FCC TEST REPORT

REPORT NO.: RF961203L07

MODEL NO.: ESR-9710 (refer to item 3.1 for more details)

RECEIVED: Dec. 03, 2007

TESTED: Dec. 19 ~ Dec. 27, 2007

ISSUED: Jan. 03, 2008

APPLICANT: Senao Networks Inc.

ADDRESS: 3F, No. 529, Chung Cheng Rd., Hsintien, Taipei, Taiwan, R.O.C.

ISSUED BY: Advance Data Technology Corporation

LAB ADDRESS: 47 14th Lin, Chiapau Tsun, Linko, Taipei, Taiwan, R.O.C.

TEST LOCATION: No. 19, Hwa Ya 2nd Rd., Kueishan, Taoyuan, Taiwan, R.O.C.

Testing Laboratory 0528

ACCREDITED No.: 2177-01

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1. CERTIFICATION

PRODUCT: WLAN Gigabit 802.11n/b/g Router
MODEL: ESR-9710 (refer to item 3.1 for more details)
BRAND: EnGenius (refer to item 3.1 for more details)
APPLICANT: Senao Networks Inc.
TESTED: Dec. 19 ~ Dec. 27, 2007
TEST SAMPLE: ENGINEERING SAMPLE
STANDARDS: **FCC Part 15, Subpart C (Section 15.247)**
ANSI C63.4-2003

The above equipment (model: ESR-9710) has been tested by **Advance Data Technology Corporation,** and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : Wendy Liao , **DATE:** Jan. 03, 2008
Wendy Liao / Senior Specialist

TECHNICAL ACCEPTANCE : Long Chen , **DATE:** Jan. 03, 2008
Responsible for RF Long Chen / Senior Engineer

APPROVED BY : Gary Chang , **DATE:** Jan. 03, 2008
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			
STANDARD SECTION	**TEST TYPE AND LIMIT**	**RESULT**	**REMARK**
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is –15.38 dB at 0.189 MHz.
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 -1.02dB at 2390.00 or 2483.50MHz.
15.247(e)	Power Spectral Density Limit: max. 8dBm	PASS	Meet the requirement of limit.
15.247(d)	Band Edge Measurement Limit: 20dB less than the peak value of fundamental frequency	PASS	Meet the requirement of limit.

2.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	9kHz ~ 30MHz	2.44 dB
Radiated emissions	30MHz ~ 200MHz	3.34 dB
	200MHz ~1000MHz	3.35 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	WLAN Gigabit 802.11n/b/g Router
MODEL NO.	ESR-9710 (refer to NOTE for more details)
FCC ID	U2M-SR97107001
POWER SUPPLY	12Vdc from AC adapter
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b: 11.0/ 5.5/ 2.0/ 1.0Mbps 802.11g: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps Draft 802.11n: up to 300Mbps
FREQUENCY RANGE	2412MHz ~ 2462MHz
NUMBER OF CHANNEL	11 for 802.11b, 802.11g, Draft 802.11n (20MHz) 7 for Draft 802.11n (40MHz)
MAXIMUM OUTPUT POWER	79.983mW
ANTENNA TYPE	Dipole antenna with 2dBi gain
DATA CABLE	NA
I/O PORTS	RJ45
ACCESSORY DEVICES	Adapter

NOTE:

1. The models as below are identical to each other except for model no and brand name due to marketing requirement.

MODEL NO	BRAND NAME
ESR-9710	EnGenius
RNX-N4	NewEgg

2. The EUT was powered by the following adapter:

BRAND:	ENG
MODEL:	3A-161WP12
INPUT:	100-240Vac, 50-60Hz, 0.6A
OUTPUT:	12Vdc, 1.25A
POWER LINE:	1.5m non-shielded cable with one core

3. The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitters and three receivers.
4. The EUT is 2 * 3 spatial MIMO (2Tx & 3Rx) without beam forming function.
5. When the EUT operating in 802.11b/g is for single Tx.

6. When the EUT operating in draft 802.11n, the software operation, which is defined by manufacturer, only set 0 ~ 15 of “MCS” (MCS: Modulation and Coding Schemes) for dual Tx.
7. The EUT complies with draft 802.11n standards and backwards compatible with 802.11b, 802.11g products.
8. The EUT operates in the 2.4GHz frequency spectrum with throughput of up to 300Mbps.
9. 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

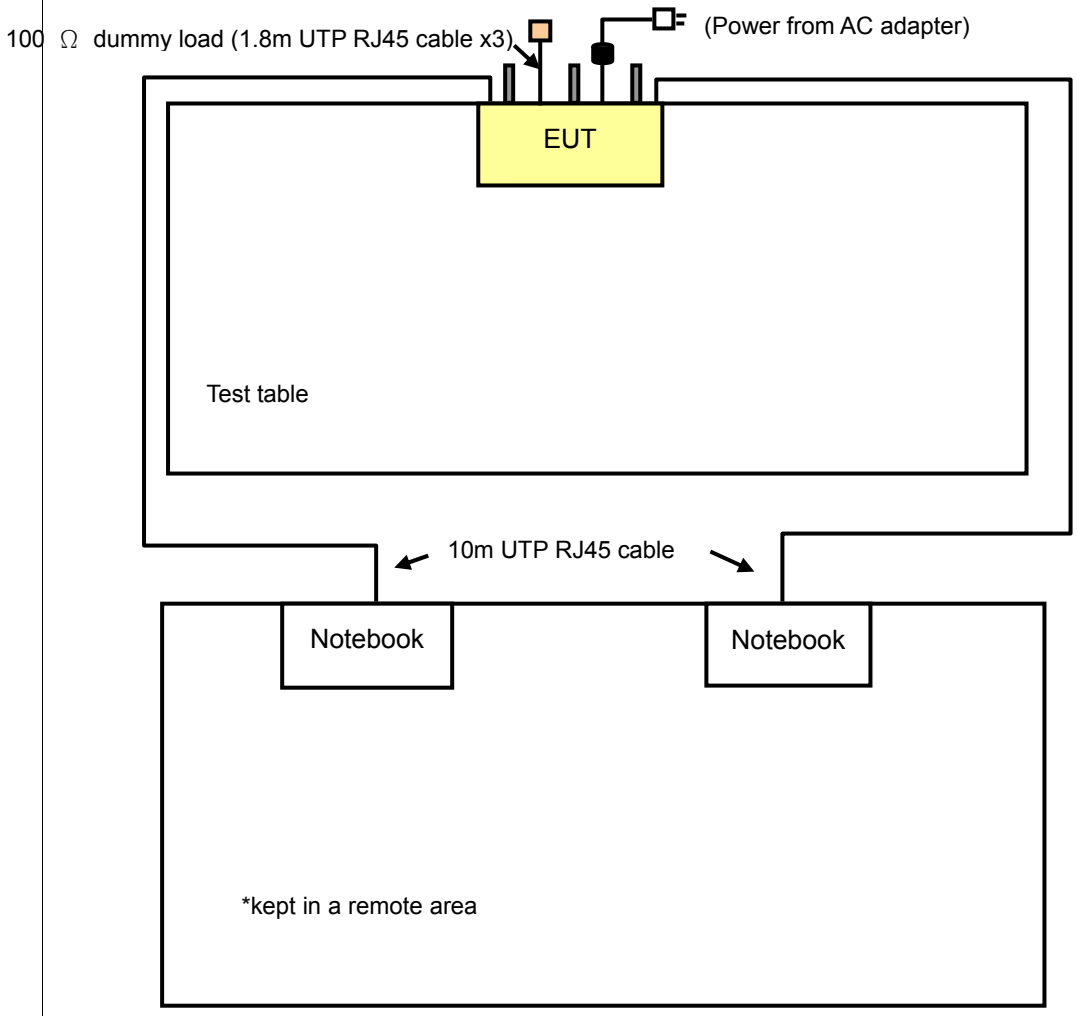
Eleven channels are provided for 802.11b, 802.11g and draft 802.11n (20MHz):

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

Seven channels are provided for draft 802.11n (40MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2422MHz	5	2442MHz
2	2427MHz	6	2447MHz
3	2432MHz	7	2452MHz
4	2437MHz		

3.2.1 CONFIGURATION OF SYSTEM UNDER TEST



3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE ≥ 1G	RE < 1G	PLC	APCM	
-	√	√	√	√	-

Where **RE ≥ 1G:** Radiated Emission above 1GHz **RE < 1G:** Radiated Emission below 1GHz

PLC: Power Line Conducted Emission **APCM:** Antenna Port Conducted Measurement

RADIATED EMISSION TEST (ABOVE 1 GHz):

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
Draft 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	7.2
Draft 802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	15.0

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.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11g	1 to 11	11	OFDM	BPSK	6.0

POWER LINE CONDUCTED EMISSION TEST:

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11g	1 to 11	11	OFDM	BPSK	6.0

BANDEDGE MEASUREMENT:

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 11	DSSS	DBPSK	1.0
802.11g	1 to 11	1, 11	OFDM	BPSK	6.0
Draft 802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	7.2
Draft 802.11n (40MHz)	1 to 7	1, 7	OFDM	BPSK	15.0

ANTENNA PORT CONDUCTED MEASUREMENT:

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
Draft 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	7.2
Draft 802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	15.0

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

FCC Part 15, Subpart C. (15.247)

ANSI C63.4-2003

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

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

3.4 DESCRIPTION OF SUPPORT UNITS

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

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP05L	12130898320	E2K24CLNS
2	NOTEBOOK COMPUTER	DELL	D600	CN-0G5152-48643-47H-7666	FCC DoC Approved

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	10m UTP RJ45 cable
2	10m UTP RJ45 cable

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

4. TEST TYPES AND RESULTS

4.1 RADIATED EMISSION MEASUREMENT

4.1.1 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.

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
Test Receiver ROHDE & SCHWARZ	ESCI	100424	Jul. 27, 2008
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100041	Feb. 26, 2008
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	May 31, 2008
HORN Antenna SCHWARZBECK	9120D	9120D-209	Jun. 28, 2008
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170243	Dec. 24, 2008
Preamplifier Agilent	8447D	2944A10633	Oct. 28, 2008
Preamplifier Agilent	8449B	3008A01964	Oct. 23, 2008
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	283402/4	Dec. 06, 2008
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	251644/4	Dec. 06, 2008
Software ADT.	ADT_Radiated_V7.6	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA
Antenna Tower Controller inn-co GmbH	CO2000	017303	NA
Turn Table ADT.	TT100.	TT93021703	NA
Turn Table Controller ADT.	SC100.	SC93021703	NA

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The test was performed in HwaYa Chamber 3.

3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.

4. The VCCI Site Registration No. is R-237.

5. The IC Site Registration No. is IC3789B-3.

4.1.3 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.

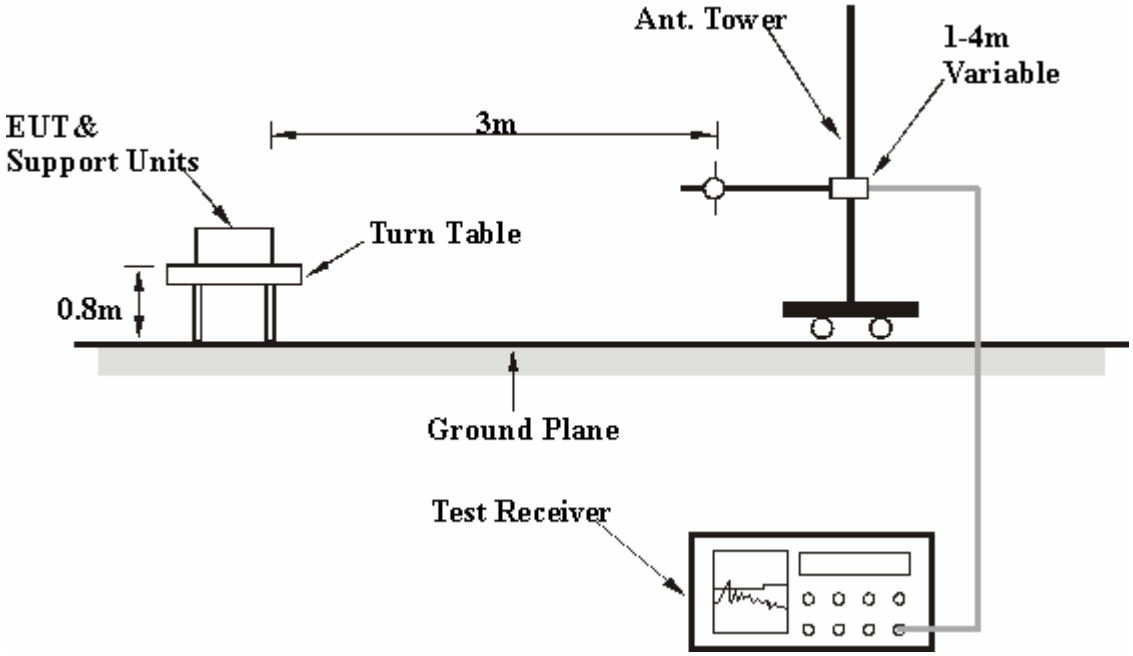
NOTE:

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 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



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 other notebook systems to act as a communication partners and placed them 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

Above 1GHz Worst-Case Data

802.11b DSSS MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 67%RH 999hPa	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	57.82 PK	74.00	-16.18	1.04 H	208	25.58	32.24
2	2390.00	47.34 AV	54.00	-6.66	1.04 H	208	15.10	32.24
3	*2412.00	101.21 PK			1.04 H	208	68.89	32.32
4	*2412.00	97.29 AV			1.04 H	208	64.97	32.32
5	3216.00	48.75 PK	81.21	-32.46	1.00 H	0	14.27	34.49
6	3216.00	43.07 AV	77.29	-34.22	1.00 H	0	8.59	34.49
7	4824.00	52.93 PK	74.00	-21.07	1.00 H	304	14.80	38.13
8	4824.00	48.62 AV	54.00	-5.38	1.00 H	304	10.49	38.13
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2386.00	61.64 PK	74.00	-12.36	1.17 V	318	29.41	32.23
2	2386.00	52.93 AV	54.00	-1.07	1.17 V	318	20.70	32.23
3	2390.00	63.43 PK	74.00	-10.57	1.17 V	318	31.19	32.24
4	**2390.00**	**52.98 AV**	**54.00**	**-1.02**	**1.17 V**	**318**	**20.74**	**32.24**
5	*2412.00	109.38 PK			1.15 V	315	77.06	32.32
6	*2412.00	104.97 AV			1.15 V	315	72.65	32.32
7	3216.00	49.99 PK	89.38	-39.39	1.22 V	360	15.51	34.49
8	3216.00	44.60 AV	84.97	-40.37	1.22 V	360	10.12	34.49
9	4824.00	53.14 PK	74.00	-20.86	1.08 V	163	15.01	38.13
10	4824.00	49.30 AV	54.00	-4.70	1.08 V	163	11.17	38.13

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 67%RH 999hPa	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	101.49 PK			1.38 H	279	69.09	32.40
2	*2437.00	96.93 AV			1.38 H	279	64.53	32.40
3	3249.00	48.43 PK	81.49	-33.06	1.12 H	0	13.93	34.50
4	3249.00	42.54 AV	76.93	-34.39	1.12 H	0	8.04	34.50
5	4874.00	54.97 PK	74.00	-19.03	1.09 H	308	16.65	38.32
6	4874.00	49.24 AV	54.00	-4.76	1.09 H	308	10.92	38.32
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	110.49 PK			1.07 V	187	78.09	32.40
2	*2437.00	105.92 AV			1.07 V	187	73.52	32.40
3	3249.00	51.23 PK	90.49	-39.26	1.22 V	345	16.73	34.50
4	3249.00	46.14 AV	85.92	-39.78	1.22 V	345	11.64	34.50
5	4874.00	54.75 PK	74.00	-19.25	1.17 V	189	16.43	38.32
6	4874.00	50.79 AV	54.00	-3.21	1.17 V	189	12.47	38.32

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
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 67%RH 999hPa	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	101.50 PK			1.00 H	205	69.02	32.48
2	*2462.00	97.01 AV			1.00 H	205	64.53	32.48
3	2483.50	56.46 PK	74.00	-17.54	1.00 H	205	23.90	32.56
4	2483.50	46.93 AV	54.00	-7.07	1.00 H	205	14.37	32.56
5	3282.00	48.88 PK	81.50	-32.62	1.10 H	199	14.36	34.52
6	3282.00	42.37 AV	77.01	-34.64	1.10 H	199	7.85	34.52
7	4924.00	51.61 PK	74.00	-22.39	1.11 H	308	13.15	38.46
8	4924.00	45.59 AV	54.00	-8.41	1.11 H	308	7.13	38.46
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	110.02 PK			1.13 V	316	77.54	32.48
2	*2462.00	105.46 AV			1.13 V	316	72.98	32.48
3	2483.50	62.63 PK	74.00	-11.37	1.13 V	316	30.07	32.56
4	2483.50	52.97 AV	54.00	-1.03	1.13 V	316	20.41	32.56
5	3282.00	49.46 PK	90.02	-40.56	1.17 V	18	14.94	34.52
6	3282.00	43.87 AV	85.46	-41.59	1.17 V	18	9.35	34.52
7	4924.00	53.42 PK	74.00	-20.58	1.00 V	185	14.96	38.46
8	4924.00	50.28 AV	54.00	-3.72	1.00 V	185	11.82	38.46

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
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 66%RH 999hPa	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	59.47 PK	74.00	-14.53	1.22 H	237	27.23	32.24
2	2390.00	47.04 AV	54.00	-6.96	1.22 H	237	14.80	32.24
3	*2412.00	101.72 PK			1.22 H	237	69.40	32.32
4	*2412.00	92.14 AV			1.22 H	237	59.82	32.32
5	4824.00	48.17 PK	74.00	-25.83	1.32 H	10	10.04	38.13
6	4824.00	35.45 AV	54.00	-18.55	1.32 H	10	-2.68	38.13
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	67.06 PK	74.00	-6.94	1.07 V	26	34.82	32.24
2	2390.00	52.05 AV	54.00	-1.95	1.07 V	26	19.81	32.24
3	*2412.00	110.91 PK			1.32 V	21	78.59	32.32
4	*2412.00	100.90 AV			1.32 V	21	68.58	32.32
5	3216.00	49.58 PK	90.91	-41.33	1.45 V	73	15.09	34.49
6	3216.00	43.88 AV	80.90	-37.02	1.45 V	73	9.39	34.49
7	4824.00	49.77 PK	74.00	-24.23	1.00 V	12	11.64	38.13
8	4824.00	36.75 AV	54.00	-17.25	1.00 V	12	-1.38	38.13

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 66%RH 999hPa	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	101.81 PK			1.09 H	212	69.41	32.40
2	*2437.00	92.54 AV			1.09 H	212	60.14	32.40
3	4874.00	49.62 PK	74.00	-24.38	1.00 H	342	11.30	38.32
4	4874.00	35.74 AV	54.00	-18.26	1.00 H	342	-2.58	38.32
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	111.07 PK			1.22 V	20	78.67	32.40
2	*2437.00	101.20 AV			1.22 V	20	68.80	32.40
3	3249.00	49.92 PK	91.07	-41.15	1.07 V	54	15.42	34.50
4	3249.00	44.38 AV	81.20	-36.82	1.07 V	54	9.88	34.50
5	4874.00	50.66 PK	74.00	-23.34	1.11 V	160	12.34	38.32
6	4874.00	37.54 AV	54.00	-16.46	1.11 V	160	-0.78	38.32

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
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 66%RH 999hPa	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	101.90 PK			1.13 H	167	69.42	32.48
2	*2462.00	92.67 AV			1.13 H	167	60.19	32.48
3	2483.50	59.36 PK	74.00	-14.64	1.13 H	167	26.80	32.56
4	2483.50	47.25 AV	54.00	-6.75	1.13 H	167	14.69	32.56
5	4924.00	49.92 PK	74.00	-24.08	1.00 H	20	11.46	38.46
6	4924.00	36.02 AV	54.00	-17.98	1.00 H	20	-2.44	38.46
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	111.18 PK			1.30 V	19	78.70	32.48
2	*2462.00	101.38 AV			1.30 V	19	68.90	32.48
3	2483.50	67.05 PK	74.00	-6.95	1.29 V	22	34.49	32.56
4	2483.50	52.23 AV	54.00	-1.77	1.29 V	22	19.67	32.56
5	3282.00	50.67 PK	91.18	-40.51	1.00 V	64	16.15	34.52
6	3282.00	44.81 AV	81.38	-36.57	1.00 V	64	10.29	34.52
7	4924.00	50.49 PK	74.00	-23.51	1.26 V	223	12.03	38.46
8	4924.00	37.68 AV	54.00	-16.32	1.26 V	223	-0.78	38.46

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.

DRAFT 802.11n (20MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 66%RH 999hPa	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	64.34 PK	74.00	-9.66	1.00 H	11	32.10	32.24
2	2390.00	49.38 AV	54.00	-4.62	1.00 H	11	17.14	32.24
3	*2412.00	105.95 PK			1.00 H	11	73.63	32.32
4	*2412.00	95.50 AV			1.00 H	11	63.18	32.32
5	4824.00	48.28 PK	74.00	-25.72	1.02 H	177	10.15	38.13
6	4824.00	35.52 AV	54.00	-18.48	1.02 H	177	-2.61	38.13
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	72.64 PK	74.00	-1.36	1.16 V	140	40.40	32.24
2	2390.00	52.52 AV	54.00	-1.48	1.16 V	140	20.28	32.24
3	*2412.00	111.51 PK			1.19 V	154	79.19	32.32
4	*2412.00	101.30 AV			1.19 V	154	68.98	32.32
5	3216.00	50.33 PK	91.51	-41.18	1.27 V	158	15.85	34.49
6	3216.00	44.39 AV	81.30	-36.91	1.27 V	158	9.91	34.49
7	4824.00	51.21 PK	74.00	-22.79	1.27 V	7	13.08	38.13
8	4824.00	37.52 AV	54.00	-16.48	1.27 V	7	-0.61	38.13
9	6432.00	56.90 PK	91.51	-34.61	1.69 V	181	15.37	41.53
10	6432.00	53.26 AV	81.30	-28.04	1.69 V	181	11.73	41.53

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 66%RH 999hPa	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	106.01 PK			1.05 H	25	73.61	32.40
2	*2437.00	95.89 AV			1.05 H	25	63.49	32.40
3	4874.00	49.14 PK	74.00	-24.86	1.24 H	267	10.82	38.32
4	4874.00	35.79 AV	54.00	-18.21	1.24 H	267	-2.53	38.32
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	111.74 PK			1.20 V	20	79.34	32.40
2	*2437.00	101.68 AV			1.20 V	20	69.28	32.40
3	3249.00	50.46 PK	91.74	-41.28	1.00 V	167	15.96	34.50
4	3249.00	44.61 AV	81.68	-37.07	1.00 V	167	10.11	34.50
5	4874.00	51.77 PK	74.00	-22.23	1.00 V	341	13.45	38.32
6	4874.00	37.69 AV	54.00	-16.31	1.00 V	341	-0.63	38.32
7	6498.00	57.05 PK	91.74	-34.69	1.02 V	231	15.35	41.70
8	6498.00	53.55 AV	81.68	-28.13	1.02 V	231	11.85	41.70

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

5. " * ": Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 66%RH 999hPa	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	106.34 PK			1.00 H	355	73.86	32.48
2	*2462.00	96.55 AV			1.00 H	355	64.07	32.48
3	2483.50	65.98 PK	74.00	-8.02	1.00 H	355	33.42	32.56
4	2483.50	49.86 AV	54.00	-4.14	1.00 H	355	17.30	32.56
5	4924.00	50.06 PK	74.00	-23.94	1.24 H	243	11.60	38.46
6	4924.00	36.33 AV	54.00	-17.67	1.24 H	243	-2.13	38.46
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	112.24 PK			1.04 V	13	79.76	32.48
2	*2462.00	101.98 AV			1.04 V	13	69.50	32.48
3	2483.50	71.38 PK	74.00	-2.62	1.02 V	18	38.82	32.56
4	2483.50	52.92 AV	54.00	-1.08	1.02 V	18	20.36	32.56
5	3282.00	50.64 PK	92.24	-41.60	1.00 V	188	16.12	34.52
6	3282.00	44.71 AV	81.98	-37.27	1.00 V	188	10.19	34.52
7	4924.00	52.24 PK	74.00	-21.76	1.02 V	12	13.78	38.46
8	4924.00	37.82 AV	54.00	-16.18	1.02 V	12	-0.64	38.46
9	6565.00	57.21 PK	92.24	-35.03	1.62 V	195	15.19	42.02
10	6565.00	53.65 AV	81.98	-28.33	1.62 V	195	11.63	42.02

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.

DRAFT 802.11n (40MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 66%RH 999hPa	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	57.98 PK	74.00	-16.02	1.25 H	55	25.74	32.24
2	2390.00	46.39 AV	54.00	-7.61	1.25 H	55	14.15	32.24
3	*2422.00	97.68 PK			1.25 H	55	65.33	32.35
4	*2422.00	87.42 AV			1.25 H	55	55.07	32.35
5	3229.00	49.80 PK	77.68	-27.88	1.10 H	23	15.31	34.49
6	3229.00	43.27 AV	67.42	-24.15	1.10 H	23	8.78	34.49
7	4844.00	47.58 PK	74.00	-26.42	1.05 H	226	9.37	38.21
8	4844.00	34.90 AV	54.00	-19.10	1.05 H	226	-3.31	38.21
9	6458.00	54.86 PK	77.68	-22.82	1.26 H	108	13.26	41.60
10	6458.00	50.93 AV	67.42	-16.49	1.26 H	108	9.33	41.60

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 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 66%RH 999hPa	TESTED BY	Lori Chiu

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	65.12 PK	74.00	-8.88	1.10 V	12	32.88	32.24
2	2390.00	52.80 AV	54.00	-1.20	1.10 V	12	20.56	32.24
3	*2422.00	107.11 PK			1.10 V	12	74.76	32.35
4	*2422.00	97.02 AV			1.10 V	12	64.67	32.35
5	3229.00	50.33 PK	87.11	-36.78	1.26 V	159	15.83	34.49
6	3229.00	44.34 AV	77.02	-32.68	1.26 V	159	9.84	34.49
7	4844.00	48.03 PK	74.00	-25.97	1.19 V	10	9.83	38.21
8	4844.00	35.39 AV	54.00	-18.61	1.19 V	10	-2.81	38.21
9	6458.00	57.54 PK	87.11	-29.57	1.68 V	180	15.94	41.60
10	6458.00	53.90 AV	77.02	-23.12	1.68 V	180	12.30	41.60

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 4	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 66%RH 999hPa	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	97.65 PK			1.32 H	241	65.25	32.40
2	*2437.00	87.30 AV			1.32 H	241	54.90	32.40
3	3249.00	49.57 PK	77.65	-28.08	1.24 H	180	15.07	34.50
4	3249.00	43.65 AV	67.30	-23.65	1.24 H	180	9.15	34.50
5	4874.00	47.87 PK	74.00	-26.13	1.00 H	33	9.55	38.32
6	4874.00	34.62 AV	54.00	-19.38	1.00 H	33	-3.70	38.32
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	107.10 PK			1.11 V	358	74.70	32.40
2	*2437.00	96.94 AV			1.11 V	358	64.54	32.40
3	3249.00	50.39 PK	87.10	-36.71	1.33 V	210	15.89	34.50
4	3249.00	44.62 AV	76.94	-32.32	1.33 V	210	10.12	34.50
5	4874.00	48.58 PK	74.00	-25.42	1.16 V	108	10.26	38.32
6	4874.00	35.60 AV	54.00	-18.40	1.16 V	108	-2.72	38.32
7	6498.00	57.49 PK	87.10	-29.61	1.00 V	172	15.79	41.70
8	6498.00	53.34 AV	76.94	-23.60	1.00 V	172	11.64	41.70

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

5. " * ": Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 7	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 66%RH 999hPa	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	*2452.00	97.64 PK			1.42 H	196	65.19	32.45
2	*2452.00	87.26 AV			1.42 H	196	54.81	32.45
3	2483.50	56.41 PK	74.00	-17.59	1.42 H	196	23.85	32.56
4	2483.50	46.15 AV	54.00	-7.85	1.42 H	196	13.59	32.56
5	3269.00	49.94 PK	77.64	-27.70	1.11 H	164	15.43	34.51
6	3269.00	43.55 AV	67.26	-23.71	1.11 H	164	9.04	34.51
7	4904.00	48.66 PK	74.00	-25.34	1.00 H	244	10.23	38.43
8	4904.00	34.97 AV	54.00	-19.03	1.00 H	244	-3.46	38.43
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	*2452.00	107.08 PK			1.08 V	350	74.63	32.45
2	*2452.00	96.67 AV			1.08 V	350	64.22	32.45
3	2483.50	65.97 PK	74.00	-8.03	1.08 V	326	33.41	32.56
4	**2483.50**	**52.98 AV**	**54.00**	**-1.02**	**1.08 V**	**326**	**20.42**	**32.56**
5	3269.00	50.45 PK	87.08	-36.63	1.45 V	166	15.94	34.51
6	3269.00	44.76 AV	76.67	-31.91	1.45 V	166	10.25	34.51
7	4904.00	49.00 PK	74.00	-25.00	1.21 V	82	10.57	38.43
8	4904.00	35.93 AV	54.00	-18.07	1.21 V	82	-2.50	38.43
9	6538.00	57.84 PK	87.08	-29.24	1.86 V	257	15.95	41.89
10	6538.00	54.14 AV	76.67	-22.53	1.86 V	257	12.25	41.89

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.

BELOW 1GHz WORST-CASE DATA：802.11g OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 999hPa	TESTED BY	Brad Wu

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	375.98	42.39 QP	46.00	-3.61	2.00 H	97	27.23	15.16
2	500.42	37.51 QP	46.00	-8.49	1.50 H	151	18.74	18.76
3	626.80	44.33 QP	46.00	-1.67	1.50 H	160	22.99	21.34
4	751.23	37.85 QP	46.00	-8.15	1.00 H	232	14.63	23.22
5	869.83	39.08 QP	46.00	-6.92	1.00 H	109	14.05	25.03
6	902.89	41.71 QP	46.00	-4.29	1.50 H	106	16.37	25.34
7	935.94	44.32 QP	46.00	-1.68	1.50 H	106	18.71	25.61
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	51.29	34.10 QP	40.00	-5.90	1.00 V	121	20.46	13.64
2	125.17	38.43 QP	43.50	-5.07	1.00 V	157	26.67	11.76
3	375.98	44.80 QP	46.00	-1.20	1.50 V	184	29.64	15.16
4	500.42	42.24 QP	46.00	-3.76	1.00 V	202	23.48	18.76
5	626.80	44.34 QP	46.00	-1.66	1.00 V	235	23.00	21.34
6	869.83	44.31 QP	46.00	-1.69	1.00 V	181	19.28	25.03
7	902.89	43.20 QP	46.00	-2.80	1.00 V	181	17.85	25.34
8	933.38	44.66 QP	46.00	-1.34	1.00 V	183	19.07	25.59

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

4.2 CONDUCTED EMISSION MEASUREMENT

4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

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

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
Test Receiver ROHDE & SCHWARZ	ESCS30	100288	Sep. 21, 2008
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.

4.2.3 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.

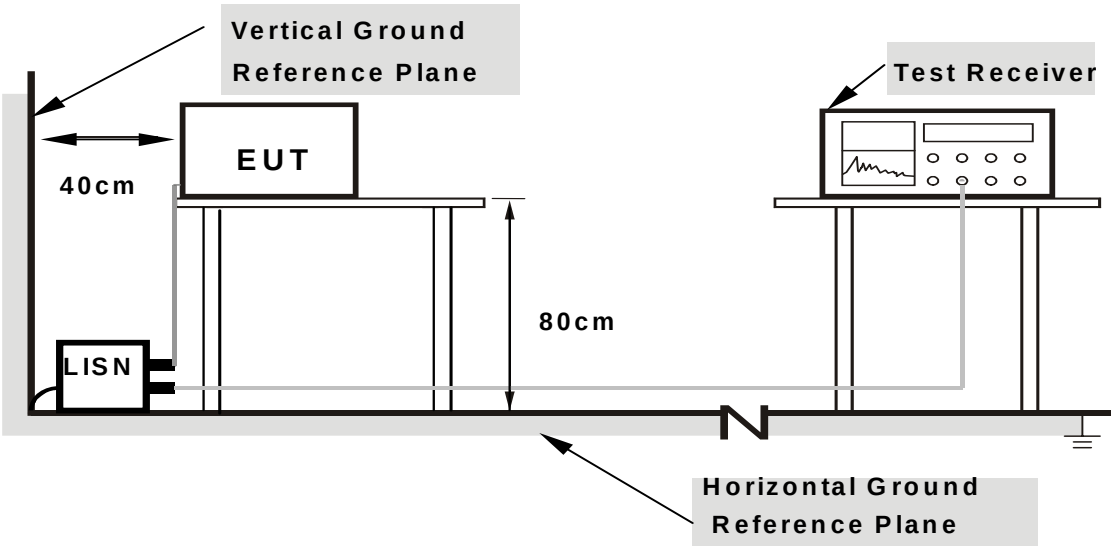
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

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

4.2.4 DEVIATION FROM TEST STANDARD

No deviation

4.2.5 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).

4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6

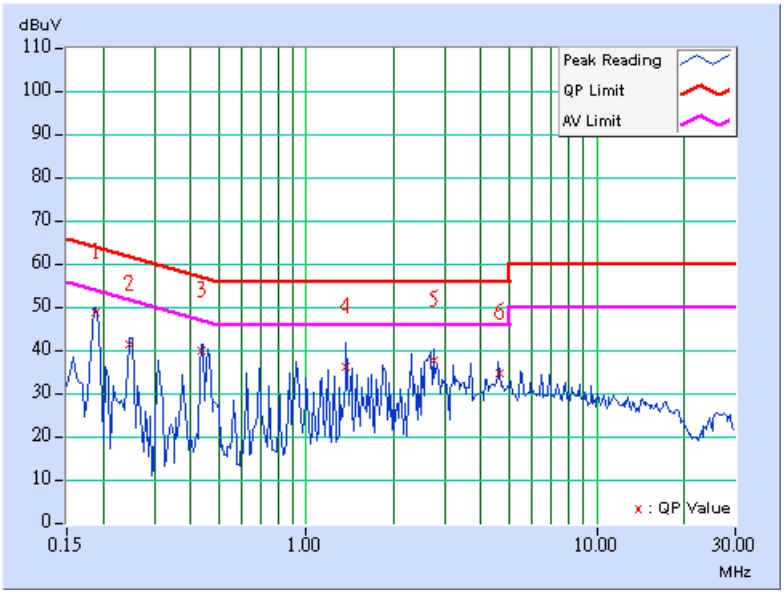
4.2.7 TEST RESULTS

CONDUCTED WORST-CASE DATA
802.11g OFDM MODULATION

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

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		**Factor**	**[dB (uV)]**		**[dB (uV)]**		**[dB (uV)]**		**(dB)**	
	[MHz]	**(dB)**	**Q.P.**	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**
1	**0.189**	**0.10**	**48.60**	**-**	**48.70**	**-**	**64.08**	**54.08**	**-15.38**	**-**
2	0.248	0.10	41.09	-	41.19	-	61.84	51.84	-20.65	-
3	0.435	0.10	39.61	-	39.71	-	57.15	47.15	-17.44	-
4	1.375	0.15	35.86	-	36.01	-	56.00	46.00	-19.99	-
5	2.746	0.24	37.51	-	37.75	-	56.00	46.00	-18.25	-
6	4.609	0.29	34.55	-	34.84	-	56.00	46.00	-21.16	-

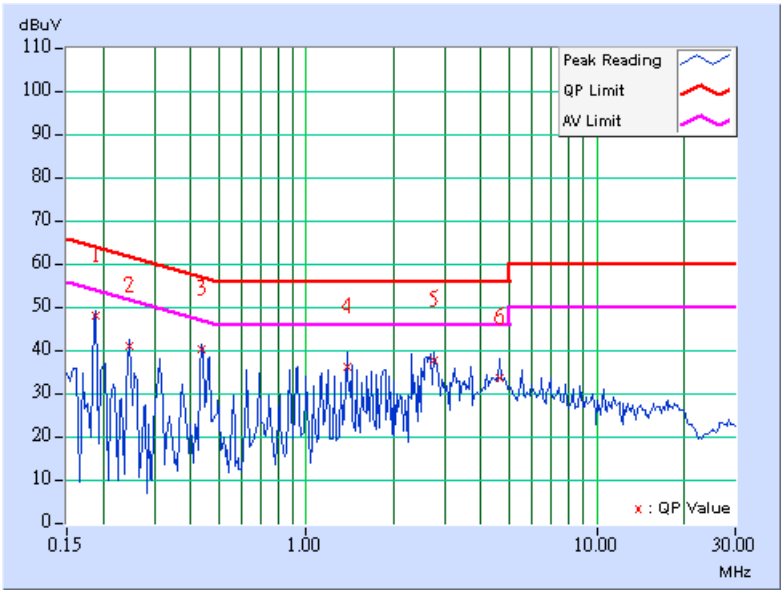
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission 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
ENVIRONMENTAL CONDITIONS	20deg. C, 60% RH, 991hPa	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Match Tsui

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.189	0.10	48.03	-	48.13	-	64.08	54.08	-15.95	-
2	0.248	0.10	40.81	-	40.91	-	61.84	51.84	-20.93	-
3	0.435	0.11	39.93	-	40.04	-	57.15	47.15	-17.12	-
4	1.383	0.21	36.02	-	36.23	-	56.00	46.00	-19.77	-
5	2.742	0.24	37.31	-	37.55	-	56.00	46.00	-18.45	-
6	4.620	0.30	33.55	-	33.85	-	56.00	46.00	-22.15	-

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.



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.

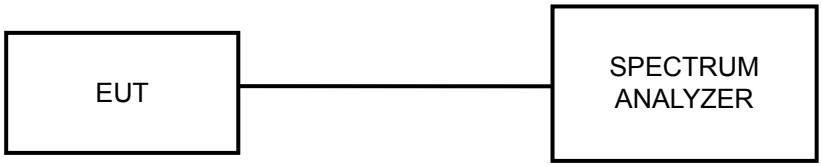
4.3.3 TEST PROCEDURE

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 300kHz 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.

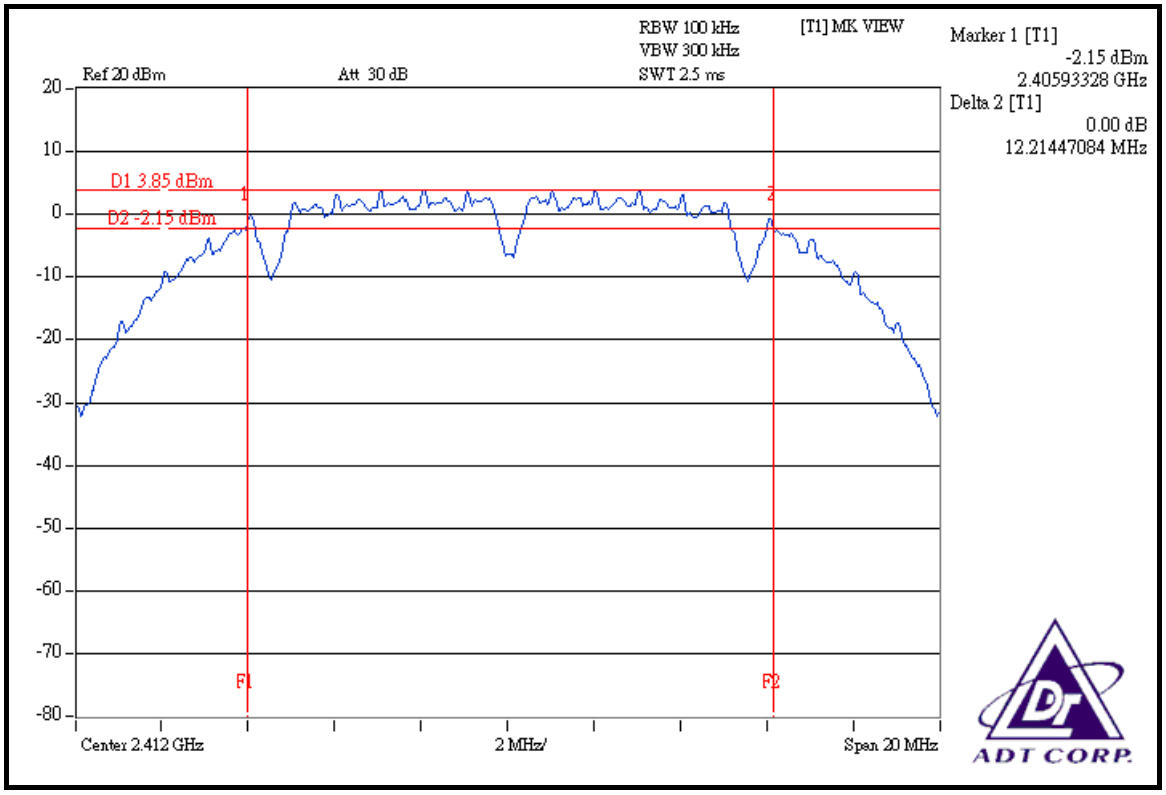
4.3.7 TEST RESULTS

802.11b DSSS MODULATION

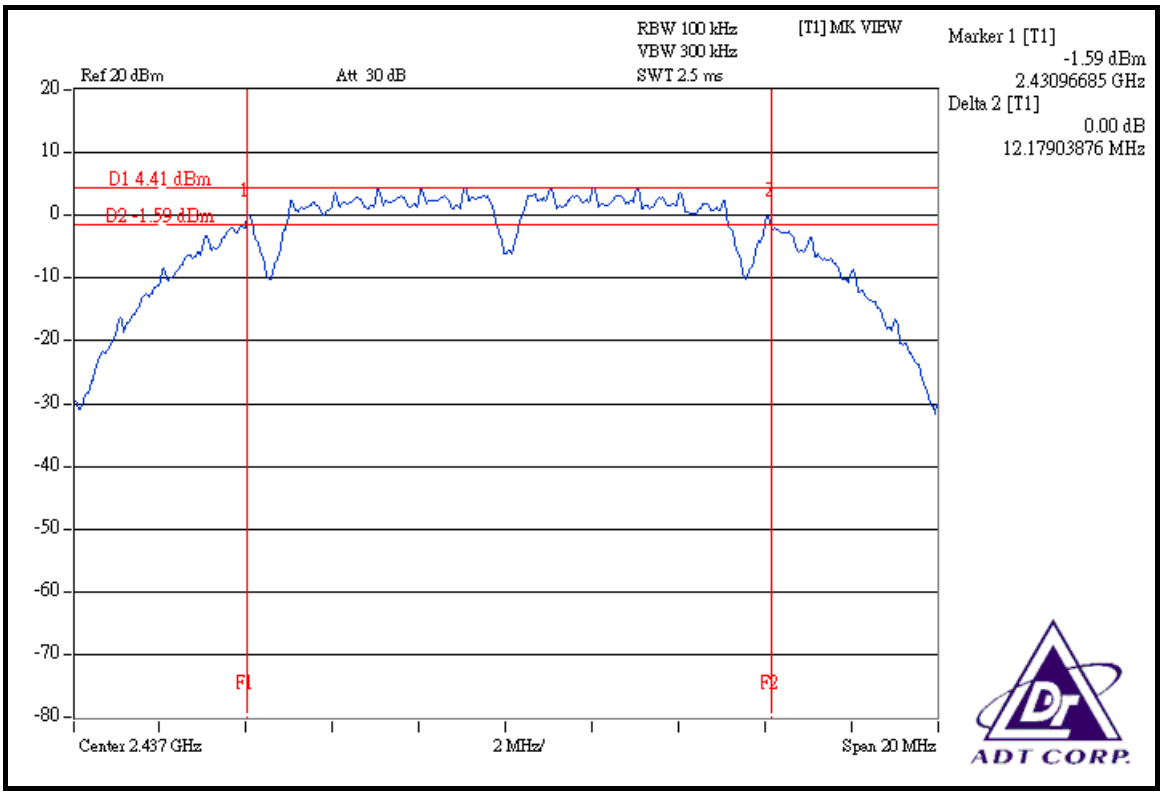
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 65% RH, 991hPa
TESTED BY	Long Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	12.21	0.5	PASS
6	2437	12.18	0.5	PASS
11	2462	12.20	0.5	PASS

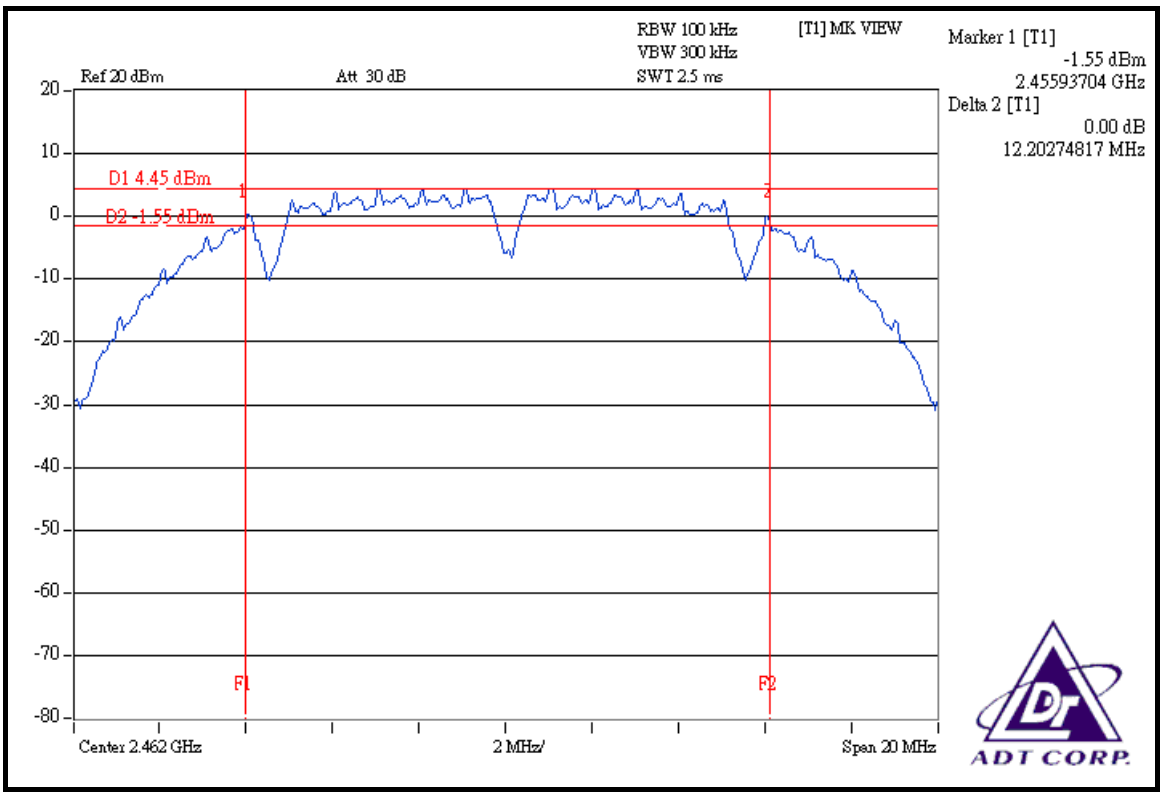
CH 1



CH 6


RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
[T1] MK VIEW
Marker 1 [T1]
-1.59 dBm
2.43096685 GHz
Delta 2 [T1]
0.00 dB
12.17903876 MHz
Ref 20 dBm
Att 30 dB
D1 4.41 dBm
D2 -1.59 dBm
F1
F2
Center 2.437 GHz
2 MHz/
Span 20 MHz
ADT CORP.

CH 11

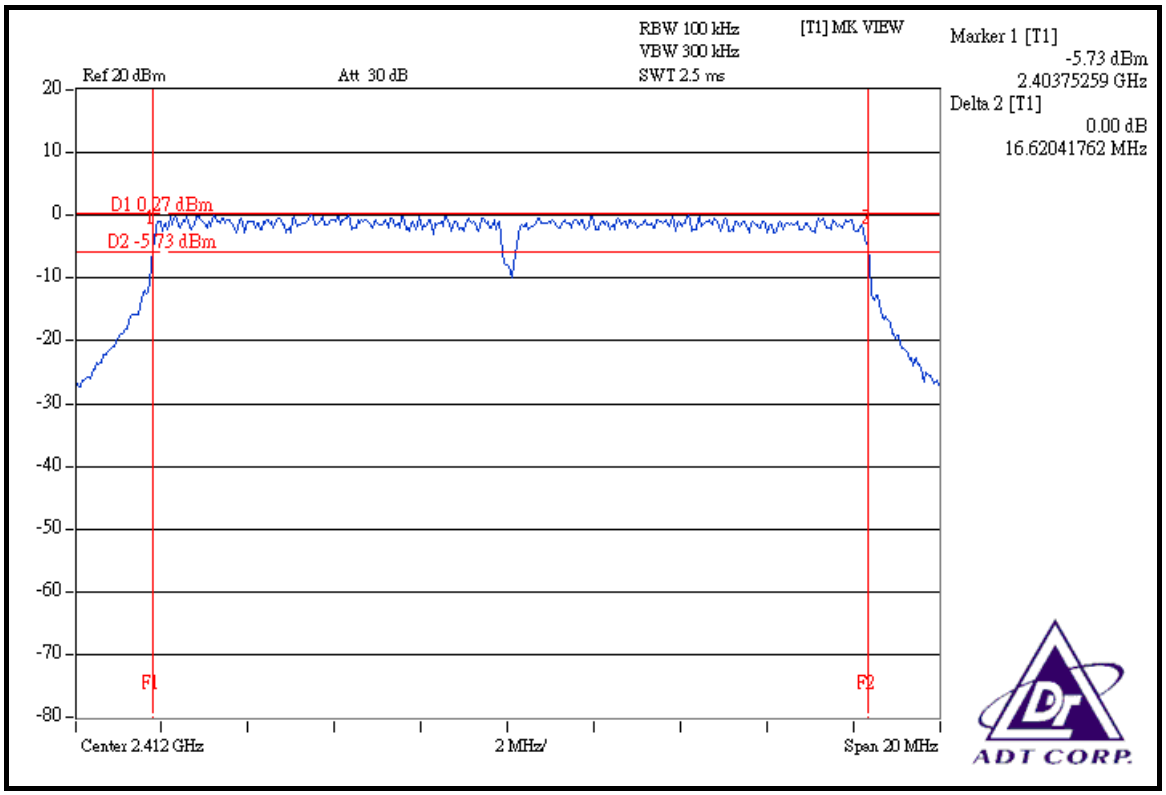

RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
[T1] MK VIEW
Marker 1 [T1]
-1.55 dBm
2.45593704 GHz
Delta 2 [T1]
0.00 dB
12.20274817 MHz
Ref 20 dBm
Att 30 dB
D1 4.45 dBm
D2 -1.55 dBm
F1
F2
Center 2.462 GHz
2 MHz/
Span 20 MHz
ADT CORP.

802.11g OFDM MODULATION

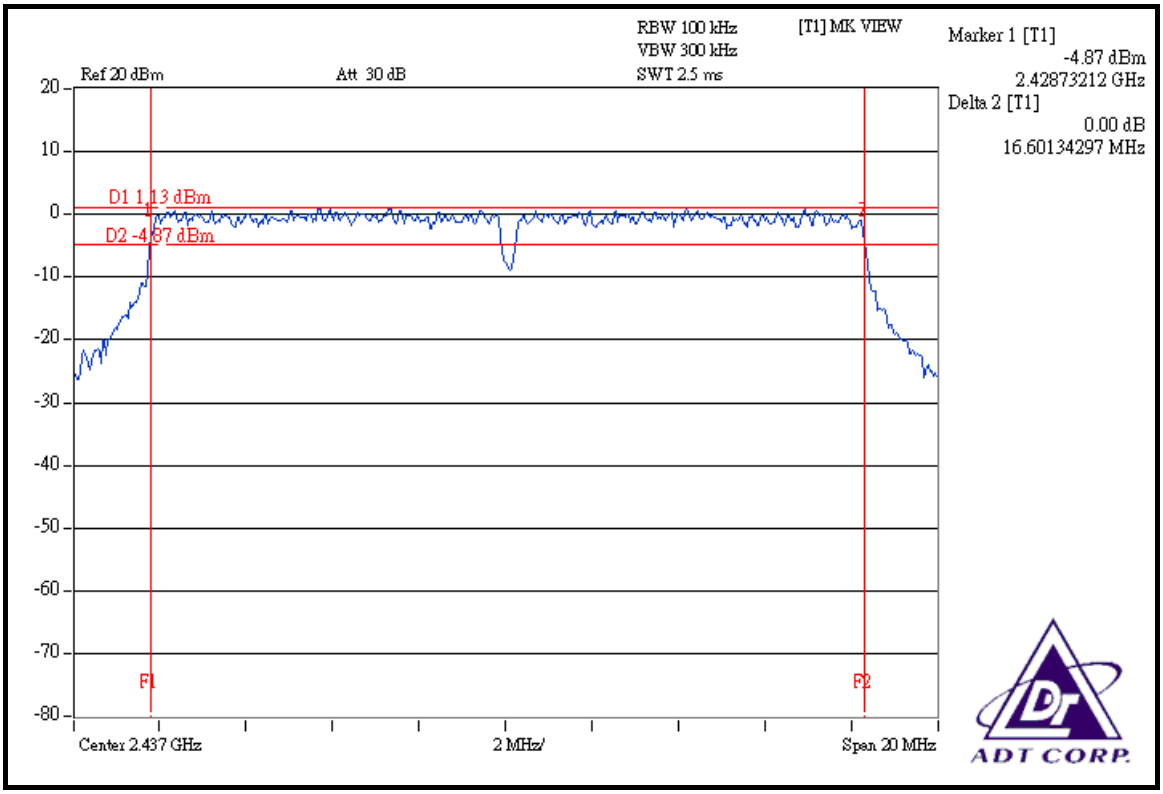
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 65% RH, 991hPa
TESTED BY	Long Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.62	0.5	PASS
6	2437	16.60	0.5	PASS
11	2462	16.60	0.5	PASS

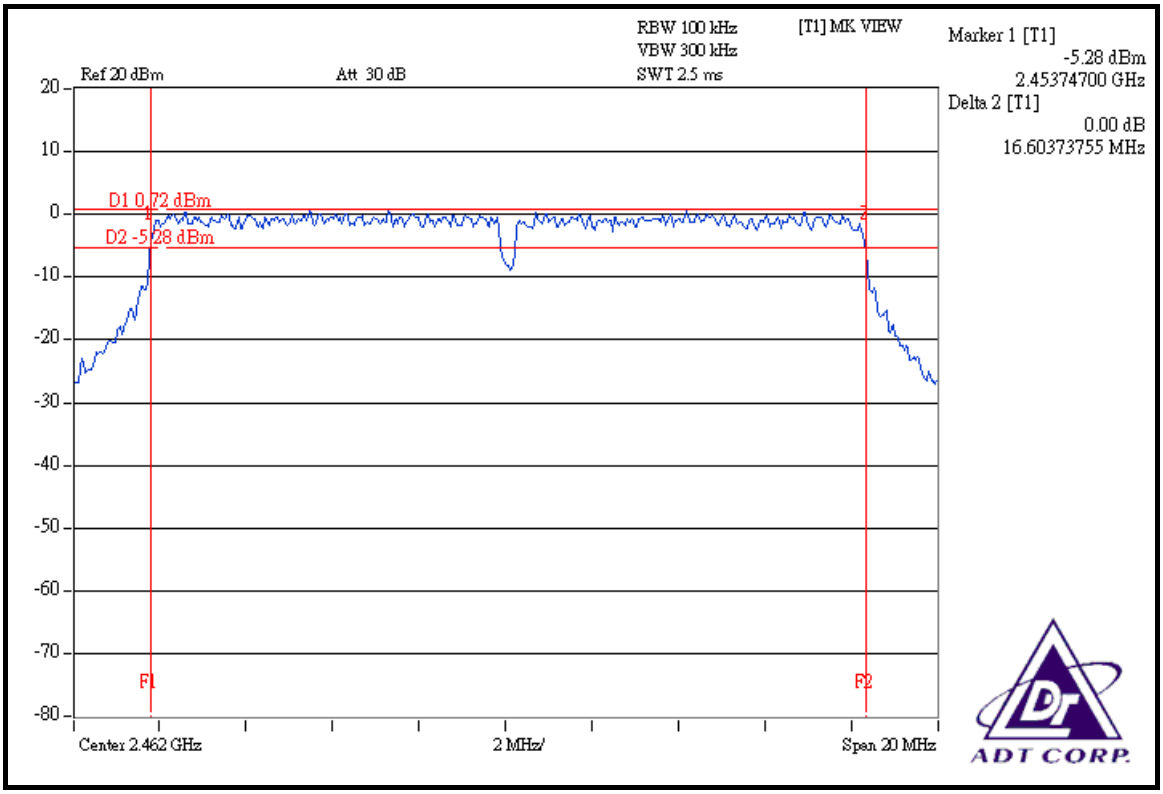
CH 1



CH 6


RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
[T1] MK VIEW
Marker 1 [T1]
-4.87 dBm
2.42873212 GHz
Delta 2 [T1]
0.00 dB
16.60134297 MHz
Ref 20 dBm
Att 30 dB
D1 1.13 dBm
D2 -4.87 dBm
F1
F2
Center 2.437 GHz
2 MHz/
Span 20 MHz
ADT CORP.

CH 11

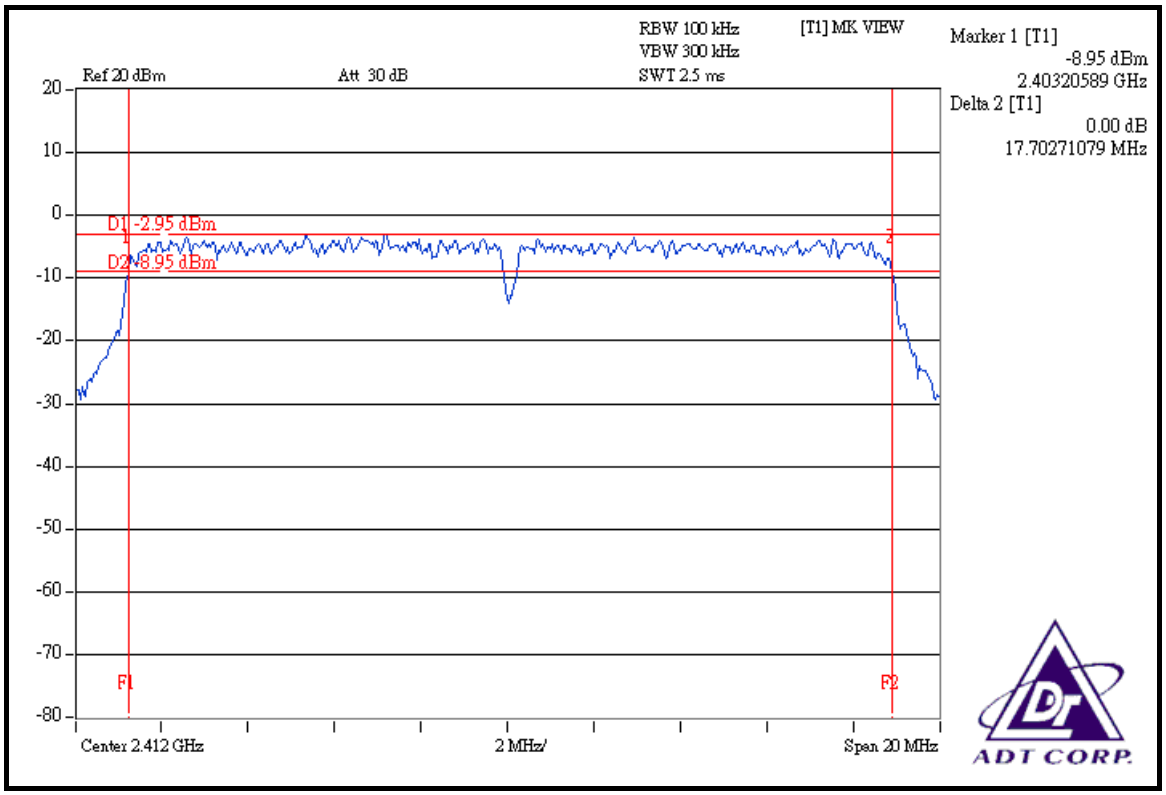

RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
[T1] MK VIEW
Marker 1 [T1]
-5.28 dBm
2.45374700 GHz
Delta 2 [T1]
0.00 dB
16.60373755 MHz
Ref 20 dBm
Att 30 dB
D1 0.72 dBm
D2 -5.28 dBm
F1
F2
Center 2.462 GHz
2 MHz/
Span 20 MHz
ADT CORP.

DRAFT 802.11n (20MHz) OFDM MODULATION

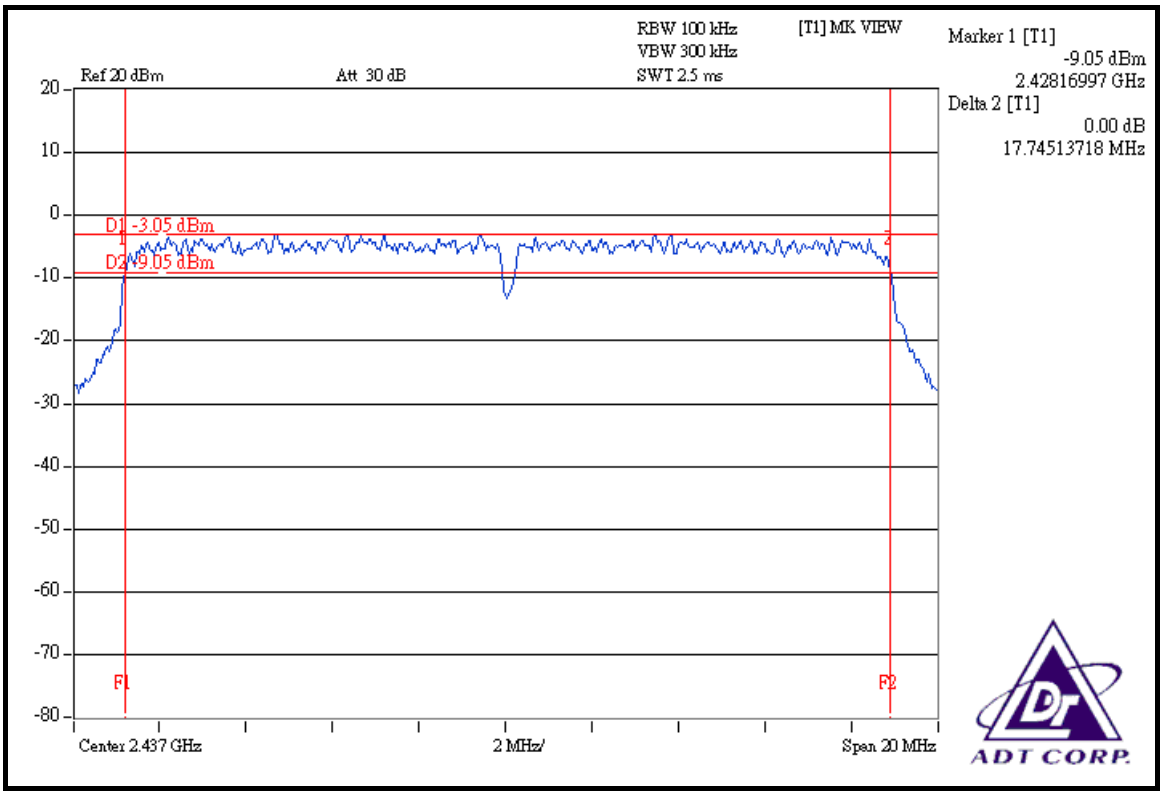
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	25deg.C, 65% RH, 991hPa
TESTED BY	Long Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	17.70	17.75	0.5	PASS
6	2437	17.75	17.77	0.5	PASS
11	2462	17.71	17.69	0.5	PASS

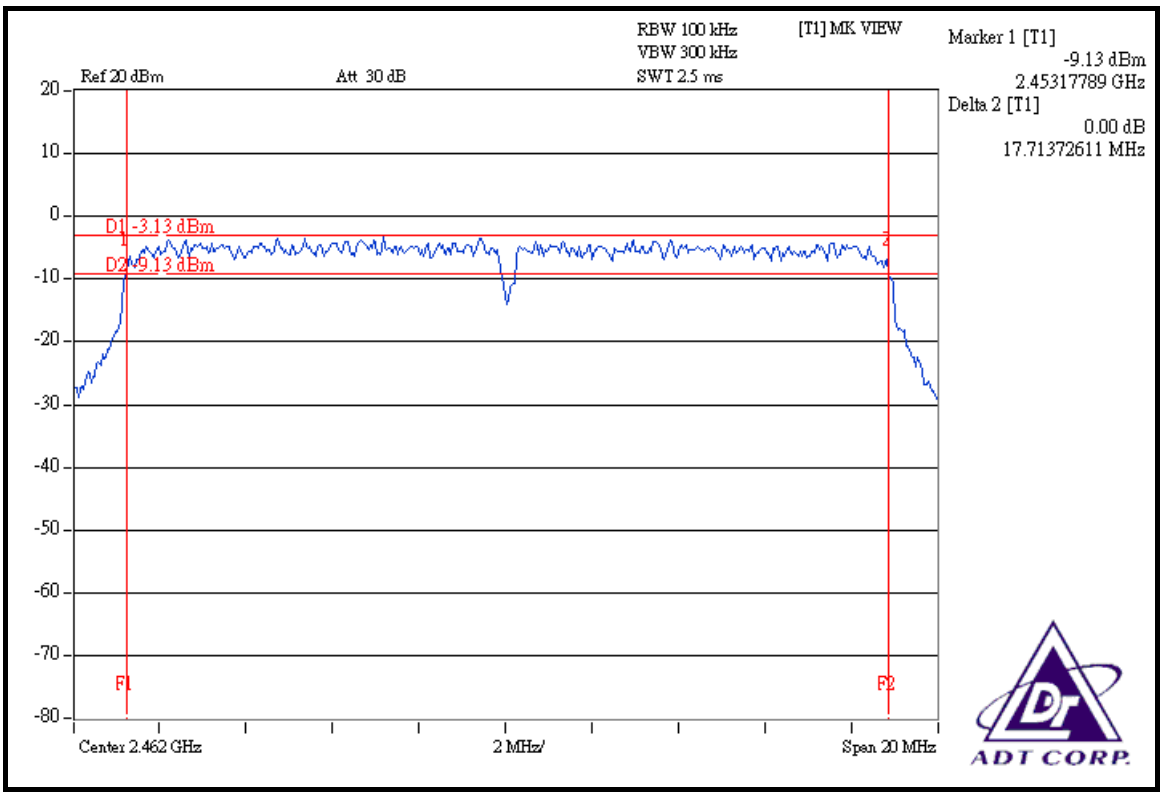
FOR CHAIN 0: CH 1



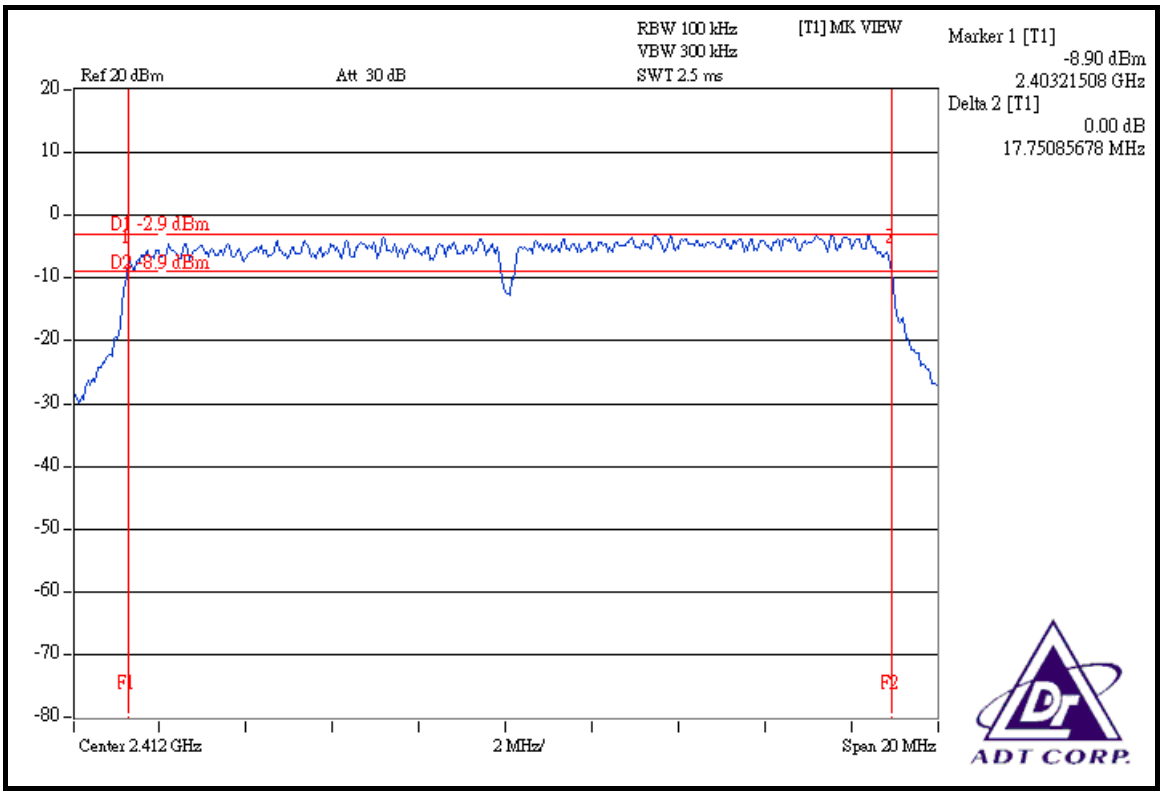
CH 6


RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
[T1] MK VIEW
Marker 1 [T1]
-9.05 dBm
2.42816997 GHz
Delta 2 [T1]
0.00 dB
17.74513718 MHz
Ref 20 dBm
Att 30 dB
D1 -3.05 dBm
D2 -9.05 dBm
F1
F2
Center 2.437 GHz
2 MHz/
Span 20 MHz
ADT CORP.

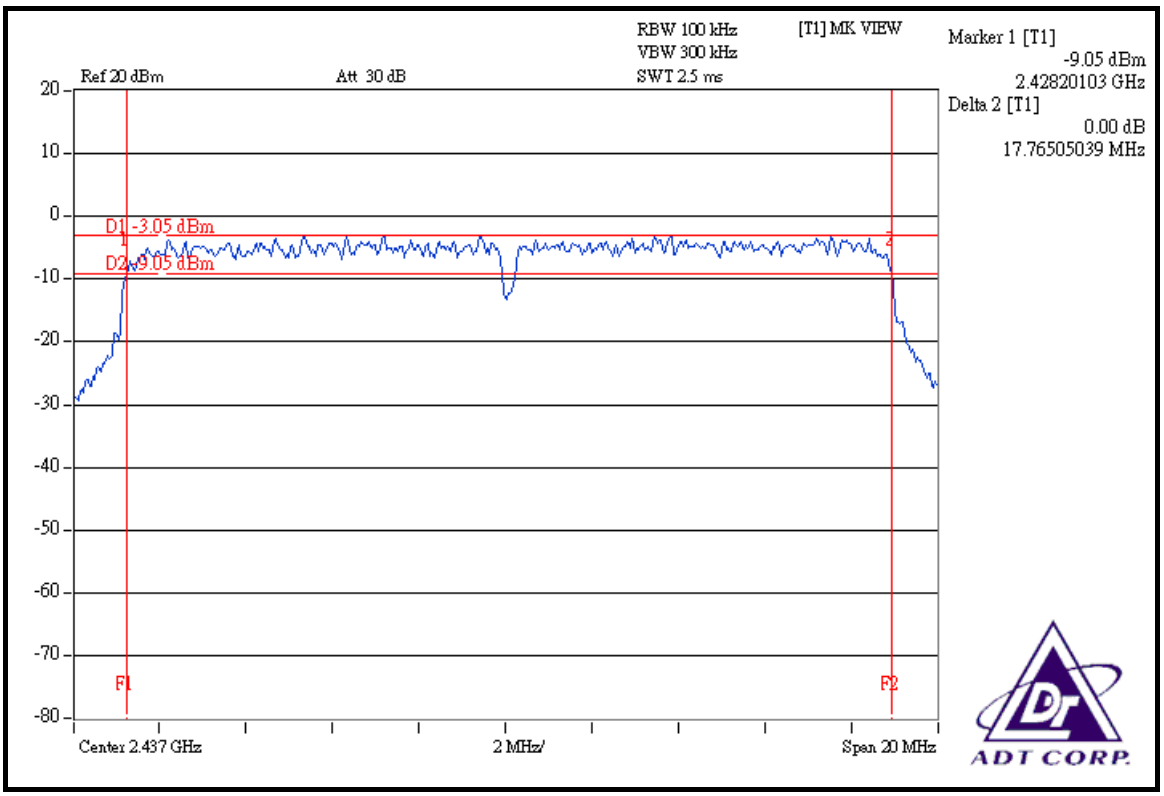
CH 11


RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
[T1] MK VIEW
Marker 1 [T1]
-9.13 dBm
2.45317789 GHz
Delta 2 [T1]
0.00 dB
17.71372611 MHz
Ref 20 dBm
Att 30 dB
D1 -3.13 dBm
D2 -9.13 dBm
F1
F2
Center 2.462 GHz
2 MHz/
Span 20 MHz
ADT CORP.

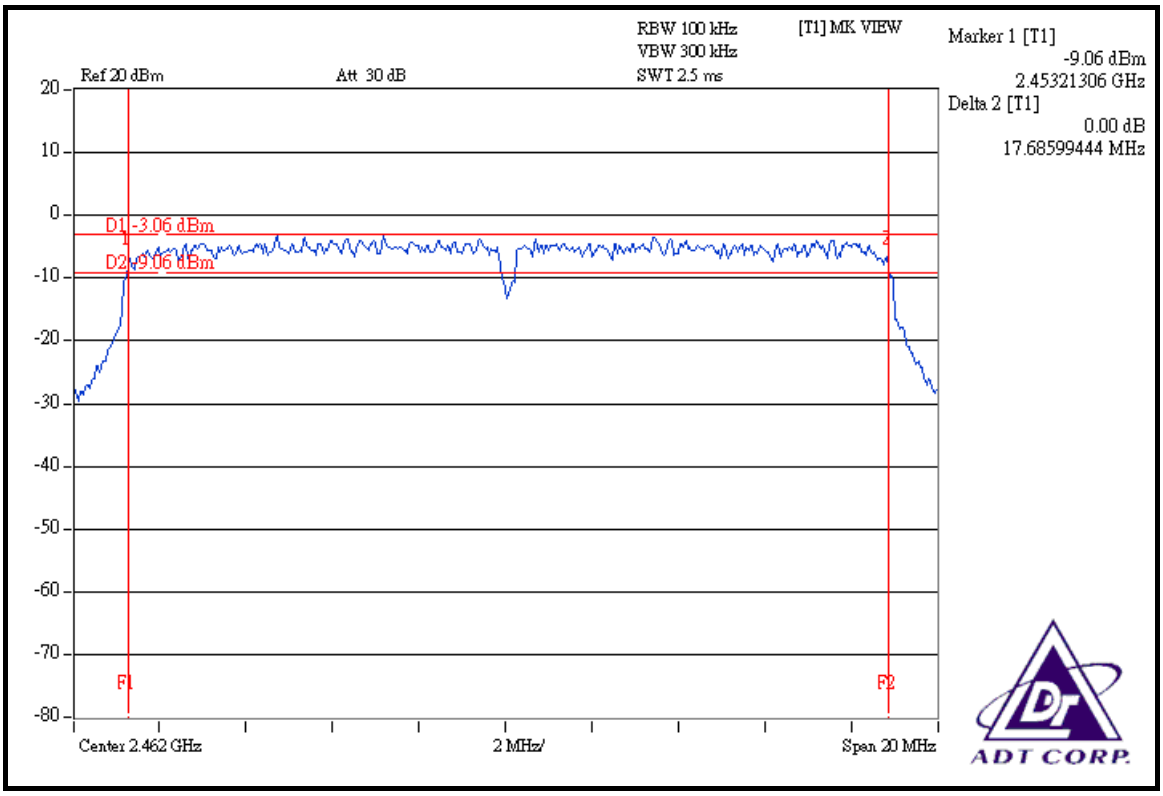
FOR CHAIN 1: CH 1



CH 6



CH 11

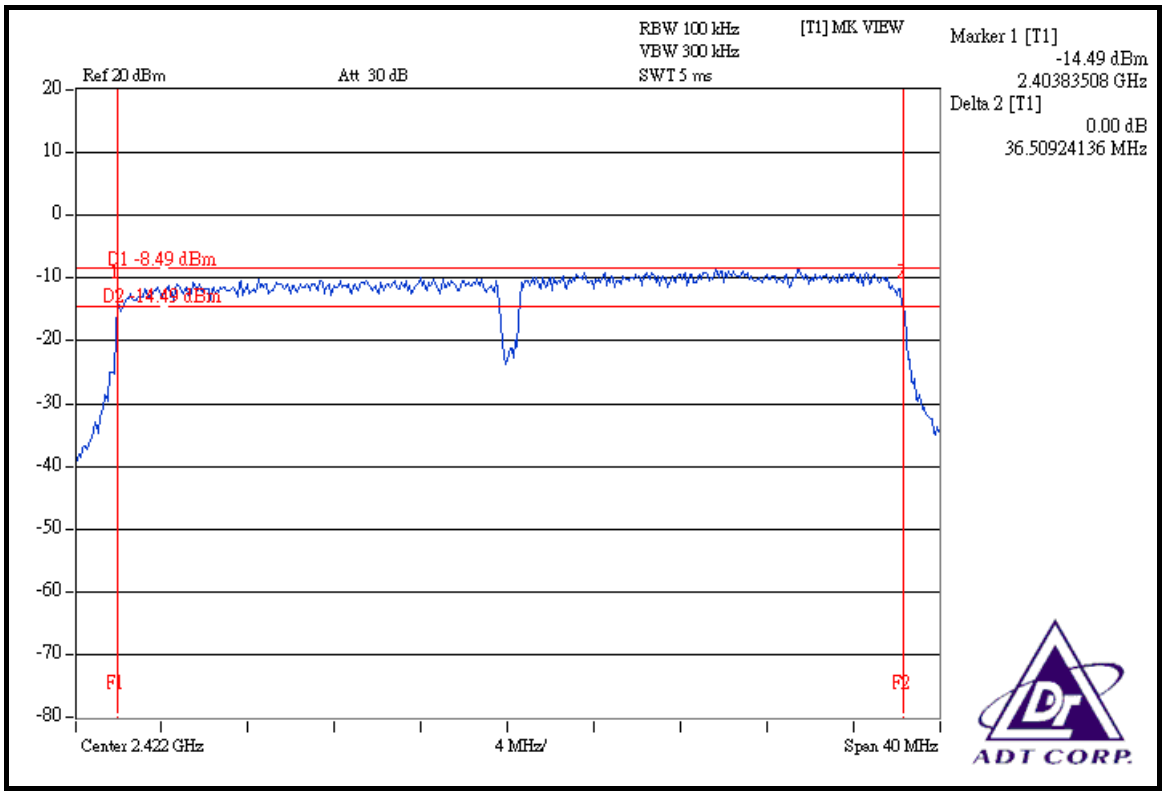

RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
[T1] MK VIEW
Marker 1 [T1]
-9.06 dBm
2.45321306 GHz
Delta 2 [T1]
0.00 dB
17.68599444 MHz
Ref 20 dBm
Att 30 dB
D1 -3.06 dBm
D2 -9.06 dBm
F1
F2
Center 2.462 GHz
2 MHz/
Span 20 MHz
ADT CORP.

DRAFT 802.11n (40MHz) OFDM MODULATION

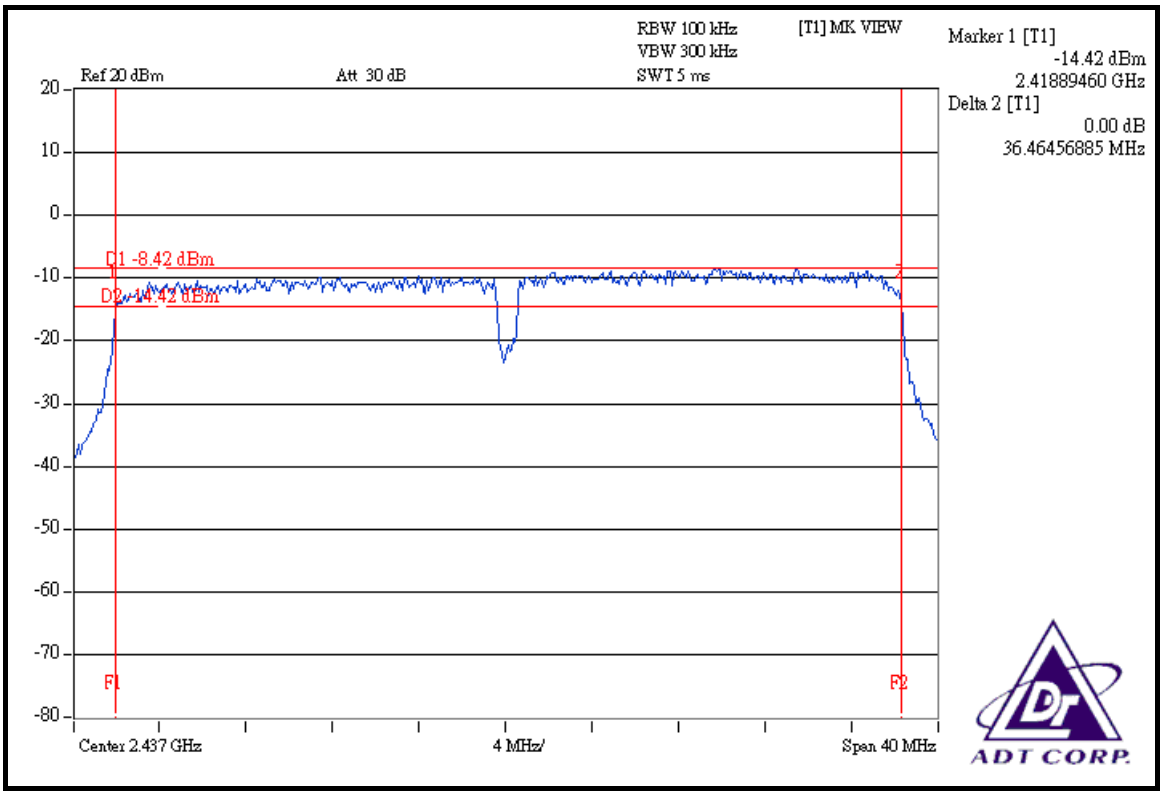
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	25deg.C, 65% RH, 991hPa
TESTED BY	Long Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2422	36.51	36.49	0.5	PASS
4	2437	36.46	36.52	0.5	PASS
7	2452	36.53	36.56	0.5	PASS

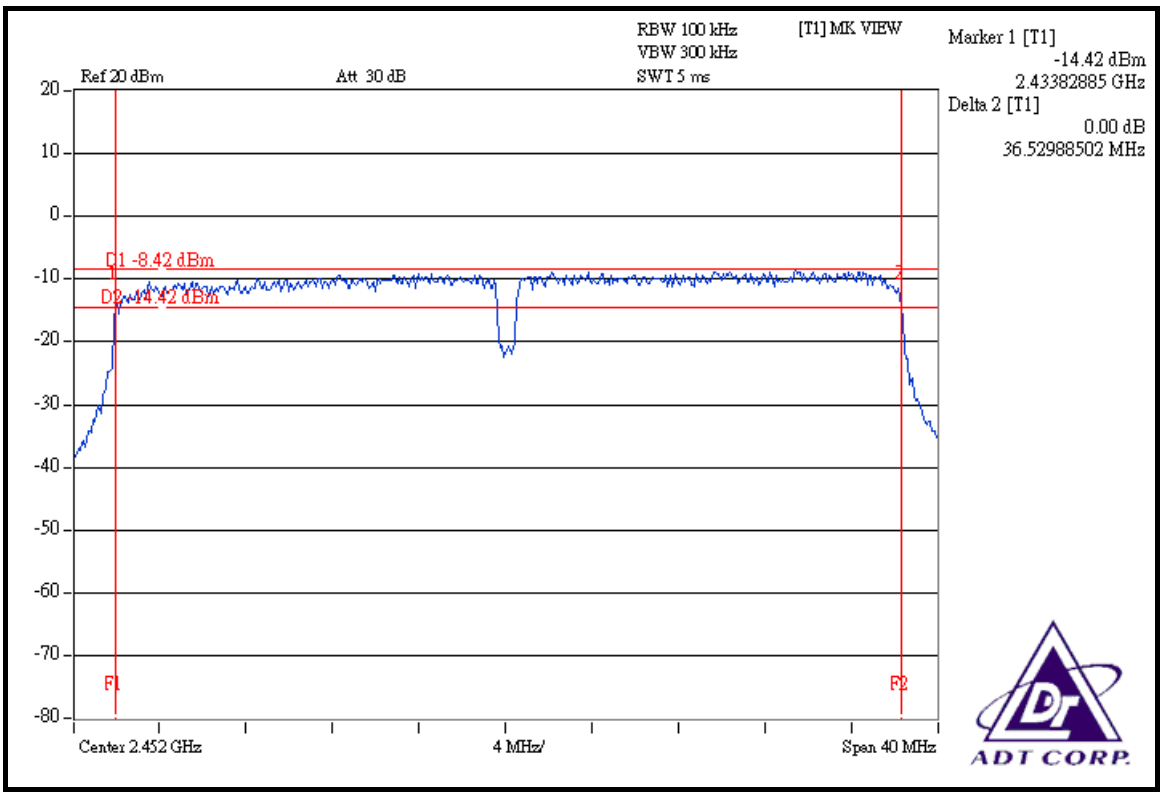
FOR CHAIN 0: CH 1



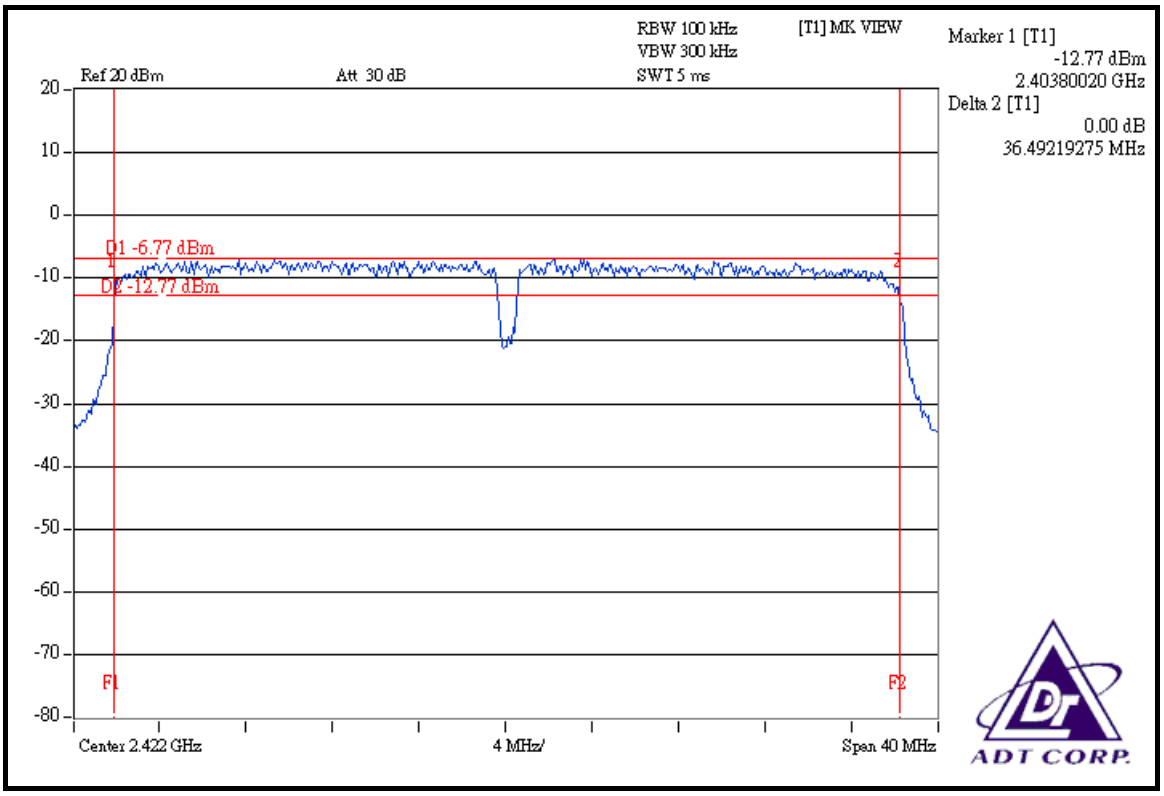
CH 4


RBW 100 kHz
VBW 300 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
-14.42 dBm
2.41889460 GHz
Delta 2 [T1]
0.00 dB
36.46456885 MHz
Ref 20 dBm
Att 30 dB
D1 -8.42 dBm
D2 -14.42 dBm
F1
F2
Center 2.437 GHz
4 MHz/
Span 40 MHz
ADT CORP.

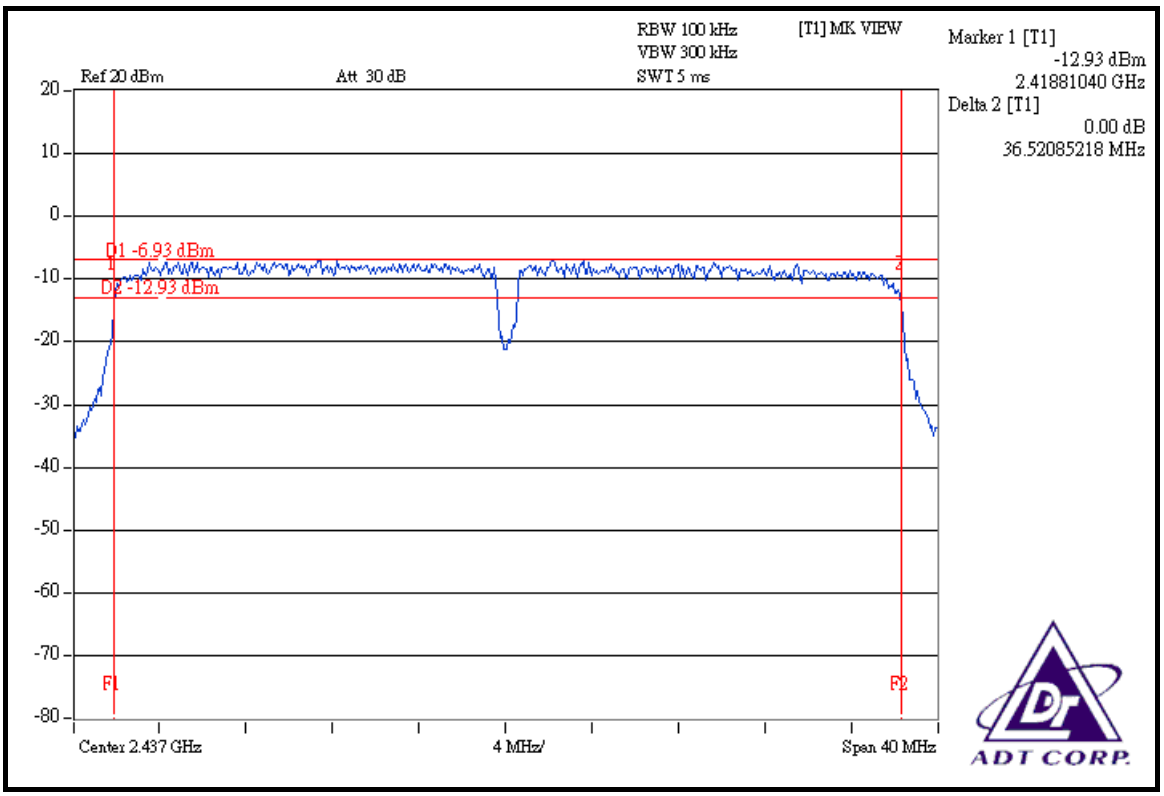
CH 7


RBW 100 kHz
VBW 300 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
-14.42 dBm
2.43382885 GHz
Delta 2 [T1]
0.00 dB
36.52988502 MHz
Ref 20 dBm
Att 30 dB
D1 -8.42 dBm
D2 -14.42 dBm
F1
F2
Center 2.452 GHz
4 MHz/
Span 40 MHz
ADT CORP.

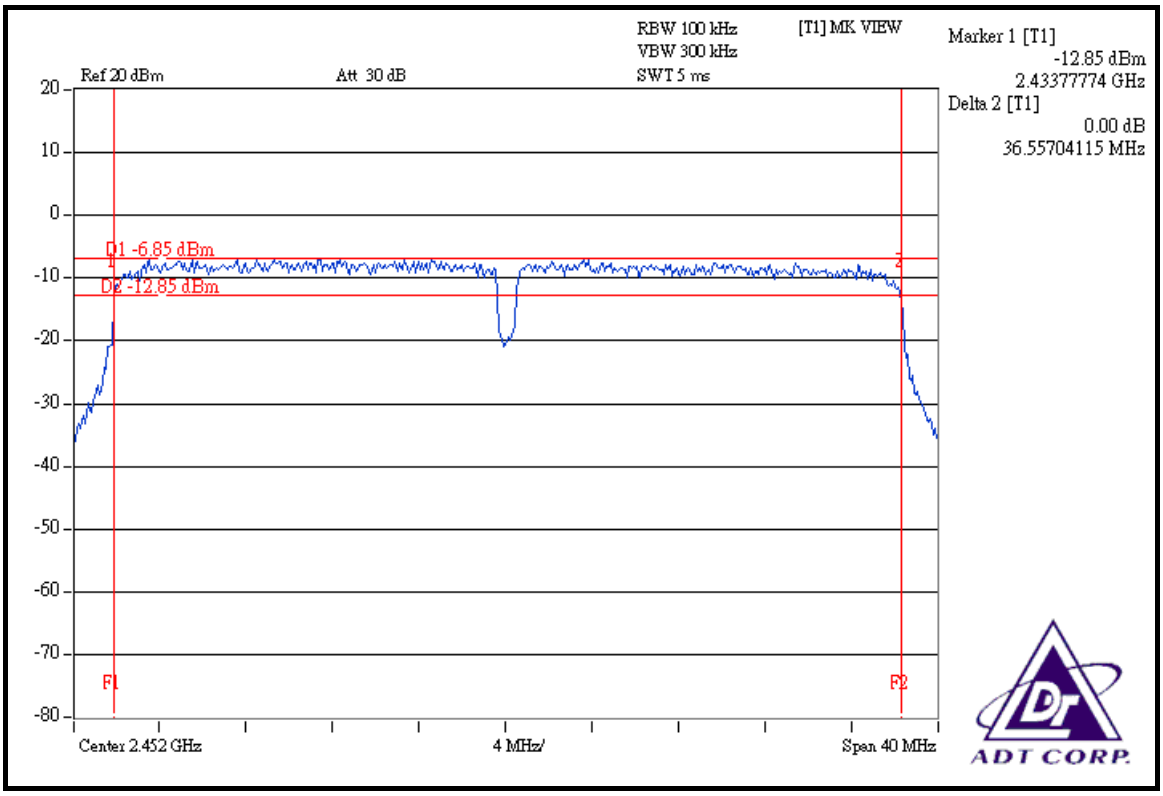
FOR CHAIN 1: CH 1



CH 4



CH 7


RBW 100 kHz
VBW 300 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
-12.85 dBm
2.43377774 GHz
Delta 2 [T1]
0.00 dB
36.55704115 MHz
Ref 20 dBm
Att 30 dB
D1 -6.85 dBm
D2 -12.85 dBm
F1
F2
Center 2.452 GHz
4 MHz/
Span 40 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 INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100040	Jun. 28, 2008
AGILENT SYNTHESIZED SIGNAL GENERATOR	E8257C	MY43320668	Jan. 03, 2008
DIGITAL RT OSCILLOSCOPE	TDS1012	C037299	Nov. 21, 2008
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

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

4.4.4 DEVIATION FROM TEST STANDARD

No deviation

4.4.5 TEST SETUP

4.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6

4.4.7 TEST RESULTS

802.11b DSSS MODULATION

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

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2412	57.148	17.57	30	PASS
6	2437	71.450	18.54	30	PASS
11	2462	71.945	18.57	30	PASS

802.11g OFDM MODULATION

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

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2412	71.121	18.52	30	PASS
6	2437	79.616	19.01	30	PASS
11	2462	79.983	19.03	30	PASS

DRAFT 802.11n (20MHz) OFDM MODULATION

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

CHAN.	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)		PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1				
1	2412	31.842	31.989	15.03	15.05	63.831	18.05	30	PASS
6	2437	32.063	32.063	15.06	15.06	64.126	18.07	30	PASS
11	2462	32.211	31.769	15.08	15.02	63.980	18.06	30	PASS

DRAFT 802.11n (40MHz) OFDM MODULATION

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

CHAN.	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)		PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1				
1	2422	15.922	22.751	12.02	13.57	38.673	15.87	30	PASS
4	2437	15.922	22.439	12.02	13.51	38.361	15.84	30	PASS
7	2452	16.144	22.594	12.08	13.54	38.738	15.88	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	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

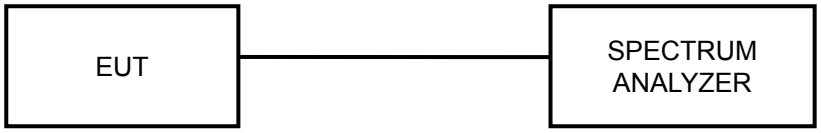
The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3kHz RBW and 30kHz VBW, set sweep time = span/3kHz. The power spectral density was measured and recorded.

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

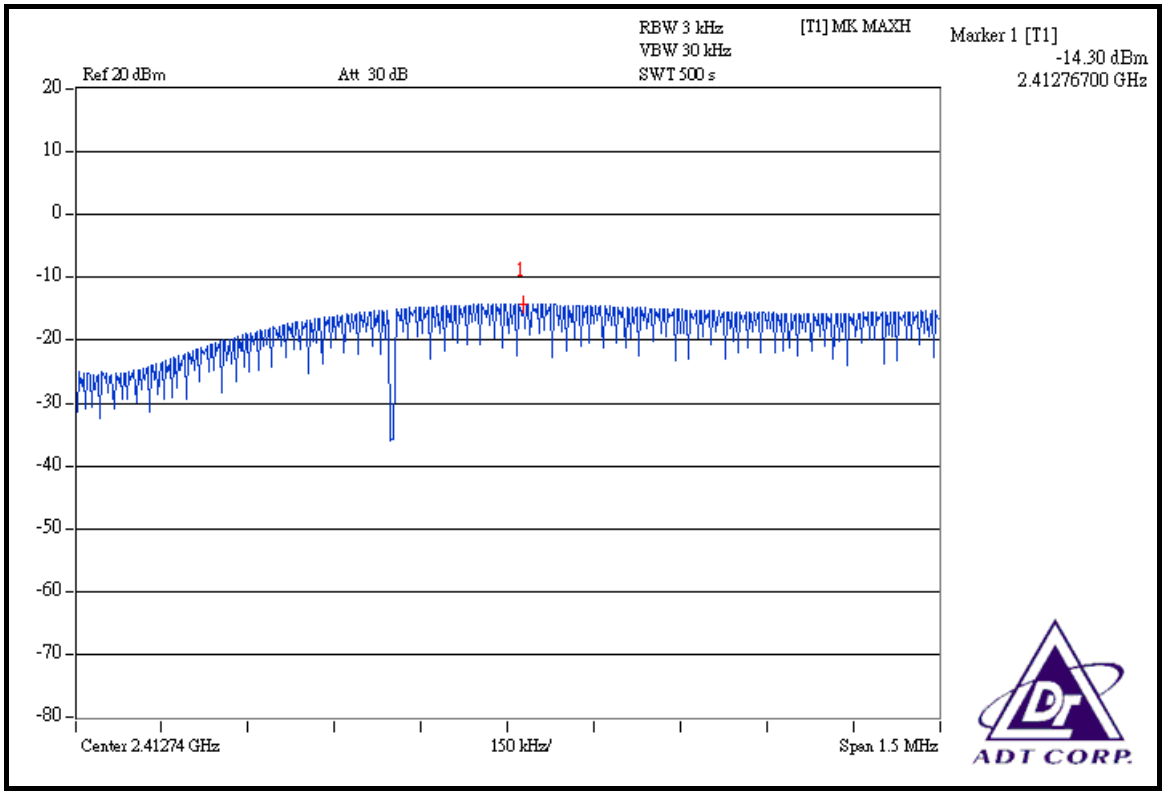
4.5.7 TEST RESULTS

802.11b DSSS MODULATION

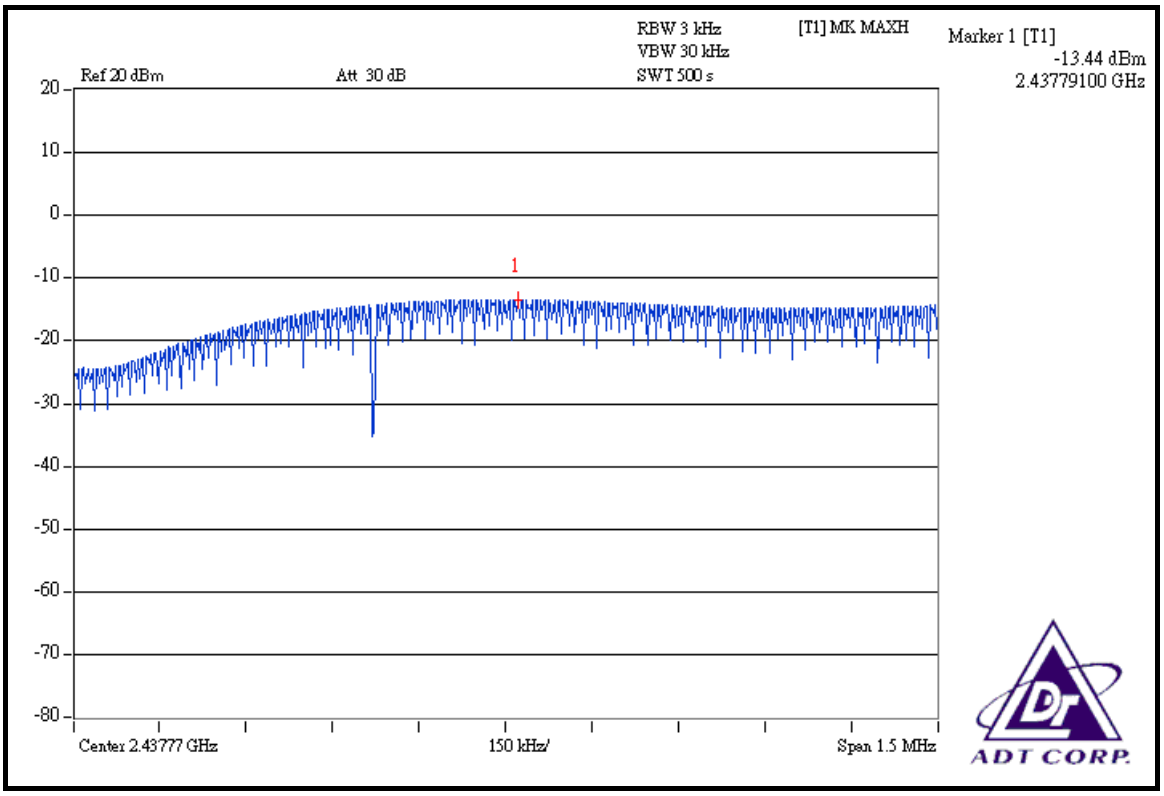
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 65% RH, 991hPa
TESTED BY	Long Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	2412	-14.30	8	PASS
6	2437	-13.44	8	PASS
11	2462	-13.37	8	PASS

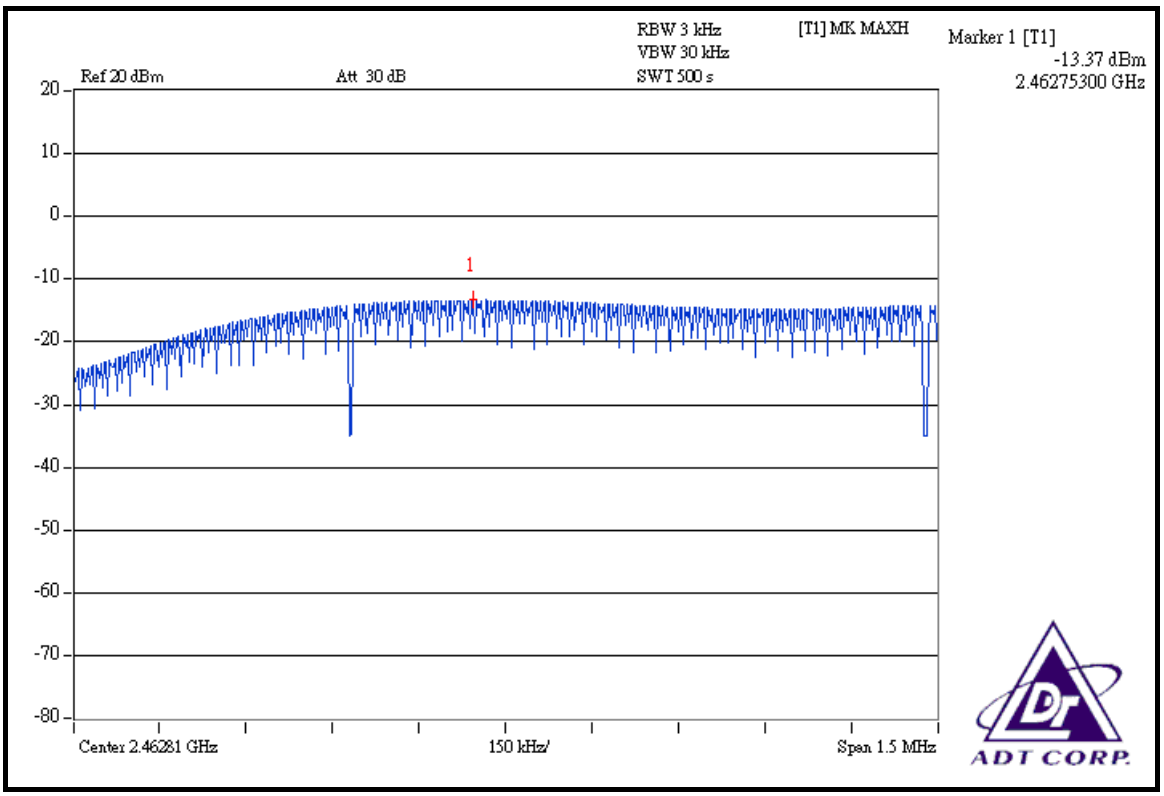
CH 1



CH 6


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-13.44 dBm
2.43779100 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Center 2.43777 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

CH 11

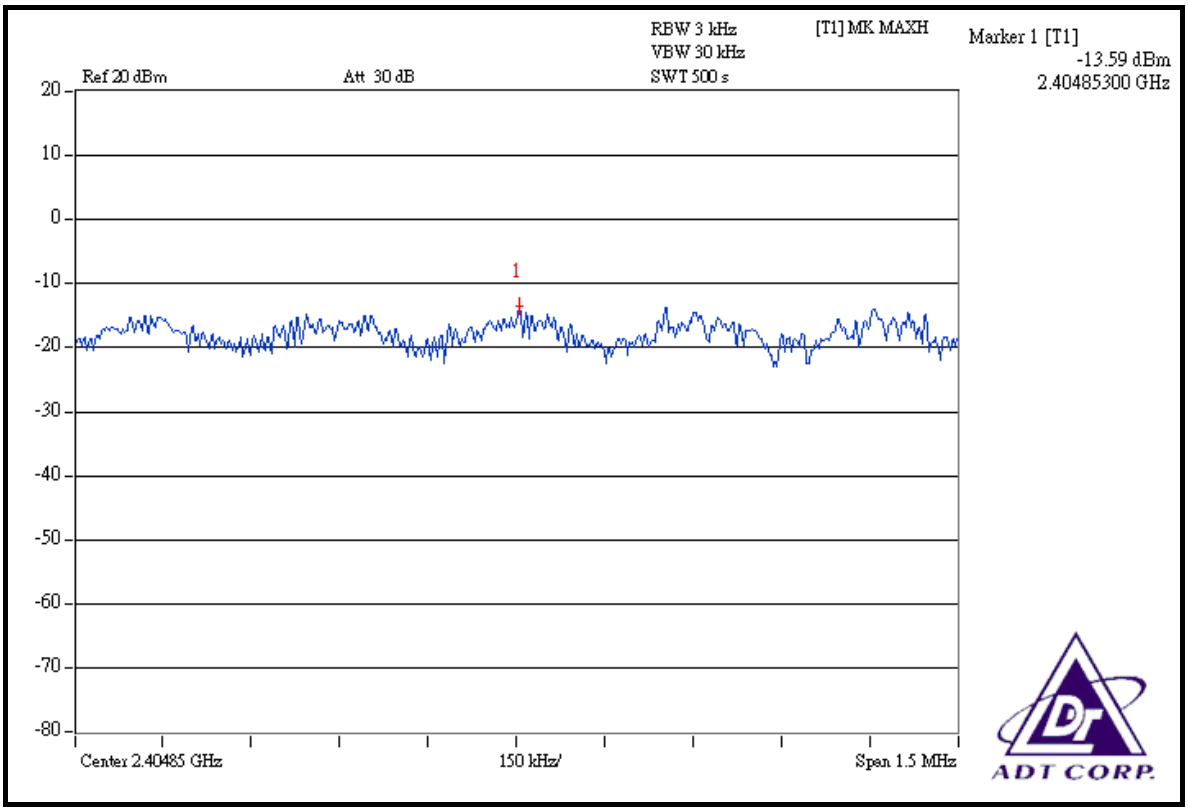

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-13.37 dBm
2.46275300 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Center 2.46281 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

802.11g OFDM MODULATION

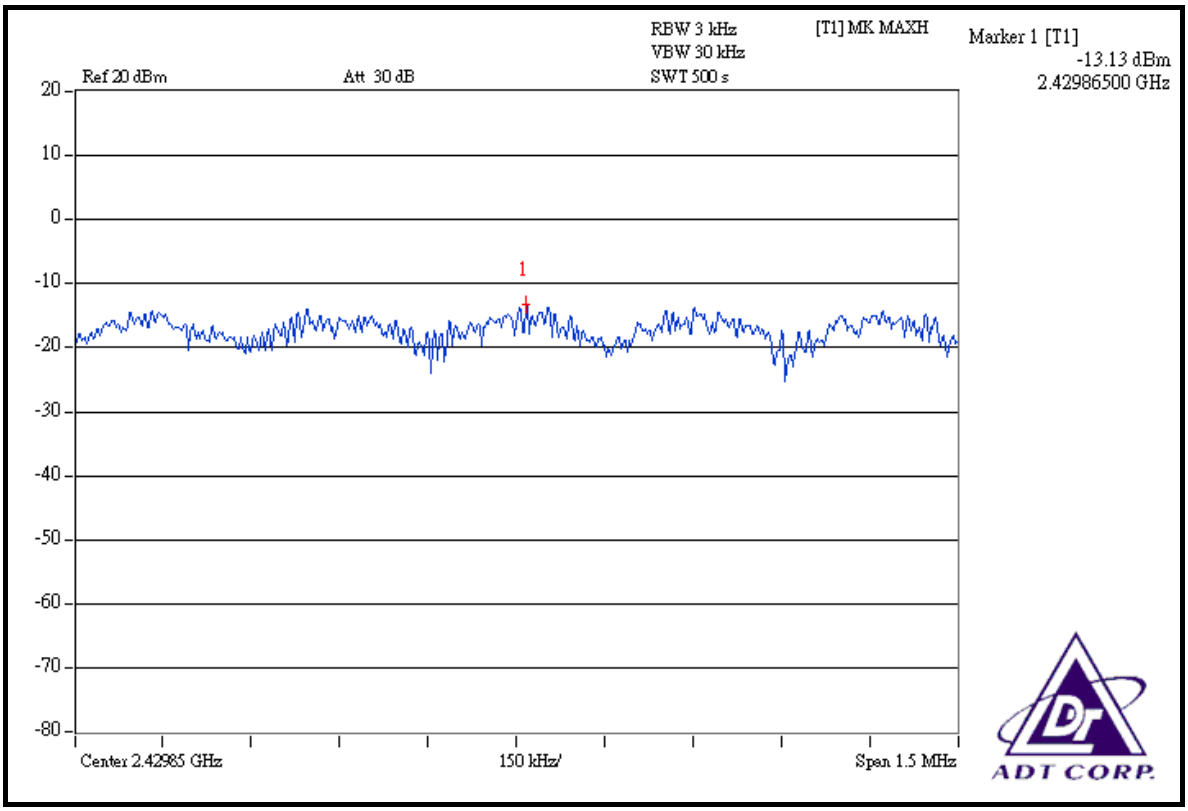
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 65% RH, 991hPa
TESTED BY	Long Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	2412	-13.59	8	PASS
6	2437	-13.13	8	PASS
11	2462	-13.16	8	PASS

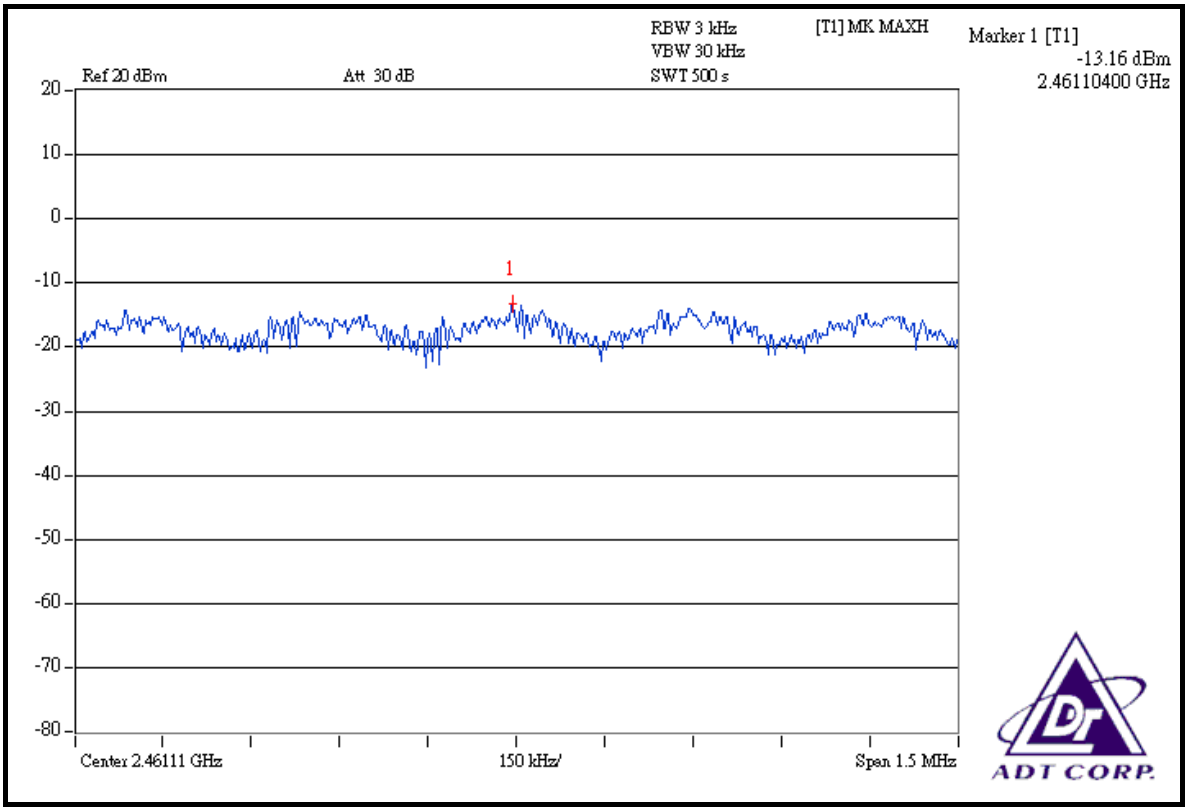
CH 1



CH 6


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-13.13 dBm
2.42986500 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Center 2.42985 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

CH 11

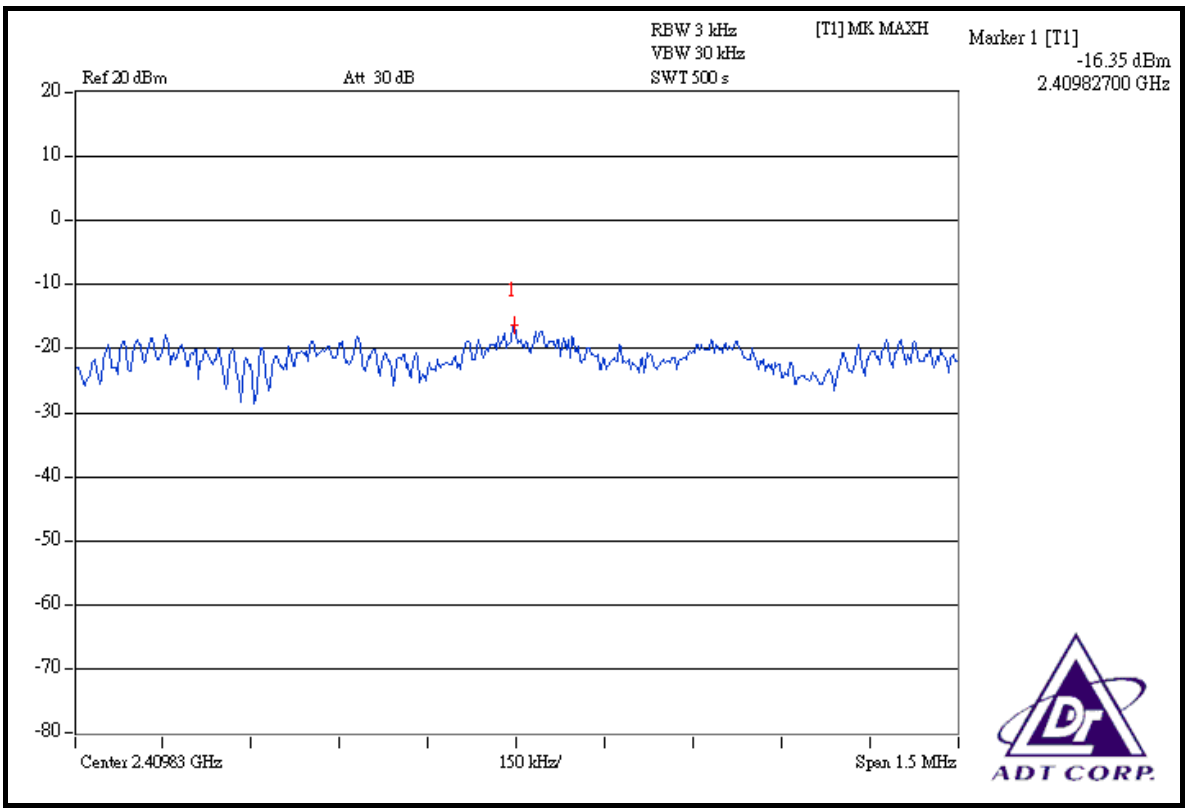

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-13.16 dBm
2.46110400 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Center 2.46111 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

DRAFT 802.11n (20MHz) OFDM MODULATION

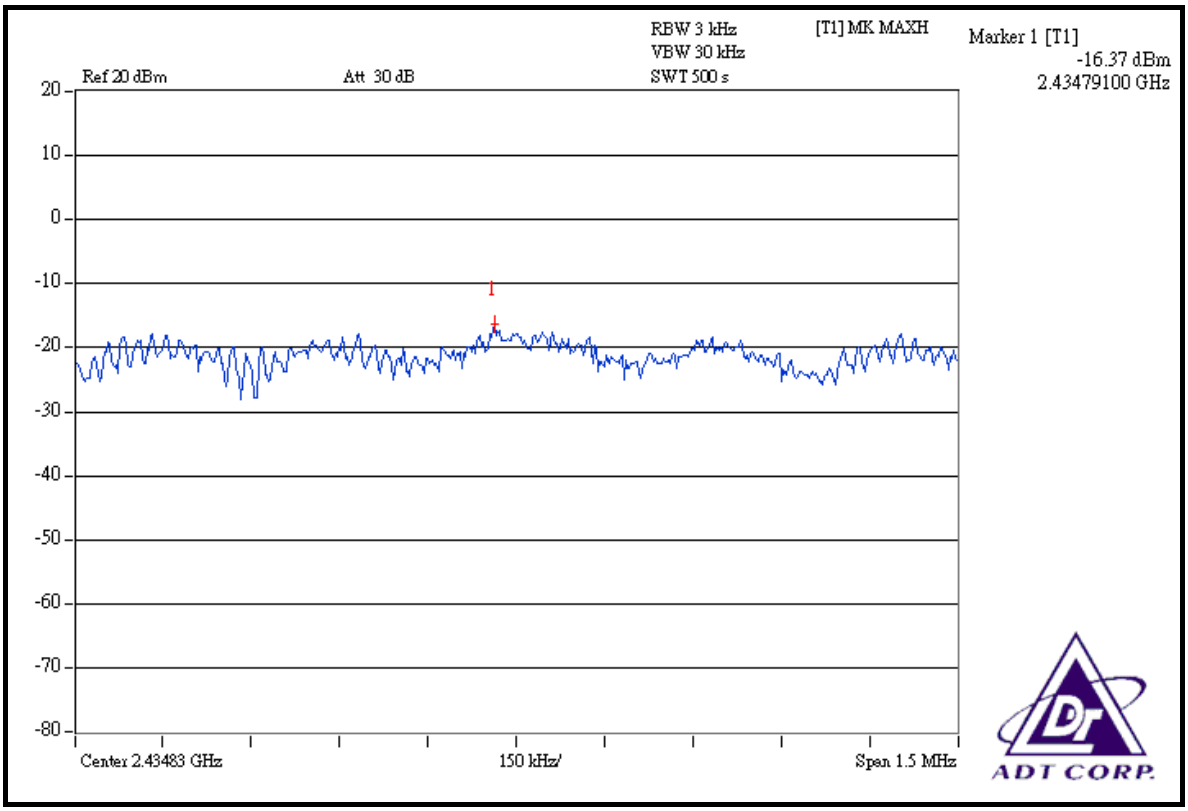
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	25deg.C, 65% RH, 991hPa
TESTED BY	Long Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (mW)		RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1				
1	2412	0.023	0.022	-16.35	-16.60	0.045	-13.47	8	PASS
6	2437	0.023	0.022	-16.37	-16.55	0.045	-13.47	8	PASS
11	2462	0.023	0.021	-16.30	-16.70	0.044	-13.57	8	PASS

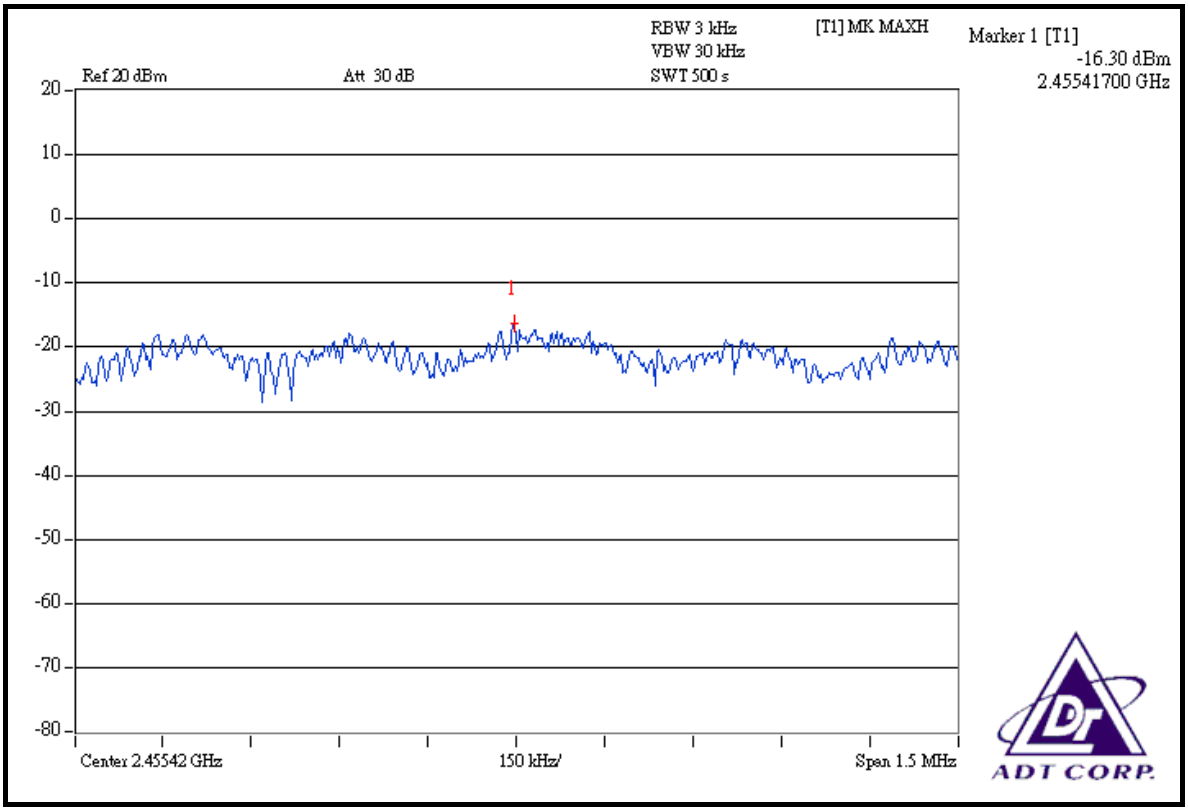
FOR CHAIN 0: CH 1



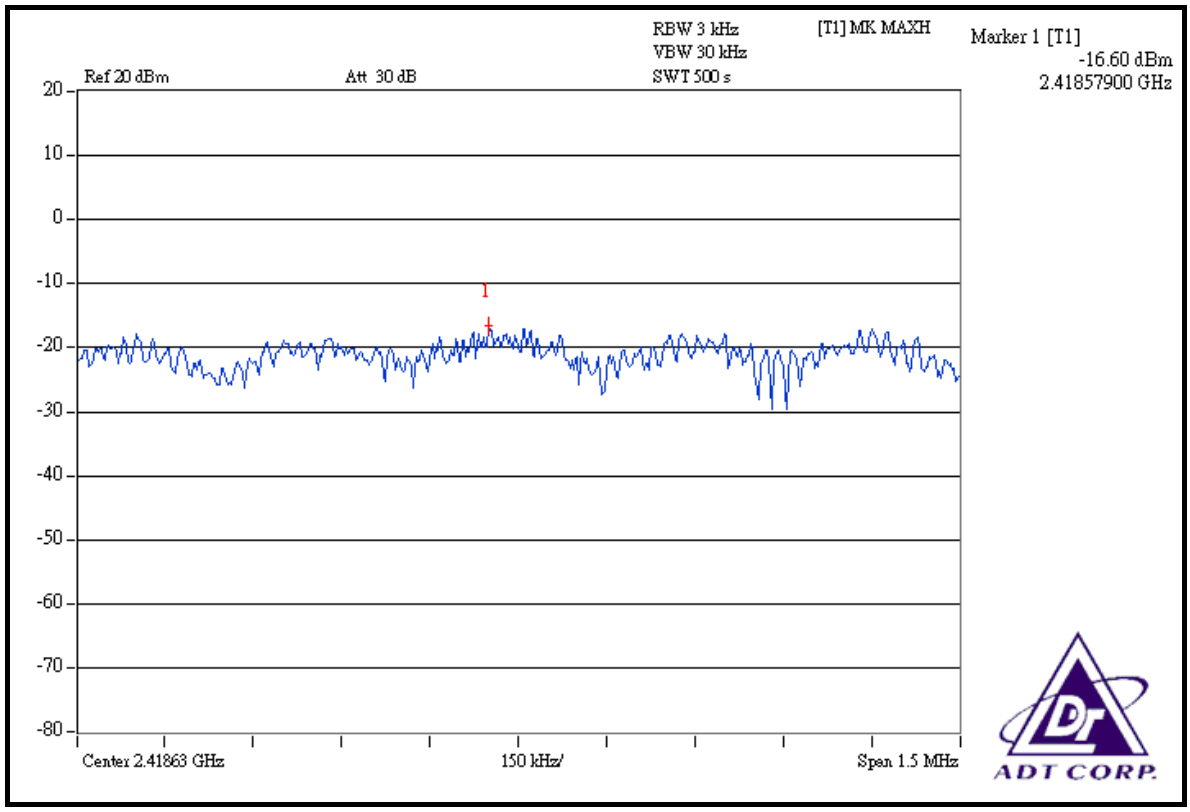
CH 6


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-16.37 dBm
2.43479100 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.43483 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

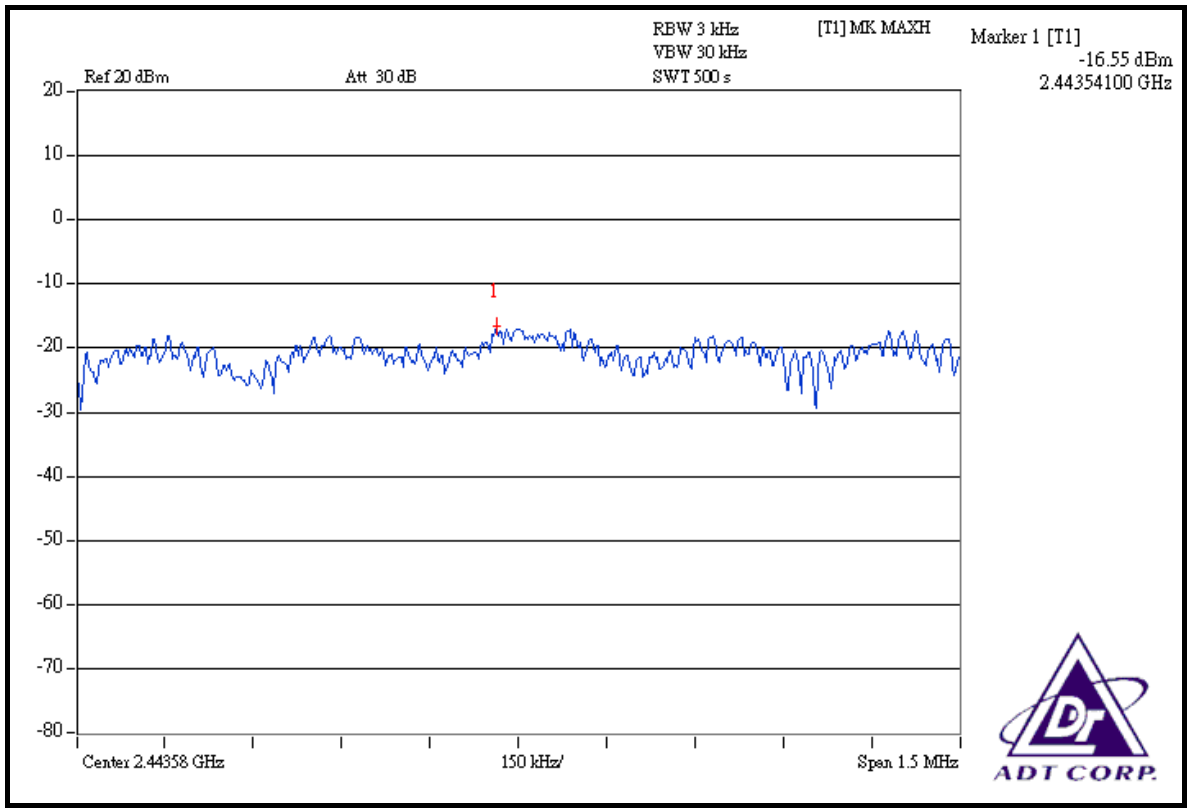
CH 11


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-16.30 dBm
2.45541700 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.45542 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

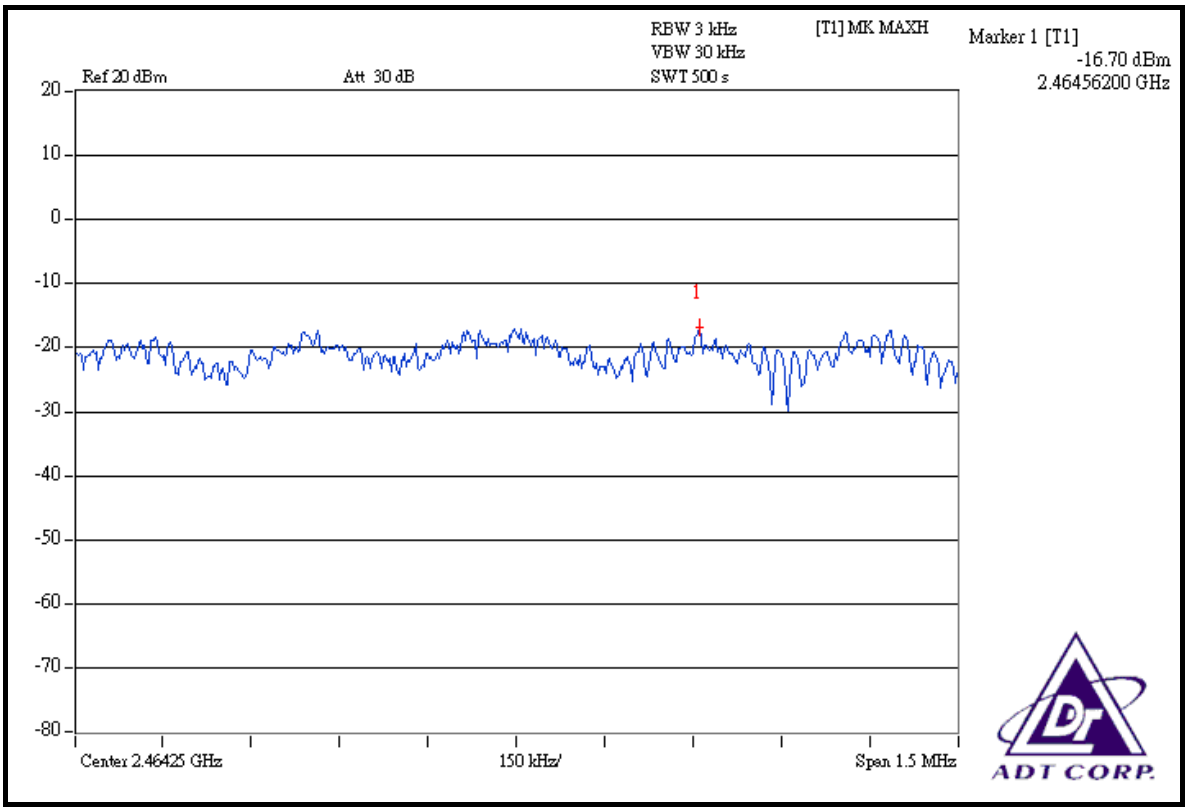
FOR CHAIN 1: CH 1



CH 6



CH 11

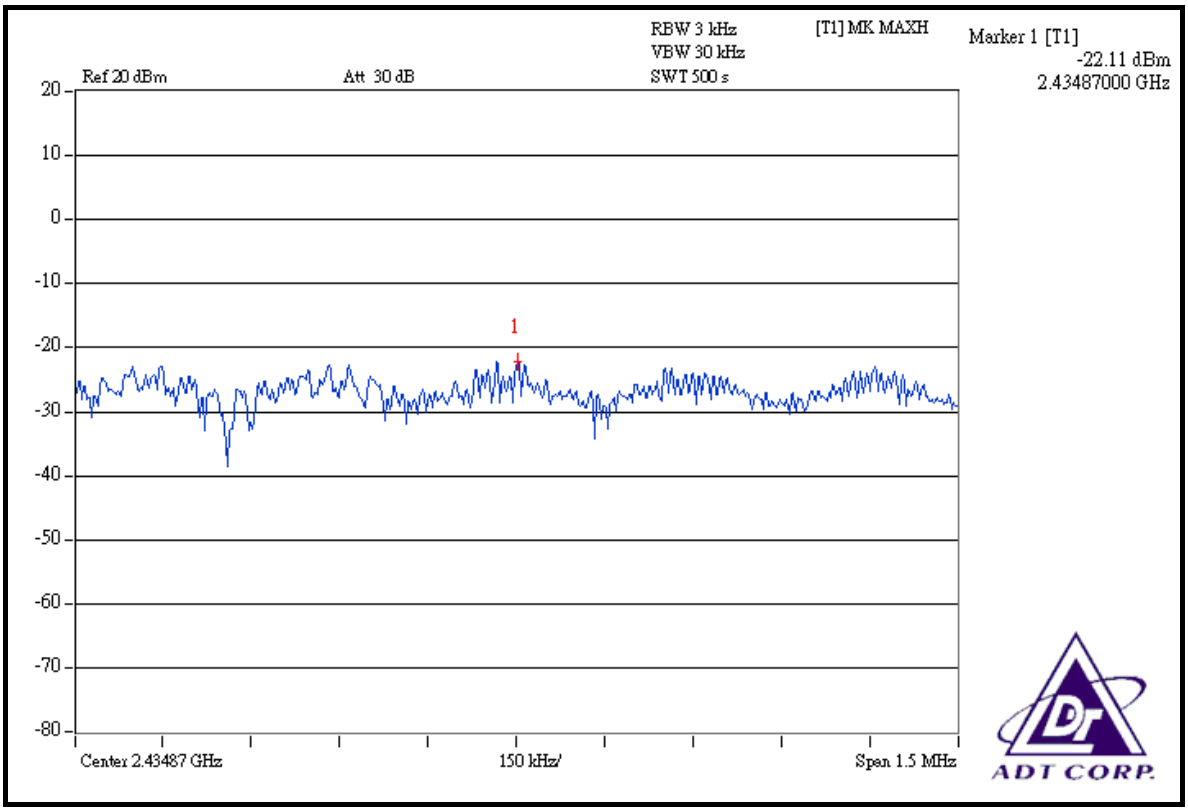

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-16.70 dBm
2.46456200 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Center 2.46425 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

DRAFT 802.11n (40MHz) OFDM MODULATION

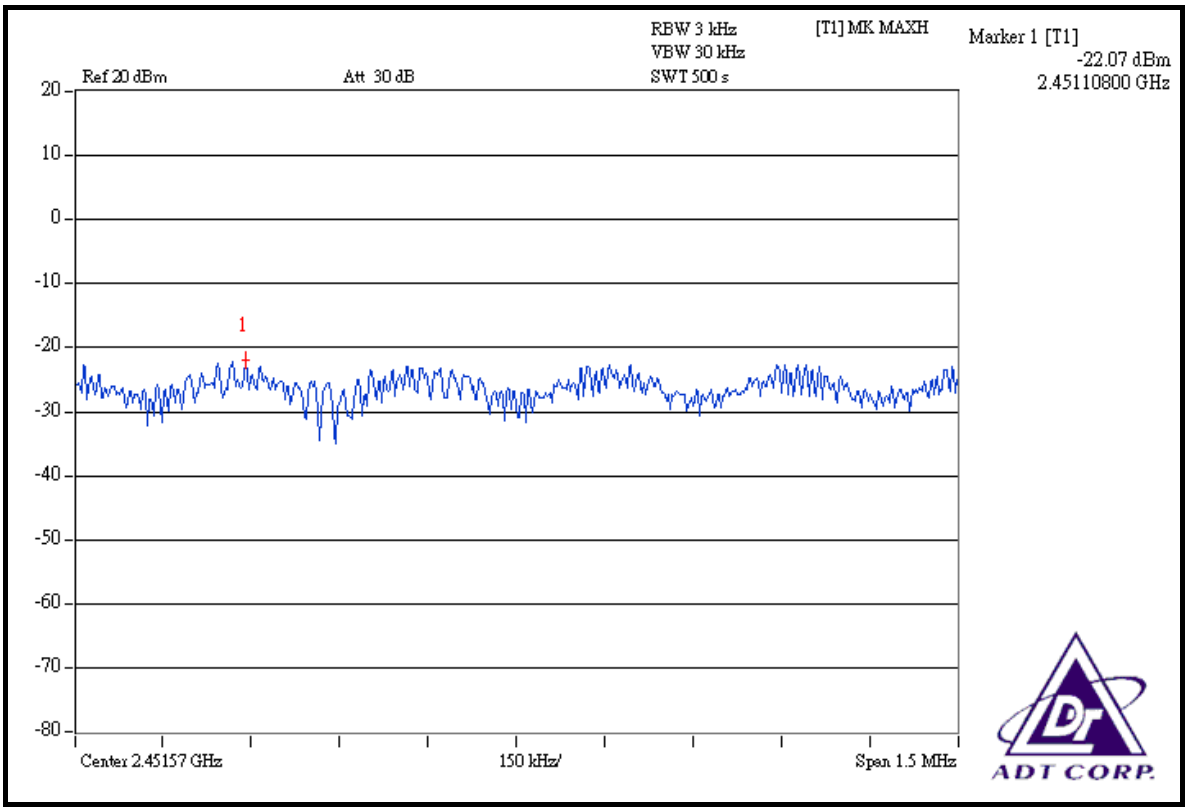
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 65% RH, 991hPa
TESTED BY	Long Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (mW)		RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1				
1	2422	0.006	0.015	-22.11	-18.29	0.021	-16.78	8	PASS
4	2437	0.006	0.015	-22.07	-18.30	0.021	-16.78	8	PASS
7	2452	0.006	0.015	-22.02	-18.13	0.021	-16.78	8	PASS

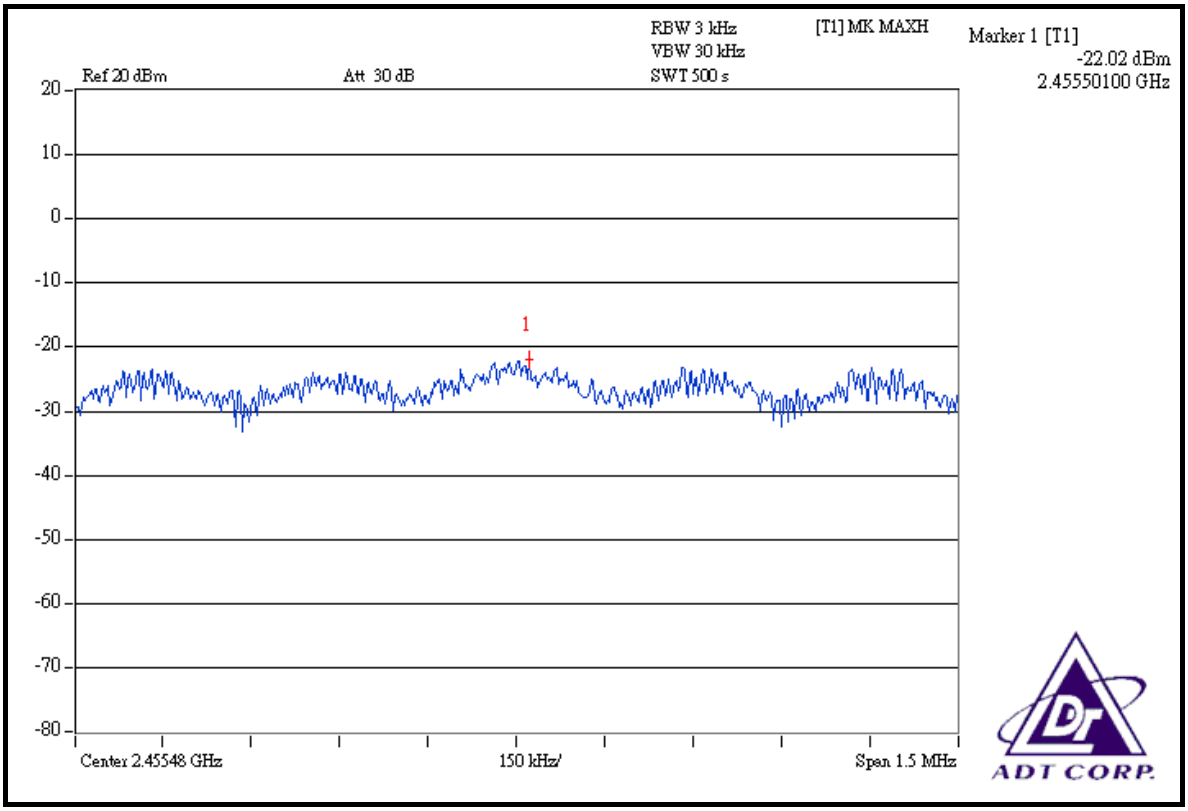
FOR CHAIN 0: CH 1



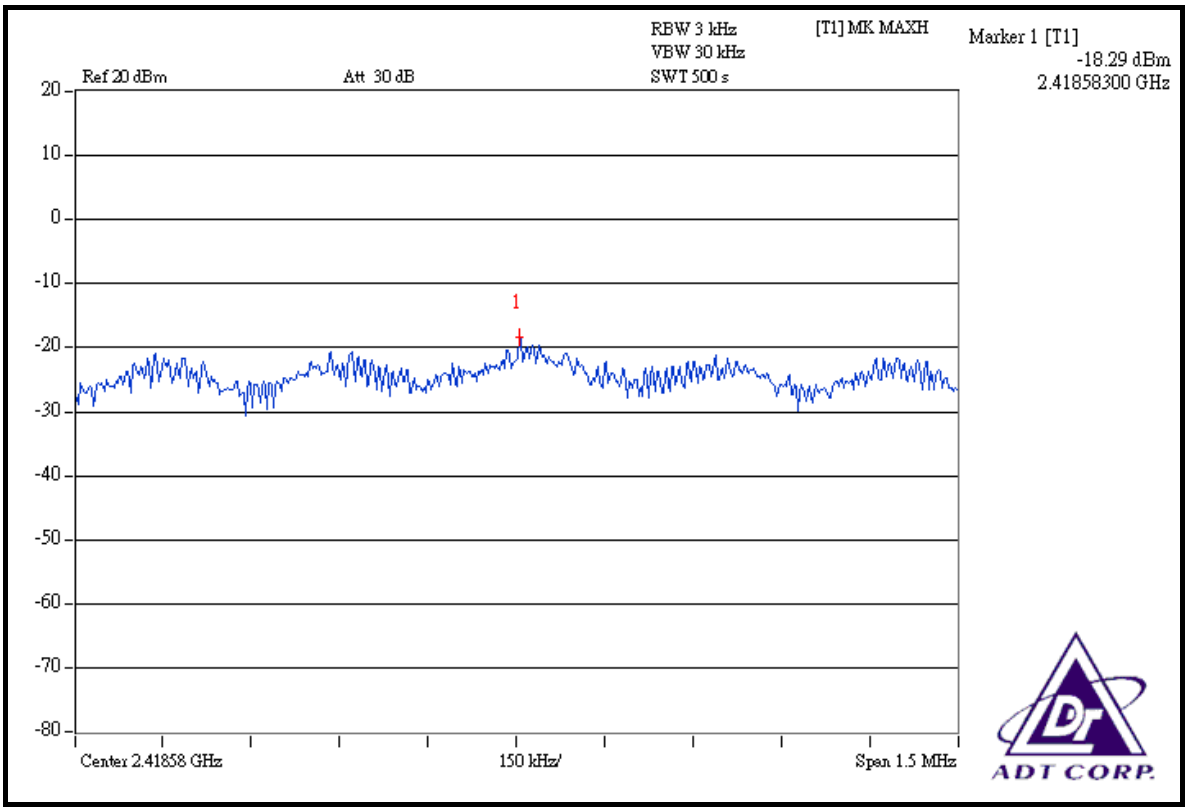
CH 4


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-22.07 dBm
2.45110800 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Center 2.45157 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

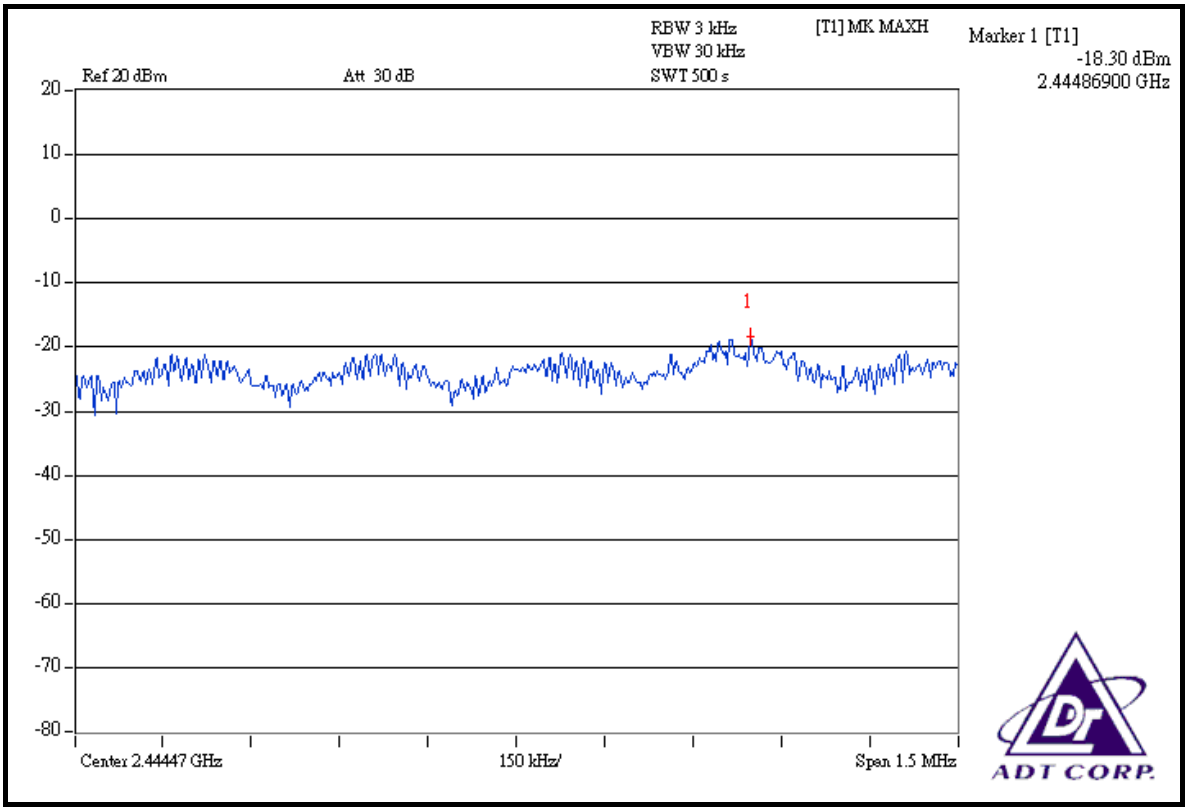
CH 7


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-22.02 dBm
2.45550100 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Center 2.45548 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

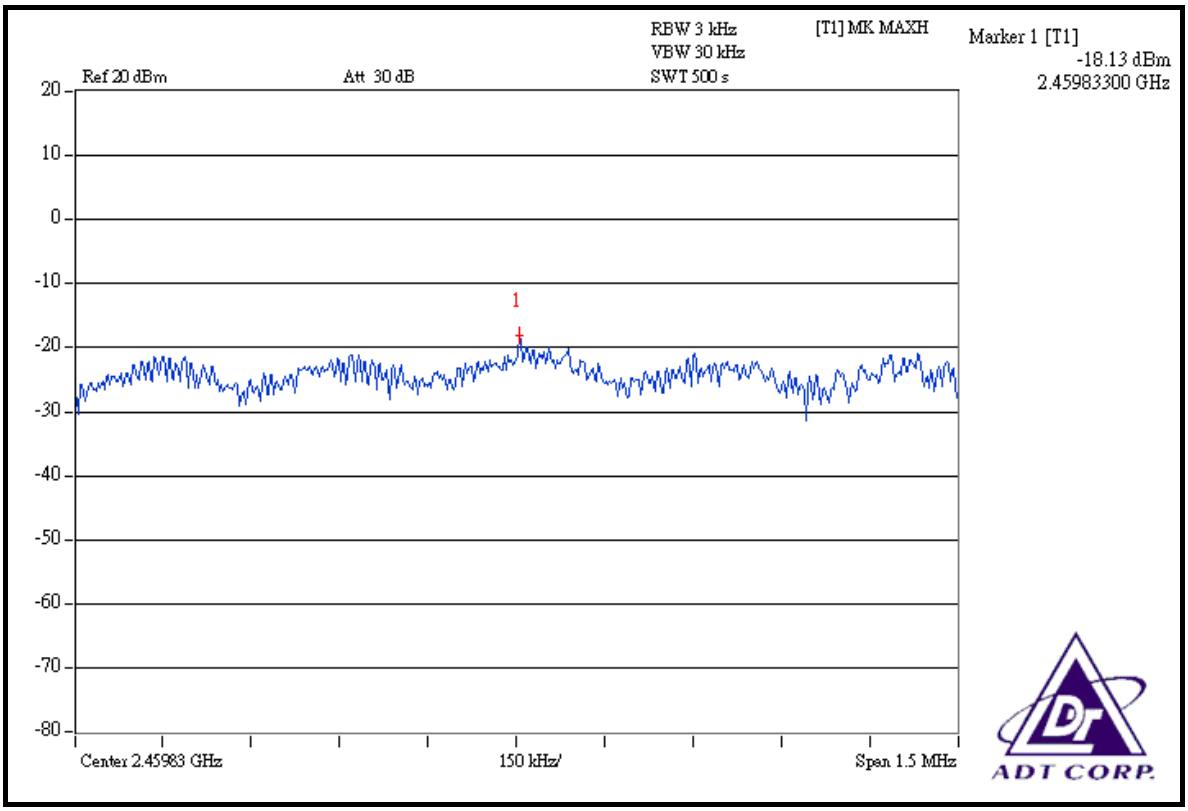
FOR CHAIN 1: CH 1



CH 4



CH 7


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-18.13 dBm
2.45983300 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Center 2.45983 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

For Single TX:

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.

For Dual TX:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100041	Feb. 26, 2008
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	May 31, 2008
HORN Antenna SCHWARZBECK	9120D	9120D-209	Jun. 28, 2008
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170243	Dec. 24, 2008
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	283402/4	Dec. 06, 2008
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	251644/4	Dec. 06, 2008
Software ADT.	ADT_Radiated_V7.6	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA
Antenna Tower Controller inn-co GmbH	CO2000	017303	NA
Turn Table ADT.	TT100.	TT93021703	NA
Turn Table Controller ADT.	SC100.	SC93021703	NA

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

4.6.3 TEST PROCEDURE

For Single TX:

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 10Hz bandwidth from band edge. The band edges was measured and recorded.

The spectrum plots (Peak RBW = 100 kHz, VBW = 300kHz; Average RBW = 1MHz, VBW = 10Hz) are attached on the following pages.

For Dual TX:

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. 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)

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 24 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).

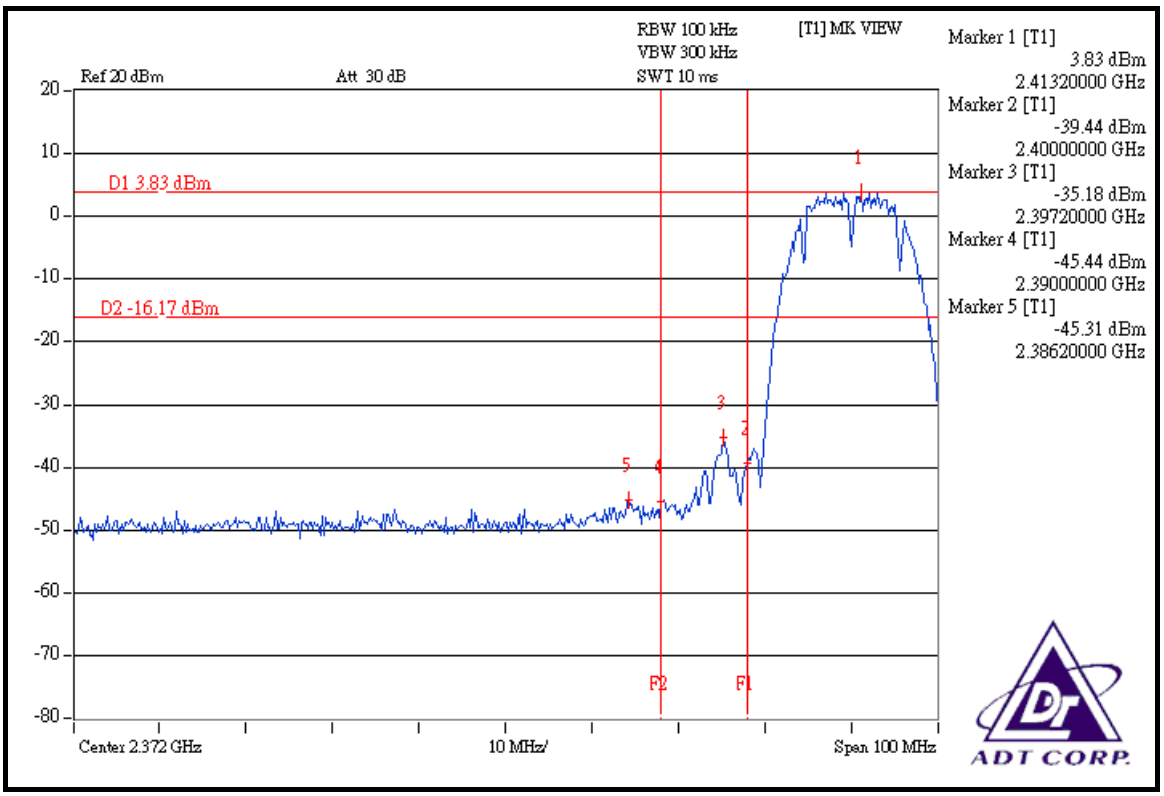
802.11b DSSS MODULATION

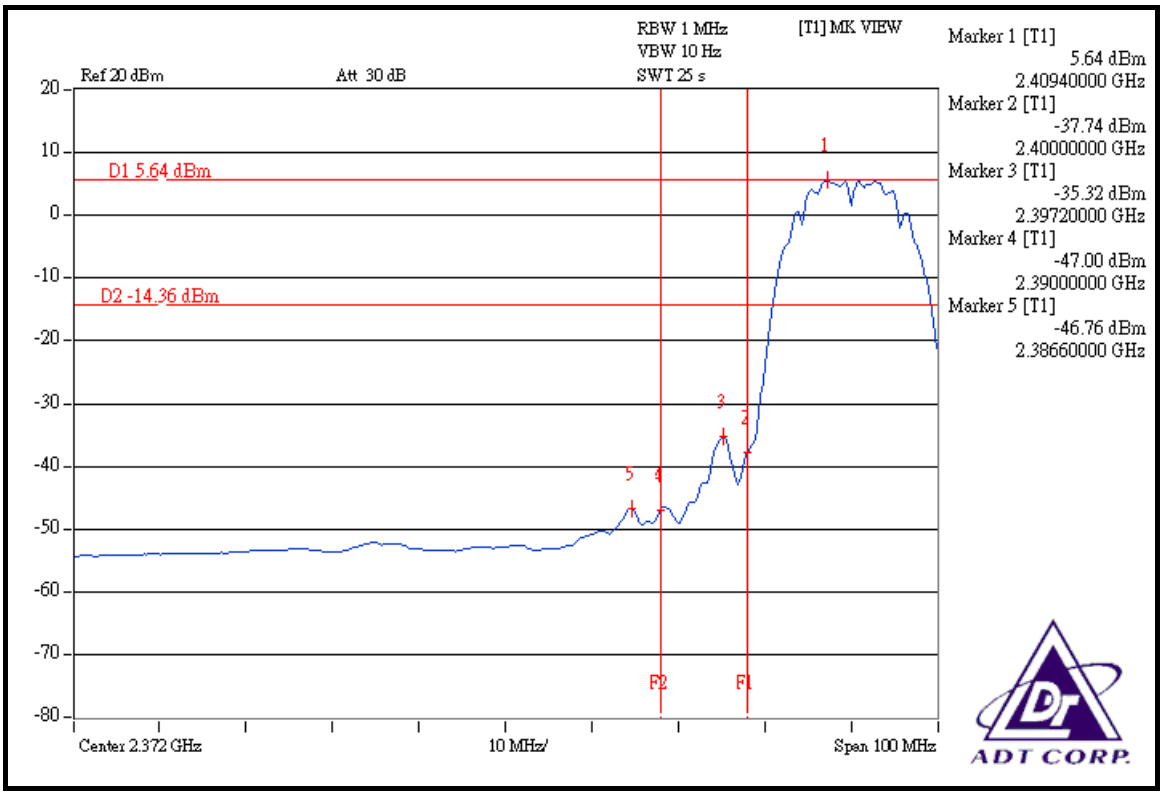
NOTE 1:
The band edge emission plot on the next page shows 49.14dBc between carrier maximum power and local maximum emission in restrict band (2.38620GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 109.38dBuV/m (Peak), so the maximum field strength in restrict band is 109.38 – 49.14 = 60.24dBuV/m which is under 74dBuV/m limit.

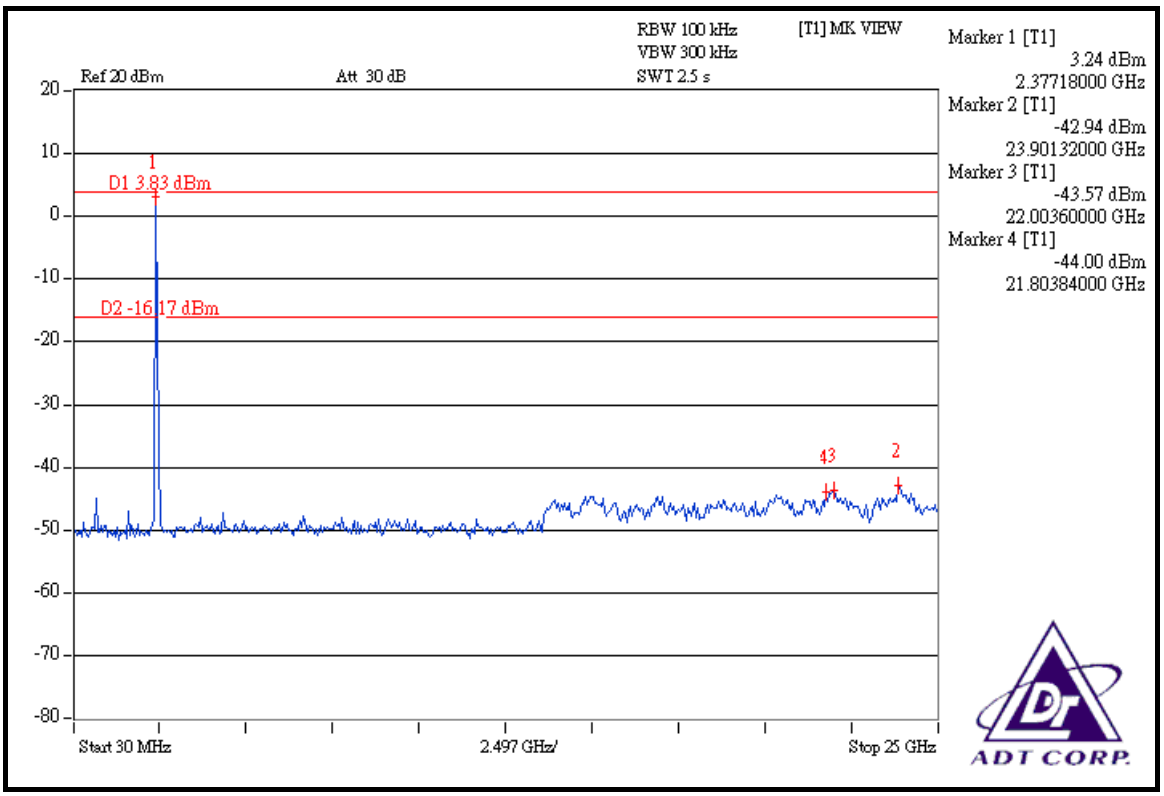
The band edge emission plot on the next page shows 52.40dBc between carrier maximum power and local maximum emission in restrict band (2.38660GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 104.97dBuV/m (Average), so the maximum field strength in restrict band is 104.97 – 52.40 = 52.57dBuV/m which is under 54dBuV/m limit.

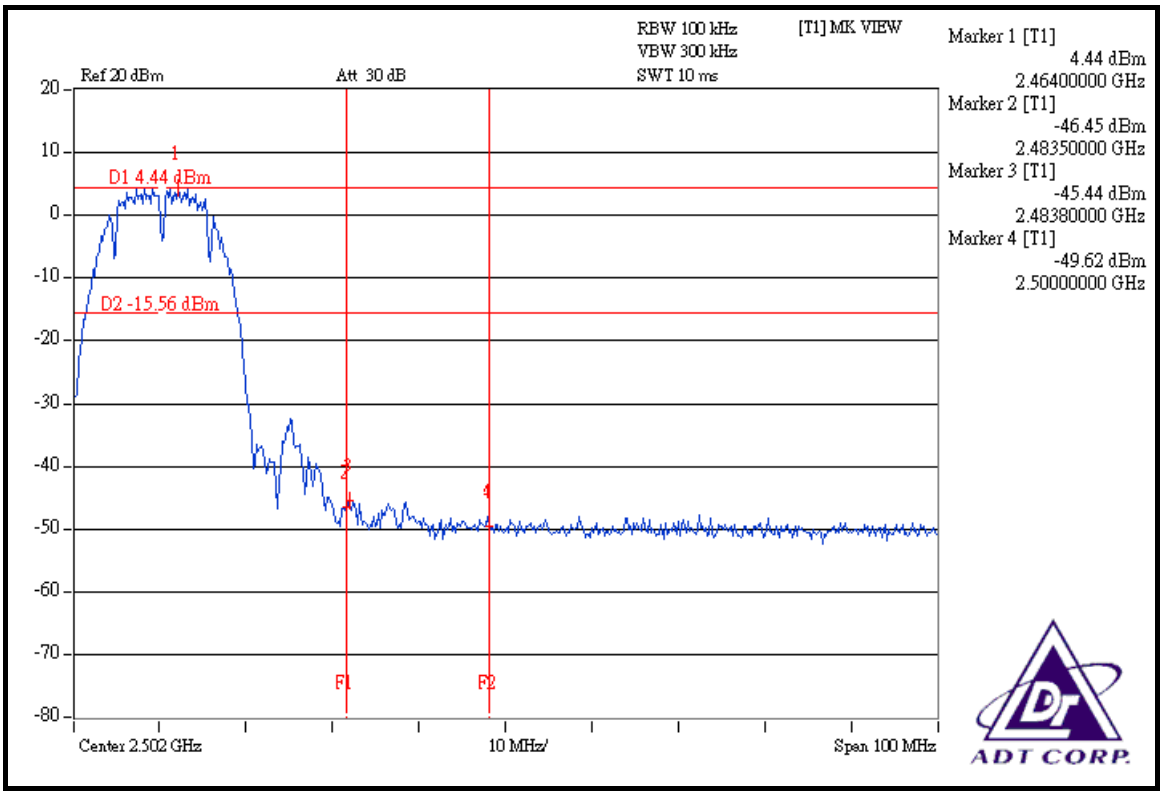
NOTE 2:
The band edge emission plot on the next second page shows 49.88dBc between carrier maximum power and local maximum emission in restrict band (2.48380GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 110.02dBuV/m (Peak), so the maximum field strength in restrict band is 110.02 – 49.88 = 60.14dBuV/m which is under 74dBuV/m limit.

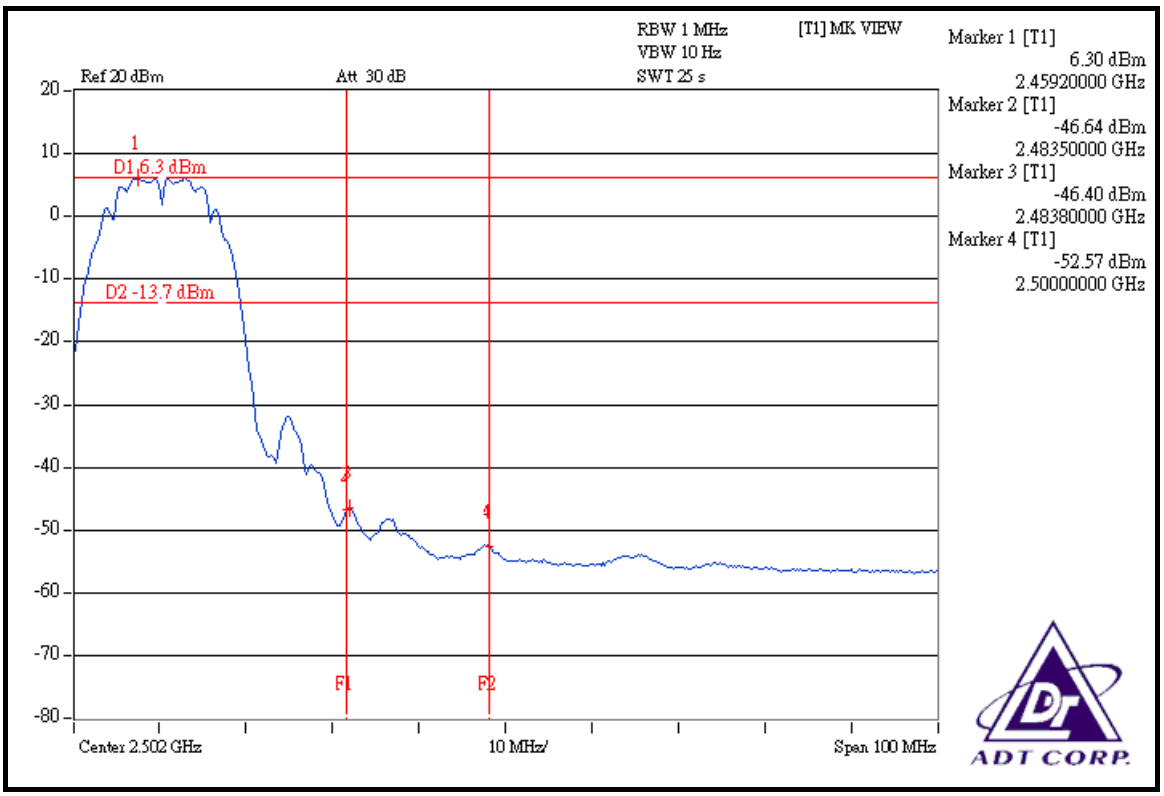
The band edge emission plot on the next third page shows 52.70dBc between carrier maximum power and local maximum emission in restrict band (2.48380GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 105.46dBuV/m (Average), so the maximum field strength in restrict band is 105.46 – 52.70 = 52.76dBuV/m which is under 54dBuV/m limit.

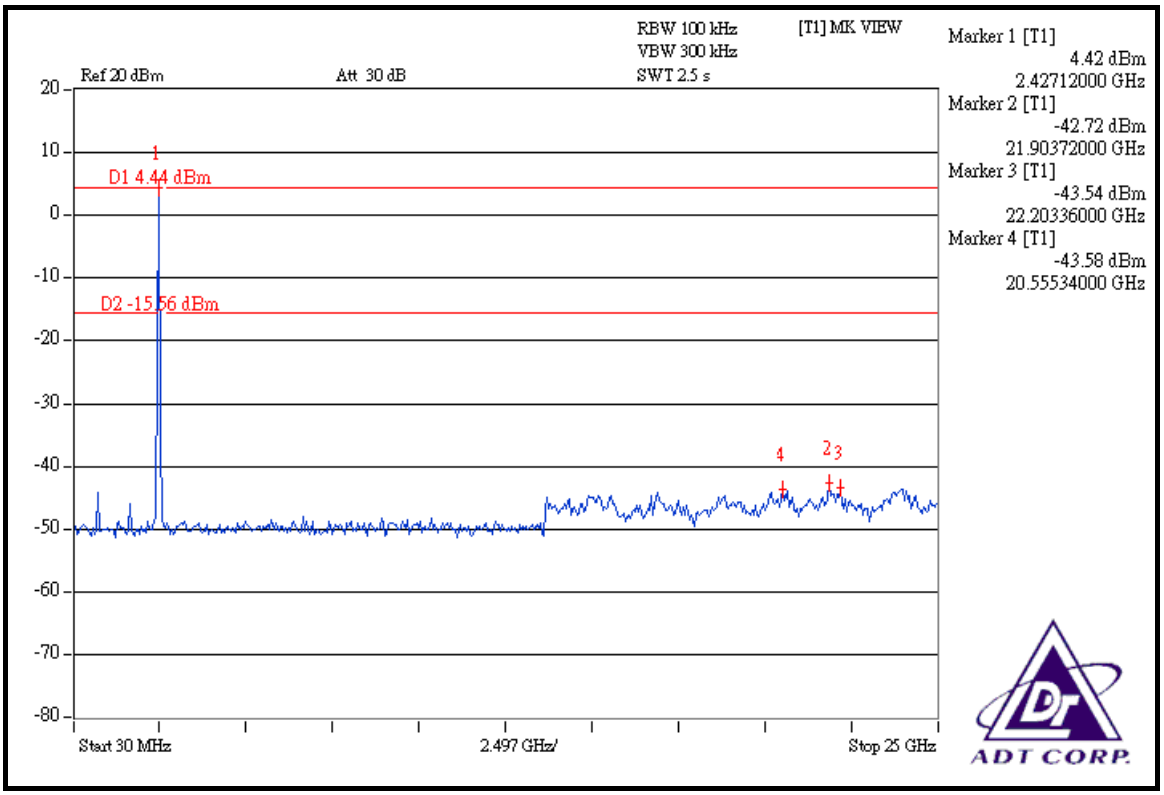

RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 3.83 dBm
D2 -16.17 dBm
Marker 1 [T1]
3.83 dBm
2.41320000 GHz
Marker 2 [T1]
-39.44 dBm
2.40000000 GHz
Marker 3 [T1]
-35.18 dBm
2.39720000 GHz
Marker 4 [T1]
-45.44 dBm
2.39000000 GHz
Marker 5 [T1]
-45.31 dBm
2.38620000 GHz
Center 2.372 GHz
10 MHz/
Span 100 MHz
ADT CORP.


RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 5.64 dBm
D2 -14.36 dBm
Marker 1 [T1]
5.64 dBm
2.40940000 GHz
Marker 2 [T1]
-37.74 dBm
2.40000000 GHz
Marker 3 [T1]
-35.32 dBm
2.39720000 GHz
Marker 4 [T1]
-47.00 dBm
2.39000000 GHz
Marker 5 [T1]
-46.76 dBm
2.38660000 GHz
Center 2.372 GHz
10 MHz/
Span 100 MHz
ADT CORP.


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 3.83 dBm
D2 -16.17 dBm
Marker 1 [T1]
3.24 dBm
2.37718000 GHz
Marker 2 [T1]
-42.94 dBm
23.90132000 GHz
Marker 3 [T1]
-43.57 dBm
22.00360000 GHz
Marker 4 [T1]
-44.00 dBm
21.80384000 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz


RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 4.44 dBm
D2 -15.56 dBm
Marker 1 [T1]
4.44 dBm
2.46400000 GHz
Marker 2 [T1]
-46.45 dBm
2.48350000 GHz
Marker 3 [T1]
-45.44 dBm
2.48380000 GHz
Marker 4 [T1]
-49.62 dBm
2.50000000 GHz
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
D1 6.3 dBm
D2 -13.7 dBm
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz
Marker 1 [T1]
6.30 dBm
2.45920000 GHz
Marker 2 [T1]
-46.64 dBm
2.48350000 GHz
Marker 3 [T1]
-46.40 dBm
2.48380000 GHz
Marker 4 [T1]
-52.57 dBm
2.50000000 GHz
ADT CORP.


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 4.44 dBm
D2 -15.56 dBm
Start 30 MHz
2.497 GHz/
Stop 25 GHz
Marker 1 [T1]
4.42 dBm
2.42712000 GHz
Marker 2 [T1]
-42.72 dBm
21.90372000 GHz
Marker 3 [T1]
-43.54 dBm
22.20336000 GHz
Marker 4 [T1]
-43.58 dBm
20.55534000 GHz
ADT CORP.

802.11g OFDM MODULATION

NOTE 1:

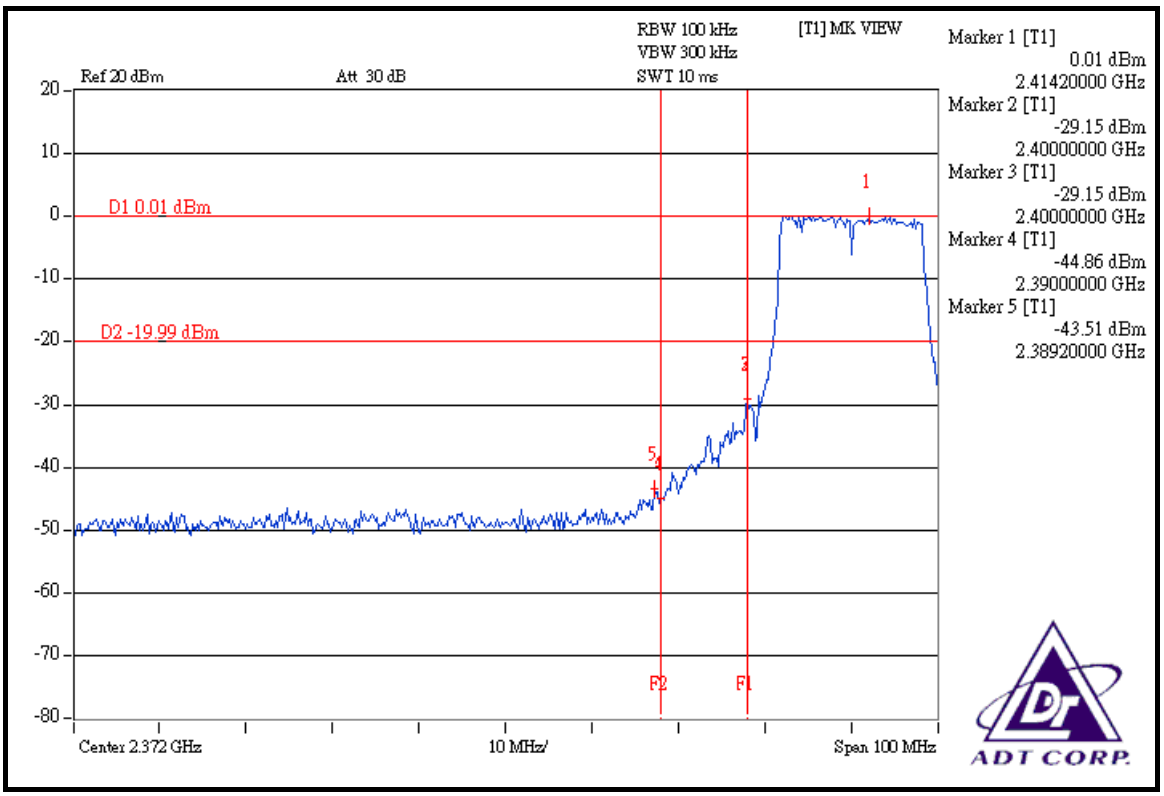
The band edge emission plot on the next page shows 43.52dBc between carrier maximum power and local maximum emission in restrict band (2.38920GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 110.91dBuV/m (Peak), so the maximum field strength in restrict band is 110.91 – 43.52 = 67.39dBuV/m which is under 74dBuV/m limit.

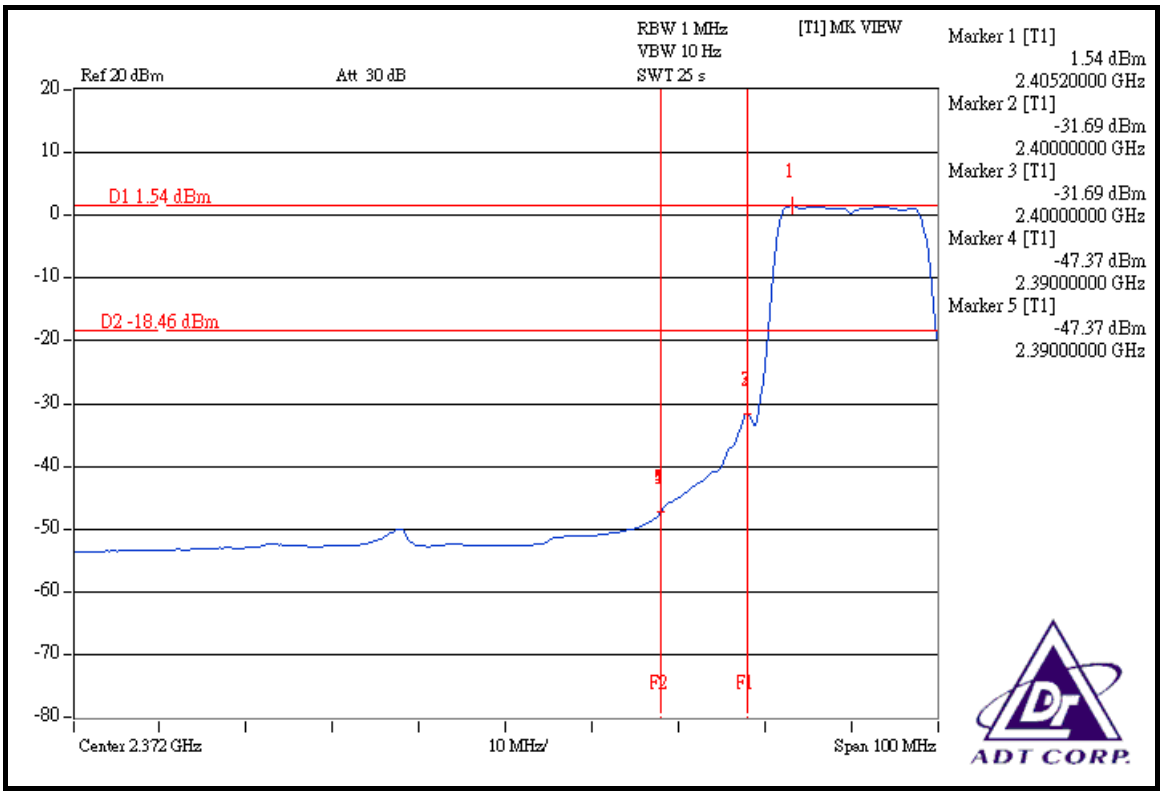
The band edge emission plot on the next page shows 48.91dBc between carrier maximum power and local maximum emission in restrict band (2.39000GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 100.90dBuV/m (Average), so the maximum field strength in restrict band is 100.90 – 48.91 = 51.99dBuV/m which is under 54dBuV/m limit.

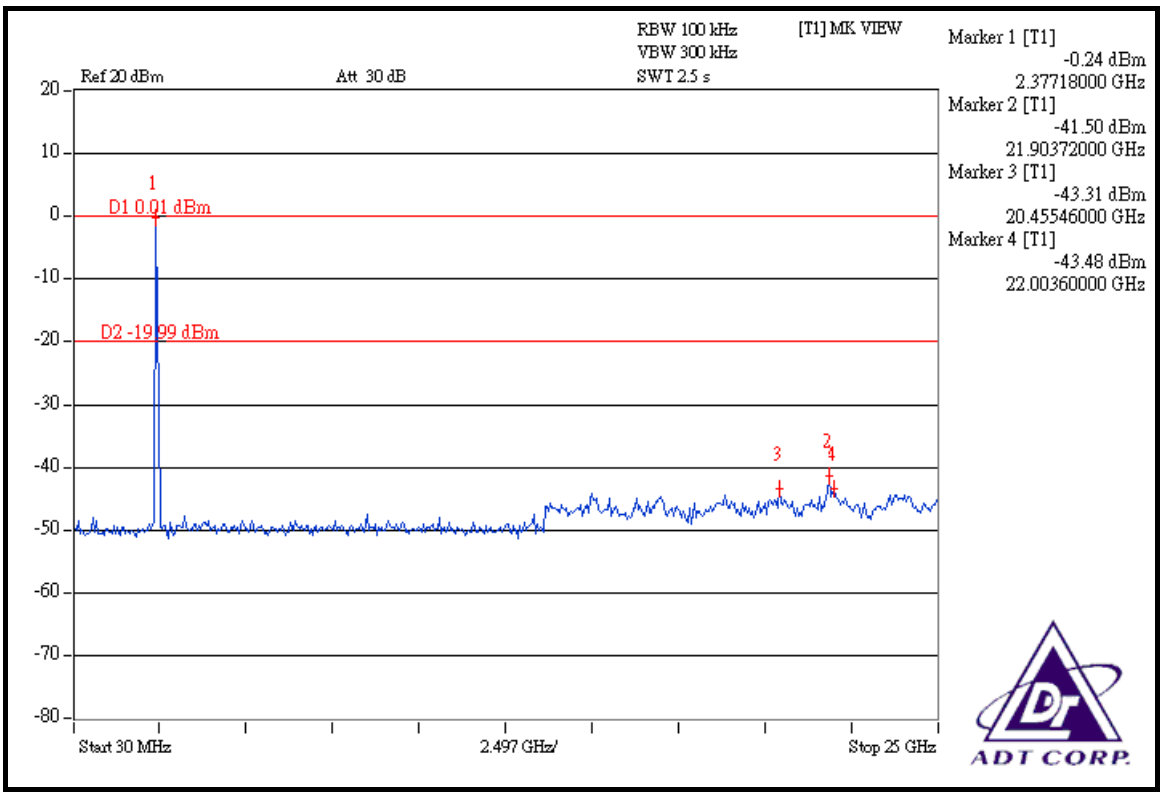
NOTE 2:

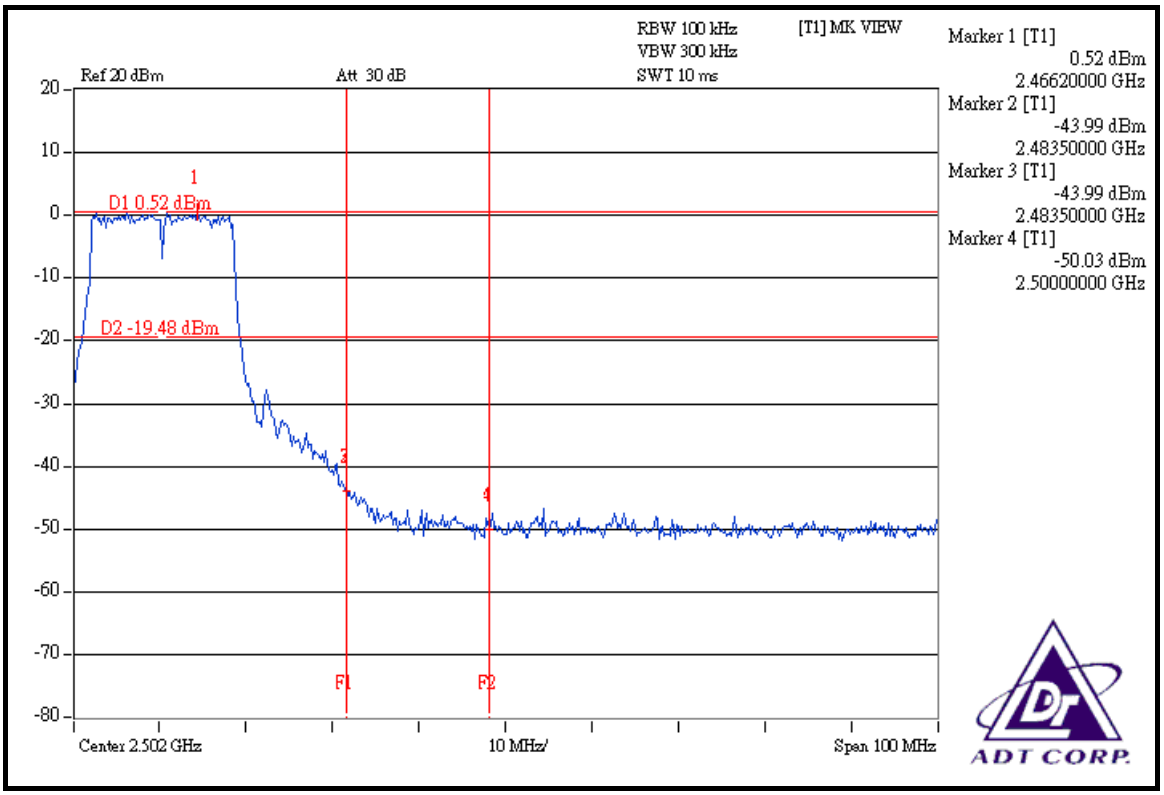
The band edge emission plot on the next second page shows 44.51dBc between carrier maximum power and local maximum emission in restrict band (2.48350GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 111.18dBuV/m (Peak), so the maximum field strength in restrict band is 111.18 – 44.51 = 66.67dBuV/m which is under 74dBuV/m limit.

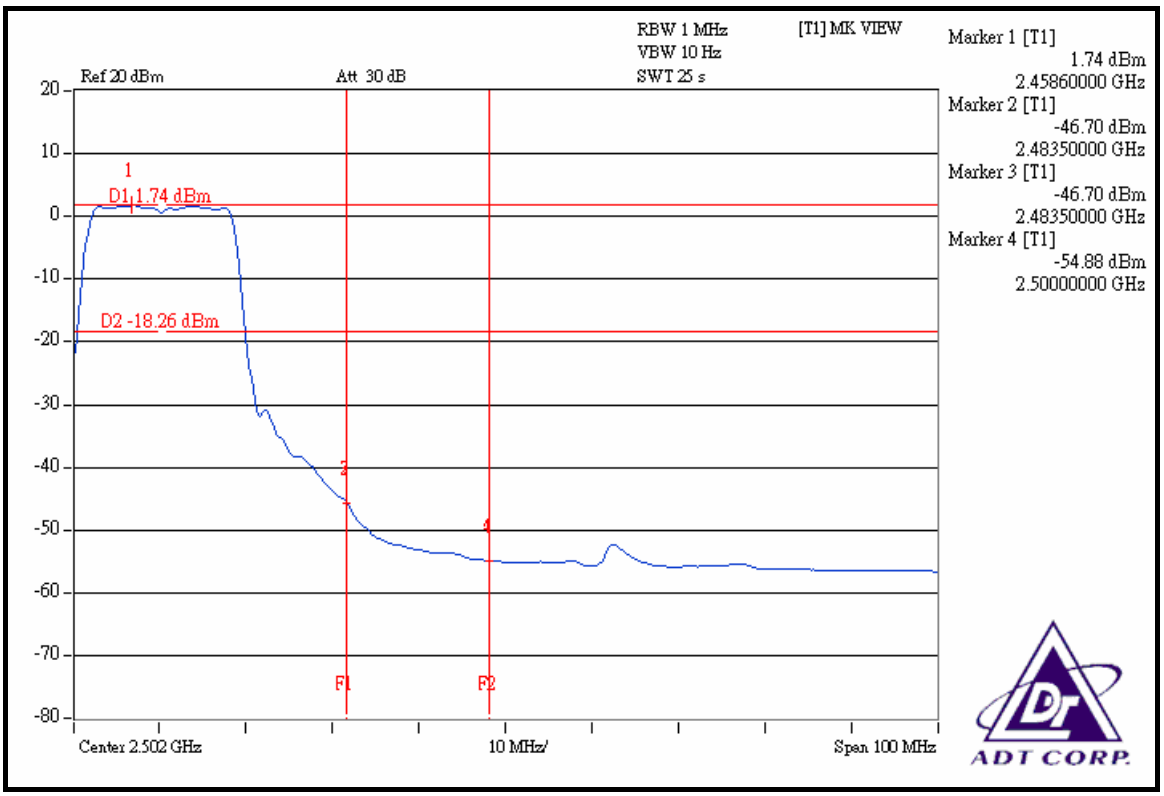
The band edge emission plot on the next third page shows 48.44dBc between carrier maximum power and local maximum emission in restrict band (2.48350GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 101.38dBuV/m (Average), so the maximum field strength in restrict band is 101.38 – 48.44 = 52.94dBuV/m which is under 54dBuV/m limit.

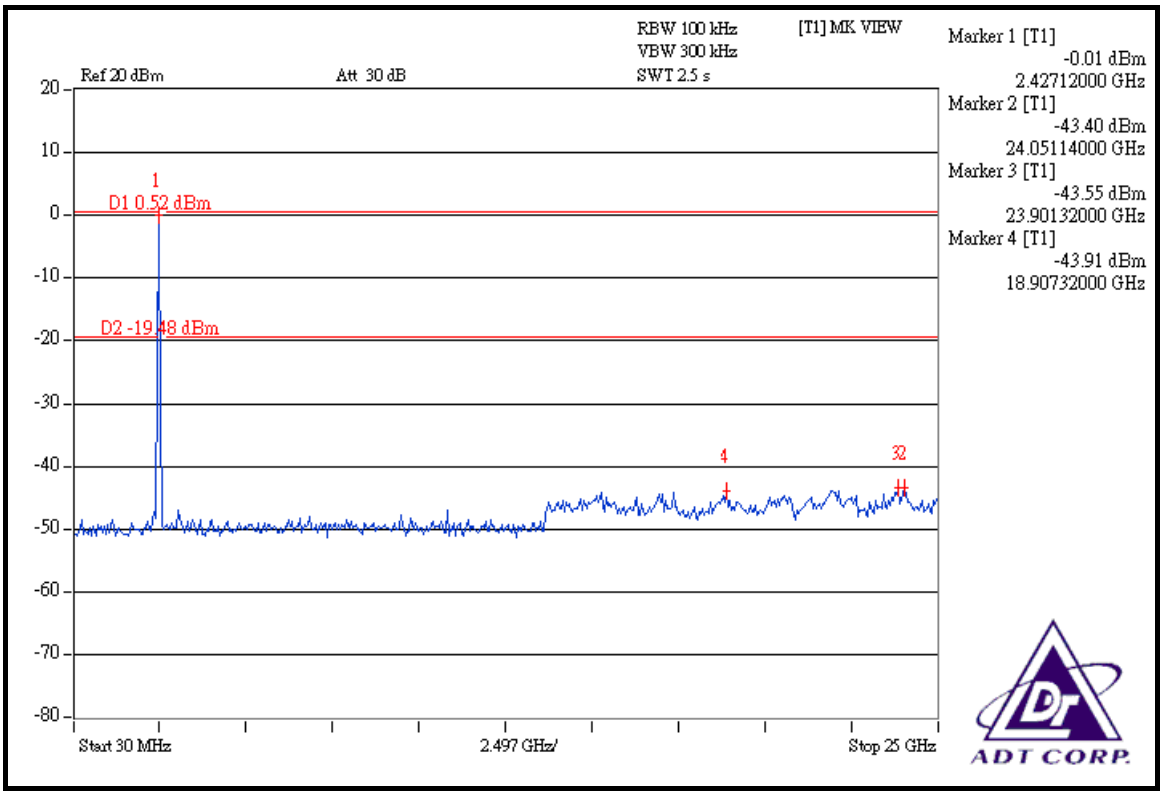

RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 0.01 dBm
D2 -19.99 dBm
Marker 1 [T1]
0.01 dBm
2.41420000 GHz
Marker 2 [T1]
-29.15 dBm
2.40000000 GHz
Marker 3 [T1]
-29.15 dBm
2.40000000 GHz
Marker 4 [T1]
-44.86 dBm
2.39000000 GHz
Marker 5 [T1]
-43.51 dBm
2.38920000 GHz
Center 2.372 GHz
10 MHz/
Span 100 MHz
ADT CORP.


RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 1.54 dBm
D2 -18.46 dBm
Marker 1 [T1]
1.54 dBm
2.40520000 GHz
Marker 2 [T1]
-31.69 dBm
2.40000000 GHz
Marker 3 [T1]
-31.69 dBm
2.40000000 GHz
Marker 4 [T1]
-47.37 dBm
2.39000000 GHz
Marker 5 [T1]
-47.37 dBm
2.39000000 GHz
Center 2.372 GHz
10 MHz/
Span 100 MHz
ADT CORP.


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 0.01 dBm
D2 -19.99 dBm
Marker 1 [T1]
-0.24 dBm
2.37718000 GHz
Marker 2 [T1]
-41.50 dBm
21.90372000 GHz
Marker 3 [T1]
-43.31 dBm
20.45546000 GHz
Marker 4 [T1]
-43.48 dBm
22.00360000 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz


RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 0.52 dBm
D2 -19.48 dBm
Marker 1 [T1]
0.52 dBm
2.46620000 GHz
Marker 2 [T1]
-43.99 dBm
2.48350000 GHz
Marker 3 [T1]
-43.99 dBm
2.48350000 GHz
Marker 4 [T1]
-50.03 dBm
2.50000000 GHz
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]
1.74 dBm
2.45860000 GHz
Marker 2 [T1]
-46.70 dBm
2.48350000 GHz
Marker 3 [T1]
-46.70 dBm
2.48350000 GHz
Marker 4 [T1]
-54.88 dBm
2.50000000 GHz
D1 1.74 dBm
D2 -18.26 dBm
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz
ADT CORP.


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
Marker 1 [T1]
-0.01 dBm
2.42712000 GHz
Marker 2 [T1]
-43.40 dBm
24.05114000 GHz
Marker 3 [T1]
-43.55 dBm
23.90132000 GHz
Marker 4 [T1]
-43.91 dBm
18.90732000 GHz
D1 0.52 dBm
D2 -19.48 dBm
Start 30 MHz
2.497 GHz/
Stop 25 GHz
ADT CORP.

DRAFT 802.11n (20MHz) OFDM MODULATION

NOTE 1:

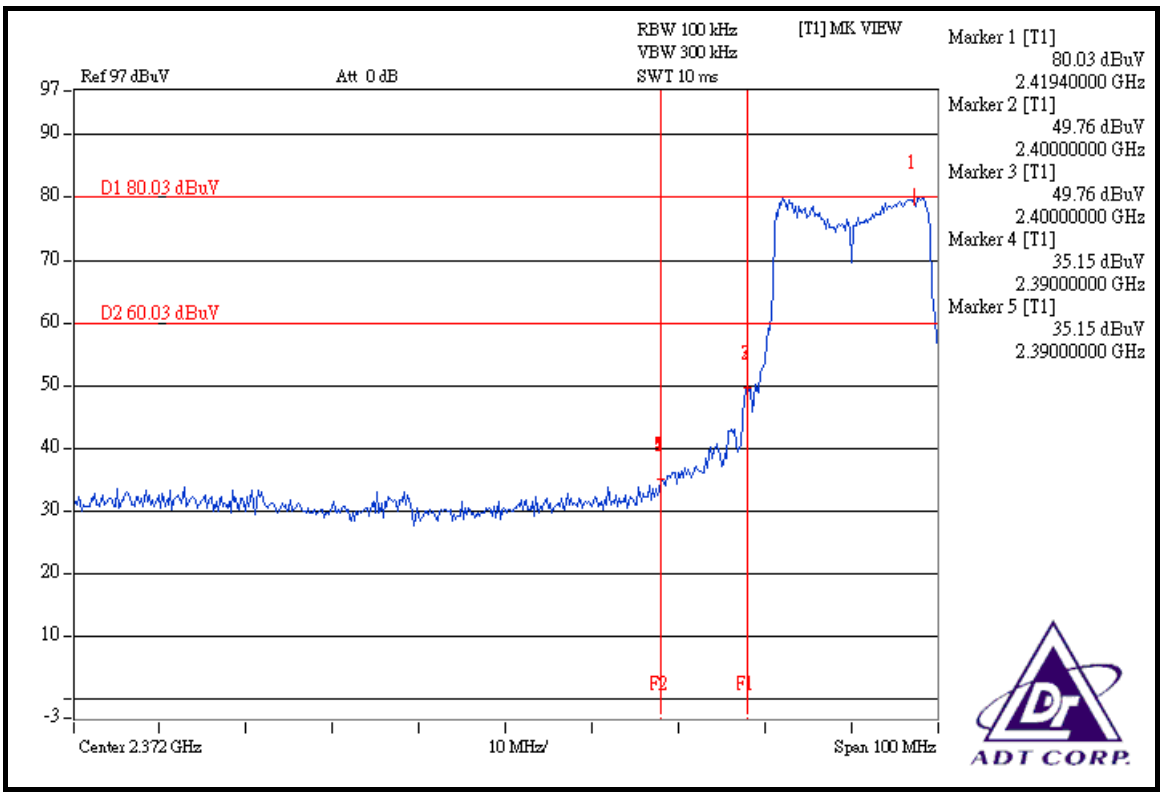
The band edge emission plot on the next page shows 44.88dBc between carrier maximum power and local maximum emission in restrict band (2.39000GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 111.51dBuV/m (Peak), so the maximum field strength in restrict band is 111.51 – 44.88 = 66.63dBuV/m which is under 74dBuV/m limit.

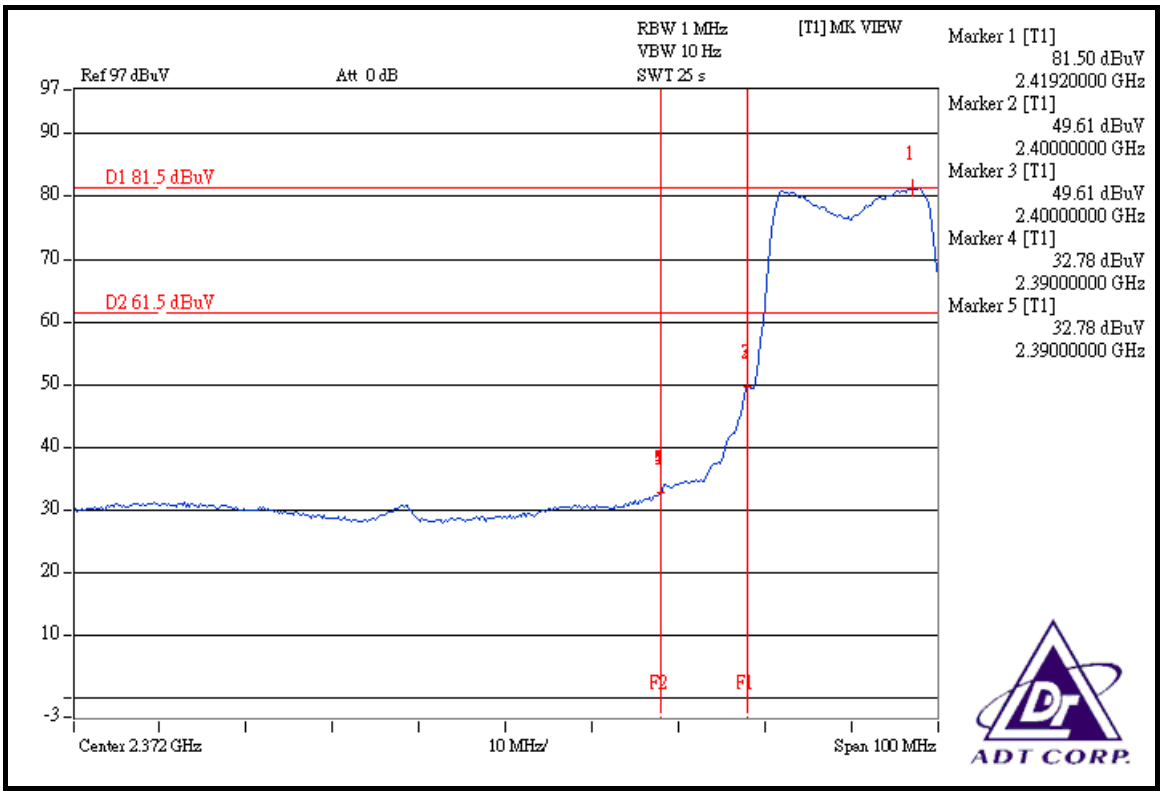
The band edge emission plot on the next page shows 48.72dBc between carrier maximum power and local maximum emission in restrict band (2.39000GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 101.30dBuV/m (Average), so the maximum field strength in restrict band is 101.30 – 48.72 = 52.58dBuV/m which is under 54dBuV/m limit.

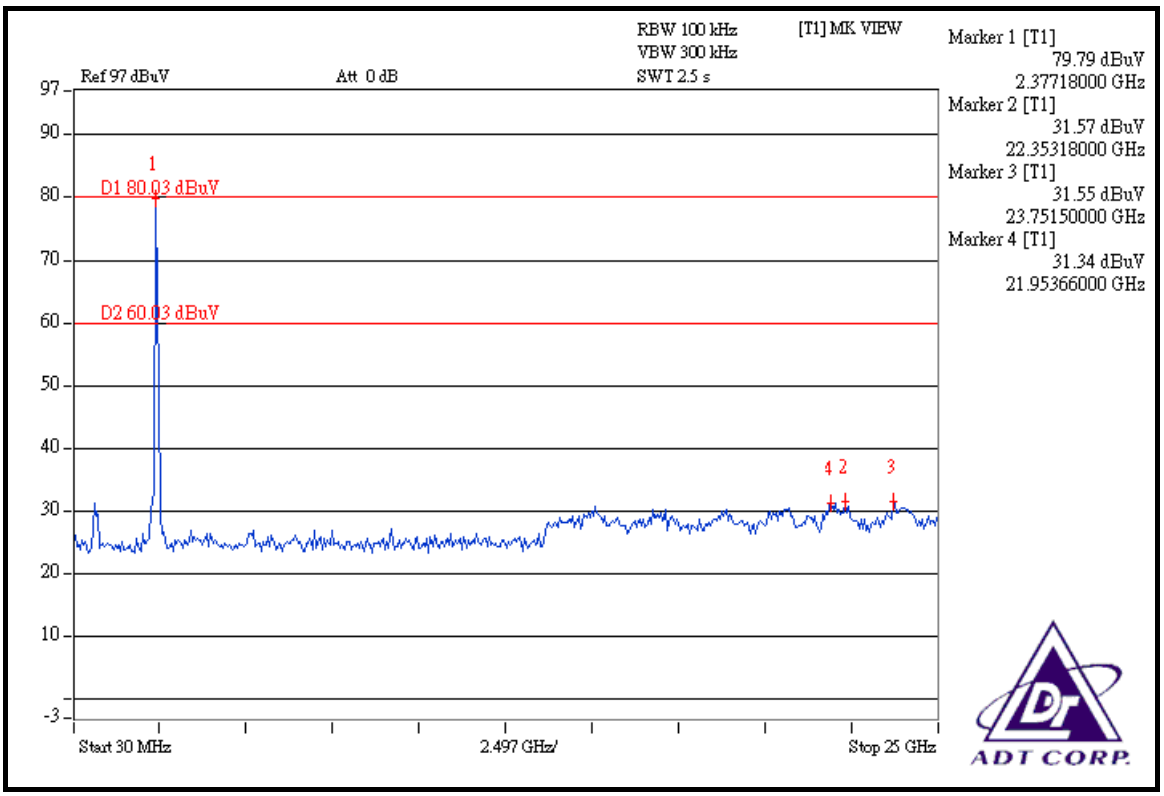
NOTE 2:

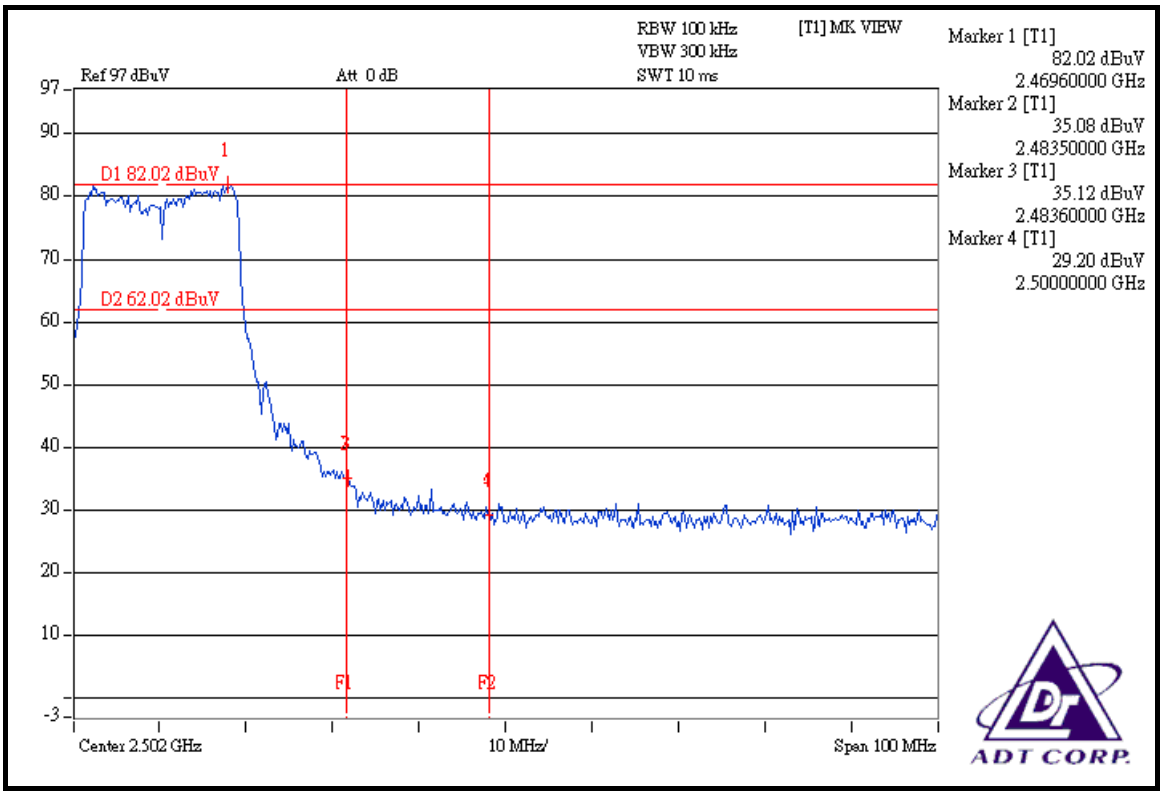
The band edge emission plot on the next second page shows 46.90dBc between carrier maximum power and local maximum emission in restrict band (2.48360GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 112.24dBuV/m (Peak), so the maximum field strength in restrict band is 112.24 – 46.90 = 65.34dBuV/m which is under 74dBuV/m limit.

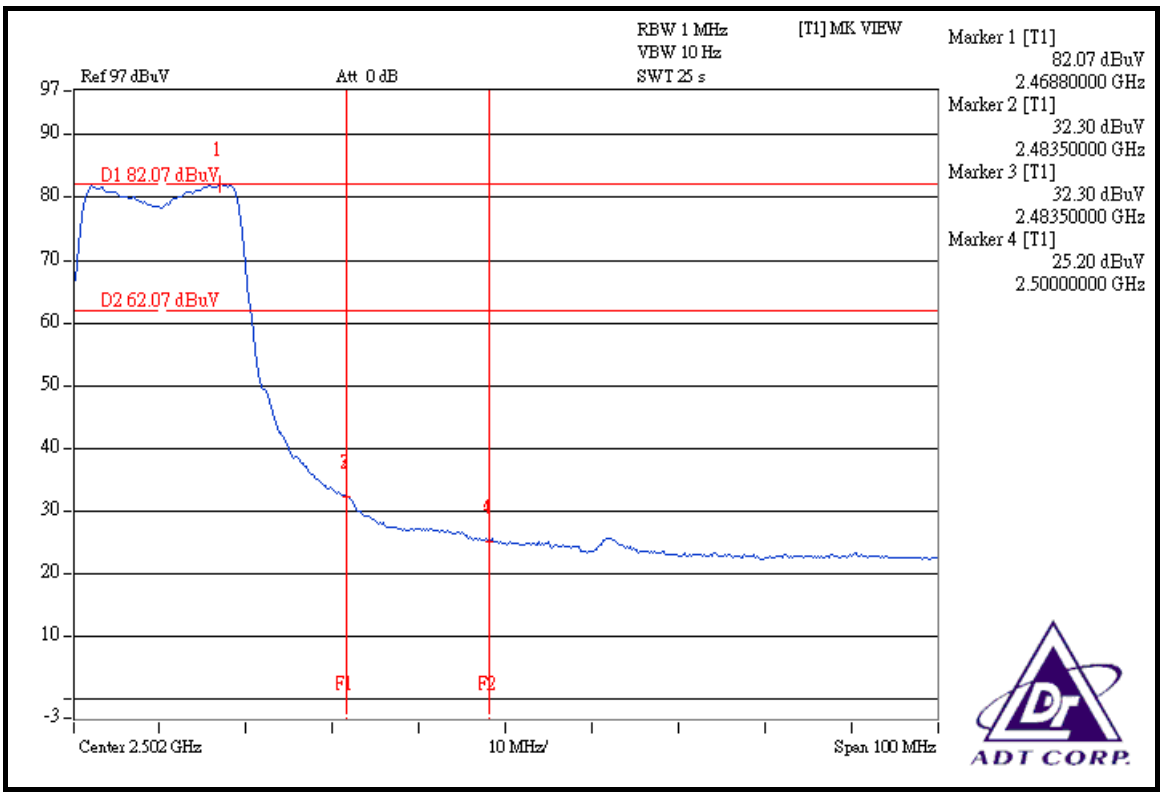
The band edge emission plot on the next third page shows 49.77dBc between carrier maximum power and local maximum emission in restrict band (2.48350GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 101.98dBuV/m (Average), so the maximum field strength in restrict band is 101.98 – 49.77 = 52.21dBuV/m which is under 54dBuV/m limit.

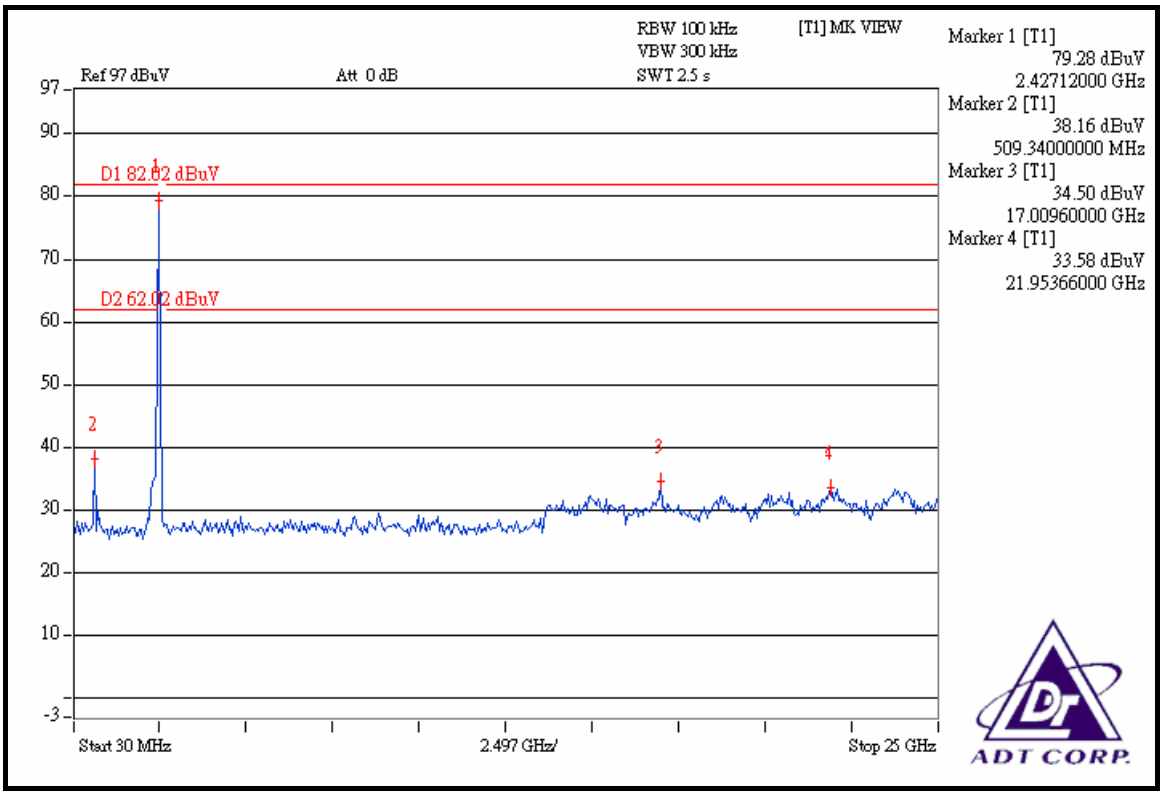

RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
D1 80.03 dBuV
D2 60.03 dBuV
Marker 1 [T1]
80.03 dBuV
2.41940000 GHz
Marker 2 [T1]
49.76 dBuV
2.40000000 GHz
Marker 3 [T1]
49.76 dBuV
2.40000000 GHz
Marker 4 [T1]
35.15 dBuV
2.39000000 GHz
Marker 5 [T1]
35.15 dBuV
2.39000000 GHz
Center 2.372 GHz
10 MHz/
Span 100 MHz
ADT CORP.


RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
D1 81.5 dBuV
D2 61.5 dBuV
Marker 1 [T1]
81.50 dBuV
2.41920000 GHz
Marker 2 [T1]
49.61 dBuV
2.40000000 GHz
Marker 3 [T1]
49.61 dBuV
2.40000000 GHz
Marker 4 [T1]
32.78 dBuV
2.39000000 GHz
Marker 5 [T1]
32.78 dBuV
2.39000000 GHz
Center 2.372 GHz
10 MHz/
Span 100 MHz
ADT CORP.


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
D1 80.03 dBuV
D2 60.03 dBuV
Marker 1 [T1]
79.79 dBuV
2.37718000 GHz
Marker 2 [T1]
31.57 dBuV
22.35318000 GHz
Marker 3 [T1]
31.55 dBuV
23.75150000 GHz
Marker 4 [T1]
31.34 dBuV
21.95366000 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz
ADT CORP.


RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
D1 82.02 dBuV
D2 62.02 dBuV
Marker 1 [T1]
82.02 dBuV
2.46960000 GHz
Marker 2 [T1]
35.08 dBuV
2.48350000 GHz
Marker 3 [T1]
35.12 dBuV
2.48360000 GHz
Marker 4 [T1]
29.20 dBuV
2.50000000 GHz
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz
ADT CORP.


RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
D1 82.07 dBuV
D2 62.07 dBuV
Marker 1 [T1]
82.07 dBuV
2.46880000 GHz
Marker 2 [T1]
32.30 dBuV
2.48350000 GHz
Marker 3 [T1]
32.30 dBuV
2.48350000 GHz
Marker 4 [T1]
25.20 dBuV
2.50000000 GHz
Center 2.502 GHz
10 MHz/
Span 100 MHz


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
D1 82.02 dBuV
D2 62.02 dBuV
Marker 1 [T1]
79.28 dBuV
2.42712000 GHz
Marker 2 [T1]
38.16 dBuV
509.34000000 MHz
Marker 3 [T1]
34.50 dBuV
17.00960000 GHz
Marker 4 [T1]
33.58 dBuV
21.95366000 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz

DRAFT 802.11n (40MHz) OFDM MODULATION

NOTE 1:

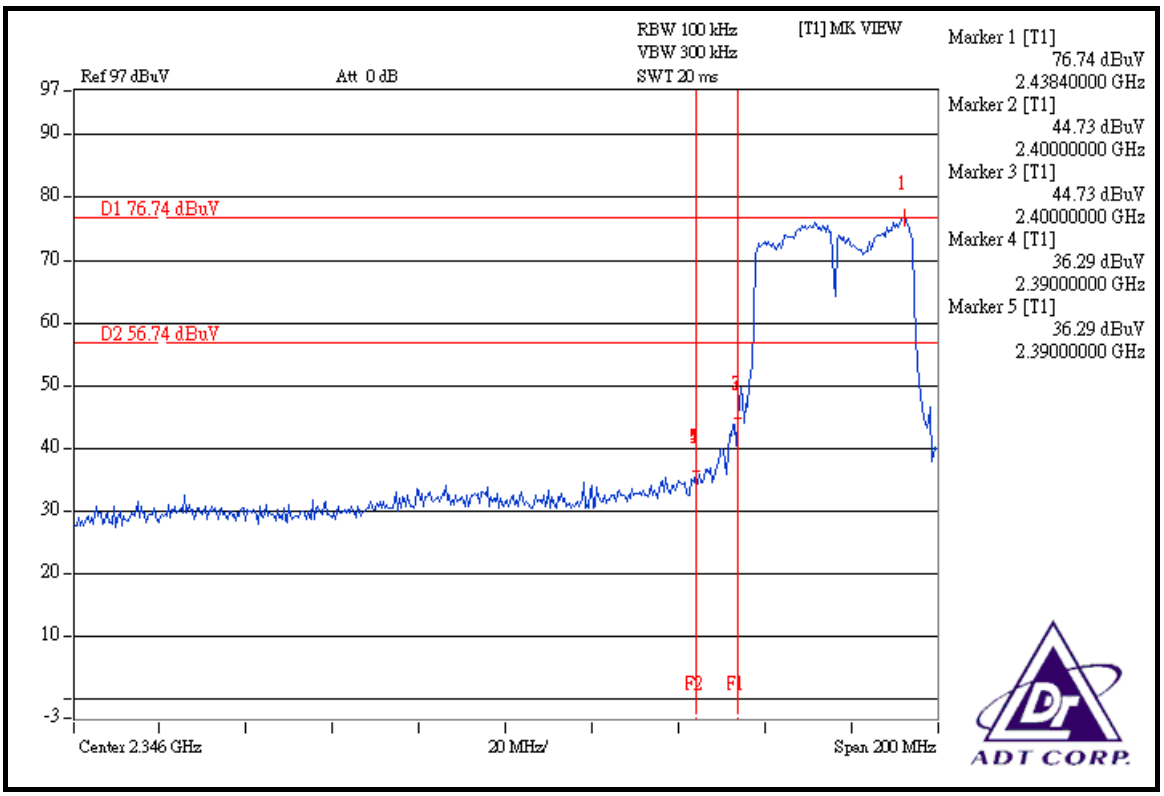
The band edge emission plot on the next page shows 40.45dBc between carrier maximum power and local maximum emission in restrict band (2.39000GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 107.11dBuV/m (Peak), so the maximum field strength in restrict band is 107.11 – 40.45 = 66.66dBuV/m which is under 74dBuV/m limit.

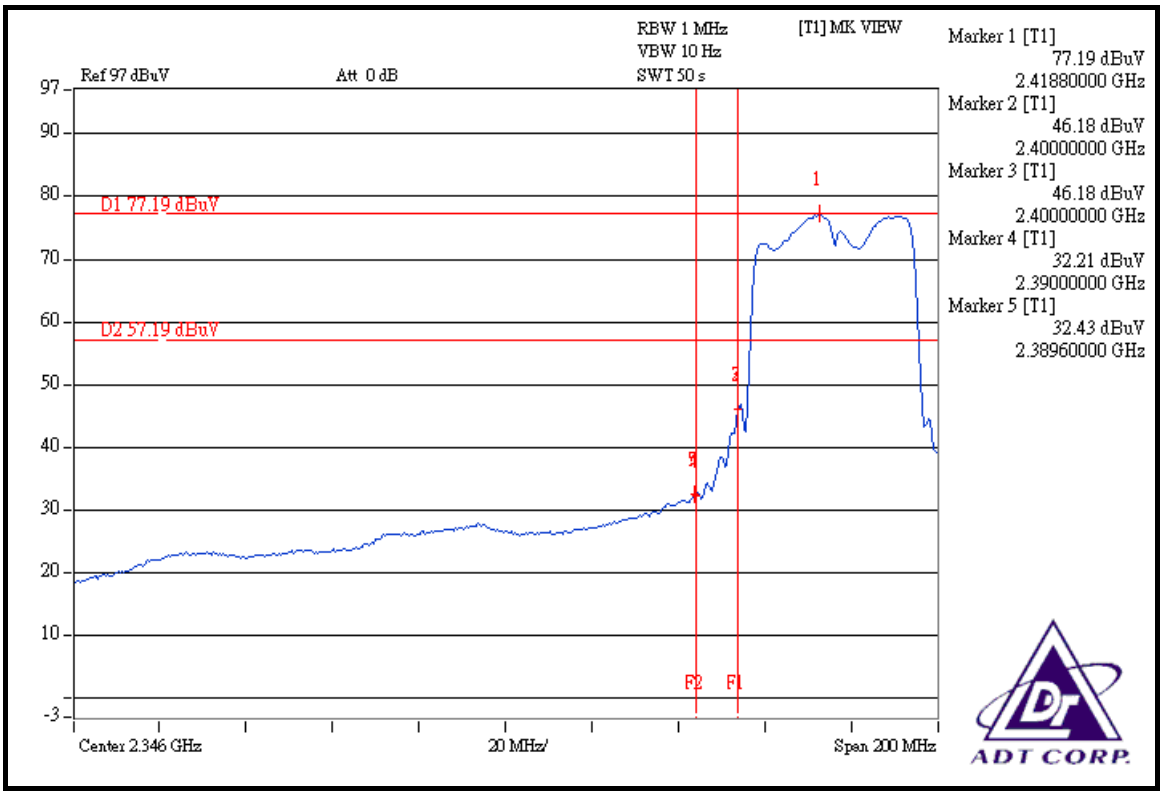
The band edge emission plot on the next page shows 44.76dBc between carrier maximum power and local maximum emission in restrict band (2.38960GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 97.02dBuV/m (Average), so the maximum field strength in restrict band is 97.02 – 44.76 = 52.26dBuV/m which is under 54dBuV/m limit.

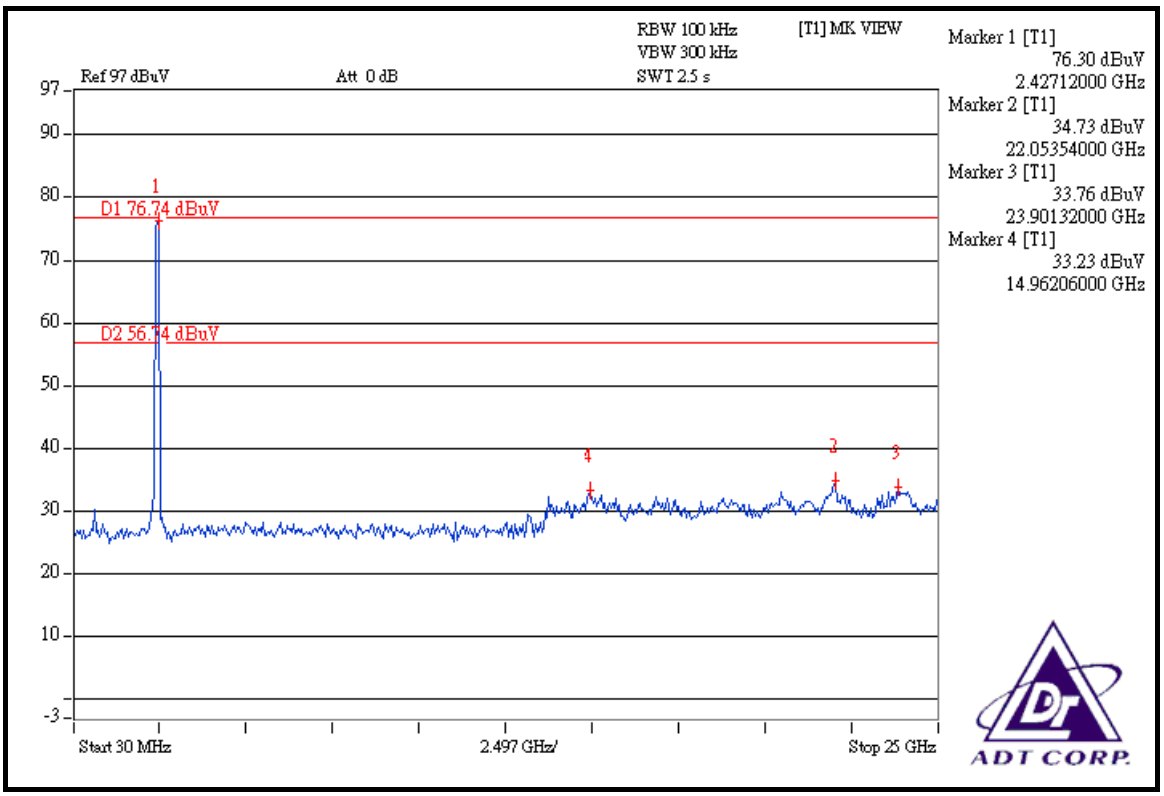
NOTE 2:

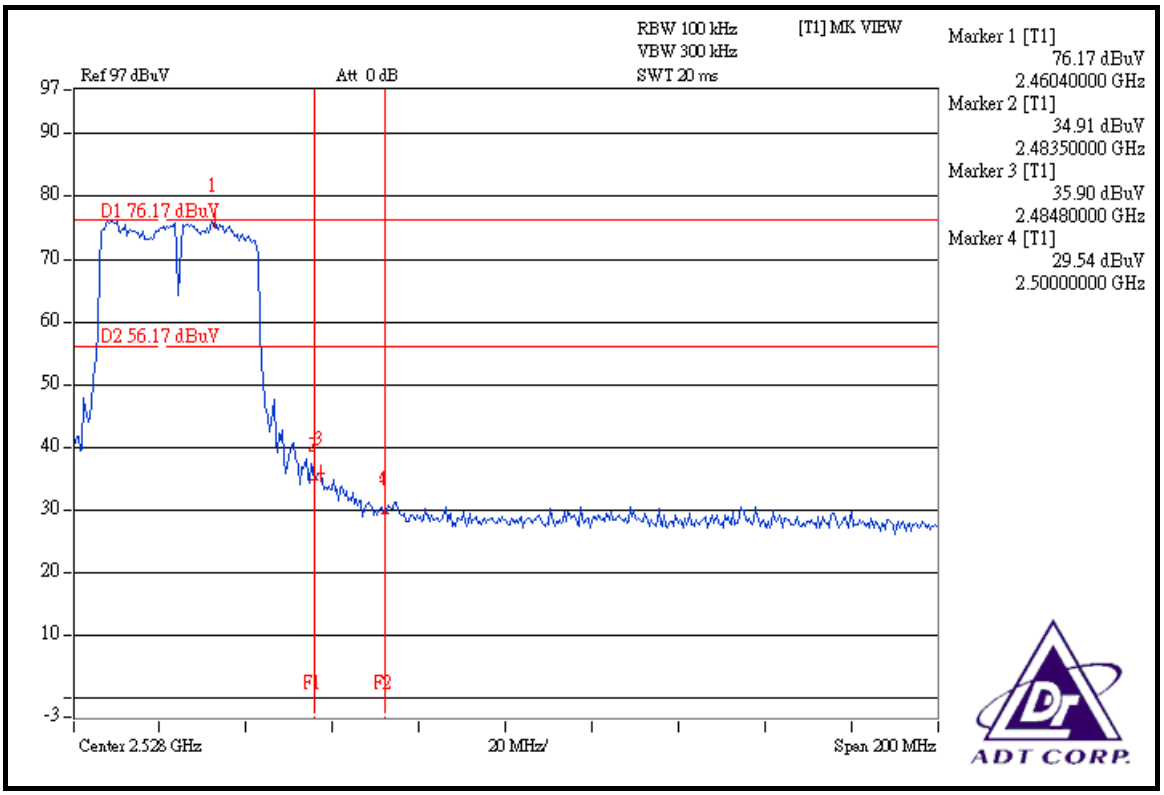
The band edge emission plot on the next second page shows 40.27dBc between carrier maximum power and local maximum emission in restrict band (2.48480GHz). The emission of carrier strength list in the test result of channel 7 at the item 4.2.7 is 107.08dBuV/m (Peak), so the maximum field strength in restrict band is 107.08 – 40.27 = 66.81dBuV/m which is under 74dBuV/m limit.

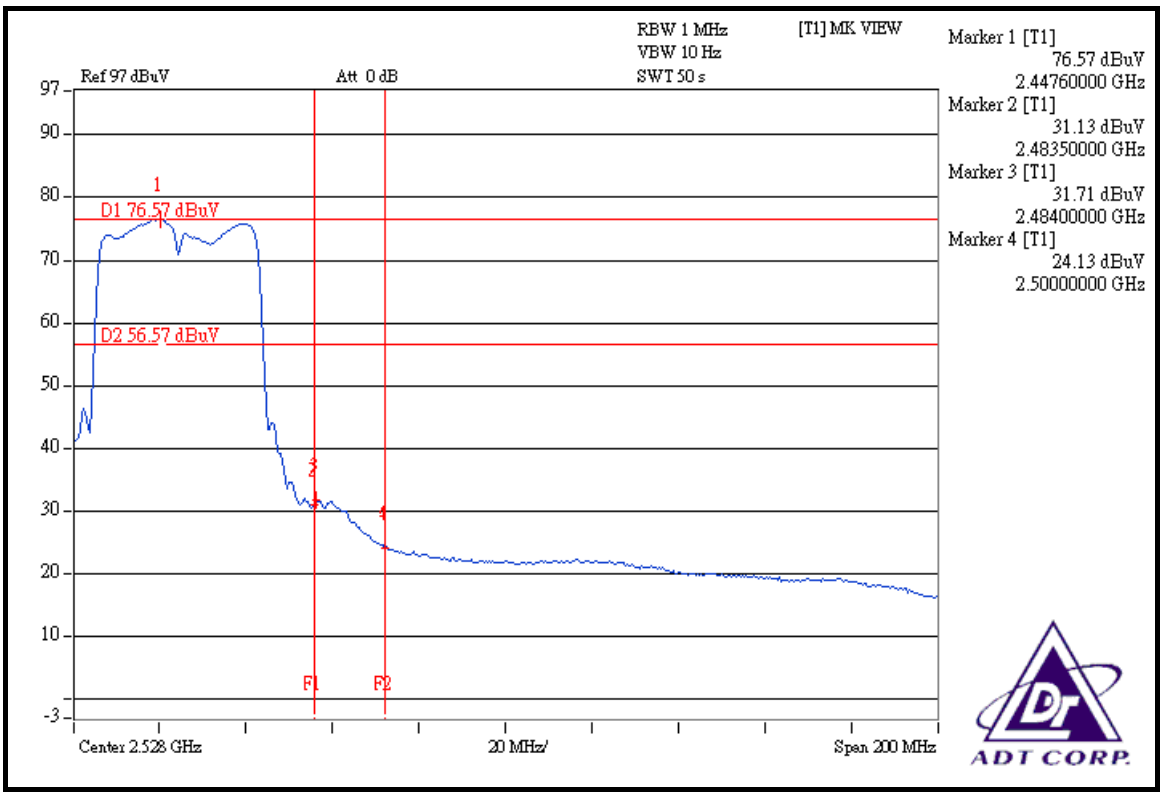
The band edge emission plot on the next third page shows 44.86dBc between carrier maximum power and local maximum emission in restrict band (2.48400GHz). The emission of carrier strength list in the test result of channel 7 at the item 4.2.7 is 96.67dBuV/m (Average), so the maximum field strength in restrict band is 96.67 – 44.86 = 51.81dBuV/m which is under 54dBuV/m limit.

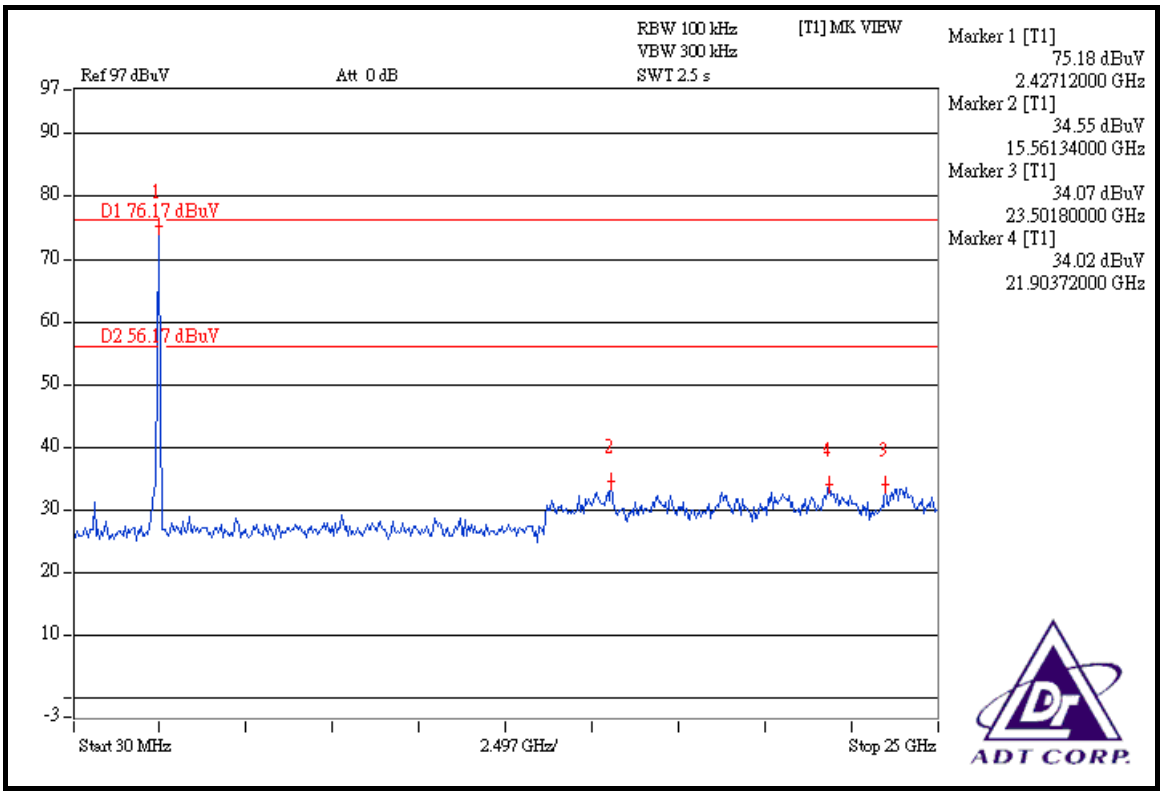

RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
D1 76.74 dBuV
D2 56.74 dBuV
Marker 1 [T1]
76.74 dBuV
2.43840000 GHz
Marker 2 [T1]
44.73 dBuV
2.40000000 GHz
Marker 3 [T1]
44.73 dBuV
2.40000000 GHz
Marker 4 [T1]
36.29 dBuV
2.39000000 GHz
Marker 5 [T1]
36.29 dBuV
2.39000000 GHz
Center 2.346 GHz
20 MHz/
Span 200 MHz
ADT CORP.


RBW 1 MHz
VBW 10 Hz
SWT 50 s
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
D1 77.19 dBuV
D2 57.19 dBuV
Marker 1 [T1]
77.19 dBuV
2.41880000 GHz
Marker 2 [T1]
46.18 dBuV
2.40000000 GHz
Marker 3 [T1]
46.18 dBuV
2.40000000 GHz
Marker 4 [T1]
32.21 dBuV
2.39000000 GHz
Marker 5 [T1]
32.43 dBuV
2.38960000 GHz
Center 2.346 GHz
20 MHz/
Span 200 MHz
ADT CORP.


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
D1 76.74 dBuV
D2 56.74 dBuV
Marker 1 [T1]
76.30 dBuV
2.42712000 GHz
Marker 2 [T1]
34.73 dBuV
22.05354000 GHz
Marker 3 [T1]
33.76 dBuV
23.90132000 GHz
Marker 4 [T1]
33.23 dBuV
14.96206000 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz


RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
D1 76.17 dBuV
D2 56.17 dBuV
Marker 1 [T1]
76.17 dBuV
2.46040000 GHz
Marker 2 [T1]
34.91 dBuV
2.48350000 GHz
Marker 3 [T1]
35.90 dBuV
2.48480000 GHz
Marker 4 [T1]
29.54 dBuV
2.50000000 GHz
F1
F2
Center 2.528 GHz
20 MHz/
Span 200 MHz


RBW 1 MHz
VBW 10 Hz
SWT 50 s
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
76.57 dBuV
2.44760000 GHz
Marker 2 [T1]
31.13 dBuV
2.48350000 GHz
Marker 3 [T1]
31.71 dBuV
2.48400000 GHz
Marker 4 [T1]
24.13 dBuV
2.50000000 GHz
D1 76.57 dBuV
D2 56.57 dBuV
F1
F2
Center 2.528 GHz
20 MHz/
Span 200 MHz


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
75.18 dBuV
2.42712000 GHz
Marker 2 [T1]
34.55 dBuV
15.56134000 GHz
Marker 3 [T1]
34.07 dBuV
23.50180000 GHz
Marker 4 [T1]
34.02 dBuV
21.90372000 GHz
D1 76.17 dBuV
D2 56.17 dBuV
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 antenna used in this product is Dipole antenna with R-SMA connector. The maximum gain of the antenna is 2dBi.

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.	TAF, BSMI, NCC
Netherlands	Telefication
Singapore	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.

7. 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.