FCC TEST REPORT

REPORT NO.: RF970801L05
MODEL NO.: DX-NRUTER
RECEIVED: Aug. 01, 2008
TESTED: Aug. 01 ~ Aug. 21, 2008
ISSUED: Aug. 26, 2008

APPLICANT: Belkin International, Inc.

ADDRESS: 501 West Walnut Street, Compton, CA 90220-5221

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: Dynex Wireless N Router

MODEL: DX-NRUTER

BRAND: Dynex

APPLICANT: Belkin International, Inc.

TESTED: Aug. 01 ~ Aug. 21, 2008

TEST SAMPLE: ENGINEERING SAMPLE

STANDARDS: **FCC Part 15, Subpart C (Section 15.247)**
ANSI C63.4-2003

The above equipment (model: DX-NRUTER) 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 : Ivy Lin , **DATE:** Aug. 26, 2008
Ivy Lin / Specialist

TECHNICAL ACCEPTANCE : Long Chen , **DATE:** Aug. 26, 2008
Responsible for RF
Long Chen / Senior Engineer

APPROVED BY : Gary Chang , **DATE:** Aug. 26, 2008
Gary Chang / Assistant Manager

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 15, Subpart C			
Standard Section	**Test Type and Limit**	**Result**	**Remark**
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -5.45dB at 0.163MHz.
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 38.91 & 2385.00 MHz.
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

PRODUCT	Dynex Wireless N Router
MODEL NO.	DX-NRUTER
FCC ID	K7SDXNRUTER
POWER SUPPLY	12Vdc from 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	2412MHz ~ 2462MHz
NUMBER OF CHANNEL	11 for 802.11b, 802.11g, Draft 802.11n (20MHz) 7 for Draft 802.11n (40MHz)
MAXIMUM OUTPUT POWER	511.699mW
ANTENNA TYPE	Dipole antenna with 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
802.11g	1TX
Draft 802.11n (20MHz)	1TX / 2TX
Draft 802.11n (40MHz)	1TX / 2TX

2. The EUT was powered by the following adapter:

Adapter 1	
BRAND	DVE
MODEL	DSA-12G-12 AUS 12120
INPUT POWER	100-120Vac, 50/ 60Hz, 0.3A
OUTPUT POWER	12Vdc, 1 A
POWER LINE	1.8m non-shielded cable without core

Adapter 2	
BRAND	DVE
MODEL	DSA-12R-12 AUS 12120
INPUT POWER	100-120Vac, 50/ 60Hz, 0.3A
OUTPUT POWER	12Vdc, 1 A
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

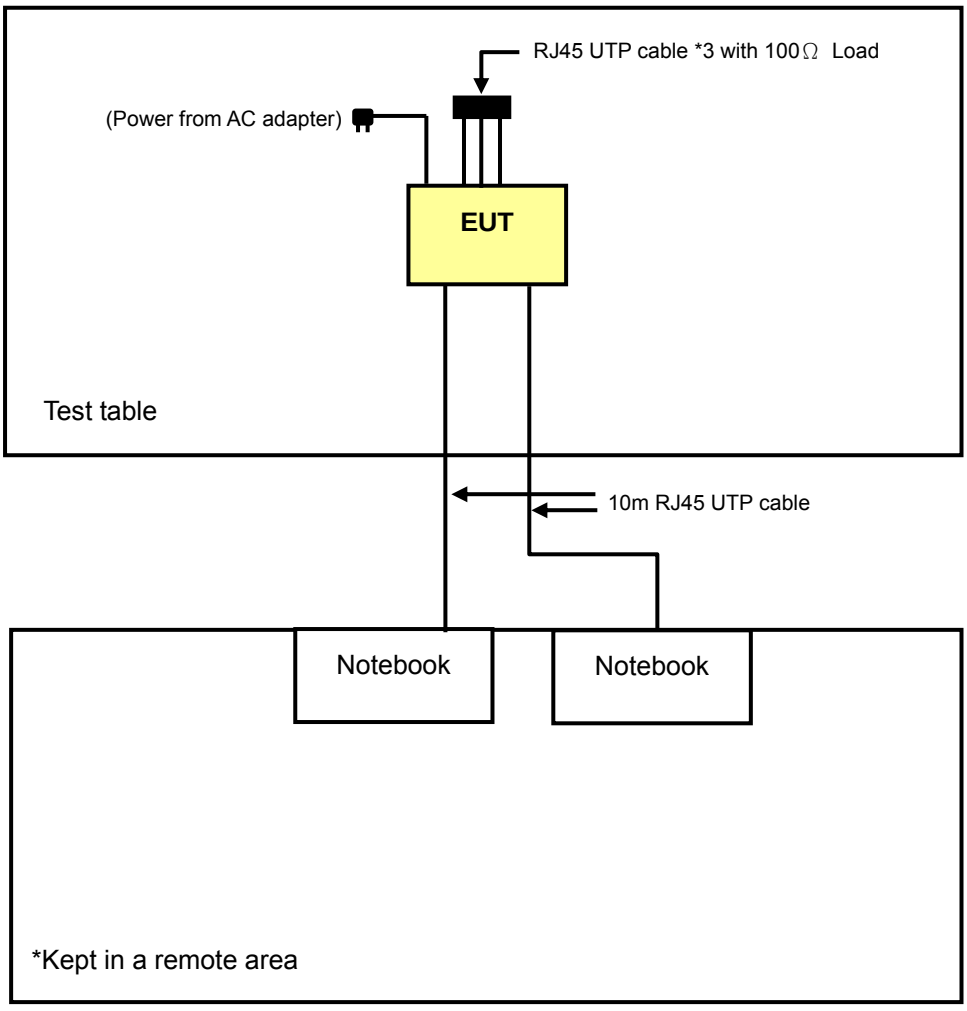
Eleven channels are provided for 802.11b, 802.11g and draft 802.11n (20MHz):

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

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

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

3.2.1 CONFIGURATION OF SYSTEM UNDER TEST



3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE≥1G	RE<1G	PLC	APCM	
A	√	√	√	√	With adapter 1
B	-	√	√	-	With adapter 2

Where **PLC:** Power Line Conducted Emission **RE<1G:** Radiated Emission below 1GHz
RE≥1G: Radiated Emission above 1GHz **APCM:** Antenna Port Conducted Measurement

NOTE: "-" means no effect

RADIATED EMISSION TEST (ABOVE 1 GHz):

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

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX FUNCTION	AXIS
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1	1TX	X
	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6	1TX	X
	Draft 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	7.2	1TX	X
	Draft 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	7.2	2TX	X
	Draft 802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	15	1TX	X
	Draft 802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	15	2TX	X

RADIATED EMISSION TEST (BELOW 1 GHz):

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

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX FUNCTION	AXIS
A	Draft 802.11n (20MHz)	1 to 11	6	OFDM	BPSK	7.2	2TX	X
B	Draft 802.11n (20MHz)	1 to 11	6	OFDM	BPSK	7.2	2TX	X

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, TX function, XYZ axis and antenna ports (if EUT with antenna diversity architecture).

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX FUNCTION	AXIS
A	Draft 802.11n (20MHz)	1 to 11	6	OFDM	BPSK	7.2	2TX	X
B	Draft 802.11n (20MHz)	1 to 11	6	OFDM	BPSK	7.2	2TX	X

BANDEDGE MEASUREMENT:

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

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX FUNCTION	AXIS
A	802.11b	1 to 11	1, 11	DSSS	DBPSK	1	1TX	X
	802.11g	1 to 11	1, 11	OFDM	BPSK	6	1TX	X
	Draft 802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	7.2	1TX	X
	Draft 802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	7.2	2TX	X
	Draft 802.11n (40MHz)	1 to 7	1, 7	OFDM	BPSK	15	1TX	X
	Draft 802.11n (40MHz)	1 to 7	1, 7	OFDM	BPSK	15	2TX	X

ANTENNA PORT CONDUCTED MEASUREMENT:

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

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX FUNCTION	AXIS
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1	1TX	X
	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6	1TX	X
	Draft 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	7.2	1TX	X
	Draft 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	7.2	2TX	X
	Draft 802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	15	1TX	X
	Draft 802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	15	2TX	X

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. Item 1-2 acted as a 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.

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4.1.3 TEST PROCEDURES

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

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

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

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

e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. If the emission level of the EUT in peak mode was lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

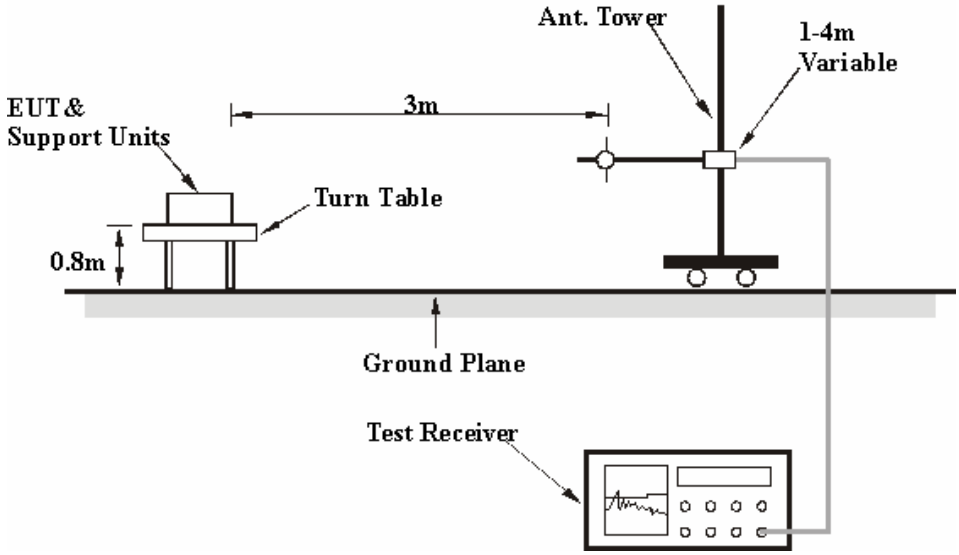
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz 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 notebook systems to act as a communication partner and placed them outside of testing area.
c. The communication partners connected with EUT via a UTP cable and run a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
d. The communication partners sent data to EUT by command "PING".

4.1.7 TEST RESULTS

802.11b DSSS MODULATION: 1TX

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 68%RH 1000hPa	TEST MODE	A
TESTED BY	Mark Liao		

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	2335.00	57.83 PK	74.00	-16.17	1.18 H	33	26.29	31.54
2	2335.00	47.03 AV	54.00	-6.97	1.18 H	33	15.49	31.54
3	*2412.00	98.50 PK			1.11 H	33	66.69	31.81
4	*2412.00	93.92 AV			1.11 H	33	62.11	31.81
5	2495.00	59.36 PK	74.00	-14.64	1.08 H	340	27.25	32.11
6	2495.00	47.47 AV	54.00	-6.53	1.08 H	340	15.36	32.11
7	4824.00	47.40 PK	74.00	-26.60	1.16 H	147	9.31	38.09
8	4824.00	34.69 AV	54.00	-19.31	1.16 H	147	-3.40	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	2335.00	61.38 PK	74.00	-12.62	1.20 V	303	29.84	31.54
2	2335.00	51.90 AV	54.00	-2.10	1.20 V	303	20.36	31.54
3	*2412.00	108.64 PK			1.15 V	306	76.83	31.81
4	*2412.00	103.72 AV			1.15 V	306	71.91	31.81
5	2495.00	63.05 PK	74.00	-10.95	1.36 V	295	30.94	32.11
6	2495.00	52.75 AV	54.00	-1.25	1.36 V	295	20.64	32.11
7	4824.00	48.11 PK	74.00	-25.89	1.43 V	172	10.02	38.09
8	4824.00	37.05 AV	54.00	-16.95	1.43 V	172	-1.04	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	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 68%RH 1000hPa	TEST MODE	A
TESTED BY	Mark Liao		

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	2352.00	57.79 PK	74.00	-16.21	1.16 H	35	26.19	31.60
2	2352.00	47.67 AV	54.00	-6.33	1.16 H	35	16.07	31.60
3	*2437.00	99.95 PK			1.09 H	34	68.05	31.90
4	*2437.00	95.44 AV			1.09 H	34	63.54	31.90
5	4874.00	46.59 PK	74.00	-27.41	1.19 H	215	8.37	38.22
6	4874.00	35.34 AV	54.00	-18.66	1.19 H	215	-2.88	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	2352.00	62.02 PK	74.00	-11.98	1.17 V	308	30.42	31.60
2	2352.00	52.50 AV	54.00	-1.50	1.17 V	308	20.90	31.60
3	*2437.00	109.14 PK			1.17 V	274	77.24	31.90
4	*2437.00	104.73 AV			1.17 V	274	72.83	31.90
5	4874.00	47.35 PK	74.00	-26.65	1.06 V	180	9.13	38.22
6	4874.00	37.74 AV	54.00	-16.26	1.06 V	180	-0.48	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	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 68%RH 1000hPa	TEST MODE	A
TESTED BY	Mark Liao		

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	2385.00	59.02 PK	74.00	-14.98	1.14 H	29	27.30	31.72
2	2385.00	47.73 AV	54.00	-6.27	1.14 H	29	16.01	31.72
3	*2462.00	100.13 PK			1.10 H	326	68.14	31.99
4	*2462.00	95.54 AV			1.10 H	326	63.55	31.99
5	2499.00	57.91 PK	74.00	-16.09	1.06 H	345	25.78	32.13
6	2499.00	46.98 AV	54.00	-7.02	1.06 H	345	14.85	32.13
7	4924.00	48.13 PK	74.00	-25.87	1.20 H	146	9.78	38.35
8	4924.00	34.90 AV	54.00	-19.10	1.20 H	146	-3.45	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	2385.00	62.34 PK	74.00	-11.66	1.19 V	322	30.62	31.72
2	**2385.00**	**52.99 AV**	**54.00**	**-1.01**	**1.19 V**	**322**	**21.27**	**31.72**
3	*2462.00	108.63 PK			1.16 V	324	76.64	31.99
4	*2462.00	104.00 AV			1.16 V	324	72.01	31.99
5	2499.00	61.81 PK	74.00	-12.19	1.36 V	334	29.68	32.13
6	2499.00	51.38 AV	54.00	-2.62	1.36 V	334	19.25	32.13
7	4924.00	48.46 PK	74.00	-25.54	1.13 V	10	10.11	38.35
8	4924.00	38.07 AV	54.00	-15.93	1.13 V	10	-0.28	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.

802.11g OFDM MODULATION: 1TX

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 68%RH 1000hPa	TEST MODE	A
TESTED BY	Mark Liao		

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	66.90 PK	74.00	-7.10	1.35 H	240	35.17	31.73
2	2390.00	47.85 AV	54.00	-6.15	1.35 H	240	16.12	31.73
3	*2412.00	103.54 PK			1.34 H	323	71.73	31.81
4	*2412.00	91.88 AV			1.34 H	323	60.07	31.81
5	2496.00	59.91 PK	74.00	-14.09	1.36 H	221	27.79	32.12
6	2496.00	48.08 AV	54.00	-5.92	1.36 H	221	15.96	32.12
7	4824.00	46.79 PK	74.00	-27.21	1.32 H	124	8.70	38.09
8	4824.00	34.01 AV	54.00	-19.99	1.32 H	124	-4.08	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	71.48 PK	74.00	-2.52	1.18 V	308	39.75	31.73
2	2390.00	51.57 AV	54.00	-2.43	1.18 V	308	19.84	31.73
3	*2412.00	113.93 PK			1.14 V	308	82.12	31.81
4	*2412.00	101.41 AV			1.14 V	308	69.60	31.81
5	2496.00	62.61 PK	74.00	-11.39	1.12 V	333	30.49	32.12
6	2496.00	52.73 AV	54.00	-1.27	1.12 V	333	20.61	32.12
7	4824.00	46.91 PK	74.00	-27.09	1.14 V	54	8.82	38.09
8	4824.00	34.39 AV	54.00	-19.61	1.14 V	54	-3.70	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	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 68%RH 1000hPa	TEST MODE	A
TESTED BY	Mark Liao		

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	103.31 PK			1.42 H	280	71.41	31.90
2	*2437.00	91.63 AV			1.42 H	280	59.73	31.90
3	4874.00	46.13 PK	74.00	-27.87	1.24 H	102	7.91	38.22
4	4874.00	33.85 AV	54.00	-20.15	1.24 H	102	-4.37	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	112.85 PK			1.23 V	284	80.95	31.90
2	*2437.00	100.98 AV			1.23 V	284	69.08	31.90
3	4874.00	46.82 PK	74.00	-27.18	1.08 V	61	8.60	38.22
4	4874.00	34.27 AV	54.00	-19.73	1.08 V	61	-3.95	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	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 68%RH 1000hPa	TEST MODE	A
TESTED BY	Mark Liao		

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	58.07 PK	74.00	-15.93	1.20 H	154	26.34	31.73
2	2390.00	47.27 AV	54.00	-6.73	1.20 H	154	15.54	31.73
3	*2462.00	102.14 PK			1.45 H	117	70.15	31.99
4	*2462.00	90.26 AV			1.45 H	117	58.27	31.99
5	2483.50	58.61 PK	74.00	-15.39	1.26 H	85	26.54	32.07
6	2483.50	47.44 AV	54.00	-6.56	1.26 H	85	15.37	32.07
7	4924.00	47.44 PK	74.00	-26.56	1.15 H	154	9.09	38.35
8	4924.00	34.73 AV	54.00	-19.27	1.15 H	154	-3.62	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	2390.00	64.49 PK	74.00	-9.51	1.46 V	303	32.76	31.73
2	2390.00	51.94 AV	54.00	-2.06	1.46 V	303	20.21	31.73
3	*2462.00	112.58 PK			1.48 V	150	80.59	31.99
4	*2462.00	100.53 AV			1.48 V	150	68.54	31.99
5	2483.50	72.95 PK	74.00	-1.05	1.41 V	275	40.88	32.07
6	2483.50	52.48 AV	54.00	-1.52	1.41 V	275	20.41	32.07
7	4924.00	47.75 PK	74.00	-26.25	1.38 V	313	9.40	38.35
8	4924.00	35.15 AV	54.00	-18.85	1.38 V	313	-3.20	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: 1TX

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 68%RH 1000hPa	TEST MODE	A
TESTED BY	Mark Liao		

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	61.11 PK	74.00	-12.89	1.34 H	158	29.38	31.73
2	2390.00	48.48 AV	54.00	-5.52	1.34 H	158	16.75	31.73
3	*2412.00	102.38 PK			1.11 H	35	70.57	31.81
4	*2412.00	89.63 AV			1.11 H	35	57.82	31.81
5	2483.50	56.11 PK	74.00	-17.89	1.28 H	75	24.04	32.07
6	2483.50	48.42 AV	54.00	-5.58	1.28 H	75	16.35	32.07
7	4824.00	46.80 PK	74.00	-27.20	1.08 H	42	8.71	38.09
8	4824.00	34.30 AV	54.00	-19.70	1.08 H	42	-3.79	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	67.25 PK	74.00	-6.75	1.22 V	319	35.52	31.73
2	2390.00	52.41 AV	54.00	-1.59	1.22 V	319	20.68	31.73
3	*2412.00	110.63 PK			1.24 V	135	78.82	31.81
4	*2412.00	98.73 AV			1.24 V	135	66.92	31.81
5	2483.50	66.40 PK	74.00	-7.60	1.13 V	333	34.33	32.07
6	2483.50	52.98 AV	54.00	-1.02	1.13 V	333	20.91	32.07
7	4824.00	48.27 PK	74.00	-25.73	1.15 V	199	10.18	38.09
8	4824.00	35.23 AV	54.00	-18.77	1.15 V	199	-2.86	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	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 68%RH 1000hPa	TEST MODE	A
TESTED BY	Mark Liao		

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	102.12 PK			1.07 H	88	70.22	31.90
2	*2437.00	89.21 AV			1.07 H	88	57.31	31.90
3	4874.00	46.14 PK	74.00	-27.86	1.11 H	62	7.92	38.22
4	4874.00	34.19 AV	54.00	-19.81	1.11 H	62	-4.03	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	110.01 PK			1.28 V	129	78.11	31.90
2	*2437.00	98.36 AV			1.28 V	129	66.46	31.90
3	4874.00	47.67 PK	74.00	-26.33	1.03 V	175	9.45	38.22
4	4874.00	35.11 AV	54.00	-18.89	1.03 V	175	-3.11	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	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 68%RH 1000hPa	TEST MODE	A
TESTED BY	Mark Liao		

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	2385.00	59.54 PK	74.00	-14.46	1.35 H	165	27.82	31.72
2	2385.00	49.84 AV	54.00	-4.16	1.35 H	165	18.12	31.72
3	*2462.00	103.56 PK			1.11 H	34	71.57	31.99
4	*2462.00	91.71 AV			1.11 H	34	59.72	31.99
5	2483.50	58.45 PK	74.00	-15.55	1.31 H	99	26.38	32.07
6	2483.50	47.85 AV	54.00	-6.15	1.31 H	99	15.78	32.07
7	4924.00	48.01 PK	74.00	-25.99	1.27 H	167	9.66	38.35
8	4924.00	34.89 AV	54.00	-19.11	1.27 H	167	-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	2385.00	65.21 PK	74.00	-8.79	1.18 V	308	33.49	31.72
2	2385.00	52.96 AV	54.00	-1.04	1.18 V	308	21.24	31.72
3	*2462.00	111.40 PK			1.16 V	322	79.41	31.99
4	*2462.00	99.72 AV			1.16 V	322	67.73	31.99
5	2483.50	72.80 PK	74.00	-1.20	1.13 V	307	40.73	32.07
6	2483.50	51.95 AV	54.00	-2.05	1.13 V	307	19.88	32.07
7	4924.00	49.01 PK	74.00	-24.99	1.26 V	175	10.66	38.35
8	4924.00	36.11 AV	54.00	-17.89	1.26 V	175	-2.24	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: 2TX

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 68%RH 1000hPa	TEST MODE	A
TESTED BY	Mark Liao		

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	2334.00	58.06 PK	74.00	-15.94	1.30 H	82	26.53	31.53
2	2334.00	47.32 AV	54.00	-6.68	1.30 H	82	15.79	31.53
3	*2412.00	102.62 PK			1.33 H	131	70.81	31.81
4	*2412.00	89.76 AV			1.33 H	131	57.95	31.81
5	2499.00	61.79 PK	74.00	-12.21	1.28 H	31	29.66	32.13
6	2499.00	49.43 AV	54.00	-4.57	1.28 H	31	17.30	32.13
7	4824.00	47.66 PK	74.00	-26.34	1.16 H	210	9.57	38.09
8	4824.00	34.64 AV	54.00	-19.36	1.16 H	210	-3.45	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	2334.00	63.41 PK	74.00	-10.59	1.23 V	91	31.88	31.53
2	2334.00	51.27 AV	54.00	-2.73	1.23 V	91	19.74	31.53
3	*2412.00	112.23 PK			1.00 V	345	80.42	31.81
4	*2412.00	99.01 AV			1.00 V	345	67.20	31.81
5	2499.00	65.10 PK	74.00	-8.90	1.16 V	188	32.97	32.13
6	2499.00	52.49 AV	54.00	-1.51	1.16 V	188	20.36	32.13
7	4824.00	47.80 PK	74.00	-26.20	1.22 V	246	9.71	38.09
8	4824.00	34.96 AV	54.00	-19.04	1.22 V	246	-3.13	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	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 68%RH 1000hPa	TEST MODE	A
TESTED BY	Mark Liao		

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	102.03 PK			1.42 H	126	70.13	31.90
2	*2437.00	89.31 AV			1.42 H	126	57.41	31.90
3	4874.00	47.18 PK	74.00	-26.82	1.22 H	234	8.96	38.22
4	4874.00	34.04 AV	54.00	-19.96	1.22 H	234	-4.18	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	111.86 PK			1.05 V	264	79.96	31.90
2	*2437.00	98.94 AV			1.05 V	264	67.04	31.90
3	4874.00	47.22 PK	74.00	-26.78	1.34 V	252	9.00	38.22
4	4874.00	34.34 AV	54.00	-19.66	1.34 V	252	-3.88	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	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 68%RH 1000hPa	TEST MODE	A
TESTED BY	Mark Liao		

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	60.55 PK	74.00	-13.45	1.35 H	72	28.82	31.73
2	2390.00	48.12 AV	54.00	-5.88	1.35 H	72	16.39	31.73
3	*2462.00	102.05 PK			1.41 H	118	70.06	31.99
4	*2462.00	88.84 AV			1.41 H	118	56.85	31.99
5	2483.50	66.24 PK	74.00	-7.76	1.24 H	64	34.17	32.07
6	2483.50	49.21 AV	54.00	-4.79	1.24 H	64	17.14	32.07
7	4924.00	47.11 PK	74.00	-26.89	1.27 H	198	8.76	38.35
8	4924.00	34.02 AV	54.00	-19.98	1.27 H	198	-4.33	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	2390.00	65.65 PK	74.00	-8.35	1.19 V	338	33.92	31.73
2	2390.00	52.55 AV	54.00	-1.45	1.19 V	338	20.82	31.73
3	*2462.00	112.11 PK			1.19 V	344	80.12	31.99
4	*2462.00	98.54 AV			1.19 V	344	66.55	31.99
5	2483.50	70.43 PK	74.00	-3.57	1.20 V	344	38.36	32.07
6	2483.50	52.98 AV	54.00	-1.02	1.20 V	344	20.91	32.07
7	4924.00	47.51 PK	74.00	-26.49	1.31 V	185	9.16	38.35
8	4924.00	34.75 AV	54.00	-19.25	1.31 V	185	-3.60	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: 1TX

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 68%RH 1000hPa	TEST MODE	A
TESTED BY	Mark Liao		

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	63.20 PK	74.00	-10.80	1.14 H	33	31.47	31.73
2	2390.00	49.07 AV	54.00	-4.93	1.14 H	33	17.34	31.73
3	*2422.00	97.62 PK			1.09 H	322	65.77	31.85
4	*2422.00	85.76 AV			1.09 H	322	53.91	31.85
5	4844.00	47.42 PK	74.00	-26.58	1.31 H	254	9.28	38.14
6	4844.00	34.38 AV	54.00	-19.62	1.31 H	254	-3.76	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	68.86 PK	74.00	-5.14	1.45 V	307	37.13	31.73
2	2390.00	52.75 AV	54.00	-1.25	1.45 V	307	21.02	31.73
3	*2422.00	106.64 PK			1.51 V	195	74.79	31.85
4	*2422.00	95.07 AV			1.51 V	195	63.22	31.85
5	4844.00	47.83 PK	74.00	-26.17	1.40 V	321	9.69	38.14
6	4844.00	35.07 AV	54.00	-18.93	1.40 V	321	-3.07	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	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 68%RH 1000hPa	TEST MODE	A
TESTED BY	Mark Liao		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	97.23 PK			1.20 H	311	65.33	31.90
2	*2437.00	85.37 AV			1.20 H	311	53.47	31.90
3	4874.00	47.21 PK	74.00	-26.79	1.43 H	213	8.99	38.22
4	4874.00	34.10 AV	54.00	-19.90	1.43 H	213	-4.12	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	106.13 PK			1.45 V	180	74.23	31.90
2	*2437.00	94.98 AV			1.45 V	180	63.08	31.90
3	4874.00	47.21 PK	74.00	-26.79	1.34 V	292	8.99	38.22
4	4874.00	34.81 AV	54.00	-19.19	1.34 V	292	-3.41	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	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 68%RH 1000hPa	TEST MODE	A
TESTED BY	Mark Liao		

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	99.50 PK			1.12 H	34	67.54	31.96
2	*2452.00	87.21 AV			1.12 H	34	55.25	31.96
3	2483.50	65.47 PK	74.00	-8.53	1.54 H	141	33.40	32.07
4	2483.50	49.75 AV	54.00	-4.25	1.54 H	141	17.68	32.07
5	4904.00	47.11 PK	74.00	-26.89	1.42 H	105	8.81	38.30
6	4904.00	34.22 AV	54.00	-19.78	1.42 H	105	-4.08	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	107.09 PK			1.14 V	310	75.13	31.96
2	*2452.00	94.91 AV			1.14 V	310	62.95	31.96
3	2483.50	68.51 PK	74.00	-5.49	1.11 V	299	36.44	32.07
4	2483.50	52.91 AV	54.00	-1.09	1.11 V	299	20.84	32.07
5	4904.00	48.01 PK	74.00	-25.99	1.50 V	284	9.71	38.30
6	4904.00	35.11 AV	54.00	-18.89	1.50 V	284	-3.19	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.

DRAFT 802.11n (40MHz) OFDM MODULATION: 2TX

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 68%RH 1000hPa	TEST MODE	A
TESTED BY	Mark Liao		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	57.39 PK	74.00	-16.61	1.14 H	31	25.66	31.73
2	2390.00	47.10 AV	54.00	-6.90	1.14 H	31	15.37	31.73
3	*2422.00	99.91 PK			1.14 H	31	68.06	31.85
4	*2422.00	85.85 AV			1.14 H	31	54.00	31.85
5	4844.00	46.46 PK	74.00	-27.54	1.42 H	42	8.32	38.14
6	4844.00	34.10 AV	54.00	-19.90	1.42 H	42	-4.04	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	67.83 PK	74.00	-6.17	1.19 V	339	36.10	31.73
2	2390.00	52.35 AV	54.00	-1.65	1.19 V	339	20.62	31.73
3	*2422.00	109.22 PK			1.20 V	339	77.37	31.85
4	*2422.00	94.66 AV			1.20 V	339	62.81	31.85
5	4844.00	47.08 PK	74.00	-26.92	1.41 V	51	8.94	38.14
6	4844.00	34.85 AV	54.00	-19.15	1.41 V	51	-3.29	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	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 68%RH 1000hPa	TEST MODE	A
TESTED BY	Mark Liao		

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	99.23 PK			1.19 H	62	67.33	31.90
2	*2437.00	85.13 AV			1.19 H	62	53.23	31.90
3	4874.00	46.21 PK	74.00	-27.79	1.53 H	66	7.99	38.22
4	4874.00	33.96 AV	54.00	-20.04	1.53 H	66	-4.26	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	108.86 PK			1.24 V	331	76.96	31.90
2	*2437.00	94.10 AV			1.24 V	331	62.20	31.90
3	4874.00	46.23 PK	74.00	-27.77	1.47 V	43	8.01	38.22
4	4874.00	34.22 AV	54.00	-19.78	1.47 V	43	-4.00	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	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 68%RH 1000hPa	TEST MODE	A
TESTED BY	Mark Liao		

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	98.69 PK			1.04 H	334	66.73	31.96
2	*2452.00	85.31 AV			1.04 H	334	53.35	31.96
3	2483.50	59.01 PK	74.00	-14.99	1.30 H	105	26.94	32.07
4	2483.50	48.95 AV	54.00	-5.05	1.30 H	105	16.88	32.07
5	4904.00	46.31 PK	74.00	-27.69	1.32 H	38	8.01	38.30
6	4904.00	33.86 AV	54.00	-20.14	1.32 H	38	-4.44	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	108.38 PK			1.20 V	345	76.42	31.96
2	*2452.00	94.35 AV			1.20 V	345	62.39	31.96
3	2483.50	68.78 PK	74.00	-5.22	1.19 V	344	36.71	32.07
4	2483.50	52.83 AV	54.00	-1.17	1.19 V	344	20.76	32.07
5	4904.00	46.99 PK	74.00	-27.01	1.57 V	66	8.69	38.30
6	4904.00	34.75 AV	54.00	-19.25	1.57 V	66	-3.55	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: 2TX

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH 1000hPa	TEST MODE	A
TESTED BY	Mark Liao		

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	220.44	40.48 QP	46.00	-5.52	1.50 H	259	28.21	12.28
2	230.16	40.95 QP	46.00	-5.05	1.00 H	316	28.21	12.74
3	399.31	38.30 QP	46.00	-7.70	1.00 H	325	21.01	17.29
4	500.42	38.49 QP	46.00	-7.51	1.50 H	319	17.98	20.50
5	599.58	37.42 QP	46.00	-8.58	1.50 H	19	14.31	23.11
6	751.23	42.42 QP	46.00	-3.58	1.00 H	127	16.54	25.87
7	924.27	37.40 QP	46.00	-8.60	1.50 H	187	9.03	28.37
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	**38.91**	**38.99 QP**	**40.00**	**-1.01**	**1.50 V**	**190**	**26.49**	**12.50**
2	62.95	38.15 QP	40.00	-1.85	1.00 V	10	24.93	13.22
3	230.16	38.08 QP	46.00	-7.92	1.50 V	136	25.33	12.74
4	399.31	41.97 QP	46.00	-4.03	1.50 V	10	24.69	17.29
5	500.42	34.86 QP	46.00	-11.14	2.00 V	241	14.36	20.50
6	751.23	40.49 QP	46.00	-5.51	1.50 V	10	14.61	25.87
7	924.27	35.24 QP	46.00	-10.76	2.00 V	181	6.87	28.37

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

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

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

4. Margin value = Emission level – Limit value.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	23deg. C, 62%RH 1000hPa	TEST MODE	B
TESTED BY	Mark Liao		

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	131.00	38.28 QP	43.50	-5.22	1.25 H	286	25.53	12.75
2	267.10	38.54 QP	46.00	-7.46	1.25 H	109	24.49	14.05
3	399.31	37.46 QP	46.00	-8.54	1.00 H	310	20.17	17.29
4	500.42	35.44 QP	46.00	-10.56	1.50 H	319	14.94	20.50
5	659.85	40.90 QP	46.00	-5.10	1.25 H	256	16.52	24.38
6	751.23	38.56 QP	46.00	-7.44	1.25 H	22	12.69	25.87
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	30.16	38.98 QP	40.00	-1.02	1.00 V	316	26.41	12.57
2	62.95	36.59 QP	40.00	-3.41	1.00 V	52	23.36	13.22
3	109.62	39.07 QP	43.50	-4.43	1.25 V	94	28.10	10.97
4	267.10	37.48 QP	46.00	-8.52	1.00 V	142	23.43	14.05
5	399.31	38.22 QP	46.00	-7.78	1.25 V	355	20.93	17.29
6	659.85	36.60 QP	46.00	-9.40	1.50 V	40	12.22	24.38
7	751.23	39.82 QP	46.00	-6.18	1.25 V	337	13.95	25.87

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

4.2 CONDUCTED EMISSION MEASUREMENT

4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

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

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100288	Sep. 22, 2007	Sep. 21, 2008
RF signal cable Woken	5D-FB	Cable-HYCO2-01	Jan. 04, 2008	Jan. 03, 2009
LISN ROHDE & SCHWARZ	ESH2-Z5	100100	Jan. 10, 2008	Jan. 09, 2009
LISN SCHWARZBECK	ESH3-Z5	100311	Jul., 30, 2008	Jul. 29, 2009
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 2.
3. The VCCI Site Registration No. is C-2047.

4.2.3 TEST PROCEDURES

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

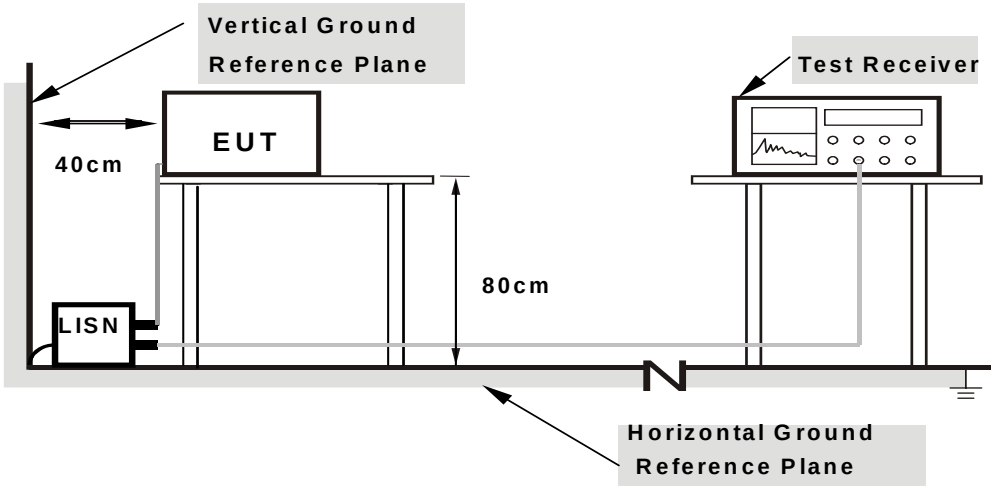
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

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

4.2.4 DEVIATION FROM TEST STANDARD

No deviation

4.2.5 TEST SETUP



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

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

4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6

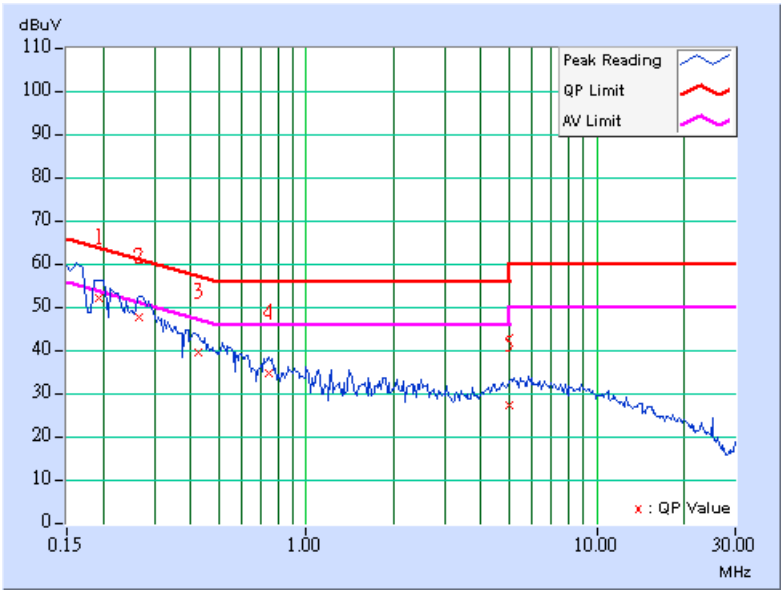
4.2.7 TEST RESULTS

CONDUCTED WORST-CASE DATA: 802.11n (20MHz) OFDM MODULATION: 2TX

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	PHASE	Line 1
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	7.2Mbps	INPUT POWER	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	25deg. C, 63%RH, 991hPa	TEST MODE	A
TESTED BY	Kevin Liang		

No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.193	0.13	51.86	-	51.99	-	63.91	53.91	-11.92	-
2	0.267	0.13	47.36	-	47.49	-	61.20	51.20	-13.71	-
3	0.423	0.14	39.21	-	39.35	-	57.38	47.38	-18.03	-
4	0.744	0.16	34.38	-	34.54	-	56.00	46.00	-21.46	-
5	5.000	0.47	27.09	-	27.56	-	56.00	46.00	-28.44	-

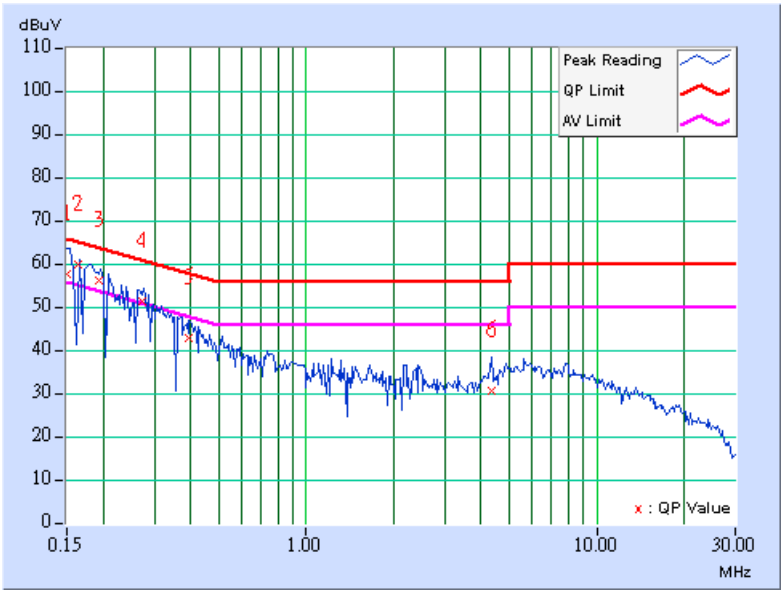
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	PHASE	Line 2
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	7.2Mbps	INPUT POWER	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	25deg. C, 63%RH, 991hPa	TEST MODE	A
TESTED BY	Kevin Liang		

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.14	57.18	35.21	57.32	35.35	66.00	56.00	-8.68	-20.65
2	**0.163**	**0.14**	**59.70**	**45.90**	**59.84**	**46.04**	**65.29**	**55.29**	**-5.45**	**-9.25**
3	0.193	0.14	55.76	42.52	55.90	42.66	63.90	53.90	-8.00	-11.24
4	0.271	0.14	51.12	37.56	51.26	37.70	61.08	51.08	-9.82	-13.38
5	0.396	0.15	42.44	-	42.59	-	57.93	47.93	-15.35	-
6	4.332	0.44	30.32	-	30.76	-	56.00	46.00	-25.24	-

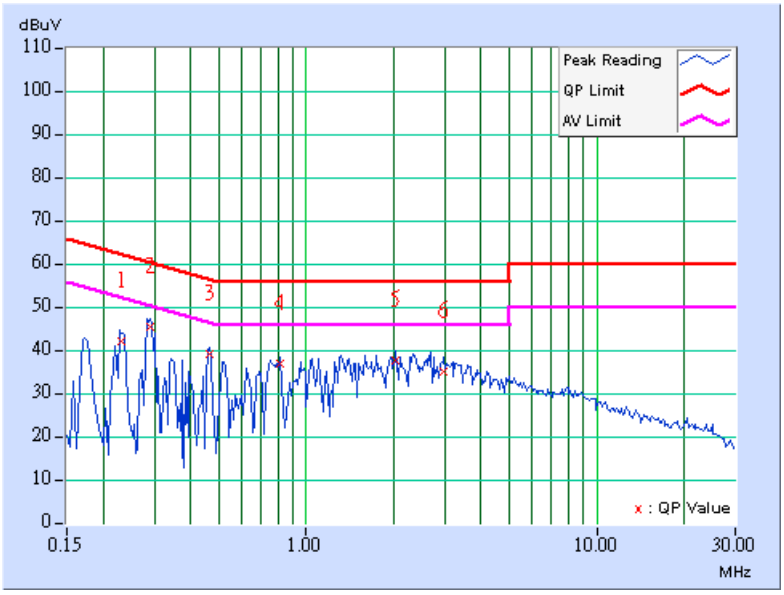
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	PHASE	Line 1
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	7.2Mbps	INPUT POWER	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	25deg. C, 63%RH, 991hPa	TEST MODE	B
TESTED BY	Kevin Liang		

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.231	0.13	41.88	-	42.01	-	62.42	52.42	-20.41	-
2	0.289	0.13	45.29	-	45.42	-	60.55	50.55	-15.12	-
3	0.466	0.14	39.01	-	39.15	-	56.58	46.58	-17.42	-
4	0.818	0.16	36.51	-	36.67	-	56.00	46.00	-19.33	-
5	2.035	0.26	37.42	-	37.68	-	56.00	46.00	-18.32	-
6	2.977	0.35	34.87	-	35.22	-	56.00	46.00	-20.78	-

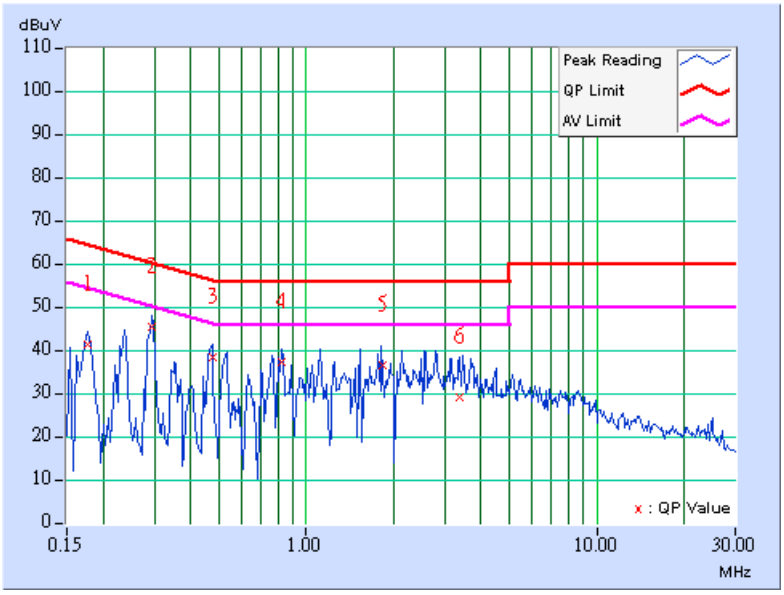
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	PHASE	Line 2
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	7.2Mbps	INPUT POWER	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	25deg. C, 63%RH, 991hPa	TEST MODE	B
TESTED BY	Kevin Liang		

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.177	0.14	41.11	-	41.25	-	64.61	54.61	-23.36	-
2	0.295	0.14	45.10	-	45.24	-	60.40	50.40	-15.15	-
3	0.474	0.15	38.04	-	38.19	-	56.44	46.44	-18.25	-
4	0.826	0.17	36.90	-	37.07	-	56.00	46.00	-18.93	-
5	1.828	0.25	36.23	-	36.48	-	56.00	46.00	-19.52	-
6	3.391	0.38	28.89	-	29.27	-	56.00	46.00	-26.73	-

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
SPECTRUM ANALYZER	FSP 40	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.

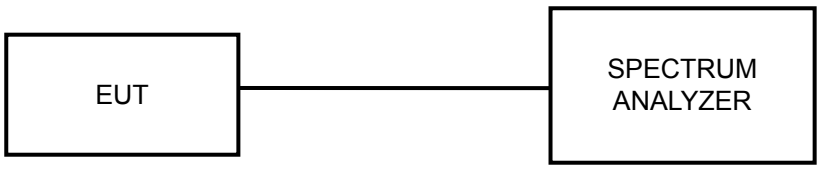
4.3.3 TEST PROCEDURE

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 100kHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation

4.3.5 TEST SETUP



4.3.6 EUT OPERATING CONDITIONS

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

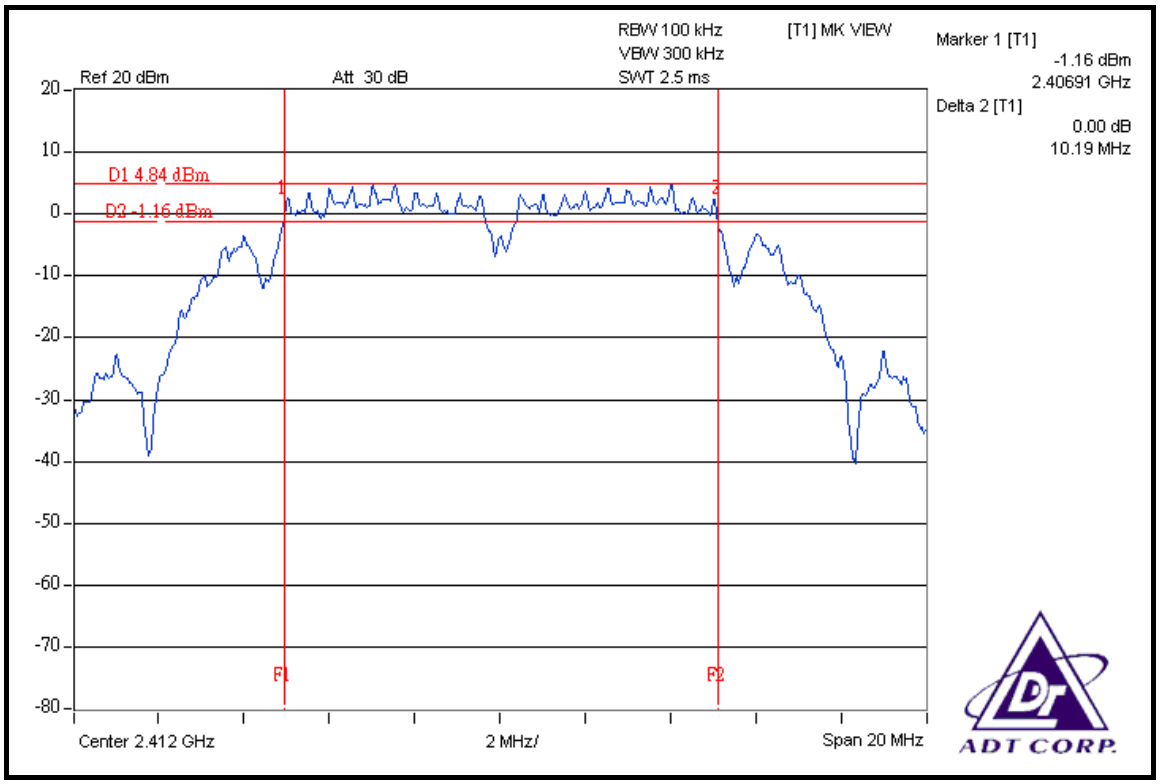
4.3.7 TEST RESULTS

802.11b DSSS MODULATION: 1TX

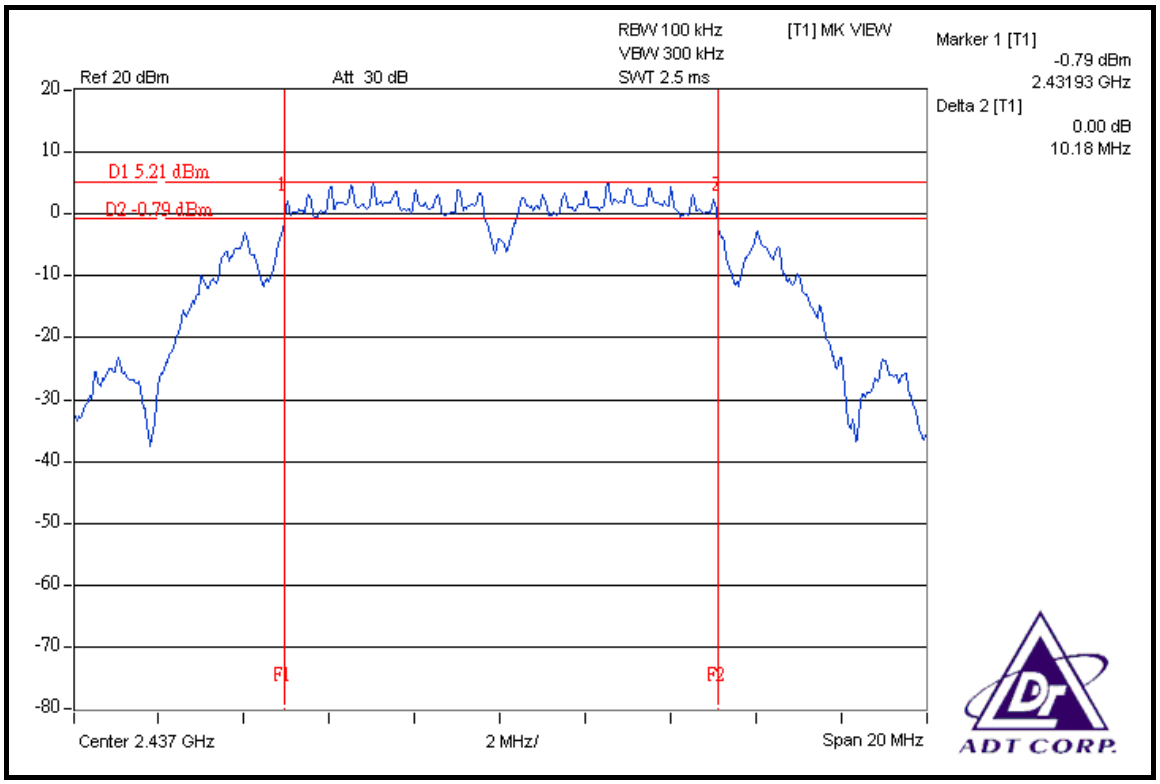
MODULATION TYPE	DBPSK	TRANSFER RATE	1.0Mbps
INPUT POWER	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 63%RH, 991hPa
TESTED BY	Dean Wang		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	10.19	0.5	PASS
6	2437	10.18	0.5	PASS
11	2462	10.16	0.5	PASS

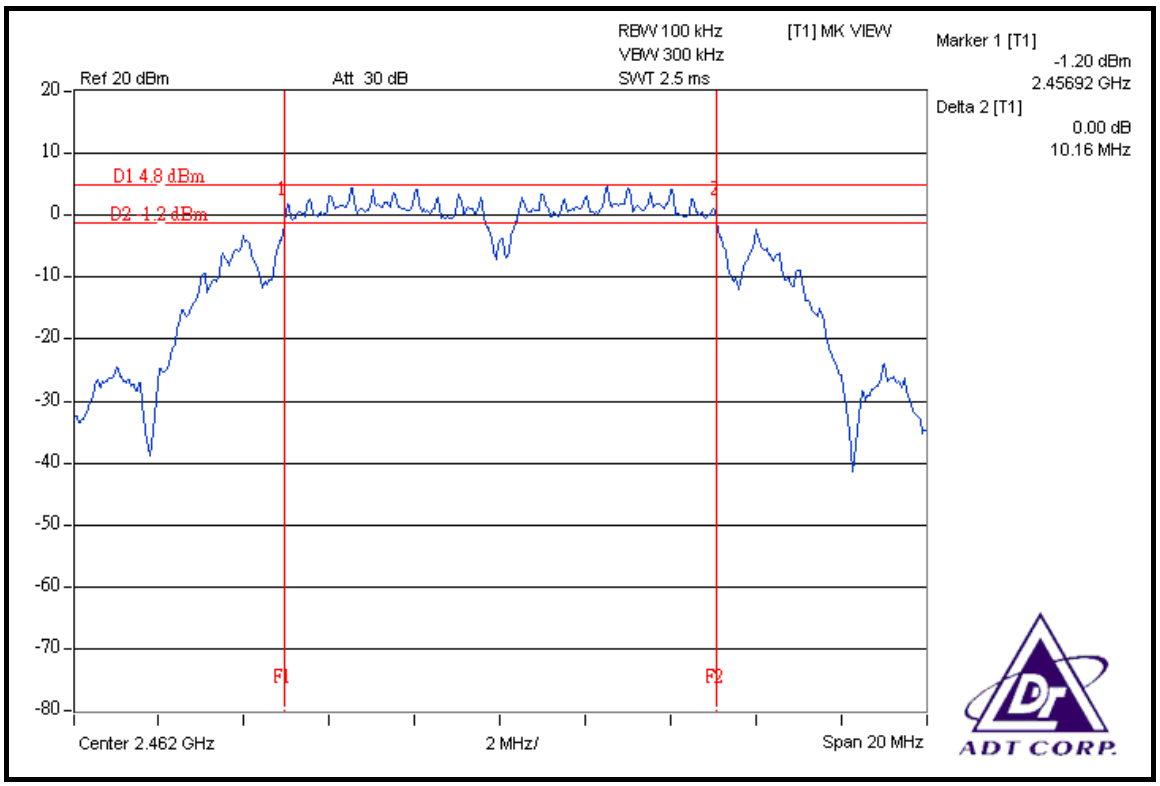
CH 1



CH 6


RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
[T1] MK VIEW
Marker 1 [T1]
-0.79 dBm
2.43193 GHz
Delta 2 [T1]
0.00 dB
10.18 MHz
Ref 20 dBm
Att 30 dB
D1 5.21 dBm
D2 -0.79 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

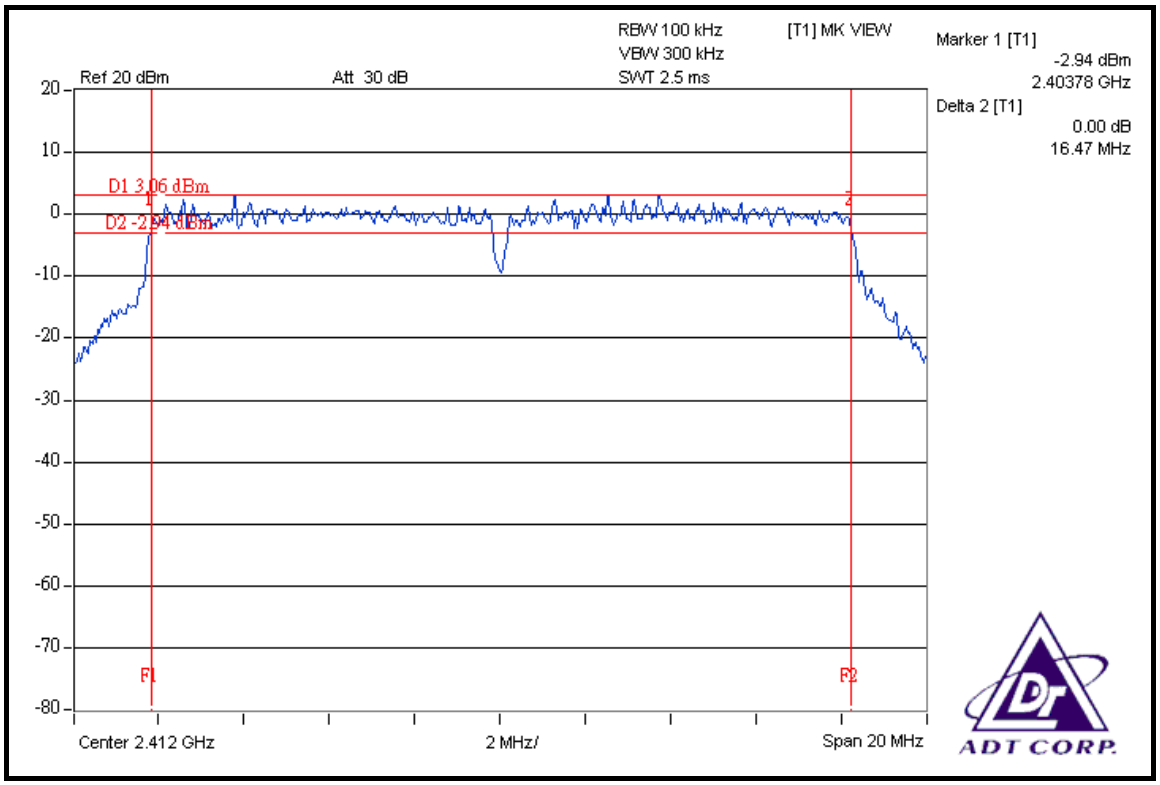

RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
[T1] MK VIEW
Marker 1 [T1]
-1.20 dBm
2.45692 GHz
Delta 2 [T1]
0.00 dB
10.16 MHz
Ref 20 dBm
Att 30 dB
D1 4.8 dBm
D2 -1.2 dBm
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
F1
F2
Center 2.462 GHz
2 MHz/
Span 20 MHz
ADT CORP.

802.11g OFDM MODULATION: 1TX

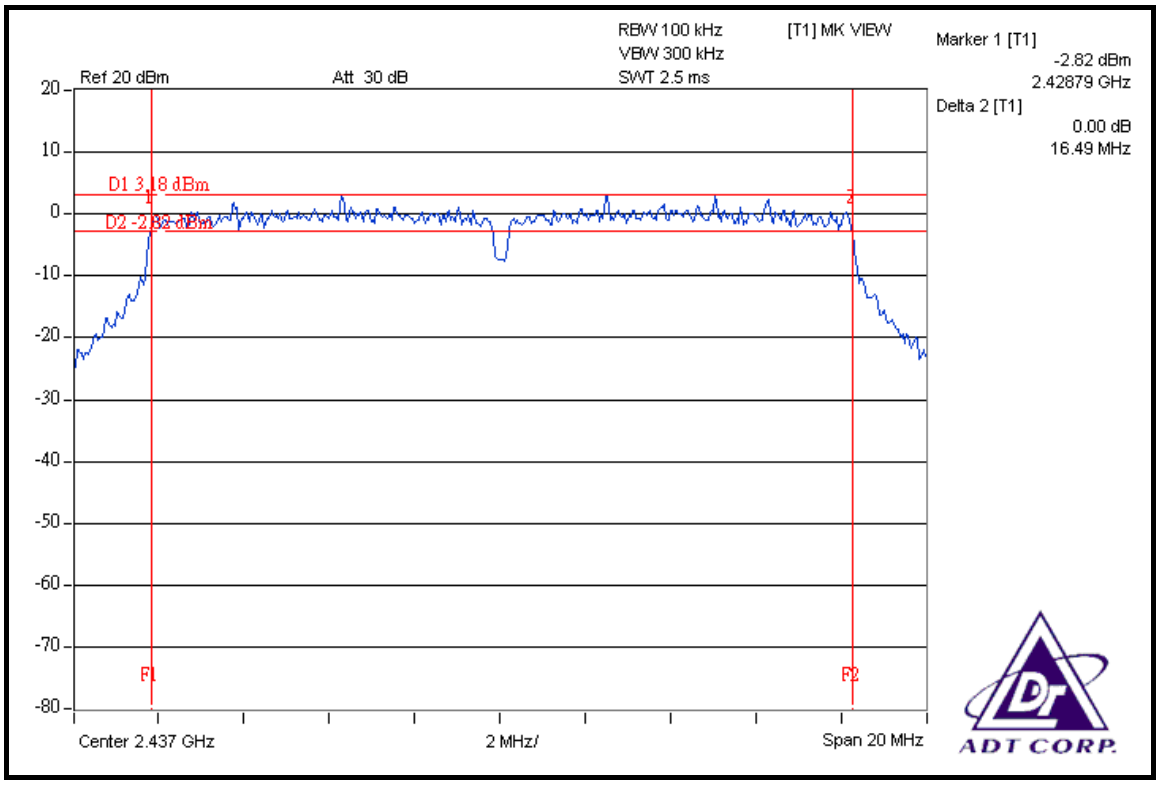
MODULATION TYPE	BPSK	TRANSFER RATE	6.0Mbps
INPUT POWER	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 63%RH, 991hPa
TESTED BY	Dean Wang		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.47	0.5	PASS
6	2437	16.49	0.5	PASS
11	2462	16.47	0.5	PASS

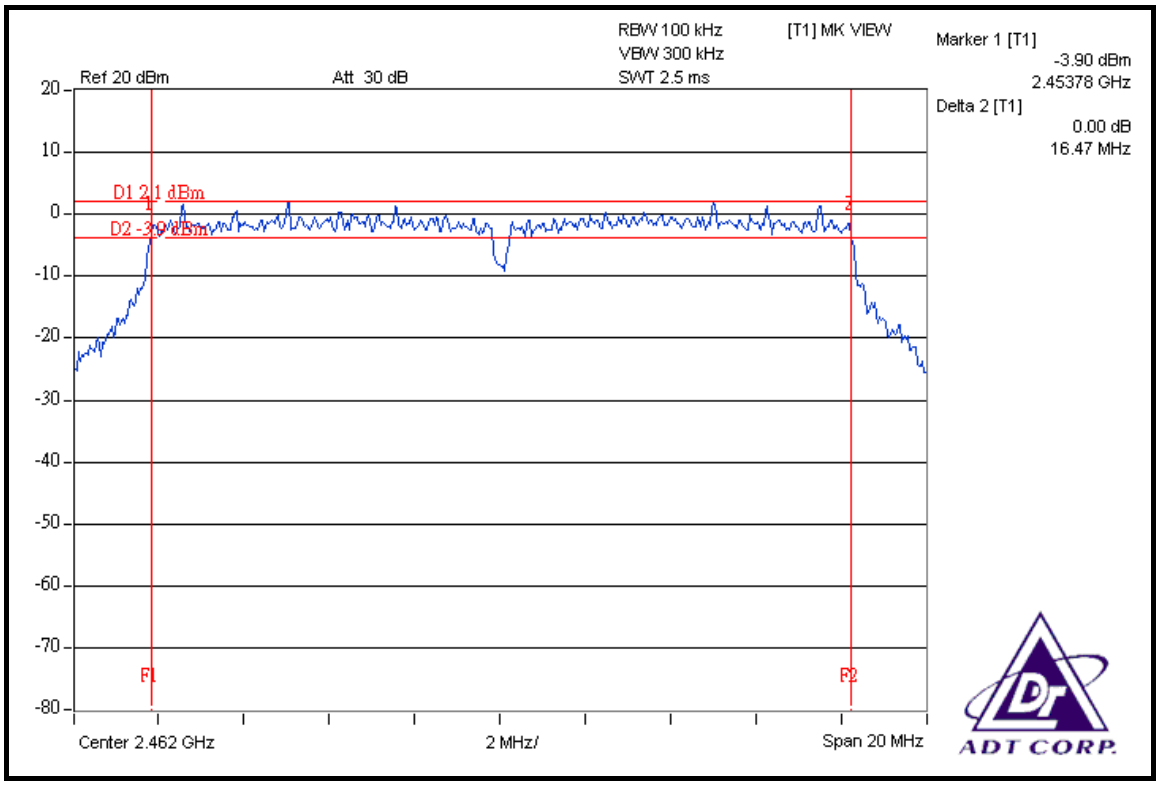
CH 1



CH 6


RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
[T1] MK VIEW
Marker 1 [T1]
-2.82 dBm
2.42879 GHz
Delta 2 [T1]
0.00 dB
16.49 MHz
Ref 20 dBm
Att 30 dB
D1 3.18 dBm
D2 -2.82 dBm
F1
F2
Center 2.437 GHz
2 MHz/
Span 20 MHz
ADT CORP.

CH 11

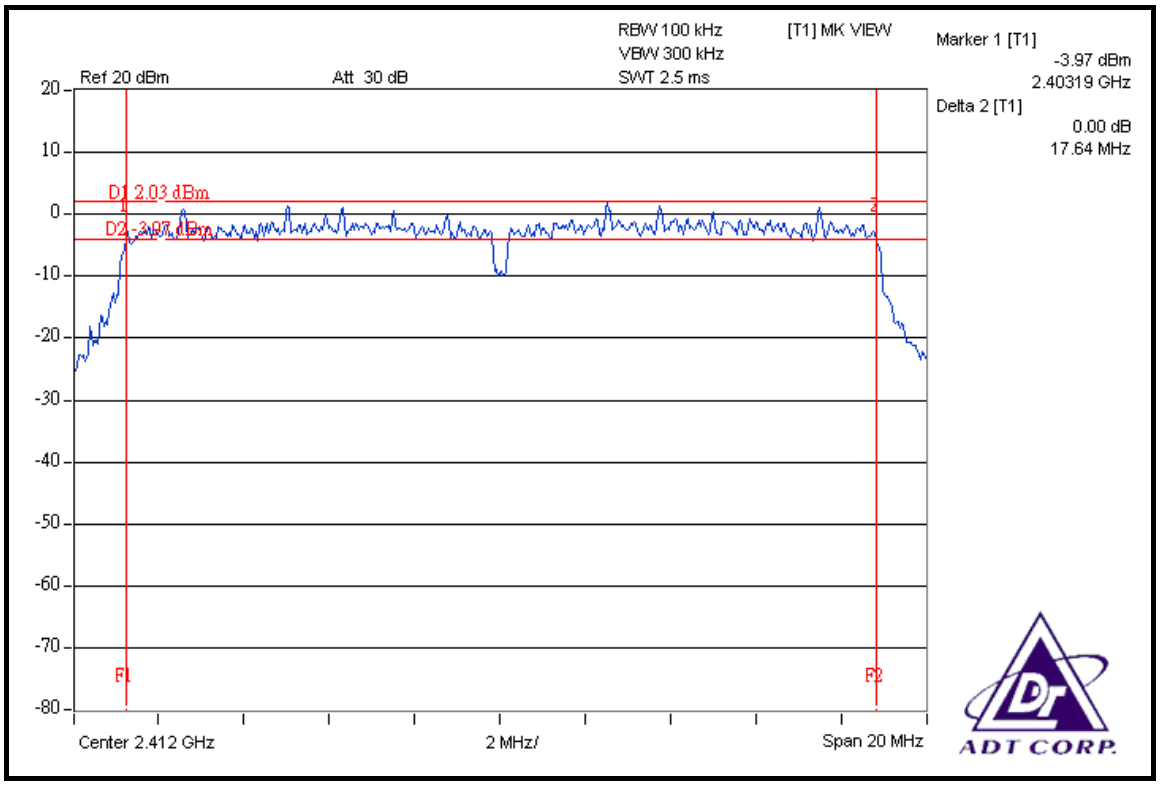

RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
[T1] MK VIEW
Marker 1 [T1]
-3.90 dBm
2.45378 GHz
Delta 2 [T1]
0.00 dB
16.47 MHz
Ref 20 dBm
Att 30 dB
D1 2.1 dBm
F1
F2
Center 2.462 GHz
2 MHz/
Span 20 MHz
ADT CORP.

DRAFT 802.11n (20MHz) OFDM MODULATION: 1TX

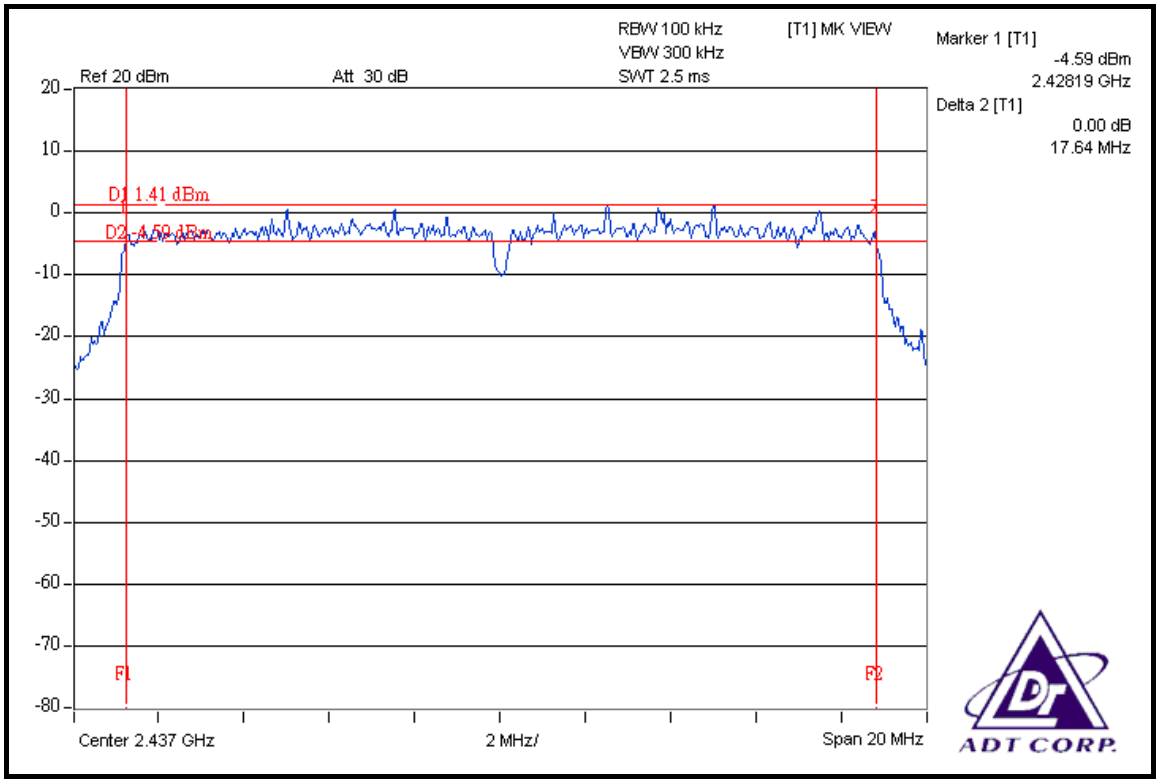
MODULATION TYPE	BPSK	**TRANSFER RATE**	7.2Mbps
INPUT POWER	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	25deg.C, 63%RH, 991hPa
TESTED BY	Dean Wang		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	17.64	0.5	PASS
6	2437	17.64	0.5	PASS
11	2462	17.71	0.5	PASS

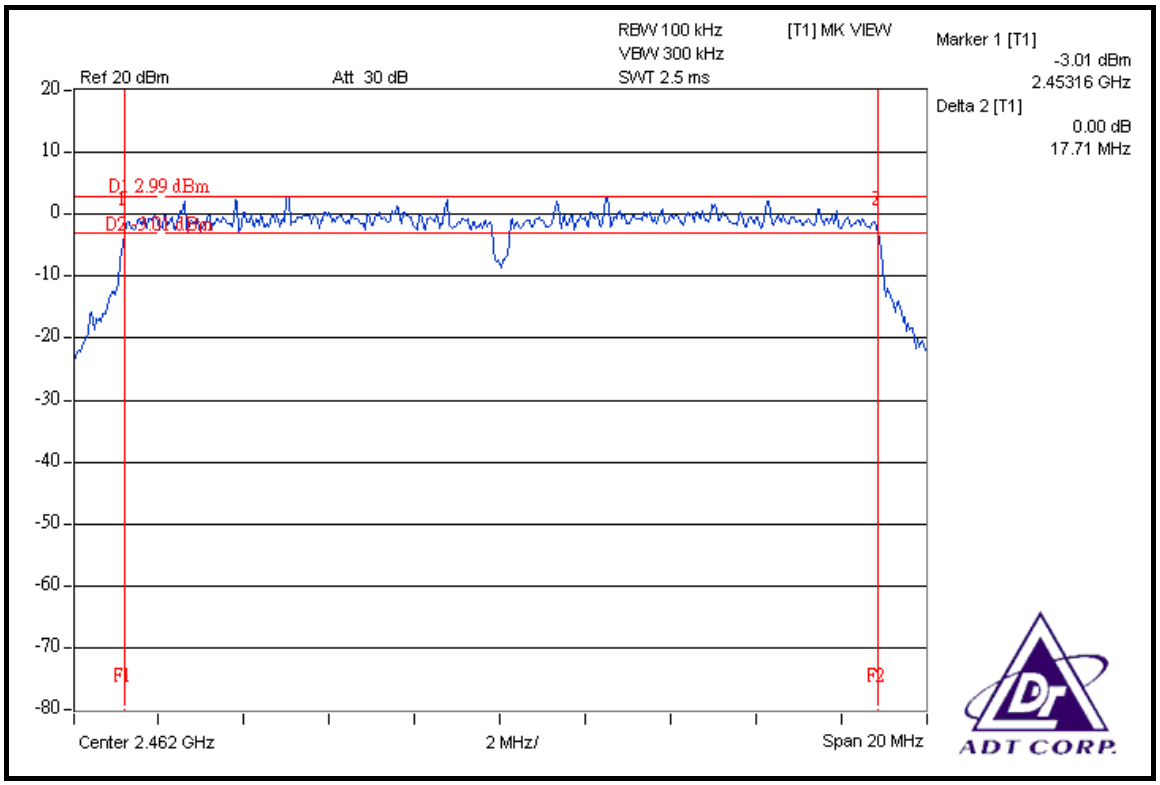
CH 1



CH 6


RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
[T1] MK VIEW
Marker 1 [T1]
-4.59 dBm
2.42819 GHz
Delta 2 [T1]
0.00 dB
17.64 MHz
Ref 20 dBm
Att 30 dB
D1 1.41 dBm
D2 -4.59 dBm
F1
F2
Center 2.437 GHz
2 MHz/
Span 20 MHz
ADT CORP.

CH 11

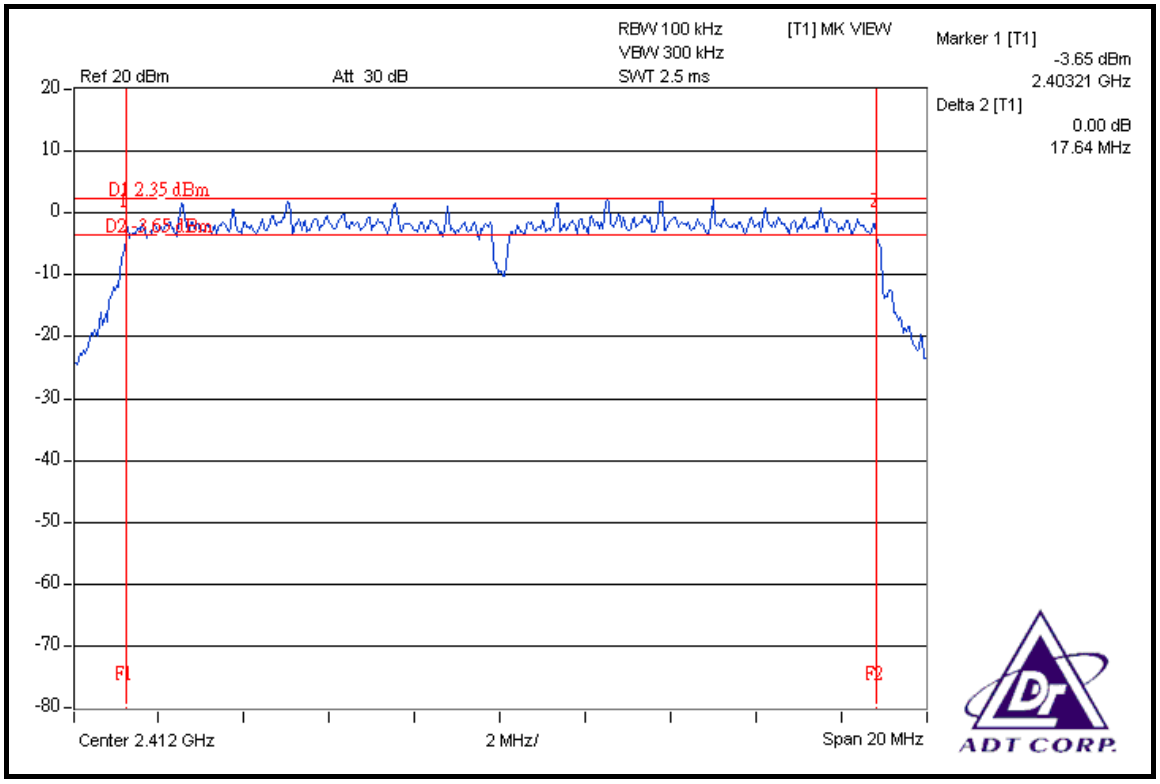

RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
[T1] MK VIEW
Marker 1 [T1]
-3.01 dBm
2.45316 GHz
Delta 2 [T1]
0.00 dB
17.71 MHz
Ref 20 dBm
Att 30 dB
D1 2.99 dBm
F1
F2
Center 2.462 GHz
2 MHz/
Span 20 MHz
ADT CORP.

DRAFT 802.11n (20MHz) OFDM MODULATION: 2TX

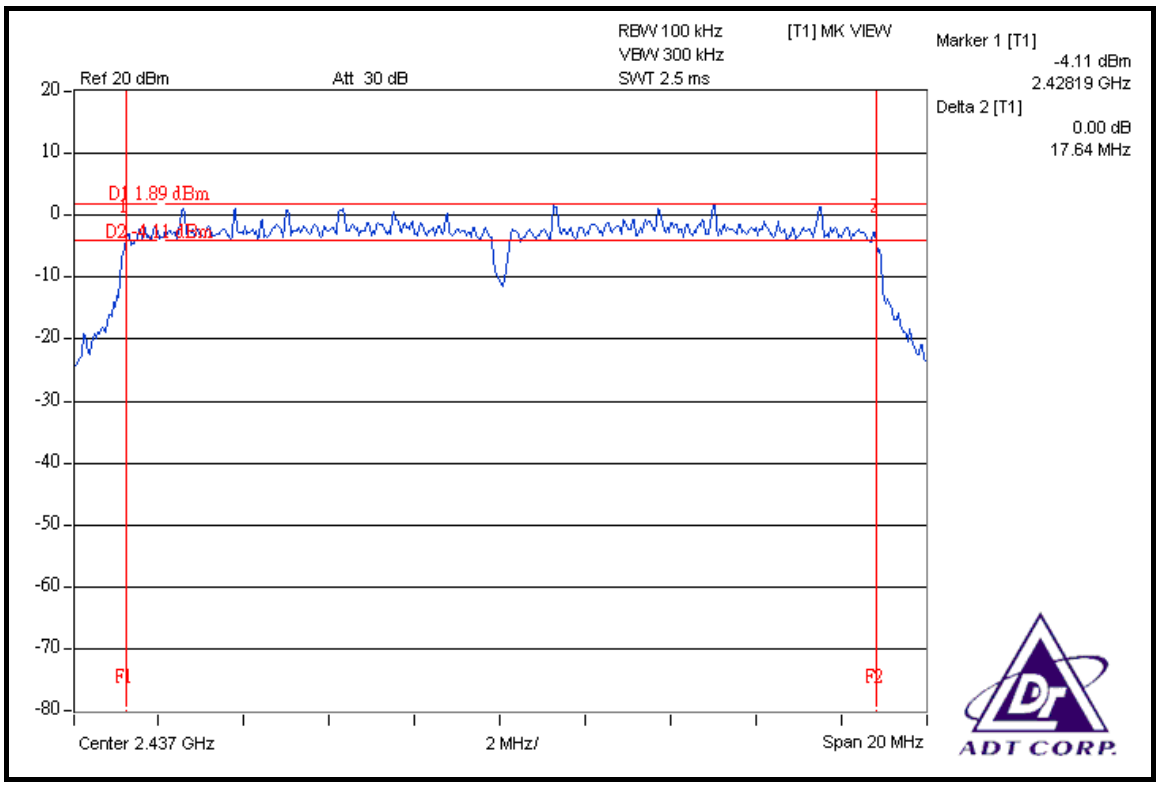
MODULATION TYPE	BPSK	**TRANSFER RATE**	7.2Mbps
INPUT POWER	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	25deg.C, 63%RH, 991hPa
TESTED BY	Dean Wang		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	17.64	17.67	0.5	PASS
6	2437	17.64	17.66	0.5	PASS
11	2462	17.67	17.67	0.5	PASS

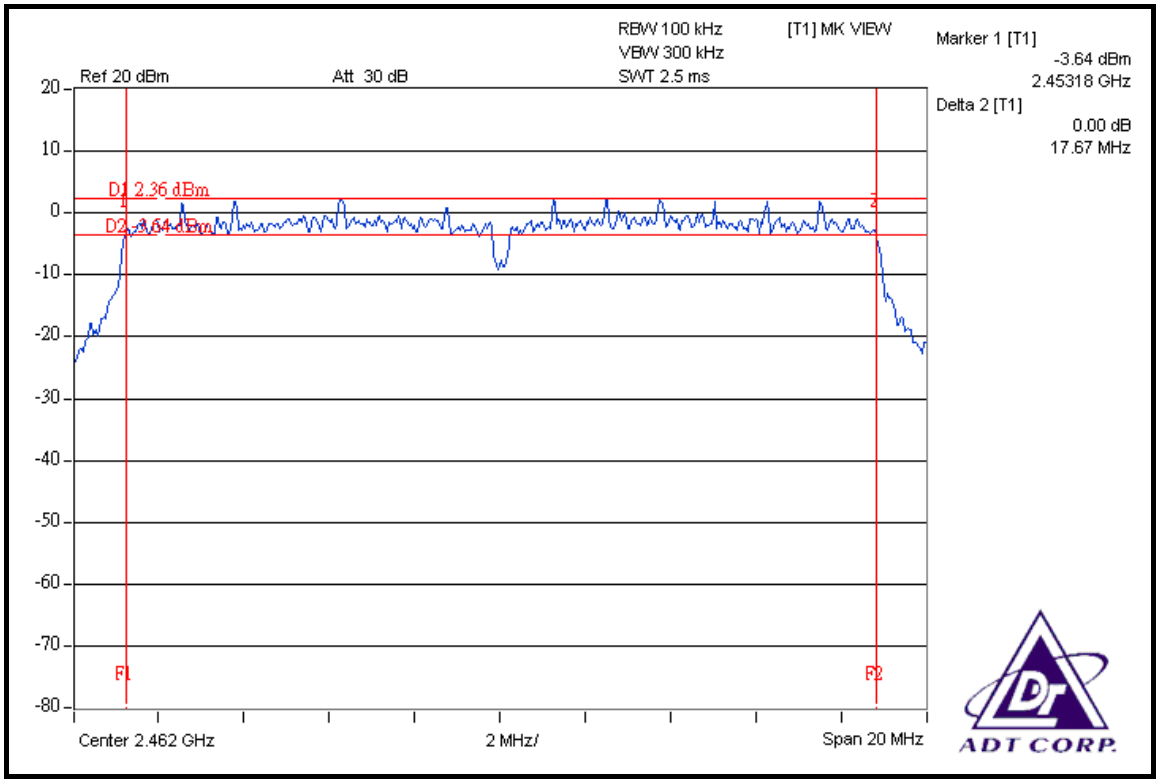
FOR CHAIN 0: CH 1



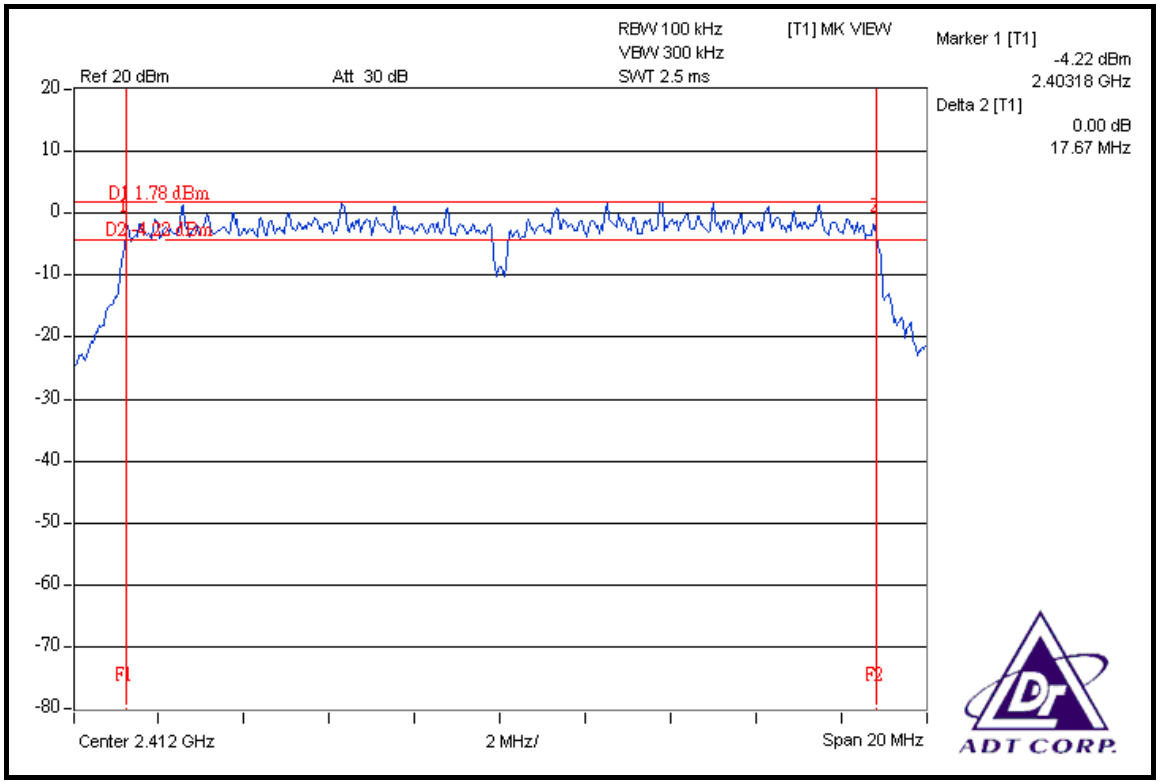
CH 6



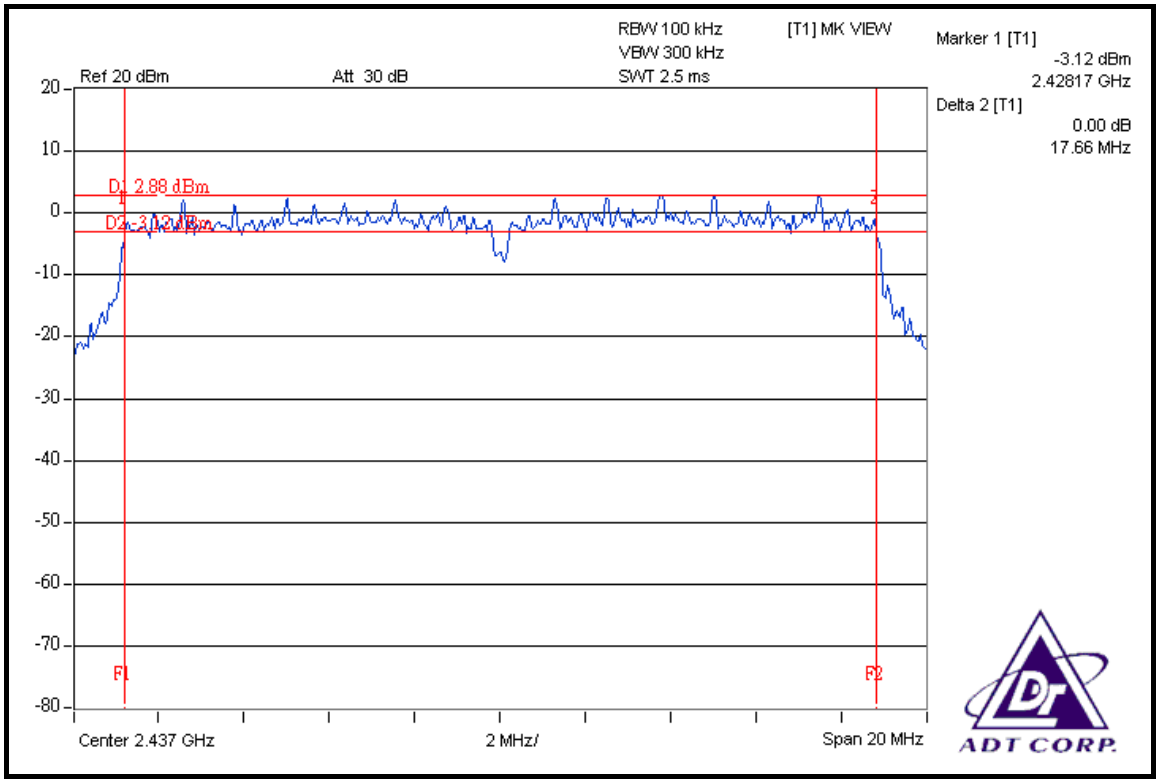
CH 11



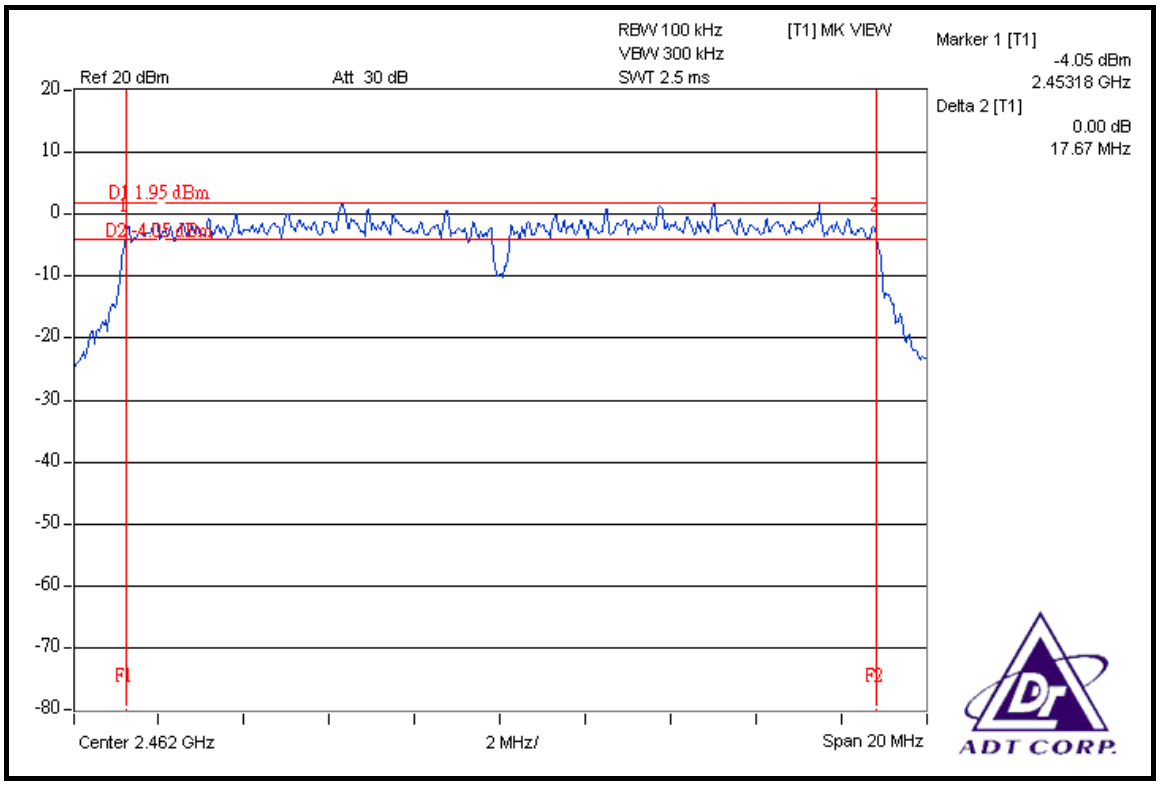
FOR CHAIN 1: CH 1



CH 6


RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
[T1] MK VIEW
Marker 1 [T1]
-3.12 dBm
2.42817 GHz
Delta 2 [T1]
0.00 dB
17.66 MHz
Ref 20 dBm
Att 30 dB
D1 2.88 dBm
D2 -3.12 dBm
F1
F2
Center 2.437 GHz
2 MHz/
Span 20 MHz
ADT CORP.

CH 11

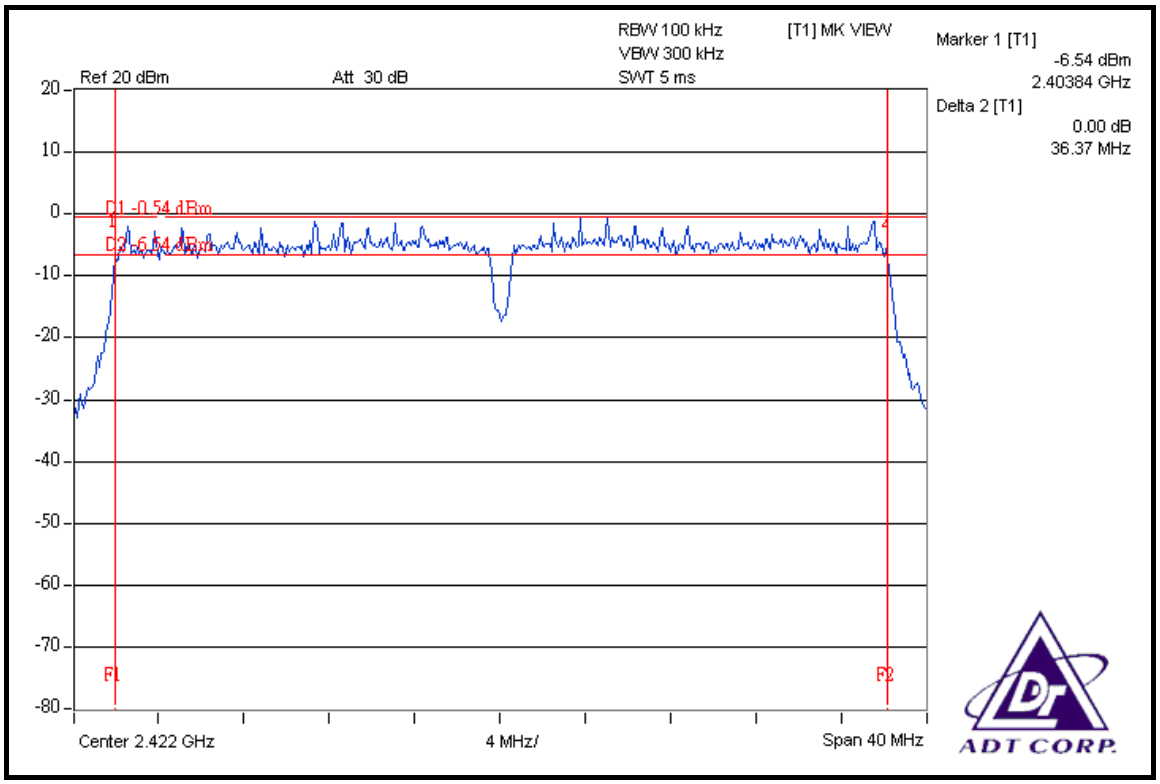

RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
[T1] MK VIEW
Marker 1 [T1]
-4.05 dBm
2.45318 GHz
Delta 2 [T1]
0.00 dB
17.67 MHz
Ref 20 dBm
Att 30 dB
D1 1.95 dBm
D2 -4.05 dBm
F1
F2
Center 2.462 GHz
2 MHz/
Span 20 MHz
ADT CORP.

DRAFT 802.11n (40MHz) OFDM MODULATION: 1TX

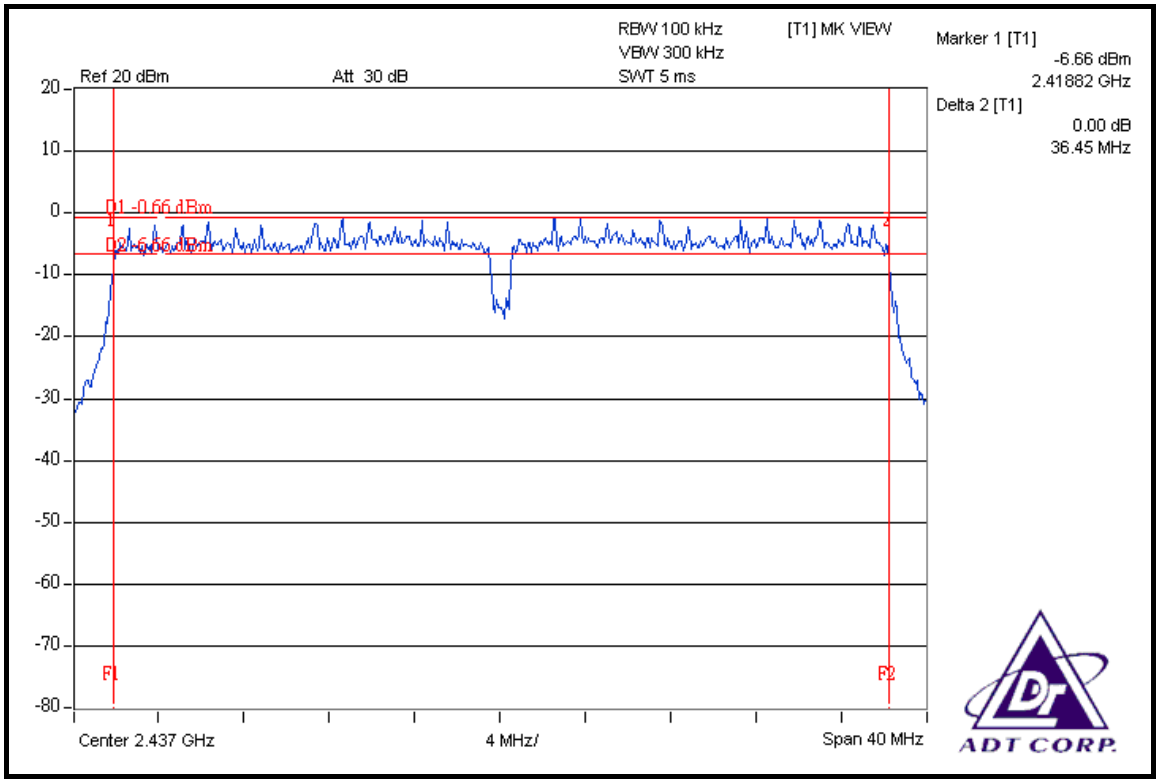
MODULATION TYPE	BPSK	**TRANSFER RATE**	15.0Mbps
INPUT POWER	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	25deg.C, 63%RH, 991hPa
TESTED BY	Dean Wang		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2422	36.37	0.5	PASS
4	2437	36.45	0.5	PASS
7	2452	36.46	0.5	PASS

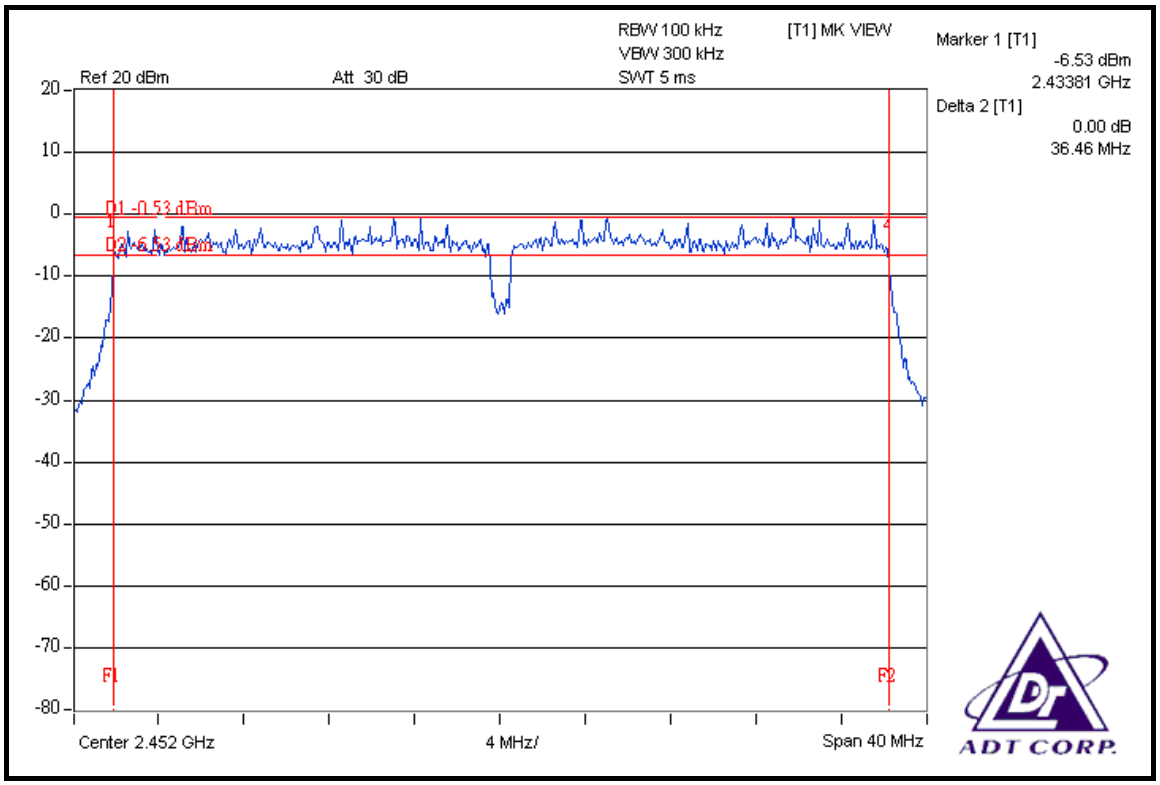
CH 1



CH 4


RBW 100 kHz
VBW 300 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
-6.66 dBm
2.41882 GHz
Delta 2 [T1]
0.00 dB
36.45 MHz
Ref 20 dBm
Att 30 dB
D1 -0.66 dBm
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
F1
F2
Center 2.437 GHz
4 MHz/
Span 40 MHz
ADT CORP.

CH 7

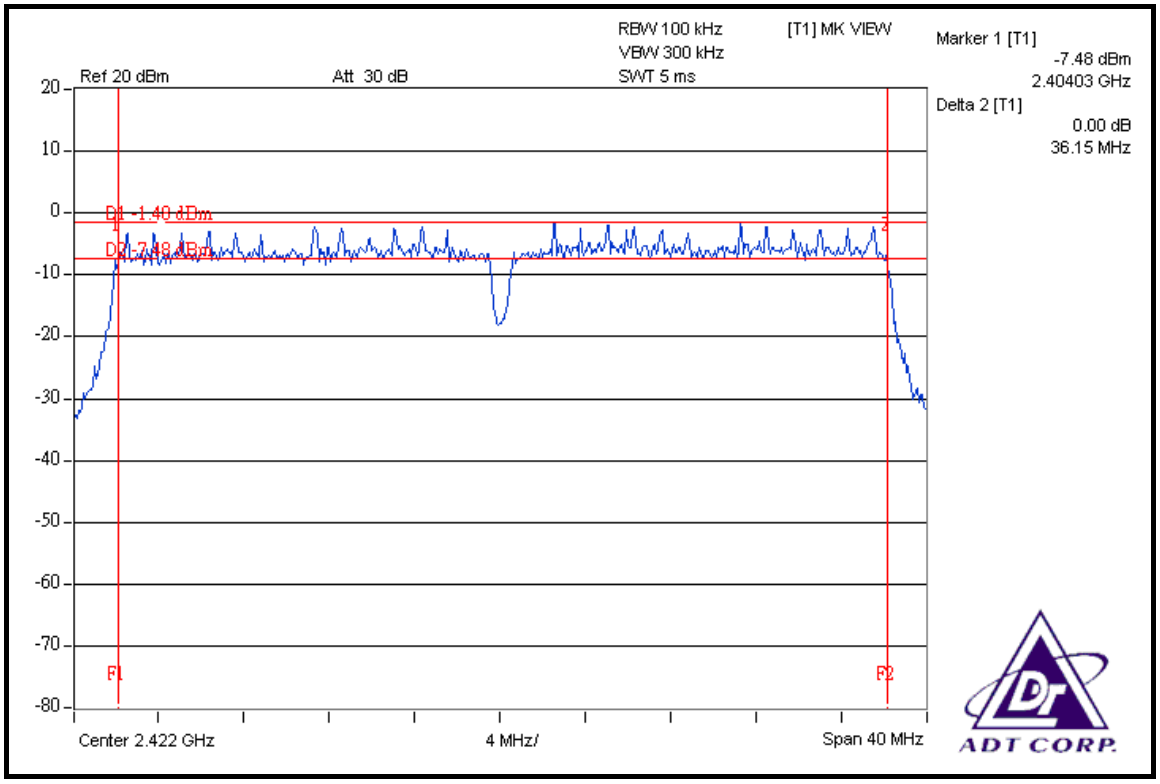

RBW 100 kHz
VBW 300 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
-6.53 dBm
2.43381 GHz
Delta 2 [T1]
0.00 dB
36.46 MHz
Ref 20 dBm
Att 30 dB
D1 -0.53 dBm
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
F1
F2
Center 2.452 GHz
4 MHz/
Span 40 MHz
ADT CORP.

DRAFT 802.11n (40MHz) OFDM MODULATION: 2TX

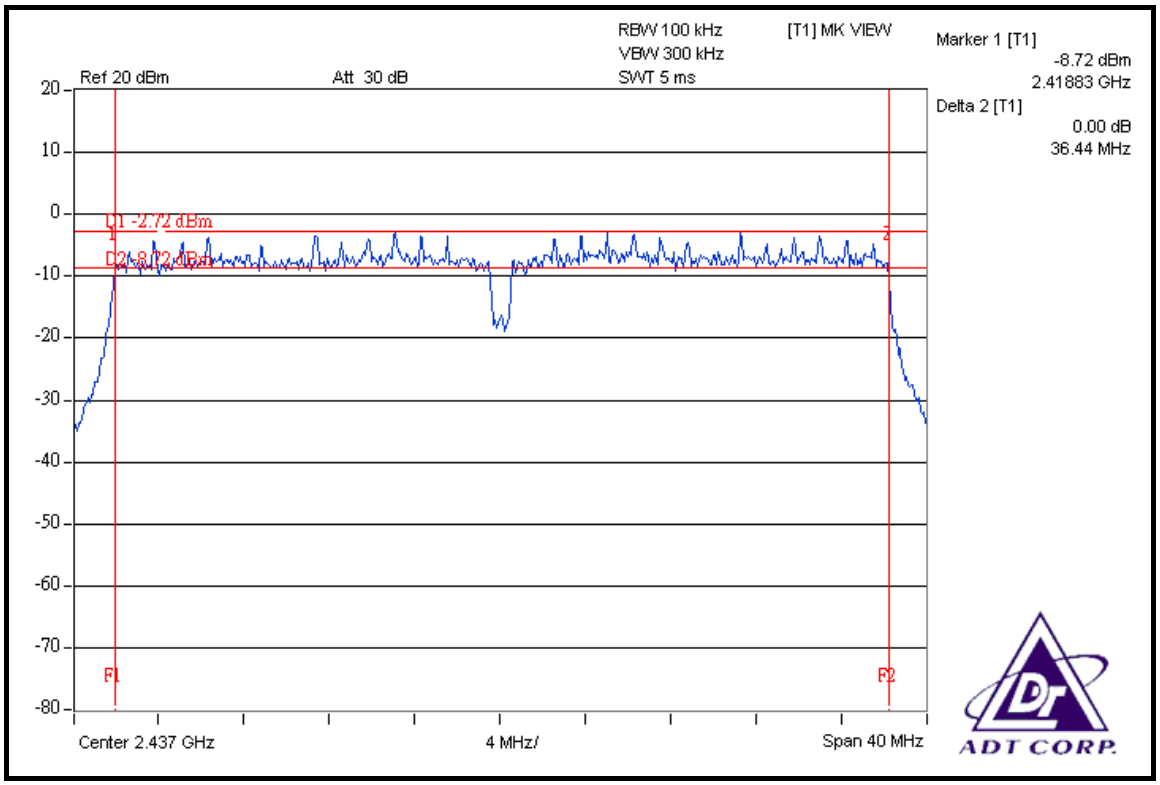
MODULATION TYPE	BPSK	TRANSFER RATE	15.0Mbps
INPUT POWER	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 63%RH, 991hPa
TESTED BY	Dean Wang		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2422	36.15	36.46	0.5	PASS
4	2437	36.44	36.45	0.5	PASS
7	2452	36.45	36.49	0.5	PASS

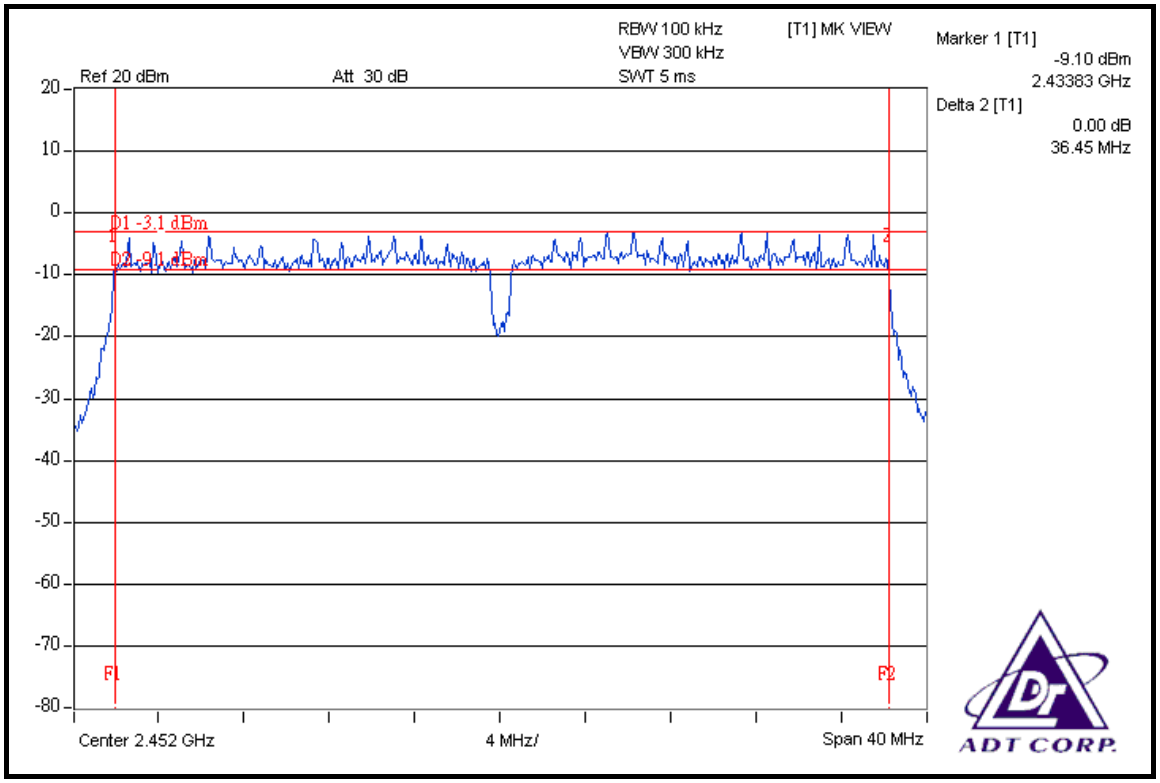
FOR CHAIN 0: CH 1



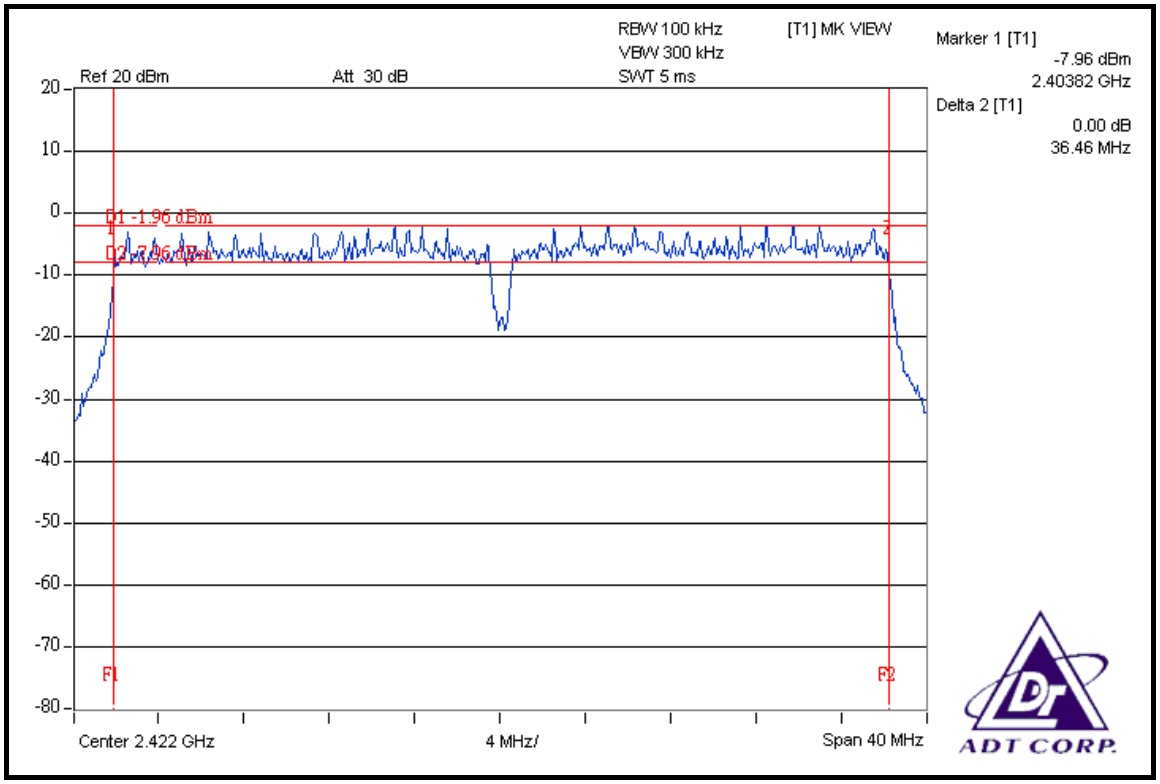
CH 4



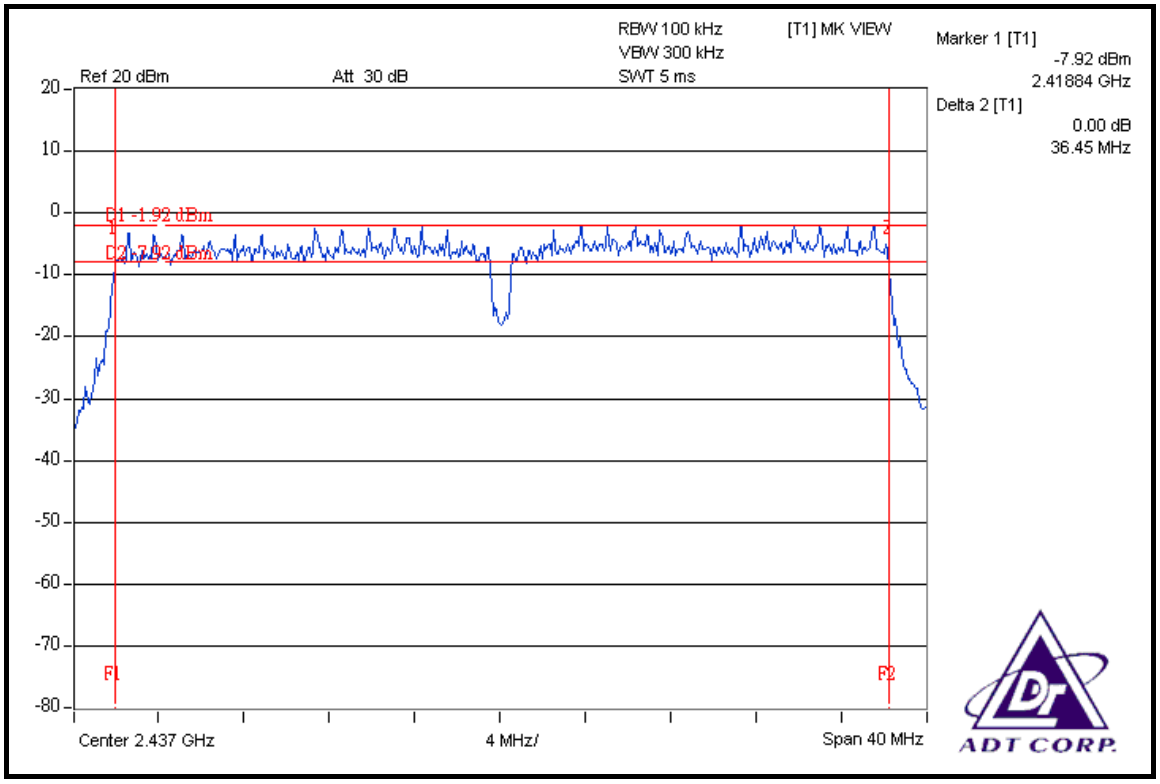
CH 7



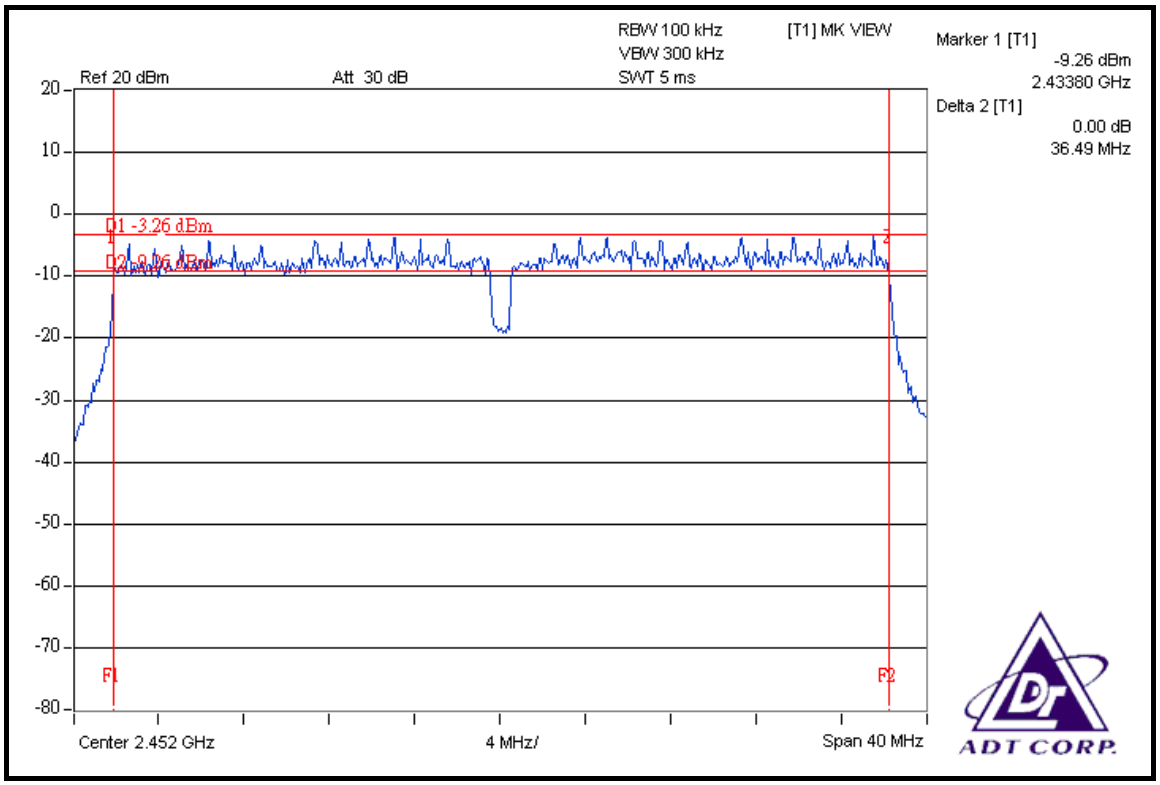
FOR CHAIN 1: CH 1



CH 4


RBW 100 kHz
VBW 300 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
-7.92 dBm
2.41884 GHz
Delta 2 [T1]
0.00 dB
36.45 MHz
Ref 20 dBm
Att 30 dB
D1 -1.92 dBm
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
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]
-9.26 dBm
2.43380 GHz
Delta 2 [T1]
0.00 dB
36.49 MHz
Ref 20 dBm
Att 30 dB
D1 -3.26 dBm
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
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.

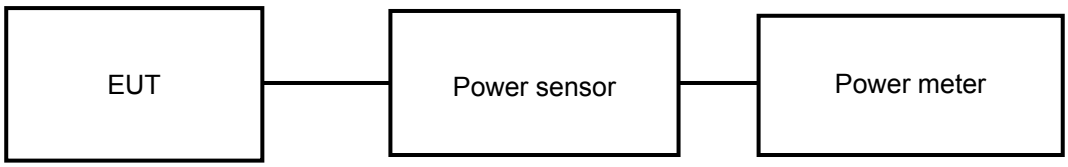
4.4.3 TEST PROCEDURES

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: 1TX

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

CHAN	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	80.353	19.05	30	PASS
6	2437	89.743	19.53	30	PASS
11	2462	79.799	19.02	30	PASS

802.11g OFDM MODULATIO: 1TX

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

CHAN	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	322.107	25.08	30	PASS
6	2437	317.687	25.02	30	PASS
11	2462	256.448	24.09	30	PASS

DRAFT 802.11n (20MHz) OFDM MODULATION: 1TX

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

CHAN	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	226.986	23.56	30	PASS
6	2437	200.447	23.02	30	PASS
11	2462	285.759	24.56	30	PASS

DRAFT 802.11n (20MHz) OFDM MODULATION: 2TX

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

CHANNEL	CHANNEL FREQUENCY (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	24.05	23.57	481.607	26.83	30	PASS
6	2437	23.59	24.52	511.699	27.09	30	PASS
11	2462	24.08	23.54	481.802	26.83	30	PASS

DRAFT 802.11n (40MHz) OFDM MODULATION: 1TX

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

CHAN	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2422	227.510	23.57	30	PASS
4	2437	230.144	23.62	30	PASS
7	2452	226.464	23.55	30	PASS

DRAFT 802.11n (40MHz) OFDM MODULATION: 2TX

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

CHANNEL	CHANNEL FREQUENCY (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	22.64	22.61	366.043	25.64	30	PASS
4	2437	21.58	22.58	325.014	25.12	30	PASS
7	2452	21.02	21.09	255.002	24.07	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
SPECTRUM ANALYZER	FSP 40	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

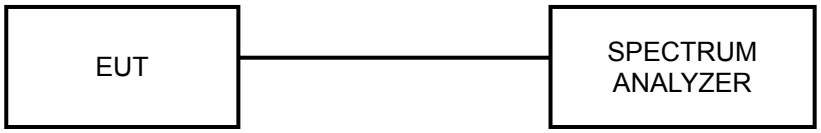
The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3kHz RBW and 30kHz VBW, set sweep time = span/3kHz. The power spectral density was measured and recorded.

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

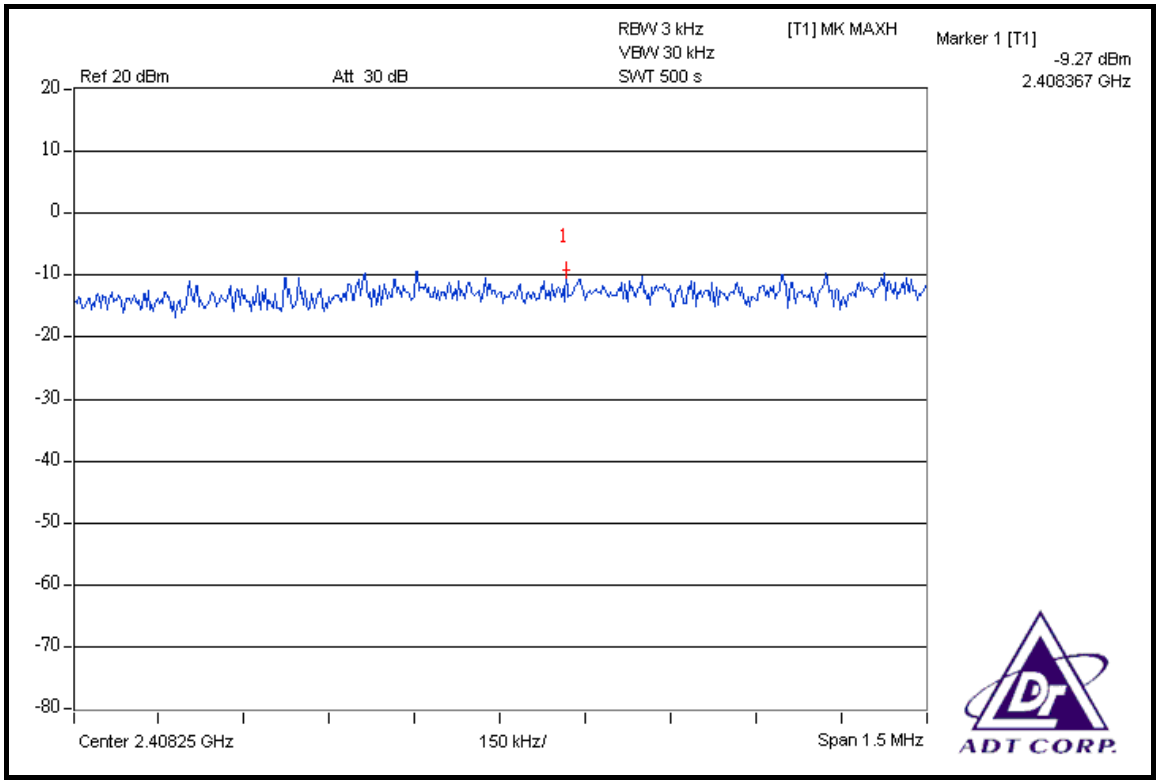
4.5.7 TEST RESULTS

802.11b DSSS MODULATION: 1TX

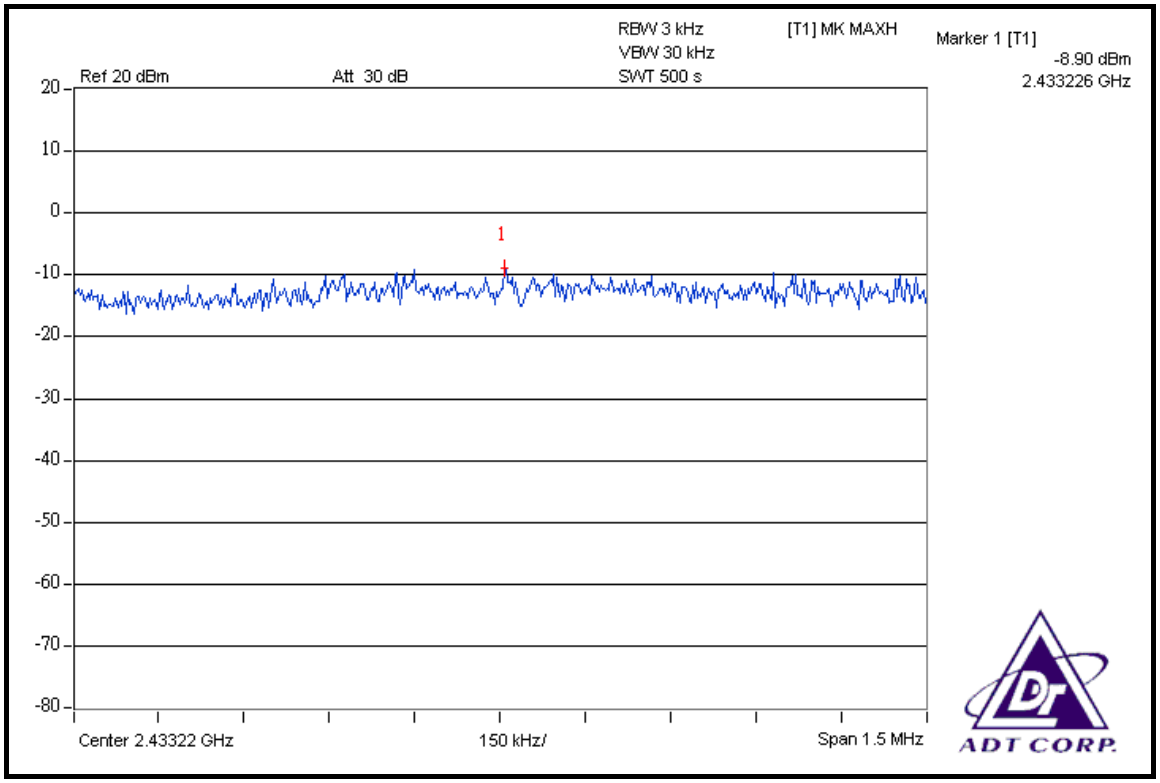
MODULATION TYPE	DBPSK	TRANSFER RATE	1.0Mbps
INPUT POWER	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 63%RH, 991hPa
TESTED BY	Dean Wang		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-9.27	8	PASS
6	2437	-8.90	8	PASS
11	2462	-9.45	8	PASS

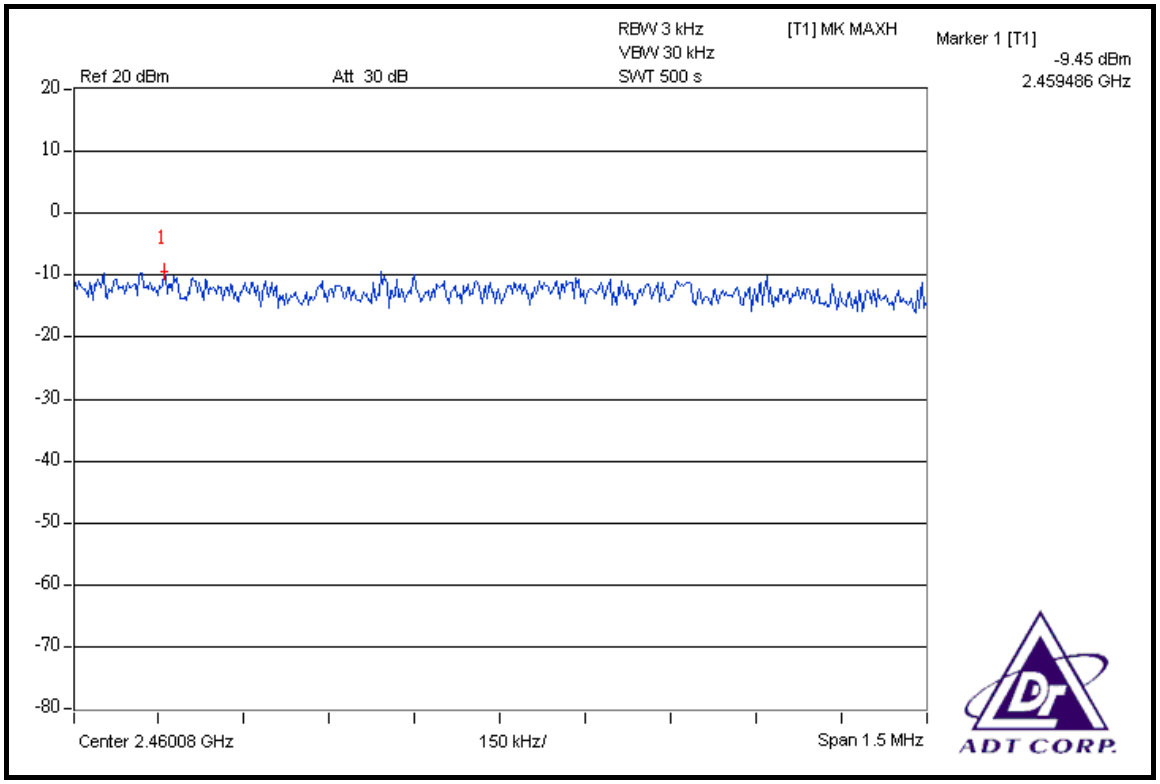
CH 1



CH 6


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-8.90 dBm
2.433226 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Center 2.43322 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

CH 11

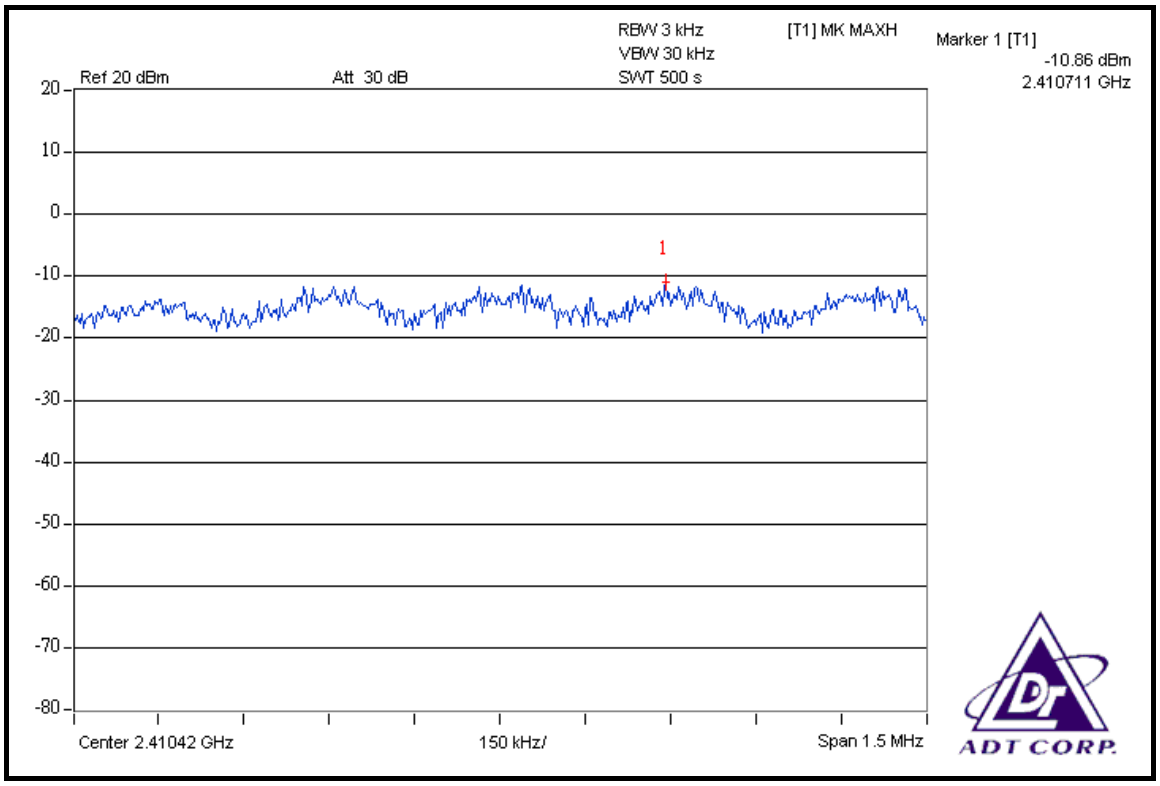

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-9.45 dBm
2.459486 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Center 2.46008 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

802.11g OFDM MODULATION: 1TX

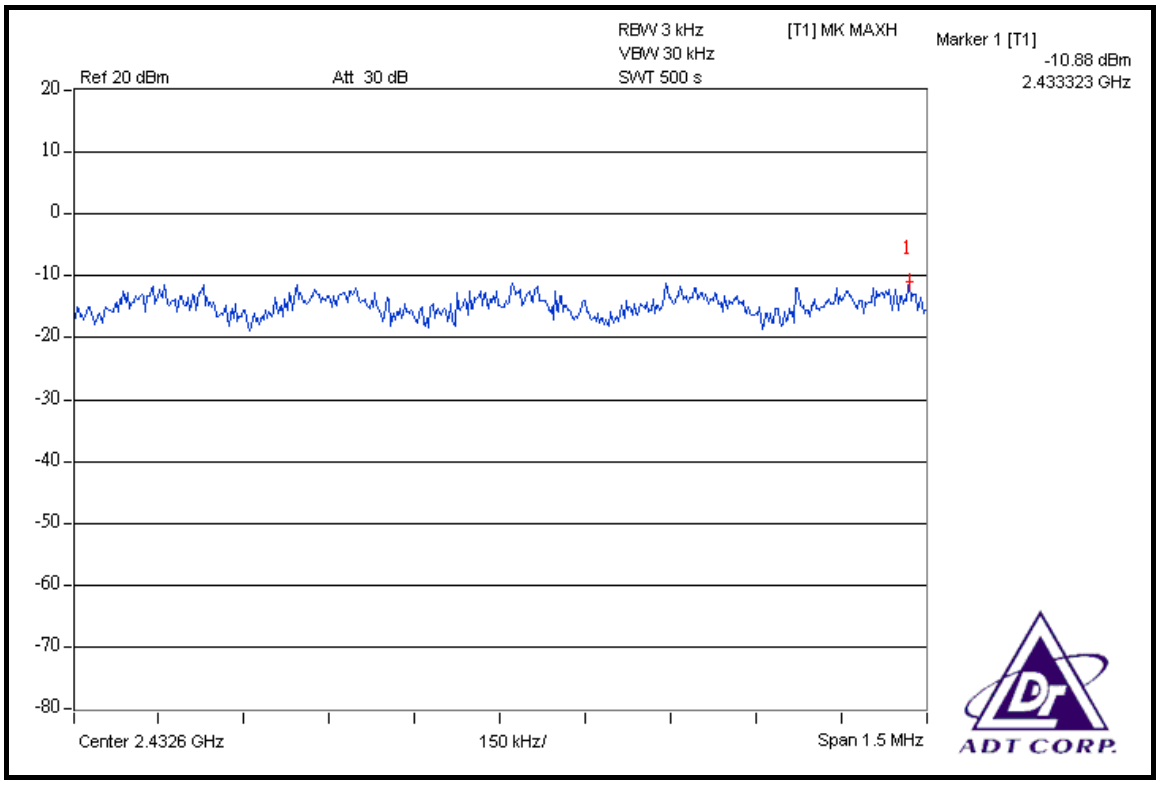
MODULATION TYPE	BPSK	TRANSFER RATE	6.0Mbps
INPUT POWER	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 63%RH, 991hPa
TESTED BY	Dean Wang		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-10.86	8	PASS
6	2437	-10.88	8	PASS
11	2462	-11.84	8	PASS

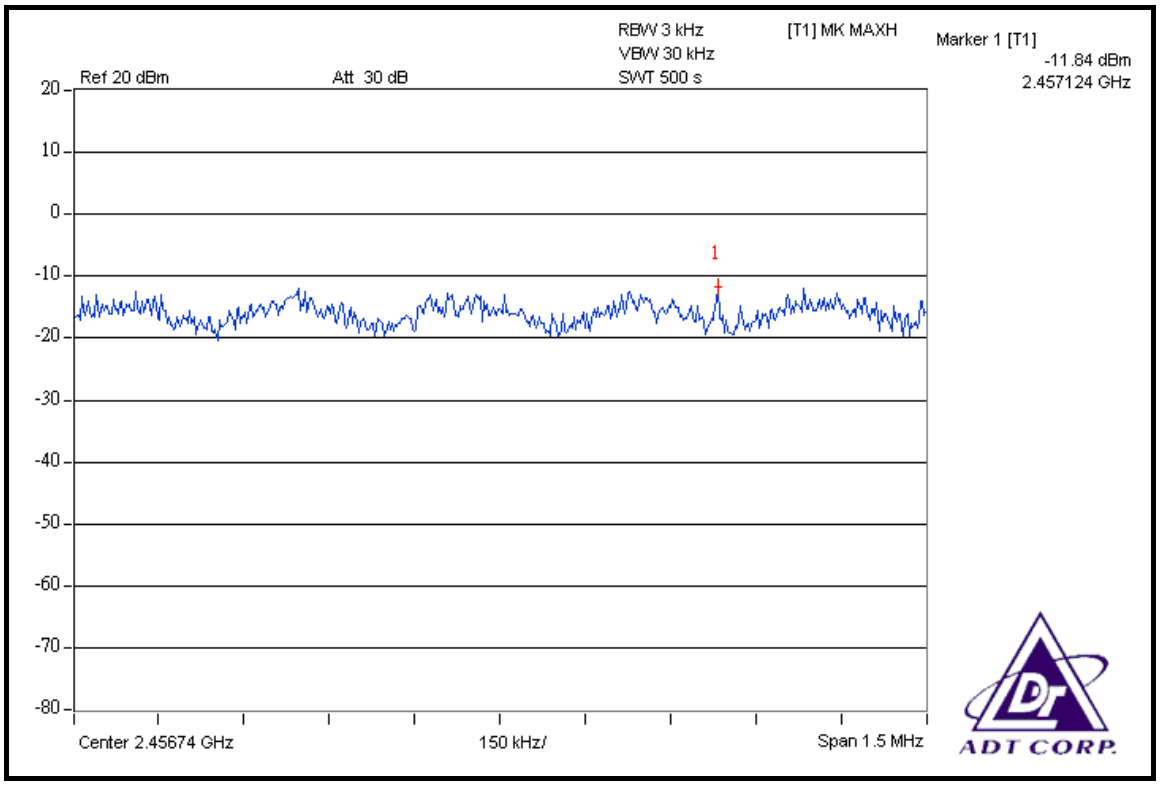
CH 1



CH 6


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-10.88 dBm
2.433323 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Center 2.4326 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

CH 11

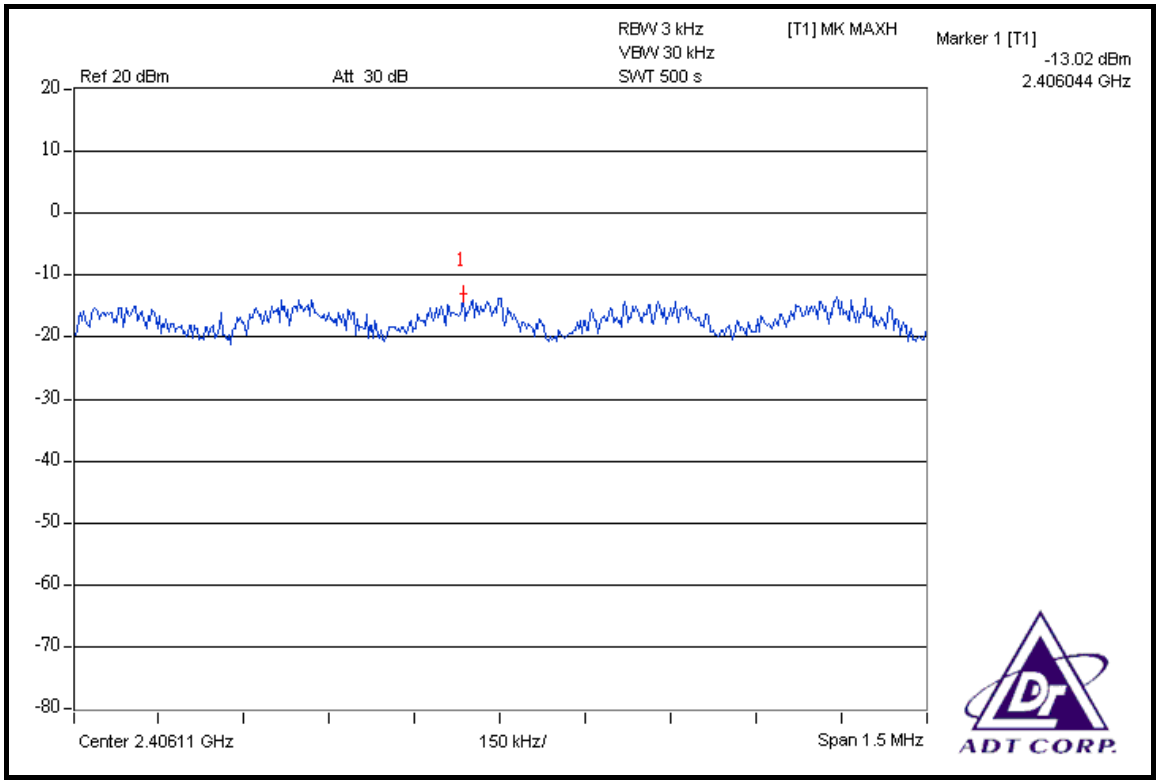

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-11.84 dBm
2.457124 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Center 2.45674 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

DRAFT 802.11n (20MHz) OFDM MODULATION: 1TX

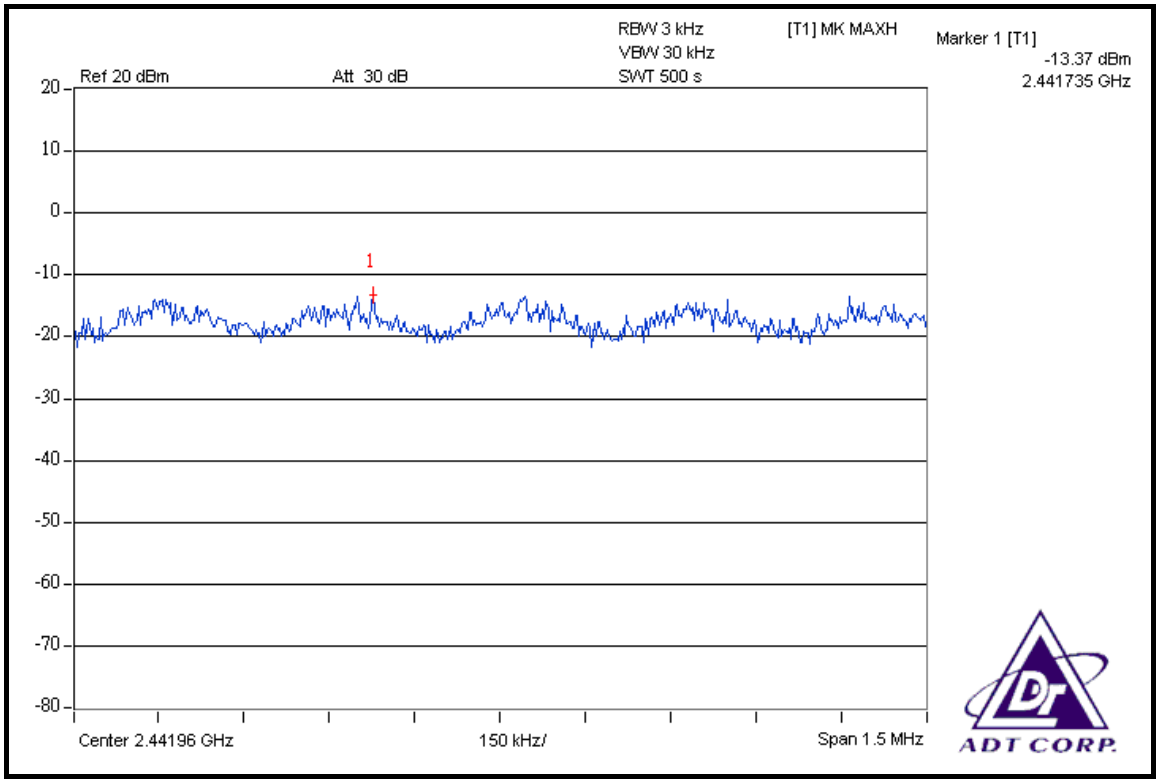
MODULATION TYPE	BPSK	**TRANSFER RATE**	7.2Mbps
INPUT POWER	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	25deg.C, 63%RH, 991hPa
TESTED BY	Dean Wang		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-13.02	8	PASS
6	2437	-13.37	8	PASS
11	2462	-11.83	8	PASS

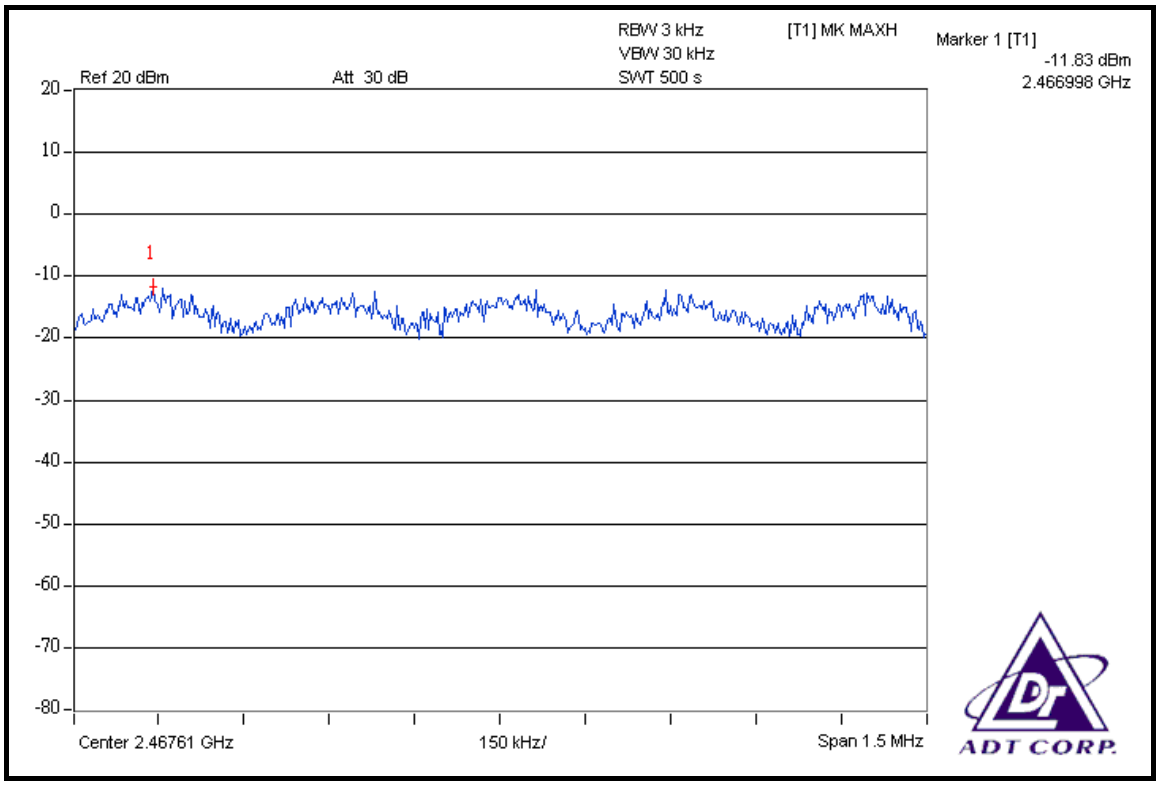
CH 1



CH 6


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-13.37 dBm
2.441735 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Center 2.44196 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

CH 11

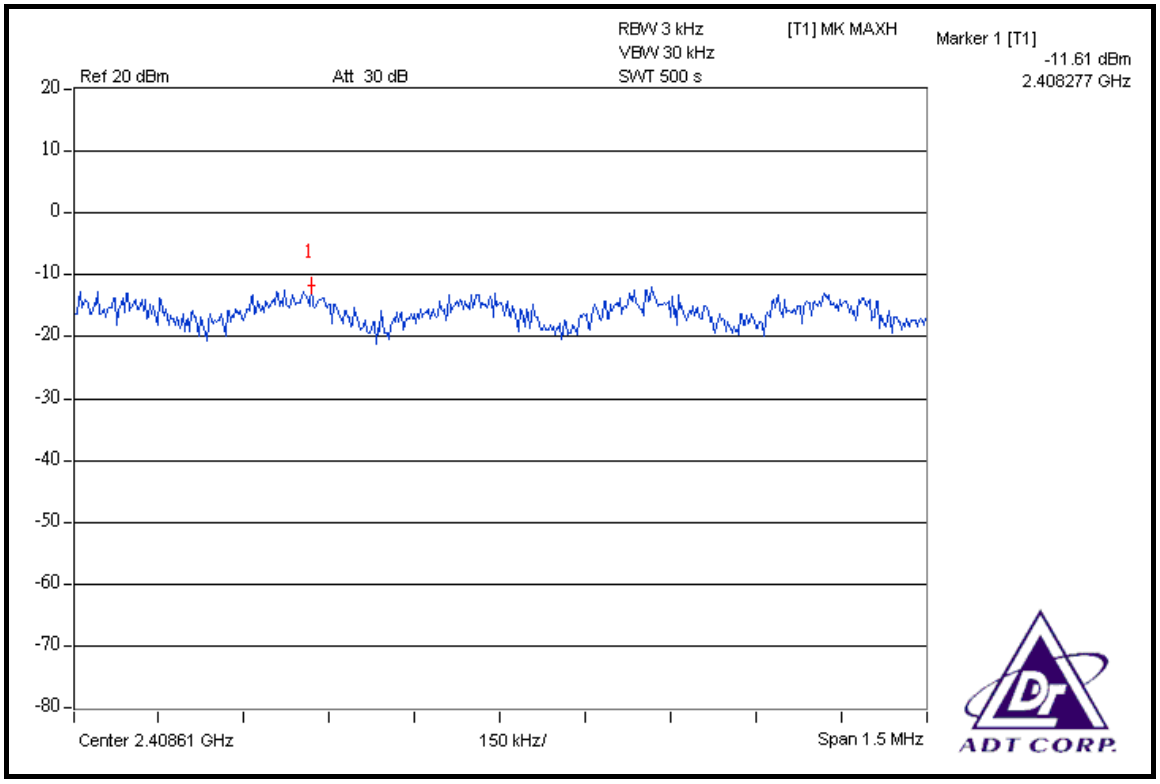

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-11.83 dBm
2.466998 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Center 2.46761 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

DRAFT 802.11n (20MHz) OFDM MODULATION: 2TX

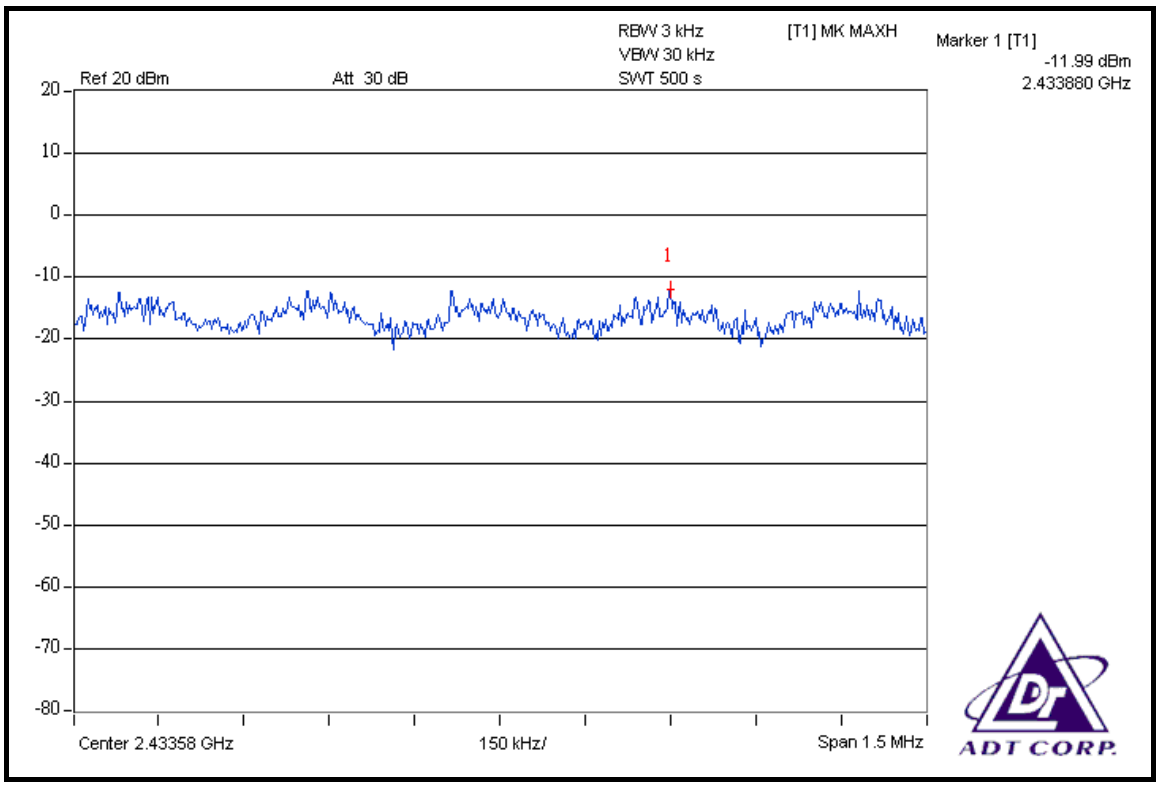
MODULATION TYPE	BPSK	**TRANSFER RATE**	7.2Mbps
INPUT POWER	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	25deg.C, 63%RH, 991hPa
TESTED BY	Dean Wang		

CHANNEL	CHANNEL FREQUENCY (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	-11.61	-11.99	0.132	-8.79	8	PASS
6	2437	-11.99	-10.88	0.145	-8.39	8	PASS
11	2462	-11.44	-11.81	0.138	-8.61	8	PASS

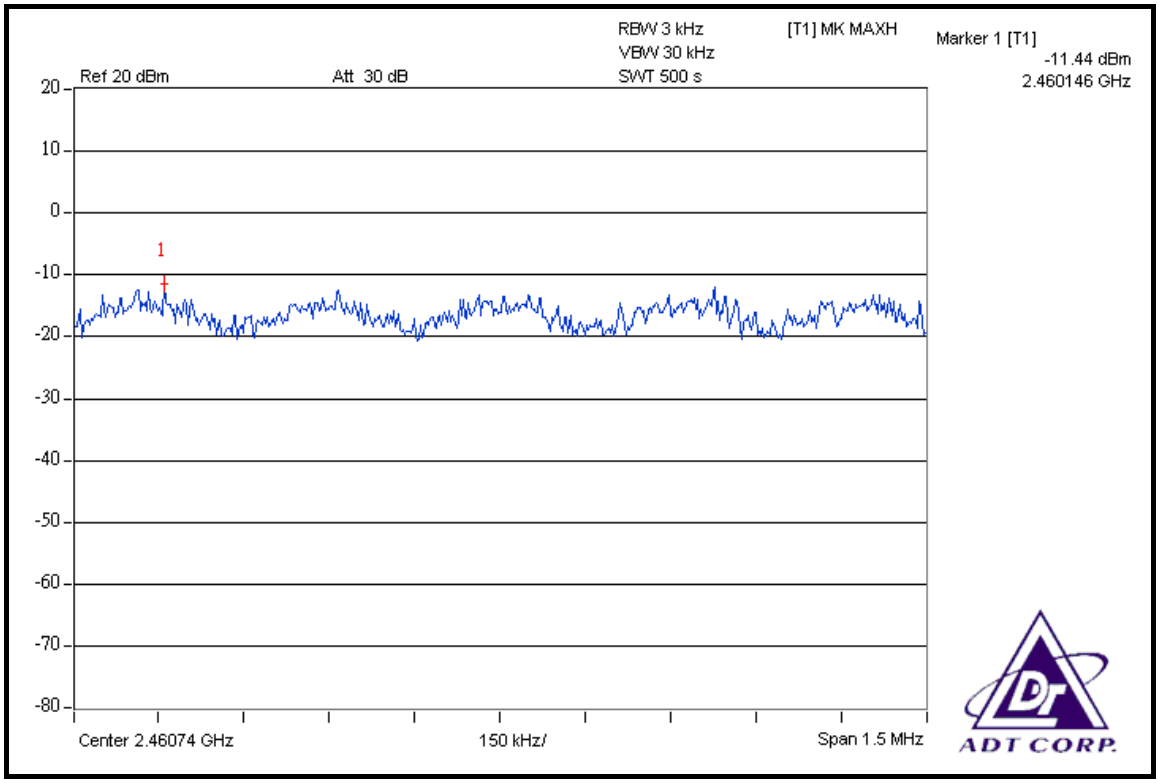
FOR CHAIN 0: CH 1



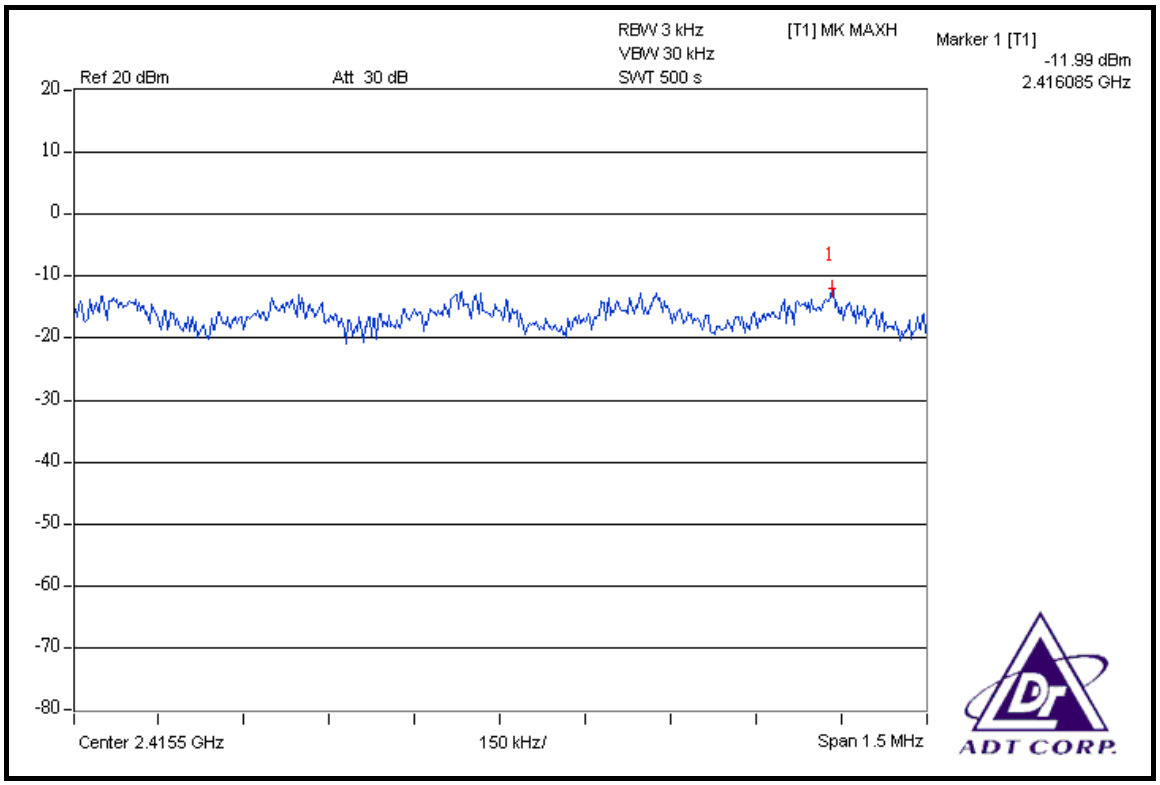
CH 6



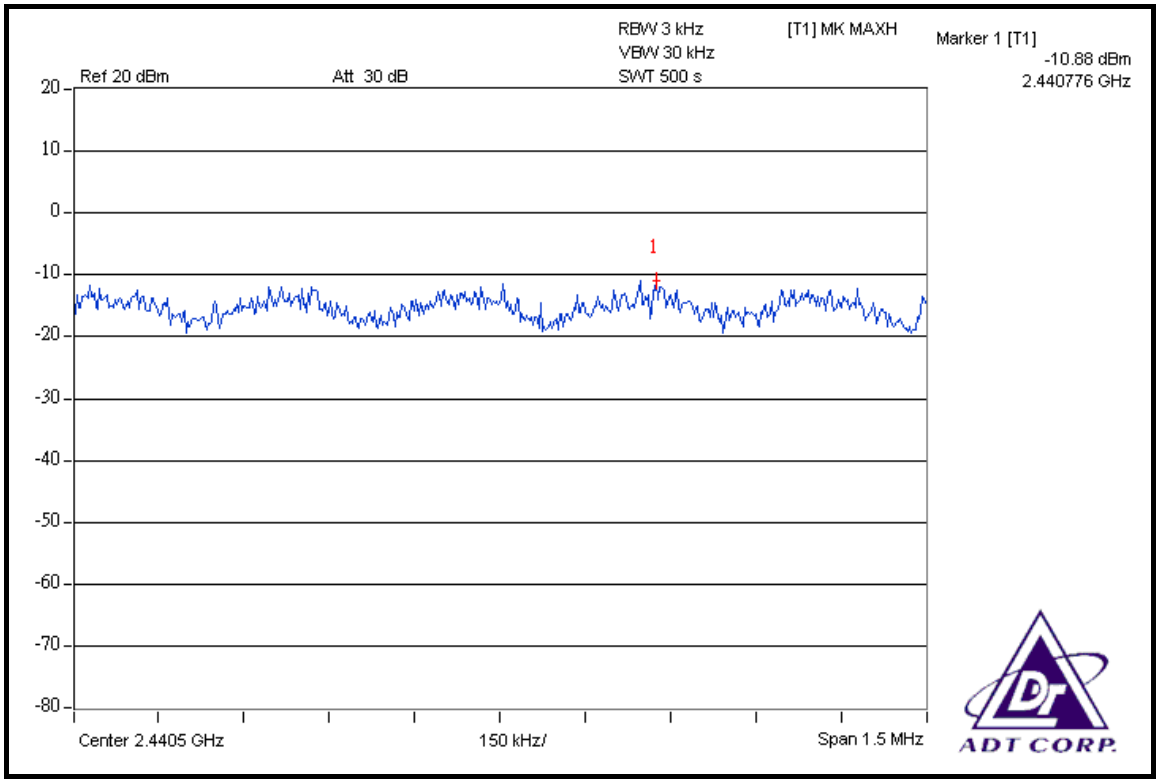
CH 11



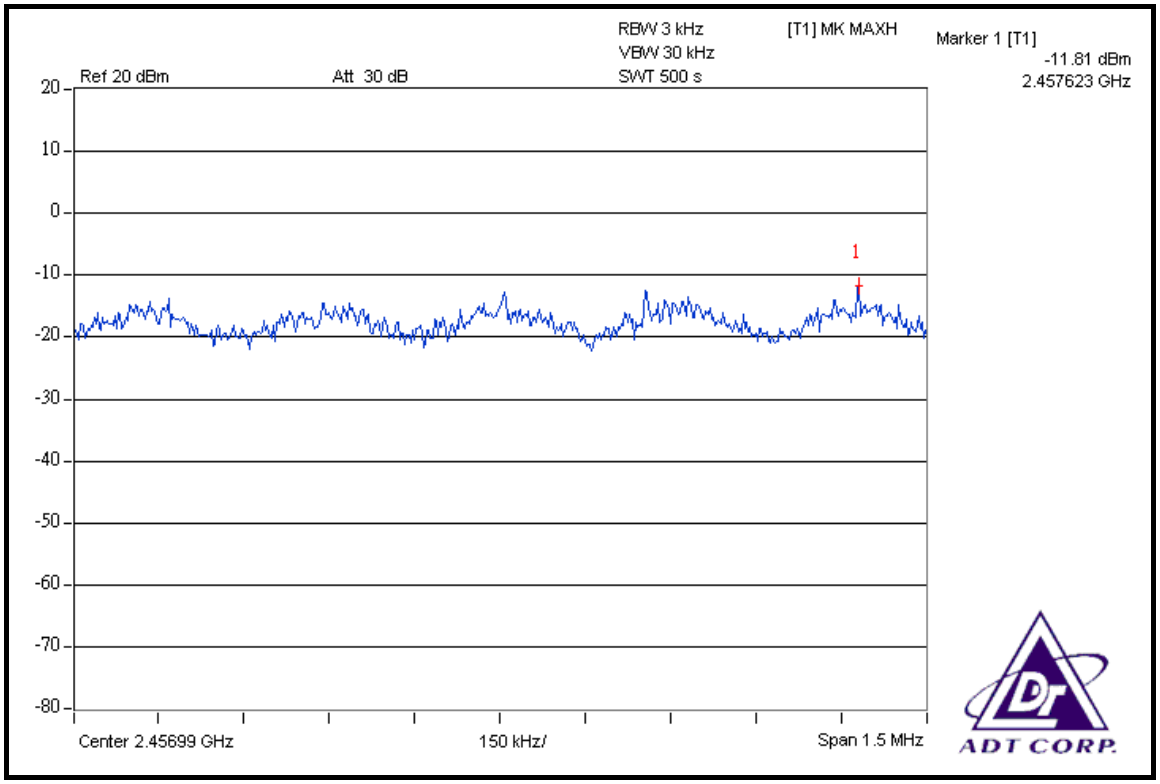
FOR CHAIN 1: CH 1



CH 6


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-10.88 dBm
2.440776 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Center 2.4405 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

CH 11

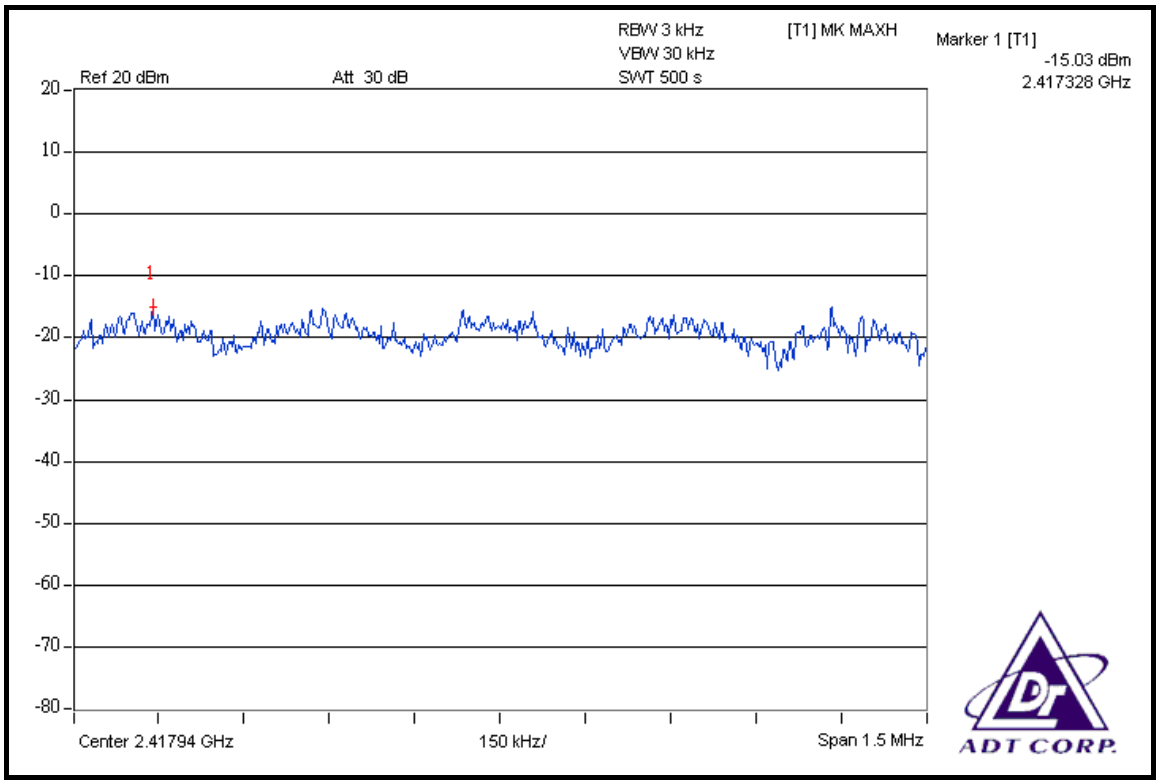

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-11.81 dBm
2.457623 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Center 2.45699 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

DRAFT 802.11n (40MHz) OFDM MODULATION: 1TX

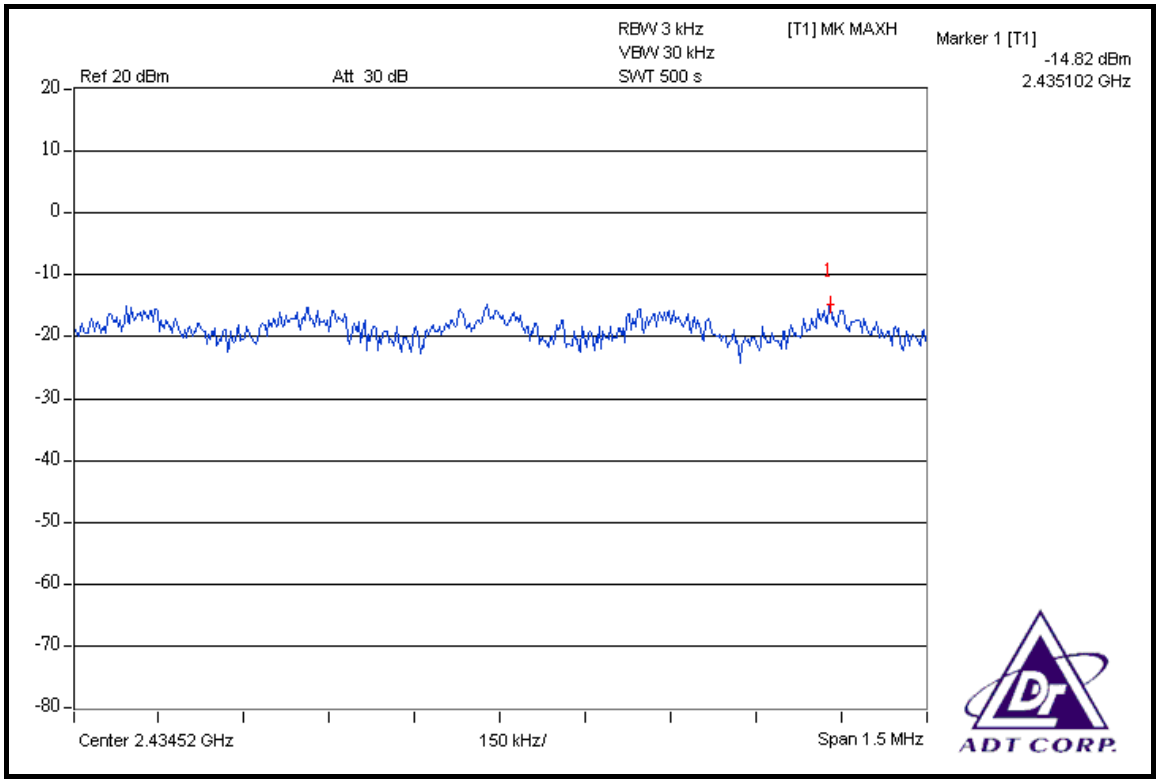
MODULATION TYPE	BPSK	**TRANSFER RATE**	15.0Mbps
INPUT POWER	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	25deg.C, 63%RH, 991hPa
TESTED BY	Dean Wang		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2422	-15.03	8	PASS
4	2437	-14.82	8	PASS
7	2452	-14.84	8	PASS

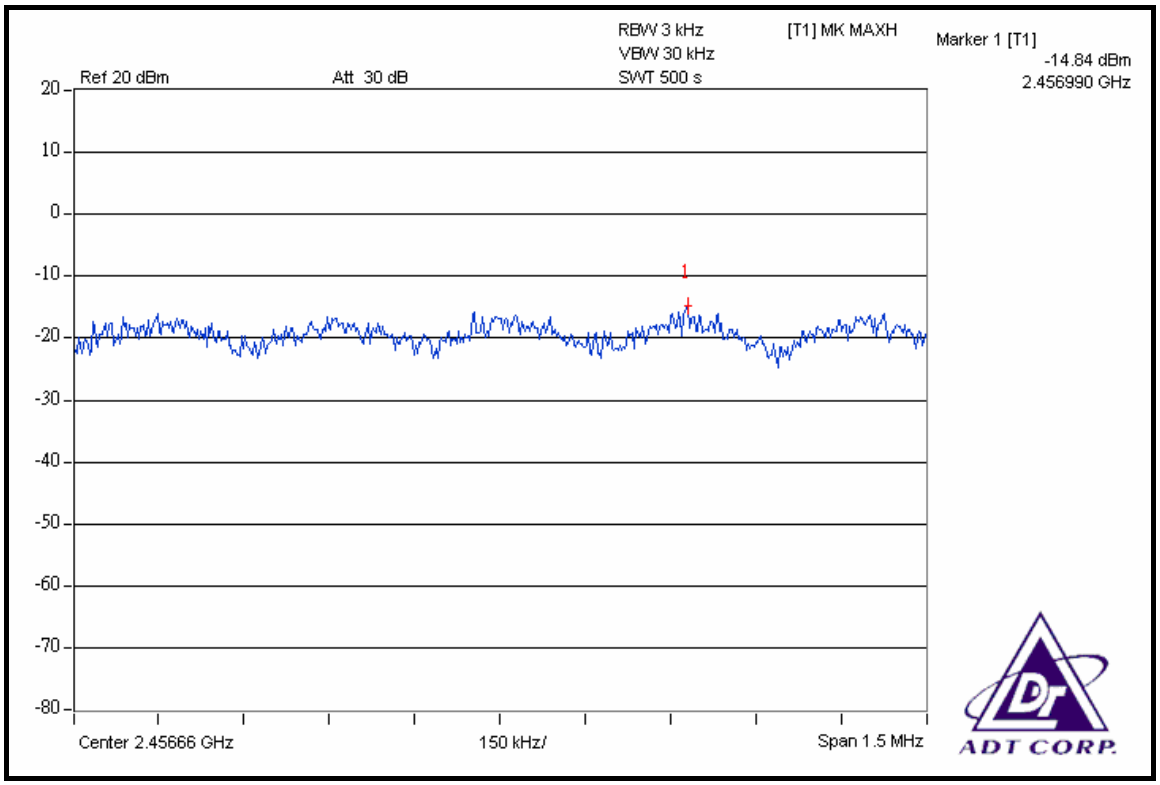
CH 1



CH 4


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-14.82 dBm
2.435102 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.43452 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

CH 7

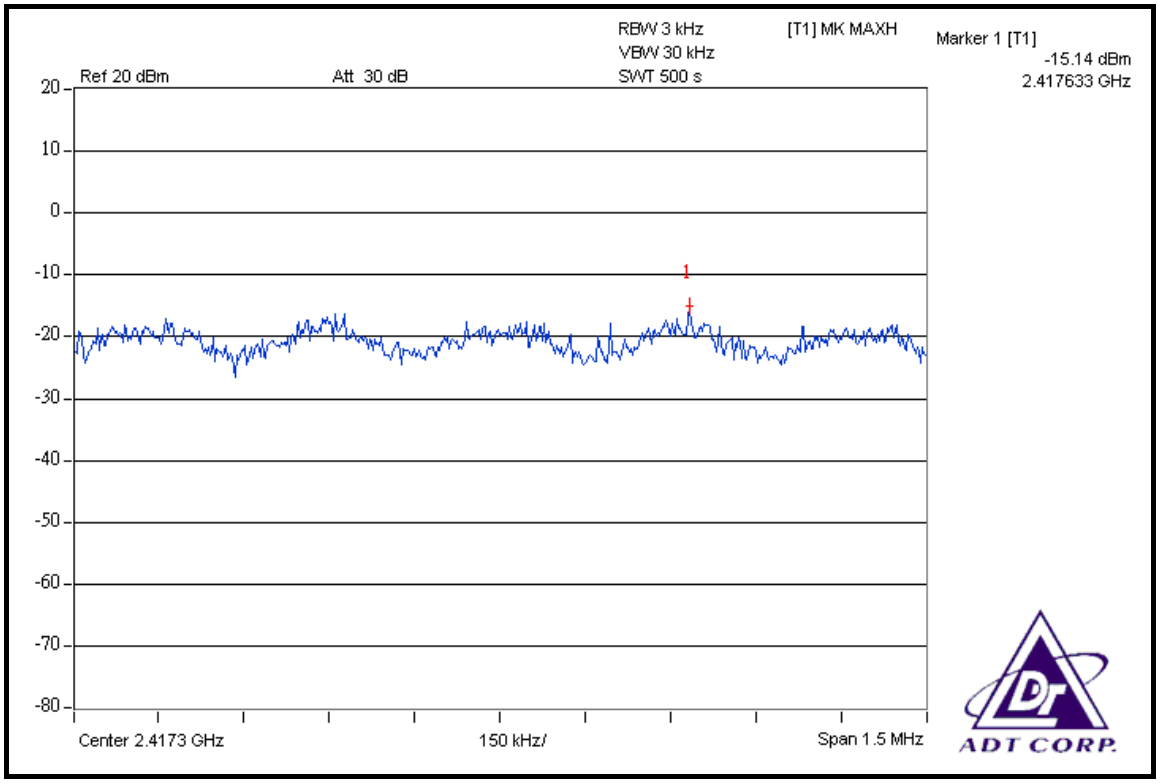

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-14.84 dBm
2.456990 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.45666 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

DRAFT 802.11n (40MHz) OFDM MODULATION: 2TX

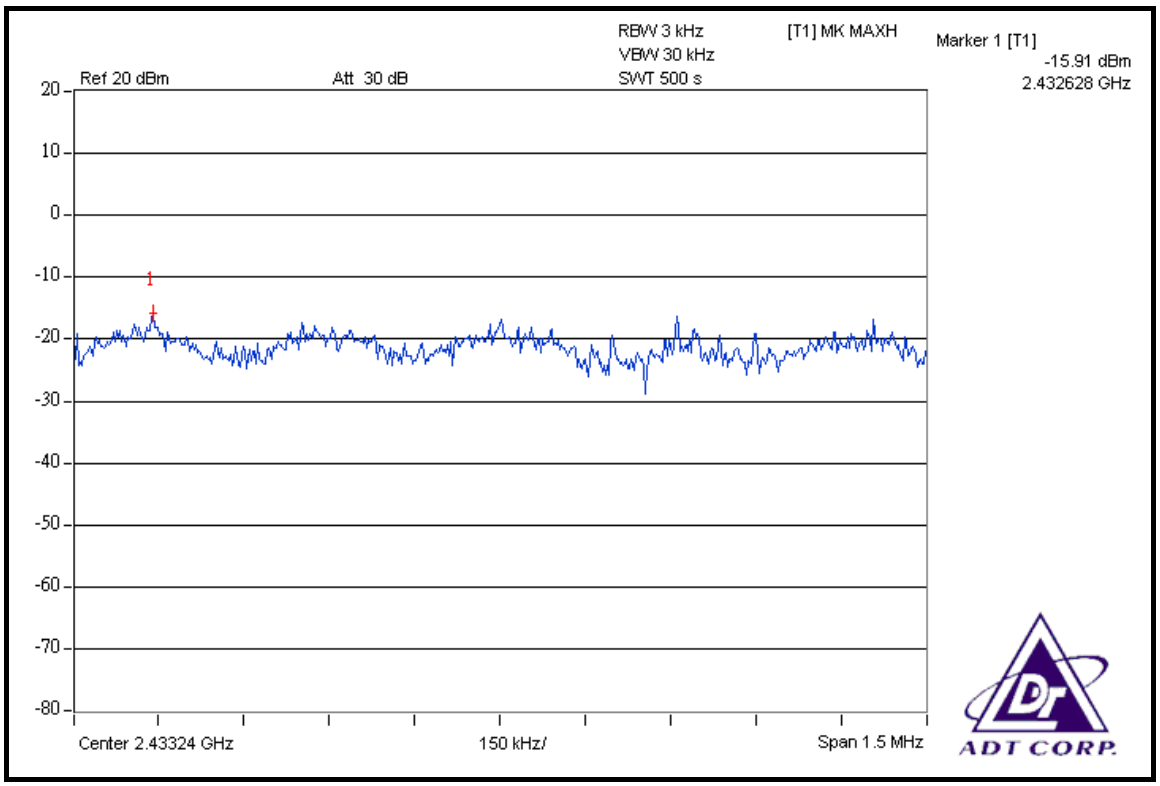
MODULATION TYPE	BPSK	**TRANSFER RATE**	15.0Mbps
INPUT POWER	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	25deg.C, 63%RH, 991hPa
TESTED BY	Dean Wang		

CHANNEL	CHANNEL FREQUENCY (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	-15.14	-15.06	0.062	-12.09	8	PASS
4	2437	-15.91	-15.02	0.057	-12.43	8	PASS
7	2452	-16.49	-16.41	0.045	-13.44	8	PASS

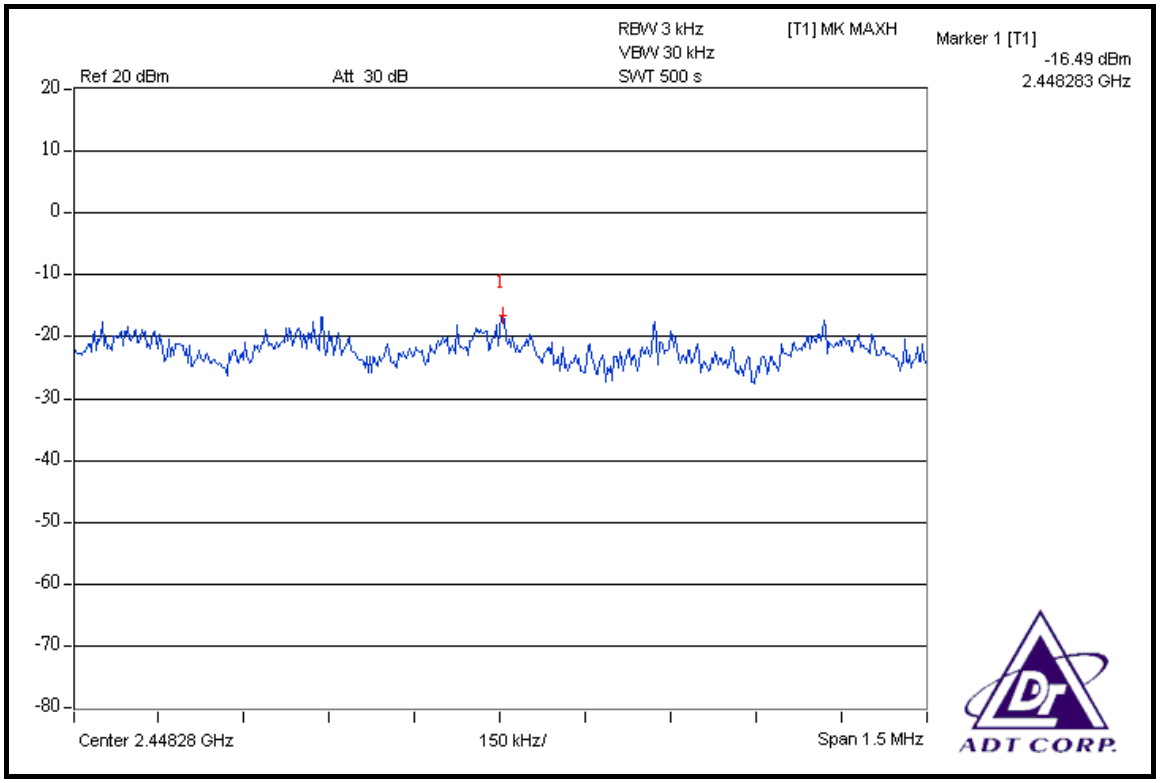
FOR CHAIN 0: CH 1



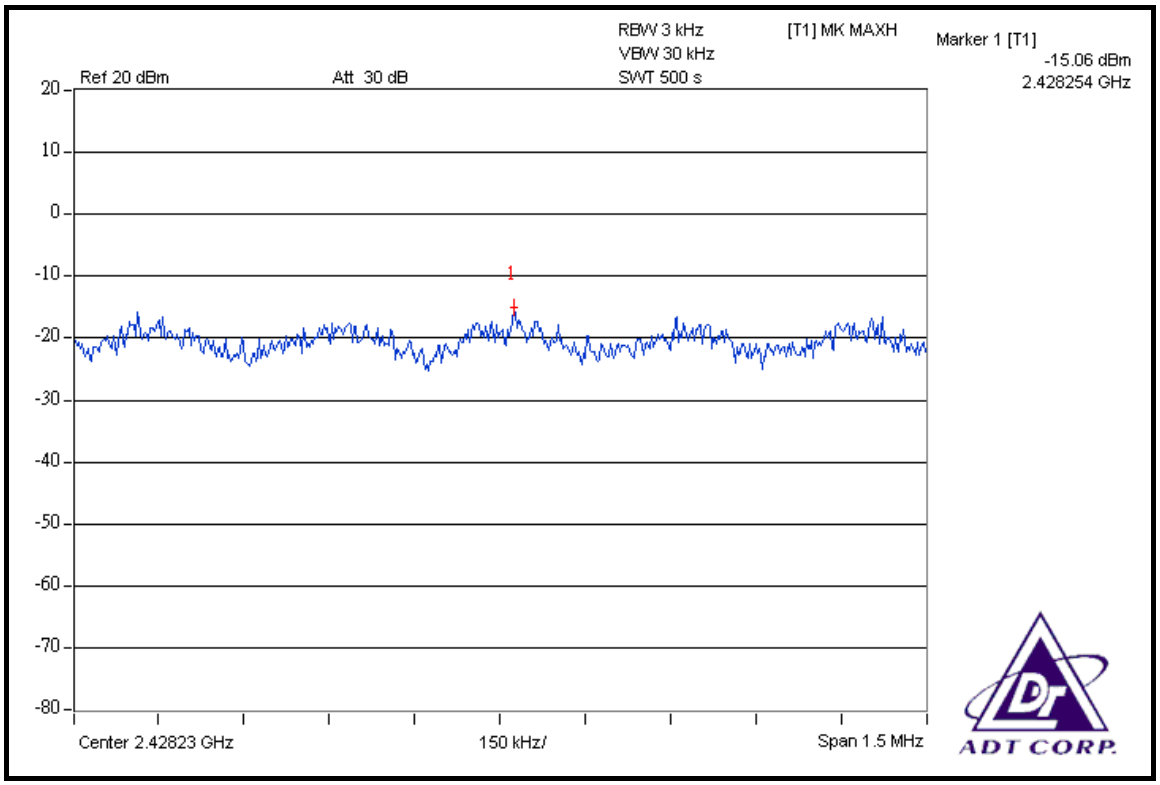
CH 4



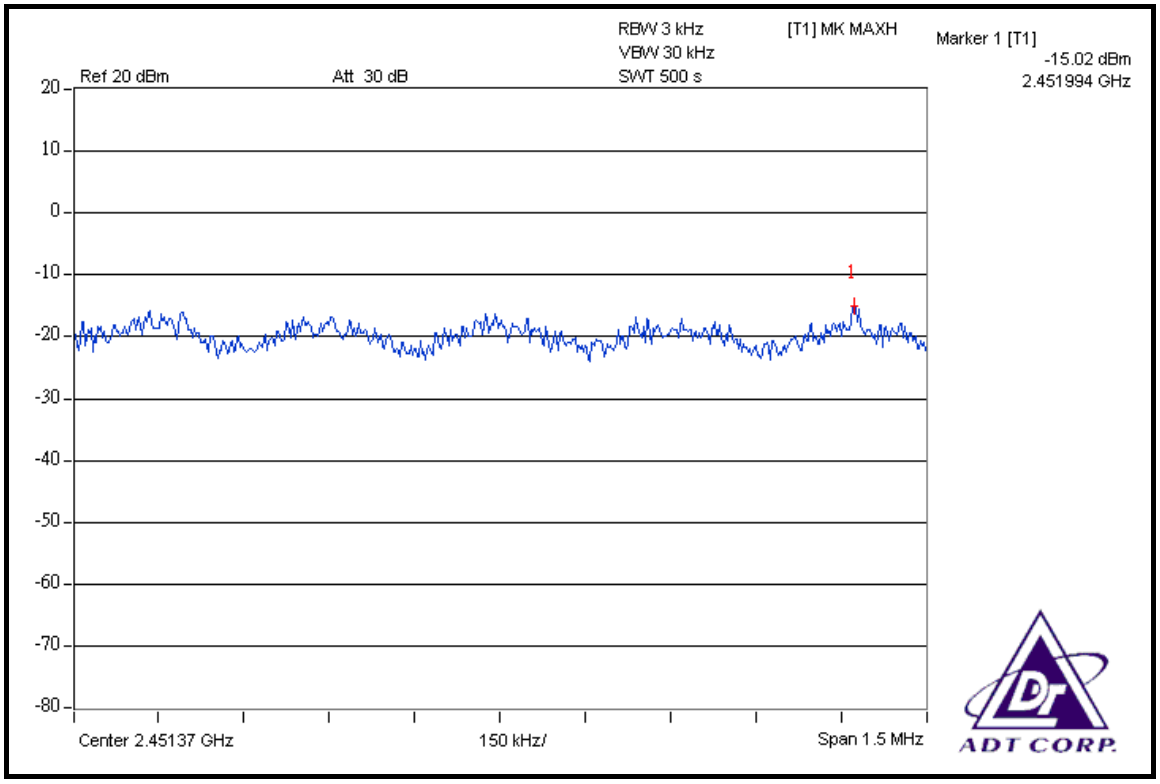
CH 7



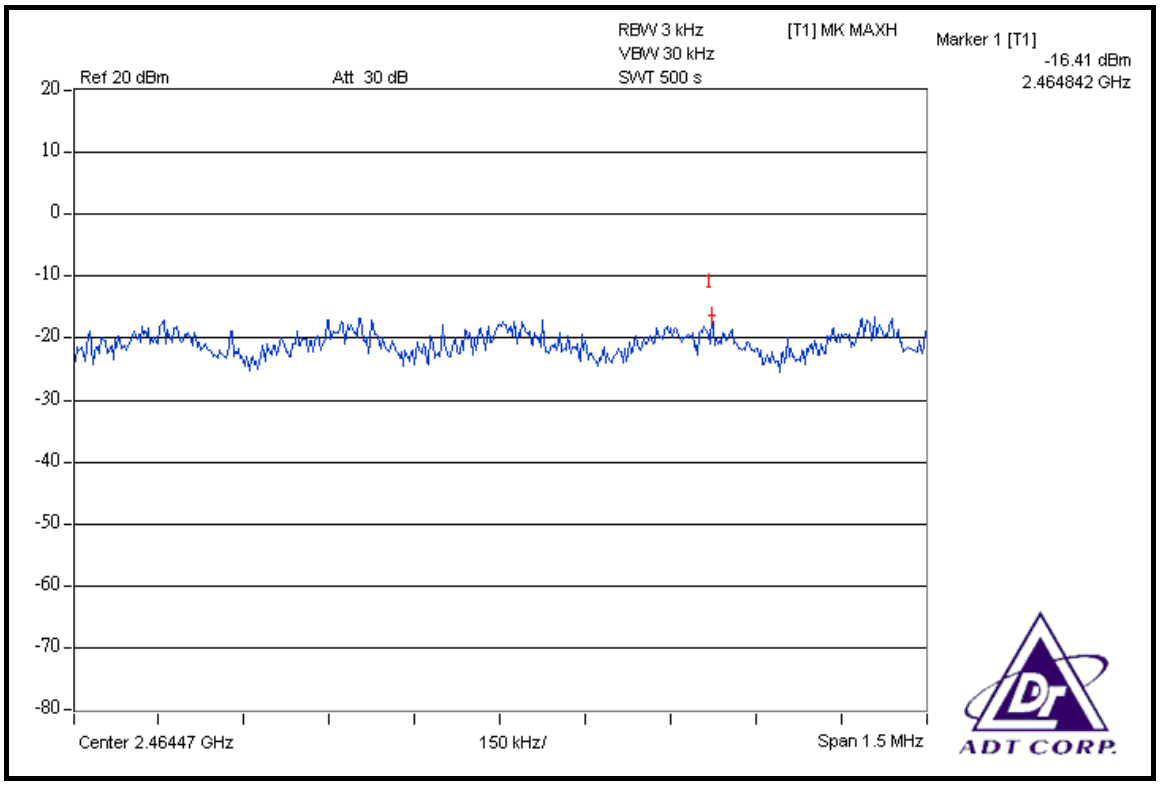
FOR CHAIN 1: CH 1



CH 4


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-15.02 dBm
2.451994 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.45137 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]
-16.41 dBm
2.464842 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.46447 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				
SPECTRUM ANALYZER	FSP 40	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; Average RBW = 1MHz, VBW = 10Hz) 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 with suitable frequency span including 100MHz bandwidth from band edge. The band edges was measured and recorded.

The spectrum plots (Peak RBW = 100kHz, VBW = 300kHz; Average RBW = 1MHz, VBW = 10Hz)

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 EUT OPERATING CONDITION

Same as Item 4.3.6

4.6.6 TEST RESULTS

The spectrum plots are attached on the following 24 images. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(d).

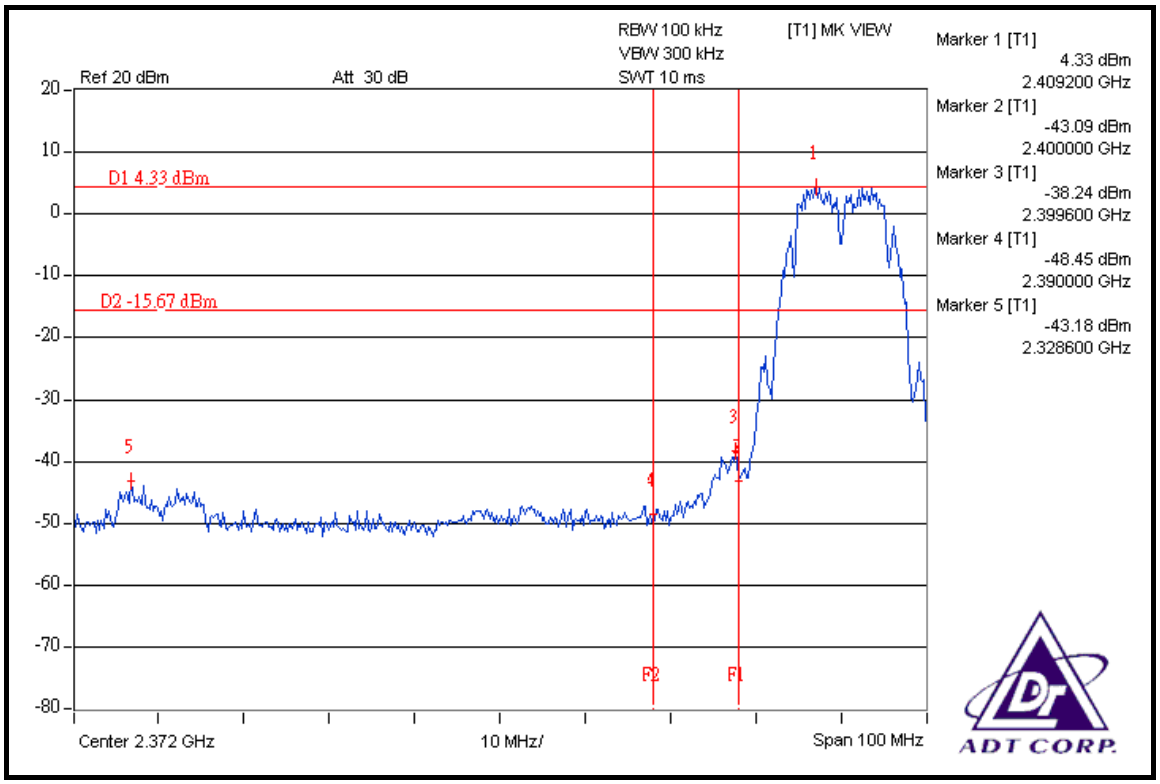
802.11b DSSS MODULATION: 1TX

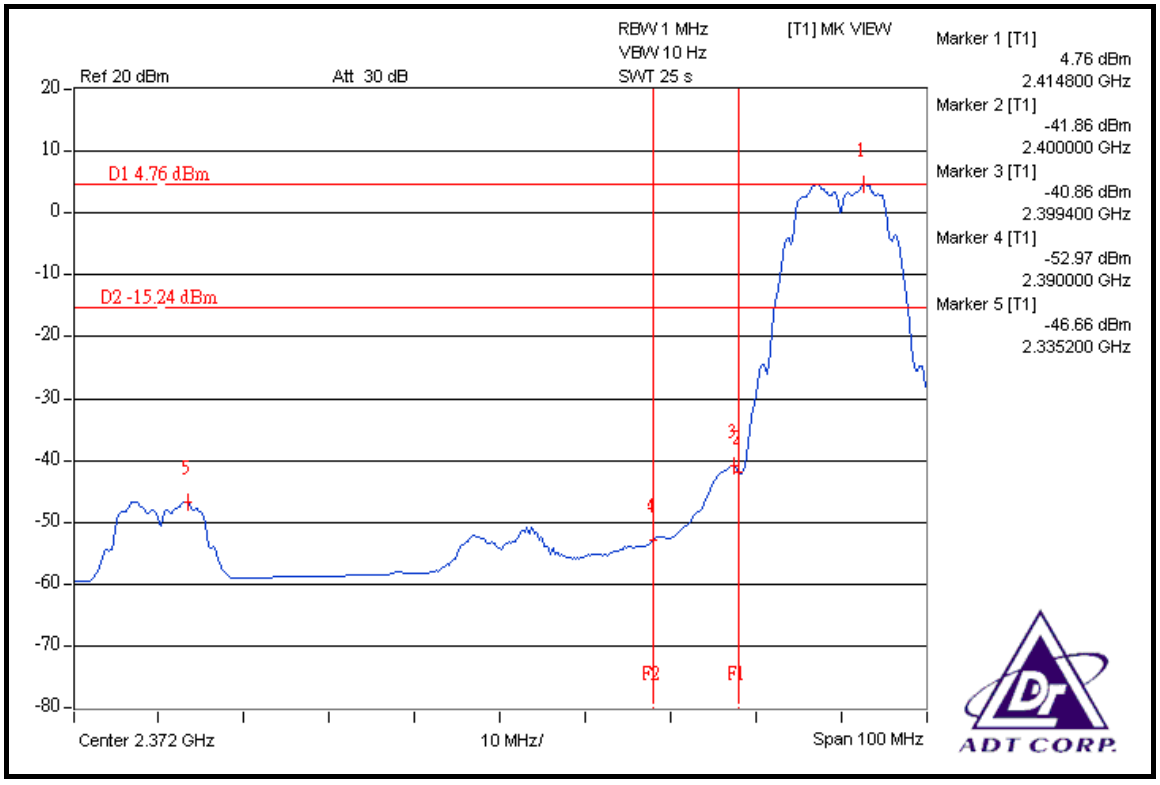
NOTE 1: The band edge emission plot on the next page shows 47.51dBc between carrier maximum power and local maximum emission in restrict band (2.3286GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 108.64dBuV/m (Peak), so the maximum field strength in restrict band is 108.64 – 47.51 = 61.13dBuV/m which is under 74dBuV/m limit.

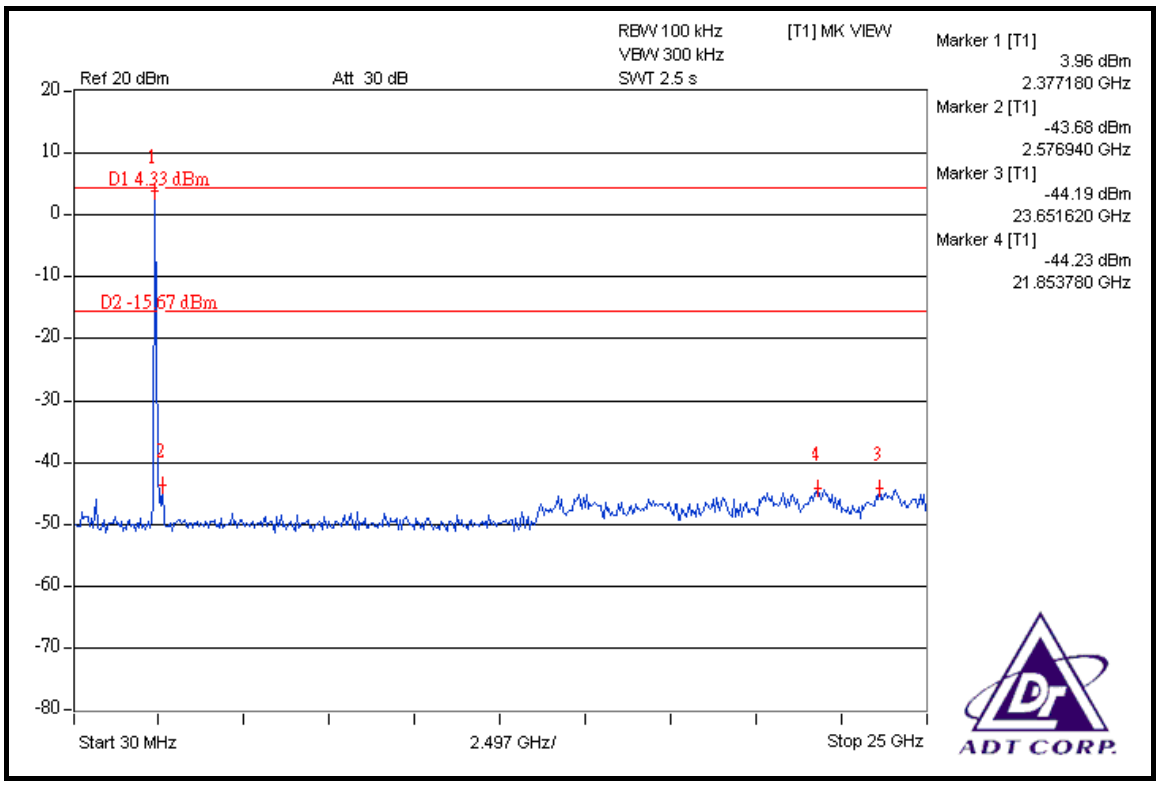
The band edge emission plot on the next page shows 51.42dBc between carrier maximum power and local maximum emission in restrict band (2.3352GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 103.72dBuV/m (Average), so the maximum field strength in restrict band is 103.72 – 51.42 = 52.30dBuV/m which is under 54dBuV/m limit.

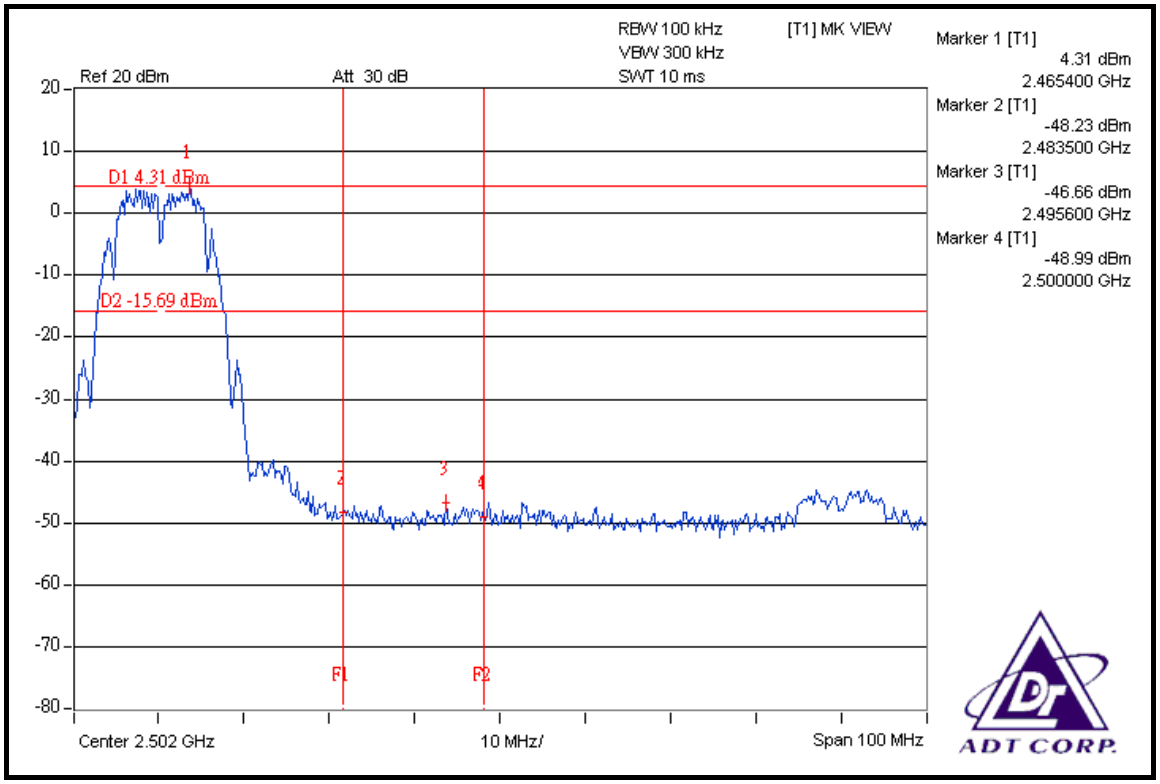
NOTE 2: The band edge emission plot on the next second page shows 50.97dBc between carrier maximum power and local maximum emission in restrict band (2.4956GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 108.63dBuV/m (Peak), so the maximum field strength in restrict band is 108.63 – 50.97 = 57.66dBuV/m which is under 74dBuV/m limit.

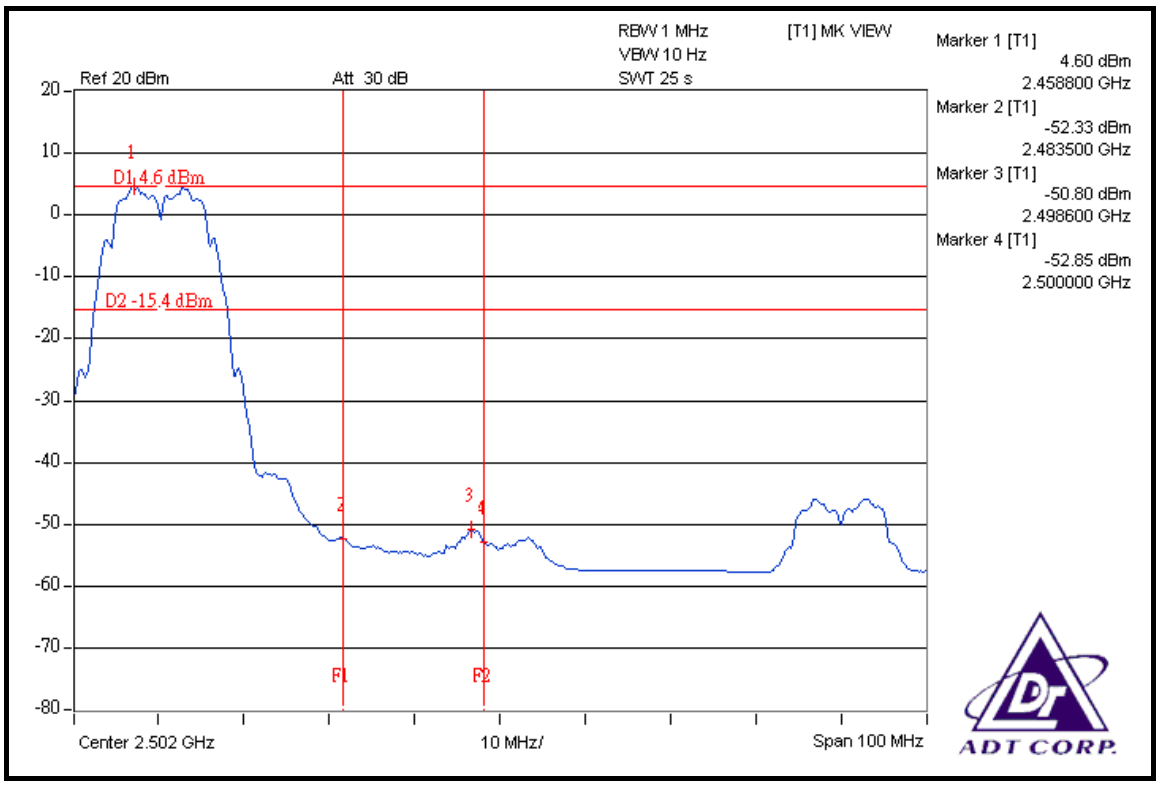
The band edge emission plot on the next third page shows 55.40dBc between carrier maximum power and local maximum emission in restrict band (2.4986GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 104.00dBuV/m (Average), so the maximum field strength in restrict band is 104.00 – 55.40 = 48.60dBuV/m which is under 54dBuV/m limit.

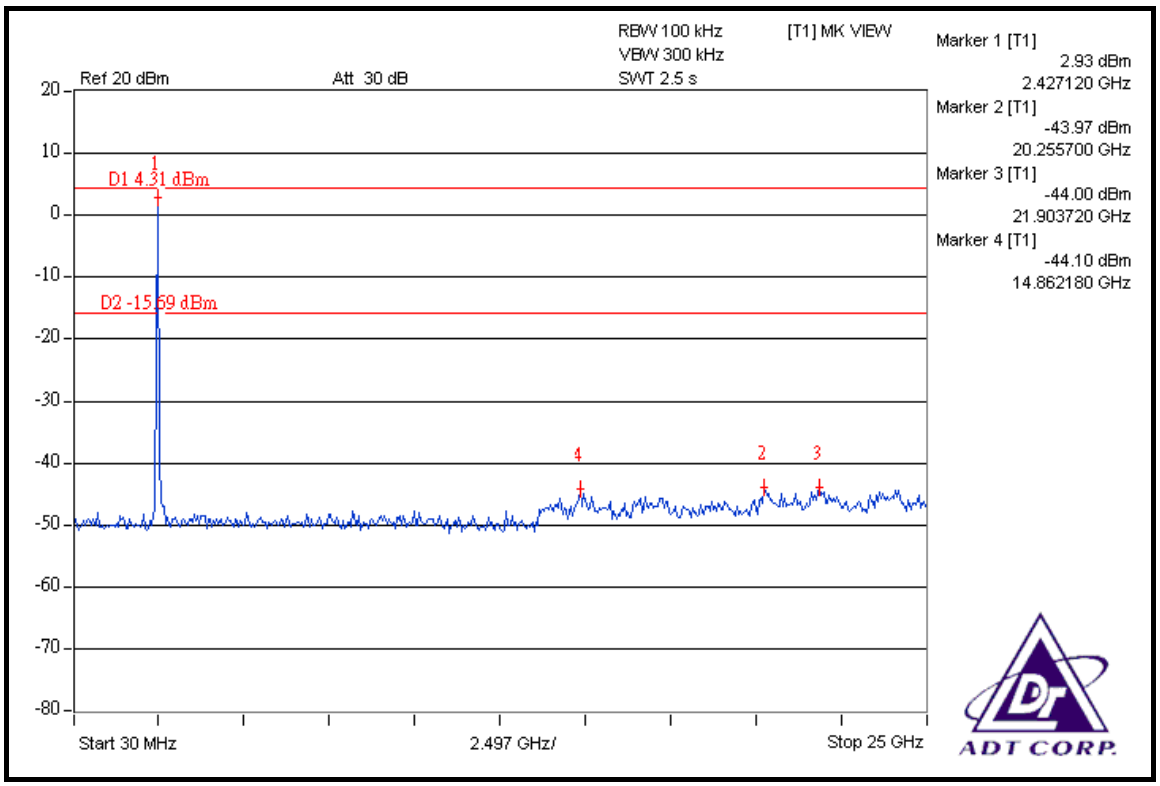

RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 4.33 dBm
D2 -15.67 dBm
Marker 1 [T1]
4.33 dBm
2.409200 GHz
Marker 2 [T1]
-43.09 dBm
2.400000 GHz
Marker 3 [T1]
-38.24 dBm
2.399600 GHz
Marker 4 [T1]
-48.45 dBm
2.390000 GHz
Marker 5 [T1]
-43.18 dBm
2.328600 GHz
F2
F1
Center 2.372 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 4.76 dBm
D2 -15.24 dBm
Marker 1 [T1]
4.76 dBm
2.414800 GHz
Marker 2 [T1]
-41.86 dBm
2.400000 GHz
Marker 3 [T1]
-40.86 dBm
2.399400 GHz
Marker 4 [T1]
-52.97 dBm
2.390000 GHz
Marker 5 [T1]
-46.66 dBm
2.335200 GHz
F2
F1
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
Marker 1 [T1]
3.96 dBm
2.377180 GHz
Marker 2 [T1]
-43.68 dBm
2.576940 GHz
Marker 3 [T1]
-44.19 dBm
23.651620 GHz
Marker 4 [T1]
-44.23 dBm
21.853780 GHz
D1 4.33 dBm
D2 -15.67 dBm
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
Marker 1 [T1]
4.31 dBm
2.465400 GHz
Marker 2 [T1]
-48.23 dBm
2.483500 GHz
Marker 3 [T1]
-46.66 dBm
2.495600 GHz
Marker 4 [T1]
-48.99 dBm
2.500000 GHz
D1 4.31 dBm
D2 -15.69 dBm
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 4.6 dBm
D2 -15.4 dBm
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz
Marker 1 [T1]
4.60 dBm
2.458800 GHz
Marker 2 [T1]
-52.33 dBm
2.483500 GHz
Marker 3 [T1]
-50.80 dBm
2.498600 GHz
Marker 4 [T1]
-52.85 dBm
2.500000 GHz
ADT CORP.


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 4.31 dBm
D2 -15.69 dBm
Start 30 MHz
2.497 GHz/
Stop 25 GHz
Marker 1 [T1]
2.93 dBm
2.427120 GHz
Marker 2 [T1]
-43.97 dBm
20.255700 GHz
Marker 3 [T1]
-44.00 dBm
21.903720 GHz
Marker 4 [T1]
-44.10 dBm
14.862180 GHz
ADT CORP.

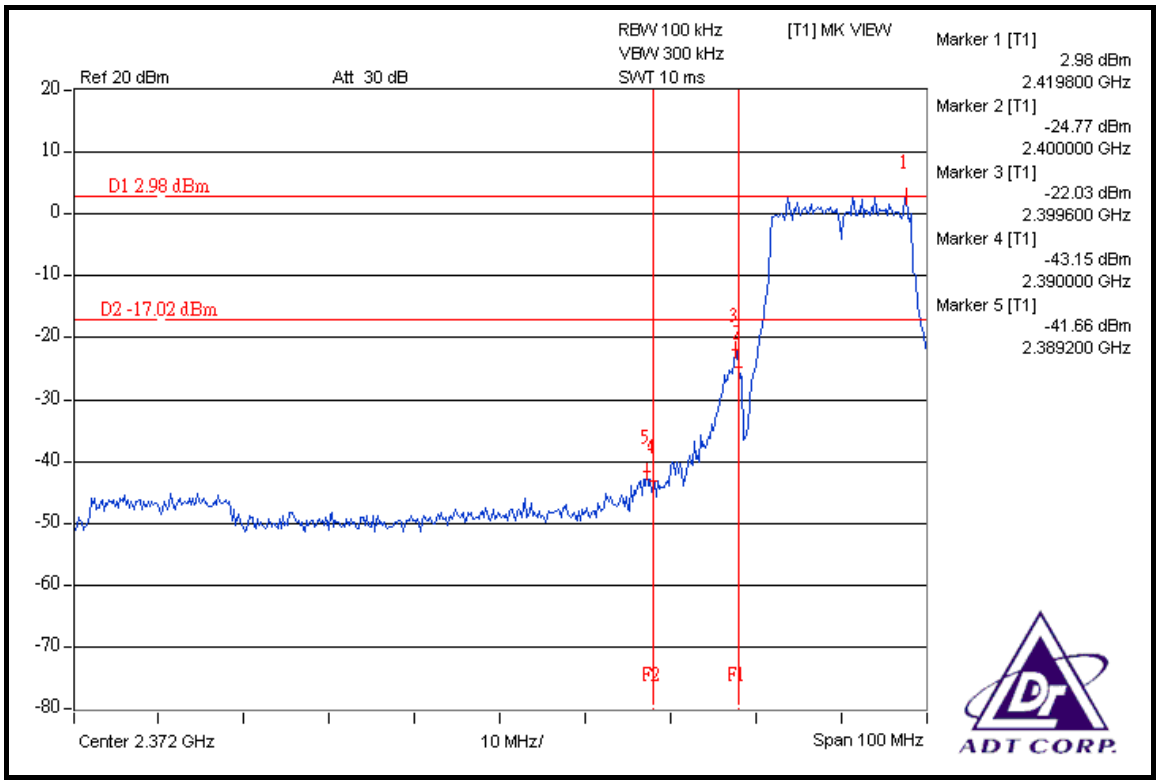
802.11g OFDM MODULATION: 1TX

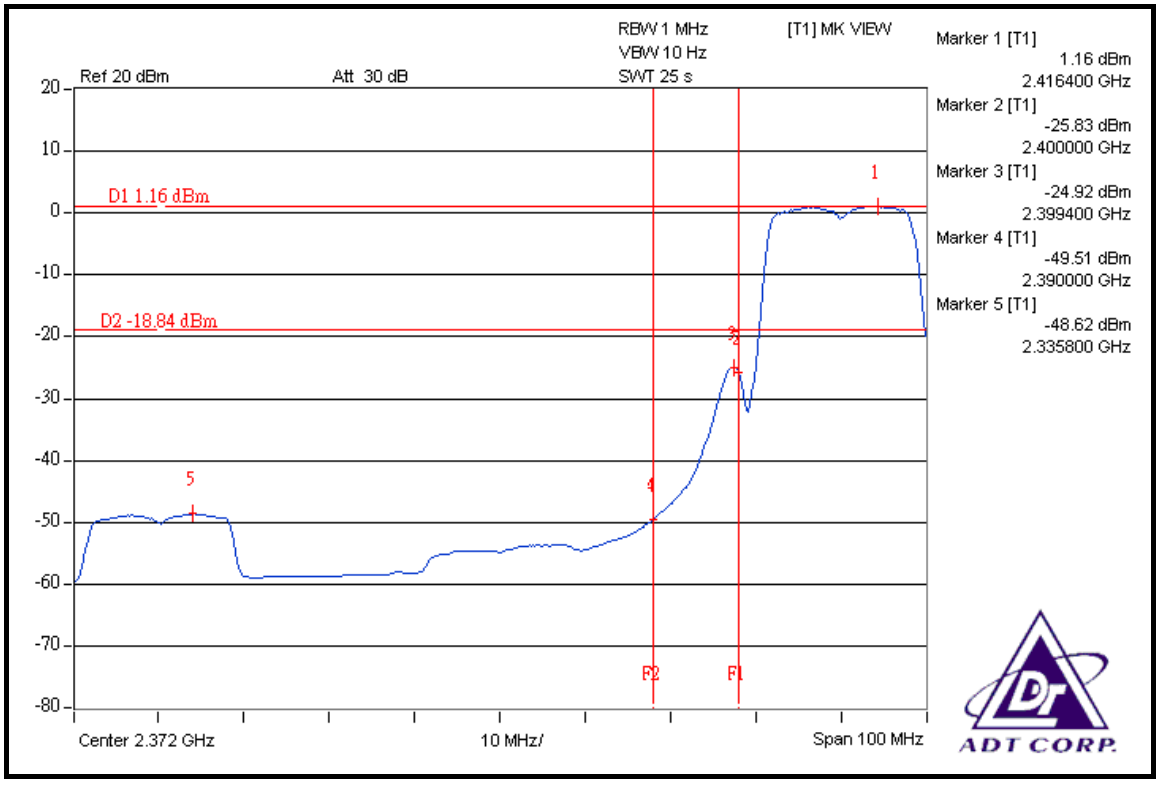
NOTE 1: The band edge emission plot on the next page shows 44.64dBc between carrier maximum power and local maximum emission in restrict band (2.3892GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 113.93dBuV/m (Peak), so the maximum field strength in restrict band is 113.93 – 44.64 = 69.29dBuV/m which is under 74dBuV/m limit.

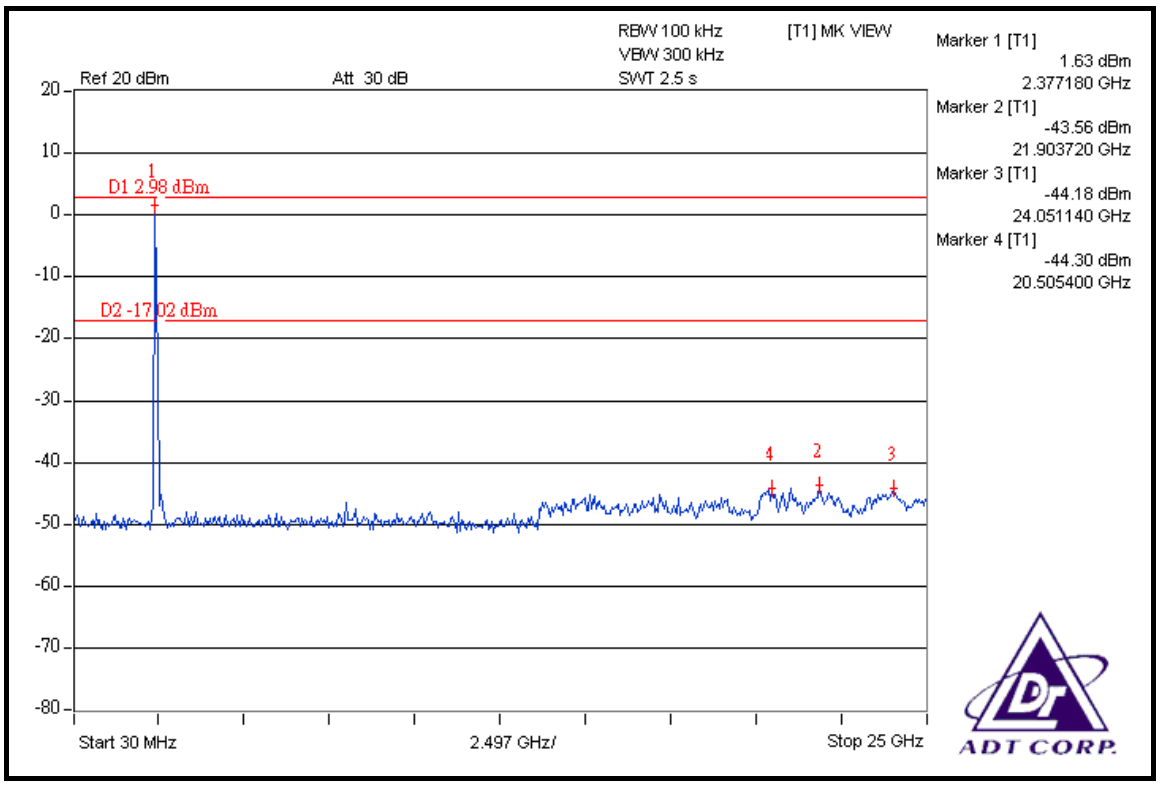
The band edge emission plot on the next page shows 49.78dBc between carrier maximum power and local maximum emission in restrict band (2.3358GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 101.41dBuV/m (Average), so the maximum field strength in restrict band is 101.41 – 49.78 = 51.63dBuV/m which is under 54dBuV/m limit.

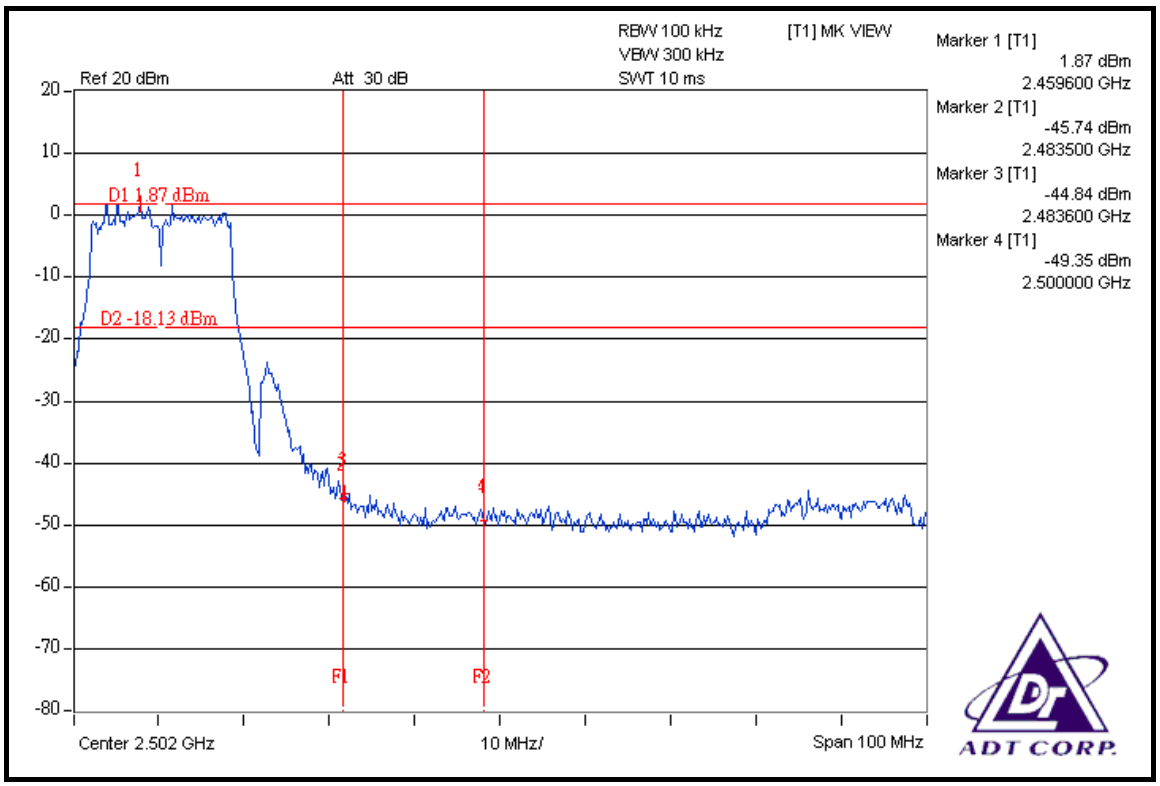
NOTE 2: The band edge emission plot on the next second page shows 46.71dBc between carrier maximum power and local maximum emission in restrict band (2.4836GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 112.58dBuV/m (Peak), so the maximum field strength in restrict band is 112.58 – 46.71 = 65.87dBuV/m which is under 74dBuV/m limit.

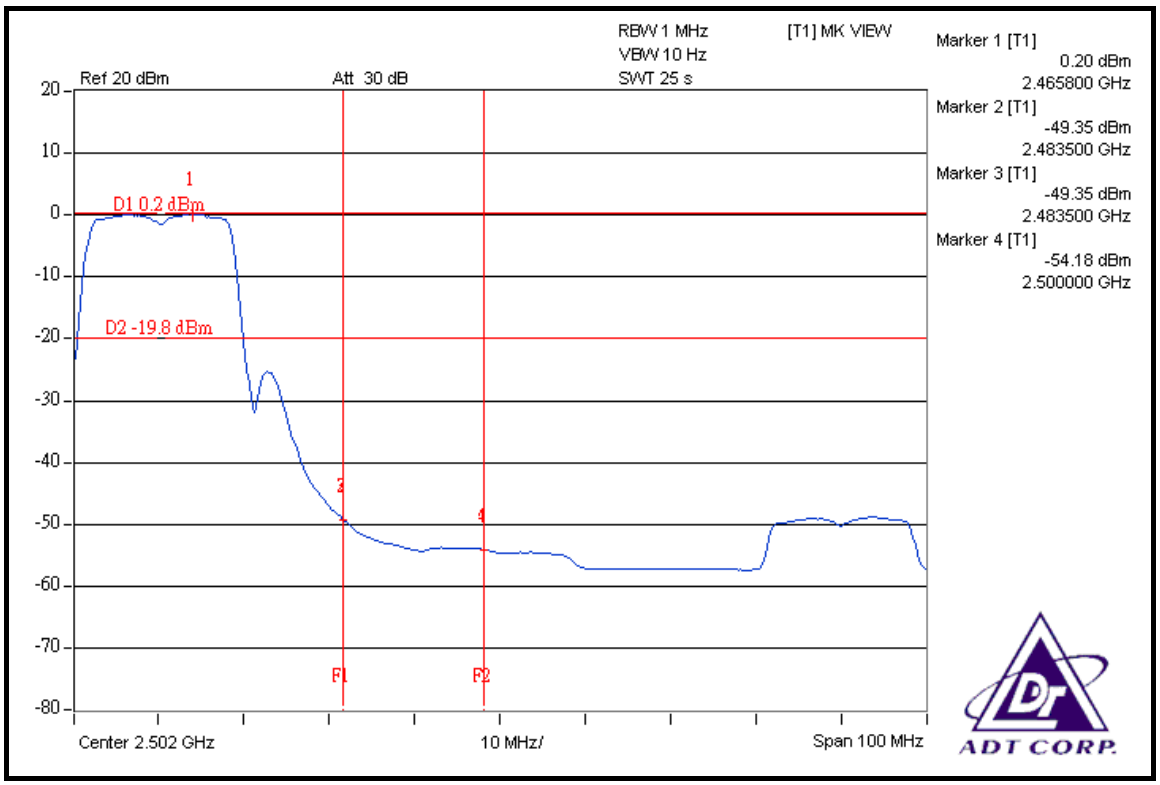
The band edge emission plot on the next third page shows 49.55dBc between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 100.53dBuV/m (Average), so the maximum field strength in restrict band is 100.53 – 49.55 = 50.98dBuV/m which is under 54dBuV/m limit.

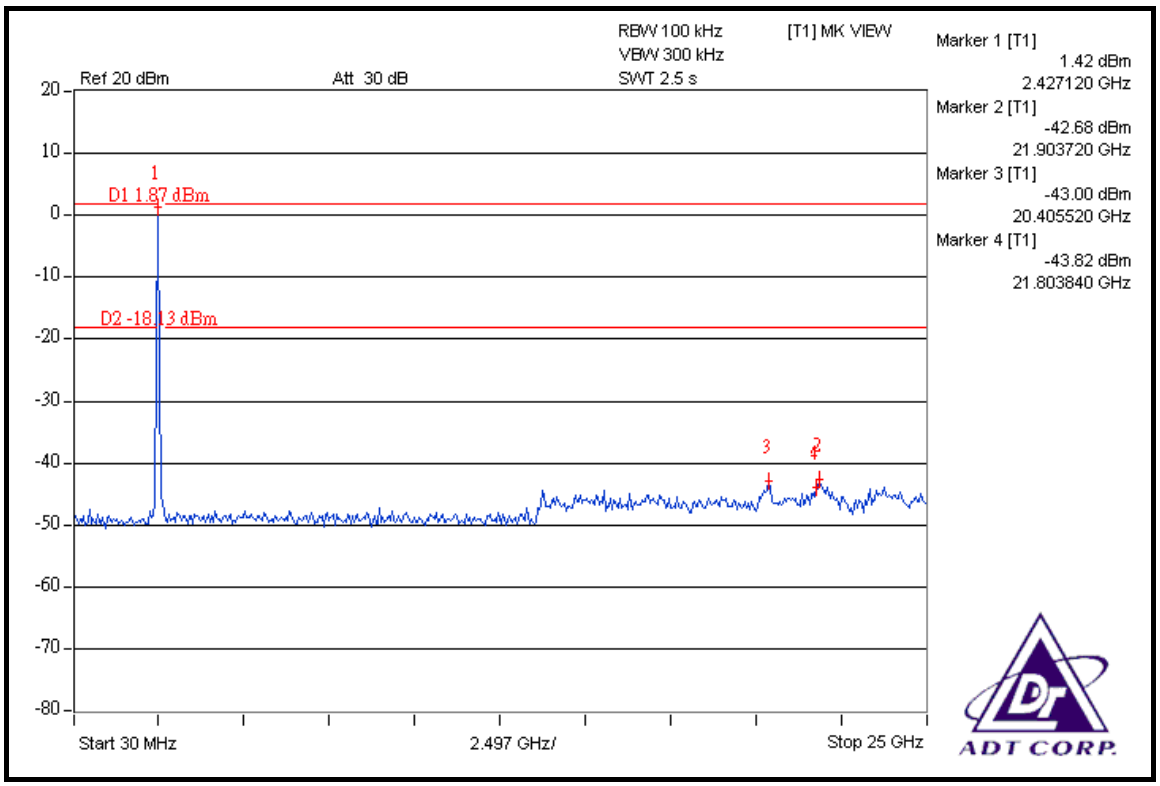

RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 2.98 dBm
D2 -17.02 dBm
Marker 1 [T1]
2.98 dBm
2.419800 GHz
Marker 2 [T1]
-24.77 dBm
2.400000 GHz
Marker 3 [T1]
-22.03 dBm
2.399600 GHz
Marker 4 [T1]
-43.15 dBm
2.390000 GHz
Marker 5 [T1]
-41.66 dBm
2.389200 GHz
F2
F1
Center 2.372 GHz
10 MHz/
Span 100 MHz
ADT CORP.


RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 1.16 dBm
D2 -18.84 dBm
Marker 1 [T1]
1.16 dBm
2.416400 GHz
Marker 2 [T1]
-25.83 dBm
2.400000 GHz
Marker 3 [T1]
-24.92 dBm
2.399400 GHz
Marker 4 [T1]
-49.51 dBm
2.390000 GHz
Marker 5 [T1]
-48.62 dBm
2.335800 GHz
F2
F1
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
Marker 1 [T1]
1.63 dBm
2.377180 GHz
Marker 2 [T1]
-43.56 dBm
21.903720 GHz
Marker 3 [T1]
-44.18 dBm
24.051140 GHz
Marker 4 [T1]
-44.30 dBm
20.505400 GHz
D1 2.98 dBm
D2 -17.02 dBm
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
Marker 1 [T1]
1.87 dBm
2.459600 GHz
Marker 2 [T1]
-45.74 dBm
2.483500 GHz
Marker 3 [T1]
-44.84 dBm
2.483600 GHz
Marker 4 [T1]
-49.35 dBm
2.500000 GHz
D1 1.87 dBm
D2 -18.13 dBm
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
Marker 1 [T1]
0.20 dBm
2.465800 GHz
Marker 2 [T1]
-49.35 dBm
2.483500 GHz
Marker 3 [T1]
-49.35 dBm
2.483500 GHz
Marker 4 [T1]
-54.18 dBm
2.500000 GHz
D1 0.2 dBm
D2 -19.8 dBm
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz
ADT CORP.


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
Marker 1 [T1]
1.42 dBm
2.427120 GHz
Marker 2 [T1]
-42.68 dBm
21.903720 GHz
Marker 3 [T1]
-43.00 dBm
20.405520 GHz
Marker 4 [T1]
-43.82 dBm
21.803840 GHz
D1 1.87 dBm
D2 -18.13 dBm
Start 30 MHz
2.497 GHz/
Stop 25 GHz
ADT CORP.

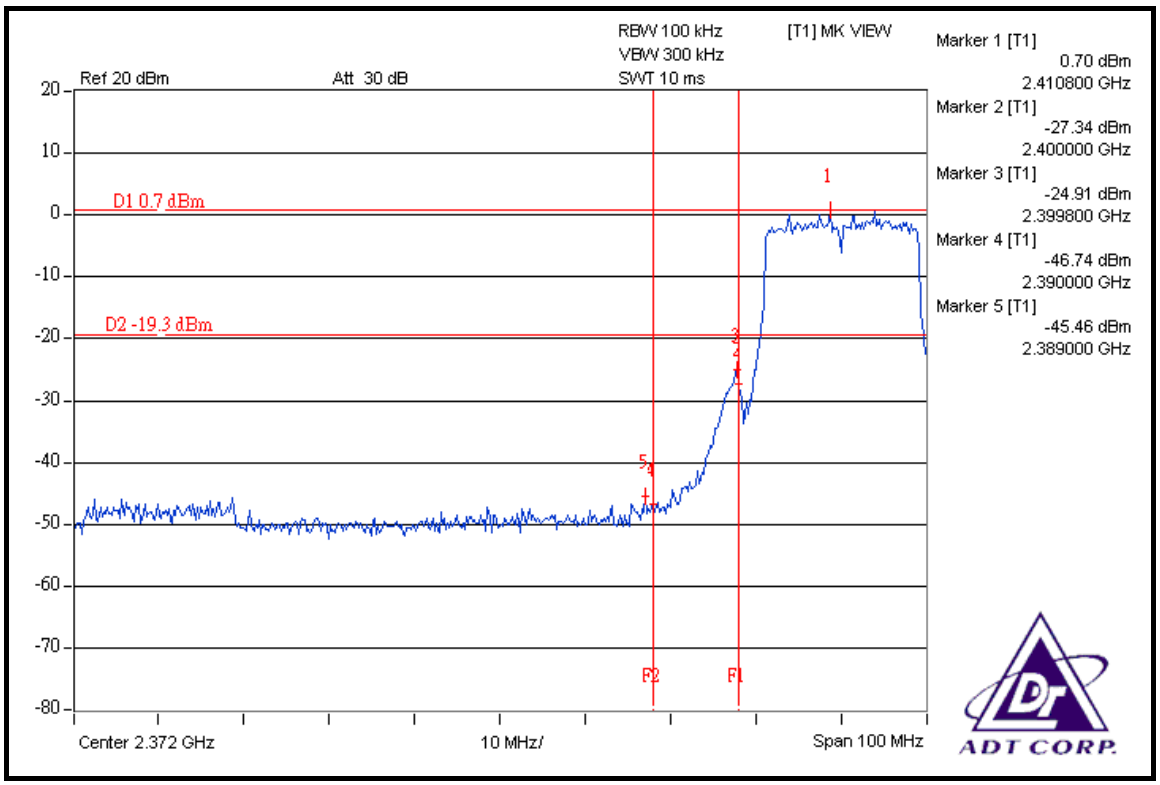
DRAFT 802.11n (20MHz) OFDM MODULATION: 1TX

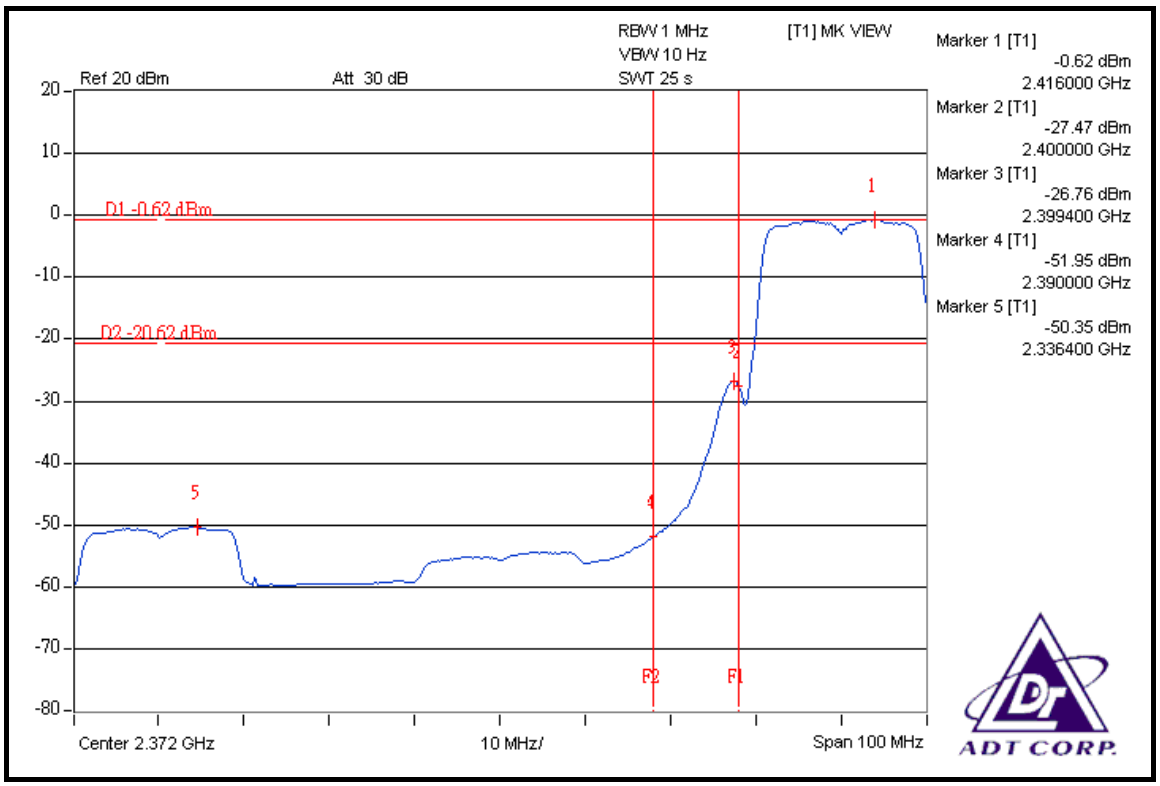
NOTE 1: The band edge emission plot on the next page shows 46.16dBc between carrier maximum power and local maximum emission in restrict band (2.3890GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 110.63dBuV/m (Peak), so the maximum field strength in restrict band is 110.63 – 46.16 = 64.47dBuV/m which is under 74dBuV/m limit.

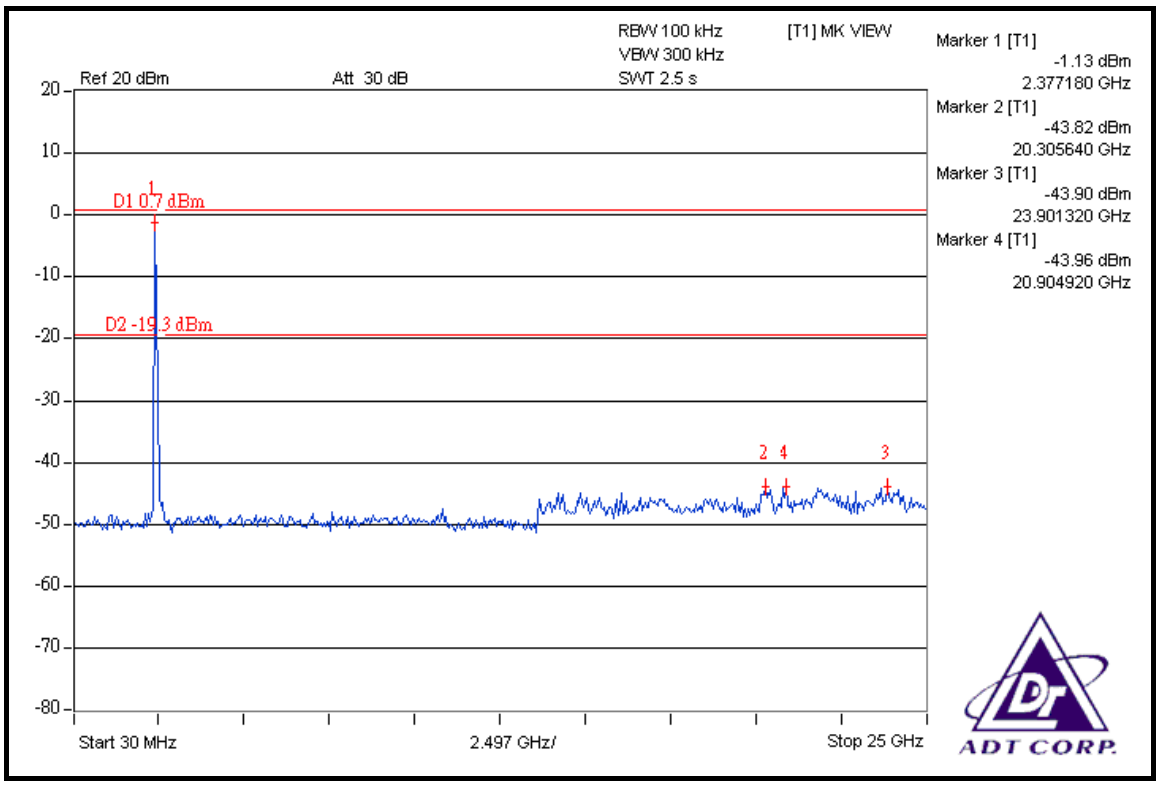
The band edge emission plot on the next page shows 49.73dBc between carrier maximum power and local maximum emission in restrict band (2.3364GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 98.73dBuV/m (Average), so the maximum field strength in restrict band is 98.73 – 49.73 = 49.00dBuV/m which is under 54dBuV/m limit.

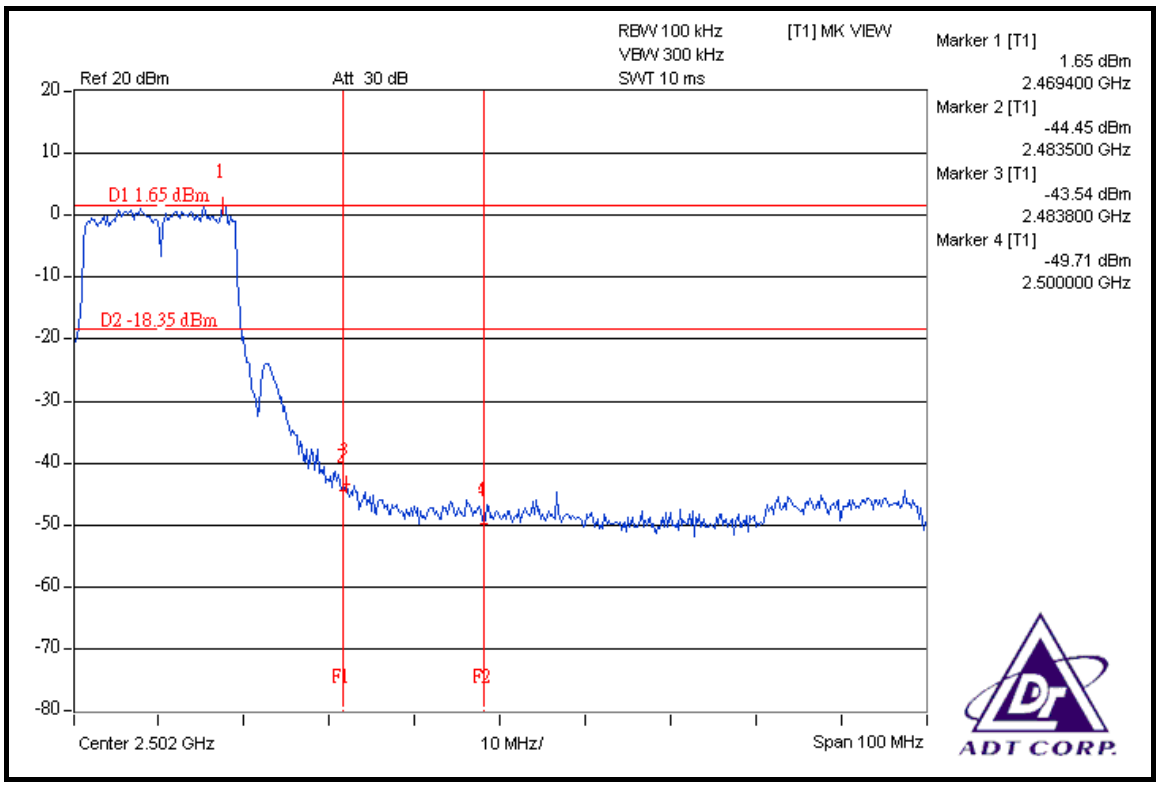
NOTE 2: The band edge emission plot on the next second page shows 45.19dBc between carrier maximum power and local maximum emission in restrict band (2.4838GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 111.40dBuV/m (Peak), so the maximum field strength in restrict band is 111.40 – 45.19 = 66.21dBuV/m which is under 74dBuV/m limit.

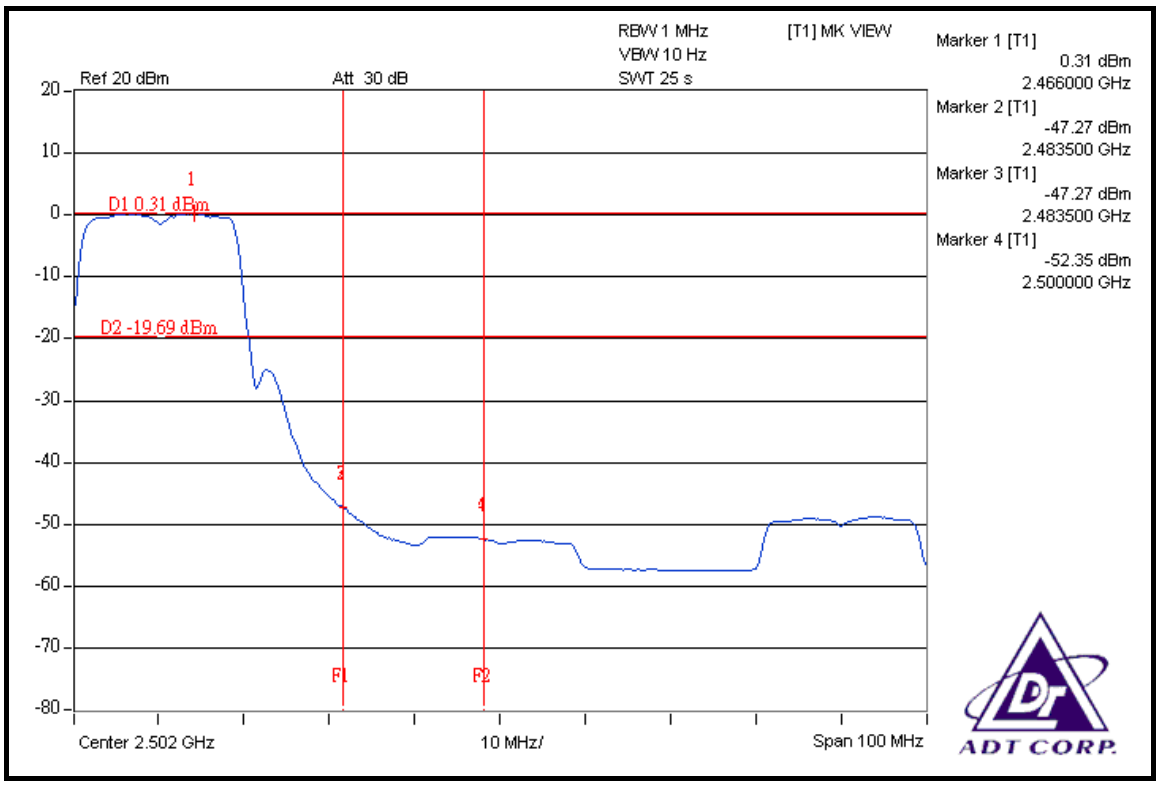
The band edge emission plot on the next third page shows 47.58dBc between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 99.72dBuV/m (Average), so the maximum field strength in restrict band is 99.72 – 47.58 = 52.14dBuV/m which is under 54dBuV/m limit.

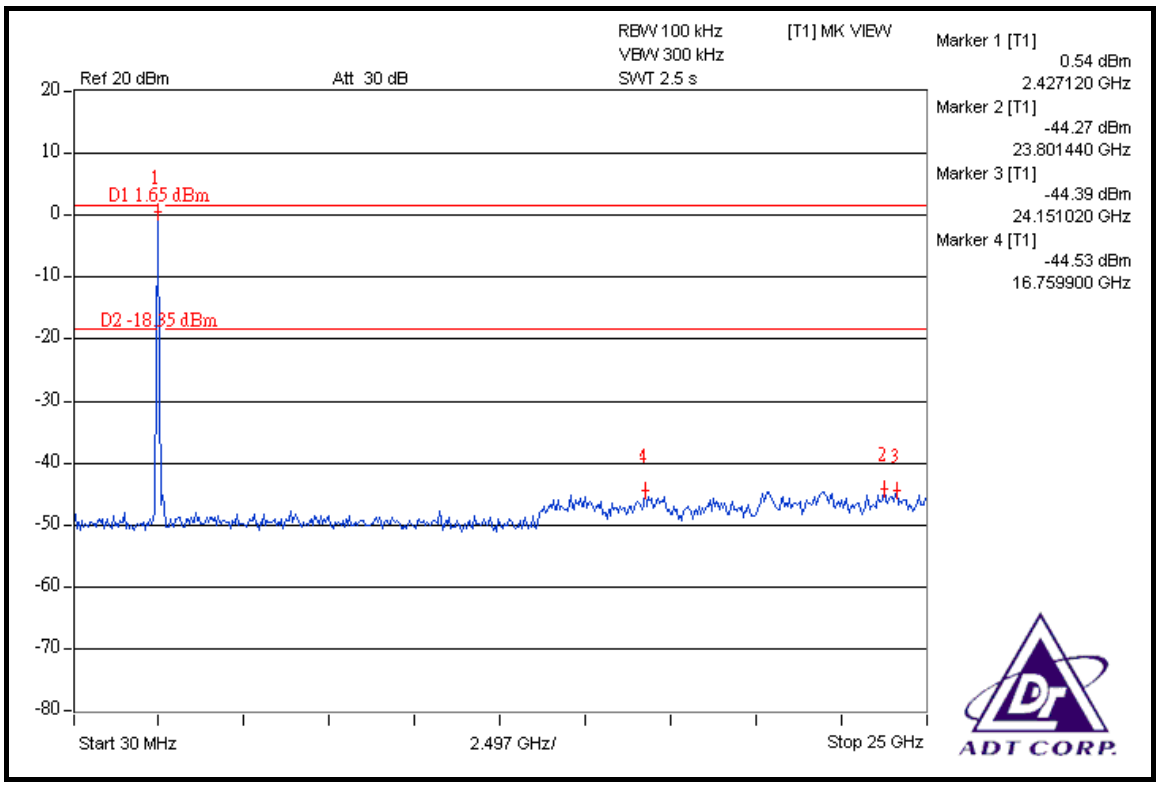

RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 0.7 dBm
D2 -19.3 dBm
Marker 1 [T1]
0.70 dBm
2.410800 GHz
Marker 2 [T1]
-27.34 dBm
2.400000 GHz
Marker 3 [T1]
-24.91 dBm
2.399800 GHz
Marker 4 [T1]
-46.74 dBm
2.390000 GHz
Marker 5 [T1]
-45.46 dBm
2.389000 GHz
F2
F1
Center 2.372 GHz
10 MHz/
Span 100 MHz


RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 -0.62 dBm
D2 -20.62 dBm
Marker 1 [T1]
-0.62 dBm
2.416000 GHz
Marker 2 [T1]
-27.47 dBm
2.400000 GHz
Marker 3 [T1]
-26.76 dBm
2.399400 GHz
Marker 4 [T1]
-51.95 dBm
2.390000 GHz
Marker 5 [T1]
-50.35 dBm
2.336400 GHz
F2
F1
Center 2.372 GHz
10 MHz/
Span 100 MHz


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
Marker 1 [T1]
-1.13 dBm
2.377180 GHz
Marker 2 [T1]
-43.82 dBm
20.305640 GHz
Marker 3 [T1]
-43.90 dBm
23.901320 GHz
Marker 4 [T1]
-43.96 dBm
20.904920 GHz
D1 0.7 dBm
D2 -19.3 dBm
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
Marker 1 [T1]
1.65 dBm
2.469400 GHz
Marker 2 [T1]
-44.45 dBm
2.483500 GHz
Marker 3 [T1]
-43.54 dBm
2.483800 GHz
Marker 4 [T1]
-49.71 dBm
2.500000 GHz
D1 1.65 dBm
D2 -18.35 dBm
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
Marker 1 [T1]
0.31 dBm
2.466000 GHz
Marker 2 [T1]
-47.27 dBm
2.483500 GHz
Marker 3 [T1]
-47.27 dBm
2.483500 GHz
Marker 4 [T1]
-52.35 dBm
2.500000 GHz
D1 0.31 dBm
D2 -19.69 dBm
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
Marker 1 [T1]
0.54 dBm
2.427120 GHz
Marker 2 [T1]
-44.27 dBm
23.801440 GHz
Marker 3 [T1]
-44.39 dBm
24.151020 GHz
Marker 4 [T1]
-44.53 dBm
16.759900 GHz
D1 1.65 dBm
D2 -18.35 dBm
Start 30 MHz
2.497 GHz/
Stop 25 GHz

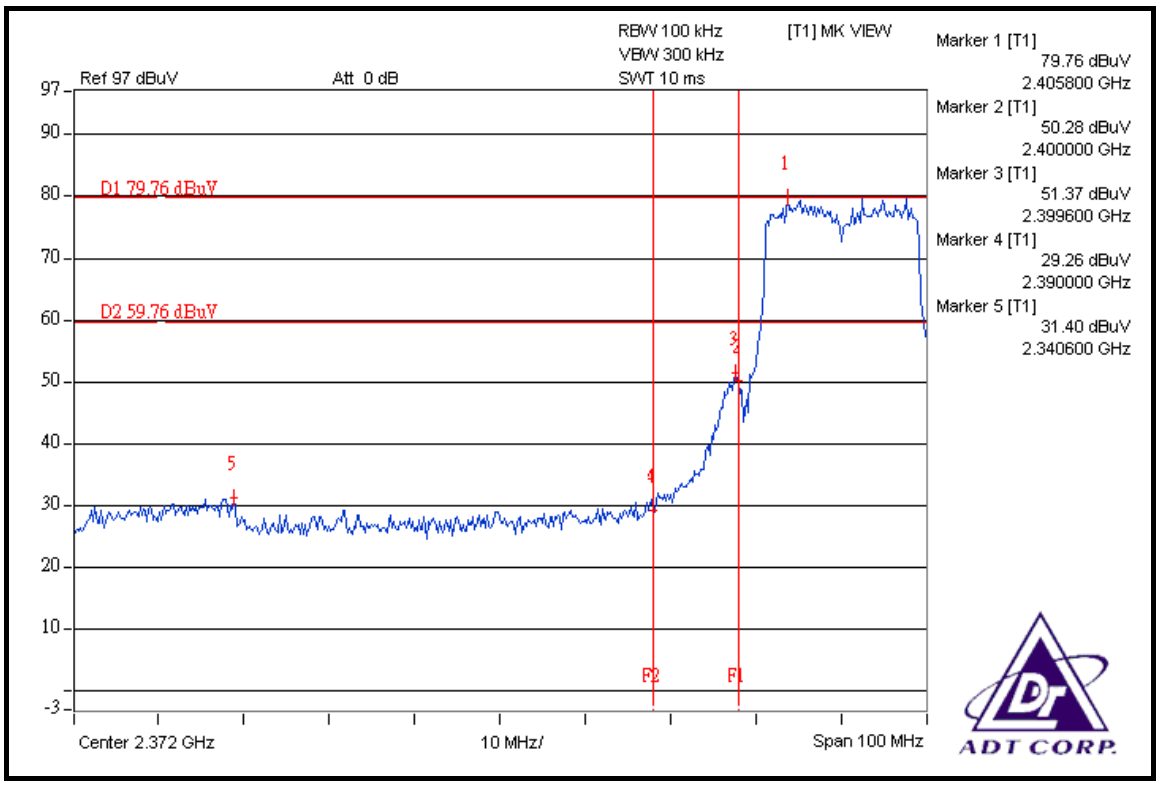
DRAFT 802.11n (20MHz) OFDM MODULATION: 2TX

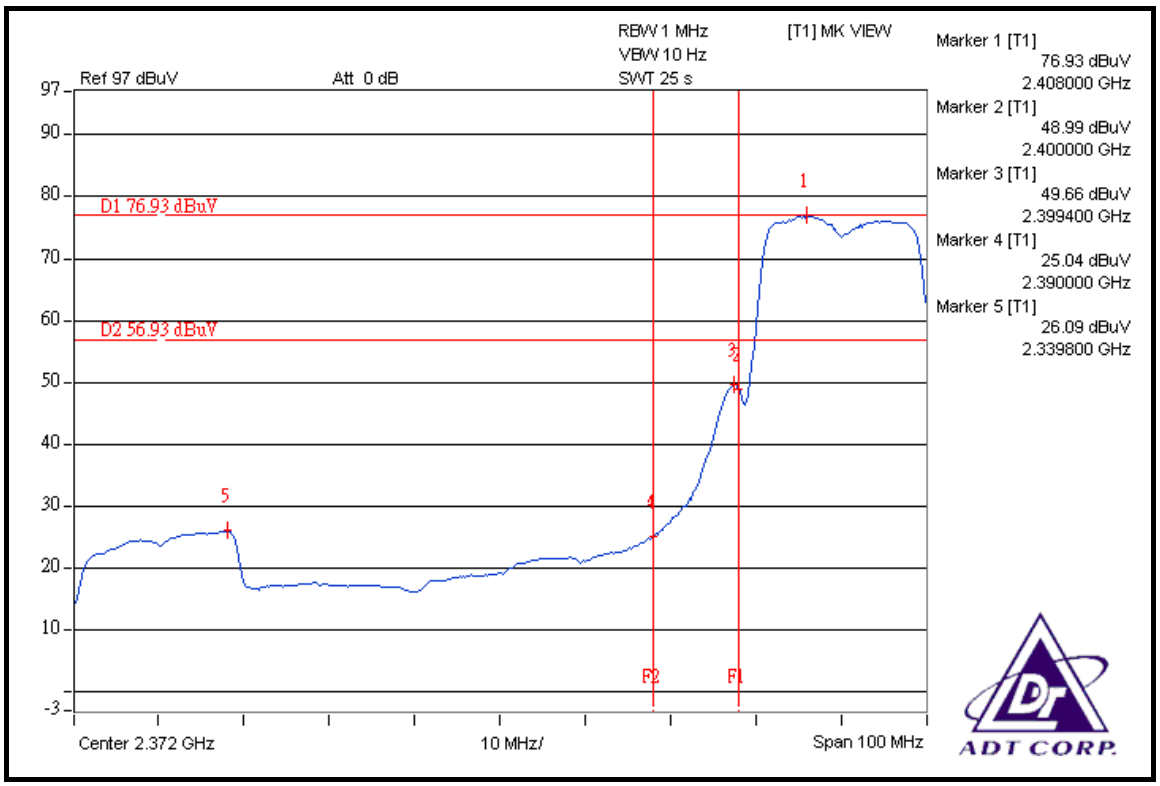
NOTE 1: The band edge emission plot on the next page shows 48.36dBc between carrier maximum power and local maximum emission in restrict band (2.3406GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 112.23dBuV/m (Peak), so the maximum field strength in restrict band is 112.23 – 48.36 = 63.87dBuV/m which is under 74dBuV/m limit.

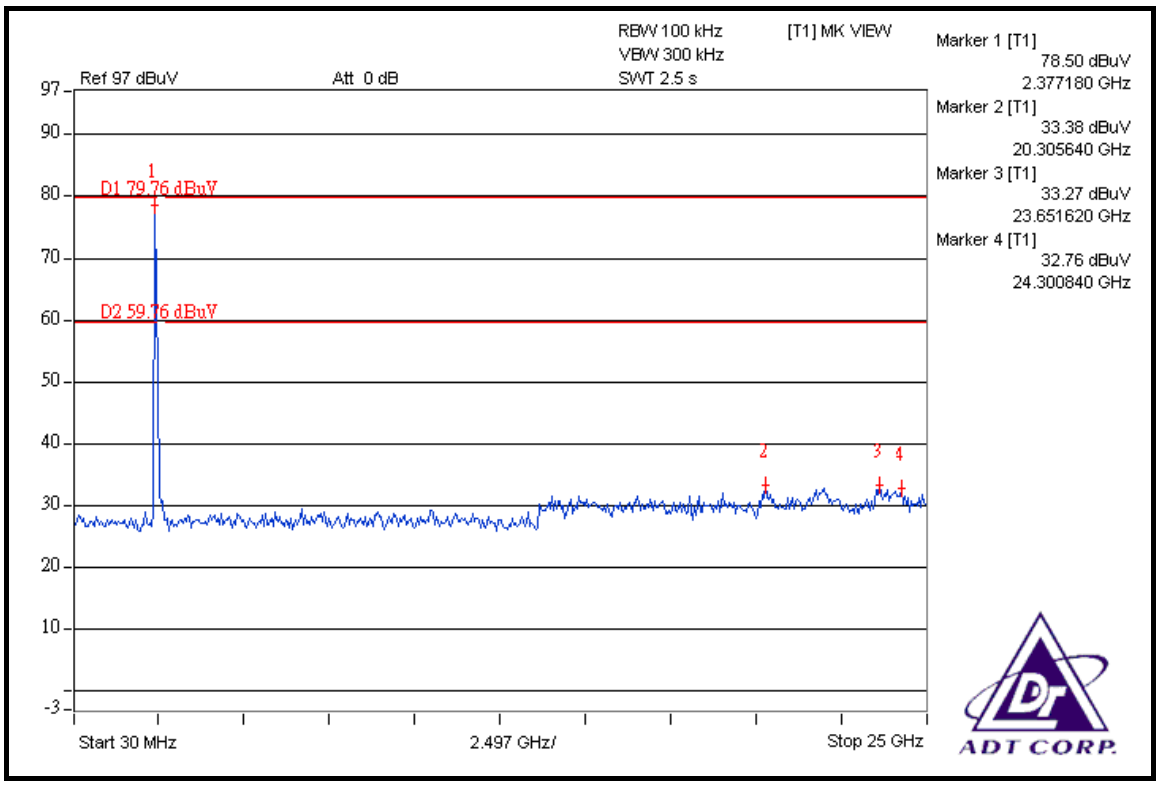
The band edge emission plot on the next page shows 50.84dBc between carrier maximum power and local maximum emission in restrict band (2.3398GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 99.01dBuV/m (Average), so the maximum field strength in restrict band is 99.01 – 50.84 = 48.17dBuV/m which is under 54dBuV/m limit.

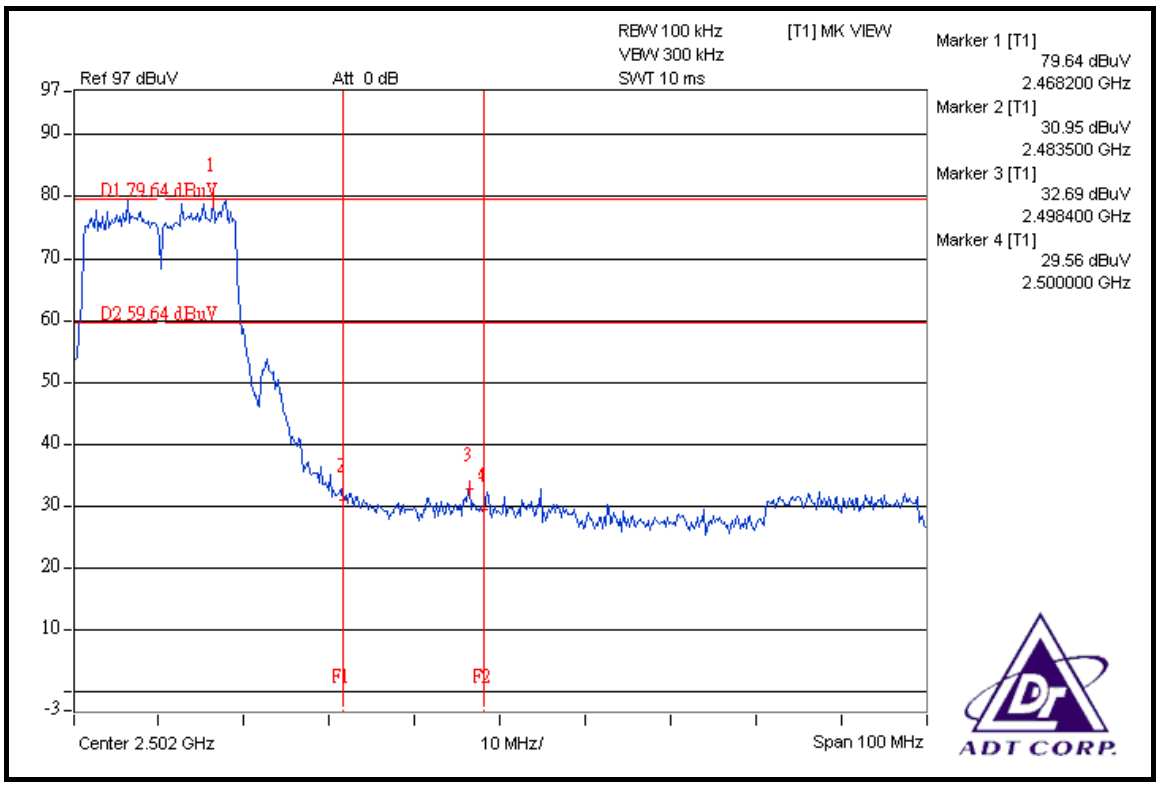
NOTE 2: The band edge emission plot on the next second page shows 46.95dBc between carrier maximum power and local maximum emission in restrict band (2.4984GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 112.11dBuV/m (Peak), so the maximum field strength in restrict band is 112.11 – 46.95 = 65.16dBuV/m which is under 74dBuV/m limit.

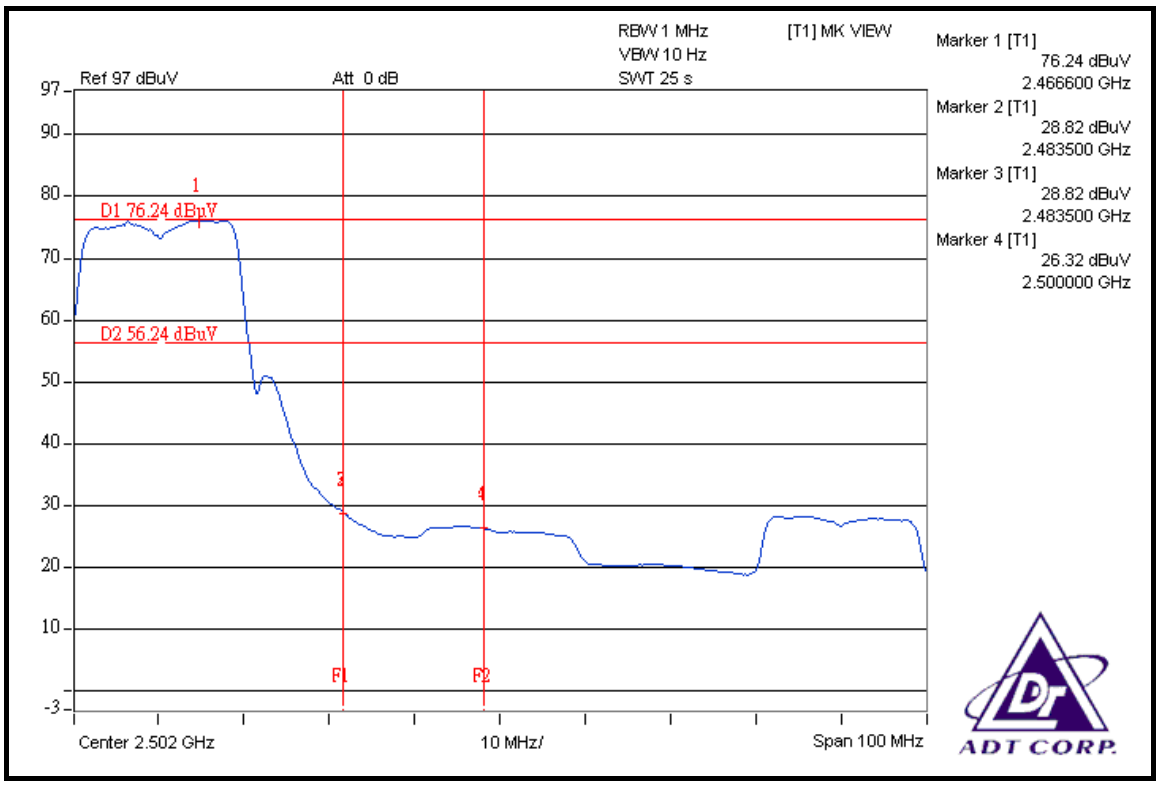
The band edge emission plot on the next third page shows 47.42dBc between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 98.54dBuV/m (Average), so the maximum field strength in restrict band is 98.54 – 47.42 = 51.12dBuV/m which is under 54dBuV/m limit.

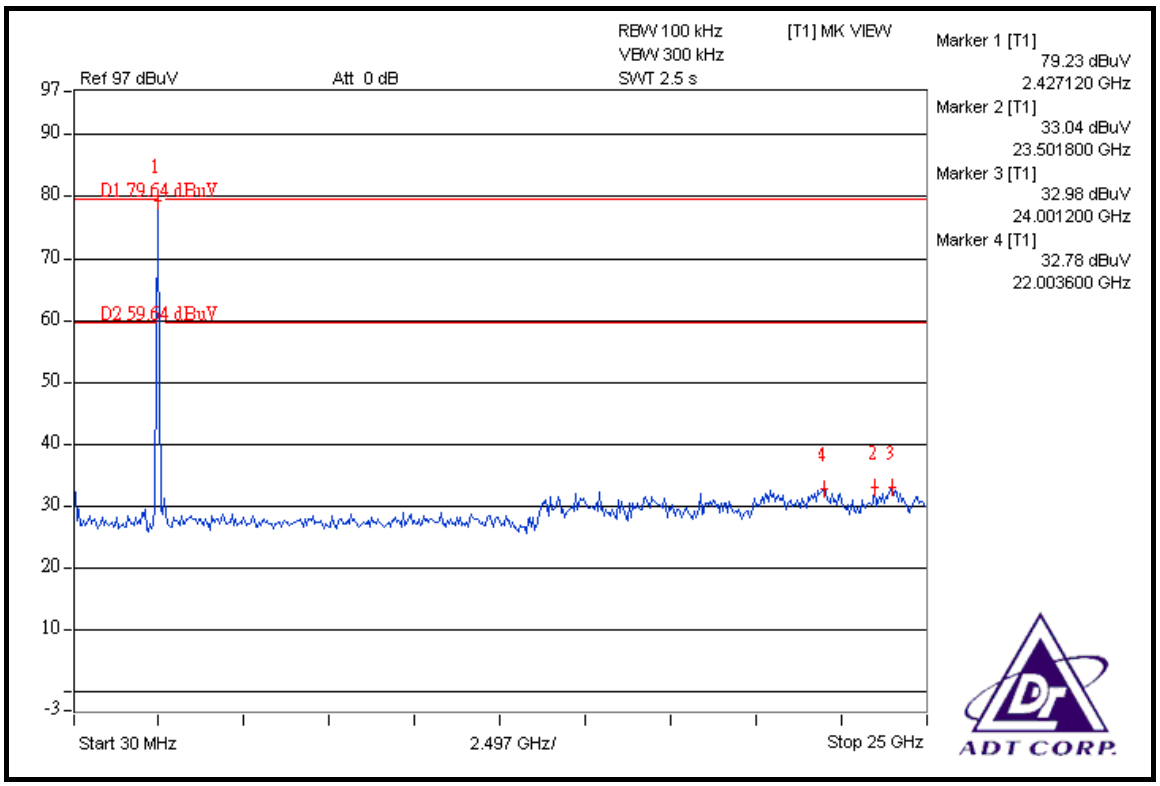

RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
D1 79.76 dBuV
D2 59.76 dBuV
Marker 1 [T1]
79.76 dBuV
2.405800 GHz
Marker 2 [T1]
50.28 dBuV
2.400000 GHz
Marker 3 [T1]
51.37 dBuV
2.399600 GHz
Marker 4 [T1]
29.26 dBuV
2.390000 GHz
Marker 5 [T1]
31.40 dBuV
2.340600 GHz
Center 2.372 GHz
10 MHz/
Span 100 MHz


RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
D1 76.93 dBuV
D2 56.93 dBuV
Marker 1 [T1]
76.93 dBuV
2.408000 GHz
Marker 2 [T1]
48.99 dBuV
2.400000 GHz
Marker 3 [T1]
49.66 dBuV
2.399400 GHz
Marker 4 [T1]
25.04 dBuV
2.390000 GHz
Marker 5 [T1]
26.09 dBuV
2.339800 GHz
Center 2.372 GHz
10 MHz/
Span 100 MHz


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
D1 79.76 dBuV
D2 59.76 dBuV
Marker 1 [T1]
78.50 dBuV
2.377180 GHz
Marker 2 [T1]
33.38 dBuV
20.305640 GHz
Marker 3 [T1]
33.27 dBuV
23.651620 GHz
Marker 4 [T1]
32.76 dBuV
24.300840 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 79.64 dBuV
D2 59.64 dBuV
Marker 1 [T1]
79.64 dBuV
2.468200 GHz
Marker 2 [T1]
30.95 dBuV
2.483500 GHz
Marker 3 [T1]
32.69 dBuV
2.498400 GHz
Marker 4 [T1]
29.56 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]
76.24 dBuV
2.466600 GHz
Marker 2 [T1]
28.82 dBuV
2.483500 GHz
Marker 3 [T1]
28.82 dBuV
2.483500 GHz
Marker 4 [T1]
26.32 dBuV
2.500000 GHz
D1 76.24 dBuV
D2 56.24 dBuV
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]
79.23 dBuV
2.427120 GHz
Marker 2 [T1]
33.04 dBuV
23.501800 GHz
Marker 3 [T1]
32.98 dBuV
24.001200 GHz
Marker 4 [T1]
32.78 dBuV
22.003600 GHz
D1 79.64 dBuV
D2 59.64 dBuV
Start 30 MHz
2.497 GHz/
Stop 25 GHz
ADT CORP.

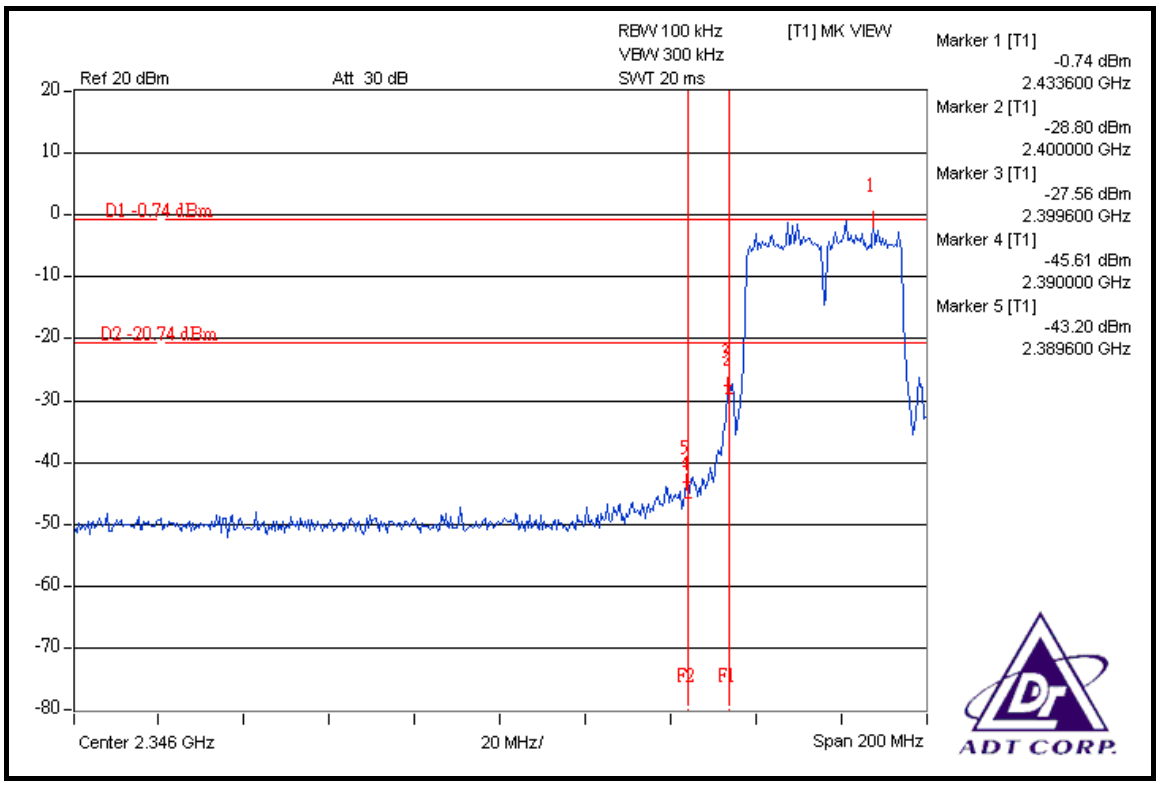
DRAFT 802.11n (40MHz) OFDM MODULATION: 1TX

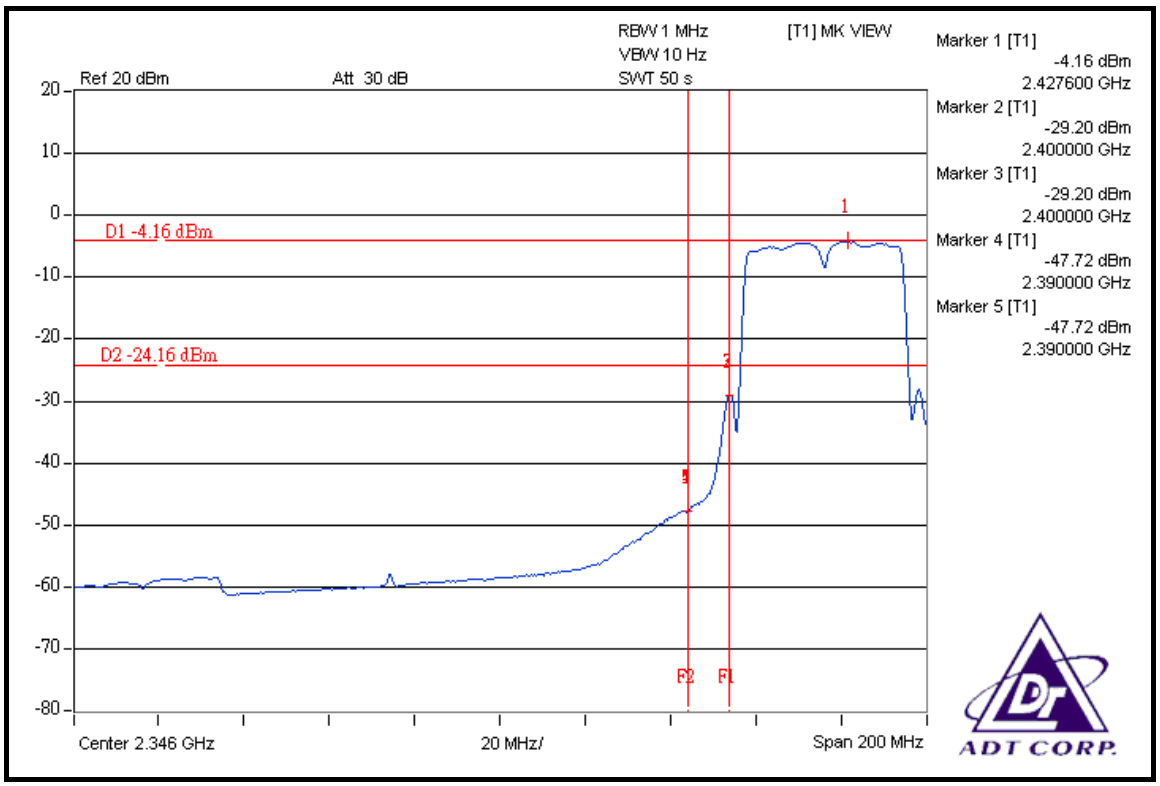
NOTE 1: The band edge emission plot on the next page shows 42.46dBc between carrier maximum power and local maximum emission in restrict band (2.3896GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 106.64dBuV/m (Peak), so the maximum field strength in restrict band is 106.64 – 42.46 = 64.18dBuV/m which is under 74dBuV/m limit.

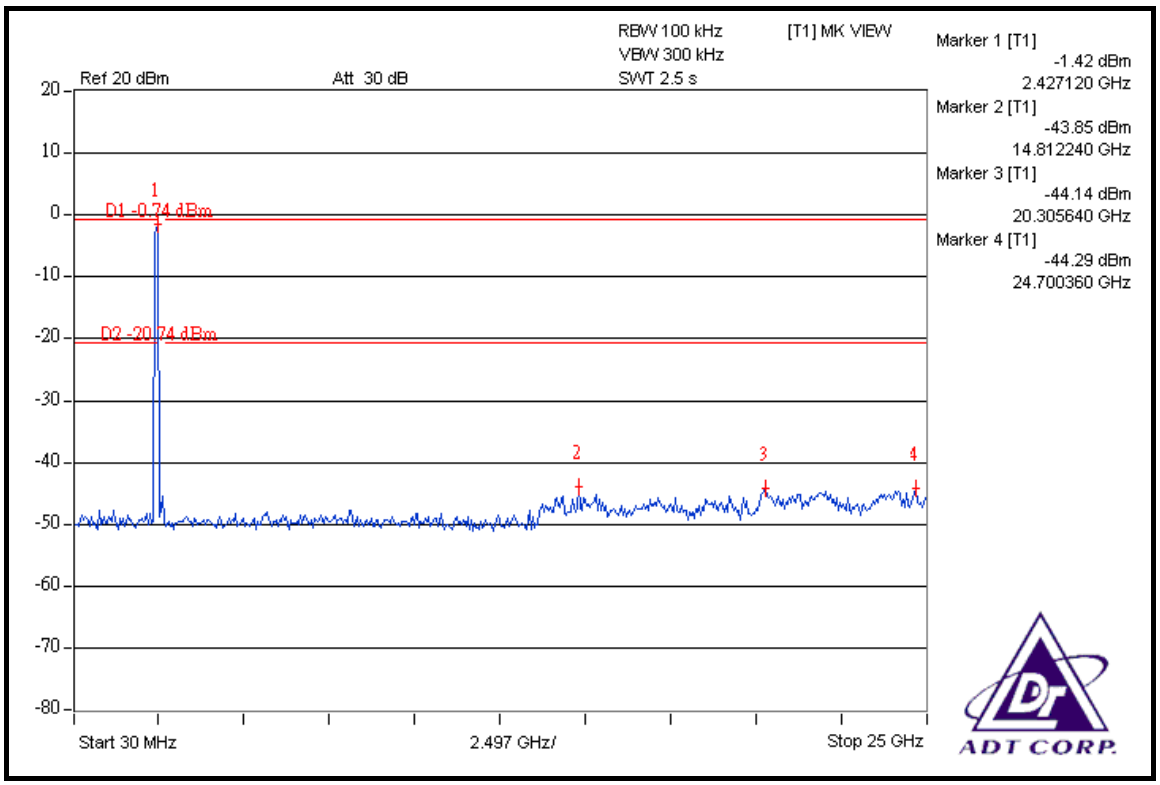
The band edge emission plot on the next page shows 43.56dBc between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 95.07dBuV/m (Average), so the maximum field strength in restrict band is 95.07 – 43.56 = 51.51dBuV/m which is under 54dBuV/m limit.

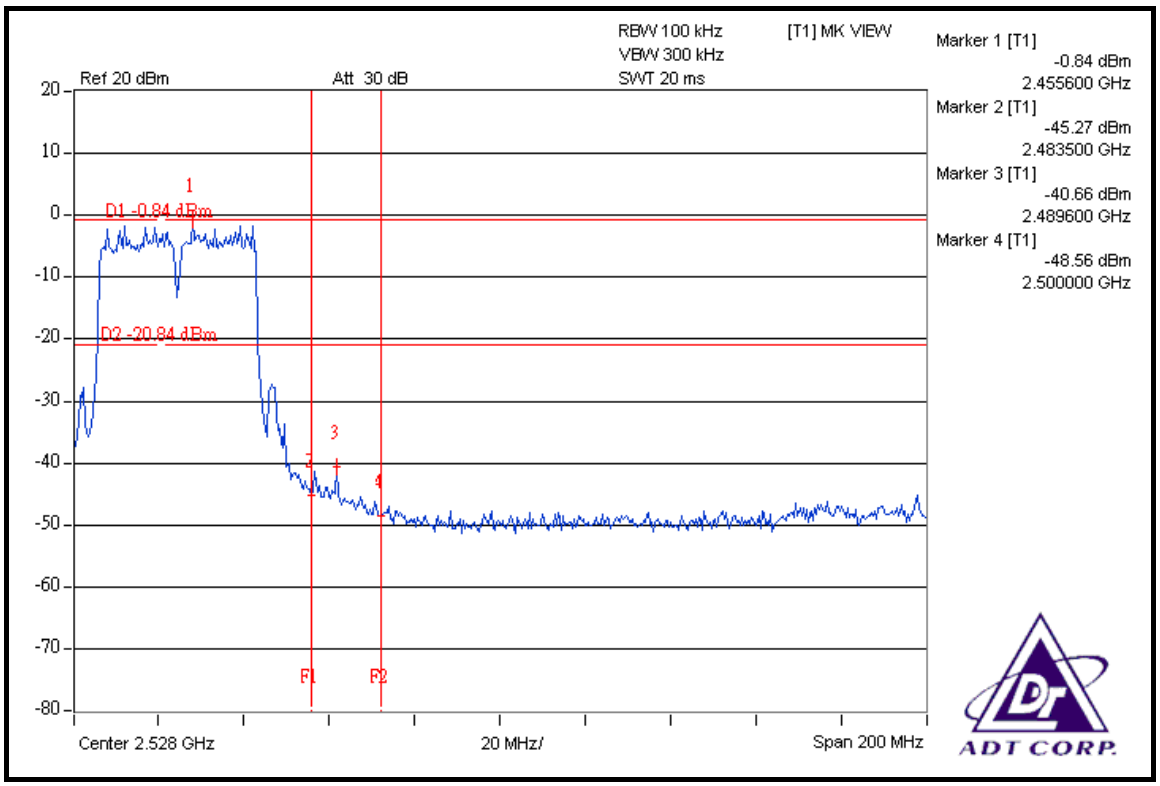
NOTE 2: The band edge emission plot on the next second page shows 39.82dBc between carrier maximum power and local maximum emission in restrict band (2.4896GHz). The emission of carrier strength list in the test result of channel 7 at the item 4.2.7 is 107.09dBuV/m (Peak), so the maximum field strength in restrict band is 107.09 – 39.82 = 67.27dBuV/m which is under 74dBuV/m limit.

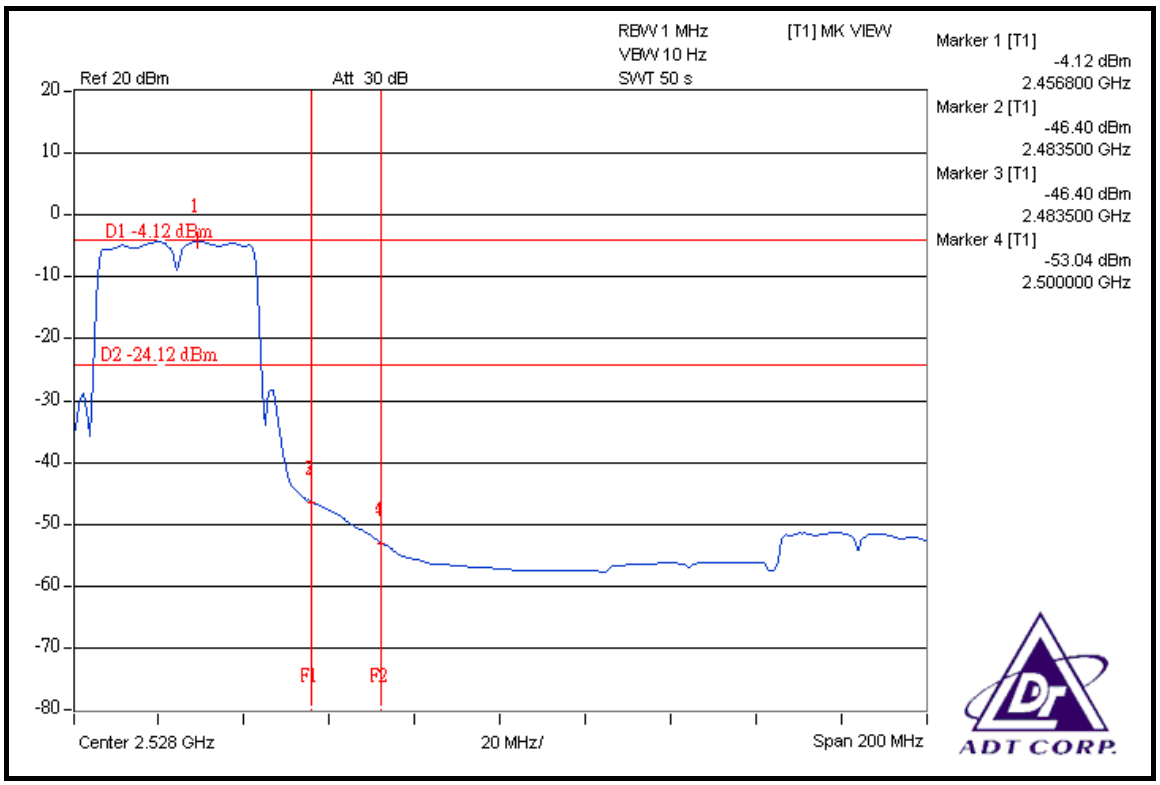
The band edge emission plot on the next third page shows 42.28dBc between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 7 at the item 4.2.7 is 94.91dBuV/m (Average), so the maximum field strength in restrict band is 94.91 – 42.28 = 52.63dBuV/m which is under 54dBuV/m limit.

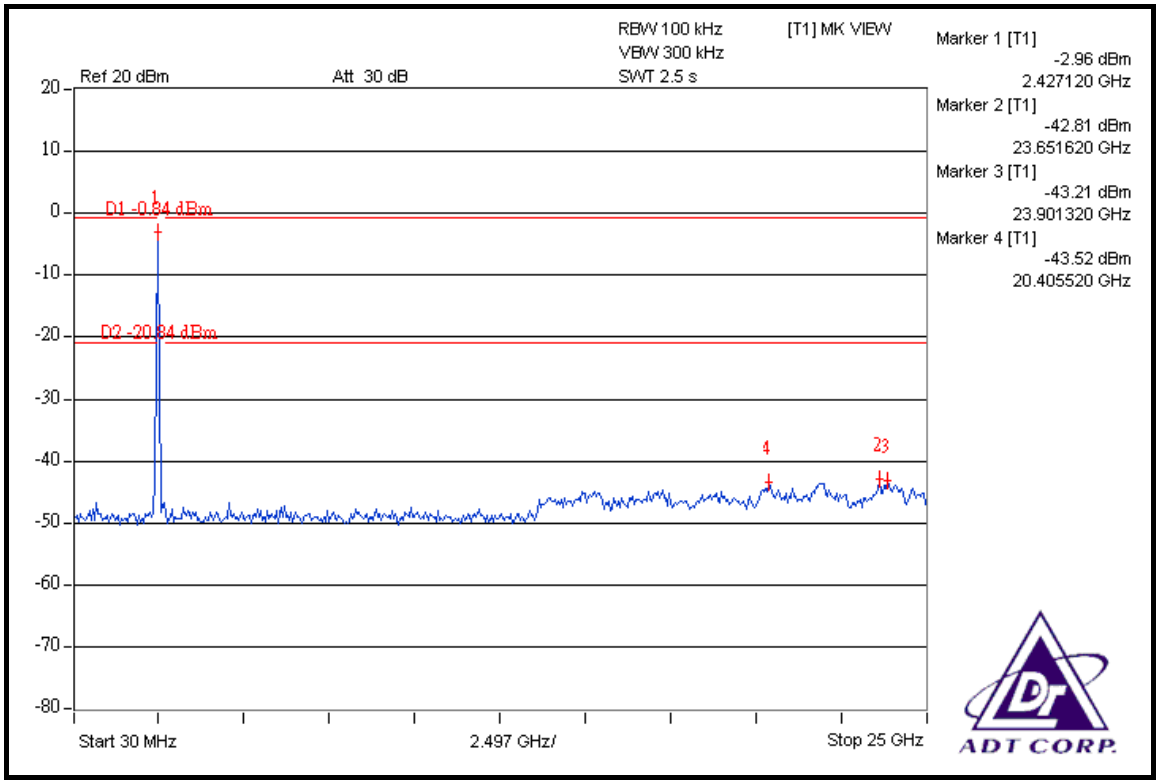

RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
Marker 1 [T1]
-0.74 dBm
2.433600 GHz
Marker 2 [T1]
-28.80 dBm
2.400000 GHz
Marker 3 [T1]
-27.56 dBm
2.399600 GHz
Marker 4 [T1]
-45.61 dBm
2.390000 GHz
Marker 5 [T1]
-43.20 dBm
2.389600 GHz
D1 -0.74 dBm
D2 -20.74 dBm
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
P2
P1
Center 2.346 GHz
20 MHz/
Span 200 MHz
ADT CORP.


RBW 1 MHz
VBW 10 Hz
SWT 50 s
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
Marker 1 [T1]
-4.16 dBm
2.427600 GHz
Marker 2 [T1]
-29.20 dBm
2.400000 GHz
Marker 3 [T1]
-29.20 dBm
2.400000 GHz
Marker 4 [T1]
-47.72 dBm
2.390000 GHz
Marker 5 [T1]
-47.72 dBm
2.390000 GHz
D1 -4.16 dBm
D2 -24.16 dBm
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
P2
P1
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 20 dBm
Att 30 dB
Marker 1 [T1]
-1.42 dBm
2.427120 GHz
Marker 2 [T1]
-43.85 dBm
14.812240 GHz
Marker 3 [T1]
-44.14 dBm
20.305640 GHz
Marker 4 [T1]
-44.29 dBm
24.700360 GHz
D1 -0.74 dBm
D2 -20.74 dBm
Start 30 MHz
2.497 GHz/
Stop 25 GHz
ADT CORP.


RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
Marker 1 [T1]
-0.84 dBm
2.455600 GHz
Marker 2 [T1]
-45.27 dBm
2.483500 GHz
Marker 3 [T1]
-40.66 dBm
2.489600 GHz
Marker 4 [T1]
-48.56 dBm
2.500000 GHz
D1 -0.84 dBm
D2 -20.84 dBm
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 20 dBm
Att 30 dB
Marker 1 [T1]
-4.12 dBm
2.456800 GHz
Marker 2 [T1]
-46.40 dBm
2.483500 GHz
Marker 3 [T1]
-46.40 dBm
2.483500 GHz
Marker 4 [T1]
-53.04 dBm
2.500000 GHz
D1 -4.12 dBm
D2 -24.12 dBm
F1
F2
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 20 dBm
Att 30 dB
Marker 1 [T1]
-2.96 dBm
2.427120 GHz
Marker 2 [T1]
-42.81 dBm
23.651620 GHz
Marker 3 [T1]
-43.21 dBm
23.901320 GHz
Marker 4 [T1]
-43.52 dBm
20.405520 GHz
D1 -0.84 dBm
D2 -20.84 dBm
Start 30 MHz
2.497 GHz/
Stop 25 GHz
ADT CORP.

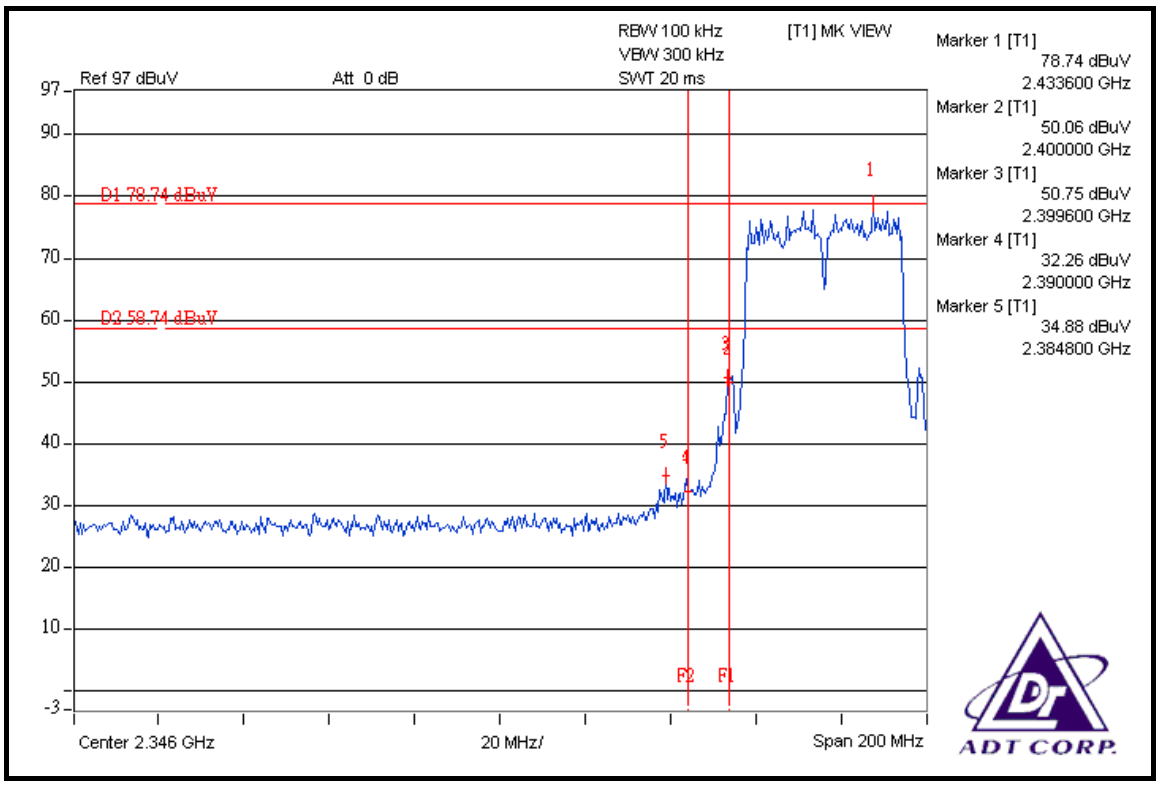
DRAFT 802.11n (40MHz) OFDM MODULATION: 2TX

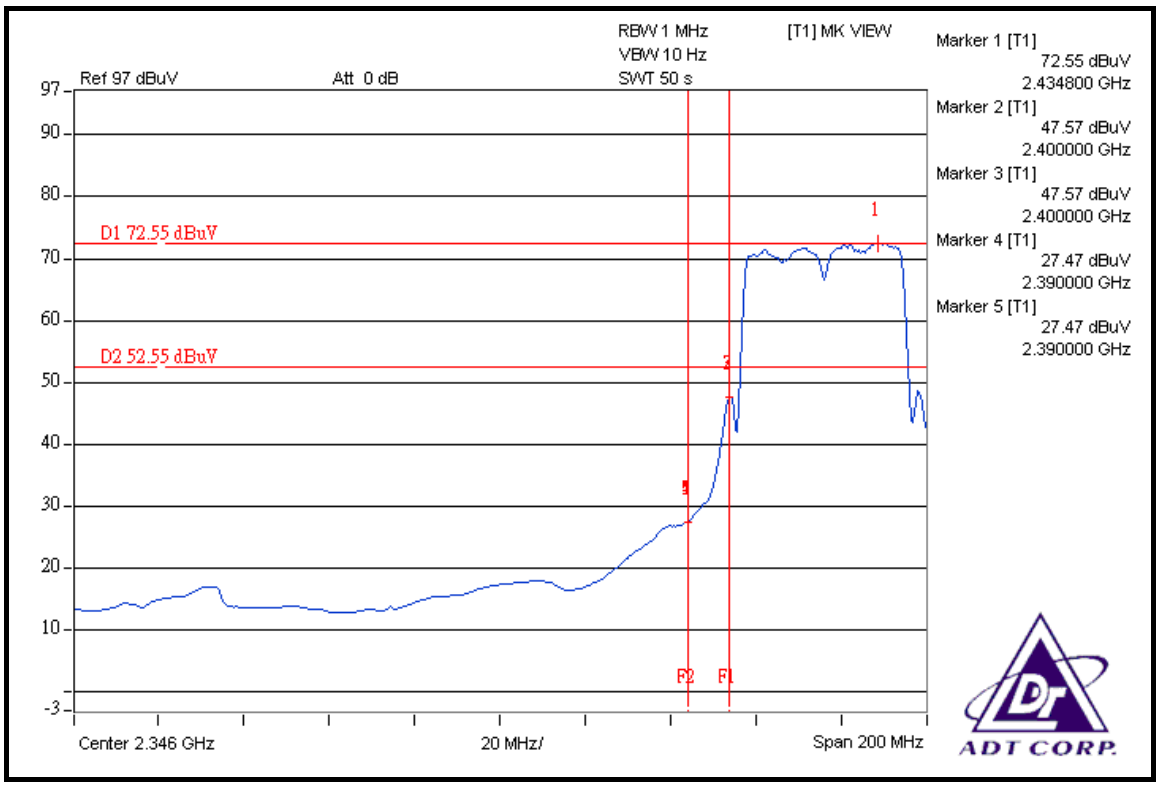
NOTE 1: The band edge emission plot on the next page shows 43.86dBc between carrier maximum power and local maximum emission in restrict band (2.3848GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 109.22dBuV/m (Peak), so the maximum field strength in restrict band is 109.22 – 43.86 = 65.36dBuV/m which is under 74dBuV/m limit.

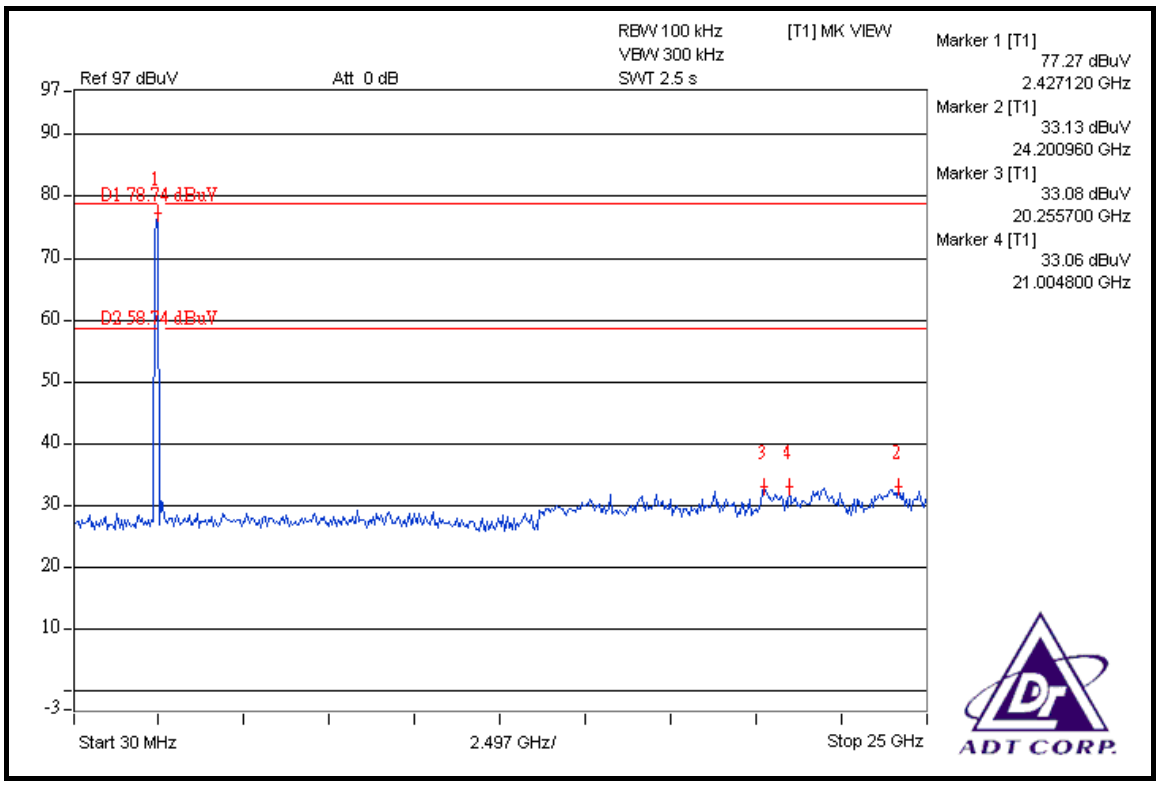
The band edge emission plot on the next page shows 45.08dBc between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 94.66dBuV/m (Average), so the maximum field strength in restrict band is 94.66 – 45.08 = 49.58dBuV/m which is under 54dBuV/m limit.

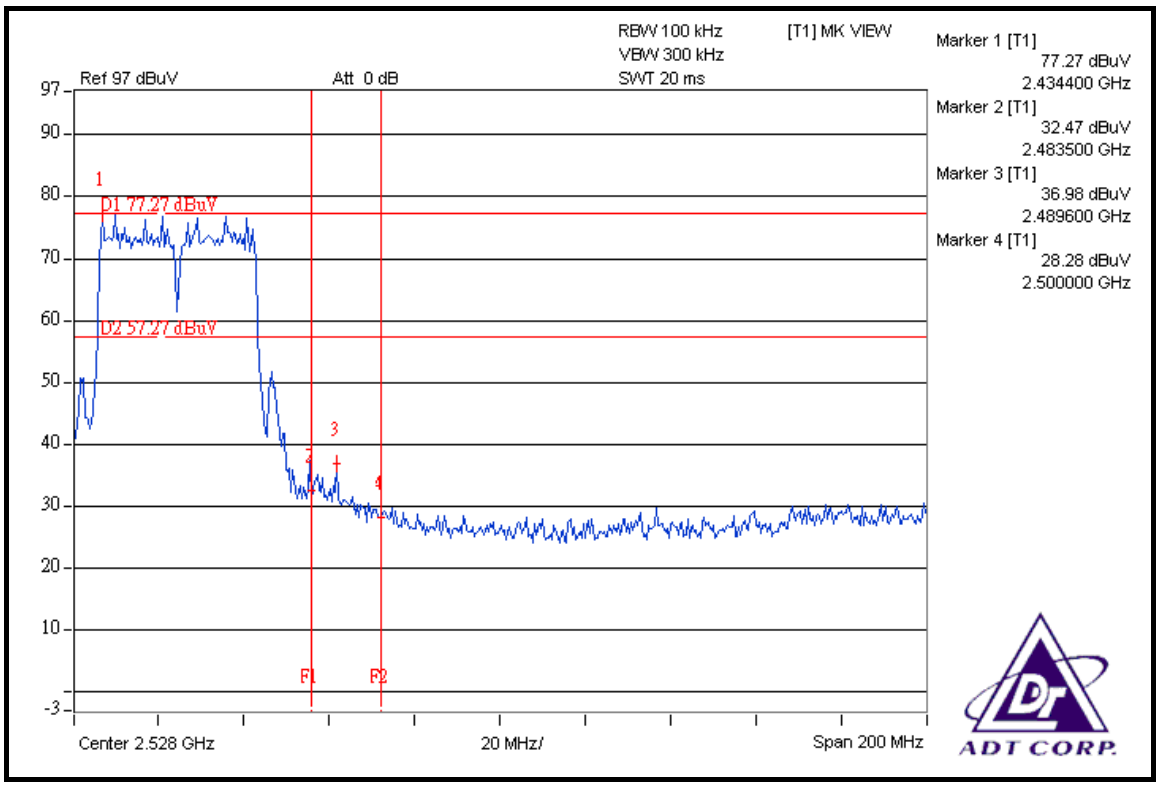
NOTE 2: The band edge emission plot on the next second page shows 40.29dBc between carrier maximum power and local maximum emission in restrict band (2.4896GHz). The emission of carrier strength list in the test result of channel 7 at the item 4.2.7 is 108.38dBuV/m (Peak), so the maximum field strength in restrict band is 108.38 – 40.29 = 68.09dBuV/m which is under 74dBuV/m limit.

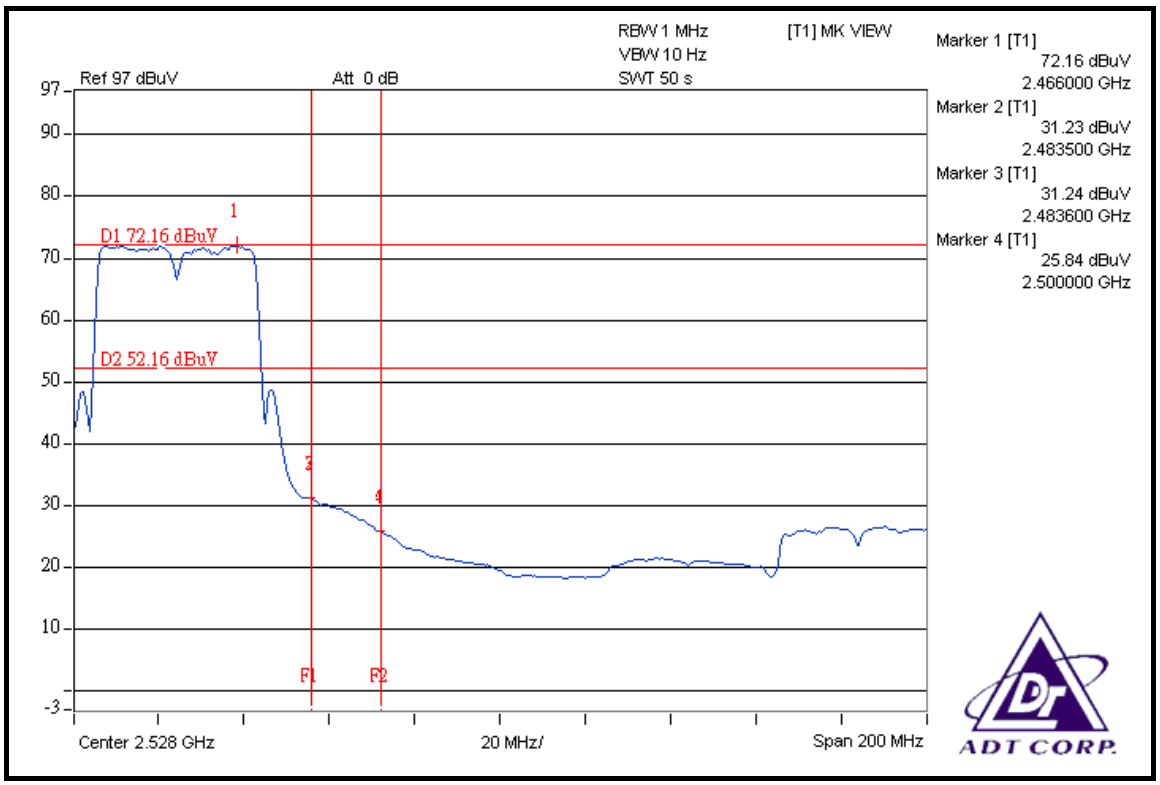
The band edge emission plot on the next third page shows 40.92dBc between carrier maximum power and local maximum emission in restrict band (2.4836GHz). The emission of carrier strength list in the test result of channel 7 at the item 4.2.7 is 94.35dBuV/m (Average), so the maximum field strength in restrict band is 94.35 – 40.92 = 53.43dBuV/m which is under 54dBuV/m limit.

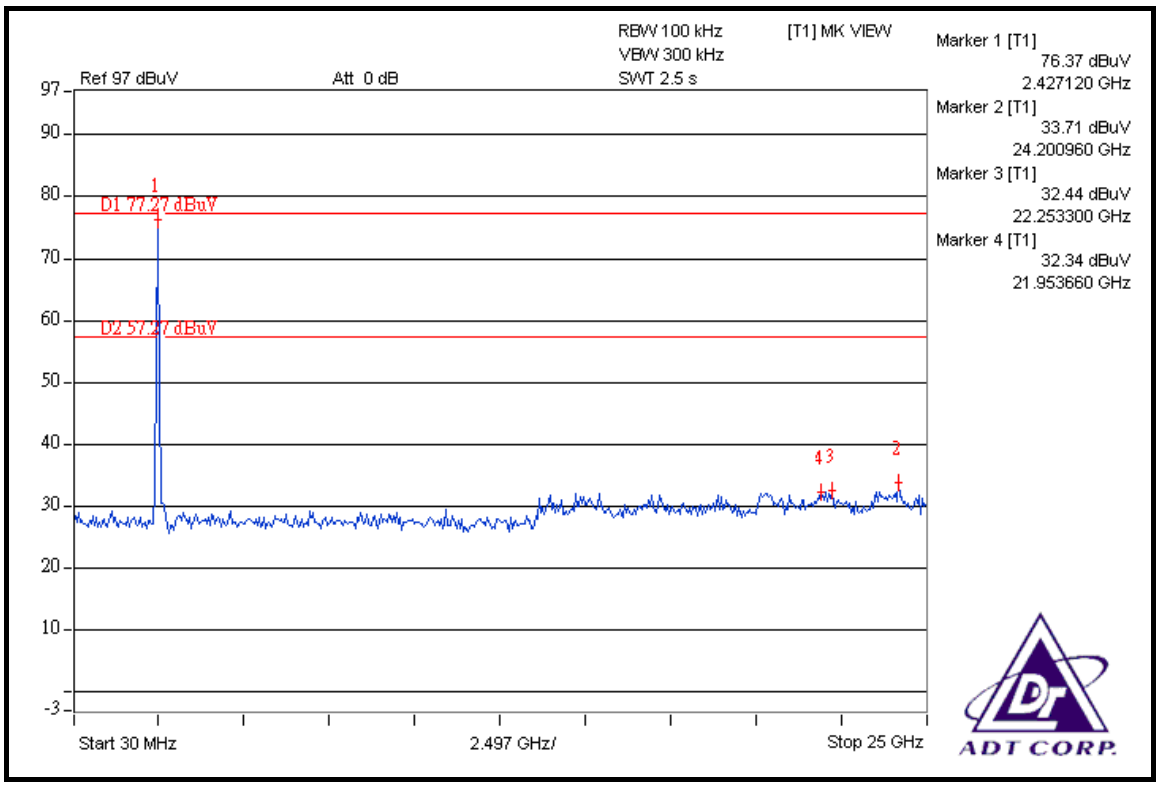

RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
D1 78.74 dBuV
D2 58.74 dBuV
Marker 1 [T1]
78.74 dBuV
2.433600 GHz
Marker 2 [T1]
50.06 dBuV
2.400000 GHz
Marker 3 [T1]
50.75 dBuV
2.399600 GHz
Marker 4 [T1]
32.26 dBuV
2.390000 GHz
Marker 5 [T1]
34.88 dBuV
2.384800 GHz
Center 2.346 GHz
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 72.55 dBuV
D2 52.55 dBuV
Marker 1 [T1]
72.55 dBuV
2.434800 GHz
Marker 2 [T1]
47.57 dBuV
2.400000 GHz
Marker 3 [T1]
47.57 dBuV
2.400000 GHz
Marker 4 [T1]
27.47 dBuV
2.390000 GHz
Marker 5 [T1]
27.47 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]
77.27 dBuV
2.427120 GHz
Marker 2 [T1]
33.13 dBuV
24.200960 GHz
Marker 3 [T1]
33.08 dBuV
20.255700 GHz
Marker 4 [T1]
33.06 dBuV
21.004800 GHz
D1 78.74 dBuV
D2 58.74 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]
77.27 dBuV
2.434400 GHz
Marker 2 [T1]
32.47 dBuV
2.483500 GHz
Marker 3 [T1]
36.98 dBuV
2.489600 GHz
Marker 4 [T1]
28.28 dBuV
2.500000 GHz
D1 77.27 dBuV
D2 57.27 dBuV
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
Marker 1 [T1]
72.16 dBuV
2.466000 GHz
Marker 2 [T1]
31.23 dBuV
2.483500 GHz
Marker 3 [T1]
31.24 dBuV
2.483600 GHz
Marker 4 [T1]
25.84 dBuV
2.500000 GHz
D1 72.16 dBuV
D2 52.16 dBuV
97
90
80
70
60
50
40
30
20
10
-3
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
Marker 1 [T1]
76.37 dBuV
2.427120 GHz
Marker 2 [T1]
33.71 dBuV
24.200960 GHz
Marker 3 [T1]
32.44 dBuV
22.253300 GHz
Marker 4 [T1]
32.34 dBuV
21.953660 GHz
D1 77.27 dBuV
D2 57.27 dBuV
97
90
80
70
60
50
40
30
20
10
-3
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 dipole antenna without antenna connector.
The maximum Gain of the antenna is 2dBi.

5. PHOTOGRAPHS OF THE TEST CONFIGURATION

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

6. INFORMATION ON THE TESTING LABORATORIES

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

USA	FCC, UL
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 ---