



FCC TEST REPORT

REPORT NO.: RF970818H04

MODEL NO.: DWA-130

RECEIVED: Aug. 18, 2008

TESTED: Aug. 27 to Oct. 07, 2008

ISSUED: Oct. 23, 2008

APPLICANT: D-Link Co.

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ISSUED BY: Advance Data Technology Corporation

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1. CERTIFICATION

PRODUCT : Wireless N USB Adapter

MODEL NO.: DWA-130

BRAND : D-Link

APPLICANT : D-Link Co.

TESTED : Aug. 27 to Oct. 07, 2008

TEST SAMPLE : MASS-PRODUCTION

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

The above equipment (Model: DWA-130) 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 : Midoli Peng , **DATE:** Oct. 23, 2008
(Midoli Peng, Specialist)

TECHNICAL ACCEPTANCE : Hank Chung , **DATE:** Oct. 23, 2008
Responsible for RF (Hank Chung, Deputy Manager)

APPROVED BY : May Chen , **DATE:** Oct. 23, 2008
(May Chen, Deputy 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 -10.97dB at 0.158MHz.
15.247(a)(2)	Spectrum Bandwidth of a Direct Sequence Spread Spectrum System Limit : min. 500kHz	PASS	Meet the requirement of limit.
15.247(b)	Maximum Peak Output Power Limit: max. 30dBm	PASS	Meet the requirement of limit.
15.247(d)	Transmitter Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit. Minimum passing margin is -0.60dB at 2390.0MHz.
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:

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

Measurement	Value
Conducted emissions	2.45 dB
Radiated emissions (30MHz-1GHz)	3.94 dB
Radiated emissions (1GHz -18GHz)	2.33 dB
Radiated emissions (18GHz -40GHz)	2.55 dB



3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Wireless N USB Adapter
MODEL NO.	DWA-130
FCC ID	KA2WA130C1
POWER SUPPLY	DC 5V from host equipment
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b: 11 / 5.5 / 2 / 1Mbps 802.11g: 54 / 48 / 36 / 24 / 18 / 12 / 9 / 6Mbps HT20 MCS0~7 (800ns GI): 65 / 58.5 / 52 / 39 / 26 / 19.5 / 13 / 6.5Mbps. HT40 MCS0~7 (800ns GI): 135 / 121.5 / 108 / 81 / 54 / 40.5 / 27 / 13.5Mbps. HT20 MCS0~7 (400ns GI): 72.2 / 65 / 57.8 / 43.3 / 28.9 / 21.7 / 14.4 / 7.2Mbps. HT40 MCS0~7 (400ns GI): 150 / 135 / 120 / 90 / 60 / 45 / 30 / 15Mbps.
FREQUENCY RANGE	2400MHz ~ 2483.5MHz
NUMBER OF CHANNEL	11 for 802.11b, 802.11g, draft 802.11n (20MHz) 7 for draft 802.11n (40MHz)
MAXIMUM OUTPUT POWER	802.11b: 130.317mW 802.11g: 309.030mW draft 802.11n (20MHz): 304.089mW draft 802.11n (40MHz): 270.396mW
ANTENNA TYPE	Please see note 1
DATA CABLE	USB Cable (Unshielded, 1m) USB Cable (Unshielded, 1.5m) for Cradle USB Cable (Unshielded, 1.0m) for Cradle
ASSOCIATED DEVICES	USB Cable, USB Cradle*2



NOTE:

1. There are two antennas provided to this EUT, please refer to the following table:

Transmitter Circuit	Antenna Type	Gain (dBi)	Antenna Connector	Note
Chain(0)	Printed	3.85	NA	TX & RX function
Chain(1)	Printed	-0.78	NA	RX function

2. The EUT's appearance has three different colors. (Please refers to construction photos of EUT)
3. The EUT incorporates a SIMO function with 802.11b, 802.11g, draft 802.11n. Physically, the EUT provides one completed transmitter and two completed receiver.
4. The EUT is 1 * 2 spatial SIMO without beam forming function. The antenna configurations are one transmitter antenna and two receiver antenna, as there are 2 antennas. Spatial multiplexing modes for simultaneous transmission using 1 antenna, and for simultaneous receiver using 2 antennas. The 11bgn legacy mode is limited to single transmitter only.
5. The EUT complies with draft 802.11n standards and backwards compatible with 802.11b, 802.11g products.
6. 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, 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 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	PLC	RE < 1G	RE ≥ 1G	APCM	
A		√	√	√	With USB cable
B	√				With USB cradle 1<USB cable, 1.5m>
C		√			With USB cradle 2<USB cable, 1.0m>
D					EUT only

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

POWER LINE CONDUCTED EMISSION TEST:

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	EUT CONFIGURE MODE
802.11b	1 to 11	1	DSSS	DBPSK	1	B

RADIATED EMISSION TEST (BELOW 1 GHZ):

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	EUT CONFIGURE MODE
802.11b	1 to 11	1	DSSS	DBPSK	1	A & C



RADIATED EMISSION TEST (ABOVE 1 GHZ):

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	EUT CONFIGURE MODE
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1	A
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6	A
Draft 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5	A
Draft 802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	13.5	A

BANDEDGE MEASUREMENT:

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	EUT CONFIGURE MODE
802.11b	1 to 11	1, 11	DSSS	DBPSK	1	A
802.11g	1 to 11	1, 11	OFDM	BPSK	6	A
Draft 802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	6.5	A
Draft 802.11n (40MHz)	1 to 7	1, 7	OFDM	BPSK	13.5	A

ANTENNA PORT CONDUCTED MEASUREMENT:

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	EUT CONFIGURE MODE
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1	A
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6	A
Draft 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5	A
Draft 802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	13.5	A



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.

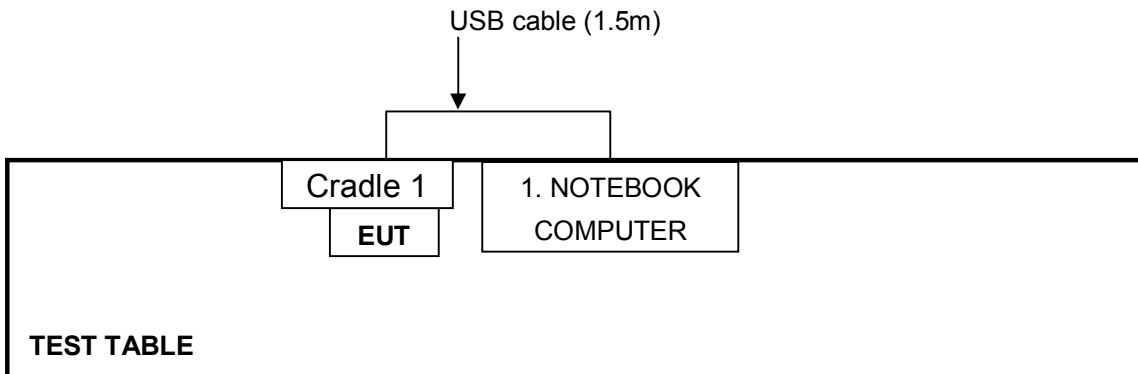
For Conducted test					
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP19L	CN-OHC416-701 66-5CA-0448	PIW63250051661 0
For Radiated test					
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP17L	CN-ONF743-48643- 7AV-0124	FCC DoC
2	iPod	Apple	A1199	6U6426MTVQS	FCC DoC

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA
2	1 m shielded cable, terminated with USB connector, w/o core.

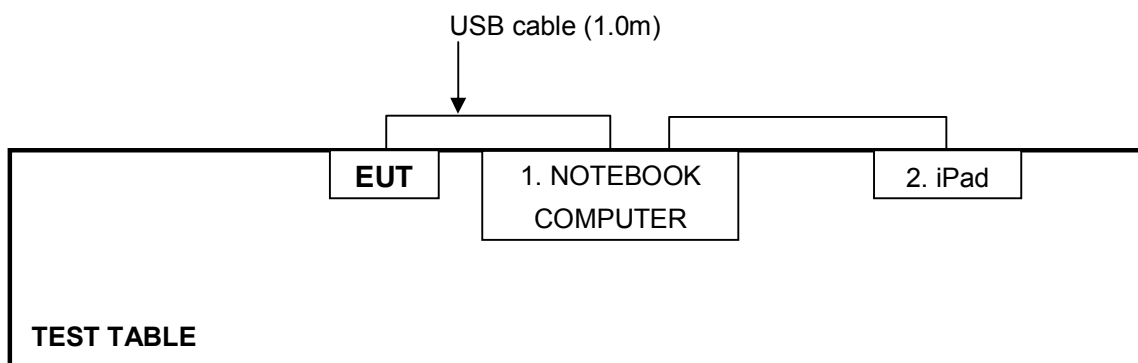
NOTE: All power cords of the above support units are non shielded (1.8m).

3.5 CONFIGURATION OF SYSTEM UNDER TEST

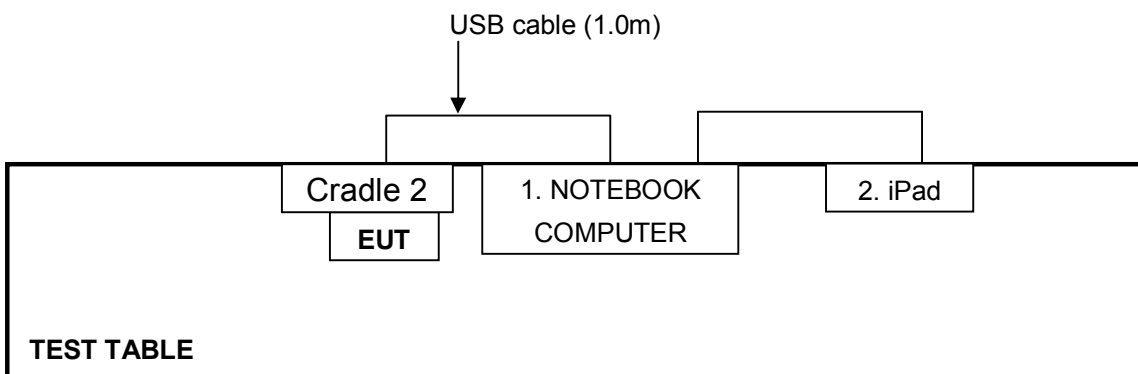
For conducted test



For radiated test - With USB cable



For radiated test - With USB cradle 2





4. TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dB μ V)	
	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.

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
ROHDE & SCHWARZ Test Receiver	ESCS 30	100287	Mar. 10, 2009
Line-Impedance Stabilization Network(for EUT)	KNW-407	8-1395-12	May. 06, 2009
Line-Impedance Stabilization Network(for Peripheral)	ENV-216	100072	Jun. 12, 2009
RF Cable (JYBAO)	5DFB	COACAB-001	Jul. 23, 2009
50 ohms Terminator	50	3	Nov. 15, 2008
Software	ADT_Cond_V7.3.2	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 ADT Shielded Room No. A.
 3. The VCCI Con A Registration No. is C-817.



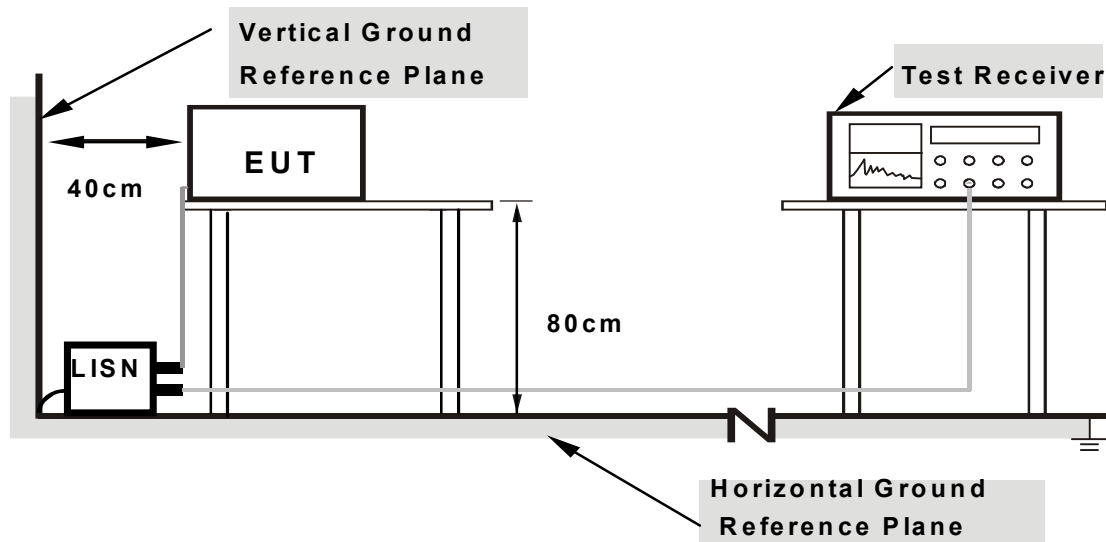
4.1.3 TEST PROCEDURES

- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



Note: 1. Support units were connected to second LISN.

2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

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

4.1.6 EUT OPERATING CONDITIONS

- a. Connect the EUT with the support unit 1 (Notebook computer) which placed on a testing table.
- b. The communication partner run test program “Realtek RTL8192U MP Diagnostic Program 0.0010.0429.2008” to enable EUT under transmission/receiving condition continuously at specific channel frequency via USB cable.

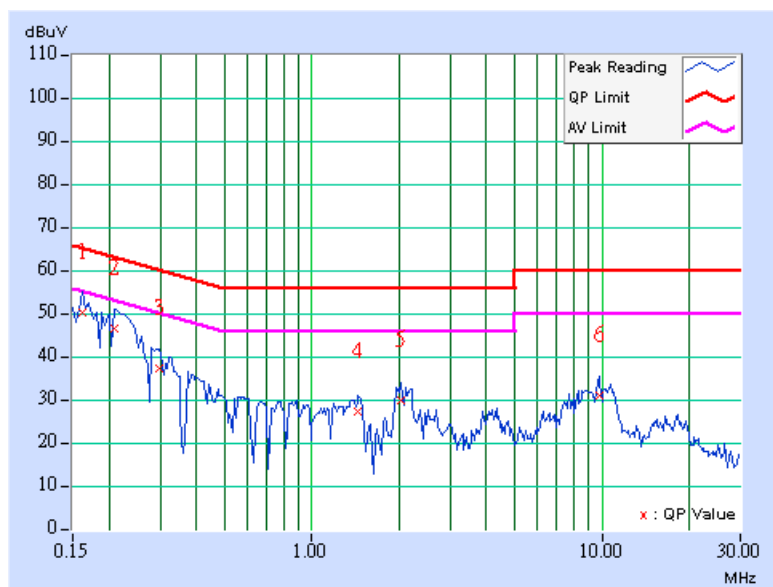
4.1.7 TEST RESULTS

802.11b DSSS MODULATION:

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	PHASE	Line (L)
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	13Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 965hPa	TESTED BY	Max Tseng

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.162	0.58	49.92	-	50.50	-	65.38
2	0.209	0.50	46.19	-	46.69	-	63.26	53.26	-16.58	-
3	0.298	0.45	36.91	-	37.36	-	60.29	50.29	-22.93	-
4	1.445	0.47	26.88	-	27.35	-	56.00	46.00	-28.65	-
5	2.020	0.47	29.47	-	29.94	-	56.00	46.00	-26.06	-
6	9.789	0.62	30.52	-	31.14	-	60.00	50.00	-28.86	-

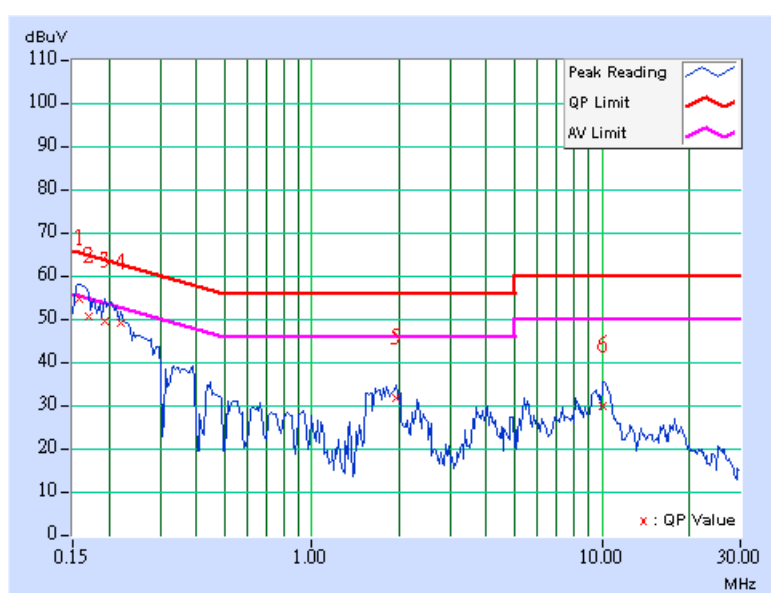
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	PHASE	Neutral (N)
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	13Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 965hPa	TESTED BY	Max Tseng

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.158	0.34	54.27	-	54.61	-	65.58
2	0.170	0.32	50.29	-	50.61	-	64.98	54.98	-14.38	-
3	0.193	0.27	49.30	-	49.57	-	63.91	53.91	-14.34	-
4	0.220	0.24	49.00	-	49.24	-	62.81	52.81	-13.57	-
5	1.965	0.25	31.33	-	31.58	-	56.00	46.00	-24.42	-
6	10.102	0.43	29.45	-	29.88	-	60.00	50.00	-30.12	-

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





4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

FREQUENCIES (MHz)	FIELD STRENGTH (microvolts/meter)	MEASUREMENT DISTANCE (meters)
0.009 ~ 0.490	2400 / F(kHz)	300
0.490 ~ 1.705	24000 / F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.



4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
ADVANTEST Spectrum Analyzer	R3271A	85060311	July 15, 2009
HP Pre_Amplifier	8449B	3008A01922	Sep. 24, 2009
ROHDE & SCHWARZ Test Receiver	ESCS30	100375	Mar. 31, 2009
SCHWARZBECK TRILOG Broadband Antenna	VULB 9168	138	April 29, 2009
Schwarzbeck Horn_Antenna	BBHA9120	D124	Dec. 16, 2008
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 27, 2009
RF Switches (ARNITSU)	CS-201	1565157	Aug. 13, 2009
RF CABLE (Chaintek)	SF102	22054-2	Dec. 06. 2008
RF Cable	8DFB	STCCAB-30M-1 GHz	Oct. 09, 2008
Software	ADT_Radiated_V 7.6.15.8	NA	NA
CHANCE MOST Antenna Tower	AT-100	0203	NA
CHANCE MOST Turn Table	TT-100	0203	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 horn antenna, HP preamplifier (model: 8449B) and Spectrum Analyzer (model: R3271A) are used only for the measurement of emission frequency above 1GHz if tested.
 3. The test was performed in ADT Open Site No. C.
 4. The FCC Site Registration No. is 656396.
 5. The VCCI Site Registration No. is R-1626.
 6. The CANADA Site Registration No. is IC 3789C-3.



4.2.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

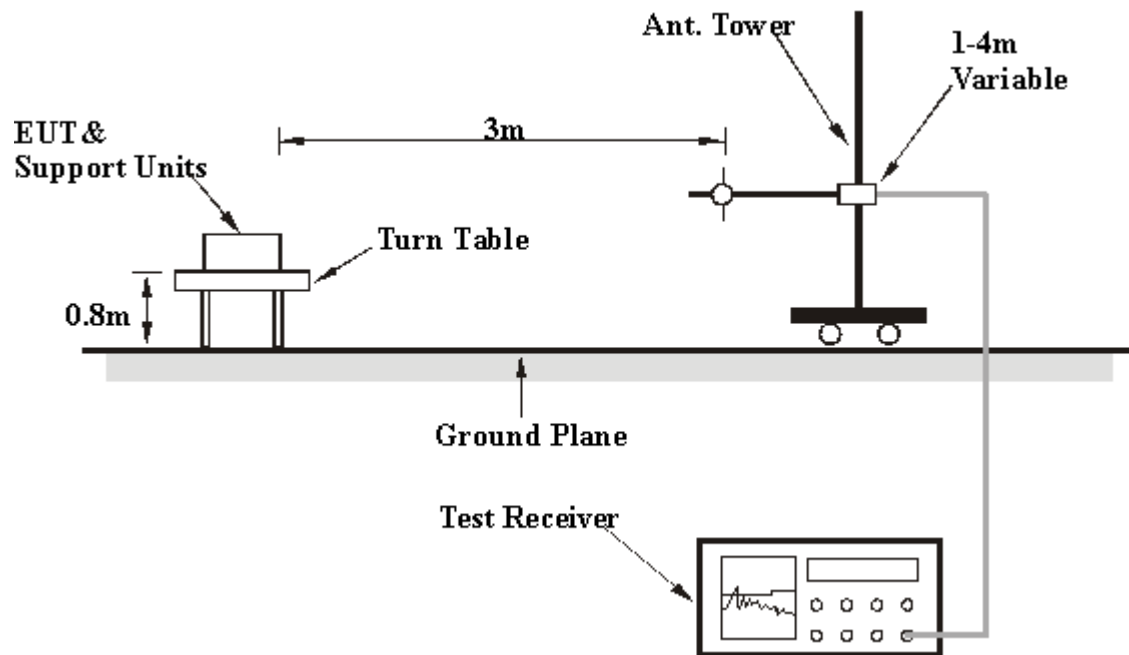
NOTE:

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 is 1MHz and video bandwidth of test receiver/spectrum analyzer 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.

4.2.4 DEVIATION FROM TEST STANDARD

No deviation

4.2.5 TEST SETUP



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

4.2.6 EUT OPERATING CONDITIONS

Same as the 4.1.6



4.2.7 TEST RESULTS

BELOW 1GHz WORST-CASE DATA : 802.11b DSSS MODULATION

With USB cable mode

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 66%RH 972hPa	TESTED BY	Frank Liu

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	76.69	23.03 QP	40.00	-16.97	1.00 H	0	11.48	11.55
2	125.00	28.46 QP	43.50	-15.04	1.00 H	0	15.01	13.46
3	167.35	28.34 QP	43.50	-15.16	1.00 H	0	13.72	14.62
4	187.51	32.12 QP	43.50	-11.38	1.00 H	0	18.94	13.18
5	240.00	35.41 QP	46.00	-10.59	1.00 H	0	21.38	14.03
6	250.00	35.89 QP	46.00	-10.11	1.00 H	0	21.39	14.50
7	480.00	24.17 QP	46.00	-21.83	1.00 H	0	3.10	21.07
8	500.00	27.99 QP	46.00	-18.01	1.00 H	0	6.68	21.31
9	680.00	26.40 QP	46.00	-19.60	1.00 H	0	1.20	25.20
10	720.00	30.58 QP	46.00	-15.42	1.00 H	0	4.40	26.18

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	113.71	23.18 QP	43.50	-20.32	1.00 V	0	11.07	12.11
2	125.00	27.06 QP	43.50	-16.44	1.00 V	0	13.61	13.46
3	250.00	29.09 QP	46.00	-16.91	1.00 V	0	14.59	14.50
4	480.00	25.73 QP	46.00	-20.27	1.00 V	0	4.66	21.07
5	625.00	32.86 QP	46.00	-13.14	1.00 V	0	8.95	23.91
6	720.00	28.88 QP	46.00	-17.12	1.00 V	0	2.70	26.18
7	960.00	32.37 QP	46.00	-13.63	1.00 V	0	1.82	30.55

- 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.



With USB cradle 2

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	24deg. C, 70%RH 972hPa	TESTED BY	Max Tseng

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	120.00	31.01 QP	43.50	-12.49	2.05 H	311	18.23	12.78
2	185.00	35.74 QP	43.50	-7.76	1.88 H	198	25.39	10.35
3	200.00	32.62 QP	43.50	-10.88	1.40 H	313	22.75	9.87
4	400.00	36.86 QP	46.00	-9.14	1.50 H	96	19.57	17.29
5	500.00	35.89 QP	46.00	-10.11	1.21 H	221	15.90	19.99
6	720.00	35.17 QP	46.00	-10.83	1.35 H	72	11.26	23.91
7	960.00	37.42 QP	46.00	-8.58	1.00 H	18	8.17	29.25
8	998.61	40.73 QP	54.00	-13.27	1.00 H	312	10.51	30.22

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	60.00	31.11 QP	40.00	-8.89	1.00 V	237	25.11	6.00
2	175.25	35.71 QP	43.50	-7.79	1.00 V	340	25.26	10.45
3	185.10	38.15 QP	43.50	-5.35	1.00 V	10	27.80	10.35
4	200.00	33.59 QP	43.50	-9.91	1.00 V	130	23.72	9.87
5	500.00	36.73 QP	46.00	-9.27	1.25 V	345	16.74	19.99
6	719.98	36.17 QP	46.00	-9.83	1.48 V	209	12.26	23.91
7	960.00	35.47 QP	46.00	-10.53	1.61 V	84	6.22	29.25
8	998.67	41.65 QP	54.00	-12.35	1.41 V	154	11.42	30.23

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



802.11b DSSS MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 76%RH 972hPa	TESTED BY	Frank Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2386.90	59.49 PK	74.00	-14.51	1.65 H	262	29.44	30.05
2	2386.90	52.02 AV	54.00	-1.98	1.65 H	262	21.97	30.05
3	*2412.00	106.90 PK			1.52 H	263	76.75	30.15
4	*2412.00	101.80 AV			1.52 H	263	71.65	30.15
5	4824.00	53.70 PK	74.00	-20.30	1.49 H	315	18.24	35.46
6	4824.00	50.80 AV	54.00	-3.20	1.49 H	315	15.34	35.46
7	7236.00	53.70 PK	86.90	-33.20	1.17 H	193	11.85	41.85
8	7236.00	43.50 AV	81.80	-38.30	1.17 H	193	1.65	41.85
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2386.60	58.15 PK	74.00	-15.85	1.30 V	166	28.10	30.05
2	2386.60	49.79 AV	54.00	-4.21	1.30 V	166	19.74	30.05
3	*2412.00	103.80 PK			1.05 V	168	73.65	30.15
4	*2412.00	98.70 AV			1.05 V	168	68.55	30.15
5	4824.00	56.00 PK	74.00	-18.00	1.07 V	0	20.54	35.46
6	4824.00	52.70 AV	54.00	-1.30	1.07 V	0	17.24	35.46
7	7236.00	53.40 PK	83.80	-30.40	1.22 V	213	11.55	41.85
8	7236.00	42.50 AV	78.70	-36.20	1.22 V	213	0.65	41.85

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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 76%RH 972hPa	TESTED BY	Frank Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	106.50 PK			1.53 H	261	76.26	30.24
2	*2437.00	101.60 AV			1.53 H	261	71.36	30.24
3	4874.00	54.10 PK	74.00	-19.90	1.39 H	318	18.55	35.55
4	4874.00	50.10 AV	54.00	-3.90	1.39 H	318	14.55	35.55
5	7311.00	53.30 PK	74.00	-20.70	1.31 H	192	11.26	42.04
6	7311.00	45.20 AV	54.00	-8.80	1.31 H	192	3.16	42.04
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	104.10 PK			1.02 V	327	73.86	30.24
2	*2437.00	99.30 AV			1.02 V	327	69.06	30.24
3	4874.00	55.50 PK	74.00	-18.50	1.46 V	340	19.95	35.55
4	4874.00	52.80 AV	54.00	-1.20	1.46 V	340	17.25	35.55
5	7311.00	50.50 PK	74.00	-23.50	1.29 V	213	8.46	42.04
6	7311.00	40.40 AV	54.00	-13.60	1.29 V	213	-1.64	42.04

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



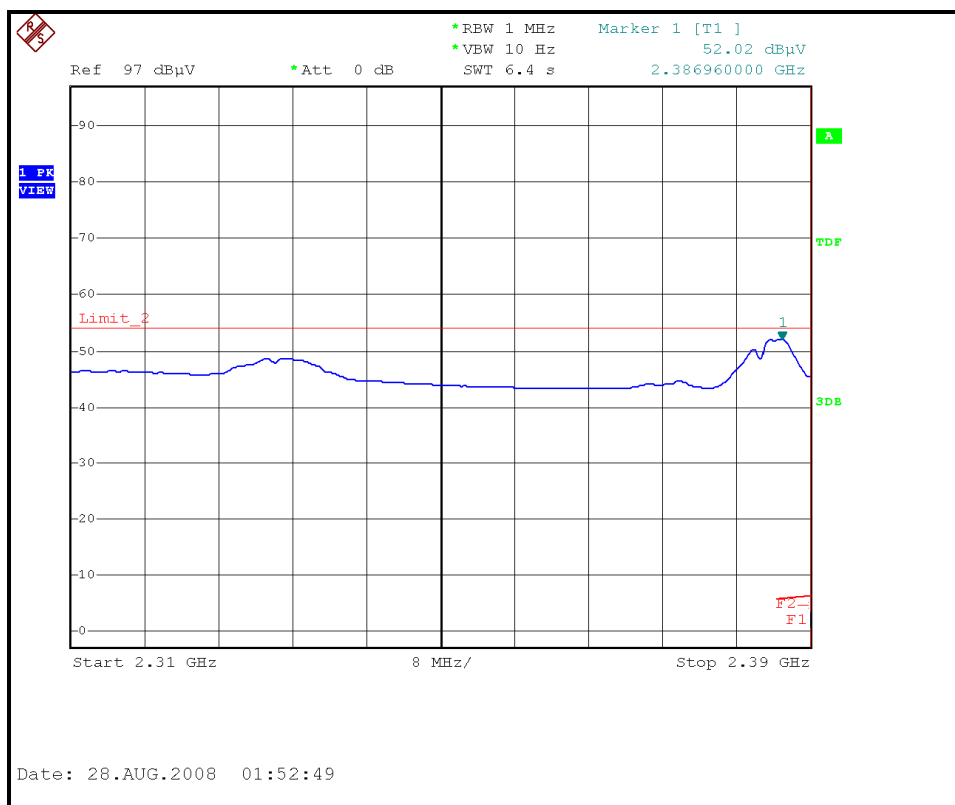
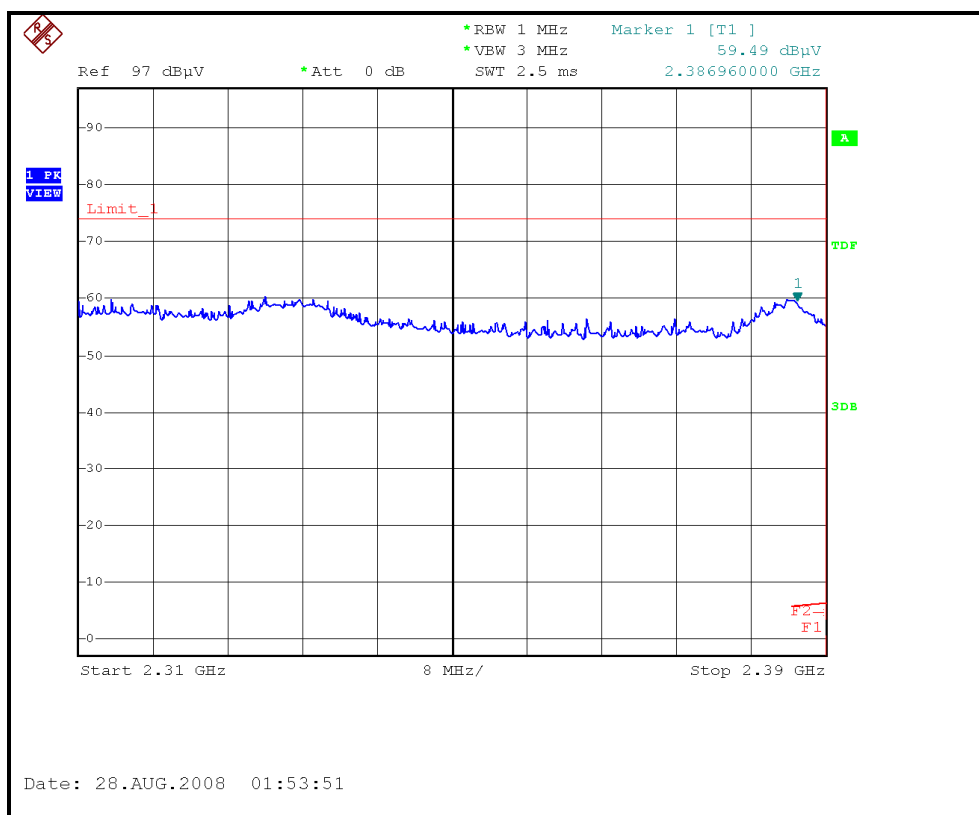
EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 76%RH 972hPa	TESTED BY	Frank Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	105.30 PK			1.52 H	258	74.96	30.34
2	*2462.00	100.40 AV			1.52 H	258	70.06	30.34
3	2488.00	54.64 PK	74.00	-19.36	1.51 H	263	24.20	30.44
4	2488.00	43.62 AV	54.00	-10.38	1.51 H	263	13.18	30.44
5	4924.00	55.20 PK	74.00	-18.80	1.01 H	295	19.57	35.63
6	4924.00	50.20 AV	54.00	-3.80	1.01 H	295	14.57	35.63
7	7386.00	56.40 PK	74.00	-17.60	4.00 H	183	14.17	42.23
8	7386.00	42.60 AV	54.00	-11.40	4.00 H	183	0.37	42.23
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	103.60 PK			1.00 V	328	73.26	30.34
2	*2462.00	98.28 AV			1.00 V	328	67.94	30.34
3	2483.50	54.44 PK	74.00	-19.56	1.00 V	328	24.01	30.43
4	2483.50	43.06 AV	54.00	-10.94	1.00 V	328	12.63	30.43
5	4924.00	56.10 PK	74.00	-17.90	1.17 V	237	20.47	35.63
6	4924.00	52.70 AV	54.00	-1.30	1.17 V	237	17.07	35.63
7	7386.00	52.00 PK	74.00	-22.00	1.00 V	214	9.77	42.23
8	7386.00	38.30 AV	54.00	-15.70	1.00 V	214	-3.93	42.23

- 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.

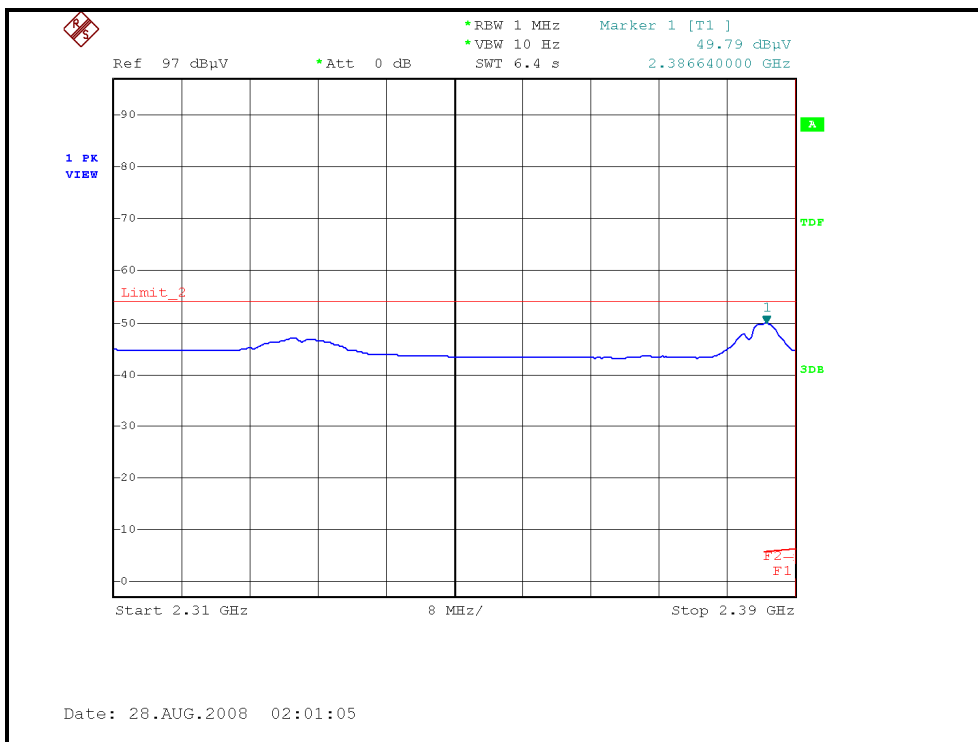
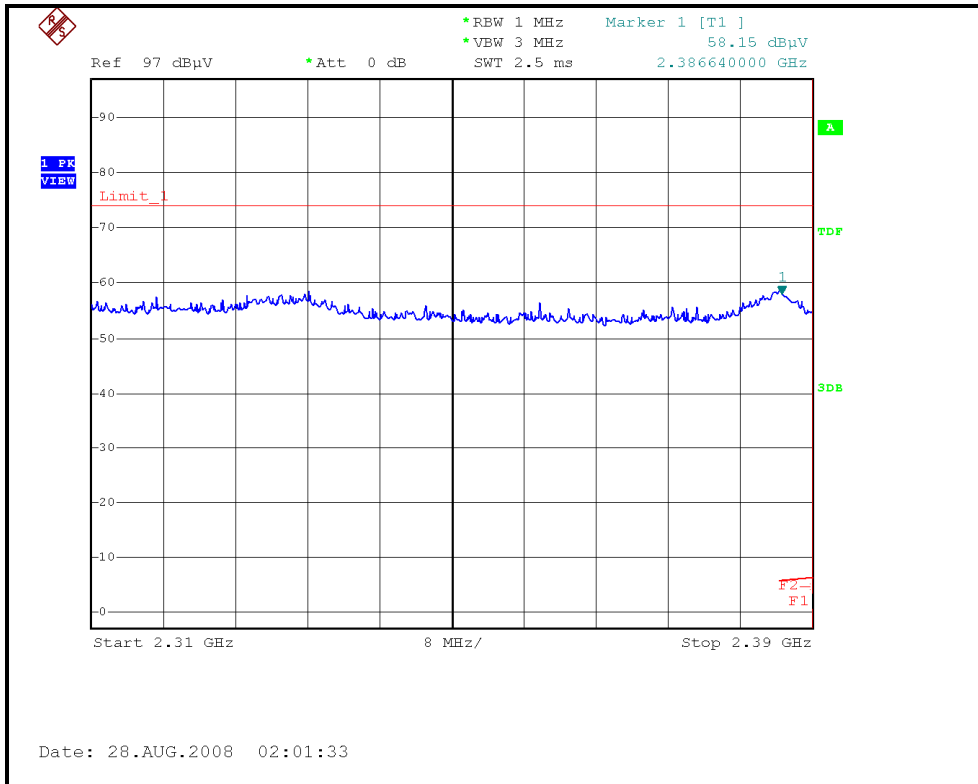


RESTRICTED BANDEDGE (802.11b MODE, CH1, HORIZONTAL)

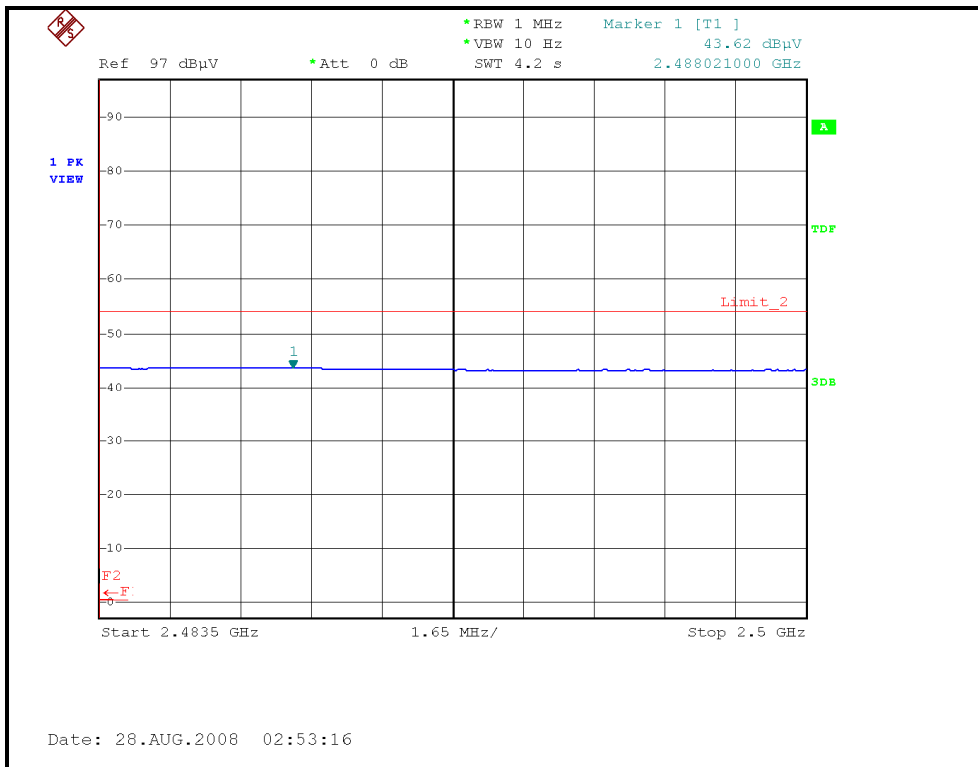
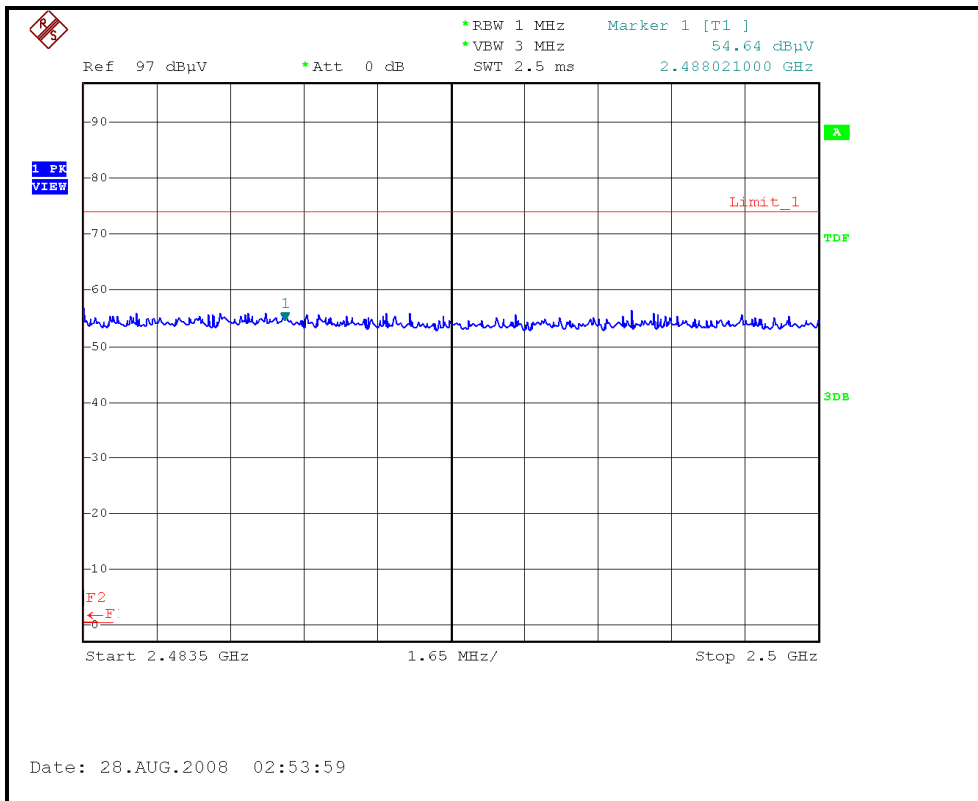




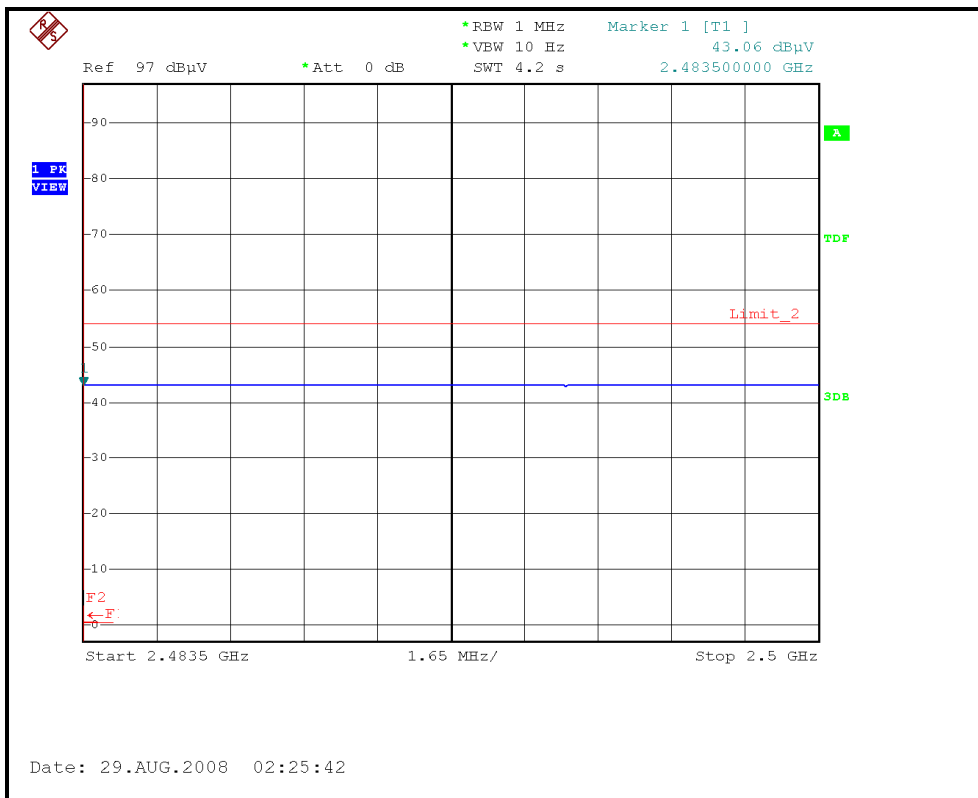
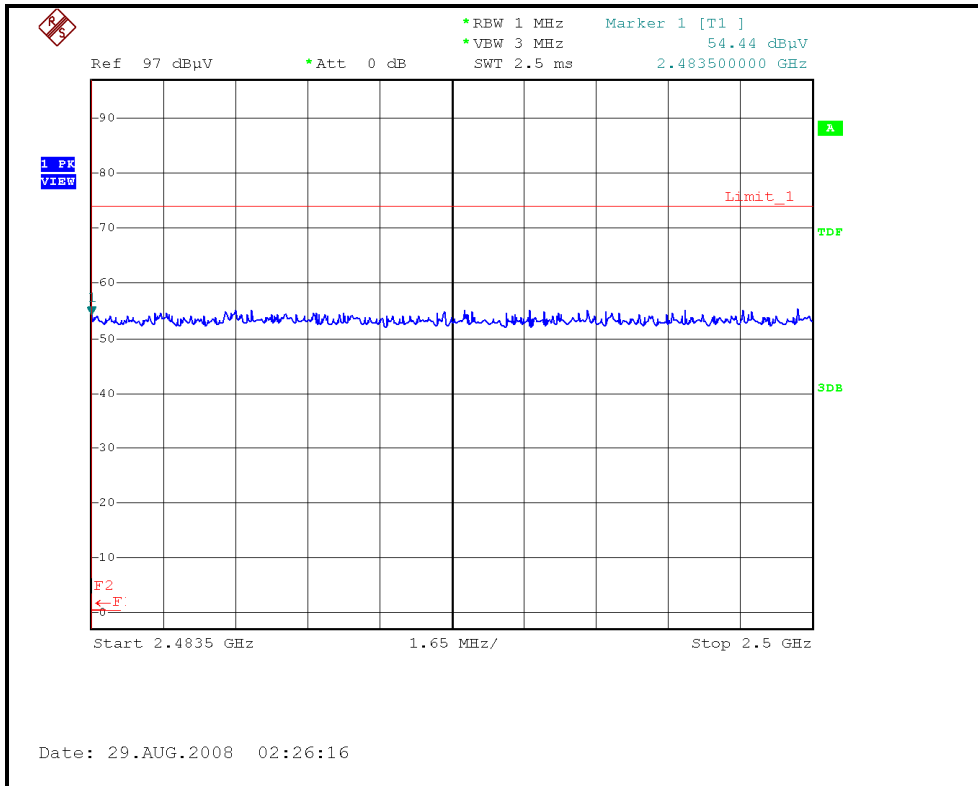
RESTRICTED BANDEDGE (802.11b MODE,CH1, VERTICAL)



RESTRICTED BANDEDGE (802.11b MODE, CH11, HORIZONTAL)



RESTRICTED BANDEDGE (802.11b MODE, CH11, VERTICAL)





802.11g OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 76%RH 972hPa	TESTED BY	Frank Liu

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	67.82 PK	74.00	-6.18	1.31 H	264	37.76	30.06
2	2390.00	50.41 AV	54.00	-3.59	1.31 H	264	20.35	30.06
3	*2412.00	109.40 PK			1.53 H	263	79.25	30.15
4	*2412.00	98.70 AV			1.53 H	263	68.55	30.15
5	4824.00	49.90 PK	74.00	-24.10	1.45 H	52	14.44	35.46
6	4824.00	36.70 AV	54.00	-17.30	1.45 H	52	1.24	35.46
7	7236.00	53.40 PK	89.40	-36.00	1.37 H	327	11.55	41.85
8	7236.00	38.60 AV	78.70	-40.10	1.37 H	327	-3.25	41.85
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	65.47 PK	74.00	-8.53	1.00 V	325	35.41	30.06
2	2390.00	48.51 AV	54.00	-5.49	1.00 V	325	18.45	30.06
3	*2412.00	105.80 PK			1.04 V	329	75.65	30.15
4	*2412.00	95.10 AV			1.04 V	329	64.95	30.15
5	4824.00	49.70 PK	74.00	-24.30	1.04 V	0	14.24	35.46
6	4824.00	36.30 AV	54.00	-17.70	1.04 V	0	0.84	35.46
7	7236.00	53.60 PK	85.80	-32.20	1.19 V	4	11.75	41.85
8	7236.00	39.30 AV	75.10	-35.80	1.19 V	4	-2.55	41.85

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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 76%RH 972hPa	TESTED BY	Frank Liu

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	108.90 PK			1.52 H	258	78.66	30.24
2	*2437.00	98.30 AV			1.52 H	258	68.06	30.24
3	4874.00	49.70 PK	74.00	-24.30	1.42 H	44	14.15	35.55
4	4874.00	36.60 AV	54.00	-17.40	1.42 H	44	1.05	35.55
5	7311.00	52.90 PK	74.00	-21.10	1.33 H	329	10.86	42.04
6	7311.00	37.50 AV	54.00	-16.50	1.33 H	329	-4.54	42.04
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	105.60 PK			1.04 V	329	75.36	30.24
2	*2437.00	94.80 AV			1.04 V	329	64.56	30.24
3	4874.00	49.20 PK	74.00	-24.80	1.03 V	19	13.65	35.55
4	4874.00	36.10 AV	54.00	-17.90	1.03 V	19	0.55	35.55
5	7311.00	53.20 PK	74.00	-20.80	1.21 V	2	11.16	42.04
6	7311.00	38.80 AV	54.00	-15.20	1.21 V	2	-3.24	42.04

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



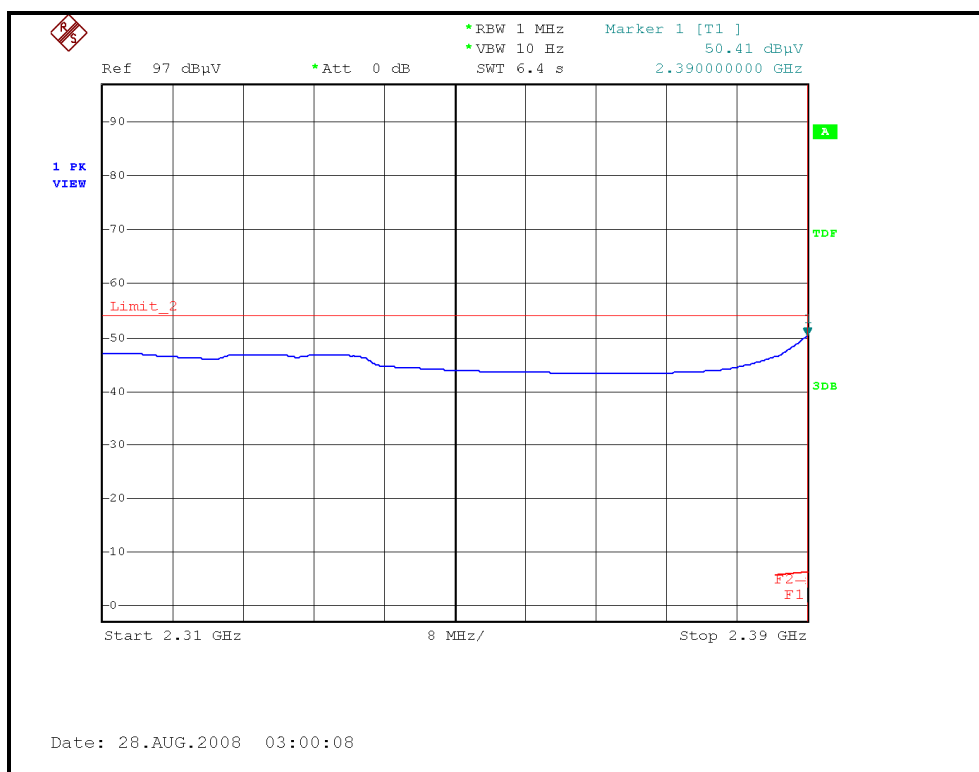
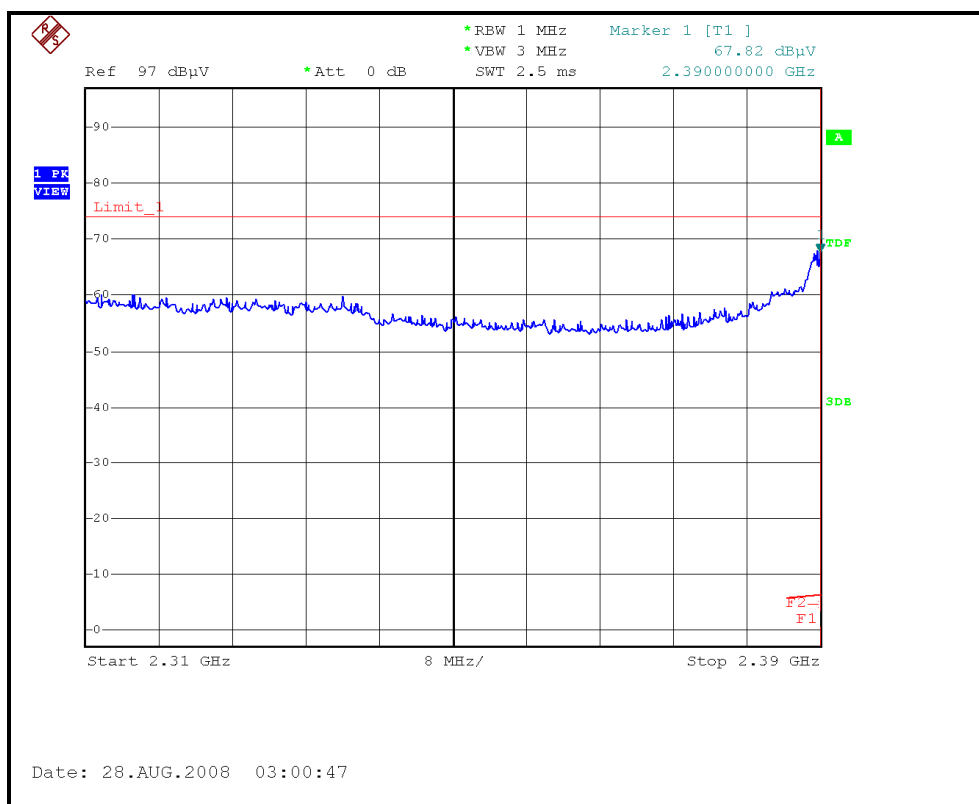
EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 76%RH 972hPa	TESTED BY	Frank Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	108.64 PK			1.53 H	258	78.30	30.34
2	*2462.00	98.30 AV			1.53 H	258	67.96	30.34
3	2483.50	69.74 PK	74.00	-4.26	1.53 H	258	39.31	30.43
4	2483.50	53.31 AV	54.00	-0.69	1.53 H	258	22.88	30.43
5	4924.00	48.10 PK	74.00	-25.90	1.44 H	34	12.47	35.63
6	4924.00	35.20 AV	54.00	-18.80	1.44 H	34	-0.43	35.63
7	7386.00	51.40 PK	74.00	-22.60	1.33 H	328	9.17	42.23
8	7386.00	36.30 AV	54.00	-17.70	1.33 H	328	-5.93	42.23
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	104.70 PK			1.00 V	329	74.36	30.34
2	*2462.00	94.10 AV			1.00 V	329	63.76	30.34
3	2483.50	64.19 PK	74.00	-9.81	1.00 V	322	33.76	30.43
4	2483.50	48.52 AV	54.00	-5.48	1.00 V	322	18.09	30.43
5	4924.00	48.30 PK	74.00	-25.70	1.00 V	10	12.67	35.63
6	4924.00	35.10 AV	54.00	-18.90	1.00 V	10	-0.53	35.63
7	7386.00	52.10 PK	74.00	-21.90	1.21 V	3	9.87	42.23
8	7386.00	37.20 AV	54.00	-16.80	1.21 V	3	-5.03	42.23

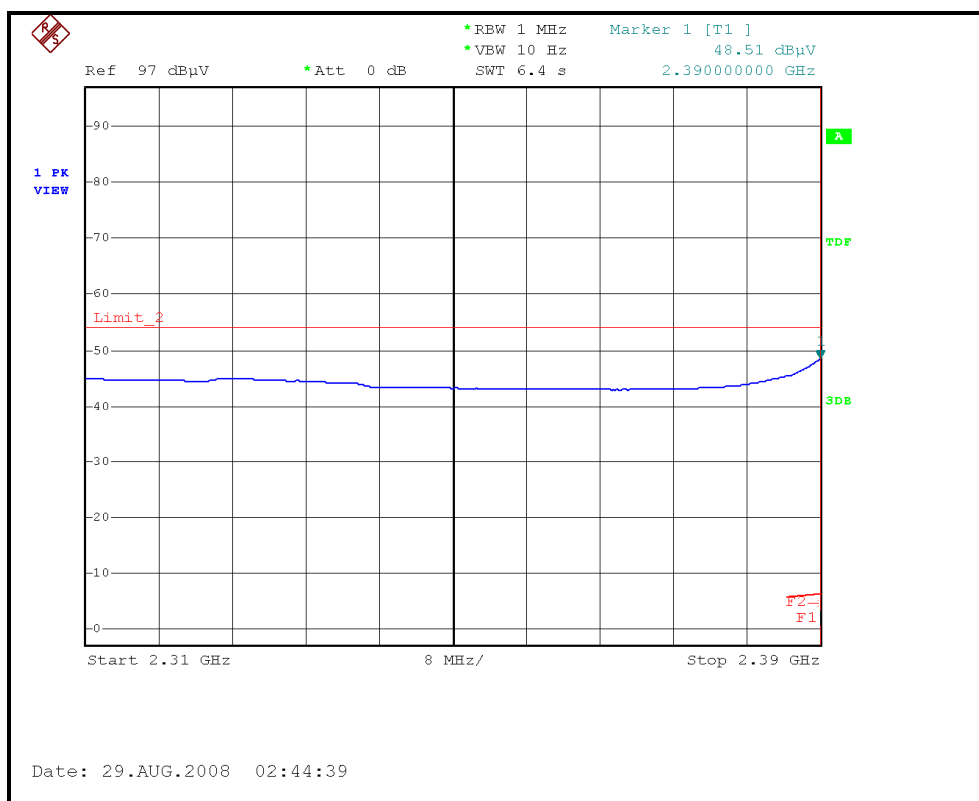
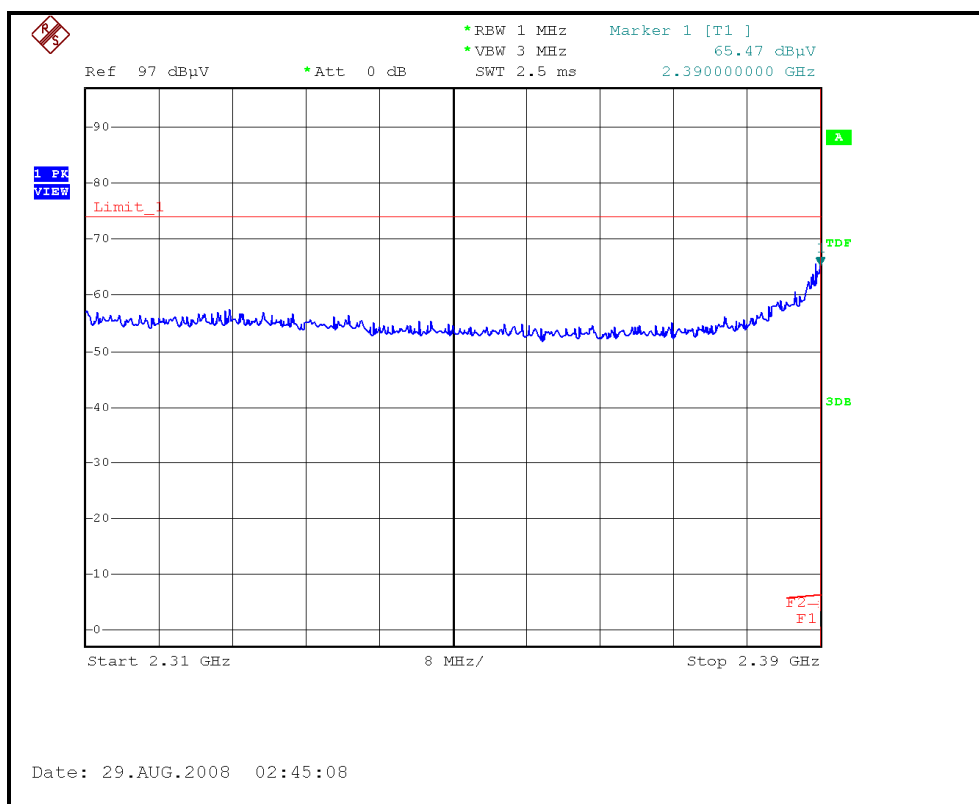
- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.



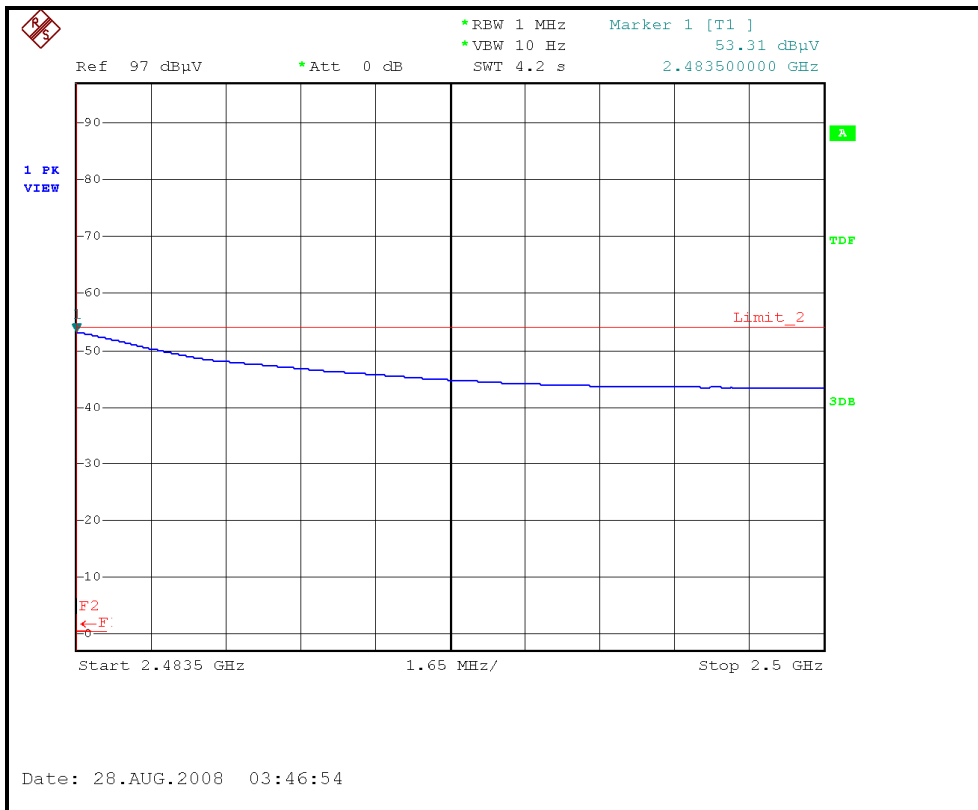
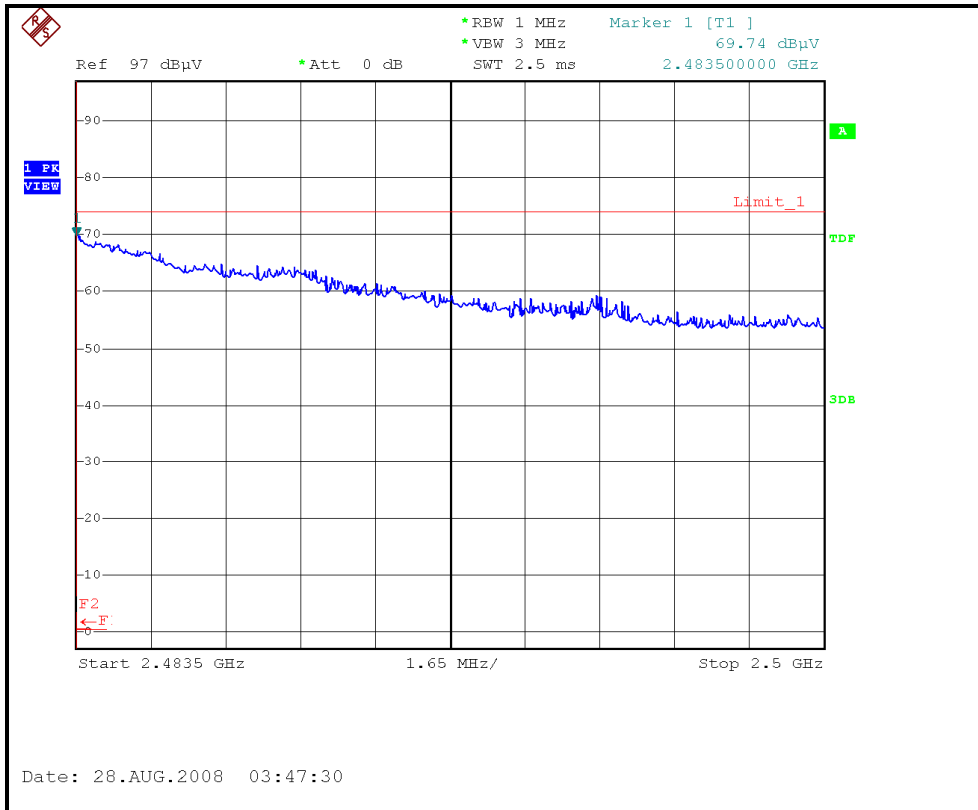
RESTRICTED BANDEDGE (802.11g MODE, CH1, HORIZONTAL)



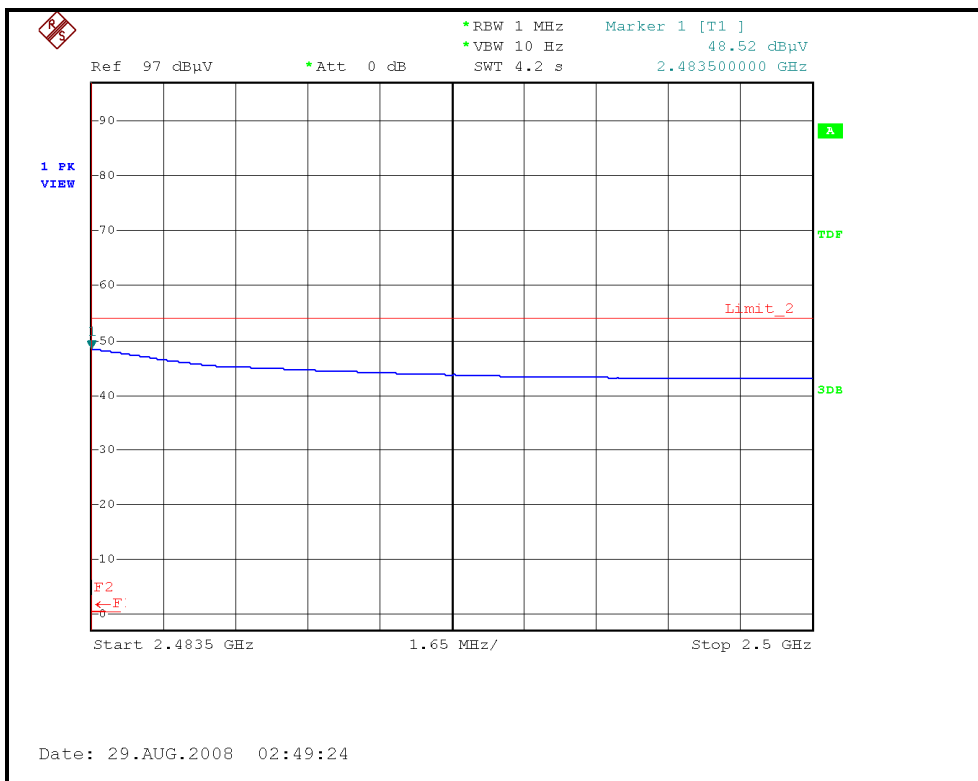
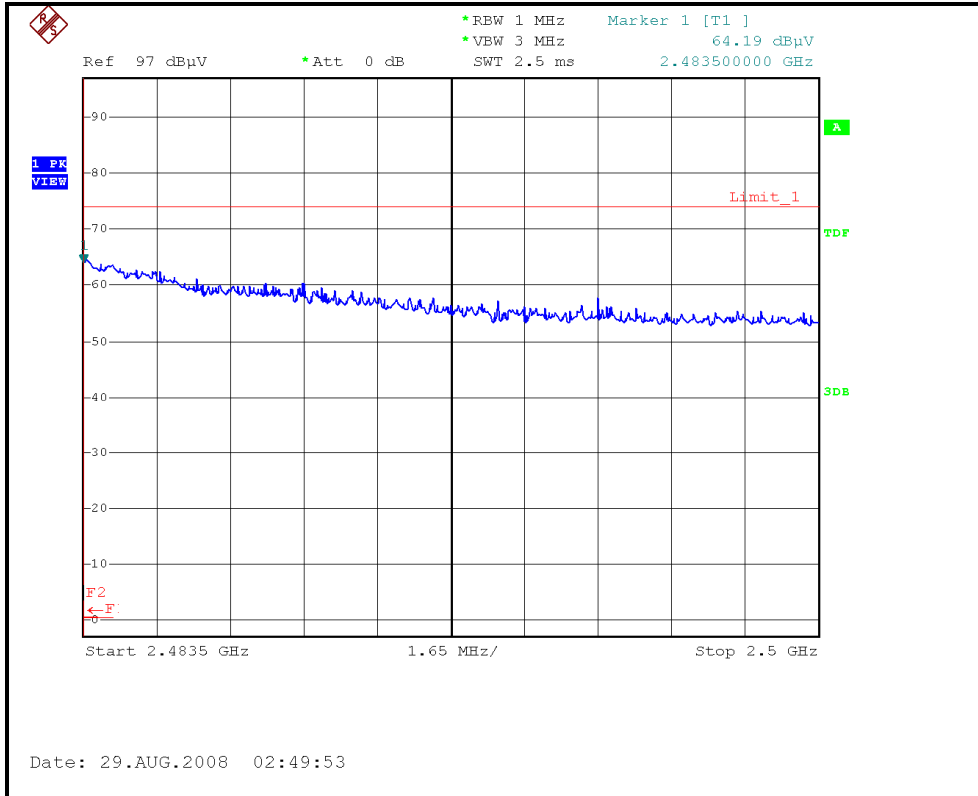
RESTRICTED BANDEDGE (802.11g MODE, CH1, VERTICAL)



RESTRICTED BANDEDGE (802.11g MODE, CH11, HORIZONTAL)



RESTRICTED BANDEDGE (802.11g MODE,CH11, VERTICAL)





DRAFT 802.11n (20MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 76%RH 972hPa	TESTED BY	Frank Liu

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	73.40 PK	74.00	-0.60	1.62 H	265	43.34	30.06
2	2390.00	50.79 AV	54.00	-3.21	1.62 H	265	20.73	30.06
3	*2412.00	108.10 PK			1.52 H	261	77.95	30.15
4	*2412.00	97.80 AV			1.52 H	261	67.65	30.15
5	4824.00	52.50 PK	74.00	-21.50	1.27 H	84	17.04	35.46
6	4824.00	37.60 AV	54.00	-16.40	1.27 H	84	2.14	35.46
7	7236.00	53.60 PK	88.10	-34.50	1.40 H	324	11.75	41.85
8	7236.00	38.30 AV	77.80	-39.50	1.40 H	324	-3.55	41.85
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	69.00 PK	74.00	-5.00	1.00 V	327	38.94	30.06
2	2390.00	49.42 AV	54.00	-4.58	1.00 V	327	19.36	30.06
3	*2412.00	105.24 PK			1.03 V	328	75.09	30.15
4	*2412.00	94.56 AV			1.03 V	328	64.41	30.15
5	4824.00	55.00 PK	74.00	-19.00	1.09 V	339	19.54	35.46
6	4824.00	39.10 AV	54.00	-14.90	1.09 V	339	3.64	35.46
7	7236.00	48.70 PK	85.24	-36.54	1.17 V	339	6.85	41.85
8	7236.00	35.20 AV	74.56	-39.36	1.17 V	339	-6.65	41.85

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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 76%RH 972hPa	TESTED BY	Frank Liu

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	108.70 PK			1.52 H	258	78.46	30.24
2	*2437.00	97.60 AV			1.52 H	258	67.36	30.24
3	4874.00	51.40 PK	74.00	-22.60	1.29 H	74	15.85	35.55
4	4874.00	36.30 AV	54.00	-17.70	1.29 H	74	0.75	35.55
5	7311.00	53.20 PK	74.00	-20.80	1.35 H	303	11.16	42.04
6	7311.00	38.10 AV	54.00	-15.90	1.35 H	303	-3.94	42.04
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	106.00 PK			1.03 V	330	75.76	30.24
2	*2437.00	94.60 AV			1.03 V	330	64.36	30.24
3	4874.00	54.30 PK	74.00	-19.70	1.08 V	326	18.75	35.55
4	4874.00	38.20 AV	54.00	-15.80	1.08 V	326	2.65	35.55
5	7311.00	47.60 PK	74.00	-26.40	1.21 V	327	5.56	42.04
6	7311.00	34.50 AV	54.00	-19.50	1.21 V	327	-7.54	42.04

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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 76%RH 972hPa	TESTED BY	Frank Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

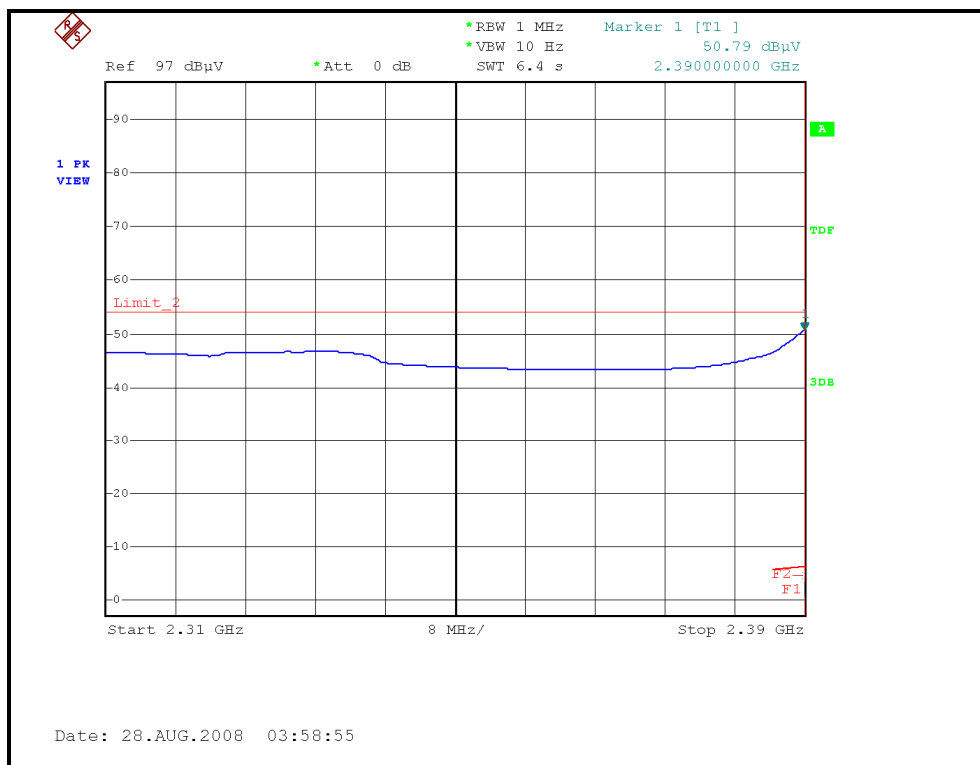
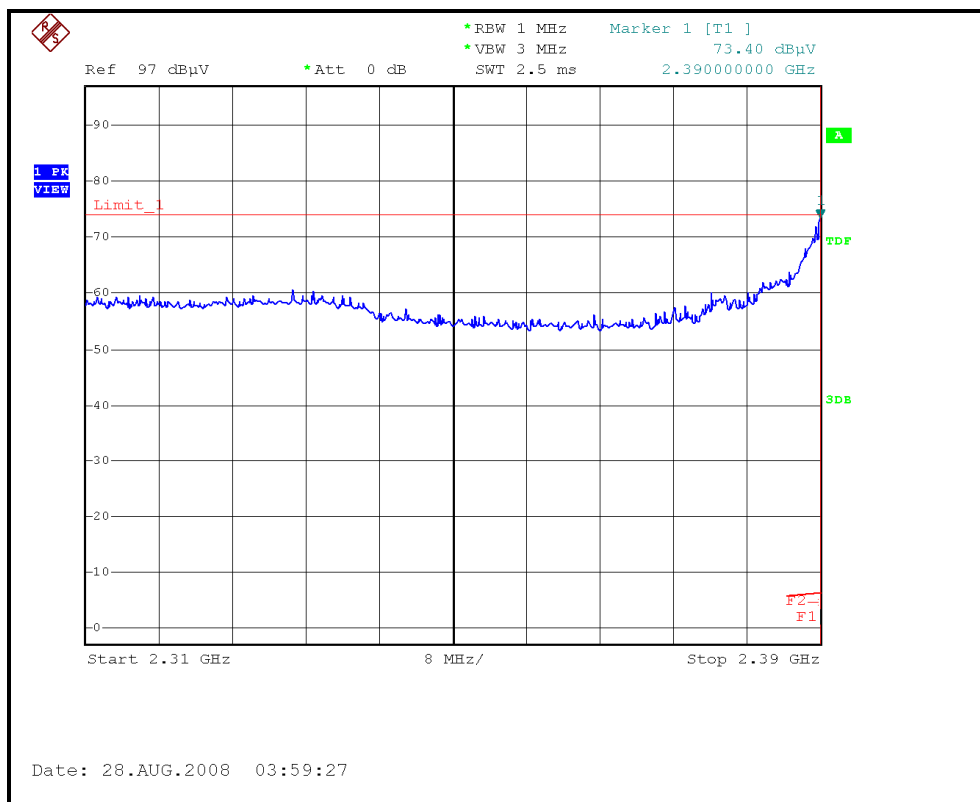
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	108.90 PK			1.53 H	257	78.56	30.34
2	*2462.00	96.90 AV			1.53 H	257	66.56	30.34
3	2483.50	72.59 PK	74.00	-1.41	1.53 H	258	42.16	30.43
4	2483.50	52.51 AV	54.00	-1.49	1.53 H	258	22.08	30.43
5	4924.00	50.20 PK	74.00	-23.80	1.26 H	89	14.57	35.63
6	4924.00	35.10 AV	54.00	-18.90	1.26 H	89	-0.53	35.63
7	7386.00	51.40 PK	74.00	-22.60	1.39 H	312	9.17	42.23
8	7386.00	36.50 AV	54.00	-17.50	1.39 H	312	-5.73	42.23

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	104.20 PK			1.00 V	328	73.86	30.34
2	*2462.00	93.40 AV			1.00 V	328	63.06	30.34
3	2483.50	66.47 PK	74.00	-7.53	1.00 V	319	36.04	30.43
4	2483.50	48.50 AV	54.00	-5.50	1.00 V	319	18.07	30.43
5	4924.00	53.10 PK	74.00	-20.90	1.09 V	331	17.47	35.63
6	4924.00	36.30 AV	54.00	-17.70	1.09 V	331	0.67	35.63
7	7386.00	45.30 PK	74.00	-28.70	1.22 V	325	3.07	42.23
8	7386.00	32.10 AV	54.00	-21.90	1.22 V	325	-10.13	42.23

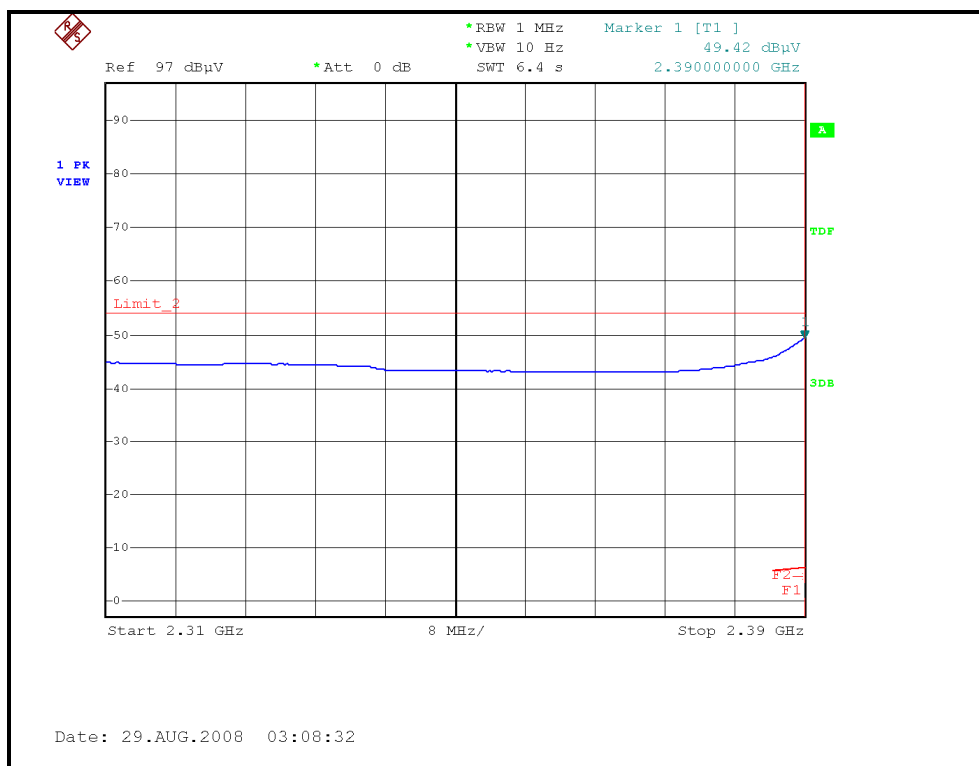
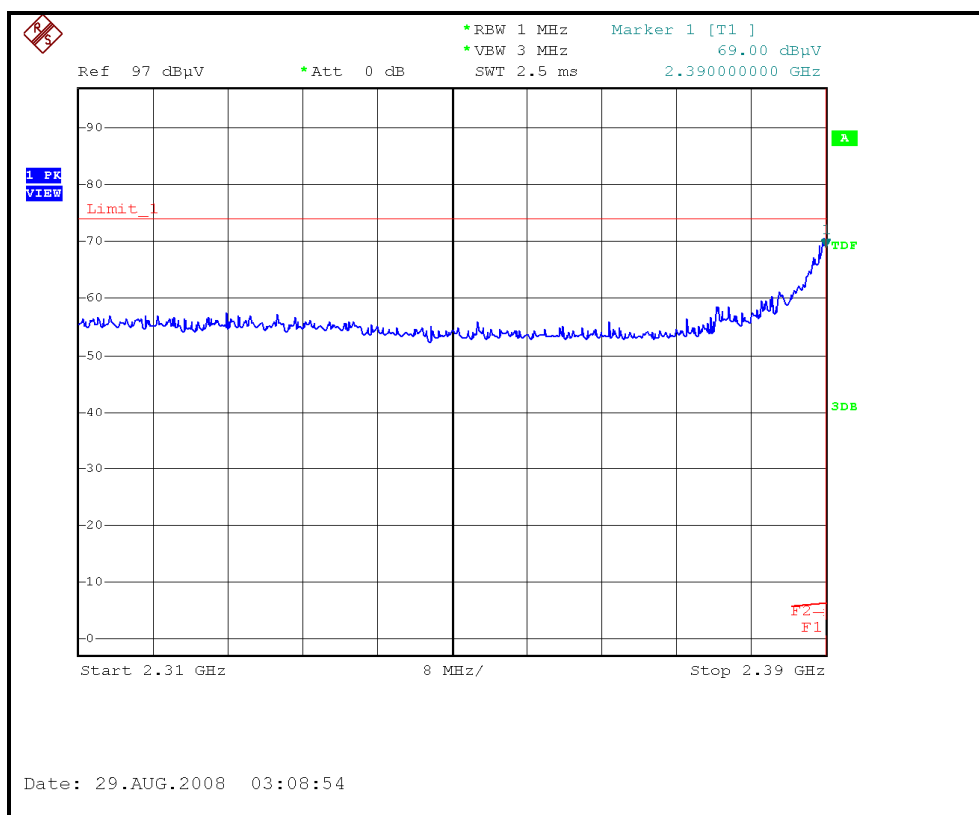
- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.

RESTRICTED BANDEDGE (DRAFT 802.11n (20MHz) MODE, CH1, HORIZONTAL)



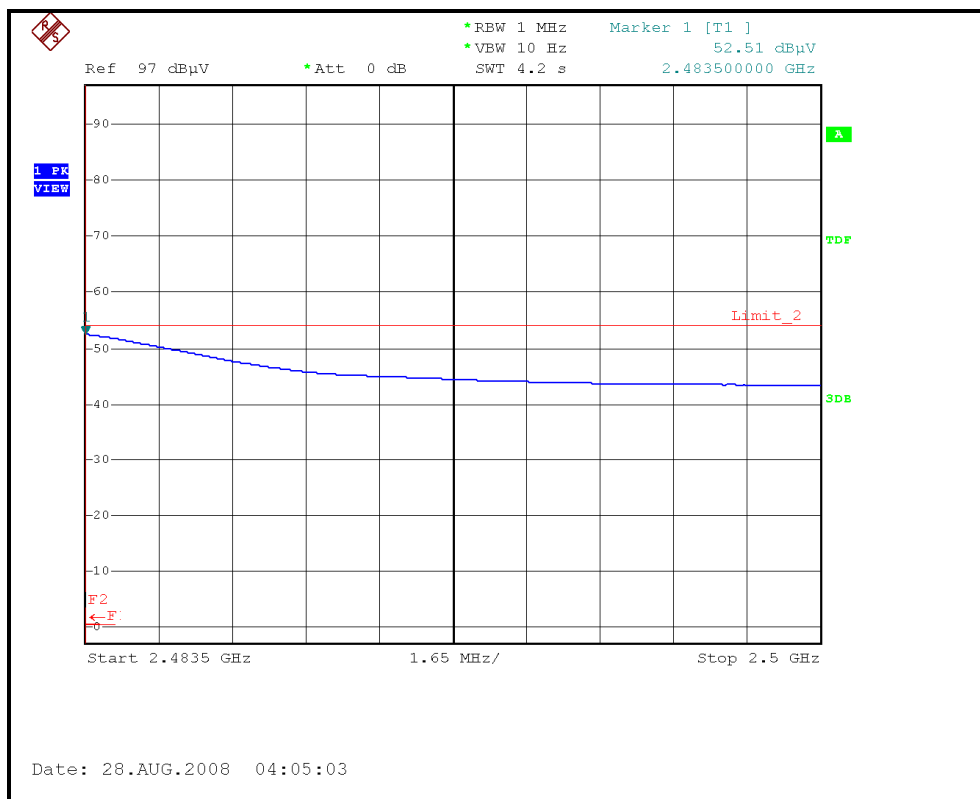
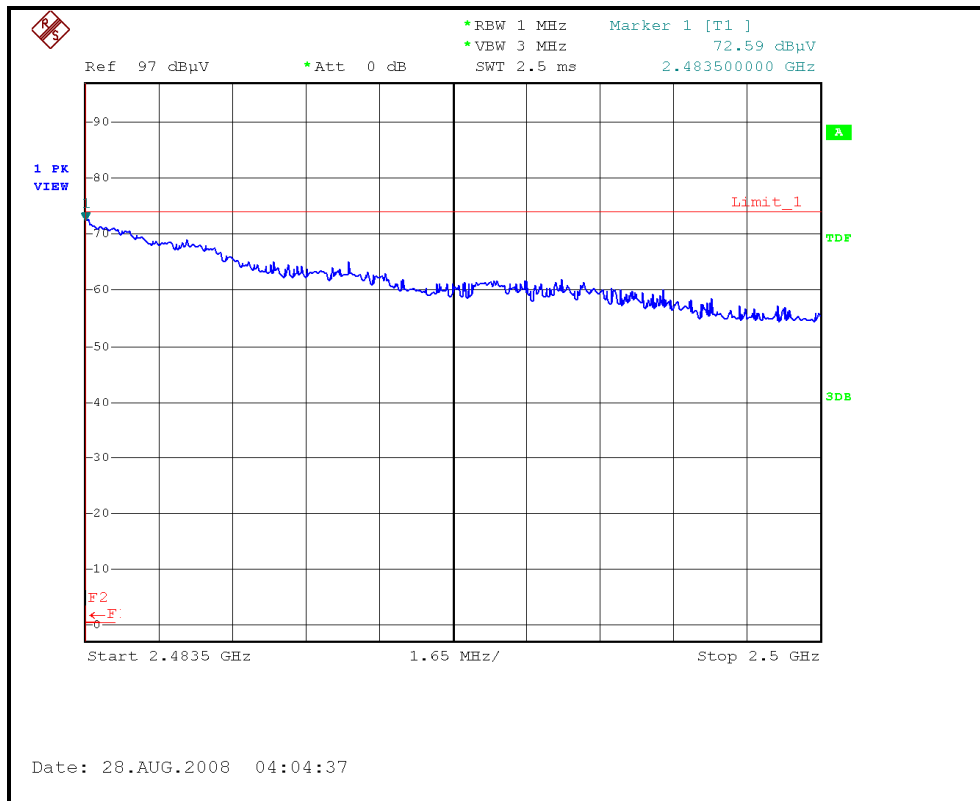


RESTRICTED BANDEDGE (DRAFT 802.11n (20MHz) MODE,CH1, VERTICAL)



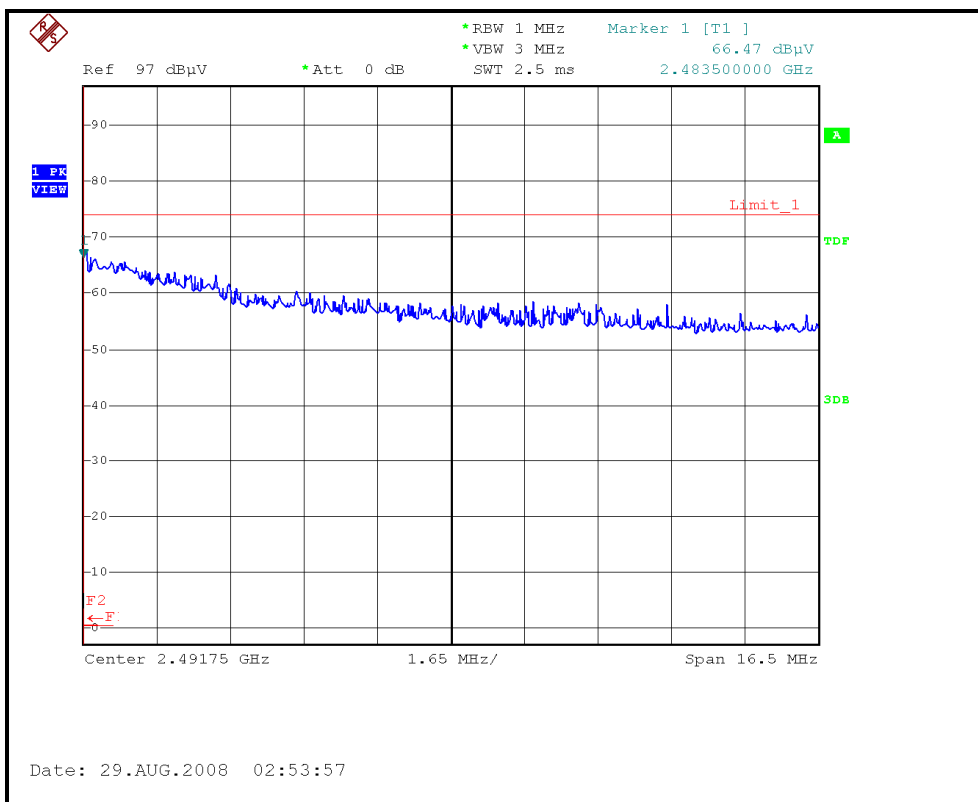


RESTRICTED BANDEDGE (DRAFT 802.11n (20MHz) MODE, CH11, HORIZONTAL)





RESTRICTED BANDEDGE (DRAFT 802.11n (20MHz) MODE,CH11, VERTICAL)





DRAFT 802.11n (40MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 76%RH 972hPa	TESTED BY	Frank Liu

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	67.90 PK	74.00	-6.10	1.61 H	261	37.84	30.06
2	2390.00	53.02 AV	54.00	-0.98	1.61 H	261	22.96	30.06
3	*2422.00	106.50 PK			1.52 H	260	76.31	30.19
4	*2422.00	95.95 AV			1.52 H	260	65.76	30.19
5	4844.00	47.40 PK	74.00	-26.60	1.37 H	64	11.90	35.50
6	4844.00	34.60 AV	54.00	-19.40	1.37 H	64	-0.90	35.50
7	7256.00	53.20 PK	74.00	-20.80	1.36 H	312	11.29	41.91
8	7256.00	38.40 AV	54.00	-15.60	1.36 H	312	-3.51	41.91

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	2389.50	62.79 PK	74.00	-11.21	1.04 V	328	32.73	30.06
2	2389.50	48.95 AV	54.00	-5.05	1.04 V	328	18.89	30.06
3	*2422.00	100.10 PK			1.02 V	329	69.95	30.15
4	*2422.00	89.40 AV			1.02 V	329	59.25	30.15
5	4844.00	46.70 PK	74.00	-27.30	1.04 V	338	11.20	35.50
6	4844.00	34.20 AV	54.00	-19.80	1.04 V	338	-1.30	35.50
7	7256.00	50.80 PK	74.00	-23.20	1.10 V	326	8.89	41.91
8	7256.00	37.80 AV	54.00	-16.20	1.10 V	326	-4.11	41.91

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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 4	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 76%RH 972hPa	TESTED BY	Frank Liu

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	104.90 PK			1.52 H	259	74.66	30.24
2	*2437.00	94.50 AV			1.52 H	259	64.26	30.24
3	2483.50	70.74 PK	74.00	-3.26	1.53 H	257	40.31	30.43
4	2483.50	52.50 AV	54.00	-1.50	1.53 H	257	22.07	30.43
5	4874.00	49.20 PK	74.00	-24.80	1.26 H	57	13.65	35.55
6	4874.00	36.90 AV	54.00	-17.10	1.26 H	57	1.35	35.55
7	7311.00	54.60 PK	74.00	-19.40	1.34 H	298	12.56	42.04
8	7311.00	39.20 AV	54.00	-14.80	1.34 H	298	-2.84	42.04
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	100.60 PK			1.03 V	328	70.36	30.24
2	*2437.00	89.80 AV			1.03 V	328	59.56	30.24
3	2483.50	62.32 PK	74.00	-11.68	1.03 V	328	31.89	30.43
4	2483.50	46.33 AV	54.00	-7.67	1.03 V	328	15.90	30.43
5	4874.00	47.60 PK	74.00	-26.40	1.05 V	326	12.05	35.55
6	4874.00	36.10 AV	54.00	-17.90	1.05 V	326	0.55	35.55
7	7311.00	51.40 PK	74.00	-22.60	1.07 V	331	9.36	42.04
8	7311.00	38.20 AV	54.00	-15.80	1.07 V	331	-3.84	42.04

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

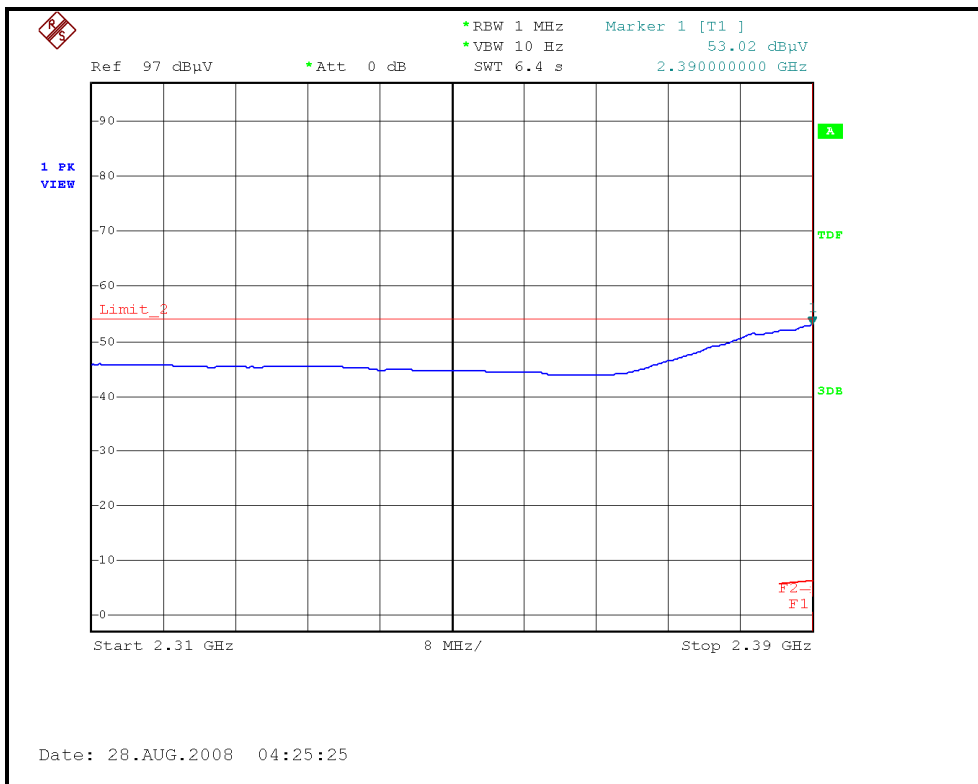
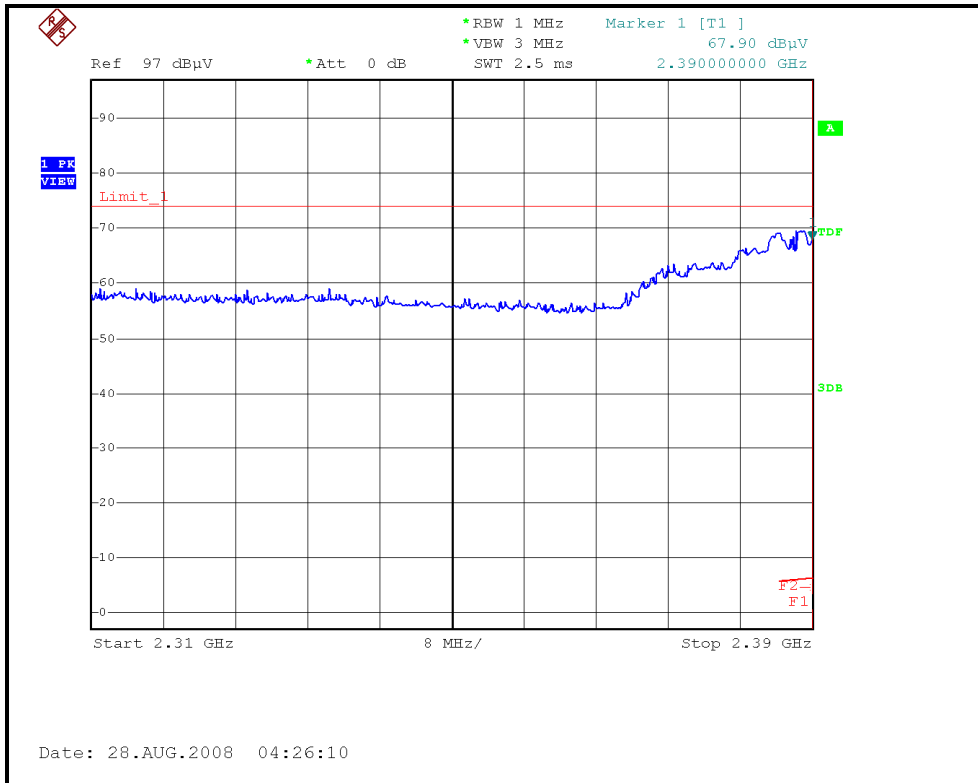


EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 7	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 76%RH 972hPa	TESTED BY	Frank Liu

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	103.30 PK			1.52 H	261	73.00	30.30
2	*2452.00	92.70 AV			1.52 H	261	62.40	30.30
3	2483.70	65.75 PK	74.00	-8.25	1.52 H	256	35.32	30.43
4	2483.70	52.71 AV	54.00	-1.29	1.52 H	256	22.28	30.43
5	4904.00	46.30 PK	74.00	-27.70	1.36 H	29	10.70	35.60
6	4904.00	33.20 AV	54.00	-20.80	1.36 H	29	-2.40	35.60
7	7356.00	52.90 PK	74.00	-21.10	1.34 H	286	10.74	42.16
8	7356.00	37.60 AV	54.00	-16.40	1.34 H	286	-4.56	42.16
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	98.20 PK			1.00 V	325	67.90	30.30
2	*2452.00	87.70 AV			1.00 V	325	57.40	30.30
3	2483.50	60.17 PK	74.00	-13.83	1.00 V	323	29.74	30.43
4	2483.50	47.66 AV	54.00	-6.34	1.00 V	323	17.23	30.43
5	4904.00	45.60 PK	74.00	-28.40	1.01 V	343	10.00	35.60
6	4904.00	33.40 AV	54.00	-20.60	1.01 V	343	-2.20	35.60
7	7356.00	49.20 PK	74.00	-24.80	1.10 V	342	7.04	42.16
8	7356.00	36.30 AV	54.00	-17.70	1.10 V	342	-5.86	42.16

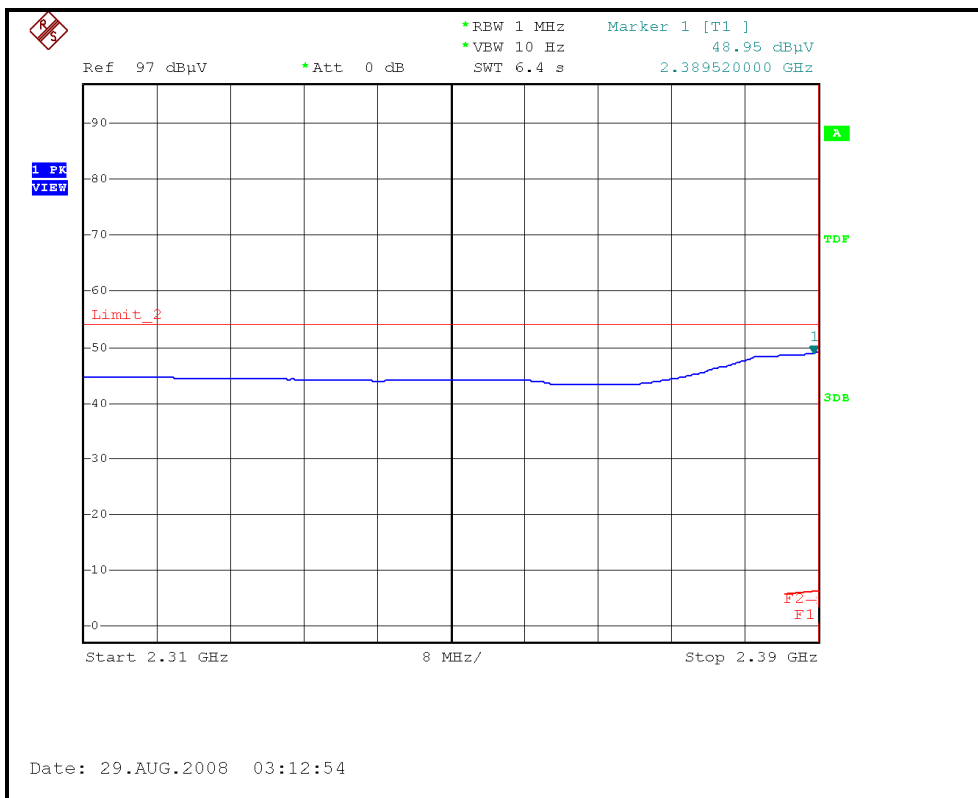
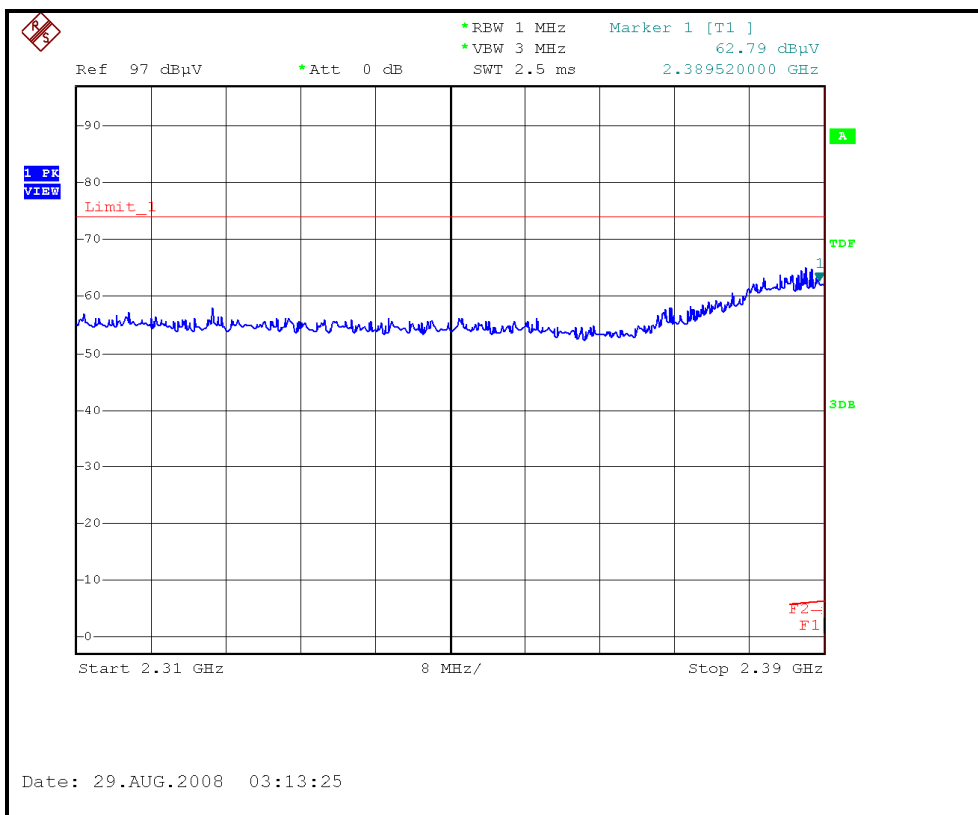
- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.

RESTRICTED BANDEDGE (DRAFT 802.11n (40MHz) MODE, CH1, HORIZONTAL)



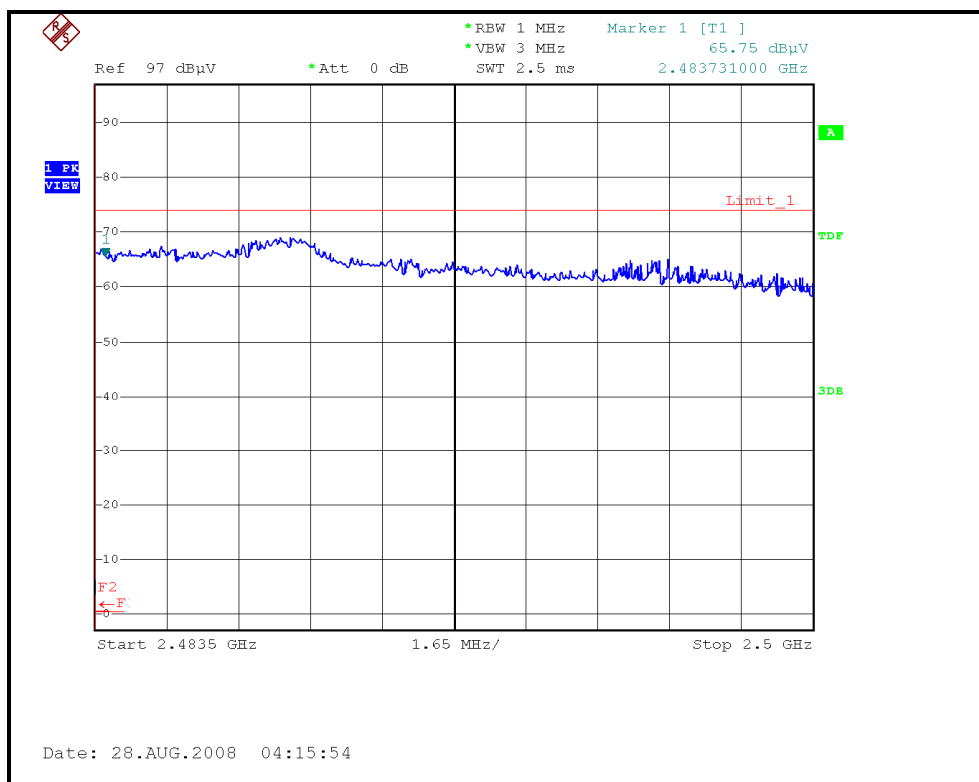
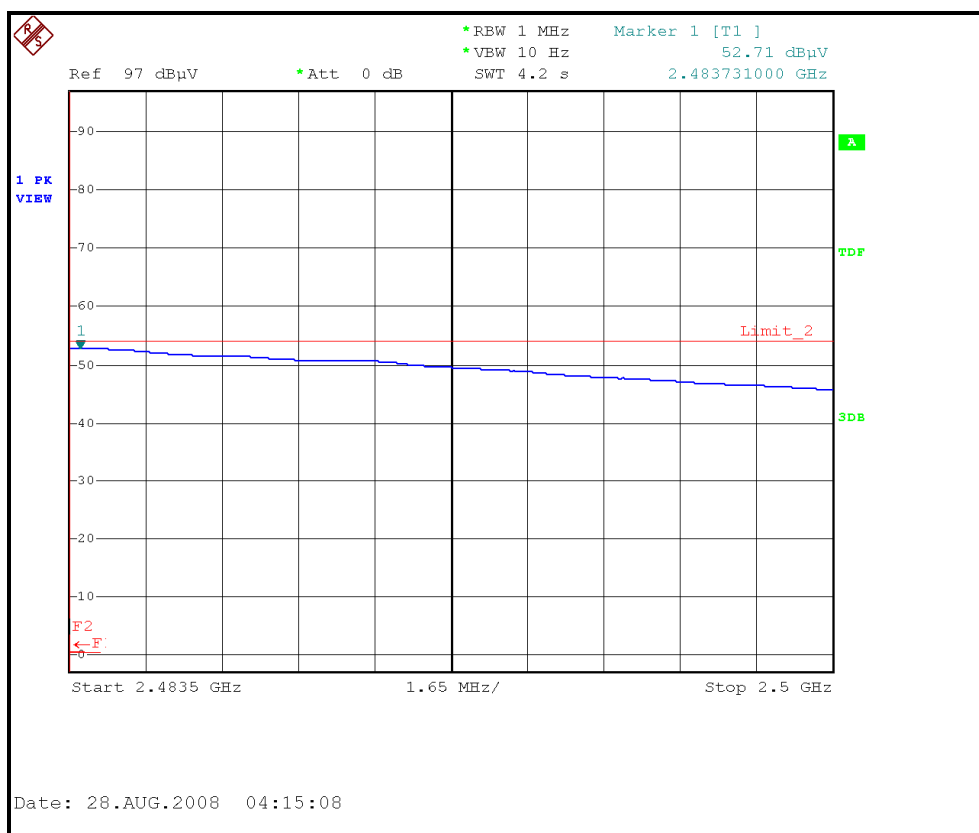


RESTRICTED BANDEDGE (DRAFT 802.11n (40MHz) MODE,CH1, VERTICAL)

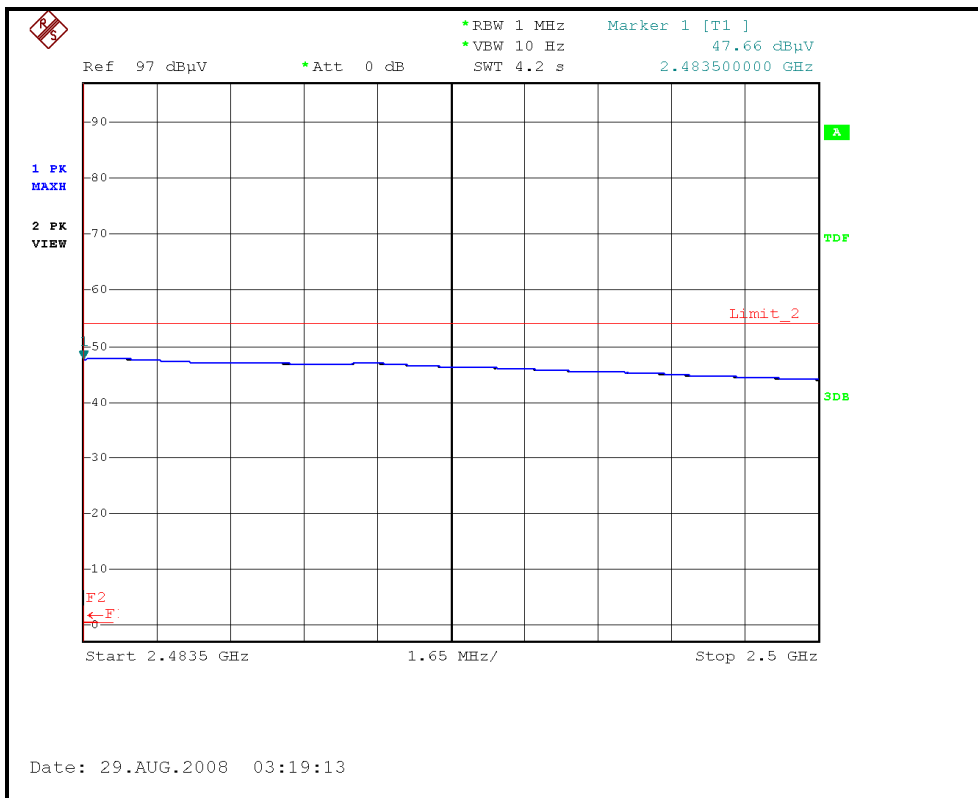
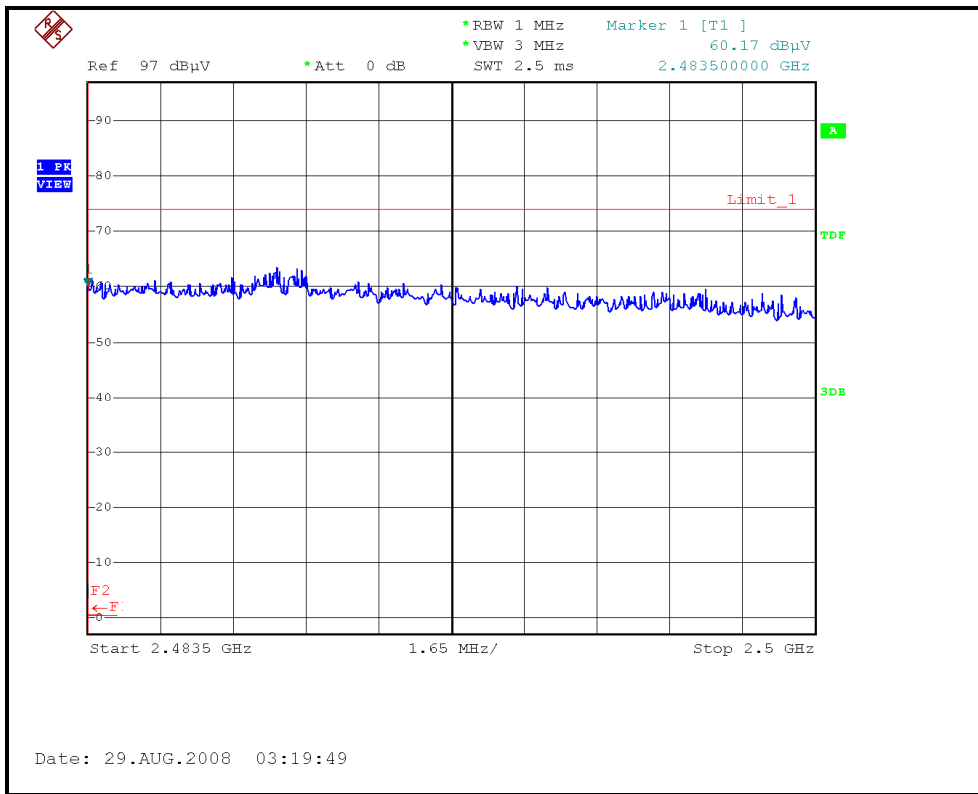




RESTRICTED BANDEDGE (DRAFT 802.11n (40MHz) MODE, CH7, HORIZONTAL)



RESTRICTED BANDEDGE (DRAFT 802.11n (40MHz) MODE, CH7, VERTICAL)





4.3 6dB BANDWIDTH MEASUREMENT

4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSP40	100036	Dec. 17, 2008

NOTE:

- 1.The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
- 2.The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

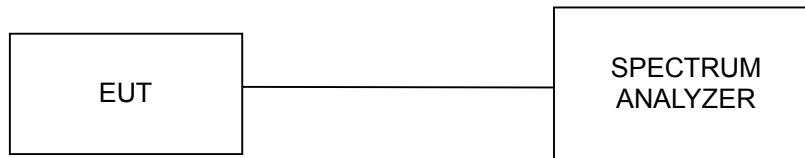
4.3.3 TEST PROCEDURE

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.

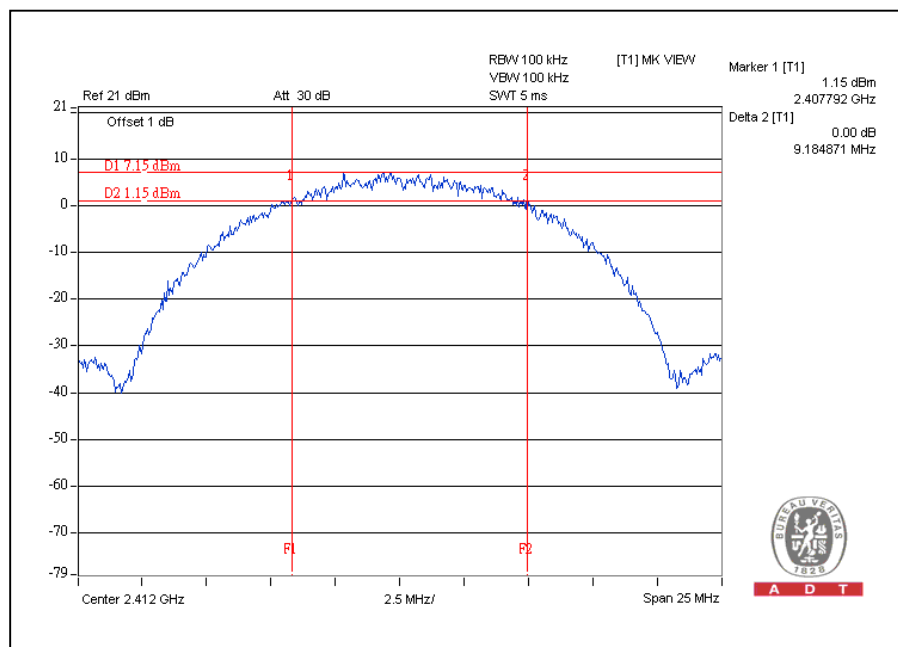
4.3.7 TEST RESULTS

802.11b DSSS MODULATION:

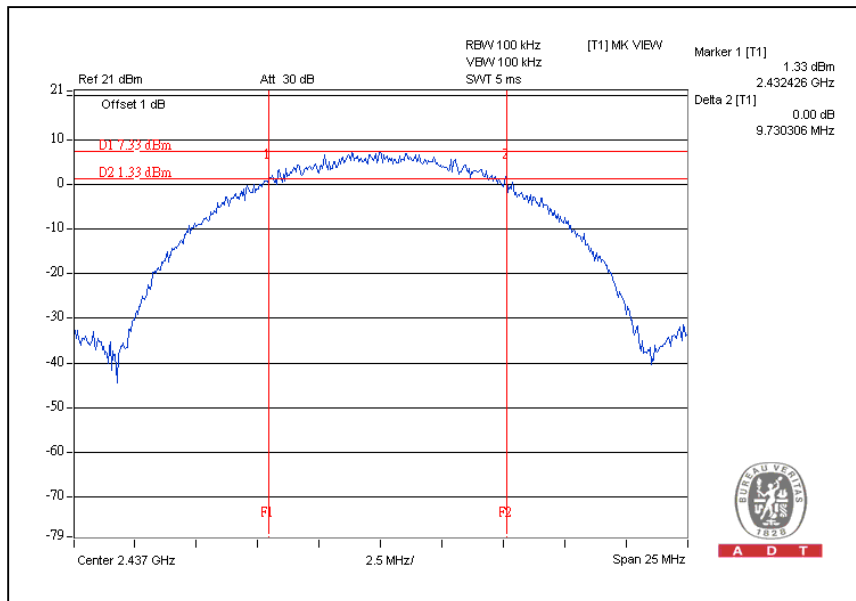
MODULATION TYPE	DBPSK	TRANSFER RATE	1Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 965hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	9.18	0.5	PASS
6	2437	9.73	0.5	PASS
11	2462	10.41	0.5	PASS

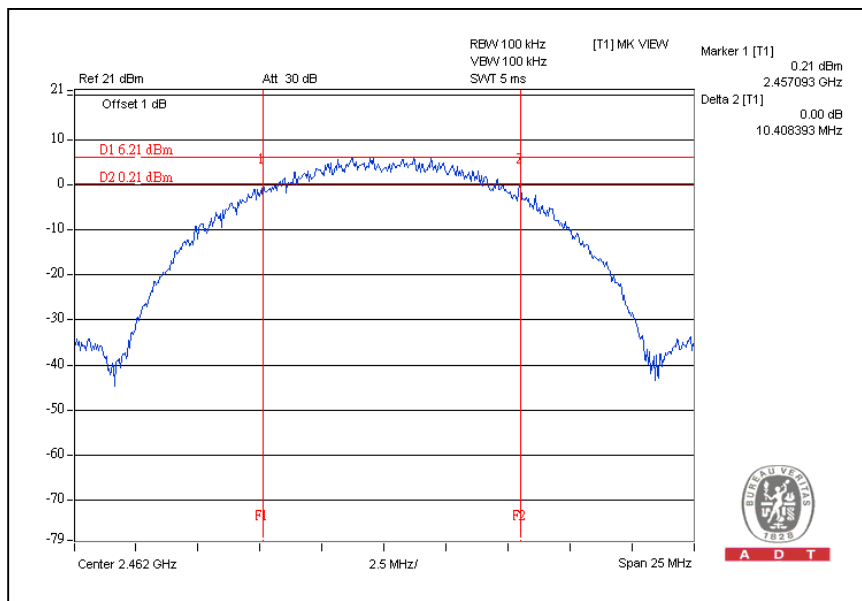
CH1



CH6



CH11



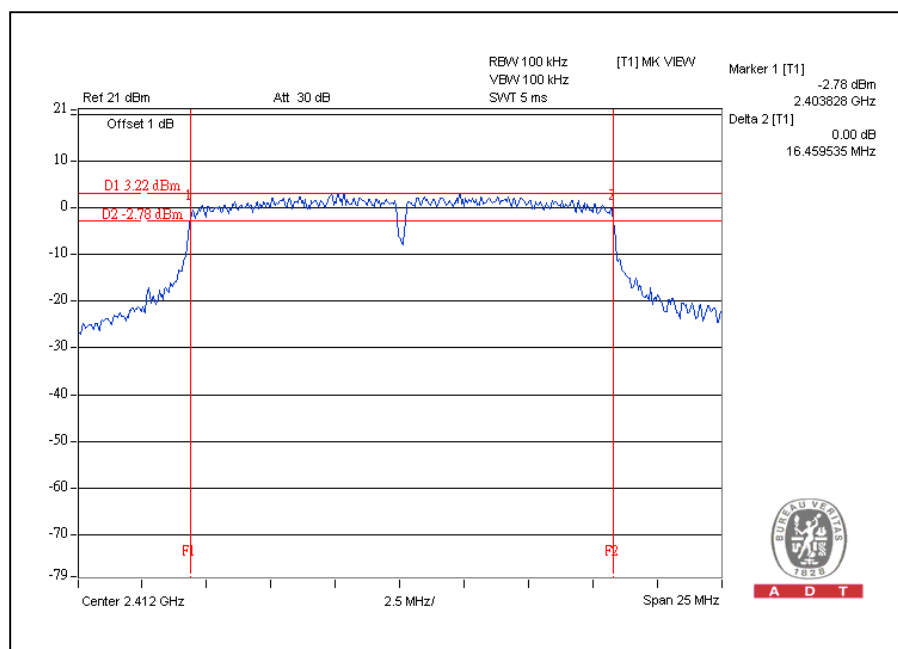


802.11g OFDM MODULATION:

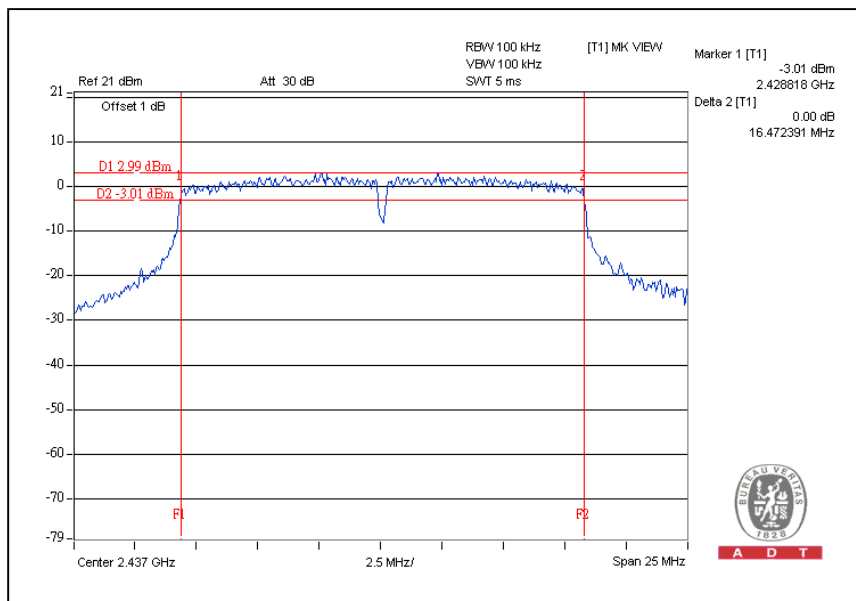
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 965hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.46	0.5	PASS
6	2437	16.47	0.5	PASS
11	2462	16.47	0.5	PASS

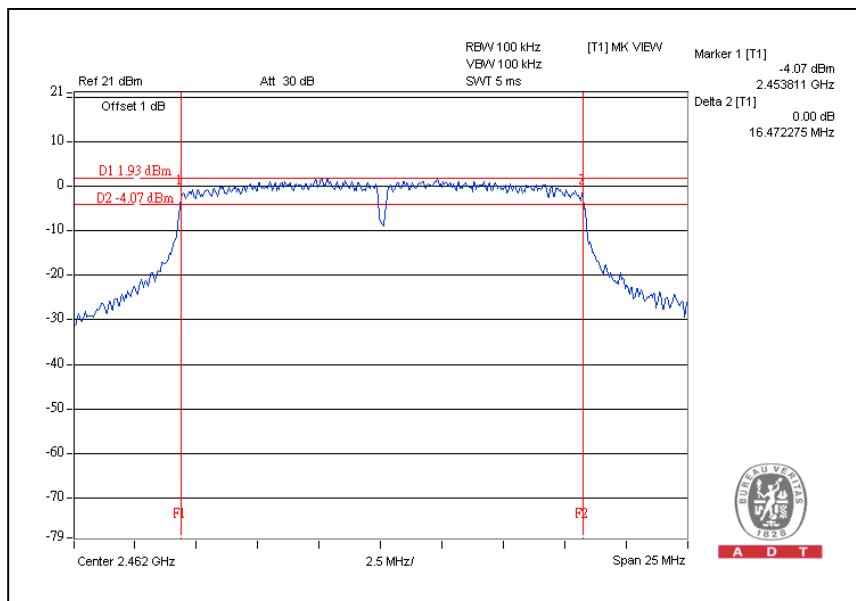
CH1



CH6



CH11



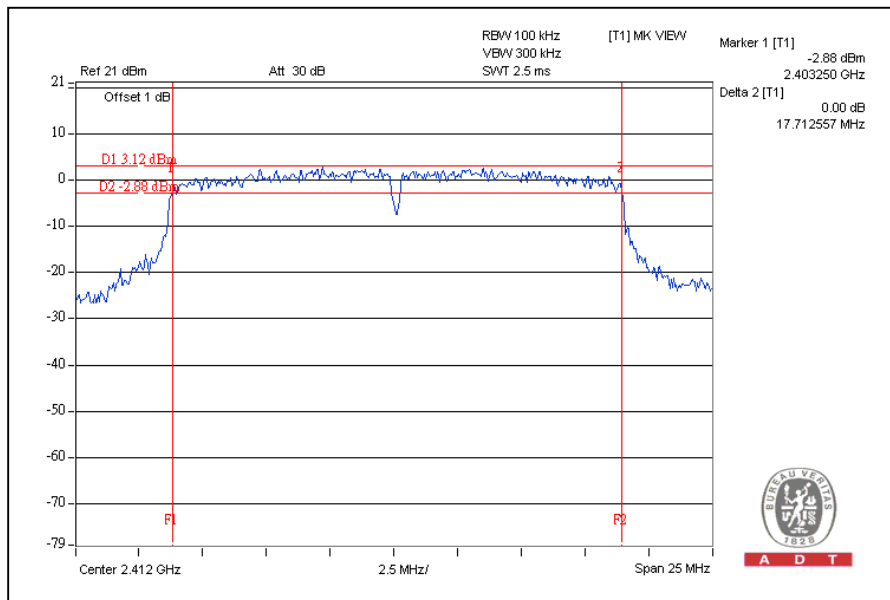


DRAFT 802.11n (20MHz) OFDM MODULATION:

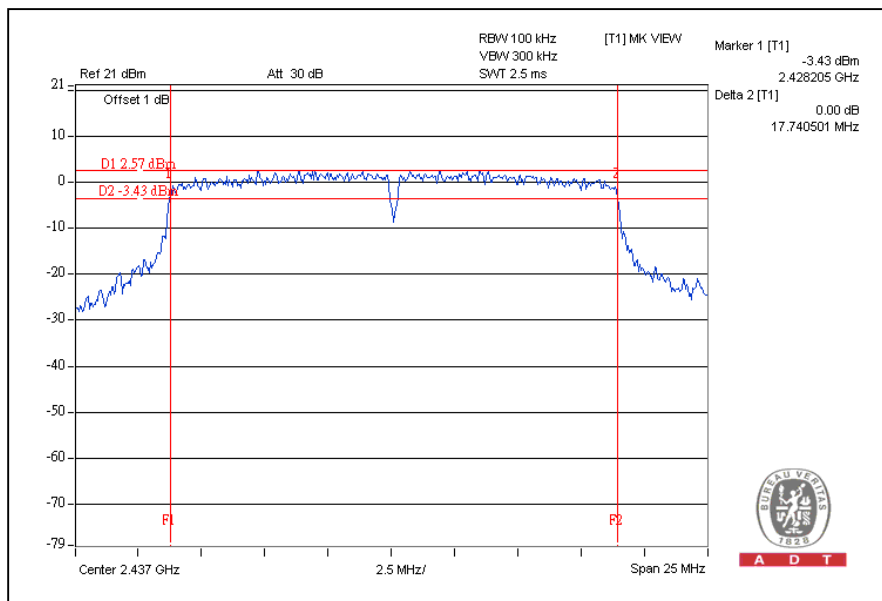
MODULATION TYPE	BPSK	TRANSFER RATE	6.5Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 965hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	17.71	0.5	PASS
6	2437	17.74	0.5	PASS
11	2462	17.74	0.5	PASS

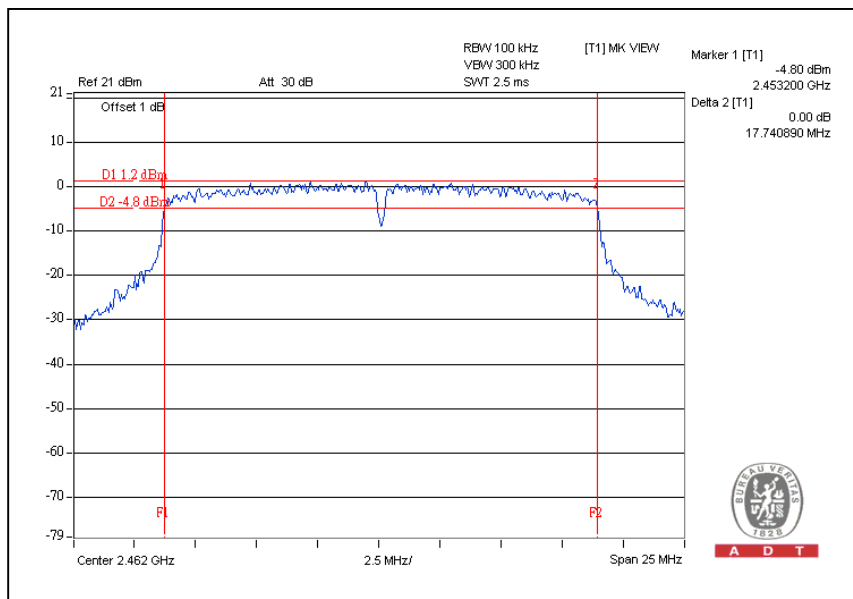
CH1



CH6



CH11



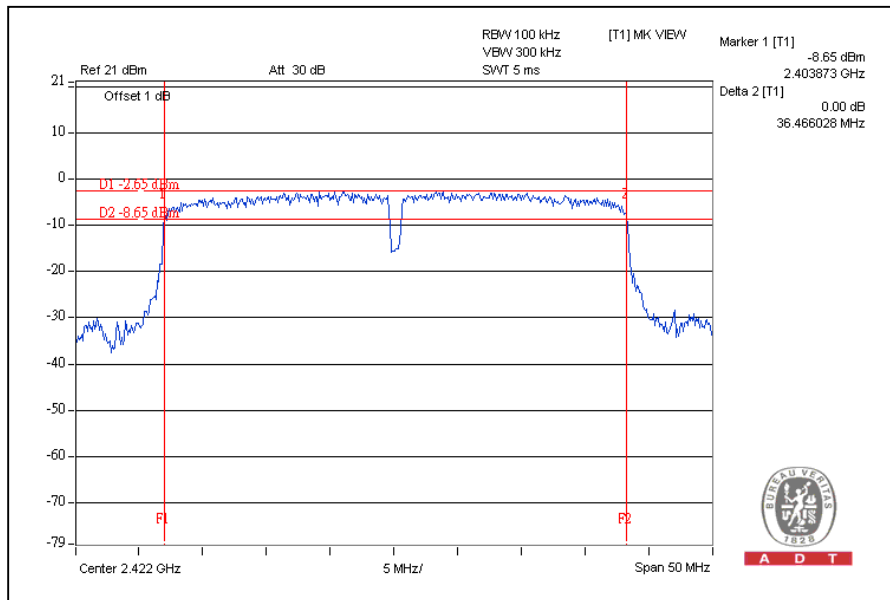


DRAFT 802.11n (40MHz) OFDM MODULATION:

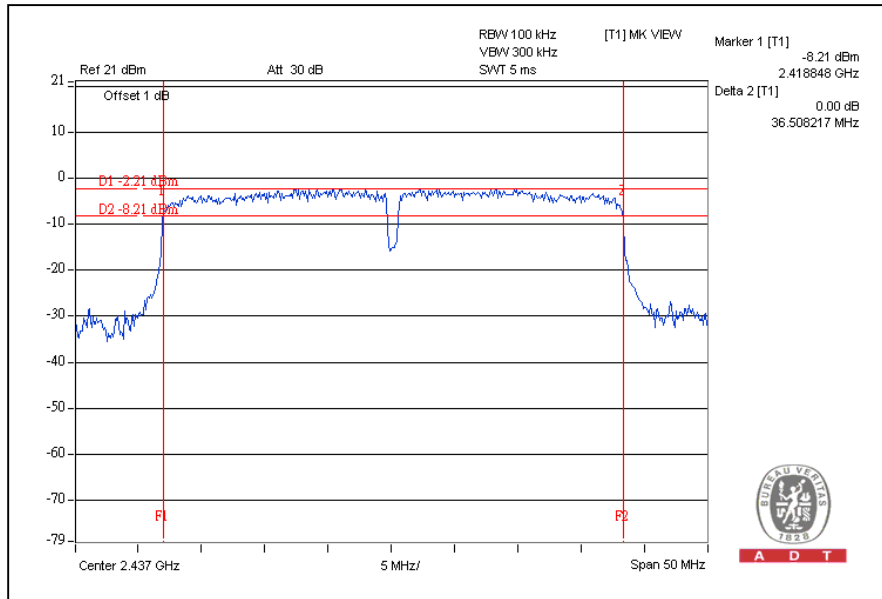
MODULATION TYPE	BPSK	TRANSFER RATE	13.5Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 965hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2422	36.47	0.5	PASS
4	2437	36.51	0.5	PASS
7	2452	36.51	0.5	PASS

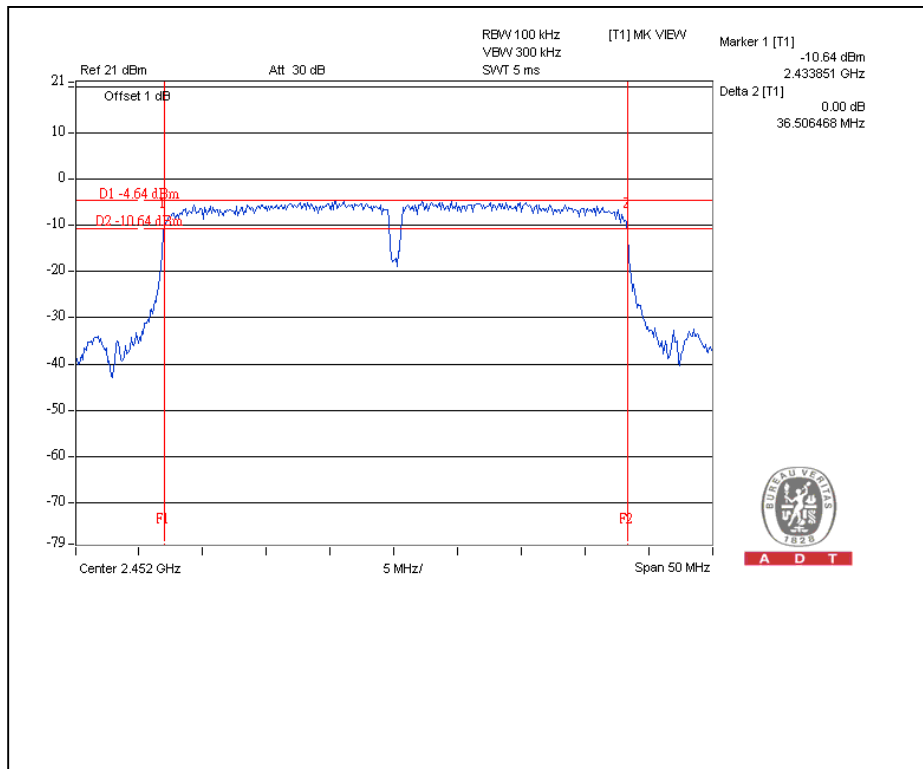
CH1



CH4



CH7





4.4 MAXIMUM PEAK OUTPUT POWER

4.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

4.4.2 INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 13, 2008
Agilent SIGNAL GENERATOR	E8257C	MY43320668	Dec. 26, 2008
Anritsu Power Meter	ML2495A	0824006	June 13, 2009
Pulse Power Sensor	MA2411B	0738172	April 16, 2009

NOTE:

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

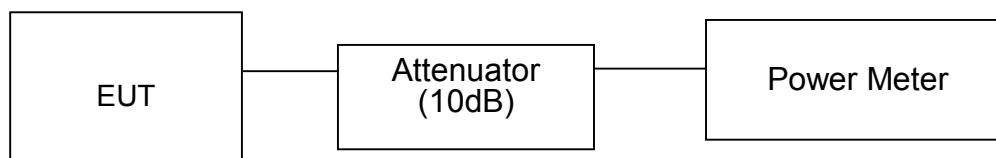
4.4.3 TEST PROCEDURES

1. The transmitter output was connected to the power meter through an attenuator; the bandwidth of the fundamental frequency was measured with the power meter.
2. 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 4.1.6



4.4.7 TEST RESULTS

802.11b DSSS MODULATION:

MODULATION TYPE	DBPSK	TRANSFER RATE	1Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 965hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2412	128.529	21.09	30	PASS
6	2437	130.317	21.15	30	PASS
11	2462	90.365	19.56	30	PASS

802.11g OFDM MODULATION:

MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 965hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2412	300.608	24.78	30	PASS
6	2437	309.030	24.90	30	PASS
11	2462	289.734	24.62	30	PASS



DRAFT 802.11n (20MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	TRANSFER RATE	6.5Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 965hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2412	293.765	24.68	30	PASS
6	2437	304.089	24.83	30	PASS
11	2462	271.019	24.33	30	PASS

DRAFT 802.11n (40MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	TRANSFER RATE	13.5Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 965hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2422	249.459	23.97	30	PASS
4	2437	270.396	24.32	30	PASS
7	2452	210.863	23.24	30	PASS



4.5 POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

4.5.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSP40	100036	Dec. 17, 2008

NOTE:

- 1.The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
- 2.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

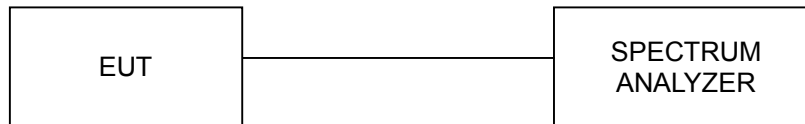
The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3kHz RBW and 30kHz VBW, set sweep time = span/3kHz. The power spectral density was measured and recorded.

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 4.1.6



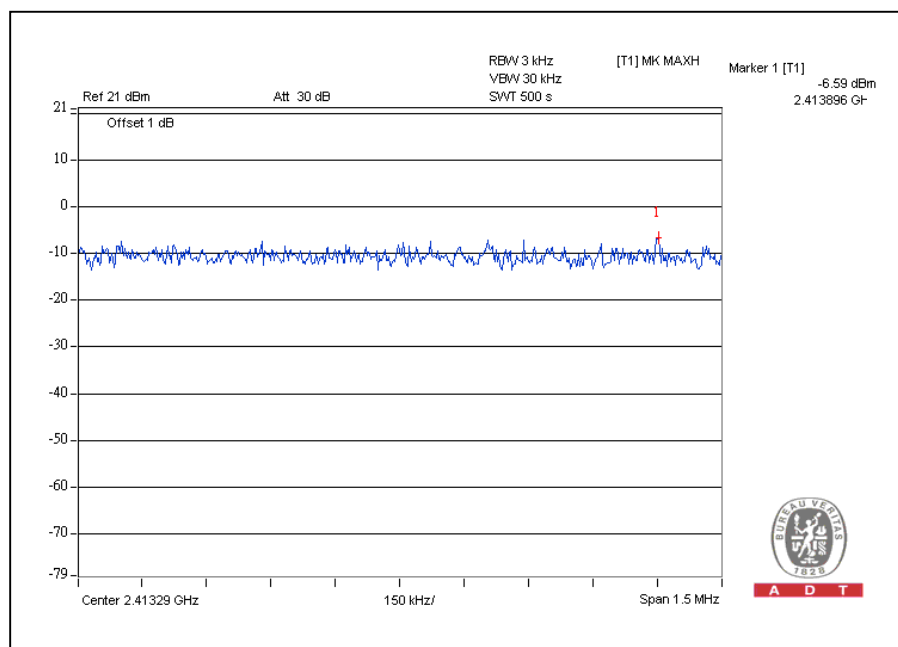
4.5.7 TEST RESULTS

802.11b DSSS MODULATION:

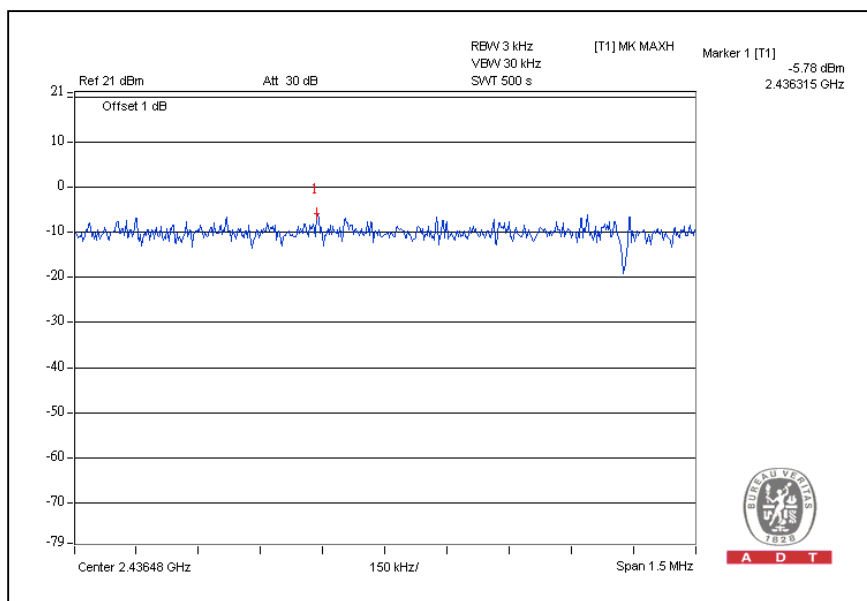
MODULATION TYPE	DBPSK	TRANSFER RATE	1Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 965hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	2412	-6.59	8	PASS
6	2437	-5.78	8	PASS
11	2462	-7.11	8	PASS

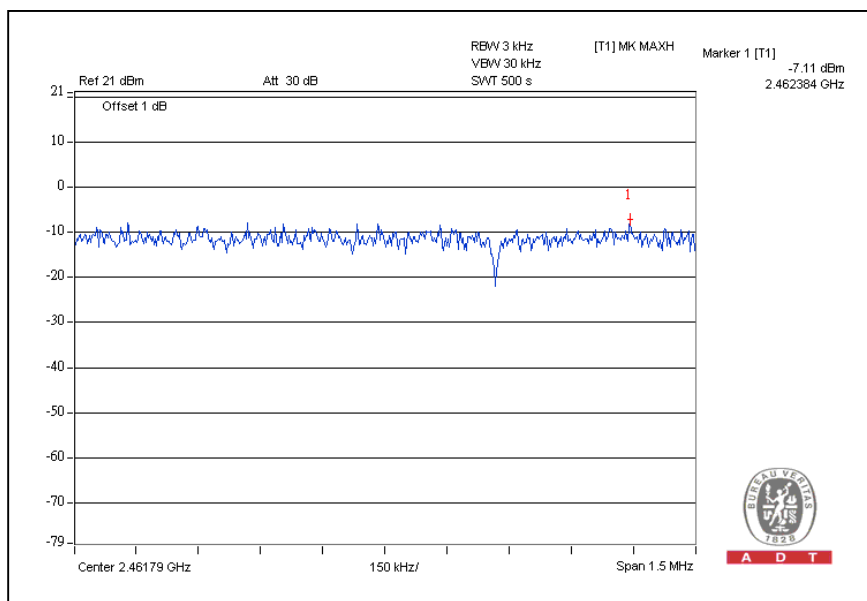
CH1



CH6



CH11



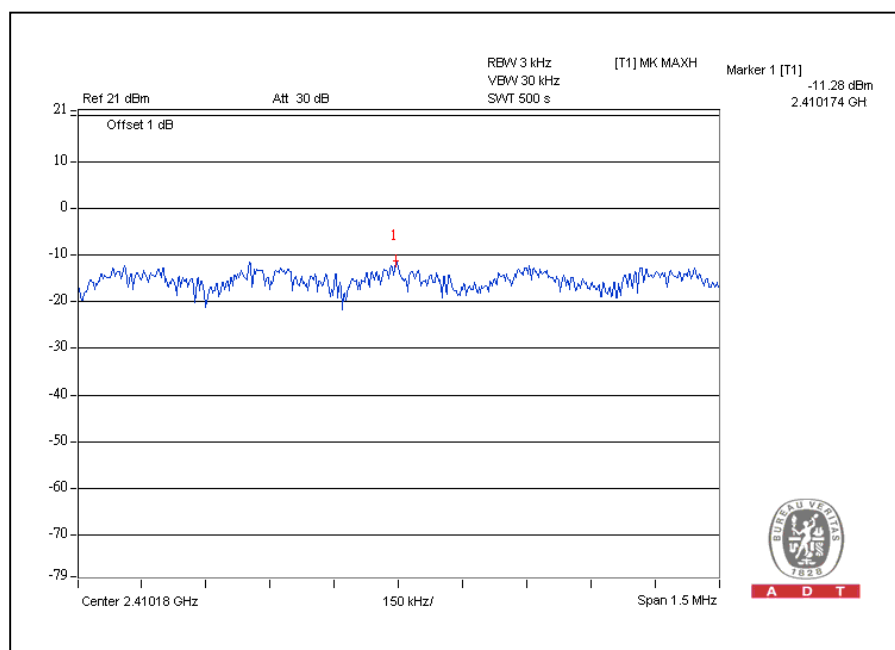


802.11g OFDM MODULATION:

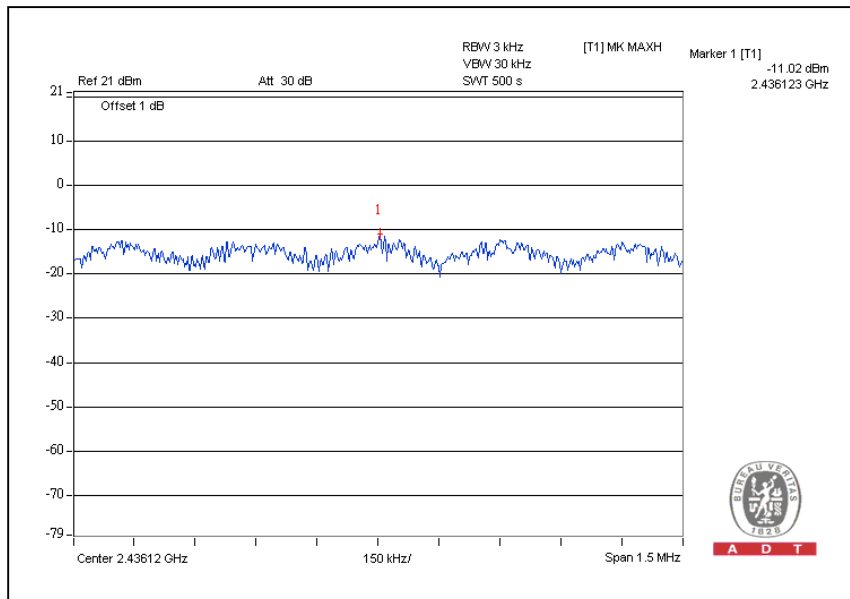
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 966hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	2412	-11.28	8	PASS
6	2437	-11.02	8	PASS
11	2462	-12.17	8	PASS

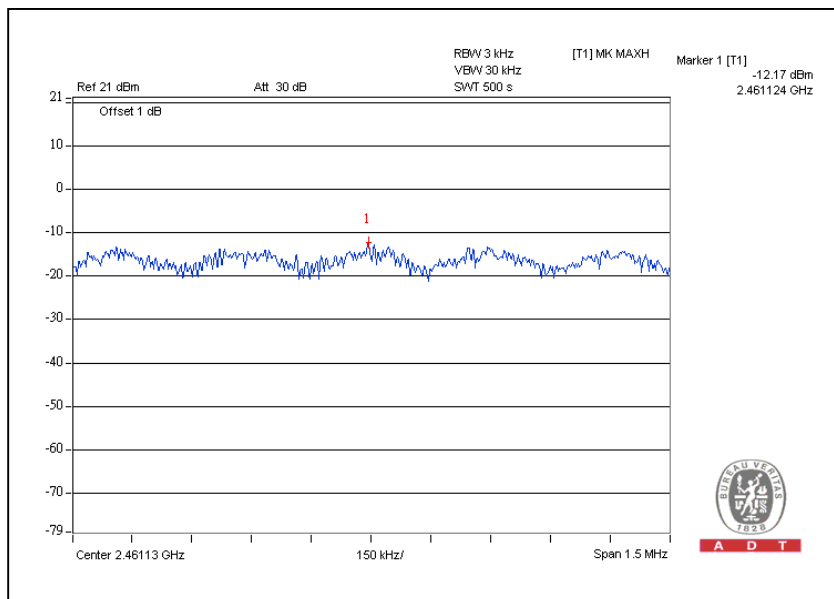
CH1



CH6



CH11



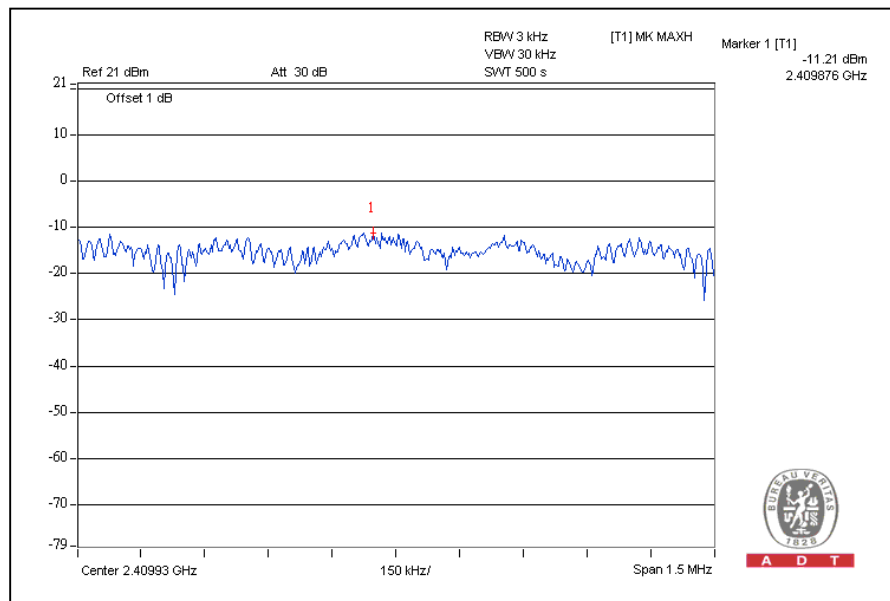


DRAFT 802.11n (20MHz) OFDM MODULATION:

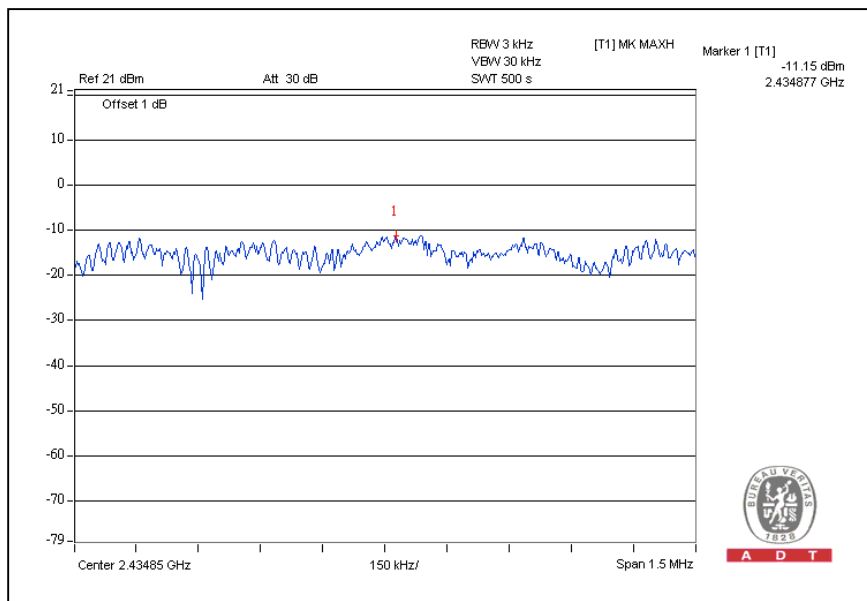
MODULATION TYPE	BPSK	TRANSFER RATE	6.5Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 965hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	2412	-11.21	8	PASS
6	2437	-11.15	8	PASS
11	2462	-12.87	8	PASS

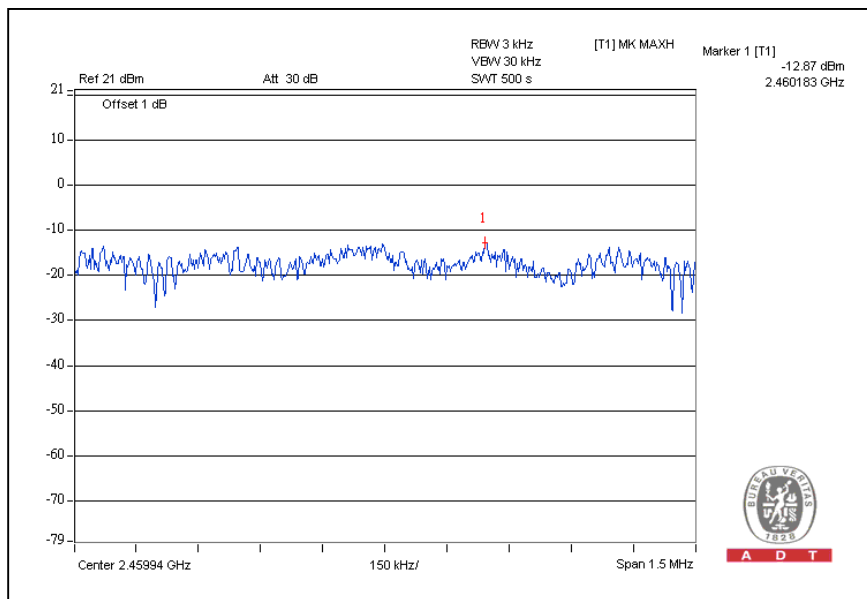
CH1



CH6



CH11



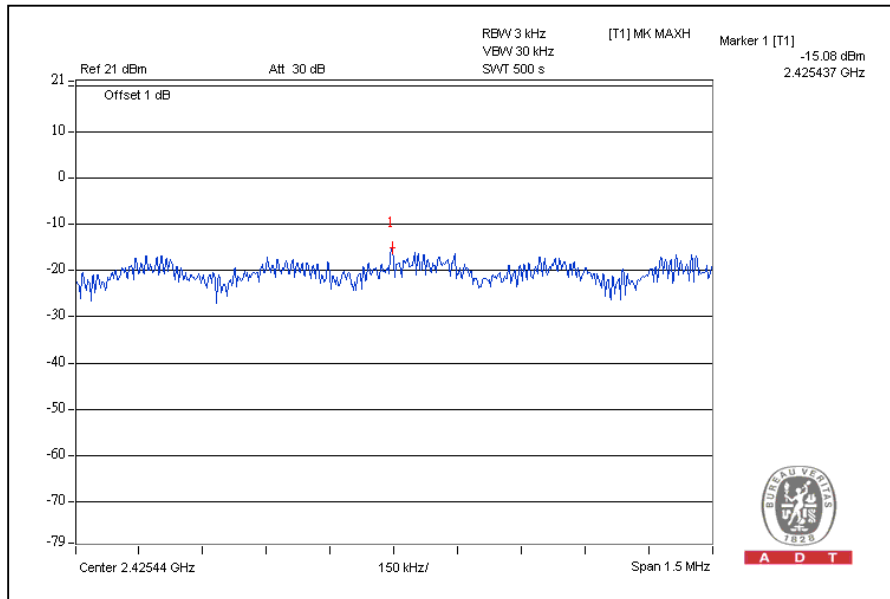


DRAFT 802.11n (40MHz) OFDM MODULATION:

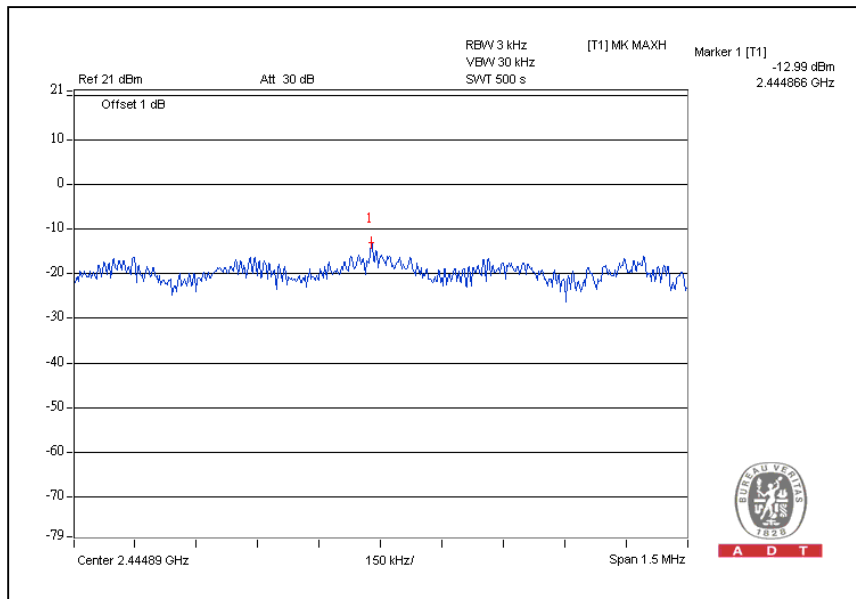
MODULATION TYPE	BPSK	TRANSFER RATE	13.5Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 962hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	2422	-15.08	8	PASS
4	2437	-12.99	8	PASS
7	2452	-15.01	8	PASS

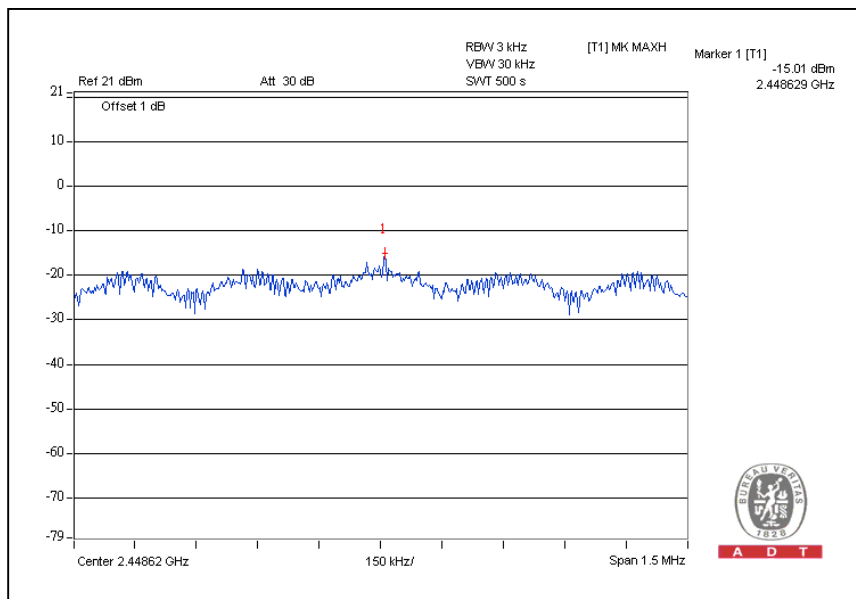
CH1



CH4



CH7





4.6 CONDUCTED OUT-BAND EMISSION MEASUREMENT

4.6.1 LIMITS OF CONDUCTED OUT-BAND EMISSION MEASUREMENT

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

4.6.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSP40	100036	Dec. 17, 2008

NOTE:

- 1.The measurement uncertainty is less than $\pm 2.6\text{dB}$, which is calculated as per the NAMAS document NIS81.
- 2.The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.6.3 TEST PROCEDURE

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

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



4.6.4 DEVIATION FROM TEST STANDARD

No deviation

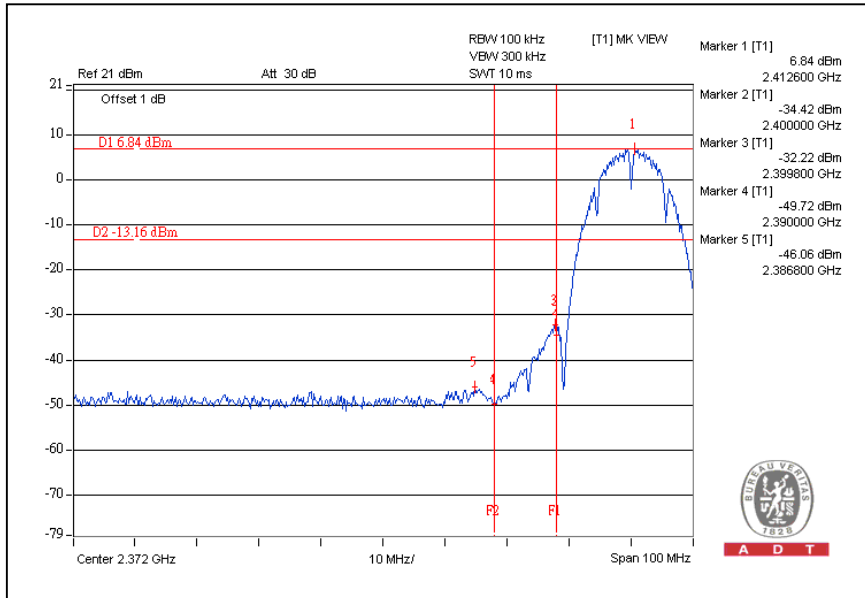
4.6.5 EUT OPERATING CONDITION

Same as Item 4.1.6

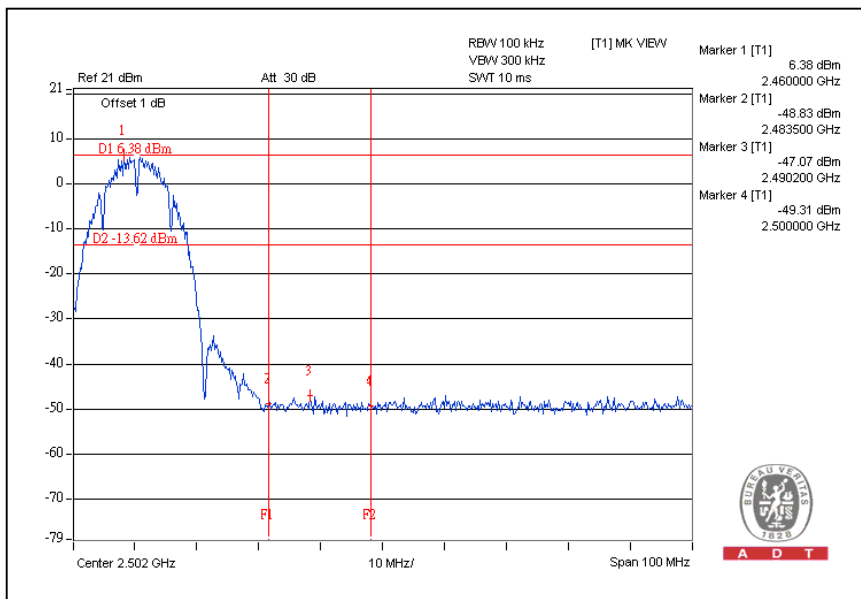
4.6.6 TEST RESULTS

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

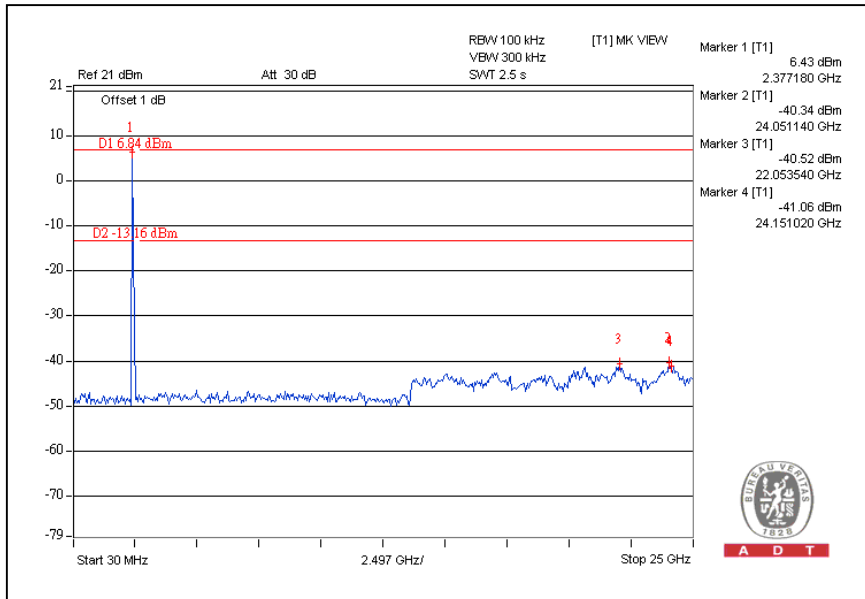
802.11b DSSS MODULATION: CH1



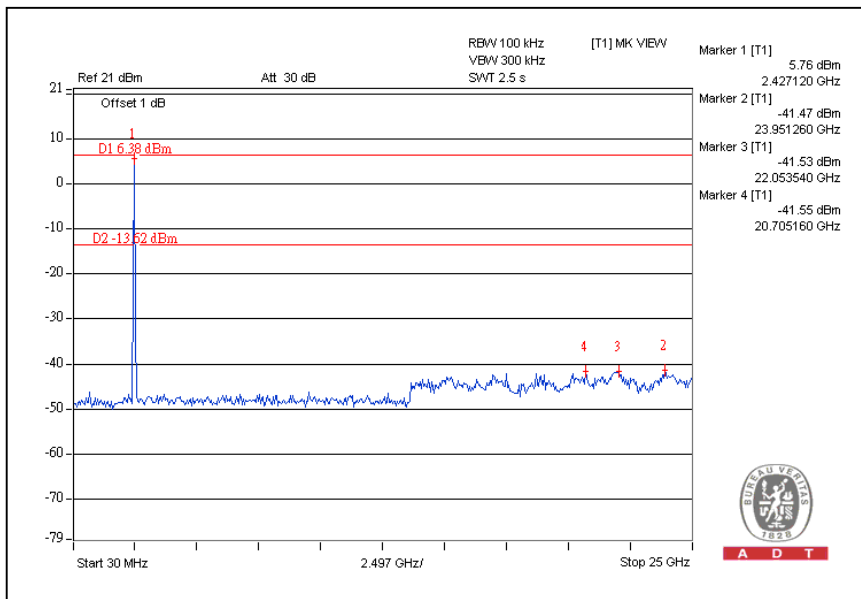
CH11



CH1

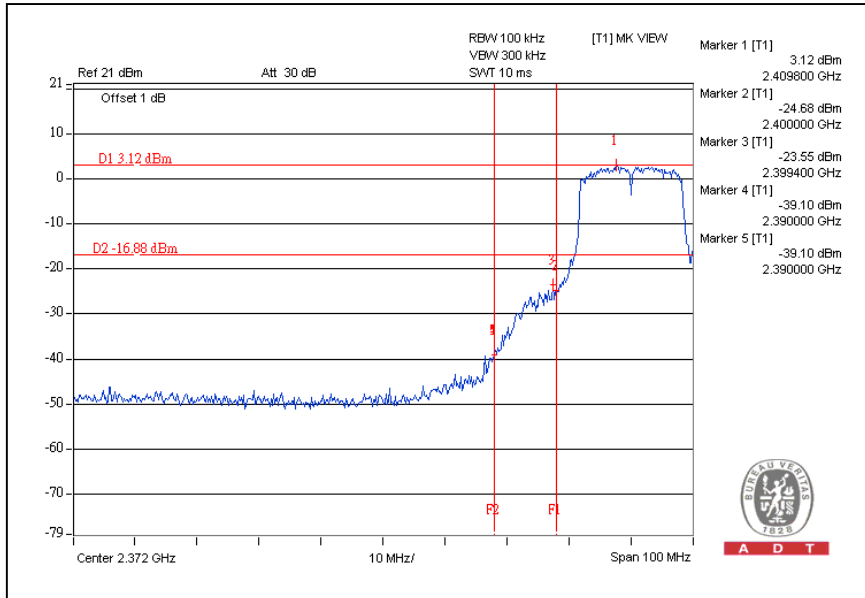


CH11

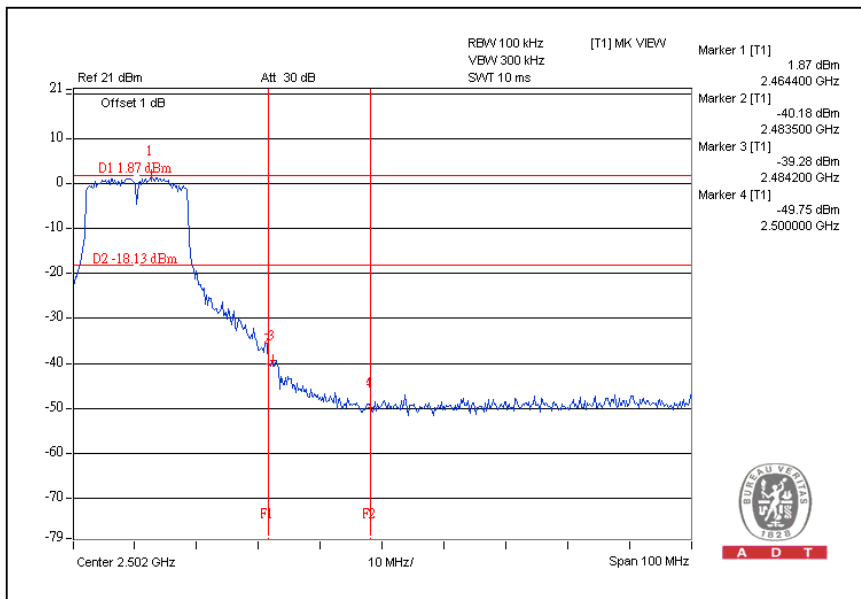


802.11g OFDM MODULATION:

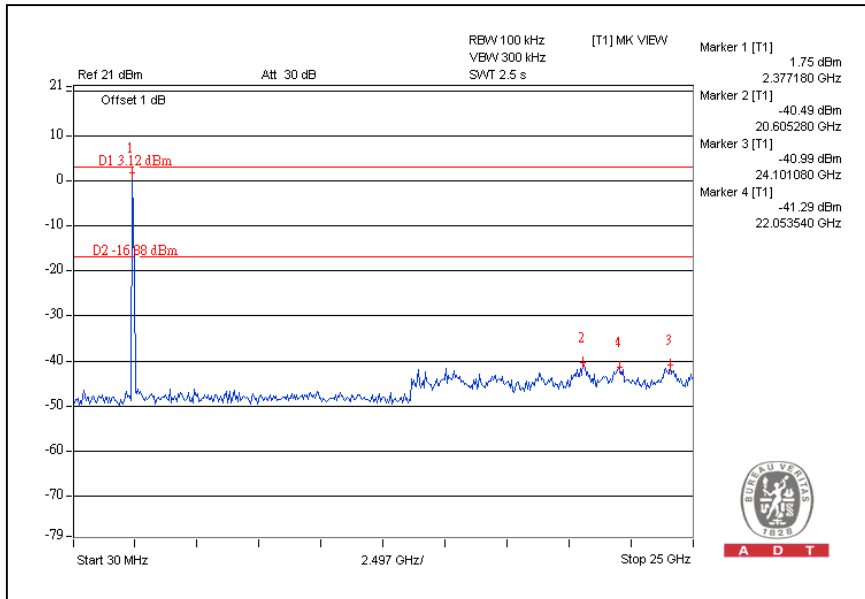
CH 1



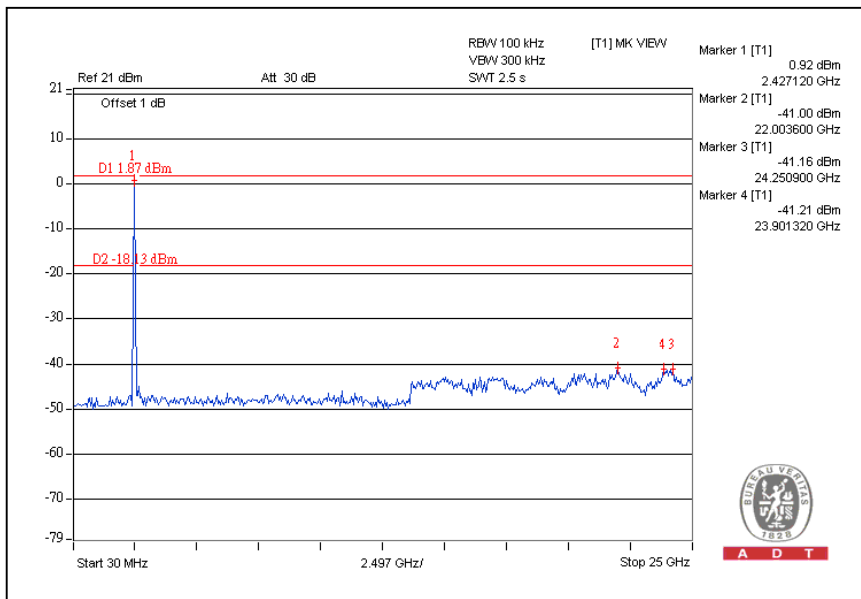
CH11



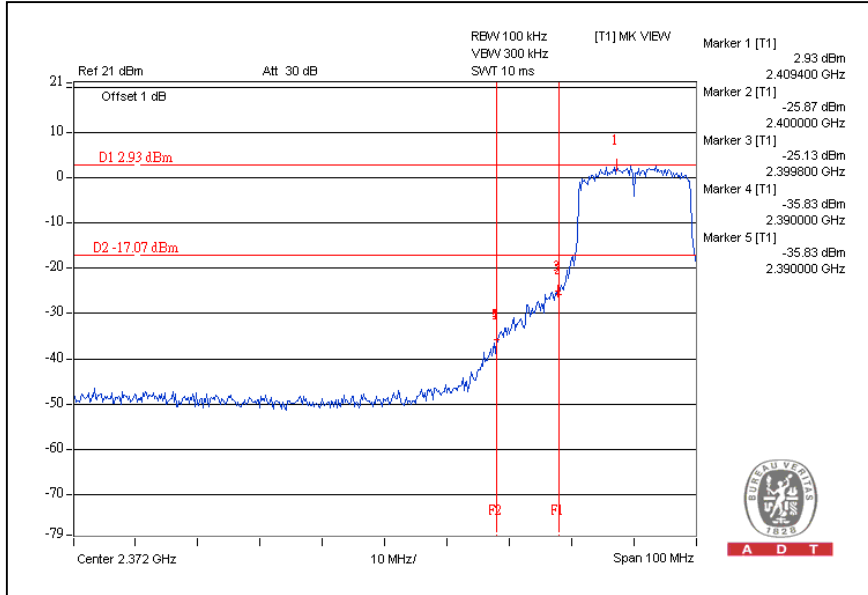
CH1



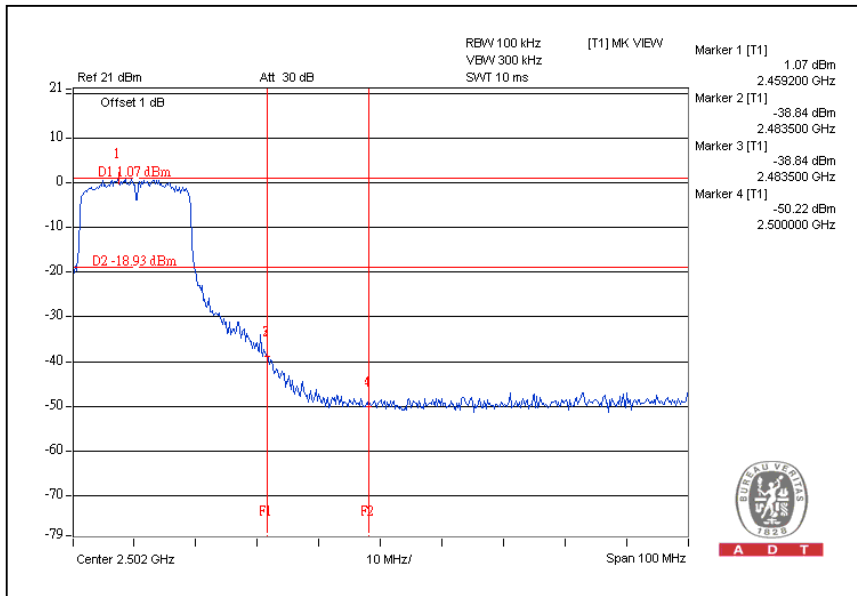
CH11



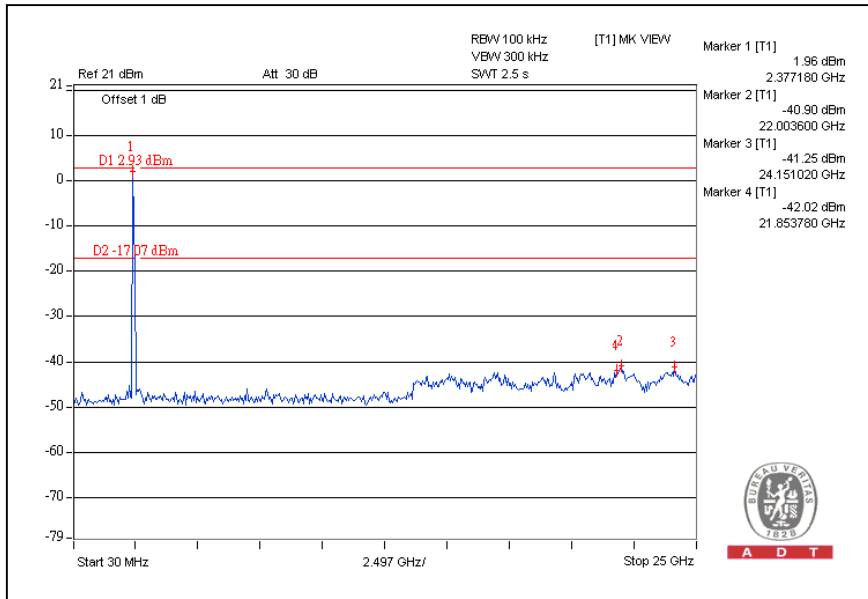
**DRAFT 802.11n (20MHz) OFDM MODULATION:
CH1**



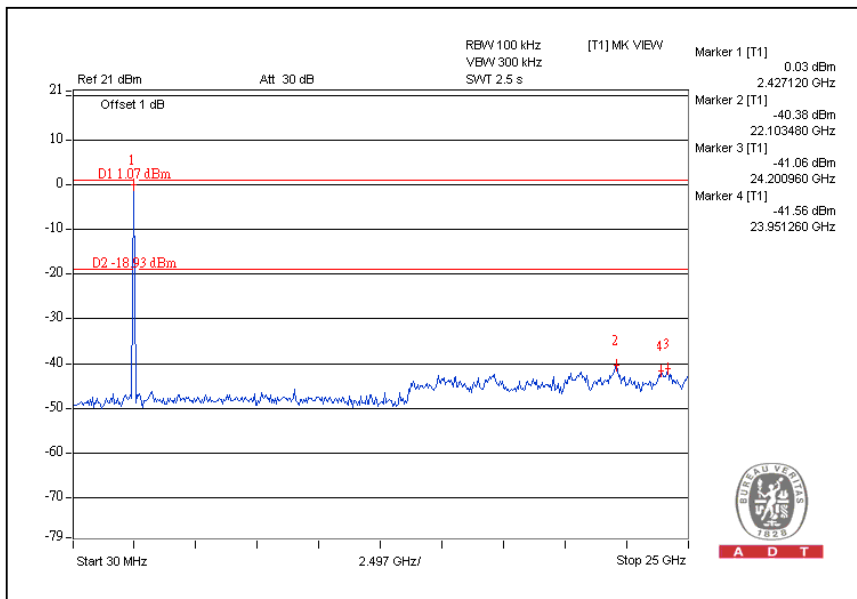
CH11



CH1

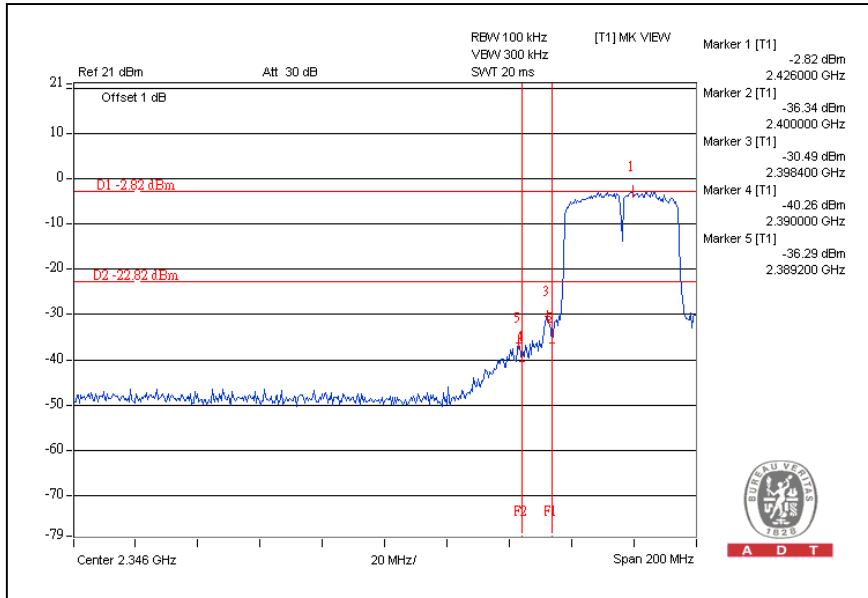


CH11

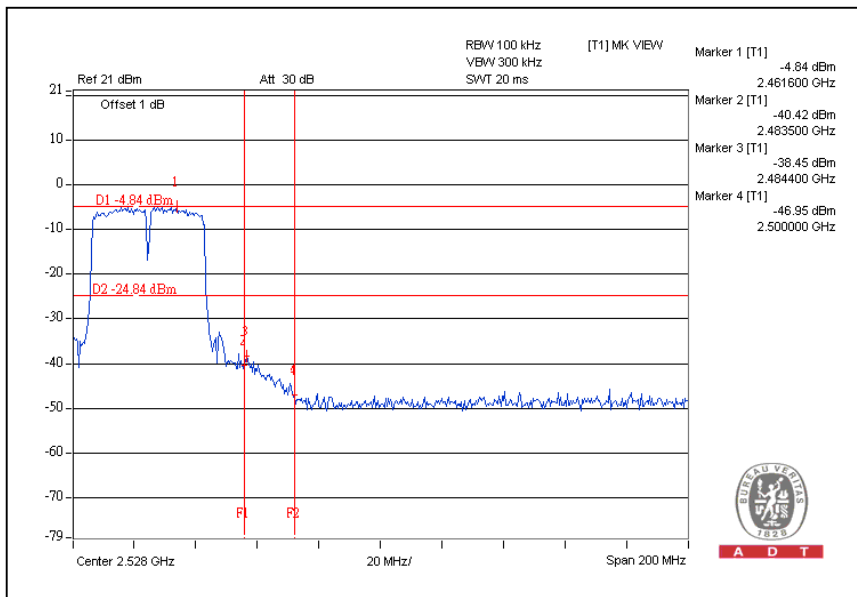


DRAFT 802.11n (40MHz) OFDM MODULATION:

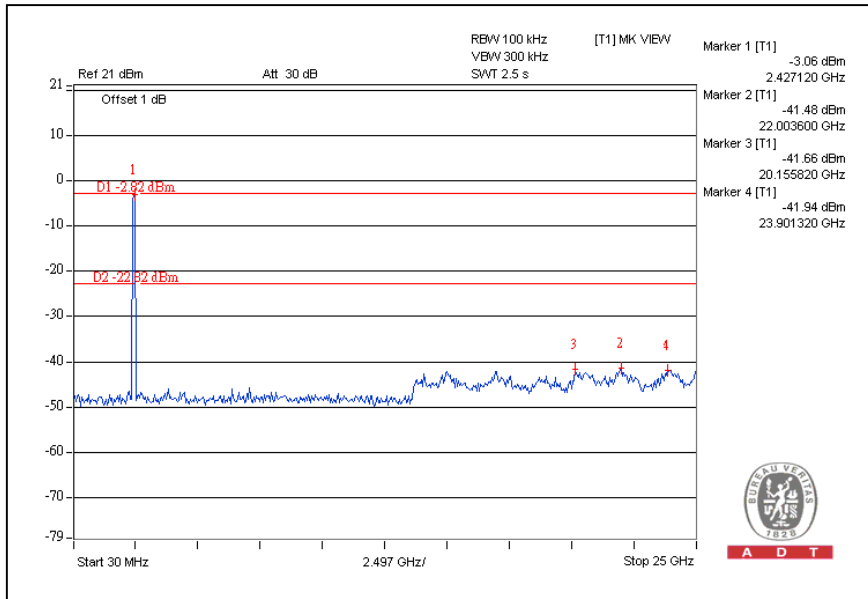
CH1



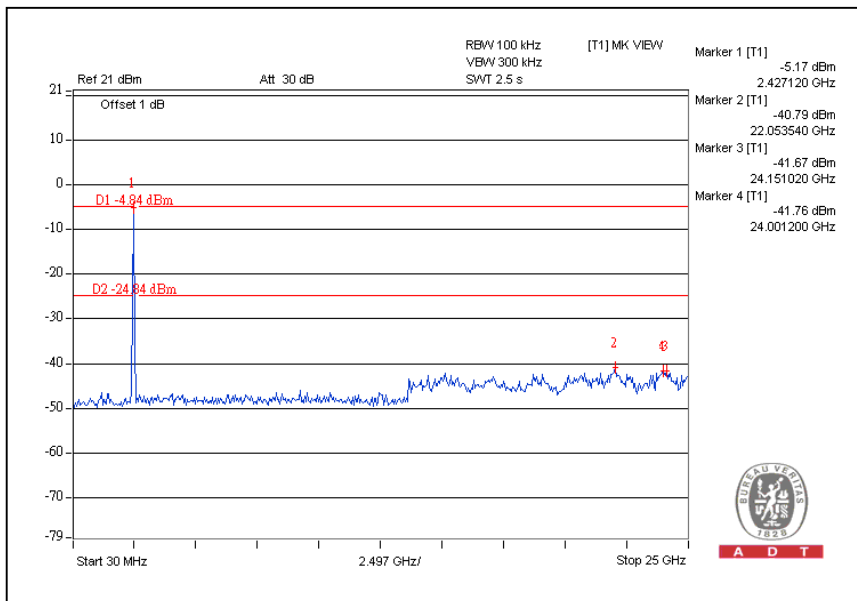
CH7



CH1



CH7



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

There are two antennas provided to this EUT, please refer to the following table:

Transmitter Circuit	Antenna Type	Gain (dBi)	Antenna Connector	Note
Chain(0)	Printed	3.85	NA	TX & RX function
Chain(1)	Printed	-0.78	NA	RX function



5. 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

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Web Site: www.adt.com.tw

The address and road map of all our labs can be found in our web site also.



6. 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.

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