FCC TEST REPORT

REPORT NO.: RF970707L09

MODEL NO.: WHR-G300N

RECEIVED: Jul. 07, 2008

TESTED: Jul. 21 ~ Sep. 05, 2008

ISSUED: Sep. 08, 2008

APPLICANT: Buffalo Inc.

ADDRESS: 15, Shibata Hondori 4-chome, Minami-ku, Nagoya 457-8520, Japan

ISSUED BY: Advance Data Technology Corporation

LAB ADDRESS: No. 47, 14th Ling, Chia Pau Tsuen, Lin Kou Hsiang, Taipei Hsien 244, 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:	NFINITI Wireless N Router & AP
MODEL:	WHR-G300N
BRAND:	Buffalo
APPLICANT:	Buffalo Inc.
TEST SAMPLE:	ENGINEERING SAMPLE
TESTED:	Jul. 21 ~ Sep. 05, 2008
STANDARDS:	**FCC Part 15, Subpart C (Section 15.247)**
	ANSI C63.4-2003

The above equipment (Model: WHR-G300N) 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 : Peggy Chen , **DATE:** Sep. 08, 2008
Peggy Chen / Specialist

TECHNICAL ACCEPTANCE : Long Chen , **DATE:** Sep. 08, 2008
Responsible for RF
Long Chen / Senior Engineer

APPROVED BY : Gary Chang , **DATE:** Sep. 08, 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 (SECTION 15.247)			
STANDARD SECTION	**TEST TYPE AND LIMIT**	**RESULT**	**REMARK**
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -21.55dB at 0.174MHz.
15.247(a)(2)	Spectrum Bandwidth of a Direct Sequence Spread Spectrum System Limit: min. 500kHz	PASS	Meet the requirement of limit.
15.247(b)	Maximum Peak Output Power Limit: max. 30dBm	PASS	Meet the requirement of limit.
15.247(d)	Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit. Minimum passing margin is -1.01dB at 2390.00MHz.
15.247(e)	Power Spectral Density Limit: max. 8dBm	PASS	Meet the requirement of limit.
15.247(d)	Band Edge Measurement Limit: 20dB less than the peak value of fundamental frequency	PASS	Meet the requirement of limit.

2.1 MEASUREMENT UNCERTAINTY

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

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	9kHz ~ 30MHz	2.44 dB
Radiated emissions	30MHz ~ 200MHz	3.19 dB
	200MHz ~1000MHz	3.21 dB
	1GHz ~ 18GHz	2.26 dB
	18GHz ~ 40GHz	1.94 dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k = 2.

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

EUT	NFINITI Wireless N Router & AP
MODEL NO.	WHR-G300N
FCC ID	FDI-09101538-0
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 300.0Mbps
FREQUENCY RANGE	2400.0 ~ 2483.5MHz
NUMBER OF CHANNEL	11 for 802.11b, 802.11g, draft 802.11n (20MHz) 7 for draft 802.11n (40MHz)
OUTPUT POWER	323.989mW
ANTENNA TYPE	PCB antenna with 3.0dBi gain PIFA antenna with 1.2dBi gain
DATA CABLE	NA
I/O PORTS	RJ45
ACCESSORY DEVICES	Adapter

NOTE:

1. The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitters and two receivers.

MODULATION MODE	TX FUNCTION
802.11b	1TX (PCB antenna or PIFA antenna)
802.11g	2TX (PCB antenna and PIFA antenna)
Draft 802.11n (20MHz)	2TX (PCB antenna and PIFA antenna)
Draft 802.11n (40MHz)	2TX (PCB antenna and PIFA antenna)

2. The EUT was powered by the following adapter:

BRAND:	Buffalo
MODEL:	WA-24C12U
INPUT:	100-240Vac, 50/60Hz, 0.5A
OUTPUT:	12Vdc, 2A
POWER LINE:	1.8m non-shielded cable without core

3. 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

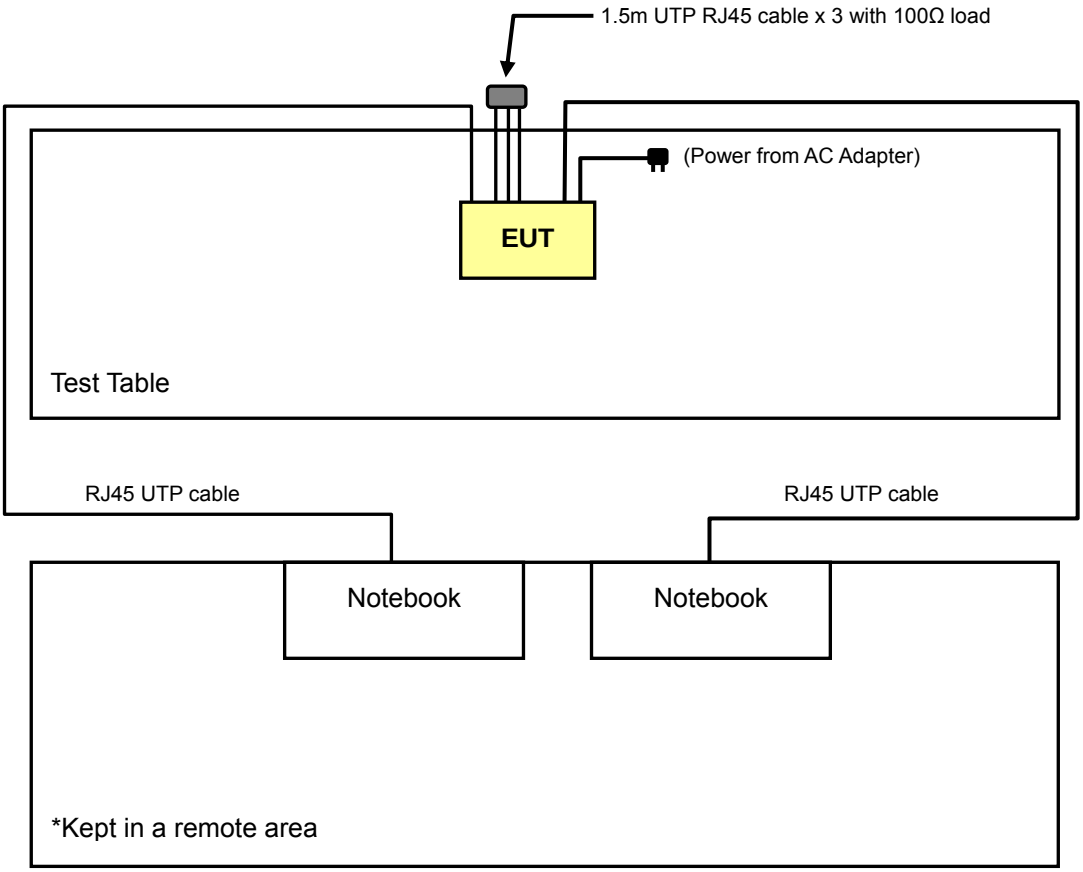
11 channels are provided for 802.11b, 802.11g and draft 802.11n (20MHz):

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		

7 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 1GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ Axis 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)	AXIS	ANTENNA TYPE
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0	X	PCB
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0	X	PIFA
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	X	PCB & PIFA
Draft 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	7.2	X	PCB & PIFA
Draft 802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	15.0	X	PCB & PIFA

RADIATED EMISSION TEST (BELOW 1GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ Axis 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)	AXIS	ANTENNA TYPE
Draft 802.11n (20MHz)	1 to 11	11	OFDM	BPSK	7.2	X	PCB & PIFA

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)	ANTENNA TYPE
Draft 802.11n (20MHz)	1 to 11	11	OFDM	BPSK	7.2	PCB & PIFA

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)	ANTENNA TYPE
802.11b	1 to 11	1, 11	DSSS	DBPSK	1.0	PCB
802.11b	1 to 11	1, 11	DSSS	DBPSK	1.0	PIFA
802.11g	1 to 11	1, 11	OFDM	BPSK	6.0	PCB & PIFA
Draft 802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	7.2	PCB & PIFA
Draft 802.11n (40MHz)	1 to 7	1, 7	OFDM	BPSK	15.0	PCB & PIFA

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	PP05L	16484462992	E2K24CLNS

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

NOTE: 1. All power cords of the above support units are non shielded (1.8m).
2. Items 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.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESI7	838496/016	Dec. 26, 2007	Dec. 25, 2008
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Dec. 03, 2007	Dec. 02, 2008
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Apr. 30, 2008	Apr. 29, 2009
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-408	Jan. 22, 2008	Jan. 21, 2009
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170242	Jan. 07, 2008	Jan. 06, 2009
Preamplifier Agilent	8449B	3008A01960	Oct. 31, 2007	Oct. 30, 2008
Preamplifier Agilent	8447D	2944A10631	Nov. 01, 2007	Oct. 31, 2008
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	274397/4	Nov. 08, 2007	Nov. 07, 2008
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	283401/4	Nov. 08, 2007	Nov. 07, 2008
Software ADT.	ADT_Radiated_V7.6	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA	NA
Antenna Tower Controller inn-co GmbH	CO2000	019303	NA	NA
Turn Table ADT.	TT100.	TT93021704	NA	NA
Turn Table Controller ADT.	SC100.	SC93021704	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 4.
3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
4. The FCC Site Registration No. is 460141.
5. The IC Site Registration No. is IC3789B-4.

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.

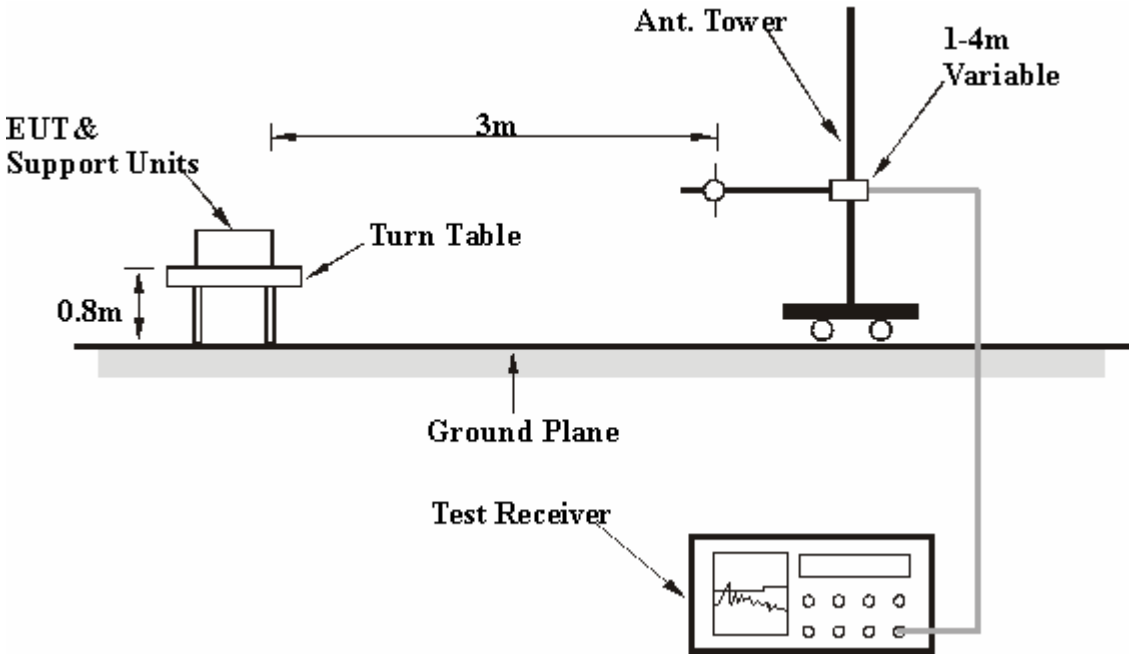
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection 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 two notebooks outside of testing area to act as a communication partners.
c. The communication partners connected with EUT via RJ45 cables and run a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
d. The communication partner sent data to EUT by command "PING".

4.1.7 TEST RESULTS

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	23deg. C, 67%RH 996hPa	TESTED BY	Mark Liao
ANTENNA TYPE	PCB antenna		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2386.00	61.60 PK	74.00	-12.40	1.42 H	140	29.88	31.72
2	2386.00	50.95 AV	54.00	-3.05	1.42 H	140	19.23	31.72
3	*2412.00	110.58 PK			1.37 H	138	78.77	31.81
4	*2412.00	105.90 AV			1.37 H	138	74.09	31.81
5	4824.00	48.97 PK	74.00	-25.03	1.49 H	293	10.88	38.09
6	4824.00	41.22 AV	54.00	-12.78	1.49 H	293	3.13	38.09
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2386.00	58.38 PK	74.00	-15.62	1.00 V	287	26.66	31.72
2	2386.00	47.16 AV	54.00	-6.84	1.00 V	287	15.44	31.72
3	*2412.00	103.49 PK			1.00 V	287	71.68	31.81
4	*2412.00	99.05 AV			1.00 V	287	67.24	31.81
5	4824.00	51.59 PK	74.00	-22.41	1.37 V	59	13.50	38.09
6	4824.00	45.85 AV	54.00	-8.15	1.37 V	59	7.76	38.09

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH 996hPa	TESTED BY	Mark Liao
ANTENNA TYPE	PCB antenna		

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	110.40 PK			1.38 H	134	78.50	31.90
2	*2437.00	105.88 AV			1.38 H	134	73.98	31.90
3	4874.00	49.19 PK	74.00	-24.81	1.58 H	244	10.97	38.22
4	4874.00	42.04 AV	54.00	-11.96	1.58 H	244	3.82	38.22
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	*2437.00	103.33 PK			1.44 V	91	71.43	31.90
2	*2437.00	99.92 AV			1.44 V	91	68.02	31.90
3	4874.00	52.33 PK	74.00	-21.67	1.43 V	272	14.11	38.22
4	4874.00	47.36 AV	54.00	-6.64	1.43 V	272	9.14	38.22

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.
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	23deg. C, 67%RH 996hPa	TESTED BY	Mark Liao
ANTENNA TYPE	PCB antenna		

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	110.15 PK			1.35 H	130	78.16	31.99
2	*2462.00	105.49 AV			1.35 H	130	73.50	31.99
3	2487.00	61.69 PK	74.00	-12.31	1.35 H	130	29.61	32.08
4	2487.00	52.10 AV	54.00	-1.90	1.35 H	130	20.02	32.08
5	4924.00	50.11 PK	74.00	-23.89	1.02 H	225	11.76	38.35
6	4924.00	43.16 AV	54.00	-10.84	1.02 H	225	4.81	38.35
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	104.48 PK			1.00 V	274	72.49	31.99
2	*2462.00	99.79 AV			1.00 V	274	67.80	31.99
3	2487.00	58.25 PK	74.00	-15.75	1.00 V	274	26.17	32.08
4	2487.00	47.56 AV	54.00	-6.44	1.00 V	274	15.48	32.08
5	4924.00	53.23 PK	74.00	-20.77	1.22 V	48	14.88	38.35
6	4924.00	48.83 AV	54.00	-5.17	1.22 V	48	10.48	38.35

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	23deg. C, 67%RH 996hPa	TESTED BY	Mark Liao
ANTENNA TYPE	PIFA antenna		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2386.00	57.31 PK	74.00	-16.69	1.30 H	120	25.59	31.72
2	2386.00	47.25 AV	54.00	-6.75	1.30 H	120	15.53	31.72
3	*2412.00	101.02 PK			1.30 H	120	69.21	31.81
4	*2412.00	97.07 AV			1.30 H	120	65.26	31.81
5	4824.00	49.78 PK	74.00	-24.22	1.07 H	178	11.69	38.09
6	4824.00	39.95 AV	54.00	-14.05	1.07 H	178	1.86	38.09
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2386.00	61.37 PK	74.00	-12.63	1.00 V	275	29.65	31.72
2	2386.00	50.81 AV	54.00	-3.19	1.00 V	275	19.09	31.72
3	*2412.00	109.38 PK			1.00 V	275	77.57	31.81
4	*2412.00	104.69 AV			1.00 V	275	72.88	31.81
5	4824.00	50.55 PK	74.00	-23.45	1.00 V	201	12.46	38.09
6	4824.00	42.52 AV	54.00	-11.48	1.00 V	201	4.43	38.09

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH 996hPa	TESTED BY	Mark Liao
ANTENNA TYPE	PIFA antenna		

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	100.32 PK			1.33 H	90	68.42	31.90
2	*2437.00	96.63 AV			1.33 H	90	64.73	31.90
3	4874.00	47.94 PK	74.00	-26.06	1.15 H	210	9.72	38.22
4	4874.00	34.97 AV	54.00	-19.03	1.15 H	210	-3.25	38.22
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	*2437.00	108.54 PK			1.21 V	19	76.64	31.90
2	*2437.00	104.01 AV			1.21 V	19	72.11	31.90
3	4874.00	48.69 PK	74.00	-25.31	1.67 V	40	10.47	38.22
4	4874.00	39.89 AV	54.00	-14.11	1.67 V	40	1.67	38.22

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.
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	23deg. C, 67%RH 996hPa	TESTED BY	Mark Liao
ANTENNA TYPE	PIFA antenna		

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	100.28 PK			1.26 H	117	68.29	31.99
2	*2462.00	95.77 AV			1.26 H	117	63.78	31.99
3	2487.00	58.76 PK	74.00	-15.24	1.26 H	117	26.68	32.08
4	2487.00	46.58 AV	54.00	-7.42	1.26 H	117	14.50	32.08
5	4924.00	47.21 PK	74.00	-26.79	1.05 H	146	8.86	38.35
6	4924.00	35.26 AV	54.00	-18.74	1.05 H	146	-3.09	38.35
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	106.95 PK			1.25 V	212	74.96	31.99
2	*2462.00	102.26 AV			1.25 V	212	70.27	31.99
3	2487.00	59.75 PK	74.00	-14.25	1.25 V	212	27.67	32.08
4	2487.00	48.09 AV	54.00	-5.91	1.25 V	212	16.01	32.08
5	4924.00	49.01 PK	74.00	-24.99	1.64 V	39	10.66	38.35
6	4924.00	41.11 AV	54.00	-12.89	1.64 V	39	2.76	38.35

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.

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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	23deg. C, 67%RH 996hPa	TESTED BY	Mark Liao
ANTENNA TYPE	PCB & PIFA antenna		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	62.73 PK	74.00	-11.27	1.11 H	115	31.00	31.73
2	2390.00	48.03 AV	54.00	-5.97	1.11 H	115	16.30	31.73
3	*2412.00	107.16 PK			1.11 H	223	75.35	31.81
4	*2412.00	96.84 AV			1.11 H	223	65.03	31.81
5	4824.00	47.62 PK	74.00	-26.38	1.17 H	181	9.53	38.09
6	4824.00	34.52 AV	54.00	-19.48	1.17 H	181	-3.57	38.09
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	72.81 PK	74.00	-1.19	1.00 V	165	41.08	31.73
2	2390.00	52.86 AV	54.00	-1.14	1.00 V	165	21.13	31.73
3	*2412.00	109.79 PK			1.00 V	256	77.98	31.81
4	*2412.00	99.32 AV			1.00 V	256	67.51	31.81
5	4824.00	48.86 PK	74.00	-25.14	1.14 V	105	10.77	38.09
6	4824.00	35.79 AV	54.00	-18.21	1.14 V	105	-2.30	38.09

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH 996hPa	TESTED BY	Mark Liao
ANTENNA TYPE	PCB & PIFA antenna		

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	106.89 PK			1.10 H	232	74.99	31.90
2	*2437.00	96.41 AV			1.10 H	232	64.51	31.90
3	4874.00	47.45 PK	74.00	-26.55	1.04 H	133	9.23	38.22
4	4874.00	34.32 AV	54.00	-19.68	1.04 H	133	-3.90	38.22
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	*2437.00	109.18 PK			1.21 V	55	77.28	31.90
2	*2437.00	98.72 AV			1.21 V	55	66.82	31.90
3	4874.00	47.96 PK	74.00	-26.04	1.18 V	74	9.74	38.22
4	4874.00	35.13 AV	54.00	-18.87	1.18 V	74	-3.09	38.22

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.
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	23deg. C, 67%RH 996hPa	TESTED BY	Mark Liao
ANTENNA TYPE	PCB & PIFA antenna		

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	106.62 PK			1.32 H	212	74.63	31.99
2	*2462.00	96.34 AV			1.32 H	212	64.35	31.99
3	2483.50	65.32 PK	74.00	-8.68	1.32 H	219	33.25	32.07
4	2483.50	46.97 AV	54.00	-7.03	1.32 H	219	14.90	32.07
5	4924.00	47.92 PK	74.00	-26.08	1.28 H	125	9.57	38.35
6	4924.00	34.89 AV	54.00	-19.11	1.28 H	125	-3.46	38.35
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	108.85 PK			1.19 V	232	76.86	31.99
2	*2462.00	98.32 AV			1.19 V	232	66.33	31.99
3	2483.50	57.82 PK	74.00	-16.18	1.19 V	221	25.75	32.07
4	2483.50	46.62 AV	54.00	-7.38	1.19 V	221	14.55	32.07
5	4924.00	50.92 PK	74.00	-23.08	1.11 V	154	12.57	38.35
6	4924.00	37.62 AV	54.00	-16.38	1.11 V	154	-0.73	38.35

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	23deg. C, 67%RH 996hPa	TESTED BY	Mark Liao
ANTENNA TYPE	PCB & PIFA antenna		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	62.90 PK	74.00	-11.10	1.11 H	217	31.17	31.73
2	2390.00	48.16 AV	54.00	-5.84	1.11 H	217	16.43	31.73
3	*2412.00	107.34 PK			1.11 H	217	75.53	31.81
4	*2412.00	97.00 AV			1.11 H	217	65.19	31.81
5	4824.00	47.80 PK	74.00	-26.20	1.17 H	184	9.71	38.09
6	4824.00	34.67 AV	54.00	-19.33	1.17 H	184	-3.42	38.09
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	72.92 PK	74.00	-1.08	1.00 V	304	41.19	31.73
2	**2390.00**	**52.99 AV**	**54.00**	**-1.01**	**1.00 V**	**304**	**21.26**	**31.73**
3	*2412.00	109.97 PK			1.00 V	277	78.16	31.81
4	*2412.00	99.47 AV			1.00 V	277	67.66	31.81
5	4824.00	48.97 PK	74.00	-25.03	1.14 V	102	10.88	38.09
6	4824.00	35.96 AV	54.00	-18.04	1.14 V	102	-2.13	38.09

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH 996hPa	TESTED BY	Mark Liao
ANTENNA TYPE	PCB & PIFA antenna		

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	106.67 PK			1.10 H	218	74.77	31.90
2	*2437.00	96.20 AV			1.10 H	218	64.30	31.90
3	4874.00	47.19 PK	74.00	-26.81	1.04 H	112	8.97	38.22
4	4874.00	34.01 AV	54.00	-19.99	1.04 H	112	-4.21	38.22
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	*2437.00	109.09 PK			1.21 V	63	77.19	31.90
2	*2437.00	98.51 AV			1.21 V	63	66.61	31.90
3	4874.00	47.79 PK	74.00	-26.21	1.18 V	86	9.57	38.22
4	4874.00	34.97 AV	54.00	-19.03	1.18 V	86	-3.25	38.22

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.
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	23deg. C, 67%RH 996hPa	TESTED BY	Mark Liao
ANTENNA TYPE	PCB & PIFA antenna		

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	106.36 PK			1.32 H	238	74.37	31.99
2	*2462.00	96.09 AV			1.32 H	238	64.10	31.99
3	2483.50	64.90 PK	74.00	-9.10	1.32 H	238	32.83	32.07
4	2483.50	46.66 AV	54.00	-7.34	1.32 H	238	14.59	32.07
5	4924.00	47.70 PK	74.00	-26.30	1.28 H	101	9.35	38.35
6	4924.00	34.64 AV	54.00	-19.36	1.28 H	101	-3.71	38.35
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	108.51 PK			1.19 V	245	76.52	31.99
2	*2462.00	98.01 AV			1.19 V	245	66.02	31.99
3	2483.50	57.49 PK	74.00	-16.51	1.19 V	245	25.42	32.07
4	2483.50	46.34 AV	54.00	-7.66	1.19 V	245	14.27	32.07
5	4924.00	50.49 PK	74.00	-23.51	1.11 V	176	12.14	38.35
6	4924.00	37.29 AV	54.00	-16.71	1.11 V	176	-1.06	38.35

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	23deg. C, 67%RH 996hPa	TESTED BY	Mark Liao
ANTENNA TYPE	PCB & PIFA antenna		

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	59.24 PK	74.00	-14.76	1.34 H	281	27.51	31.73
2	2390.00	47.75 AV	54.00	-6.25	1.34 H	281	16.02	31.73
3	*2422.00	103.55 PK			1.34 H	281	71.70	31.85
4	*2422.00	92.26 AV			1.34 H	281	60.41	31.85
5	4844.00	47.28 PK	74.00	-26.72	1.27 H	221	9.14	38.14
6	4844.00	35.17 AV	54.00	-18.83	1.27 H	221	-2.97	38.14
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	59.97 PK	74.00	-14.03	1.22 V	15	28.24	31.73
2	2390.00	48.48 AV	54.00	-5.52	1.22 V	15	16.75	31.73
3	*2422.00	105.37 PK			1.22 V	15	73.52	31.85
4	*2422.00	94.64 AV			1.22 V	15	62.79	31.85
5	4844.00	46.92 PK	74.00	-27.08	1.12 V	154	8.78	38.14
6	4844.00	35.12 AV	54.00	-18.88	1.12 V	154	-3.02	38.14

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	23deg. C, 67%RH 996hPa	TESTED BY	Mark Liao
ANTENNA TYPE	PCB & PIFA antenna		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	102.54 PK			1.35 H	289	70.64	31.90
2	*2437.00	92.40 AV			1.35 H	289	60.50	31.90
3	4874.00	47.57 PK	74.00	-26.43	1.25 H	138	9.35	38.22
4	4874.00	35.09 AV	54.00	-18.91	1.25 H	138	-3.13	38.22
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	*2437.00	105.59 PK			1.23 V	168	73.69	31.90
2	*2437.00	95.55 AV			1.23 V	168	63.65	31.90
3	4874.00	49.11 PK	74.00	-24.89	1.24 V	143	10.89	38.22
4	4874.00	35.16 AV	54.00	-18.84	1.24 V	143	-3.06	38.22

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.
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	23deg. C, 67%RH 996hPa	TESTED BY	Mark Liao
ANTENNA TYPE	PCB & PIFA antenna		

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	104.41 PK			1.36 H	238	72.45	31.96
2	*2452.00	93.41 AV			1.36 H	238	61.45	31.96
3	2483.50	60.51 PK	74.00	-13.49	1.36 H	238	28.44	32.07
4	2483.50	49.23 AV	54.00	-4.77	1.36 H	238	17.16	32.07
5	4904.00	47.92 PK	74.00	-26.08	1.24 H	126	9.62	38.30
6	4904.00	34.85 AV	54.00	-19.15	1.24 H	126	-3.45	38.30
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	105.81 PK			1.23 V	170	73.85	31.96
2	*2452.00	95.84 AV			1.23 V	170	63.88	31.96
3	2483.50	60.02 PK	74.00	-13.98	1.23 V	170	27.95	32.07
4	2483.50	48.92 AV	54.00	-5.08	1.23 V	170	16.85	32.07
5	4904.00	47.11 PK	74.00	-26.89	1.31 V	196	8.81	38.30
6	4904.00	35.95 AV	54.00	-18.05	1.31 V	196	-2.35	38.30

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：DRAFT 802.11n (20MHz) 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	24deg. C, 64%RH 1000hPa	TESTED BY	Mark Liao
ANTENNA TYPE	PCB & PIFA antenna		

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	125.17	33.92 QP	43.50	-9.58	2.00 H	94	21.52	12.40
2	249.98	44.98 QP	46.00	-1.02	1.15 H	68	31.28	13.70
3	383.76	37.11 QP	46.00	-8.89	1.00 H	43	20.21	16.90
4	500.42	40.53 QP	46.00	-5.47	2.00 H	67	20.03	20.50
5	624.85	34.21 QP	46.00	-11.79	1.50 H	37	10.56	23.64
6	640.41	43.61 QP	46.00	-2.39	1.25 H	328	19.64	23.97
7	897.05	35.39 QP	46.00	-10.61	1.00 H	136	7.35	28.04
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	38.90	38.89 QP	40.00	-1.11	1.00 V	116	26.39	12.50
2	68.79	34.87 QP	40.00	-5.13	1.00 V	325	22.68	12.19
3	107.67	35.48 QP	43.50	-8.02	1.00 V	103	24.72	10.76
4	250.00	44.91 QP	46.00	-1.09	1.32 V	32	31.21	13.70
5	383.76	34.35 QP	46.00	-11.65	1.50 V	358	17.45	16.90
6	500.42	36.33 QP	46.00	-9.67	1.25 V	103	15.83	20.50
7	640.41	40.23 QP	46.00	-5.77	1.50 V	349	16.26	23.97

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

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 0.50MHz.

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.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100291	Nov. 22, 2007	Nov. 21, 2008
RF signal cable Woken	5D-FB	Cable-HYC01-01	Jan. 04, 2008	Jan. 03, 2009
LISN ROHDE & SCHWARZ	ESH3-Z5	100312	Jun. 13, 2008	Jun. 12, 2009
LISN ROHDE & SCHWARZ	ESH2-Z5	100104	Sep. 12, 2007	Sep. 11, 2008
Software ADT	ADT_Cond_V3	NA	NA	NA

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

2. The test was performed in HwaYa Shielded Room 1.

3. The VCCI Site Registration No. is C-2040.

4.2.3 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.

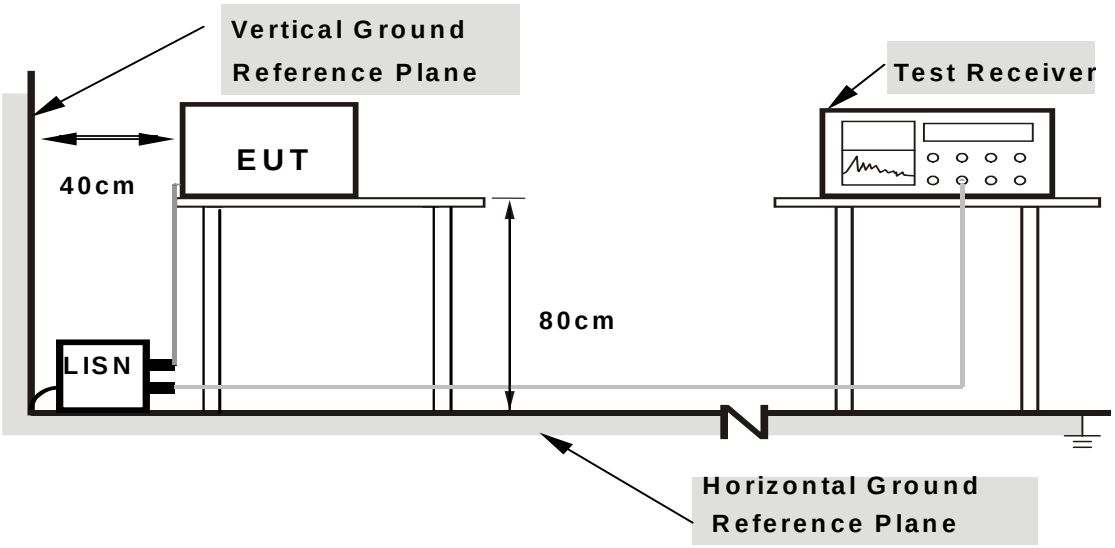
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

NOTE: All modes of operation were investigated and the worst-case emissions are reported.

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.

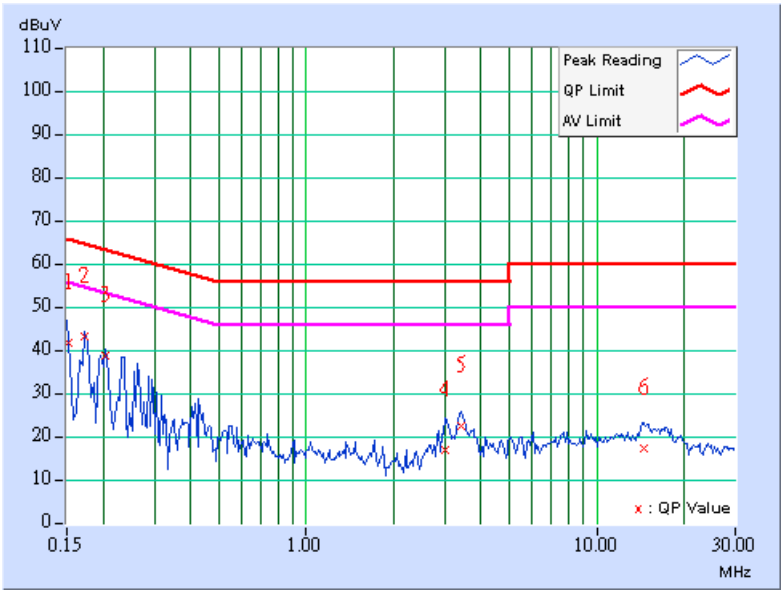
4.2.7 TEST RESULTS

CONDUCTED WORST-CASE DATA：DRAFT 802.11n (20MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	PHASE	Line 1
MODULATION TYPE	BPSK	INPUT POWER	120Vac, 60Hz
TRANSFER RATE	7.2Mbps	6dB BANDWIDTH	9kHz
ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 1010hPa	TESTED BY	Dean Wang
ANTENNA TYPE	PCB & PIFA antenna		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.151	0.20	41.12	-	41.32	-	65.93	55.93	-24.61	-
2	0.173	0.20	42.47	-	42.67	-	64.79	54.79	-22.12	-
3	0.203	0.20	38.26	-	38.46	-	63.47	53.47	-25.01	-
4	2.996	0.30	16.29	-	16.59	-	56.00	46.00	-39.41	-
5	3.434	0.34	21.66	-	22.00	-	56.00	46.00	-34.00	-
6	14.578	0.78	16.76	-	17.54	-	60.00	50.00	-42.46	-

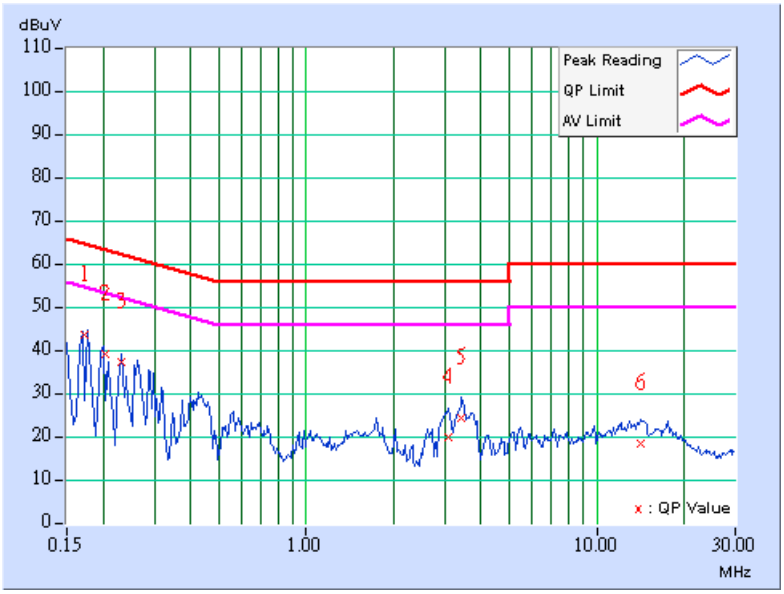
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	PHASE	Line 2
MODULATION TYPE	BPSK	INPUT POWER	120Vac, 60Hz
TRANSFER RATE	7.2Mbps	6dB BANDWIDTH	9kHz
ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 1010hPa	TESTED BY	Dean Wang
ANTENNA TYPE	PCB & PIFA antenna		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	**0.174**	**0.20**	**43.04**	**-**	**43.24**	**-**	**64.79**	**54.79**	**-21.55**	**-**
2	0.203	0.20	38.60	-	38.80	-	63.51	53.51	-24.71	-
3	0.232	0.20	36.94	-	37.14	-	62.38	52.38	-25.24	-
4	3.082	0.31	19.59	-	19.90	-	56.00	46.00	-36.10	-
5	3.438	0.34	23.98	-	24.32	-	56.00	46.00	-31.68	-
6	14.195	0.50	18.17	-	18.67	-	60.00	50.00	-41.33	-

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.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
R&S SPECTRUM ANALYZER	FSP40	100041	Apr. 22, 2008	Apr. 21, 2009

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

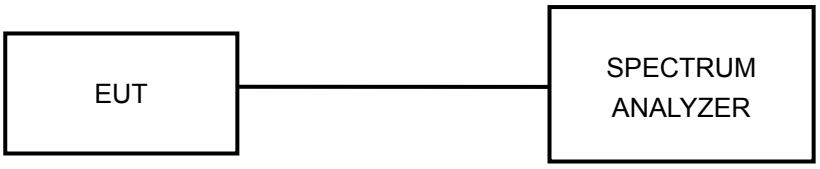
4.3.3 TEST PROCEDURE

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.

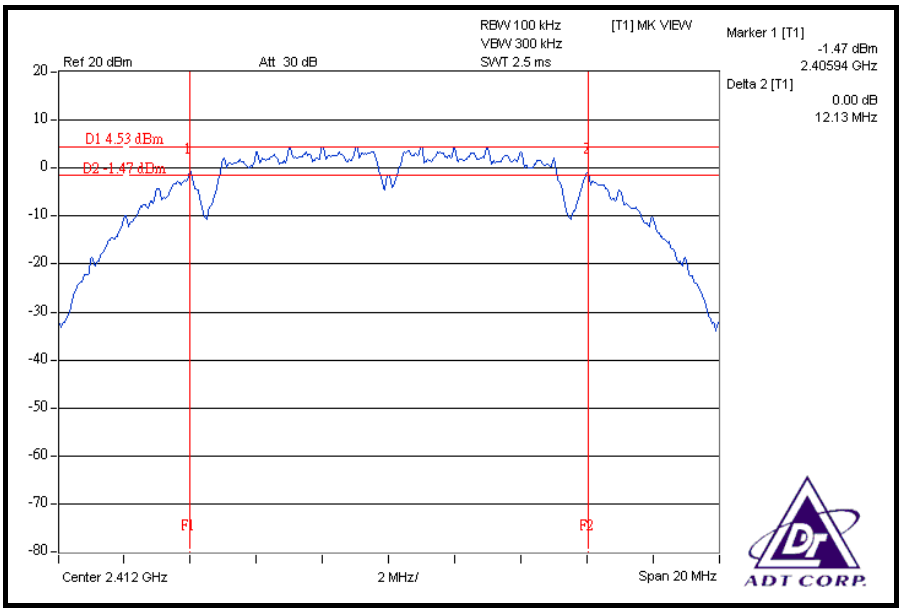
4.3.7 TEST RESULTS

802.11b DSSS MODULATION

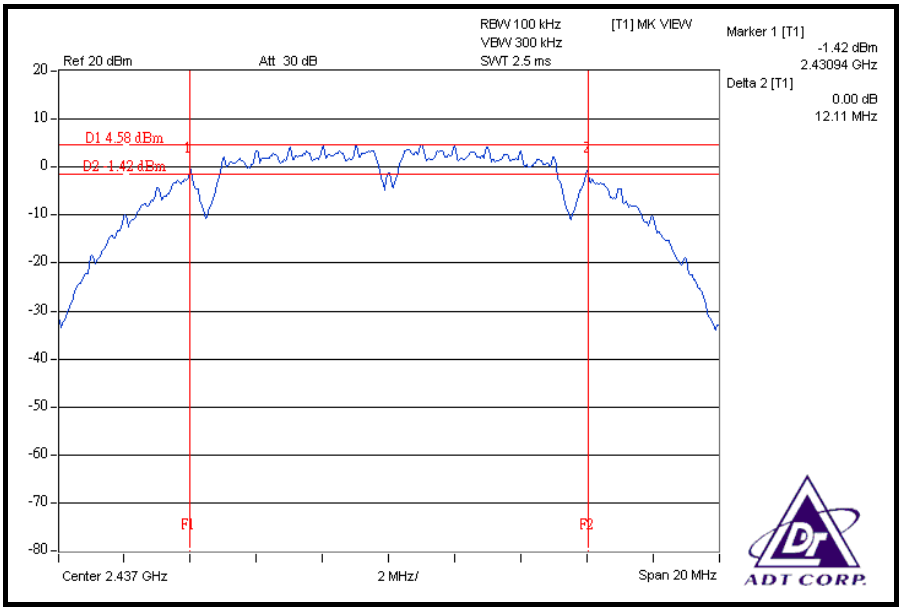
MODULATION TYPE	DBPSK	**TRANSFER RATE**	1.0Mbps
INPUT POWER	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	25 deg.C, 63 %RH, 991hPa
TESTED BY	Dean Wang		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	12.13	0.5	PASS
6	2437	12.11	0.5	PASS
11	2462	12.11	0.5	PASS

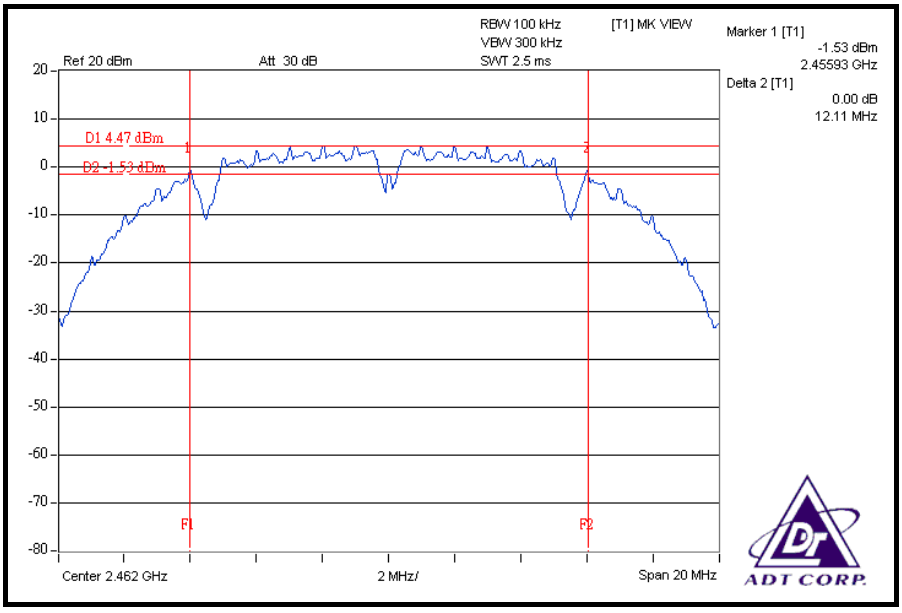
CH 1



CH 6


RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
[T1] MK VIEW
Marker 1 [T1]
-1.42 dBm
2.43094 GHz
Delta 2 [T1]
0.00 dB
12.11 MHz
Ref 20 dBm
Att 30 dB
D1 4.58 dBm
D2 -1.42 dBm
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
F1
F2
Center 2.437 GHz
2 MHz/
Span 20 MHz
ADT CORP.

CH 11

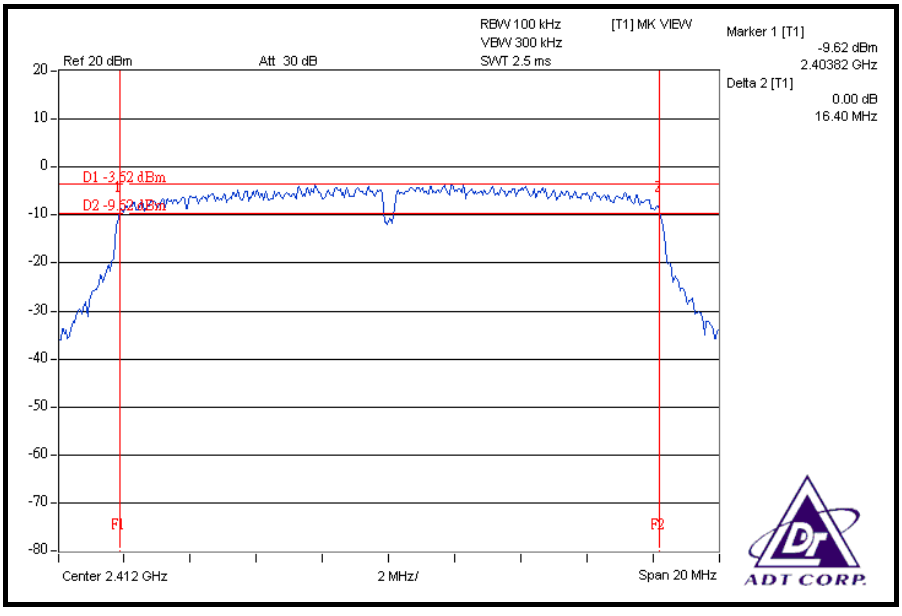

RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
[T1] MK VIEW
Marker 1 [T1]
-1.53 dBm
2.45593 GHz
Delta 2 [T1]
0.00 dB
12.11 MHz
Ref 20 dBm
Att 30 dB
D1 4.47 dBm
D2 -1.53 dBm
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
F1
F2
Center 2.462 GHz
2 MHz/
Span 20 MHz
ADT CORP.

802.11g OFDM MODULATION

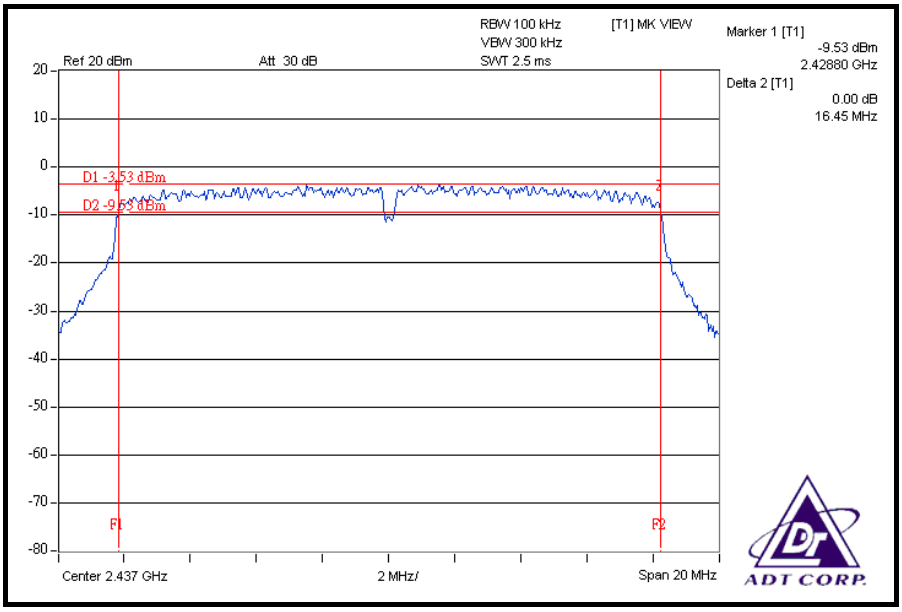
MODULATION TYPE	BPSK	TRANSFER RATE	6.0Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25 deg.C, 63 %RH, 991hPa
TESTED BY	Dean Wang		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	16.40	16.51	0.5	PASS
6	2437	16.45	16.45	0.5	PASS
11	2462	16.46	16.12	0.5	PASS

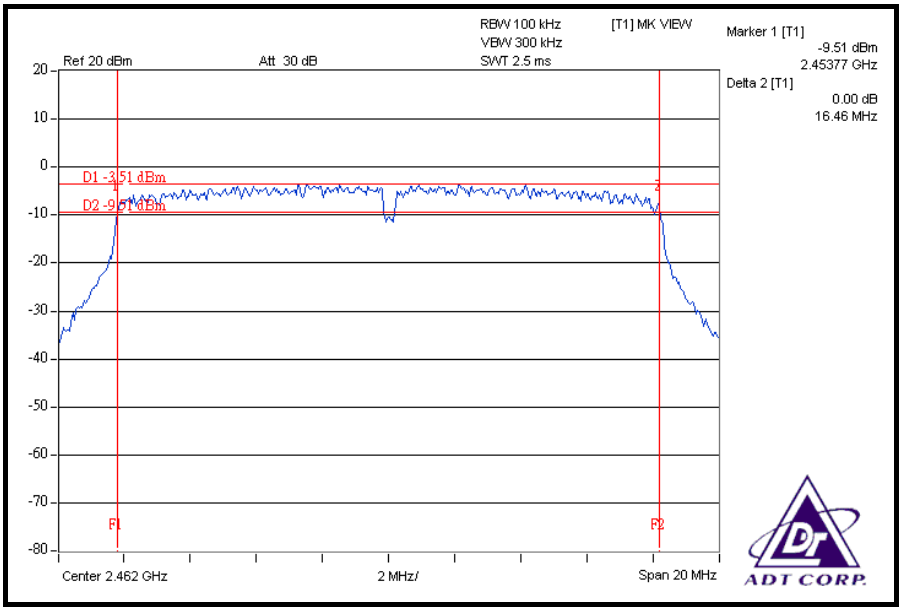
FOR CHAIN 0: CH 1



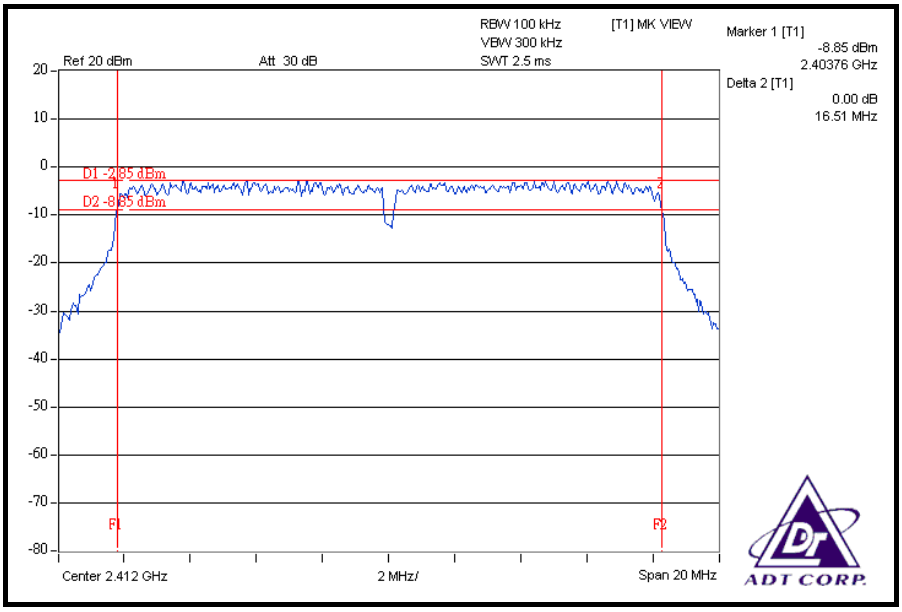
CH 6


RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
[T1] MK VIEW
Marker 1 [T1]
-9.53 dBm
2.42880 GHz
Delta 2 [T1]
0.00 dB
16.45 MHz
Ref 20 dBm
Att 30 dB
D1 -3.53 dBm
D2 -9.53 dBm
Center 2.437 GHz
2 MHz/
Span 20 MHz
ADT CORP.

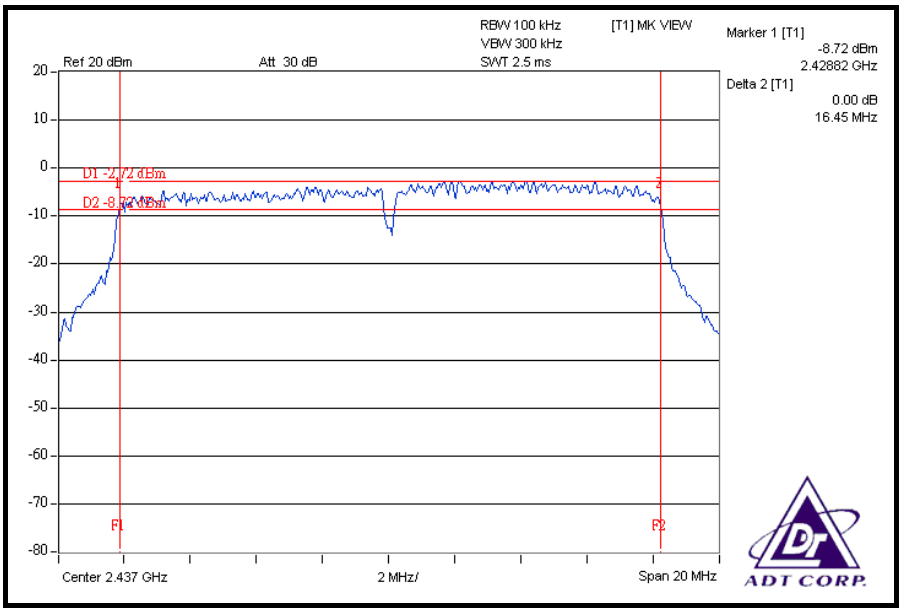
CH 11


RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
[T1] MK VIEW
Marker 1 [T1]
-9.51 dBm
2.45377 GHz
Delta 2 [T1]
0.00 dB
16.46 MHz
Ref 20 dBm
Att 30 dB
D1 -3.51 dBm
D2 -9.51 dBm
Center 2.462 GHz
2 MHz/
Span 20 MHz
ADT CORP.

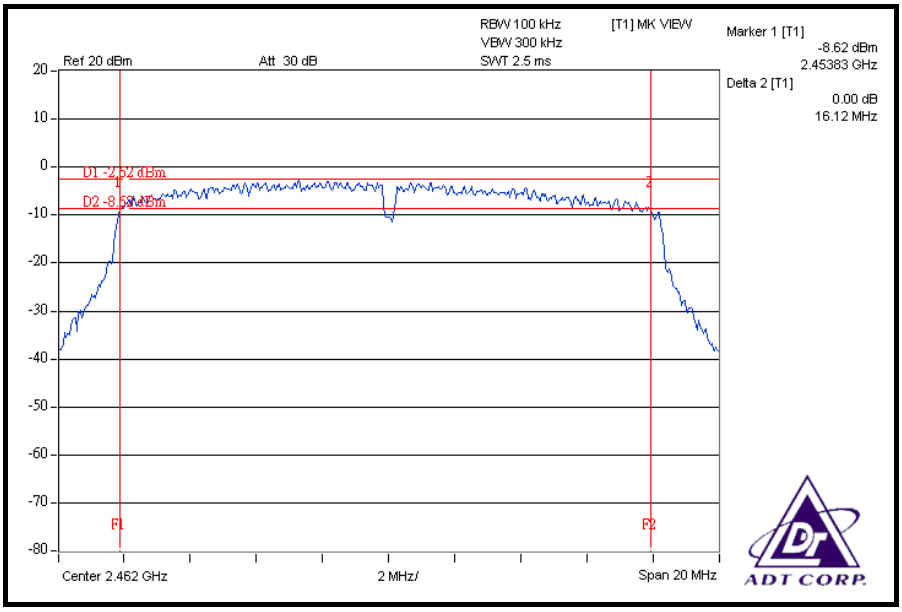
FOR CHAIN 1: CH 1



CH 6



CH 11

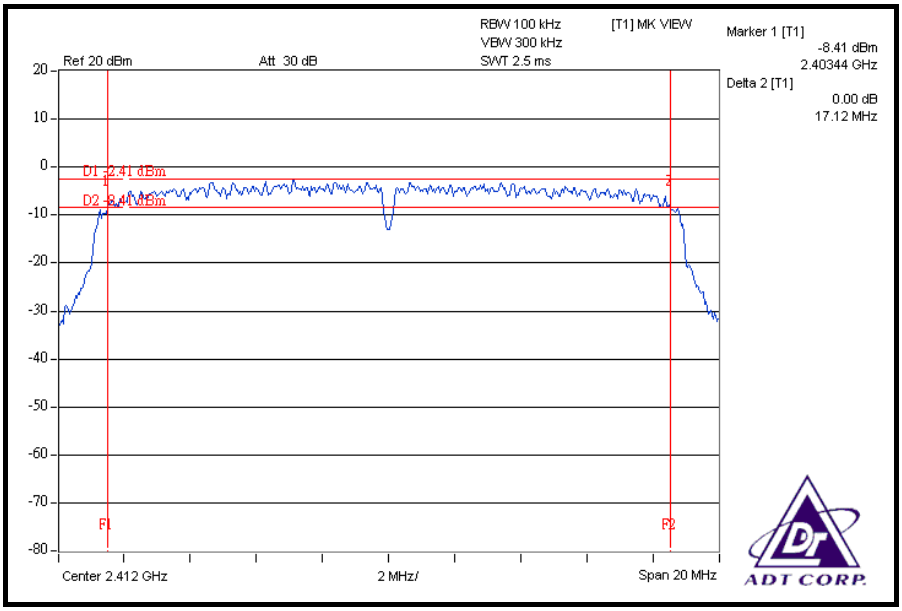

RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
[T1] MK VIEW
Marker 1 [T1]
-8.62 dBm
2.45383 GHz
Delta 2 [T1]
0.00 dB
16.12 MHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
D1 -2.62 dBm
D2 -8.62 dBm
F1
F2
Center 2.462 GHz
2 MHz/
Span 20 MHz
ADT CORP.

DRAFT 802.11n (20MHz) OFDM MODULATION

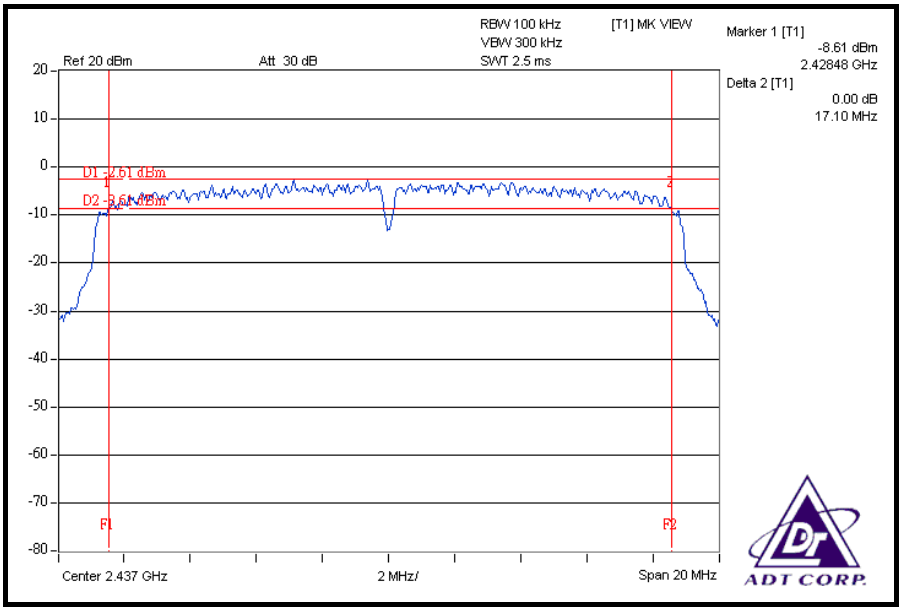
MODULATION TYPE	BPSK	**TRANSFER RATE**	7.2Mbps
INPUT POWER	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	25 deg.C, 63 %RH, 991hPa
TESTED BY	Dean Wang		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	17.12	16.95	0.5	PASS
6	2437	17.10	17.42	0.5	PASS
11	2462	17.04	16.01	0.5	PASS

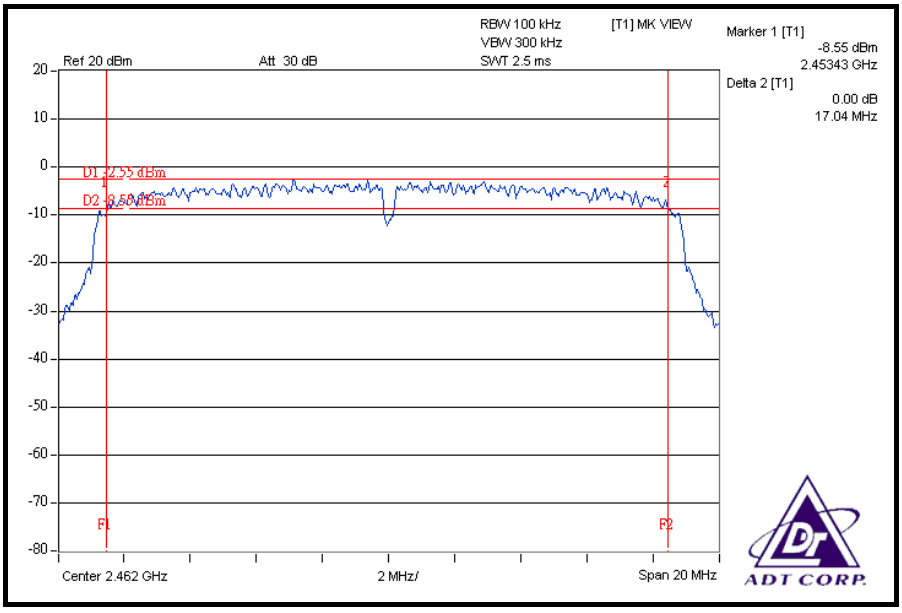
FOR CHAIN 0: CH 1



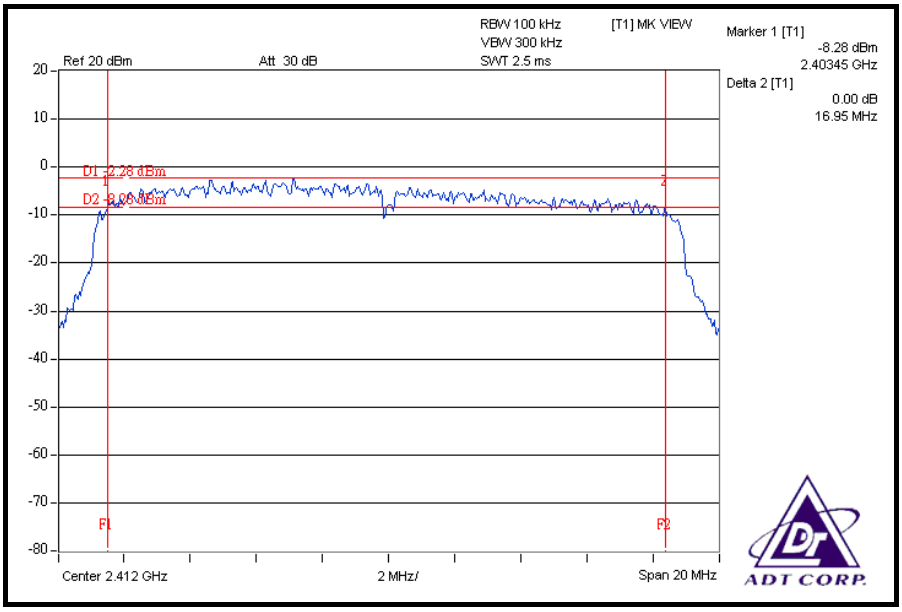
CH 6


RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
[T1] MK VIEW
Marker 1 [T1]
-8.61 dBm
2.42848 GHz
Delta 2 [T1]
0.00 dB
17.10 MHz
Ref 20 dBm
Att 30 dB
D1 -2.61 dBm
D2 -8.61 dBm
F1
F2
Center 2.437 GHz
2 MHz/
Span 20 MHz
ADT CORP.

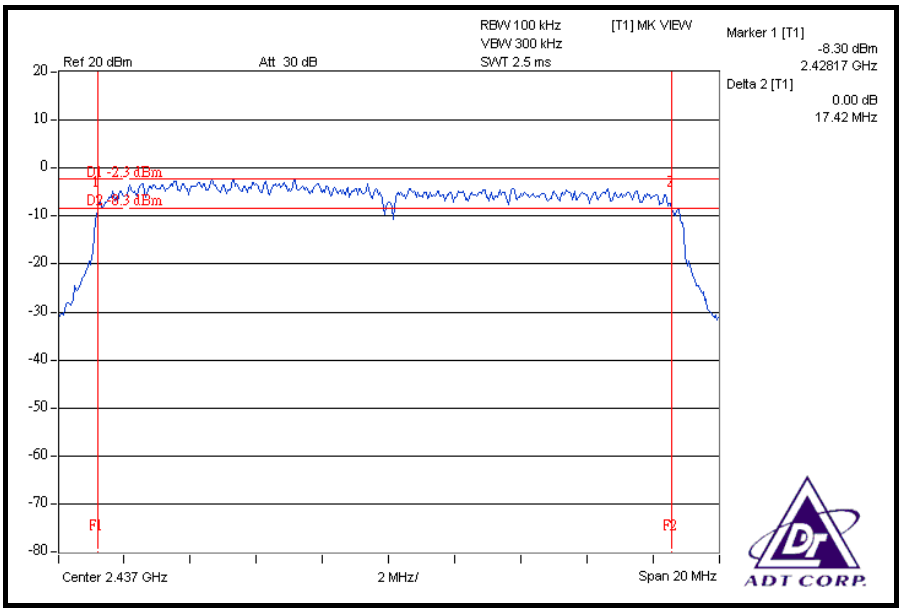
CH 11


RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
[T1] MK VIEW
Marker 1 [T1]
-8.55 dBm
2.45343 GHz
Delta 2 [T1]
0.00 dB
17.04 MHz
Ref 20 dBm
Att 30 dB
D1 -2.55 dBm
D2 -8.55 dBm
F1
F2
Center 2.462 GHz
2 MHz/
Span 20 MHz
ADT CORP.

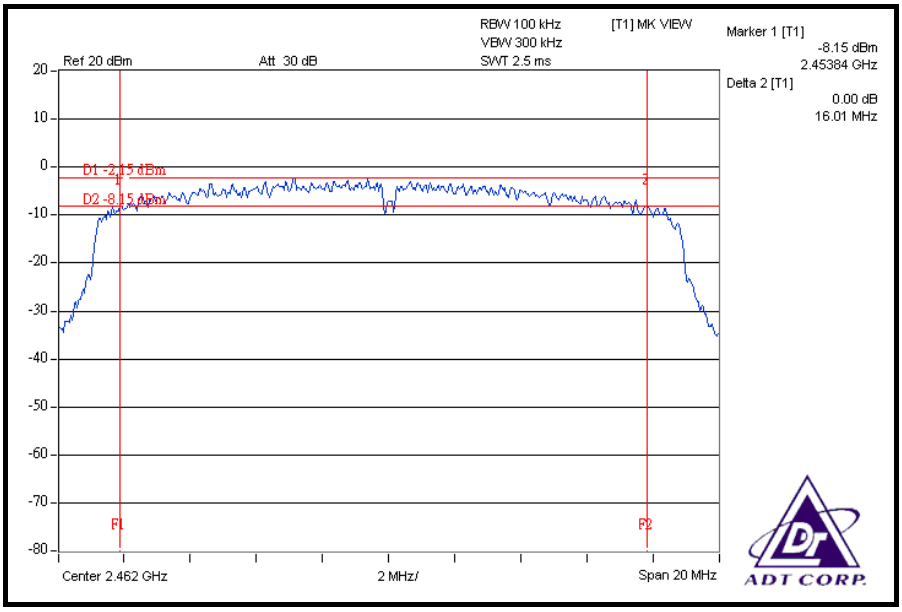
FOR CHAIN 1: CH 1



CH 6



CH 11

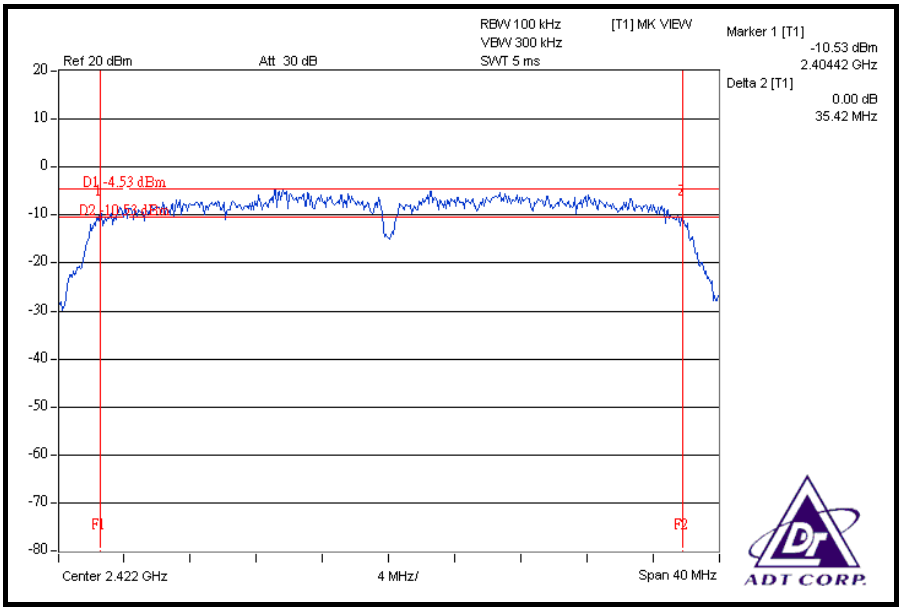

RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
[T1] MK VIEW
Marker 1 [T1]
-8.15 dBm
2.45384 GHz
Delta 2 [T1]
0.00 dB
16.01 MHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
D1 -2.15 dBm
D2 -8.15 dBm
F1
F2
Center 2.462 GHz
2 MHz/
Span 20 MHz
ADT CORP.

DRAFT 802.11n (40MHz) OFDM MODULATION

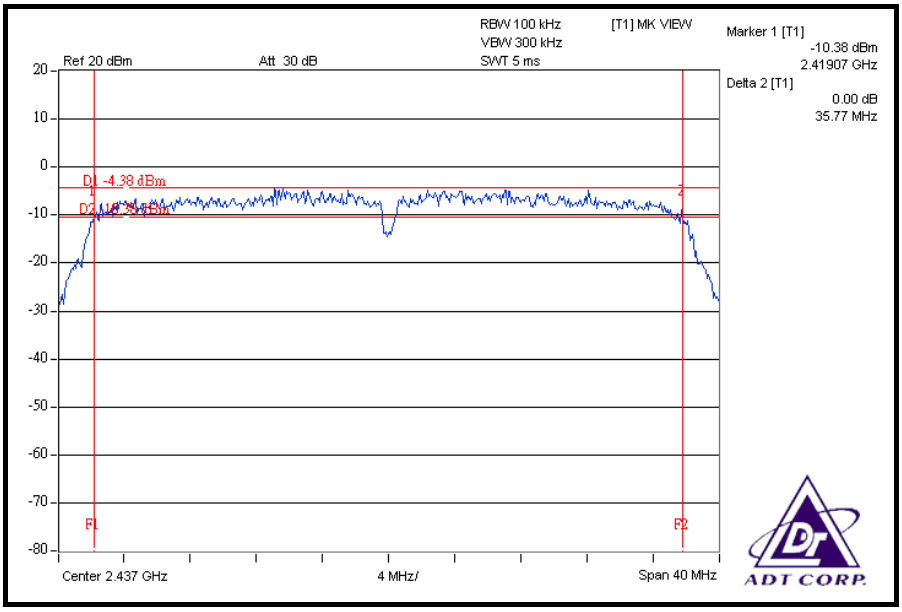
MODULATION TYPE	BPSK	**TRANSFER RATE**	15.0Mbps
INPUT POWER	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	25 deg.C, 63 %RH, 991hPa
TESTED BY	Dean Wang		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2422	35.42	35.83	0.5	PASS
4	2437	35.77	35.74	0.5	PASS
7	2452	35.82	32.98	0.5	PASS

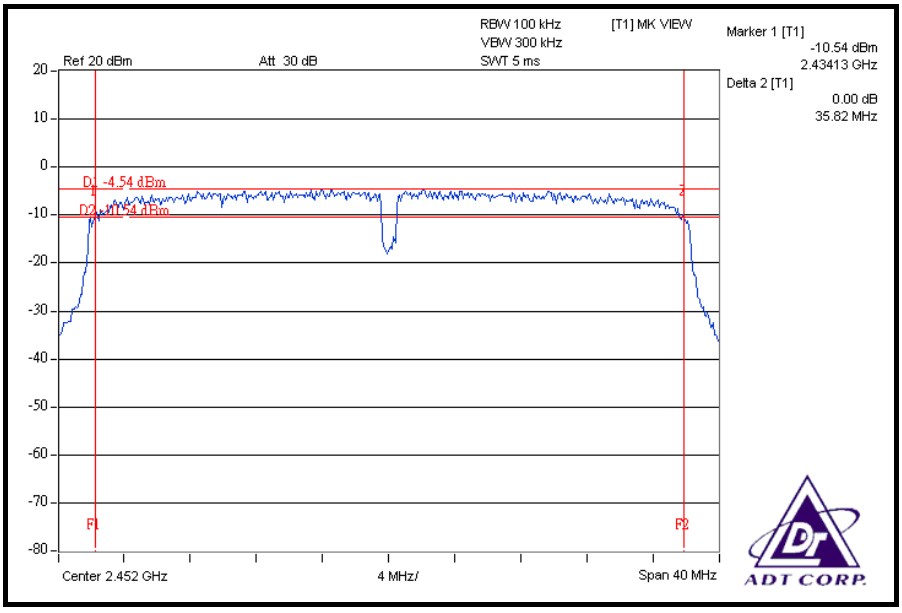
FOR CHAIN 0: CH 1



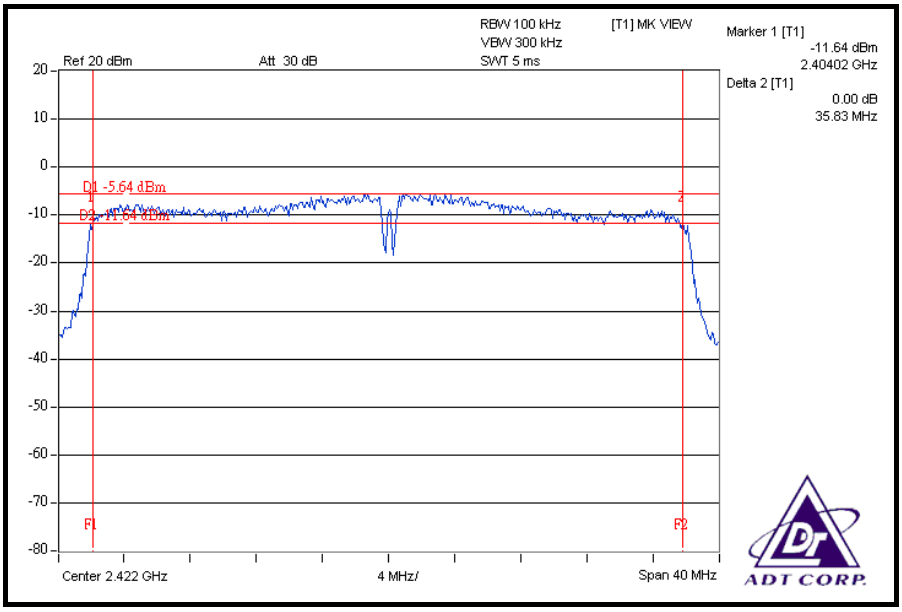
CH 4


RBW 100 kHz
VBW 300 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
-10.38 dBm
2.41907 GHz
Delta 2 [T1]
0.00 dB
35.77 MHz
Ref 20 dBm
Att 30 dB
D1 -4.38 dBm
F1
F2
Center 2.437 GHz
4 MHz/
Span 40 MHz
ADT CORP.

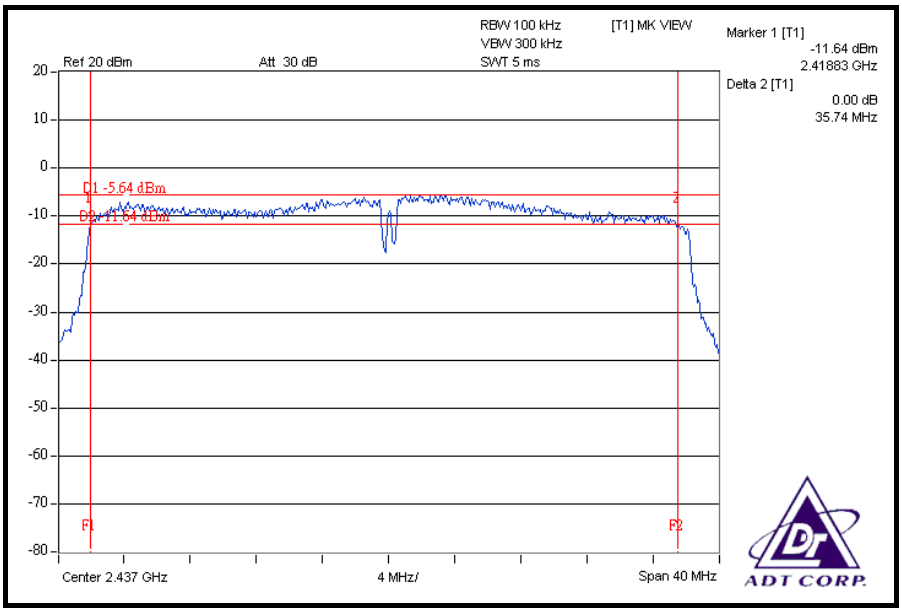
CH 7


RBW 100 kHz
VBW 300 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
-10.54 dBm
2.43413 GHz
Delta 2 [T1]
0.00 dB
35.82 MHz
Ref 20 dBm
Att 30 dB
D1 -4.54 dBm
F1
F2
Center 2.452 GHz
4 MHz/
Span 40 MHz
ADT CORP.

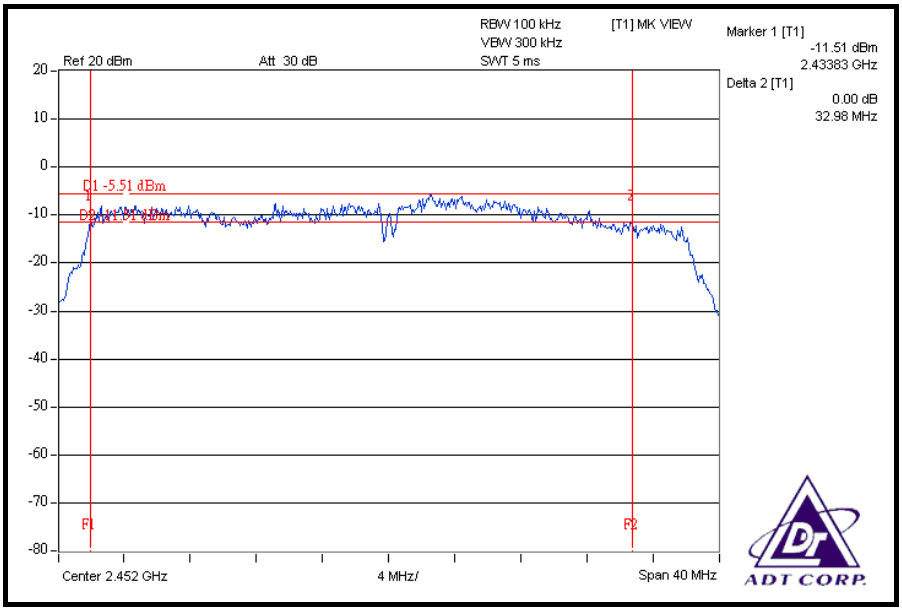
FOR CHAIN 1: CH 1



CH 4



CH 7


RBW 100 kHz
VBW 300 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
-11.51 dBm
2.43383 GHz
Delta 2 [T1]
0.00 dB
32.98 MHz
Ref 20 dBm
Att 30 dB
D1 -5.51 dBm
D2 -11.51 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.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
High Speed Peak Power Meter	ML2495A	0824012	Aug. 04, 2008	Aug. 03, 2009
Power Sensor	MA2444B	0738138	Aug. 04, 2008	Aug. 03, 2009

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. Measurement Bandwidth of ML2495A is 65MHz greater than 6dB bandwidth of emission.

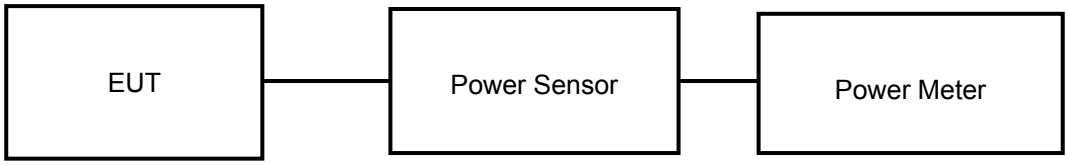
4.4.3 TEST PROCEDURES

A power sensor was used on the output port of the EUT. A power meter was used to read the response of the power sensor. Record the power level.

4.4.4 DEVIATION FROM TEST STANDARD

No deviation.

4.4.5 TEST SETUP



4.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6.

4.4.7 TEST RESULTS

802.11b DSSS MODULATION

MODULATION TYPE	DBPSK	TRANSFER RATE	1.0Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25 deg.C, 63 %RH, 991hPa
TESTED BY	Dean Wang		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2412	113.501	20.55	30	PASS
6	2437	112.980	20.53	30	PASS
11	2462	112.460	20.51	30	PASS

802.11g OFDM MODULATION

MODULATION TYPE	BPSK	TRANSFER RATE	6.0Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25 deg.C, 63 %RH, 991hPa
TESTED BY	Dean Wang		

CHAN.	CHAN. FREQ. (MHz)	PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2412	22.06	22.12	323.624	25.10	30	PASS
6	2437	22.10	22.05	322.506	25.09	30	PASS
11	2462	22.13	22.02	322.526	25.09	30	PASS

DRAFT 802.11n (20MHz) OFDM MODULATION

MODULATION TYPE	BPSK	**TRANSFER RATE**	7.2Mbps
INPUT POWER	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	25 deg.C, 63 %RH, 991hPa
TESTED BY	Dean Wang		

CHAN.	CHAN. FREQ. (MHz)	PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2412	22.13	22.03	322.893	25.09	30	PASS
6	2437	22.04	22.08	321.392	25.07	30	PASS
11	2462	22.10	22.09	**323.989**	25.11	30	PASS

DRAFT 802.11n (40MHz) OFDM MODULATION

MODULATION TYPE	BPSK	**TRANSFER RATE**	15.0Mbps
INPUT POWER	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	25deg.C, 65%RH, 991hPa
TESTED BY	Dean Wang		

CHAN.	CHAN. FREQ. (MHz)	PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2422	22.08	22.07	322.500	25.09	30	PASS
4	2437	22.04	22.02	319.177	25.04	30	PASS
7	2452	22.10	22.08	323.617	25.10	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.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
R&S SPECTRUM ANALYZER	FSP40	100041	Apr. 22, 2008	Apr. 21, 2009

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

4.5.3 TEST PROCEDURE

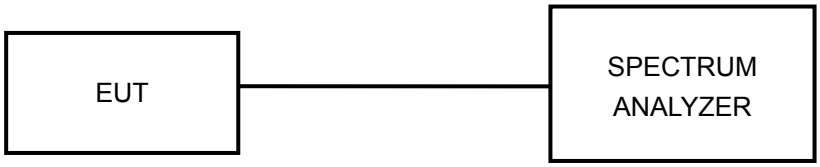
The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3kHz RBW and 30kHz VBW, set sweep time = span/3kHz. The power spectral density was measured and recorded.

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

4.5.4 DEVIATION FROM TEST STANDARD

No deviation

4.5.5 TEST SETUP



4.5.6 EUT OPERATING CONDITION

Same as Item 4.3.6

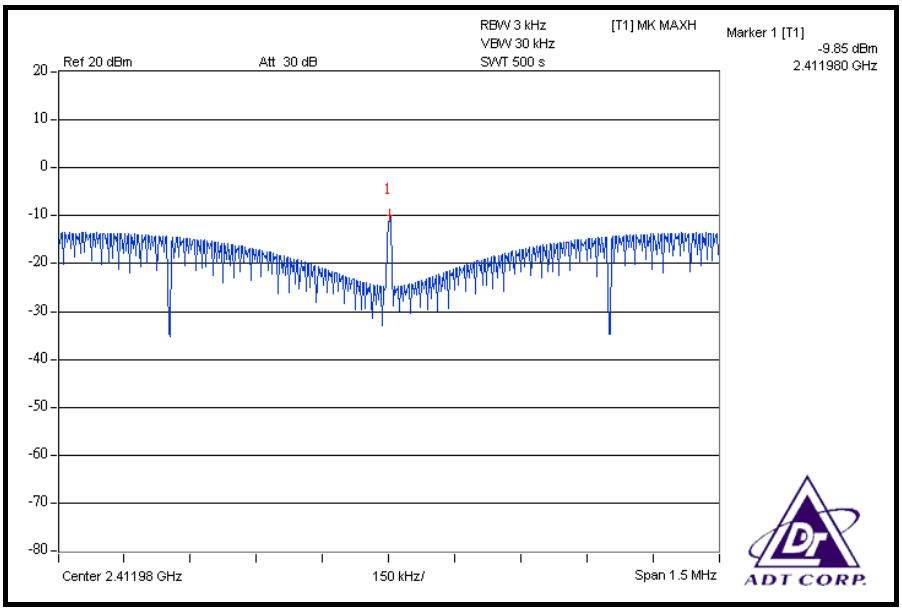
4.5.7 TEST RESULTS

802.11b DSSS MODULATION

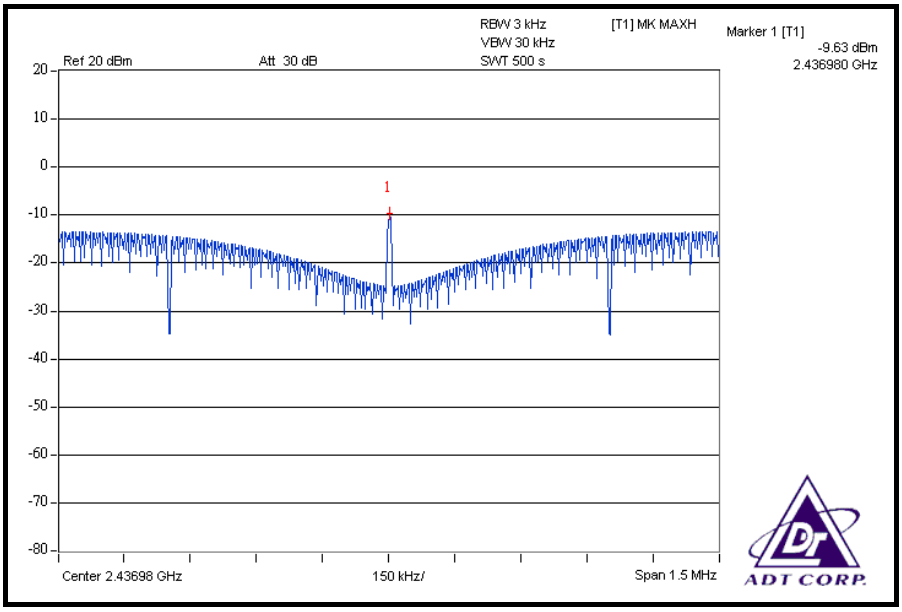
MODULATION TYPE	DBPSK	TRANSFER RATE	1.0Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25 deg.C, 63 %RH, 991hPa
TESTED BY	Dean Wang		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	2412	-9.85	8	PASS
6	2437	-9.63	8	PASS
11	2462	-9.90	8	PASS

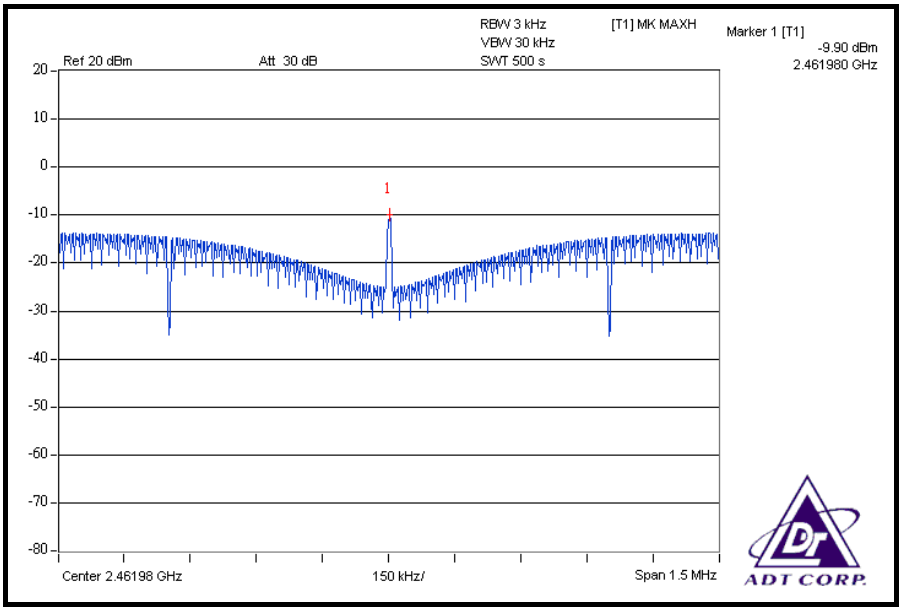
CH 1



CH 6


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-9.63 dBm
2.436980 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Center 2.43698 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

CH 11

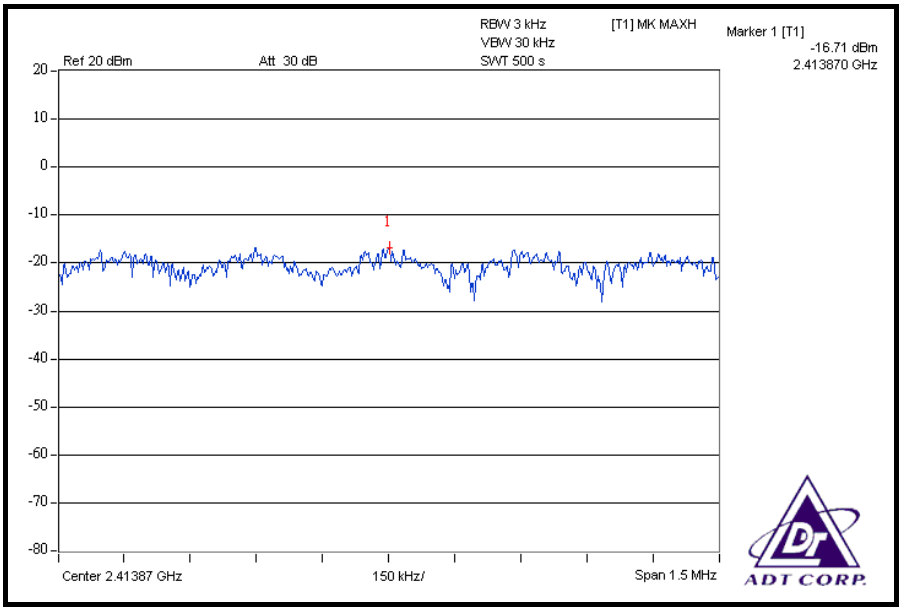

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-9.90 dBm
2.461980 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Center 2.46198 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

802.11g OFDM MODULATION

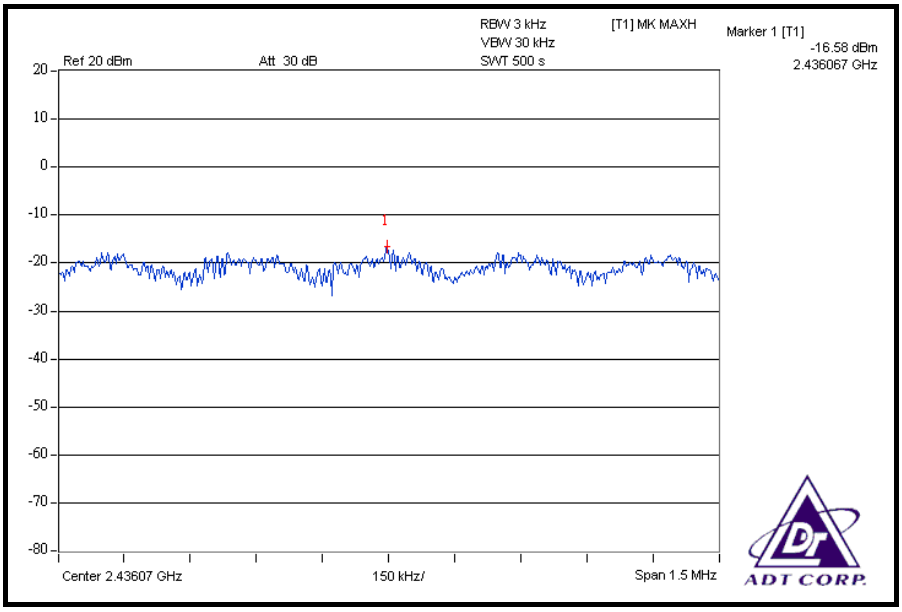
MODULATION TYPE	BPSK	TRANSFER RATE	6.0Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25 deg.C, 63 %RH, 991hPa
TESTED BY	Dean Wang		

CHAN.	CHAN. FREQ. (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2412	-16.71	-10.84	0.104	-9.84	8	PASS
6	2437	-16.58	-10.76	0.106	-9.75	8	PASS
11	2462	-16.53	-10.82	0.105	-9.79	8	PASS

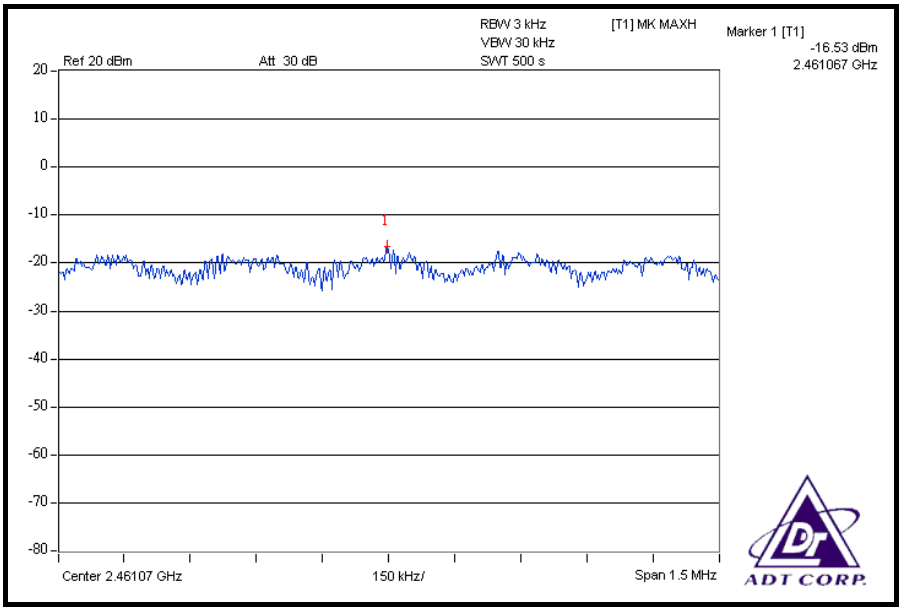
FOR CHAIN 0: CH 1



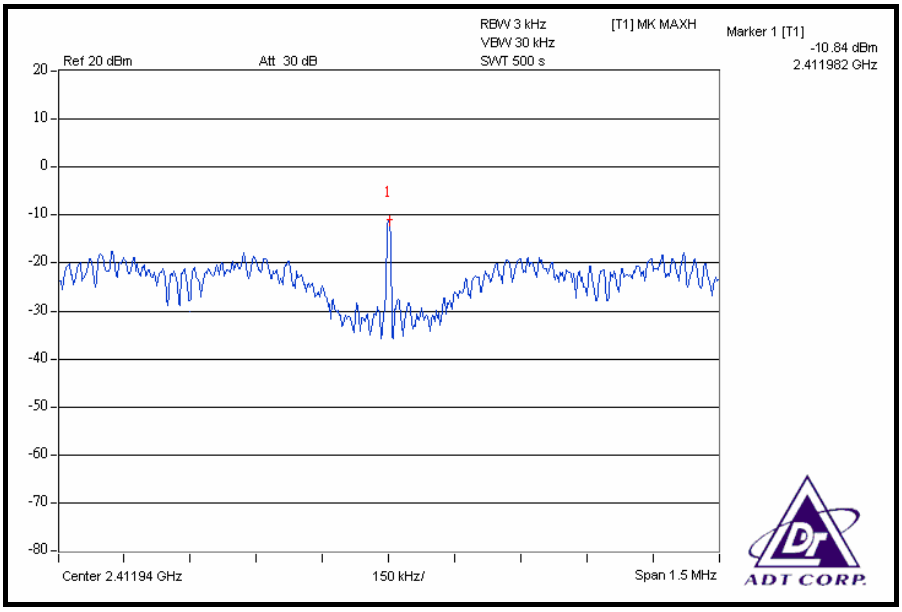
CH 6


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-16.58 dBm
2.436067 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.43607 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

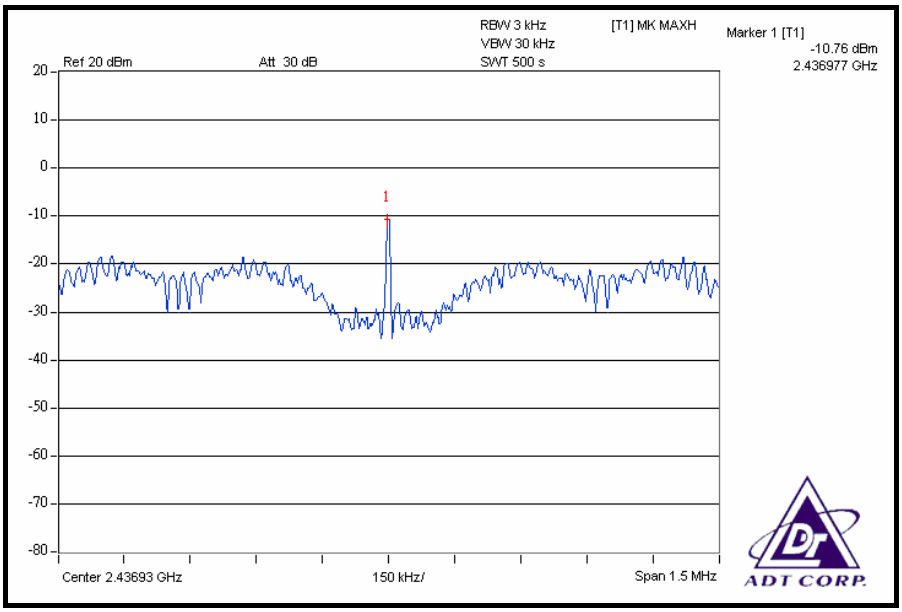
CH 11


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-16.53 dBm
2.461067 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.46107 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

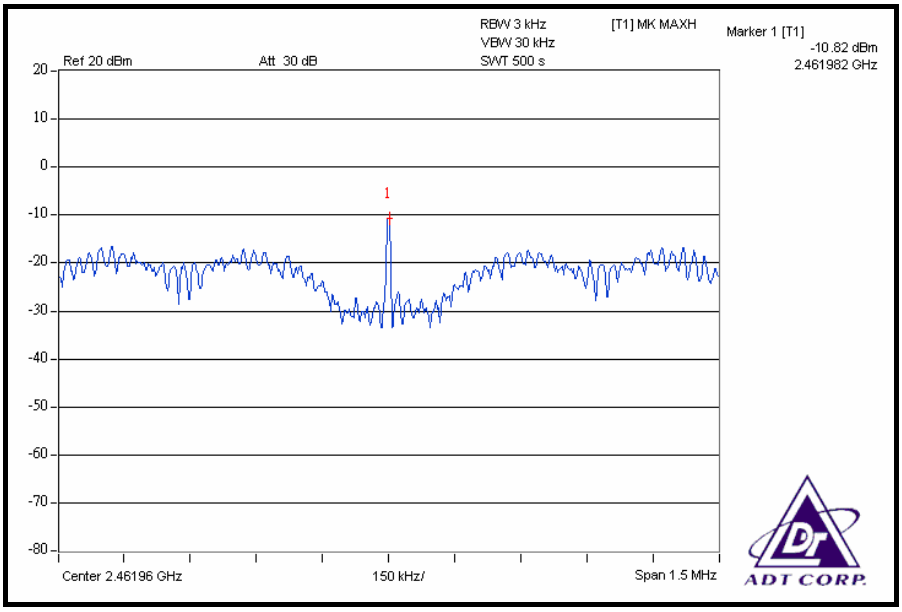
FOR CHAIN 1: CH 1



CH 6



CH 11

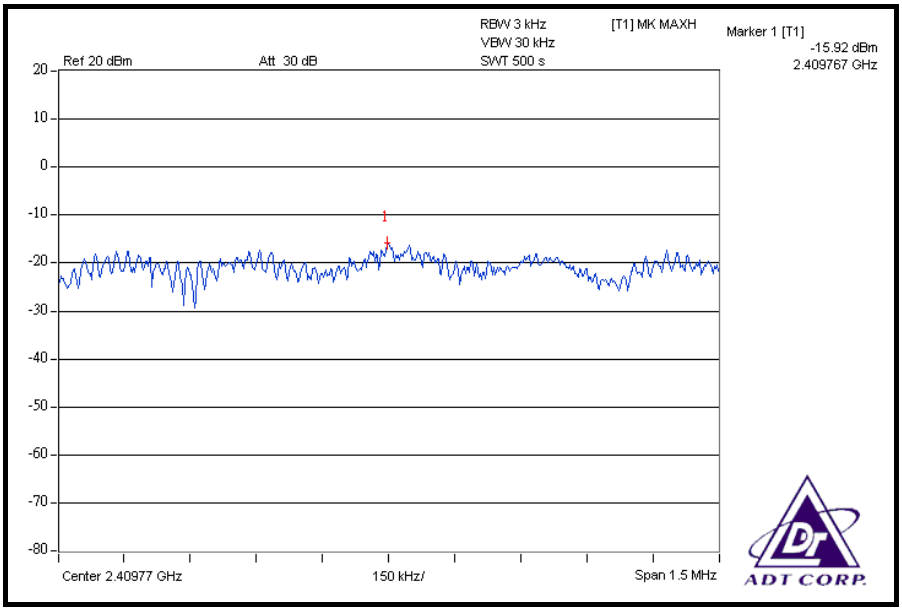

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-10.82 dBm
2.461982 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Center 2.46196 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

DRAFT 802.11n (20MHz) OFDM MODULATION

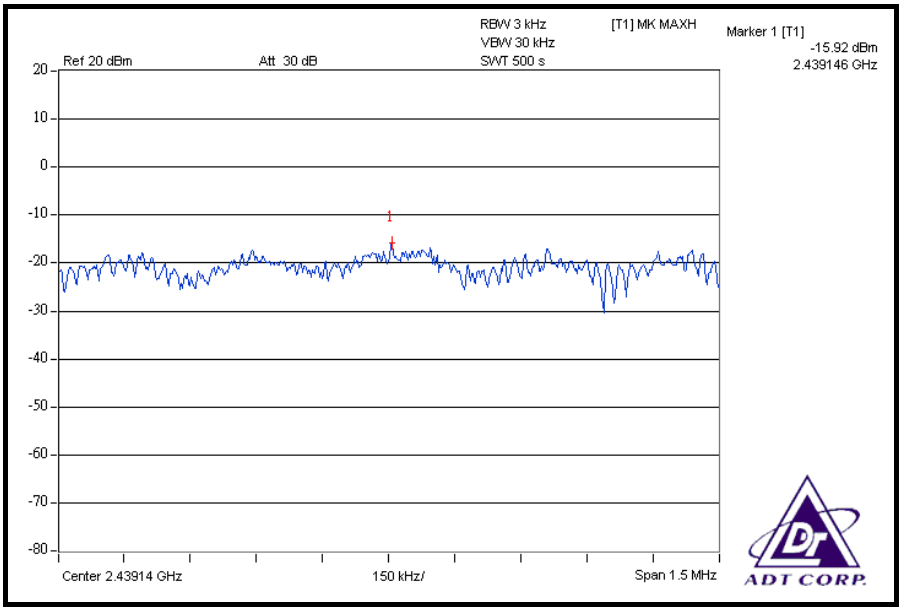
MODULATION TYPE	BPSK	**TRANSFER RATE**	7.2Mbps
INPUT POWER	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	25 deg.C, 63 %RH, 991hPa
TESTED BY	Dean Wang		

CHAN.	CHAN. FREQ. (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2412	-15.92	-11.14	0.102	-9.89	8	PASS
6	2437	-15.92	-10.99	0.105	-9.78	8	PASS
11	2462	-15.91	-11.18	0.102	-9.92	8	PASS

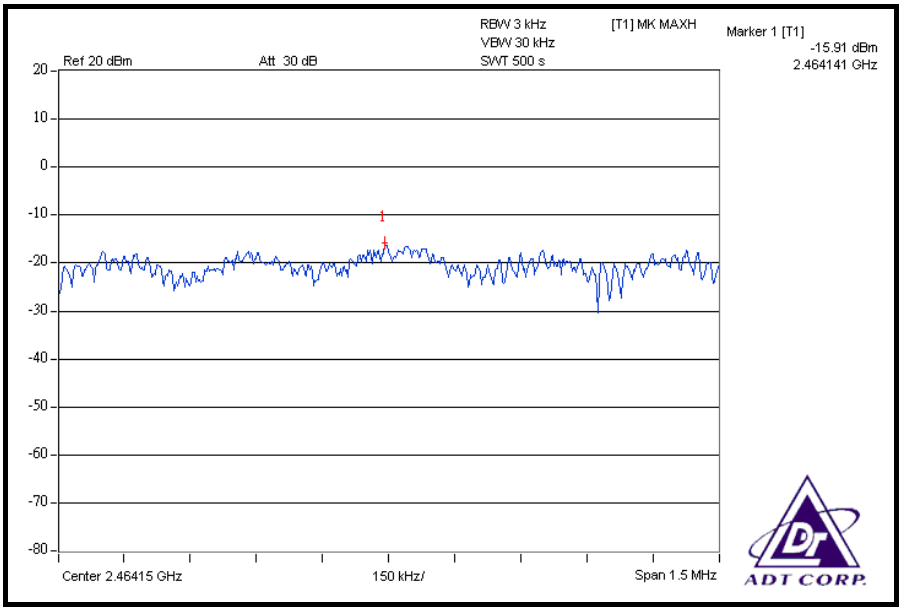
FOR CHAIN 0: CH 1



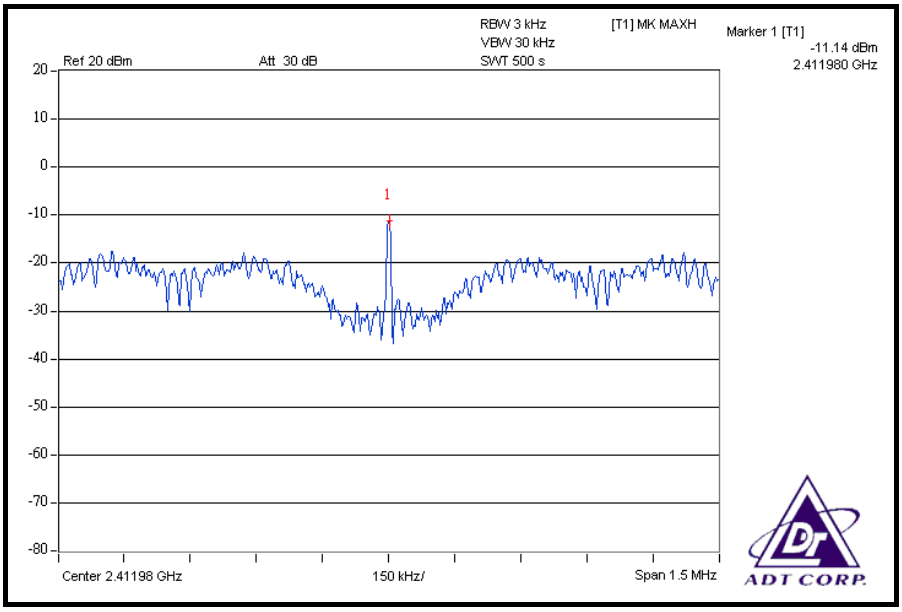
CH 6


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-15.92 dBm
2.439146 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.43914 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

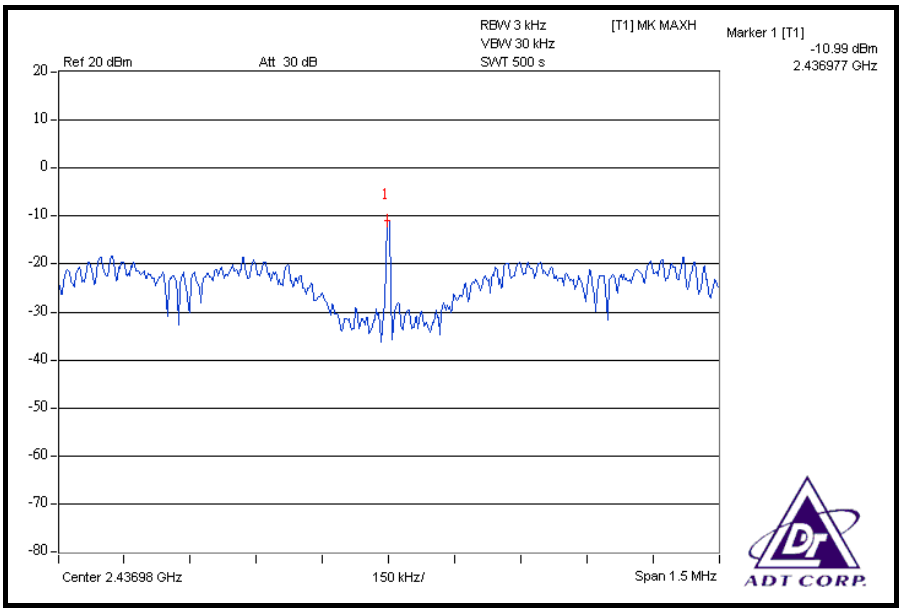
CH 11


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-15.91 dBm
2.464141 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.46415 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

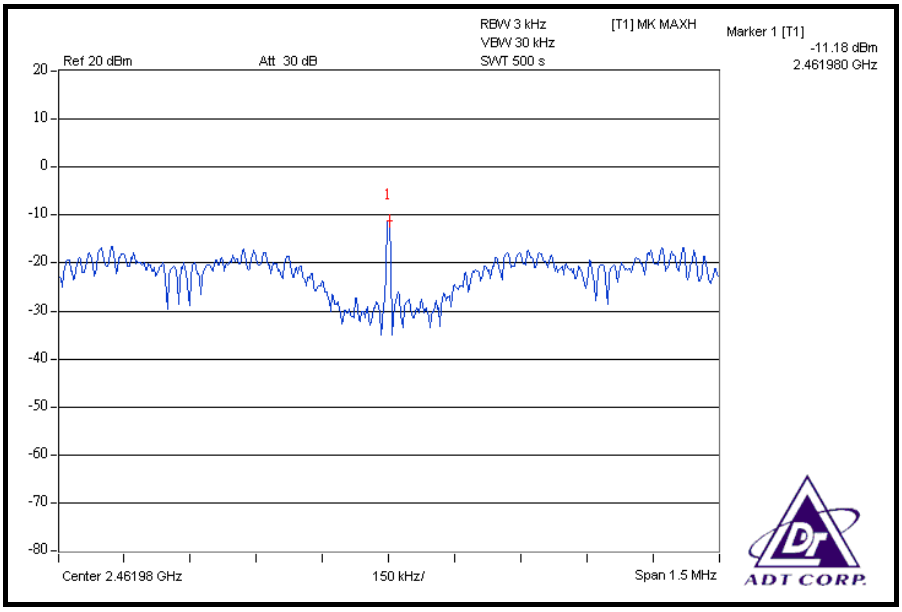
FOR CHAIN 1: CH 1



CH 6



CH 11

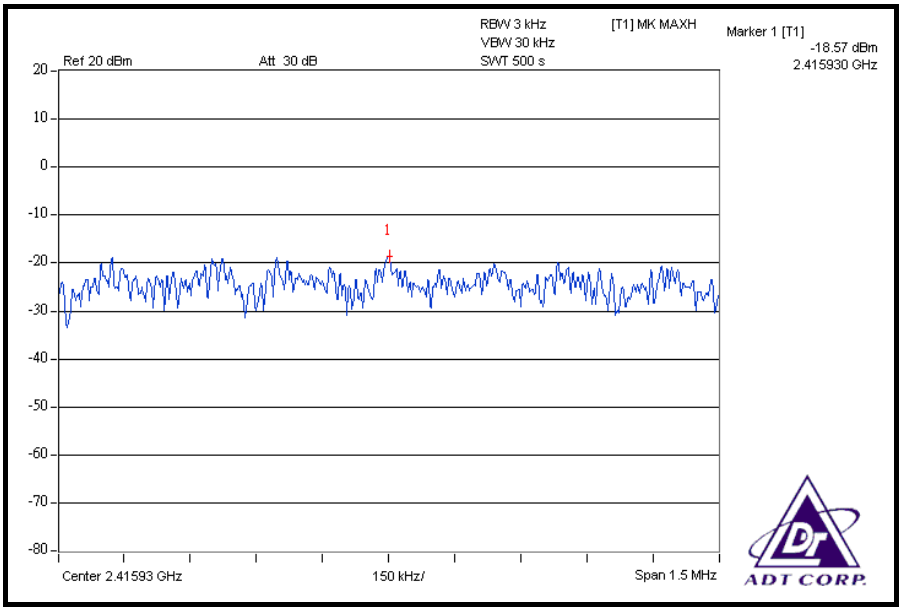

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-11.18 dBm
2.461980 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Center 2.46198 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

DRAFT 802.11n (40MHz) OFDM MODULATION

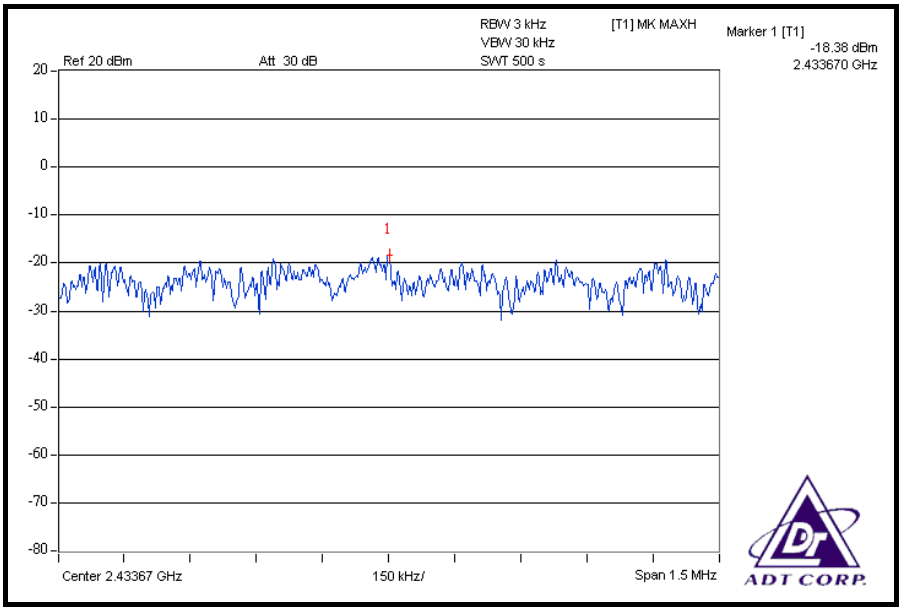
MODULATION TYPE	BPSK	**TRANSFER RATE**	15.0Mbps
INPUT POWER	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	25 deg.C, 63 %RH, 991hPa
TESTED BY	Dean Wang		

CHAN.	CHAN. FREQ. (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2422	-18.57	-10.98	0.094	-10.28	8	PASS
4	2437	-18.38	-10.78	0.098	-10.08	8	PASS
7	2452	-18.77	-11.12	0.091	-10.43	8	PASS

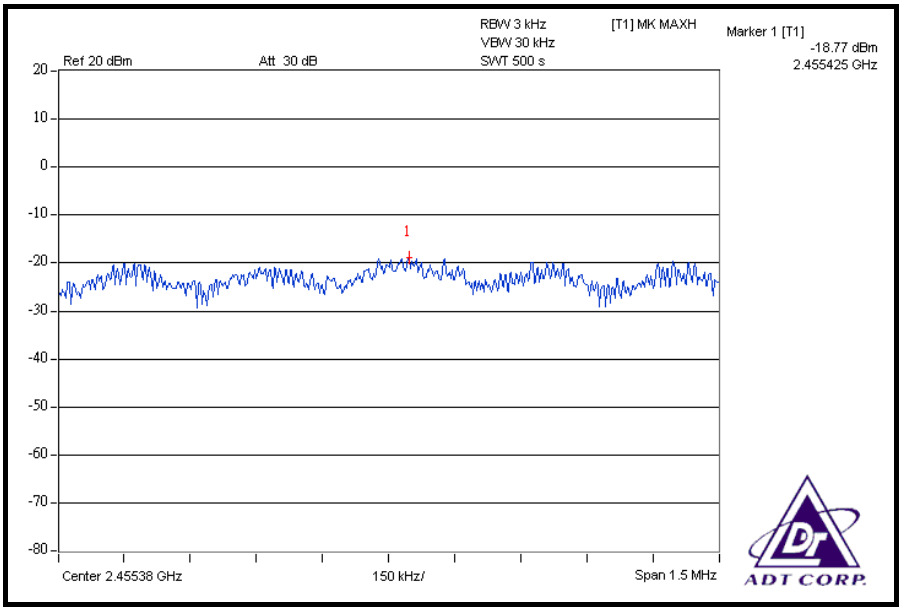
FOR CHAIN 0: CH 1



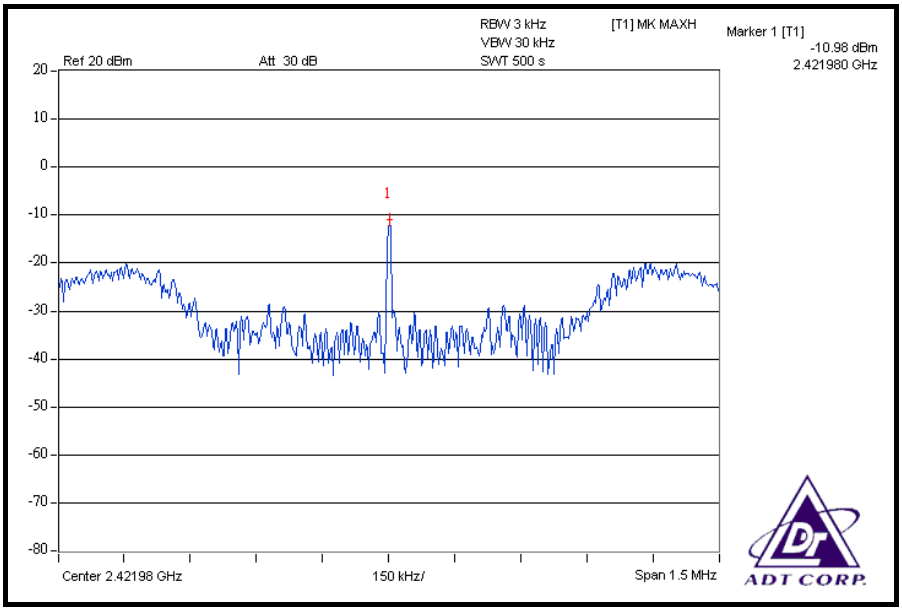
CH 4


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-18.38 dBm
2.433670 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Center 2.43367 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

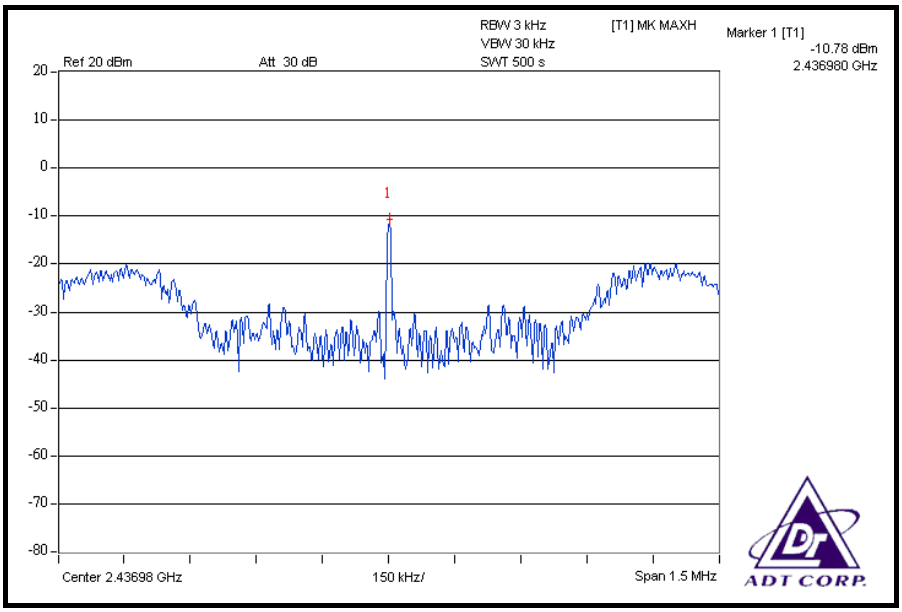
CH 7


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-18.77 dBm
2.455425 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Center 2.45538 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

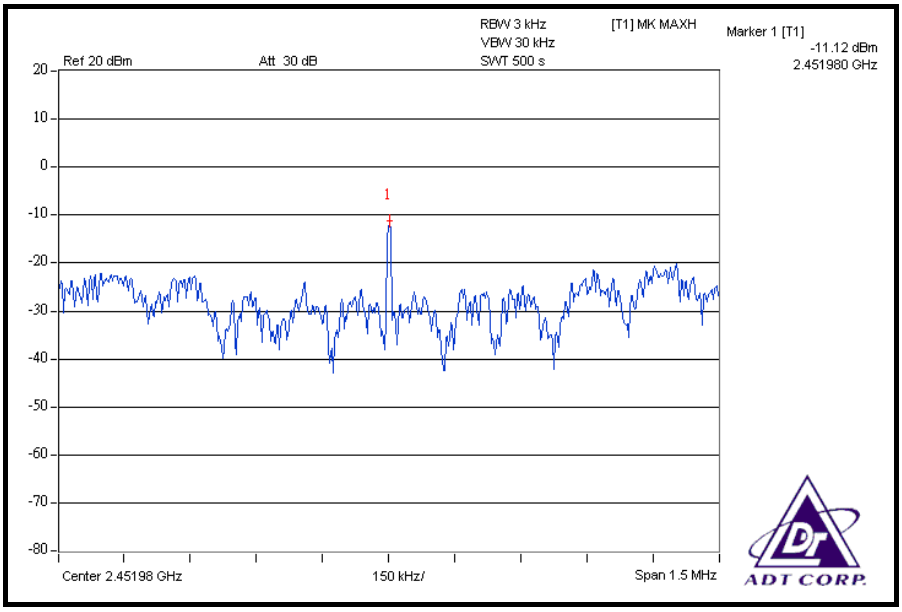
FOR CHAIN 1: CH 1



CH 4



CH 7


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-11.12 dBm
2.451980 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Center 2.45198 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.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
FOR CONDUCTED MEASUREMENT				
R&S SPECTRUM ANALYZER	FSP40	100041	Apr. 22, 2008	Apr. 21, 2009
FOR RADIATED MEASUREMENT				
Test Receiver ROHDE & SCHWARZ	ESI7	838496/016	Dec. 26, 2007	Dec. 25, 2008
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Dec. 03, 2007	Dec. 02, 2008
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Apr. 30, 2008	Apr. 29, 2009
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-408	Jan. 22, 2008	Jan. 21, 2009
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170242	Jan. 07, 2008	Jan. 06, 2009
Preamplifier Agilent	8449B	3008A01960	Oct. 31, 2007	Oct. 30, 2008
Preamplifier Agilent	8447D	2944A10631	Nov. 01, 2007	Oct. 31, 2008
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	274397/4	Nov. 08, 2007	Nov. 07, 2008
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	283401/4	Nov. 08, 2007	Nov. 07, 2008
Software ADT.	ADT_Radiated_V7.6	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA	NA
Antenna Tower Controller inn-co GmbH	CO2000	019303	NA	NA
Turn Table ADT.	TT100.	TT93021704	NA	NA
Turn Table Controller ADT.	SC100.	SC93021704	NA	NA

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

4.6.3 TEST PROCEDURE

FOR CONDUCTED MEASUREMENT:

The transmitter output was connected to the spectrum analyzer via a low lose cable. Set both RBW and VBW of spectrum analyzer to 100kHz and 300kHz 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) are attached on the following pages.

FOR RADIATED MEASUREMENT:

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 and 300kHz 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) are attached on the following pages.

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

4.6.4 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 pages. 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

Antenna Type: PCB antenna

NOTE 1: The band edge emission plot on the next second page shows 50.58dBc between carrier maximum power and local maximum emission in restrict band (2.36000GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 110.58dBuV/m (Peak), so the maximum field strength in restrict band is 110.58 – 50.58 = 60.00dBuV/m which is under 74dBuV/m limit.

The band edge emission plot of on the next second page shows 55.51dBc between carrier maximum power and local maximum emission in restrict band (2.38680GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 105.90dBuV/m (Average), so the maximum field strength in restrict band is 105.90 – 55.51 = 50.39dBuV/m which is under 54dBuV/m limit.

NOTE 2: The band edge emission plot on the next third page shows 51.07dBc 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 11 at the item 4.2.7 is 110.15dBuV/m (Peak), so the maximum field strength in restrict band is 110.15 – 51.07 = 59.08dBuV/m which is under 74dBuV/m limit.

The band edge emission plot on the next forth page shows 56.10dBc between carrier maximum power and local maximum emission in restrict band (2.48780GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 105.49dBuV/m (Average), so the maximum field strength in restrict band is 105.49 – 56.10 = 49.39dBuV/m which is under 54dBuV/m limit.

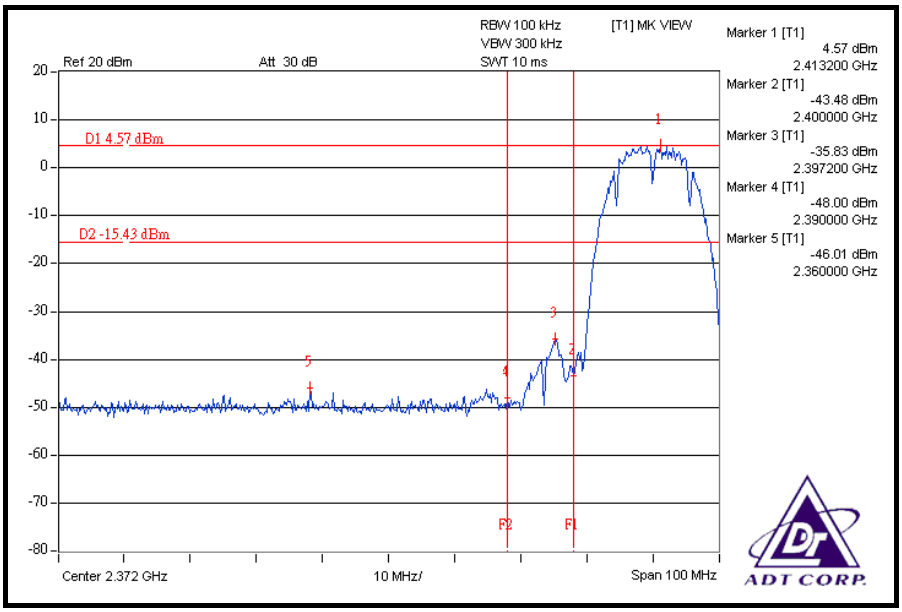
Antenna Type: PIFA antenna

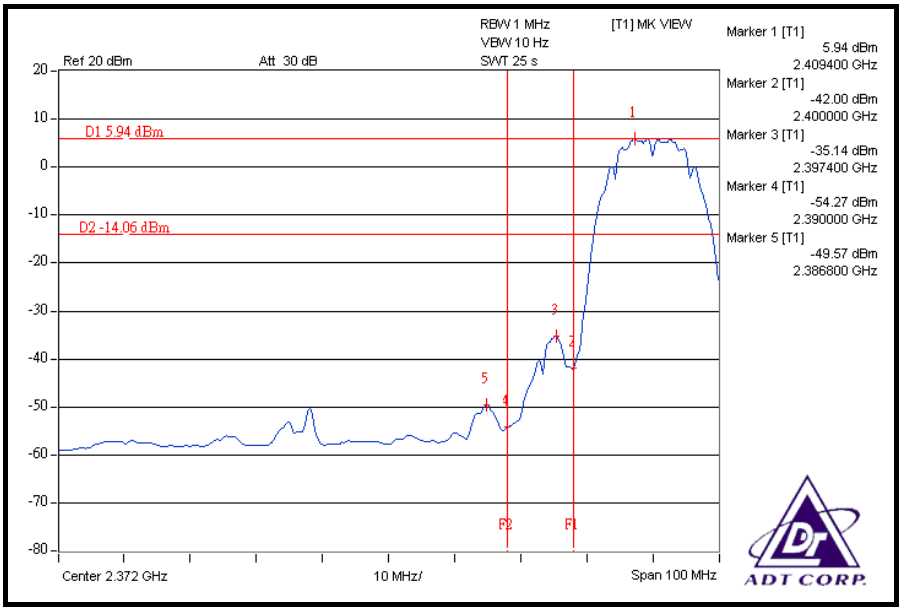
NOTE 1: The band edge emission plot on the next page shows 50.58dBc between carrier maximum power and local maximum emission in restrict band (2.36000GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 109.38dBuV/m (Peak), so the maximum field strength in restrict band is 109.38 – 50.58 = 58.80dBuV/m which is under 74dBuV/m limit.

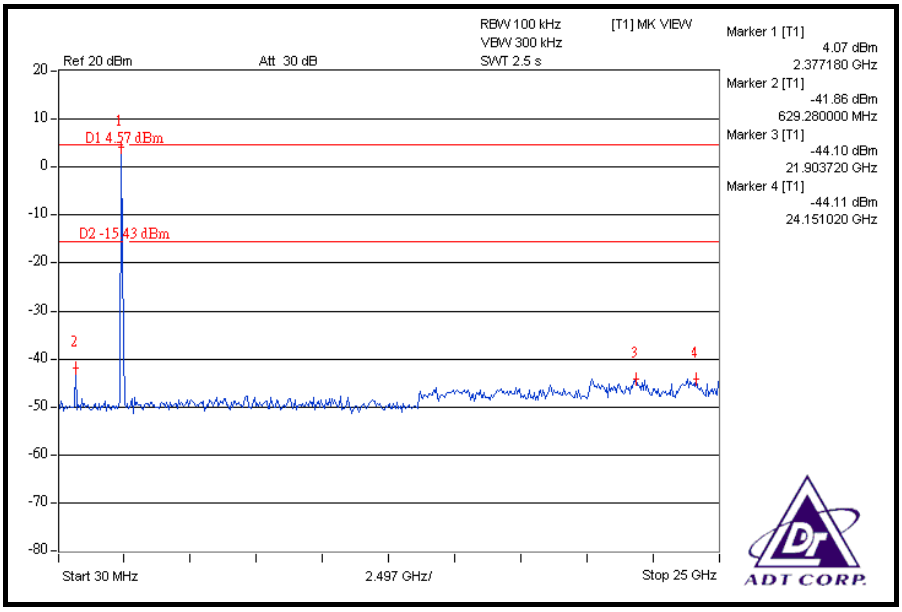
The band edge emission plot of on the next page shows 55.51dBc between carrier maximum power and local maximum emission in restrict band (2.38680GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 104.69dBuV/m (Average), so the maximum field strength in restrict band is 104.69 – 55.51 = 49.18dBuV/m which is under 54dBuV/m limit.

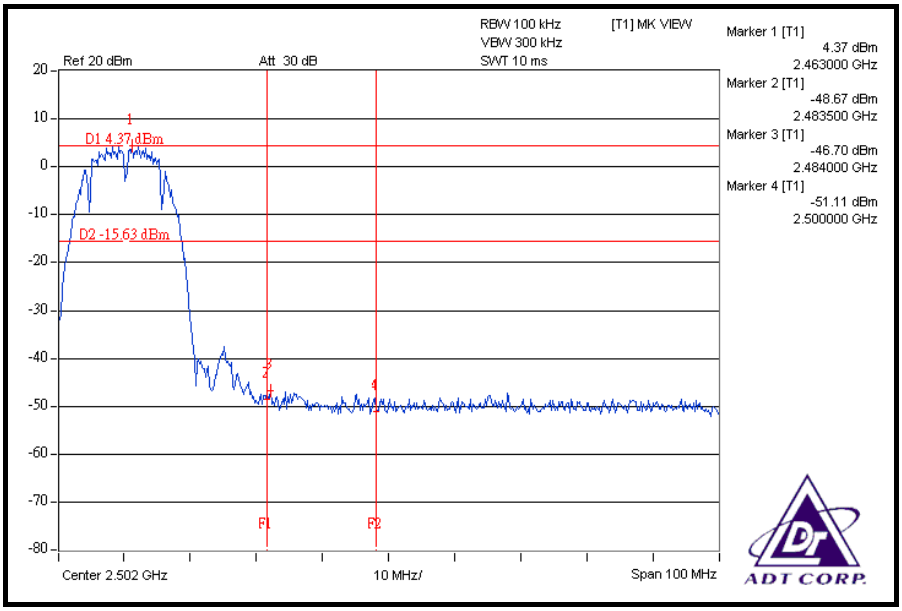
NOTE 2: The band edge emission plot on the next second page shows 51.07dBc between carrier maximum power and local maximum emission in restrict band (2.48400GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 106.95dBuV/m (Peak), so the maximum field strength in restrict band is 106.95 – 51.07 = 55.88dBuV/m which is under 74dBuV/m limit.

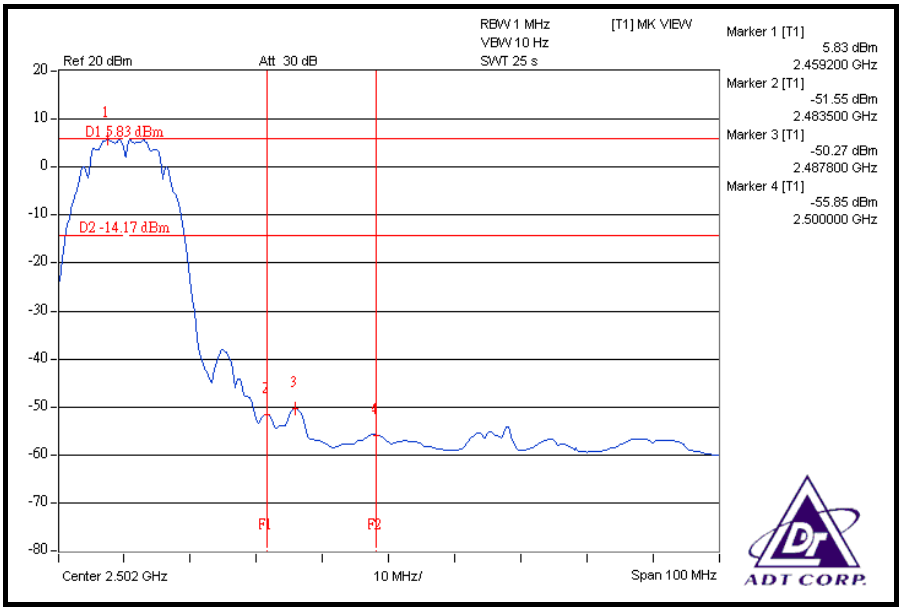
The band edge emission plot on the next third page shows 56.10dBc between carrier maximum power and local maximum emission in restrict band (2.48780GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 102.26dBuV/m (Average), so the maximum field strength in restrict band is 102.26 – 56.10 = 46.16dBuV/m which is under 54dBuV/m limit.

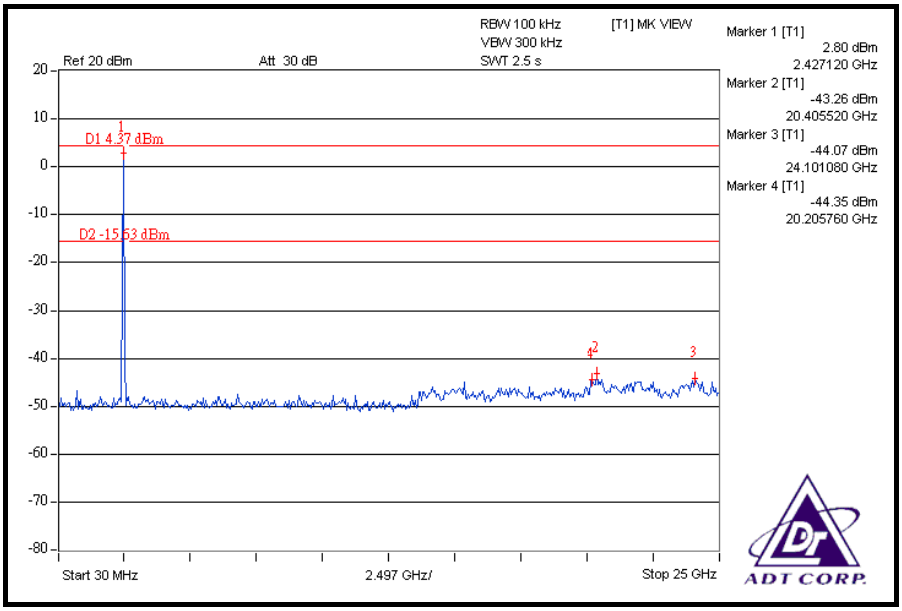

RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 4.57 dBm
D2 -15.43 dBm
Marker 1 [T1]
4.57 dBm
2.413200 GHz
Marker 2 [T1]
-43.48 dBm
2.400000 GHz
Marker 3 [T1]
-35.83 dBm
2.397200 GHz
Marker 4 [T1]
-48.00 dBm
2.390000 GHz
Marker 5 [T1]
-46.01 dBm
2.360000 GHz
Center 2.372 GHz
10 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 5.94 dBm
D2 -14.06 dBm
Marker 1 [T1]
5.94 dBm
2.409400 GHz
Marker 2 [T1]
-42.00 dBm
2.400000 GHz
Marker 3 [T1]
-35.14 dBm
2.397400 GHz
Marker 4 [T1]
-54.27 dBm
2.390000 GHz
Marker 5 [T1]
-49.57 dBm
2.386800 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 4.57 dBm
D2 -15.43 dBm
Marker 1 [T1]
4.07 dBm
2.377180 GHz
Marker 2 [T1]
-41.86 dBm
629.280000 MHz
Marker 3 [T1]
-44.10 dBm
21.903720 GHz
Marker 4 [T1]
-44.11 dBm
24.151020 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 20 dBm
Att 30 dB
D1 4.37 dBm
D2 -15.63 dBm
Marker 1 [T1]
4.37 dBm
2.463000 GHz
Marker 2 [T1]
-48.67 dBm
2.483500 GHz
Marker 3 [T1]
-46.70 dBm
2.484000 GHz
Marker 4 [T1]
-51.11 dBm
2.500000 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 20 dBm
Att 30 dB
D1 5.83 dBm
D2 -14.17 dBm
Marker 1 [T1]
5.83 dBm
2.459200 GHz
Marker 2 [T1]
-51.55 dBm
2.483500 GHz
Marker 3 [T1]
-50.27 dBm
2.487800 GHz
Marker 4 [T1]
-55.85 dBm
2.500000 GHz
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
D1 4.37 dBm
D2 -15.63 dBm
Marker 1 [T1]
2.80 dBm
2.427120 GHz
Marker 2 [T1]
-43.26 dBm
20.405520 GHz
Marker 3 [T1]
-44.07 dBm
24.101080 GHz
Marker 4 [T1]
-44.35 dBm
20.205760 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz
ADT CORP.

802.11g OFDM MODULATION

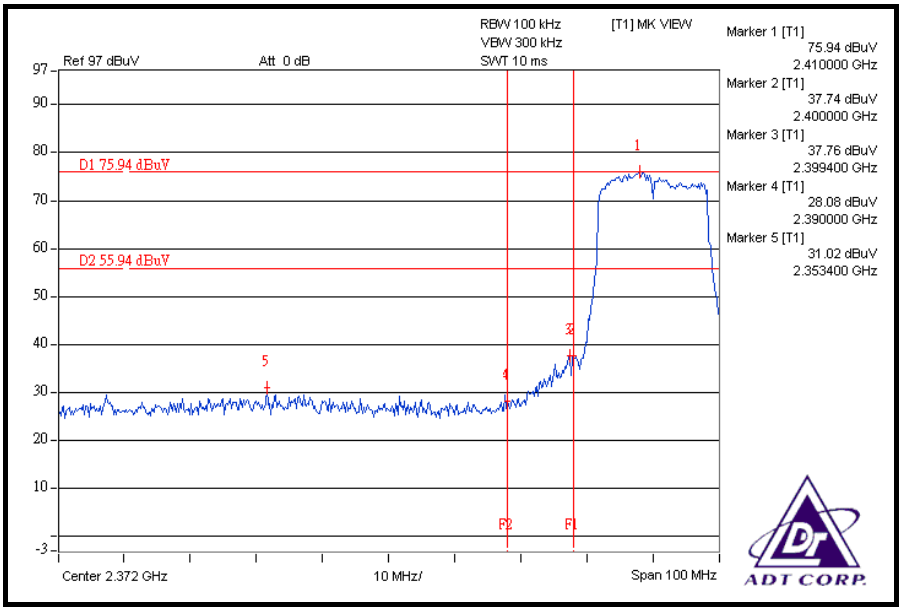
Antenna Type: PCB & PIFA antenna

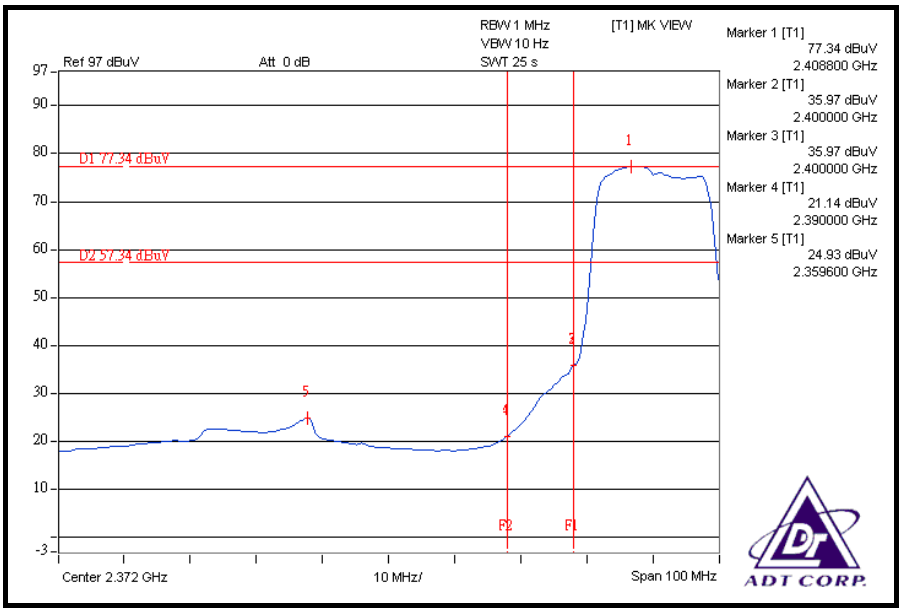
NOTE 1: The band edge emission plot on the next page shows 44.92dBc between carrier maximum power and local maximum emission in restrict band (2.35340GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 109.79dBuV/m (Peak), so the maximum field strength in restrict band is 109.79 – 44.92 = 64.87dBuV/m which is under 74dBuV/m limit.

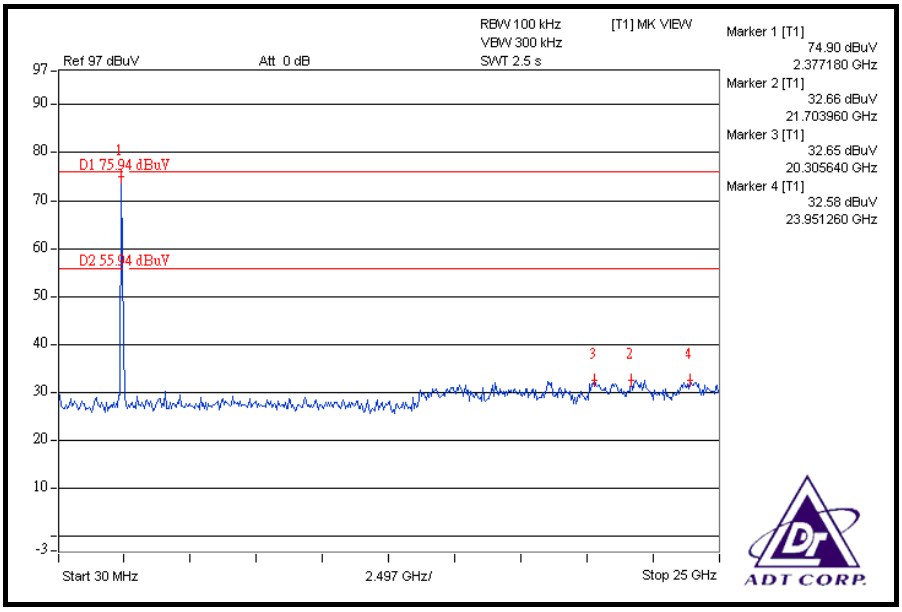
The band edge emission plot of on the next page shows 52.41dBc between carrier maximum power and local maximum emission in restrict band (2.35960GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 99.32dBuV/m (Average), so the maximum field strength in restrict band is 99.32 – 52.41 = 46.91dBuV/m which is under 54dBuV/m limit.

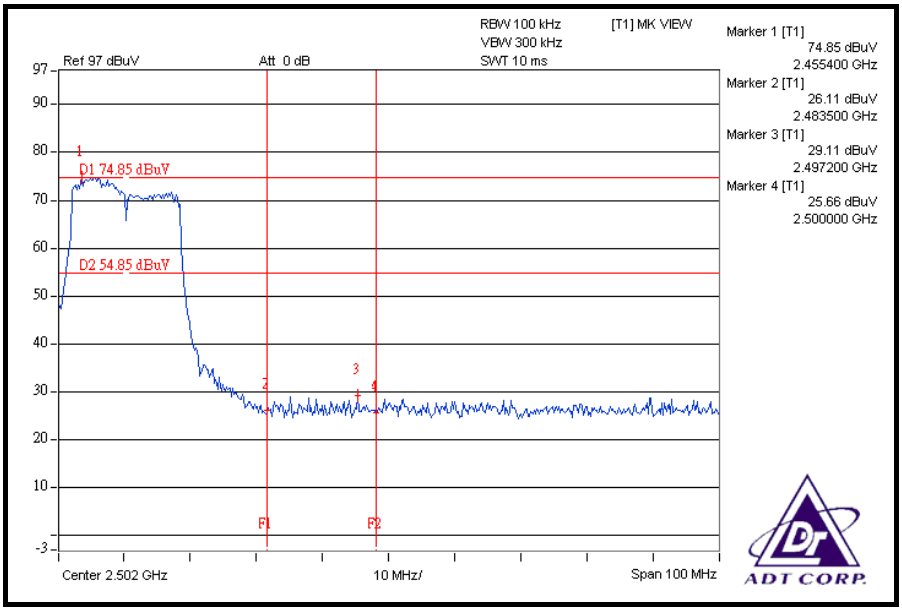
NOTE 2: The band edge emission plot on the next second page shows 45.74dBc between carrier maximum power and local maximum emission in restrict band (2.49720GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 108.85dBuV/m (Peak), so the maximum field strength in restrict band is 108.85 – 45.74 = 63.11dBuV/m which is under 74dBuV/m limit.

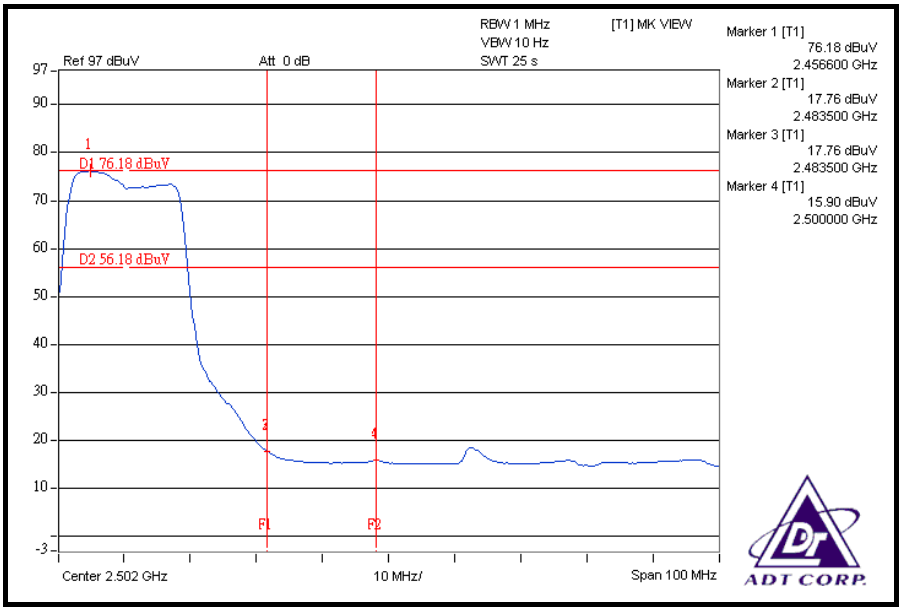
The band edge emission plot on the next third page shows 58.42dBc between carrier maximum power and local maximum emission in restrict band (2.48350GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 98.32dBuV/m (Average), so the maximum field strength in restrict band is 98.32 – 58.42 = 39.90dBuV/m which is under 54dBuV/m limit.

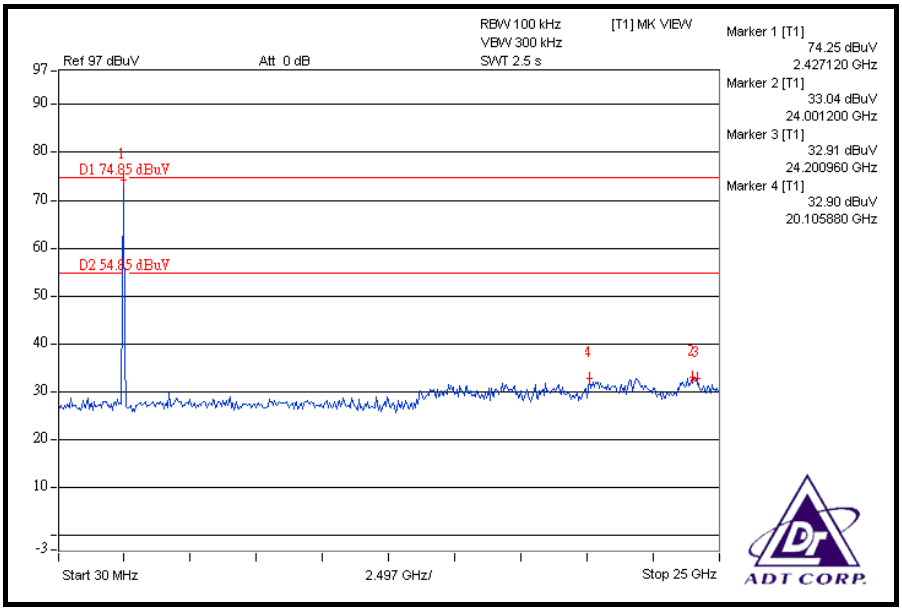

RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
D1 75.94 dBuV
D2 55.94 dBuV
Marker 1 [T1]
75.94 dBuV
2.410000 GHz
Marker 2 [T1]
37.74 dBuV
2.400000 GHz
Marker 3 [T1]
37.76 dBuV
2.399400 GHz
Marker 4 [T1]
28.08 dBuV
2.390000 GHz
Marker 5 [T1]
31.02 dBuV
2.353400 GHz
Center 2.372 GHz
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 77.34 dBuV
D2 57.34 dBuV
Marker 1 [T1]
77.34 dBuV
2.408800 GHz
Marker 2 [T1]
35.97 dBuV
2.400000 GHz
Marker 3 [T1]
35.97 dBuV
2.400000 GHz
Marker 4 [T1]
21.14 dBuV
2.390000 GHz
Marker 5 [T1]
24.93 dBuV
2.359600 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 75.94 dBuV
D2 55.94 dBuV
Marker 1 [T1]
74.90 dBuV
2.377180 GHz
Marker 2 [T1]
32.66 dBuV
21.703960 GHz
Marker 3 [T1]
32.65 dBuV
20.305640 GHz
Marker 4 [T1]
32.58 dBuV
23.951260 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 74.85 dBuV
D2 54.85 dBuV
Marker 1 [T1]
74.85 dBuV
2.455400 GHz
Marker 2 [T1]
26.11 dBuV
2.483500 GHz
Marker 3 [T1]
29.11 dBuV
2.497200 GHz
Marker 4 [T1]
25.66 dBuV
2.500000 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
Marker 1 [T1]
76.18 dBuV
2.456600 GHz
Marker 2 [T1]
17.76 dBuV
2.483500 GHz
Marker 3 [T1]
17.76 dBuV
2.483500 GHz
Marker 4 [T1]
15.90 dBuV
2.500000 GHz
D1 76.18 dBuV
D2 56.18 dBuV
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 97 dBuV
Att 0 dB
Marker 1 [T1]
74.25 dBuV
2.427120 GHz
Marker 2 [T1]
33.04 dBuV
24.001200 GHz
Marker 3 [T1]
32.91 dBuV
24.200960 GHz
Marker 4 [T1]
32.90 dBuV
20.105880 GHz
D1 74.85 dBuV
D2 54.85 dBuV
Start 30 MHz
2.497 GHz/
Stop 25 GHz
ADT CORP.

DRAFT 802.11n (20MHz) OFDM MODULATION

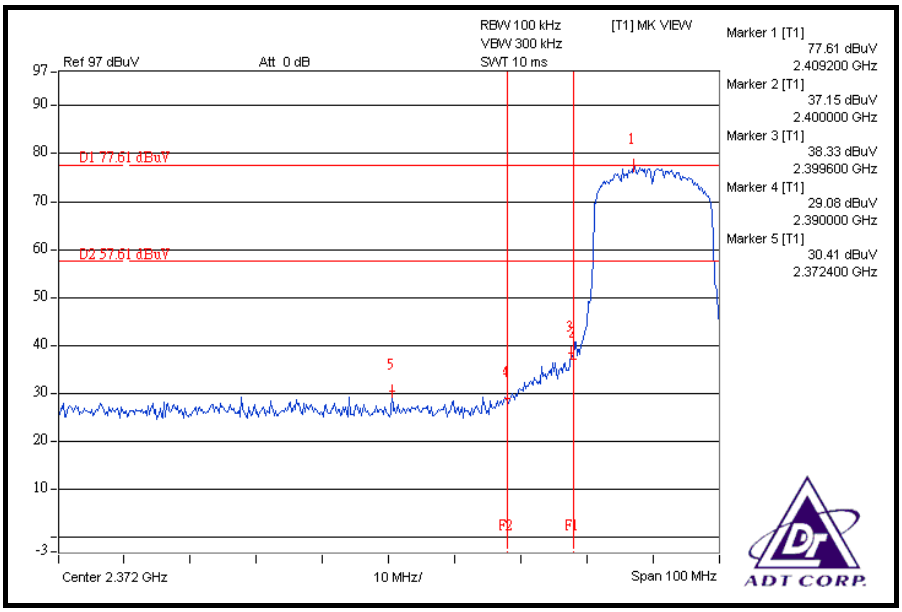
Antenna Type: PCB & PIFA antenna

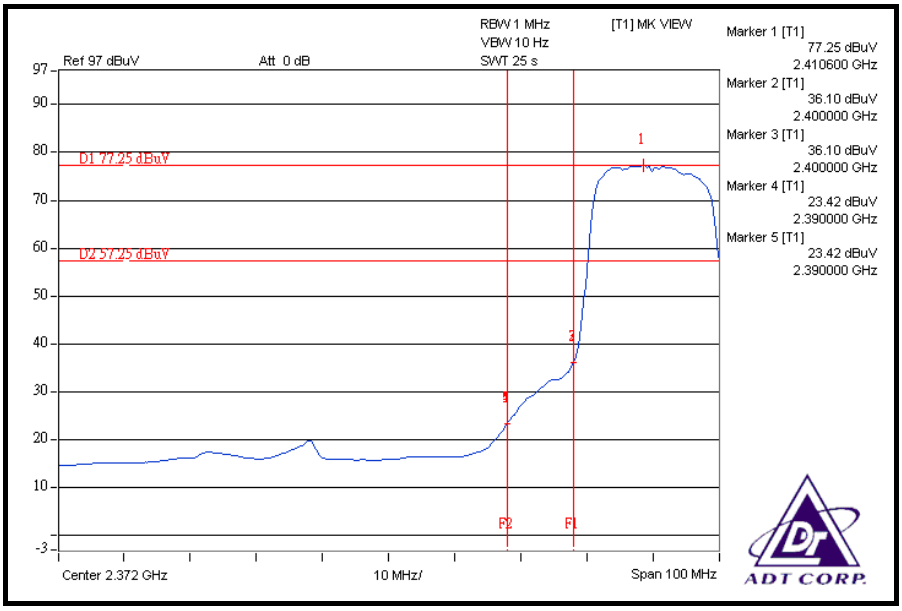
NOTE 1: The band edge emission plot on the next page shows 47.20dBc between carrier maximum power and local maximum emission in restrict band (2.37240GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 109.97dBuV/m (Peak), so the maximum field strength in restrict band is 109.97 – 47.20 = 62.77dBuV/m which is under 74dBuV/m limit.

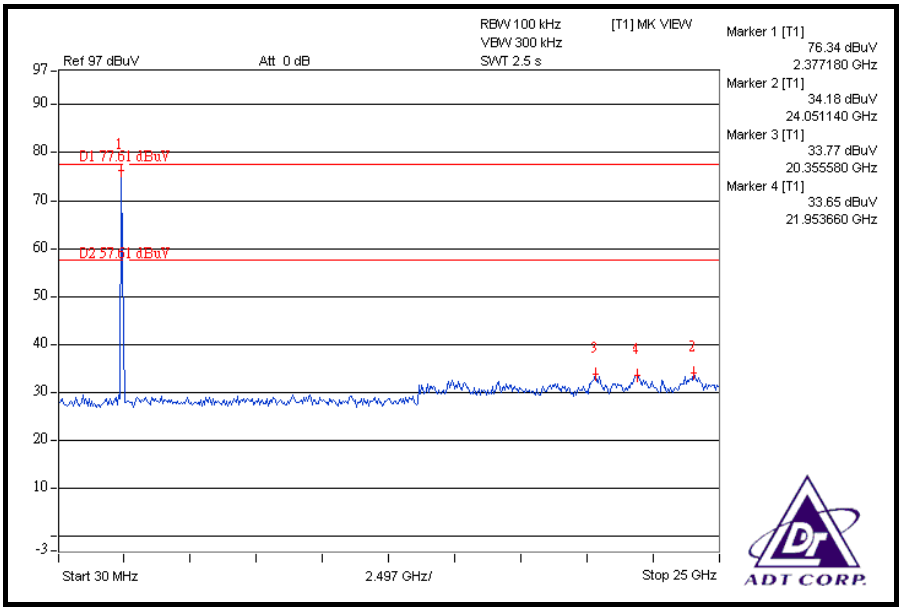
The band edge emission plot of on the next page shows 53.83dBc between carrier maximum power and local maximum emission in restrict band (2.39000GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 99.47dBuV/m (Average), so the maximum field strength in restrict band is 99.47 – 53.83 = 45.64dBuV/m which is under 54dBuV/m limit.

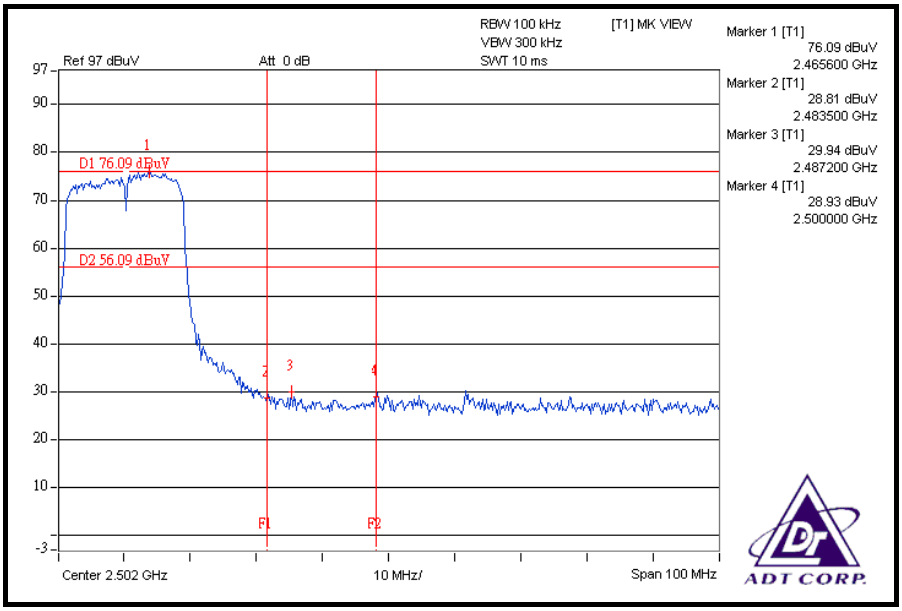
NOTE 2: The band edge emission plot on the next second page shows 46.15dBc between carrier maximum power and local maximum emission in restrict band (2.48720GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 108.51dBuV/m (Peak), so the maximum field strength in restrict band is 108.51 – 46.15 = 62.36dBuV/m which is under 74dBuV/m limit.

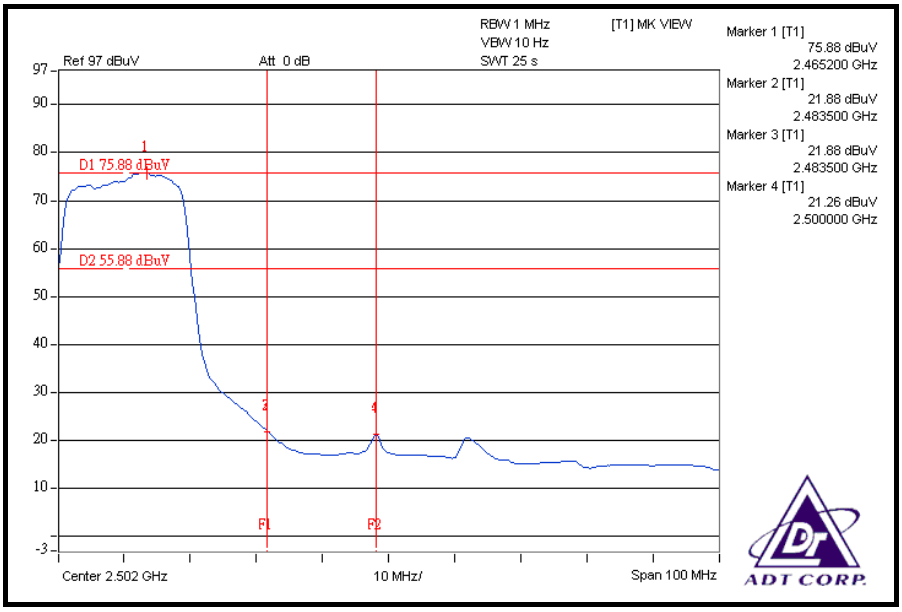
The band edge emission plot on the next third page shows 54.00dBc between carrier maximum power and local maximum emission in restrict band (2.48350GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 98.01dBuV/m (Average), so the maximum field strength in restrict band is 98.01 – 54.00 = 44.01dBuV/m which is under 54dBuV/m limit.

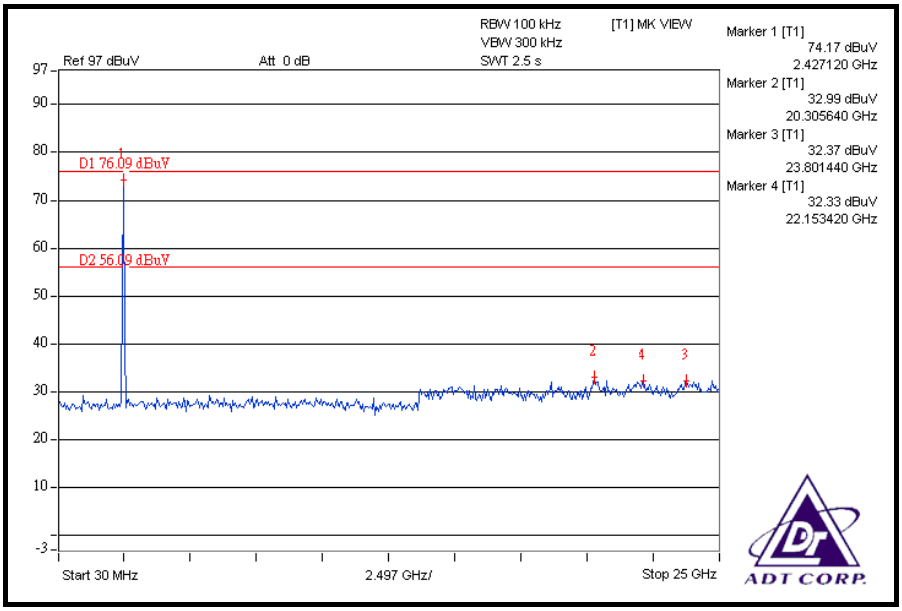

RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
D1 77.61 dBuV
D2 57.61 dBuV
Marker 1 [T1]
77.61 dBuV
2.409200 GHz
Marker 2 [T1]
37.15 dBuV
2.400000 GHz
Marker 3 [T1]
38.33 dBuV
2.399600 GHz
Marker 4 [T1]
29.08 dBuV
2.390000 GHz
Marker 5 [T1]
30.41 dBuV
2.372400 GHz
Center 2.372 GHz
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 77.25 dBuV
D2 57.25 dBuV
Marker 1 [T1]
77.25 dBuV
2.410600 GHz
Marker 2 [T1]
36.10 dBuV
2.400000 GHz
Marker 3 [T1]
36.10 dBuV
2.400000 GHz
Marker 4 [T1]
23.42 dBuV
2.390000 GHz
Marker 5 [T1]
23.42 dBuV
2.390000 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
Marker 1 [T1]
76.34 dBuV
2.377180 GHz
Marker 2 [T1]
34.18 dBuV
24.051140 GHz
Marker 3 [T1]
33.77 dBuV
20.355580 GHz
Marker 4 [T1]
33.65 dBuV
21.953660 GHz
D1 77.61 dBuV
D2 57.61 dBuV
97
90
80
70
60
50
40
30
20
10
-3
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
Marker 1 [T1]
76.09 dBuV
2.465600 GHz
Marker 2 [T1]
28.81 dBuV
2.483500 GHz
Marker 3 [T1]
29.94 dBuV
2.487200 GHz
Marker 4 [T1]
28.93 dBuV
2.500000 GHz
D1 76.09 dBuV
D2 56.09 dBuV
F1
F2
97
90
80
70
60
50
40
30
20
10
-3
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
Marker 1 [T1]
75.88 dBuV
2.465200 GHz
Marker 2 [T1]
21.88 dBuV
2.483500 GHz
Marker 3 [T1]
21.88 dBuV
2.483500 GHz
Marker 4 [T1]
21.26 dBuV
2.500000 GHz
D1 75.88 dBuV
D2 55.88 dBuV
97
90
80
70
60
50
40
30
20
10
-3
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 97 dBuV
Att 0 dB
Marker 1 [T1]
74.17 dBuV
2.427120 GHz
Marker 2 [T1]
32.99 dBuV
20.305640 GHz
Marker 3 [T1]
32.37 dBuV
23.801440 GHz
Marker 4 [T1]
32.33 dBuV
22.153420 GHz
D1 76.09 dBuV
D2 56.09 dBuV
97
90
80
70
60
50
40
30
20
10
-3
Start 30 MHz
2.497 GHz/
Stop 25 GHz
ADT CORP.

DRAFT 802.11n (40MHz) OFDM MODULATION

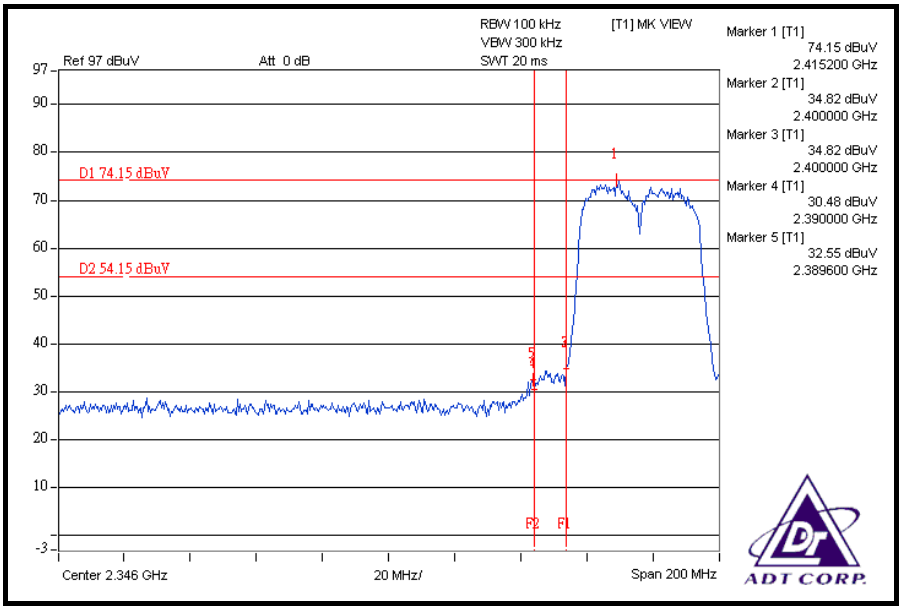
Antenna Type: PCB & PIFA antenna

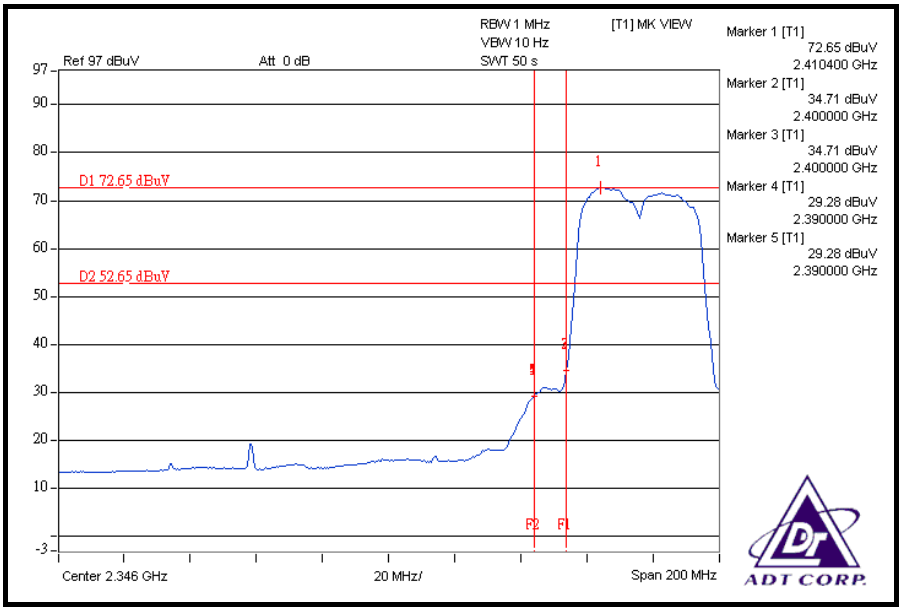
NOTE 1: The band edge emission plot on the next page shows 41.60dBc between carrier maximum power and local maximum emission in restrict band (2.38960GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 105.37dBuV/m (Peak), so the maximum field strength in restrict band is 105.37 – 41.60 = 63.77dBuV/m which is under 74dBuV/m limit.

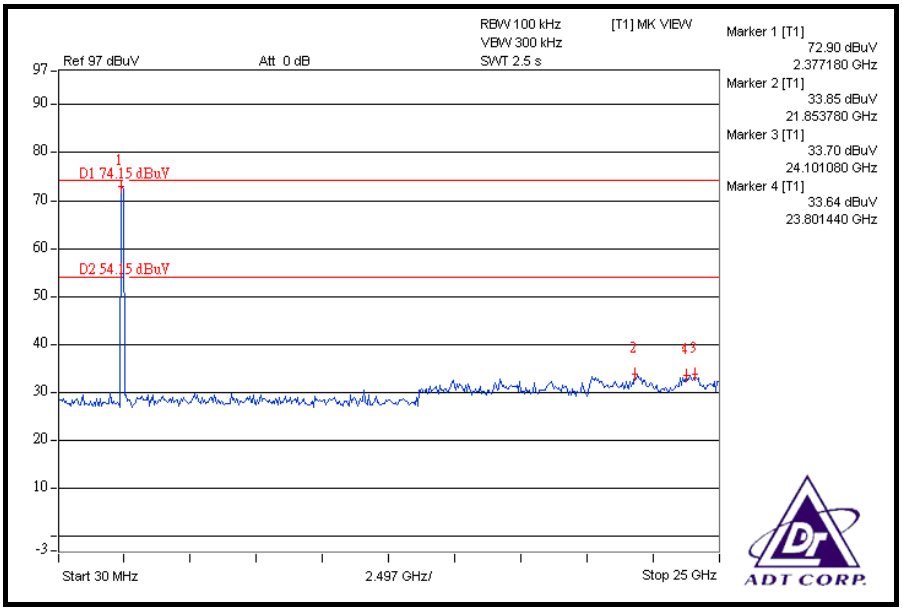
The band edge emission plot of on the next page shows 43.37dBc between carrier maximum power and local maximum emission in restrict band (2.39000GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 94.64dBuV/m (Average), so the maximum field strength in restrict band is 94.64 – 43.37 = 51.27dBuV/m which is under 54dBuV/m limit.

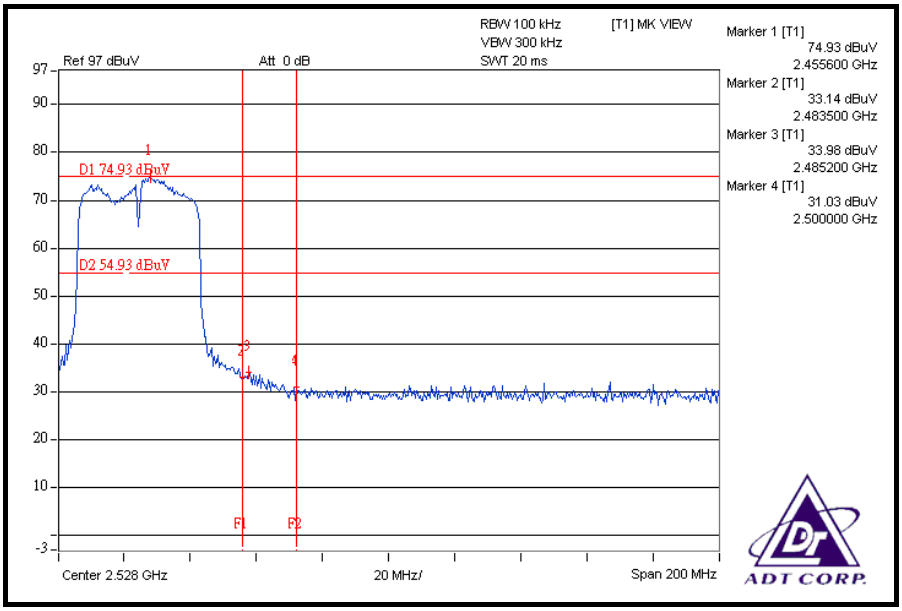
NOTE 2: The band edge emission plot on the next second page shows 40.95dBc between carrier maximum power and local maximum emission in restrict band (2.48520GHz). The emission of carrier strength list in the test result of channel 7 at the item 4.2.7 is 105.81dBuV/m (Peak), so the maximum field strength in restrict band is 105.81 – 40.95 = 64.86dBuV/m which is under 74dBuV/m limit.

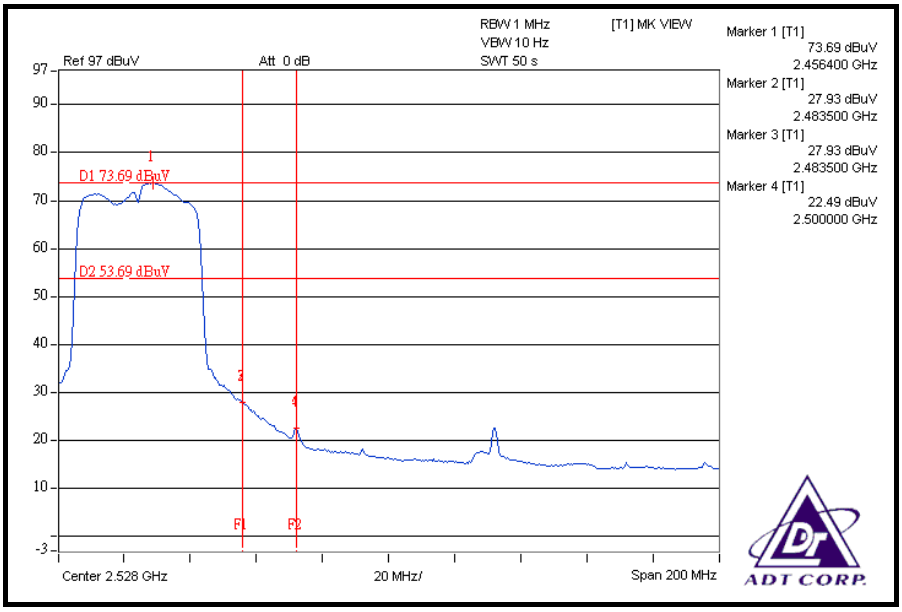
The band edge emission plot on the next third page shows 45.76dBc between carrier maximum power and local maximum emission in restrict band (2.48350GHz). The emission of carrier strength list in the test result of channel 7 at the item 4.2.7 is 95.84dBuV/m (Average), so the maximum field strength in restrict band is 95.84 – 45.76 = 50.08dBuV/m which is under 54dBuV/m limit.

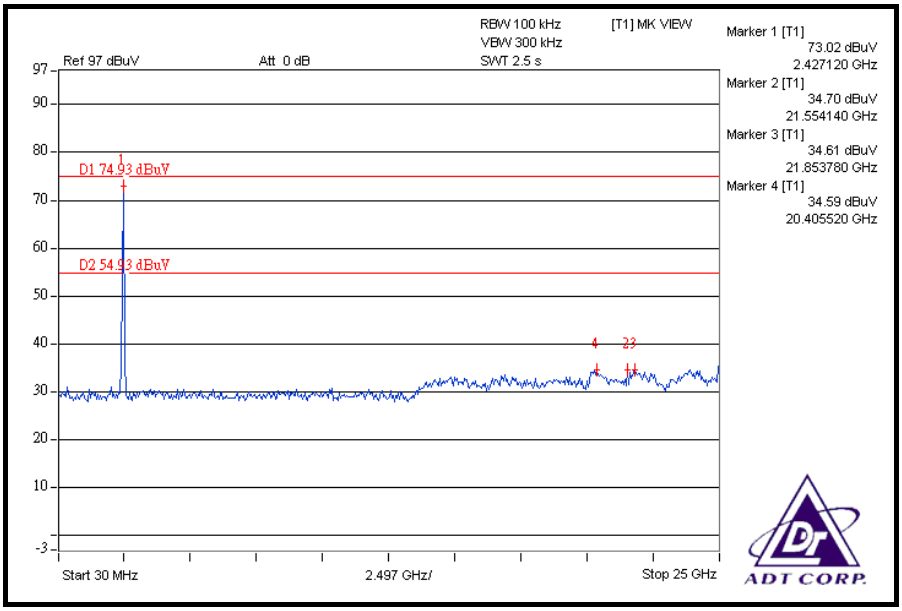

RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
D1 74.15 dBuV
D2 54.15 dBuV
Marker 1 [T1]
74.15 dBuV
2.415200 GHz
Marker 2 [T1]
34.82 dBuV
2.400000 GHz
Marker 3 [T1]
34.82 dBuV
2.400000 GHz
Marker 4 [T1]
30.48 dBuV
2.390000 GHz
Marker 5 [T1]
32.55 dBuV
2.389600 GHz
Center 2.346 GHz
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 72.65 dBuV
D2 52.65 dBuV
Marker 1 [T1]
72.65 dBuV
2.410400 GHz
Marker 2 [T1]
34.71 dBuV
2.400000 GHz
Marker 3 [T1]
34.71 dBuV
2.400000 GHz
Marker 4 [T1]
29.28 dBuV
2.390000 GHz
Marker 5 [T1]
29.28 dBuV
2.390000 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
Marker 1 [T1]
72.90 dBuV
2.377180 GHz
Marker 2 [T1]
33.85 dBuV
21.853780 GHz
Marker 3 [T1]
33.70 dBuV
24.101080 GHz
Marker 4 [T1]
33.64 dBuV
23.801440 GHz
D1 74.15 dBuV
D2 54.15 dBuV
Start 30 MHz
2.497 GHz/
Stop 25 GHz
ADT CORP.


RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
74.93 dBuV
2.455600 GHz
Marker 2 [T1]
33.14 dBuV
2.483500 GHz
Marker 3 [T1]
33.98 dBuV
2.485200 GHz
Marker 4 [T1]
31.03 dBuV
2.500000 GHz
D1 74.93 dBuV
D2 54.93 dBuV
F1
F2
Center 2.528 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 73.69 dBuV
D2 53.69 dBuV
Marker 1 [T1]
73.69 dBuV
2.456400 GHz
Marker 2 [T1]
27.93 dBuV
2.483500 GHz
Marker 3 [T1]
27.93 dBuV
2.483500 GHz
Marker 4 [T1]
22.49 dBuV
2.500000 GHz
Center 2.528 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 74.93 dBuV
D2 54.93 dBuV
Marker 1 [T1]
73.02 dBuV
2.427120 GHz
Marker 2 [T1]
34.70 dBuV
21.554140 GHz
Marker 3 [T1]
34.61 dBuV
21.853780 GHz
Marker 4 [T1]
34.59 dBuV
20.405520 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz
ADT CORP.

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 PCB and PIFA antenna without connector. The maximum gain of the antenna is 3dBi.

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
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.

---END---