

MEASUREMENT REPORT

of

WIFI module

Applicant : PEGATRON CORPORATION
EUT : WIFI module
Model No. : UPWL6025
FCC ID : VUIUPWL6025

Tested by :

Training Research Co., Ltd.

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No. 255, Nanyang Street, Shijr, Taipei Hsien 221, Taiwan, R.O.C.

CERTIFICATION

We here by verify that:

The test data, data evaluation, test procedures and equipment configurations shown in this report were made mainly in accordance with the procedures given in ANSI C63.4 (2003) as a reference. All test were conducted by **Training Research Co., Ltd.**, 255 Nanyang Street, Shijr, Taipei Hsien 221, Taiwan, R.O.C. Also, we attest to the accuracy of each.

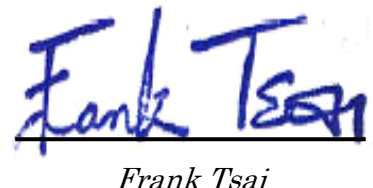
We further submit that the energy emitted by the sample EUT tested as described in the report is **in compliance with** the technical requirements set forth in the FCC Rules Part 15 Subpart C Section 15.247.

Applicant : PEGATRON CORPORATION
Applicant Address : 5F, NO. 76, LIGONG ST., BEITOU DISTRICT,
TAIPEI CITY, Taiwan
FCC ID : VUIUPWL6025
Report No. : P5515090221
Test Date : September 30, 2009 ~ October 16, 2009

Prepared by:


Jack Tsai

Approved by:


Frank Tsai**Conditions of issue :**

- (1) **This test report shall not be reproduced except in full, without written approval of TRC. And the test result contained within this report only relate to the sample submitted for testing.**
- (2) **This report must not be used by the client to claim product endorsement by NVLAP or any agency of U.S. Government.**
- (3) **This test report, measurements made by TRC are traceable to the NIST only Conducted and Radiated Method.**



NVLAP LAB CODE 200174-0

Tables of Contents

I. GENERAL	5
1.1 Introduction	5
1.2 Description of EUT	5
1.3 Test method	5
1.4 Description of Support Equipment	6
1.5 Configuration of System Under Test	7
1.6 Verify the Frequency and Channel	8
1.7 Test Procedure	9
1.8 Location of the Test Site	9
1.9 General Test Condition	9
II. Section 15.203 : Antenna Requirement	10
III. Section 15.207 : Power Line Conducted Emissions for AC Powered Units	11
3.1 Test Condition & Setup	11
3.2 List of Test Instruments	12
3.3 Test Result of Conducted Emissions	13
IEEE 802.11b	13
IEEE 802.11g	15
IEEE 802.11n 20M	16
IEEE 802.11n 40M	18
IV. Section 15.247(a) : Technical Description of the EUT	20
V. Section 15.247(a)(2) : Bandwidth for Direct Sequence System	21
5.1 Test Condition & Setup	21
5.2 Test Instruments Configuration	21
5.3 List of Test Instruments	21
5.4 Test Result of Bandwidth	22
IEEE 802.11b mode	23
IEEE 802 11g mode	24
IEEE 802 11n 20M mode	26
IEEE 802 11n 40M mode	29

VI. Section 15.247(b) : Power Output	32
6.1 Test Condition & Setup	32
6.2 List of Test Instruments	32
6.3 Test Result	32
VII. Section 15.247(c) : Spurious Emissions (Radiated)	34
7.1 Test Condition & Setup	34
7.2 List of Test Instruments	36
7.3 Test Result of Spurious Radiated Emissions	37
IEEE 802.11b mode	37
IEEE 802.11g mode	43
IEEE 802.11n 20M mode	49
IEEE 802.11n 40M mode	55
7.4 Test Result of Bandedge	61
IEEE 802.11b mode	62
IEEE 802.11g mode	64
IEEE 802.11n 20M mode	66
IEEE 802.11n 40M mode	68
VIII. Section 15.247(d) : Power Spectral Density	70
8.1 Test Condition & Setup	70
8.2 Test Instruments Configuration	70
8.3 List of Test Instruments	70
8.4 Test Result of Power Spectral Density	71
IEEE 802.11b mode	73
IEEE 802.11g mode	74
IEEE 802.11n 20M mode	76
IEEE 802.11n 40M mode	79

I . GENERAL

1.1 Introduction

The following measurement report is submitted on behalf of applicant in support that the certification in accordance with Part 2 Subpart J and Part 15 Subpart A, B and C of the Commission's Rules and Regulations.

1.2 Description of EUT

FCC ID	:	VUIUPWL6025
Product Name	:	WIFI module
Model Name	:	UPWL6025
Frequency Range	:	IEEE 802.11b/g/n Draft 1.0 20M: 2.412GHz ~ 2.462GHz IEEE 802.11n Draft 1.0 40M: 2.422GHz ~ 2.452GHz
Channel Spacing	:	5MHz
Support Channel	:	IEEE 802.11b/g/n Draft 1.0 20M: 11 Channels IEEE 802.11n Draft 1.0 40M: 7 Channels
Modulation Skill	:	DBPSK, DQPSK, CCK, OFDM
Power Type	:	Powered by PCI Express interface of client's device

1.3 Test method

- 1.3.1 Insert the EUT into the PCI Express interface of extend card of the test fixture.
- 1.3.2 Using the computer and software provided by the manufacturer to control EUT.
The software is operated under the Windows to control the EUT in the mode of continuous transmission; the test is performed under the specific conditions.
- 1.3.3 Set different data rate and channel (IEEE 802.11b/g/n Draft 1.0 20M: CH01/CH06/CH11, IEEE 802.11n Draft 1.0 40M: CH03/CH06/CH09) being tested and repeat the procedures above.
 - (a) Conducted test and Radiated test:
making EUT to the continuously (TX) mode.

1.4 Description of Support Equipment

In order to construct the minimum testing, following equipment were used as the support units.

Notebook : DELL
Model No. : JX285 (PP26L)
Serial No. : 410362204
FCC ID : Doc Approved
BSMI : R33002

Power Adaptor : DELL
Model No. : LA65NS1-00
Part No. : PA-1650-05D3
Serial No. : CN-0YD637-716145-82T-0B8F
FCC ID : Doc Approved
BSMI : R33275
Power type : 100 ~ 240VAC / 50 - 60Hz, 1.5A, Switching
Power cord (Main power to adaptor): Non-shielded, 0.90m length, Plastic hood, No ferrite core
Power cord (DC plug to adaptor): Shielded, 1.83m length, Plastic hood, ferrite core

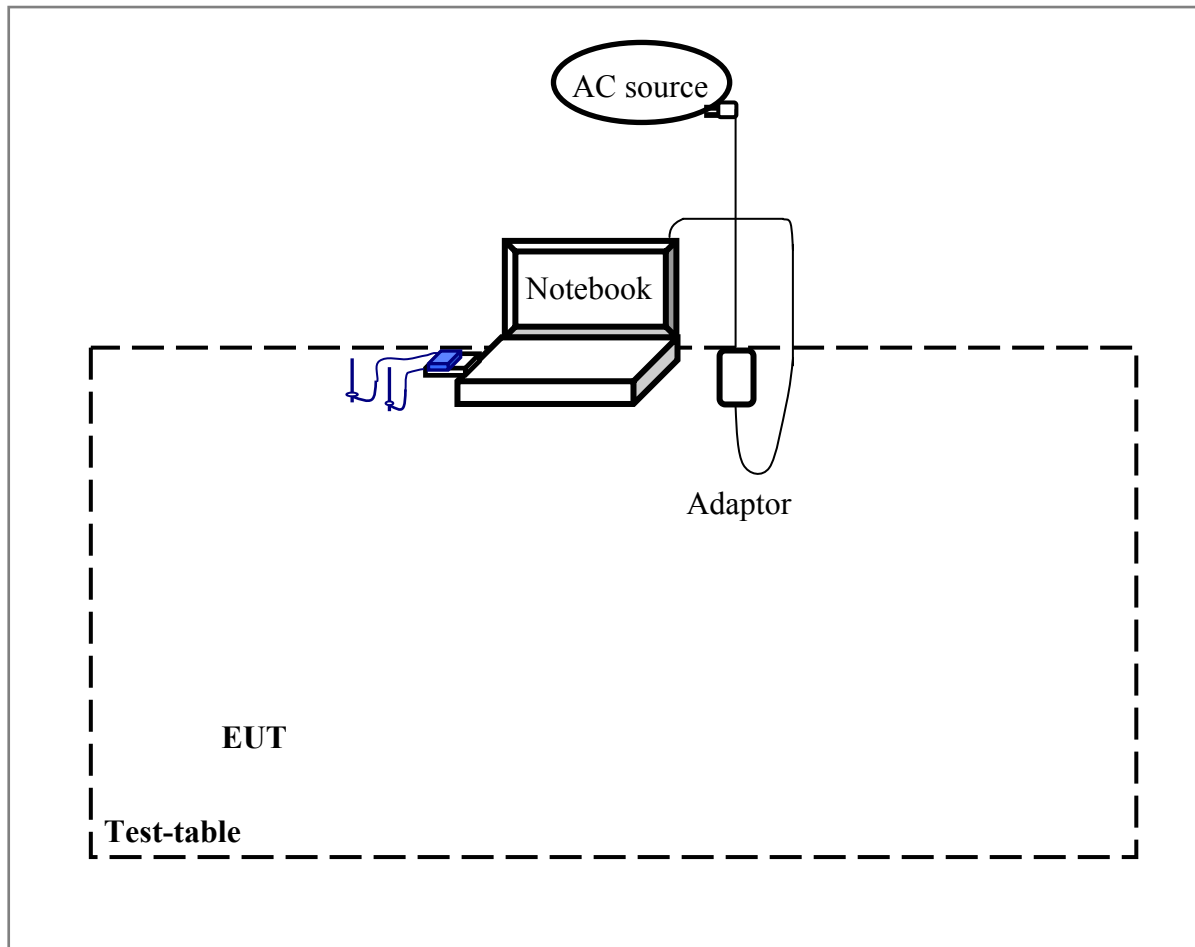
Test fixture

(PCI Express Extend Card):PEGATRON CORPORATION

Model No. : ADC-PEMCCC01
Serial No. : N/A
Power type : By NB

1.5 Configuration of System Under Test

1.5.1 Conducted and Radiated Emission Test



Notebook PC:

*Mini-PCI Port EUT

The tests below are carried with the EUT transmitter set at high power in TDD mode. The EUT is forced to select of output power level and channel number by USB port.

The setting up procedure was recorded in 1.3 test method.

1.6 Verify the Frequency and Channel

Channel	Frequency (GHz)
1	2.412
2	2.417
3	2.422
4	2.427
5	2.432
6	2.437
7	2.442
8	2.447
9	2.452
10	2.457
11	2.462

Note:

1. This is for confirming that all frequencies of IEEE 802.11b/g/n Draft 1.0 20M are in 2.412GHz to 2.462GHz. and all frequencies of IEEE 802.11n Draft 1.0 40M are in 2.422GHz to 2.452GHz.
2. Section 15.31(m): Measurements on intentional radiators or receivers shall be performed at three frequencies for operating frequency range over 10 MHz
(The locations of these frequencies one near the top, one near the middle and one near the bottom.)
3. After test, the EUT operating frequencies are in 2.412GHz to 2.462GHz and 2.422GHz to 2.452GHz. So all the items as followed in testing report are need to test these three frequencies: IEEE 802.11b/g/n Draft 1.0 20M: CH01/CH06/CH11, IEEE 802.11n Draft 1.0 40M: CH03/CH06/CH09

1.7 Test Procedure

All measurements contained in this report were performed mainly according to the techniques described in ANSI C63.4 (2003) and the pre-setup was written on 1.3 test method, the detail setup was written on each test item.

1.8 Location of the Test Site

The radiated emissions measurements required by the rules were performed on the **three-meter, Semi-anechoic Chamber (FCC Registration Number: 93906)** maintained by *Training Research Co., Ltd.* 1F, No. 255 Nanyang Street, Shijr, Taipei Hsien 221, Taiwan, R.O.C. Complete description and measurement data have been placed on file with the commission. The conducted power line emissions tests and other test items were performed in a semi-anechoic chamber also located at Training Research Co., Ltd.

No. 255 Nanyang Street, Shijr, Taipei Hsien 221, Taiwan, R.O.C. *Training Research Co., Ltd.* is listed by the FCC as a facility available to do measurement work for others on a contract basis.

1.9 General Test Condition

The conditions under which the EUT operates were varied to determine their effect on the equipment's emission characteristics. The final configuration of the test system and the mode of operation used during these tests were chosen as that which produced the highest emission levels. However, only those conditions, which the EUT was considered likely to encounter in normal use were investigated.

In test, they were set in high power and continuously transmitting mode that controlled by computer. The ch01, ch06 and ch11 of EUT were all tested. The setting up procedure is recorded on 1.3 test method.

II. Section 15.203: Antenna requirement

The EUT can be equipped with detachable antenna. The external antenna is affixed to the EUT using a unique connector. The antenna requirement stated in Section 15.203 is inapplicable to this EUT.

The antenna specification of list as follows,

Antenna No.	Antenna Manufacturer	Model	Connector	Antenna Type	Antenna Gain (Max.)
Antenna#1	PEGATRON	UCW2583	MHF	PCB	5.34dBi
Antenna#2	PEGATRON	UCW2620	MHF	PCB	2.55dBi

Note:

- 1) For more detailed features description, please reference to the Antenna Specifications. (Please reference to RF Exposure Information)

III. Section 15.207: Power Line Conducted Emissions for AC Powered Units

3.1 Test Condition & Setup

The power line conducted emission measurements were performed in an semi-anechoic chamber. The EUT was assembled on a wooden table, which is 80 centimeters high, was placed 40 centimeters from the backwall and at least 1 meter from the sidewall.

Power was fed to the EUT from the public utility power grid through a line filter and Line Impedance Stabilization Networks (LISNs). The LISN housing, measuring instrumentation case, ground plane, etc., were electrically bonded together at the same RF potential. The Spectrum analyzer (or EMI receiver) was connected to the AC line through an isolation transformer. The 50-ohm output of the LISN was connected to the spectrum analyzer directly. Conducted emission levels were in the CISPR quasi-peak and average detection mode. The analyzer's 6 dB bandwidth was set to 9 KHz. No post-detector video filter was used.

The spectrum was scanned from 150 KHz to 30 MHz. The physical arrangement of the test system and associated cabling was varied (within the scope of arrangements likely to be encountered in actual use) to determine the effect on the unit's emanations in amplitude and frequency. All spurious emission frequencies were observed. The highest emission amplitudes relative to the appropriate limit were measured and have been recorded in paragraph 4.3

There is a test condition apply in this test item, the test procedure description as <1.3>. Three channels were tested, one in the top, one in the middle and the other in bottom.

3.2 List of Test Instruments

Instrument Name	Model	Brand	Serial No.	Calibration Date
				Next time
EMI Receiver	8546A	HP	3520A00242	01/15/10
RF Filter Section	85460A	HP	3448A00217	01/15/10
LISN (EUT)	LISN-01	TRC	99-05	11/10/09
LISN (Support E.)	LISN-01	TRC	9912-03, 04	12/22/09
Pre-amplifier	15542 ZFL-500	Mini – Circuits	0 0117	01/10/10
6dB Attenuator	MCL BW-S6W2	Mini – Circuits	9915 – Conducted	01/10/10
10dB Attenuator	A5542 VAT010	Mini – Circuits	0215 – Conducted	01/10/10
Coaxial Cable (2.0 meter)	A30A30-0058-50FS-2M	Jyebao	SMA-08	01/10/10
Coaxial Cable (1.1 meter)	A30A30-0058-50FS-1M	Jyebao	SMA-09	01/10/10
Coaxial Cable (20 meter)	RG-214/U	Jyebao	NP-01	01/10/10
Coaxial Cable (20 meter)	RG-214/U	Jyebao	NP-02	01/10/10
Auto Switch Box (< 30MHz)	ASB-01	TRC	9904-01	01/10/10

3.3 Test Result of Power Line Conducted Emissions

The following table shows a summary of the highest emissions of power line conducted emissions on the LIVE and NETURAL conductors of the EUT power cord. Show as follows.

Test Conditions: Temperature : 25 °C Humidity : 73 % RH

Test mode: IEEE 802.11b Channel 1

Power Connected Emissions					Class B		
Conductor	Frequency (KHz)	Peak (dBμV)	QP (dBμV)	Average (dBμV)	QP-limit (dBμV)	AVG-limit (dBμV)	Margin (dB)
Line 1	334.000	43.69	---	---	60.74	50.74	-7.05
	514.490	43.69	40.01	18.07	56.00	46.00	-15.99
	609.355	45.25	38.48	17.78	56.00	46.00	-17.52
	911.000	41.41	---	---	56.00	46.00	-4.59
	1333.000	40.99	---	---	56.00	46.00	-5.01
	1566.000	39.81	---	---	56.00	46.00	-6.19
Line 2	199.000	47.56	---	---	64.60	54.60	-7.04
	341.000	44.99	---	---	60.54	50.54	-5.55
	544.935	43.56	38.18	14.21	56.00	46.00	-17.82
	692.480	45.17	36.14	19.52	56.00	46.00	-19.86
	1176.000	42.05	---	---	56.00	46.00	-3.95
	1464.000	41.25	---	---	56.00	46.00	-4.75

NOTE:

- (1)Margin = Peak Amplitude – Limit, The reading amplitudes are all under limit.
- (2)A "+" sign in the margin column means the emission is OVER the Class B Limit
and "-" sign of means UNDER the Class B limit

Test mode: IEEE 802.11b Channel 6

Power Connected Emissions					Class B		
Conductor	Frequency (KHz)	Peak (dBμV)	QP (dBμV)	Average (dBμV)	QP-limit (dBμV)	AVG-limit (dBμV)	Margin (dB)
Line 1	291.000	41.81	---	---	61.97	51.97	-10.16
	540.150	44.18	39.68	18.93	56.00	46.00	-16.32
	641.655	45.32	39.01	17.36	56.00	46.00	-16.99
	850.000	40.89	---	---	56.00	46.00	-5.11
	1959.000	38.26	---	---	56.00	46.00	-7.74
	2820.000	35.14	---	---	56.00	46.00	-10.86
Line 2	197.000	47.03	---	---	64.66	54.66	-7.63
	320.000	44.72	---	---	61.14	51.14	-6.42
	533.130	43.83	38.40	17.89	56.00	46.00	-17.60
	646.605	44.81	39.53	18.52	56.00	46.00	-16.47
	902.000	41.95	---	---	56.00	46.00	-4.05
	1346.000	38.51	---	---	56.00	46.00	-7.49

Test mode: IEEE 802.11b Channel 11

Power Connected Emissions					Class B		
Conductor	Frequency (KHz)	Peak (dBμV)	QP (dBμV)	Average (dBμV)	QP-limit (dBμV)	AVG-limit (dBμV)	Margin (dB)
Line 1	308.000	43.10	---	---	61.49	51.49	-8.39
	560.955	44.78	39.76	17.82	56.00	46.00	-16.24
	654.170	45.67	40.50	17.96	56.00	46.00	-15.50
	876.000	42.52	---	---	56.00	46.00	-3.48
	1941.000	39.41	---	---	56.00	46.00	-6.59
	3094.000	37.45	---	---	56.00	46.00	-8.55
Line 2	205.000	46.64	---	---	64.43	54.43	-7.79
	329.000	44.59	---	---	60.89	50.89	-6.30
	552.000	42.93	---	---	56.00	46.00	-3.07
	657.000	44.96	40.50	18.62	56.00	46.00	-15.50
	876.000	42.98	---	---	56.00	46.00	-3.02
	1208.000	40.79	---	---	56.00	46.00	-5.21

Test mode: IEEE 802.11g Channel 1

Power Connected Emissions					Class B		
Conductor	Frequency (KHz)	Peak (dBμV)	QP (dBμV)	Average (dBμV)	QP-limit (dBμV)	AVG-limit (dBμV)	Margin (dB)
Line 1	323.000	43.39	---	---	61.06	51.06	-7.67
	539.030	43.99	39.85	18.97	56.00	46.00	-16.15
	644.280	45.04	40.48	18.57	56.00	46.00	-15.52
	841.000	41.58	---	---	56.00	46.00	-4.42
	1518.000	39.24	---	---	56.00	46.00	-6.76
	17080.000	40.00	---	---	60.00	50.00	-10.00
Line 2	189.000	48.44	---	---	64.89	54.89	-6.45
	320.000	45.28	---	---	61.14	51.14	-5.86
	523.000	42.95	---	---	56.00	46.00	-3.05
	738.000	42.04	---	---	56.00	46.00	-3.96
	954.000	40.88	---	---	56.00	46.00	-5.12
	1398.000	39.73	---	---	56.00	46.00	-6.27

Test mode: IEEE 802.11g Channel 6

Power Connected Emissions					Class B		
Conductor	Frequency (KHz)	Peak (dBμV)	QP (dBμV)	Average (dBμV)	QP-limit (dBμV)	AVG-limit (dBμV)	Margin (dB)
Line 1	326.000	43.06	---	---	60.97	50.97	-7.91
	421.000	39.14	---	---	58.26	48.26	-9.12
	616.960	45.14	38.15	17.60	56.00	46.00	-17.85
	850.000	42.30	---	---	56.00	46.00	-3.70
	1123.000	41.32	---	---	56.00	46.00	-4.68
	17530.000	42.02	---	---	60.00	50.00	-7.98
Line 2	183.000	49.28	---	---	65.06	55.06	-5.78
	320.000	44.72	---	---	61.14	51.14	-6.42
	528.000	42.03	---	---	56.00	46.00	-3.97
	640.200	44.30	39.74	17.59	56.00	46.00	-16.26
	876.000	41.71	---	---	56.00	46.00	-4.29
	1295.000	41.53	---	---	56.00	46.00	-4.47

Test mode: IEEE 802.11g Channel 11

Power Connected Emissions					FCC Class B		
Conductor	Frequency (KHz)	Peak (dBμV)	QP (dBμV)	Average (dBμV)	QP-limit (dBμV)	AVG-limit (dBμV)	Margin (dB)
Line 1	326.000	43.20	---	---	60.97	50.97	-7.77
	646.335	45.56	40.30	18.85	56.00	46.00	-15.70
	875.370	44.71	38.49	18.60	56.00	46.00	-17.51
	1320.000	40.15	---	---	56.00	46.00	-5.85
	1731.000	37.54	---	---	56.00	46.00	-8.46
	16320.000	40.18	---	---	60.00	50.00	-9.82
Line 2	199.000	47.80	---	---	64.60	54.60	-6.80
	317.000	44.69	---	---	61.23	51.23	-6.54
	559.800	44.39	39.65	16.29	56.00	46.00	-16.35
	652.680	44.77	39.91	17.73	56.00	46.00	-16.09
	752.000	42.26	---	---	56.00	46.00	-3.74
	1320.000	41.83	---	---	56.00	46.00	-4.17

Test mode: IEEE 802.11n 20M Channel 1

Power Connected Emissions					Class B		
Conductor	Frequency (KHz)	Peak (dBμV)	QP (dBμV)	Average (dBμV)	QP-limit (dBμV)	AVG-limit (dBμV)	Margin (dB)
Line 1	317.000	43.15	---	---	61.23	51.23	-8.08
	533.000	42.34	---	---	56.00	46.00	-3.66
	634.185	45.00	39.95	17.92	56.00	46.00	-16.05
	759.000	41.85	---	---	56.00	46.00	-4.15
	884.000	40.95	---	---	56.00	46.00	-5.05
	1550.000	37.88	---	---	56.00	46.00	-8.12
Line 2	311.000	44.65	---	---	61.40	51.40	-6.75
	494.000	41.21	---	---	56.17	46.17	-4.96
	577.265	44.17	39.06	12.99	56.00	46.00	-16.94
	616.600	44.41	38.32	16.81	56.00	46.00	-17.68
	989.000	39.99	---	---	56.00	46.00	-6.01
	1282.000	40.00	---	---	56.00	46.00	-6.00

Test mode: IEEE 802.11n 20M Channel 6

Power Connected Emissions					Class B		
Conductor	Frequency (KHz)	Peak (dBμV)	QP (dBμV)	Average (dBμV)	QP-limit (dBμV)	AVG-limit (dBμV)	Margin (dB)
Line 1	323.000	42.86	---	---	61.06	51.06	-8.20
	528.000	42.48	---	---	56.00	46.00	-3.52
	631.000	45.02	39.48	17.57	56.00	46.00	-16.52
	858.000	42.33	---	---	56.00	46.00	-3.67
	1049.000	40.52	---	---	56.00	46.00	-5.48
	1320.000	39.20	---	---	56.00	46.00	-6.80
Line 2	285.000	45.97	---	---	62.14	52.14	-6.17
	522.500	43.28	38.75	18.80	56.00	46.00	-17.25
	621.100	44.48	38.97	17.80	56.00	46.00	-17.03
	858.000	41.61	---	---	56.00	46.00	-4.39
	1269.000	40.03	---	---	56.00	46.00	-5.97
	1889.000	38.43	---	---	56.00	46.00	-7.57

Test mode: IEEE 802.11n 20M Channel 11

Power Connected Emissions					Class B		
Conductor	Frequency (KHz)	Peak (dBμV)	QP (dBμV)	Average (dBμV)	QP-limit (dBμV)	AVG-limit (dBμV)	Margin (dB)
Line 1	326.000	42.84	---	---	60.97	50.97	-8.13
	518.815	43.83	39.72	19.23	56.00	46.00	-16.28
	636.540	44.53	40.19	18.19	56.00	46.00	-15.81
	884.000	41.66	---	---	56.00	46.00	-4.34
	1282.000	39.67	---	---	56.00	46.00	-6.33
	1924.000	37.44	---	---	56.00	46.00	-8.56
Line 2	185.000	48.39	---	---	65.00	55.00	-6.61
	302.000	45.51	---	---	61.66	51.66	-6.15
	523.000	42.95	---	---	56.00	46.00	-3.05
	858.105	44.55	37.98	16.72	56.00	46.00	-18.02
	1144.000	41.28	---	---	56.00	46.00	-4.72
	1518.000	38.94	---	---	56.00	46.00	-7.06

Test mode: IEEE 802.11n 40M Channel 3

Power Connected Emissions					Class B		
Conductor	Frequency (KHz)	Peak (dBμV)	QP (dBμV)	Average (dBμV)	QP-limit (dBμV)	AVG-limit (dBμV)	Margin (dB)
Line 1	167.000	49.47	---	---	65.51	55.51	-6.04
	308.000	42.91	---	---	61.49	51.49	-8.58
	568.370	44.53	38.64	13.16	56.00	46.00	-17.36
	759.000	42.11	---	---	56.00	46.00	-3.89
	858.000	41.31	---	---	56.00	46.00	-4.69
	1081.000	40.53	---	---	56.00	46.00	-5.47
Line 2	199.000	47.77	---	---	64.60	54.60	-6.83
	523.000	42.73	---	---	56.00	46.00	-3.27
	622.000	41.95	---	---	56.00	46.00	-4.05
	866.100	46.59	37.11	18.80	56.00	46.00	-18.89
	954.000	42.12	---	---	56.00	46.00	-3.88
	1282.000	42.39	---	---	56.00	46.00	-3.61

Test mode: IEEE 802.11n 40M Channel 6

Power Connected Emissions					Class B		
Conductor	Frequency (KHz)	Peak (dBμV)	QP (dBμV)	Average (dBμV)	QP-limit (dBμV)	AVG-limit (dBμV)	Margin (dB)
Line 1	302.000	42.82	---	---	61.66	51.66	-8.84
	513.000	41.97	---	---	56.00	46.00	-4.03
	627.150	48.22	39.52	14.25	56.00	46.00	-16.48
	858.000	41.67	---	---	56.00	46.00	-4.33
	1256.000	40.08	---	---	56.00	46.00	-5.92
	1924.000	37.53	---	---	56.00	46.00	-8.47
Line 2	285.000	45.39	---	---	62.14	52.14	-6.75
	471.000	43.83	---	---	56.83	46.83	-3.00
	544.115	53.28	38.95	10.28	56.00	46.00	-17.05
	627.090	44.34	40.43	7.54	56.00	46.00	-15.57
	688.200	40.32	37.08	15.48	56.00	46.00	-18.92
	850.000	42.48	---	---	56.00	46.00	-3.52

Test mode: IEEE 802.11n 40M Channel 9

Power Connected Emissions					FCC Class B		
Conductor	Frequency (KHz)	Peak (dBμV)	QP (dBμV)	Average (dBμV)	QP-limit (dBμV)	AVG-limit (dBμV)	Margin (dB)
Line 1	294.000	43.71	---	---	61.89	51.89	-8.18
	518.000	42.85	---	---	56.00	46.00	-3.15
	637.140	44.97	40.15	17.96	56.00	46.00	-15.85
	1059.000	40.18	---	---	56.00	46.00	-5.82
	1411.000	39.78	---	---	56.00	46.00	-6.22
	3062.000	35.21	---	---	56.00	46.00	-10.79
Line 2	191.000	48.55	---	---	64.83	54.83	-6.28
	291.000	44.80	---	---	61.97	51.97	-7.17
	533.000	42.64	---	---	56.00	46.00	-3.36
	651.000	42.98	---	---	56.00	46.00	-3.02
	861.105	44.11	37.93	20.56	56.00	46.00	-18.07
	1187.000	40.27	---	---	56.00	46.00	-5.73

IV. Section 15.247 (a): Technical description of the EUT

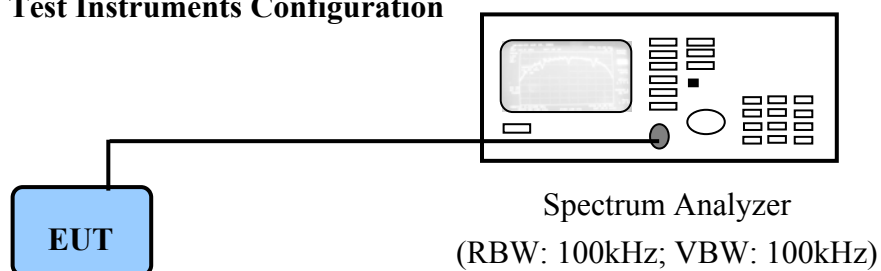
Direct Sequence System is a spread spectrum system in which the carrier has been modulated by a high speed spreading code and an information data stream. The high speed code sequence dominates the “modulating function” and is the direct cause of the wide spreading of the transmitted signal. In the operational description demonstrates the operation principles of the Baseband processor employed by the EUT, shows that which is a complete DSSS baseband processor and meets the definition of the direct sequence spread spectrum system.

V. Section 15.247(a)(2): Bandwidth for Direct Sequence System.

5.1 Test Condition & Setup

The transmitter bandwidth measurements were performed by the contact manner. The EUT was set to transmit continuously, also various channels were investigated to find the maximum occupied bandwidth. The output of the EUT was connected to the spectrum analyzer. The bandwidth of the fundamental frequency is observed by the spectrum analyzer with 100kHz RBW and 100kHz VBW.

5.2 Test Instruments Configuration



PC to control the EUT at maximal power output and channel number and set antenna kit

5.3 List of Test Instruments

Instrument Name	Model No.	Brand	Serial No.	Next time
Spectrum Analyzer	MS2665C	ANRITSU	6200175476	12/19/09

5.4 Test Result of Bandwidth

IEEE 802.11b

Channel	Limited (kHz)	Antenna(MHz)
CH01	≥ 500	9.76
CH06	≥ 500	9.72
CH11	≥ 500	9.72

IEEE 802.11g

CH01	≥ 500	16.68
CH06	≥ 500	16.68
CH11	≥ 500	16.68

IEEE 802.11n 20M

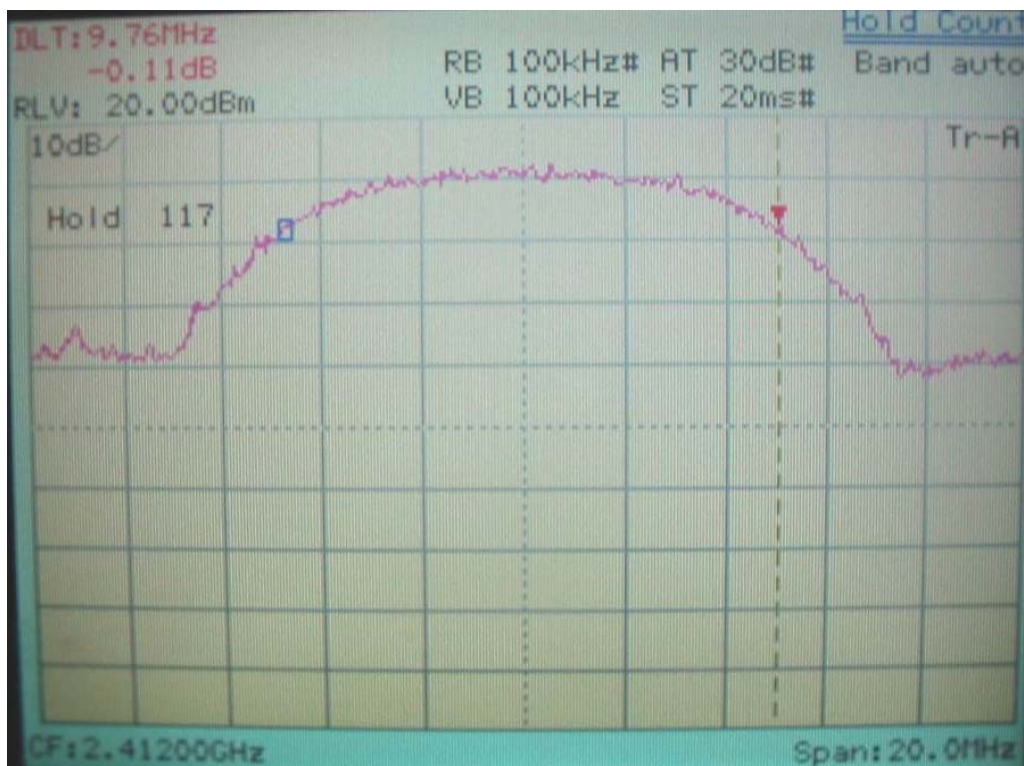
Channel	Limit (kHz)	Antenna#1(MHz)	Antenna#2(MHz)
CH01	≥ 500	17.76	17.84
CH06	≥ 500	17.76	17.84
CH11	≥ 500	17.76	17.80

IEEE 802.11n 40M

CH03	≥ 500	36.50	36.60
CH06	≥ 500	36.60	36.60
CH09	≥ 500	36.60	36.50

- Note:
1. The data in the above table are summarizing the following attachment spectrum analyzer hard copy. According to the guidance, we'd made the measurement with the spectrum analyzer's resolution bandwidth (RBW)= $100kHz$ and set the $span \gg RBW$. The results show the measured 6dB bandwidth comply with the minimum 500kHz requirement.
 2. The attachments show these on the following pages.

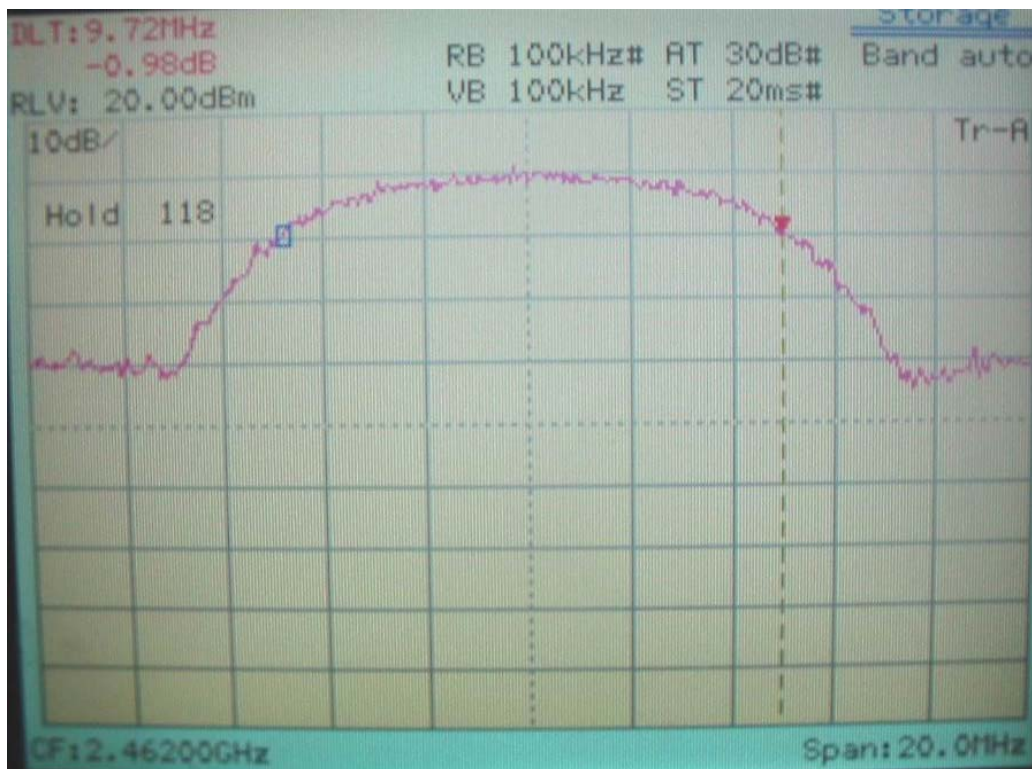
6dB Bandwidth of Channel CH01 IEEE 802.11b, 2412MHz



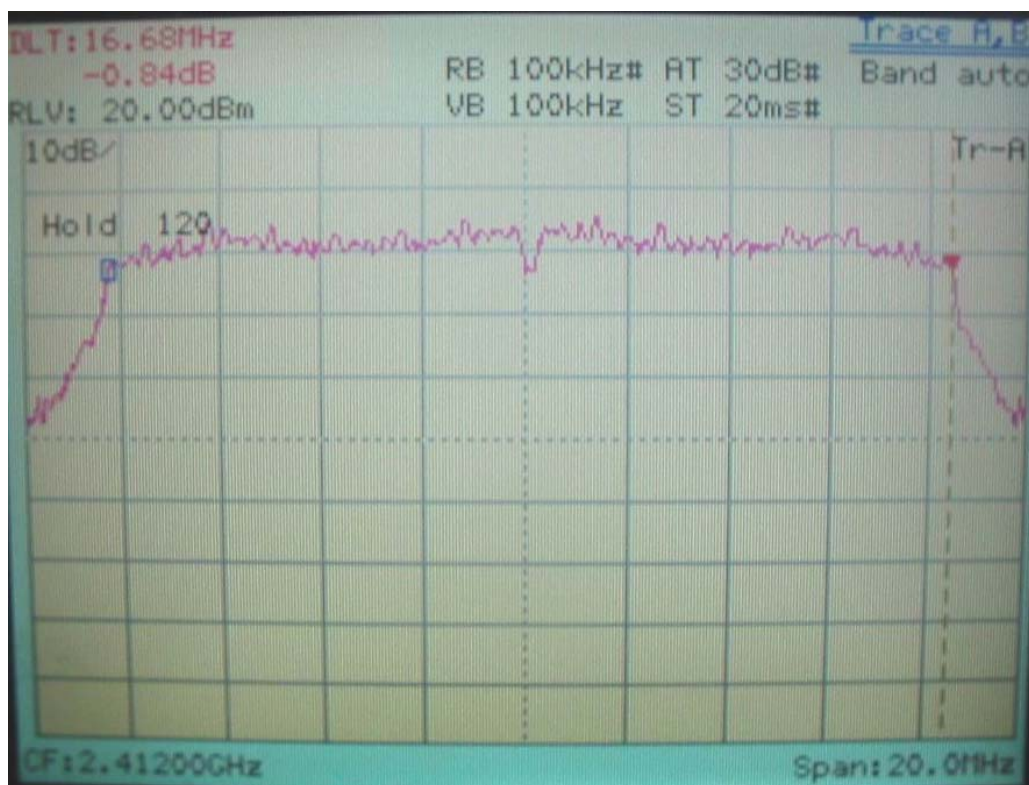
6dB Bandwidth of Channel CH06 IEEE 802.11b, 2437MHz



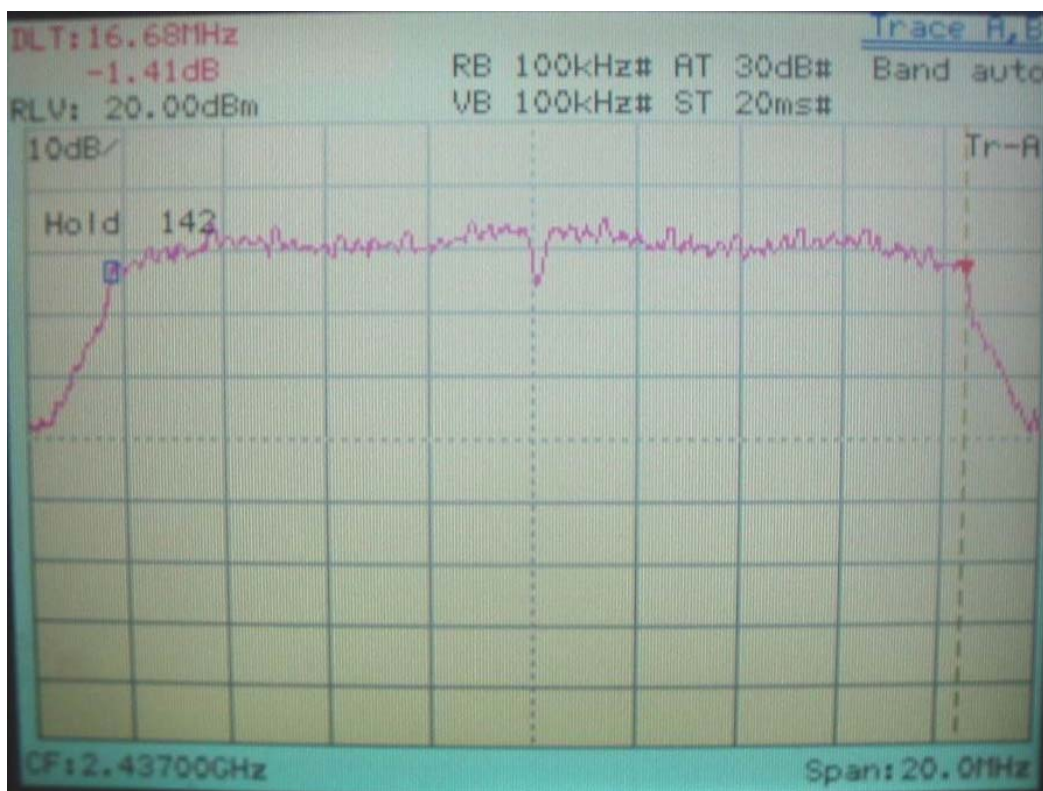
6dB Bandwidth of Channel CH11 IEEE 802.11b, 2462MHz



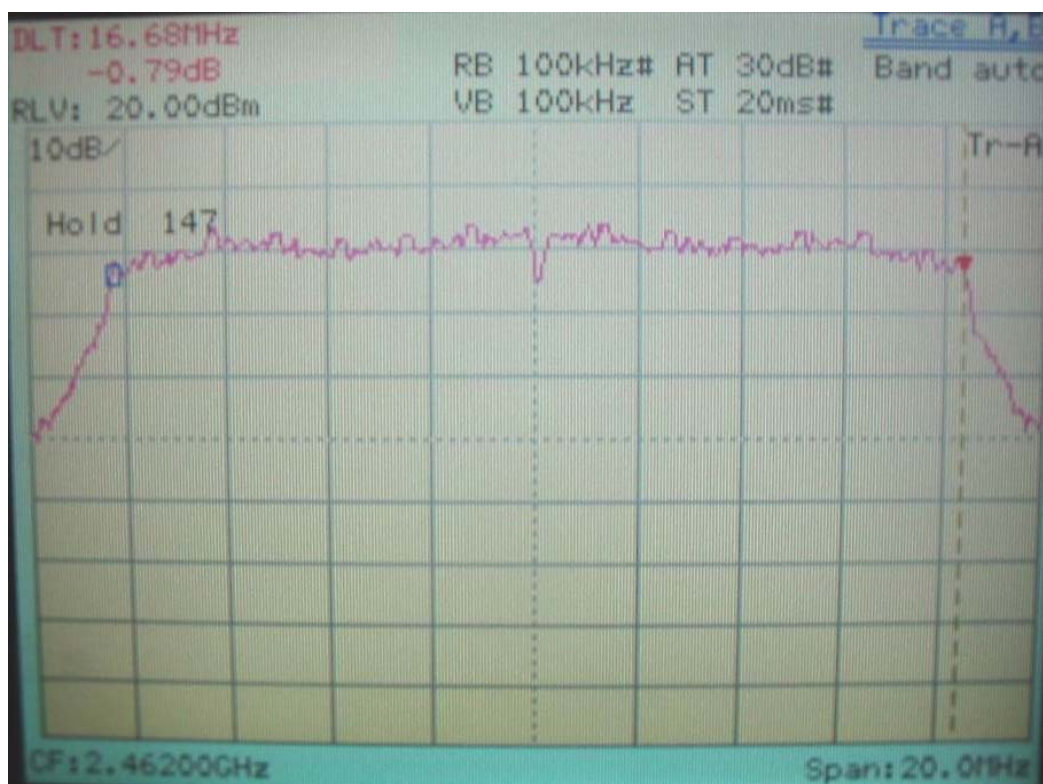
6dB Bandwidth of Channel CH01 IEEE 802.11g, 2412MHz



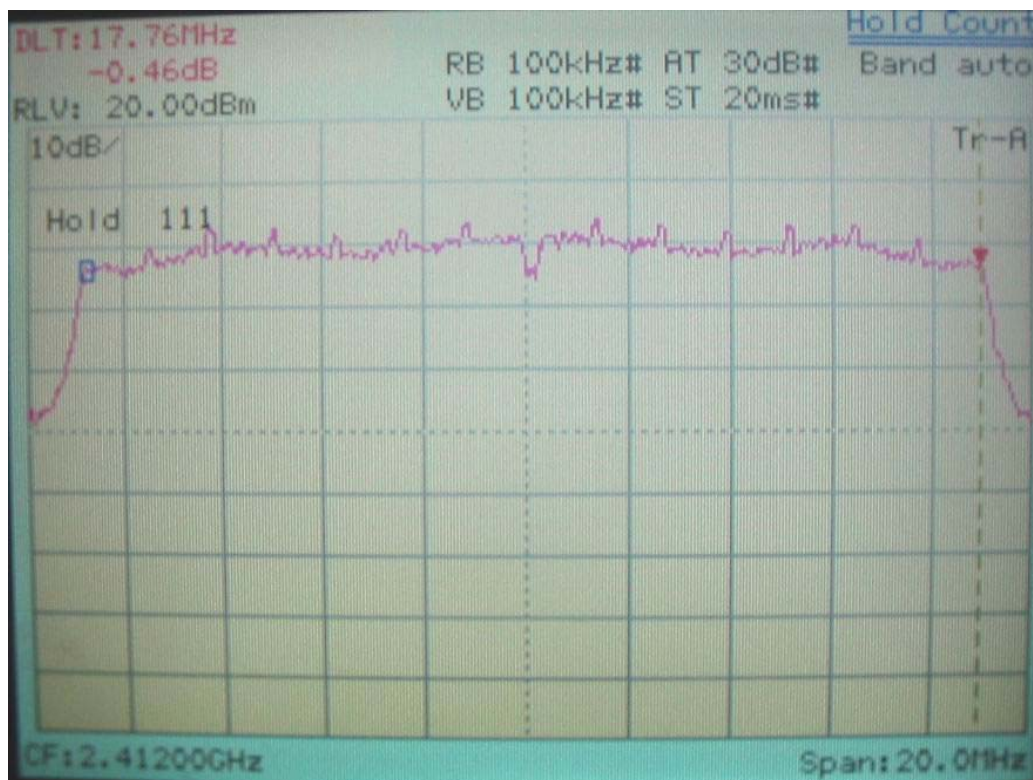
6dB Bandwidth of Channel CH06 IEEE 802.11g, 2437MHz



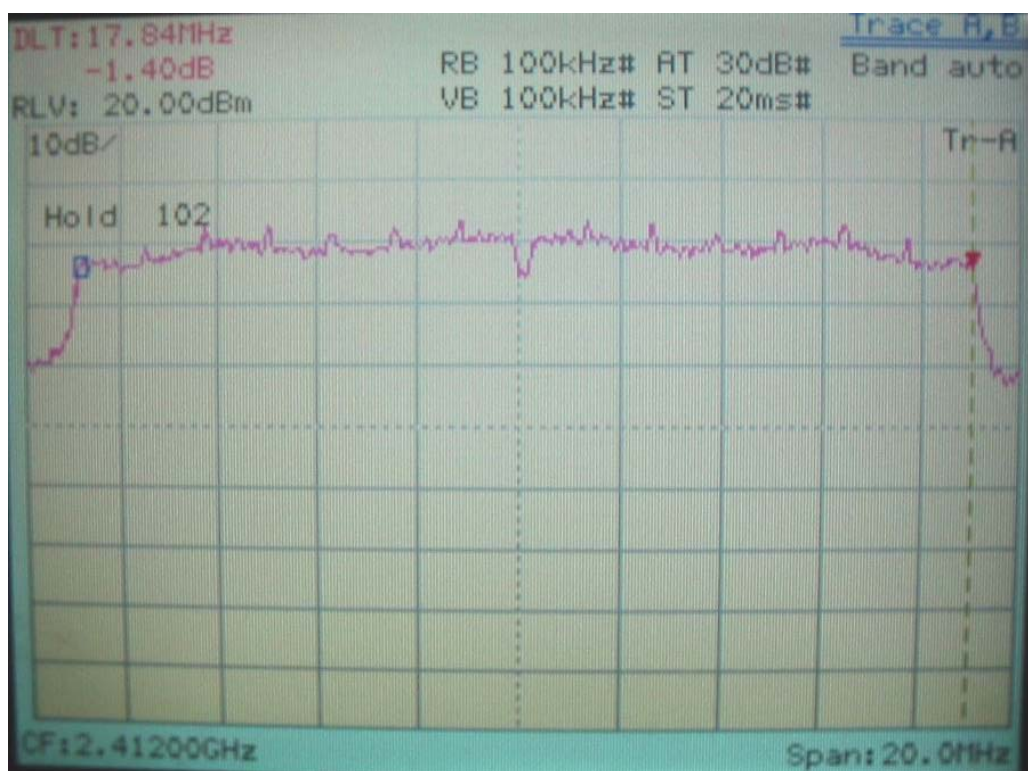
6dB Bandwidth of Channel CH11 IEEE 802.11g, 2462MHz



6dB Bandwidth of Channel 01 IEEE 802.11n 20M, 2412MHz

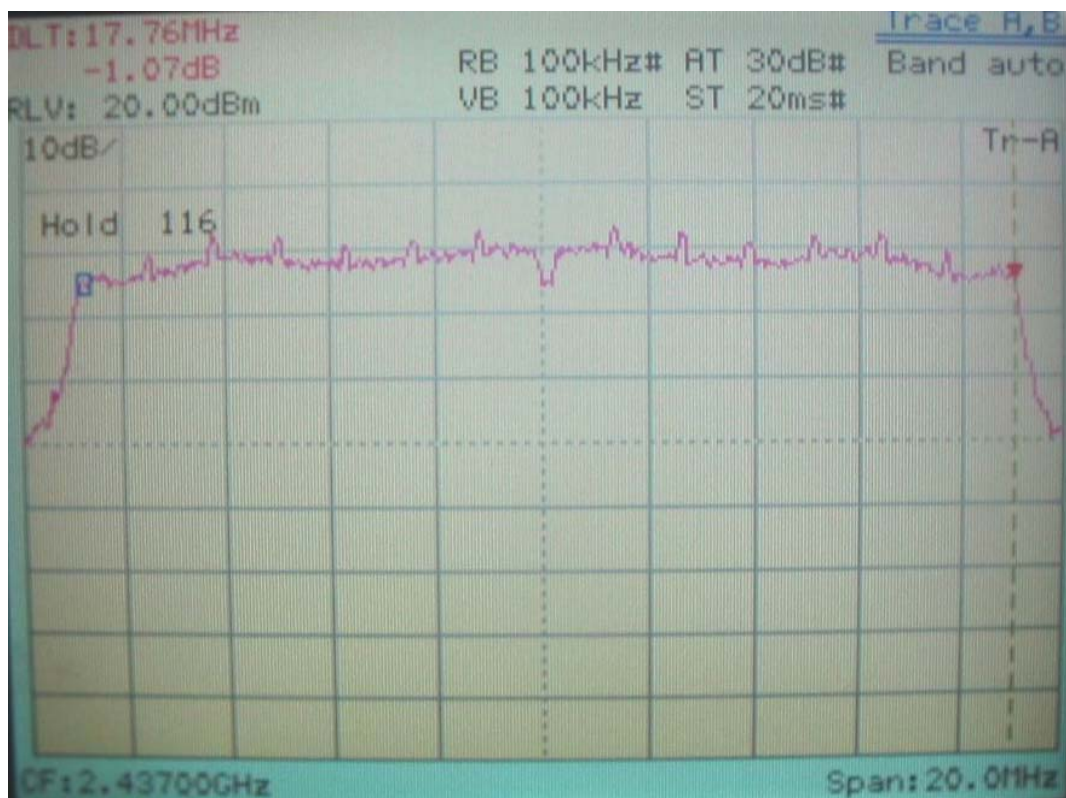


Ant#1

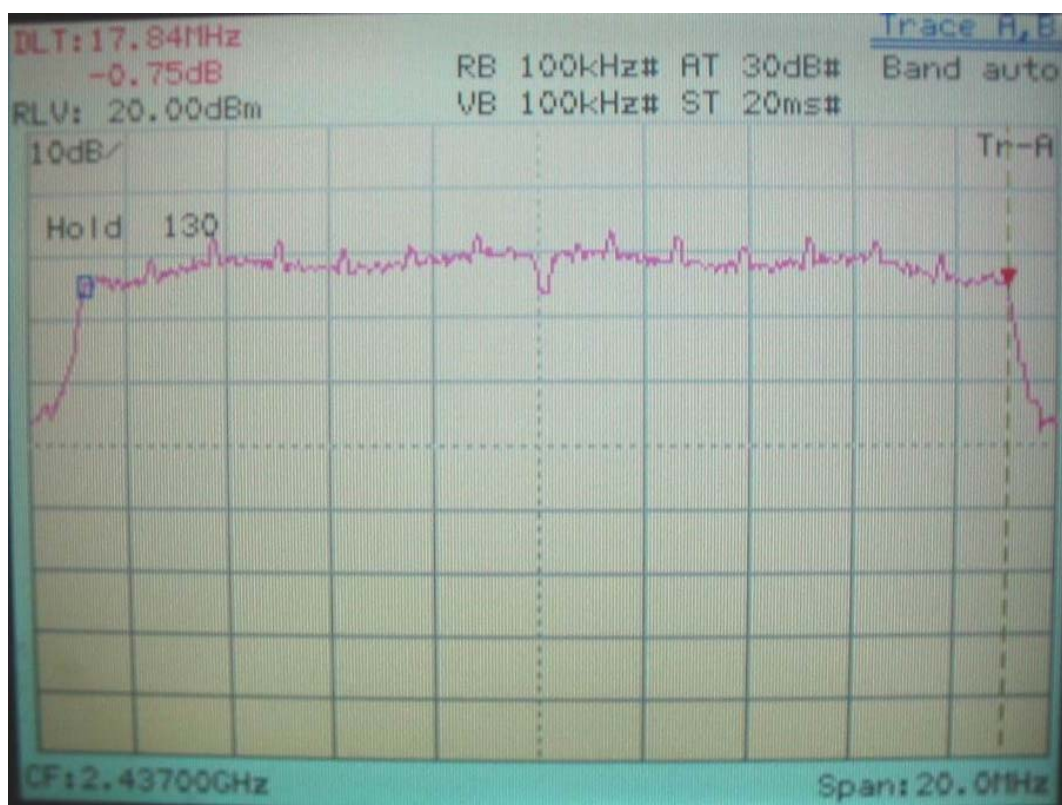


Ant#2

6dB Bandwidth of Channel 06 IEEE 802.11n 20M, 2437MHz

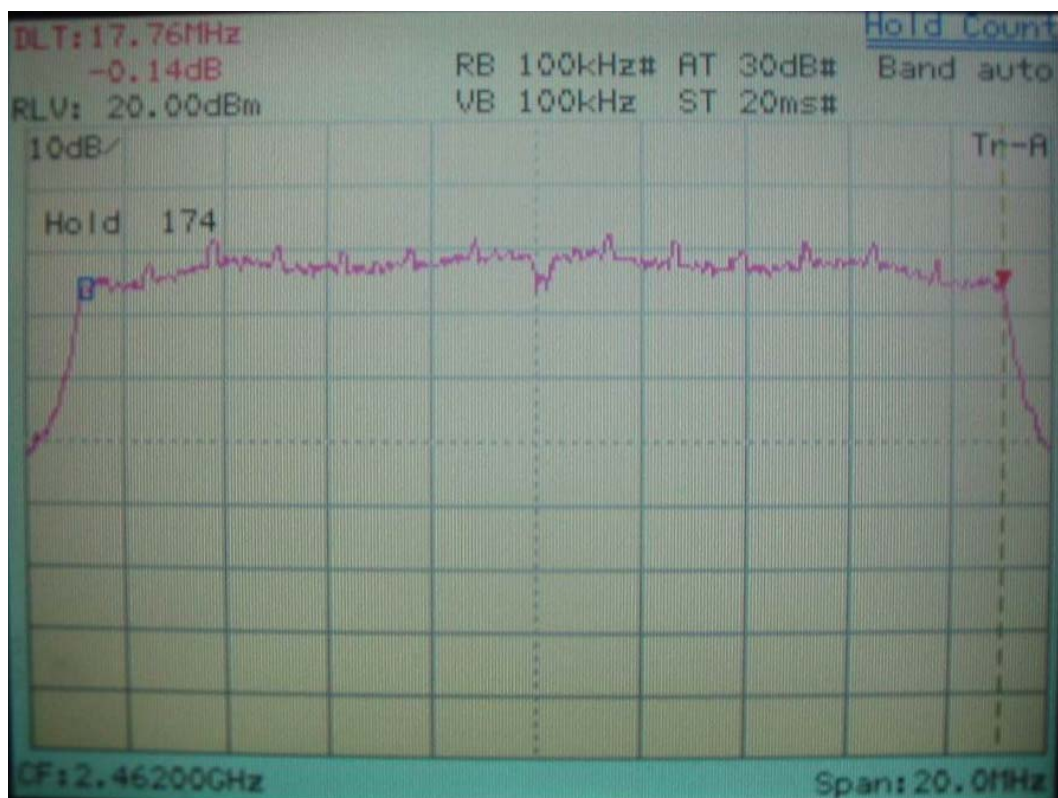


Ant#1

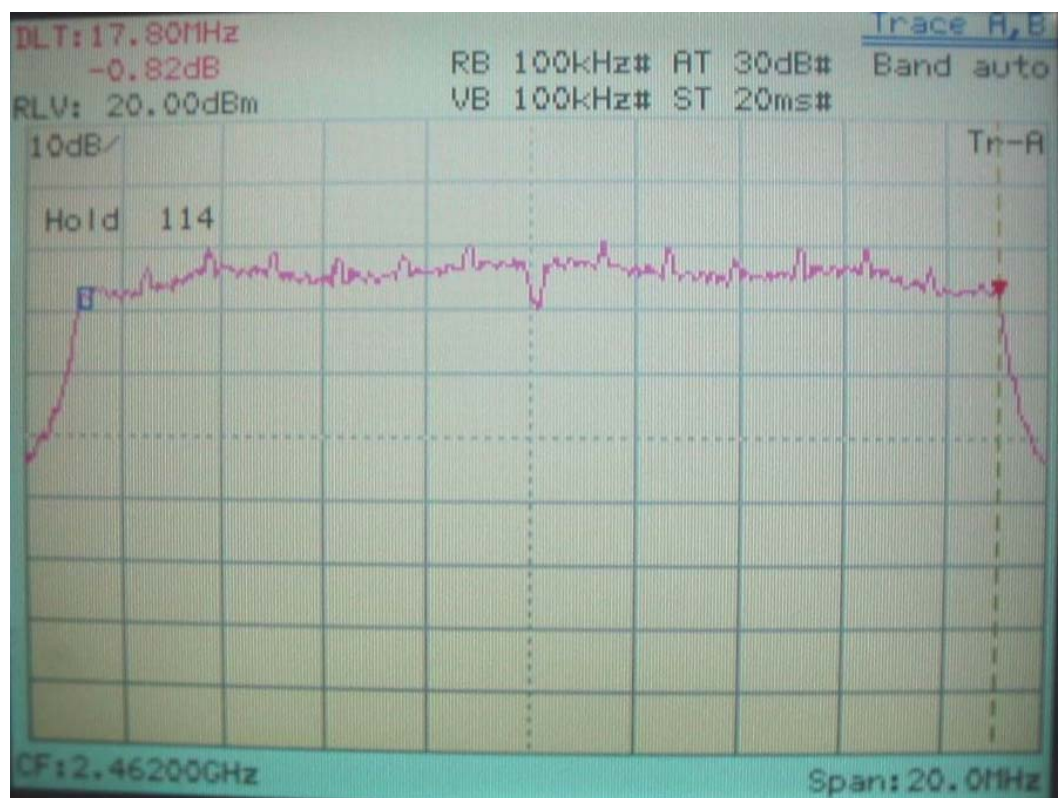


Ant#2

6dB Bandwidth of Channel 11 IEEE 802.11n 20M, 2462MHz

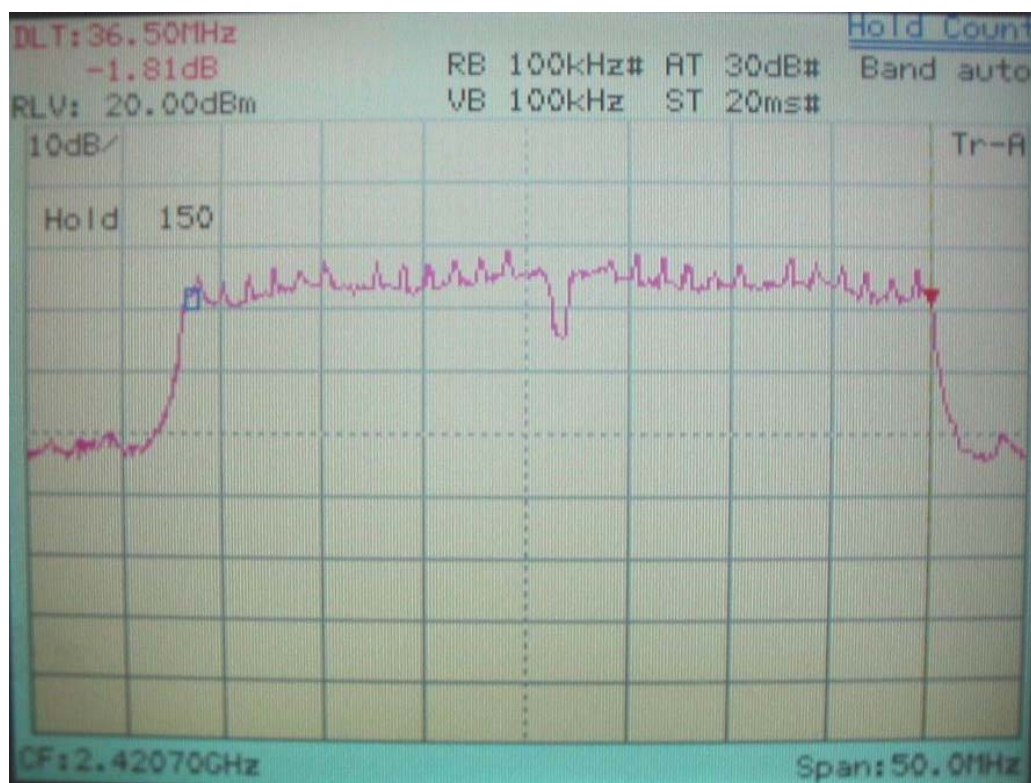


Ant#1

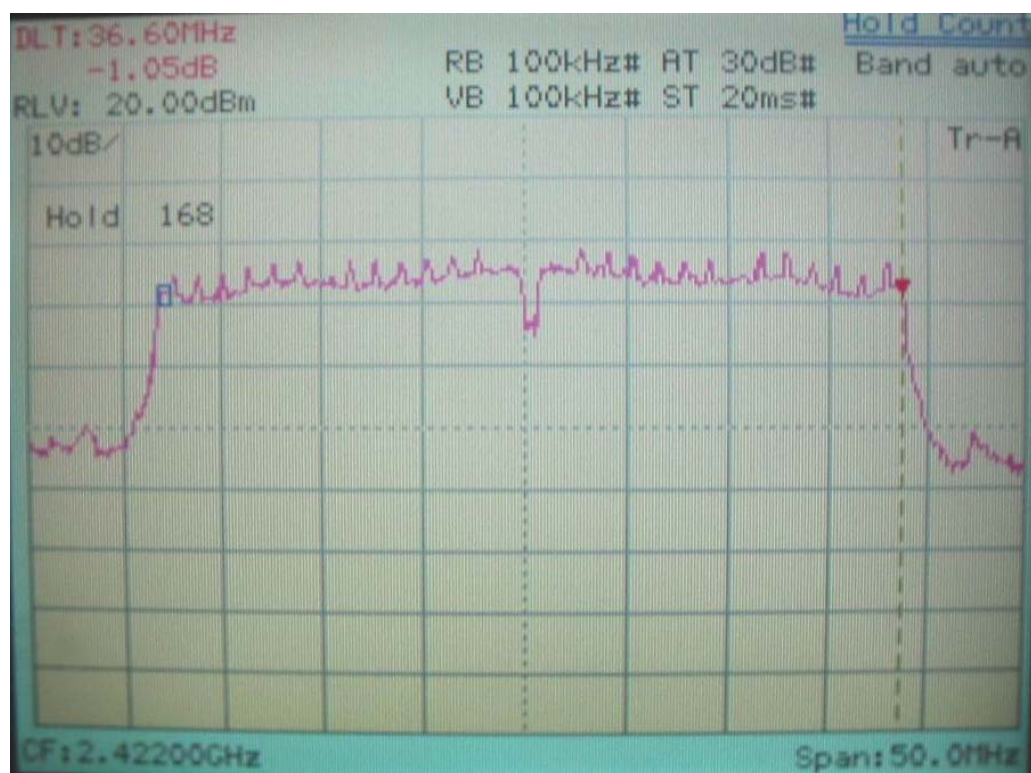


Ant#2

6dB Bandwidth of Channel 03 IEEE 802.11n 40M, 2422MHz

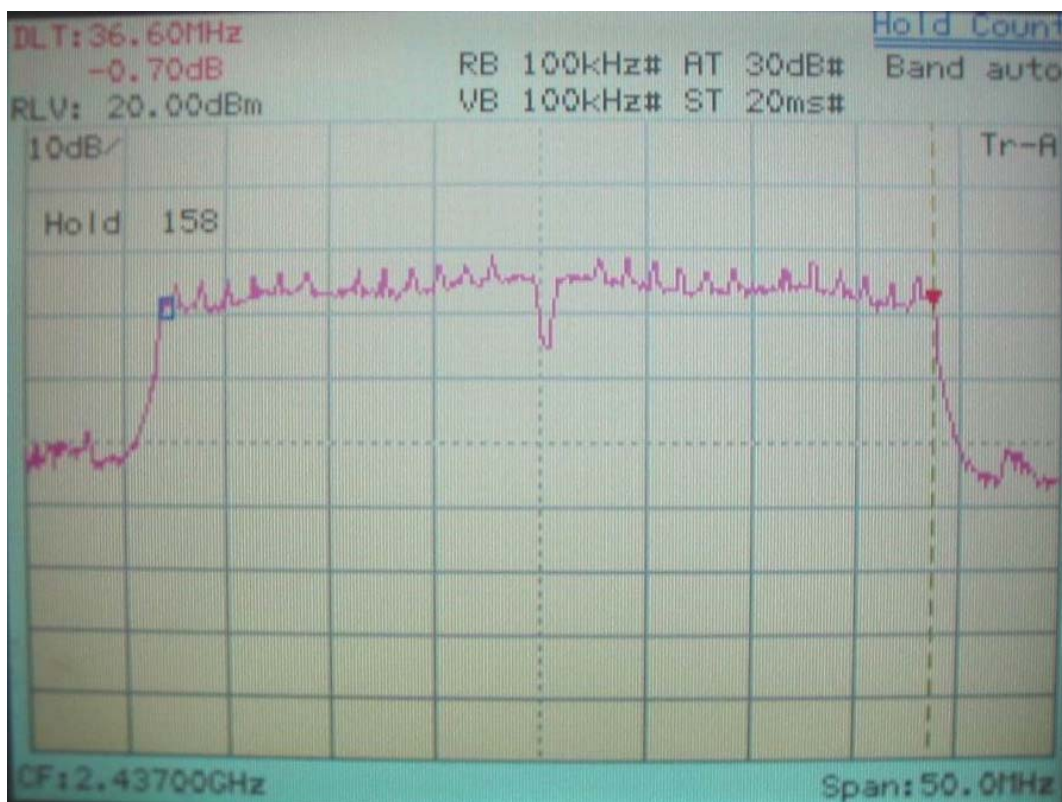


Ant#1

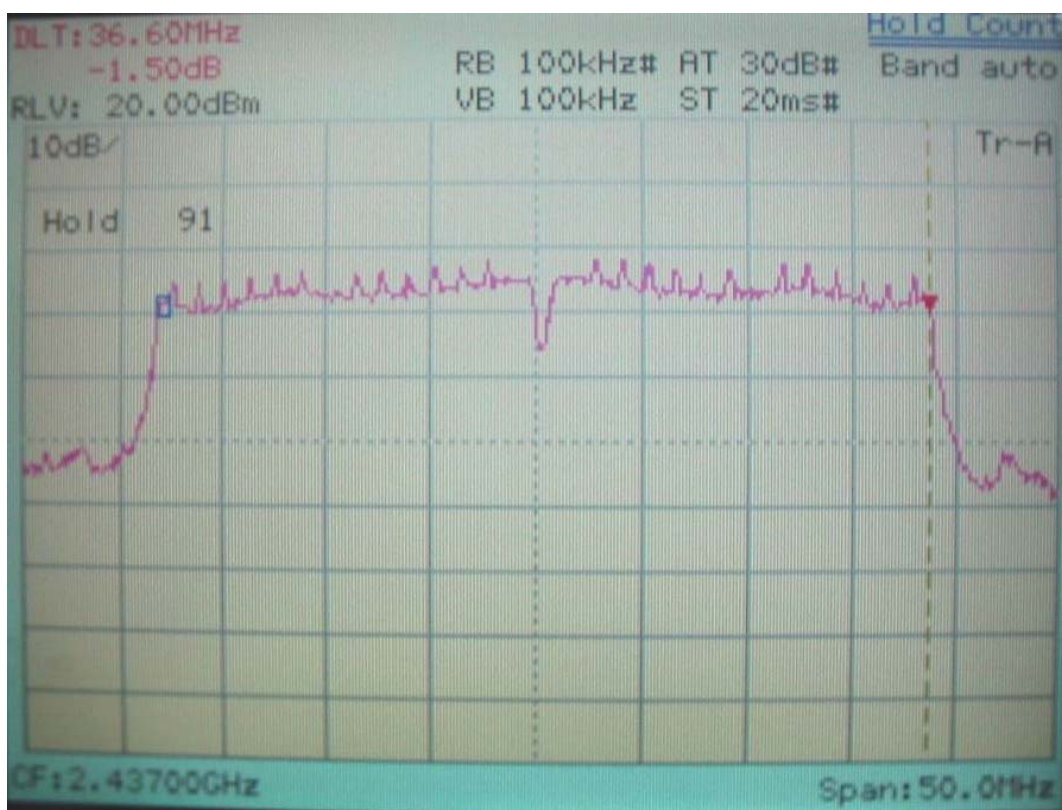


Ant#2

6dB Bandwidth of Channel 06 IEEE 802.11n 40M, 2437MHz

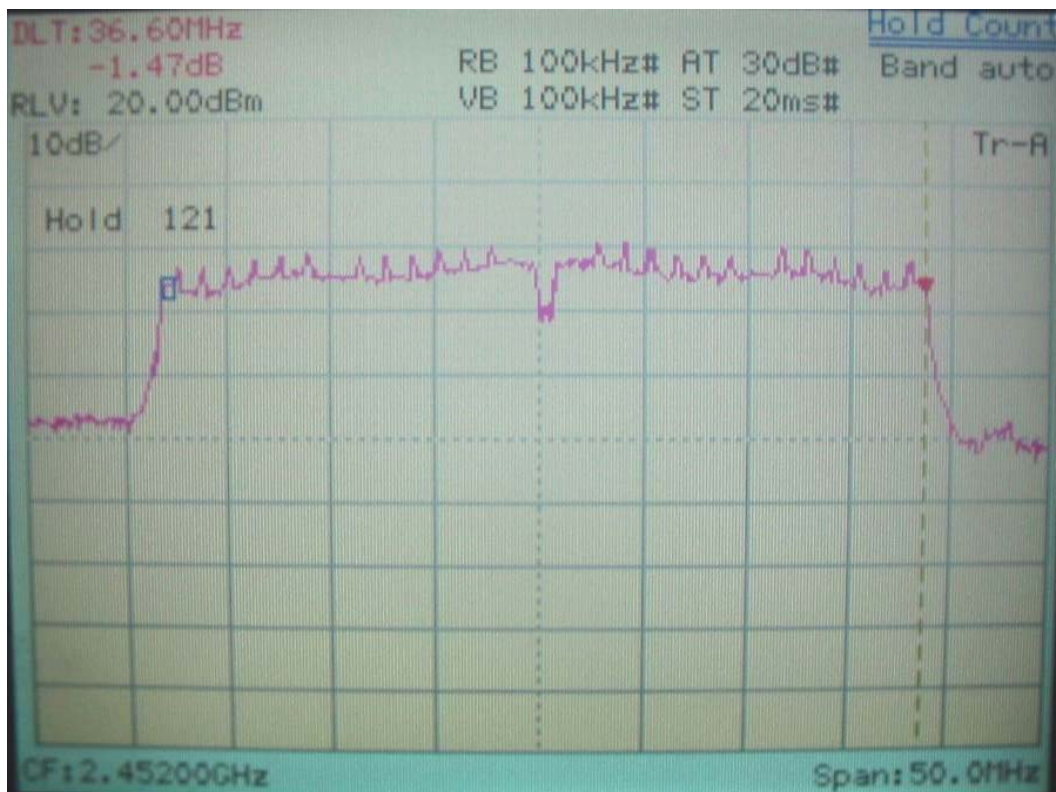


Ant#1

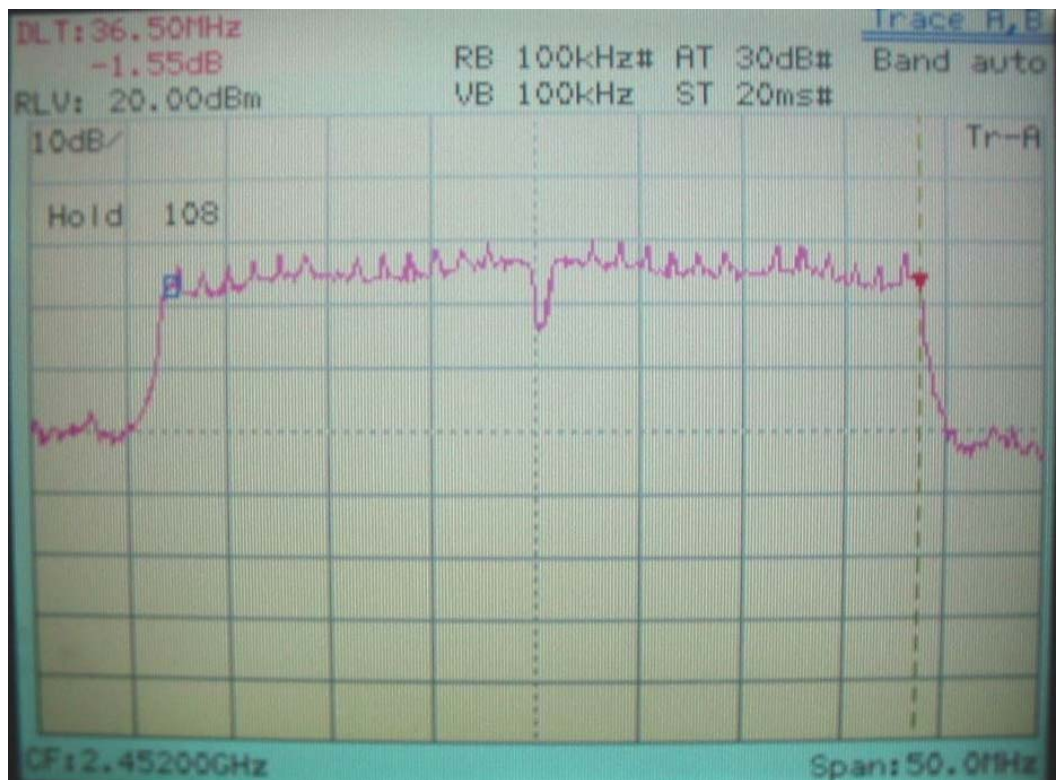


Ant#2

6dB Bandwidth of Channel 09 IEEE 802.11n 40M, 2452MHz



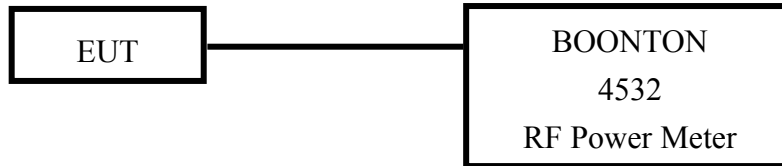
Ant#1



Ant#2

VI. Section 15.247(b): Power Output

6.1 Test Condition & Setup



1. The output of the transmitter is connected to the BOONTON RF Power Meter.
2. The calibration is performed before every test. The values of the output power of the EUT will shown in the dBm directly are the transmitter output peak power. Recording as follows.

6.2 List of Test Instruments

Instrument Name	Model	Brand	Serial No.	Next time
RF Power Meter	4532	BOONTON	117501	12/11/09
Peak Power Sensor	57340	BOONTON	2696	12/11/09

6.3 Test Result

Formula:

RF Output of EUT + |Cable Loss| = Output Peak Power

Channel (MHz)	Output Level	Cable Loss	Limit	Output Peak Power	
	dBm	dBm	(DSS)	dBm	mW

IEEE 802.11b

CH 01 /2412	17.59	7.00	30dBm	24.59	287.74
CH 06 /2437	17.54	7.00	30dBm	24.54	284.45
CH 11 /2462	17.65	7.00	30dBm	24.65	291.74

IEEE 802.11g

CH 01 /2412	17.97	7.00	30dBm	24.97	314.05
CH 06 /2437	17.71	7.00	30dBm	24.71	295.80
CH 11 /2462	17.80	7.00	30dBm	24.80	302.00

Formula:

$$\text{Total Power} = 10 \log (10^{\text{Ant\#1 Power} / 10} + 10^{\text{Ant\#2 Power} / 10})$$

Channel (MHz)	Output Level		Cable Loss dB	Limit (DSS)	Total Output Peak Power	
	Ant#1	Ant#2			dBm	mW
	dBm	dBm				

802.11n 20M

CH Lowest/2412	17.66	17.60	7.00	30dBm	27.64	580.82
CH Middle/2437	17.84	17.79	7.00	30dBm	27.83	606.09
CH Highest/2462	17.58	17.44	7.00	30dBm	27.52	565.04

802.11n 40M

CH Lowest /2422	16.90	16.08	7.00	30dBm	26.52	448.71
CH Middle/2437	16.63	16.49	7.00	30dBm	26.57	454.03
CH Highest/2452	17.55	17.31	7.00	30dBm	27.44	554.88

VII. Section 15.247 (C): Spurious Emissions (Radiated)

7.1 Test Condition & Setup

We'd performed the test by the *radiated emission* skill: The EUT was placed in an semi-anechoic chamber, and set the EUT transmitting continuously and scanned at 3-meter distance to determine its emission characteristics. The physical arrangement of the EUT was varied (within the scope of arrangements likely to be encountered in actual use) to determine the effect on the unit's emanations in amplitude, directivity, and frequency. The exact system configuration, which produced the highest emissions was noted so it could be reproduced later during the final tests. For the measurement above 1GHz, according to the guidance we'd set the spectrum analyzer's 6dB bandwidth RBW to 1MHz.

This was done to ensure that the final measurements would demonstrate the worst-case interference potential of the EUT.

Final radiation measurements were made on a three-meter, semi-anechoic chamber. The EUT system was placed on a nonconductive turntable, which is 0.8 meters height, top surface 1.0 x 1.5 meter.

The spectrum was examined from 30MHz to 1000MHz using an Hewlett Packard 85460A EMI Receiver, SCHWARZECK whole range Small Biconical Antenna (Model No.: UBAA9114 & BBVU9135) is used to measure frequency from 30 MHz to 1GHz. The final test is used the HP 85460A spectrum and 8564E spectrum was examined from 1GHz to 25GHz using an Hewlett Packard Spectrum Analyzer, EMCO/HP Horn Antenna (Model 3115 / 84125-80008) for 1G - 25GHz.

At each frequency, the EUT was rotated 360 degrees, and the antenna was raised and lowered from one to four meters to find the maximum emission levels. Measurements were taken using both horizontal and vertical antenna polarization.

Appropriate preamplifiers were used for improving sensitivity and precautions were taken to avoid overloading or desensitizing the spectrum analyzer. There are two spectrum analyzers use on this testing, HP 85460A for frequency 30MHz to 1000MHz, and 8564E for frequency 1GHz to 25GHz. No post-detector video filters were used in the test. The spectrum analyzer's 6dB bandwidth was set to 120KHz (spectrum was examined from 30 MHz to 1000 MHz), the spectrum analyzer's 6 dB bandwidth was set to 1 MHz (spectrum was examined from 1GHz to 25GHz) and the analyzer was operated in the maximum hold mode. There is a test condition applies in this test item, the test procedure description as the following:

Three channels were tested, one in the top, one in the middle and the other in bottom. The setting up procedure is recorded on <1.3>

With the transmitter operating from a AC source and using the internal of EUT, radiates spurious emissions falling within the restricted bands of 15.209 were measured at operating frequencies corresponding to upper, middle and bottom channels in the 2400 ~ 2483.5 MHz band.

The actual field intensity in decibels referenced to 1 microvolt per meter (dBμV/m) is determined by algebraically adding the measured reading in dBμV, the antenna factor (dB), and cable loss (dB) at the appropriate frequency. Since the EUT was set to transmit continuously, no *duty cycle* is present.

For frequency between 30MHz to 1000MHz

$$F_{Ia} \text{ (dBuV/m)} = F_{Ir} \text{ (dB}\mu\text{V)} + \text{Correction Factors}$$

F_{Ia} : Actual Field Intensity

F_{Ir} : Reading of the Field Intensity

Correction Factors = Antenna Factor + (Cable Loss – Amplifier Gain) + Switching Box Loss

For frequency between 1GHz to 25GHz

$$F_{Ia} \text{ (dB}\mu\text{V/m)} = F_{Ir} \text{ (dB}\mu\text{V)} + \text{Correction Factor}$$

F_{Ia} : Actual Field Intensity

F_{Ir} : Reading of the Field Intensity

Correction Factors = Antenna Factor + (Cable Loss – Amplifier Gain) + Switching Box Loss

7.2 List of Test Instruments

Instrument Name	Model	Brand	Serial No.	Calibration Date
				Next time
EMI Receiver	8546A	HP	3520A00242	01/15/10
RF Filter Section	85460A	HP	3448A00217	01/15/10
Small Biconical Antenna	UBAA9114 & BBVU9135	SCHWARZECK	127	01/10/10
Pre-amplifier	PA1F	TRC	1FAC	01/10/10
Coaxial Cable (Double shielded, 15 meter)	A30A30-0058-50FS-15M	JYEBAO	SMA-01	01/10/10
Coaxial Cable (1.1 meter)	A30A30-0058-50FS-1M	JYEBAO	SMA-02	01/10/10
Spectrum Analyzer	8564E	HP	3720A00840	12/17/09
Microwave Preamplifier	84125C	HP	US36433002	11/05/09
Horn Antenna	3115	EMCO	9104-3668	11/06/09
Standard Guide Horn Antenna	84125-80008	HP	18-26.5GHz	12/14/09
Standard Guide Horn Antenna	84125-80001	HP	26.5-40GHz	11/12/09
Horn Antenna	1196E (3115)	HP (EMCO)	9704-5178	11/13/09
Pre-amplifier	PA2F	TRC	2F1GZ	01/10/10
Coaxial Cable (3 miter)	A30A30-0058-50FST118	JYEBAO	MSA-05	01/10/10
Coaxial Cable (1 meter)	A30A30-0058-50FST118	JYEBAO	MSA-04	01/10/10

7.3 Test Result of Spurious Radiated Emissions

The highest peak values of radiated emissions from the EUT at various antenna heights, antenna polarizations, EUT orientation, etc. are recorded on the following.

Test Conditions: Temperature : 25 ° C Humidity : 73 % RH

Test mode: IEEE 802.11b CH01 for 30MHz to 1GHz [Horizontal]

Radiated Emission				Correction Factors	Corrected Amplitude	Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table ()			Limit (dBμV/m)	Margin (dB)
197.32	35.48	1.00	170	-3.42	32.06	43.50	-11.44
267.65	37.33	1.00	159	-3.90	33.43	46.00	-12.57
300.39	40.32	1.00	284	-2.90	37.42	46.00	-8.58
370.71	37.09	1.00	187	-1.78	35.31	46.00	-10.69
437.40	29.29	1.00	187	0.62	29.91	46.00	-16.09
876.33	24.02	1.00	138	14.27	38.29	46.00	-7.71

Test mode: IEEE 802.11b CH01 for 30MHz to 1GHz [Vertical]

Radiated Emission				Correction Factors	Corrected Amplitude	Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table ()			Limit (dBμV/m)	Margin (dB)
203.39	29.84	1.00	170	-3.44	26.40	43.50	-17.10
322.21	32.48	1.00	35	-2.62	29.86	46.00	-16.14
521.06	27.84	1.00	311	3.14	30.98	46.00	-15.02
561.08	28.16	1.00	293	5.37	33.53	46.00	-12.47
696.87	27.82	1.00	314	9.44	37.26	46.00	-8.74
801.15	24.30	1.00	356	11.67	35.97	46.00	-10.03

Note:

1. Margin = Amplitude – limit, if margin is minus means under limit.
2. Corrected Amplitude = Reading Amplitude + Correction Factors
3. Correction factor = Antenna factor + (Cable Loss – Amplitude gain) + Switching Box Loss

Test mode: IEEE 802.11b CH01 for 1GHz to 26.5GHz [Horizontal]

Frequency	Ant. H.	Table	Amplitude		Correction Factor	Corrected Amplitude		Limit		Margin
			Peak / Ave.			Peak / Ave.		Peak / Ave.		
MHz	m	degree	dBμV		dB/m	dBμV/m		dBμV/m		dB
1662.50	1.00	262	37.66	---	13.36	51.02	---	73.96	53.96	-2.94
2306.25	1.00	25	39.16	---	8.95	48.11	---	73.96	53.96	-5.85
2572.30	1.00	71	43.83	32.50	9.63	53.46	42.13	73.96	53.96	-11.83
12061.04	1.00	196	37.44	---	9.81	47.25	---	73.96	53.96	-6.71
19296.25	1.00	307	46.82	---	1.60	48.42	---	73.96	53.96	-5.54
24120.00	1.00	91	44.66	---	3.40	48.06	---	73.96	53.96	-5.90

Test mode: IEEE 802.11b CH01 for 1GHz to 26.5GHz [Vertical]

Frequency	Ant. H.	Table	Amplitude		Correction Factor	Corrected Amplitude		Limit		Margin
			Peak / Ave.			Peak / Ave.		Peak / Ave.		
MHz	m	degree	dBμV		dB/m	dBμV/m		dBμV/m		dB
1664.29	1.00	162	39.06	24.33	13.33	52.39	37.66	73.96	53.96	-16.30
2156.25	1.00	168	41.16	---	8.53	49.69	---	73.96	53.96	-4.27
2571.96	1.00	150	46.16	34.17	9.63	55.79	43.80	73.96	53.96	-10.16
3218.75	1.00	360	37.17	---	11.48	48.65	---	73.96	53.96	-5.31
7233.75	1.00	262	40.94	---	10.07	51.01	---	73.96	53.96	-2.95
24120.00	1.00	95	44.66	---	3.40	48.06	---	73.96	53.96	-5.90

Note:

1. Margin = Corrected - Limit.
2. The EUT utilizes a *permanently attached antenna*. In addition the spurious RF radiated emissions levels do comply with the *20dBc limit* both at its bandedges and other spurious emissions.
3. As stated in Section 15.35(b), for any frequencies above 1000MHz, radiated limits shown are based upon the use of measurement instrumentation employing an average detector function. As the results of our test, the peak amplitudes are already below the FCC limit. Thus the average amplitudes of the rest are omitted.

Test mode: IEEE 802.11b CH06 for 30MHz to 1GHz [Horizontal]

Radiated Emission				Correction Factors	Corrected Amplitude	Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table ()			Limit (dBμV/m)	Margin (dB)
39.10	21.63	1.00	0	5.32	26.95	40.00	-13.05
196.11	35.28	1.00	163	-3.47	31.81	43.50	-11.69
260.37	39.73	1.00	173	-3.88	35.85	46.00	-10.15
301.60	39.83	1.00	177	-2.88	36.95	46.00	-9.05
369.50	36.63	1.00	190	-1.81	34.82	46.00	-11.18
899.36	22.85	1.00	160	15.14	37.99	46.00	-8.01

Test mode: IEEE 802.11b CH06 for 30MHz to 1GHz [Vertical]

Radiated Emission				Correction Factors	Corrected Amplitude	Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table ()			Limit (dBμV/m)	Margin (dB)
32.75	19.37	1.00	3	6.99	26.36	40.00	-13.64
176.71	33.75	1.00	166	-3.02	30.73	43.50	-12.77
521.06	27.59	1.00	356	3.14	30.73	46.00	-15.27
561.08	27.83	1.00	335	5.37	33.20	46.00	-12.80
700.51	27.42	1.00	335	9.54	36.96	46.00	-9.04
899.36	23.26	1.00	232	15.14	38.40	46.00	-7.60

Test mode: IEEE 802.11b CH06 for 1GHz to 26.5GHz [Horizontal]

Frequency	Ant. H.	Table	Amplitude		Correction Factor	Corrected Amplitude		Limit		Margin
			Peak / Ave.			Peak / Ave.		Peak / Ave.		
MHz	m	degree	dBμV		dB/m	dBμV/m		dBμV/m		dB
1661.93	1.00	294	41.39	25.00	13.36	54.75	38.36	73.96	53.96	-15.60
2158.33	1.00	307	40.17	---	8.53	48.70	---	73.96	53.96	-5.26
2597.92	1.00	63	41.67	---	9.67	51.34	---	73.96	53.96	-2.62
12187.92	1.00	146	38.10	---	9.74	47.84	---	73.96	53.96	-6.12
21934.79	1.00	284	45.99	---	3.09	49.08	---	73.96	53.96	-4.88
24371.46	1.00	304	45.99	---	3.26	49.25	---	73.96	53.96	-4.71

Test mode: IEEE 802.11b CH06 for 1GHz to 26.5GHz [Vertical]

Frequency	Ant. H.	Table	Amplitude		Correction Factor	Corrected Amplitude		Limit		Margin
			Peak / Ave.			Peak / Ave.		Peak / Ave.		
MHz	m	degree	dBμV		dB/m	dBμV/m		dBμV/m		dB
1639.58	1.00	330	40.00	---	13.71	53.71	---	73.96	53.96	-0.25
2600.01	1.00	201	46.16	35.67	9.68	55.84	45.35	73.96	53.96	-8.61
7310.18	1.00	113	42.78	29.77	10.29	53.07	40.06	73.96	53.96	-13.90
12187.92	1.00	86	39.10	---	9.74	48.84	---	73.96	53.96	-5.12
21934.79	1.00	180	45.82	---	3.09	48.91	---	73.96	53.96	-5.05
24371.46	1.00	208	45.83	---	3.26	49.09	---	73.96	53.96	-4.87

Test mode: IEEE 802.11b CH11 for 30MHz to 1GHz [Horizontal]

Radiated Emission				Correction Factors	Corrected Amplitude	Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table ()			Limit (dBμV/m)	Margin (dB)
194.90	34.61	1.00	177	-3.52	31.09	43.50	-12.41
242.19	37.98	1.00	166	-3.61	34.37	46.00	-11.63
257.95	40.37	1.00	190	-3.73	36.64	46.00	-9.36
302.81	39.60	1.00	298	-2.86	36.74	46.00	-9.26
369.50	36.14	1.00	204	-1.81	34.33	46.00	-11.67
876.33	24.23	1.00	314	14.27	38.50	46.00	-7.50

Test mode: IEEE 802.11b CH11 for 30MHz to 1GHz [Vertical]

Radiated Emission				Correction Factors	Corrected Amplitude	Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table ()			Limit (dBμV/m)	Margin (dB)
322.21	30.42	1.00	45	-2.62	28.65	46.00	-17.35
368.29	30.42	1.00	156	-1.83	28.59	46.00	-17.41
481.05	27.00	1.00	291	1.53	28.53	46.00	-17.47
561.08	28.09	1.00	328	5.37	33.46	46.00	-12.54
696.87	28.07	1.00	307	9.44	37.51	46.00	-8.49
899.36	23.70	1.00	226	15.14	38.84	46.00	-7.16

Test mode: IEEE 802.11b CH11 for 1GHz to 26.5GHz [Horizontal]

Frequency	Ant. H.	Table	Amplitude		Correction Factor	Corrected Amplitude		Limit		Margin
			Peak / Ave.			Peak / Ave.		Peak / Ave.		
MHz	m	degree	dBμV		dB/m	dBμV/m		dBμV/m		dB
1662.12	1.00	197	42.66	24.83	13.36	56.02	38.19	73.96	53.96	-15.77
2158.33	1.00	244	39.50	---	8.53	48.03	---	73.96	53.96	-5.93
2622.92	1.00	76	38.83	---	9.72	48.55	---	73.96	53.96	-5.41
7384.79	1.00	86	38.44	---	10.42	48.86	---	73.96	53.96	-5.10
22157.92	1.00	132	43.99	---	3.25	47.24	---	73.96	53.96	-6.72
24619.37	1.00	205	45.49	---	3.01	48.50	---	73.96	53.96	-5.46

Test mode: IEEE 802.11b CH11 for 1GHz to 26.5GHz [Vertical]

Frequency	Ant. H.	Table	Amplitude		Correction Factor	Corrected Amplitude		Limit		Margin
			Peak / Ave.			Peak / Ave.		Peak / Ave.		
MHz	m	degree	dBμV		dB/m	dBμV/m		dBμV/m		dB
1659.40	1.00	249	40.82	24.00	13.40	54.22	37.40	73.96	53.96	-16.56
2540.22	1.00	48	43.84	31.00	9.57	53.41	40.57	73.96	53.96	-13.39
2621.94	1.00	317	44.17	33.83	9.72	53.89	43.55	73.96	53.96	-10.41
7385.16	1.00	208	43.78	31.77	10.42	54.20	42.19	73.96	53.96	-11.77
12308.75	1.00	350	38.11	---	9.56	47.67	---	73.96	53.96	-6.29
24619.37	1.00	53	46.32	---	3.01	49.33	---	73.96	53.96	-4.63

Test mode: IEEE 802.11g CH01 for 30MHz to 1GHz [Horizontal]

Radiated Emission				Correction Factors	Corrected Amplitude	Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table ()			Limit (dBμV/m)	Margin (dB)
197.32	38.83	1.00	175	-3.42	35.41	43.50	-8.09
243.40	39.29	1.00	175	-3.54	35.75	46.00	-10.25
260.37	39.64	1.00	185	-3.88	35.76	46.00	-10.24
301.60	40.99	1.00	281	-2.88	38.11	46.00	-7.89
322.21	39.57	1.00	271	-2.62	36.95	46.00	-9.05
369.50	37.18	1.00	189	-1.81	35.37	46.00	-10.63

Test mode: IEEE 802.11g CH01 for 30MHz to 1GHz [Vertical]

Radiated Emission				Correction Factors	Corrected Amplitude	Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table ()			Limit (dBμV/m)	Margin (dB)
322.21	32.39	1.00	10	-2.62	29.77	46.00	-16.23
369.50	30.97	1.00	154	-1.81	29.16	46.00	-16.84
481.05	28.62	1.00	304	1.53	30.15	46.00	-15.85
561.08	28.85	1.00	293	5.37	34.22	46.00	-11.78
700.51	27.59	1.00	321	9.54	37.13	46.00	-8.87
876.33	24.51	1.00	226	14.27	38.78	46.00	-7.22

Test mode: IEEE 802.11g CH01 for 1GHz to 26.5GHz [Horizontal]

Frequency	Ant. H.	Table	Amplitude		Correction Factor	Corrected Amplitude		Limit		Margin
			Peak / Ave.			Peak / Ave.		Peak / Ave.		
MHz	m	degree	dBμV		dB/m	dBμV/m		dBμV/m		dB
1662.50	1.00	322	38.50	---	13.36	51.86	---	73.96	53.96	-2.10
2568.75	1.00	8	40.67	---	9.62	50.29	---	73.96	53.96	-3.67
12061.04	1.00	98	36.60	---	9.81	46.41	---	73.96	53.96	-7.55
19296.25	1.00	263	46.49	---	1.60	48.09	---	73.96	53.96	-5.87
21708.12	1.00	188	44.66	---	2.87	47.53	---	73.96	53.96	-6.43
24120.00	1.00	260	44.49	---	3.40	47.89	---	73.96	53.96	-6.07

Test mode: IEEE 802.11g CH01 for 1GHz to 26.5GHz [Vertical]

Frequency	Ant. H.	Table	Amplitude		Correction Factor	Corrected Amplitude		Limit		Margin
			Peak / Ave.			Peak / Ave.		Peak / Ave.		
MHz	m	degree	dBμV		dB/m	dBμV/m		dBμV/m		dB
1660.63	1.00	185	39.21	24.17	13.38	52.59	37.55	73.96	53.96	-16.41
2574.50	1.00	272	45.50	28.83	9.63	55.13	38.46	73.96	53.96	-15.50
7233.75	1.00	301	36.28	---	10.07	46.35	---	73.96	53.96	-7.61
19296.25	1.00	285	46.32	---	1.60	47.92	---	73.96	53.96	-6.04
21708.12	1.00	117	44.49	---	2.87	47.36	---	73.96	53.96	-6.60
24120.00	1.00	335	44.49	---	3.40	47.89	---	73.96	53.96	-6.07

Test mode: IEEE 802.11g CH06 for 30MHz to 1GHz [Horizontal]

Radiated Emission				Correction Factors	Corrected Amplitude	Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table ()			Limit (dBμV/m)	Margin (dB)
196.11	32.98	1.00	170	-3.47	29.51	43.50	-13.99
242.19	37.66	1.00	159	-3.61	34.05	46.00	-11.95
260.37	39.03	1.00	159	-3.88	35.15	46.00	-10.85
300.39	39.80	1.00	280	-2.90	36.90	46.00	-9.10
370.71	37.39	1.00	187	-1.78	35.61	46.00	-10.39
436.19	30.16	1.00	346	0.56	30.72	46.00	-15.28

Test mode: IEEE 802.11g CH06 for 30MHz to 1GHz [Vertical]

Radiated Emission				Correction Factors	Corrected Amplitude	Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table ()			Limit (dBμV/m)	Margin (dB)
197.32	30.52	1.00	154	-3.42	27.10	43.50	-16.40
261.59	33.95	1.00	350	-3.88	30.07	46.00	-15.93
323.42	33.75	1.00	45	-2.60	31.15	46.00	-14.85
369.50	31.25	1.00	158	-1.81	29.44	46.00	-16.56
561.08	28.85	1.00	300	5.37	34.22	46.00	-11.78
700.51	28.37	1.00	314	9.54	37.91	46.00	-8.09

Test mode: IEEE 802.11g CH06 for 1GHz to 26.5GHz [Horizontal]

Frequency	Ant. H.	Table	Amplitude		Correction Factor	Corrected Amplitude		Limit		Margin
			Peak / Ave.			Peak / Ave.		Peak / Ave.		
MHz	m	degree	dBμV		dB/m	dBμV/m		dBμV/m		dB
1662.09	1.00	282	41.33	24.83	13.36	54.69	38.19	73.96	53.96	-15.77
2600.00	1.00	161	38.16	---	9.68	47.84	---	73.96	53.96	-6.12
12187.92	1.00	172	37.27	---	9.74	47.01	---	73.96	53.96	-6.95
19498.12	1.00	232	46.65	---	1.70	48.35	---	73.96	53.96	-5.61
21934.79	1.00	80	44.16	---	3.09	47.25	---	73.96	53.96	-6.71
24371.46	1.00	192	45.33	---	3.26	48.59	---	73.96	53.96	-5.37

Test mode: IEEE 802.11g CH06 for 1GHz to 26.5GHz [Vertical]

Frequency	Ant. H.	Table	Amplitude		Correction Factor	Corrected Amplitude		Limit		Margin
			Peak / Ave.			Peak / Ave.		Peak / Ave.		
MHz	m	degree	dBμV		dB/m	dBμV/m		dBμV/m		dB
1662.19	1.00	173	41.53	24.50	13.36	54.89	37.86	73.96	53.96	-16.10
2150.00	1.00	298	39.67	---	8.51	48.18	---	73.96	53.96	-5.78
2600.31	1.00	250	44.84	28.50	9.68	54.52	38.18	73.96	53.96	-15.78
12187.92	1.00	299	39.94	---	9.74	49.68	---	73.96	53.96	-4.28
21934.79	1.00	265	46.05	---	1.70	47.75	---	73.96	53.96	-6.21
24371.46	1.00	285	45.66	---	3.26	48.92	---	73.96	53.96	-5.04

Test mode: IEEE 802.11g CH11 for 30MHz to 1GHz [Horizontal]

Radiated Emission				Correction Factors	Corrected Amplitude	Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table ()			Limit (dBμV/m)	Margin (dB)
193.69	34.94	1.00	132	-3.58	31.36	43.50	-12.14
243.40	40.63	1.00	156	-3.54	37.09	46.00	-8.91
261.59	40.90	1.00	80	-3.88	37.02	46.00	-8.98
322.21	39.03	1.00	277	-2.62	36.41	46.00	-9.59
369.50	37.76	1.00	183	-1.81	35.95	46.00	-10.05
433.76	29.77	1.00	339	0.45	30.22	46.00	-15.78

Test mode: IEEE 802.11g CH11 for 30MHz to 1GHz [Vertical]

Radiated Emission				Correction Factors	Corrected Amplitude	Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table ()			Limit (dBμV/m)	Margin (dB)
240.97	33.47	1.00	31	-3.68	29.79	46.00	-16.21
259.16	33.64	1.00	339	-3.82	29.82	46.00	-16.18
323.42	34.89	1.00	59	-2.60	32.29	46.00	-13.71
365.86	30.93	1.00	159	-1.89	29.04	46.00	-16.96
561.08	28.57	1.00	314	5.37	33.94	46.00	-12.06
700.51	27.56	1.00	299	9.54	37.10	46.00	-8.90

Test mode: IEEE 802.11g CH11 for 1GHz to 26.5GHz [Horizontal]

Frequency	Ant. H.	Table	Amplitude		Correction Factor	Corrected Amplitude		Limit		Margin
			Peak / Ave.			Peak / Ave.		Peak / Ave.		
MHz	m	degree	dBμV		dB/m	dBμV/m		dBμV/m		dB
1661.76	1.00	280	42.12	24.50	13.37	55.49	37.87	73.96	53.96	-16.09
2150.42	1.00	349	38.83	---	8.51	47.34	---	73.96	53.96	-6.62
2610.42	1.00	100	37.66	---	9.70	47.36	---	73.96	53.96	-6.60
12308.75	1.00	32	37.61	---	9.56	47.17	---	73.96	53.96	-6.79
22157.92	1.00	257	44.15	---	3.25	47.40	---	73.96	53.96	-6.56
24619.37	1.00	89	45.66	---	3.01	48.67	---	73.96	53.96	-5.29

Test mode: IEEE 802.11g CH11 for 1GHz to 26.5GHz [Vertical]

Frequency	Ant. H.	Table	Amplitude		Correction Factor	Corrected Amplitude		Limit		Margin
			Peak / Ave.			Peak / Ave.		Peak / Ave.		
MHz	m	degree	dBμV		dB/m	dBμV/m		dBμV/m		dB
1664.91	1.00	184	39.87	24.00	13.32	53.19	37.32	73.96	53.96	-16.64
2616.31	1.00	22	45.83	28.50	9.71	55.54	38.21	73.96	53.96	-15.75
7384.79	1.00	142	37.11	---	10.42	47.53	---	73.96	53.96	-6.43
12308.75	1.00	146	39.27	---	9.56	48.83	---	73.96	53.96	-5.13
19696.46	1.00	325	45.82	---	1.81	47.63	---	73.96	53.96	-6.33
24619.37	1.00	237	44.99	---	3.01	48.00	---	73.96	53.96	-5.96

Test mode: IEEE 802.11n 20M CH01 for 30MHz to 1GHz [Horizontal]

Radiated Emission				Correction Factors	Corrected Amplitude	Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table ()			Limit (dBμV/m)	Margin (dB)
199.75	35.56	1.00	156	-3.31	32.25	43.50	-11.25
242.19	38.47	1.00	170	-3.61	34.86	46.00	-11.14
301.60	41.20	1.00	291	-2.88	38.32	46.00	-7.68
369.50	37.18	1.00	197	-1.81	35.37	46.00	-10.63
433.76	30.34	1.00	329	0.45	30.79	46.00	-15.21
878.75	25.57	1.00	317	14.36	39.93	46.00	-6.07

Test mode: IEEE 802.11n 20M CH01 for 30MHz to 1GHz [Vertical]

Radiated Emission				Correction Factors	Corrected Amplitude	Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table ()			Limit (dBμV/m)	Margin (dB)
203.39	30.12	1.00	158	-3.44	26.68	43.50	-16.82
242.19	32.50	1.00	7	-3.61	28.89	46.00	-17.11
322.21	33.52	1.00	58	-2.62	30.90	46.00	-15.10
368.29	30.40	1.00	147	-1.83	28.57	46.00	-17.43
561.08	29.23	1.00	299	5.37	34.60	46.00	-11.40
700.51	26.63	1.00	307	9.54	36.17	46.00	-9.83

Test mode: IEEE 802.11n 20M CH01 for 1GHz to 26.5GHz [Horizontal]

Frequency	Ant. H.	Table	Amplitude		Correction Factor	Corrected Amplitude		Limit		Margin
			Peak / Ave.			Peak / Ave.		Peak / Ave.		
MHz	m	degree	dBμV		dB/m	dBμV/m		dBμV/m		dB
1662.50	1.00	246	38.16	---	13.36	51.52	---	73.96	53.96	-2.44
2494.18	1.00	284	43.34	31.50	9.47	52.81	40.97	73.96	53.96	-12.99
2566.67	1.00	283	41.50	---	9.62	51.12	---	73.96	53.96	-2.84
12061.42	1.04	167	36.44	---	9.81	46.25	---	73.96	53.96	-7.71
19296.25	1.00	199	46.66	---	1.60	48.26	---	73.96	53.96	-5.70
24120.00	1.00	265	44.16	---	3.40	47.56	---	73.96	53.96	-6.40

Test mode: IEEE 802.11n 20M CH01 for 1GHz to 26.5GHz [Vertical]

Frequency	Ant. H.	Table	Amplitude		Correction Factor	Corrected Amplitude		Limit		Margin
			Peak / Ave.			Peak / Ave.		Peak / Ave.		
MHz	m	degree	dBμV		dB/m	dBμV/m		dBμV/m		dB
1662.50	1.00	213	37.50	---	13.36	50.86	---	73.96	53.96	-3.10
2156.25	1.00	289	42.83	---	8.53	51.36	---	73.96	53.96	-2.60
2512.65	1.00	252	44.19	31.33	9.51	53.70	40.84	73.96	53.96	-13.12
2559.94	1.00	252	44.35	33.17	9.60	53.95	42.77	73.96	53.96	-11.19
9650.42	1.00	132	35.77	---	11.47	47.24	---	73.96	53.96	-6.72
24120.00	1.00	185	44.32	---	3.40	47.72	---	73.96	53.96	-6.24

Test mode: IEEE 802.11n 20M CH06 for 30MHz to 1GHz [Horizontal]

Radiated Emission				Correction Factors	Corrected Amplitude	Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table ()			Limit (dBμV/m)	Margin (dB)
202.17	34.39	1.00	168	-3.39	31.00	43.50	-12.50
260.37	37.66	1.00	157	-3.88	33.78	46.00	-12.22
302.81	40.92	1.00	280	-2.86	38.06	46.00	-7.94
367.07	37.22	1.00	185	-1.86	35.36	46.00	-10.64
432.55	30.23	1.00	357	0.40	30.63	46.00	-15.37
601.09	23.28	1.00	229	6.49	29.77	46.00	-16.23

Test mode: IEEE 802.11n 20M CH06 for 30MHz to 1GHz [Vertical]

Radiated Emission				Correction Factors	Corrected Amplitude	Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table ()			Limit (dBμV/m)	Margin (dB)
243.40	32.21	1.00	55	-3.54	28.67	46.00	-17.33
260.37	33.42	1.00	7	-3.88	29.54	46.00	-16.46
322.21	33.42	1.00	35	-2.62	30.80	46.00	-15.20
368.29	30.31	1.00	145	-1.83	28.48	46.00	-17.52
561.08	28.62	1.00	314	5.37	33.99	46.00	-12.01
696.87	26.57	1.00	258	9.44	36.01	46.00	-9.99

Test mode: IEEE 802.11n 20M CH06 for 1GHz to 26.5GHz [Horizontal]

Frequency	Ant. H.	Table	Amplitude		Correction	Corrected		Limit		Margin
			Peak / Ave.			Peak / Ave.		Peak / Ave.		
MHz	m	degree	dBμV		dB/m	dBμV/m		dBμV/m		dB
1658.64	1.00	219	43.40	23.83	13.42	56.82	37.25	73.96	53.96	-16.71
2150.00	1.00	337	40.00	---	8.51	48.51	---	73.96	53.96	-5.45
2587.50	1.00	231	38.84	---	9.65	48.49	---	73.96	53.96	-5.47
12187.92	1.00	78	37.60	---	9.74	47.34	---	73.96	53.96	-6.62
21934.79	1.00	41	44.66	---	3.09	47.75	---	73.96	53.96	-6.21
24371.46	1.00	107	47.33	---	3.26	50.59	---	73.96	53.96	-3.37

Test mode: IEEE 802.11n 20M CH06 for 1GHz to 26.5GHz [Vertical]

Frequency	Ant. H.	Table	Amplitude		Correction	Corrected		Limit		Margin
			Peak / Ave.			Peak / Ave.		Peak / Ave.		
MHz	m	degree	dBμV		dB/m	dBμV/m		dBμV/m		dB
1670.49	1.00	156	40.46	23.17	13.23	53.69	36.40	73.96	53.96	-17.56
2156.25	1.00	227	40.16	---	8.53	48.69	---	73.96	53.96	-5.27
2553.49	1.00	148	44.67	32.83	9.59	54.26	42.42	73.96	53.96	-11.54
2594.75	1.00	202	44.85	33.67	9.67	54.52	43.34	73.96	53.96	-10.62
12187.92	1.00	278	37.94	---	9.74	47.68	---	73.96	53.96	-6.28
24371.46	1.00	286	45.99	---	3.26	49.25	---	73.96	53.96	-4.71

Test mode: IEEE 802.11n 20M CH11 for 30MHz to 1GHz [Horizontal]

Radiated Emission				Correction Factors	Corrected Amplitude	Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table ()			Limit (dBμV/m)	Margin (dB)
196.11	33.75	1.00	166	-3.47	30.28	43.50	-13.22
243.40	38.47	1.00	166	-3.54	34.93	46.00	-11.07
300.39	40.56	1.00	277	-2.90	37.66	46.00	-8.34
321.00	40.49	1.00	277	-2.64	37.85	46.00	-8.15
369.50	37.53	1.00	194	-1.81	35.72	46.00	-10.28
878.75	24.33	1.00	310	14.36	38.69	46.00	-7.31

Test mode: IEEE 802.11n 20M CH11 for 30MHz to 1GHz [Vertical]

Radiated Emission				Correction Factors	Corrected Amplitude	Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table ()			Limit (dBμV/m)	Margin (dB)
194.90	29.63	1.00	170	-3.52	26.11	43.50	-17.39
243.40	32.52	1.00	35	-3.54	28.98	46.00	-17.02
322.21	32.05	1.00	10	-2.62	29.43	46.00	-16.57
369.50	30.06	1.00	149	-1.81	28.25	46.00	-17.75
561.08	28.78	1.00	300	5.37	34.15	46.00	-11.85
700.51	27.26	1.00	300	9.54	36.80	46.00	-9.20

Test mode: IEEE 802.11n 20M CH11 for 1GHz to 26.5GHz [Horizontal]

Frequency	Ant. H.	Table	Amplitude		Correction Factor	Corrected Amplitude		Limit		Margin
			Peak / Ave.			Peak / Ave.		Peak / Ave.		
MHz	m	degree	dBμV		dB/m	dBμV/m		dBμV/m		dB
1659.26	1.00	213	40.78	24.00	13.41	54.19	37.41	73.96	53.96	-16.55
2150.00	1.00	267	39.50	---	8.51	48.01	---	73.96	53.96	-5.95
2547.92	1.00	206	39.50	---	9.58	49.08	---	73.96	53.96	-4.88
2614.58	1.00	206	39.83	---	9.71	49.54	---	73.96	53.96	-4.42
12308.75	1.00	127	37.77	---	9.56	47.33	---	73.96	53.96	-6.63
24619.37	1.00	233	46.32	---	3.01	49.33	---	73.96	53.96	-4.63

Test mode: IEEE 802.11n 20M CH11for 1GHz to 26.5GHz [Vertical]

Frequency	Ant. H.	Table	Amplitude		Correction Factor	Corrected Amplitude		Limit		Margin
			Peak / Ave.			Peak / Ave.		Peak / Ave.		
MHz	m	degree	dBμV		dB/m	dBμV/m		dBμV/m		dB
1662.50	1.00	182	38.00	---	13.36	51.36	---	73.96	53.96	-2.60
2152.08	1.00	265	41.16	---	8.52	49.68	---	73.96	53.96	-4.28
2578.18	1.00	207	42.65	30.17	9.64	52.29	39.81	73.96	53.96	-14.15
12308.75	1.00	138	36.61	---	9.56	46.17	---	73.96	53.96	-7.79
22157.92	1.00	127	45.49	---	3.25	48.74	---	73.96	53.96	-5.22
24619.37	1.00	109	45.66	---	3.01	48.67	---	73.96	53.96	-5.29

Test mode: IEEE 802.11n 40M CH03 for 30MHz to 1GHz [Horizontal]

Radiated Emission				Correction Factors	Corrected Amplitude	Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table ()			Limit (dBμV/m)	Margin (dB)
205.81	34.82	1.00	166	-3.54	31.28	43.50	-12.22
243.40	38.23	1.00	166	-3.54	34.69	46.00	-11.31
259.16	39.89	1.00	180	-3.82	36.07	46.00	-9.93
300.39	40.44	1.00	277	-2.90	37.54	46.00	-8.46
321.00	39.50	1.00	194	-2.64	36.86	46.00	-9.14
367.07	37.32	1.00	194	-1.86	35.46	46.00	-10.54

Test mode: IEEE 802.11n 40M CH03 for 30MHz to 1GHz [Vertical]

Radiated Emission				Correction Factors	Corrected Amplitude	Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table ()			Limit (dBμV/m)	Margin (dB)
242.19	32.62	1.00	66	-3.61	29.01	46.00	-16.99
261.59	34.54	1.00	42	-3.88	30.66	46.00	-15.34
322.21	33.12	1.00	69	-2.62	30.50	46.00	-15.50
368.29	30.61	1.00	156	-1.83	28.78	46.00	-17.22
561.08	29.14	1.00	314	5.37	34.51	46.00	-11.49
700.51	26.79	1.00	307	9.54	36.33	46.00	-9.67

Test mode: IEEE 802.11n 40M CH03 for 1GHz to 26.5GHz [Horizontal]

Frequency	Ant. H.	Table	Amplitude		Correction Factor	Corrected Amplitude		Limit		Margin
			Peak / Ave.			Peak / Ave.		Peak / Ave.		
MHz	m	degree	dBμV		dB/m	dBμV/m		dBμV/m		dB
1660.42	1.00	312	37.83	---	13.39	51.22	---	73.96	53.96	-2.74
2156.25	1.00	343	38.83	---	8.53	47.36	---	73.96	53.96	-6.60
2585.42	1.00	38	38.50	---	9.65	48.15	---	73.96	53.96	-5.81
12109.17	1.00	214	36.94	---	9.61	46.55	---	73.96	53.96	-7.41
21796.67	1.00	187	44.66	---	2.72	47.38	---	73.96	53.96	-6.58
24219.71	1.00	327	45.82	---	2.85	48.67	---	73.96	53.96	-5.29

Test mode: IEEE 802.11n 40M CH03 for 1GHz to 26.5GHz [Vertical]

Frequency	Ant. H.	Table	Amplitude		Correction Factor	Corrected Amplitude		Limit		Margin
			Peak / Ave.			Peak / Ave.		Peak / Ave.		
MHz	m	degree	dBμV		dB/m	dBμV/m		dBμV/m		dB
1661.77	1.00	324	40.02	24.67	13.37	53.39	38.04	73.96	53.96	-15.92
2572.92	1.00	32	40.50	---	9.63	50.13	---	73.96	53.96	-3.83
9686.67	1.00	36	35.94	---	11.63	47.57	---	73.96	53.96	-6.39
19377.71	1.00	160	45.82	---	1.60	47.42	---	73.96	53.96	-6.54
21796.67	1.00	195	45.83	---	2.72	48.55	---	73.96	53.96	-5.41
24219.17	1.00	117	45.82	---	2.85	48.67	---	73.96	53.96	-5.29

Test mode: IEEE 802.11n 40M CH06 for 30MHz to 1GHz [Horizontal]

Radiated Emission				Correction Factors	Corrected Amplitude	Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table ()			Limit (dBμV/m)	Margin (dB)
197.32	35.06	1.00	177	-3.42	31.64	43.50	-11.86
257.95	39.66	1.00	166	-3.73	35.93	46.00	-10.07
301.60	40.50	1.00	287	-2.88	37.62	46.00	-8.38
321.00	39.36	1.00	190	-2.64	36.72	46.00	-9.28
369.50	37.60	1.00	180	-1.81	35.79	46.00	-10.21
433.76	29.87	1.00	180	0.45	30.32	46.00	-15.68

Test mode: IEEE 802.11n 40M CH06 for 30MHz to 1GHz [Vertical]

Radiated Emission				Correction Factors	Corrected Amplitude	Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table ()			Limit (dBμV/m)	Margin (dB)
242.19	33.14	1.00	0	-3.61	29.53	46.00	-16.47
257.95	32.76	1.00	0	-3.73	29.03	46.00	-16.97
322.21	34.12	1.00	45	-2.62	31.50	46.00	-14.50
482.26	28.64	1.00	280	1.54	30.18	46.00	-15.82
561.08	29.33	1.00	299	5.37	34.70	46.00	-11.30
700.51	27.26	1.00	314	9.54	36.80	46.00	-9.20

Test mode: IEEE 802.11n 40M CH06 for 1GHz to 26.5GHz [Horizontal]

Frequency	Ant. H.	Table	Amplitude		Correction Factor	Corrected Amplitude		Limit		Margin
			Peak / Ave.			Peak / Ave.		Peak / Ave.		
MHz	m	degree	dBμV		dB/m	dBμV/m		dBμV/m		dB
1661.96	1.00	169	39.69	24.83	13.36	53.05	38.19	73.96	53.96	-15.77
2597.92	1.00	222	37.17	---	9.67	46.84	---	73.96	53.96	-7.12
12187.92	1.00	271	39.94	---	9.74	49.68	---	73.96	53.96	-4.28
19498.12	1.00	32	45.15	---	1.70	46.85	---	73.96	53.96	-7.11
21934.79	1.00	210	45.49	---	3.09	48.58	---	73.96	53.96	-5.38
24371.46	1.00	135	44.99	---	3.26	48.25	---	73.96	53.96	-5.71

Test mode: IEEE 802.11n 40M CH06 for 1GHz to 26.5GHz [Vertical]

Frequency	Ant. H.	Table	Amplitude		Correction Factor	Corrected Amplitude		Limit		Margin
			Peak / Ave.			Peak / Ave.		Peak / Ave.		
MHz	m	degree	dBμV		dB/m	dBμV/m		dBμV/m		dB
1660.93	1.00	101	42.84	23.83	13.38	56.22	37.21	73.96	53.96	-16.75
2591.67	1.00	205	40.17	---	9.66	49.83	---	73.96	53.96	-4.13
12187.92	1.00	231	38.27	---	9.74	48.01	---	73.96	53.96	-5.95
19498.12	1.00	228	45.49	---	1.70	47.19	---	73.96	53.96	-6.77
21934.79	1.00	195	44.32	---	3.09	47.41	---	73.96	53.96	-6.55
24371.46	1.00	166	46.66	---	3.26	49.92	---	73.96	53.96	-4.04

Test mode: IEEE 802.11n 40M CH09 for 30MHz to 1GHz [Horizontal]

Radiated Emission				Correction Factors	Corrected Amplitude	Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table ()			Limit (dBμV/m)	Margin (dB)
243.40	38.49	1.00	156	-3.54	34.95	46.00	-11.05
261.59	38.51	1.00	194	-3.88	34.63	46.00	-11.37
302.81	41.34	1.00	280	-2.86	38.48	46.00	-7.52
369.50	37.84	1.00	183	-1.81	36.03	46.00	-9.97
433.76	29.87	1.00	183	0.45	30.32	46.00	-15.68
500.45	27.24	1.00	197	1.77	29.01	46.00	-16.99

Test mode: IEEE 802.11n 40M CH09 for 30MHz to 1GHz [Vertical]

Radiated Emission				Correction Factors	Corrected Amplitude	Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table ()			Limit (dBμV/m)	Margin (dB)
196.11	29.65	1.00	234	-3.47	26.18	43.50	-17.32
259.16	33.24	1.00	31	-3.82	29.42	46.00	-16.58
323.42	33.19	1.00	136	-2.60	30.59	46.00	-15.41
367.07	30.54	1.00	150	-1.86	28.68	46.00	-17.32
561.08	29.54	1.00	307	5.37	34.91	46.00	-11.09
696.87	27.52	1.00	307	9.44	36.96	46.00	-9.04

Test mode: IEEE 802.11n 40M CH09 for 1GHz to 26.5GHz [Horizontal]

Frequency	Ant. H.	Table	Amplitude		Correction Factor	Corrected Amplitude		Limit		Margin
			Peak / Ave.			Peak / Ave.		Peak / Ave.		
MHz	m	degree	dBμV		dB/m	dBμV/m		dBμV/m		dB
1662.50	1.00	171	37.00	---	13.36	50.36	---	73.96	53.96	-3.60
2158.33	1.00	337	38.00	---	8.53	46.53	---	73.96	53.96	-7.43
12260.42	1.00	311	36.78	---	9.86	46.64	---	73.96	53.96	-7.32
19615.00	1.00	311	45.32	---	1.70	47.02	---	73.96	53.96	-6.94
22069.37	1.00	87	45.15	---	2.77	47.92	---	73.96	53.96	-6.04
24520.21	1.00	259	45.49	---	2.37	47.86	---	73.96	53.96	-6.10

Test mode: IEEE 802.11n 40M CH09 for 1GHz to 26.5GHz [Vertical]

Frequency	Ant. H.	Table	Amplitude		Correction Factor	Corrected Amplitude		Limit		Margin
			Peak / Ave.			Peak / Ave.		Peak / Ave.		
MHz	m	degree	dBμV		dB/m	dBμV/m		dBμV/m		dB
1662.50	1.00	331	35.83	---	13.36	49.19	---	73.96	53.96	-4.77
2612.50	1.00	108	41.83	---	9.70	51.53	---	73.96	53.96	-2.43
12260.42	1.00	304	37.94	---	9.86	47.80	---	73.96	53.96	-6.16
19615.00	1.00	109	45.49	---	1.70	47.19	---	73.96	53.96	-6.77
22069.37	1.00	111	44.32	---	2.77	47.09	---	73.96	53.96	-6.87
24520.21	1.00	135	45.49	---	2.37	47.86	---	73.96	53.96	-6.10

7.4 Test Result of the Bandedge

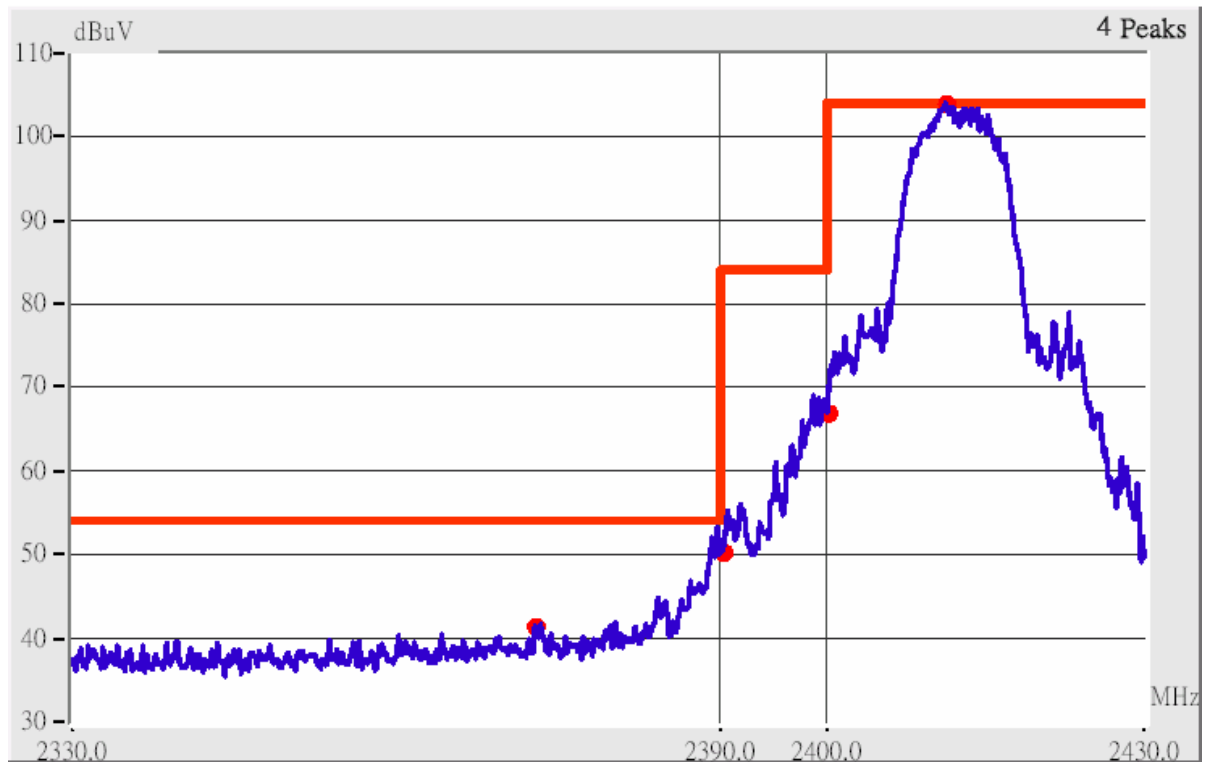
If any 100 kHz bandwidth outside these frequency bands, the radio frequency power that is produced by the modulation products of the spreading sequence, the information sequence and the carrier frequency shall be either *at least 20 dB below that in any 100 kHz bandwidth within the band that contains the highest level of the desired power or shall not exceed the general levels specified in §15.209(a)*,

We perform this section by the *radiated manner*, the RBW is set to 100kHz and VBW>RBW. We'd made the observation *up to 10th harmonics and the criterion is all the harmonic/spurious emissions must be 20dB below the highest emission level measured*. If the emissions fall in the restricted bands stated in the Part15.205(a) must also *comply with the radiated emission limits specified in Part15.209(a)*. (*Peak mode: RBW=VBW=1MHz, Average mode: RBW=1MHz; VBW=10Hz*)

The following pages show our observations referring to the channel 1 and 11 respectively.

Test Condition & Setup: same as < 8.1 >

Channel 1 of IEEE 802.11b

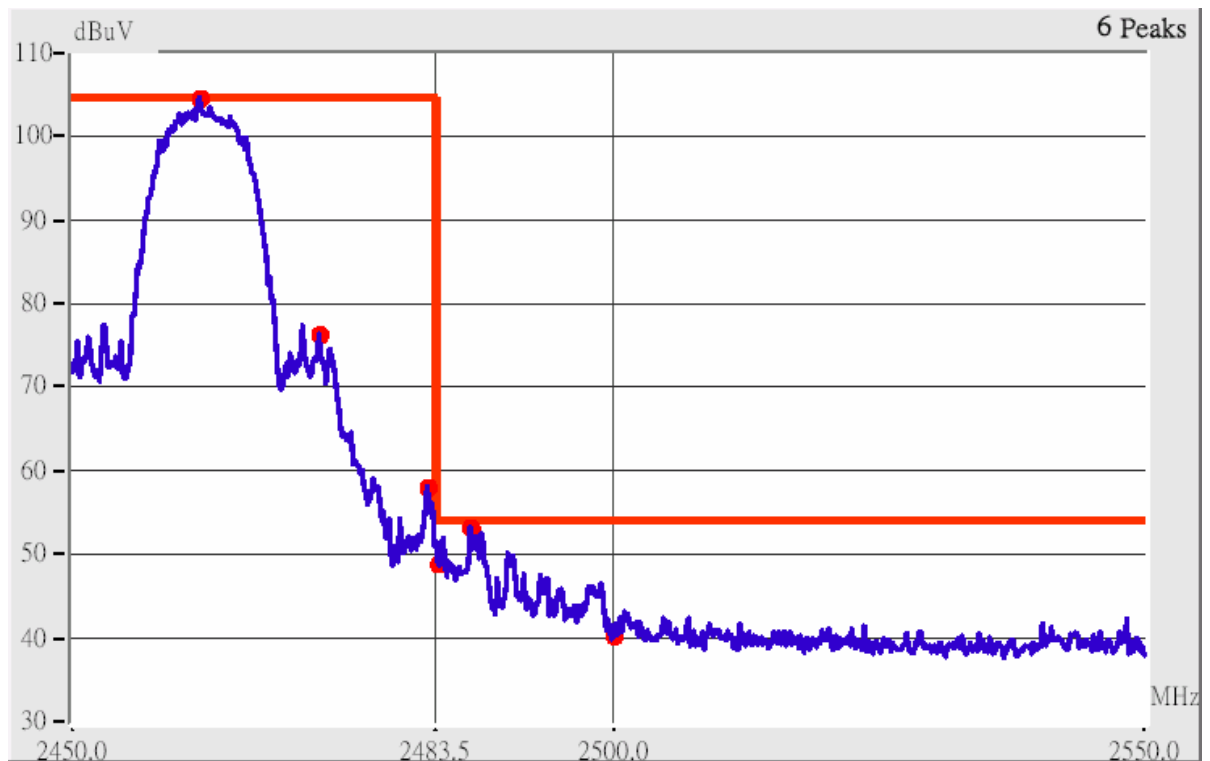


This is the hard copy of our bandedge measurement generated by our bandedge testing program. The plot shown above is the bandedge of channel 1.

1. The lobe left by the fundamental side is already 20dB below the highest emission level.
2. The emissions recorded in the restricted band is do comply with the Part 15.209(a) – as below.

<i>Radiated Emission</i>					<i>Corrected Amplitude</i>		<i>Class B (3m)</i>		
<i>Frequency (MHz)</i>	<i>Ant. P.</i>	<i>Ant. H. (m)</i>	<i>Table (°)</i>	<i>Factors (dB)</i>	<i>(dBμV/m)</i>		<i>Limit (dBμV/m)</i>		<i>Margin (dB)</i>
					<i>Peak</i>	<i>Average</i>	<i>Peak</i>	<i>Ave.</i>	
2387.70	Hor	1.00	308	9.18	58.51	42.85	73.96	53.96	-11.11
2390.67	Hor	1.00	308	9.18	63.51	46.68	73.96	53.96	-7.28
2383.82	Ver	1.00	129	9.16	66.33	31.49	73.96	53.96	-7.63
2389.57	Ver	1.00	129	9.18	71.35	31.68	73.96	53.96	-2.61

Channel 11 of IEEE 802.11b

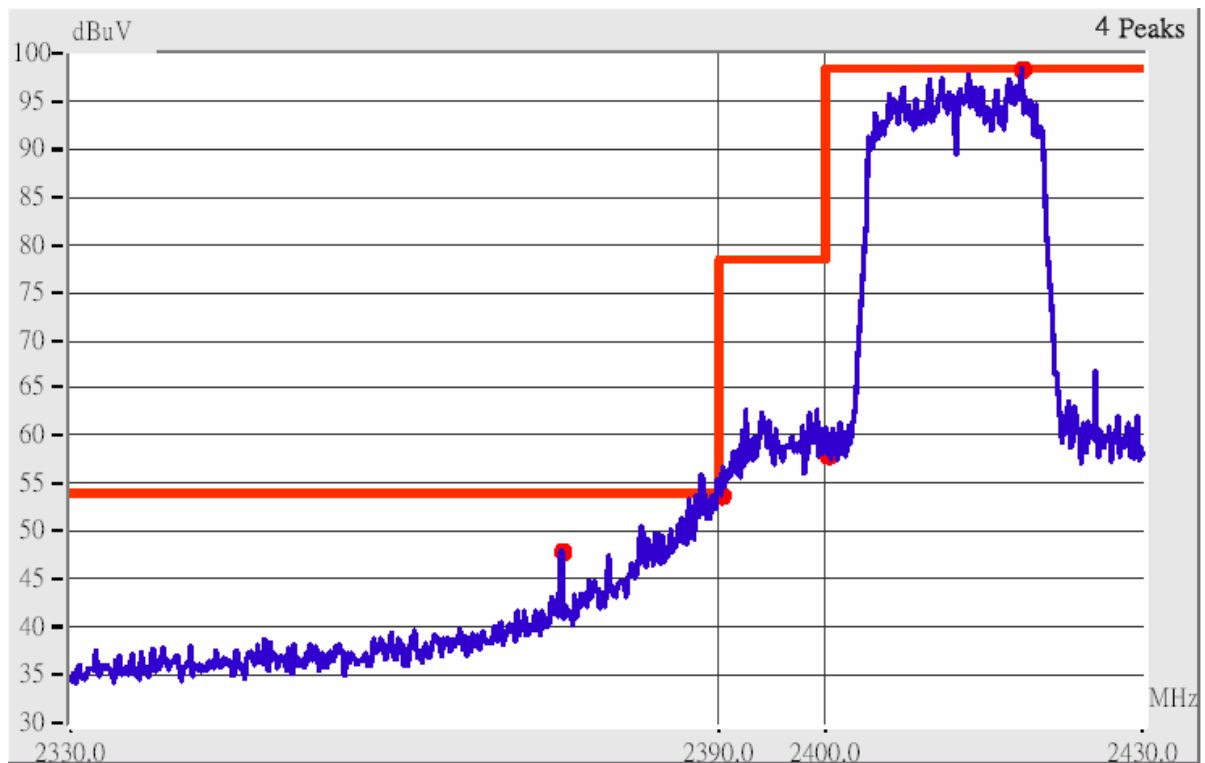


This is the hard copy of our bandedge measurement generated by our bandedge testing program. The plot shown above is the bandedge of channel 11.

3. The lobe right by the fundamental side is already 20dB below the highest emission level.
4. The emissions recorded in the restricted band is do comply with the Part 15.209(a) – as below

Radiated Emission					Corrected Amplitude		Class B (3m)		
Frequency (MHz)	Ant. P.	Ant. H. (m)	Table (°)	Factors (dB)	(dBμV/m)		Limit (dBμV/m)		Margin (dB)
					Peak	Average	Peak	Ave.	
2482.84	Hor	1.00	351	9.44	60.28	47.77	73.96	53.96	-6.19
2486.68	Hor	1.00	353	9.45	59.95	45.12	73.96	53.96	-8.84
2500.01	Hor	1.00	319	9.49	51.49	---	73.96	53.96	-2.47
2507.30	Hor	1.00	351	9.50	51.17	---	73.96	53.96	-2.79
2483.97	Ver	1.00	89	9.45	62.78	47.28	73.96	53.96	-6.68
2486.67	Ver	1.00	172	9.45	61.29	46.62	73.96	53.96	-7.34
2499.95	Ver	1.00	174	9.49	52.66	40.99	73.96	53.96	-12.97
2508.99	Ver	1.00	169	9.51	53.67	40.01	73.96	53.96	-13.95

Channel 1 of IEEE 802.11g

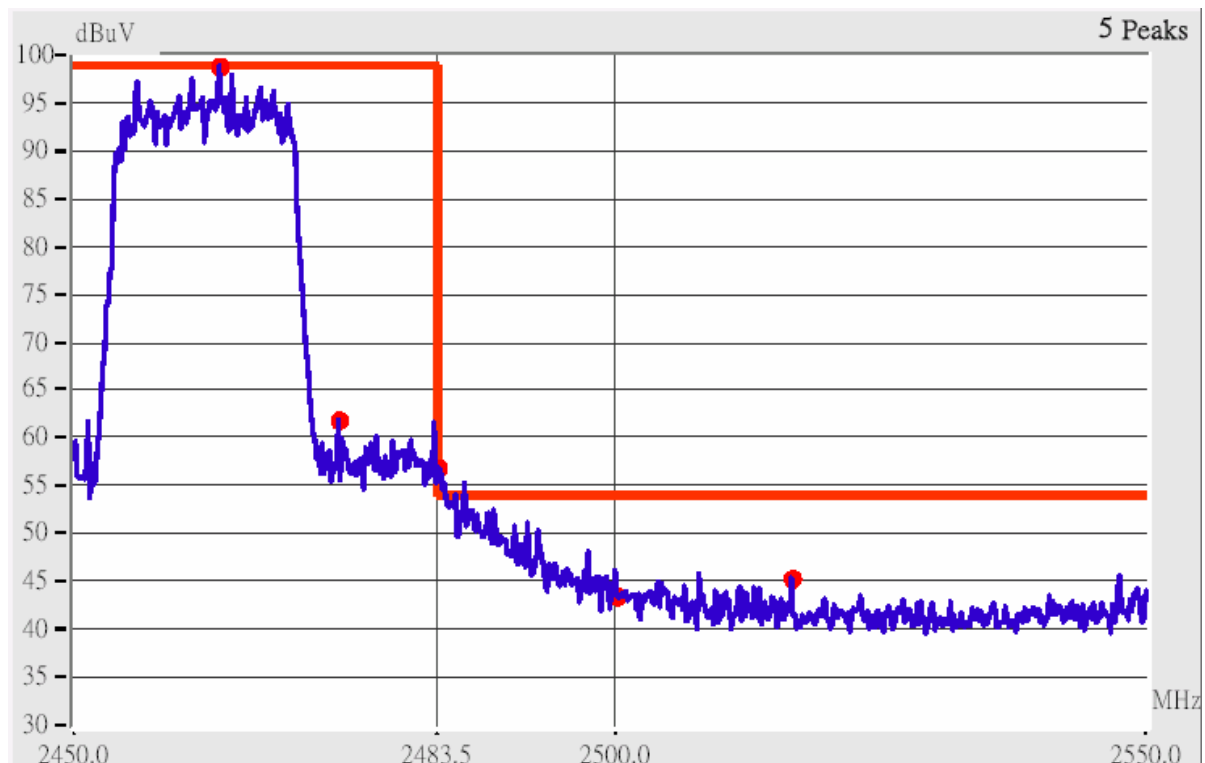


This is the hard copy of our bandedge measurement generated by our bandedge testing program. The plot shown above is the bandedge of channel 1.

5. The lobe left by the fundamental side is already 20dB below the highest emission level.
6. The emissions recorded in the restricted band is do comply with the Part 15.209(a) – as below.

<i>Radiated Emission</i>					<i>Corrected Amplitude</i>		<i>Class B (3m)</i>		
<i>Frequency (MHz)</i>	<i>Ant. P.</i>	<i>Ant. H. (m)</i>	<i>Table (°)</i>	<i>Factors (dB)</i>	<i>(dBμV/m)</i>		<i>Limit (dBμV/m)</i>		<i>Margin (dB)</i>
					<i>Peak</i>	<i>Average</i>	<i>Peak</i>	<i>Ave.</i>	
2385.64	Hor	1.00	237	9.17	65.67	38.50	73.96	53.96	-8.29
2390.18	Hor	1.00	257	9.18	66.18	41.68	73.96	53.96	-7.78
2386.03	Ver	1.00	210	9.17	62.84	38.00	73.96	53.96	-11.12
2390.53	Ver	1.00	153	9.18	65.52	40.35	73.96	53.96	-8.44

Channel 11 of IEEE 802.11g

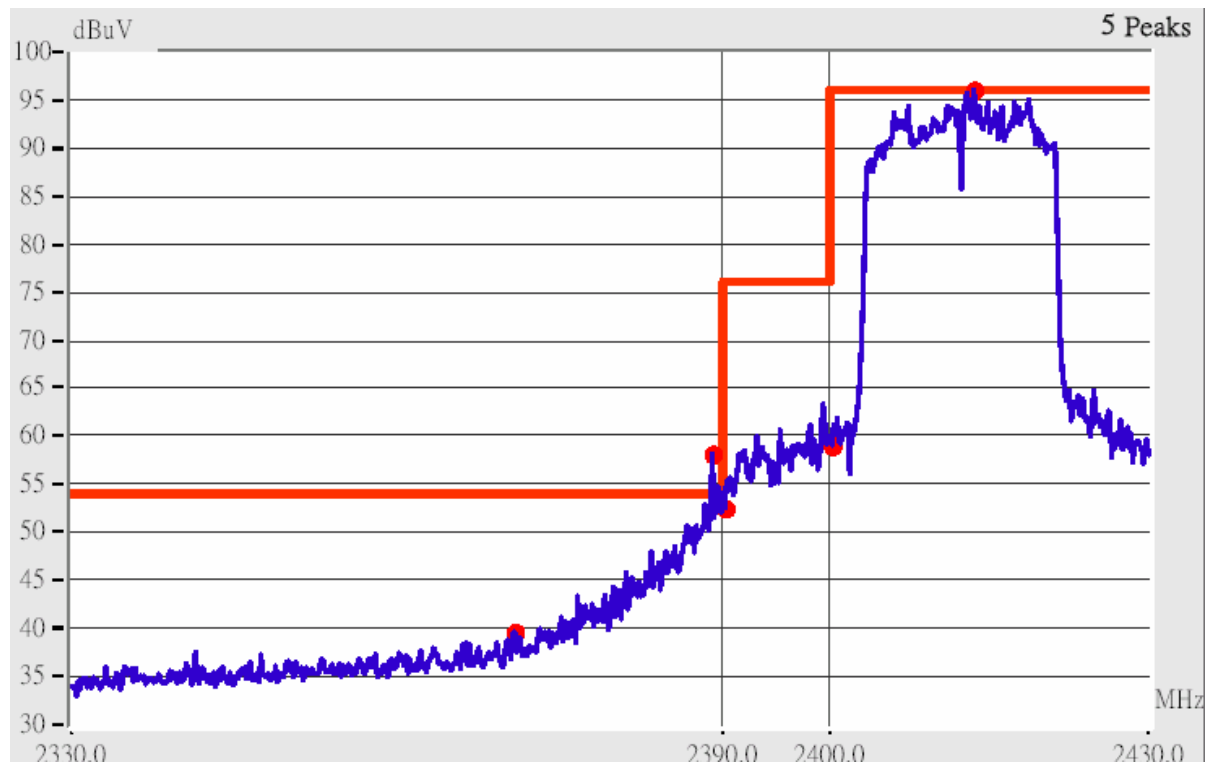


This is the hard copy of our bandedge measurement generated by our bandedge testing program. The plot shown above is the bandedge of channel 11.

7. The lobe right by the fundamental side is already 20dB below the highest emission level.
8. The emissions recorded in the restricted band is do comply with the Part 15.209(a) – as below

<i>Radiated Emission</i>					<i>Corrected Amplitude</i>		<i>Class B (3m)</i>		
<i>Frequency (MHz)</i>	<i>Ant. P.</i>	<i>Ant. H. (m)</i>	<i>Table ()</i>	<i>Factors (dB)</i>	<i>(dBμV/m)</i>		<i>Limit (dBμV/m)</i>		<i>Margin (dB)</i>
					<i>Peak</i>	<i>Average</i>	<i>Peak</i>	<i>Ave.</i>	
2482.91	Hor	1.00	354	9.44	69.44	40.61	73.96	53.96	-4.52
2486.39	Hor	1.00	145	9.45	66.62	38.62	73.96	53.96	-7.34
2499.70	Hor	1.00	164	9.49	53.16	36.82	73.96	53.96	-17.14
2505.09	Hor	1.00	146	9.50	55.67	36.00	73.96	53.96	-17.96
2483.19	Ver	1.00	355	9.44	68.94	41.94	73.96	53.96	-5.02
2487.03	Ver	1.00	355	9.45	65.29	40.28	73.96	53.96	-8.67
2499.49	Ver	1.00	294	9.49	54.82	37.66	73.96	53.96	-16.30
2512.67	Ver	1.00	353	9.51	49.35	---	73.96	53.96	-4.61

Channel 01 of IEEE 802.11n 20M



This is the hard copy of our bandedge measurement generated by our bandedge testing program. The plot shown above is the bandedge of channel 1.

9. The lobe left by the fundamental side is already 20dB below the highest emission level.

10. The emissions recorded in the restricted band is do comply with the Part 15.209(a) – as below.

Radiated Emission					Corrected Amplitude		Class B (3m)		
Frequency (MHz)	Ant. P.	Ant. H. (m)	Table ()	Factors (dB)	(dBuV/m)		Limit (dBuV/m)		Margin (dB)
					Peak	Average	Peak	Ave.	
2384.52	Hor	1.00	290	9.17	65.33	44.67	73.96	53.96	-8.63
2390.09	Hor	1.00	281	9.18	70.68	51.51	73.96	53.96	-2.45
2384.18	Ver	1.00	58	9.17	67.00	44.84	73.96	53.96	-6.96
2390.05	Ver	1.00	212	9.18	70.01	52.01	73.96	53.96	-1.95

Channel 11 of IEEE 802.11n 20M



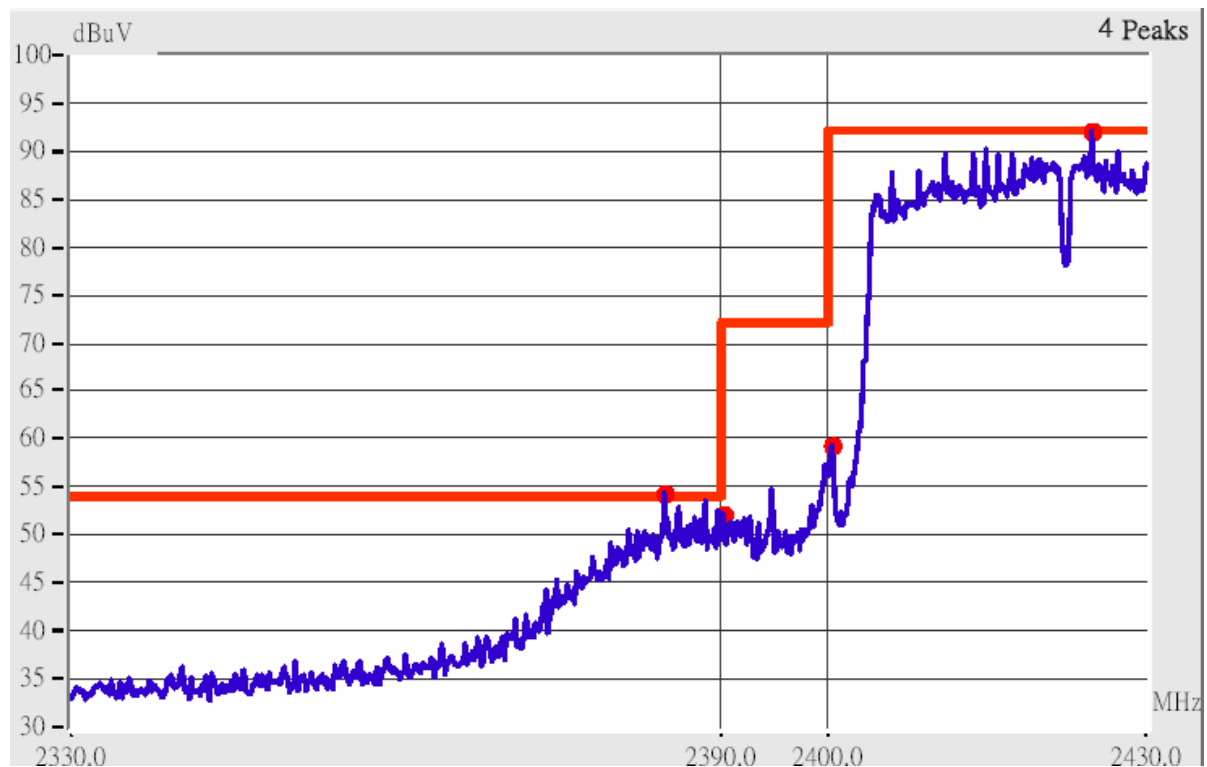
This is the hard copy of our bandedge measurement generated by our bandedge testing program. The plot shown above is the bandedge of channel 11.

11.The lobe right by the fundamental side is already 20dB below the highest emission level.

12.The emissions recorded in the restricted band is do comply with the Part 15.209(a) – as below

Radiated Emission					Corrected Amplitude		Class B (3m)		
Frequency (MHz)	Ant. P.	Ant. H. (m)	Table ()	Factors (dB)	(dBμV/m)		Limit (dBμV/m)		Margin (dB)
					Peak	Average	Peak	Ave.	
2483.42	Hor	1.00	317	9.44	66.11	47.61	73.96	53.96	-6.35
2488.17	Hor	1.00	320	9.46	61.12	50.63	73.96	53.96	-11.33
2500.22	Hor	1.00	315	9.49	53.49	38.66	73.96	53.96	-15.30
2507.30	Hor	1.00	321	9.50	49.84	---	73.96	53.96	-4.12
2483.24	Ver	1.00	311	9.44	69.94	50.61	73.96	53.96	-3.35
2484.73	Ver	1.00	307	9.45	66.45	48.78	73.96	53.96	-5.18
2499.35	Ver	1.00	312	9.49	52.99	41.49	73.96	53.96	-12.47
2508.95	Ver	1.00	308	9.51	52.67	40.18	73.96	53.96	-13.78

Channel CH03 of IEEE 802.11n 40M



This is the hard copy of our bandedge measurement generated by our bandedge testing program. The plot shown above is the bandedge of channel 3.

13.The lobe left by the fundamental side is already 20dB below the highest emission level.

14.The emissions recorded in the restricted band is do comply with the Part 15.209(a) – as below.

<i>Radiated Emission</i>					<i>Corrected Amplitude</i>		<i>Class B (3m)</i>		
<i>Frequency (MHz)</i>	<i>Ant. P.</i>	<i>Ant. H. (m)</i>	<i>Table ()</i>	<i>Factors (dB)</i>	<i>(dBμV/m)</i>		<i>Limit (dBμV/m)</i>		<i>Margin (dB)</i>
					<i>Peak</i>	<i>Average</i>	<i>Peak</i>	<i>Ave.</i>	
2377.54	Hor	1.00	6	9.15	65.98	41.98	73.96	53.96	-7.98
2390.33	Hor	1.00	3	9.18	66.85	52.18	73.96	53.96	-1.78
2379.83	Ver	1.00	129	9.15	65.32	47.65	73.96	53.96	-6.31
2389.80	Ver	1.00	117	9.18	67.18	48.18	73.96	53.96	-5.78

Channel 09 of IEEE 802.11n 40M



This is the hard copy of our bandedge measurement generated by our bandedge testing program. The plot shown above is the bandedge of channel 09.

15.The lobe right by the fundamental side is already 20dB below the highest emission level.

16.The emissions recorded in the restricted band is do comply with the Part 15.209(a) – as below

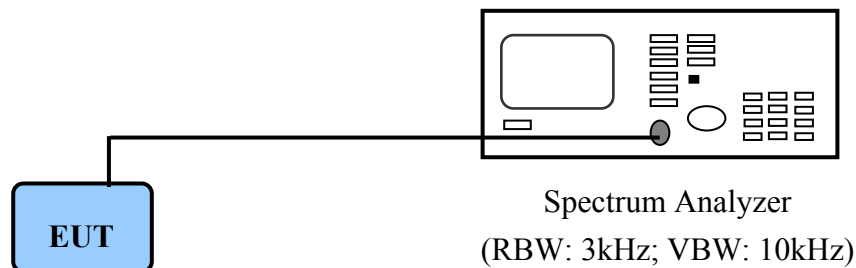
<i>Radiated Emission</i>					<i>Corrected Amplitude</i>		<i>Class B (3m)</i>		
<i>Frequency (MHz)</i>	<i>Ant. P.</i>	<i>Ant. H. (m)</i>	<i>Table (°)</i>	<i>Factors (dB)</i>	<i>(dBuV/m)</i>		<i>Limit (dBuV/m)</i>		<i>Margin (dB)</i>
					<i>Peak</i>	<i>Average</i>	<i>Peak</i>	<i>Ave.</i>	
2483.21	Hor	1.00	113	9.44	67.94	48.11	73.96	53.96	-5.85
2488.21	Hor	1.00	116	9.46	70.62	48.46	73.96	53.96	-3.34
2499.74	Hor	1.00	108	9.49	58.32	41.99	73.96	53.96	-11.97
2503.90	Hor	1.00	0	9.50	56.83	39.33	73.96	53.96	-14.63
2483.87	Ver	1.00	151	9.44	68.78	49.11	73.96	53.96	-4.85
2488.83	Ver	1.00	304	9.46	70.29	50.13	73.96	53.96	-3.67
2499.80	Ver	1.00	359	9.49	63.32	43.82	73.96	53.96	-10.14
2506.69	Ver	1.00	152	9.50	60.67	40.00	73.96	53.96	-13.29

VIII. Section 15.247(d): Power Spectral Density

8.1 Test Condition & Setup

The tests below are running with the EUT transmitter set at high power in TDD mode. The EUT is needed to force selection of output power level and channel number. While testing, the EUT was set to transmit continuously and to be tested by the contact manner with the spectrum analyzer.

8.2 Test Instruments Configuration



PC to control the EUT at maximal power output and channel number and set antenna kit

8.3 List of Test Instruments

Instrument Name	Model No.	Brand	Serial No.	Next time
Spectrum Analyzer	MS2665C	ANRITSU	6200175476	12/19/09

8.4 Test Result of Power spectral density

The following table shows a summary of the test results of the Power Spectral Density.

IEEE 802.11b

<i>Channel</i>	<i>Ppr (dBm)</i>	<i>Cable Loss (dB)</i>	<i>Ppq (dBm)</i>	<i>Limit (dB)</i>	<i>Margin (dB)</i>
CH 01	-1.89	1.00	-0.89	8.00	-8.89
CH 06	-2.13	1.00	-1.13	8.00	-9.13
CH 11	-2.57	1.00	-1.57	8.00	-9.57

IEEE 802.11g

<i>Channel</i>	<i>Ppr (dBm)</i>	<i>Cable Loss (dB)</i>	<i>Ppq (dBm)</i>	<i>Limit (dB)</i>	<i>Margin (dB)</i>
CH 01	-7.13	1.00	-6.13	8.00	-14.13
CH 06	-8.32	1.00	-7.32	8.00	-15.32
CH 11	-8.15	1.00	-7.15	8.00	-15.15

Note:

1. The following pages show the results of spectrum reading.
2. Ppr: spectrum read power density (using peak search mode),
Ppq: actual peak power density in the spread spectrum band.
3. $Ppq = Ppr + |Cable Loss|$

Formula:

Total PPSD (Ppq) = 10 log (10[^] (Ant#1 Ppr + cable loss / 10) + 10[^] (Ant#2 Ppr + cable loss/ 10))

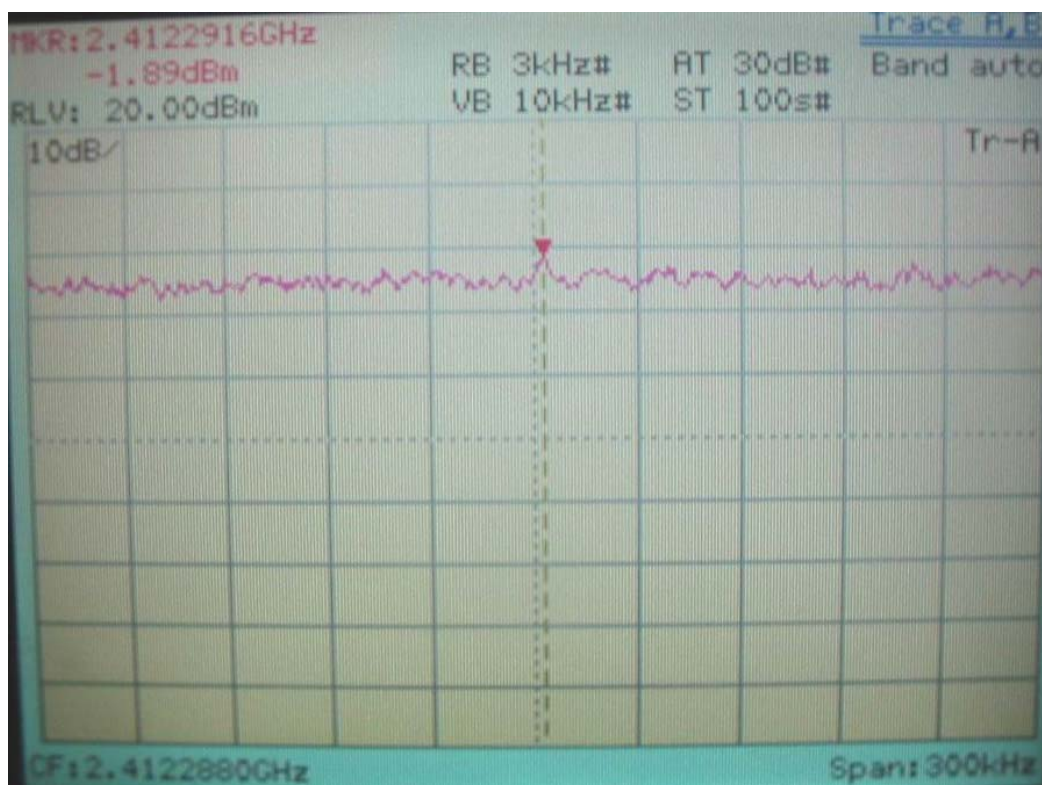
IEEE 802.11n 20M

<i>Channel</i>	<i>Ant#1 Ppr</i>	<i>Ant#2 Ppr</i>	<i>Cable Loss</i>	<i>Ppq</i>	<i>Limit</i>	<i>Margin</i>
	<i>(dBm)</i>		<i>(dB)</i>	<i>(dBm)</i>	<i>(dB)</i>	<i>(dB)</i>
CH 01/2412	-10.35	-9.72	1.00	-6.01	8.00	-14.01
CH 06/2437	-10.92	-9.35	1.00	-6.05	8.00	-14.05
CH 11/2462	-10.30	-10.43	1.00	-6.35	8.00	-14.35

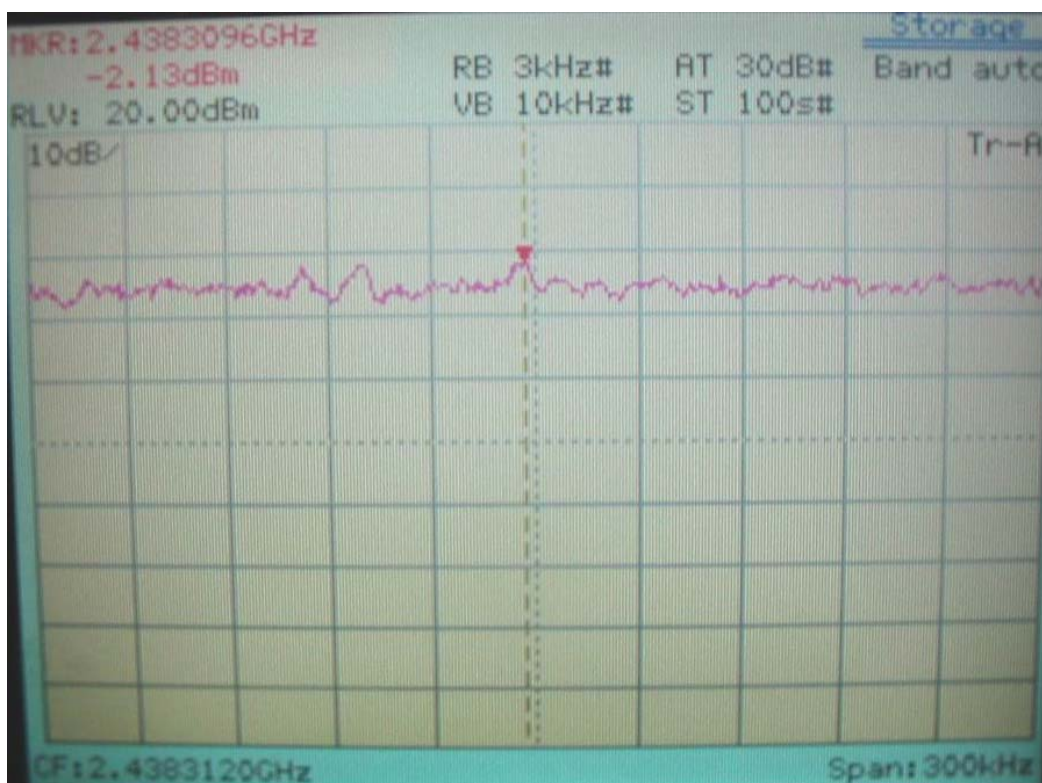
IEEE 802.11n 40M

<i>Channel</i>	<i>Ant#1 Ppr</i>	<i>Ant#2 Ppr</i>	<i>Cable Loss</i>	<i>Ppq</i>	<i>Limit</i>	<i>Margin</i>
	<i>(dBm)</i>		<i>(dB)</i>	<i>(dBm)</i>	<i>(dB)</i>	<i>(dB)</i>
CH 03/2412	-13.76	-13.38	1.00	-9.56	8.00	-17.56
CH 06/2437	-13.15	-13.84	1.00	-9.47	8.00	-17.47
CH 09/2452	-12.33	-12.42	1.00	-8.36	8.00	-16.36

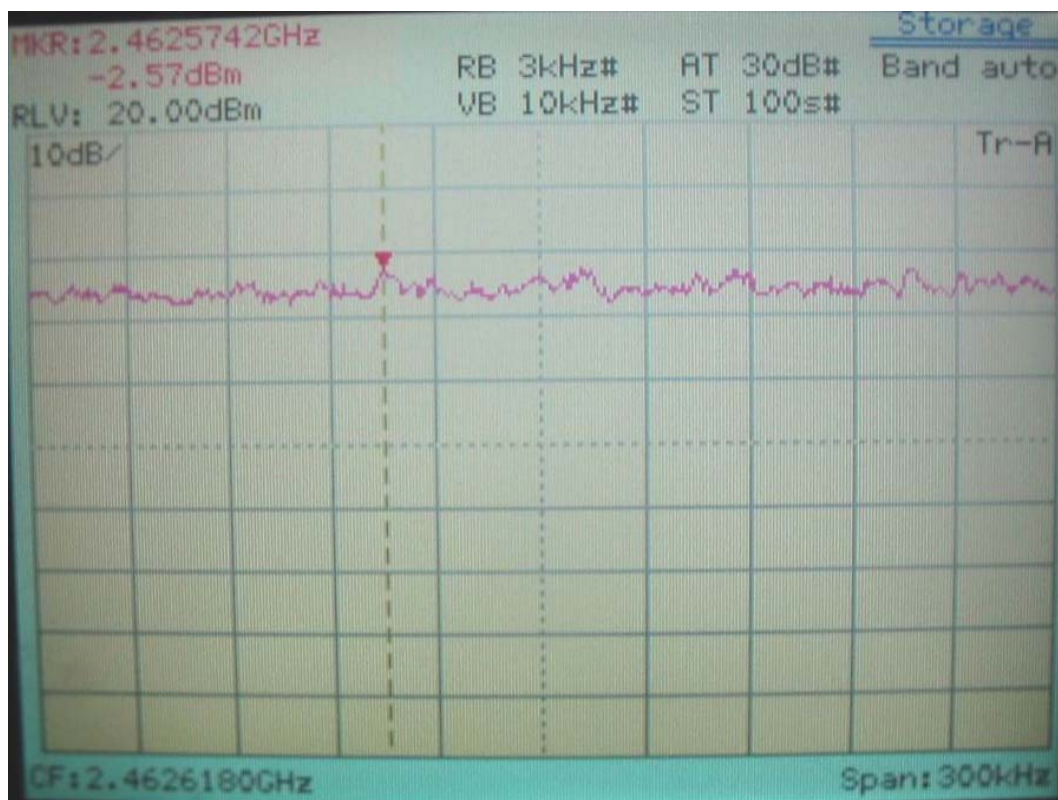
Power Spectral Density for IEEE 802.11b Channel 01, 2412MHz



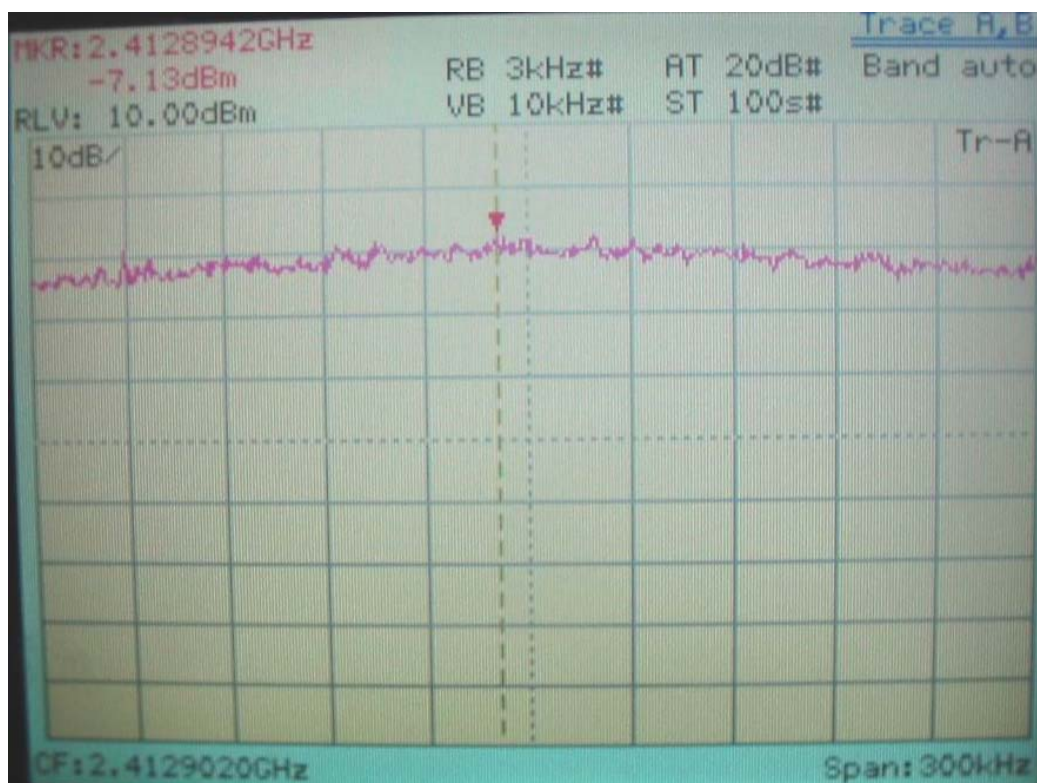
Power Spectral Density for IEEE 802.11b Channel 06, 2437MHz



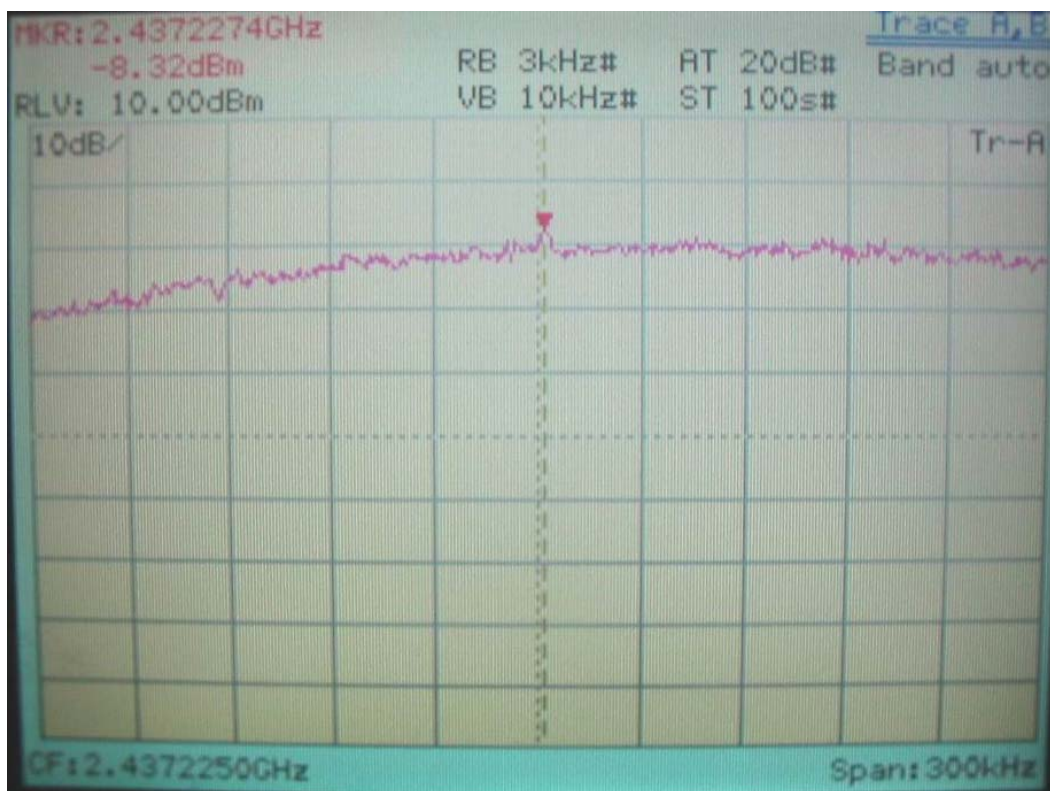
Power Spectral Density for IEEE 802.11b Channel 11, 2462MHz



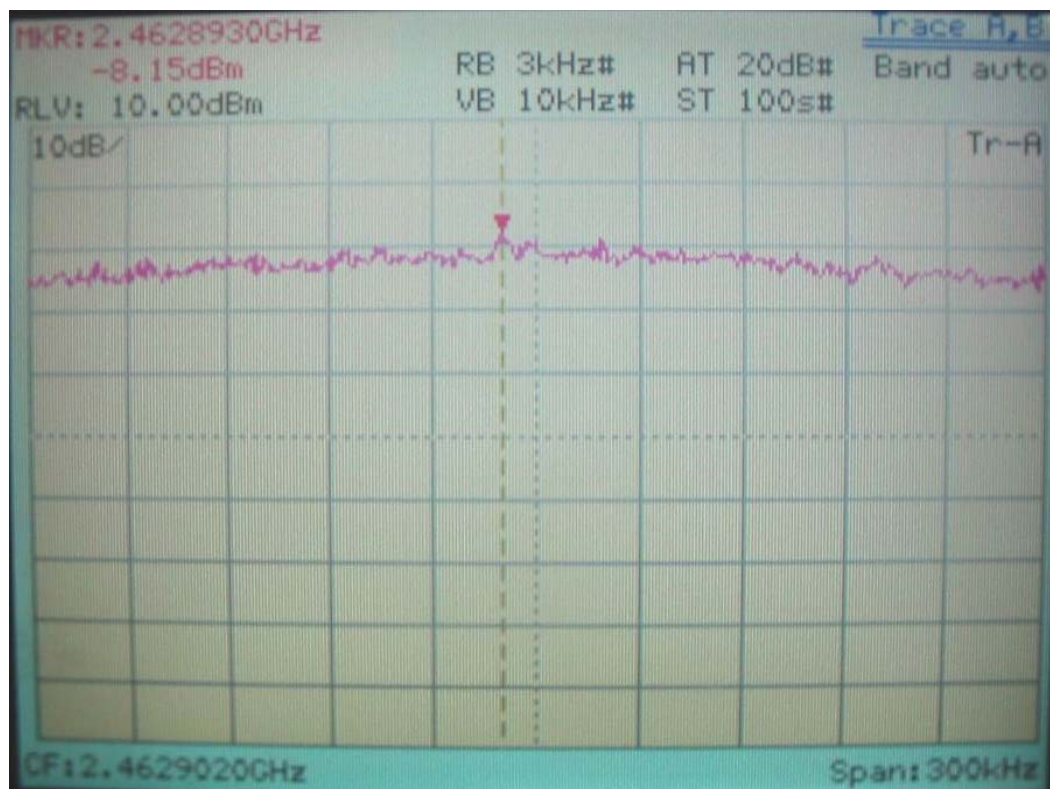
Power Spectral Density for IEEE 802.11g Channel 01, 2412MHz



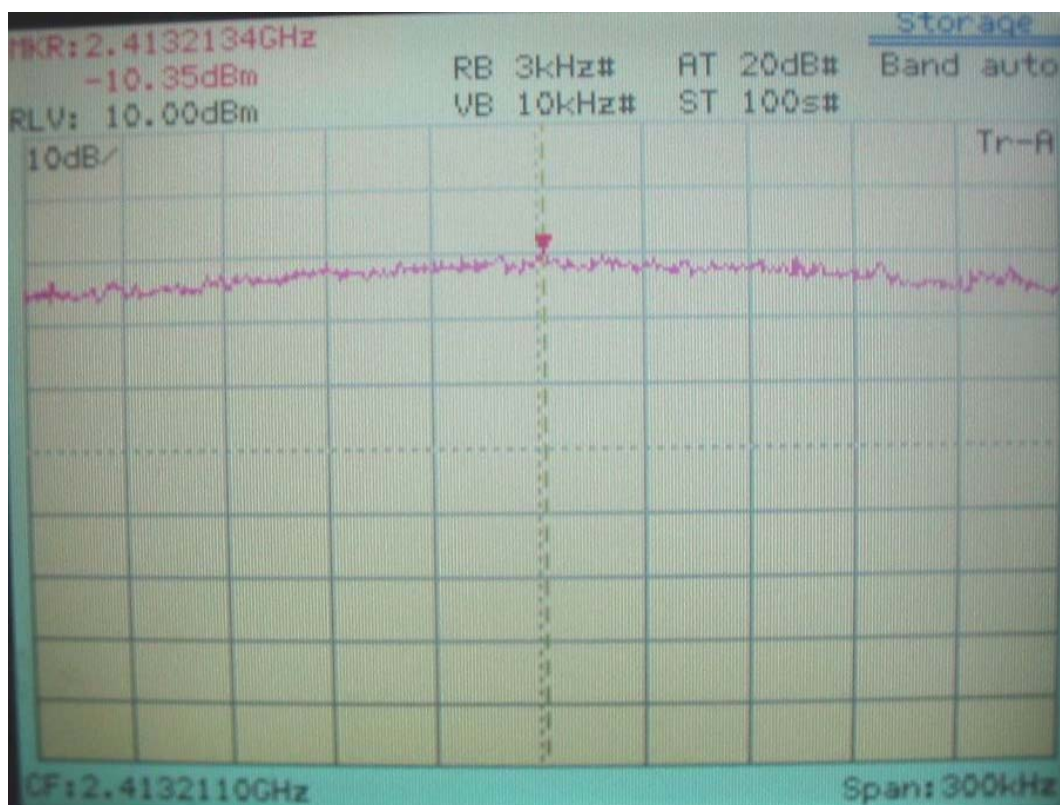
Power Spectral Density for IEEE 802.11g Channel 06, 2437MHz



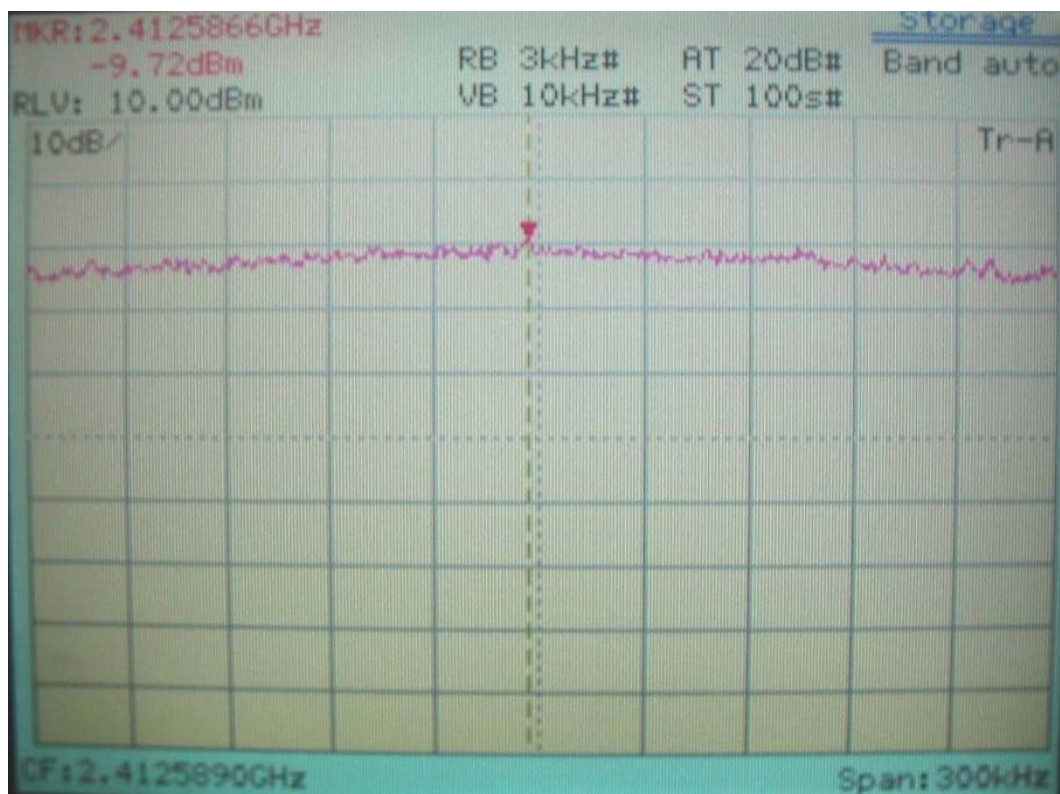
Power Spectral Density for IEEE 802.11g Channel 11, 2462MHz



Power Spectral Density for IEEE 802.11n 20M Channel 01, 2412MHz

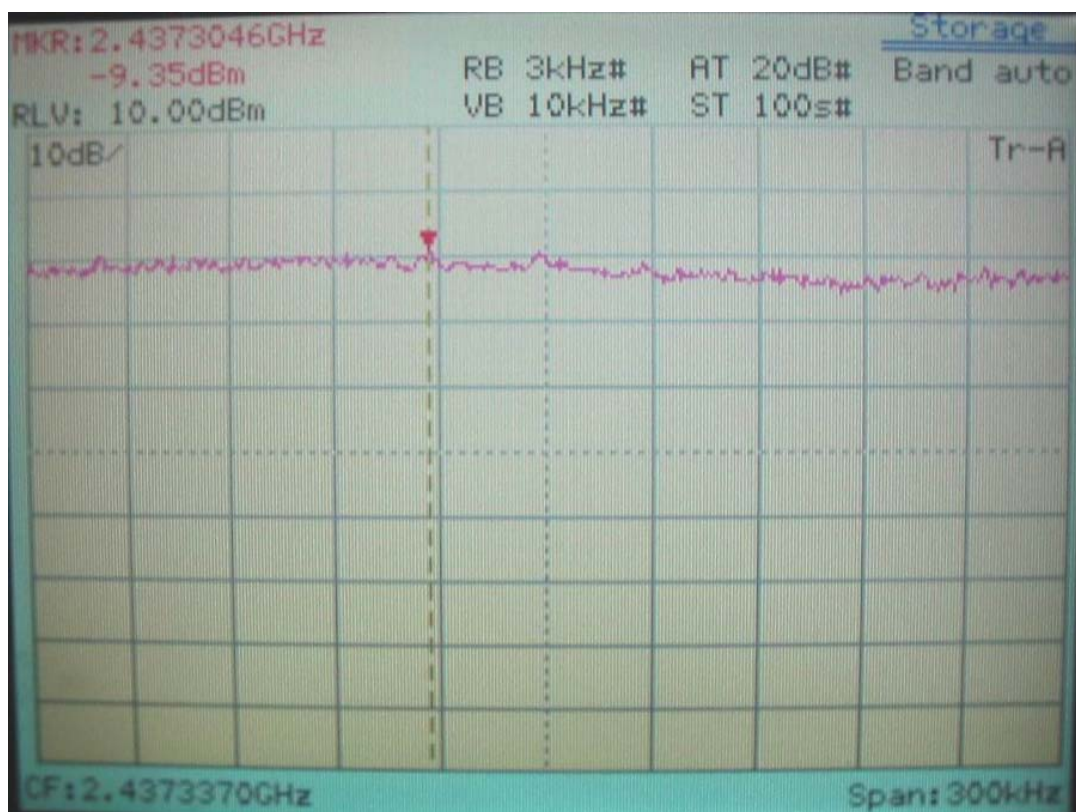
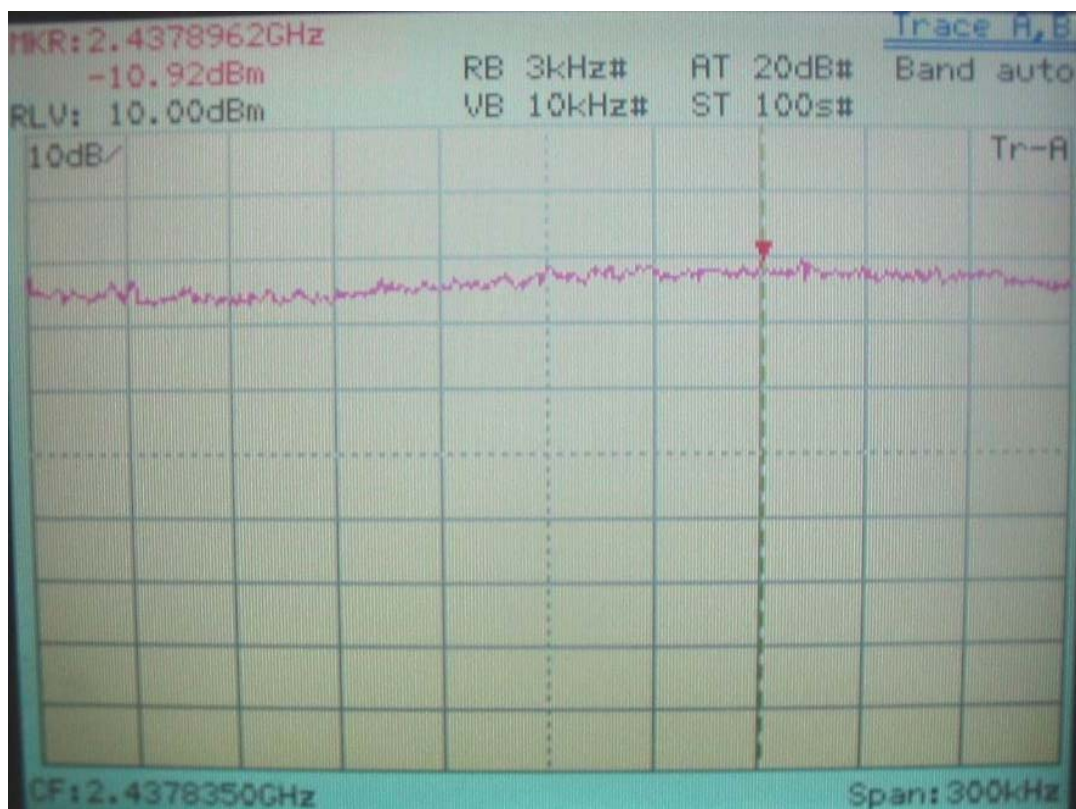


Ant #1

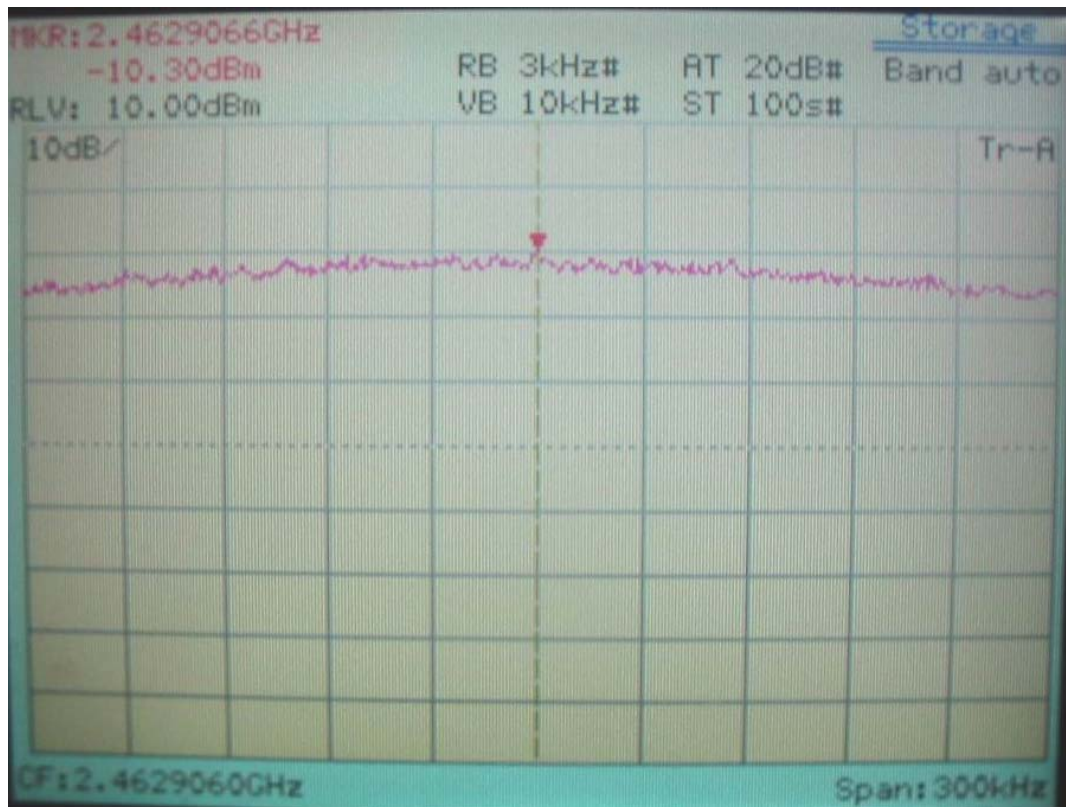


Ant #2

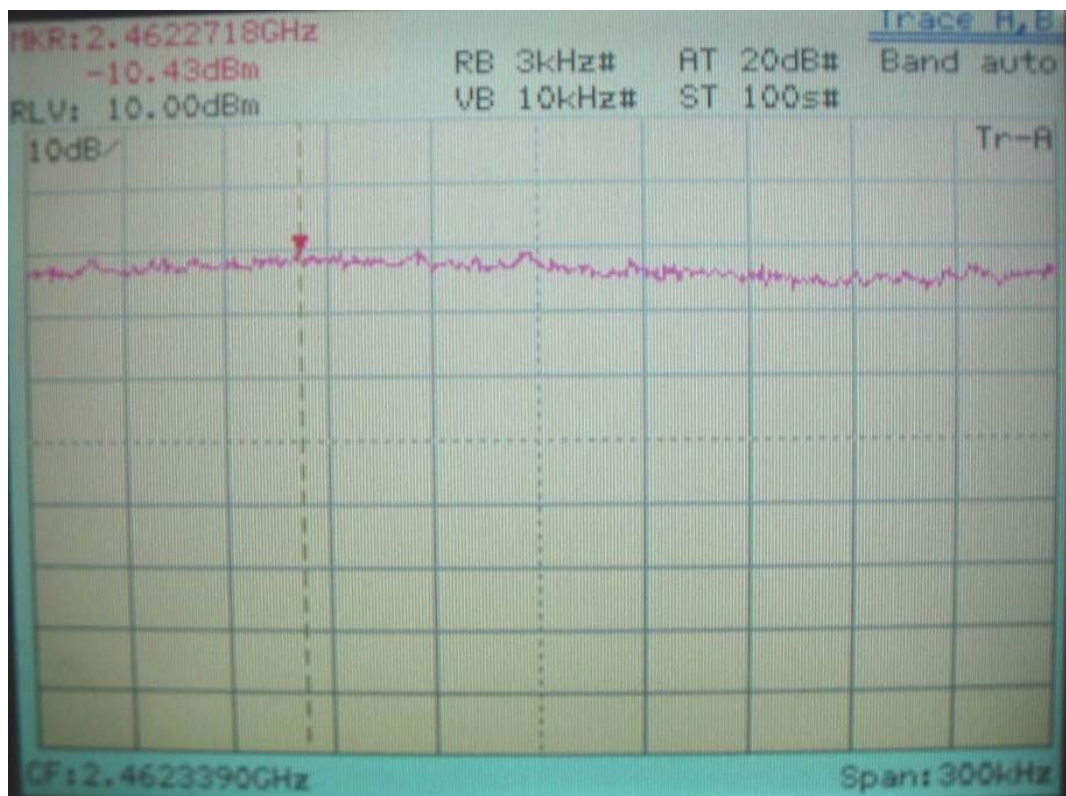
Power Spectral Density for IEEE 802.11n 20M Channel 06, 2437MHz



Power Spectral Density for IEEE 802.11n 20M Channel 11, 2462MHz

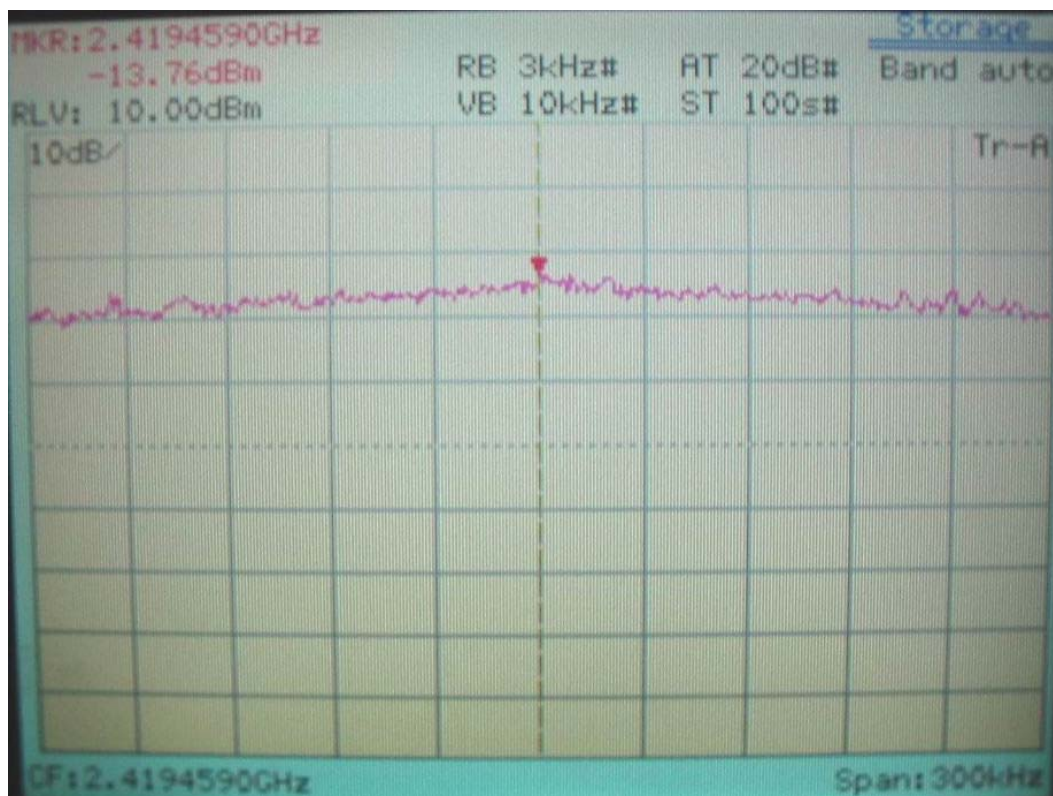


Ant #1

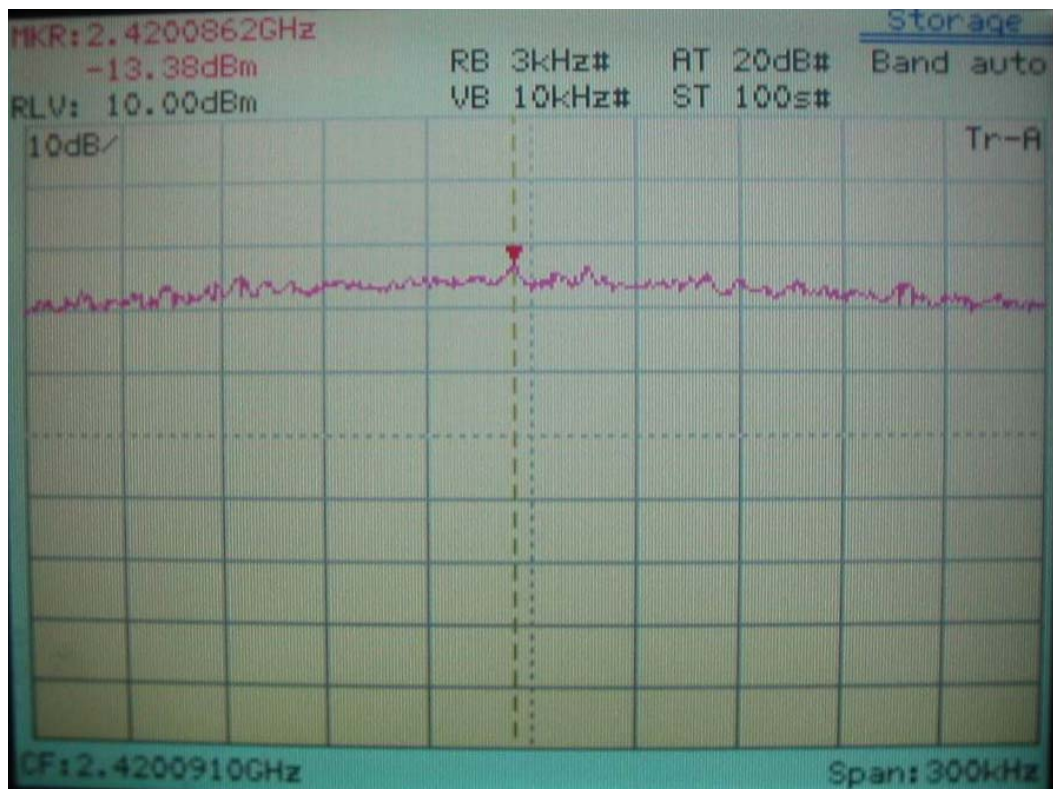


Ant #2

Power Spectral Density for IEEE 802.11n 40M Channel 03, 2422MHz

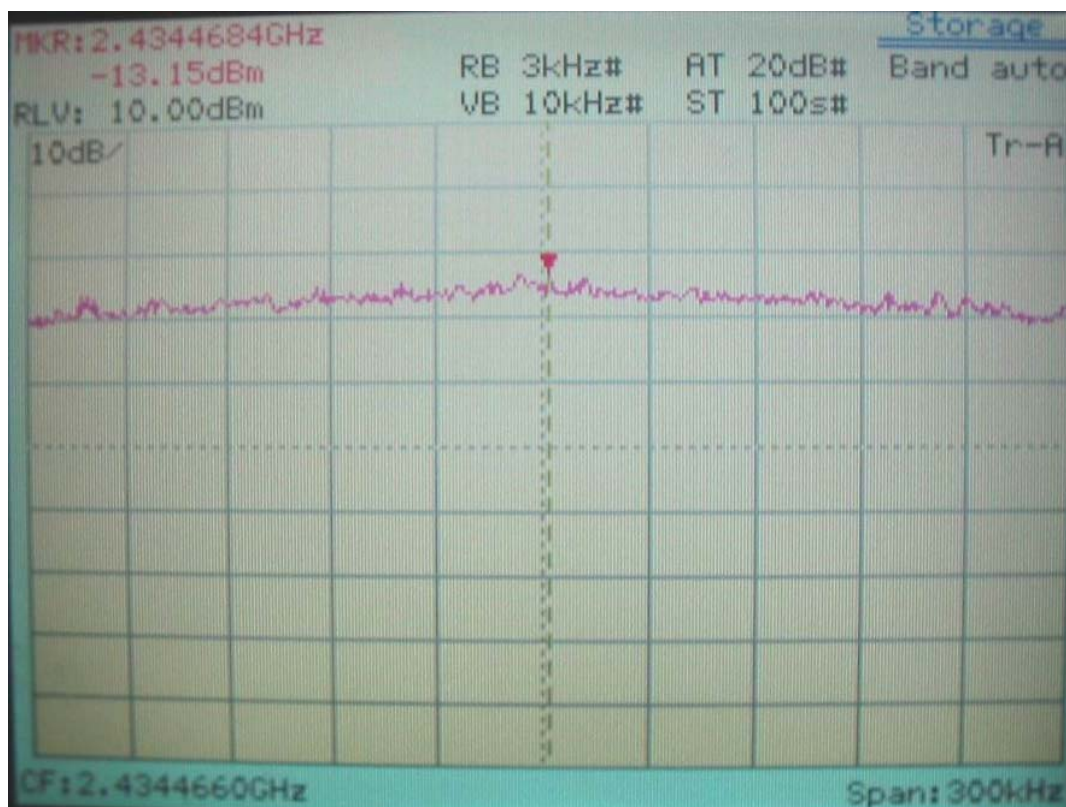


Ant #1

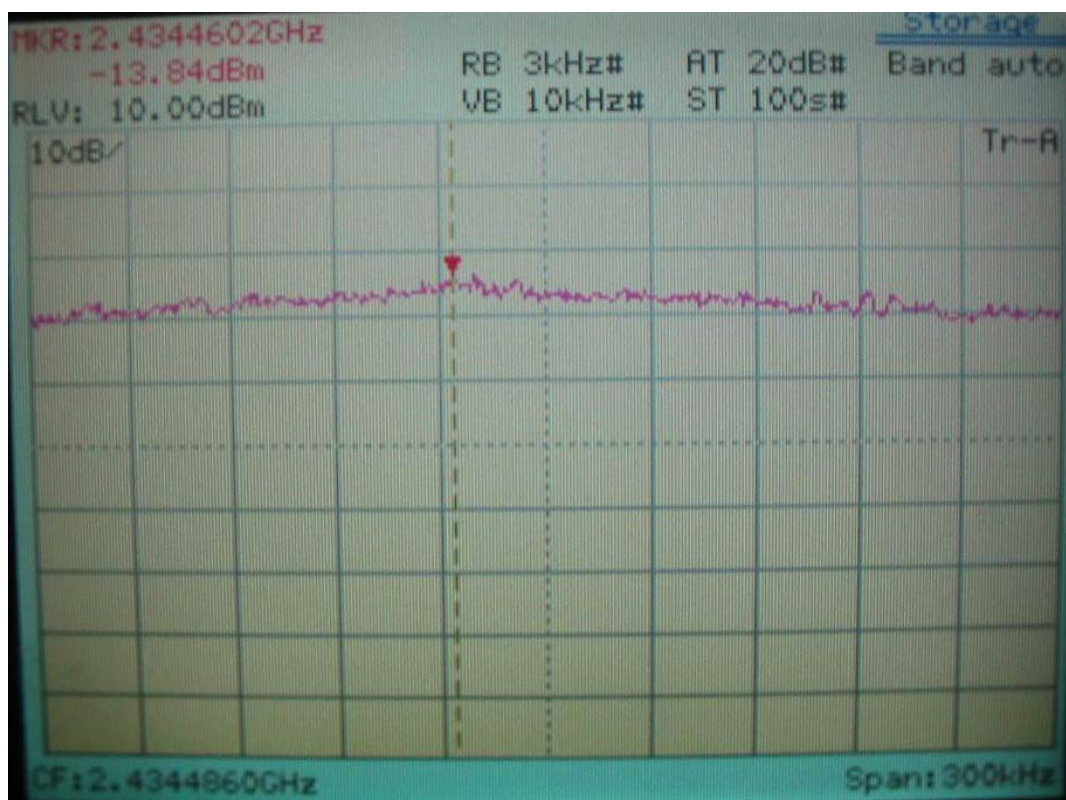


Ant #2

Power Spectral Density for IEEE 802.11n 40M Channel 06, 2437MHz

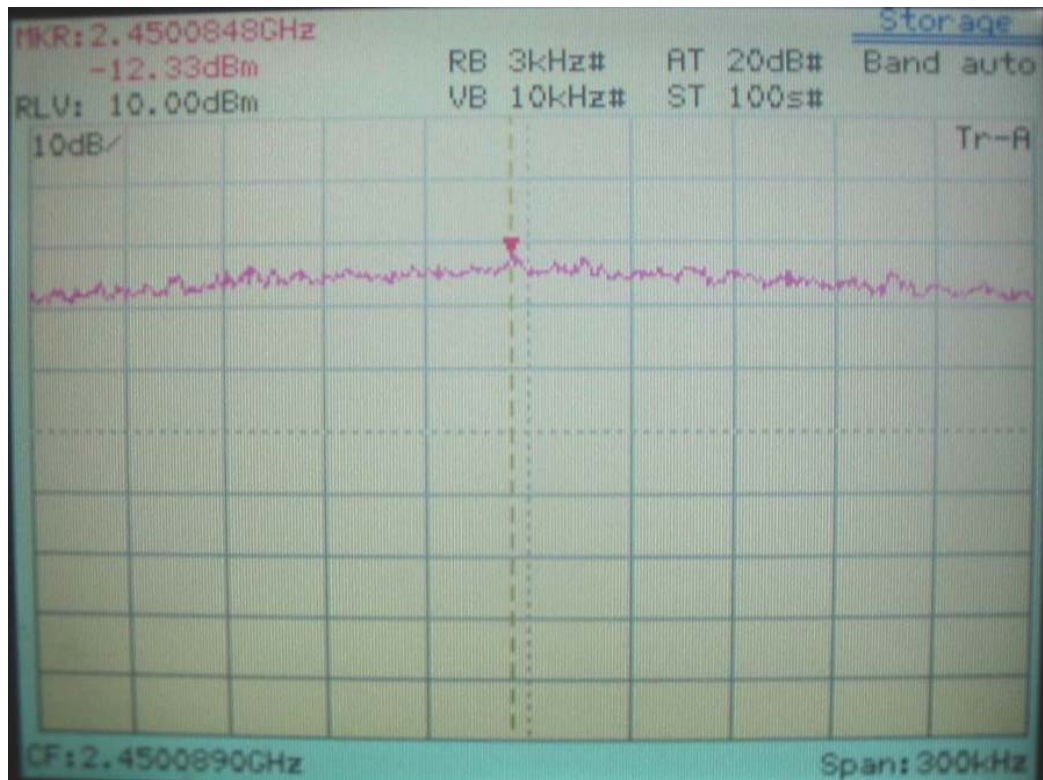


Ant #1

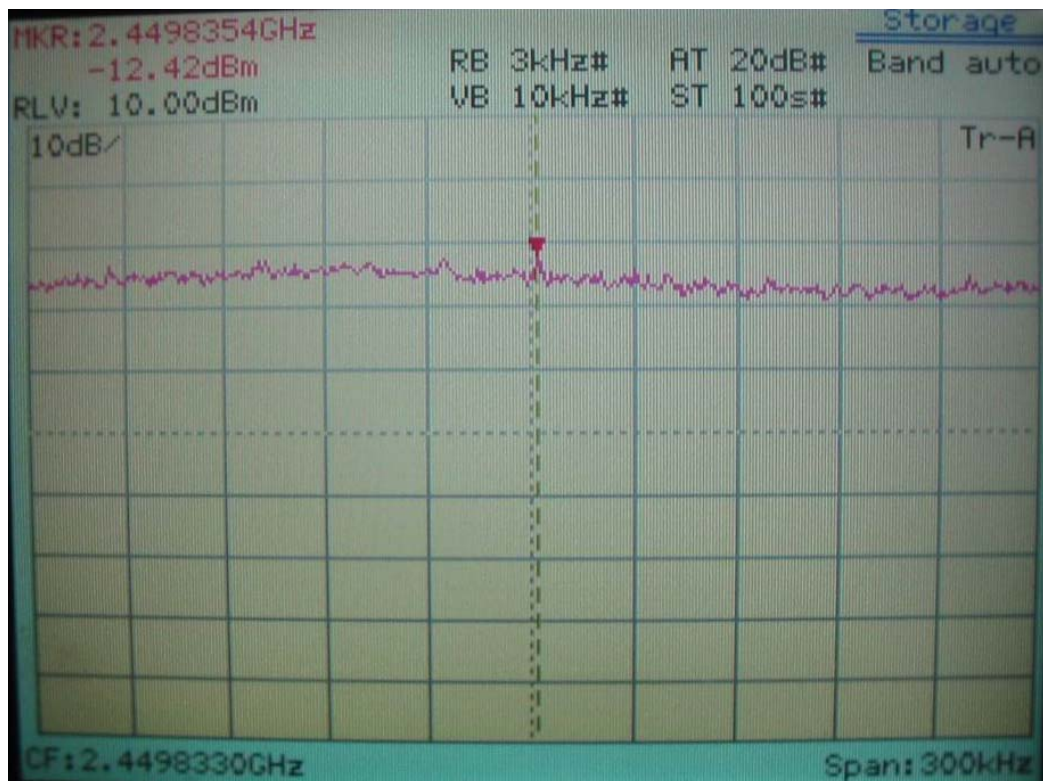


Ant #2

Power Spectral Density for IEEE 802.11n 40M Channel 09, 2452MHz



Ant #1



Ant #2