Produkte
Products

Prüfbericht - Nr.: *Test Report No.:*	**02422841 001**	**Seite 1 von 58** *Page 1 of 58*
Auftraggeber: *Client:*	**Honeywell Inc** **Automation and Control Solutions** **Honeywell International** **1985 Douglas Drive North Dock 1** **Golden Valley, MN 55422** **USA**	
Gegenstand der Prüfung: *Test item:*	**Low Cost ISA100 Radio Module (51306799-001)**	
Bezeichnung: *Identification:*	**LCRM**	**Serien-Nr.:** *Serial No.* **Engineering Sample**
Wareneingangs-Nr.: *Receipt No.:*	**1403011599**	**Eingangsdatum:** *Date of receipt:* **09-09-2010**
Prüfort: *Testing location:*	**Refer Page 4 of 58 for test facilities**	
Prüfgrundlage: *Test specification:*	**FCC 15, Subpart C**	
Prüfergebnis: *Test Result:*	**Der Prüfgegenstand entspricht oben genannter Prüfgrundlage(n).** *The test item passed the test specification(s).*	
Prüflaboratorium: *Testing Laboratory:*	**TÜV Rheinland (India) Pvt. Ltd.** Alpha Tower, Sigma Soft Tech Park, # 7, Whitefield Main Road, Varthur Kodi, Bangalore – 560066, India	

geprüft / *tested by:*			**kontrolliert /** *reviewed by:*		
12-01-2011	Vinay N Engineer	Vinay.N	12-01-2011	Varma Kalyan Manager	Varma
Datum *Date*	**Name/Stellung** *Name/Position*	**Unterschrift** *Signature*	**Datum** *Date*	**Name/Stellung** *Name/Position*	**Unterschrift** *Signature*

Sonstiges / *Other Aspects:* FCC ID: S5751306799

Abkürzungen:				***Abbreviations:***			
P(ass)	=	***entspricht Prüfgrundlage***		***P(ass)***	=	***passed***	
F(ail)	=	***entspricht nicht Prüfgrundlage***		***F(ail)***	=	***failed***	
N/A	=	***nicht anwendbar***		***N/A***	=	***not applicable***	
N/T	=	***nicht getestet***		***N/T***	=	***not tested***	

Test Result Summary

Clause	Test Item	Result
15.247(b) (3)	Conducted Peak RF Output Power	Pass
15.247 (a) (2)	6dB Bandwidth	Pass
15.247 (e)	Power Spectral Density	Pass
15.247 (d)	Band-edge Compliance	Pass
15.209	Spurious Radiated Emissions	Pass

Content

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List of Test and Measurement Instruments

Wipro Technologies, Bangalore

Equipment	Manufacturer	Type	S/N	Calibration Due Date
EMI Test Receiver	Rohde & Schwarz	ESIB40	100306	24.07.2011
Hybrid Log Periodic Antenna	TDK	HLP3003C	130334	17.02.2011
Broadband Horn Antenna	Schwarzbeck Mess-Electronik	BBHA9170	9170-344,2007	14.02.2011
Double Ridged Horn Antenna	Schwarzbeck Mess-Electronik	BBHA9120D	2008	14.08.2011
Pre-Amplifier	TDK-RFSolution	PA-02	100008	15.02.2011

Testing Facilities

1) Wipro Technologies
Survey No. 70, 77, 78 / 8A, Dodda Kannelli,
Sarjapur Road, Bangalore – 560 035
India

General Product Information

Product Function and Intended Use

The Low Cost ISA100 Radio Module is a easy to use wireless platform solution for enabling wireless communication in 2.4GHz band over 802.15.4 physical layer. This is ISA100 compliant radio transceiver capable of enabling current wired units to be integrated into the 802.15.4 networks

Ratings and System Details

Operating Frequency	2405-2475 MHz
No. of channel	15
Channel Spacing	5MHz
Transmitted Power	-7 to +20dBm (Max) Adjusted as per Antenna gain used given in Table 1
Modulation	DSSS
Data Rate	250Kbps
Antenna Type	External
Number of antenna	10
Antenna Gain	As per Table 1
Supply Voltage	3.3 V DC
Dimensions	1.5 mm x 1.17 mm
Environmental	Operating temperature : -40°C to +85.5°C Relative Humidity : -5% to 95% (Non Condensing)

Test Conditions:

Voltage: 3.3 V DC

Environmental conditions:

Temperature: +23 º C **RH:** 62%

Operation Descriptions

Low Cost ISA100 Radio Module is 2.4GHz band 802.15.4 Radio. This module includes 16 Bit Microcontroller which is interfaced to a 802.15.4 compliant Radio Transceiver to provide Wireless communication over 15Channels of 2.4GHz band. The module also includes RF Power Amplifier and RF Low Noise Amplifier to enhance the range of Wireless Communications. The Module can communicate with the target boards through its connector over SPI. It can send out or receive, data - sent by or sent to, the target board through this SPI connection. Protocol specific Modulation/De-Modulation is done Microcontroller and the 802.15.4 packet is taken care by Radio Transceiver on the Module.

Test Set-up and Operation Mode

Principle of Configuration Selection

The test was performed under continuous transmission to obtain the maximum emissions.

Test Operation and Test Software

A keypad embedded on PCB was used to enable the continuous transmission and changing channels (low/mid/high) on the EUT for the tests in this report.

Special Accessories and Auxiliary Equipment

The product is been tested in 2 configurations.

1. Stand alone
2. with Host

Results for both configurations are reported.

Countermeasures to achieve EMC Compliance

- None

Table of carrier frequencies

Frequency Band	Channel No.	Frequency (MHz)
2400-2483.5 MHz	01	2405
	02	2410
	03	2415
	04	2420
	05	2425
	06	2430
	07	2435
	08	2440
	09	2445
	10	2450
	11	2455
	12	2460
	13	2465
	14	2470
	15	2475

Antennas Used

Antenna Number	Make	Model	Antenna Gain (dBi)	Power Level Setting (dBm)
Antenna 1	Hyperlink	WHON511 – 0001	4.0	15
Antenna 2	Antenna Factor	ANT2.4OEMHSC002V1	2.1	15
Antenna 3	Antenna Factor	ANT2.4OEMHSC001V1	2.1	15
Antenna 4	Antenna Factor	ANT-DB1-VDP-RPS	3.0	15
Antenna 5	L-COM/Hyperlink	HG2405RD-RSP	5.5	11
Antenna 6	Centurion	MAF94152	-2.0	20
Antenna 7	L-COM/Hyperlink	HG2409RD-RSP	9.0	11
Antenna 8	Hyperlink	HGV-2409U	8.0	15
Antenna 9	L-COM/Hyperlink	HG2475U-RNJ	8.0	15
Antenna 10	Hyperlink	HG2414P-120	14.0	11

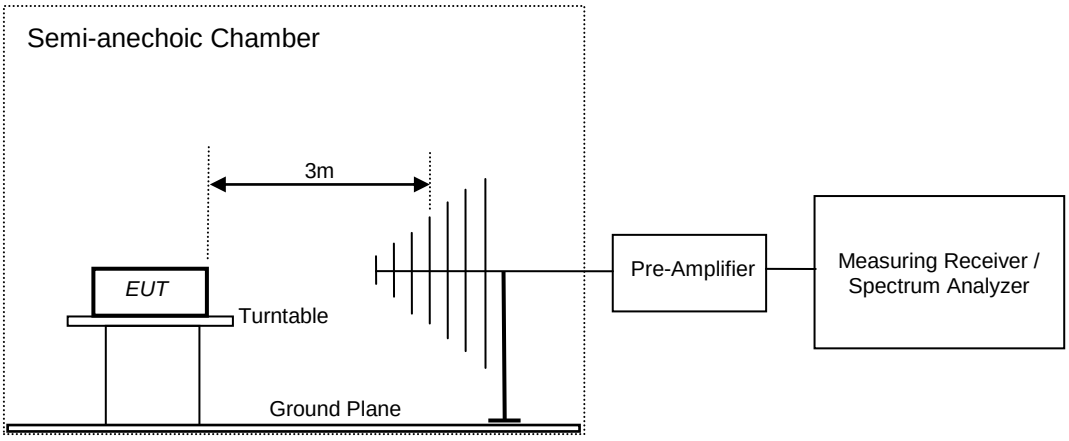
Table 1

Test Methodology

Radiated Emission Test

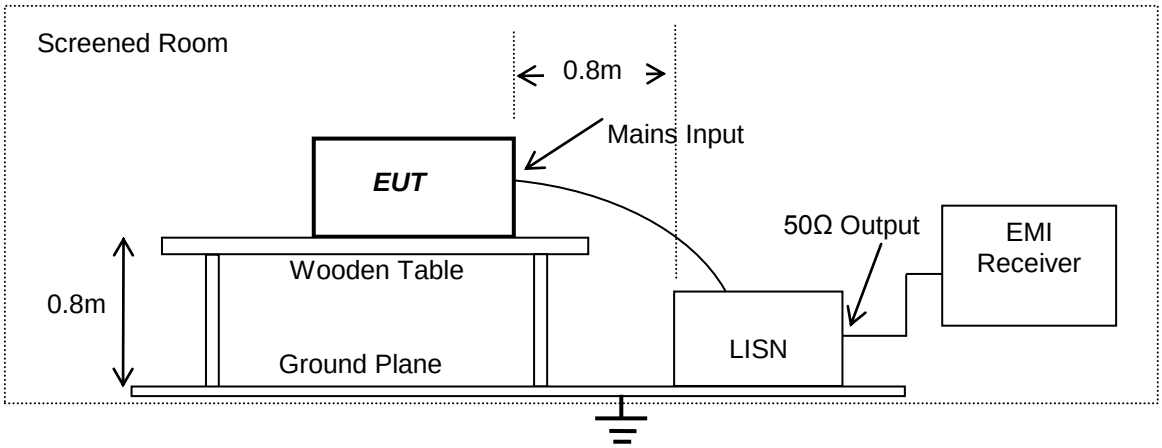
The radiated emission measurement was performed according to the procedures in ANSI C63.4-2003. The equipment under test (EUT) was placed at the middle of the 80 cm high turntable, and the EUT is 3 meters far from the measuring antenna. The turntable was rotated 360° for obtaining the maximum emission. The height of the measuring antennas was scanned between 1m and 4m, 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 1000MHz was performed by horn antenna. The measurement below 30MHz was performed by loop antenna.

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



Conducted Emission Test on a.c. mains line

The equipment under test (EUT) was placed on a wooden table 80cm above the ground plane, the LISN was place 80cm away from the EUT. The test was performed in accordance with ANSI C63.4: 2003, with the following: an initial measurement was performed in peak and average detection mode on the live and neutral lines. The pre-scan was performed by peak detection on both live and neutral conductors. Any emissions recorded within 20dB of the relevant limit line were re-measured using quasi-peak and average detections, the 6 worst cases was recorded in the table of results.



Test Results

Conducted Peak Output Power **Section 15.247(b)(3)**

Result **Pass**

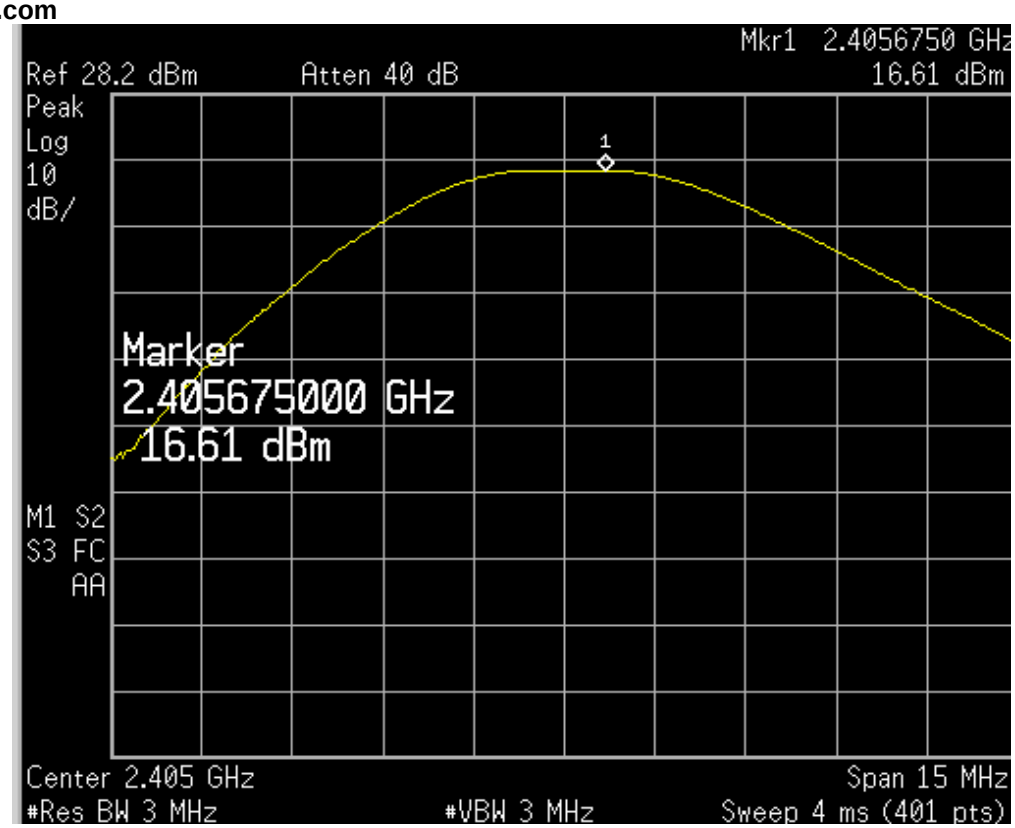
Test Specification	FCC 15.247 (b)(3)
Detector	Peak
Requirement	<1 watt (30dBm) for Digital Transmission system

Test Method:

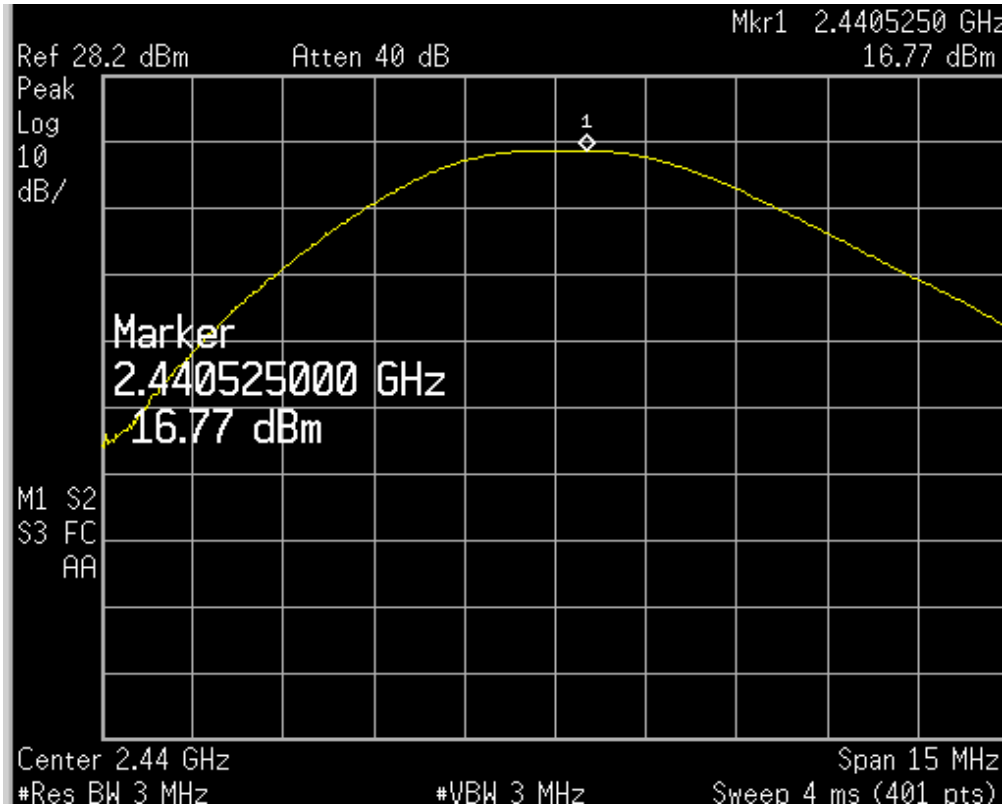
Test Result:

Power Level = 20 dBm

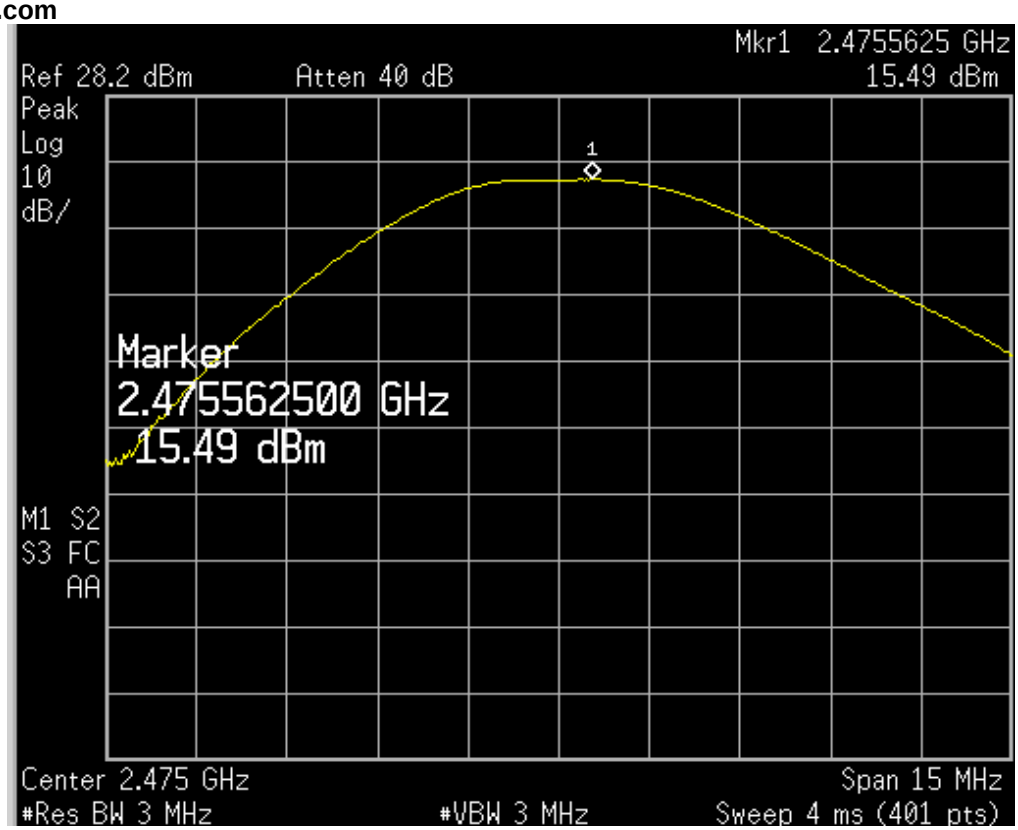
Channel	Frequency (MHz)	Measured RF Output power (dBm)	Cable Loss (dB)	Total Output power (dBm)	Limit (dBm)	Remarks
Low	2405.00	16.61	01.80	18.41	30.00	Pass
Mid	2440.00	16.77	01.80	18.57	30.00	Pass
High	2475.00	15.49	01.80	17.29	30.00	Pass



Channel Frequency: 2405 MHz



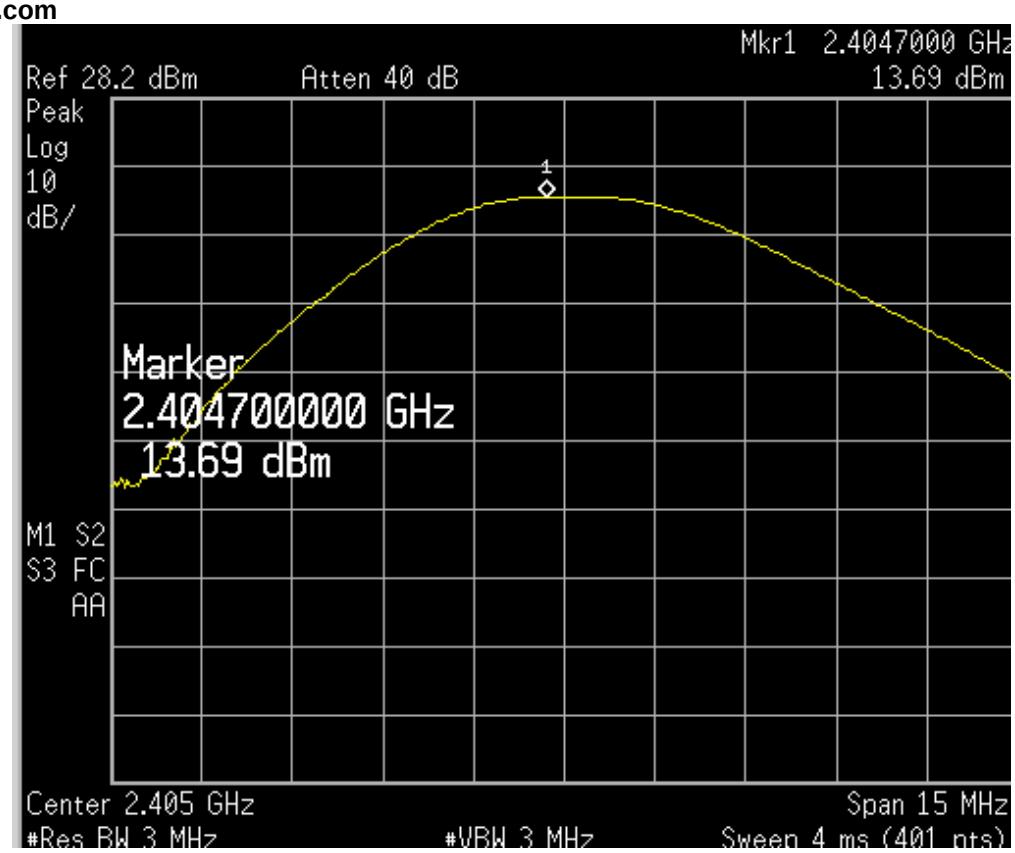
Channel Frequency: 2440 MHz



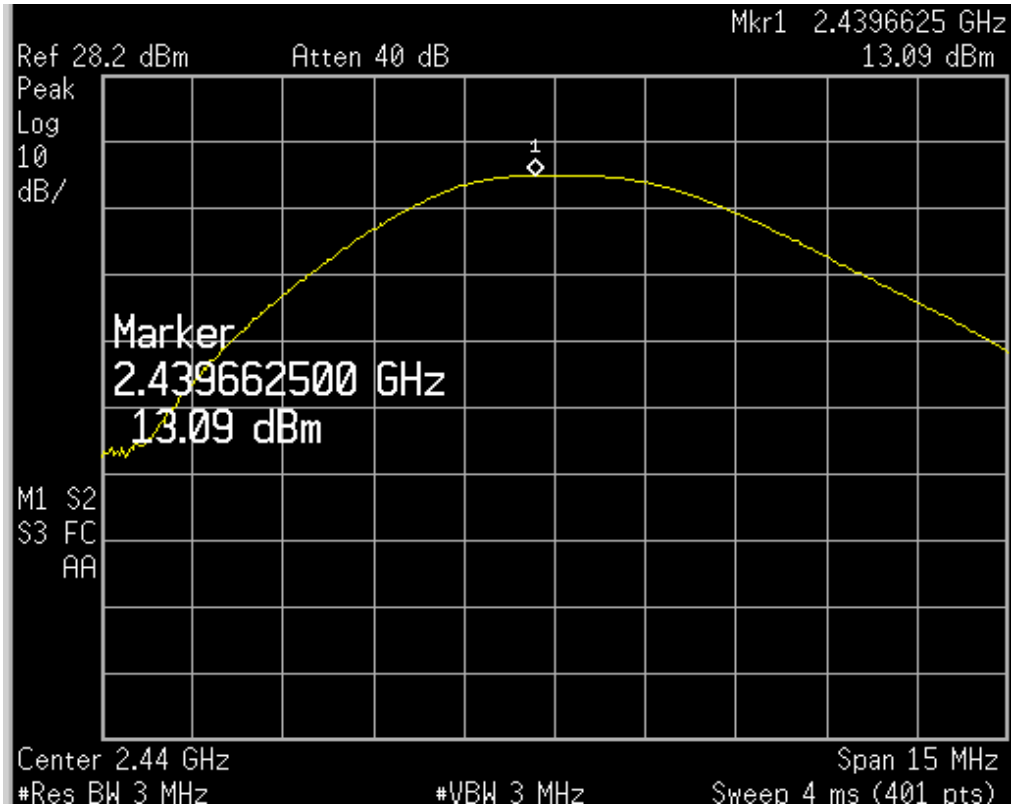
Channel Frequency: 2475 MHz

Power Level = 15 dBm

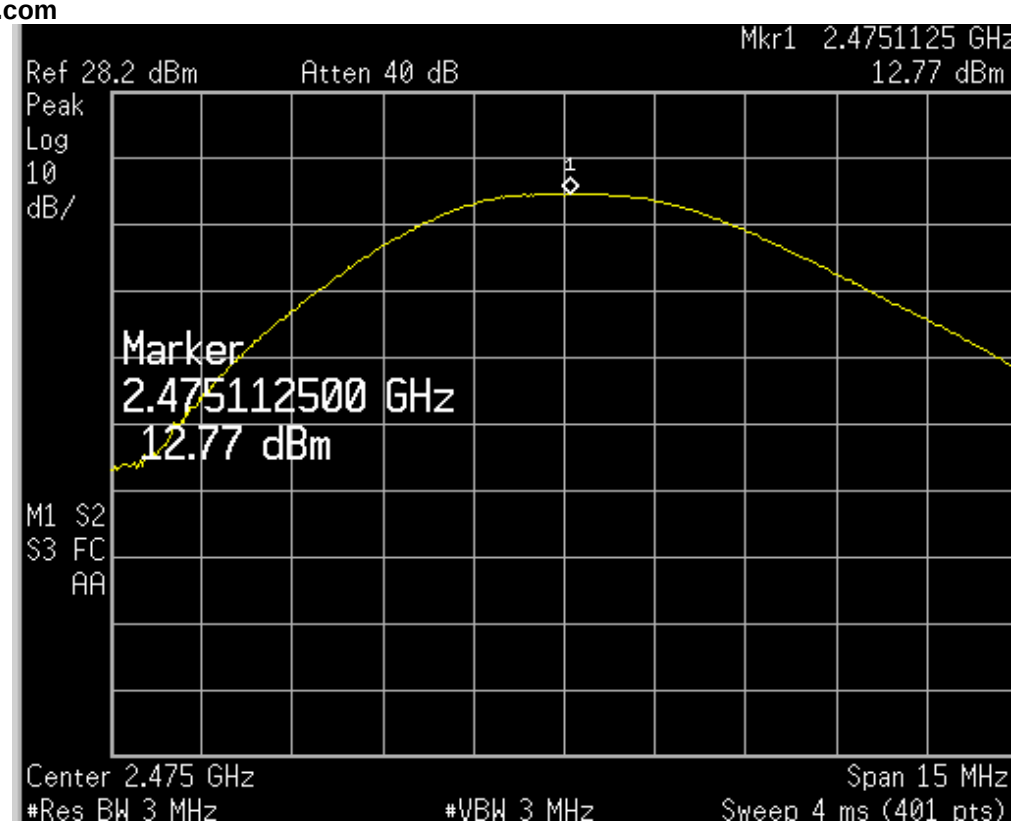
Channel	Frequency (MHz)	Measured RF Output power (dBm)	Cable Loss (dB)	Total Output power (dBm)	Limit (dBm)	Remarks
Low	2405.00	13.69	01.80	15.49	30.00	Pass
Mid	2440.00	13.09	01.80	14.89	30.00	Pass
High	2475.00	12.77	01.80	14.57	30.00	Pass



Channel Frequency: 2405 MHz



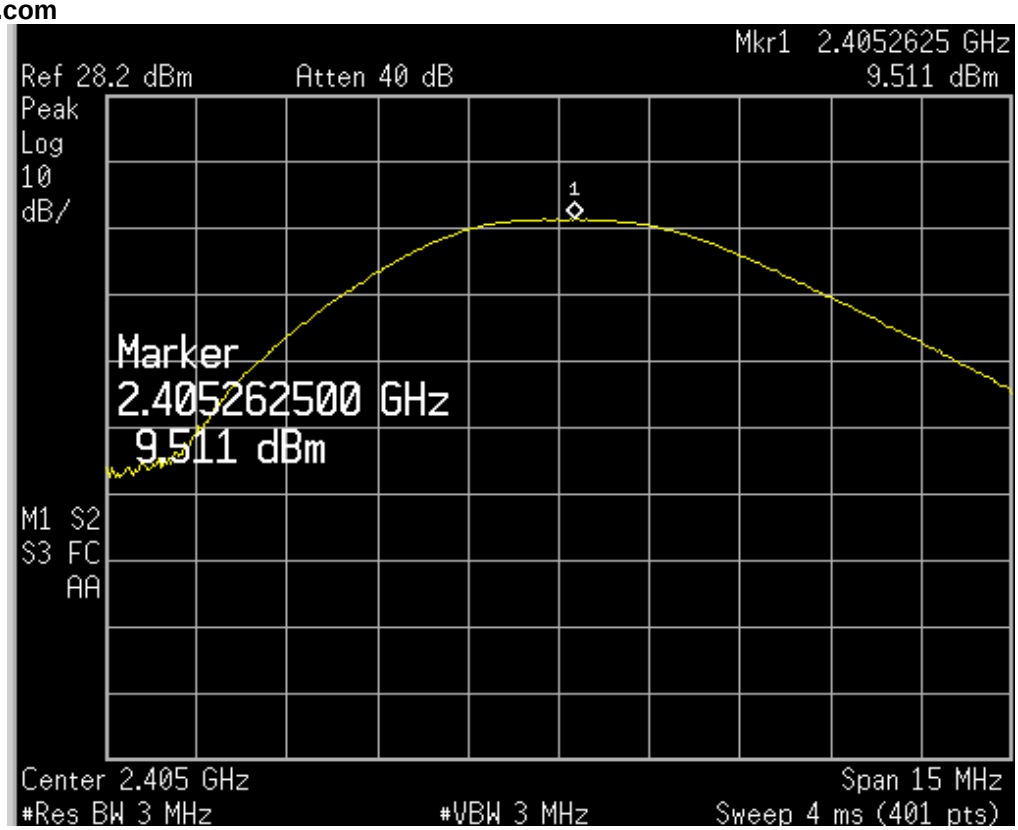
Channel Frequency: 2440 MHz



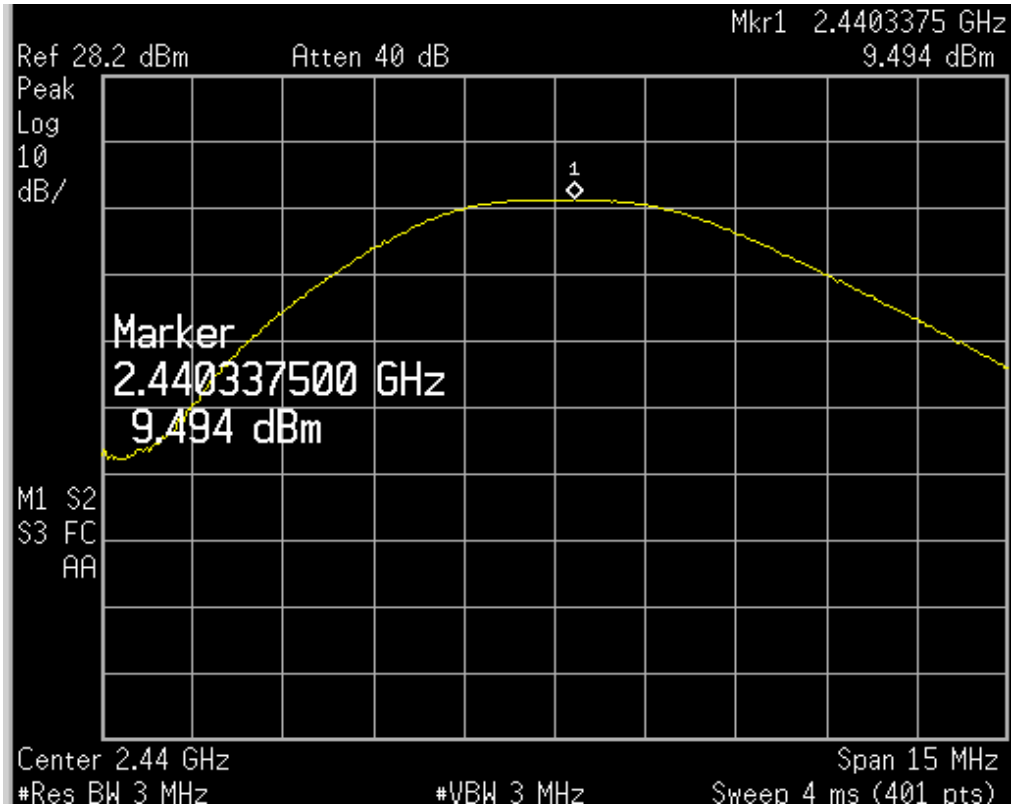
Channel Frequency: 2475 MHz

Power Level = 11 dBm

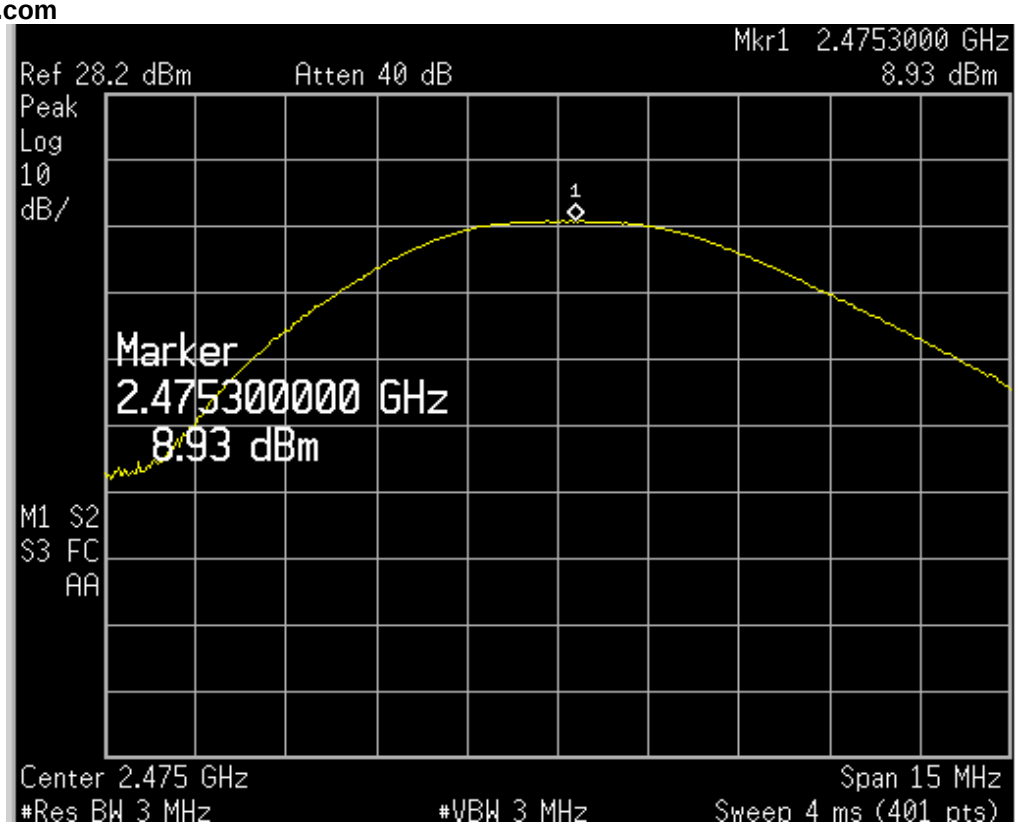
Channel	Frequency (MHz)	Measured RF Output power (dBm)	Cable Loss (dB)	Total Output power (dBm)	Limit (dBm)	Remarks
Low	2405.00	09.51	01.80	11.31	30.00	Pass
Mid	2440.00	09.49	01.80	11.29	30.00	Pass
High	2475.00	08.93	01.80	10.73	30.00	Pass



Channel Frequency: 2405 MHz



Channel Frequency: 2440 MHz



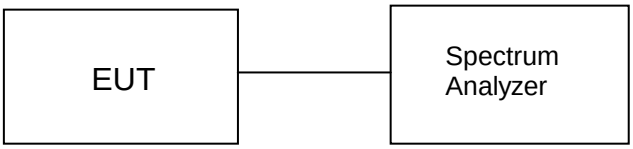
Channel Frequency: 2475 MHz

6 dB Bandwidth **Section 15.247(a)(2)**

Result **Pass**

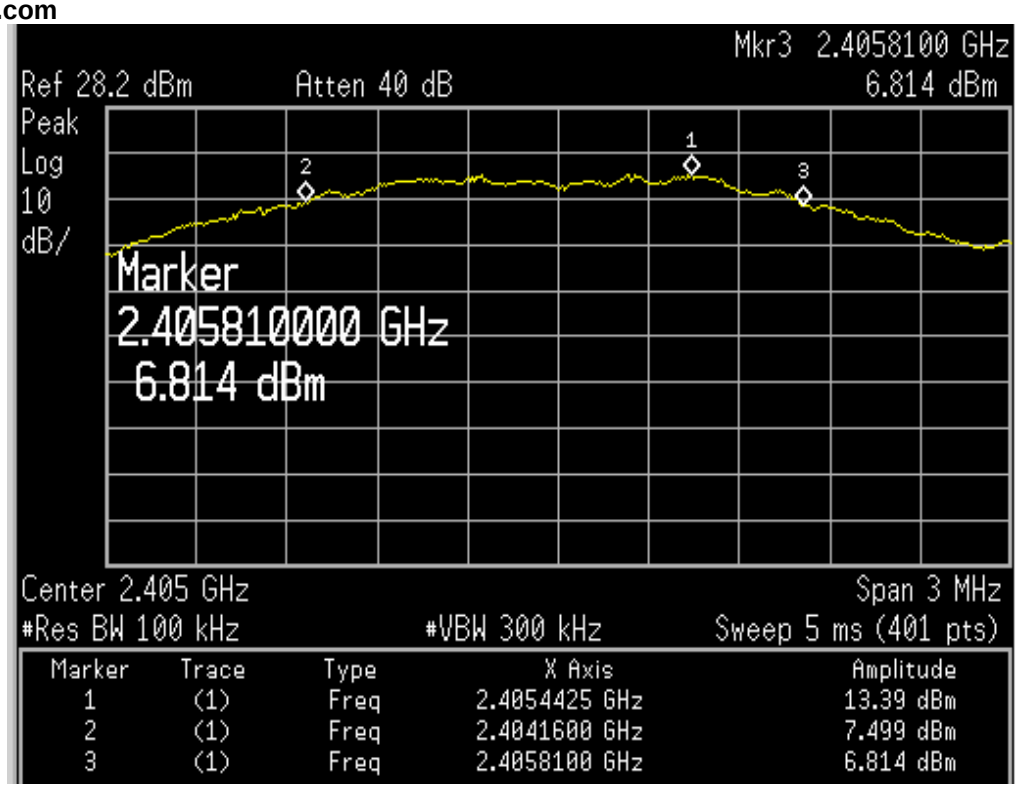
Test Specification FCC Part 15 Section 15.247 (a) (2)
Detector Function Peak
Requirement The minimum 6 dB bandwidth shall be at least 500 kHz.

Test Method:

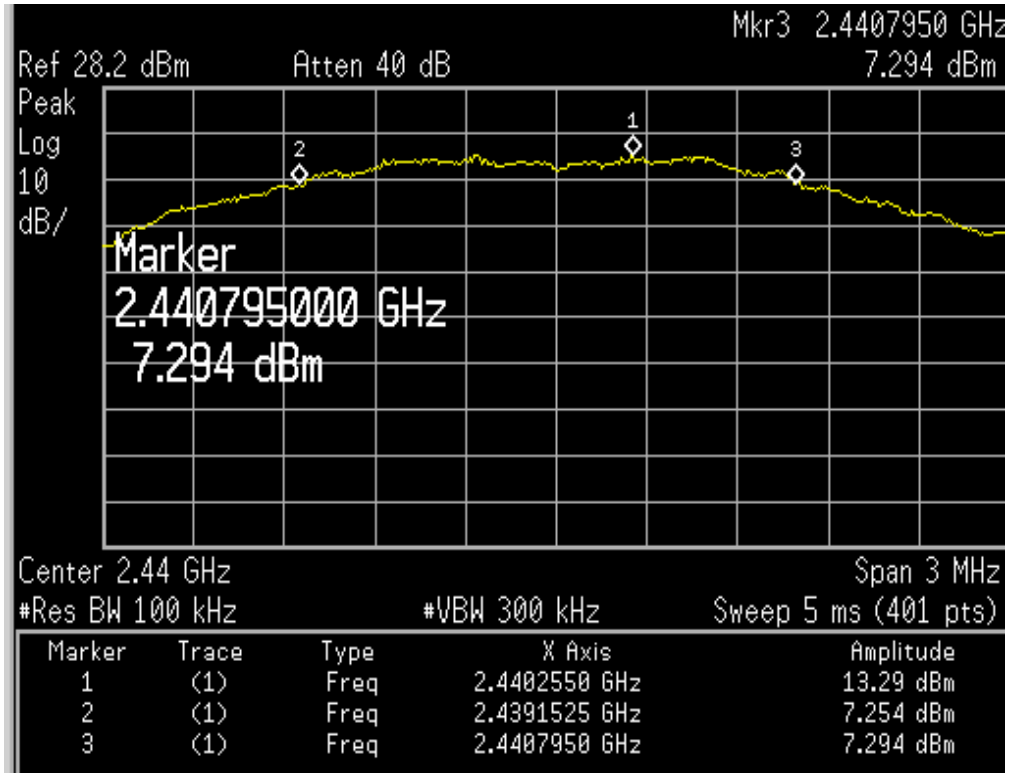


Test Result:
Power level = 20 dBm

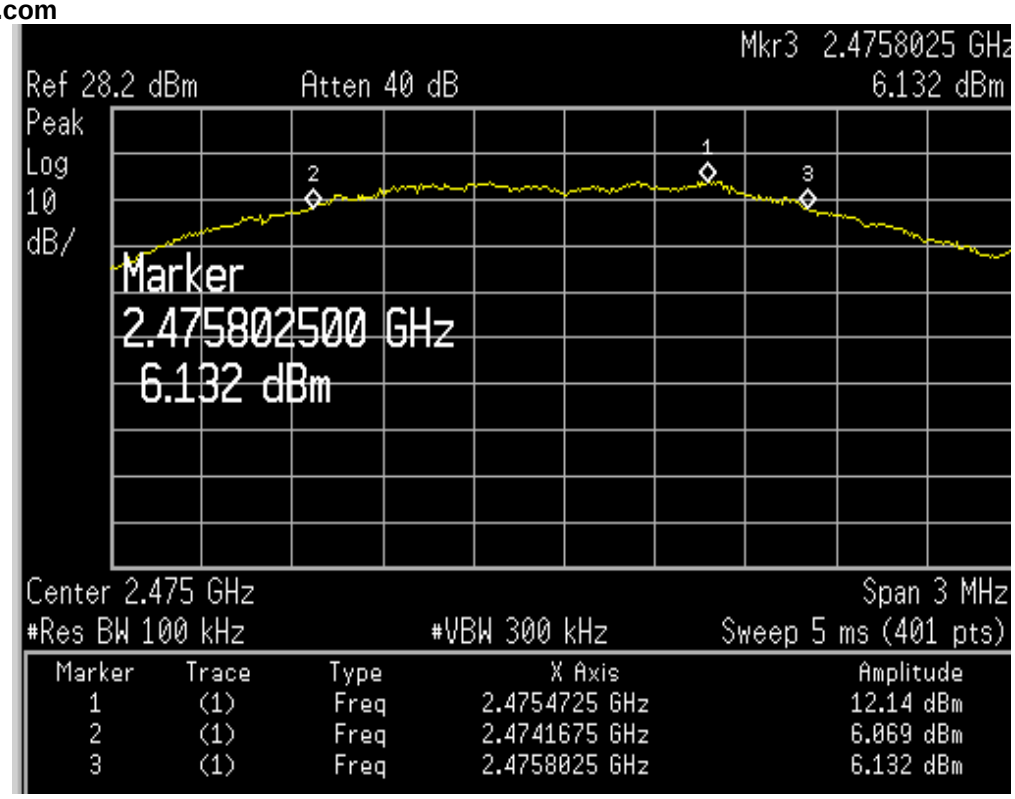
Carrier Frequency (MHz)	Lower Frequency (MHz)	Upper Frequency (MHz)	6 dB Bandwidth (MHZ)	99% Occupied Bandwidth (Hz)
2405.00	2404.16	2405.81	01.65	03.46
2440.00	2439.15	2440.79	01.64	03.28
2475.00	2474.16	2475.80	01.64	03.46



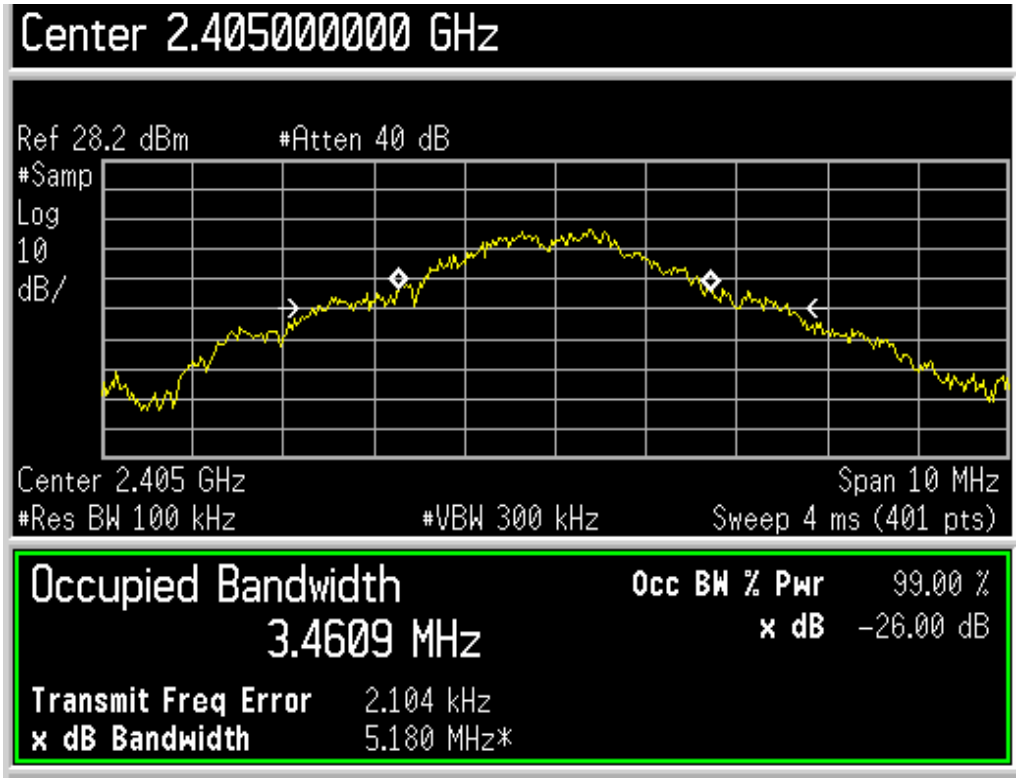
6 dB Bandwidth: Channel Frequency 2405 MHz



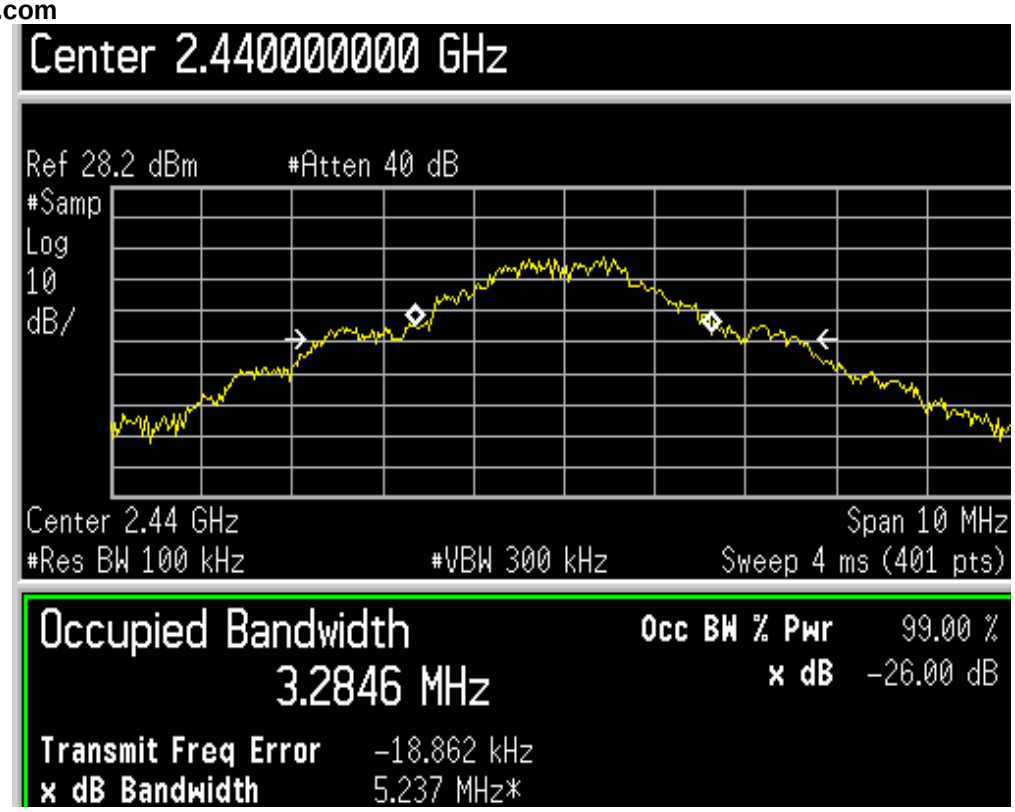
6 dB Bandwidth: Channel Frequency 2440 MHz



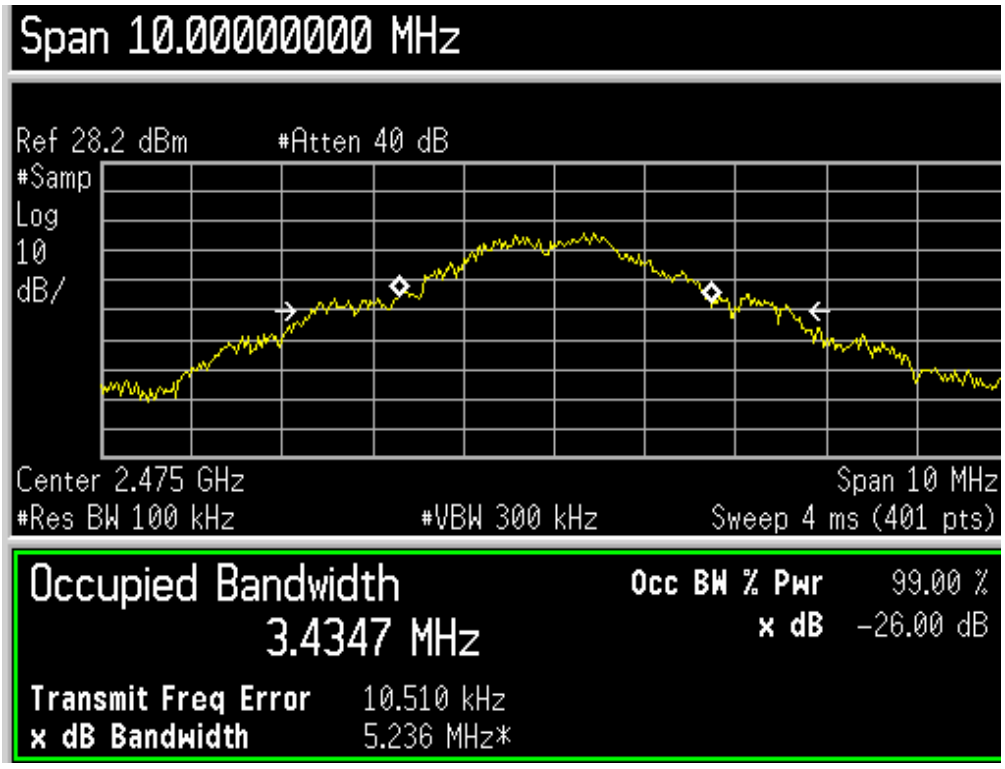
6 dB Bandwidth: Channel Frequency 2475 MHz



OBW: Channel Frequency 2405 MHz



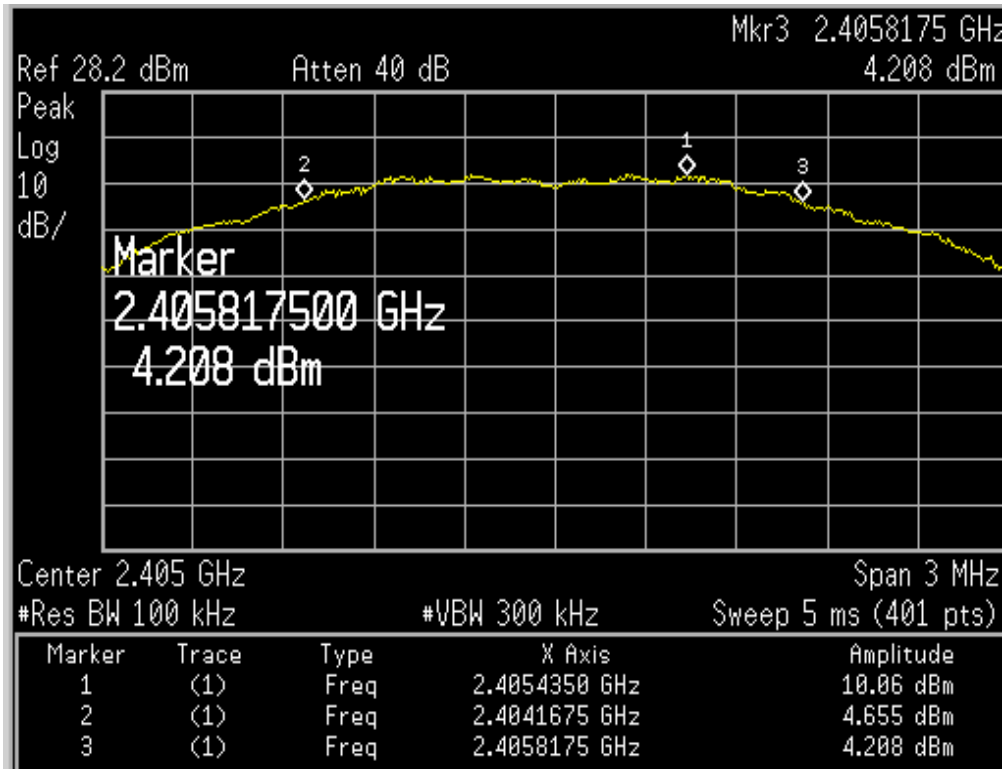
OBW: Channel Frequency 2440 MHz



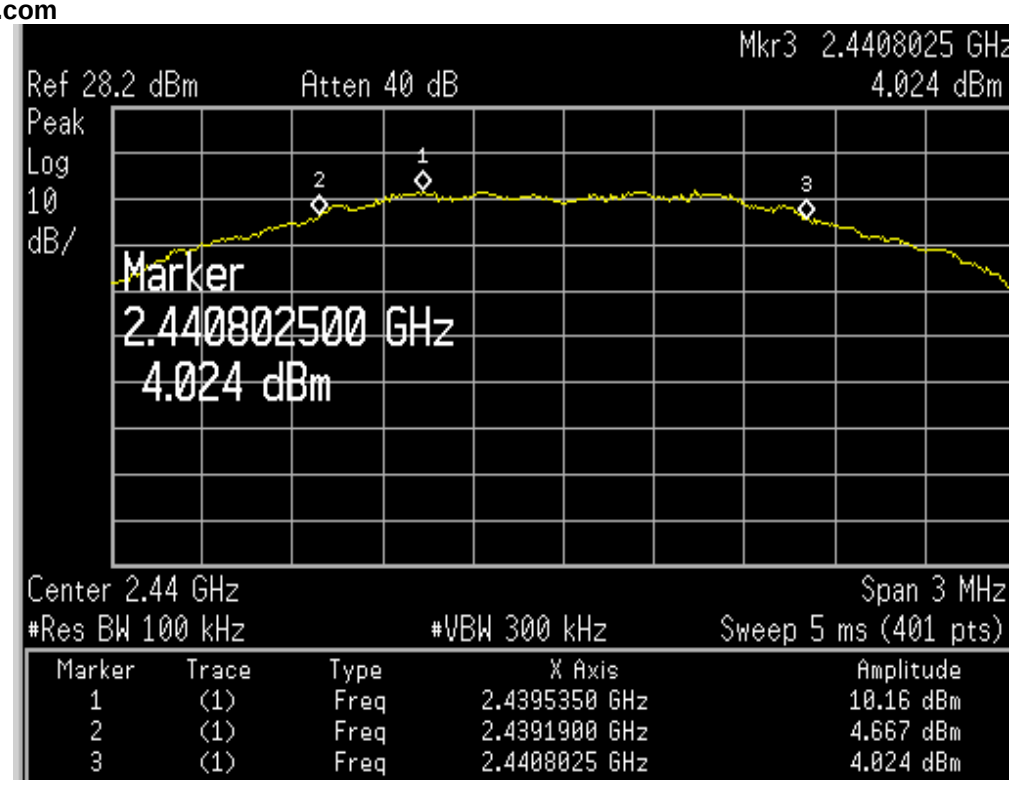
OBW: Channel Frequency 2475 MHz

Power Level = 15 dBm

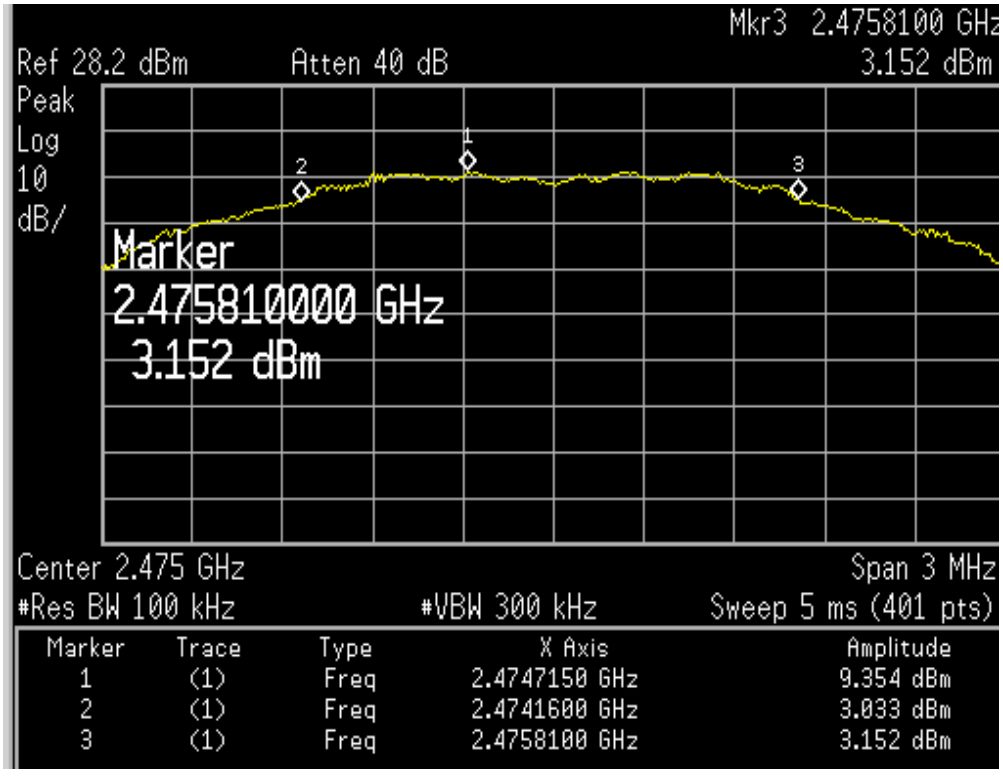
Carrier Frequency (MHz)	Lower Frequency (MHz)	Upper Frequency (MHz)	6 dB Bandwidth (MHZ)	99% Occupied Bandwidth (Hz)
2405.00	2404.16	2405.81	01.65	02.83
2440.00	2439.19	2440.80	01.61	02.89
2475.00	2474.16	2475.81	01.65	02.90



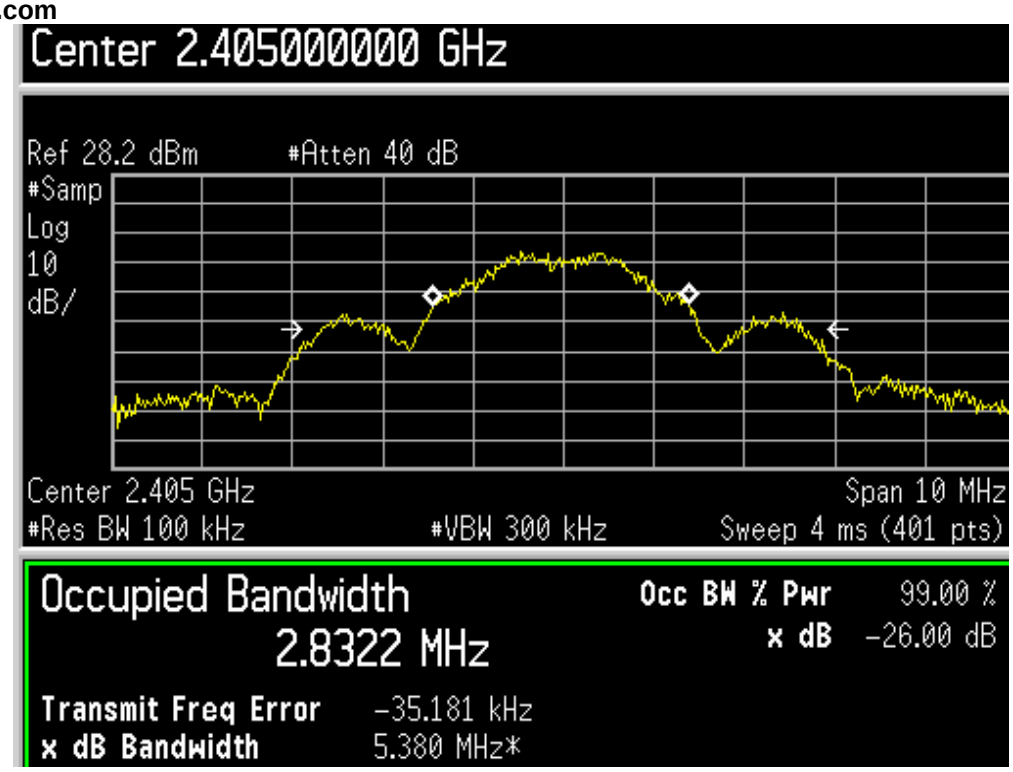
6 dB Bandwidth: Channel Frequency 2405 MHz



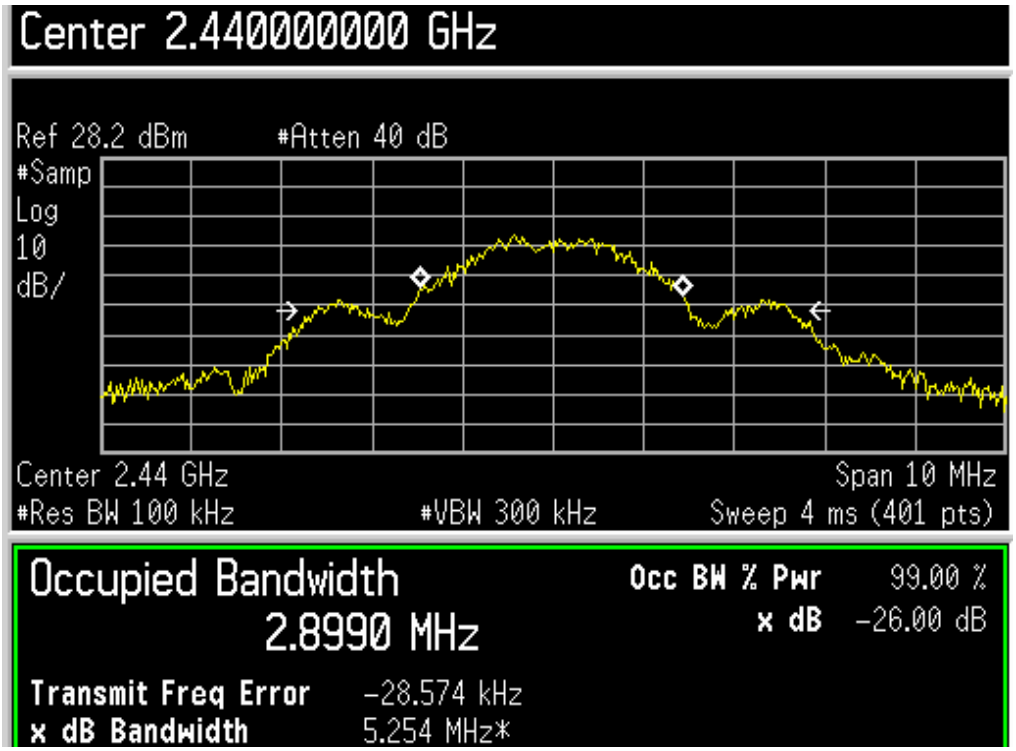
6 dB Bandwidth: Channel Frequency 2440 MHz



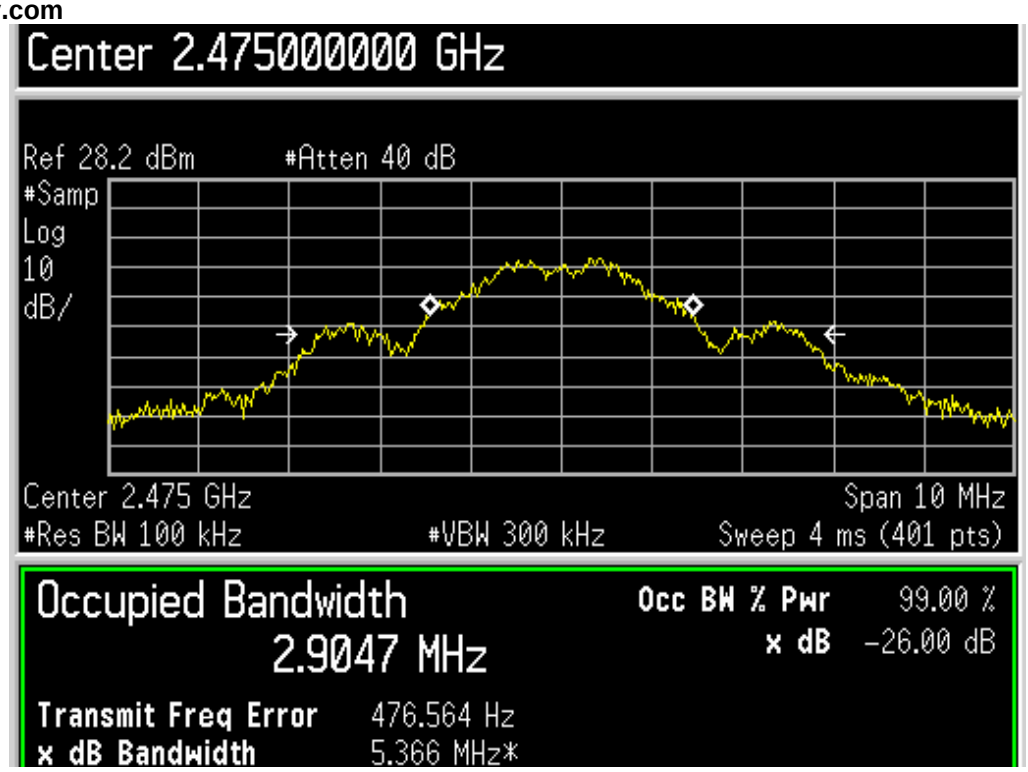
6 dB Bandwidth: Channel Frequency 2475 MHz



OBW: Channel Frequency 2405 MHz



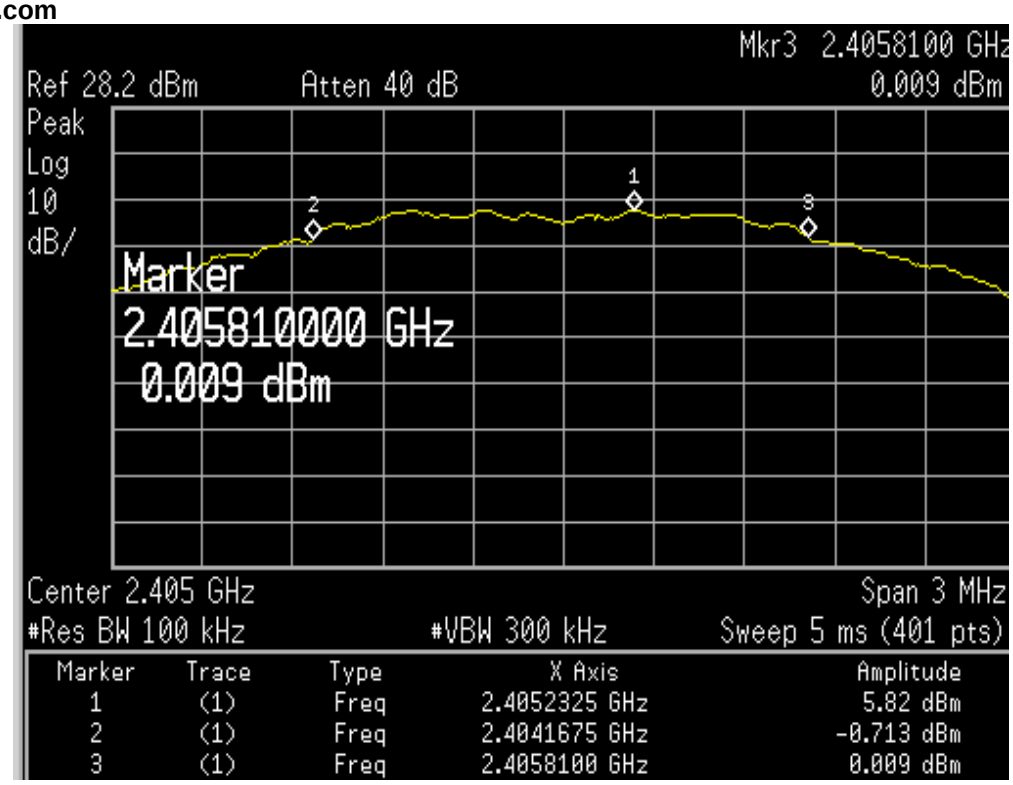
OBW: Channel Frequency 2440 MHz



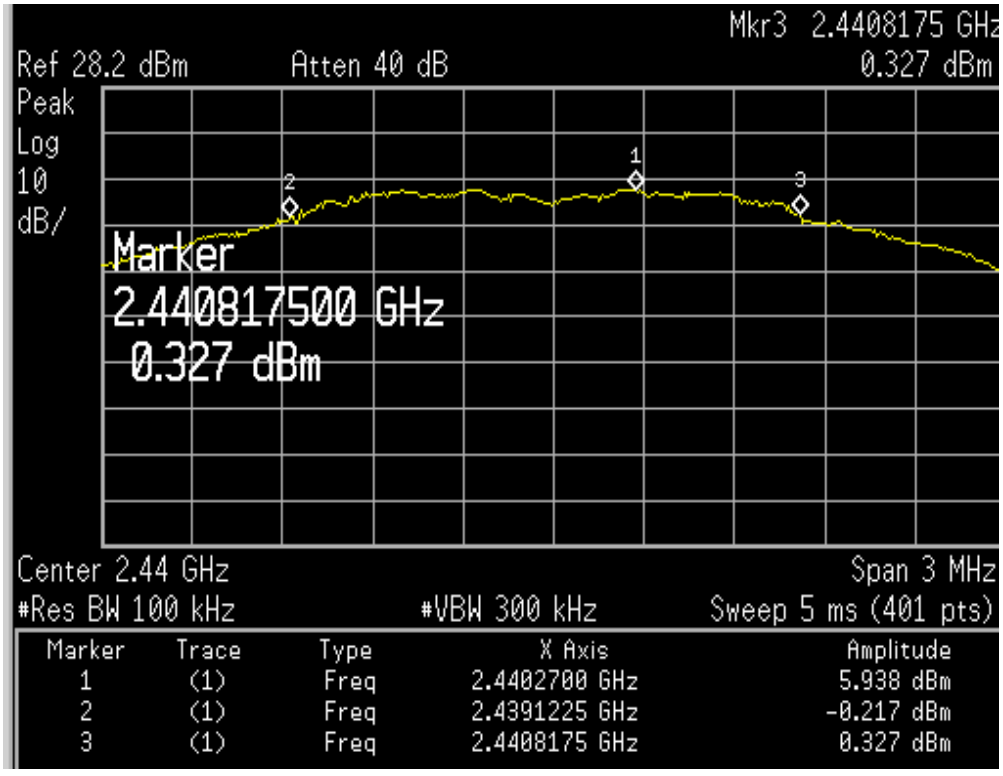
OBW: Channel Frequency 2475 MHz

Power Level = 11 dBm

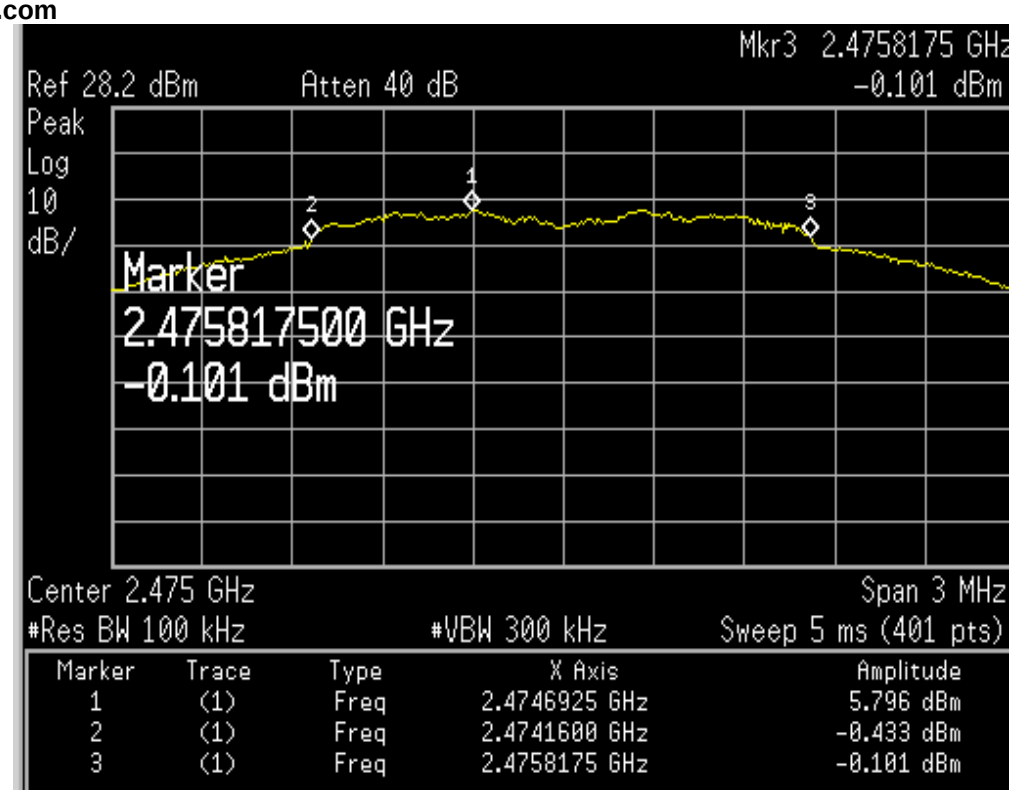
Carrier Frequency (MHz)	Lower Frequency (MHz)	Upper Frequency (MHz)	6 dB Bandwidth (MHZ)	99% Occupied Bandwidth (Hz)
2405.00	2404.16	2405.81	01.65	3.06
2440.00	2439.12	2440.81	01.69	3.26
2475.00	2474.16	2475.81	01.65	3.30



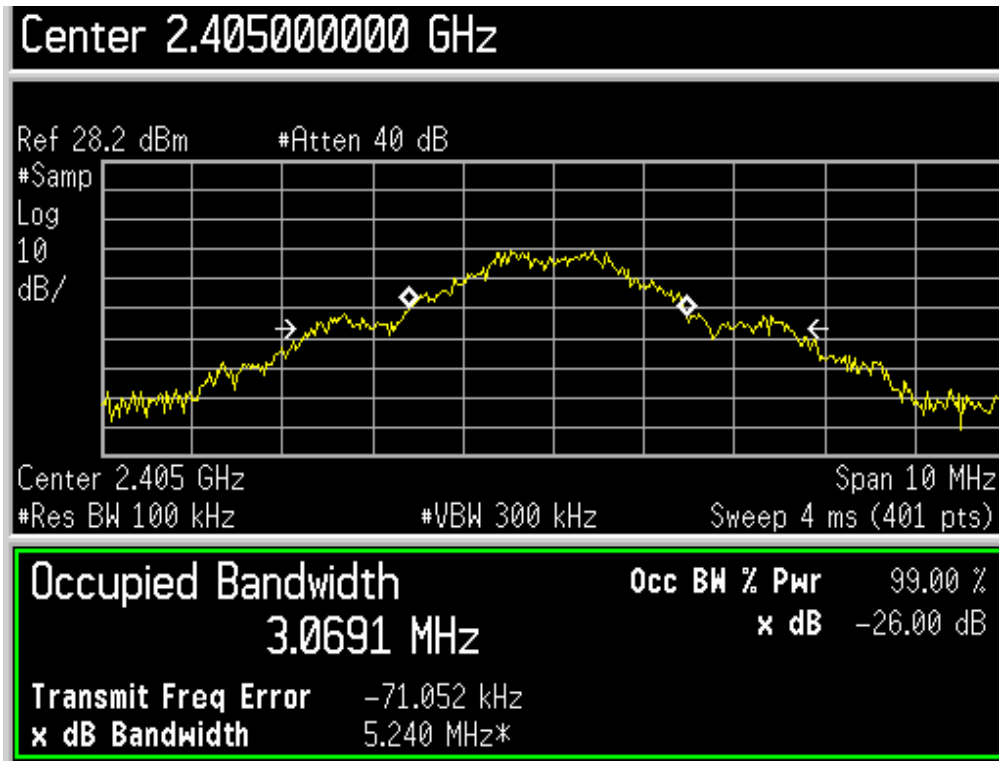
6 dB Bandwidth: Channel Frequency 2405 MHz



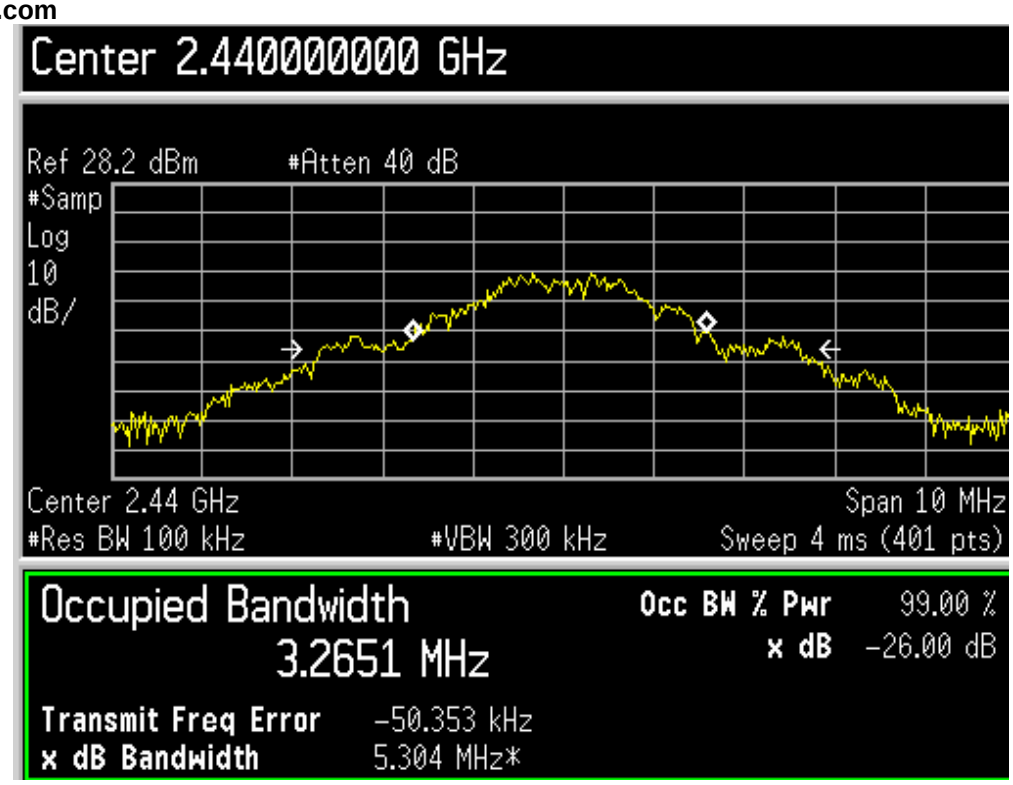
6 dB Bandwidth: Channel Frequency 2440 MHz



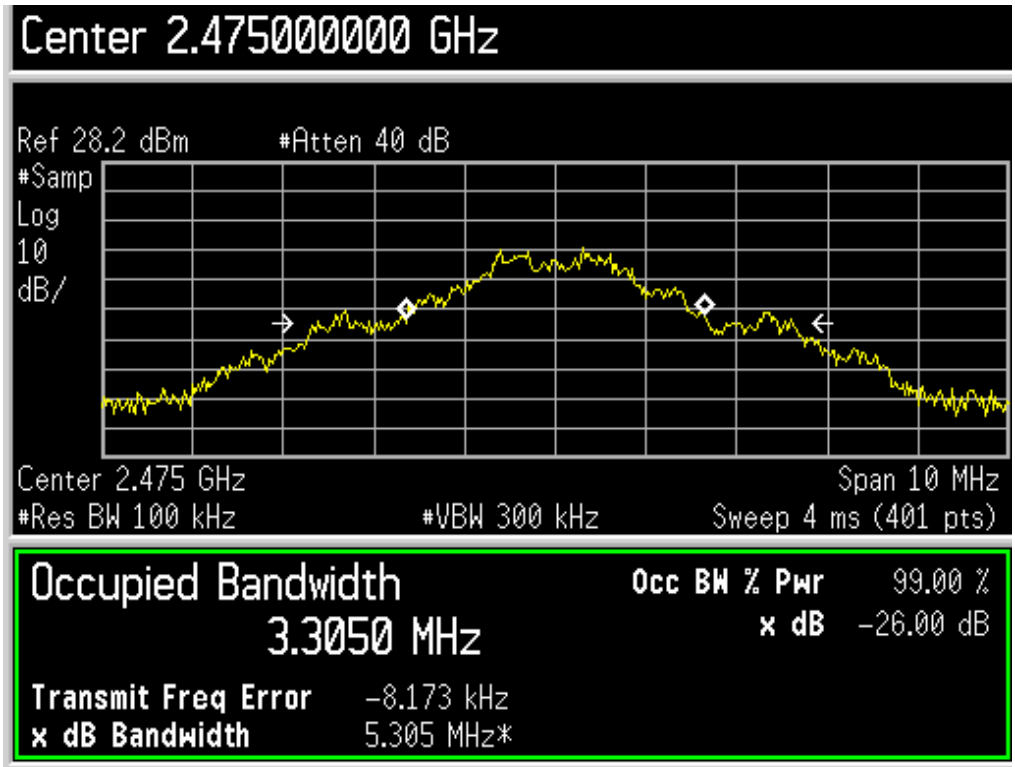
6 dB Bandwidth: Channel Frequency 2475 MHz



OBW: Channel Frequency 2405 MHz



OBW: Channel Frequency 2440 MHz



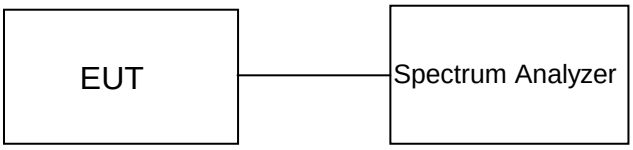
OBW: Channel Frequency 2475 MHz

Power Spectral Density **Section 15.247(e)**

Result **Pass**

Test Specification	FCC Part 15 Section 15.247 (e)
Detector Function	Peak
Requirement	For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

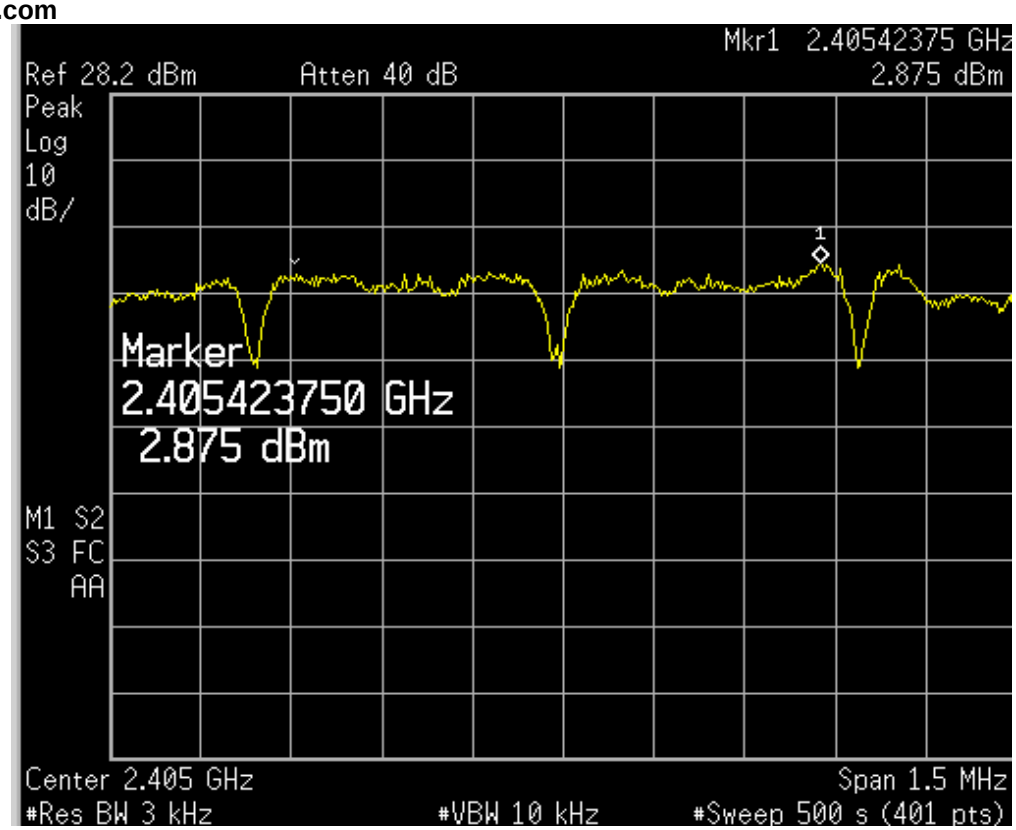
Test Method:



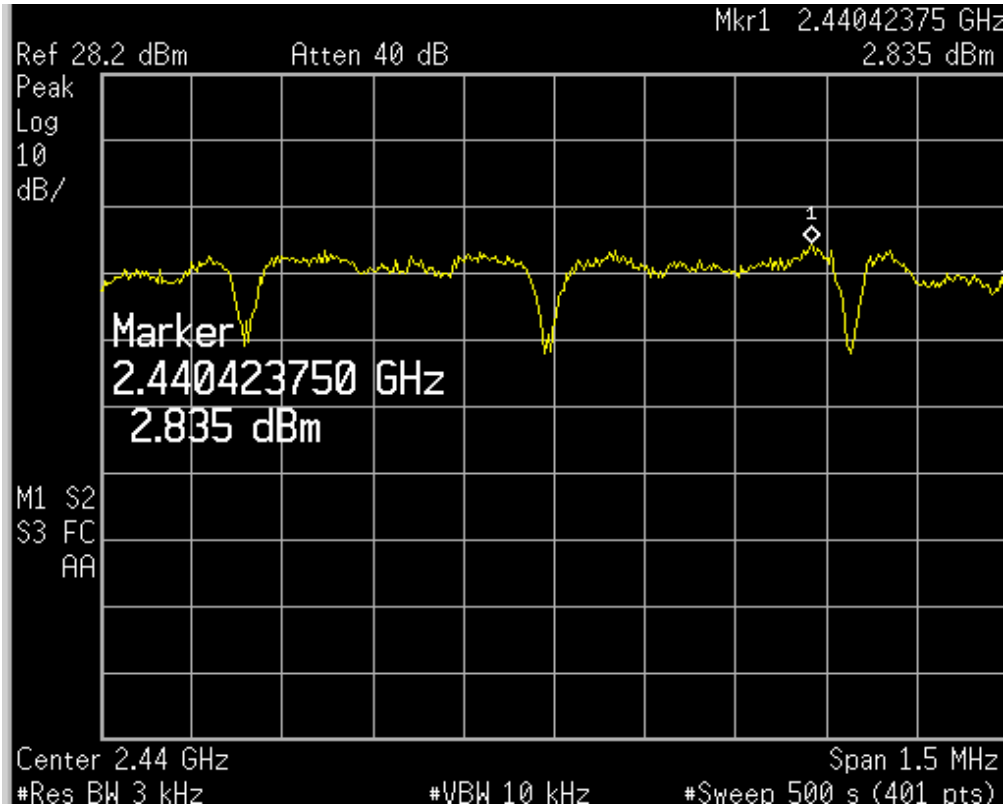
Test Result:

Power Level = 20 dBm

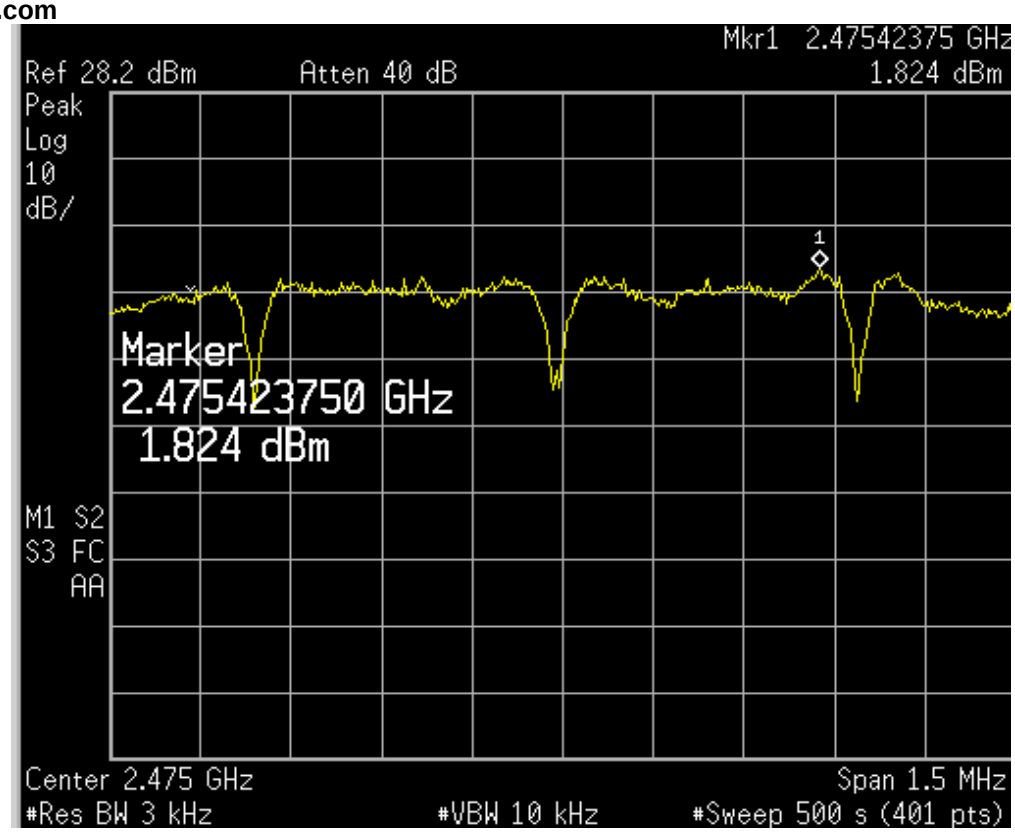
Frequency (MHz)	Measured RF Output power (dBm)	Cable Loss (dB)	PSD (dBm)	Limit (dBm)	Verdict
2405.00	02.87	01.80	04.67	8.00	Pass
2440.00	02.83	01.80	04.63	8.00	Pass
2475.00	01.82	01.80	03.62	8.00	Pass



Channel Frequency 2405 MHz



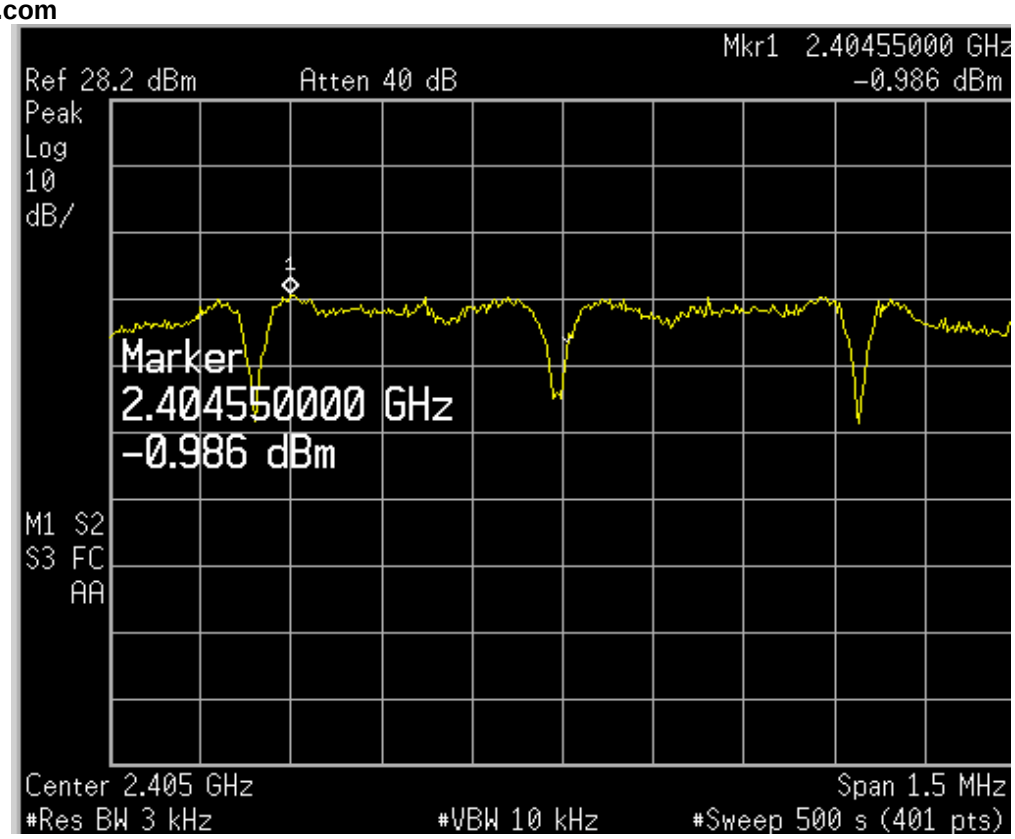
Channel Frequency 2440 MHz



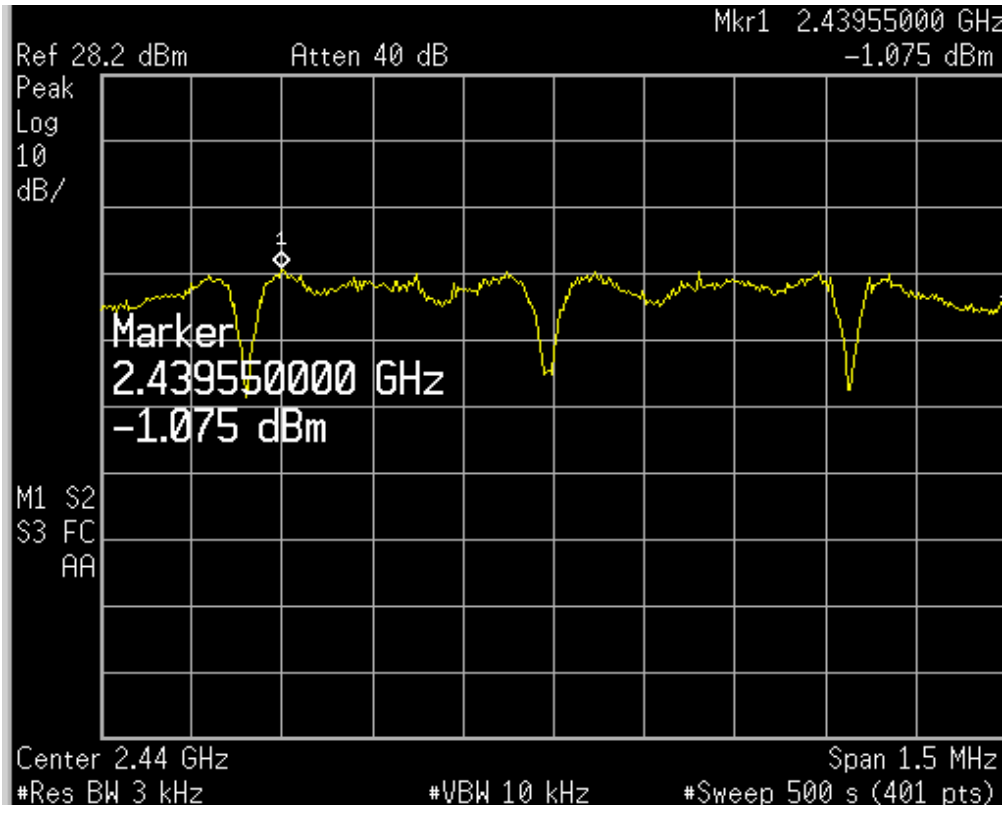
Channel Frequency 2475 MHz

Power Level = 15 dBm

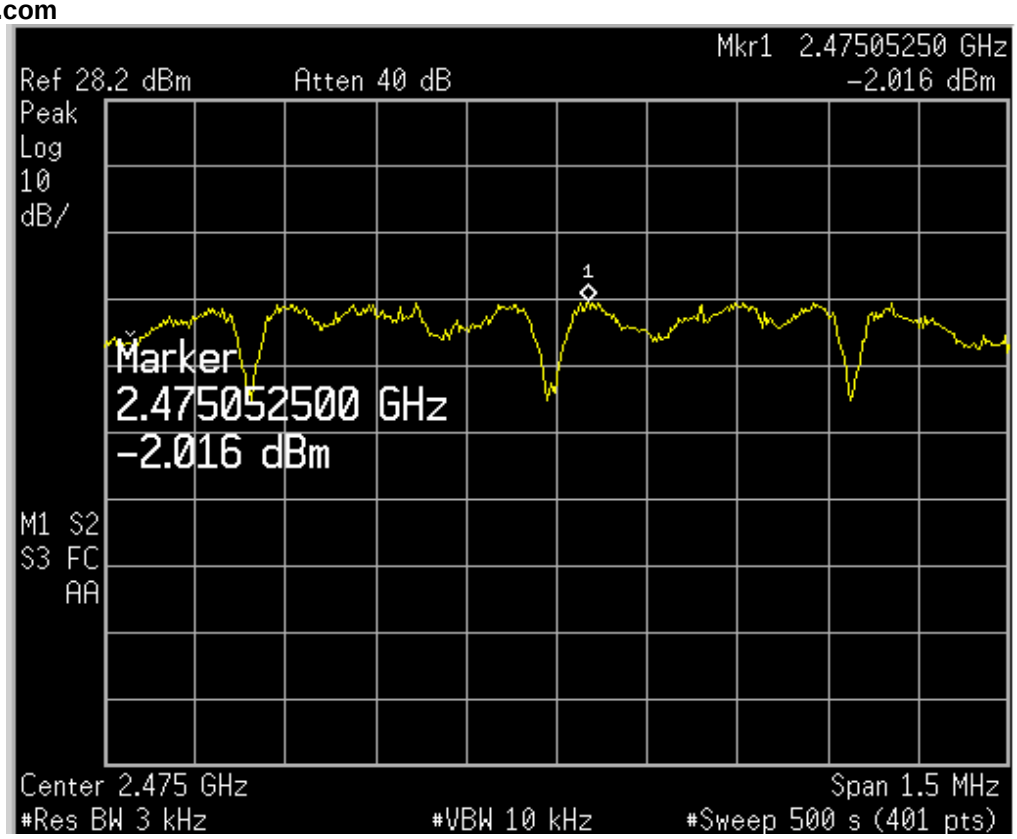
Frequency (MHz)	Measured RF Output power (dBm)	Cable Loss (dB)	PSD (dBm)	Limit (dBm)	Verdict
2405.00	-00.98	01.80	00.82	08.00	Pass
2440.00	-01.07	01.80	00.73	08.00	Pass
2475.00	-02.01	01.80	-00.21	08.00	Pass



Channel Frequency 2405 MHz



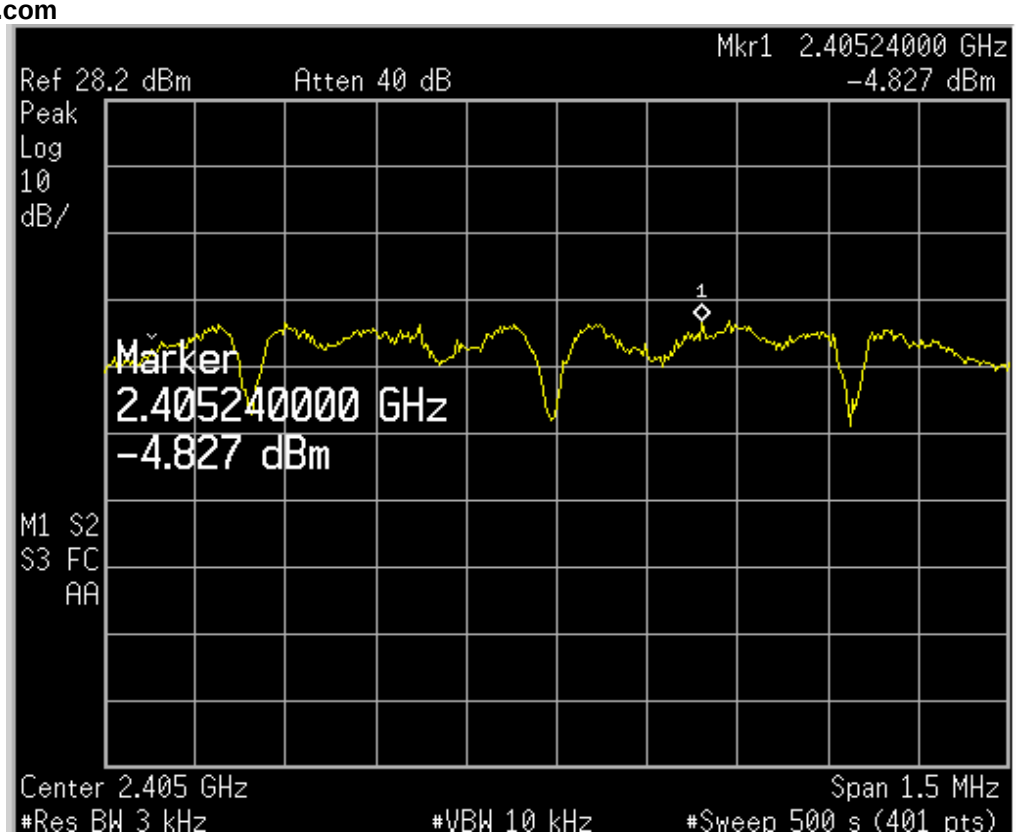
Channel Frequency 2440 MHz



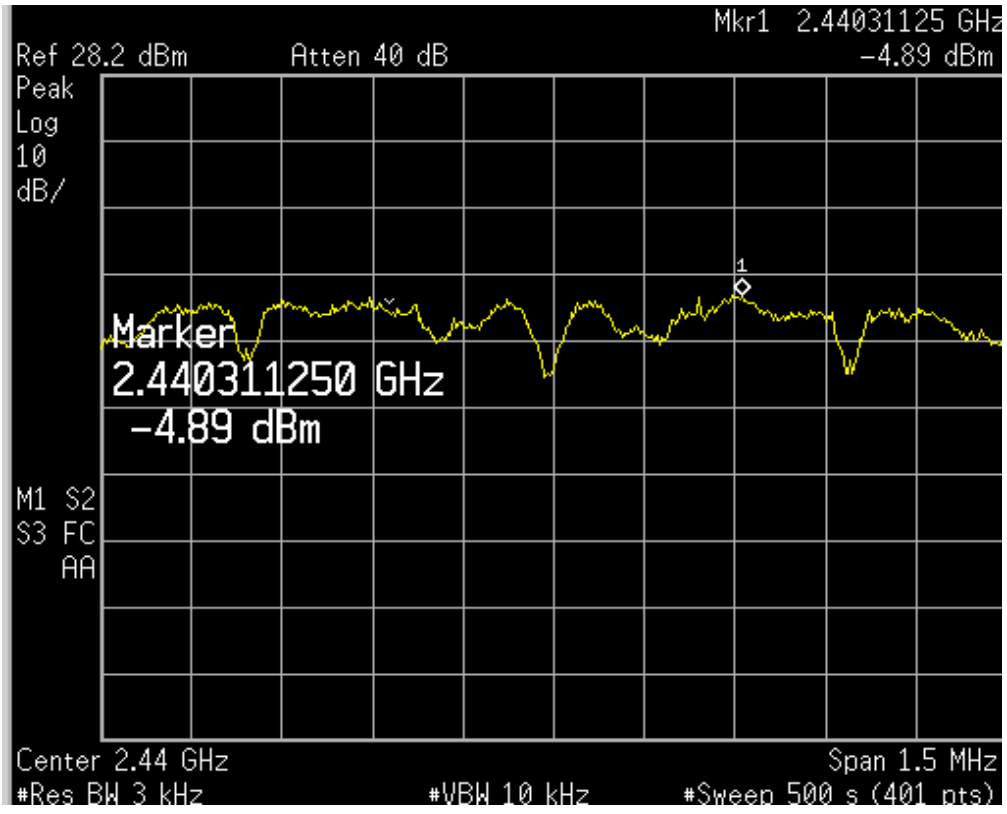
Channel Frequency 2475 MHz

Power Level = 11 dBm

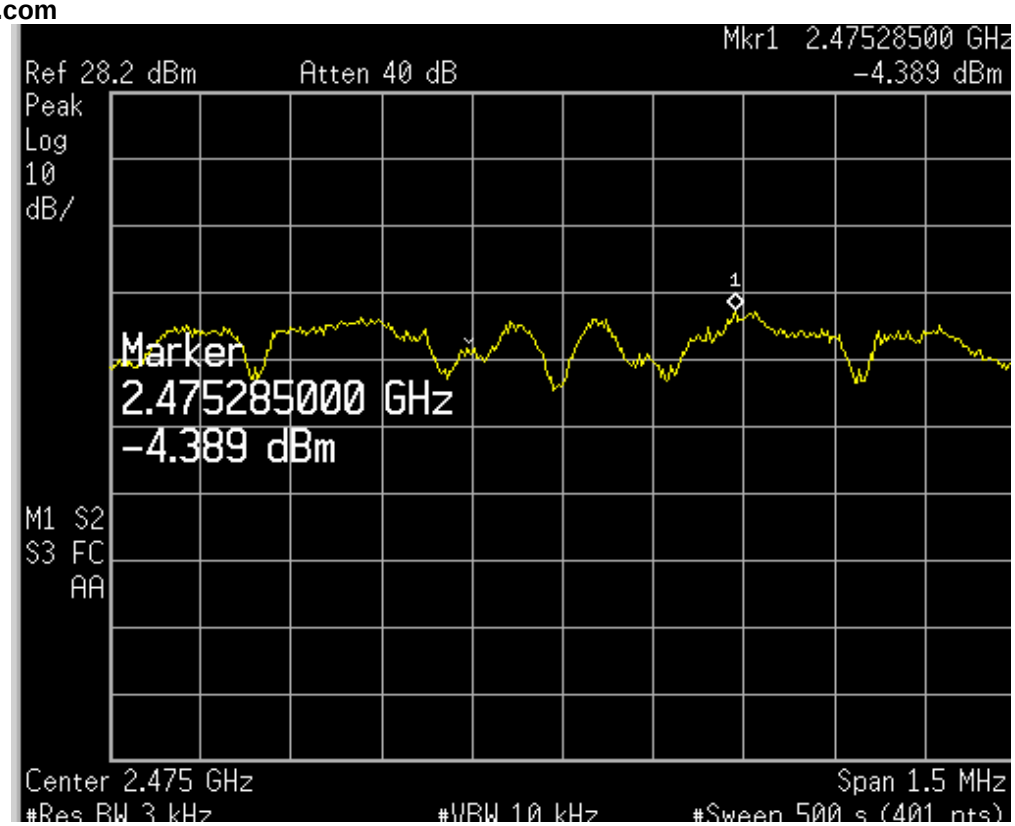
Frequency (MHz)	Measured RF Output power (dBm)	Cable Loss (dB)	PSD (dBm)	Limit (dBm)	Verdict
2405.00	-04.82	01.80	-03.02	08.00	Pass
2440.00	-04.89	01.80	-03.09	08.00	Pass
2475.00	-04.38	01.80	-02.58	08.00	Pass



Channel Frequency 2405 MHz



Channel Frequency 2440 MHz



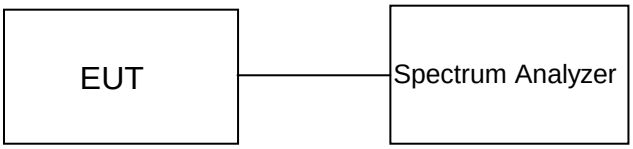
Channel Frequency 2475 MHz

Band-edge Compliance **Section 15.247 (d)**

Result **Pass**

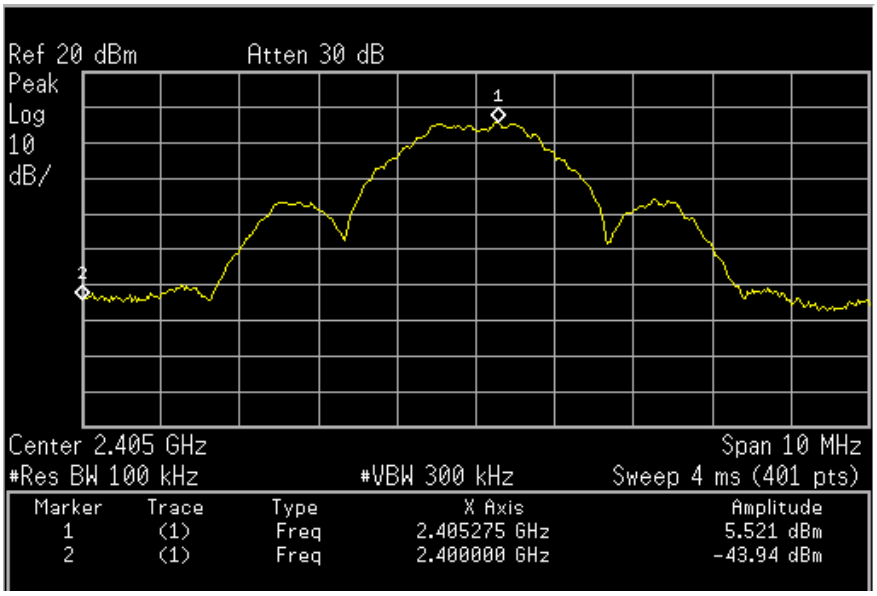
Test Specification	FCC Part 15, Subpart C
Detector Function	Peak
Requirement	In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 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:

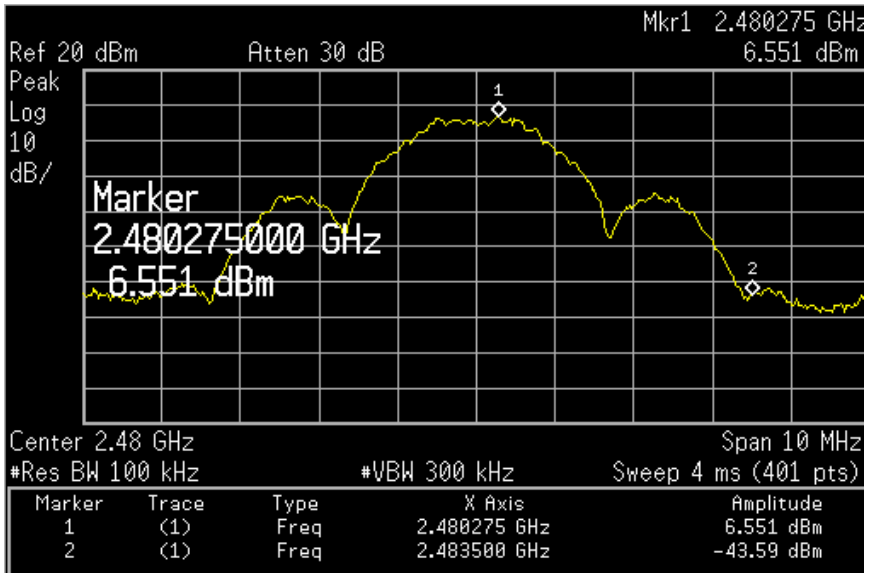


Test Result:

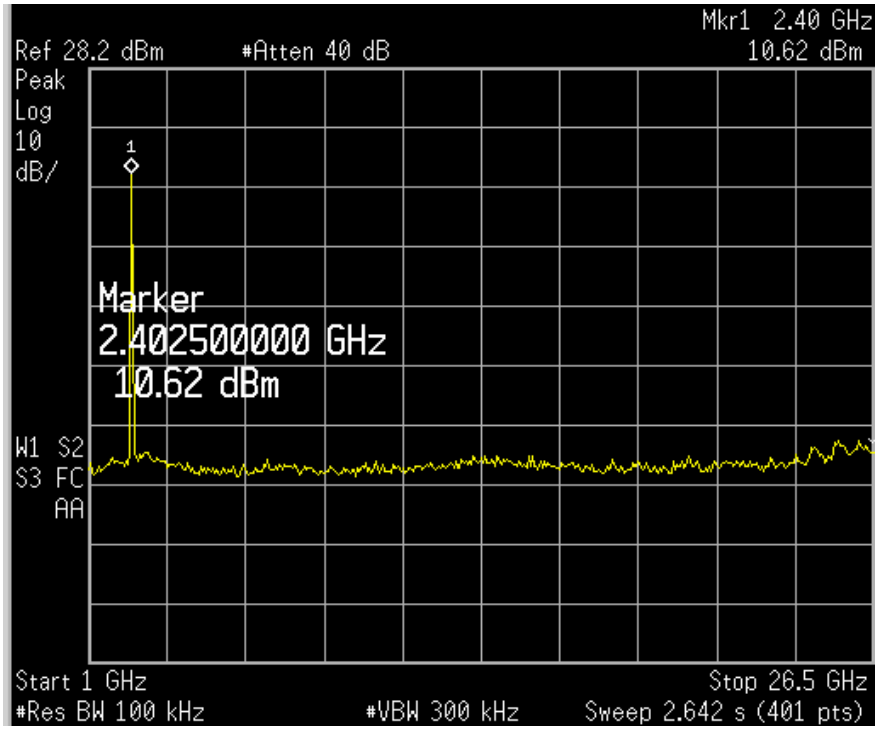
Channel	Fundamental Frequency (MHz)	Value at Band Edge		Limit (dB)	Remarks
		Frequency (MHz)	Value (dB)		
Low	2405.00	2400.0	-43.94	-20.00	Pass
High	2475.00	2483.5	-43.59	-20.00	Pass



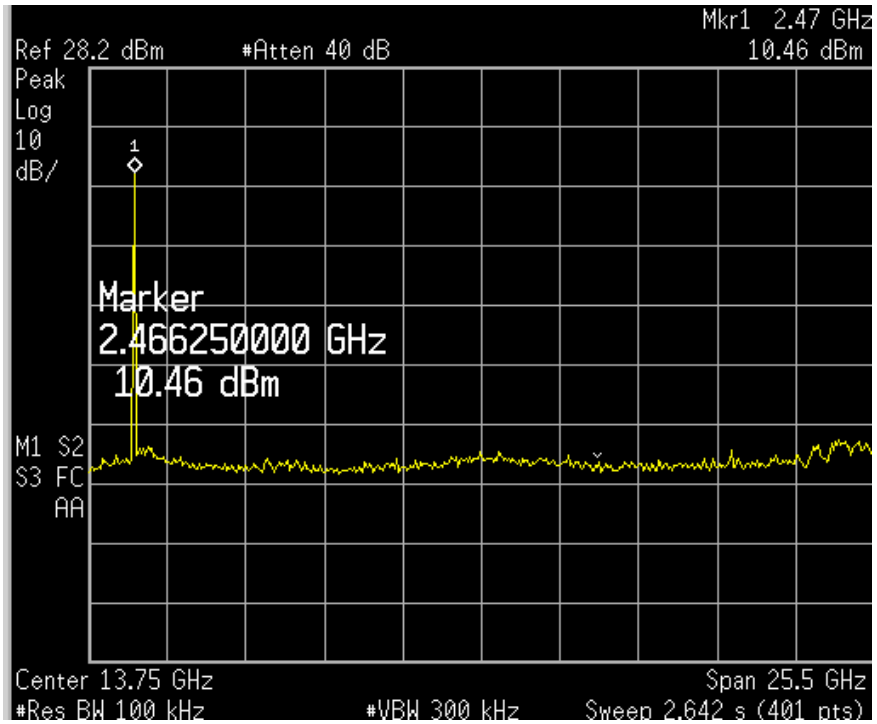
Channel Frequency 2405 MHz



Channel Frequency 2475 MHz



Channel Low



Channel High

Spurious Radiated Emissions **Section 15.209**

Result **Pass**

Test Specification	F CC 15.207
Test Method	ANSI C63.4-2003
Measurement Location	Semi Anechoic Chamber
Supply Voltage	3.3 Volt DC
Measuring Frequency Range	12MHz – 10GHz(Up to 10th harmonic of the highest fundamental frequency)
Measuring Distance	3m
Detection	QP for frequency below 1GHz, Average for frequency above 1GHz
Requirement	The emission should not exceed the limits as mentioned in the table below

Limit for Radiated Emission of Section 15.209:

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 88,50 – 53.80, 53.80 – 43.00 and 49.5dBμV/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.

Antenna 01

Channel (MHz)	Antenna Polarization	Spurious Emission (MHz)	Field strength (dBµV/m)	Limit (dBm)	Margin (dbm)
2405	H	169.15	32.00	43.50	-11.50
		183.20	25.20	43.50	-18.30
		354.23	33.24	46.00	-12.76
		542.31	31.21	46.00	-14.79
		2390.00(P)	NF	74.00	
		2390.00(Av)	NF	54.00	
		2405.00 (P)	64.25	*	-
		2405.00 (Av)	56.50	*	-
		4810.00 (P)	50.33	74.00	-23.67
		4810.00 (Av)	42.58	54.00	-11.42
		7215.00 (P)	29.60	74.00	-44.40
		7215.00 (Av)	21.85	54.00	-32.15
	V	169.15	20.23	43.50	-23.27
		354.13	25.26	46.00	-20.74
		562.30	30.00	46.00	-16.00
		2390.00(P)	NF	74.00	
		2390.00(Av)	NF	54.00	
		2405.00 (P)	75.50	*	-
		2405.00 (Av)	67.75	*	-
		4810.00 (P)	46.00	74.00	-28.00
		4810.00 (Av)	38.25	54.00	-15.75
		7215.00 (P)	29.18	74.00	-44.82
		7215.00 (Av)	21.43	54.00	-32.57
2440	H	169.15	32.00	43.50	-11.50
		183.20	25.20	43.50	-18.30
		354.23	33.24	46.00	-12.76
		2440.00 (P)	70.00	*	-
		2440.00 (Av)	62.25	*	-
		4880.00 (P)	53.20	74.00	-20.80
		4880.00 (Av)	45.45	54.00	-08.55
		7320.00 (P)	29.36	74.00	-44.64
		7320.00 (Av)	21.63	54.00	-32.37
	V	169.15	20.23	43.50	-23.27
		354.13	25.26	46.00	-20.74
		562.30	30.00	46.00	-16.00
		2440.00 (P)	70.21	*	-
		2440.00 (Av)	62.46	*	-
		4880.00 (P)	50.08	74.00	-23.92
		4880.00 (Av)	42.33	54.00	-11.67
		7320.00 (P)	29.36	74.00	-44.64
		7320.00 (Av)	21.61	54.00	-32.39
2475	H	169.15	25.54	43.50	-17.96
		183.54	20.00	43.50	-23.50
		352.43	33.42	46.00	-12.58
		481.24	31.00	46.00	-15.00
		2475.00 (P)	71.25	*	-
		2475.00 (Av)	63.50	*	-
		2483.50(P)	NF	74.00	
		2483.50(Av)	NF	54.00	
		4950.00 (P)	52.40	74.00	-21.60
		4950.00 (Av)	44.65	54.00	-09.35
		7425.00 (P)	30.02	74.00	-43.98
		7425.00 (Av)	22.27	54.00	-31.73
	V	169.15	25.15	43.50	-18.35
		383.54	20.00	46.00	-26.00
		544.34	30.00	46.00	-16.00

		2475.00 (P)	71.20	*	-
		2475.00 (Av)	63.45	*	-
		2483.50(P)	NF	74.00	
		2483.50(Av)	NF	54.00	
		4950.00 (P)	54.63	74.00	-19.37
		4950.00 (Av)	46.88	54.00	-07.12
		7425.00 (P)	29.84	74.00	-44.16
		7425.00 (Av)	22.09	54.00	-31.91

P → Peak
Av → Average
*** → Fundamental Frequency**
NF -> Noise Floor at Restricted Bands
P->25.62& Av->16.57

Antenna 02

Channel (MHz)	Antenna Polarization	Spurious Emission (MHz)	Field strength (dBµV/m)	Limit (dBm)	Margin (dbm)
2405	H	210.23	30.00	43.50	-13.50
		215.20	31.52	43.50	-11.98
		354.21	36.10	46.00	-09.90
		410.20	35.21	46.00	-10.79
		2390.00(P)	NF	74.00	
		2390.00(Av)	NF	54.00	
		2405.00 (P)	72.25	*	-
		2405.00 (Av)	64.50	*	-
		4810.00 (P)	42.50	74.00	-31.50
		4810.00 (Av)	34.75	54.00	-19.25
		7215.00 (P)	31.04	74.00	-42.96
		7215.00 (Av)	23.29	54.00	-30.71
	V	210.23	25.35	43.50	-18.15
		215.20	24.61	43.50	-18.89
		354.21	31.20	46.00	-14.80
		410.20	33.65	46.00	-12.35
		2390.00(P)	NF	74.00	
		2390.00(Av)	NF	54.00	
		2405.00 (P)	72.12	*	-
		2405.00 (Av)	64.37	*	-
		4810.00 (P)	41.36	74.00	-32.64
		4810.00 (Av)	33.61	54.00	-20.39
		7215.00 (P)	30.86	74.00	-43.14
		7215.00 (Av)	23.11	54.00	-30.89
2440	H	210.23	30.00	43.50	-13.50
		215.20	31.52	43.50	-11.98
		354.21	36.10	46.00	-09.90
		2440.00 (P)	70.20	*	-
		2440.00 (Av)	62.45	*	-
		4880.00 (P)	32.14	74.00	-41.86
		4880.00 (Av)	21.39	54.00	-32.61
		7320.00 (P)	30.57	74.00	-43.43
		7320.00 (Av)	20.82	54.00	-33.18
	V	215.20	24.61	43.50	-18.89
		354.21	31.20	46.00	-14.80
		410.20	33.65	46.00	-12.35
		2440.00 (P)	70.62	*	-
		2440.00 (Av)	62.87	*	-

		4880.00 (P)	53.96	74.00	-20.04
		4880.00 (Av)	46.21	54.00	-7.79
		7320.00 (P)	30.62	74.00	-43.38
		7320.00 (Av)	23.17	54.00	-30.83
2475	H	210.23	30.00	43.50	-13.50
		215.20	31.52	43.50	-11.98
		354.21	31.20	46.00	-14.80
		410.20	33.65	46.00	-12.35
		2475.00 (P)	71.02	*	-
		2475.00 (Av)	63.27	*	-
		2483.50(P)	NF	74.00	
		2483.50(Av)	NF	54.00	
		4950.00 (P)	55.23	74.00	-18.77
		4950.00 (Av)	47.48	54.00	-06.52
		7425.00 (P)	31.07	74.00	-42.93
		7425.00 (Av)	23.32	54.00	-30.68
	V	215.20	25.12	43.50	-18.38
		354.21	26.35	46.00	-19.65
		410.20	35.25	46.00	-10.75
		2475.00 (P)	70.20	*	-
		2475.00 (Av)	62.45	*	-
		2483.50(P)	NF	74.00	
		2483.50(Av)	NF	54.00	
		4950.00 (P)	57.09	74.00	-16.91
		4950.00 (Av)	49.34	54.00	-04.66
		7425.00 (P)	30.94	74.00	-43.06
		7425.00 (Av)	23.19	54.00	-30.81

P → Peak
Av → Average
*** → Fundamental Frequency**
NF -> Noise Floor at Restricted Bands
P-> 24.48 & Av-> 15.24

Antenna 03

Channel (MHz)	Antenna Polarization	Spurious Emission (MHz)	Field strength (dBµV/m)	Limit (dBm)	Margin (dbm)
2405	H	210.23	30.00	43.50	-13.50
		215.20	31.52	43.50	-11.98
		354.21	36.10	46.00	-09.90
		410.20	35.21	46.00	-10.79
		2390.00(P)	NF	74.00	
		2390.00(Av)	NF	54.00	
		2405.00 (P)	72.25	*	-
		2405.00 (Av)	64.50	*	-
		4810.00 (P)	42.50	74.00	-31.50
		4810.00 (Av)	34.75	54.00	-19.25
		7215.00 (P)	31.04	74.00	-42.96
		7215.00 (Av)	23.29	54.00	-30.71
	V	210.23	25.35	43.50	-18.15
		215.20	24.61	43.50	-18.89
		354.21	31.20	46.00	-14.80
		410.20	33.65	46.00	-12.35
		2390.00(P)	NF	74.00	
		2390.00(Av)	NF	54.00	
		2405.00 (P)	72.12	*	-
		2405.00 (Av)	64.37	*	-
		4810.00 (P)	41.36	74.00	-32.64
		4810.00 (Av)	33.61	54.00	-20.39

		7215.00 (P)	30.86	74.00	-43.14
		7215.00 (Av)	23.11	54.00	-30.89
2440	H	210.23	30.00	43.50	-13.50
		215.20	31.52	43.50	-11.98
		354.21	36.10	46.00	-09.90
		2440.00 (P)	70.20	*	-
		2440.00 (Av)	62.45	*	-
		4880.00 (P)	32.14	74.00	-41.86
		4880.00 (Av)	21.39	54.00	-32.61
		7320.00 (P)	30.57	74.00	-43.43
		7320.00 (Av)	20.82	54.00	-33.18
	V	215.20	24.61	43.50	-18.89
		354.21	31.20	46.00	-14.80
		410.20	33.65	46.00	-12.35
		2440.00 (P)	70.62	*	-
		2440.00 (Av)	62.87	*	-
		4880.00 (P)	53.96	74.00	-20.04
		4880.00 (Av)	46.21	54.00	-7.79
		7320.00 (P)	30.62	74.00	-43.38
		7320.00 (Av)	23.17	54.00	-30.83
2475	H	210.23	30.00	43.50	-13.50
		215.20	31.52	43.50	-11.98
		354.21	31.20	46.00	-14.80
		410.20	33.65	46.00	-12.35
		2475.00 (P)	71.02	*	-
		2475.00 (Av)	63.27	*	-
		2483.50(P)	NF	74.00	
		2483.50(Av)	NF	54.00	
		4950.00 (P)	55.23	74.00	-18.77
		4950.00 (Av)	47.48	54.00	-06.52
		7425.00 (P)	31.07	74.00	-42.93
		7425.00 (Av)	23.32	54.00	-30.68
	V	215.20	25.12	43.50	-18.38
		354.21	26.35	46.00	-19.65
		410.20	35.25	46.00	-10.75
		2475.00 (P)	70.20	*	-
		2475.00 (Av)	62.45	*	-
		2483.50(P)	NF	74.00	
		2483.50(Av)	NF	54.00	
		4950.00 (P)	57.09	74.00	-16.91
		4950.00 (Av)	49.34	54.00	-04.66
		7425.00 (P)	30.94	74.00	-43.06
		7425.00 (Av)	23.19	54.00	-30.81

P → Peak
Av → Average
*** → Fundamental Frequency**
NF -> Noise Floor at Restricted Bands
P-> 22.40 & Av-> 13.20

Antenna 04

Channel (MHz)	Antenna Polarization	Spurious Emission (MHz)	Field strength (dBµV/m)	Limit (dBm)	Margin (dbm)
2405	H	220.27	30.10	46.00	-15.90
		354.25	37.35	46.00	-08.65
		410.31	32.25	46.00	-13.75
		2390.00(P)	NF	74.00	
		2390.00(Av)	NF	54.00	
		2405.00 (P)	60.00	*	-
		2405.00 (Av)	52.25	*	-
		4810.00 (P)	44.59	74.00	-29.41
		4810.00 (Av)	36.84	54.00	-17.16
		7215.00 (P)	31.19	74.00	-42.81
		7215.00 (Av)	23.44	54.00	-30.56
	V	354.25	33.28	46.00	-12.72
		410.31	31.23	46.00	-14.77
		2390.00(P)	NF	74.00	
		2390.00(Av)	NF	54.00	
		2405.00 (P)	60.12	*	-
		2405.00 (Av)	52.37	*	-
		4810.00 (P)	50.24	74.00	-23.76
		4810.00 (Av)	42.49	54.00	-11.51
		7215.00 (P)	31.09	74.00	-42.91
		7215.00 (Av)	23.34	54.00	-30.66
2440	H	220.27	30.10	46.00	-15.90
		354.25	37.35	46.00	-08.65
		410.31	32.25	46.00	-13.75
		2440.00 (P)	55.24	*	-
		2440.00 (Av)	47.49	*	-
		4880.00 (P)	53.28	74.00	-20.72
		4880.00 (Av)	45.53	54.00	-08.47
		7320.00 (P)	30.84	74.00	-43.16
		7320.00 (Av)	23.09	54.00	-30.91
	V	354.25	33.28	46.00	-12.72
		410.31	31.23	46.00	-14.77
		2440.00 (P)	55.65	*	-
		2440.00 (Av)	47.90	*	-
		4880.00 (P)	53.21	74.00	-20.79
		4880.00 (Av)	45.56	54.00	-08.44
		7320.00 (P)	30.81	74.00	-43.19
		7320.00 (Av)	23.06	54.00	-30.94
2475	H	220.27	28.86	46.00	-17.14
		354.25	32.65	46.00	-13.35
		410.31	33.46	46.00	-12.54
		2475.00 (P)	57.52	*	--
		2475.00 (Av)	49.77	*	-
		2483.50(P)	NF	74.00	
		2483.50(Av)	NF	54.00	
		4950.00 (P)	50.01	74.00	-23.99
		4950.00 (Av)	42.26	54.00	-11.74
		7425.00 (P)	31.26	74.00	-42.74
		7425.00 (Av)	23.51	54.00	-30.49
	V	354.25	30.65	46.00	-15.35
		410.31	32.69	46.00	-13.31
		2475.00 (P)	58.21	*	-
		2475.00 (Av)	50.46	*	-
		2483.50(P)	NF	74.00	
		2483.50(Av)	NF	54.00	
		4950.00 (P)	53.38	74.00	-20.62

		4950.00 (Av)	45.63	54.00	-08.37
		7425.00 (P)	31.24	74.00	-42.76
		7425.00 (Av)	23.46	54.00	-30.54

P → Peak
Av → Average
*** → Fundamental Frequency**
NF -> Noise Floor at Restricted Bands
P-> 21.35 & Av->13.52

Antenna 05

Channel (MHz)	Antenna Polarization	Spurious Emission (MHz)	Field strength (dBuV/m)	Limit (dBm)	Margin (dbm)
2405	H	508.23	34.23	46.00	-11.77
		584.36	32.61	46.00	-13.39
		2390.00(P)	NF	74.00	
		2390.00(Av)	NF	54.00	
		2405.00 (P)	68.75	*	-
		2405.00 (Av)	61.00	*	-
		4810.00 (P)	46.53	74.00	-27.47
		4810.00 (Av)	38.78	54.00	-15.22
		7215.00 (P)	31.32	74.00	-42.68
		7215.00 (Av)	23.57	54.00	-30.43
	V	408.36	33.25	46.00	-12.75
		554.68	32.36	46.00	-13.64
		2390.00(P)	NF	74.00	
		2390.00(Av)	NF	54.00	
		2405.00 (P)	68.34	*	-
		2405.00 (Av)	60.59	*	-
		4810.00 (P)	49.95	74.00	-24.05
		4810.00 (Av)	42.20	54.00	-11.80
		7215.00 (P)	31.22	74.00	-42.78
		7215.00 (Av)	23.47	54.00	-30.53
2440	H	508.23	34.23	46.00	-11.77
		584.36	32.61	46.00	-13.39
		2440.00 (P)	63.42	*	-
		2440.00 (Av)	55.67	*	-
		4880.00 (P)	46.37	74.00	-27.63
		4880.00 (Av)	41.62	54.00	-12.38
		7320.00 (P)	31.23	74.00	-42.77
		7320.00 (Av)	23.48	31.03	-07.55
	V	408.36	33.25	46.00	-12.75
		554.68	32.36	46.00	-13.64
		2440.00 (P)	63.25	*	-
		2440.00 (Av)	55.50	*	-
		4880.00 (P)	50.75	74.00	-23.25
		4880.00 (Av)	43.00	54.00	-11.00
		7320.00 (P)	30.84	74.00	-43.16
		7320.00 (Av)	23.09	54.00	-30.91
2475	H	169.23	25.68	43.50	-17.82
		408.87	33.65	46.00	-12.35
		2475.00 (P)	58.65	*	-
		2475.00 (Av)	50.09	*	-
		2483.50(P)	NF	74.00	
		2483.50(Av)	NF	54.00	
		4950.00 (P)	49.45	74.00	-24.55
		4950.00 (Av)	41.70	54.00	-12.30
		7425.00 (P)	31.43	74.00	-42.57
		7425.00 (Av)	23.68	54.00	-30.32

		264.65	27.69	46.00	-18.31
		408.36	31.65	46.00	-14.35
		544.65	32.84	46.00	-13.16
		2475.00 (P)	58.24	*	-
		2475.00 (Av)	50.49	*	-
	V	2483.50(P)	NF	74.00	
		2483.50(Av)	NF	54.00	
		4950.00 (P)	53.27	74.00	-20.73
		4950.00 (Av)	45.52	54.00	-08.48
		7425.00 (P)	31.45	74.00	-42.55
		7425.00 (Av)	23.70	54.00	-30.30

P → Peak
Av → Average
*** → Fundamental Frequency**
NF -> Noise Floor at Restricted Bands
P->20.58 & Av->12.41

Antenna 06

Channel (MHz)	Antenna Polarization	Spurious Emission (MHz)	Field strength (dBµV/m)	Limit (dBm)	Margin (dbm)
2405	H	384.67	35.64	46.00	-10.36
		480.35	30.65	46.00	-15.35
		2390.00(P)	NF	74.00	
		2390.00(Av)	NF	54.00	
		2405.00 (P)	78.24	*	-
		2405.00 (Av)	70.49	*	-
		4810.00 (P)	28.40	74.00	-45.60
		4810.00 (Av)	20.66	54.00	-33.34
		7215.00 (P)	31.19	74.00	-42.81
		7215.00 (Av)	23.44	54.00	-30.56
	V	354.32	28.64	46.00	-17.36
		2390.00(P)	NF	74.00	
		2390.00(Av)	NF	54.00	
		2405.00 (P)	78.40	*	-
		2405.00 (Av)	70.65	*	-
		4810.00 (P)	28.26	74.00	-45.74
		4810.00 (Av)	20.51	54.00	-33.49
		7215.00 (P)	30.86	74.00	-43.14
		7215.00 (Av)	23.11	54.00	-30.89
2440	H	384.67	35.64	46.00	-10.36
		480.35	30.65	46.00	-15.35
		2440.00 (P)	73.24	*	-
		2440.00 (Av)	65.49	*	-
		4880.00 (P)	58.02	74.00	-15.98
		4880.00 (Av)	50.27	54.00	-03.73
		7320.00 (P)	30.09	74.00	-43.91
		7320.00 (Av)	22.34	54.00	-31.66
	V	354.32	28.64	46.00	-17.36
		384.67	35.64	46.00	-10.36
		2440.00 (P)	73.21	*	-
		2440.00 (Av)	65.46	*	-
		4880.00 (P)	58.83	74.00	-15.17

		4880.00 (Av)	50.08	54.00	-03.92
		7320.00 (P)	30.09	74.00	-43.91
		7320.00 (Av)	22.34	54.00	-31.66
2475	H	354.32	31.68	46.00	-14.32
		408.64	30.28	46.00	-15.72
		2475.00 (P)	70.00	*	-
		2475.00 (Av)	62.25	*	-
		2483.50(P)	NF	74.00	
		2483.50(Av)	NF	54.00	
		4950.00 (P)	58.53	74.00	-15.47
		4950.00 (Av)	50.48	54.00	-03.52
		7425.00 (P)	30.89	74.00	-43.11
		7425.00 (Av)	23.14	54.00	-30.86
	V	354.32	27.36	46.00	-18.64
		408.64	25.64	46.00	-20.36
		2475.00 (P)	70.25	*	-
		2475.00 (Av)	62.50	*	-
		2483.50(P)	NF	74.00	
		2483.50(Av)	NF	54.00	
		4950.00 (P)	58.21	74.00	-15.79
		4950.00 (Av)	50.46	54.00	-03.54
		7425.00 (P)	30.80	74.00	-43.20
		7425.00 (Av)	23.05	54.00	-30.95

P → Peak
Av → Average
*** → Fundamental Frequency**
NF -> Noise Floor at Restricted Bands
P-> 20.56 & Av-> 8.65

Antenna 07

Channel (MHz)	Antenna Polarization	Spurious Emission (MHz)	Field strength (dBµV/m)	Limit (dBm)	Margin (dbm)
2405	H	22036	30.25	46.00	-15.75
		354.69	33.75	46.00	-12.25
		408.35	32.65	46.00	-13.35
		2390.00(P)	NF	74.00	
		2390.00(Av)	NF	54.00	
		2405.00 (P)	60.23	*	-
		2405.00 (Av)	52.48	*	-
		4810.00 (P)	47.12	74.00	-26.88
		4810.00 (Av)	36.37	54.00	-17.63
		7215.00 (P)	31.00	74.00	-43.00
		7215.00 (Av)	23.25	54.00	-30.75
	V	22036	23.78	46.00	-22.22
		354.69	30.56	46.00	-15.44
		408.35	31.21	46.00	-14.79
		2390.00(P)	NF	74.00	
		2390.00(Av)	NF	54.00	
		2405.00 (P)	60.26	*	-
		2405.00 (Av)	52.51	*	-
		4810.00 (P)	52.91	74.00	-21.09
		4810.00 (Av)	45.16	54.00	-08.84

		7215.00 (P)	29.95	74.00	-44.05
		7215.00 (Av)	22.20	54.00	-31.80
2440	H	22036	27.25	46.00	-18.75
		354.69	30.75	46.00	-15.25
		408.35	31.65	46.00	-14.35
		2440.00 (P)	70.36	*	-
		2440.00 (Av)	62.61	*	-
		4880.00 (P)	49.77	74.00	-24.23
		4880.00 (Av)	42.02	54.00	-11.98
		7320.00 (P)	30.66	74.00	-43.34
		7320.00 (Av)	22.91	54.00	-31.09
	V	22036	25.78	46.00	-20.22
		354.69	28.56	46.00	-17.44
		408.35	30.21	46.00	-15.79
		2440.00 (P)	71.20	*	-
		2440.00 (Av)	63.45	*	-
		4880.00 (P)	52.04	74.00	-21.96
		4880.00 (Av)	44.29	54.00	-09.71
		7320.00 (P)	30.76	74.00	-43.24
		7320.00 (Av)	23.01	54.00	-30.99
2475	H	225.65	23.64	46.00	-22.36
		408.34	33.79	46.00	-12.21
		2475.00 (P)	69.45	*	-
		2475.00 (Av)	61.70	*	-
		2483.50(P)	NF	74.00	
		2483.50(Av)	NF	54.00	
		4950.00 (P)	51.57	74.00	-22.43
		4950.00 (Av)	43.82	54.00	-10.18
		7425.00 (P)	31.20	74.00	-42.80
		7425.00 (Av)	23.45	54.00	-30.55
	V	225.65	25.64	46.00	-20.36
		408.34	32.79	46.00	-13.21
		2475.00 (P)	69.50	*	-
		2475.00 (Av)	61.75	*	-
		2483.50(P)	NF	74.00	
		2483.50(Av)	NF	54.00	
		4950.00 (P)	52.74	74.00	-45.60
		4950.00 (Av)	44.99	54.00	-33.34
		7425.00 (P)	31.25	74.00	-42.81
		7425.00 (Av)	23.25	54.00	-30.56

P → Peak
Av → Average
*** → Fundamental Frequency**
NF -> Noise Floor at Restricted Bands
P->25.95 & Av->15.53

Antenna 08

Channel (MHz)	Antenna Polarization	Spurious Emission (MHz)	Field strength (dBµV/m)	Limit (dBm)	Margin (dbm)
2405	H	162.21	24.10	43.50	-19.40
		184.18	26.35	43.50	-17.15
		384.76	33.64	46.00	-12.36
		486.36	32.01	46.00	-13.99
		2390.00(P)	NF	74.00	
		2390.00(Av)	NF	54.00	
		2405.00 (P)	77.85	*	-
		2405.00 (Av)	70.01	*	-
		4810.00 (P)	52.67	74.00	-21.33
		4810.00 (Av)	44.92	54.00	-09.08
		7215.00 (P)	31.02	74.00	-42.98
		7215.00 (Av)	23.27	54.00	-30.73
	V	154.36	22.65	43.50	-20.85
		16.2.56	25.68	43.50	-17.82
		354.32	33.49	46.00	-12.51
		2390.00(P)	NF	74.00	
		2390.00(Av)	NF	54.00	
		2405.00 (P)	76.85	*	-
		2405.00 (Av)	69.10	*	-
		4810.00 (P)	52.07	74.00	-21.93
		4810.00 (Av)	44.32	54.00	-09.68
		7215.00 (P)	31.08	74.00	-42.92
		7215.00 (Av)	23.33	54.00	-30.67
2440	H	162.21	24.10	43.50	-19.40
		184.18	26.35	43.50	-17.15
		384.76	33.64	46.00	-12.36
		2440.00 (P)	56.23	*	-
		2440.00 (Av)	48.48	*	-
		4880.00 (P)	54.37	74.00	-19.63
		4880.00 (Av)	46.62	54.00	-07.38
		7320.00 (P)	30.74	74.00	-43.26
		7320.00 (Av)	22.99	54.00	-31.01
	V	154.36	22.65	43.50	-20.85
		16.2.56	25.68	43.50	-17.82
		354.32	33.49	46.00	-12.51
		2440.00 (P)	56.34	*	-
		2440.00 (Av)	48.59	*	-
		4880.00 (P)	54.62	74.00	-19.38
		4880.00 (Av)	46.87	54.00	-07.13
		7320.00 (P)	30.46	74.00	-43.54
		7320.00 (Av)	22.71	54.00	-31.29
2475	H	162.21	25.10	43.50	-18.40
		184.18	28.35	43.50	-15.15
		384.76	33.64	46.00	-12.36
		486.36	31.01	46.00	-14.99
		2475.00 (P)	72.32	*	-
		2475.00 (Av)	64.57	*	-
		2483.50(P)	NF	74.00	
		2483.50(Av)	NF	54.00	
		4950.00 (P)	56.18	74.00	-17.82
		4950.00 (Av)	48.43	54.00	-05.57
		7425.00 (P)	31.15	74.00	-42.85
		7425.00 (Av)	23.40	54.00	-30.60
	V	154.36	22.65	43.50	-20.85
		16.2.56	25.68	43.50	-17.82
		354.32	31.49	46.00	-14.51

		2475.00 (P)	72.01	*	-
		2475.00 (Av)	64.26	*	-
		2483.50(P)	NF	74.00	
		2483.50(Av)	NF	54.00	
		4950.00 (P)	57.00	74.00	-17.00
		4950.00 (Av)	49.25	54.00	-04.75
		7425.00 (P)	30.99	74.00	-43.01
		7425.00 (Av)	23.24	54.00	-30.76

P → Peak
Av → Average
*** → Fundamental Frequency**
NF -> Noise Floor at Restricted Bands
P-> 21.20 & Av->12.65

Antenna 09

Channel (MHz)	Antenna Polarization	Spurious Emission (MHz)	Field strength (dBµV/m)	Limit (dBm)	Margin (dbm)
2405	H	162.21	24.10	43.50	-19.40
		184.18	26.35	43.50	-17.15
		384.76	33.64	46.00	-12.36
		486.36	32.01	46.00	-13.99
		2390.00(P)	NF	74.00	
		2390.00(Av)	NF	54.00	
		2405.00 (P)	77.85	*	-
		2405.00 (Av)	70.01	*	-
		4810.00 (P)	52.67	74.00	-21.33
		4810.00 (Av)	44.92	54.00	-09.08
		7215.00 (P)	31.02	74.00	-42.98
		7215.00 (Av)	23.27	54.00	-30.73
	V	154.36	22.65	43.50	-20.85
		16.2.56	25.68	43.50	-17.82
		354.32	33.49	46.00	-12.51
		2390.00(P)	NF	74.00	
		2390.00(Av)	NF	54.00	
		2405.00 (P)	76.85	*	-
		2405.00 (Av)	69.10	*	-
		4810.00 (P)	52.07	74.00	-21.93
		4810.00 (Av)	44.32	54.00	-09.68
		7215.00 (P)	31.08	74.00	-42.92
		7215.00 (Av)	23.33	54.00	-30.67
2440	H	162.21	24.10	43.50	-19.40
		184.18	26.35	43.50	-17.15
		384.76	33.64	46.00	-12.36
		2440.00 (P)	56.23	*	-
		2440.00 (Av)	48.48	*	-
		4880.00 (P)	54.37	74.00	-19.63
		4880.00 (Av)	46.62	54.00	-07.38
		7320.00 (P)	30.74	74.00	-43.26
		7320.00 (Av)	22.99	54.00	-31.01
	V	154.36	22.65	43.50	-20.85
		16.2.56	25.68	43.50	-17.82
		354.32	33.49	46.00	-12.51
		2440.00 (P)	56.34	*	-
		2440.00 (Av)	48.59	*	-
		4880.00 (P)	54.62	74.00	-19.38
		4880.00 (Av)	46.87	54.00	-07.13

		7320.00 (P)	30.46	74.00	-43.54
		7320.00 (Av)	22.71	54.00	-31.29
2475	H	162.21	25.10	43.50	-18.40
		184.18	28.35	43.50	-15.15
		384.76	33.64	46.00	-12.36
		486.36	31.01	46.00	-14.99
		2475.00 (P)	72.32	*	-
		2475.00 (Av)	64.57	*	-
		2483.50(P)	NF	74.00	
		2483.50(Av)	NF	54.00	
		4950.00 (P)	56.18	74.00	-17.82
		4950.00 (Av)	48.43	54.00	-05.57
		7425.00 (P)	31.15	74.00	-42.85
		7425.00 (Av)	23.40	54.00	-30.60
	V	154.36	22.65	43.50	-20.85
		16.2.56	25.68	43.50	-17.82
		354.32	31.49	46.00	-14.51
		2475.00 (P)	72.01	*	-
		2475.00 (Av)	64.26	*	-
		2483.50(P)	NF	74.00	
		2483.50(Av)	NF	54.00	
		4950.00 (P)	57.00	74.00	-17.00
		4950.00 (Av)	49.25	54.00	-04.75
		7425.00 (P)	30.99	74.00	-43.01
		7425.00 (Av)	23.24	54.00	-30.76

P → Peak
Av → Average
*** → Fundamental Frequency**
NF -> Noise Floor at Restricted Bands
P->29.66 & Av->14.89

Antenna 10

Channel (MHz)	Antenna Polarization	Spurious Emission (MHz)	Field strength (dBµV/m)	Limit (dBm)	Margin (dbm)
2405	H	169.10	33.34	43.50	-10.16
		217.50	31.50	46.00	-14.50
		2390.00(P)	NF	74.00	
		2390.00(Av)	NF	54.00	
		2405.00 (P)	78.35	*	-
		2405.00 (Av)	70.60	*	-
		4810.00 (P)	55.25	74.00	-18.75
		4810.00 (Av)	47.50	54.00	-06.50
		7215.00 (P)	29.87	74.00	-44.13
		7215.00 (Av)	22.12	54.00	-31.88
	V	169.10	25.54	43.50	-17.96
		217.50	23.42	46.00	-22.58
		544.05	35.44	46.00	-10.56
		2390.00(P)	NF	74.00	
		2390.00(Av)	NF	54.00	
		2405.00 (P)	76.65	*	-
		2405.00 (Av)	68.90	*	-
		4810.00 (P)	55.24	74.00	-18.76
		4810.00 (Av)	47.49	54.00	-06.51
		7215.00 (P)	29.80	74.00	-44.20
		7215.00 (Av)	22.05	54.00	-31.95

2440	H	169.10	33.34	43.50	-10.16
		217.50	31.50	46.00	-14.50
		2440.00 (P)	58.68	*	-
		2440.00 (Av)	50.93	*	-
		4880.00 (P)	52.87	74.00	-21.13
		4880.00 (Av)	45.12	54.00	-08.88
		7320.00 (P)	30.51	74.00	-43.49
		7320.00 (Av)	22.76	54.00	-31.24
	V	169.10	25.54	43.50	-17.96
		217.50	23.42	43.50	-20.08
		544.05	35.44	46.00	-10.56
		2440.00 (P)	58.43	*	-
		2440.00 (Av)	50.68	*	-
		4880.00 (P)	54.11	74.00	-19.89
		4880.00 (Av)	46.36	54.00	-07.64
		7320.00 (P)	30.62	74.00	-43.38
		7320.00 (Av)	22.87	54.00	-31.13
2475	H	169.10	33.34	43.50	-10.16
		217.50	31.50	46.00	-14.50
		354.26	32.65	46.00	-13.35
		2475.00 (P)	74.65	*	-
		2475.00 (Av)	66.90	*	-
		2483.50(P)	NF	74.00	
		2483.50(Av)	NF	54.00	
		4950.00 (P)	53.33	74.00	-20.67
		4950.00 (Av)	45.58	54.00	-08.42
		7425.00 (P)	30.92	74.00	-43.08
		7425.00 (Av)	23.17	54.00	-30.83
	V	169.10	25.36	43.50	-18.14
		217.50	28.50	46.00	-17.50
		544.25	34.65	46.00	-11.35
		2475.00 (P)	75.24	*	-
		2475.00 (Av)	67.49	*	-
		2483.50(P)	NF	74.00	
		2483.50(Av)	NF	54.00	
		4950.00 (P)	46.98	74.00	-27.02
		4950.00 (Av)	39.23	54.00	-14.77
		7425.00 (P)	30.92	74.00	-43.08
		7425.00 (Av)	23.17	54.00	-30.83

P → Peak
Av → Average
*** → Fundamental Frequency**
NF -> Noise Floor at Restricted Bands
P->30.16 & Av->15.48

Test Results: Module inside Host

Antenna 1

Channel	Antenna Polarization	Spurious Emission (MHz)	Field strength (dBµV/m)	Limit (dBm)	Margin (dBm)
Low	H	41.90	30.56	40.00	-09.44
		52.65	28.65	40.00	-11.35
		2390.00(P)	NF	74.00	
		2390.00(Av)	NF	54.00	
		2405.00 (P)	78.00	*	-
		2405.00 (Av)	65.56	*	-
		4810.00 (P)	50.56	74.00	-23.44
		7215.00 (P)	56.26	74.00	-17.74
		4810.00 (Av)	50.96	54.00	-03.04
		7215.00 (Av)	30.29	54.00	-23.71
	V	40.90	29.10	40.00	-10.90
		53.65	25.88	40.00	-14.12
		2390.00(P)	NF	74.00	
		2390.00(Av)	NF	54.00	
		2405.00 (P)	76.68	*	-
		2405.00 (Av)	68.89	*	-
		4810.00 (P)	49.56	74.00	-24.44
		7215.00 (P)	53.26	74.00	-20.74
		4810.00 (Av)	49.81	54.00	-04.19
		7215.00 (Av)	30.36	54.00	-23.64
Mid	H	40.90	30.25	40.00	-09.75
		53.65	30.87	40.00	-09.13
		65.25	28.56		
		2440.00 (P)	73.26	*	-
		2400.00 (Av)	65.65	*	-
		4880.00 (P)	53.28	74.00	-20.72
		7320.00 (P)	48.65	74.00	-25.35
		4880.00 (Av)	51.96	54.00	-02.04
		7320.00 (Av)	30.29	54.00	-23.71
	V	40.90	29.10	40.00	-10.90
		53.65	25.88	40.00	-14.12
		2440.00 (P)	72.65	*	-
		2440.00 (Av)	66.45	*	-
		4880.00 (P)	50.21	74.00	-23.79
		7320.00 (P)	51.35	74.00	-22.65
		4880.00 (Av)	50.81	54.00	-03.19
		7320.00 (Av)	30.36	54.00	-23.64
High	H	40.90	30.56	40.00	-09.44
		53.65	28.65	40.00	-11.35
		2475.00 (P)	72.35	*	-
		2475.00 (Av)	68.94	*	-
		4950.00 (P)	50.21	74.00	-23.79
		7425.00 (P)	52.36	74.00	-21.64
		4950.00 (Av)	49.69	54.00	-04.31
		7425.00 (Av)	31.01	54.00	-22.99
	V	40.90	29.10	40.00	-10.90
		53.65	25.88	40.00	-14.12
		2475.00 (P)	73.55	*	-
		2475.00 (Av)	68.63	*	-
		2483.50(P)	NF	74.00	
		2483.50(Av)	NF	54.00	
		4950.00 (P)	48.56	74.00	-25.44
		7425.00 (P)	51.35	74.00	-22.65
		4950.00 (Av)	48.90	54.00	-05.10
		7425.00 (Av)	31.02	54.00	-22.98

* - ----> Fundamental Frequency
P --> Peak Detector
Av --> Average Detector
NF --> Noise Floor at Restricted Bands

Antenna 06

Channel	Antenna Polarization	Spurious Emission (MHz)	Field strength (dBµV/m)	Limit (dBm)	Margin (dBm)
Low	H	58.30	30.85	40.00	-09.15
		59.20	31.61	40.00	-08.39
		58.69	30.20	40.00	-09.8
		2390.00(P)	NF	74.00	
		2390.00(Av)	NF	54.00	
		2405.00 (P)	68.32	*	-
		2405.00 (Av)	58.65	*	-
		4810.00 (P)	50.65	74.00	-23.35
		7215.00 (P)	48.84	74.00	-25.16
		4810.00 (Av)	47.88	54.00	-06.12
		7215.00 (Av)	31.17	54.00	-22.83
	V	40.90	29.10	40.00	-10.90
		53.65	25.88	40.00	-14.12
		2390.00(P)	NF	74.00	
		2390.00(Av)	NF	54.00	
		2390.00(P)	NF	74.00	
		2390.00(Av)	NF	54.00	
		2405.00 (P)	66.85	*	-
		2405.00 (Av)	51.56	*	-
		4810.00 (P)	52.65	74.00	-21.35
		7215.00 (P)	41.84	74.00	-22.16
		4810.00 (Av)	46.10	54.00	-07.90
		7215.00 (Av)	31.25	54.00	-22.75
Mid	H	40.85	29.65	40.00	-10.35
		53.65	26.74	40.00	-13.26
		2440.00 (P)	56.62	*	-
		2440.00 (Av)	49.66	*	-
		4880.00 (P)	51.36	74.00	-22.64
		7320.00 (P)	50.26	74.00	-23.74
		4880.00 (Av)	48.79	54.00	-05.21
		7320.00 (Av)	30.77	54.00	-23.23
	V	40.85	29.22	40.00	-10.78
		53.65	25.45	40.00	-14.55
		65.66	29.87	40.00	-22.64
		2440.00 (P)	61.25	*	-
		2440.00 (Av)	51.56	*	-
		4880.00 (P)	52.32	74.00	-21.68
		7320.00 (P)	51.64	74.00	-22.36
		4880.00 (Av)	49.25	54.00	-04.75
		7320.00 (Av)	30.96	54.00	-23.04
High	H	40.85	30.25	40.00	-09.75
		53.65	29.85	40.00	-10.15
		65.66	27.55	40.00	-21.68
		2475.00 (P)	54.50	*	-
		2475.00 (Av)	51.55	*	-
		2483.50(P)	NF	74.00	
		2483.50(Av)	NF	54.00	
		4950.00 (P)	50.23	74.00	-23.77
		7425.00 (P)	50.00	74.00	-24.00
		4950.00 (Av)	48.65	54.00	-05.35

		7425.00 (Av)	31.43	54.00	-22.57
	V	40.85	30.10	40.00	-09.90
		53.65	28.54	40.00	-11.46
		2475.00 (P)	55.21	*	-
		2475.00 (Av)	49.65	*	-
		2483.50(P)	NF	74.00	
		2483.50(Av)	NF	54.00	
		4950.00 (P)	51.24	74.00	-22.76
		7425.00 (P)	49.68	74.00	-24.32
		4950.00 (Av)	48.25	54.00	-05.75
		7425.00 (Av)	31.44	54.00	-22.56

* - ----> Fundamental Frequency
P --> Peak Detector
Av --> Average Detector
NF --> Noise Floor at Restricted Bands

Antenna -8

Channel	Antenna Polarization	Spurious Emission (MHz)	Field strength (dBµV/m)	Limit (dBm)	Margin (dBm)
Low 2405	H	40.90	29.61	40.00	-10.39
		53.65	27.18	40.00	-12.82
		58.90	31.44	40.00	-08.56
		740.25	36.65	40.00	-03.35
		2390.00(P)	NF	74.00	
		2390.00(Av)	NF	54.00	
		2405.00 (P)	78.00	*	-
		2405.00 (Av)	69.25	*	-
		4810.00 (P)	50.56	74.00	-23.44
		7215.00 (P)	56.26	74.00	-17.74
		4810.00 (Av)	45.95	54.00	-08.05
		7215.00 (Av)	30.29	54.00	-23.71
	V	35.80	34.78	40.00	-05.22
		40.90	32.65	40.00	-07.35
		55.20	36.88	40.00	-03.12
		60.85	34.71	40.00	-23.44
		2390.00(P)	NF	74.00	
		2390.00(Av)	NF	54.00	
		2405.00 (P)	76.68	*	-
		2405.00 (Av)	67.45	*	-
		4810.00 (P)	49.56	74.00	-24.44
		7215.00 (P)	53.26	74.00	-20.74
		4810.00 (Av)	50.25	54.00	-03.75
		7215.00 (Av)	30.36	54.00	-23.64
Mid	H	40.90	30.65	40.00	-09.35
		53.65	26.18	40.00	-13.82
		2440.00 (P)	73.26	*	-
		2400.00 (Av)	66.36	*	-
		4880.00 (P)	53.28	74.00	-20.72
		7320.00 (P)	48.65	74.00	-25.35
		4880.00 (Av)	50.03	54.00	-3.97
		7320.00 (Av)	30.29	54.00	-23.71
	V	35.80	32.76	40.00	-07.24
		40.90	31.45	40.00	-08.55
		2440.00 (P)	72.65	*	-
		2440.00 (Av)	69.88	*	-
		4880.00 (P)	50.21	74.00	-23.79

		7320.00 (P)	51.35	74.00	-22.65
		4880.00 (Av)	50.01	54.00	-03.99
		7320.00 (Av)	30.36	54.00	-23.64
High	H	42.70	36.47	40.00	-03.53
		57.40	36.53	40.00	-03.47
		2475.00 (P)	72.35	*	-
		2475.00 (Av)	67.95	*	-
		2483.50(P)	NF	74.00	
		2483.50(Av)	NF	54.00	
		4950.00 (P)	50.21	74.00	-23.79
		7425.00 (P)	52.36	74.00	-21.64
		4950.00 (Av)	49.65	54.00	-04.35
		7425.00 (Av)	31.01	54.00	-22.99
	V	36.90	37.41	40.00	-02.59
		57.50	36.55	40.00	-03.45
		640.25	26.34	46.00	-19.66
		2475.00 (P)	73.55	*	-
		2475.00 (Av)	69.48	*	-
		2483.50(P)	NF	74.00	
		2483.50(Av)	NF	54.00	
		4950.00 (P)	48.56	74.00	-25.44
		7425.00 (P)	51.35	74.00	-22.65
		4950.00 (Av)	47.95	54.00	-06.05
		7425.00 (Av)	31.02	54.00	-22.98

* - ----> Fundamental Frequency
P --> Peak Detector
Av --> Average Detector
NF --> Noise Floor at Restricted Bands

Antenna 10

Channel	Antenna Polarization	Spurious Emission (MHz)	Field strength (dBµV/m)	Limit (dBm)	Margin (dBm)
Low	H	58.30	31.85	40.00	-08.15
		59.20	34.61	40.00	-05.39
		60.00	33.29	40.00	-06.71
		65.00	37.36	40.00	-02.64
		165.90	32.62	43.50	-10.88
		2390.00(P)	NF	74.00	
		2390.00(Av)	NF	54.00	
		2405.00 (P)	76.25	*	-
		2405.00 (Av)	68.65	*	-
		4810.00 (P)	50.25	74.00	-23.75
		7215.00 (P)	49.25	74.00	-24.75
		4810.00 (Av)	47.58	54.00	-06.42
		7215.00 (Av)	32.00	54.00	-22.00
	V	36.82	37.08	40.00	-02.92
		38.10	32.05	40.00	-07.95
		59.40	31.68	40.00	-08.32
		62.65	37.21	40.00	-02.79
		2390.00(P)	NF	74.00	
		2390.00(Av)	NF	54.00	
		2405.00 (P)	75.62	*	-
		2405.00 (Av)	65.25	*	-
		4810.00 (P)	51.35	74.00	-22.65
		7215.00 (P)	36.54	74.00	-23.77
		4810.00 (Av)	44.21	54.00	-09.79
		7215.00 (Av)	30.25	54.00	-23.75
Mid	H	59.20	32.61	40.00	-07.39

		60.00	31.29	40.00	-08.71
		2440.00 (P)	55.36	*	-
		2400.00 (Av)	48.65	*	-
		4880.00 (P)	50.36	74.00	-23.64
		7320.00 (P)	50.22	74.00	-23.78
		4880.00 (Av)	40.25	54.00	-13.75
		7320.00 (Av)	31.87	54.00	-22.13
	V	36.82	35.08	40.00	-04.92
		38.10	30.05	40.00	-09.95
		2440.00 (P)	68.65	*	-
		2400.00 (Av)	57.65	*	-
		4880.00 (P)	54.62	74.00	-19.38
		7320.00 (P)	48.85	74.00	-25.15
		4880.00 (Av)	40.23	54.00	-13.77
		7320.00 (Av)	32.71	54.00	-21.29
High	H	37.75	35.85	40.00	-04.15
		38.50	34.95	40.00	-05.05
		2475.00 (P)	70.89	*	-
		2475.00 (Av)	64.68	*	-
		2483.50(P)	NF	74.00	
		2483.50(Av)	NF	54.00	
		4950.00 (P)	54.65	74.00	-19.35
		7425.00 (P)	47.66	74.00	-26.34
		4950.00 (Av)	40.05	54.00	-13.95
		7425.00 (Av)	32.98	54.00	-21.02
	V	36.55	35.04	40.00	-04.96
		37.15	35.65	40.00	-04.35
		38.00	34.85	40.00	-05.15
		2475.00 (P)	72.25	*	-
		2475.00 (Av)	65.64	*	-
		2483.50(P)	NF	74.00	
		2483.50(Av)	NF	54.00	
		4950.00 (P)	51.01	74.00	-22.99
		7425.00 (P)	49.63	74.00	-24.37
		4950.00 (Av)	46.58	54.00	-07.42
		7425.00 (Av)	30.25	54.00	-23.75

* - ----> Fundamental Frequency
P --> Peak Detector
Av --> Average Detector
NF --> Noise Floor at Restricted Bands

Conducted Emission Test on a.c. Power Line **Section 15.207**

Result **Pass**

Test Specification	:	FCC Part 15 Section 15.207
Test Method	:	ANSI C63.4-2003
Testing Location	:	Screened room
Measurement Bandwidth	:	9kHz
Frequency Range	:	150kHz – 30MHz
Supply Voltage	:	110 Volt 60Hz AC (Supply to the host)

Test Result:

Note: The module was tested inside the host for this test with the host supply 110V AC 60Hz

Plot: Line

Plot: Neutral