FCC TEST REPORT

REPORT NO.: RF960625L08
MODEL NO.: DAP-1150
RECEIVED: Jun. 26, 2007
TESTED: Jun. 26 ~ Jun. 27, 2007
ISSUED: Jun. 28, 2007

APPLICANT : D-Link Corporation

ADDRESS : 17595 Mt. Herrmann, Fountain Valley, CA 92708, U.S.A.

ISSUED BY : Advance Data Technology Corporation

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

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

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1 CERTIFICATION

PRODUCT:	Wireless G Access Point
MODEL NO.:	DAP-1150
BRAND:	D-Link
APPLICANT:	D-Link Corporation
TESTED:	Jun. 26 ~ Jun. 27, 2007
TEST SAMPLE:	ENGINEERING SAMPLE
STANDARDS:	**FCC Part 15, Subpart C (Section 15.247)**
	ANSI C63.4-2003

The above equipment (model: DAP-1150) 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	: Jessie Wang / Specialist	, **DATE:**	Jun. 28, 2007
TECHNICAL ACCEPTANCE Responsible for RF	: Long Chen / Senior engineer	, **DATE:**	Jun. 28, 2007
APPROVED BY	: Gary Chang / Supervisor	, **DATE:**	Jun. 28, 2007

2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 15, Subpart C			
Standard Section	**Test Type and Limit**	**Result**	**Remark**
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -18.06dB at 0.369MHz.
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)	Transmitter Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit. Minimum passing margin is -2.09dB at 2390.00MHz.
15.247(e)	Power Spectral Density Limit: max. 8dBm	PASS	Meet the requirement of limit.
15.247(d)	Band Edge Measurement Limit: 20 dB 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	2.93 dB
	200MHz ~1000MHz	2.95 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

PRODUCT	Wireless G Access Point
MODEL NO.	DAP-1150
FCC ID	KA2AP1150A1
POWER SUPPLY	5.0Vdc from AC adapter
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b: 11/5.5/2/1Mbps 802.11g: 54/48/36/24/18/12/9/6Mbps
FREQUENCY RANGE	2412MHz ~ 2462MHz
NUMBER OF CHANNEL	11
MAXIMUM OUTPUT POWER	80.910mW
ANTENNA TYPE	Refer to Note 1 as below
DATA CABLE	NA
I/O PORTS	RJ45
ACCESSORY DEVICE	Adapter

NOTE:

1. There are four antennas provided to this EUT. The information about those antennas as below table:

Antenna No.	Antenna Type	Model	Gain (dBi)	Cable Type	Cable Length	Cable Loss (dBi)	Net Gain (dBi)	Antenna Connector
1	Dipole	DWL-50AT	5	--	--	--	5	R-SMA
2		WSS-002	2.1	--	--	--	2.1	
3		DWL-50AT	5	SSR-71977	2m	5	0	
4				SSR-71819	0.6m	5	0	

* After pretest for each type of antenna and chosen the Antenna 1 & 3 for final test and recorded.

2. The EUT was powered by the following adapter:

Brand:	JENTEC TECHNOLOGY CO., LTD.
Model:	JTAE0402D-A
Input:	100-240Vac, 0.25A, 50-60Hz
Output:	5.0Vdc, 1.2A
Power Line:	1.8m non-shielded cable without core

3. The EUT, operates in the 2.4GHz frequency range, lets you connect IEEE 802.11g or IEEE 802.11b devices to the network. With its high-speed data transmissions of up to 54Mbps.
4. The above EUT information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

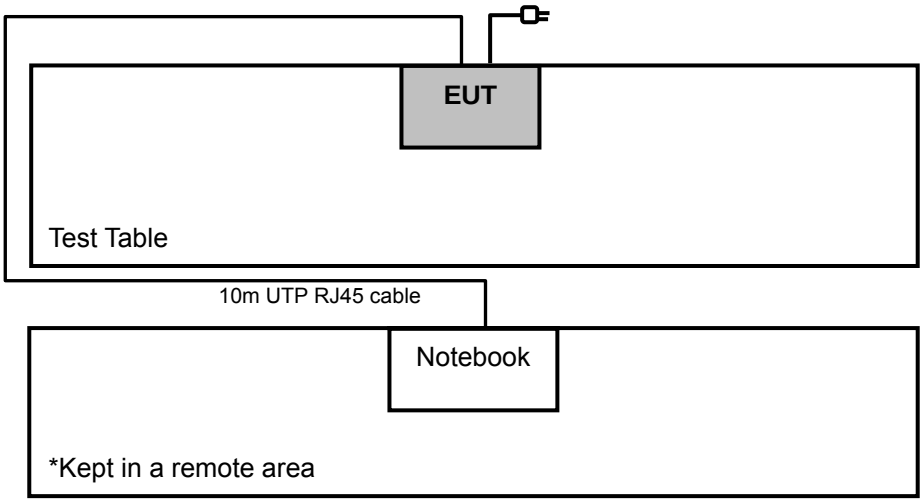
3.2 DESCRIPTION OF TEST MODES

Eleven channels are provided to this EUT.

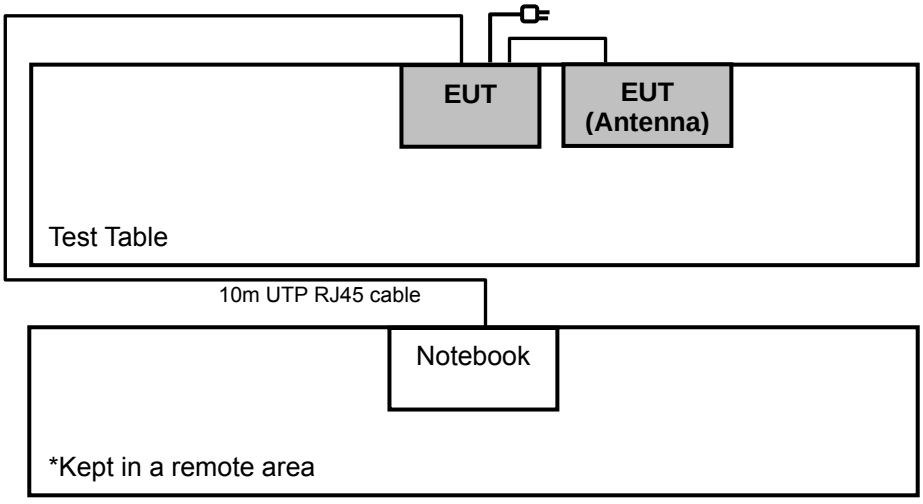
CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2412 MHz	7	2442 MHz
2	2417 MHz	8	2447 MHz
3	2422 MHz	9	2452 MHz
4	2427 MHz	10	2457 MHz
5	2432 MHz	11	2462 MHz
6	2437 MHz		

3.2.1 CONFIGURATION OF SYSTEM UNDER TEST

Test Mode A



Test Mode B



3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT Configure Mode	Applicable to				Description
	PLC	RE<1G	RE≥1G	APCM	
A	-	-	√	√	Antenna 1
B	√	√	-	-	Antenna 3

Where PLC: Power Line Conducted Emission RE<1G RE: 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)
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)
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

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	16484462992	E2K24CLNS

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

NOTE:

1. All power cords of the above support units are non shielded (1.8m).
2. Item 1 acted as communication partners to transfer data.

4 TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

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

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
Test Receiver ROHDE & SCHWARZ	ESCS30	100288	Sep. 25, 2007
RF signal cable Woken	5D-FB	Cable-HYCO3-01	Jan. 06, 2008
LISN ROHDE & SCHWARZ	ESH2-Z5	100100	Jan. 08, 2008
LISN ROHDE & SCHWARZ	ESH3-Z5	100311	Jan. 16, 2008
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 2.
3. The VCCI Site Registration No. is C-2047.

4.1.3 TEST PROCEDURES

a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.

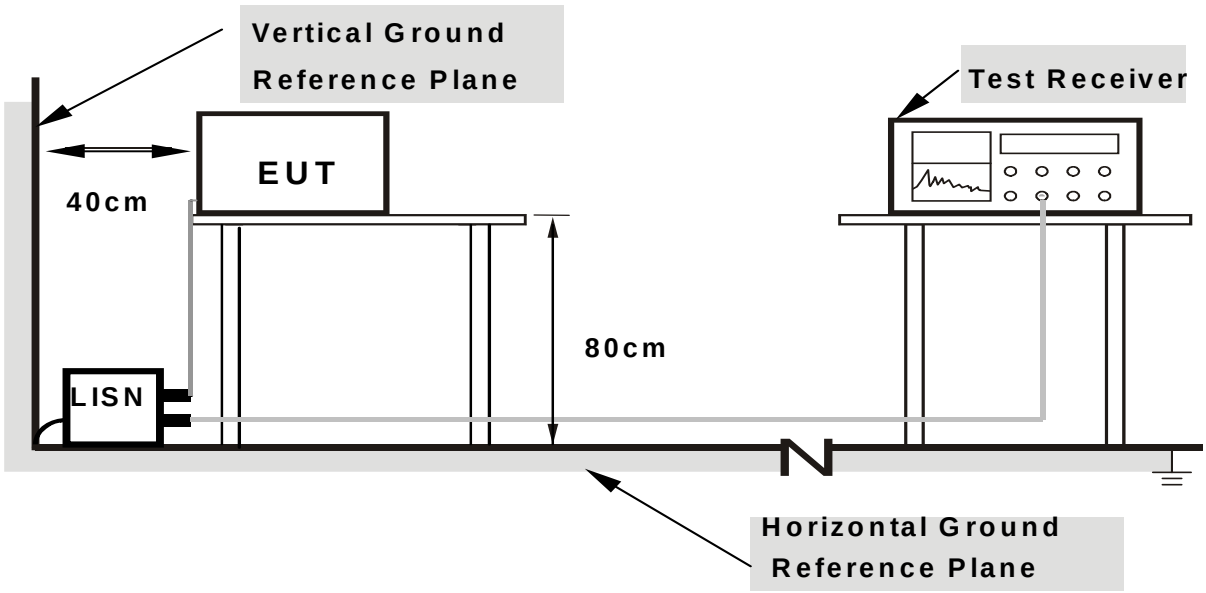
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation.

4.1.5 TEST SETUP



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) 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 the testing table.
b. Prepared a notebook system to act as communication partners and placed it outside of testing area.
c. The communication partners run a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency via an RJ45 cable.
d. The communication partner sent data to EUT by command "PING".

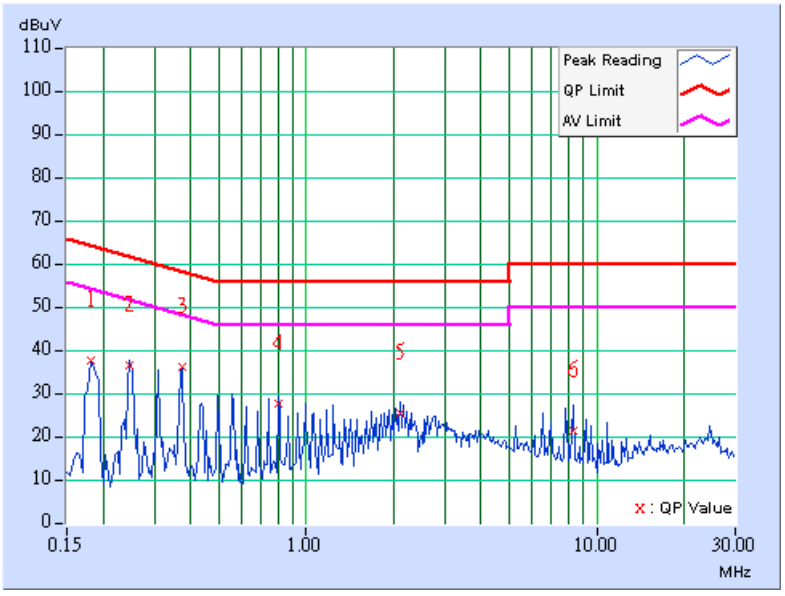
4.1.7 TEST RESULTS

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**	25 deg. C, 70%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**TEST MODE**	**B**
TESTED BY	Lori Chiu		

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	0.181	0.10	37.36	-	37.46	-	64.43	54.43	-26.97	-
2	0.248	0.10	36.31	-	36.41	-	61.84	51.84	-25.43	-
3	0.373	0.10	36.03	-	36.13	-	58.44	48.44	-22.31	-
4	0.806	0.11	27.30	-	27.41	-	56.00	46.00	-28.59	-
5	2.109	0.22	25.29	-	25.51	-	56.00	46.00	-30.49	-
6	8.277	0.32	21.15	-	21.47	-	60.00	50.00	-38.53	-

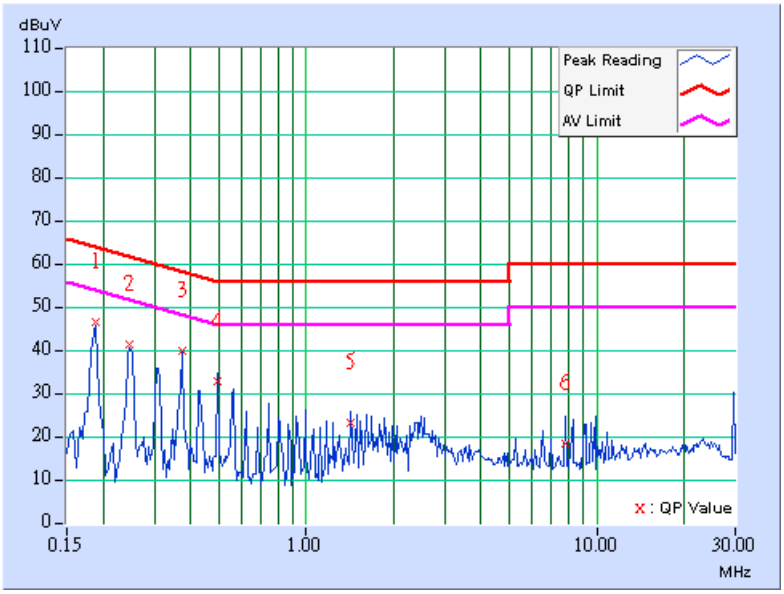
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	PHASE	Line 2
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	25 deg. C, 70%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TEST MODE	B
TESTED BY	Lori Chiu		

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	0.189	0.10	46.31	-	46.41	-	64.08	54.08	-17.67	-
2	0.248	0.10	40.97	-	41.07	-	61.84	51.84	-20.77	-
3	0.373	0.10	39.79	-	39.89	-	58.44	48.44	-18.55	-
4	0.494	0.12	32.73	-	32.85	-	56.10	46.10	-23.26	-
5	1.422	0.21	23.07	-	23.28	-	56.00	46.00	-32.72	-
6	7.852	0.38	18.17	-	18.55	-	60.00	50.00	-41.45	-

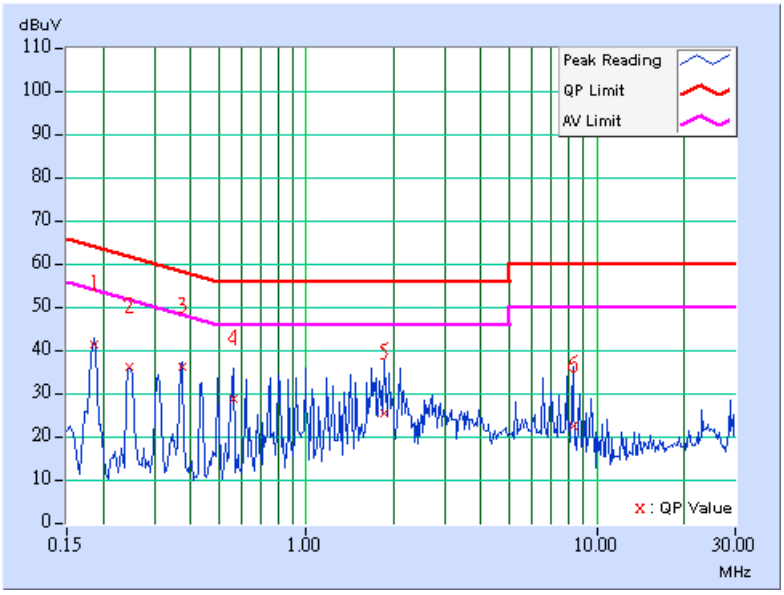
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	PHASE	Line 1
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	25 deg. C, 70%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TEST MODE	B
TESTED BY	Lori Chiu		

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	0.185	0.10	41.27	-	41.37	-	64.25	54.25	-22.88	-
2	0.248	0.10	35.93	-	36.03	-	61.84	51.84	-25.81	-
3	0.373	0.10	36.05	-	36.15	-	58.44	48.44	-22.29	-
4	0.560	0.10	28.39	-	28.49	-	56.00	46.00	-27.51	-
5	1.855	0.20	25.35	-	25.55	-	56.00	46.00	-30.45	-
6	8.297	0.32	22.30	-	22.62	-	60.00	50.00	-37.38	-

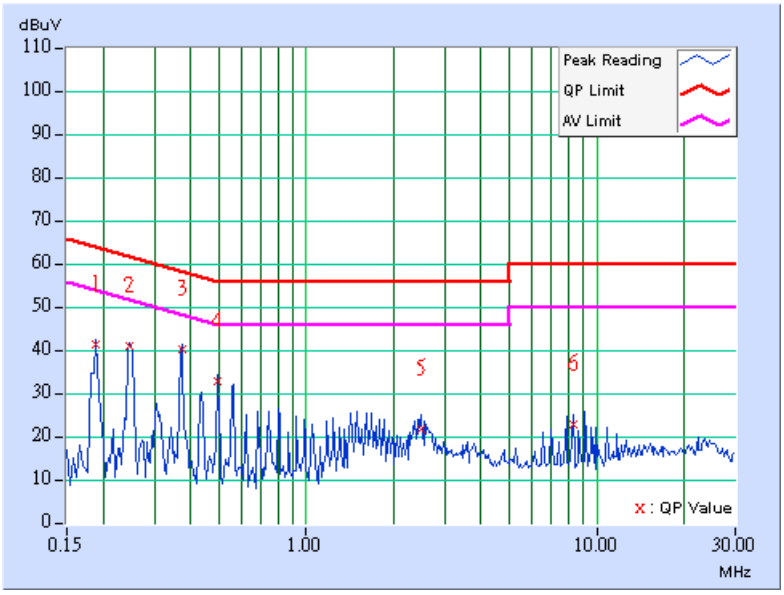
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission 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	25 deg. C, 70%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TEST MODE	B
TESTED BY	Lori Chiu		

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	0.189	0.10	40.94	-	41.04	-	64.08	54.08	-23.04	-
2	0.248	0.10	40.77	-	40.87	-	61.84	51.84	-20.97	-
3	0.373	0.10	40.13	-	40.23	-	58.44	48.44	-18.21	-
4	0.494	0.12	32.71	-	32.83	-	56.10	46.10	-23.28	-
5	2.473	0.23	21.56	-	21.79	-	56.00	46.00	-34.21	-
6	8.297	0.39	22.73	-	23.12	-	60.00	50.00	-36.88	-

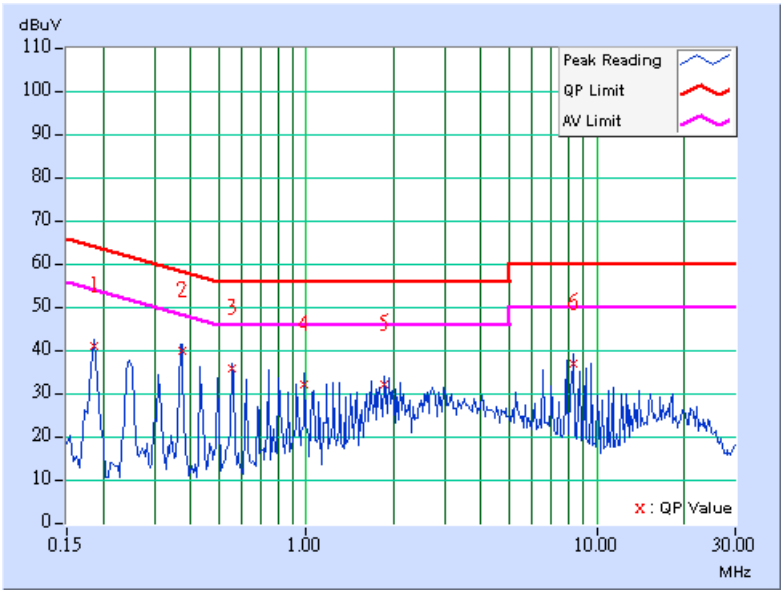
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission 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	25 deg. C, 70%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TEST MODE	B
TESTED BY	Lori Chiu		

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	0.185	0.10	40.83	-	40.93	-	64.25	54.25	-23.32	-
2	0.373	0.10	39.83	-	39.93	-	58.44	48.44	-18.51	-
3	0.556	0.10	35.51	-	35.61	-	56.00	46.00	-20.39	-
4	0.986	0.11	32.06	-	32.17	-	56.00	46.00	-23.83	-
5	1.859	0.20	31.92	-	32.12	-	56.00	46.00	-23.88	-
6	8.309	0.32	36.81	-	37.13	-	60.00	50.00	-22.87	-

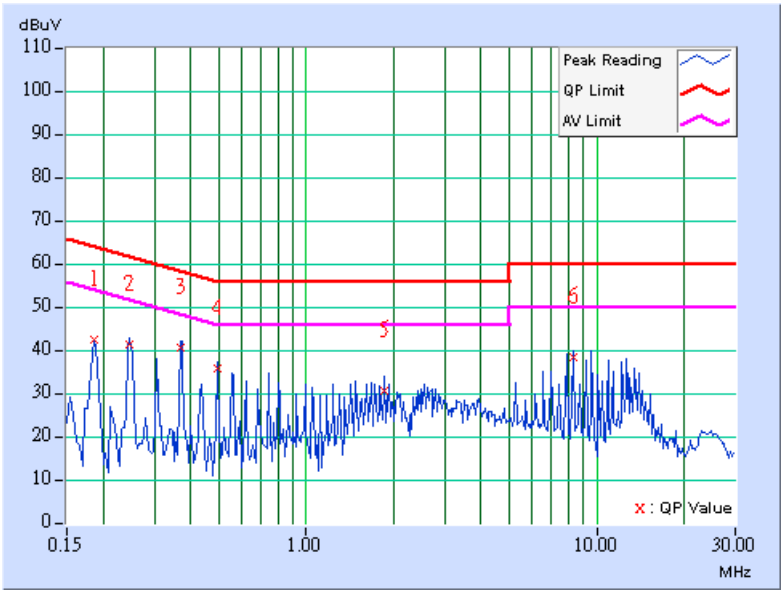
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission 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 2
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	25 deg. C, 70%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TEST MODE	B
TESTED BY	Lori Chiu		

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	0.185	0.10	42.17	-	42.27	-	64.25	54.25	-21.98	-
2	0.248	0.10	41.17	-	41.27	-	61.84	51.84	-20.57	-
3	**0.369**	**0.10**	**40.37**	**-**	**40.47**	**-**	**58.53**	**48.53**	**-18.06**	**-**
4	0.494	0.12	35.39	-	35.51	-	56.10	46.10	-20.60	-
5	1.859	0.22	30.25	-	30.47	-	56.00	46.00	-25.53	-
6	8.309	0.39	38.16	-	38.55	-	60.00	50.00	-21.45	-

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.



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	ESCI	100424	Aug. 04, 2007
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Aug. 07, 2007
BILOG Antenna SCHWARZBECK	VULB9168	9168-153	Jan. 04, 2008
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-563	Jul. 26, 2007
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170242	Jan. 16, 2008
Preamplifier Agilent	8449B	3008A01911	Sep. 13, 2007
Preamplifier Agilent	8447D	2944A10638	Dec. 20, 2007
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	218188/218189	Nov. 14, 2007
RF signal cable Worken	8D-FB	Cable-HYCH9-01	Aug. 16, 2007
Software	ADT_Radiated_V7.6	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA
Turn Table EMCO	2087-2.03	NA	NA
Antenna Tower &Turn Table Controller EMCO	2090	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 Chamber 9.

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-9.

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

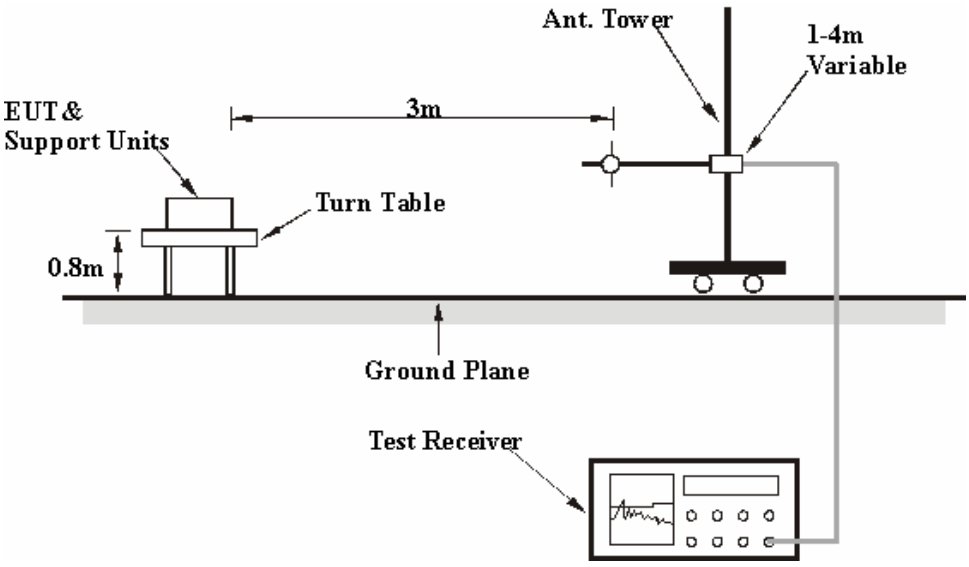
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for 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 10 Hz for Average detection (AV) at frequency above 1GHz.

4.2.4 DEVIATION FROM TEST STANDARD

No deviation.

4.2.5 TEST SETUP



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

4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6.

4.2.7 TEST RESULTS

RADIATED WORST-CASE DATA: BELOW 1GHz

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	**FREQUENCY RANGE**	Below 1000MHz
MODULATION TYPE	BPSK	**DETECTOR FUNCTION**	Quasi-Peak
TRANSFER RATE	6Mbps	**ENVIRONMENTAL CONDITIONS**	27 deg. C, 71%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**TEST MODE**	**B**
TESTED BY	Lori Chiu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	107.67	36.04 QP	43.50	-7.46	1.50 H	55	25.96	10.08
2	173.78	35.39 QP	43.50	-8.11	2.50 H	358	22.92	12.47
3	224.33	37.36 QP	46.00	-8.64	1.50 H	274	25.95	11.40
4	249.60	41.24 QP	46.00	-4.76	1.00 H	259	28.71	12.54
5	274.88	35.83 QP	46.00	-10.17	1.00 H	148	22.88	12.95
6	300.16	35.76 QP	46.00	-10.24	1.00 H	76	22.40	13.36
7	432.37	34.18 QP	46.00	-11.82	2.00 H	139	17.49	16.68
8	500.42	35.66 QP	46.00	-10.34	2.00 H	85	16.90	18.76
9	624.85	34.64 QP	46.00	-11.36	2.00 H	301	13.32	21.32
10	751.23	35.99 QP	46.00	-10.01	1.00 H	328	12.77	23.22

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	29.90	28.87 QP	40.00	-11.13	1.00 V	10	16.78	12.09
2	107.67	35.39 QP	43.50	-8.11	1.00 V	19	25.31	10.08
3	173.78	36.33 QP	43.50	-7.17	1.00 V	205	23.86	12.47
4	224.33	34.07 QP	46.00	-11.93	1.00 V	127	22.67	11.40
5	249.60	36.04 QP	46.00	-9.96	2.00 V	16	23.51	12.54
6	323.49	34.70 QP	46.00	-11.30	2.50 V	256	20.78	13.92
7	500.42	37.20 QP	46.00	-8.80	1.50 V	313	18.43	18.76
8	751.23	34.21 QP	46.00	-11.79	1.00 V	13	10.99	23.22

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**	27 deg. C, 71%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**TEST MODE**	**A**
TESTED BY	Lori Chiu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	55.83 PK	74.00	-18.17	1.00 H	155	24.61	31.22
2	2390.00	44.60 AV	54.00	-9.40	1.00 H	155	13.38	31.22
3	*2412.00	96.28 PK			1.00 H	155	65.07	31.21
4	*2412.00	92.17 AV			1.00 H	155	60.96	31.21
5	4824.00	48.57 PK	74.00	-25.43	1.02 H	33	12.09	36.48
6	4824.00	42.35 AV	54.00	-11.65	1.02 H	33	5.87	36.48

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	2387.00	58.91 PK	74.00	-15.09	1.09 V	163	27.69	31.22
2	2387.00	46.14 AV	54.00	-7.86	1.09 V	163	14.92	31.22
3	*2412.00	111.98 PK			1.11 V	221	80.77	31.21
4	*2412.00	107.93 AV			1.11 V	221	76.72	31.21
5	4824.00	50.07 PK	74.00	-23.93	1.10 V	263	13.59	36.48
6	4824.00	43.66 AV	54.00	-10.34	1.10 V	263	7.18	36.48

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**	27 deg. C, 71%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**TEST MODE**	**A**
TESTED BY	Lori Chiu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	96.11 PK			1.02 H	163	64.89	31.22
2	*2437.00	92.08 AV			1.02 H	163	60.86	31.22
3	4874.00	50.27 PK	74.00	-23.73	1.07 H	351	13.69	36.58
4	4874.00	43.58 AV	54.00	-10.42	1.07 H	351	7.00	36.58

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	111.80 PK			1.03 V	179	80.58	31.22
2	*2437.00	107.36 AV			1.03 V	179	76.14	31.22
3	4874.00	51.47 PK	74.00	-22.53	1.00 V	133	14.89	36.58
4	4874.00	45.56 AV	54.00	-8.44	1.00 V	133	8.98	36.58

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

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**	27 deg. C, 71%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**TEST MODE**	**A**
TESTED BY	Lori Chiu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	94.82 PK			1.01 H	57	63.59	31.23
2	*2462.00	90.73 AV			1.01 H	57	59.50	31.23
3	2483.50	55.46 PK	74.00	-18.54	1.01 H	57	24.22	31.24
4	2483.50	45.12 AV	54.00	-8.88	1.01 H	57	13.88	31.24
5	4924.00	49.73 PK	74.00	-24.27	1.00 H	32	13.05	36.68
6	4924.00	44.84 AV	54.00	-9.16	1.00 H	32	8.16	36.68

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	109.57 PK			1.09 V	224	78.34	31.23
2	*2462.00	105.43 AV			1.09 V	224	74.20	31.23
3	2483.50	59.89 PK	74.00	-14.11	1.00 V	193	28.65	31.24
4	2483.50	49.01 AV	54.00	-4.99	1.00 V	193	17.77	31.24
5	4924.00	52.87 PK	74.00	-21.13	1.14 V	6	16.19	36.68
6	4924.00	47.84 AV	54.00	-6.16	1.14 V	6	11.16	36.68

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**	27 deg. C, 71%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**TEST MODE**	**A**
TESTED BY	Lori Chiu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 m

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	55.48 PK	74.00	-18.52	1.08 H	292	24.26	31.22
2	2390.00	44.80 AV	54.00	-9.20	1.08 H	292	13.58	31.22
3	*2412.00	94.18 PK			1.08 H	292	62.97	31.21
4	*2412.00	84.27 AV			1.08 H	292	53.06	31.21
5	4824.00	45.17 PK	74.00	-28.83	1.05 H	11	8.69	36.48
6	4824.00	33.38 AV	54.00	-20.62	1.05 H	11	-3.10	36.48

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	2320.00	58.02 PK	74.00	-15.98	1.08 V	296	26.74	31.28
2	2320.00	47.21 AV	54.00	-6.79	1.08 V	296	15.93	31.28
3	2390.00	68.32 PK	74.00	-5.68	1.08 V	157	37.10	31.22
4	**2390.00**	**51.91 AV**	**54.00**	**-2.09**	**1.08 V**	**157**	**20.69**	**31.22**
5	*2412.00	111.65 PK			1.09 V	209	80.44	31.21
6	*2412.00	101.15 AV			1.09 V	209	69.94	31.21
7	4824.00	46.72 PK	74.00	-27.28	1.08 V	229	10.24	36.48
8	4824.00	34.96 AV	54.00	-19.04	1.08 V	229	-1.52	36.48

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**	27 deg. C, 71%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**TEST MODE**	**A**
TESTED BY	Lori Chiu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 m

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	94.65 PK			1.11 H	302	63.43	31.22
2	*2437.00	84.80 AV			1.11 H	302	53.58	31.22
3	4874.00	46.84 PK	74.00	-27.16	1.00 H	35	10.26	36.58
4	4874.00	34.72 AV	54.00	-19.28	1.00 H	35	-1.86	36.58

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 m

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	111.71 PK			1.25 V	118	80.49	31.22
2	*2437.00	101.37 AV			1.25 V	118	70.15	31.22
3	4874.00	47.50 PK	74.00	-26.50	1.03 V	222	10.92	36.58
4	4874.00	35.64 AV	54.00	-18.36	1.03 V	222	-0.94	36.58

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

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**	27 deg. C, 71%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**TEST MODE**	**A**
TESTED BY	Lori Chiu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 m

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	93.53 PK			1.21 H	92	62.30	31.23
2	*2462.00	83.28 AV			1.21 H	92	52.05	31.23
3	2483.50	55.55 PK	74.00	-18.45	1.21 H	92	24.31	31.24
4	2483.50	44.84 AV	54.00	-9.16	1.21 H	92	13.60	31.24
5	4924.00	45.76 PK	74.00	-28.24	1.00 H	19	9.08	36.68
6	4924.00	33.85 AV	54.00	-20.15	1.00 H	19	-2.83	36.68

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	110.28 PK			1.04 V	162	79.05	31.23
2	*2462.00	100.02 AV			1.04 V	162	68.79	31.23
3	2483.50	66.67 PK	74.00	-7.33	1.07 V	186	35.43	31.24
4	2483.50	51.32 AV	54.00	-2.68	1.07 V	186	20.08	31.24
5	4924.00	46.67 PK	74.00	-27.33	1.00 V	358	9.99	36.68
6	4924.00	34.88 AV	54.00	-19.12	1.00 V	358	-1.80	36.68

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
R&S SPECTRUM ANALYZER	FSP40	100040	Apr. 11, 2008

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

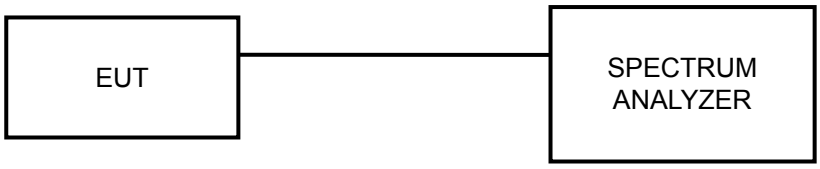
4.3.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100 kHz 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



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

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.

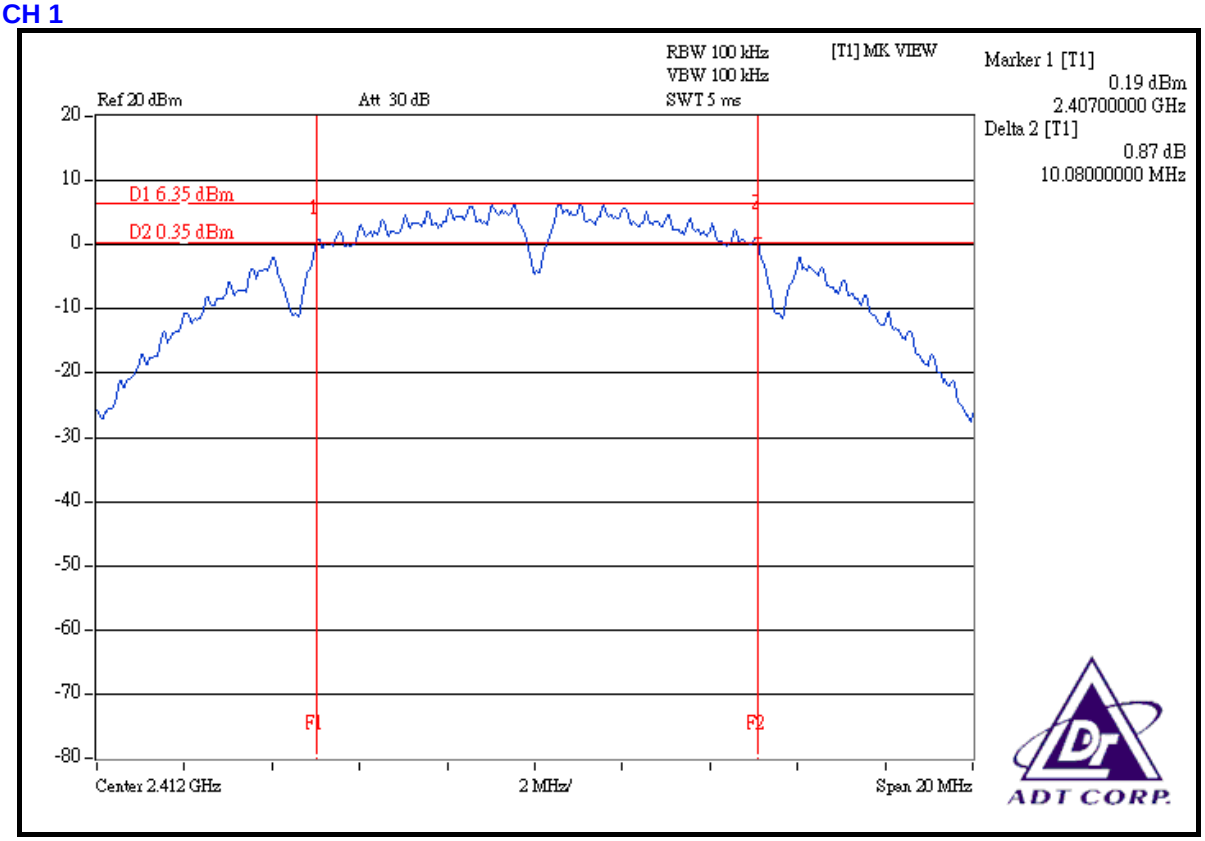
4.3.7 TEST RESULTS

802.11b DSSS MODULATION

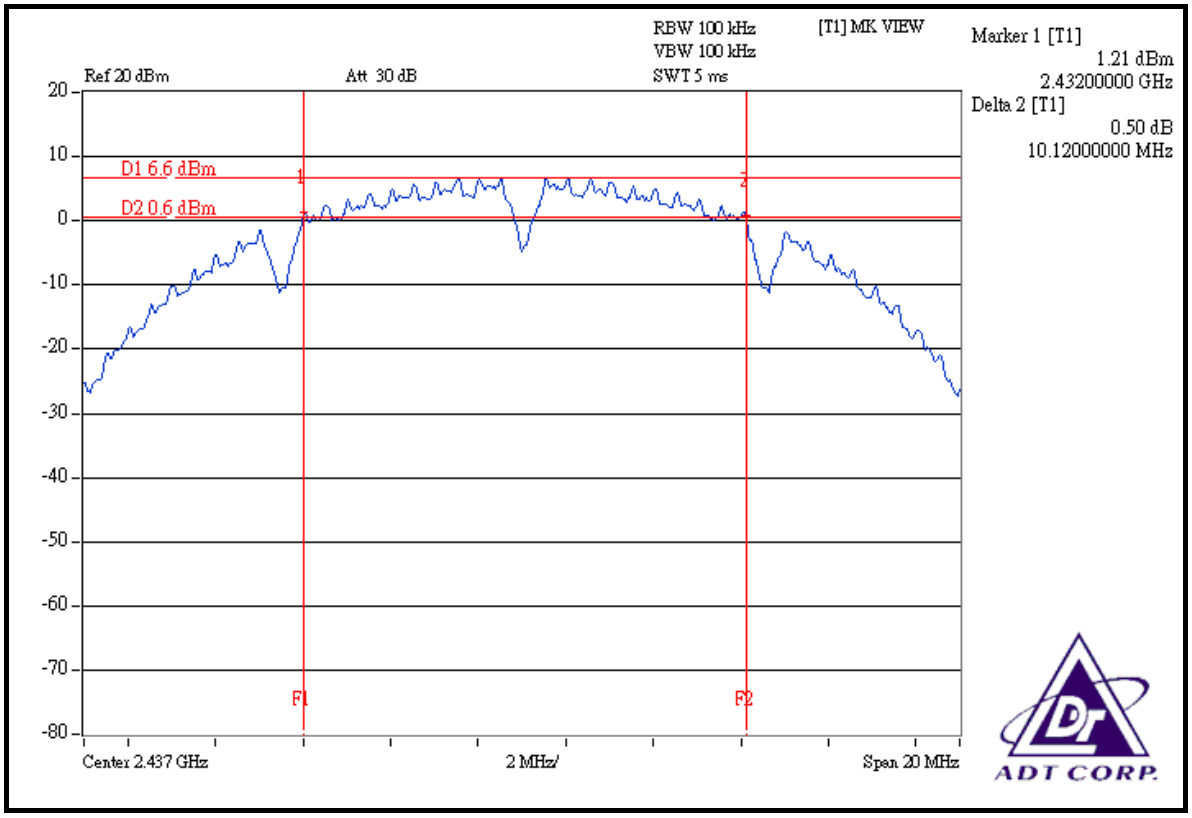
MODULATION TYPE	DBPSK	TRANSFER RATE	1Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	27 deg. C, 65%RH, 991hPa
TESTED BY	Morgan Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	10.08	0.5	PASS
6	2437	10.12	0.5	PASS
11	2462	10.08	0.5	PASS

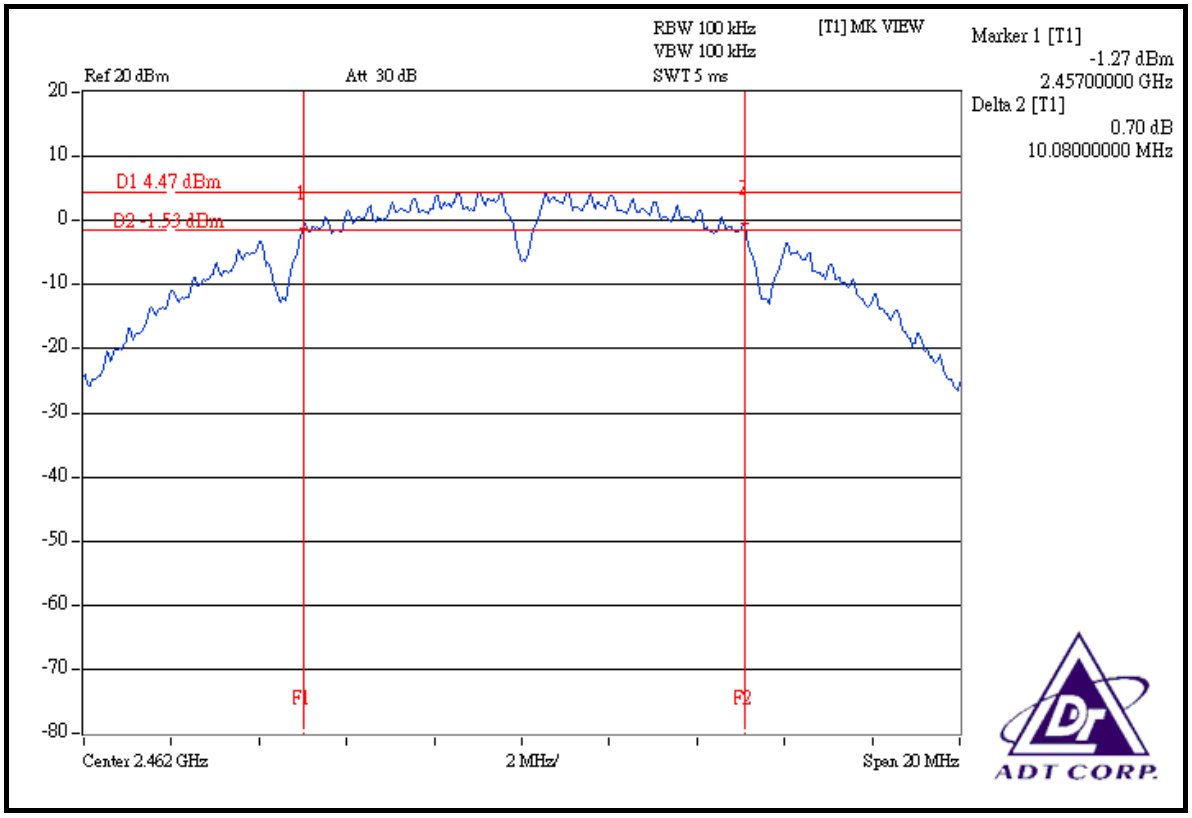
CH 1



CH 6


RBW 100 kHz
VBW 100 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
1.21 dBm
2.43200000 GHz
Delta 2 [T1]
0.50 dB
10.12000000 MHz
Ref 20 dBm
Att 30 dB
D1 6.6 dBm
D2 0.6 dBm
F1
F2
Center 2.437 GHz
2 MHz/
Span 20 MHz
ADT CORP.

CH 11

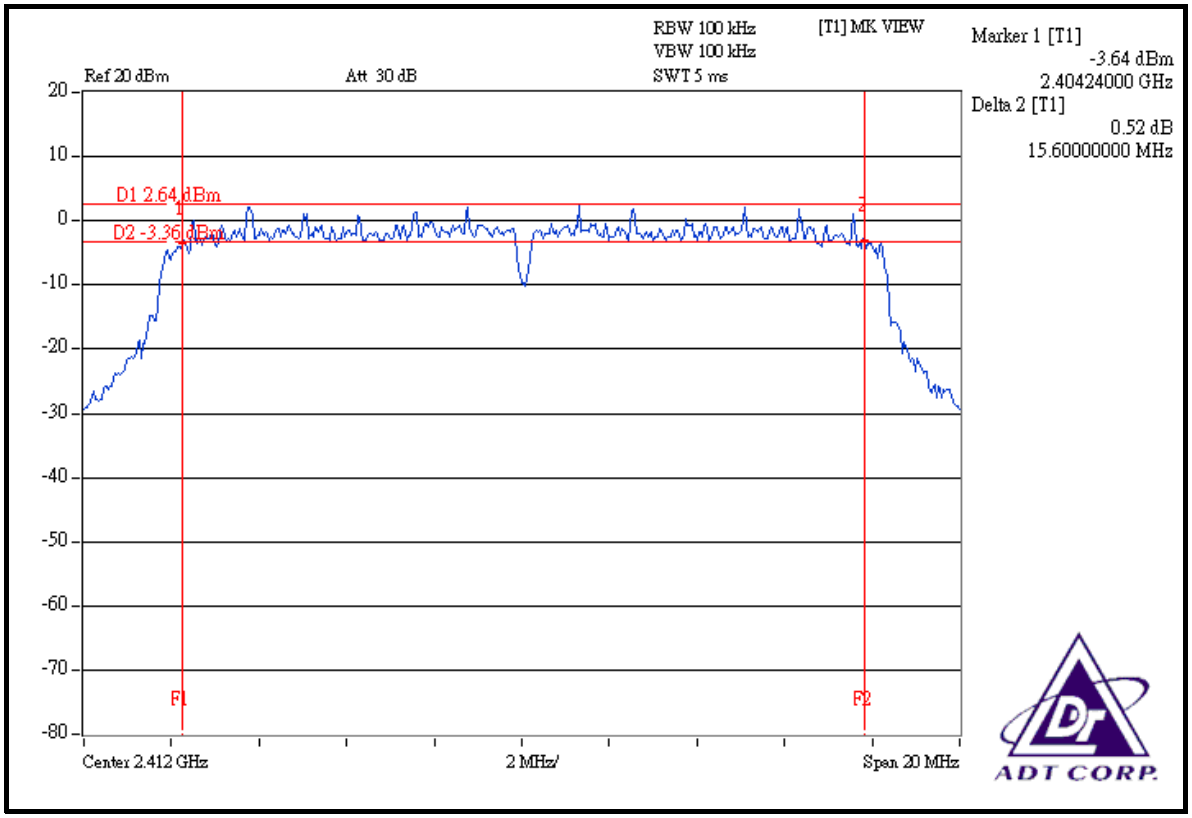

RBW 100 kHz
VBW 100 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
-1.27 dBm
2.45700000 GHz
Delta 2 [T1]
0.70 dB
10.08000000 MHz
Ref 20 dBm
Att 30 dB
D1 4.47 dBm
D2 -1.53 dBm
F1
F2
Center 2.462 GHz
2 MHz/
Span 20 MHz
ADT CORP.

802.11g OFDM MODULATION

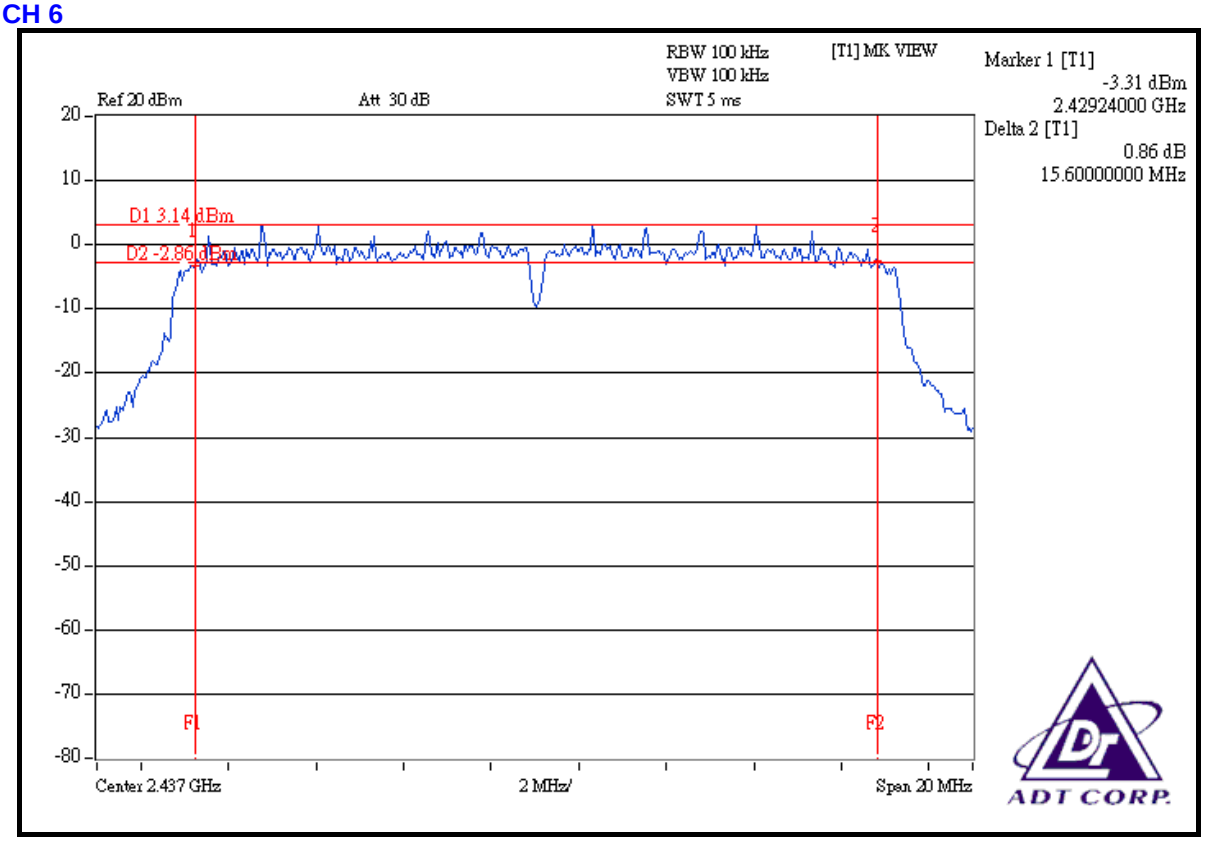
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	27 deg. C, 65%RH, 991hPa
TESTED BY	Morgan Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	15.60	0.5	PASS
6	2437	15.60	0.5	PASS
11	2462	15.56	0.5	PASS

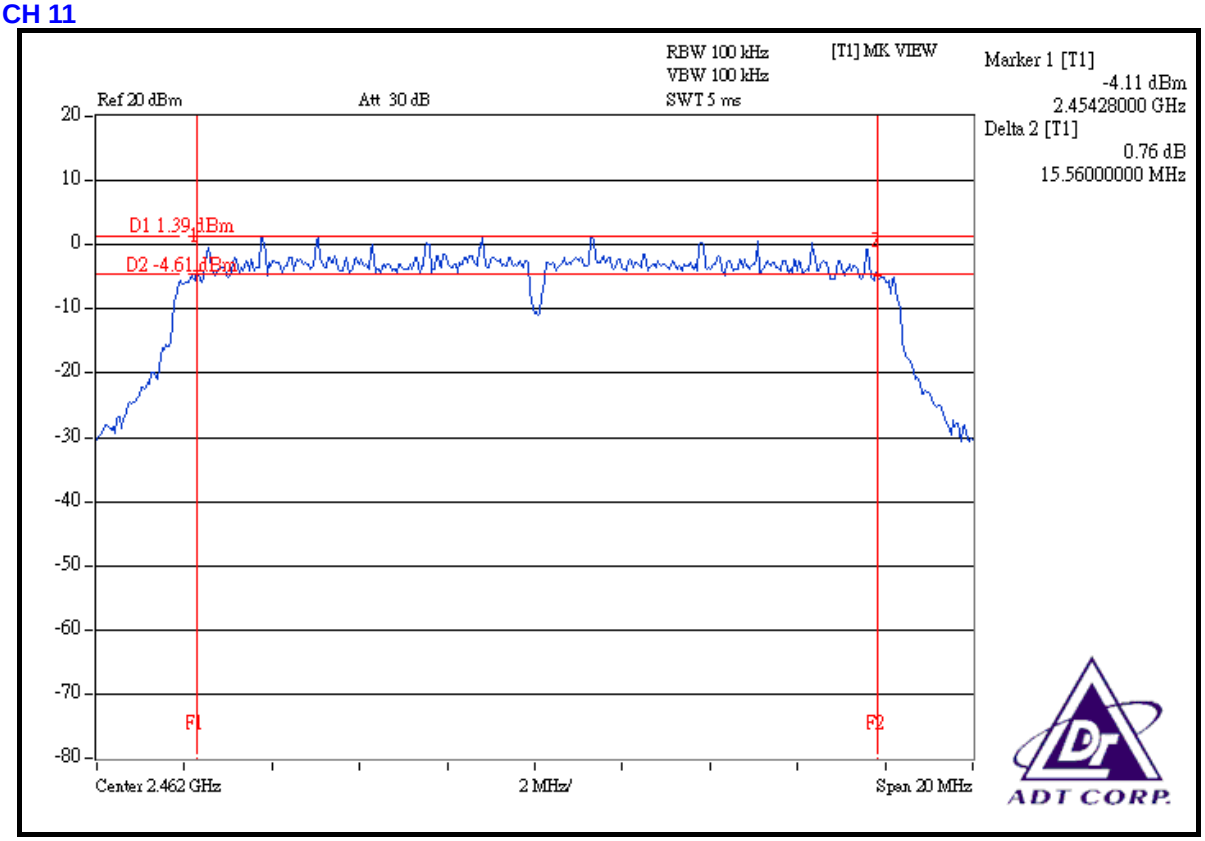
CH 1



CH 6


RBW 100 kHz
VBW 100 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
-3.31 dBm
2.42924000 GHz
Delta 2 [T1]
0.86 dB
15.60000000 MHz
Ref 20 dBm
Att 30 dB
D1 3.14 dBm
D2 -2.86 dBm
F1
F2
Center 2.437 GHz
2 MHz/
Span 20 MHz
ADT CORP.

CH 11


RBW 100 kHz
VBW 100 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
-4.11 dBm
2.45428000 GHz
Delta 2 [T1]
0.76 dB
15.56000000 MHz
Ref 20 dBm
Att 30 dB
D1 1.39 dBm
D2 -4.61 dBm
F1
F2
Center 2.462 GHz
2 MHz/
Span 20 MHz
ADT CORP.

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 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100040	Apr. 11, 2008
AGILENT SIGNAL GENERATOR	E8257C	MY43320668	Dec. 28, 2007
TEKTRONIX OSCILLOSCOPE	TDS1012	C037299	Nov. 27, 2007
NARDA DETECTOR	4503A	FSCM99899	NA

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

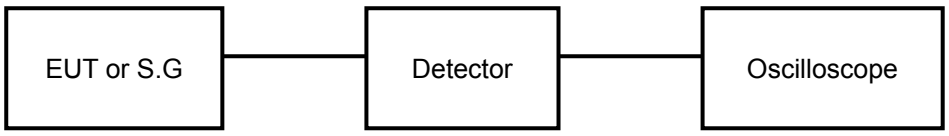
4.4.3 TEST PROCEDURES

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

4.4.4 DEVIATION FROM TEST STANDARD

No deviation.

4.4.5 TEST SETUP



4.4.6 EUT OPERATING CONDITIONS

Same as 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	27 deg. C, 65%RH, 991hPa
TESTED BY	Morgan Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	80.353	19.05	30	PASS
6	2437	80.910	19.08	30	PASS
11	2462	50.933	17.07	30	PASS

802.11g OFDM MODULATION

MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	27 deg. C, 65%RH, 991hPa
TESTED BY	Morgan Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	64.863	18.12	30	PASS
6	2437	72.611	18.61	30	PASS
11	2462	51.286	17.10	30	PASS

4.5 POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

4.5.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100040	Apr. 11, 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

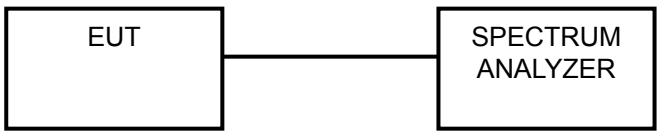
The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3kHz RBW and 30kHz VBW, set sweep time = span/3kHz. The power spectral density was measured and recorded.

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 CONDITIONS

Same as 4.3.6.

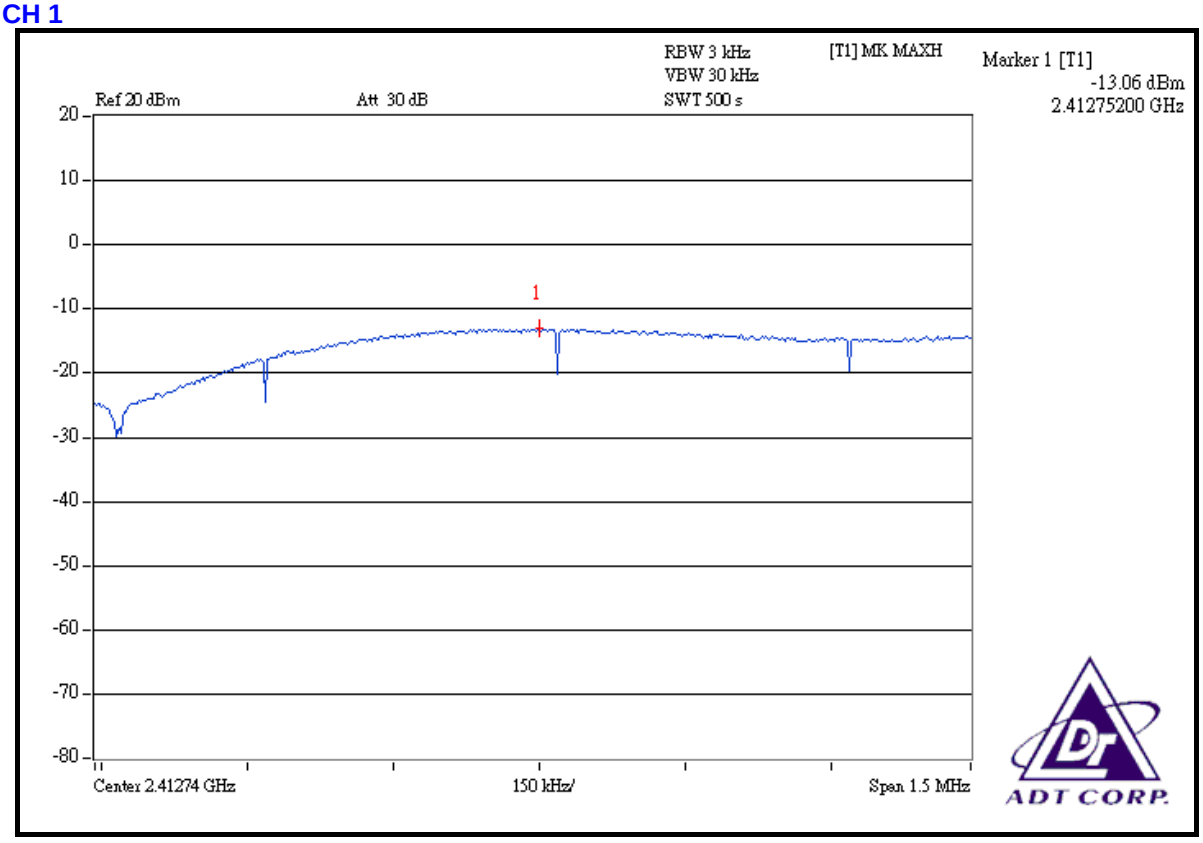
4.5.7 TEST RESULTS

802.11b DSSS MODULATION

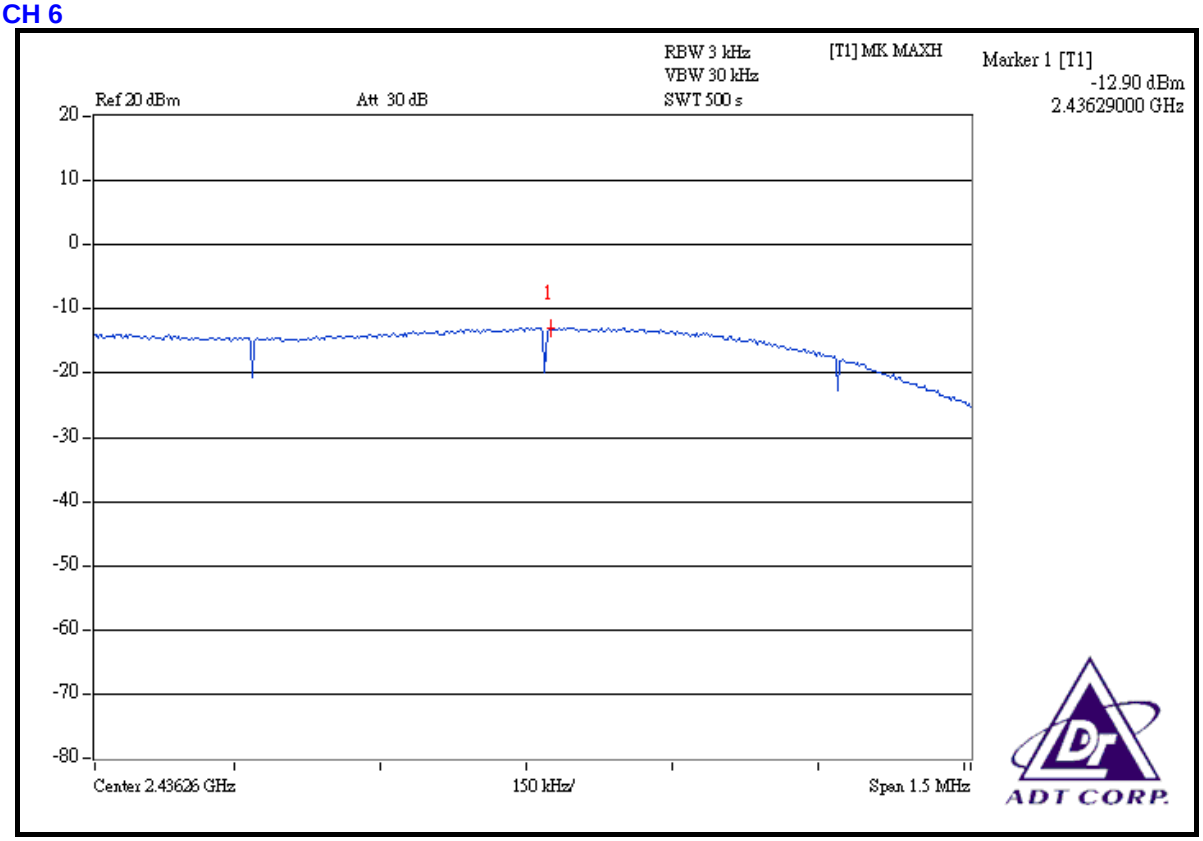
MODULATION TYPE	DBPSK	TRANSFER RATE	1Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	27 deg. C, 65%RH, 991hPa
TESTED BY	Morgan Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-13.06	8	PASS
6	2437	-12.90	8	PASS
11	2462	-14.98	8	PASS

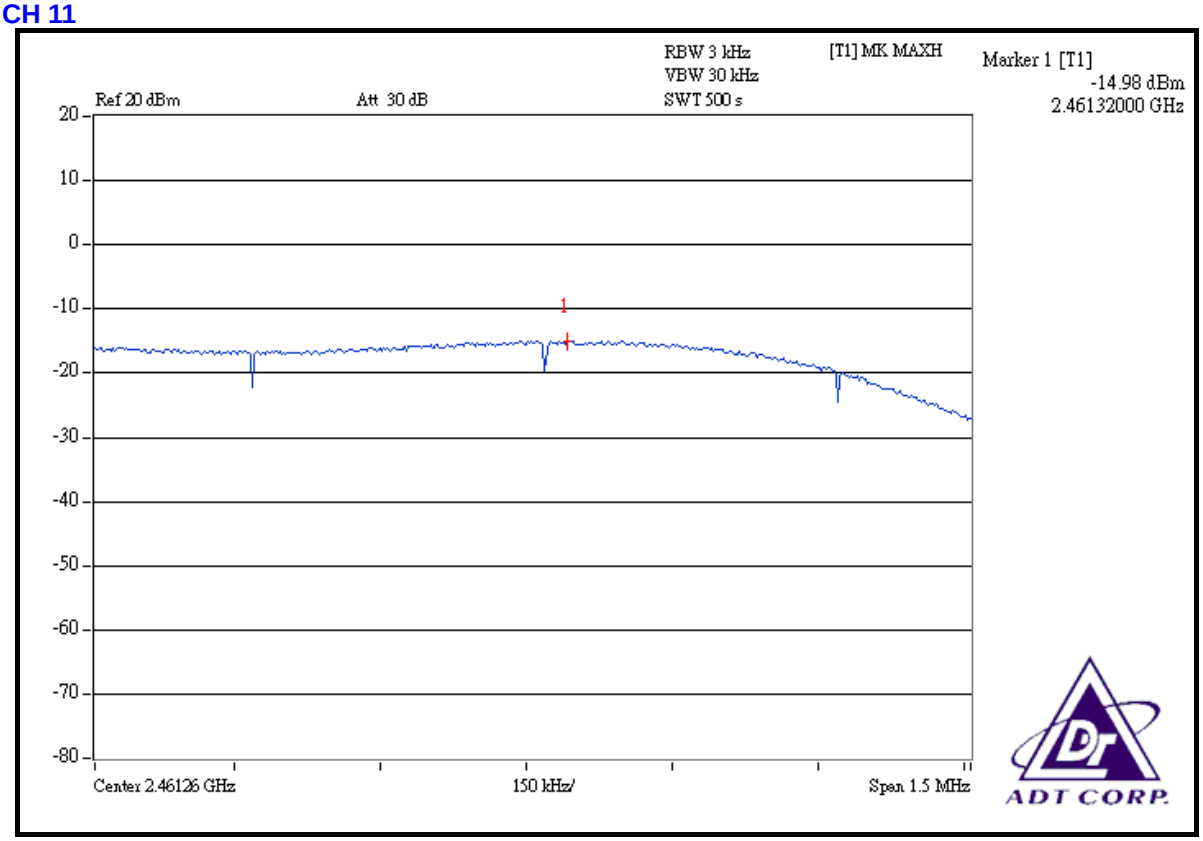
CH 1



CH 6


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-12.90 dBm
2.43629000 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Center 2.43626 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

CH 11

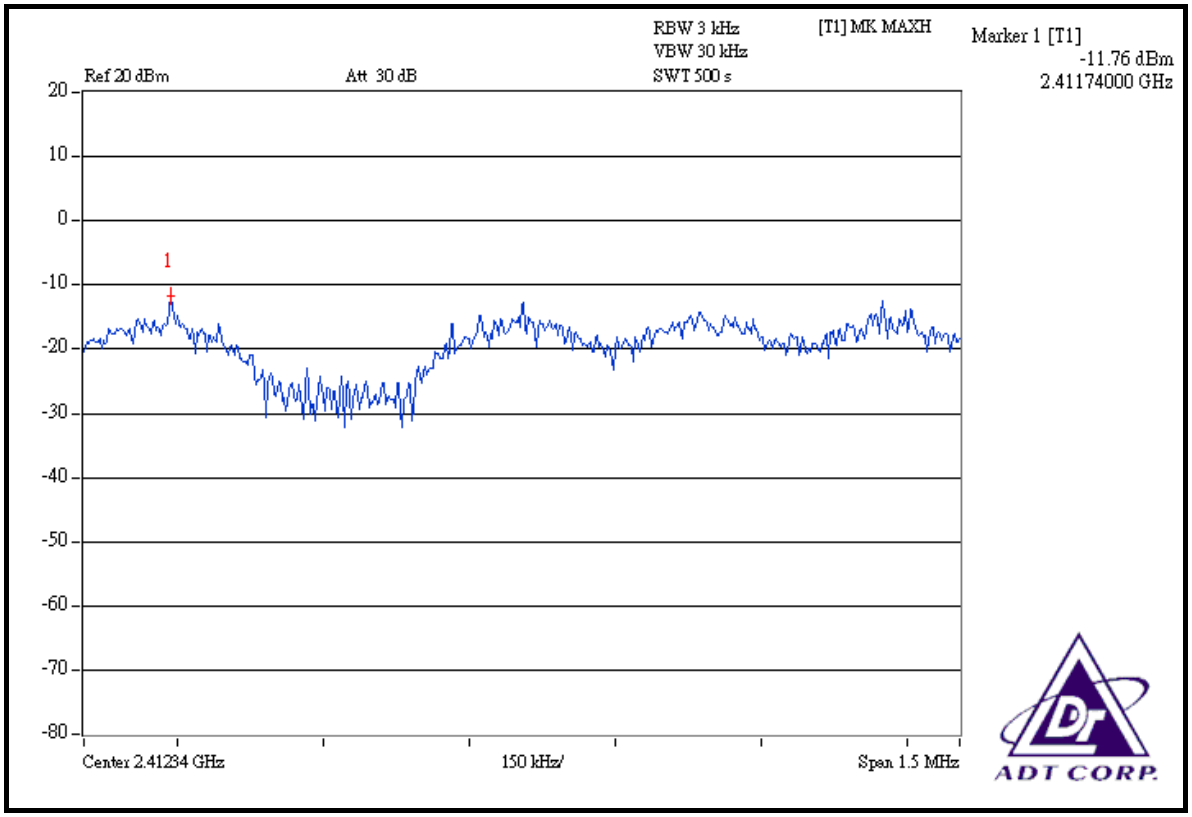

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-14.98 dBm
2.46132000 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Center 2.46126 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

802.11g OFDM MODULATION

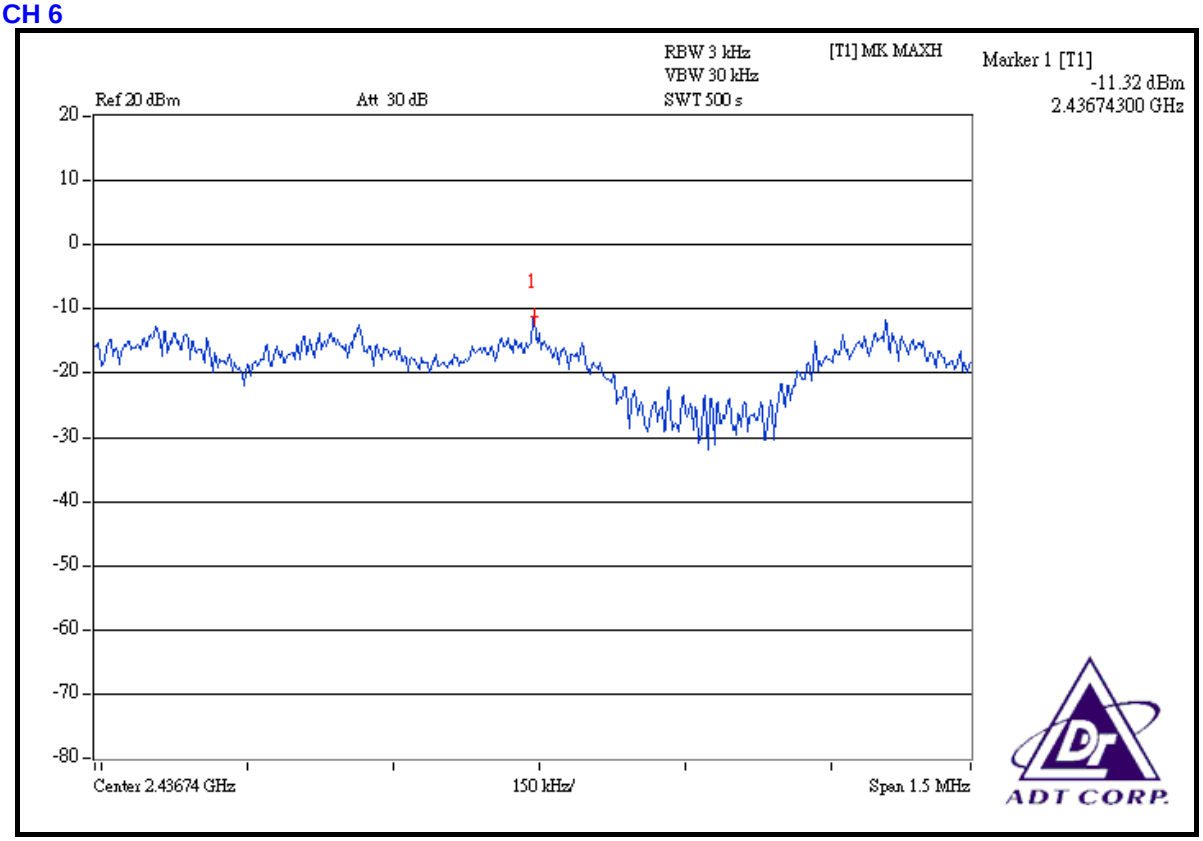
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	27 deg. C, 65%RH, 991hPa
TESTED BY	Morgan Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-11.76	8	PASS
6	2437	-11.32	8	PASS
11	2462	-13.00	8	PASS

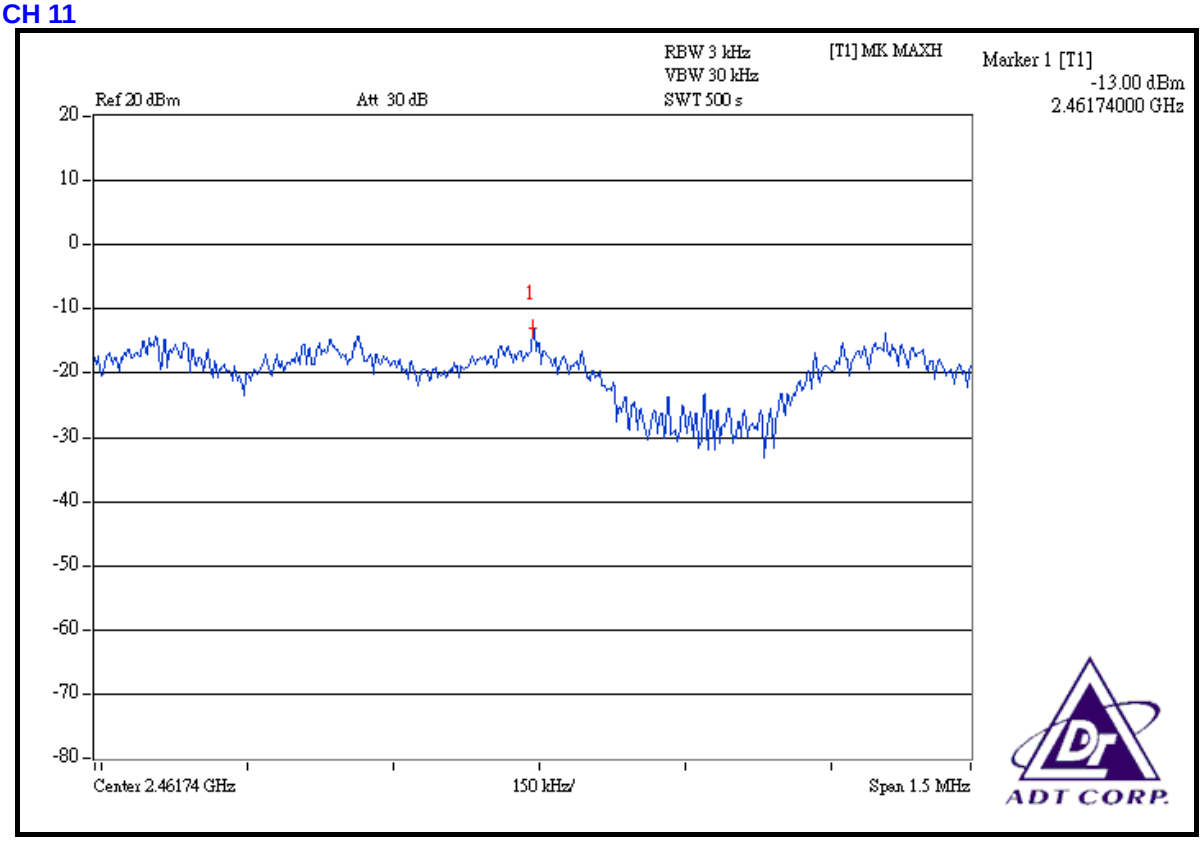
CH 1



CH 6


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-11.32 dBm
2.43674300 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Center 2.43674 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

CH 11


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-13.00 dBm
2.46174000 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Center 2.46174 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

4.6 BAND EDGES MEASUREMENT

4.6.1 LIMITS OF BAND EDGES MEASUREMENT

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

4.6.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100040	Apr. 11, 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 lose 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=VBW=100kHz; Average RBW=1MHz, VBW= 10Hz are attached on the following pages.

4.6.4 DEVIATION FROM TEST STANDARD

No deviation.

4.6.5 EUT OPERATING CONDITION

Same as 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 20dB offset below D1. It shows compliance with the requirement in part 15.247(d).

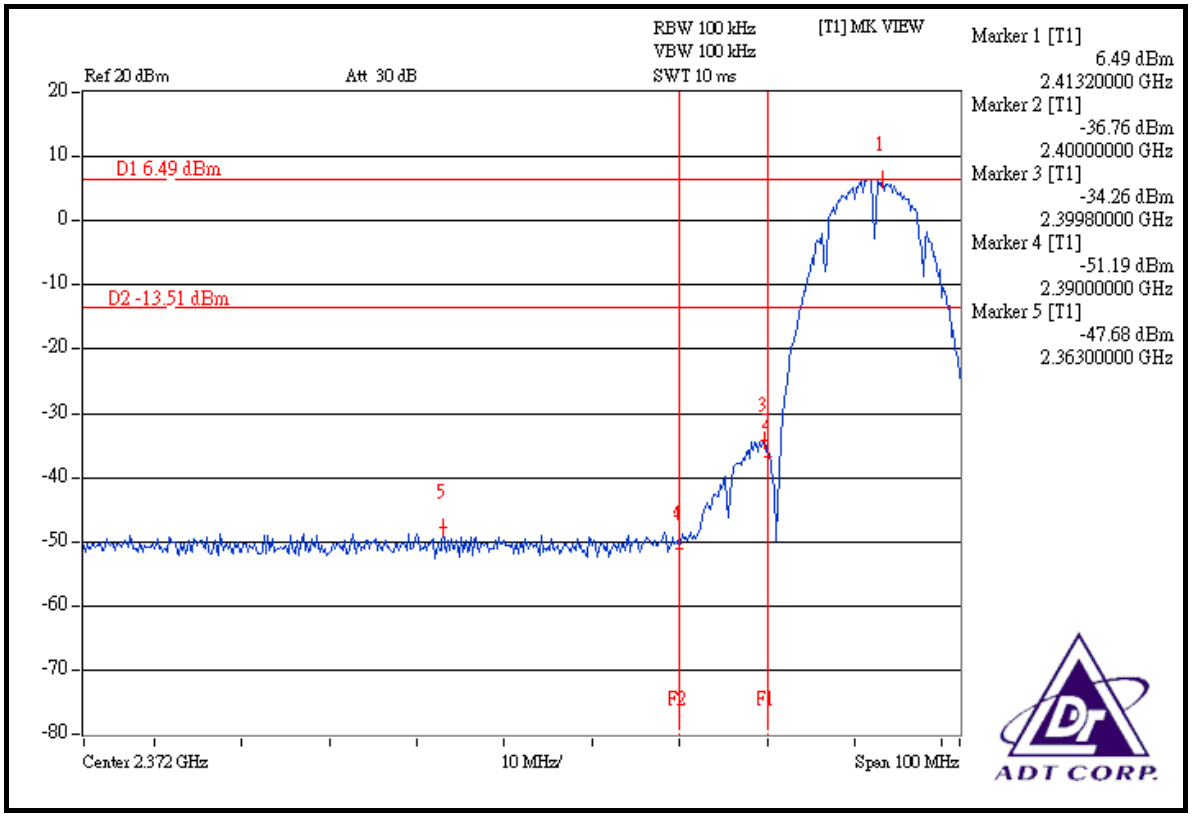
802.11b DSSS MODULATION

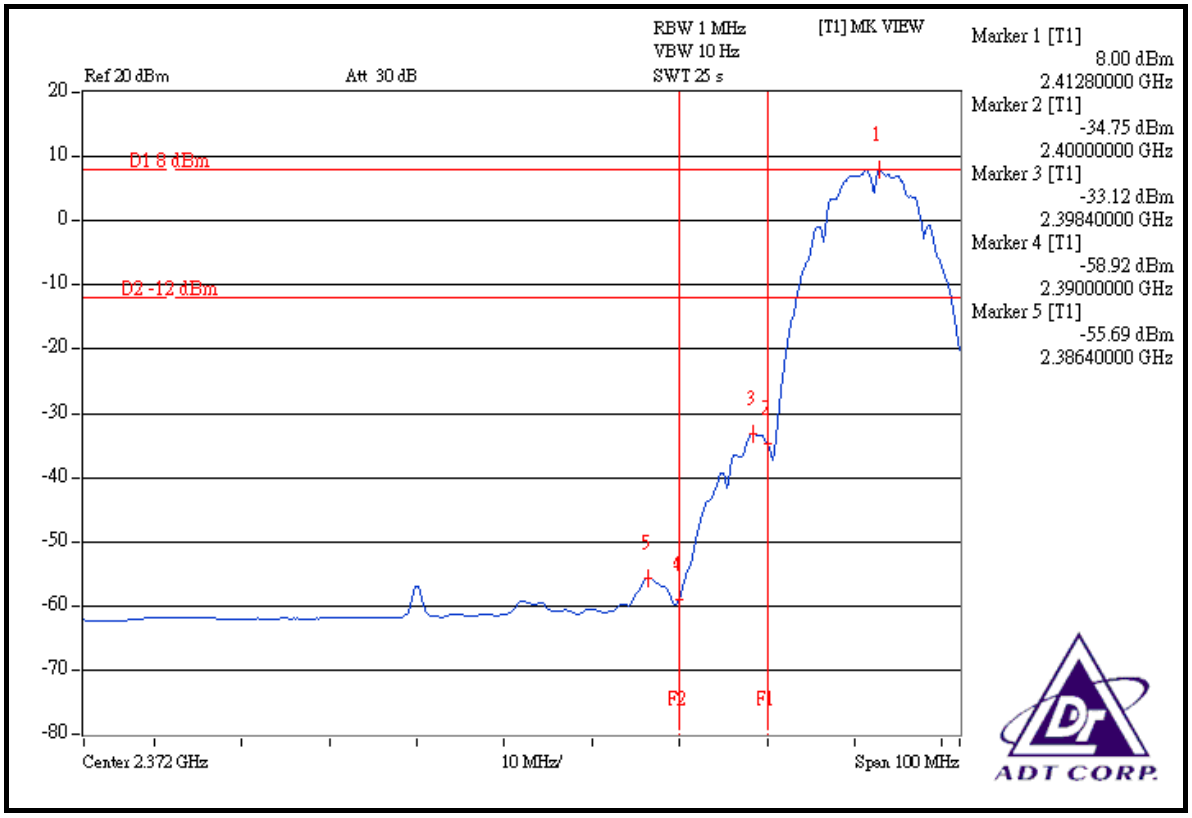
NOTE 1: The band edge emission plot on the next page shows 54.17dBc between carrier maximum power and local maximum emission in restrict band (2.3630GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 111.98dBuV/m (Peak), so the maximum field strength in restrict band is 111.98 – 54.17 =57.81dBuV/m which is under 74dBuV/m limit.

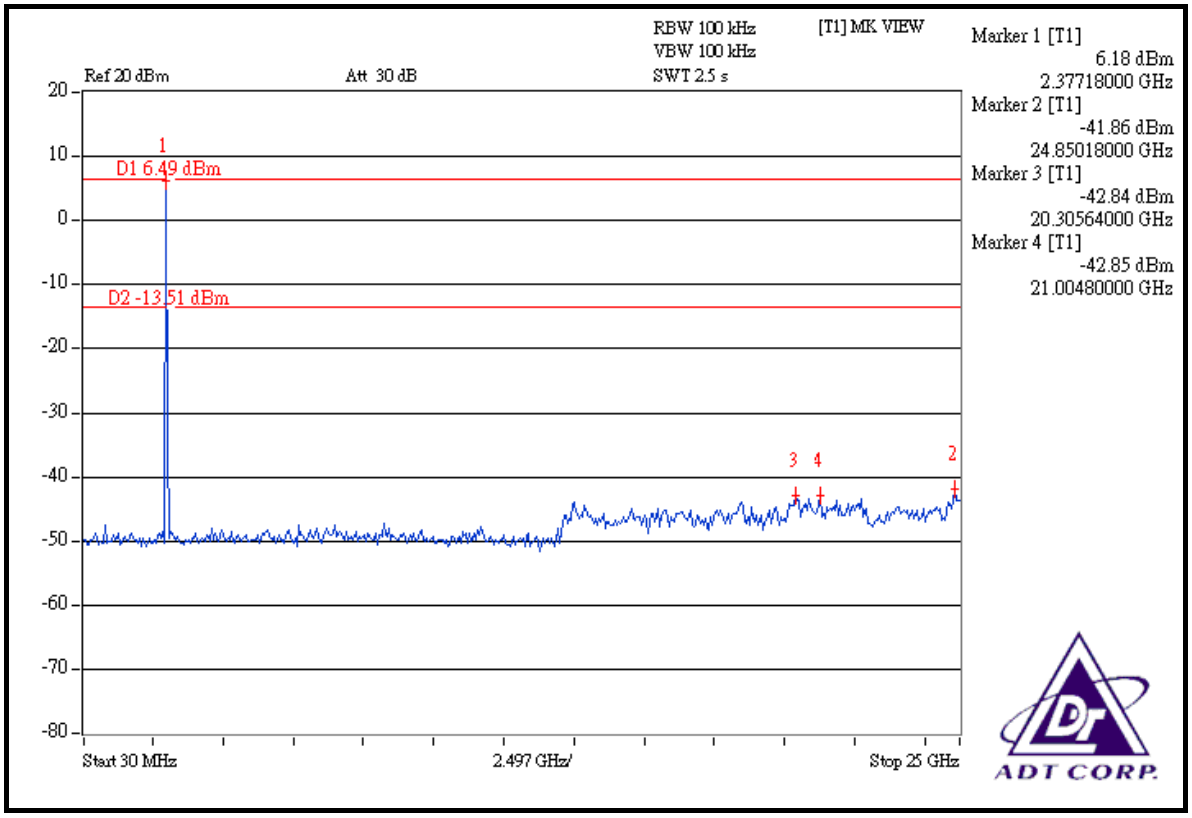
The band edge emission plot of on the next page shows 63.69dBc between carrier maximum power and local maximum emission in restrict band (2.3864GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 107.93dBuV/m (Average), so the maximum field strength in restrict band is 107.93 – 63.69 = 44.24dBuV/m which is under 54dBuV/m limit.

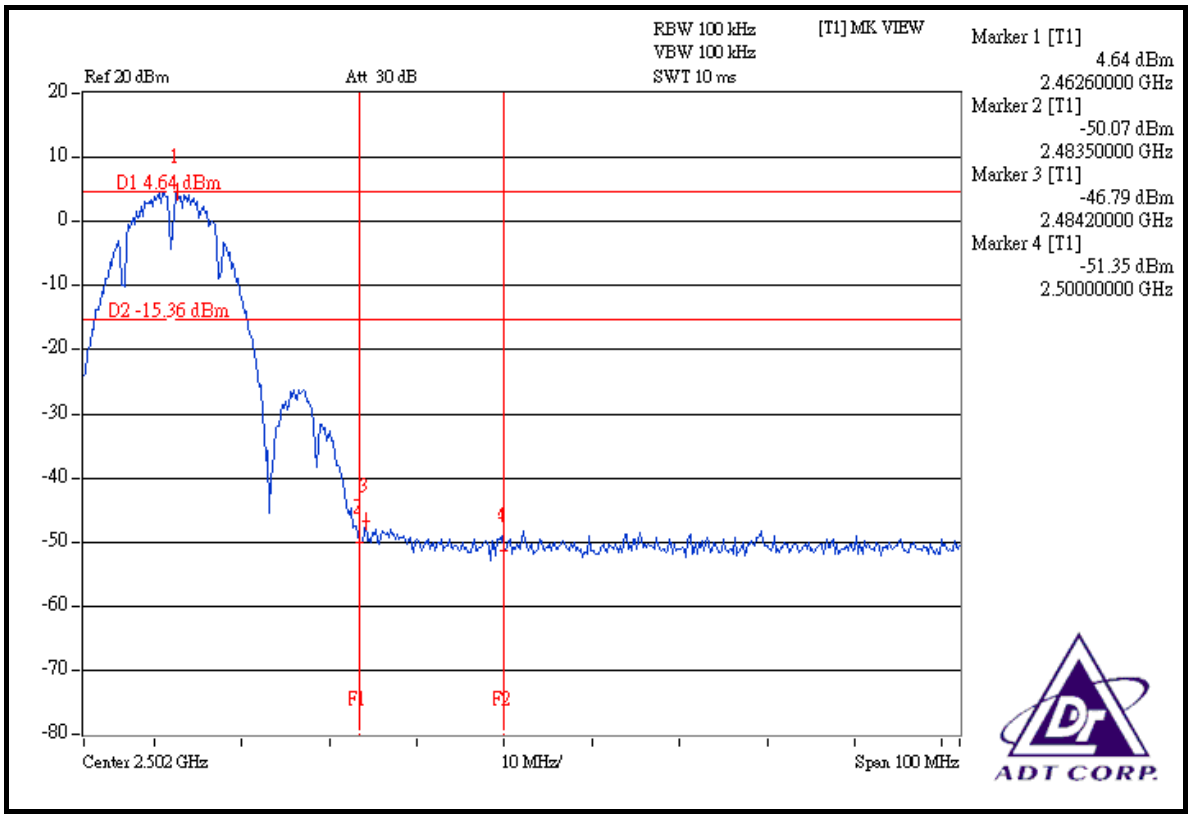
NOTE 2: The band edge emission plot on the next second page shows 51.43dBc between carrier maximum power and local maximum emission in restrict band (2.4842GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 109.57dBuV/m (Peak), so the maximum field strength in restrict band is 109.57 – 51.43 = 58.14dBuV/m which is under 74dBuV/m limit.

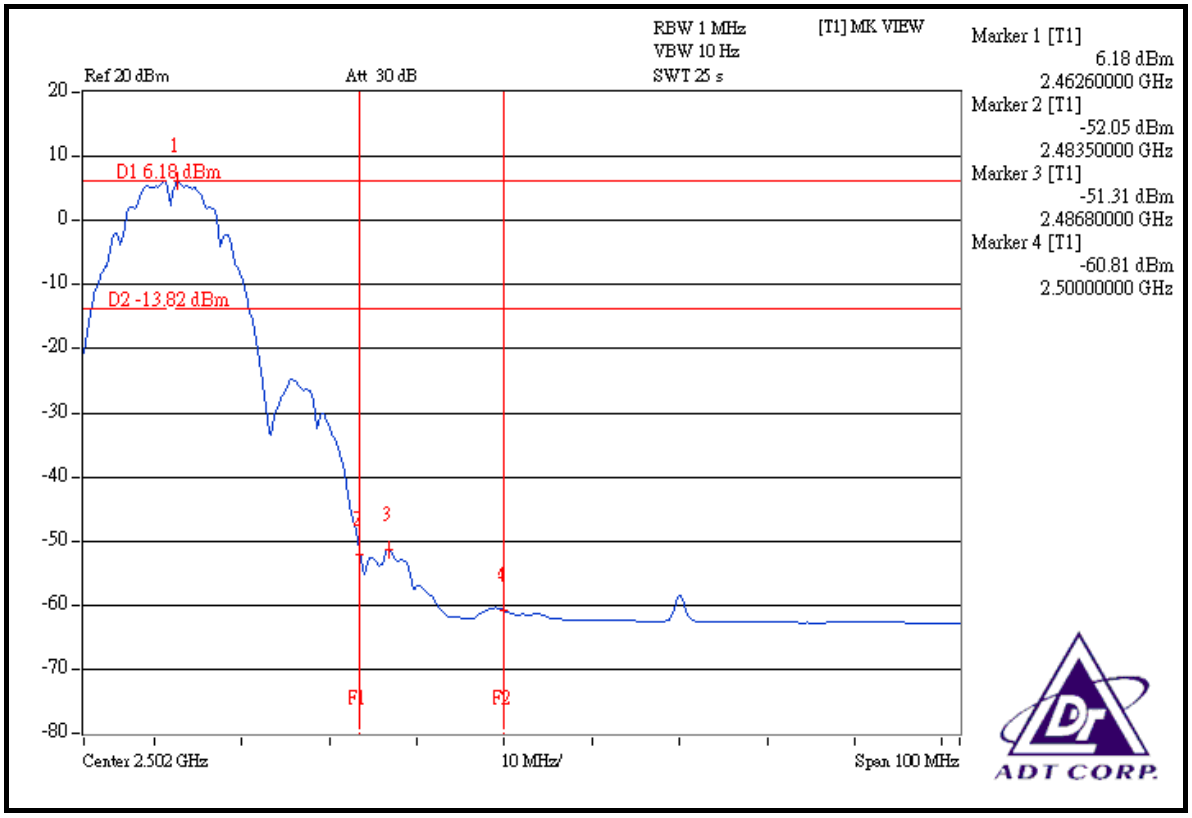
The band edge emission plot on the next third page shows 57.49dBc between carrier maximum power and local maximum emission in restrict band (2.4868GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 105.43dBuV/m (Average), so the maximum field strength in restrict band is 105.43 – 57.49 = 47.94dBuV/m which is under 54dBuV/m limit.

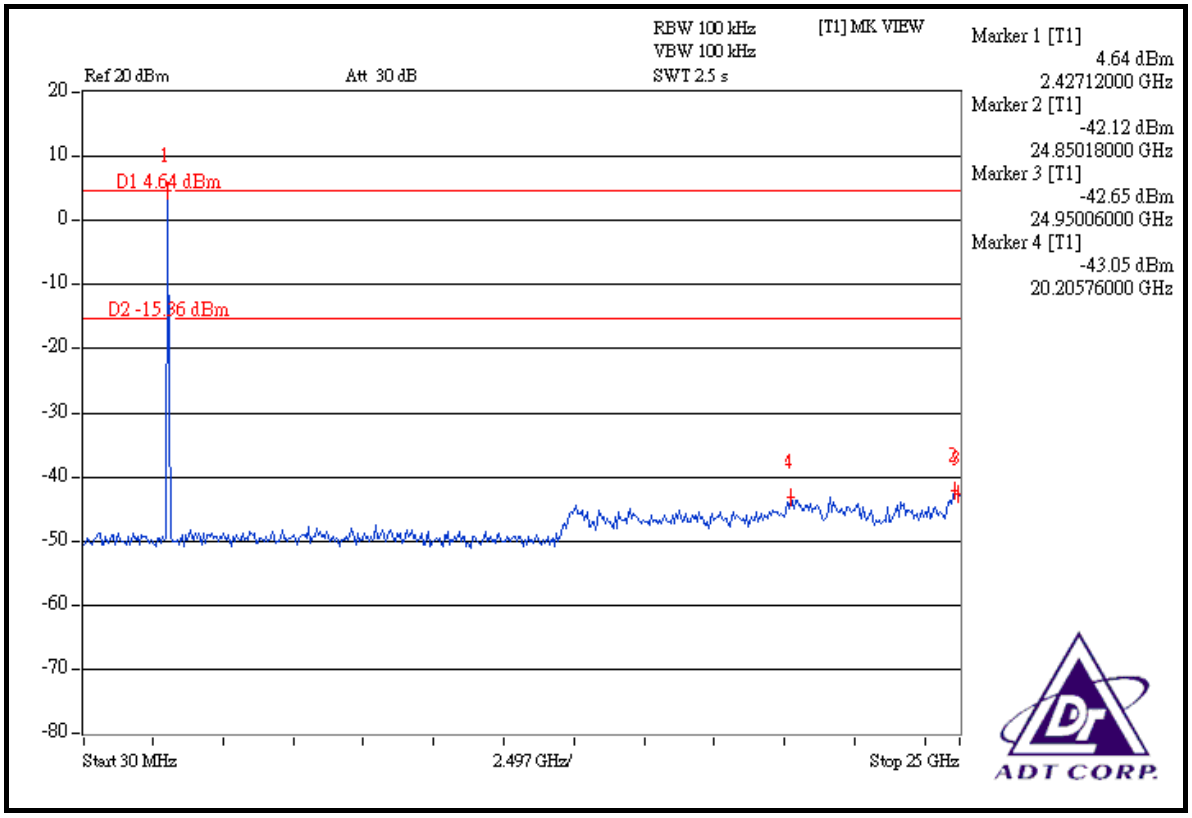

RBW 100 kHz
VBW 100 kHz
SWT 10 ms
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 6.49 dBm
D2 -13.51 dBm
Center 2.372 GHz
10 MHz/
Span 100 MHz
Marker 1 [T1]
6.49 dBm
2.41320000 GHz
Marker 2 [T1]
-36.76 dBm
2.40000000 GHz
Marker 3 [T1]
-34.26 dBm
2.39980000 GHz
Marker 4 [T1]
-51.19 dBm
2.39000000 GHz
Marker 5 [T1]
-47.68 dBm
2.36300000 GHz
ADT CORP.


RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 8 dBm
D2 -12 dBm
Center 2.372 GHz
10 MHz/
Span 100 MHz
Marker 1 [T1]
8.00 dBm
2.41280000 GHz
Marker 2 [T1]
-34.75 dBm
2.40000000 GHz
Marker 3 [T1]
-33.12 dBm
2.39840000 GHz
Marker 4 [T1]
-58.92 dBm
2.39000000 GHz
Marker 5 [T1]
-55.69 dBm
2.38640000 GHz
ADT CORP.


RBW 100 kHz
VBW 100 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 6.49 dBm
D2 -13.51 dBm
Start 30 MHz
2.497 GHz/
Stop 25 GHz
Marker 1 [T1]
6.18 dBm
2.37718000 GHz
Marker 2 [T1]
-41.86 dBm
24.85018000 GHz
Marker 3 [T1]
-42.84 dBm
20.30564000 GHz
Marker 4 [T1]
-42.85 dBm
21.00480000 GHz


RBW 100 kHz
VBW 100 kHz
SWT 10 ms
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 4.64 dBm
D2 -15.36 dBm
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz
Marker 1 [T1]
4.64 dBm
2.46260000 GHz
Marker 2 [T1]
-50.07 dBm
2.48350000 GHz
Marker 3 [T1]
-46.79 dBm
2.48420000 GHz
Marker 4 [T1]
-51.35 dBm
2.50000000 GHz


RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 6.18 dBm
D2 -13.82 dBm
Marker 1 [T1]
6.18 dBm
2.46260000 GHz
Marker 2 [T1]
-52.05 dBm
2.48350000 GHz
Marker 3 [T1]
-51.31 dBm
2.48680000 GHz
Marker 4 [T1]
-60.81 dBm
2.50000000 GHz
Center 2.502 GHz
10 MHz/
Span 100 MHz


RBW 100 kHz
VBW 100 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 4.64 dBm
D2 -15.36 dBm
Marker 1 [T1]
4.64 dBm
2.42712000 GHz
Marker 2 [T1]
-42.12 dBm
24.85018000 GHz
Marker 3 [T1]
-42.65 dBm
24.95006000 GHz
Marker 4 [T1]
-43.05 dBm
20.20576000 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz

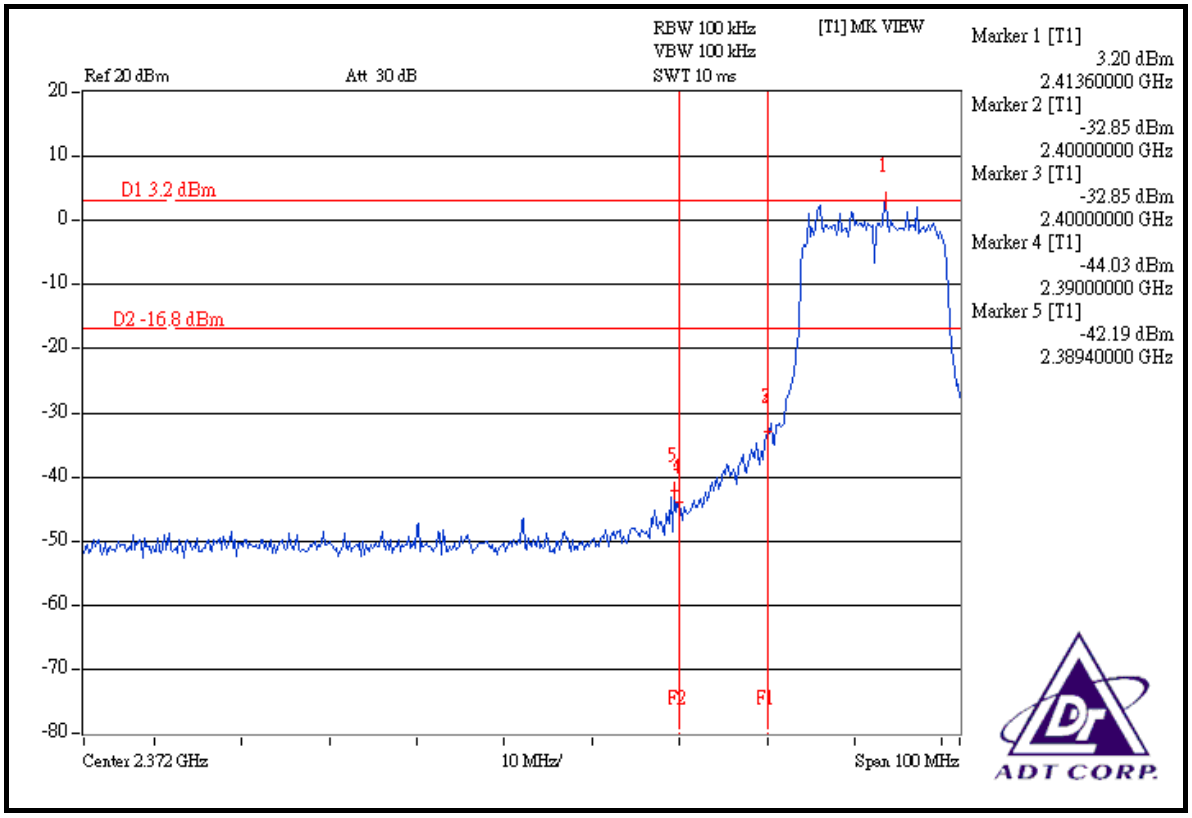
802.11g OFDM MODULATION

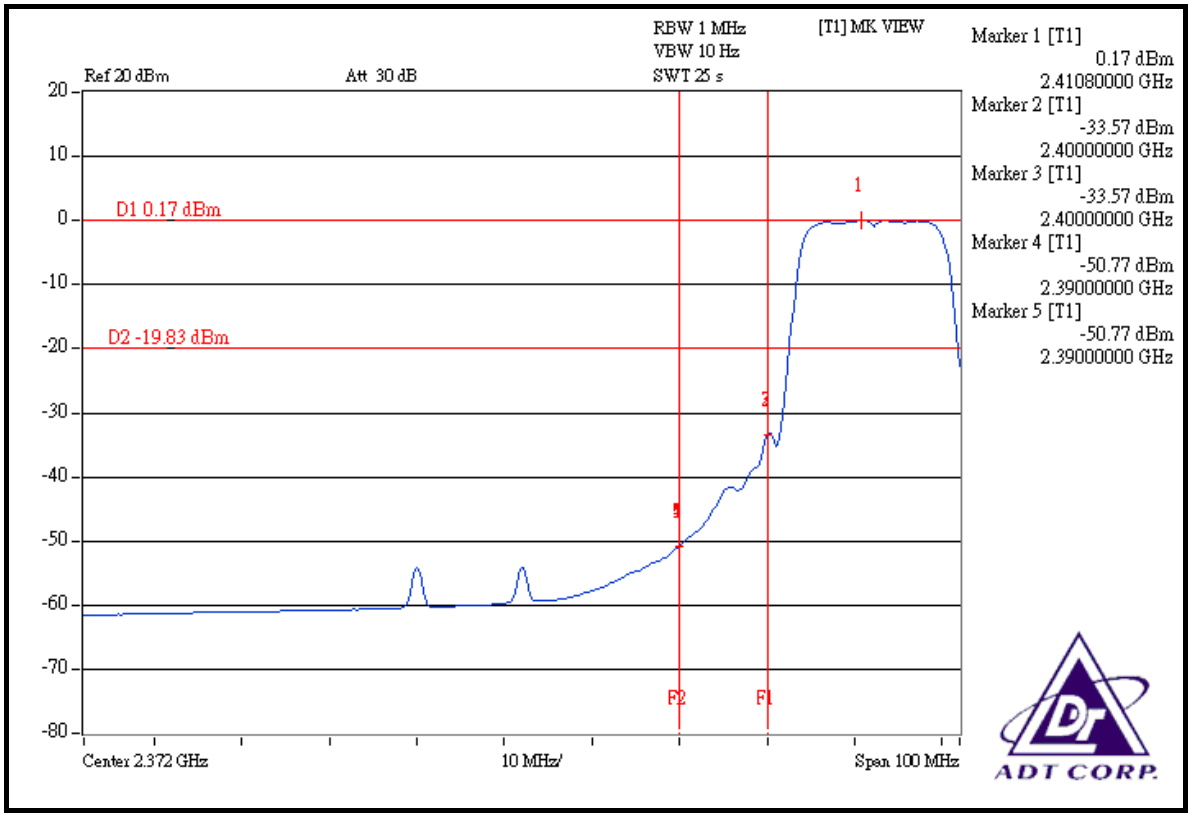
NOTE 1: The band edge emission plot on the next page shows 45.39dBc between carrier maximum power and local maximum emission in restrict band (2.3894GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 111.65dBuV/m (Peak), so the maximum field strength in restrict band is 111.65 – 45.39 = 66.26dBuV/m which is under 74dBuV/m limit.

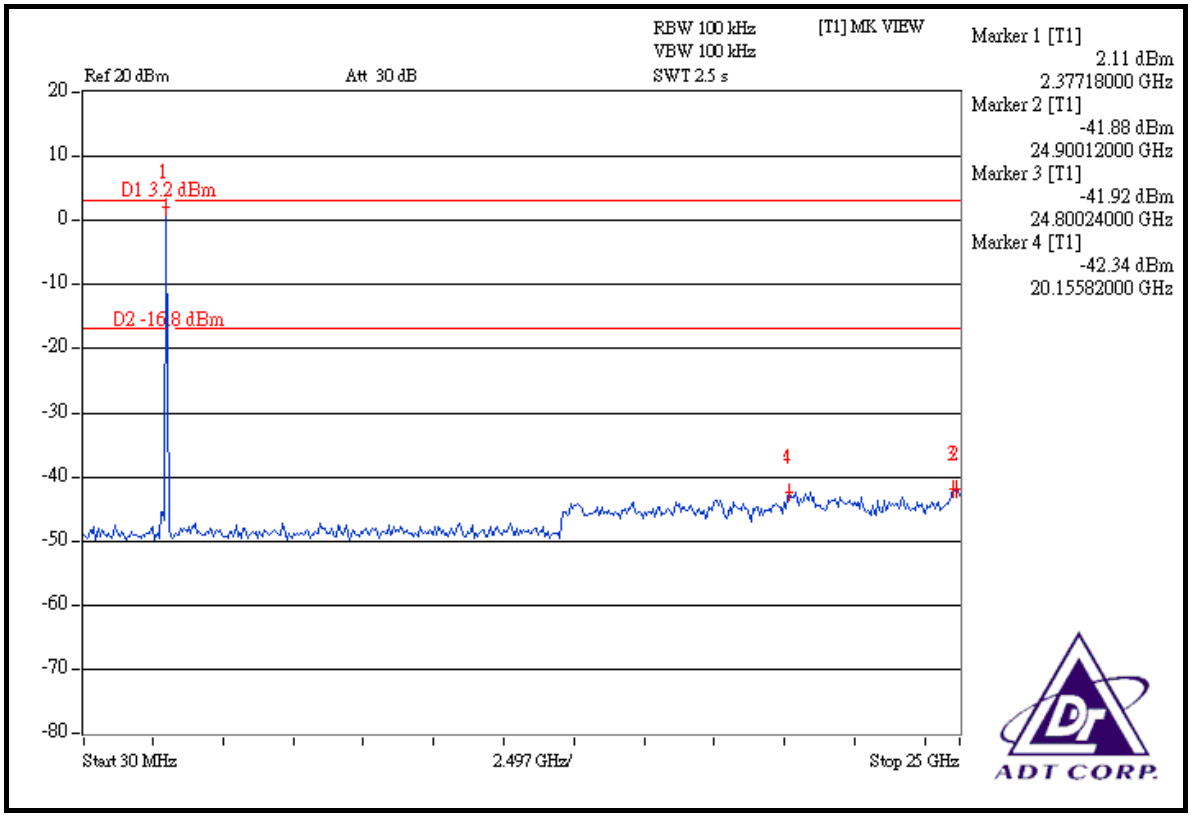
The band edge emission plot of on the next page shows 50.94dBc between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 101.15dBuV/m (Average), so the maximum field strength in restrict band is 101.15 – 50.94 = 50.21dBuV/m which is under 54dBuV/m limit.

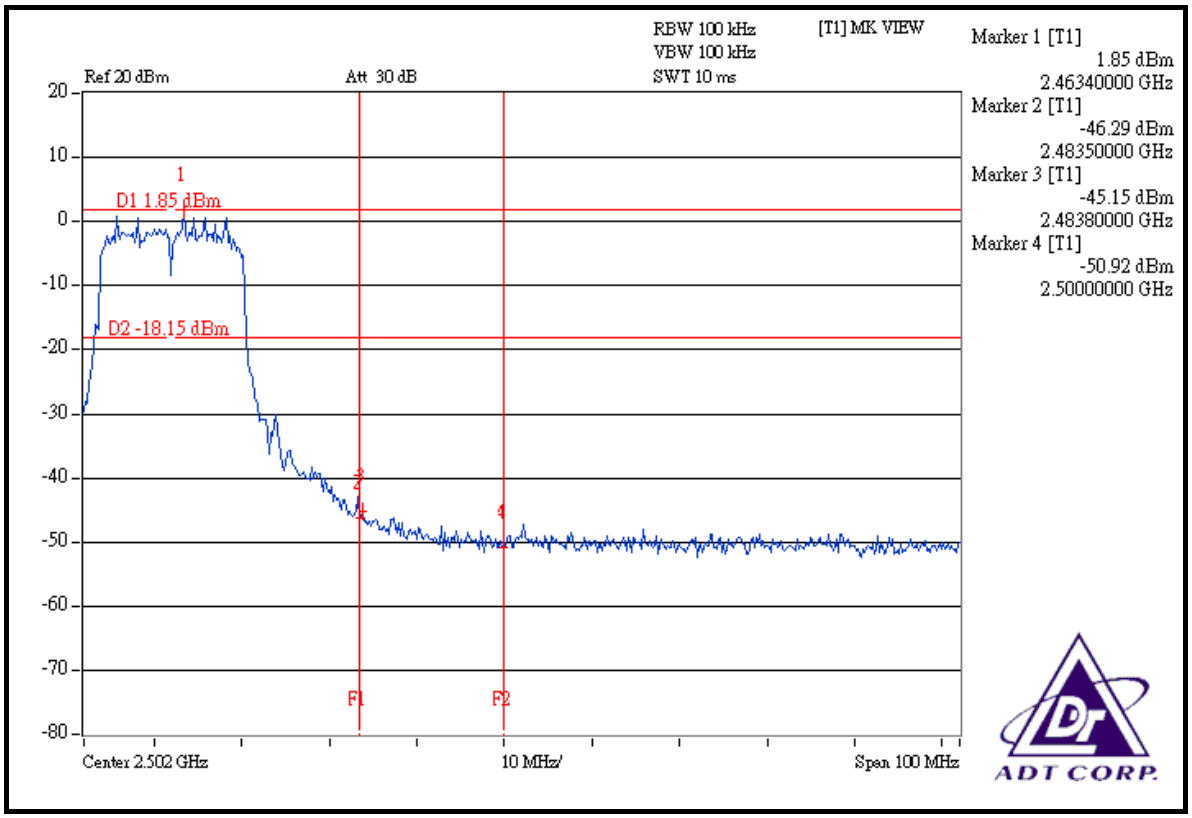
NOTE 2: The band edge emission plot on the next second page shows 47.00dBc between carrier maximum power and local maximum emission in restrict band (2.4838GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 110.28dBuV/m (Peak), so the maximum field strength in restrict band is 110.28 – 47.00 = 63.28dBuV/m which is under 74dBuV/m limit.

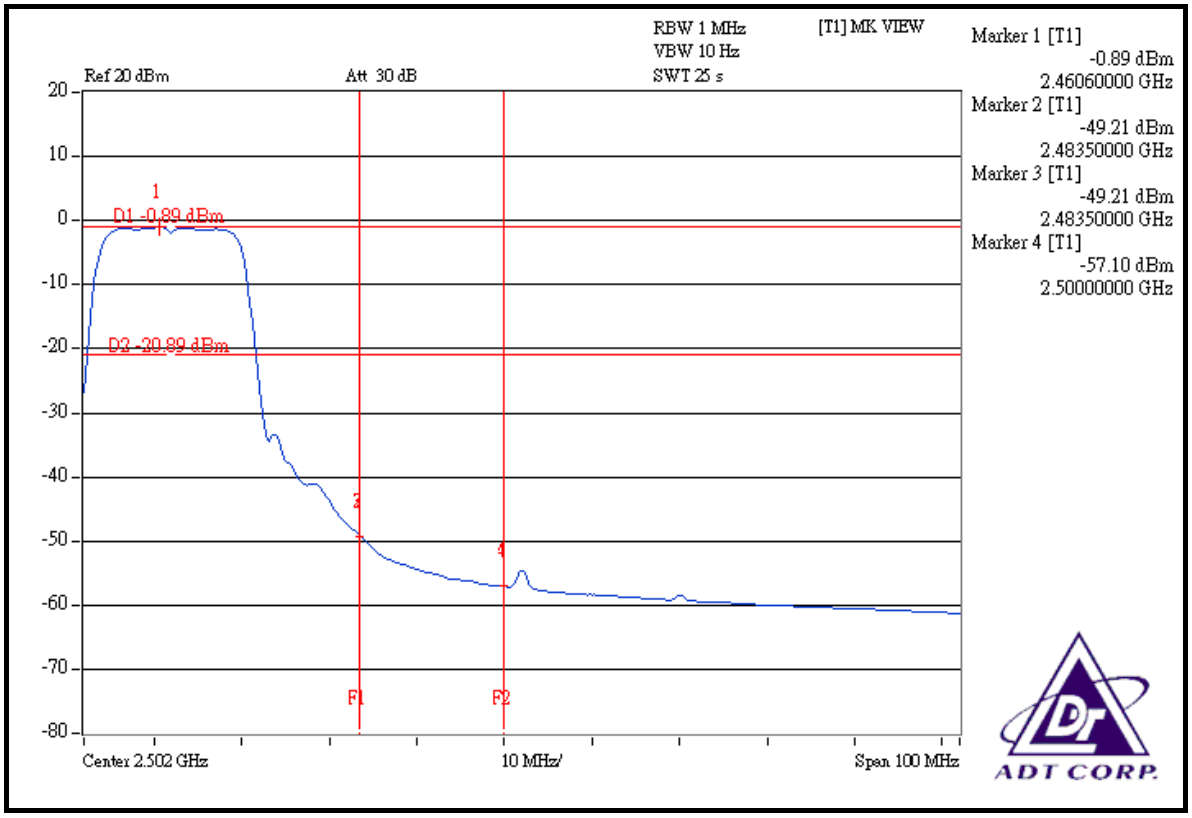
The band edge emission plot on the next third page shows 48.32dBc between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 100.02dBuV/m (Average), so the maximum field strength in restrict band is 100.02 – 48.32 = 51.70dBuV/m which is under 54dBuV/m limit.

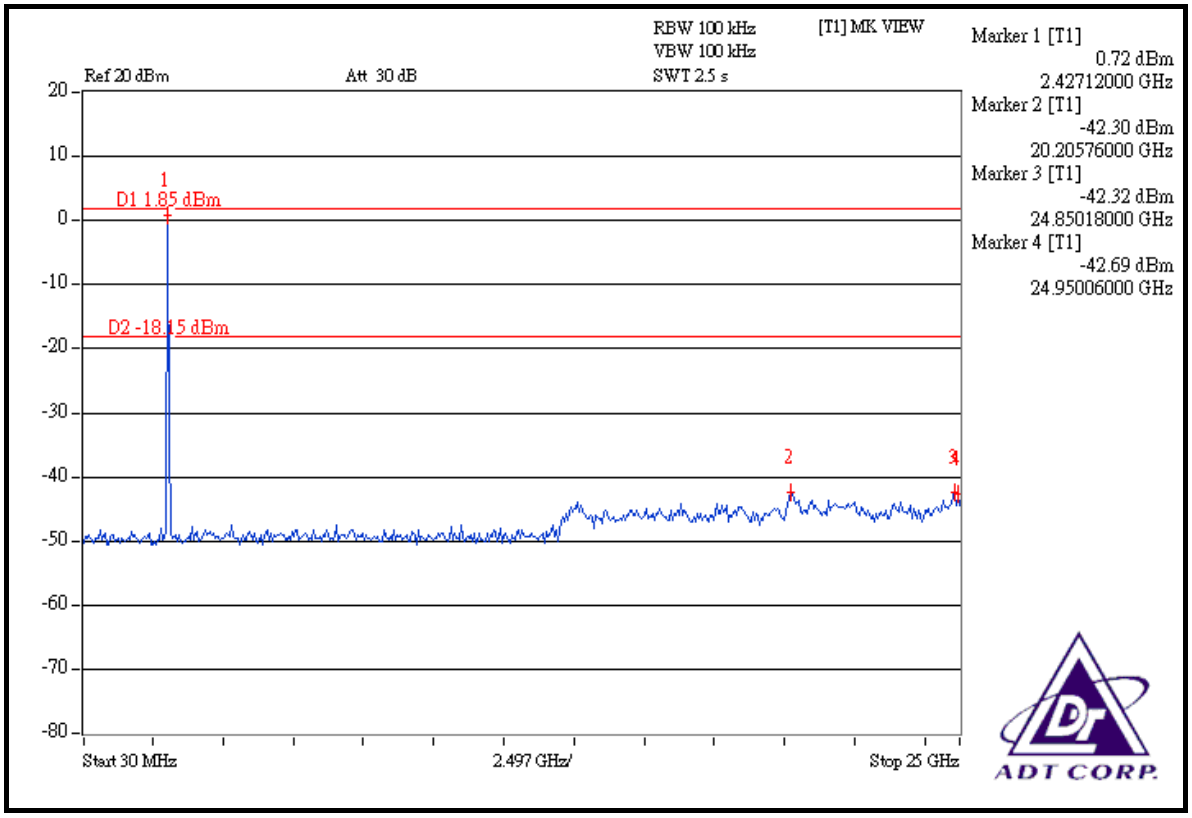

RBW 100 kHz
VBW 100 kHz
SWT 10 ms
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 3.2 dBm
D2 -16.8 dBm
Center 2.372 GHz
10 MHz/
Span 100 MHz
Marker 1 [T1]
3.20 dBm
2.41360000 GHz
Marker 2 [T1]
-32.85 dBm
2.40000000 GHz
Marker 3 [T1]
-32.85 dBm
2.40000000 GHz
Marker 4 [T1]
-44.03 dBm
2.39000000 GHz
Marker 5 [T1]
-42.19 dBm
2.38940000 GHz


RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 0.17 dBm
D2 -19.83 dBm
Center 2.372 GHz
10 MHz/
Span 100 MHz
Marker 1 [T1]
0.17 dBm
2.41080000 GHz
Marker 2 [T1]
-33.57 dBm
2.40000000 GHz
Marker 3 [T1]
-33.57 dBm
2.40000000 GHz
Marker 4 [T1]
-50.77 dBm
2.39000000 GHz
Marker 5 [T1]
-50.77 dBm
2.39000000 GHz


RBW 100 kHz
VBW 100 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
Marker 1 [T1]
2.11 dBm
2.37718000 GHz
Marker 2 [T1]
-41.88 dBm
24.90012000 GHz
Marker 3 [T1]
-41.92 dBm
24.80024000 GHz
Marker 4 [T1]
-42.34 dBm
20.15582000 GHz
D1 3.2 dBm
D2 -16.8 dBm
Start 30 MHz
2.497 GHz/
Stop 25 GHz


RBW 100 kHz
VBW 100 kHz
SWT 10 ms
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
Marker 1 [T1]
1.85 dBm
2.46340000 GHz
Marker 2 [T1]
-46.29 dBm
2.48350000 GHz
Marker 3 [T1]
-45.15 dBm
2.48380000 GHz
Marker 4 [T1]
-50.92 dBm
2.50000000 GHz
D1 1.85 dBm
D2 -18.15 dBm
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz


RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
Marker 1 [T1]
-0.89 dBm
2.46060000 GHz
Marker 2 [T1]
-49.21 dBm
2.48350000 GHz
Marker 3 [T1]
-49.21 dBm
2.48350000 GHz
Marker 4 [T1]
-57.10 dBm
2.50000000 GHz
D1 -0.89 dBm
D2 -20.89 dBm
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz


RBW 100 kHz
VBW 100 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
Marker 1 [T1]
0.72 dBm
2.42712000 GHz
Marker 2 [T1]
-42.30 dBm
20.20576000 GHz
Marker 3 [T1]
-42.32 dBm
24.85018000 GHz
Marker 4 [T1]
-42.69 dBm
24.95006000 GHz
D1 1.85 dBm
D2 -18.15 dBm
Start 30 MHz
2.497 GHz/
Stop 25 GHz

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 antennas used in this product are Dipole antenna with R-SMA connector. The maximum Gain of the antenna is 5dBi.

5 PHOTOGRAPHS OF THE TEST CONFIGURATION

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

6 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.	CNLA, 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.

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.