Prüfbericht – Produkte
Test Report - Products

Prüfbericht-Nr.: *Test report no.:*	ULR-TC568821300000016F	**Auftrags-Nr.:** *Order no.:*	166506457 0010	Seite 1 von 41 *Page 1 of 41*
Kunden-Referenz-Nr.: *Client reference no.:*	NA	**Auftragsdatum:** *Order date:*	2020-11-18	
Auftraggeber: *Client:*	Analog Devices Incorporated 9106, Norwood, Massachusetts, United States, 02062-9106			
Prüfgegenstand: *Test item:*	Cardio Pulmonary Management system			
Bezeichnung .: *Identification .:*	ADCP1100-WB	**Serien -Nr.:** *Serial no.:*	12345678901234567894	
Auftrags-Inhalt: *Order content:*	FCC Testing & Issue of Grant			
Prüfgrundlage: *Test specification:*	FCC Part 15 Subpart C section 15.247			
Wareneingangsdatum: *Date of sample receipt:*	2020.12.21			
Prüfmuster-Nr.: *Test sample no:*	A002973700-004 A002973700-005			
Prüfzeitraum: *Testing period:*	2021-01-04 - 2021-01-15			
Ort der Prüfung: *Place of testing:*	Wireless Test Laboratory			
Prüflaboratorium: *Testing laboratory:*	TÜV Rheinland (India) Pvt. Ltd, #27/B,2nd Cross Road, Electronic City Phase-1, Bengaluru-560100, India. FCC Test site registration number: 496599 ISED Test site registration number: 3466E-1			
Prüfergebnis*: *Test result*:*	Pass			

geprüft von: *tested by:*		**genehmigt von:** *authorized by:*	
Datum: *Date:* 2021-03-26		**Ausstellatum:** *Issue date:* 2021-03-26	
Stellung / *Position:*	**Madhu Karadekere Nagaraju** Senior Engineer	**Stellung** / *Position:*	**Mahammadgouse Kaladagi** Assistant Manager
Sonstiges / *Other:*	FCC ID: 2AZELADCP1P0WB		

Zustand des Prüfgegenstandes bei Anlieferung:
Condition of the test item at delivery:

Prüfmuster vollständig und unbeschädigt
Test item complete and undamaged

* Legende:	1 = sehr gut	2 = gut	3 = befriedigend	4 = ausreichend	5 = mangelhaft
	P(ass) = entspricht o.g. Prüfgrundlage(n)		F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	N/A = nicht anwendbar	N/T = nicht getestet
** Legend:*	*1 = very good*	*2 = good*	*3 = satisfactory*	*4 = sufficient*	*5 = poor*
	P(ass) = passed a.m. test specification(s)		*F(ail) = failed a.m. test specification(s)*	*N/A = not applicable*	*N/T = not tested*

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.
This test report only 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 test mark.
V05

TEST SUMMARY

Test Item	Applicable Standard	Result
	FCC	
Maximum conducted (Peak) output power	FCC 15.247(b)(3)	Pass
Maximum Power Spectral Density	FCC 15.247(e)	Pass
DTS Bandwidth	FCC 15.247(a)(2)	Pass
Emissions in non-restricted frequency bands	FCC 15.247(d)	Pass
Spurious Radiated Emissions and Restricted Bands of Operation	15.247 (d) / (15.209 & 15.205)	Pass
Conducted Spurious Emission on ac Power lines	FCC 15.207	Pass

Product Category: Electronics Testing
Test Discipline: EMC Test Facility

Note:

1. *N/T→ Not Tested
2. This device is operated with CPM base station model number (ADCP1100-BS), with FCC ID : 2AZELADCP1P0BS. However testing is performed as stand-alone configuration without using CPM base station device.
3. The product CPM werable is battery operated however measurements to demonstrate compliance with the conducted limits is performed becouse the product obtaine it‘s power through another device (CPM base station) which is connected to the AC power lines.

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1 GENERAL REMARKS

1.1 Attachments

All attachments are part of this test report and are issued in separate document

1. TEST SETUP PHOTOS
2. EUT EXTERNAL PHOTOS
3. EUT INTERNAL PHOTOS
4. FCC LABEL AND LABEL LOCATION
5. BLOCK DIAGRAM
6. SPECIFICATION OF EUT
7. SCHEMATIC DIAGRAMS
8. BILL OF MATERIAL
9. USER MANUAL
10. Maximum Permissible Exposure Information

2 TEST SITES

2.1 Testing Facilities

1. TÜV Rheinland (India) Pvt.Ltd.,
   27/B, 2nd Cross,
   ElectronicCityPhase1
   Bangalore – 560 100,
   India

2. TUV Rheinland (India) Pvt.Ltd.,
   108 , Beside ISBR Business School,
   Electronic city Phase I
   Bangalore - 560 100.
   India

2.2 List of Test and Measurement Instruments

Table 1: List of test and measurement instruments

Equipment	Manufacturer	Model Name	Serial Number	Firmware Versions	Calibration Due Date	Periodicity	Test Facility
EMI Receiver	Rohde & Schwarz	ESU 40	100288	4.43 SP3	09.06.2021	Yearly	Radiated Spurious Emission
Active loop antenna	Schwarzbeck	FMZB 1519 B	1519B-00111	-	28.03.2021	Yearly	
Baloon and Biconical Antenna	Schwarzbeck	VHBB-9124 / BBA-9106	01028	-	02.09.2021	Yearly	
Log Periodic Antenna	Schwarzbeck	VUSLP-9111B	9111B-111	-	31.08.2021	Yearly	
Horn Antenna	Schwarzbeck	BBHA 9120 D	9120D-1944	-	28.02.2021	Yearly	
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA 9170-0904	-	29.02.2021	Yearly	
Semi Anechoic Chamber	Frankonia	-	-	-	-	-	
Fully Anechoic Chamber	Albatross	-	-	-	-	-	
Spectrum Analyser	Agilent Technologies	E4407B	US41192772	A.14.06	10.08.2021	Yearly	Antenna - Port Measurements
Spectrum Analyser	Rohde & Schwarz	FSV7	101644	-	15.01.2022	Yearly	
RF Cable	H+S Electronics Pvt. Ltd	ST18/SMAm/SMAm/36	-	-	09.10.2021	Yearly	

Table 2: Instrument application Software versions

SL. No.	Test Type	Application software	Version
1	Radiated spurious emission measurement in SAC	EMC 32	10.60.00
2	Radiated spurious emission measurement in FAC	EMC 32	10.60.00

3 GENERAL PRODUCT INFORMATION

3.1 Product Function and Intended Use

The ADI At-Home CPM (Cardiopulmonary Management) System is intended for adults undergoing monitoring for cardiopulmonary conditions under the direction of a licensed medical professional to measure, record, and periodically transmit physiological data

The ADI At-Home CPM System monitors, derives, and displays:

- ECG (Computer generated analysis of potential patient cardiac abnormalities which must be confirmed by a physician with other relevant clinical information)
- Heart and Lung Auscultation Sounds
- Skin Temperature
- Thoracic Impedance (including Changes in Thoracic Impedance)
- Respiration Rate and relative changes in Tidal Volume
- Heart Rate
- Diastolic Heart Sounds Energy
- Body Position (including Tilt Angle

3.2 Ratings and System Details of Equipment under Test

Table 3: Ratings and System Details as declared by Client*

Radio Protocol		Bluetooth Low energy
Operating Frequency Range		2402MHz-2480MHz
No. of Channels		39
Channel Spacing		2MHz
Maximum Measured conducted power		-4.72dBm
Modulation		GPSK
Number of antennas		1
Antenna Gain		1.5dBi
Antenna Type		Ceramic
Supply Voltage to Product		3.7VDC (nominal) via Li-Ion battery
Environmental conditions	Storage	-10°C to 45°C
	Operating	0°C to 40°C
EUT Dimension (L X W X H) mm		(L)52.9 X (W)25.5 X (H)14.4mm

***Disclaimer**: The information/data is supplied by the client and the same is considered to arrive at the final value. Any changes made apart from the specified specification, can directly impact on the tests results. Refer the products user manual for more details.

3.3 Measurement Uncertainty:

Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of *k* = 2

Table 4: 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 ℃
Supply Voltages	±3 %
Time	±5 %

Note: The Listed Measurement Uncertainties are the worst-case uncertainty, for the respective test cases. Above Table is for reporting purpose only and not used in determining Final Pass/Fail verdict.

4 TEST SET-UP AND OPERATION MODE

4.1 Principle of Configuration Selection

Transmission was enabled with highest possible duty cycle transmission on low, mid and high channel of BLE.

4.2 Test Operation and Test Software

EUT Configuration and monitoring Software	: Dialog Smart Board Flash Programmer
EUT Configuration and monitoring Software Version	: 1.0.4
EUT Firmware name (FVIN)	: CHF_Firmware_Full_FCCTest
EUT Firmware version	: SDK 5.0.4
EUT Hardware Name & Number	: CPM Wearable device
HVIN	: 052182 Ver E

4.3 Special Accessories and Auxiliary Equipment

Test laptop for configuration

4.4 Countermeasures to achieve EMC Compliance

- None

.

4.5 List of frequencies

Frequency Band (GHz)	Channel No.	Frequency (MHz)
BLE (2.4-2.4835)	**0**	**2402**
	1	2404
	2	2406
	3	2408
	:	:
	:	:
	18	2438
	19	**2440**
	20	2442
	:	:
	:	:
	36	2474
	37	2476
	38	2478
	39	**2480**

Table 5: List of BLE Center frequencies

Channel used for BLE testing

Channel low : 2402MHz

Channel mid : 2440MHz

Channel High : 2480MHz

Note:

TUV Sample Identification number : A002973700-005 – Conducted

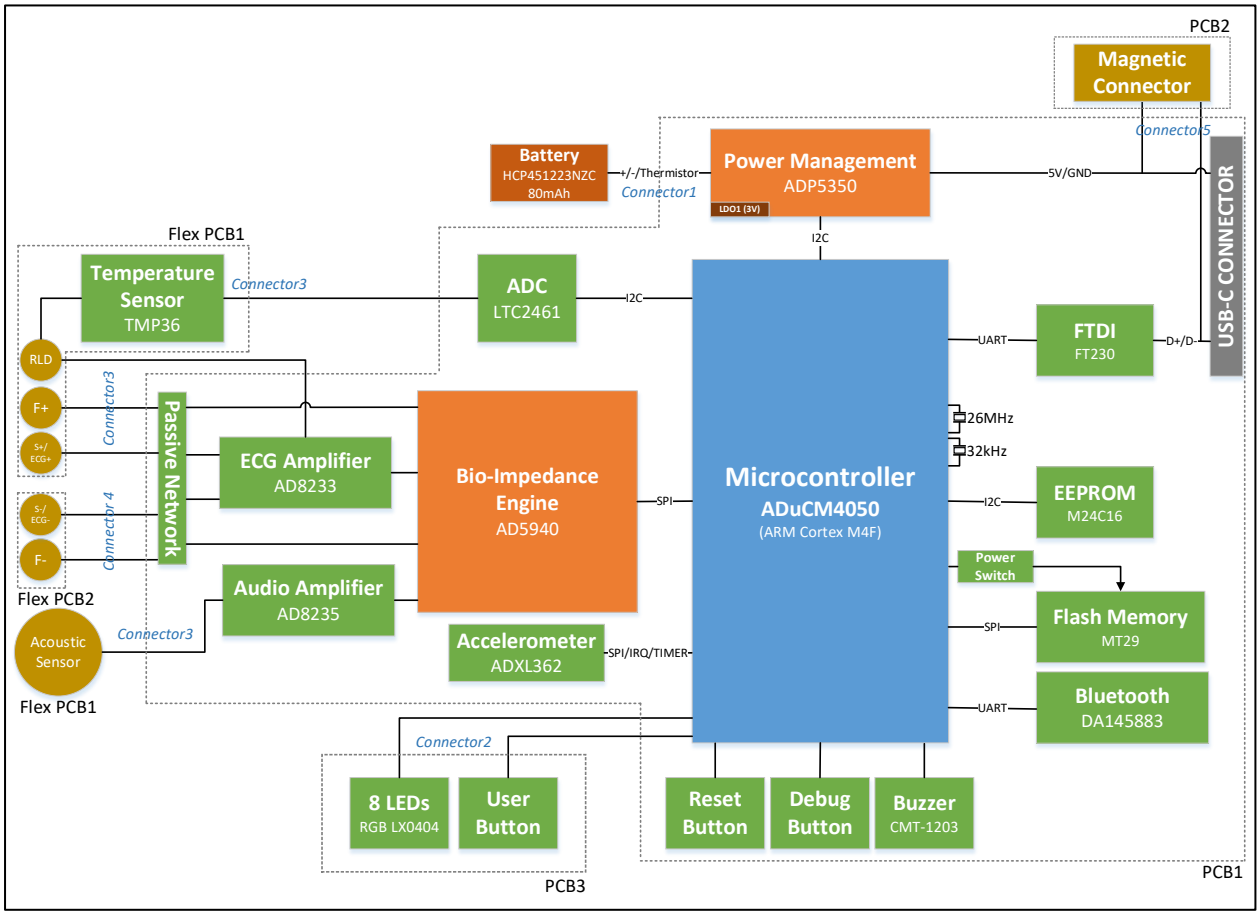
A002973700-004 -- Radiated Sample

5 Operational Description

Wearable device tracks patient's health and allow remote monitoring by a physician. The wearable device consists of disposable adhesive, electrodes, three PCBs, two flexible PCBs, a rechargeable battery, and an enclosure with a user interface button. Wearable device will connect to a CPM base station through a magnetic connector for charging and data transfer purposes.

The device is configured for a patient with the aid of the Mobile App. The Mobile App communicates with the wearable device over the BLE interface."

6 Block Diagram



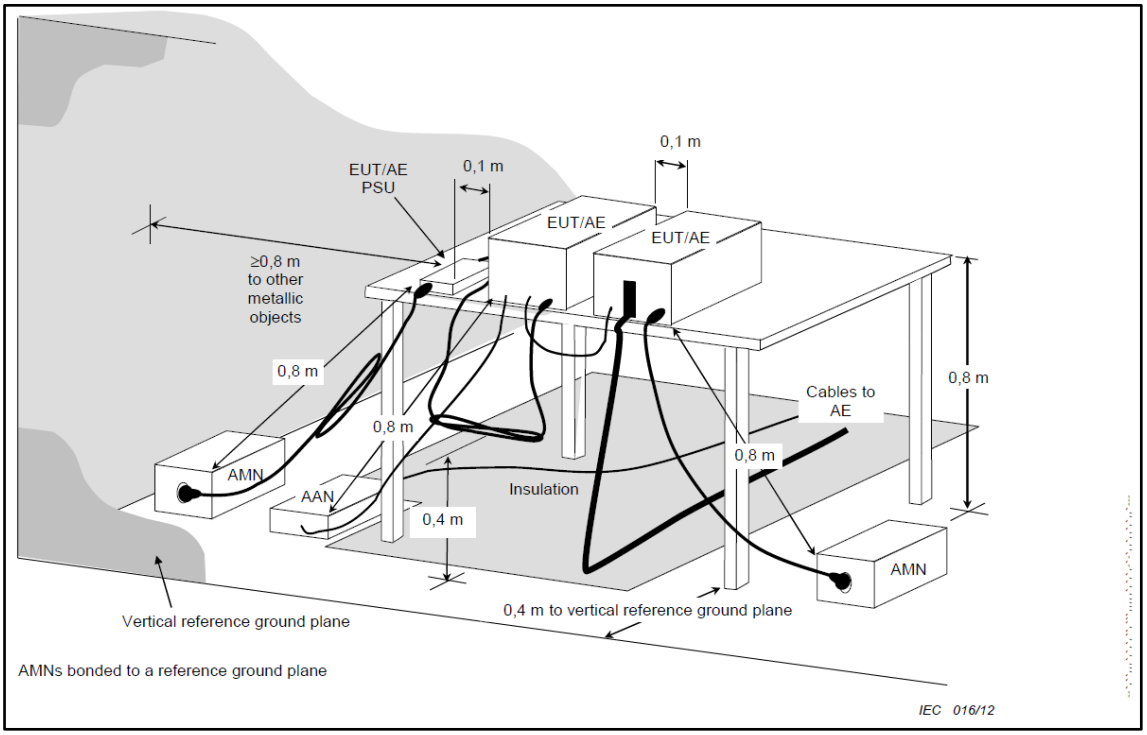
7 TEST METHODOLOGY

7.1 Conducted Spurious Emission Test on AC Power Line

Measured levels of ac power-line conducted emission across the 50Ω LISN port (to which the EUT is connected). All emission voltage and current measurements shall be made on each current-carrying conductor at the plug end of the EUT power cord by the use of mating plugs and receptacles on the LISN, if used. Equipment shall be tested with power cords that are normally supplied or recommended by the manufacturer and that have electrical and shielding characteristics that are the same as those cords normally supplied or recommended by the manufacturer.

The device is placed on the test table, raised 80cm above the reference ground plane. The vertical conducting plane is located 40cm to the rear of the device. AC Conducted emission measurement is made over frequency range from 150kHz to 30MHz, this measurement was performed with EUT powered by 2 methods and both method are tested individually, one with an AC adaptor with 110V AC 60Hz supply and second with Wireless charger with supply 110V AC 60Hz.

7.1.1 Test Setup Configuration



7.2 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 measurement 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

7.2.1 Test Setup Configuration

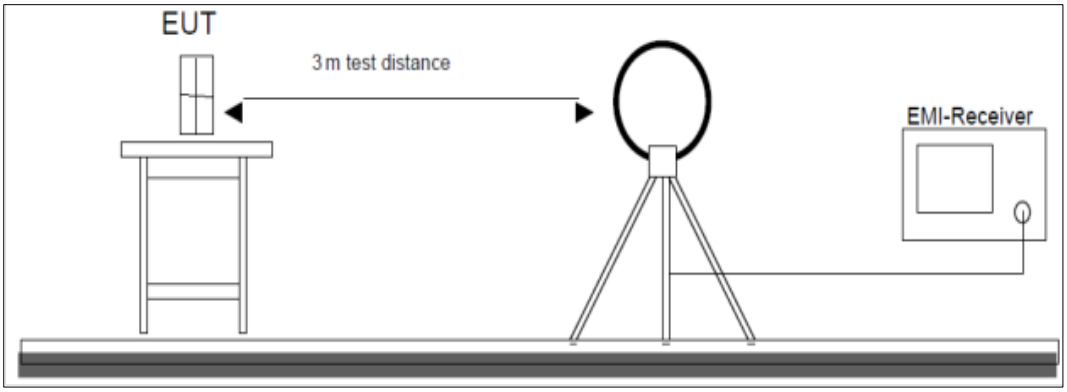


Figure 1: Frequency Range 9 kHz- 30 MHz

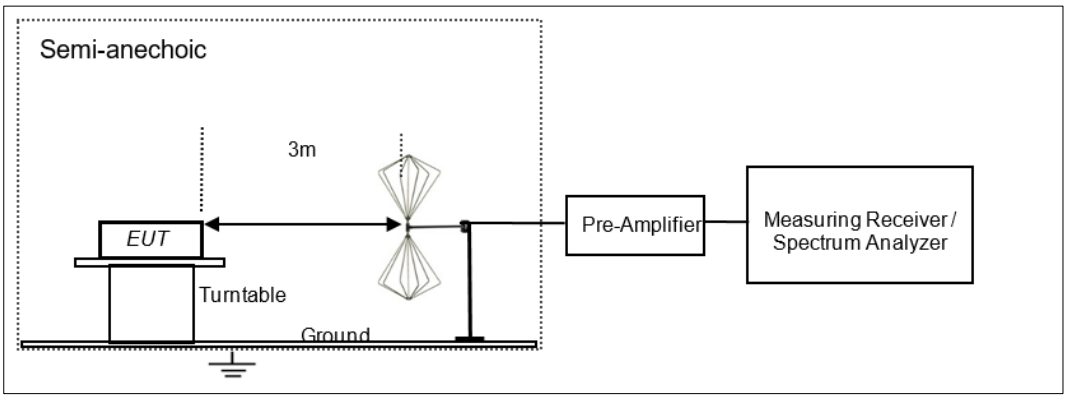


Figure 2: Frequency Range 30 MHz – 200 MHz

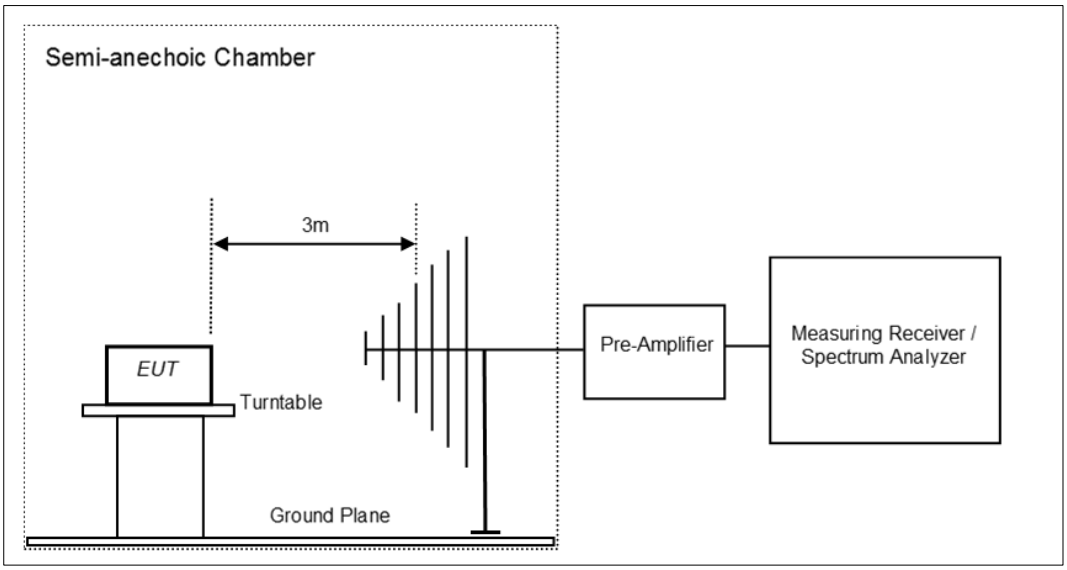


Figure 3: Frequency Range 200 MHz - 1GHz

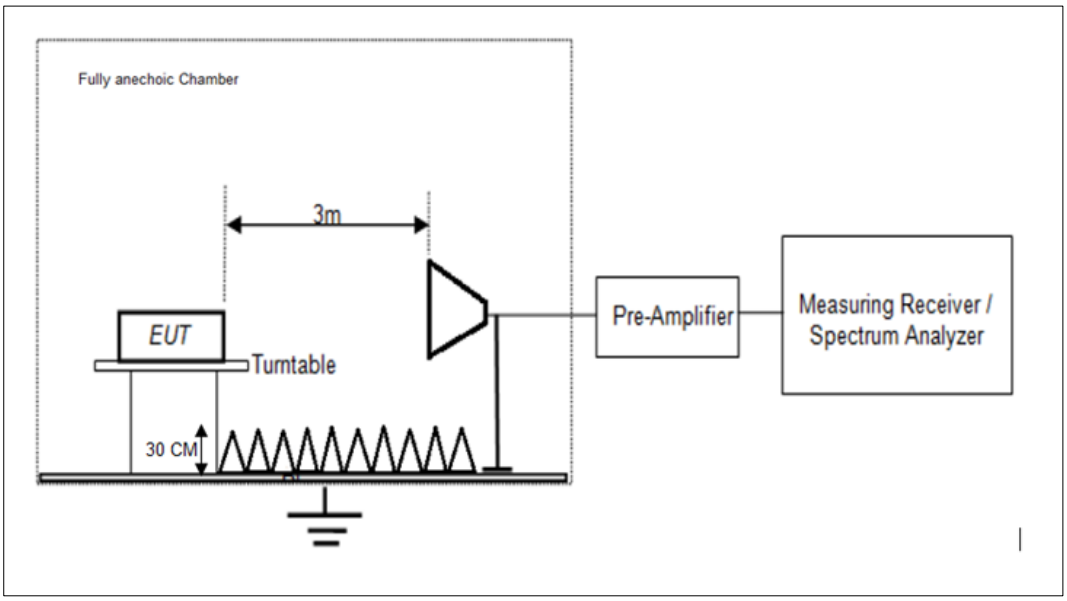


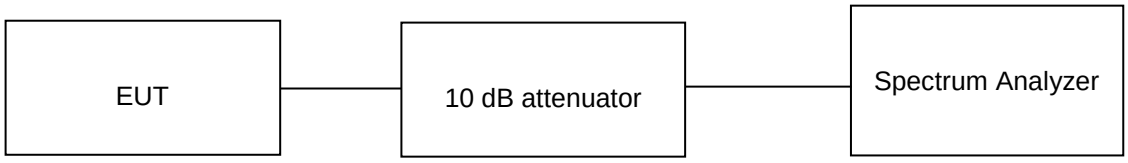
Figure 4: Frequency Range above 1 GHz

8 TEST RESULTS FOR BLUETOOTH LOW ENERGY

8.1 Maximum Peak Conducted Output Power

Result ***Pass***

Test Specification	FCC part 15 Subpart C 15.247 (b)(3)
Test Method	Subclause 11.9.1.1 of ANSI C63.10
Measurement Bandwidth	1 MHz
Detector	Peak detector
Port of testing	Antenna port
Requirement	Power ≤ 1 W (30 dBm)



Test Condition

Normal Test Condition:

Temperature (Norm) = + 22.8 °C Voltage = 3.7V(nominal) via Li-Ion battery Relative humidity: 68%

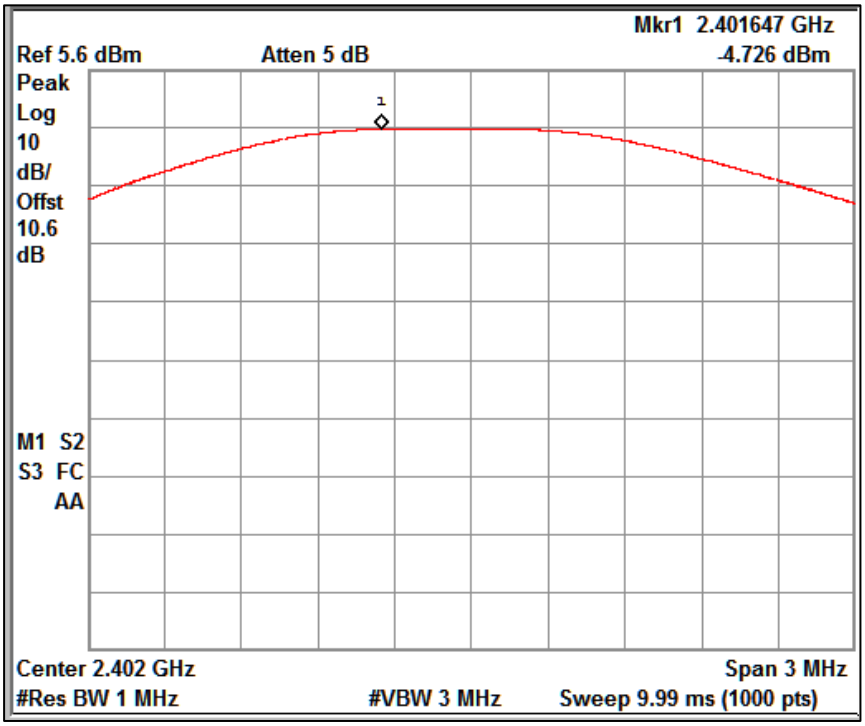
KDB Guidelines applied:

Measurements were made as per section 8.3.1.1 in KDB 558074 D01 15.247 Measurement Guidance v05r02.

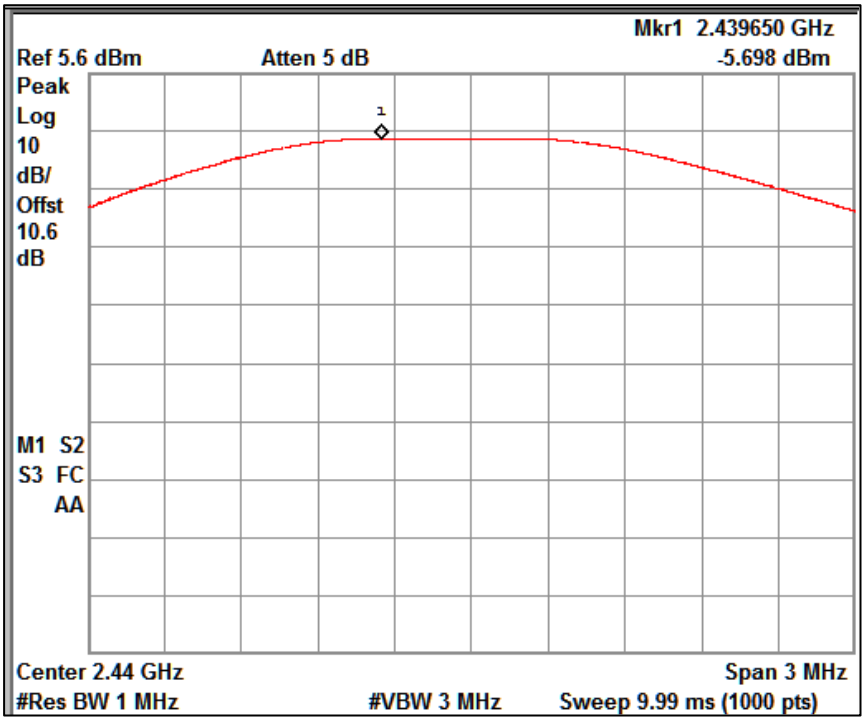
Test results:

Note:
1. All the losses are included during measurement and final values are mentioned in the test report.
2. Total Peak Output power (dBm) = Measured Peak power (dBm) + Attenuator factor (10dB) + Cable loss (0.6dB)

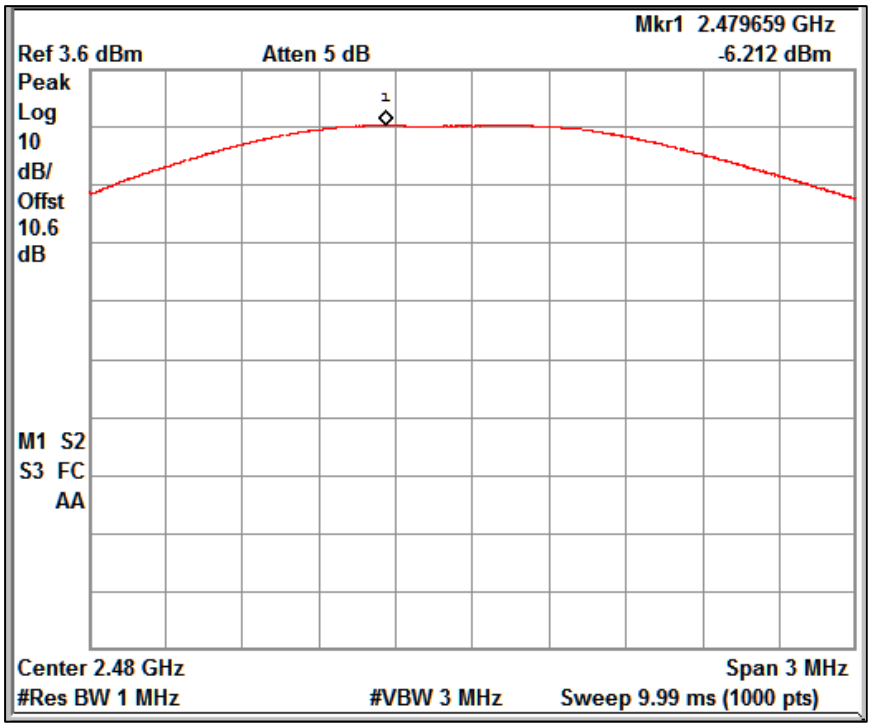
Data Rate (Mbps)	Channel Frequency (MHz)	Maximum Peak Output Power (dBm)	Power Limit (dBm)
1	2402.00	-4.72	30.00
	2440.00	-5.69	30.00
	2480.00	-6.21	30.00



Channel Frequency: 2402MHz



Channel Frequency: 2440MHz

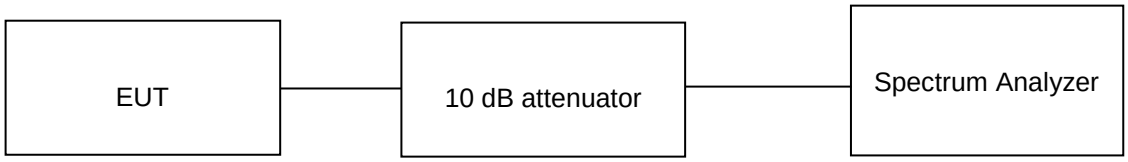


Channel Frequency: 2480MHz

8.2 Maximum Power Spectral Density

Result ***Pass***

Test Specification	FCC part 15 Subpart C 15.247 (e)
Test Method	Subclause 11.10.2 of ANSI C63.10
Measurement Bandwidth	100 kHz
Detector	Peak detector
Port of testing	Antenna port
Requirement	8dBm/3kHz



Test Condition

Normal Test Condition:

Temperature (Norm) = + 22.8 °C Voltage = 3.7V(nominal) via Li-Ion battery Relative humidity: 68%

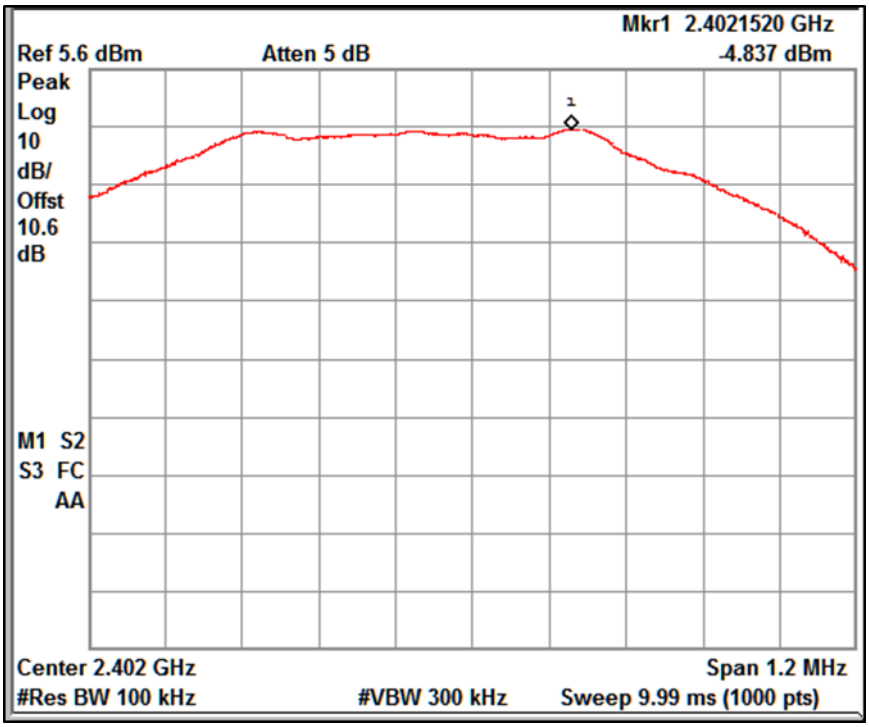
KDB Guidelines applied:

Measurements were made as per section 8.4 in KDB 558074 D01 15.247 Measurement Guidance v05r02.

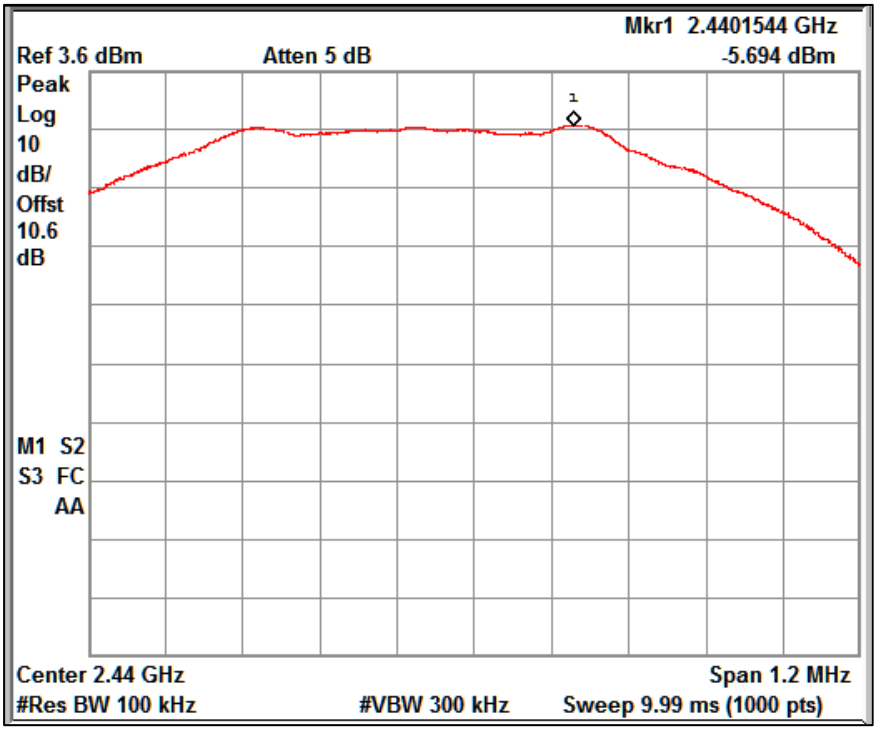
Test results:

Note:
1. All the losses are included during measurement and final values are mentioned in the test report.
2. Total Peak Output power (dBm) = Measured Peak power (dBm) + Attenuator factor (10dB) + Cable loss (0.6dB)

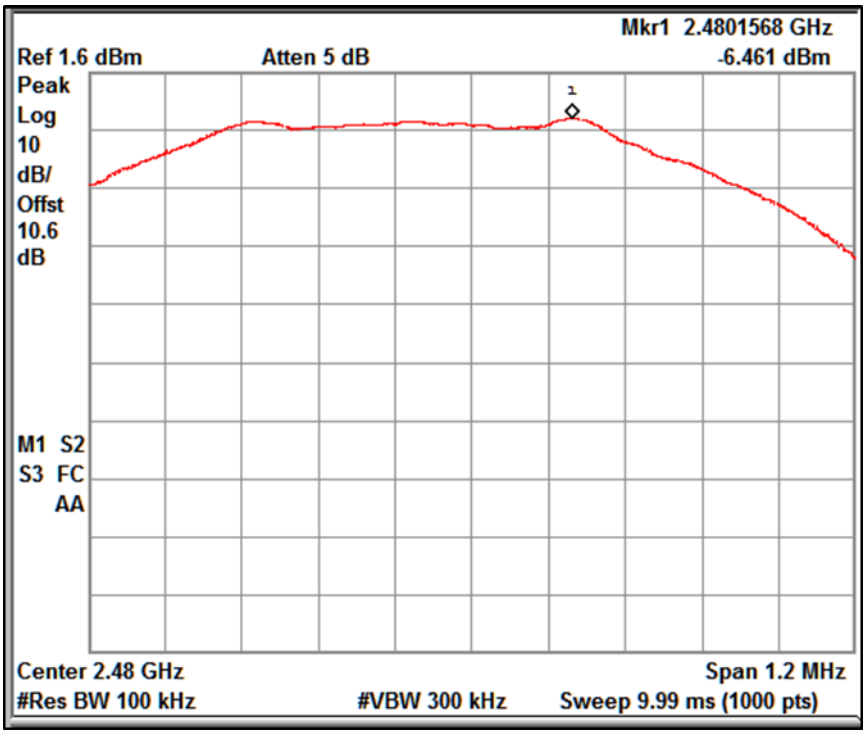
Data Rate (Mbps)	Channel Frequency (MHz)	Maximum Peak PSD (dBm/Hz)	PSD Limit (dBm/Hz)
1	2402.00	-4.83	8
	2440.00	-5.69	8
	2480.00	-6.46	8



Channel Frequency: 2402MHz



Channel Frequency: 2440MHz

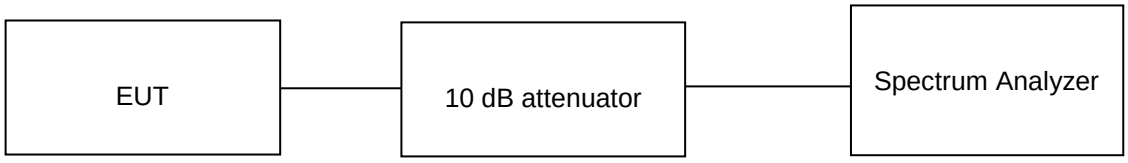


Channel Frequency: 2480MHz

8.3 DTS Bandwidth

Result ***Pass***

Test Specification	FCC part 15 Subpart C 15.247 (a)(2)
Test Method	Subclause 11.8.1 of ANSI C63.10
Measurement Bandwidth	100 kHz
Detector	Peak detector
Port of testing	Antenna port
Requirement	≥500kHz



Test Condition

Normal Test Condition:

Temperature (Norm) = + 22.8 °C Voltage = 3.7V(nominal) via Li-Ion battery Relative humidity: 68%

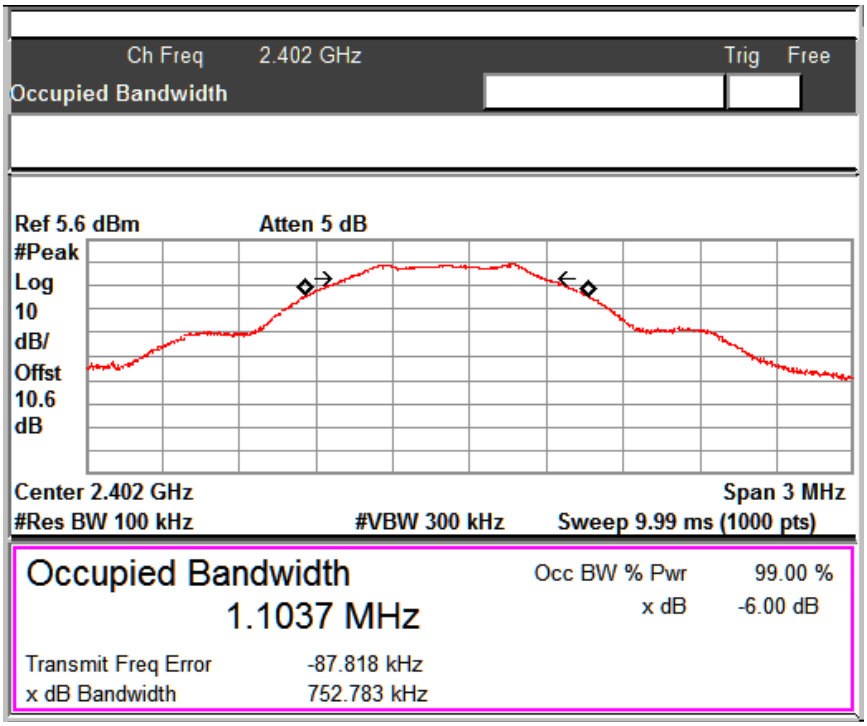
KDB Guidelines applied:

Measurements were made as per section 8.2 in KDB 558074 D01 15.247 Measurement Guidance v05r02.

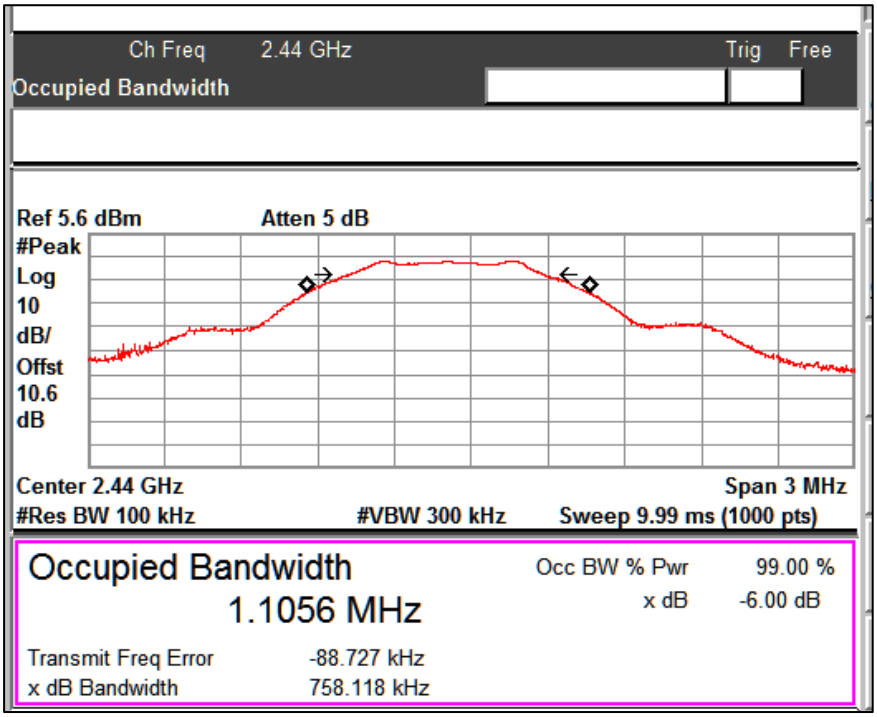
Test results:

Note:
1. All the losses are included during measurement and final values are mentioned in the test report.

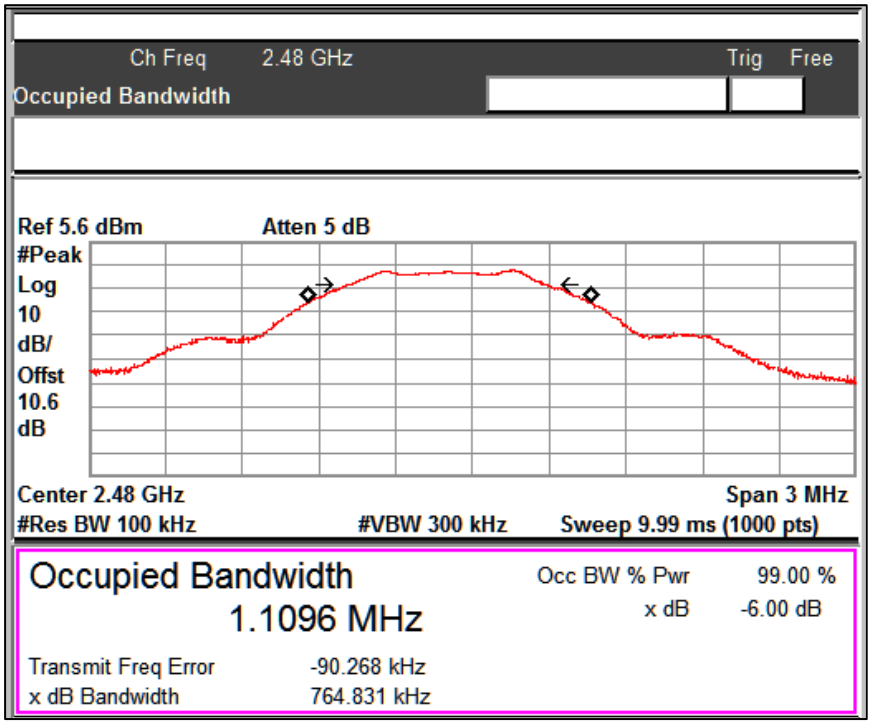
Data Rate(Mbps)	Channel Frequency (MHz)	Measured 6dB Bandwidth (MHz)	Measured 99% Bandwidth (MHz)	Limit (MHz)
1	2402	0.752	1.103	0.5
	2440	0.758	1.105	0.5
	2480	0.764	1.109	0.5



Channel Frequency: 2402MHz



Channel Frequency: 2440MHz

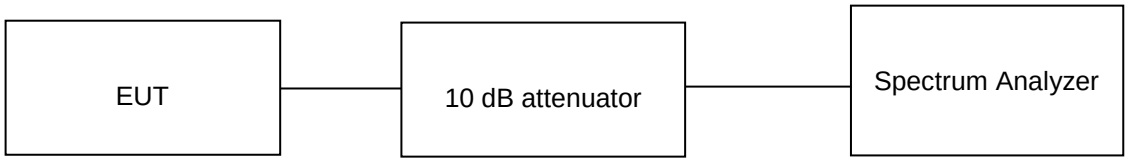


Channel Frequency: 2480MHz

8.4 Emissions in non-restricted frequency bands and conducted Spurious Emission

Result ***Pass***

Test Specification	FCC part 15 Subpart C 15.247 (d)
Test Method	Subclause 11.11 of ANSI C63.10
Measurement Bandwidth	100 kHz
Detector	Peak detector
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 Condition

Normal Test Condition:

Temperature (Norm) = + 22.8 °C Voltage = 3.7V(nominal) via Li-Ion battery Relative humidity: 68%

KDB Guidelines applied:

Measurements were made as per section 8.5 in KDB 558074 D01 15.247 Measurement Guidance v05r02.

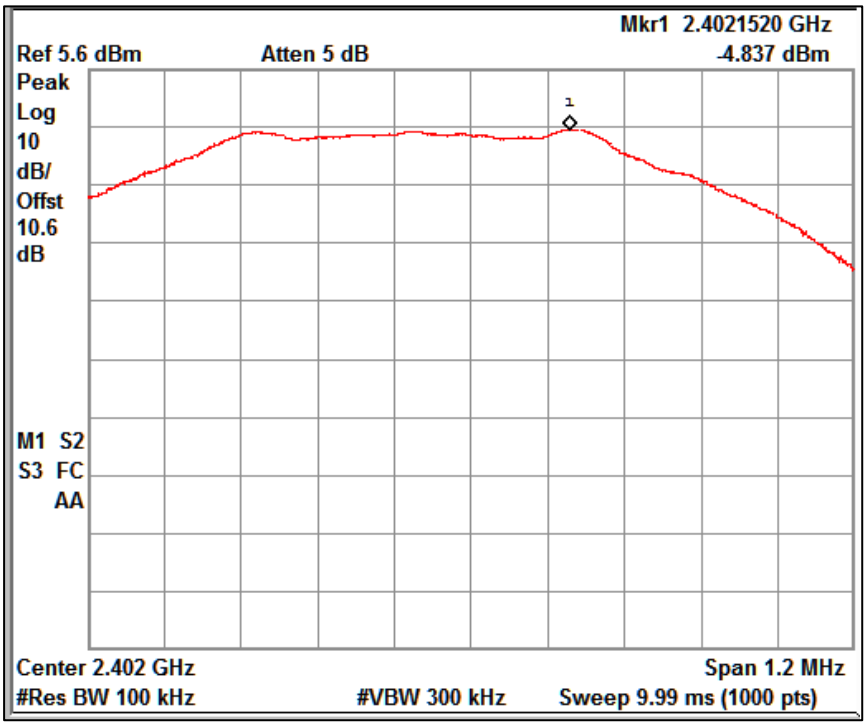
Test results:

Note:
1. All the losses are included during measurement and final values are mentioned in the test report.
2. Total Peak Output power (dBm) = Measured Peak power (dBm) + Attenuator factor (10dB) + Cable loss (0.6dB)

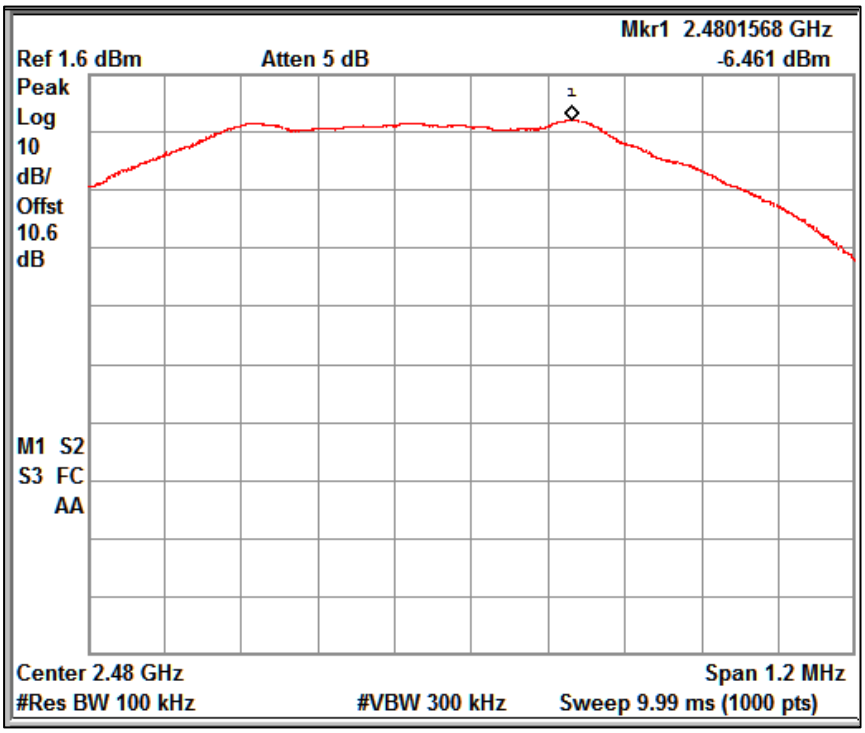
8.4.1 Non restricted bands measurements results

Data rate (Mbps)	Channel Frequency (MHz)	Reference Value(B) (dBm)	Band edge frequency (MHz)	Value at Band edge (A) (dBm)	A-B (dBc)	Minimum Limit (dBc)
1	2402	-4.83	2390	-61.87	-57.04	-20.00
	2480	-6.46	2483.5	-59.84	-53.38	-20.00

Reference Measurement plots

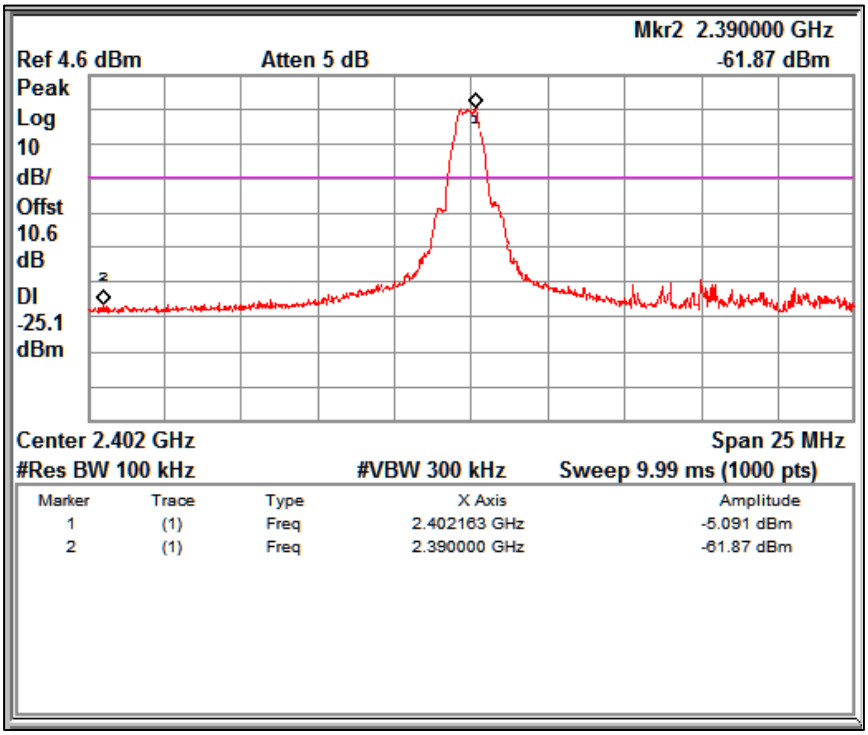


Channel Frequency: 2402(MHz)

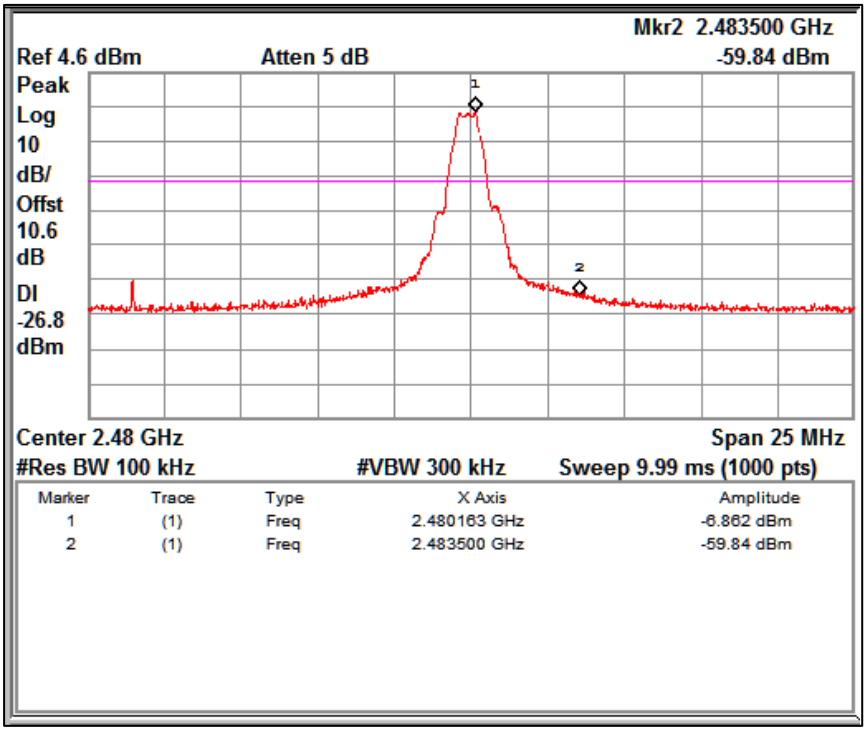


Channel Frequency: 2480MHz

Band edge Measurements

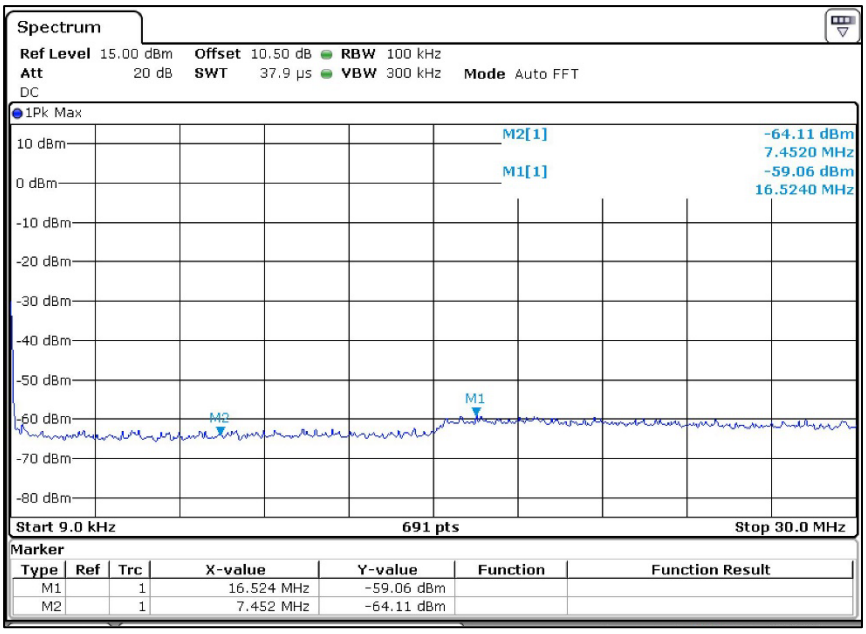


Channel Frequency: 2402MHz

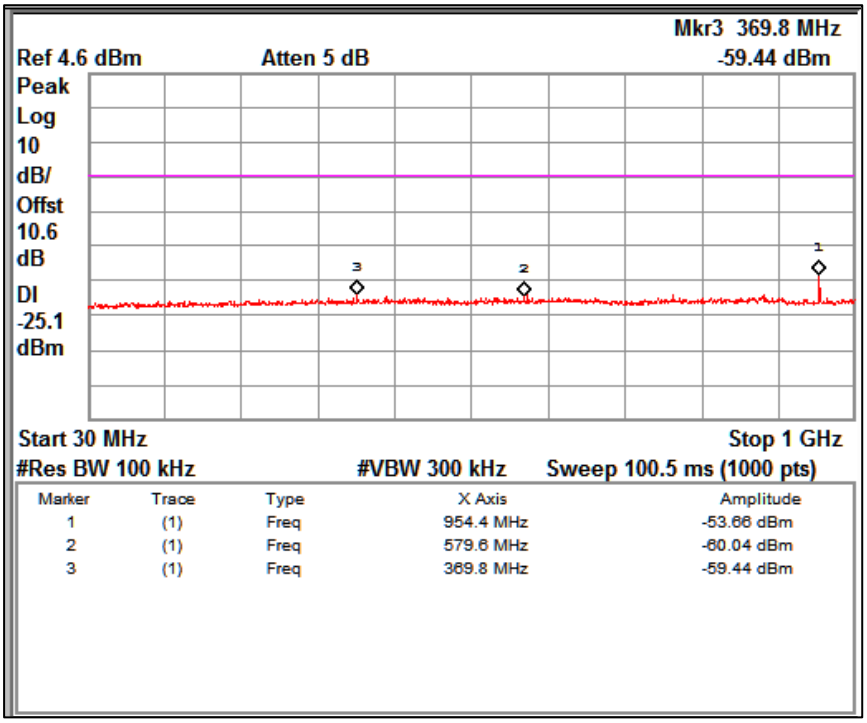


Channel Frequency: 2480MHz

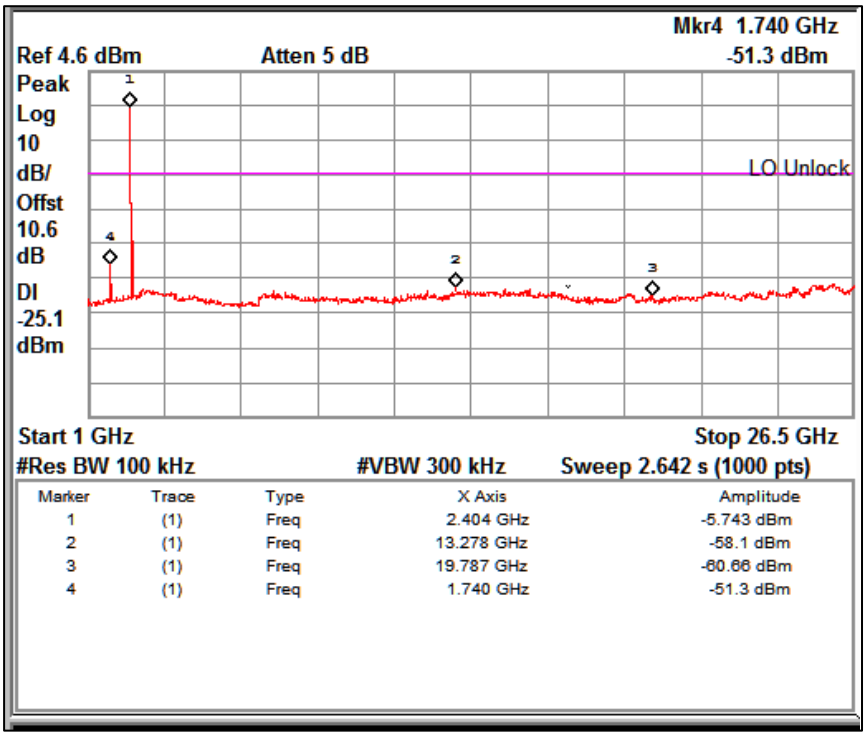
8.4.2 Out of Band emissions



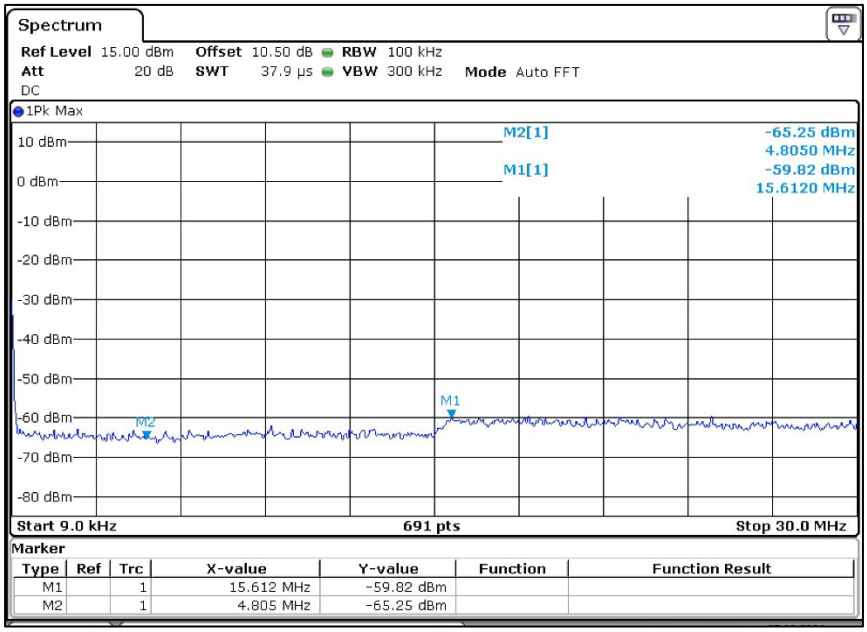
Frequency Range: 9kHz-30MHz **Channel Frequency: 2402MHz**



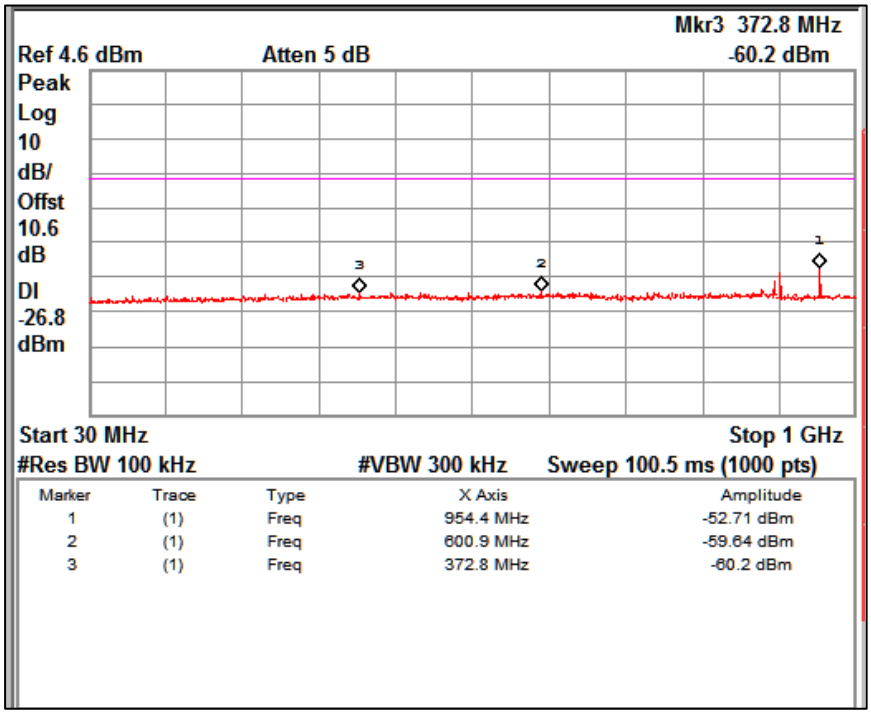
Frequency Range: 30MHz-1GHz **Channel Frequency: 2402MHz**



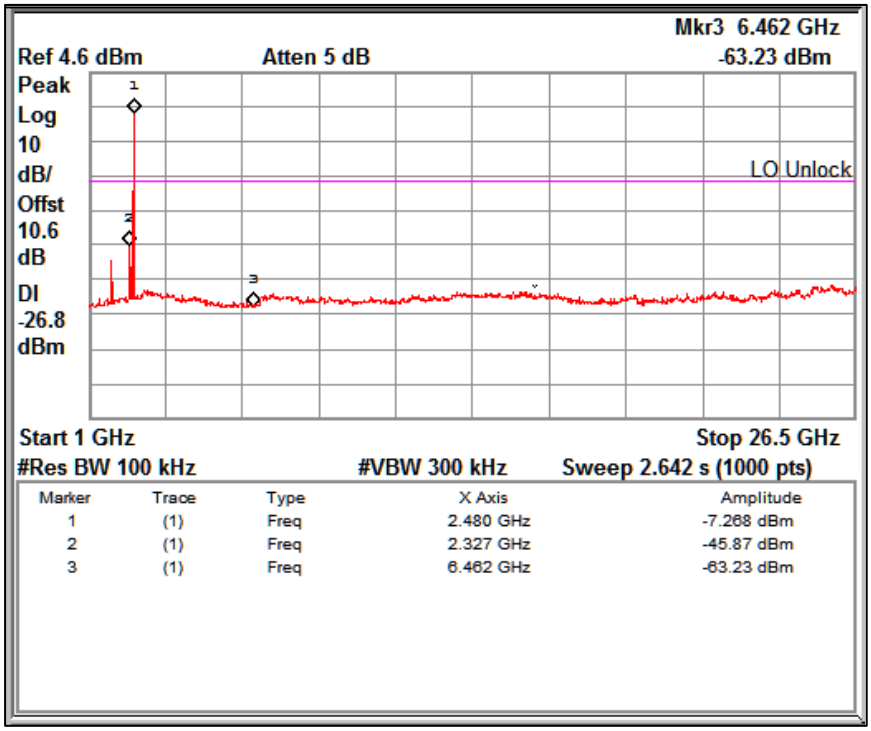
Frequency Range: 1GHz-26.5GHz **Channel Frequency: 2402MHz**



Frequency Range: 9KHz-30MHz **Channel Frequency: 2480MHz**



Frequency Range: 30MHz-1GHz **Channel Frequency: 2480MHz**



Frequency Range: 1GHz-26.5GHz **Channel Frequency: 2480MHz**

8.5 Spurious Radiated Emissions & Restricted Bands of Operation

Result ***Pass***

Test Specification	FCC part 15 Subpart C 15.247 (d) / (15.209 & 15.205)
Test Method	ANSI C63.10-2013
Measurement Location	Semi Anechoic Chamber 30MHz - 1 GHz Fully Anechoic Chamber 1 GHz - 40GHz
Measurement Bandwidth	100 kHz for frequency range < 1GHz 1 MHz for Frequency range >1GHz
Detector	Refer remarks below
Measuring Distance	3 m
Requirement	As per the limits mentioned in the below table
Test setup	Refer TEST METHODOLOGY

Table 6: Transmitter limits for Radiated emission

Frequency (MHz)	Field strength (µV/m)	Field strength (dBµV/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 dBµV/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:

Temperature (Norm) = + 22.8 °C Voltage = 3.7V(nominal) via Li-Ion battery Relative humidity = 68 %

Test results:

Note: All the losses are included during measurement and final values are mentioned in the test report. Refer TEST METHODOLOGY for more details

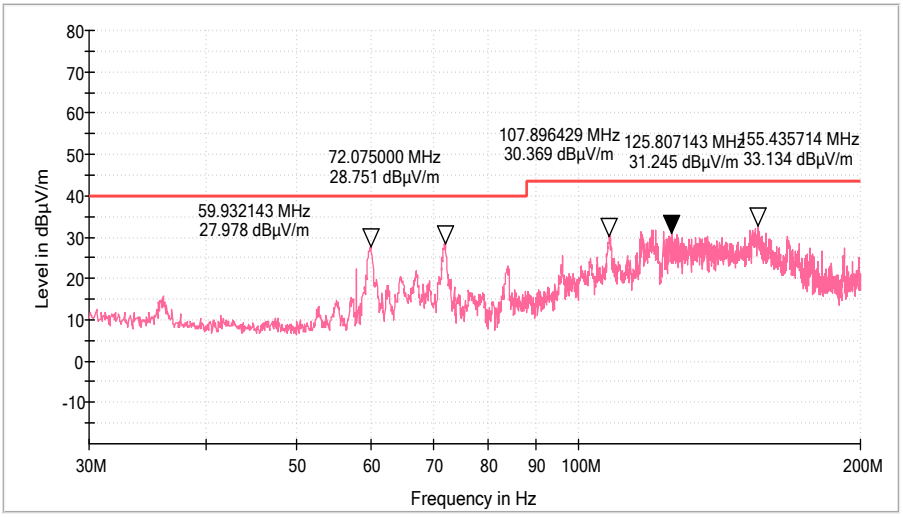
Test results for frequency range 9kHz – 30MHz

No emissions found in frequency range 9 kHz to 30 MHz, and measured levels are below 20dB from the limit line, hence not reported

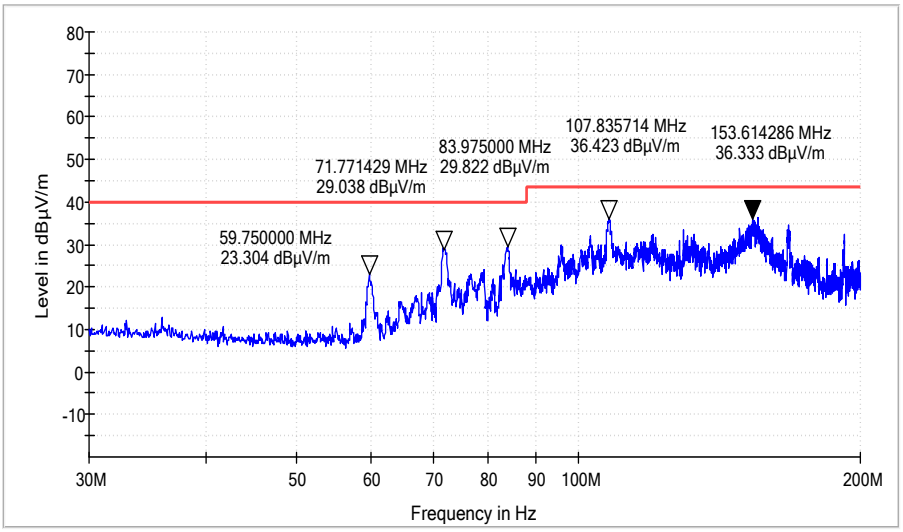
Test results for frequency range 30MHz – 200MHz

Antenna Polarization	Frequency (MHz)	Measured Emission (dBµV/m)	Limit (dBµV/m)	Margin (dB)
Vertical	59.82(Qp)	25.52	40.00	-14.48
	59.93(Pk)	27.98	40.00	-12.02
	72.07(Pk)	28.75	40.00	-11.25
	107.89(Pk)	30.36	43.50	-13.14
	125.80(Pk)	31.24	43.50	-12.26
	155.43(Pk)	33.13	43.50	-10.37
Horizontal	59.75(Pk)	23.30	40.00	-16.70
	71.77(Pk)	29.03	40.00	-10.97
	83.97(Pk)	29.82	40.00	-10.18
	107.83(Pk)	36.42	43.50	-7.08
	108.00(Qp)	34.70	43.50	-8.80
	153.61(Pk)	36.33	43.50	-7.17
	155.50(Qp)	37.02	43.50	-6.48

QP: Measured in Quasi peak detector
Pk:Measured in Peak detector



Channel Frequency 30MHz – 200MHz **Polarization: Vertical**

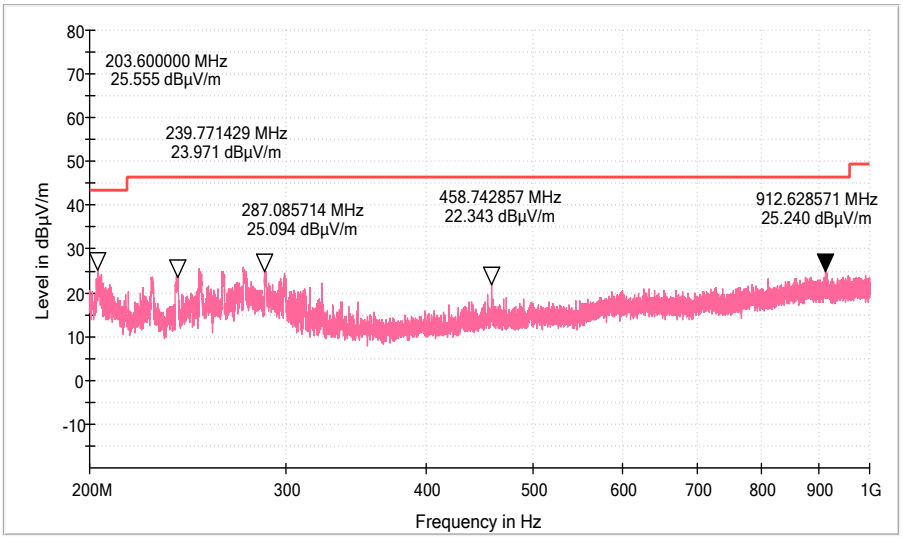


Channel Frequency 30MHz – 200MHz **Polarization: Horizontal**

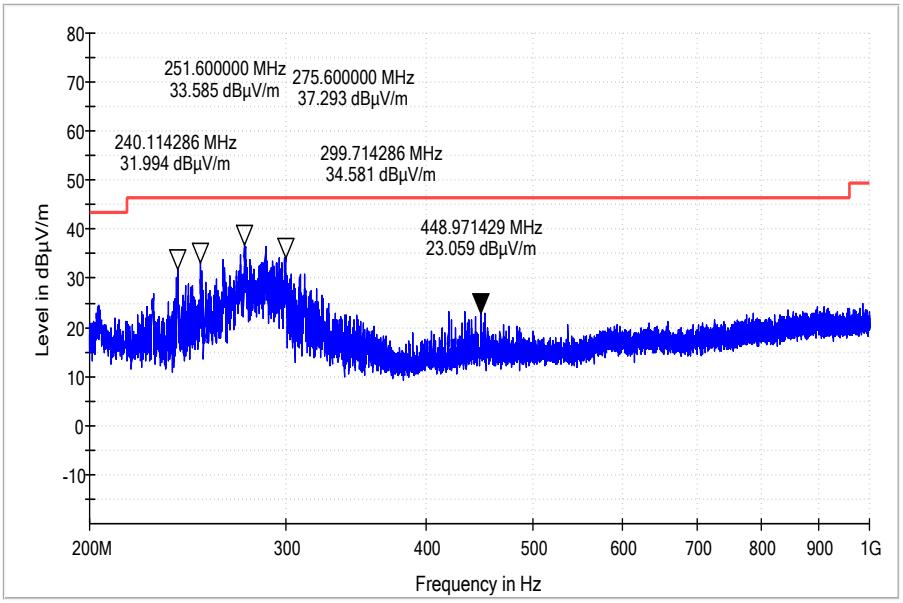
Test results for frequency range 200MHz – 1GHz

Antenna Polarization	Frequency (MHz)	Measured Peak (dBµV/m)	Limit (dBµV/m)	Margin (dB)
Vertical	203.60(Pk)	25.55	43.50	-17.95
	239.77(Pk)	23.97	46.00	-22.03
	287.08(Pk)	25.09	46.00	-20.91
	458.74(Pk)	22.34	46.00	-23.66
	912.62(Pk)	25.24	46.00	-20.76
Horizontal	240.11(Pk)	31.99	46.00	-14.01
	251.60(Pk)	33.58	46.00	-12.42
	275.60(Pk)	37.29	46.00	-8.71
	299.71(Pk)	34.58	46.00	-11.42
	448.97(Pk)	23.05	46.00	-22.95

QP: Measured in Quasi peak detector
Pk:Measured in Peak detector



Channel Frequency 200MHz – 1GHz **Polarization: Vertical**



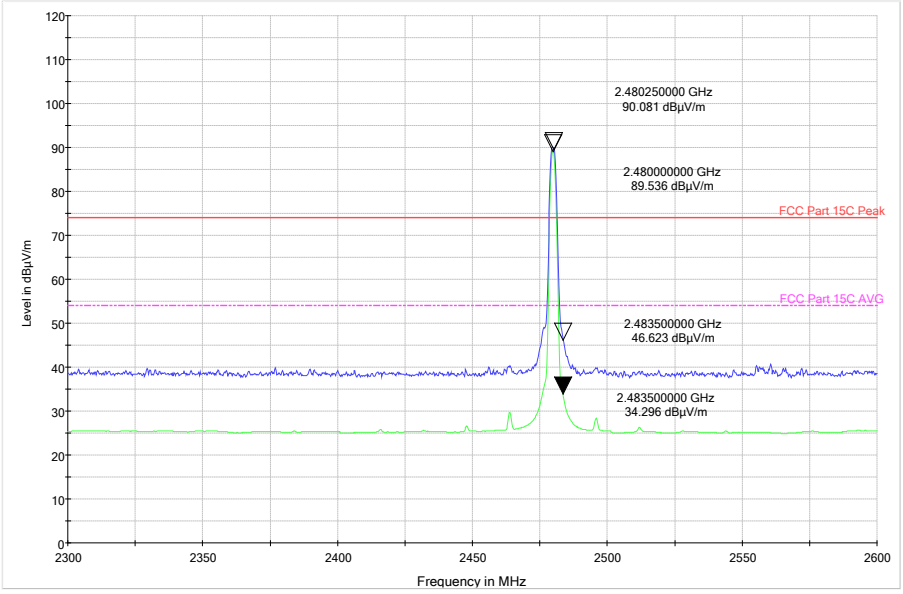
Channel Frequency 200MHz – 1GHz **Polarization: Horizontal**

Test results for the frequencies range above 1GHz

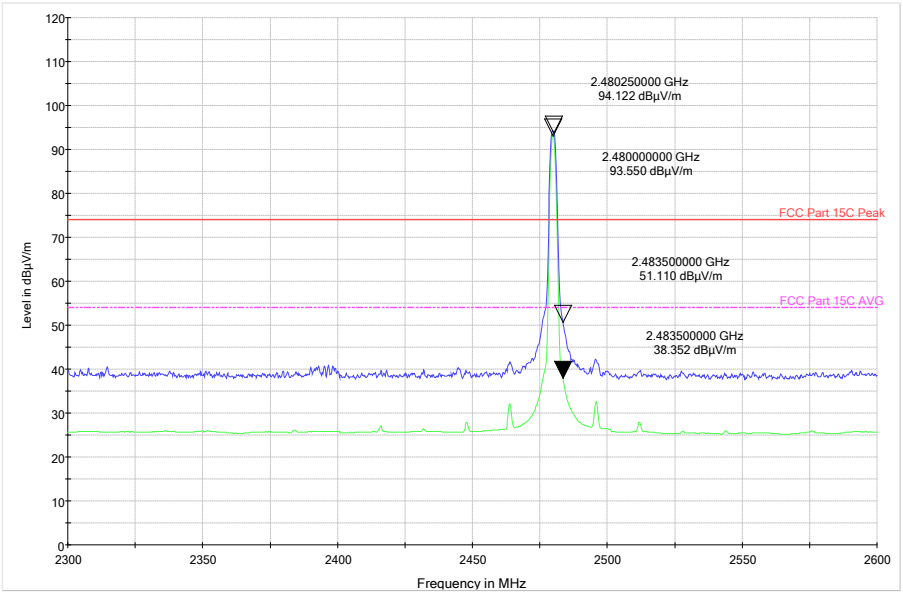
Data rate (Mbps)	Channel frequency (MHz)	Polarization	Measured Frequency (MHz)	Measured Emission value (dBµV/m)	Limit (dBµV/m)	Margin (dB)
1	2402	Vertical	2390(Pk)	39.00	74.00*	-35.00
			2390(Av)	25.94	54.00*	-28.06
			2402(Pk)	90.85	-	-
			2402(Av)	90.31	-	-
			4804(Pk)	42.69	74.00	-31.31
			4804(Av)	32.07	54.00	-21.93
			7206(Pk)	48.91	74.00	-25.09
			7206(Av)	35.65	54.00	-18.35
			9608(Pk)	No Harmonics		
			9608(Av)			
		Horizontal	2390(Pk)	39.08	74.00*	-34.92
			2390(Av)	27.59	54.00*	-26.41
			2402(Pk)	95.71	-	-
			2402(Av)	95.16	-	-
			4804(Pk)	43.01	74.00	-30.99
			4804(Av)	32.63	54.00	-21.37
			7206(Pk)	47.41	74.00	-26.59
			7206(Av)	35.11	54.00	-18.89
			9608(Pk)	No Harmonics		
			9608(Av)			
	2440	Vertical	2440(Pk)	90.71	-	-
			2440(Av)	90.13	-	-
			4880(Pk)	42.30	74.00	-31.70
			4880(Av)	30.48	54.00	-23.52
			7320(Pk)	47.94	74.00	-26.06
			7320(Av)	35.63	54.00	-18.37
			9760(Pk)	No Harmonics		
			9760(Av)			
		Horizontal	2440(Pk)	94.71	-	-
			2440(Av)	94.14	-	-
			4880(Pk)	43.51	74.00	-30.49
			4880(Av)	30.99	54.00	-23.01
			7320(Pk)	47.80	74.00	-26.20
			7320(Av)	35.27	54.00	-18.73
			9760(Pk)	No Harmonics		
			9760(Av)			
	2480	**Vertical**	**2480(Pk)**	**90.08**	**-**	**-**
			2480(Av)	**89.53**	**-**	**-**
			2483.5(Pk)	**46.62**	**74.00***	**-27.38**
			2483.5(Av)	**34.29**	**54.00***	**-19.71**
			4960(Pk)	**41.43**	**74.00**	**-32.57**
			4960(Av)	**29.47**	**54.00**	**-24.53**
			7440(Pk)	**47.72**	**74.00**	**-26.28**
			7440(Av)	**35.56**	**54.00**	**-18.44**
			9920(Pk)	**No Harmonics**		
			9920(Av)			
		Horizontal	**2480(Pk)**	**94.12**	**-**	**-**
			2480(Av)	**93.55**	**-**	**-**
			2483.5(Pk)	**51.11**	**74.00***	**-22.89**
			2483.5(Av)	**38.35**	**54.00***	**-15.65**
			4960(Pk)	**41.68**	**74.00**	**-32.32**
			4960(Av)	**30.03**	**54.00**	**-23.97**
			7440(Pk)	**47.96**	**74.00**	**-26.04**
			7440(Av)	**35.27**	**54.00**	**-18.73**
			9920(Pk)	**No Harmonics**		
			9920(Av)			

***- : Indicate restricted band of operation §15.205**
- : Fundamental emission
Pk: Peak Detector; Av: Average Detector

Worst case Test Plots

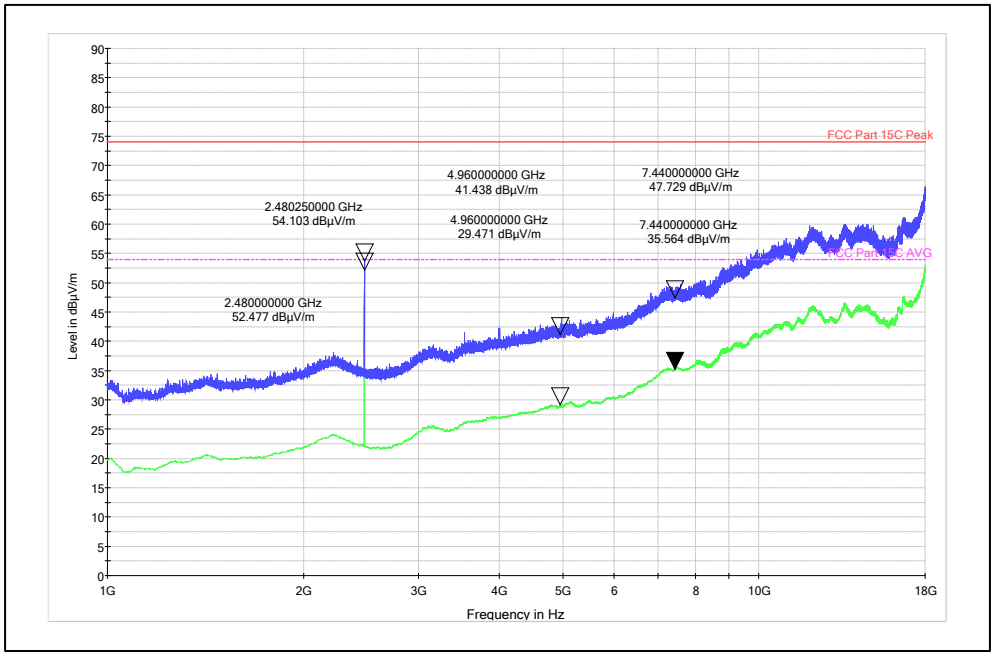


Channel Frequency: 2480MHz **Polarization: Vertical**

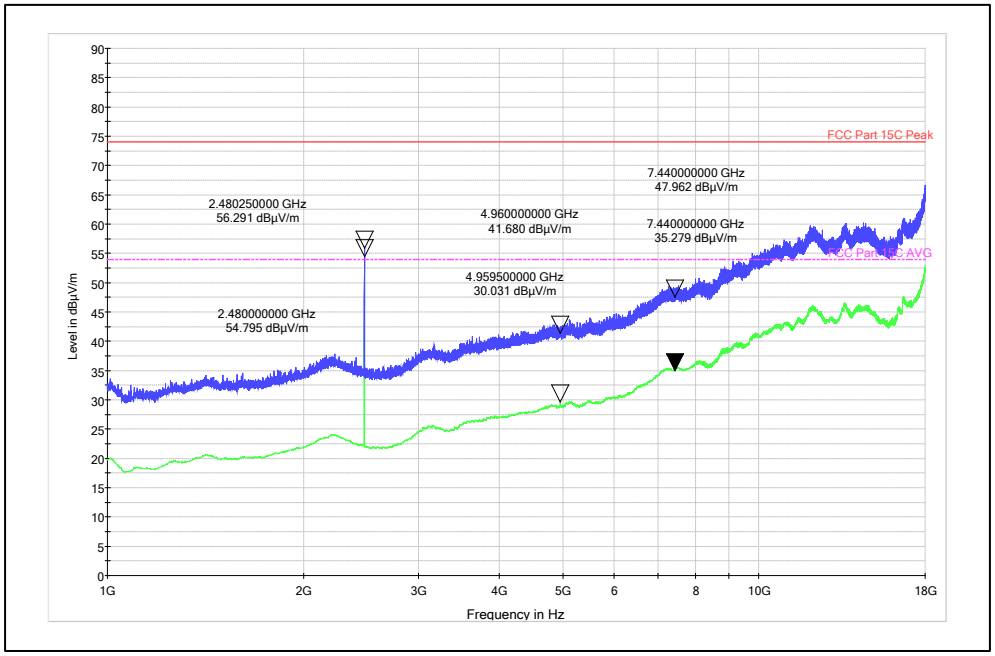


Channel Frequency: 2480MHz **Polarization: Horizontal**

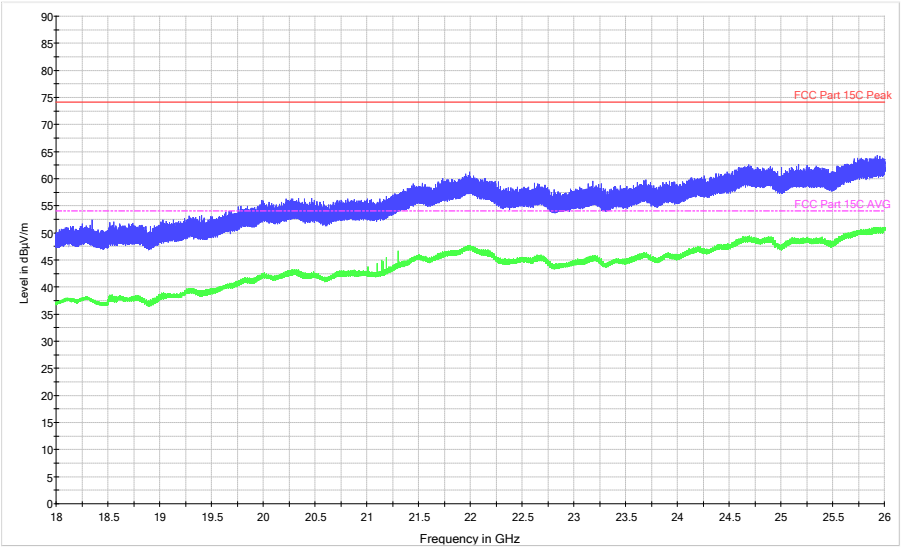
Channel frequency: 2480MHz



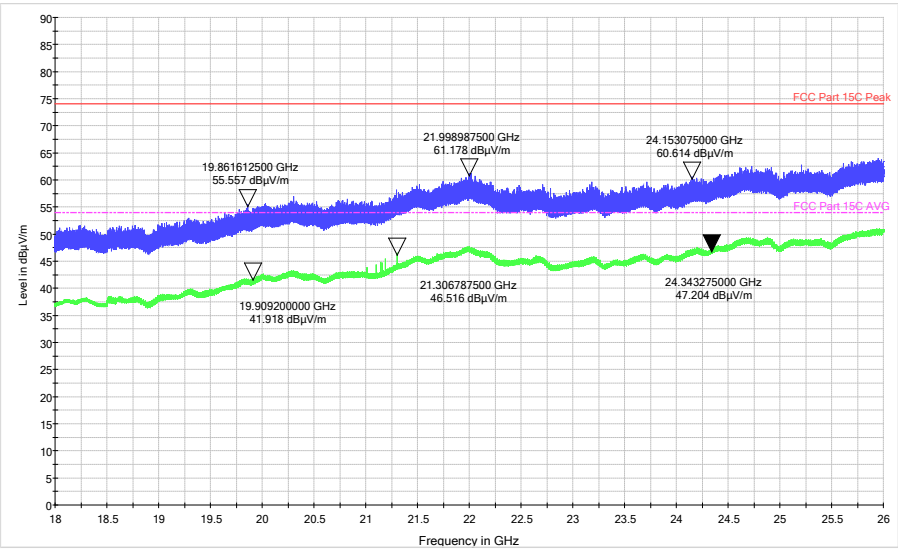
Frequency range: 1GHz-18GHz **Polarization: Vertical**



Frequency range: 1GHz-18GHz **Polarization: Horizontal**



Channel Frequency: 18 - 26 GHz **Polarization: Vertical**



Channel Frequency: 18 - 26 GHz **Polarization: Horizontal**

9 Conducted Spurious Emission on ac Power lines

Result ***Pass***

Test Specification	:	FCC Part 15 Section 15.207
Test Method	:	ANSI C 63.10-2013
Testing Location	:	Screened room
Measurement Bandwidth	:	9kHz
Frequency Range	:	150kHz – 30MHz
Supply Voltage	:	110VAC,60Hz**
Test Method	:	Refer TEST METHODOLOGY

Table 7: Limits for Conducted poweline emission

Frequency of emission (MHz)	QP Limit (dBµV)	AV Limit (dBµV/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

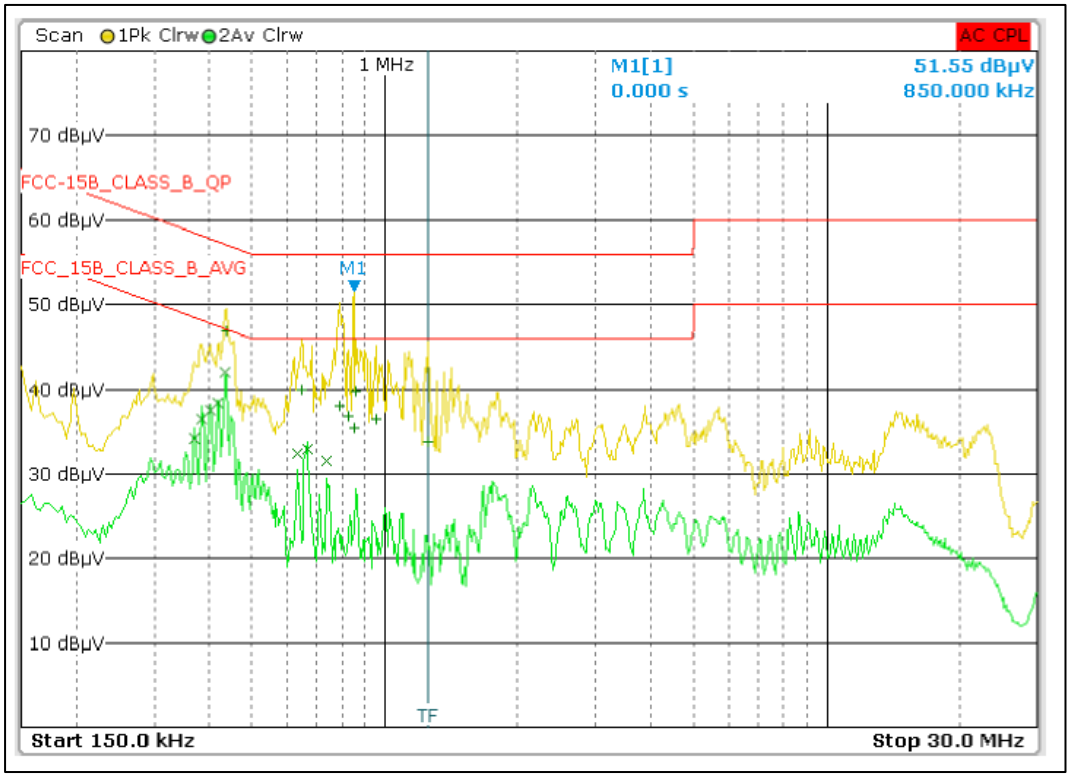
Test Conditions:

Temperature (Norm) = +24 °C Voltage = 110V AC (Through AC to DC Adapter) Relative humidity: 64%

Note: ** The product CPM werable is battery operated however measurements to demonstrate compliance with the conducted limits is performed becouse the product obtaine it‘s power through another device (CPM base station) which is connected to the AC power lines.

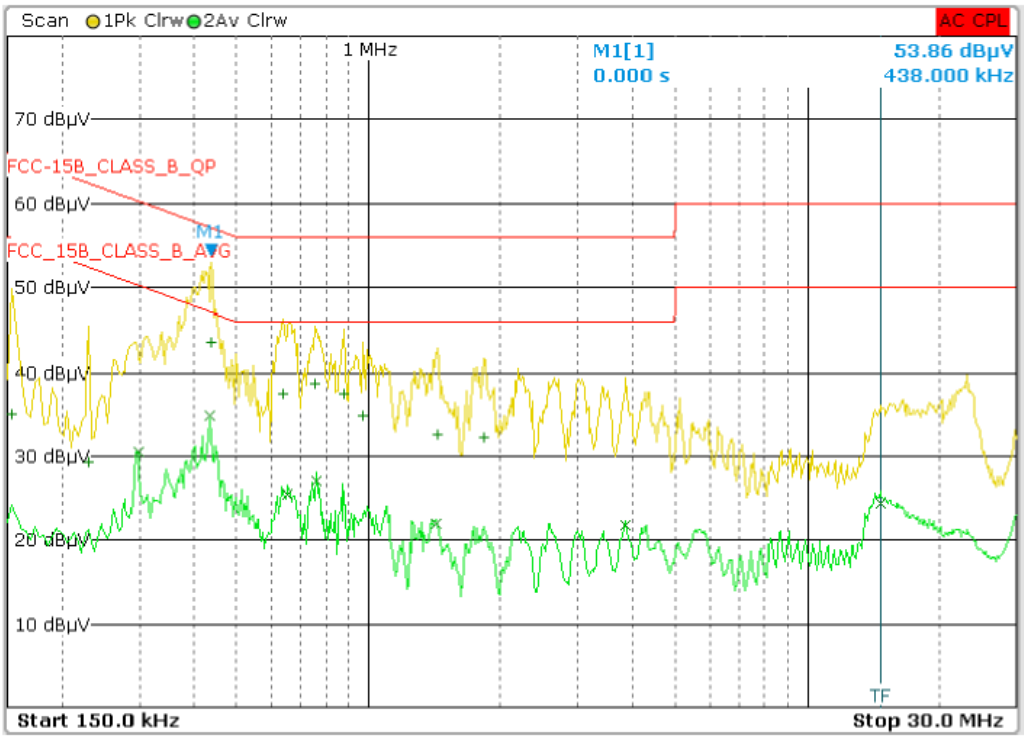
Test results:

110VAC-60Hz-Line



Trace	Frequency	Level (dBµV)	Phase	Detector	Delta Limit/dB
2	434.000000000 kHz	42.01		Average	-5.17
2	418.000000000 kHz	38.29		Average	-9.20
1	438.000000000 kHz	46.84		Quasi Peak	-10.26
2	402.000000000 kHz	37.40		Average	-10.41
2	386.000000000 kHz	36.36		Average	-11.79
2	666.000000000 kHz	32.87		Average	-13.13
2	634.000000000 kHz	32.37		Average	-13.63
2	370.000000000 kHz	34.10		Average	-14.40
2	738.000000000 kHz	31.53		Average	-14.47
1	646.000000000 kHz	39.91		Quasi Peak	-16.09
1	862.000000000 kHz	39.77		Quasi Peak	-16.23
1	790.000000000 kHz	38.05		Quasi Peak	-17.95
1	830.000000000 kHz	36.80		Quasi Peak	-19.20
1	954.000000000 kHz	36.35		Quasi Peak	-19.65
1	850.000000000 kHz	35.43		Quasi Peak	-20.57
1	1.250000000 MHz	33.89		Quasi Peak	-22.11

110VAC-60Hz-Neutral



Trace	Frequency	Level (dBµV)	Phase	Detector	Delta Limit/dB
2	434.000000000 kHz	34.93		Average	-12.25
1	438.000000000 kHz	43.61		Quasi Peak	-13.49
1	754.000000000 kHz	38.76		Quasi Peak	-17.24
1	882.000000000 kHz	37.51		Quasi Peak	-18.49
1	638.000000000 kHz	37.39		Quasi Peak	-18.61
2	758.000000000 kHz	27.02		Average	-18.98
2	298.000000000 kHz	30.48		Average	-19.82
2	654.000000000 kHz	25.47		Average	-20.53
1	974.000000000 kHz	34.89		Quasi Peak	-21.11
1	1.434000000 MHz	32.61		Quasi Peak	-23.39
1	1.830000000 MHz	32.23		Quasi Peak	-23.77
2	1.422000000 MHz	22.04		Average	-23.96
2	3.842000000 MHz	21.70		Average	-24.30
2	14.710000000 MHz	24.40		Average	-25.60
1	154.000000000 kHz	35.05		Quasi Peak	-30.73
1	230.000000000 kHz	29.23		Quasi Peak	-33.22

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