



FCC COMPLIANCE TEST REPORT

Technical Statement of Conformity
in accordance with 47 CFR Part 15 Subpart C

The product

Equipment Under Test	: V.E.D.R (Video Event Data Recorder)
Model Number	: ECO VEDR
Product Series	: OCTOBOX 4V VEDR
Report Number	: HA150316-RA
Issue Date	: 11-JUL-2015
Test Result	: Compliance

is produced by

OCTOCAM S.R.L.

Via Lamaro, 5100173 ROMA, ITALY



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SL2-R2-E-0023, SL2-L1-E-0023

FCC Designation No.: TW1071

TAF Accreditation No.: 1163

VCCI Registration No.: R-2156, C-2329, T-219

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Test Result Certification

Applicant	: OCTOCAM S.R.L.
Address of Applicant	: Via Lamaro, 51 00173 ROMA, ITALY
Manufacturer	: OCTOCAM S.R.L.
Address of Manufacturer	: Via Lamaro, 51 00173 ROMA, ITALY
Trade Name	: OCTOCAM
Equipment Under Test	: V.E.D.R (Video Event Data Recorder)
Model Number	: ECO VEDR
Product Series	: OCTOBOX 4V VEDR
FCC ID	: 2AE36-ECOVEDR
Filing Type	: Certification
Sample Received Date	: 06-MAY-2015
Test Standard	:

☒ FCC Part 15 Subpart C §15.247

Deviations from standard test methods & any other specifications : NONE

Remark:

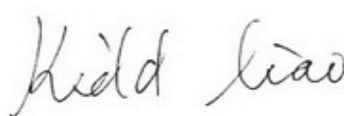
1. This report details the results of the test carried out on one sample.
2. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10 (2013) and the energy emitted by the sample EUT tested as described in this report is in compliance with the requirements of FCC Rules Part 15.207, 15.209, 15.247.
3. This report applies to the above sample only and shall not be reproduced in part without written approval of HongAn Technology Co., Ltd..

Documented by:


Kay Wang/ ADM. Dept Staff

2015-07-11

Tested by:


Kidd Liao / ENG. Dept. Staff

2015-07-6

Approved by:


Peter Chin / Section Manager

Date:

2015-07-11



Summary of Test Result

	Test Item	Applicable Standard	Test Result
1	Conducted limits	FCC part 15 subpart C §207	Compliance
2	Radiated emission limits	FCC part 15 subpart C §209	Compliance
3	6dB Bandwidth	FCC part 15 subpart C §247(a)(2)	Compliance
4	Maximum Conducted Output Power	FCC part 15 subpart C §247(b)(3)	Compliance
5	Out of Band Emission	FCC part 15 subpart C §247(d)	Compliance
6	Power Spectral Density	FCC part 15 subpart C §247(e)	Compliance
7	Antenna Requirement	FCC part 15 subpart C §203	Compliance

1 General Description

1.1 Description of EUT

Equipment Under Test	:	V.E.D.R (Video Event Data Recorder)									
Model Number of EUT	:	ECO VEDR									
Product Series	:	OCTOBOX 4V VEDR									
Power Supply	:	DC input 3V DC 12V (from Vehicle)									
Frequency Range	:	802.11 b/ g/ n HT(20) : 2412~2462 MHz 802.11n HT(40) : 2422~2452 MHz									
Number of Channels	:	11 Channels									
Carrier Frequency of Each Channel	:	Ch.	Fre. (MHz)	Ch.	Fre. (MHz)	Ch.	Fre. (MHz)	Ch.	Fre. (MHz)	Ch.	Fre. (MHz)
		01	2412	02	2417	03	2422	04	2427	05	2432
		06	2437	07	2442	08	2447	09	2452	10	2457
		11	2462								
Antenna Specification	:	PCB Antenna/ Gain: 1 dBi									
Modulation Technique	:	802.11b : DSSS (Type: CCK, DQPSK, DBPSK) 802.11g : OFDM (Type: 64QAM, 16QAM, QPSK, BPSK) 802.11n : OFDM (Type: 64QAM, 16QAM, QPSK, BPSK)									
Transmit Data Rate	:	802.11b : 11/5.5/2/1 Mbps 802.11g : 54/48/36/24/18/12/9/6 Mbps 802.11n : MSC 0/1/2/3/4/5/6/7									
Specification	:	Dimensions : 105 mm (L) X 75 mm (W) X 54 mm (H) Weight : 140g Function : The EUT is a Vehicle Video Recorder using WIFI to make data transmission. ※For more detail specification, please refer to the User Manual.									

1.2 Test Instruments

Instruments Used for Measurement

HA1

Instrument Name	Manufacture Mode	Model Number	Serial Number	Last Cal. Date	Next Cal. Date
RF Amplifier	AR	15S1G3	306578	11-AUG-2014	11-AUG-2015
EMI Receiver	R&S	ESCI	100615	03-MAR-2015	03-MAR-2016
Spectrum Analyzer	R&S	FSL6	100323	11-JUN-2015	11-JUN-2016
Spectrum Analyzer	Advantest	R3172	101202158	24-JUN-2015	24-JUN-2016
Preamplifier	WIRELESS	FPA-6592G	060009	09-JUL-2014	09-JUL-2015
Preamplifier	HD	HD17187	004	04-AUG-2014	04-AUG-2015
Bilog Antenna	TESEQ	CBL6111D	25769	03-MAR-2015	03-MAR-2016
Bilog Antenna	Schaffner	CBL6112B	2860	12-AUG-2014	12-AUG-2015
Double-Ridged Waveguide Horn	EMCO	3115	9912-5992	04-MAY-2015	04-MAY-2016
Temp. & Humidity Chamber	Giant Force	GTH-150-20-SP-AR	MMA0907-012	22-JUL-2014	22-JUL-2015
Horn Antenna (18-40GHz)	Com-Power	AH-840	101042	03-JUL-2014	03-JUL-2015
Microwave Preamplifier	Com-Power	PAM-840	461269	02-JUL-2014	02-JUL-2015
L.I.S.N.	Mess Tec	NNB-2/16Z	03/1006	24-JAN-2015	24-JAN-2016
L.I.S.N.	EMCIS	LN2-16	LN04023	01-AUG-2014	01-AUG-2015
Wideband Power Sensor	R&S	NRP-Z11	111731	05-Dec-2014	05-Dec-2015



WIDEBAND RADIO COMMUNICATI ON TESTER	ROHDE&SCH WARZ	CMW-500	141958	05-NOV-2014	05-NOV-2015
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※ The test equipments used are calibrated and can be traced to National ITRI and International Standards.

1.3 Auxiliary Equipments

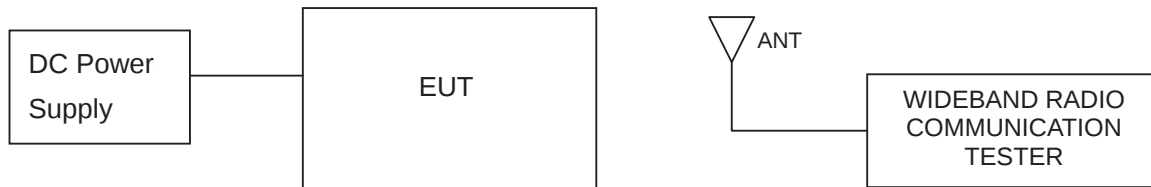
1.3.1. Provided by HongAn Technology Co., Ltd. for Emission Test.

N/A

1.3.2. Provided by the Manufacturer

N/A

1.4 EUT SETUP



Note: Main Test Sample: V.E.D.R (Video Event Data Recorder)

1.5 Identifying the Final Test Mode

1. Mode 1: TX WIFI mode (802.11b) CH 01.
2. Mode 2: TX WIFI mode (802.11b) CH 06.
3. Mode 3: TX WIFI mode (802.11b) CH 11.
4. Mode 4: TX WIFI mode (802.11g) CH 01.
5. Mode 5: TX WIFI mode (802.11g) CH 06.
6. Mode 6: TX WIFI mode (802.11g) CH 11.
7. Mode 7: TX WIFI mode (802.11n HT[20]) CH 01.
8. Mode 8: TX WIFI mode (802.11n HT[20]) CH 06.
9. Mode 9: TX WIFI mode (802.11n HT[20]) CH 11.
10. Mode 10: TX WIFI mode (802.11n HT[40]) CH 03.
11. Mode 11: TX WIFI mode (802.11n HT[40]) CH 06.
12. Mode 12: TX WIFI mode (802.11n HT[40]) CH 09.
13. Mode 13: RX WIFI mode.

Note:

1. During radiated emission pre-test, rotation of the EUT through three orthogonal axes has been evaluated. A variation in the primary supply voltage from 85% to 115% of the rated supply voltage has been evaluated. And, the variation in supply voltage has no significant influence to the test result.
2. After pre-test, we identified that the TX Vertical Position was most likely to cause maximum disturbance and most likely to be susceptible to disturbance. Therefore, the Final Assessment was performed for the worst case. All pre-test data show at appendix.
3. The EUT was operated in the engineering mode to fix the TX frequency that was for the purpose of

the measurements.

4. Channel Low (2412MHz), Mid (2437MHz) and High (2462MHz) with highest data rate were chosen for full testing.
5. According to its specifications, the EUT must comply with the requirements of the Section 15.207, 15.209 and 15.247 under the FCC Rules Part 15 Subpart C.

1.6 Final Test Mode (Worst Case)

802.11b: CCK 1Mbps.

802.11g: 64QAM 6Mbps.

802.11n (20M&40M): 64QAM MCS0.

Conducted Emission: Mode 1.

Radiated Emission (30~1000 MHz): Mode 1.

Radiated Emission (1~26.5GHz): All Mode.

1.7 Condition of Power Supply

DC 12 V

1.8 EUT Configuration

1. Setup the EUT as shown in Sec.1.4 Block Diagram.
2. Turn on the power of all equipments.
3. Activate the selected Final Test Mode.

1.9 Test Methodology

The tests documented in this report were performed in accordance with ANSI C63.10 (2013) and FCC CFR 47 15.203, 15.207, 15.209 and 15.247.

1.10 General Test Procedures

Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 6.2.2 of ANSI C63.10 (2013) Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-peak and average detector modes.

Radiated Emissions

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3 m away from the receiving antenna, which varied from 1 m to 4 m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter(EUT) was rotated through three orthogonal axes according to the requirements in Section 6.6.3.3 of ANSI C 63.10 (2013).

1.11 Modification

N/A

1.12 FCC Part 15.205 restricted bands of operations

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

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
¹ 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37635-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(²)
13.36-13.41			

¹ Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz

² Above 38.6

(b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

1.13 Qualification of Test Facility

BSMI Certificate No. : SL2-IS-E-0023, SL2-IN-E-0023, SL2-R1-E-0023, SL2-R2-E-0023, SL2-A1-E-0023, SL2-L1-E-0023.

FCC Designation No. : TW1071

TAF Accreditation No. : 1163

VCCI Certificate No. : R-2156, C-2329, T-219

2 Power line Conducted Emission Measurement

2.1 Test Instruments

Refer to Sec. 1.2 Test Instruments.

2.2 Test Arrangement and Procedure

1. The EUT was placed on a table, which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured were complete.

2.3 Limit (§ 15.207)

For an intentional radiator which 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 or frequencies within the band 150 kHz to 30 MHz shall not exceed 250 microvolts (The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz). The limits at specific frequency range is listed as follows:

Frequency (MHz)	Limits (dBuV)	
	Q.P. (Quasi-Peak)	A.V. (Average)
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5.0	56	46
5.0 to 30	60	50

Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line (LINE and NEUTRAL) and ground at the power terminals.

2.4 Test Result

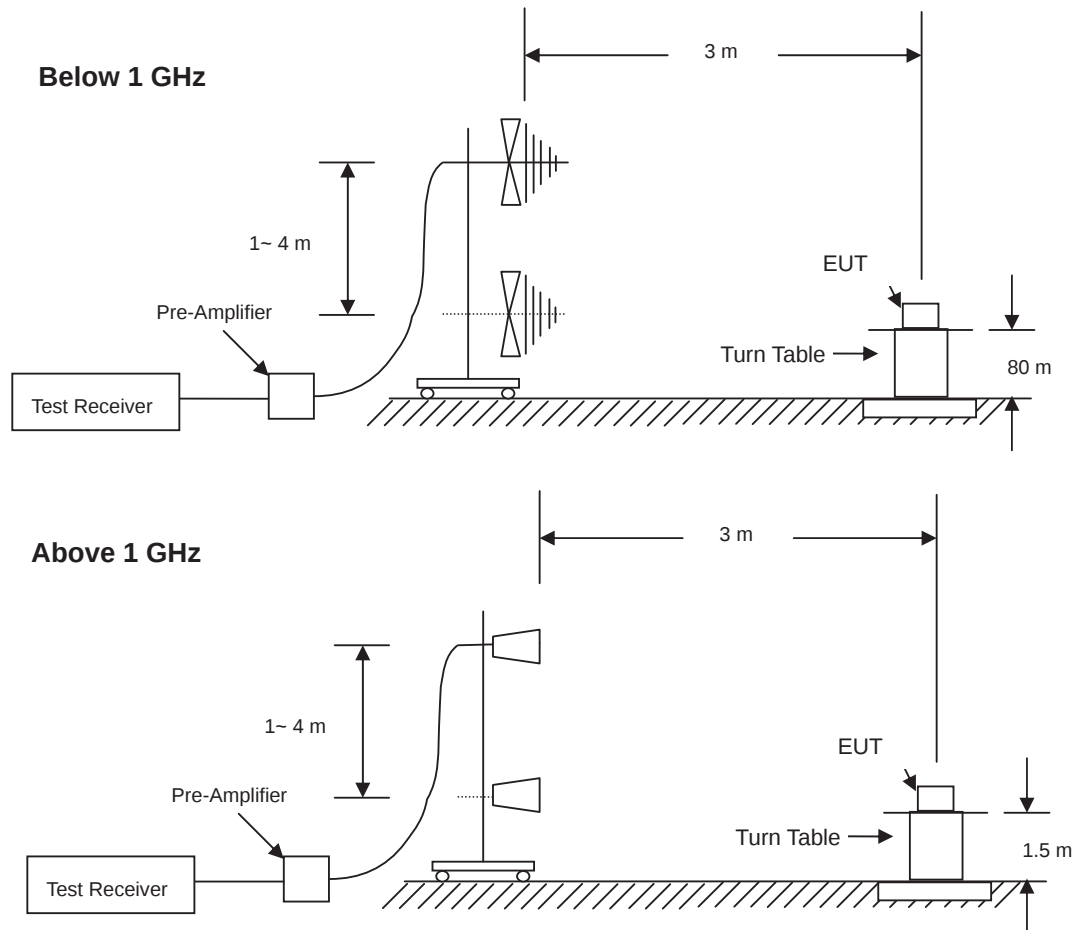
N/A.

3 Radiated Emission Test

3.1 Test Instruments

Refer to Sec. 1.2 Test Instruments.

3.2 Test Arrangement and Procedure



1. The EUT is placed on a turntable, which is 0.8 m (below 1GHz) and 1.5m (above 1GHz) above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3 m away from the receiving antenna, which is varied from 1 m to 4 m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Set the spectrum analyzer in the following setting as:
 - (a) Below 1 GHz: RBW =100 kHz/ VBW = 1 MHz/ Sweep = AUTO.
 - (b) Above 1 GHz: Peak: RBW = VBW = 1MHz/ Sweep = AUTO.
7. Repeat above procedures until the measurements for all frequencies are complete.



3.3 Limit of Spurious Emission (§ 15.209)

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in § 15.209, whichever is lesser attenuation.

Frequency (MHz)	Field strength (microvolts/ meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100**	3
88-216	150**	3
216-960	200**	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g. §§ 15.231 and 15.241.

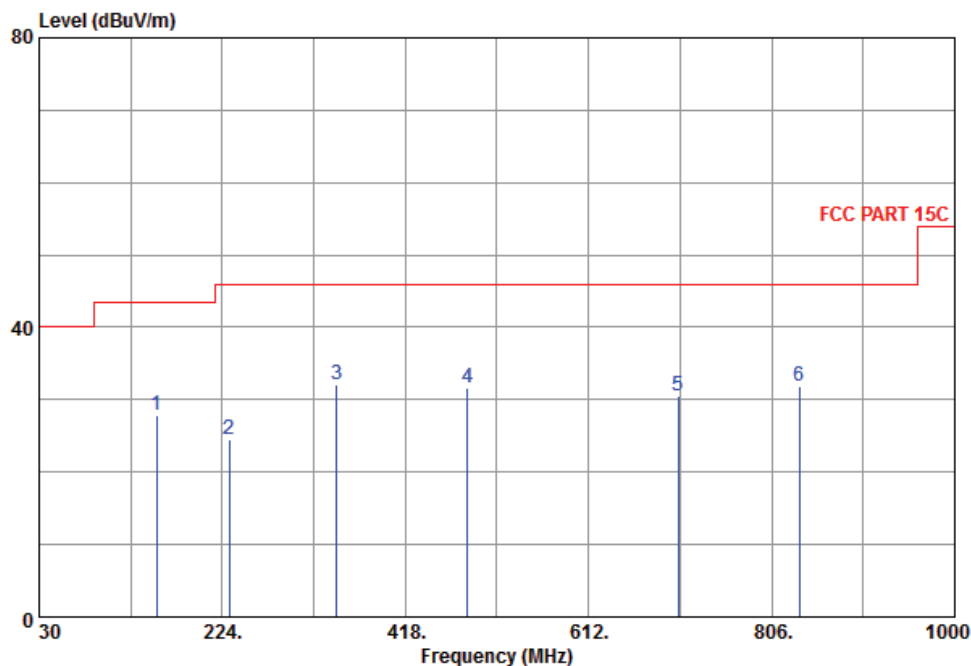
3.4 Test Result

Compliance

The final test data are shown on the following page(s).

Radiated Emission Test Data (Below 1 GHz)

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Polarization	: Vertical	Channel	: CH01 (2412MHz)
Test Mode	: Mode 1		



	Freq	Reading	C.F	Result	Limit	Margin	A/pos	T/pos	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB			
1	154.160	50.05	-22.09	27.96	43.50	-15.54	---	---	
2	231.760	43.08	-18.54	24.54	46.00	-21.46	---	---	
3	345.250	46.93	-14.87	32.06	46.00	-13.94	---	---	
4	483.960	43.82	-12.21	31.61	46.00	-14.39	---	---	
5	707.060	37.52	-7.01	30.51	46.00	-15.49	---	---	
6	835.100	36.89	-5.09	31.80	46.00	-14.20	---	---	

C.F = Antenna Factor + Cable Loss - Preamp gain
Result = Reading + C.F ; Margin = Result - Limit

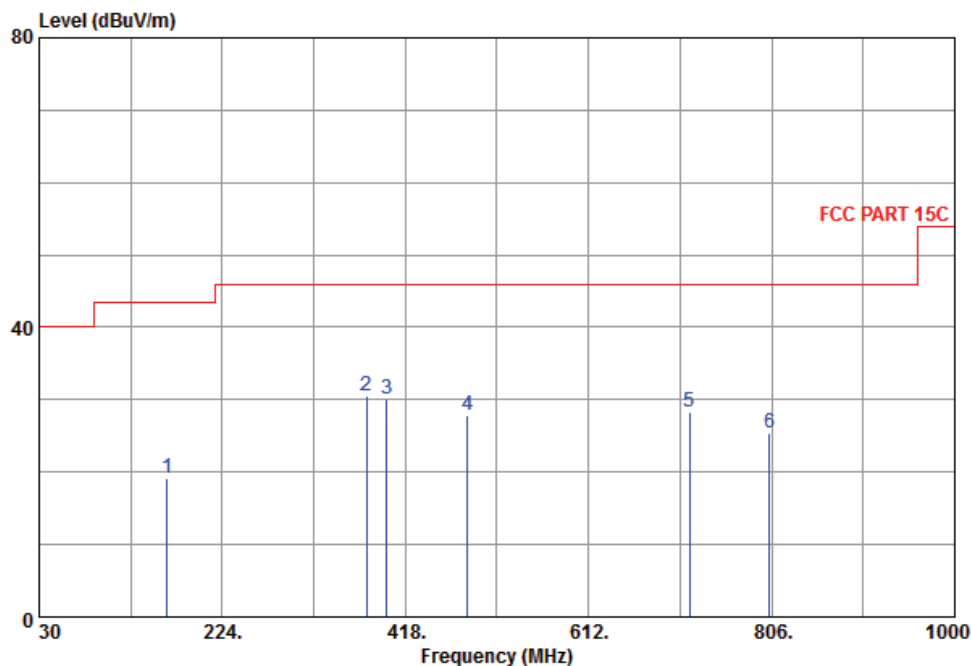
@ : Maximum Data x : Over Limit

Remark :

1. Measuring frequencies from 30 MHz to 1 GHz.
2. Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Peak detector mode.
3. Data of measurement within this frequency range shown "---" in the table above means the reading of emissions are attenuated more than 20 dB below the permissible limits or the field strength is too small to be measured.
4. All readings are Peak values. None of the peak value reading exceeds the Q.P. limit. Hence, Q.P. reading was not measured.
5. The IF bandwidth of SPA between 30 MHz to 1 GHz was 100 kHz.

Radiated Emission Test Data (Below 1 GHz)

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Polarization	: Horizontal	Channel	: CH01 (2412MHz)
Test Mode	: Mode 1		



	Freq	Reading	C.F	Result	Limit	Margin	A/pos	T/pos	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB			
1	165.800	41.66	-22.41	19.25	43.50	-24.25	---	---	
2 @	377.260	44.65	-14.16	30.49	46.00	-15.51	---	---	
3	398.600	43.88	-13.85	30.03	46.00	-15.97	---	---	
4	483.960	40.12	-12.21	27.91	46.00	-18.09	---	---	
5	718.700	35.01	-6.72	28.29	46.00	-17.71	---	---	
6	804.060	30.94	-5.46	25.48	46.00	-20.52	---	---	

C.F = Antenna Factor + Cable Loss - Preamp gain
 Result = Reading + C.F ; Margin = Result - Limit

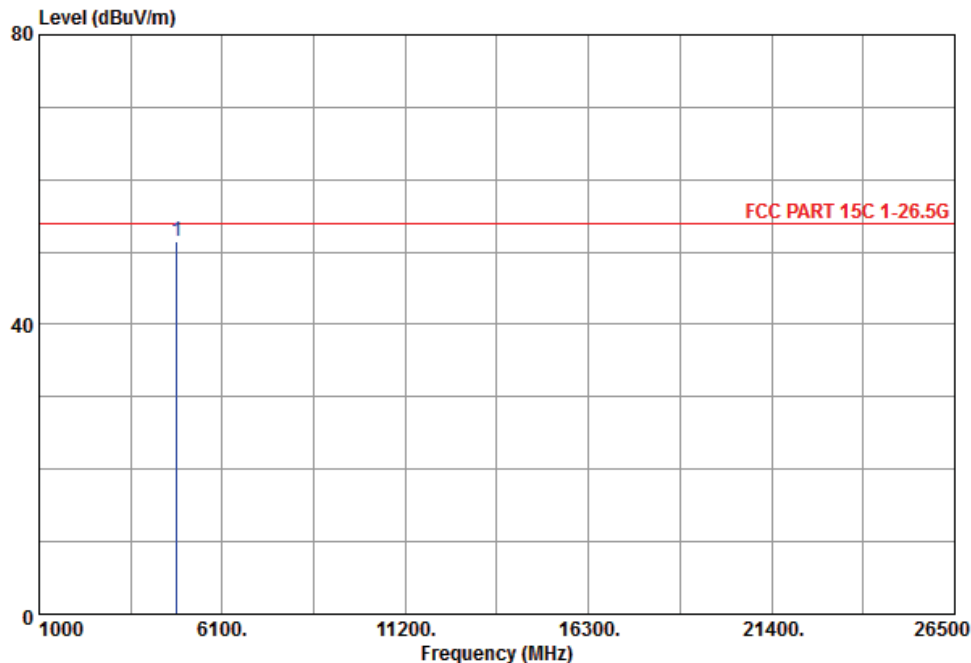
@ : Maximum Data x : Over Limit

Remark :

1. Measuring frequencies from 30 MHz to 1 GHz.
2. Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Peak detector mode.
3. Data of measurement within this frequency range shown "---" in the table above means the reading of emissions are attenuated more than 20 dB below the permissible limits or the field strength is too small to be measured.
4. All readings are Peak values. None of the peak value reading exceeds the Q.P. limit. Hence, Q.P. reading was not measured.
5. The IF bandwidth of SPA between 30 MHz to 1 GHz was 100 kHz.

**Radiated Emission Test Data (Above and Field Strength to 10th Harmonic)**

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Polarization	: Vertical	Channel	: CH01 (2412MHz)
Test Mode	: Mode 1		



Freq	Reading	C.F	Result	Limit	Margin	A/pos	T/pos	Remark
MHz	dBuV	dB	dBuV/m	dBuV/m	dB			
1 @4824.000	51.00	0.57	51.57	54.00	-2.43	---	---	

C.F = Antenna Factor + Cable Loss - Preamp gain
 Result = Reading + C.F ; Margin = Result - Limit

@ : Maximum Data x : Over Limit

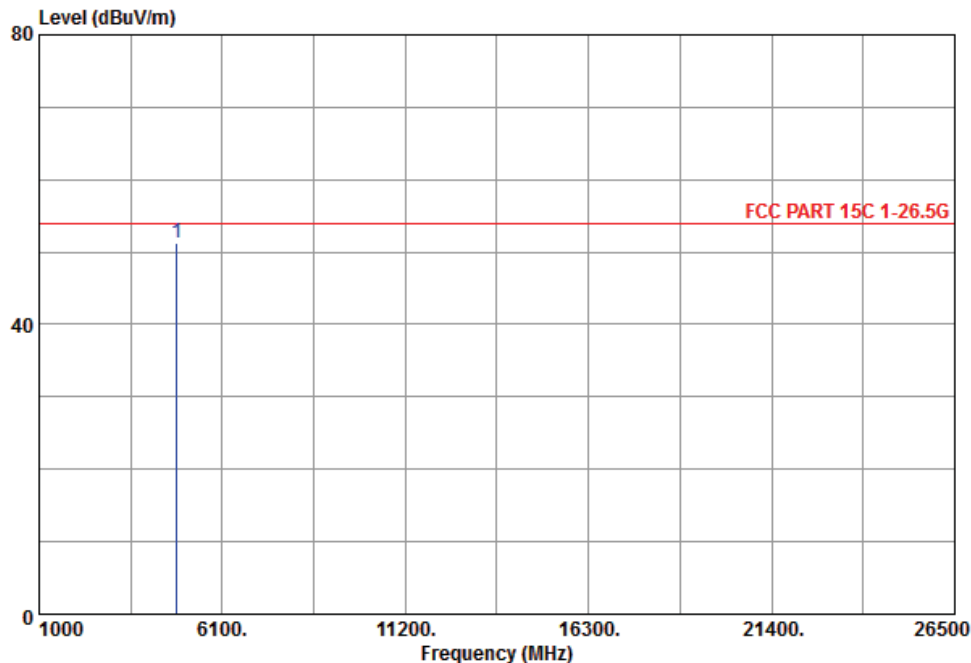
Remark :

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:

Peak Setting 1GHz to 10th harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

**Radiated Emission Test Data (Above and Field Strength to 10th Harmonic)**

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Polarization	: Horizontal	Channel	: CH01 (2412MHz)
Test Mode	: Mode 1		



Freq	Reading	C.F	Result	Limit	Margin	A/pos	T/pos	Remark
MHz	dBuV	dB	dBuV/m	dBuV/m	dB			
1 @4824.000	50.76	0.57	51.33	54.00	-2.67	---	---	

C.F = Antenna Factor + Cable Loss - Preamp gain
 Result = Reading + C.F ; Margin = Result - Limit

@ : Maximum Data x : Over Limit

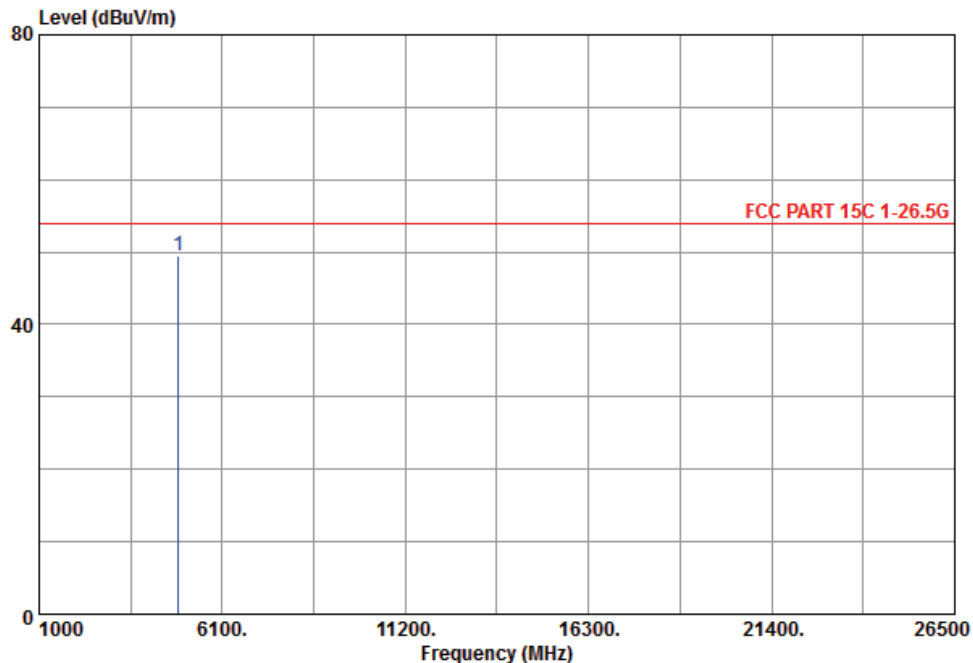
Remark :

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:

Peak Setting 1GHz to 10th harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

**Radiated Emission Test Data (Above and Field Strength to 10th Harmonic)**

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Polarization	: Vertical	Channel	: CH06 (2437 MHz)
Test Mode	: Mode 2		



Freq	Reading	C.F	Result	Limit	Margin	A/pos	T/pos	Remark
MHz	dBuV	dB	dBuV/m	dBuV/m	dB			
1 @4874.000	48.77	0.80	49.57	54.00	-4.43	---	---	

C.F = Antenna Factor + Cable Loss - Preamp gain
 Result = Reading + C.F ; Margin = Result - Limit

@ : Maximum Data x : Over Limit

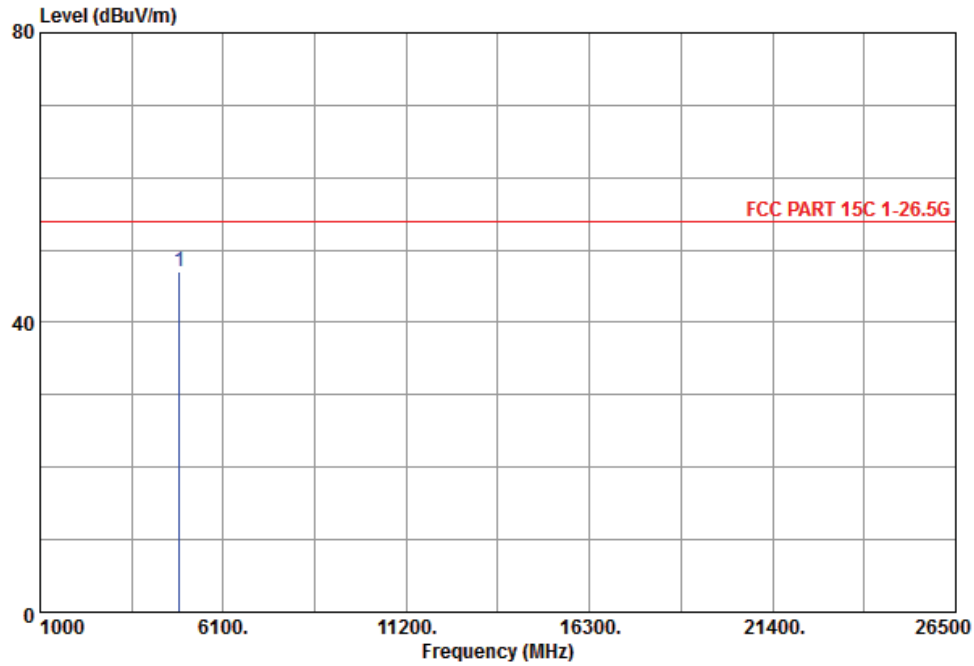
Remark :

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:

Peak Setting 1GHz to 10th harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

Radiated Emission Test Data (Above and Field Strength to 10th Harmonic)

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Polarization	: Horizontal	Channel	: CH06 (2437 MHz)
Test Mode	: Mode 2		



Freq	Reading	C.F	Result	Limit	Margin	A/pos	T/pos	Remark
MHz	dBuV	dB	dBuV/m	dBuV/m	dB			
1 @4874.000	46.16	0.80	46.96	54.00	-7.04	---	---	

C.F = Antenna Factor + Cable Loss - Preamp gain
 Result = Reading + C.F ; Margin = Result - Limit

@ : Maximum Data x : Over Limit

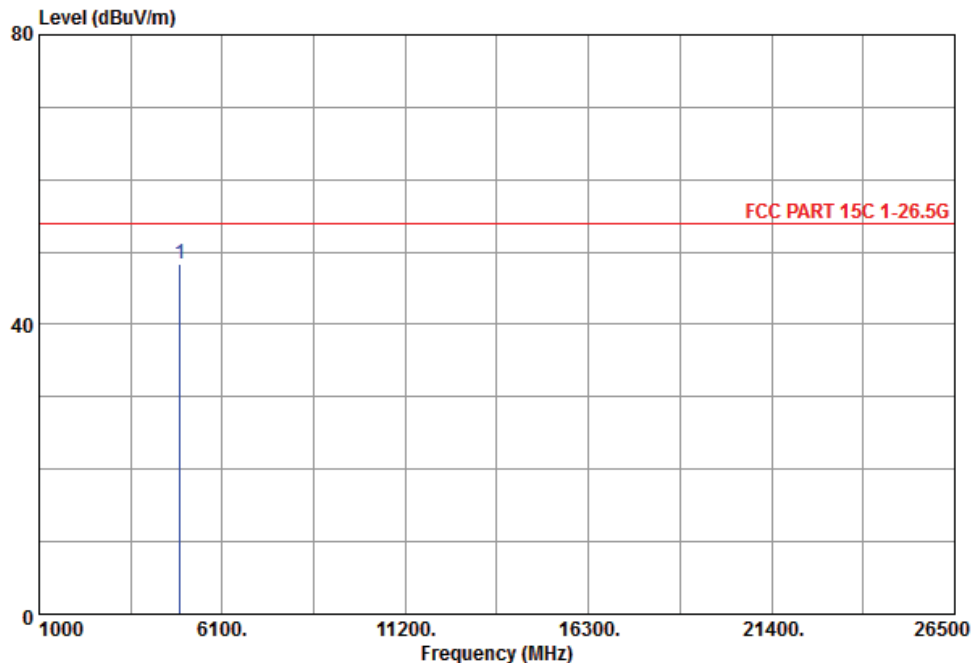
Remark :

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:

Peak Setting 1GHz to 10th harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

**Radiated Emission Test Data (Above and Field Strength to 10th Harmonic)**

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Polarization	: Vertical	Channel	: CH11 (2462 MHz)
Test Mode	: Mode 3		



Freq	Reading	C.F	Result	Limit	Margin	A/pos	T/pos	Remark
MHz	dBuV	dB	dBuV/m	dBuV/m	dB			
1 @4924.000	47.39	1.01	48.40	54.00	-5.60	---	---	

C.F = Antenna Factor + Cable Loss - Preamp gain
 Result = Reading + C.F ; Margin = Result - Limit

@ : Maximum Data x : Over Limit

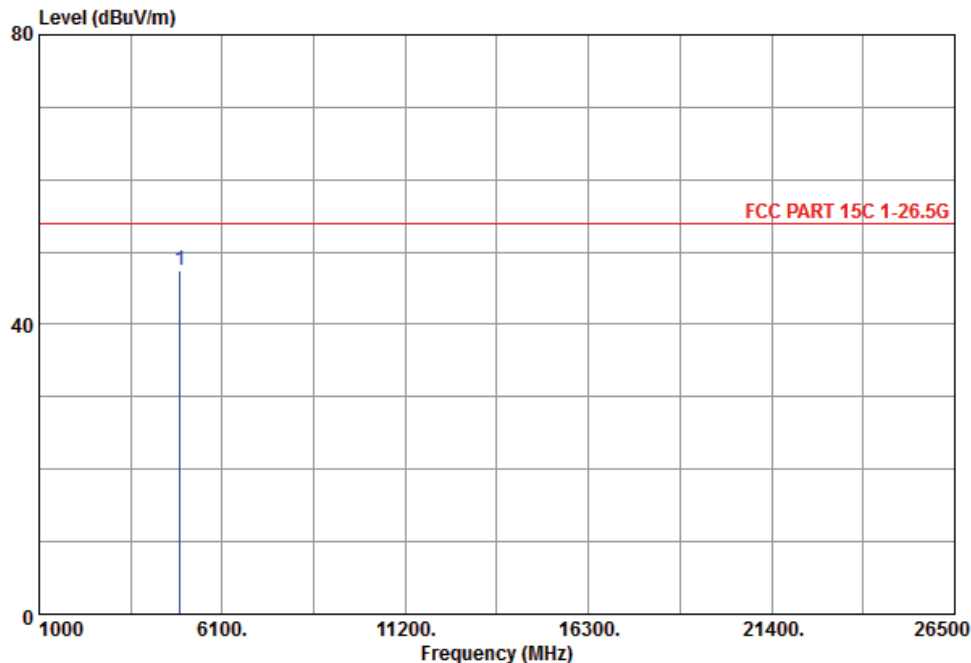
Remark :

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:

Peak Setting 1GHz to 10th harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

**Radiated Emission Test Data (Above and Field Strength to 10th Harmonic)**

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Polarization	: Horizontal	Channel	: CH11 (2462 MHz)
Test Mode	: Mode 3		



Freq	Reading	C.F	Result	Limit	Margin	A/pos	T/pos	Remark
MHz	dBuV	dB	dBuV/m	dBuV/m	dB			
1 @4924.000	46.37	1.01	47.38	54.00	-6.62	---	---	

C.F = Antenna Factor + Cable Loss - Preamp gain
 Result = Reading + C.F ; Margin = Result - Limit

@ : Maximum Data x : Over Limit

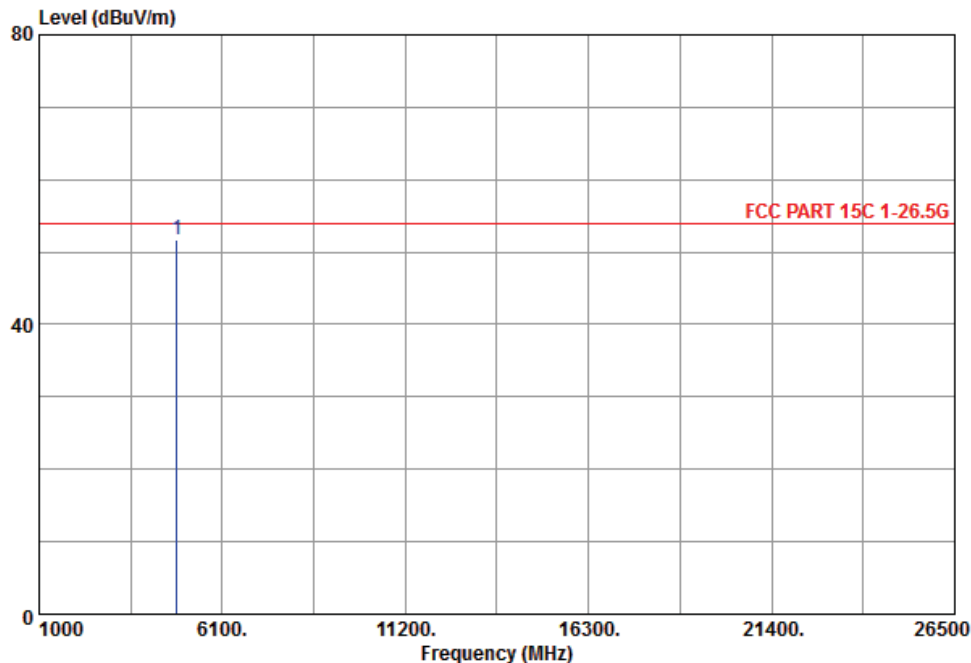
Remark :

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:

Peak Setting 1GHz to 10th harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

**Radiated Emission Test Data (Above and Field Strength to 10th Harmonic)**

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Polarization	: Vertical	Channel	: CH01 (2412MHz)
Test Mode	: Mode 4		



Freq	Reading	C.F	Result	Limit	Margin	A/pos	T/pos	Remark
MHz	dBuV	dB	dBuV/m	dBuV/m	dB			
1 @4824.000	51.13	0.57	51.70	54.00	-2.30	---	---	

C.F = Antenna Factor + Cable Loss - Preamp gain
 Result = Reading + C.F ; Margin = Result - Limit

@ : Maximum Data x : Over Limit

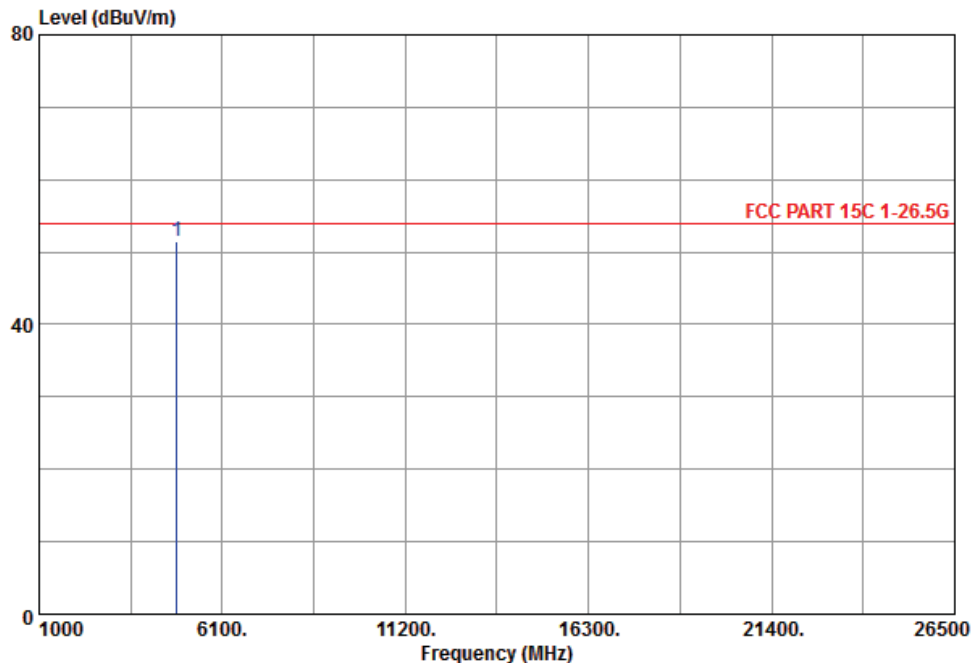
Remark :

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:

Peak Setting 1GHz to 10th harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

**Radiated Emission Test Data (Above and Field Strength to 10th Harmonic)**

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Polarization	: Horizontal	Channel	: CH01 (2412MHz)
Test Mode	: Mode 4		



Freq	Reading	C.F	Result	Limit	Margin	A/pos	T/pos	Remark
MHz	dBuV	dB	dBuV/m	dBuV/m	dB			
1 @4824.000	50.98	0.57	51.55	54.00	-2.45	---	---	

C.F = Antenna Factor + Cable Loss - Preamp gain
 Result = Reading + C.F ; Margin = Result - Limit

@ : Maximum Data x : Over Limit

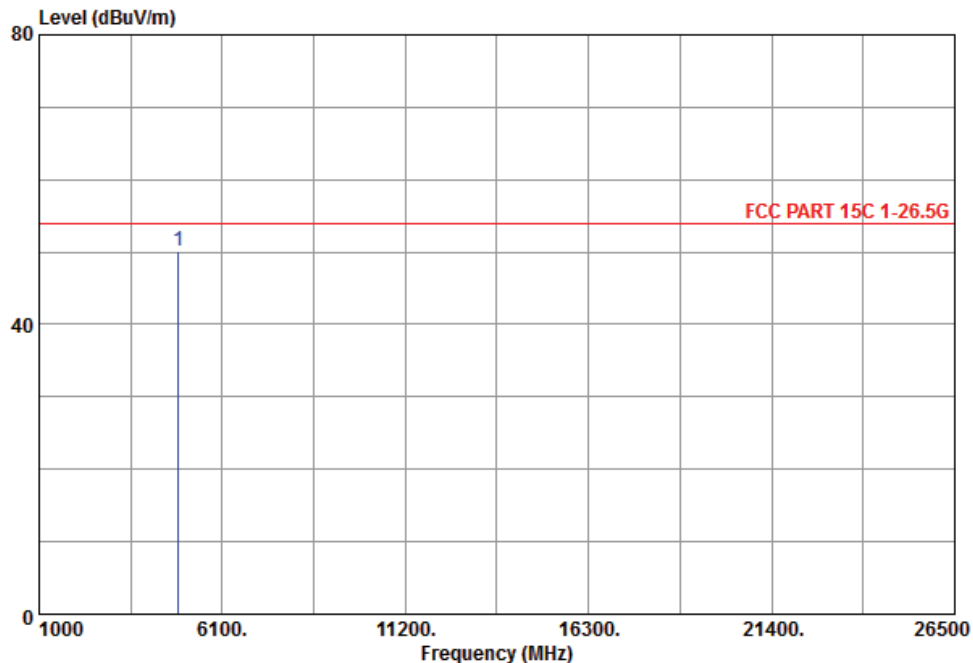
Remark :

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:

Peak Setting 1GHz to 10th harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

**Radiated Emission Test Data (Above and Field Strength to 10th Harmonic)**

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Polarization	: Vertical	Channel	: CH06 (2437 MHz)
Test Mode	: Mode 5		



Freq	Reading	C.F	Result	Limit	Margin	A/pos	T/pos	Remark
MHz	dBuV	dB	dBuV/m	dBuV/m	dB			
1 @4874.000	49.33	0.80	50.13	54.00	-3.87	---	---	

C.F = Antenna Factor + Cable Loss - Preamp gain
 Result = Reading + C.F ; Margin = Result - Limit

@ : Maximum Data x : Over Limit

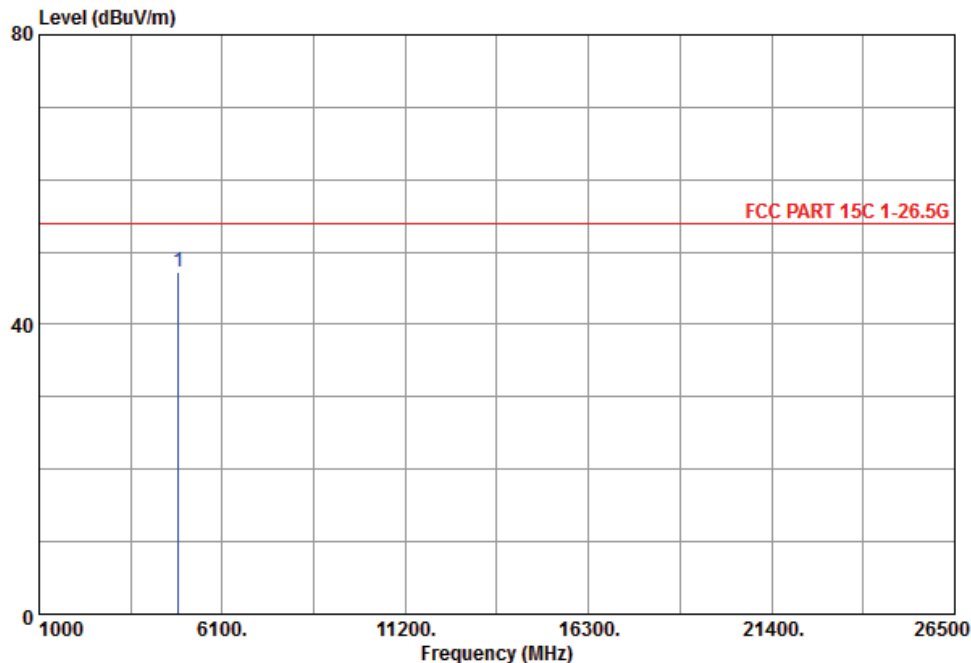
Remark :

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:

Peak Setting 1GHz to 10th harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

**Radiated Emission Test Data (Above and Field Strength to 10th Harmonic)**

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Polarization	: Horizontal	Channel	: CH06 (2437 MHz)
Test Mode	: Mode 5		



Freq	Reading	C.F	Result	Limit	Margin	A/pos	T/pos	Remark
MHz	dBuV	dB	dBuV/m	dBuV/m	dB			
1 @4874.000	46.48	0.80	47.28	54.00	-6.72	---	---	

C.F = Antenna Factor + Cable Loss - Preamp gain
 Result = Reading + C.F ; Margin = Result - Limit

@ : Maximum Data x : Over Limit

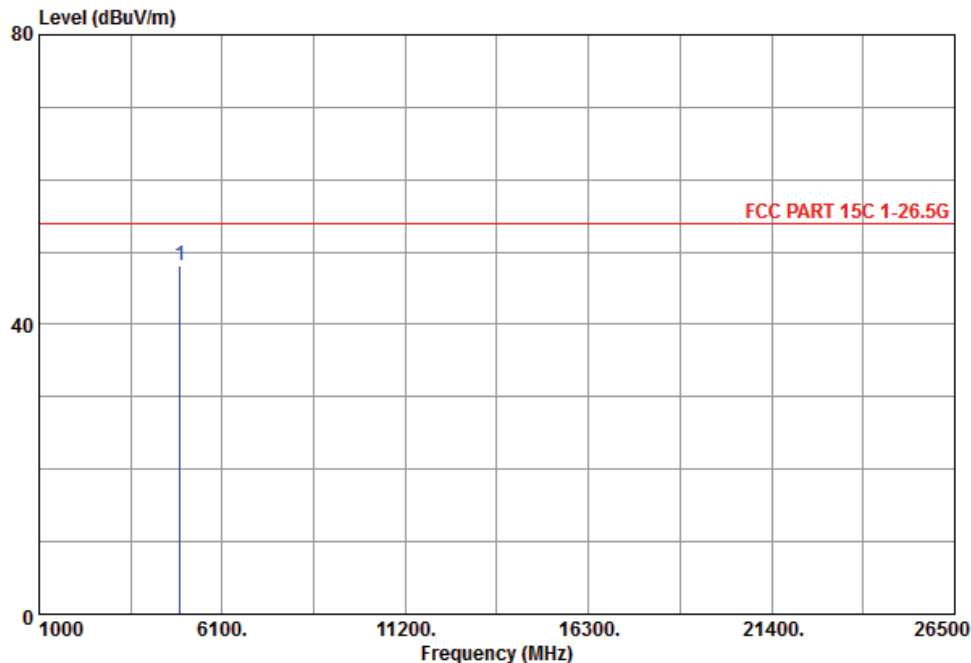
Remark :

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:

Peak Setting 1GHz to 10th harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

**Radiated Emission Test Data (Above and Field Strength to 10th Harmonic)**

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Polarization	: Vertical	Channel	: CH11 (2462 MHz)
Test Mode	: Mode 6		



Freq	Reading	C.F	Result	Limit	Margin	A/pos	T/pos	Remark
MHz	dBuV	dB	dBuV/m	dBuV/m	dB			
1 @4924.000	47.10	1.01	48.11	54.00	-5.89	---	---	

C.F = Antenna Factor + Cable Loss - Preamp gain
 Result = Reading + C.F ; Margin = Result - Limit

@ : Maximum Data x : Over Limit

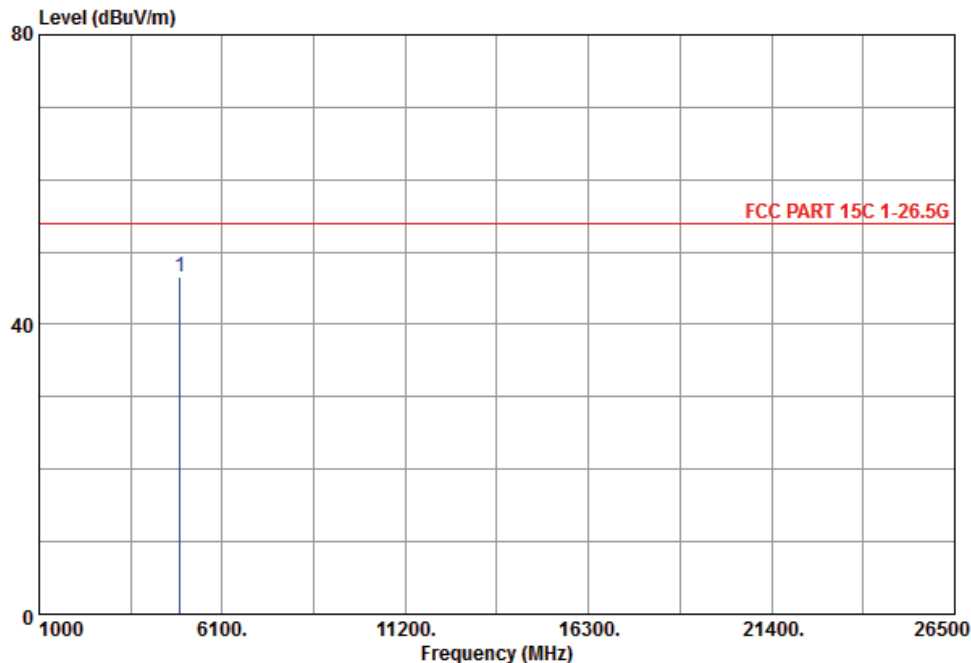
Remark :

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:

Peak Setting 1GHz to 10th harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

**Radiated Emission Test Data (Above and Field Strength to 10th Harmonic)**

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Polarization	: Horizontal	Channel	: CH11 (2462 MHz)
Test Mode	: Mode 6		



Freq	Reading	C.F	Result	Limit	Margin	A/pos	T/pos	Remark
MHz	dBuV	dB	dBuV/m	dBuV/m	dB			
1 @4924.000	45.54	1.01	46.55	54.00	-7.45	---	---	

C.F = Antenna Factor + Cable Loss - Preamp gain
 Result = Reading + C.F ; Margin = Result - Limit

@ : Maximum Data x : Over Limit

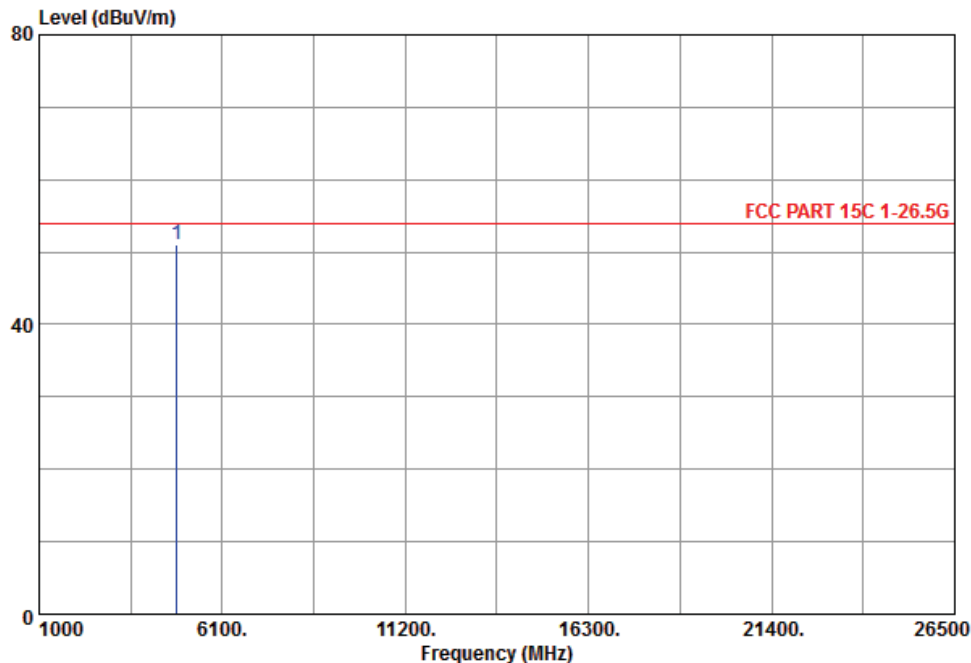
Remark :

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:

Peak Setting 1GHz to 10th harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

**Radiated Emission Test Data (Above and Field Strength to 10th Harmonic)**

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Polarization	: Vertical	Channel	: CH01 (2412MHz)
Test Mode	: Mode 7		



Freq	Reading	C.F	Result	Limit	Margin	A/pos	T/pos	Remark
MHz	dBuV	dB	dBuV/m	dBuV/m	dB			
1 @4824.000	50.47	0.57	51.04	54.00	-2.96	---	---	

C.F = Antenna Factor + Cable Loss - Preamp gain
 Result = Reading + C.F ; Margin = Result - Limit

@ : Maximum Data x : Over Limit

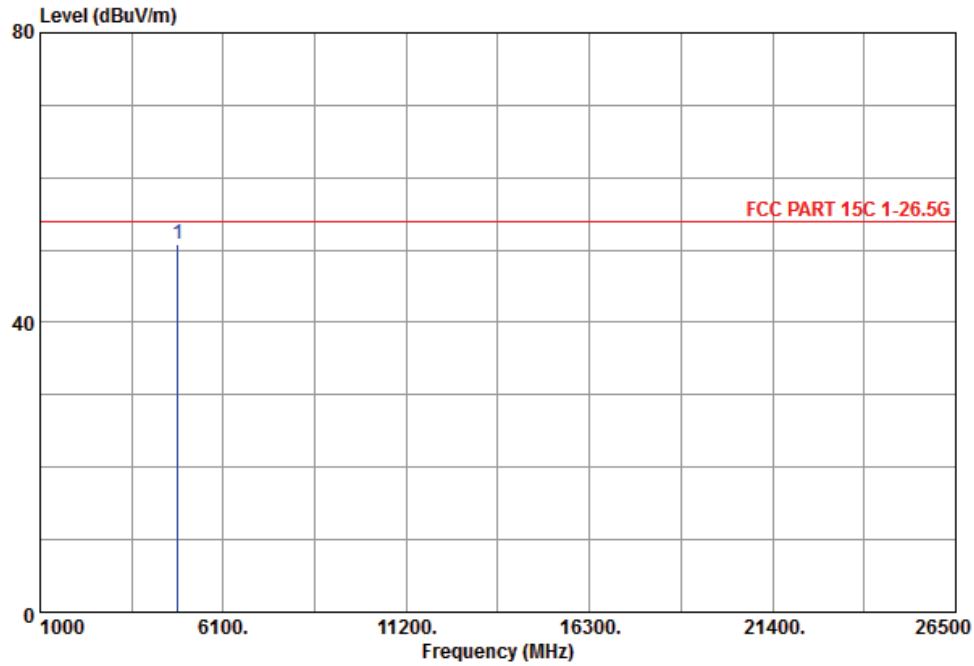
Remark :

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:

Peak Setting 1GHz to 10th harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

Radiated Emission Test Data (Above and Field Strength to 10th Harmonic)

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Polarization	: Horizontal	Channel	: CH01 (2412MHz)
Test Mode	: Mode 7		



Freq	Reading	C.F	Result	Limit	Margin	A/pos	T/pos	Remark
MHz	dBuV	dB	dBuV/m	dBuV/m	dB			
1 @4824.000	50.34	0.57	50.91	54.00	-3.09	---	---	

C.F = Antenna Factor + Cable Loss - Preamp gain
 Result = Reading + C.F ; Margin = Result - Limit

@ : Maximum Data x : Over Limit

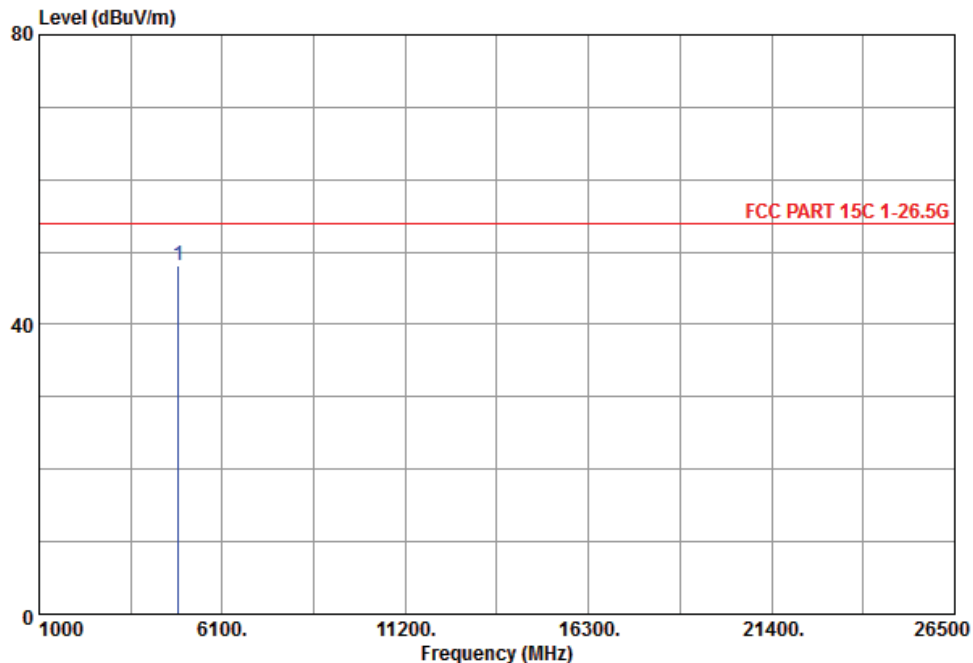
Remark :

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:

Peak Setting 1GHz to 10th harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

**Radiated Emission Test Data (Above and Field Strength to 10th Harmonic)**

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: v	Tested by	: Kidd Liao
Polarization	: Vertical	Channel	: CH06 (2437 MHz)
Test Mode	: Mode 8		



Freq	Reading	C.F	Result	Limit	Margin	A/pos	T/pos	Remark
MHz	dBuV	dB	dBuV/m	dBuV/m	dB			
1 @4874.000	47.32	0.80	48.12	54.00	-5.88	---	---	

C.F = Antenna Factor + Cable Loss - Preamp gain
 Result = Reading + C.F ; Margin = Result - Limit

@ : Maximum Data x : Over Limit

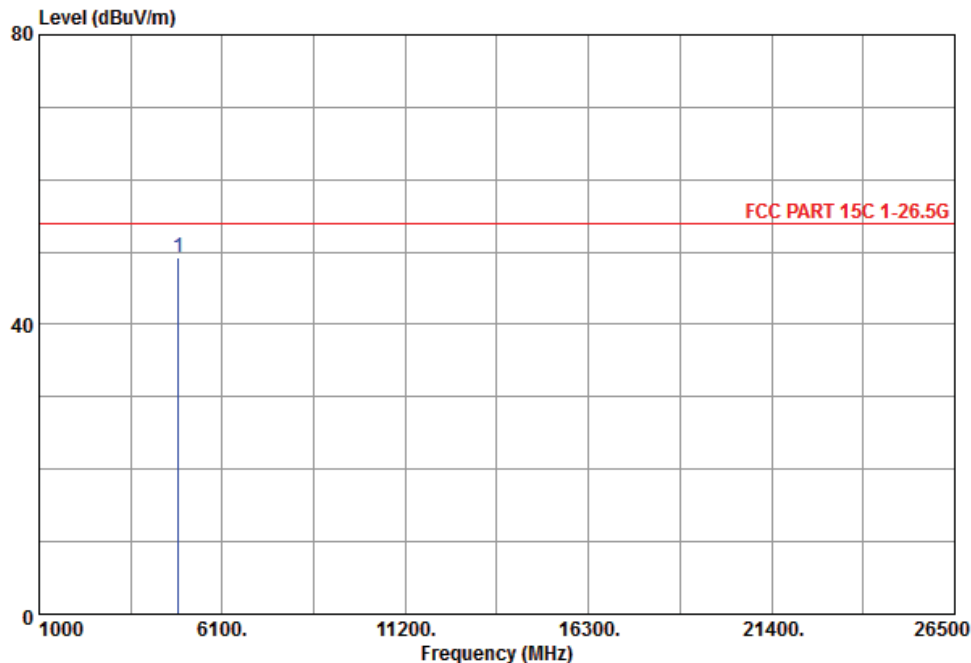
Remark :

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:

Peak Setting 1GHz to 10th harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

**Radiated Emission Test Data (Above and Field Strength to 10th Harmonic)**

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Polarization	: Horizontal	Channel	: CH06 (2437 MHz)
Test Mode	: Mode 8		



Freq	Reading	C.F	Result	Limit	Margin	A/pos	T/pos	Remark
MHz	dBuV	dB	dBuV/m	dBuV/m	dB			
1 @4874.000	48.50	0.80	49.30	54.00	-4.70	---	---	

C.F = Antenna Factor + Cable Loss - Preamp gain
 Result = Reading + C.F ; Margin = Result - Limit

@ : Maximum Data x : Over Limit

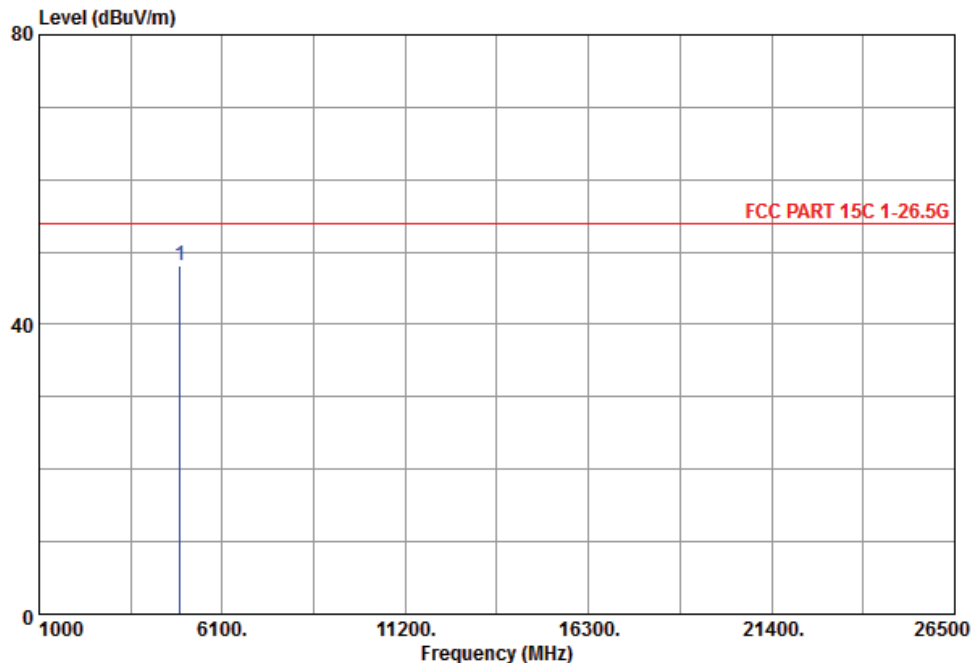
Remark :

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:

Peak Setting 1GHz to 10th harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

**Radiated Emission Test Data (Above and Field Strength to 10th Harmonic)**

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Polarization	: Vertical	Channel	: CH11 (2462 MHz)
Test Mode	: Mode 9		



Freq	Reading	C.F	Result	Limit	Margin	A/pos	T/pos	Remark
MHz	dBuV	dB	dBuV/m	dBuV/m	dB			
1 @4924.000	47.17	1.01	48.18	54.00	-5.82	---	---	

C.F = Antenna Factor + Cable Loss - Preamp gain
 Result = Reading + C.F ; Margin = Result - Limit

@ : Maximum Data x : Over Limit

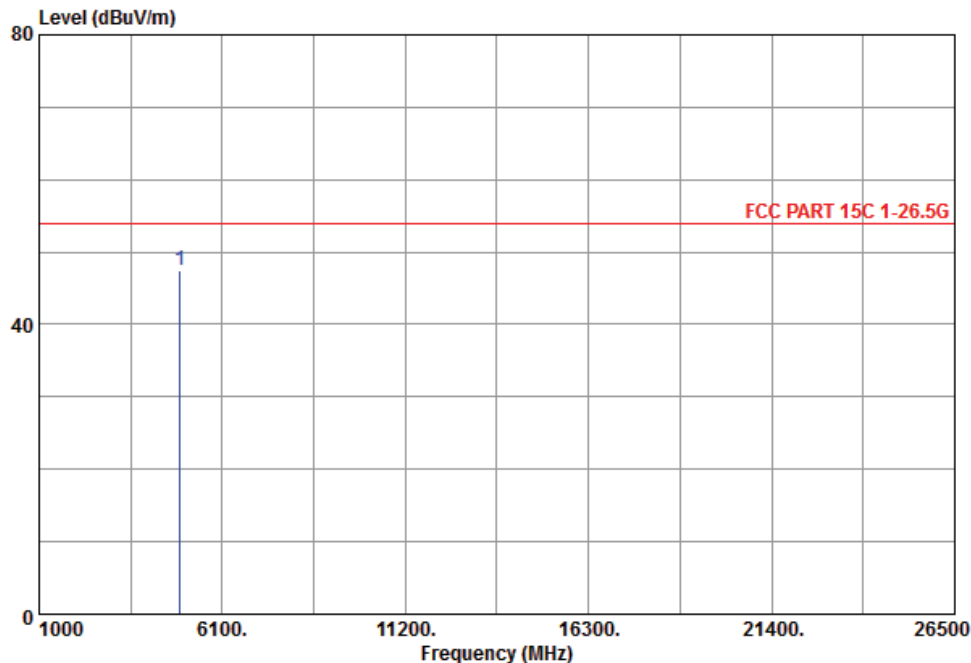
Remark :

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:

Peak Setting 1GHz to 10th harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

**Radiated Emission Test Data (Above and Field Strength to 10th Harmonic)**

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Polarization	: Horizontal	Channel	: CH11 (2462 MHz)
Test Mode	: Mode 9		



Freq	Reading	C.F	Result	Limit	Margin	A/pos	T/pos	Remark
MHz	dBuV	dB	dBuV/m	dBuV/m	dB			
1 @4924.000	46.36	1.01	47.37	54.00	-6.63	---	---	

C.F = Antenna Factor + Cable Loss - Preamp gain
 Result = Reading + C.F ; Margin = Result - Limit

@ : Maximum Data x : Over Limit

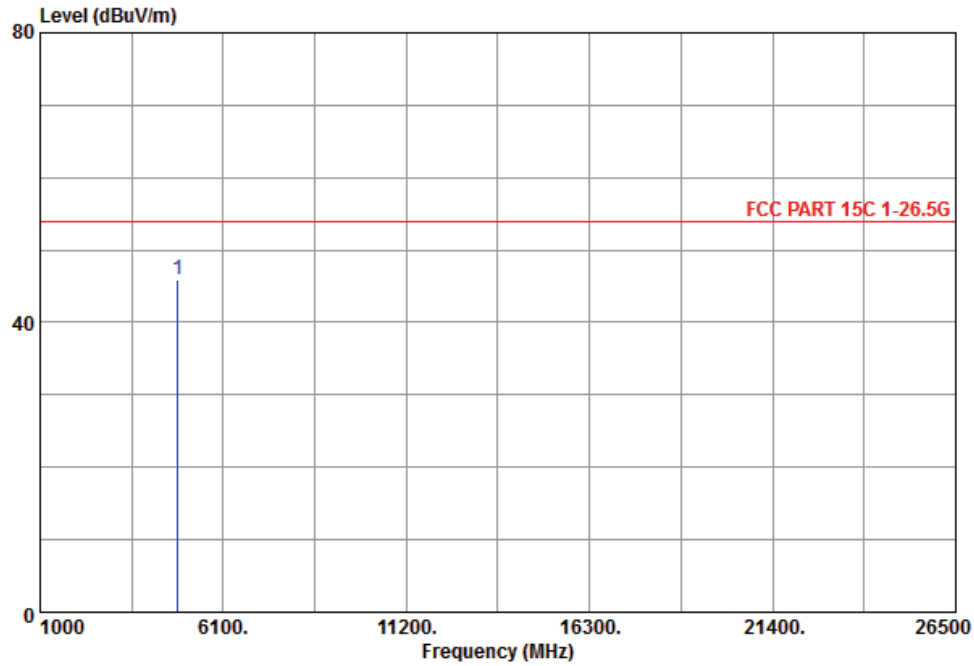
Remark :

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:

Peak Setting 1GHz to 10th harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

Radiated Emission Test Data (Above and Field Strength to 10th Harmonic)

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Polarization	: Vertical	Channel	: CH03 (2422 MHz)
Test Mode	: Mode 10		



Freq	Reading	C.F	Result	Limit	Margin	A/pos	T/pos	Remark
MHz	dBuV	dB	dBuV/m	dBuV/m	dB			
1 @4844.000	45.30	0.65	45.95	54.00	-8.05	---	---	

C.F = Antenna Factor + Cable Loss - Preamp gain
 Result = Reading + C.F ; Margin = Result - Limit

@ : Maximum Data x : Over Limit

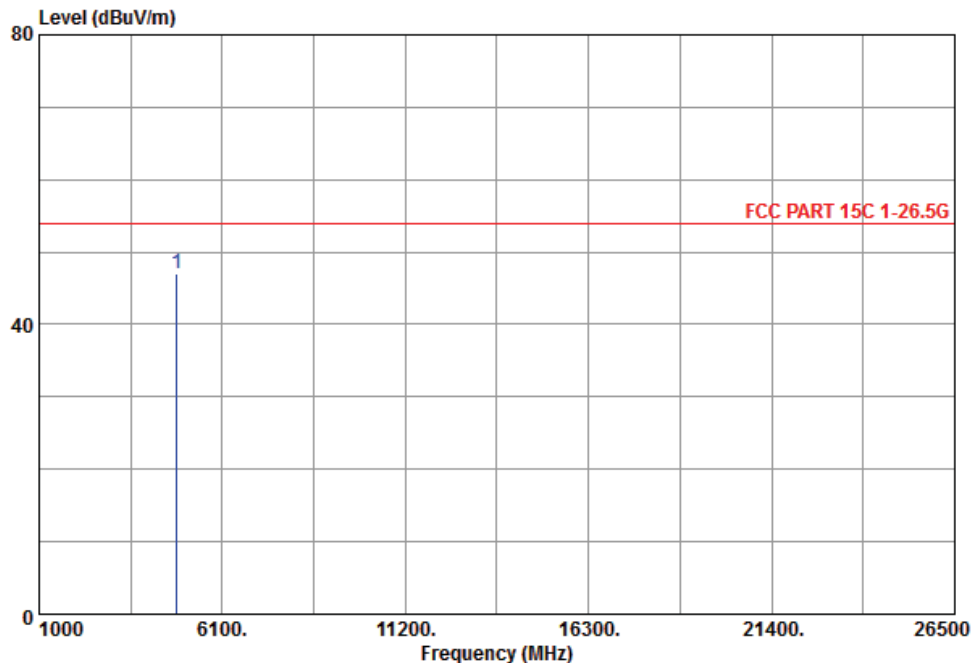
Remark :

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:

Peak Setting 1GHz to 10th harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

**Radiated Emission Test Data (Above and Field Strength to 10th Harmonic)**

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Polarization	: Horizontal	Channel	: CH03 (2422 MHz)
Test Mode	: Mode 10		



Freq	Reading	C.F	Result	Limit	Margin	A/pos	T/pos	Remark
MHz	dBuV	dB	dBuV/m	dBuV/m	dB			
1 @4844.000	46.28	0.65	46.93	54.00	-7.07	---	---	

C.F = Antenna Factor + Cable Loss - Preamp gain
 Result = Reading + C.F ; Margin = Result - Limit

@ : Maximum Data x : Over Limit

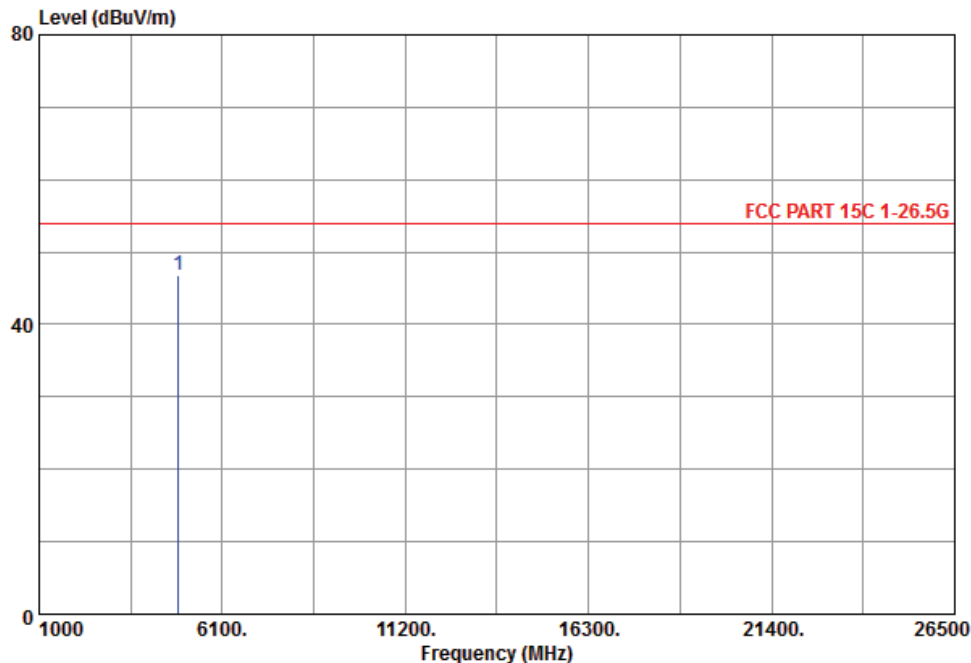
Remark :

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:

Peak Setting 1GHz to 10th harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

**Radiated Emission Test Data (Above and Field Strength to 10th Harmonic)**

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Polarization	: Vertical	Channel	: CH06 (2437 MHz)
Test Mode	: Mode 11		



Freq	Reading	C.F	Result	Limit	Margin	A/pos	T/pos	Remark
MHz	dBuV	dB	dBuV/m	dBuV/m	dB			
1 @4874.000	46.06	0.80	46.86	54.00	-7.14	---	---	

C.F = Antenna Factor + Cable Loss - Preamp gain
 Result = Reading + C.F ; Margin = Result - Limit

@ : Maximum Data x : Over Limit

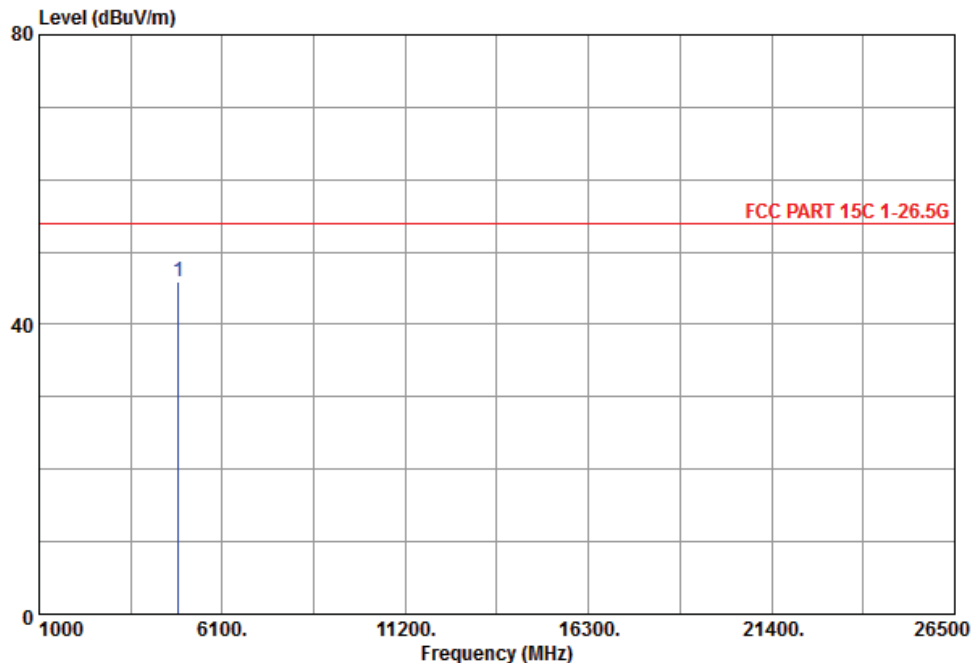
Remark :

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:

Peak Setting 1GHz to 10th harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

**Radiated Emission Test Data (Above and Field Strength to 10th Harmonic)**

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Polarization	: Horizontal	Channel	: CH06 (2437 MHz)
Test Mode	: Mode 11		



Freq	Reading	C.F	Result	Limit	Margin	A/pos	T/pos	Remark
MHz	dBuV	dB	dBuV/m	dBuV/m	dB			
1 @4874.000	45.02	0.80	45.82	54.00	-8.18	---	---	

C.F = Antenna Factor + Cable Loss - Preamp gain
 Result = Reading + C.F ; Margin = Result - Limit

@ : Maximum Data x : Over Limit

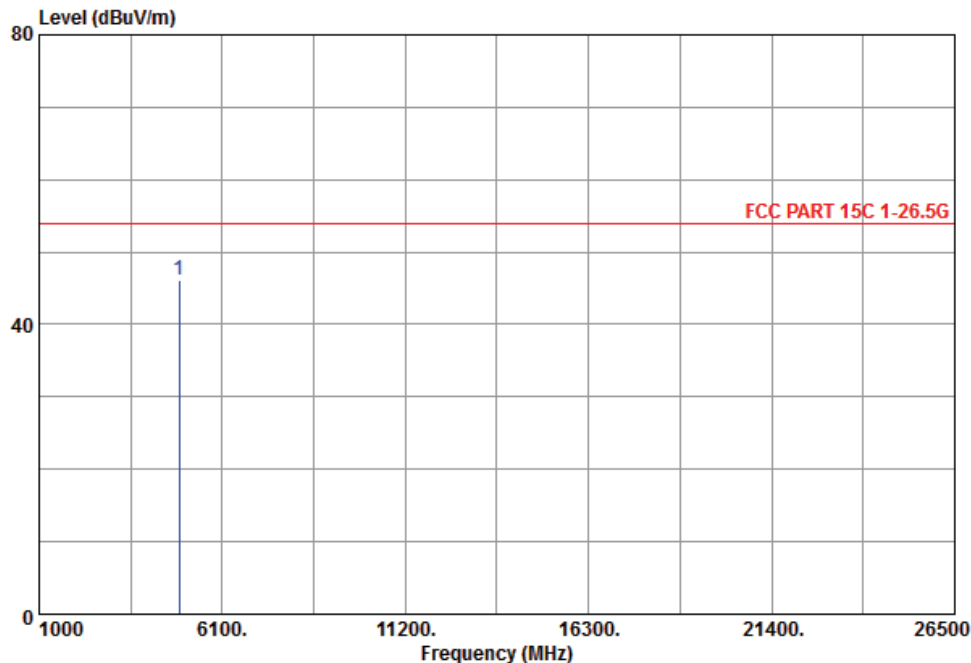
Remark :

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:

Peak Setting 1GHz to 10th harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

**Radiated Emission Test Data (Above and Field Strength to 10th Harmonic)**

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Polarization	: Vertical	Channel	: CH09 (2452 MHz)
Test Mode	: Mode 12		



Freq	Reading	C.F	Result	Limit	Margin	A/pos	T/pos	Remark
MHz	dBuV	dB	dBuV/m	dBuV/m	dB			
1 @4904.000	45.20	0.94	46.14	54.00	-7.86	---	---	

C.F = Antenna Factor + Cable Loss - Preamp gain
 Result = Reading + C.F ; Margin = Result - Limit

@ : Maximum Data x : Over Limit

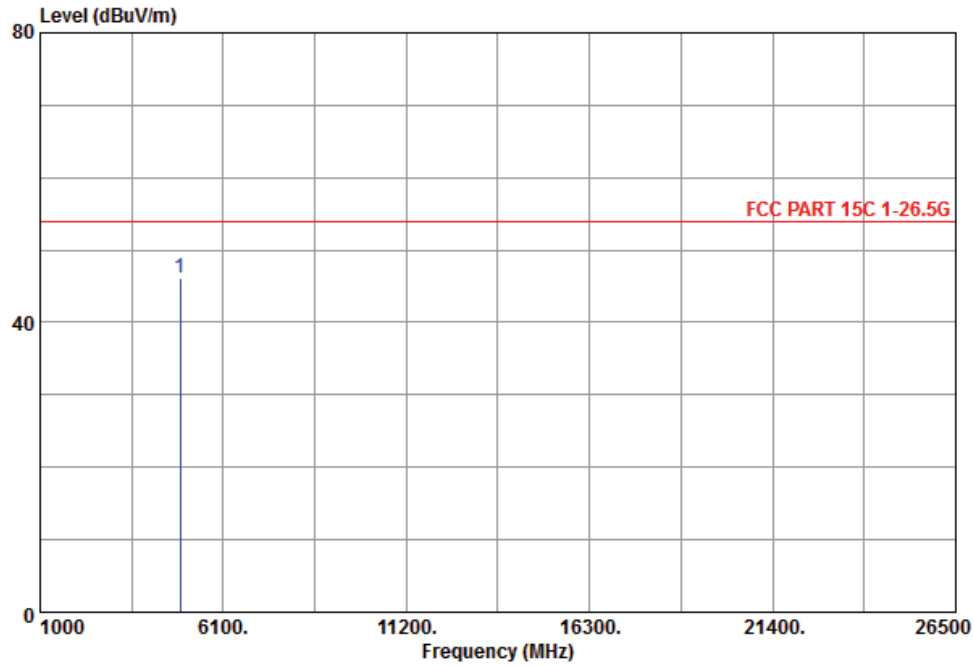
Remark :

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:

Peak Setting 1GHz to 10th harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

Radiated Emission Test Data (Above and Field Strength to 10th Harmonic)

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Polarization	: Horizontal	Channel	: CH09 (2452 MHz)
Test Mode	: Mode 12		



Freq	Reading	C.F	Result	Limit	Margin	A/pos	T/pos	Remark
MHz	dBuV	dB	dBuV/m	dBuV/m	dB			
1 @4904.000	45.25	0.94	46.19	54.00	-7.81	---	---	

C.F = Antenna Factor + Cable Loss - Preamp gain
 Result = Reading + C.F ; Margin = Result - Limit

@ : Maximum Data x : Over Limit

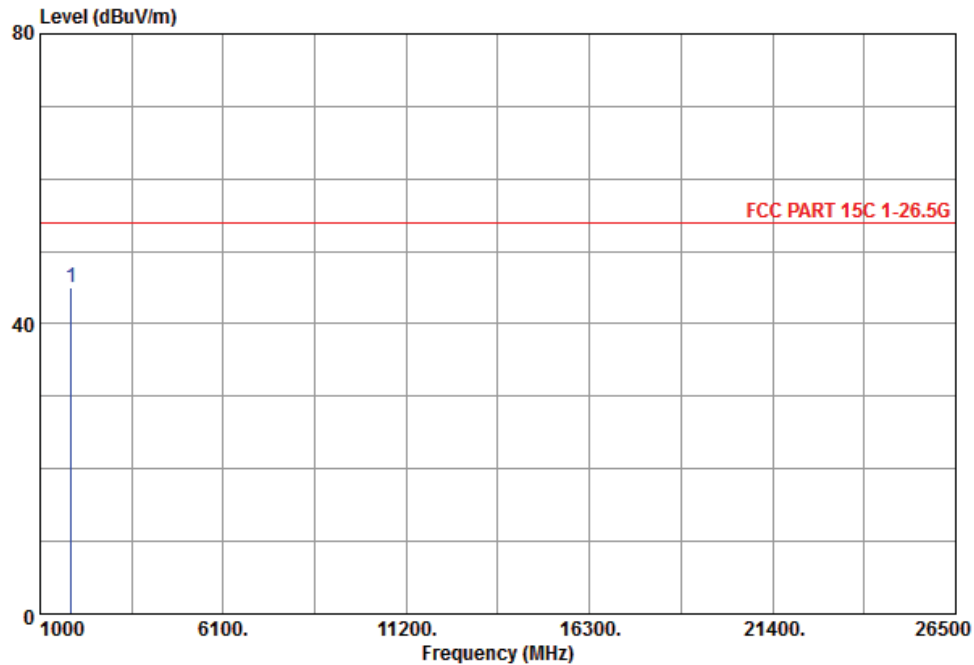
Remark :

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:

Peak Setting 1GHz to 10th harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

Radiated Emission Test Data (Above and Field Strength to 10th Harmonic)

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Polarization	: Vertical	Channel	: N/A
Test Mode	: Mode 13		



Freq	Reading	C.F	Result	Limit	Margin	A/pos	T/pos	Remark
MHz	dBuV	dB	dBuV/m	dBuV/m	dB			
1 @1867.000	54.52	-9.41	45.11	54.00	-8.89	---	---	

C.F = Antenna Factor + Cable Loss - Preamp gain
 Result = Reading + C.F ; Margin = Result - Limit

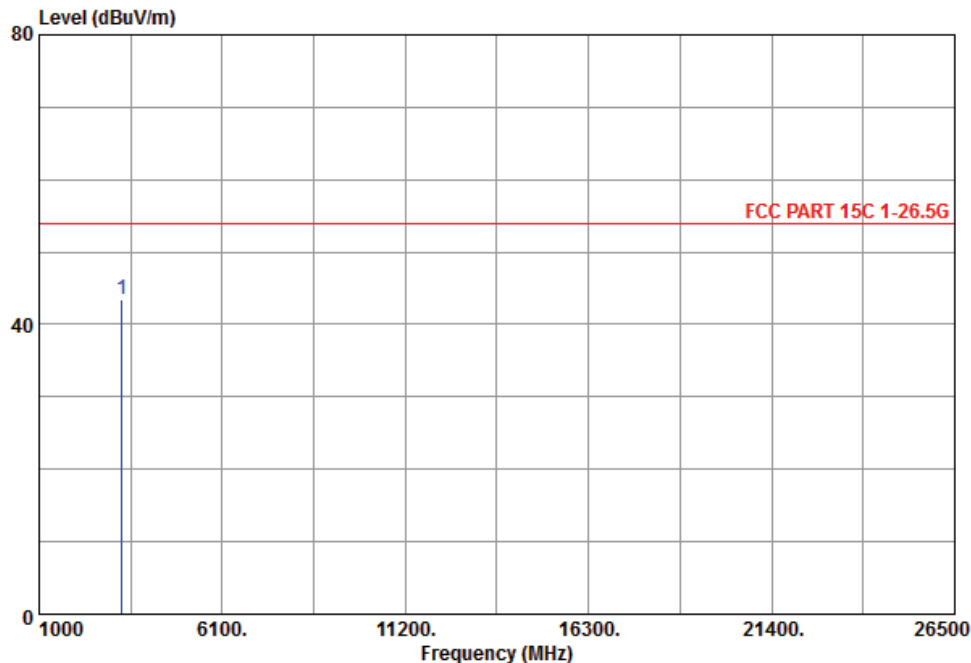
@ : Maximum Data x : Over Limit

Remark :

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:
 Peak Setting 1GHz to 10th harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

**Radiated Emission Test Data (Above and Field Strength to 10th Harmonic)**

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Polarization	: Horizontal	Channel	: N/A
Test Mode	: Mode 13		



Freq	Reading	C.F	Result	Limit	Margin	A/pos	T/pos	Remark
MHz	dBuV	dB	dBuV/m	dBuV/m	dB			
1 @3295.000	48.37	-5.01	43.36	54.00	-10.64	---	---	

C.F = Antenna Factor + Cable Loss - Preamp gain

Result = Reading + C.F ; Margin = Result - Limit

@ : Maximum Data x : Over Limit

Remark :

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. All readings are Peak values. None of the peak value reading exceeds the A.V. limit. Hence, A.V. reading was not measured.
5. Spectrum setting:

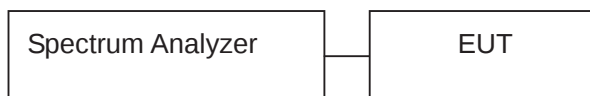
Peak Setting 1GHz to 10th harmonics of fundamental, RBW = VBW = 1MHz, Sweep = AUTO.

4 6 dB Bandwidth of the Emission

4.1 Test Instruments

Refer to Sec. 1.2 Test Instruments.

4.2 Test Arrangement



4.3 Test Procedure

1. Connect the EUT to spectrum analyzer through appropriate attenuator.
2. Spectrum setting; RMB = 100 kHz; VBW $\geq$ 300 kHz. Detector = Peak. Sweep = Auto.
3. Trace = Max Hold.

4.4 Limit (§ 15.247(a)(2))

Systems using digital modulation techniques may operate in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

4.5 Test Result

Compliance

The final test data are shown on the following page(s).

Temperature : 26.9℃

Humidity : 39%

Test Date : 06-Jul-2015

Tested by : Kidd Liao

Test Mode : 802.11 b

Test Channel	Frequency (MHz)	Test Result (MHz)	Limit (MHz)
01	2412	9.987	≥0.5
06	2437	9.520	≥0.5
11	2462	10.213	≥0.5

Test Mode : 802.11 g

Test Channel	Frequency (MHz)	Test Result (MHz)	Limit (MHz)
01	2412	16.520	≥0.5
06	2437	16.447	≥0.5
11	2462	16.513	≥0.5

Test Mode : 802.11 n HT(20)

Test Channel	Frequency (MHz)	Test Result (MHz)	Limit (MHz)
01	2412	17.640	≥0.5
06	2437	17.600	≥0.5
11	2462	17.707	≥0.5

Test Mode : 802.11n HT(40)

Test Channel	Frequency (MHz)	Test Result (MHz)	Limit (MHz)
03	2422	36.187	≥0.5
06	2437	35.080	≥0.5
09	2452	35.813	≥0.5

The final test data are shown on the following page(s).



Temperature : 26.9°C

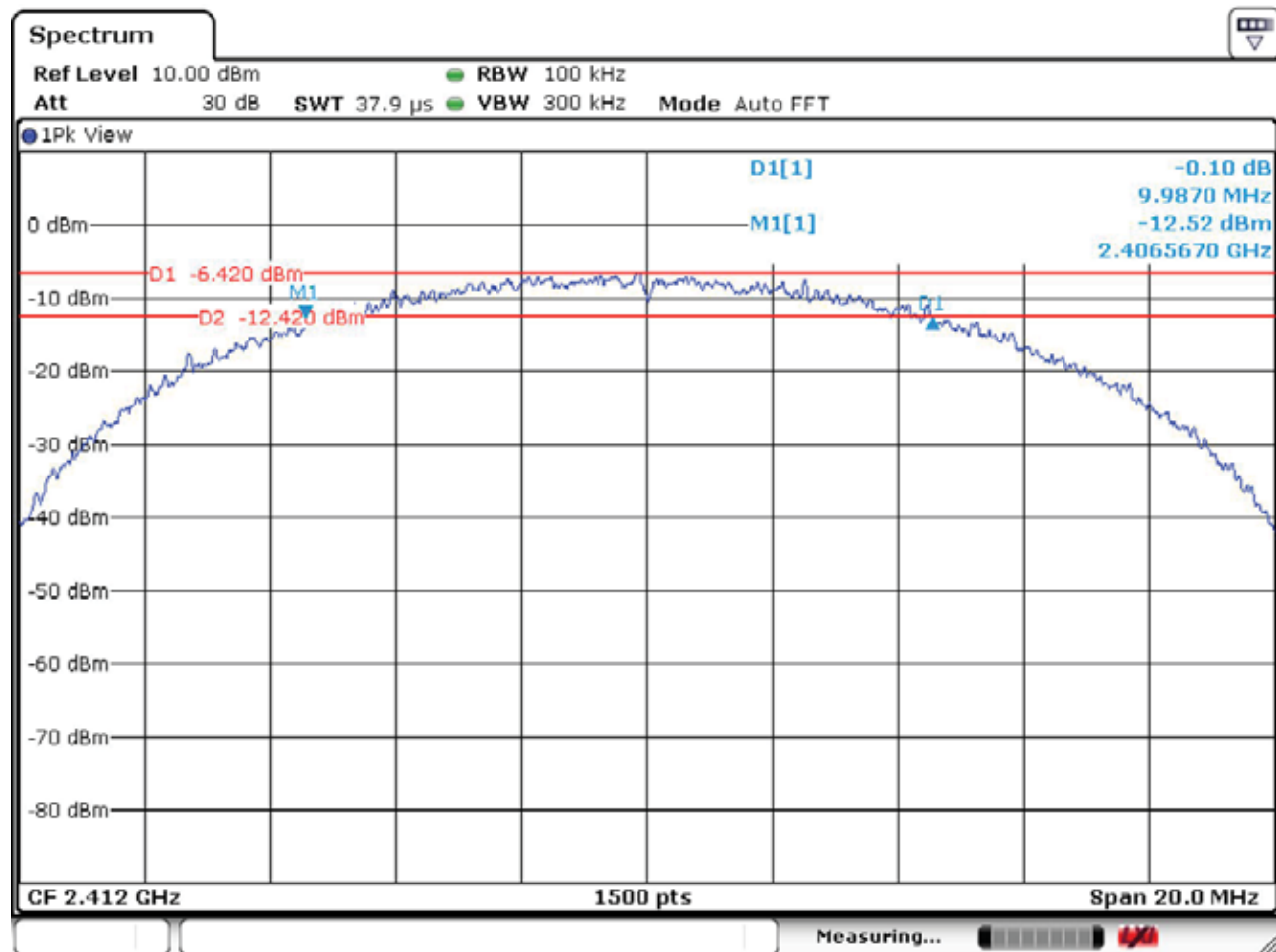
Humidity : 39%

Test Date : 06-Jul-2015

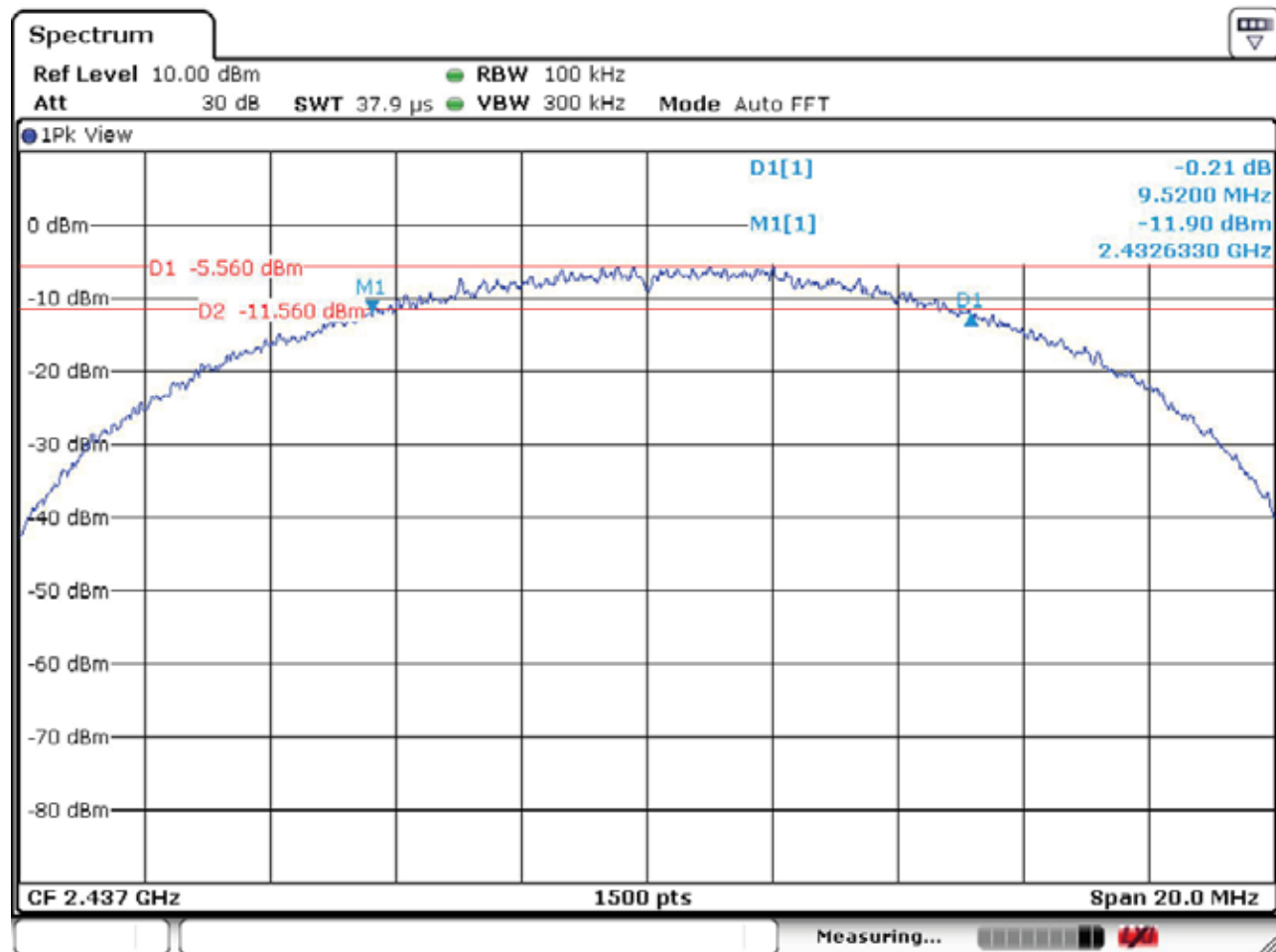
Tested by : Kidd Liao

Test Mode : 802.11b

Channel : CH01 (2412MHz)



Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Test Mode	: 802.11b	Channel	: CH06 (2437MHz)





Temperature : 26.9°C

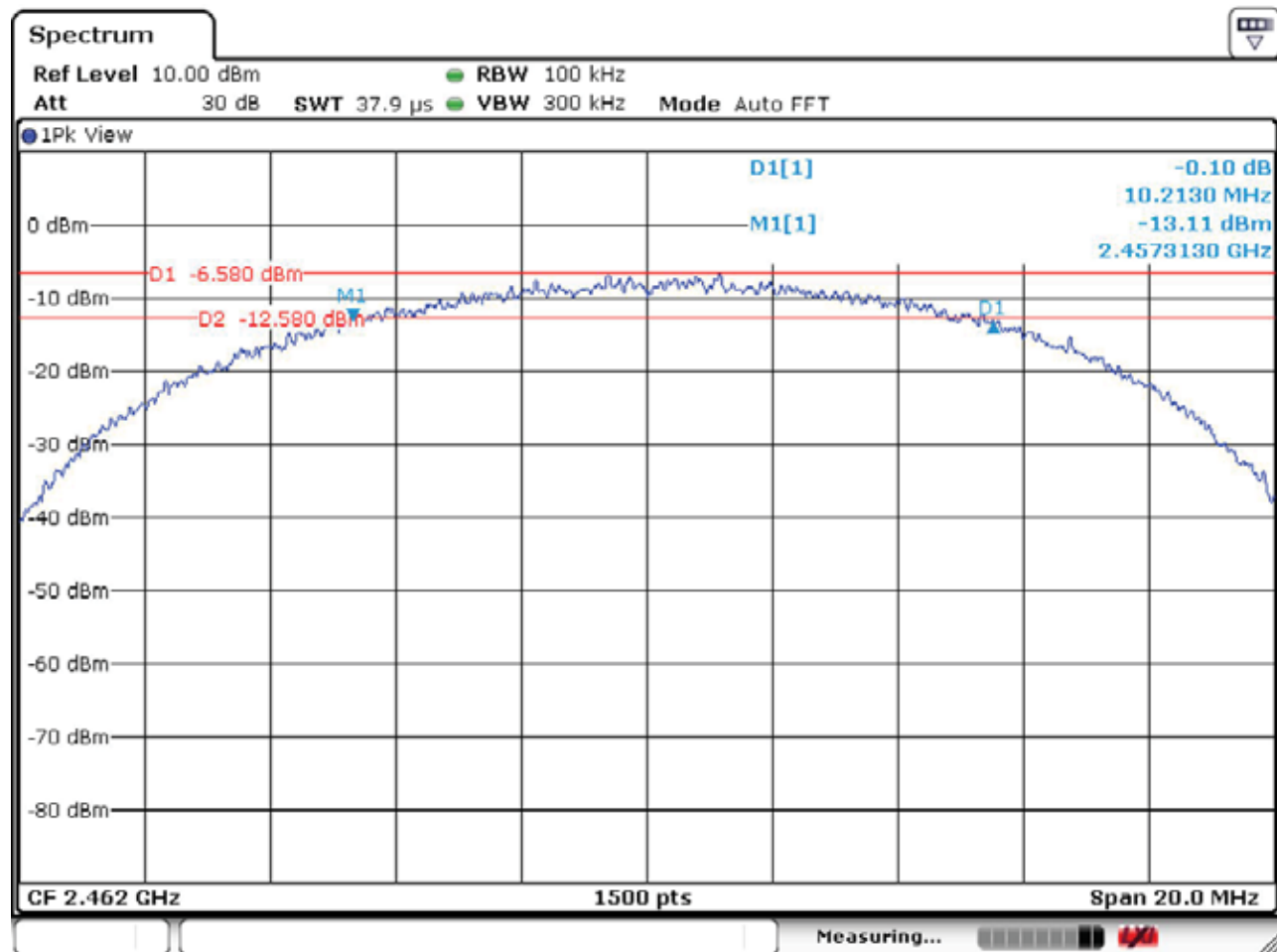
Humidity : 39%

Test Date : 06-Jul-2015

Tested by : Kidd Liao

Test Mode : 802.11b

Channel : CH11 (2462MHz)





Temperature : 26.9°C

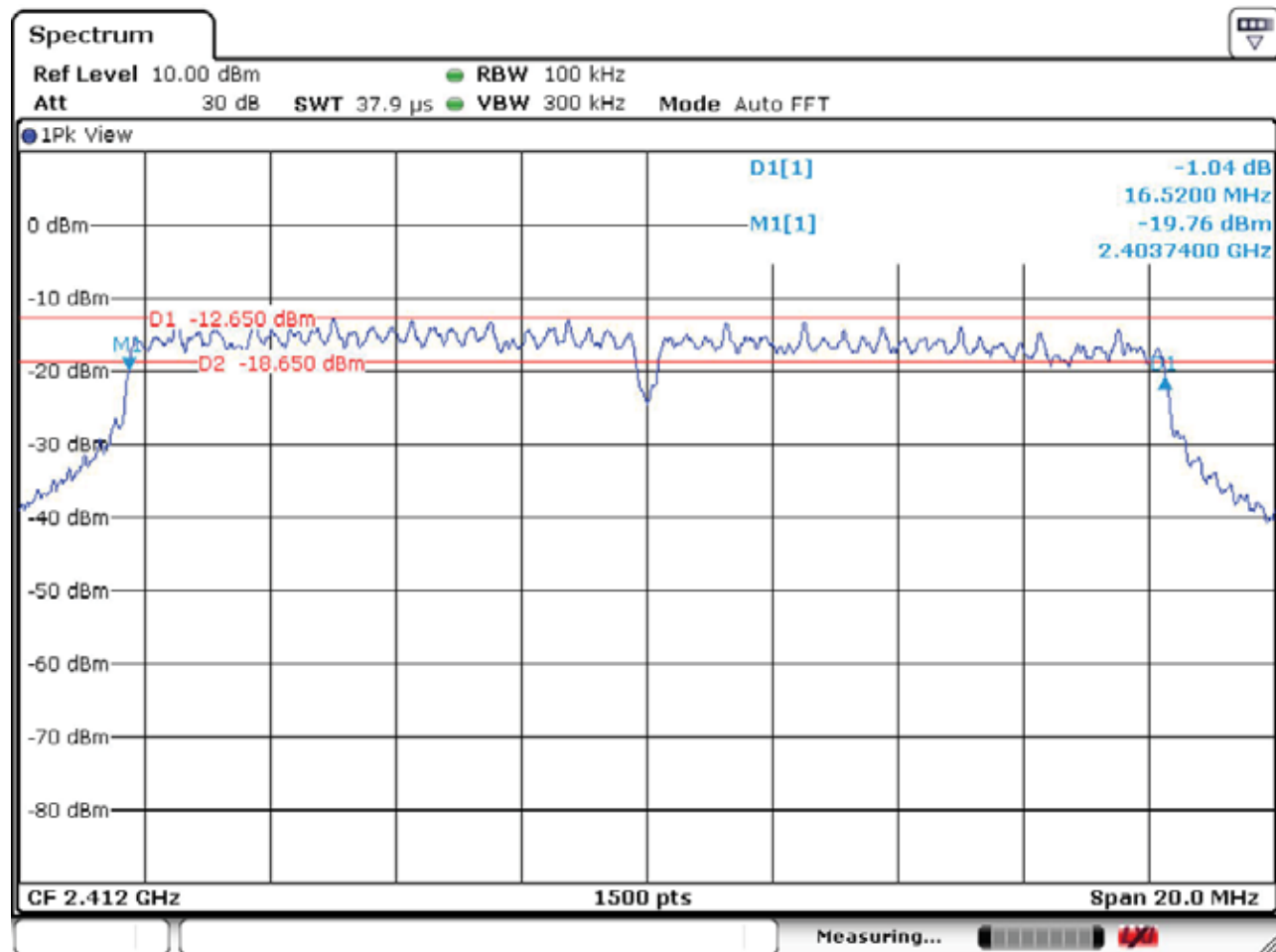
Humidity : 39%

Test Date : 06-Jul-2015

Tested by : Kidd Liao

Test Mode : 802.11g

Channel : CH01 (2412MHz)





Temperature : 26.9°C

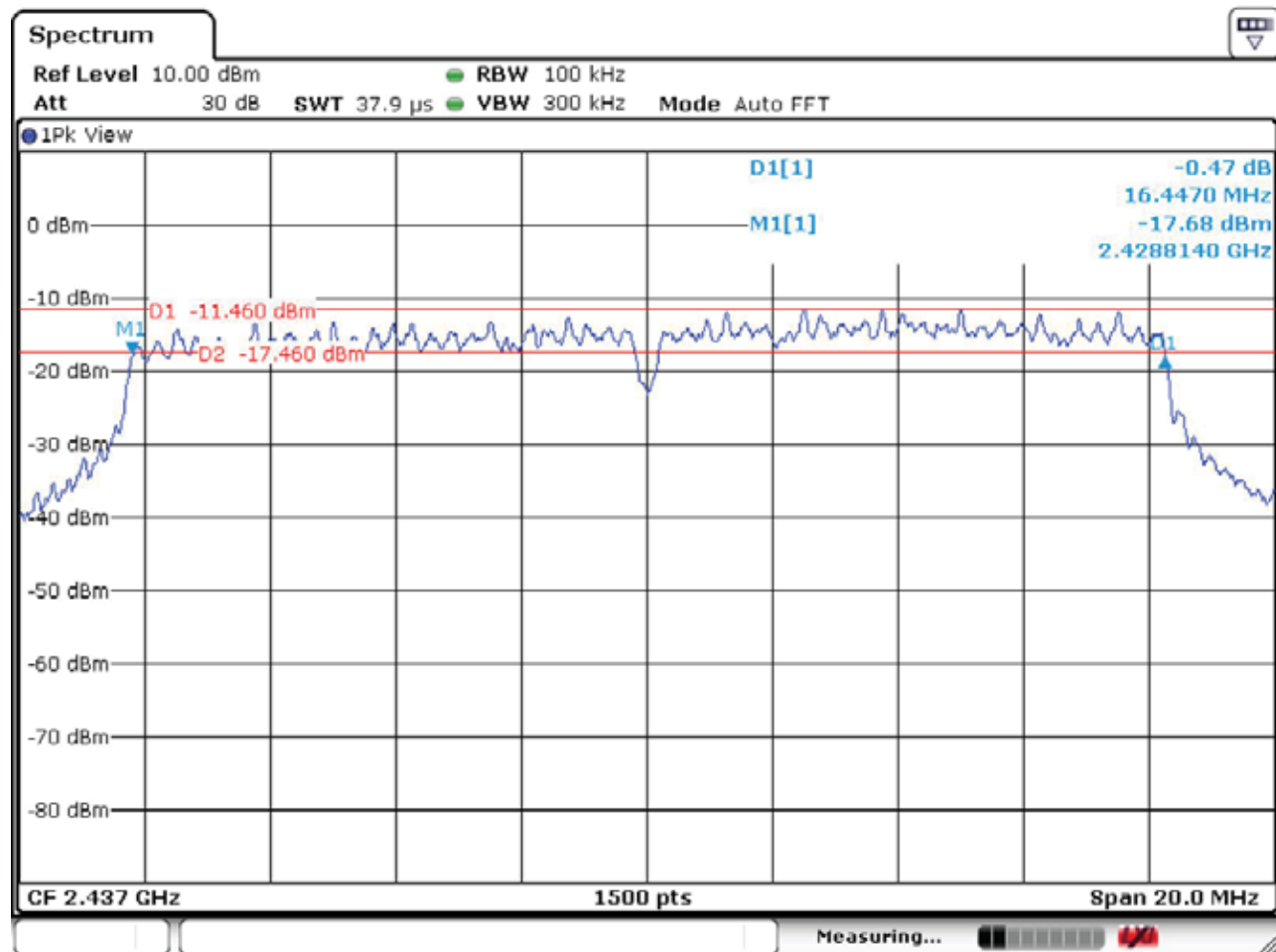
Humidity : 39%

Test Date : 06-Jul-2015

Tested by : Kidd Liao

Test Mode : 802.11g

Channel : CH06 (2437MHz)





Temperature : 26.9°C

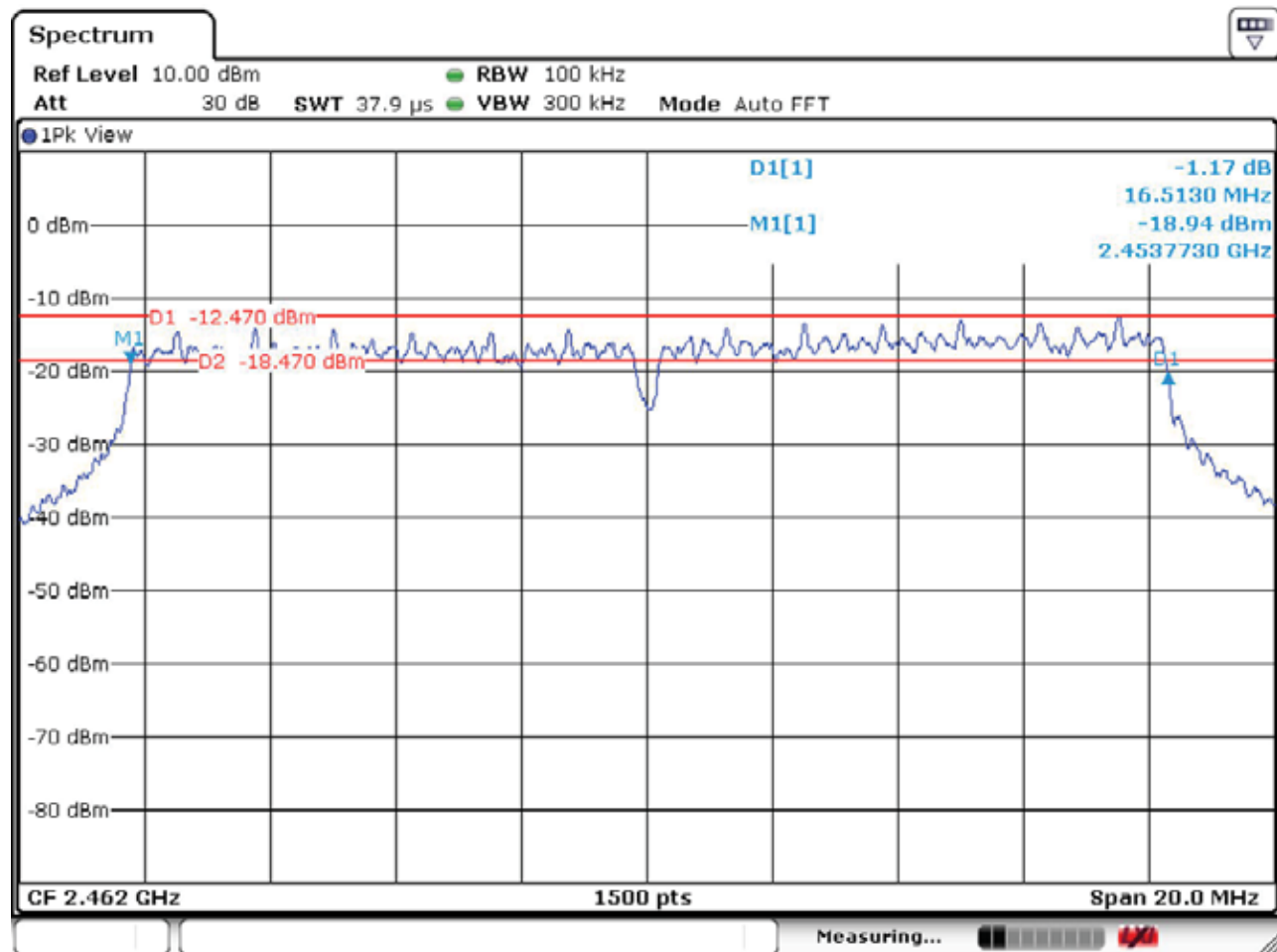
Humidity : 39%

Test Date : 06-Jul-2015

Tested by : Kidd Liao

Test Mode : 802.11g

Channel : CH11 (2462MHz)





Temperature : 26.9°C

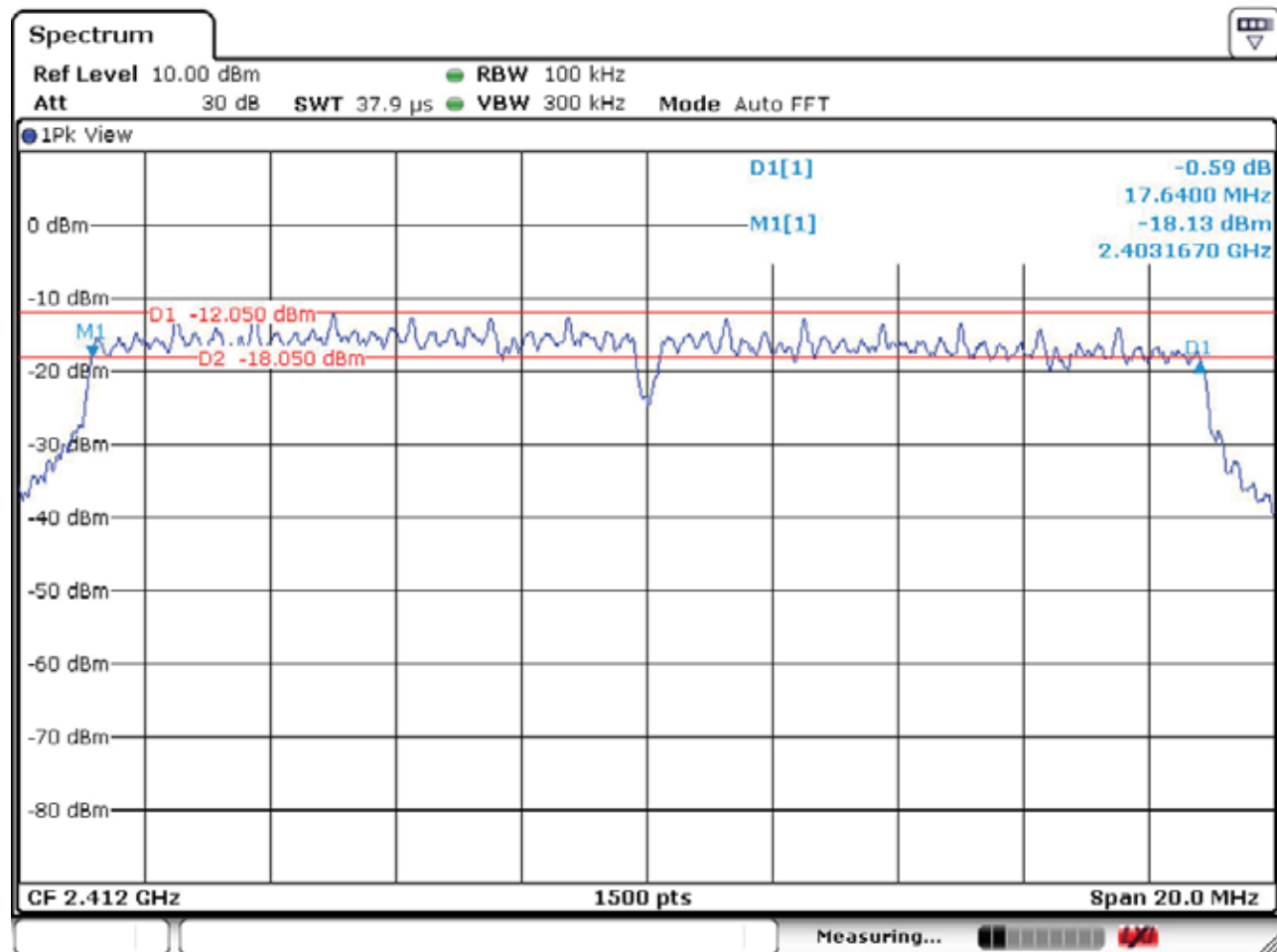
Humidity : 39%

Test Date : 06-Jul-2015

Tested by : Kidd Liao

Test Mode : 802.11n HT(20)

Channel : CH01 (2412MHz)





Temperature : 26.9°C

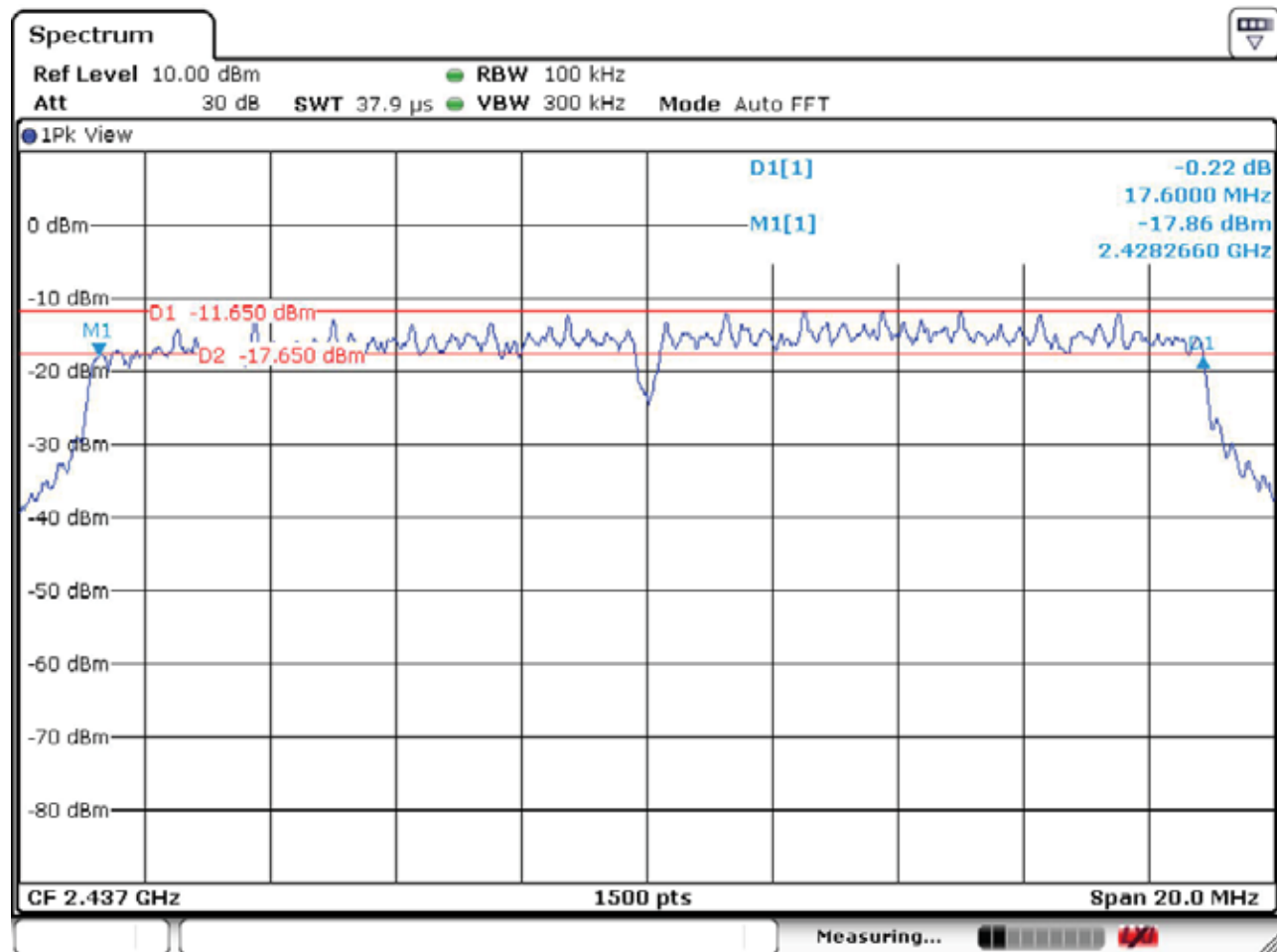
Humidity : 39%

Test Date : 06-Jul-2015

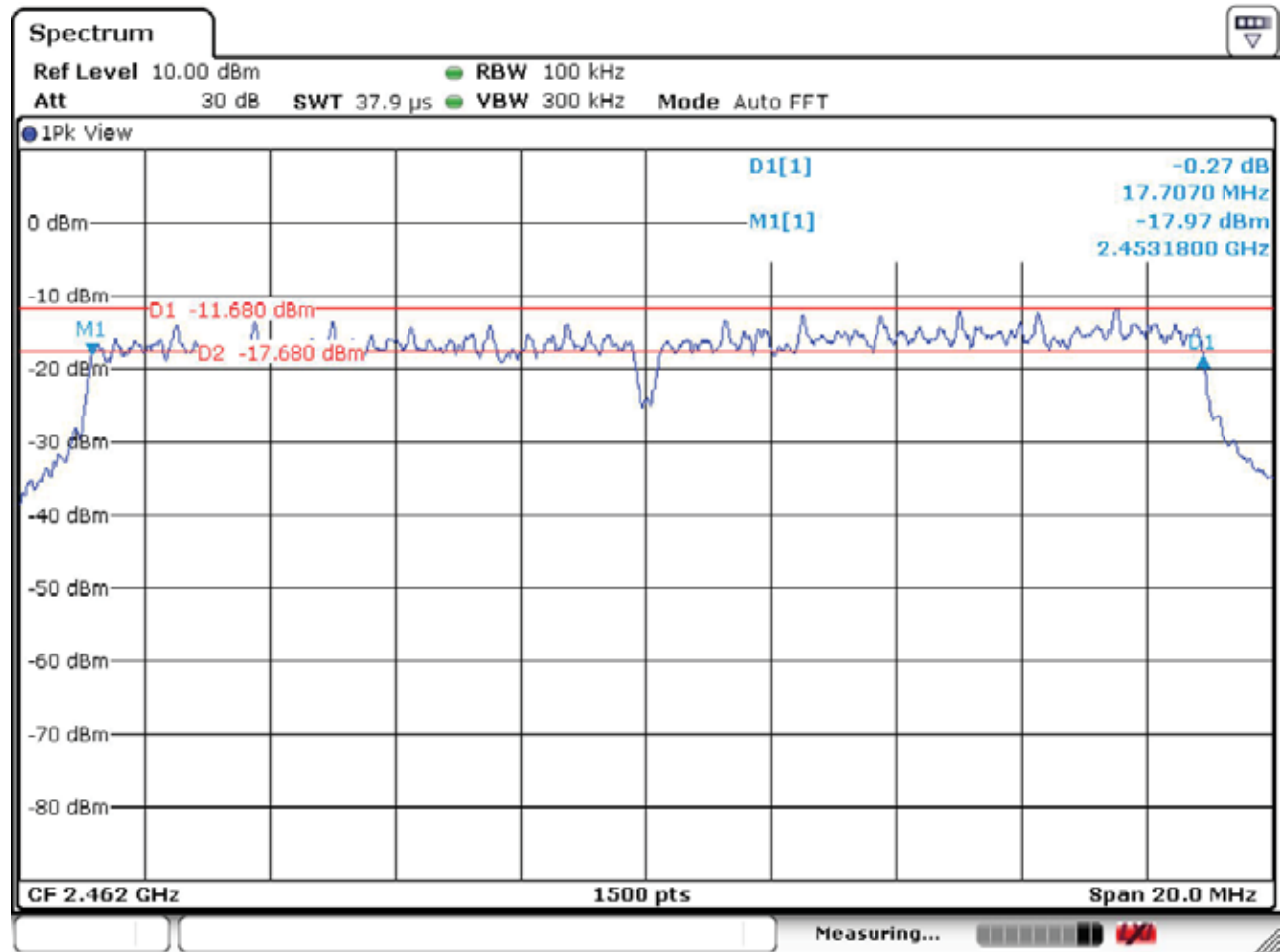
Tested by : Kidd Liao

Test Mode : 802.11n HT(20)

Channel : CH06 (2437MHz)



Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Test Mode	: 802.11n HT(20)	Channel	: CH11 (2462MHz)





Temperature : 26.9°C

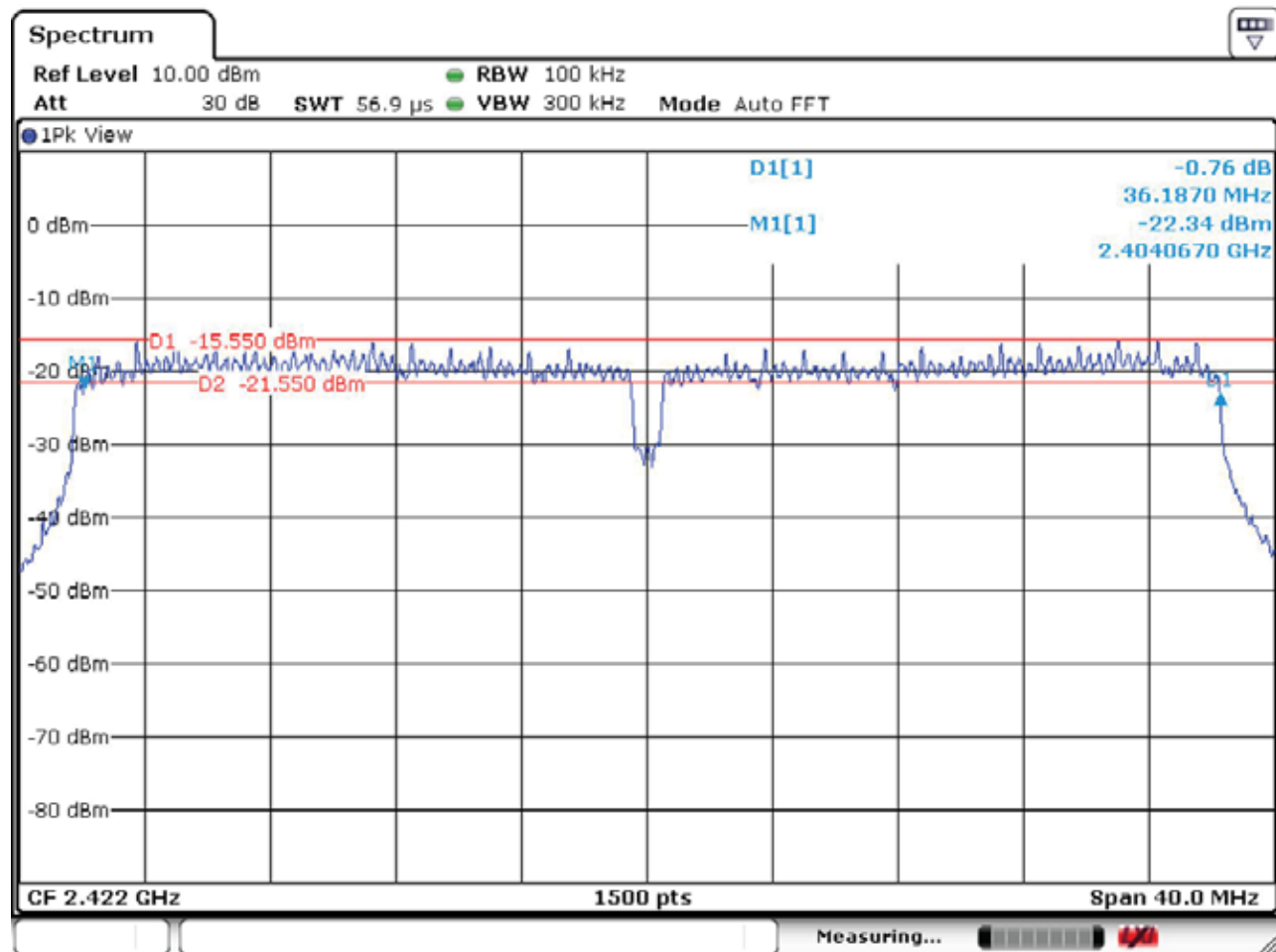
Humidity : 39%

Test Date : 06-Jul-2015

Tested by : Kidd Liao

Test Mode : 802.11n HT(40)

Channel : CH03 (2422MHz)





Temperature : 26.9°C

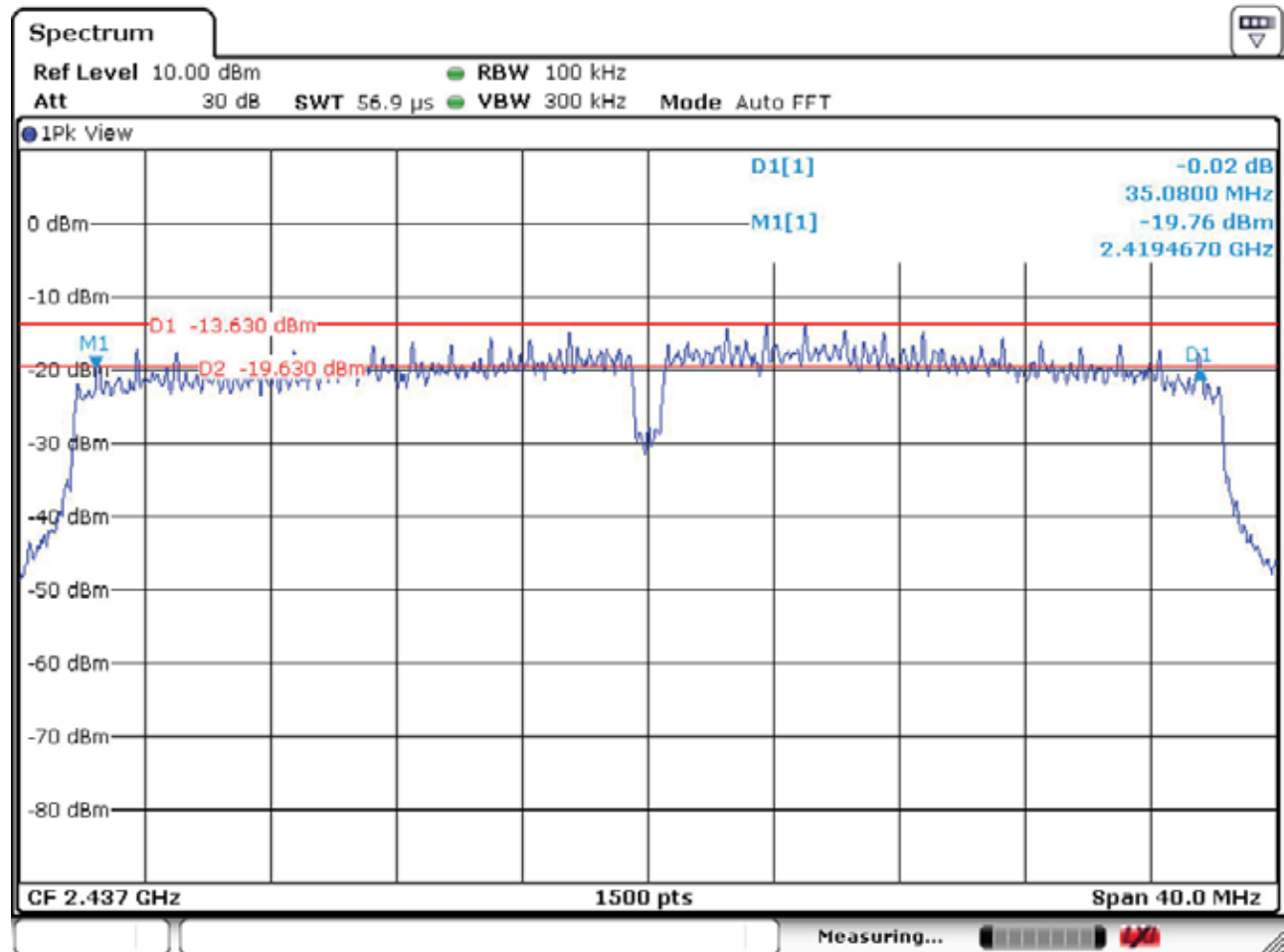
Humidity : 39%

Test Date : 06-Jul-2015

Tested by : Kidd Liao

Test Mode : 802.11n HT(40)

Channel : CH06 (2437MHz)





Temperature : 26.9°C

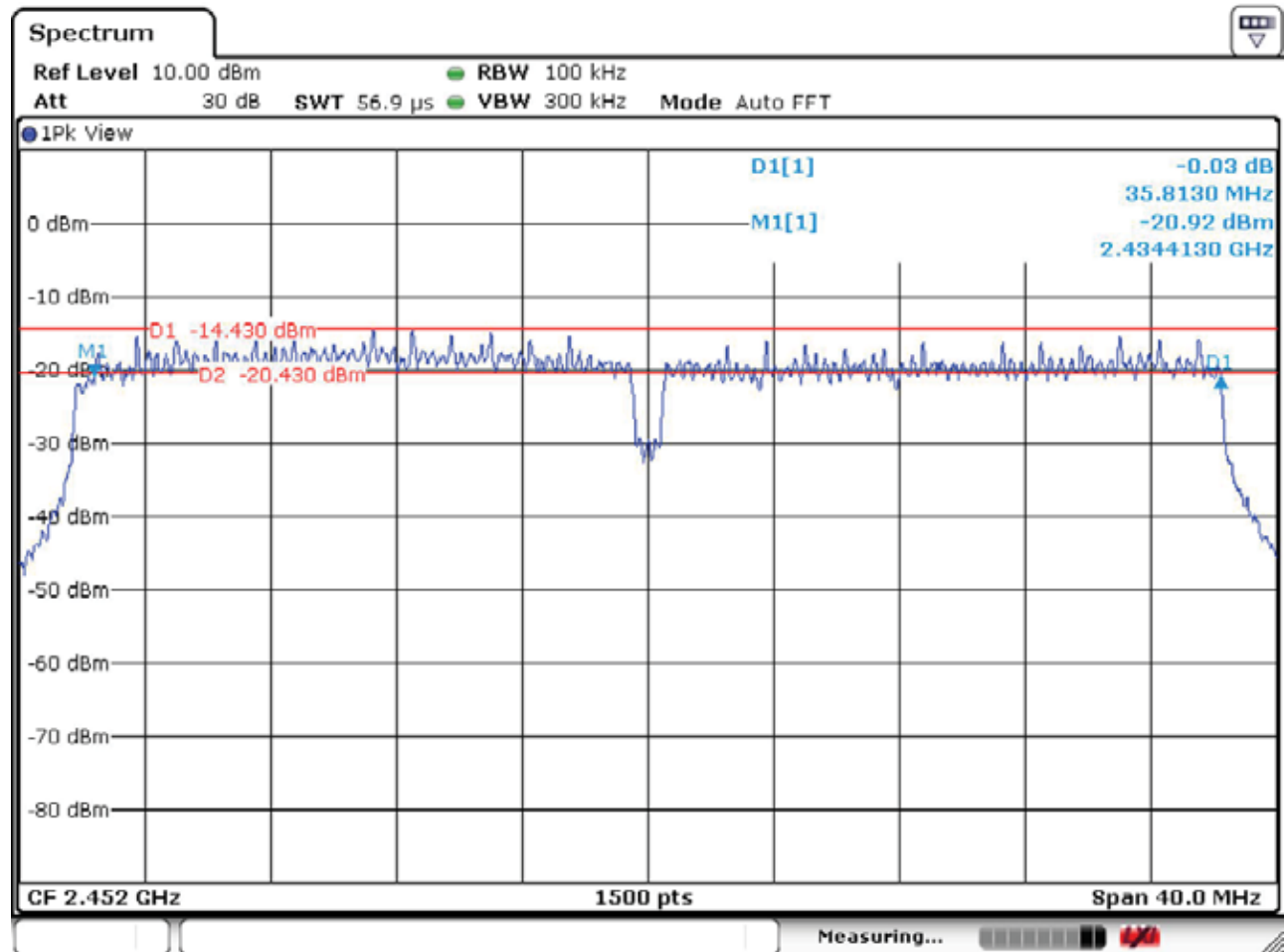
Humidity : 39%

Test Date : 06-Jul-2015

Tested by : Kidd Liao

Test Mode : 802.11n HT(40)

Channel : CH09 (2452MHz)



5 Maximum Conducted Output Power

5.1 Test Instruments

Refer to Sec. 1.2 Test Instruments.

5.2 Test Arrangement



5.3 Test Procedure

1. To perform the measurement of maximum conducted (Peak) output power, firstly, connect the EUT to Wide Band Power Sensor.
2. Then, configure the EUT to transmit continuously and to transmit at its maximum power level.
3. Finally, capture the Maximum reading from PC.
4. Test method in Section 11.9.2.3 of ANSI C63.10 (2013) was used to measure the output power.

5.4 Limit (§ 15.247(b)(3))

For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt.

5.5 Test Result

Compliance

The final test data are shown on the following page(s).

Temperature : 26.9℃

Humidity : 39%

Test Date : 06-Jul-2015

Tested by : Kidd Liao

Test Mode : 802.11 b

Test Channel	Frequency (MHz)	Test Result		Limit	
		(dBm)	(W)	(dBm)	(W)
01	2412	2.26	0.001682	30	1
06	2437	1.60	0.001445	30	1
11	2462	2.02	0.001592	30	1

Test Mode : 802.11 g

Test Channel	Frequency (MHz)	Test Result		Limit	
		(dBm)	(W)	(dBm)	(W)
01	2412	-4.31	0.000370	30	1
06	2437	-3.81	0.000415	30	1
11	2462	-3.75	0.000421	30	1

Test Mode : 802.11 n HT(20)

Test Channel	Frequency (MHz)	Test Result		Limit	
		(dBm)	(W)	(dBm)	(W)
01	2412	-3.50	0.000446	30	1
06	2437	-4.52	0.000353	30	1
11	2462	-3.46	0.000450	30	1

Test Mode : 802.11n HT(40)

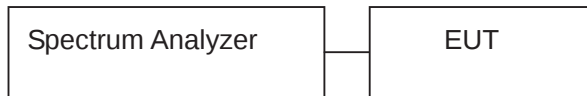
Test Channel	Frequency (MHz)	Test Result		Limit	
		(dBm)	(W)	(dBm)	(W)
03	2422	-6.53	0.000222	30	1
06	2437	-5.29	0.000295	30	1
09	2452	-5.93	0.000255	30	1

6 Out of Band Emission Test

6.1 Test Instruments

Refer to Sec. 1.2 Test Instruments.

6.2 Test Arrangement



6.3 Test Procedure

1. Connect the EUT to spectrum analyzer through appropriate attenuator.
2. Spectrum setting; RMB = 100 kHz; VBW = 300 kHz.
3. Span ≥ 1.5 time DTS BW.
4. Detector = Peak.
5. Trace = Max Hold.

6.4 Limit (§ 15.247(d))

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in § 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).

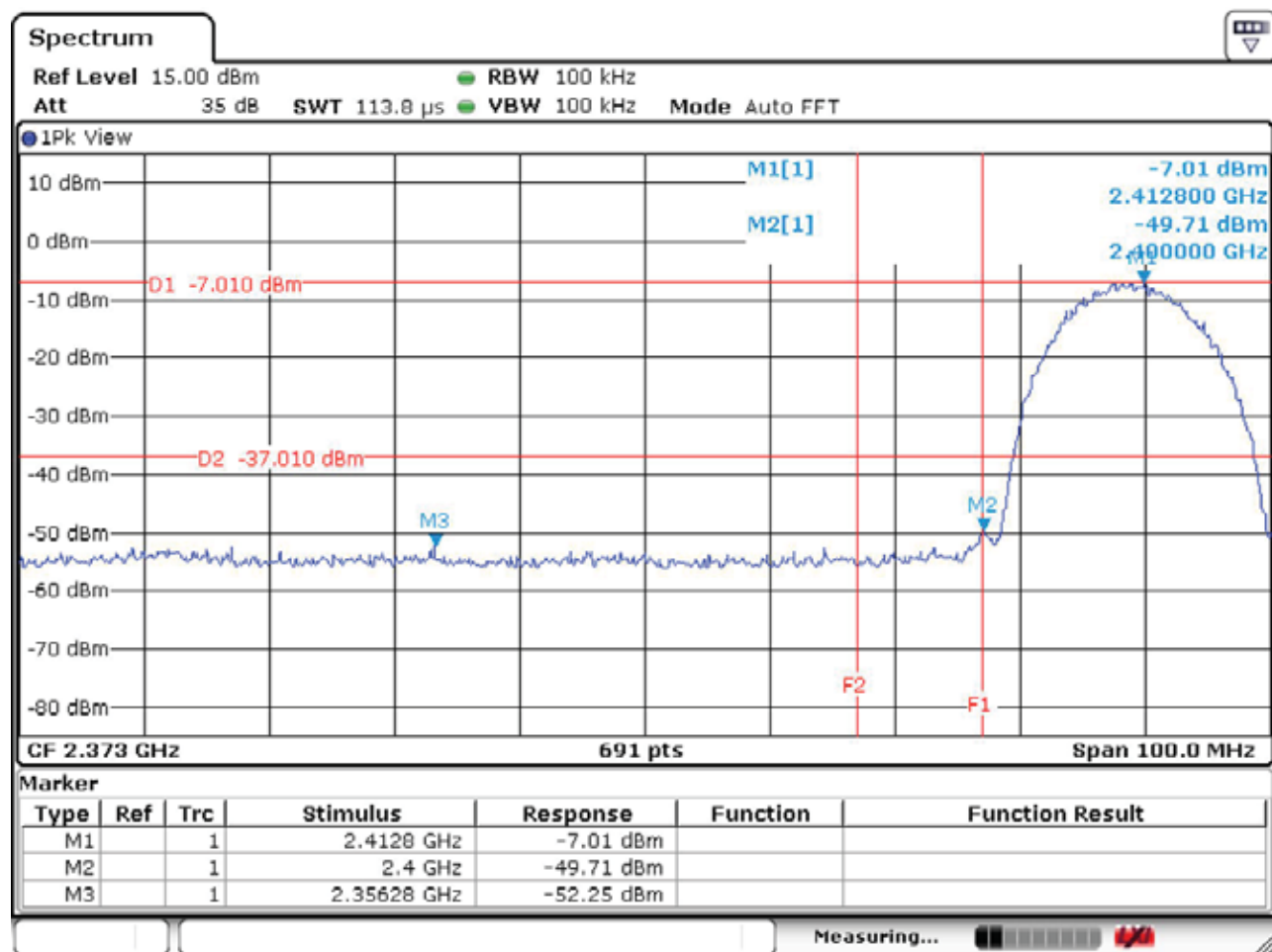
6.5 Test Result

Compliance

The final test data are shown on the following page(s).

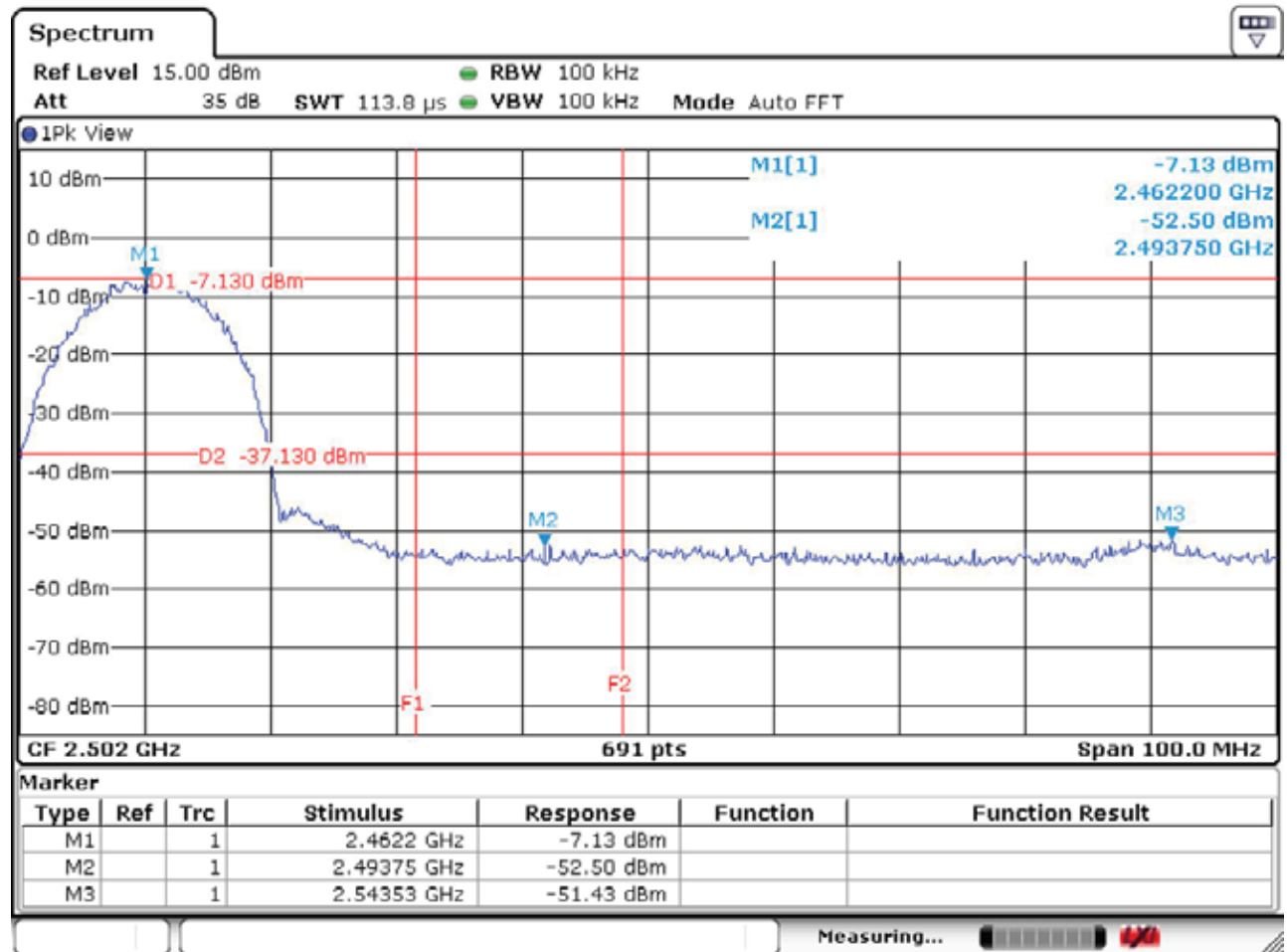
Band-Edge Test Data (Lower Edge)

Temperature : 26.9°C Humidity : 39%
Test Date : 06-Jul-2015 Tested by : Kidd Liao
Test Mode : Mode 1 (802.11b) Channel : CH01 (2412 MHz)



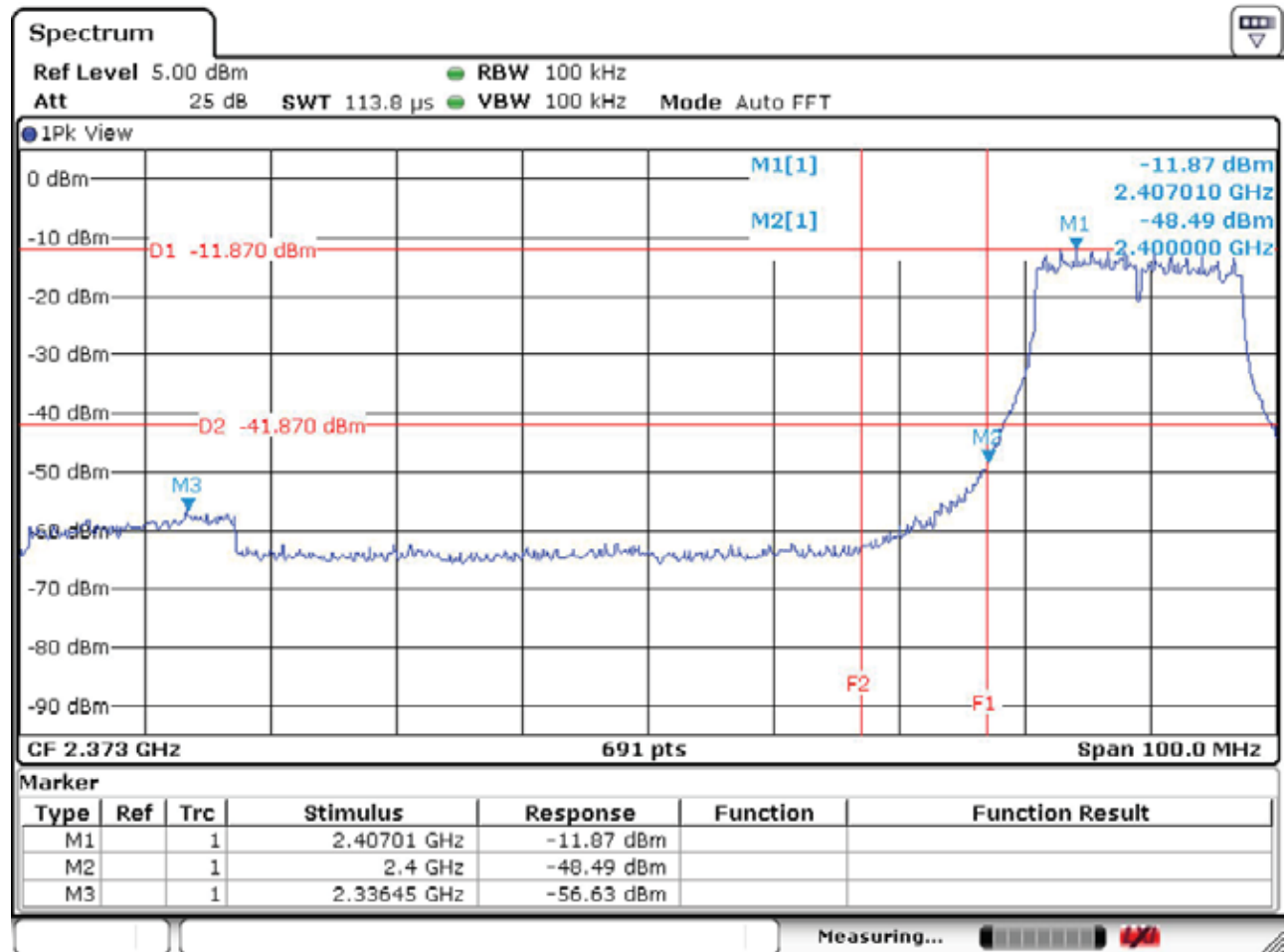
Band-Edge Test Data (Upper Edge)

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Test Mode	: Mode 3 (802.11b)	Channel	: CH11 (2462 MHz)



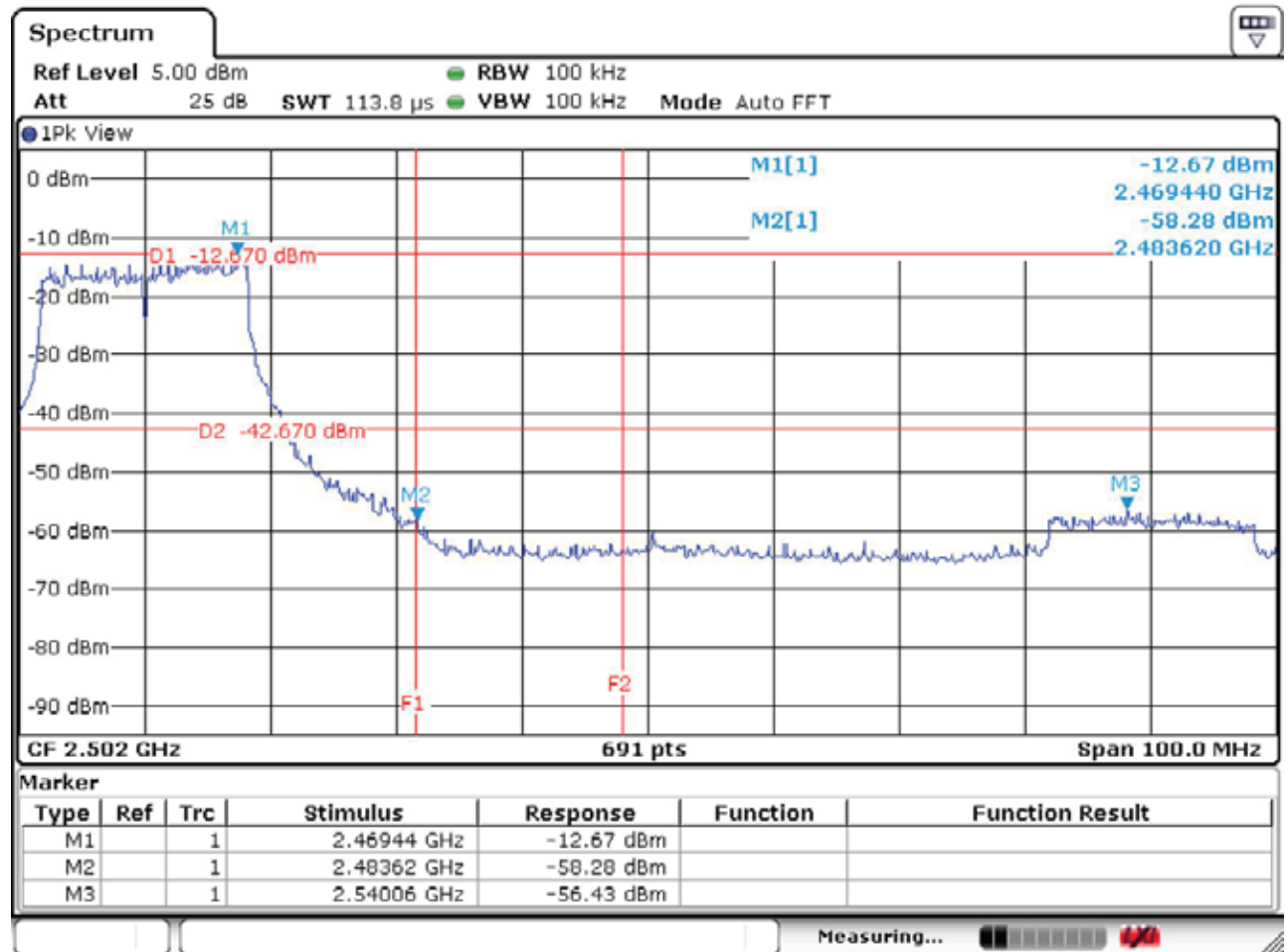
Band-Edge Test Data (Lower Edge)

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Test Mode	: Mode 4 (802.11g)	Channel	: CH01 (2412 MHz)



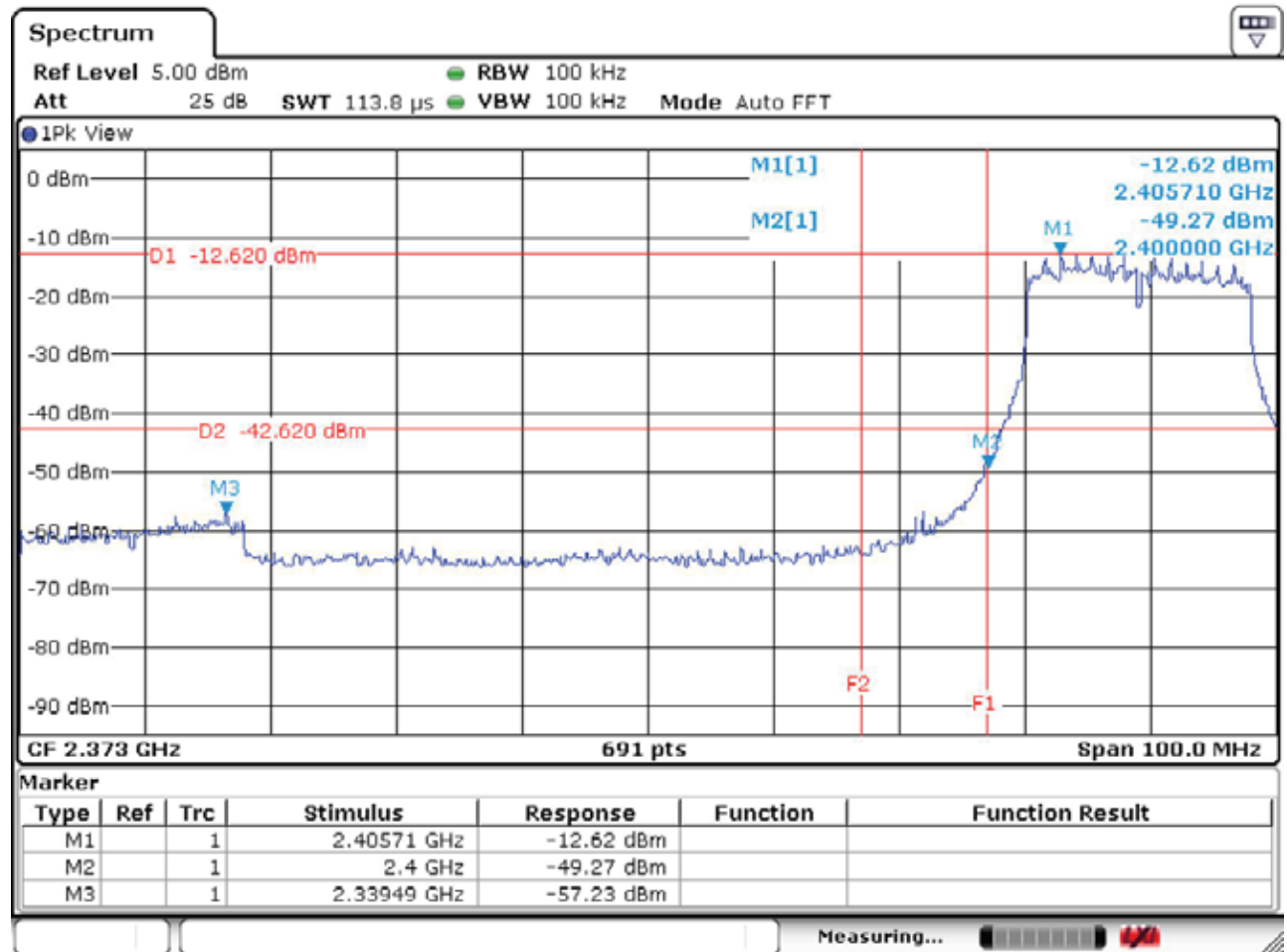
Band-Edge Test Data (Upper Edge)

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Test Mode	: Mode 6 (802.11g)	Channel	: CH11 (2462 MHz)



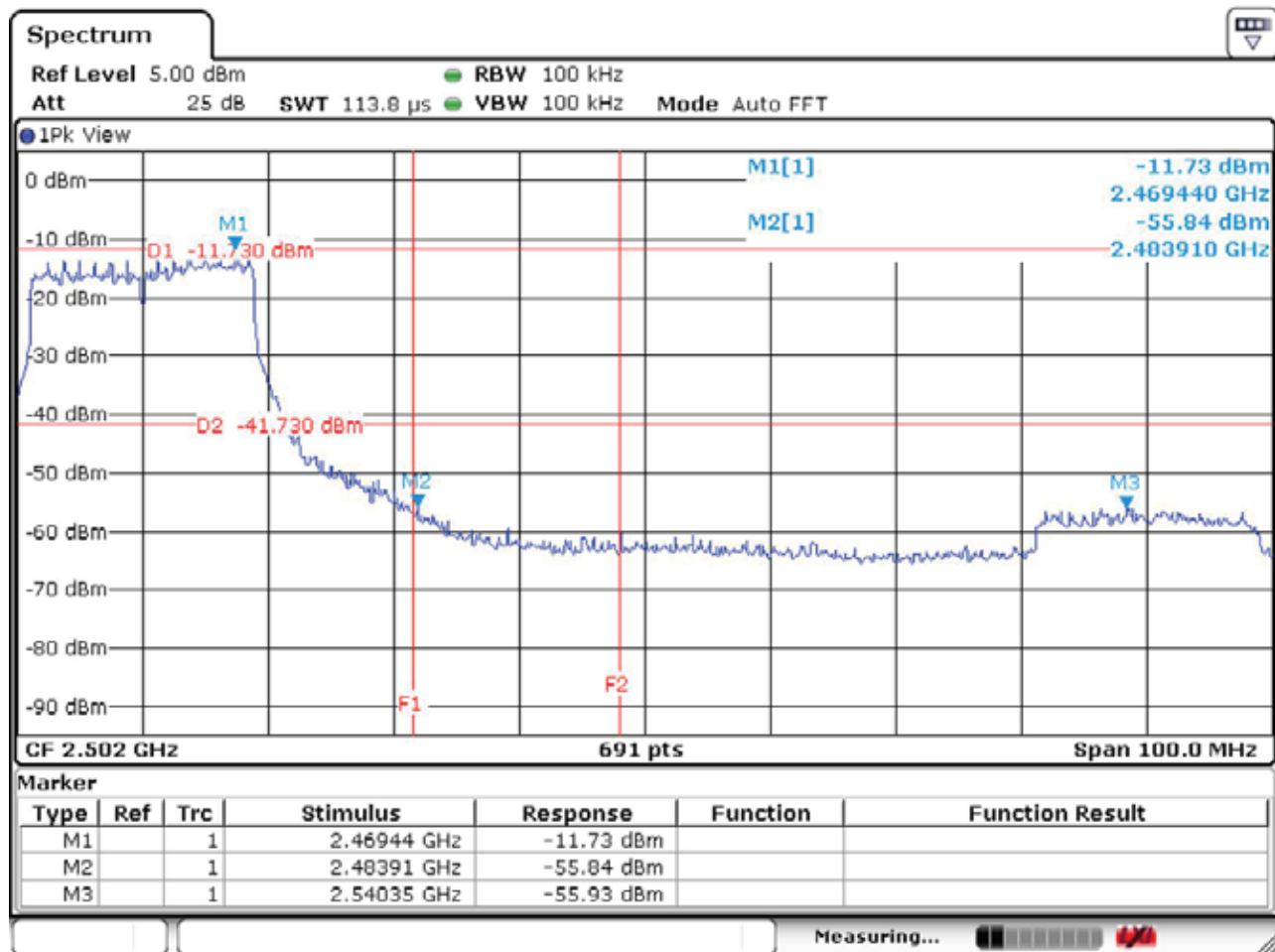
Band-Edge Test Data (Lower Edge)

Temperature : 26.9°C Humidity : 39%
 Test Date : 06-Jul-2015 Tested by : Kidd Liao
 Test Mode : Mode 7 (802.11n 20M) Channel : CH01 (2412 MHz)



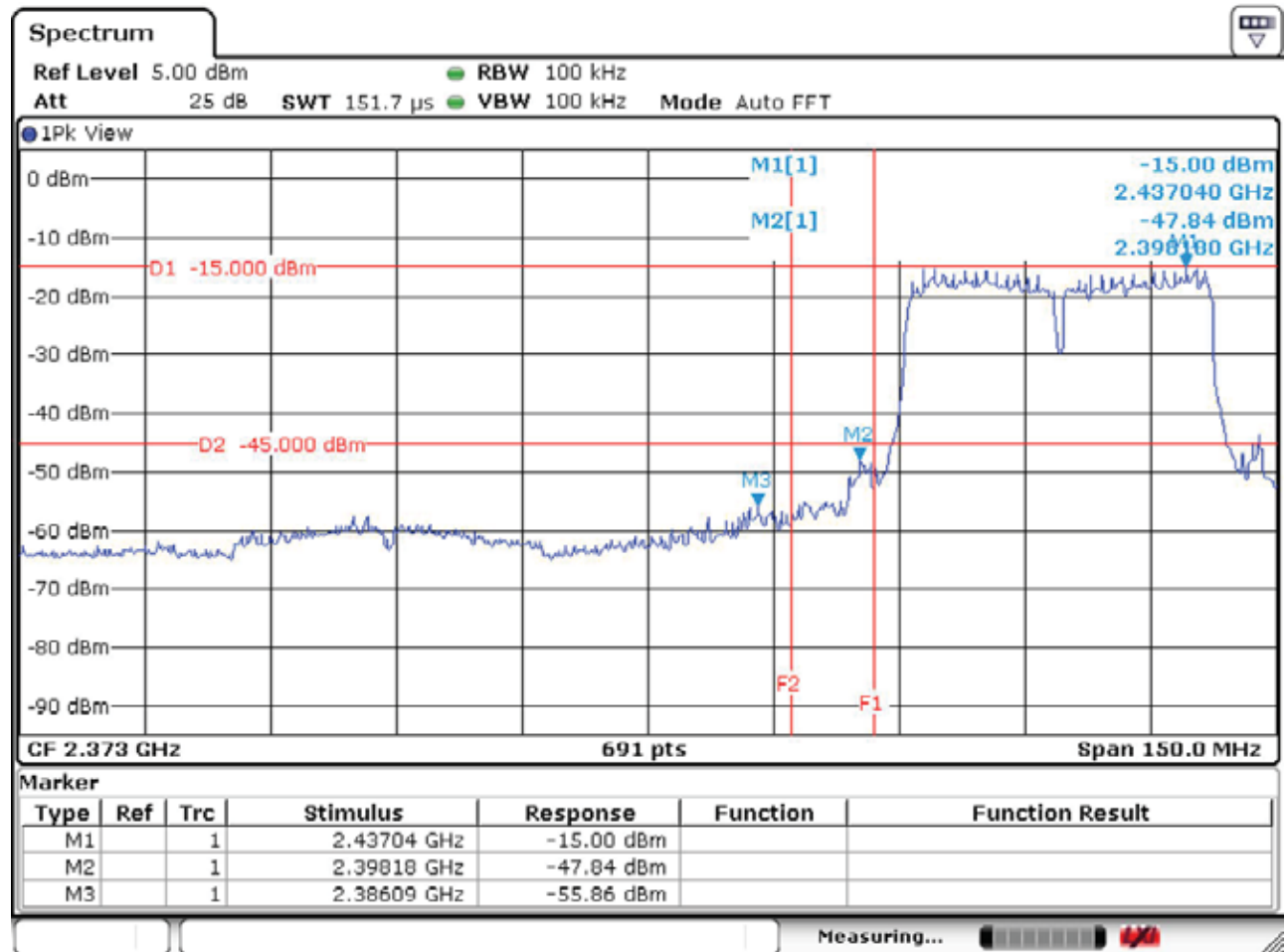
Band-Edge Test Data (Upper Edge)

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Test Mode	: Mode 9 (802.11n 20M)	Channel	: CH11 (2462 MHz)



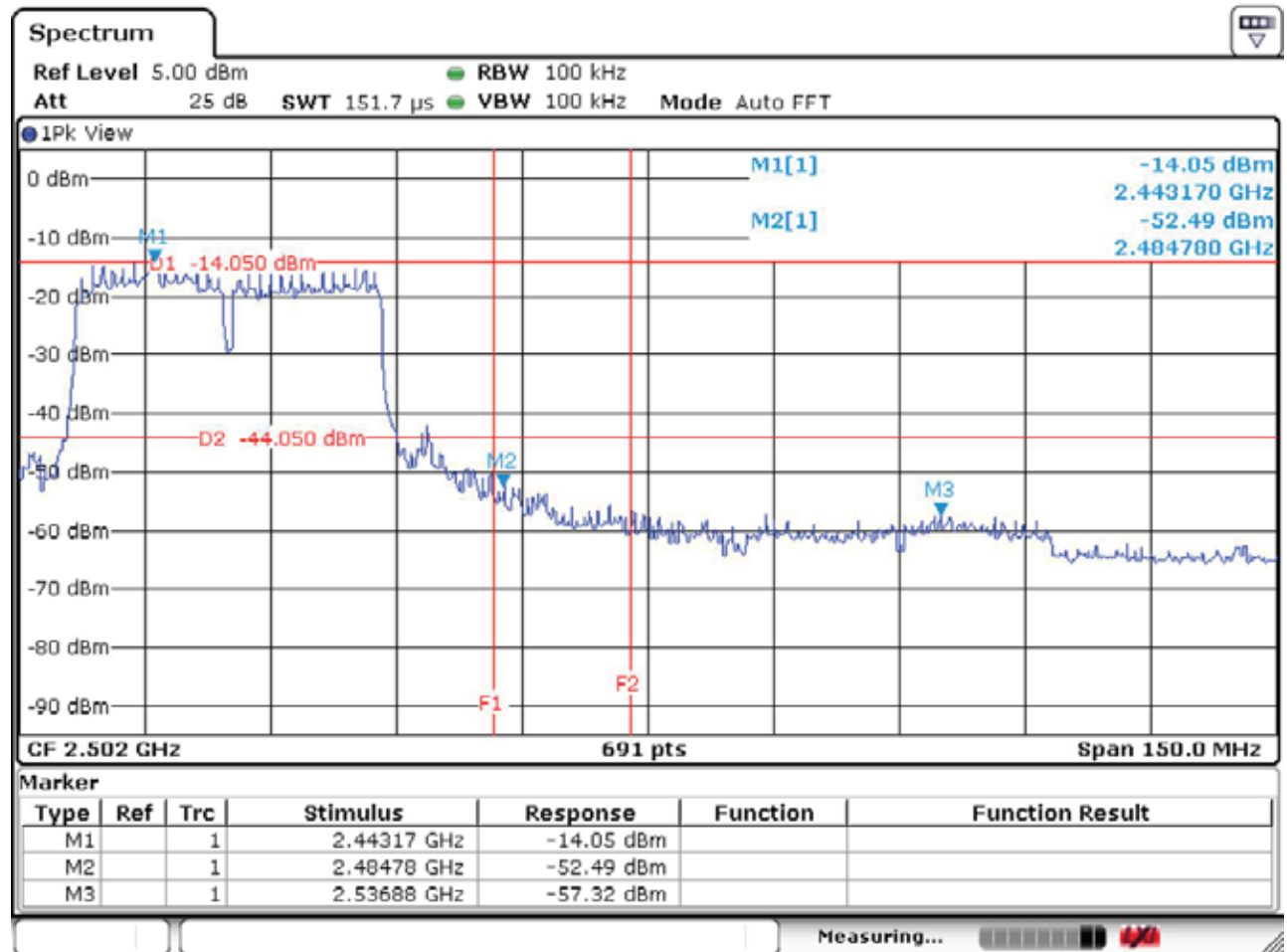
Band-Edge Test Data (Lower Edge)

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Test Mode	: Mode 10 (802.11n 40M)	Channel	: CH03 (2422 MHz)



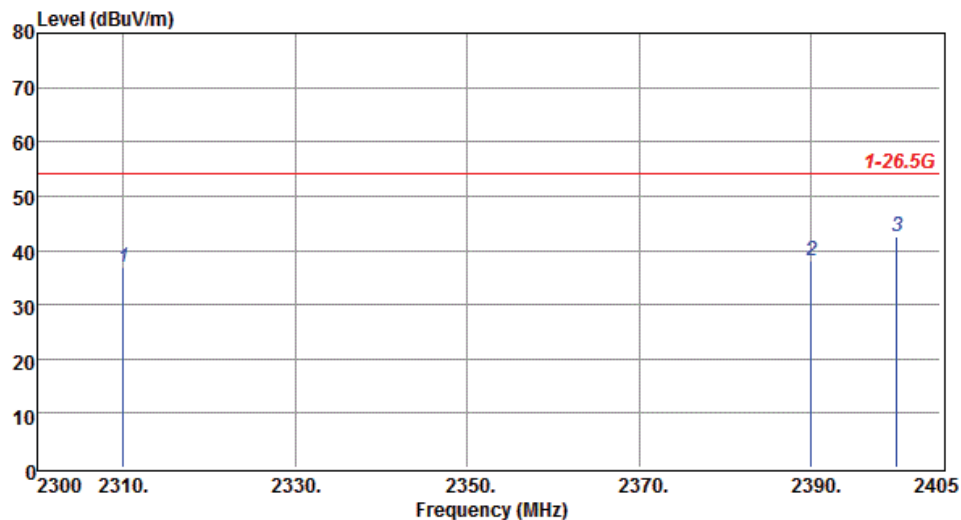
Band-Edge Test Data (Upper Edge)

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Test Mode	: Mode 12 (802.11n 40M)	Channel	: CH09 (2452 MHz)



**Radiated Emission in the Restricted Band Test Data (Lower Edge)**

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Test Mode	: Mode 1 (802.11b)	Channel	: CH01 (2412 MHz)
Polarization	: Horizontal		



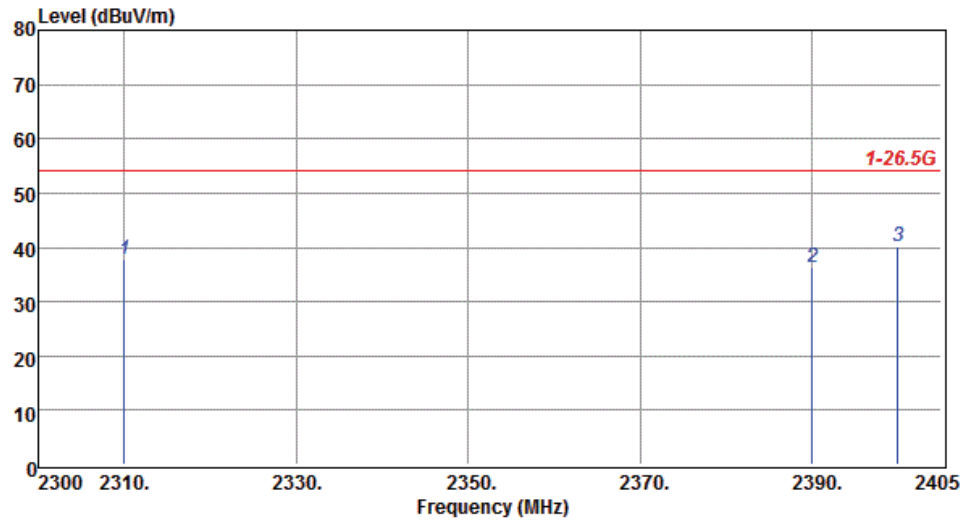
Freq	Reading	C.F	Result	Limit	Margin	A/H	T/P	Polarity	Remark
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	deg		
2309.98	44.84	-7.88	36.96	54.00	17.0	-----		HORIZONTAL	Peak
2389.99	45.83	-7.63	38.20	54.00	15.8	-----		HORIZONTAL	Peak
2399.96	50.16	-7.63	42.53	54.00	11.4	-----		HORIZONTAL	Peak

Note1: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

Note2: Margin = Limit - Result

Radiated Emission in the Restricted Band Test Data (Lower Edge)

Temperature : 26.9°C Humidity : 39%
 Test Date : 06-Jul-2015 Tested by : Kidd Liao
 Test Mode : Mode 1 (802.11b) Channel : CH01 (2412 MHz)
 Polarization : Vertical



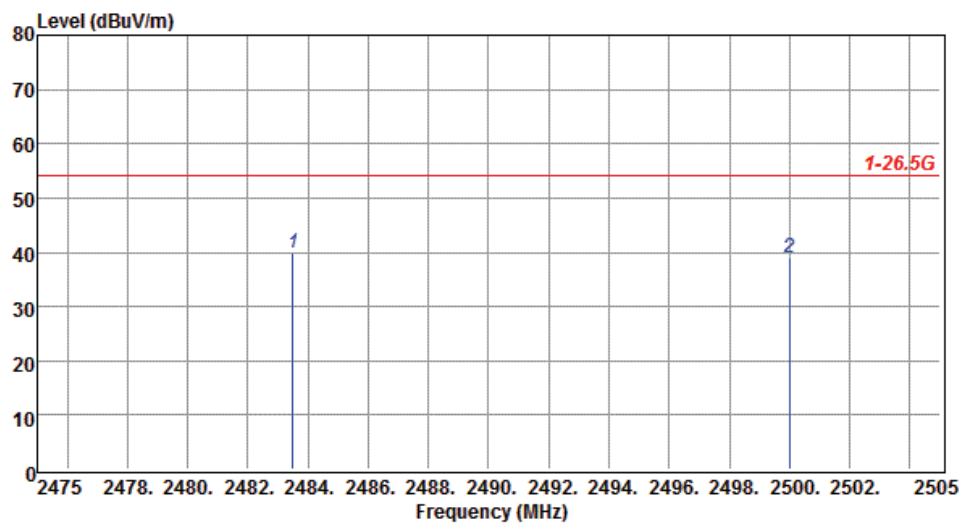
Freq	Reading	C.F	Result	Limit	Margin	A/H	T/P	Polarity	Remark
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	deg		
2309.98	45.60	-7.88	37.72	54.00	16.2			VERTICAL	Peak
2389.99	44.02	-7.63	36.39	54.00	17.6			VERTICAL	Peak
2399.96	47.88	-7.63	40.25	54.00	13.7			VERTICAL	Peak

Note1: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

Note2: Margin = Limit - Result

**Radiated Emission in the Restricted Band Test Data (Upper Edge)**

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Test Mode	: Mode 3 (802.11b)	Channel	: CH11 (2462 MHz)
Polarization	: Horizontal		



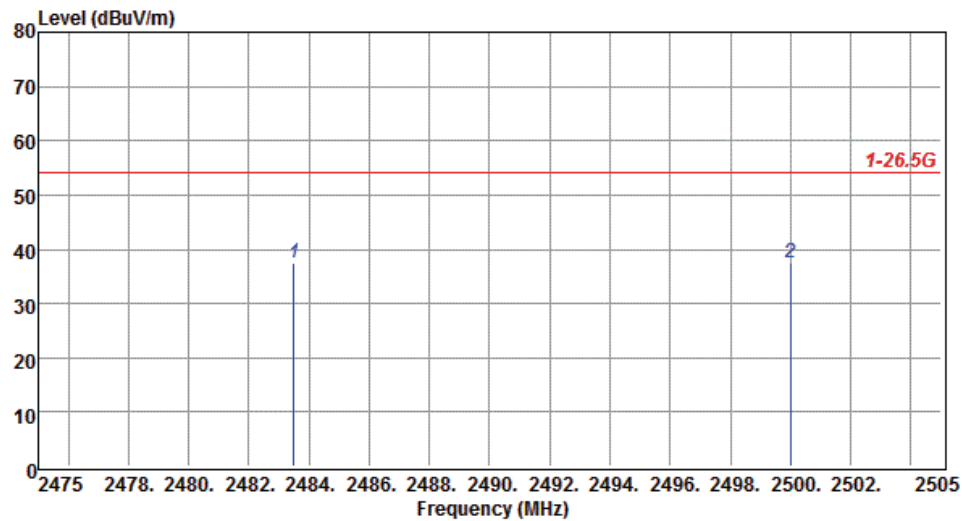
Freq	Reading	C.F	Result	Limit	Margin	A/H	T/P	Polarity	Remark
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	deg		
2483.49	47.22	-7.39	39.83	54.00	14.1	-----		HORIZONTAL	Peak
2499.99	46.20	-7.33	38.87	54.00	15.1	-----		HORIZONTAL	Peak

Note1: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

Note2: Margin = Limit - Result

Radiated Emission in the Restricted Band Test Data (Upper Edge)

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Test Mode	: Mode 3 (802.11b)	Channel	: CH11 (2462 MHz)
Polarization	: Vertical		



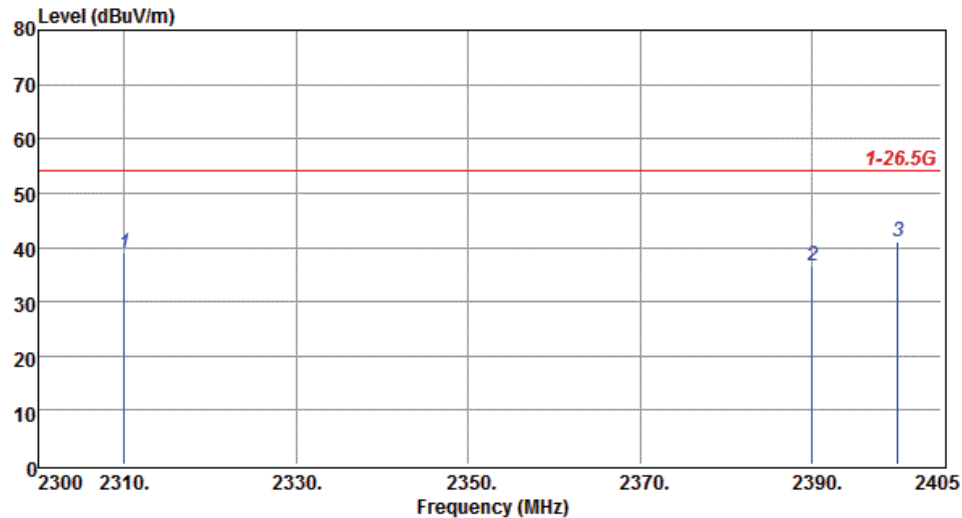
Freq	Reading	C.F	Result	Limit	Margin	A/H	T/P	Polarity	Remark
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	deg		
2483.49	44.94	-7.39	37.55	54.00	16.4	-----		VERTICAL	Peak
2499.99	44.78	-7.33	37.45	54.00	16.5	-----		VERTICAL	Peak

Note1: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

Note2: Margin = Limit - Result

Radiated Emission in the Restricted Band Test Data (Lower Edge)

Temperature : 26.9°C Humidity : 39%
 Test Date : 06-Jul-2015 Tested by : Kidd Liao
 Test Mode : Mode 4 (802.11g) Channel : CH01 (2412 MHz)
 Polarization : Horizontal



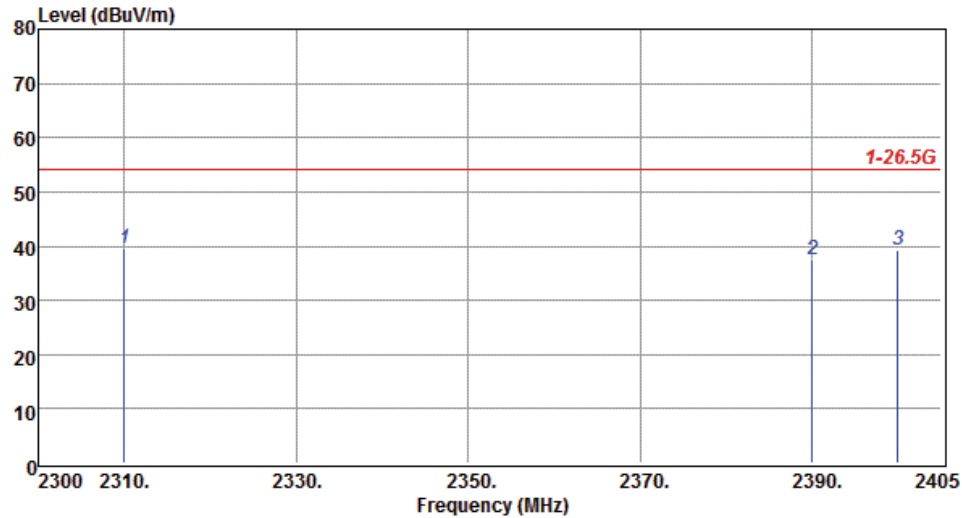
Freq	Reading	C.F	Result	Limit	Margin	A/H	T/P	Polarity	Remark
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	deg		
2309.98	46.98	-7.88	39.10	54.00	14.9			HORIZONTAL	Peak
2389.99	44.27	-7.63	36.64	54.00	17.3			HORIZONTAL	Peak
2399.96	48.53	-7.63	40.90	54.00	13.1			HORIZONTAL	Peak

Note1: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

Note2: Margin = Limit - Result

**Radiated Emission in the Restricted Band Test Data (Lower Edge)**

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Test Mode	: Mode 4 (802.11g)	Channel	: CH01 (2412 MHz)
Polarization	: Vertical		



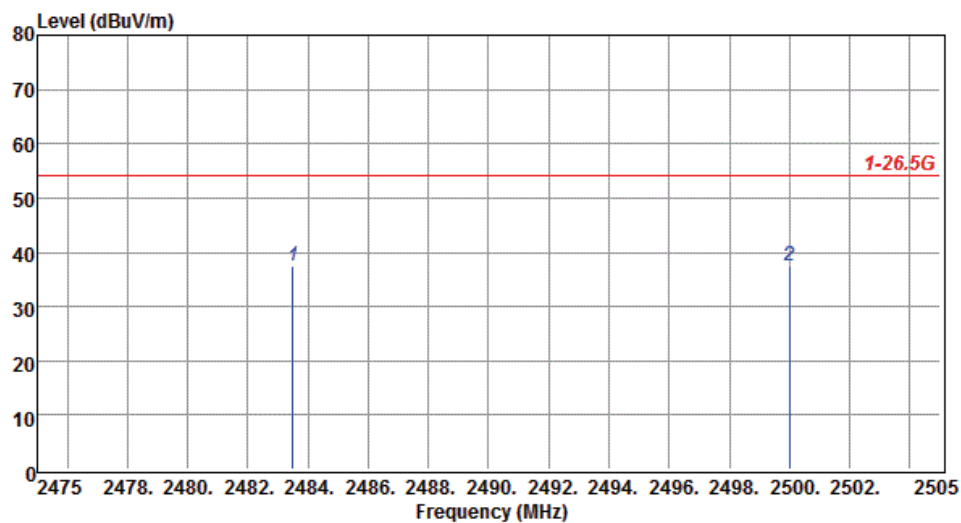
Freq	Reading	C.F	Result	Limit	Margin	A/H	T/P	Polarity	Remark
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	deg		
2309.98	47.30	-7.88	39.42	54.00	14.5	-----		VERTICAL	Peak
2389.99	45.05	-7.63	37.42	54.00	16.5	-----		VERTICAL	Peak
2399.96	46.84	-7.63	39.21	54.00	14.7	-----		VERTICAL	Peak

Note1: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

Note2: Margin = Limit - Result

**Radiated Emission in the Restricted Band Test Data (Upper Edge)**

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Test Mode	: Mode 6 (802.11g)	Channel	: CH11 (2462 MHz)
Polarization	: Horizontal		



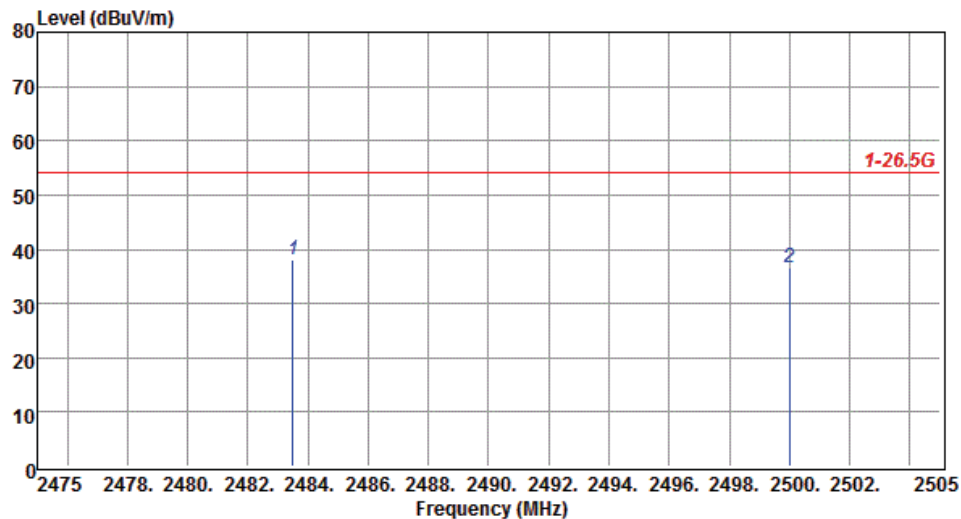
Freq	Reading	C.F	Result	Limit	Margin	A/H	T/P	Polarity	Remark
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	deg		
2483.49	44.86	-7.39	37.47	54.00	16.5	-----		HORIZONTAL	Peak
2499.99	44.94	-7.33	37.61	54.00	16.3	-----		HORIZONTAL	Peak

Note1: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

Note2: Margin = Limit - Result

**Radiated Emission in the Restricted Band Test Data (Upper Edge)**

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Test Mode	: Mode 6 (802.11g)	Channel	: CH11 (2462 MHz)
Polarization	: Vertical		



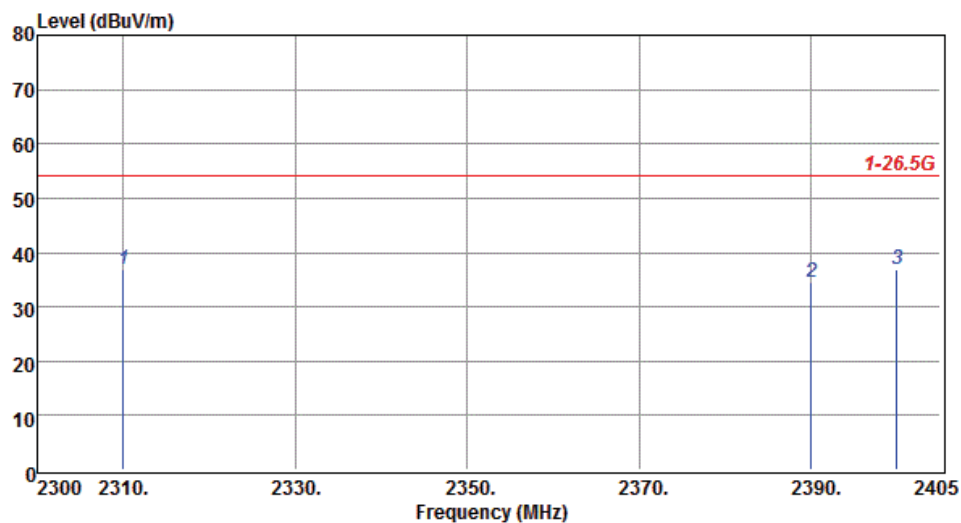
Freq	Reading	C.F	Result	Limit	Margin	A/H	T/P	Polarity	Remark
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	deg		
2483.49	45.58	-7.39	38.19	54.00	15.8	-----		VERTICAL	Peak
2499.99	43.88	-7.33	36.55	54.00	17.4	-----		VERTICAL	Peak

Note1: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

Note2: Margin = Limit - Result

**Radiated Emission in the Restricted Band Test Data (Lower Edge)**

Temperature : 26.9°C Humidity : 39%
Test Date : 06-Jul-2015 Tested by : Kidd Liao
Test Mode : Mode 7 (802.11n 20M) Channel : CH01 (2412 MHz)
Polarization : Horizontal



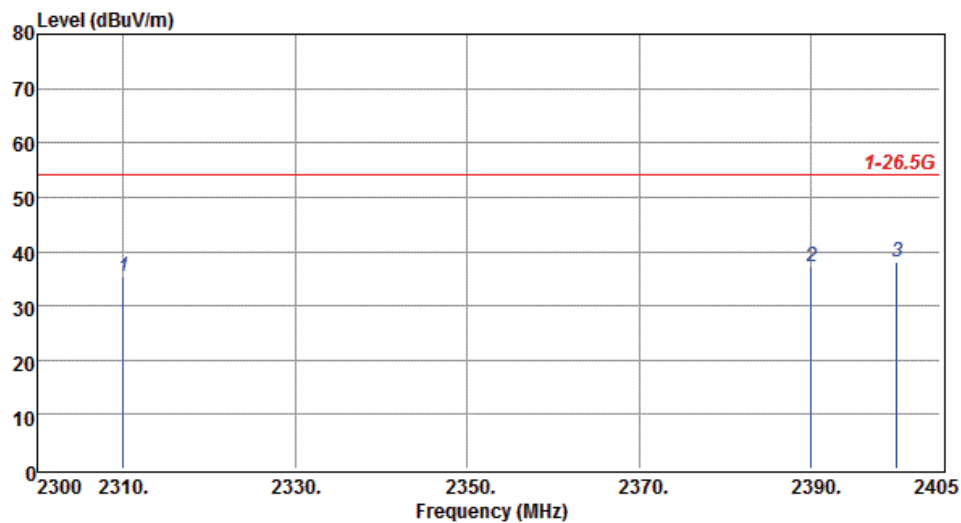
Freq	Reading	C.F	Result	Limit	Margin	A/H	T/P	Polarity	Remark
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	deg		
2309.98	44.80	-7.88	36.92	54.00	17.0	-----		HORIZONTAL	Peak
2389.99	42.04	-7.63	34.41	54.00	19.5	-----		HORIZONTAL	Peak
2399.96	44.64	-7.63	37.01	54.00	16.9	-----		HORIZONTAL	Peak

Note1: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

Note2: Margin = Limit - Result

**Radiated Emission in the Restricted Band Test Data (Lower Edge)**

Temperature : 26.9°C Humidity : 39%
Test Date : 06-Jul-2015 Tested by : Kidd Liao
Test Mode : Mode 7 (802.11n 20M) Channel : CH01 (2412 MHz)
Polarization : Vertical



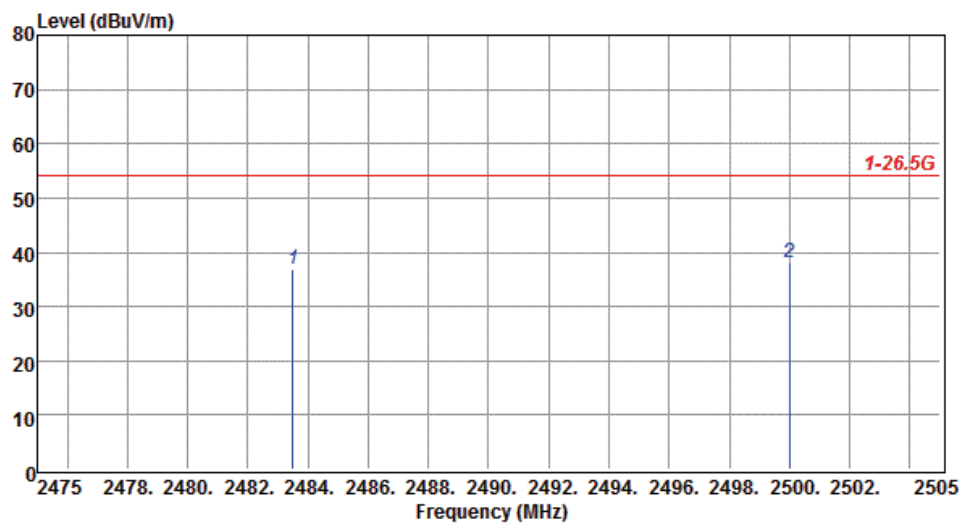
Freq	Reading	C.F	Result	Limit	Margin	A/H	T/P	Polarity	Remark
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	deg		
2309.98	43.18	-7.88	35.30	54.00	18.7			VERTICAL	Peak
2389.99	44.66	-7.63	37.03	54.00	16.9			VERTICAL	Peak
2399.96	45.64	-7.63	38.01	54.00	15.9			VERTICAL	Peak

Note1: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

Note2: Margin = Limit - Result

**Radiated Emission in the Restricted Band Test Data (Upper Edge)**

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Test Mode	: Mode 9 (802.11n 20M)	Channel	: CH11 (2462 MHz)
Polarization	: Horizontal		



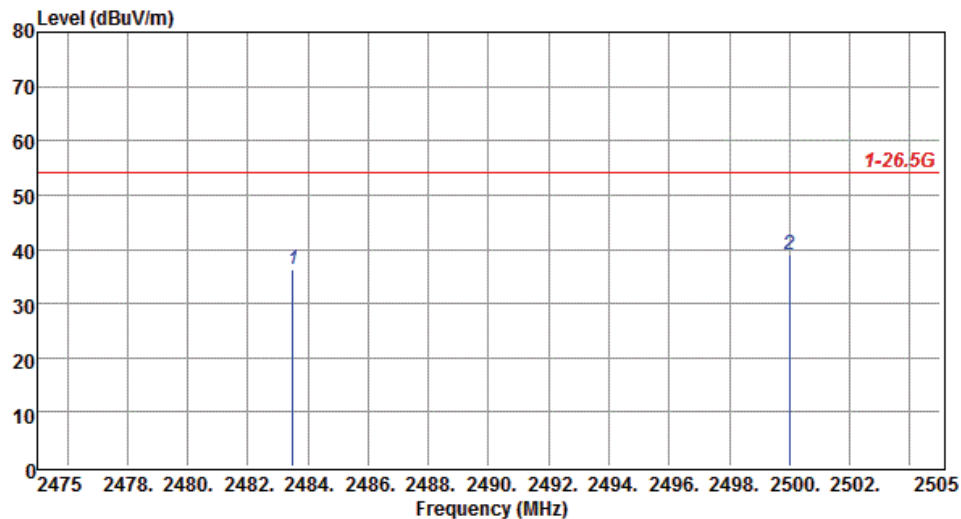
Freq	Reading	C.F	Result	Limit	Margin	A/H	T/P	Polarity	Remark
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	deg		
2483.49	44.22	-7.39	36.83	54.00	17.1	-----		HORIZONTAL	Peak
2499.99	45.29	-7.33	37.96	54.00	16.0	-----		HORIZONTAL	Peak

Note1: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

Note2: Margin = Limit - Result

**Radiated Emission in the Restricted Band Test Data (Upper Edge)**

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Test Mode	: Mode 9 (802.11n 20M)	Channel	: CH11 (2462 MHz)
Polarization	: Vertical		



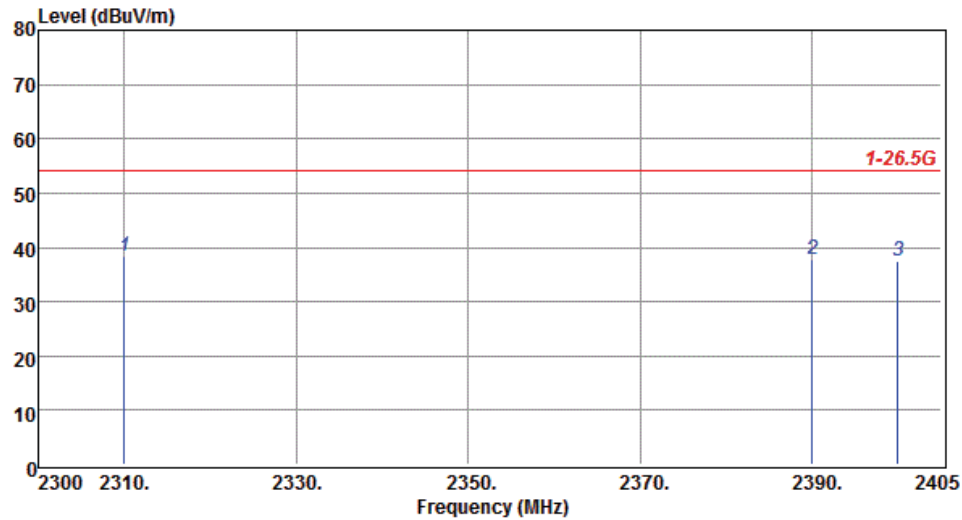
Freq	Reading	C.F	Result	Limit	Margin	A/H	T/P	Polarity	Remark
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	deg		
2483.49	43.65	-7.39	36.26	54.00	17.7	-----		VERTICAL	Peak
2499.99	46.38	-7.33	39.05	54.00	14.9	-----		VERTICAL	Peak

Note1: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

Note2: Margin = Limit - Result

Radiated Emission in the Restricted Band Test Data (Lower Edge)

Temperature : 26.9°C Humidity : 39%
 Test Date : 06-Jul-2015 Tested by : Kidd Liao
 Test Mode : Mode 10 (802.11n 40M) Channel : CH03 (2422 MHz)
 Polarization : Horizontal



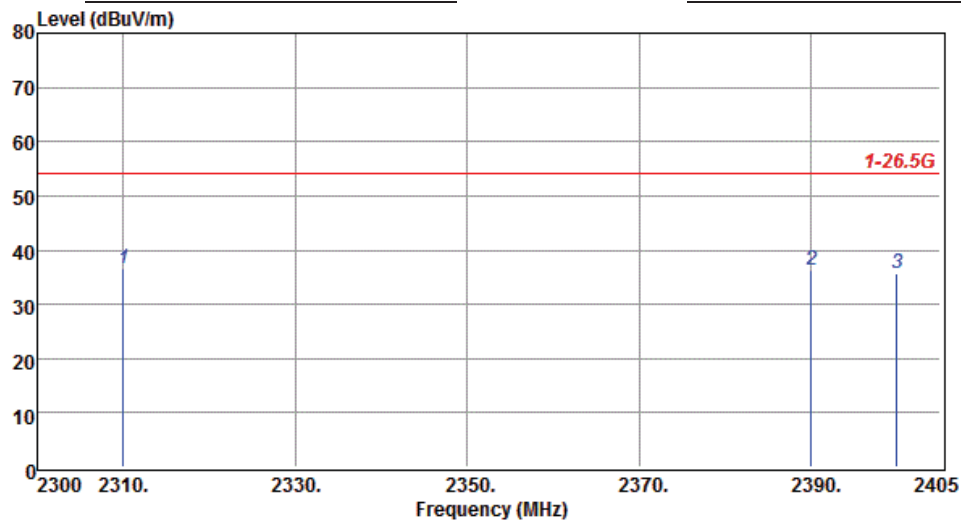
Freq	Reading	C.F	Result	Limit	Margin	A/H	T/P	Polarity	Remark
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	deg		
2309.98	46.19	-7.88	38.31	54.00	15.6	-----		HORIZONTAL	Peak
2389.99	45.42	-7.63	37.79	54.00	16.2	-----		HORIZONTAL	Peak
2399.96	45.15	-7.63	37.52	54.00	16.4	-----		HORIZONTAL	Peak

Note1: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

Note2: Margin = Limit - Result

**Radiated Emission in the Restricted Band Test Data (Lower Edge)**

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Test Mode	: Mode 10 (802.11n 40M)	Channel	: CH03 (2422 MHz)
Polarization	: Vertical		



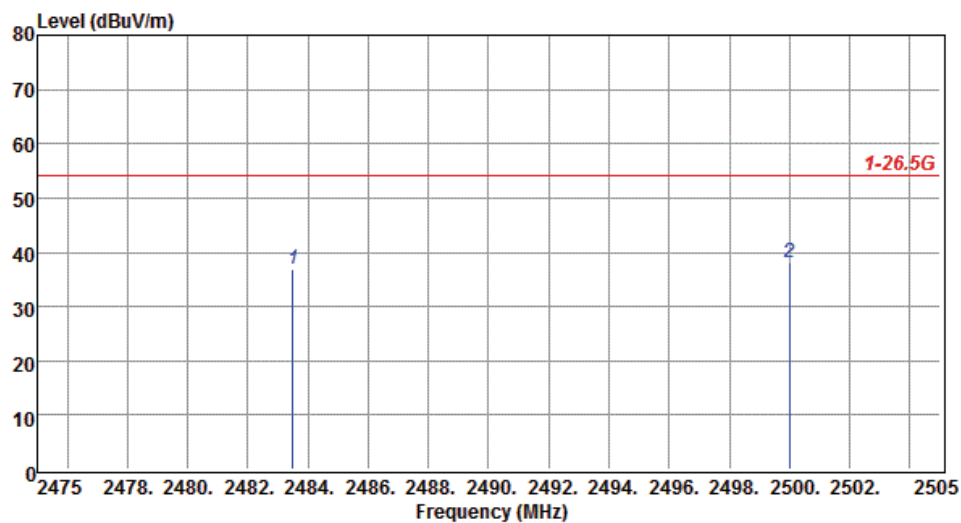
Freq	Reading	C.F	Result	Limit	Margin	A/H	T/P	Polarity	Remark
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	deg		
2309.98	44.54	-7.88	36.66	54.00	17.3	-----		VERTICAL	Peak
2389.99	43.78	-7.63	36.15	54.00	17.8	-----		VERTICAL	Peak
2399.96	43.23	-7.63	35.60	54.00	18.4	-----		VERTICAL	Peak

Note1: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

Note2: Margin = Limit - Result

**Radiated Emission in the Restricted Band Test Data (Upper Edge)**

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Test Mode	: Mode 12 (802.11n 40M)	Channel	: CH09 (2452 MHz)
Polarization	: Horizontal		



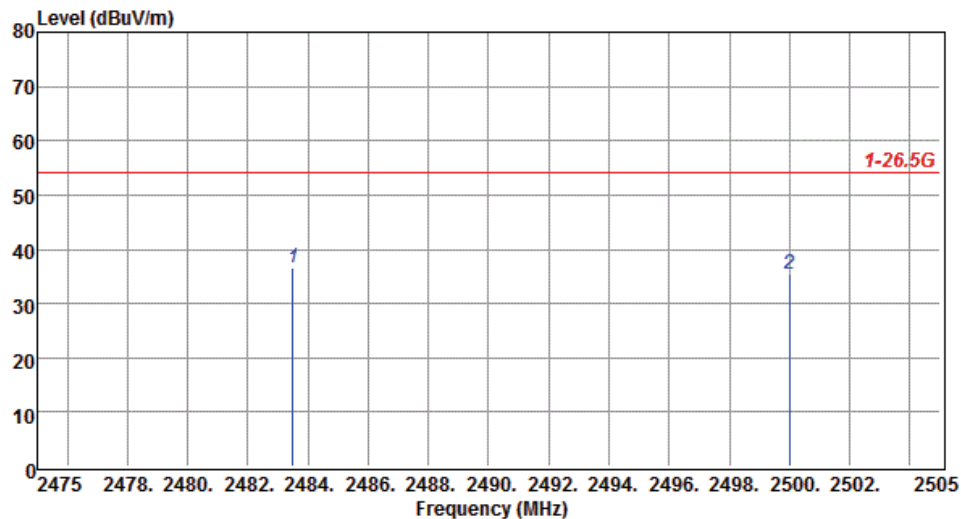
Freq	Reading	C.F	Result	Limit	Margin	A/H	T/P	Polarity	Remark
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	deg		
2483.49	44.22	-7.39	36.83	54.00	17.1	-----		HORIZONTAL	Peak
2499.99	45.29	-7.33	37.96	54.00	16.0	-----		HORIZONTAL	Peak

Note1: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

Note2: Margin = Limit - Result

**Radiated Emission in the Restricted Band Test Data (Upper Edge)**

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Test Mode	: Mode 12 (802.11n 40M)	Channel	: CH09 (2452 MHz)
Polarization	: Vertical		



Freq	Reading	C.F	Result	Limit	Margin	A/H	T/P	Polarity	Remark
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	deg		
2483.49	44.09	-7.39	36.70	54.00	17.3	-----		VERTICAL	Peak
2499.99	42.64	-7.33	35.31	54.00	18.6	-----		VERTICAL	Peak

Note1: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

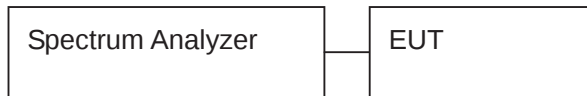
Note2: Margin = Limit - Result

7 Power Spectral Density

7.1 Test Instruments

Refer to Sec. 1.2 Test Instruments.

7.2 Test Arrangement



7.3 Test Procedure

1. Connect the EUT to spectrum analyzer through appropriate attenuator.
2. Spectrum setting; RMB = 100 kHz; VBW = 300 kHz; Span = wide enough to observe the entire wave shape; Sweep Time = 500 sec.
3. Trace = Max Hold.
4. Test method in Section 11.10.2 of ANSI C63.10 (2013) was used to measure the power spectral density.

7.4 Limit (§ 15.247(e))

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.

7.5 Test Result

Compliance

The final test data are shown on the following page(s).

Temperature : 26.9°C

Humidity : 39%

Test Date : 06-Jul-2015

Tested by : Kidd Liao

Test Mode : 802.11b

Test Channel	Frequency (MHz)	Reading (dBm)	Result (dBm)	Limit (dBm)
1	2412	-5.5	-20.8	8
6	2437	-5.03	-20.33	8
11	2462	-6.36	-21.66	8

Transfer the data with following value: BWCF = $10 \log (3\text{k}/100\text{kHz}) = -15.30 \text{ dB}$.

Result = Reading + BWCF

Test Mode : 802.11g

Test Channel	Frequency (MHz)	Reading (dBm)	Result (dBm)	Limit (dBm)
1	2412	-12.4	-27.7	8
6	2437	-11.28	-26.58	8
11	2462	-11.74	-27.04	8

Transfer the data with following value: BWCF = $10 \log (3\text{k}/100\text{kHz}) = -15.30 \text{ dB}$.

Result = Reading + BWCF

Test Mode : 802.11n HT(20)

Test Channel	Frequency (MHz)	Reading (dBm)	Result (dBm)	Limit (dBm)
1	2412	-11.94	-27.24	8
6	2437	-11.28	-26.58	8
11	2462	-11.02	-26.32	8

Transfer the data with following value: BWCF = $10 \log (3\text{k}/100\text{kHz}) = -15.30 \text{ dB}$.

Result = Reading + BWCF

Test Mode : 802.11n HT(40)

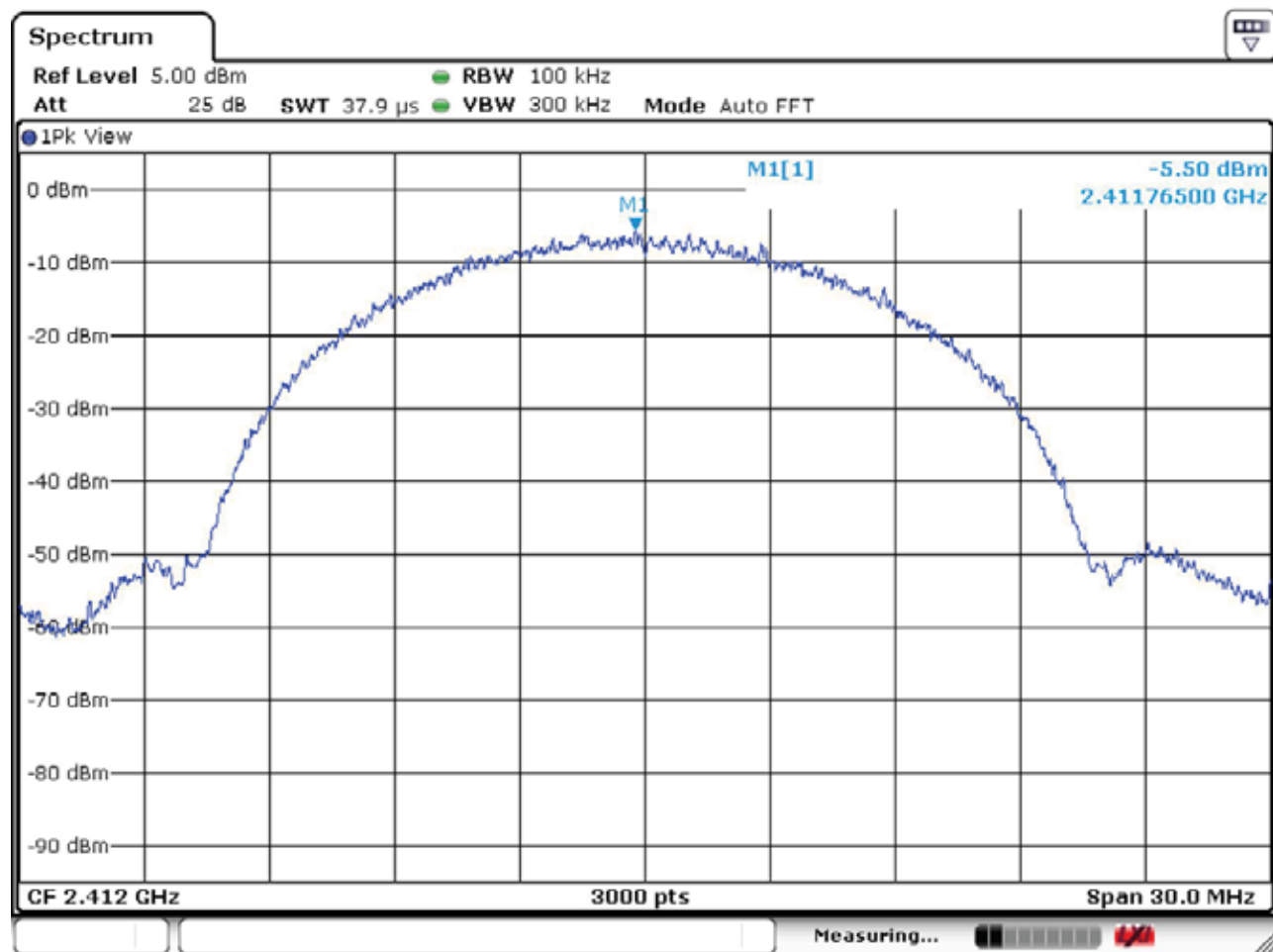
Test Channel	Frequency (MHz)	Reading (dBm)	Result (dBm)	Limit (dBm)
3	2422	-14.87	-30.17	8
6	2437	-13.83	-29.13	8
9	2452	-14.26	-29.56	8

Transfer the data with following value: BWCF = $10 \log (3\text{k}/100\text{kHz}) = -15.30 \text{ dB}$.

Result = Reading + BWCF

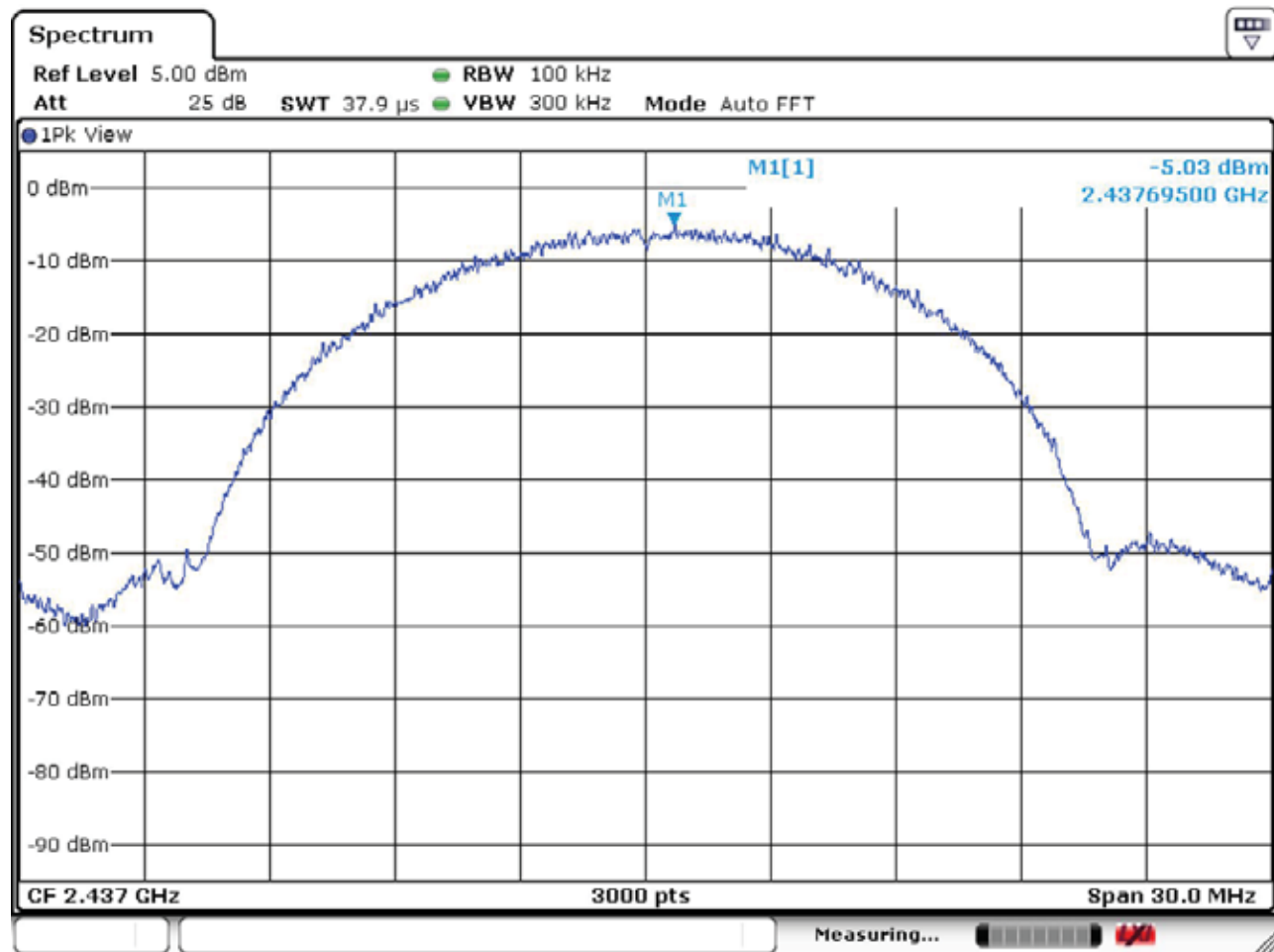
Power Spectral Density Test Data

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Test Mode	: Mode 1	Channel	: CH01 (2412 MHz)



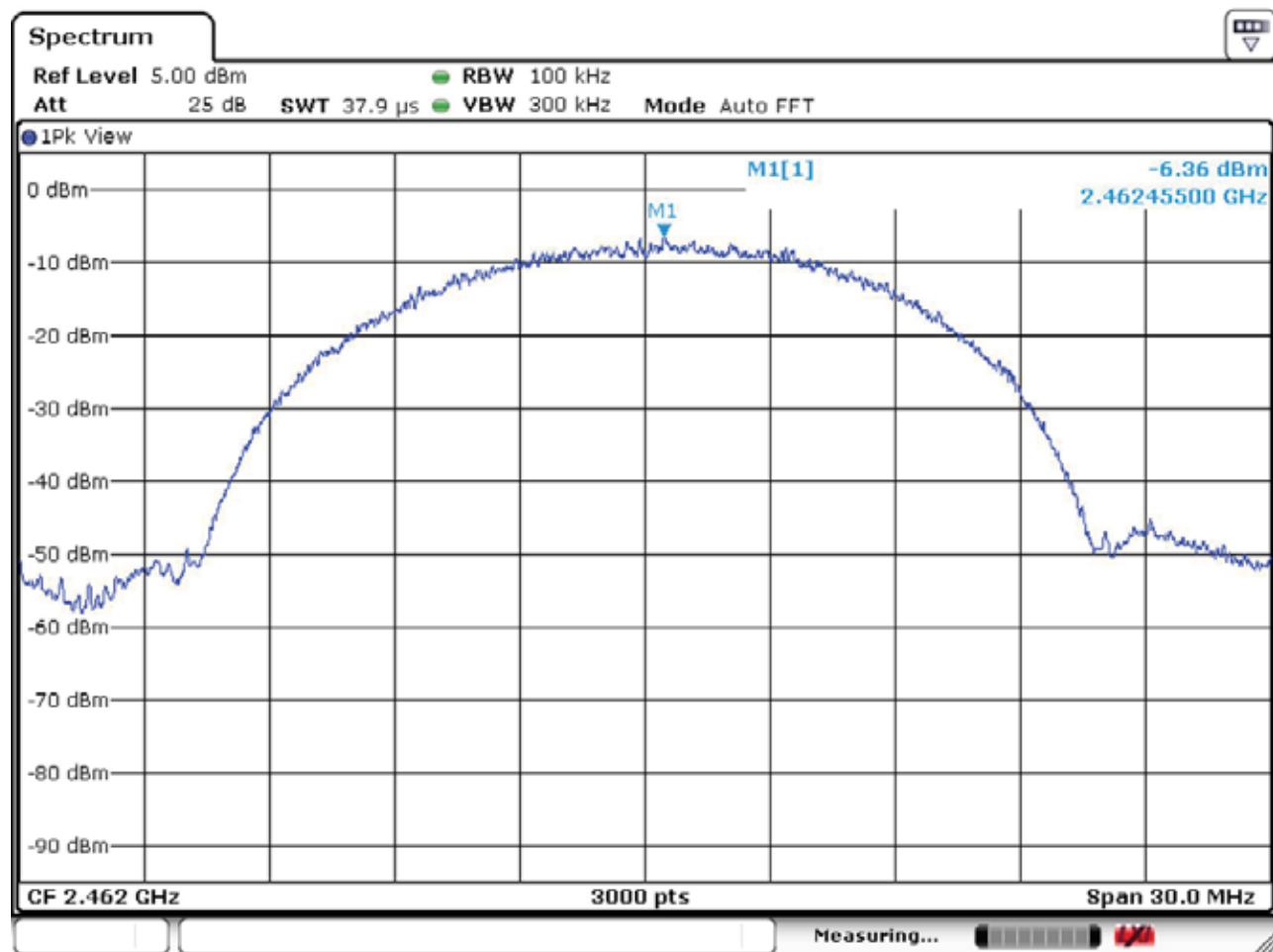
Power Spectral Density Test Data

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Test Mode	: Mode 2	Channel	: CH06 (2437 MHz)



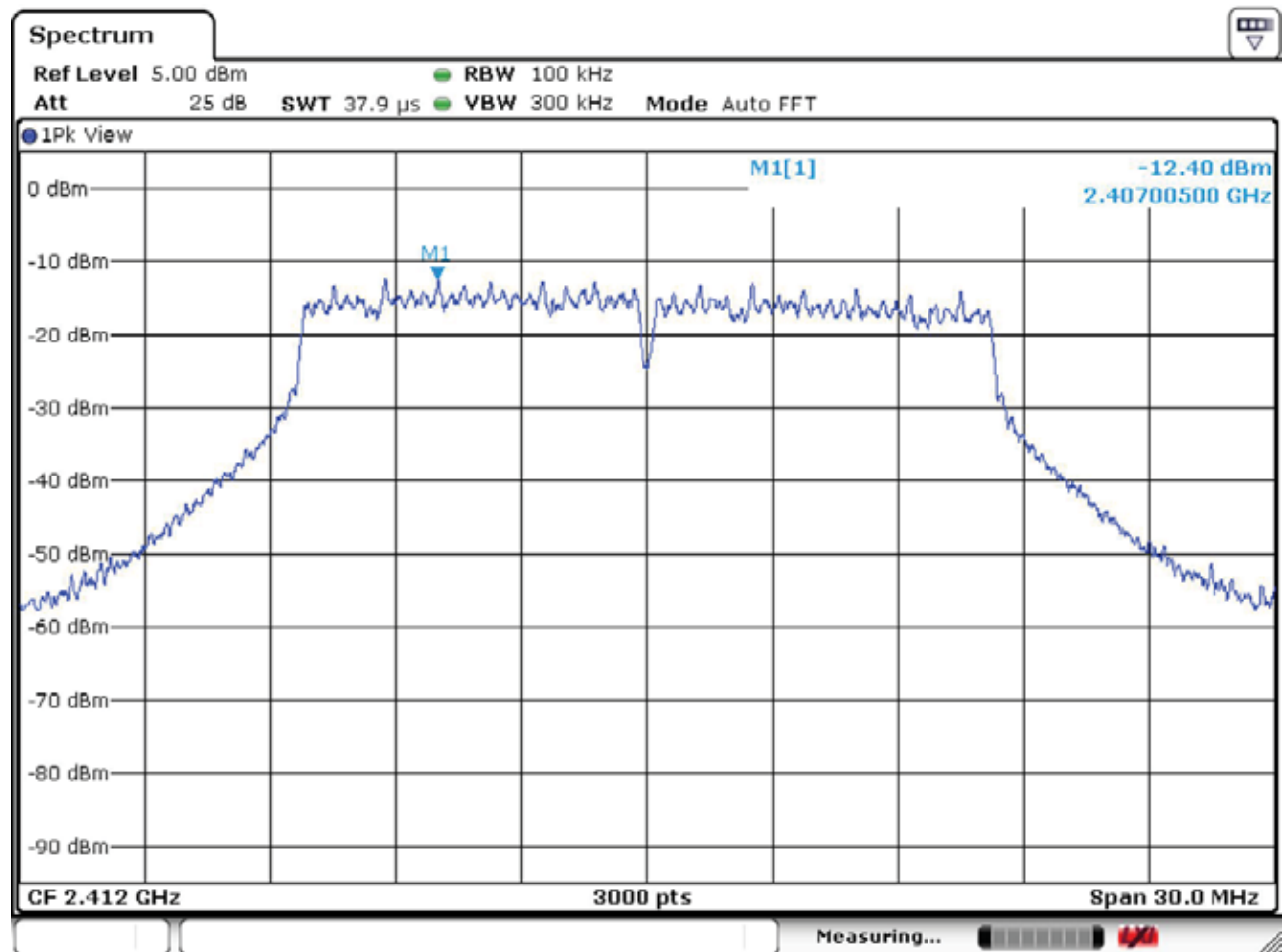
Power Spectral Density Test Data

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Test Mode	: Mode 3	Channel	: CH11 (2462 MHz)



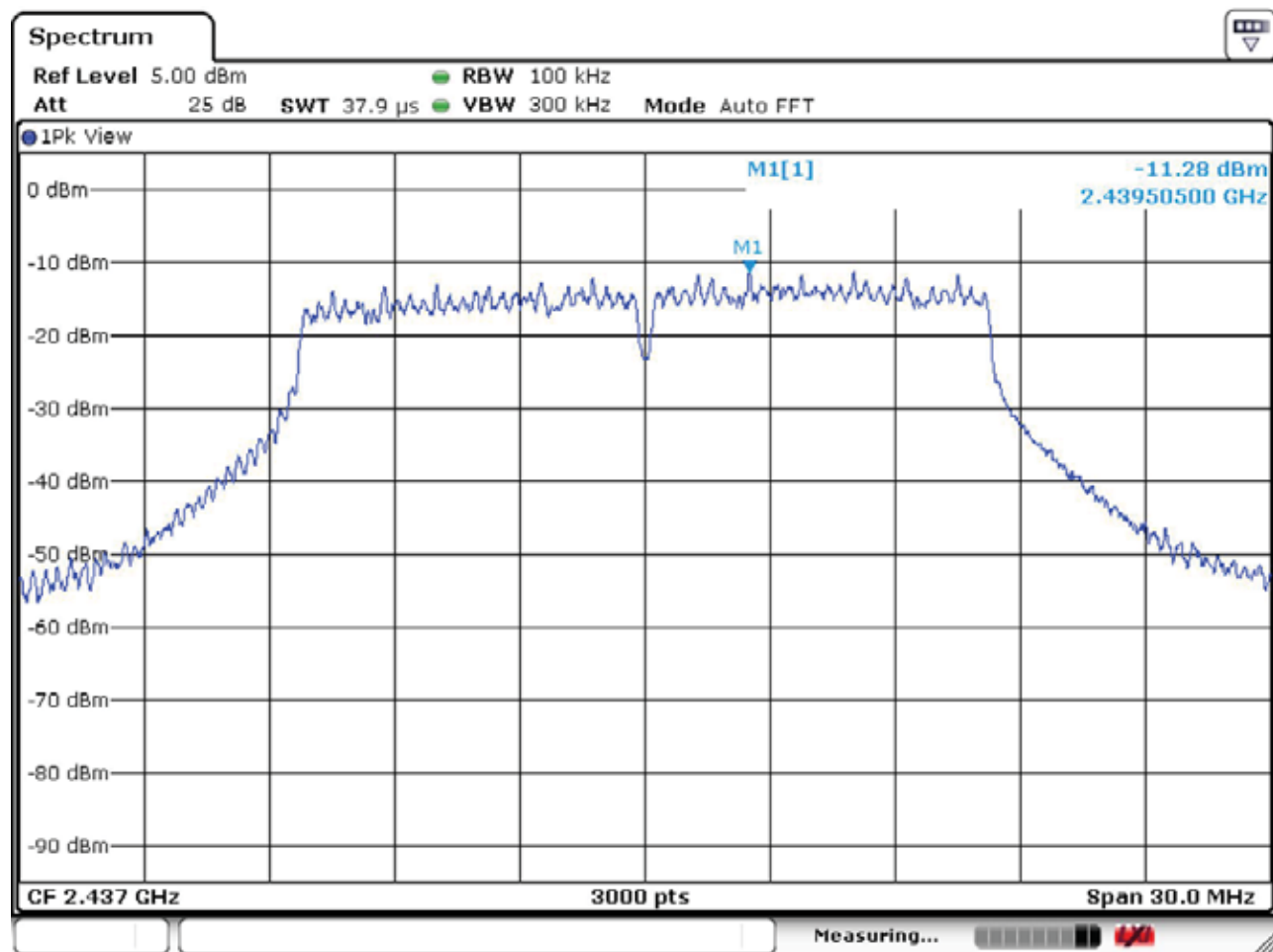
Power Spectral Density Test Data

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Test Mode	: Mode 4	Channel	: CH01 (2412 MHz)



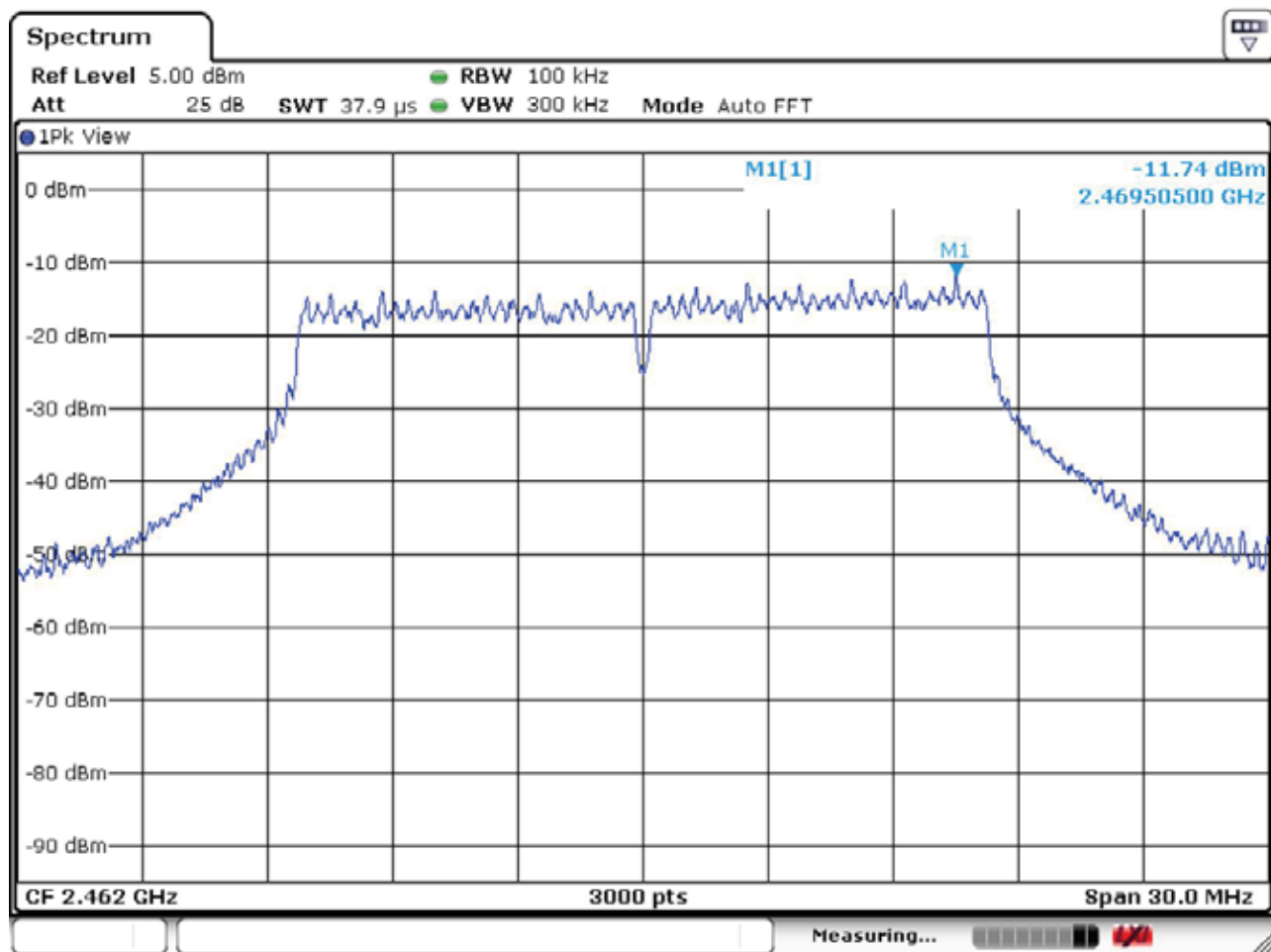
Power Spectral Density Test Data

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Test Mode	: Mode 5	Channel	: CH06 (2437 MHz)



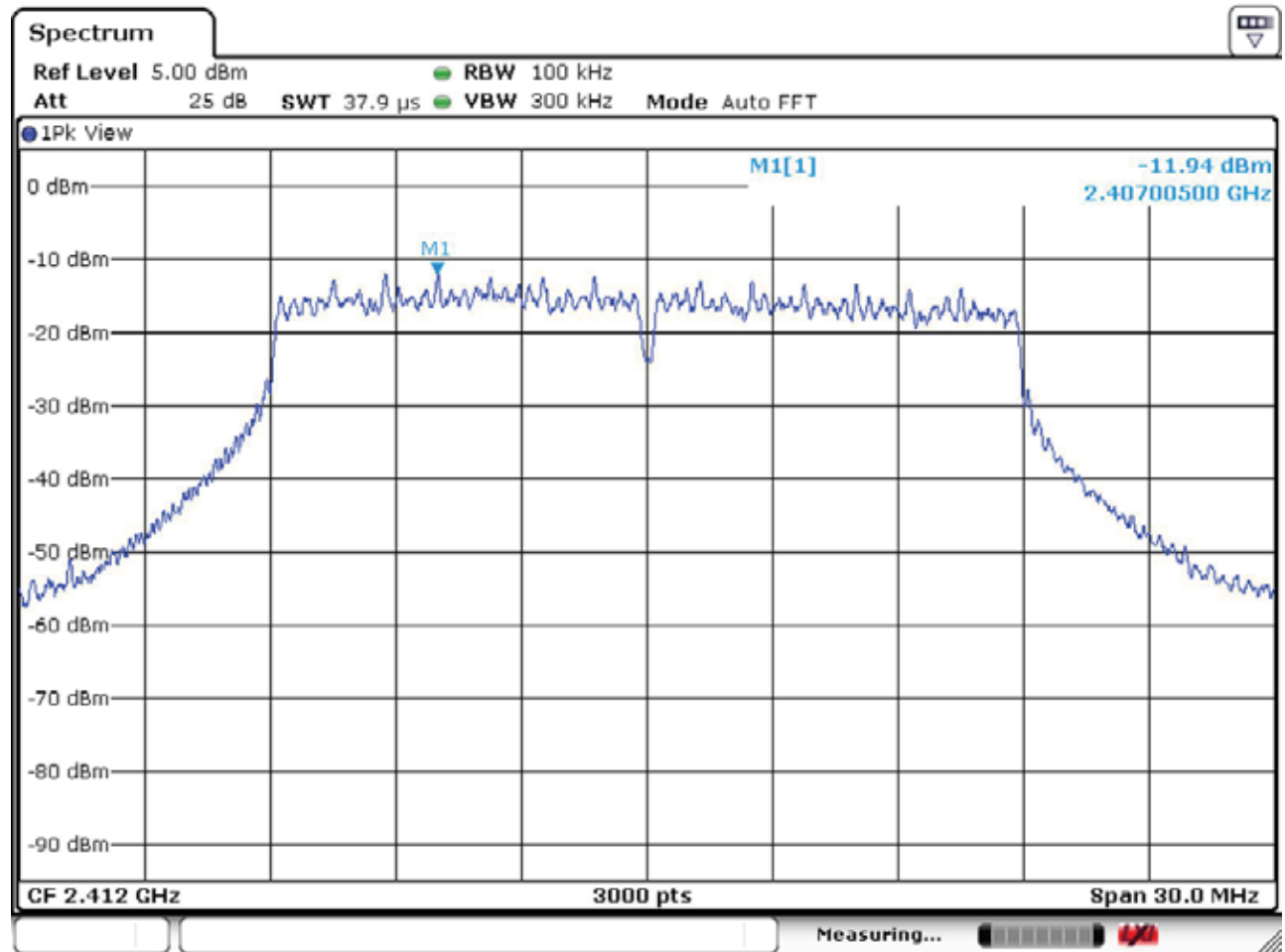
Power Spectral Density Test Data

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Test Mode	: Mode 6	Channel	: CH11 (2462 MHz)



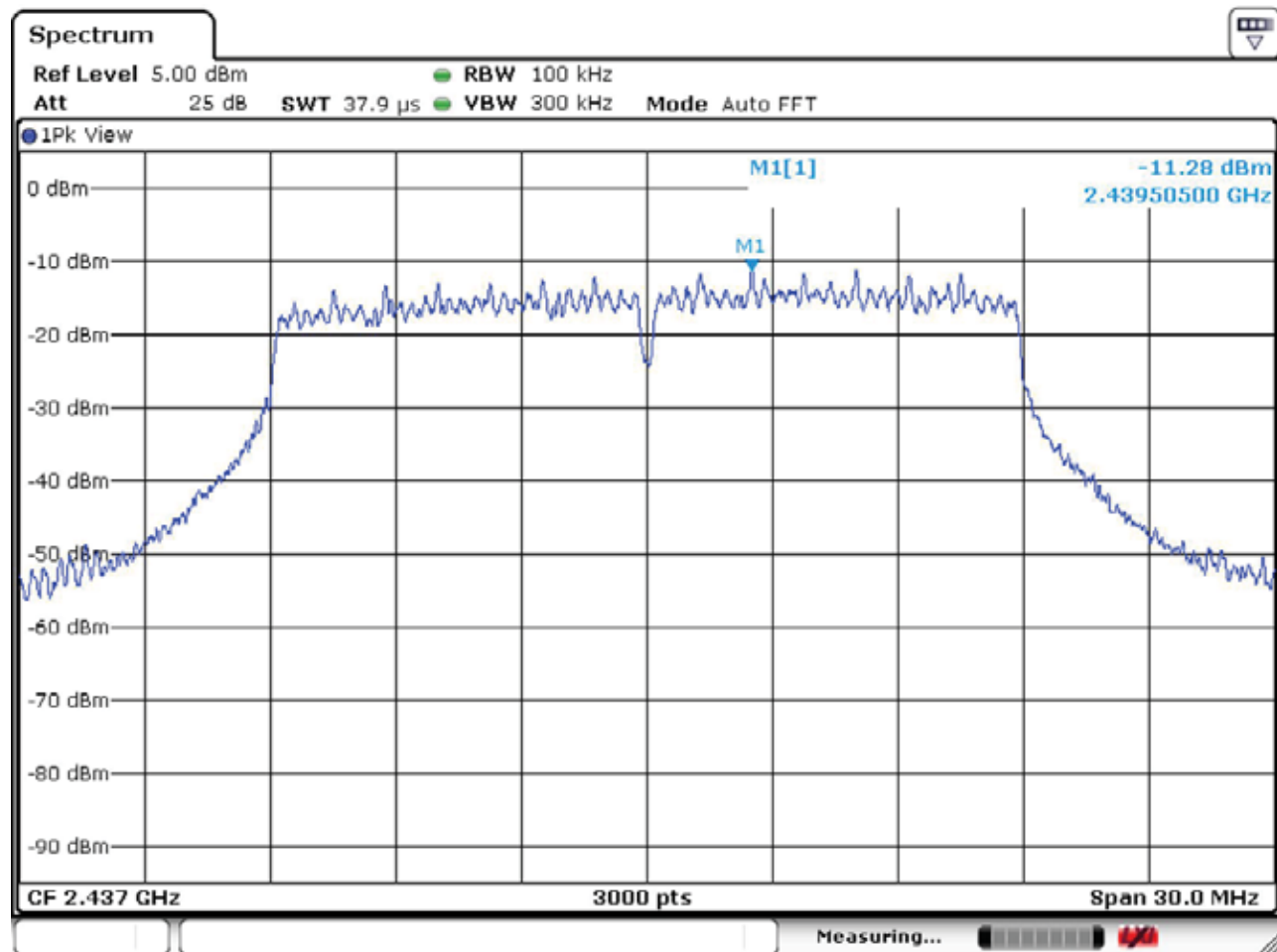
Power Spectral Density Test Data

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Test Mode	: Mode 7	Channel	: CH01 (2412 MHz)



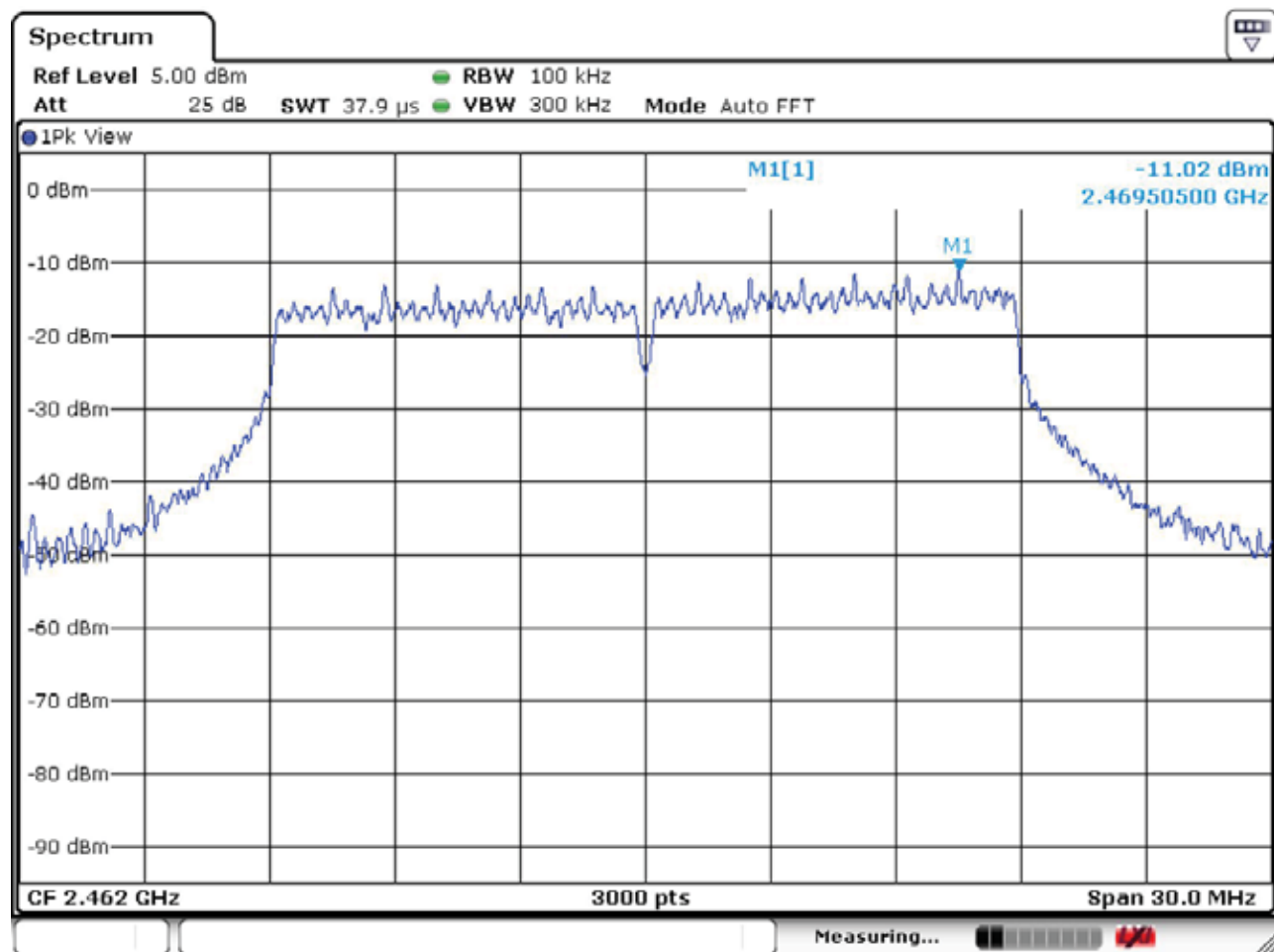
Power Spectral Density Test Data

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Test Mode	: Mode 8	Channel	: CH06 (2437 MHz)



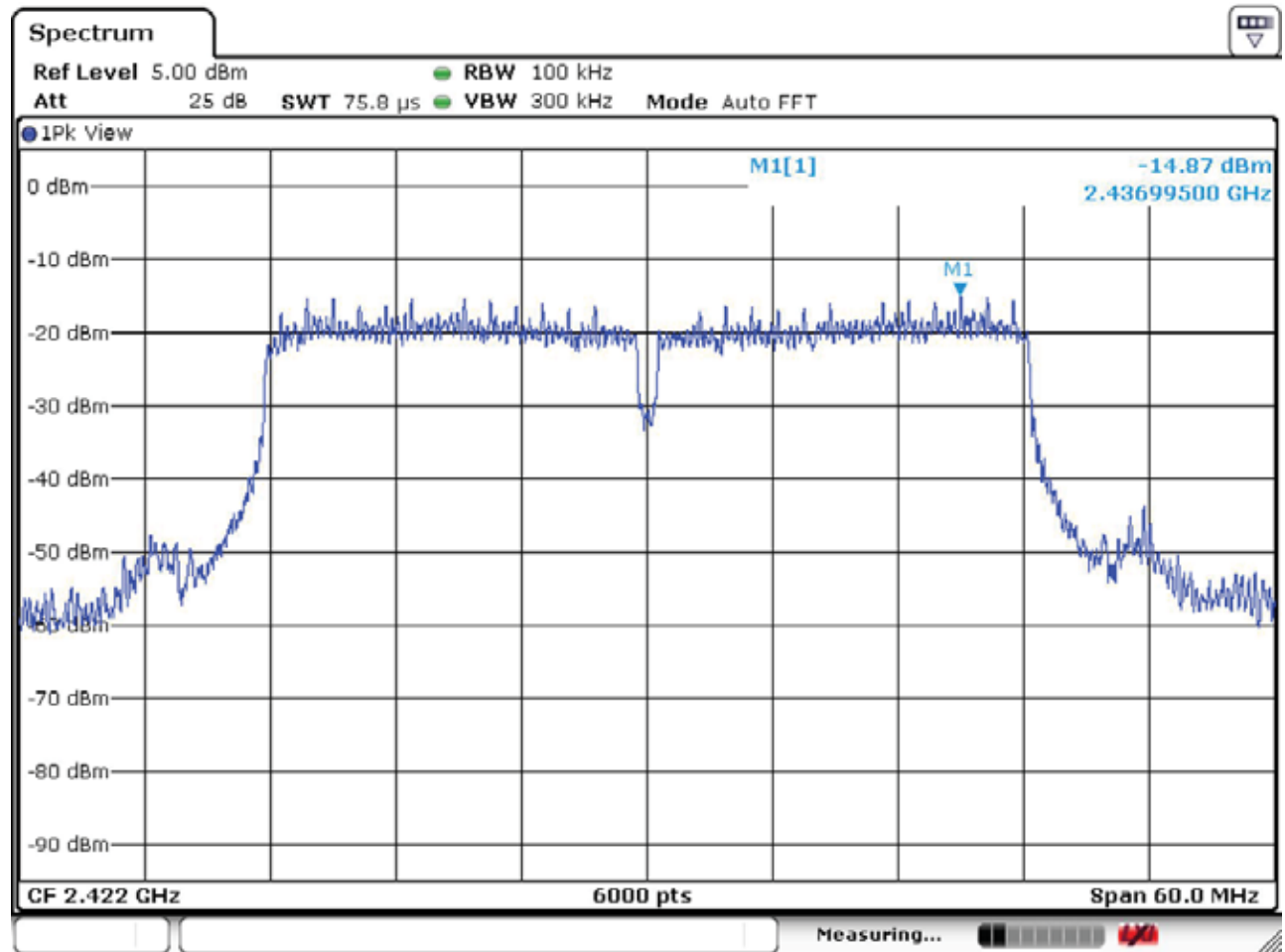
Power Spectral Density Test Data

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Test Mode	: Mode 9	Channel	: CH11 (2462 MHz)



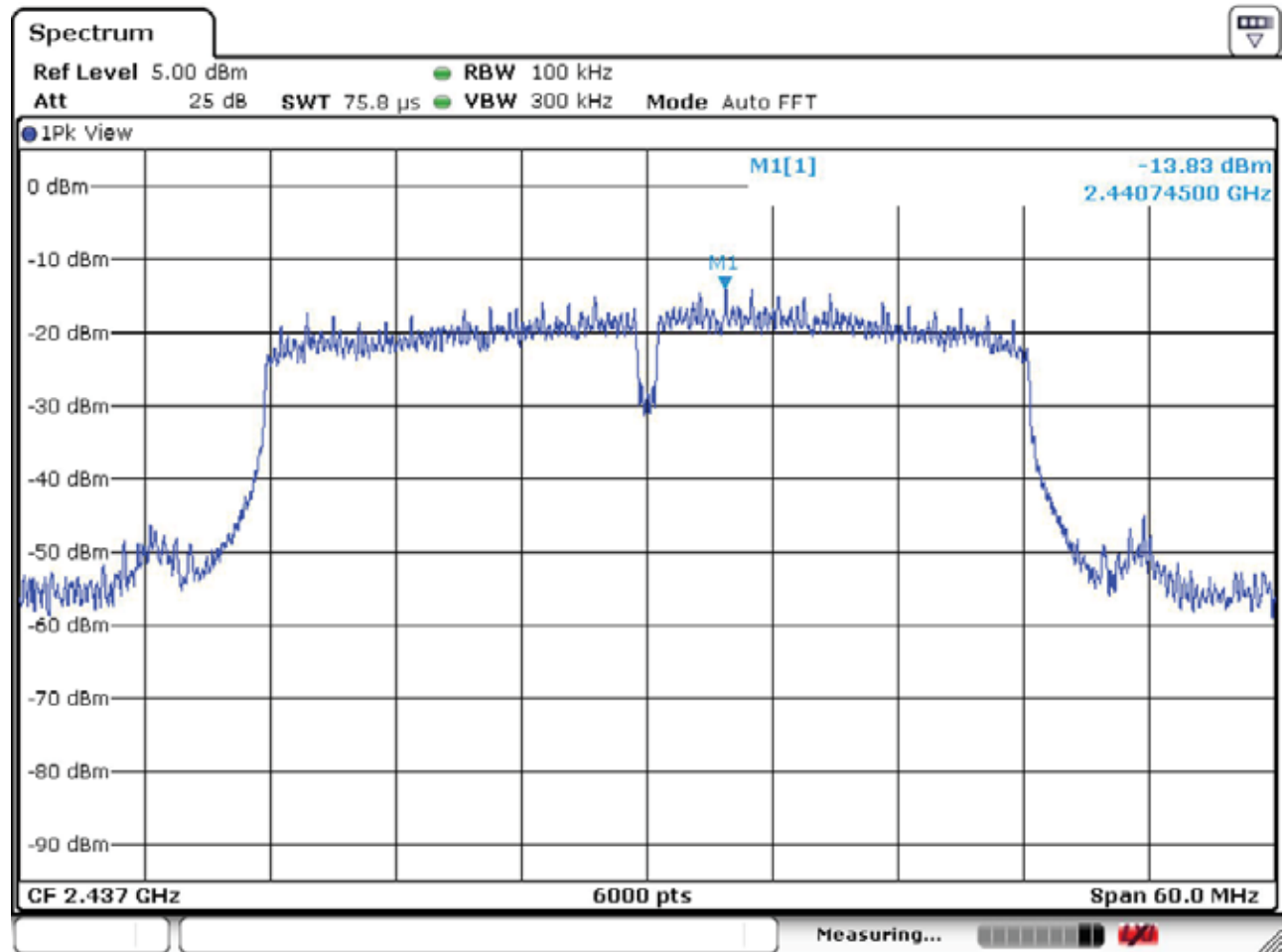
Power Spectral Density Test Data

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Test Mode	: Mode 10	Channel	: CH03 (2422 MHz)



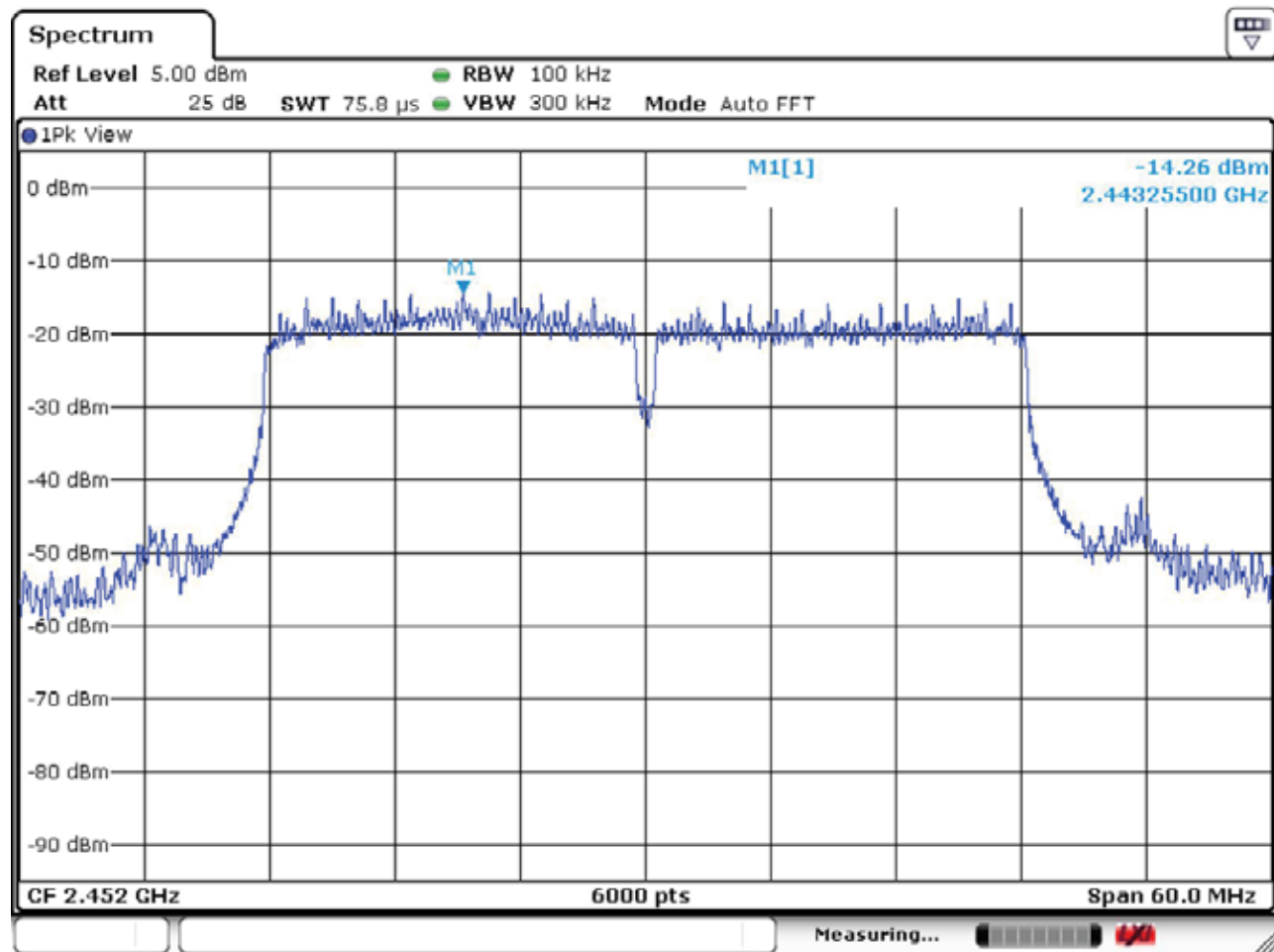
Power Spectral Density Test Data

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Test Mode	: Mode 11	Channel	: CH06 (2437 MHz)



Power Spectral Density Test Data

Temperature	: 26.9°C	Humidity	: 39%
Test Date	: 06-Jul-2015	Tested by	: Kidd Liao
Test Mode	: Mode 12	Channel	: CH09 (2452 MHz)



8 Antenna requirement

8.1 Limit (§ 15.203)

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of § 15.211, § 15.213, § 15.217, § 15.219, or § 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with § 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

8.2 Test Result

Compliance.

The intentional radiator must be professionally installed.

----- The End of Test Report-----