



FCC TEST REPORT (15.247)

REPORT NO.: RF960711L07
MODEL NO.: RSVLC-0702
RECEIVED: Jul. 27, 2007
TESTED: Jul. 27 ~ Aug. 01, 2007
ISSUED: Aug. 06, 2007

APPLICANT: Hewlett-Packard Company

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ISSUED BY: Advance Data Technology Corporation

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1. CERTIFICATION

PRODUCT: ProCurve Wireless Access Point 10AG
MODEL: RSVLC-0702
BRAND: hp
APPLICANT: Hewlett-Packard Company
TEST SAMPLE: ENGINEERING SAMPLE
TESTED: Jul. 27 ~ Aug. 01, 2007
STANDARDS: **FCC Part 15, Subpart C (Section 15.247),**
ANSI C63.4-2003

The above equipment (Model: RSVLC-0702) has been tested by **Advance Data Technology Corporation**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : Andrea Hsia , **DATE:** Aug. 06, 2007
Andrea Hsia / Specialist

TECHNICAL ACCEPTANCE : Long Chen , **DATE:** Aug. 06, 2007
Responsible for RF Long Chen / Senior Engineer

APPROVED BY : Gary Chang , **DATE:** Aug. 06, 2007
Gary Chang / Assistant Manager

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 15, Subpart C (Section 15.247)			
Standard Section	Test Type and Limit	Result	Remark
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -10.65dB at 0.201MHz
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 -2.08dB at 2483.50MHz
15.247(e)	Power Spectral Density Limit: max. 8dBm	PASS	Meet the requirement of limit.
15.247(d)	Band Edge Measurement Limit: 30dB 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 16-4-2:

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	9kHz~30MHz	2.44 dB
Radiated emissions	30MHz ~ 200MHz	3.19 dB
	200MHz ~1000MHz	3.21 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

EUT	ProCurve Wireless Access Point 10AG
MODEL NO.	RSVLC-0702
FCC ID	B94RSVLC-0702
POWER SUPPLY	12Vdc from AC Adapter 48Vdc from POE
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b: 11/5.5/2/1Mbps 802.11g: 54/48/36/24/18/12/9/6Mbps 802.11a: 54/48/36/24/18/12/9/6Mbps
FREQUENCY RANGE	802.11b & 802.11g: 2.412 ~ 2.462GHz 802.11a: 5.180 ~ 5.240GHz; 5.745 ~ 5.825GHz
NUMBER OF CHANNEL	802.11b & 802.11g: 11 802.11a: 9
CHANNEL SPACING	802.11b & 802.11g: 5MHz 802.11a: 20MHz
OUTPUT POWER	65.163mW for 802.11b 58.479mW for 802.11g 40.365mW for 5.180 ~ 5.240GHz 66.527mW for 5.745 ~ 5.825GHz
ANTENNA TYPE	Dipole antenna with 1.78dBi gain for 2.4GHz Dipole antenna with 1.65dBi gain for 5.180 ~ 5.240GHz Dipole antenna with 1.78dBi gain for 5.725 ~ 5.825GHz
DATA CABLE	NA
I/O PORTS	RJ45
ACCESSORY DEVICES	Adapter

NOTE:

1. The EUT was operated with following adapter and POE.

ADAPTER	
BRAND:	DELTA ELECTRONIC INC.
MODEL:	EADP-15DB A
INPUT:	100-240Vac, 50-60Hz, 0.5A
OUTPUT:	12Vdc, 1.25A,
POWER LINE:	DC 1.8m non-shielded cable without core AC 1.8m non-shielded cable without core

POE	
MODEL:	0341-0211-01-R
BRAND:	CISCO
OUTPUT:	48Vdc

*Note: The POE is for support unit only.



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

3.2 DESCRIPTION OF TEST MODES

Operated in 2400 ~ 2483.5MHz band:

11 channels are provided to the EUT

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

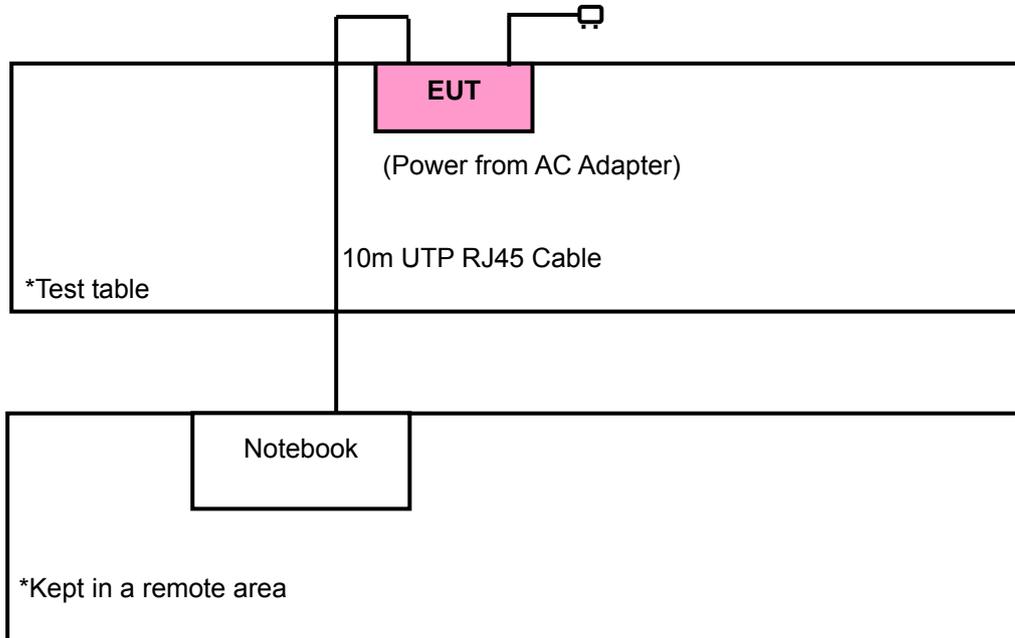
Operated in 5745 ~ 5825MHz band:

5 channels are provided to this EUT

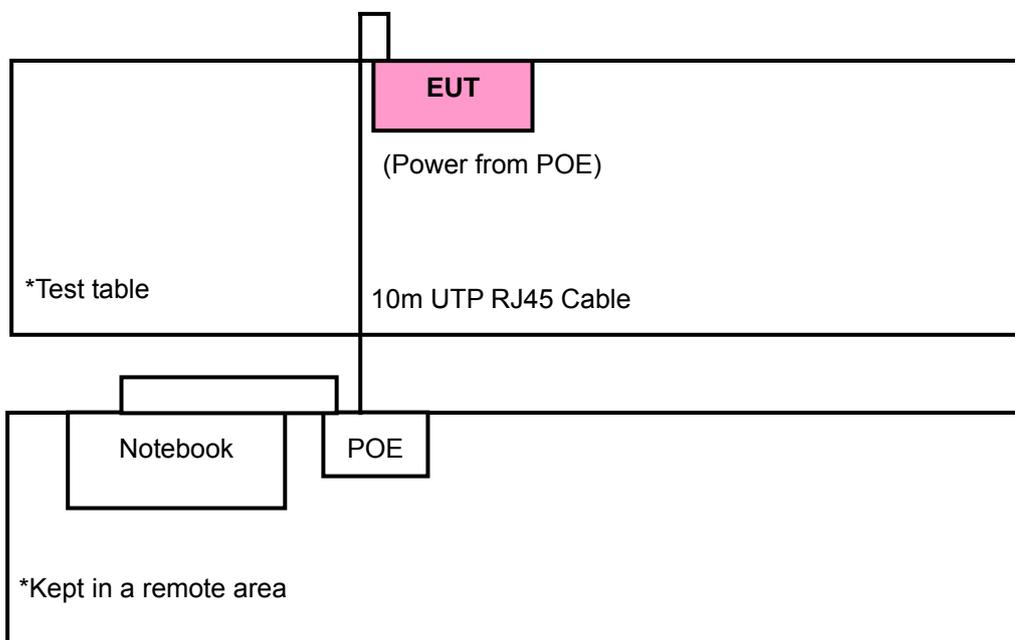
CHANNEL	FREQUENCY
1	5745 MHz
2	5765 MHz
3	5785 MHz
4	5805 MHz
5	5825 MHz

3.2.1 CONFIGURATION OF SYSTEM UNDER TEST

TEST MODE A



TEST MODE B



3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

For 802.11b/g:

EUT configure mode	Applicable to				Description
	PLC	RE<1G	RE≥1G	APCM	
A	√	√	√	√	Power from AC Adapter
B	√	√	-	-	Power from POE

Where **PLC**: Power Line Conducted Emission

RE<1G: Radiated Emission below 1GHz

RE≥1G: Radiated Emission above 1GHz

APCM: Antenna Port Conducted Measurement

NOTE: “-“ means no effect

Power Line Conducted Emission Test:

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

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

For 802.11a:

EUT configure mode	Applicable to				Description
	PLC	RE<1G	RE≥1G	APCM	
A	√	√	√	√	Power from AC Adapter
B	√	√	-	-	Power from POE

Where **PLC**: Power Line Conducted Emission **RE<1G**: Radiated Emission below 1GHz
RE≥1G: Radiated Emission above 1GHz **APCM**: Antenna Port Conducted Measurement
NOTE: “-“ means no effect.

Power Line Conducted Emission Test:

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11a	1 to 5	5	OFDM	BPSK	6
B	802.11a	1 to 5	5	OFDM	BPSK	6

Radiated Emission Test (Below 1 GHz):

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates 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	802.11a	1 to 5	5	OFDM	BPSK	6
B	802.11a	1 to 5	5	OFDM	BPSK	6

Radiated Emission Test (Above 1 GHz):

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11a	1 to 5	1, 3, 5	OFDM	BPSK	6
B	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	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	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	9954115984	E2K24CLNS

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	1.5m RJ45 non-shielded cable

NOTE 1: All power cords of the above support units are non shielded (1.8m).

NOTE 2: Item 2 acted as communication partners to transfer data.



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

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dB μ 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	100289	Dec. 07, 2007
RF signal cable Woken	5D-FB	Cable-HYC01-01	Jan. 06, 2008
LISN ROHDE & SCHWARZ	ESH3-Z5	100312	Feb. 13, 2008
LISN ROHDE & SCHWARZ	ESH2-Z5	100104	Sep. 14, 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.

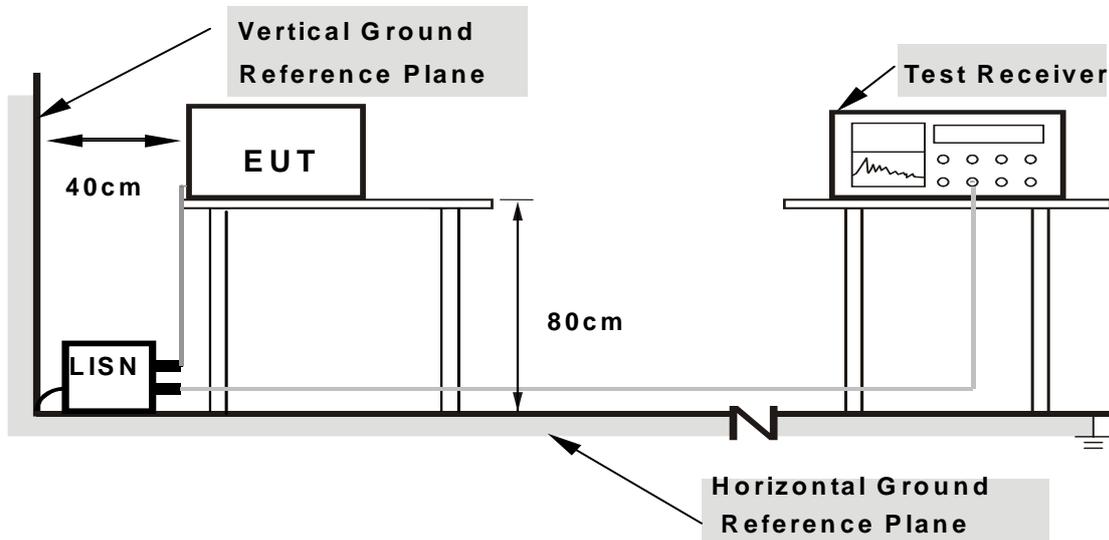
4.1.3 TEST PROCEDURES

- 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 attached file (Test Setup Photo).

4.1.6 EUT OPERATING CONDITIONS

- a. Placed the EUT on a testing table.
- b. Prepared a notebook computer and placed it outside of testing area to act as communication partner for EUT.
- c. The EUT ran a test program (provided by manufacturer) to enable all functions under transmission condition continuously at specific channel frequency.
- d. The necessary accessories enable the EUT in full functions.

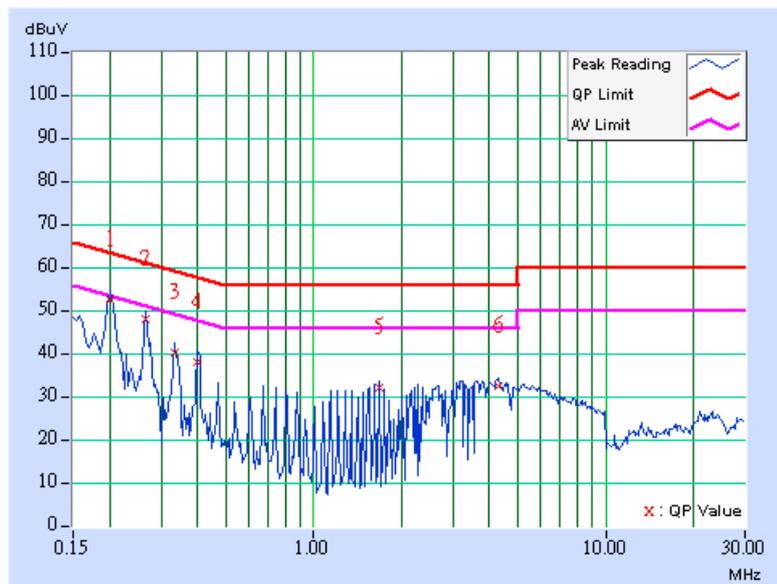
4.1.7 TEST RESULTS

Conducted Worst-Case Data

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	PHASE	Line 1
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TEST MODE	A
TESTED BY	Morgan Chen		

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	0.201	0.21	52.27	-	52.48	-	63.58	53.58	-11.10	-
2	0.267	0.21	47.60	-	47.81	-	61.20	51.20	-13.39	-
3	0.334	0.21	39.82	-	40.03	-	59.36	49.36	-19.33	-
4	0.400	0.21	37.79	-	38.00	-	57.85	47.85	-19.85	-
5	1.680	0.25	31.79	-	32.04	-	56.00	46.00	-23.96	-
6	4.305	0.40	32.37	-	32.77	-	56.00	46.00	-23.23	-

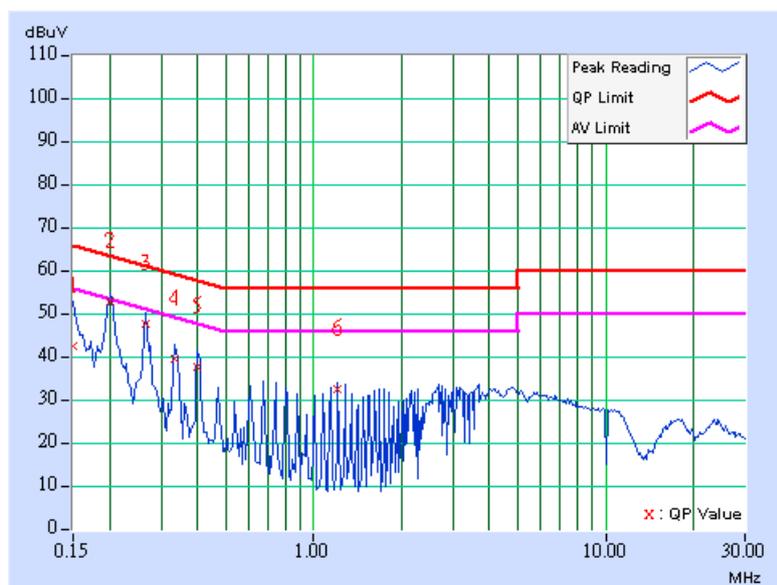
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = 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	25deg. C, 68%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TEST MODE	A
TESTED BY	Morgan Chen		

No	Freq. [MHz]	Corr. Factor [dB]	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.21	42.19	-	42.40	-	66.00	56.00	-23.60	-
2	0.201	0.21	52.72	-	52.93	-	63.58	53.58	-10.65	-
3	0.267	0.21	47.51	-	47.72	-	61.20	51.20	-13.48	-
4	0.334	0.21	39.55	-	39.76	-	59.36	49.36	-19.60	-
5	0.400	0.21	37.64	-	37.85	-	57.85	47.85	-20.00	-
6	1.211	0.24	32.49	-	32.73	-	56.00	46.00	-23.27	-

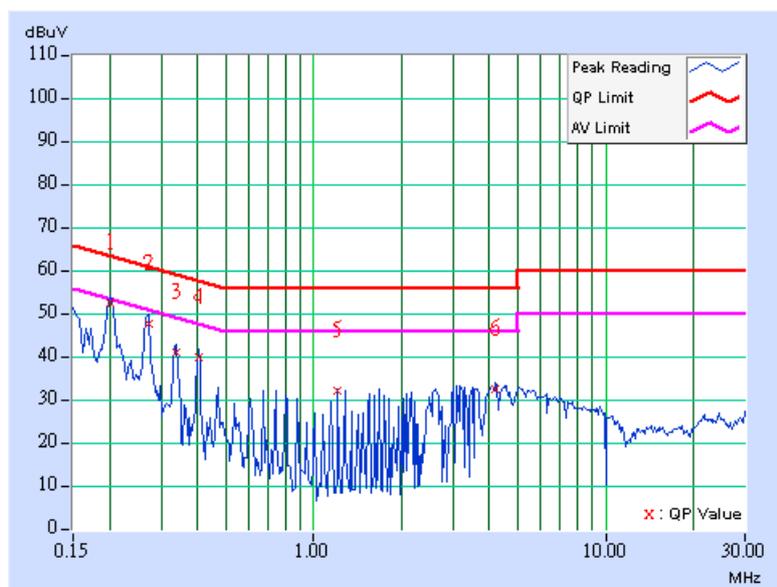
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = 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	25deg. C, 68%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TEST MODE	A
TESTED BY	Morgan Chen		

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	0.201	0.21	52.14	-	52.35	-	63.58	53.58	-11.23	-
2	0.271	0.21	47.51	-	47.72	-	61.08	51.08	-13.36	-
3	0.338	0.21	40.74	-	40.95	-	59.26	49.26	-18.31	-
4	0.404	0.21	39.78	-	39.99	-	57.77	47.77	-17.78	-
5	1.211	0.24	31.71	-	31.95	-	56.00	46.00	-24.05	-
6	4.172	0.39	32.13	-	32.52	-	56.00	46.00	-23.48	-

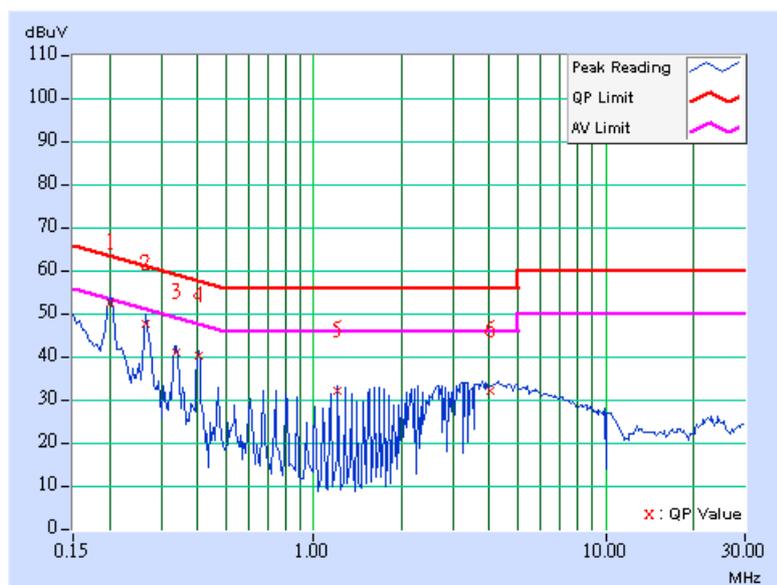
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = 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	25deg. C, 68%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TEST MODE	A
TESTED BY	Morgan Chen		

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	0.201	0.21	52.22	-	52.43	-	63.58
2	0.267	0.21	47.56	-	47.77	-	61.20	51.20	-13.43	-
3	0.338	0.21	40.76	-	40.97	-	59.26	49.26	-18.29	-
4	0.404	0.21	39.80	-	40.01	-	57.77	47.77	-17.76	-
5	1.211	0.24	31.79	-	32.03	-	56.00	46.00	-23.97	-
6	4.035	0.39	31.74	-	32.13	-	56.00	46.00	-23.87	-

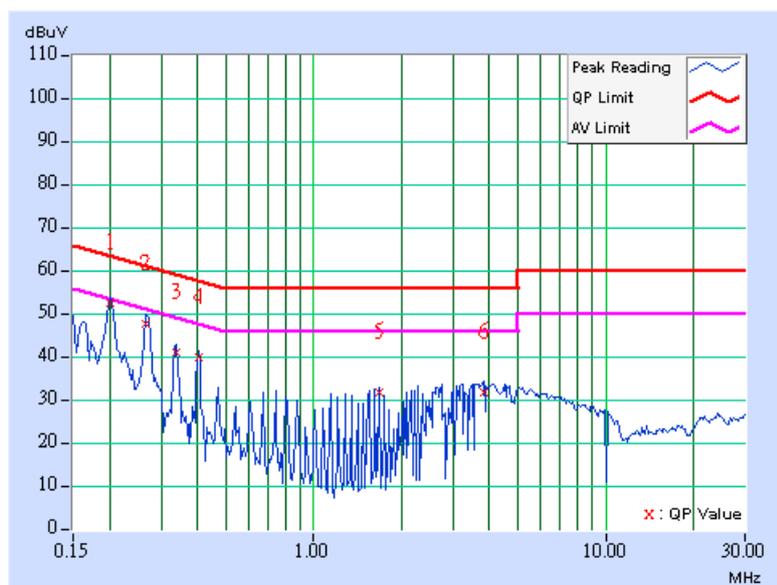
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = 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	25deg. C, 68%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TEST MODE	A
TESTED BY	Morgan Chen		

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	0.201	0.21	52.04	-	52.25	-	63.58
2	0.267	0.21	47.46	-	47.67	-	61.20	51.20	-13.53	-
3	0.338	0.21	40.70	-	40.91	-	59.26	49.26	-18.35	-
4	0.404	0.21	39.74	-	39.95	-	57.77	47.77	-17.82	-
5	1.680	0.25	31.55	-	31.80	-	56.00	46.00	-24.20	-
6	3.836	0.38	31.63	-	32.01	-	56.00	46.00	-23.99	-

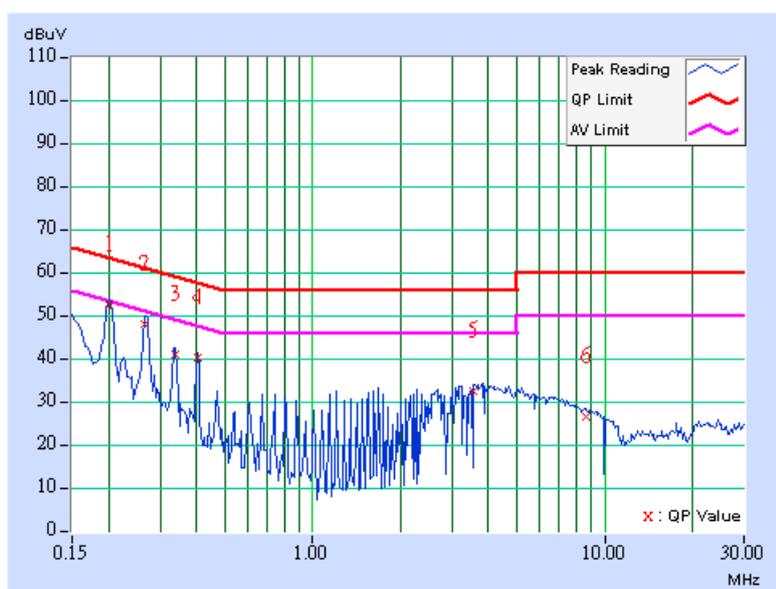
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = 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	25deg. C, 68%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TEST MODE	A
TESTED BY	Morgan Chen		

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	0.201	0.21	52.12	-	52.33	-	63.58	53.58	-11.25	-
2	0.267	0.21	47.50	-	47.71	-	61.20	51.20	-13.49	-
3	0.338	0.21	40.72	-	40.93	-	59.26	49.26	-18.33	-
4	0.404	0.21	39.76	-	39.97	-	57.77	47.77	-17.80	-
5	3.566	0.36	32.07	-	32.43	-	56.00	46.00	-23.57	-
6	8.609	0.51	26.04	-	26.55	-	60.00	50.00	-33.45	-

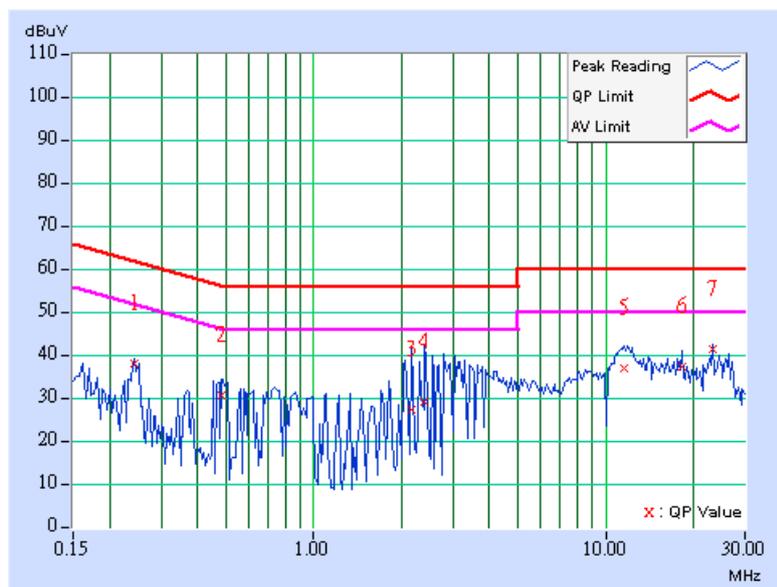
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = 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 1
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TEST MODE	B
TESTED BY	Morgan Chen		

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	0.244	0.21	37.02	-	37.23	-	61.97	51.97	-24.74	-
2	0.482	0.21	29.30	-	29.51	-	56.30	46.30	-26.79	-
3	2.172	0.27	26.27	-	26.54	-	56.00	46.00	-29.46	-
4	2.391	0.29	27.87	-	28.16	-	56.00	46.00	-27.84	-
5	11.520	0.60	35.83	-	36.43	-	60.00	50.00	-23.57	-
6	18.246	0.93	36.18	-	37.11	-	60.00	50.00	-22.89	-
7	23.129	1.29	40.03	-	41.32	-	60.00	50.00	-18.68	-

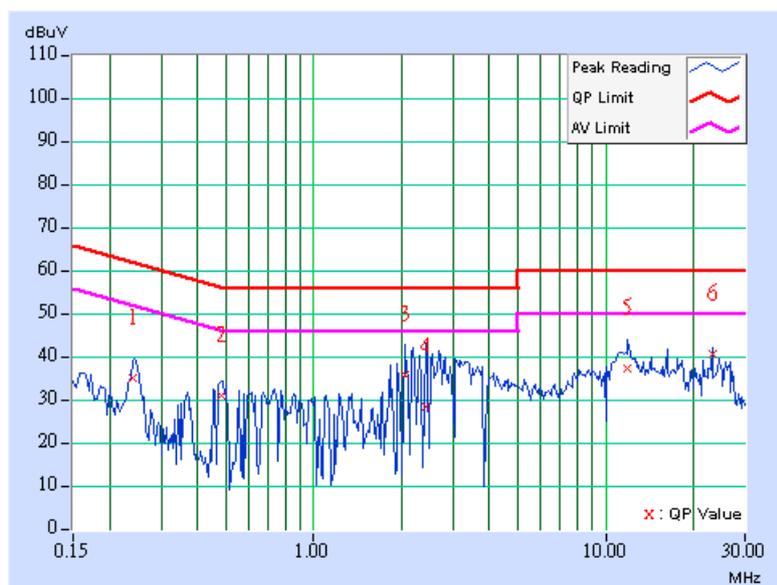
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = 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	25deg. C, 68%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TEST MODE	B
TESTED BY	Morgan Chen		

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	0.240	0.21	34.59	-	34.80	-	62.10
2	0.484	0.21	30.63	-	30.84	-	56.28	46.28	-25.43	-
3	2.063	0.26	35.56	-	35.82	-	56.00	46.00	-20.18	-
4	2.418	0.29	28.03	-	28.32	-	56.00	46.00	-27.68	-
5	11.891	0.51	36.72	-	37.23	-	60.00	50.00	-22.77	-
6	23.129	0.54	40.07	-	40.61	-	60.00	50.00	-19.39	-

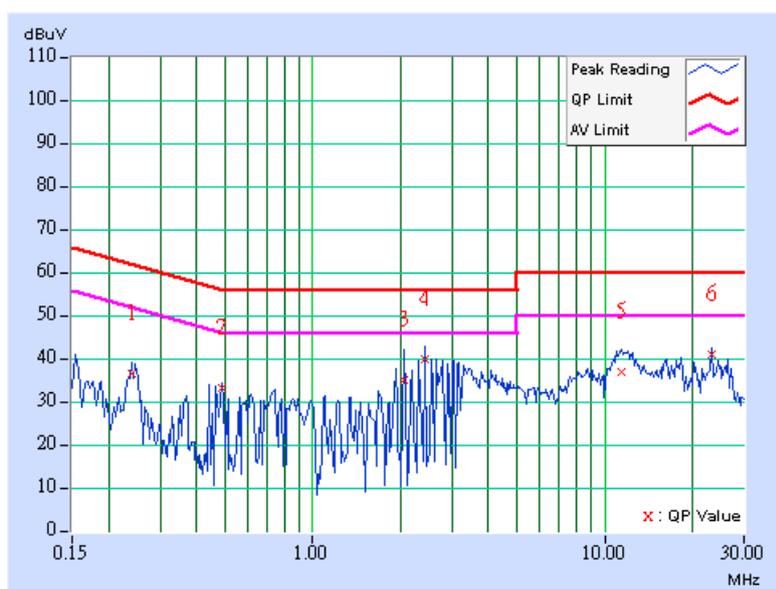
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = 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 6	PHASE	Line 1
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TEST MODE	B
TESTED BY	Morgan Chen		

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	0.240	0.21	35.42	-	35.63	-	62.10	52.10	-26.47	-
2	0.490	0.21	32.19	-	32.40	-	56.17	46.17	-23.77	-
3	2.055	0.26	33.81	-	34.07	-	56.00	46.00	-21.93	-
4	2.430	0.29	38.84	-	39.13	-	56.00	46.00	-16.87	-
5	11.469	0.60	35.91	-	36.51	-	60.00	50.00	-23.49	-
6	23.129	1.29	39.87	-	41.16	-	60.00	50.00	-18.84	-

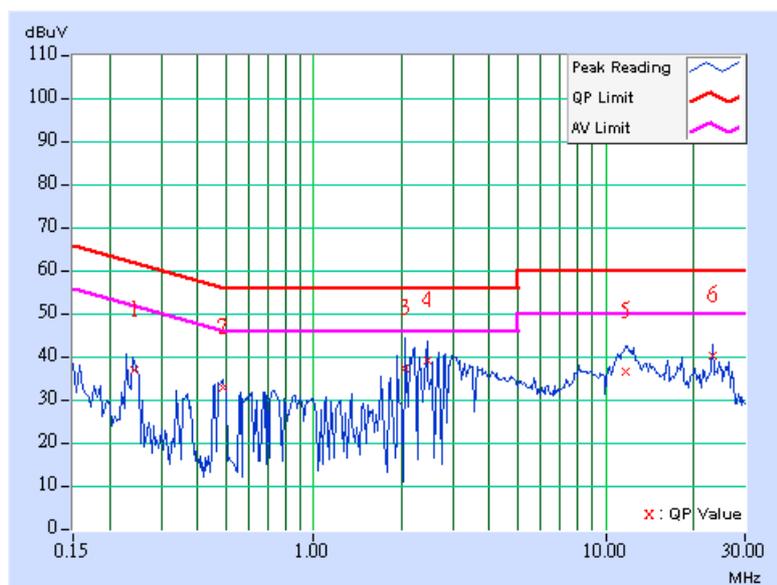
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = 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	25deg. C, 68%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TEST MODE	B
TESTED BY	Morgan Chen		

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	0.242	0.21	36.67	-	36.88	-	62.02
2	0.486	0.21	32.45	-	32.66	-	56.24	46.24	-23.57	-
3	2.059	0.26	36.69	-	36.95	-	56.00	46.00	-19.05	-
4	2.445	0.29	38.64	-	38.93	-	56.00	46.00	-17.07	-
5	11.707	0.51	35.94	-	36.45	-	60.00	50.00	-23.55	-
6	23.129	0.54	39.99	-	40.53	-	60.00	50.00	-19.47	-

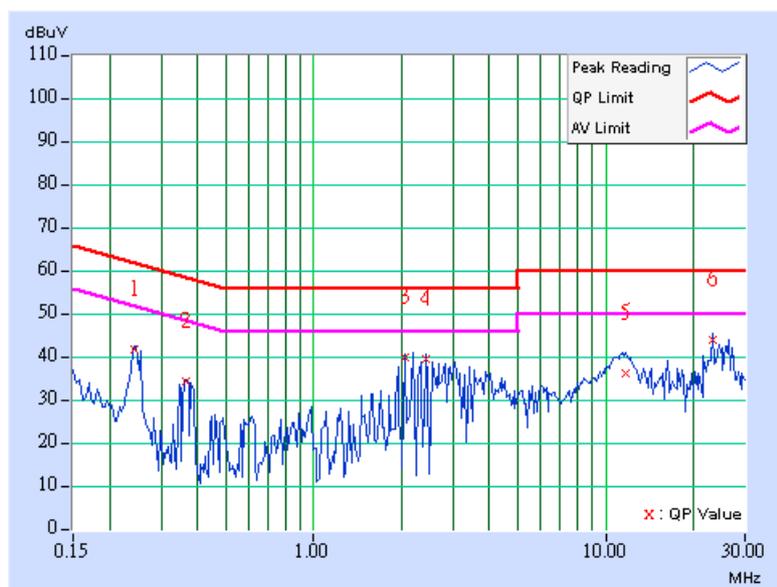
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = 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 11	PHASE	Line 1
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TEST MODE	B
TESTED BY	Morgan Chen		

No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
	[MHz]	Factor (dB)	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.244	0.21	40.53	-	40.74	-	61.97	51.97	-21.23	-
2	0.365	0.21	33.24	-	33.45	-	58.62	48.62	-25.17	-
3	2.059	0.26	38.53	-	38.79	-	56.00	46.00	-17.21	-
4	2.434	0.29	38.44	-	38.73	-	56.00	46.00	-17.27	-
5	11.723	0.61	35.03	-	35.64	-	60.00	50.00	-24.36	-
6	23.129	1.29	42.87	-	44.16	-	60.00	50.00	-15.84	-

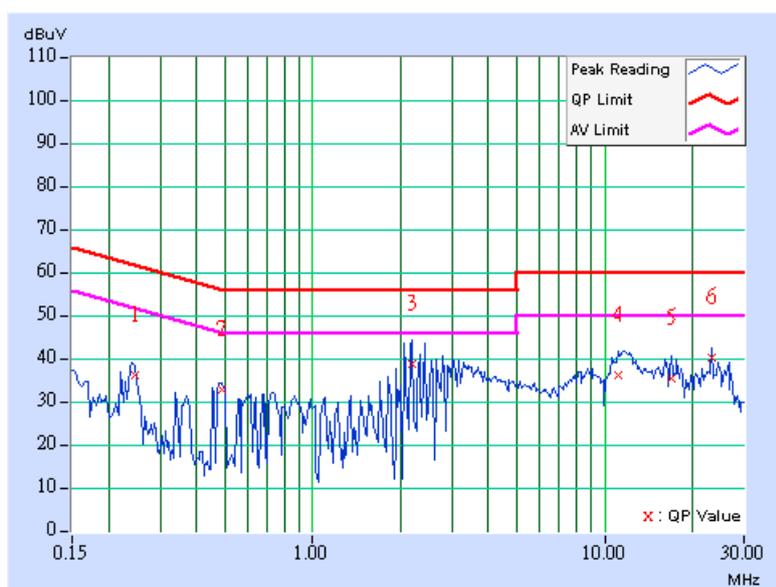
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = 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	25deg. C, 68%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TEST MODE	B
TESTED BY	Morgan Chen		

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	0.248	0.21	35.77	-	35.98	-	61.84	51.84	-25.86	-
2	0.490	0.21	32.37	-	32.58	-	56.17	46.17	-23.59	-
3	2.191	0.27	38.43	-	38.70	-	56.00	46.00	-17.30	-
4	11.160	0.52	35.67	-	36.19	-	60.00	50.00	-23.81	-
5	16.902	0.48	35.02	-	35.50	-	60.00	50.00	-24.50	-
6	23.129	0.54	39.97	-	40.51	-	60.00	50.00	-19.49	-

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



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	Dec. 29, 2007
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Dec. 01, 2007
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Jan. 04, 2008
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-405	Dec. 18, 2007
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170242	Jan. 16, 2008
Preamplifier Agilent	8449B	3008A1960	Oct. 30, 2007
Preamplifier Agilent	8447D	2944A10631	Oct. 30, 2007
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	230128/4	Nov. 14, 2007
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	233233/4	Nov. 14, 2007
Software ADT.	ADT_Radiated_V7.6	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 4.
 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 IC3789B-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 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

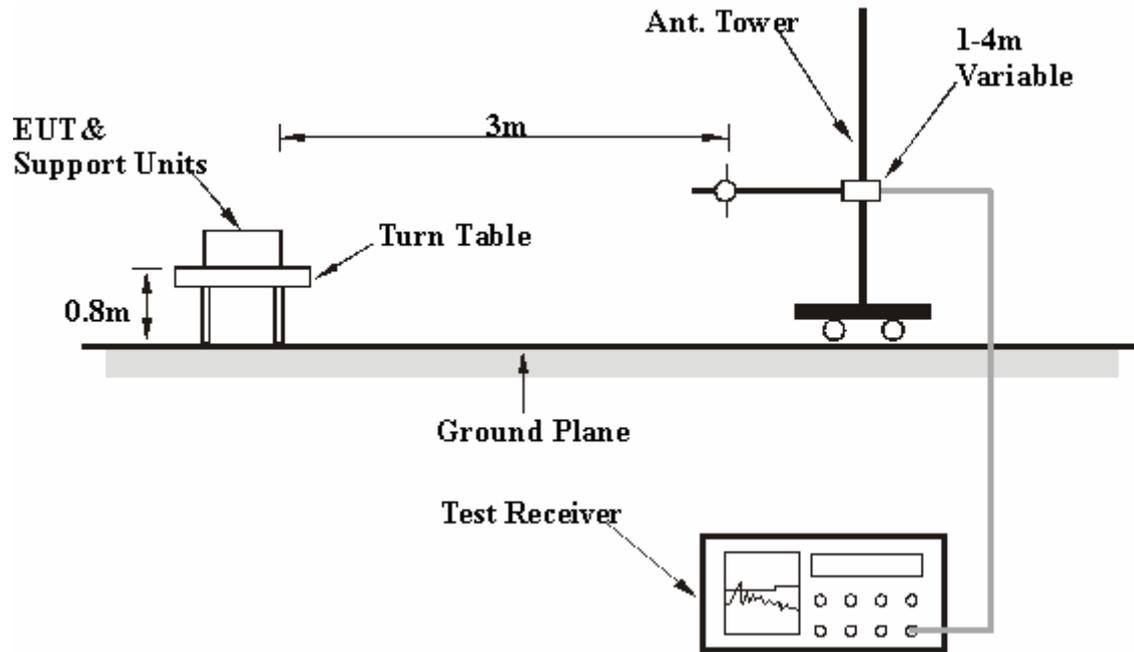
NOTE:

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

4.2.4 DEVIATION FROM TEST STANDARD

No deviation

4.2.5 TEST SETUP



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6



4.2.7 TEST RESULTS

Below 1GHz Worst-Case Data

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	Below 1000MHz
MODULATION TYPE	BPSK	DETECTOR FUNCTION	Quasi-Peak
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TEST MODE	A
TESTED BY	Morgan Chen		

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	115.45	34.70 QP	43.50	-8.80	1.50 H	289	22.97	11.74
2	131.00	31.01 QP	43.50	-12.49	1.50 H	307	18.13	12.88
3	164.06	30.09 QP	43.50	-13.41	1.50 H	268	15.98	14.11
4	519.86	34.08 QP	46.00	-11.92	1.50 H	10	13.04	21.04
5	659.85	33.20 QP	46.00	-12.80	1.00 H	208	8.74	24.46
6	751.23	40.86 QP	46.00	-5.14	1.00 H	46	15.01	25.85
7	770.67	32.52 QP	46.00	-13.48	1.00 H	166	6.44	26.08
8	875.67	33.88 QP	46.00	-12.12	1.50 H	55	6.32	27.56
9	902.89	35.21 QP	46.00	-10.79	1.50 H	118	7.22	27.99
10	908.72	36.15 QP	46.00	-9.85	1.50 H	124	8.10	28.05

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	59.06	30.98 QP	40.00	-9.02	1.00 V	166	17.06	13.92
2	62.95	30.39 QP	40.00	-9.61	1.00 V	319	17.03	13.37
3	109.62	36.79 QP	43.50	-6.71	1.50 V	295	25.67	11.12
4	129.06	33.06 QP	43.50	-10.44	1.50 V	1	20.29	12.77
5	218.50	32.16 QP	46.00	-13.84	1.00 V	31	19.95	12.21
6	440.14	32.04 QP	46.00	-13.96	1.00 V	58	13.45	18.59
7	751.23	36.81 QP	46.00	-9.19	1.50 V	10	10.96	25.85
8	770.67	33.42 QP	46.00	-12.58	1.50 V	241	7.34	26.08
9	881.50	33.81 QP	46.00	-12.19	1.00 V	250	6.15	27.66

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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	Below 1000MHz
MODULATION TYPE	BPSK	DETECTOR FUNCTION	Quasi-Peak
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TEST MODE	B
TESTED BY	Morgan Chen		

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	109.62	35.90 QP	43.50	-7.60	1.50 H	319	24.79	11.12
2	218.50	32.02 QP	46.00	-13.98	1.50 H	298	19.80	12.21
3	249.60	33.00 QP	46.00	-13.00	1.50 H	307	19.31	13.69
4	440.14	32.09 QP	46.00	-13.91	1.00 H	208	13.49	18.59
5	659.85	33.89 QP	46.00	-12.11	1.00 H	175	9.43	24.46
6	751.23	39.04 QP	46.00	-6.96	1.00 H	46	13.20	25.85
7	770.67	33.10 QP	46.00	-12.90	1.00 H	10	7.02	26.08
8	858.17	34.19 QP	46.00	-11.81	1.50 H	325	6.91	27.28
9	881.50	33.18 QP	46.00	-12.82	1.50 H	181	5.52	27.66
10	933.99	32.73 QP	46.00	-13.27	1.50 H	295	4.39	28.34
11	957.33	32.39 QP	46.00	-13.61	1.50 H	286	3.78	28.62

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	47.40	34.42 QP	40.00	-5.58	1.00 V	28	20.78	13.64
2	109.62	31.05 QP	43.50	-12.45	1.00 V	223	19.94	11.12
3	305.99	37.79 QP	46.00	-8.21	1.00 V	25	22.89	14.90
4	751.23	36.37 QP	46.00	-9.63	1.50 V	10	10.52	25.85
5	770.67	33.25 QP	46.00	-12.75	1.50 V	259	7.17	26.08
6	860.11	32.16 QP	46.00	-13.84	1.00 V	358	4.84	27.32
7	881.50	32.95 QP	46.00	-13.05	1.00 V	244	5.29	27.66

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



802.11b DSSS modulation

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	DBPSK	DETECTOR FUNCTION	Peak(PK) Average (AV)
TRANSFER RATE	1Mbps	ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Long Chen

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2386.00	55.86 PK	74.00	-18.14	1.04 H	354	23.65	32.21
2	2386.00	46.33 AV	54.00	-7.67	1.04 H	354	14.12	32.21
3	*2412.00	102.01 PK			1.02 H	354	69.69	32.32
4	*2412.00	96.59 AV			1.02 H	354	64.27	32.32
5	4824.00	47.22 PK	74.00	-26.78	1.00 H	68	8.73	38.49
6	4824.00	40.03 AV	54.00	-13.97	1.00 H	68	1.54	38.49
7	7236.00	56.27 PK	74.00	-17.73	1.04 H	347	11.48	44.79
8	7236.00	46.12 AV	54.00	-7.88	1.04 H	347	1.33	44.79

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	2386.00	62.68 PK	74.00	-11.32	1.21 V	6	30.47	32.21
2	2386.00	51.40 AV	54.00	-2.60	1.21 V	6	19.19	32.21
3	*2412.00	110.94 PK			1.11 V	41	78.62	32.32
4	*2412.00	105.60 AV			1.11 V	41	73.28	32.32
5	4824.00	50.98 PK	74.00	-23.02	1.33 V	151	12.49	38.49
6	4824.00	42.48 AV	54.00	-11.52	1.33 V	151	3.99	38.49
7	7236.00	59.37 PK	74.00	-14.63	1.58 V	42	14.58	44.79
8	7236.00	50.37 AV	54.00	-3.63	1.58 V	42	5.58	44.79

- 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.
 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	25deg. C, 65%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Long Chen

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	102.99 PK			1.33 H	348	70.58	32.41
2	*2437.00	97.61 AV			1.33 H	348	65.20	32.41
3	4874.00	52.32 PK	74.00	-21.68	1.04 H	78	13.63	38.69
4	4874.00	43.14 AV	54.00	-10.86	1.04 H	78	4.45	38.69
5	7311.00	56.99 PK	74.00	-17.01	1.35 H	149	12.02	44.97
6	7311.00	44.85 AV	54.00	-9.15	1.35 H	149	-0.12	44.97

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	111.58 PK			1.11 V	39	79.17	32.41
2	*2437.00	106.48 AV			1.11 V	39	74.07	32.41
3	4874.00	55.95 PK	74.00	-18.05	1.04 V	47	17.26	38.69
4	4874.00	46.85 AV	54.00	-7.15	1.04 V	47	8.16	38.69
5	7311.00	59.94 PK	74.00	-14.06	1.56 V	41	14.97	44.97
6	7311.00	51.85 AV	54.00	-2.15	1.56 V	41	6.88	44.97

- 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	25deg. C, 65%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Long Chen

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	102.31 PK			1.42 H	351	69.80	32.51
2	*2462.00	96.84 AV			1.42 H	351	64.33	32.51
3	2488.00	57.11 PK	74.00	-16.89	1.01 H	25	24.51	32.60
4	2488.00	45.31 AV	54.00	-8.69	1.01 H	25	12.71	32.60
5	4924.00	50.36 PK	74.00	-23.64	1.04 H	147	11.51	38.85
6	4924.00	41.88 AV	54.00	-12.12	1.04 H	147	3.03	38.85
7	7386.00	56.89 PK	74.00	-17.11	1.02 H	314	11.71	45.18
8	7386.00	43.98 AV	54.00	-10.02	1.02 H	314	-1.20	45.18

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	110.92 PK			1.11 V	35	78.41	32.51
2	*2462.00	105.62 AV			1.11 V	35	73.11	32.51
3	2488.00	63.14 PK	74.00	-10.86	1.09 V	34	30.54	32.60
4	2488.00	51.34 AV	54.00	-2.66	1.09 V	34	18.74	32.60
5	4924.00	53.30 PK	74.00	-20.70	1.41 V	42	14.45	38.85
6	4924.00	44.65 AV	54.00	-9.35	1.41 V	42	5.80	38.85
7	7386.00	58.30 PK	74.00	-15.70	1.64 V	42	13.12	45.18
8	7386.00	47.00 AV	54.00	-7.00	1.64 V	42	1.82	45.18

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

802.11g OFDM modulation

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	BPSK	DETECTOR FUNCTION	Peak(PK) Average (AV)
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Long Chen

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	62.85 PK	74.00	-11.15	1.31 H	104	30.62	32.23
2	2390.00	47.84 AV	54.00	-6.16	1.31 H	104	15.61	32.23
3	*2412.00	104.32 PK			1.31 H	104	72.00	32.32
4	*2412.00	93.20 AV			1.31 H	104	60.88	32.32
5	7236.00	56.10 PK	74.00	-17.90	1.02 H	56	11.31	44.79
6	7236.00	42.98 AV	54.00	-11.02	1.02 H	56	-1.81	44.79

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	2390.00	71.11 PK	74.00	-2.89	1.37 V	149	38.88	32.23
2	2390.00	51.29 AV	54.00	-2.71	1.37 V	149	19.06	32.23
3	*2412.00	112.15 PK			1.37 V	149	79.83	32.32
4	*2412.00	101.02 AV			1.37 V	149	68.70	32.32
5	7236.00	58.69 PK	74.00	-15.31	1.02 V	54	13.90	44.79
6	7236.00	45.40 AV	54.00	-8.60	1.02 V	54	0.61	44.79

- 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.
 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	25deg. C, 65%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Long Chen

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	105.64 PK			1.04 H	338	73.23	32.41
2	*2437.00	95.36 AV			1.04 H	338	62.95	32.41
3	7311.00	56.20 PK	74.00	-17.80	1.04 H	54	11.23	44.97
4	7311.00	42.76 AV	54.00	-11.24	1.04 H	54	-2.21	44.97

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	113.75 PK			1.10 V	40	81.34	32.41
2	*2437.00	102.76 AV			1.10 V	40	70.35	32.41
3	7311.00	63.52 PK	74.00	-10.48	1.78 V	236	18.55	44.97
4	7311.00	47.94 AV	54.00	-6.06	1.78 V	236	2.97	44.97

- 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	25deg. C, 65%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Long Chen

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	104.83 PK			1.12 H	306	72.32	32.51
2	*2462.00	94.59 AV			1.12 H	306	62.08	32.51
3	2483.50	61.71 PK	74.00	-12.29	1.01 H	317	29.12	32.59
4	2483.50	43.54 AV	54.00	-10.46	1.01 H	317	10.95	32.59
5	7386.00	55.39 PK	74.00	-18.61	1.04 H	47	10.21	45.18
6	7386.00	41.75 AV	54.00	-12.25	1.04 H	47	-3.43	45.18

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	112.94 PK			1.10 V	37	80.43	32.51
2	*2462.00	101.79 AV			1.10 V	37	69.28	32.51
3	2483.50	71.82 PK	74.00	-2.18	1.11 V	39	39.23	32.59
4	2483.50	51.92 AV	54.00	-2.08	1.11 V	39	19.33	32.59
5	7311.00	57.83 PK	74.00	-16.17	1.63 V	223	12.86	44.97
6	7311.00	44.00 AV	54.00	-10.00	1.63 V	223	-0.97	44.97

- 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	FSP40	100040	Jun. 28, 2008

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

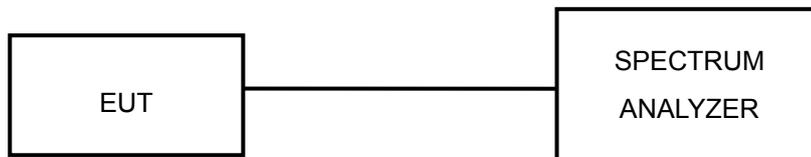
4.3.3 TEST PROCEDURE

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

4.3.4 DEVIATION FROM TEST STANDARD

No deviation

4.3.5 TEST SETUP



4.3.6 EUT OPERATING CONDITIONS

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



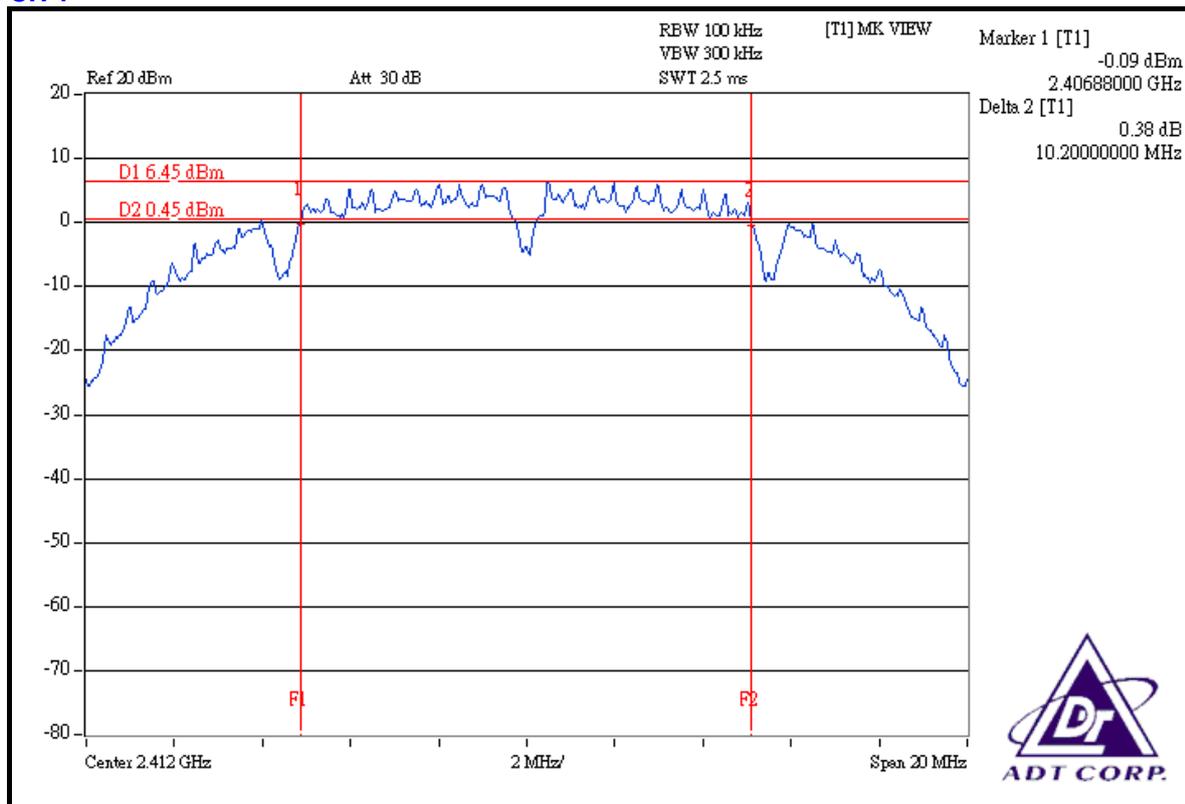
4.3.7 TEST RESULTS

802.11b DSSS modulation

MODULATION TYPE	DBPSK	TRANSFER RATE	1Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 67%RH, 991hPa
TESTED BY	Long Chen		

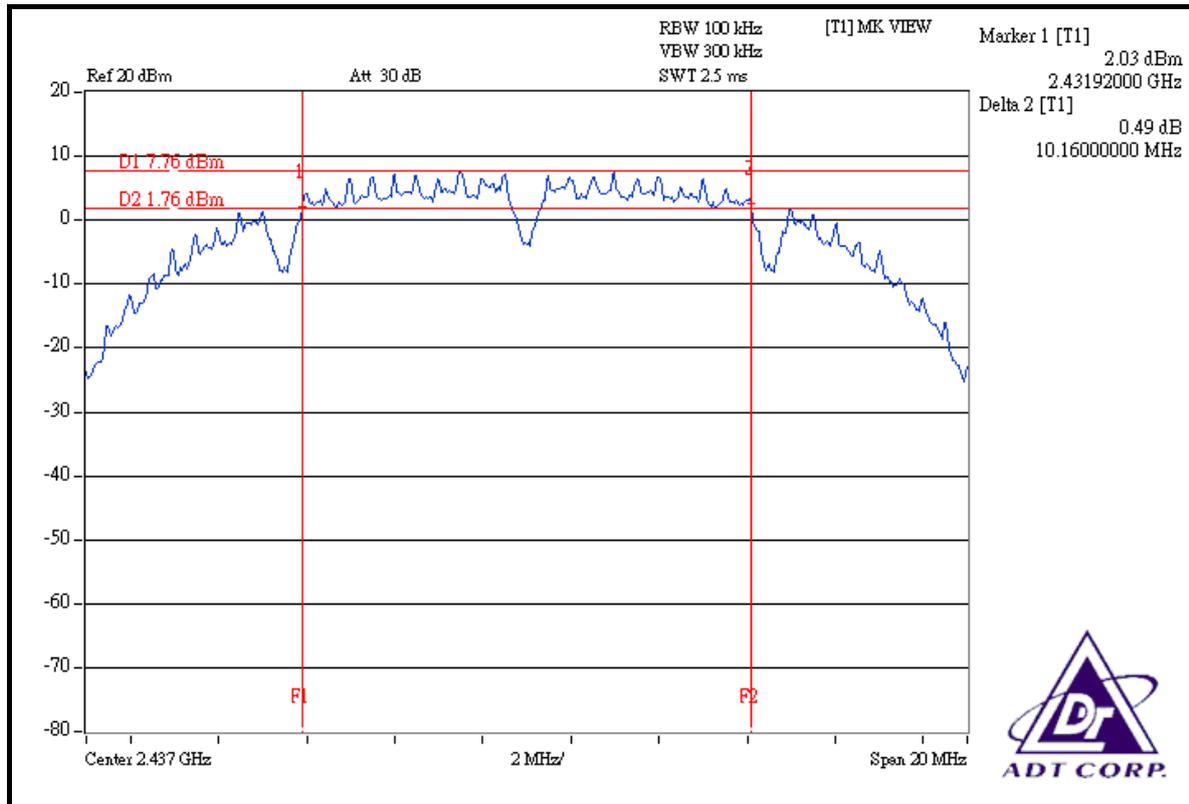
CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	10.20	0.5	PASS
6	2437	10.16	0.5	PASS
11	2462	12.04	0.5	PASS

CH 1

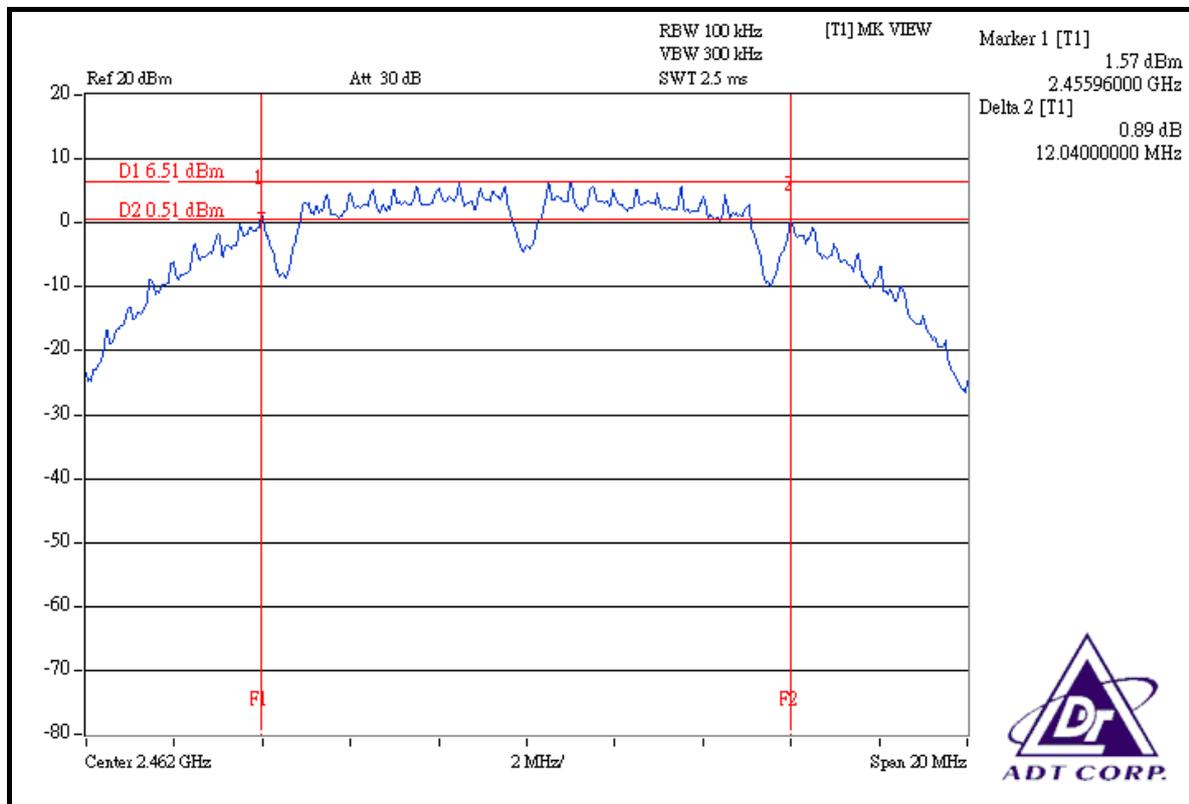




CH 6



CH 11

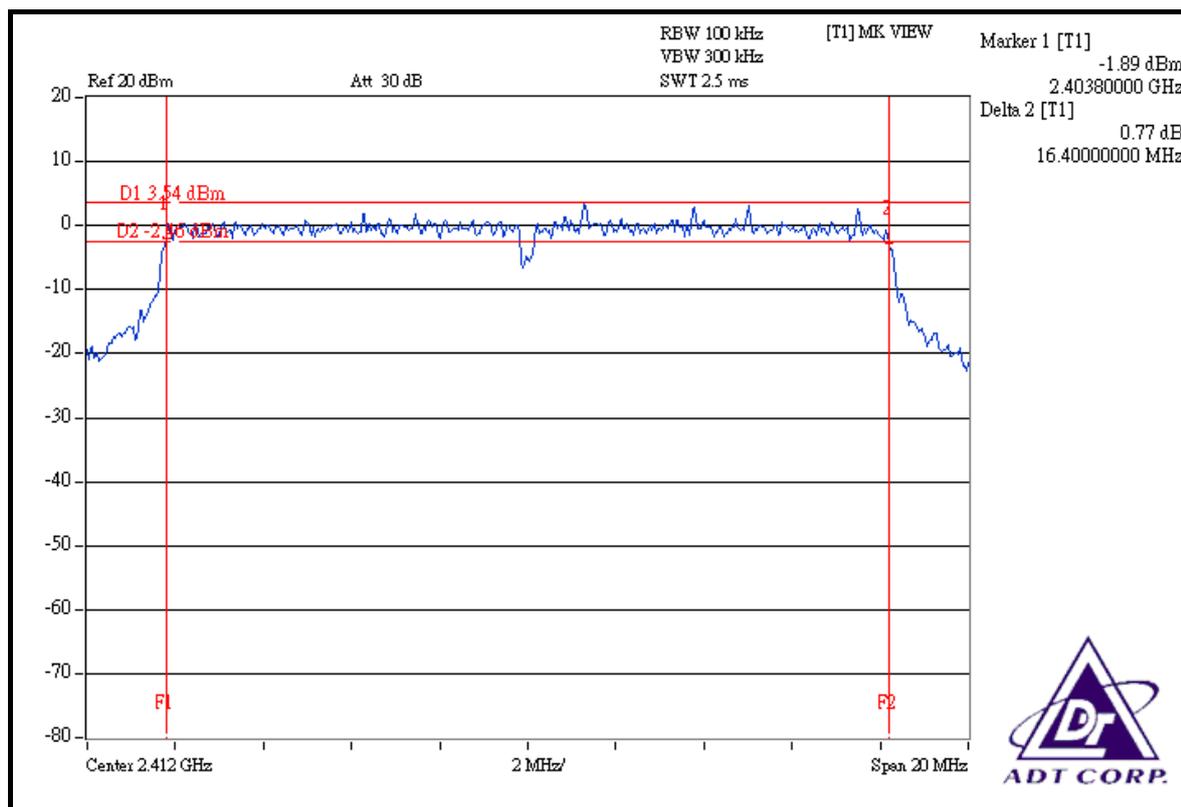


802.11g OFDM modulation

MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 67%RH, 991hPa
TESTED BY	Long Chen		

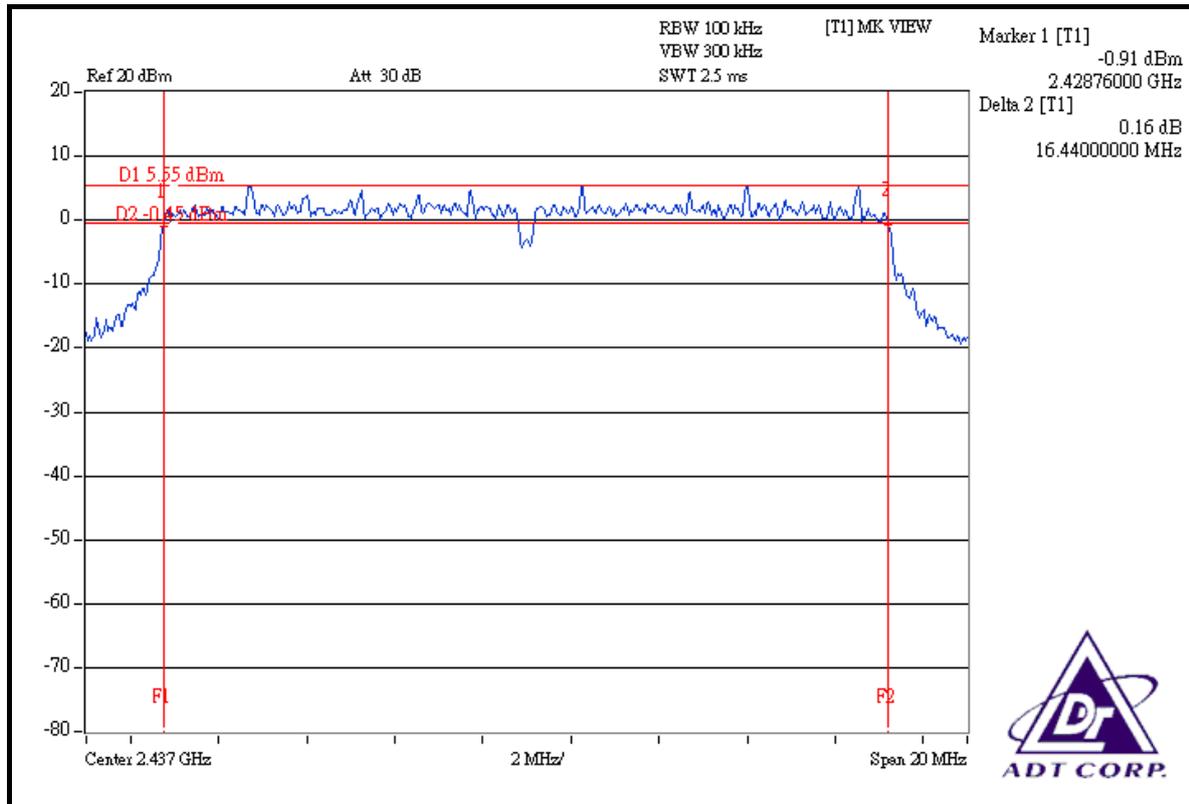
CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	16.40	0.5	PASS
6	2437	16.44	0.5	PASS
11	2462	16.44	0.5	PASS

CH 1

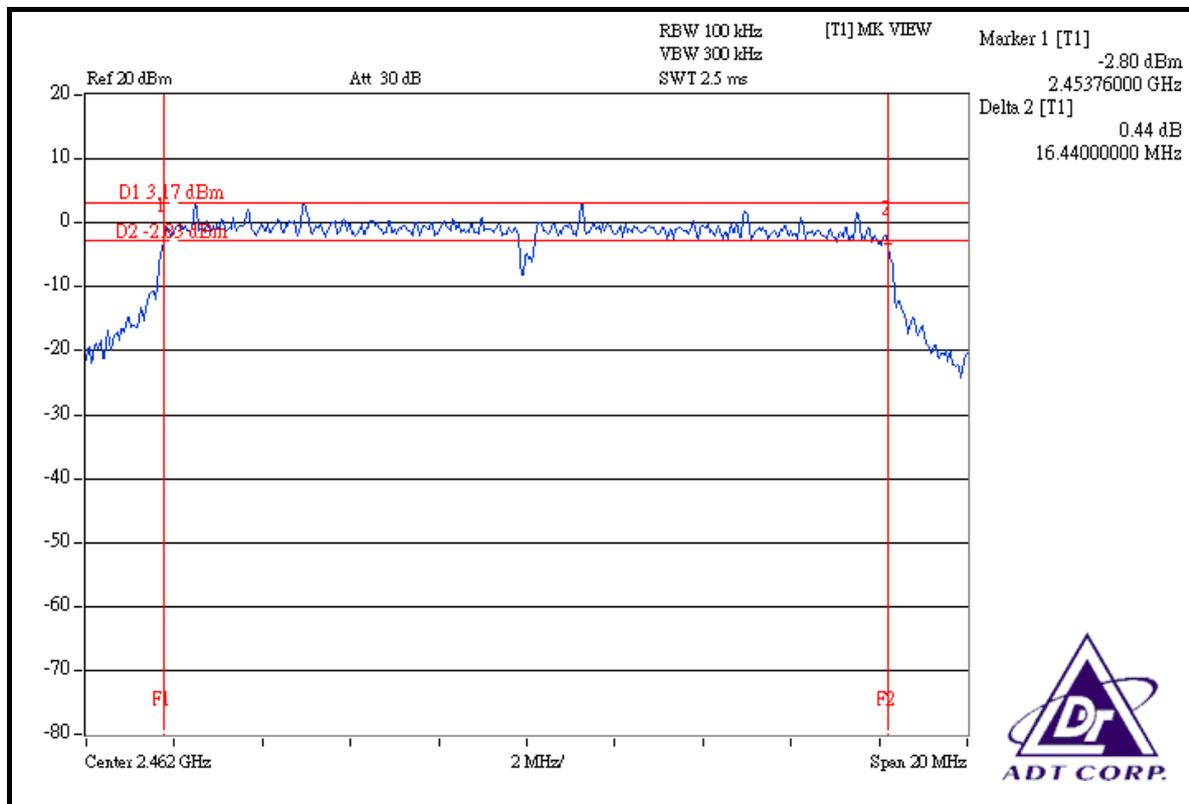




CH 6



CH 11





4.4 MAXIMUM PEAK OUTPUT POWER

4.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

4.4.2 INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSP40	100040	Jun. 28, 2008

NOTE:

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

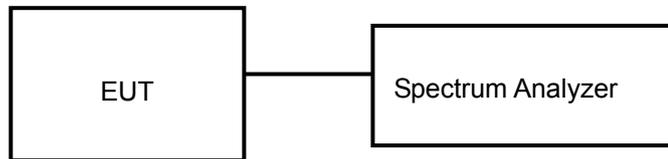
4.4.3 TEST PROCEDURES

1. Follow DTS measurement, the transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer.
2. Set span to encompass the entire emission bandwidth (EBW) of the signal.
3. Set RBW = 1 MHz; VBW \geq 3 MHz
4. Use Sample detector mode and video trigger with the trigger level set to enable triggering only on full power pulses.
5. Trace average 100 traces in power averaging mode.
6. Computer power by integrating the spectrum across the 26dB EBW of the signal.
7. 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

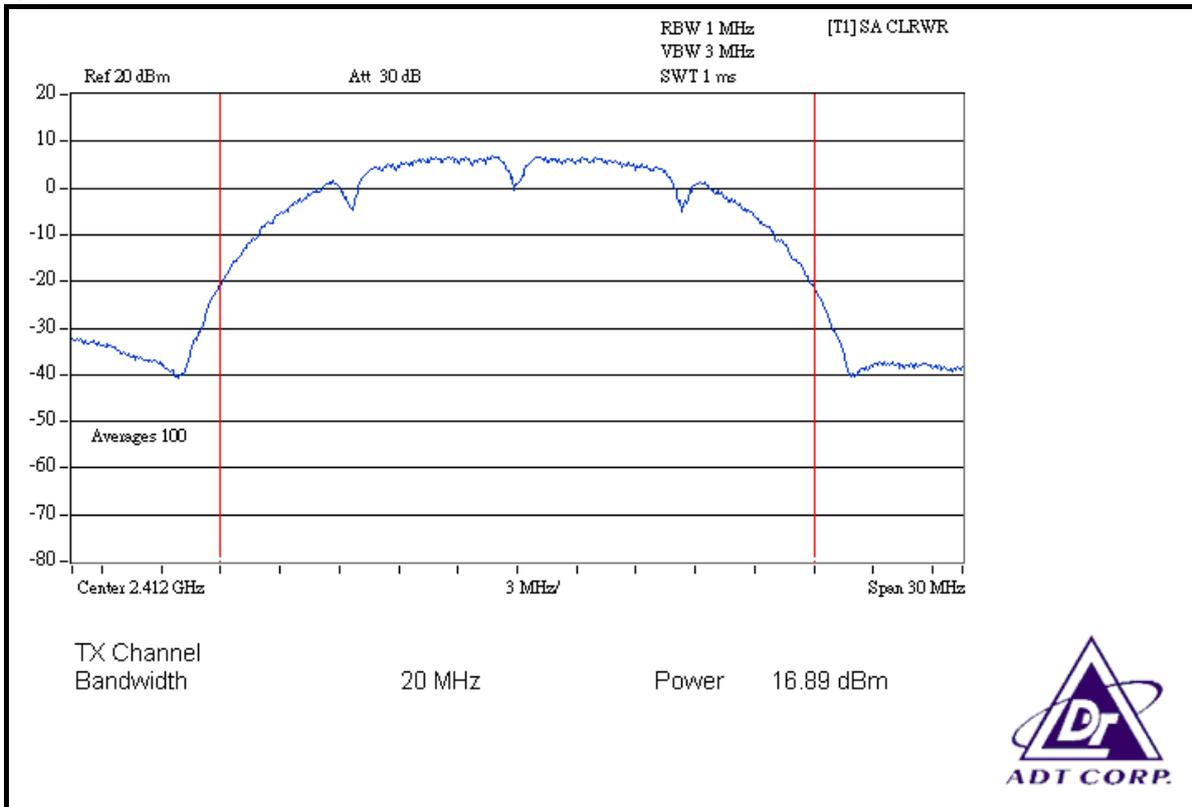
MODULATION TYPE	DBPSK	TRANSFER RATE	1Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 67%RH, 991hPa
TESTED BY	Long Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	26dBc Occupied Bandwidth (MHz)	PASS/FAIL
1	2412	48.865	16.89	30.00	19.33	PASS
6	2437	65.163	18.14	30.00	19.27	PASS
11	2462	47.863	16.80	30.00	19.33	PASS

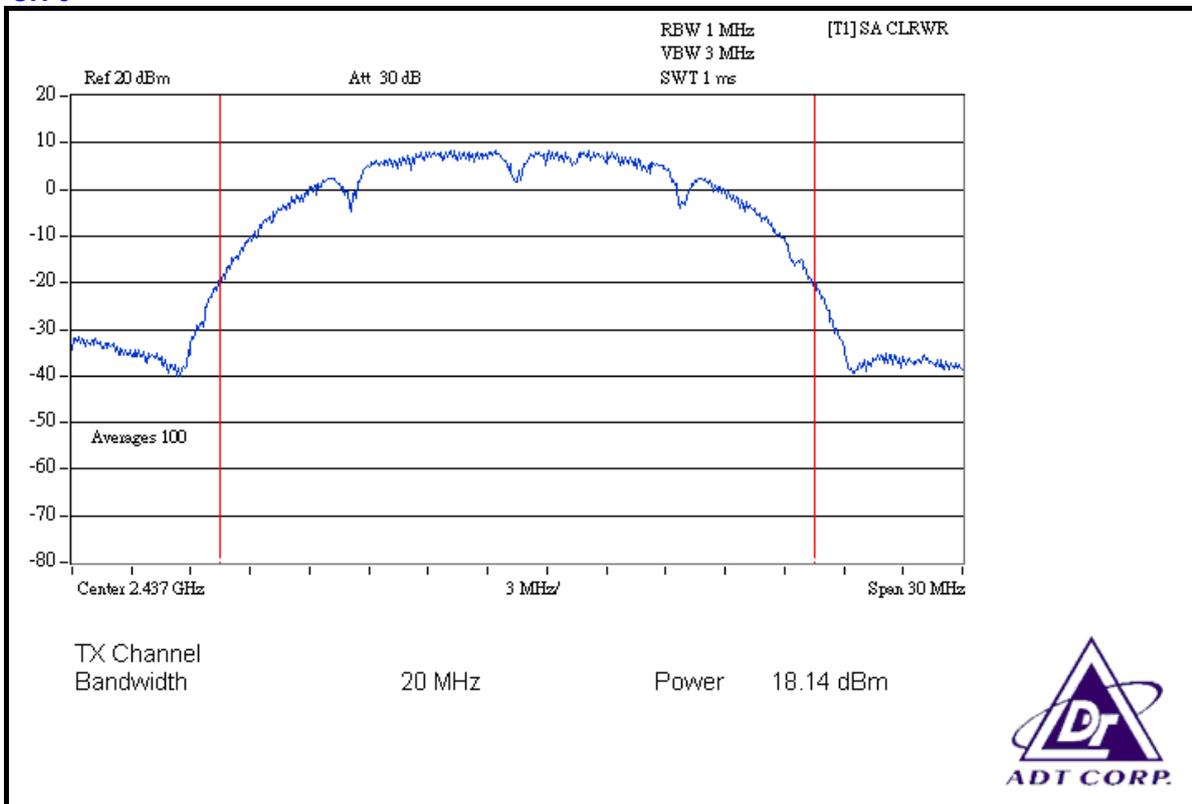
NOTE: The 26dBc Occupied Bandwidth plot, please refer to the following pages.



Peak Power Output: CH 1

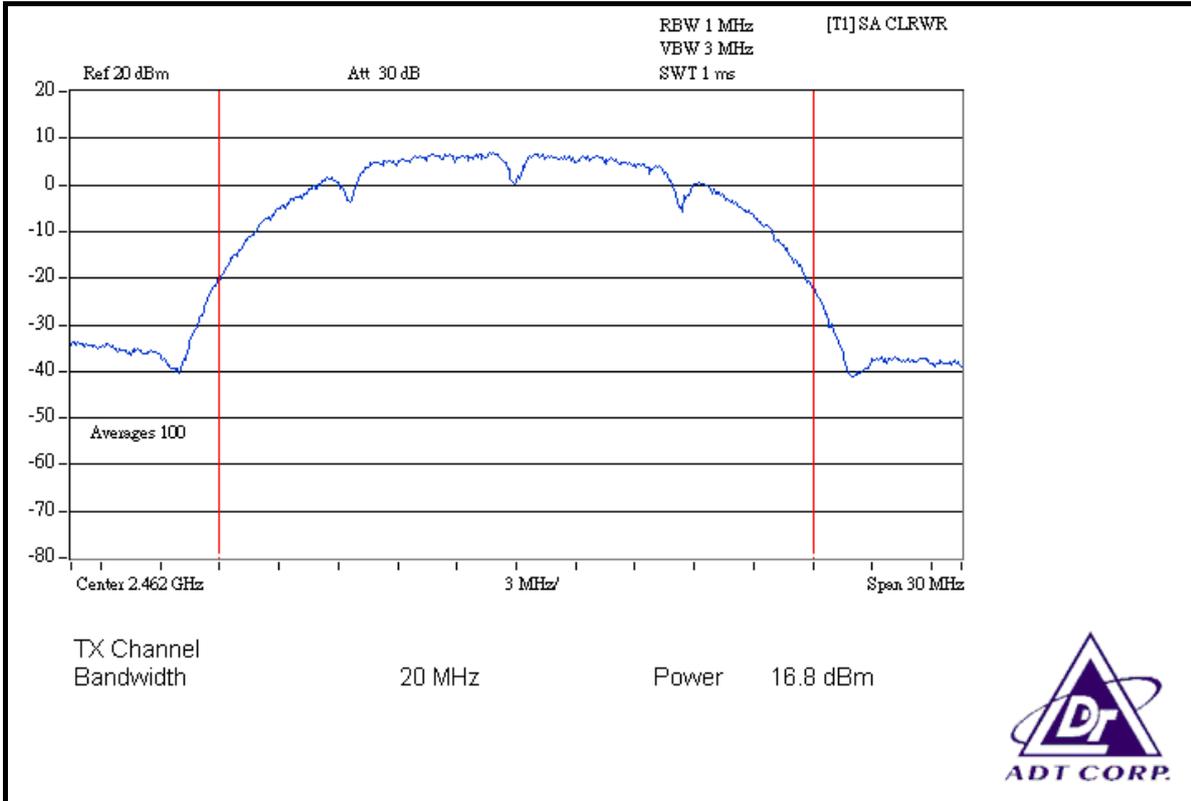


CH 6

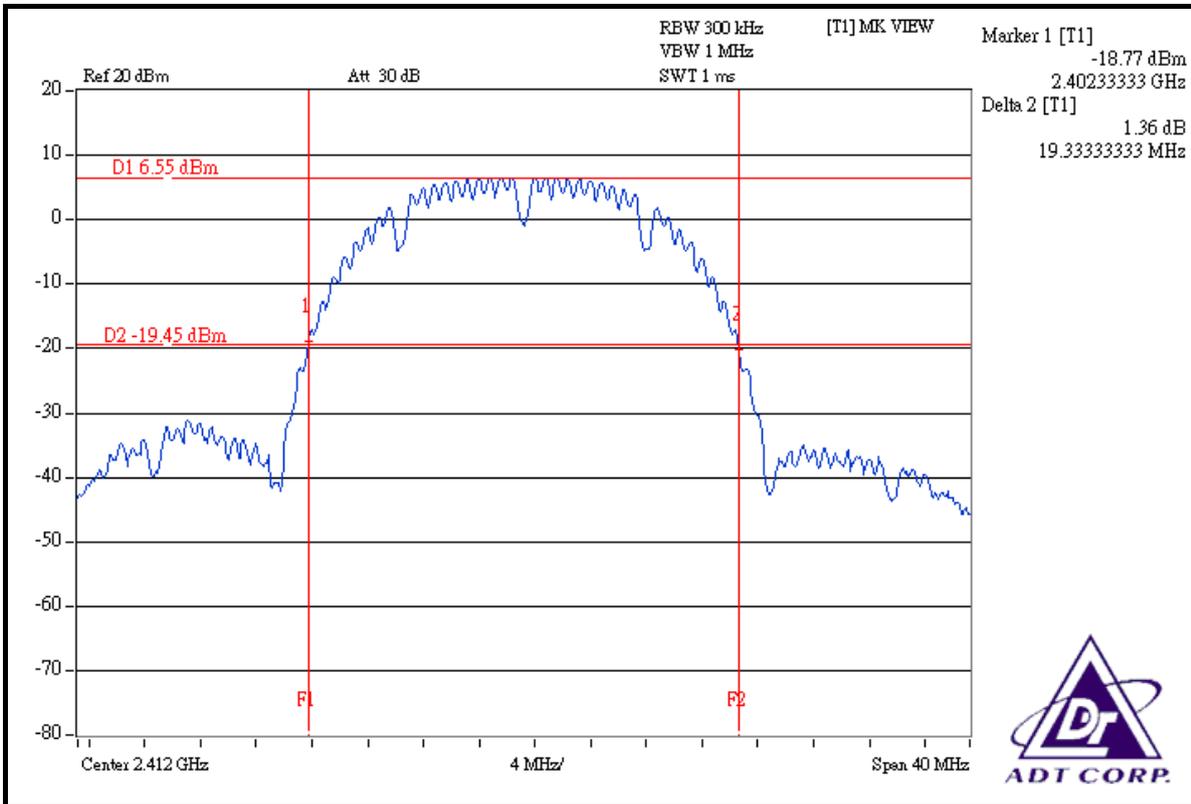




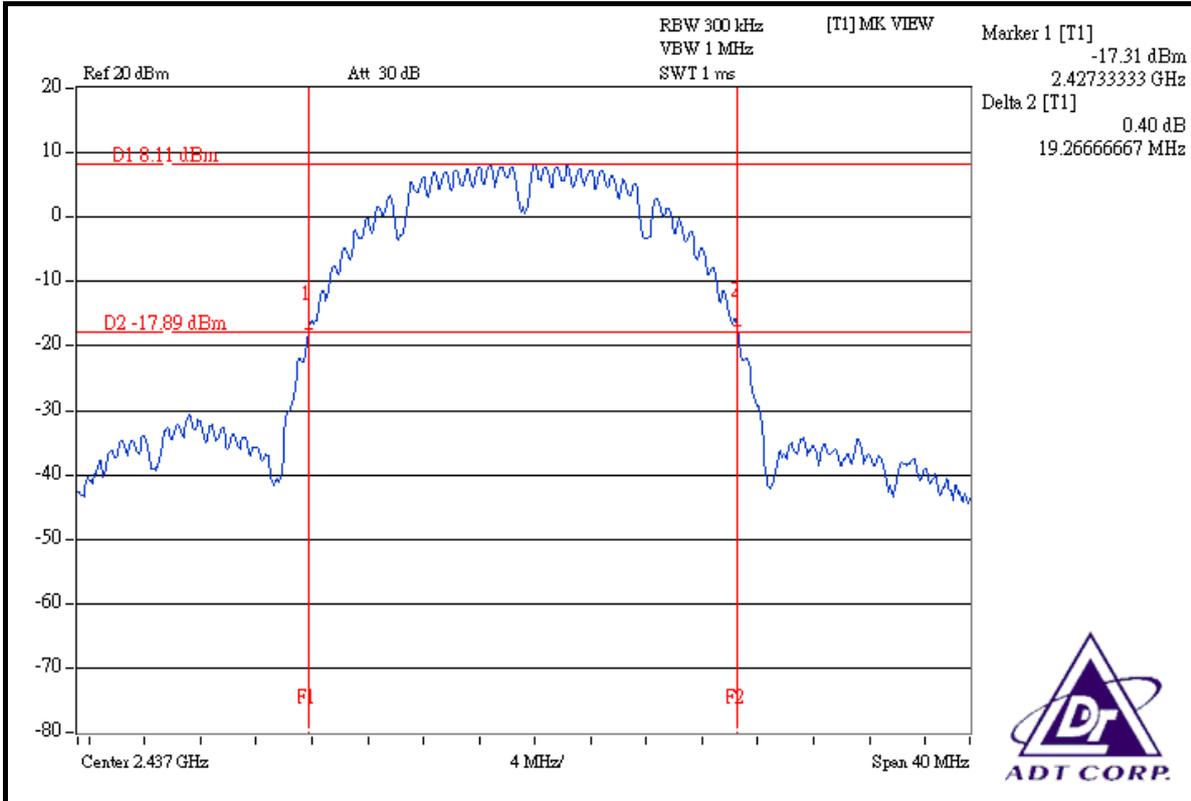
CH 11



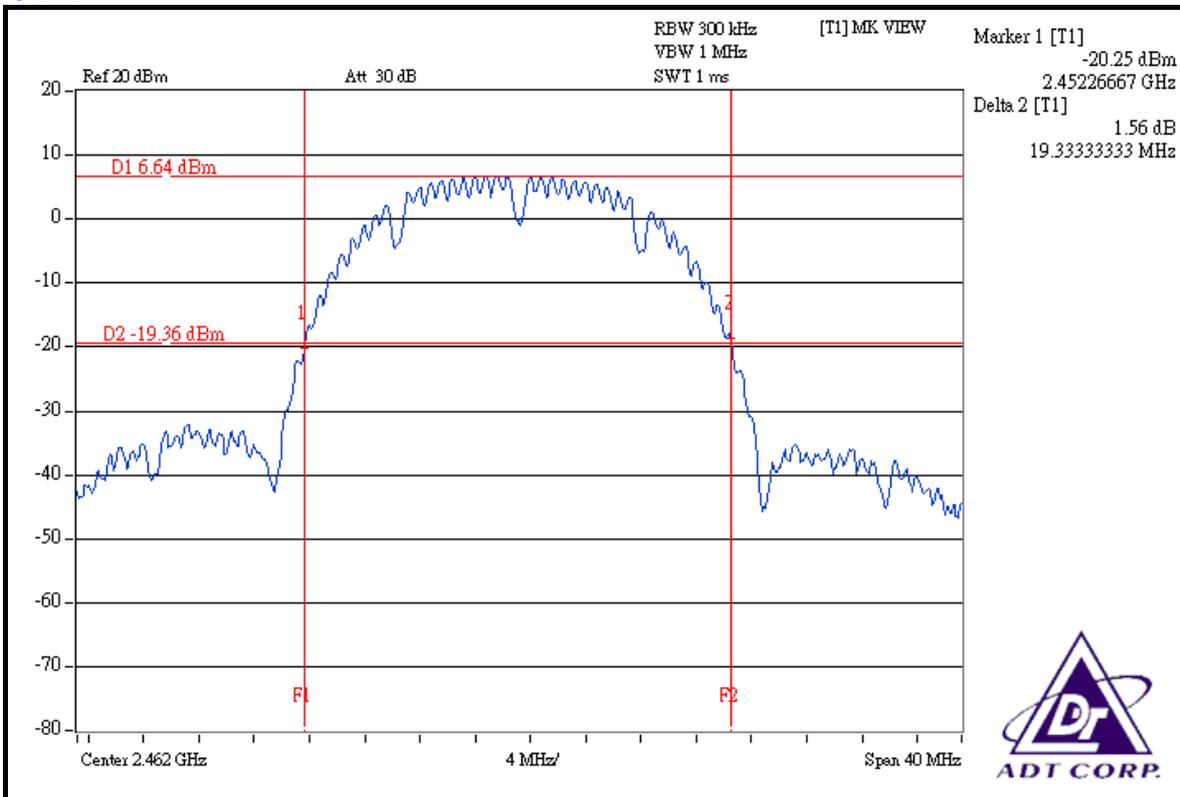
26dB Occupied Bandwidth: CH 1



CH 6



CH 11





802.11g OFDM modulation

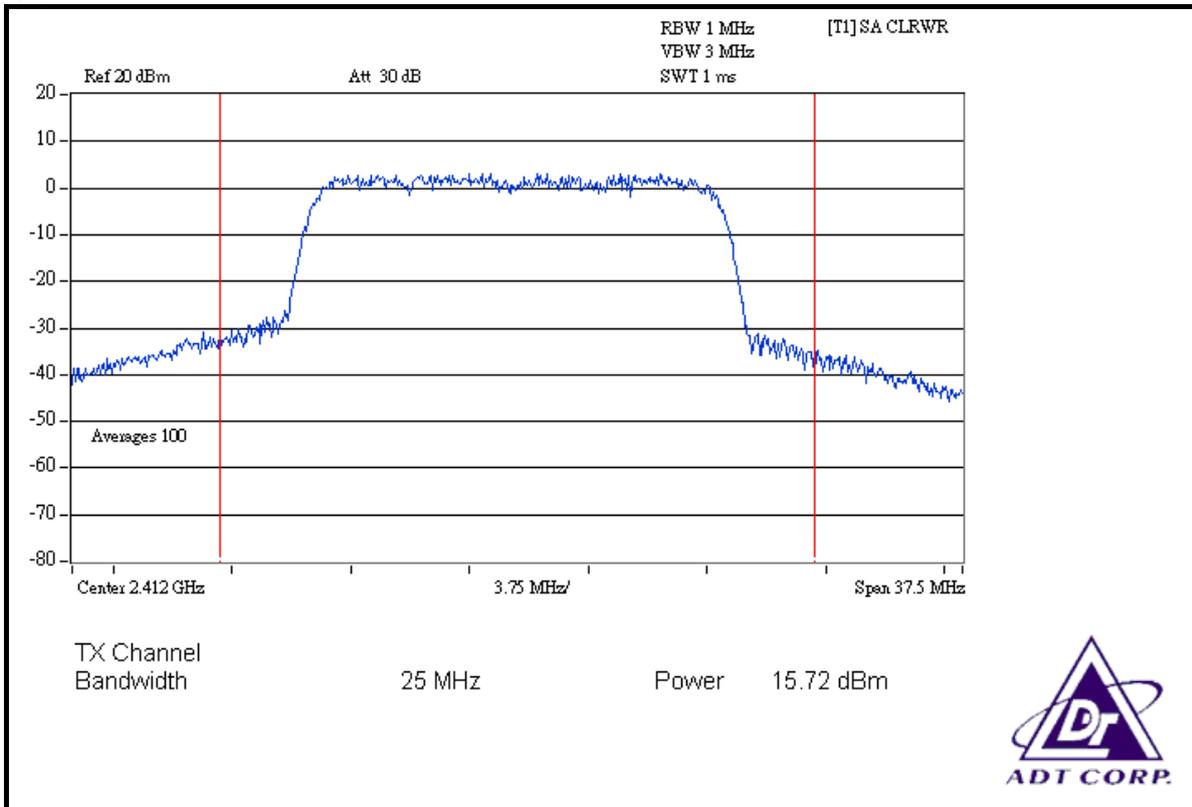
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 67%RH, 991hPa
TESTED BY	Long Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	26dBc Occupied Bandwidth (MHz)	PASS/FAIL
1	2412	37.325	15.72	30.00	24.53	PASS
6	2437	58.479	17.67	30.00	24.67	PASS
11	2462	37.584	15.75	30.00	23.93	PASS

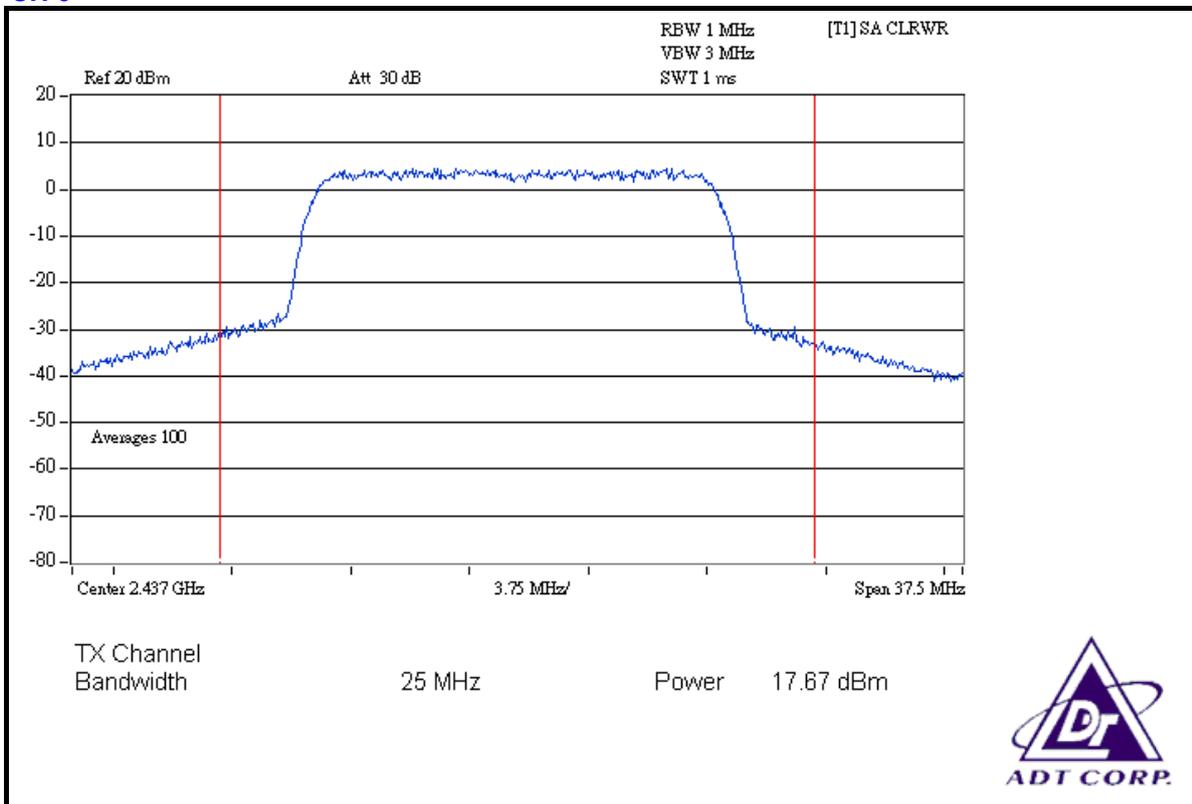
NOTE: The 26dBc Occupied Bandwidth plot, please refer to the following pages.



Peak Power Output: CH 1

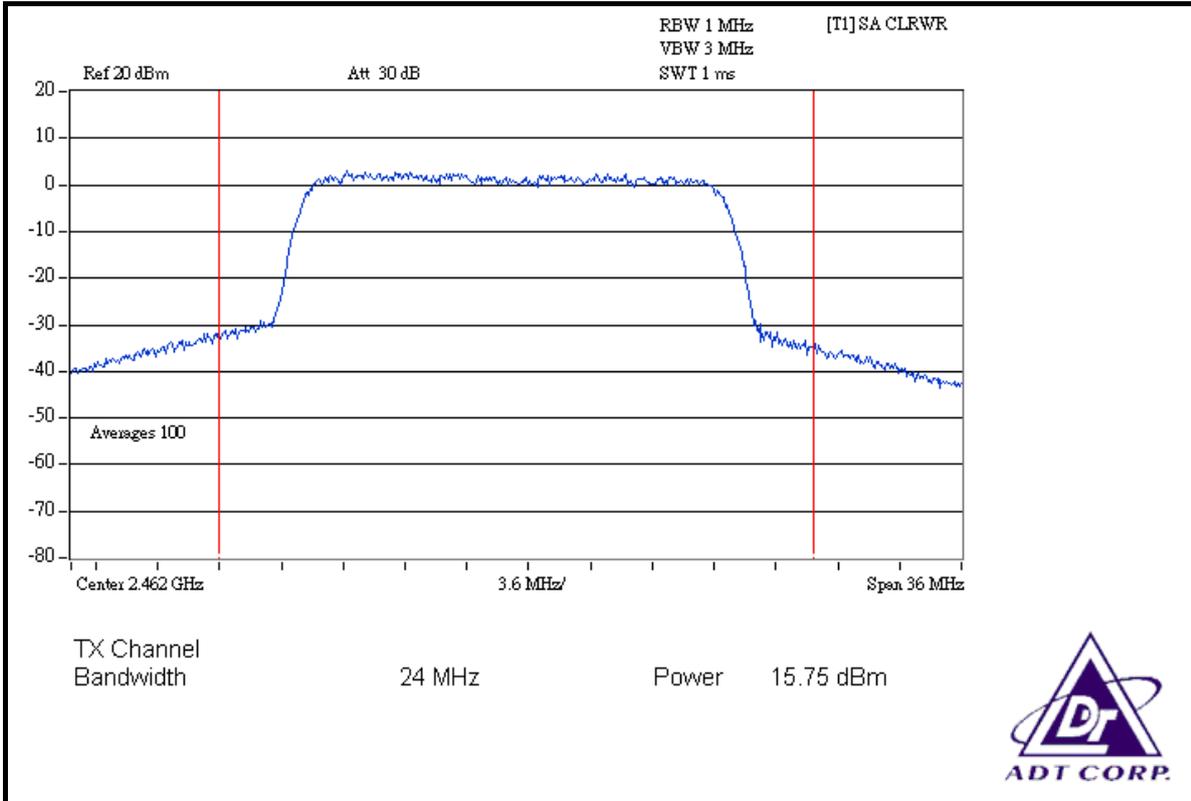


CH 6

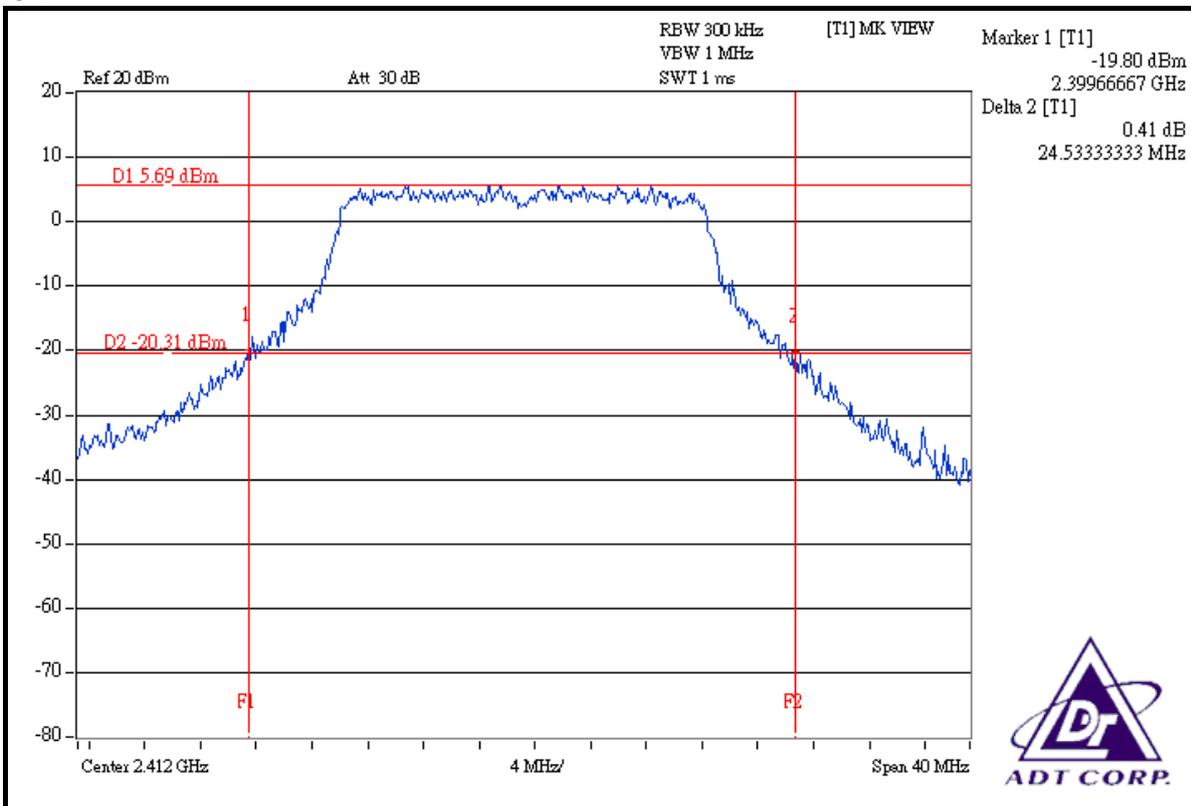




CH 11

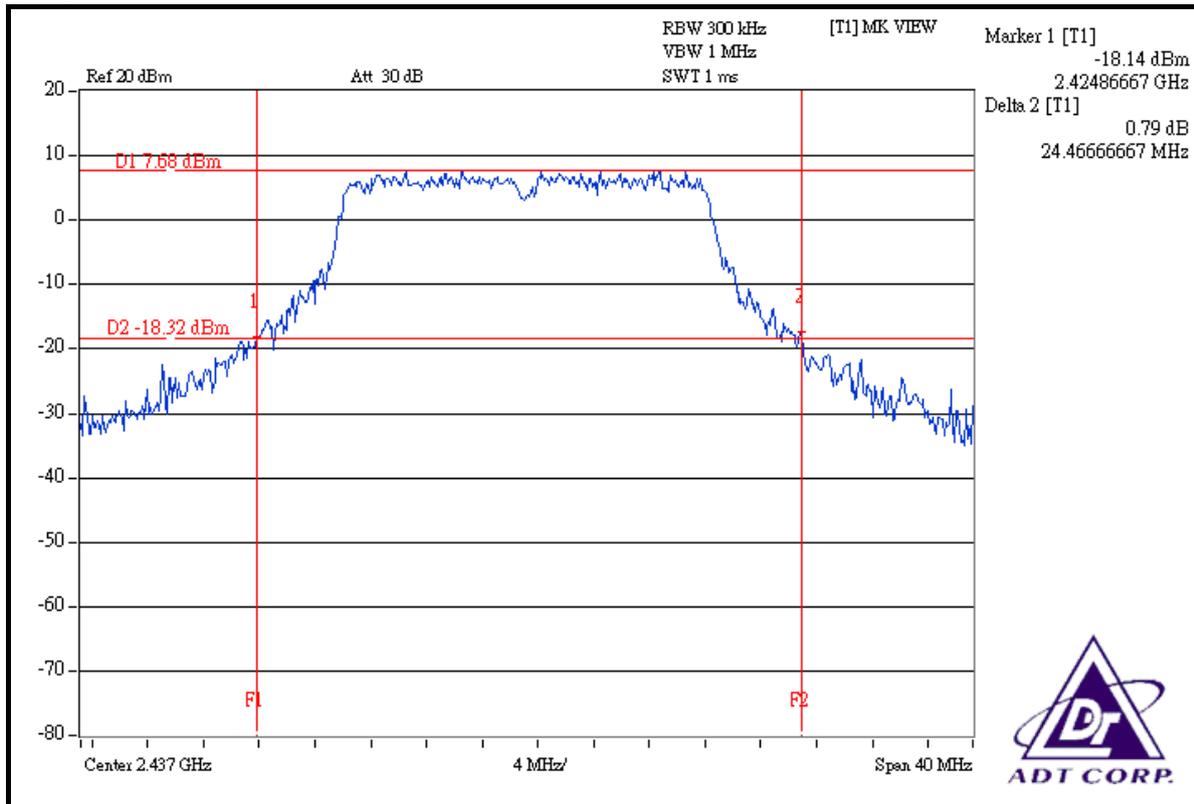


26dB Occupied Bandwidth: CH 1

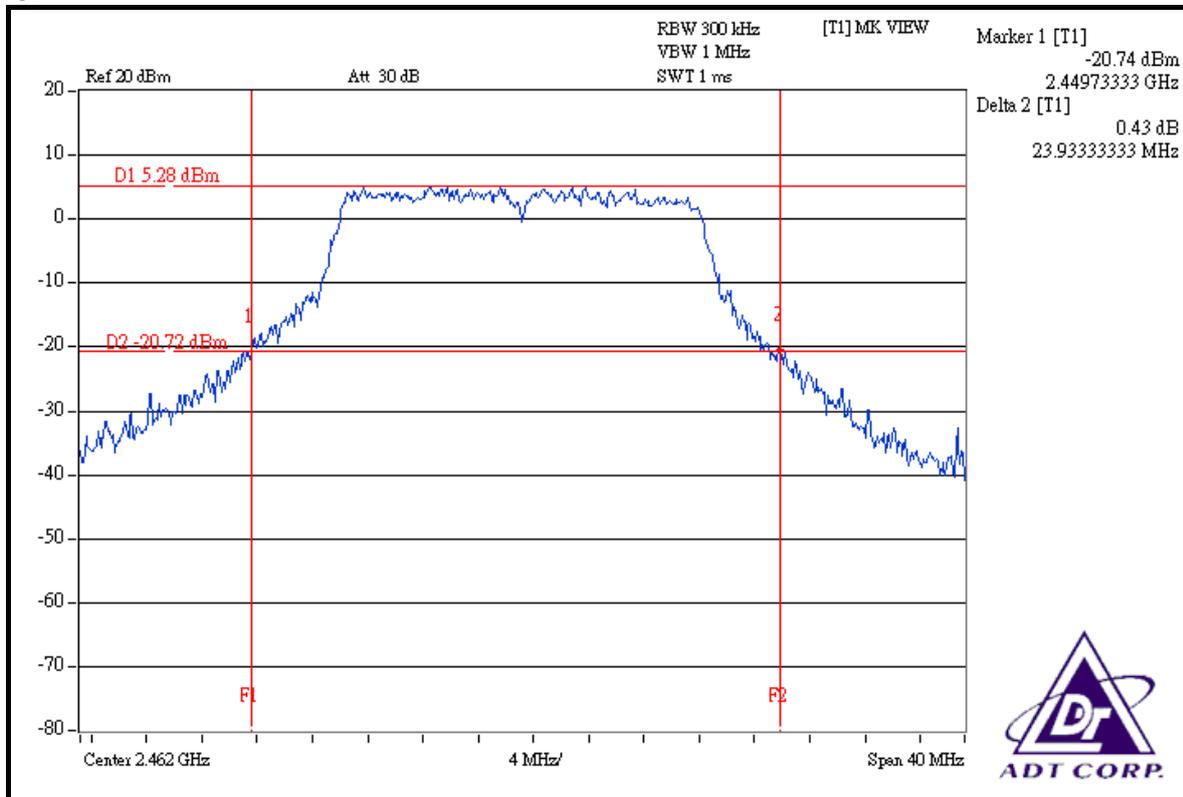




CH 6



CH 11





4.5 POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

4.5.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSP40	100040	Jun. 28, 2008

NOTE:

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

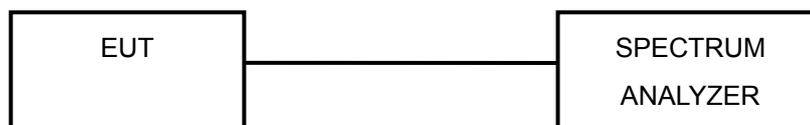
4.5.3 TEST PROCEDURE

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

4.5.4 DEVIATION FROM TEST STANDARD

No deviation

4.5.5 TEST SETUP



4.5.6 EUT OPERATING CONDITION

Same as Item 4.3.6



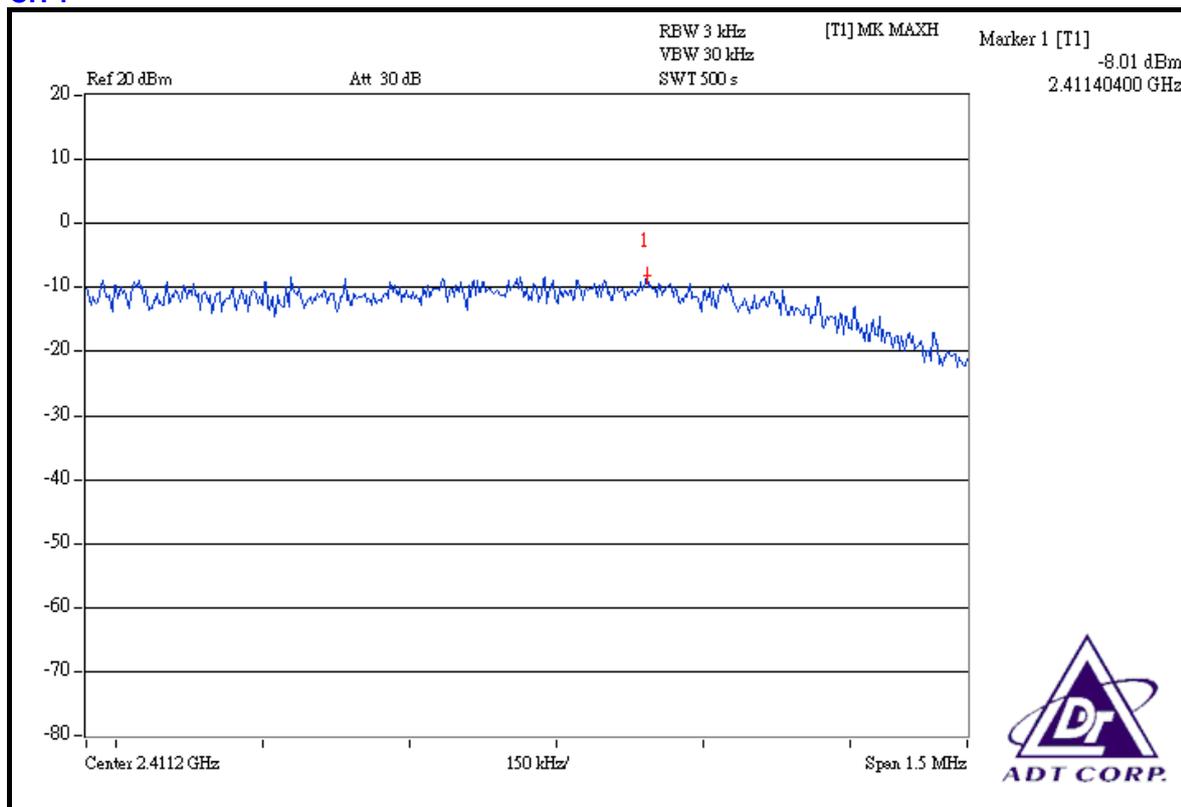
4.5.7 TEST RESULTS

802.11b DSSS modulation

MODULATION TYPE	DBPSK	TRANSFER RATE	1Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 67%RH, 991hPa
TESTED BY	Long Chen		

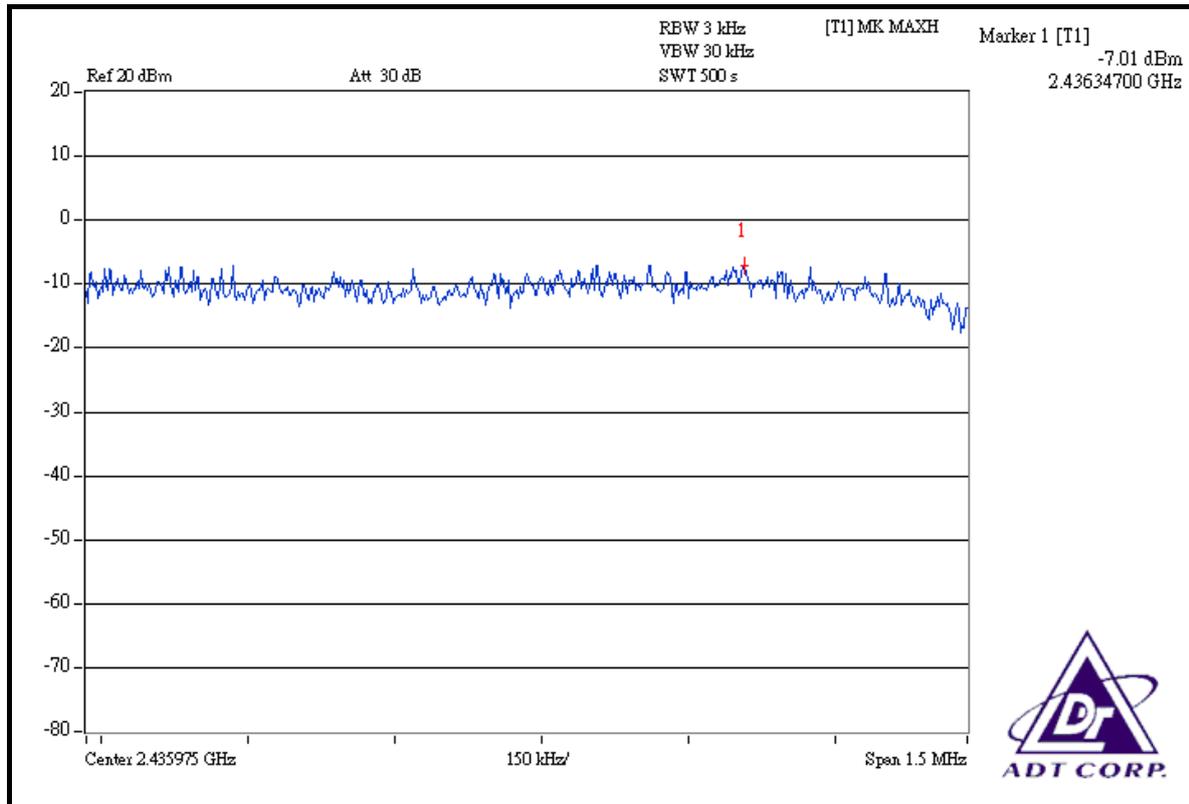
CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-8.01	8	PASS
6	2437	-7.01	8	PASS
11	2462	-7.76	8	PASS

CH 1

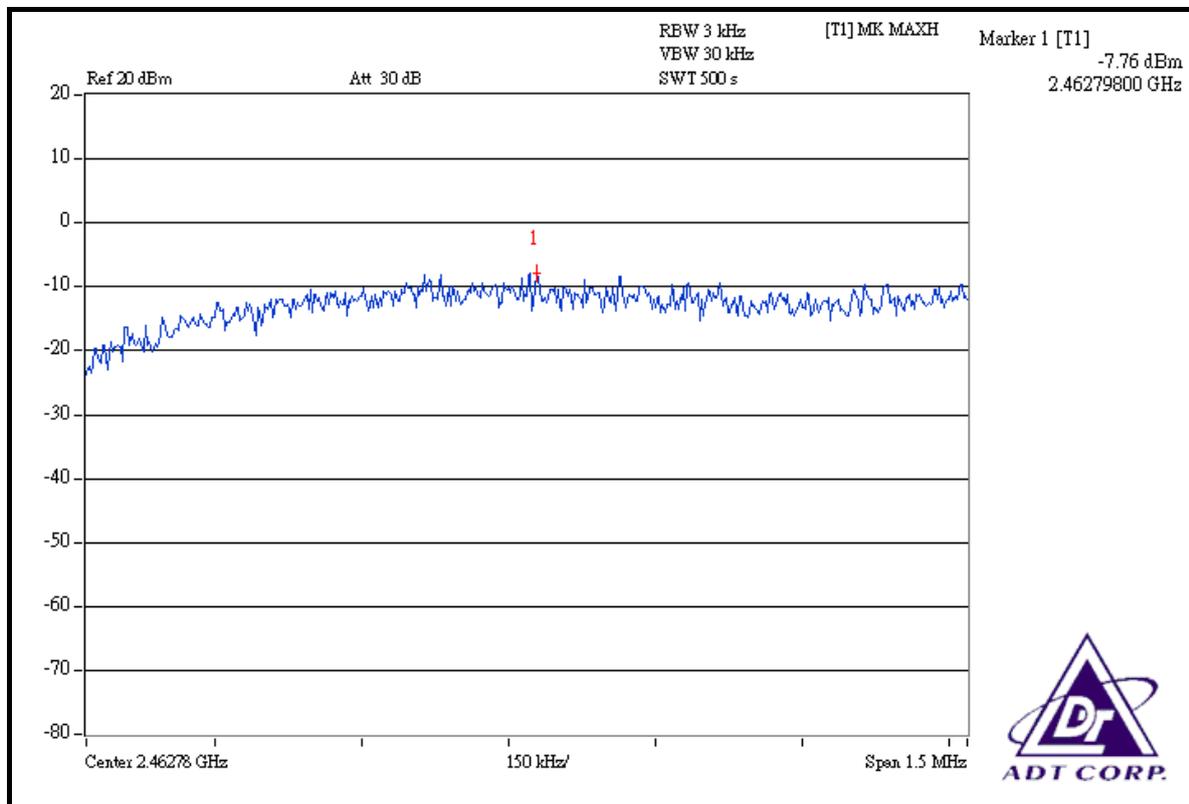




CH 6



CH 11



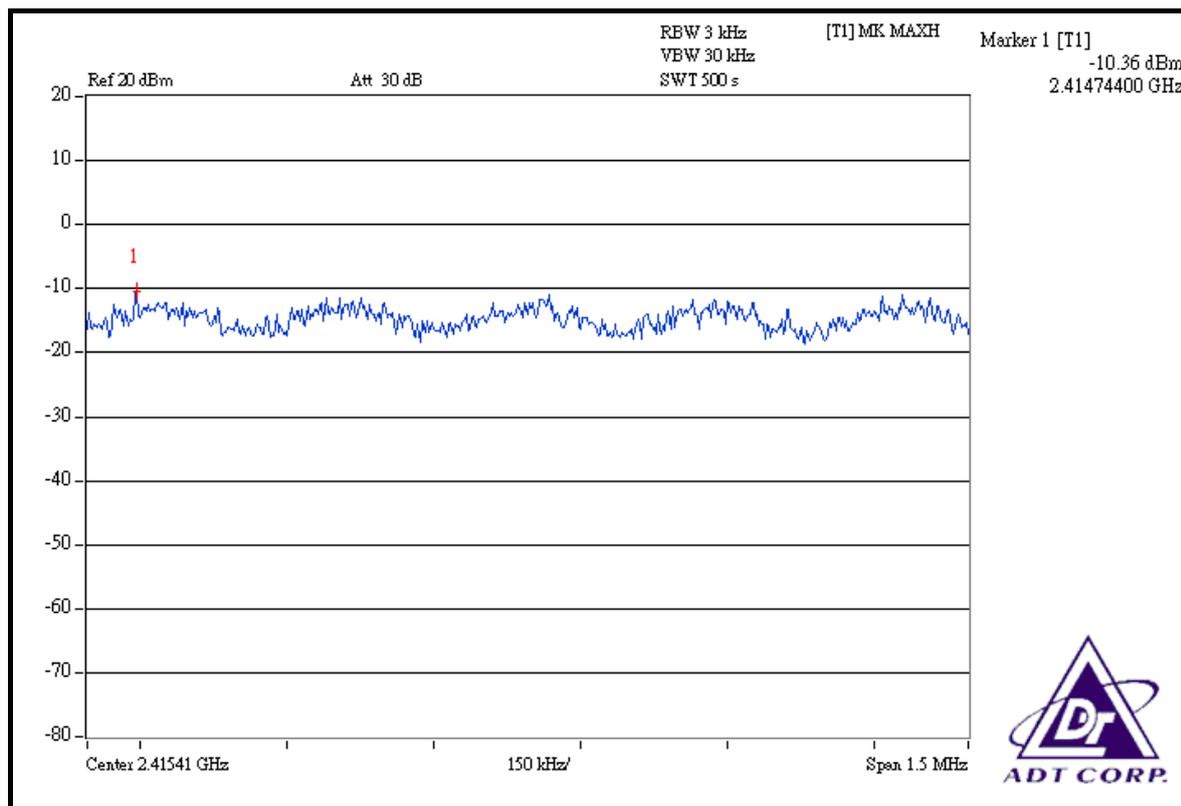


802.11g OFDM modulation

MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 67%RH, 991hPa
TESTED BY	Long Chen		

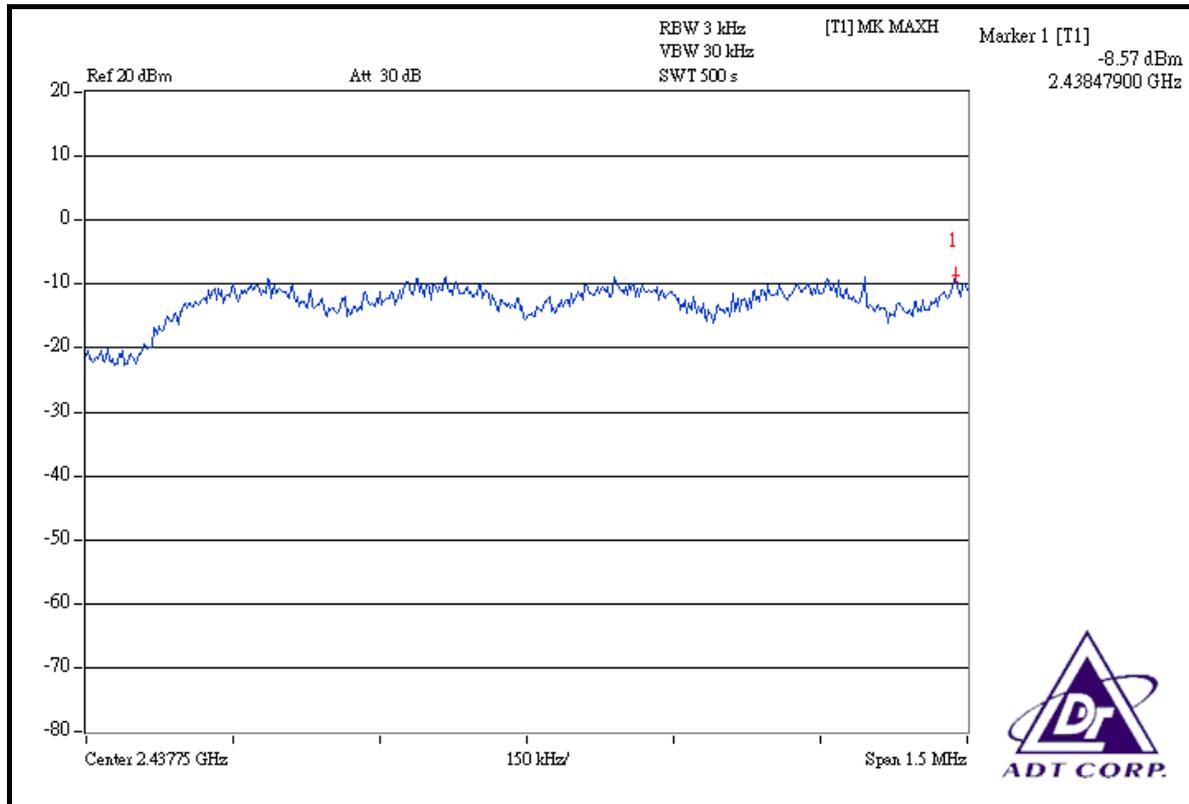
CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-10.36	8	PASS
6	2437	-8.57	8	PASS
11	2462	-10.44	8	PASS

CH 1

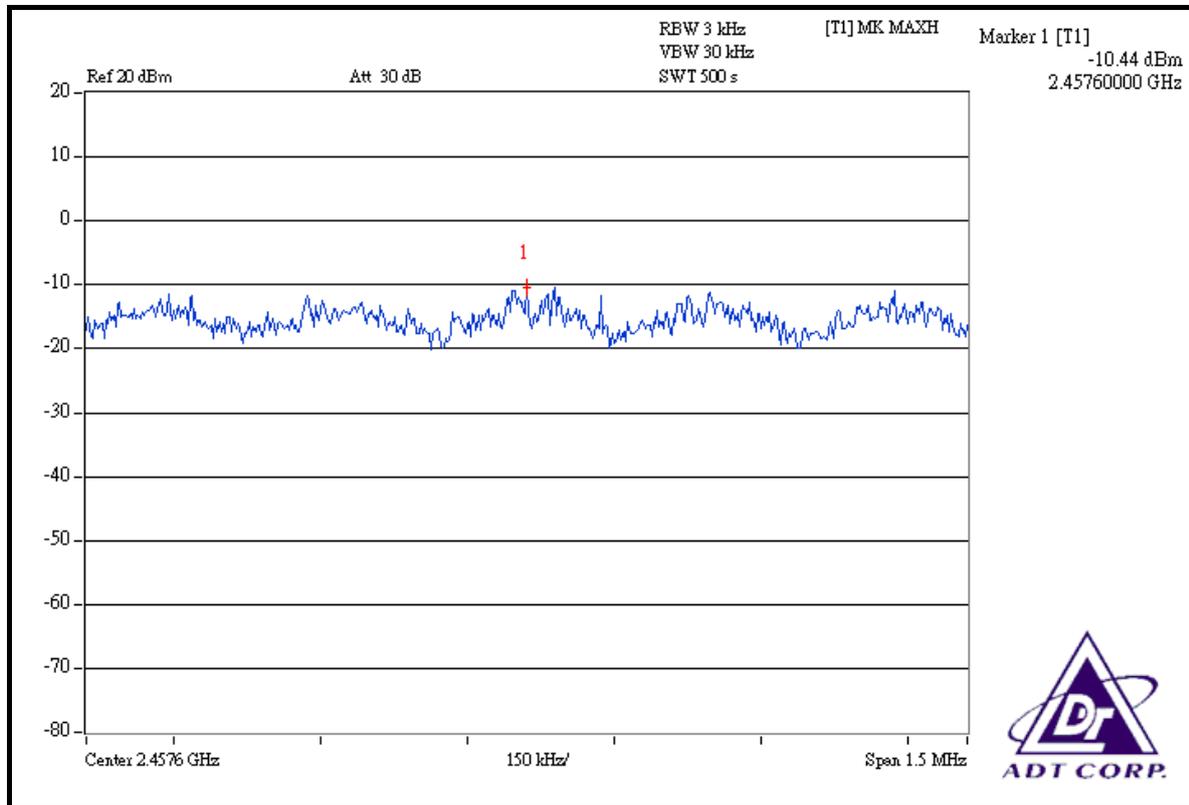




CH 6



CH 11





4.6 BAND EDGES MEASUREMENT

4.6.1 LIMITS OF BAND EDGES MEASUREMENT

Below -30dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

4.6.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSP40	100040	Jun. 28, 2008

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 loss cable. Set both RBW and VBW of spectrum analyzer to 100kHz with suitable frequency span including 100MHz bandwidth from band edge. The band edges was measured and recorded.

The spectrum plots (Peak RBW=100kHz, VBW=300kHz; 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 12 images. D1 line indicates the highest level, and D2 line indicates the 30dB offset below D1. It shows compliance with the requirement in part 15.247(d).

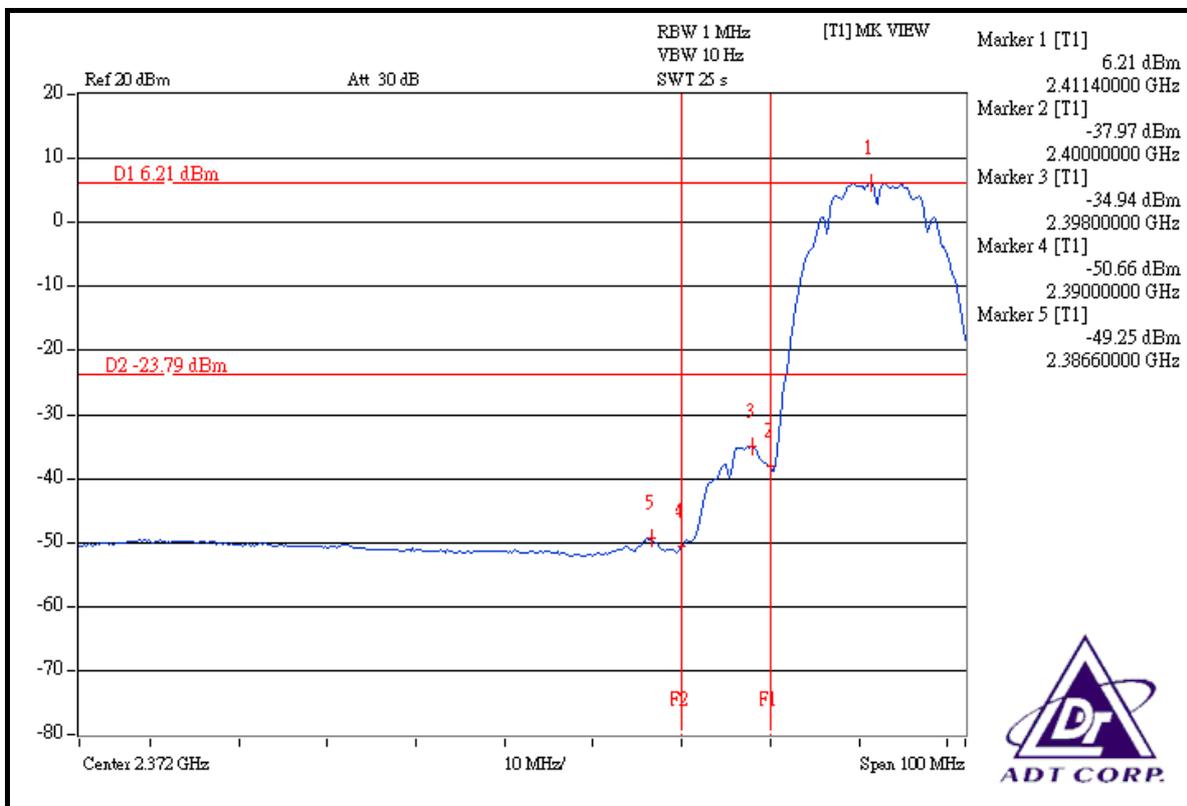
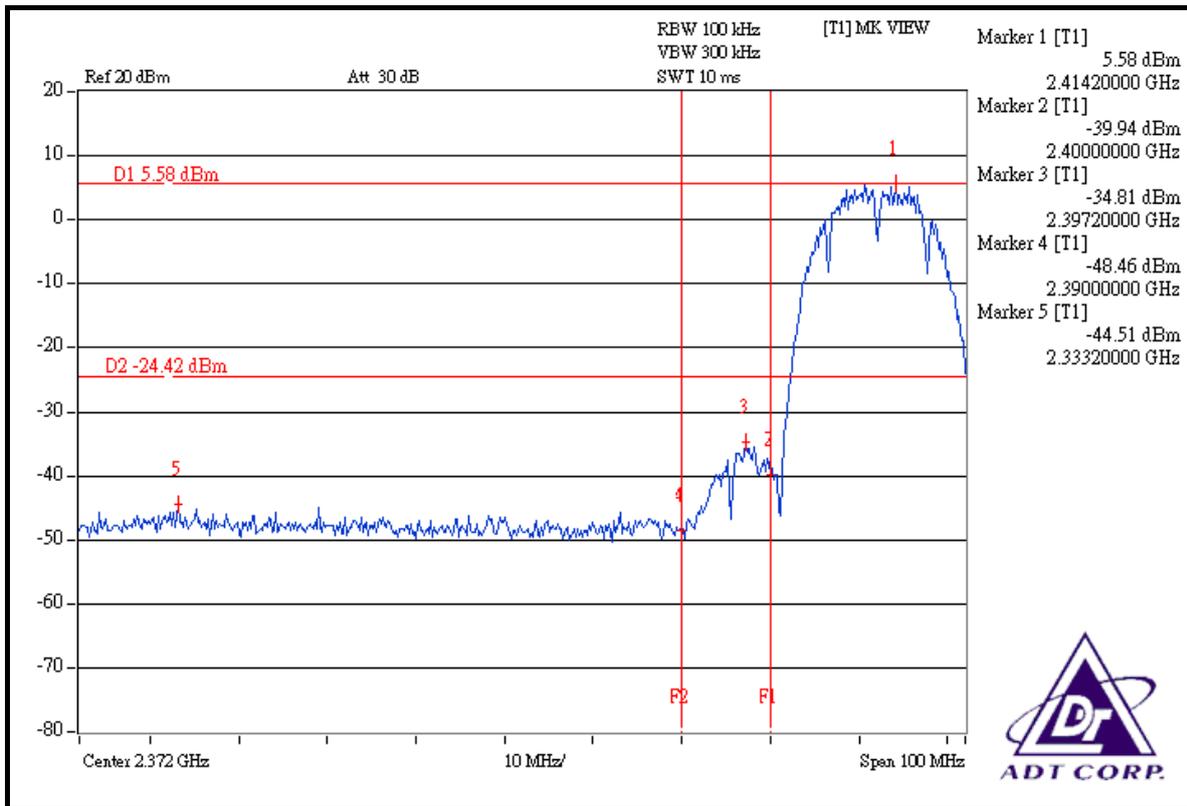
802.11b DSSS modulation

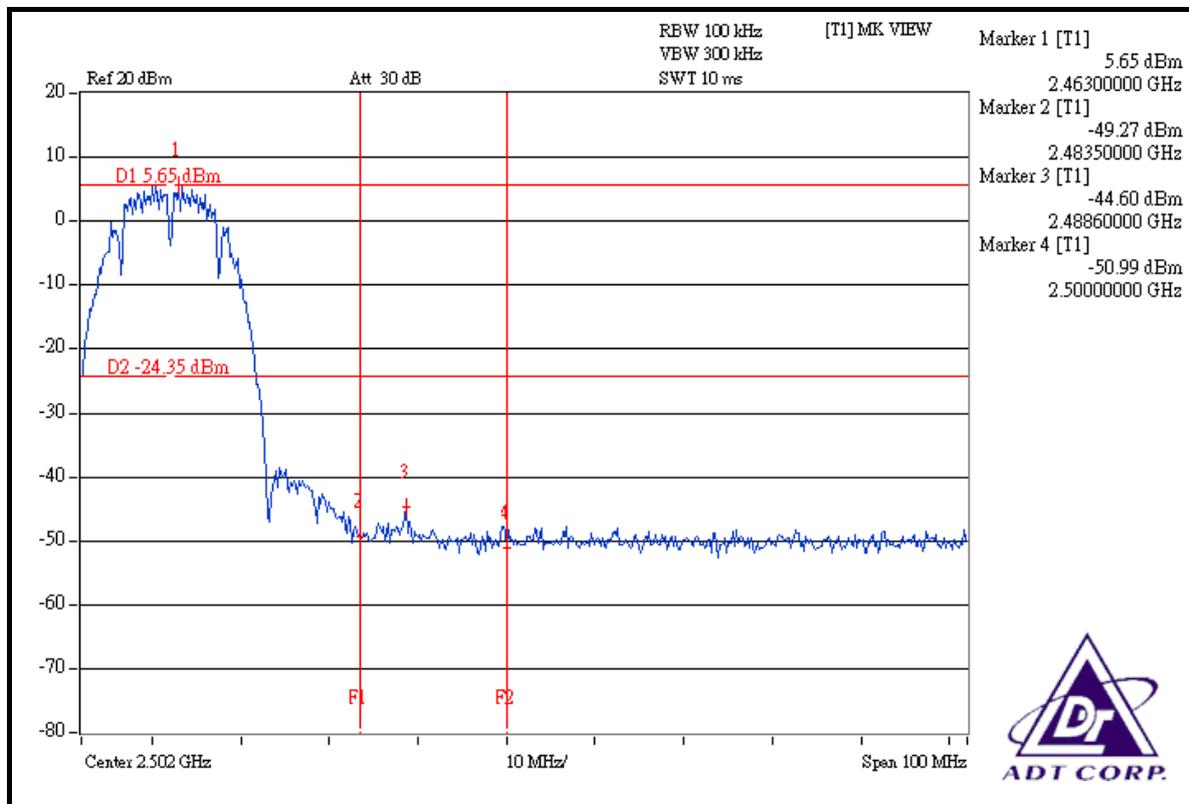
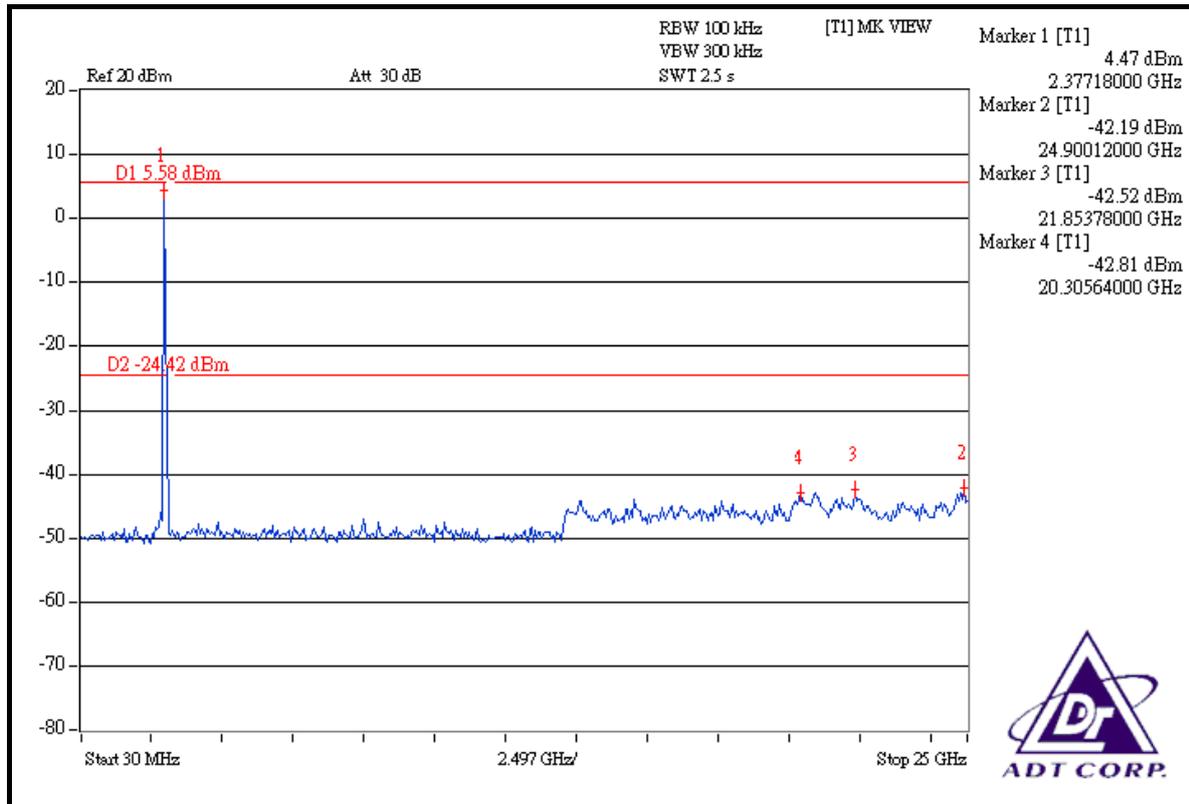
NOTE 1: The band edge emission plot on the next page shows 50.09dBc between carrier maximum power and local maximum emission in restrict band (2.3332GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 110.94dBuV/m (Peak), so the maximum field strength in restrict band is $110.94 - 50.09 = 60.85$ dBuV/m which is under 74dBuV/m limit.

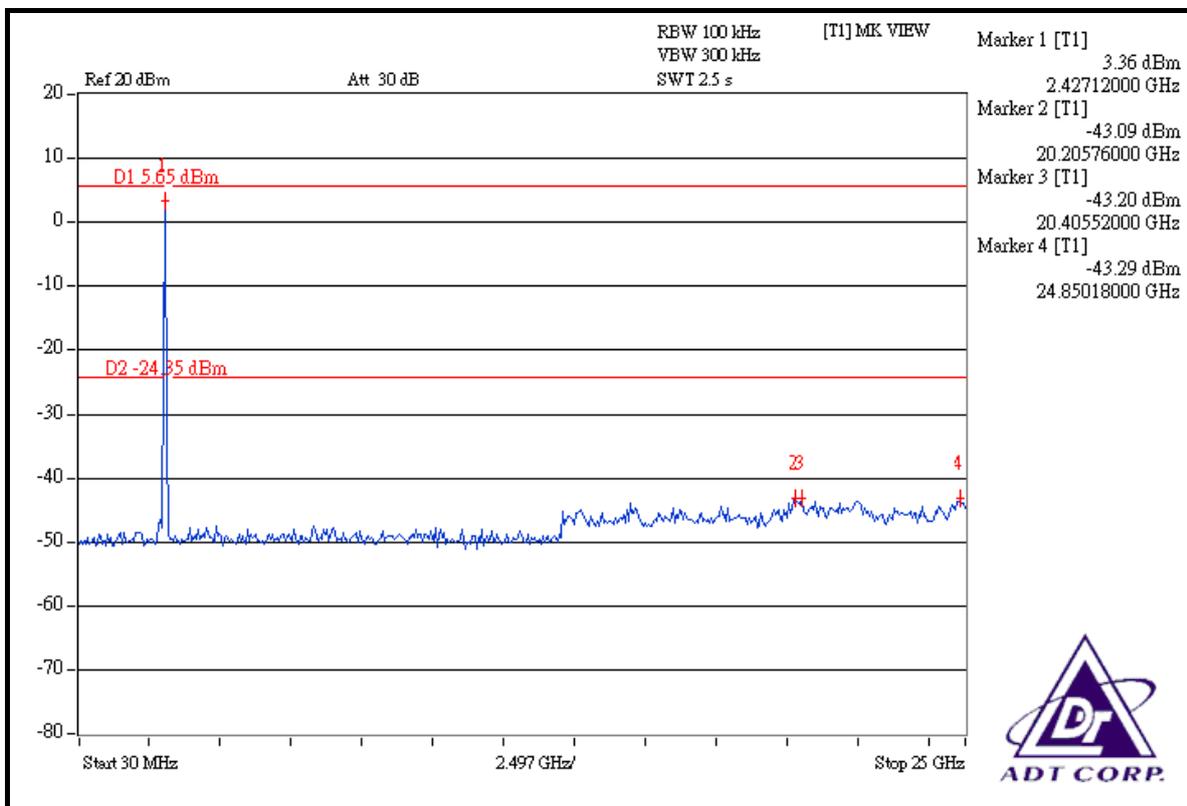
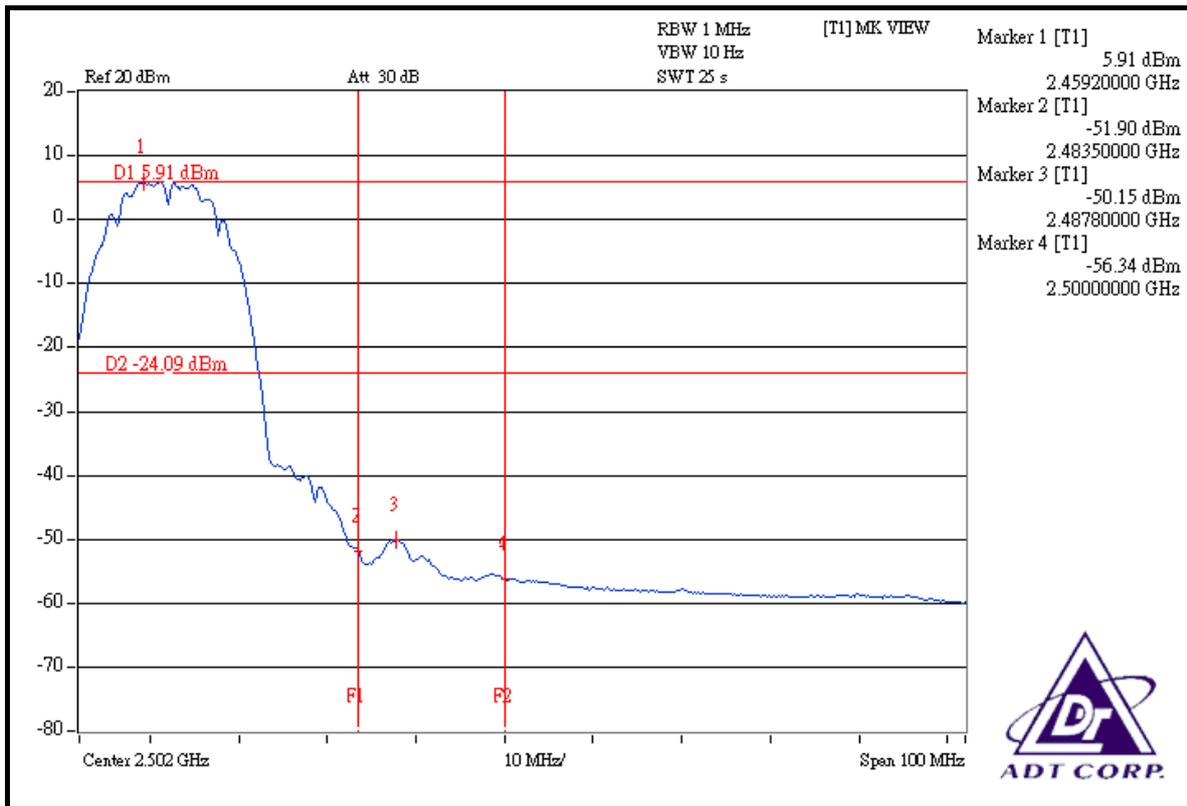
The band edge emission plot of on the next page shows 55.46dBc between carrier maximum power and local maximum emission in restrict band (2.3866GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 105.60dBuV/m (Average), so the maximum field strength in restrict band is $105.60 - 55.46 = 50.14$ dBuV/m which is under 54dBuV/m limit.

NOTE 2: The band edge emission plot on the next second page shows 50.25dBc between carrier maximum power and local maximum emission in restrict band (2.4886GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 110.92dBuV/m (Peak), so the maximum field strength in restrict band is $110.92 - 50.25 = 60.67$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot on the next third page shows 56.06dBc between carrier maximum power and local maximum emission in restrict band (2.4878GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 105.62dBuV/m (Average), so the maximum field strength in restrict band is $105.62 - 56.06 = 49.56$ dBuV/m which is under 54dBuV/m limit.







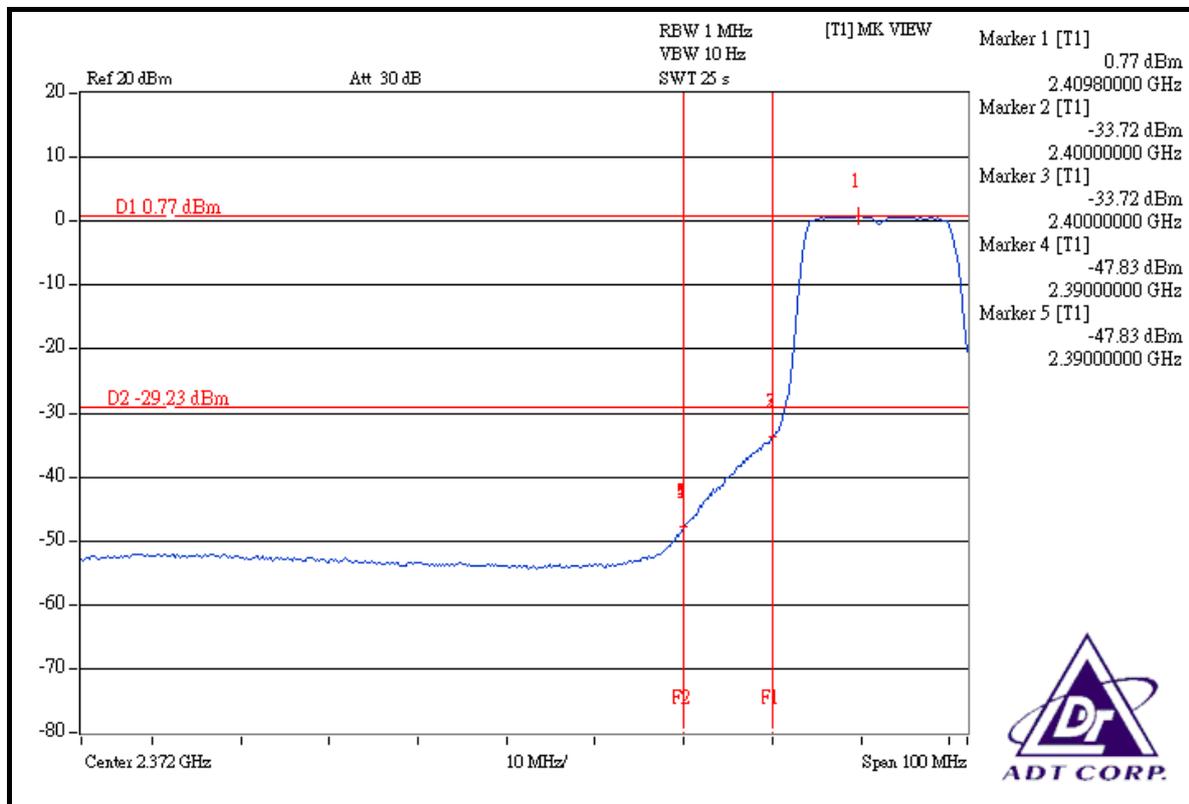
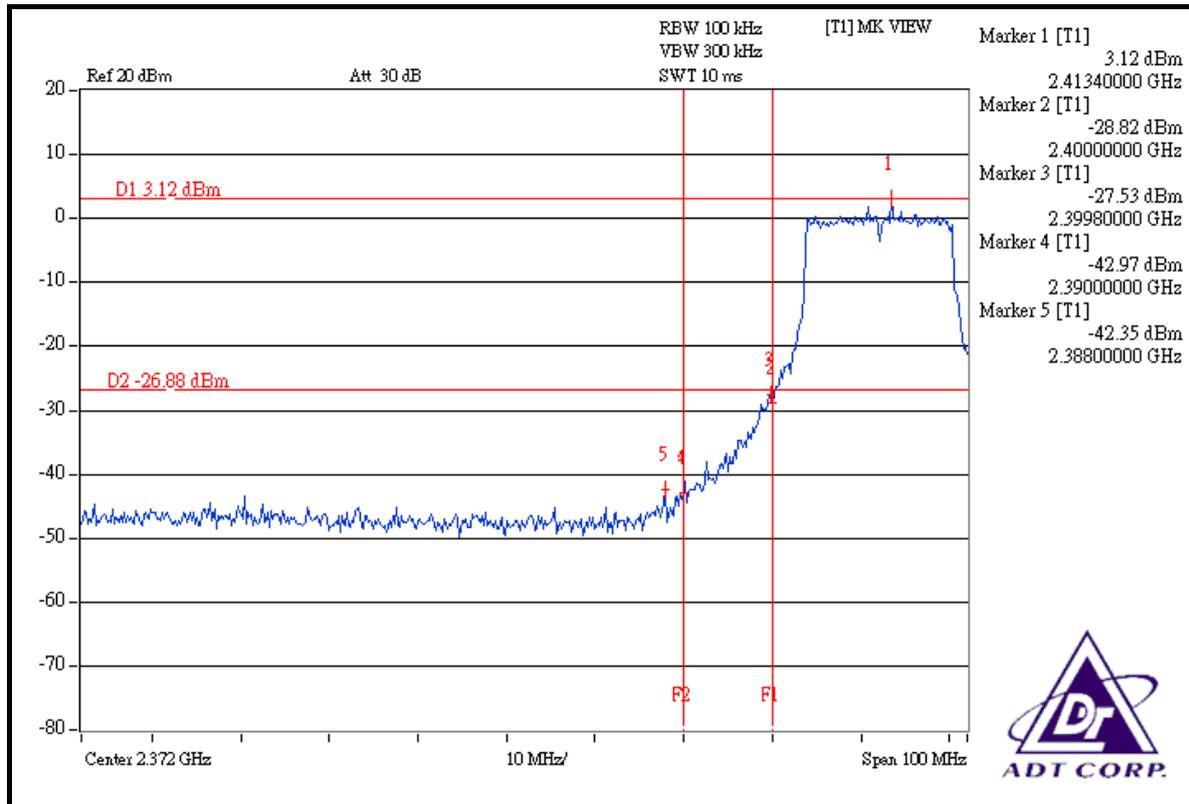
802.11g OFDM modulation

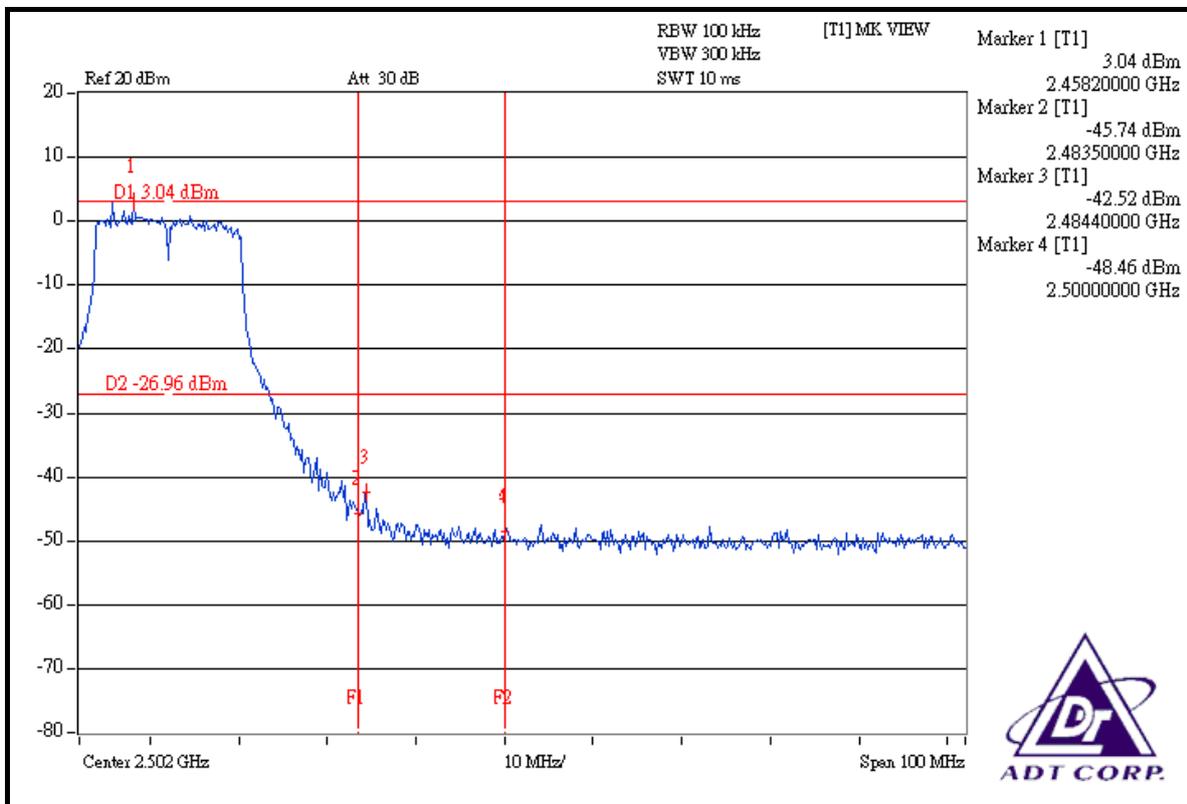
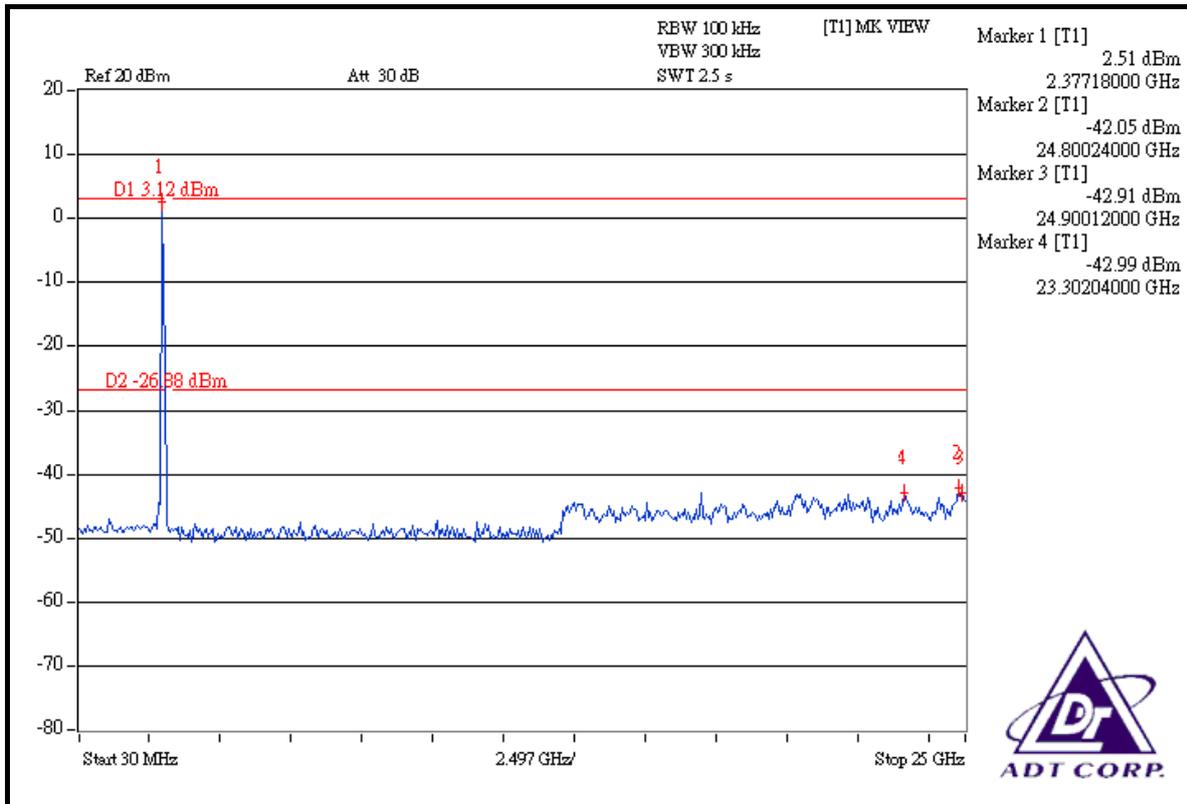
NOTE 1: The band edge emission plot on the next page shows 45.47dBc between carrier maximum power and local maximum emission in restrict band (2.3880GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 112.15dBuV/m (Peak), so the maximum field strength in restrict band is $112.15 - 45.47 = 66.68$ dBuV/m which is under 74dBuV/m limit.

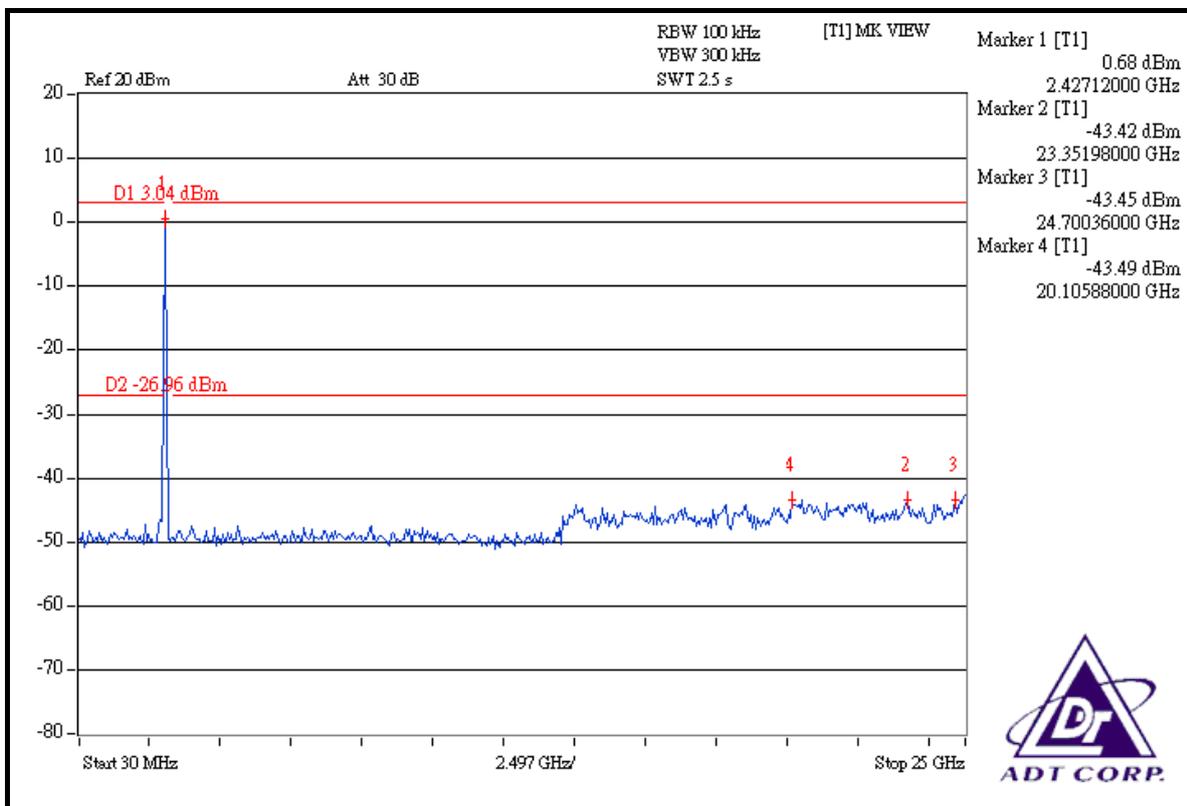
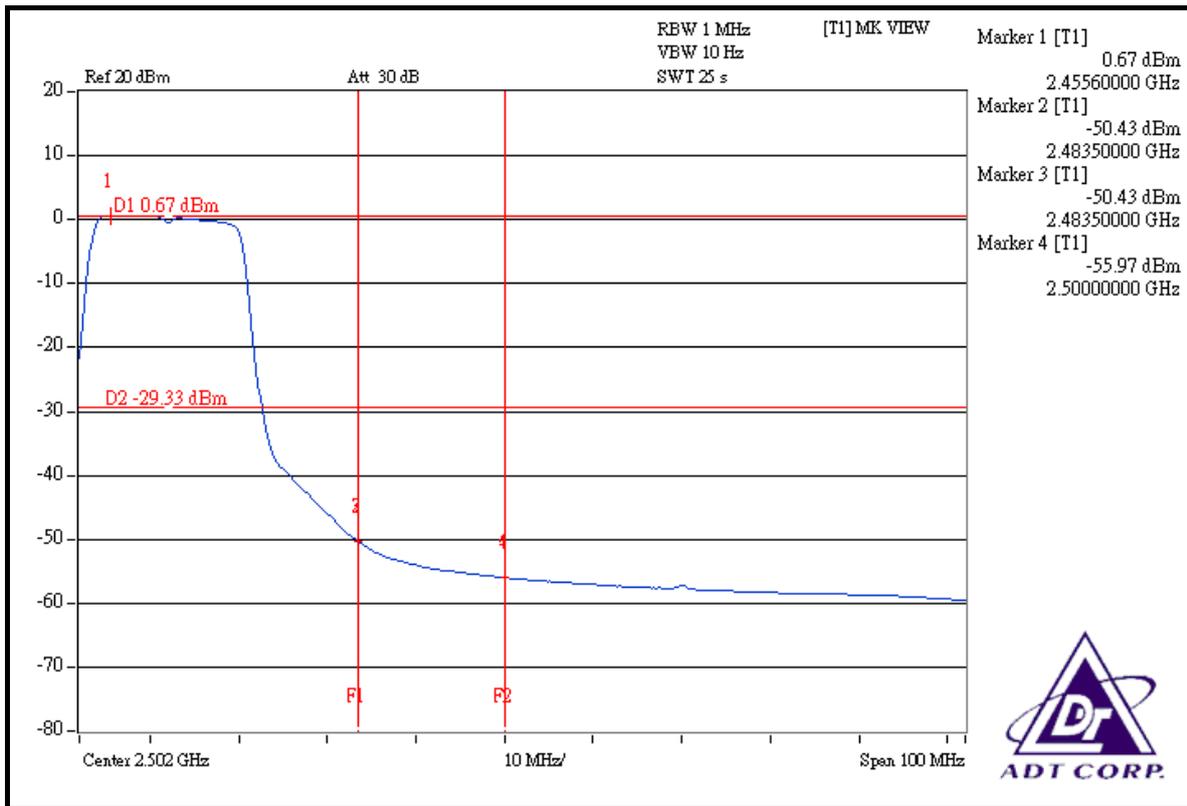
The band edge emission plot of on the next page shows 48.60dBc between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 101.02dBuV/m (Average), so the maximum field strength in restrict band is $101.02 - 48.60 = 52.42$ dBuV/m which is under 54dBuV/m limit.

NOTE 2: The band edge emission plot on the next second page shows 45.56dBc between carrier maximum power and local maximum emission in restrict band (2.4844GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 112.94dBuV/m (Peak), so the maximum field strength in restrict band is $112.94 - 45.56 = 67.38$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot on the next third page shows 51.10dBc between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 101.79dBuV/m (Average), so the maximum field strength in restrict band is $101.79 - 51.10 = 50.69$ dBuV/m which is under 54dBuV/m limit.









4.7 ANTENNA REQUIREMENT

4.7.1 STANDARD APPLICABLE

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

4.7.2 ANTENNA CONNECTED CONSTRUCTION

The antenna used in this product is Dipole antenna without connector. The maximum Gain of the antenna is 1.78dBi.



5. TEST TYPES AND RESULTS (FOR 802.11a 5745~5825MHz Band)

5.1 CONDUCTED EMISSION MEASUREMENT

5.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dB μ 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.

5.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
Test Receiver ROHDE & SCHWARZ	ESCS30	100289	Dec. 07, 2007
RF signal cable Woken	5D-FB	Cable-HYC01-01	Jan. 06, 2008
LISN ROHDE & SCHWARZ	ESH3-Z5	100312	Feb. 13, 2008
LISN ROHDE & SCHWARZ	ESH2-Z5	100104	Sep. 14, 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.

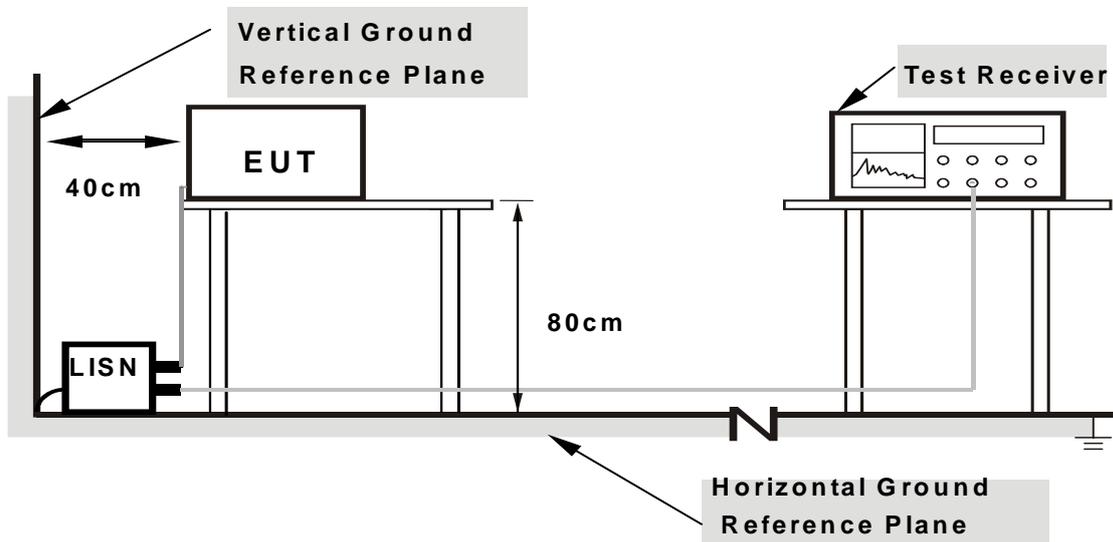
5.1.3 TEST PROCEDURES

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

5.1.4 DEVIATION FROM TEST STANDARD

No deviation

5.1.5 TEST SETUP



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

2.Both of LISNs (AMN) 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 attached file (Test Setup Photo).

5.1.6 EUT OPERATING CONDITIONS

Same as 4.1.6

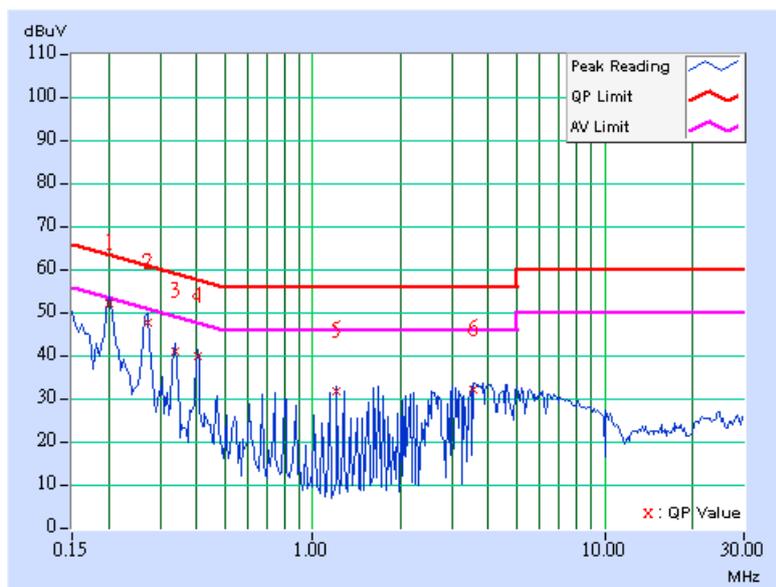
5.1.7 TEST RESULTS

Conducted Worst-Case Data

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 5	PHASE	Line 1
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TEST MODE	A
TESTED BY	Morgan Chen		

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	0.201	0.21	52.02	-	52.23	-	63.58	53.58	-11.35	-
2	0.271	0.21	47.47	-	47.68	-	61.08	51.08	-13.40	-
3	0.338	0.21	40.68	-	40.89	-	59.26	49.26	-18.37	-
4	0.404	0.21	39.68	-	39.89	-	57.77	47.77	-17.88	-
5	1.211	0.24	31.63	-	31.87	-	56.00	46.00	-24.13	-
6	3.566	0.36	32.01	-	32.37	-	56.00	46.00	-23.63	-

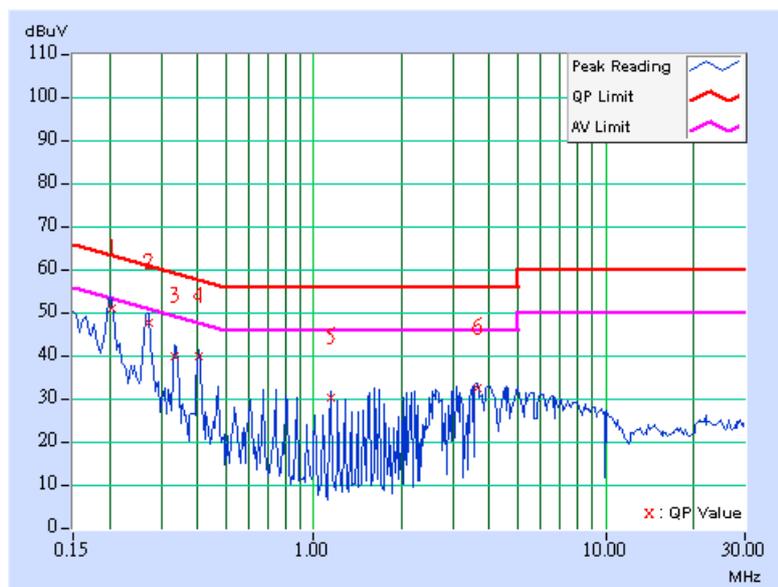
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = 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 5	PHASE	Line 2
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TEST MODE	A
TESTED BY	Morgan Chen		

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	0.205	0.21	50.92	-	51.13	-	63.42	53.42	-12.29	-
2	0.271	0.21	47.47	-	47.68	-	61.08	51.08	-13.40	-
3	0.334	0.21	39.52	-	39.73	-	59.36	49.36	-19.63	-
4	0.404	0.21	39.70	-	39.91	-	57.77	47.77	-17.86	-
5	1.145	0.24	30.11	-	30.35	-	56.00	46.00	-25.65	-
6	3.633	0.37	32.29	-	32.66	-	56.00	46.00	-23.34	-

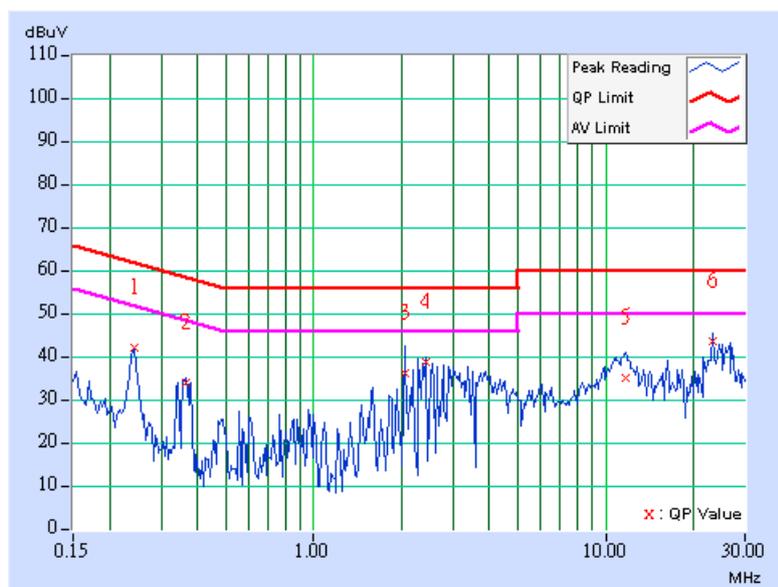
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = 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 5	PHASE	Line 1
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TEST MODE	B
TESTED BY	Morgan Chen		

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	0.244	0.21	40.76	-	40.97	-	61.97	51.97	-21.00	-
2	0.365	0.21	32.70	-	32.91	-	58.62	48.62	-25.71	-
3	2.047	0.26	35.18	-	35.44	-	56.00	46.00	-20.56	-
4	2.422	0.29	37.61	-	37.90	-	56.00	46.00	-18.10	-
5	11.668	0.61	33.92	-	34.53	-	60.00	50.00	-25.47	-
6	23.129	1.29	42.56	-	43.85	-	60.00	50.00	-16.15	-

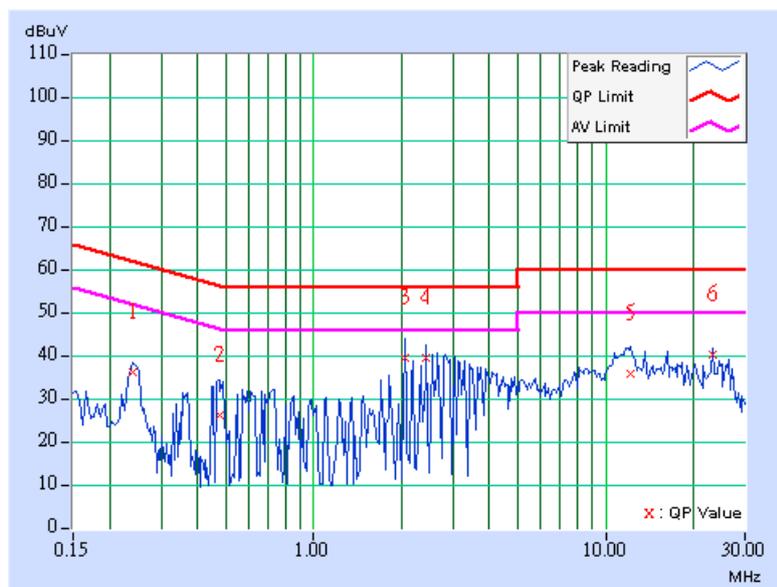
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = 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 5	PHASE	Line 2
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TEST MODE	B
TESTED BY	Morgan Chen		

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	0.240	0.21	35.78	-	35.99	-	62.10	52.10	-26.11	-
2	0.474	0.21	25.63	-	25.84	-	56.44	46.44	-30.60	-
3	2.059	0.26	39.11	-	39.37	-	56.00	46.00	-16.63	-
4	2.434	0.29	39.09	-	39.38	-	56.00	46.00	-16.62	-
5	12.238	0.50	35.40	-	35.90	-	60.00	50.00	-24.10	-
6	23.129	0.54	39.93	-	40.47	-	60.00	50.00	-19.53	-

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



5.2 RADIATED EMISSION MEASUREMENT

5.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

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

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

NOTE:

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



5.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
Test Receiver ROHDE & SCHWARZ	ESI7	838496/016	Dec. 29, 2007
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Dec. 01, 2007
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Jan. 04, 2008
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-405	Dec. 18, 2007
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170242	Jan. 16, 2008
Preamplifier Agilent	8449B	3008A1960	Oct. 30, 2007
Preamplifier Agilent	8447D	2944A10631	Oct. 30, 2007
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	230128/4	Nov. 14, 2007
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	233233/4	Nov. 14, 2007
Software ADT.	ADT_Radiated_V7.6	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 4.
 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 IC3789B-4.

5.2.3 TEST PROCEDURES

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

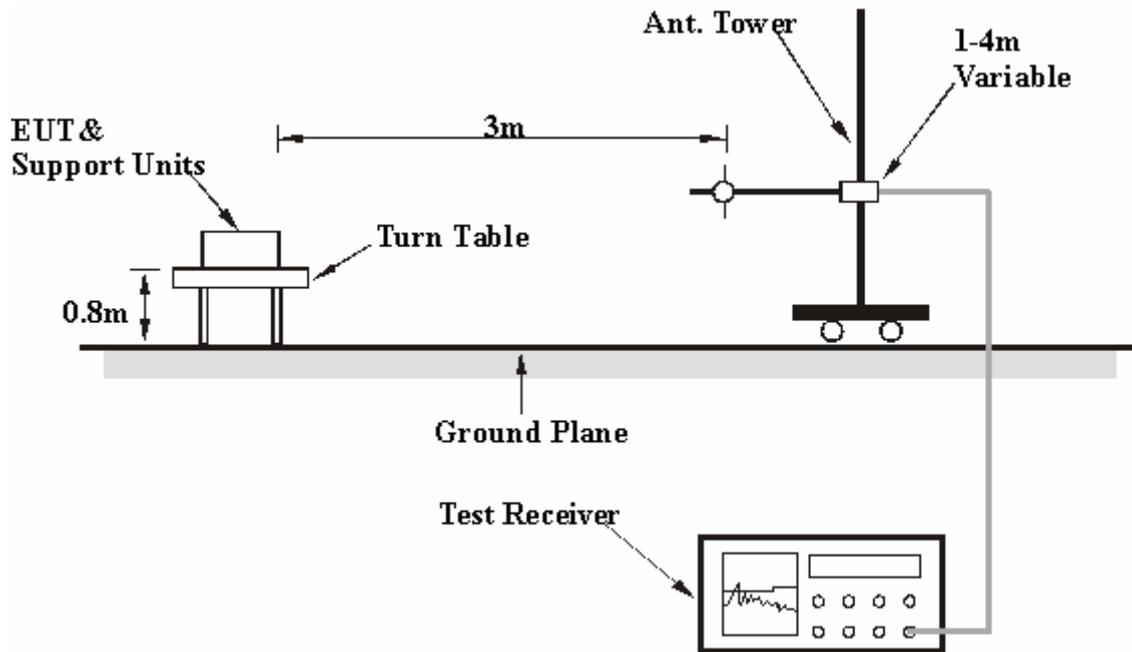
NOTE:

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

5.2.4 DEVIATION FROM TEST STANDARD

No deviation

5.2.5 TEST SETUP



For the actual test configuration, please refer to the attached file (Test Setup Photo).

5.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6



5.2.7 TEST RESULTS

Below 1GHz Worst-Case Data

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 5	FREQUENCY RANGE	Below 1000MHz
MODULATION TYPE	BPSK	DETECTOR FUNCTION	Quasi-Peak
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TEST MODE	A
TESTED BY	Morgan Chen		

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	111.56	34.38 QP	43.50	-9.12	1.50 H	112	23.06	11.32
2	131.00	30.70 QP	43.50	-12.80	1.50 H	265	17.82	12.88
3	164.06	30.61 QP	43.50	-12.89	1.50 H	277	16.50	14.11
4	751.23	39.80 QP	46.00	-6.20	1.00 H	43	13.95	25.85
5	770.67	32.77 QP	46.00	-13.23	1.00 H	10	6.69	26.08
6	875.67	33.87 QP	46.00	-12.13	1.50 H	40	6.30	27.56
7	881.50	34.47 QP	46.00	-11.53	1.50 H	37	6.81	27.66

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	61.01	30.91 QP	40.00	-9.09	1.00 V	280	17.20	13.71
2	107.67	35.48 QP	43.50	-8.02	1.00 V	328	24.57	10.91
3	131.00	33.15 QP	43.50	-10.35	1.00 V	325	20.27	12.88
4	218.50	32.40 QP	46.00	-13.60	1.50 V	31	20.19	12.21
5	440.14	32.45 QP	46.00	-13.55	1.00 V	61	13.85	18.59
6	751.23	36.39 QP	46.00	-9.61	1.50 V	340	10.55	25.85
7	770.67	33.50 QP	46.00	-12.50	1.50 V	253	7.42	26.08
8	848.45	33.54 QP	46.00	-12.46	1.50 V	280	6.41	27.13
9	881.50	33.43 QP	46.00	-12.57	1.00 V	247	5.77	27.66

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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 5	FREQUENCY RANGE	Below 1000MHz
MODULATION TYPE	BPSK	DETECTOR FUNCTION	Quasi-Peak
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TEST MODE	B
TESTED BY	Morgan Chen		

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	109.62	35.79 QP	43.50	-7.71	1.50 H	103	24.68	11.12
2	150.45	37.57 QP	43.50	-5.93	1.00 H	145	22.72	14.85
3	185.44	36.73 QP	43.50	-6.77	1.50 H	31	24.39	12.34
4	220.44	32.75 QP	46.00	-13.25	1.00 H	154	20.44	12.30
5	249.60	34.94 QP	46.00	-11.06	1.50 H	76	21.25	13.69
6	272.94	35.76 QP	46.00	-10.24	1.00 H	145	21.59	14.18
7	304.04	34.60 QP	46.00	-11.40	1.00 H	145	19.75	14.85
8	751.23	38.77 QP	46.00	-7.23	1.00 H	55	12.93	25.85
9	770.67	34.75 QP	46.00	-11.25	1.00 H	187	8.67	26.08
10	881.50	35.58 QP	46.00	-10.42	1.50 H	145	7.92	27.66

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	49.34	34.79 QP	40.00	-5.21	1.00 V	10	20.65	14.13
2	109.62	31.00 QP	43.50	-12.50	1.00 V	226	19.88	11.12
3	659.85	31.04 QP	46.00	-14.96	1.00 V	133	6.58	24.46
4	751.23	35.82 QP	46.00	-10.18	1.50 V	7	9.97	25.85
5	770.67	31.89 QP	46.00	-14.11	1.50 V	313	5.82	26.08
6	858.17	33.75 QP	46.00	-12.25	1.00 V	10	6.47	27.28
7	881.50	33.09 QP	46.00	-12.91	1.00 V	277	5.43	27.66
8	953.44	31.35 QP	46.00	-14.65	1.00 V	10	2.79	28.56

- 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.

802.11a OFDM modulation

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 40 GHz
MODULATION TYPE	BPSK	DETECTOR FUNCTION	Peak(PK) Average (AV)
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Long Chen

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	5725.00	68.77 PK	85.33	-16.56	1.57 H	114	28.78	39.98
2	5725.00	51.34 AV	74.11	-22.77	1.57 H	114	11.35	39.98
3	*5745.00	105.33 PK			1.57 H	114	65.32	40.01
4	*5745.00	94.11 AV			1.57 H	114	54.10	40.01
5	#11490.00	62.23 PK	74.00	-11.77	1.26 H	335	10.97	51.26
6	#11490.00	48.95 AV	54.00	-5.05	1.26 H	335	-2.32	51.26

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	5725.00	74.02 PK	90.07	-16.05	1.99 V	85	34.03	39.98
2	5725.00	56.48 AV	79.81	-23.33	1.99 V	85	16.50	39.98
3	*5745.00	110.07 PK			1.99 V	85	70.06	40.01
4	*5745.00	99.81 AV			1.99 V	85	59.80	40.01
5	#11490.00	62.37 PK	74.00	-11.62	1.43 V	153	11.11	51.26
6	#11490.00	48.69 AV	54.00	-5.31	1.43 V	153	-2.58	51.26

- NOTE:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value
 5. "*" : Fundamental frequency
 6. "#"The radiated frequency falling in the restricted band.
 7. The limit value is defined as per 15.247



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 3	FREQUENCY RANGE	1 ~ 40 GHz
MODULATION TYPE	BPSK	DETECTOR FUNCTION	Peak(PK) Average (AV)
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Long Chen

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	*5785.00	108.16 PK			1.53 H	308	68.09	40.07
2	*5785.00	97.11 AV			1.53 H	308	57.04	40.07
3	#11570.00	63.16 PK	74.00	-10.84	1.37 H	304	12.01	51.15
4	#11570.00	48.90 AV	54.00	-5.10	1.37 H	304	-2.25	51.15

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	*5785.00	114.90 PK			1.49 V	97	74.83	40.07
2	*5785.00	103.92 AV			1.49 V	97	63.85	40.07
3	#11570.00	65.14 PK	74.00	-8.86	1.48 V	321	13.99	51.15
4	#11570.00	50.26 AV	54.00	-3.74	1.48 V	321	-0.89	51.15

- NOTE:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value
 5. "*" : Fundamental frequency
 6. "#"The radiated frequency falling in the restricted band.
 7. The limit value is defined as per 15.247

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 5	FREQUENCY RANGE	1 ~ 40 GHz
MODULATION TYPE	BPSK	DETECTOR FUNCTION	Peak(PK) Average (AV)
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Long Chen

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	*5825.00	108.36 PK			1.39 H	67	68.19	40.17
2	*5825.00	97.03 AV			1.39 H	67	56.86	40.17
3	5850.00	63.19 PK	88.36	-25.17	1.39 H	67	22.95	40.24
4	5850.00	47.32 AV	77.03	-29.71	1.39 H	67	7.08	40.24
5	#11650.00	61.95 PK	74.00	-12.05	1.39 H	307	10.97	50.98
6	#11650.00	48.56 AV	54.00	-5.44	1.39 H	307	-2.42	50.98

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	*5825.00	114.94 PK			1.35 V	85	74.77	40.17
2	*5825.00	103.33 AV			1.35 V	85	63.16	40.17
3	5850.00	68.03 PK	94.94	-26.91	1.37 V	86	27.79	40.24
4	5850.00	51.64 AV	83.33	-31.69	1.37 V	86	11.40	40.24
5	#11650.00	63.24 PK	74.00	-10.76	1.40 V	318	12.26	50.98
6	#11650.00	49.45 AV	54.00	-4.55	1.40 V	318	-1.53	50.98

- NOTE:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value
 5. "*" : Fundamental frequency
 6. "#"The radiated frequency falling in the restricted band.
 7. The limit value is defined as per 15.247



5.3 6dB BANDWIDTH MEASUREMENT

5.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

5.3.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
SPECTRUM ANALYZER	FSP40	100040	Jun. 28, 2008

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

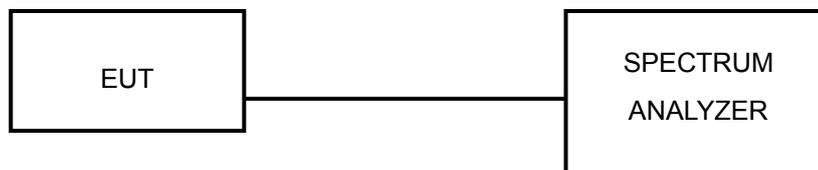
5.3.3 TEST PROCEDURE

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

5.3.4 DEVIATION FROM TEST STANDARD

No deviation

5.3.5 TEST SETUP



5.3.6 EUT OPERATING CONDITIONS

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



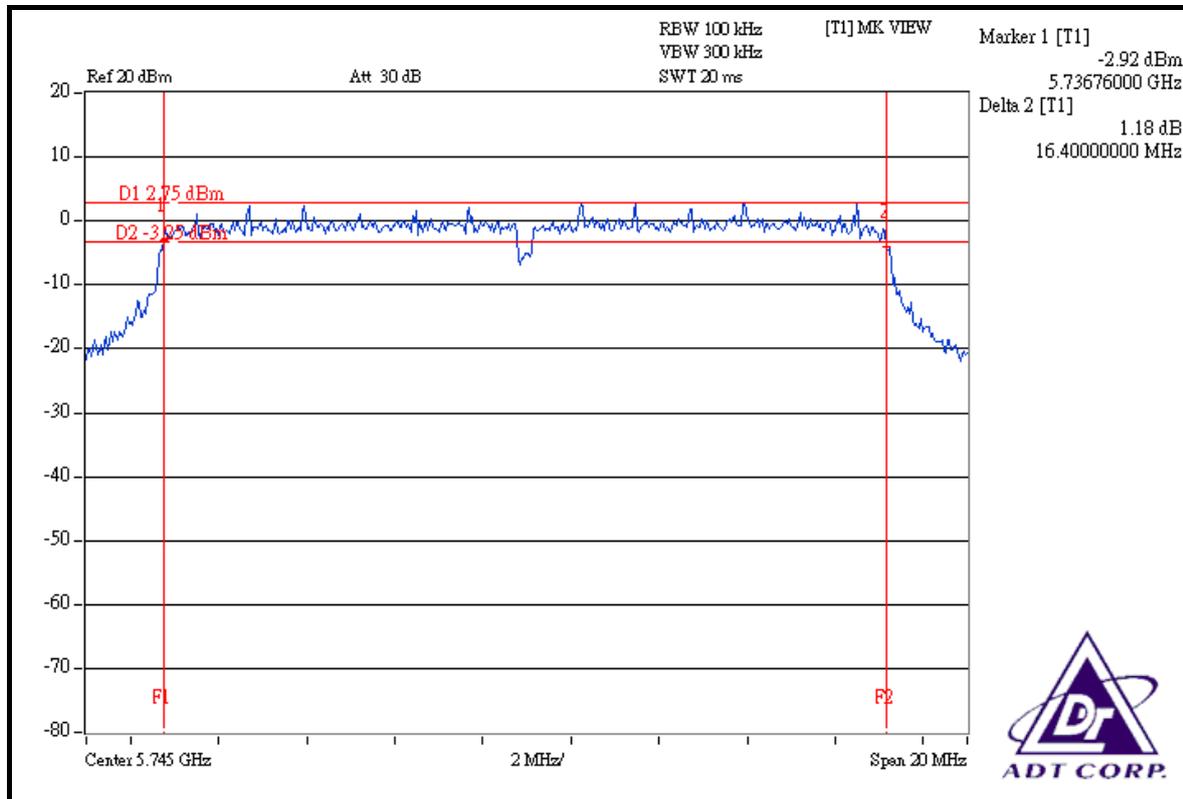
5.3.7 TEST RESULTS

802.11a OFDM modulation

MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 67%RH, 991hPa
TESTED BY	Long Chen		

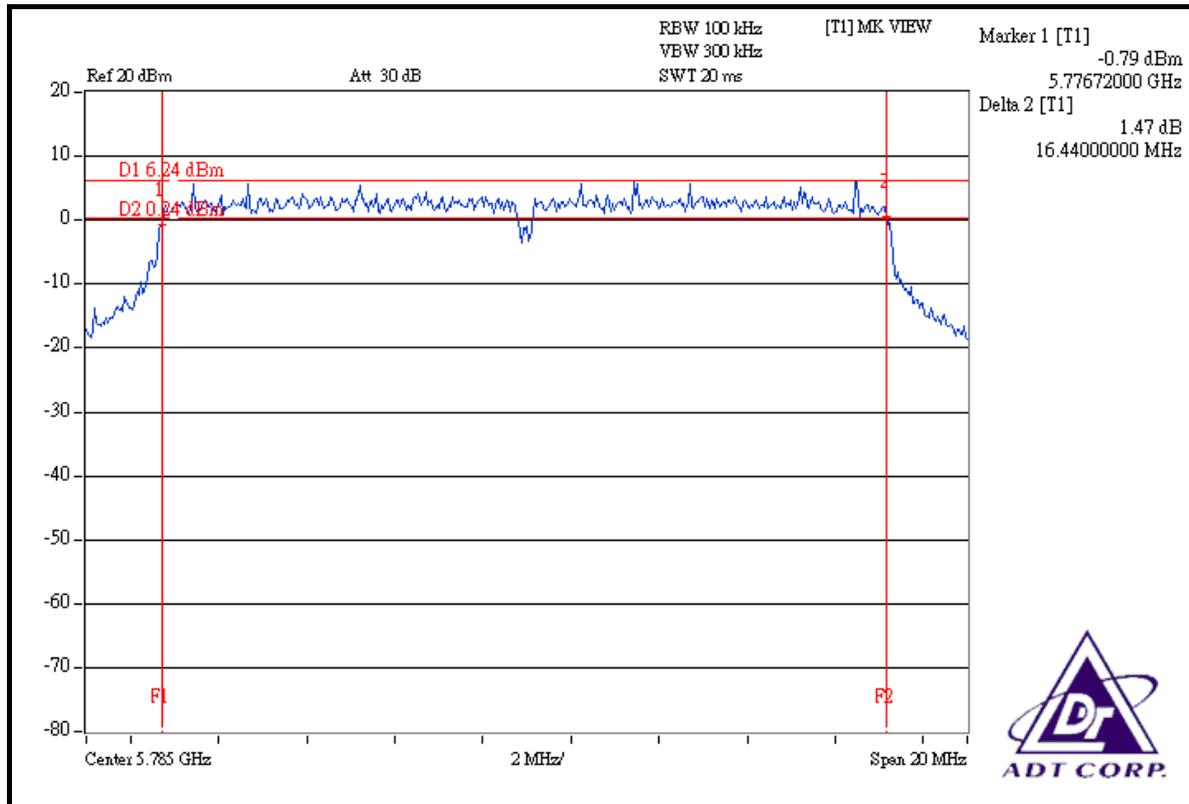
CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	5745	16.40	0.5	PASS
3	5785	16.44	0.5	PASS
5	5825	16.44	0.5	PASS

CH 1

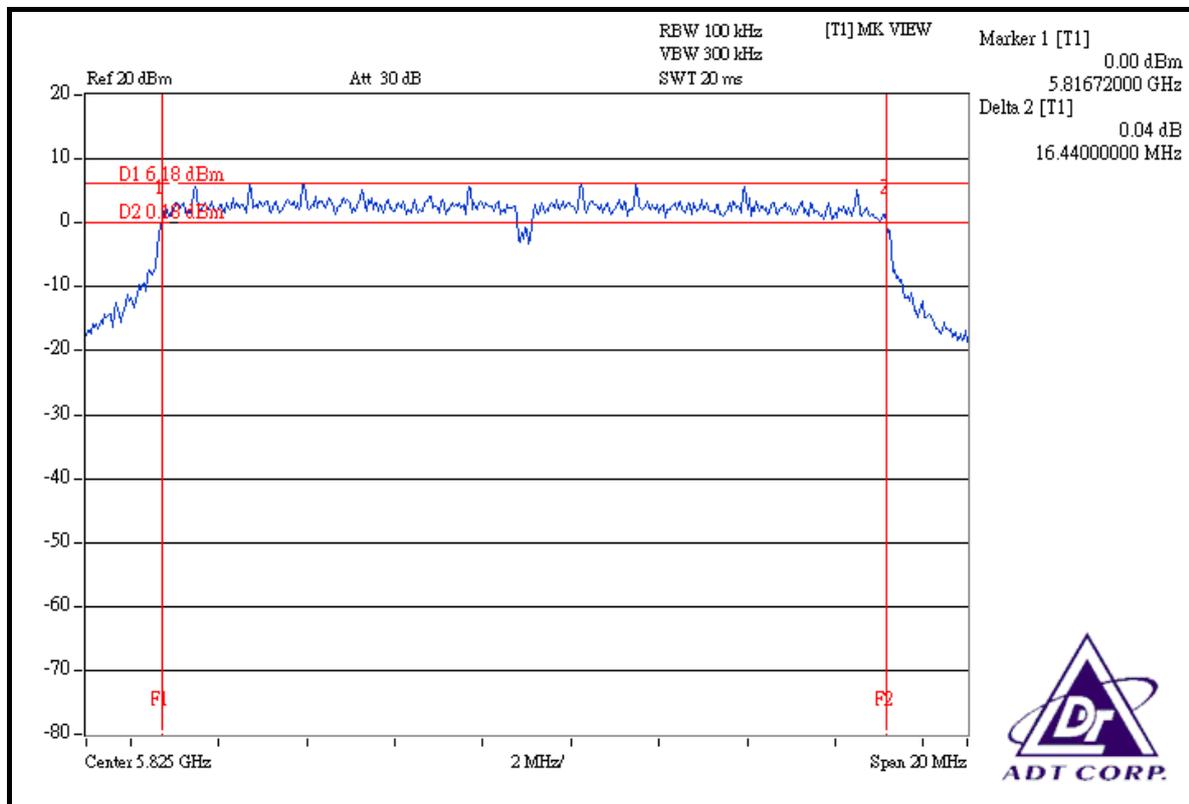




CH 3



CH 5





5.4 MAXIMUM PEAK OUTPUT POWER

5.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

5.4.2 INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100040	Jun. 28, 2008

NOTE:

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

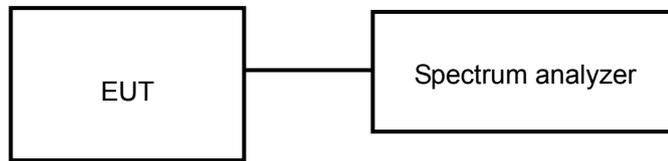
5.4.3 TEST PROCEDURES

1. Follow DTS measurement, the transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer.
2. Set span to encompass the entire emission bandwidth (EBW) of the signal.
3. Set RBW = 1 MHz; VBW \geq 3 MHz
4. Use Sample detector mode and video trigger with the trigger level set to enable triggering only on full power pulses.
5. Trace average 100 traces in power averaging mode.
6. Computer power by integrating the spectrum across the 26dB EBW of the signal.
7. Record the power level.

5.4.4 DEVIATION FROM TEST STANDARD

No deviation

5.4.5 TEST SETUP



5.4.6 EUT OPERATING CONDITIONS

Same as Item 5.3.6



5.4.7 TEST RESULTS

802.11a OFDM modulation

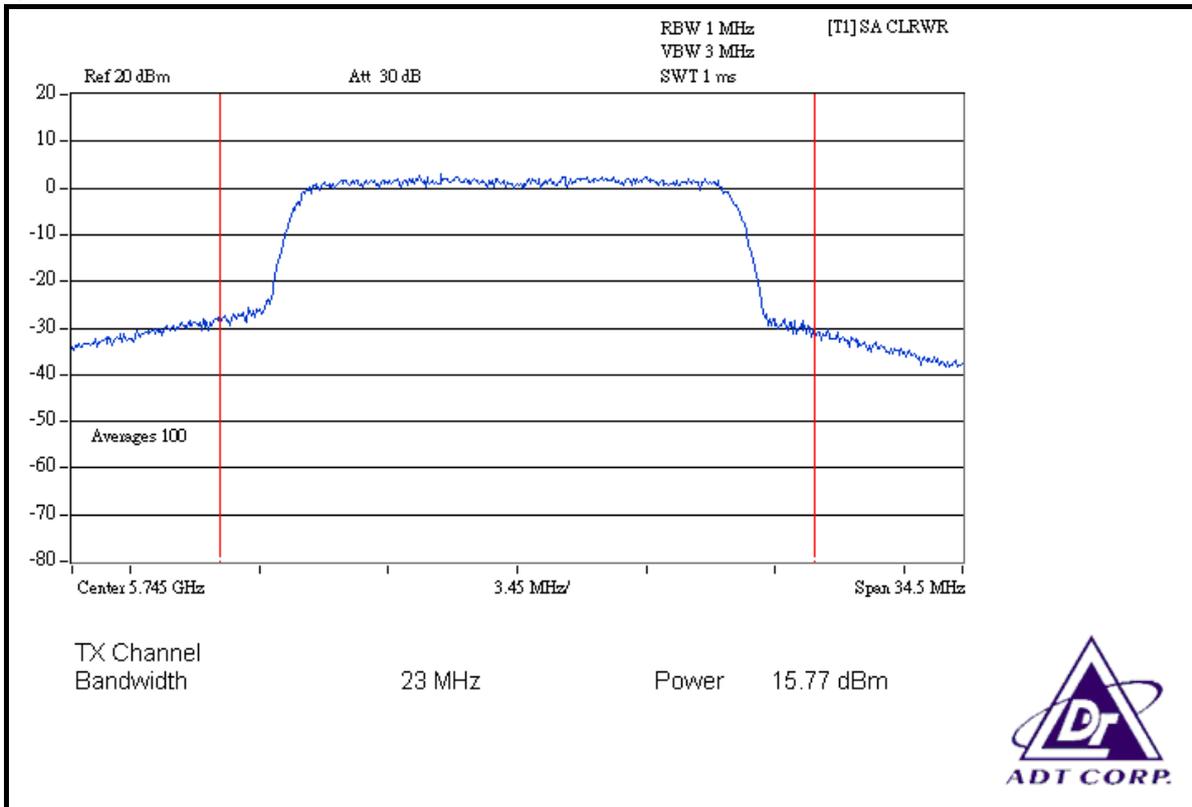
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 67%RH, 991hPa
TESTED BY	Long Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	26dBc Occupied Bandwidth (MHz)	PASS/FAIL
1	5745	37.757	15.77	30.00	22.93	PASS
3	5785	66.527	18.23	30.00	24.87	PASS
5	5825	65.615	18.17	30.00	24.00	PASS

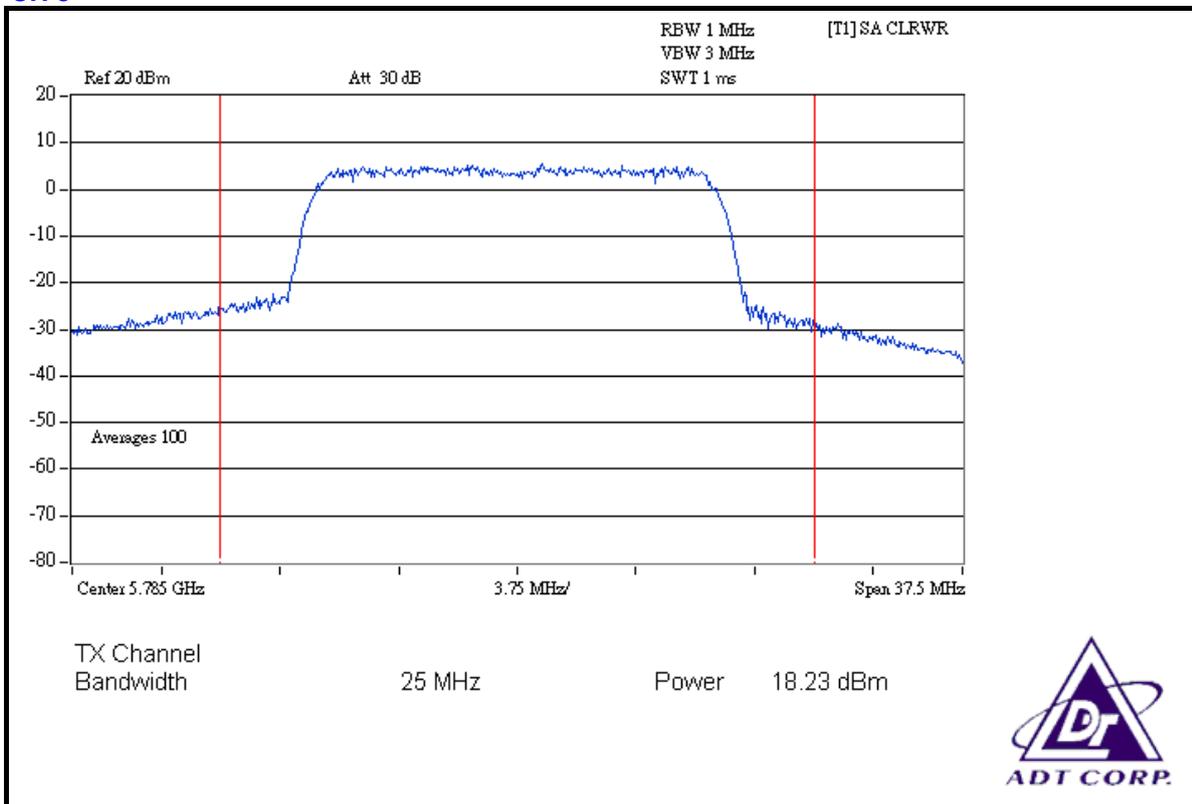
NOTE: The 26dBc Occupied Bandwidth plot, please refer to the following pages.



Peak Power Output: CH 1

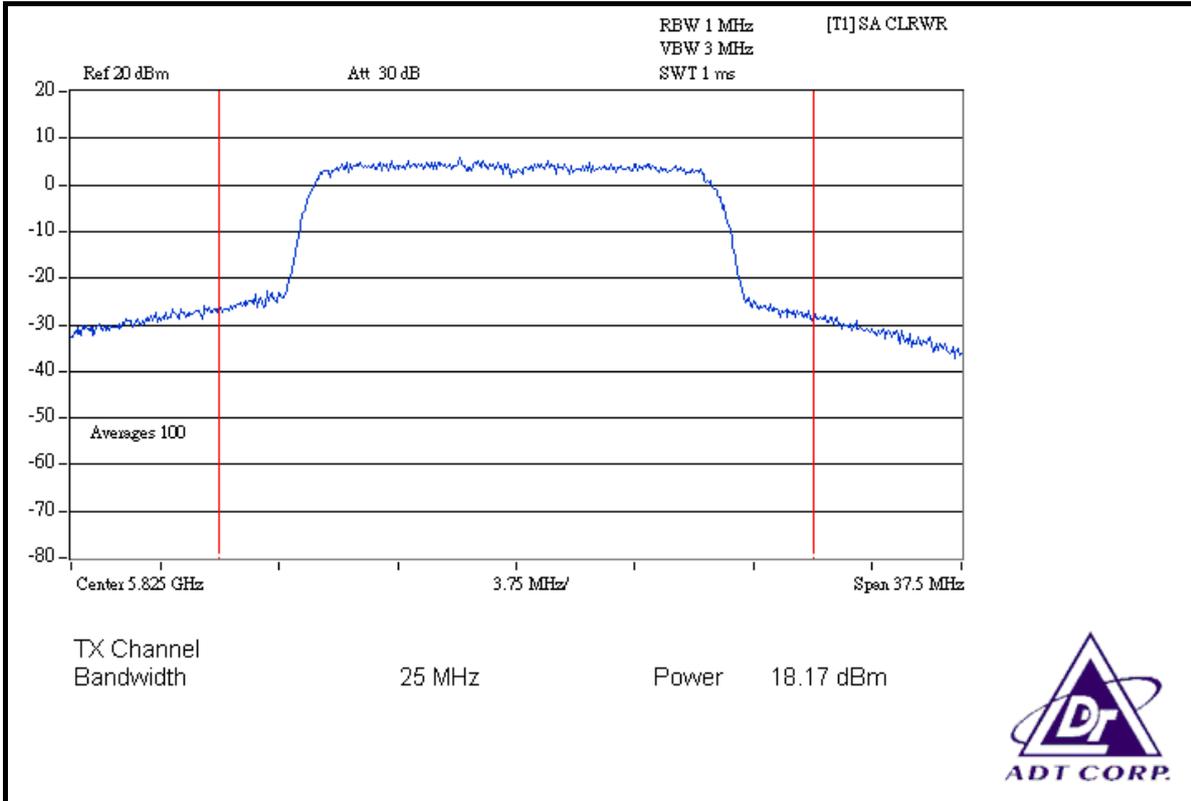


CH 3

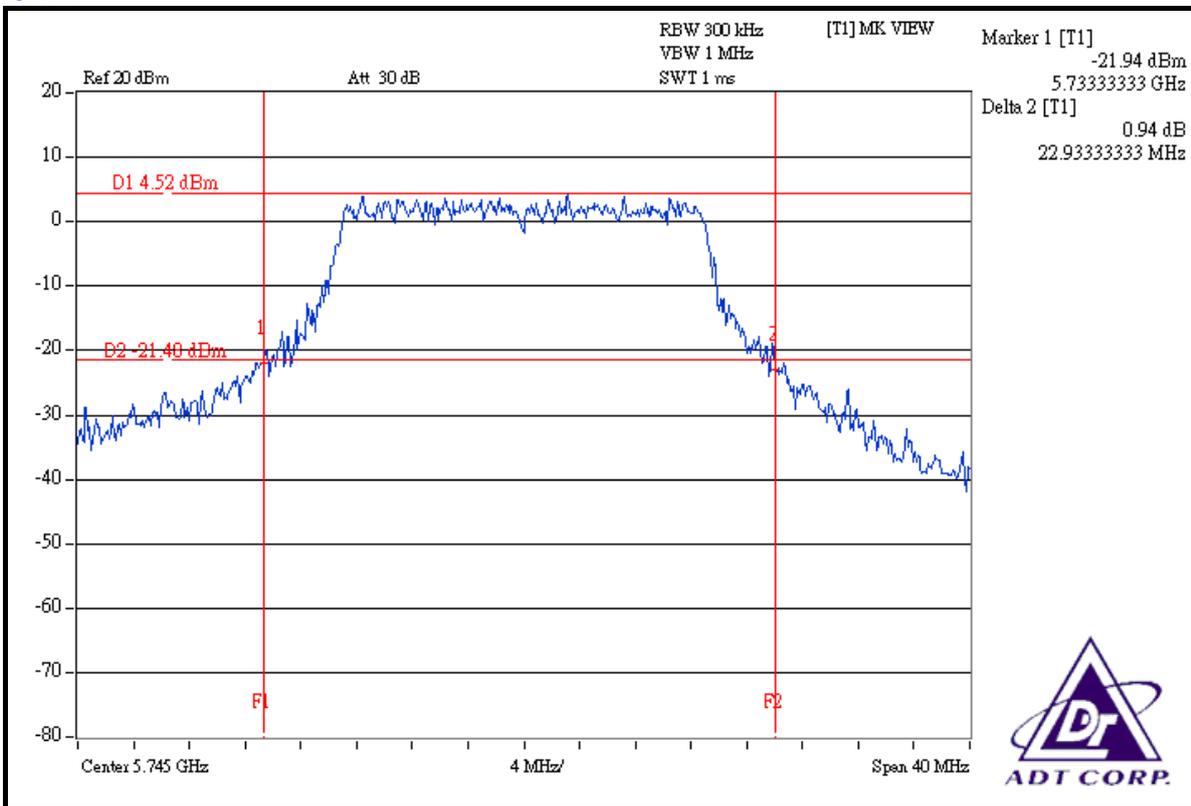




CH 5

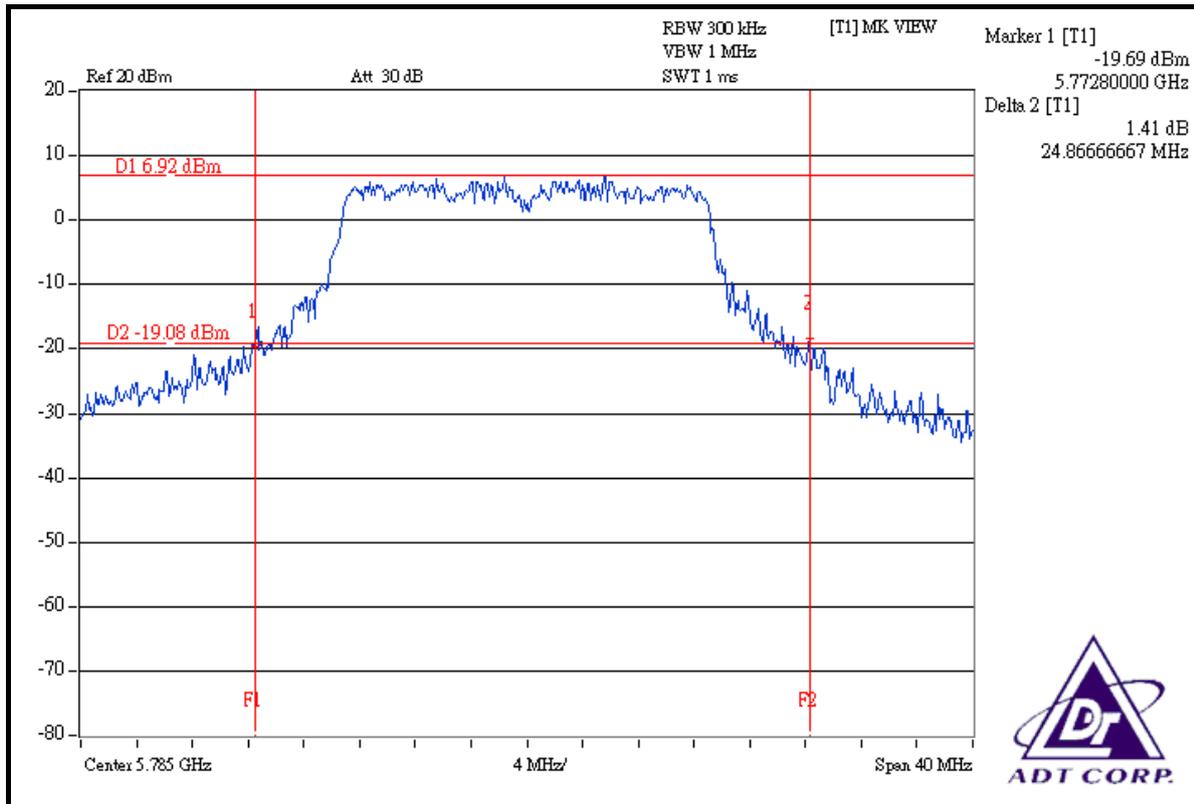


26dB Occupied Bandwidth: CH 1

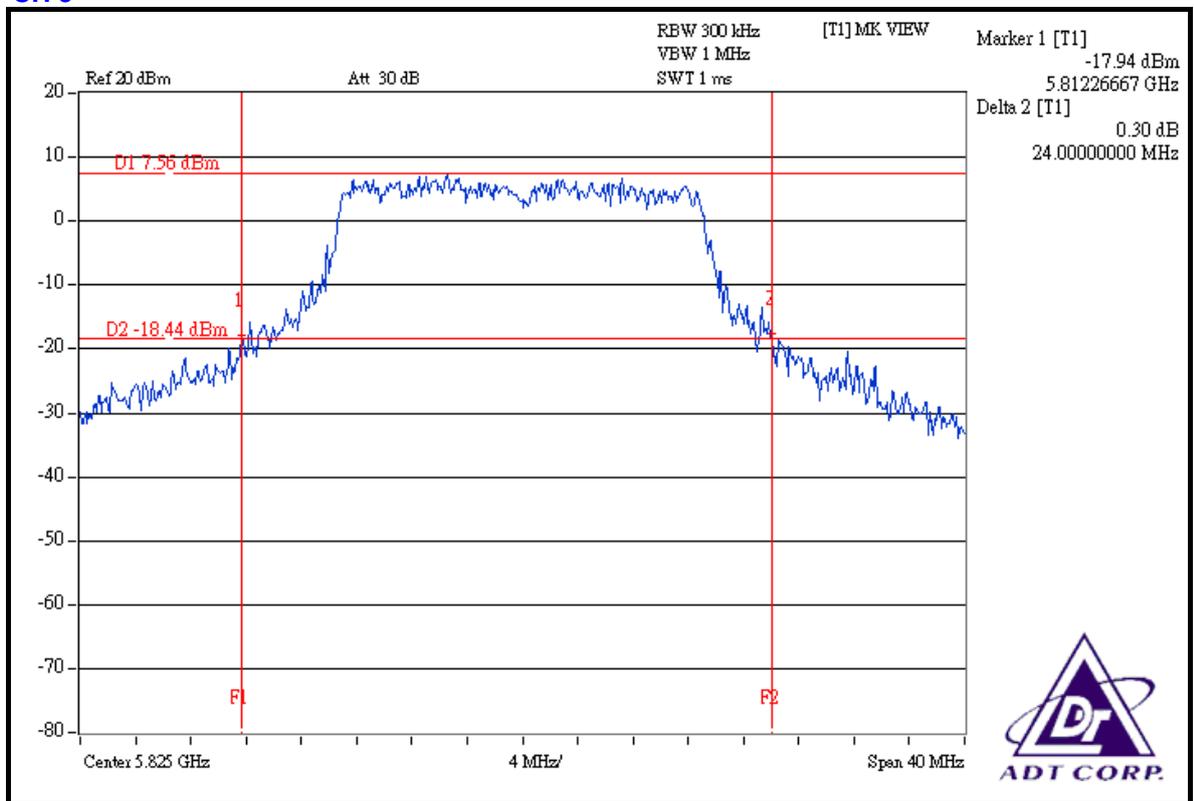




CH 3



CH 5





5.5 POWER SPECTRAL DENSITY MEASUREMENT

5.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

5.5.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSP40	100040	Jun. 28, 2008

NOTES:

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

5.5.3 TEST PROCEDURE

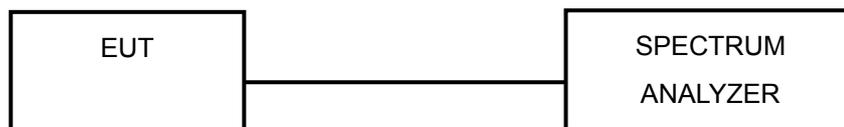
The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3 kHz RBW and 30 kHz VBW, set sweep time = span/3 kHz. The power spectral density was measured and recorded.

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

5.5.4 DEVIATION FROM TEST STANDARD

No deviation

5.5.5 TEST SETUP



5.5.6 EUT OPERATING CONDITION

Same as Item 5.3.6



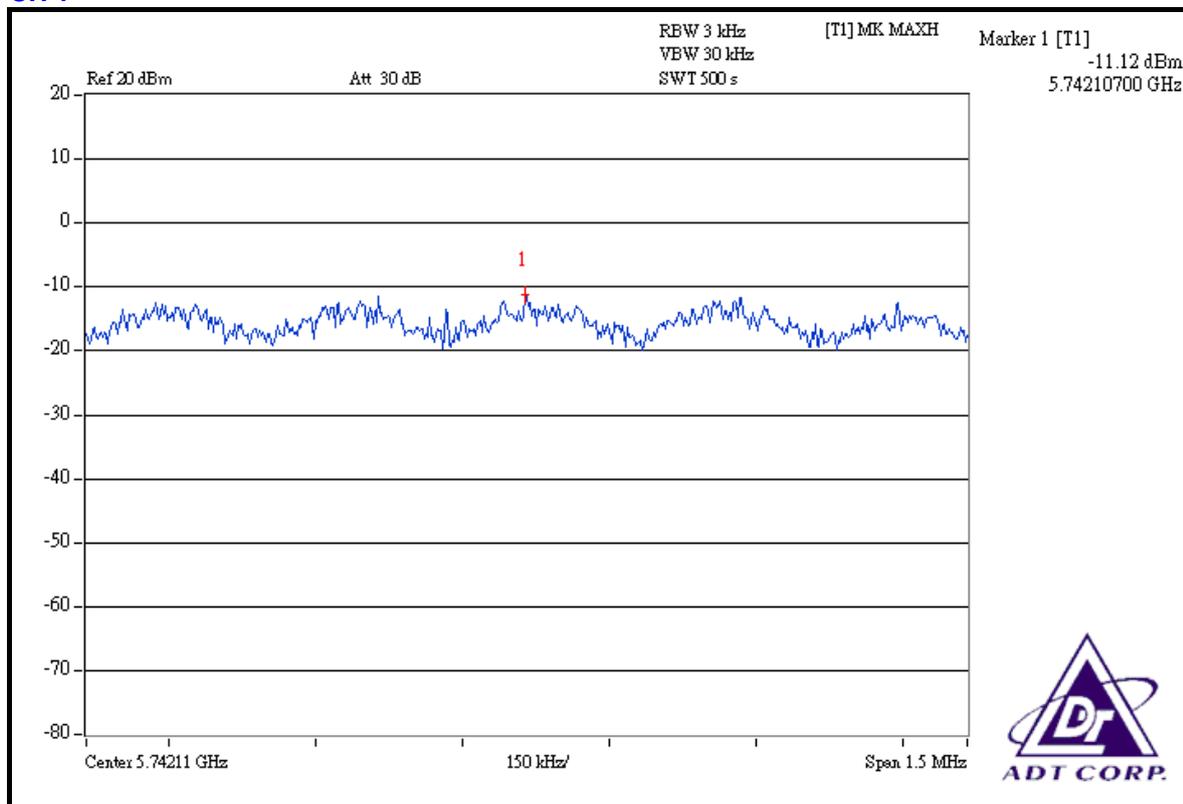
5.5.7 TEST RESULTS

802.11a OFDM modulation

MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 67%RH, 991hPa
TESTED BY	Long Chen		

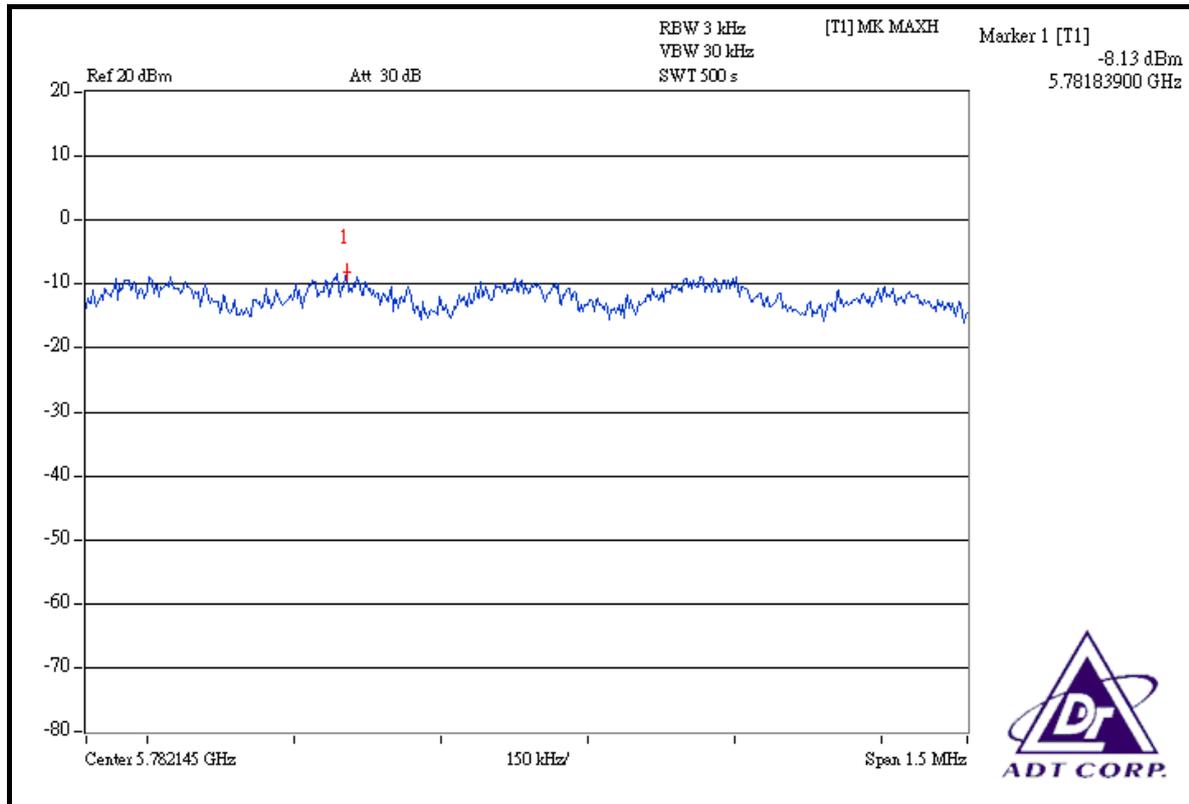
CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	5745	-11.12	8	PASS
3	5785	-8.13	8	PASS
5	5825	-7.97	8	PASS

CH 1

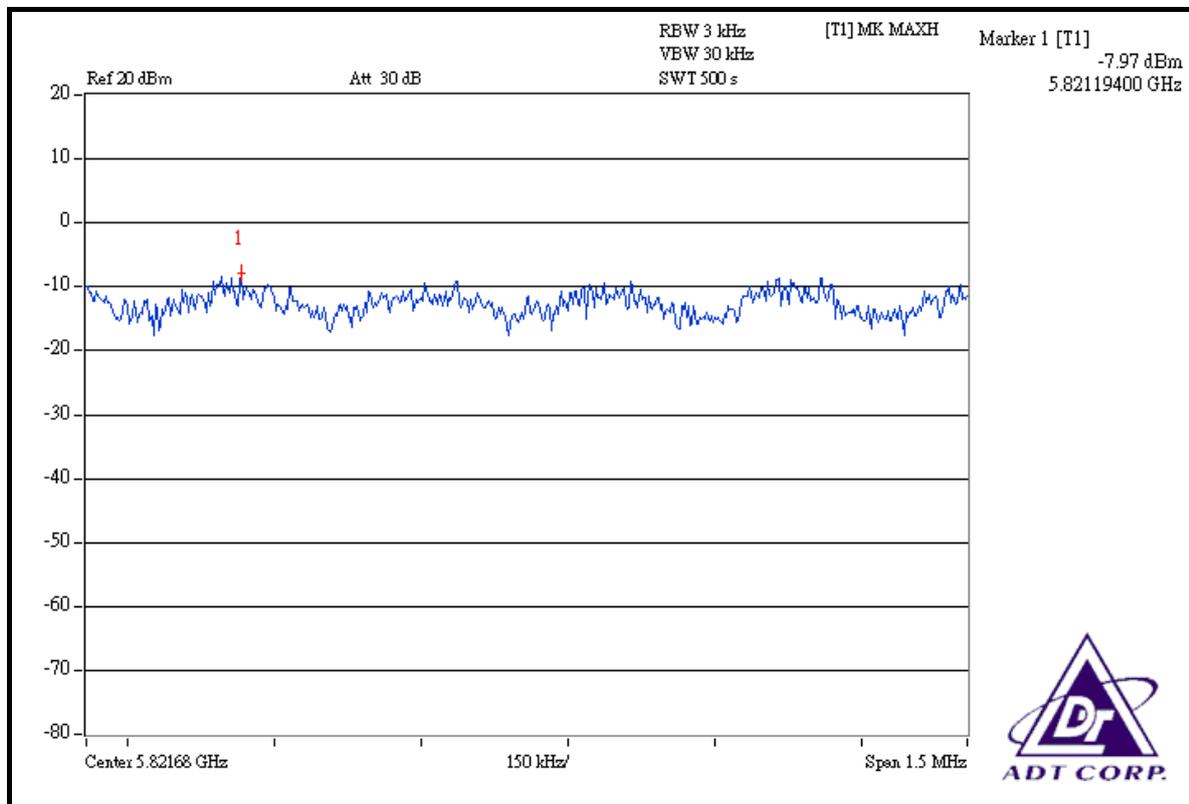




CH 3



CH 5





5.6 BAND EDGES MEASUREMENT

5.6.1 LIMITS OF BAND EDGES MEASUREMENT

Below -30dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

5.6.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSP40	100040	Jun. 28, 2008

NOTES:

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

5.6.3 TEST PROCEDURE

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

5.6.4 DEVIATION FROM TEST STANDARD

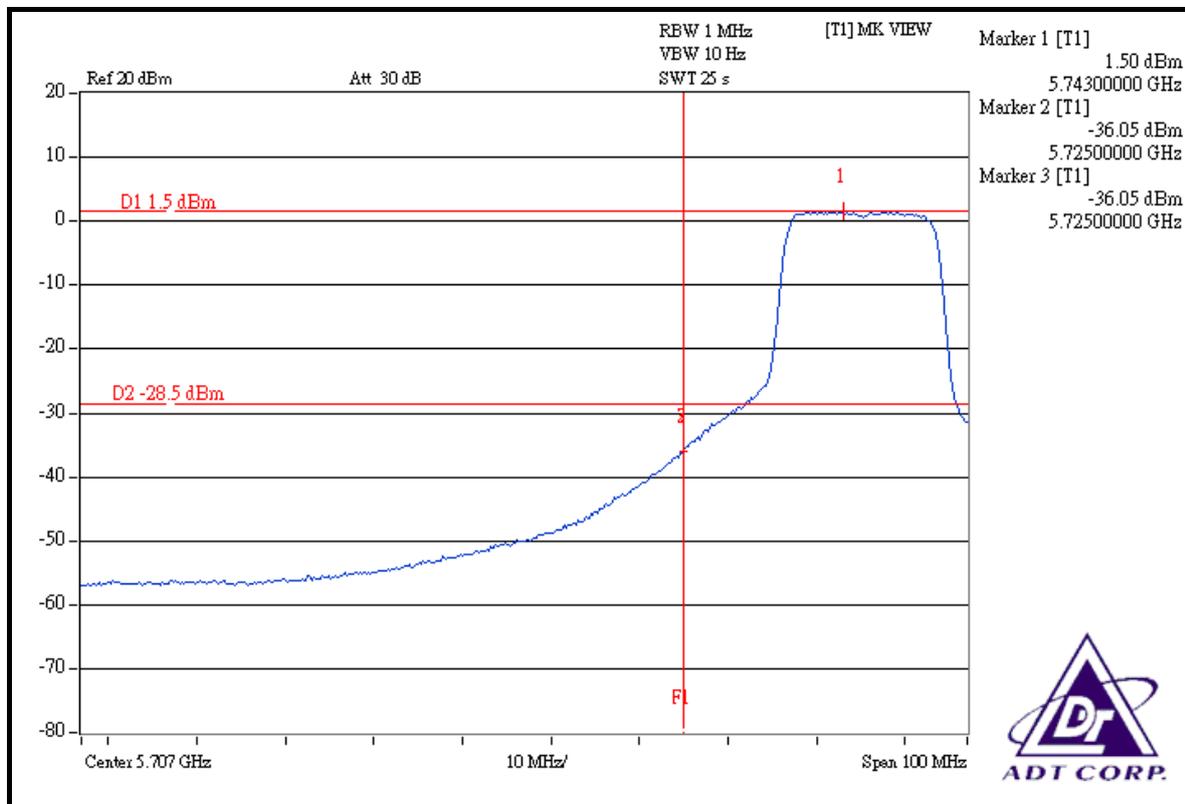
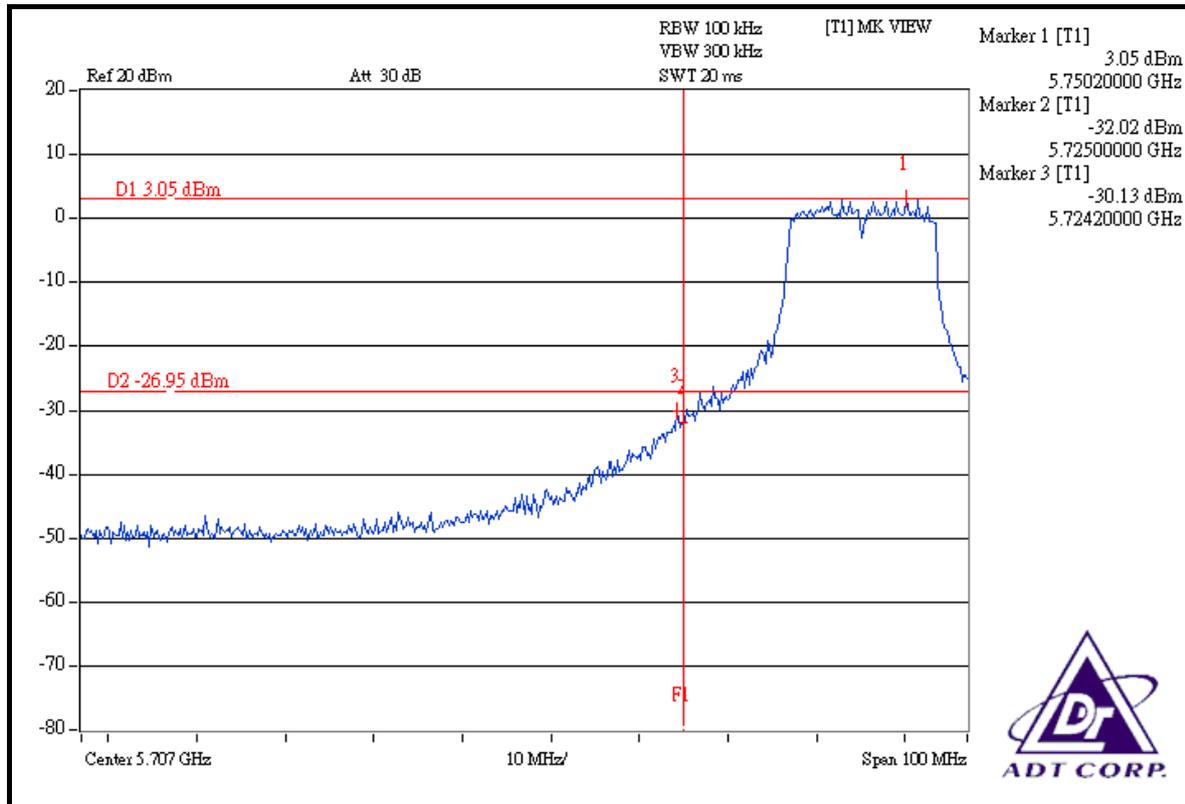
No deviation

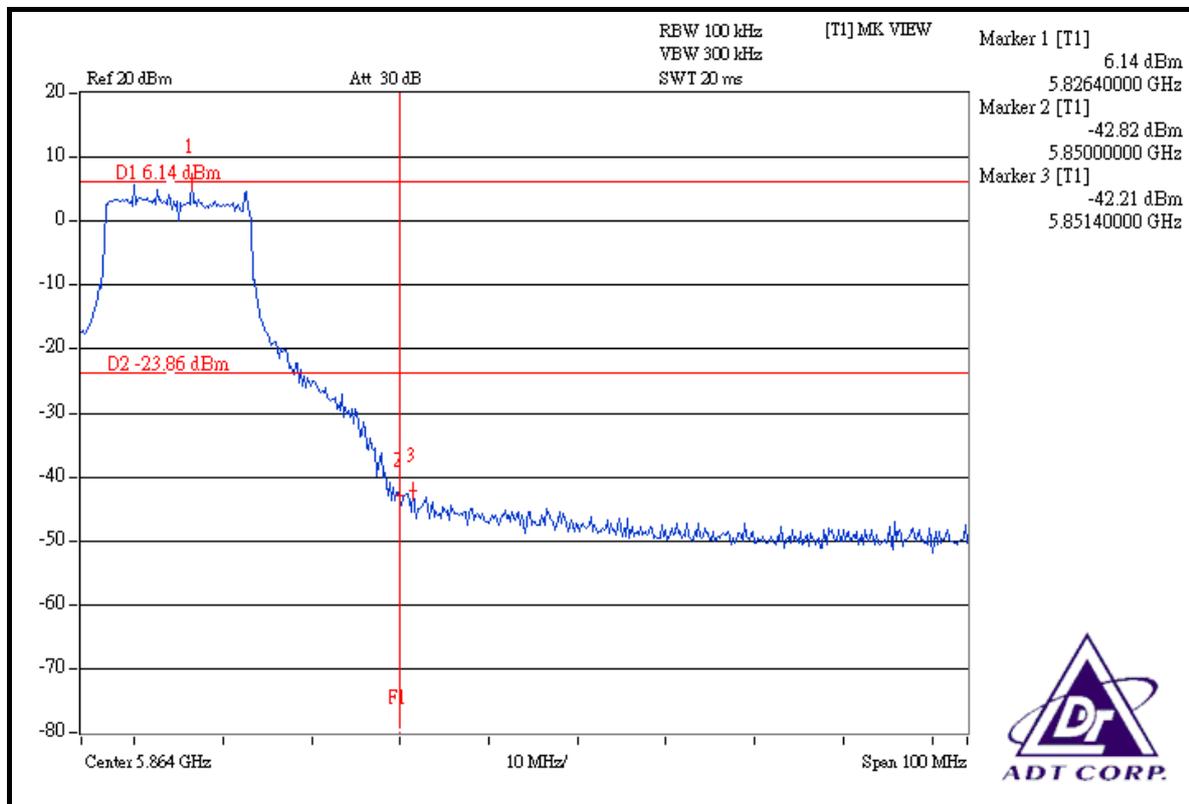
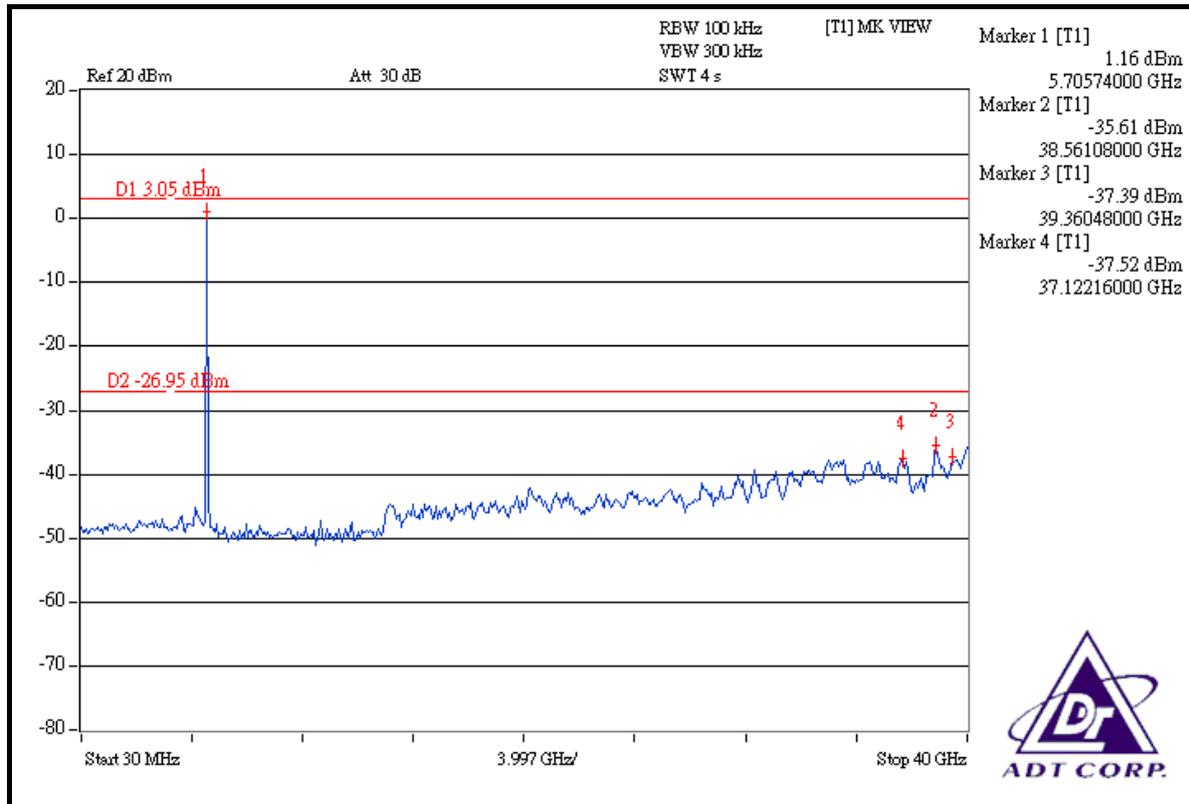
5.6.5 EUT OPERATING CONDITION

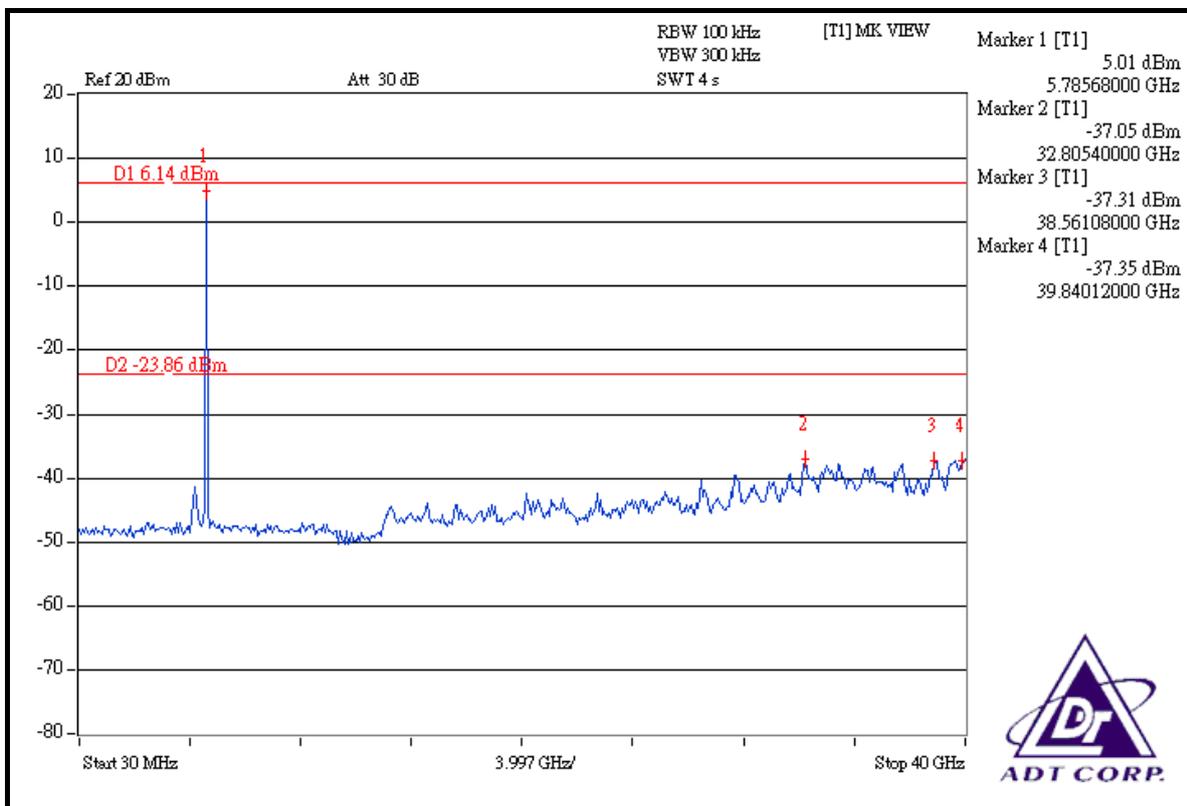
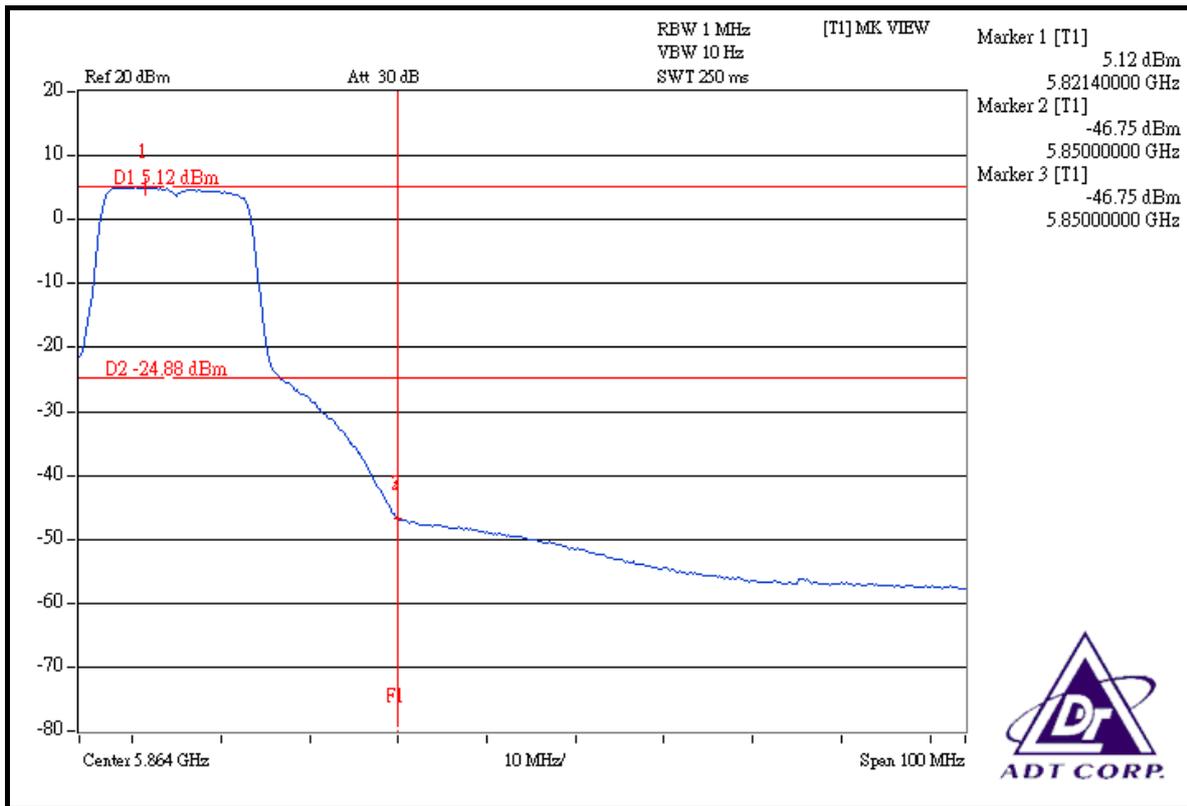
Same as Item 5.9.6

5.6.6 TEST RESULTS

The spectrum plots are attached on the following pages. D1 line indicates the highest level, D2 line indicates the 30dB offset below D1. It shows compliance with the requirement in part 15.247(d).









5.7 ANTENNA REQUIREMENT

5.7.1 STANDARD APPLICABLE

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

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

5.7.2 ANTENNA CONNECTED CONSTRUCTION

The antenna used in this product is Dipole antenna without connector. The maximum Gain of the antenna is 1.78dBi.



6. PHOTOGRAPHS OF THE TEST CONFIGURATION

Please refer to the attached file (Test Setup Photo).



7. INFORMATION ON THE TESTING LABORATORIES

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

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

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

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

Linko EMC/RF Lab:

Tel: 886-2-26052180

Fax: 886-2-26051924

Hsin Chu EMC/RF Lab:

Tel: 886-3-5935343

Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety Telecom Lab:

Tel: 886-3-3183232

Fax: 886-3-3185050

Web Site: www.adt.com.tw

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



8. APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications are made to the EUT by the lab during the test.