



# FCC TEST REPORT (15.247)

**REPORT NO.:** RF940301L04B

**MODEL NO.:** CB3000

**RECEIVED:** Apr. 18, 2006

**TESTED:** May 16 ~ Jul. 04, 2006

**ISSUED:** Jul. 06, 2006

**APPLICANT:** SYMBOL TECHNOLOGIES, INC.

**ADDRESS:** One Symbol Plaza, Holtsville, NY 11742-1300, U.S.A.

**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.

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# 1. CERTIFICATION

**PRODUCT:** Client Bridge 3000 Series  
**MODEL:** CB3000  
**BRAND:** Symbol  
**APPLICANT:** SYMBOL TECHNOLOGIES, INC.  
**TESTED:** May 16 ~ Jul. 04, 2006  
**TEST SAMPLE:** ENGINEERING SAMPLE  
**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** : Rennie Wang , **DATE:** Jul. 06, 2006  
Rennie Wang

**TECHNICAL ACCEPTANCE** : Long Chen , **DATE:** Jul. 06, 2006  
Responsible for RF Long Chen

**APPROVED BY** : Gary Chang , **DATE:** Jul. 06, 2006  
Gary Chang / Supervisor

## 2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 15, Subpart C (Section 15.247)			
Standard Section	Test Type and Limit	Result	Remark
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -13.71dB at 0.158MHz
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 -1.00dB at 2390.00MHz
15.247(e)	Power Spectral Density Limit: max. 8dBm	PASS	Meet the requirement of limit.
15.247(d)	Band Edge Measurement Limit: 20dB less than the peak value of fundamental frequency	PASS	Meet the requirement of limit.

### 2.1 MEASUREMENT UNCERTAINTY

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

Measurement	Frequency	Uncertainty
Conducted emissions	9kHz~30MHz	2.44 dB
Radiated emissions	30MHz ~ 200MHz	3.62 dB
	200MHz ~1000MHz	3.64 dB
	1GHz ~ 18GHz	2.26 dB
	18GHz ~ 40GHz	1.94 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

<b>EUT</b>	Client Bridge 3000 Series
<b>MODEL NO.</b>	CB3000
<b>FCC ID</b>	H9PCB3000
<b>POWER SUPPLY</b>	12Vdc from AC adapter
<b>MODULATION TYPE</b>	CCK, QPSK, BPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
<b>MODULATION TECHNOLOGY</b>	DSSS, OFDM
<b>TRANSFER RATE</b>	802.11b: 11/5.5/2/1Mbps 802.11g: 54/48/36/24/18/12/9/6Mbps 802.11a: 54/48/36/24/18/12/9/6Mbps
<b>FREQUENCY RANGE</b>	802.11b & 802.11g: 2412 ~ 2462MHz 802.11a: 5.725 ~ 5.850GHz (per standard 15.247) 802.11a: 5.15 ~ 5.35GHz and 5.725 ~ 5.825GHz (per standard 15.407)
<b>NUMBER OF CHANNEL</b>	802.11b & 802.11g: 11 802.11a: 8 for 5.15 ~ 5.35GHz, 4 for 5.725 ~ 5.825GHz (per standard 15.407) 802.11a: 5 for 5.725 ~ 5.850GHz (per standard 15.247)
<b>CHANNEL SPACING</b>	802.11b & 802.11g: 5MHz 802.11a: 20MHz
<b>OUTPUT POWER</b>	93.756mW for 2412 ~ 2462MHz 21.478mW for 5.150 ~ 5.350GHz 82.794mW for 5.725 ~ 5.850GHz (per standard 15.247) 44.978mW for 5.725 ~ 5.825GHz (per standard 15.407)
<b>ANTENNA TYPE</b>	Refer to NOTE 2
<b>DATA CABLE</b>	1.8m non-shielded RJ45 cable without core
<b>I/O PORTS</b>	RJ45
<b>ASSOCIATED DEVICES</b>	NA

**NOTE:**

1. This report is prepared for FCC class II permissive change. The model in this report is identical to the original application one. The differences are adding five antennas to this EUT for the test.

2. The following antennas were provided to this EUT.

Item	Antenna Type	Model	Gain (dBi)		Antenna connector
			2.4G	5G	
1	Patch	ML-2499-SD3-01	3.5	-	RP-BNC FEMALE
2	Dipole	ML-2499-HPA3-01	3.3	-	RP-BNC FEMALE
3	Dipole	ML-5299-HPA1-01	-	5.0	RP-SMA FEMALE
4	Panel	ML-5299-WPNA1-01	-	13.0	RP-SMA FEMALE
5	Yagi	ML-2499-BYGA2-01	13.9	-	Type N-Female

3. The EUT was operated with following power adapter:

<b>BRAND:</b>	LEADER ELECTRONICS INC.
<b>MODEL:</b>	IU15-2120100-WP
<b>INPUT:</b>	100~240Vac, 50-60Hz, 0.5A
<b>OUTPUT:</b>	12Vdc, 1.0A
<b>POWER LINE:</b>	DC 1.8m non-shielded cable without core

4. The EUT operates in both the 5GHz and 2.4GHz Bands and compatibility with 802.11a and 802.11b, 802.11g technology.

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.

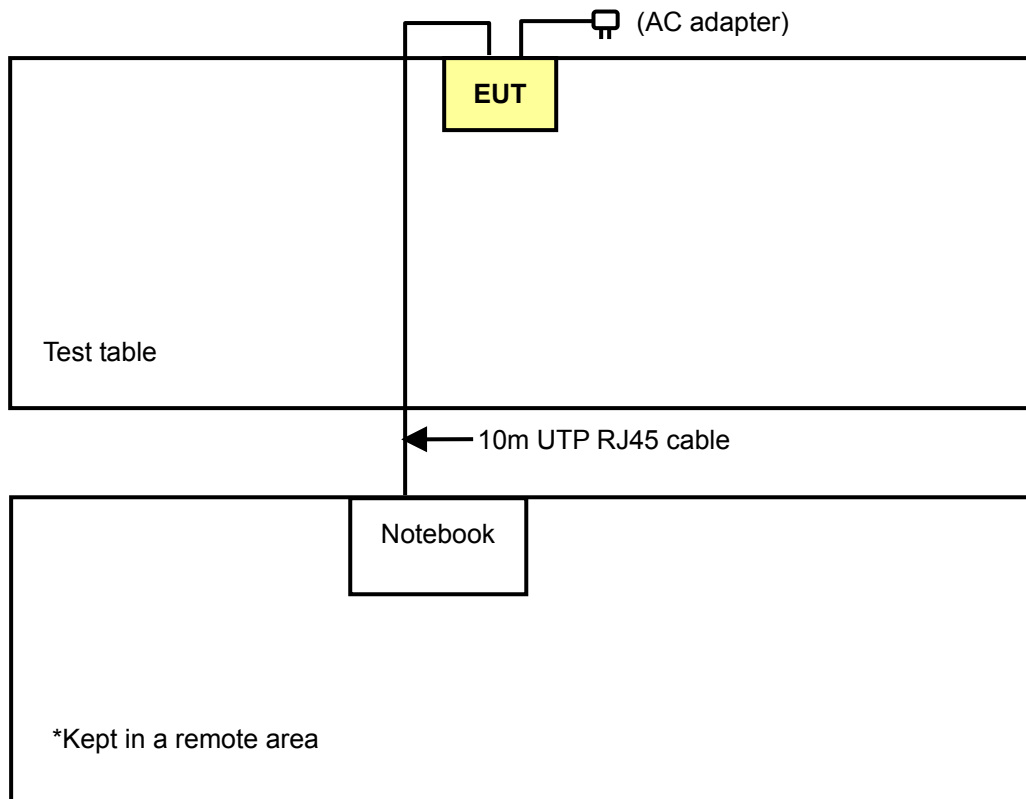
CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2412 MHz	7	2442 MHz
2	2417 MHz	8	2447 MHz
3	2422 MHz	9	2452 MHz
4	2427 MHz	10	2457 MHz
5	2432 MHz	11	2462 MHz
6	2437 MHz		

Operated in 5725 ~ 5850MHz band:

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

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

### 3.2.1 CONFIGURATION OF SYSTEM UNDER TEST



### 3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT configure mode	Applicable to				Description
	PLC	RE<1G	RE≥1G	APCM	
A	√	√	√	√	Antenna item 1 (refer to NOTE 2 of section 3.1)
B	√	√	√	√	Antenna item 2 (refer to NOTE 2 of section 3.1)
C	√	√	√	√	Antenna item 5 (refer to NOTE 2 of section 3.1)
D	√	√	√	√	Antenna item 3 (refer to NOTE 2 of section 3.1)
E	√	√	√	√	Antenna item 4 (refer to NOTE 2 of section 3.1)

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.

EUT configure mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
A, B, C	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
D, E	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 and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

EUT configure mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
A, B, C	802.11g	1 to 11	11	OFDM	BPSK	6
D, E	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 and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

EUT configure mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
A, B, C	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
A, B, C	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
D, E	802.11a	1 to 5	1, 3, 5	OFDM	BPSK	6

**Bandedge Measurement:**

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

EUT configure mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
A, B, C	802.11b	1 to 11	1, 11	DSSS	DBPSK	1
A, B, C	802.11g	1 to 11	1, 11	OFDM	BPSK	6
D, E	802.11a	1 to 5	1, 5	OFDM	BPSK	6

**Antenna Port Conducted Measurement:**

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

EUT configure mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
A, B, C	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
A, B, C	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
D, E	802.11a	1 to 5	1, 3, 5	OFDM	BPSK	6

**3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS**

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

**FCC Part 15, Subpart C. (15.247)**

**ANSI C63.4-2003**

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

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



### 3.4 DESCRIPTION OF SUPPORT UNITS

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

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP05L	12130898320	E2K24CLNS

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

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



## 4. TEST TYPES AND RESULTS (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 (dB $\mu$ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

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

#### 4.1.2 TEST INSTRUMENTS

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

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

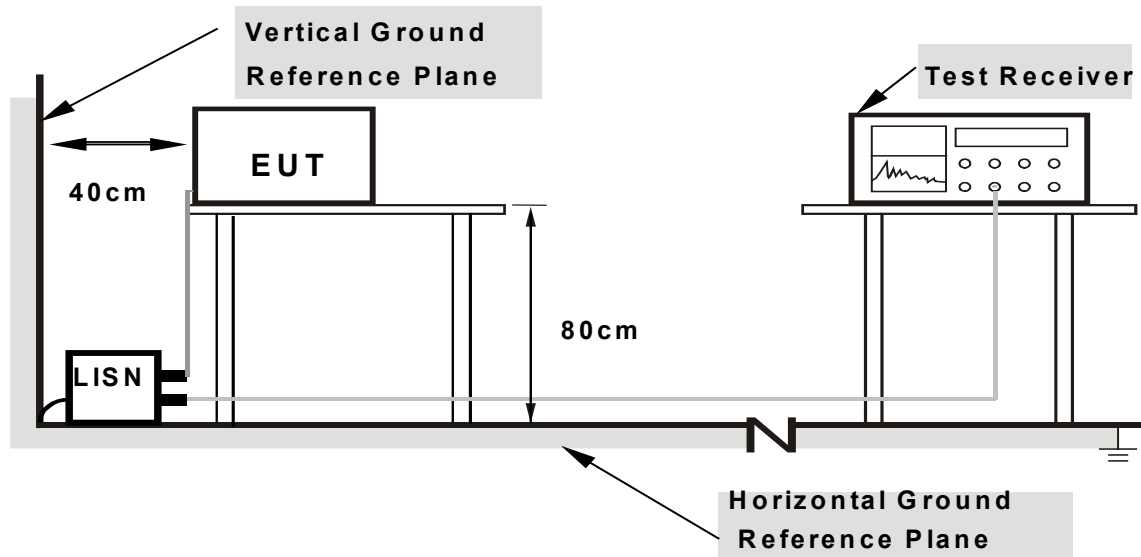
#### 4.1.3 TEST PROCEDURES

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

#### 4.1.4 DEVIATION FROM TEST STANDARD

No deviation

#### 4.1.5 TEST SETUP



**Note: 1.Support units were connected to second LISN.**

**2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes**

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

#### 4.1.6 EUT OPERATING CONDITIONS

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



#### 4.1.7 TEST RESULTS

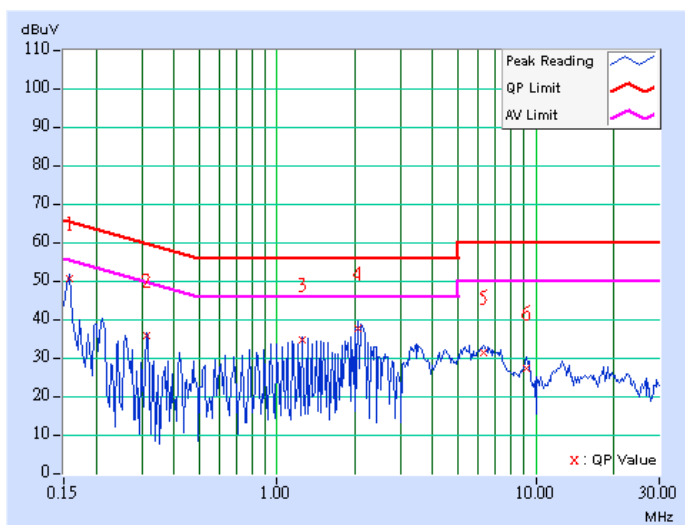
##### CONDUCTED WORST-CASE DATA

##### FOR ANTENNA ITEM 1 (3.5dBi gain)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	PHASE	Line 1
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH, 991hPa
TESTED BY	Whisky Chang	INPUT POWER (SYSTEM)	120Vac, 60 Hz

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	0.158	0.10	50.10	-	50.20	-	65.58
2	0.314	0.10	35.55	-	35.65	-	59.86	49.86	-24.21	-
3	1.258	0.20	34.17	-	34.37	-	56.00	46.00	-21.63	-
4	2.044	0.21	37.50	-	37.71	-	56.00	46.00	-18.29	-
5	6.292	0.47	30.99	-	31.46	-	60.00	50.00	-28.54	-
6	9.176	0.46	27.07	-	27.53	-	60.00	50.00	-32.47	-

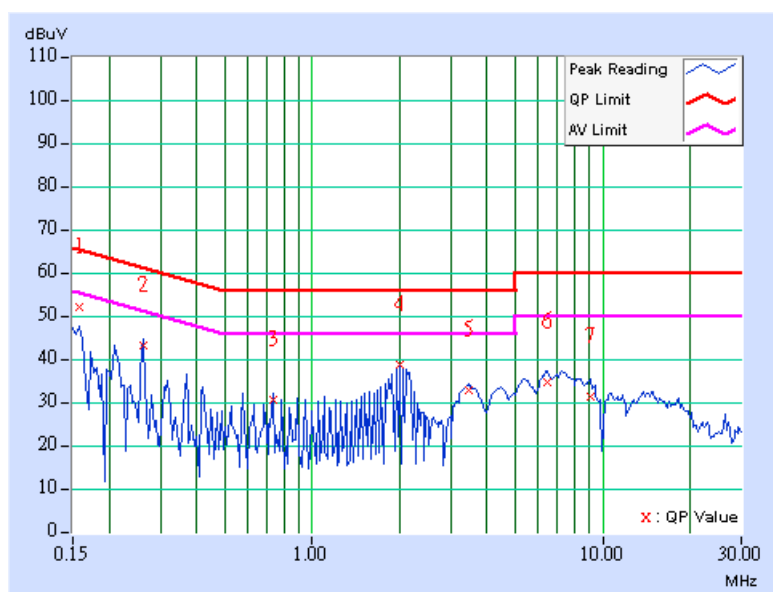
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
  2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
  3. The emission levels of other frequencies were very low against the limit.
  4. Margin value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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	PHASE	Line 2
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH, 991hPa
TESTED BY	Whisky Chang	INPUT POWER (SYSTEM)	120Vac, 60 Hz

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	0.158	0.10	51.77	-	51.87	-	65.58	55.58	-13.71	-
2	0.263	0.10	42.79	-	42.89	-	61.33	51.33	-18.44	-
3	0.732	0.10	30.19	-	30.29	-	56.00	46.00	-25.71	-
4	1.993	0.20	38.32	-	38.52	-	56.00	46.00	-17.48	-
5	3.461	0.32	32.39	-	32.71	-	56.00	46.00	-23.29	-
6	6.453	0.41	34.31	-	34.72	-	60.00	50.00	-25.28	-
7	9.078	0.45	30.98	-	31.43	-	60.00	50.00	-28.57	-

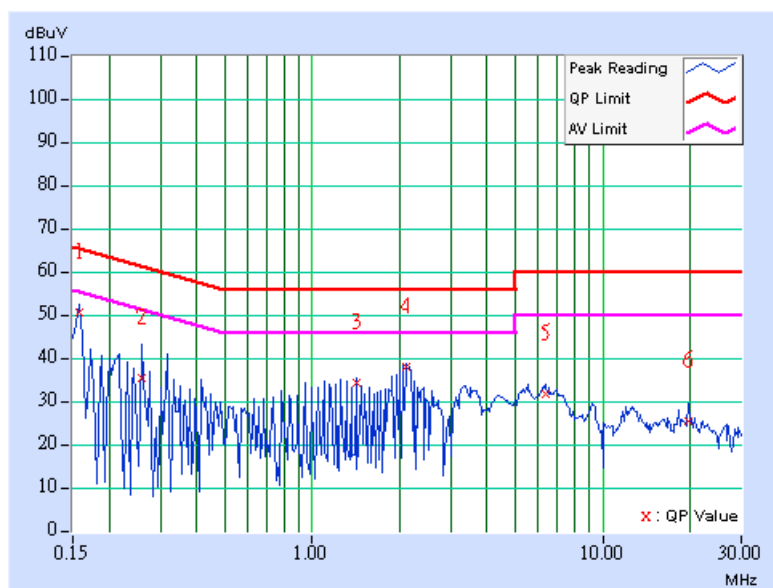
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
  2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
  3. The emission levels of other frequencies were very low against the limit.
  4. Margin value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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	PHASE	Line 1
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH, 991hPa
TESTED BY	Whisky Chang	INPUT POWER (SYSTEM)	120Vac, 60 Hz

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	0.158	0.10	49.96	-	50.06	-	65.58	55.58	-15.52	-
2	0.259	0.10	34.88	-	34.98	-	61.45	51.45	-26.47	-
3	1.414	0.20	33.75	-	33.95	-	56.00	46.00	-22.05	-
4	2.098	0.21	37.42	-	37.63	-	56.00	46.00	-18.37	-
5	6.344	0.47	31.07	-	31.54	-	60.00	50.00	-28.46	-
6	19.711	0.82	24.68	-	25.50	-	60.00	50.00	-34.50	-

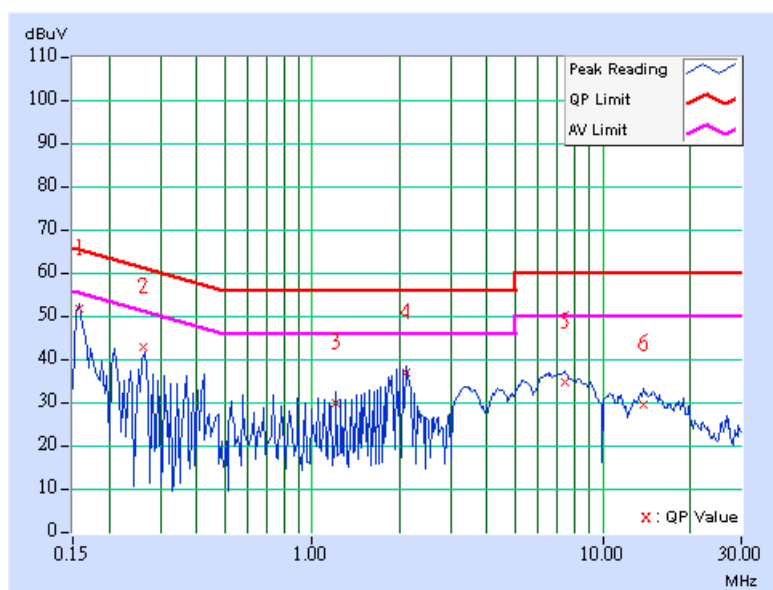
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
  2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
  3. The emission levels of other frequencies were very low against the limit.
  4. Margin value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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	PHASE	Line 2
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH, 991hPa
TESTED BY	Whisky Chang	INPUT POWER (SYSTEM)	120Vac, 60 Hz

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	0.158	0.10	51.28	-	51.38	-	65.58
2	0.263	0.10	42.52	-	42.62	-	61.32	51.32	-18.70	-
3	1.207	0.12	29.52	-	29.64	-	56.00	46.00	-26.36	-
4	2.098	0.21	36.64	-	36.85	-	56.00	46.00	-19.15	-
5	7.445	0.42	34.19	-	34.61	-	60.00	50.00	-25.39	-
6	13.785	0.51	29.30	-	29.81	-	60.00	50.00	-30.19	-

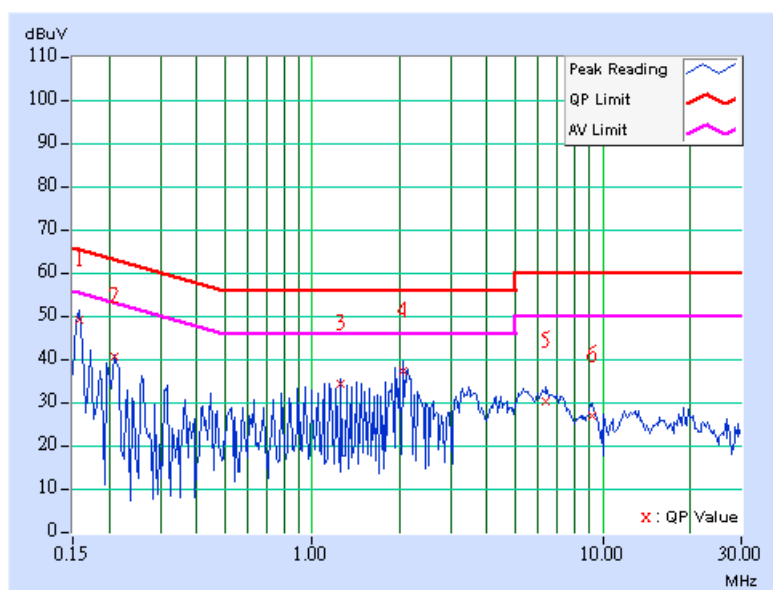
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
  2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
  3. The emission levels of other frequencies were very low against the limit.
  4. Margin value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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	PHASE	Line 1
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH, 991hPa
TESTED BY	Whisky Chang	INPUT POWER (SYSTEM)	120Vac, 60 Hz

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	0.158	0.10	48.91	-	49.01	-	65.58	55.58	-16.57	-
2	0.209	0.10	40.27	-	40.37	-	63.26	53.26	-22.89	-
3	1.258	0.20	33.91	-	34.11	-	56.00	46.00	-21.89	-
4	2.043	0.21	37.06	-	37.27	-	56.00	46.00	-18.73	-
5	6.395	0.47	30.09	-	30.56	-	60.00	50.00	-29.44	-
6	9.172	0.46	26.58	-	27.04	-	60.00	50.00	-32.96	-

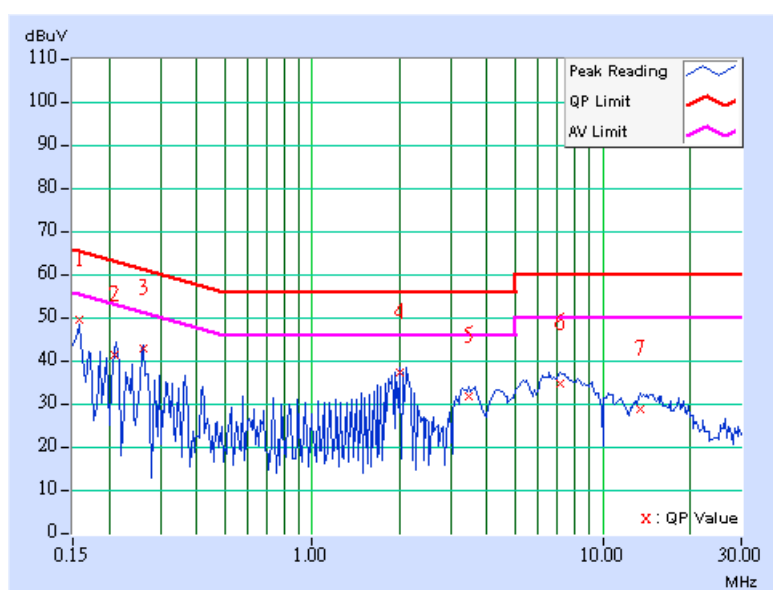
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
  2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
  3. The emission levels of other frequencies were very low against the limit.
  4. Margin value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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	PHASE	Line 2
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH, 991hPa
TESTED BY	Whisky Chang	INPUT POWER (SYSTEM)	120Vac, 60 Hz

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	0.158	0.10	49.25	-	49.35	-	65.58
2	0.209	0.10	41.10	-	41.20	-	63.26	53.26	-22.06	-
3	0.263	0.10	42.45	-	42.55	-	61.33	51.33	-18.78	-
4	1.992	0.20	36.88	-	37.08	-	56.00	46.00	-18.92	-
5	3.461	0.32	31.50	-	31.82	-	56.00	46.00	-24.18	-
6	7.125	0.42	34.31	-	34.73	-	60.00	50.00	-25.27	-
7	13.416	0.51	28.53	-	29.04	-	60.00	50.00	-30.96	-

- 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.

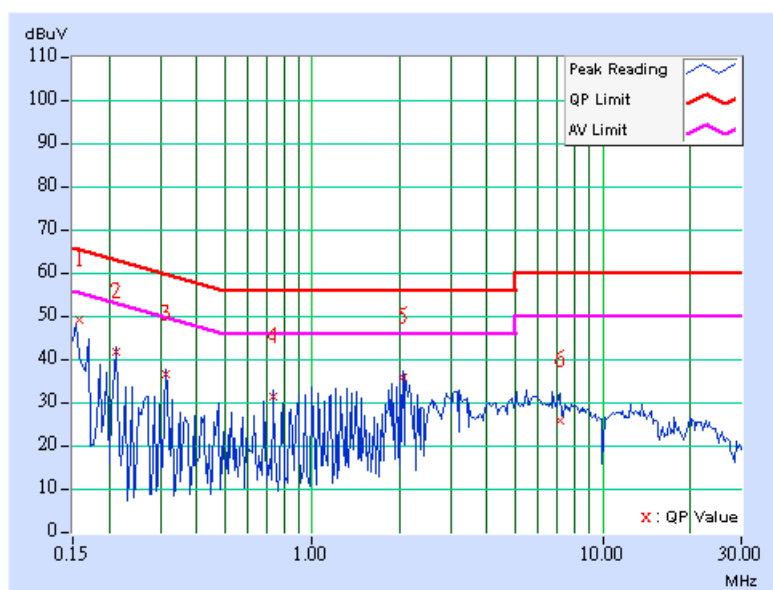


**FOR ANTENNA ITEM 2 (3.3dBi gain)**

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

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	0.158	0.10	48.90	-	49.00	-	65.58
2	0.213	0.10	41.38	-	41.48	-	63.11	53.11	-21.63	-
3	0.314	0.10	36.24	-	36.34	-	59.86	49.86	-23.52	-
4	0.736	0.16	31.18	-	31.34	-	56.00	46.00	-24.66	-
5	2.047	0.21	35.53	-	35.74	-	56.00	46.00	-20.26	-
6	7.141	0.46	25.49	-	25.95	-	60.00	50.00	-34.05	-

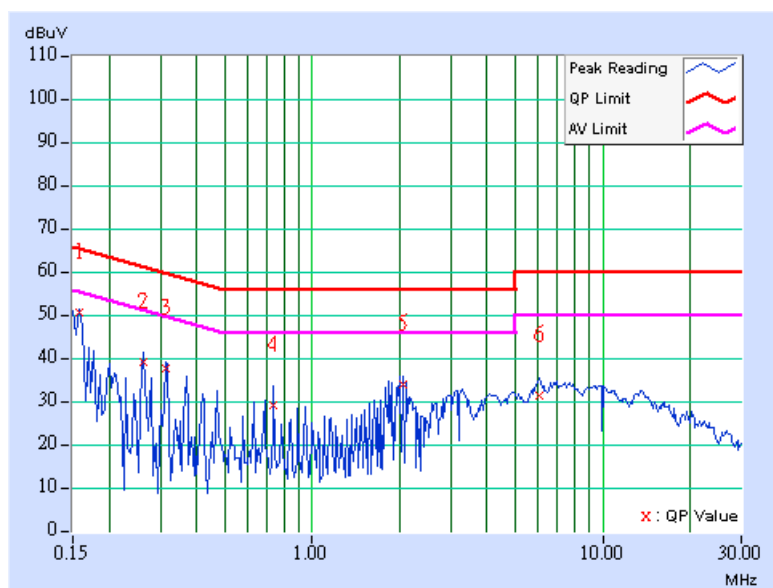
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
  2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
  3. The emission levels of other frequencies were very low against the limit.
  4. Margin value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



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

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	0.158	0.10	50.16	-	50.26	-	65.58	55.58	-15.32	-
2	0.263	0.10	38.80	-	38.90	-	61.33	51.33	-22.43	-
3	0.314	0.10	37.52	-	37.62	-	59.86	49.86	-22.24	-
4	0.736	0.10	28.70	-	28.80	-	56.00	46.00	-27.20	-
5	2.051	0.20	33.53	-	33.73	-	56.00	46.00	-22.27	-
6	6.039	0.40	31.24	-	31.64	-	60.00	50.00	-28.36	-

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

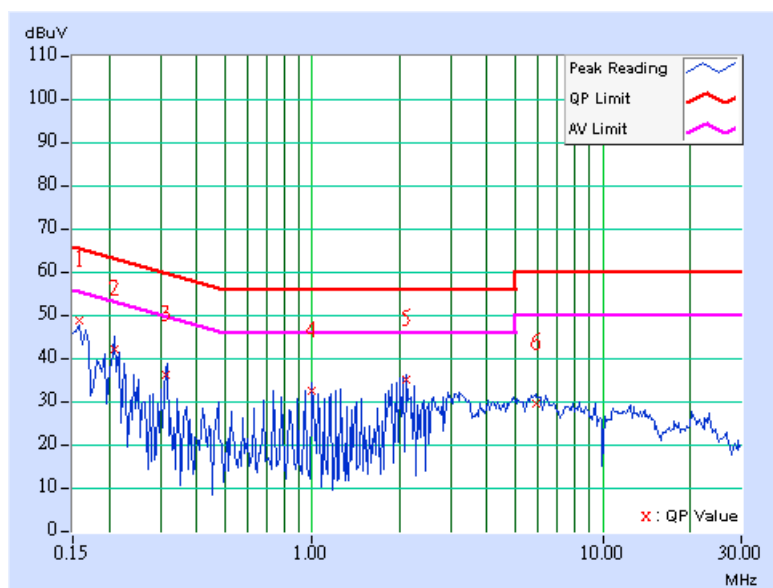




EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	PHASE	Line 1
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa
TESTED BY	Match Tsui	INPUT POWER (SYSTEM)	120Vac, 60 Hz

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	0.158	0.10	48.33	-	48.43	-	65.58
2	0.209	0.10	41.88	-	41.98	-	63.26	53.26	-21.28	-
3	0.315	0.10	36.01	-	36.11	-	59.83	49.83	-23.72	-
4	0.999	0.20	32.08	-	32.28	-	56.00	46.00	-23.72	-
5	2.098	0.21	34.78	-	34.99	-	56.00	46.00	-21.01	-
6	5.879	0.47	29.03	-	29.50	-	60.00	50.00	-30.50	-

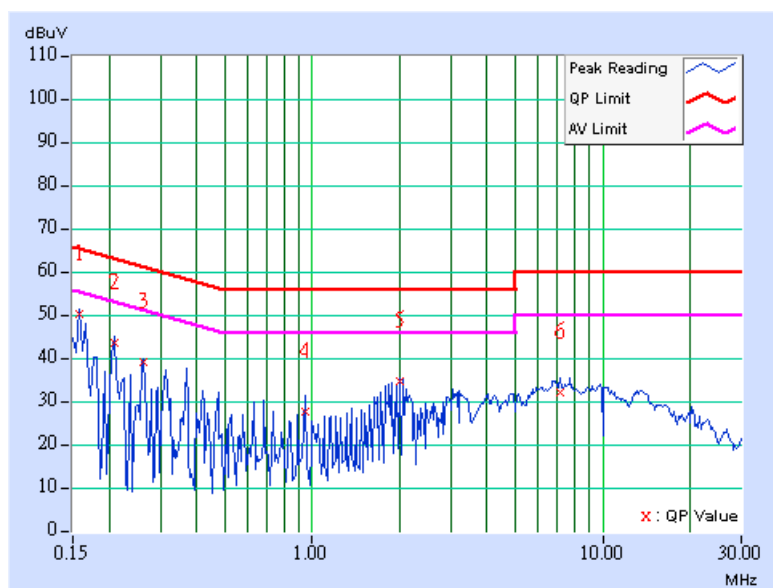
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
  2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
  3. The emission levels of other frequencies were very low against the limit.
  4. Margin value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



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

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	0.158	0.10	50.02	-	50.12	-	65.58	55.58	-15.46	-
2	0.209	0.10	43.34	-	43.44	-	63.26	53.26	-19.82	-
3	0.263	0.10	38.76	-	38.86	-	61.33	51.33	-22.47	-
4	0.943	0.10	27.28	-	27.38	-	56.00	46.00	-28.62	-
5	1.996	0.20	34.33	-	34.53	-	56.00	46.00	-21.47	-
6	7.137	0.42	31.66	-	32.08	-	60.00	50.00	-27.92	-

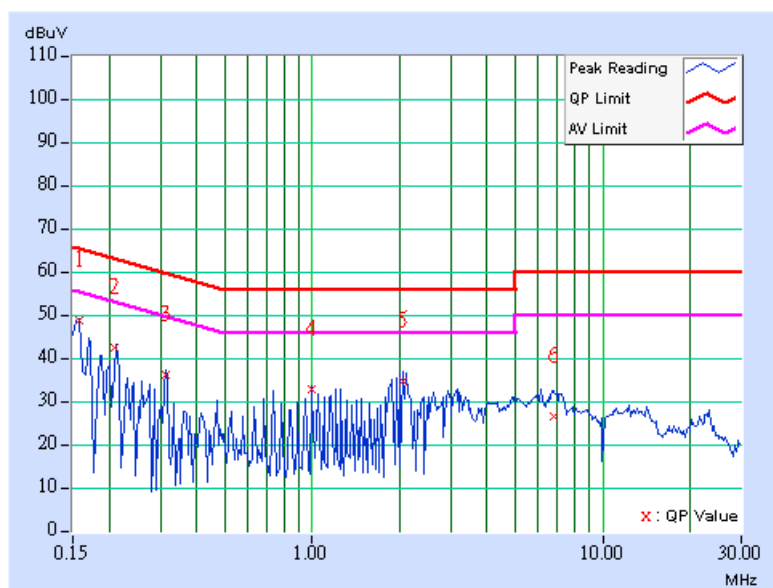
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
  2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
  3. The emission levels of other frequencies were very low against the limit.
  4. Margin value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



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

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	0.158	0.10	48.50	-	48.60	-	65.58	55.58	-16.98	-
2	0.210	0.10	41.99	-	42.09	-	63.21	53.21	-21.12	-
3	0.314	0.10	35.88	-	35.98	-	59.86	49.86	-23.88	-
4	0.998	0.20	32.32	-	32.52	-	56.00	46.00	-23.48	-
5	2.048	0.21	34.47	-	34.68	-	56.00	46.00	-21.32	-
6	6.770	0.47	26.14	-	26.61	-	60.00	50.00	-33.39	-

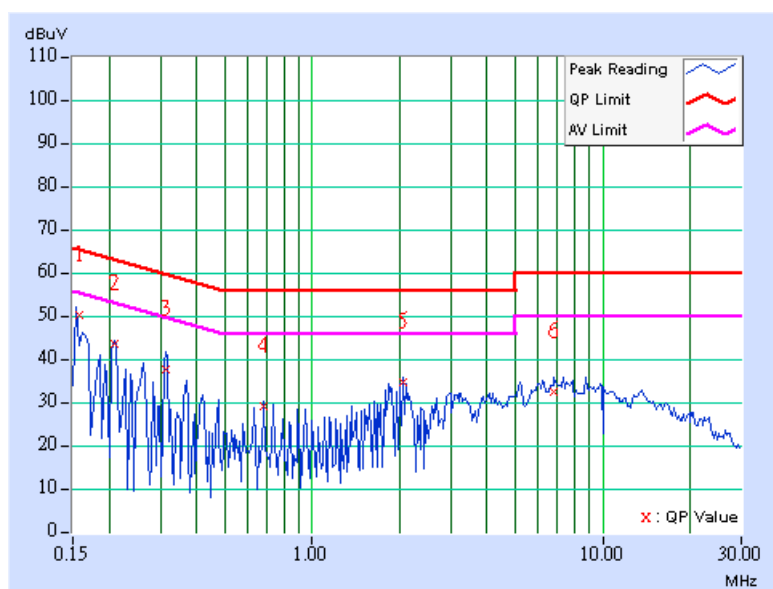
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
  2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
  3. The emission levels of other frequencies were very low against the limit.
  4. Margin value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



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

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	0.158	0.10	49.94	-	50.04	-	65.58
2	0.209	0.10	43.28	-	43.38	-	63.26	53.26	-19.88	-
3	0.314	0.10	37.30	-	37.40	-	59.86	49.86	-22.46	-
4	0.681	0.10	28.94	-	29.04	-	56.00	46.00	-26.96	-
5	2.047	0.20	34.33	-	34.53	-	56.00	46.00	-21.47	-
6	6.820	0.41	32.28	-	32.69	-	60.00	50.00	-27.31	-

- 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.

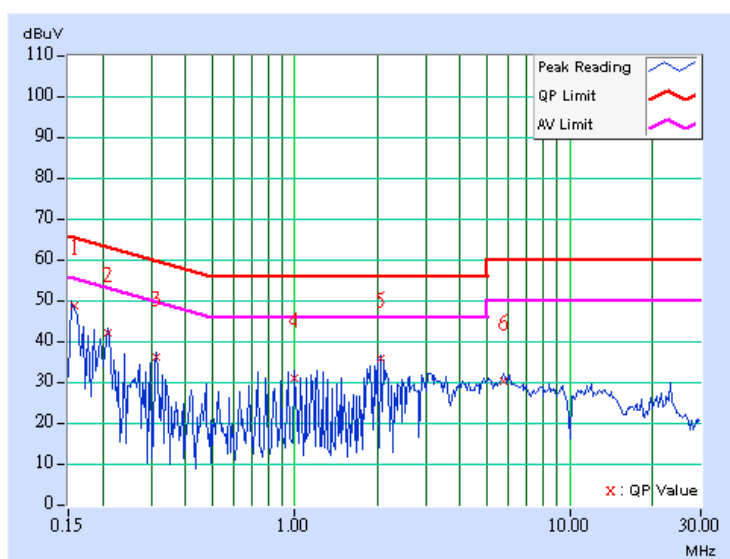


**FOR ANTENNA ITEM 5 (13.9dBi gain)**

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

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	0.158	0.10	48.33	-	48.43	-	65.58
2	0.209	0.10	41.70	-	41.80	-	63.26	53.26	-21.46	-
3	0.314	0.10	35.90	-	36.00	-	59.86	49.86	-23.86	-
4	0.994	0.20	30.62	-	30.82	-	56.00	46.00	-25.18	-
5	2.047	0.21	35.51	-	35.72	-	56.00	46.00	-20.28	-
6	5.770	0.47	29.79	-	30.26	-	60.00	50.00	-29.74	-

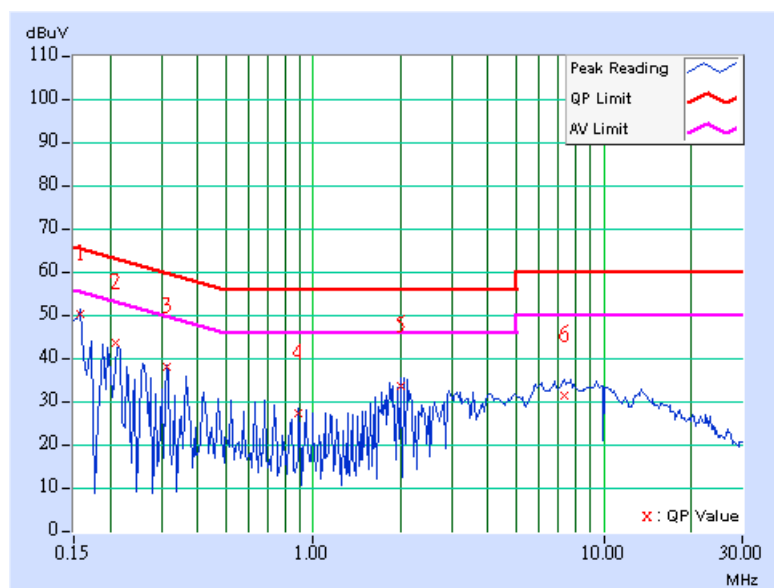
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
  2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
  3. The emission levels of other frequencies were very low against the limit.
  4. Margin value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



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

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	0.158	0.10	49.84	-	49.94	-	65.58	55.58	-15.64	-
2	0.210	0.10	43.42	-	43.52	-	63.21	53.21	-19.69	-
3	0.314	0.10	37.60	-	37.70	-	59.86	49.86	-22.16	-
4	0.892	0.10	27.00	-	27.10	-	56.00	46.00	-28.90	-
5	1.992	0.20	33.43	-	33.63	-	56.00	46.00	-22.37	-
6	7.344	0.42	31.12	-	31.54	-	60.00	50.00	-28.46	-

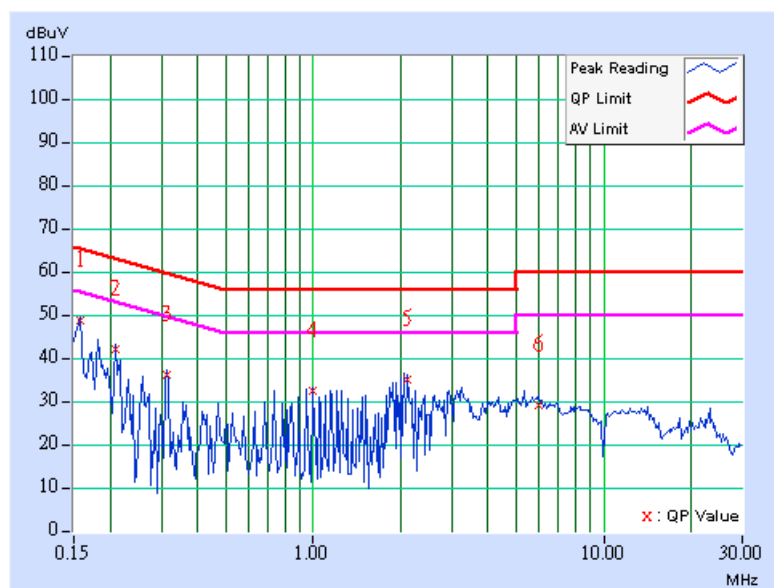
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
  2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
  3. The emission levels of other frequencies were very low against the limit.
  4. Margin value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



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

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	0.158	0.10	48.31	-	48.41	-	65.58	55.58	-17.17	-
2	0.209	0.10	41.70	-	41.80	-	63.26	53.26	-21.46	-
3	0.314	0.10	35.80	-	35.90	-	59.86	49.86	-23.96	-
4	0.998	0.20	32.10	-	32.30	-	56.00	46.00	-23.70	-
5	2.098	0.21	34.82	-	35.03	-	56.00	46.00	-20.97	-
6	5.980	0.47	28.88	-	29.35	-	60.00	50.00	-30.65	-

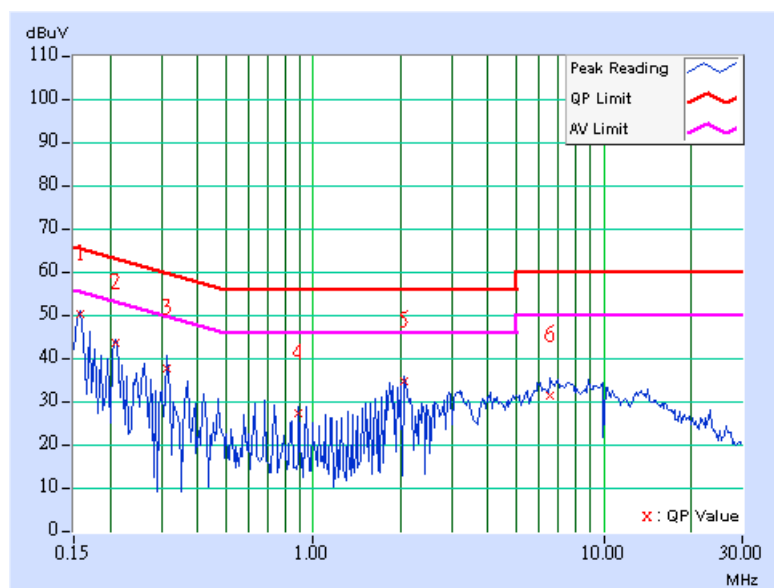
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
  2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
  3. The emission levels of other frequencies were very low against the limit.
  4. Margin value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



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

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	0.158	0.10	49.96	-	50.06	-	65.58	55.58	-15.52	-
2	0.209	0.10	43.13	-	43.23	-	63.26	53.26	-20.03	-
3	0.314	0.10	37.28	-	37.38	-	59.86	49.86	-22.48	-
4	0.892	0.10	27.14	-	27.24	-	56.00	46.00	-28.76	-
5	2.047	0.20	34.27	-	34.47	-	56.00	46.00	-21.53	-
6	6.555	0.41	31.02	-	31.43	-	60.00	50.00	-28.57	-

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

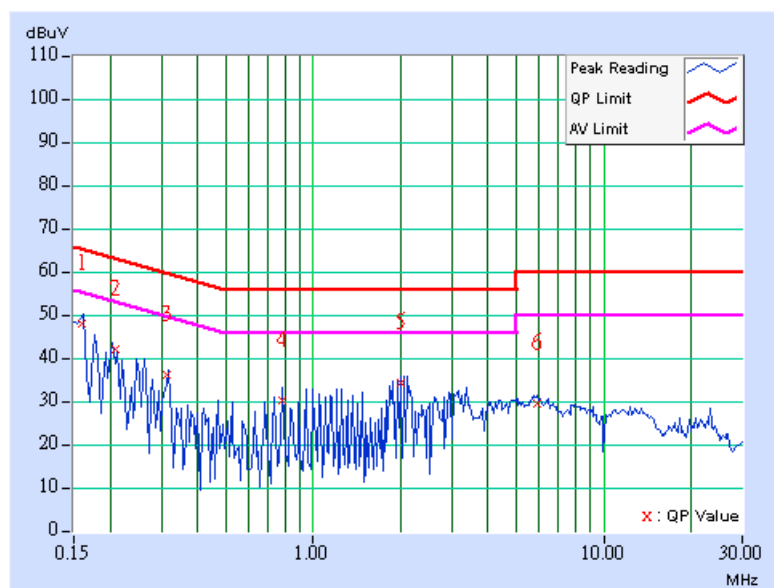




EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	PHASE	Line 1
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa
TESTED BY	Match Tsui	INPUT POWER (SYSTEM)	120Vac, 60 Hz

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	0.159	0.10	47.79	-	47.89	-	65.51	55.51	-17.62	-
2	0.210	0.10	41.84	-	41.94	-	63.21	53.21	-21.27	-
3	0.314	0.10	35.78	-	35.88	-	59.86	49.86	-23.98	-
4	0.787	0.16	29.75	-	29.91	-	56.00	46.00	-26.09	-
5	1.992	0.20	33.99	-	34.19	-	56.00	46.00	-21.81	-
6	5.926	0.47	29.14	-	29.61	-	60.00	50.00	-30.39	-

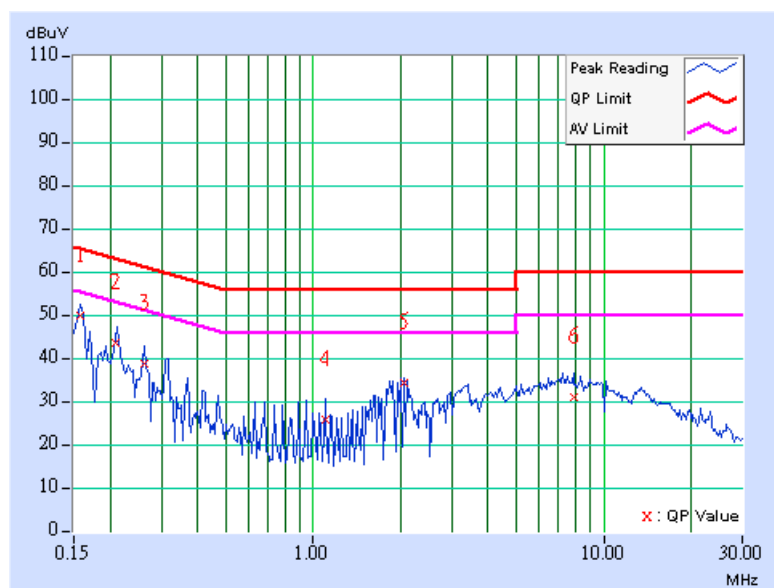
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
  2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
  3. The emission levels of other frequencies were very low against the limit.
  4. Margin value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



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

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	0.158	0.10	49.60	-	49.70	-	65.58	55.58	-15.88	-
2	0.210	0.10	43.21	-	43.31	-	63.22	53.22	-19.91	-
3	0.263	0.10	38.58	-	38.68	-	61.33	51.33	-22.65	-
4	1.102	0.11	25.48	-	25.59	-	56.00	46.00	-30.41	-
5	2.047	0.20	34.01	-	34.21	-	56.00	46.00	-21.79	-
6	7.863	0.43	30.59	-	31.02	-	60.00	50.00	-28.98	-

- 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	ESI7	838496/016	Jan. 01, 2007
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100041	Dec. 04, 2006
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Jan. 15, 2007
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-404	Jan. 01, 2007
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170242	Jan. 19, 2007
Preamplifier Agilent	8449B	3008A01960	Nov. 09, 2006
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	219268/4	Dec. 20, 2006
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	230129/4	Dec. 20, 2006
Software ADT.	ADT_Radiated_V5.14	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA
Antenna Tower Controller inn-co GmbH	CO2000	019303	NA
Turn Table ADT.	TT100.	TT93021704	NA
Turn Table Controller ADT.	SC100.	SC93021704	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 3.
  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 IC4924-4.

#### 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 method or average method as specified and then reported in data sheet.

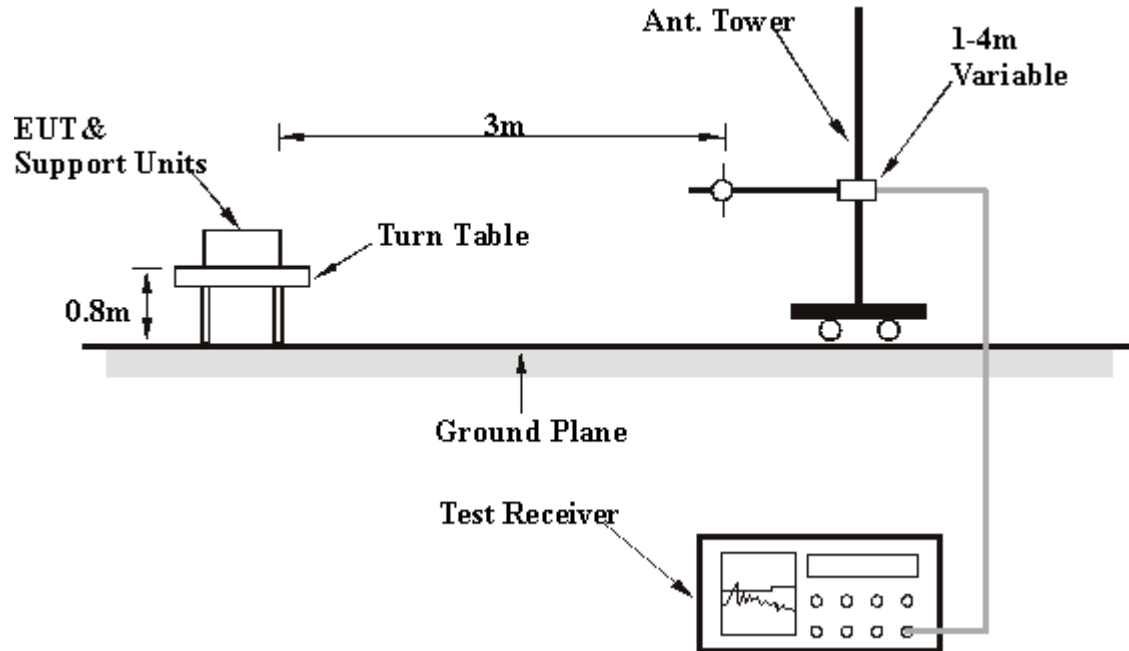
**NOTE:**

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

### RADIATED WORST-CASE DATA: BELOW 1GHZ

#### FOR ANTENNA ITEM 1 (3.5dBi gain)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	Below 1000MHz
MODULATION TYPE	BPSK	DETECTOR FUNCTION	Quasi-Peak
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	22deg. C, 63%RH, 991hPa
TESTED BY	Brad Wu	INPUT POWER (SYSTEM)	120Vac, 60 Hz

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	123.31	30.98 QP	43.50	-12.52	1.25 H	265	19.70	11.28
2	269.10	37.52 QP	46.00	-8.48	1.00 H	160	23.56	13.96
3	360.46	27.68 QP	46.00	-18.32	1.00 H	214	11.22	16.47
4	500.42	36.56 QP	46.00	-9.44	1.25 H	139	16.61	19.95
5	624.83	31.55 QP	46.00	-14.45	1.00 H	145	8.72	22.83
6	750.07	40.17 QP	46.00	-5.83	1.01 H	117	14.39	25.79

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	43.61	32.08 QP	40.00	-7.92	1.00 V	1	17.07	15.01
2	269.10	34.05 QP	46.00	-11.95	1.50 V	298	20.09	13.96
3	319.64	30.31 QP	46.00	-15.69	1.25 V	151	14.61	15.70
4	500.42	36.53 QP	46.00	-9.47	1.25 V	46	16.58	19.95
5	624.83	32.44 QP	46.00	-13.56	1.75 V	88	9.60	22.83
6	751.18	40.62 QP	46.00	-5.38	1.00 V	196	14.83	25.79

- 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.



**FOR ANTENNA ITEM 2 (3.3dBi gain)**

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	Below 1000MHz
MODULATION TYPE	BPSK	DETECTOR FUNCTION	Quasi-Peak
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	22deg. C, 63%RH, 991hPa
TESTED BY	Brad Wu	INPUT POWER (SYSTEM)	120Vac, 60 Hz

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	249.66	37.26 QP	46.00	-8.74	1.00 H	106	24.84	12.43
2	269.10	42.43 QP	46.00	-3.57	1.75 H	85	28.47	13.96
3	360.46	32.33 QP	46.00	-13.67	1.00 H	232	15.86	16.47
4	539.30	32.98 QP	46.00	-13.02	1.50 H	256	12.21	20.78
5	720.08	33.80 QP	46.00	-12.20	1.25 H	28	9.00	24.80
6	751.18	42.18 QP	46.00	-3.82	1.75 H	46	16.39	25.79

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	35.83	33.01 QP	40.00	-6.99	1.25 V	355	19.73	13.28
2	269.10	36.52 QP	46.00	-9.48	1.50 V	121	22.56	13.96
3	500.42	34.80 QP	46.00	-11.20	1.25 V	250	14.85	19.95
4	624.83	30.35 QP	46.00	-15.65	1.00 V	133	7.51	22.83
5	751.18	40.14 QP	46.00	-5.86	1.00 V	334	14.35	25.79
6	1000.00	36.29 QP	54.00	-17.71	1.00 V	172	7.58	28.70

- 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.





**FOR ANTENNA ITEM 5 (13.9dBi gain)**

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	Below 1000MHz
MODULATION TYPE	BPSK	DETECTOR FUNCTION	Quasi-Peak
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	22deg. C, 63%RH, 991hPa
TESTED BY	Brad Wu	INPUT POWER (SYSTEM)	120Vac, 60 Hz

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	179.68	23.53 QP	43.50	-19.97	1.25 H	91	11.65	11.88
2	269.10	31.86 QP	46.00	-14.14	1.00 H	325	17.90	13.96
3	500.42	32.88 QP	46.00	-13.12	1.50 H	169	12.93	19.95
4	624.83	33.17 QP	46.00	-12.83	1.50 H	145	10.34	22.83
5	720.08	36.26 QP	46.00	-9.74	1.00 H	19	11.46	24.80
6	751.18	39.69 QP	46.00	-6.31	1.00 H	256	13.90	25.79

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	43.61	33.22 QP	40.00	-6.78	1.00 V	271	18.22	15.01
2	179.68	30.87 QP	43.50	-12.63	1.00 V	301	18.99	11.88
3	269.10	27.77 QP	46.00	-18.23	1.25 V	130	13.81	13.96
4	500.42	32.90 QP	46.00	-13.10	1.00 V	118	12.95	19.95
5	624.83	32.07 QP	46.00	-13.93	1.00 V	97	9.24	22.83
6	751.18	43.07 QP	46.00	-2.93	1.25 V	340	17.28	25.79

- 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

### FOR ANTENNA ITEM 1 (3.5dBi gain)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	DBPSK	DETECTOR FUNCTION	Peak(PK) Average (AV)
TRANSFER RATE	1Mbps	ENVIRONMENTAL CONDITIONS	22deg. C, 62%RH, 991hPa
TESTED BY	Brad Wu	INPUT POWER (SYSTEM)	120Vac, 60 Hz

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	1800.00	42.21 PK	74.00	-31.79	1.00 H	314	12.07	30.14
2	1800.00	36.28 AV	54.00	-17.72	1.00 H	314	6.14	30.14
3	2390.00	60.83 PK	74.00	-13.17	1.14 H	37	28.73	32.10
4	2390.00	50.75 AV	54.00	-3.25	1.14 H	37	18.65	32.10
5	*2412.00	111.75 PK			1.09 H	36	79.57	32.18
6	*2412.00	107.71 AV			1.09 H	36	75.53	32.18
7	4824.00	49.87 PK	74.00	-24.13	1.00 H	195	11.24	38.63
8	4824.00	42.33 AV	54.00	-11.67	1.00 H	195	3.70	38.63
9	7236.00	51.73 PK	74.00	-22.27	1.00 H	115	6.44	45.29
10	7236.00	41.46 AV	54.00	-12.54	1.00 H	115	-3.83	45.29

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	1800.00	42.10 PK	74.00	-31.90	1.50 V	41	11.96	30.14
2	1800.00	37.27 AV	54.00	-16.73	1.50 V	41	7.13	30.14
3	2390.00	55.41 PK	74.00	-18.59	1.27 V	194	23.31	32.10
4	2390.00	45.58 AV	54.00	-8.42	1.27 V	194	13.48	32.10
5	*2412.00	105.29 PK			1.27 V	187	73.11	32.18
6	*2412.00	101.35 AV			1.27 V	187	69.17	32.18
7	4824.00	50.91 PK	74.00	-23.09	1.25 V	20	12.28	38.63
8	4824.00	46.06 AV	54.00	-7.94	1.25 V	20	7.43	38.63
9	7236.00	53.77 PK	74.00	-20.23	1.44 V	270	8.48	45.29
10	7236.00	46.76 AV	54.00	-7.24	1.44 V	270	1.47	45.29

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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	DBPSK	DETECTOR FUNCTION	Peak(PK) Average (AV)
TRANSFER RATE	1Mbps	ENVIRONMENTAL CONDITIONS	22deg. C, 62%RH, 991hPa
TESTED BY	Brad Wu	INPUT POWER (SYSTEM)	120Vac, 60 Hz

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	1800.00	42.35 PK	74.00	-31.65	1.30 H	38	12.23	30.12
2	1800.00	36.34 AV	54.00	-17.66	1.30 H	38	6.22	30.12
3	*2437.00	112.10 PK			1.09 H	37	79.81	32.29
4	*2437.00	108.03 AV			1.09 H	37	75.74	32.29
5	4874.00	49.96 PK	74.00	-24.04	2.10 H	109	11.17	38.79
6	4874.00	42.41 AV	54.00	-11.59	2.10 H	109	3.62	38.79
7	7311.00	51.89 PK	74.00	-22.11	2.51 H	116	6.48	45.41
8	7311.00	41.58 AV	54.00	-12.42	2.51 H	116	-3.83	45.41

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	1800.00	42.02 PK	74.00	-31.98	1.18 V	68	11.90	30.12
2	1800.00	37.15 AV	54.00	-16.85	1.18 V	68	7.03	30.12
3	*2437.00	105.92 PK			2.20 V	95	73.63	32.29
4	*2437.00	101.91 AV			2.20 V	95	69.62	32.29
5	4874.00	51.03 PK	74.00	-22.97	2.13 V	59	12.24	38.79
6	4874.00	46.14 AV	54.00	-7.86	2.13 V	59	7.35	38.79
7	7311.00	53.93 PK	74.00	-20.07	1.34 V	153	8.52	45.41
8	7311.00	46.92 AV	54.00	-7.08	1.34 V	153	1.51	45.41

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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	DBPSK	DETECTOR FUNCTION	Peak(PK) Average (AV)
TRANSFER RATE	1Mbps	ENVIRONMENTAL CONDITIONS	22deg. C, 62%RH, 991hPa
TESTED BY	Brad Wu	INPUT POWER (SYSTEM)	120Vac, 60 Hz

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	1800.00	42.33 PK	74.00	-31.67	1.00 H	128	12.21	30.12
2	1800.00	36.35 AV	54.00	-17.65	1.00 H	128	6.23	30.12
3	*2462.00	111.70 PK			1.07 H	35	79.32	32.38
4	*2462.00	107.86 AV			1.07 H	35	75.48	32.38
5	2483.50	60.71 PK	74.00	-13.29	1.08 H	40	28.25	32.46
6	2483.50	51.35 AV	54.00	-2.65	1.08 H	40	18.89	32.46
7	4924.00	49.93 PK	74.00	-24.07	1.25 H	36	11.01	38.92
8	4924.00	42.38 AV	54.00	-11.62	1.25 H	36	3.46	38.92
9	7386.00	51.78 PK	74.00	-22.22	1.05 H	69	6.19	45.59
10	7386.00	41.61 AV	54.00	-12.39	1.05 H	69	-3.98	45.59

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	1800.00	42.19 PK	74.00	-31.81	1.02 V	205	12.07	30.12
2	1800.00	37.42 AV	54.00	-16.58	1.02 V	205	7.30	30.12
3	*2462.00	105.33 PK			1.38 V	46	72.95	32.38
4	*2462.00	101.46 AV			1.38 V	46	69.08	32.38
5	2483.50	54.38 PK	74.00	-19.62	1.39 V	208	21.92	32.46
6	2483.50	44.89 AV	54.00	-9.11	1.39 V	208	12.43	32.46
7	4924.00	51.12 PK	74.00	-22.88	1.83 V	92	12.20	38.92
8	4924.00	46.28 AV	54.00	-7.72	1.83 V	92	7.36	38.92
9	7386.00	53.85 PK	74.00	-20.15	2.05 V	100	8.26	45.59
10	7386.00	46.89 AV	54.00	-7.11	2.05 V	100	1.30	45.59

- 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



**FOR ANTENNA ITEM 2 (3.3dBi gain)**

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	DBPSK	DETECTOR FUNCTION	Peak(PK) Average (AV)
TRANSFER RATE	1Mbps	ENVIRONMENTAL CONDITIONS	22deg. C, 62%RH, 991hPa
TESTED BY	Brad Wu	INPUT POWER (SYSTEM)	120Vac, 60 Hz

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	1800.00	43.58 PK	74.00	-30.42	1.08 H	355	14.06	29.52
2	1800.00	37.48 AV	54.00	-16.52	1.08 H	355	7.96	29.52
3	2390.00	50.05 PK	74.00	-23.95	1.08 H	212	18.56	31.49
4	2390.00	39.58 AV	54.00	-14.42	1.08 H	212	8.09	31.49
5	*2412.00	100.78 PK			1.08 H	322	69.19	31.59
6	*2412.00	96.89 AV			1.08 H	322	65.30	31.59
7	4824.00	51.28 PK	74.00	-22.72	1.09 H	212	13.75	37.53
8	4824.00	45.02 AV	54.00	-8.98	1.09 H	212	7.49	37.53
9	7236.00	54.02 PK	74.00	-19.98	1.00 H	85	10.17	43.85
10	7236.00	43.58 AV	54.00	-10.42	1.00 H	85	-0.27	43.85

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	1800.00	43.88 PK	74.00	-30.12	1.38 V	58	14.36	29.52
2	1800.00	40.02 AV	54.00	-13.98	1.38 V	58	10.50	29.52
3	2390.00	60.58 PK	74.00	-13.42	4.00 V	120	29.09	31.49
4	2390.00	50.48 AV	54.00	-3.52	4.00 V	120	18.99	31.49
5	*2412.00	111.28 PK			1.00 V	8	79.69	31.59
6	*2412.00	107.75 AV			1.00 V	8	76.16	31.59
7	4824.00	555.01 PK	74.00	481.01	1.00 V	45	517.48	37.53
8	4824.00	50.89 AV	54.00	-3.11	1.00 V	45	13.36	37.53
9	7236.00	57.11 PK	74.00	-16.89	1.00 V	220	13.26	43.85
10	7236.00	50.08 AV	54.00	-3.92	1.00 V	220	6.23	43.85

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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	DBPSK	DETECTOR FUNCTION	Peak(PK) Average (AV)
TRANSFER RATE	1Mbps	ENVIRONMENTAL CONDITIONS	22deg. C, 62%RH, 991hPa
TESTED BY	Brad Wu	INPUT POWER (SYSTEM)	120Vac, 60 Hz

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	1800.00	43.48 PK	74.00	-30.52	1.02 H	252	13.96	29.52
2	1800.00	37.45 AV	54.00	-16.55	1.02 H	252	7.93	29.52
3	*2437.00	101.15 PK			1.03 H	205	69.45	31.70
4	*2437.00	97.25 AV			1.03 H	205	65.55	31.70
5	4874.00	50.38 PK	74.00	-23.62	1.08 H	252	12.73	37.65
6	4874.00	44.18 AV	54.00	-9.82	1.08 H	252	6.53	37.65
7	7311.00	53.58 PK	74.00	-20.42	1.05 H	69	9.49	44.09
8	7311.00	43.08 AV	54.00	-10.92	1.05 H	69	-1.01	44.09

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	1800.00	43.55 PK	74.00	-30.45	1.25 V	58	14.03	29.52
2	1800.00	38.75 AV	54.00	-15.25	1.25 V	58	9.23	29.52
3	*2437.00	111.48 PK			1.02 V	31	79.78	31.70
4	*2437.00	108.12 AV			1.02 V	31	76.42	31.70
5	4874.00	54.28 PK	74.00	-19.72	1.00 V	155	16.63	37.65
6	4874.00	49.48 AV	54.00	-4.52	1.00 V	155	11.83	37.65
7	7311.00	56.68 PK	74.00	-17.32	1.05 V	312	12.59	44.09
8	7311.00	48.22 AV	54.00	-5.78	1.05 V	312	4.13	44.09

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	DBPSK	DETECTOR FUNCTION	Peak(PK) Average (AV)
TRANSFER RATE	1Mbps	ENVIRONMENTAL CONDITIONS	22deg. C, 62%RH, 991hPa
TESTED BY	Brad Wu	INPUT POWER (SYSTEM)	120Vac, 60 Hz

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	1800.00	43.78 PK	74.00	-30.22	1.05 H	22	14.26	29.52
2	1800.00	36.89 AV	54.00	-17.11	1.05 H	22	7.37	29.52
3	*2462.00	101.89 PK			1.03 H	323	70.07	31.82
4	*2462.00	97.98 AV			1.03 H	323	66.16	31.82
5	2483.50	51.74 PK	74.00	-22.26	1.15 H	325	19.83	31.91
6	2483.50	41.29 AV	54.00	-12.71	1.15 H	325	9.38	31.91
7	4924.00	51.89 PK	74.00	-22.11	1.02 H	323	14.13	37.76
8	4924.00	45.65 AV	54.00	-8.35	1.02 H	323	7.89	37.76
9	7386.00	54.72 PK	74.00	-19.28	1.08 H	55	10.55	44.17
10	7386.00	44.23 AV	54.00	-9.77	1.08 H	55	0.06	44.17

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	1800.00	43.58 PK	74.00	-30.42	1.28 V	55	14.06	29.52
2	1800.00	39.75 AV	54.00	-14.25	1.28 V	55	10.23	29.52
3	*2462.00	112.57 PK			1.08 V	35	80.75	31.82
4	*2462.00	108.75 AV			1.08 V	35	76.93	31.82
5	2483.50	63.05 PK	74.00	-10.95	1.08 V	35	31.14	31.91
6	2483.50	52.28 AV	54.00	-1.72	1.08 V	35	20.37	31.91
7	4924.00	53.52 PK	74.00	-20.48	1.03 V	325	15.76	37.76
8	4924.00	48.49 AV	54.00	-5.51	1.03 V	325	10.73	37.76
9	7386.00	59.35 PK	74.00	-14.65	1.01 V	252	15.18	44.17
10	7386.00	51.89 AV	54.00	-2.11	1.01 V	252	7.72	44.17

- 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



**FOR ANTENNA ITEM 5 (13.9dBi gain)**

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	DBPSK	DETECTOR FUNCTION	Peak(PK) Average (AV)
TRANSFER RATE	1Mbps	ENVIRONMENTAL CONDITIONS	22deg. C, 62%RH, 991hPa
TESTED BY	Brad Wu	INPUT POWER (SYSTEM)	120Vac, 60 Hz

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	54.76 PK	74.00	-19.24	1.00 H	257	22.85	31.91
2	2390.00	45.03 AV	54.00	-8.97	1.00 H	257	13.12	31.91
3	*2412.00	91.03 PK			1.00 H	257	58.99	32.04
4	*2412.00	88.11 AV			1.00 H	257	56.07	32.04
5	4824.00	46.35 PK	74.00	-27.65	1.18 H	244	8.84	37.51
6	4824.00	35.18 AV	54.00	-18.82	1.18 H	244	-2.33	37.51

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	2360.00	67.63 PK	74.00	-6.37	1.22 V	261	35.89	31.74
2	2360.00	52.98 AV	54.00	-1.02	1.22 V	261	21.24	31.74
3	2390.00	68.62 PK	74.00	-5.38	1.26 V	260	36.71	31.91
4	<b>2390.00</b>	<b>53.00 AV</b>	<b>54.00</b>	<b>-1.00</b>	<b>1.26 V</b>	<b>260</b>	<b>21.09</b>	<b>31.91</b>
5	*2412.00	114.40 PK			1.24 V	260	82.36	32.04
6	*2412.00	110.10 AV			1.24 V	260	78.06	32.04
7	4824.00	47.70 PK	74.00	-26.30	1.22 V	261	10.19	37.51
8	4824.00	36.79 AV	54.00	-17.21	1.22 V	261	-0.72	37.51

- 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. “ \* “ : Fundamental frequency



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	DBPSK	DETECTOR FUNCTION	Peak(PK) Average (AV)
TRANSFER RATE	1Mbps	ENVIRONMENTAL CONDITIONS	22deg. C, 62%RH, 991hPa
TESTED BY	Brad Wu	INPUT POWER (SYSTEM)	120Vac, 60 Hz

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	2360.00	53.88 PK	74.00	-20.12	1.00 H	243	22.14	31.74
2	2360.00	44.12 AV	54.00	-9.88	1.00 H	243	12.38	31.74
3	*2437.00	90.55 PK			1.00 H	229	58.35	32.20
4	*2437.00	88.49 AV			1.00 H	229	56.29	32.20
5	4874.00	45.68 PK	74.00	-28.32	1.09 H	275	8.13	37.55
6	4874.00	35.79 AV	54.00	-18.21	1.09 H	275	-1.76	37.55

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	2360.00	68.27 PK	74.00	-5.73	1.28 V	263	36.53	31.74
2	2360.00	52.98 AV	54.00	-1.02	1.28 V	263	21.24	31.74
3	*2437.00	113.58 PK			1.22 V	258	81.38	32.20
4	*2437.00	109.53 AV			1.22 V	258	77.33	32.20
5	4874.00	46.88 PK	74.00	-27.12	1.13 V	250	9.33	37.55
6	4874.00	35.68 AV	54.00	-18.32	1.13 V	250	-1.87	37.55

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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	DBPSK	DETECTOR FUNCTION	Peak(PK) Average (AV)
TRANSFER RATE	1Mbps	ENVIRONMENTAL CONDITIONS	22deg. C, 62%RH, 991hPa
TESTED BY	Brad Wu	INPUT POWER (SYSTEM)	120Vac, 60 Hz

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	2360.00	53.65 PK	74.00	-20.35	1.00 H	252	21.91	31.74
2	2360.00	44.02 AV	54.00	-9.98	1.00 H	252	12.28	31.74
3	*2462.00	89.91 PK			1.00 H	235	57.56	32.35
4	*2462.00	86.51 AV			1.00 H	235	54.16	32.35
5	4924.00	45.12 PK	74.00	-28.88	1.05 H	265	7.54	37.58
6	4924.00	35.22 AV	54.00	-18.78	1.05 H	265	-2.36	37.58

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	2360.00	67.62 PK	74.00	-6.38	1.25 V	259	35.88	31.74
2	2360.00	52.99 AV	54.00	-1.01	1.25 V	259	21.25	31.74
3	*2462.00	112.65 PK			1.06 V	254	80.30	32.35
4	*2462.00	108.96 AV			1.06 V	254	76.61	32.35
5	2483.50	60.38 PK	74.00	-13.62	1.09 V	256	27.89	32.49
6	2483.50	50.50 AV	54.00	-3.50	1.09 V	256	18.01	32.49
7	4924.00	45.85 PK	74.00	-28.15	1.13 V	252	8.27	37.58
8	4924.00	34.81 AV	54.00	-19.19	1.13 V	252	-2.77	37.58

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



## 802.11g OFDM MODULATION

### FOR ANTENNA ITEM 1 (3.5dBi gain)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	BPSK	DETECTOR FUNCTION	Peak(PK) Average (AV)
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	22deg. C, 62%RH, 991hPa
TESTED BY	Brad Wu	INPUT POWER (SYSTEM)	120Vac, 60 Hz

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	1800.00	44.81 PK	74.00	-29.19	1.13 H	216	14.69	30.12
2	1800.00	39.21 AV	54.00	-14.79	1.13 H	216	9.09	30.12
3	2390.00	69.87 PK	74.00	-4.13	1.12 H	34	37.76	32.11
4	2390.00	52.15 AV	54.00	-1.85	1.12 H	34	20.04	32.11
5	*2412.00	110.53 PK			1.11 H	31	78.34	32.19
6	*2412.00	101.98 AV			1.11 H	31	69.79	32.19
7	4824.00	47.98 PK	74.00	-26.02	1.12 H	20	9.33	38.65
8	4824.00	35.20 AV	54.00	-18.80	1.12 H	20	-3.45	38.65
9	7236.00	53.04 PK	74.00	-20.96	1.23 H	53	7.83	45.21
10	7236.00	40.06 AV	54.00	-13.94	1.23 H	53	-5.15	45.21

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	1800.00	43.79 PK	74.00	-30.21	1.07 V	0	13.67	30.12
2	1800.00	37.34 AV	54.00	-16.66	1.07 V	0	7.22	30.12
3	2390.00	65.92 PK	74.00	-8.08	1.62 V	38	33.81	32.11
4	2390.00	46.49 AV	54.00	-7.51	1.62 V	38	14.38	32.11
5	*2412.00	106.62 PK			1.70 V	25	74.43	32.19
6	*2412.00	96.21 AV			1.70 V	25	64.02	32.19
7	4824.00	48.18 PK	74.00	-25.82	1.08 V	353	9.53	38.65
8	4824.00	34.79 AV	54.00	-19.21	1.08 V	353	-3.86	38.65
9	7236.00	52.72 PK	74.00	-21.28	1.20 V	262	7.51	45.21
10	7236.00	39.43 AV	54.00	-14.57	1.20 V	262	-5.78	45.21

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
<b>CHANNEL</b>	Channel 6	<b>FREQUENCY RANGE</b>	1 ~ 25GHz
<b>MODULATION TYPE</b>	BPSK	<b>DETECTOR FUNCTION</b>	Peak(PK) Average (AV)
<b>TRANSFER RATE</b>	6Mbps	<b>ENVIRONMENTAL CONDITIONS</b>	22deg. C, 62%RH, 991hPa
<b>TESTED BY</b>	Brad Wu	<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz

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	1800.00	43.92 PK	74.00	-30.08	1.10 H	213	13.80	30.12
2	1800.00	38.11 AV	54.00	-15.89	1.10 H	213	7.99	30.12
3	2390.00	61.20 PK	74.00	-12.80	1.11 H	47	29.09	32.11
4	2390.00	49.71 AV	54.00	-4.29	1.11 H	47	17.60	32.11
5	*2437.00	113.52 PK			1.12 H	40	81.23	32.29
6	*2437.00	104.12 AV			1.12 H	40	71.83	32.29
7	2483.50	54.32 PK	74.00	-19.68	1.23 H	80	21.86	32.46
8	2483.50	44.89 AV	54.00	-9.11	1.23 H	80	12.43	32.46
9	4874.00	45.23 PK	74.00	-28.77	1.11 H	196	6.44	38.79
10	4874.00	35.98 AV	54.00	-18.02	1.11 H	196	-2.81	38.79
11	7311.00	57.31 PK	74.00	-16.69	1.09 H	160	11.90	45.41
12	7311.00	42.27 AV	54.00	-11.73	1.09 H	160	-3.14	45.41

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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	BPSK	DETECTOR FUNCTION	Peak(PK) Average (AV)
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	22deg. C, 62%RH, 991hPa
TESTED BY	Brad Wu	INPUT POWER (SYSTEM)	120Vac, 60 Hz

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	1800.00	43.38 PK	74.00	-30.62	1.00 V	93	13.26	30.12
2	1800.00	37.21 AV	54.00	-16.79	1.00 V	93	7.09	30.12
3	2390.00	57.28 PK	74.00	-16.72	2.13 V	59	25.17	32.11
4	2390.00	45.24 AV	54.00	-8.76	2.13 V	59	13.13	32.11
5	*2437.00	109.70 PK			1.18 V	26	77.41	32.29
6	*2437.00	99.65 AV			1.18 V	26	67.36	32.29
7	2483.50	50.38 PK	74.00	-23.62	1.10 V	109	17.92	32.46
8	2483.50	40.32 AV	54.00	-13.68	1.10 V	109	7.86	32.46
9	4874.00	46.45 PK	74.00	-27.55	2.10 V	38	7.66	38.79
10	4874.00	32.86 AV	54.00	-21.14	2.10 V	38	-5.93	38.79
11	7311.00	57.02 PK	74.00	-16.98	1.17 V	56	11.61	45.41
12	7311.00	43.85 AV	54.00	-10.15	1.17 V	56	-1.56	45.41

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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	BPSK	DETECTOR FUNCTION	Peak(PK) Average (AV)
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	22deg. C, 62%RH, 991hPa
TESTED BY	Brad Wu	INPUT POWER (SYSTEM)	120Vac, 60 Hz

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	1800.00	44.63 PK	74.00	-29.37	1.00 H	145	14.51	30.12
2	1800.00	39.07 AV	54.00	-14.93	1.00 H	145	8.95	30.12
3	*2462.00	108.78 PK			1.08 H	37	76.40	32.38
4	*2462.00	100.10 AV			1.08 H	37	67.72	32.38
5	2483.50	69.52 PK	74.00	-4.48	1.07 H	40	37.06	32.46
6	2483.50	50.85 AV	54.00	-3.15	1.07 H	40	18.39	32.46
7	4924.00	46.16 PK	74.00	-27.84	1.25 H	33	7.23	38.92
8	4924.00	33.58 AV	54.00	-20.42	1.25 H	33	-5.34	38.92
9	7386.00	51.32 PK	74.00	-22.68	1.35 H	143	5.73	45.59
10	7386.00	38.38 AV	54.00	-15.62	1.35 H	143	-7.21	45.59

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	1800.00	43.46 PK	74.00	-30.54	1.05 V	205	13.34	30.12
2	1800.00	37.26 AV	54.00	-16.74	1.05 V	205	7.14	30.12
3	*2462.00	104.85 PK			1.05 V	58	72.47	32.38
4	*2462.00	94.45 AV			1.05 V	58	62.07	32.38
5	2483.50	65.32 PK	74.00	-8.68	1.58 V	47	32.86	32.46
6	2483.50	45.01 AV	54.00	-8.99	1.58 V	47	12.55	32.46
7	4924.00	46.58 PK	74.00	-27.42	1.00 V	232	7.66	38.92
8	4924.00	33.20 AV	54.00	-20.80	1.00 V	232	-5.72	38.92
9	7236.00	51.10 PK	74.00	-22.90	1.15 V	92	5.89	45.21
10	7236.00	37.85 AV	54.00	-16.15	1.15 V	92	-7.36	45.21

- 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



**FOR ANTENNA ITEM 2 (3.3dBi gain)**

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	BPSK	DETECTOR FUNCTION	Peak(PK) Average (AV)
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	22deg. C, 62%RH, 991hPa
TESTED BY	Brad Wu	INPUT POWER (SYSTEM)	120Vac, 60 Hz

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	1800.00	42.42 PK	74.00	-31.58	1.03 H	233	12.90	29.52
2	1800.00	36.45 AV	54.00	-17.55	1.03 H	233	6.93	29.52
3	2390.00	57.25 PK	74.00	-16.75	1.02 H	175	25.76	31.49
4	2390.00	40.12 AV	54.00	-13.88	1.02 H	175	8.63	31.49
5	*2412.00	98.88 PK			1.06 H	169	67.29	31.59
6	*2412.00	88.79 AV			1.06 H	169	57.20	31.59
7	4824.00	47.79 PK	74.00	-26.21	1.08 H	335	10.26	37.53
8	4824.00	35.39 AV	54.00	-18.61	1.08 H	335	-2.14	37.53
9	7236.00	60.08 PK	74.00	-13.92	1.15 H	21	16.23	43.85
10	7236.00	42.69 AV	54.00	-11.31	1.15 H	21	-1.16	43.85

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	1800.00	43.58 PK	74.00	-30.42	1.22 V	55	14.06	29.52
2	1800.00	39.69 AV	54.00	-14.31	1.22 V	55	10.17	29.52
3	2390.00	69.28 PK	74.00	-4.72	1.08 V	322	37.79	31.49
4	2390.00	51.89 AV	54.00	-2.11	1.08 V	322	20.40	31.49
5	*2412.00	110.89 PK			1.08 V	335	79.30	31.59
6	*2412.00	100.68 AV			1.08 V	335	69.09	31.59
7	4824.00	40.11 PK	74.00	-33.89	1.08 V	35	2.58	37.53
8	4824.00	37.15 AV	54.00	-16.85	1.08 V	35	-0.38	37.53
9	7236.00	64.15 PK	74.00	-9.85	1.08 V	125	20.30	43.85
10	7236.00	45.52 AV	54.00	-8.48	1.08 V	125	1.67	43.85

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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	BPSK	DETECTOR FUNCTION	Peak(PK) Average (AV)
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	22deg. C, 62%RH, 991hPa
TESTED BY	Brad Wu	INPUT POWER (SYSTEM)	120Vac, 60 Hz

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	1800.00	43.35 PK	74.00	-30.65	1.05 H	321	13.83	29.52
2	1800.00	37.41 AV	54.00	-16.59	1.05 H	321	7.89	29.52
3	*2437.00	102.55 PK			1.75 H	0	70.85	31.70
4	*2437.00	103.00 AV			1.75 H	0	71.30	31.70
5	4874.00	48.42 PK	74.00	-25.58	1.05 H	358	10.77	37.65
6	4874.00	36.02 AV	54.00	-17.98	1.05 H	358	-1.63	37.65
7	7311.00	61.85 PK	74.00	-12.15	1.22 H	152	17.76	44.09
8	7311.00	43.28 AV	54.00	-10.72	1.22 H	152	-0.81	44.09

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	1800.00	43.18 PK	74.00	-30.82	1.00 V	222	13.66	29.52
2	1800.00	38.15 AV	54.00	-15.85	1.00 V	222	8.63	29.52
3	2360.00	61.55 PK	74.00	-12.45	1.00 V	35	30.19	31.36
4	2360.00	50.11 AV	54.00	-3.89	1.00 V	35	18.75	31.36
5	2390.00	68.89 PK	74.00	-5.11	1.08 V	355	37.40	31.49
6	2390.00	49.55 AV	54.00	-4.45	1.08 V	355	18.06	31.49
7	*2437.00	114.58 PK			1.00 V	85	82.88	31.70
8	*2437.00	104.32 AV			1.00 V	85	72.62	31.70
9	4824.00	50.55 PK	74.00	-23.45	1.18 V	352	13.02	37.53
10	4824.00	38.50 AV	54.00	-15.50	1.18 V	352	0.97	37.53
11	7311.00	65.01 PK	74.00	-8.99	1.08 V	202	20.92	44.09
12	7311.00	46.22 AV	54.00	-7.78	1.08 V	202	2.13	44.09

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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	BPSK	DETECTOR FUNCTION	Peak(PK) Average (AV)
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	22deg. C, 62%RH, 991hPa
TESTED BY	Brad Wu	INPUT POWER (SYSTEM)	120Vac, 60 Hz

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	1800.00	42.55 PK	74.00	-31.45	1.05 H	189	13.03	29.52
2	1800.00	36.45 AV	54.00	-17.55	1.05 H	189	6.93	29.52
3	*2462.00	98.22 PK			1.02 H	313	66.40	31.82
4	*2462.00	88.23 AV			1.02 H	313	56.41	31.82
5	2483.50	57.50 PK	74.00	-16.50	1.02 H	325	25.59	31.91
6	2483.50	39.32 AV	54.00	-14.68	1.02 H	325	7.41	31.91
7	4924.00	47.23 PK	74.00	-26.77	1.05 H	35	9.47	37.76
8	4924.00	35.01 AV	54.00	-18.99	1.05 H	35	-2.75	37.76
9	7386.00	60.75 PK	74.00	-13.25	1.18 H	35	16.58	44.17
10	7386.00	42.28 AV	54.00	-11.72	1.18 H	35	-1.89	44.17

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	1800.00	43.58 PK	74.00	-30.42	1.35 V	36	14.06	29.52
2	1800.00	39.75 AV	54.00	-14.25	1.35 V	36	10.23	29.52
3	*2462.00	110.28 PK			1.02 V	122	78.46	31.82
4	*2462.00	100.21 AV			1.02 V	122	68.39	31.82
5	2483.50	60.44 PK	74.00	-13.56	1.08 V	35	28.53	31.91
6	2483.50	51.23 AV	54.00	-2.77	1.08 V	35	19.32	31.91
7	4924.00	49.02 PK	74.00	-24.98	1.05 V	335	11.26	37.76
8	4924.00	37.44 AV	54.00	-16.56	1.05 V	335	-0.32	37.76
9	7386.00	64.02 PK	74.00	-9.98	1.05 V	33	19.85	44.17
10	7386.00	45.12 AV	54.00	-8.88	1.05 V	33	0.95	44.17

- 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



**FOR ANTENNA ITEM 5 (13.9dBi gain)**

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	BPSK	DETECTOR FUNCTION	Peak(PK) Average (AV)
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	22deg. C, 62%RH, 991hPa
TESTED BY	Brad Wu	INPUT POWER (SYSTEM)	120Vac, 60 Hz

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	54.94 PK	74.00	-19.06	1.01 H	256	23.03	31.91
2	2390.00	45.23 AV	54.00	-8.77	1.01 H	256	13.32	31.91
3	*2412.00	92.87 PK			1.01 H	256	60.83	32.04
4	*2412.00	83.14 AV			1.01 H	256	51.10	32.04
5	4824.00	46.74 PK	74.00	-27.26	1.03 H	232	9.23	37.51
6	4824.00	33.68 AV	54.00	-20.32	1.03 H	232	-3.83	37.51

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	2390.00	70.01 PK	74.00	-3.99	1.22 V	257	38.10	31.91
2	<b>2390.00</b>	<b>53.00 AV</b>	<b>54.00</b>	<b>-1.00</b>	<b>1.22 V</b>	<b>257</b>	<b>21.09</b>	<b>31.91</b>
3	*2412.00	114.62 PK			1.23 V	261	82.58	32.04
4	*2412.00	104.02 AV			1.23 V	261	71.98	32.04
5	4824.00	47.63 PK	74.00	-26.37	1.06 V	243	10.12	37.51
6	4824.00	34.64 AV	54.00	-19.36	1.06 V	243	-2.87	37.51

- 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. “ \* “ : Fundamental frequency



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	BPSK	DETECTOR FUNCTION	Peak(PK) Average (AV)
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	22deg. C, 62%RH, 991hPa
TESTED BY	Brad Wu	INPUT POWER (SYSTEM)	120Vac, 60 Hz

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	2360.00	56.29 PK	74.00	-17.71	1.08 H	236	24.55	31.74
2	2360.00	47.32 AV	54.00	-6.68	1.08 H	236	15.58	31.74
3	*2437.00	94.75 PK			1.02 H	229	62.55	32.20
4	*2437.00	85.01 AV			1.02 H	229	52.81	32.20
5	4874.00	48.55 PK	74.00	-25.45	1.05 H	226	11.00	37.55
6	4874.00	35.51 AV	54.00	-18.49	1.05 H	226	-2.04	37.55

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	2360.00	67.85 PK	74.00	-6.15	1.29 V	261	36.11	31.74
2	2360.00	52.93 AV	54.00	-1.07	1.29 V	261	21.19	31.74
3	*2437.00	116.90 PK			1.21 V	261	84.70	32.20
4	*2437.00	106.76 AV			1.21 V	261	74.56	32.20
5	4874.00	49.28 PK	74.00	-24.72	1.08 V	225	11.73	37.55
6	4874.00	36.02 AV	54.00	-17.98	1.08 V	225	-1.53	37.55

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	BPSK	DETECTOR FUNCTION	Peak(PK) Average (AV)
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	22deg. C, 62%RH, 991hPa
TESTED BY	Brad Wu	INPUT POWER (SYSTEM)	120Vac, 60 Hz

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	94.83 PK			1.05 H	263	62.48	32.35
2	*2462.00	85.20 AV			1.05 H	263	52.85	32.35
3	2483.50	56.35 PK	74.00	-17.65	1.02 H	241	23.86	32.49
4	2483.50	47.46 AV	54.00	-6.54	1.02 H	241	14.97	32.49
5	4924.00	48.65 PK	74.00	-25.35	1.08 H	244	11.07	37.58
6	4924.00	35.66 AV	54.00	-18.34	1.08 H	244	-1.92	37.58

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	116.80 PK			1.19 V	260	84.45	32.35
2	*2462.00	106.32 AV			1.19 V	260	73.97	32.35
3	2483.50	69.99 PK	74.00	-4.01	1.25 V	260	37.50	32.49
4	2483.50	52.79 AV	54.00	-1.21	1.25 V	260	20.30	32.49
5	4924.00	49.35 PK	74.00	-24.65	1.11 V	252	11.77	37.58
6	4924.00	36.12 AV	54.00	-17.88	1.11 V	252	-1.46	37.58

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



### 4.3 6dB BANDWIDTH MEASUREMENT

#### 4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

#### 4.3.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
SPECTRUM ANALYZER	FSEK 30	100049	Aug. 14, 2006

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

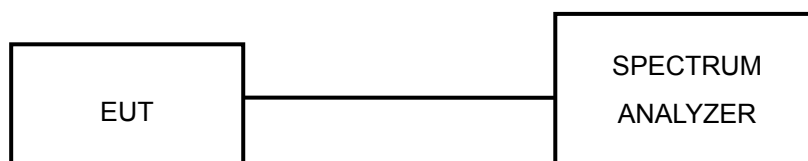
### 4.3.3 TEST PROCEDURE

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

### 4.3.4 DEVIATION FROM TEST STANDARD

No deviation

### 4.3.5 TEST SETUP

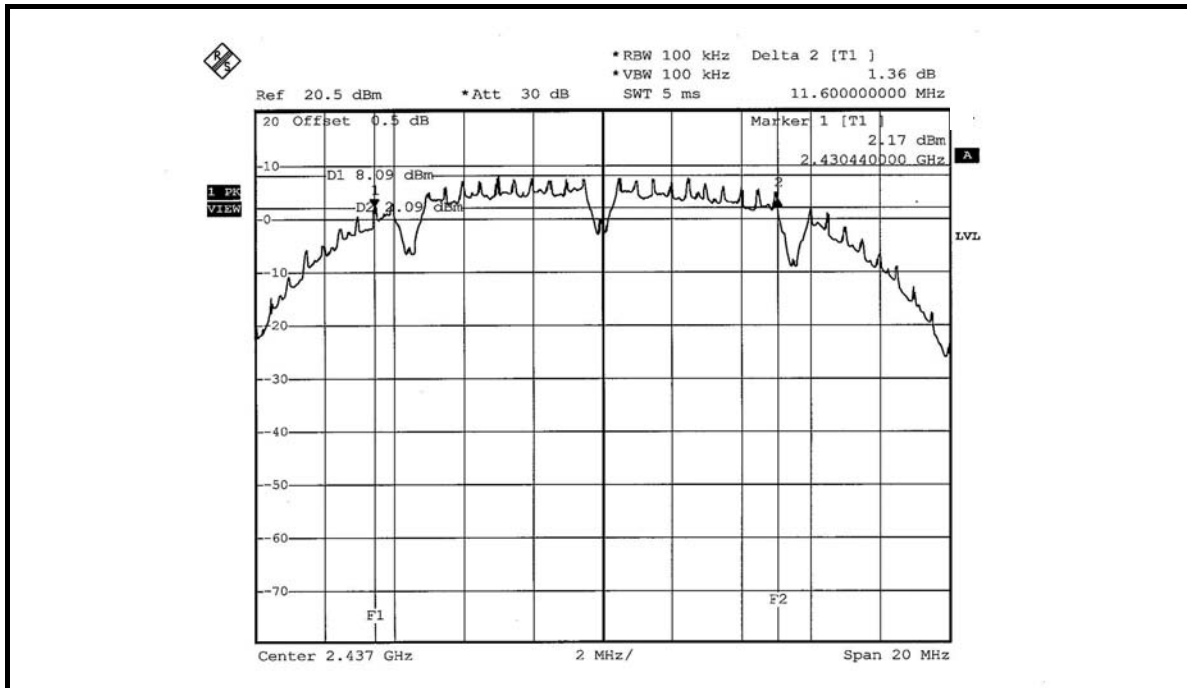


### 4.3.6 EUT OPERATING CONDITIONS

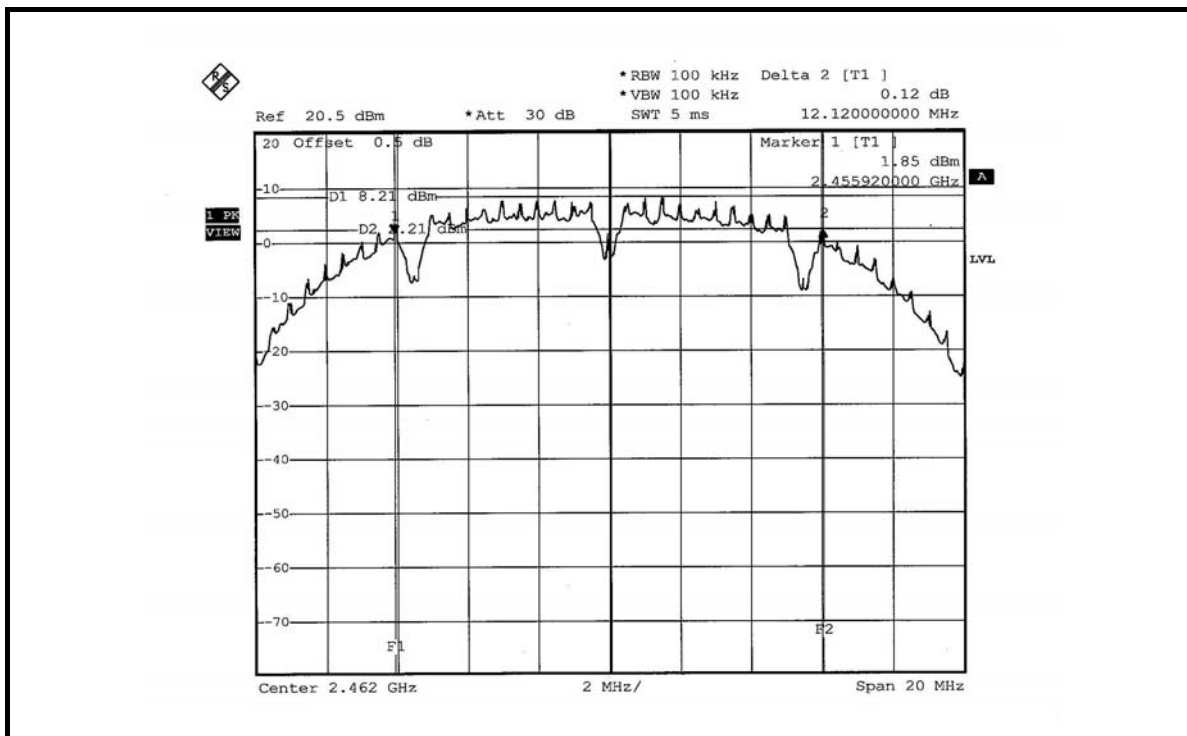
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.



## CH6



## CH11





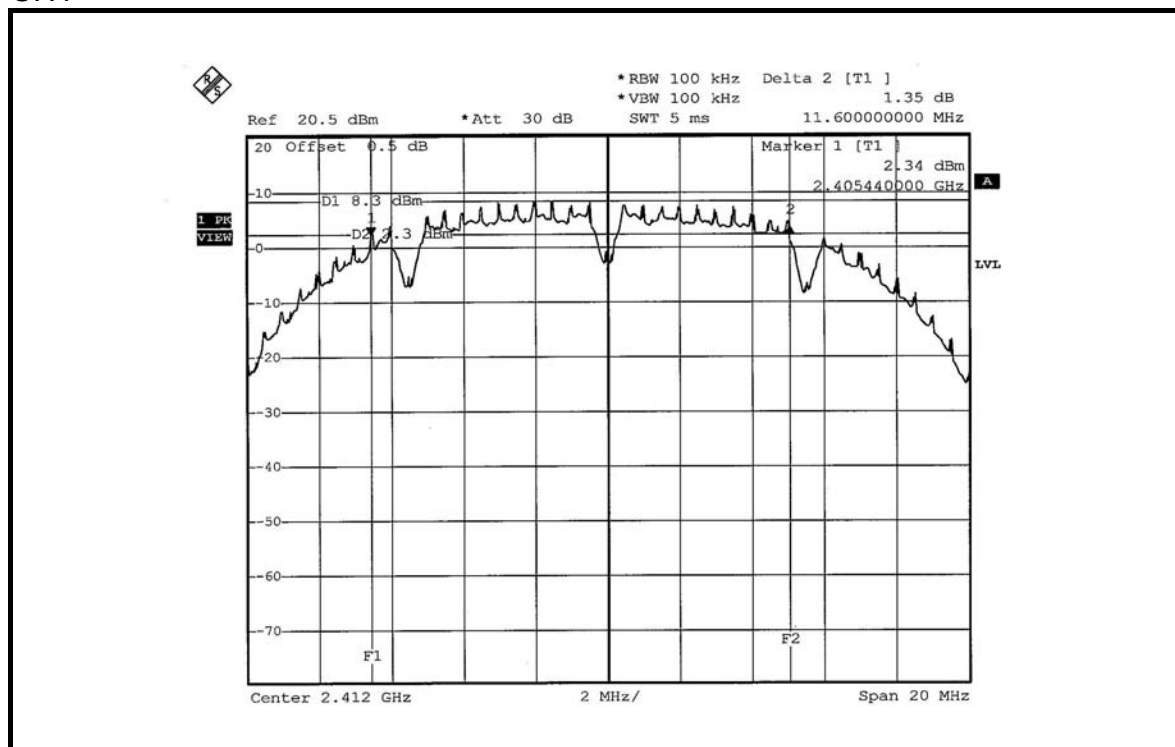


**FOR ANTENNA ITEM 2 (3.3dBi gain)**

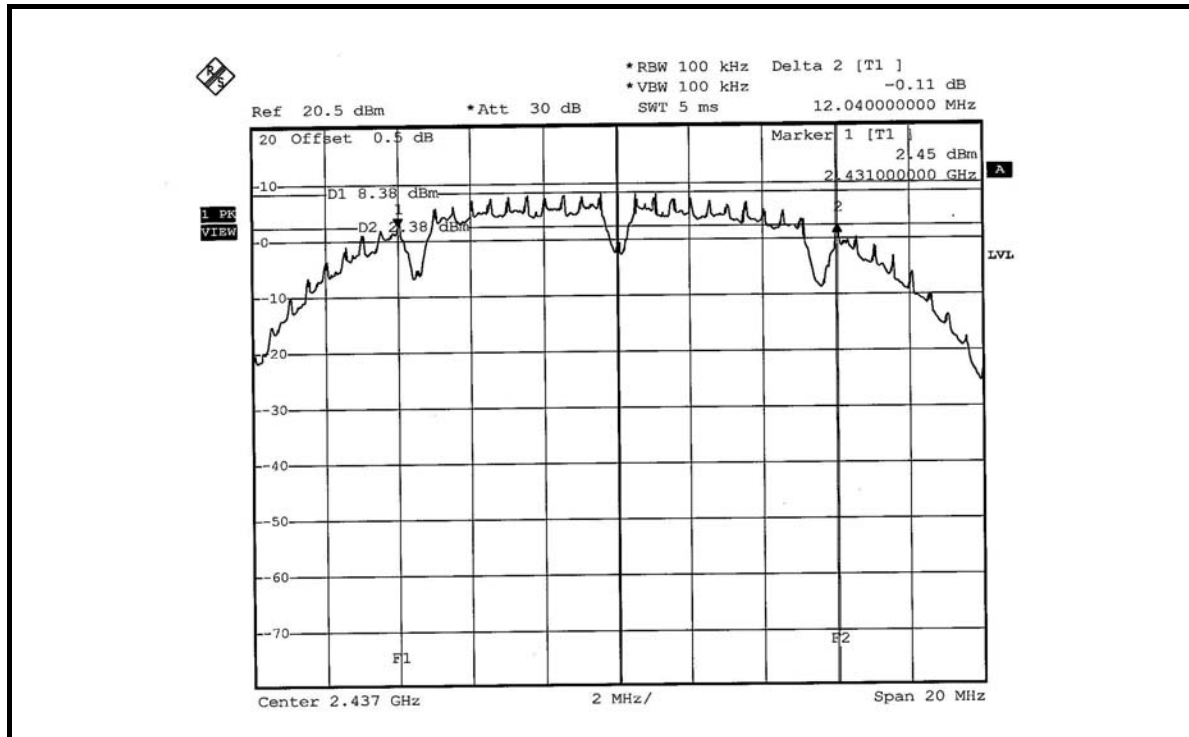
<b>MODULATION TYPE</b>	DBPSK	<b>TRANSFER RATE</b>	1Mbps
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>ENVIRONMENTAL CONDITIONS</b>	26deg. C, 66%RH, 991hPa
<b>TESTED BY</b>	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	11.60	0.5	PASS
6	2437	12.04	0.5	PASS
11	2462	12.52	0.5	PASS

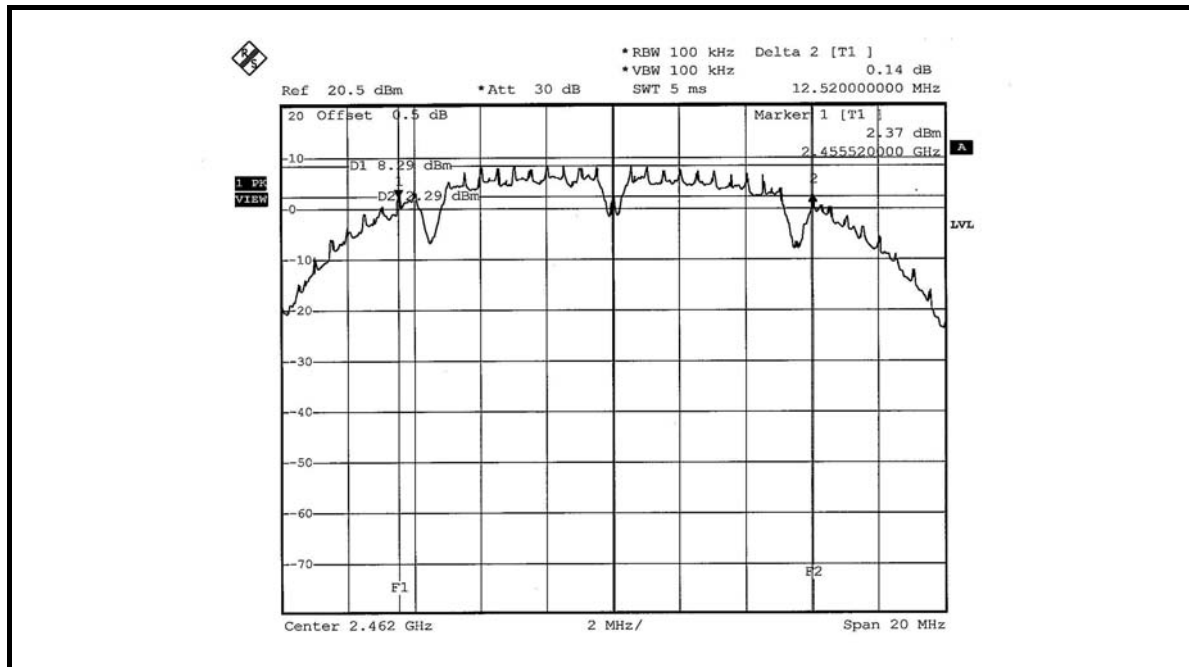
CH1



### CH6



### CH11



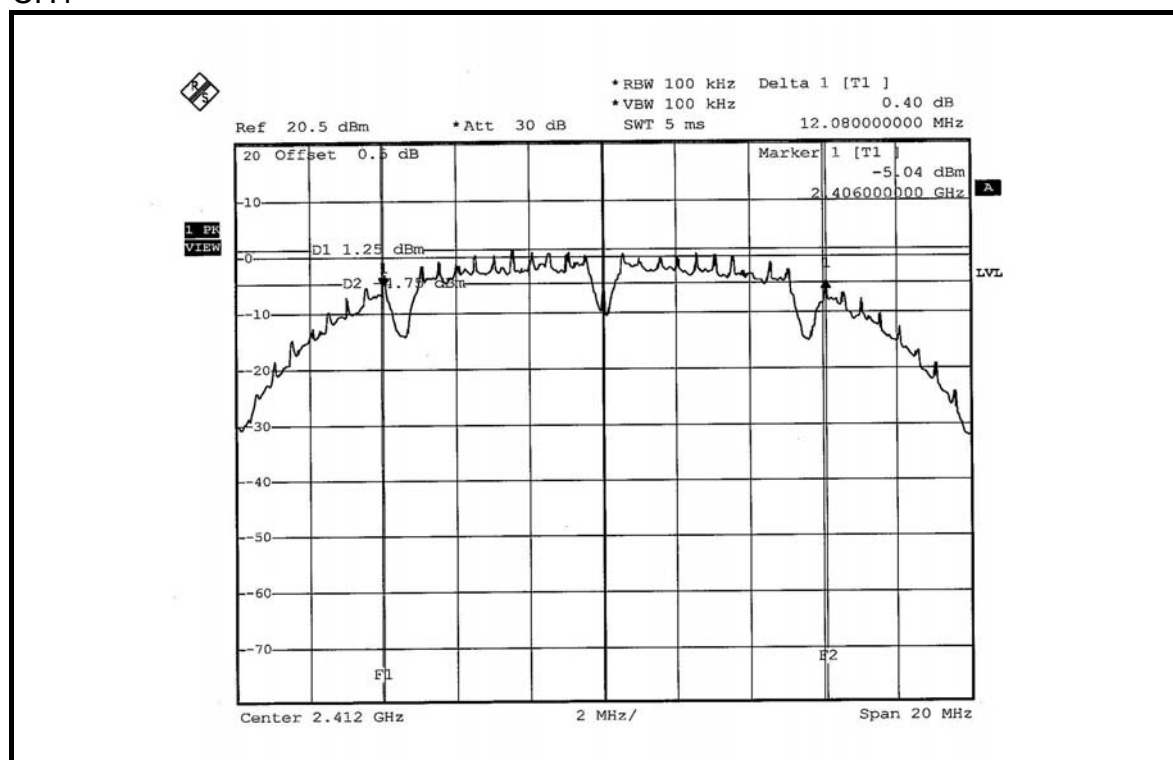


**FOR ANTENNA ITEM 5 (13.9dBi gain)**

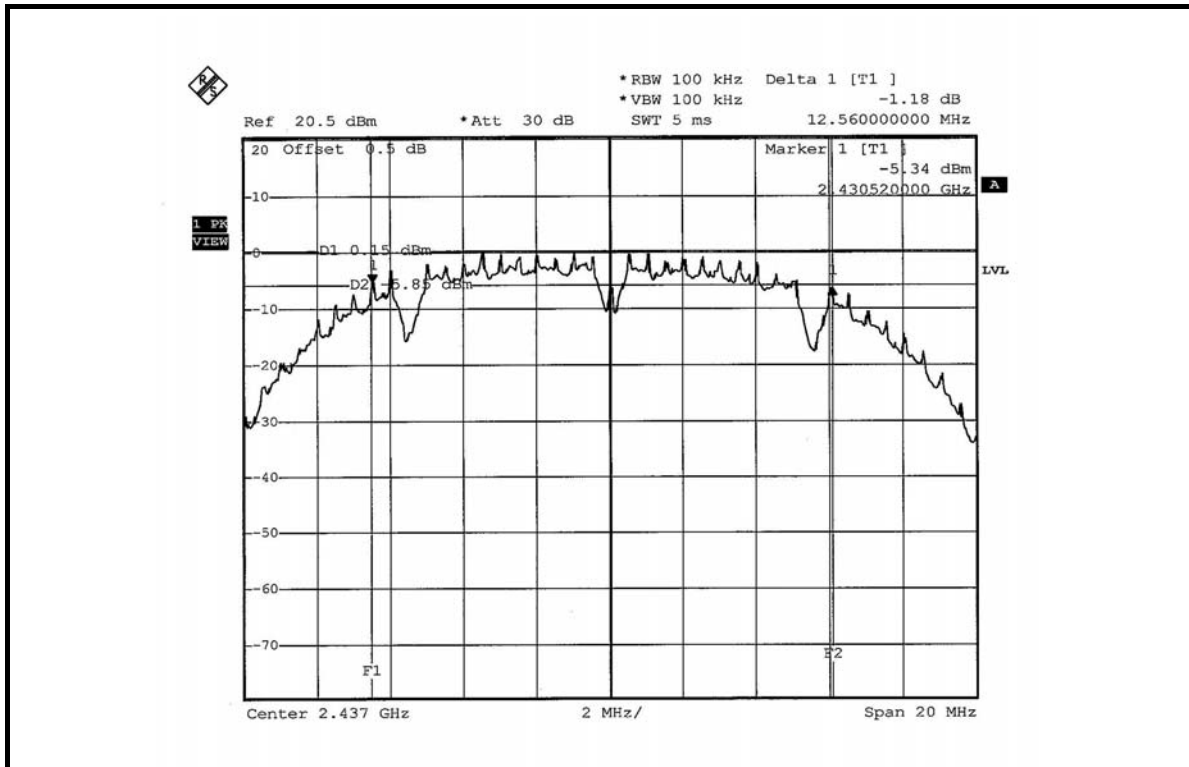
<b>MODULATION TYPE</b>	DBPSK	<b>TRANSFER RATE</b>	1Mbps
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>ENVIRONMENTAL CONDITIONS</b>	26deg. C, 66%RH, 991hPa
<b>TESTED BY</b>	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	12.08	0.5	PASS
6	2437	12.56	0.5	PASS
11	2462	12.52	0.5	PASS

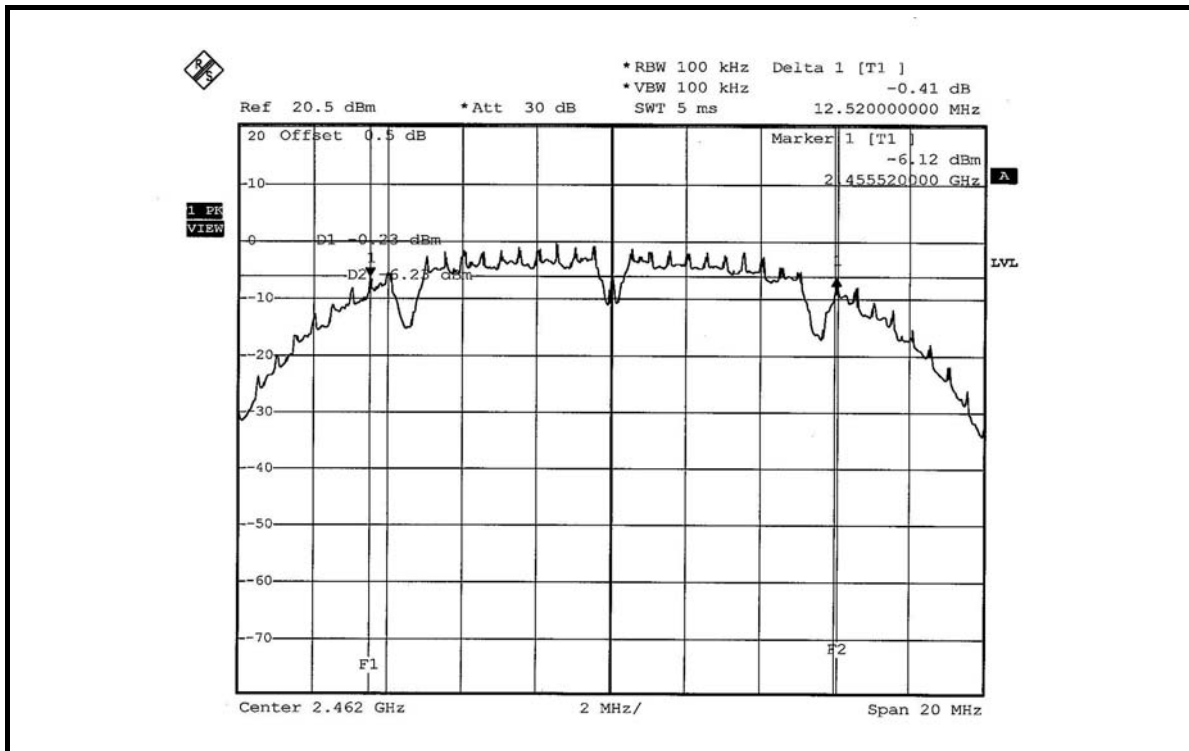
CH1



CH6



CH11





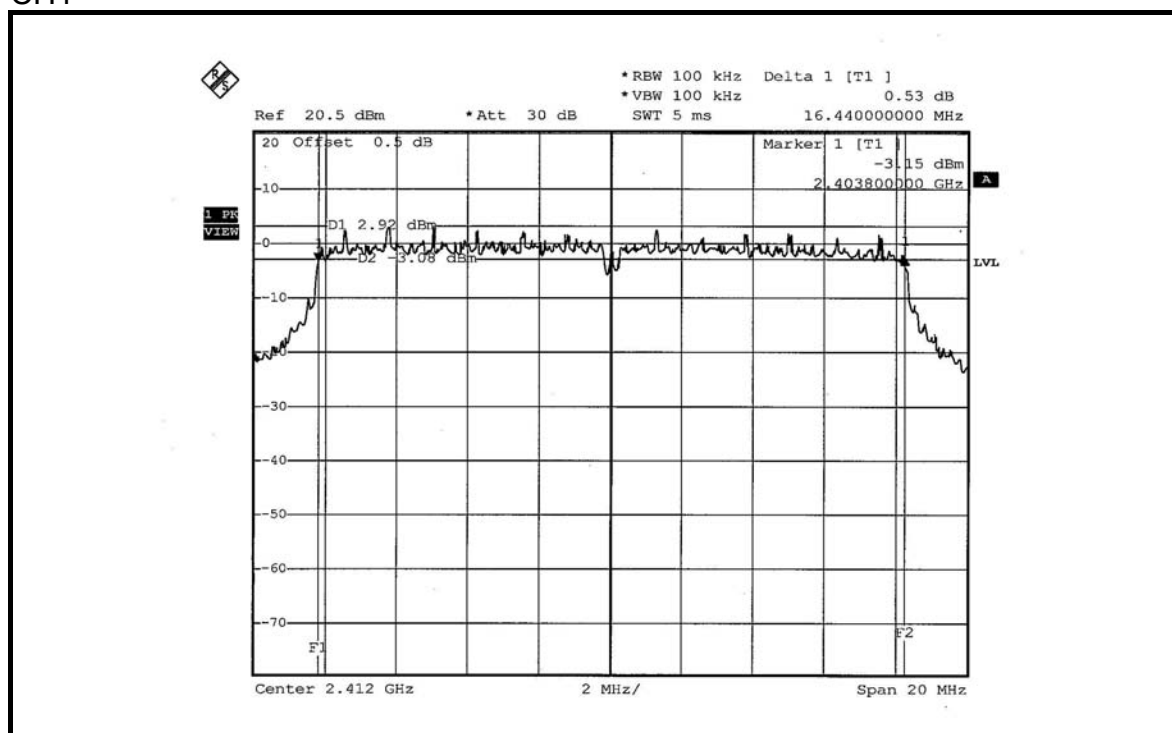
## 802.11g OFDM MODULATION

### FOR ANTENNA ITEM 1 (3.5dBi gain)

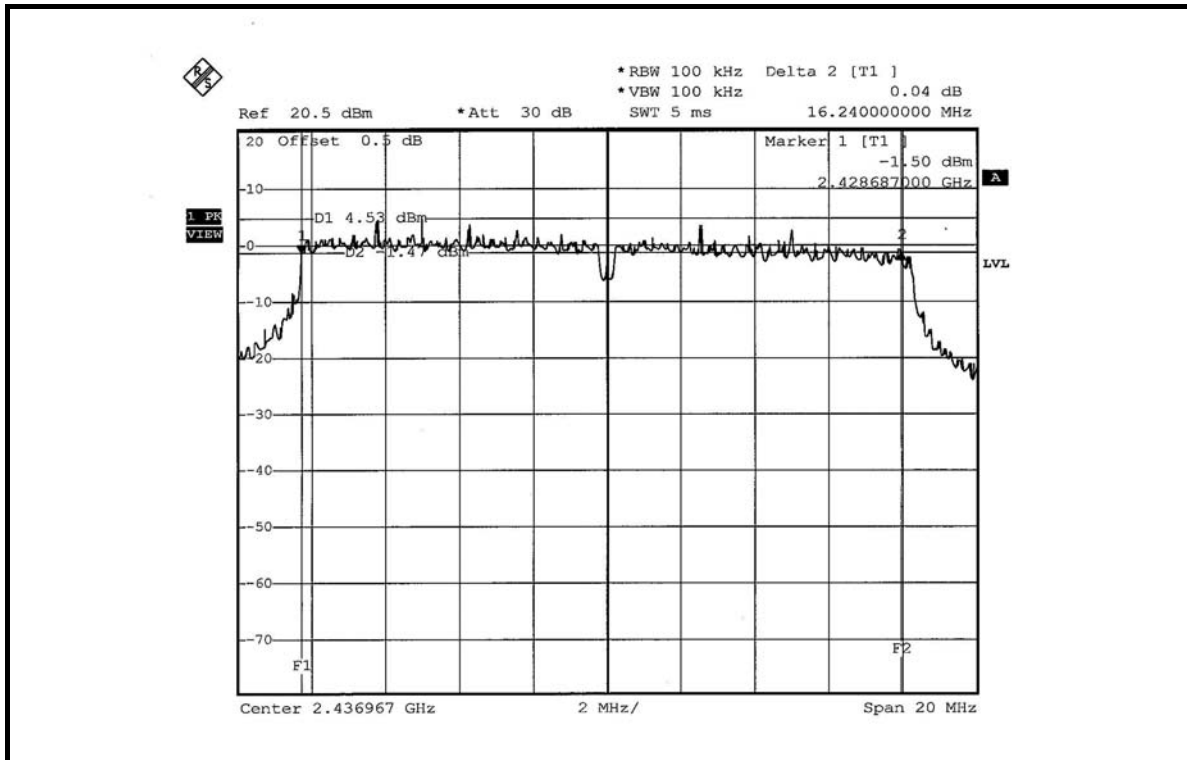
<b>MODULATION TYPE</b>	BPSK	<b>TRANSFER RATE</b>	6Mbps
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>ENVIRONMENTAL CONDITIONS</b>	26deg. C, 66%RH, 991hPa
<b>TESTED BY</b>	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	16.44	0.5	PASS
6	2437	16.24	0.5	PASS
11	2462	16.44	0.5	PASS

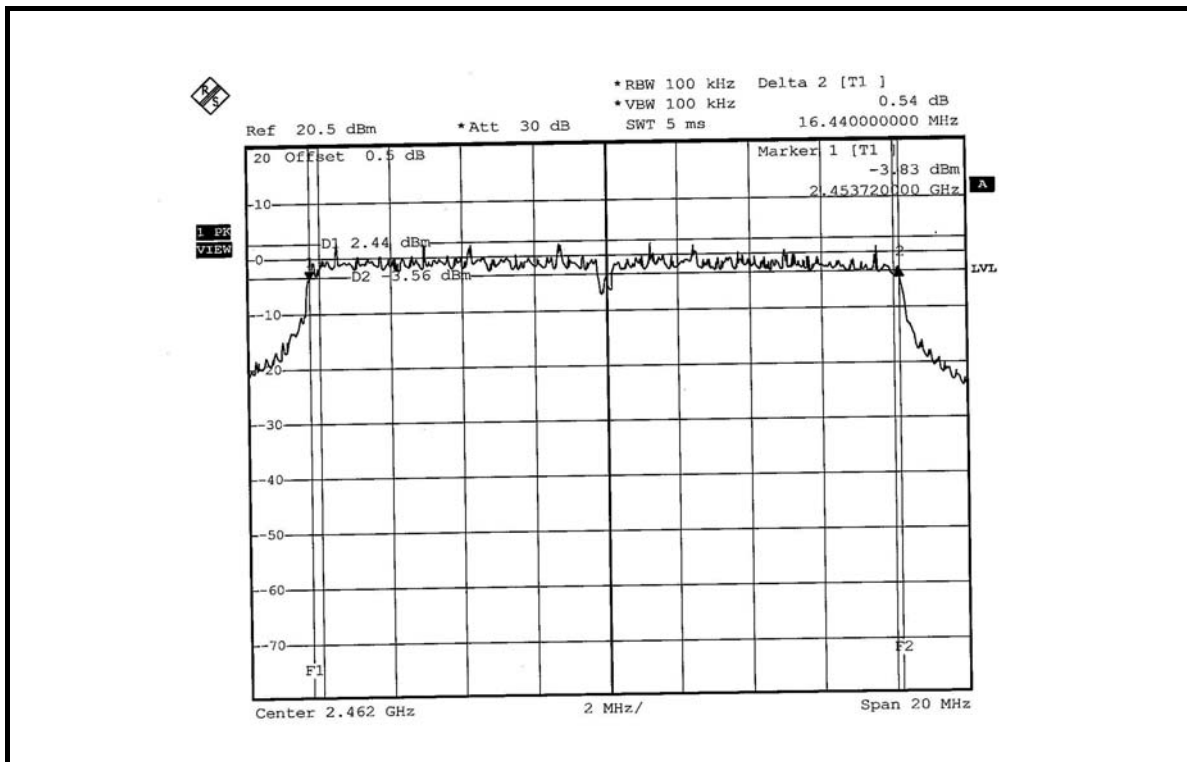
### CH1



CH6



CH11



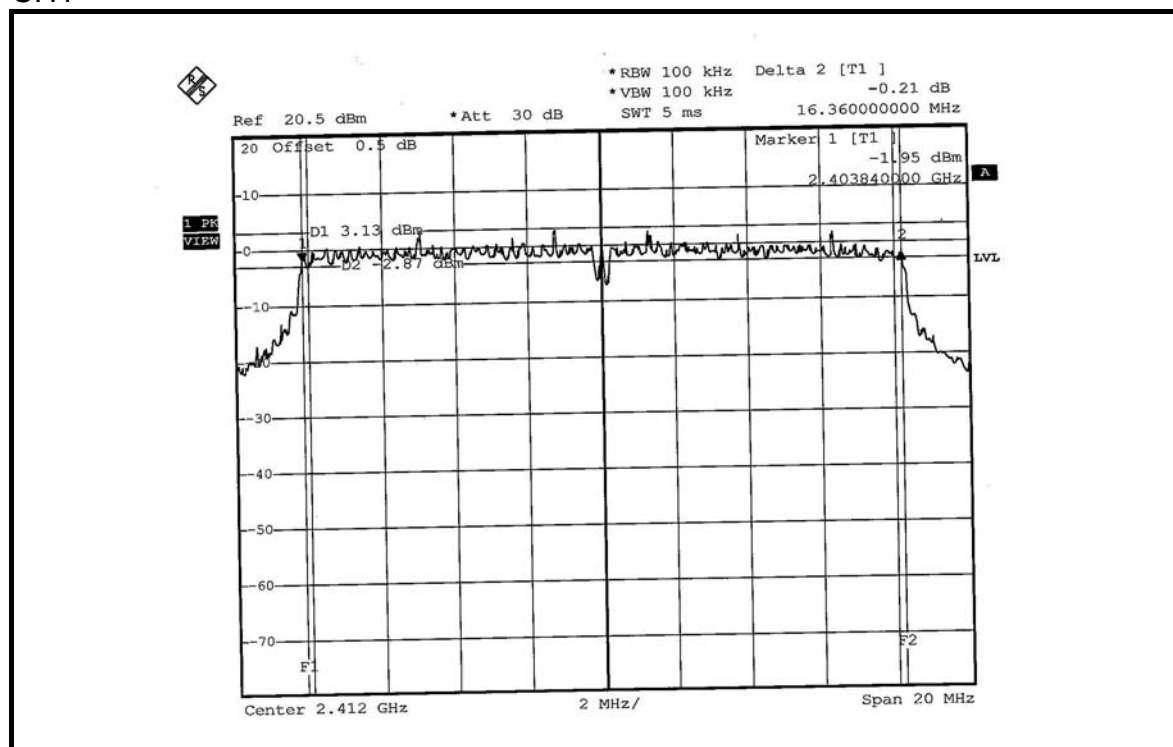


**FOR ANTENNA ITEM 2 (3.3dBi gain)**

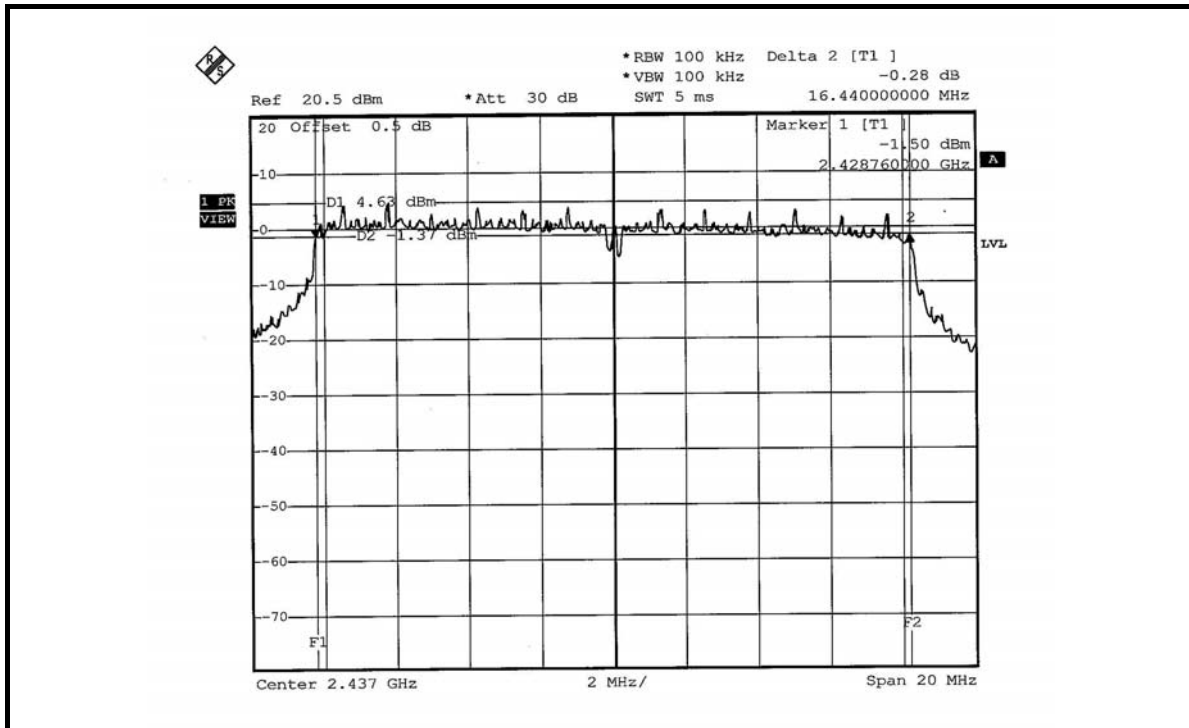
<b>MODULATION TYPE</b>	BPSK	<b>TRANSFER RATE</b>	6Mbps
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>ENVIRONMENTAL CONDITIONS</b>	26deg. C, 66%RH, 991hPa
<b>TESTED BY</b>	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	16.36	0.5	PASS
6	2437	16.44	0.5	PASS
11	2462	16.44	0.5	PASS

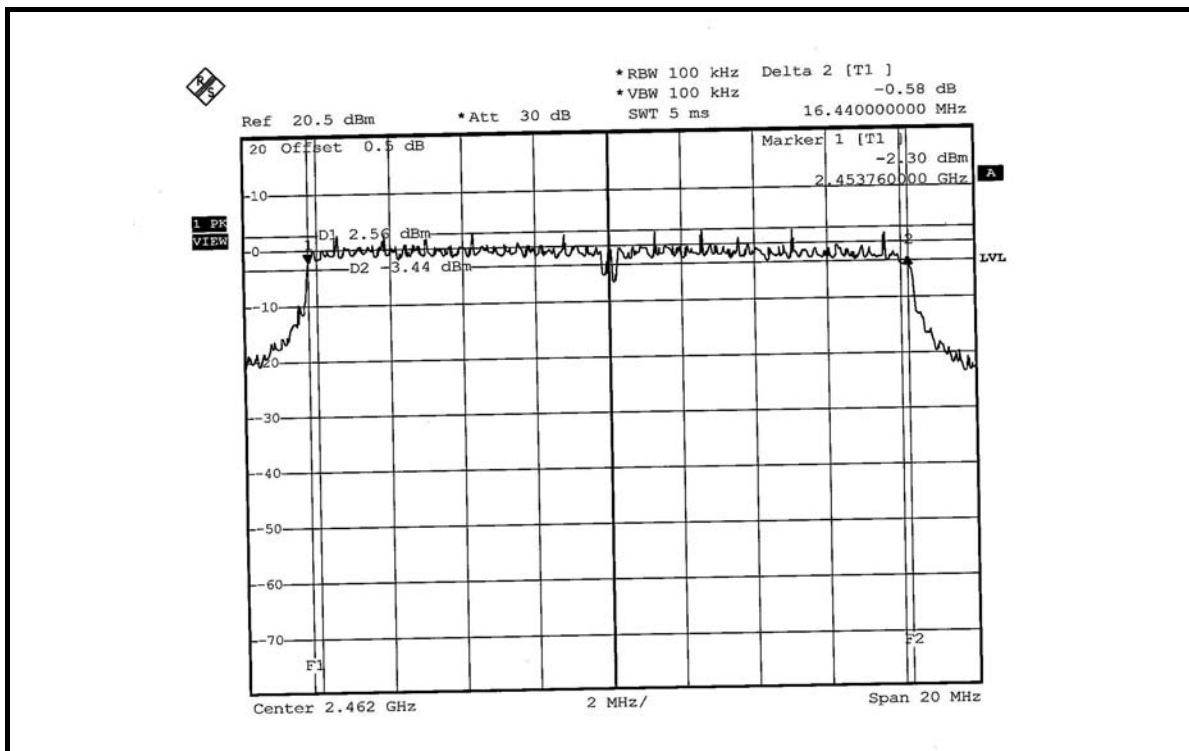
CH1



CH6



CH11





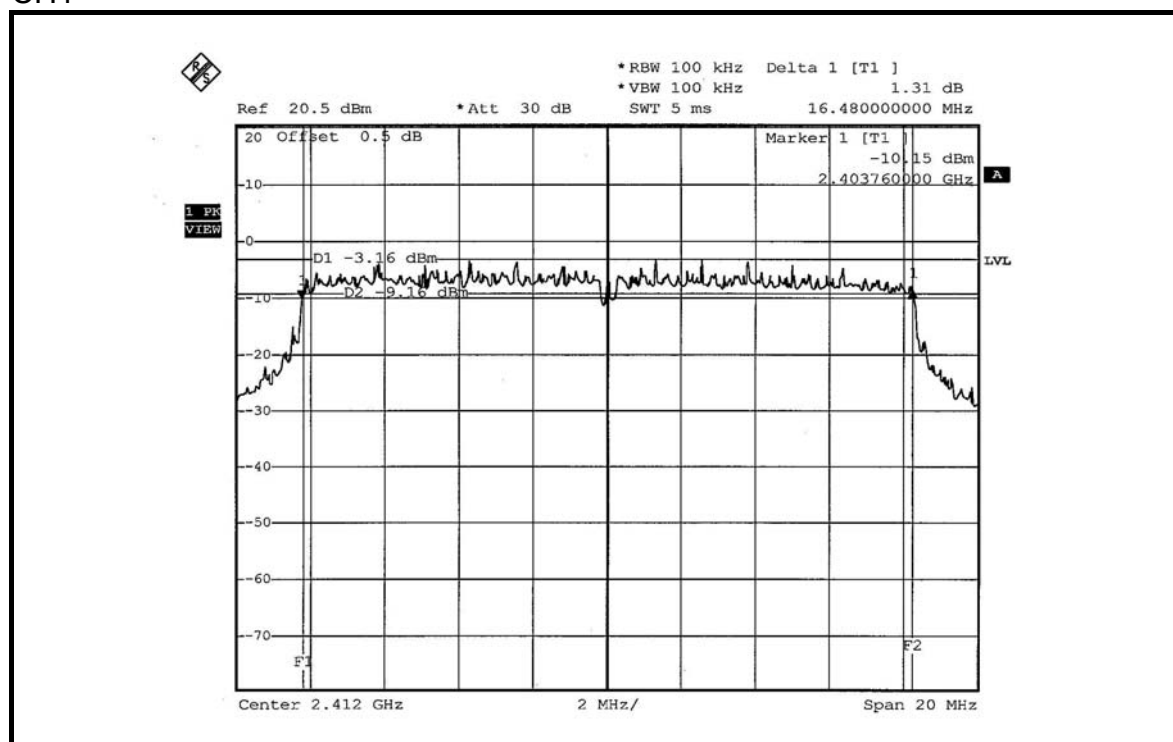


**FOR ANTENNA ITEM 5 (13.9dBi gain)**

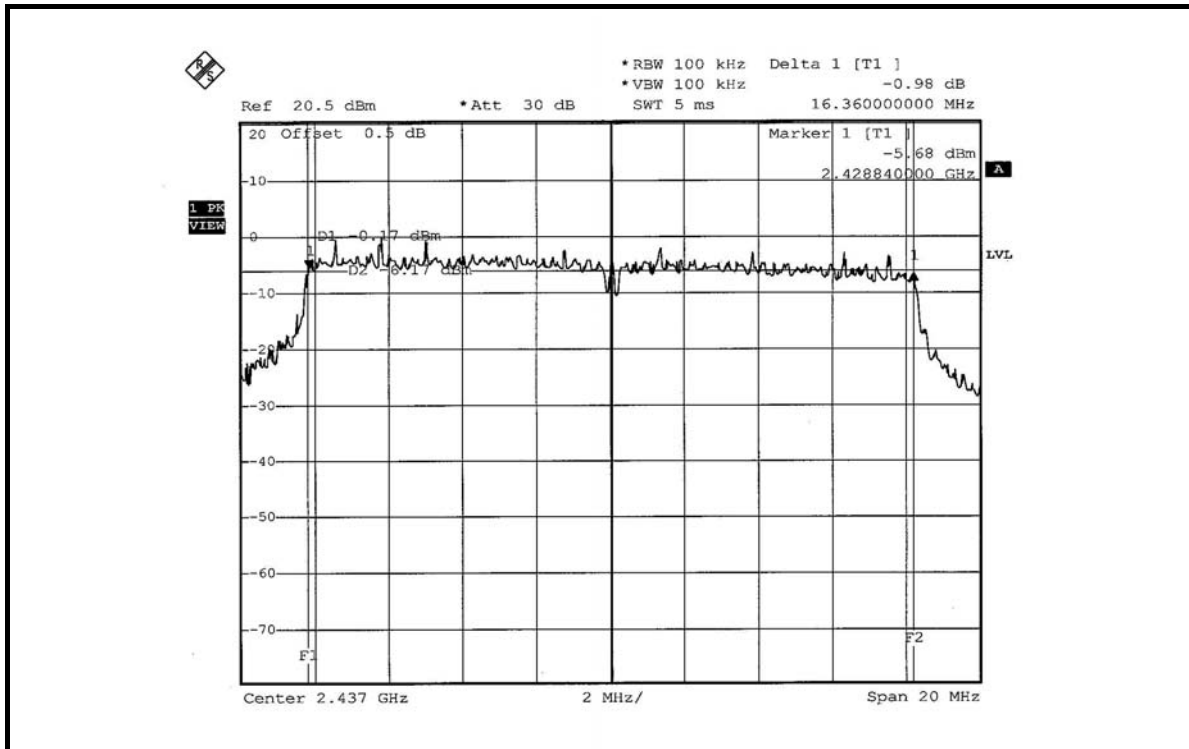
<b>MODULATION TYPE</b>	BPSK	<b>TRANSFER RATE</b>	6Mbps
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>ENVIRONMENTAL CONDITIONS</b>	26deg. C, 66%RH, 991hPa
<b>TESTED BY</b>	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	16.48	0.5	PASS
6	2437	16.36	0.5	PASS
11	2462	16.40	0.5	PASS

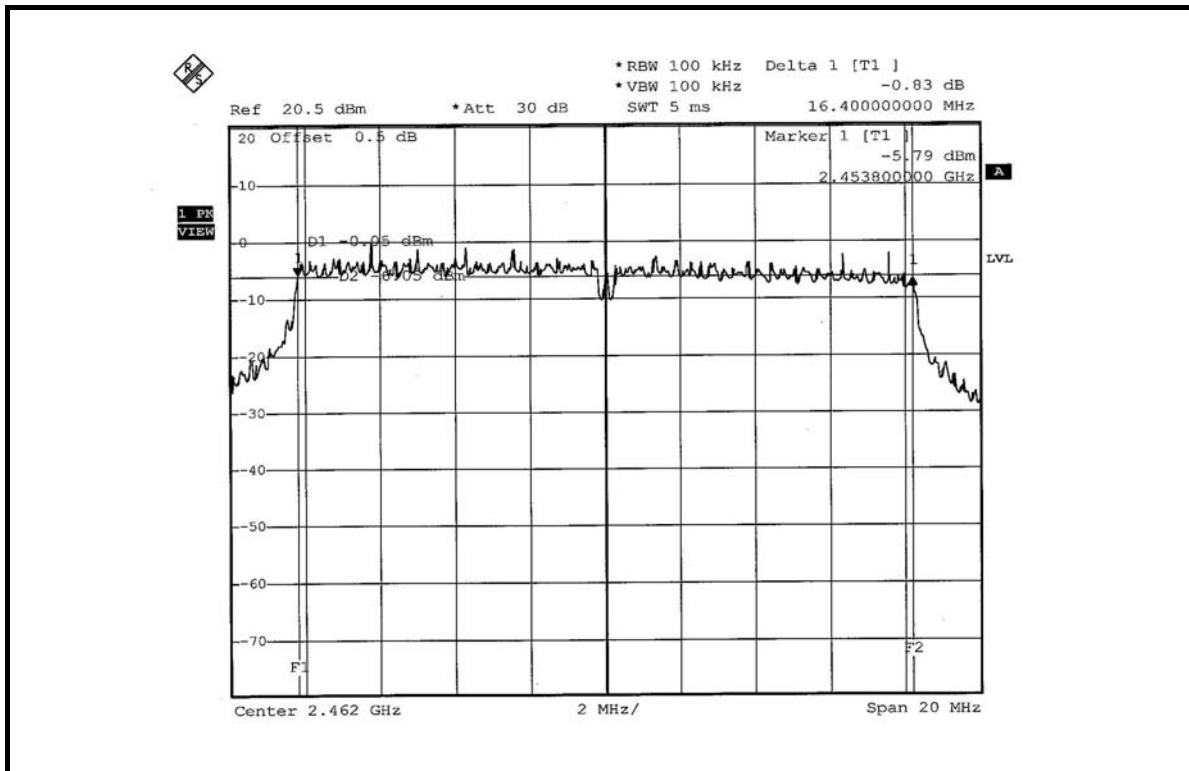
CH1



### CH6



### CH11





#### 4.4 MAXIMUM PEAK OUTPUT POWER

##### 4.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

##### 4.4.2 INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSEK30	100049	Aug. 14, 2006
AGILENT SIGNAL GENERATOR	E8257C	MY43320668	Dec. 07, 2006
TEKTRONIX OSCILLOSCOPE	TDS 1012	C019167	Nov. 28, 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.

#### 4.4.3 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.

#### 4.4.4 DEVIATION FROM TEST STANDARD

No deviation

#### 4.4.5 TEST SETUP



#### 4.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6



#### 4.4.7 TEST RESULTS

##### 802.11b DSSS MODULATION

##### FOR ANTENNA ITEM 1 (3.5dBi gain)

<b>MODULATION TYPE</b>	DBPSK	<b>TRANSFER RATE</b>	1Mbps
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>ENVIRONMENTAL CONDITIONS</b>	26deg. C, 66%RH, 991hPa
<b>TESTED BY</b>	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	82.604	19.17	30	PASS
6	2437	82.224	19.15	30	PASS
11	2462	83.560	19.22	30	PASS

##### FOR ANTENNA ITEM 2 (3.3dBi gain)

<b>MODULATION TYPE</b>	DBPSK	<b>TRANSFER RATE</b>	1Mbps
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>ENVIRONMENTAL CONDITIONS</b>	26deg. C, 66%RH, 991hPa
<b>TESTED BY</b>	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	84.333	19.26	30	PASS
6	2437	82.604	19.17	30	PASS
11	2462	83.560	19.22	30	PASS



**FOR ANTENNA ITEM 5 (13.9dBi gain)**

<b>MODULATION TYPE</b>	DBPSK	<b>TRANSFER RATE</b>	1Mbps
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>ENVIRONMENTAL CONDITIONS</b>	26deg. C, 66%RH, 991hPa
<b>TESTED BY</b>	Brad Wu		

<b>CHANNEL</b>	<b>CHANNEL FREQUENCY (MHz)</b>	<b>PEAK POWER OUTPUT (mW)</b>	<b>PEAK POWER OUTPUT (dBm)</b>	<b>PEAK POWER LIMIT (dBm)</b>	<b>PASS/FAIL</b>
1	2412	18.072	12.57	22	PASS
6	2437	14.388	11.58	22	PASS
11	2462	11.376	10.56	22	PASS

**NOTE:** According to 15.247 (b) (3), the maximum antenna gain 13.9dBi is higher than 6dBi, so the limit of peak power shall be reduced by 8dB.



## 802.11g OFDM MODULATION

### FOR ANTENNA ITEM 1 (3.5dBi gain)

<b>MODULATION TYPE</b>	BPSK	<b>TRANSFER RATE</b>	6Mbps
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>ENVIRONMENTAL CONDITIONS</b>	26deg. C, 66%RH, 991hPa
<b>TESTED BY</b>	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	53.456	17.28	30	PASS
6	2437	93.756	19.72	30	PASS
11	2462	47.098	16.73	30	PASS

### FOR ANTENNA ITEM 2 (3.3dBi gain)

<b>MODULATION TYPE</b>	BPSK	<b>TRANSFER RATE</b>	6Mbps
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>ENVIRONMENTAL CONDITIONS</b>	26deg. C, 66%RH, 991hPa
<b>TESTED BY</b>	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	52.481	17.20	30	PASS
6	2437	91.201	19.60	30	PASS
11	2462	46.132	16.64	30	PASS



**FOR ANTENNA ITEM 5 (13.9dBi gain)**

<b>MODULATION TYPE</b>	BPSK	<b>TRANSFER RATE</b>	6Mbps
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>ENVIRONMENTAL CONDITIONS</b>	26deg. C, 66%RH, 991hPa
<b>TESTED BY</b>	Brad Wu		

<b>CHANNEL</b>	<b>CHANNEL FREQUENCY (MHz)</b>	<b>PEAK POWER OUTPUT (mW)</b>	<b>PEAK POWER OUTPUT (dBm)</b>	<b>PEAK POWER LIMIT (dBm)</b>	<b>PASS/FAIL</b>
1	2412	25.410	14.05	22	PASS
6	2437	25.527	14.07	22	PASS
11	2462	25.235	14.02	22	PASS

**NOTE:** According to 15.247 (b) (4), the maximum antenna gain 13.9dBi is higher than 6dBi, so the limit of peak power shall be reduced by 8dB.





## 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
SPECTRUM ANALYZER	FSEK 30	100049	Aug. 14, 2006

**NOTE:**

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

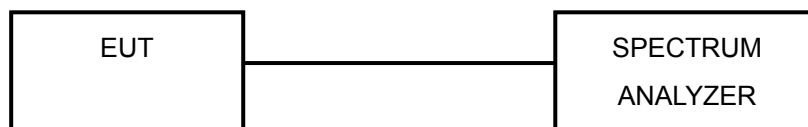
#### 4.5.3 TEST PROCEDURE

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

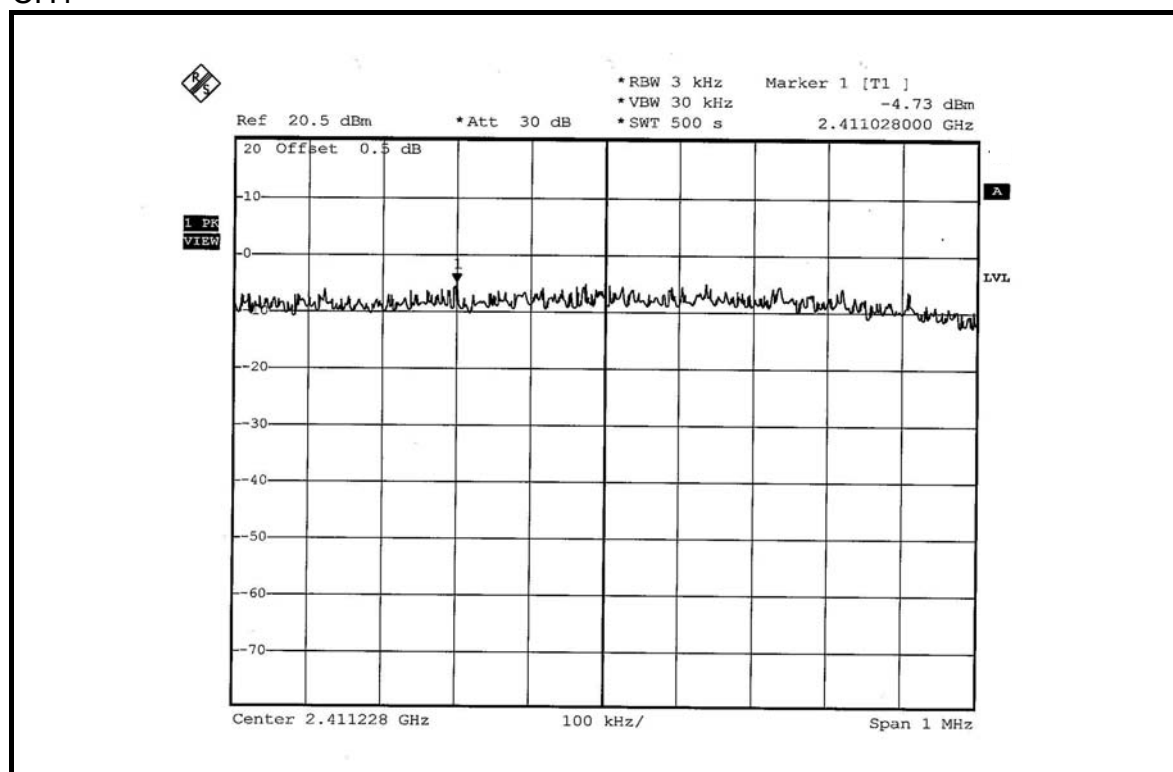
#### 802.11b DSSS MODULATION

#### FOR ANTENNA ITEM 1 (3.5dBi gain)

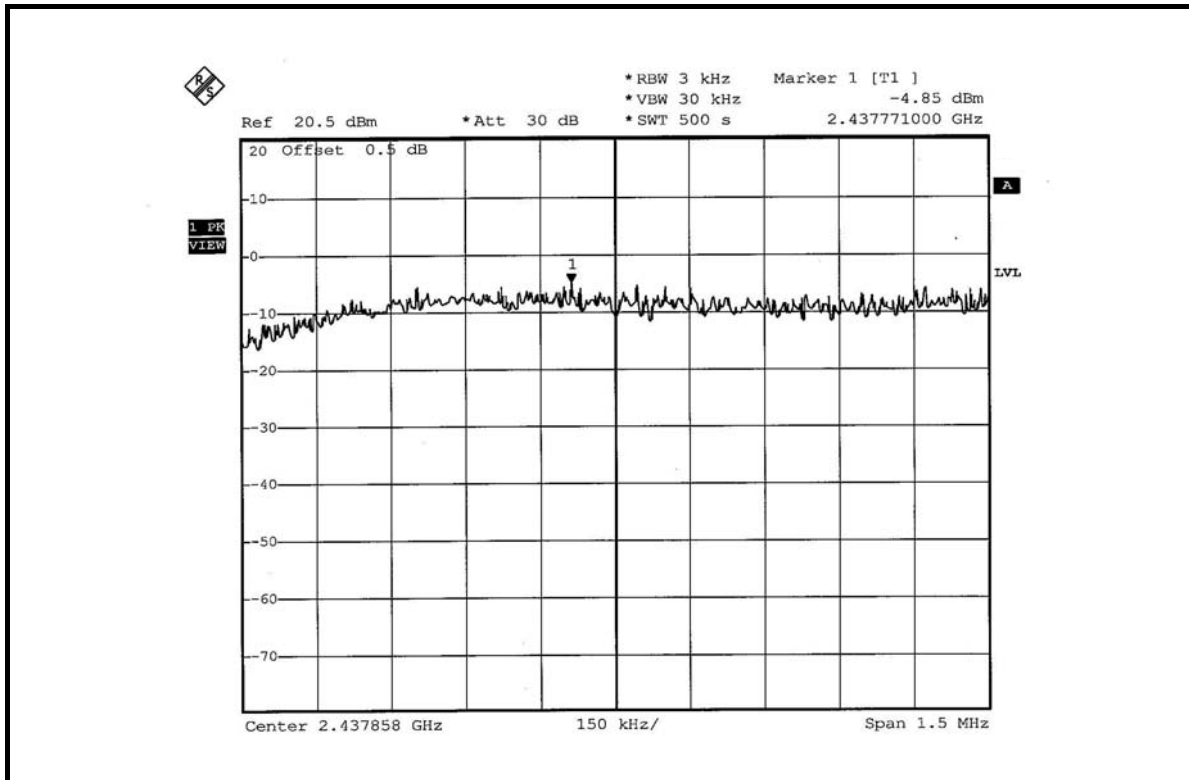
<b>MODULATION TYPE</b>	DBPSK	<b>TRANSFER RATE</b>	1Mbps
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>ENVIRONMENTAL CONDITIONS</b>	26deg. C, 66%RH, 991hPa
<b>TESTED BY</b>	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-4.73	8	PASS
6	2437	-4.85	8	PASS
11	2462	-4.76	8	PASS

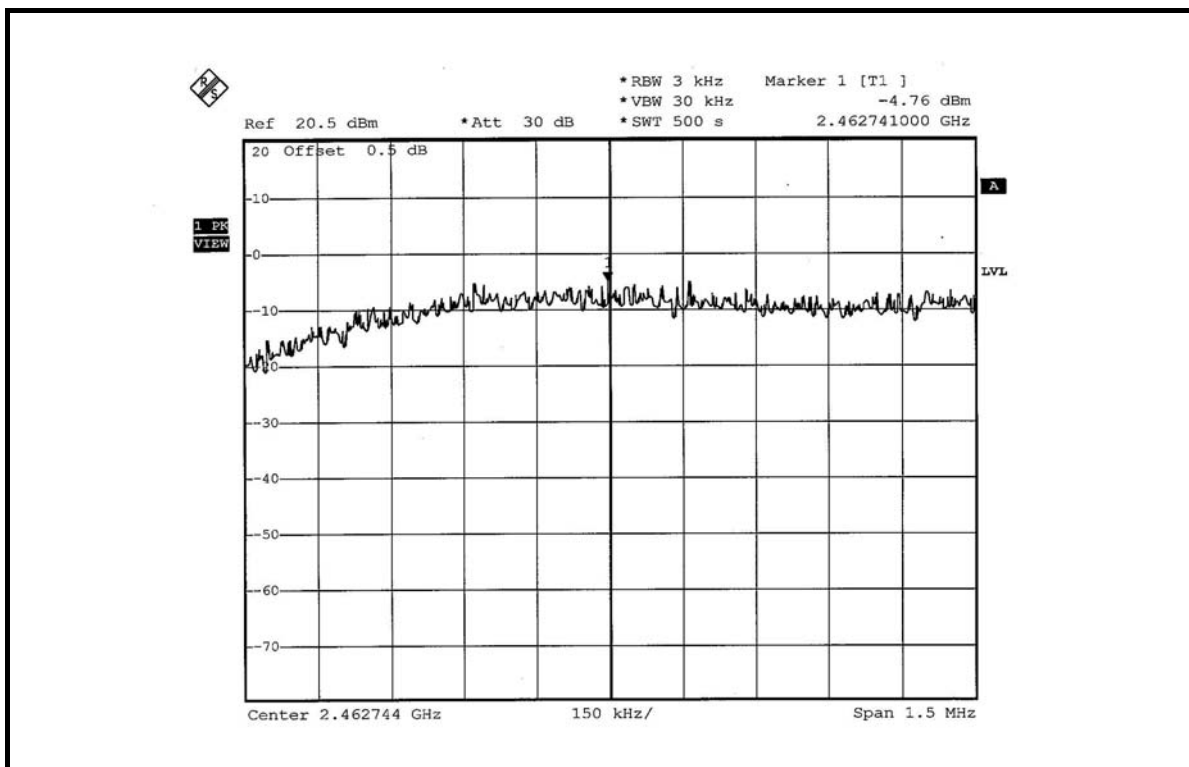
CH1



CH6



CH11

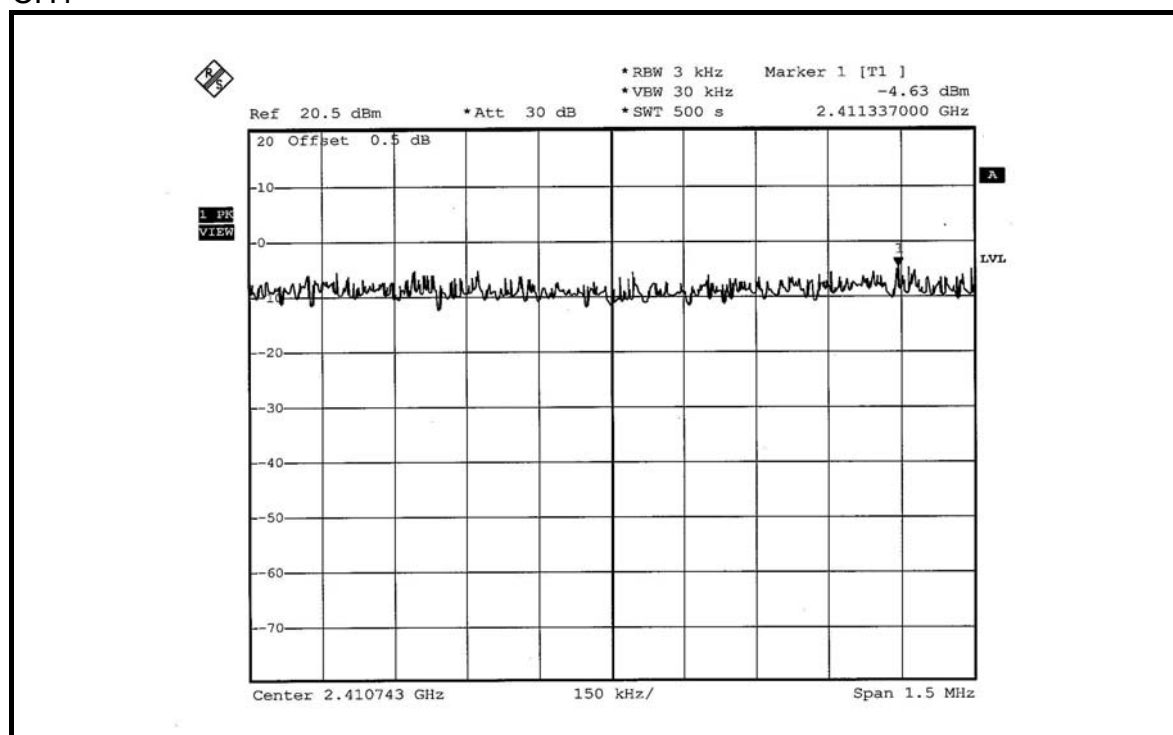


**FOR ANTENNA ITEM 2 (3.3dBi gain)**

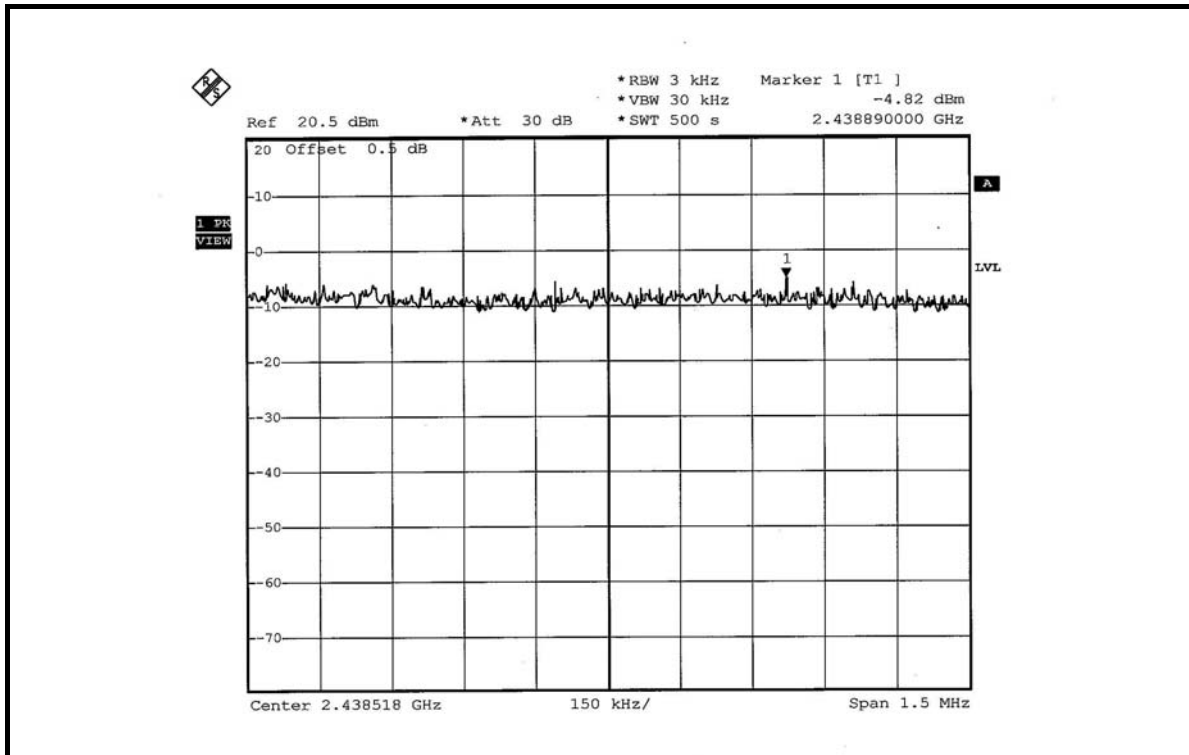
<b>MODULATION TYPE</b>	DBPSK	<b>TRANSFER RATE</b>	1Mbps
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>ENVIRONMENTAL CONDITIONS</b>	26deg. C, 66%RH, 991hPa
<b>TESTED BY</b>	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-4.63	8	PASS
6	2437	-4.82	8	PASS
11	2462	-4.92	8	PASS

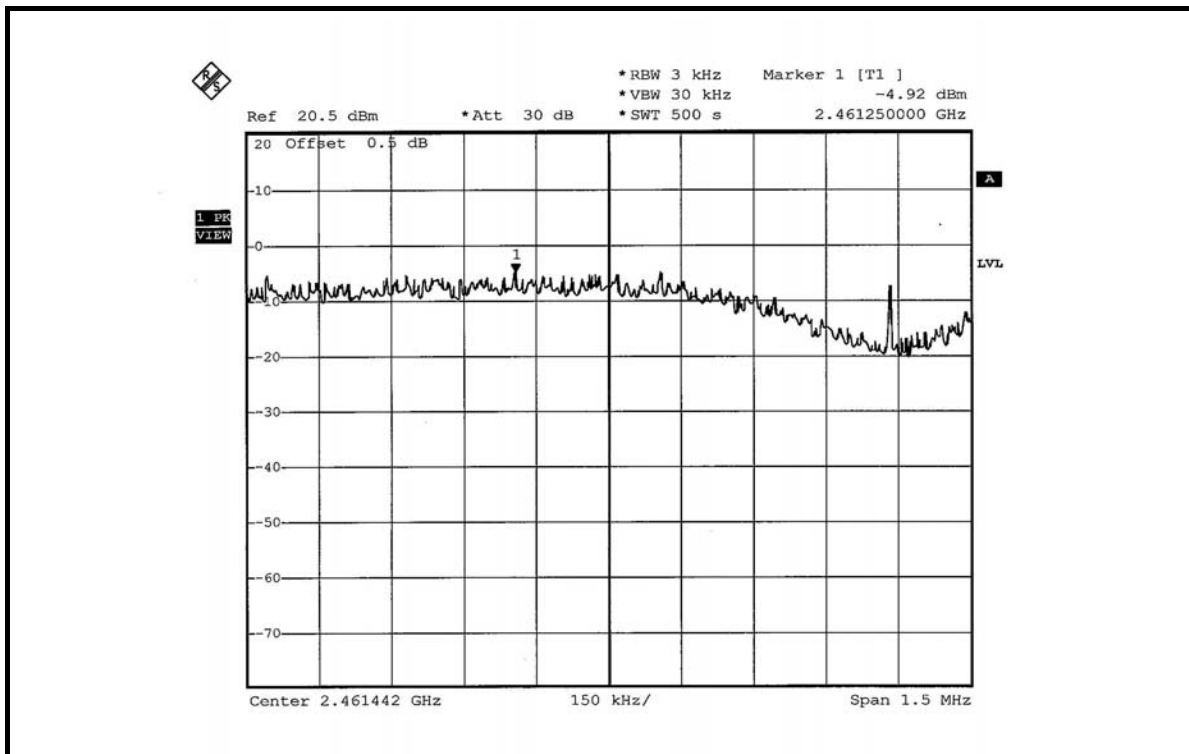
**CH1**



CH6



CH11

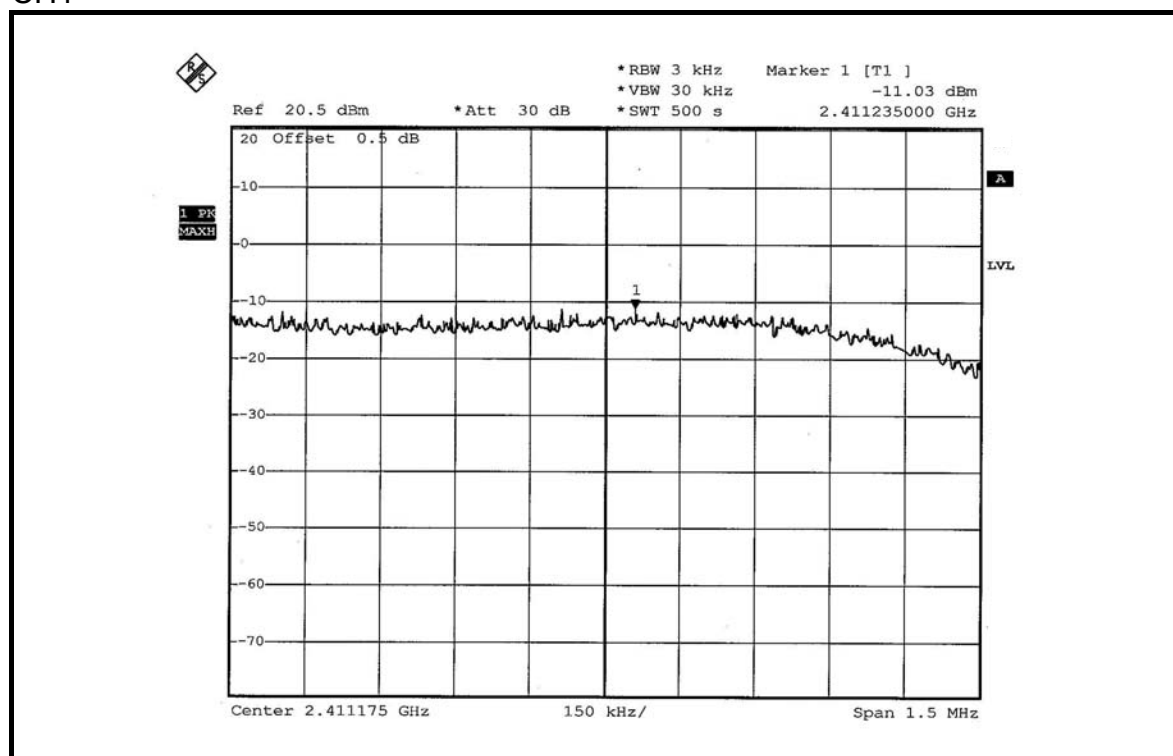


**FOR ANTENNA ITEM 5 (13.9dBi gain)**

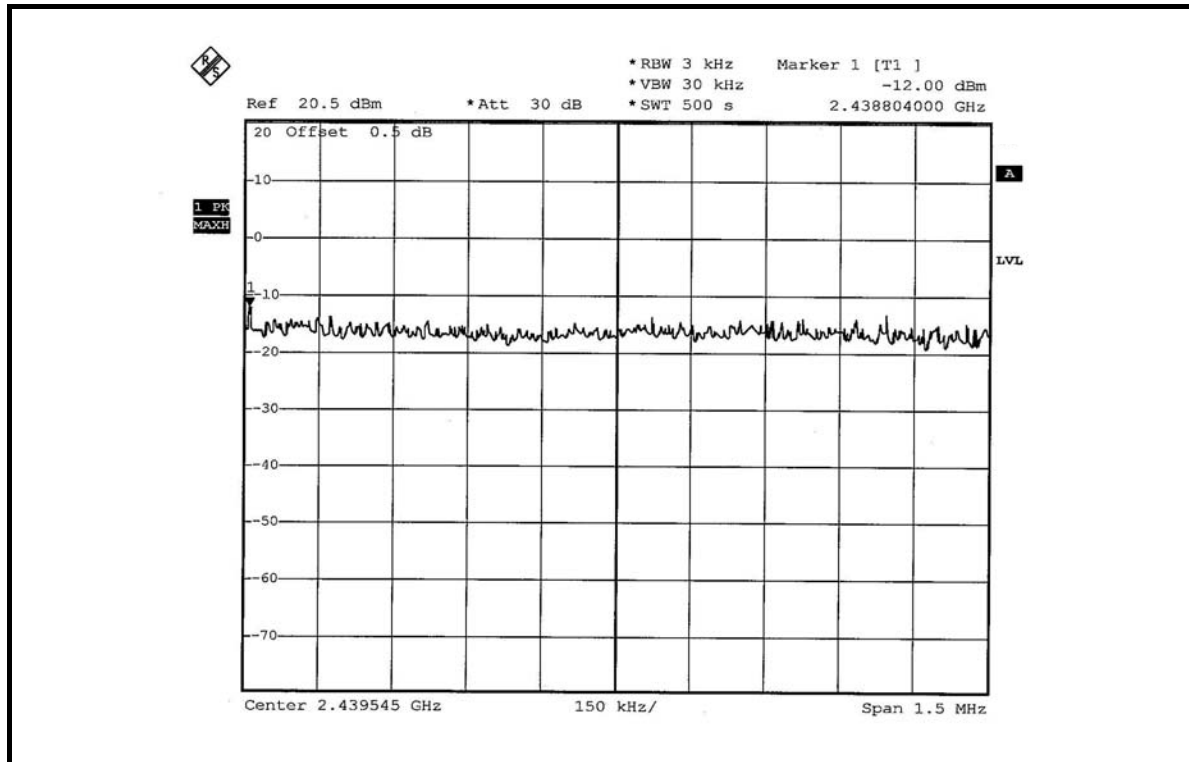
<b>MODULATION TYPE</b>	DBPSK	<b>TRANSFER RATE</b>	1Mbps
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>ENVIRONMENTAL CONDITIONS</b>	26deg. C, 66%RH, 991hPa
<b>TESTED BY</b>	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-11.03	8	PASS
6	2437	-12.00	8	PASS
11	2462	-13.10	8	PASS

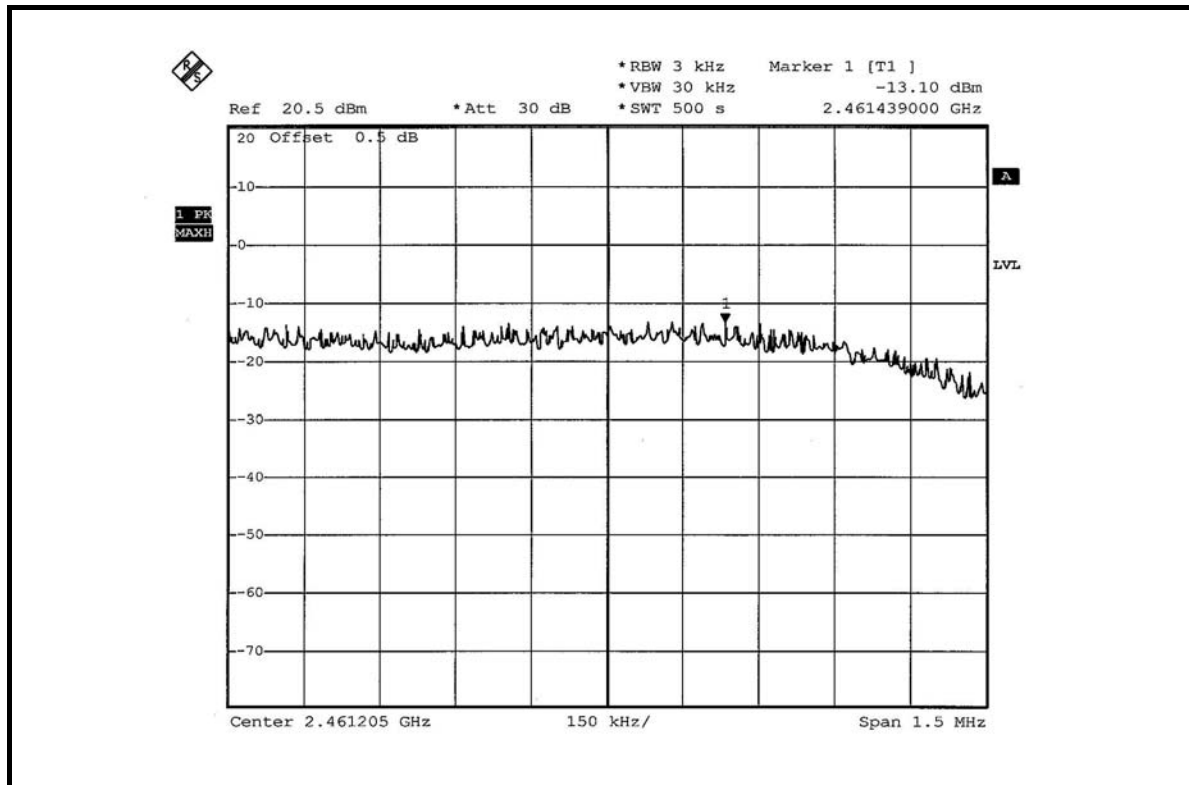
**CH1**



CH6



CH11







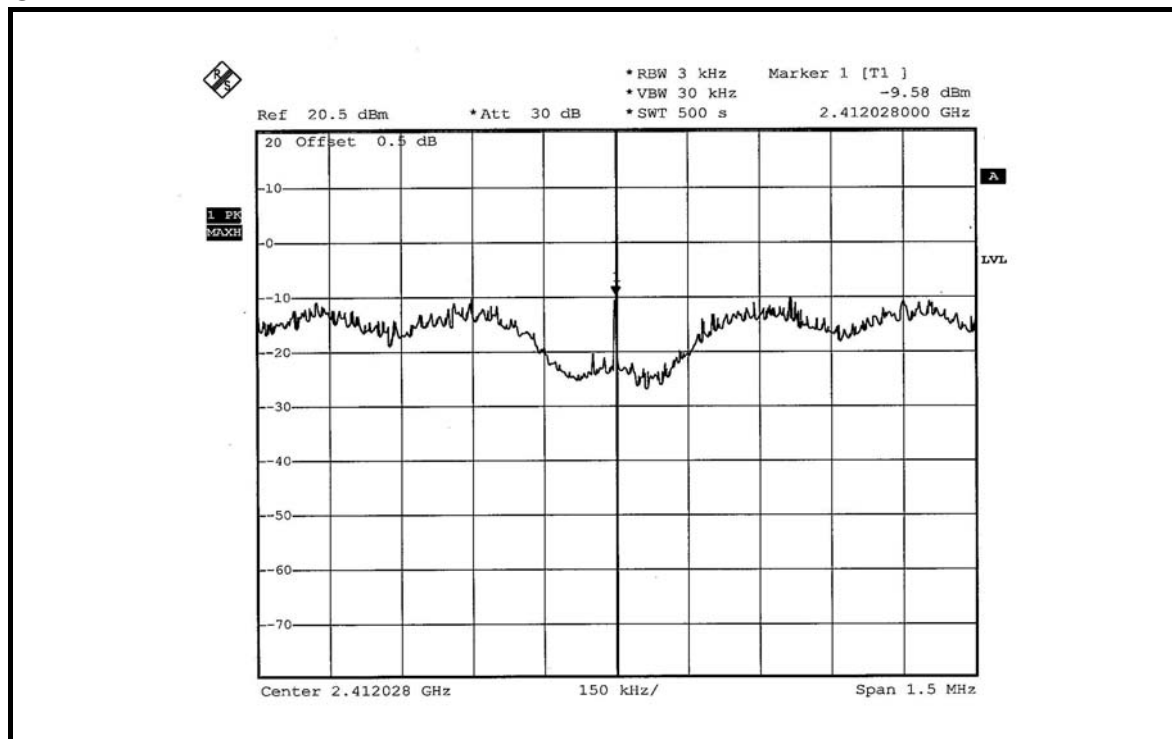
### 802.11g OFDM MODULATION

#### FOR ANTENNA ITEM 1 (3.5dBi gain)

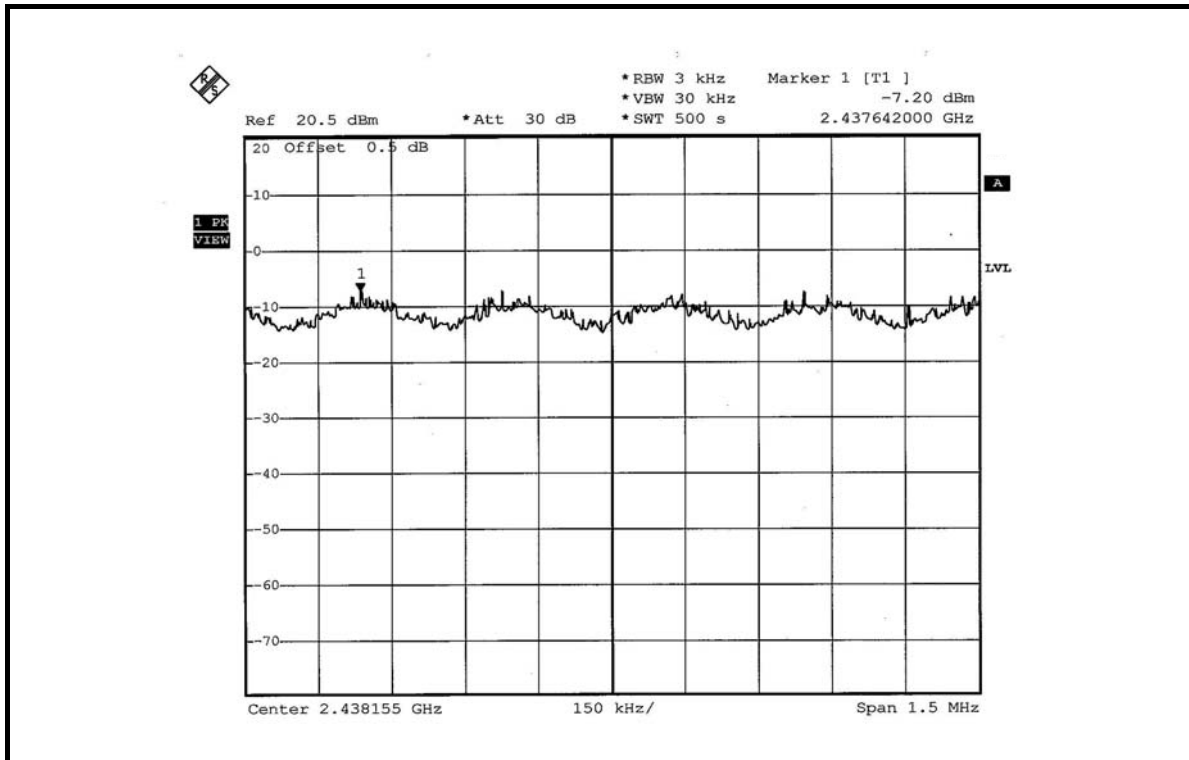
<b>MODULATION TYPE</b>	BPSK	<b>TRANSFER RATE</b>	6Mbps
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>ENVIRONMENTAL CONDITIONS</b>	26deg. C, 66%RH, 991hPa
<b>TESTED BY</b>	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-9.58	8	PASS
6	2437	-7.20	8	PASS
11	2462	-9.92	8	PASS

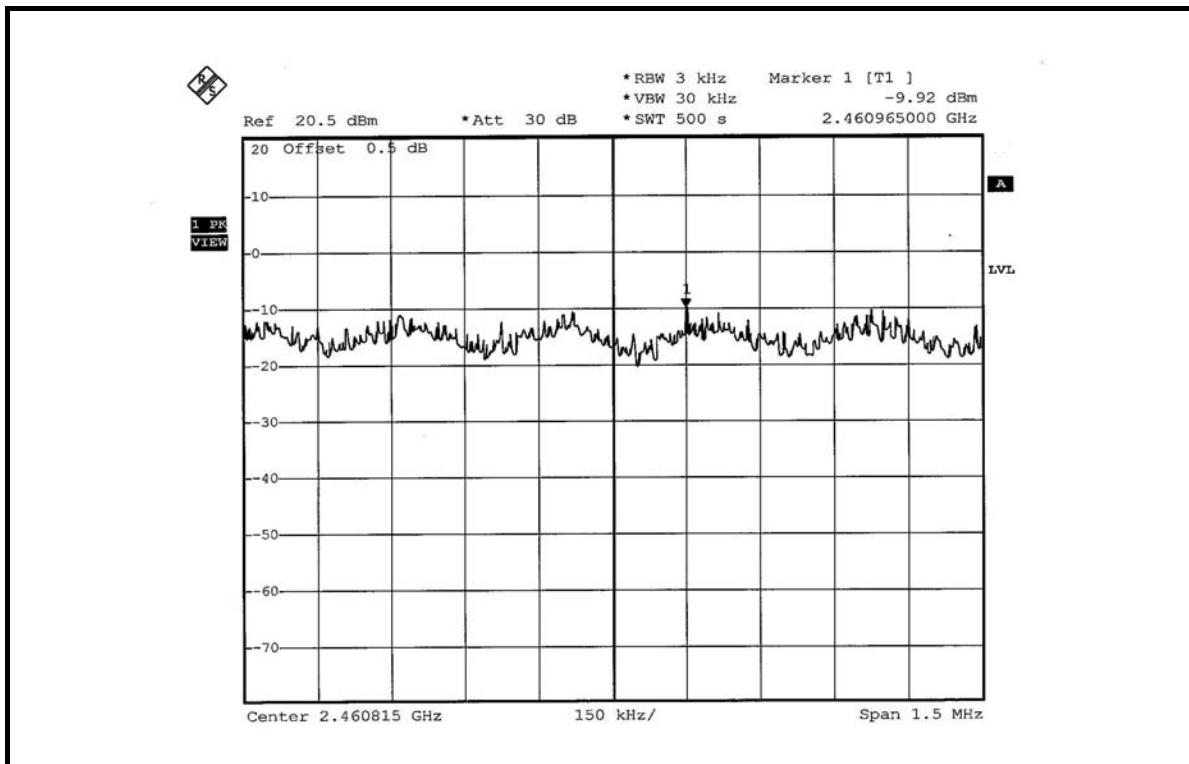
CH1



CH6



CH11



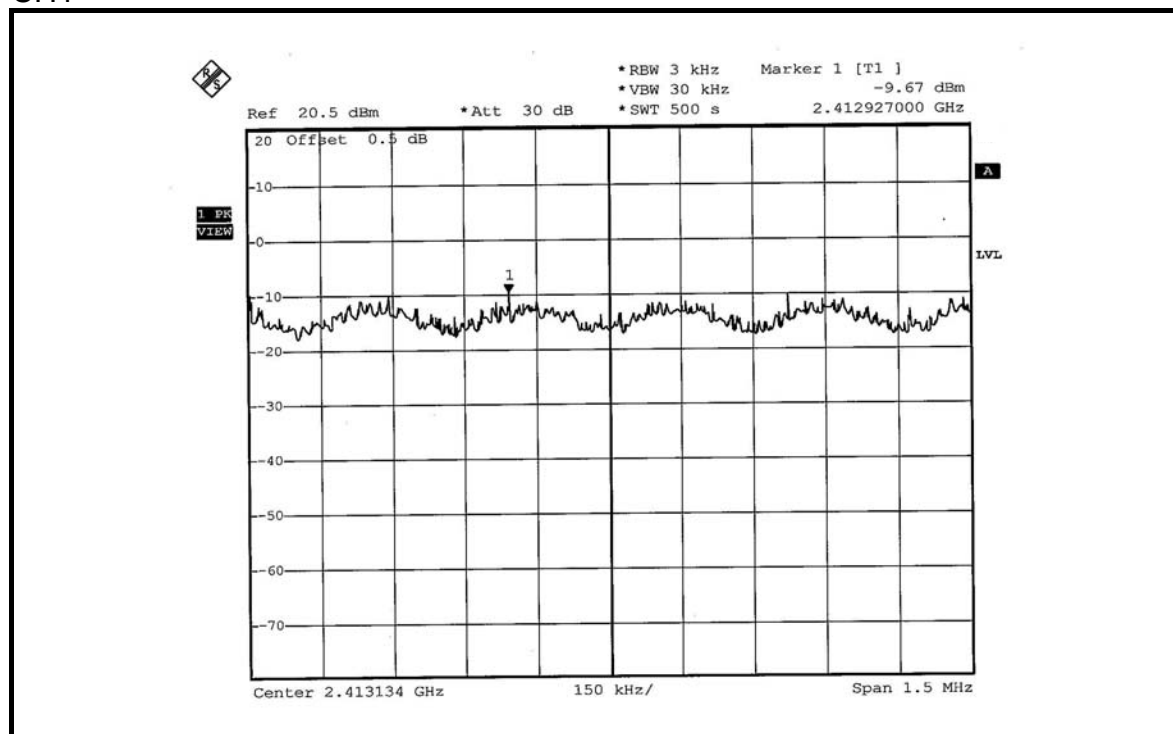


**FOR ANTENNA ITEM 2 (3.3dBi gain)**

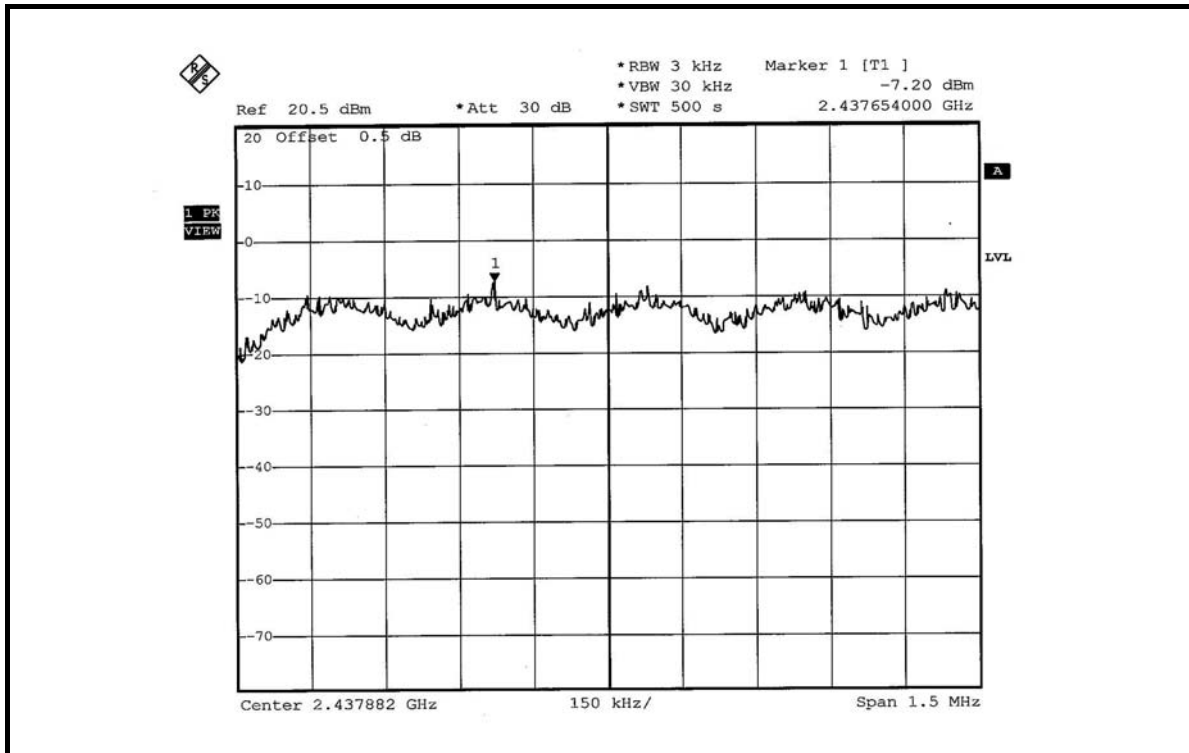
<b>MODULATION TYPE</b>	BPSK	<b>TRANSFER RATE</b>	6Mbps
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>ENVIRONMENTAL CONDITIONS</b>	26deg. C, 66%RH, 991hPa
<b>TESTED BY</b>	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-9.67	8	PASS
6	2437	-7.20	8	PASS
11	2462	-10.15	8	PASS

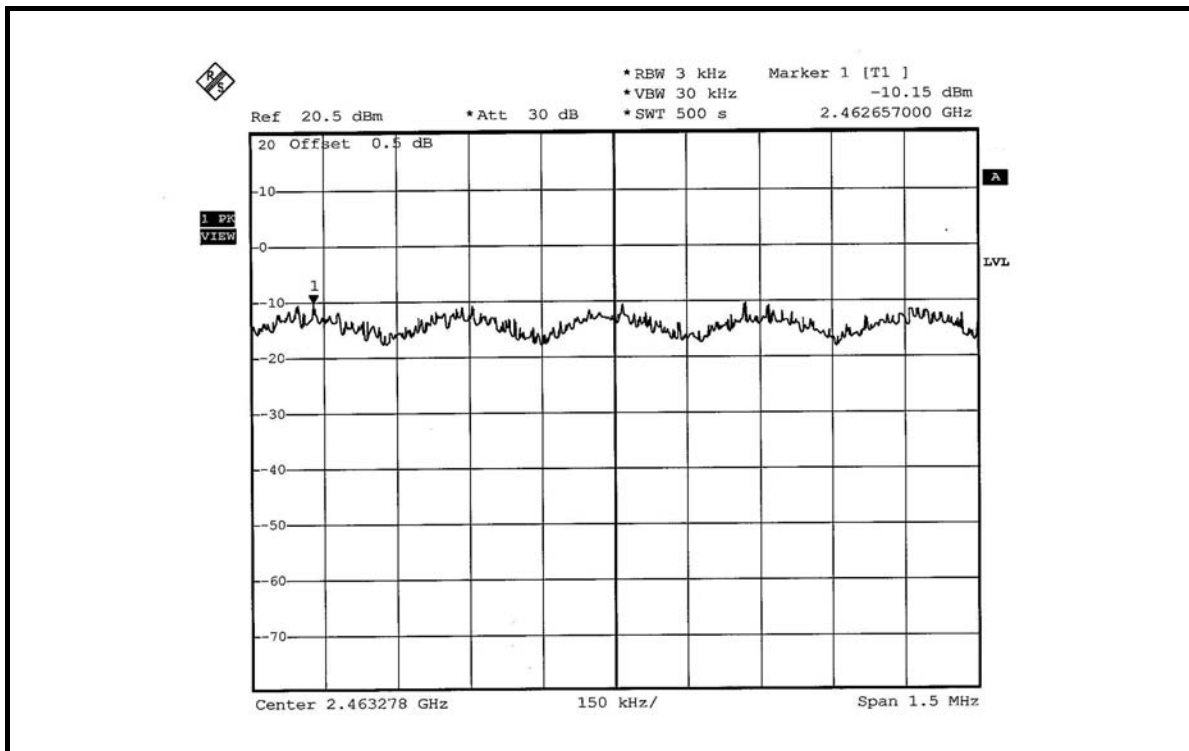
**CH1**



CH6



CH11



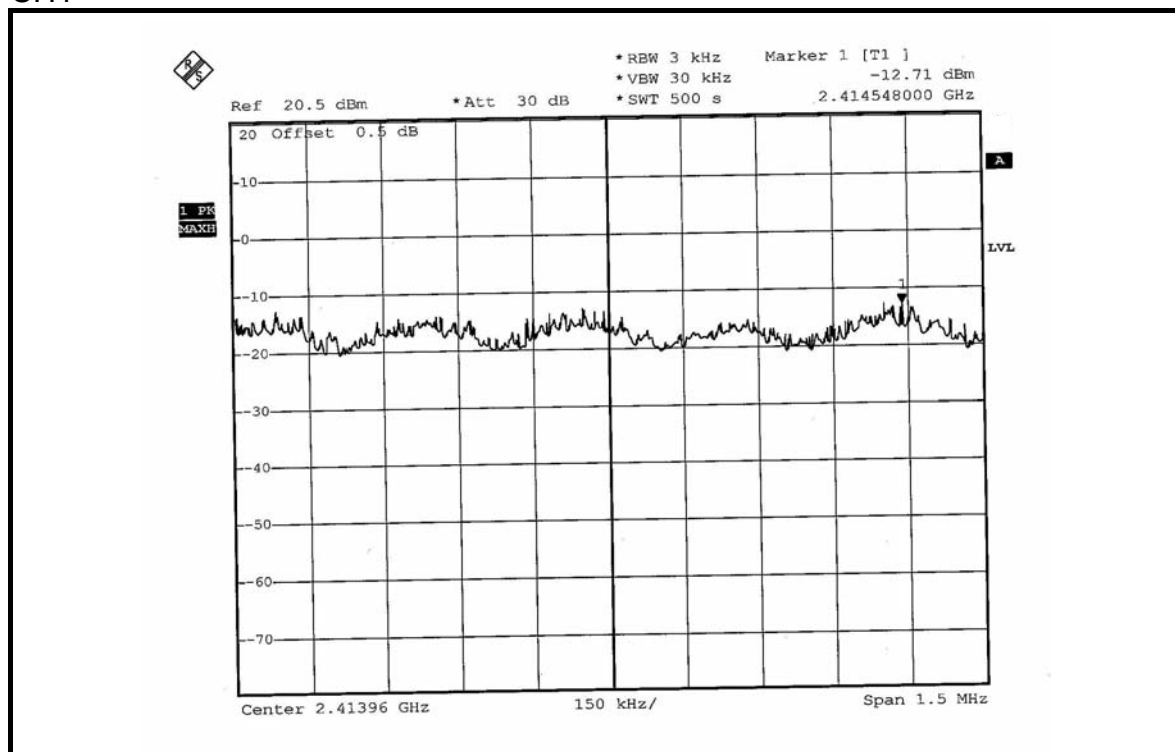


**FOR ANTENNA ITEM 5 (13.9dBi gain)**

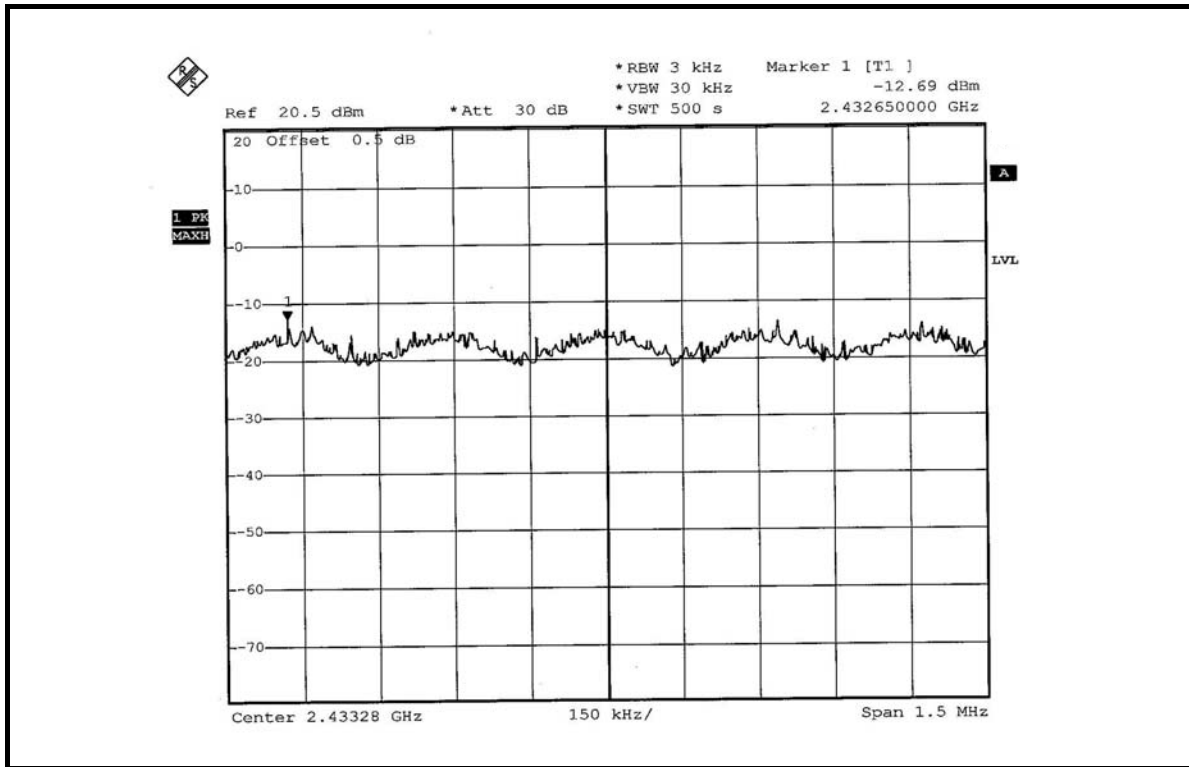
<b>MODULATION TYPE</b>	BPSK	<b>TRANSFER RATE</b>	6Mbps
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>ENVIRONMENTAL CONDITIONS</b>	26deg. C, 66%RH, 991hPa
<b>TESTED BY</b>	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-12.71	8	PASS
6	2437	-12.69	8	PASS
11	2462	-12.60	8	PASS

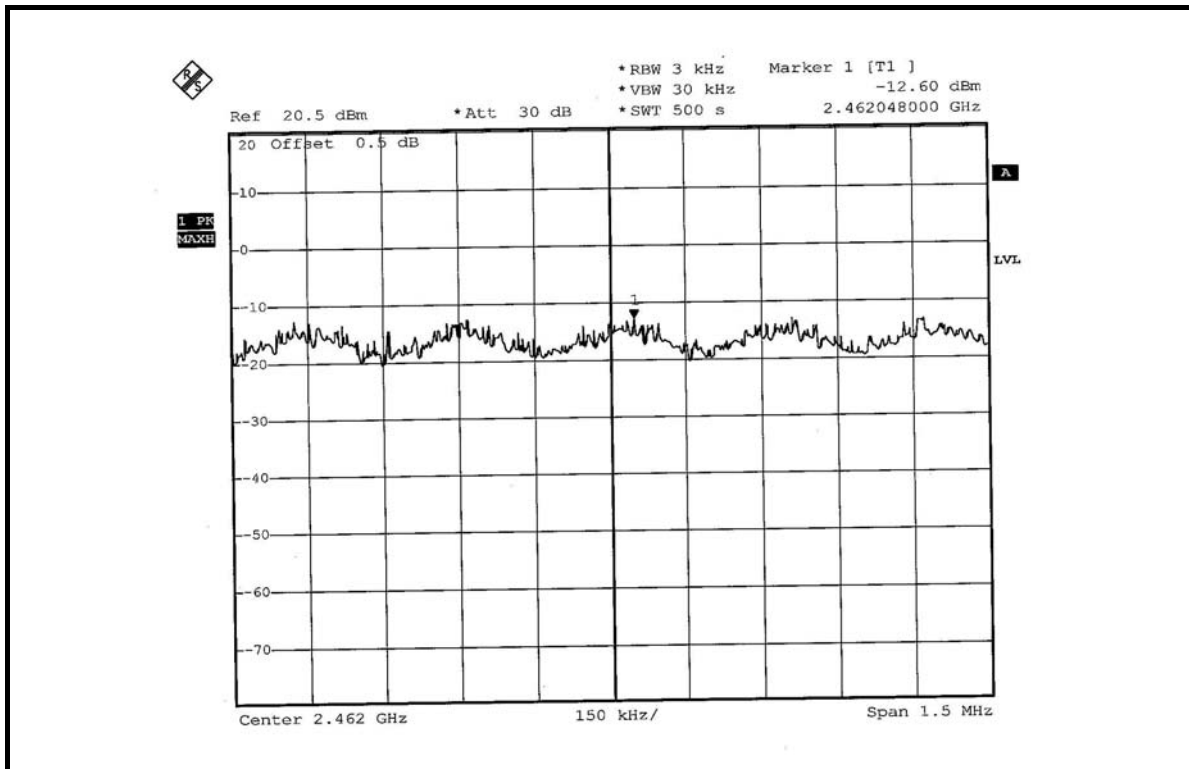
CH1



CH6



CH11





## 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
SPECTRUM ANALYZER	FSEK 30	100049	Aug. 14, 2006

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

### 4.6.3 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 60 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

#### FOR ANTENNA ITEM 1 (3.5dBi gain)

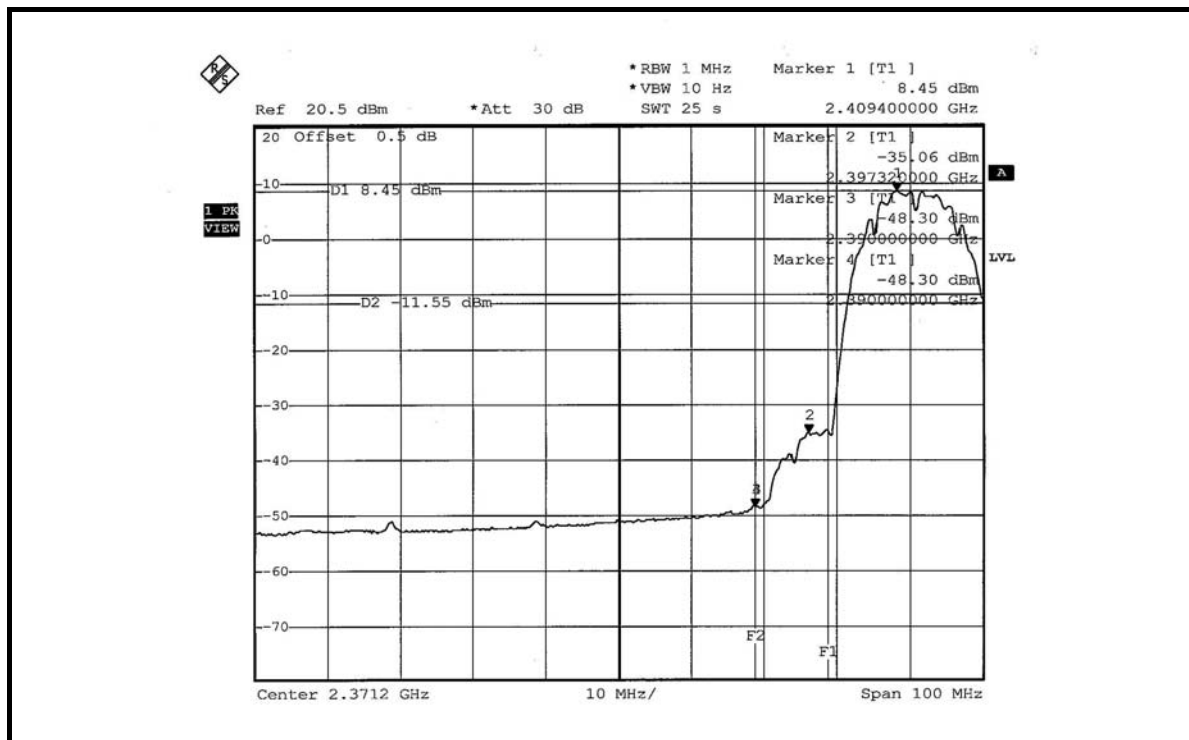
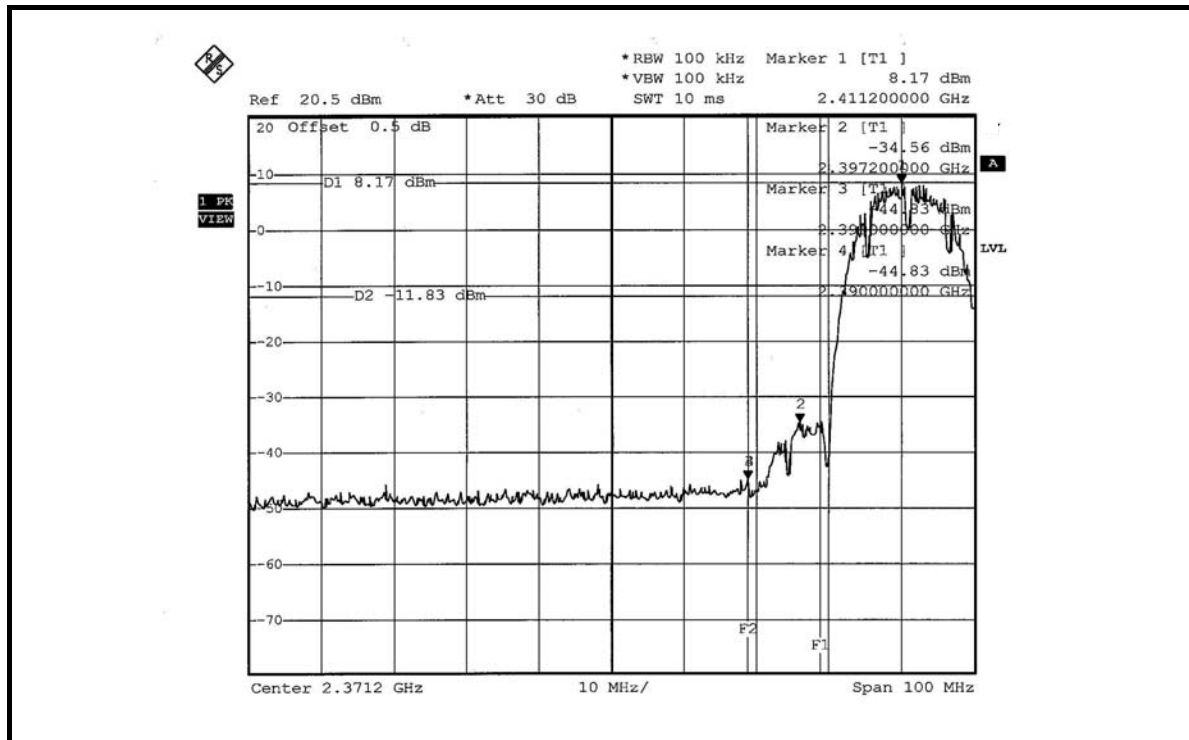
**NOTE 1:** The band edge emission plot on the next page shows 53.00dBc between carrier maximum power and local maximum emission in restrict band (2.39000GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 111.75dBuV/m (Peak), so the maximum field strength in restrict band is  $111.75 - 53.00 = 58.75$ dBuV/m which is under 74dBuV/m limit..

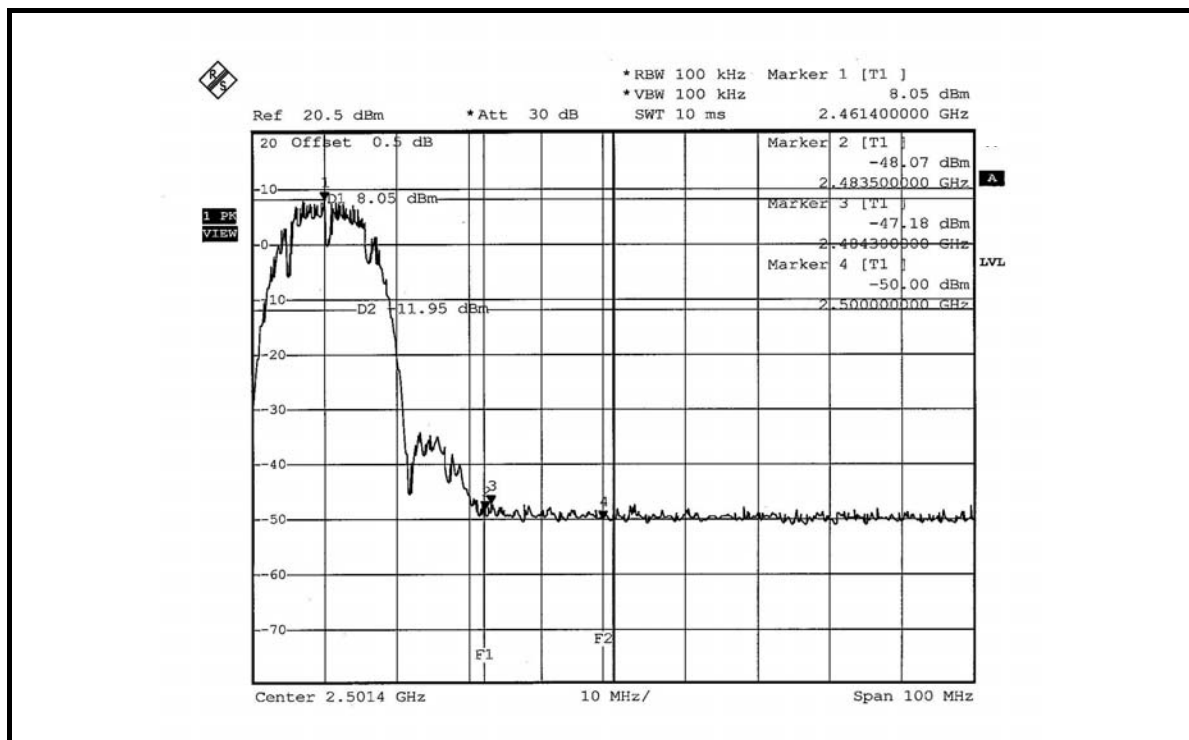
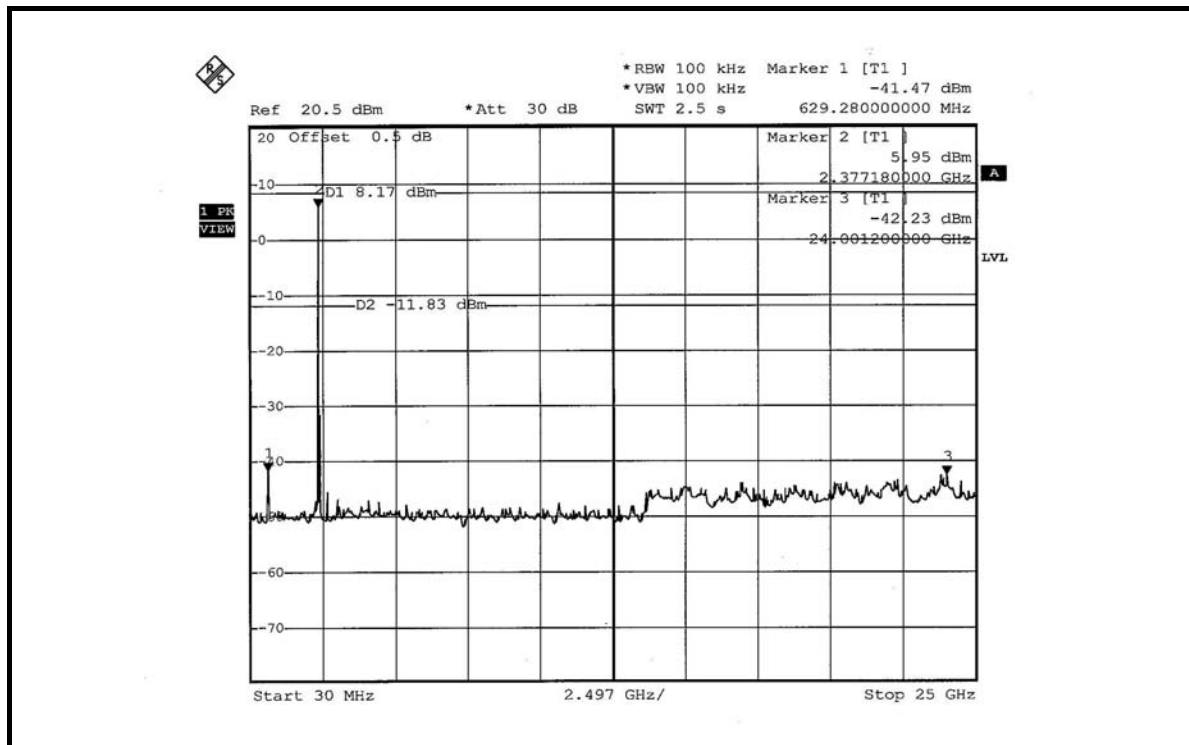
The band edge emission plot of on the next page shows 56.75dBc between carrier maximum power and local maximum emission in restrict band (2.39000GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 107.71dBuV/m (Average), so the maximum field strength in restrict band is  $107.71 - 56.75 = 50.96$ dBuV/m which is under 54dBuV/m limit.

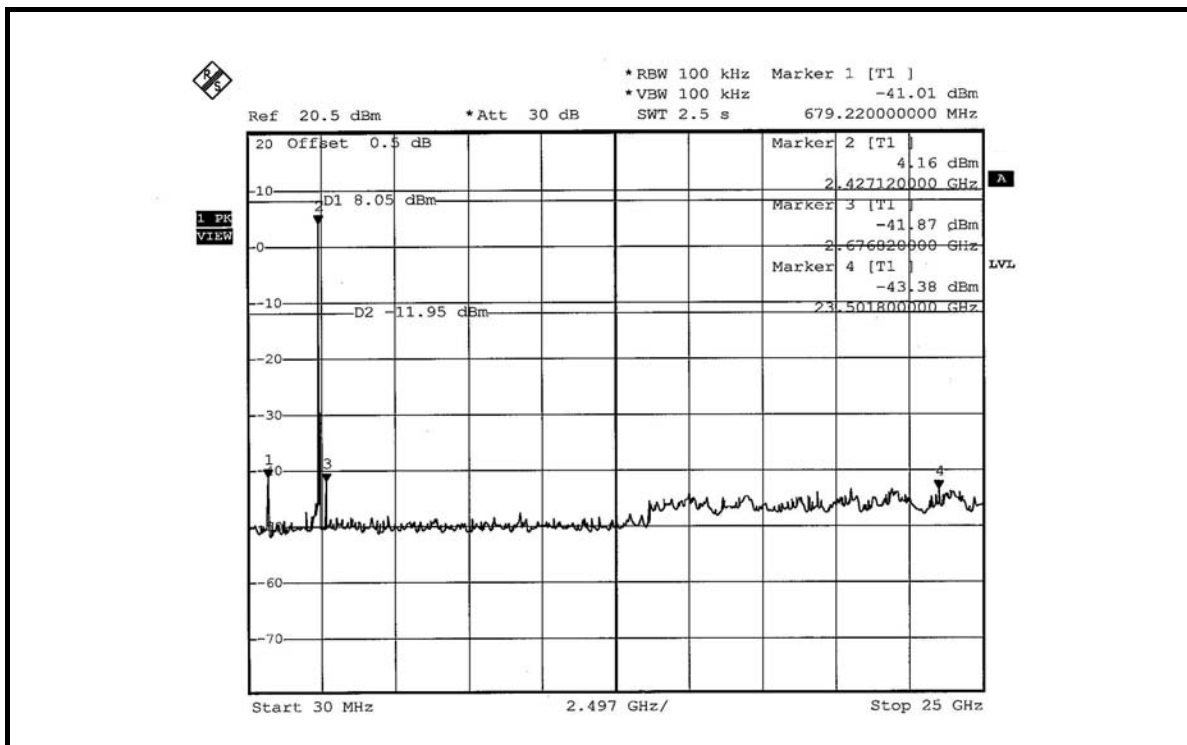
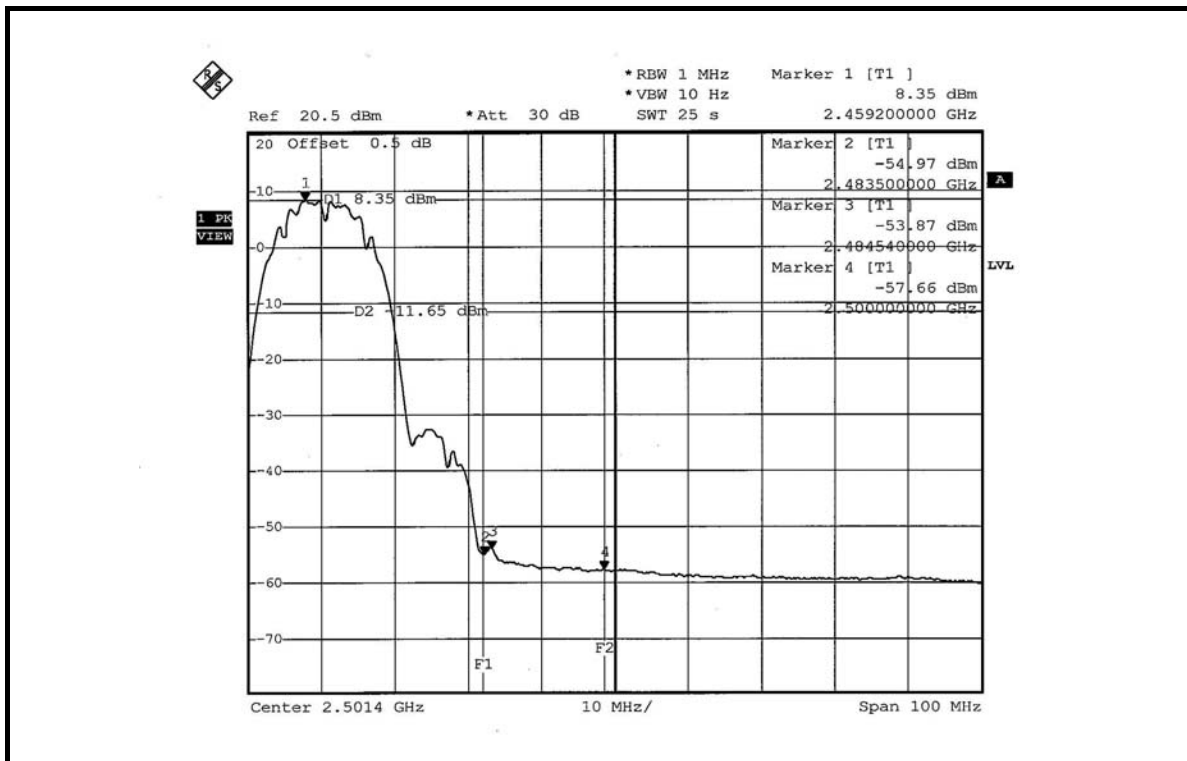
**NOTE 2:** The band edge emission plot on the next second page shows 55.23dBc between carrier maximum power and local maximum emission in restrict band (2.48430GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 111.70dBuV/m (Peak), so the maximum field strength in restrict band is  $111.70 - 55.23 = 56.47$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot on the next third page shows 62.22dBc between carrier maximum power and local maximum emission in restrict band (2.48454GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 107.86dBuV/m (Average), so the maximum field strength in restrict band is  $107.86 - 62.22 = 45.64$ dBuV/m which is under 54dBuV/m limit.









## FOR ANTENNA ITEM 2 (3.3dBi gain)

**NOTE 1:** The band edge emission plot on the next page shows 54.80dBc between carrier maximum power and local maximum emission in restrict band (2.36020GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 111.28dBuV/m (Peak), so the maximum field strength in restrict band is  $111.28 - 54.80 = 56.48$ dBuV/m which is under 74dBuV/m limit..

The band edge emission plot of on the next page shows 60.99dBc between carrier maximum power and local maximum emission in restrict band (2.39000GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 107.75dBuV/m (Average), so the maximum field strength in restrict band is  $107.75 - 60.99 = 46.76$ dBuV/m which is under 54dBuV/m limit.

**NOTE 2:** The band edge emission plot on the next second page shows 56.20dBc between carrier maximum power and local maximum emission in restrict band (2.48394GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 112.57dBuV/m (Peak), so the maximum field strength in restrict band is  $112.57 - 56.20 = 56.37$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot on the next third page shows 61.97dBc between carrier maximum power and local maximum emission in restrict band (2.48434GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 108.75dBuV/m (Average), so the maximum field strength in restrict band is  $108.75 - 61.97 = 46.78$ dBuV/m which is under 54dBuV/m limit.