EXHIBIT B

Test Report

MEASUREMENT REPORT
of
WIRELESS LAN

Applicant	**:**	SENAO International Co., Ltd.
Model No.	**:**	SL-2000
EUT	**:**	Wireless LAN
FCC ID	**:**	NI3-SL-2000
Report No.	**:**	S3915912

Test by :

Training Research Co., Ltd.

TEL : 886-2-26935155 FAX : 886-2-26934440

2, Lane 194, Huan-Ho Street, Hsichih, 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.***, 2, Lane 194, Huan-Ho Street, Hsichih, 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 : SENAO International Co., Ltd.

Model No. : SL-2000

EUT : Wireless LAN

FCC ID : NI3-SL-2000

Report No. : S3915912

Test Date : December 11, 2000

Prepared by: *Jack Tsai*

Approved by: *Frank Tsai*

Test by :

Training Research Co., Ltd.

TEL: 886-2-26935155 **FAX: 886-2-26934440**

2, Lane 194, Huan-Ho Street, Hsichih, Taipei Hsien 221, Taiwan, R.O.C.

Tables of Contents

I. GENERAL

1.1 Introduction

The following measurement report is submitted on behalf of Applicant in support of a Cordless Telephone 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	**:**	Wireless LAN
Model No.	**:**	SL-2000
FCC ID	**:**	NI3-SL-2000
Frequency Range	**:**	2.412 ~ 2.462 GHz
Support Channel	**:**	11 Channel
Modulation Skill	**:**	TDMA / Spread Spectrum
Modulation Type	**:**	DBPSK/DQPSK
Power Type	**:**	Switching adapter
Power Cord	**:**	AC plug to switching adapter => Non-shielded, 172 cm long, No ferrite bead. DC plug to switching adapter => Non-shielded, 144 cm long, No ferrite bead.
Data Cable	**:**	RJ-45 x 1 => Non-shielded, 10m long, Plastic hoods, No bead RS232 x 1 => Shielded, 1.75m long, No ferrite bead
Applicant	**:**	SENAO International Co., Ltd. 2 FL., No. 531, Chung Cheng Rd., Hsin-Tien City, Taipei Hsien, Taiwan, R.O.C.

1.3 Description of Support Equipment

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

Notebook : ASE Technologies, Inc.

Model No.	:	ANP-4
Serial No.	:	13AVA00016, 13AVA00010
Power Type	:	100~240VAC / 50~60Hz, 1.0A, Switching
FCC ID	:	JRUANP
Power cord	:	Non-shielded, 2.30m long, Plastic, No ferrite core
HUB	**:**	**Cameo Communications, Inc.**
Model No.	:	SOHO-SW16A
Serial No.	:	N/A
Power Type	:	Switch
FCC ID	:	N/A, DOC Approved
Power cord	:	Non-shielded, 1.95m long, Plastic, No ferrite core

1.4 Configuration of System Under Test

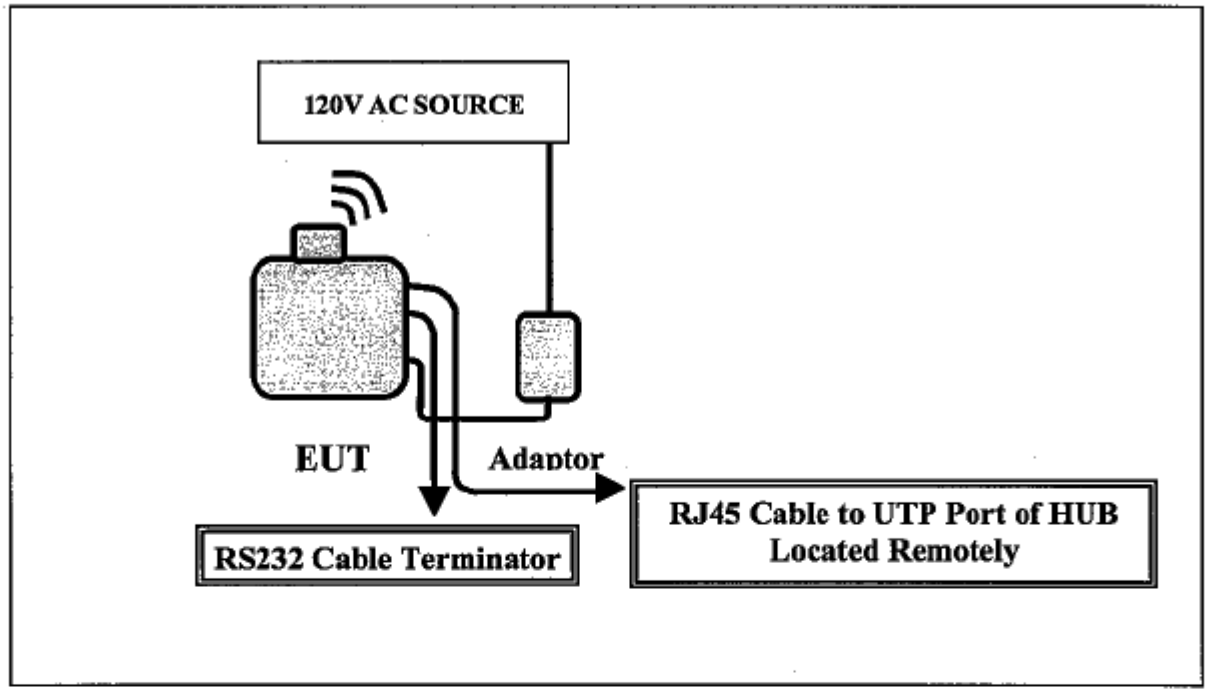


Fig. 1 Configuration of system under test

The tests below are run with the EUT transmitter set at high power in TDD mode .A PCMCIA port from a notebook computer to the EUT .The EUT is needed to force selection of output power level and channel number.

The setting up procedure was recorded in Appendix A.

1.5 Verify the Frequency and Channel

1.5.1 Verify the Frequency Pairs

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.)
3. After test, 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., No. 2, Lane 194, Huan-Ho Street, Hsichih, 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.

No. 2, Lane 194, Huan-Ho Street, Hsichih, 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 was 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.

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 Appendix A.

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

2.1 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 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 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 are tree test condition apply in this test item, the test procedure description as the following :

1. EUT transmit only:
   Using the PCMCIA port of Notebook PC and software to control the PCMCIA wireless lan card of EUT.
   Then making access to the mode of continuous transmission and set testing channel. Also, it is removed from PC and insert the card into pc card slot of the access point. Three channels were tested, one in the top (CH01), one in the middle (CH06) and the other in bottom (CH11).
2. Idle state (Rx mode)

The setting up procedure is recorded on Appendix A.

2.2 List of Test Instruments

Instrument Name	Model No.	Brand	Serial No.	Last time	Next time
EMI Receiver	8546A	H P	3520A00242	10/18/00	10/18/01
RF Filter Section	85460A	H P	3448A00217	10/18/00	10/18/01
LISN (EUT)	LISN-01	TRC	9912-03,04	12/09/00	12/09/01
LISN (Support E.)	LISN-01	TRC	9912-05	01/04/00	01/04/01
Switch/Control Unit (< 30MHz)	3488A	HP	N/A	11/20/00	11/20/01
Auto Switch Box (< 30MHz)	ASB-01	TRC	9904-01	11/20/00	11/20/01

2.3 Test configuration

Conducted Emissions Test Placement (External Antenna)

Conducted Emissions Test Placement (Internal Antenna)

2.4 Test Result of Conducted Emissions

2.4.1 Base station transmit only

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

Model No. : SL-2000
EUT : Wireless LAN

Table 1 Power Line Conducted Emissions (Channel 1 --- External Antenna Tx)

Power Connected Emissions			*FCC Class B*	
Conductor	*Frequency (KHz)*	*Peak Amplitude (dB μV)*	*Limit (dB μV)*	*Margin (dB)*
Line 1	461.00	33.77	48.00	-14.23
	542.00	33.47	48.00	-14.53
	582.00	35.51	48.00	-12.49
	705.00	33.99	48.00	-14.01
	749.00	33.84	48.00	-14.16
	874.00	32.66	48.00	-15.34
	1720.00	32.86	48.00	-15.14
	1922.00	33.50	48.00	-14.50
	2030.00	32.39	48.00	-15.61
	2150.00	32.46	48.00	-15.54
LINE 2	455.00	34.26	48.00	-13.74
	542.00	32.85	48.00	-15.15
	582.00	36.01	48.00	-11.99
	705.00	33.87	48.00	-14.13
	874.00	32.28	48.00	-15.72
	1077.00	34.29	48.00	-13.71
	1163.00	32.30	48.00	-15.70
	1365.00	33.06	48.00	-14.94
	1535.00	32.42	48.00	-15.58
	2030.00	34.04	48.00	-13.96

NOTE:

1. Margin = Peak Amplitude - 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.

Table 2 Power Line Conducted Emissions (Channel 1 --- Internal Antenna Tx)

Power Connected Emissions			*FCC Class B*	
Conductor	*Frequency (KHz)*	*Peak Amplitude (dB μV)*	*Limit (dB μV)*	*Margin (dB)*
Line 1	457.00	33.31	48.00	-14.69
	582.00	33.96	48.00	-14.04
	624.00	33.72	48.00	-14.28
	701.00	33.81	48.00	-14.19
	749.00	34.19	48.00	-13.81
	1077.00	32.73	48.00	-15.27
	1365.00	32.42	48.00	-15.58
	1535.00	32.45	48.00	-15.55
	1574.00	32.42	48.00	-15.58
	1869.00	32.26	48.00	-15.74
LINE 2	455.00	35.44	48.00	-12.56
	582.00	35.24	48.00	-12.76
	624.00	33.65	48.00	-14.35
	705.00	34.20	48.00	-13.80
	868.00	33.73	48.00	-14.27
	1410.00	33.37	48.00	-14.63
	1858.00	32.68	48.00	-15.32
	1948.00	32.59	48.00	-15.41
	2060.00	33.49	48.00	-14.51
	2560.00	32.67	48.00	-15.33

Table 3 Power Line Conducted Emissions (Channel 6 --- External Antenna Tx)

Power Connected Emissions			*FCC Class B*	
Conductor	***Frequency (KHz)***	***Peak Amplitude (dB μV)***	***Limit (dB μV)***	***Margin (dB)***
Line 1	575.00	32.90	48.00	-15.10
	612.00	36.35	48.00	-11.65
	734.00	34.55	48.00	-13.45
	1390.00	32.25	48.00	-15.75
	1429.00	32.23	48.00	-15.77
	1468.00	32.44	48.00	-15.56
	1635.00	32.69	48.00	-15.31
	2150.00	32.42	48.00	-15.58
	2240.00	32.38	48.00	-15.62
	3970.00	32.83	48.00	-15.17
LINE 2	575.00	33.54	48.00	-14.46
	615.00	37.01	48.00	-10.99
	734.00	33.92	48.00	-14.08
	935.00	33.46	48.00	-14.54
	978.00	32.11	48.00	-15.89
	1390.00	32.40	48.00	-15.60
	1429.00	32.40	48.00	-15.60
	2100.00	32.20	48.00	-15.80
	2150.00	32.73	48.00	-15.27
	2280.00	32.35	48.00	-15.65

Table 4 Power Line Conducted Emissions (Channel 6 --- Internal Antenna Tx)

Power Connected Emissions			*FCC Class B*	
Conductor	***Frequency (KHz)***	***Peak Amplitude (dB μV)***	***Limit (dB μV)***	***Margin (dB)***
Line 1	571.00	32.95	48.00	-15.05
	608.00	34.20	48.00	-13.80
	734.00	34.32	48.00	-13.68
	778.00	32.50	48.00	-15.50
	1307.00	32.04	48.00	-15.96
	2100.00	31.89	48.00	-16.11
	2240.00	31.96	48.00	-16.04
	2470.00	31.80	48.00	-16.20
	3260.00	31.76	48.00	-16.24
	3950.00	32.06	48.00	-15.94
LINE 2	568.00	33.24	48.00	-14.76
	612.00	36.78	48.00	-11.22
	734.00	34.61	48.00	-13.39
	857.00	32.25	48.00	-15.75
	935.00	33.27	48.00	-14.73
	1266.00	33.19	48.00	-14.81
	1468.00	32.57	48.00	-15.43
	2280.00	33.09	48.00	-14.91
	2470.00	32.50	48.00	-15.50
	3970.00	32.30	48.00	-15.70

Table 5 Power Line Conducted Emissions (Channel 11 --- External Antenna Tx)

Power Connected Emissions			*FCC Class B*	
Conductor	*Frequency (KHz)*	*Peak Amplitude (dB μV)*	*Limit (dB μV)*	*Margin (dB)*
Line 1	489.00	32.95	48.00	-15.05
	534.00	31.25	48.00	-16.75
	568.00	32.02	48.00	-15.98
	612.00	35.56	48.00	-12.44
	734.00	32.27	48.00	-15.73
	857.00	31.52	48.00	-16.48
	1390.00	31.81	48.00	-16.19
	2150.00	31.80	48.00	-16.20
	2240.00	30.95	48.00	-17.05
	2390.00	30.93	48.00	-17.07
LINE 2	493.00	33.21	48.00	-14.79
	530.00	34.79	48.00	-13.21
	568.00	31.20	48.00	-16.80
	615.00	34.53	48.00	-13.47
	734.00	33.69	48.00	-14.31
	857.00	33.48	48.00	-14.52
	1382.00	33.35	48.00	-14.65
	1516.00	31.45	48.00	-16.55
	2070.00	31.19	48.00	-16.81
	2240.00	31.46	48.00	-16.54

Table 6 Power Line Conducted Emissions (Channel 11 --- Internal Antenna Tx)

Power Connected Emissions			*FCC Class B*	
Conductor	*Frequency (KHz)*	*Peak Amplitude (dB μV)*	*Limit (dB μV)*	*Margin (dB)*
Line 1	493.00	31.46	48.00	-16.54
	575.00	33.88	48.00	-14.12
	615.00	35.58	48.00	-12.42
	692.00	31.86	48.00	-16.14
	734.00	32.71	48.00	-15.29
	857.00	33.64	48.00	-14.36
	1224.00	31.38	48.00	-16.62
	1257.00	31.25	48.00	-16.75
	1702.00	31.79	48.00	-16.21
	2390.00	31.07	48.00	-16.93
LINE 2	489.00	32.44	48.00	-15.56
	568.00	32.12	48.00	-15.88
	612.00	35.30	48.00	-12.70
	734.00	33.88	48.00	-14.12
	773.00	32.04	48.00	-15.96
	857.00	34.26	48.00	-13.74
	1257.00	32.56	48.00	-15.44
	1382.00	32.21	48.00	-15.79
	2160.00	32.47	48.00	-15.53
	2390.00	31.53	48.00	-16.47

Table 7 Power Line Conducted Emissions (Channel 1 --- External Antenna Rx)

Power Connected Emissions			*FCC Class B*	
Conductor	*Frequency (KHz)*	*Peak Amplitude (dB μV)*	*Limit (dB μV)*	*Margin (dB)*
Line 1	455.00	32.90	48.00	-15.10
	496.00	36.58	48.00	-11.42
	579.00	33.41	48.00	-14.59
	620.00	34.32	48.00	-13.68
	701.00	33.55	48.00	-14.45
	862.00	33.26	48.00	-14.74
	947.00	33.37	48.00	-14.63
	1156.00	32.67	48.00	-15.33
	1725.00	32.56	48.00	-15.44
	1987.00	33.06	48.00	-14.94
LINE 2	496.00	37.62	48.00	-10.38
	579.00	35.24	48.00	-12.76
	663.00	32.56	48.00	-15.44
	701.00	34.52	48.00	-13.48
	862.00	33.45	48.00	-14.55
	947.00	32.91	48.00	-15.09
	1113.00	34.02	48.00	-13.98
	1357.00	33.03	48.00	-14.97
	1780.00	32.57	48.00	-15.43
	2660.00	33.02	48.00	-14.98

Table 8 Power Line Conducted Emissions (Channel 1 --- Internal Antenna Rx)

Power Connected Emissions			*FCC Class B*	
Conductor	*Frequency (KHz)*	*Peak Amplitude (dB μV)*	*Limit (dB μV)*	*Margin (dB)*
Line 1	575.00	35.60	48.00	-12.40
	615.00	32.66	48.00	-15.34
	701.00	33.08	48.00	-14.92
	744.00	34.90	48.00	-13.10
	910.00	35.19	48.00	-12.81
	1400.00	33.36	48.00	-14.64
	2040.00	34.07	48.00	-13.93
	2180.00	33.13	48.00	-14.87
	2630.00	33.32	48.00	-14.68
	3680.00	32.81	48.00	-15.19
LINE 2	579.00	37.91	48.00	-10.09
	620.00	33.53	48.00	-14.47
	701.00	33.80	48.00	-14.20
	744.00	35.14	48.00	-12.86
	910.00	35.00	48.00	-13.00
	1070.00	33.45	48.00	-14.55
	1113.00	33.34	48.00	-14.66
	1232.00	34.14	48.00	-13.86
	2010.00	33.76	48.00	-14.24
	2790.00	33.91	48.00	-14.09

Table 9 Power Line Conducted Emissions (Channel 6 --- External Antenna Rx)

Power Connected Emissions			*FCC Class B*	
Conductor	*Frequency (KHz)*	*Peak Amplitude (dB μV)*	*Limit (dB μV)*	*Margin (dB)*
Line 1	496.00	35.52	48.00	-12.48
	579.00	34.84	48.00	-13.16
	697.00	31.69	48.00	-16.31
	739.00	32.17	48.00	-15.83
	783.00	32.40	48.00	-15.60
	941.00	32.09	48.00	-15.91
	984.00	31.55	48.00	-16.45
	1192.00	32.21	48.00	-15.79
	1400.00	32.66	48.00	-15.34
	2000.00	32.14	48.00	-15.86
LINE 2	496.00	35.66	48.00	-12.34
	579.00	35.92	48.00	-12.08
	697.00	32.85	48.00	-15.15
	739.00	32.66	48.00	-15.34
	783.00	32.55	48.00	-15.45
	941.00	33.15	48.00	-14.85
	1400.00	33.44	48.00	-14.56
	1602.00	32.03	48.00	-15.97
	2000.00	35.06	48.00	-12.94
	2180.00	31.89	48.00	-16.11

Table 10 Power Line Conducted Emissions (Channel 6 --- Internal Antenna Rx)

Power Connected Emissions			*FCC Class B*	
Conductor	*Frequency (KHz)*	*Peak Amplitude (dB μV)*	*Limit (dB μV)*	*Margin (dB)*
Line 1	457.00	34.34	48.00	-13.66
	496.00	32.76	48.00	-15.24
	538.00	33.58	48.00	-14.42
	579.00	37.15	48.00	-10.85
	783.00	34.36	48.00	-13.64
	1324.00	32.32	48.00	-15.68
	1478.00	32.83	48.00	-15.17
	2010.00	32.19	48.00	-15.81
	2180.00	32.07	48.00	-15.93
	2790.00	32.24	48.00	-15.76
LINE 2	452.00	34.72	48.00	-13.28
	496.00	33.86	48.00	-14.14
	534.00	33.67	48.00	-14.33
	575.00	36.18	48.00	-11.82
	739.00	32.80	48.00	-15.20
	783.00	34.28	48.00	-13.72
	1274.00	32.97	48.00	-15.03
	1478.00	33.15	48.00	-14.85
	2120.00	32.93	48.00	-15.07
	2290.00	33.69	48.00	-14.31

Table 11 Power Line Conducted Emissions (Channel 11 --- External Antenna Rx)

Power Connected Emissions			*FCC Class B*	
Conductor	*Frequency (KHz)*	*Peak Amplitude (dB μV)*	*Limit (dB μV)*	*Margin (dB)*
Line 1	493.00	36.79	48.00	-11.21
	575.00	34.38	48.00	-13.62
	697.00	33.74	48.00	-14.26
	862.00	34.39	48.00	-13.61
	941.00	32.49	48.00	-15.51
	1106.00	33.22	48.00	-14.78
	1266.00	31.57	48.00	-16.43
	1316.00	31.95	48.00	-16.05
	2070.00	31.98	48.00	-16.02
	2160.00	31.61	48.00	-16.39
LINE 2	489.00	36.56	48.00	-11.44
	575.00	35.19	48.00	-12.81
	697.00	34.31	48.00	-13.69
	739.00	32.32	48.00	-15.68
	862.00	33.48	48.00	-14.52
	1113.00	32.39	48.00	-15.61
	1316.00	32.54	48.00	-15.46
	1769.00	32.33	48.00	-15.67
	2180.00	32.38	48.00	-15.62
	2790.00	31.87	48.00	-16.13

Table 12 Power Line Conducted Emissions (Channel 11 --- Internal Antenna Rx)

Power Connected Emissions			*FCC Class B*	
Conductor	***Frequency (KHz)***	***Peak Amplitude (dB μV)***	***Limit (dB μV)***	***Margin (dB)***
Line 1	452.00	33.73	48.00	-14.27
	534.00	35.23	48.00	-12.77
	579.00	34.90	48.00	-13.10
	783.00	33.71	48.00	-14.29
	862.00	34.58	48.00	-13.42
	1232.00	32.82	48.00	-15.18
	1274.00	33.62	48.00	-14.38
	1400.00	33.79	48.00	-14.21
	2040.00	33.10	48.00	-14.90
	2370.00	32.82	48.00	-15.18
LINE 2	452.00	34.40	48.00	-13.60
	538.00	35.39	48.00	-12.61
	579.00	38.39	48.00	-9.61
	739.00	33.44	48.00	-14.56
	862.00	34.24	48.00	-13.76
	910.00	33.71	48.00	-14.29
	1400.00	33.96	48.00	-14.04
	1602.00	33.74	48.00	-14.26
	2090.00	34.11	48.00	-13.89
	2250.00	33.79	48.00	-14.21

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

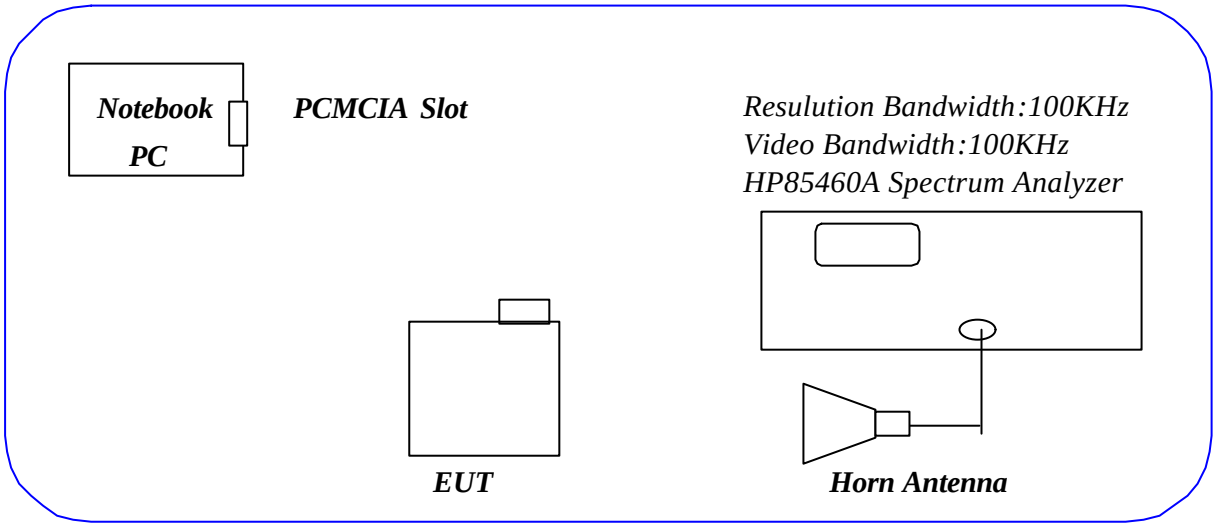
3.1 Test Condition & Setup

The transmitter bandwidth measurements were performed in an anechoic chamber. The EUT was placed on a wooded table, which is 0.8 meters height. The EUT was set to transmit continuously. Various channels were also investigated to find the maximum occupied bandwidth. The minimum 6 dB bandwidth shall be at least 500 KHz.

Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 KHz. Set the span>> RBW. The detector function was set to peak and hold mode to clearly observe the components.

Setting up procedure is written on Appendix A.

3.2 Test Instruments Configuration



P.S.A PCMCIA slott from notebook computer to control the card of EUT at maximal power output and channel number. Also, it is removed from PC and insert the card into pc card slot of the access point. Three channels were tested, one in the top (CH01), one in the middle (CH06) and the other in bottom (CH11).

Fig 10. Test Configuration of bandwidth for direct sequence system

3.3 List of Test Instruments

Instrument Name	Model No.	Brand	Serial No.	Last time	Next time
EMI Receiver	8546A	H P	3520A00242	10/18/00	10/18/01
RF Filter Section	85460A	H P	3448A00217	10/18/00	10/18/01
Horn Antenna	3115	EMCO	9704 – 5178	08/15/00	08/15/01

3.4 Test Result of Bandwidth

Bandwidth of Channel 1

Bandwidth of External Antenna	:	10.35 MHz
Bandwidth of Internal Antenna	:	10.30 MHz
The min. 6 dB BW at least	:	500 KHz

Bandwidth of Channel 6

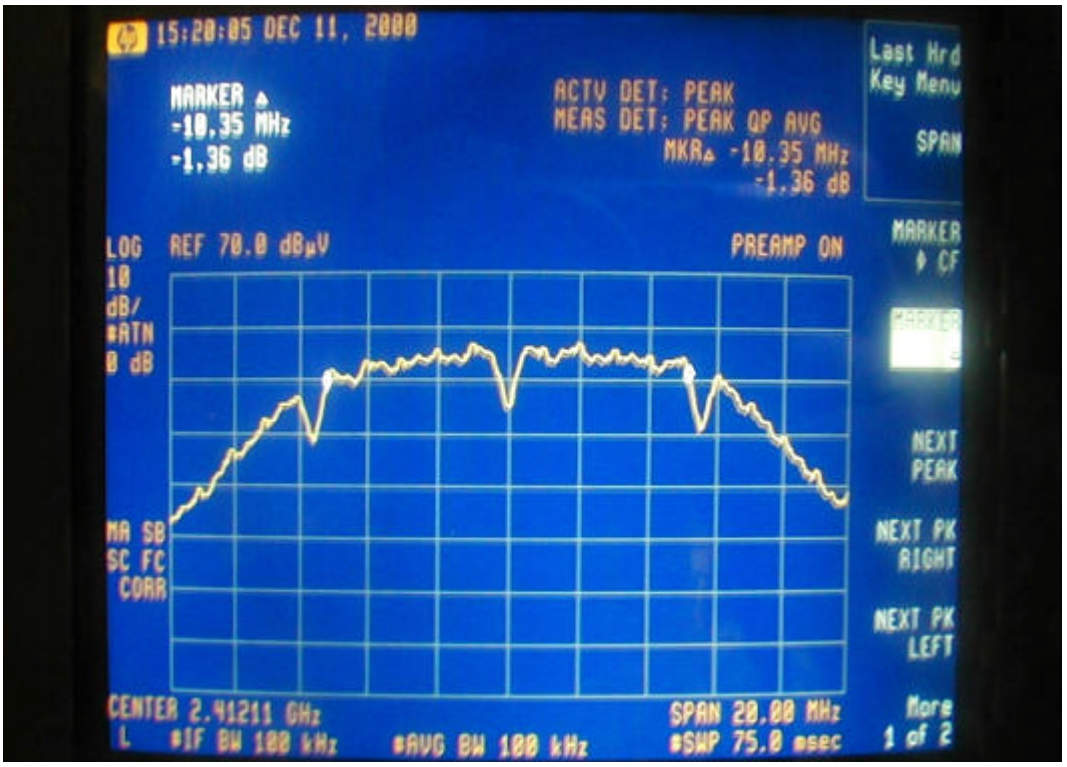
Bandwidth of External Antenna	:	10.30 MHz
Bandwidth of Internal Antenna	:	10.40 MHz
The min. 6 dB BW at least	:	500 KHz

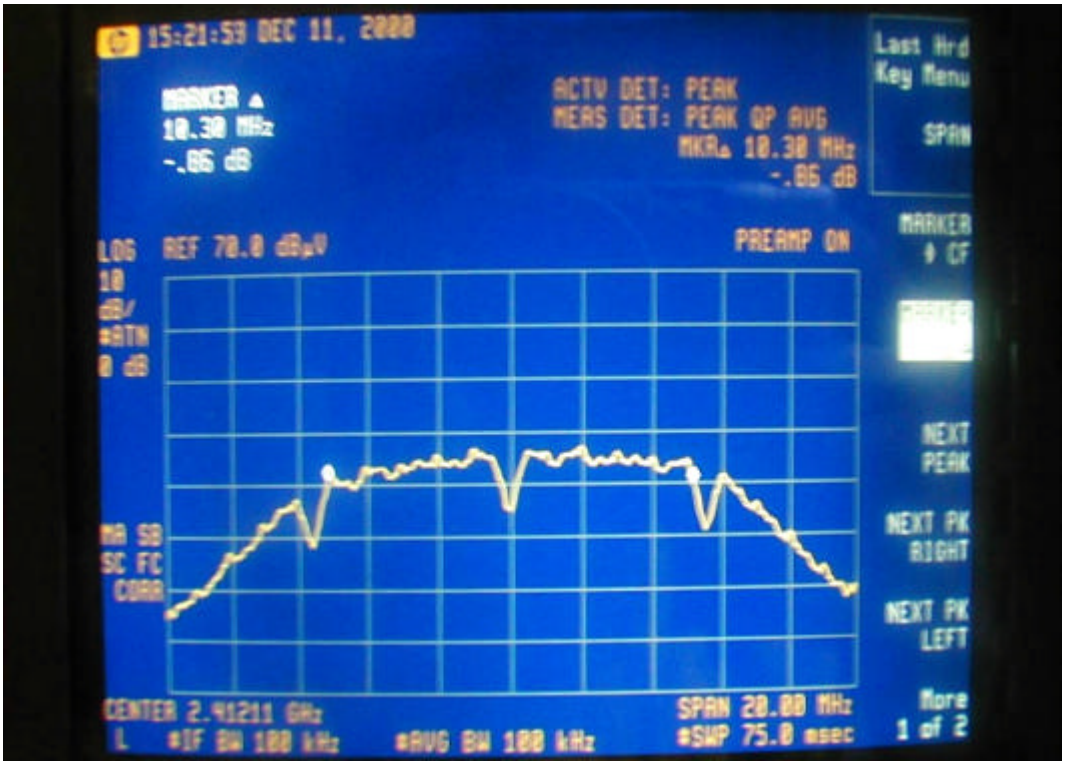
Bandwidth of Channel 11

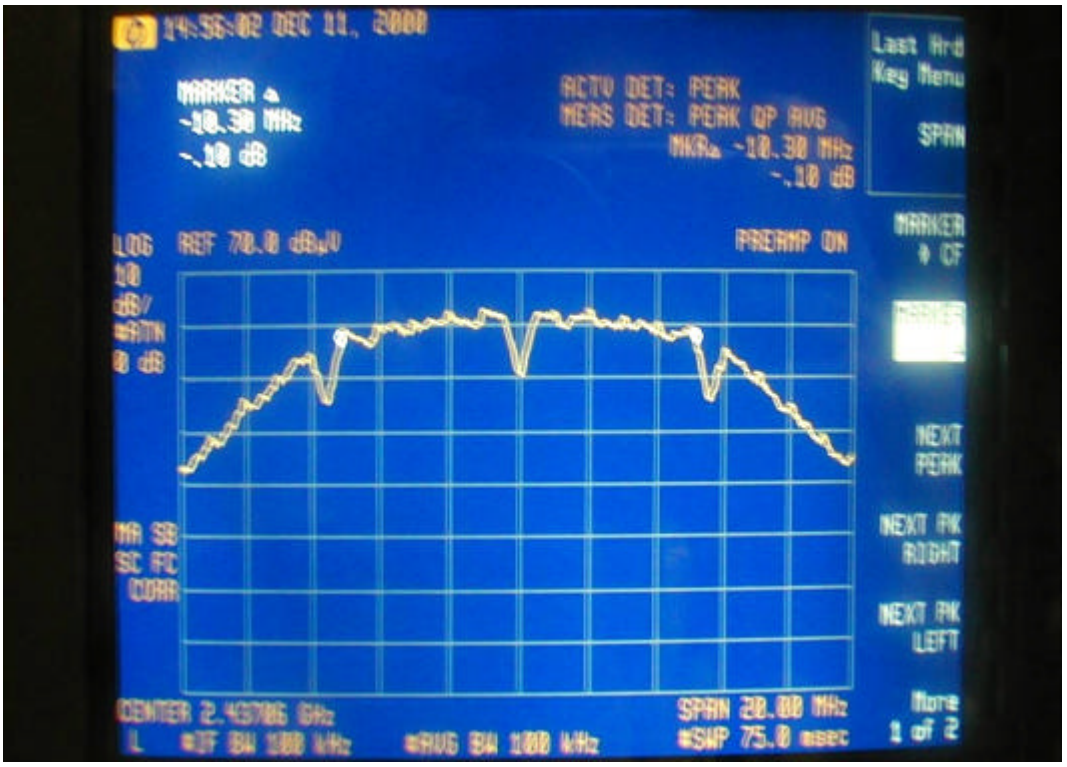
Bandwidth of External Antenna	:	13.35 MHz
Bandwidth of Internal Antenna	:	10.35 MHz
The min. 6 dB BW at least	:	500 KHz

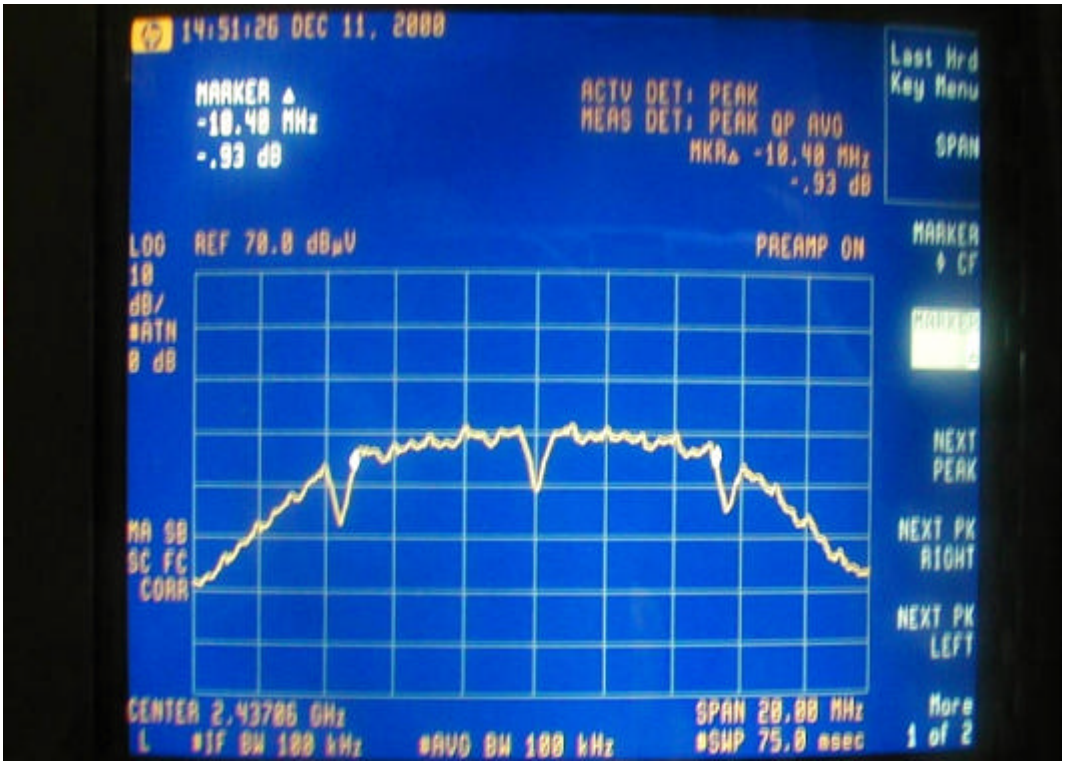
Note:

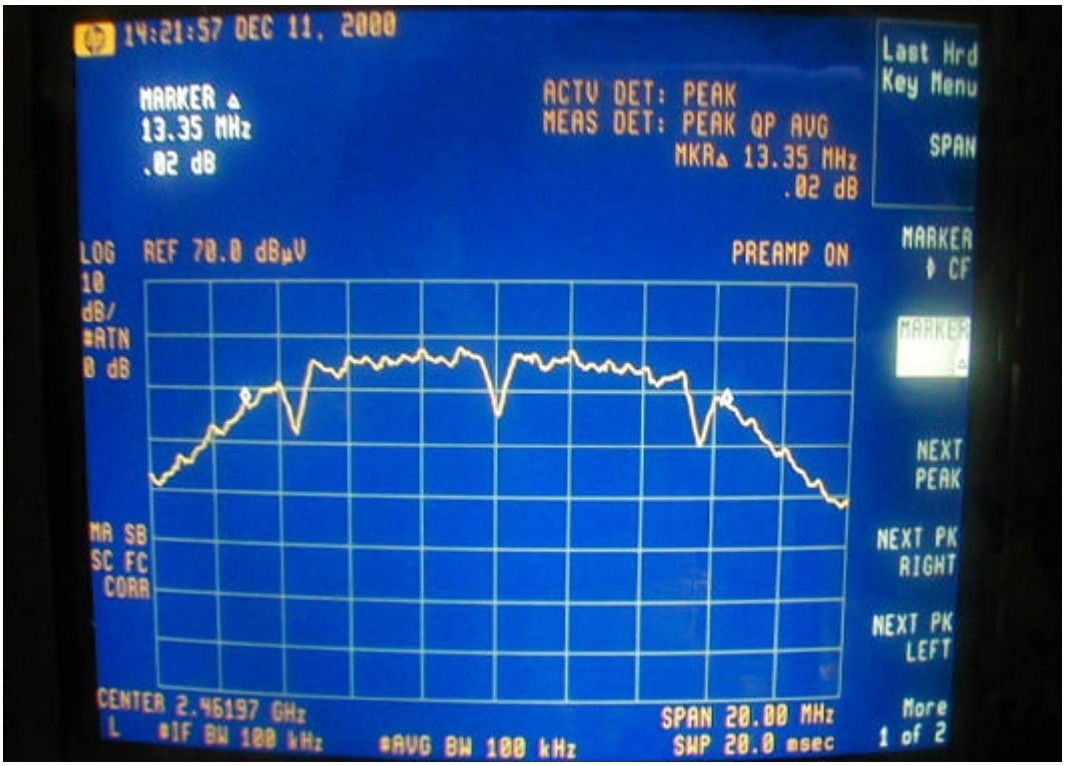
1. The data in the above table are summarizing the following attachment spectrum analyzer hard copy.
2. The attachments follow page.

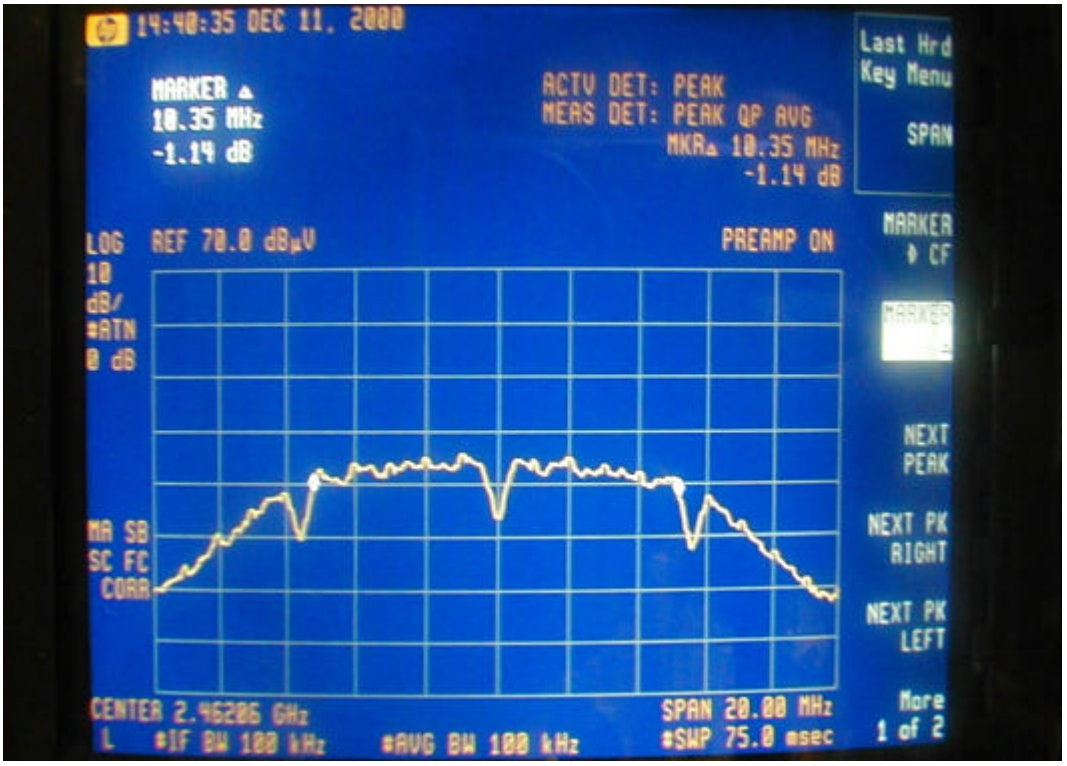

15:20:05 DEC 11, 2000
MARKER
-10.35 MHz
-1.36 dB
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR -10.35 MHz
-1.36 dB
Last Hrd Key Menu
SPAN
LOG
10
dB/
#ATN
0 dB
REF 70.0 dBµV
PREAMP ON
MARKER → CF
NEXT PEAK
NEXT PK RIGHT
NEXT PK LEFT
More 1 of 2
MA SB
SC FC
CORR
CENTER 2.41211 GHz
#IF BW 100 kHz
#AVG BW 100 kHz
SPAN 20.00 MHz
#SWP 75.0 msec


15:21:53 DEC 11, 2000
MARKER
10.30 MHz
-.86 dB
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 10.30 MHz
-.86 dB
Last Hrd Key Menu
SPAN
LOG
10
dB/
#ATN
0 dB
REF 70.0 dBµV
PREAMP ON
MARKER → CF
NEXT PEAK
NEXT PK RIGHT
NEXT PK LEFT
More 1 of 2
MA SB
SC FC
CORR
CENTER 2.41211 GHz
#IF BW 100 kHz
#AVG BW 100 kHz
SPAN 20.00 MHz
#SWP 75.0 msec


14:56:02 DEC 11, 2000
MARKER
-10.30 MHz
-.10 dB
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR -10.30 MHz
-.10 dB
Last Hrd Key Menu
SPAN
MARKER CF
NEXT PEAK
NEXT PK RIGHT
NEXT PK LEFT
More 1 of 2
LOG
10
dB/
#ATN
0 dB
REF 70.0 dBµV
PREAMP ON
MA SB
SC FC
CORR
CENTER 2.437886 GHz
SPAN 20.00 MHz
#IF BW 100 kHz
#AVG BW 100 kHz
#SWP 75.0 msec


14:51:26 DEC 11, 2000
MARKER
-10.40 MHz
-.93 dB
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR -10.40 MHz
-.93 dB
Last Hrd Key Menu
SPAN
MARKER CF
NEXT PEAK
NEXT PK RIGHT
NEXT PK LEFT
More 1 of 2
LOG
10
dB/
#ATN
0 dB
REF 70.0 dBµV
PREAMP ON
MA SB
SC FC
CORR
CENTER 2.437886 GHz
SPAN 20.00 MHz
#IF BW 100 kHz
#AVG BW 100 kHz
#SWP 75.0 msec


14:21:57 DEC 11, 2000
MARKER Δ
13.35 MHz
.02 dB
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 13.35 MHz
.02 dB
Last Hrd Key Menu
SPAN
LOG
10
dB/
#ATN
0 dB
REF 70.0 dBμV
PREAMP ON
MARKER → CF
NEXT PEAK
NEXT PK RIGHT
NEXT PK LEFT
More 1 of 2
MA SB
SC FC
CORR
CENTER 2.46197 GHz
#IF BW 100 kHz
#AVG BW 100 kHz
SPAN 20.00 MHz
SWP 20.0 msec


14:40:35 DEC 11, 2000
MARKER Δ
10.35 MHz
-1.14 dB
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 10.35 MHz
-1.14 dB
Last Hrd Key Menu
SPAN
LOG
10
dB/
#ATN
0 dB
REF 70.0 dBμV
PREAMP ON
MARKER → CF
NEXT PEAK
NEXT PK RIGHT
NEXT PK LEFT
More 1 of 2
MA SB
SC FC
CORR
CENTER 2.46286 GHz
#IF BW 100 kHz
#AVG BW 100 kHz
SPAN 20.00 MHz
#SWP 75.0 msec

Ⅳ. Section 15.247(B) : Power Output

4.1 Test Condition & Setup

The EUT was placed in a 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 that 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 1GHz to 40GHz using a Hewlett Packard Spectrum Analyzer 8564E, EMCO whole range Horn antenna (Model No.: 3115) is used to measure frequency from 1GHz to 18GHz. The final test is used the spectrum HP 8564E. 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. The spectrum analyzer HP8564E used on this testing for frequency 1GHz to 18GHz. No post-detector video filters were used in the test. Set the RB= 3 MHz, VB = 3MHz and the span = 5 MHz. The analyzer was operated in the maximum hold mode.

There are two test condition apply in this test item, the test procedure description as the following:

(1) EUT transmit only:

Using the PCMCIA port of Notebook PC and software to control the PCMCIA wireless lan card of EUT.

Then making access to the mode of continuous transmission and set testing channel. Also, it is removed from PC and insert the card into pc card slot of the access point. Three channels were 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 & external antenna, 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 (dB μ V/m) is determined by algebraically adding the measured reading in dB μ V, the antenna factor (dB), and cable loss (dB) at the appropriate frequency.

4.2 List of Test Instruments

Instrument Name	Model No.	Brand	Serial No.	Last time	Next time
Spectrum Analyzer	8564E	H P	US36433002	08/13/00	08/13/01
Microwave Preamplifier	83051A	H P	3232A00347	08/13/00	08/13/01
Horn Antenna	3115	EMCO	9704 – 5178	08/15/00	08/15/01

4.3 Test Result of Fundamental Emissions

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

FCC ID : NI3-SL-2000

Table 6 Open Field Fundamental Emissions

Channel	*Frequency (GHz)*	*A.P. (H/V)*	*A.H. (M)*	*Table (degree)*	*Amplitude (dBmV/m)*	*CF (dB)*	*Duty Cycle (dB)*	*Corrected Amplitude (dBmV/m) Excluded Duty Cycle*	*Corrected Amplitude (dBmV/m) Included Duty Cycle*	*E.I.R.P. Included Duty Cycle*	
										m W	*dB m*
External	2.412	H	1.00	208	112.73	-8.67	-11.19	92.87	104.06	7.638	8.83
Ant. 01	2.412	V	1.00	119	114.43	-8.67	-11.19	94.57	105.76	11.297	10.53
External	2.437	H	1.00	126	114.74	-8.67	-11.19	94.88	106.07	12.133	10.84
Ant. 06	2.437	V	1.00	44	118.86	-8.67	-11.19	99.00	110.19	31.332	14.96
External	2.462	H	1.00	179	110.50	-8.67	-11.19	90.64	101.83	4.570	6.60
Ant. 11	2.462	V	1.00	226	116.42	-8.67	-11.19	96.56	107.75	17.864	12.52
Internal	2.412	H	1.00	308	94.15	-8.67	-11.19	74.29	85.48	0.105	-9.75
Ant. 01	2.412	V	1.00	24	93.16	-8.67	-11.19	73.30	84.49	0.084	-10.74
Internal	2.437	H	1.00	339	95.09	-8.67	-11.19	75.23	86.42	0.131	-8.81
Ant. 06	2.437	V	1.00	52	98.01	-8.67	-11.19	78.15	89.34	0.257	-5.89
Internal	2.462	H	1.00	169	94.17	-8.67	-11.19	74.31	85.50	0.106	-9.73
Ant. 11	2.462	V	1.00	247	95.77	-8.67	-11.19	75.91	87.10	0.153	-8.13

Note:

1. A.P. means antenna polarization, horizontal and vertical.
2. A.H. means antenna height.
3. Table means turntable turning position.
4. Corrected Factor (C. F.) = Cable Loss + Antenna Factor – Amplified Gain
   Corrected Amplitude (Included Duty Cycle)= Peak Amplitude + Corrected Factor
   Corrected Amplitude (Excluded Duty Cycle)= Peak Amplitude + Corrected Factor + Duty Cycle
5. Amplitude means the fundamental emission measured.
6. Conducted output power "P", $P= (E d)^2 / 30G$
7. Since G=1. P=EIRP

E is the measured maximum field strength in V/m utilizing the maximum hold mode RBW (3MHz)
G is the numeric gain of the transmitting antenna over an isotropic radiator (1.00)
d is the distance in meters from which the field strength was measured (3M)

Example: the Max Radiation Emission of external antenna ch06 = 110.190 dBμV/m

$10^{(110.19/20)} \times 10^{-6} = 0.3232213$ V

E.I.R.P. = $(0.3232216 \times 3)^2 / 30 = 31.341$ mW = 10 x log (57.164 mW / 1 mW) = 14.96 dBm

So, the Max Radiation Emission of internal antenna ch06 = 89.34 dBμV/m, output power for 0.657 mW.

Ⅴ. Section 15.247 (C)(2): Spurious Emissions (Radiated)

5.1 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 1 GHz to 18 GHz using an Hewlett Packard 8564E Spectrum Analyzer, EMCO Horn Antenna (Model 3115) for 1 G ~ 18 GHz.

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 1 GHz to 18 GHz. No post-detector video filters were used in the test. The spectrum analyzer's 6 dB bandwidth was set to 120 KHz (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 1 GHz to 18GHz) and the analyzer was operated in the maximum hold mode.

There are two test condition apply in this test item, the test procedure description as the following:

(1) EUT transmit only:

Using the PCMCIA port of Notebook PC and software to control the PCMCIA wireless lan card of EUT. Then making access to the mode of continuous transmission and set testing channel. Also, it is removed from PC and insert the card into pc card slot of the access point. Three channels were 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 & external antenna, 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 + Duty Cycle

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.

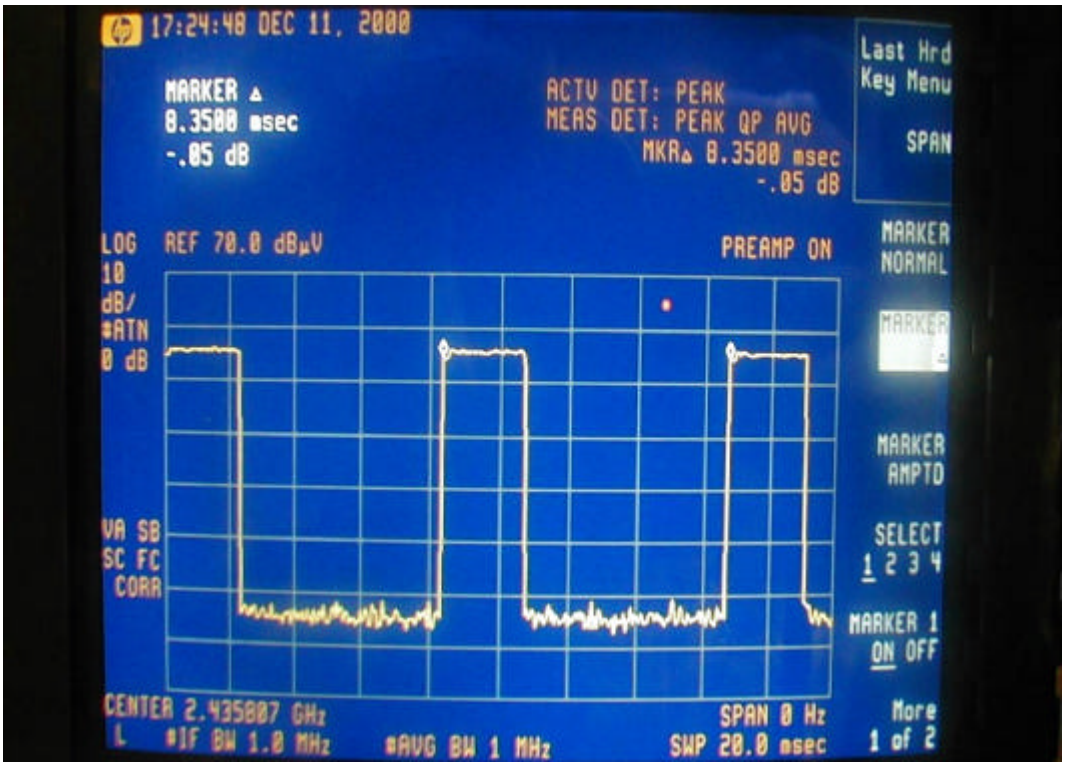
5.2 List of Test Instruments

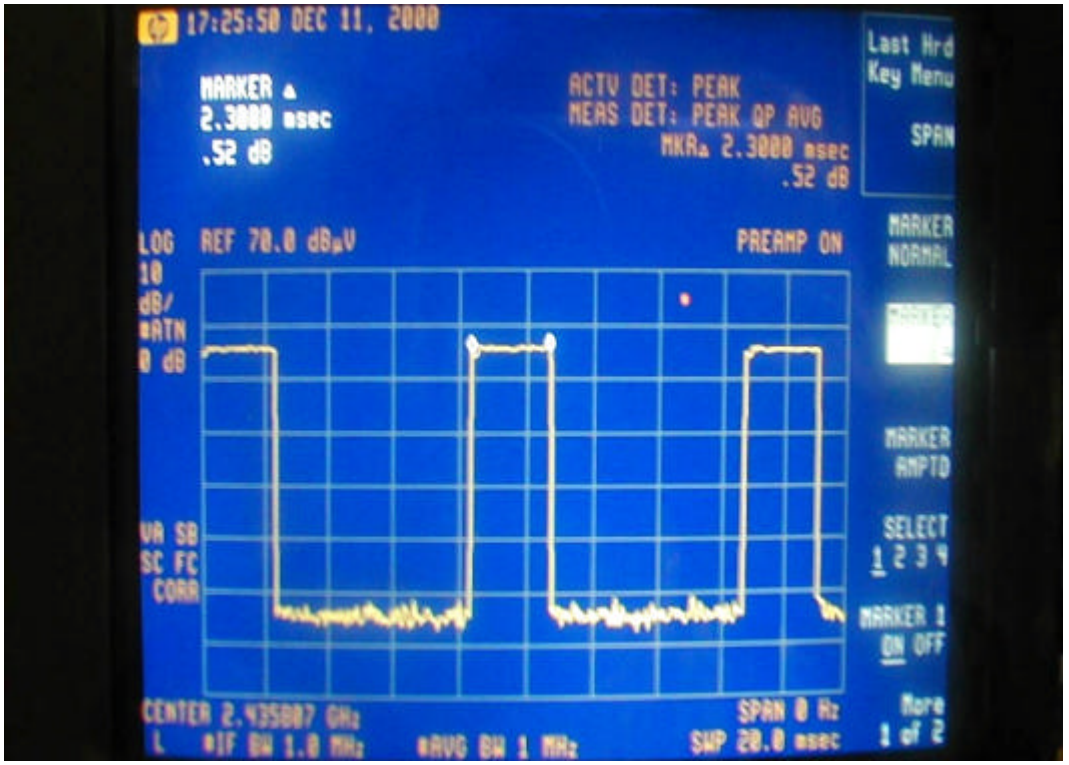
Instrument Name	Model No	Brand	Serial No.	Last time	Next time
EMI Receiver	8546A	H P	3520A00242	10/18/00	10/18/01
RF Filter Section	85460A	H P	3448A00217	10/18/00	10/18/01
Switch/Control Unit (> 30MHz)	3488A	H P	N/A	11/22/00	11/22/01
Auto Switch Box (> 30MHz)	ASB-01	TRC	9904-01	11/22/00	11/22/01
Spectrum Analyzer	8564E	H P	US36433002	08/13/00	08/13/01
Microwave Preamplifier	83051A	H P	3232A00347	08/13/00	08/13/01
Horn Antenna	3115	EMCO	9704 – 5178	08/15/00	08/15/01

5.2.1 Duty Cycle Factor Measurement

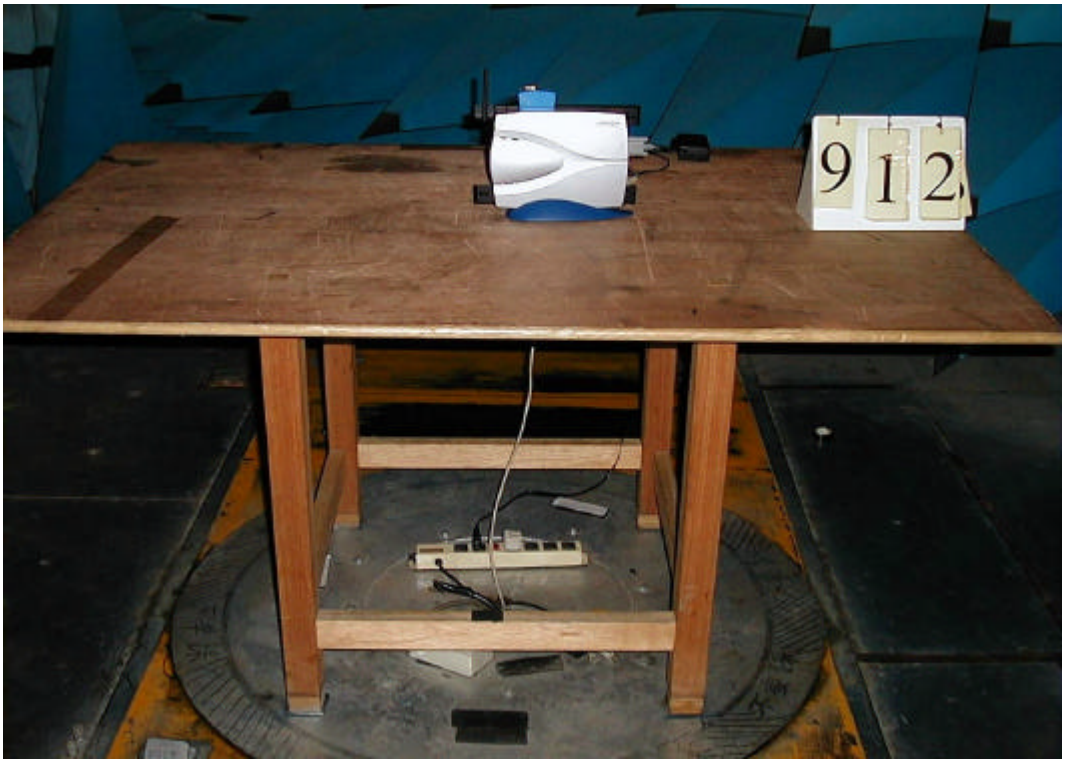
The duty cycle factor measurement is performed in a shield enclosure. The test condition and setup is as same as paragraph **III**. Set the RB = 1MHz, VB=1MHz, and span = 0 MHz. Link the base and handset, then get the Time of duty and cycle as follow page.

The duty cycle factor = 20 log (T_{duty} / T_{cycle}) = 20 log (2.3000/8.3500) = – 11.199


17:24:48 DEC 11, 2000
MARKER Δ
8.3500 msec
-.85 dB
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 8.3500 msec
-.85 dB
Last Hrd Key Menu
SPAN
LOG
10
dB/
#ATN
0 dB
REF 70.0 dBµV
PREAMP ON
MARKER NORMAL
MARKER AMPTD
SELECT 1 2 3 4
MARKER 1 ON OFF
More 1 of 2
VA SB
SC FC
CORR
CENTER 2.435007 GHz
#IF BW 1.0 MHz
#AVG BW 1 MHz
SPAN 0 Hz
SWP 20.0 msec

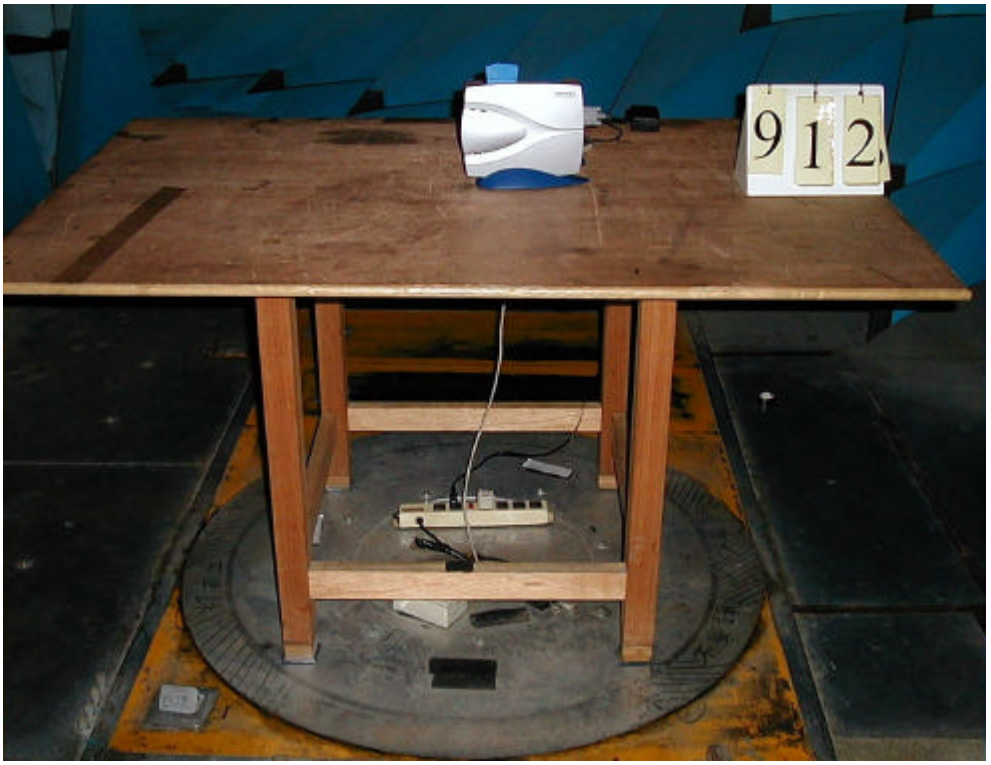

17:25:50 DEC 11, 2000
MARKER Δ
2.3000 msec
.52 dB
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 2.3000 msec
.52 dB
Last Hrd Key Menu
SPAN
LOG
10
dB/
#ATN
0 dB
REF 70.0 dBµV
PREAMP ON
MARKER NORMAL
MARKER AMPTD
SELECT 1 2 3 4
MARKER 1 ON OFF
More 1 of 2
VA SB
SC FC
CORR
CENTER 2.435007 GHz
#IF BW 1.0 MHz
#AVG BW 1 MHz
SPAN 0 Hz
SWP 20.0 msec

5.3 Test Instruments Configuration



Pig 1 Front View of the Test Configuration (External Antenna)

Pig 2 Rear View of the Test Configuration (External Antenna)



Pig 1 Front View of the Test Configuration (Internal Antenna)

Pig 2 Rear View of the Test Configuration (Internal Antenna)

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

5.4 Test Result of Second Harmonic

Set the spectrum RB= 3 MHz, VB = 3MHz and span = 5MHz. The correction factors of the second harmonic is the second harmonic must lower 20 dB than the fundamental.

Model No. : SL-2000
EUT : Wireless LAN

Table 14 Second Harmonic Attendation (Tx.)

Channel	*Fundamental (MHz)*	*Fundamental (dBmV/m)*	*2nd Harmonic (GHz)*	*2nd Harmonic (dBmV/m)*	*Result (F/H dB)*	*Limit (dB)*	*Margin (dB)*
External Antenna ch01	2.412	105.76	4.820	51.39	54.37	20.00	34.37
External Antenna ch06	2.437	110.19	4.850	51.50	58.69	20.00	38.69
External Antenna ch11	2.462	107.75	4.900	52.40	55.35	20.00	35.35
Internal Antenna ch01	2.412	85.48	4.820	48.63	36.85	20.00	16.85
Internal Antenna ch06	2.437	89.34	4.850	49.00	37.42	20.00	17.42
Internal Antenna ch11	2.462	87.10	4.900	51.17	35.93	20.00	15.93

Note:

1. The 2nd Harmonic is comply with 15.209.
2. Result = Fundamental – 2nd Harmonic must over 20 dB and comply with 15.209.

5.5 Test Result of Spurious Radiated Emissions

5.5.1 Base and handset station transmit only

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

Model No. : SL-2000
EUT : Wireless LAN

Test Conditions: Testing room : Temperature : 26 ° C Humidity : 73 % RH
Testing site : Temperature : 31 ° C Humidity : 75 % RH

Table 15 Open Field Radiated Emissions For 30MHz 1GHz [CH 1, Horizontal, External Antenna Tx.]

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)*
80.005	22.91	3.97	85	-10.09	33.00	40.00	-7.00
132.710	24.21	2.46	127	-14.67	38.88	43.50	-4.62
200.005	27.59	1.01	82	-13.40	40.99	43.50	-2.51
232.236	21.99	0.99	102	-14.91	36.90	46.00	-9.10
559.994	15.50	0.99	68	-23.29	38.79	46.00	-7.21
***							

Note:

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

Table16 Open Field Radiated Emissions For 1GHz 18GHz [CH 1, Horizontal, External Antenna Tx.]

Radiated Emission				Correction Factors	Duty Cycle	Corrected Amplitude	FCC Class B (3 m)	
Frequency (GHz)	Amplitude (dBm V/m)	Ant. H. (m)	Table (°)	(dB)	(dB)	(dBm V/m)	Limit (dBm V/m)	Margin (dB)
1.12	51.57	1.00	172	-8.67	-11.19	31.71	54.00	-22.29
2.13	61.97	1.00	225	-8.67	-11.19	42.11	54.00	-11.89
4.26	52.81	1.00	70	-5.64	-11.19	35.98	54.00	-18.02
4.82	47.48	1.00	340	3.91	-11.19	40.20	54.00	-13.80
6.38	40.11	1.00	27	9.72	-11.19	38.64	54.00	-15.36
11.81	40.41	1.00	94	9.72	-11.19	38.94	54.00	-15.06
***								

Note:

1. Margin = Corrected - Limit.
2. Peak Amplitude + Correction Factor + Duty Cycle = Corrected

Table17 Open Field Radiated Emissions For 30MHz 1GHz [CH 1, Vertical, External Antenna Tx.]

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)
66.359	26.37	1.00	99	-10.03	36.40	40.00	-3.60
132.710	23.08	1.00	38	-14.03	37.11	43.50	-6.39
165.886	26.67	1.00	49	-12.99	39.66	43.50	-3.84
200.005	28.12	1.00	80	-13.64	41.76	43.50	-1.74
559.994	15.78	1.00	2	-24.12	39.90	46.00	-6.10
***							

Table18 Open Field Radiated Emissions For 1GHz 18GHz [CH 1, Vertical, External Antenna Tx.]

Radiated Emission				Correction Factors	Duty Cycle	Corrected Amplitude	FCC Class B (3 m)	
Frequency (GHz)	Amplitude (dBm V/m)	Ant. H. (m)	Table (°)	(dB)	(dB)	(dBm V/m)	Limit (dBm V/m)	Margin (dB)
1.12	50.72	1.00	337	-8.67	-11.19	30.86	54.00	-23.14
2.13	69.02	1.00	156	-8.67	-11.19	49.16	54.00	-4.84
4.26	55.47	1.00	22	-5.64	-11.19	38.64	54.00	-15.36
4.82	47.36	1.00	159	3.91	-11.19	40.08	54.00	-13.92
6.38	41.45	1.00	110	9.72	-11.19	39.98	54.00	-14.02
11.81	41.28	1.00	294	9.72	-11.19	39.81	54.00	-14.19
***								

Table19 Open Field Radiated Emissions For 30MHz 1GHz [CH 1, Horizontal, Internal Antenna Tx.]

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)*
81.006	11.74	3.96	4	-10.22	21.96	40.00	-18.04
132.710	21.83	1.00	123	-14.67	36.50	43.50	-7.00
200.004	27.94	1.00	81	-13.40	41.34	43.50	-2.16
280.005	17.25	1.00	9	-15.44	32.69	46.00	-13.31
559.994	10.38	1.00	4	-23.29	33.67	46.00	-12.33
***							

Table20 Open Field Radiated Emissions For 1GHz 18GHz [CH 1, Horizontal, Internal Antenna Tx.]

Radiated Emission				Correction Factors	Duty Cycle	Corrected Amplitude	FCC Class B (3 m)	
Frequency (GHz)	Amplitude (dBm V/m)	Ant. H. (m)	Table (°)	(dB)	(dB)	(dBm V/m)	Limit (dBm V/m)	Margin (dB)
1.12	59.09	1.00	45	-8.67	-11.19	39.23	54.00	-14.77
2.13	61.84	1.00	167	-8.67	-11.19	41.98	54.00	-12.02
4.26	55.47	1.00	296	-5.64	-11.19	38.64	54.00	-15.36
4.82	46.80	1.00	305	3.91	-11.19	39.52	54.00	-14.48
6.38	41.60	1.00	22	9.72	-11.19	40.13	54.00	-13.87
14.42	41.28	1.00	160	9.72	-11.19	39.81	54.00	-14.19
***								

Table21 Open Field Radiated Emissions For 30MHz 1GHz [CH 1, Vertical, Internal Antenna Tx.]

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)
81.006	21.22	3.98	98	-10.22	31.44	40.00	-8.56
132.710	24.67	2.50	254	-14.67	39.34	43.50	-4.16
200.004	25.74	2.50	147	-13.40	39.14	43.50	-4.36
280.005	23.25	1.00	64	-15.44	38.69	46.00	-7.31
559.994	13.38	2.50	38	-23.29	36.67	46.00	-9.33
***							

Table22 Open Field Radiated Emissions For 1GHz 18GHz [CH 1, Vertical, External Antenna Tx.]

Radiated Emission				Correction Factors	Duty Cycle	Corrected Amplitude	FCC Class B (3 m)	
Frequency (GHz)	Amplitude (dBm V/m)	Ant. H. (m)	Table (°)	(dB)	(dB)	(dBm V/m)	Limit (dBm V/m)	Margin (dB)
1.12	57.69	1.00	54	-8.67	-11.19	37.83	54.00	-16.17
2.13	68.13	1.00	117	-8.67	-11.19	48.27	54.00	-5.73
4.26	59.31	1.00	207	-5.64	-11.19	42.48	54.00	-11.52
4.82	50.72	1.00	356	3.91	-11.19	43.44	54.00	-10.56
6.38	40.11	1.00	281	9.72	-11.19	38.64	54.00	-15.36
14.42	42.08	1.00	96	9.72	-11.19	40.61	54.00	-13.39
***								

Table23 Open Field Radiated Emissions For 30MHz 1GHz [CH 6, Horizontal, External Antenna Tx.]

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)*
80.000	23.51	3.93	126	-10.09	33.60	40.00	-6.40
132.710	21.71	2.44	128	-14.67	36.38	43.50	-7.12
200.005	26.09	1.00	132	-13.40	39.49	43.50	-4.01
280.005	27.11	1.00	20	-15.44	42.55	46.00	-3.45
559.991	9.25	2.44	0	-23.29	32.54	46.00	-13.46
630.325	11.49	1.00	92	-23.43	34.92	46.00	-11.08
***							

Table24 Open Field Radiated Emissions For 1GHz 18GHz [CH 6, Horizontal, External Antenna Tx.]

Radiated Emission				*Correction Factors*	*Duty Cycle*	*Corrected Amplitude*	*FCC Class B (3 m)*	
Frequency (GHz)	*Amplitude (dBm V/m)*	*Ant. H. (m)*	*Table (°)*	*(dB)*	*(dB)*	*(dBm V/m)*	*Limit (dBm V/m)*	*Margin (dB)*
1.12	61.85	1.00	351	-8.67	-11.19	41.99	54.00	-12.01
2.16	59.39	1.00	207	-8.67	-11.19	39.53	54.00	-14.47
4.30	54.64	1.00	61	-5.64	-11.19	37.81	54.00	-16.19
4.85	54.59	1.00	249	3.91	-11.19	47.31	54.00	-6.69
6.47	41.11	1.00	309	9.72	-11.19	39.64	54.00	-14.36
7.29	47.45	1.00	192	9.72	-11.19	45.98	54.00	-8.02
13.53	41.11	1.00	25	9.72	-11.19	39.64	54.00	-14.36
***								

Table25 Open Field Radiated Emissions For 30MHz 1GHz [CH 6, Vertical, External Antenna Tx.]

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)*
66.358	24.54	1.00	54	-10.03	34.57	40.00	-5.43
132.703	19.94	1.00	67	-14.03	33.97	43.50	-9.53
160.006	15.14	1.00	78	-13.42	28.56	43.50	-14.94
200.004	20.63	2.46	33	-13.64	34.27	43.50	-9.23
232.244	14.81	1.00	68	-14.81	29.62	46.00	-16.38
559.991	7.70	1.00	26	-24.12	31.82	46.00	-14.18
***							

Table26 Open Field Radiated Emissions For 1GHz 18GHz [CH 6, Vertical, External Antenna Tx.]

Radiated Emission				Correction Factors	Duty Cycle	Corrected Amplitude	FCC Class B (3 m)	
Frequency (GHz)	Amplitude (dBm V/m)	Ant. H. (m)	Table (°)	(dB)	(dB)	(dBm V/m)	Limit (dBm V/m)	Margin (dB)
1.12	63.47	1.00	57	-8.67	-11.19	43.61	54.00	-10.39
2.16	62.81	1.00	164	-8.67	-11.19	42.95	54.00	-11.05
4.30	57.70	1.00	129	-5.64	-11.19	40.87	54.00	-13.13
4.85	51.09	1.00	226	3.91	-11.19	43.81	54.00	-10.19
6.47	42.95	1.00	27	9.72	-11.19	41.48	54.00	-12.52
7.29	44.45	1.00	36	9.72	-11.19	42.98	54.00	-11.02
14.45	41.28	1.00	104	9.72	-11.19	39.81	54.00	-14.19
***								

Table27 Open Field Radiated Emissions For 30MHz 1GHz [CH 6, Horizontal, Internal Antenna Tx.]

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)*
80.004	25.35	3.97	124	-10.09	35.44	40.00	-4.56
132.710	22.99	2.47	132	-14.67	37.66	43.50	-5.84
200.004	24.64	1.01	78	-13.40	38.04	43.50	-5.46
280.003	19.62	1.00	16	-15.44	35.06	46.00	-10.94
559.991	6.92	1.00	1	-23.29	30.21	46.00	-15.79
***							

Table28 Open Field Radiated Emissions For 1GHz 18GHz [CH 6, Horizontal, Internal Antenna Tx.]

Radiated Emission				Correction Factors	Duty Cycle	Corrected Amplitude	FCC Class B (3 m)	
Frequency (GHz)	Amplitude (dBm V/m)	Ant. H. (m)	Table (°)	(dB)	(dB)	(dBm V/m)	Limit (dBm V/m)	Margin (dB)
1.12	59.30	1.00	304	-8.67	-11.19	39.44	54.00	-14.56
2.16	63.95	1.00	71	-8.67	-11.19	44.09	54.00	-9.91
4.30	55.47	1.00	129	-5.64	-11.19	38.64	54.00	-15.36
4.85	47.92	1.00	84	3.91	-11.19	40.64	54.00	-13.36
6.47	40.95	1.00	51	9.72	-11.19	39.48	54.00	-14.52
7.29	38.78	1.00	264	9.72	-11.19	37.31	54.00	-16.69
13.53	40.78	1.00	88	9.72	-11.19	39.31	54.00	-14.69
***								

Table29 Open Field Radiated Emissions For 30MHz 1GHz [CH 6, Vertical, Internal Antenna Tx.]

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)
40.004	11.52	1.00	145	-19.38	30.90	40.00	-9.10
66.358	24.73	0.99	81	-10.03	34.76	40.00	-5.24
99.526	23.63	1.00	104	-11.44	35.07	43.50	-8.43
132.710	21.78	1.00	88	-14.03	35.81	43.50	-7.69
200.006	23.92	2.44	45	-13.64	37.56	43.50	-5.94
559.993	12.66	1.00	86	-24.12	36.78	46.00	-9.22
***							

Table30 Open Field Radiated Emissions For 1GHz 18GHz [CH 6, Vertical, External Antenna Tx.]

Radiated Emission				Correction Factors	Duty Cycle	Corrected Amplitude	FCC Class B (3 m)	
Frequency (GHz)	Amplitude (dBm V/m)	Ant. H. (m)	Table (°)	(dB)	(dB)	(dBm V/m)	Limit (dBm V/m)	Margin (dB)
1.12	65.05	1.00	306	-8.67	-11.19	45.19	54.00	-8.81
2.16	71.05	1.00	227	-8.67	-11.19	51.19	54.00	-2.81
4.30	61.31	1.00	119	-5.64	-11.19	44.48	54.00	-9.52
4.85	52.09	1.00	8	3.91	-11.19	44.81	54.00	-9.19
6.47	39.78	1.00	239	9.72	-11.19	38.31	54.00	-15.69
7.29	40.78	1.00	64	9.72	-11.19	39.31	54.00	-14.69
14.45	41.28	1.00	213	9.72	-11.19	39.81	54.00	-14.19
***								

Table31 Open Field Radiated Emissions For 30MHz 1GHz [CH 11, Horizontal, External Antenna Tx.]

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)*
80.004	21.22	3.96	119	-10.09	31.31	40.00	-8.69
132.710	22.12	2.47	127	-14.67	36.79	43.50	-6.71
200.000	27.53	1.00	80	-13.40	40.93	43.50	-2.57
232.261	24.06	1.00	25	-14.91	38.97	46.00	-7.03
279.995	22.41	1.01	65	-15.44	37.85	46.00	-8.15
559.990	16.57	1.01	19	-23.29	39.86	46.00	-6.14
***							

Table32 Open Field Radiated Emissions For 1GHz 18GHz [CH 11, Horizontal, External Antenna Tx.]

Radiated Emission				Correction Factors	Duty Cycle	Corrected Amplitude	FCC Class B (3 m)	
Frequency (GHz)	Amplitude (dBm V/m)	Ant. H. (m)	Table (°)	(dB)	(dB)	(dBm V/m)	Limit (dBm V/m)	Margin (dB)
1.12	58.93	1.00	76	-8.67	-11.19	39.07	54.00	-14.93
2.18	63.94	1.00	155	-8.67	-11.19	44.08	54.00	-9.92
4.35	51.81	1.00	287	-5.64	-11.19	34.98	54.00	-19.02
4.90	53.26	1.00	106	3.91	-11.19	45.98	54.00	-8.02
7.37	47.61	1.00	239	9.72	-11.19	46.14	54.00	-7.86
9.83	42.11	1.00	224	9.72	-11.19	40.64	54.00	-13.36
13.88	40.61	1.00	159	9.72	-11.19	39.14	54.00	-14.86
***								

Table33 Open Field Radiated Emissions For 30MHz 1GHz [CH 11, Vertical, External Antenna Tx.]

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)*
66.356	26.22	1.01	54	-10.03	36.25	40.00	-3.75
132.715	22.79	1.00	76	-14.03	36.82	43.50	-6.68
160.005	16.24	1.01	68	-13.42	29.66	43.50	-13.84
200.004	22.34	0.99	57	-13.64	35.98	43.50	-7.52
559.991	18.57	1.00	70	-24.12	42.69	46.00	-3.31
***							

Table34 Open Field Radiated Emissions For 1GHz 18GHz [CH 11, Vertical, External Antenna Tx.]

Radiated Emission				Correction Factors	Duty Cycle	Corrected Amplitude	FCC Class B (3 m)	
Frequency (GHz)	Amplitude (dBm V/m)	Ant. H. (m)	Table (°)	(dB)	(dB)	(dBm V/m)	Limit (dBm V/m)	Margin (dB)
1.12	60.77	1.00	158	-8.67	-11.19	40.91	54.00	-13.09
2.18	65.00	1.00	226	-8.67	-11.19	45.14	54.00	-8.86
4.35	54.14	1.00	347	-5.64	-11.19	37.31	54.00	-16.69
4.90	55.92	1.00	108	3.91	-11.19	48.64	54.00	-5.36
6.55	40.45	1.00	50	9.72	-11.19	38.98	54.00	-15.02
7.37	48.11	1.00	33	9.72	-11.19	46.64	54.00	-7.36
9.83	41.95	1.00	167	9.72	-11.19	40.48	54.00	-13.52
***								

Table35 Open Field Radiated Emissions For 30MHz 1GHz [CH 11, Horizontal, Internal Antenna Tx.]

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)
80.004	20.78	3.96	134	-10.09	30.87	40.00	-9.13
132.710	23.29	2.45	112	-14.67	37.96	43.50	-5.54
200.003	27.13	1.00	118	-13.40	40.53	43.50	-2.97
280.007	25.57	1.00	70	-15.44	41.01	46.00	-4.99
559.994	9.39	1.00	96	-23.29	32.68	46.00	-13.32
***							

Table36 Open Field Radiated Emissions For 1GHz 18GHz [CH 11, Horizontal, Internal Antenna Tx.]

Radiated Emission				Correction Factors	Duty Cycle	Corrected Amplitude	FCC Class B (3 m)	
Frequency (GHz)	Amplitude (dBm V/m)	Ant. H. (m)	Table (°)	(dB)	(dB)	(dBm V/m)	Limit (dBm V/m)	Margin (dB)
1.12	53.36	1.00	245	-8.67	-11.19	33.50	54.00	-20.50
2.18	63.17	1.00	17	-8.67	-11.19	43.31	54.00	-10.69
4.35	53.14	1.00	206	-5.64	-11.19	36.31	54.00	-17.69
4.90	49.76	1.00	135	3.91	-11.19	42.48	54.00	-11.52
7.39	47.95	1.00	222	9.72	-11.19	46.48	54.00	-7.52
9.83	43.45	1.00	5	9.72	-11.19	41.98	54.00	-12.02
***								

Table37 Open Field Radiated Emissions For 30MHz 1GHz [CH 11, Vertical, Internal Antenna Tx.]

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)
66.359	22.72	1.00	14	-10.03	32.75	40.00	-7.25
132.710	22.75	1.00	32	-14.03	36.78	43.50	-6.72
200.004	25.81	1.00	40	-13.64	39.45	43.50	-4.05
280.005	23.64	1.00	60	-16.03	39.67	46.00	-6.33
559.991	19.82	1.00	68	-24.12	43.94	46.00	-2.06
***							

Table38 Open Field Radiated Emissions For 1GHz 18GHz [CH 11, Vertical, Internal Antenna Tx.]

Radiated Emission				Correction Factors	Duty Cycle	Corrected Amplitude	FCC Class B (3 m)	
Frequency (GHz)	Amplitude (dBm V/m)	Ant. H. (m)	Table (°)	(dB)	(dB)	(dBm V/m)	Limit (dBm V/m)	Margin (dB)
1.12	53.40	1.00	241	-8.67	-11.19	33.54	54.00	-20.46
2.18	69.39	1.00	167	-8.67	-11.19	49.53	54.00	-4.47
4.35	58.47	1.00	229	-5.64	-11.19	41.64	54.00	-12.36
4.90	53.26	1.00	20	3.91	-11.19	45.98	54.00	-8.02
7.39	47.61	1.00	37	9.72	-11.19	46.14	54.00	-7.86
9.83	42.28	1.00	169	9.72	-11.19	40.81	54.00	-13.19
***								

Table39 Open Field Radiated Emissions For 30MHz 1GHz [CH 1, Horizontal, External Antenna Rx.]

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)*
80.004	22.21	3.94	111	-10.09	32.30	40.00	-7.70
132.710	23.86	2.44	124	-14.67	38.53	43.50	-4.97
200.004	28.56	1.00	125	-13.40	41.96	43.50	-1.54
240.006	23.03	1.00	20	-15.09	38.12	46.00	-7.88
280.002	22.81	2.44	143	-15.44	38.25	46.00	-7.75
559.994	9.04	1.00	2	-23.29	32.33	46.00	-13.67
696.720	7.68	2.44	84	-25.05	32.73	46.00	-13.27
***							

Table40 Open Field Radiated Emissions For 30MHz 1GHz [CH 1, Vertical, External Antenna Rx.]

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)
66.357	27.16	1.00	66	-10.03	37.19	40.00	-2.81
99.528	25.45	1.00	81	-11.44	36.89	43.50	-6.61
132.710	22.59	1.00	17	-14.03	36.62	43.50	-6.88
200.004	24.49	2.47	57	-13.64	38.13	43.50	-5.37
559.994	14.15	1.00	76	-24.12	38.27	46.00	-7.73
***							

Table41 Open Field Radiated Emissions For 30MHz 1GHz [CH 1, Horizontal, Internal Antenna Rx.]

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)*
80.003	21.74	3.95	126	-10.09	31.83	40.00	-8.17
132.704	22.42	2.47	121	-14.67	37.09	43.50	-6.41
200.004	28.85	1.00	127	-13.40	42.25	43.50	-1.25
280.003	24.30	1.00	15	-15.44	39.74	46.00	-6.26
559.993	12.63	2.47	14	-23.29	35.92	46.00	-10.08
***							

Table42 Open Field Radiated Emissions For 30MHz 1GHz [CH 1, Vertical, Internal Antenna Rx.]

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)
66.359	26.34	1.00	82	-10.03	36.37	40.00	-3.63
132.710	23.50	1.00	79	-14.03	37.53	43.50	-5.97
160.004	15.46	1.00	50	-13.42	28.88	43.50	-14.62
200.004	23.75	2.46	33	-13.64	37.39	43.50	-6.11
298.595	16.43	1.00	24	-17.35	33.78	46.00	-12.22
559.994	20.56	1.00	19	-24.12	44.68	46.00	-1.32
***							

Table43 Open Field Radiated Emissions For 30MHz 1GHz [CH 6, Horizontal, External Antenna Rx.]

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)*
66.358	26.20	3.94	55	-9.75	35.95	40.00	-4.05
132.714	24.30	2.47	119	-14.67	38.97	43.50	-4.53
200.004	25.29	1.00	126	-13.40	38.69	43.50	-4.81
280.007	16.39	3.94	9	-15.44	31.83	46.00	-14.17
559.994	8.99	1.00	72	-23.29	32.28	46.00	-13.72
696.728	6.42	1.00	75	-25.05	31.47	46.00	-14.53
***							

Table44 Open Field Radiated Emissions For 30MHz 1GHz [CH 6, Vertical, External Antenna Rx.]

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)
66.358	28.16	1.00	14	-10.03	38.19	40.00	-1.81
132.715	22.63	1.00	73	-14.03	36.66	43.50	-6.84
200.005	25.22	1.00	38	-13.64	38.86	43.50	-4.64
298.594	16.87	1.00	59	-17.35	34.22	46.00	-11.78
559.994	6.54	1.00	9	-24.12	30.66	46.00	-15.34
***							

Table45 Open Field Radiated Emissions For 30MHz 1GHz [CH 6, Horizontal, Internal Antenna Rx.]

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)
80.004	20.03	3.93	103	-10.09	30.12	40.00	-9.88
132.710	24.06	2.44	122	-14.67	38.73	43.50	-4.77
200.004	28.48	1.00	129	-13.40	41.88	43.50	-1.62
265.408	22.85	1.00	97	-15.68	38.53	46.00	-7.47
280.003	22.15	1.00	144	-15.44	37.59	46.00	-8.41
559.994	14.64	1.00	105	-23.29	37.93	46.00	-8.07
***							

Table46 Open Field Radiated Emissions For 30MHz 1GHz [CH 6, Vertical, Internal Antenna Rx.]

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)*
66.358	25.24	1.00	77	-9.75	34.99	40.00	-5.01
99.533	26.07	1.00	78	-12.39	38.46	43.50	-5.04
132.710	20.43	1.00	17	-14.67	35.10	43.50	-8.40
200.004	24.44	1.00	49	-13.40	37.84	43.50	-5.66
559.994	18.71	1.00	72	-23.29	42.00	46.00	-4.00
***							

Table47 Open Field Radiated Emissions For 30MHz 1GHz [CH 11, Horizontal, External Antenna Rx.]

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)*
40.002	12.51	2.43	18	-20.04	32.55	40.00	-7.45
99.534	25.45	3.94	135	-12.39	37.84	43.50	-5.66
132.710	21.92	2.43	140	-14.67	36.59	43.50	-6.91
200.005	27.67	1.00	120	-13.40	41.07	43.50	-2.43
232.240	23.62	1.00	38	-14.91	38.53	46.00	-7.47
298.585	20.49	1.00	1	-16.40	36.89	46.00	-9.11
559.994	12.91	1.00	76	-23.29	36.20	46.00	-9.80
***							

Table48 Open Field Radiated Emissions For 30MHz 1GHz [CH 11, Vertical, External Antenna Rx.]

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)*
40.001	14.93	2.44	38	-19.38	34.31	40.00	-5.69
66.352	26.32	1.00	37	-10.03	36.35	40.00	-3.65
99.532	25.05	1.00	86	-11.44	36.49	43.50	-7.01
132.705	25.31	1.00	74	-14.03	39.34	43.50	-4.16
200.004	21.33	1.00	55	-13.64	34.97	43.50	-8.53
232.234	22.27	1.00	17	-14.81	37.08	46.00	-8.92
559.994	15.71	1.00	80	-24.12	39.83	46.00	-6.17
***							

Table49 Open Field Radiated Emissions For 30MHz 1GHz [CH 11, Horizontal, Internal Antenna Rx.]

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)*
43.010	10.98	2.44	39	-18.62	29.60	40.00	-10.40
99.534	24.46	3398	138	-12.39	36.85	43.50	-6.65
132.704	21.15	2.44	131	-14.67	35.82	43.50	-7.68
200.005	26.13	1.00	115	-13.40	39.53	43.50	-3.97
232.226	21.21	1.00	37	-14.91	36.12	46.00	-9.88
559.993	12.21	1.00	89	-23.29	35.50	46.00	-10.50
***							

Table50 Open Field Radiated Emissions For 30MHz 1GHz [CH 11, Vertical, Internal Antenna Rx.]

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)*
66.356	22.92	1.00	70	-10.03	32.95	40.00	-7.05
132.713	19.28	1.00	61	-14.03	33.31	43.50	-10.19
200.004	20.93	2.47	17	-13.64	34.57	43.50	-8.93
360.005	7.87	1.00	26	-18.07	25.94	46.00	-20.06
440.005	7.07	1.00	122	-20.15	27.22	46.00	-18.78
559.995	18.22	1.00	17	-24.12	42.34	46.00	-3.66
***							

★ ***When EUT Operating at Receiving Mode for 1GHz 18GHz, The Low Radiated Emissions of two polarities are all under the limits more than 20 dB.***

Ⅵ. Section 15.247(d): Power Spectral Density

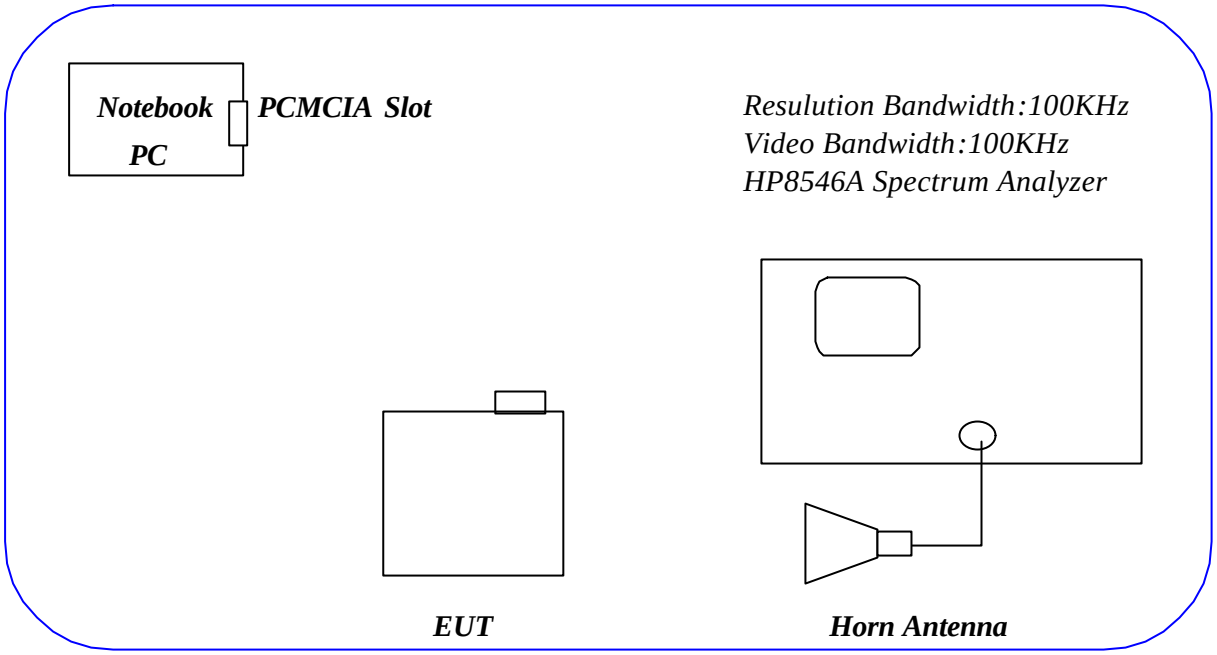
6.1 Test Condition & Setup

The tests below are running with the EUT transmitter set at high power in TDD mode .A PCMCIA port from a computer to the EUT. The EUT is needed to force selection of output power level and channel number. Then it is removed from PC and insert the card into pc card slot of the access point. While testing, EUT was set to transmit continuously. Then it is removed from PC and insert the card into pc card slot of the access point. A antenna was connected with the spectrum analyzer.

The EUT is tested in anechoic chamber. Put EUT on the middle of a wooden table. Set spectrum analyzer RBW = 3 KHz, VBW > RBW (e.g. VBW = 10 KHz), Span = 0.3 MHz. Turn around the table to find maximum emission. Then sweep time = 100 sec. Peak the maximum emission again. The peak level measured must be no greater than + 8dBm.

The setting up procedure is recorded on Appendix A.

6.2 Test Instruments Configuration



P.S.A PCMCIA slott from notebook computer to control the card of EUT at maximal power output and channel number. Also, it is removed from PC and insert the card into pc card slot of the access point. Three channels were tested, one in the top (CH01), one in the middle (CH06) and the other in bottom (CH11).

Fig 12. Test Configuration of power spectral density

6.3 List of Test Instruments

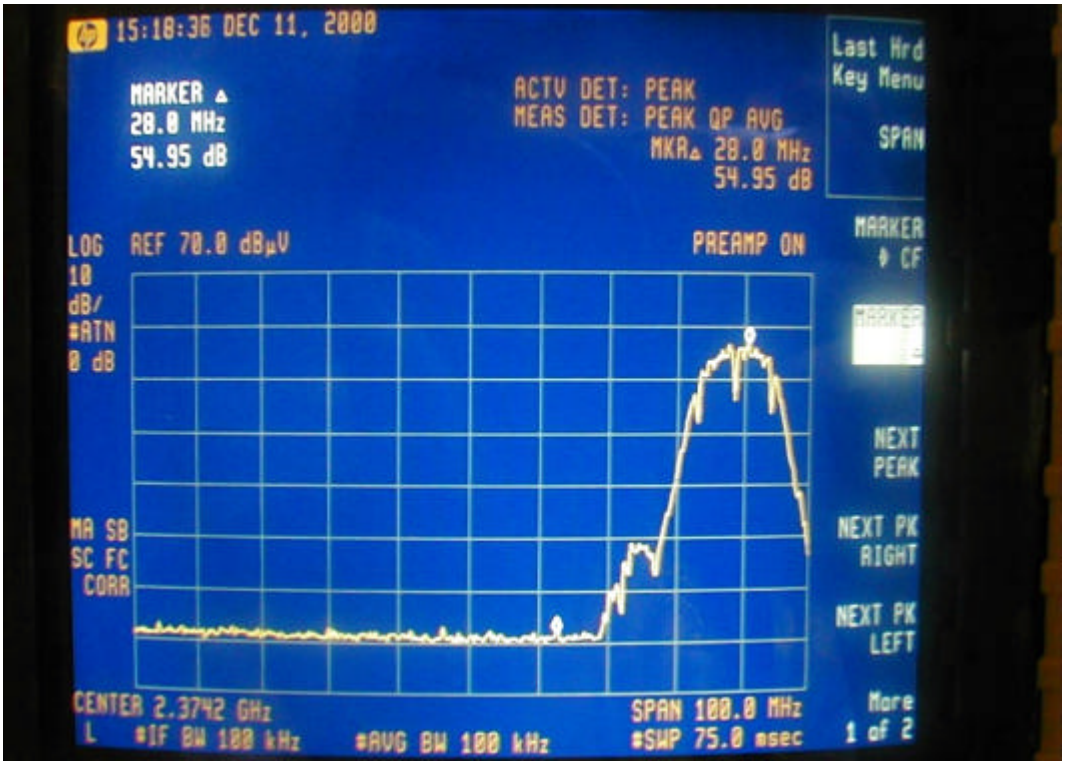
Instrument Name	Model No.	Brand	Serial No.	Last time	Next time
EMI Receiver	8546A	H P	3520A00242	10/18/00	10/18/01
RF Filter Section	85460A	H P	3448A00217	10/18/00	10/18/01
Horn Antenna	3115	EMCO	9704 – 5178	08/15/00	08/15/01

6.4 Required of Carrier frequency

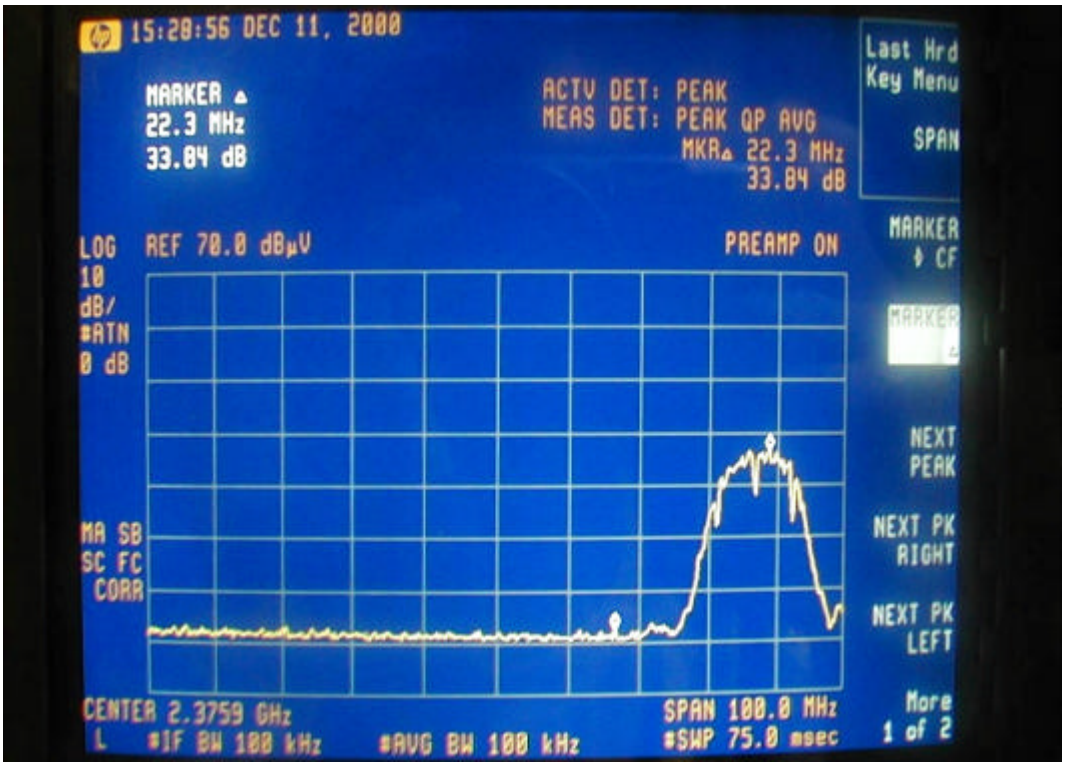
If any 100 kHz bandwidth outside these frequency bands, the radio frequency power that is produced by the modulation products of the spreading sequence, the information sequence and the carrier frequency shall be either at least 20 dB below that in any 100 kHz bandwidth within the band that contains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

Test Condition & Setup: same as 3.1

(External Antenna)



(Internal Antenna)



6.5 Test Result of Power spectral density.

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

Model No. : SL-2000

EUT : Wireless LAN

Channel	*Frequency (MHz)*	*Ppr (dBuV)*	*CF (dB)*	*Ppq (dBm)*	*Limit (dB)*	*Margin (dB)*
External Antenna CH 01	2412	38.10	35.60	-21.53	8.00	-29.53
External Antenna CH 06	2437	42.44	35.60	-17.19	8.00	-25.19
External Antenna CH 11	2462	38.69	35.60	-20.94	8.00	-28.94
Internal Antenna CH 01	2412	27.83	35.60	-31.80	8.00	-39.80
Internal Antenna CH 06	2437	30.43	35.60	-29.20	8.00	-37.20
Internal Antenna CH 11	2462	28.33	35.60	-31.30	8.00	-39.30

Note:

1. The attachment follow by this page and there is no page number.
2. Ppr: spectrum read power density (using peak search mode), CF: correct factor, Ppq: actual peak power density in the spread spectrum band.
3. Ppq = Ppr + CF
4. Effective Radiation Power (E.R.P.) = $(E\ d)^2 / 30G$

"E" is the measured maximum field strength in V/m utilizing the maximum hold mode RBW (3KHz)

"G" is the numeric gain of the transmitting antenna over an isotropic radiator (1.00).

"d" is the distance in meters from which the field strength was measured (3M).

Example: the Max Radiation Emission of EUT ch01 = 38.1 + (35.60) = 77.70 dBμV/m

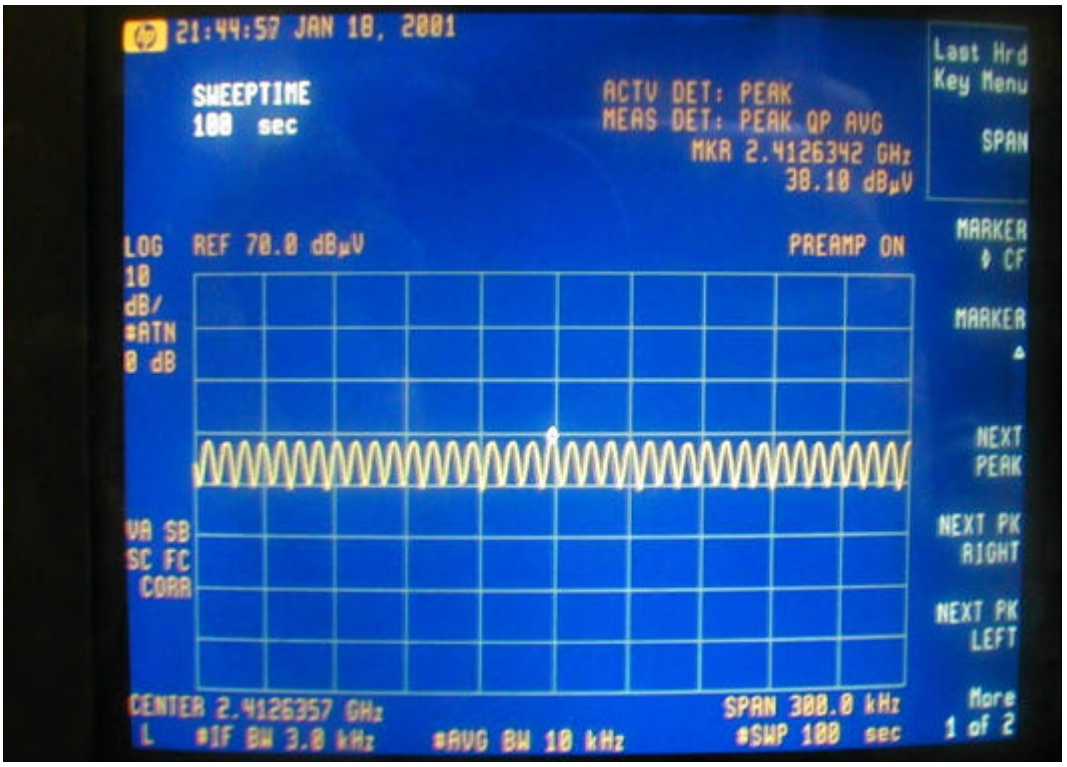
$10^{(73.70/20)} \times 10^{-6} = 0.00484172$ V

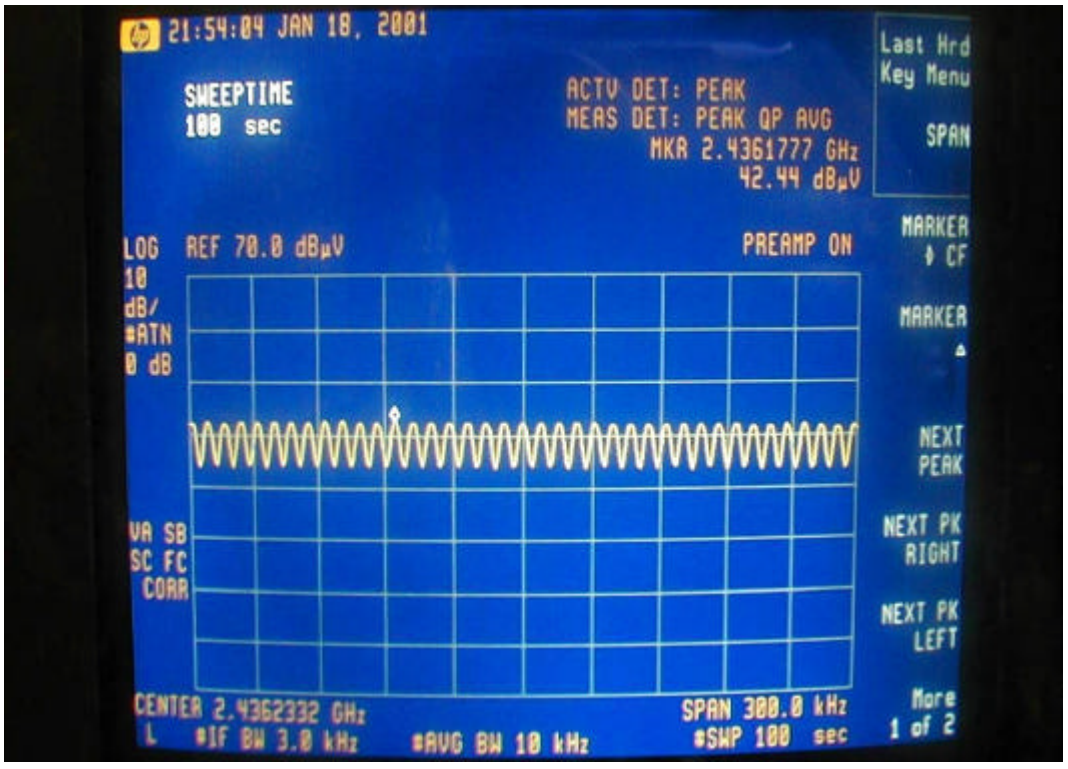
E.R.P. = $(0.00484172 \times 3)^2 / 30 = 0.007032$ mW

= 10 x log (0.007032 mW/1mW)

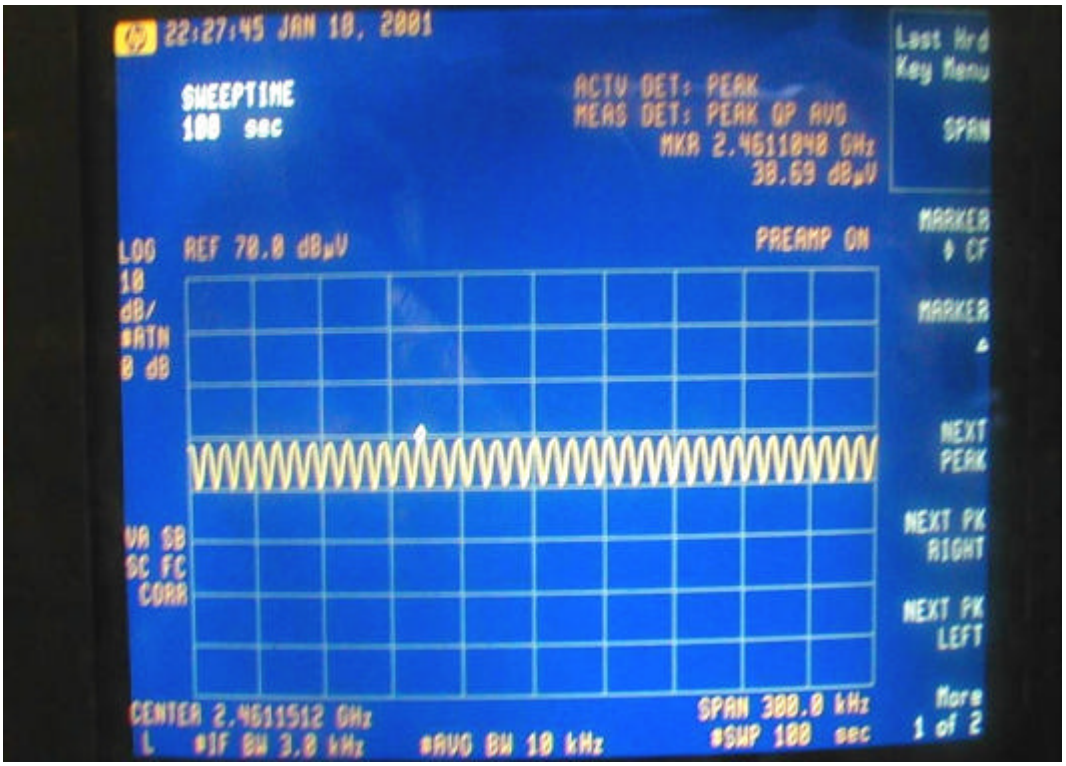
= -21.53 dBm

(External Antenna)

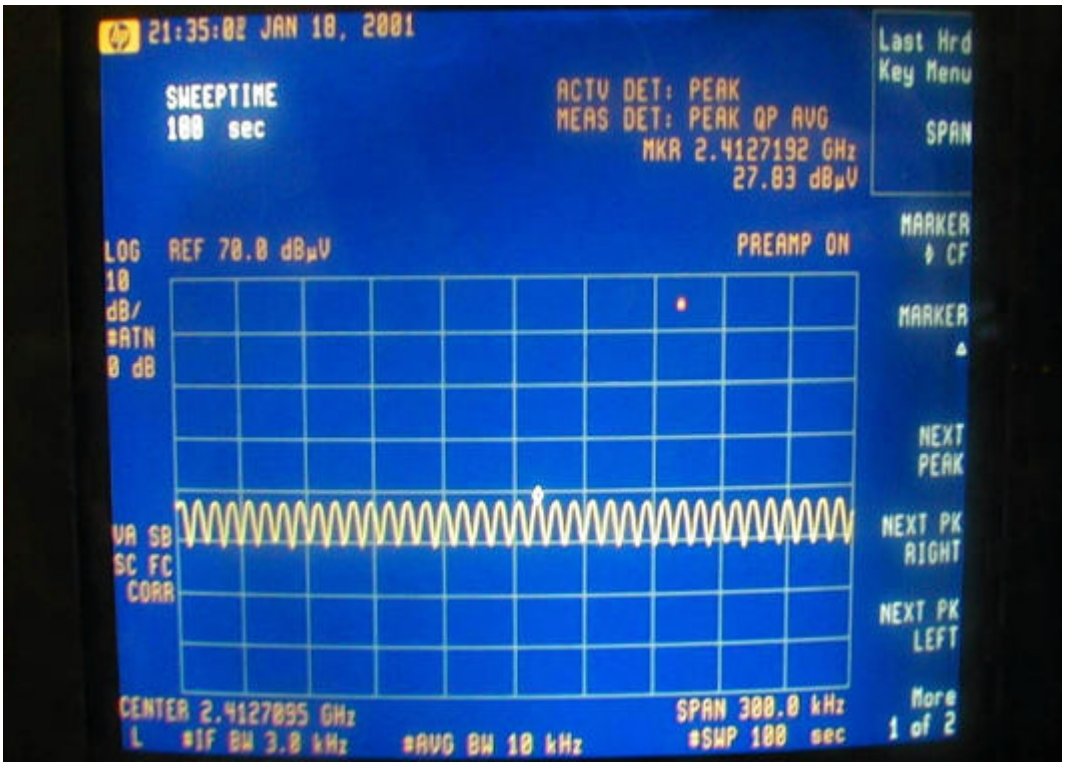


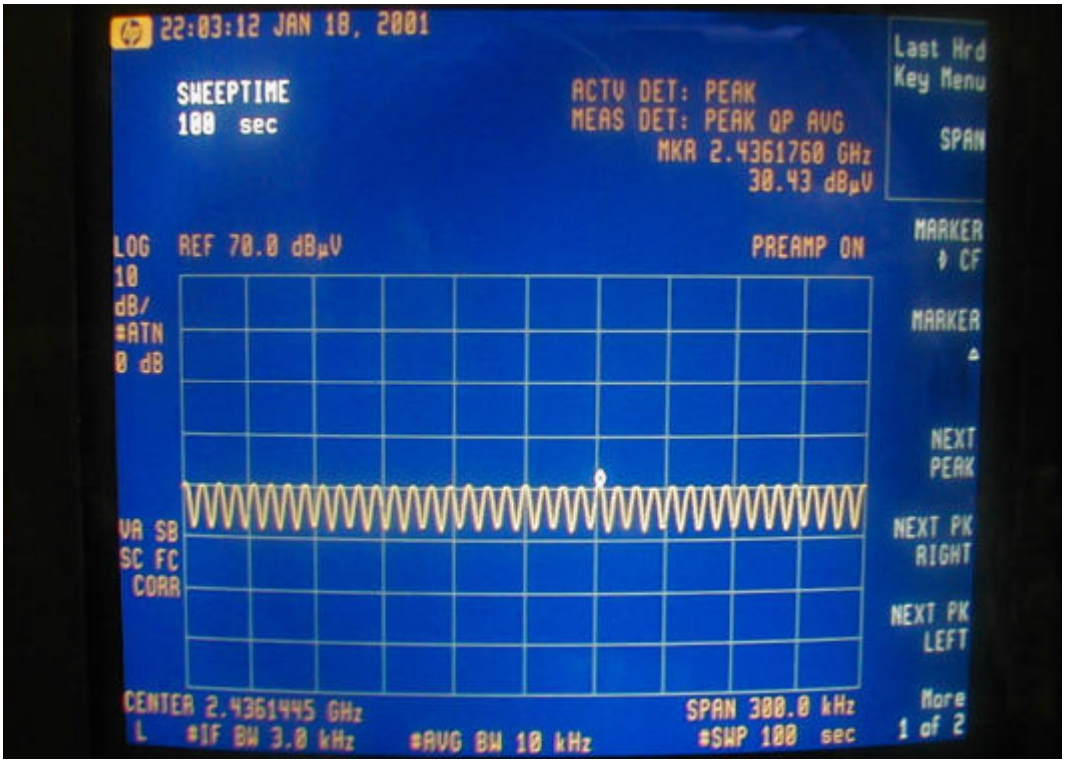


(External Antenna)

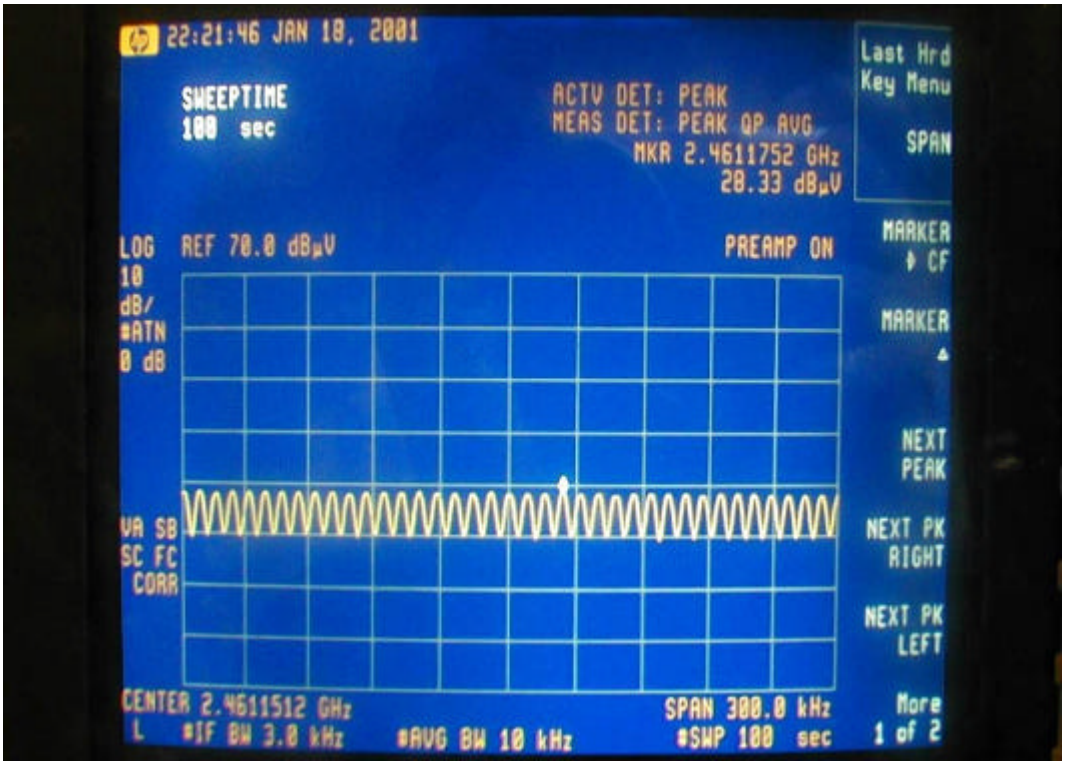


(Internal Antenna)





(Internal Antenna)



Ⅶ. Section 15.247(e): Processing Gain

7.1 Test Method

The test method attach in the docket 97-114 appendix C Jamming Test setup that we found there were couple disadvantage as list in the follow:

(1) It can not simulate the real world condition

(2) Most of the hand held device (include notebook computer) there is no ground connection to the earth, especially the RF front end ground.

(3) The Coaxial and internal RF module will leak the signal that even you connect very high value attenuator .(shielding effective is low in the 2.4 GHz)

(4) There was very high uncertainty of measurement result and it is depended how you connect EUT, testing facility, wire and cable for BER measurement, power supply… all of this can affect the testing result.

(5) Move out the antenna and Matching pad are inconvenient for the testing and need more sample.

Base on the above reason we modify the original jamming test setup figure 1,and use two fully anechoic chambers to isolate test EUT and reference EUT.

Test procedure is simulated normal jamming setup, the block diagram and photograph as below.

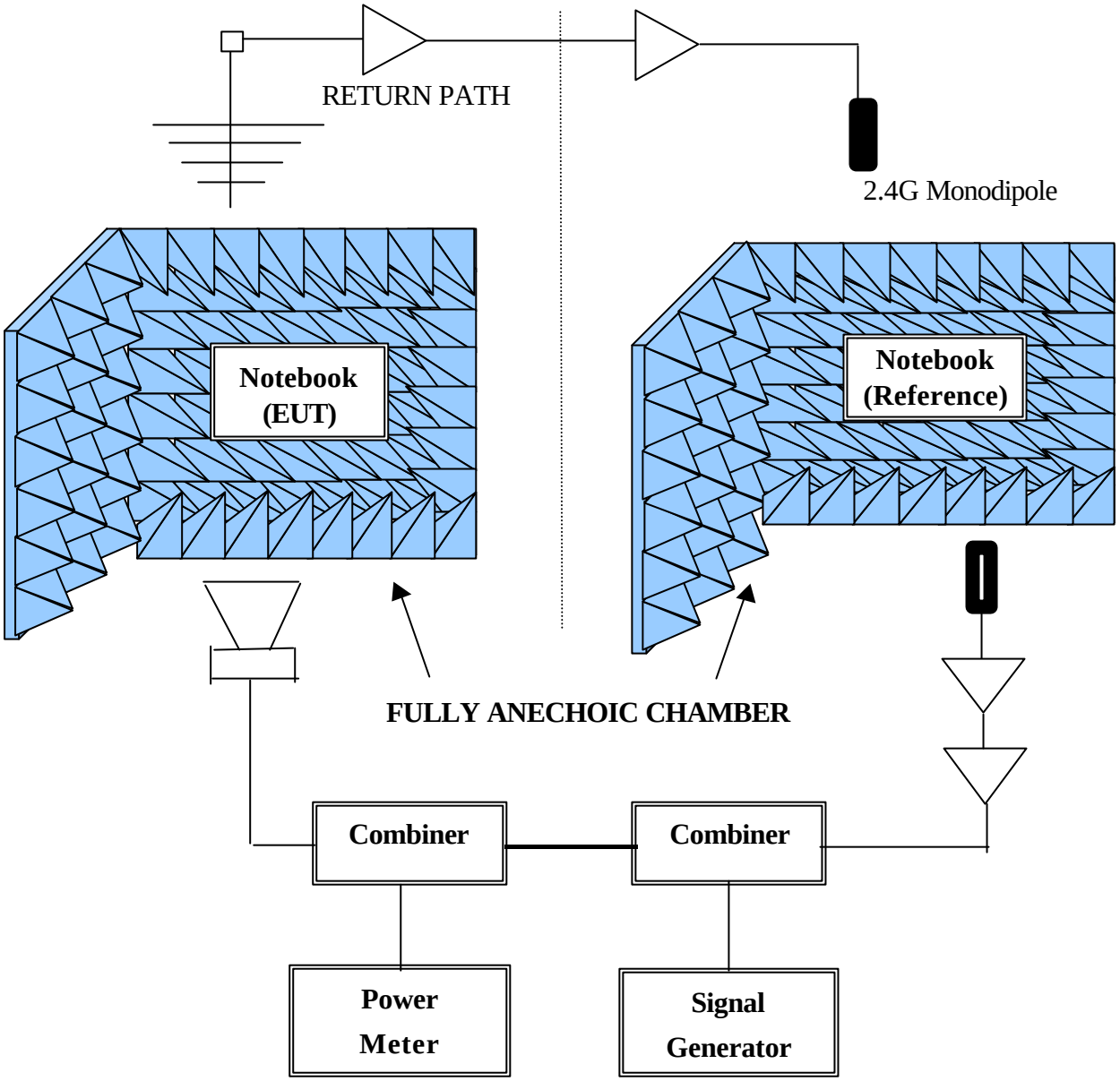
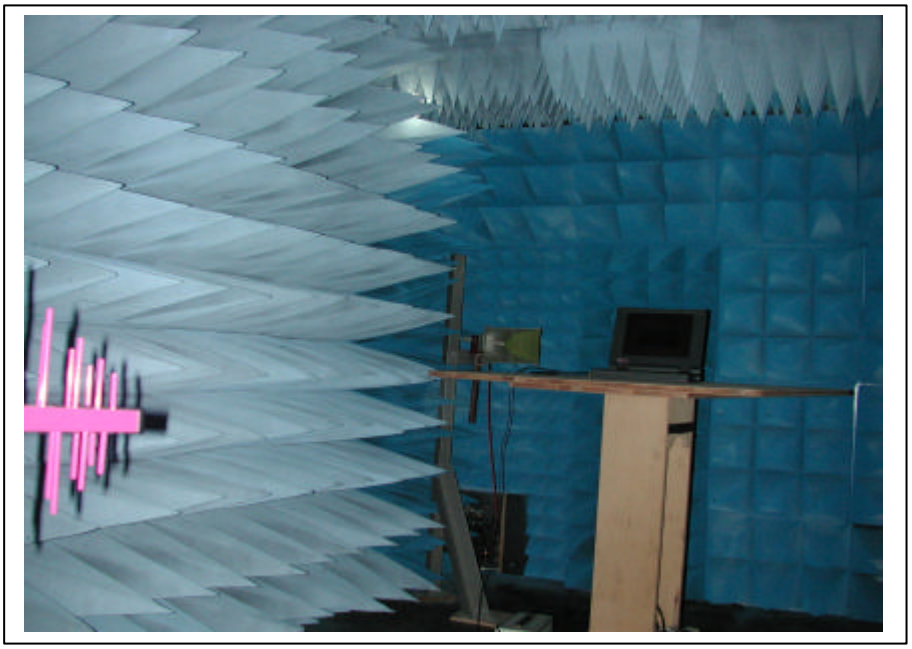


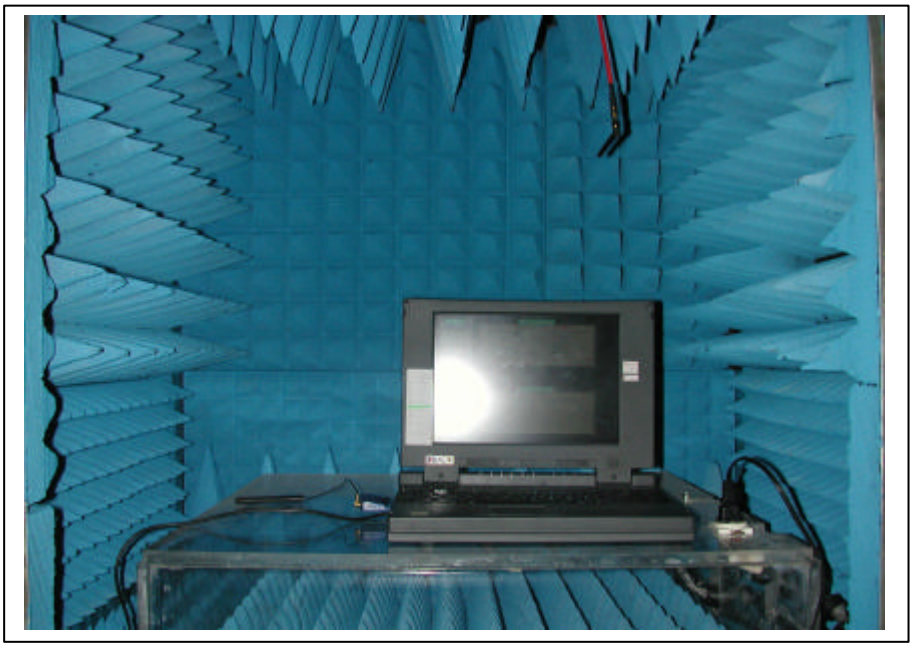
Figure (1)

EQUIPMENT LIST FOR TESTING PROCESSING GAIN

EQUIPMENT NAME	MANUFACTURE	MODEL NUMBER
ANTENNA	TRC	2.4GHz Mono Dipole
HORN	The Elector-Mechaniss	3115
COMBINER	MINI-CIRCULTS	15542 ZAPD-4
POWER METER	HP	436A
AMPLIFIER	MINI-CIRCUITS	ZFL-2500M
SIGNAL GENERATOR	HP	86480
ANTENNUATOR	MINI-CIRCULTS	SAT-30
BI-LOG	Schaffner	CBL6141A



TESTED EUT



REFERENCE EUT

7.2 Bit Error Rate (BER)

(1) Test Background and procedure

According to FCC regulation, a direct sequence spread spectrum system must have processing gain , G_p of the least 10 dB. Compliance to this requirement can be shown by demonstrating a relative bit-error-ratio (BER) performance improvement (and corresponding signal to noise ratio per symbol improvement of at least 10dB) between the case where spread spectrum processes (coding, modulation) are engaged relative to the processes being bypassed. In some practical system, the spread spectrum processing cannot simply bypassed. In accordance with the new NPRM 99-231, if the vendor has a system with less than 10 chips per symbol, the CW jamming results must be supported by a theoretical explanation of the system processing gain.

(2) Theoretical calculations

The processing gain is related to the jamming margin as follows:

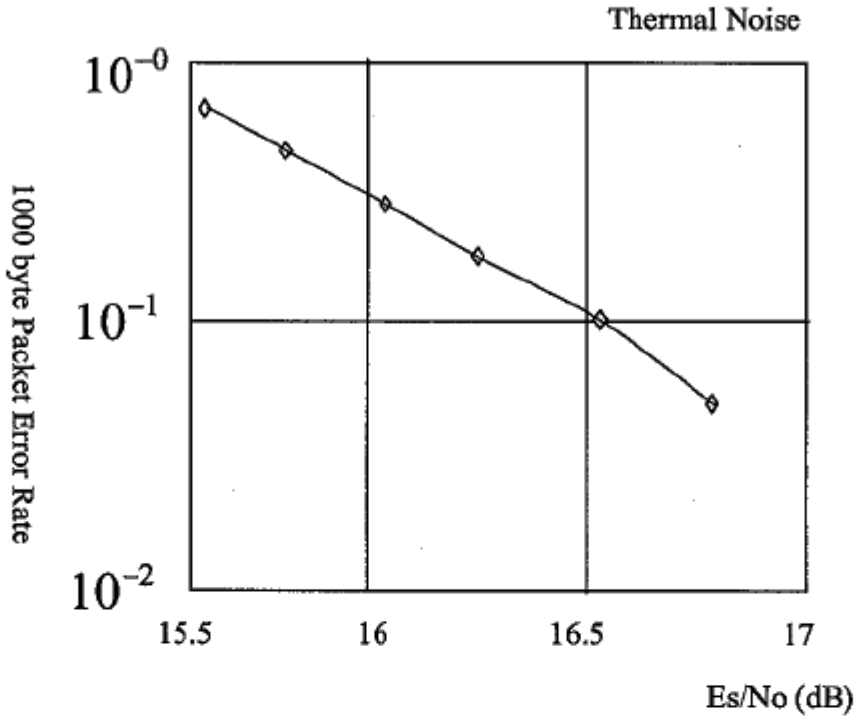
$$G_p = \left(\frac{S}{N}\right)_{output} + \left(\frac{J}{S}\right) + L_{systen}$$

Where $BER_{REFERENCE}$ is the reference bit error ratio with its corresponding, theoretical output signal to noise ratio per symbol, $\left(S/N\right)_{output}$, $\left(J/S\right)$ is the jamming margin (jamming signal power relative to desired signal power),and L_{system} are the system implementation losses. The maximum allowed total system implementation loss is 2 dB. The HFA3861A direct sequence spread spectrum baseband processor uses DBSK and DQSK modulation, which is a form of M-ray Orthogonal Keying. The BER performance curve is given by: The probability of error for generalized M-ary Orthogonal signaling using coherent demodulation is given by:

$$P_e = 1 - P_{c1} = 1 - \frac{1}{\sqrt{2\pi}} \int_{-\frac{S_{01}}{N_0}}^{\infty} \left[2\left(1 - Q\left\{ z + \sqrt{2\frac{E_b}{\eta}} \right\}\right)\right]^{\frac{M}{2}-1} \exp\left\{-\frac{Z^2}{2}\right\} dz$$

This integral cannot be solved in closed form, and numerical integration must be used. This is done in a MATHCAD environment and is displayed in graphical format

1000 byte PER vs. Es/No



The reference PER is specified as 8% . The corresponding Es/No (signal to noise ratio per symbol) is 16.4 dB. The Es/No required to achieve the desired BER with maximum system implementation losses is 18.4dB. The minimum processing gain is again, 10dB, therefore:

$$G_p = \left(\frac{E_s}{N_o}\right)_{output} + \left(\frac{J}{S}\right) + L_{system} = 16.4dB + 2.0dB + \left(\frac{J}{S}\right) \geq 10dB$$

$$G_p = 18.4dB + \left(\frac{J}{S}\right) \geq 10dB$$

The minimum jammer to signal ratio is as follow:

$$\left(\frac{J}{S}\right) \geq -8.4dB$$

For the case of the HFA3861A, the bit rates are 1, 2 Mbps. The corresponding symbol rates are 1, 1.375, and 1.375 MSps. The chip rate is always 11MCps,so the ratio of chip rate to symbol rate is 11:1 for the 1 and 2 Mbps rates. Since the symbol rate to bit rate is less than 10 for the higher rates, we supply the theoretical processing gain calculation for these cases where both spread spectrum processing gain and coding gain are utilized. This is reasonable in that they cannot be separated in the demodulation process. If a separable FEC coding scheme were used, we would not be comfortable making this assertion.

AS can be seen from the curve of figure 1,the Es/No is 16.4dB at the PER of 8%. This PER can be relate to a BER of 1e-5 on 1000 byte packets. With 8 bits per symbol, the Eb/No is then 7.4dB or 9dB less than the Es/No. It is well known that the Eb/No of BPSK is 2.2 dB. We add this to the processing gain of 9 dB to get 11.2dB overall processing gain for the CW jammer test.

Taking the calculation above, if the $\left(\frac{J}{S}\right) \geq -8.4dB$ then the equipment passes the CW jamming test.

7.3 List of Test Instruments

Instrument Name	Model No	Brand	Serial No.	Last time	Next time
Signal Generator	8648D	HP	3613A00117	05/19/1999	05/19/2001
Power Meter	436A	HP	1930A05580	09/11/2000	09/11/2001
Attenuator (6dB to 18 GHz)	MCL BW-S6W2	Mini Circuits			

7.4 Test Procedure

The test block diagram be shown figure (1).

(1) Ensure that CW Jammer generator RF out put is disabled and measure the power at the power meter port using the power meter. This is the relative signal power, S_r.

(2) Disable Transmitter, and set CW Jammer generator RF output frequency equal to the carrier frequency and enable generator output Set reference CW Jammer power level at power meter port 8.4 dB below S_r (minimum J/S, or 10 dB processing gain reference level).Note the power level setting on the generator, this is the reference CW Jammer power setting, J_r.

(3) Disable CW Jammer generator, re-establish link. PER test should be operating essentially error-free.

(4) Enable CW Jammer at the reference power level and verify that the PER test indicates a PER of less than 8%.

(5) Alternatively, adjust the CW Jammer level to that which causes 8% PER and verify that the S/J is less than 8.4dB.

(6) Repeat step 7 for uniform steps in frequency increments of 50kHz across the receiver passband with the CW Jammer. In this case the receiver passband is ± 7.85MHz.

The number of points where the PER fail to achieve 8% (is higher than 8%) is determined and if this is above 20% of the total, the test is failed otherwise it is passed.

The margin by which the radio passes the test (for information purposes) can be determined from the average of the remaining points' PERs scaled on the PER curve above.

7.5 Test Result of Processing Gain

Table 51 Processing Gain [Channel 6, DQPSK, 2.43600GHz to 2.43800GHz]

Jammer Frequency (MHz)	Signal Level S (dBm)	Signal Generator RF Output J (dBm)	Mj (J/S)	Process Gain (dB)
2436.00	-47.56	-44.47	3.09	21.49
2436.05	-47.56	-44.63	2.93	21.33
2436.10	-47.56	-44.08	3.48	21.88
2436.15	-47.56	-44.98	2.58	20.98
2436.20	-47.56	-44.87	2.69	21.09
2436.25	-47.56	-44.87	2.69	21.09
2436.30	-47.56	-44.87	2.69	21.09
2436.35	-47.56	-42.67	4.89	23.29
2436.40	-47.56	-41.44	6.12	24.52
2436.45	-47.56	-41.44	6.12	24.52
2436.50	-47.56	-41.44	6.12	24.52
2436.55	-47.56	-42.81	4.75	23.15
2436.60	-47.56	-42.81	4.75	23.15
2436.65	-47.56	-46.15	1.41	19.81
2436.70	-47.56	-46.68	0.88	19.28
2436.75	-47.56	-46.86	0.70	19.10
2436.80	-47.56	-47.05	0.51	18.91
2436.85	-47.56	-49.17	-1.61	16.79
2436.90	-47.56	-49.58	-2.02	16.38
2436.95	-47.56	-51.00	-3.44	14.96
2437.00	-47.56	-47.08	0.48	18.88
2437.05	-47.56	-47.17	0.39	18.79
2437.10	-47.56	-48.35	-0.79	17.61
2437.15	-47.56	-47.94	-0.38	18.02
2437.20	-47.56	-47.94	-0.38	18.02
2437.25	-47.56	-47.48	0.08	18.48
2437.30	-47.56	-47.48	0.08	18.48
2437.35	-47.56	-47.48	0.08	18.48
2437.40	-47.56	-47.30	0.26	18.66
2437.45	-47.56	-47.50	0.06	18.46
2437.50	-47.56	-46.76	0.80	19.20
2437.55	-47.56	-48.06	-0.50	17.90
2437.60	-47.56	-48.08	-0.52	17.88
2437.65	-47.56	-46.67	0.89	19.29
2437.70	-47.56	-48.15	-0.59	17.81
2437.75	-47.56	-47.20	0.36	18.76
2437.80	-47.56	-47.37	0.19	18.59
2437.85	-47.56	-46.86	0.70	19.10
2437.90	-47.56	-46.58	0.98	19.38
2437.95	-47.56	-46.58	0.98	19.38
2438.00	-47.56	-46.07	1.49	19.89

Test Result : Processing Gain: 18.46 dB

Table 52 Processing Gain [Channel 6, DBPSK, 2.42850GHz to 2.43070GHz]

Jammer Frequency (MHz)	Signal Level S (dBm)	Signal Generator RF Output J (dBm)	Mj (J/S)	Process Gain (dB)
2428.50	-52.00	-53.10	-1.10	17.30
2428.55	-52.00	-53.70	-1.70	16.70
2428.60	-52.00	-54.00	-2.00	16.40
2428.65	-52.00	-54.20	-2.20	16.20
2428.70	-52.00	-54.30	-2.30	16.10
2428.75	-52.00	-54.30	-2.30	16.10
2428.80	-52.00	-53.80	-1.80	16.60
2428.85	-52.00	-53.80	-1.80	16.60
2428.90	-52.00	-54.00	-2.00	16.40
2428.95	-52.00	-53.90	-1.90	16.50
2429.00	-52.00	-53.90	-1.90	16.50
2429.05	-52.00	-53.80	-1.80	16.60
2429.10	-52.00	-53.30	-1.30	17.10
2429.15	-52.00	-53.50	-1.50	16.90
2429.20	-52.00	-53.70	-1.70	16.70
2429.25	-52.00	-54.10	-2.10	16.30
2429.30	-52.00	-54.10	-2.10	16.30
2429.35	-52.00	-54.30	-2.30	16.10
2429.40	-52.00	-54.60	-2.60	15.80
2429.45	-52.00	-54.60	-2.60	15.80
2429.50	-52.00	-54.10	-2.10	16.30
2429.55	-52.00	-54.10	-2.10	16.30
2429.60	-52.00	-54.30	-2.30	16.10
2429.65	-52.00	-54.40	-2.40	16.00
2429.70	-52.00	-54.60	-2.60	15.80
2429.75	-52.00	-54.10	-2.10	16.30
2429.80	-52.00	-54.15	-2.15	16.25
2429.85	-52.00	-54.00	-2.00	16.40
2429.90	-52.00	-54.10	-2.10	16.30
2429.95	-52.00	-54.10	-2.10	16.30
2430.00	-52.00	-54.40	-2.40	16.00
2430.05	-52.00	-54.40	-2.40	16.00
2430.10	-52.00	-55.40	-3.40	15.00
2430.15	-52.00	-55.40	-3.40	15.00
2430.20	-52.00	-55.60	-3.60	14.80
2430.25	-52.00	-55.20	-3.20	15.20
2430.30	-52.00	-55.20	-3.20	15.20
2430.35	-52.00	-55.20	-3.20	15.20
2430.40	-52.00	-55.10	-3.10	15.30
2430.45	-52.00	-55.10	-3.10	15.30
2430.50	-52.00	-55.30	-3.30	15.10
2430.55	-52.00	-55.20	-3.20	15.20
2430.60	-52.00	-55.10	-3.10	15.30
2430.65	-52.00	-55.20	-3.20	15.20
2430.70	-52.00	-55.50	-3.50	14.90

Table 53 Processing Gain [Channel 6, BPSK, 2.43075GHz to 2.43295GHz]

Jammer Frequency (MHz)	Signal Level S (dBm)	Signal Generator RF Output J (dBm)	Mj (J/S)	Process Gain (dB)
2430.75	-52.00	-53.30	-1.30	17.10
2430.80	-52.00	-53.30	-1.30	17.10
2430.85	-52.00	-53.30	-1.30	17.10
2430.90	-52.00	-53.30	-1.30	17.10
2430.95	-52.00	-53.20	-1.20	17.20
2431.00	-52.00	-53.20	-1.20	17.20
2431.05	-52.00	-53.00	-1.00	17.40
2431.10	-52.00	-53.20	-1.20	17.20
2431.15	-52.00	-53.30	-1.30	17.10
2431.20	-52.00	-52.50	-0.50	17.90
2431.25	-52.00	-52.30	-0.30	18.10
2431.30	-52.00	-52.10	-0.10	18.30
2431.35	-52.00	-52.00	0.00	18.40
2431.40	-52.00	-52.00	0.00	18.40
2431.45	-52.00	-52.20	-0.20	18.20
2431.50	-52.00	-52.10	-0.10	18.30
2431.55	-52.00	-52.00	0.00	18.40
2431.60	-52.00	-52.10	-0.10	18.30
2431.65	-52.00	-52.60	-0.60	17.80
2431.70	-52.00	-52.50	-0.50	17.90
2431.75	-52.00	-52.40	-0.40	18.00
2431.80	-52.00	-52.40	-0.40	18.00
2431.85	-52.00	-52.50	-0.50	17.90
2431.90	-52.00	-53.00	-1.00	17.40
2431.95	-52.00	-53.20	-1.20	17.20
2432.00	-52.00	-53.50	-1.50	16.90
2432.05	-52.00	-53.60	-1.60	16.80
2432.10	-52.00	-53.50	-1.50	16.90
2432.15	-52.00	-53.70	-1.70	16.70
2432.20	-52.00	-53.50	-1.50	16.90
2432.25	-52.00	-53.50	-1.50	16.90
2432.30	-52.00	-53.50	-1.50	16.90
2432.35	-52.00	-53.40	-1.40	17.00
2432.40	-52.00	-53.40	-1.40	17.00
2432.45	-52.00	-53.50	-1.50	16.90
2432.50	-52.00	-53.50	-1.50	16.90
2432.55	-52.00	-53.60	-1.60	16.80
2432.60	-52.00	-53.30	-1.30	17.10
2432.65	-52.00	-53.50	-1.50	16.90
2432.70	-52.00	-53.70	-1.70	16.70
2432.75	-52.00	-53.50	-1.50	16.90
2432.80	-52.00	-54.00	-2.00	16.40
2432.85	-52.00	-54.30	-2.30	16.10
2432.90	-52.00	-54.60	-2.60	15.80
2432.95	-52.00	-54.50	-2.50	15.90

Table 54 Processing Gain [Channel 6, BPSK, 2.43300GHz to 2.43520GHz]

Jammer Frequency (MHz)	Signal Level S (dBm)	Signal Generator RF Output J (dBm)	Mj (J/S)	Process Gain (dB)
2433.00	-52.00	-60.00	-8.00	10.40
2433.05	-52.00	-59.90	-7.90	10.50
2433.10	-52.00	-59.80	-7.80	10.60
2433.15	-52.00	-59.90	-7.90	10.50
2433.20	-52.00	-60.00	-8.00	10.40
2433.25	-52.00	-59.80	-7.80	10.60
2433.30	-52.00	-59.50	-7.50	10.90
2433.35	-52.00	-59.90	-7.90	10.50
2433.40	-52.00	-59.90	-7.90	10.50
2433.45	-52.00	-59.70	-7.70	10.70
2433.50	-52.00	-59.40	-7.40	11.00
2433.55	-52.00	-59.40	-7.40	11.00
2433.60	-52.00	-59.40	-7.40	11.00
2433.65	-52.00	-59.20	-7.20	11.20
2433.70	-52.00	-59.50	-7.50	10.90
2433.75	-52.00	-59.60	-7.60	10.80
2433.80	-52.00	-59.40	-7.40	11.00
2433.85	-52.00	-59.50	-7.50	10.90
2433.90	-52.00	-60.30	-8.30	10.10
2433.95	-52.00	-60.50	-8.50	9.90
2434.00	-52.00	-60.50	-8.50	9.90
2434.05	-52.00	-60.30	-8.30	10.10
2434.10	-52.00	-60.50	-8.50	9.90
2434.15	-52.00	-60.10	-8.10	10.30
2434.20	-52.00	-60.50	-8.50	9.90
2434.25	-52.00	-60.30	-8.30	10.10
2434.30	-52.00	-60.50	-8.50	9.90
2434.35	-52.00	-60.10	-8.10	10.30
2434.40	-52.00	-60.00	-8.00	10.40
2434.45	-52.00	-59.80	-7.80	10.60
2434.50	-52.00	-59.80	-7.80	10.60
2434.55	-52.00	-59.50	-7.50	10.90
2434.60	-52.00	-59.50	-7.50	10.90
2434.65	-52.00	-58.50	-6.50	11.90
2434.70	-52.00	-58.30	-6.30	12.10
2434.75	-52.00	-58.30	-6.30	12.10
2434.80	-52.00	-58.20	-6.20	12.20
2434.85	-52.00	-58.20	-6.20	12.20
2434.90	-52.00	-58.00	-6.00	12.40
2434.95	-52.00	-58.00	-6.00	12.40
2435.00	-52.00	-57.80	-5.80	12.60
2435.05	-52.00	-57.80	-5.80	12.60
2435.10	-52.00	-58.00	-6.00	12.40
2435.15	-52.00	-58.20	-6.20	12.20
2435.20	-52.00	-58.10	-6.10	12.30

Table 55 Processing Gain [Channel 6, BPSK, 2.43525GHz to 2.437450GHz]

Jammer Frequency (MHz)	Signal Level S (dBm)	Signal Generator RF Output J (dBm)	Mj (J/S)	Process Gain (dB)
2435.25	-52.00	-54.60	-2.60	15.80
2435.30	-52.00	-54.60	-2.60	15.80
2435.35	-52.00	-54.60	-2.60	15.80
2435.40	-52.00	-54.40	-2.40	16.00
2435.45	-52.00	-54.50	-2.50	15.90
2435.50	-52.00	-54.20	-2.20	16.20
2435.55	-52.00	-54.00	-2.00	16.40
2435.60	-52.00	-54.10	-2.10	16.30
2435.65	-52.00	-54.30	-2.30	16.10
2435.70	-52.00	-54.20	-2.20	16.20
2435.75	-52.00	-54.10	-2.10	16.30
2435.80	-52.00	-53.90	-1.90	16.50
2435.85	-52.00	-54.00	-2.00	16.40
2435.90	-52.00	-54.10	-2.10	16.30
2435.95	-52.00	-54.10	-2.10	16.30
2436.00	-52.00	-54.10	-2.10	16.30
2436.05	-52.00	-54.30	-2.30	16.10
2436.10	-52.00	-54.50	-2.50	15.90
2436.15	-52.00	-54.60	-2.60	15.80
2436.20	-52.00	-54.80	-2.80	15.60
2436.25	-52.00	-54.80	-2.80	15.60
2436.30	-52.00	-55.00	-3.00	15.40
2436.35	-52.00	-54.90	-2.90	15.50
2436.40	-52.00	-55.30	-3.30	15.10
2436.45	-52.00	-55.30	-3.30	15.10
2436.50	-52.00	-55.20	-3.20	15.20
2436.55	-52.00	-55.10	-3.10	15.30
2436.60	-52.00	-55.20	-3.20	15.20
2436.65	-52.00	-55.10	-3.10	15.30
2436.70	-52.00	-55.60	-3.60	14.80
2436.75	-52.00	-55.50	-3.50	14.90
2436.80	-52.00	-55.30	-3.30	15.10
2436.85	-52.00	-54.70	-2.70	15.70
2436.90	-52.00	-54.50	-2.50	15.90
2436.95	-52.00	-54.30	-2.30	16.10
2437.00	-52.00	-53.80	-1.80	16.60
2437.05	-52.00	-54.10	-2.10	16.30
2437.10	-52.00	-54.10	-2.10	16.30
2437.15	-52.00	-55.80	-3.80	14.60
2437.20	-52.00	-55.70	-3.70	14.70
2437.25	-52.00	-56.00	-4.00	14.40
2437.30	-52.00	-56.60	-4.60	13.80
2437.35	-52.00	-56.90	-4.90	13.50
2437.40	-52.00	-56.80	-4.80	13.60
2437.45	-52.00	-57.30	-5.30	13.10

Table 56 Processing Gain [Channel 6, BPSK, 2.43750GHz to 2.43970GHz]

Jammer Frequency (MHz)	Signal Level S (dBm)	Signal Generator RF Output J (dBm)	Mj (J/S)	Process Gain (dB)
2437.50	-52.00	-58.70	-6.70	11.70
2437.55	-52.00	-58.60	-6.60	11.80
2437.60	-52.00	-58.80	-6.80	11.60
2437.65	-52.00	-57.60	-5.60	12.80
2437.70	-52.00	-57.60	-5.60	12.80
2437.75	-52.00	-56.40	-4.40	14.00
2437.80	-52.00	-56.30	-4.30	14.10
2437.85	-52.00	-56.50	-4.50	13.90
2437.90	-52.00	-56.40	-4.40	14.00
2437.95	-52.00	-56.00	-4.00	14.40
2438.00	-52.00	-56.00	-4.00	14.40
2438.05	-52.00	-56.00	-4.00	14.40
2438.10	-52.00	-56.00	-4.00	14.40
2438.15	-52.00	-56.20	-4.20	14.20
2438.20	-52.00	-56.20	-4.20	14.20
2438.25	-52.00	-56.40	-4.40	14.00
2438.30	-52.00	-56.30	-4.30	14.10
2438.35	-52.00	-56.50	-4.50	13.90
2438.40	-52.00	-56.70	-4.70	13.70
2438.45	-52.00	-56.70	-4.70	13.70
2438.50	-52.00	-57.40	-5.40	13.00
2438.55	-52.00	-57.00	-5.00	13.40
2438.60	-52.00	-57.10	-5.10	13.30
2438.65	-52.00	-57.20	-5.20	13.20
2438.70	-52.00	-57.50	-5.50	12.90
2438.75	-52.00	-57.60	-5.60	12.80
2438.80	-52.00	-57.60	-5.60	12.80
2438.85	-52.00	-57.60	-5.60	12.80
2438.90	-52.00	-57.60	-5.60	12.80
2438.95	-52.00	-56.50	-4.50	13.90
2439.00	-52.00	-56.20	-4.20	14.20
2439.05	-52.00	-56.10	-4.10	14.30
2439.10	-52.00	-56.20	-4.20	14.20
2439.15	-52.00	-56.40	-4.40	14.00
2439.20	-52.00	-56.20	-4.20	14.20
2439.25	-52.00	-56.20	-4.20	14.20
2439.30	-52.00	-55.80	-3.80	14.60
2439.35	-52.00	-55.50	-3.50	14.90
2439.40	-52.00	-55.40	-3.40	15.00
2439.45	-52.00	-55.10	-3.10	15.30
2439.50	-52.00	-56.10	-4.10	14.30
2439.55	-52.00	-57.00	-5.00	13.40
2439.60	-52.00	-57.00	-5.00	13.40
2439.65	-52.00	-57.00	-5.00	13.40
2439.70	-52.00	-57.50	-5.50	12.90

Table 57 Processing Gain [Channel 6, BPSK, 2.43975GHz to 2.44195GHz]

Jammer Frequency (MHz)	Signal Level S (dBm)	Signal Generator RF Output J (dBm)	Mj (J/S)	Process Gain (dB)
2439.75	-52.00	-57.40	-5.40	13.00
2439.80	-52.00	-58.00	-6.00	12.40
2439.85	-52.00	-58.10	-6.10	12.30
2439.90	-52.00	-58.10	-6.10	12.30
2439.95	-52.00	-58.50	-6.50	11.90
2440.00	-52.00	-58.50	-6.50	11.90
2440.05	-52.00	-58.60	-6.60	11.80
2440.10	-52.00	-58.30	-6.30	12.10
2440.15	-52.00	-58.20	-6.20	12.20
2440.20	-52.00	-58.30	-6.30	12.10
2440.25	-52.00	-58.30	-6.30	12.10
2440.30	-52.00	-58.40	-6.40	12.00
2440.35	-52.00	-58.10	-6.10	12.30
2440.40	-52.00	-58.20	-6.20	12.20
2440.45	-52.00	-58.00	-6.00	12.40
2440.50	-52.00	-58.00	-6.00	12.40
2440.55	-52.00	-58.00	-6.00	12.40
2440.60	-52.00	-58.00	-6.00	12.40
2440.65	-52.00	-57.90	-5.90	12.50
2440.70	-52.00	-57.90	-5.90	12.50
2440.75	-52.00	-57.90	-5.90	12.50
2440.80	-52.00	-57.20	-5.20	13.20
2440.85	-52.00	-57.30	-5.30	13.10
2440.90	-52.00	-57.30	-5.30	13.10
2440.95	-52.00	-57.60	-5.60	12.80
2441.00	-52.00	-57.40	-5.40	13.00
2441.05	-52.00	-57.40	-5.40	13.00
2441.10	-52.00	-57.20	-5.20	13.20
2441.15	-52.00	-57.30	-5.30	13.10
2441.20	-52.00	-57.40	-5.40	13.00
2441.25	-52.00	-57.30	-5.30	13.10
2441.30	-52.00	-57.40	-5.40	13.00
2441.35	-52.00	-57.10	-5.10	13.30
2441.40	-52.00	-56.90	-4.90	13.50
2441.45	-52.00	-56.90	-4.90	13.50
2441.50	-52.00	-56.90	-4.90	13.50
2441.55	-52.00	-57.10	-5.10	13.30
2441.60	-52.00	-56.90	-4.90	13.50
2441.65	-52.00	-57.20	-5.20	13.20
2441.70	-52.00	-57.10	-5.10	13.30
2441.75	-52.00	-56.90	-4.90	13.50
2441.80	-52.00	-56.60	-4.60	13.80
2441.85	-52.00	-56.50	-4.50	13.90
2441.90	-52.00	-56.60	-4.60	13.80
2441.95	-52.00	-56.60	-4.60	13.80

Table 58 Processing Gain [Channel 6, BPSK, 2.44200GHz to 2.44420GHz]

Jammer Frequency (MHz)	Signal Level S (dBm)	Signal Generator RF Output J (dBm)	Mj (J/S)	Process Gain (dB)
2442.00	-52.00	-56.60	-4.60	13.80
2442.05	-52.00	-56.00	-4.00	14.40
2442.10	-52.00	-55.80	-3.80	14.60
2442.15	-52.00	-55.10	-3.10	15.30
2442.20	-52.00	-55.20	-3.20	15.20
2442.25	-52.00	-54.80	-2.80	15.60
2442.30	-52.00	-54.70	-2.70	15.70
2442.35	-52.00	-54.70	-2.70	15.70
2442.40	-52.00	-54.80	-2.80	15.60
2442.45	-52.00	-54.60	-2.60	15.80
2442.50	-52.00	-53.70	-1.70	16.70
2442.55	-52.00	-53.70	-1.70	16.70
2442.60	-52.00	-53.90	-1.90	16.50
2442.65	-52.00	-54.00	-2.00	16.40
2442.70	-52.00	-54.30	-2.30	16.10
2442.75	-52.00	-54.60	-2.60	15.80
2442.80	-52.00	-55.20	-3.20	15.20
2442.85	-52.00	-55.30	-3.30	15.10
2442.90	-52.00	-55.50	-3.50	14.90
2442.95	-52.00	-55.40	-3.40	15.00
2443.00	-52.00	-55.10	-3.10	15.30
2443.05	-52.00	-55.30	-3.30	15.10
2443.10	-52.00	-55.10	-3.10	15.30
2443.15	-52.00	-55.10	-3.10	15.30
2443.20	-52.00	-55.00	-3.00	15.40
2443.25	-52.00	-55.00	-3.00	15.40
2443.30	-52.00	-55.10	-3.10	15.30
2443.35	-52.00	-54.80	-2.80	15.60
2443.40	-52.00	-54.60	-2.60	15.80
2443.45	-52.00	-54.50	-2.50	15.90
2443.50	-52.00	-54.40	-2.40	16.00
2443.55	-52.00	-53.50	-1.50	16.90
2443.60	-52.00	-52.80	-0.80	17.60
2443.65	-52.00	-52.60	-0.60	17.80
2443.70	-52.00	-52.70	-0.70	17.70
2443.75	-52.00	-52.90	-0.90	17.50
2443.80	-52.00	-52.90	-0.90	17.50
2443.85	-52.00	-52.80	-0.80	17.60
2443.90	-52.00	-52.90	-0.90	17.50
2443.95	-52.00	-52.70	-0.70	17.70
2444.00	-52.00	-52.80	-0.80	17.60
2444.05	-52.00	-52.90	-0.90	17.50
2444.10	-52.00	-53.20	-1.20	17.20
2444.15	-52.00	-53.50	-1.50	16.90
2444.20	-52.00	-53.30	-1.30	17.10

Table 59 Processing Gain [Channel 6, BPSK, 2.44425GHz to 2.44550GHz]

Jammer Frequency (MHz)	Signal Level S (dBm)	Signal Generator RF Output J (dBm)	Mj (J/S)	Process Gain (dB)
2444.25	-52.00	-53.30	-1.30	17.10
2444.30	-52.00	-53.20	-1.20	17.20
2444.35	-52.00	-53.10	-1.10	17.30
2444.40	-52.00	-53.20	-1.20	17.20
2444.45	-52.00	-53.20	-1.20	17.20
2444.50	-52.00	-53.20	-1.20	17.20
2444.55	-52.00	-53.00	-1.00	17.40
2444.60	-52.00	-52.80	-0.80	17.60
2444.65	-52.00	-52.70	-0.70	17.70
2444.70	-52.00	-51.80	0.20	18.60
2444.75	-52.00	-51.60	0.40	18.80
2444.80	-52.00	-51.80	0.20	18.60
2444.85	-52.00	-51.80	0.20	18.60
2444.90	-52.00	-49.00	3.00	21.40
2444.95	-52.00	-48.60	3.40	21.80
2445.00	-52.00	-48.60	3.40	21.80
2445.05	-52.00	-47.70	4.30	22.70
2445.10	-52.00	-47.80	4.20	22.60
2445.15	-52.00	-48.60	3.40	21.80
2445.20	-52.00	-47.80	4.20	22.60
2445.25	-52.00	-48.00	4.00	22.40
2445.30	-52.00	-47.80	4.20	22.60
2445.35	-52.00	-47.80	4.20	22.60
2445.40	-52.00	-47.70	4.30	22.70
2445.45	-52.00	-47.70	4.30	22.70
2445.50	-52.00	-47.50	4.50	22.90

Test Result: Processing Gain: 12.80 dB

Note: GP = (S/No) + Mj + Lsys

= 16.4dB + Mj + 2.0dB

Appendix A

Setting up Procedure

1. Using the PCMCIA port of Notebook PC and software to control the PCMCIA wireless lan card of EUT.

2. Use the software that is given by the customer and operated in the windows to control the EUT's continuous transmission.

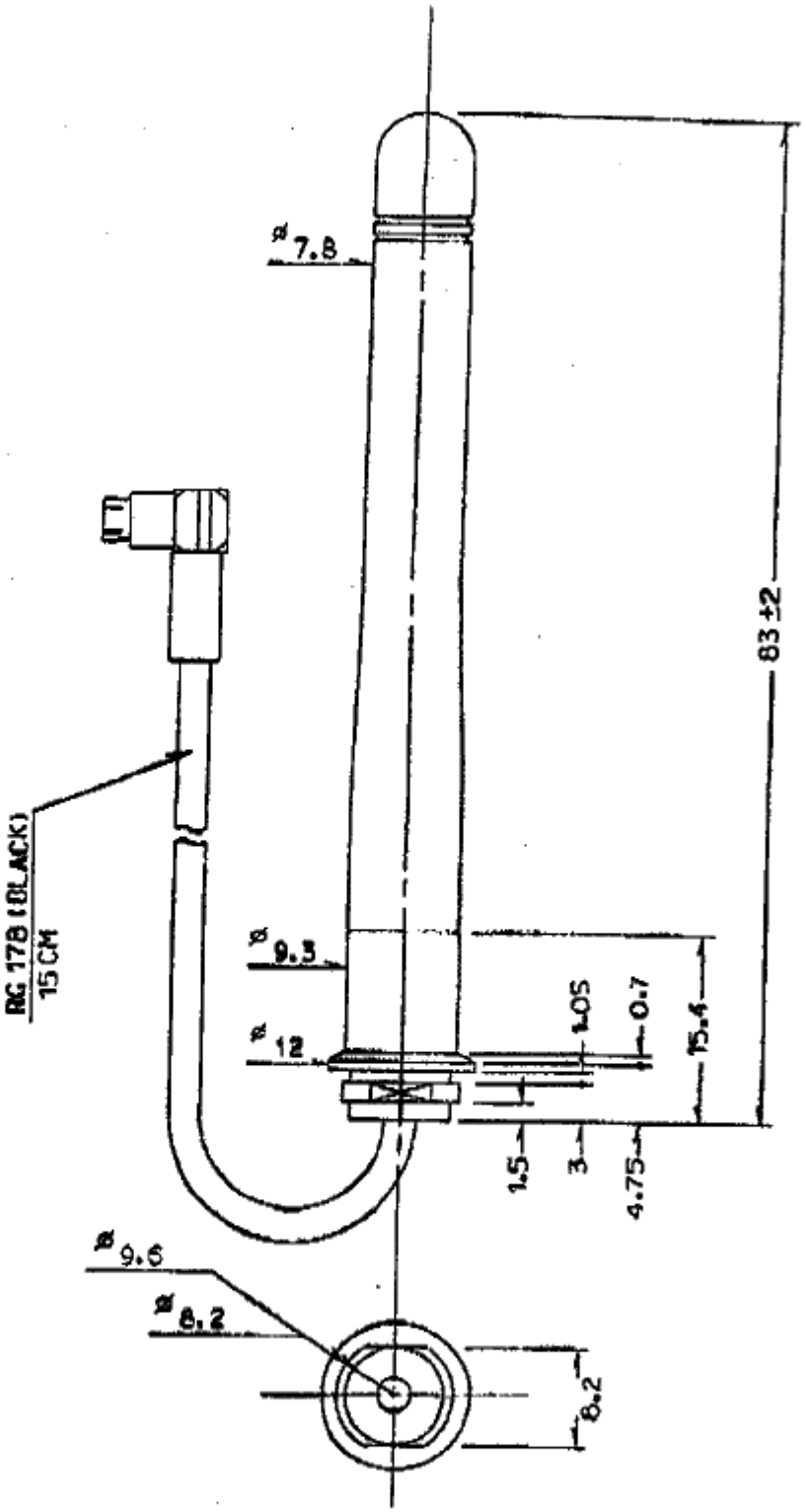
3. Then making access to the mode of continuous transmission and set testing channel. Also, it is removed from PC and insert the card into pc card slot of the access point.

Appendix B

Antenna Sketch

SPECIFICATION

DESCRIPTION	: Straight Type, 2.4Ghz Dipole Antenna.
2.CUSTOMER	: SENAO INTERNATIONAL CO.,LTD
3.MODEL NO	: IC-241I-101
4.CABLE ITEM	: Fig.1
5.FREQUENCY	: 2.4~2.4835GHz
6.IMPEDANCE	: 50Ohms nominal
7.SWR	: Less than 2.0:1
8.GAIN	: 1.5dBi
9.ADMITTED POWER RADIATION	: 1w
10.POLARIZATION	: Vertical
11.ELECTRICAL LENGTH	: 1/4 λ Dipole
12. OPERATING TEMPERATURE	: -20℃~+65℃
13. STORAGE TEMPERATURE	: -30℃~+75℃


ø7.8
83±2
RG 178 (BLACK)
15 CM
ø9.5
ø12
1.05
0.7
15.4
1.5
3
4.75
ø9.6
ø8.2
8.2

Appendix C

Antenna Conducted Spurious Emission

Antenna spurious emission per FCC.247(c) was measured from the EUT antenna port using 50 ohm spectrum analyzer with the resolution bandwidth set at 100kHz and the video bandwidth set at 300kHz. The modulated carrier was identified at 2.412GHz for Channel 1, 2.437GHz for Channel and 2.462GHz for Channel 11. No other harmonics or spurs were found within 20 dB of the carrier level, and from 9kHz to carrier 10th harmonic.

See as below, for conducted spurious noise table.

The external antenna of the device is private connector, the user can not use other antenna to the device.

Channel 01	Carrier power : –4.30	
Frequency (MHz)	Spurious level (dBm)	FCC limit (dBm)
3.410	-52.65	-24.3
5.374	-57.59	-24.3
10.384	-53.43	-24.3
602.200	-50.45	-24.3
1808.130	-57.45	-24.3
2132.330	-62.11	-24.3
2441.670	-55.26	-24.3

Channel 06	Carrier power : –5.81	
Frequency (MHz)	Spurious level (dBm)	FCC limit (dBm)
2.632	-54.80	-25.81
6.298	-58.65	-25.81
7.292	-56.48	-25.81
10.305	-58.89	-25.81
22.752	-54.57	-25.81
1845.500	-62.11	-25.81
2157.50	-56.32	-25.81

Channel 11	Carrier power : –4.75	
Frequency (MHz)	Spurious level (dBm)	FCC limit (dBm)
2.685	-53.96	-24.75
3.7052	-55.31	-24.75
7.6675	-59.65	-24.75
10.655	-56.10	-24.75
652.301	-55.27	-24.75
1820.36	-56.26	-24.75
2811.89	-56.20	-24.75

Appendix D

RF Exposure Calculations

From FCC 1.1310 table 1A, the maximum permissible RF exposure for an uncontrolled environment is 1mW/cm^2. The Electric field generated for a 1mW/cm^2 exposure (S) is calculated as follows:

$S = E^2 / Z$

Where:

S = Power density

E = Electric field

Z = Impedance.

$E = \sqrt{S \times Z}$

1mW/cm^2 = 10 W/m^2

The impedance of free space is 337 ohms, where E and H fields are perpendicular.

Thus:

$E = \sqrt{10 \times 377}$ = 61.4 V/m which is equivalent to 1mW/cm^2

Using the relationship between Electric field E, Power in watts P, and distance in meters d, the corresponding

Antenna numeric gain G and the transmitter output power and solving for d,

$$d = \frac{\sqrt{P_{eak} \times 30 \times G}}{E}$$

The Numeric gain G of antenna with a gain specified in dB is determined by:

$G = \text{Log}^{-1}$ (dB gain/10)

$G = \text{Log}^{-1}$ (1.5/10) = 1.41

Notice in Installation Manual:

While installing and operating this transmitter and antenna combination the radio frequency exposure limit of 1mW/cm^2 may be exceeded at distances close to the antennas installed. Therefore, the user must maintain a minimum distance of 20 cm from the antenna at all time.

The table in follow page identifies the distances where the 1mW/cm^2 exposure limits may be exceeded during continuous transmission using the internal antenna.

Antenna Type	**Gain (dBi)**	**Gain Numeric**	**Peak Output Power (mW)**	**Calculated RF Exposure Separation Distance (cm)**	**Minimum RF Exposure Separation Distance (cm)**
Dipole	1.50	1.41	31.33	1.87	20