47 CFR PART 15 SUBPART C - WLAN

TEST REPORT

of

GSM 850/900/1800/1900 GPRS Mobile Phone

Model Name: PAM
Trade Name: TechFaith Wireless
FCC ID: UJQ-05838T

prepared for

TechFaith Wireless Technology Limited.
2/F M8 West, No.1 Jiu Xian Qiao Dong Road, Chao Yang District,
Beijing, 100016 P. R. China

prepared by

Shenzhen Morlab Communications Technology Co., Ltd.
3/F, Electronic Testing Building, Shahe Road, Xili,
Nanshan District, Shenzhen, 518055 P. R. China
Tel: +86 755 86130398
Fax: +86 755 86130218

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Date of Issue: January 22, 2007
Report No.: SZ_07_06044_E_005

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1. Test Result Certification

Equipment under Test:	GSM 850/900/1800/1900 GPRS Mobile Phone
Trade Name:	TechFaith Wireless
Model Name:	PAM
FCC ID:	UJQ-05838T
Applicant:	TechFaith Wireless Technology Limited. 2/F M8 West, No.1 Jiu Xian Qiao Dong Road, Chao Yang District, Beijing, 100016 P. R. China
Manufacturer:	TechFaith Wireless Technology Limited. 2/F M8 West, No.1 Jiu Xian Qiao Dong Road, Chao Yang District, Beijing, 100016 P. R. China
Test Standards:	47 CFR Part 15 Subpart C
Test Result:	PASS

*** We hereby certify that:**

The equipment under test was tested by Shenzhen Morlab Communications Technology Co., Ltd. The test data, data evaluation, test procedures and equipment configurations shown in this report were made in accordance with the requirement of related FCC rules.

The test results of this report only apply for the tested sample equipment identified above. The test report shall be invalid without all the signatures of the test engineer, the reviewer and the approver.

Tested by: ..... Dated: 2007.1.22
Zhang Weimin

Reviewed by: ..... Dated: 2007.1.22
Yang Bo

Approved by: ..... Dated: 2007.1.22
Shu Luan

2. General Information

2.1 Equipment under Test (EUT) Description

Description ..... :	GSM 850/900/1800/1900 GPRS Mobile Phone
Model Name ..... :	PAM
IMEI ..... :	---
Serial No. ..... :	1051608000001314
Hardware Version ..... :	P1
Software Version ..... :	TF_WM5_PAM_VER_01.04_CE
Modulation ..... :	OFDM Note 1
Frequency ..... :	2412MHz - 2462MHz Note 1
Number of Channel ..... :	11 Note 1
Rated Power..... :	≤ 20dBm
Bluetooth Antenna ..... :	Permanent Attached, Gain = -2.8dBi

NOTE:

1. The EUT is a GSM Mobile Phone, it supports WLAN (IEEE 802.11g) function, operating at 2.4GHz ISM band. The WLAN modulation is Orthogonal Frequency Division Multiplexing (OFDM). The frequencies allocated is F(MHz)=2412+5*n ($0 \le n \le 10$).
2. For detailed features about the EUT, please see user manual supplied by applicant.

2.2 Test Standards and Results

The objective of the report is to perform tests according to 47 CFR Part 15 Subpart C (WLAN, 2.4GHz ISM band radiators):

No.	Identity	Document Title
1	47 CFR Part 15 (10-1-05 Edition)	Radio Frequency Devices

Test detailed items and the results are as below:

No.	Rules	Test Type	Result	Date of Test
1	§15.207	Conducted Emission	PASS	2006-12-25
2	§15.209 §15.247(c)	Radiated Emission	PASS	2006-11-27 2006-12-25
3	§15.247(a)	6dB Bandwidth	PASS	2006-11-23
4	§15.247(b)	Maximum Peak Output Power	PASS	2006-11-27
5	§15.247(c)	Band Edge	PASS	2006-11-27
6	§15.247(c)	Conducted Spurious Emission	PASS	2006-11-27
7	§15.247(d)	Power Spectrum Density	PASS	2007-01-18

2.3 Facilities and Accreditations

2.3.1 Facilities

Shenzhen Electronic Product Quality Testing Center (Morlab) is a testing organization accredited by China National Accreditation Board for Laboratories (CNAL) according to ISO/IEC 17025. The accreditation certificate number is L1659.

All measurement facilities used to collect the measurement data are located at Electronic Testing Building, Shahe Road, Xili, Nanshan District, Shenzhen, P. R. China. The site was constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22, the FCC registration number is 741109.

2.3.2 Test Equipments

No.	Description	Specification
1	System Simulator	Manufacturer: Rohde&Schwarz Model No.: CMU200 Serial No.: 100448
2	System Simulator	Manufacturer: Agilent Telecoms Model No.: E5515C Serial No.: GB43130131
3	Spectrum Analyzer	Manufacturer: Agilent Telecoms Model No.: E7405A Serial No.: US44210471
4	Telecommunication Antenna	Manufacturer: European Antennas Model No.: PSA-45010R/356 Serial No.: 403688-001
5	Loop Antenna	Manufacturer: Rohde & Schwarz Model No.: HFH2-Z2 Serial No.: A0304220
6	Trilogy Antenna	Manufacturer: Schwarzbeck Model No.: VULB 9163 Serial No.: 9163-274
7	Horn Antenna	Manufacturer: Schwarzbeck Model No.: BBHA 9120C Serial No.: 9120C-384
8	Power Meter (Probe)	Manufacturer: Rohde & Schwarz Model No.: NRVS (NRVS-Z2) Serial No.: 100729 (100254)

No.	Description	Specification
9	Power Splitter	Manufacturer: WEINSCHEL Model No.: 1506A Serial No.: NW521
10	Shield Room	Manufacturer: Albatross Projects GmbH
11	Anechoic Chamber	Manufacturer: Albatross Projects GmbH

NOTE:

1. Equipments listed above have been calibrated and are in the period of validation.

2.3.3 Test Environment Conditions

During the measurement, the environmental conditions were within the listed ranges:

Temperature:	20 - 25°C
Relative Humidity:	40 - 50%
Atmospheric Pressure:	96kPa

3. 47 CFR Part 15C Requirements

3.1 Conducted Emission

3.1.1 Requirement

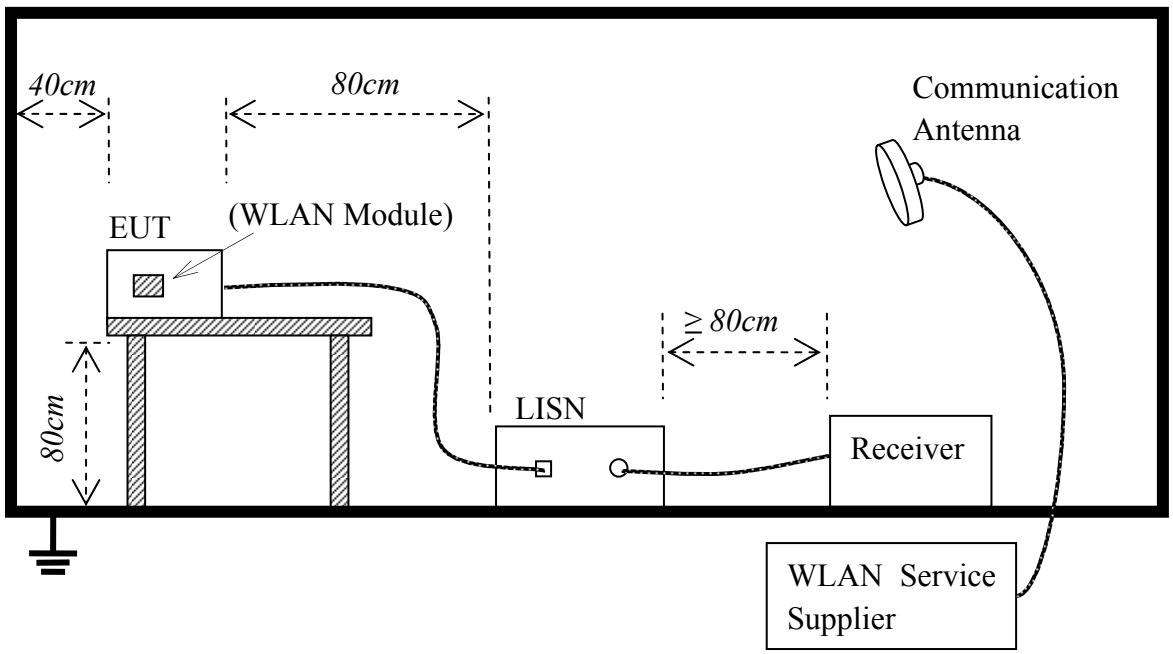
According to FCC §15.207, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency within the band 150kHz to 30MHz shall not exceed the limits in the following table, as measured using a 50μH/50Ω line impedance stabilization network (LISN).

Frequency range (MHz)	Conducted Limit (dBμV)	
	Quai-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
0.50 - 30	60	50

NOTE:

1. The lower limit shall apply at the band edges.
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.

3.1.2 Test Setup



1. The test is performed in a shield room; the factors of the test system are calibrated to correct the reading.
2. The EUT is The EUT is configured as WLAN Module + Battery + Charger. During the measurement, the EUT keeps charging empty Battery. The Charger is powered by 120V, 60Hz AC mains supply.
3. The EUT is placed on a 0.8m high insulating table and kept 0.4m away from the conducting wall of the shield room. The EUT is connected to the power mains through a Line Impedance Stabilization Network (LISN) which provides a 50μH/50Ω of coupling impedance for the measuring instrument (Receiver).
4. During the measurement, the WLAN (IEEE 802.11g) function of the EUT is activated. The WLAN Module accesses a WLAN Service Supplier of Wi-Fi Wireless Router (Manufacturer: D-Link, Model: DI-624+A), and keeps transceiving data with a network termination.

3.1.3 Test Procedure

1. Check via Receiver in the frequency range from 150kHz to 30MHz for searching for maximum conducted interference using Quasi-peak and Average detectors. If the emission levels measured with Quasi-peak detector are lower than Average Conducted Limits, the measurement with Average detector will be skipped. Record several suspicious points and plots.
2. Tests for L phase and N phase lines of the power mains connected to the EUT are performed.

3.1.4 Test Result

The Recorded Suspicious Points:

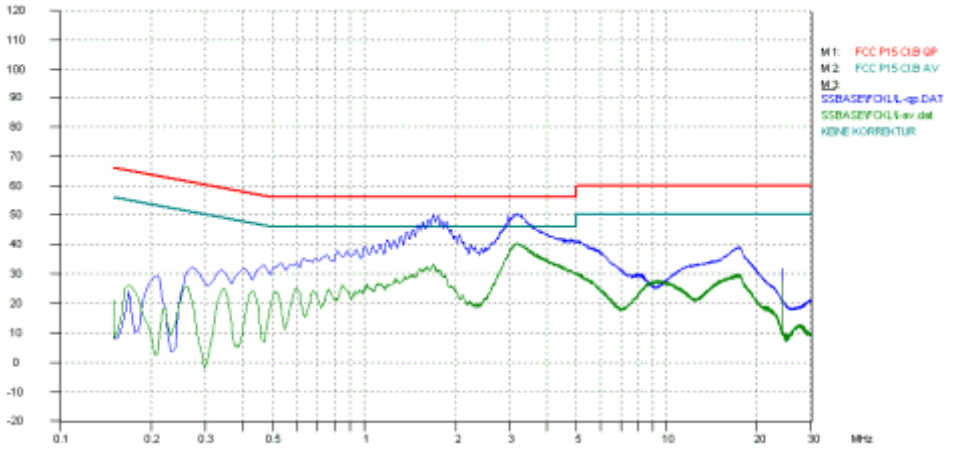
No.	Frequency (MHz)	Limit (dBμV)		Emission Level (dBμV)			Verdict
		Quasi-peak	Average	Quasi-peak	Average	Phase	
1	1.0055	56.0	46.0	39.4	26.2	L	PASS
2	1.6910	56.0	46.0	50.0	33.1	L	PASS
3	3.1850	56.0	46.0	50.5	40.2	L	PASS
4	4.8200	56.0	46.0	41.9	31.6	L	PASS
5	17.4000	60.0	50.0	39.0	29.8	L	PASS

NOTE:

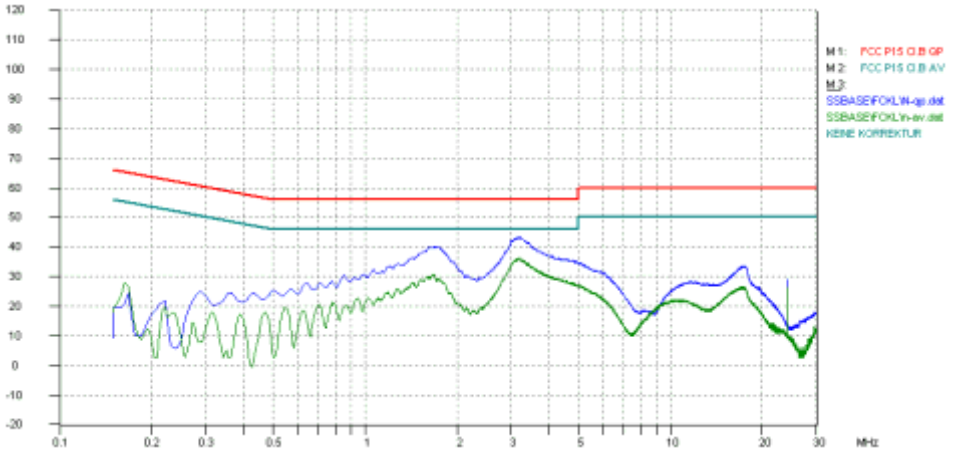
1. The emission levels recorded above is the larger ones of both L phase and N phase.

The Test Plots:

1. Test plot at L phase:



2. Test plot at N phase:



3.2 Radiated Emission

3.2.1 Requirement

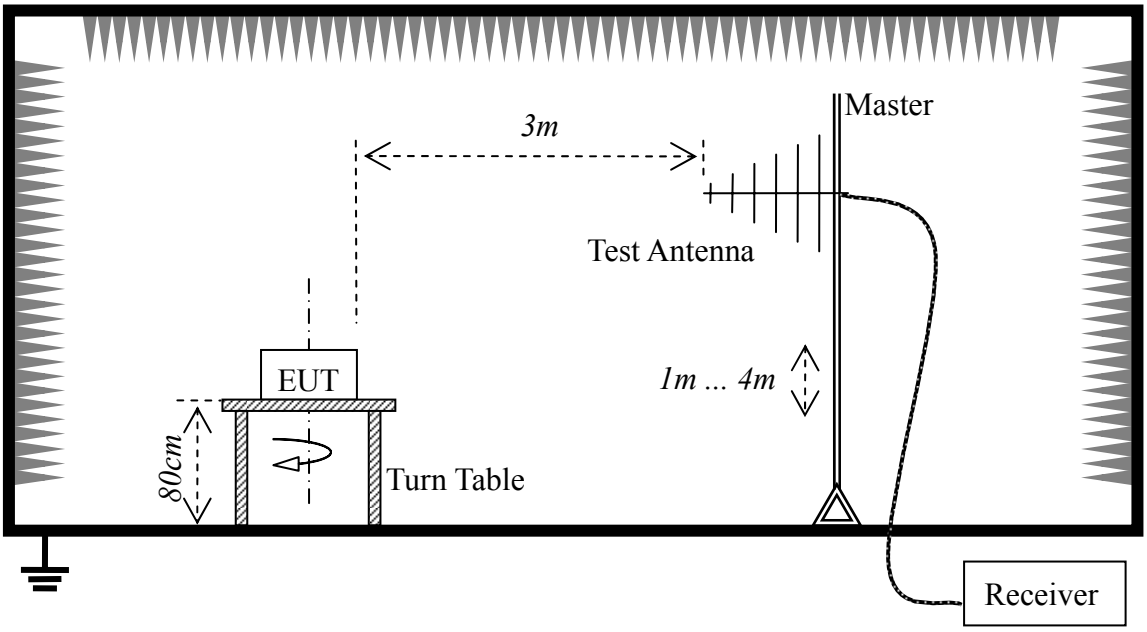
According to 47 CFR §15.247(c), radiated emission outside the frequency band attenuation below the general limits specified in section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in section 15.205(a), must also comply with the radiated emission limits specified in section 15.209(a).

According to 47 CFR §15.209 (a), except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (μV/m)	Measurement Distance (m)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30.0	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

As shown in 47 CFR §15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector. When average radiated emission measurements are specified in this part, including emission measurements below 1000MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit for the frequency being investigated unless a different peak emission limit is otherwise specified in the rules.

3.2.2 Test Setup



1. The test is performed in a semi-anechoic chamber; the factors of the test system are calibrated to correct the reading.
2. The EUT is The EUT is configured as WLAN Module + Battery + Charger. During the measurement, the EUT keeps charging empty Battery. The Charger is powered by 120V, 60Hz AC mains supply. The EUT is placed on the top of a turn Table 0.8m above the ground.
3. Set the WLAN Module of the EUT to transmit continuously at the maximum output power and maximum data rate (54Mbps) via an embedded program in the EUT provided by the Applicant.

3.2.3 Test Procedure

1. In the frequency range of 9kHz to 30MHz, magnetic field was measured with Loop Test Antenna. The Test Antenna is positioned with its plane vertical at 1m distance from the EUT. The center of the Loop Test Antenna is 1m above the ground. During the measurement the Loop Test Antenna rotates about its vertical axis for maximum response at each azimuth about the EUT.
2. In the frequency range above 30MHz, ultra-broadband Bi-log Test Antenna (30MHz to 1GHz) and Horn Test Antenna (above 1GHz) are used. Test Antenna is 3m away from the EUT. Test Antenna height is varied from 1m to 4m above the ground to determine the maximum value of the field strength. The emission levels at both horizontal and vertical polarizations should be tested.
3. The Receiver is set to Peak Detector function and specified bandwidth with maximum hold mode. If the emission level of the EUT in peak mode is 6dB lower than the limit specified, then testing could be stopped and the peak values would be reported; otherwise the emission less than 6dB

margins would be retested one by one using the quasi-peak method.

4. The lowest channel (2412MHz), middle channel (2437MHz) and highest channel (2462MHz) are measured respectively. Record the test plots.

3.2.4 Test Result

The Fundamental Emissions:

The Field strength of fundamental emissions as listed below are measured and recorded as a reference for the calculation of the band edge emissions, please see section 3.5.4.

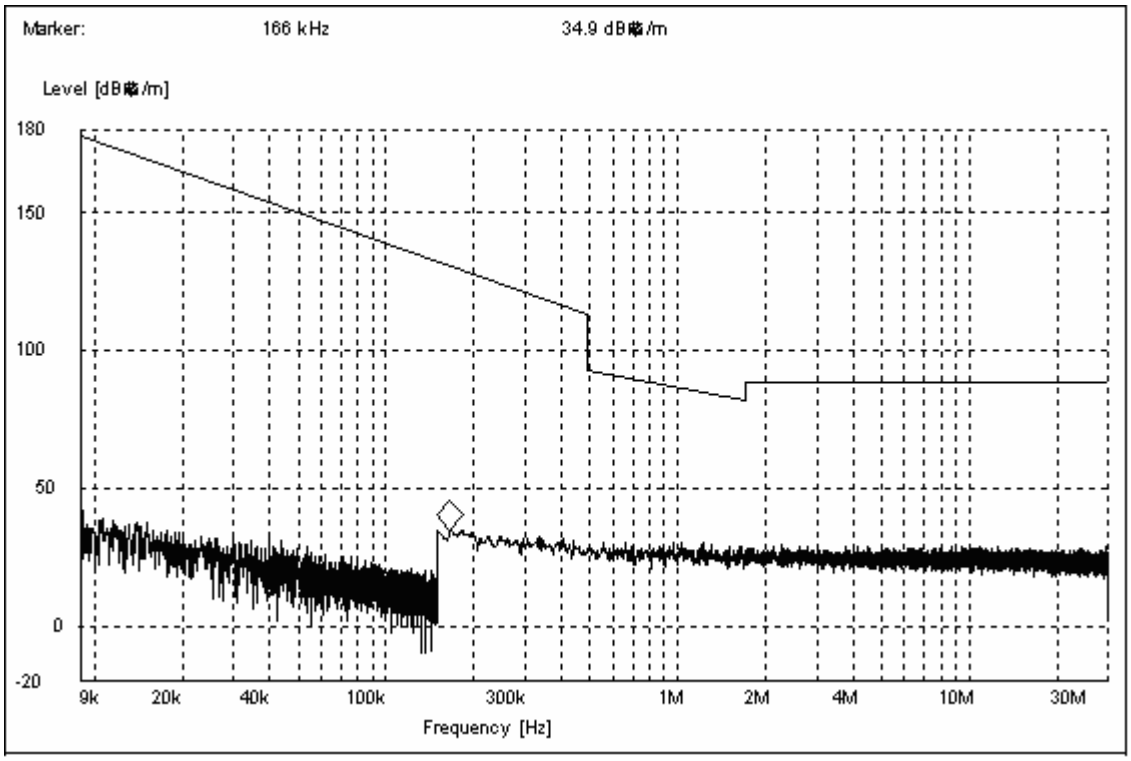
No.	Channel	Frequency (MHz)	Antenna Polarization	Emission (dBμV/m)	
				PK	AV
1	Lowest	2412	Vertical	92.66	75.34
2			Horizontal	94.07	74.87
3	Middle	2437	Vertical	93.61	75.54
4			Horizontal	92.37	75.16
5	Highest	2462	Vertical	95.43	77.12
6			Horizontal	91.09	76.39

The Radiated Emissions Fall In The Restricted Bands:

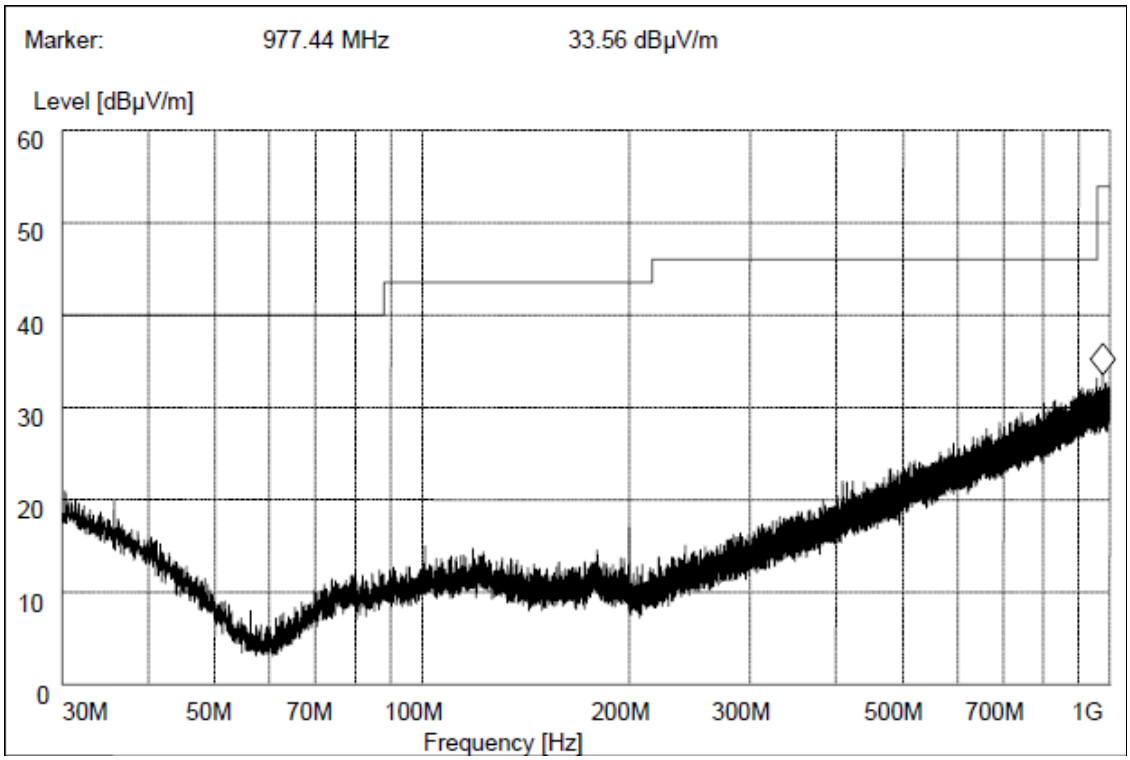
No.	Channel	Frequency (MHz)	Emissions in Restrict Band (MHz)	Antenna Polarization	Emission (dBμV/m)		Limit (dBμV/m)		Verdict
					PK	AV	PK	AV	
1	Lowest	2412	No peak found	Vertical	---	---	74	54	PASS
2			No peak found	Horizontal	---	---	74	54	PASS
3	Middle	2437	No peak found	Vertical	---	---	74	54	PASS
4			No peak found	Horizontal	---	---	74	54	PASS
5	Highest	2462	No peak found	Vertical	---	---	74	54	PASS
6			No peak found	Horizontal	---	---	74	54	PASS

The Test Plots:

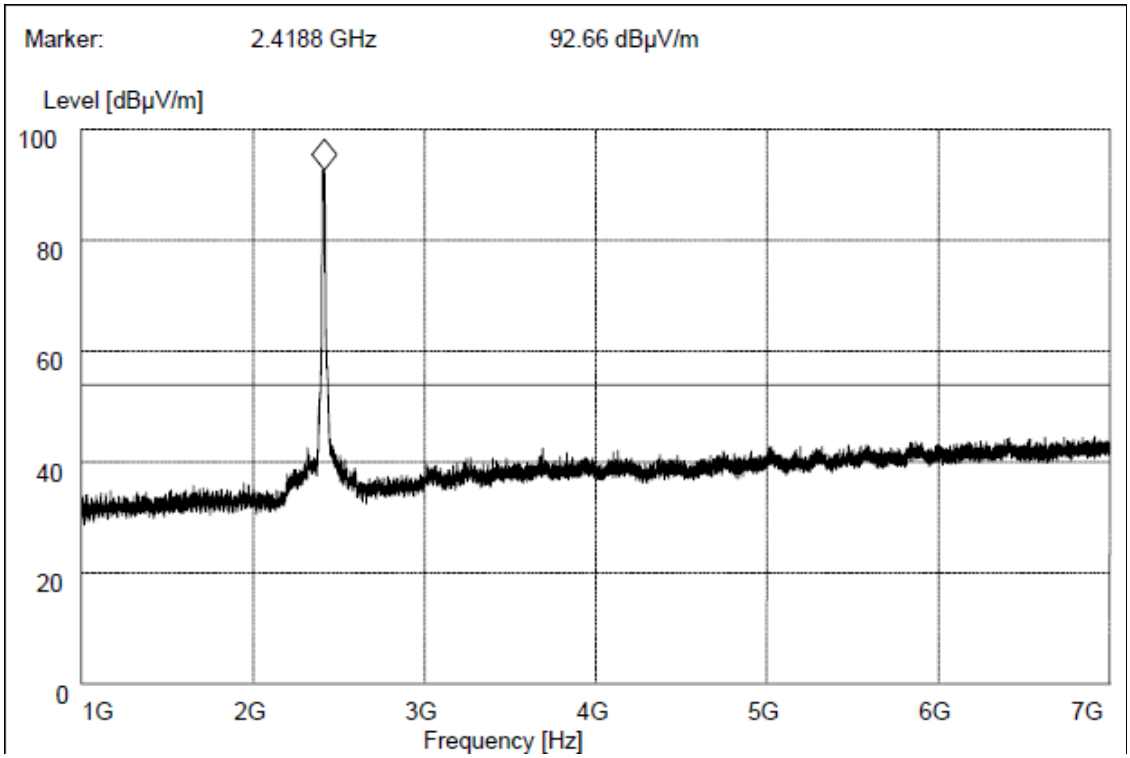
1. Plot for 2412MHz Channel:



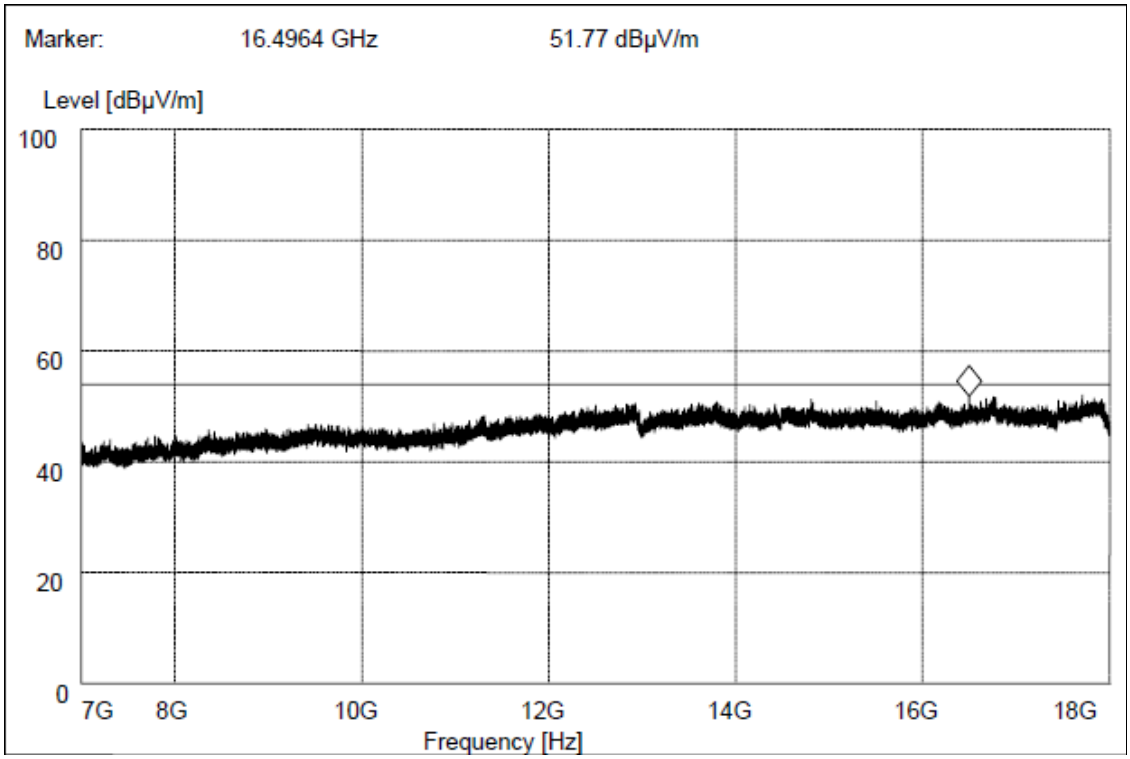
(9kHz to 30MHz)



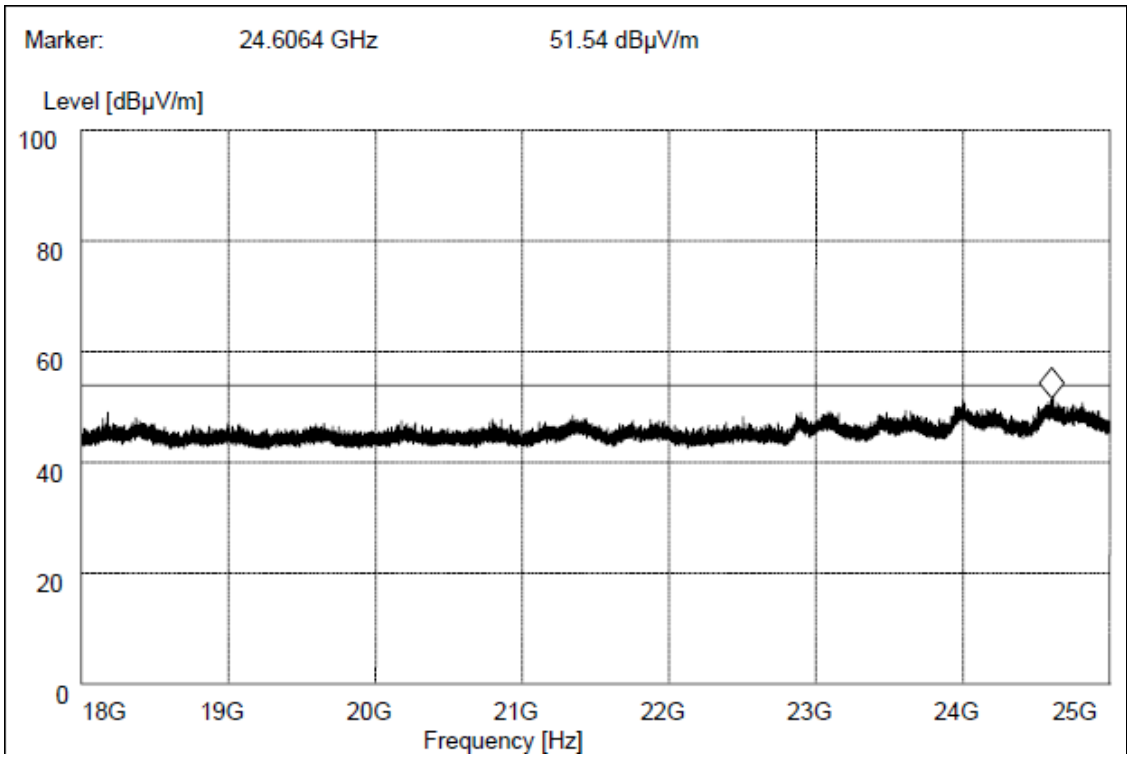
(30MHz to 1GHz, Antenna Vertical)



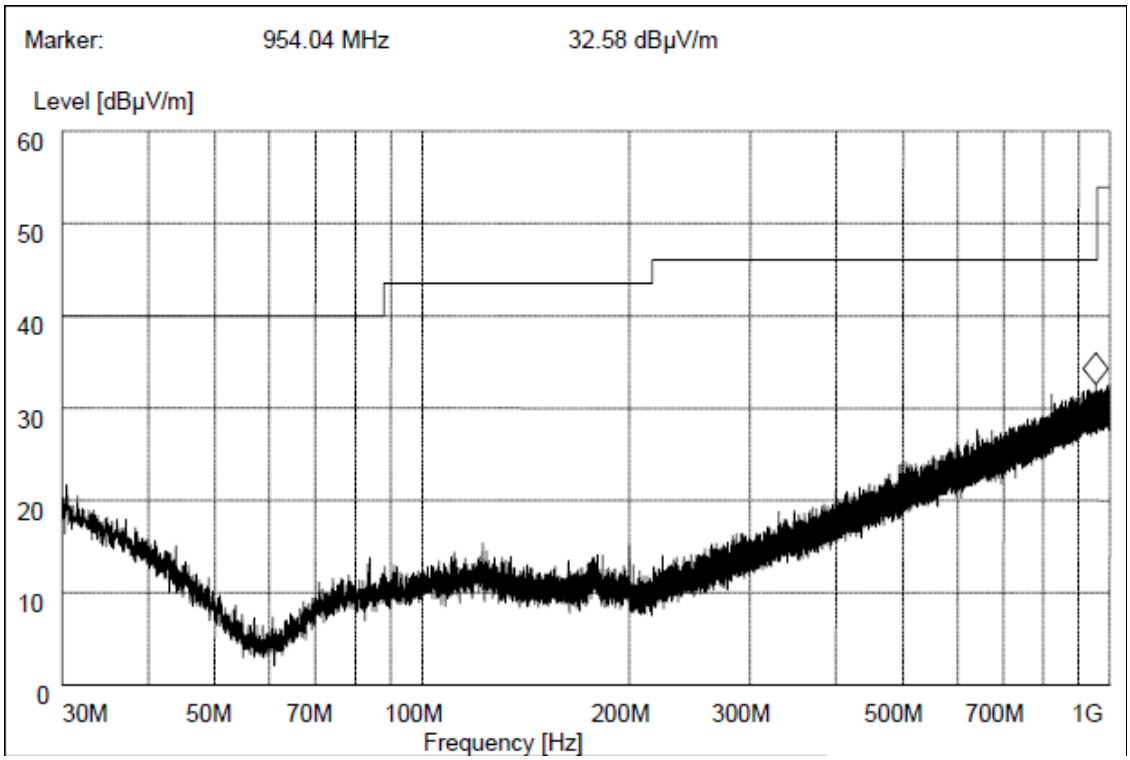
(1GHz to 7GHz, Antenna Vertical)



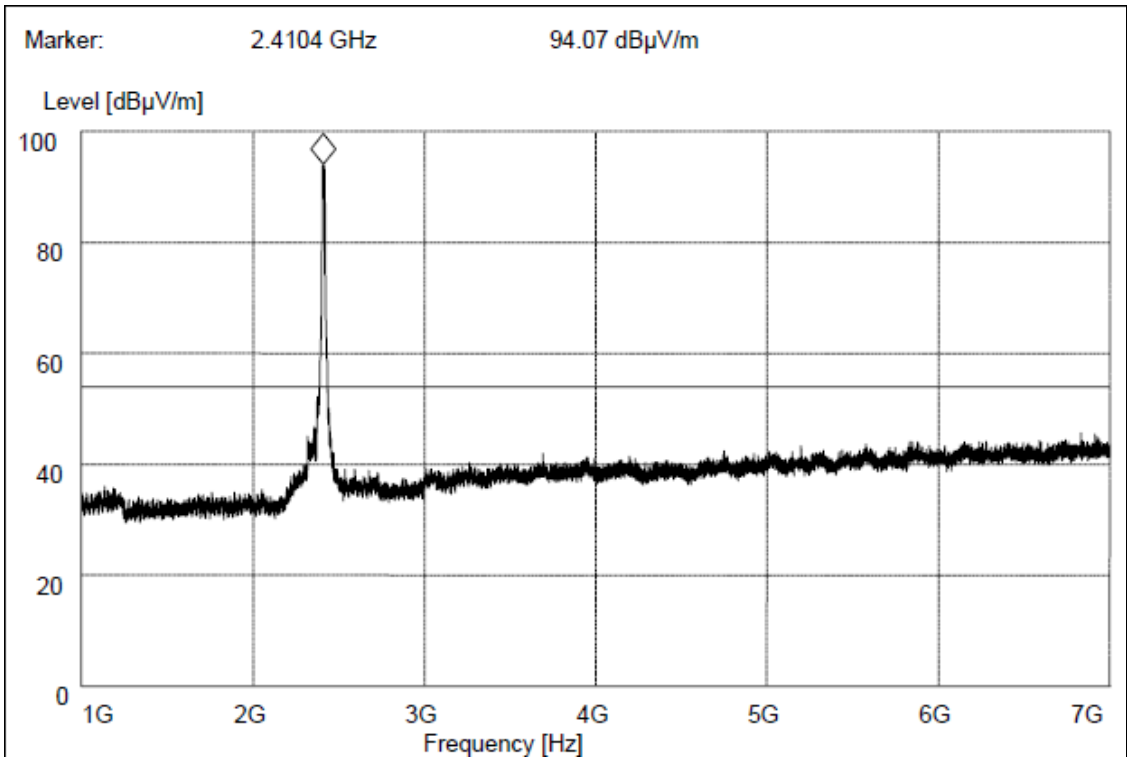
(7GHz to 18GHz, Antenna Vertical)



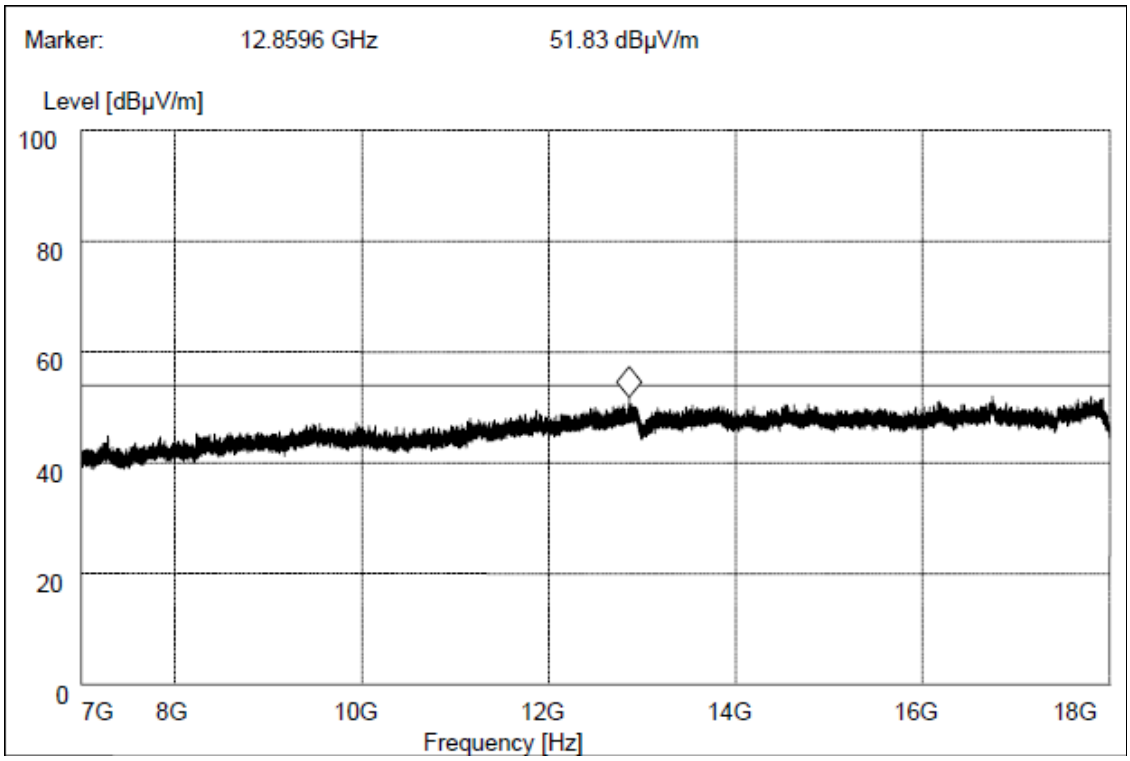
(18GHz to 25GHz, Antenna Vertical)



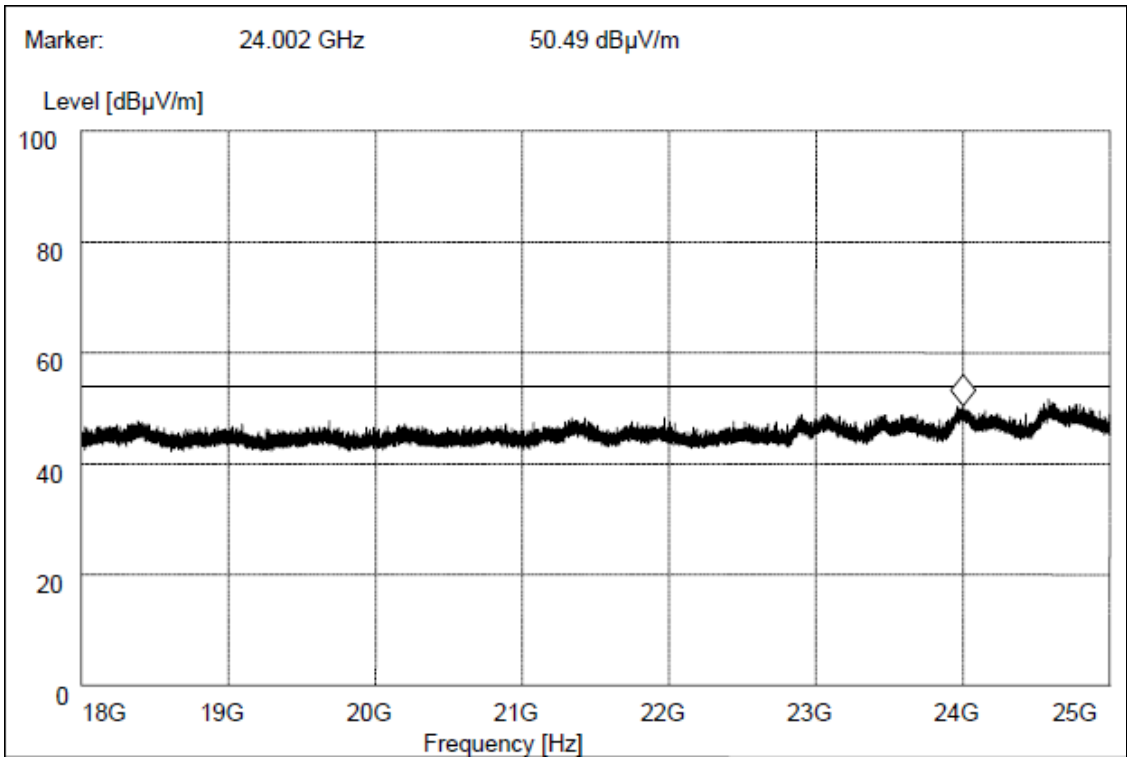
(30MHz to 1GHz, Antenna Horizontal)



(1GHz to 7GHz, Antenna Horizontal)

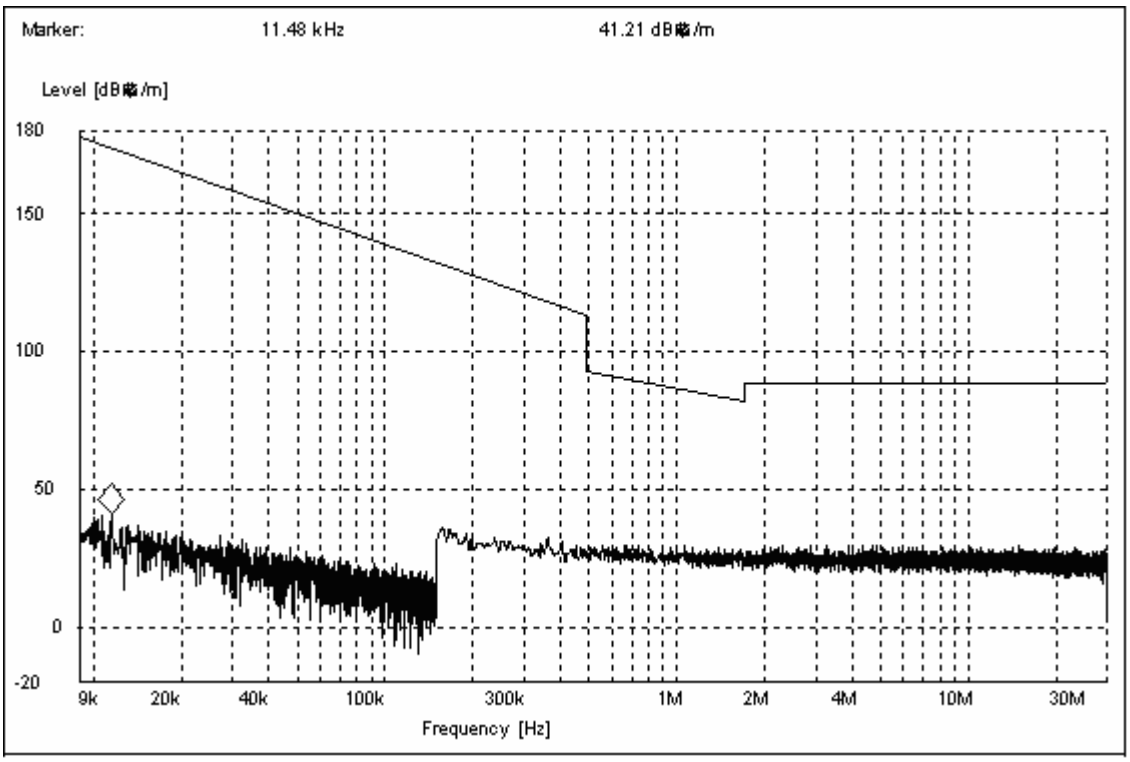


(7GHz to 18GHz, Antenna Horizontal)

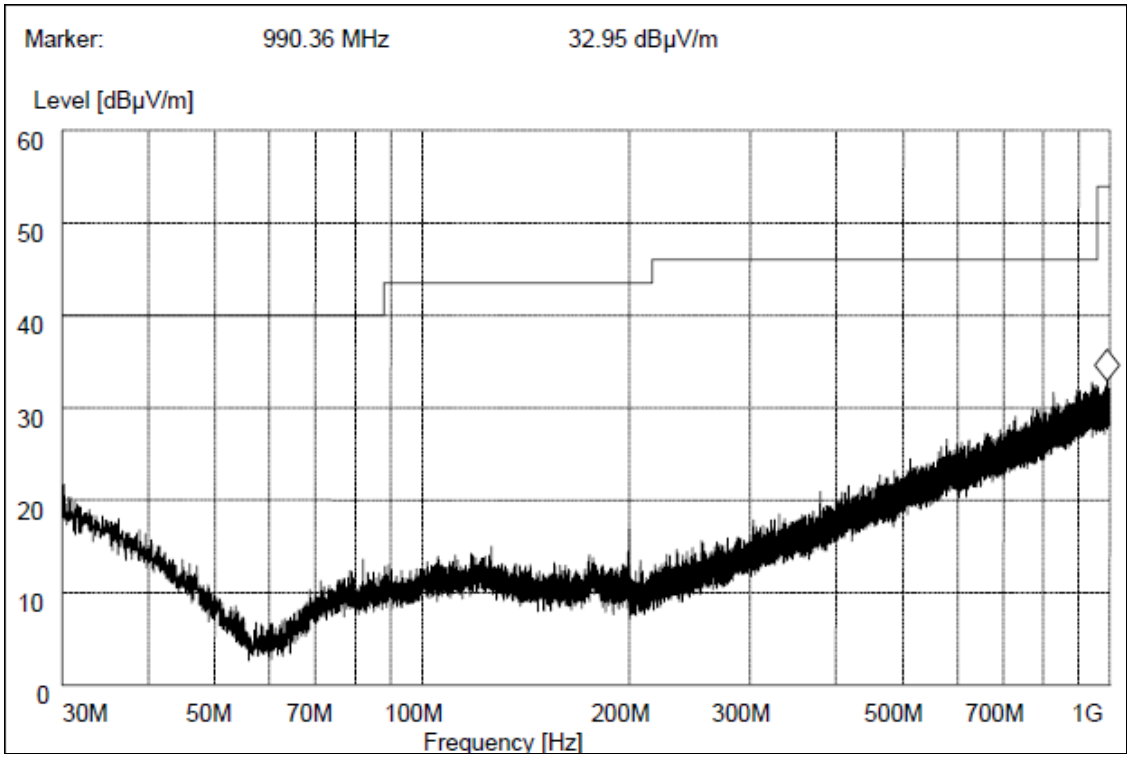


(18GHz to 25GHz, Antenna Horizontal)

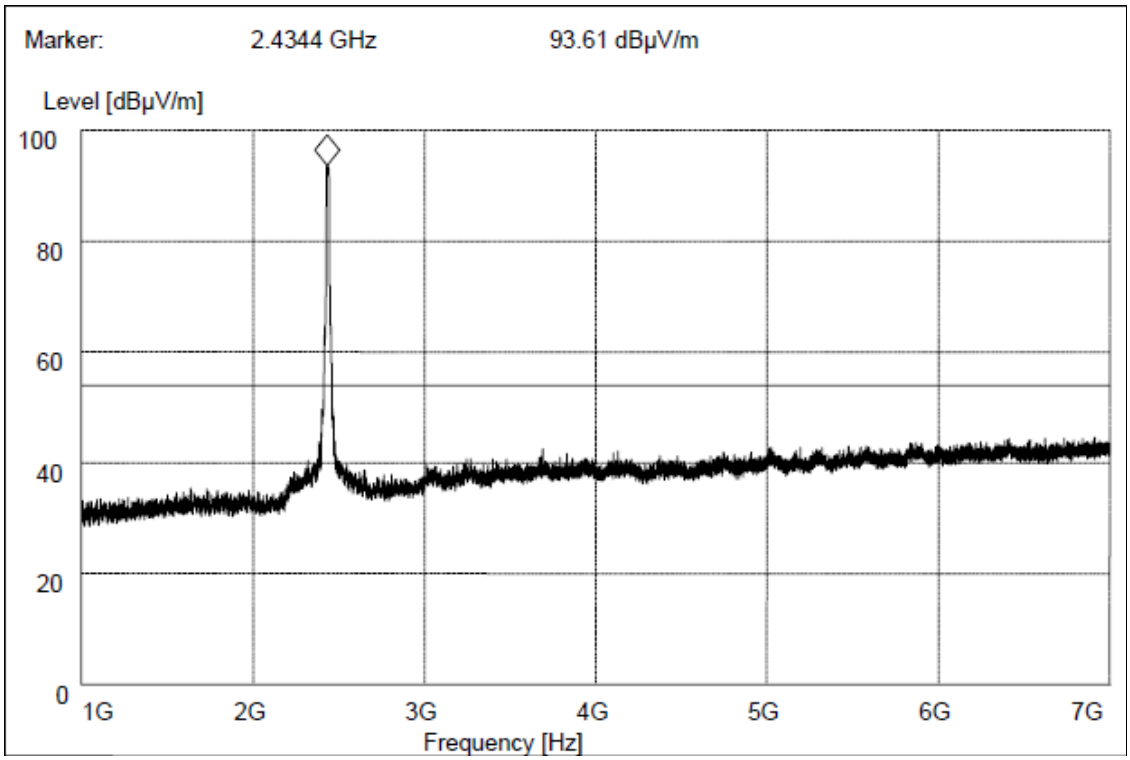
2. Plot for 2437MHz Channel:



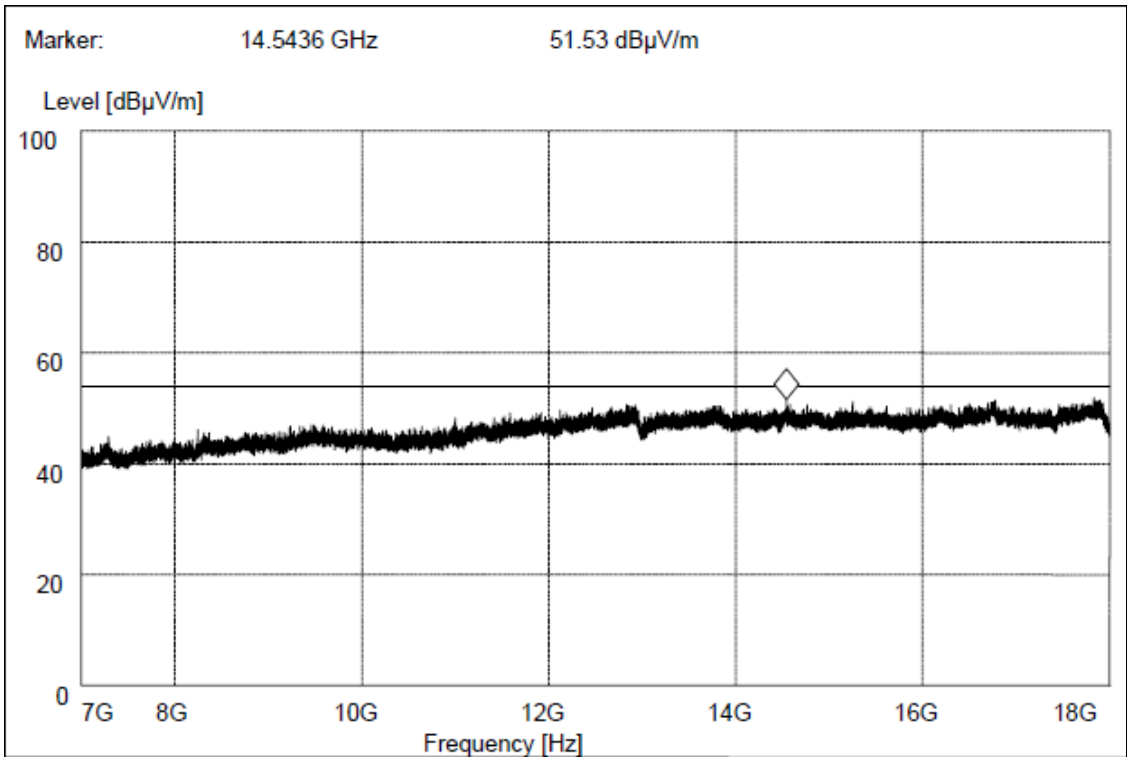
(9kHz to 30MHz)



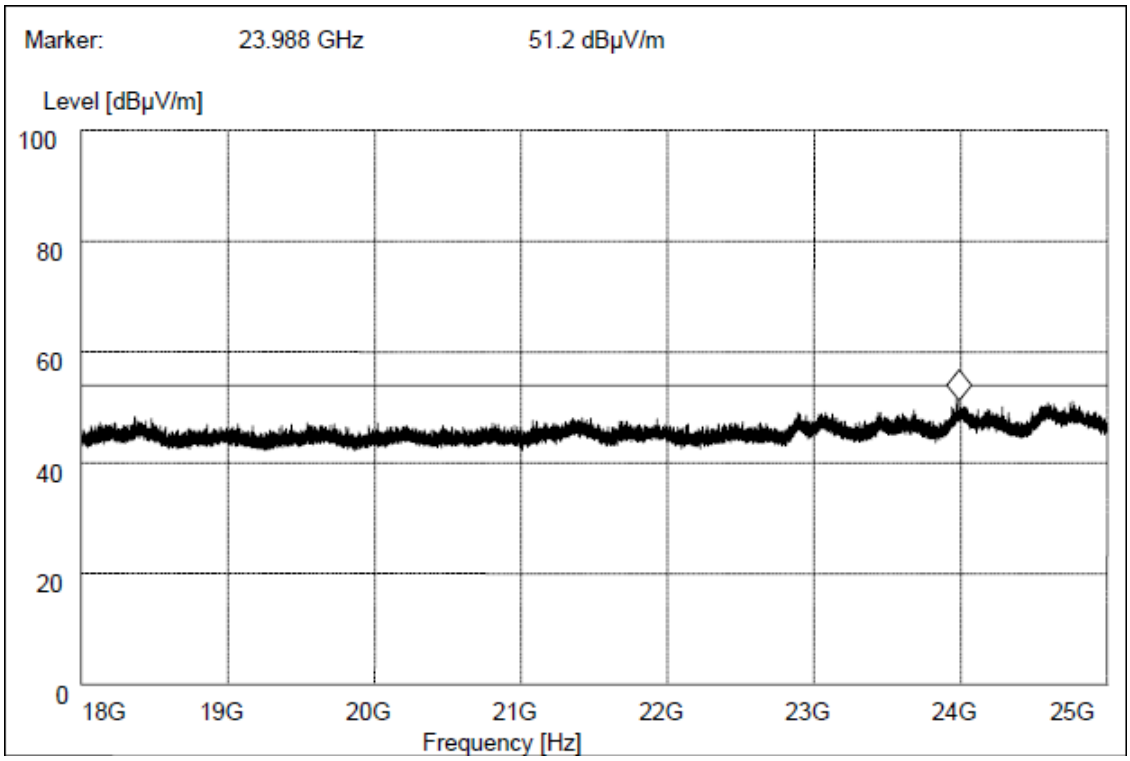
(30MHz to 1GHz, Antenna Vertical)



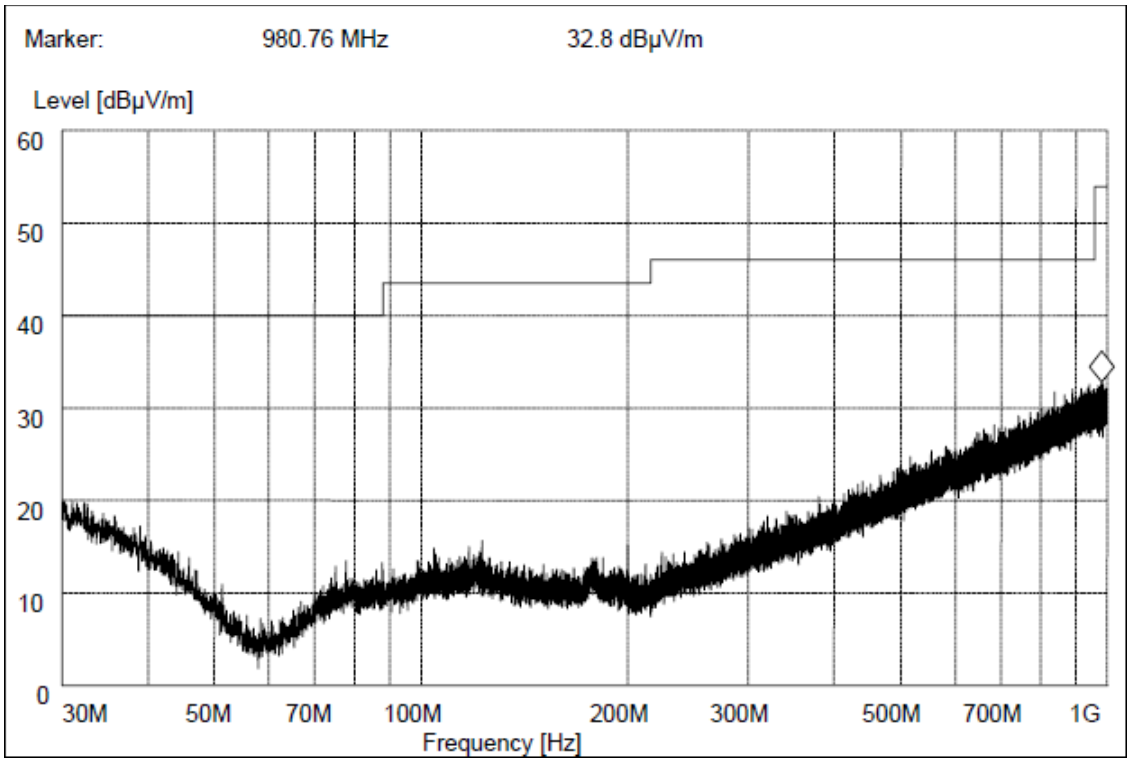
(1GHz to 7GHz, Antenna Vertical)



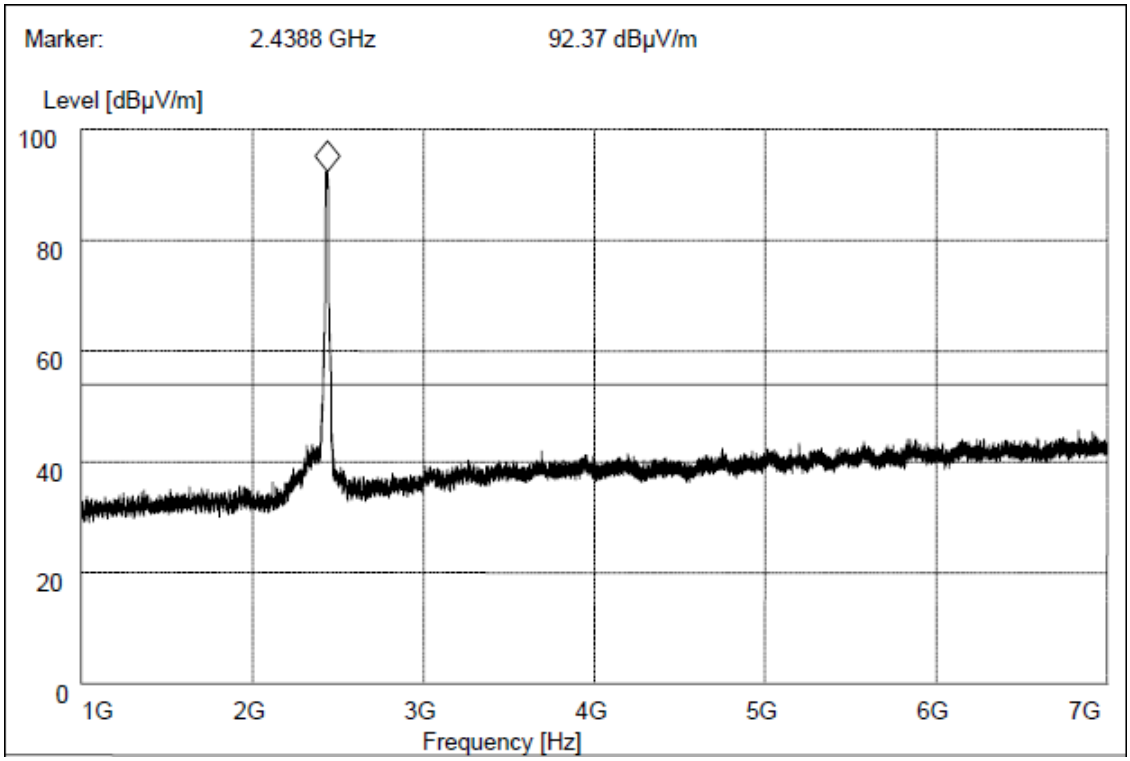
(7GHz to 18GHz, Antenna Vertical)



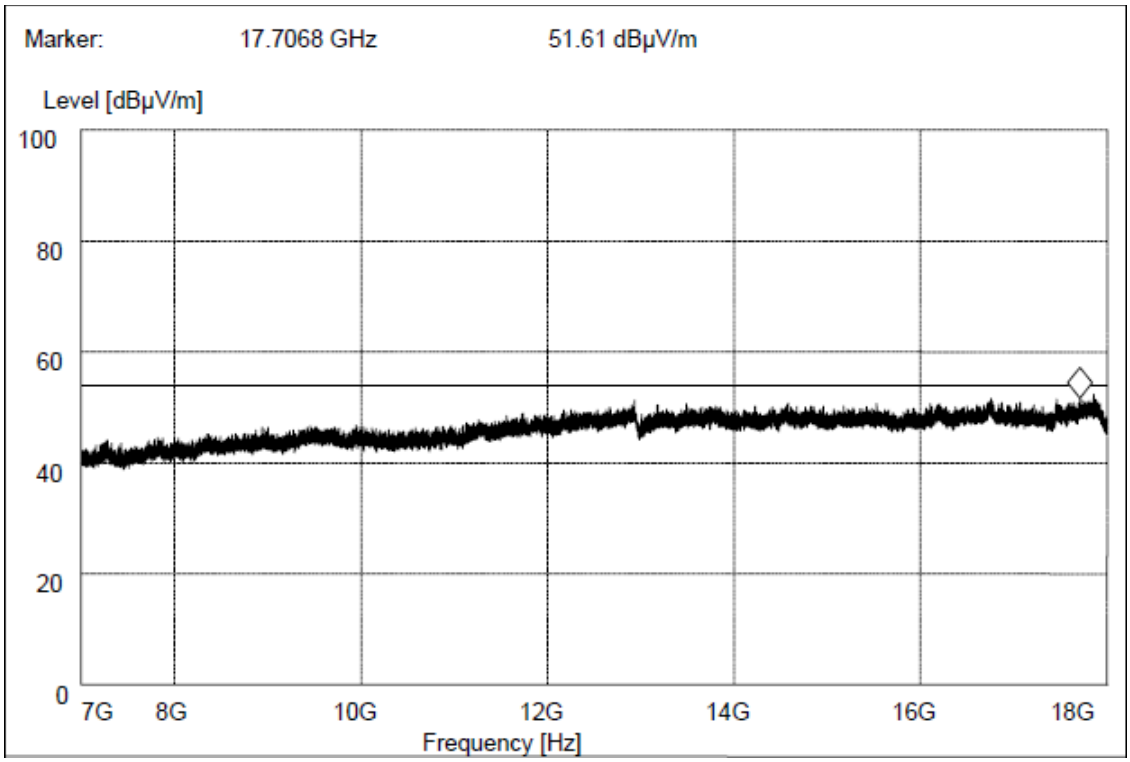
(18GHz to 25GHz, Antenna Vertical)



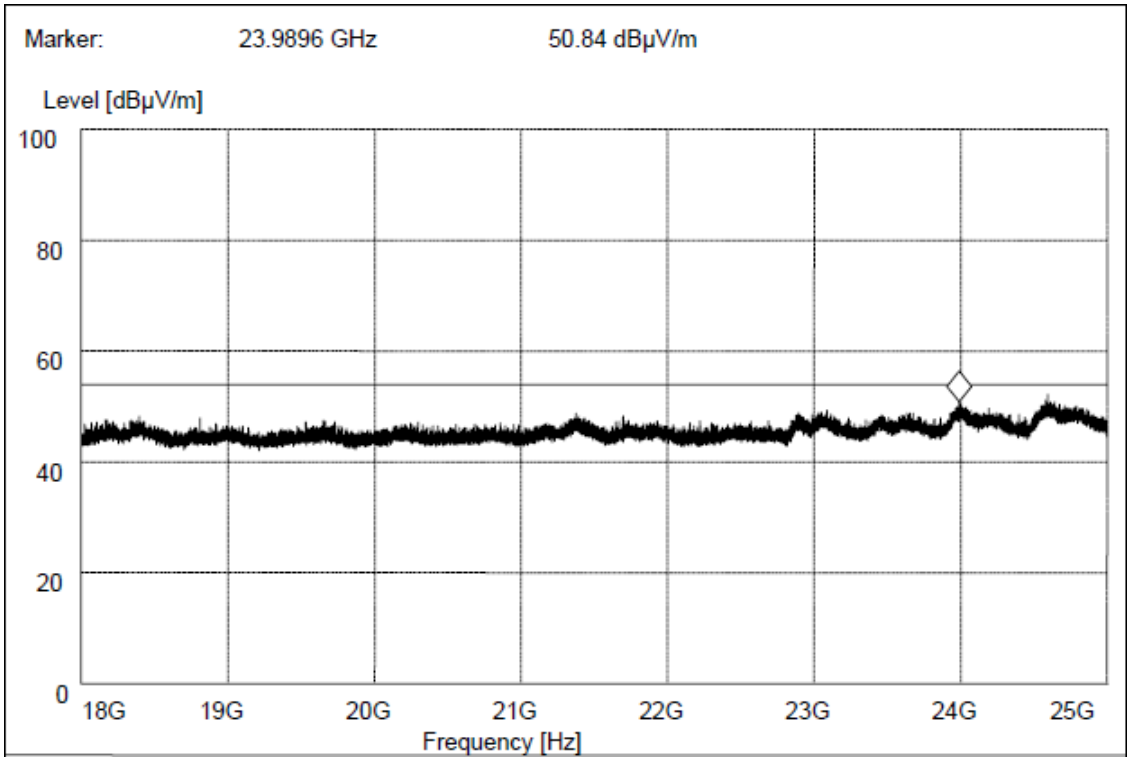
(30MHz to 1GHz, Antenna Horizontal)



(1GHz to 7GHz, Antenna Horizontal)

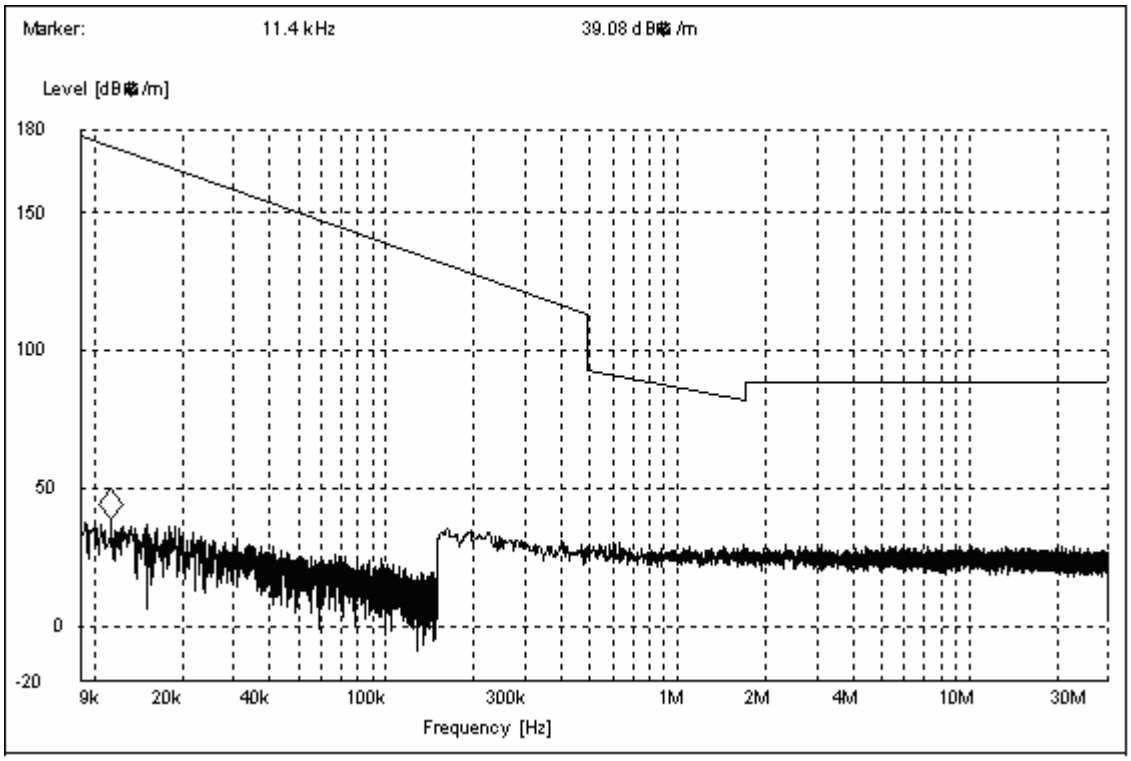


(7GHz to 18GHz, Antenna Horizontal)

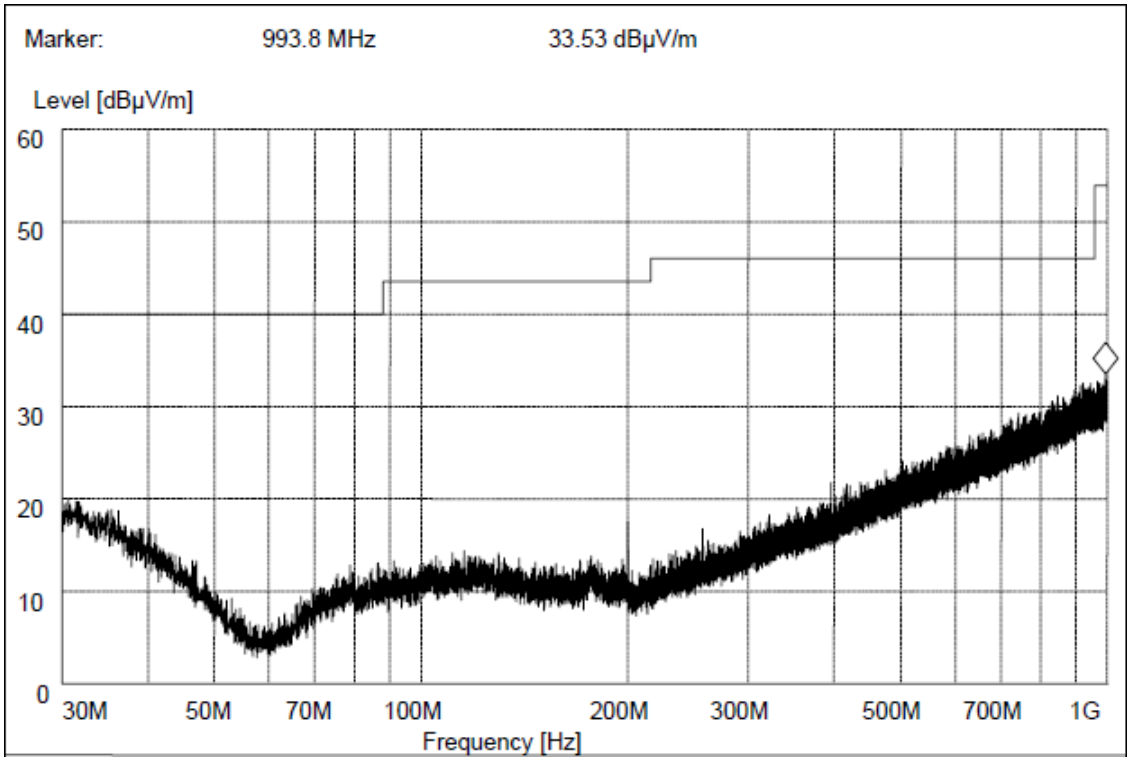


(18GHz to 25GHz, Antenna Horizontal)

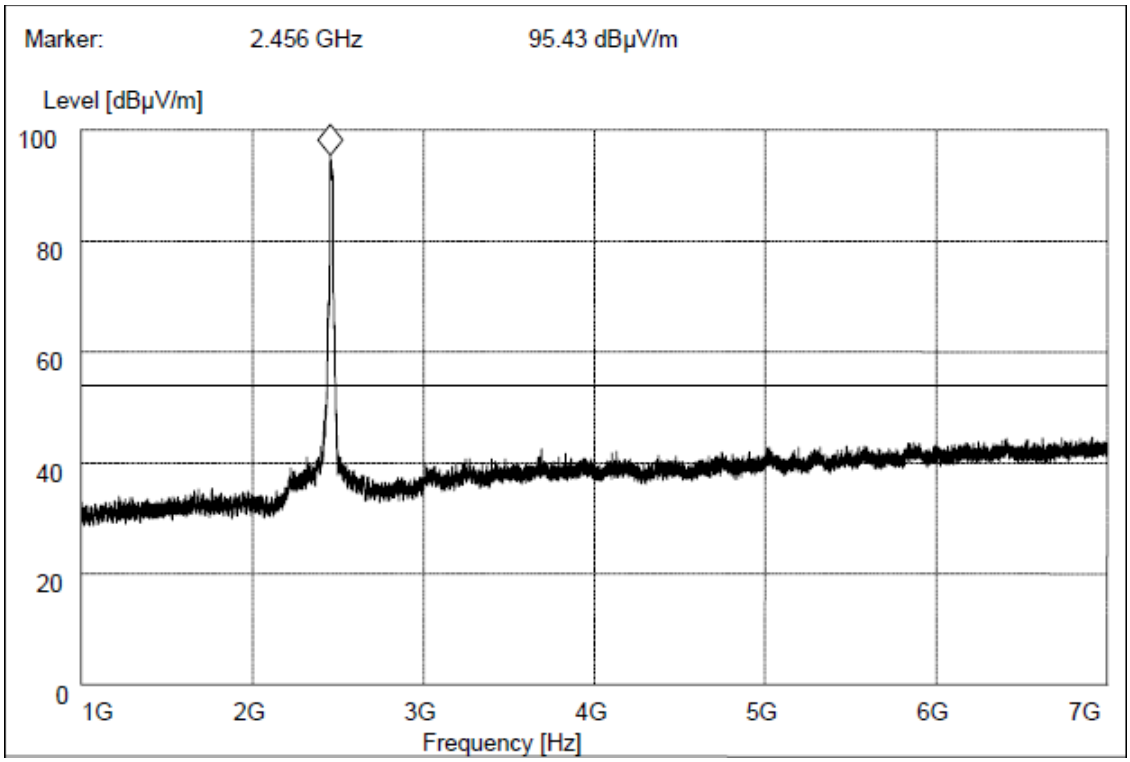
3. Plot for 2462MHz Channel:



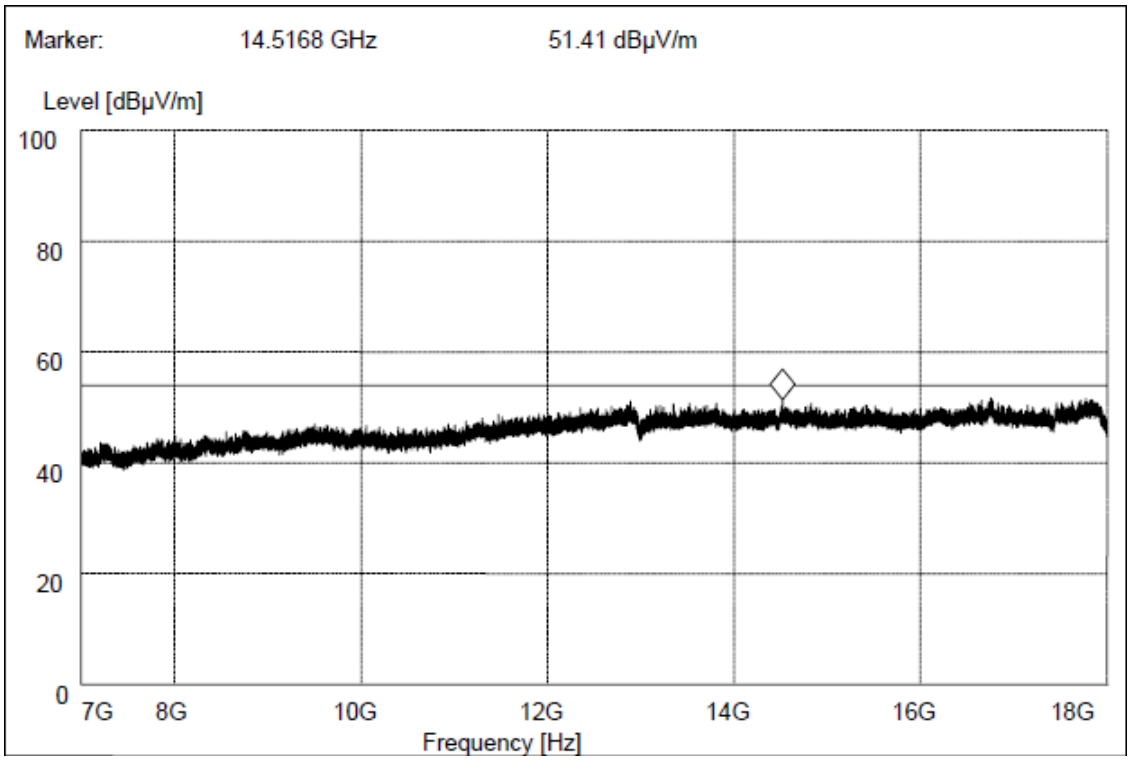
(9kHz to 30MHz)



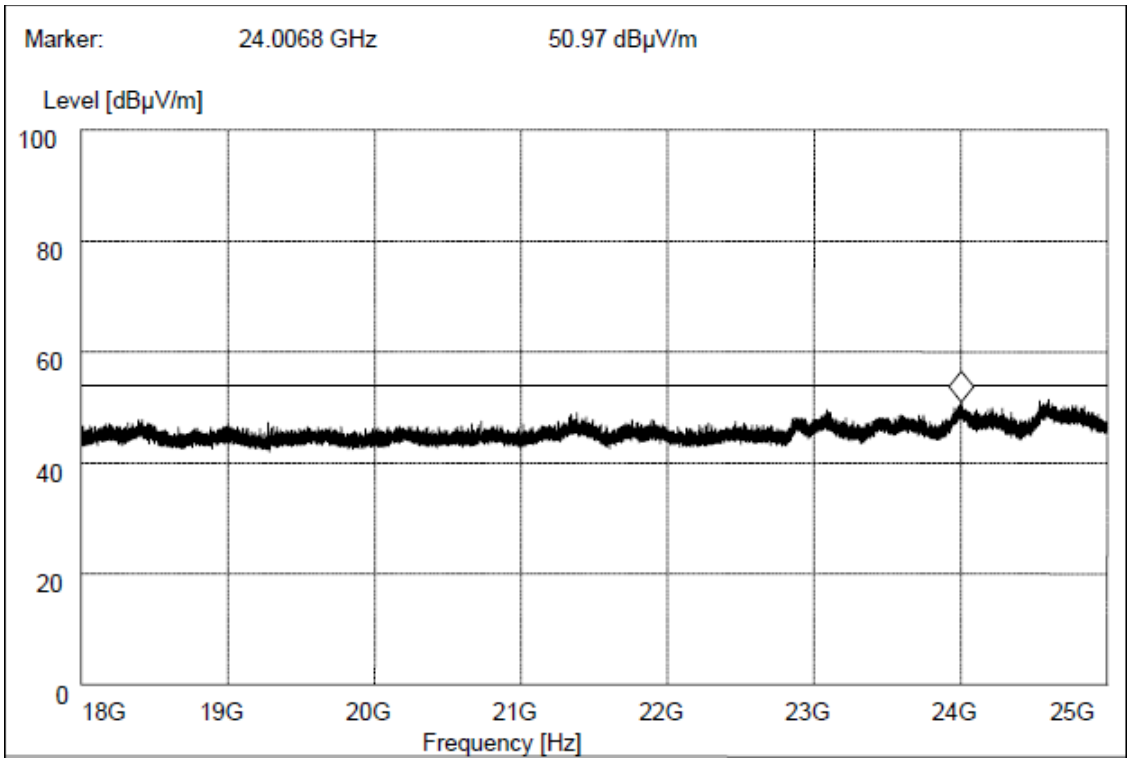
(30MHz to 1GHz, Antenna Vertical)



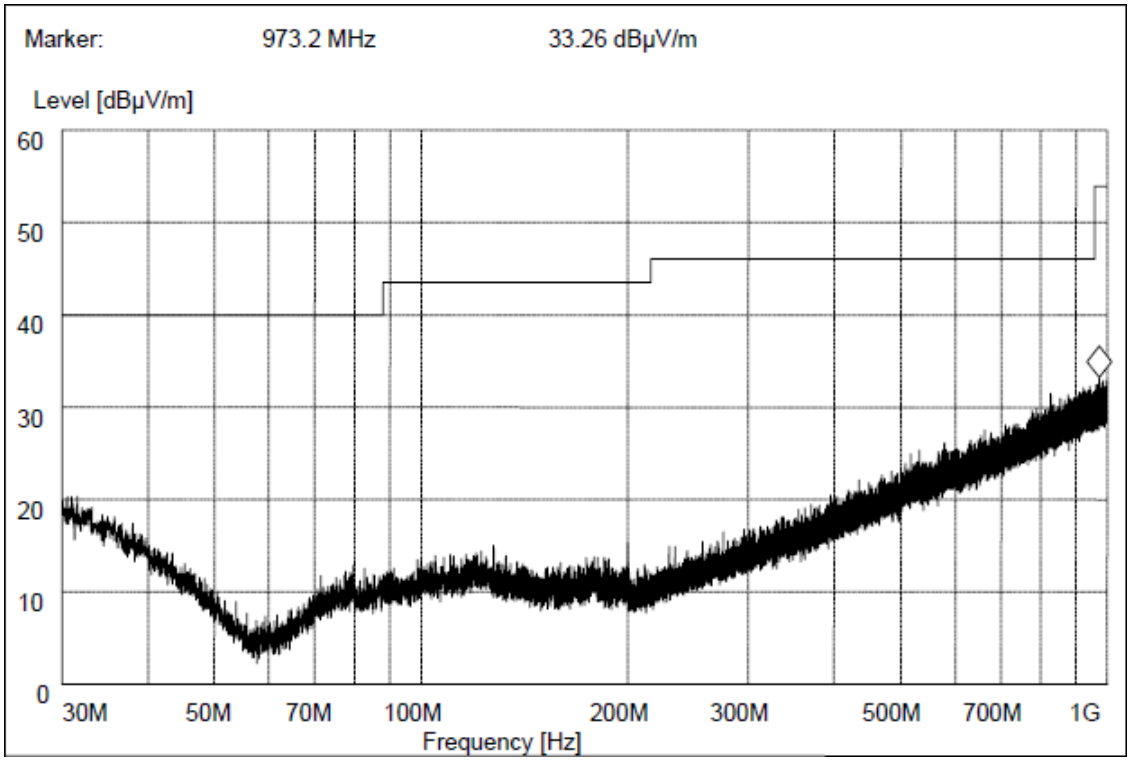
(1GHz to 7GHz, Antenna Vertical)



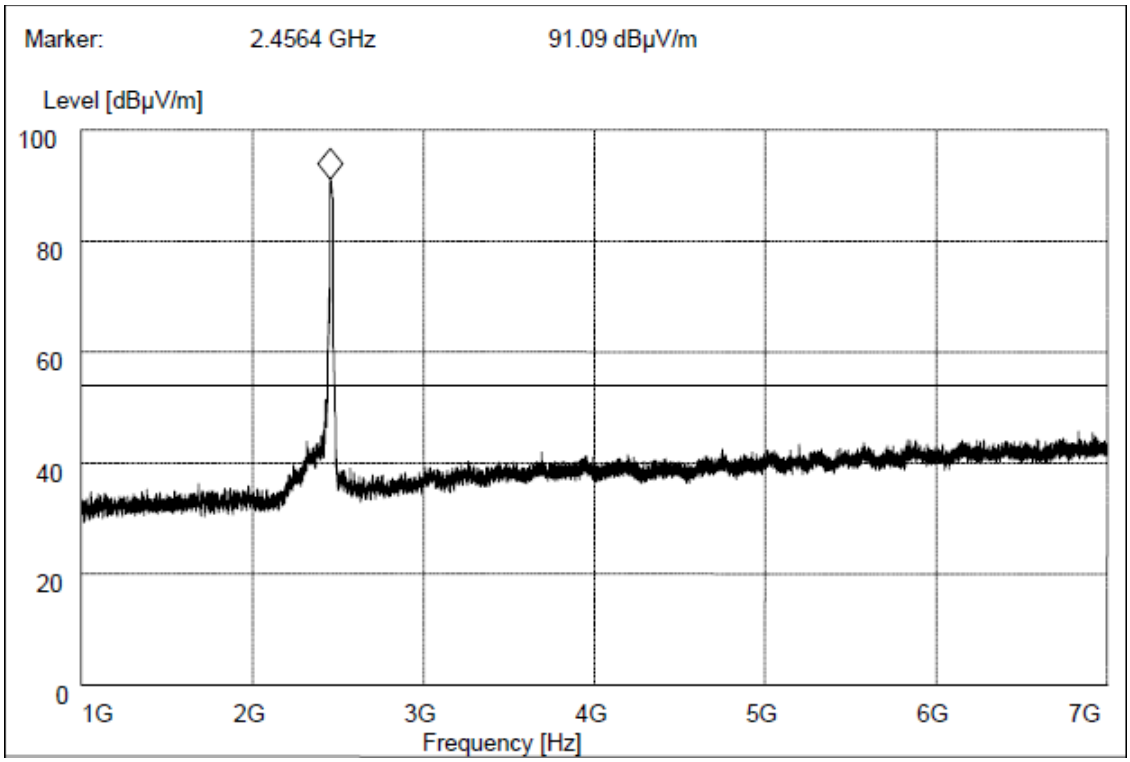
(7GHz to 18GHz, Antenna Vertical)



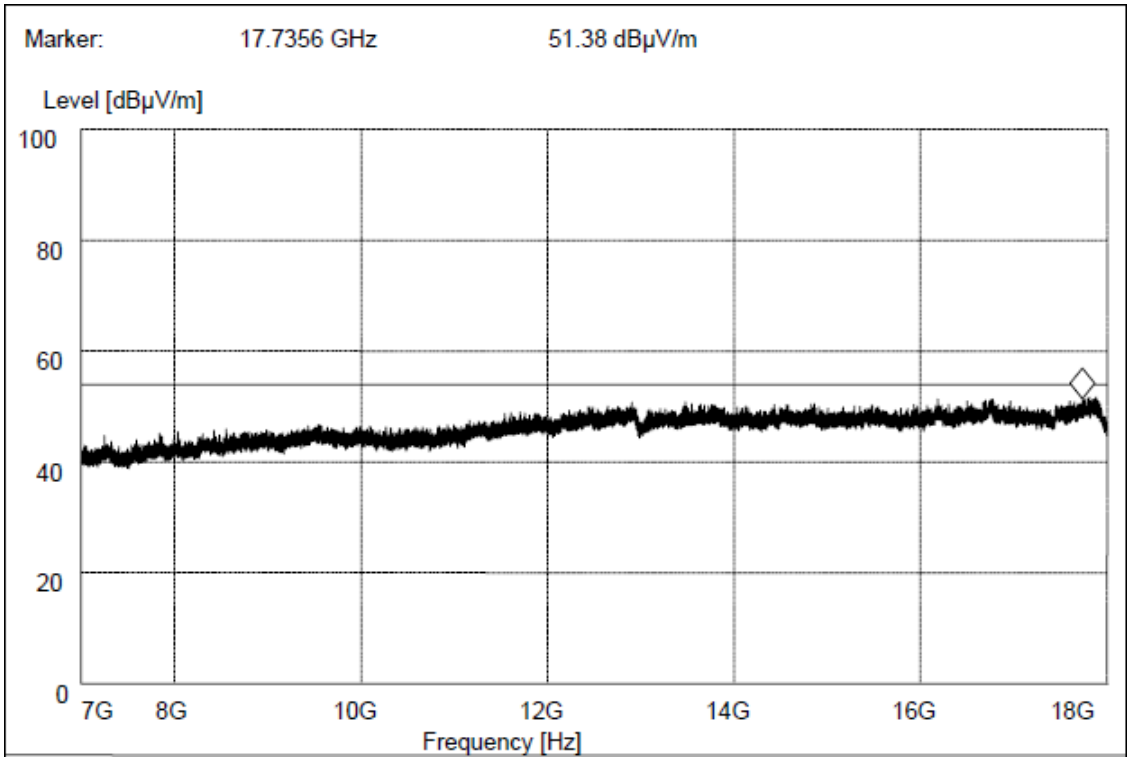
(18GHz to 25GHz, Antenna Vertical)



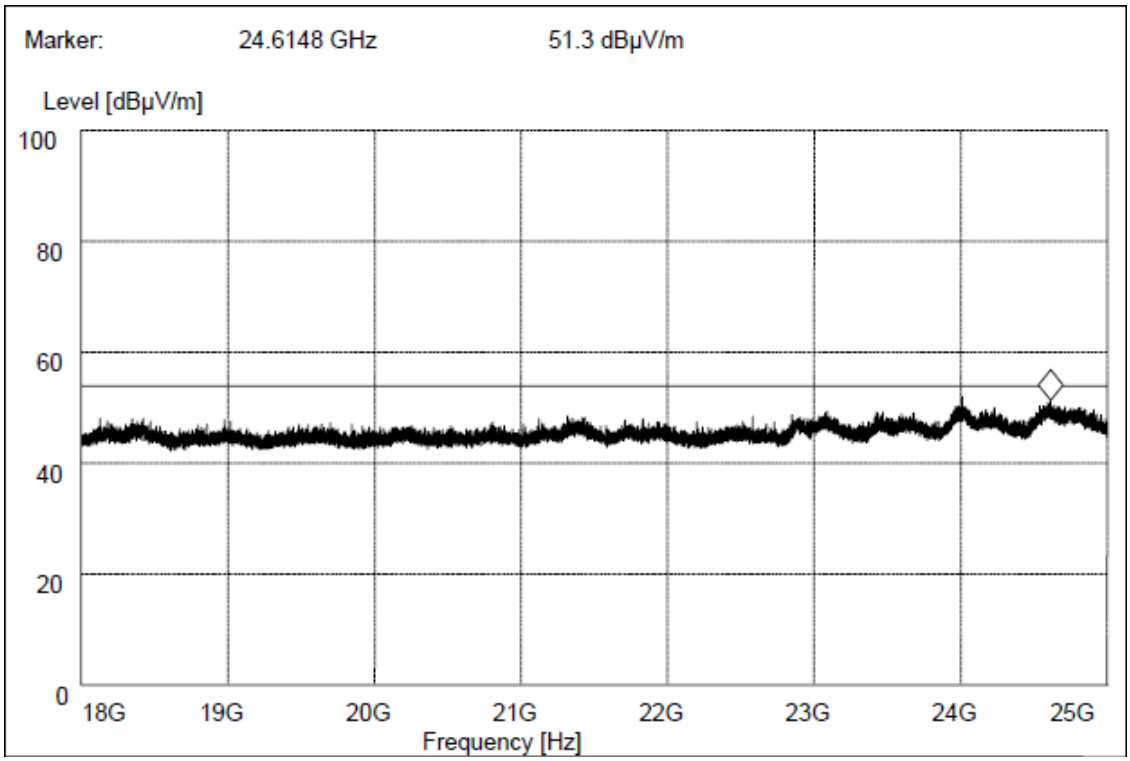
(30MHz to 1GHz, Antenna Horizontal)



(1GHz to 7GHz, Antenna Horizontal)



(7GHz to 18GHz, Antenna Horizontal)



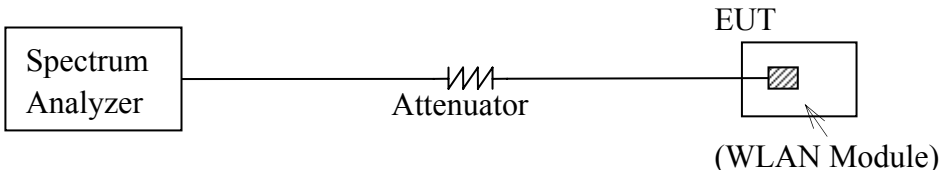
(18GHz to 25GHz, Antenna Horizontal)

3.3 6dB Bandwidth

3.3.1 Requirement

According to FCC §15.247(a)(2), systems using digital modulation techniques may operate in the 902 - 928MHz, 2400 - 2438.5MHz and 5725 - 5850MHz bands. The minimum 6dB bandwidth shall be at least 500kHz.

3.3.2 Test Setup



1. The antenna port of the WLAN Module of the EUT is coupled to the Spectrum Analyzer with Attenuator; the loss is calibrated to correct the reading. The radio frequency load attached to the EUT antenna terminal is 50Ω.
2. The EUT is configured as WLAN Module + Battery.
3. The Spectrum Analyzer is set to max-peak detector function and maximum hold mode.
4. Set the WLAN Module of the EUT to transmit continuously at the maximum output power and maximum data rate (54Mbps) via an embedded program in the EUT provided by the Applicant.

3.3.3 Test Procedure

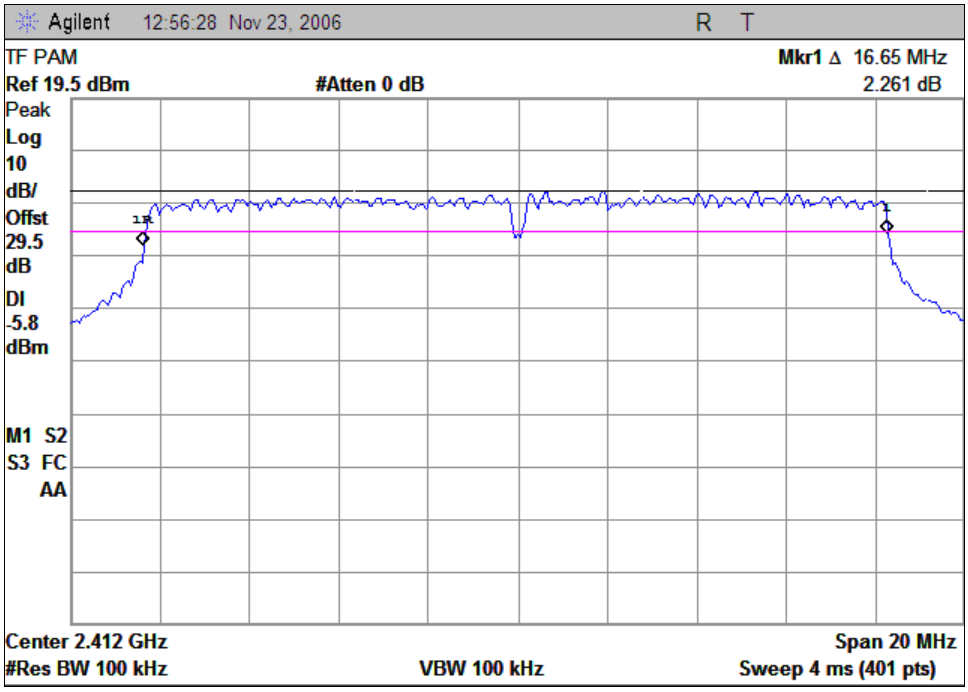
1. Set the resolution bandwidth of the Spectrum Analyzer to at least 1% of the emission bandwidth of the WLAN module: RBW=100kHz, VBW=100kHz.
2. The lowest channel (2412MHz), middle channel (2437MHz) and highest channel (2462MHz) are measured respectively.
3. Set the frequency range of the Spectrum Analyzer suitably to capture the waveform, search peak; yield a line whose value is 6dB lower than the peak; mark the points which the line intersected the waveform at, the delta of the two points is the 6dB bandwidth. Record the delta as the results and measured plot.

3.3.4 Test Result

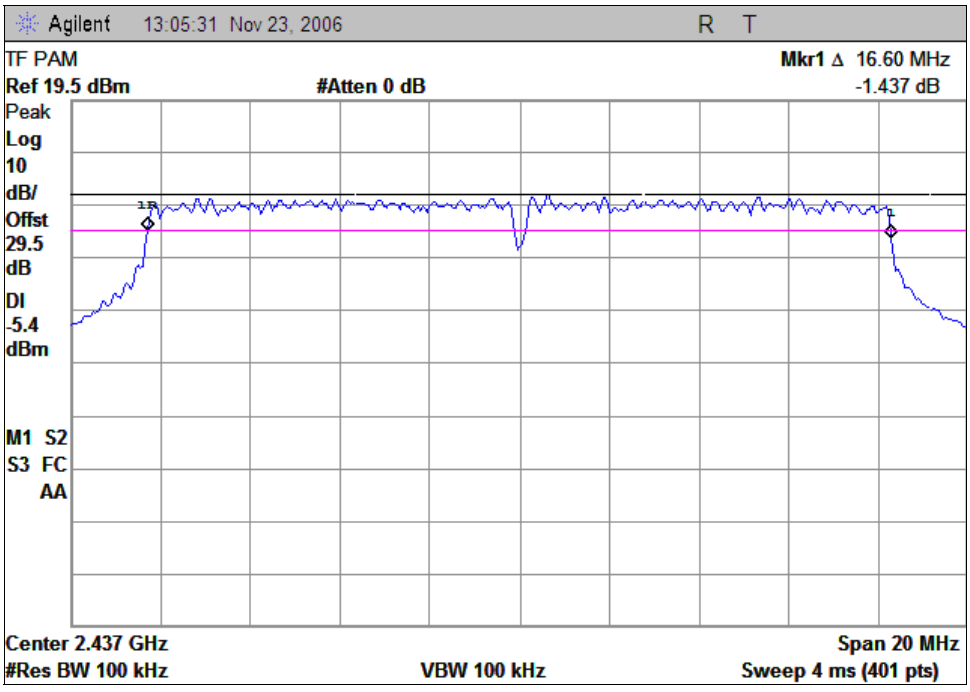
The measured 6dB bandwidth is about 16MHz as below:

No.	Channel	Frequency (MHz)	6dB Bandwidth (kHz)	Limit (kHz)	Verdict
1	Lowest	2412	16650	500	PASS
2	Middle	2437	16600	500	PASS
3	Highest	2462	16600	500	PASS

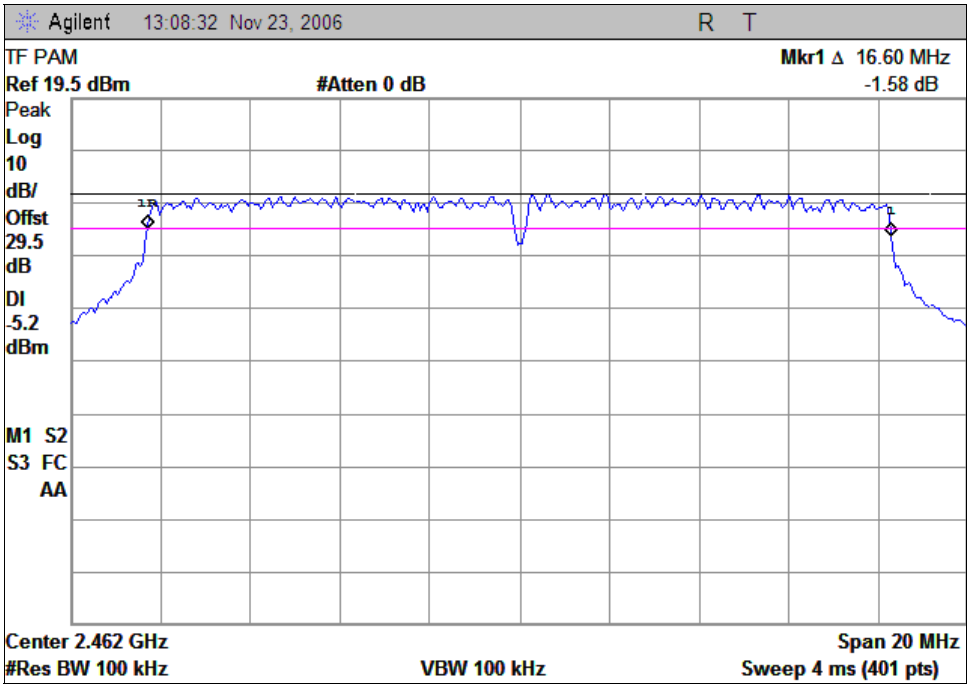
1. Plot for 2412MHz:



2. Plot for 2437MHz:



3. Plot for 2462MHz:

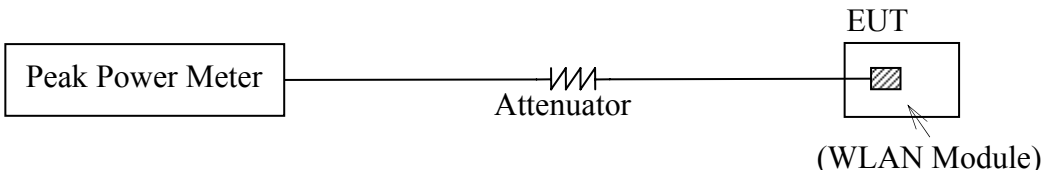


3.4 Maximum Peak Output Power

3.4.1 Requirement

According to FCC §15.247(b)(3), the maximum peak output power of systems using digital modulation in the 902 - 928MHz, 2400 - 2483.5MHz and 5725 - 5850MHz bands is 1Watt.

3.4.2 Test Setup



1. The antenna port of the WLAN Module of the EUT is coupled to the "Peak Power Meter" associated with peak sensor through Attenuator; the loss is calibrated to correct the reading. The radio frequency load attached to the EUT antenna terminal is 50Ω.
2. The EUT is configured as WLAN Module + Battery.
3. Set the WLAN Module of the EUT to transmit continuously at the maximum output power and maximum data rate (54Mbps) via an embedded program in the EUT provided by the Applicant.

3.4.3 Test Procedure

1. The lowest channel (2412MHz), middle channel (2437MHz) and highest channel (2462MHz) are measured respectively.
2. Set the frequency of the Peak Power Meter to measure the peak power. Record the results.

3.4.4 Test Result

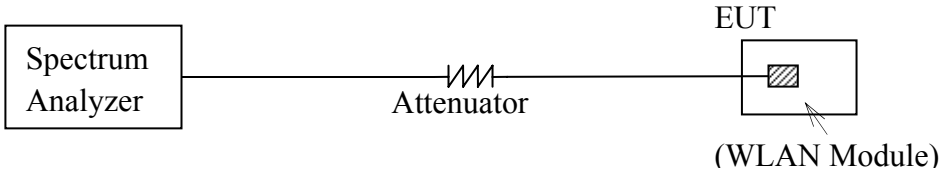
No.	Channel	Frequency (MHz)	Peak Output Power		Limit (W)	Verdict
			dBm	W		
1	Lowest	2412	15.92	0.039	1	PASS
2	Middle	2437	15.84	0.038	1	PASS
3	Highest	2462	15.89	0.039	1	PASS

3.5 Band Edge

3.5.1 Requirement

According to FCC §15.247(c), 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.

3.5.2 Test Setup



1. The antenna port of the WLAN Module of the EUT is coupled to the Spectrum Analyzer with Attenuator; the loss is calibrated to correct the reading. The radio frequency load attached to the EUT antenna terminal is 50Ω.
2. The EUT is configured as WLAN Module + Battery.
3. The Spectrum Analyzer is set to max-peak detector function and maximum hold mode.
4. Set the WLAN Module of the EUT to transmit continuously at the maximum output power and maximum data rate (54Mbps) via an embedded program in the EUT provided by the Applicant.

3.5.3 Test Procedure

1. Set the resolution bandwidth of the Spectrum Analyzer to: RBW=100kHz, VBW=100kHz.
2. The lowest channel (2412MHz) and highest channel (2462MHz) are measured respectively.
3. Set the frequency range of the Spectrum Analyzer suitably to capture the waveform, search peak, yield a line, whose value is 20dB lower than the peak, as the limit line; search the maximum power beyond the band edge, then record it and the measured plot.

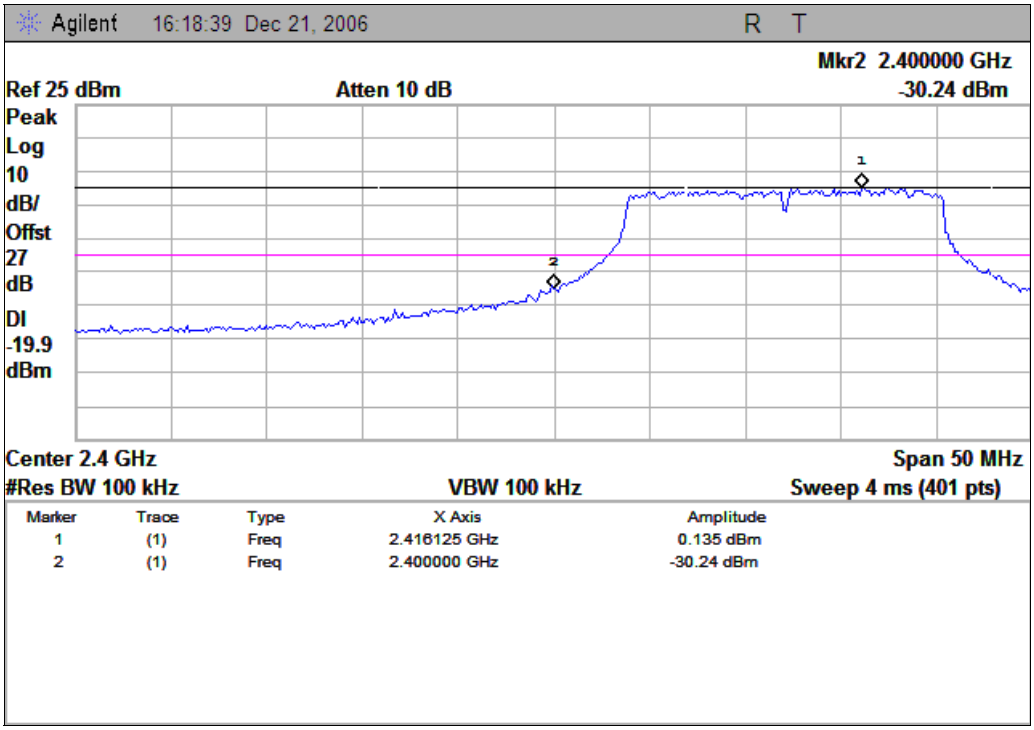
3.5.4 Test Result

The radio frequency power beyond the band edge is 20dB below the peak output power, measured with 100kHz resolution bandwidth. Refer to the following plots.

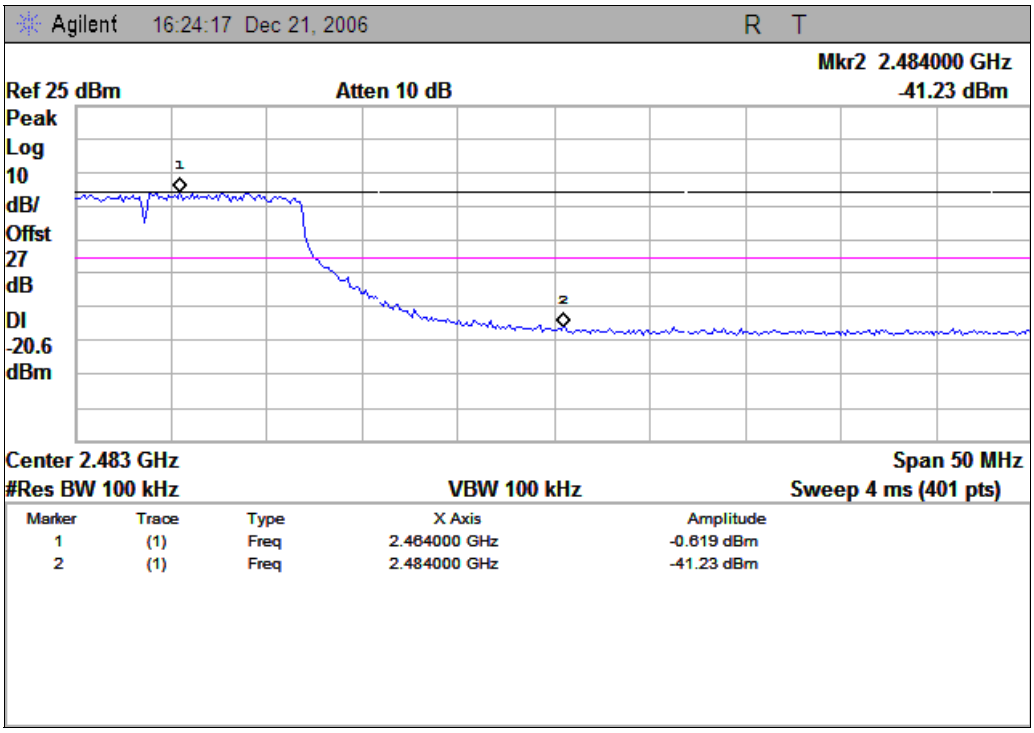
Field strength of band edge emission falling in adjacent restricted bands (2310MHz-2390MHz and 2483.5MHz-2500MHz) per section 15.205(a) is calculated according to Marker-Delta Method. Refer to section 3.2.4 for step "The Fundamental Emissions" in-band field strength measurement. The following test plots gave the "Delta Marker" of maximum band edge emissions falling in restricted bands relevant to the fundamental emissions. Calculation results in the following table shows compliance with the radiated emission limits specified in Section 15.209(a).

No.	Channel	Fundamental Emission		Frequency of Max Band Edge (MHz)	Delta Marker (dB)	Calculated Max Band Edge Emission (dBμV/m)	Limit (dBμV/m)	Verdict
		Field Strength (dBμV/m)	Detector					
1	Lowest	94.07	PK	2400.00	30.38	63.69	< 74	PASS
2		75.34	AV	2400.00	30.38	44.96	< 54	PASS
3	Highest	95.43	PK	2484.00	40.61	54.82	< 74	PASS
4		77.12	AV	2484.00	40.61	36.51	< 54	PASS

1. Plot for 2412MHz (beyond the left band edge 2400GHz):



2. Plot for 2462MHz (beyond the right band edge 2483.5GHz):

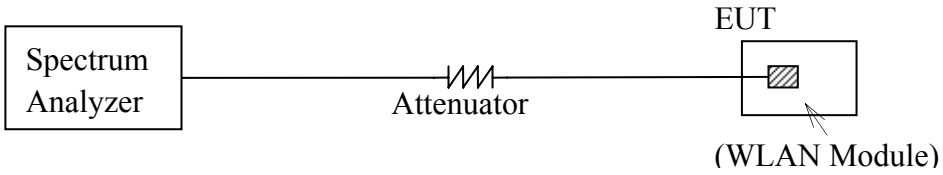

Agilent 16:24:17 Dec 21, 2006
R T
Mkr2 2.484000 GHz
Ref 25 dBm
Atten 10 dB
-41.23 dBm
Peak
Log
10
dB/
Offst
27
dB
Dl
-20.6
dBm
1
2
Center 2.483 GHz
Span 50 MHz
#Res BW 100 kHz
VBW 100 kHz
Sweep 4 ms (401 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.464000 GHz -0.619 dBm
2 (1) Freq 2.484000 GHz -41.23 dBm

3.6 Spurious Emission

3.6.1 Requirement

According to FCC §15.247(c), 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.

3.6.2 Test Setup



1. The antenna port of the WLAN Module of the EUT is coupled to the Spectrum Analyzer with Attenuator; the loss is calibrated to correct the reading. The radio frequency load attached to the EUT antenna terminal is 50Ω.
2. The EUT is configured as WLAN Module + Battery.
3. The Spectrum Analyzer is set to max-peak detector function and maximum hold mode.
4. Set the WLAN Module of the EUT to transmit continuously at the maximum output power and maximum data rate (54Mbps) via an embedded program in the EUT provided by the Applicant.

3.6.3 Test Procedure

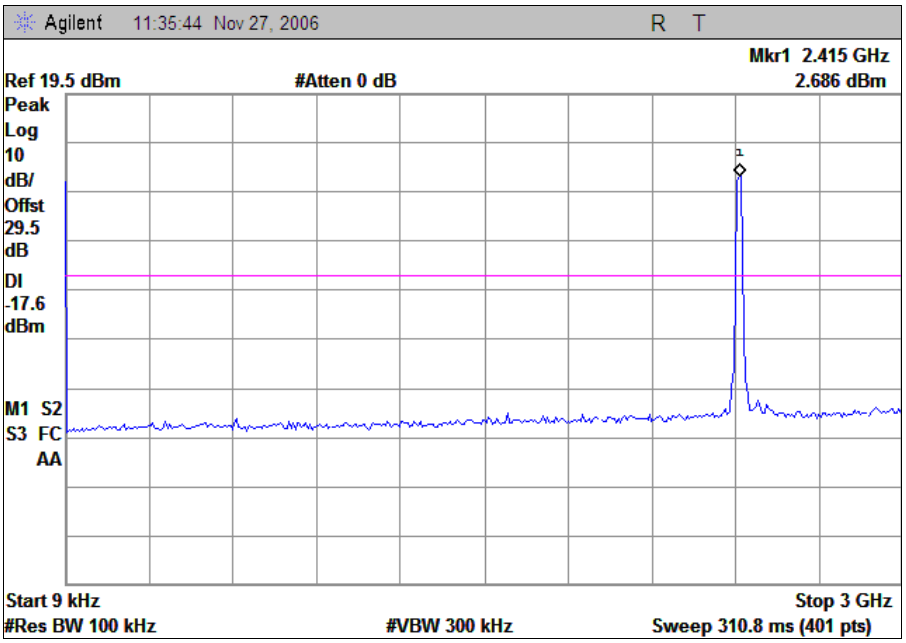
1. Set the resolution bandwidth of the Spectrum Analyzer to: RBW=100kHz, VBW=300kHz.
2. The lowest channel (2412MHz), middle channel (2437MHz) and highest channel (2462MHz) are measured respectively.
3. Set the measuring frequency range of the Spectrum Analyzer from 9kHz to 10^{th} harmonic of the fundamental frequency (here 26.5GHz used); Mark the fundamental frequency (Carrier); Yield a line as the limit whose value is 20dB lower than the carrier (-20dBc). Record the measured plot.

3.6.4 Test Result

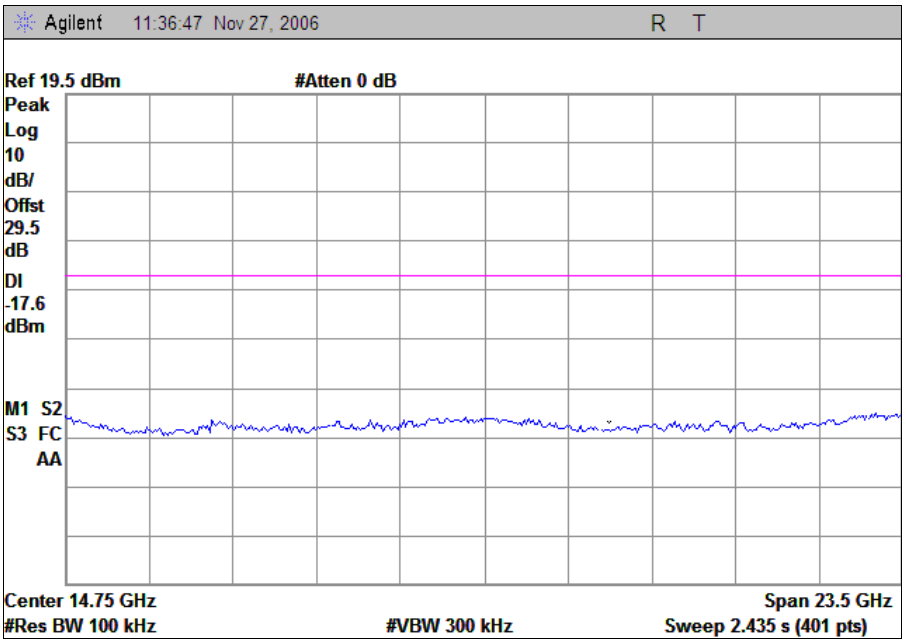
The table followed by measured plots shows that spurious emissions in the whole frequency range were bellow the -20dBc limit line:

No.	Channel	Frequency (MHz)	Limit		Spurious Emissions (dBm)	Verdict
			Measured Carrier (dBm)	Calculated -20dBc Limit (dBm)		
1	Lowest	2412	2.686	-17.314	---	PASS
2	Middle	2437	2.488	-17.512	---	PASS
3	Highest	2462	1.587	-18.513	---	PASS

1. Plot for 2412MHz:

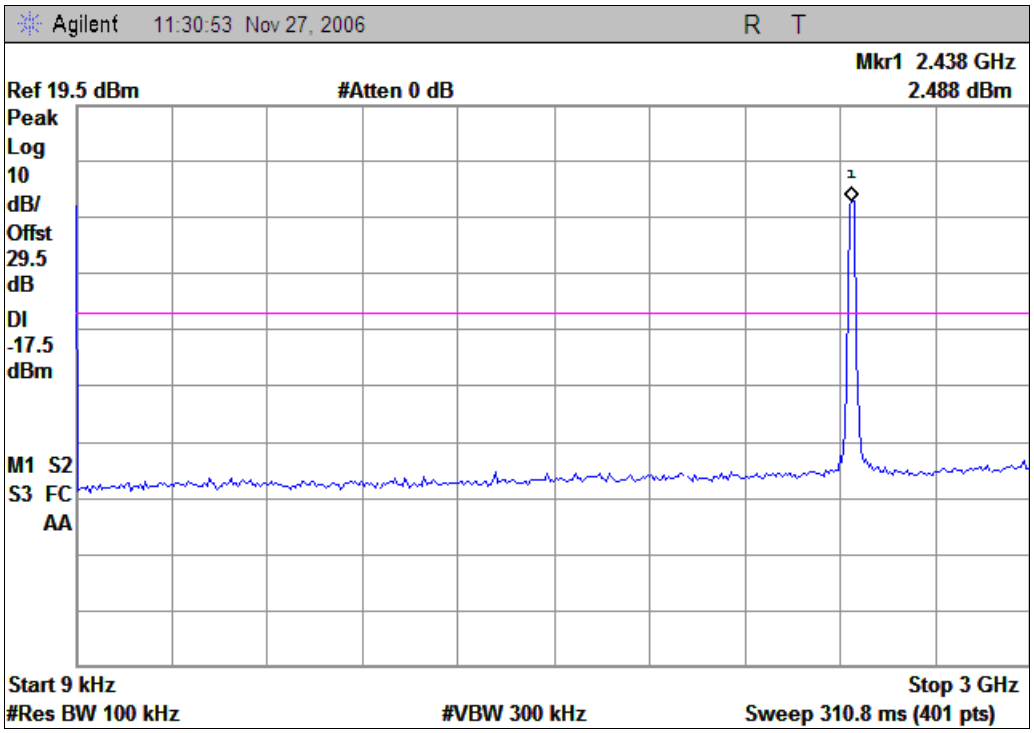


(9k - 3GHz)

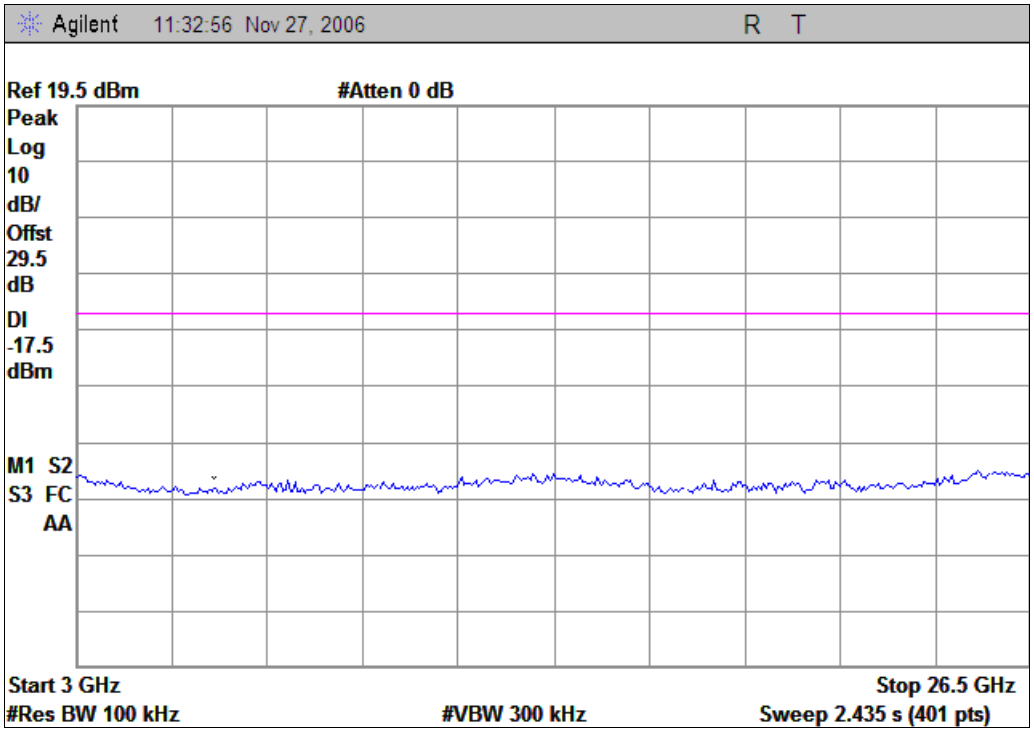


(3G - 26.5GHz)

2. Plot for 2437MHz:

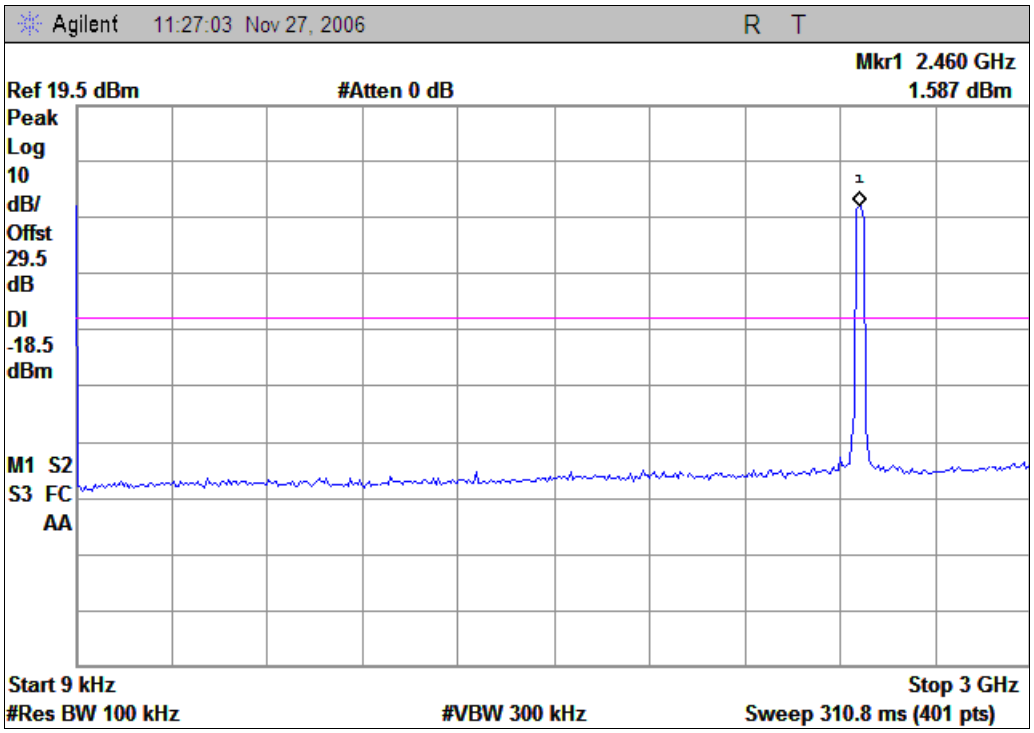


(9k - 3GHz)

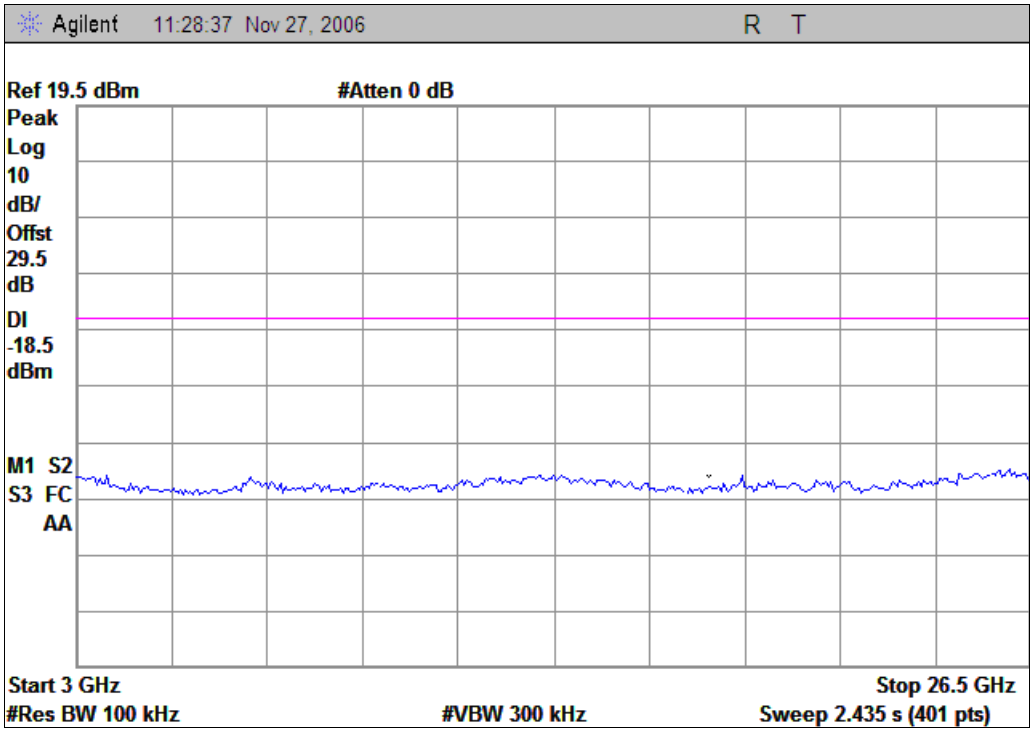


(3G - 26.5GHz)

3. Plot for 2462MHz:



(9k - 3GHz)



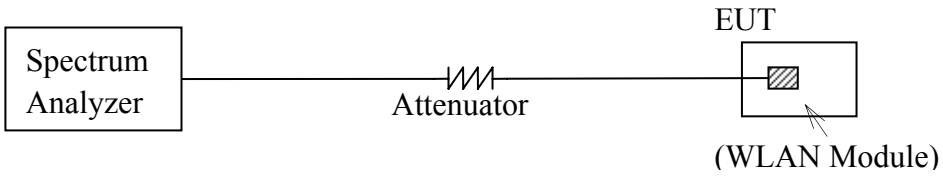
(3G - 26.5GHz)

3.7 Peak Power Spectrum Density

3.7.1 Requirement

According to FCC §15.247(d), for digitally modulated systems, the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmission.

3.7.2 Test Setup



1. The antenna port of the WLAN Module of the EUT is coupled to the Spectrum Analyzer with Attenuator; the loss is calibrated to correct the reading. The radio frequency load attached to the EUT antenna terminal is 50Ω.
2. The EUT is configured as WLAN Module + Battery.
3. The Spectrum Analyzer is set to max-peak detector function and maximum hold mode.
4. Set the WLAN Module of the EUT to transmit continuously at the maximum output power and maximum data rate (54Mbps) via an embedded program in the EUT provided by the Applicant.

3.7.3 Test Procedure

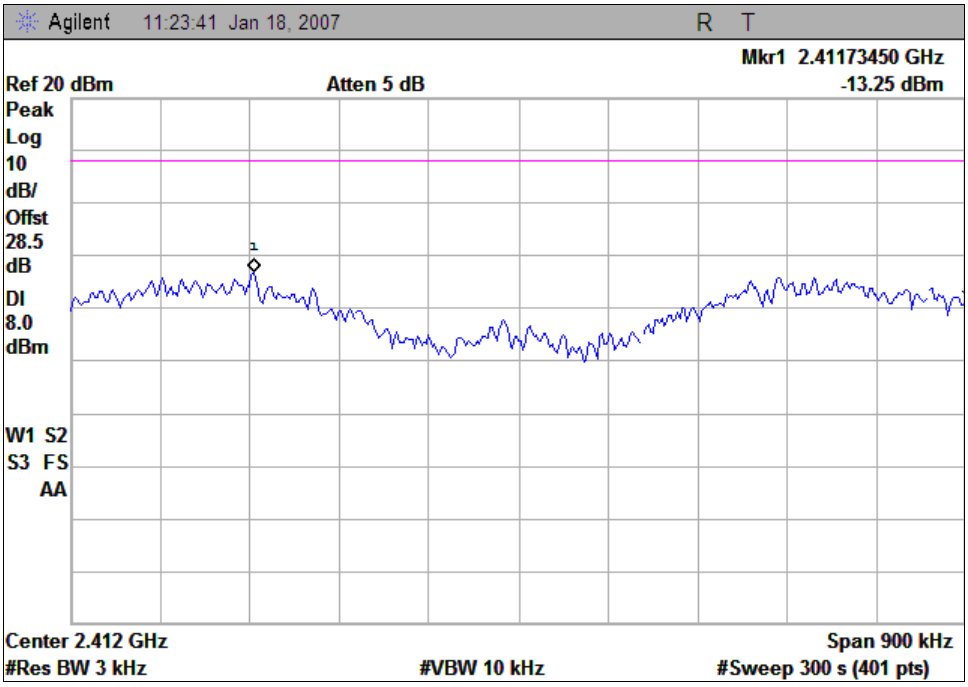
1. Set the Spectrum Analyzer to: RBW=3kHz, VBW=10kHz, Span=900kHz, Sweep Time=300s.
2. The lowest channel (2412MHz), middle channel (2437MHz) and highest channel (2462MHz) are measured respectively.
3. Set the frequency range of the Spectrum Analyzer suitably to capture the waveform; Search peak, the peak is the measured peak power spectrum density; make a limit line whose value is 8dBm; Record the peaks and measured plots.

3.7.4 Test Result

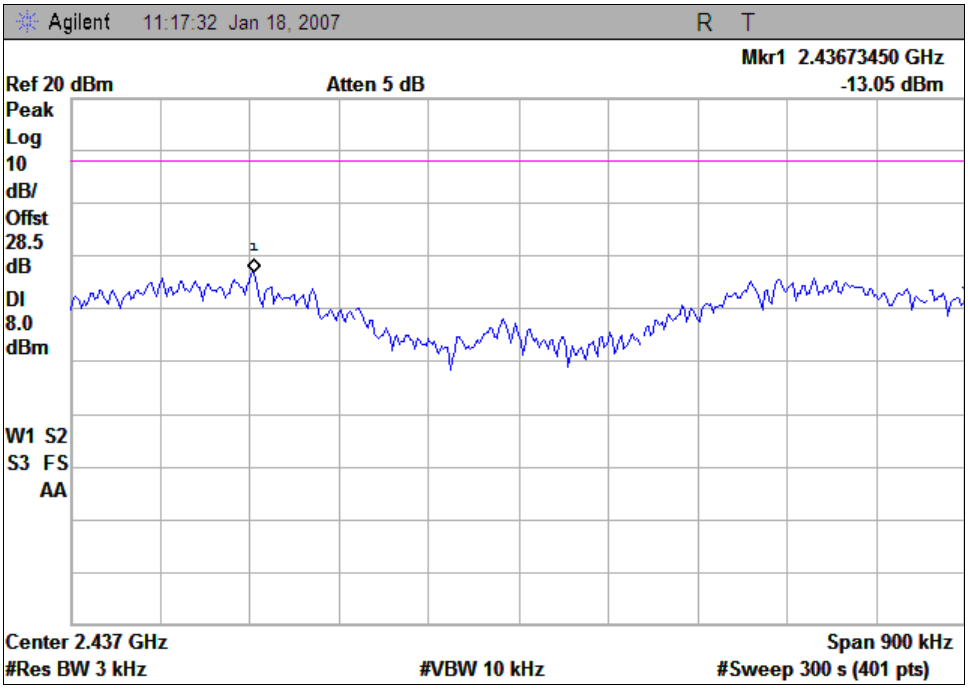
No.	Channel	Frequency (MHz)	Peak Power Spectrum Density (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
1	Lowest	2412	-13.25	8	PASS

No.	Channel	Frequency (MHz)	Peak Power Spectrum Density (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
2	Middle	2437	-13.05	8	PASS
3	Highest	2462	-13.79	8	PASS

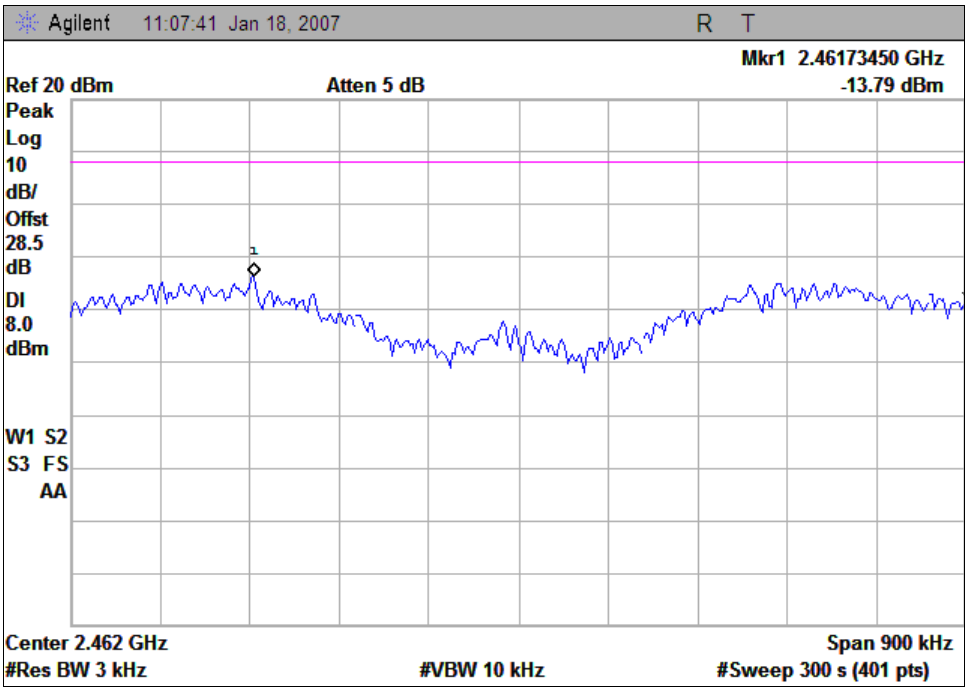
1. Plot when the operating frequency set to 2412MHz:



2. Plot when the operating frequency set to 2437MHz:



3. Plot when the operating frequency set to 2462MHz:



3.8 Simultaneous Transmission of Co-located Transmitters

The EUT also supports Bluetooth, operating at 2.4GHz ISM band, other than WLAN function; the WLAN can not operate simultaneously with GSM/GPRS. The EUT has 3 transmitters located <20cm apart from each other. Each transmitter uses individual antenna. Simultaneous transmissions are also investigated, with both transmitters active at the same time (i.e. GSM + Bluetooth, Bluetooth + WLAN). The transmitter output levels and spurious emissions are NO WORSE than individual tests. No new inter-modulation patterns are found.

** END OF REPORT **