56.00	-18.42
Quasi Peak	6.670 MHz	38.27	60.00	-21.73
Quasi Peak	7.622 MHz	34.72	60.00	-25.28
Average	254.00 kHz	22.25	51.51	-29.26
Average	482.00 kHz	31.75	46.06	-14.31
Average	558.00 kHz	23.71	46.00	-22.29
Average	694.00 kHz	24.14	46.00	-21.86
Average	846.00 kHz	19.11	46.00	-26.89
Average	982.00 kHz	21.11	46.00	-24.89
Average	1.370 MHz	19.12	46.00	-26.88
Average	4.438 MHz	28.91	46.00	-17.09
Average	6.650 MHz	29.76	50.00	-20.24

**Line Table**

**110v AC , 60Hz - Adapter 1 with Battery 2 combination**

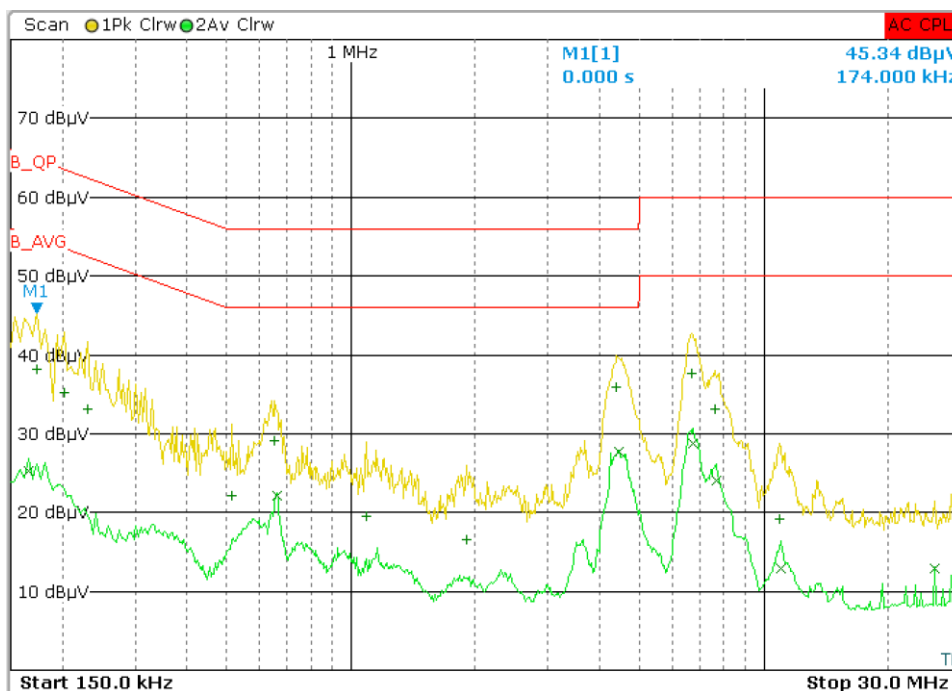


**Line Graph**

Detector	Frequency	Level (dBµV)	Limit (dBµV)	Margin (dB)
Quasi Peak	486.00 kHz	42.72	55.99	-13.27
Quasi Peak	554.00 kHz	32.40	56	-23.6
Quasi Peak	702.00 kHz	32.36	56	-23.64
Quasi Peak	982.00 kHz	32.83	56	-23.17
Quasi Peak	1.45 MHz	28.69	56	-27.31
Quasi Peak	4.44 MHz	37.85	56	-18.15
Quasi Peak	6.61 MHz	38.82	60	-21.18
Quasi Peak	7.68 MHz	34.95	60	-25.05
Quasi Peak	10.97 MHz	23.87	60	-36.13
Average	266.00 kHz	23.00	51.12	-28.12
Average	486.00 kHz	33.92	45.99	-12.07
Average	546.00 kHz	24.93	46	-21.07
Average	690.00 kHz	24.59	46	-21.41
Average	690.00 kHz	24.56	46	-21.44
Average	794.00 kHz	21.38	46	-24.62
Average	990.00 kHz	22.25	46	-23.75
Average	1.36 MHz	20.80	46	-25.2
Average	1.83 MHz	19.95	46	-26.05
Average	4.43 MHz	29.64	46	-16.36
Average	6.78 MHz	30.04	50	-19.96
Average	7.63 MHz	26.44	50	-23.56

**Line Table**

**110v AC , 60Hz - Adapter 2 with Battery 1 combination**

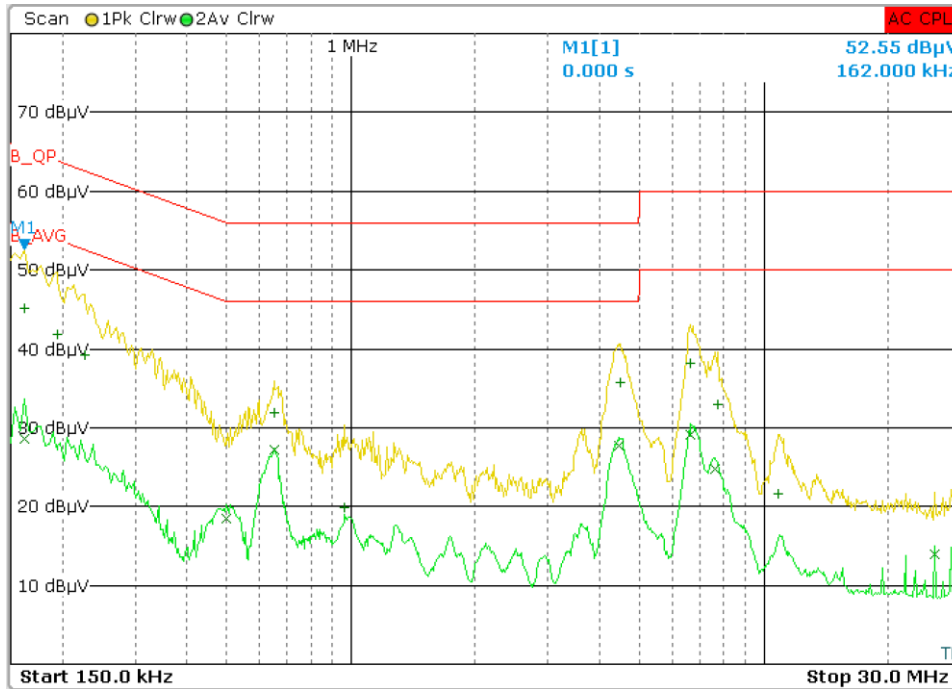


**Line Graph**

Detector	Frequency	Level (dBµV)	Limit (dBµV)	Margin (dB)
Quasi Peak	174.00 kHz	38.14	64.73	-26.59
Quasi Peak	202.00 kHz	35.25	63.46	-28.21
Quasi Peak	230.00 kHz	33.15	62.36	-29.21
Quasi Peak	514.00 kHz	22.08	56.00	-33.92
Quasi Peak	654.00 kHz	29.03	56.00	-26.97
Quasi Peak	1.09 MHz	19.52	56.00	-36.48
Quasi Peak	1.90 MHz	16.60	56.00	-39.4
Quasi Peak	4.39 MHz	35.82	56.00	-20.18
Quasi Peak	6.70 MHz	37.56	60.00	-22.44
Quasi Peak	7.60 MHz	33.20	60.00	-26.8
Quasi Peak	10.90 MHz	19.21	60.00	-40.79
Average	166.00 kHz	25.29	55.13	-29.84
Average	662.00 kHz	22.12	46.00	-23.88
Average	4.46 MHz	27.71	46.00	-18.29
Average	6.75 MHz	28.69	50.00	-21.31
Average	7.65 MHz	24.00	50.00	-26.00
Average	10.96 MHz	12.93	50.00	-37.07
Average	25.88 MHz	12.88	50.00	-37.12
Average	29.77 MHz	15.81	50.00	-34.19

**Line Table**

**110v AC , 60Hz - Adapter 2 with Battery 2 combination**



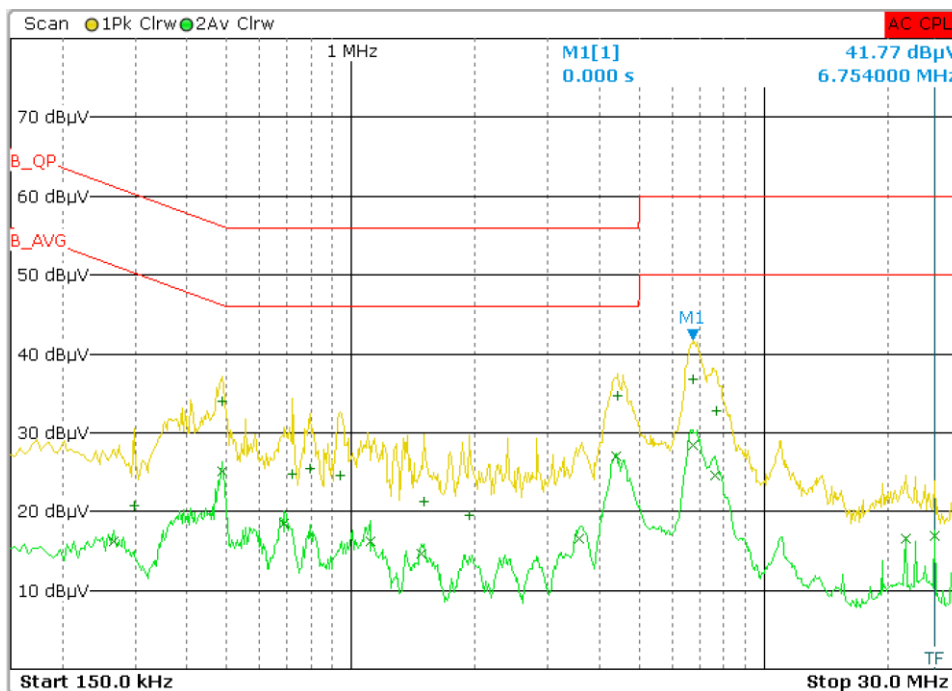
**Line Graph**

Detector	Frequency	Level (dBµV)	Limit (dBµV)	Margin (dB)
Quasi Peak	162.00 kHz	45.08	65.34	-20.26
Quasi Peak	194.00 kHz	41.91	63.81	-21.9
Quasi Peak	226.00 kHz	39.26	62.51	-23.25
Quasi Peak	650.00 kHz	31.95	56.00	-24.05
Quasi Peak	962.00 kHz	19.82	56.00	-36.18
Quasi Peak	4.48 MHz	35.67	56.00	-20.33
Quasi Peak	6.63 MHz	38.18	60.00	-21.82
Quasi Peak	7.73 MHz	32.91	60.00	-27.09
Quasi Peak	10.87 MHz	21.56	60.00	-38.44
Average	162.00 kHz	28.67	55.34	-26.67
Average	498.00 kHz	18.56	45.78	-27.22
Average	650.00 kHz	27.11	46.00	-18.89
Average	4.44 MHz	27.74	46.00	-18.26
Average	6.65 MHz	29.08	50.00	-20.92
Average	7.63 MHz	24.77	50.00	-25.23
Average	29.76 MHz	17.29	50.00	-32.71
Average	25.88 MHz	13.99	50.00	-36.01

**Line Table**

**NEUTRAL Graphs and Tables**

**110v AC , 60Hz - Adapter 1 with Battery 1 combination**

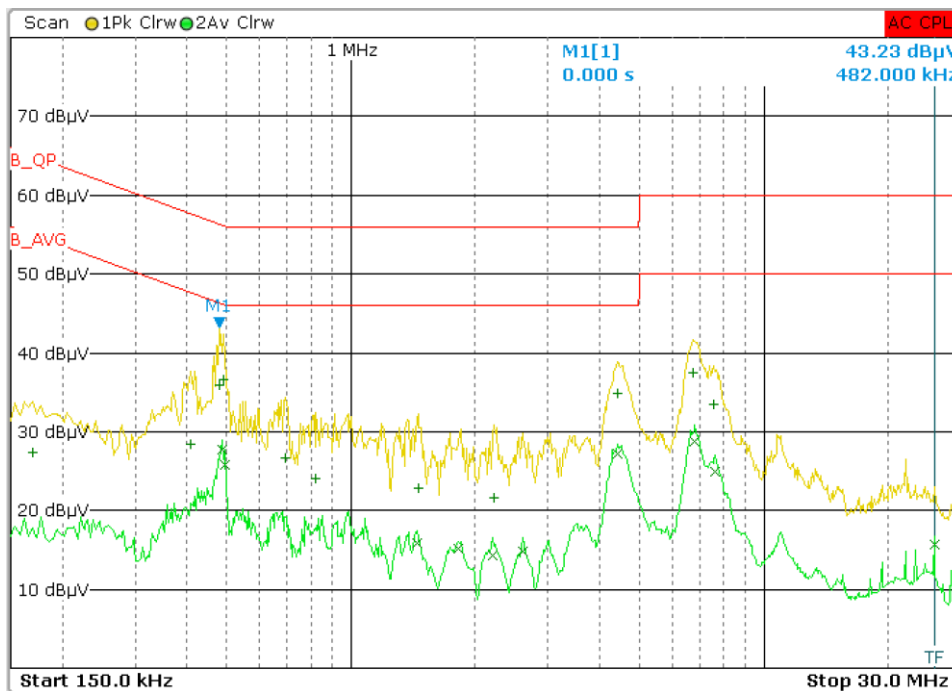


**Neutral Graph**

Detector	Frequency	Level (dBµV)	Limit (dBµV)	Margin (dB)
Quasi Peak	298.00 kHz	20.76	60.15	-39.39
Quasi Peak	486.00 kHz	34.06	55.99	-21.93
Quasi Peak	722.00 kHz	24.8	56.00	-31.2
Quasi Peak	794.00 kHz	25.43	56.00	-30.57
Quasi Peak	942.00 kHz	24.63	56.00	-31.37
Quasi Peak	1.502 MHz	21.21	56.00	-34.79
Quasi Peak	1.93 MHz	19.53	56.00	-36.47
Quasi Peak	4.42 MHz	34.65	56.00	-21.35
Quasi Peak	6.75 MHz	36.78	60.00	-23.22
Quasi Peak	7.68 MHz	32.77	60.00	-27.23
Average	266.00 kHz	16.26	51.12	-34.86
Average	486.00 kHz	25.16	45.99	-20.83
Average	690.00 kHz	18.54	46.00	-27.46
Average	1.11 MHz	16.19	46.00	-29.81
Average	1.48 MHz	14.63	46.00	-31.37
Average	3.56 MHz	16.49	46.00	-29.51
Average	4.39 MHz	27.09	46.00	-18.91
Average	6.73 MHz	28.37	50.00	-21.63
Average	7.63 MHz	24.61	50.00	-25.39
Average	25.88 MHz	16.93	50.00	-33.07
Average	22.00 MHz	16.52	50.00	-33.48

**Neutral Table**

**110v AC , 60Hz - Adapter 1 with Battery 2 combination**

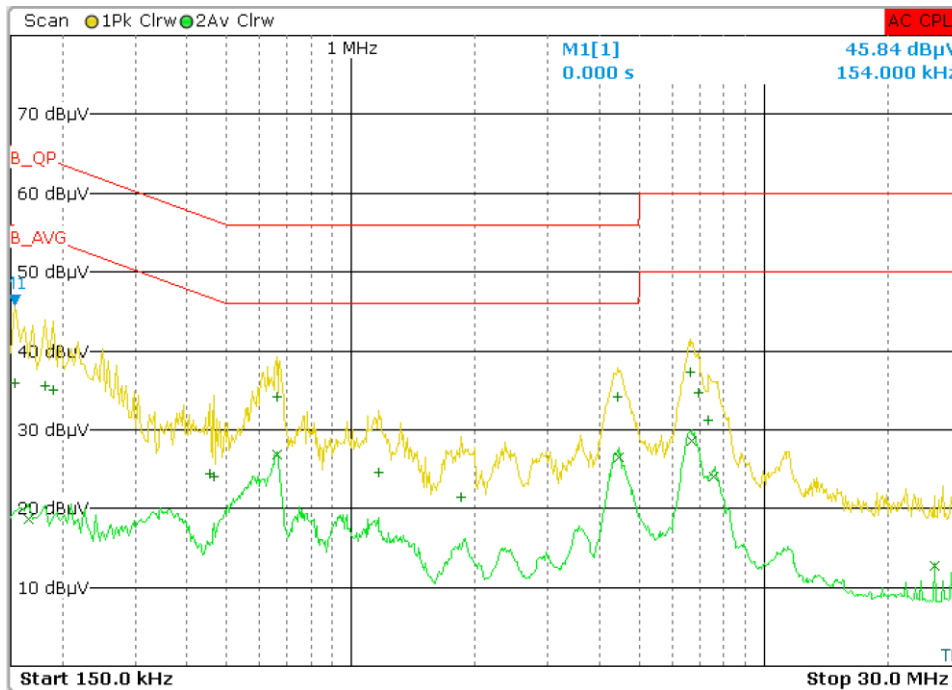


**Neutral Graph**

Detector	Frequency	Level (dBµV)	Limit (dBµV)	Margin (dB)
Quasi Peak	170.00 kHz	27.43	64.93	-37.5
Quasi Peak	410.00 kHz	28.49	57.44	-28.95
Quasi Peak	482.00 kHz	35.97	56.06	-20.09
Quasi Peak	490.00 kHz	36.56	55.92	-19.36
Quasi Peak	694.00 kHz	26.74	56.00	-29.26
Quasi Peak	822.00 kHz	24.08	56.00	-31.92
Quasi Peak	1.45 MHz	15.90	56.00	-40.1
Quasi Peak	2.22 MHz	21.69	56.00	-34.31
Quasi Peak	4.41 MHz	34.82	56.00	-21.18
Quasi Peak	6.75 MHz	37.44	60.00	-22.56
Quasi Peak	7.55 MHz	33.48	60.00	-26.52
Average	486.00 kHz	27.64	45.99	-18.35
Average	494.00 kHz	25.73	45.85	-20.12
Average	1.44 MHz	15.90	46.00	-30.1
Average	1.82 MHz	15.25	46.00	-30.75
Average	2.21 MHz	14.35	46.00	-31.65
Average	2.61 MHz	14.90	46.00	-31.1
Average	4.43 MHz	27.15	46.00	-18.85
Average	6.81 MHz	28.77	50.00	-21.23
Average	7.64 MHz	24.99	50.00	-25.01
Average	25.89 MHz	15.60	50.00	-34.4

**Neutral Table**

**110v AC , 60Hz - Adapter 2 with Battery 1 combination**



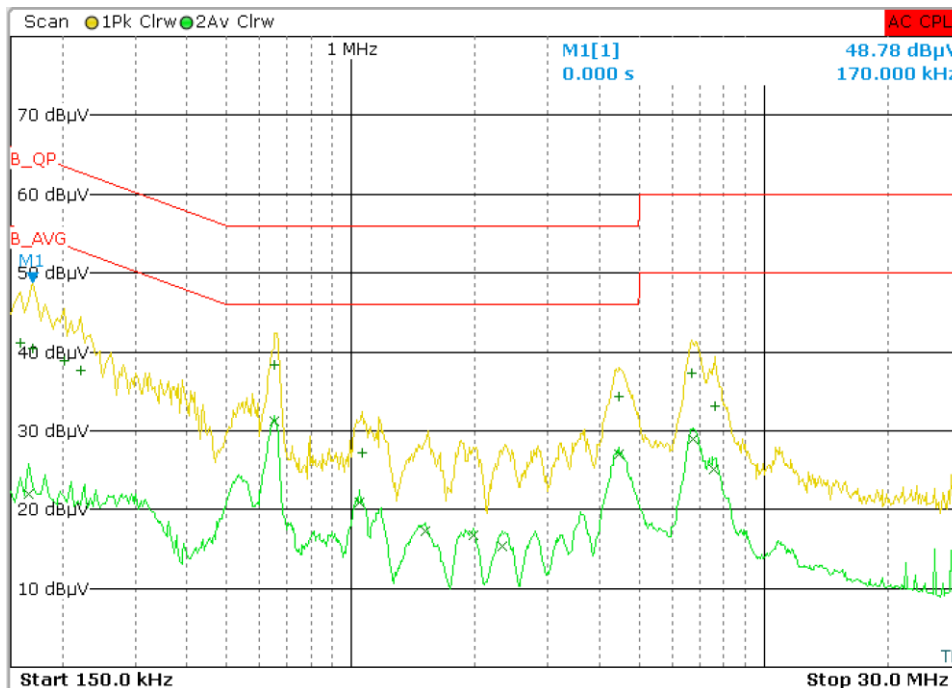
**Neutral Graph**

Detector	Frequency	Level (dBµV)	Limit (dBµV)	Margin (dB)
Quasi Peak	154.00 kHz	35.91	65.77	-29.86
Quasi Peak	182.00 kHz	35.50	64.35	-28.85
Quasi Peak	190.00 kHz	35.00	63.98	-28.98
Quasi Peak	454.00 kHz	24.39	56.57	-32.18
Quasi Peak	466.00 kHz	24.02	56.35	-32.33
Quasi Peak	662.00 kHz	34.22	56.00	-21.78
Quasi Peak	1.16 MHz	24.58	56.00	-31.42
Quasi Peak	1.84 MHz	21.49	56.00	-34.51
Quasi Peak	4.43 MHz	34.12	56.00	-21.88
Quasi Peak	6.61 MHz	37.37	60.00	-22.63
Quasi Peak	6.94 MHz	34.69	60.00	-25.31
Quasi Peak	7.35 MHz	31.17	60.00	-28.83
Average	166.00 kHz	18.57	55.13	-36.56
Average	662.00 kHz	26.84	46.00	-19.16
Average	4.44 MHz	26.54	46.00	-19.46
Average	6.67 MHz	28.57	50.00	-21.43
Average	7.53 MHz	24.01	50.00	-25.99
Average	25.88 MHz	12.74	50.00	-37.26
Average	29.77 MHz	15.66	50.00	-34.34

**Neutral Table**



**110v AC , 60Hz - Adapter 2 with Battery 2 combination**



**Neutral Graph**

Detector	Frequency	Level (dBµV)	Limit (dBµV)	Margin (dB)
Quasi Peak	158.00 kHz	41.16	65.55	-24.39
Quasi Peak	170.00 kHz	40.40	64.93	-24.53
Quasi Peak	202.00 kHz	38.88	63.46	-24.58
Quasi Peak	222.00 kHz	37.65	62.66	-25.01
Quasi Peak	654.00 kHz	38.43	56.00	-17.57
Quasi Peak	1.06 MHz	27.19	56.00	-28.81
Quasi Peak	4.45 MHz	34.28	56.00	-21.72
Quasi Peak	6.71 MHz	37.26	60.00	-22.74
Quasi Peak	7.63 MHz	33.19	60.00	-26.81
Average	166.00 kHz	21.88	55.13	-33.25
Average	654.00 kHz	31.23	46.00	-14.77
Average	1.05 MHz	20.94	46.00	-25.06
Average	1.51 MHz	17.30	46.00	-28.7
Average	1.98 MHz	16.71	46.00	-29.29
Average	2.31 MHz	15.28	46.00	-30.72
Average	4.44 MHz	26.95	46.00	-19.05
Average	6.75 MHz	28.89	50.00	-21.11
Average	7.57 MHz	25.05	50.00	-24.95
Average	29.76 MHz	12.90	50.00	-37.1

**Neutral Table**

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**\*\*\*END OF TEST REPORT\*\*\***