

FCC TEST REPORT (15.247)

REPORT NO.: RF940714L20

MODEL NO.: WX-7800A

Refer to page 7 for other models

RECEIVED: Jul. 19, 2005

TESTED: Oct. 15, 2004 ~ Aug. 01, 2005

ISSUED: Aug. 04, 2005

APPLICANT: SparkLAN Communications, Inc.

ADDRESS: 3Fl., No. 246, Sec. 1, Neihu Road., Neihu
Chiu, Taipei Taiwan 114, R.O.C

ISSUED BY: Advance Data Technology Corporation

LAB ADDRESS: No. 47, 14th Ling, Chia Pau Tsuen, Lin Kou
Hsiang 244, Taipei Hsien, Taiwan, R.O.C.

TEST LOCATION: No. 19, Hwa Ya 2nd Rd., Wen Hwa Tsuen, Kwei
Shan Hsiang, Taoyuan Hsien 333, Taiwan,
R.O.C.

This test report consists of 117 pages in total. It may be duplicated completely for legal use with the approval of the applicant. It should not be reproduced except in full, without the written approval of our laboratory. The client should not use it to claim product endorsement by CNLA, A2LA or any government agencies. The test results in the report only apply to the tested sample.



0528
ILAC MRA



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	9
3.2.1	CONFIGURATION OF SYSTEM UNDER TEST	10
3.2.2	TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL:	11
3.3	GENERAL DESCRIPTION OF APPLIED STANDARDS	13
3.4	DESCRIPTION OF SUPPORT UNITS	13
4.	TEST TYPES AND RESULTS (802.11b & g 2412~2462MHz BAND)	14
4.1	CONDUCTED EMISSION MEASUREMENT	14
4.1.1	LIMITS OF CONDUCTED EMISSION MEASUREMENT	14
4.1.2	TEST INSTRUMENTS	14
4.1.3	TEST PROCEDURES	15
4.1.4	DEVIATION FROM TEST STANDARD	15
4.1.5	TEST SETUP	16
4.1.6	EUT OPERATING CONDITIONS	16
4.1.7	TEST RESULTS	17
4.2	RADIATED EMISSION MEASUREMENT	23
4.2.1	LIMITS OF RADIATED EMISSION MEASUREMENT	23
4.2.2	TEST INSTRUMENTS	24
4.2.3	TEST PROCEDURES	25
4.2.4	DEVIATION FROM TEST STANDARD	25
4.2.5	TEST SETUP	26
4.2.6	EUT OPERATING CONDITIONS	26
4.2.7	TEST RESULTS	27
4.3	6dB BANDWIDTH MEASUREMENT	36
4.3.1	LIMITS OF 6dB BANDWIDTH MEASUREMENT	36
4.3.2	TEST INSTRUMENTS	36
4.3.3	TEST PROCEDURE	37
4.3.4	DEVIATION FROM TEST STANDARD	37
4.3.5	TEST SETUP	37
4.3.6	EUT OPERATING CONDITIONS	37
4.3.7	TEST RESULTS	38
4.4	MAXIMUM PEAK OUTPUT POWER	46
4.4.1	LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT	46
4.4.2	INSTRUMENTS	46
4.4.1	TEST PROCEDURES	47
4.4.2	DEVIATION FROM TEST STANDARD	47
4.4.3	TEST SETUP	47
4.4.4	EUT OPERATING CONDITIONS	47

4.4.3	TEST RESULTS	48
4.5	POWER SPECTRAL DENSITY MEASUREMENT	50
4.5.1	LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT	50
4.5.2	TEST INSTRUMENTS	50
4.5.3	TEST PROCEDURE	51
4.5.4	DEVIATION FROM TEST STANDARD	51
4.5.5	TEST SETUP	51
4.5.6	EUT OPERATING CONDITION	51
4.5.7	TEST RESULTS	52
4.6	BAND EDGES MEASUREMENT	60
4.6.1	LIMITS OF BAND EDGES MEASUREMENT	60
4.6.2	TEST INSTRUMENTS	60
4.6.3	TEST PROCEDURE	60
4.6.4	DEVIATION FROM TEST STANDARD	60
4.6.5	EUT OPERATING CONDITION	60
4.6.6	TEST RESULTS	61
4.7	ANTENNA REQUIREMENT	73
4.7.1	STANDARD APPLICABLE	73
4.7.2	ANTENNA CONNECTED CONSTRUCTION	73
5.	TEST TYPES AND RESULTS (802.11a 5725~5850MHz BAND)	74
5.1	CONDUCTED EMISSION MEASUREMENT	74
5.1.1	LIMITS OF CONDUCTED EMISSION MEASUREMENT	74
5.1.2	TEST INSTRUMENTS	74
5.1.3	TEST PROCEDURES	75
5.1.4	DEVIATION FROM TEST STANDARD	75
5.1.5	TEST SETUP	76
5.1.6	EUT OPERATING CONDITIONS	76
5.1.7	TEST RESULTS	77
5.2	RADIATED EMISSION MEASUREMENT	79
5.2.1	LIMITS OF RADIATED EMISSION MEASUREMENT	79
5.2.2	TEST INSTRUMENTS	80
5.2.3	TEST PROCEDURES	81
5.2.4	DEVIATION FROM TEST STANDARD	81
5.2.5	TEST SETUP	82
5.2.6	EUT OPERATING CONDITIONS	82
5.2.7	TEST RESULTS	83
5.3	6dB BANDWIDTH MEASUREMENT	89
5.3.1	LIMITS OF 6dB BANDWIDTH MEASUREMENT	89
5.3.2	TEST INSTRUMENTS	89
5.3.3	TEST PROCEDURE	90
5.3.4	DEVIATION FROM TEST STANDARD	90
5.3.5	TEST SETUP	90
5.3.6	EUT OPERATING CONDITIONS	90
5.3.7	TEST RESULTS	91
5.4	MAXIMUM PEAK OUTPUT POWER	96



5.4.1	LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT	96
5.4.2	INSTRUMENTS.....	96
5.4.3	TEST PROCEDURES	97
5.4.4	DEVIATION FROM TEST STANDARD	97
5.4.5	TEST SETUP	97
5.4.6	EUT OPERATING CONDITIONS	97
5.4.7	TEST RESULTS	98
5.5	POWER SPECTRAL DENSITY MEASUREMENT.....	99
5.5.1	LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT.....	99
5.5.2	TEST INSTRUMENTS.....	99
5.5.3	TEST PROCEDURE.....	100
5.5.4	DEVIATION FROM TEST STANDARD	100
5.5.5	TEST SETUP	100
5.5.6	EUT OPERATING CONDITION	100
5.5.7	TEST RESULTS	101
5.6	BAND EDGES MEASUREMENT.....	106
5.6.1	LIMITS OF BAND EDGES MEASUREMENT	106
5.6.2	TEST INSTRUMENTS.....	106
5.6.3	TEST PROCEDURE.....	106
5.6.4	DEVIATION FROM TEST STANDARD	106
5.6.5	EUT OPERATING CONDITION	107
5.6.6	TEST RESULTS	107
5.7	ANTENNA REQUIREMENT	114
5.7.1	STANDARD APPLICABLE.....	114
5.7.2	ANTENNA CONNECTED CONSTRUCTION.....	114
6.	PHOTOGRAPHS OF THE TEST CONFIGURATION.....	115
7.	INFORMATION ON THE TESTING LABORATORIES	117



1. CERTIFICATION

PRODUCT: Wireless 11a+g Dual-Band Access Point
BRAND NAME: SparkLAN
Refer to page 7 for other brand names
MODEL NO.: WX-7800A
Refer to page 7 for other models
APPLICANT: SparkLAN Communications, Inc.
TEST SAMPLE: Engineering Sample
TESTED: Oct. 15, 2004 ~ Aug. 01, 2005
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 : Wendy Liao , **DATE:** Aug. 04, 2005
(Wendy Liao)

TECHNICAL
ACCEPTANCE : Gary Chang , **DATE:** Aug. 04, 2005
Responsible for RF (Gary Chang)

APPROVED BY : Cody Chang , **DATE:** Aug. 04, 2005
(Cody Chang, Deputy Manager)

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 -10.40dB at 3.555MHz
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 -1.06dB at 11570.00MHz
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
	30MHz ~ 200MHz	3.55 dB
Radiated emissions	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	Wireless 11a+g Dual-Band Access Point
MODEL NO.	WX-7800A Refer to Note 1 for other models
POWER SUPPLY	5Vdc from AC Adapter
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 (Turbo mode: up to 108Mbps *see Note 3) 802.11a: 54/48/36/24/18/12/9/6Mbps (Turbo mode: up to 108Mbps *see Note 3)
FREQUENCY RANGE	802.11b & 802.11g: 2.412 ~ 2.462GHz 802.11a: 5.150 ~ 5.350GHz and 5.725 ~ 5.850GHz
NUMBER OF CHANNEL	802.11b & 802.11g: 11 for Normal mode / 1 for Turbo mode 802.11a: 13 for Normal mode / 5 for Turbo mode
CHANNEL SPACING	802.11b & 802.11g: 5MHz 802.11a: 20MHz for Normal mode / 40MHz for Turbo mode
OUTPUT POWER	64.57mW for 802.11b 41.69mW for 802.11g 22.03mW for 5.15 ~ 5.35GHz 40.18mW for 5.75 ~ 5.850GHz
ANTENNA TYPE	Dipole antenna with 2.0dBi gain for 2.4GHz Dipole antenna with 4.0dBi gain for 5GHz
DATA CABLE	NA
I/O PORTS	RJ45
ASSOCIATED DEVICES	NA

NOTE:

1. The models as below are identical to each other except for their model designation and brand name, due to marketing requirement.

Model Name	Brand	Description
WX-7800A	SparkLAN	For marketing different.
TEW-510APB	TRENDnet	For marketing different.

2. The EUT operates in both the 5GHz and 2.4GHz Bands and compatibility with 802.11a and 802.11b, 802.11g technology.
3. This EUT is capable of providing data rates of up to 108Mbps in Turbo Mode depending upon reception quality.

4. The EUT were powered by the following adapters:

BRAND:	LEI (LEADER ELECTRONICS INC.)
MODEL :	MT15-5050250-A1
INPUT :	100-120Vac, 0.5A, 60Hz
OUTPUT :	5.0Vdc, 2.5A
POWER LINE :	1.8m non-shielded cable without core

5. 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:

For 802.11b/g: Eleven channels are provided to this EUT for normal mode.

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		

For 802.11g: One channel is provided to this EUT for turbo mode.

Channel	Frequency
6	2437 MHz

Operated in 5725 ~ 5850MHz band:

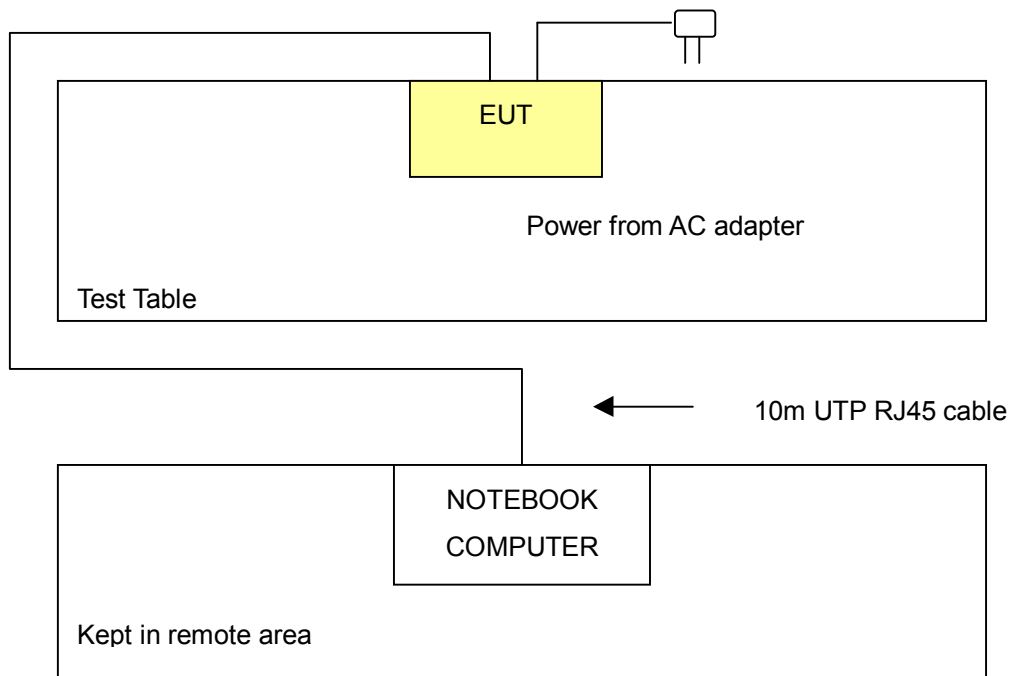
For 802.11a: Five channels are provided to this EUT for normal mode.

Channel	Frequency
1	5745 MHz
2	5765 MHz
3	5785 MHz
4	5805 MHz
5	5825 MHz

For 802.11a: Two channels are provided to this EUT for turbo mode.

Channel	Frequency
1	5760 MHz
2	5800 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≥1G	APCM	
-	V	V	V	V	-

Where PLC: Power Line Conducted Emission

RE<1G RE: Radiated Emission below 1GHz

RE≥1G: Radiated Emission above 1GHz

APCM: Antenna Port Conducted Measurement

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	3	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, rotatable angle of EUT 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	6	OFDM	BPSK	6
802.11a	1 to 5	3	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, rotatable angle of EUT 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	CCK	11
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
802.11g Turbo	6	6	OFDM	BPSK	12
802.11a	1 to 5	1, 3, 5	OFDM	BPSK	6
802.11a Turbo	1 to 2	1, 2	OFDM	BPSK	12

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	CCK	11
802.11g	1 to 11	1, 11	OFDM	BPSK	6
802.11g Turbo	6	6	OFDM	BPSK	12
802.11a	1 to 5	1, 5	OFDM	BPSK	6
802.11a Turbo	1 to 2	1, 2	OFDM	BPSK	12

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	CCK	11
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
802.11g Turbo	6	6	OFDM	BPSK	12
802.11a	1 to 5	1, 3, 5	OFDM	BPSK	6
802.11a Turbo	1 to 2	1, 2	OFDM	BPSK	12

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a Wireless 11a+g Dual-Band Access Point. 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 COMPUTER	DELL	PP05L	12130898320	E2K24CLNS

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

NOTE: 1. All power cords of the above support units are non shielded (1.8m).
2. Item 1 act as a communication partner to transfer data.

4. TEST TYPES AND RESULTS (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	100288	Nov. 06, 2005
RF signal cable Woken	5D-FB	Cable-HyC02-01	Jan. 09, 2006
LISN ROHDE & SCHWARZ	ESH2-Z5	100100	Jan. 20, 2006
LISN ROHDE & SCHWARZ	ESH3-Z5	100311	Jan. 20, 2006
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 3.
 3. The VCCI Site Registration No. is C-2047.



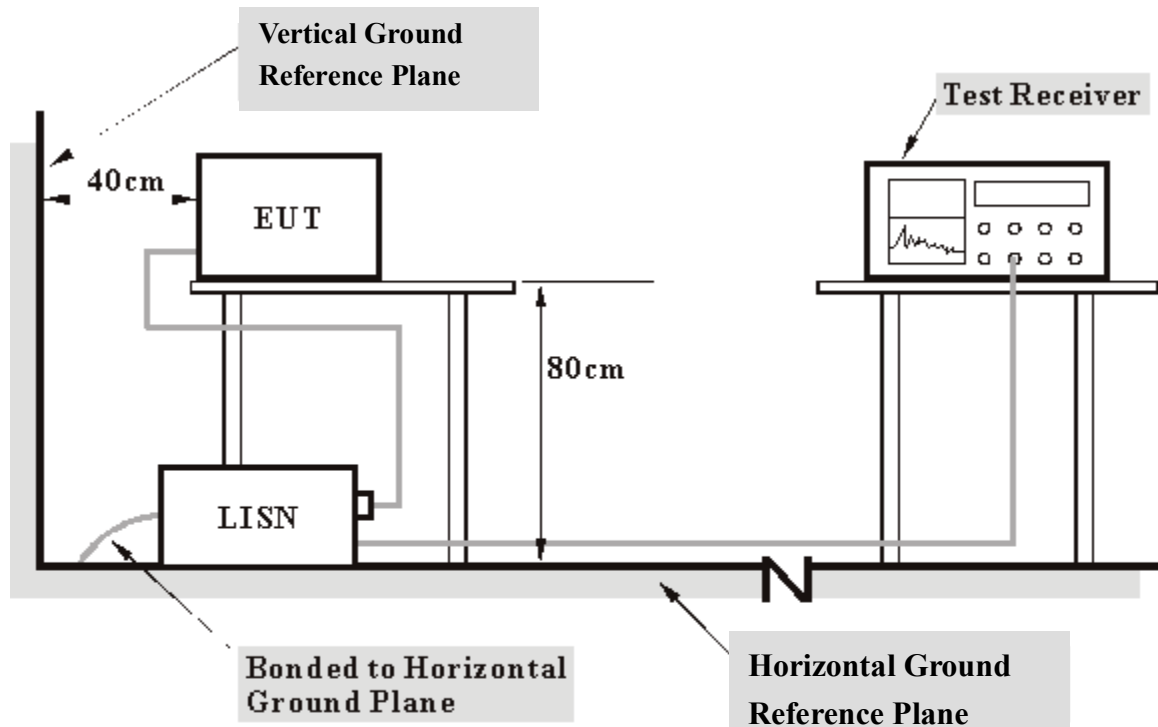
4.1.3 TEST PROCEDURES

- 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) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

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

4.1.6 EUT OPERATING CONDITIONS

- Placed the EUT on the testing table.
- Prepared another notebook system to act as a communication partner and placed it outside of testing area.
- The communication partner run a test program (provided by manufacturer) to enable EUT under transmission/receiving condition continuously at specific channel frequency via an RJ45 cable.
- The communication partner sent data to EUT by command "PING".

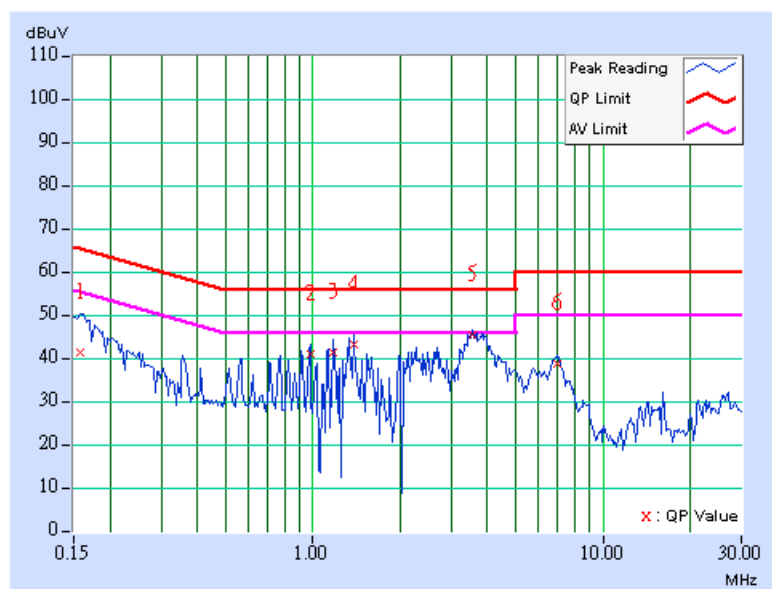
4.1.7 TEST RESULTS

Conducted Worst-Case Data

EUT	Wireless 11a+g Dual-Band Access Point	MEASUREMENT DETAIL	
MODEL	WX-7800A	PHASE	Line 1
CHANNEL	Channel 1	6dB BANDWIDTH	9 kHz
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 991hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TESTED BY	William Chien		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.158	0.10	41.17	-	41.27	-	65.58	55.58	-24.31	-
2	0.978	0.20	41.02	-	41.22	-	56.00	46.00	-14.78	-
3	1.176	0.20	41.27	-	41.47	-	56.00	46.00	-14.53	-
4	1.383	0.20	42.90	-	43.10	-	56.00	46.00	-12.90	-
5	3.555	0.20	45.16	-	45.36	-	56.00	46.00	-10.64	-
6	6.949	0.25	38.80	-	39.05	-	60.00	50.00	-20.95	-

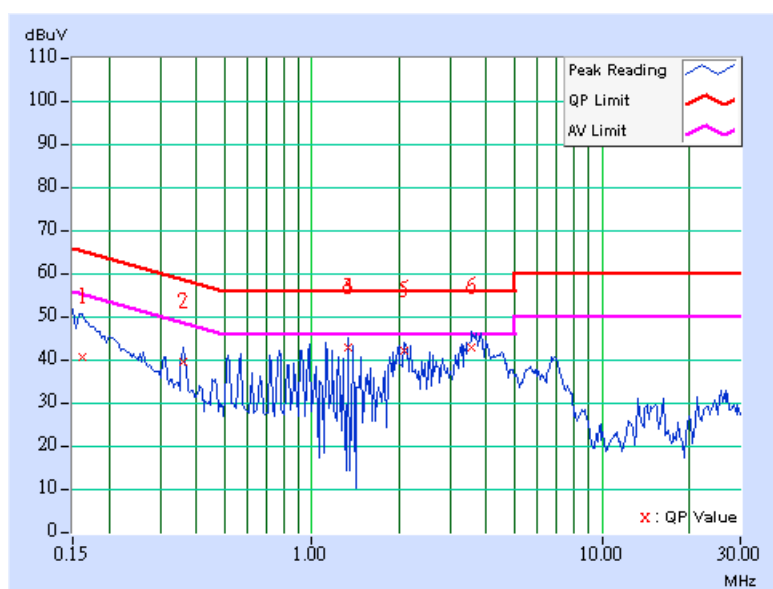
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



EUT	Wireless 11a+g Dual-Band Access Point	MEASUREMENT DETAIL	
MODEL	WX-7800A	PHASE	Line 2
CHANNEL	Channel 1	6dB BANDWIDTH	9 kHz
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 991hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TESTED BY	William Chien		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.162	0.10	40.51	-	40.61	-	65.38	55.38	-24.77	-
2	0.361	0.10	39.57	-	39.67	-	58.71	48.71	-19.04	-
3	1.332	0.20	42.79	-	42.99	-	56.00	46.00	-13.01	-
4	1.332	0.20	42.83	-	43.03	-	56.00	46.00	-12.97	-
5	2.070	0.20	41.88	-	42.08	-	56.00	46.00	-13.92	-
6	3.559	0.20	42.61	-	42.81	-	56.00	46.00	-13.19	-

- 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.

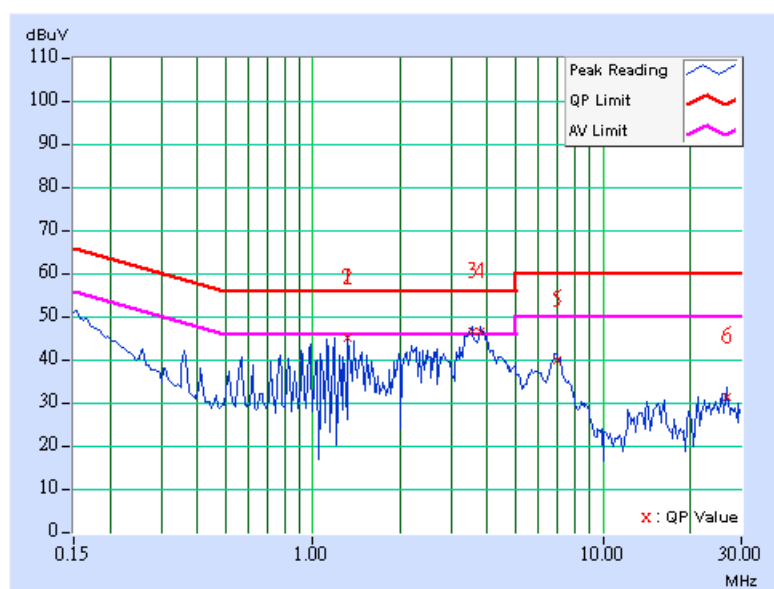


EUT	Wireless 11a+g Dual-Band Access Point	MEASUREMENT DETAIL	
MODEL	WX-7800A	PHASE	Line 1
CHANNEL	Channel 6	6dB BANDWIDTH	9 kHz
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 991hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TESTED BY	William Chien		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	1.324	0.20	43.90	-	44.10	-	56.00	46.00	-11.90	-
2	1.324	0.20	43.90	-	44.10	-	56.00	46.00	-11.90	-
3	3.555	0.20	45.40	-	45.60	-	56.00	46.00	-10.40	-
4	3.762	0.20	45.29	-	45.49	-	56.00	46.00	-10.51	-
5	6.957	0.25	38.74	-	38.99	-	60.00	50.00	-21.01	-
6	26.609	1.29	30.22	-	31.51	-	60.00	50.00	-28.49	-

REMARKS:

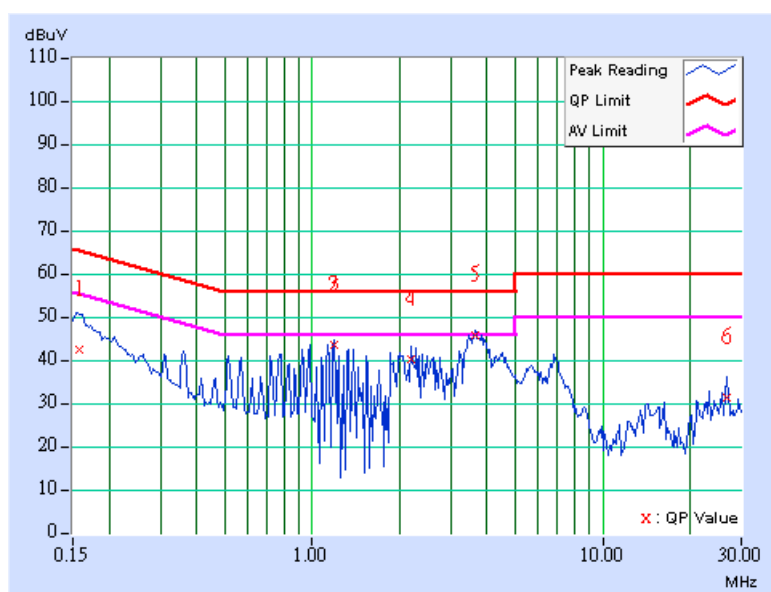
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level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



EUT	Wireless 11a+g Dual-Band Access Point	MEASUREMENT DETAIL	
MODEL	WX-7800A	PHASE	Line 2
CHANNEL	Channel 6	6dB BANDWIDTH	9 kHz
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 991hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TESTED BY	William Chien		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.158	0.10	41.45	-	41.55	-	65.58	55.58	-24.03	-
2	1.191	0.20	42.50	-	42.70	-	56.00	46.00	-13.30	-
3	1.191	0.20	42.50	-	42.70	-	56.00	46.00	-13.30	-
4	2.199	0.20	39.49	-	39.69	-	56.00	46.00	-16.31	-
5	3.621	0.20	44.79	-	44.99	-	56.00	46.00	-11.01	-
6	26.609	1.06	30.44	-	31.50	-	60.00	50.00	-28.50	-

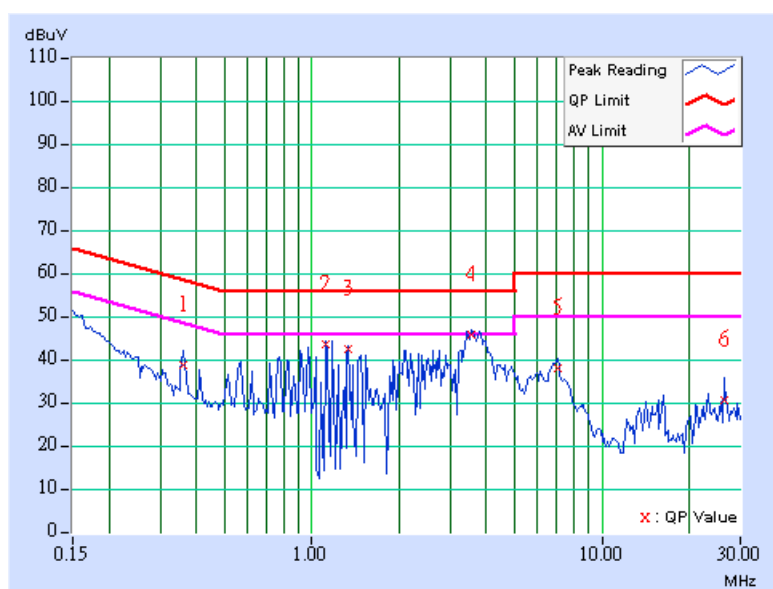
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



EUT	Wireless 11a+g Dual-Band Access Point	MEASUREMENT DETAIL	
MODEL	WX-7800A	PHASE	Line 1
CHANNEL	Channel 11	6dB BANDWIDTH	9 kHz
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 991hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TESTED BY	William Chien		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.361	0.10	37.51	-	37.61	-	58.71	48.71	-21.10	-
2	1.121	0.20	42.28	-	42.48	-	56.00	46.00	-13.52	-
3	1.340	0.20	41.46	-	41.66	-	56.00	46.00	-14.34	-
4	3.563	0.20	44.70	-	44.90	-	56.00	46.00	-11.10	-
5	7.020	0.25	36.90	-	37.15	-	60.00	50.00	-22.85	-
6	26.488	1.28	29.52	-	30.80	-	60.00	50.00	-29.20	-

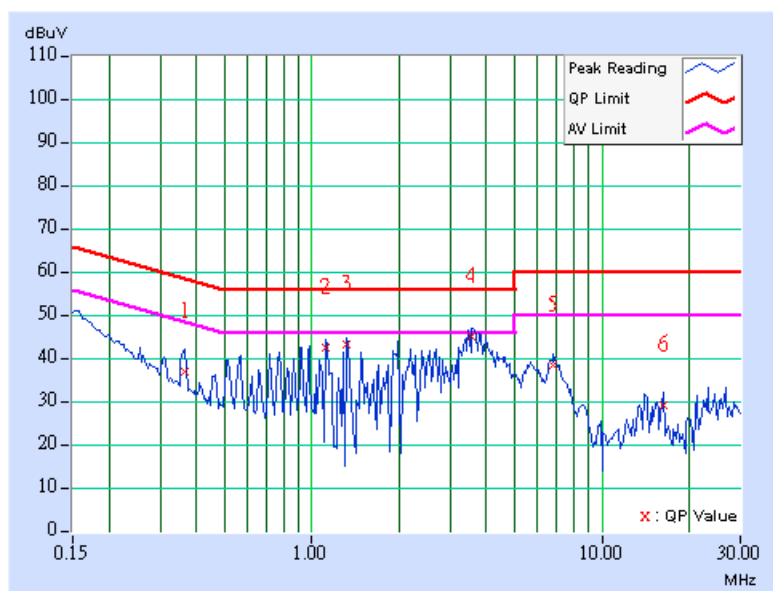
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



EUT	Wireless 11a+g Dual-Band Access Point	MEASUREMENT DETAIL	
MODEL	WX-7800A	PHASE	Line 2
CHANNEL	Channel 11	6dB BANDWIDTH	9 kHz
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 991hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TESTED BY	William Chien		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.365	0.10	36.37	-	36.47	-	58.62	48.62	-22.15	-
2	1.121	0.20	41.95	-	42.15	-	56.00	46.00	-13.85	-
3	1.324	0.20	42.89	-	43.09	-	56.00	46.00	-12.91	-
4	3.559	0.20	44.54	-	44.74	-	56.00	46.00	-11.26	-
5	6.816	0.29	37.92	-	38.21	-	60.00	50.00	-21.79	-
6	16.227	0.57	28.65	-	29.22	-	60.00	50.00	-30.78	-

- 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. 19, 2005
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Nov. 21, 2005
BILOG Antenna SCHWARZBECK	VULB9168	9168-157	Jan. 22, 2006
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-407	Jan. 16, 2006
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA 9170241	Feb. 23, 2006
Preamplifier Agilent	8449B	3008A01961	Nov. 09, 2005
Preamplifier Agilent	8447D	2944A10629	Nov. 09, 2005
RF signal cable HUBER+SUHNER	SUCOFLEX 104	218182/4	Feb. 17, 2006
RF signal cable HUBER+SUHNER	SUCOFLEX 104	218194/4	Feb. 17, 2006
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 meter semi- anechoic. 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.

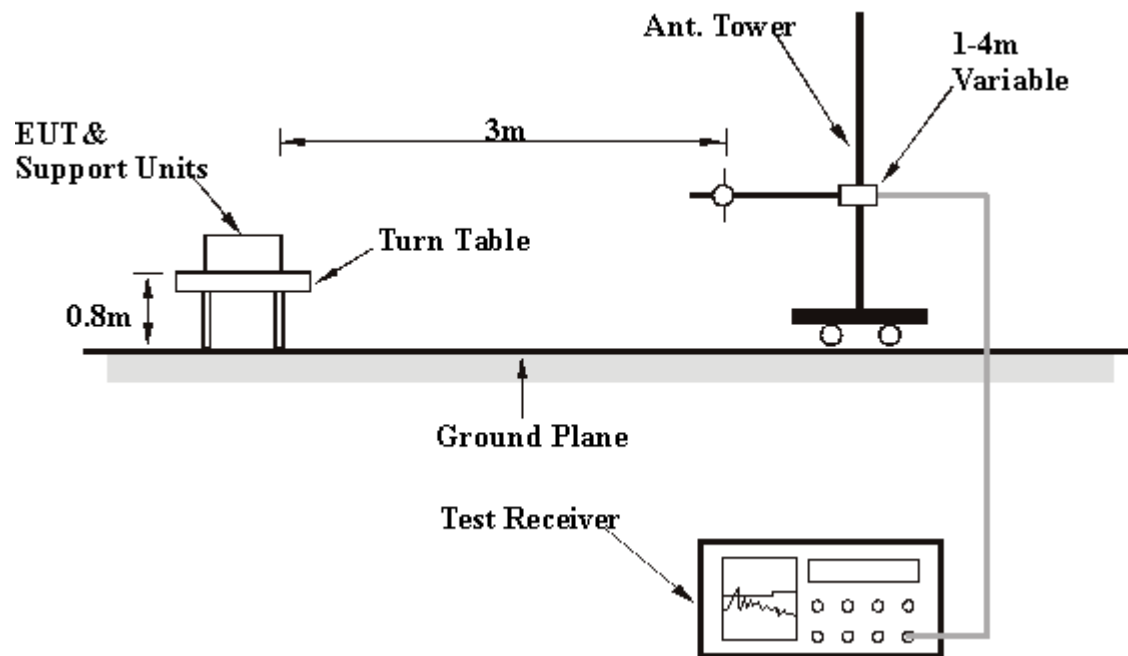
NOTE:

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 is 10 Hz 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	Wireless 11a+g Dual-Band Access Point	MEASUREMENT DETAIL	
MODEL	WX-7800A	FREQUENCY RANGE	Below 1000MHz
CHANNEL	Channel 6	DETECTOR FUNCTION	Quasi-Peak
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	26deg. C, 69%RH, 991hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TESTED BY	William Chien		

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	47.49	25.50 QP	40.00	-14.50	1.00 H	235	10.74	14.76
2	109.70	31.31 QP	43.50	-12.19	1.75 H	109	19.57	11.74
3	156.35	28.51 QP	43.50	-14.99	1.25 H	298	13.94	14.58
4	218.56	35.50 QP	46.00	-10.50	1.50 H	28	23.91	11.59
5	249.66	32.86 QP	46.00	-13.14	1.00 H	22	19.78	13.08
6	329.36	35.98 QP	46.00	-10.02	1.00 H	334	20.99	14.99
7	440.16	33.88 QP	46.00	-12.12	2.00 H	205	16.22	17.66
8	500.42	34.41 QP	46.00	-11.59	1.50 H	19	15.81	18.59
9	550.96	36.03 QP	46.00	-9.97	1.50 H	313	16.39	19.63
10	659.82	31.04 QP	46.00	-14.96	1.25 H	319	9.33	21.72
11	770.62	33.94 QP	46.00	-12.06	1.00 H	187	10.41	23.53

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

EUT	Wireless 11a+g Dual-Band Access Point	MEASUREMENT DETAIL	
MODEL	WX-7800A	FREQUENCY RANGE	Below 1000MHz
CHANNEL	Channel 6	DETECTOR FUNCTION	Quasi-Peak
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	26deg. C, 69%RH, 991hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TESTED BY	William Chien		

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	54.79	36.49 QP	40.00	-3.51	1.76 V	159	22.51	13.98
2	109.70	40.67 QP	43.50	-2.83	1.00 V	265	28.93	11.74
3	158.30	32.95 QP	43.50	-10.55	1.00 V	316	18.33	14.62
4	218.56	35.16 QP	46.00	-10.84	1.00 V	253	23.58	11.59
5	249.66	34.12 QP	46.00	-11.88	1.00 V	4	21.04	13.08
6	329.36	34.23 QP	46.00	-11.77	1.50 V	76	19.24	14.99
7	440.16	32.26 QP	46.00	-13.74	1.25 V	31	14.60	17.66
8	550.96	37.43 QP	46.00	-8.57	1.00 V	244	17.79	19.63
9	599.56	32.34 QP	46.00	-13.66	1.00 V	10	11.46	20.88
10	659.82	31.69 QP	46.00	-14.31	1.75 V	268	9.97	21.72
11	770.62	35.40 QP	46.00	-10.60	1.25 V	268	11.86	23.53
12	881.42	32.28 QP	46.00	-13.72	1.00 V	64	7.54	24.74

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	Wireless 11a+g Dual-Band Access Point	MEASUREMENT DETAIL	
MODEL	WX-7800A	FREQUENCY RANGE	1 ~ 25GHz
CHANNEL	Channel 1	DETECTOR FUNCTION	Peak(PK) Average (AV)
MODULATION TYPE	CCK	ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH, 991hPa
TRANSFER RATE	11Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TESTED BY	Leo Hung		

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	1120.00	48.14 PK	74.00	-25.86	1.26 H	103	21.38	26.76
1	1120.00	45.58 AV	54.00	-8.42	1.26 H	103	18.82	26.76
2	2319.99	48.90 PK	74.00	-25.10	1.02 H	28	17.32	31.58
3	2319.00	41.50 AV	54.00	-12.50	1.02 H	28	9.92	31.58
3	*2412.00	104.62 PK			1.02 H	28	72.75	31.87
3	*2412.00	97.22 AV			1.02 H	28	65.35	31.87
4	4824.00	53.63 PK	74.00	-20.37	1.25 H	46	15.52	38.11
4	4824.00	45.08 AV	54.00	-8.92	1.25 H	46	6.97	38.11
5	9648.00	52.91 PK	74.00	-21.09	1.25 H	307	10.63	42.28
5	9648.00	41.38 AV	54.00	-12.62	1.25 H	307	-0.90	42.28

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	1120.00	45.44 PK	74.00	-28.56	1.00 V	72	18.68	26.76
1	1120.00	41.92 AV	54.00	-12.08	1.00 V	72	15.16	26.76
2	2319.99	57.77 PK	74.00	-16.23	1.14 V	1	26.19	31.58
2	2319.99	50.48 AV	54.00	-3.52	1.14 V	1	18.90	31.58
3	*2412.00	113.49 PK			1.14 V	1	81.62	31.87
3	*2412.00	106.20 AV			1.14 V	1	74.33	31.87
4	4824.00	57.67 PK	74.00	-16.33	1.00 V	298	19.56	38.11
4	4824.00	50.96 AV	54.00	-3.04	1.00 V	298	12.85	38.11
5	9648.00	55.72 PK	74.00	-18.28	1.00 V	4	13.44	42.28
5	9648.00	44.14 AV	54.00	-9.86	1.00 V	4	1.86	42.28

- 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. The limit value is defined as per 15.247
 6. “ * ” : Fundamental frequency

EUT	Wireless 11a+g Dual-Band Access Point	MEASUREMENT DETAIL	
MODEL	WX-7800A	FREQUENCY RANGE	1 ~ 25GHz
CHANNEL	Channel 6	DETECTOR FUNCTION	Peak(PK) Average (AV)
MODULATION TYPE	CCK	ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH, 991hPa
TRANSFER RATE	11Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TESTED BY	Leo Hung		

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	1120.00	47.83 PK	74.00	-26.17	1.29 H	98	21.07	26.76
1	1120.00	45.50 AV	54.00	-8.50	1.29 H	98	18.74	26.76
2	*2437.00	106.63 PK			1.27 H	227	74.68	31.95
2	*2437.00	98.92 AV			1.27 H	227	66.97	31.95
3	4874.00	54.78 PK	74.00	-19.22	1.03 H	37	16.50	38.28
3	4874.00	46.80 AV	54.00	-7.20	1.03 H	37	8.52	38.28
4	9748.00	53.13 PK	74.00	-20.87	1.02 H	114	14.62	38.51
4	9748.00	45.38 AV	54.00	-8.62	1.02 H	114	6.87	38.51

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	1120.00	44.91 PK	74.00	-29.09	1.00 V	360	18.15	26.76
1	1120.00	42.04 AV	54.00	-11.96	1.00 V	360	15.28	26.76
2	2320.00	66.15 PK	74.00	-7.85	1.18 V	127	34.57	31.58
2	2320.00	52.12 AV	54.00	-1.88	1.18 V	127	20.54	31.58
3	*2437.00	115.21 PK			1.10 V	317	83.26	31.95
3	*2437.00	107.55 AV			1.10 V	317	75.60	31.95
4	4874.00	57.78 PK	74.00	-16.22	1.00 V	1	19.50	38.28
4	4874.00	50.39 AV	54.00	-3.61	1.00 V	1	12.11	38.28
5	9748.00	53.25 PK	74.00	-20.75	1.00 V	360	14.74	38.51
5	9748.00	46.39 AV	54.00	-7.61	1.00 V	360	7.88	38.51

- 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. The limit value is defined as per 15.247
 6. “ * ” : Fundamental frequency

EUT	Wireless 11a+g Dual-Band Access Point	MEASUREMENT DETAIL	
MODEL	WX-7800A	FREQUENCY RANGE	1 ~ 25GHz
CHANNEL	Channel 11	DETECTOR FUNCTION	Peak(PK) Average (AV)
MODULATION TYPE	CCK	ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH, 991hPa
TRANSFER RATE	11Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TESTED BY	Leo Hung		

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	1120.00	47.42 PK	74.00	-26.58	1.29 H	97	20.66	26.76
1	1120.00	44.84 AV	54.00	-9.16	1.29 H	97	18.08	26.76
2	*2462.00	103.47 PK			1.03 H	222	71.45	32.02
2	*2462.00	95.83 AV			1.03 H	222	63.81	32.02
3	2487.00	48.59 PK	74.00	-25.41	1.03 H	222	16.49	32.10
3	2487.00	40.95 AV	54.00	-13.05	1.03 H	222	8.85	32.10
4	4924.00	53.49 PK	74.00	-20.51	1.24 H	48	15.00	38.49
4	4924.00	44.13 AV	54.00	-9.87	1.24 H	48	5.64	38.49

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	1120.00	45.40 PK	74.00	-28.60	1.00 V	3	18.64	26.76
1	1120.00	41.96 AV	54.00	-12.04	1.00 V	3	15.20	26.76
2	2320.00	62.68 PK	74.00	-11.32	1.18 V	129	31.10	31.58
2	2320.00	52.38 AV	54.00	-1.62	1.18 V	129	20.80	31.58
3	*2462.00	114.75 PK			1.10 V	318	82.73	32.02
3	*2462.00	106.82 AV			1.10 V	318	74.80	32.02
4	2487.00	59.87 PK	74.00	-14.13	1.10 V	318	27.77	32.10
4	2487.00	51.94 AV	54.00	-2.06	1.10 V	318	19.84	32.10
5	4924.00	56.21 PK	74.00	-17.79	1.00 V	187	17.72	38.49
5	4924.00	49.19 AV	54.00	-4.81	1.00 V	187	10.70	38.49

- 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. The limit value is defined as per 15.247
 6. “ * ” : Fundamental frequency

802.11g OFDM modulation

EUT	Wireless 11a+g Dual-Band Access Point	MEASUREMENT DETAIL	
MODEL	WX-7800A	FREQUENCY RANGE	1 ~ 25GHz
CHANNEL	Channel 1	DETECTOR FUNCTION	Peak(PK) Average (AV)
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH, 991hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TESTED BY	Leo Hung		

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	1120.00	48.27 PK	74.00	-25.73	1.28 H	103	21.51	26.76
1	1120.00	45.60 AV	54.00	-8.40	1.28 H	103	18.84	26.76
2	2390.00	53.25 PK	74.00	-20.75	1.02 H	28	21.45	31.80
2	2390.00	42.85 AV	54.00	-11.15	1.02 H	28	11.05	31.80
3	*2412.00	100.68 PK			1.02 H	28	68.81	31.87
3	*2412.00	90.28 AV			1.02 H	28	58.41	31.87
4	4824.00	48.53 PK	74.00	-25.47	1.07 H	190	10.42	38.11
4	4824.00	36.72 AV	54.00	-17.28	1.07 H	190	-1.39	38.11

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	1120.00	45.30 PK	74.00	-28.70	1.00 V	71	18.54	26.76
1	1120.00	41.86 AV	54.00	-12.14	1.00 V	71	15.10	26.76
2	2319.85	61.65 PK	74.00	-12.35	1.16 V	348	30.07	31.58
2	2319.85	51.99 AV	54.00	-2.01	1.16 V	348	20.41	31.58
3	*2412.00	109.08 PK			1.16 V	348	77.21	31.87
3	*2412.00	99.42 AV			1.16 V	348	67.55	31.87
4	4824.00	53.04 PK	74.00	-20.96	1.00 V	16	14.93	38.11
4	4824.00	39.52 AV	54.00	-14.48	1.00 V	16	1.41	38.11

- 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. The limit value is defined as per 15.247
 6. “ * ” : Fundamental frequency

EUT	Wireless 11a+g Dual-Band Access Point	MEASUREMENT DETAIL	
MODEL	WX-7800A	FREQUENCY RANGE	1 ~ 25GHz
CHANNEL	Channel 6	DETECTOR FUNCTION	Peak(PK) Average (AV)
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH, 991hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TESTED BY	Leo Hung		

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	2320.00	50.07 PK	74.00	-23.93	1.09 H	304	18.49	31.58
1	2320.00	41.32 AV	54.00	-12.68	1.09 H	304	9.74	31.58
2	*2437.00	98.04 PK			1.00 H	34	66.09	31.95
2	*2437.00	88.42 AV			1.00 H	34	56.47	31.95
3	4874.00	49.07 PK	74.00	-24.93	1.01 H	157	10.79	38.28
3	4874.00	36.63 AV	54.00	-17.37	1.01 H	157	-1.65	38.28

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	1120.00	45.38 PK	74.00	-28.62	1.00 V	74	18.62	26.76
1	1120.00	41.81 AV	54.00	-12.19	1.00 V	74	15.05	26.76
2	2320.00	60.77 PK	74.00	-13.23	1.19 V	221	29.19	31.58
2	2320.00	49.29 AV	54.00	-4.71	1.19 V	221	17.71	31.58
3	*2437.00	109.71 PK			1.10 V	318	77.76	31.95
3	*2437.00	100.14 AV			1.10 V	318	68.19	31.95
4	4874.00	50.72 PK	74.00	-23.28	1.00 V	10	12.44	38.28
4	4874.00	38.21 AV	54.00	-15.79	1.00 V	10	-0.07	38.28

- 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. The limit value is defined as per 15.247
 6. “ * ” : Fundamental frequency

EUT	Wireless 11a+g Dual-Band Access Point	MEASUREMENT DETAIL	
MODEL	WX-7800A	FREQUENCY RANGE	1 ~ 25GHz
CHANNEL	Channel 11	DETECTOR FUNCTION	Peak(PK) Average (AV)
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH, 991hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TESTED BY	Leo Hung		

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	1120.00	47.96 PK	74.00	-26.04	1.31 H	103	21.20	26.76
1	1120.00	45.60 AV	54.00	-8.40	1.31 H	103	18.84	26.76
2	*2462.00	98.50 PK			1.06 H	206	66.48	32.02
2	*2462.00	88.54 AV			1.06 H	206	56.52	32.02
3	2483.50	50.65 PK	74.00	-23.35	1.06 H	206	18.56	32.09
4	4924.00	49.31 PK	74.00	-24.69	1.17 H	186	10.82	38.49
4	4924.00	36.72 AV	54.00	-17.28	1.17 H	186	-1.77	38.49

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	1120.00	44.92 PK	74.00	-29.08	1.00 V	360	18.16	26.76
1	1120.00	41.44 AV	54.00	-12.56	1.00 V	360	14.68	26.76
2	2320.00	61.45 PK	74.00	-12.55	1.19 V	211	29.87	31.58
2	2320.00	51.47 AV	54.00	-2.53	1.19 V	211	19.89	31.58
3	*2462.00	110.34 PK			1.08 V	318	78.32	32.02
3	*2462.00	99.84 AV			1.08 V	318	67.82	32.02
4	2483.50	62.49 PK	74.00	-11.51	1.08 V	318	30.40	32.09
4	2483.50	51.99 AV	54.00	-2.01	1.08 V	318	19.90	32.09
5	4924.00	48.41 PK	74.00	-25.59	1.06 V	116	9.92	38.49
5	4924.00	38.26 AV	54.00	-15.74	1.06 V	116	-0.23	38.49

- 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. The limit value is defined as per 15.247
 6. “ * ” : Fundamental frequency

802.11g Turbo OFDM modulation

EUT	Wireless 11a+g Dual-Band Access Point	MEASUREMENT DETAIL	
MODEL	WX-7800A	FREQUENCY RANGE	1 ~ 25GHz
CHANNEL	Channel 6	DETECTOR FUNCTION	Peak(PK) Average (AV)
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa
TRANSFER RATE	12Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TESTED BY	Leo Hung		

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	1120.00	45.09 PK	74.00	-28.91	1.11 H	14	18.33	26.76
1	1120.00	41.39 AV	54.00	-12.61	1.11 H	14	14.63	26.76
2	2390.00	50.28 PK	74.00	-23.72	1.18 H	43	18.48	31.80
2	2390.00	41.10 AV	54.00	-12.90	1.18 H	43	9.30	31.80
3	*2437.00	100.06 PK			1.18 H	43	68.11	31.95
3	*2437.00	90.88 AV			1.18 H	43	58.93	31.95
4	2483.50	54.04 PK	74.00	-19.96	1.18 H	43	21.95	32.09
4	2483.50	44.86 AV	54.00	-9.14	1.18 H	43	12.77	32.09
5	4874.00	49.21 PK	74.00	-24.79	1.00 H	220	10.93	38.28
5	4874.00	37.17 AV	54.00	-16.83	1.00 H	220	-1.11	38.28

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	1120.00	46.19 PK	74.00	-27.81	1.38 V	4	19.43	26.76
1	1120.00	42.80 AV	54.00	-11.20	1.38 V	4	16.04	26.76
2	2390.00	58.99 PK	74.00	-15.01	1.15 V	339	27.19	31.80
2	2390.00	48.87 AV	54.00	-5.13	1.15 V	339	17.07	31.80
3	*2437.00	108.77 PK			1.15 V	339	76.82	31.95
3	*2437.00	98.45 AV			1.15 V	339	66.50	31.95
4	2483.50	62.75 PK	74.00	-11.25	1.15 V	339	30.66	32.09
4	2483.50	50.17 AV	54.00	-3.83	1.15 V	339	18.08	32.09
5	4874.00	51.03 PK	74.00	-22.97	1.09 V	300	12.75	38.28
5	4874.00	38.72 AV	54.00	-15.28	1.09 V	300	0.44	38.28

- 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. 12, 2005

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.

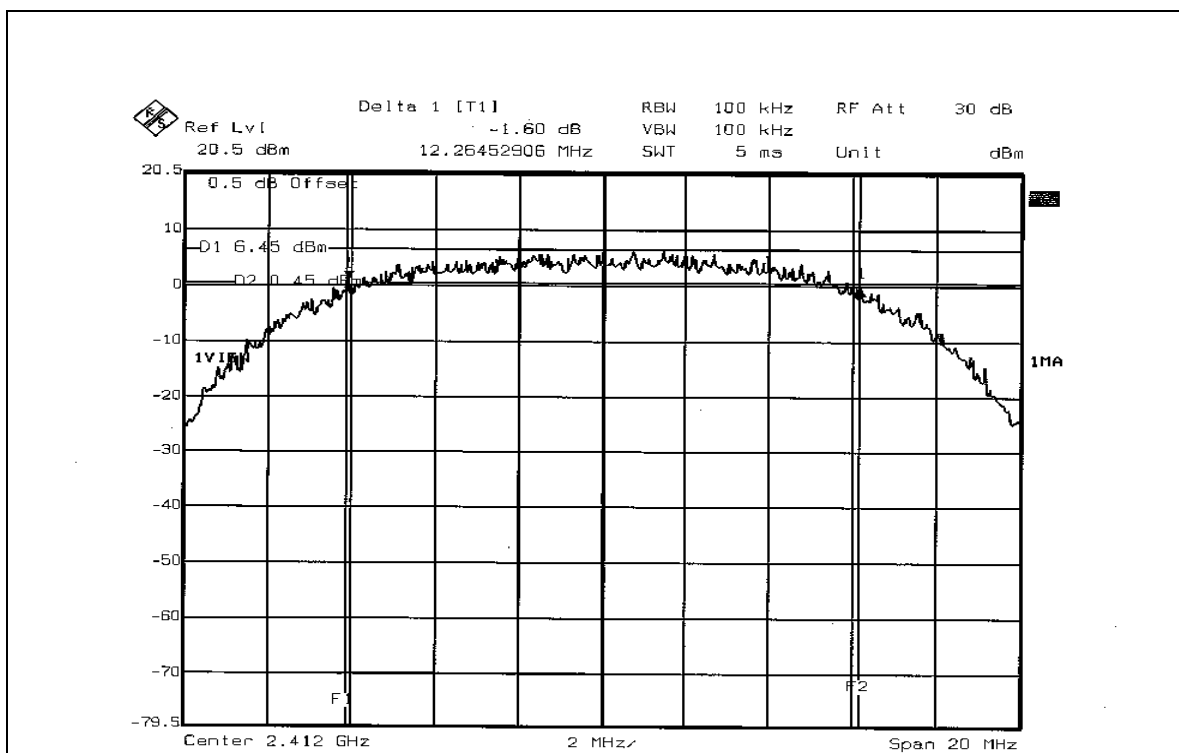
4.3.7 TEST RESULTS

802.11b DSSS modulation

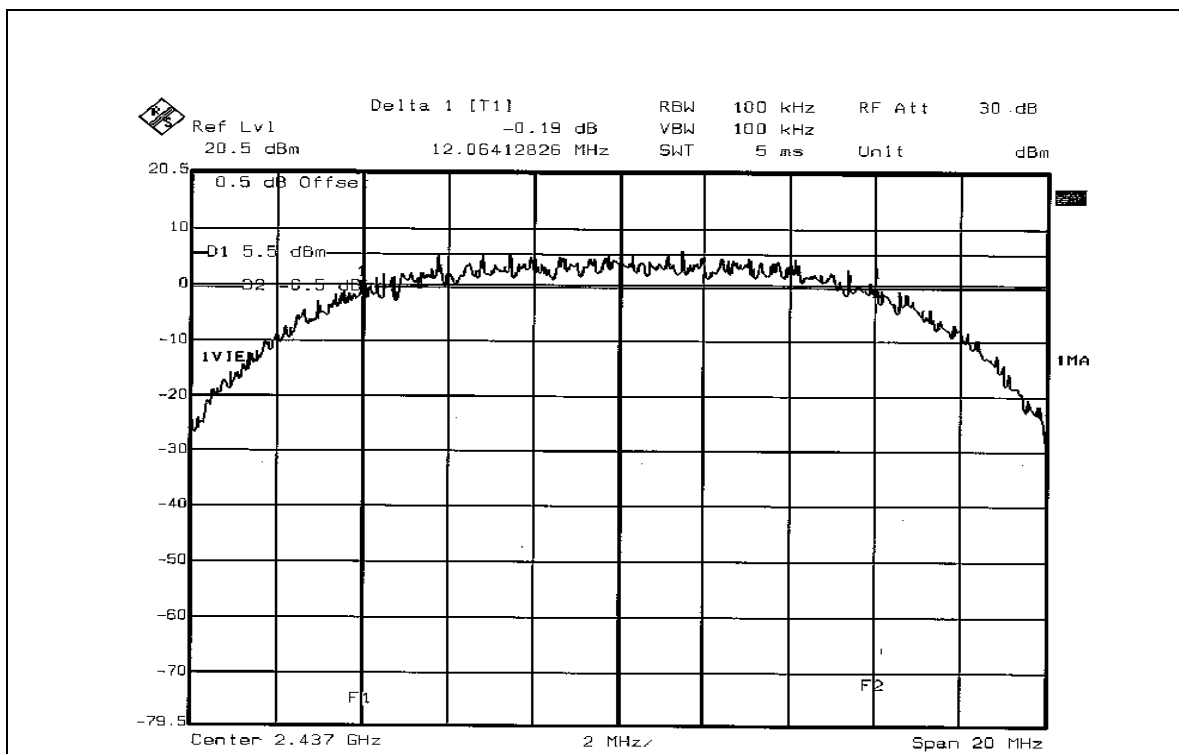
EUT	Wireless 11a+g Dual-Band Access Point	MODEL	WX-7800A
MODULATION TYPE	CCK	TRANSFER RATE	11Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	24deg.C, 64%RH, 991hPa
TESTED BY	Leo Hung		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	12.26	0.5	PASS
6	2437	12.06	0.5	PASS
11	2462	11.82	0.5	PASS

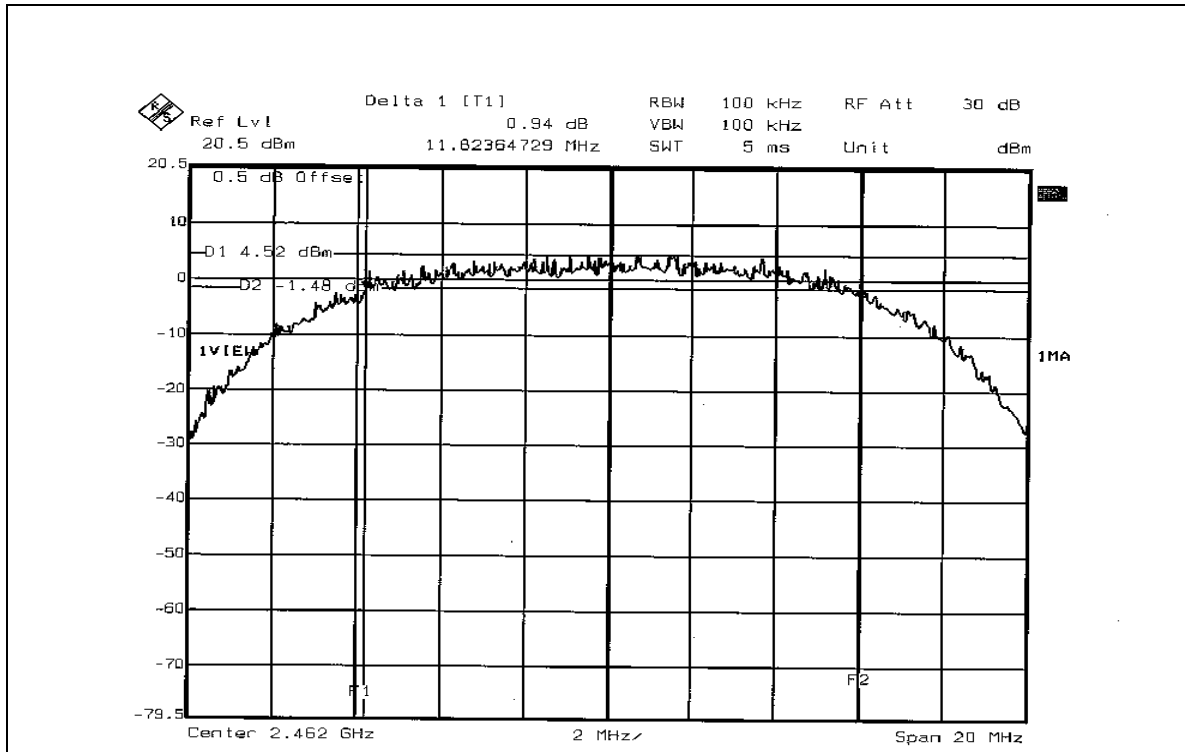
CH 1



CH 6



CH 11

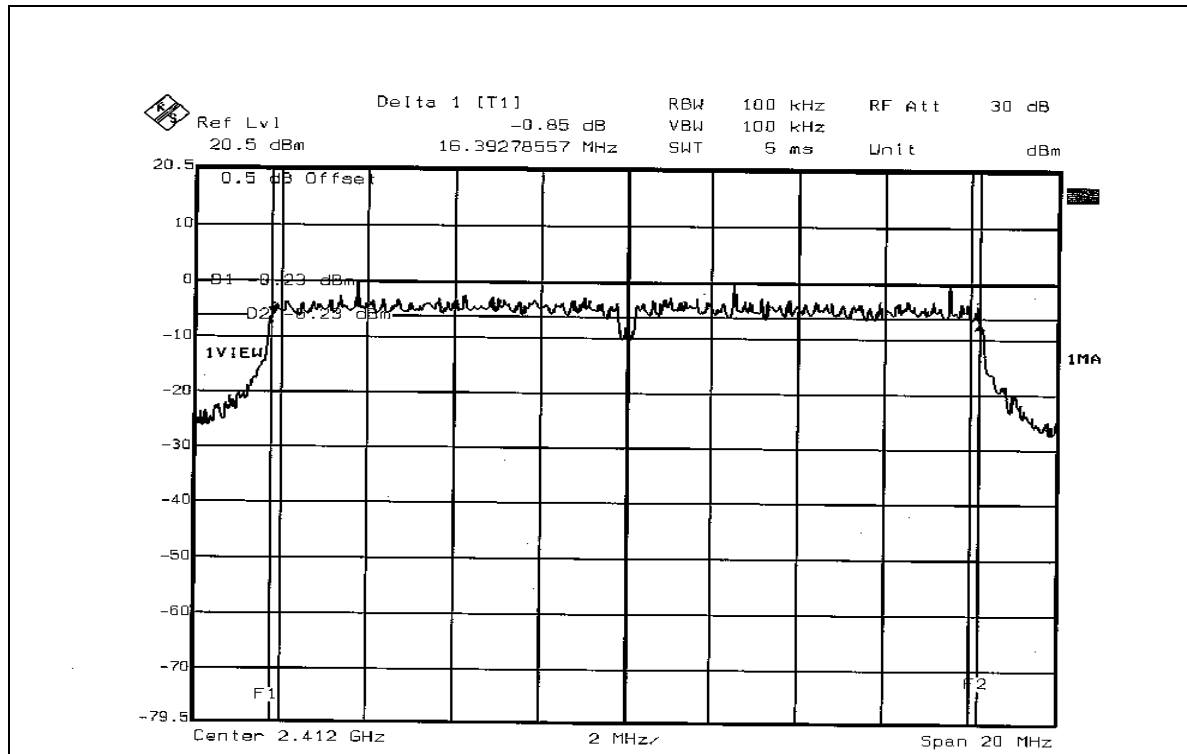


802.11g OFDM modulation

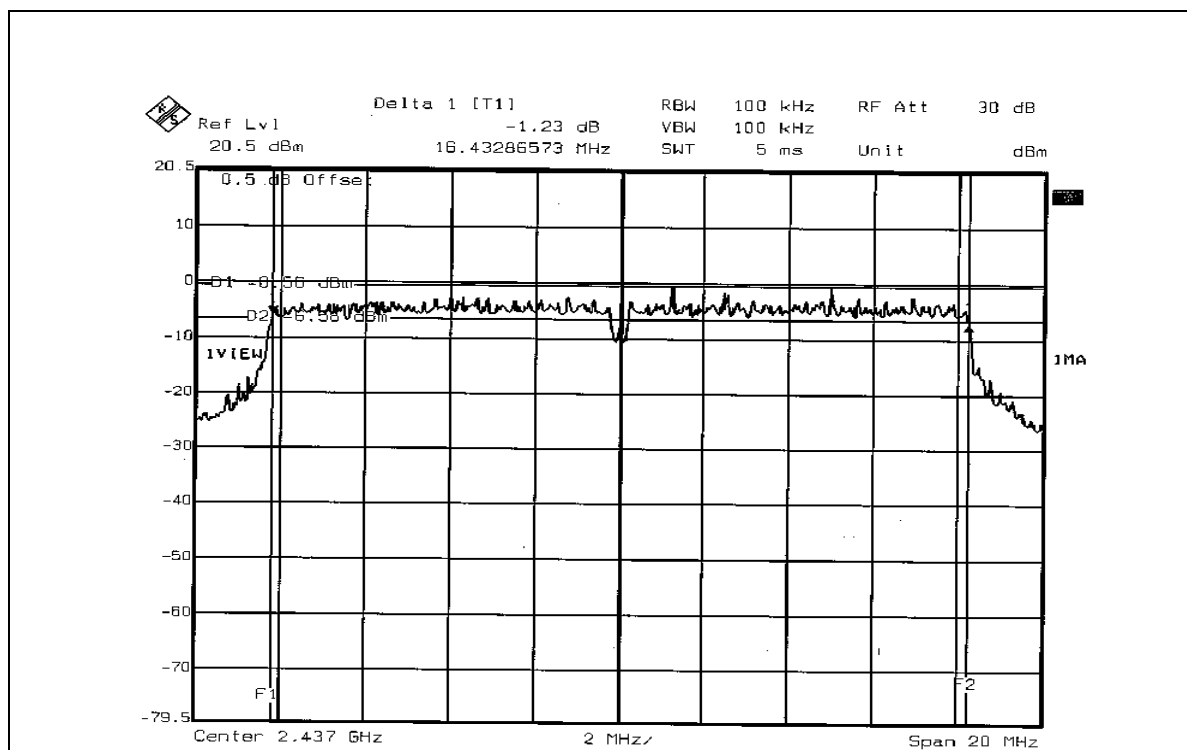
EUT	Wireless 11a+g Dual-Band Access Point	MODEL	WX-7800A
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	24deg.C, 64%RH, 991hPa
TESTED BY	Leo Hung		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	16.39	0.5	PASS
6	2437	16.43	0.5	PASS
11	2462	16.39	0.5	PASS

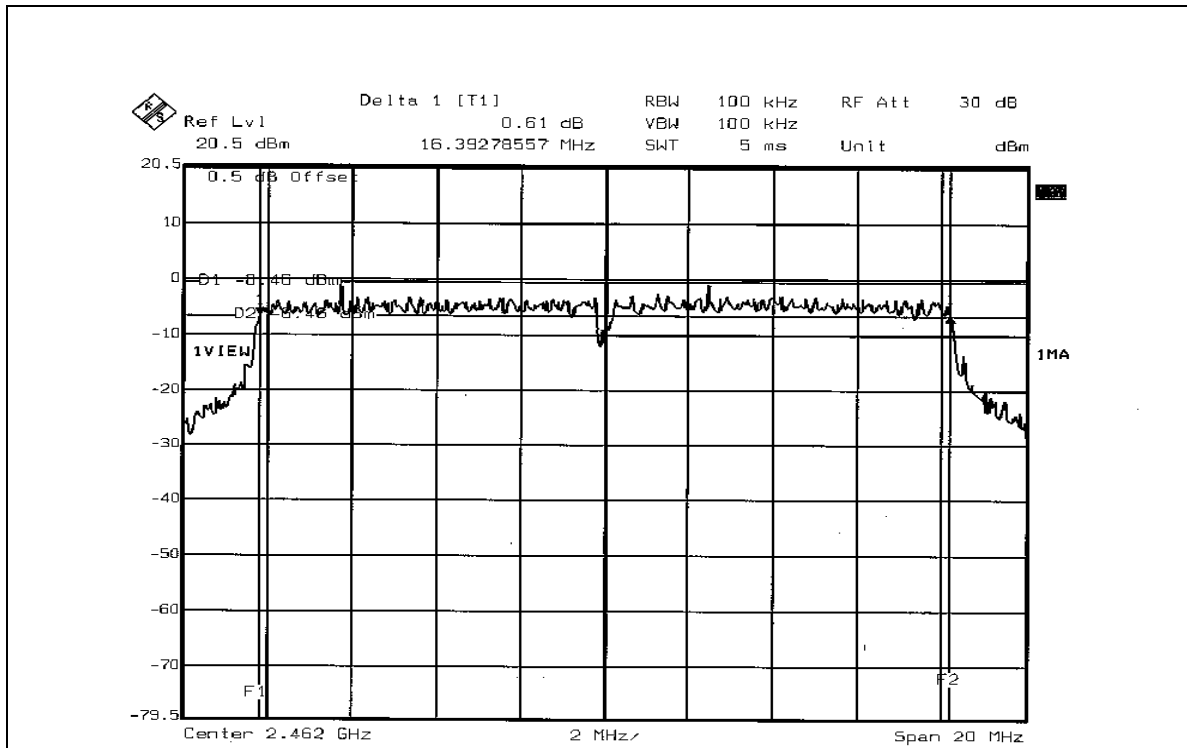
CH 1



CH 6



CH 11

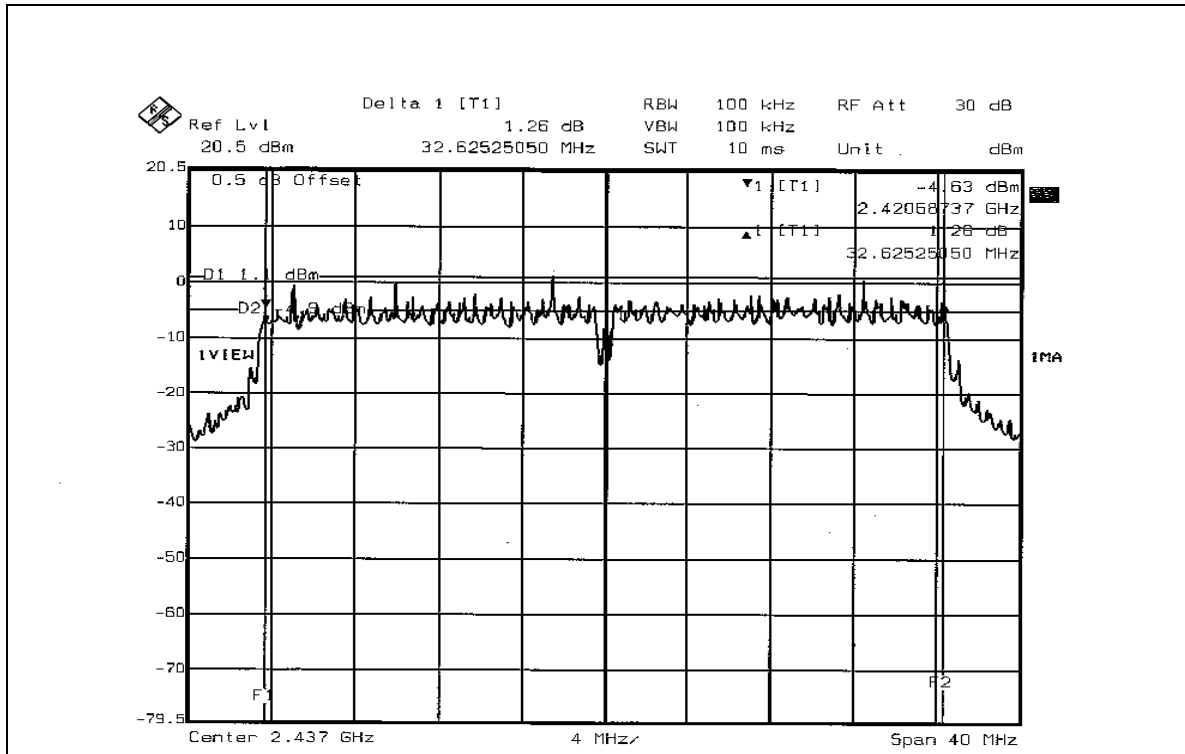


802.11g Turbo OFDM modulation

EUT	Wireless 11a+g Dual-Band Access Point	MODEL	WX-7800A
MODULATION TYPE	BPSK	TRANSFER RATE	12Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	24deg.C, 64%RH, 991hPa
TESTED BY	Leo Hung		

CHANNEL	CHANNEL FREQUENCY (MHz)	6 dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
6	2437	32.62	0.5	PASS

CH 6



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. 12, 2005
AGILENT SIGNAL GENERATOR	E8257C	MY43320668	Dec. 31, 2005
TEKTRONIX OSCILLOSCOPE	TDS 1012	C019167	Feb. 01, 2006
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

EUT	Wireless 11a+g Dual-Band Access Point	MODEL	WX-7800A
MODULATION TYPE	CCK	TRANSFER RATE	11Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	24deg.C, 64%RH, 991hPa
TESTED BY	Leo Hung		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	64.57	18.10	30	PASS
6	2437	63.10	18.00	30	PASS
11	2462	51.29	17.10	30	PASS

802.11g OFDM modulation

EUT	Wireless 11a+g Dual-Band Access Point	MODEL	WX-7800A
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	24deg.C, 64%RH, 991hPa
TESTED BY	Leo Hung		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	39.81	16.00	30	PASS
6	2437	40.74	16.10	30	PASS
11	2462	41.69	16.20	30	PASS

802.11g Turbo OFDM modulation

EUT	Wireless 11a+g Dual-Band Access Point	MODEL	WX-7800A
MODULATION TYPE	BPSK	TRANSFER RATE	12Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	24deg.C, 64%RH, 991hPa
TESTED BY	Leo Hung		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
6	2437	41.69	16.20	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. 12, 2005

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

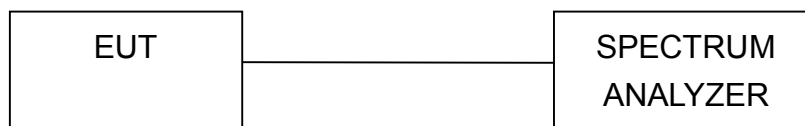
The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3kHz RBW and 30kHz VBW, set sweep time = span/3kHz. The power spectral density was measured and recorded.

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

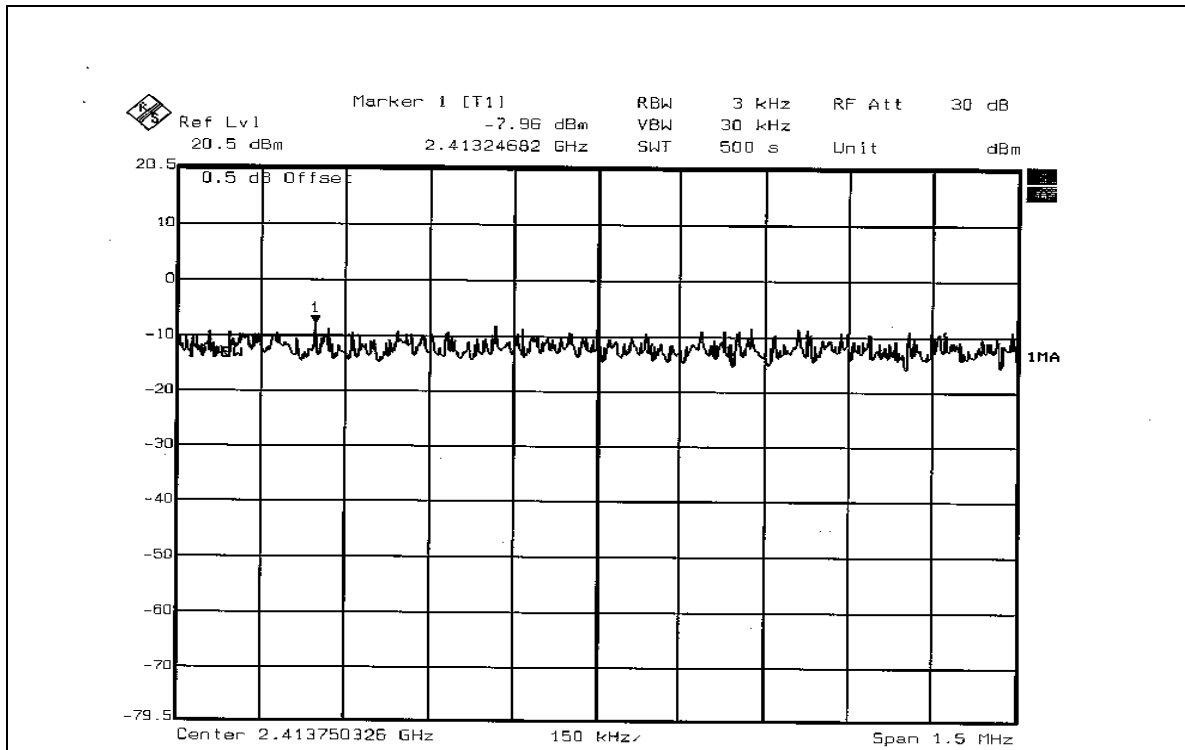
4.5.7 TEST RESULTS

802.11b DSSS modulation

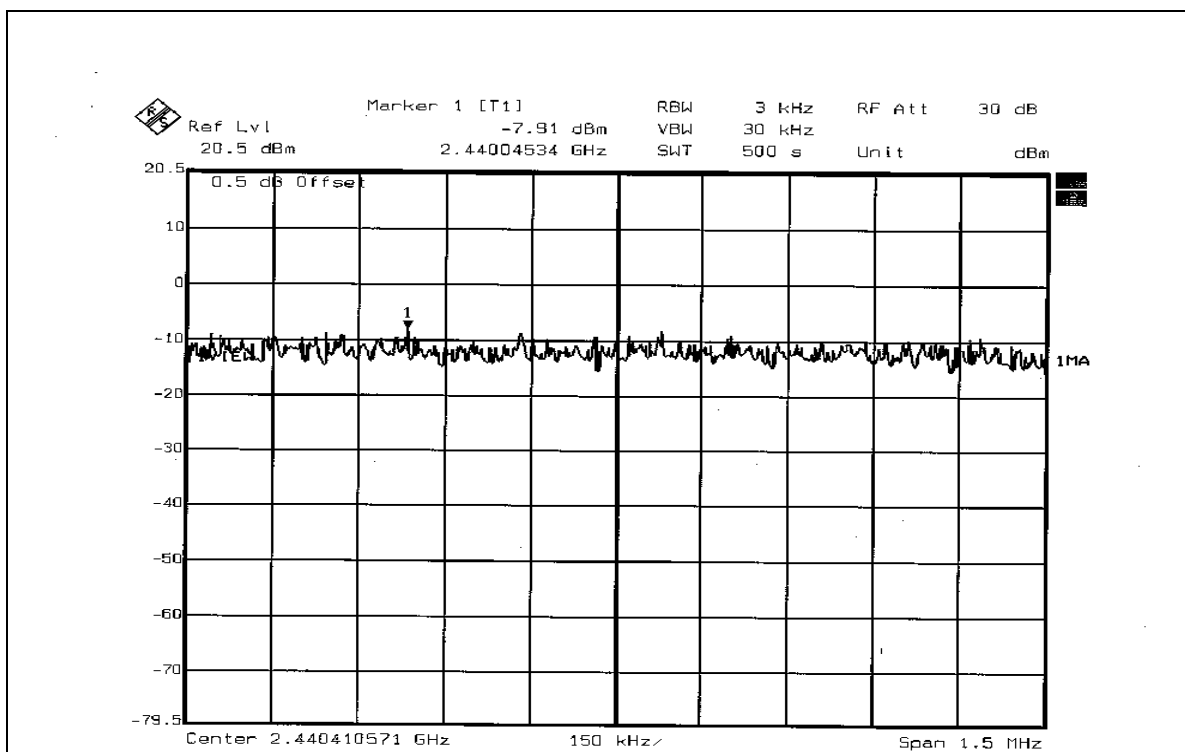
EUT	Wireless 11a+g Dual-Band Access Point	MODEL	WX-7800A
MODULATION TYPE	CCK	TRANSFER RATE	11Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	24deg.C, 64%RH, 991hPa
TESTED BY	Leo Hung		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-7.96	8	PASS
6	2437	-7.91	8	PASS
11	2462	-8.29	8	PASS

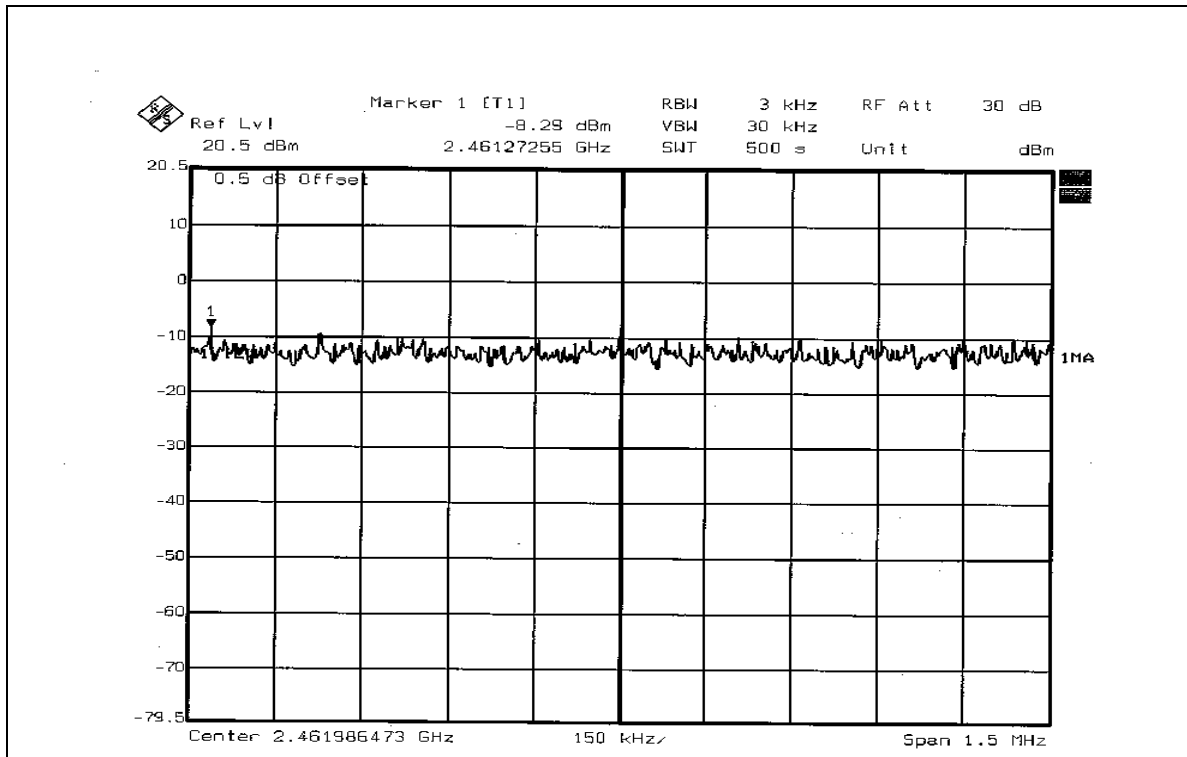
CH 1



CH 6



CH 11

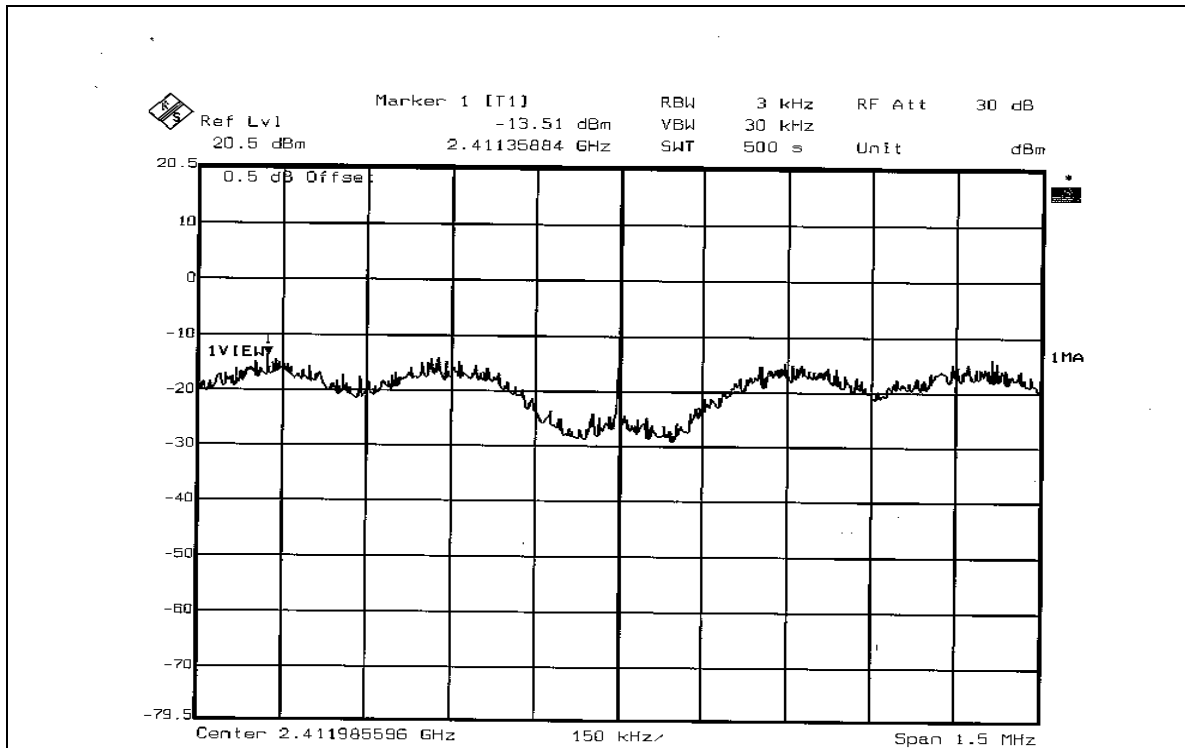


802.11g OFDM modulation

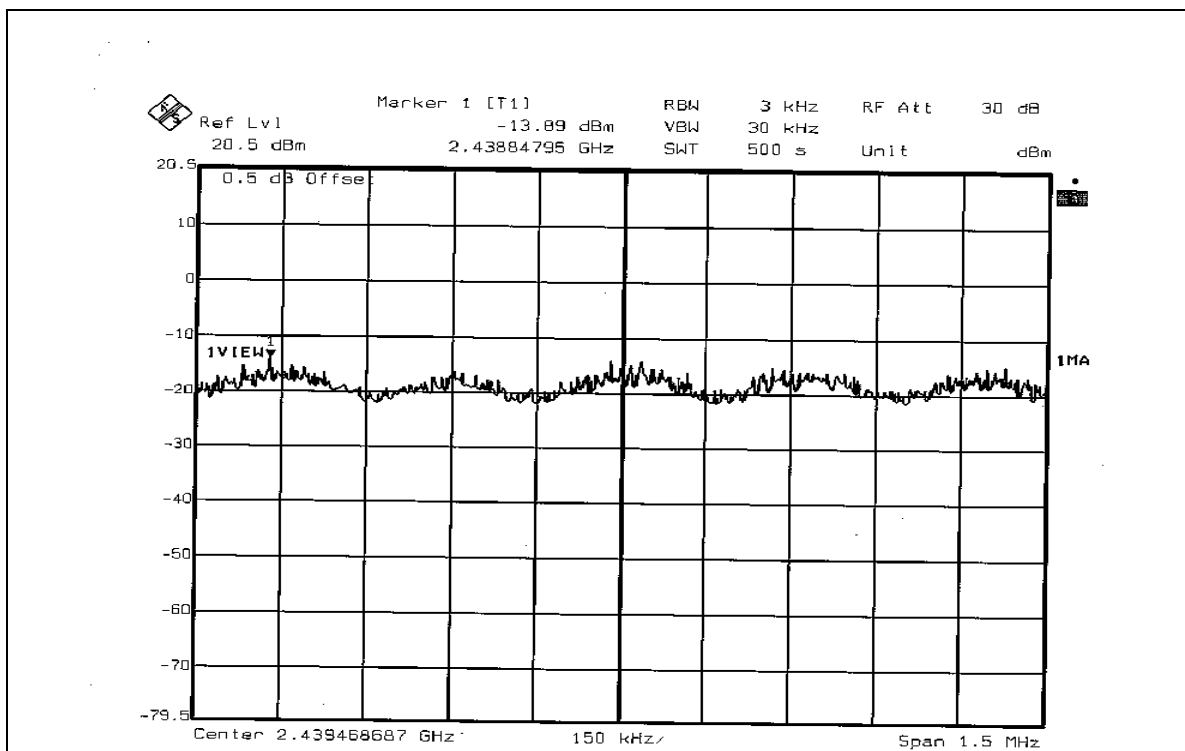
EUT	Wireless 11a+g Dual-Band Access Point	MODEL	WX-7800A
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	24deg.C, 64%RH, 991hPa
TESTED BY	Leo Hung		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-13.51	8	PASS
6	2437	-13.89	8	PASS
11	2462	-13.76	8	PASS

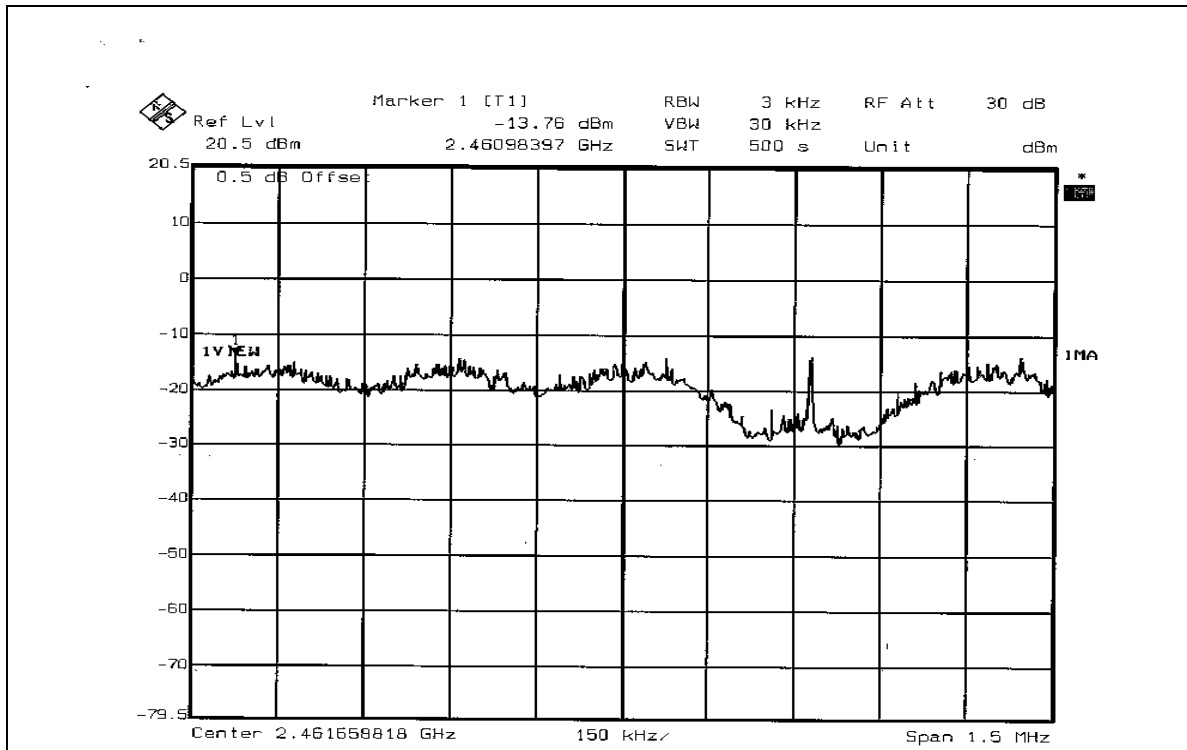
CH 1



CH 6



CH 11

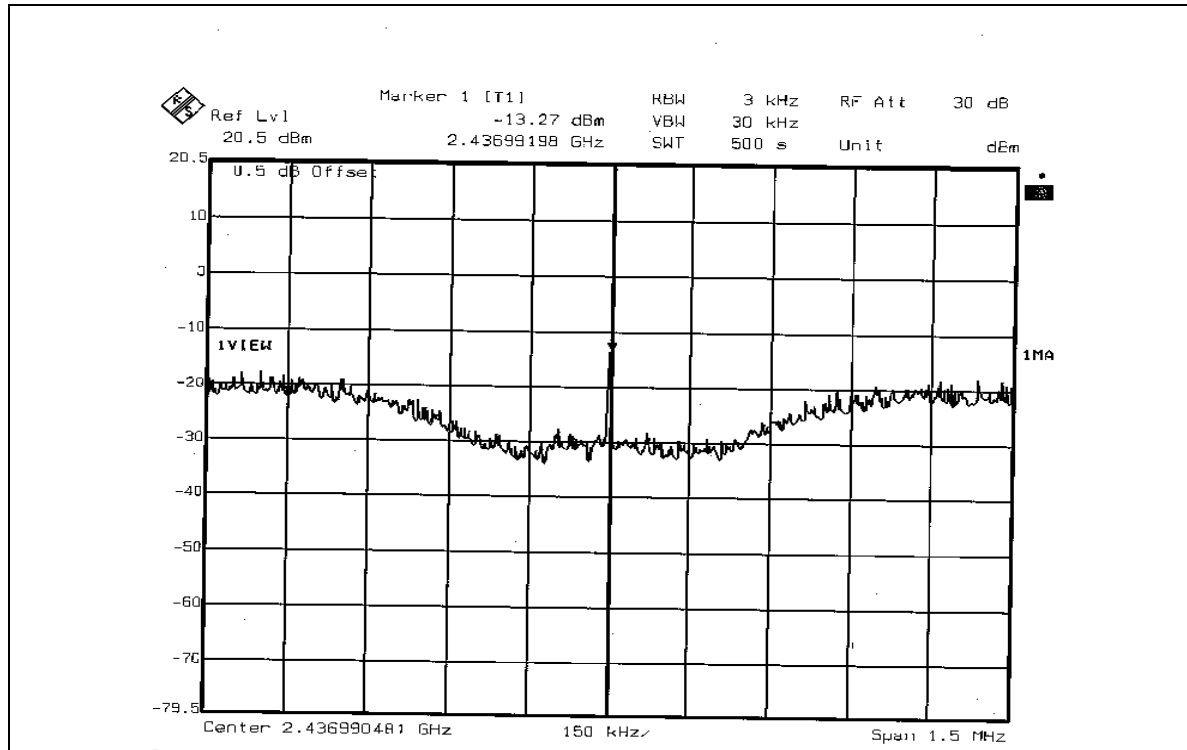


802.11g Turbo OFDM modulation

EUT	Wireless 11a+g Dual-Band Access Point	MODEL	WX-7800A
MODULATION TYPE	BPSK	TRANSFER RATE	12Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	24deg.C, 64%RH, 991hPa
TESTED BY	Leo Hung		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
6	2437	-13.27	8	PASS

CH 6



4.6 BAND EDGES MEASUREMENT

4.6.1 LIMITS OF BAND EDGES MEASUREMENT

Below -20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

4.6.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSEK30	100049	Aug. 12, 2005

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

4.6.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer via a low lose cable. Set both RBW and VBW of spectrum analyzer to 100kHz with suitable frequency span including 100 MHz bandwidth from band edge. The band edges was measured and recorded.

The spectrum plots (Peak RBW=VBW=100kHz ; Average RBW=1MHz, VBW=10Hz) are attached on the following pages.

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 EUT OPERATING CONDITION

Same as Item 4.3.6



4.6.6 TEST RESULTS

The spectrum plots are attached on the following 18 images. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(d).

802.11b DSSS modulation

NOTE 1: The band edge emission plot on page 62 shows 51.87dBc between carrier maximum power and local maximum emission in restrict band (2.3859GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 113.49dBuV/m (Peak), so the maximum field strength in restrict band is $113.49 - 51.87 = 61.62$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot of on page 62 shows 54.66dBc between carrier maximum power and local maximum emission in restrict band (2.3288GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 106.20dBuV/m (Average), so the maximum field strength in restrict band is $106.20 - 54.66 = 51.54$ dBuV/m which is under 54dBuV/m limit.

NOTE 2: The band edge emission plot on page 63 shows 53.97dBc between carrier maximum power and local maximum emission in restrict band (2.4895GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 114.75dBuV/m (Peak), so the maximum field strength in restrict band is $114.75 - 53.97 = 60.78$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot on page 64 shows 56.73dBc between carrier maximum power and local maximum emission in restrict band (2.4841GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 106.82dBuV/m (Average), so the maximum field strength in restrict band is $106.82 - 56.73 = 50.09$ dBuV/m which is under 54dBuV/m limit.

Marker 1 [T1] RBW 100 kHz RF Att 30 dB

Ref Lvl 20.5 dBm 6.02 dBm VBW 100 kHz

2.40977555 GHz SWT 25 ms Unit dBm

0.5 dB Offset

D1 6.02 dBm

1V16b -13.98 dBm

1 [T1] 6.02 dBm 2.40977555 GHz

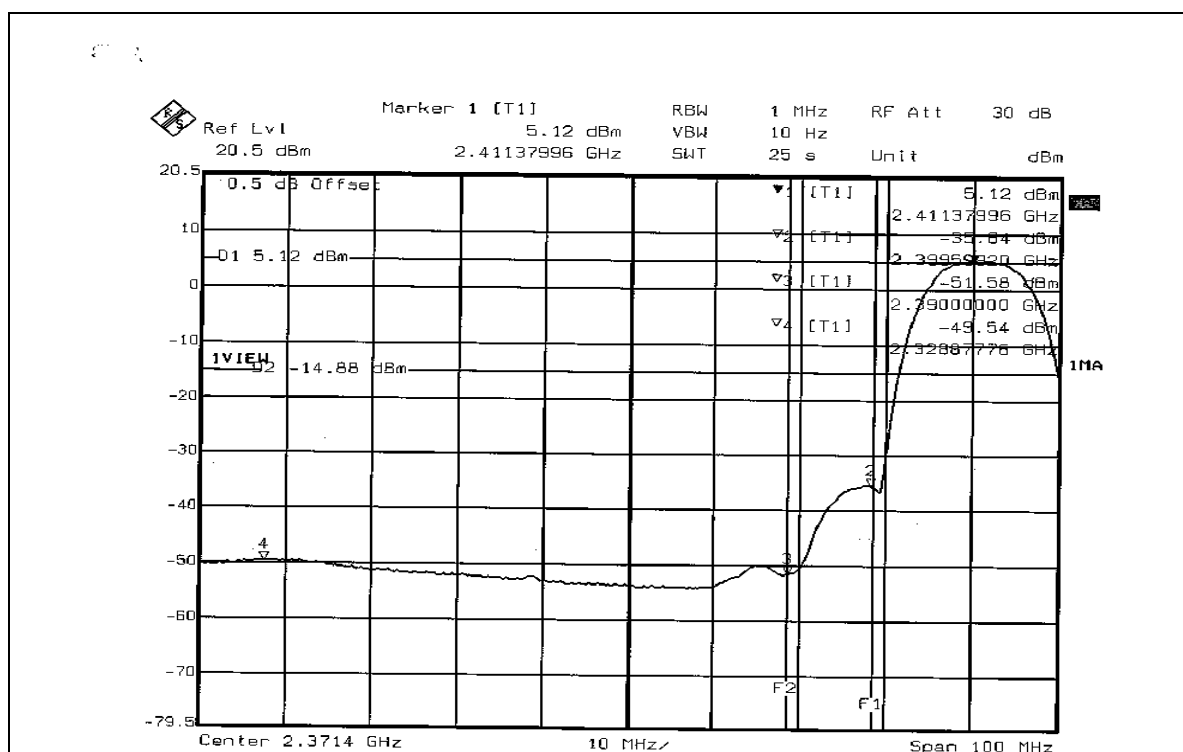
2 [T1] -35.41 dBm 2.39977555 GHz

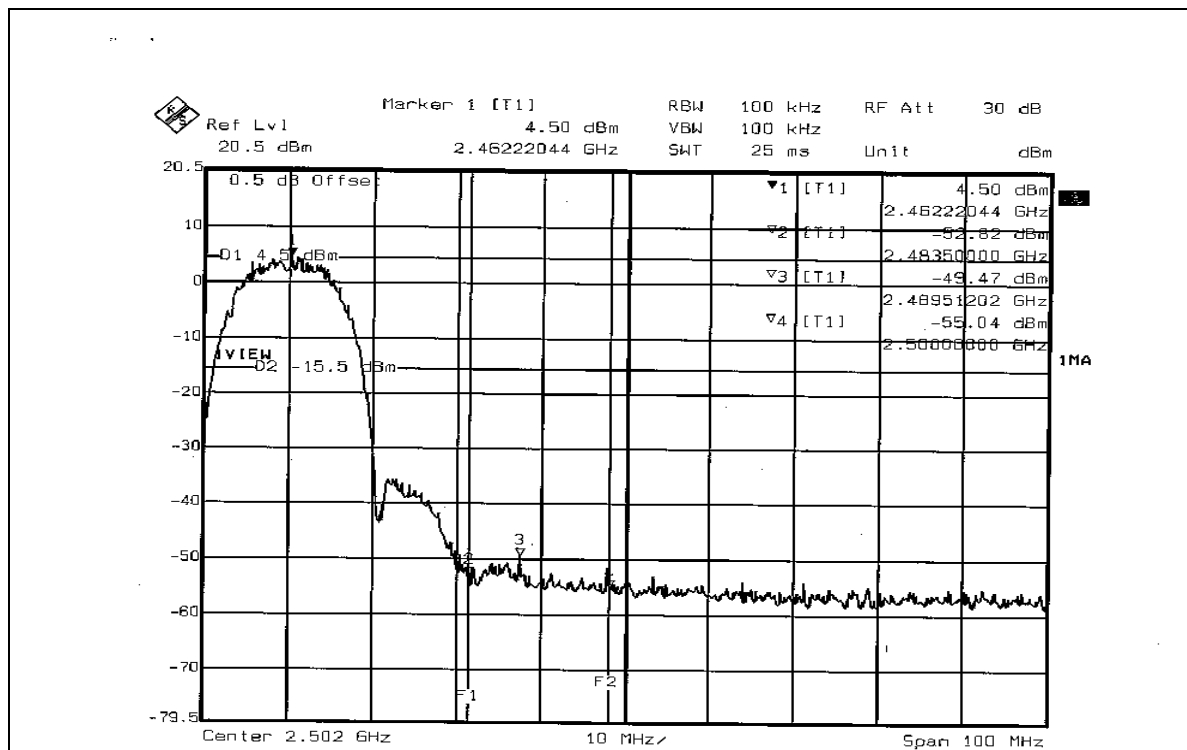
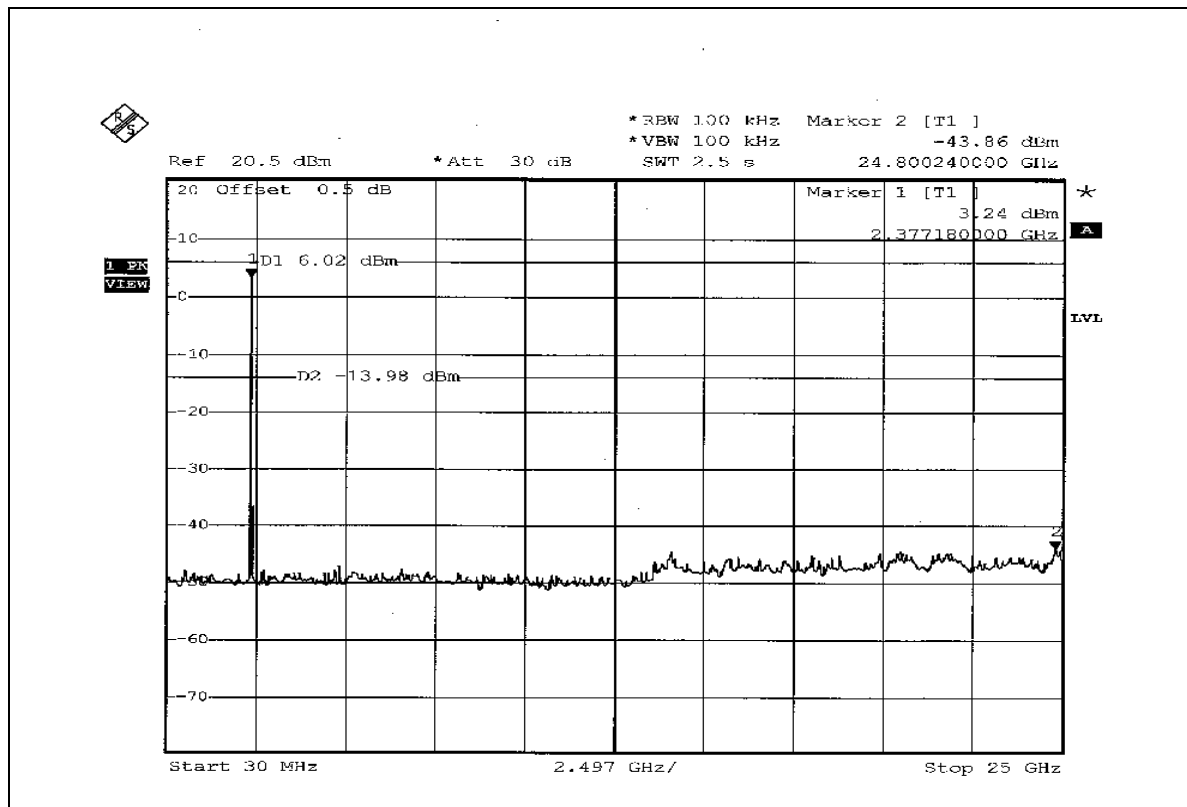
3 [T1] -43.91 dBm 2.39000000 GHz

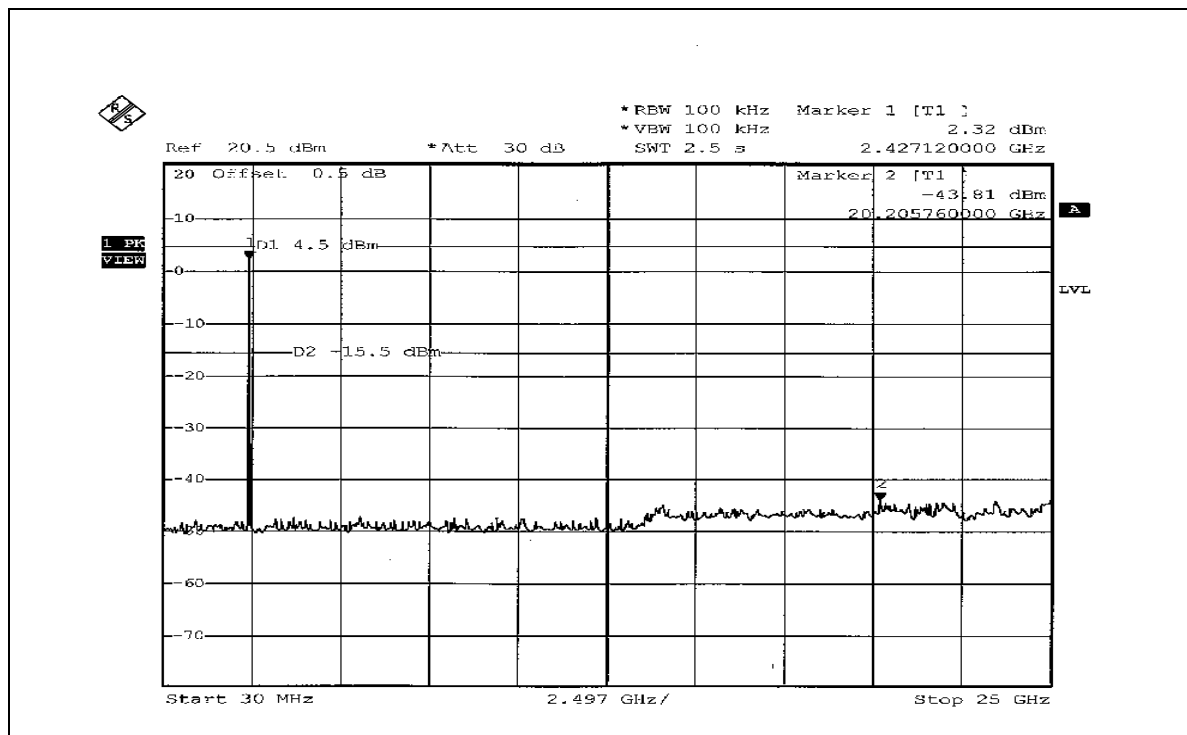
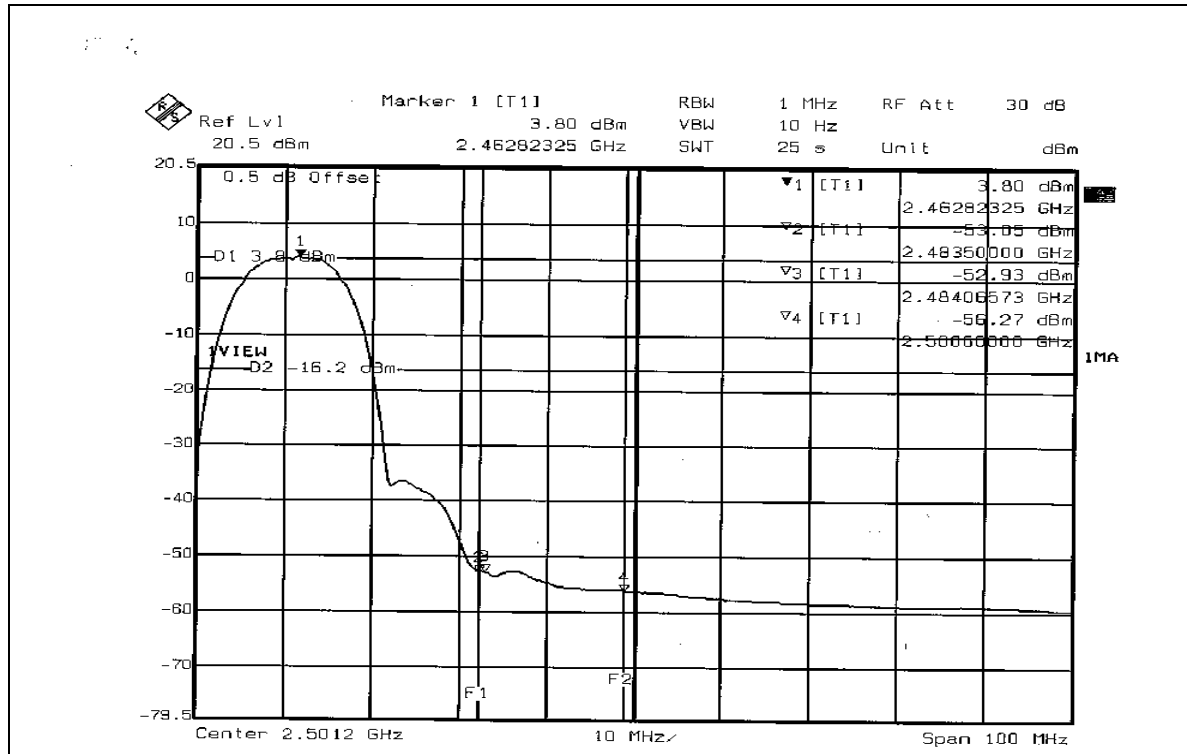
4 [T1] -45.85 dBm 2.38555138 GHz

1mA

Center 2.372 GHz 10 MHz/ Span 100 MHz







802.11g OFDM modulation

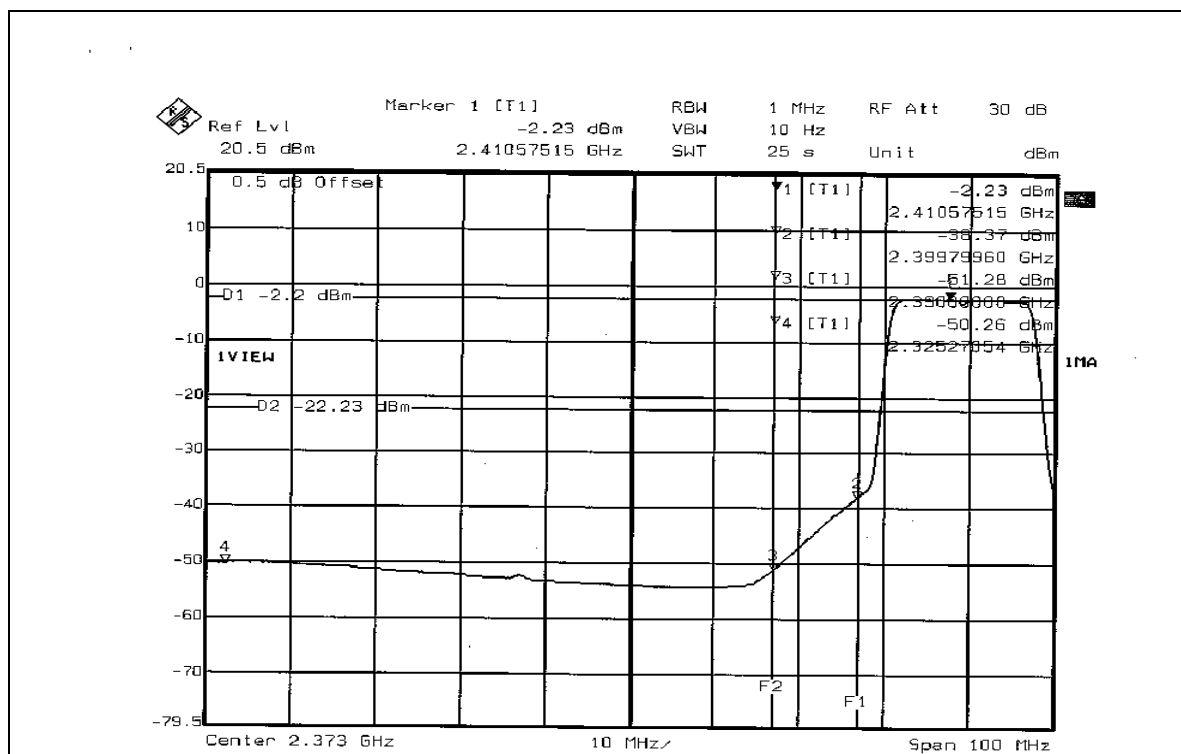
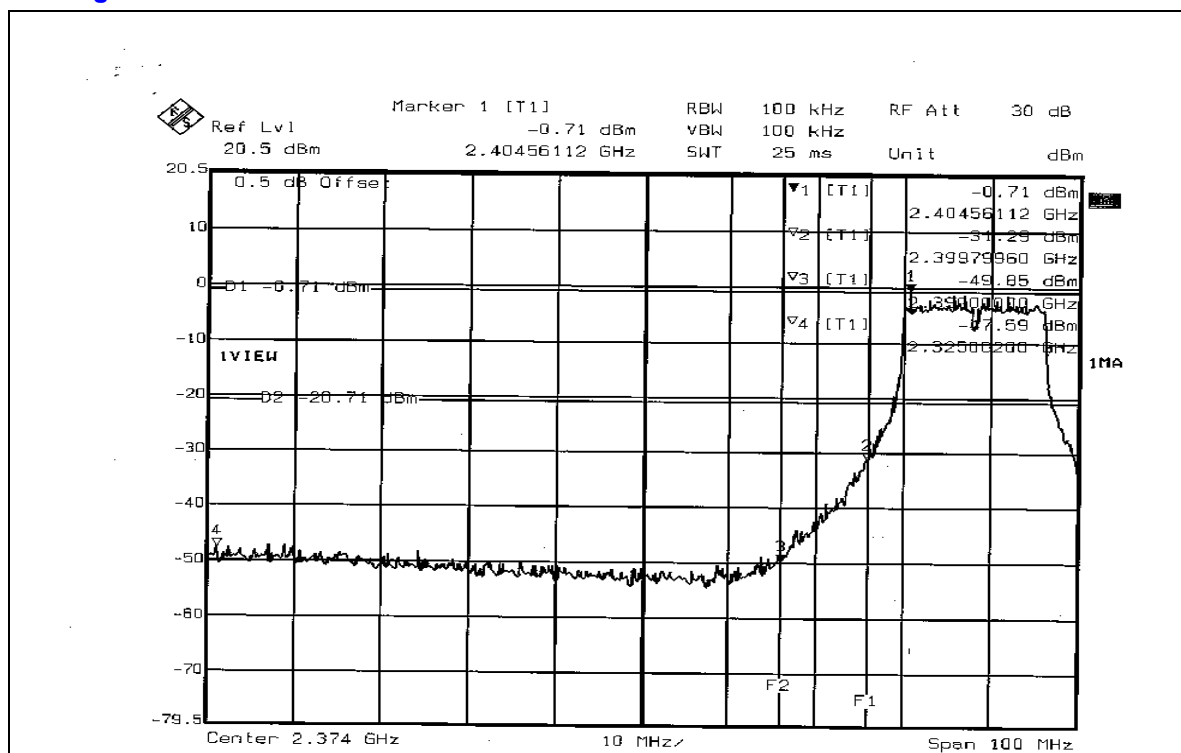
NOTE 1: The band edge emission plot on page 66 shows 46.88dBc between carrier maximum power and local maximum emission in restrict band (2.3250GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 109.08dBuV/m (Peak), so the maximum field strength in restrict band is $109.08 - 46.88 = 62.20$ dBuV/m which is under 74dBuV/m limit.

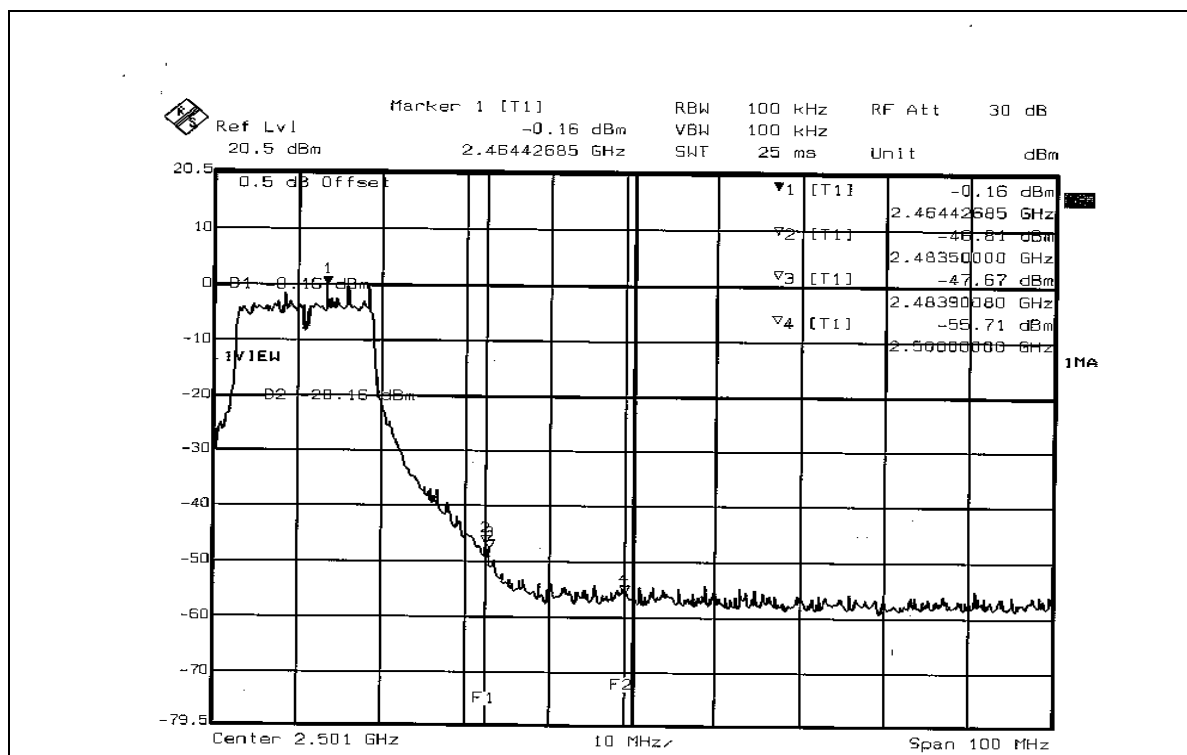
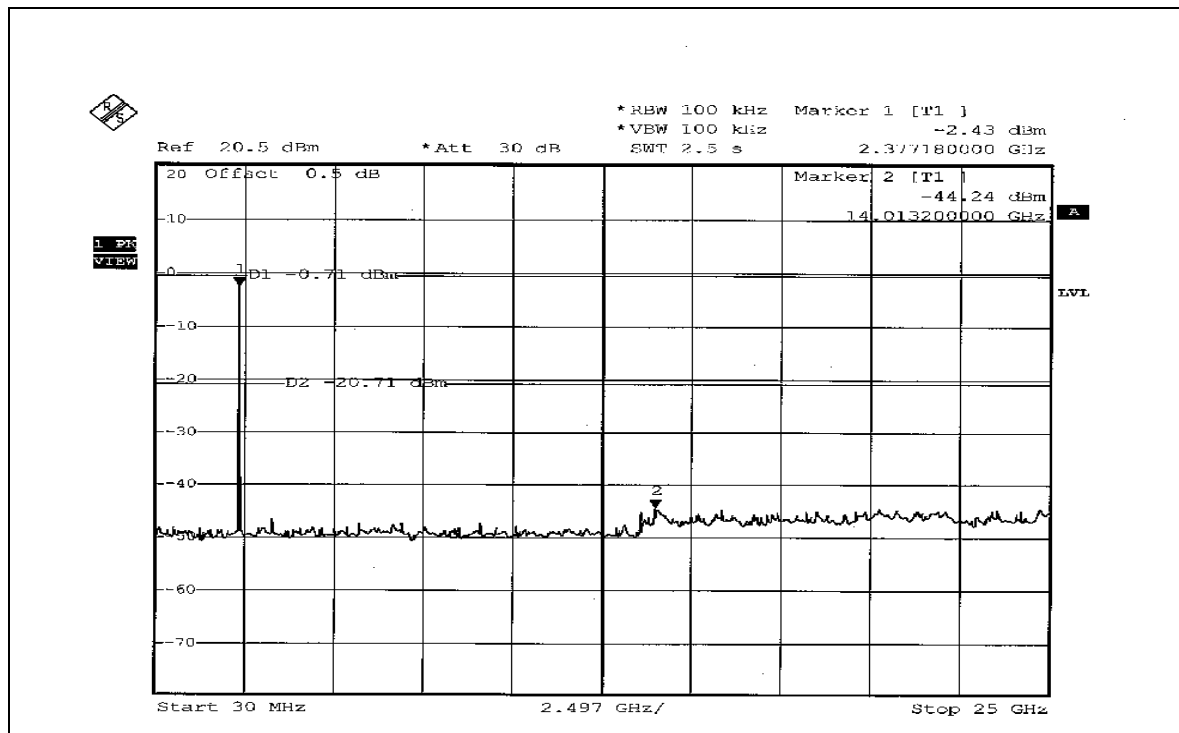
The band edge emission plot of on page 66 shows 48.03dBc between carrier maximum power and local maximum emission in restrict band (2.3253GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 99.42dBuV/m (Average), so the maximum field strength in restrict band is $99.42 - 48.03 = 51.39$ dBuV/m which is under 54dBuV/m limit.

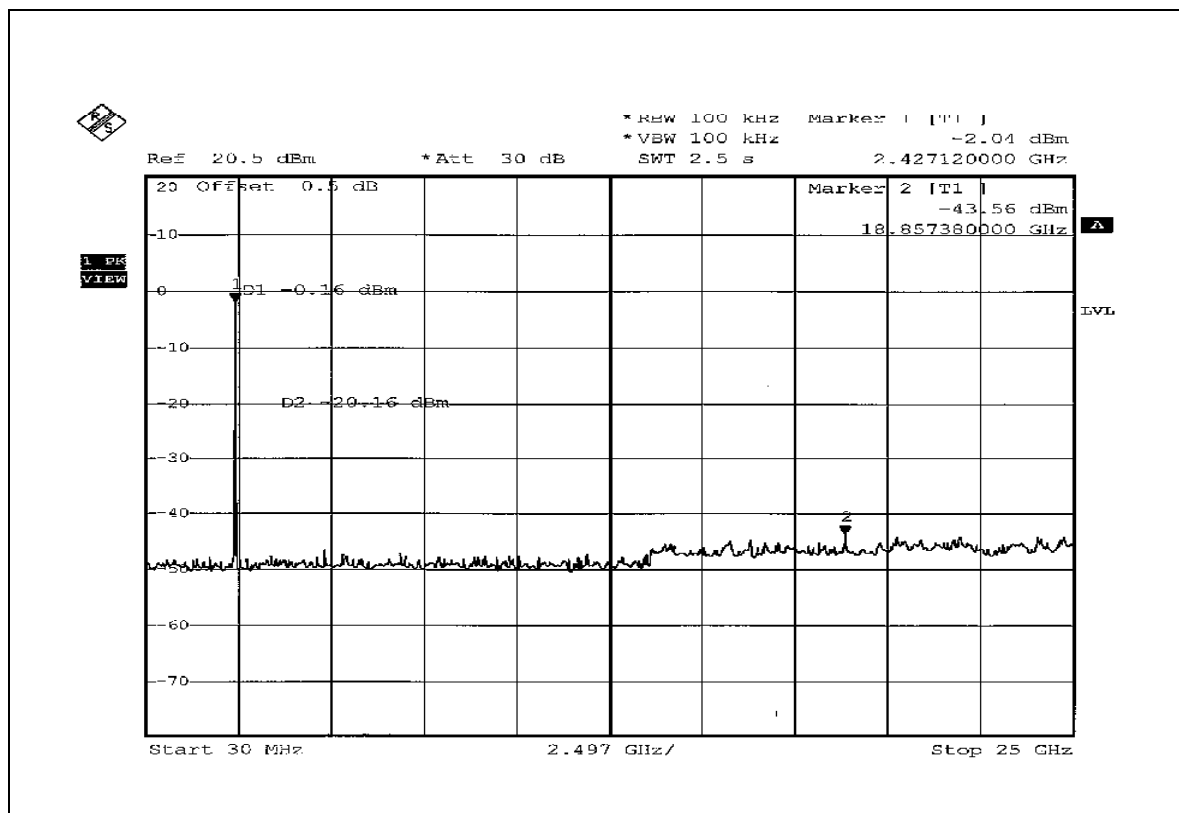
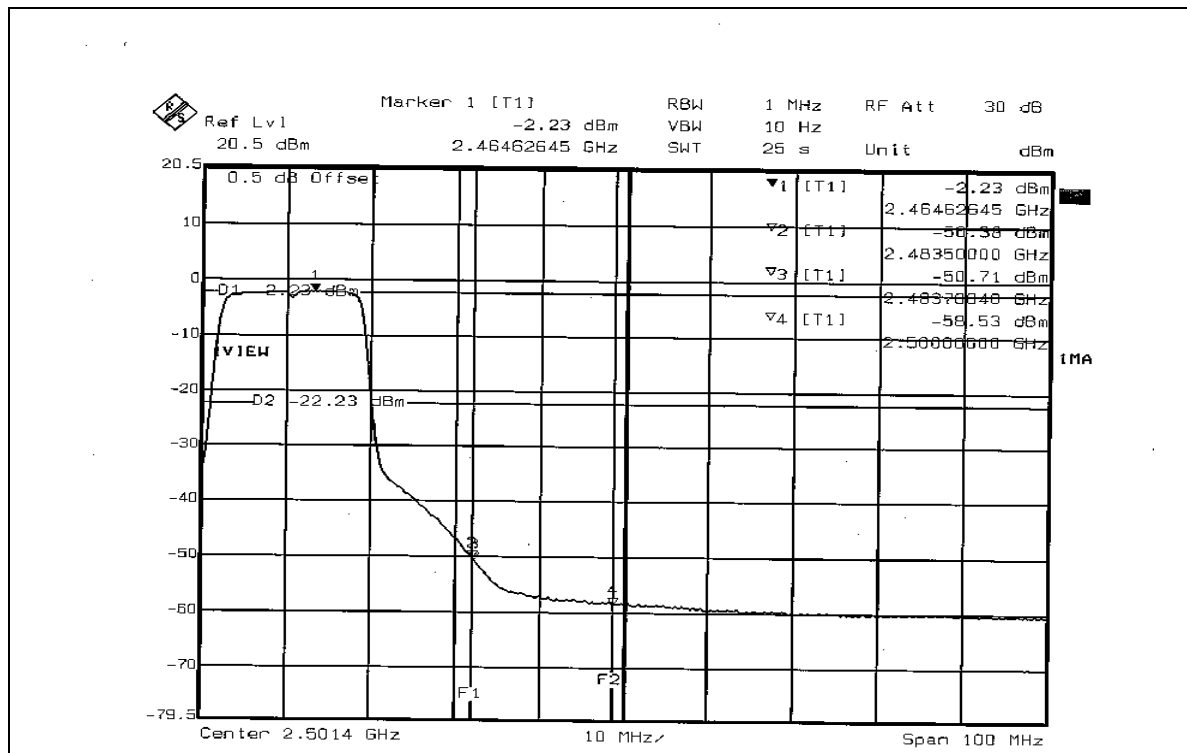
NOTE 2: The band edge emission plot on page 67 shows 46.65dBc between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 110.34dBuV/m (Peak), so the maximum field strength in restrict band is $110.34 - 46.65 = 63.69$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot on page 68 shows 48.15dBc between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 99.84dBuV/m (Average), so the maximum field strength in restrict band is $99.84 - 48.15 = 51.69$ dBuV/m which is under 54dBuV/m limit.

802.11g OFDM modulation









802.11g Turbo OFDM modulation

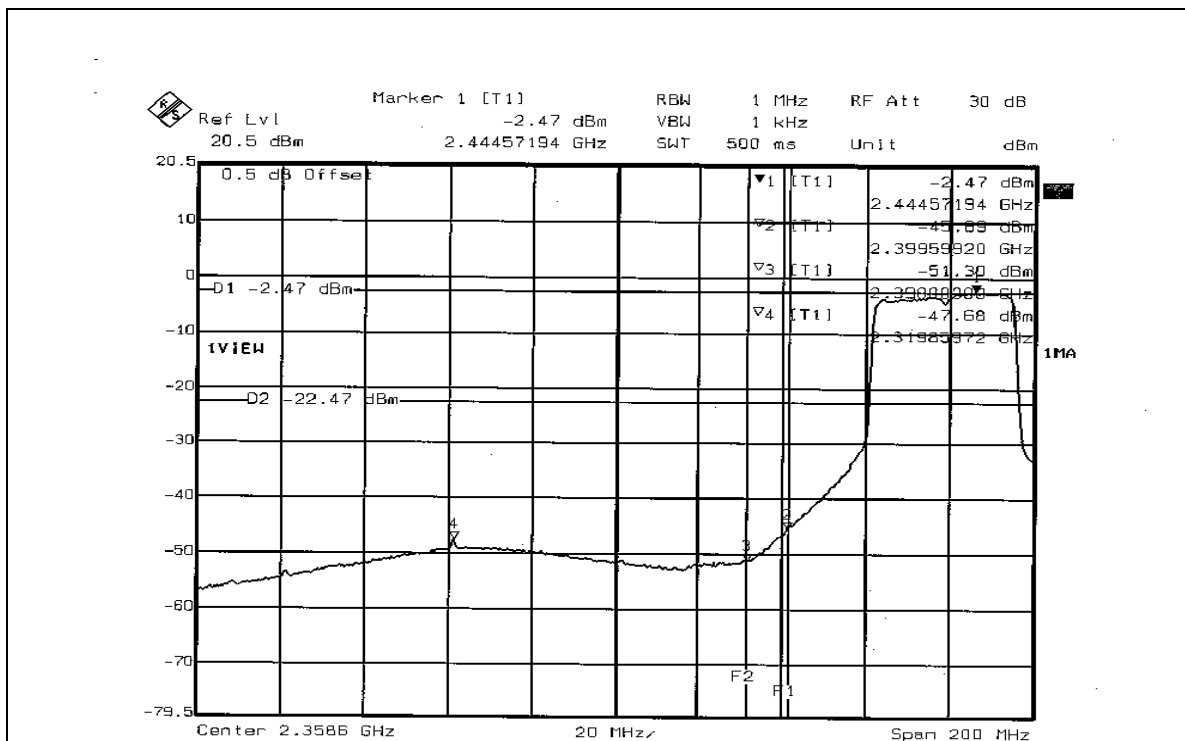
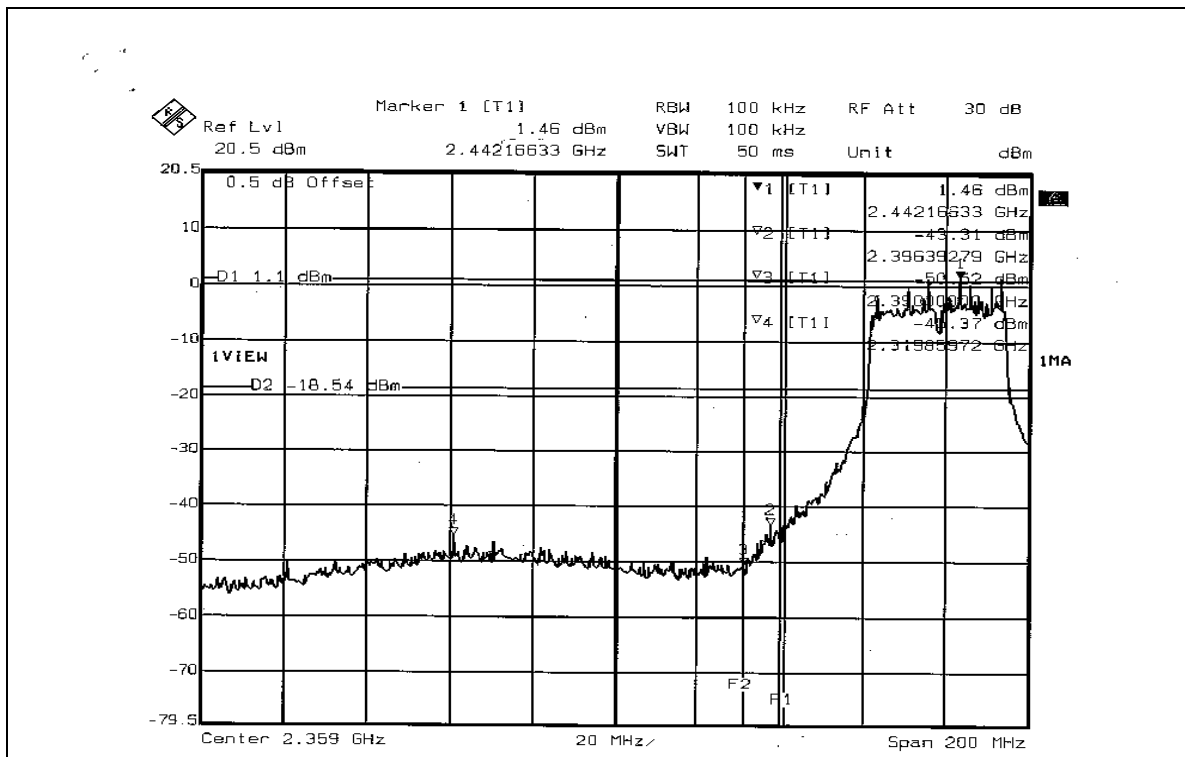
NOTE 1: The band edge emission plot on page 70 shows 46.83dBc between carrier maximum power and local maximum emission in restrict band (2.3199GHz). The emission of carrier strength list in the test result of channel 6 at the item 4.2.7 is 108.77dBuV/m (Peak), so the maximum field strength in restrict band is $108.77 - 46.83 = 61.94$ dBuV/m which is under 74dBuV/m limit.

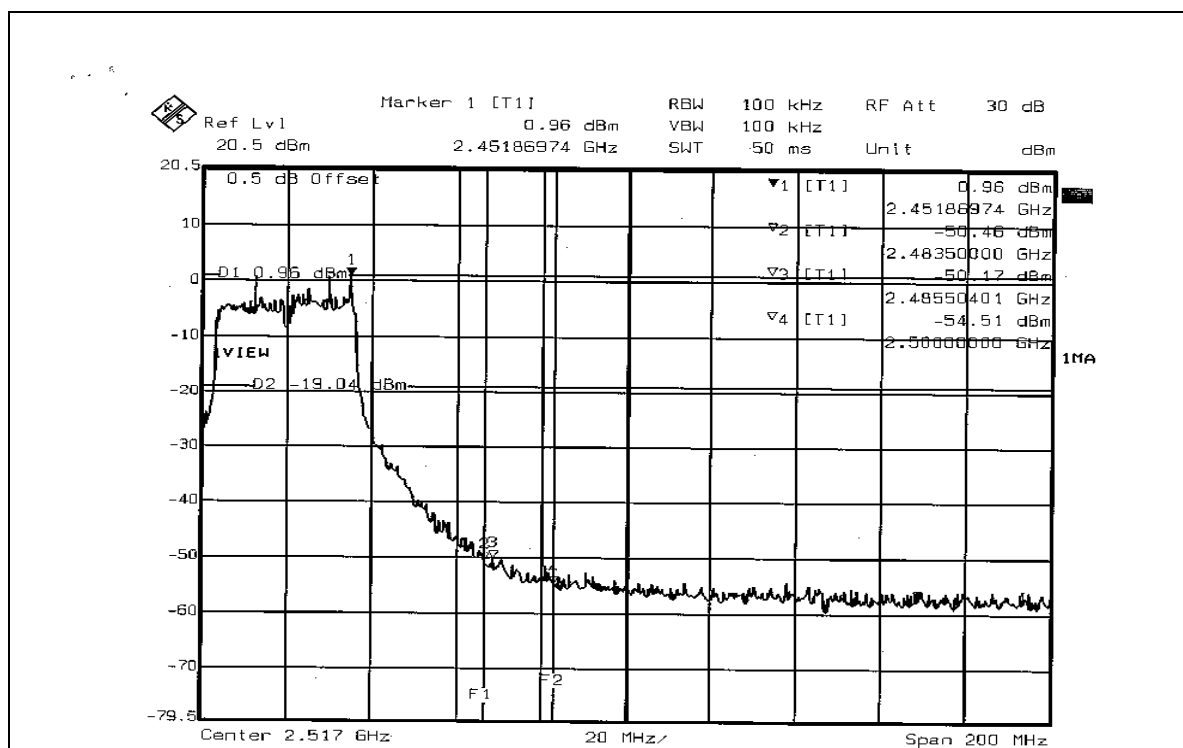
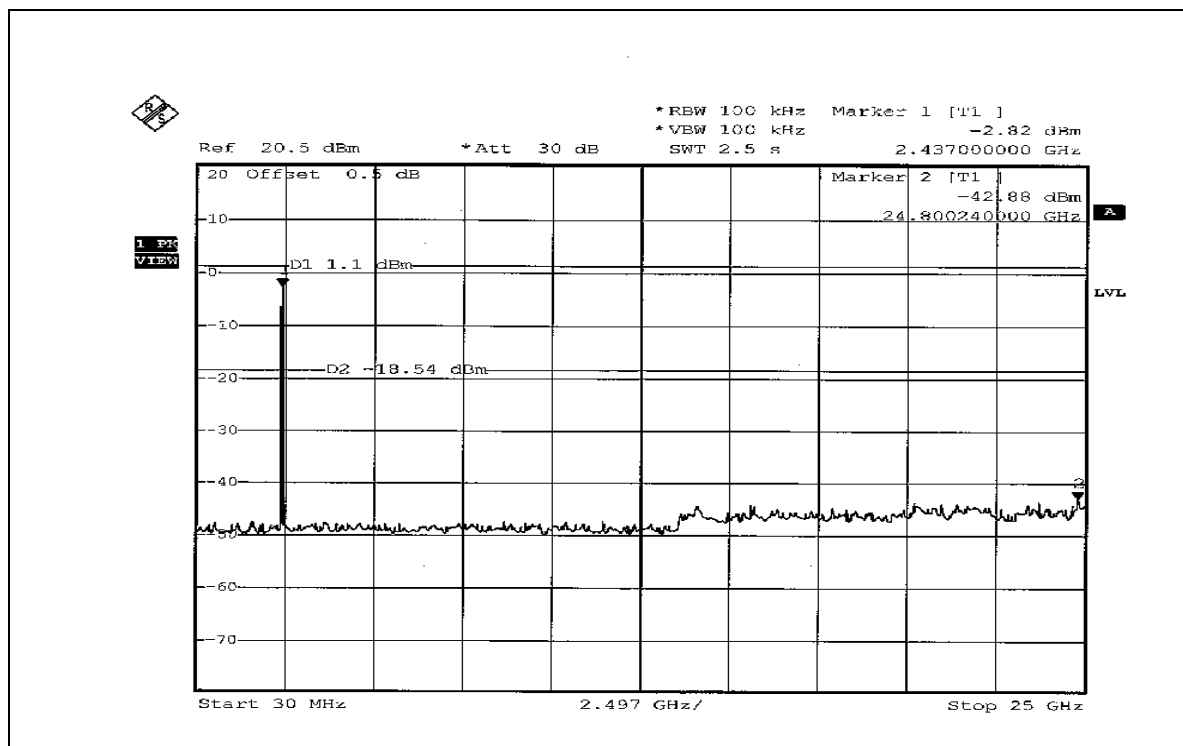
The band edge emission plot of on page 70 shows 45.21dBc between carrier maximum power and local maximum emission in restrict band (2.3199GHz). The emission of carrier strength list in the test result of channel 6 at the item 4.2.7 is 98.45dBuV/m (Average), so the maximum field strength in restrict band is $98.45 - 45.21 = 53.24$ dBuV/m which is under 54dBuV/m limit.

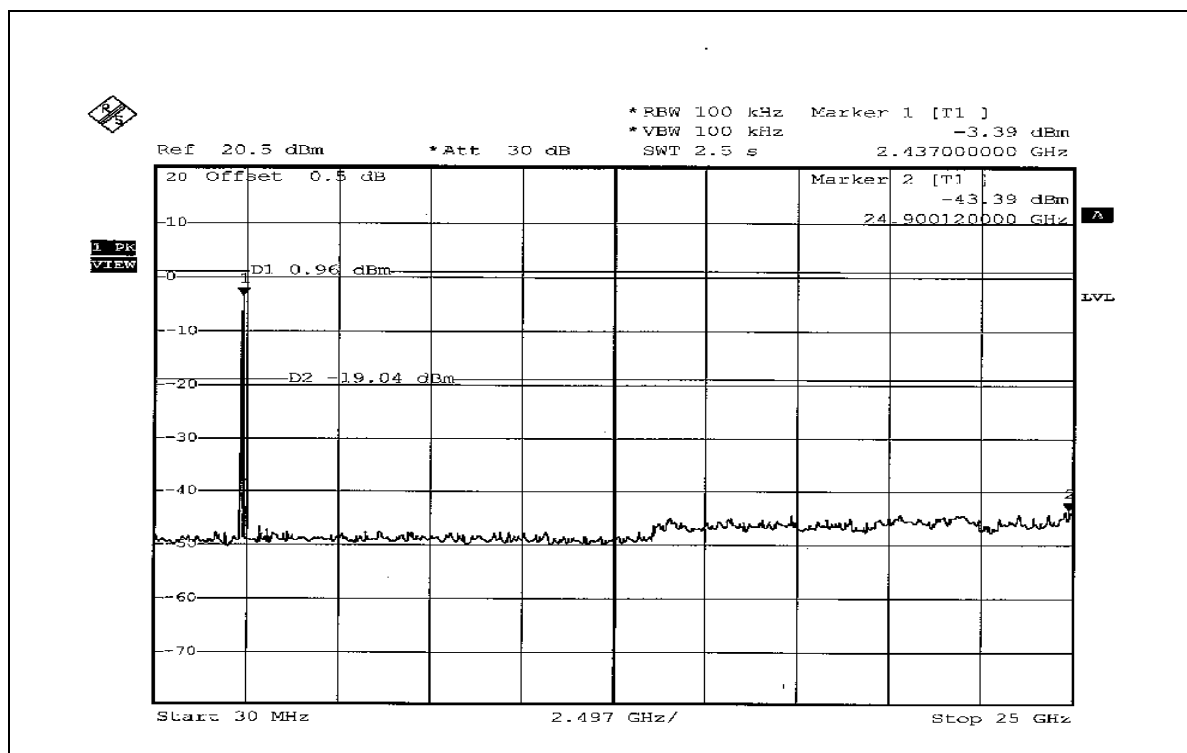
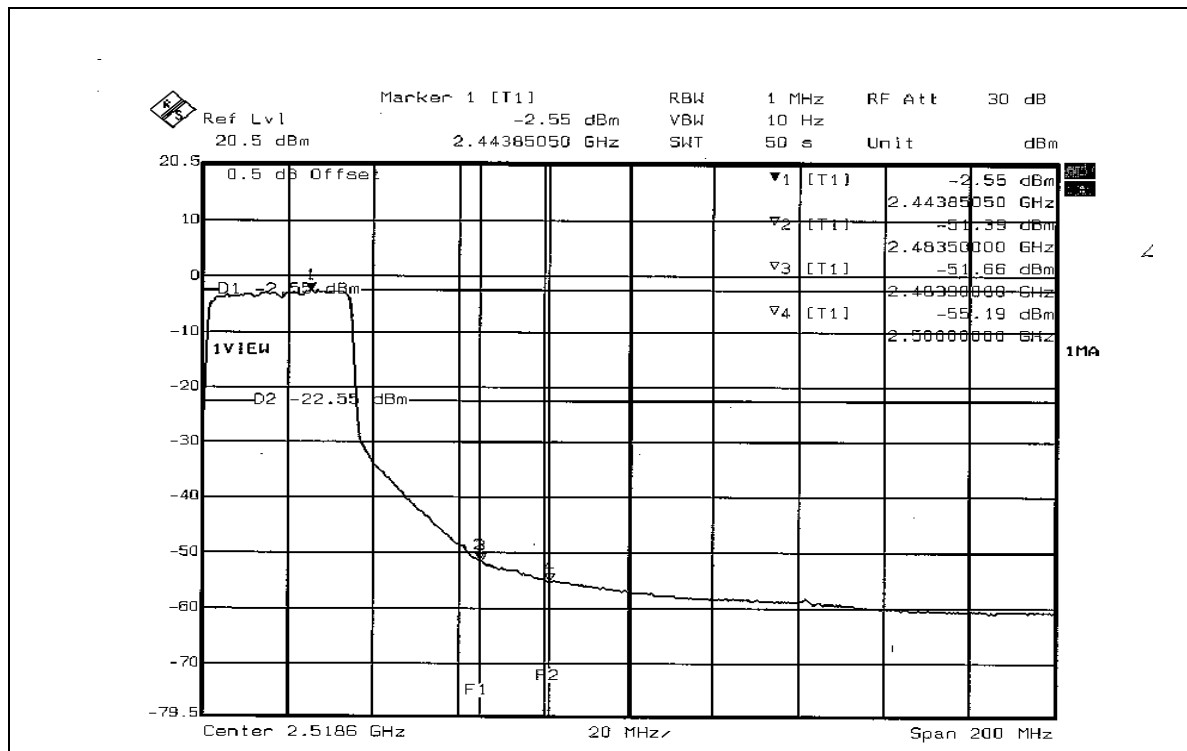
NOTE 2: The band edge emission plot on page 71 shows 51.13dBc between carrier maximum power and local maximum emission in restrict band (2.4855GHz). The emission of carrier strength list in the test result of channel 6 at the item 4.2.7 is 108.77dBuV/m (Peak), so the maximum field strength in restrict band is $108.77 - 51.13 = 57.64$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot on page 72 shows 48.84dBc between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 6 at the item 4.2.7 is 98.45dBuV/m (Average), so the maximum field strength in restrict band is $98.45 - 48.84 = 49.61$ dBuV/m which is under 54dBuV/m limit.

802.11g Turbo OFDM modulation









4.7 ANTENNA REQUIREMENT

4.7.1 STANDARD APPLICABLE

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

4.7.2 ANTENNA CONNECTED CONSTRUCTION

The antenna used in this product is Dipole antenna with Reverse SMA connector. The maximum Gain of the antenna is 2.0dBi.

5. TEST TYPES AND RESULTS (802.11a 5725~5850MHz Band)

5.1 CONDUCTED EMISSION MEASUREMENT

5.1.1 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:**
- The lower limit shall apply at the transition frequencies.
 - The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.
 - 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.

5.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
Test Receiver ROHDE & SCHWARZ	ESCS30	100288	Nov. 06, 2005
RF signal cable Woken	5D-FB	Cable-HyC02-01	Jan. 09, 2006
LISN ROHDE & SCHWARZ	ESH2-Z5	100100	Jan. 20, 2006
LISN ROHDE & SCHWARZ	ESH3-Z5	100311	Jan. 20, 2006
Software ADT	ADT_Cond_V3	NA	NA

- NOTE:**
- The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 - The test was performed in HwaYa Shielded Room 3.
 - The VCCI Site Registration No. is C-2047.



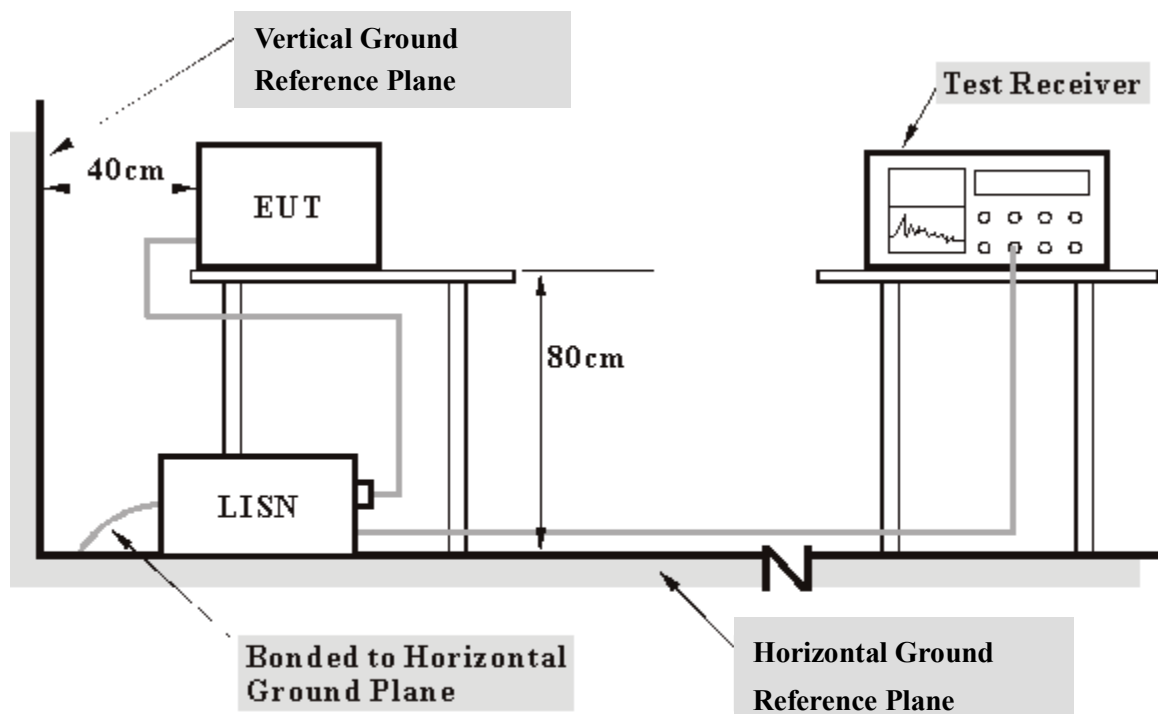
5.1.3 TEST PROCEDURES

- 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.

5.1.4 DEVIATION FROM TEST STANDARD

No deviation

5.1.5 TEST SETUP



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

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

5.1.6 EUT OPERATING CONDITIONS

Same as 4.1.6

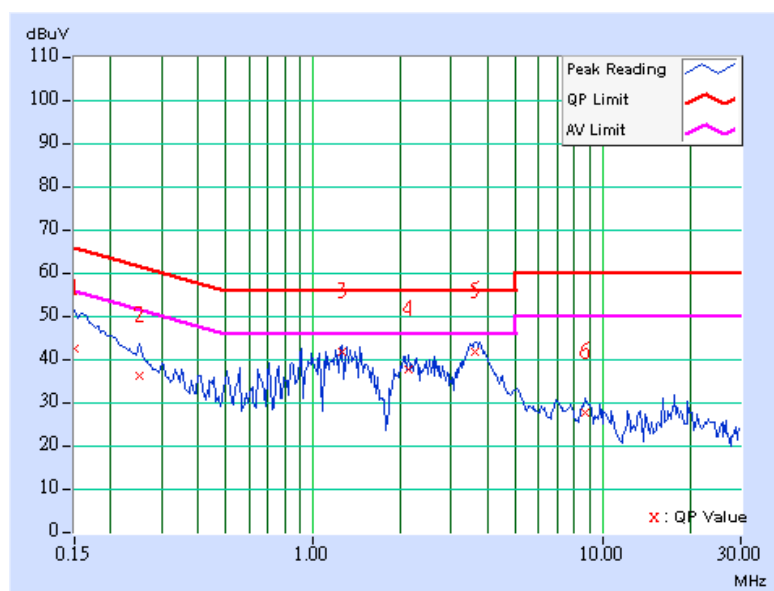
5.1.7 TEST RESULTS

Conducted Worst-Case Data

EUT	Wireless 11a+g Dual-Band Access Point	MEASUREMENT DETAIL	
MODEL	WX-7800A	PHASE	Line 1
CHANNEL	Channel 3	6dB BANDWIDTH	9 kHz
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH, 991hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TESTED BY	Gary Chang		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.10	42.47	-	42.57	-	66.00	56.00	-23.43	-
2	0.252	0.10	36.11	-	36.21	-	61.71	51.71	-25.50	-
3	1.258	0.20	41.72	-	41.92	-	56.00	46.00	-14.08	-
4	2.129	0.20	37.57	-	37.77	-	56.00	46.00	-18.23	-
5	3.621	0.20	41.59	-	41.79	-	56.00	46.00	-14.21	-
6	8.648	0.28	27.40	-	27.68	-	60.00	50.00	-32.32	-

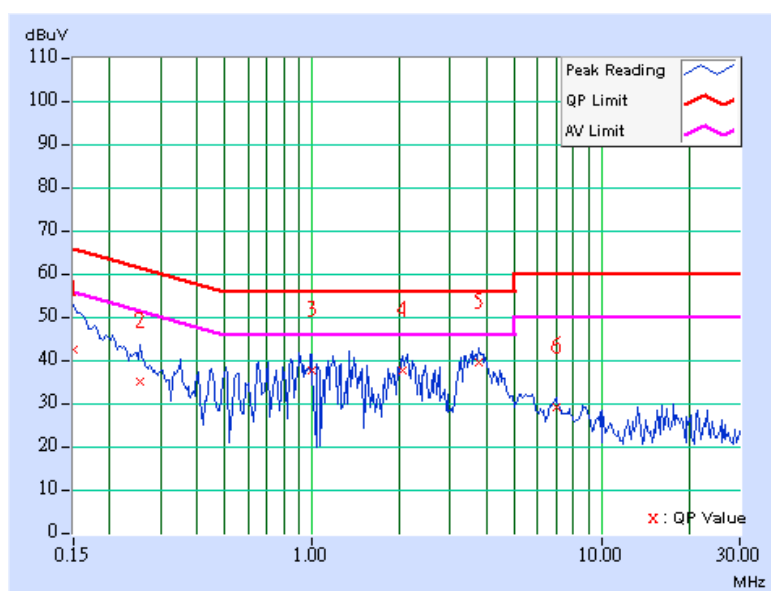
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



EUT	Wireless 11a+g Dual-Band Access Point	MEASUREMENT DETAIL	
MODEL	WX-7800A	PHASE	Line 2
CHANNEL	Channel 3	6dB BANDWIDTH	9 kHz
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH, 991hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TESTED BY	Gary Chang		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.10	42.17	-	42.27	-	66.00	56.00	-23.73	-
2	0.255	0.10	35.04	-	35.14	-	61.58	51.58	-26.44	-
3	0.998	0.20	37.58	-	37.78	-	56.00	46.00	-18.22	-
4	2.047	0.20	37.61	-	37.81	-	56.00	46.00	-18.19	-
5	3.770	0.20	39.33	-	39.53	-	56.00	46.00	-16.47	-
6	6.949	0.30	29.01	-	29.31	-	60.00	50.00	-30.69	-

- 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.



5.2 RADIATED EMISSION MEASUREMENT

5.2.1 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.

5.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
Test Receiver ROHDE & SCHWARZ	ESIB7	100188	Dec. 19, 2005
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Nov. 21, 2005
BILOG Antenna SCHWARZBECK	VULB9168	9168-157	Jan. 22, 2006
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-407	Jan. 16, 2006
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA 9170241	Feb. 23, 2006
Preamplifier Agilent	8449B	3008A01961	Nov. 09, 2005
Preamplifier Agilent	8447D	2944A10629	Nov. 09, 2005
RF signal cable HUBER+SUHNER	SUCOFLEX 104	218182/4	Feb. 17, 2006
RF signal cable HUBER+SUHNER	SUCOFLEX 104	218194/4	Feb. 17, 2006
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.

5.2.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter 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.

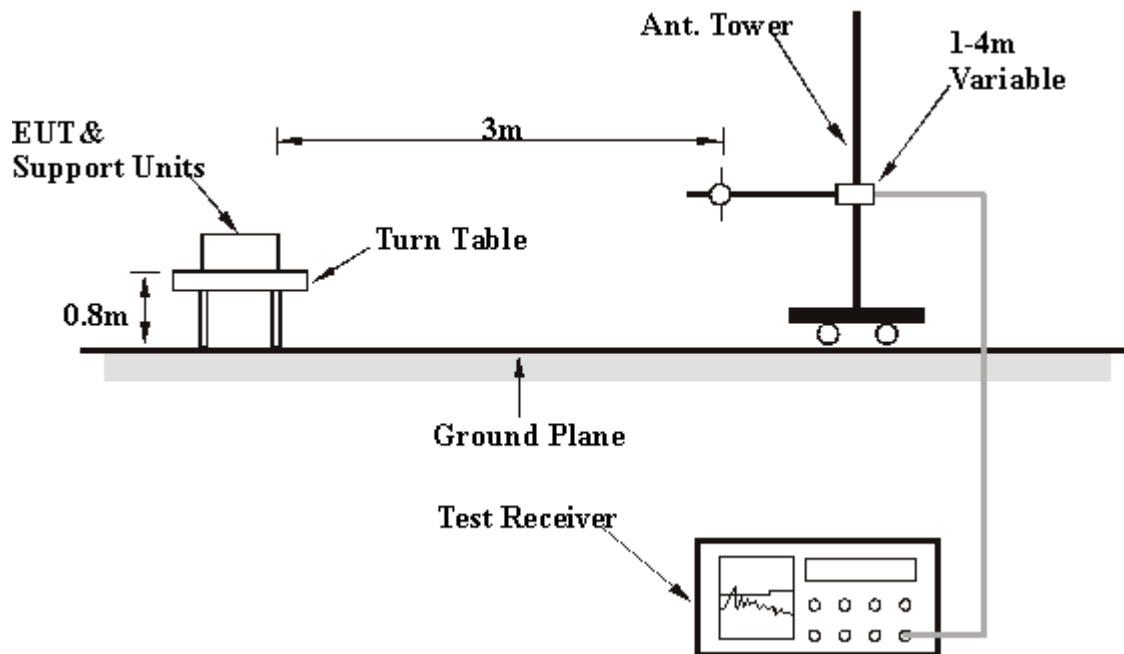
NOTE:

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

5.2.4 DEVIATION FROM TEST STANDARD

No deviation

5.2.5 TEST SETUP



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

5.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6

5.2.7 TEST RESULTS

Below 1GHz Worst-Case Data

EUT	Wireless 11a+g Dual-Band Access Point	MEASUREMENT DETAIL	
MODEL	WX-7800A	FREQUENCY RANGE	Below 1000MHz
CHANNEL	Channel 3	DETECTOR FUNCTION	Quasi-Peak
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	26deg. C, 69%RH, 991hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TESTED BY	William Chien		

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	55.27	25.37 QP	40.00	-14.63	2.00 H	241	11.44	13.93
2	109.70	31.32 QP	43.50	-12.18	1.50 H	115	19.58	11.74
3	218.56	36.90 QP	46.00	-9.10	1.50 H	43	25.31	11.59
4	249.66	33.39 QP	46.00	-12.61	1.00 H	10	20.31	13.08
5	329.36	35.93 QP	46.00	-10.07	1.00 H	328	20.93	14.99
6	440.16	33.63 QP	46.00	-12.37	2.00 H	232	15.97	17.66
7	500.42	34.59 QP	46.00	-11.41	1.50 H	31	15.99	18.59
8	550.96	36.55 QP	46.00	-9.45	1.50 H	295	16.91	19.63
9	770.62	36.04 QP	46.00	-9.96	1.00 H	163	12.50	23.53
10	881.42	32.17 QP	46.00	-13.83	2.00 H	163	7.43	24.74

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	53.33	36.80 QP	40.00	-3.20	1.00 V	286	22.67	14.13
2	109.70	41.07 QP	43.50	-2.43	1.00 V	265	29.33	11.74
3	171.90	32.05 QP	43.50	-11.45	1.00 V	10	18.55	13.50
4	218.56	35.47 QP	46.00	-10.53	1.00 V	268	23.88	11.59
5	249.66	33.17 QP	46.00	-12.83	2.00 V	346	20.09	13.08
6	329.36	33.99 QP	46.00	-12.01	1.50 V	52	19.00	14.99
7	440.16	31.27 QP	46.00	-14.73	1.00 V	31	13.61	17.66
8	550.96	37.52 QP	46.00	-8.48	1.00 V	241	17.89	19.63
9	599.56	31.62 QP	46.00	-14.38	1.00 V	1	10.74	20.88
10	659.82	31.92 QP	46.00	-14.08	1.50 V	271	10.20	21.72
11	770.62	34.84 QP	46.00	-11.16	1.50 V	259	11.31	23.53
12	881.42	32.41 QP	46.00	-13.59	1.00 V	28	7.67	24.74

REMARKS:

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

802.11a OFDM modulation

EUT	Wireless 11a+g Dual-Band Access Point	MEASUREMENT DETAIL	
MODEL	WX-7800A	FREQUENCY RANGE	1 ~ 40 GHz
CHANNEL	Channel 1	DETECTOR FUNCTION	Peak(PK) Average (AV)
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TESTED BY	Match Tsui		

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	#1120.00	47.49 PK	74.00	-26.51	1.29 H	65	20.73	26.76
1	#1120.00	44.47 AV	54.00	-9.53	1.29 H	65	17.71	26.76
2	#3830.00	40.15 PK	74.00	-33.85	1.00 H	263	3.81	36.34
2	#3830.00	35.01 AV	54.00	-18.99	1.00 H	263	-1.33	36.34
3	*5745.00	106.11 PK			1.22 H	131	65.21	40.90
3	*5745.00	95.73 AV			1.22 H	131	54.83	40.90
4	#11490.00	18.67 PK	74.00	-55.33	1.06 H	245	-28.71	47.38
4	#11490.00	46.95 AV	54.00	-7.05	1.06 H	245	-0.43	47.38

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	#1120.00	46.38 PK	74.00	-27.62	1.33 V	360	19.62	26.76
1	#1120.00	42.24 AV	54.00	-11.76	1.33 V	360	15.48	26.76
2	#3830.00	48.91 PK	74.00	-25.09	1.06 V	329	12.57	36.34
2	#3830.00	40.14 AV	54.00	-13.86	1.06 V	329	3.80	36.34
3	*5745.00	113.11 PK			1.15 V	25	72.21	40.90
3	*5745.00	103.68 AV			1.15 V	25	62.78	40.90
4	#11490.00	64.09 PK	74.00	-9.91	1.31 V	231	16.71	47.38
4	#11490.00	51.54 AV	54.00	-2.46	1.31 V	231	4.16	47.38

- NOTE:** 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
6. "#" The radiated frequency falling in the restricted band.
7. The limit value is defined as per 15.247

EUT	Wireless 11a+g Dual-Band Access Point	MEASUREMENT DETAIL	
MODEL	WX-7800A	FREQUENCY RANGE	1 ~ 40 GHz
CHANNEL	Channel 3	DETECTOR FUNCTION	Peak(PK) Average (AV)
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TESTED BY	Match Tsui		

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	#1120.00	46.92 PK	74.00	-27.08	1.09 H	360	20.16	26.76
1	#1120.00	43.13 AV	54.00	-10.87	1.09 H	360	16.37	26.76
2	*5785.00	102.63 PK			1.05 H	123	61.58	41.05
2	*5785.00	93.50 AV			1.05 H	123	52.45	41.05
3	#11570.00	59.38 PK	74.00	-14.62	1.13 H	230	11.91	47.47
3	#11570.00	46.59 AV	54.00	-7.41	1.13 H	230	-0.88	47.47

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	#1120.00	46.47 PK	74.00	-27.53	1.00 V	331	19.71	26.76
1	#1120.00	43.27 AV	54.00	-10.73	1.00 V	331	16.51	26.76
2	#3856.00	48.66 PK	74.00	-25.34	1.00 V	167	12.23	36.43
2	#3856.00	38.21 AV	54.00	-15.79	1.00 V	167	1.78	36.43
3	*5785.00	113.52 PK			1.14 V	50	72.47	41.05
3	*5785.00	103.59 AV			1.14 V	50	62.54	41.05
4	#11570.00	66.79 PK	74.00	-7.21	1.52 V	227	19.32	47.47
4	#11570.00	52.94 AV	54.00	-1.06	1.52 V	227	5.47	47.47

- NOTE:**
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
 6. "#"The radiated frequency falling in the restricted band.
 7. The limit value is defined as per 15.247

EUT	Wireless 11a+g Dual-Band Access Point	MEASUREMENT DETAIL	
MODEL	WX-7800A	FREQUENCY RANGE	1 ~ 40 GHz
CHANNEL	Channel 5	DETECTOR FUNCTION	Peak(PK) Average (AV)
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TESTED BY	Match Tsui		

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	#1120.00	45.89 PK	74.00	-28.11	1.05 H	360	19.13	26.76
1	#1120.00	42.98 AV	54.00	-11.02	1.05 H	360	16.22	26.76
2	*5825.00	104.19 PK			1.12 H	120	63.24	40.95
2	*5825.00	94.08 AV			1.12 H	120	53.13	40.95
3	#11650.00	58.48 PK	74.00	-15.52	1.06 H	165	10.76	47.72
3	#11650.00	46.61 AV	54.00	-7.39	1.06 H	165	-1.11	47.72

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	#1120.00	45.82 PK	74.00	-28.18	1.00 V	1	19.06	26.76
1	#1120.00	43.23 AV	54.00	-10.77	1.00 V	1	16.47	26.76
2	#3883.00	50.13 PK	74.00	-23.87	1.07 V	17	13.61	36.52
2	#3883.00	43.15 AV	54.00	-10.85	1.07 V	17	6.63	36.52
3	*5825.00	113.21 PK			1.11 V	48	72.26	40.95
3	*5825.00	103.15 AV			1.11 V	48	62.20	40.95
4	#11650.00	64.02 PK	74.00	-9.98	1.12 V	228	16.30	47.72
4	#11650.00	51.01 AV	54.00	-2.99	1.12 V	228	3.29	47.72

- NOTE:**
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
 6. “#”The radiated frequency falling in the restricted band.
 7. The limit value is defined as per 15.247

802.11a Turbo OFDM modulation

EUT	Wireless 11a+g Dual-Band Access Point	MEASUREMENT DETAIL	
MODEL	WX-7800A	FREQUENCY RANGE	1 ~ 40 GHz
CHANNEL	Channel 1	DETECTOR FUNCTION	Peak(PK) Average (AV)
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa
TRANSFER RATE	12Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TESTED BY	Match Tsui		

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	#1120.00	49.53 PK	74.00	-24.47	1.35 H	100	22.77	26.76
1	#1120.00	48.11 AV	54.00	-5.56	1.35 H	100	21.35	26.76
2	*5760.00	102.48 PK			1.24 H	19	61.52	40.96
2	*5760.00	93.73 AV			1.24 H	19	52.77	40.96
3	#11520.00	58.47 PK	74.00	-15.53	1.30 H	210	11.05	47.41
3	#11520.00	47.45 AV	54.00	-6.55	1.30 H	210	0.03	47.41

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	#1120.00	46.88 PK	74.00	-27.12	1.46 V	11	20.12	26.76
1	#1120.00	44.41 AV	54.00	-9.59	1.46 V	11	17.65	26.76
2	#3840.00	44.88 PK	74.00	-29.12	1.25 V	42	8.51	36.38
2	#3840.00	43.79 AV	54.00	-10.21	1.25 V	42	7.42	36.38
3	*5760.00	110.19 PK			1.39 V	268	69.23	40.96
3	*5760.00	100.97 AV			1.39 V	268	60.01	40.96
4	#11520.00	61.27 PK	74.00	-12.73	1.28 V	229	13.85	47.41
4	#11520.00	49.47 AV	54.00	-4.53	1.28 V	229	2.05	47.41

- NOTE:**
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
 6. “#”The radiated frequency falling in the restricted band.
 7. The limit value is defined as per 15.247

EUT	Wireless 11a+g Dual-Band Access Point	MEASUREMENT DETAIL	
MODEL	WX-7800A	FREQUENCY RANGE	1 ~ 40 GHz
CHANNEL	Channel 2	DETECTOR FUNCTION	Peak(PK) Average (AV)
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa
TRANSFER RATE	12Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TESTED BY	Match Tsui		

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	#1120.00	48.42 PK	74.00	-25.58	1.05 H	97	21.66	26.76
1	#1120.00	43.50 AV	54.00	-10.50	1.05 H	97	16.74	26.76
2	*5800.00	101.14 PK			1.01 H	12	60.03	41.11
2	*5800.00	93.00 AV			1.01 H	12	51.89	41.11
3	#11600.00	58.57 PK	74.00	-15.43	1.09 H	167	11.07	47.50
3	#11600.00	46.88 AV	54.00	-7.12	1.09 H	167	-0.62	47.50

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	#1120.00	47.03 PK	74.00	-26.97	1.48 V	13	20.27	26.76
1	#1120.00	44.09 AV	54.00	-9.91	1.48 V	13	17.33	26.76
2	#3866.00	45.18 PK	74.00	-28.82	1.23 V	38	8.72	36.46
2	#3886.00	43.18 AV	54.00	-10.82	1.23 V	38	6.72	36.46
3	*5800.00	110.66 PK			1.28 V	360	69.55	41.11
3	*5800.00	101.36 AV			1.28 V	360	60.25	41.11
4	#11600.00	63.37 PK	74.00	-10.63	1.30 V	222	15.87	47.50
4	#11600.00	50.42 AV	54.00	-3.58	1.30 V	222	2.92	47.50

- NOTE:**
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
 6. "#"The radiated frequency falling in the restricted band.
 7. The limit value is defined as per 15.247

5.3 6dB BANDWIDTH MEASUREMENT

5.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

5.3.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSEK30	100049	Aug. 12, 2005

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

5.3.3 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.

5.3.4 DEVIATION FROM TEST STANDARD

No deviation

5.3.5 TEST SETUP



5.3.6 EUT OPERATING CONDITIONS

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

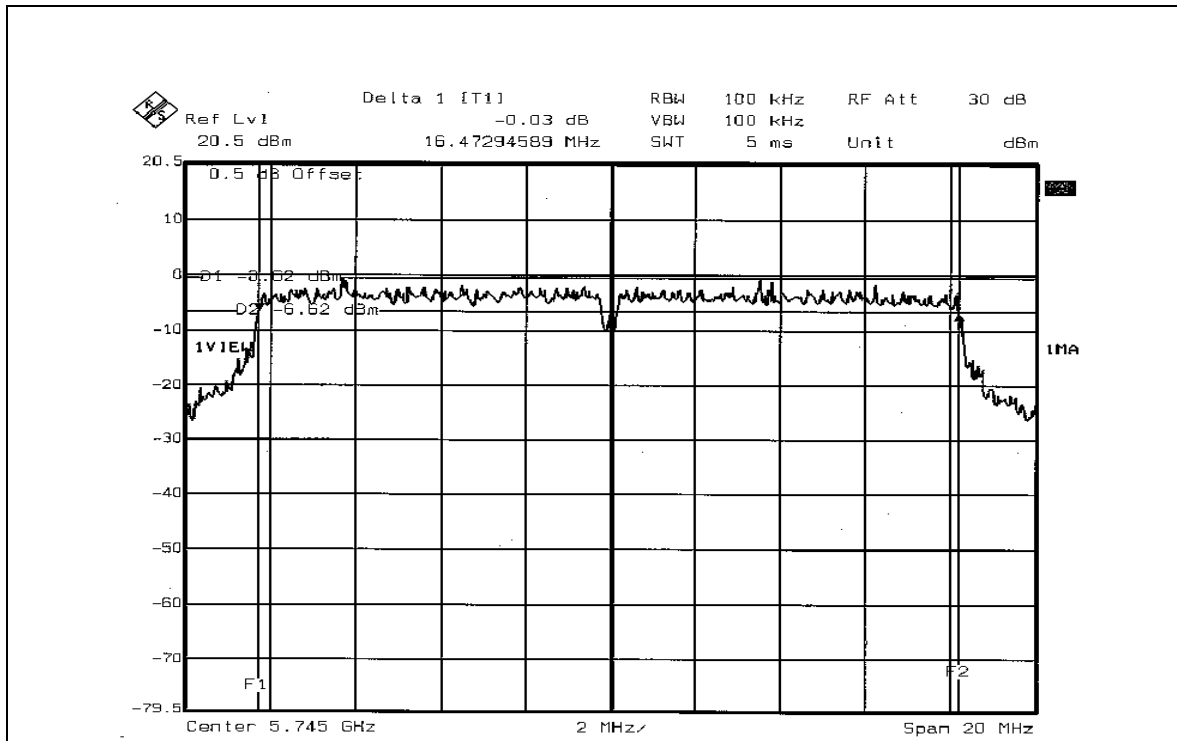
5.3.7 TEST RESULTS

802.11a OFDM modulation

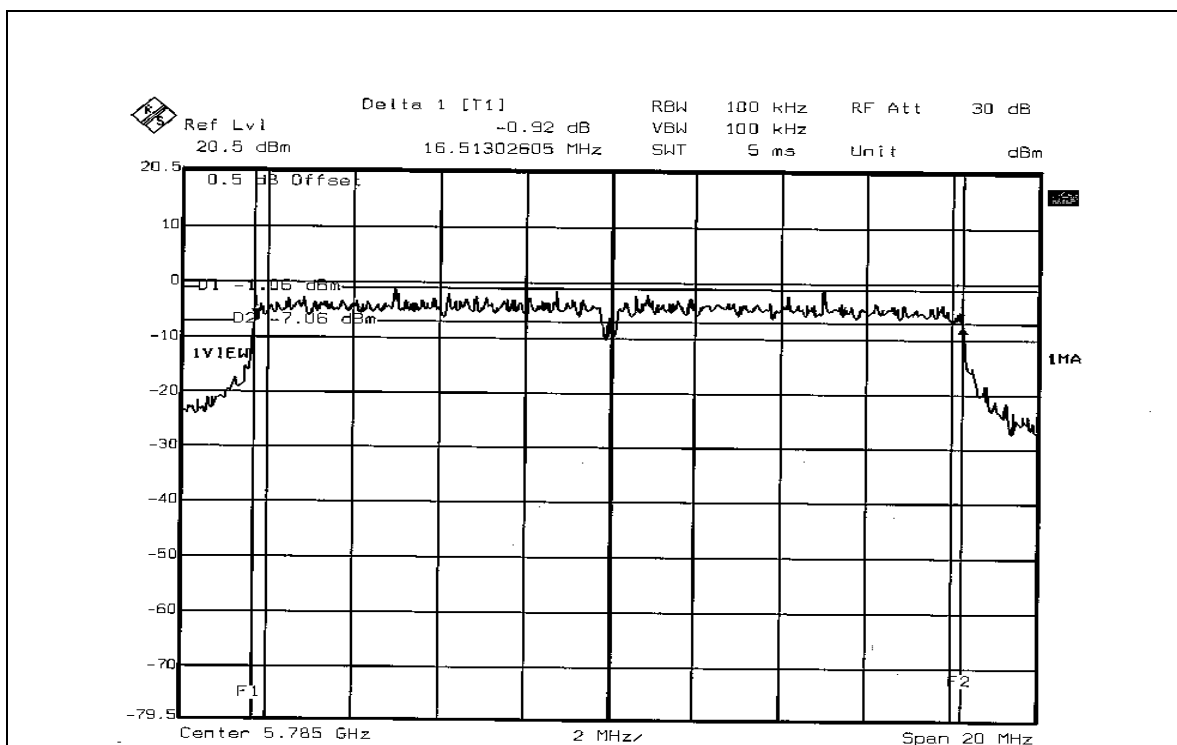
EUT	Wireless 11a+g Dual-Band Access Point	MODEL	WX-7800A
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	24deg. C, 67%RH, 991 hPa
TESTED BY	Leo Hung		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	5745	16.47	0.5	PASS
3	5785	16.51	0.5	PASS
5	5825	16.51	0.5	PASS

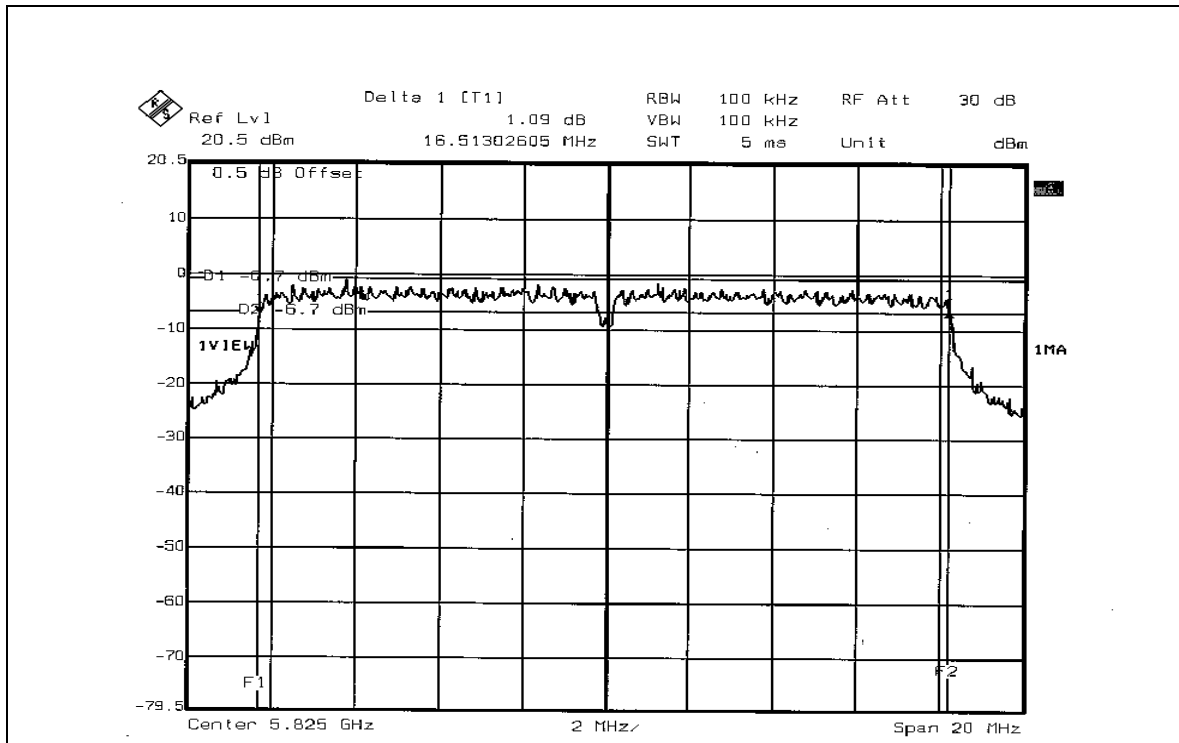
CH 1



CH 3



CH 5

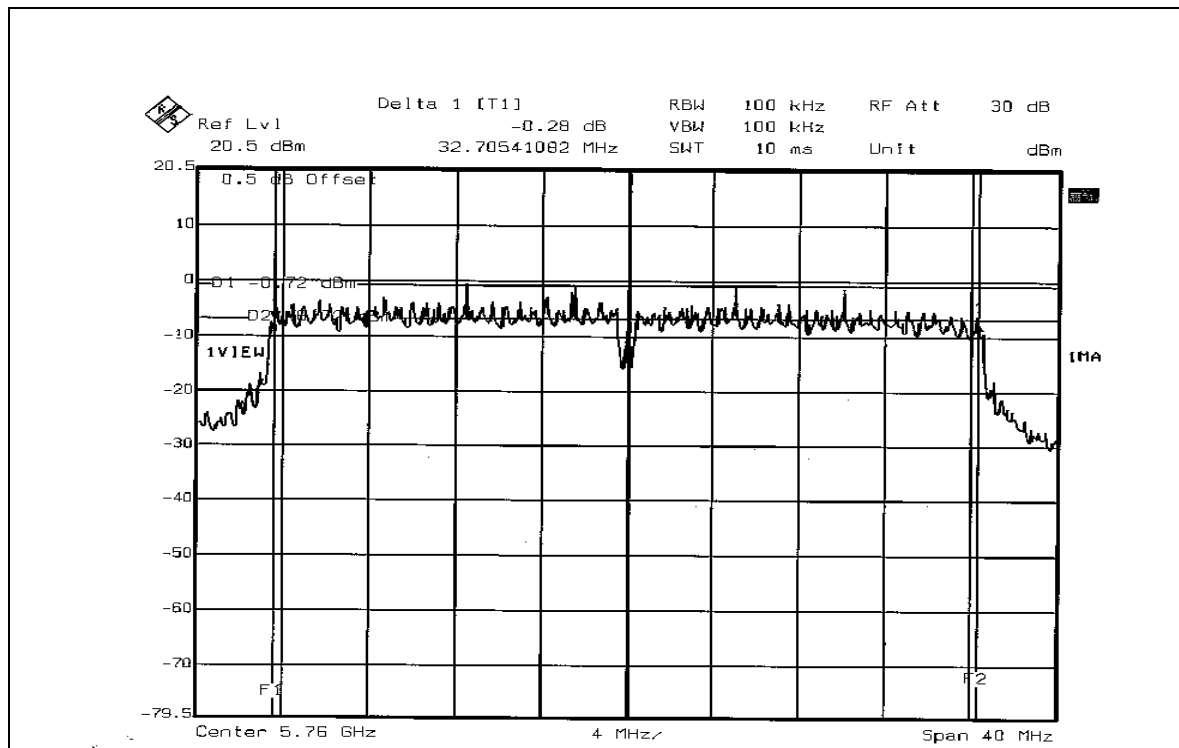


802.11a Turbo OFDM modulation

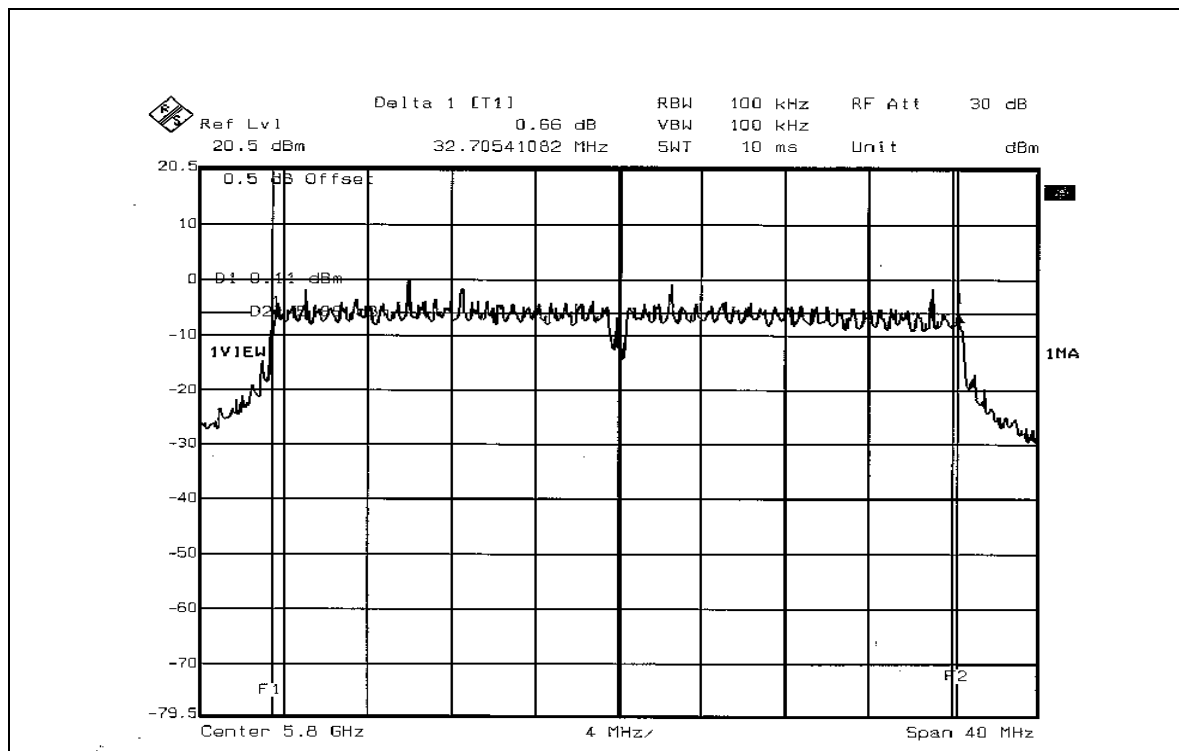
EUT	Wireless 11a+g Dual-Band Access Point	MODEL	WX-7800A
MODULATION TYPE	BPSK	TRANSFER RATE	12Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	24deg. C, 67%RH, 991 hPa
TESTED BY	Leo Hung		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	5760	32.71	0.5	PASS
2	5800	32.71	0.5	PASS

CH 1



CH 2



5.4 MAXIMUM PEAK OUTPUT POWER

5.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

5.4.2 INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSEK30	100049	Aug. 12, 2005
AGILENT SIGNAL GENERATOR	E8257C	MY43320668	Dec. 31, 2005
TEKTRONIX OSCILLOSCOPE	TDS 1012	C019167	Feb. 01, 2006
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..

5.4.3 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.

5.4.4 DEVIATION FROM TEST STANDARD

No deviation

5.4.5 TEST SETUP



5.4.6 EUT OPERATING CONDITIONS

Same as Item 5.3.6

5.4.7 TEST RESULTS

802.11a OFDM modulation

EUT	Wireless 11a+g Dual-Band Access Point	MODEL	WX-7800A
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	24deg. C, 67%RH 991 hPa
TESTED BY	Leo Hung		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	5745	40.18	16.04	30	PASS
3	5785	39.90	16.01	30	PASS
5	5825	39.99	16.02	30	PASS

802.11a Turbo OFDM modulation

EUT	Wireless 11a+g Dual-Band Access Point	MODEL	WX-7800A
MODULATION TYPE	BPSK	TRANSFER RATE	12Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	24deg. C, 67%RH 991 hPa
TESTED BY	Leo Hung		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	5760	40.18	16.04	30	PASS
2	5800	39.81	16.00	30	PASS

5.5 POWER SPECTRAL DENSITY MEASUREMENT

5.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

5.5.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSEK30	100049	Aug. 12, 2005

NOTES:

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

5.5.3 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 3 kHz RBW and 30 kHz VBW, set sweep time = span/3 kHz. The power spectral density was measured and recorded.

The sweep time is allowed to be longer than span/3 kHz for a full response of the mixer in the spectrum analyzer.

5.5.4 DEVIATION FROM TEST STANDARD

No deviation

5.5.5 TEST SETUP



5.5.6 EUT OPERATING CONDITION

Same as Item 5.3.6

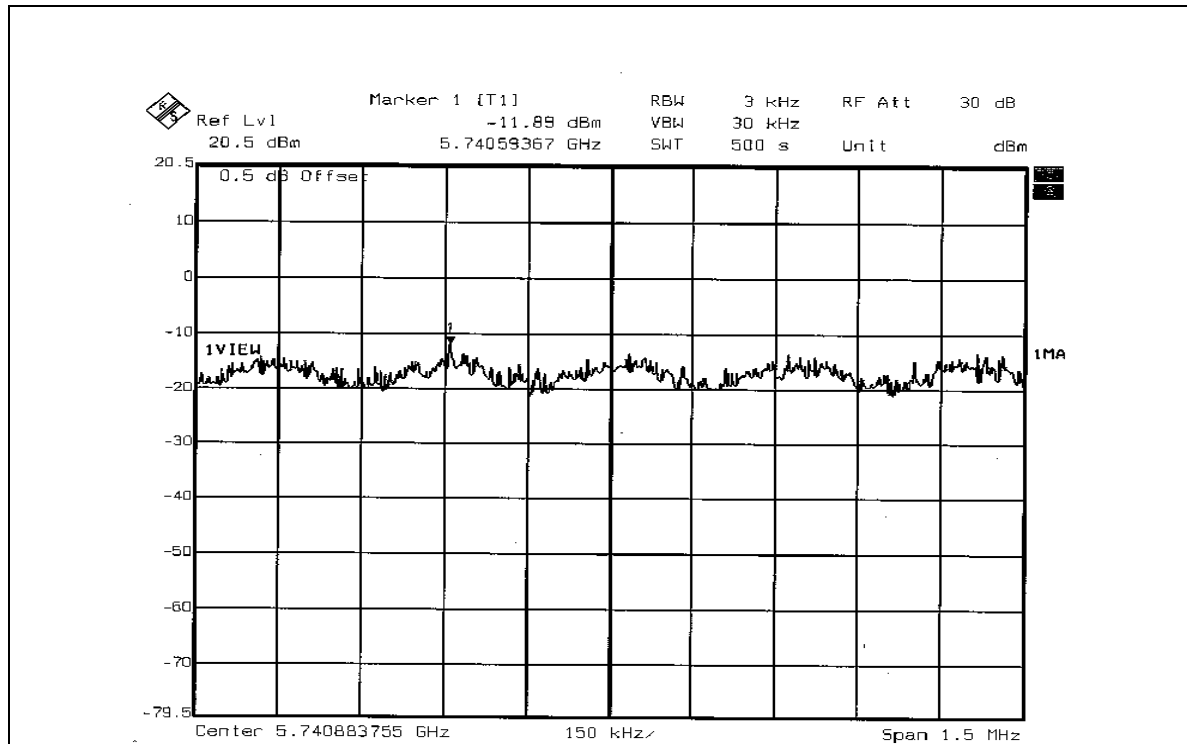
5.5.7 TEST RESULTS

802.11a OFDM modulation

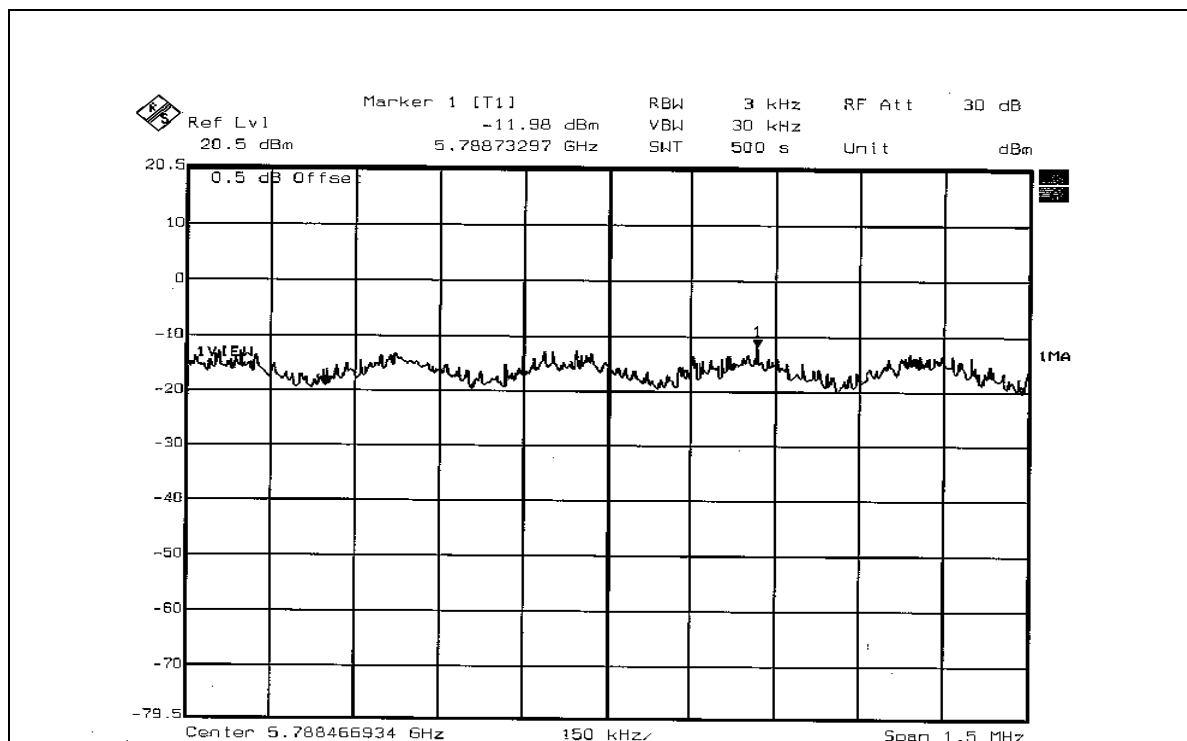
EUT	Wireless 11a+g Dual-Band Access Point	MODEL	WX-7800A
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	24deg. C, 67%RH 991 hPa
TESTED BY	Leo Hung		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	5745	-11.89	8	PASS
3	5785	-11.98	8	PASS
5	5825	-11.85	8	PASS

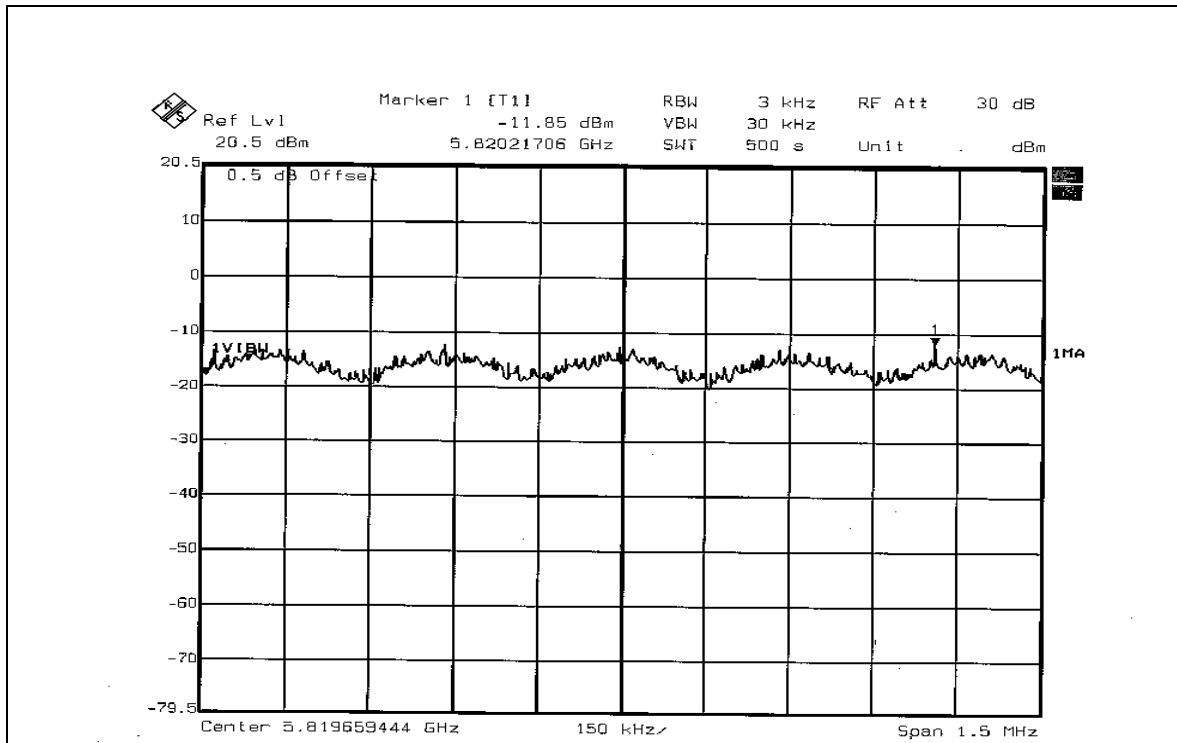
CH 1



CH 3



CH 5

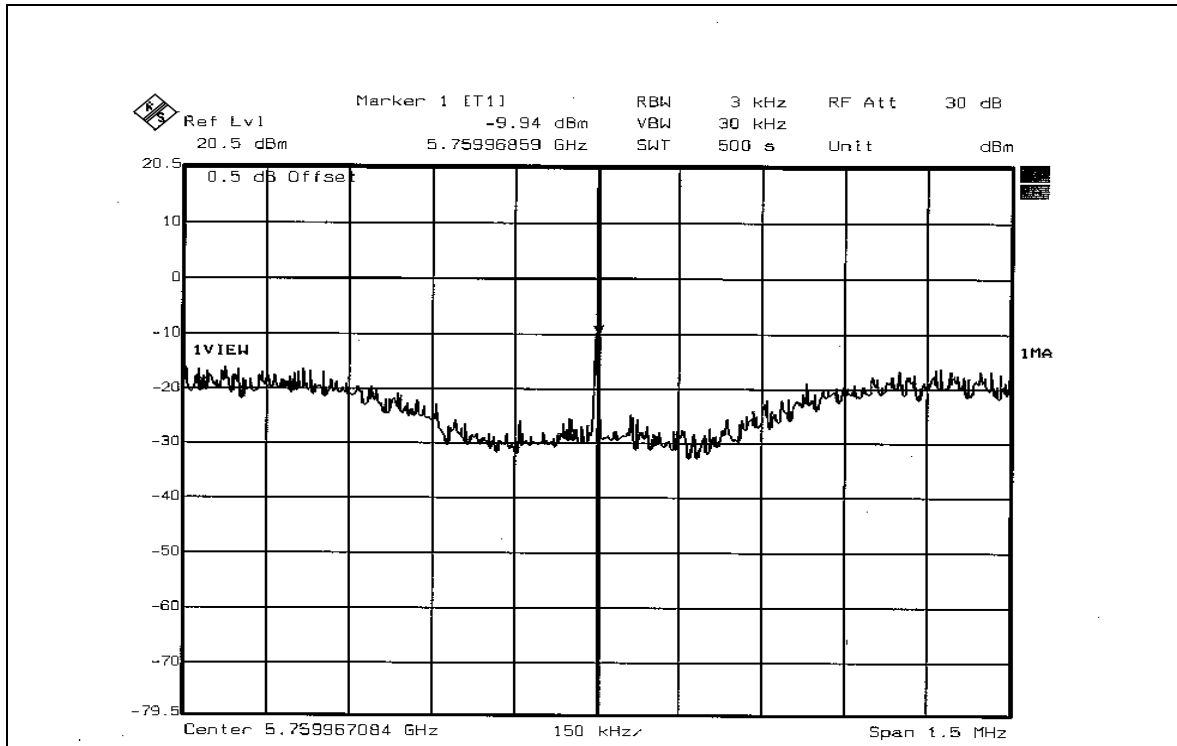


802.11a Turbo OFDM modulation

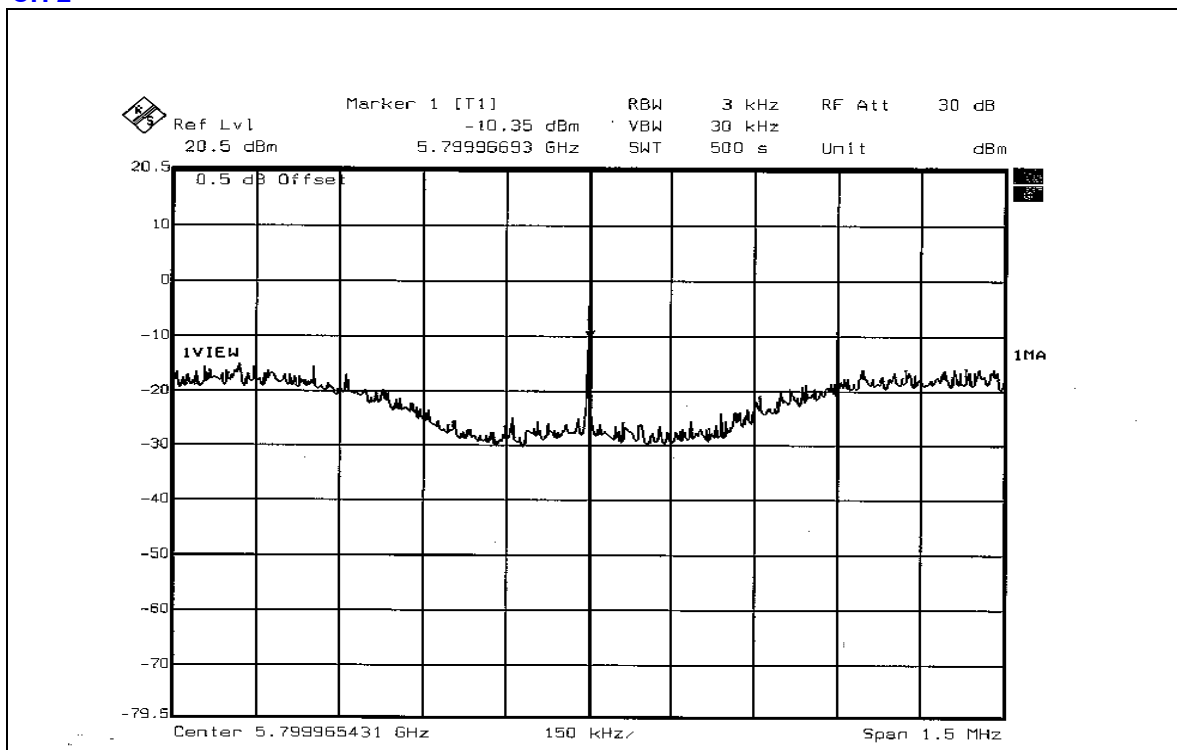
EUT	Wireless 11a+g Dual-Band Access Point	MODEL	WX-7800A
MODULATION TYPE	BPSK	TRANSFER RATE	12Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	24deg. C, 67%RH 991 hPa
TESTED BY	Leo Hung		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	5760	-9.94	8	PASS
2	5800	-10.35	8	PASS

CH 1



CH 2



5.6 BAND EDGES MEASUREMENT

5.6.1 LIMITS OF BAND EDGES MEASUREMENT

Below -20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

5.6.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSEK30	100049	Aug. 12, 2005

NOTES:

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

5.6.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer via a low lose cable. Set both RBW and VBW of spectrum analyzer to 100 kHz with suitable frequency span including 100 MHz bandwidth from band edge. The band edges was measured and recorded.

5.6.4 DEVIATION FROM TEST STANDARD

No deviation

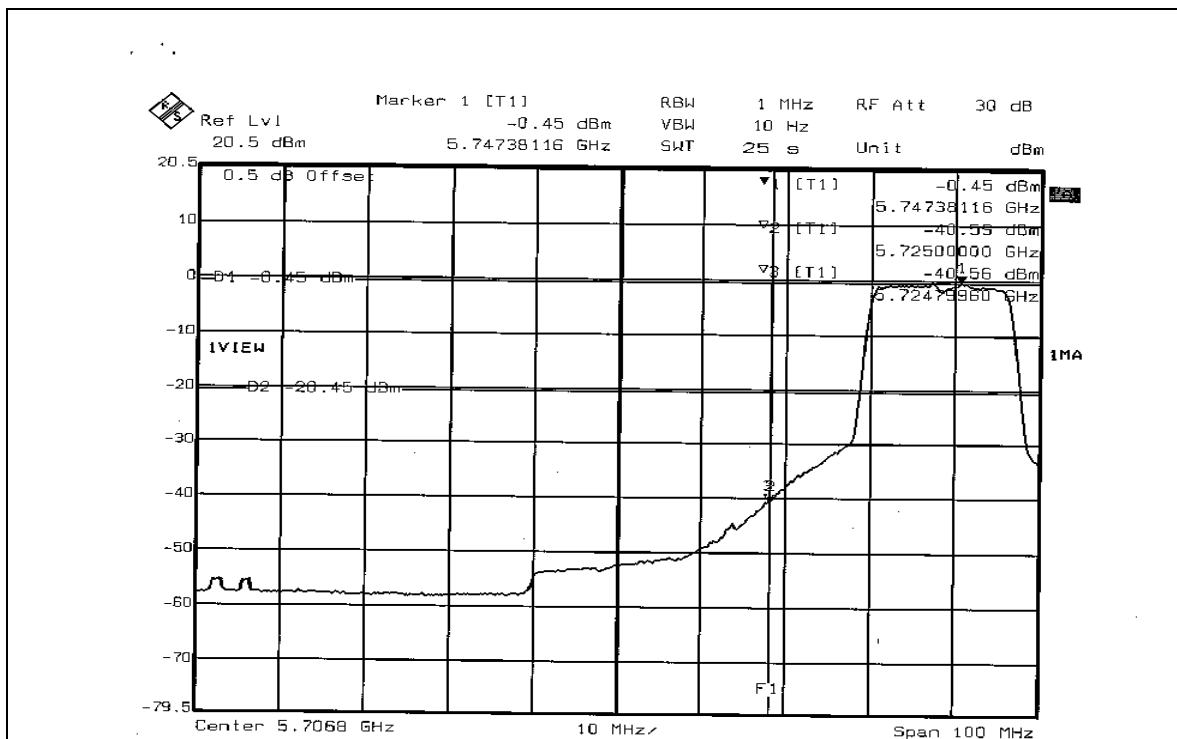
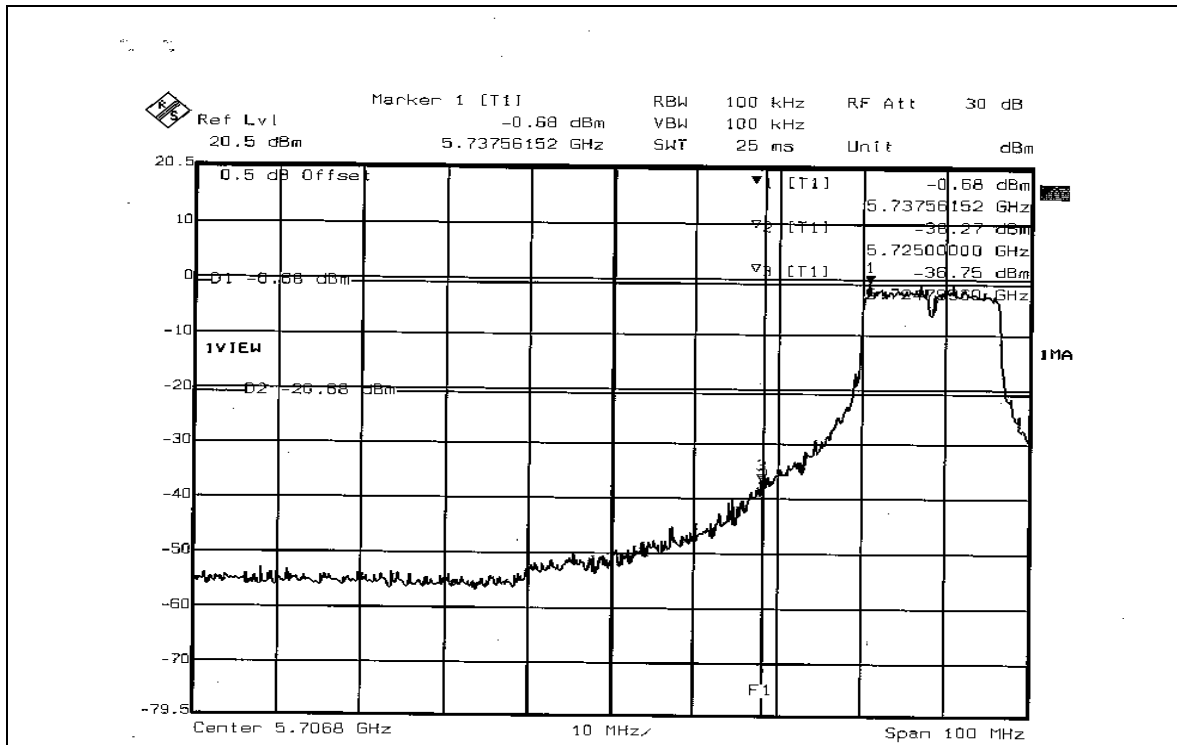
5.6.5 EUT OPERATING CONDITION

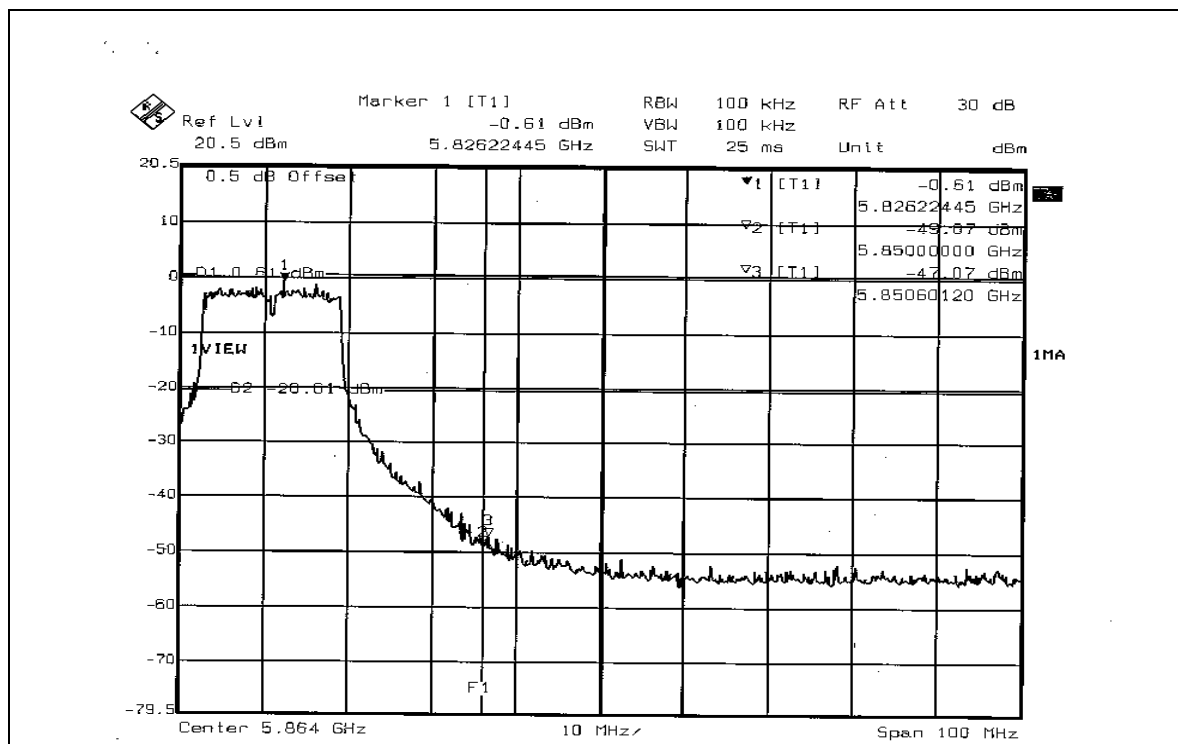
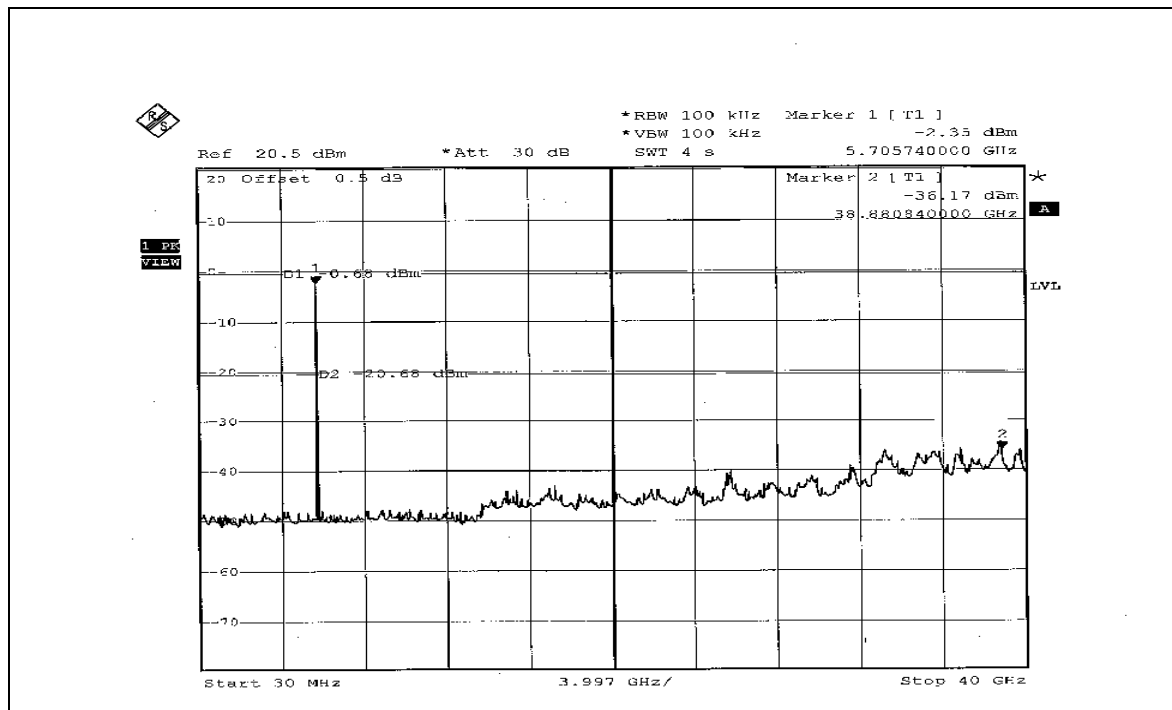
Same as Item 5.9.6

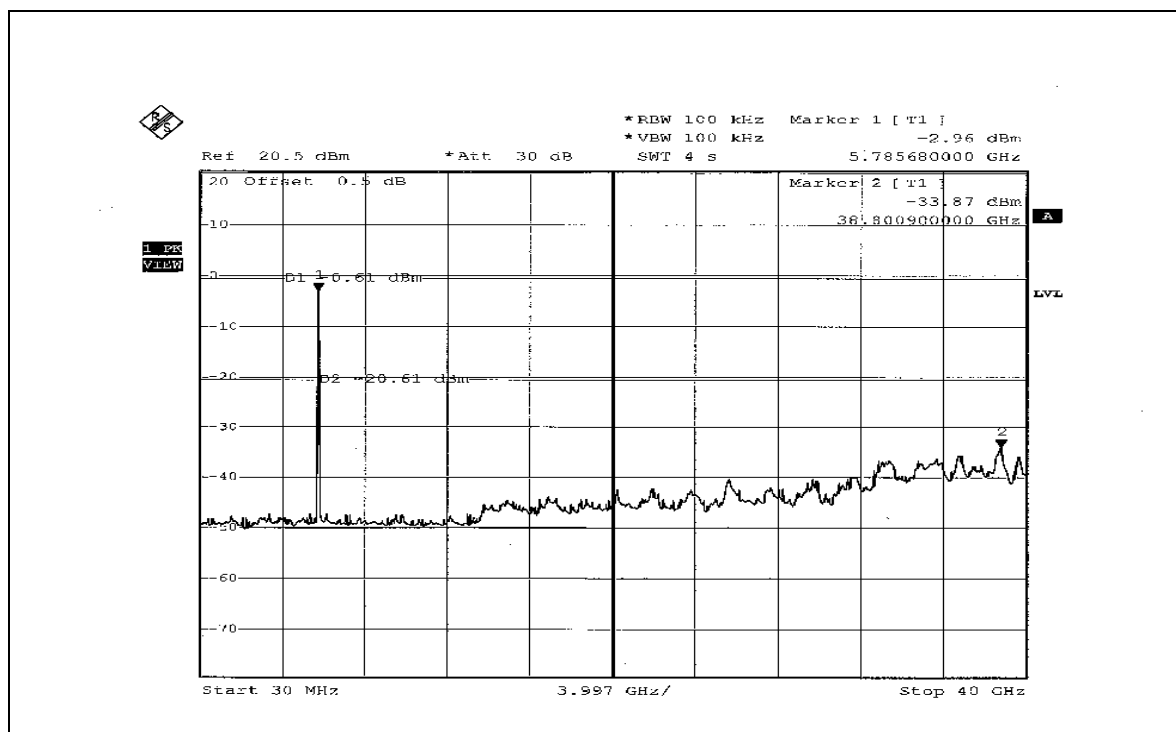
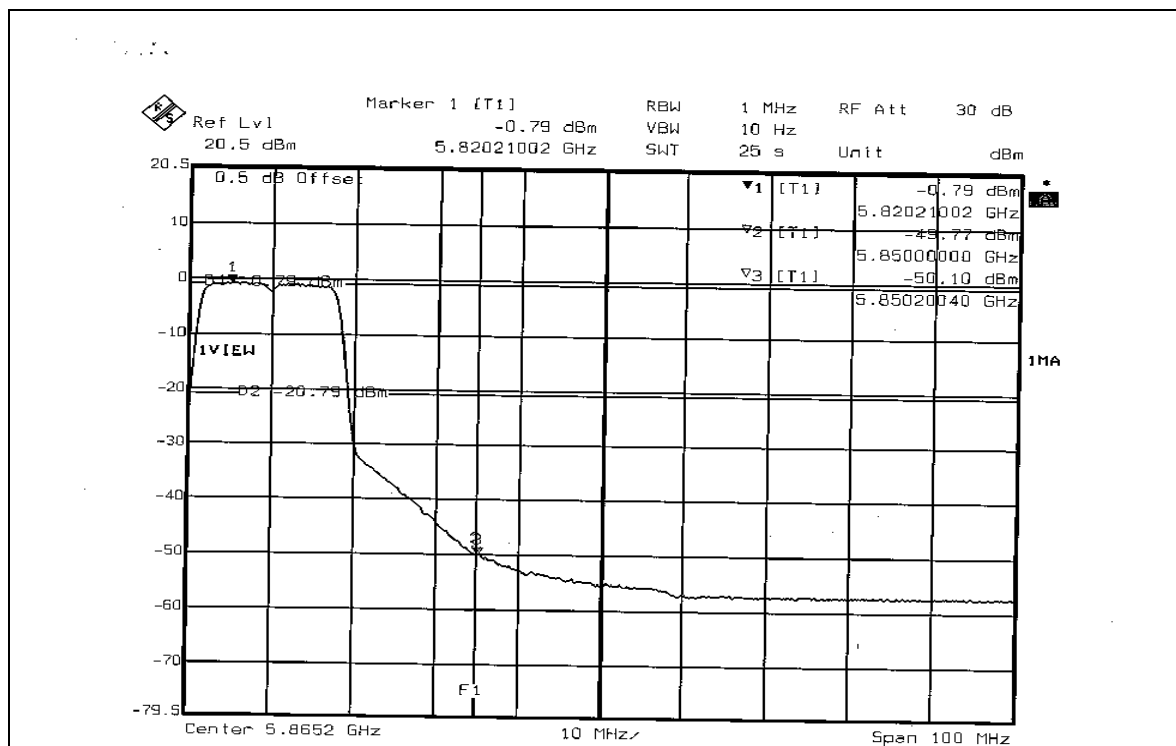
5.6.6 TEST RESULTS

The spectrum plots are attached on the following pages. D1 line indicates the highest level, D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(d).

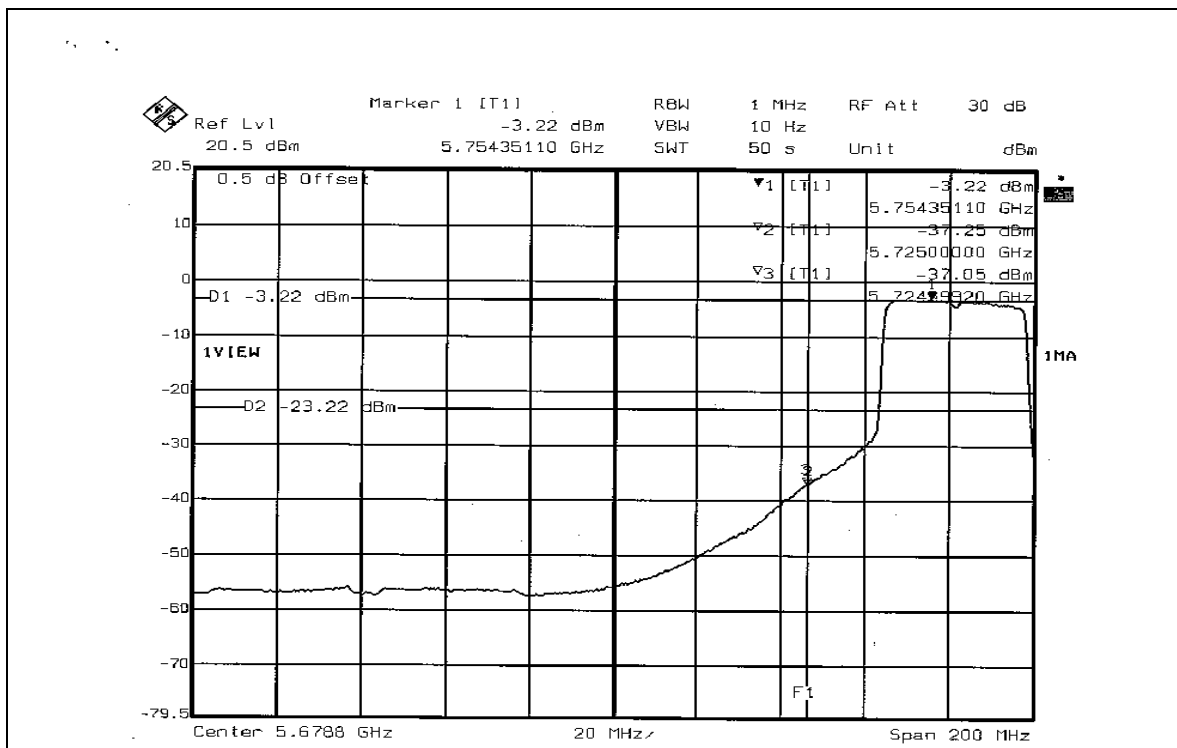
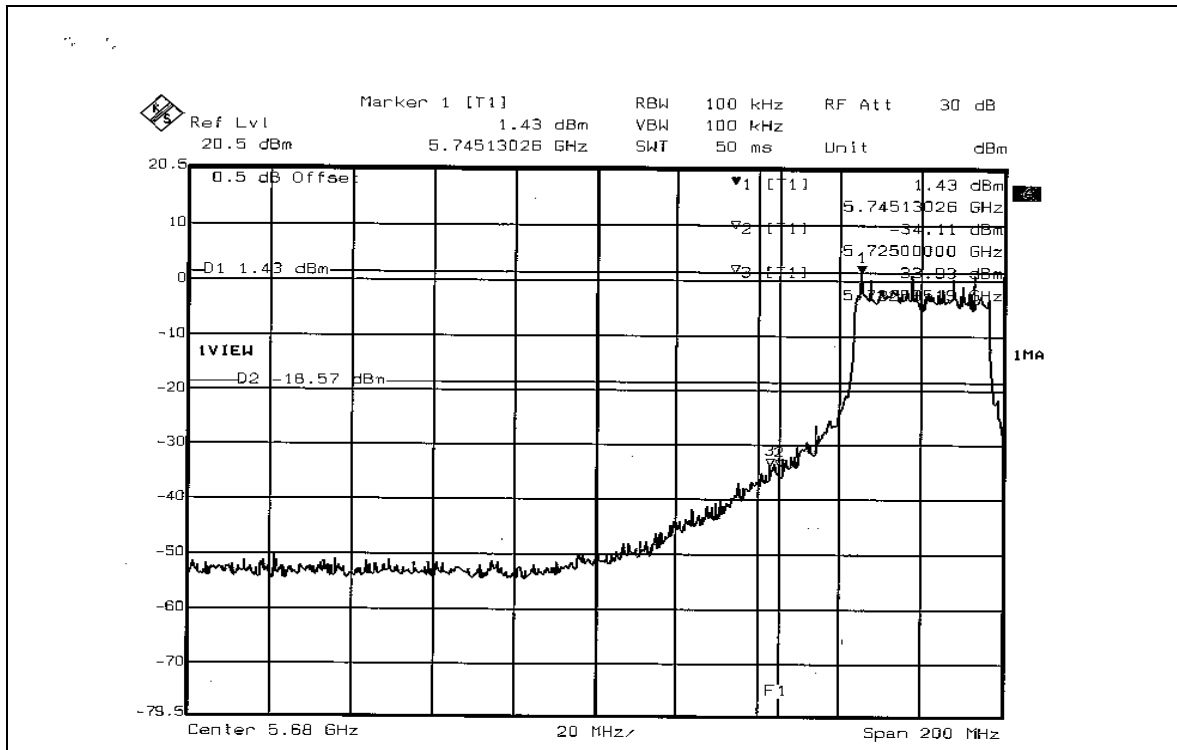
802.11a OFDM modulation

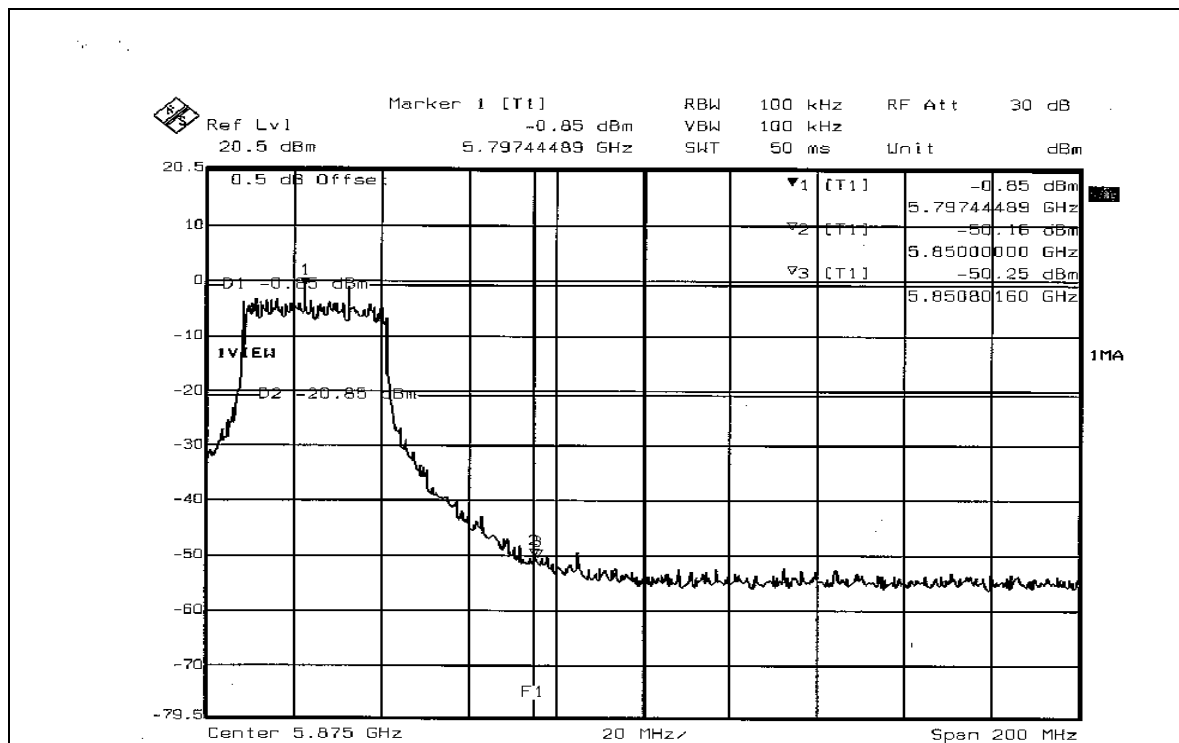
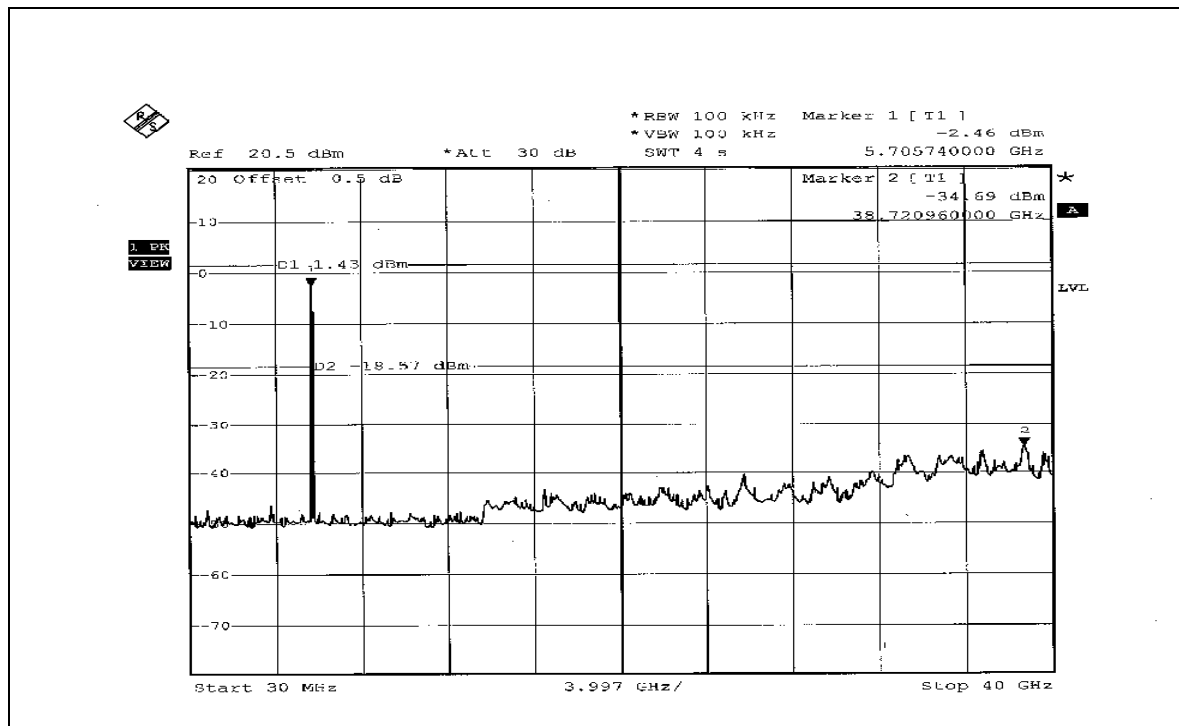


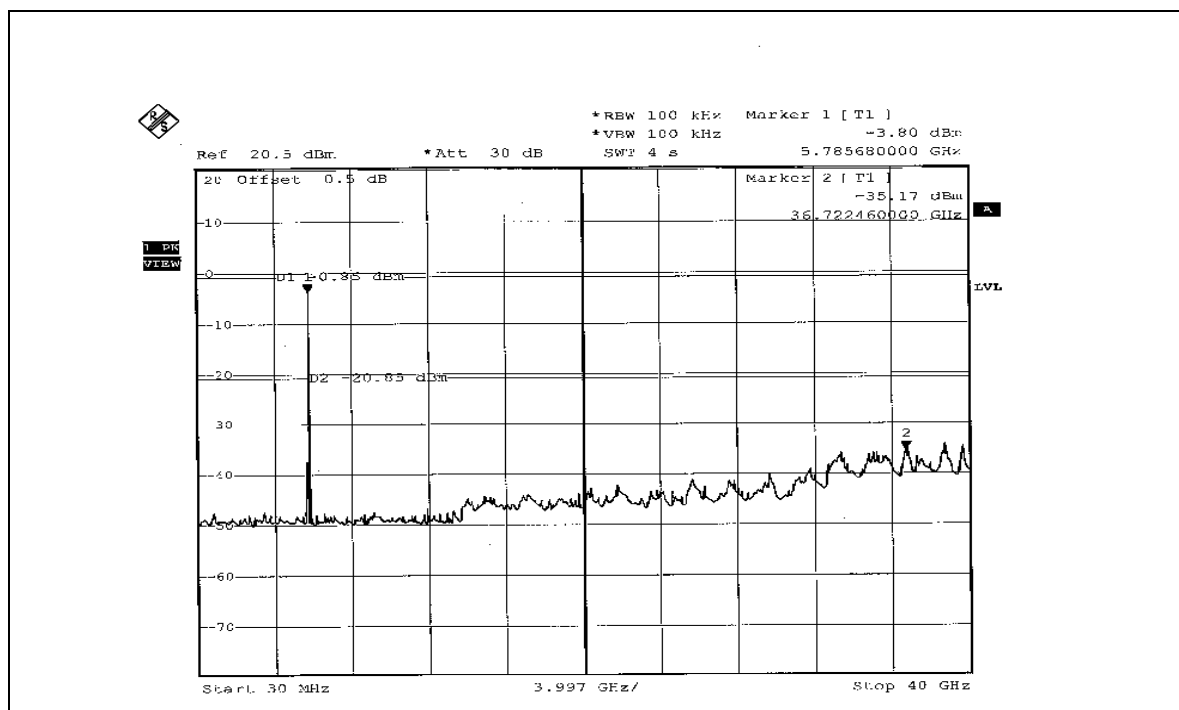
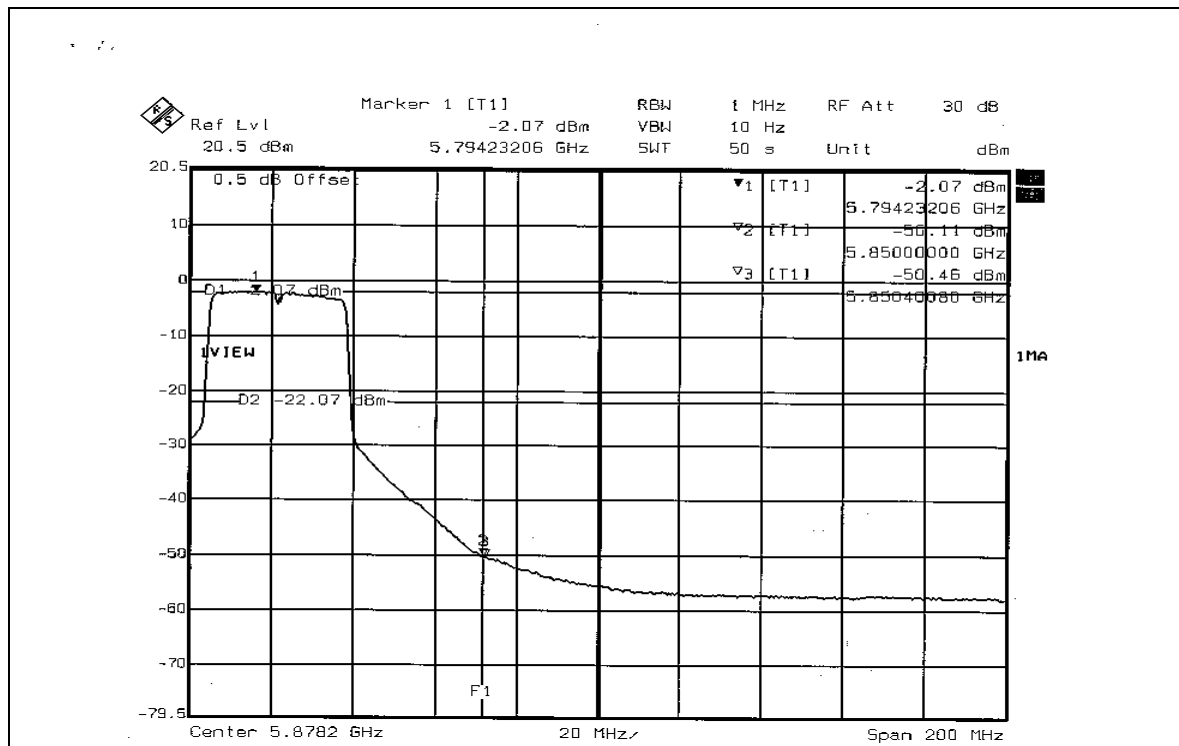




802.11a Turbo OFDM modulation









5.7 ANTENNA REQUIREMENT

5.7.1 STANDARD APPLICABLE

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.247(a), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

5.7.2 ANTENNA CONNECTED CONSTRUCTION

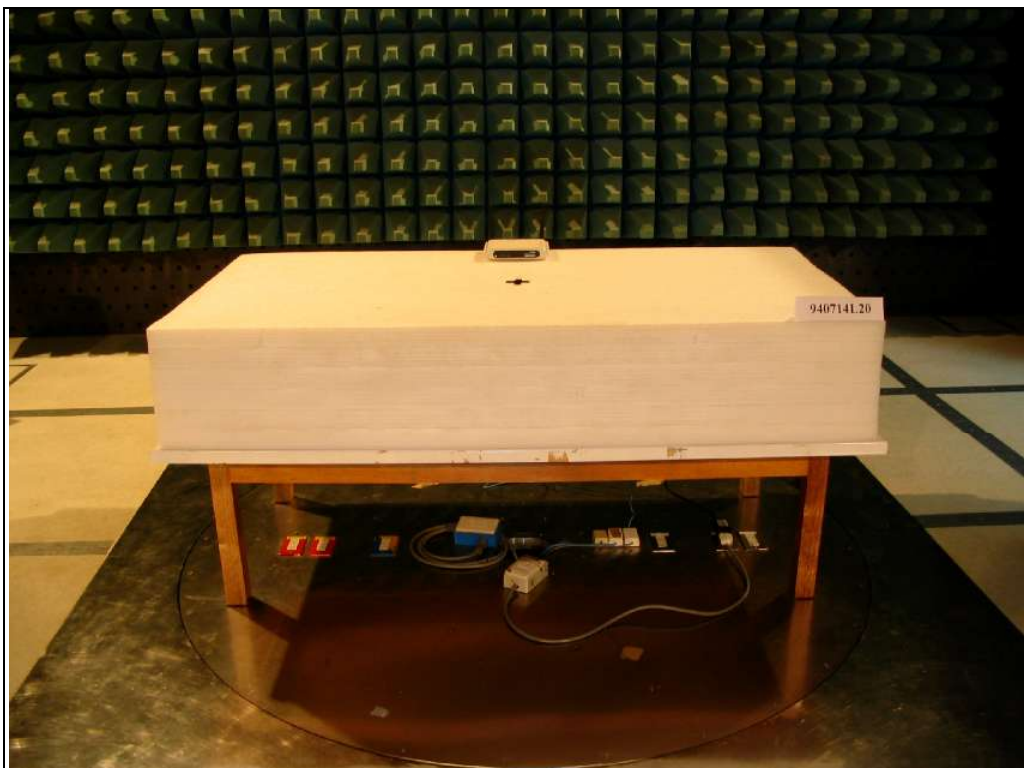
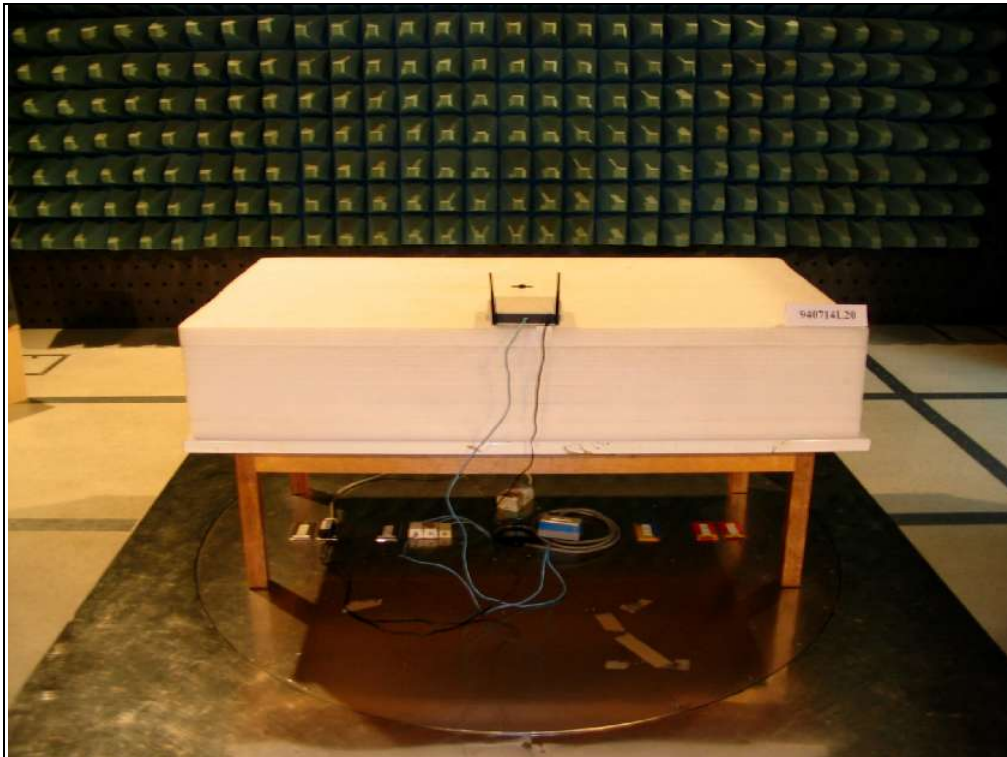
The antenna used in this product is Dipole antenna with Reverse SMA antenna connector. The maximum Gain of the antenna is 4.0dBi.

6. PHOTOGRAPHS OF THE TEST CONFIGURATION

CONDUCTED EMISSION TEST



RADIATED EMISSION TEST



7. INFORMATION ON THE TESTING LABORATORIES

We, ADT Corp., were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

USA	FCC, NVLAP, UL, A2LA
Germany	TUV Rheinland
Japan	VCCI
Norway	NEMKO
Canada	INDUSTRY CANADA , CSA
R.O.C.	CNLA, BSMI, DGT
Netherlands	Telefication
Singapore	PSB , GOST-ASIA(MOU)
Russia	CERTIS(MOU)

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site:

www.adt.com.tw/index.5/phtml. If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab:

Tel: 886-2-26052180

Fax: 886-2-26052943

Hsin Chu EMC/RF Lab:

Tel: 886-3-5935343

Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety Telecom Lab:

Tel: 886-3-3183232

Fax: 886-3-3185050

Linko RF Lab.

Tel: 886-3-3270910

Fax: 886-3-3270892

Web Site: www.adt.com.tw

The address and road map of all our labs can be found in our web site also