MEASUREMENT REPORT
of
WIRELESS LAN ACCESS POINT

Applicant : Netgear, Inc.
Model No. : ME102 REV. B
EUT : 802.11b Access Point
FCC ID : PY3ME102RB
Report No. : D0615635

Tested by :

Training Research Co., Ltd.

TEL : 886-2-26935155 FAX : 886-2-26934440
255 Nanyang St., 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 (1992) as a reference. All test were conducted by ***Training Research Co., Ltd.***, 255 Nanyang St., 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.

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Report No.	:	D0615635
Test Date	:	August 3, 2002

Prepared by: *Eric Wong*

Approved by: *Frank Tsai*

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Ⅰ. GENERAL

1.1 Introduction

The following measurement report is submitted on behalf of Applicant in support of a wireless LAN Access Point certification in accordance with Part 2 Subpart J and Part 15 Subpart A and C of the Commission's Rules and Regulations.

1.2 Description of EUT

EUT	**:**	802.11b Access Point
Model No.	**:**	ME102 REV. B
Granted FCC ID	**:**	PY3ME102RB
Frequency Range	**:**	2.412 GHz ~ 2.462GHz
Antenna Kit	**:**	2 external dipole antennas
Supported Channel:		11 Channel
Modulation Skill	**:**	DBPSK, DQPSK, CCK
Power Type	**:**	AC to DC Switching Adapter
		Input: 100 ~ 120VAC, 50/60Hz, 0.3A
		Output: +5VDC, 1.0A
Applicant	**:**	Netgear, Inc.
		4500 America Parkway, Santa Clara, CA 95054.

1.3 Description of Support Equipment

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

Notebook#1	**:**	**IBM**
Type No.	:	2626-11T
Serial No.	:	FX-11922-00109
FCC ID	:	DoC Approved

AC Adaptor	**:**	**DELTA ELECTRONICS, INC.**
Model No.	:	02K6549
Serial No.	:	11S2510035032AA004Y0
FCC ID	:	DoC Approved
Power Core	:	Non-shielded, Plastic hoods, with ferrite bead
Power type	:	100 ~ 240VAC, 50 ~ 60Hz;,1.2A / 16VDC, 3.36A

Monitor	**:**	**HP 15’ Color Monitor**
Model No.	:	D2827A
Serial No.	:	KR91161717
FCC ID	:	C5F7NFCMC1518X
檢磁	:	3872B039
Power type	:	100 ~ 240 VAC / 50 ~ 60 Hz, Switching
Power cord	:	Shielded, 1.83m long, No ferrite core
Data cable	:	Shielded, 1.46m long, with two ferrite cores

Walkman	**:**	**Aiwa**
Model No.	:	PR-4550
Power type	:	2 X AA batteries

Headset w/Mic	**:**	**MIC**
Model No.	:	MIC-03
Power type	:	Power by computer
Data Cable	:	Non-shielded, 1.6m length, No ferrite core

USB Mouse	**:**	**Logitech**
Model No.	:	M-BA47
Serial No.	:	LZE92250027
FCC ID	:	DoC Approved
檢磁	:	4872A220
Power type	:	Powered by Computer
Power Cable	:	Shielded, 1.5m long, Plastic hoods, No ferrite bead

1.4 Configuration of System Under Test

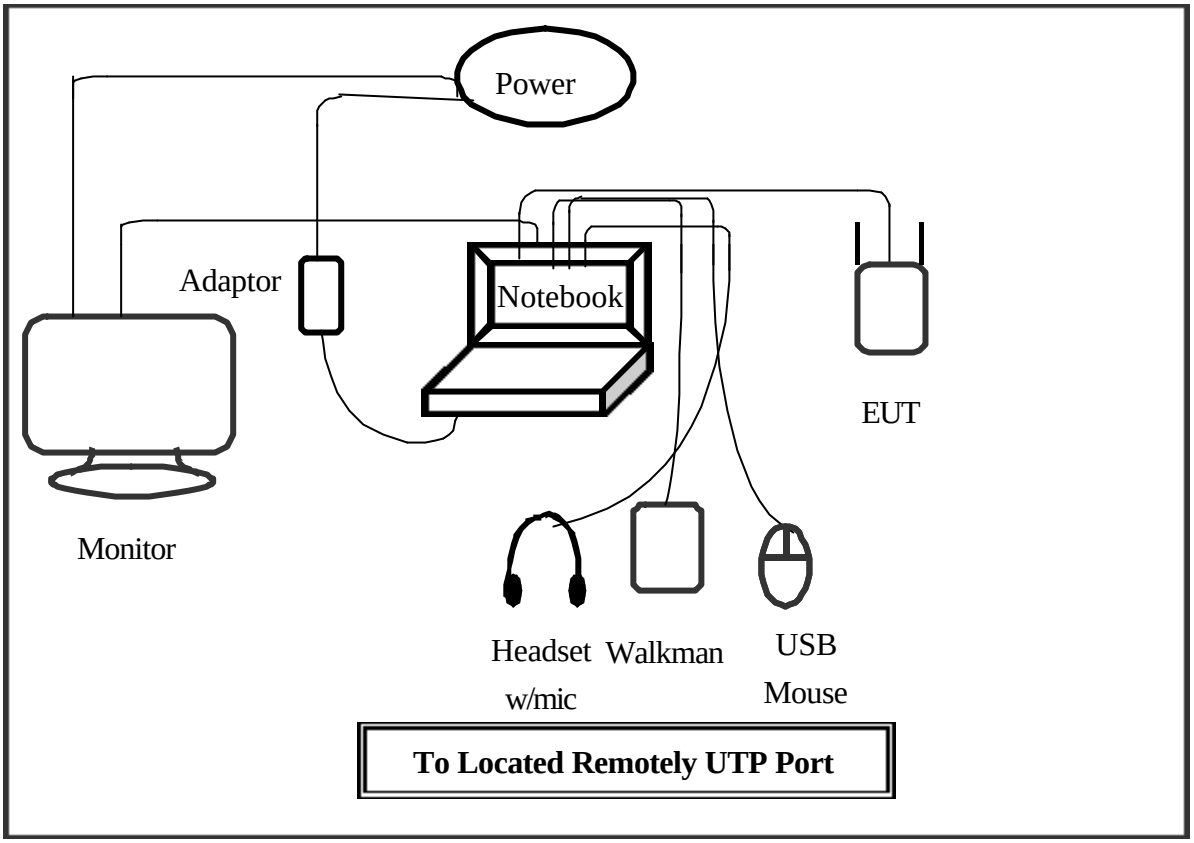


Fig. 1 Configuration of system under test

The tests below are carried with the EUT transmitter set at high power in TDD mode. The testes are covered by the uses of 2 sets of antennas and have been tested separately. The EUT is forced to select of output power level and channel number by notebook computer using with the utility provided by the manufacturer.

The setting up procedure was recorded in <Appendix A.>.

1.5 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 sure that all frequencies are in 2.412GHz to 2.462GHz.
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.)

   After tests, the EUT operating frequencies are in 2.412GHz to 2.462GHz. So all the items as followed in testing report are need to test these three frequencies:
   Top: Channel – 1; Middle: Channel – 6; Bottom: Channel – 11.

1.6 Test Procedure

All measurements contained in this report were performed mainly according to the techniques described in ANSI C63.4 (1992) and the pre-setup was written on Appendix A, the detail setup was written on each test item.

1.7 Location of the Test Site

The radiated emissions measurements required by the rules were performed on the **three-meter**, **Anechoic Chamber (Registration Number: 93906)** maintained by *Training Research Co., Ltd.* 1F, 255 Nanyang St., 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 anechoic chamber also located at Training Research Co., Ltd.

255 Nanyang St., 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.

1.8 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 notebook computer. The Ch01, Ch06 and Ch11 of EUT were all tested. The setting up procedure is recorded on <Appendix A>.

II. Section 15.203 : Antenna Requirement

The EUT equipped with only *2 external dipole antennas*. Also the EUT equipped no other connectors for the extra antenna. The antennas cannot remove it freely without any tools from outside against the construction. This complies with the Antenna requirement stated in Sect.15.203.

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 anechoic chamber. The EUT was assembled on a wooden table, which is 80 centimeters high, was placed 40 centimeters from the back-wall and at least 1 meter from the side-wall.

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 CISPER quasi-peak 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 450 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 2.4.

There is a test condition apply in this test item, the test procedure description as follow:

EUT transmit only:

Using the utility installed in the notebook computer to control the EUT. Then making access to the mode of continuous transmission and set testing channel and antenna kit. Three channels were tested, one in the top (CH01), one in the middle (CH06) and the other in bottom (CH11).

The setting up procedure is recorded on <Appendix A>.

3.2 List of Test Instruments

Instrument Name	Model No.	Brand	Serial No.	Last time	Next time
EMI Receiver	8546A	H P	3520A00242	06/29/02	06/29/03
RF Filter Section	85460A	H P	3448A00217	06/29/02	06/29/03
LISN (EUT)	LISN-01	TRC	9912-03,04	12/09/01	12/09/02
LISN (Support E.)	LISN-01	TRC	9912-05	01/04/02	01/04/03
Switch/Control Unit (< 30MHz)	3488A	HP	N/A	11/20/01	11/20/02
Auto Switch Box (< 30MHz)	ASB-01	TRC	9904-01	11/20/01	11/20/02

3.3 Test configuration

Conducted Emissions Test Placement

3.4 Test Result of Conducted Emissions

EUT station transmit only

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

Table 1 Power Line Conducted Emissions (Channel 1, Transmitter Mode, Ant.B)

Test Conditions: Testing room : Temperature : 26.4 ° C Humidity : 51.5 % RH

Testing site : Temperature : 26.2 ° C Humidity : 62.4 % RH

Power Connected Emissions				*FCC Class B*	
Conductor	***Frequency (KHz)***	***Peak Amplitude (dBμV)***	***QP Amplitude (dBμV)***	***Limit (dBμV)***	***Margin (dB)***
Line 1	465.000	35.19	---	48.00	-24.81
	875.100	32.97	---	48.00	-27.03
	1175.400	36.53	---	48.00	-23.47
	1450.500	32.29	---	48.00	-27.71
	1978.800	34.74	---	48.00	-34.76
	2210.000	34.40	---	48.00	-35.10
	2910.000	30.39	---	48.00	-39.11
	5710.000	30.55	---	48.00	-38.95
	8930.000	28.64	---	48.00	-40.86
	14250.000	31.79	---	48.00	-37.71
Line 2	465.600	33.04	---	48.00	-26.96
	742.500	34.98	---	48.00	-25.02
	871.200	34.45	---	48.00	-25.55
	1175.400	33.54	---	48.00	-26.46
	1974.900	34.42	---	48.00	-35.08
	2630.000	32.78	---	48.00	-36.72
	3680.000	30.67	---	48.00	-38.83
	4870.000	32.59	---	48.00	-36.91
	5710.000	32.29	---	48.00	-37.21
	14320.000	35.82	---	48.00	-33.68

Table 2 Power Line Conducted Emissions (Channel 6, Transmitter Mode, Ant. B)

Test Conditions: Testing room : Temperature : 26.4 ° C Humidity : 55.8 % RH

Testing site : Temperature : 26.2 ° C Humidity : 62.4 % RH

Power Connected Emissions				*FCC Class B*	
Conductor	***Frequency (KHz)***	***Peak Amplitude (dB μV)***	***QP Amplitude (dB μV)***	***Limit (dB μV)***	***Margin (dB)***
Line 1	477.300	31.84	---	48.00	-28.16
	648.900	29.48	---	48.00	-30.52
	769.800	29.41	---	48.00	-30.59
	894.600	33.27	---	48.00	-26.73
	1198.800	36.60	---	48.00	-23.40
	1998.300	35.43	---	48.00	-34.07
	2560.000	32.43	---	48.00	-37.07
	5150.000	30.83	---	48.00	-38.67
	5920.000	31.56	---	48.00	-37.94
	14460.00	31.34	---	48.00	-38.16
Line 2	492.900	32.71	---	48.00	-27.29
	648.900	32.11	---	48.00	-27.89
	773.700	35.02	---	48.00	-24.98
	894.600	34.49	---	48.00	-25.51
	1194.900	33.45	---	48.00	-26.55
	1877.400	31.95	---	48.00	-37.55
	2980.000	33.11	---	48.00	-36.39
	4240.000	33.20	---	48.00	-36.30
	5290.000	32.41	---	48.00	-37.09
	14460.000	34.91	---	48.00	-34.59

****The reading amplitudes are all under limit.***

Table 3 Power Line Conducted Emissions (Channel 11, Transmitter Mode,Ant.B)

Test Conditions: Testing room : Temperature : 26.4 ° C Humidity : 55.8 % RH

Testing site : Temperature : 26.2 ° C Humidity : 62.4 % RH

Power Connected Emissions				*FCC Class B*	
Conductor	***Frequency (KHz)***	***Peak Amplitude (dB μV)***	***QP Amplitude (dB μV)***	***Limit (dB μV)***	***Margin (dB)***
Line 1	524.100	33.72	---	48.00	-26.28
	687.900	28.78	---	48.00	-31.22
	933.600	33.47	---	48.00	-26.53
	1233.900	36.89	---	48.00	-23.11
	1990.500	35.92	---	48.00	-33.58
	2280.000	35.05	---	48.00	-34.45
	3330.000	30.08	---	48.00	-39.42
	4730.000	30.03	---	48.00	-39.47
	5640.000	31.34	---	48.00	-38.16
	13760.000	29.50	---	48.00	-40.00
Line 2	531.900	33.29	---	48.00	-26.71
	816.600	35.02	---	48.00	-24.98
	949.200	34.88	---	48.00	-25.12
	1144.200	33.40	---	48.00	-26.60
	1990.500	36.35	---	48.00	-33.15
	2980.000	31.98	---	48.00	-37.52
	3260.000	33.13	---	48.00	-36.37
	4660.000	33.27	---	48.00	-36.23
	5570.000	32.27	---	48.00	-37.23
	14180.000	34.81	---	48.00	-34.69

****The reading amplitudes are all under limit.***

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

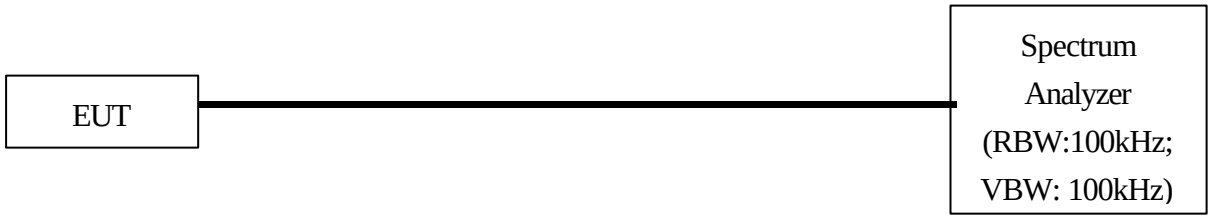
Based on the Section 2.1, *Direct Sequence System* is a spread spectrum system in which the carrier has been modulated by a high speed spreading code and an information data stream. The high speed code sequence dominates the "modulating function" and is the direct cause of the wide spreading of the transmitted 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



Test Configuration of Bandwidth for Direct Sequence System

P.S.: Notebook computer 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.	Last time	Next time
Spectrum Analyzer	8592A	H P	3003AD1401	01/02/02	01/01/03

5.4 Test Result of Bandwidth

Bandwidth of Channel 1

Bandwidth	:	10.05 MHz
The min. 6 dB BW at least	:	500 KHz

Bandwidth of Channel 6

Bandwidth	:	10.05 MHz
The min. 6 dB BW at least	:	500 KHz

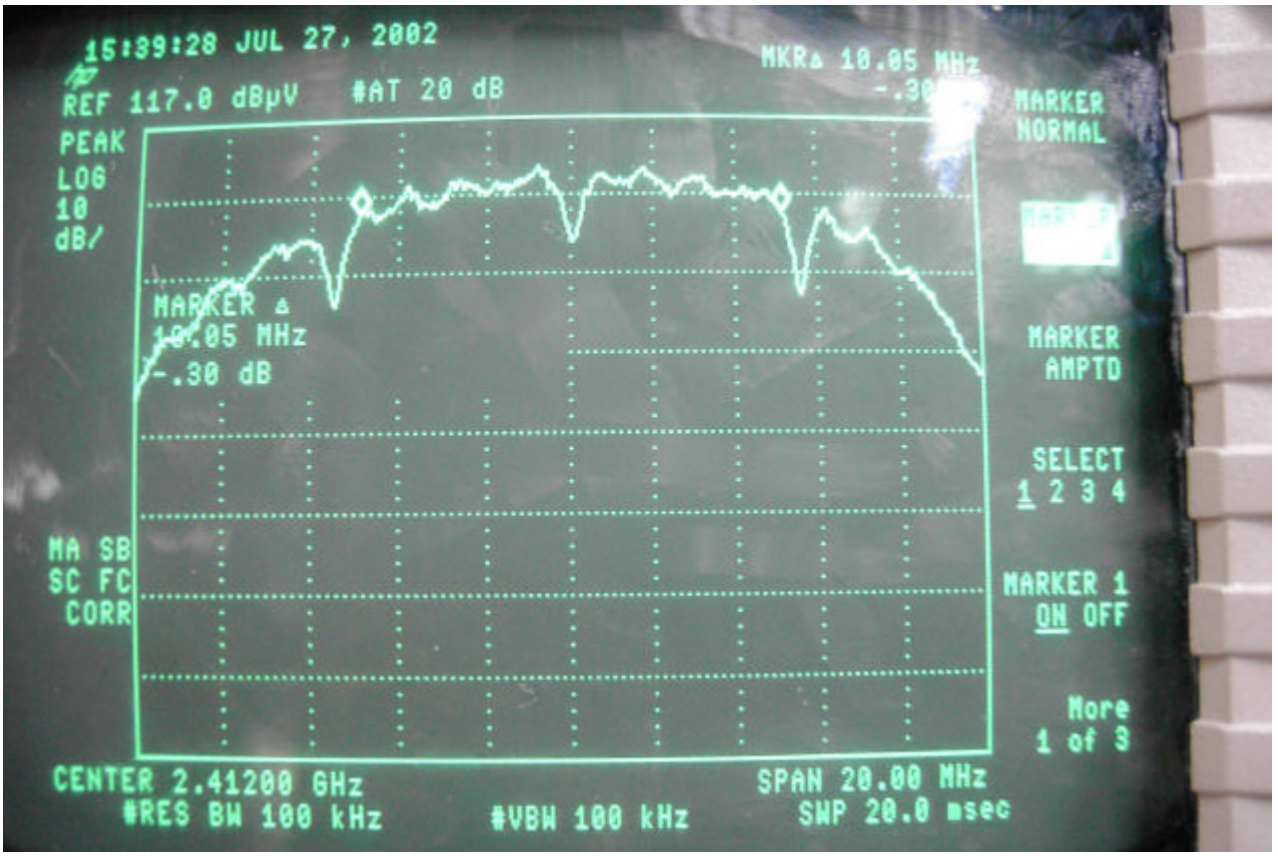
Bandwidth of Channel 11

Bandwidth	:	10.05 MHz
The min. 6 dB BW at least	:	500 KHz

Note:

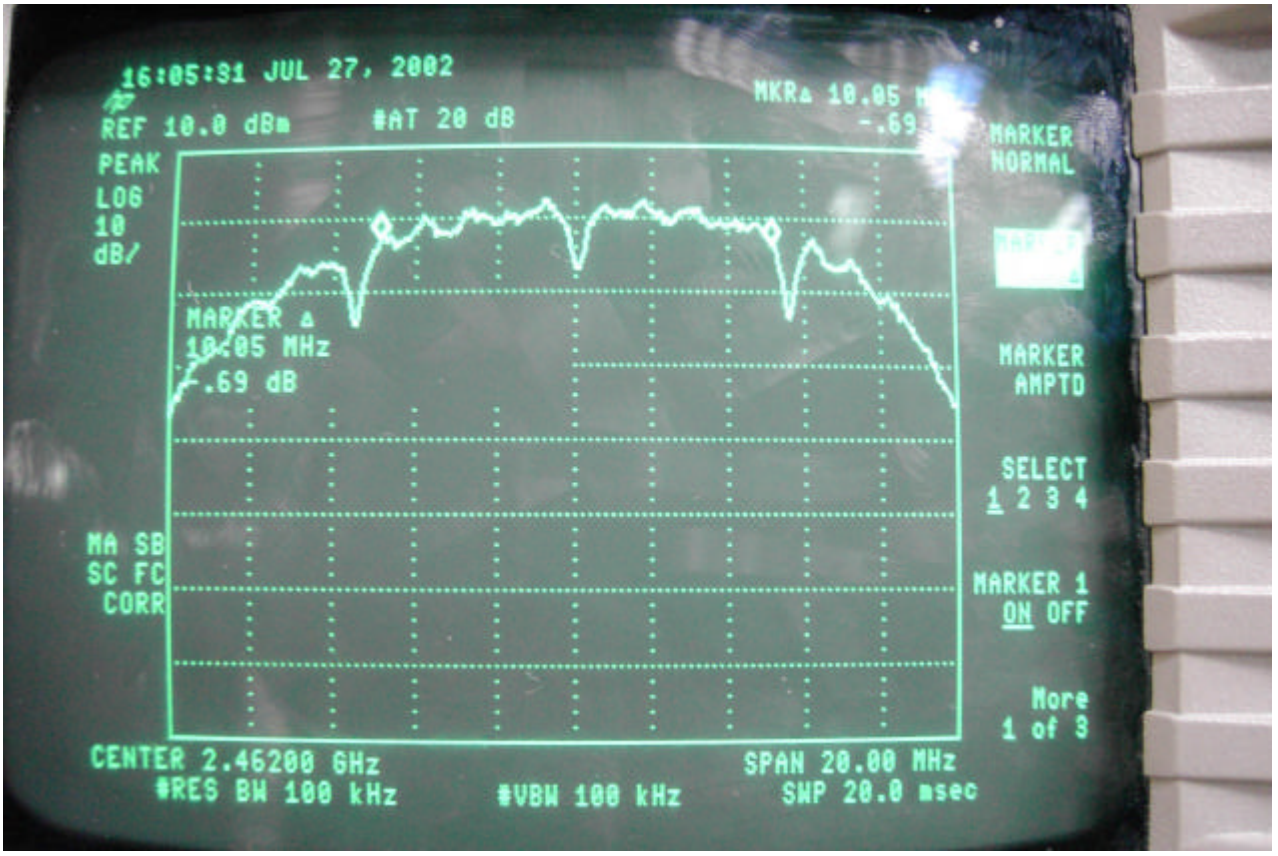
1. The data in the above table are summarizing the following attachment spectrum analyzer hard copy.

Bandwidth of Channel 1: 10.05 MHz



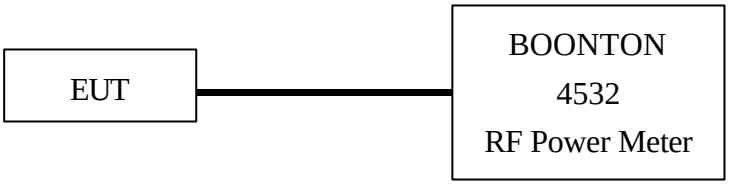
Bandwidth of Channel 6: 10.05 MHz

Bandwidth of Channel 11: 10.05 MHz



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 No.	Brand	Serial No.
RF Power Meter	4532	BOONTON	117501

6.3 Test Result

Formula:
Signal generator + |Cable loss| = Output peak power

Channel	Power Meter Reading	Cable Loss	Limit	Output peak power	
	dBm	dBm	(DTS)	dBm	mW
CH1	18.64	0.2	100mW	18.84	76.56
CH6	18.15	0.2	100mW	18.35	68.39
CH11	17.41	0.2	100mW	17.61	57.68

Note:
The limit is vary according to the equipment class, listed below:

1. Digital Transmission System (DTS): 100mW
2. Spread Spectrum Transmitter (DSS): 1W

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

7.1 Test Condition & Setup

The EUT was placed in an anechoic chamber 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. 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, 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 30 MHz to 1000 MHz using an Hewlett Packard 85460A EMI Receiver, Schaffner whole range Bi-Log antenna (Model No.: CBL6141A) is used to measure frequency from 30 MHz to 1GHz.The final test is used the spectrum HP 85460A and spectrum was examined from 1GHz to 18GHz using an Hewlett Packard 8564E Spectrum Analyzer, EMCO Horn Antenna (Model 3115) for 1G ~ 18GHz.

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 18GHz. 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)and the analyzer was operated in quasi-peak mode. Also, the spectrum analyzer's 6 dB bandwidth was set to 1 MHz (spectrum was examined from 1GHz to 18GHz) and the analyzer was operated in the peak and average mode. There is a test condition apply in this test item, the test procedure description as the following:

EUT transmit only:

Using the utility installed in the Notebook computer to control the EUT through Ethernet hub. Then making access to the mode of continuous transmission. Three channels is tested, one in the top (CH01), one in the middle (CH06) and the other in bottom (CH11).

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 low, mid and high 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.

For frequency between 30MHz to 1000MHz

FIa (dBuV/m) = FIr (dBμV) – Correction Factors

FIa : Actual Field Intensity

FIr : Reading of the Field Intensity

Correction Factors = Antenna Factor + Cable Loss – Amplifier Gain

For frequency between 1 GHz to 18 GHz

FIa (dBμV/m) = FIr (dBμV) + Correction Factor

FIa : Actual Field Intensity

FIr : Reading of the Field Intensity

Correction Factors = Antenna Factor + Cable Loss – Amplifier Gain

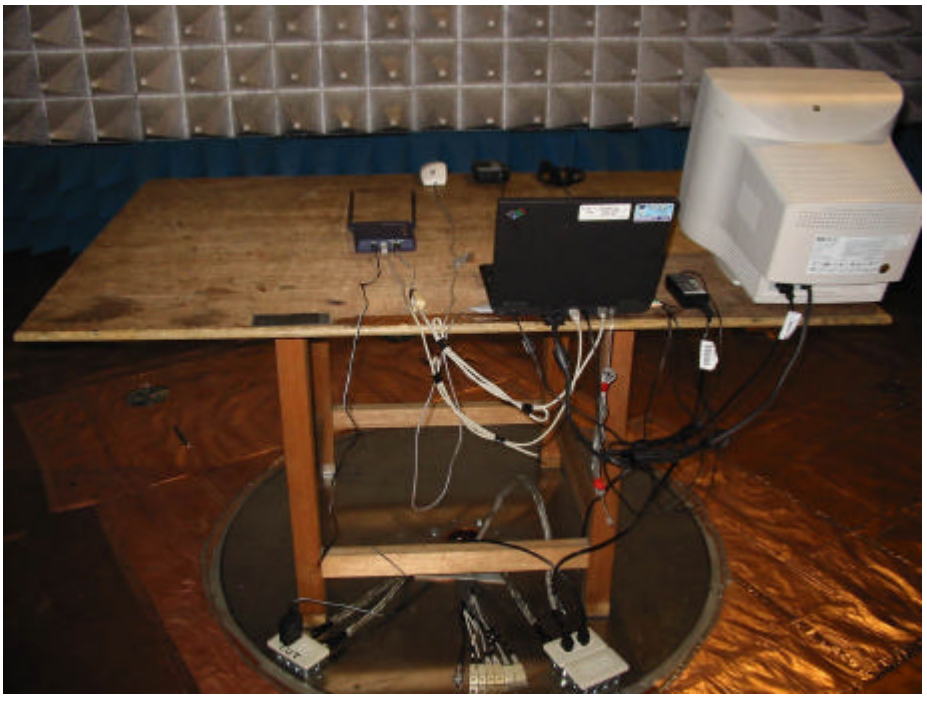
The setting up procedure is recorded on Appendix A.

7.2 List of Test Instruments

Instrument Name	Model No.	Brand	Serial No.	Last time	Next time
EMI Receiver	8546A	H P	3520A00242	06/29/02	06/29/03
RF Filter Section	85460A	H P	3448A00217	06/29/02	06/29/03
Bi-log Antenna	CBL6141A	Schaffner	4206	03/09/02	03/09/03
Switch/Control Unit (> 30MHz)	3488A	HP	N/A	11/20/01	11/20/02
Auto Switch Box (> 30MHz)	ASB-01	TRC	9904-01	11/20/01	11/20/02
Spectrum Analyzer	8564E	HP	US36433002	08/01/02	08/01/03
Microwave Preamplifier	83051A	HP	3232A00347	08/01/02	08/01/03
Horn Antenna	3115	EMCO	9704 – 5178	08/01/02	08/01/03
Anechoic Chamber (cable calibrated together)				05/20/02	05/20/03

7.3 Test Instruments Configuration

Front View of the Test Configuration



Rear View of the Test Configuration

The test configuration for frequency between 1GHz to 18GHz is same as above.

7.4 Test Result of Spurious Radiated Emissions

EUT's transmit only

The highest peak values of radiated emissions form the EUT at various antenna heights, antenna polarizations, EUT orientation, etc. The worst case (with the highest gain antenna) are recorded on the following.

FCC ID : PY3ME102RB
EUT : 802.11b Access Point

Test Conditions: Testing room : Temperature : 20.2 ° C Humidity : 63 % RH
Testing site : Temperature : 23.4 ° C Humidity : 71 % RH

Table 4 Radiated Emissions for 30MHz 1GHz [CH 1, Horizontal, Ant.A]

Radiated Emission				*Correction Factors*	*Corrected Amplitude*	*FCC Class B (3 m)*	
Frequency (MHz)	*Amplitude (dBmV/m)*	*Ant. H. (m)*	*Table (°)*	*(dB)*	*(dBmV/m)*	*Limit (dBmV/m)*	*Margin (dB)*
154.00	7.4	1.00	84	17.44	24.84	43.50	-18.66
215.03	20.08	1.00	277	18.38	38.46	46.00	-5.04
259.93	16.23	1.00	304	19.64	35.87	46.00	-10.13
324.00	13.97	1.00	112	22.02	35.99	46.00	-10.01
390.05	10.16	1.00	29	24.78	34.94	46.00	-11.06

Note:

1. Margin = Corrected Amplitude – Limit.
2. Peak Amplitude – Correction Factors = Corrected Amplitude

Table 5 Radiated Emissions for 30MHz 1GHz [CH 1, Vertical, Ant. A]

Radiated Emission				Correction Factors	Corrected Amplitude	FCC Class B (3 m)	
Frequency (MHz)	Amplitude (dBmV/m)	Ant. H. (m)	Table (°)	(dB)	(dBmV/m)	Limit (dBmV/m)	Margin (dB)
132.00	19.75	1.00	3	18.78	38.53	43.50	-4.97
207.53	19.71	1.00	225	19.61	39.32	43.50	-4.18
337.54	10.18	1.00	309	26.03	36.21	46.00	-9.79
389.92	9.27	1.00	159	27.45	36.72	46.00	-9.28
500.04	10.28	1.00	157	28.99	39.27	46.00	-6.73
844.01	-3.94	1.00	44	37.60	33.66	46.00	-12.34

Table 6 Open Field Radiated Emissions for 1GHz 18GHz [Channel 1, Horizontal, Ant.A]

Radiated Emission				Corrected Amplitude		FCC Class B (3m)		
Frequency (GHz)	Amplitude (dBmV/m)	Ant. H. (m)	Table (°)	Peak	Average	Limit		Margin (dB)
						Peak	Ave.	
2.036	50.75	1.00	84	50.75	---	74.0	---	-23.25
2.413	99.52	1.00	143	99.52	---	---	---	---
*4.825	42.61	1.00	37	42.61	---	74.0	54.0	-11.39
7.238	43.94	1.00	164	43.94	---	74.0	---	-30.06
9.650	45.77	1.00	1	45.77	---	74.0	---	-28.23

Table 7 Open Field Radiated Emissions for 1GHz 18GHz [Channel 1, Vertical, Ant.A]

Radiated Emission				*Corrected Amplitude*		*FCC Class B (3m)*		
Frequency (Hz)	*Amplitude (dBm V/m)*	*Ant. H. (m)*	*Table (°)*	*Peak*	*Average*	*Limit*		*Margin (dB)*
						Peak	*Ave.*	
2.035	50.41	1.00	84	50.41	---	74.0	---	-23.59
*2.342	56.45	1.00	341	56.45	50.52	74.0	54.0	-3.48
2.413	106.52	1.00	27	106.52	---	---	---	---
*4.825	46.77	1.00	248	46.77	---	74.0	54.0	-7.23
7.238	49.27	1.00	2	49.27	---	74.0	---	-24.73
9.650	47.77	1.00	296	47.77	---	74.0	---	-26.23

Note:

1. Margin = Corrected - Limit.
2. Peak Amplitude + Correction Factor = Corrected
3. The " * " means restricted bands.
4. 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.

Table 8 Radiated Emissions for 30MHz 1GHz [CH 6, Horizontal, Ant.A]

Radiated Emission				Correction Factors	Corrected Amplitude	FCC Class B (3 m)	
Frequency (MHz)	Amplitude (dBmV/m)	Ant. H. (m)	Table (°)	(dB)	(dBmV/m)	Limit (dBmV/m)	Margin (dB)
176.000	22.76	1.00	176	16.20	38.96	43.50	-4.54
220.030	19.19	1.00	256	19.09	38.28	46.00	-7.72
260.030	19.12	1.00	170	19.64	38.76	46.00	-7.24
389.980	14.12	1.00	196	24.78	38.90	46.00	-10.96
440.000	13.04	1.00	136	25.44	38.48	46.00	-7.52
500.040	7.60	1.00	38	28.08	35.68	46.00	-10.32

Table 9 Radiated Emissions for 30MHz 1GHz [CH 6, Vertical, Ant.A]

Radiated Emission				Correction Factors	Corrected Amplitude	FCC Class B (3 m)	
Frequency (MHz)	Amplitude (dBmV/m)	Ant. H. (m)	Table (°)	(dB)	(dBmV/m)	Limit (dBmV/m)	Margin (dB)
176.000	22.51	1.00	114	16.20	38.71	40.00	-4.79
200.020	16.16	1.00	211	17.23	33.39	40.00	-10.11
250.030	18.58	1.00	205	19.39	37.94	43.50	-8.06
440.000	11.57	1.00	353	25.44	37.01	46.00	-8.99
500.060	8.94	1.00	138	28.08	37.02	46.00	-8.98
625.080	5.28	1.00	228	30.66	35.94	46.00	-10.06

Table 10 Open Field Radiated Emissions for 1GHz 18GHz [Channel 6, Horizontal, Amt. A]

Radiated Emission				Corrected Amplitude		FCC Class B (3m)		
Frequency (GHz)	Amplitude (dBm V/m)	Ant. H. (m)	Table (°)	Peak	Average	Limit		Margin (dB)
						Peak	Ave.	
2.062	51.37	1.00	80	51.37	---	74.0	---	-22.63
2.439	99.03	1.00	142	99.03	---	---	---	---
*4.873	42.61	1.00	115	42.61	---	74.0	54.0	-11.39
*7.310	44.77	1.00	37	44.77	---	74.0	54.0	-9.23
9.751	47.44	1.00	8	47.44	---	74.0	---	-26.56

Table 11 Open Field Radiated Emissions for 1GHz 18GHz [Channel 6, Vertical, Ant. A]

Radiated Emission				Corrected Amplitude		FCC Class B (3m)		
Frequency (Hz)	Amplitude (dBm V/m)	Ant. H. (m)	Table (°)	Peak	Average	Limit		Margin (dB)
						Peak	Ave.	
*1.696	49.02	1.00	257	49.02	---	74.0	54.0	-4.98
2.062	51.44	1.00	8	51.44	---	74.0	---	-22.56
*2.354	57.27	1.00	197	57.27	48.90	74.0	54.0	-5.10
2.439	106.21	1.00	227	106.21	---	---	---	---
*4.873	46.27	1.00	14	46.27	---	74.0	54.0	-7.73
*7.314	50.94	1.00	334	50.94	---	740	54.0	-3.06
9.751	48.61	1.00	21	48.61	---	74.0	---	-25.39

Table 12 Radiated Emissions for 30MHz 1GHz [CH 11, Horizontal, Ant.A]

Radiated Emission				Correction Factors	Corrected Amplitude	FCC Class B (3 m)	
Frequency (MHz)	Amplitude (dBmV/m)	Ant. H. (m)	Table (°)	(dB)	(dBmV/m)	Limit (dBmV/m)	Margin (dB)
132.000	14.63	2.50	281	17.98	32.61	43.50	-10.89
176.000	23.10	1.00	166	16.20	39.30	43.50	-4.20
220.030	19.08	1.00	102	19.09	38.17	46.00	-7.83
260.030	18.50	1.00	180	19.64	38.14	46.00	-7.86
295.040	17.93	1.00	140	21.17	39.10	46.00	-6.90
440.000	13.27	1.00	276	25.44	38.71	46.00	-7.29

Table 13 Radiated Emissions for 30MHz 1GHz [CH 11, Vertical, Ant.A]

Radiated Emission				Correction Factors	Corrected Amplitude	FCC Class B (3 m)	
Frequency (MHz)	Amplitude (dBmV/m)	Ant. H. (m)	Table (°)	(dB)	(dBmV/m)	Limit (dBmV/m)	Margin (dB)
176.000	2.22	1.00	99	16.20	38.40	43.50	-5.10
325.040	6.48	1.00	155	22.04	28.52	46.00	-17.48
392.530	1.96	1.00	150	24.92	26.88	46.00	-19.12
432.000	4.33	1.00	236	25.42	29.75	46.00	-16.25
500.060	8.84	1.00	126	28.08	36.92	46.00	-9.08
624.300	-4.77	1.00	171	30.65	25.88	46.00	-20.12

Table 14 Open Field Radiated Emissions for 1GHz 18GHz [Channel 11, Horizontal, Amt. A]

Radiated Emission				Corrected Amplitude		FCC Class B (3m)		
Frequency (GHz)	Amplitude (dBm V/m)	Ant. H. (m)	Table (°)	Peak	Average	Limit		Margin (dB)
						Peak	Ave.	
2.085	49.81	1.00	182	49.81	---	74.0	---	-24.19
2.465	98.28	1.00	17	98.28	---	---	---	---
*4.926	41.77	1.00	243	41.77	---	74.0	54.0	-12.23
9.852	46.77	1.00	3	46.77	---	74.0	---	-27.23

Table 15 Open Field Radiated Emissions for 1GHz 18GHz [Channel 11, Vertical, Ant. A]

Radiated Emission				Corrected Amplitude		FCC Class B (3m)		
Frequency (Hz)	Amplitude (dBm V/m)	Ant. H. (m)	Table (°)	Peak	Average	Limit		Margin (dB)
						Peak	Ave.	
2.088	50.82	1.00	21	50.82	---	74.0	---	-23.18
*2.370	57.39	1.00	117	57.39	49.13	74.0	54.0	-4.87
2.465	105.99	1.00	3	105.99	---	---	---	---
*4.926	45.77	1.00	295	45.77	---	74.0	54.0	-8.23
*7.387	47.77	1.00	173	47.77	---	74.0	54.0	-6.23
9.848	45.77	1.00	84	45.77	---	74.0	---	-28.23

7.5 Test Result of Bandedge

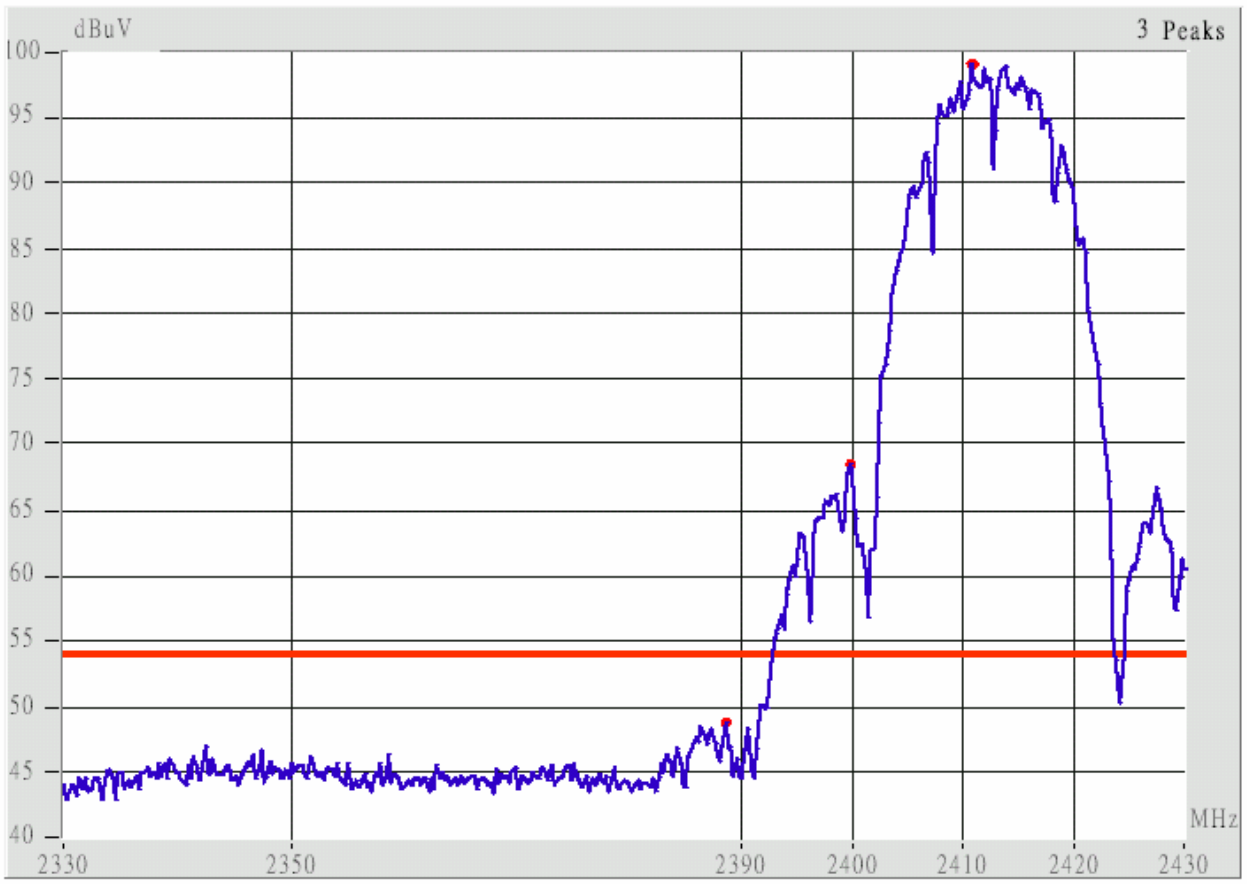
If any 100 kHz bandwidth outside these frequency bands, the radio frequency power that is produced by the modulation products of the spreading sequence, the information sequence and the carrier frequency shall be either *at least 20 dB below that in any 100 kHz bandwidth within the band that contains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

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

Test Condition & Setup: same as 3.1

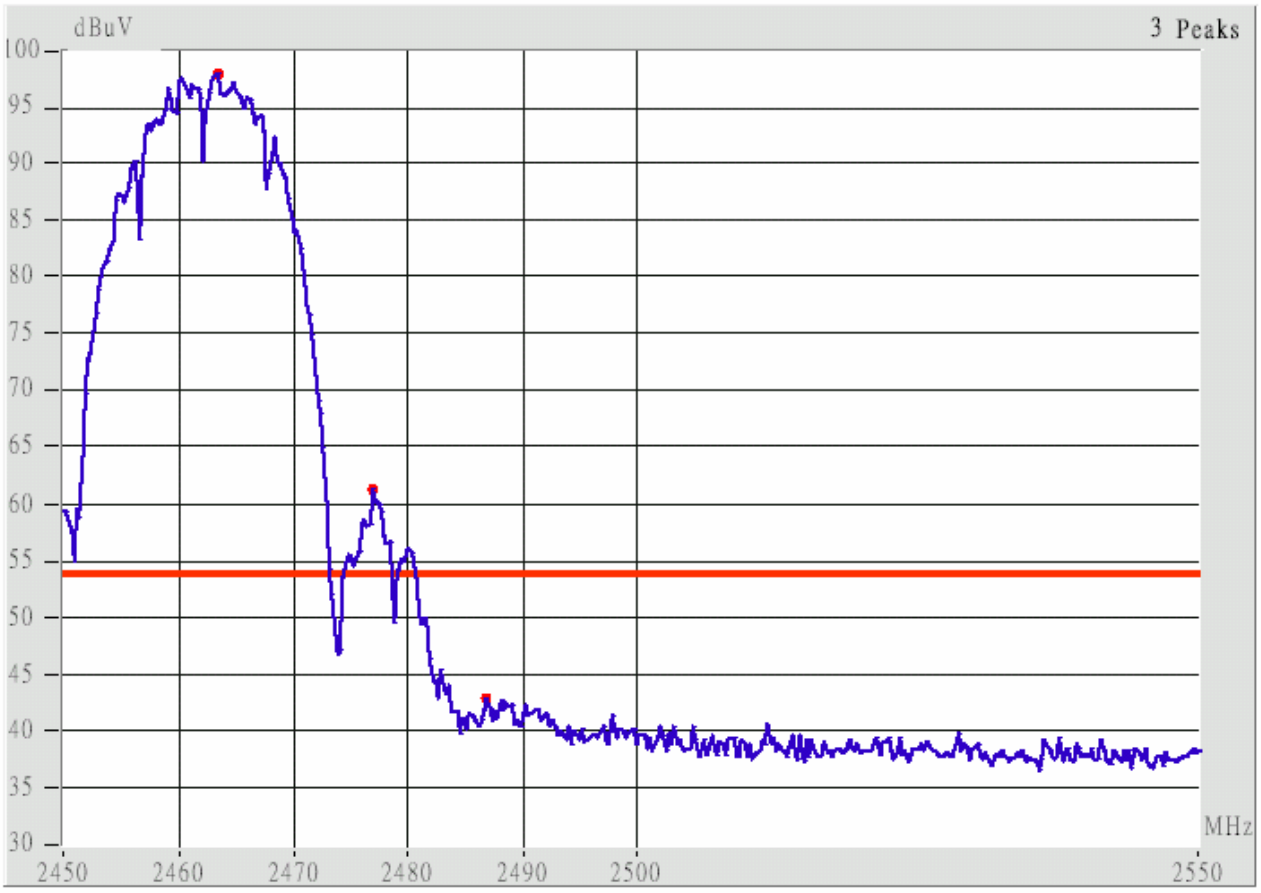
Channel 01



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

1. The lobe right by the fundamental side is already 20dB below the highest emission level.
2. The emissions recorded in the restricted band (<2390MHz) is do comply with the Part 15.209(a) – under the limited line marked in red color.

Channel 11



This is the hard copy of our bandedge measurement generated by our bandedge testing program. The picture 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 (>2483.5MHz) is do comply with the Part 15.209(a) – under the limited line marked in red color.

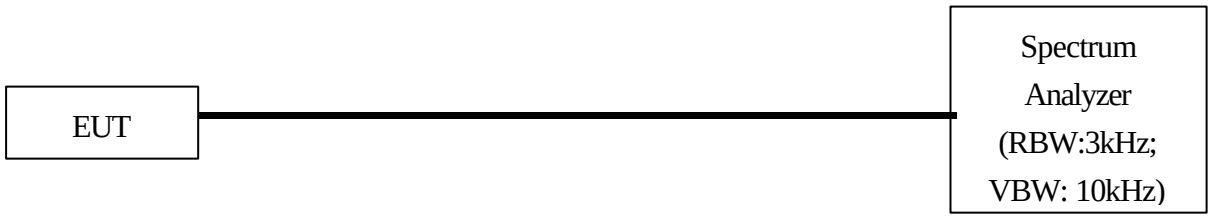
VIII. Section 15.247(d): Power Spectral Density

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.

The attachments below show our observation.

8.2 Test Instruments Configuration



Test Configuration of Power Spectral Density

P.S.: Notebook computer 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.	Last time	Next time
Spectrum Analyzer	8592A	H P	3003AD1401	01/02/02	01/01/03

8.4 Test Result of Power spectral density

The following table shows a summary of the highest power out of UT.

Channel	*Frequency (GHz)*	*Ppr (dBm)*	*CF (dB)*	*Ppq (dBm)*	*Limit (dB)*	*Margin (dB)*
CH 01	2.411	-9.93	-1.80	-8.13	8.00	-16.13
CH 06	2.436	-10.20	-1.85	-8.35	8.00	-16.35
CH 11	2.461	-10.96	-1.93	-9.03	8.00	-17.03

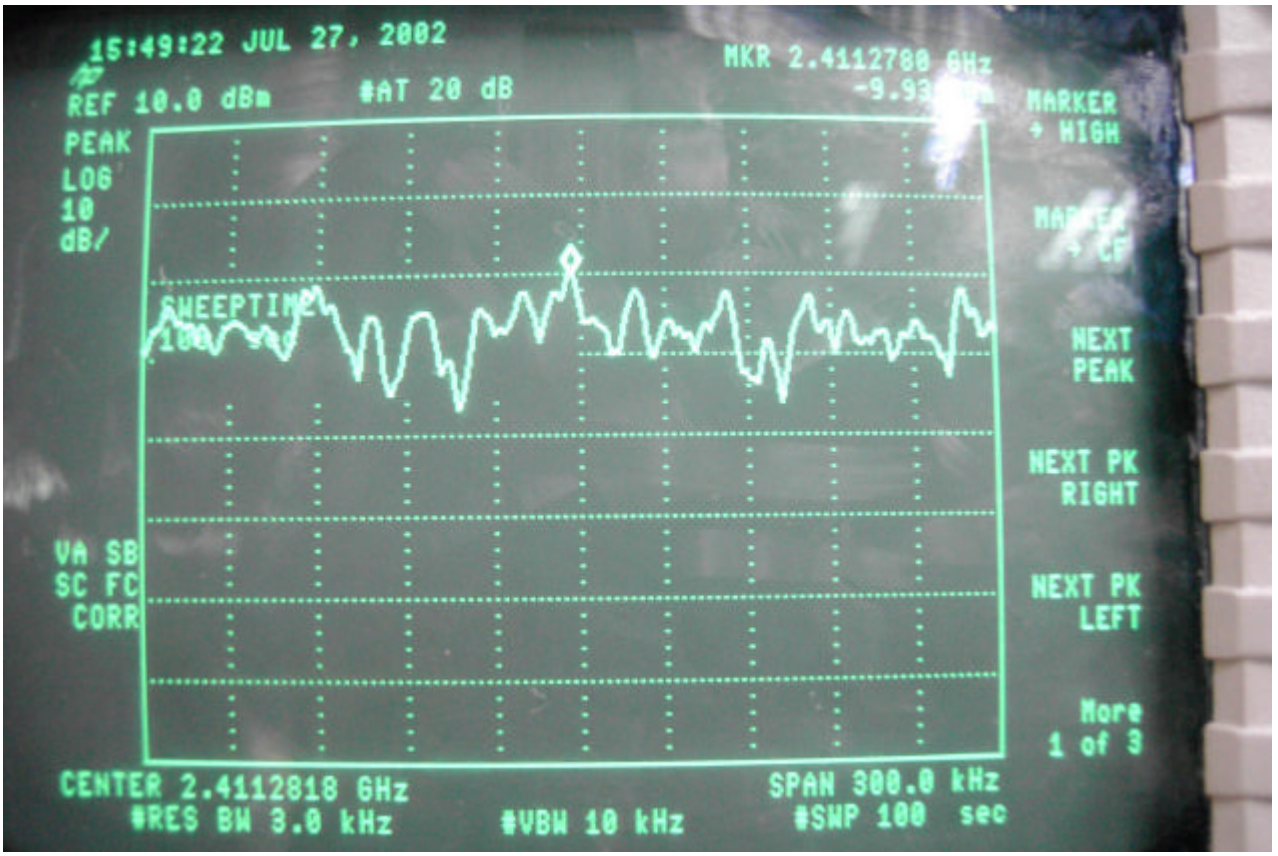
Note:

1. Ppr: spectrum read power density (using peak search mode),

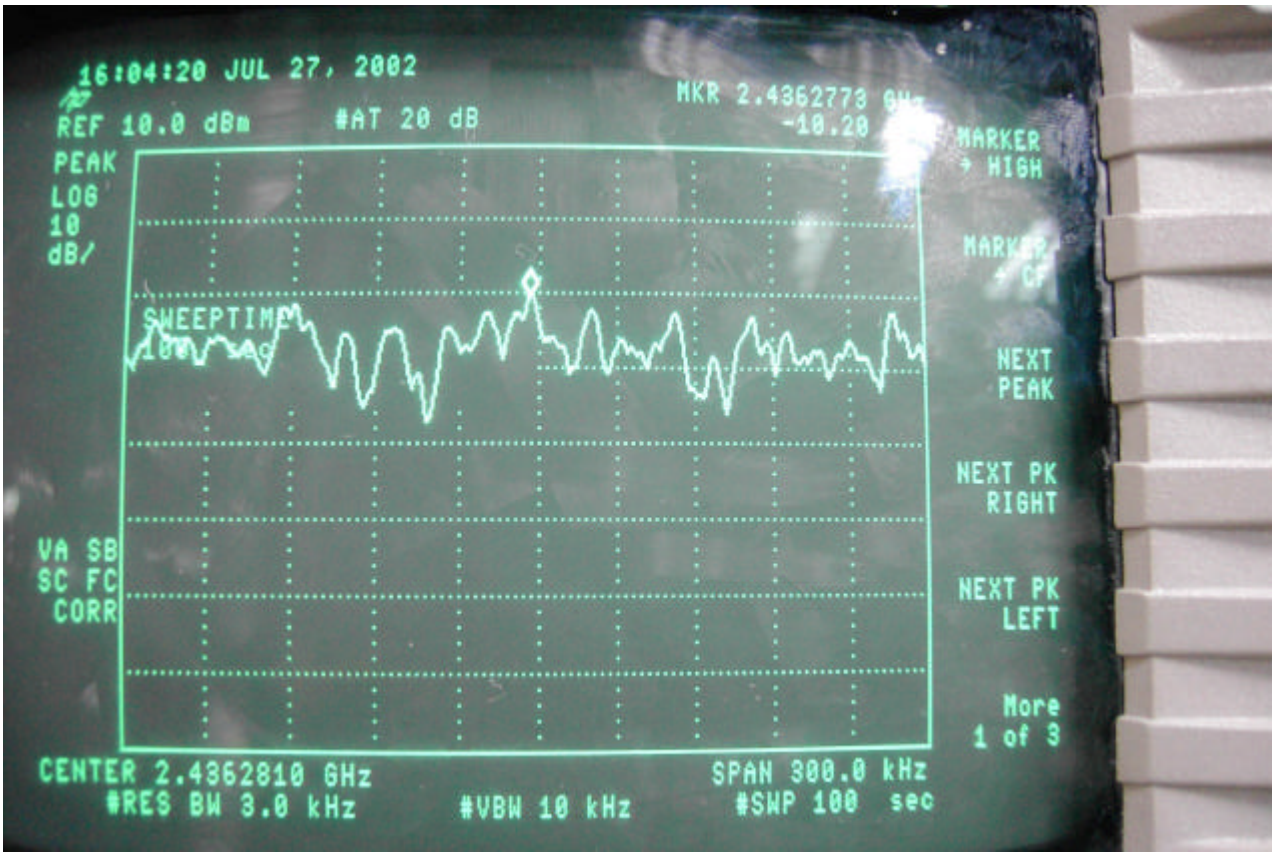
   Ppq: actual peak power density in the spread spectrum band.

2. Ppq = Ppr + |Cable Loss|

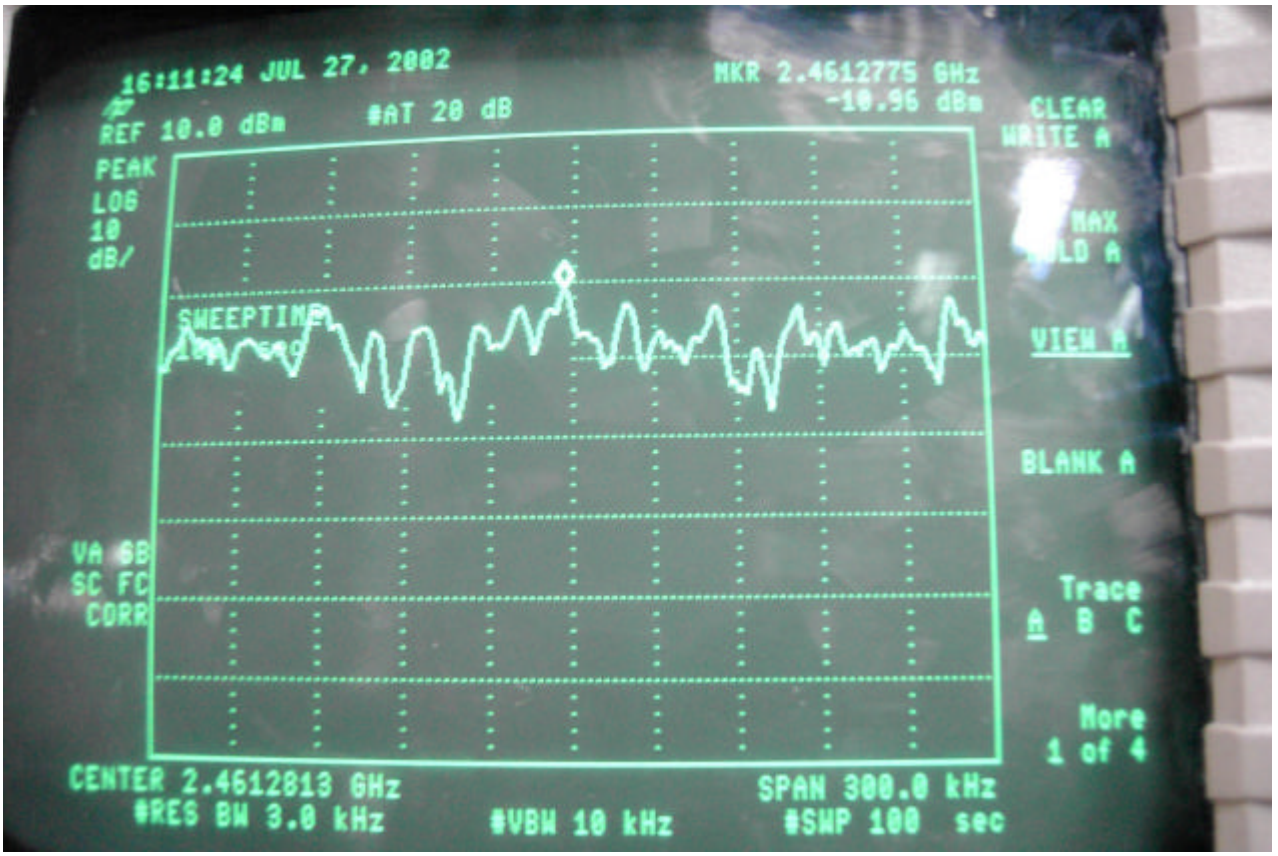
Channel 01


15:49:22 JUL 27, 2002
MKR 2.4112780 GHz
REF 10.0 dBm
#AT 20 dB
MARKER
→ HIGH
PEAK
LOG
10
dB/
SWEEPTIME
NEXT
PEAK
NEXT PK
RIGHT
VA SB
SC FC
CORR
NEXT PK
LEFT
More
1 of 3
CENTER 2.4112818 GHz
SPAN 300.0 kHz
#RES BW 3.0 kHz
#VBW 10 kHz
#SWP 100 sec

Channel 06


16:04:20 JUL 27, 2002
REF 10.0 dBm
#AT 20 dB
MKR 2.4362773 GHz
-10.20
PEAK
LOG
10
dB/
SWEEPTIME
100 sec
MARKER
→ HIGH
MARKER
→ CF
NEXT
PEAK
NEXT PK
RIGHT
NEXT PK
LEFT
More
1 of 3
VA SB
SC FC
CORR
CENTER 2.4362810 GHz
#RES BW 3.0 kHz
#VBW 10 kHz
SPAN 300.0 kHz
#SWP 100 sec

Channel 11


16:11:24 JUL 27, 2002
MKR 2.4612775 GHz
-10.96 dBm
REF 10.0 dBm
#AT 20 dB
CLEAR
WRITE A
PEAK
LOG
10
dB/
SWEEPTIME
VIEW A
BLANK A
VA GB
SC FC
CORR
Trace
A B C
More
1 of 4
CENTER 2.4612813 GHz
#RES BW 3.0 kHz
#VBW 10 kHz
SPAN 300.0 kHz
#SWP 100 sec

Appendix A

Setting up Procedure

1. The EUT is connected with the Notebook through the LAN port with the RJ45 cable.
2. Uses the utility that is given by the manufacturer operating under the WindowsXP to control the EUT's in continuous transmission.
3. Then making access to the mode of continuous transmission and set testing channel. The test is performed under those specific conditions.