FCC TEST REPORT (15.407)

REPORT NO.:	RF970918L05-1
MODEL NO.:	AR725W
RECEIVED:	Sep. 18, 2008
TESTED:	Oct. 16 ~ Nov. 18, 2008
ISSUED:	Nov. 24, 2008

APPLICANT:	Gemtek Technology Co., Ltd.
ADDRESS:	No. 15-1, Zhonghua Rd, Hsinchu Industrial Park , Hsinchu County, Taiwan, R.O.C. 303

ISSUED BY:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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:	Dual Band Wireless N Router
MODEL:	AR725W
BRAND:	Airlink101
APPLICANT:	Gemtek Technology Co., Ltd.
TEST SAMPLE:	ENGINEERING SAMPLE
TESTED:	Oct. 16 ~ Nov. 18, 2008
STANDARDS:	**FCC Part 15, Subpart E (Section 15.407)** ANSI C63.4-2003

The above equipment (Model: AR725W) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch,** 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 : _____ **, DATE :** Nov. 24, 2008
Joanna Wang / Senior Specialist

TECHNICAL ACCEPTANCE : _____ **, DATE :** Nov. 24, 2008
Responsible for RF Long Chen / Senior Engineer

APPROVED BY : _____ **, DATE :** Nov. 24, 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 E (SECTION 15.407)			
STANDARD SECTION	**TEST TYPE AND LIMIT**	**RESULT**	**REMARK**
15.407(b)(5)	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -9.60dB at 0.638MHz.
15.407(b/1/2/3) (b)(5)	Electric Field Strength Spurious Emissions, 30MHz ~ 40000MHz	PASS	Meet the requirement of limit. Minimum passing margin is -1.05dB at 133.000MHz.
15.407(a/1/2/3)	Peak Transmit Power	PASS	Meet the requirement of limit.
15.407(a)(6)	Peak Power Excursion	PASS	Meet the requirement of limit.
15.407(a/1/2/3)	Peak Power Spectral Density	PASS	Meet the requirement of limit.
15.407(g)	Frequency Stability	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	2.44dB
Radiated emissions	30MHz ~ 200MHz	3.19dB
	200MHz ~1000MHz	3.21dB
	1GHz ~ 18GHz	2.26dB
	18GHz ~ 40GHz	1.94dB

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

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

EUT	Dual Band Wireless N Router
MODEL NO.	AR725W
FCC ID	MXF-R971009GN
POWER SUPPLY	12Vdc from AC adapter
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b:11.0/ 5.5/ 2.0/ 1.0Mbps 802.11g: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps Draft 802.11n: up to 270.0Mbps
FREQUENCY RANGE	2.4GHz: 2400.0 ~ 2483.5MHz 5.0GHz: 5150.0 ~ 5250.0MHz, 5725.0 ~ 5825.0MHz
NUMBER OF CHANNEL	2.4GHz: 11 for 802.11b, 802.11g, draft 802.11n (20MHz) 7 for draft 802.11n (40MHz) 5.0GHz: 9 for 802.11a, draft 802.11n (20MHz) 4 for draft 802.11n (40MHz)
OUTPUT POWER	362.269mW for 2400.0 ~ 2483.5MHz 33.893mW for 5150.0 ~ 5250.0MHz 320.282mW for 5725.0 ~ 5825.0MHz
ANTENNA TYPE	Inverted F antenna with 0dBi gain
DATA CABLE	NA
I/O PORTS	RJ45
ASSOCIATED DEVICES	Adapter

NOTE:

1. The EUT is a Dual Band Wireless N Router. The functions of EUT listed as below:

	TEST STANDARD	REFERENCE REPORT
WLAN 802.11b/g, draft 802.11n	FCC Part 15, Subpart C (Section 15.247)	RF970918L05
WLAN 802.11a, draft 802.11n (5725~5825 MHz)		
WLAN 802.11a, draft 802.11n (5150~ 5250MHz)	FCC Part 15, Subpart E (Section 15.407)	RF970918L05-1

2. The frequency bands used in this EUT are listed as follows:

Frequency Band (MHz)	2400~2483.5	5150~5250	5725~5825
802.11b	√		
802.11g	√		
802.11a		√	√
Draft 802.11n (20MHz)	√	√	√
Draft 802.11n (40MHz)	√	√	√

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

MODULATION MODE	TX FUNCTION
802.11b	1TX
802.11g	1TX
802.11a	1TX
Draft 802.11n (20MHz)	2TX
Draft 802.11n (40MHz)	2TX

4. The EUT was powered by the following adapters:

ADAPTER 1	
BRAND:	DVE
MODEL:	DSA-12R-12 AUS 120120
INPUT:	100-240Vac, 50-60Hz, 0.3A
OUTPUT:	12Vdc, 1A MAX
POWER LINE:	1.8m non-shielded cable without core

ADAPTER 2	
BRAND:	LEI
MODEL:	MT12-Y120100-A1
INPUT:	100-120Vac, 60Hz, 0.3A
OUTPUT:	12Vdc, 1A MAX
POWER LINE:	1.8m non-shielded cable without core

5. 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

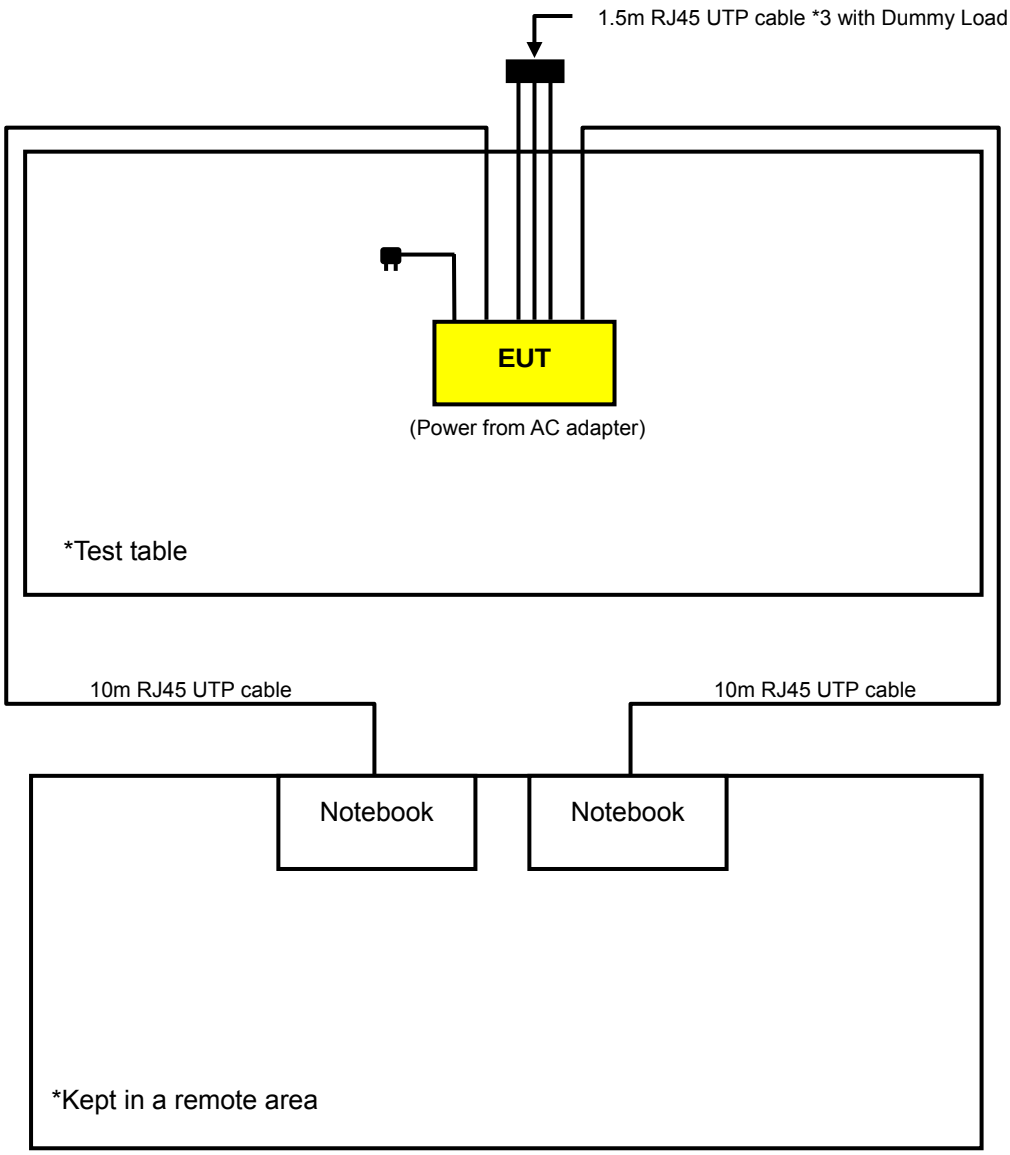
4 channels are provided for 802.11a, draft 802.11n (20MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
36	5180MHz	44	5220MHz
40	5200MHz	48	5240MHz

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
38	5190MHz	46	5230MHz

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	√	√	√	√	Adapter: DSA-12R-12 AUS 120120
B	-	√	√	-	Adapter: MT12-Y120100-A1

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

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

Note: "-" means no effect.

RADIATED EMISSION TEST (ABOVE 1GHz):

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

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	AXIS
A	802.11a	36 to 48	36, 40, 48	OFDM	BPSK	6.0	X
	Draft 802.11n (20MHz)	36 to 48	36, 40, 48	OFDM	BPSK	6.5	
	Draft 802.11n (40MHz)	38 to 46	38, 46	OFDM	BPSK	13.5	

RADIATED EMISSION TEST (BELOW 1GHz):

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

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	AXIS
A, B	Draft 802.11n (40MHz)	38 to 46	38	OFDM	BPSK	13.5	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 and antenna ports (if EUT with antenna diversity architecture).

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A, B	Draft 802.11n (40MHz)	38 to 46	38	OFDM	BPSK	13.5

BANDEDGE MEASUREMENT:

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

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11a	36 to 48	36, 48	OFDM	BPSK	6.0
	Draft 802.11n (20MHz)	36 to 48	36, 48	OFDM	BPSK	6.5
	Draft 802.11n (40MHz)	38 to 46	38, 46	OFDM	BPSK	13.5

ANTENNA PORT CONDUCTED MEASUREMENT:

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

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11a	36 to 48	36, 40, 48	OFDM	BPSK	6.0
	Draft 802.11n (20MHz)	36 to 48	36, 40, 48	OFDM	BPSK	6.5
	Draft 802.11n (40MHz)	38 to 46	38, 46	OFDM	BPSK	13.5

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 E (15.407)
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	9954115984	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 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 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

FREQUENCIES (MHz)	EIRP LIMIT (dBm)	EQUIVALENT FIELD STRENGTH AT 3m (dBμV/m) *NOTE 3
	PK	PK
5150 ~ 5250	-27	68.3

NOTE:

1. For frequencies 10MHz or greater above or below the band edge.
2. All emissions within the frequency range from the band edge to 10MHz above or below the band edge.
3. The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

$$E = \frac{1000000\sqrt{30P}}{3}$$ μV/m, where P is the eirp (Watts).

4.1.3 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	Nov. 03, 2008	Nov. 02, 2009
Preamplifier Agilent	8447D	2944A10631	Nov. 03, 2008	Nov. 02, 2009
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	274041/4	Aug. 21, 2008	Aug. 20, 2009
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	283397/4	Aug. 21, 2008	Aug. 20, 2009
Software ADT.	ADT_Radiated_V7.6	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA	NA
Antenna Tower Controller inn-co GmbH	CO2000	019303	NA	NA
Turn Table ADT.	TT100.	TT93021704	NA	NA
Turn Table Controller ADT.	SC100.	SC93021704	NA	NA

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

2. The test was performed in HwaYa Chamber 4.

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

4. The FCC Site Registration No. is 460141.

5. The IC Site Registration No. is IC3789B-4.

4.1.4 TEST PROCEDURES

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. 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 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

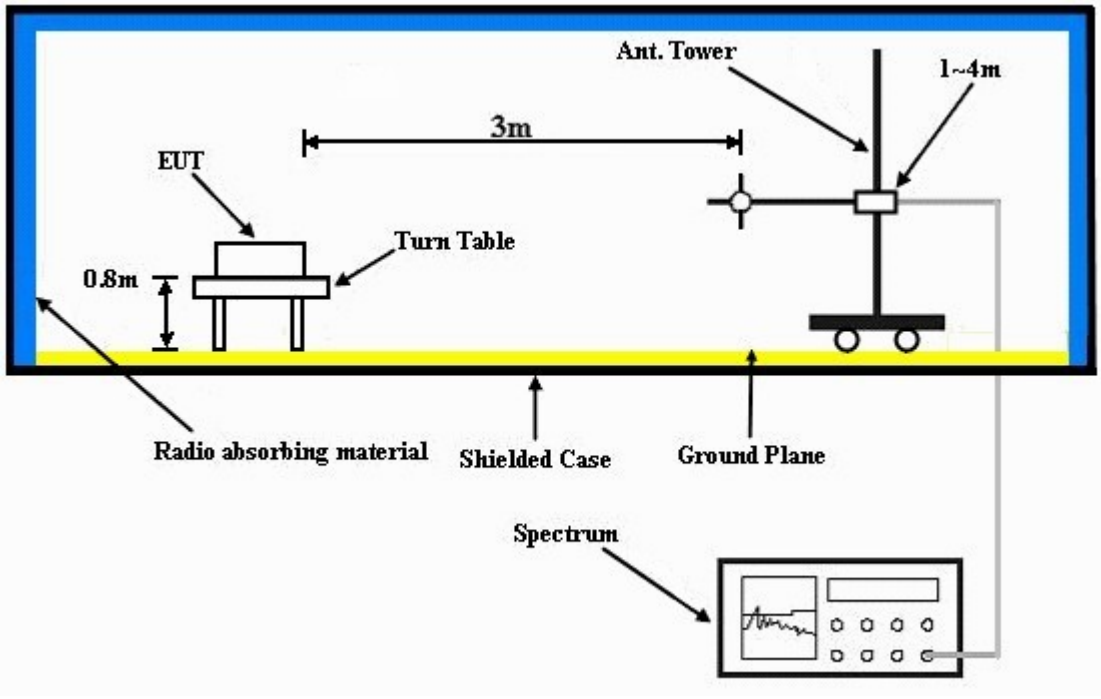
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.5 DEVIATION FROM TEST STANDARD

No deviation.

4.1.6 TEST SETUP



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

4.1.7 EUT OPERATING CONDITION

a. Placed the EUT on the testing table.
b. Prepared two notebook systems outside of testing area to act as a communication partners.
c. The communication partner connected with EUT via a RJ45 UTP cable and run a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
d. The communication partner sent data to EUT by command "PING".

4.1.8 TEST RESULTS

802.11a OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH 1022hPa	TESTED BY	Brad Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4144.00	46.60 PK	74.00	-27.40	1.04 H	350	10.31	36.29
2	4144.00	38.16 AV	54.00	-15.84	1.04 H	350	1.87	36.29
3	5150.00	49.58 PK	74.00	-24.42	1.00 H	35	10.94	38.64
4	5150.00	37.68 AV	54.00	-16.32	1.00 H	35	-0.96	38.64
5	*5180.00	98.38 PK			1.00 H	35	59.70	38.68
6	*5180.00	87.31 AV			1.00 H	35	48.63	38.68
7	#6216.00	60.54 PK	68.30	-7.76	1.00 H	27	19.47	41.07
8	#10360.00	58.61 PK	68.30	-9.69	1.03 H	244	9.03	49.58
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4144.00	48.35 PK	74.00	-25.65	1.09 V	359	12.06	36.29
2	4144.00	41.97 AV	54.00	-12.03	1.09 V	359	5.68	36.29
3	5150.00	51.04 PK	74.00	-22.96	1.07 V	57	12.40	38.64
4	5150.00	38.72 AV	54.00	-15.28	1.07 V	57	0.08	38.64
5	*5180.00	99.61 PK			1.07 V	57	60.93	38.68
6	*5180.00	89.27 AV			1.07 V	57	50.59	38.68
7	#6216.00	60.15 PK	68.30	-8.15	1.00 V	158	19.08	41.07
8	#10360.00	66.70 PK	68.30	-1.60	1.46 V	309	17.12	49.58

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 40	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1022hPa	TESTED BY	Brad Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	98.44 PK			1.00 H	44	59.74	38.70
2	*5200.00	87.41 AV			1.00 H	44	48.71	38.70
3	#10400.00	60.30 PK	68.30	-8.00	1.56 H	81	10.61	49.69
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	*5200.00	100.51 PK			1.02 V	86	61.81	38.70
2	*5200.00	88.89 AV			1.02 V	86	50.19	38.70
3	#10400.00	66.82 PK	68.30	-1.48	1.64 V	311	17.13	49.69

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.
6. "#":The radiated frequency is out the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH 1022hPa	TESTED BY	Brad Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	98.56 PK			1.00 H	38	59.81	38.75
2	*5240.00	87.52 AV			1.00 H	38	48.77	38.75
3	#10480.00	60.43 PK	68.30	-7.87	1.29 H	15	10.51	49.92
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	*5240.00	100.66 PK			1.00 V	99	61.91	38.75
2	*5240.00	88.96 AV			1.00 V	99	50.21	38.75
3	#10480.00	67.15 PK	68.30	-1.15	1.08 V	324	17.23	49.92

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.
6. "#":The radiated frequency is out the restricted band.

DRAFT 802.11n (20MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH 1022hPa	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	4144.00	49.44 PK	74.00	-24.56	1.18 H	235	13.15	36.29
2	4144.00	41.15 AV	54.00	-12.85	1.18 H	235	4.86	36.29
3	5145.00	60.33 PK	74.00	-13.67	1.00 H	163	21.70	38.63
4	5145.00	38.21 AV	54.00	-15.79	1.00 H	163	-0.42	38.63
5	*5180.00	99.31 PK			1.00 H	168	60.63	38.68
6	*5180.00	88.69 AV			1.00 H	168	50.01	38.68
7	#6216.00	56.63 PK	68.30	-11.67	1.27 H	142	15.56	41.07
8	#10360.00	60.04 PK	68.30	-8.26	1.07 H	113	10.46	49.58
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4144.00	52.14 PK	74.00	-21.86	1.00 V	196	15.85	36.29
2	4144.00	46.33 AV	54.00	-7.67	1.00 V	196	10.04	36.29
3	5145.00	55.55 PK	74.00	-18.45	1.00 V	55	16.92	38.63
4	5145.00	38.72 AV	54.00	-15.28	1.00 V	55	0.09	38.63
5	*5180.00	100.12 PK			1.00 V	54	61.44	38.68
6	*5180.00	89.63 AV			1.00 V	54	50.95	38.68
7	#6216.00	59.11 PK	68.30	-9.19	1.02 V	48	18.04	41.07
8	#10360.00	66.32 PK	68.30	-1.98	1.71 V	290	16.74	49.58

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 40	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1022hPa	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	4160.00	49.55 PK	74.00	-24.45	1.22 H	240	13.22	36.33
2	4160.00	41.34 AV	54.00	-12.66	1.22 H	240	5.01	36.33
3	*5200.00	99.83 PK			1.00 H	177	61.13	38.70
4	*5200.00	88.97 AV			1.00 H	177	50.27	38.70
5	#10400.00	60.48 PK	68.30	-7.82	1.11 H	128	10.79	49.69
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	4160.00	50.94 PK	74.00	-23.06	1.68 V	39	14.60	36.33
2	4160.00	46.18 AV	54.00	-7.82	1.68 V	39	9.84	36.33
3	*5200.00	101.22 PK			1.02 V	66	62.52	38.70
4	*5200.00	90.51 AV			1.02 V	66	51.81	38.70
5	#10400.00	66.51 PK	68.30	-1.79	1.76 V	301	16.82	49.69

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.
6. "#":The radiated frequency is out the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH 1022hPa	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	4192.00	48.72 PK	74.00	-25.28	1.16 H	234	12.30	36.42
2	4192.00	40.34 AV	54.00	-13.66	1.16 H	234	3.92	36.42
3	*5240.00	97.42 PK			1.59 H	286	58.67	38.75
4	*5240.00	86.84 AV			1.59 H	286	48.09	38.75
5	#10480.00	60.38 PK	68.30	-7.92	1.08 H	82	10.45	49.92
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	4192.00	51.11 PK	74.00	-22.89	1.00 V	197	14.69	36.42
2	4192.00	45.43 AV	54.00	-8.57	1.00 V	197	9.01	36.42
3	*5240.00	99.87 PK			1.62 V	98	61.12	38.75
4	*5240.00	89.68 AV			1.62 V	98	50.93	38.75
5	#10480.00	66.35 PK	68.30	-1.95	1.56 V	261	16.43	49.92

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.
6. "#":The radiated frequency is out the restricted band.

DRAFT 802.11n (40MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 38	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH 1022hPa	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	4152.00	50.01 PK	74.00	-23.99	1.00 H	209	13.70	36.31
2	4152.00	42.20 AV	54.00	-11.80	1.00 H	209	5.89	36.31
3	5150.00	56.29 PK	74.00	-17.71	1.04 H	28	17.65	38.64
4	5150.00	40.20 AV	54.00	-13.80	1.04 H	28	1.56	38.64
5	*5190.00	102.36 PK			1.02 H	41	63.67	38.69
6	*5190.00	91.30 AV			1.02 H	41	52.61	38.69
7	#6228.00	61.32 PK	68.30	-6.98	1.51 H	104	20.19	41.13
8	#10380.00	62.53 PK	68.30	-5.77	1.49 H	332	12.89	49.64
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	4152.00	55.15 PK	74.00	-18.85	1.08 V	42	18.84	36.31
2	4152.00	49.34 AV	54.00	-4.66	1.08 V	42	13.03	36.31
3	5150.00	65.84 PK	74.00	-8.16	1.38 V	312	27.20	38.64
4	5150.00	43.71 AV	54.00	-10.29	1.38 V	312	5.07	38.64
5	*5190.00	103.10 PK			1.38 V	348	64.41	38.69
6	*5190.00	92.46 AV			1.38 V	348	53.77	38.69
7	#6228.00	61.69 PK	68.30	-6.61	1.06 V	336	20.56	41.13
8	#10380.00	66.85 PK	68.30	-1.45	1.48 V	266	17.21	49.64

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.
6. "#":The radiated frequency is out the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 46	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH 1022hPa	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	4184.00	48.38 PK	74.00	-25.62	1.00 H	11	11.98	36.40
2	4184.00	39.21 AV	54.00	-14.79	1.00 H	11	2.81	36.40
3	*5230.00	99.40 PK			1.00 H	44	60.66	38.74
4	*5230.00	89.00 AV			1.00 H	44	50.26	38.74
5	#10460.00	59.53 PK	68.30	-8.77	1.05 H	75	9.67	49.86
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	4184.00	51.31 PK	74.00	-22.69	1.07 V	39	14.91	36.40
2	4184.00	45.89 AV	54.00	-8.11	1.07 V	39	9.49	36.40
3	*5230.00	99.92 PK			1.04 V	322	61.18	38.74
4	*5230.00	89.48 AV			1.04 V	322	50.74	38.74
5	#10460.00	66.86 PK	68.30	-1.44	1.57 V	285	17.00	49.86

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.
6. "#":The radiated frequency is out the restricted band.

BELOW 1GHz WORST-CASE DATA：DRAFT 802.11n (40MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 38	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1018hPa	TESTED BY	Mark Liao
TEST MODE	A		

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	133.30	42.41 QP	43.50	-1.09	2.07 H	270	29.55	12.86
2	399.31	43.46 QP	46.00	-2.54	2.00 H	307	24.55	18.91
3	667.63	42.75 QP	46.00	-3.25	1.25 H	40	17.17	25.57
4	799.84	41.37 QP	46.00	-4.63	2.00 H	187	13.83	27.54
5	933.00	44.83 QP	46.00	-1.17	1.49 H	34	14.57	30.26
6	951.49	43.97 QP	46.00	-2.03	1.50 H	37	13.51	30.46
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	132.95	39.50 QP	43.50	-4.00	1.00 V	196	26.66	12.84
2	399.31	40.86 QP	46.00	-5.14	1.50 V	199	21.95	18.91
3	667.63	40.50 QP	46.00	-5.50	1.50 V	319	14.93	25.57
4	799.84	40.94 QP	46.00	-5.06	1.00 V	343	13.40	27.54
5	933.99	43.08 QP	46.00	-2.92	1.00 V	343	12.81	30.27
6	951.49	40.12 QP	46.00	-5.88	1.25 V	202	9.66	30.46

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 38	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1018hPa	TESTED BY	Mark Liao
TEST MODE	B		

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	**133.00**	**42.45 QP**	**43.50**	**-1.05**	**2.01 H**	**253**	**29.61**	**12.84**
2	183.50	38.14 QP	43.50	-5.36	1.50 H	100	26.21	11.93
3	399.31	43.05 QP	46.00	-2.95	2.00 H	313	24.14	18.91
4	799.84	44.92 QP	46.00	-1.08	1.00 H	199	17.38	27.54
5	864.00	40.79 QP	46.00	-5.21	1.00 H	25	11.73	29.06
6	933.00	44.72 QP	46.00	-1.28	1.98 H	32	14.46	30.26
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	105.73	38.88 QP	43.50	-4.62	2.00 V	10	26.96	11.92
2	399.31	42.87 QP	46.00	-3.13	1.50 V	331	23.96	18.91
3	667.63	42.16 QP	46.00	-3.84	2.00 V	355	16.59	25.57
4	731.79	44.81 QP	46.00	-1.19	1.50 V	19	17.97	26.84
5	799.84	40.55 QP	46.00	-5.45	2.00 V	352	13.01	27.54
6	933.99	42.68 QP	46.00	-3.32	1.00 V	349	12.41	30.27

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

4.2 CONDUCTED EMISSION MEASUREMENT

4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

NOTE: 1. The lower limit shall apply at the transition frequencies.

2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100288	Sep. 22, 2008	Sep. 21, 2009
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 ROHDE & SCHWARZ	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.

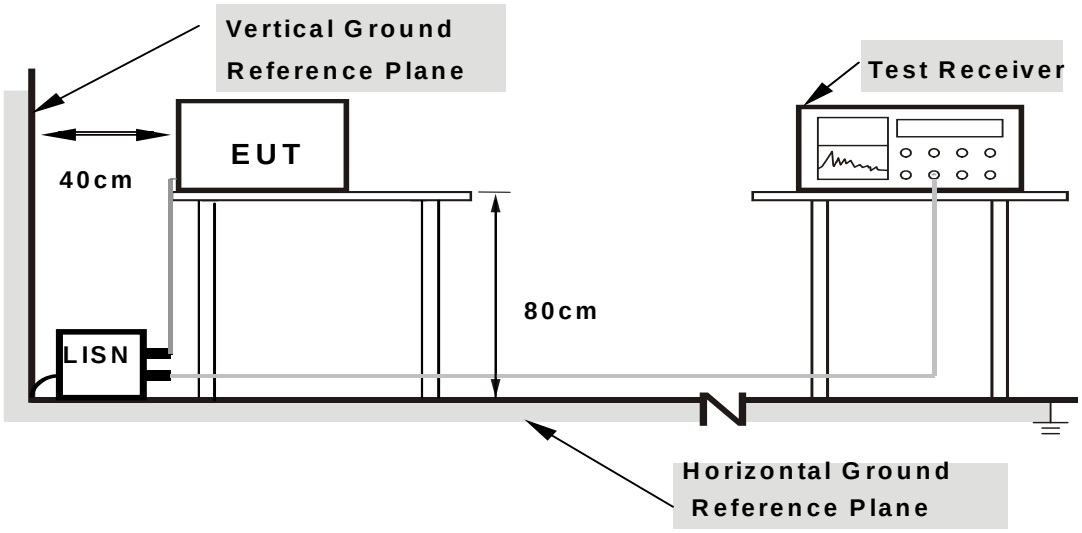
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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

4.2.4 DEVIATION FROM TEST STANDARD

No deviation.

4.2.5 TEST SETUP



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

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

4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6.

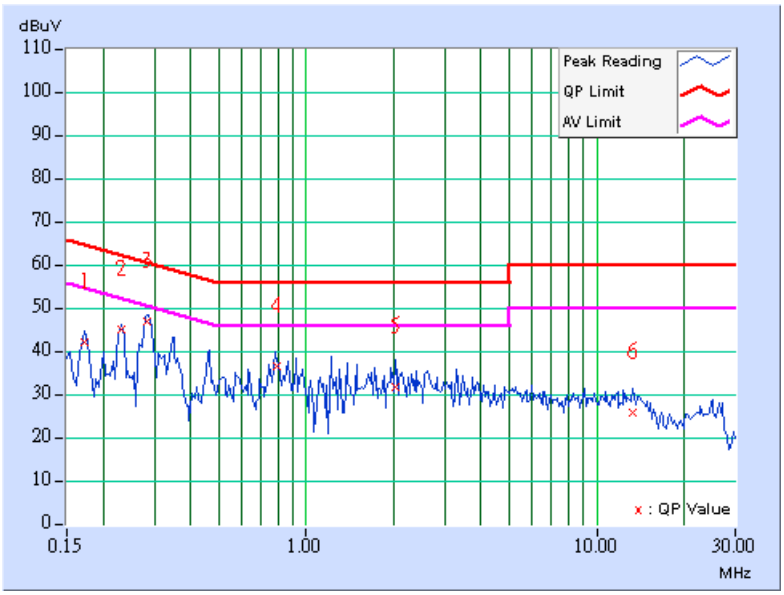
4.2.7 TEST RESULTS

CONDUCTED WORST-CASE DATA：DRAFT 802.11n (40MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 38	PHASE	Line 1
MODULATION TYPE	BPSK	INPUT POWER	120Vac, 60Hz
TRANSFER RATE	13.5Mbps	6dB BANDWIDTH	9kHz
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH, 1018hPa	TESTED BY	Match Tsui
TEST MODE	A		

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.173	0.13	41.34	-	41.47	-	64.79	54.79	-23.33	-
2	0.232	0.13	44.33	-	44.46	-	62.38	52.38	-17.92	-
3	0.283	0.13	46.09	-	46.22	-	60.73	50.73	-14.51	-
4	0.790	0.16	35.96	-	36.12	-	56.00	46.00	-19.88	-
5	2.035	0.26	30.92	-	31.18	-	56.00	46.00	-24.82	-
6	13.344	0.79	25.14	-	25.93	-	60.00	50.00	-34.07	-

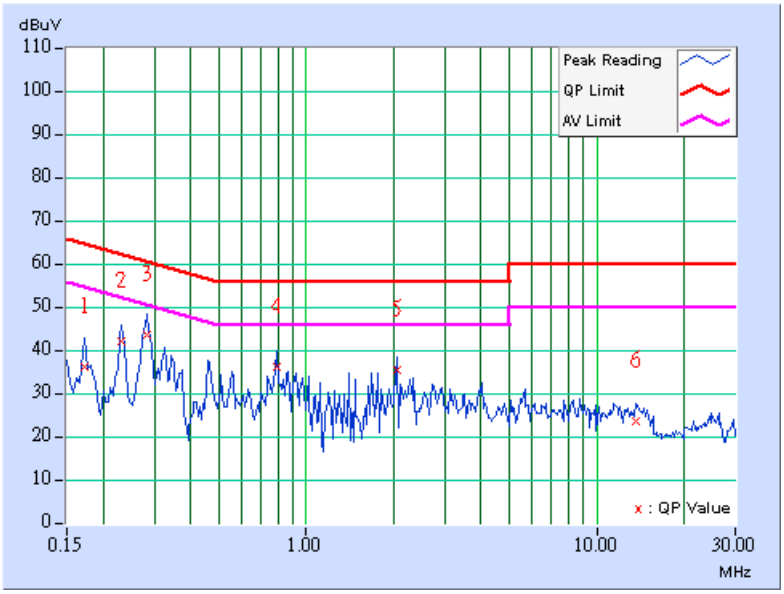
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 38	PHASE	Line 2
MODULATION TYPE	BPSK	INPUT POWER	120Vac, 60Hz
TRANSFER RATE	13.5Mbps	6dB BANDWIDTH	9kHz
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH, 1018hPa	TESTED BY	Match Tsui
TEST MODE	A		

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.173	0.14	35.67	-	35.81	-	64.79	54.79	-28.98	-
2	0.232	0.14	41.49	-	41.63	-	62.38	52.38	-20.75	-
3	0.283	0.14	42.91	-	43.05	-	60.73	50.73	-17.68	-
4	0.791	0.17	35.66	-	35.83	-	56.00	46.00	-20.17	-
5	2.055	0.26	34.76	-	35.02	-	56.00	46.00	-20.98	-
6	13.672	0.68	22.84	-	23.52	-	60.00	50.00	-36.48	-

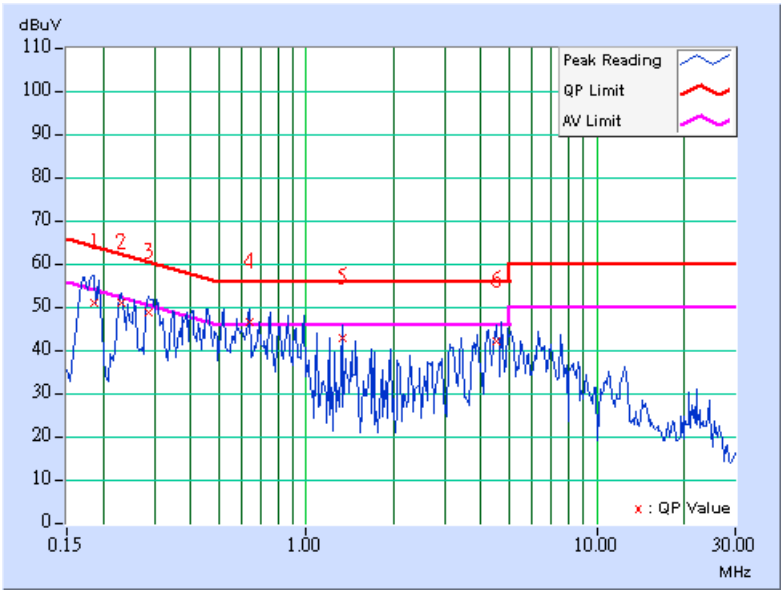
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 38	PHASE	Line 1
MODULATION TYPE	BPSK	INPUT POWER	120Vac, 60Hz
TRANSFER RATE	13.5Mbps	6dB BANDWIDTH	9kHz
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH, 1018hPa	TESTED BY	Match Tsui
TEST MODE	B		

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.185	0.13	50.73	-	50.86	-	64.25	54.25	-13.39	-
2	0.232	0.13	50.80	-	50.93	-	62.38	52.38	-11.45	-
3	0.287	0.13	48.38	-	48.51	-	60.62	50.62	-12.10	-
4	**0.638**	**0.15**	**46.25**	**33.41**	**46.40**	**33.56**	**56.00**	**46.00**	**-9.60**	**-12.44**
5	1.332	0.20	42.62	-	42.82	-	56.00	46.00	-13.18	-
6	4.512	0.46	41.95	-	42.41	-	56.00	46.00	-13.59	-

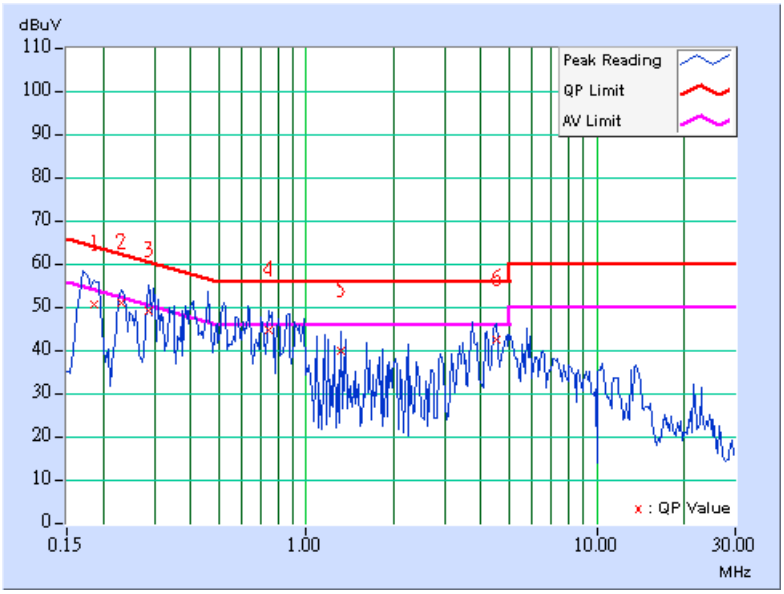
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 38	PHASE	Line 2
MODULATION TYPE	BPSK	INPUT POWER	120Vac, 60Hz
TRANSFER RATE	13.5Mbps	6dB BANDWIDTH	9kHz
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH, 1018hPa	TESTED BY	Match Tsui
TEST MODE	B		

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.186	0.14	50.37	-	50.51	-	64.21	54.21	-13.70	-
2	0.232	0.14	50.56	-	50.70	-	62.38	52.38	-11.68	-
3	0.287	0.14	48.85	-	48.99	-	60.62	50.62	-11.62	-
4	0.744	0.17	44.43	-	44.60	-	56.00	46.00	-11.40	-
5	1.324	0.21	39.55	-	39.76	-	56.00	46.00	-16.24	-
6	4.508	0.44	42.16	-	42.60	-	56.00	46.00	-13.40	-

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 PEAK TRANSMIT POWER MEASUREMENT

4.3.1 LIMITS OF PEAK TRANSMIT POWER MEASUREMENT

FREQUENCY BAND	LIMIT
5.15 ~ 5.25GHz	The lesser of 50mW (17dBm) or 4dBm + 10logB

NOTE: Where B is the 26dB emission bandwidth in MHz.

4.3.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	CALIBRATED UNTIL
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 26dB bandwidth of emission.

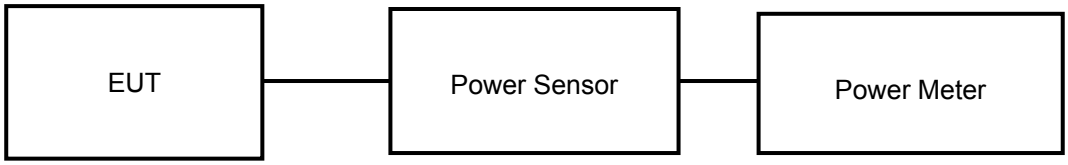
4.3.3 TEST PROCEDURE

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.

4.3.4 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 specific channel frequencies individually.

4.3.7 TEST RESULTS

PEAK POWER OUTPUT: 802.11a OFDM MODULATION

MODULATION TYPE	BPSK	**TRANSFER RATE**	6.0Mbps
INPUT POWER	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	26 deg.C, 66 %RH, 1018hPa
TESTED BY	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
36	5180	7.980	9.02	30	PASS
40	5200	10.116	10.05	30	PASS
48	5240	10.186	10.08	30	PASS

DRAFT 802.11n (20MHz) OFDM MODULATION

MODULATION TYPE	BPSK	**TRANSFER RATE**	6.5Mbps
INPUT POWER	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	26 deg.C, 66 %RH, 1018hPa
TESTED BY	Brad Wu		

CHAN.	CHAN. FREQ. (MHz)	PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
36	5180	8.04	8.06	12.765	11.06	30	PASS
40	5200	8.53	8.59	14.356	11.57	30	PASS
48	5240	8.06	8.02	12.736	11.05	30	PASS

DRAFT 802.11n (40MHz) OFDM MODULATION

MODULATION TYPE	BPSK	**TRANSFER RATE**	13.5Mbps
INPUT POWER	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	26 deg.C, 66 %RH, 1018hPa
TESTED BY	Brad Wu		

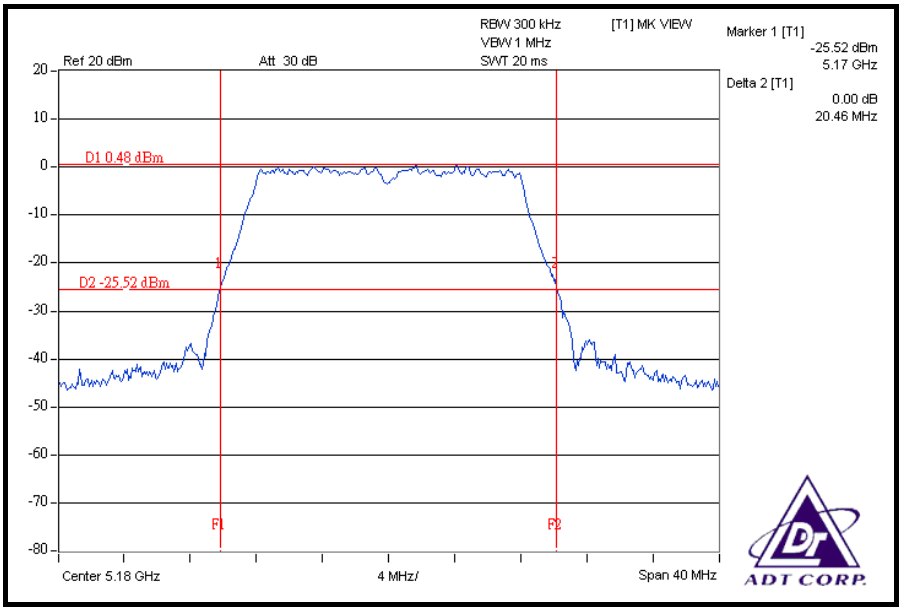
CHAN.	CHAN. FREQ. (MHz)	PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
38	5190	12.06	12.51	33.893	15.30	30	PASS
46	5230	9.03	9.08	16.089	12.07	30	PASS

26dB OCCUPIED BANDWIDTH: 802.11a OFDM MODULATION

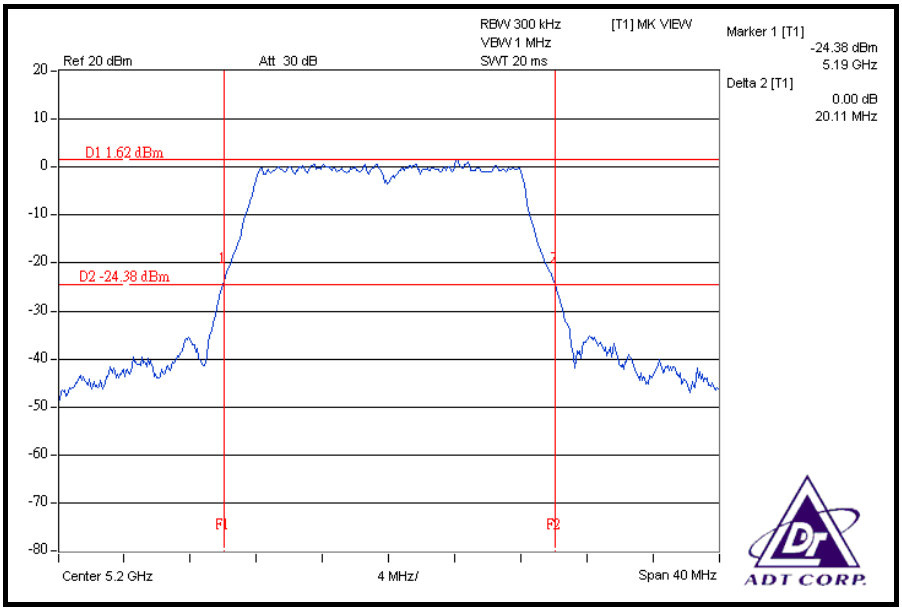
MODULATION TYPE	BPSK	**TRANSFER RATE**	6.0Mbps
INPUT POWER	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	26 deg.C, 66 %RH, 1018hPa
TESTED BY	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc OCCUPIED BANDWIDTH (MHz)	PASS / FAIL
36	5180	20.46	PASS
40	5200	20.11	PASS
48	5240	20.39	PASS

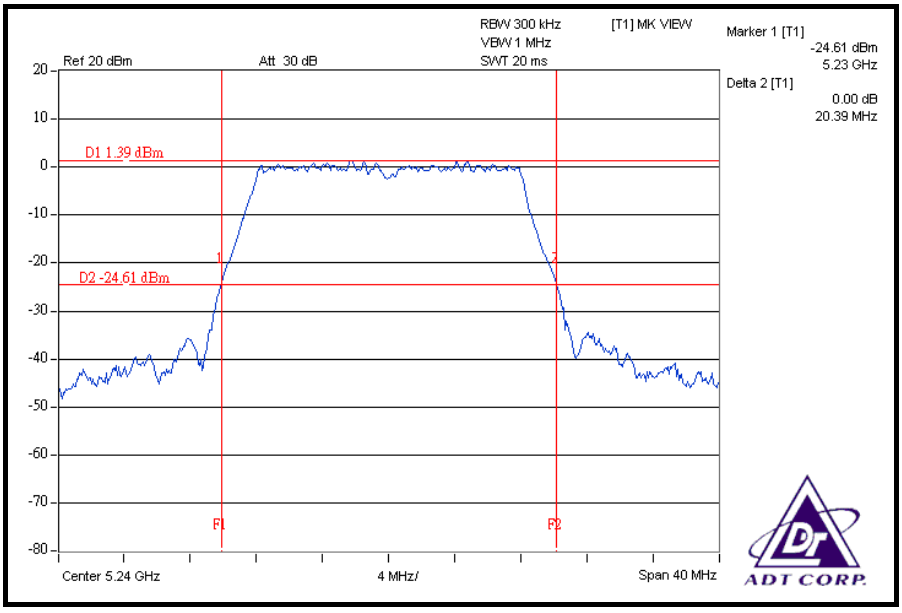
CH 36



CH 40


RBW 300 kHz
VBW 1 MHz
SWT 20 ms
[T1] MK VIEW
Marker 1 [T1]
-24.38 dBm
5.19 GHz
Delta 2 [T1]
0.00 dB
20.11 MHz
Ref 20 dBm
Att 30 dB
D1 1.62 dBm
D2 -24.38 dBm
F1
F2
Center 5.2 GHz
4 MHz/
Span 40 MHz
ADT CORP.

CH 48

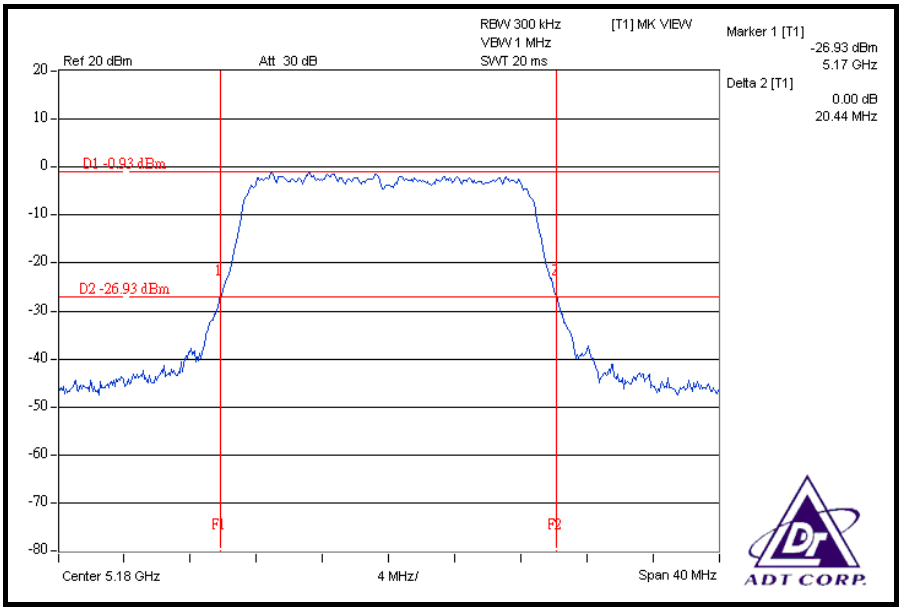

RBW 300 kHz
VBW 1 MHz
SWT 20 ms
[T1] MK VIEW
Marker 1 [T1]
-24.61 dBm
5.23 GHz
Delta 2 [T1]
0.00 dB
20.39 MHz
Ref 20 dBm
Att 30 dB
D1 1.39 dBm
D2 -24.61 dBm
F1
F2
Center 5.24 GHz
4 MHz/
Span 40 MHz
ADT CORP.

DRAFT 802.11n (20MHz) OFDM MODULATION

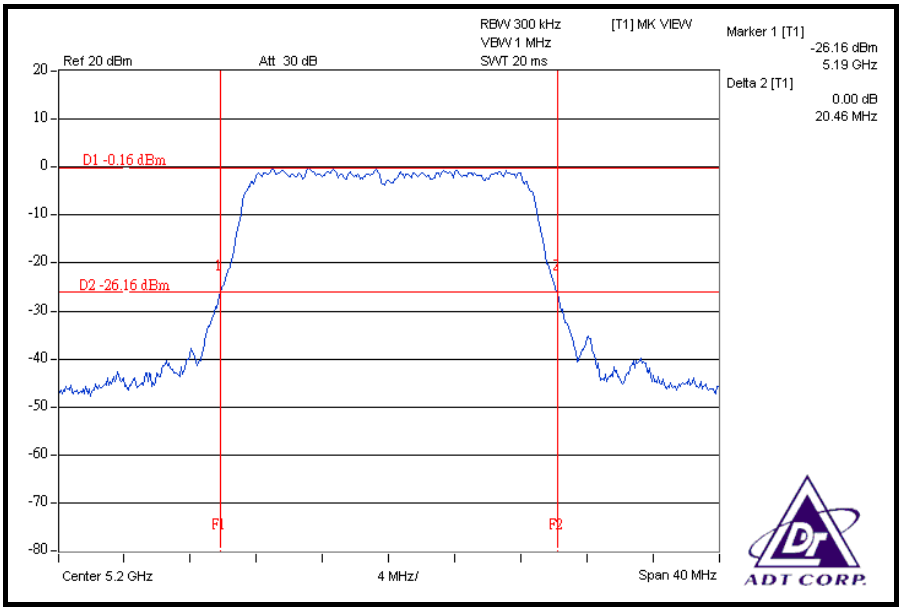
MODULATION TYPE	BPSK	**TRANSFER RATE**	6.5Mbps
INPUT POWER	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	26 deg.C, 66 %RH, 1018hPa
TESTED BY	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc OCCUPIED BANDWIDTH (MHz)		PASS / FAIL
		CHAIN 0	CHAIN 1	
36	5180	20.44	20.52	PASS
40	5200	20.46	20.42	PASS
48	5240	20.40	20.42	PASS

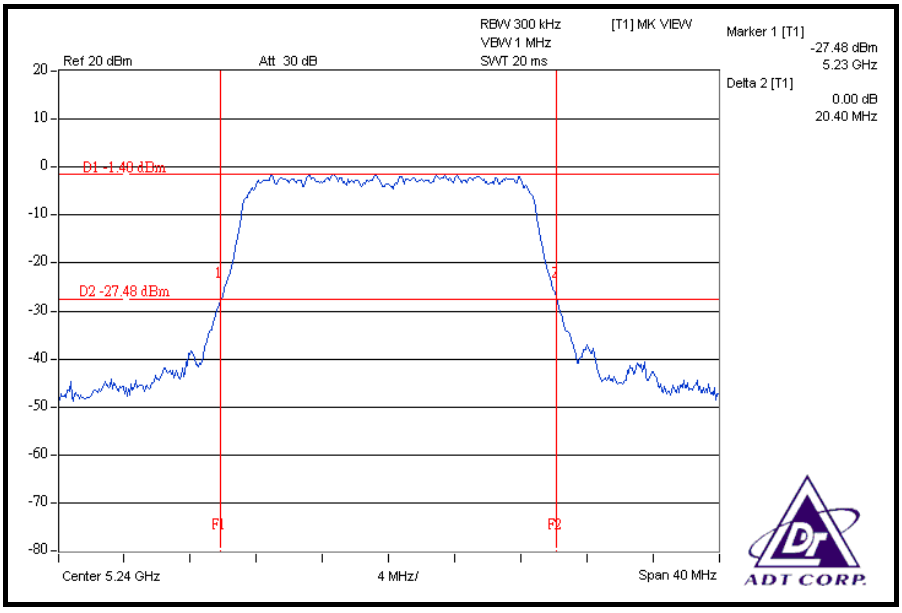
FOR CHAIN 0: CH 36



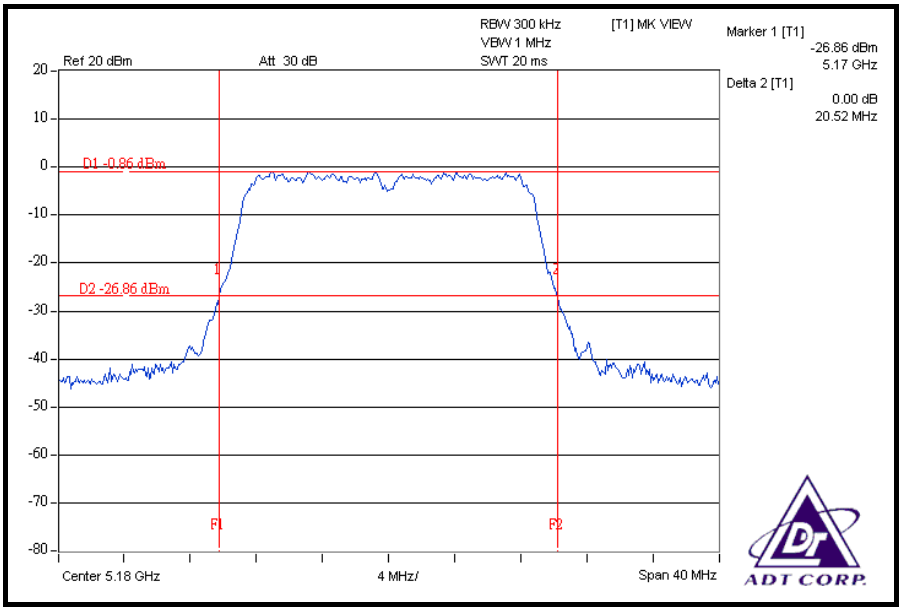
CH 40


RBW 300 kHz
VBW 1 MHz
SWT 20 ms
[T1] MK VIEW
Marker 1 [T1]
-26.16 dBm
5.19 GHz
Delta 2 [T1]
0.00 dB
20.46 MHz
Ref 20 dBm
Att 30 dB
D1 -0.16 dBm
D2 -26.16 dBm
F1
F2
Center 5.2 GHz
4 MHz/
Span 40 MHz
ADT CORP.

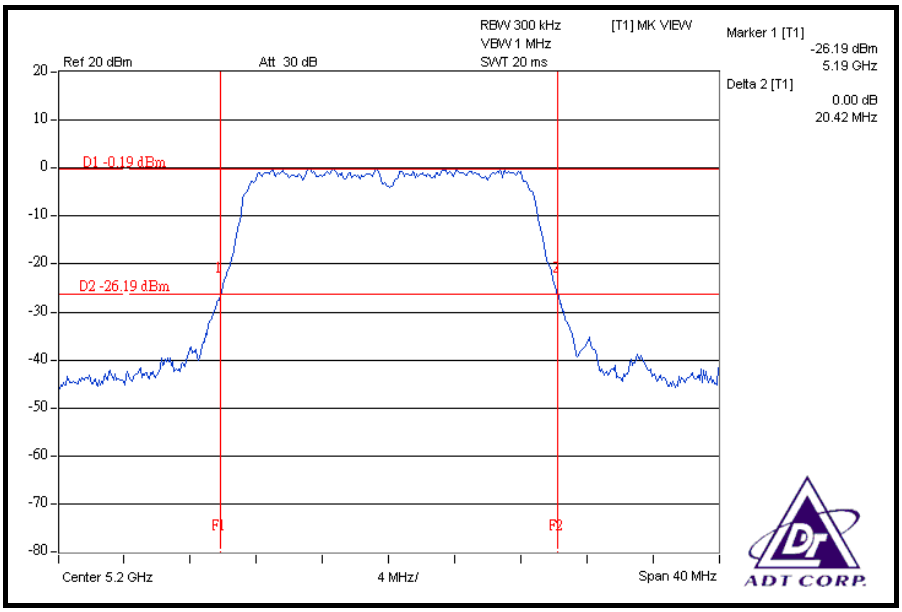
CH 48


RBW 300 kHz
VBW 1 MHz
SWT 20 ms
[T1] MK VIEW
Marker 1 [T1]
-27.48 dBm
5.23 GHz
Delta 2 [T1]
0.00 dB
20.40 MHz
Ref 20 dBm
Att 30 dB
D1 -1.40 dBm
D2 -27.48 dBm
F1
F2
Center 5.24 GHz
4 MHz/
Span 40 MHz
ADT CORP.

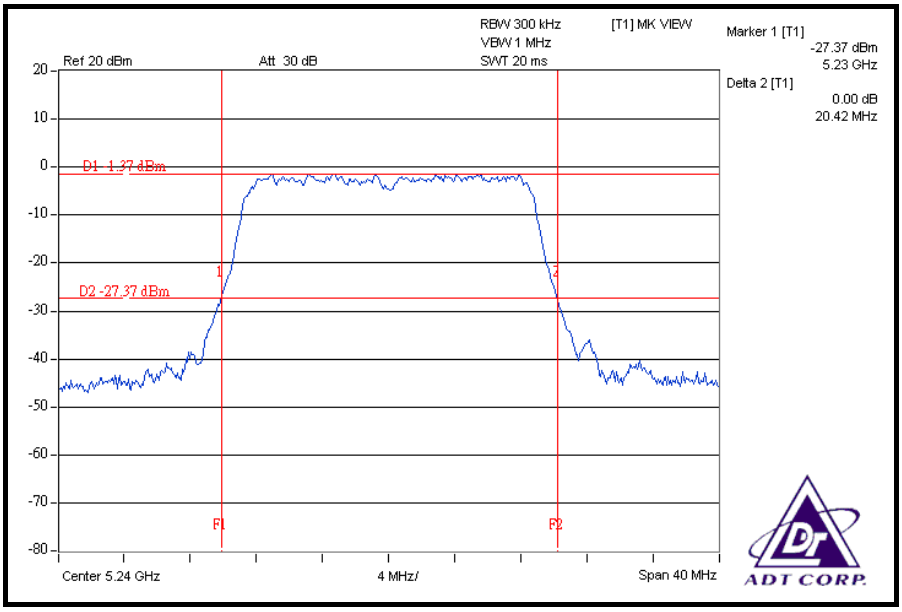
FOR CHAIN 1: CH 36



CH 40



CH 48

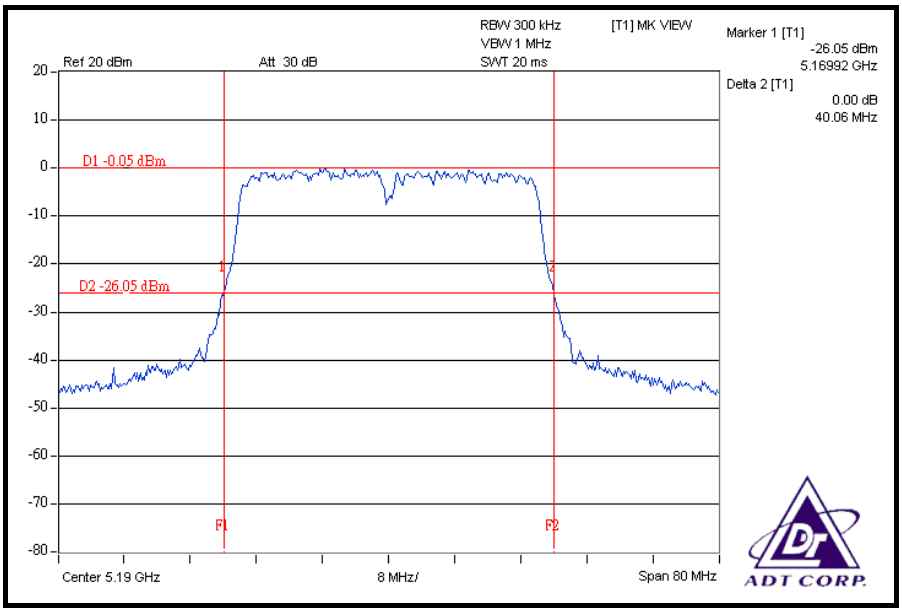

RBW 300 kHz
VBW 1 MHz
SWT 20 ms
[T1] MK VIEW
Marker 1 [T1]
-27.37 dBm
5.23 GHz
Delta 2 [T1]
0.00 dB
20.42 MHz
Ref 20 dBm
Att 30 dB
D1 1.37 dBm
D2 -27.37 dBm
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
F1
F2
Center 5.24 GHz
4 MHz/
Span 40 MHz
ADT CORP.

DRAFT 802.11n (40MHz) OFDM MODULATION

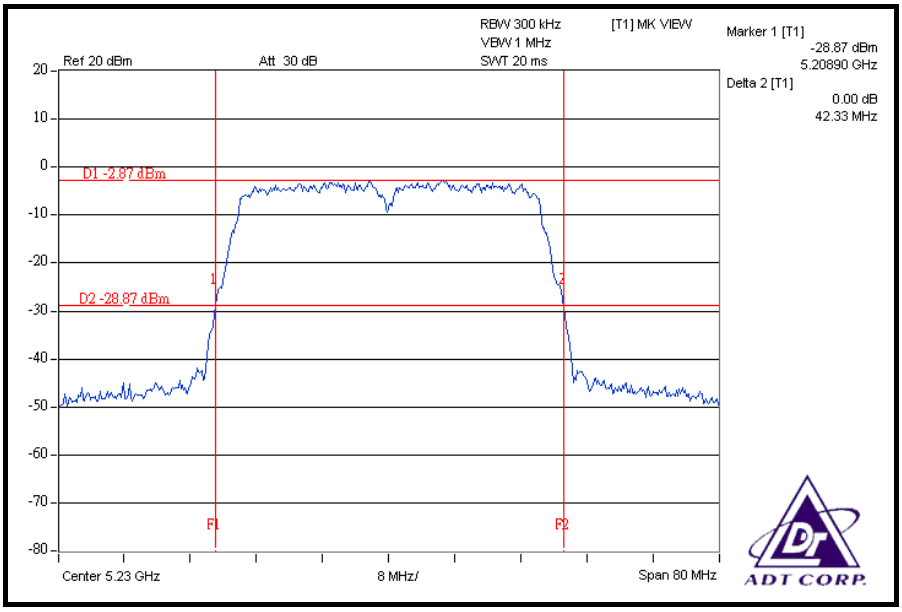
MODULATION TYPE	BPSK	**TRANSFER RATE**	13.5Mbps
INPUT POWER	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	26 deg.C, 66 %RH, 1018hPa
TESTED BY	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc OCCUPIED BANDWIDTH (MHz)		PASS / FAIL
		CHAIN 0	CHAIN 1	
38	5190	40.06	42.43	PASS
46	5230	42.33	42.38	PASS

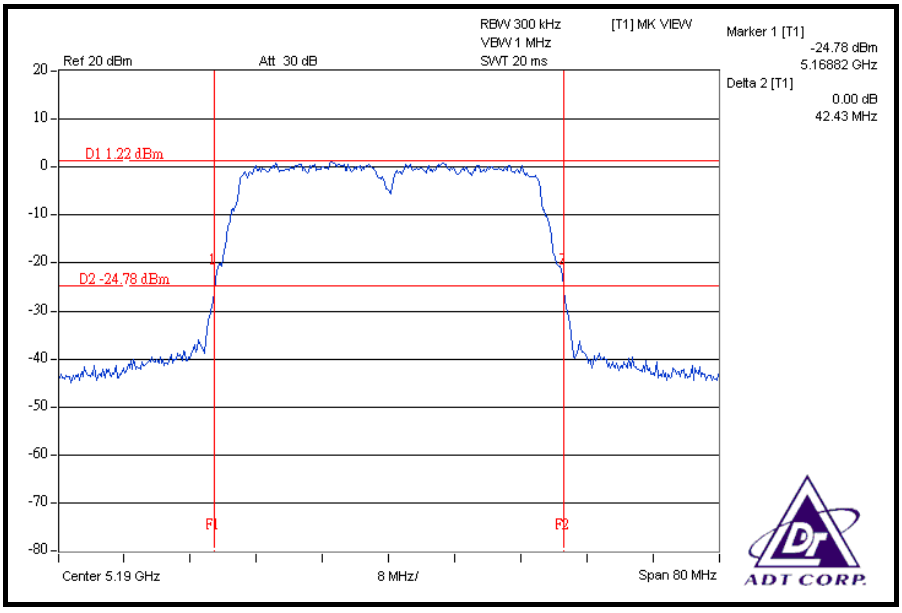
FOR CHAIN 0: CH 38



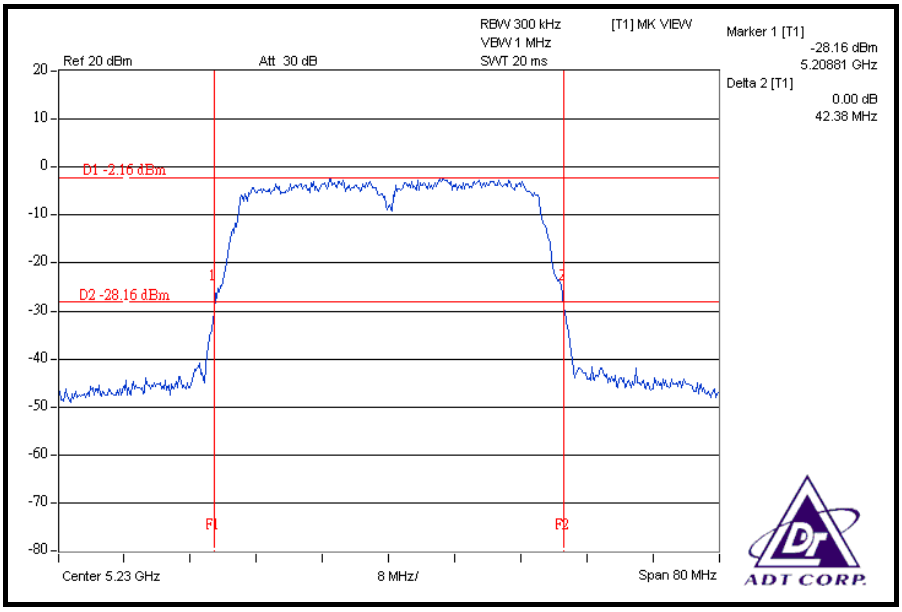
CH 46



FOR CHAIN 1: CH 38



CH 46


RBW 300 kHz
VBW 1 MHz
SWT 20 ms
[T1] MK VIEW
Marker 1 [T1]
-28.16 dBm
5.20881 GHz
Delta 2 [T1]
0.00 dB
42.38 MHz
Ref 20 dBm
Att 30 dB
D1 -2.16 dBm
D2 -28.16 dBm
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
F1
F2
Center 5.23 GHz
8 MHz/
Span 80 MHz
ADT CORP.

4.4 PEAK POWER EXCURSION MEASUREMENT

4.4.1 LIMITS OF PEAK POWER EXCURSION MEASUREMENT

FREQUENCY BAND	LIMIT
5.15 ~ 5.25GHz	13dB

4.4.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100041	Apr. 22, 2008	Apr. 21, 2009

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

4.4.3 TEST PROCEDURE

a. The transmitter output was connected to the spectrum analyzer.

b. Set the spectrum bandwidth span to view the entire spectrum.

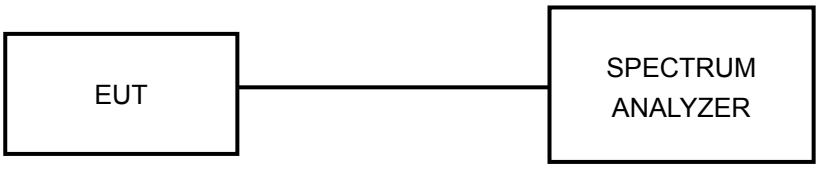
c. Using peak detector and Max-hold function for Trace 1 (RB = 1MHz, VB = 3MHz) and 2 (RB = 1MHz, VB = 300kHz).

d. The differences between Trace1 and Trace 2 in any 1MHz band at f1 to f2 range were recorded and showed to another trace.

4.4.4 DEVIATION FROM TEST STANDARD

No deviation.

4.4.5 TEST SETUP



4.4.6 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

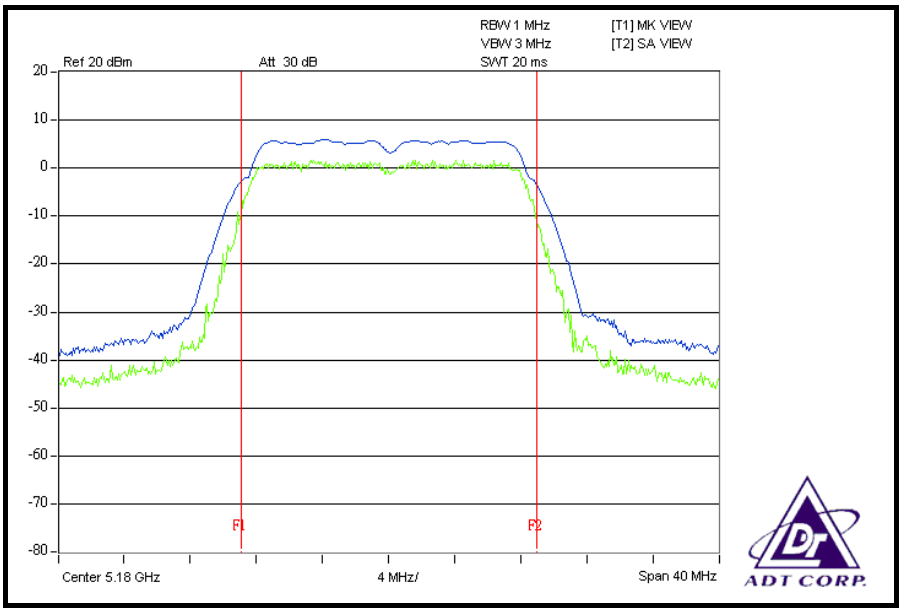
4.4.7 TEST RESULTS

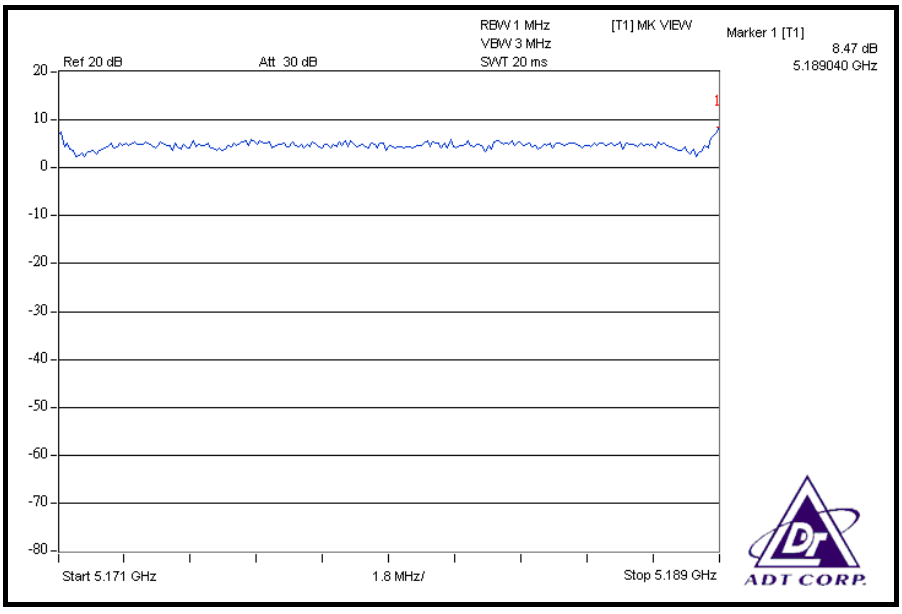
802.11a OFDM MODULATION

MODULATION TYPE	BPSK	**TRANSFER RATE**	6.0Mbps
INPUT POWER	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	26 deg.C, 66 %RH, 1018hPa
TESTED BY	Brad Wu		

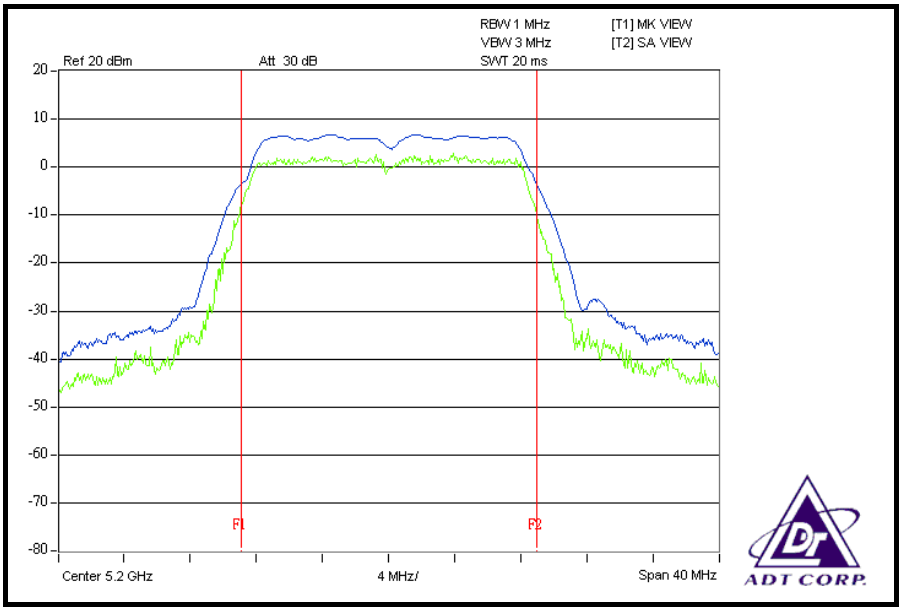
CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)	PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
36	5180	8.47	13	PASS
40	5200	7.30	13	PASS
48	5240	8.05	13	PASS

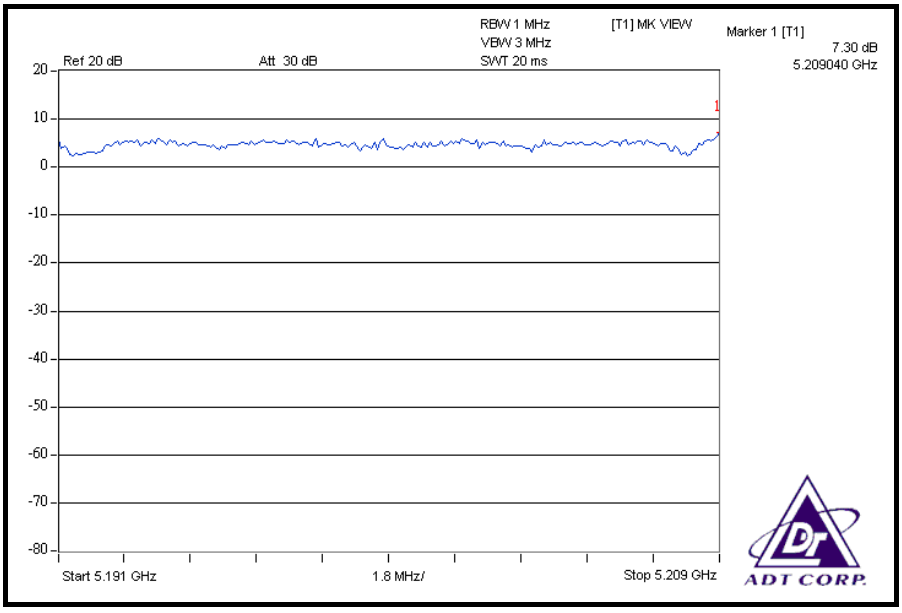
CH 36


RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MK VIEW
[T2] SA VIEW
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
F1
F2
Center 5.18 GHz
4 MHz/
Span 40 MHz
ADT CORP.

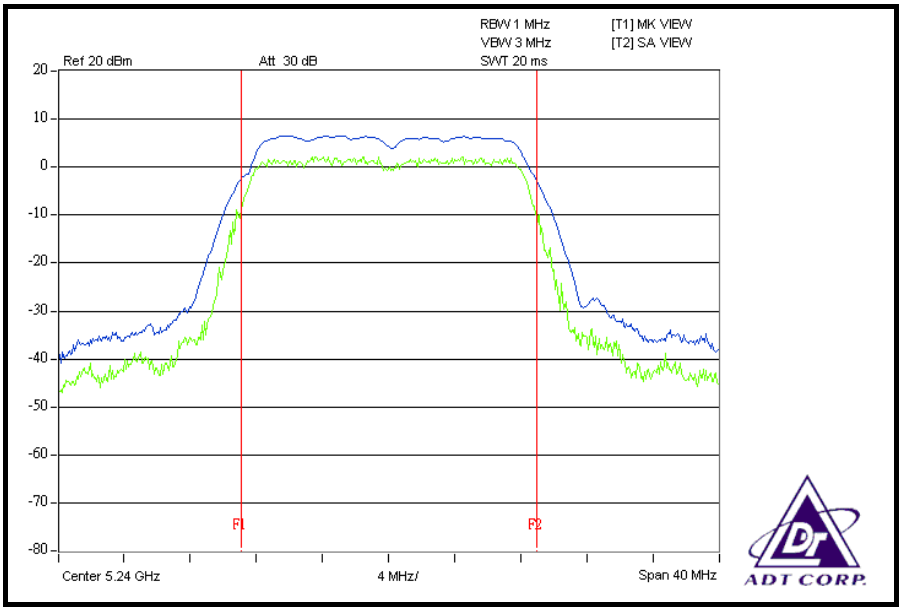

RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MK VIEW
Marker 1 [T1]
8.47 dB
5.189040 GHz
Ref 20 dB
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Start 5.171 GHz
1.8 MHz/
Stop 5.189 GHz
ADT CORP.

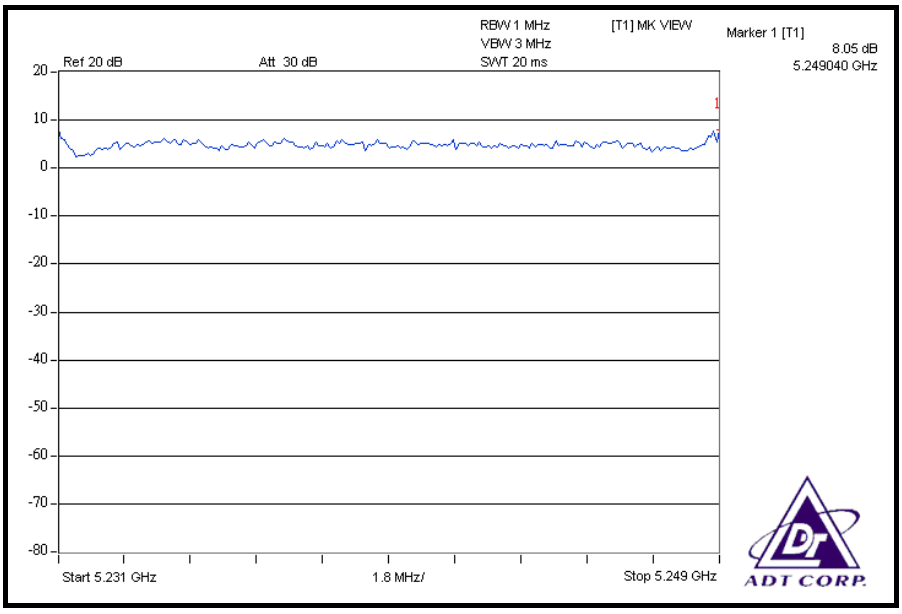
CH 40


RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MK VIEW
[T2] SA VIEW
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
F1
F2
Center 5.2 GHz
4 MHz/
Span 40 MHz
ADT CORP.


RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MK VIEW
Marker 1 [T1]
7.30 dB
5.209040 GHz
Ref 20 dB
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Start 5.191 GHz
1.8 MHz/
Stop 5.209 GHz
ADT CORP.

CH 48


RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MK VIEW
[T2] SA VIEW
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
F1
F2
Center 5.24 GHz
4 MHz/
Span 40 MHz
ADT CORP.

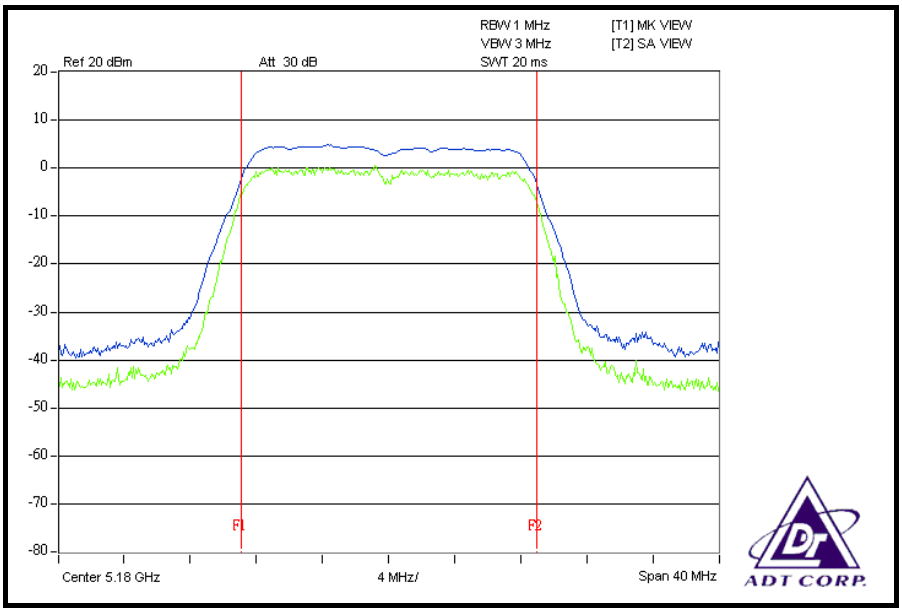

RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MK VIEW
Marker 1 [T1]
8.05 dB
5.249040 GHz
Ref 20 dB
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Start 5.231 GHz
1.8 MHz/
Stop 5.249 GHz
ADT CORP.

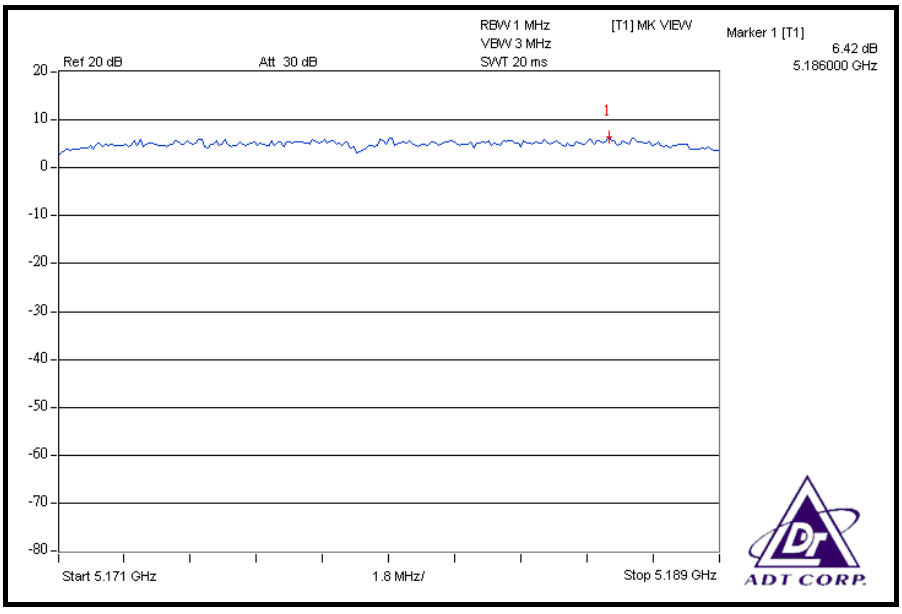
DRAFT 802.11n (20MHz) OFDM MODULATION

MODULATION TYPE	BPSK	**TRANSFER RATE**	6.5Mbps
INPUT POWER	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	26 deg.C, 66 %RH, 1018hPa
TESTED BY	Brad Wu		

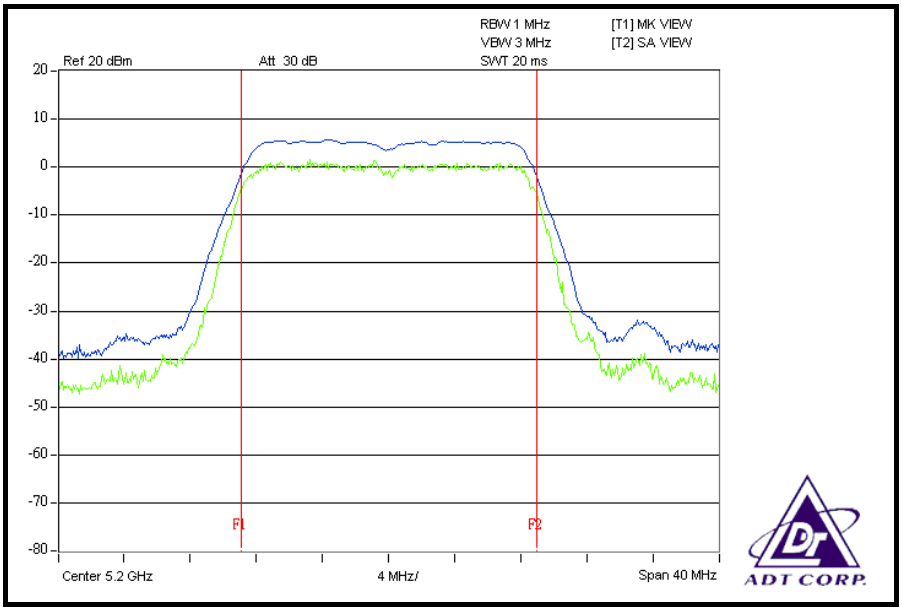
CHANNEL	**CHANNEL FREQUENCY (MHz)**	**PEAK POWER EXCURSION (dB)**		**PEAK to AVERAGE EXCURSION LIMIT (dB)**	**PASS/FAIL**
		CHAIN 0	**CHAIN 1**		
36	5180	6.42	6.27	13	PASS
40	5200	6.15	6.27	13	PASS
48	5240	6.44	6.33	13	PASS

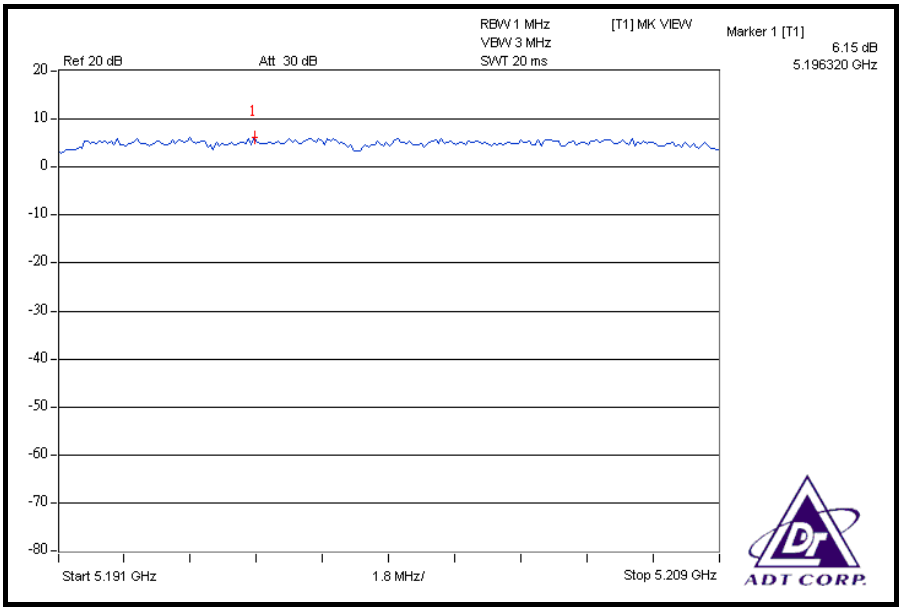
FOR CHAIN 0: CH 36



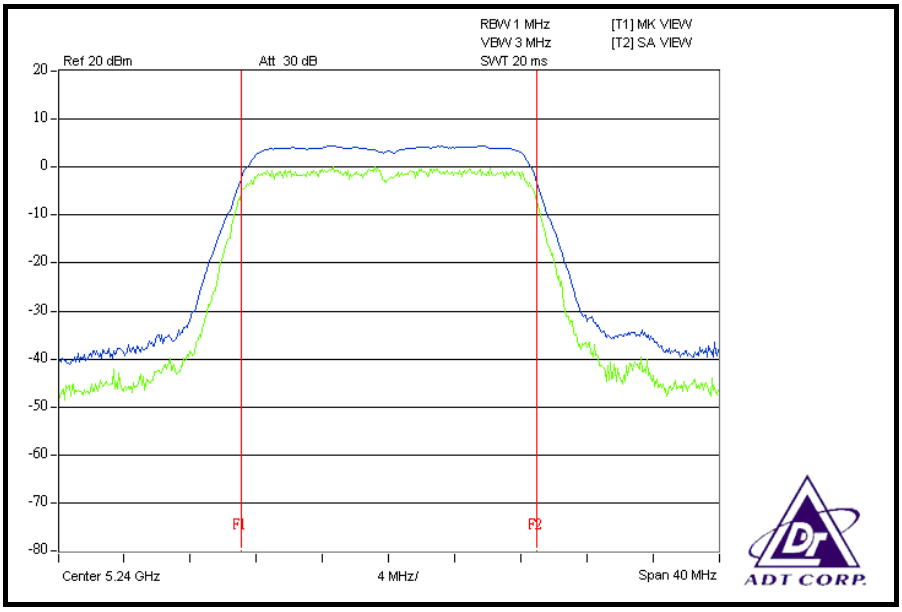


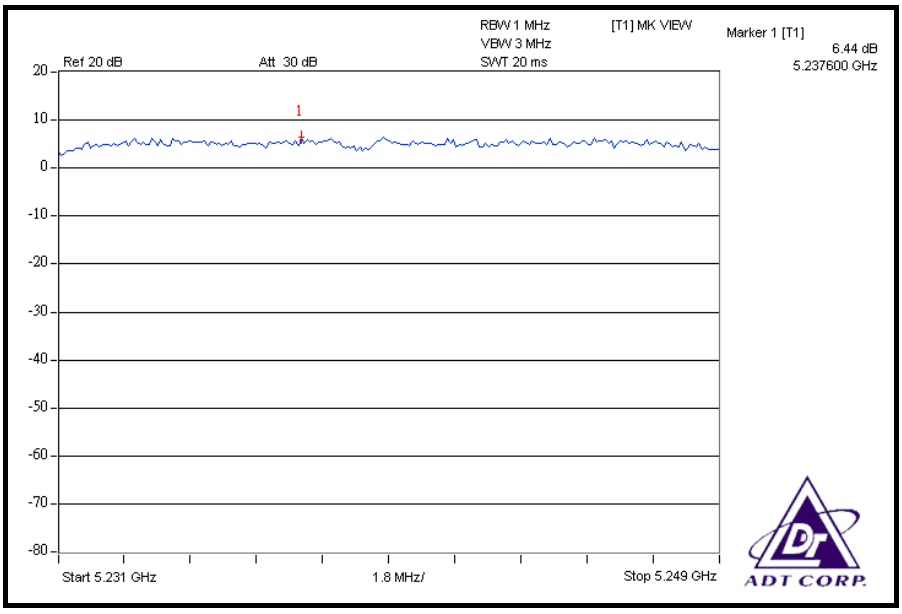
CH 40


RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MK VIEW
[T2] SA VIEW
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
F1
F2
Center 5.2 GHz
4 MHz/
Span 40 MHz
ADT CORP.

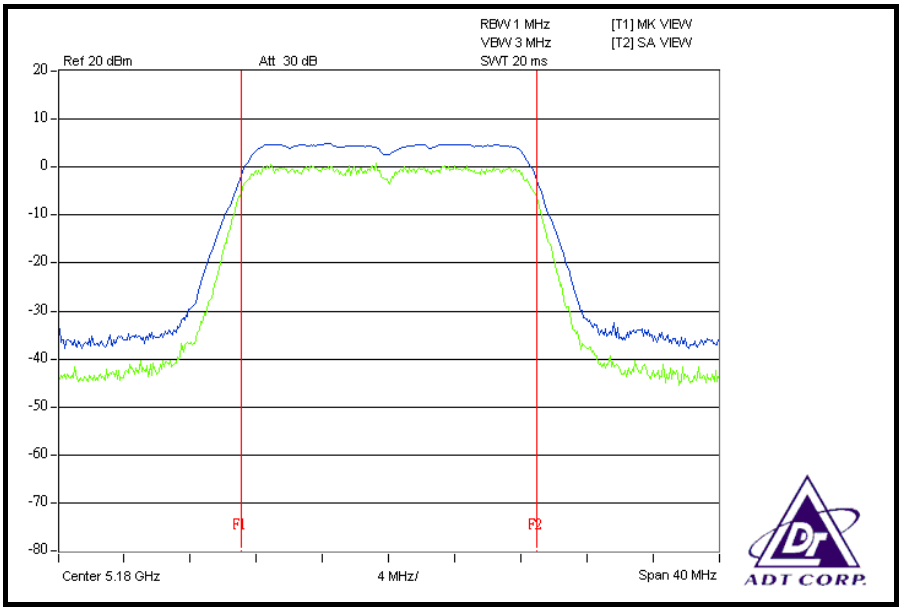

RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MK VIEW
Marker 1 [T1]
6.15 dB
5.196320 GHz
Ref 20 dB
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Start 5.191 GHz
1.8 MHz/
Stop 5.209 GHz
ADT CORP.

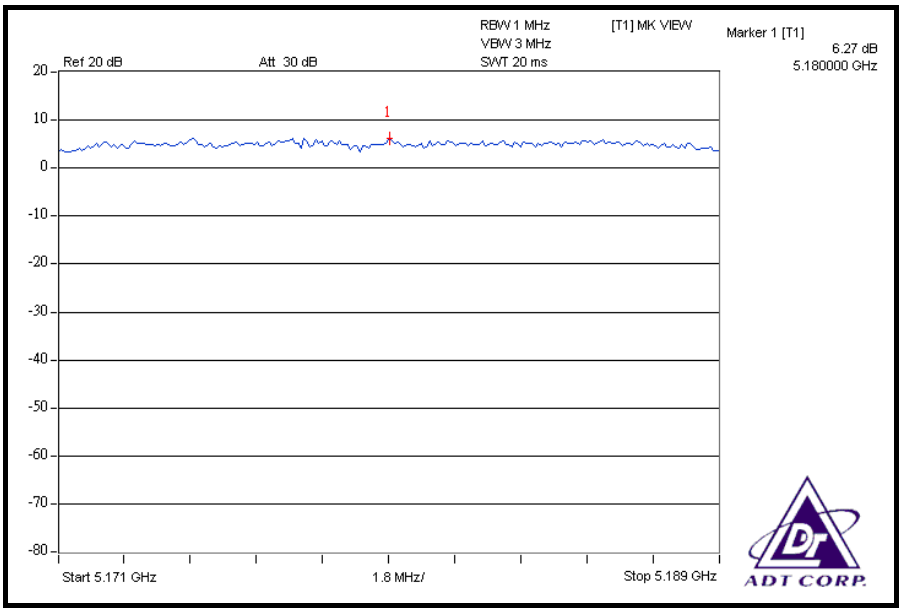
CH 48


RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MK VIEW
[T2] SA VIEW
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
F1
F2
Center 5.24 GHz
4 MHz/
Span 40 MHz
ADT CORP.

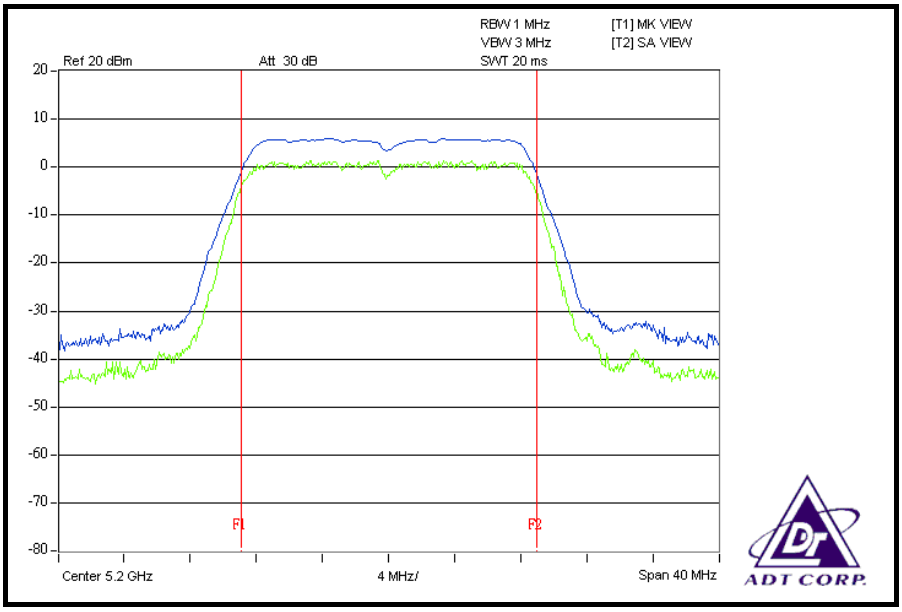

RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MK VIEW
Marker 1 [T1]
6.44 dB
5.237600 GHz
Ref 20 dB
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Start 5.231 GHz
1.8 MHz/
Stop 5.249 GHz
ADT CORP.

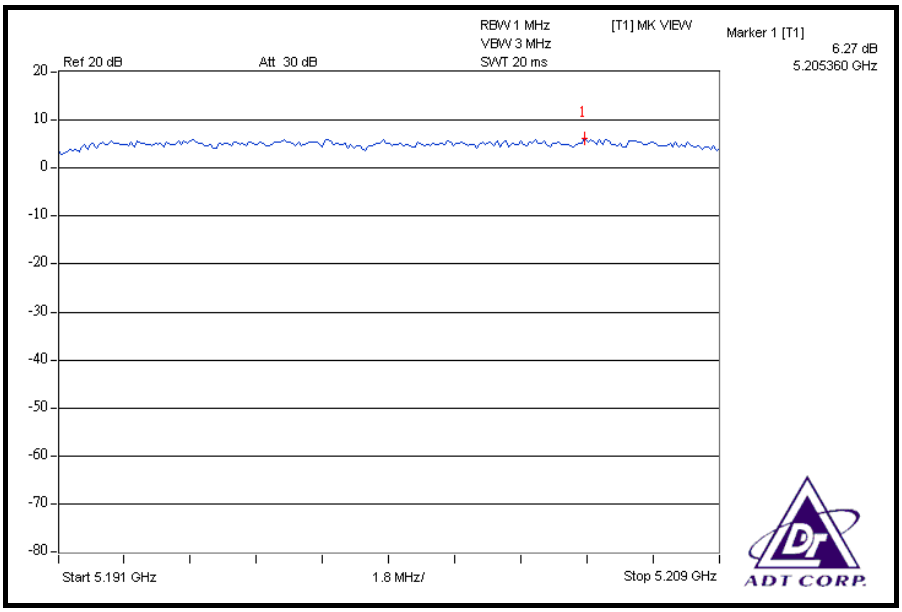
FOR CHAIN 1: CH 36



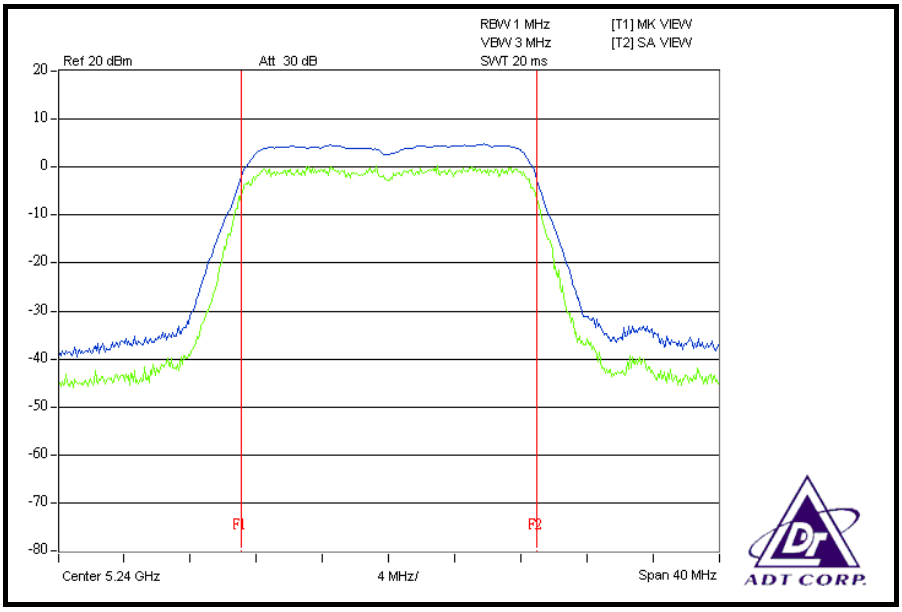


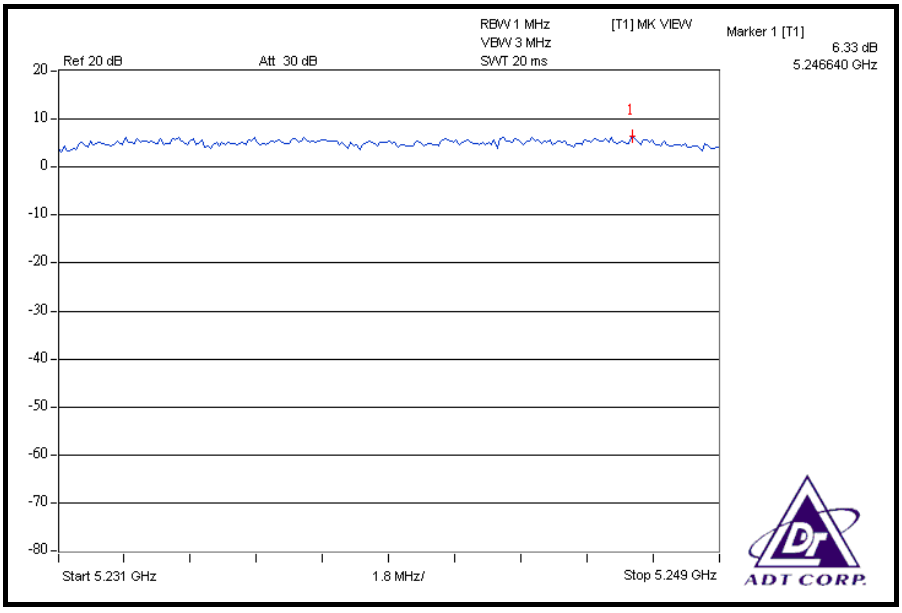
CH 40


RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MK VIEW
[T2] SA VIEW
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
F1
F2
Center 5.2 GHz
4 MHz/
Span 40 MHz
ADT CORP.


RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MK VIEW
Marker 1 [T1]
6.27 dB
5.205360 GHz
Ref 20 dB
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Start 5.191 GHz
1.8 MHz/
Stop 5.209 GHz
ADT CORP.

CH 48


RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MK VIEW
[T2] SA VIEW
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
F1
F2
Center 5.24 GHz
4 MHz/
Span 40 MHz
ADT CORP.

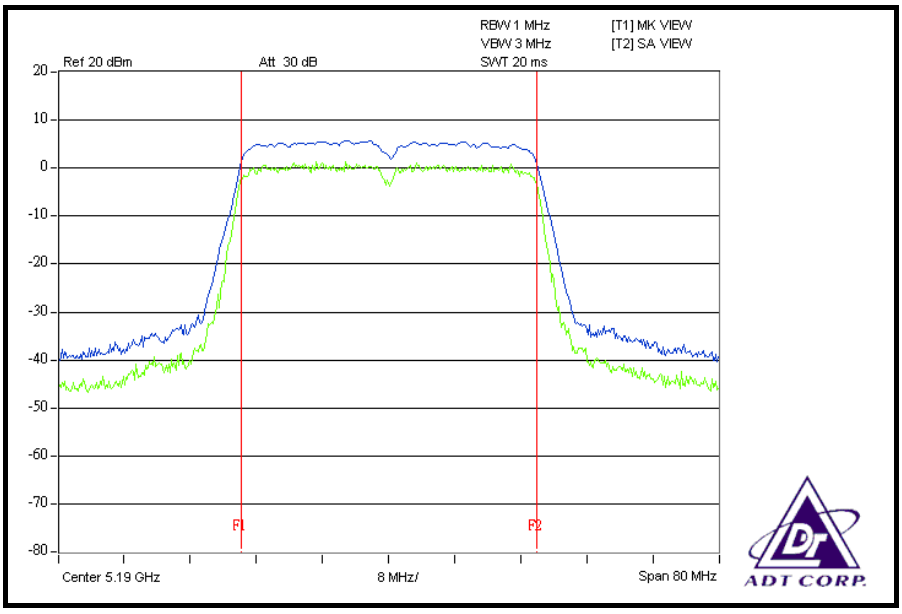

RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MK VIEW
Marker 1 [T1]
6.33 dB
5.246640 GHz
Ref 20 dB
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Start 5.231 GHz
1.8 MHz/
Stop 5.249 GHz
ADT CORP.

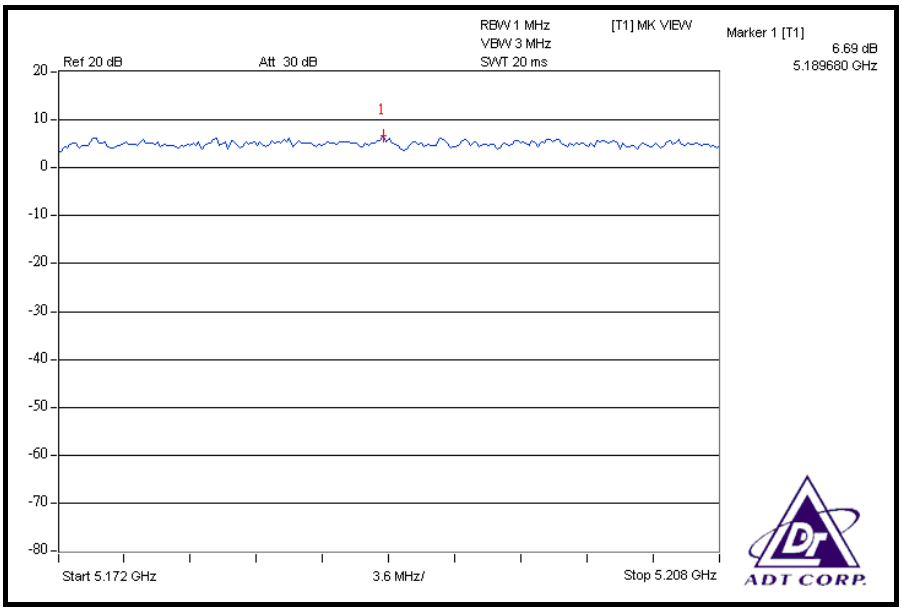
DRAFT 802.11n (40MHz) OFDM MODULATION

MODULATION TYPE	BPSK	**TRANSFER RATE**	13.5Mbps
INPUT POWER	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	26 deg.C, 66 %RH, 1018hPa
TESTED BY	Brad Wu		

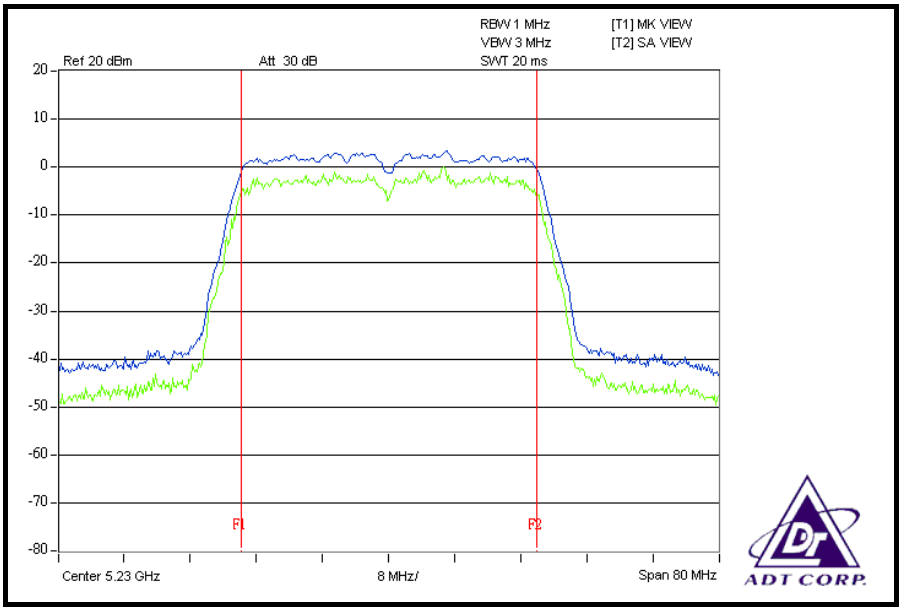
CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)		PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
		CHAIN 0	CHAIN 1		
38	5190	6.69	6.76	13	PASS
46	5230	6.90	6.53	13	PASS

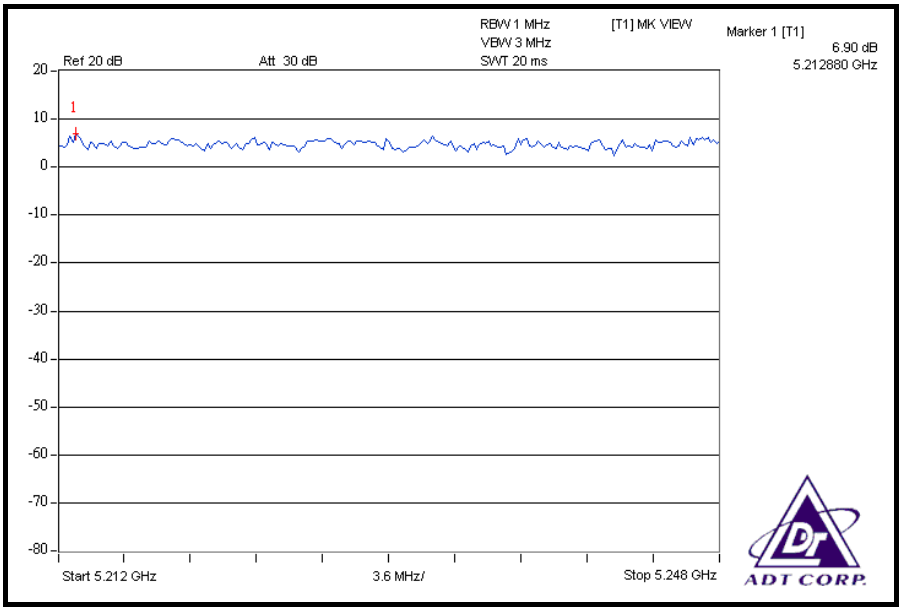
FOR CHAIN 0: CH 38



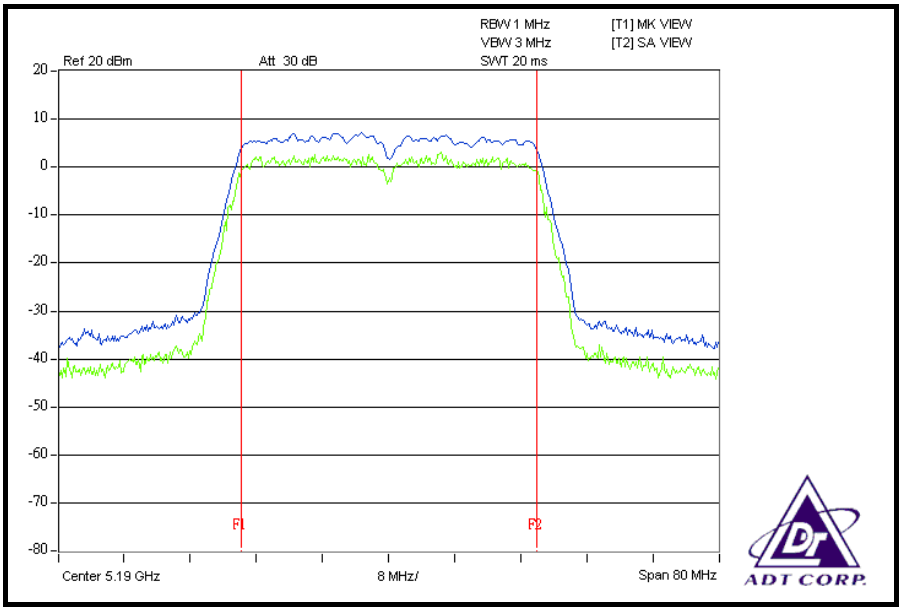


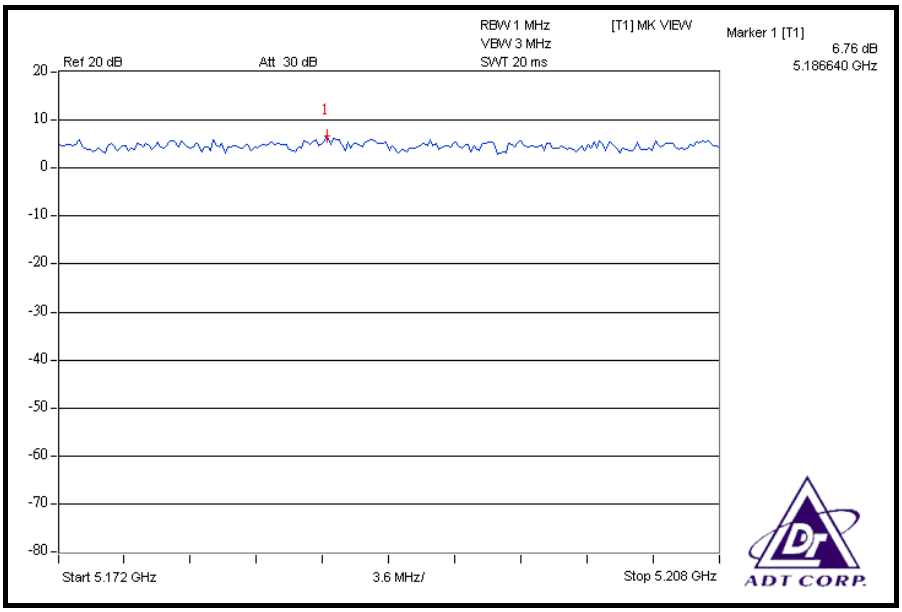
CH 46


RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MK VIEW
[T2] SA VIEW
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
F1
F2
Center 5.23 GHz
8 MHz/
Span 80 MHz
ADT CORP.

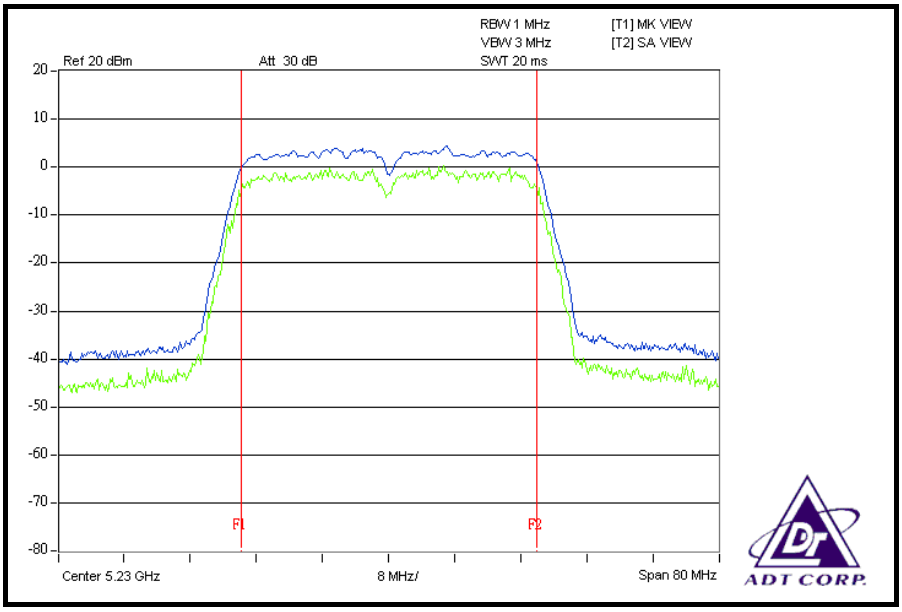

RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MK VIEW
Marker 1 [T1]
6.90 dB
5.212880 GHz
Ref 20 dB
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Start 5.212 GHz
3.6 MHz/
Stop 5.248 GHz
ADT CORP.

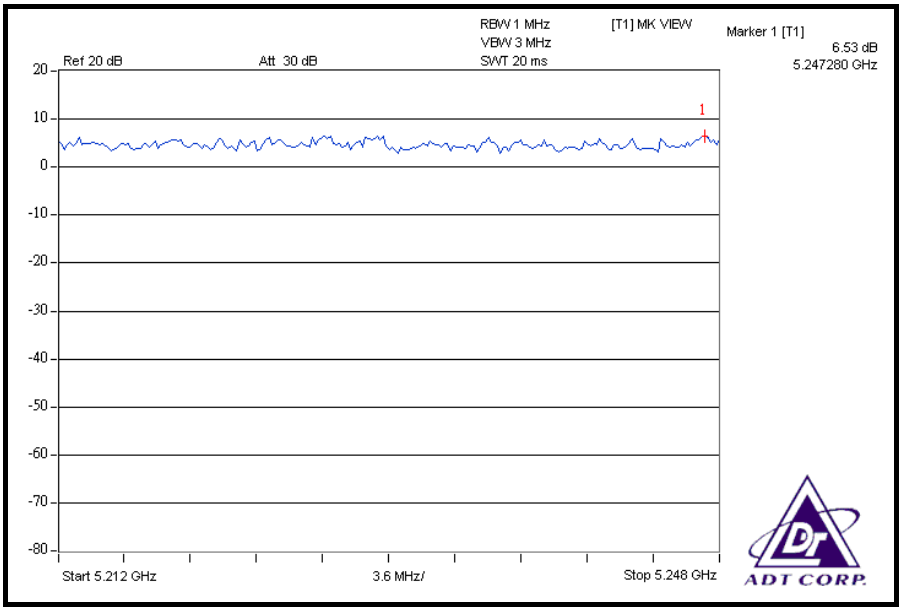
FOR CHAIN 1: CH 38





CH 46


RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MK VIEW
[T2] SA VIEW
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
F1
F2
Center 5.23 GHz
8 MHz/
Span 80 MHz
ADT CORP.


RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MK VIEW
Marker 1 [T1]
6.53 dB
5.247280 GHz
Ref 20 dB
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Start 5.212 GHz
3.6 MHz/
Stop 5.248 GHz
ADT CORP.

4.5 PEAK POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT

FREQUENCY BAND	LIMIT
5.15 ~ 5.25GHz	4dBm

4.5.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100041	Apr. 22, 2008	Apr. 21, 2009

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

4.5.3 TEST PROCEDURES

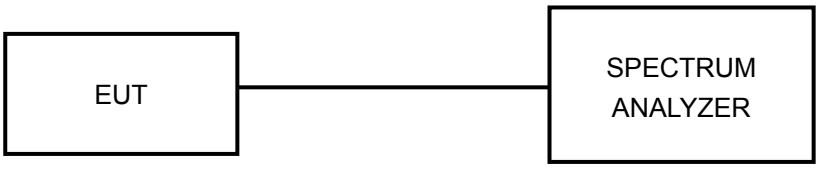
a. The transmitter output was connected to the spectrum analyzer.

b. Set RBW = 1MHz, VBW = 3MHz. The PPSD is the highest level found across the emission in any 1MHz band.

4.5.4 DEVIATION FROM TEST STANDARD

No deviation.

4.5.5 TEST SETUP



4.5.6 EUT OPERATING CONDITIONS

Same as 5.3.6.

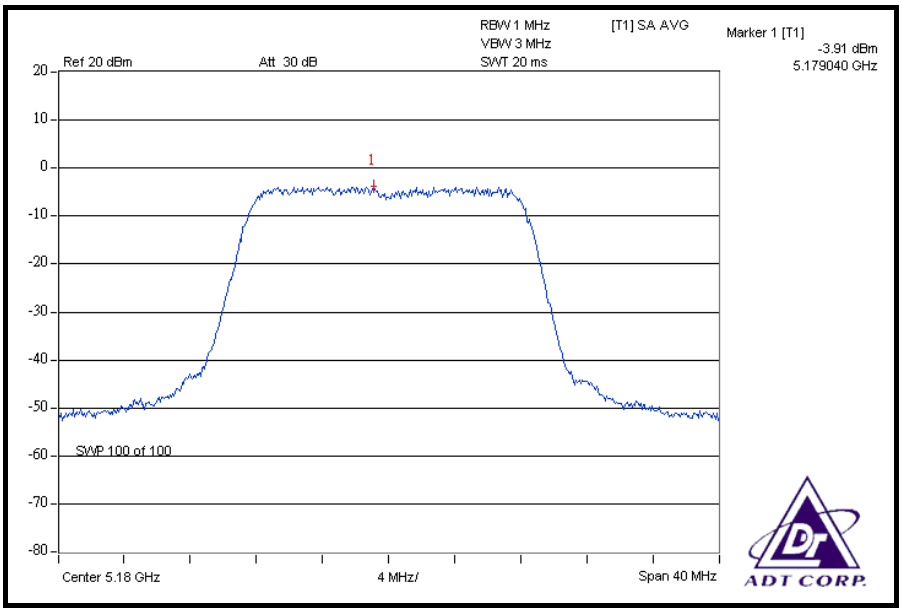
4.5.7 TEST RESULTS

802.11a OFDM MODULATION

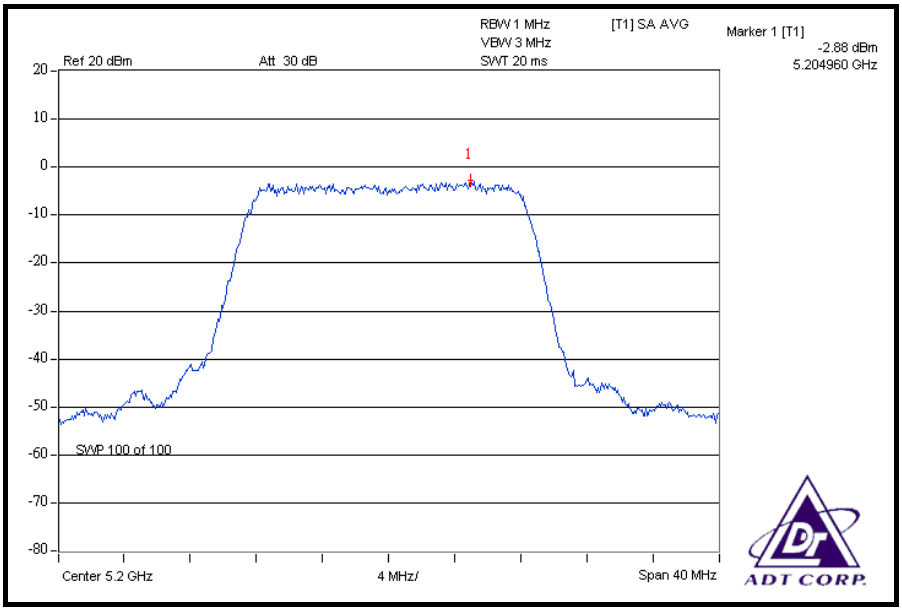
MODULATION TYPE	BPSK	TRANSFER RATE	6.0Mbps
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	26 deg.C, 66 %RH, 1018hPa
TESTED BY	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 1 MHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
36	5180	-3.91	4	PASS
40	5200	-2.88	4	PASS
48	5240	-3.05	4	PASS

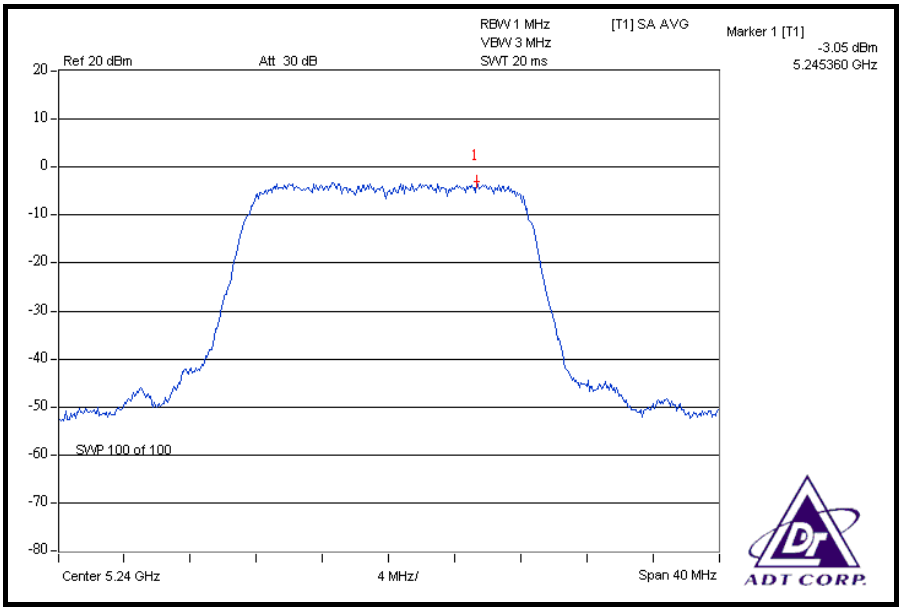
CH 36



CH 40


RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] SA AVG
Marker 1 [T1]
-2.88 dBm
5.204960 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
SWP 100 of 100
Center 5.2 GHz
4 MHz/
Span 40 MHz
ADT CORP.

CH 48

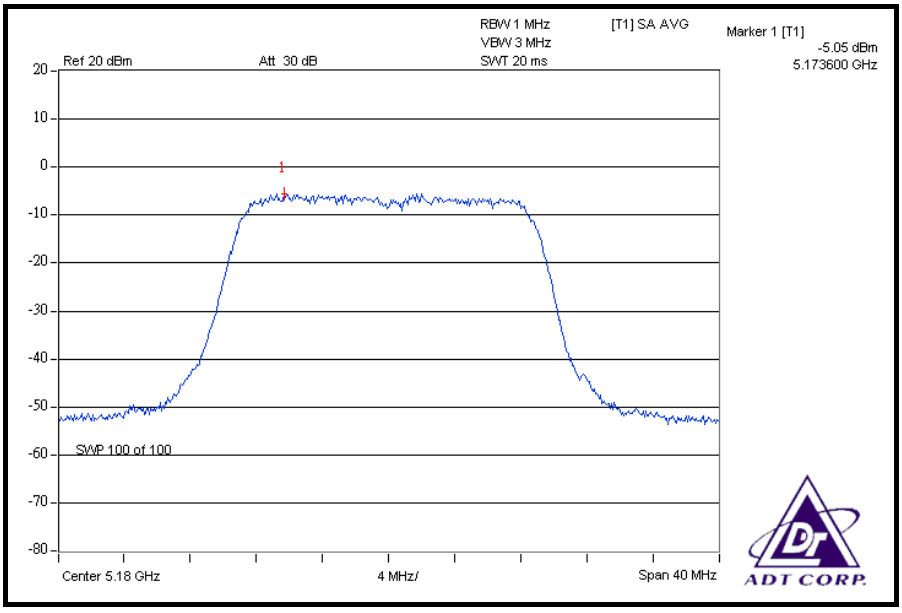

RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] SA AVG
Marker 1 [T1]
-3.05 dBm
5.245360 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
SWP 100 of 100
Center 5.24 GHz
4 MHz/
Span 40 MHz
ADT CORP.

DRAFT 802.11n (20MHz) OFDM MODULATION

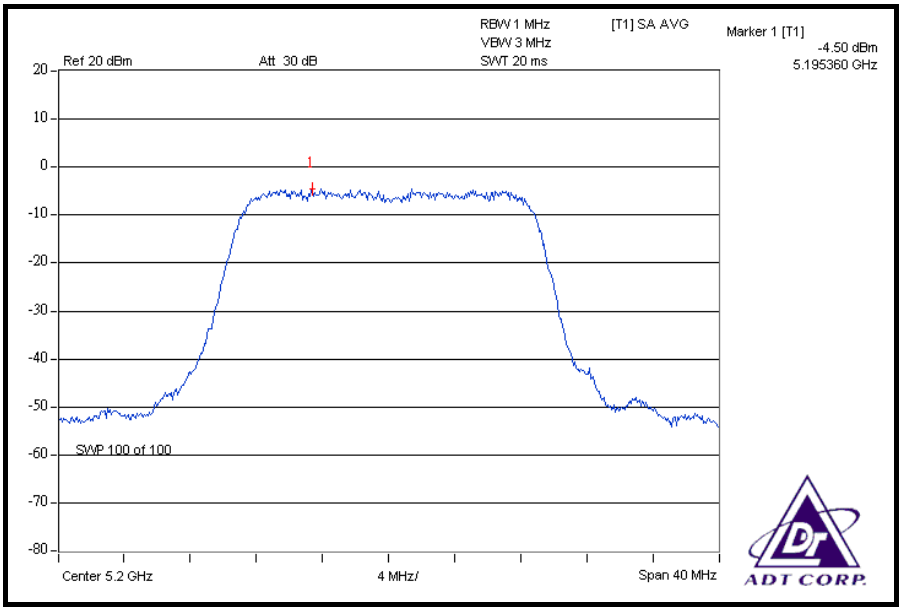
MODULATION TYPE	BPSK	**TRANSFER RATE**	6.5Mbps
INPUT POWER	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	26 deg.C, 66 %RH, 1018hPa
TESTED BY	Brad Wu		

CHAN.	CHAN. FREQ. (MHz)	RF POWER LEVEL IN 1MHz BW (dBm)		TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
36	5180	-5.05	-5.12	0.620	-2.07	4	PASS
40	5200	-4.50	-4.38	0.720	-1.43	4	PASS
48	5240	-5.01	-5.22	0.616	-2.10	4	PASS

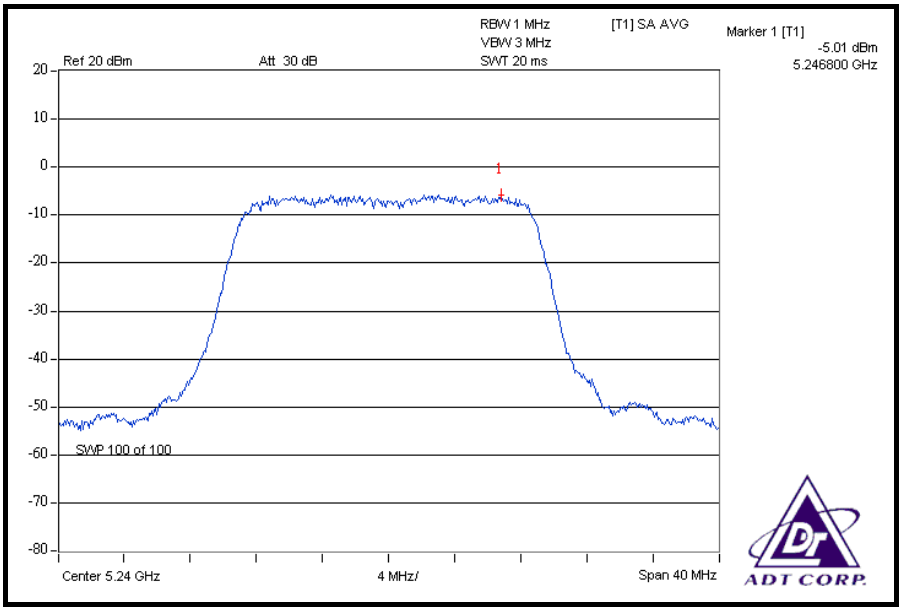
FOR CHAIN 0: CH 36



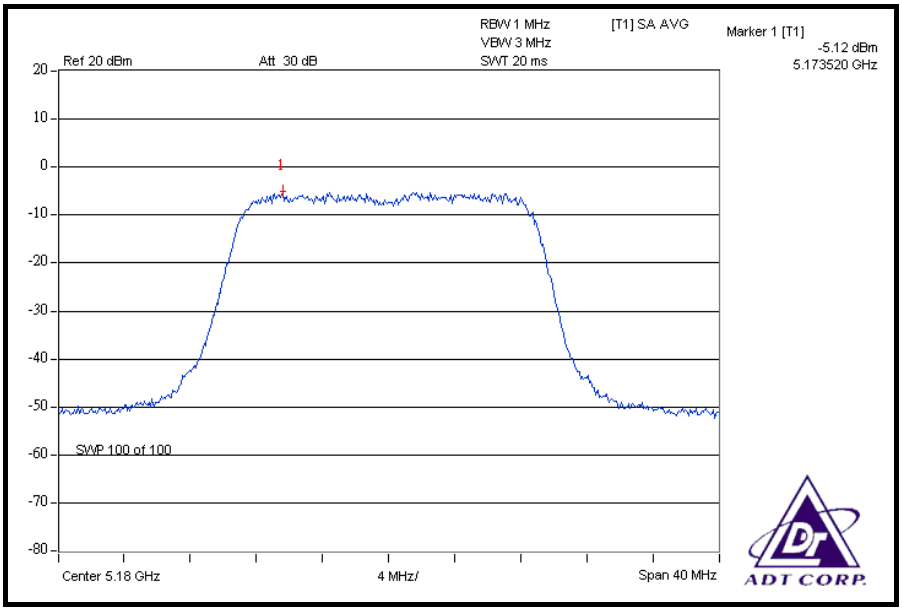
CH 40


RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] SA AVG
Marker 1 [T1]
-4.50 dBm
5.195360 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
SWP 100 of 100
Center 5.2 GHz
4 MHz/
Span 40 MHz
ADT CORP.

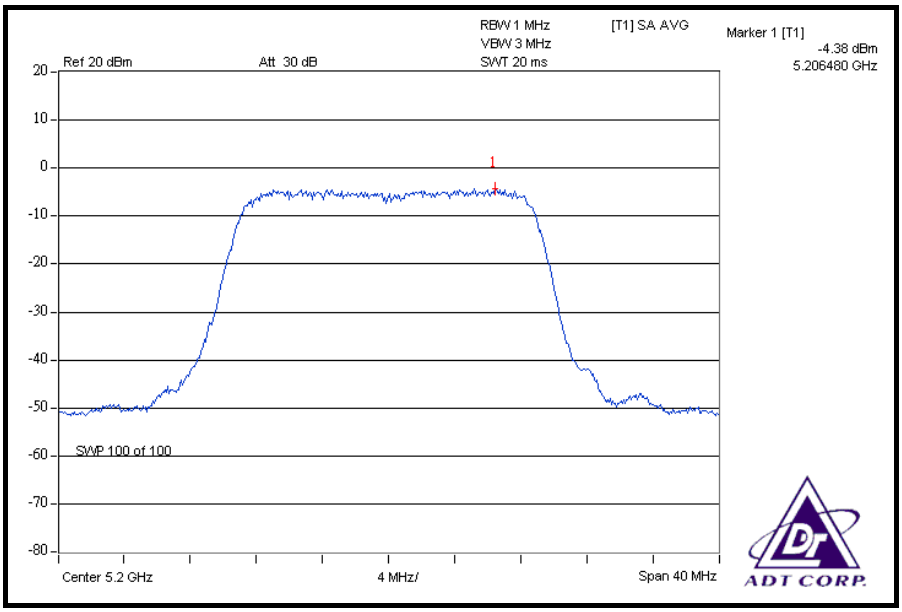
CH 48


RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] SA AVG
Marker 1 [T1]
-5.01 dBm
5.246800 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
SWP 100 of 100
Center 5.24 GHz
4 MHz/
Span 40 MHz
ADT CORP.

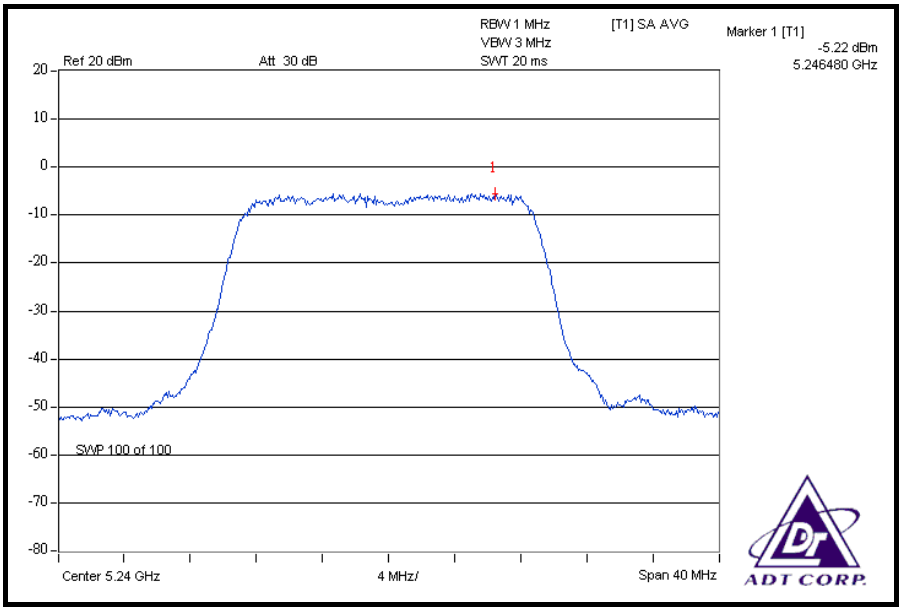
FOR CHAIN 1: CH 36



CH 40



CH 48

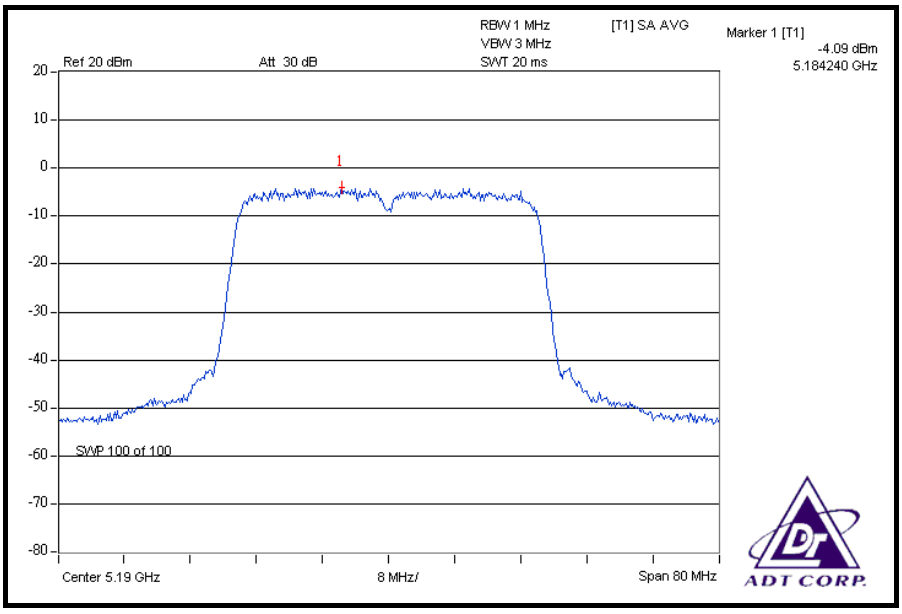

RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] SA AVG
Marker 1 [T1]
-5.22 dBm
5.246480 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
SWP 100 of 100
Center 5.24 GHz
4 MHz/
Span 40 MHz
ADT CORP.

DRAFT 802.11n (40MHz) OFDM MODULATION

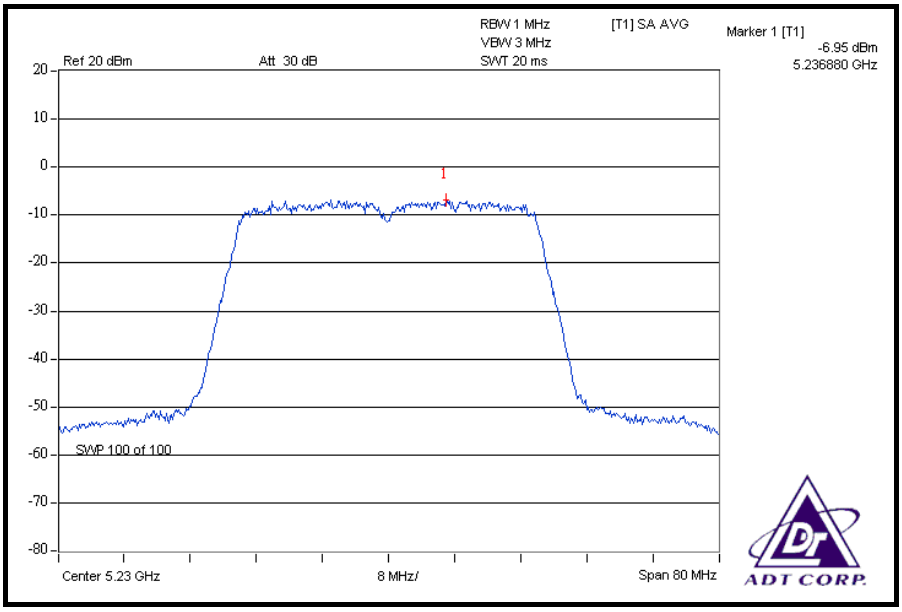
MODULATION TYPE	BPSK	**TRANSFER RATE**	13.5Mbps
INPUT POWER	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	26 deg.C, 66 %RH, 1018hPa
TESTED BY	Brad Wu		

CHAN.	CHAN. FREQ. (MHz)	RF POWER LEVEL IN 1MHz BW (dBm)		TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
38	5190	-4.09	-3.86	0.801	-0.96	4	PASS
46	5230	-6.95	-7.20	0.392	-4.06	4	PASS

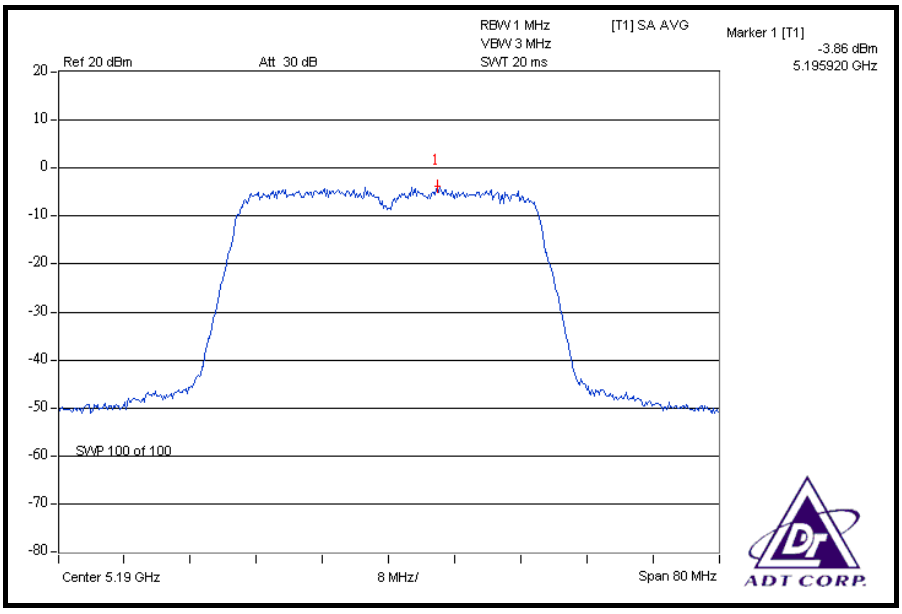
FOR CHAIN 0: CH 38



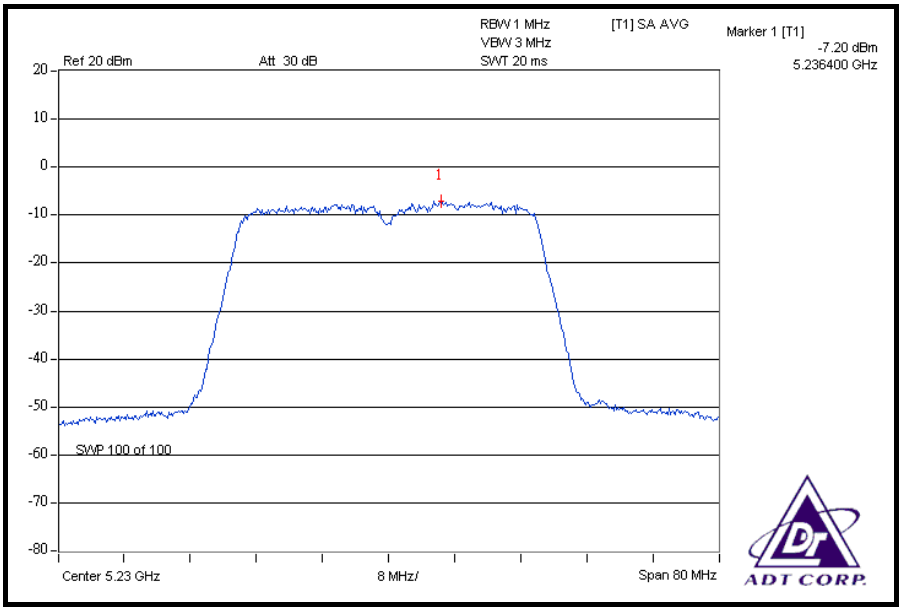
CH 46



FOR CHAIN 1: CH 38



CH 46


RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] SA AVG
Marker 1 [T1]
-7.20 dBm
5.236400 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
SWP 100 of 100
Center 5.23 GHz
8 MHz/
Span 80 MHz
ADT CORP.

4.6 FREQUENCY STABILITY

4.6.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

The frequency tolerance of the carrier signal shall be maintained within +/- 0.02% of the operating frequency over a temperature variation of –30 degrees to 50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C.

4.6.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	CALIBRATED UNTIL
ANRITSU SPECTRUM ANALYZER	MS2667C	M10281	Nov. 21, 2008	Nov. 20, 2009
WIT STANDARD TEMPERATURE AND HUMIDITY CHAMBER	TH-4S-C	W981030	Jun. 28, 2008	Jun. 27, 2009

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

4.6.3 TEST PROCEDURE

a. The EUT was placed inside the environmental test chamber and powered by nominal AC voltage.

b. Turn the EUT on and couple its output to a spectrum analyzer.

c. Turn the EUT off and set the chamber to the highest temperature specified.

d. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.

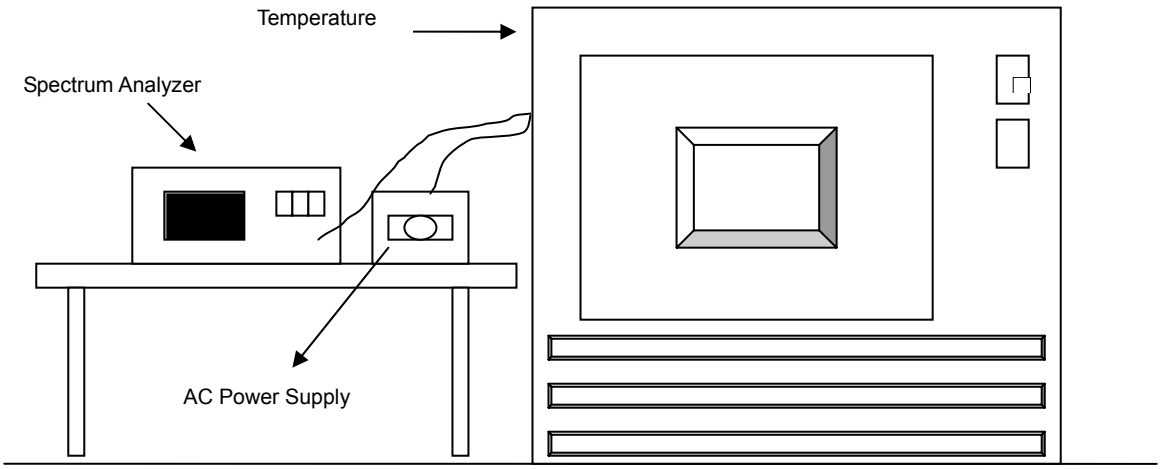
e. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.

f. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

4.6.4 DEVIATION FROM TEST STANDARD

No deviation.

4.6.5 TEST SETUP



4.6.6 EUT OPERATING CONDITION

Same as Item 4.1.6.

4.6.7 TEST RESULTS

OPERATING FREQUENCY: 5200MHz						LIMIT: ± 0.01%			
TEMP. (℃)	POWER SUPPLY (Vac)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE	
		(MHz)	(%)	(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
50	126.5	5200.059335	0.0011411	5200.057949	0.0011144	5200.061223	0.0011774	5200.059168	0.0011378
	110.0	5200.043300	0.0008327	5200.06385	0.0012279	5200.043716	0.0008407	5200.043115	0.0008291
	93.5	5200.046872	0.0009014	5200.066499	0.0012788	5200.047022	0.0009043	5200.046982	0.0009035
40	126.5	5200.039084	0.0007516	5200.058703	0.0011289	5200.038989	0.0007498	5200.039485	0.0007593
	110.0	5200.044808	0.0008617	5200.06458	0.0012419	5200.04482	0.0008619	5200.045022	0.0008658
	93.5	5200.057106	0.0010982	5200.076874	0.0014783	5200.056942	0.0010950	5200.056892	0.0010941
30	126.5	5200.040089	0.0007709	5200.060393	0.0011614	5200.040334	0.0007757	5200.04009	0.0007710
	110.0	5200.046066	0.0008859	5200.066239	0.0012738	5200.046127	0.0008871	5200.046162	0.0008877
	93.5	5200.064424	0.0012389	5200.083742	0.0016104	5200.063897	0.0012288	5200.064332	0.0012372
20	126.5	5200.047014	0.0009041	5200.066357	0.0012761	5200.046913	0.0009022	5200.047278	0.0009092
	110.0	5200.047287	0.0009094	5200.067273	0.0012937	5200.047778	0.0009188	5200.047148	0.0009067
	93.5	5200.071313	0.0013714	5200.091787	0.0017651	5200.071800	0.0013808	5200.071668	0.0013782
10	126.5	5200.054575	0.0010495	5200.074167	0.0014263	5200.054322	0.0010447	5200.054531	0.0010487
	110.0	5200.06258	0.0012035	5200.082915	0.0015945	5200.062680	0.0012054	5200.062701	0.0012058
	93.5	5200.078048	0.0015009	5200.097694	0.0018787	5200.077592	0.0014922	5200.077955	0.0014991
0	126.5	5200.057928	0.0011140	5200.07782	0.0014965	5200.057895	0.0011134	5200.057732	0.0011102
	110.0	5200.069906	0.0013443	5200.089585	0.0017228	5200.069772	0.0013418	5200.069992	0.0013460
	93.5	5200.084026	0.0016159	5200.104129	0.0020025	5200.083943	0.0016143	5200.084209	0.0016194
-10	126.5	5200.070089	0.0013479	5200.089343	0.0017181	5200.070187	0.0013498	5200.069762	0.0013416
	110.0	5200.076776	0.0014765	5200.097108	0.0018675	5200.076655	0.0014741	5200.076979	0.0014804
	93.5	5200.090859	0.0017473	5200.111441	0.0021431	5200.091218	0.0017542	5200.090916	0.0017484
-20	126.5	5200.075345	0.0014489	5200.095748	0.0018413	5200.074881	0.0014400	5200.075327	0.0014486
	110.0	5200.080610	0.0015502	5200.099621	0.0019158	5200.080325	0.0015447	5200.080624	0.0015505
	93.5	5200.094813	0.0018233	5200.115517	0.0022215	5200.095008	0.0018271	5200.094937	0.0018257
-30	126.5	5200.080825	0.0015543	5200.100445	0.0019316	5200.080493	0.0015479	5200.080637	0.0015507
	110.0	5200.094634	0.0018199	5200.114945	0.0022105	5200.094696	0.0018211	5200.094971	0.0018264
	93.5	5200.097809	0.0018809	5200.117348	0.0022567	5200.097745	0.0018797	5200.097626	0.0018774

4.7 BAND EDGES MEASUREMENT

4.7.1 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
FOR CONDUCTED MEASUREMENT:				
R&S SPECTRUM ANALYZER	FSP40	100041	Apr. 22, 2008	Apr. 21, 2009
FOR RADIATED MEASUREMENT:				
Test Receiver ROHDE & SCHWARZ	ESI7	838496/016	Dec. 26, 2007	Dec. 25, 2008
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Dec. 03, 2007	Dec. 02, 2008
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Apr. 30, 2008	Apr. 29, 2009
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-408	Jan. 22, 2008	Jan. 21, 2009
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170242	Jan. 07, 2008	Jan. 06, 2009
Preamplifier Agilent	8449B	3008A01960	Nov. 03, 2008	Nov. 02, 2009
Preamplifier Agilent	8447D	2944A10631	Nov. 03, 2008	Nov. 02, 2009
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	274041/4	Aug. 21, 2008	Aug. 20, 2009
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	283397/4	Aug. 21, 2008	Aug. 20, 2009
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
26GHz ~ 40GHz Amplifier	EM26400	07026401	Aug. 27, 2008	Aug. 26, 2009

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

4.7.2 TEST PROCEDURE

FOR CONDUCTED MEASUREMENT:

The transmitter output was connected to the spectrum analyzer via a low lose cable. Set both RBW and VBW of spectrum analyzer to 100kHz and 300kHz with suitable frequency span including 100MHz bandwidth from band edge. The band edges was measured and recorded.

The spectrum plots (Peak RBW = 100kHz, VBW = 300kHz) are attached on the following pages.

FOR RADIATED MEASUREMENT:

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

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

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

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

e. Set both RBW and VBW of spectrum analyzer to 1MHz and 3MHz with suitable frequency span including 100MHz bandwidth from band edge. The band edges was measured and recorded.

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

4.7.3 EUT OPERATING CONDITION

The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

4.7.4 TEST RESULTS

For signals in the restricted bands above and below the 5.15 to 5.25GHz allocated band a measurement was made of the amplitude of the spurious emissions with respect to the intentional signals. The relative amplitude, in dBc, was applied to the average and peak filed strength of the intentional signal made on the OATS to calculate the field strength of the unintentional signals.

The spectrum plots (Peak RBW = 1MHz, VBW = 3MHz) are attached on the following pages.

802.11a OFDM MODULATION

Channel 36 (5180MHz)

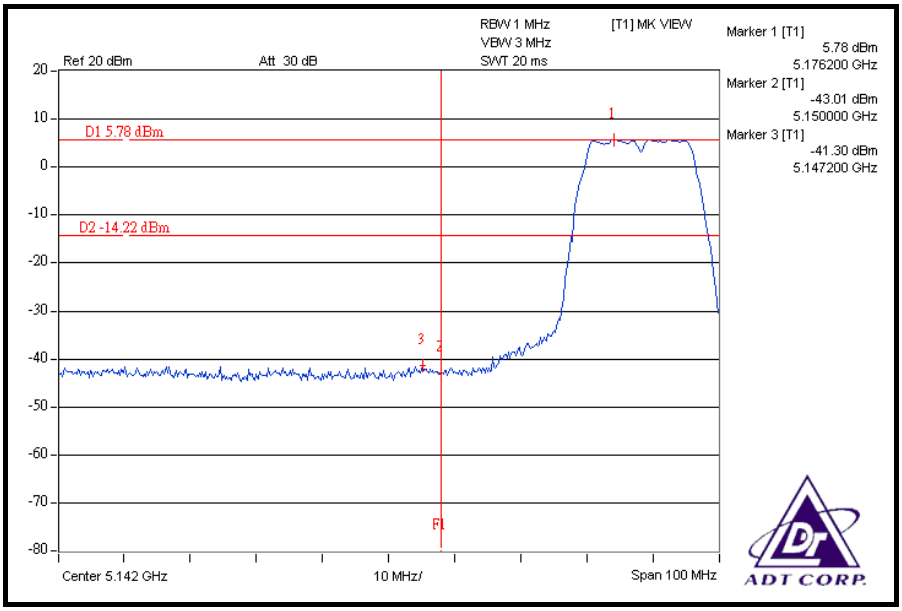
The band edge emission plot on the next page shows 47.08dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 36 is 99.61dBuV/m (Peak), so the maximum field strength in restrict band is 99.61 – 47.08 = 52.53dBuV/m which is under 74dBuV/m limit.

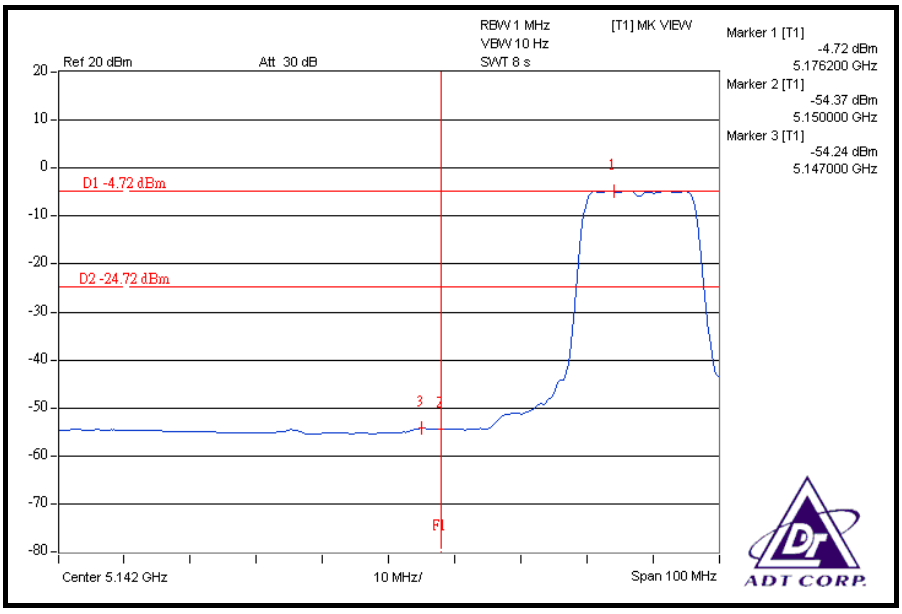
The band edge emission plot on the next page shows 49.52dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 36 is 89.27dBuV/m (Average), so the maximum field strength in restrict band is 89.27 – 49.52 = 39.75dBuV/m which is under 54dBuV/m limit.

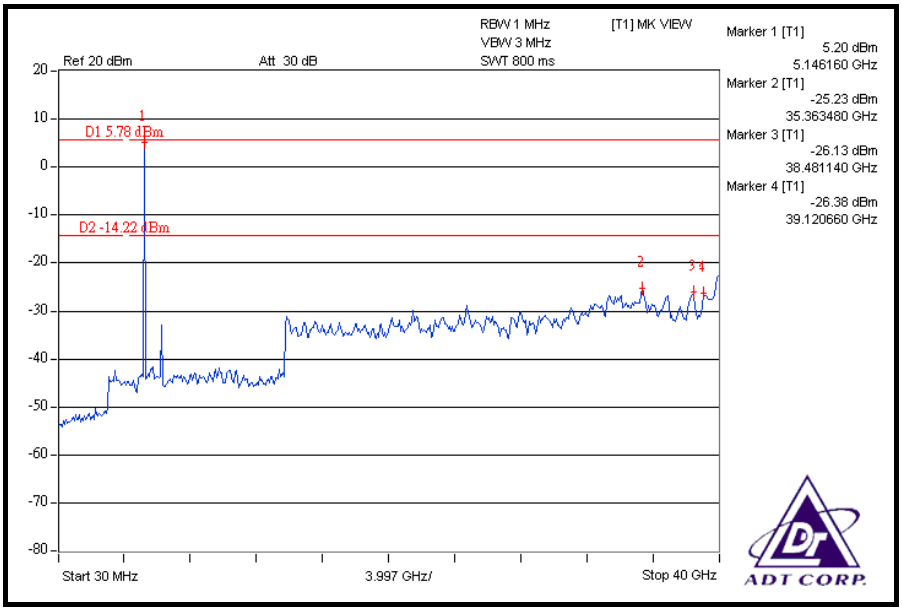
Channel 48 (5240MHz)

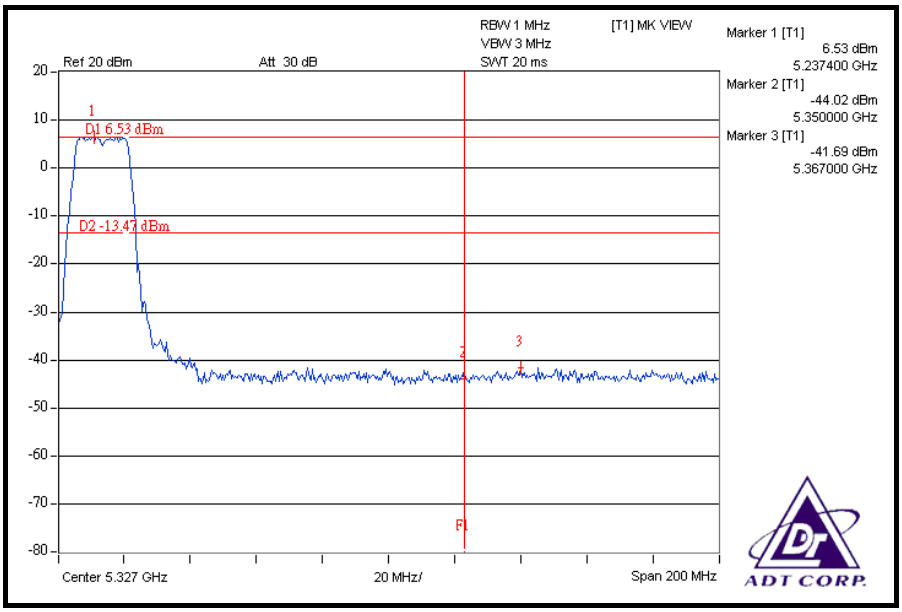
The band edge emission plot on the next second page shows 48.22dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 48 is 100.66dBuV/m (Peak), so the maximum field strength in restrict band is 100.66 – 48.22 = 52.44dBuV/m which is under 74dBuV/m limit.

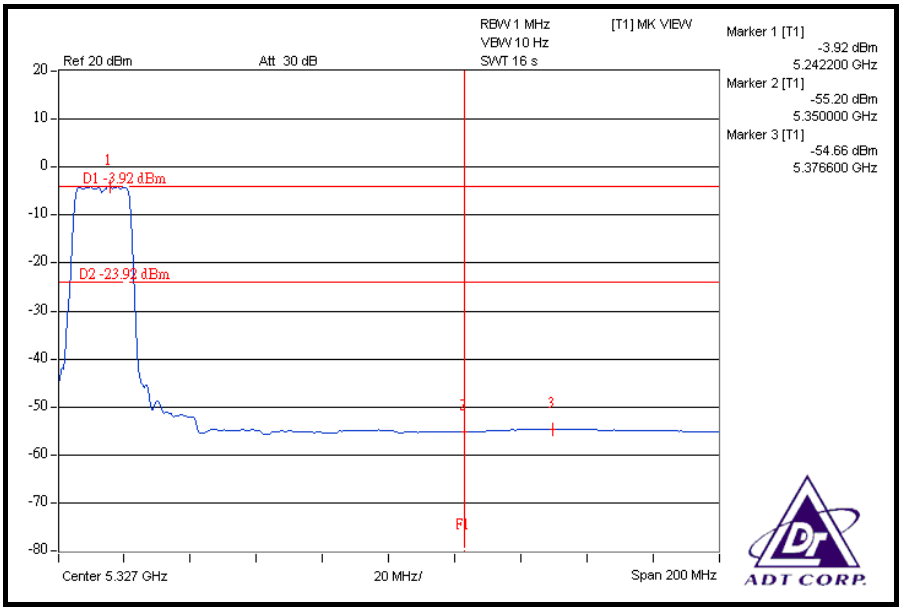
The band edge emission plot on the next third page shows 50.74dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 48 is 88.96dBuV/m (Average), so the maximum field strength in restrict band is 88.96 – 50.74 = 38.22dBuV/m which is under 54dBuV/m limit.

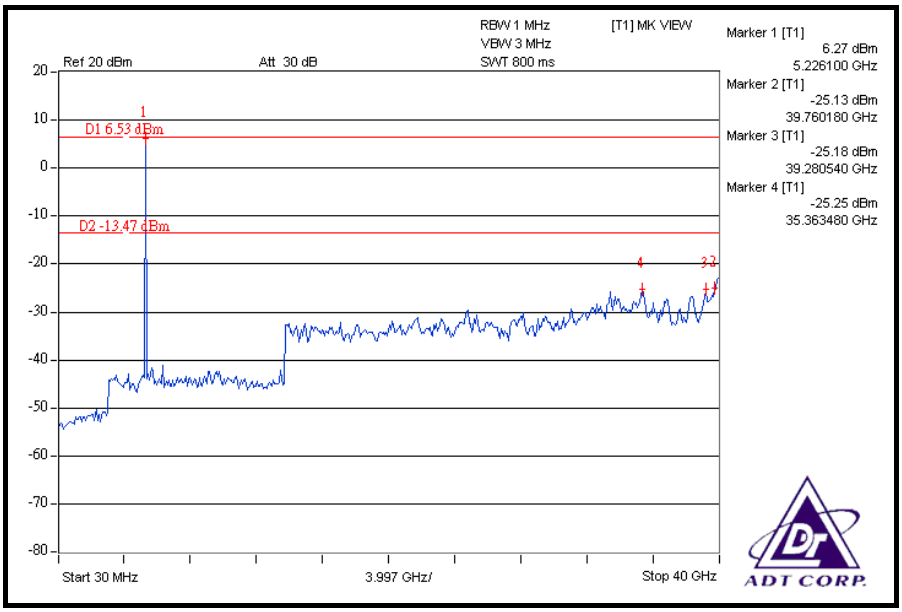

RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 5.78 dBm
D2 -14.22 dBm
Marker 1 [T1]
5.78 dBm
5.176200 GHz
Marker 2 [T1]
-43.01 dBm
5.150000 GHz
Marker 3 [T1]
-41.30 dBm
5.147200 GHz
Center 5.142 GHz
10 MHz/
Span 100 MHz
ADT CORP.


RBW 1 MHz
VBW 10 Hz
SWT 8 s
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 -4.72 dBm
D2 -24.72 dBm
Marker 1 [T1]
-4.72 dBm
5.176200 GHz
Marker 2 [T1]
-54.37 dBm
5.150000 GHz
Marker 3 [T1]
-54.24 dBm
5.147000 GHz
Center 5.142 GHz
10 MHz/
Span 100 MHz
ADT CORP.


RBW 1 MHz
VBW 3 MHz
SWT 800 ms
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 5.78 dBm
D2 -14.22 dBm
Marker 1 [T1]
5.20 dBm
5.146160 GHz
Marker 2 [T1]
-25.23 dBm
35.363480 GHz
Marker 3 [T1]
-26.13 dBm
38.481140 GHz
Marker 4 [T1]
-26.38 dBm
39.120660 GHz
Start 30 MHz
3.997 GHz/
Stop 40 GHz
ADT CORP.


RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 6.53 dBm
D2 -13.47 dBm
Marker 1 [T1]
6.53 dBm
5.237400 GHz
Marker 2 [T1]
-44.02 dBm
5.350000 GHz
Marker 3 [T1]
-41.69 dBm
5.367000 GHz
Center 5.327 GHz
20 MHz/
Span 200 MHz
ADT CORP.


RBW 1 MHz
VBW 10 Hz
SWT 16 s
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
Marker 1 [T1]
-3.92 dBm
5.242200 GHz
Marker 2 [T1]
-55.20 dBm
5.350000 GHz
Marker 3 [T1]
-54.66 dBm
5.376600 GHz
D1 -3.92 dBm
D2 -23.92 dBm
Center 5.327 GHz
20 MHz/
Span 200 MHz
ADT CORP.


RBW 1 MHz
VBW 3 MHz
SWT 800 ms
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
Marker 1 [T1]
6.27 dBm
5.226100 GHz
Marker 2 [T1]
-25.13 dBm
39.760180 GHz
Marker 3 [T1]
-25.18 dBm
39.280540 GHz
Marker 4 [T1]
-25.25 dBm
35.363480 GHz
D1 6.53 dBm
D2 -13.47 dBm
Start 30 MHz
3.997 GHz/
Stop 40 GHz
ADT CORP.

DRAFT 802.11n (20MHz) OFDM MODULATION

Channel 36 (5180MHz)

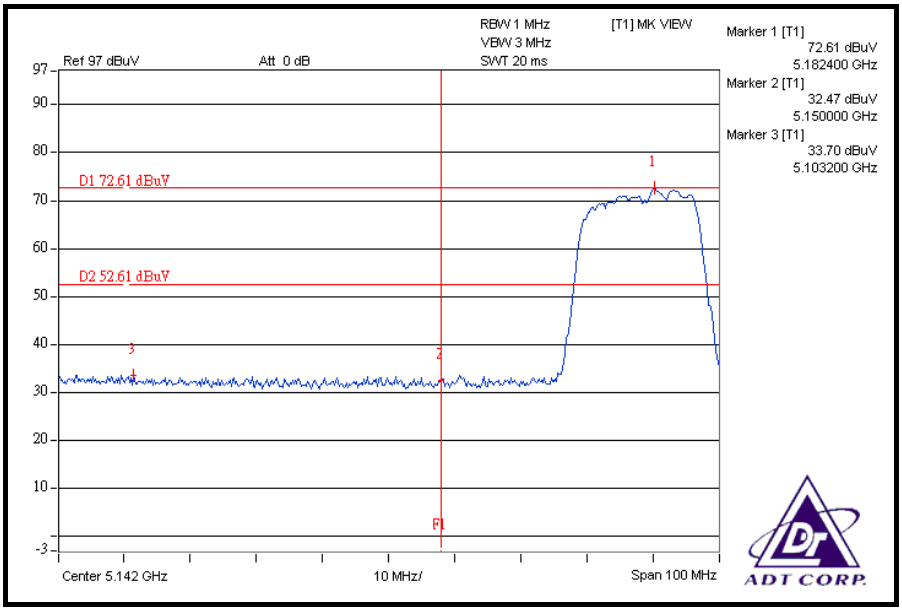
The band edge emission plot on the next page shows 38.91dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 36 is 100.12dBuV/m (Peak), so the maximum field strength in restrict band is 100.12 – 38.91 = 61.21dBuV/m which is under 74dBuV/m limit.

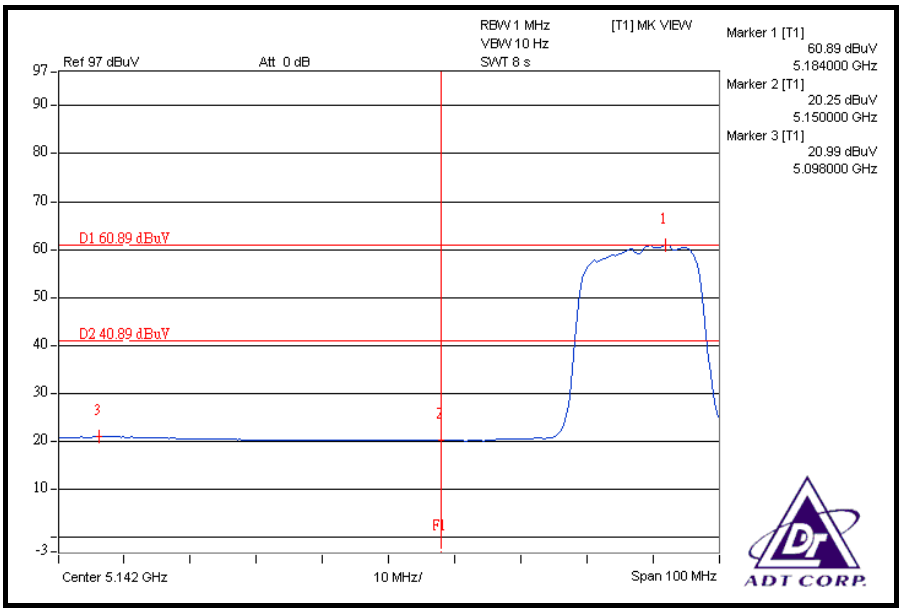
The band edge emission plot on the next page shows 39.90dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 36 is 89.63dBuV/m (Average), so the maximum field strength in restrict band is 89.63 – 39.90 = 49.73dBuV/m which is under 54dBuV/m limit.

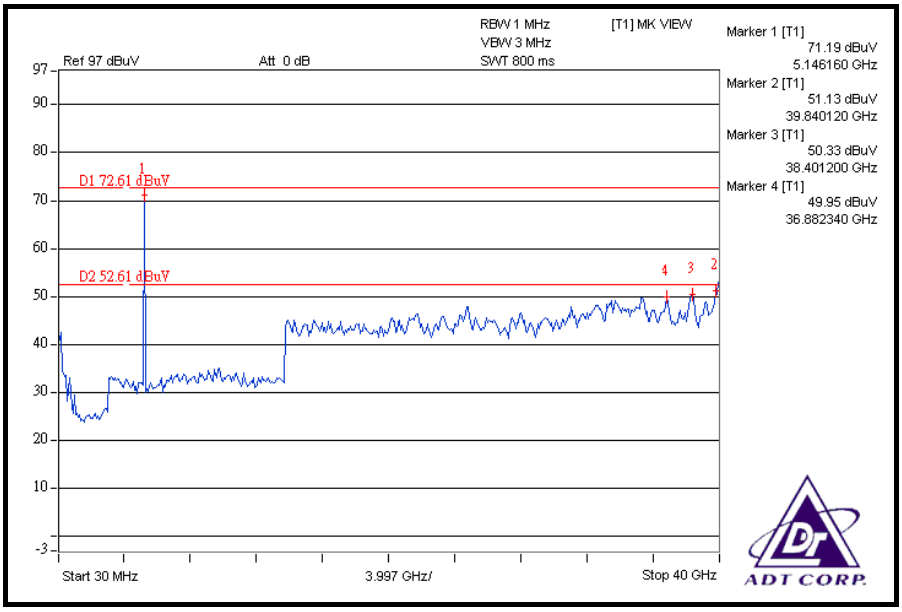
Channel 48 (5240MHz)

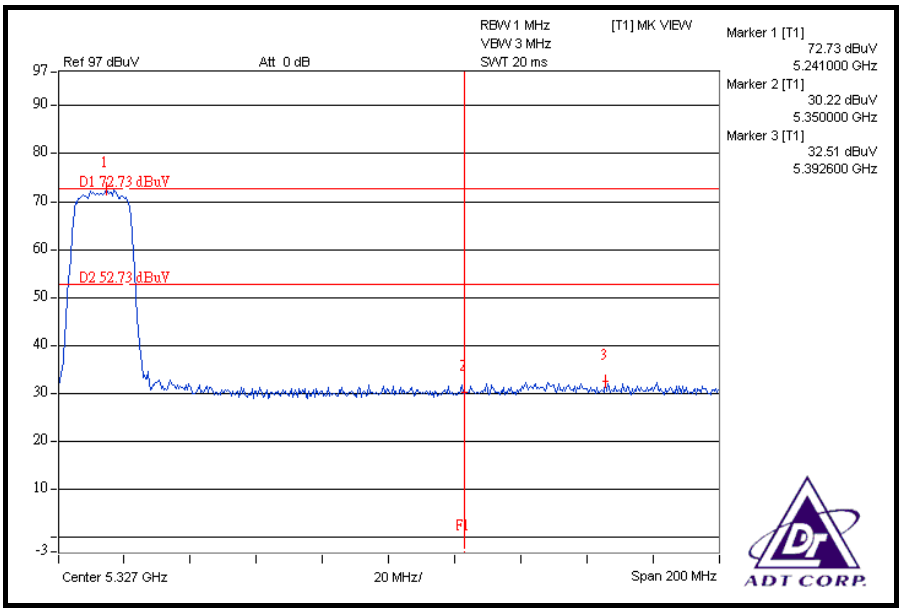
The band edge emission plot on the next second page shows 40.22dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 48 is 99.87dBuV/m (Peak), so the maximum field strength in restrict band is 99.87– 40.22 = 59.65dBuV/m which is under 74dBuV/m limit.

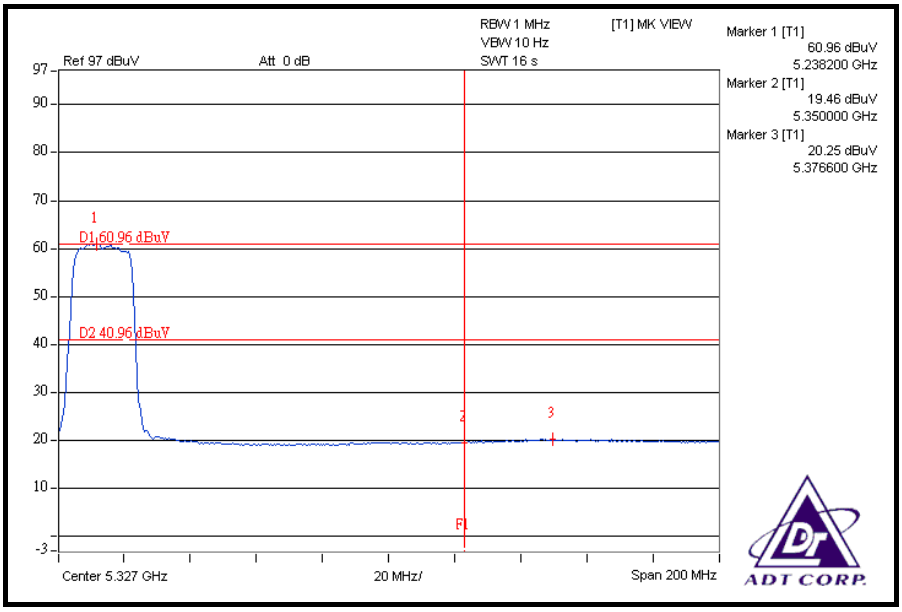
The band edge emission plot on the next third page shows 40.71dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 48 is 89.68dBuV/m (Average), so the maximum field strength in restrict band is 89.68 – 40.71 = 48.97dBuV/m which is under 54dBuV/m limit.

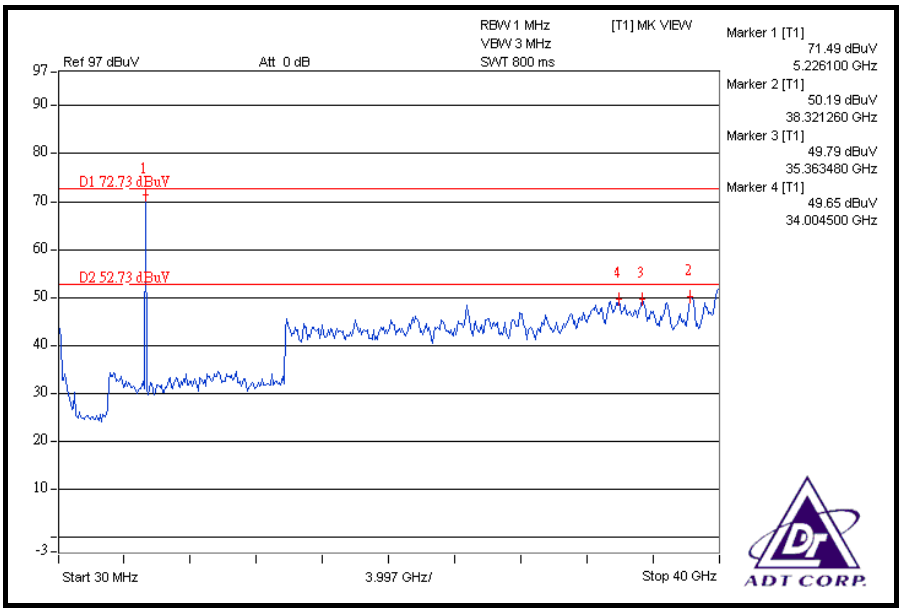

RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
72.61 dBuV
5.182400 GHz
Marker 2 [T1]
32.47 dBuV
5.150000 GHz
Marker 3 [T1]
33.70 dBuV
5.103200 GHz
D1 72.61 dBuV
D2 52.61 dBuV
97
90
80
70
60
50
40
30
20
10
-3
Center 5.142 GHz
10 MHz/
Span 100 MHz
ADT CORP.


RBW 1 MHz
VBW 10 Hz
SWT 8 s
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
60.89 dBuV
5.184000 GHz
Marker 2 [T1]
20.25 dBuV
5.150000 GHz
Marker 3 [T1]
20.99 dBuV
5.098000 GHz
D1 60.89 dBuV
D2 40.89 dBuV
97
90
80
70
60
50
40
30
20
10
-3
Center 5.142 GHz
10 MHz/
Span 100 MHz
ADT CORP.


RBW 1 MHz
VBW 3 MHz
SWT 800 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
71.19 dBuV
5.146160 GHz
Marker 2 [T1]
51.13 dBuV
39.840120 GHz
Marker 3 [T1]
50.33 dBuV
38.401200 GHz
Marker 4 [T1]
49.95 dBuV
36.882340 GHz
D1 72.61 dBuV
D2 52.61 dBuV
Start 30 MHz
3.997 GHz/
Stop 40 GHz
ADT CORP.


RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
72.73 dBuV
5.241000 GHz
Marker 2 [T1]
30.22 dBuV
5.350000 GHz
Marker 3 [T1]
32.51 dBuV
5.392600 GHz
D1 72.73 dBuV
D2 52.73 dBuV
Center 5.327 GHz
20 MHz/
Span 200 MHz
ADT CORP.


RBW 1 MHz
VBW 10 Hz
SWT 16 s
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
60.96 dBuV
5.238200 GHz
Marker 2 [T1]
19.46 dBuV
5.350000 GHz
Marker 3 [T1]
20.25 dBuV
5.376600 GHz
D1 60.96 dBuV
D2 40.96 dBuV
Center 5.327 GHz
20 MHz/
Span 200 MHz
ADT CORP.


RBW 1 MHz
VBW 3 MHz
SWT 800 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
71.49 dBuV
5.226100 GHz
Marker 2 [T1]
50.19 dBuV
38.321260 GHz
Marker 3 [T1]
49.79 dBuV
35.363480 GHz
Marker 4 [T1]
49.65 dBuV
34.004500 GHz
D1 72.73 dBuV
D2 52.73 dBuV
Start 30 MHz
3.997 GHz/
Stop 40 GHz
ADT CORP.

DRAFT 802.11n (40MHz) OFDM MODULATION

Channel 38 (5190MHz)

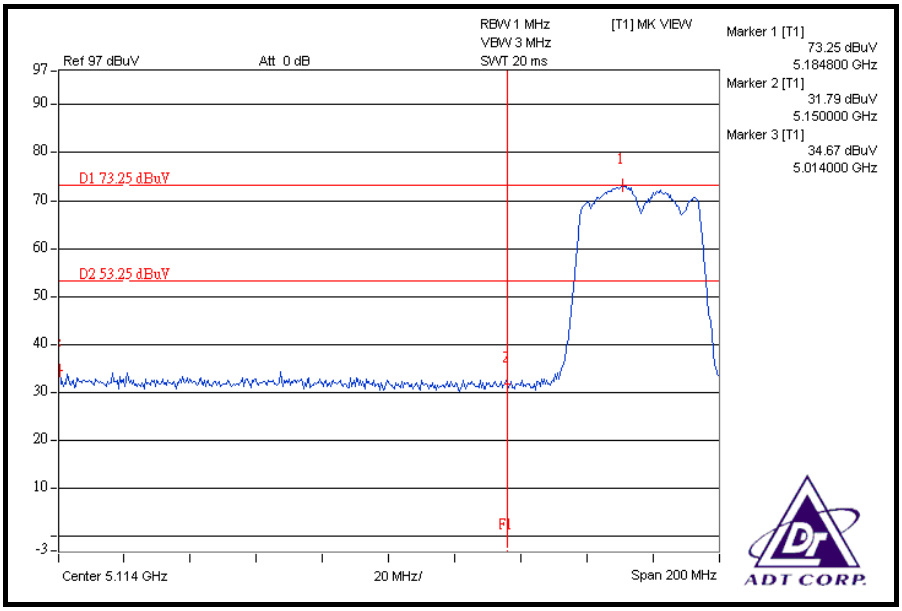
The band edge emission plot on the next page shows 38.58dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 38 is 103.10dBuV/m (Peak), so the maximum field strength in restrict band is 103.10 – 38.58 = 64.52dBuV/m which is under 74dBuV/m limit.

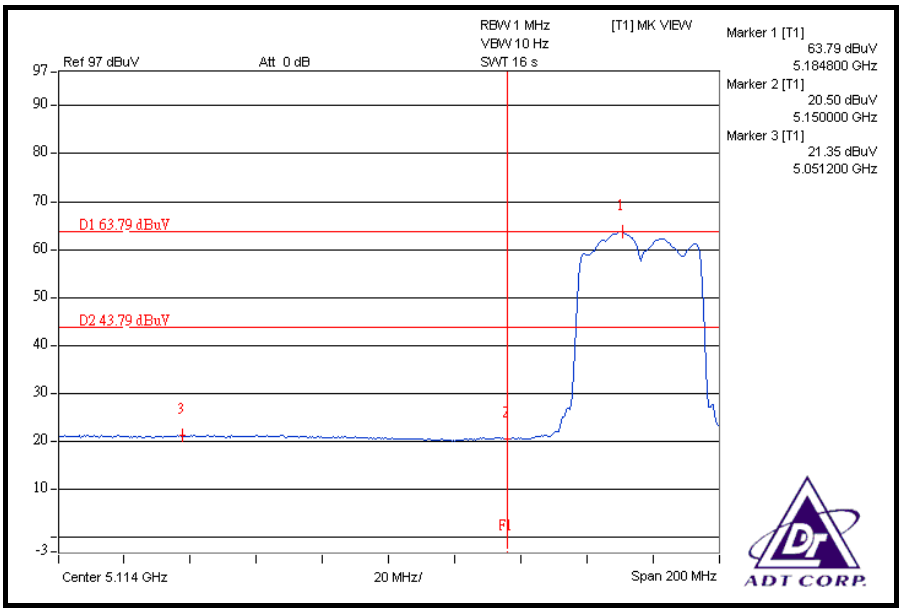
The band edge emission plot on the next page shows 42.44dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 38 is 92.46dBuV/m (Average), so the maximum field strength in restrict band is 92.46 – 42.44 = 50.02dBuV/m which is under 54dBuV/m limit.

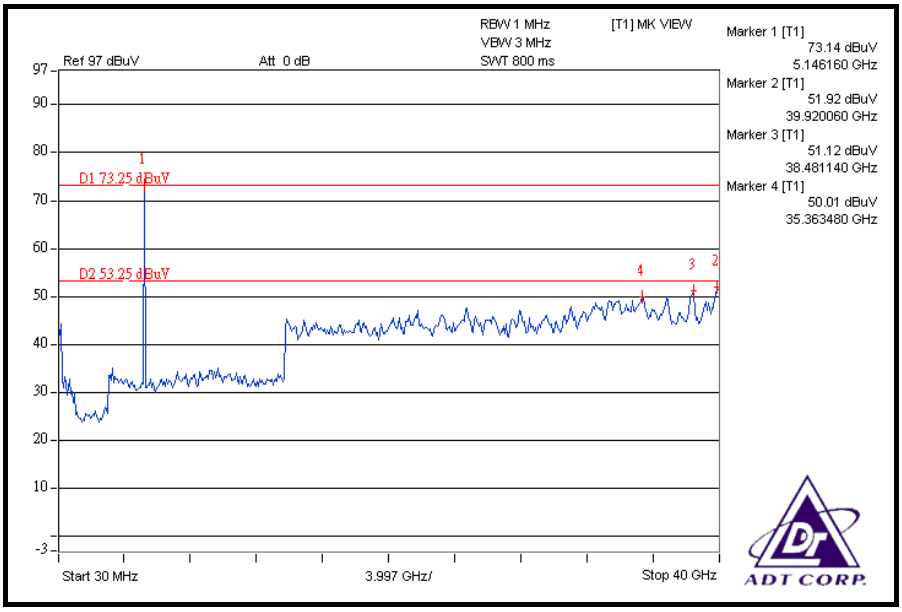
Channel 46 (5230MHz)

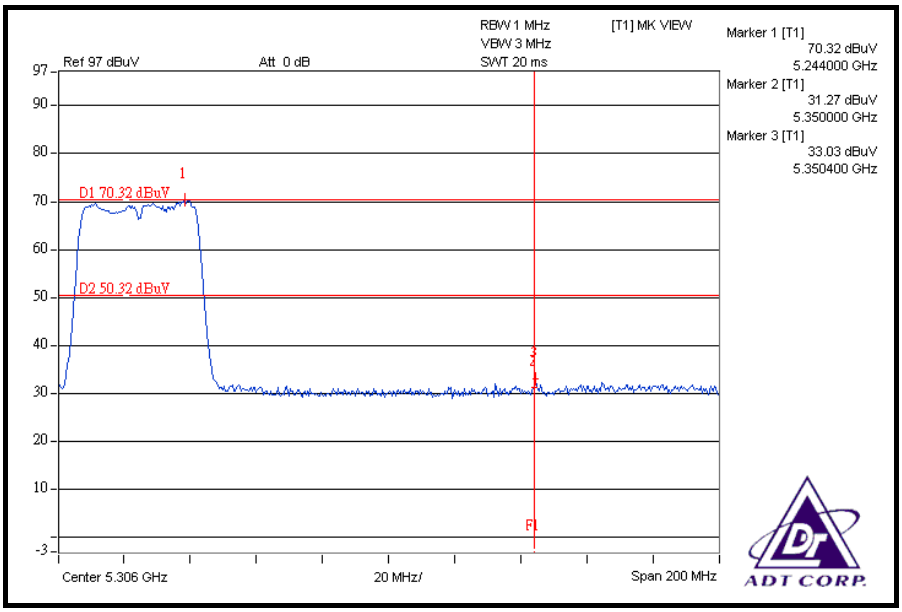
The band edge emission plot on the next second page shows 37.29dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 46 is 99.92dBuV/m (Peak), so the maximum field strength in restrict band is 99.92 – 37.29 = 62.63dBuV/m which is under 74dBuV/m limit.

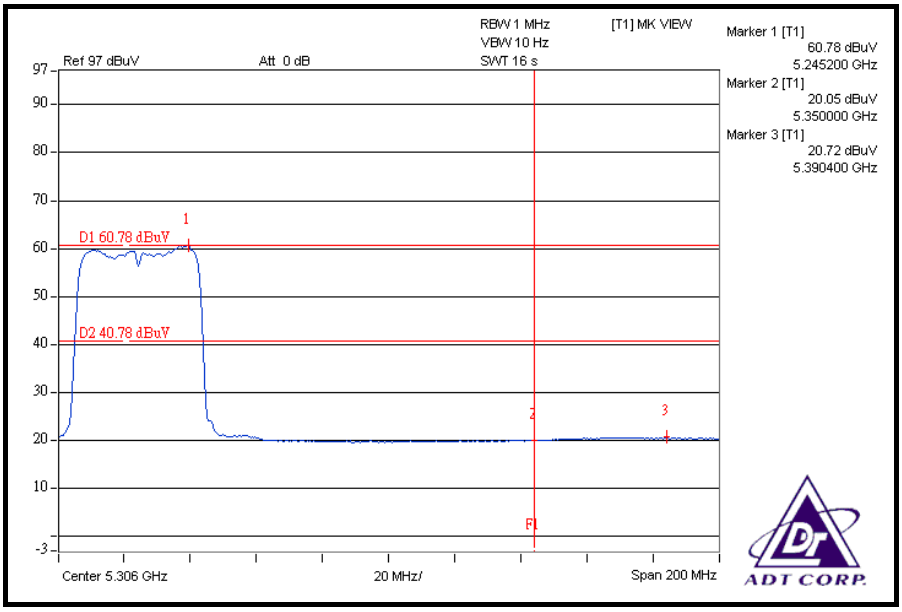
The band edge emission plot on the next third page shows 40.06dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 46 is 89.48dBuV/m (Average), so the maximum field strength in restrict band is 89.48 – 40.06 = 49.42dBuV/m which is under 54dBuV/m limit.

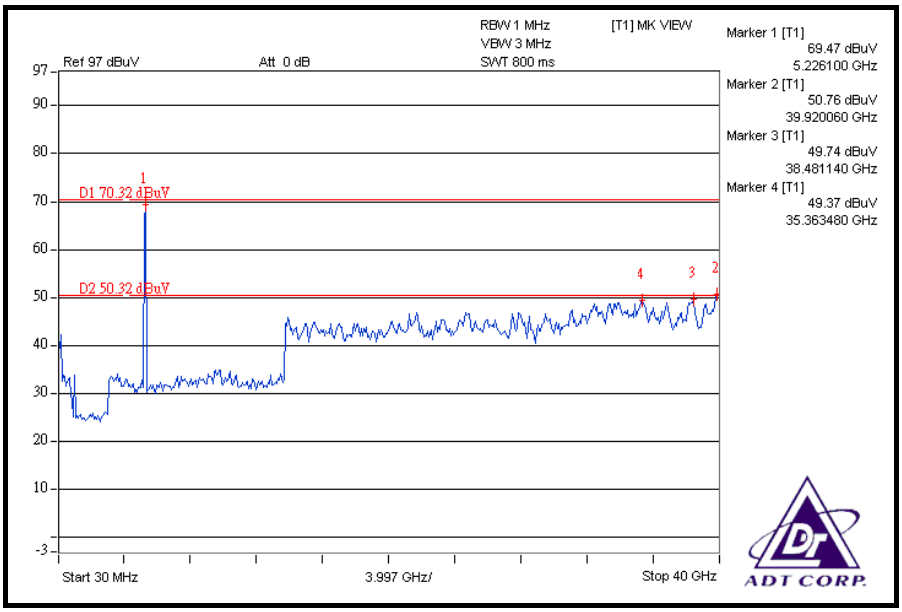

RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
73.25 dBuV
5.184800 GHz
Marker 2 [T1]
31.79 dBuV
5.150000 GHz
Marker 3 [T1]
34.67 dBuV
5.014000 GHz
D1 73.25 dBuV
D2 53.25 dBuV
97
90
80
70
60
50
40
30
20
10
-3
Center 5.114 GHz
20 MHz/
Span 200 MHz
ADT CORP.


RBW 1 MHz
VBW 10 Hz
SWT 16 s
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
63.79 dBuV
5.184800 GHz
Marker 2 [T1]
20.50 dBuV
5.150000 GHz
Marker 3 [T1]
21.35 dBuV
5.051200 GHz
D1 63.79 dBuV
D2 43.79 dBuV
97
90
80
70
60
50
40
30
20
10
-3
Center 5.114 GHz
20 MHz/
Span 200 MHz
ADT CORP.


RBW 1 MHz
VBW 3 MHz
SWT 800 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
73.14 dBuV
5.146160 GHz
Marker 2 [T1]
51.92 dBuV
39.920060 GHz
Marker 3 [T1]
51.12 dBuV
38.481140 GHz
Marker 4 [T1]
50.01 dBuV
35.363480 GHz
D1 73.25 dBuV
D2 53.25 dBuV
Start 30 MHz
3.997 GHz/
Stop 40 GHz
ADT CORP.


RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
70.32 dBuV
5.244000 GHz
Marker 2 [T1]
31.27 dBuV
5.350000 GHz
Marker 3 [T1]
33.03 dBuV
5.350400 GHz
D1 70.32 dBuV
D2 50.32 dBuV
Center 5.306 GHz
20 MHz/
Span 200 MHz
ADT CORP.


RBW 1 MHz
VBW 10 Hz
SWT 16 s
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
60.78 dBuV
5.245200 GHz
Marker 2 [T1]
20.05 dBuV
5.350000 GHz
Marker 3 [T1]
20.72 dBuV
5.390400 GHz
D1 60.78 dBuV
D2 40.78 dBuV
Center 5.306 GHz
20 MHz/
Span 200 MHz
ADT CORP.


RBW 1 MHz
VBW 3 MHz
SWT 800 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
69.47 dBuV
5.226100 GHz
Marker 2 [T1]
50.76 dBuV
39.920060 GHz
Marker 3 [T1]
49.74 dBuV
38.481140 GHz
Marker 4 [T1]
49.37 dBuV
35.363480 GHz
D1 70.32 dBuV
D2 50.32 dBuV
Start 30 MHz
3.997 GHz/
Stop 40 GHz
ADT CORP.

4.8 ANTENNA REQUIREMENT

4.8.1 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 15.407(a), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

4.8.2 ANTENNA CONNECTED CONSTRUCTION

The antenna used in this product is Inverted F antenna without antenna connector. The maximum gain of the antenna is 0dBi.

5. PHOTOGRAPHS OF THE TEST CONFIGURATION

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

6. INFORMATION ON THE TESTING LABORATORIES

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, 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, NVLAP
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---