

FCC TEST REPORT (15.247)

REPORT NO.: RF950517L02
MODEL NO.: WLAG-1302
RECEIVED: May 19, 2006
TESTED: May 20 ~ Jun. 12, 2006
ISSUED: Jun. 15, 2006

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No. 2177-01



Table of Contents

1.	CERTIFICATION	5
2.	SUMMARY OF TEST RESULTS	6
2.1	MEASUREMENT UNCERTAINTY	6
3.	GENERAL INFORMATION	7
3.1	GENERAL DESCRIPTION OF EUT	7
3.2	DESCRIPTION OF TEST MODES.....	8
3.2.1	CONFIGURATION OF SYSTEM UNDER TEST.....	8
3.2.2	TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL	9
3.3	GENERAL DESCRIPTION OF APPLIED STANDARDS.....	11
3.4	DESCRIPTION OF SUPPORT UNITS	11
4.	TEST TYPES AND RESULTS (FOR 802.11b & g 2412~2462MHz BAND).....	12
4.1	CONDUCTED EMISSION MEASUREMENT	12
4.1.1	LIMITS OF CONDUCTED EMISSION MEASUREMENT	12
4.1.2	TEST INSTRUMENTS	12
4.1.3	TEST PROCEDURES	13
4.1.4	DEVIATION FROM TEST STANDARD	13
4.1.5	TEST SETUP	14
4.1.6	EUT OPERATING CONDITIONS	14
4.1.7	TEST RESULTS.....	15
4.2	RADIATED EMISSION MEASUREMENT	21
4.2.1	LIMITS OF RADIATED EMISSION MEASUREMENT	21
4.2.2	TEST INSTRUMENTS	22
4.2.3	TEST PROCEDURES	23
4.2.4	DEVIATION FROM TEST STANDARD	23
4.2.5	TEST SETUP	24
4.2.6	EUT OPERATING CONDITIONS	24
4.2.7	TEST RESULTS.....	25
4.3	6dB BANDWIDTH MEASUREMENT	32
4.3.1	LIMITS OF 6dB BANDWIDTH MEASUREMENT	32
4.3.2	TEST INSTRUMENTS	32
4.3.3	TEST PROCEDURE.....	33
4.3.4	DEVIATION FROM TEST STANDARD	33
4.3.5	TEST SETUP	33
4.3.6	EUT OPERATING CONDITIONS	33
4.3.7	TEST RESULTS.....	34
4.4	MAXIMUM PEAK OUTPUT POWER	40
4.4.1	LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT	40
4.4.2	INSTRUMENTS.....	40
4.4.1	TEST PROCEDURES	41
4.4.2	DEVIATION FROM TEST STANDARD	41
4.4.3	TEST SETUP	41
4.4.4	EUT OPERATING CONDITIONS	41
4.4.3	TEST RESULTS.....	42
4.5	POWER SPECTRAL DENSITY MEASUREMENT.....	43
4.5.1	LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT	43
4.5.2	TEST INSTRUMENTS	43

4.5.3	TEST PROCEDURE.....	44
4.5.4	DEVIATION FROM TEST STANDARD	44
4.5.5	TEST SETUP	44
4.5.6	EUT OPERATING CONDITION.....	44
4.5.7	TEST RESULTS.....	45
4.6	BAND EDGES MEASUREMENT	51
4.6.1	LIMITS OF BAND EDGES MEASUREMENT	51
4.6.2	TEST INSTRUMENTS	51
4.6.3	TEST PROCEDURE.....	51
4.6.4	DEVIATION FROM TEST STANDARD	51
4.6.5	EUT OPERATING CONDITION.....	51
4.6.6	TEST RESULTS.....	52
4.7	ANTENNA REQUIREMENT	60
4.7.1	STANDARD APPLICABLE.....	60
4.7.2	ANTENNA CONNECTED CONSTRUCTION.....	60
5.	TEST TYPES AND RESULTS (FOR 802.11a 5745~5825MHz Band).....	61
5.1	CONDUCTED EMISSION MEASUREMENT	61
5.1.1	LIMITS OF CONDUCTED EMISSION MEASUREMENT	61
5.1.2	TEST INSTRUMENTS	61
5.1.3	TEST PROCEDURES	62
5.1.4	DEVIATION FROM TEST STANDARD	62
5.1.5	TEST SETUP	63
5.1.6	EUT OPERATING CONDITIONS	63
5.1.7	TEST RESULTS.....	64
5.2	RADIATED EMISSION MEASUREMENT	66
5.2.1	LIMITS OF RADIATED EMISSION MEASUREMENT	66
5.2.2	TEST INSTRUMENTS	67
5.2.3	TEST PROCEDURES	68
5.2.4	DEVIATION FROM TEST STANDARD	68
5.2.5	TEST SETUP	69
5.2.6	EUT OPERATING CONDITIONS	69
5.2.7	TEST RESULTS.....	70
5.3	6dB BANDWIDTH MEASUREMENT	74
5.3.1	LIMITS OF 6dB BANDWIDTH MEASUREMENT	74
5.3.2	TEST INSTRUMENTS	74
5.3.3	TEST PROCEDURE.....	75
5.3.4	DEVIATION FROM TEST STANDARD	75
5.3.5	TEST SETUP	75
5.3.6	EUT OPERATING CONDITIONS	75
5.3.7	TEST RESULTS.....	76
5.4	MAXIMUM PEAK OUTPUT POWER	79
5.4.1	LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT	79
5.4.2	INSTRUMENTS.....	79
5.4.3	TEST PROCEDURES	80
5.4.4	DEVIATION FROM TEST STANDARD	80
5.4.5	TEST SETUP	80
5.4.6	EUT OPERATING CONDITIONS	80
5.4.7	TEST RESULTS.....	81
5.5	POWER SPECTRAL DENSITY MEASUREMENT.....	82
5.5.1	LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT	82

5.5.2	TEST INSTRUMENTS	82
5.5.3	TEST PROCEDURE.....	83
5.5.4	DEVIATION FROM TEST STANDARD	83
5.5.5	TEST SETUP	83
5.5.6	EUT OPERATING CONDITION.....	83
5.5.7	TEST RESULTS.....	84
5.6	BAND EDGES MEASUREMENT	87
5.6.1	LIMITS OF BAND EDGES MEASUREMENT	87
5.6.2	TEST INSTRUMENTS	87
5.6.3	TEST PROCEDURE.....	87
5.6.4	DEVIATION FROM TEST STANDARD	87
5.6.5	EUT OPERATING CONDITION.....	88
5.6.6	TEST RESULTS.....	88
5.7	ANTENNA REQUIREMENT	92
5.7.1	STANDARD APPLICABLE.....	92
5.7.2	ANTENNA CONNECTED CONSTRUCTION.....	92
6.	INFORMATION ON THE TESTING LABORATORIES.....	93
APPENDIX-A.....		A-1



1. CERTIFICATION

PRODUCT: 802.11a/b/g mini PCI Adapter

MODEL: WLAG-1302

BRAND: Cameo

APPLICANT: CAMEO COMMUNICATIONS, INC.

TEST SAMPLE: ENGINEERING SAMPLE

TESTED: May 20 ~ Jun. 12, 2006

STANDARDS: FCC Part 15, Subpart C (Section 15.247),
ANSI C63.4-2003

The above equipment has been tested by **Advance Data Technology Corporation**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : Andrea Hsia , **DATE:** Jun. 15, 2006
Andrea Hsia

TECHNICAL
ACCEPTANCE : Long Chen , **DATE:** Jun. 15, 2006
Responsible for RF Long Chen

APPROVED BY : Gary Chang , **DATE:** Feb. 31, 2006
Gary Chang / Supervisor

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 15, Subpart C (Section 15.247)			
Standard Section	Test Type and Limit	Result	Remark
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -19.03dB at 0.208MHz
15.247(a)(2)	Spectrum Bandwidth of a Direct Sequence Spread Spectrum System Limit: min. 500kHz	PASS	Meet the requirement of limit.
15.247(b)	Maximum Peak Output Power Limit: max. 30dBm	PASS	Meet the requirement of limit.
15.247(d)	Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit. Minimum passing margin is -1.02dB at 11650.00MHz
15.247(e)	Power Spectral Density Limit: max. 8dBm	PASS	Meet the requirement of limit.
15.247(d)	Band Edge Measurement Limit: 20dB less than the peak value of fundamental frequency	PASS	Meet the requirement of limit.

2.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4:

Measurement	Frequency	Uncertainty
Conducted emissions	9kHz~30MHz	2.44 dB
Radiated emissions	30MHz ~ 200MHz	3.55 dB
	200MHz ~1000MHz	3.58 dB
	1GHz ~ 18GHz	1.10 dB
	18GHz ~ 40GHz	0.91 dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

EUT	802.11a/b/g mini PCI Adapter
MODEL NO.	WLAG-1302
FCC ID	NHPWLAG1302
POWER SUPPLY	3.3Vdc from host equipment
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b: 11/5.5/2/1Mbps 802.11g: 54/48/36/24/18/12/9/6Mbps 802.11a: 54/48/36/24/18/12/9/6Mbps
FREQUENCY RANGE	802.11b & 802.11g: 2.412 ~ 2.462GHz 802.11a: 5.180 ~ 5.320GHz, 5.745 ~ 5.825GHz
NUMBER OF CHANNEL	802.11b & 802.11g: 11 802.11a: 13
CHANNEL SPACING	802.11b & 802.11g: 5MHz 802.11a: 20MHz
OUTPUT POWER	44.668mW for 802.11b 39.902mW for 802.11g 40.272mW for 5.180 ~ 5.320GHz 31.915mW for 5.745 ~ 5.825GHz
ANTENNA TYPE	PIFA antenna with 1.96dBi gain (for 2.4GHz) PIFA antenna with 1.12dBi gain (for 5.0GHz)
DATA CABLE	NA
I/O PORTS	Refer to user's manual
ASSOCIATED DEVICES	NA

NOTE:

1. The EUT operates in both the 5GHz and 2.4GHz Bands and compatibility with 802.11a and 802.11b, 802.11g technology.
2. The above EUT information was declared by the manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 DESCRIPTION OF TEST MODES

Operated in 2400 ~ 2483.5MHz band:

11 channels are provided to the EUT:

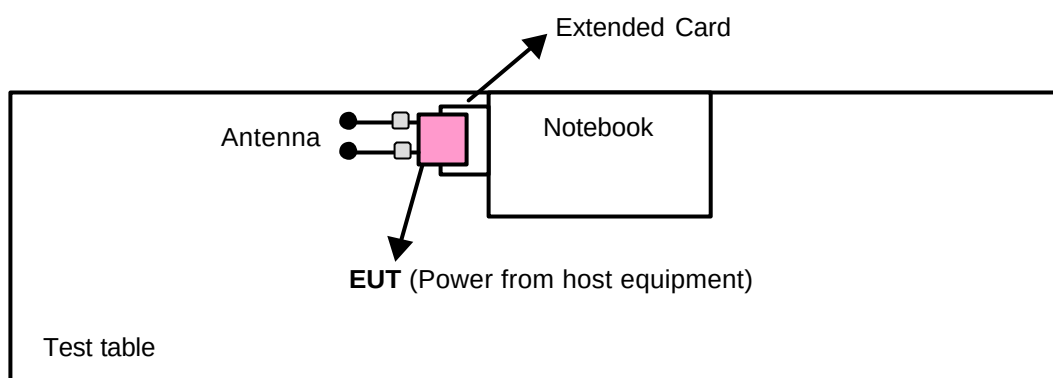
CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2412 MHz	7	2442 MHz
2	2417 MHz	8	2447 MHz
3	2422 MHz	9	2452 MHz
4	2427 MHz	10	2457 MHz
5	2432 MHz	11	2462 MHz
6	2437 MHz		

Operated in 5745 ~ 5825MHz band:

5 channels are provided to this EUT:

CHANNEL	FREQUENCY
1	5745 MHz
2	5765 MHz
3	5785 MHz
4	5805 MHz
5	5825 MHz

3.2.1 CONFIGURATION OF SYSTEM UNDER TEST



3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	PLC	RE<1G	RE ³ 1G	APCM	
-	V	V	V	V	-

Where **PLC**: Power Line Conducted Emission

RE<1G: Radiated Emission below 1GHz

RE³ 1G: Radiated Emission above 1GHz

APCM: Antenna Port Conducted Measurement

NOTE: “-” means no effect.

Power Line Conducted Emission Test:

☒? Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
802.11a	1 to 5	5	OFDM	BPSK	6

Radiated Emission Test (Below 1 GHz):

☒? Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11g	1 to 11	11	OFDM	BPSK	1
802.11a	1 to 5	5	OFDM	BPSK	6

Radiated Emission Test (Above 1 GHz):

- ☒? Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
802.11a	1 to 5	1, 3, 5	OFDM	BPSK	6

Bandedge Measurement:

- ☒? Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 11	OFDM	BPSK	6
802.11a	1 to 5	1, 5	OFDM	BPSK	6

Antenna Port Conducted Measurement:

- ☒? Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
802.11a	1 to 5	1, 3, 5	OFDM	BPSK	6

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart C. (15.247)

ANSI C63.4-2003

All test items have been performed and recorded as per the above standards.

NOTE: The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

3.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK	HP	CLV4001AP	2CE525057W	NA

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA

NOTE: All power cords of the above support units are non shielded (1.8m).

4. TEST TYPES AND RESULTS (FOR 802.11b & g 2412~2462MHz BAND)

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

- NOTE:**
1. The lower limit shall apply at the transition frequencies.
 2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.
 3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
Test Receiver ROHDE & SCHWARZ	ESCS30	100291	Nov. 11, 2006
RF signal cable Woken	5D-FB	Cable-HYC01-01	Jan. 06, 2007
LISN ROHDE & SCHWARZ	ESH3-Z5	100312	Feb. 15, 2007
LISN ROHDE & SCHWARZ	ESH2-Z5	100104	Feb. 07, 2007
Software ADT	ADT_Cond_V3	NA	NA

- NOTE:**
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in HwaYa Shielded Room 1.
 3. The VCCI Site Registration No. is C-2040.

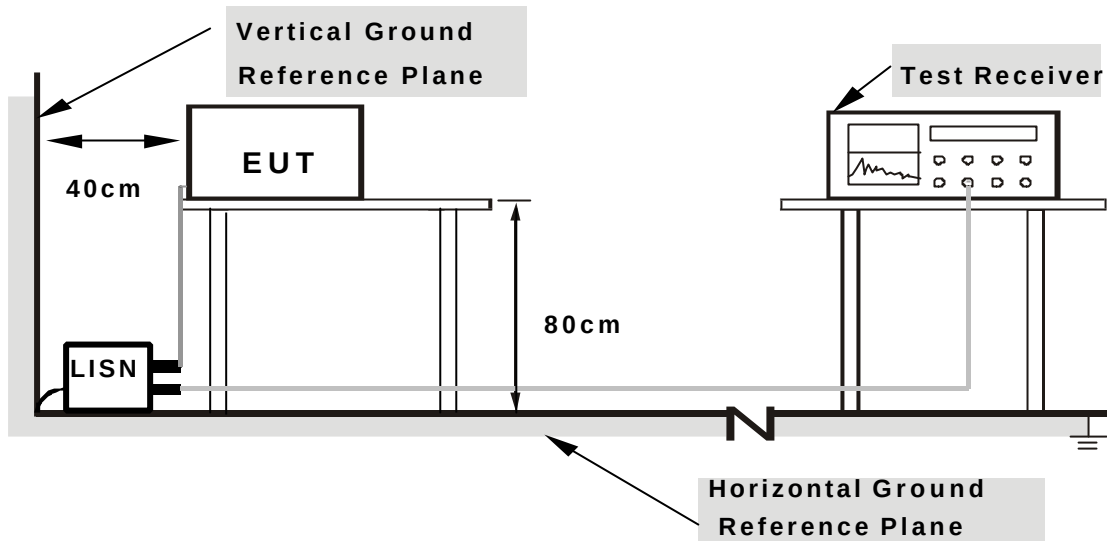
4.1.3 TEST PROCEDURES

- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



- Note:**
1. Support units were connected to second LISN.
 2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

4.1.6 EUT OPERATING CONDITIONS

- a. Plugged the EUT to the notebook system via the extension card.
- b. The notebook system ran a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
- c. The notebook system sent "H" messages to its screen.

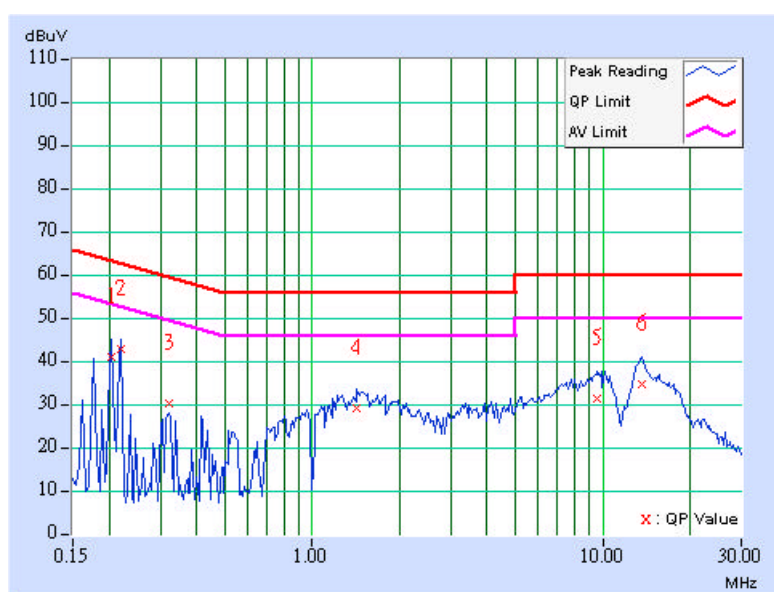
4.1.7 TEST RESULTS

Conducted Worst-Case Data

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	PHASE	Line 1
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Match Tsui

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.205	0.10	40.58	-	40.68	-	63.42	53.42	-22.74	-
2	0.220	0.10	42.48	-	42.58	-	62.81	52.81	-20.23	-
3	0.322	0.10	29.87	-	29.97	-	59.66	49.66	-29.69	-
4	1.426	0.20	28.53	-	28.73	-	56.00	46.00	-27.27	-
5	9.609	0.46	30.85	-	31.31	-	60.00	50.00	-28.69	-
6	13.715	0.59	34.12	-	34.71	-	60.00	50.00	-25.29	-

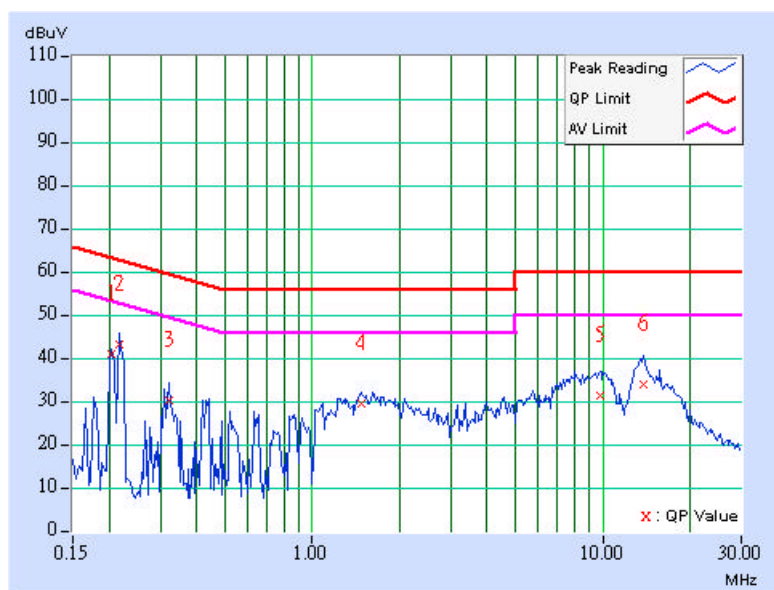
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	PHASE	Line 2
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Match Tsui

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.205	0.10	40.44	-	40.54	-	63.42	53.42	-22.88	-
2	0.216	0.10	42.88	-	42.98	-	62.96	52.96	-19.98	-
3	0.322	0.10	29.98	-	30.08	-	59.66	49.66	-29.58	-
4	1.469	0.15	29.11	-	29.26	-	56.00	46.00	-26.74	-
5	9.785	0.46	31.13	-	31.59	-	60.00	50.00	-28.41	-
6	13.801	0.51	33.58	-	34.09	-	60.00	50.00	-25.91	-

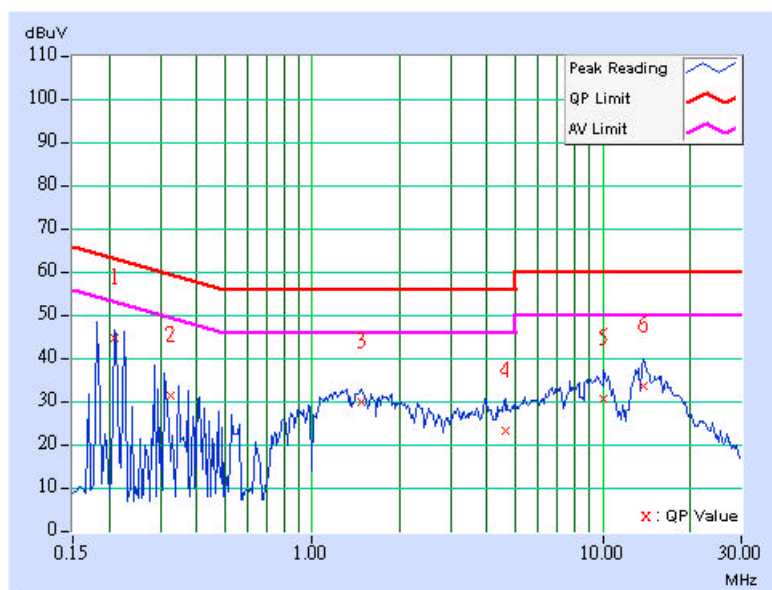
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	PHASE	Line 1
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Match Tsui

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.208	0.10	44.16	-	44.26	-	63.29	53.29	-19.03	-
2	0.325	0.10	30.78	-	30.88	-	59.58	49.58	-28.70	-
3	1.480	0.20	29.55	-	29.75	-	56.00	46.00	-26.25	-
4	4.656	0.47	22.77	-	23.24	-	56.00	46.00	-32.76	-
5	10.117	0.46	30.30	-	30.76	-	60.00	50.00	-29.24	-
6	13.848	0.59	32.95	-	33.54	-	60.00	50.00	-26.46	-

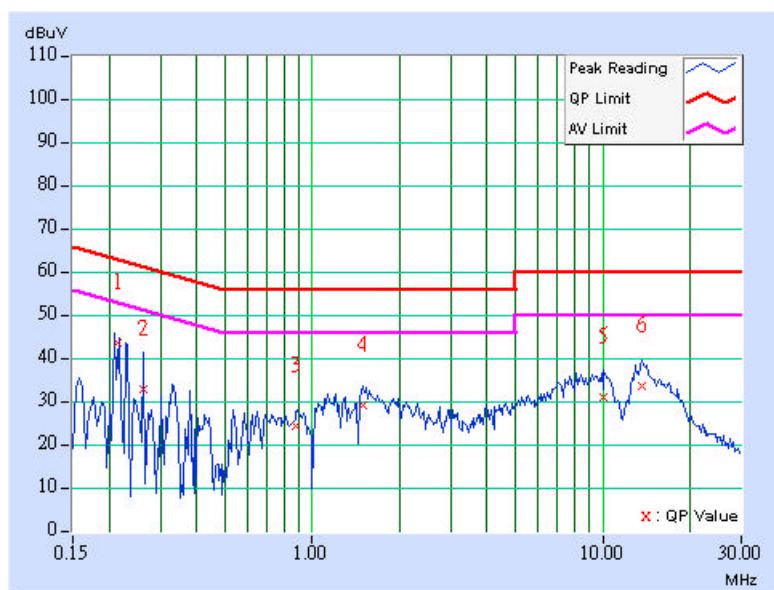
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	PHASE	Line 2
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Match Tsui

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.214	0.10	43.33	-	43.43	-	63.06	53.06	-19.63	-
2	0.263	0.10	32.47	-	32.57	-	61.33	51.33	-28.76	-
3	0.880	0.10	23.78	-	23.88	-	56.00	46.00	-32.12	-
4	1.492	0.15	28.64	-	28.79	-	56.00	46.00	-27.21	-
5	10.012	0.46	30.74	-	31.20	-	60.00	50.00	-28.80	-
6	13.570	0.51	33.12	-	33.63	-	60.00	50.00	-26.37	-

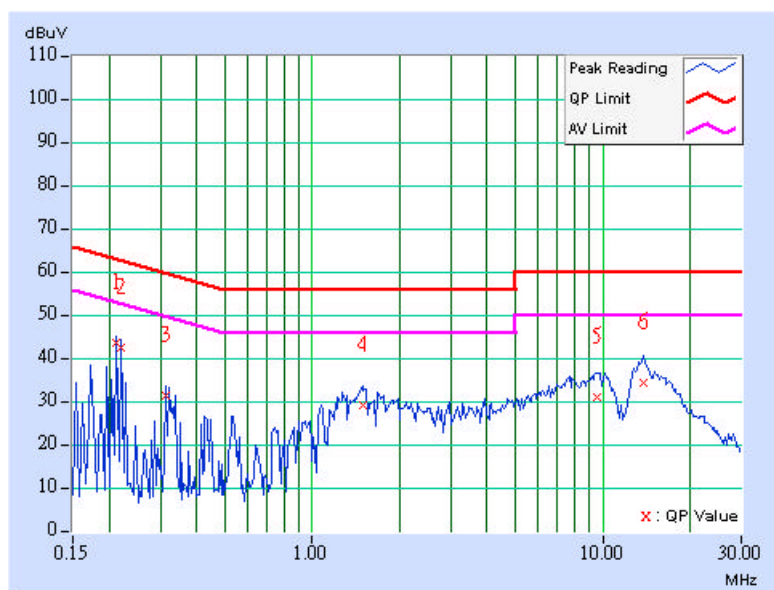
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	PHASE	Line 1
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Match Tsui

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.213	0.10	43.04	-	43.14	-	63.11	53.11	-19.97	-
2	0.220	0.10	41.87	-	41.97	-	62.81	52.81	-20.84	-
3	0.314	0.10	30.99	-	31.09	-	59.86	49.86	-28.77	-
4	1.492	0.20	28.84	-	29.04	-	56.00	46.00	-26.96	-
5	9.527	0.46	30.58	-	31.04	-	60.00	50.00	-28.96	-
6	13.742	0.59	33.98	-	34.57	-	60.00	50.00	-25.43	-

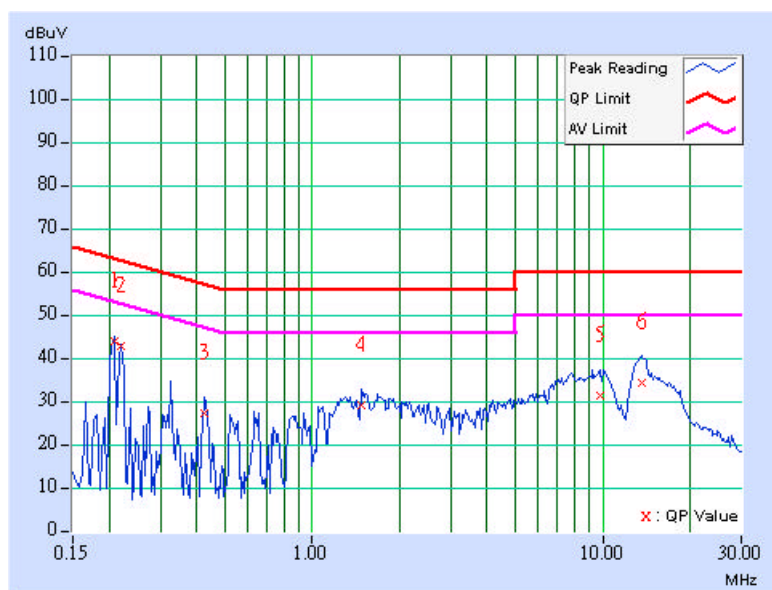
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	PHASE	Line 2
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Match Tsui

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.209	0.10	43.65	-	43.75	-	63.26	53.26	-19.51	-
2	0.220	0.10	42.48	-	42.58	-	62.81	52.81	-20.23	-
3	0.423	0.10	27.07	-	27.17	-	57.38	47.38	-30.21	-
4	1.473	0.15	28.84	-	28.99	-	56.00	46.00	-27.01	-
5	9.805	0.46	31.13	-	31.59	-	60.00	50.00	-28.41	-
6	13.715	0.51	33.90	-	34.41	-	60.00	50.00	-25.59	-

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

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

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
Test Receiver ROHDE & SCHWARZ	ESIB7	100188	Dec. 20, 2006
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Nov. 27, 2006
BILOG Antenna SCHWARZBECK	VULB9168	9168-157	Jan. 15, 2007
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-407	Jan. 22, 2007
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170147	Jan. 26, 2007
Preamplifier Agilent	8449B	3008A01961	Oct. 23, 2006
Preamplifier Agilent	8447D	2944A10629	Oct. 27, 2006
RF signal cable HUBER+SUHNER	SUCOFLEX 104	214380/4	Jan. 16, 2007
RF signal cable HUBER+SUHNER	SUCOFLEX 104	219266/4	Jan. 16, 2007
Software ADT.	ADT_Radiated_V5.14	NA	NA
Antenna Tower ADT.	AT100	AT93021702	NA
Turn Table ADT.	TT100.	TT93021702	NA
Controller ADT.	SC100.	SC93021702	NA

- NOTE:**
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in HwaYa Chamber 1.
 3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
 4. The IC Site Registration No. is IC4924-2.

4.2.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

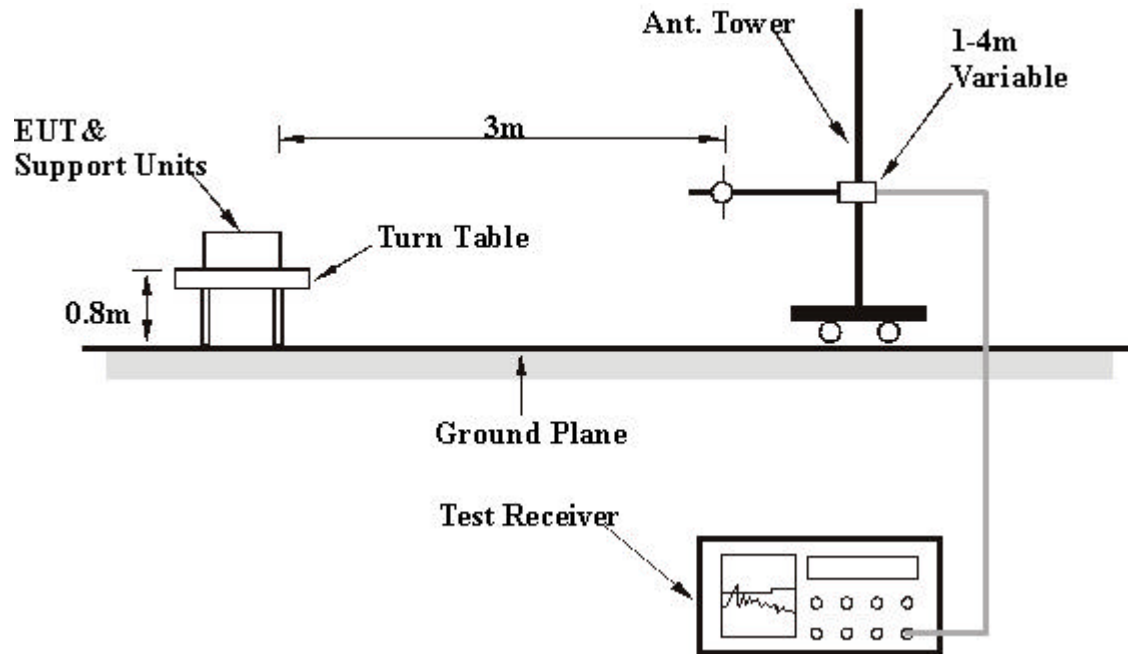
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth are 10Hz for Average detection (AV) at frequency above 1GHz.

4.2.4 DEVIATION FROM TEST STANDARD

No deviation

4.2.5 TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6

4.2.7 TEST RESULTS

Below 1GHz Worst-Case Data

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	Below 1000MHz
MODULATION TYPE	DBPSK	DETECTOR FUNCTION	Quasi-Peak
TRANSFER RATE	1Mbps	ENVIRONMENTAL CONDITIONS	26deg. C, 70%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Lori Chiu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	98.04	36.49 QP	43.50	-7.01	2.00 H	160	27.46	9.02
2	133.03	42.13 QP	43.50	-1.37	1.50 H	190	29.60	12.53
3	166.07	41.27 QP	43.50	-2.23	1.50 H	190	28.24	13.03
4	199.12	41.12 QP	43.50	-2.38	1.50 H	190	30.23	10.89
5	232.16	38.19 QP	46.00	-7.81	1.50 H	190	26.31	11.88
6	265.21	36.47 QP	46.00	-9.53	1.50 H	190	23.13	13.34
7	333.25	34.59 QP	46.00	-11.41	1.50 H	223	18.53	16.06
8	496.53	38.37 QP	46.00	-7.63	1.50 H	190	18.38	19.99
9	830.88	38.16 QP	46.00	-7.84	2.00 H	289	11.74	26.42
10	867.82	36.74 QP	46.00	-9.26	2.00 H	7	9.92	26.82
11	949.46	43.18 QP	46.00	-2.82	1.50 H	43	13.79	29.39

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	133.03	34.91 QP	43.50	-8.59	1.00 V	163	22.38	12.53
2	166.07	33.47 QP	43.50	-10.03	1.00 V	163	20.44	13.03
3	199.12	38.28 QP	43.50	-5.22	1.00 V	163	27.39	10.89
4	280.76	36.34 QP	46.00	-9.66	1.00 V	181	21.65	14.69
5	298.26	36.43 QP	46.00	-9.57	1.00 V	163	20.90	15.53
6	333.25	35.53 QP	46.00	-10.47	1.00 V	130	19.48	16.06
7	566.51	36.33 QP	46.00	-9.67	1.00 V	109	14.73	21.60
8	836.71	36.11 QP	46.00	-9.89	1.00 V	331	9.62	26.50
9	871.70	35.36 QP	46.00	-10.64	1.00 V	262	8.51	26.85
10	879.48	44.26 QP	46.00	-1.74	1.00 V	175	17.35	26.91
11	949.46	42.16 QP	46.00	-3.84	1.50 V	28	12.77	29.39

REMARKS:

1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.

802.11b DSSS modulation

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	DBPSK	DETECTOR FUNCTION	Peak(PK) Average (AV)
TRANSFER RATE	1Mbps	ENVIRONMENTAL CONDITIONS	26deg. C, 64%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Lori Chiu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2386.00	60.21 PK	74.00	-13.79	1.53 H	329	28.84	31.37
1	2386.00	52.52 AV	54.00	-1.48	1.53 H	329	21.15	31.37
2	*2412.00	107.36 PK			1.54 H	330	75.90	31.46
2	*2412.00	104.12 AV			1.54 H	330	72.66	31.46
3	3216.00	49.79 PK	74.00	-24.21	1.03 H	321	16.68	33.11
3	3216.00	45.30 AV	54.00	-8.70	1.03 H	321	12.19	33.11
4	4824.00	51.71 PK	74.00	-22.29	1.08 H	354	14.58	37.13
4	4824.00	46.45 AV	54.00	-7.55	1.08 H	354	9.32	37.13
5	9648.00	58.94 PK	87.36	-28.42	1.42 H	209	11.37	47.57
5	9648.00	50.96 AV	84.12	-33.16	1.42 H	209	3.39	47.57

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2386.00	58.49 PK	74.00	-15.51	1.83 V	48	27.12	31.37
1	2386.00	47.36 AV	54.00	-6.64	1.83 V	48	15.99	31.37
2	*2412.00	101.47 PK			1.82 V	50	70.01	31.46
2	*2412.00	97.94 AV			1.82 V	50	66.48	31.46
3	3216.00	49.89 PK	74.00	-24.11	1.05 V	322	16.78	33.11
3	3216.00	45.38 AV	54.00	-8.62	1.05 V	322	12.27	33.11
4	4824.00	56.09 PK	74.00	-17.91	1.18 V	253	18.96	37.13
4	4824.00	51.86 AV	54.00	-2.14	1.18 V	253	14.73	37.13
5	9648.00	61.24 PK	81.47	-20.23	1.34 V	257	13.67	47.57
5	9648.00	56.29 AV	77.94	-21.65	1.34 V	257	8.72	47.57

REMARKS:

1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * " : Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	DBPSK	DETECTOR FUNCTION	Peak(PK) Average (AV)
TRANSFER RATE	1Mbps	ENVIRONMENTAL CONDITIONS	26deg. C, 64%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Lori Chiu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	109.65 PK			1.00 H	333	78.11	31.54
1	*2437.00	106.26 AV			1.00 H	333	74.72	31.54
2	2483.50	60.01 PK	74.00	-13.99	1.21 H	336	28.31	31.70
2	2483.50	51.08 AV	54.00	-2.92	1.21 H	336	19.38	31.70
3	3248.00	50.10 PK	74.00	-23.90	1.08 H	343	16.91	33.19
3	3248.00	46.27 AV	54.00	-7.73	1.08 H	343	13.08	33.19
4	4874.00	52.59 PK	74.00	-21.41	1.07 H	216	15.30	37.29
4	4874.00	48.25 AV	54.00	-5.75	1.07 H	216	10.96	37.29
5	9748.00	59.97 PK	89.65	-29.68	1.07 H	221	12.15	47.82
5	9748.00	51.65 AV	86.26	-34.61	1.07 H	221	3.83	47.82

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	102.12 PK			1.00 V	76	70.58	31.54
1	*2437.00	99.34 AV			1.00 V	76	67.80	31.54
2	2483.50	57.11 PK	74.00	-16.89	1.00 V	79	25.41	31.70
2	2483.50	48.20 AV	54.00	-5.80	1.00 V	79	16.50	31.70
3	3248.00	50.20 PK	74.00	-23.80	1.10 V	335	17.01	33.19
3	3248.00	46.36 AV	54.00	-7.64	1.10 V	335	13.17	33.19
4	4874.00	53.61 PK	74.00	-20.39	1.08 V	220	16.32	37.29
4	4874.00	49.36 AV	54.00	-4.64	1.08 V	220	12.07	37.29
5	9748.00	61.21 PK	82.12	-20.91	1.46 V	264	13.39	47.82
5	9748.00	56.49 AV	79.34	-22.85	1.46 V	264	8.67	47.82

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. " * " : Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	DBPSK	DETECTOR FUNCTION	Peak(PK) Average (AV)
TRANSFER RATE	1Mbps	ENVIRONMENTAL CONDITIONS	26deg. C, 64%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Lori Chiu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2462.00	108.49 PK			1.41 H	308	76.87	31.62
1	2462.00	104.69 AV			1.41 H	308	73.07	31.62
2	2487.00	59.87 PK	74.00	-14.13	1.19 H	309	28.16	31.71
2	2487.00	52.73 AV	54.00	-1.27	1.19 H	309	21.02	31.71
3	3282.00	49.81 PK	74.00	-24.19	1.06 H	333	16.54	33.27
3	3282.00	45.33 AV	54.00	-8.67	1.06 H	333	12.06	33.27
4	4924.00	50.47 PK	74.00	-23.53	1.22 H	216	13.03	37.44
4	4924.00	45.19 AV	54.00	-8.81	1.22 H	216	7.75	37.44
5	9848.00	59.84 PK	88.49	-28.65	1.22 H	210	11.78	48.06
5	9848.00	51.57 AV	84.69	-33.12	1.22 H	210	3.51	48.06

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2462.00	101.72 PK			1.00 V	71	70.10	31.62
1	2462.00	98.14 AV			1.00 V	71	66.52	31.62
2	2487.00	57.65 PK	74.00	-16.35	1.00 V	73	25.94	31.71
2	2487.00	50.11 AV	54.00	-3.89	1.00 V	73	18.40	31.71
3	3282.00	49.90 PK	74.00	-24.10	1.06 V	324	16.63	33.27
3	3282.00	45.37 AV	54.00	-8.63	1.06 V	324	12.10	33.27
4	4924.00	56.11 PK	74.00	-17.89	1.47 V	255	18.67	37.44
4	4924.00	51.90 AV	54.00	-2.10	1.47 V	255	14.46	37.44
5	9848.00	61.01 PK	81.72	-20.71	1.47 V	266	12.95	48.06
5	9848.00	56.30 AV	78.14	-21.84	1.47 V	266	8.24	48.06

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. " * " : Fundamental frequency.

802.11g OFDM modulation

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	BPSK	DETECTOR FUNCTION	Peak(PK) Average (AV)
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	26deg. C, 64%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Lori Chiu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	71.56 PK	74.00	-2.44	1.50 H	331	40.17	31.39
1	2390.00	52.22 AV	54.00	-1.78	1.50 H	331	20.83	31.39
2	*2412.00	108.42 PK			1.48 H	328	76.96	31.46
2	*2412.00	99.20 AV			1.48 H	328	67.74	31.46
3	3216.00	49.97 PK	74.00	-24.03	1.41 H	357	16.86	33.11
3	3216.00	45.11 AV	54.00	-8.89	1.41 H	357	12.00	33.11
4	4824.00	48.69 PK	74.00	-25.31	1.40 H	14	11.56	37.13
4	4824.00	35.53 AV	54.00	-18.47	1.40 H	14	-1.60	37.13

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	60.88 PK	74.00	-13.12	1.21 V	74	29.49	31.39
1	2390.00	47.77 AV	54.00	-6.23	1.21 V	74	16.38	31.39
2	*2412.00	103.20 PK			1.17 V	74	71.74	31.46
2	*2412.00	92.85 AV			1.17 V	74	61.39	31.46
3	3216.00	49.38 PK	74.00	-24.62	1.19 V	267	16.27	33.11
3	3216.00	45.18 AV	54.00	-8.82	1.19 V	267	12.07	33.11
4	4824.00	49.52 PK	74.00	-24.48	1.41 V	16	12.39	37.13
4	4824.00	36.71 AV	54.00	-17.29	1.41 V	16	-0.42	37.13

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * ” : Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	BPSK	DETECTOR FUNCTION	Peak(PK) Average (AV)
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	26deg. C, 64%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Lori Chiu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	58.08 PK	74.00	-15.92	1.28 H	346	26.69	31.39
1	2390.00	45.60 AV	54.00	-8.40	1.28 H	346	14.21	31.39
2	*2437.00	110.17 PK			1.50 H	342	78.63	31.54
2	*2437.00	100.65 AV			1.50 H	342	69.11	31.54
3	2483.50	60.64 PK	74.00	-13.36	1.46 H	341	28.94	31.70
3	2483.50	48.71 AV	54.00	-5.29	1.46 H	341	17.01	31.70
4	3248.00	50.24 PK	74.00	-23.76	1.46 H	355	17.05	33.19
4	3248.00	46.18 AV	54.00	-7.82	1.46 H	355	12.99	33.19
5	4824.00	49.58 PK	74.00	-24.42	1.39 H	26	12.45	37.13
5	4824.00	36.36 AV	54.00	-17.64	1.39 H	26	-0.77	37.13

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	105.24 PK			1.10 V	79	73.70	31.54
1	*2437.00	96.75 AV			1.10 V	79	65.21	31.54
2	2483.50	58.24 PK	74.00	-15.76	1.10 V	80	26.54	31.70
2	2483.50	45.81 AV	54.00	-8.19	1.10 V	80	14.11	31.70
3	3248.00	50.19 PK	74.00	-23.81	1.42 V	52	17.00	33.19
3	3248.00	46.39 AV	54.00	-7.61	1.42 V	52	13.20	33.19
4	4824.00	50.42 PK	74.00	-23.58	1.50 V	248	13.29	37.13
4	4824.00	37.65 AV	54.00	-16.35	1.50 V	248	0.52	37.13

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * ” : Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	BPSK	DETECTOR FUNCTION	Peak(PK) Average (AV)
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	26deg. C, 64%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Lori Chiu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	108.22 PK			1.01 H	346	76.60	31.62
1	*2462.00	98.42 AV			1.01 H	346	66.80	31.62
2	2483.50	67.78 PK	74.00	-6.22	1.24 H	347	36.08	31.70
2	2483.50	52.84 AV	54.00	-1.16	1.24 H	347	21.14	31.70
3	3282.00	49.88 PK	74.00	-24.12	1.02 H	352	16.61	33.27
3	3282.00	45.16 AV	54.00	-8.84	1.02 H	352	11.89	33.27
4	4924.00	48.80 PK	74.00	-25.20	1.37 H	164	11.36	37.44
4	4924.00	35.59 AV	54.00	-18.41	1.37 H	164	-1.85	37.44

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	102.31 PK			1.16 V	57	70.69	31.62
1	*2462.00	91.90 AV			1.16 V	57	60.28	31.62
2	2483.50	61.14 PK	74.00	-12.86	1.16 V	60	29.44	31.70
2	2483.50	47.97 AV	54.00	-6.03	1.16 V	60	16.27	31.70
3	3282.00	49.34 PK	74.00	-24.66	1.18 V	275	16.07	33.27
3	3282.00	45.21 AV	54.00	-8.79	1.18 V	275	11.94	33.27
4	4924.00	49.49 PK	74.00	-24.51	1.40 V	25	12.05	37.44
4	4924.00	36.68 AV	54.00	-17.32	1.40 V	25	-0.76	37.44

REMARKS:

1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * ” : Fundamental frequency.

4.3 6dB BANDWIDTH MEASUREMENT

4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
SPECTRUM ANALYZER	FSEK 30	100049	Aug. 14, 2006

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

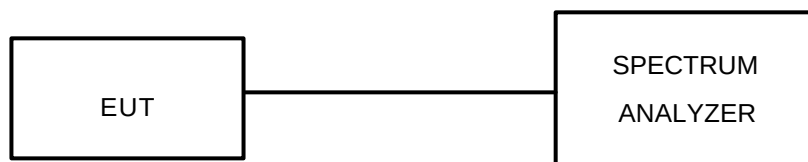
4.3.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100kHz RBW and 100kHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation

4.3.5 TEST SETUP



4.3.6 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

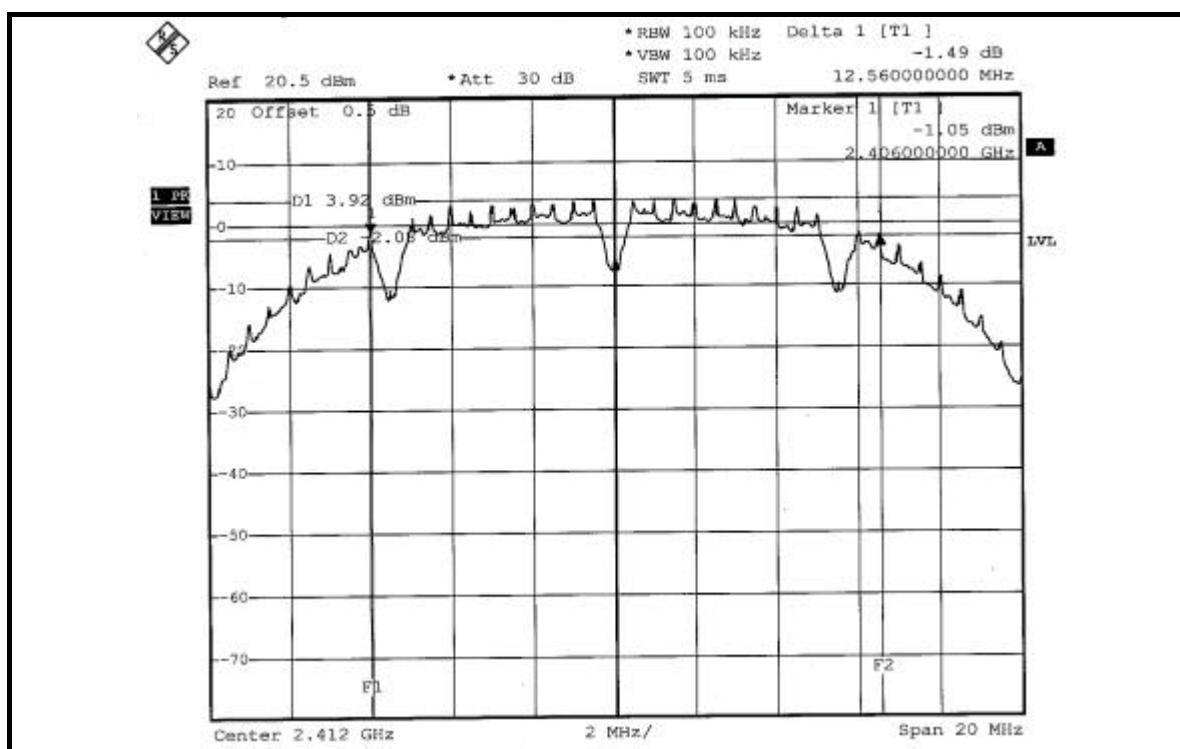
4.3.7 TEST RESULTS

802.11b DSSS Modulation

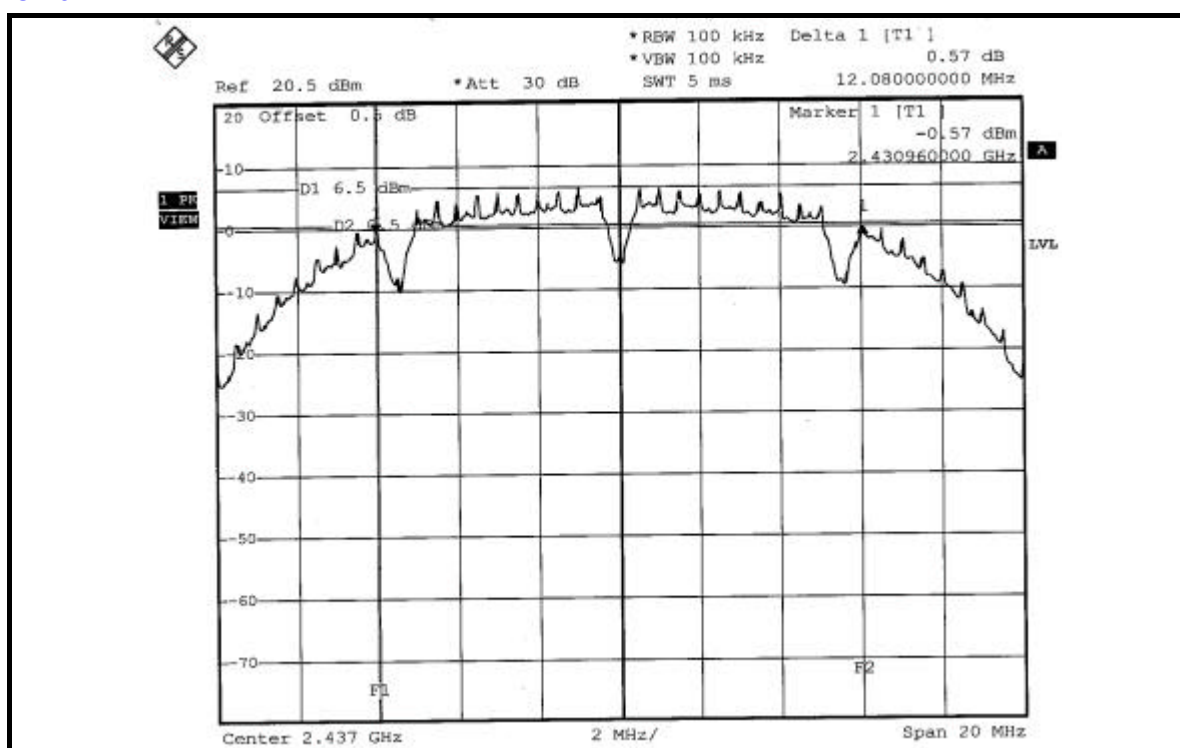
MODULATION TYPE	DBPSK	TRANSFER RATE	1Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 70%RH, 991hPa
TESTED BY	Lori Chiu		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	12.56	0.5	PASS
6	2437	12.08	0.5	PASS
11	2462	12.04	0.5	PASS

CH 1



CH 6

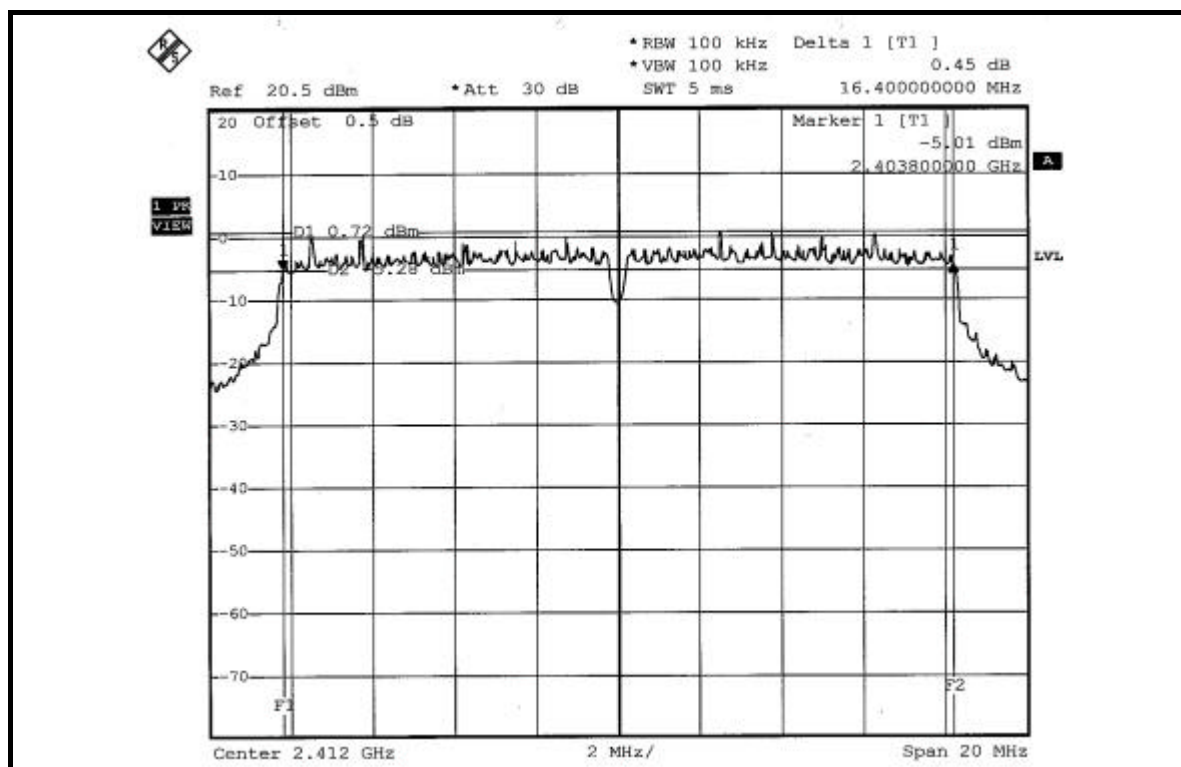


802.11g OFDM Modulation

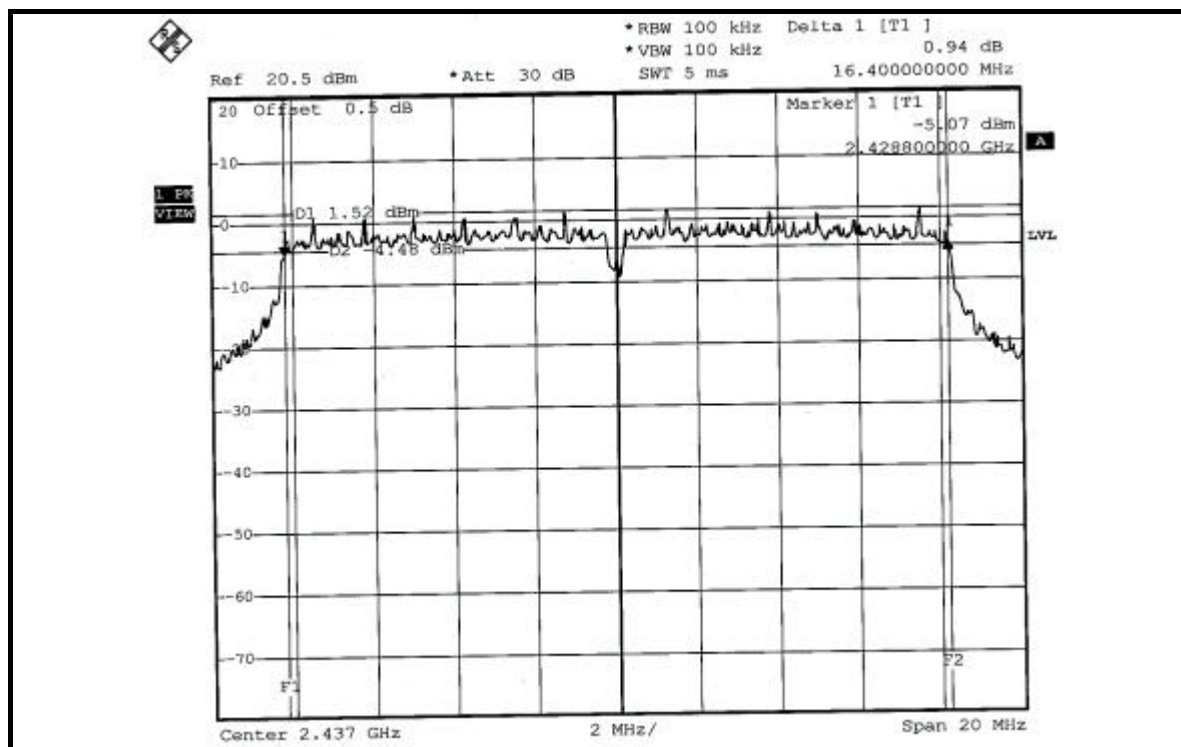
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 70%RH, 991hPa
TESTED BY	Lori Chiu		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	16.40	0.5	PASS
6	2437	16.40	0.5	PASS
11	2462	16.44	0.5	PASS

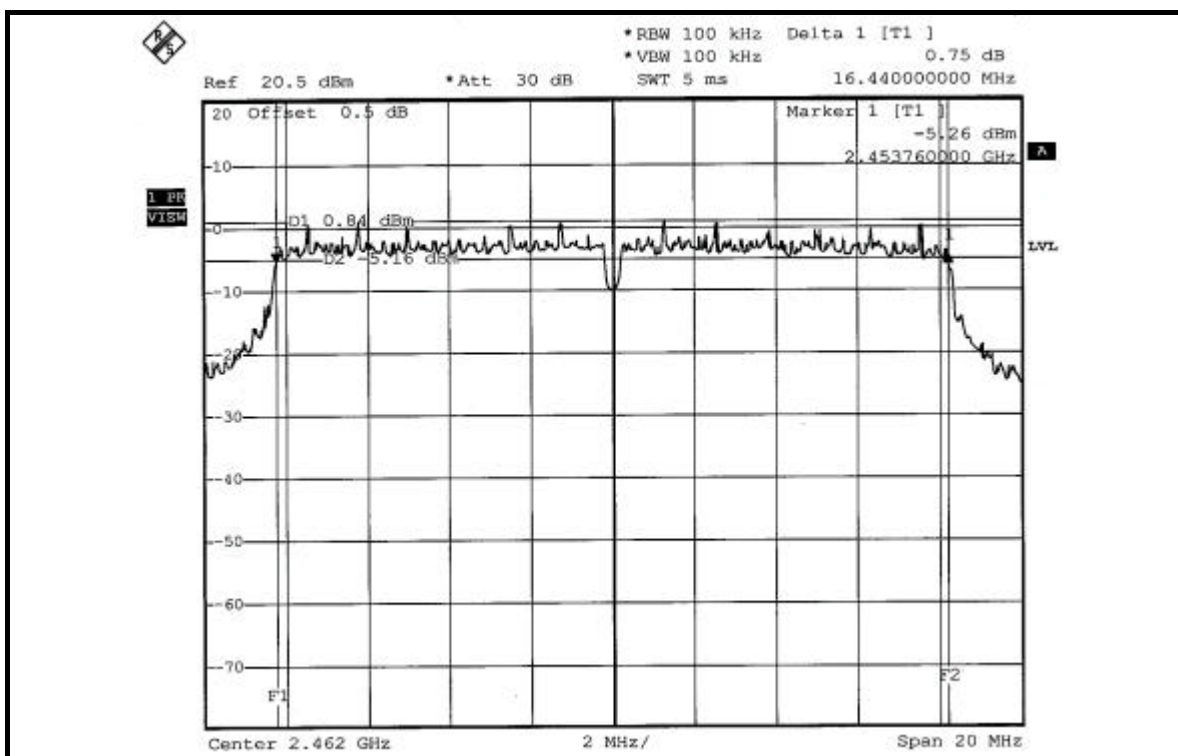
CH 1



CH 6



CH 11



4.4 MAXIMUM PEAK OUTPUT POWER

4.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

4.4.2 INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSEK30	100049	Aug. 14, 2006
AGILENT SIGNAL GENERATOR	E8257C	MY43320668	Dec. 30, 2006
TEKTRONIX OSCILLOSCOPE	TDS 1012	C019167	Jan. 16, 2007
NARDA DETECTOR	4503A	FSCM99899	NA

NOTE:

The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.4.1 TEST PROCEDURES

1. A detector was used on the output port of the EUT. An oscilloscope was used to read the response of the detector.
2. Replaced the EUT by the signal generator. The center frequency of the S.G was adjusted to the center frequency of the measured channel.
3. Adjusted the power to have the same reading on oscilloscope. Record the power level.

4.4.2 DEVIATION FROM TEST STANDARD

No deviation

4.4.3 TEST SETUP



4.4.4 EUT OPERATING CONDITIONS

Same as Item 4.3.6

4.4.3 TEST RESULTS

802.11b DSSS Modulation

MODULATION TYPE	DBPSK	TRANSFER RATE	1Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 70%RH, 991hPa
TESTED BY	Lori Chiu		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	31.696	15.01	30	PASS
6	2437	44.668	16.50	30	PASS
11	2462	39.902	16.01	30	PASS

802.11g OFDM Modulation

MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 70%RH, 991hPa
TESTED BY	Lori Chiu		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	31.769	15.02	30	PASS
6	2437	39.902	16.01	30	PASS
11	2462	31.769	15.02	30	PASS

4.5 POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

4.5.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSEK30	100049	Aug. 14, 2006

NOTE:

The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

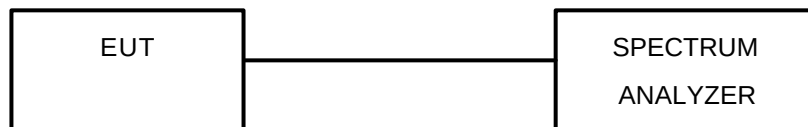
4.5.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3kHz RBW and 30kHz VBW, set sweep time = span/3kHz. The power spectral density was measured and recorded. The sweep time is allowed to be longer than span/3kHz for a full response of the mixer in the spectrum analyzer.

4.5.4 DEVIATION FROM TEST STANDARD

No deviation

4.5.5 TEST SETUP



4.5.6 EUT OPERATING CONDITION

Same as Item 4.3.6

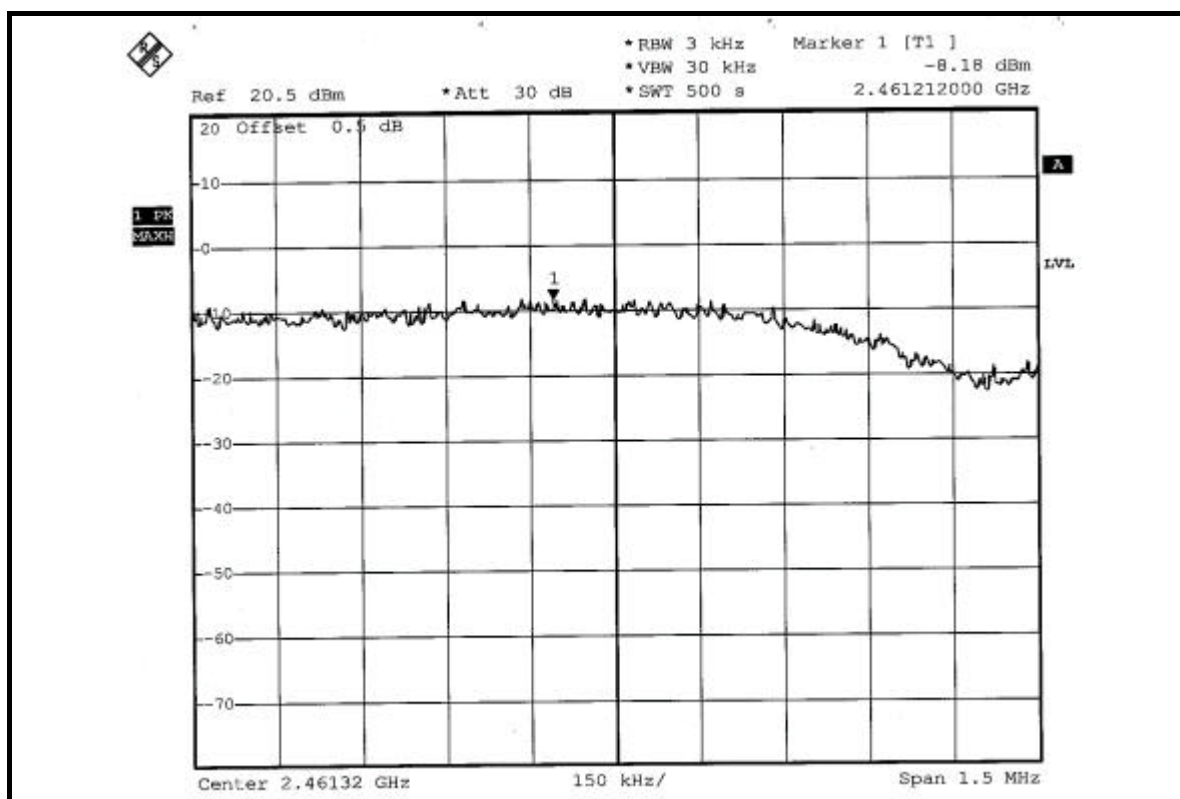
4.5.7 TEST RESULTS

802.11b DSSS Modulation

MODULATION TYPE	DBPSK	TRANSFER RATE	1Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 70%RH, 991hPa
TESTED BY	Lori Chiu		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-9.14	8	PASS
6	2437	-7.23	8	PASS
11	2462	-8.18	8	PASS

CH 11

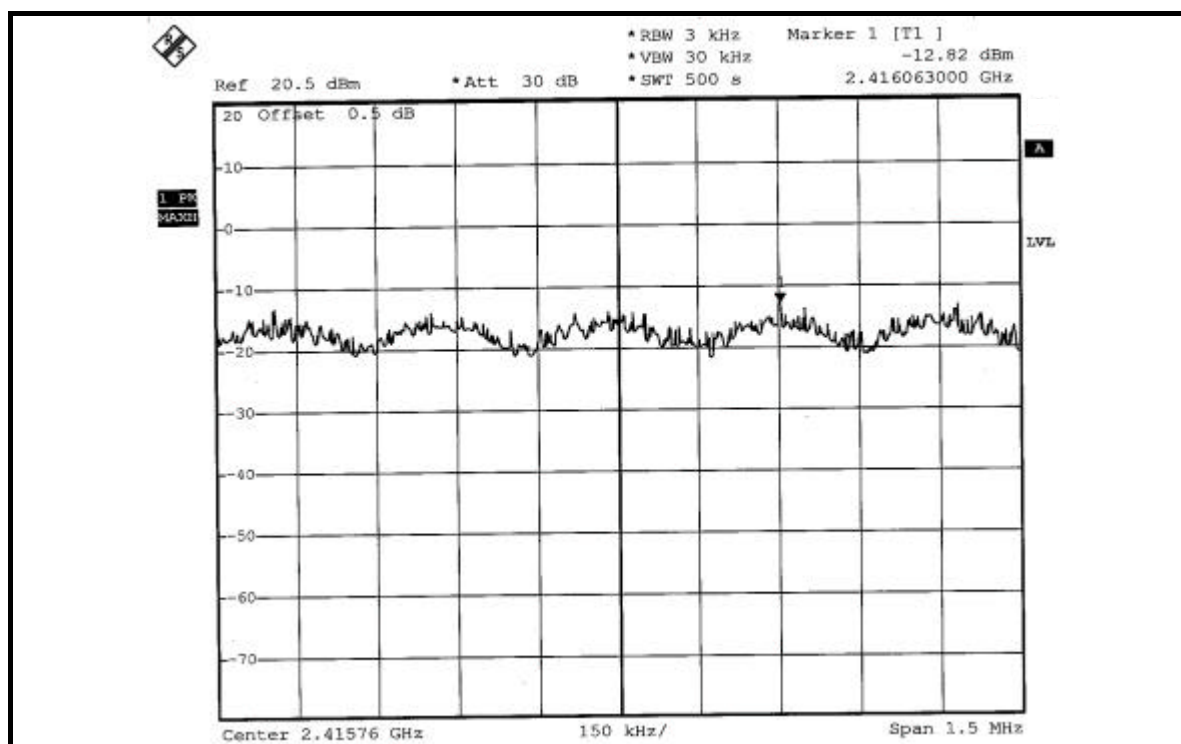


802.11g OFDM Modulation

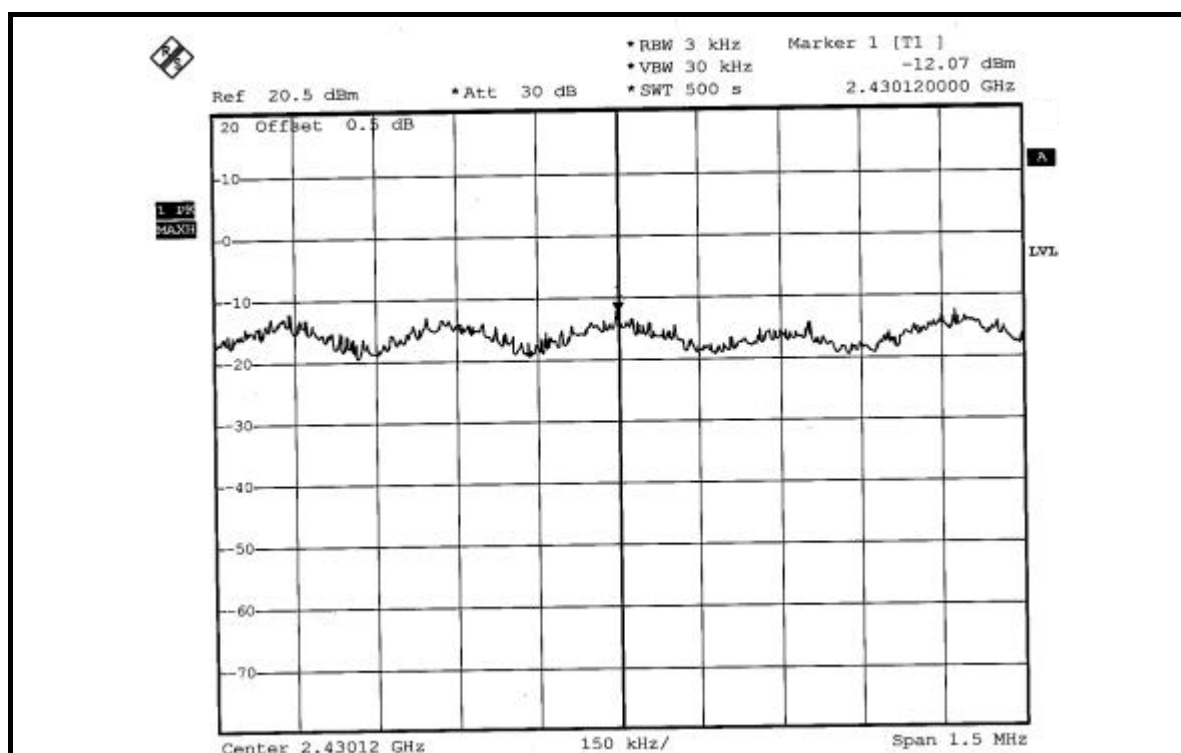
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 70%RH, 991hPa
TESTED BY	Lori Chiu		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-12.82	8	PASS
6	2437	-12.07	8	PASS
11	2462	-12.82	8	PASS

CH 1



CH 6



CH 11

