

FCC TEST REPORT (15.247)

REPORT NO.: RF970702L07

MODEL NO.: DMP100

RECEIVED: July 02, 2008

TESTED: Aug. 01 to Oct. 29, 2008

ISSUED: Nov. 28, 2008

APPLICANT: Cisco-Linksys LLC

ADDRESS: 121 Theory Drive Irvine, CA 92617, USA

ISSUED BY: Bureau Veritas Consumer Products Services
(H.K.) Ltd., Taoyuan Branch

TEST LOCATION: No. 81-1, Lu Liao Keng, 9th Ling, Wu Lung
Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien
307, Taiwan

This test report consists of 105 pages in total. It may be duplicated completely for legal use with the approval of the applicant. It should not be reproduced except in full, without the written approval of our laboratory. The client should not use it to claim product endorsement by TAF or any government agencies. The test results in the report only apply to the tested sample.



Table of Contents

1.	CERTIFICATION	4
2.	SUMMARY OF TEST RESULTS	5
2.1	MEASUREMENT UNCERTAINTY	6
3.	GENERAL INFORMATION	7
3.1	GENERAL DESCRIPTION OF EUT	7
3.2	DESCRIPTION OF TEST MODES	9
3.2.1	TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL:	10
3.3	GENERAL DESCRIPTION OF APPLIED STANDARDS	14
3.4	DESCRIPTION OF SUPPORT UNITS	15
3.5	CONFIGURATION OF SYSTEM UNDER TEST	16
4.	TEST TYPES AND RESULTS (802.11b & g, 2400 ~ 2483.5MHz Band)	17
4.1	CONDUCTED EMISSION MEASUREMENT	17
4.1.1	LIMITS OF CONDUCTED EMISSION MEASUREMENT	17
4.1.2	TEST INSTRUMENTS	17
4.1.3	TEST PROCEDURES	18
4.1.4	DEVIATION FROM TEST STANDARD	18
4.1.5	TEST SETUP	19
4.1.6	EUT OPERATING CONDITIONS	19
4.1.7	TEST RESULTS - ADAPTER 1	20
4.1.8	TEST RESULTS - ADAPTER 2	22
4.2	RADIATED EMISSION MEASUREMENT	24
4.2.1	LIMITS OF RADIATED EMISSION MEASUREMENT	24
4.2.2	TEST INSTRUMENTS	25
4.2.3	TEST PROCEDURES	26
4.2.4	DEVIATION FROM TEST STANDARD	26
4.2.5	TEST SETUP	27
4.2.6	EUT OPERATING CONDITIONS	27
	BELOW 1GHz TEST DATA	28
4.2.7	TEST RESULTS	28
	ABOVE 1GHz TEST DATA	29
4.2.8	TEST RESULTS	29
4.3	6dB BANDWIDTH MEASUREMENT	57
4.3.1	LIMITS OF 6dB BANDWIDTH MEASUREMENT	57
4.3.2	TEST INSTRUMENTS	57
4.3.3	TEST PROCEDURE	58
4.3.4	DEVIATION FROM TEST STANDARD	58



4.3.5	TEST SETUP	58
4.3.6	EUT OPERATING CONDITIONS	58
4.3.7	TEST RESULTS	59
4.4	MAXIMUM PEAK OUTPUT POWER	71
4.4.1	LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT	71
4.4.2	INSTRUMENTS	71
4.4.3	TEST PROCEDURES	72
4.4.4	DEVIATION FROM TEST STANDARD	72
4.4.5	TEST SETUP	72
4.4.6	EUT OPERATING CONDITIONS	72
4.4.7	TEST RESULTS	73
4.5	POWER SPECTRAL DENSITY MEASUREMENT	75
4.5.1	LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT	75
4.5.2	TEST INSTRUMENTS	75
4.5.3	TEST PROCEDURE	76
4.5.4	DEVIATION FROM TEST STANDARD	76
4.5.5	TEST SETUP	76
4.5.6	EUT OPERATING CONDITION	76
4.5.7	TEST RESULTS	77
4.6	CONDUCTED OUT-BAND EMISSION MEASUREMENT	89
4.6.1	LIMITS OF CONDUCTED OUT-BAND EMISSION MEASUREMENT	89
4.6.2	TEST INSTRUMENTS	89
4.6.3	TEST PROCEDURE	89
4.6.4	DEVIATION FROM TEST STANDARD	90
4.6.5	EUT OPERATING CONDITION	90
4.6.6	TEST RESULTS	90
4.7	ANTENNA REQUIREMENT	103
4.7.1	STANDARD APPLICABLE	103
4.7.2	ANTENNA CONNECTED CONSTRUCTION	103
5.	INFORMATION ON THE TESTING LABORATORIES	104
6.	APPENDIX-A- MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB	105



A D T

1. CERTIFICATION

PRODUCT: Player-Wireless-N Music Extender
BRAND NAME: LINKSYS® by Cisco
MODEL NO.: DMP100
TEST SAMPLE: R&D SAMPLE
TESTED: Aug. 01 to Oct. 29, 2008
APPLICANT: Cisco-Linksys LLC
STANDARDS: FCC Part 15, Subpart C (Section 15.247),
ANSI C63.4-2003

The above equipment (Model: DMP100) 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 : Carol Liao , **DATE:** Nov. 28, 2008
(Carol Liao, Specialist)

TECHNICAL ACCEPTANCE : Hank Chung , **DATE:** Nov. 28, 2008
Responsible for RF (Hank Chung, Deputy Manager)

APPROVED BY : May Chen , **DATE:** Nov. 28, 2008
(May Chen, Deputy Manager)

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

For 802.11b & g, 2412~2462MHz Band

APPLIED STANDARD: FCC Part 15, Subpart C (Section 15.247)			
Standard Section	Test Type and Limit	Result	Remark
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -5.95dB at 0.369MHz
15.247(a)(2)	Spectrum Bandwidth of a Direct Sequence Spread Spectrum System Limit: min. 500kHz	PASS	Meet the requirement of limit.
15.247(b)	Maximum Peak Output Power Limit: max. 30dBm	PASS	Meet the requirement of limit.
15.247(d)	Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit. Minimum passing margin is -1.80dB at 2390.00MHz
15.247(e)	Power Spectral Density Limit: max. 8dBm	PASS	Meet the requirement of limit.
15.247(d)	Band Edge Measurement Limit: 20dB less than the peak value of fundamental frequency	PASS	Meet the requirement of limit.

NOTE:

1. The EUT was operating in 2.412 ~ 2.462GHz, 5.15~5.35GHz, 5.47~5.725GHz and 5.725~5.825GHz frequencies band. This report was recorded the RF parameters including 2.412 ~ 2.462GHz. For the 5.15~5.35GHz, 5.47~5.725GHz and 5.725~5.825GHz RF parameters was recorded in another test report.

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	2.44 dB
Radiated emissions (30MHz-1GHz)	3.94 dB
Radiated emissions (1GHz -18GHz)	2.49 dB
Radiated emissions (18GHz -40GHz)	2.70 dB



3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Player-Wireless-N Music Extender
MODEL NO.	DMP100
FCC ID	Q87-DMP100
POWER SUPPLY	DC 5V from power adapter
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 802.11a: 54 / 48 / 36 / 24 / 18 / 12 / 9 / 6Mbps Draft 802.11n (20MHz): 130 / 117 / 104 / 78 / 65 / 58.5 / 52 / 39 / 26 / 19.5 / 13 / 6.5Mbps Draft 802.11n (40MHz): 270 / 243 / 216 / 162 / 135 / 121.5 / 108 / 81 / 54 / 40.5 / 27 / 13.5Mbps
FREQUENCY RANGE	802.11b & 802.11g: 2412 ~ 2462MHz 802.11a: 5.18 ~ 5.32GHz, 5.50 ~ 5.70GHz and 5.745 ~ 5.805GHz
NUMBER OF CHANNEL	For 15.247(2.4GHz) 11 for 802.11b, 802.11g, draft 802.11n (20MHz) 7 for draft 802.11n (40MHz) For 15.407(5GHz) 23 for 802.11a, draft 802.11n (20MHz) 11 for draft 802.11n (40MHz)
MAXIMUM OUTPUT POWER	For 15.247(2.4GHz) 802.11b: 98.175mW 802.11g: 239.332mW draft 802.11n (20MHz): 214.319mW draft 802.11n (40MHz): 223.194mW For 15.407(5GHz) 802.11a: 23.335mW draft 802.11n (20MHz): 28.365mW draft 802.11n (40MHz): 31.445mW
ANTENNA TYPE	Please see note 1
DATA CABLE	NA

I/O PORT	Please refer to the manual
ASSOCIATED DEVICES	NA

NOTE:

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

No.	Antenna Type	For 2.4GHz Gain (dBi)	For 5GHz Gain (dBi)	Antenna Connector
CHAIN(0)	Dipole	0	3.5 (5250-5350MHz) 3 (5470-5725MHz) 3 (5725-5825MHz)	UFL-style
CHAIN(1)	Dipole	1.5	3	UFL-style

2. The EUT must be supplied with a power adapter and following two different models could be chosen :

No.	Brand	Model No.	Spec.
1	DVE	DSA-20P-05 US 050150	Input: 100-240V~50/60Hz 0.7A Output: 5V 3.0A
2	HON-KWANG	HK-IP15-A05	Input: 100-240V ~ 50/60Hz 0.6A Output: 5V ,0~3A (Set at 3.0 A)

3. The EUT incorporates a MIMO function with 802.11a, 802.11b, 802.11g, draft 802.11n. Physically, the EUT provides two completed transmit and two completed receivers.
4. The EUT is 2 * 2 spatial MIMO (2Tx & 2Rx) without beam forming function. The antenna configurations are two transmitter antennas and two receiver antennas, as there are 2 Dipole antennas. Spatial multiplexing modes for simultaneous transmission using 2 antennas, and for simultaneous receiver using 2 antennas. The 11a and 11bg legacy mode is limited to single transmitter only.
5. When the EUT operating in draft 802.11n, the software operation, which is defined by manufacturer, MCS (Modulation and Coding Schemes) from 0 to 15.
6. The EUT complies with draft 802.11n standards and backwards compatible with 802.11a, 802.11b, 802.11g products.
7. 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

Operated in 2400 ~ 2483.5MHz band:

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	
-	√	√	√	√	-

Where **PLC**: Power Line Conducted Emission

RE < 1G: Radiated Emission below 1GHz

RE ≥ 1G: Radiated Emission above 1GHz

APCM: Antenna Port Conducted Measurement

ANTENNA COMBINATION MODE:

COMBINATION MODE	OPERATION MODE	CHAIN(0) (TX)	CHAIN(1) (TX)
A	802.11b	√	
B	802.11b		√
C	802.11g	√	
D	802.11g		√
E	DRAFT 802.11n(20MHz)	√	√
F	DRAFT 802.11n(40MHz)	√	√
Note: 1. The above information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual. 2. Antenna 1 and Antenna 2 are Dipole antennas.			

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)	TX COMBINATION
802.11b	1 to 11	1	DSSS	DBPSK	1	A

- ☒ The EUT was tested as the following test modes:

Test Mode	Description
Mode 1	With Adapter 1
Mode 2	With Adapter 2

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)	TX COMBINATION
802.11b	1 to 11	1	DSSS	DBPSK	1	A

- ☒ The EUT was Pre-tested as the following test modes:

Test Mode	Description
Mode 1	With Adapter 1
Mode 2	With Adapter 2

Mode 1, the worse case one, was chosen for final test.

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)	TX COMBINATION
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1	A
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6	C
Draft 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	13	E
Draft 802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	27	F

- ☒ The EUT was Pre-tested as the following test modes:

Test Mode	Description
Mode 1	With Adapter 1
Mode 2	With Adapter 2

Mode 1, the worse case one, was chosen for final test.

CONDUCTED OUT-BAND EMISSION 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)	TX COMBINATION
802.11b	1 to 11	1, 11	DSSS	DBPSK	1	A
802.11g	1 to 11	1, 11	OFDM	BPSK	6	C
Draft 802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	13	E
Draft 802.11n (40MHz)	1 to 7	1, 7	OFDM	BPSK	27	F

**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)	TX COMBINATION
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1	A
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6	C
Draft 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	13	E
Draft 802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	27	F

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a Player-Wireless-N Music Extender. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart C. (15.247)

ANSI C63.4-2003

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

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



3.4 DESCRIPTION OF SUPPORT UNITS

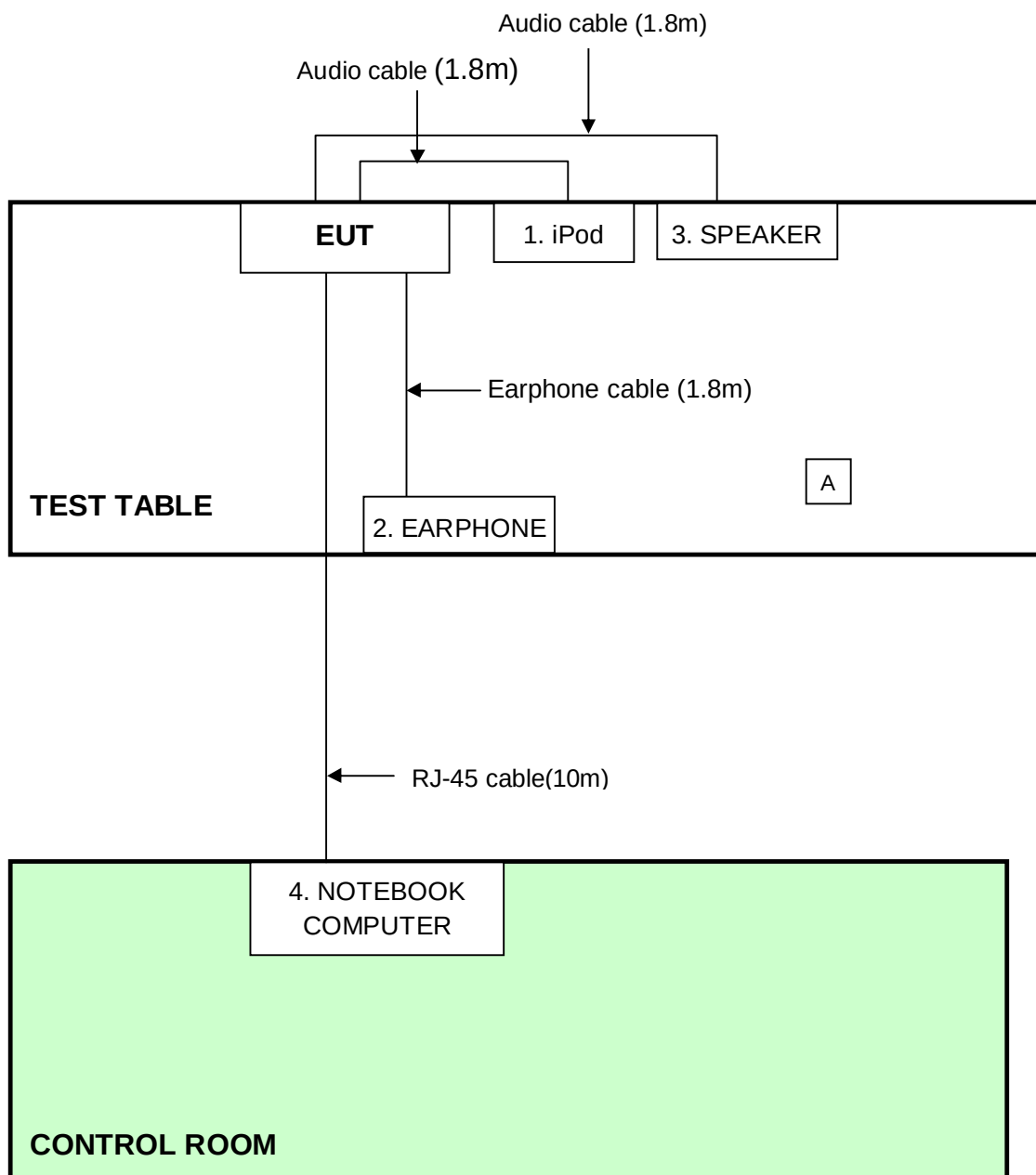
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	iPod	Apple	A1137	6U6078FMUPR	FCC DoC
2	EARPHONE	KOKA	ST-8	H201026	NA
3	SPEAKER	SANYO	SYSP-802	SP07500040300824	NA
4	NOTEBOOK COMPUTER	DELL	PP18L	6976685584	FCC DoC

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	1. 8 m wrapped shielded wire, terminal by drain wire, with 3.5 mm phone plug, w/o core.
2	1. 8 m wrapped shielded wire, terminal by drain wire, with 3.5 mm phone plug, w/o core.
3	1. 8 m wrapped shielded wire, terminated via drain wire, with 3.5 mm phone plug, w/o core.
4	NA

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

3.5 CONFIGURATION OF SYSTEM UNDER TEST



Note: 1. The item A is remote control.

4. TEST TYPES AND RESULTS (802.11b & g, 2400 ~ 2483.5MHz Band)

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

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

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver	ESCS 30	847124/029	Feb. 29, 2008	Feb. 28, 2009
Line-Impedance Stabilization Network(for EUT)	ENV-216	100071	Nov. 27, 2007	Nov. 26, 2008
Line-Impedance Stabilization Network(for Peripheral)	ESH3-Z5	848773/004	Nov. 09, 2007	Nov. 08, 2008
RF Cable (JYEBAO)	5DFB	COBCAB-001	July 24, 2008	July 23, 2009
50 ohms Terminator	50	3	Nov. 16, 2007	Nov. 15, 2008
Software	BV ADT_Conc _V7.3.6	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 Shielded Room No. B.
- 3 The VCCI Con B Registration No. is C-2193.

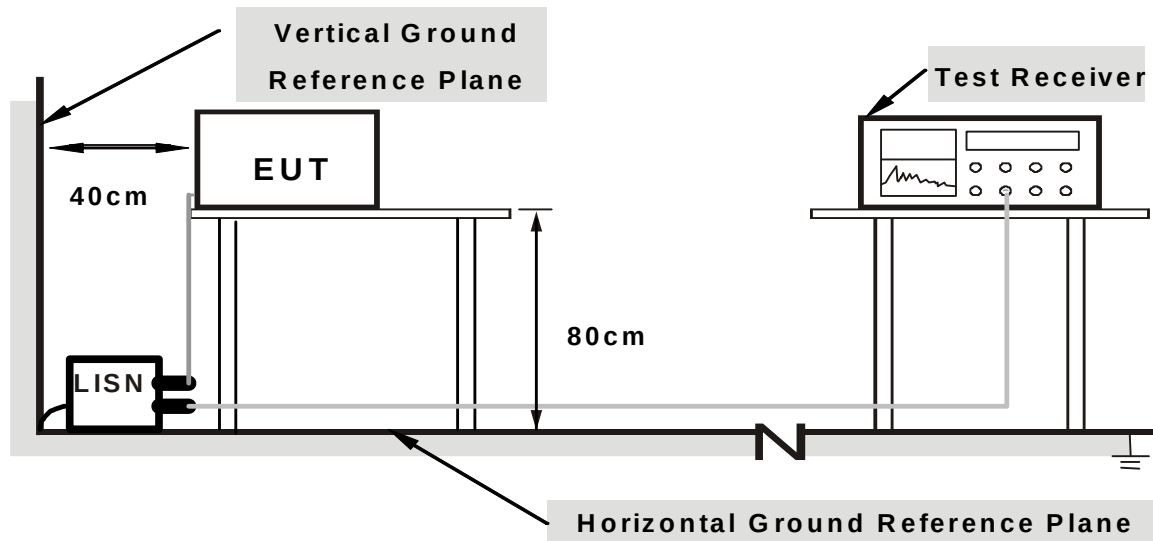
4.1.3 TEST PROCEDURES

- 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) were 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

- Placed the EUT on testing table.
- Prepared other computer system (support unit 4) to act as communication partner and placed it outside of testing area.
- The communication partner run test program “telnet.exe” to enable EUT under transmission/receiving condition continuously at specific channel frequency.

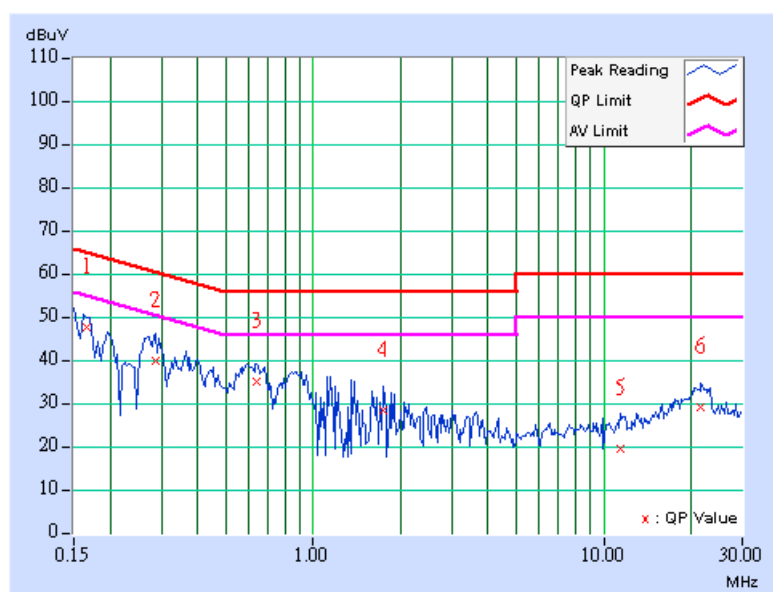
4.1.7 TEST RESULTS - Adapter 1

802.11b DSSS MODULATION :

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

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	0.167	9.68	37.90	-	47.58	-	65.13	55.13	-17.55	-
2	0.287	9.81	30.20	-	40.01	-	60.62	50.62	-20.61	-
3	0.642	9.84	25.12	-	34.96	-	56.00	46.00	-21.04	-
4	1.742	9.71	18.44	-	28.15	-	56.00	46.00	-27.85	-
5	11.410	9.86	9.71	-	19.57	-	60.00	50.00	-40.43	-
6	21.590	9.97	19.13	-	29.10	-	60.00	50.00	-30.90	-

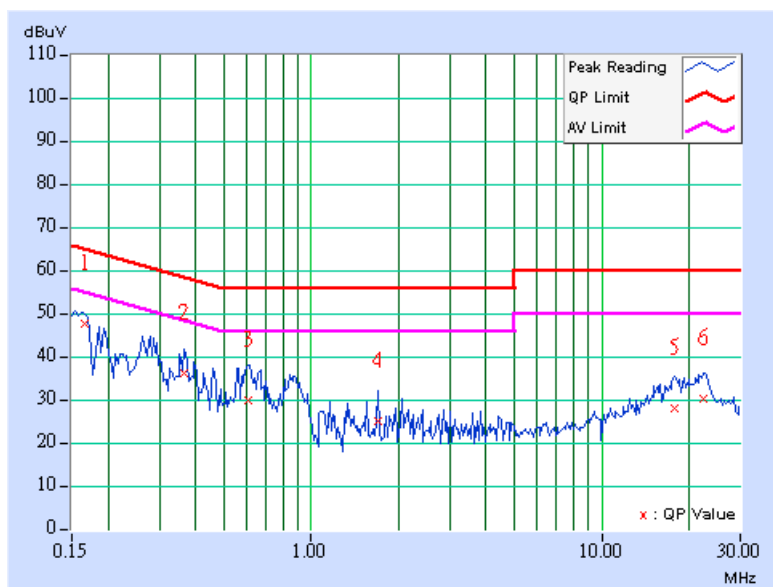
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = 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	DBPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	1Mbps	INPUT POWER	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 965hPa	TESTED BY	Rex Huang

No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
	[MHz]	Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.167	9.68	37.60	-	47.28	-	65.12	55.12	-17.84	-
2	0.365	9.90	26.05	-	35.95	-	58.62	48.62	-22.67	-
3	0.607	9.85	20.00	-	29.85	-	56.00	46.00	-26.15	-
4	1.703	9.71	15.21	-	24.92	-	56.00	46.00	-31.08	-
5	17.805	10.03	18.16	-	28.19	-	60.00	50.00	-31.81	-
6	22.441	10.11	20.11	-	30.22	-	60.00	50.00	-29.78	-

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



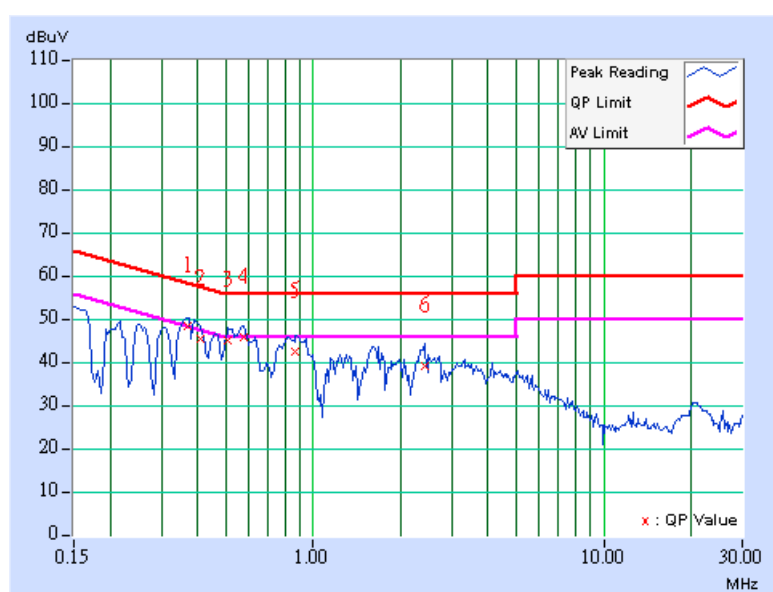
4.1.8 TEST RESULTS - Adapter 2

802.11b DSSS MODULATION :

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

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.369	9.91	38.69	32.67	48.60	42.58	58.53	48.53	-9.93	-5.95
2	0.412	9.94	35.82	-	45.76	-	57.61	47.61	-11.85	-
3	0.509	9.90	35.33	-	45.23	-	56.00	46.00	-10.77	-
4	0.580	9.87	36.24	28.29	46.11	38.16	56.00	46.00	-9.89	-7.84
5	0.869	9.73	32.95	-	42.68	-	56.00	46.00	-13.32	-
6	2.414	9.73	29.46	-	39.19	-	56.00	46.00	-16.81	-

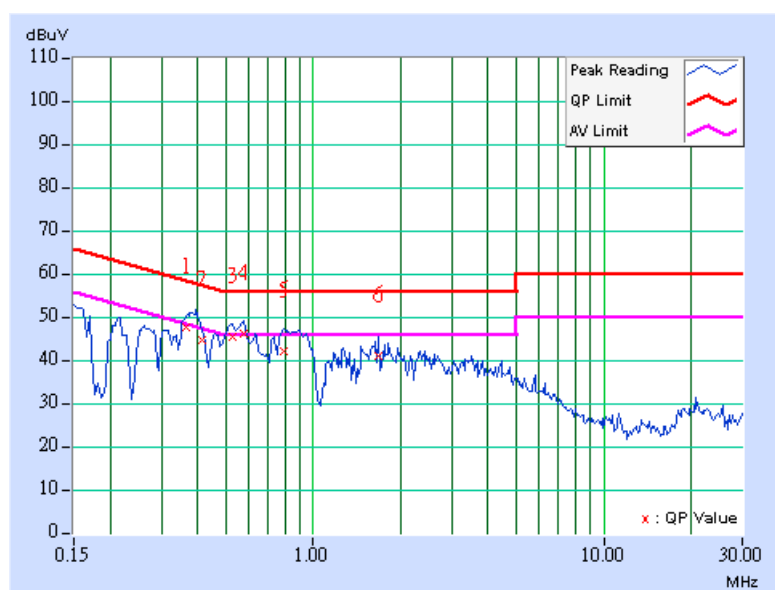
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = 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	DBPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	1Mbps	INPUT POWER	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 965hPa	TESTED BY	Rex Huang

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.364	9.90	38.06	-	47.96	-	58.63	48.63	-10.67	-
2	0.414	9.93	35.28	-	45.21	-	57.57	47.57	-12.36	-
3	0.525	9.88	35.92	-	45.80	-	56.00	46.00	-10.20	-
4	0.580	9.86	36.69	28.29	46.55	38.15	56.00	46.00	-9.45	-7.85
5	0.791	9.76	32.63	-	42.39	-	56.00	46.00	-13.61	-
6	1.688	9.70	31.44	-	41.14	-	56.00	46.00	-14.86	-

- 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.



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.

**A D T**

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ADVANTEST Spectrum Analyzer	R3271A	85060311	July 16, 2008	July 15, 2009
HP Pre_Amplifier	8449B	3008A01922	Sep. 25, 2008	Sep. 24, 2009
ROHDE & SCHWARZ Test Receiver	ESCS30	100375	April 01, 2008	Mar. 31, 2009
SCHWARZBECK TRILOG Broadband Antenna	VULB 9168	138	April 30, 2008	April 29, 2009
Schwarzbeck Horn_Antenna	BBHA9120	D124	Dec. 17, 2007	Dec. 16, 2008
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 28, 2008	Jan. 27, 2009
RF Switches	EMH-011	08009	Oct. 07, 2008	Oct. 06, 2009
RF CABLE (Chaintek)	SF102	22054-2	Dec. 07, 2007	Dec. 06, 2008
RF Cable	8DFB	STCCAB-30 M-1GHz	Oct. 07, 2008	Oct. 06, 2009
Software	ADT_Radiated_V7.6.15.9.2	NA	NA	NA
CT Antenna Tower & Turn Table	NA	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 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 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 7450G-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 10 meter open area test site. 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.

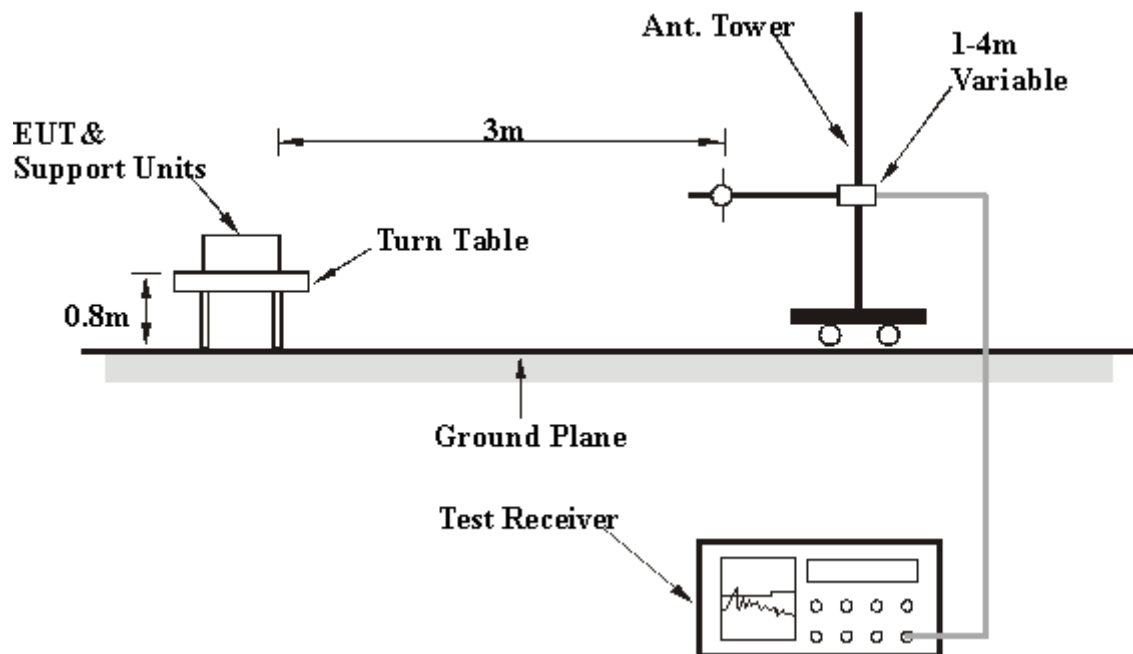
NOTE:

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 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz 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

Below 1GHz Test Data

4.2.7 TEST RESULTS

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	28deg. C, 64%RH 965hPa	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	125.00	33.89 QP	43.50	-9.61	1.51 H	264	20.44	13.46
2	249.99	32.43 QP	46.00	-13.57	1.31 H	294	17.93	14.50
3	500.00	38.13 QP	46.00	-7.87	1.32 H	164	16.82	21.31
4	625.00	37.20 QP	46.00	-8.80	1.26 H	216	13.29	23.91
5	749.99	33.40 QP	46.00	-12.60	1.32 H	163	6.40	27.00
6	875.00	43.54 QP	46.00	-2.46	1.00 H	129	14.27	29.27
7	914.33	40.70 QP	46.00	-5.30	1.16 H	124	10.91	29.79
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	45.57	32.98 QP	40.00	-7.02	1.01 V	334	19.88	13.10
2	74.28	32.24 QP	40.00	-7.76	1.01 V	127	20.42	11.82
3	125.00	26.94 QP	43.50	-16.56	1.01 V	142	13.49	13.46
4	249.99	26.40 QP	46.00	-19.60	1.01 V	153	11.90	14.50
5	350.00	32.51 QP	46.00	-13.49	1.01 V	211	14.32	18.18
6	500.00	38.24 QP	46.00	-7.76	1.01 V	164	16.93	21.31
7	625.00	32.53 QP	46.00	-13.47	1.04 V	133	8.62	23.91
8	875.00	36.78 QP	46.00	-9.22	1.09 V	162	7.51	29.27

- 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.



A D T

Above 1GHz Test Data

4.2.8 TEST RESULTS

802.11b DSSS MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	27deg. C, 67%RH 965hPa	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	60.81 PK	74.00	-13.19	1.52 H	81	30.75	30.06
2	2390.00	52.19 AV	54.00	-1.81	1.52 H	81	22.13	30.06
3	*2412.00	103.80 PK			1.52 H	81	73.65	30.15
4	*2412.00	99.10 AV			1.52 H	81	68.95	30.15
5	4824.00	52.20 PK	74.00	-21.80	1.34 H	27	16.74	35.46
6	4824.00	47.60 AV	54.00	-6.40	1.34 H	27	12.14	35.46
7	#7236.00	55.00 PK	83.80	-28.80	1.28 H	357	13.15	41.85
8	#7236.00	45.30 AV	79.10	-33.80	1.28 H	357	3.45	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	59.57 PK	74.00	-14.43	1.10 V	352	29.51	30.06
2	2390.00	51.14 AV	54.00	-2.86	1.10 V	352	21.08	30.06
3	*2412.00	102.60 PK			1.10 V	352	72.45	30.15
4	*2412.00	97.80 AV			1.10 V	352	67.65	30.15
5	4824.00	53.30 PK	74.00	-20.70	1.45 V	67	17.84	35.46
6	4824.00	49.80 AV	54.00	-4.20	1.45 V	67	14.34	35.46
7	#7236.00	56.30 PK	82.60	-26.30	1.01 V	180	14.45	41.85
8	#7236.00	47.10 AV	77.80	-30.70	1.01 V	180	5.25	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.
 6. “ # ”: The radiated frequency is out the restricted band.



A D T

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	27deg. C, 67%RH 965hPa	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	105.70 PK			1.62 H	72	75.46	30.24
2	*2437.00	98.80 AV			1.62 H	72	68.56	30.24
3	4874.00	51.30 PK	74.00	-22.70	1.37 H	35	15.75	35.55
4	4874.00	45.30 AV	54.00	-8.70	1.37 H	35	9.75	35.55
5	7311.00	54.10 PK	74.00	-19.90	1.33 H	249	12.06	42.04
6	7311.00	43.20 AV	54.00	-10.80	1.33 H	249	1.16	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	102.20 PK			1.13 V	343	71.96	30.24
2	*2437.00	97.30 AV			1.13 V	343	67.06	30.24
3	4874.00	52.10 PK	74.00	-21.90	1.44 V	70	16.55	35.55
4	4874.00	47.60 AV	54.00	-6.40	1.44 V	70	12.05	35.55
5	7311.00	56.10 PK	74.00	-17.90	1.50 V	342	14.06	42.04
6	7311.00	45.50 AV	54.00	-8.50	1.50 V	342	3.46	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.



A D T

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	27deg. C, 67%RH 965hPa	TESTED BY	Frank Liu

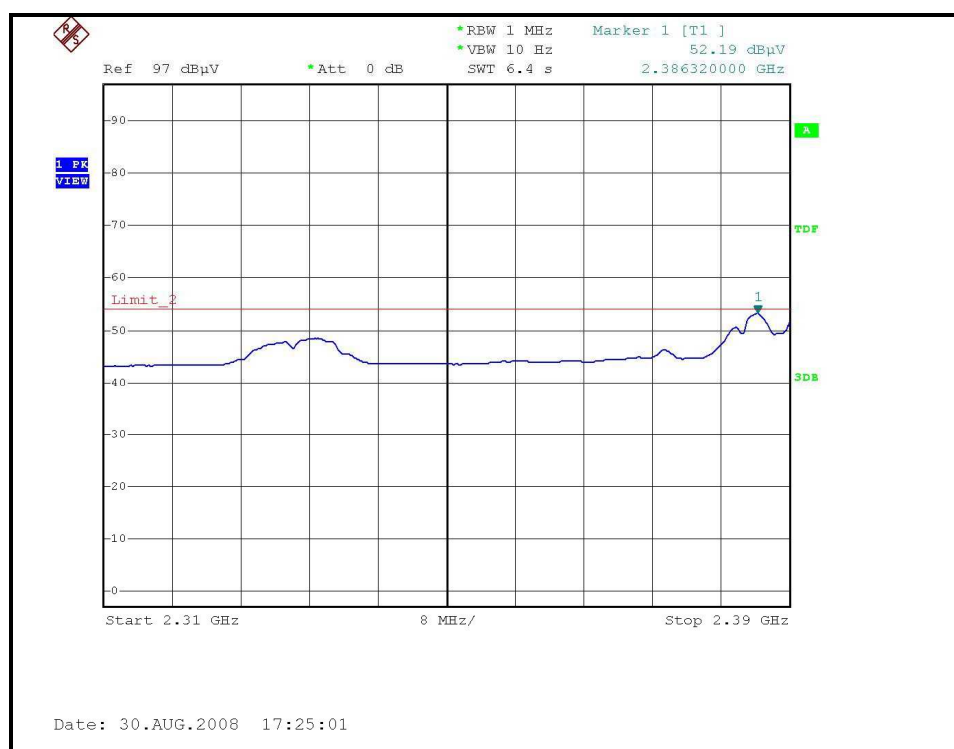
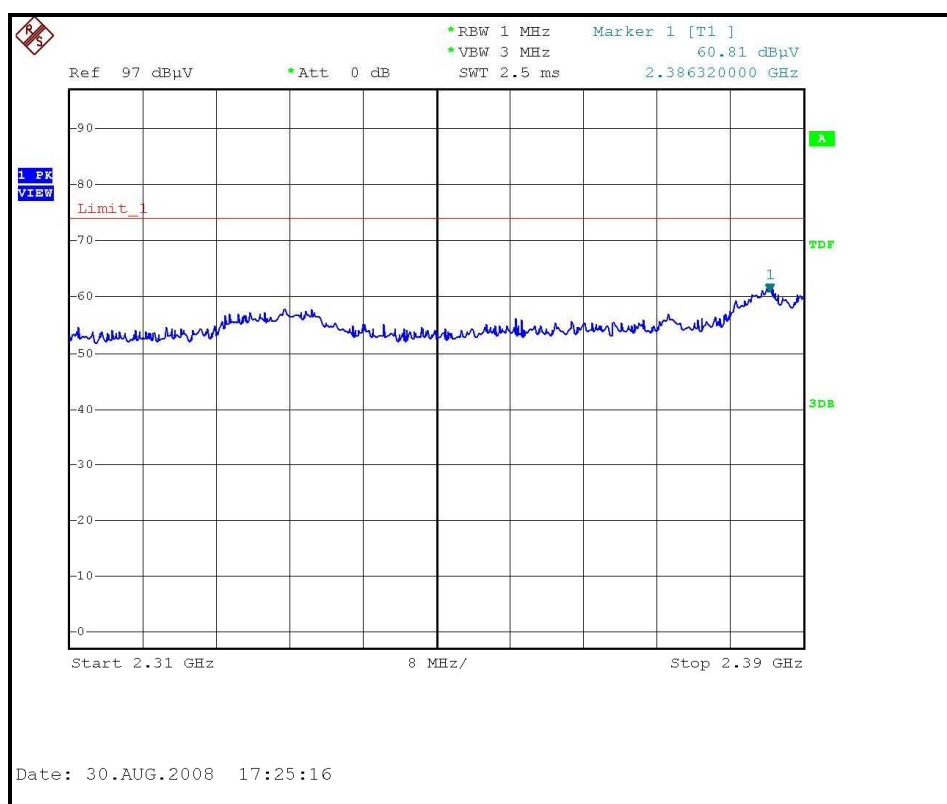
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	105.40 PK			1.53 H	80	75.06	30.34
2	*2462.00	100.30 AV			1.53 H	80	69.96	30.34
3	2484.00	59.30 PK	74.00	-14.70	1.53 H	80	28.87	30.43
4	2484.00	48.85 AV	54.00	-5.15	1.53 H	80	18.42	30.43
5	4924.00	49.67 PK	74.00	-24.33	1.19 H	5	14.04	35.63
6	4924.00	42.56 AV	54.00	-11.44	1.19 H	5	6.93	35.63
7	7386.00	53.53 PK	74.00	-20.47	1.14 H	20	11.30	42.23
8	7386.00	41.10 AV	54.00	-12.90	1.14 H	20	-1.13	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	102.30 PK			1.06 V	352	71.96	30.34
2	*2462.00	96.80 AV			1.06 V	352	66.46	30.34
3	2484.00	59.45 PK	74.00	-14.55	1.11 V	16	29.02	30.43
4	2484.00	48.32 AV	54.00	-5.68	1.11 V	16	17.89	30.43
5	4924.00	53.20 PK	74.00	-20.80	1.26 V	75	17.57	35.63
6	4924.00	49.50 AV	54.00	-4.50	1.26 V	75	13.87	35.63
7	7386.00	53.94 PK	74.00	-20.06	1.77 V	35	11.71	42.23
8	7386.00	42.30 AV	54.00	-11.70	1.77 V	35	0.07	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.

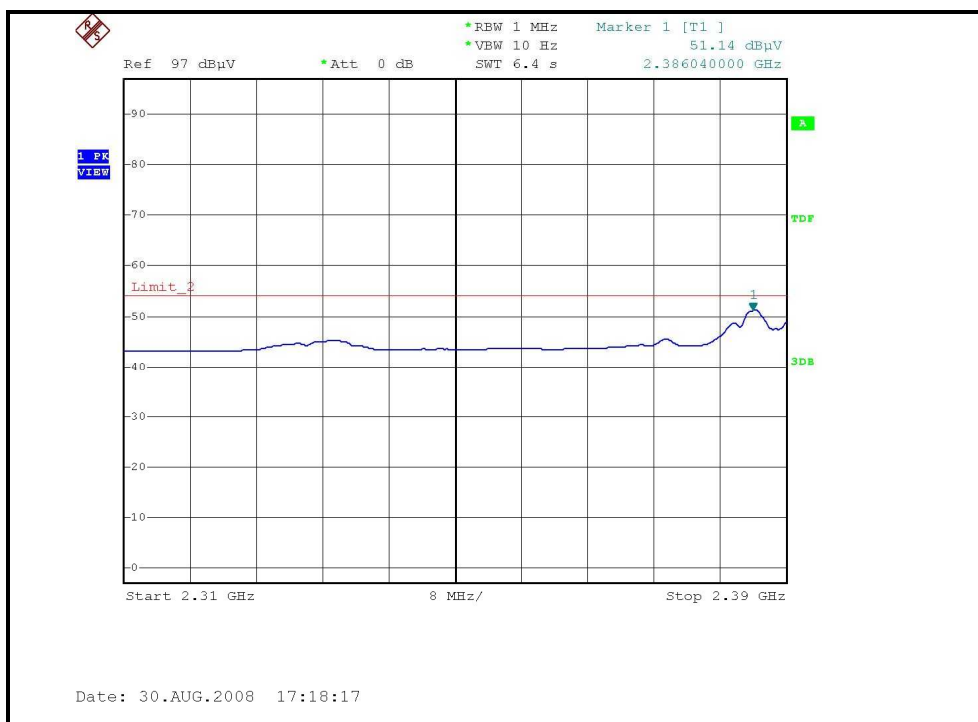
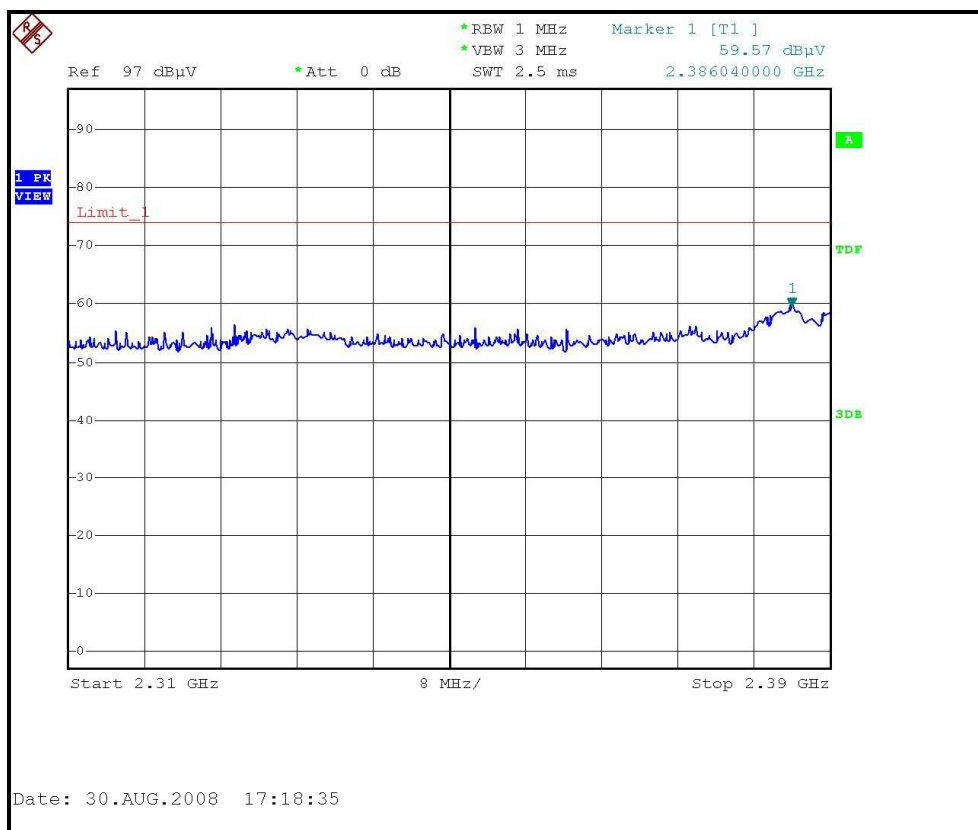


A D T

RESTRICTED BANDEDGE (802.11b MODE,CH1, HORIZONTAL)



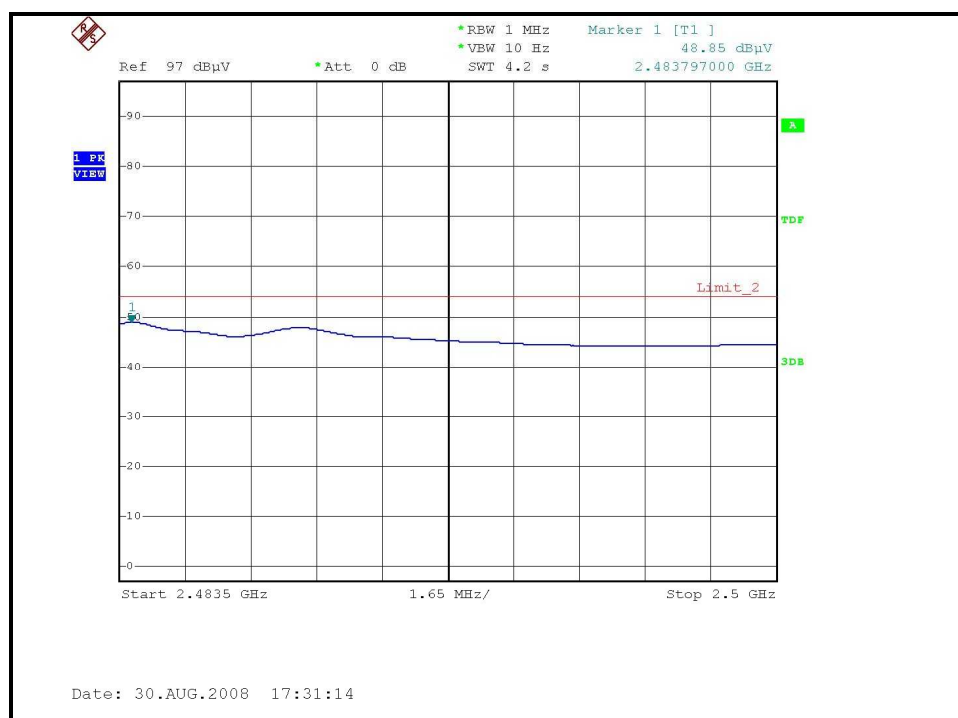
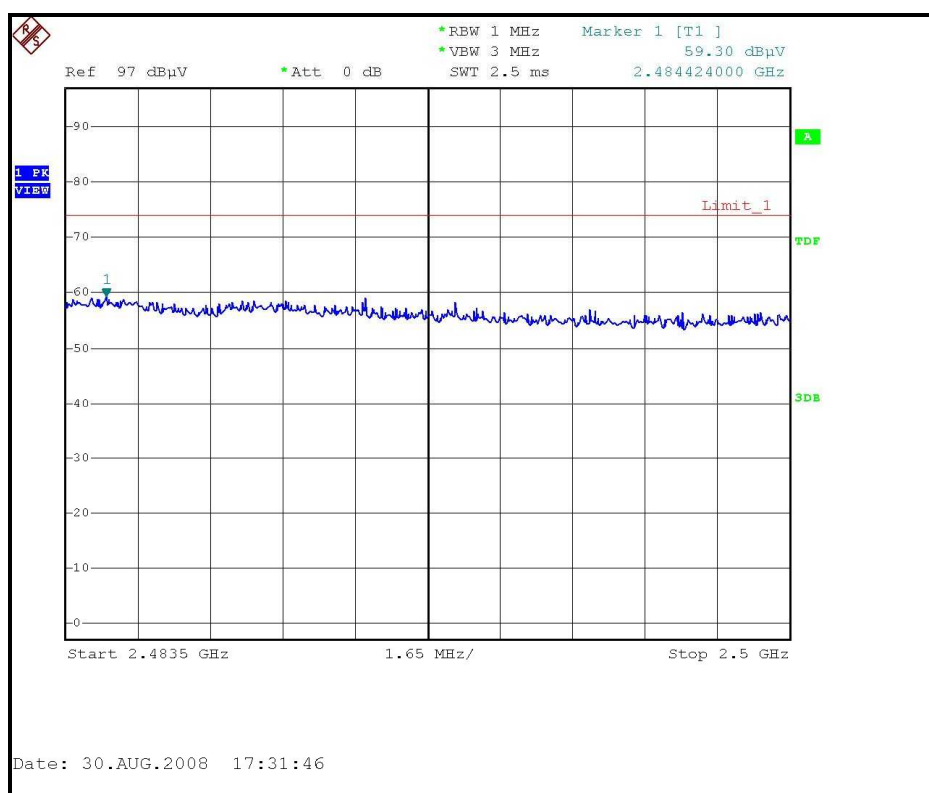
RESTRICTED BANDEDGE (802.11b MODE,CH1, VERTICAL)



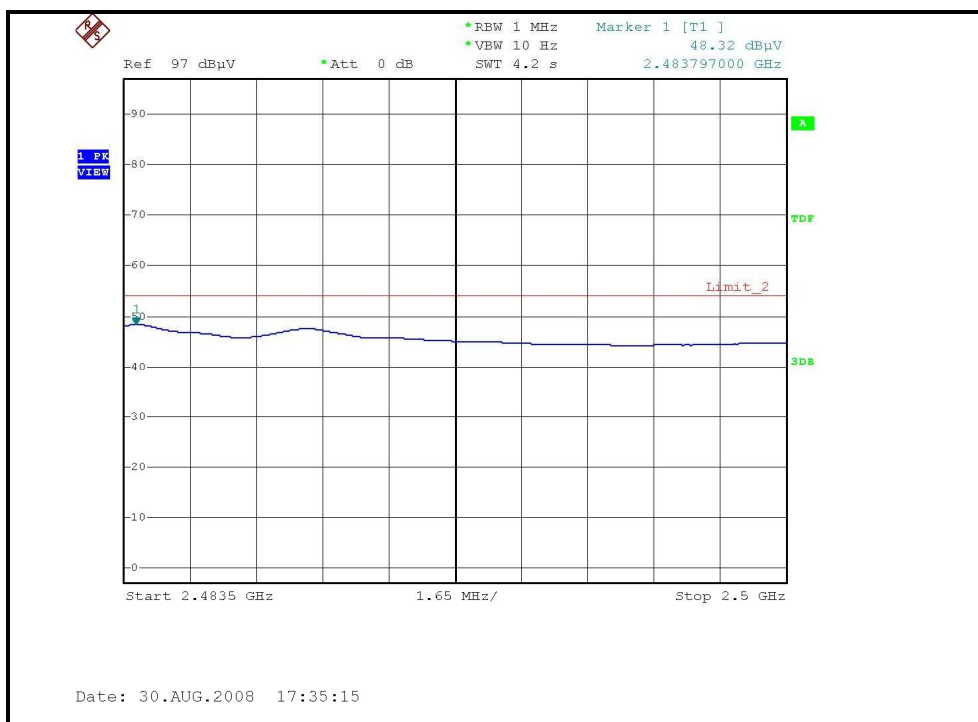
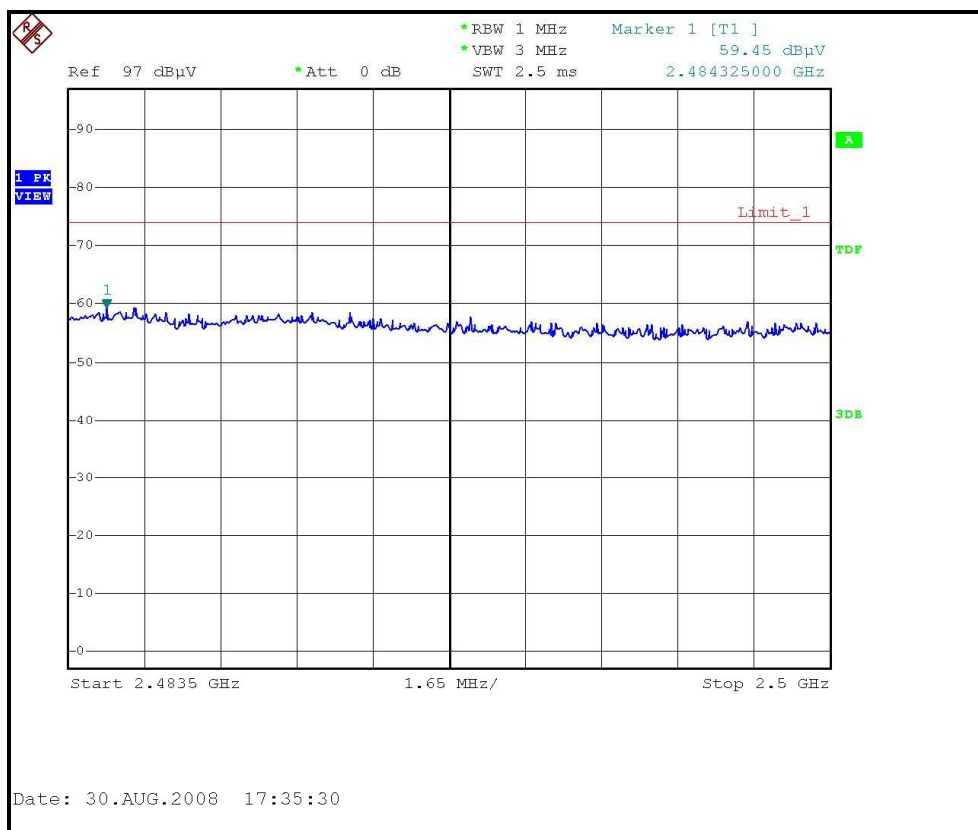


A D T

RESTRICTED BANDEDGE (802.11b MODE,CH11, HORIZONTAL)



RESTRICTED BANDEDGE (802.11b MODE,CH11, VERTICAL)





A D T

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	27deg. C, 67%RH 965hPa	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	68.07 PK	74.00	-5.93	1.52 H	81	38.01	30.06
2	2390.00	50.18 AV	54.00	-3.82	1.52 H	81	20.12	30.06
3	*2412.00	104.90 PK			1.52 H	81	74.75	30.15
4	*2412.00	94.40 AV			1.52 H	81	64.25	30.15
5	4824.00	46.50 PK	74.00	-27.50	1.39 H	37	11.04	35.46
6	4824.00	34.30 AV	54.00	-19.70	1.39 H	37	-1.16	35.46
7	#7236.00	54.10 PK	84.90	-30.80	1.67 H	28	12.25	41.85
8	#7236.00	41.60 AV	74.40	-32.80	1.67 H	28	-0.25	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	69.61 PK	74.00	-4.39	1.14 V	249	39.55	30.06
2	2390.00	50.27 AV	54.00	-3.73	1.14 V	249	20.21	30.06
3	*2412.00	104.00 PK			1.08 V	250	73.85	30.15
4	*2412.00	93.40 AV			1.08 V	250	63.25	30.15
5	4824.00	50.30 PK	74.00	-23.70	1.32 V	62	14.84	35.46
6	4824.00	36.80 AV	54.00	-17.20	1.32 V	62	1.34	35.46
7	#7236.00	56.80 PK	84.00	-27.20	1.34 V	339	14.95	41.85
8	#7236.00	42.40 AV	73.40	-31.00	1.34 V	339	0.55	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.
 6. “#”: The radiated frequency is out the restricted band.



A D T

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	27deg. C, 67%RH 965hPa	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	105.10 PK			1.51 H	69	74.86	30.24
2	*2437.00	94.60 AV			1.51 H	69	64.36	30.24
3	4874.00	45.40 PK	74.00	-28.60	1.43 H	29	9.85	35.55
4	4874.00	34.10 AV	54.00	-19.90	1.43 H	29	-1.45	35.55
5	7311.00	53.30 PK	74.00	-20.70	1.65 H	34	11.26	42.04
6	7311.00	42.10 AV	54.00	-11.90	1.65 H	34	0.06	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	104.60 PK			1.09 V	264	74.36	30.24
2	*2437.00	93.90 AV			1.09 V	264	63.66	30.24
3	4874.00	49.70 PK	74.00	-24.30	1.31 V	69	14.15	35.55
4	4874.00	36.90 AV	54.00	-17.10	1.31 V	69	1.35	35.55
5	7311.00	55.70 PK	74.00	-18.30	1.39 V	242	13.66	42.04
6	7311.00	43.40 AV	54.00	-10.60	1.39 V	242	1.36	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.



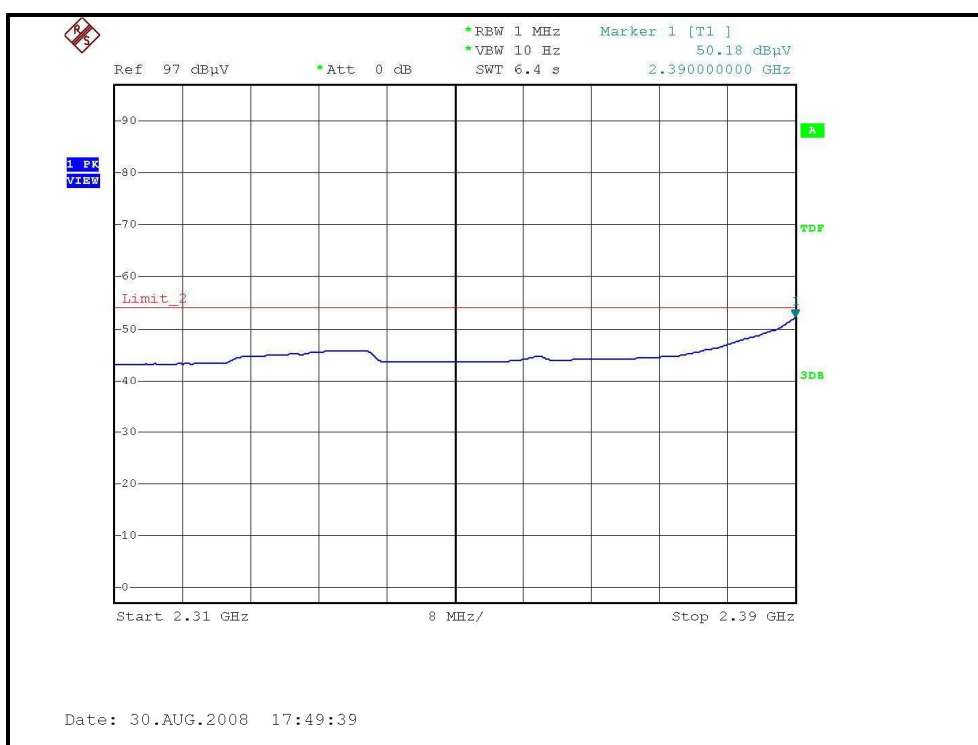
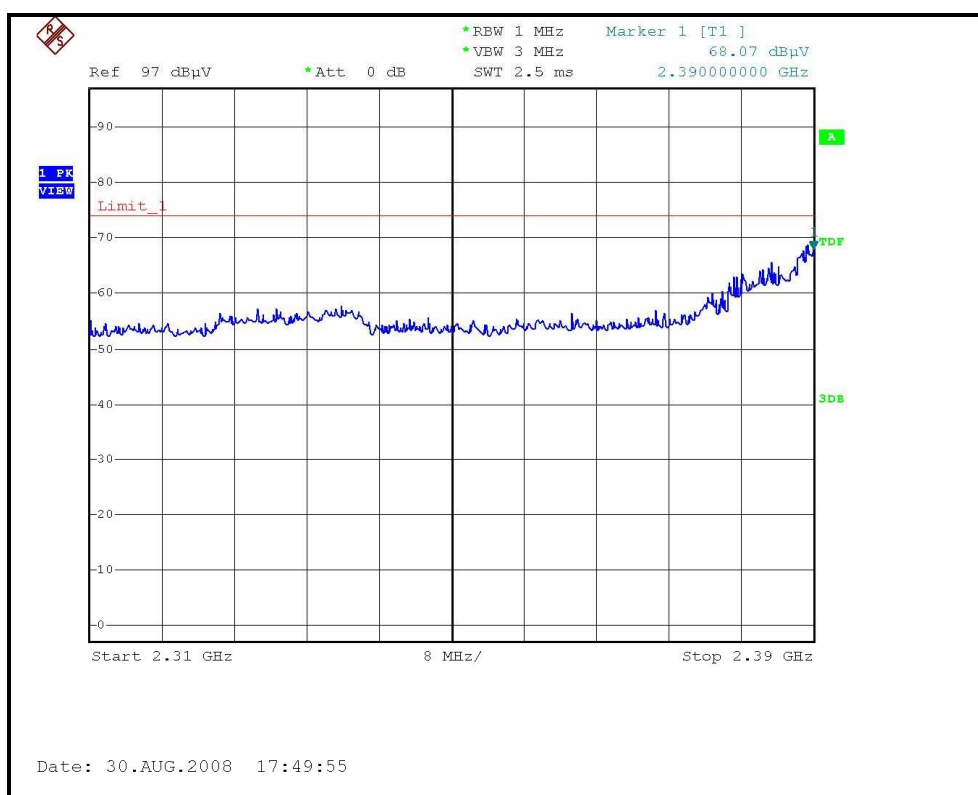
A D T

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	27deg. C, 67%RH 965hPa	TESTED BY	Frank Liu

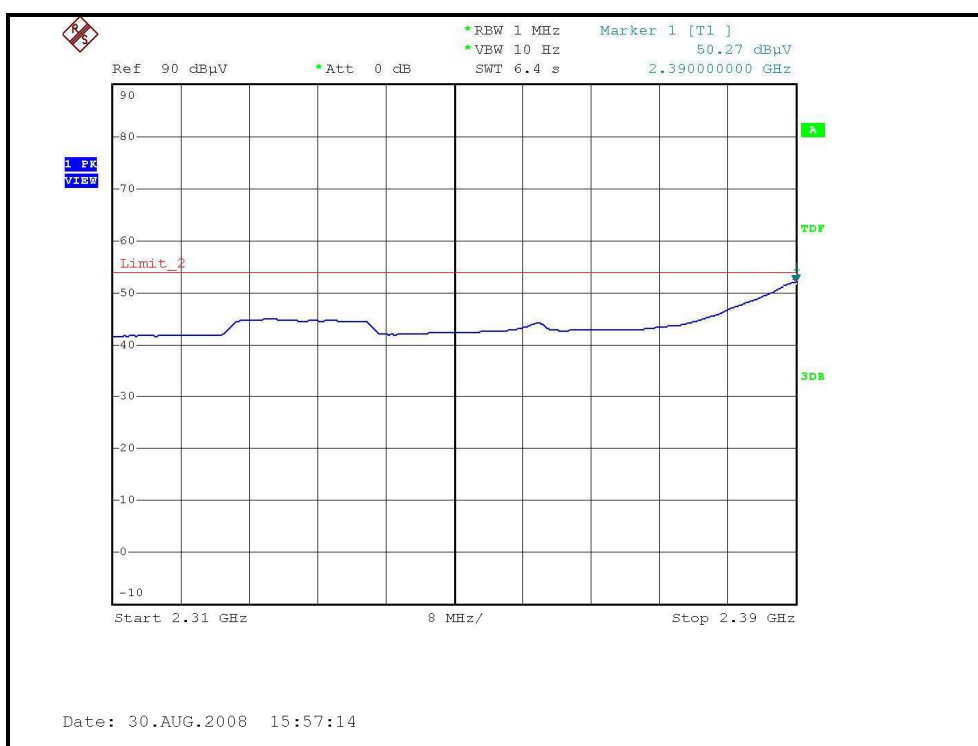
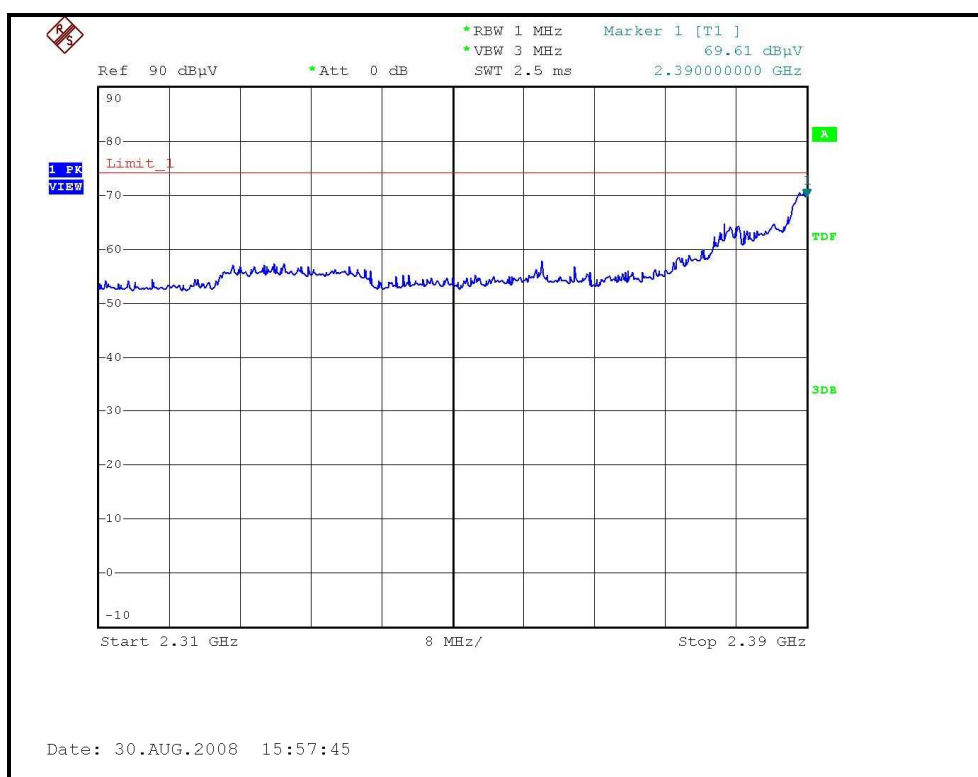
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	105.80 PK			1.53 H	78	75.46	30.34
2	*2462.00	95.40 AV			1.53 H	78	65.06	30.34
3	2483.50	72.00 PK	74.00	-2.00	1.53 H	81	41.57	30.43
4	2483.50	51.70 AV	54.00	-2.30	1.53 H	81	21.27	30.43
5	4924.00	45.10 PK	74.00	-28.90	1.44 H	32	9.47	35.63
6	4924.00	34.20 AV	54.00	-19.80	1.44 H	32	-1.43	35.63
7	7386.00	53.60 PK	74.00	-20.40	1.64 H	35	11.37	42.23
8	7386.00	43.20 AV	54.00	-10.80	1.64 H	35	0.97	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	105.10 PK			1.01 V	278	74.76	30.34
2	*2462.00	94.20 AV			1.01 V	278	63.86	30.34
3	2483.50	68.16 PK	74.00	-5.84	1.60 V	99	37.73	30.43
4	2483.50	50.99 AV	54.00	-3.01	1.60 V	99	20.56	30.43
5	4924.00	49.50 PK	74.00	-24.50	1.39 V	74	13.87	35.63
6	4924.00	36.70 AV	54.00	-17.30	1.39 V	74	1.07	35.63
7	7386.00	53.00 PK	74.00	-21.00	1.40 V	42	10.77	42.23
8	7386.00	44.00 AV	54.00	-10.00	1.40 V	42	1.77	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.

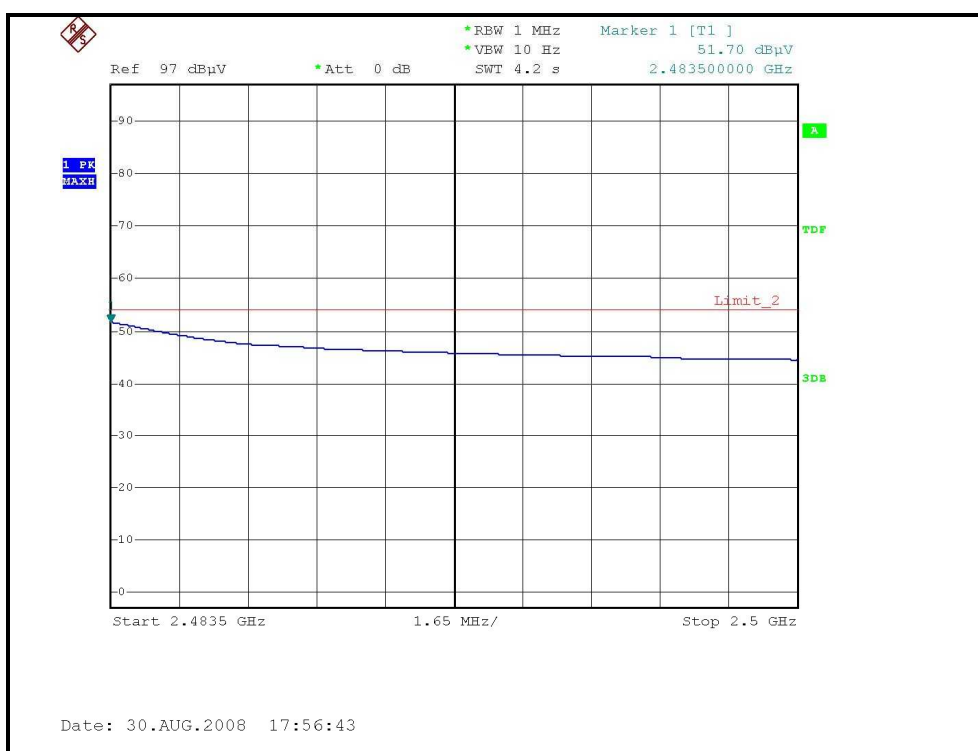
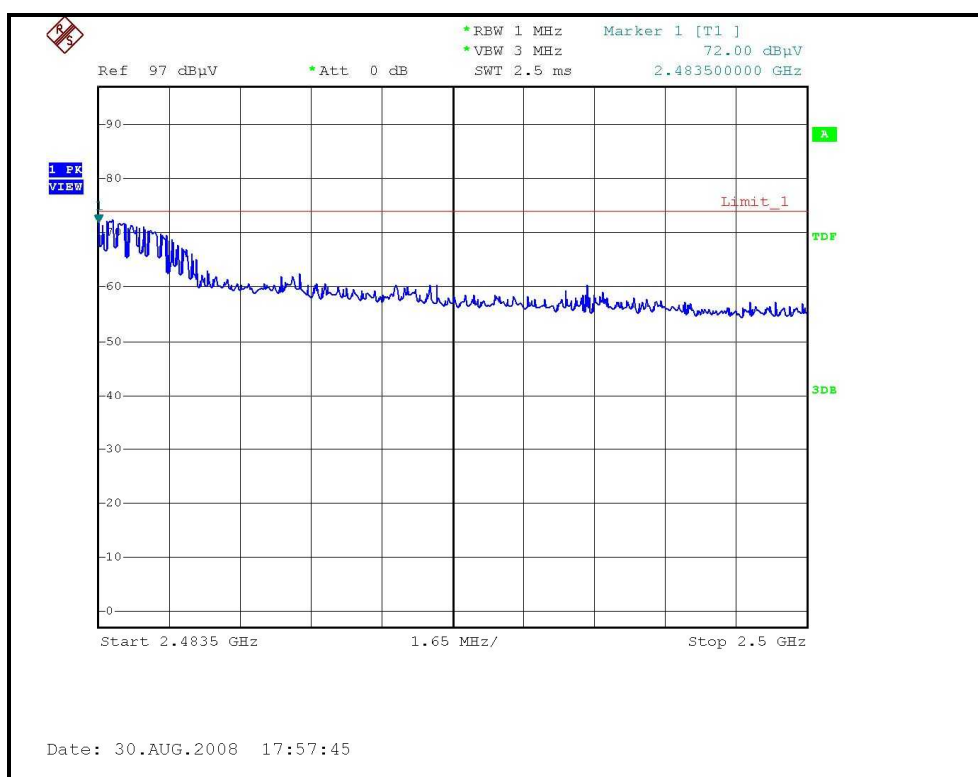
RESTRICTED BANDEDGE (802.11g MODE,CH1, HORIZONTAL)



RESTRICTED BANDEDGE (802.11g MODE,CH1, VERTICAL)



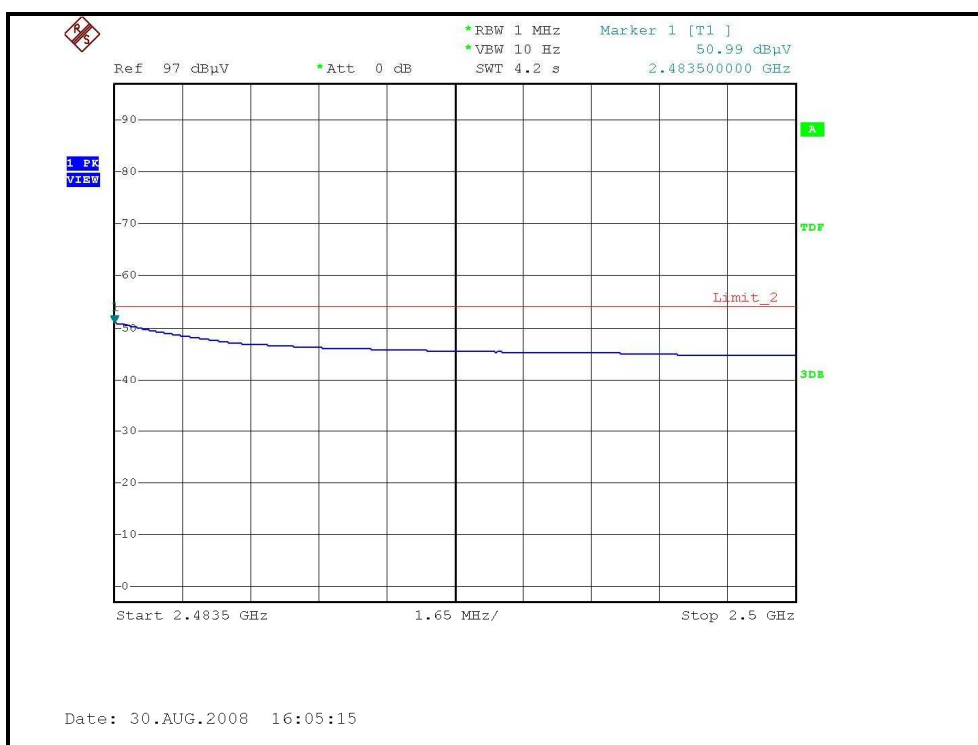
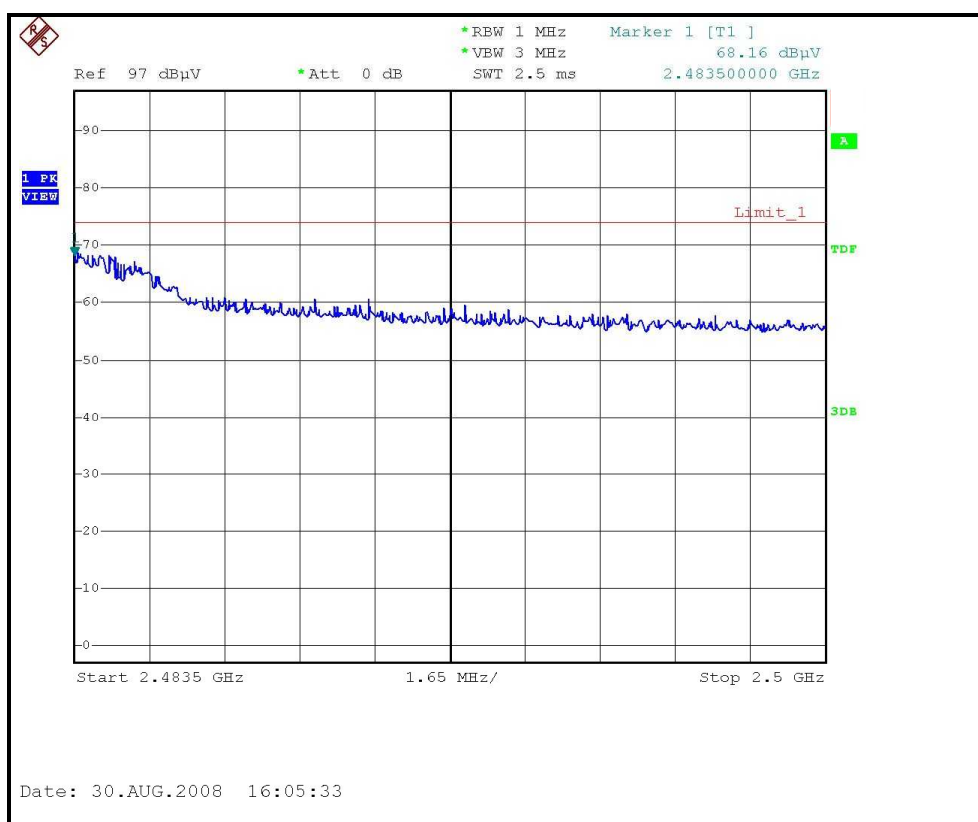
RESTRICTED BANDEDGE (802.11g MODE,CH11, HORIZONTAL)





A D T

RESTRICTED BANDEDGE (802.11g MODE,CH11, VERTICAL)





A D T

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	27deg. C, 67%RH 965hPa	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	62.79 PK	74.00	-11.21	1.61 H	347	32.73	30.06
2	2390.00	48.87 AV	54.00	-5.13	1.61 H	347	18.81	30.06
3	*2412.00	101.50 PK			1.62 H	73	71.35	30.15
4	*2412.00	90.60 AV			1.62 H	73	60.45	30.15
5	4824.00	41.30 PK	74.00	-32.70	1.36 H	36	5.84	35.46
6	4824.00	32.10 AV	54.00	-21.90	1.36 H	36	-3.36	35.46
7	#7236.00	51.20 PK	81.50	-30.30	1.33 H	342	9.35	41.85
8	#7236.00	36.20 AV	70.60	-34.40	1.33 H	342	-5.65	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	2390.00	60.48 PK	74.00	-13.52	1.01 V	80	30.42	30.06
2	2390.00	47.87 AV	54.00	-6.13	1.01 V	80	17.81	30.06
3	*2412.00	98.00 PK			1.00 V	21	67.85	30.15
4	*2412.00	87.40 AV			1.00 V	21	57.25	30.15
5	4824.00	47.40 PK	74.00	-26.60	1.20 V	67	11.94	35.46
6	4824.00	33.20 AV	54.00	-20.80	1.20 V	67	-2.26	35.46
7	#7236.00	52.23 PK	78.00	-25.77	1.53 V	341	10.38	41.85
8	#7236.00	38.40 AV	67.40	-29.00	1.53 V	341	-3.45	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.
 6. “#”: The radiated frequency is out the restricted band.



A D T

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	27deg. C, 67%RH 965hPa	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	102.50 PK			1.63 H	72	72.26	30.24
2	*2437.00	90.80 AV			1.63 H	72	60.56	30.24
3	4874.00	40.60 PK	74.00	-33.40	1.41 H	43	5.05	35.55
4	4874.00	30.10 AV	54.00	-23.90	1.41 H	43	-5.45	35.55
5	7311.00	50.30 PK	74.00	-23.70	1.32 H	324	8.26	42.04
6	7311.00	35.30 AV	54.00	-18.70	1.32 H	324	-6.74	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	96.78 PK			1.00 V	20	66.54	30.24
2	*2437.00	85.96 AV			1.00 V	20	55.72	30.24
3	4874.00	46.30 PK	74.00	-27.70	1.19 V	74	10.75	35.55
4	4874.00	32.60 AV	54.00	-21.40	1.19 V	74	-2.95	35.55
5	7311.00	52.10 PK	74.00	-21.90	1.51 V	333	10.06	42.04
6	7311.00	36.40 AV	54.00	-17.60	1.51 V	333	-5.64	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.



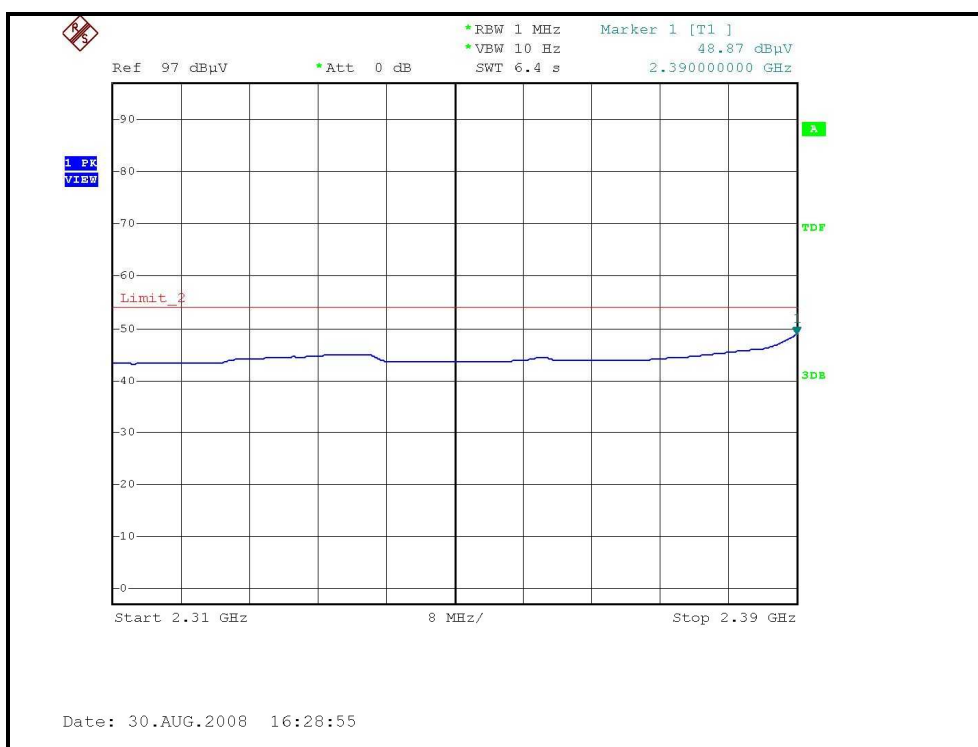
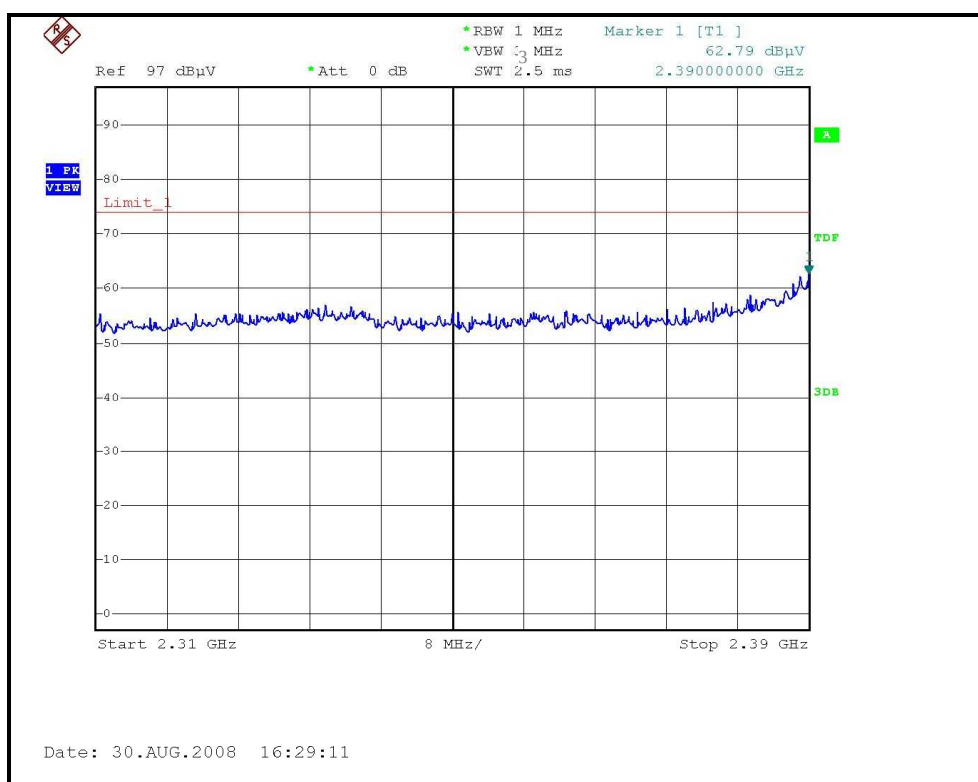
A D T

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	27deg. C, 67%RH 965hPa	TESTED BY	Frank Liu

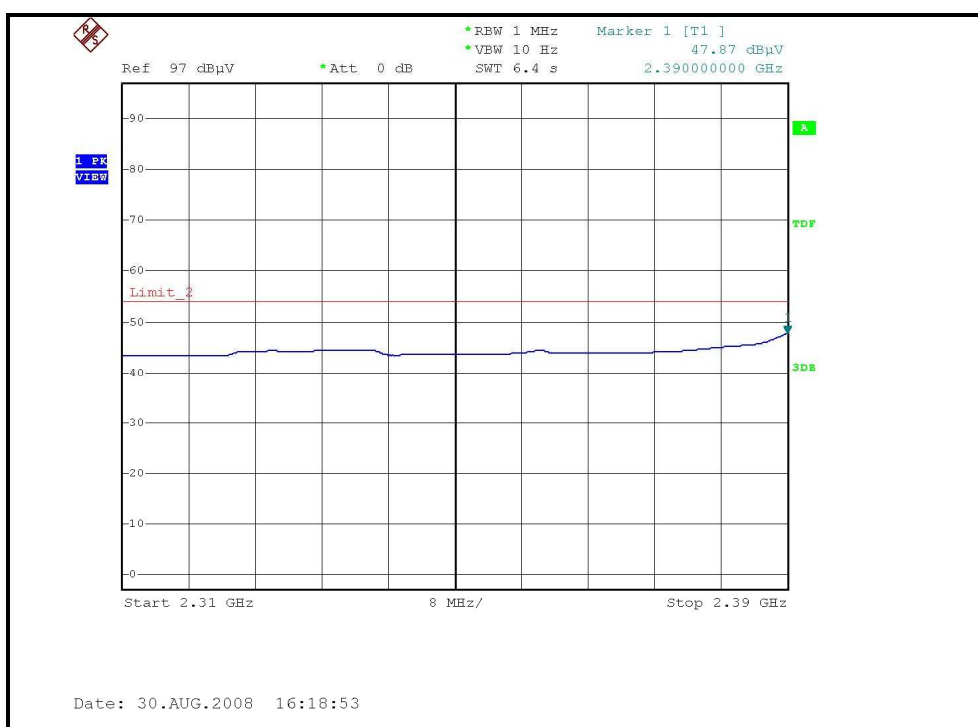
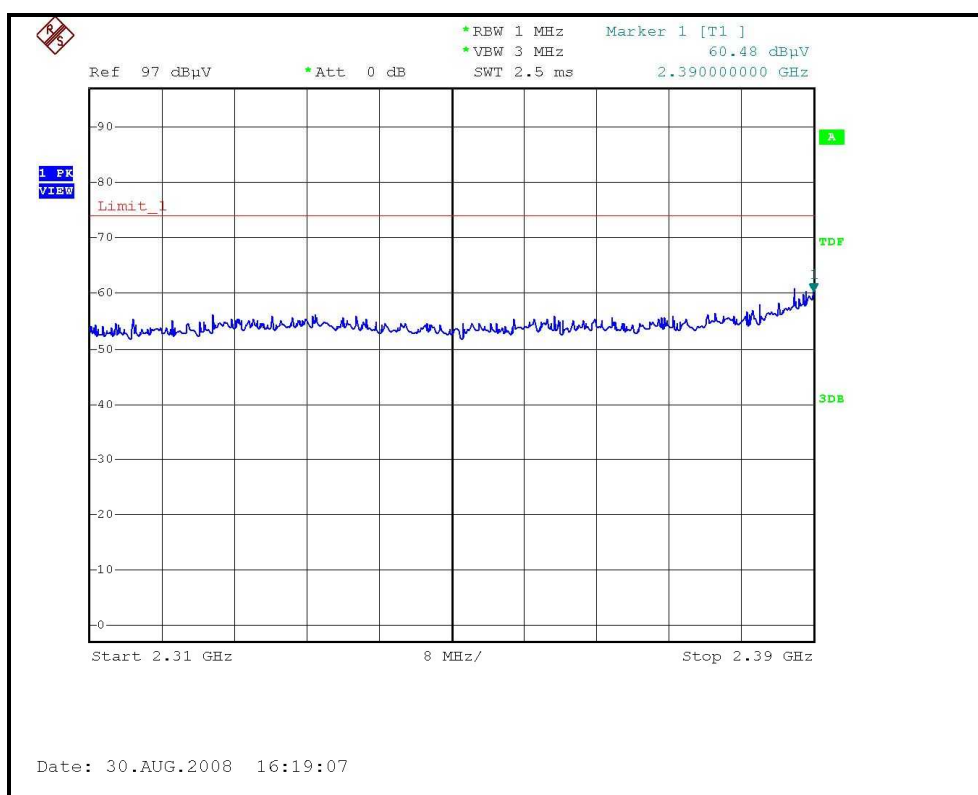
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	101.80 PK			1.63 H	76	71.46	30.34
2	*2462.00	90.50 AV			1.63 H	76	60.16	30.34
3	2483.50	60.62 PK	74.00	-13.38	1.50 H	338	30.19	30.43
4	2483.50	46.51 AV	54.00	-7.49	1.50 H	338	16.08	30.43
5	4924.00	42.30 PK	74.00	-31.70	1.26 H	53	6.67	35.63
6	4924.00	31.30 AV	54.00	-22.70	1.26 H	53	-4.33	35.63
7	7386.00	49.30 PK	74.00	-24.70	1.34 H	331	7.07	42.23
8	7386.00	34.30 AV	54.00	-19.70	1.34 H	331	-7.93	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	96.10 PK			1.00 V	27	65.76	30.34
2	*2462.00	84.80 AV			1.00 V	27	54.46	30.34
3	2483.50	57.96 PK	74.00	-16.04	1.88 V	100	27.53	30.43
4	2483.50	45.79 AV	54.00	-8.21	1.88 V	100	15.36	30.43
5	4924.00	47.20 PK	74.00	-26.80	1.16 V	84	11.57	35.63
6	4924.00	33.40 AV	54.00	-20.60	1.16 V	84	-2.23	35.63
7	7386.00	51.30 PK	74.00	-22.70	1.49 V	321	9.07	42.23
8	7386.00	34.30 AV	54.00	-19.70	1.49 V	321	-7.93	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 (DRAFT 802.11n (20MHz) MODE,CH1, HORIZONTAL)



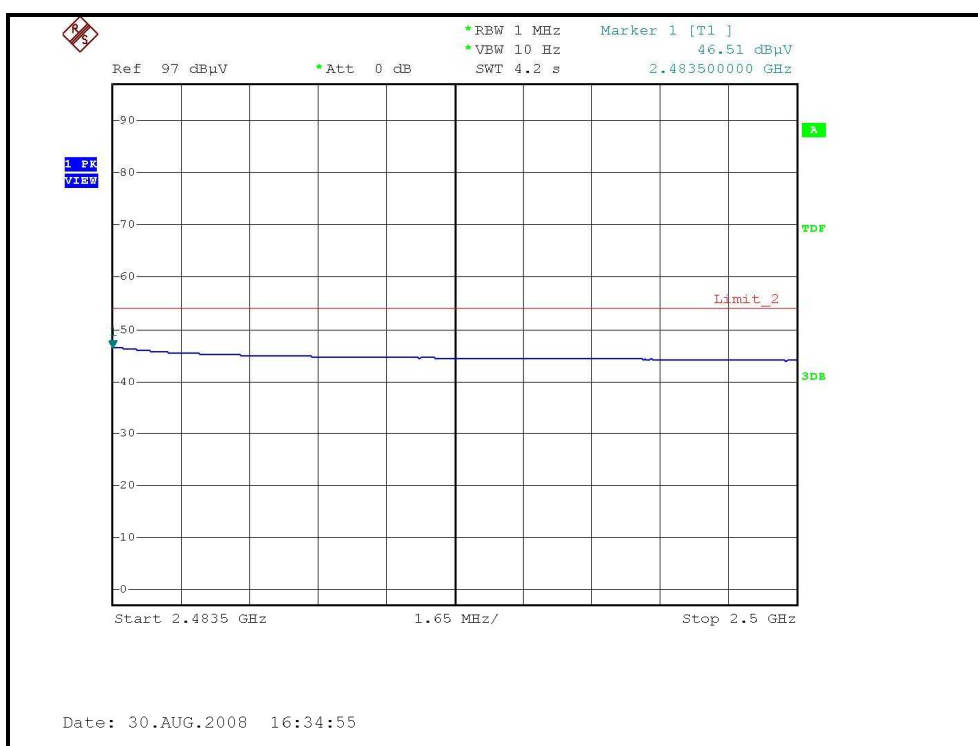
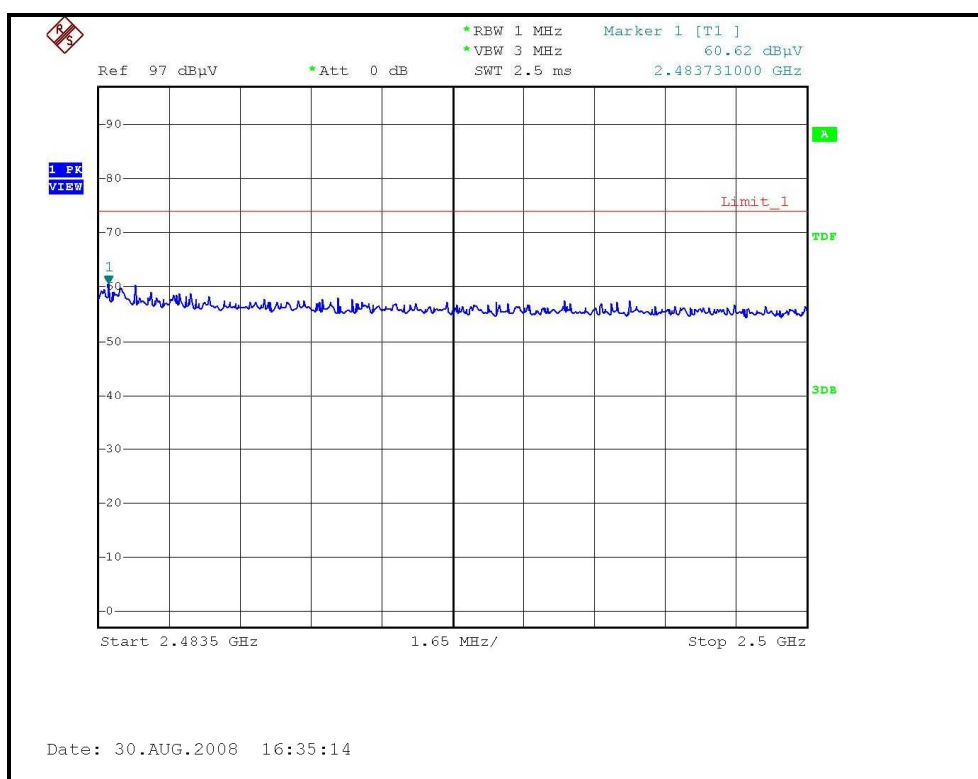
RESTRICTED BANDEDGE (DRAFT 802.11n (20MHz) MODE,CH1, VERTICAL)





A D T

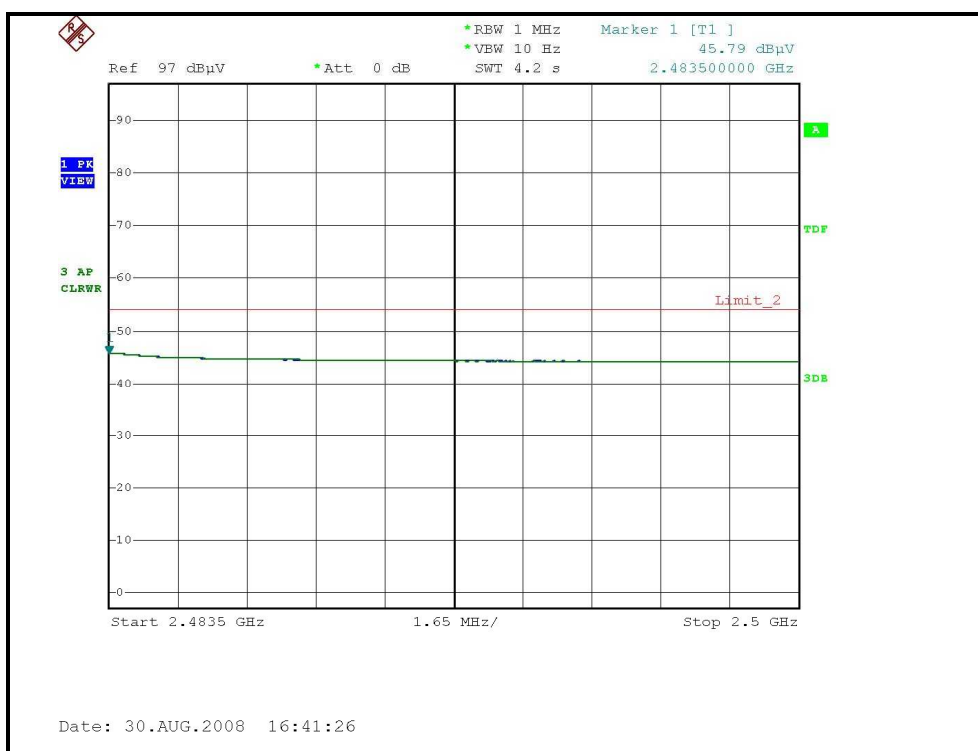
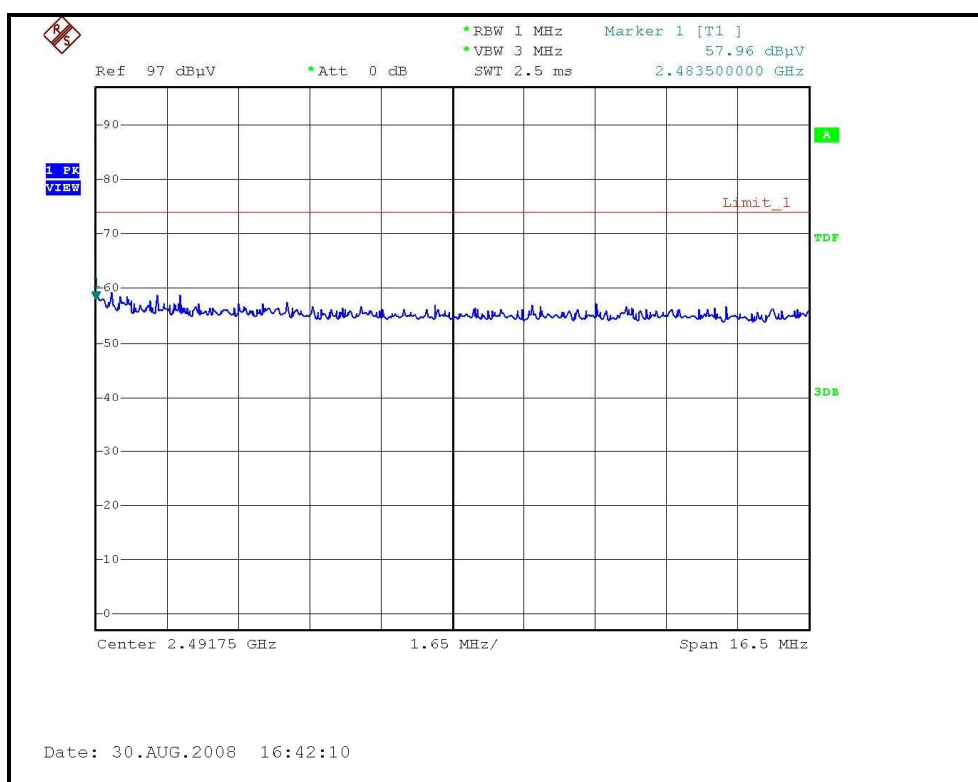
RESTRICTED BANDEDGE (DRAFT 802.11n (20MHz) MODE,CH11, HORIZONTAL)





A D T

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





A D T

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	27deg. C, 67%RH 965hPa	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	63.97 PK	74.00	-10.03	1.61 H	348	33.91	30.06
2	2390.00	52.20 AV	54.00	-1.80	1.61 H	348	22.14	30.06
3	*2422.00	99.60 PK			1.63 H	73	69.41	30.19
4	*2422.00	88.30 AV			1.63 H	73	58.11	30.19
5	4844.00	41.20 PK	74.00	-32.80	1.41 H	29	5.70	35.50
6	4844.00	30.70 AV	54.00	-23.30	1.41 H	29	-4.80	35.50
7	7266.00	48.30 PK	74.00	-25.70	1.32 H	287	6.37	41.93
8	7266.00	35.40 AV	54.00	-18.60	1.32 H	287	-6.53	41.93
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	62.46 PK	74.00	-11.54	1.68 V	324	32.40	30.06
2	2390.00	50.01 AV	54.00	-3.99	1.68 V	324	19.95	30.06
3	*2422.00	91.95 PK			1.39 V	67	61.76	30.19
4	*2422.00	81.05 AV			1.39 V	67	50.86	30.19
5	4844.00	45.30 PK	74.00	-28.70	1.16 V	93	9.80	35.50
6	4844.00	31.90 AV	54.00	-22.10	1.16 V	93	-3.60	35.50
7	7266.00	51.60 PK	74.00	-22.40	1.54 V	327	9.67	41.93
8	7266.00	37.20 AV	54.00	-16.80	1.54 V	327	-4.73	41.93

- 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.



A D T

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	27deg. C, 67%RH 965hPa	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	99.50 PK			1.64 H	64	69.26	30.24
2	*2437.00	88.30 AV			1.64 H	64	58.06	30.24
3	4874.00	42.20 PK	74.00	-31.80	1.46 H	31	6.65	35.55
4	4874.00	31.00 AV	54.00	-23.00	1.46 H	31	-4.55	35.55
5	7311.00	49.30 PK	74.00	-24.70	1.37 H	266	7.26	42.04
6	7311.00	35.70 AV	54.00	-18.30	1.37 H	266	-6.34	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	91.80 PK			1.37 V	74	61.56	30.24
2	*2437.00	81.43 AV			1.37 V	74	51.19	30.24
3	4874.00	45.60 PK	74.00	-28.40	1.14 V	286	10.05	35.55
4	4874.00	32.10 AV	54.00	-21.90	1.14 V	286	-3.45	35.55
5	7311.00	51.10 PK	74.00	-22.90	1.46 V	320	9.06	42.04
6	7311.00	37.00 AV	54.00	-17.00	1.46 V	320	-5.04	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.



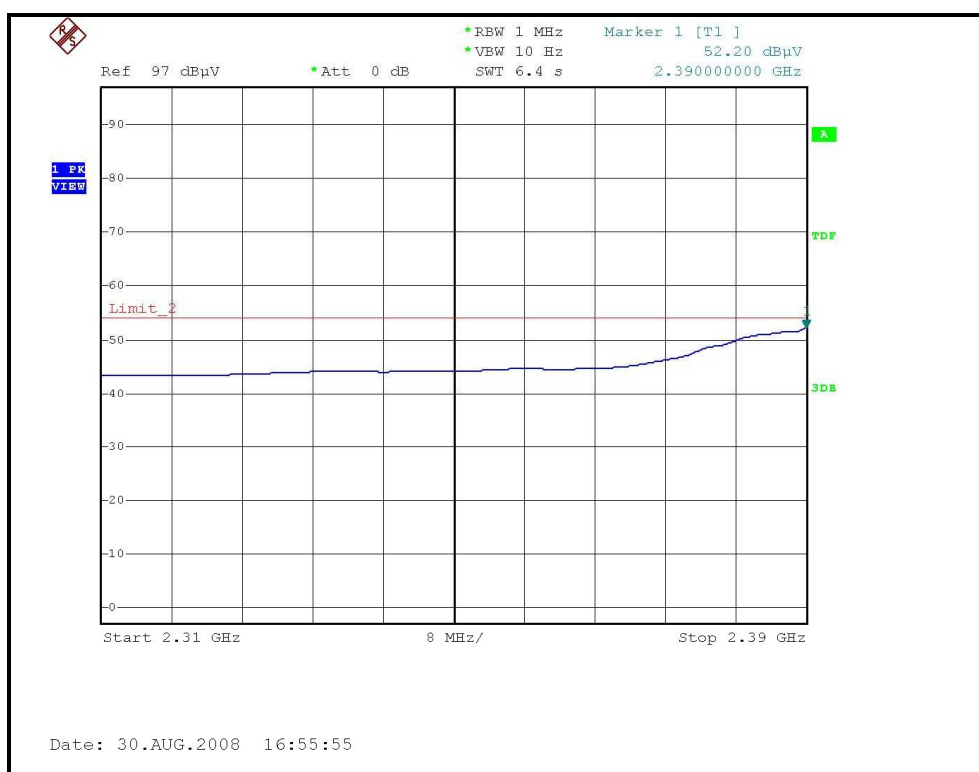
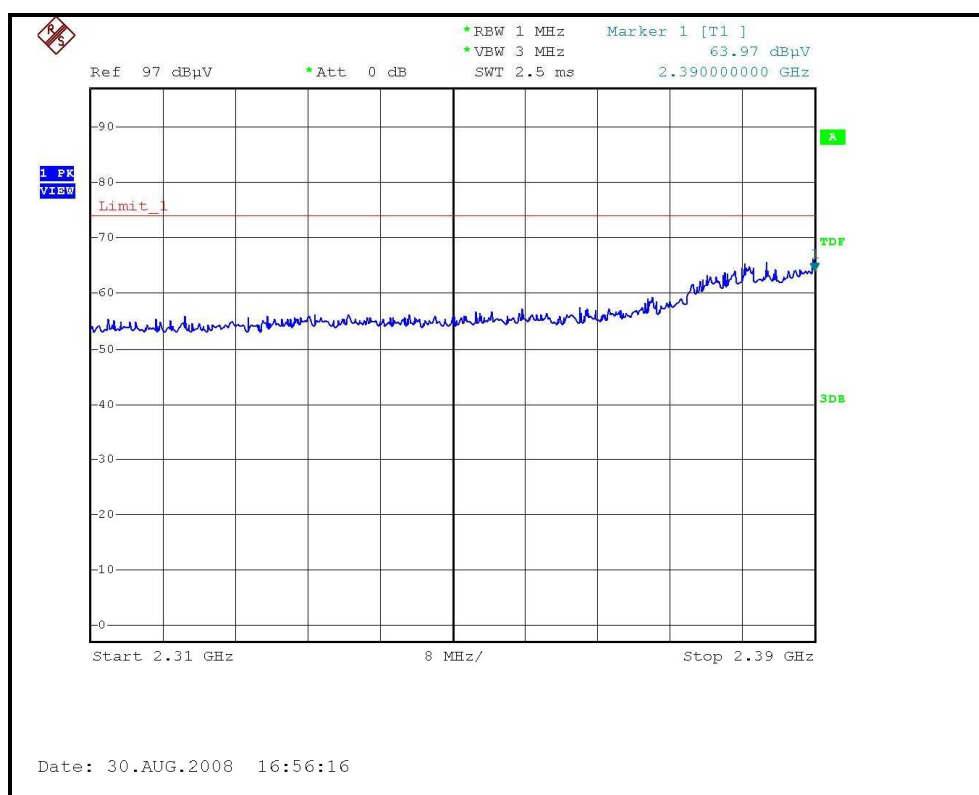
A D T

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	27deg. C, 67%RH 965hPa	TESTED BY	Frank Liu

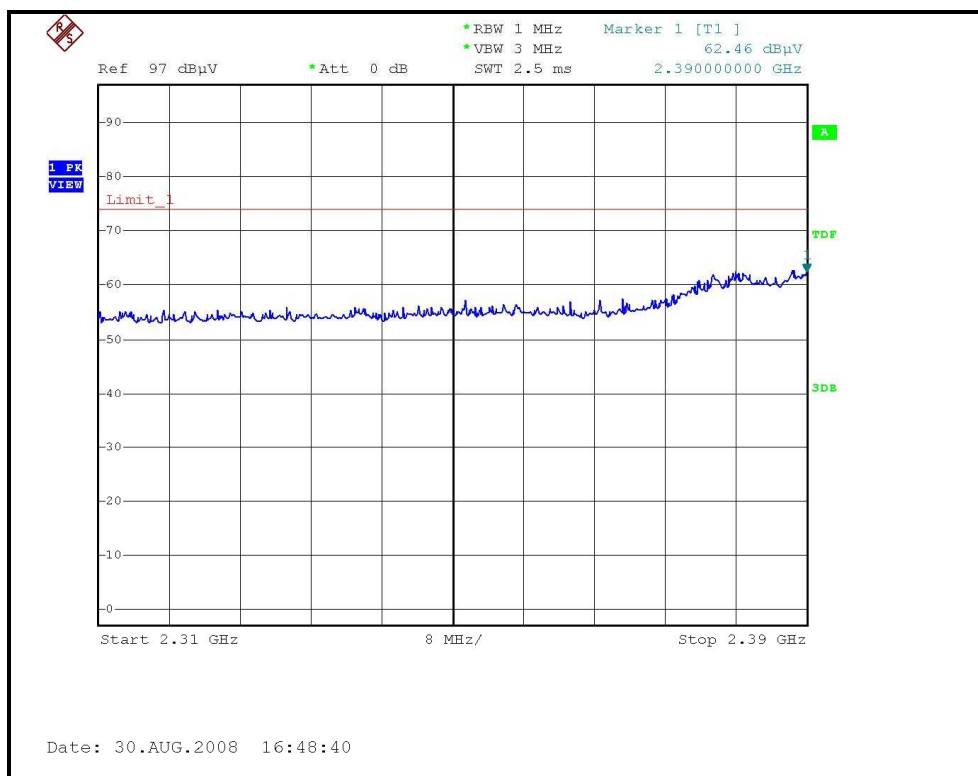
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	98.90 PK			1.60 H	70	68.60	30.30
2	*2452.00	88.40 AV			1.60 H	70	58.10	30.30
3	2483.50	59.81 PK	74.00	-14.19	1.69 H	36	29.38	30.43
4	2483.50	52.10 AV	54.00	-1.90	1.69 H	36	21.67	30.43
5	4904.00	43.60 PK	74.00	-30.40	1.40 H	46	8.00	35.60
6	4904.00	31.30 AV	54.00	-22.70	1.40 H	46	-4.30	35.60
7	7356.00	50.10 PK	74.00	-23.90	1.29 H	257	7.94	42.16
8	7356.00	36.20 AV	54.00	-17.80	1.29 H	257	-5.96	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	91.50 PK			1.36 V	29	61.20	30.30
2	*2452.00	81.87 AV			1.36 V	29	51.57	30.30
3	2483.50	58.33 PK	74.00	-15.67	1.16 V	339	27.90	30.43
4	2483.50	46.55 AV	54.00	-7.45	1.16 V	339	16.12	30.43
5	4904.00	46.10 PK	74.00	-27.90	1.12 V	93	10.50	35.60
6	4904.00	32.40 AV	54.00	-21.60	1.12 V	93	-3.20	35.60
7	7356.00	52.00 PK	74.00	-22.00	1.57 V	324	9.84	42.16
8	7356.00	37.60 AV	54.00	-16.40	1.57 V	324	-4.56	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.

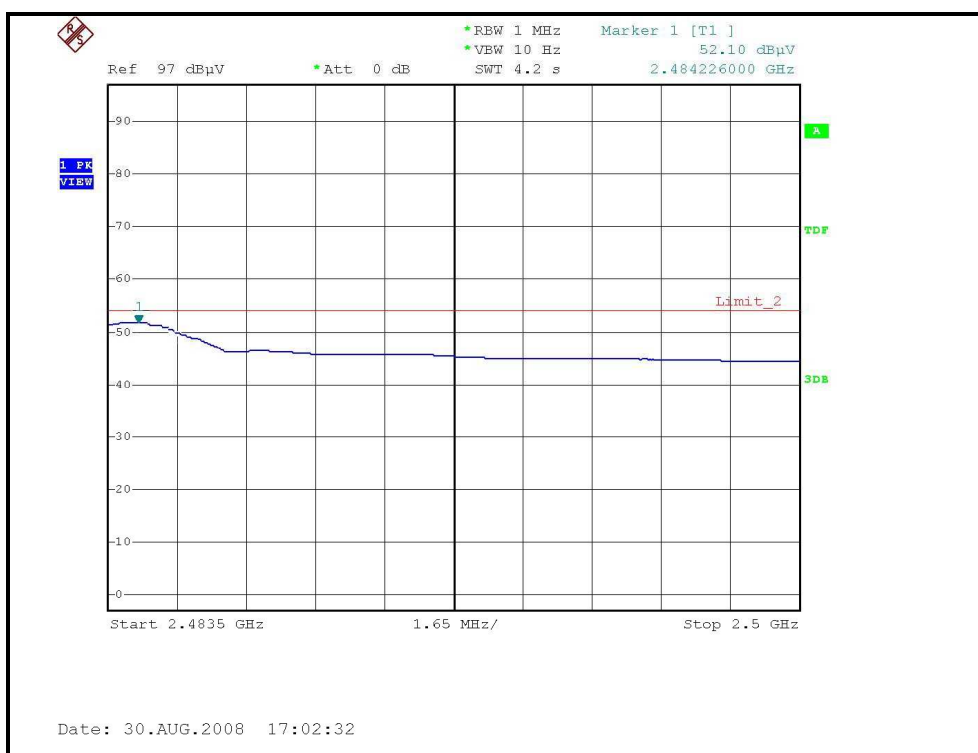
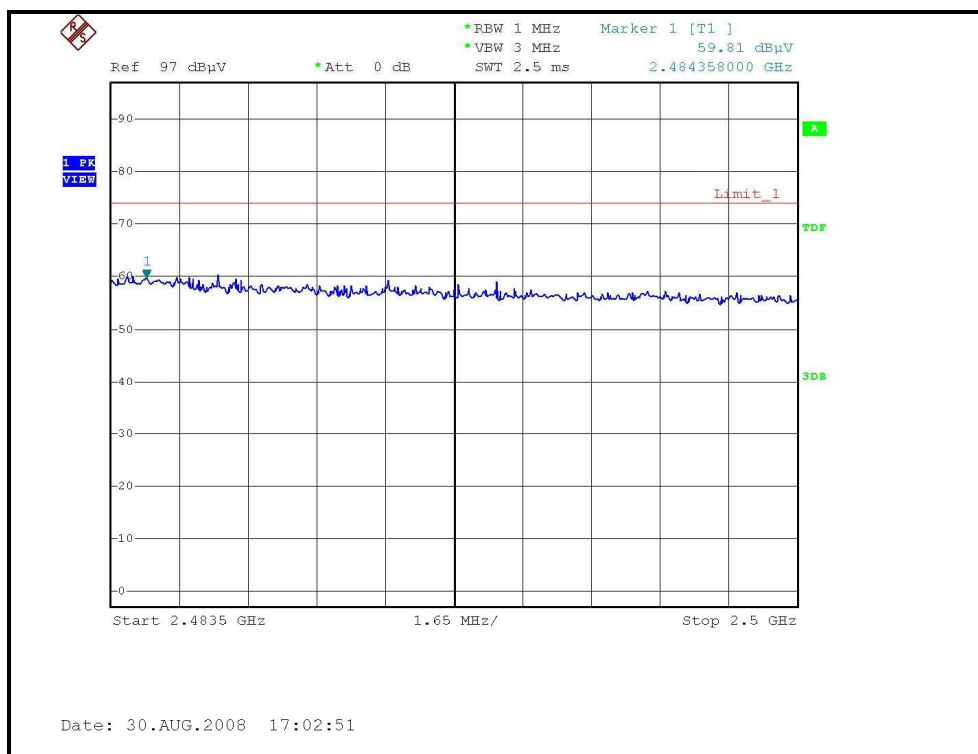
RESTRICTED BANDEDGE (DRAFT 802.11n (40MHz) MODE,CH1, HORIZONTAL)



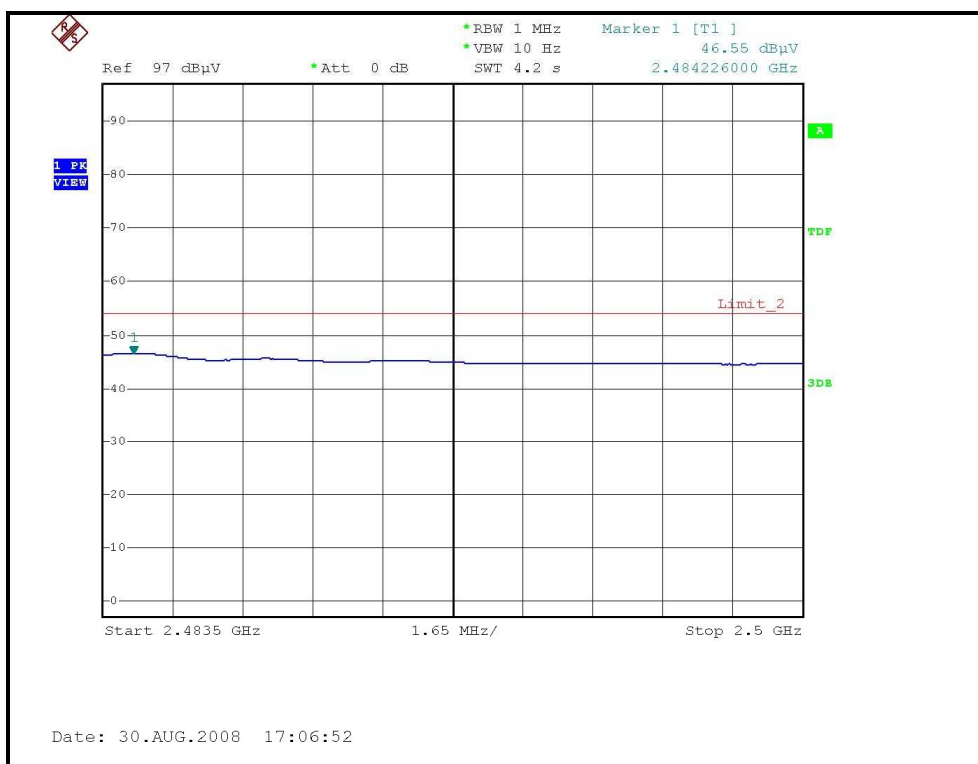
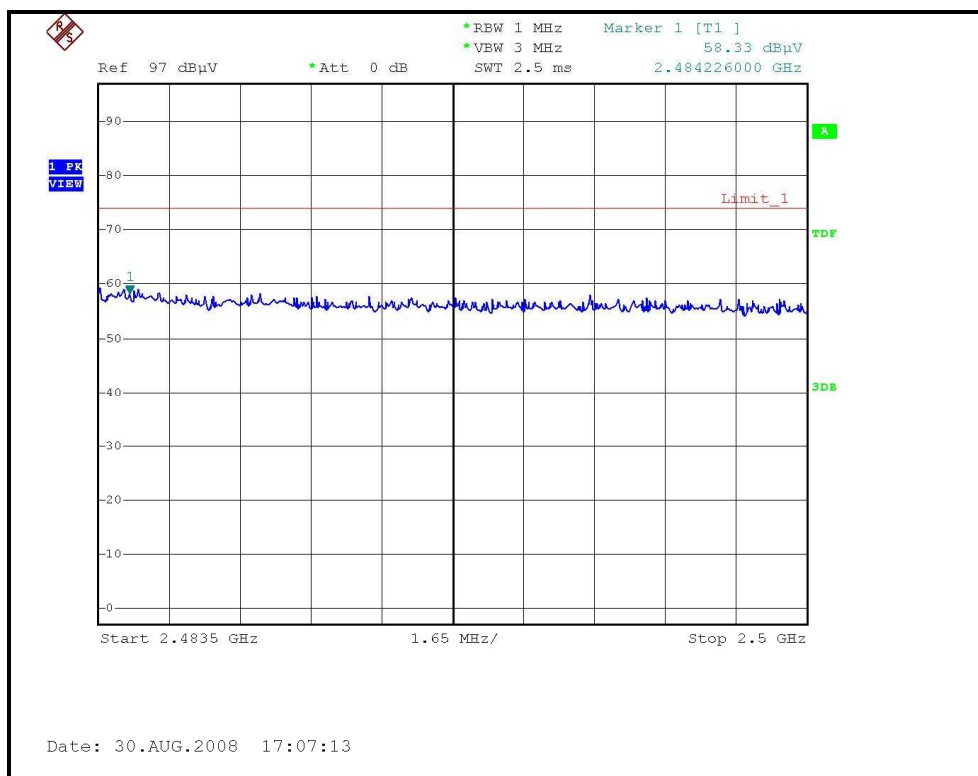
RESTRICTED BANDEDGE (DRAFT 802.11n (40MHz) MODE,CH1, VERTICAL)



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 DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 09, 2008	Aug. 08, 2009

NOTE:

- 1.The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.
- 2.The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

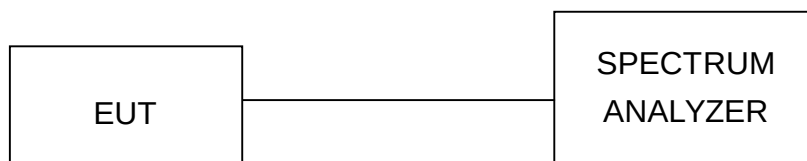
4.3.3 TEST PROCEDURE

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.

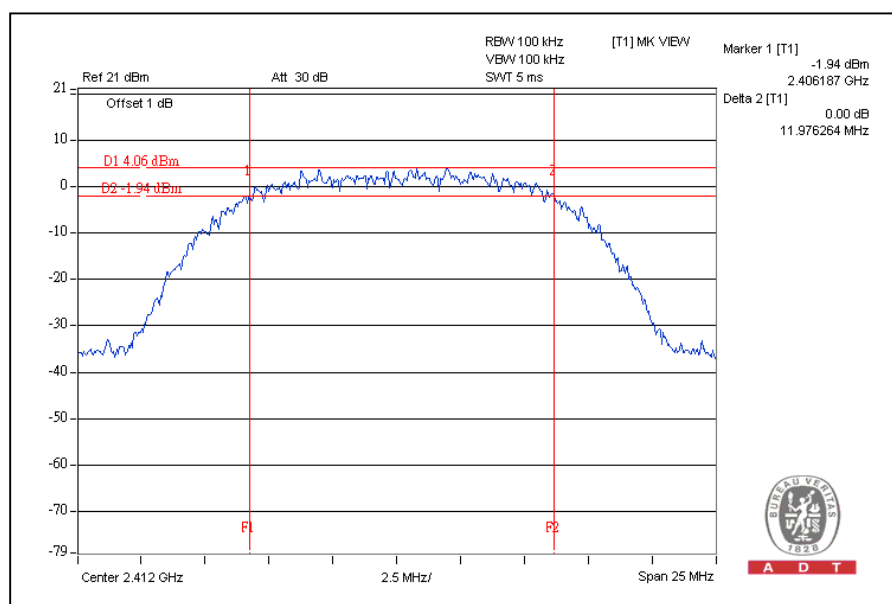
4.3.7 TEST RESULTS

802.11b DSSS MODULATION:

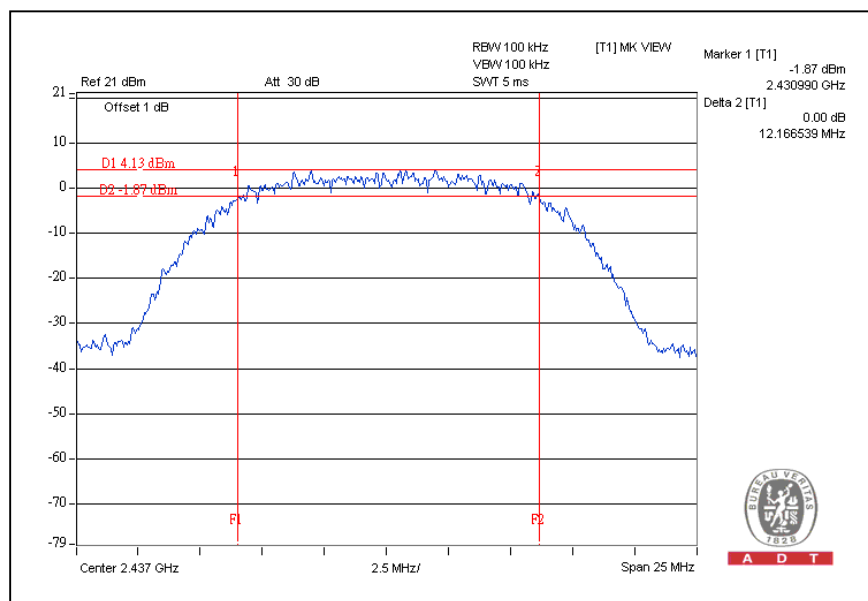
MODULATION TYPE	DBPSK	TRANSFER RATE	1Mbps
INPUT POWER	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 965hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	11.98	0.5	PASS
6	2437	12.17	0.5	PASS
11	2462	12.19	0.5	PASS

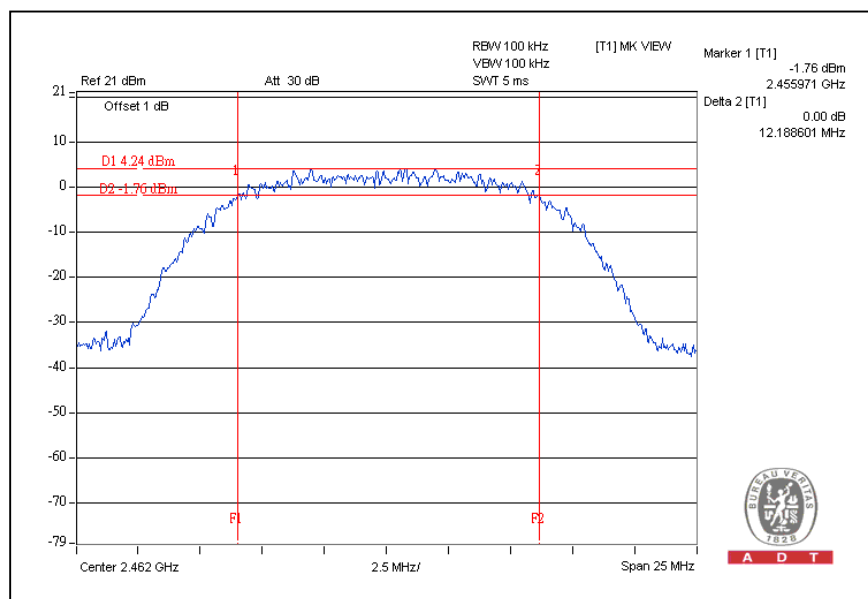
CH1



CH6



CH11





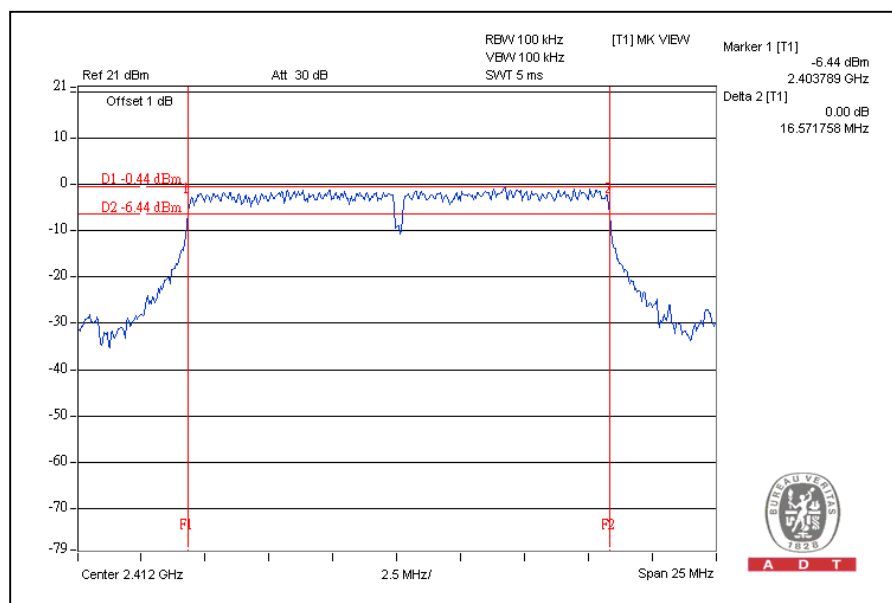
A D T

802.11g OFDM MODULATION:

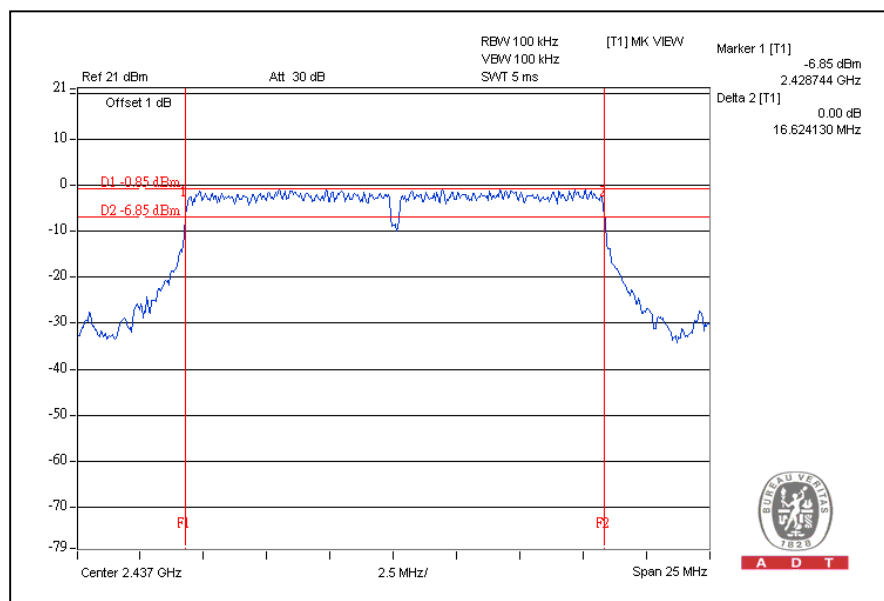
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 965hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.57	0.5	PASS
6	2437	16.62	0.5	PASS
11	2462	16.59	0.5	PASS

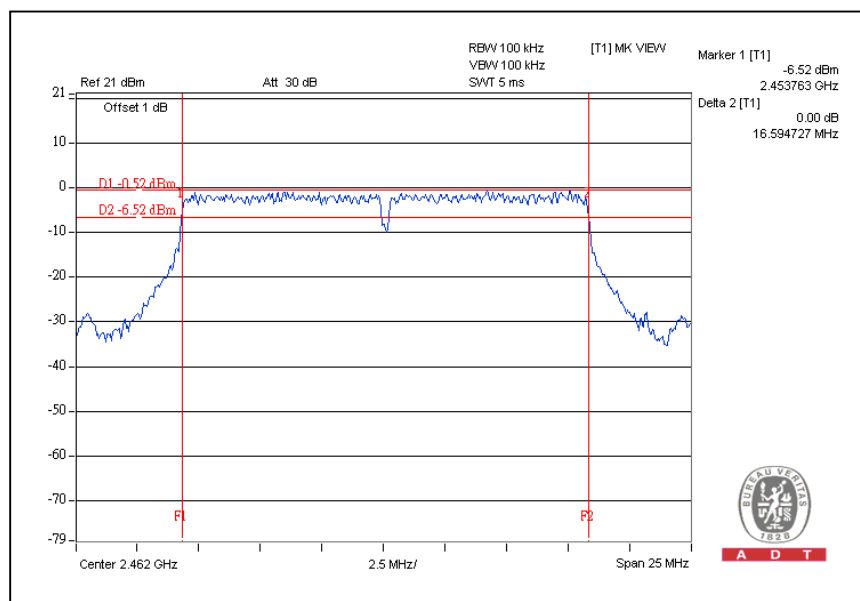
CH1



CH6



CH11





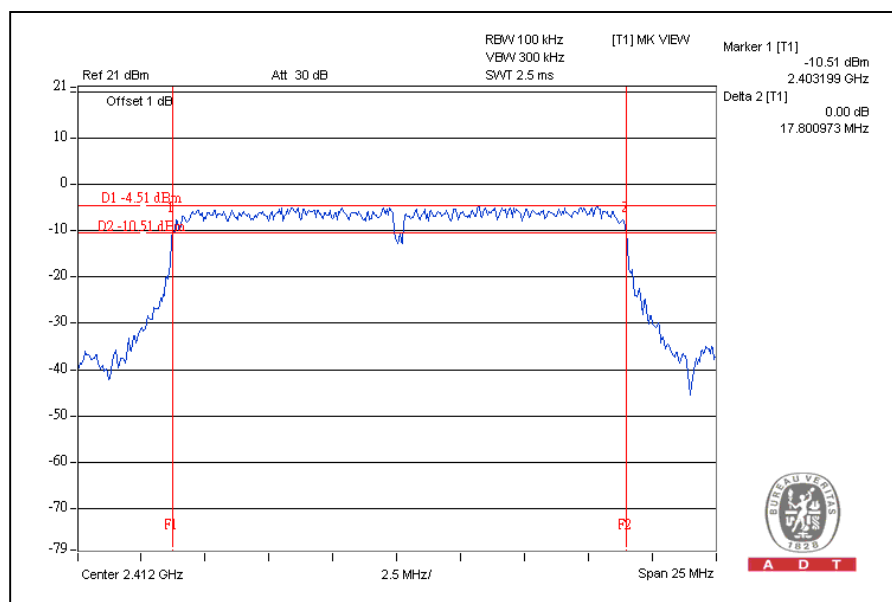
A D T

DRAFT 802.11n (20MHz) OFDM MODULATION:

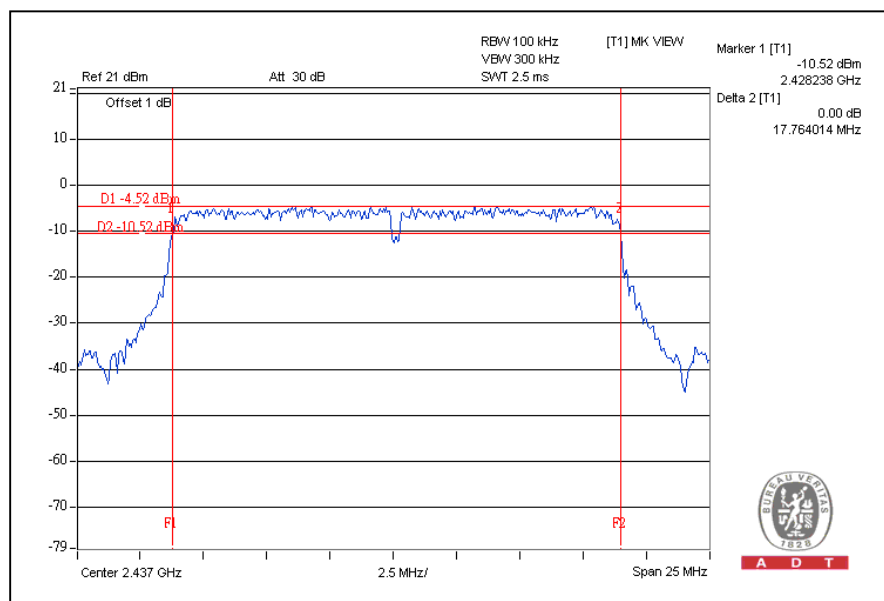
MODULATION TYPE	BPSK	TRANSFER RATE	13Mbps
INPUT POWER	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 965hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN(0)	CHAIN(1)		
1	2412	17.80	17.71	0.5	PASS
6	2437	17.76	17.70	0.5	PASS
11	2462	17.78	17.74	0.5	PASS

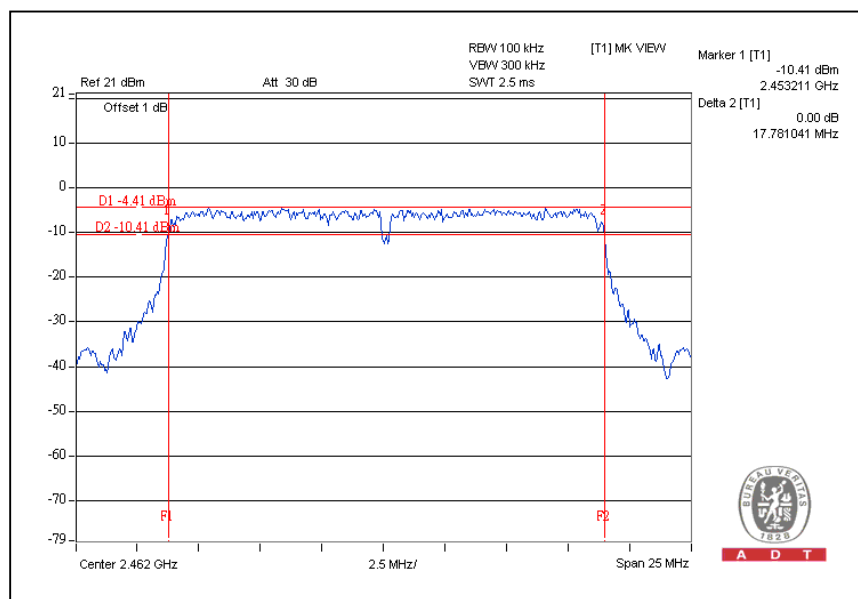
For Chain(0): CH1



CH6



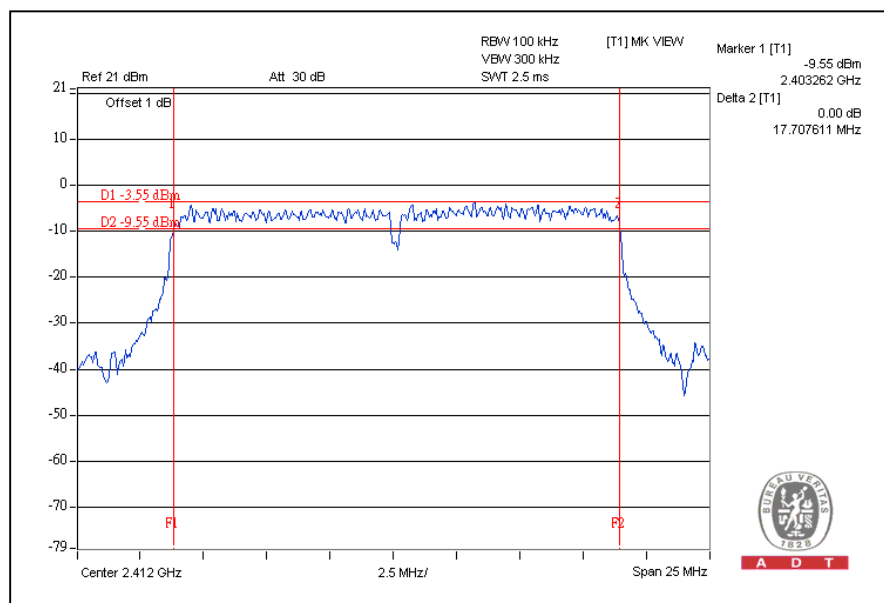
CH11



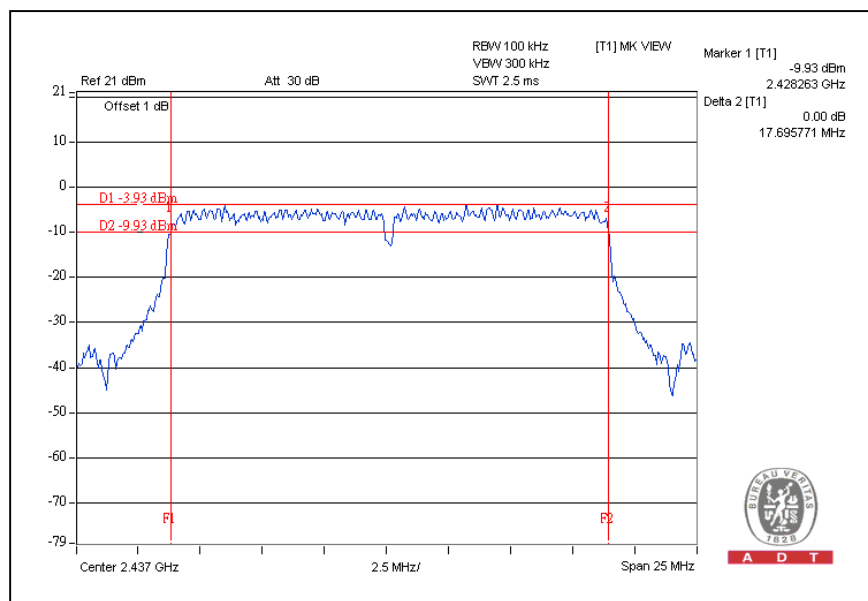


A D T

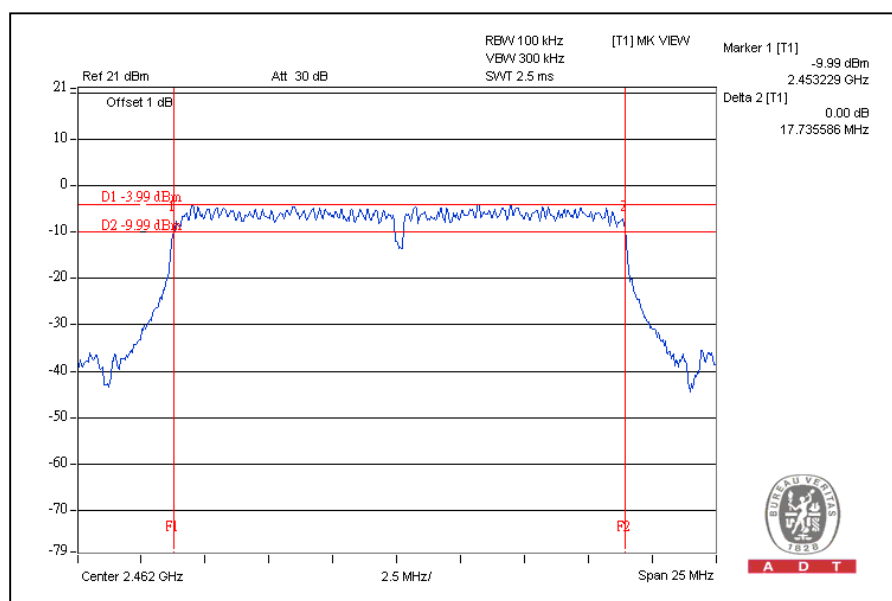
For CHAIN(1): CH1



CH6



CH11





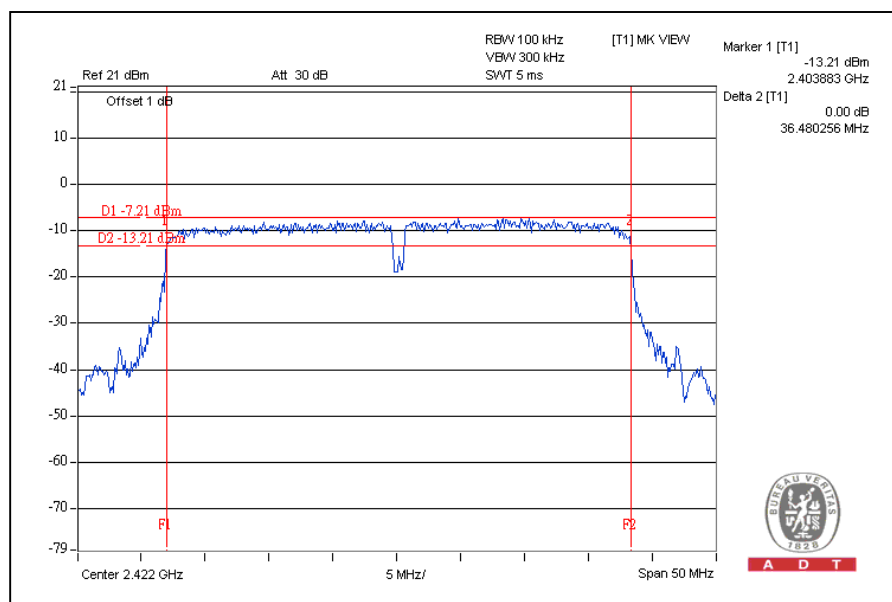
A D T

DRAFT 802.11n (40MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	TRANSFER RATE	27Mbps
INPUT POWER	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
		CHAIN(0)	CHAIN(1)		
1	2422	36.48	36.47	0.5	PASS
4	2437	36.51	36.48	0.5	PASS
7	2452	36.53	36.48	0.5	PASS

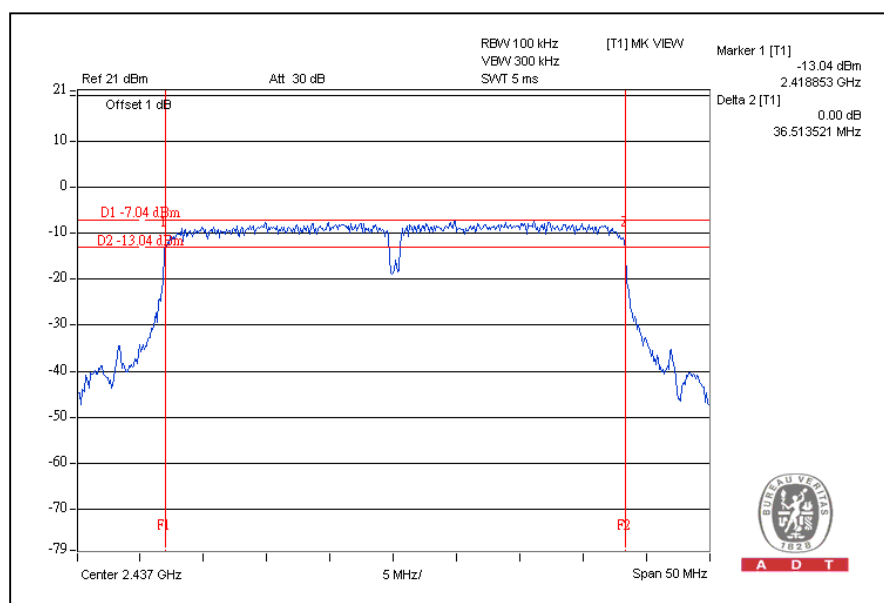
For Chain (0): CH1



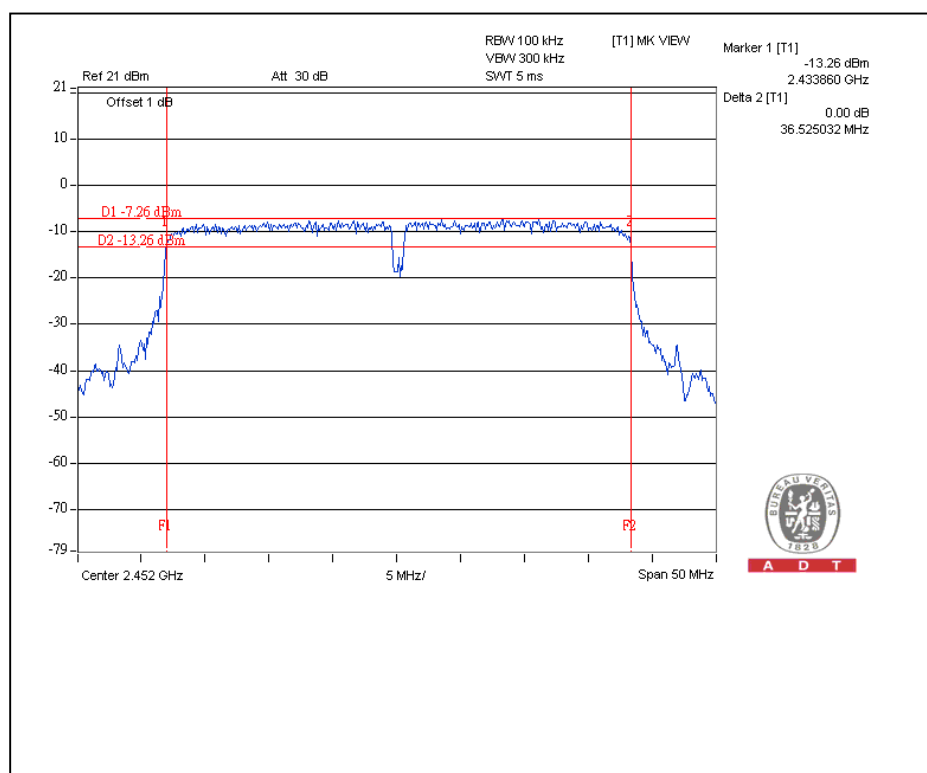


A D T

CH4



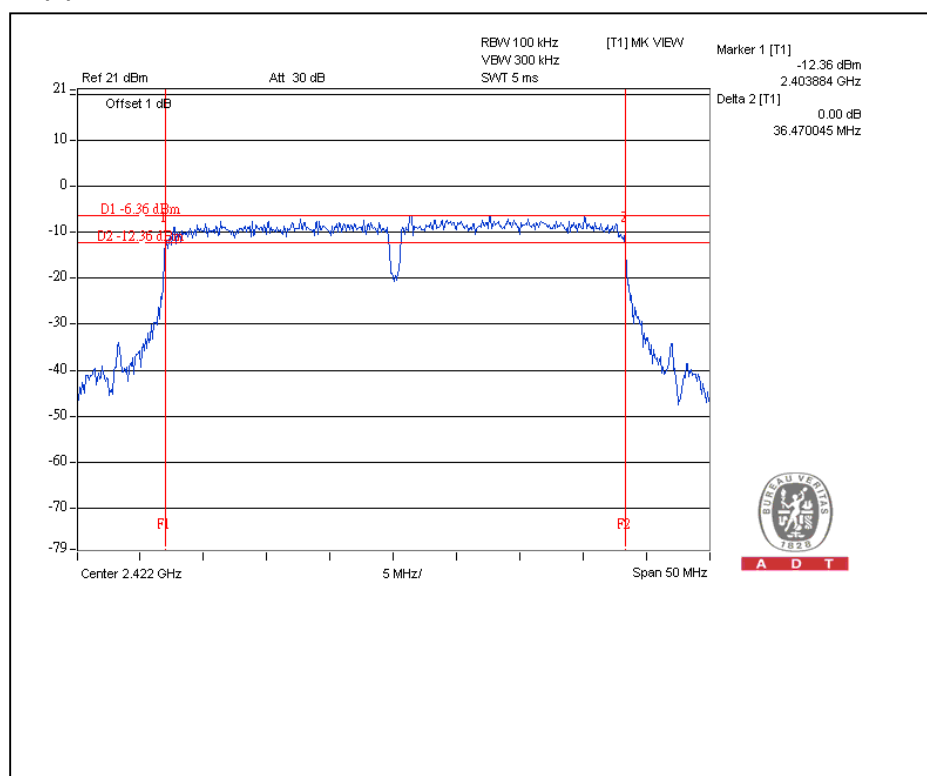
CH7



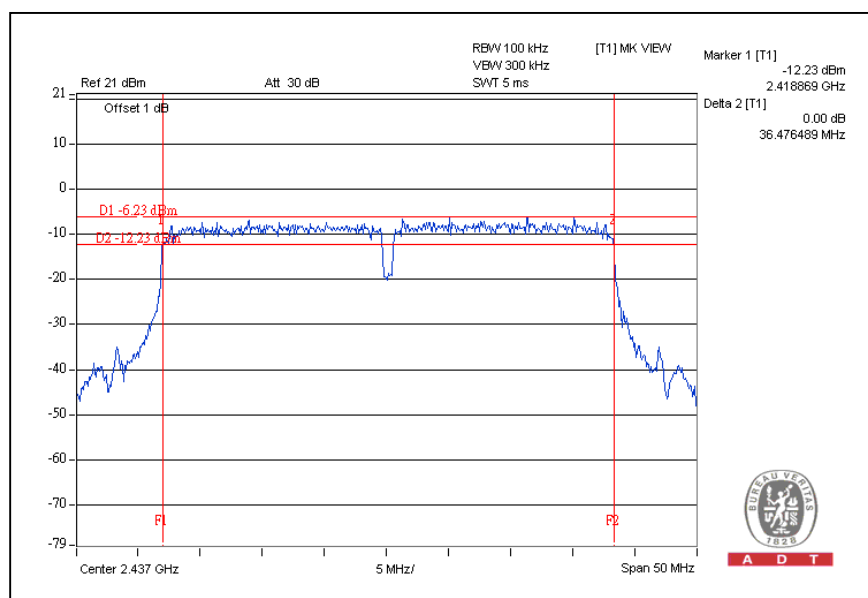


A D T

For Chain (1): CH1



CH4





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 DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 13, 2008	Aug. 12, 2009
Agilent SIGNAL GENERATOR	E8257C	MY43320668	Dec. 26, 2007	Dec. 25, 2008
Anritsu Power Meter	ML2495A	0824006	NA	NA
Pulse Power Sensor	MA2411B	0738172	NA	NA

NOTE:

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

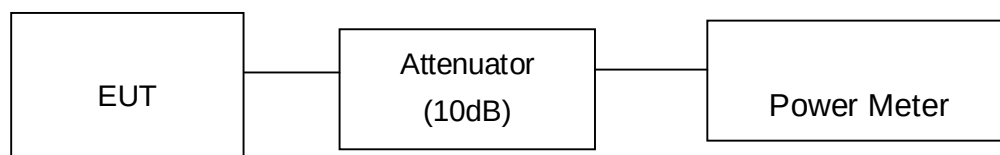
4.4.3 TEST PROCEDURES

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 4.3.6

4.4.7 TEST RESULTS

802.11b DSSS MODULATION:

MODULATION TYPE	DBPSK	TRANSFER RATE	1Mbps
INPUT POWER	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	92.897	19.68	30	PASS
6	2437	94.406	19.75	30	PASS
11	2462	98.175	19.92	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	220.293	23.43	30	PASS
6	2437	228.560	23.59	30	PASS
11	2462	239.332	23.79	30	PASS

DRAFT 802.11n (20MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	TRANSFER RATE	13Mbps
INPUT POWER	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)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)	CHAIN(0)	CHAIN(1)				
1	2412	104.713	104.954	20.20	20.21	209.667	23.22	30	PASS
6	2437	101.859	112.460	20.08	20.51	214.319	23.31	30	PASS
11	2462	103.514	106.905	20.15	20.29	210.419	23.23	30	PASS

DRAFT 802.11n (40MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	TRANSFER RATE	27Mbps
INPUT POWER	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)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)	CHAIN(0)	CHAIN(1)				
1	2422	104.713	101.859	20.20	20.08	206.572	23.15	30	PASS
4	2437	111.173	110.154	20.46	20.42	221.327	23.45	30	PASS
7	2452	114.551	108.643	20.59	20.36	223.194	23.49	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 DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 09, 2008	Aug. 08, 2009

NOTE:

- 1.The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.
- 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 4.3.6

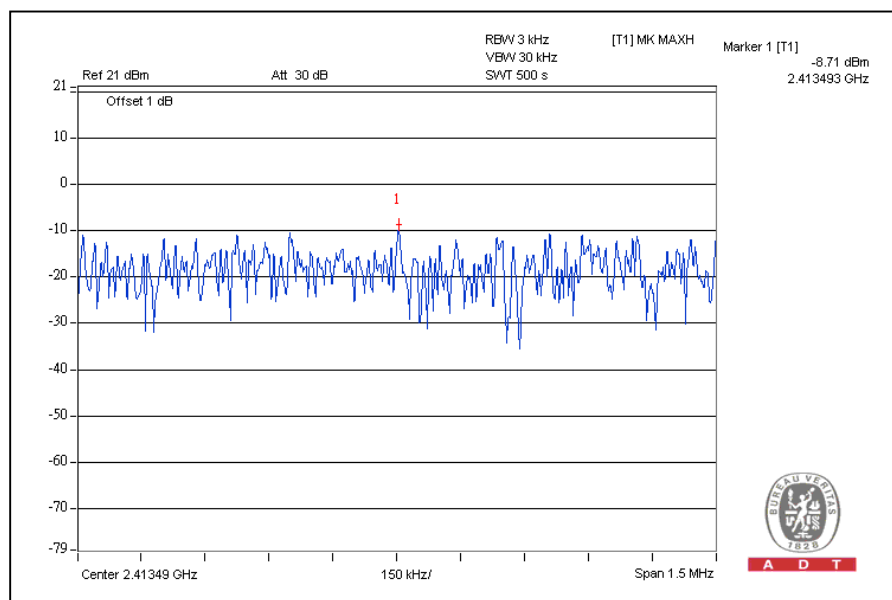
4.5.7 TEST RESULTS

802.11b DSSS MODULATION:

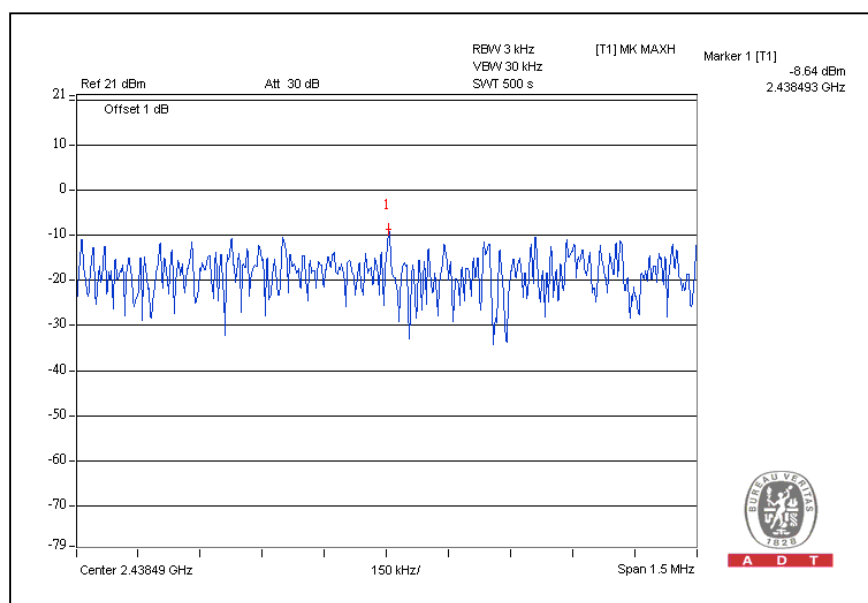
MODULATION TYPE	DBPSK	TRANSFER RATE	1Mbps
INPUT POWER	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 965hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	2412	-8.71	8	PASS
6	2437	-8.64	8	PASS
11	2462	-8.48	8	PASS

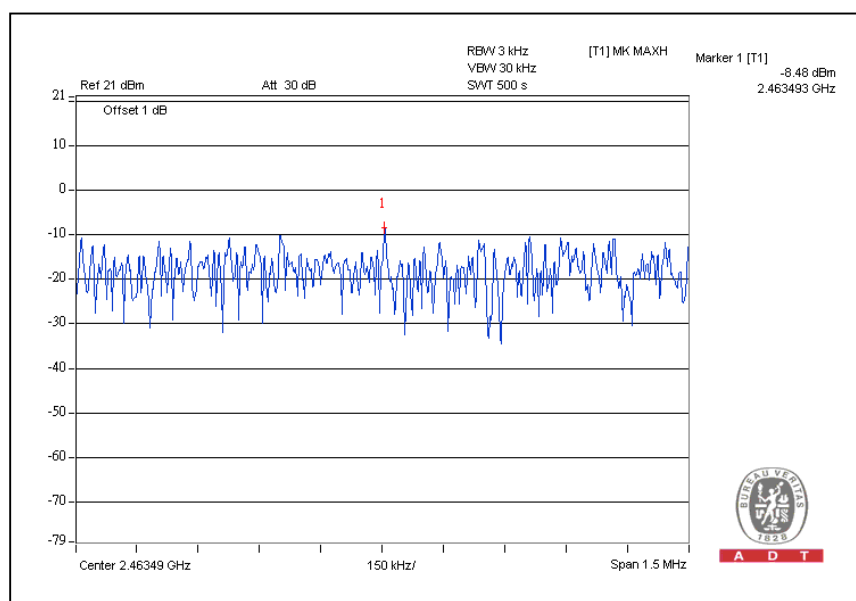
CH1



CH6



CH11

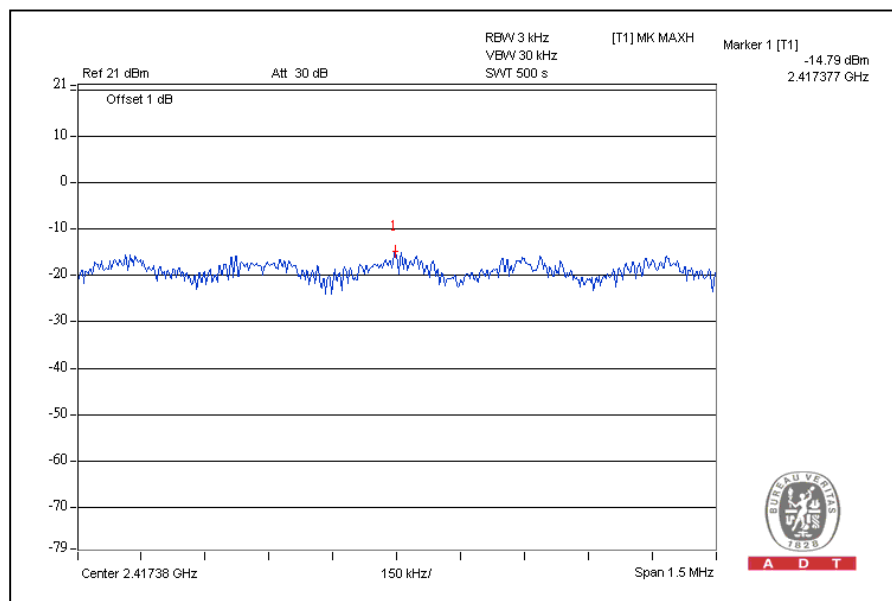


802.11g OFDM MODULATION:

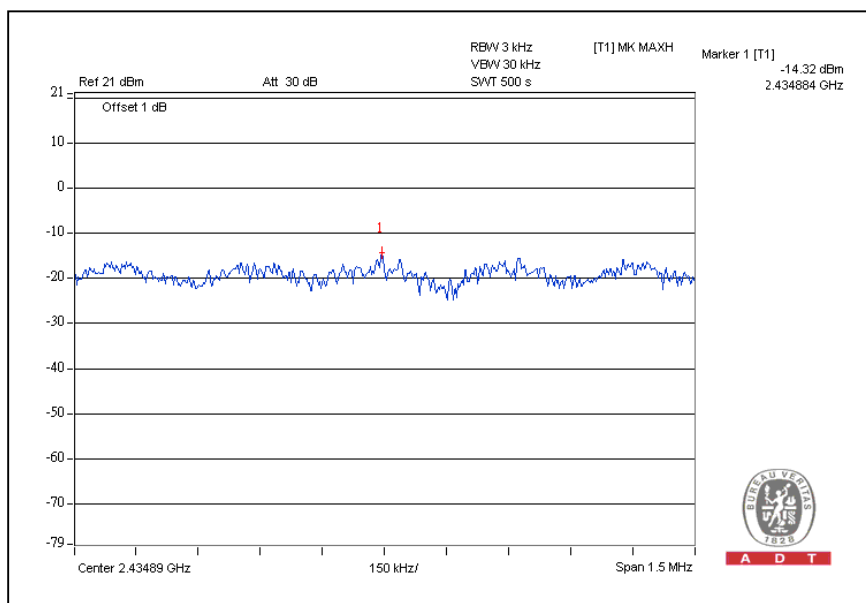
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 965hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	2412	-14.79	8	PASS
6	2437	-14.32	8	PASS
11	2462	-13.79	8	PASS

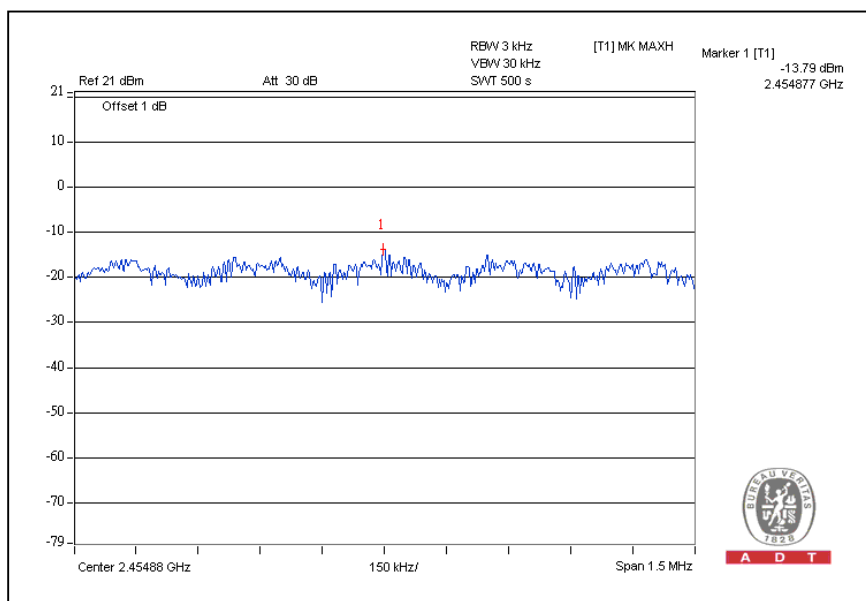
CH1



CH6



CH11

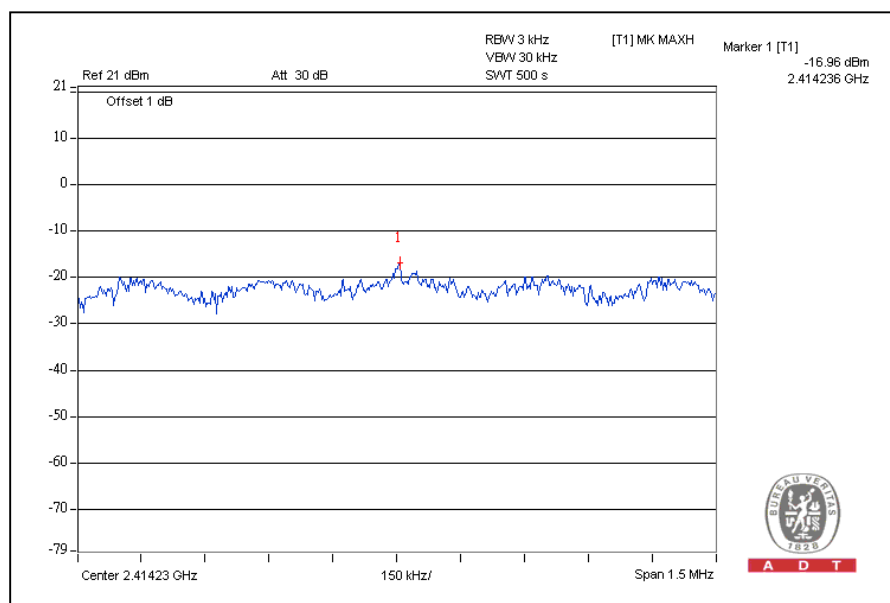


DRAFT 802.11n (20MHz) OFDM MODULATION:

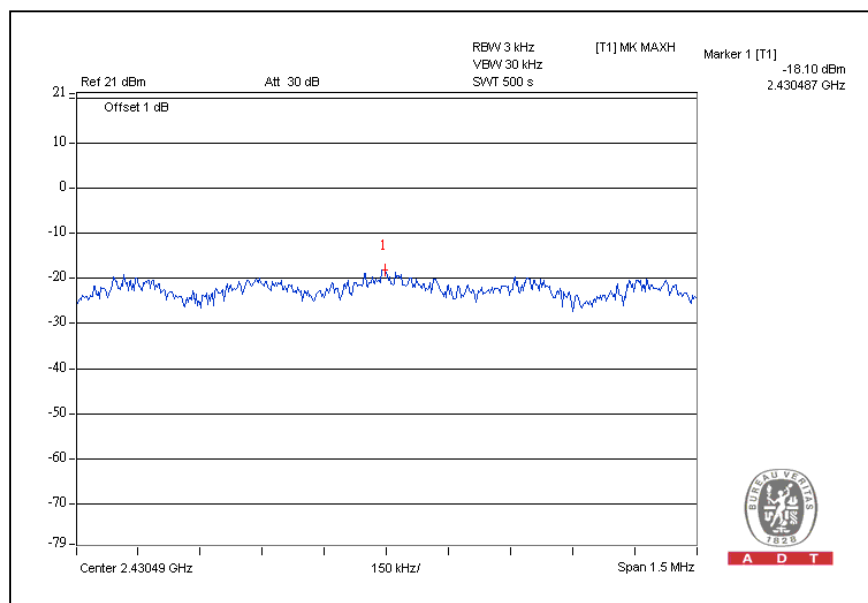
MODULATION TYPE	BPSK	TRANSFER RATE	13Mbps
INPUT POWER	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25 deg.C, 60%RH, 965hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (mW)		RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)	CHAIN(0)	CHAIN(1)				
1	2412	0.020	0.018	-16.96	-17.44	0.038	-14.20	8	PASS
6	2437	0.015	0.016	-18.10	-17.86	0.031	-15.09	8	PASS
11	2462	0.020	0.013	-17.07	-18.84	0.033	-14.81	8	PASS

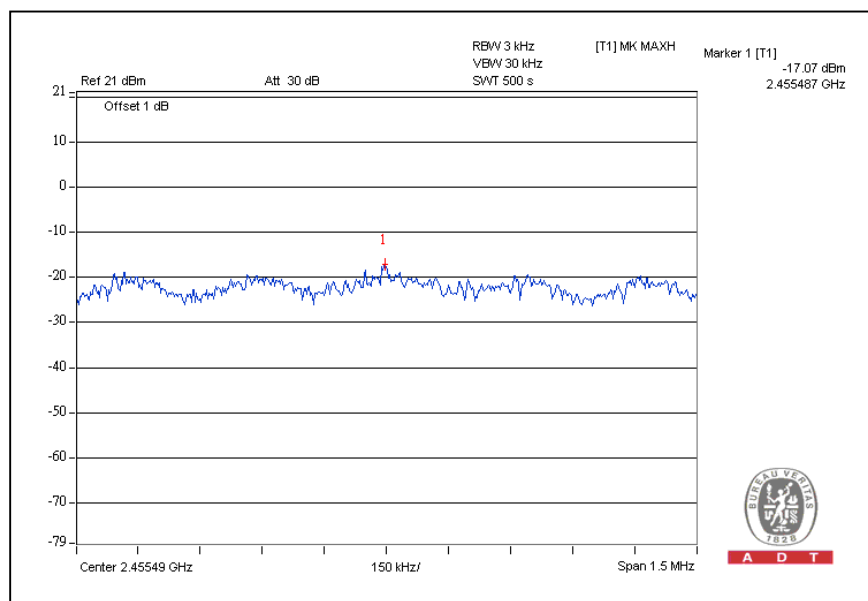
For Chain(0): CH1



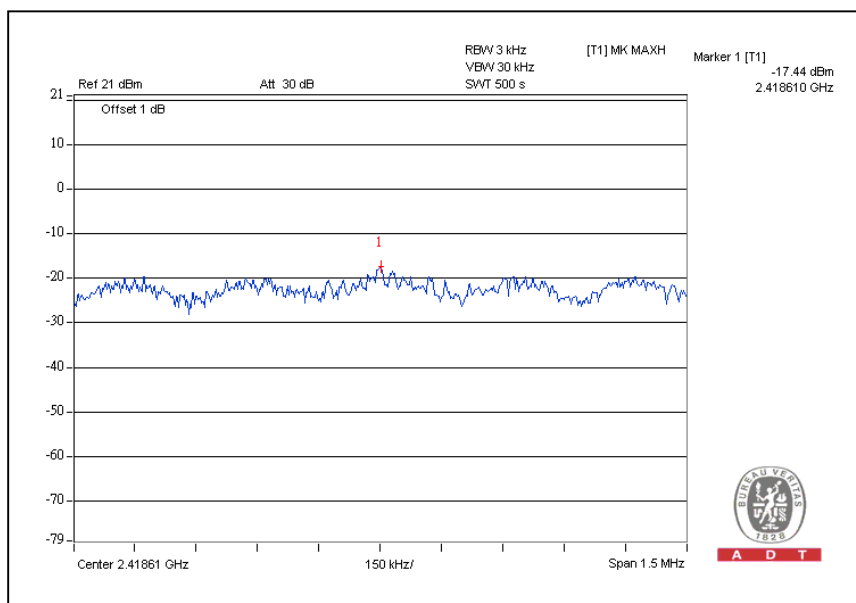
CH6



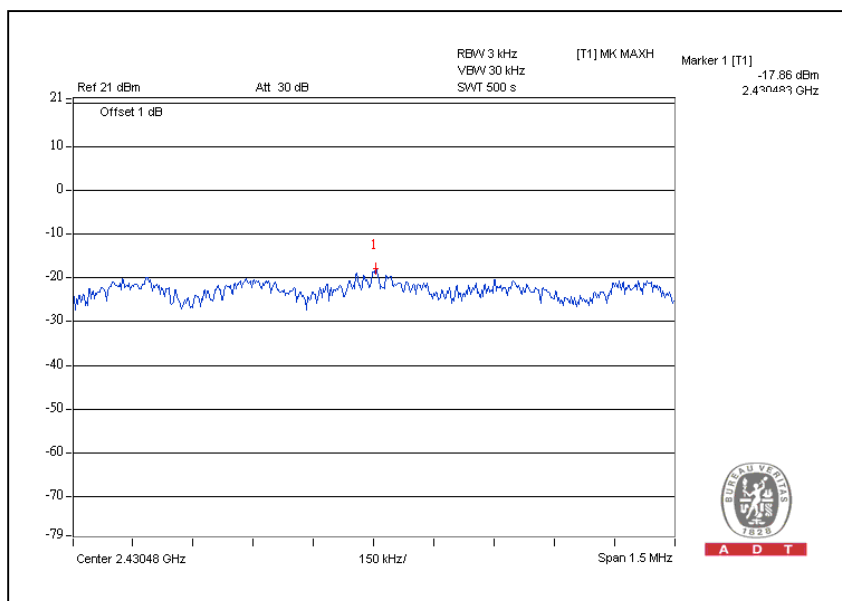
CH11



For Chain (1): CH1



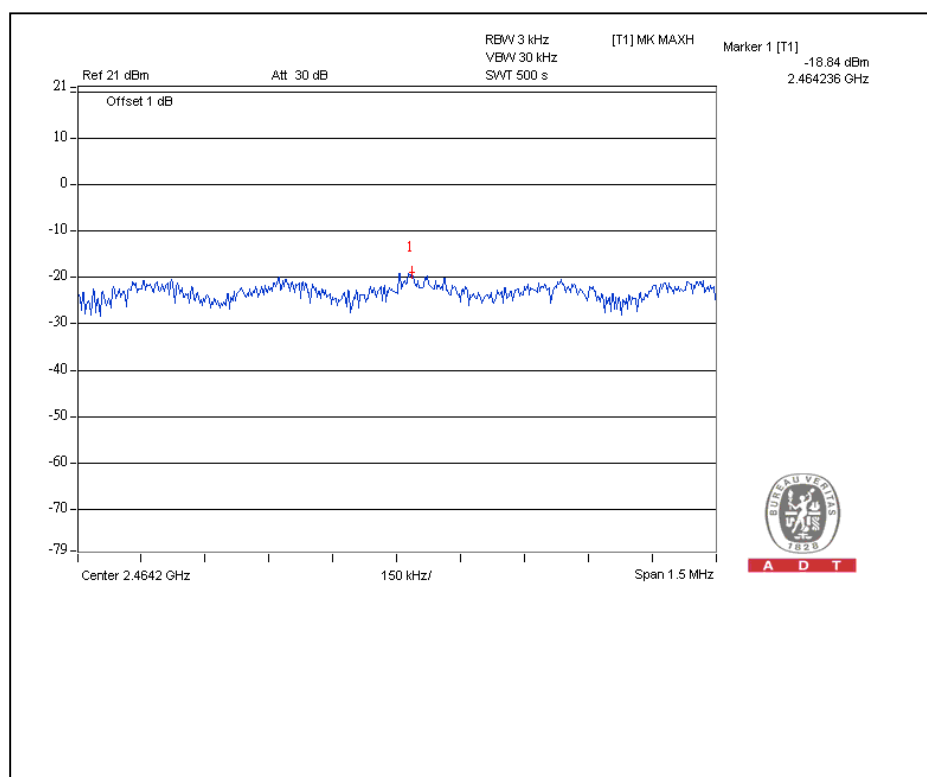
CH6





A D T

CH11

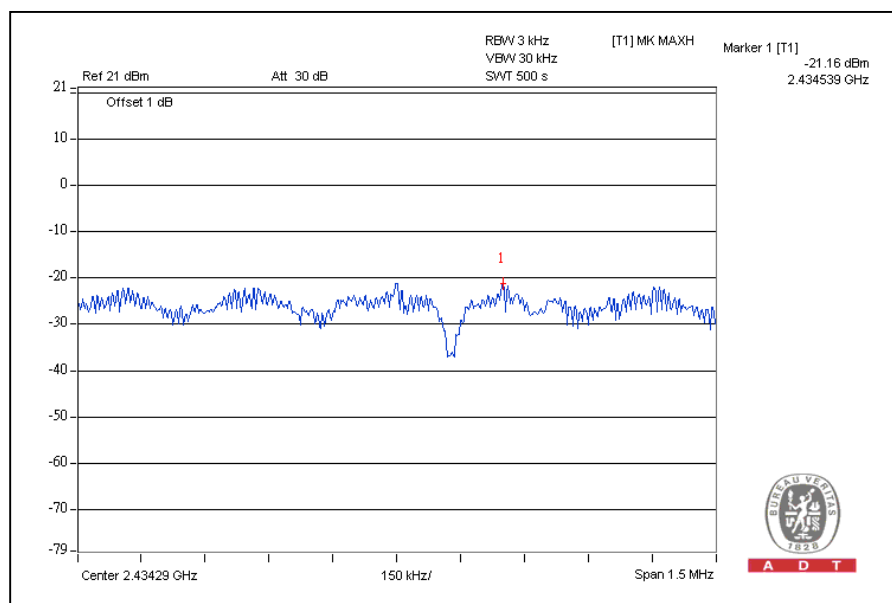


DRAFT 802.11n (40MHz) OFDM MODULATION:

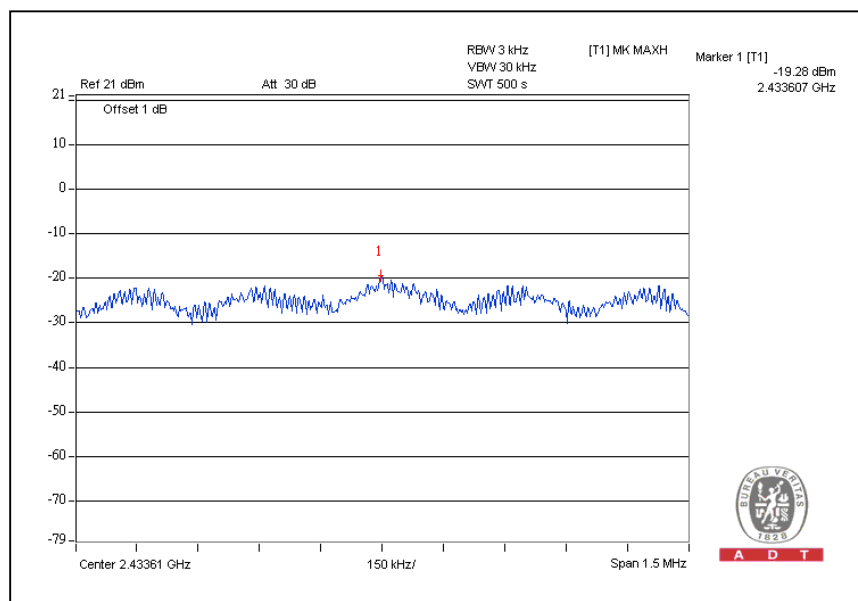
MODULATION TYPE	BPSK	TRANSFER RATE	27Mbps
INPUT POWER	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 965hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (mW)		RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)	CHAIN(0)	CHAIN(1)				
1	2422	0.008	0.008	-21.16	-20.74	0.016	-17.96	8	PASS
4	2437	0.012	0.010	-19.28	-20.00	0.022	-16.58	8	PASS
7	2452	0.015	0.009	-18.35	-20.49	0.024	-16.20	8	PASS

For Chain (0): CH1

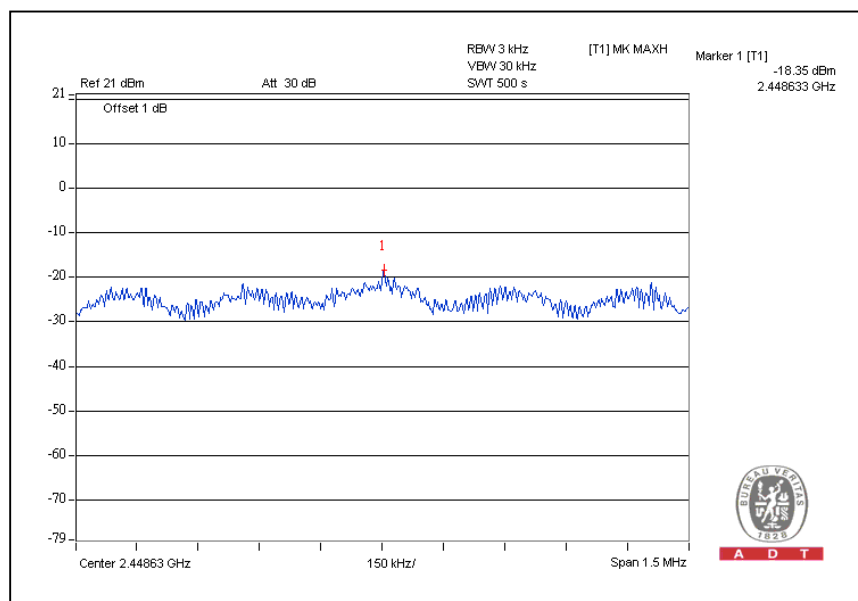


CH4



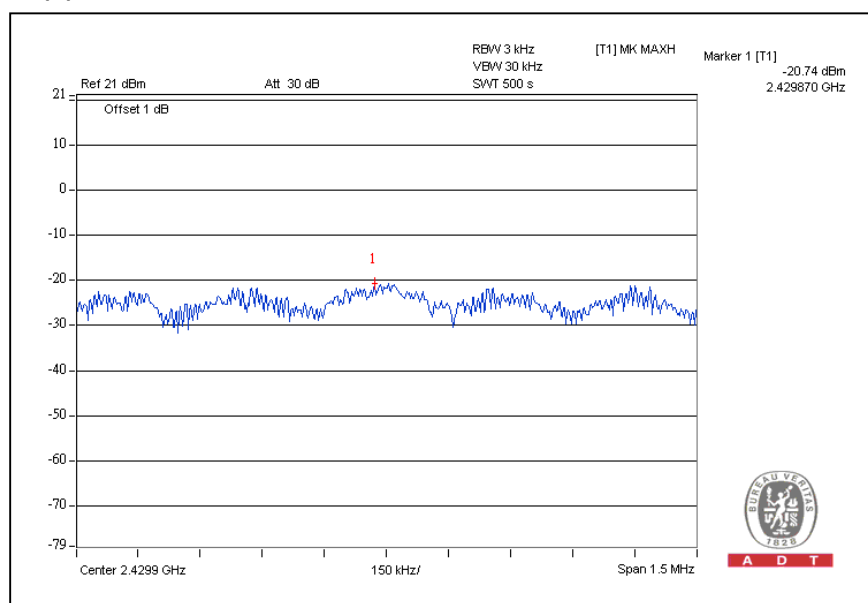
A D T

CH7

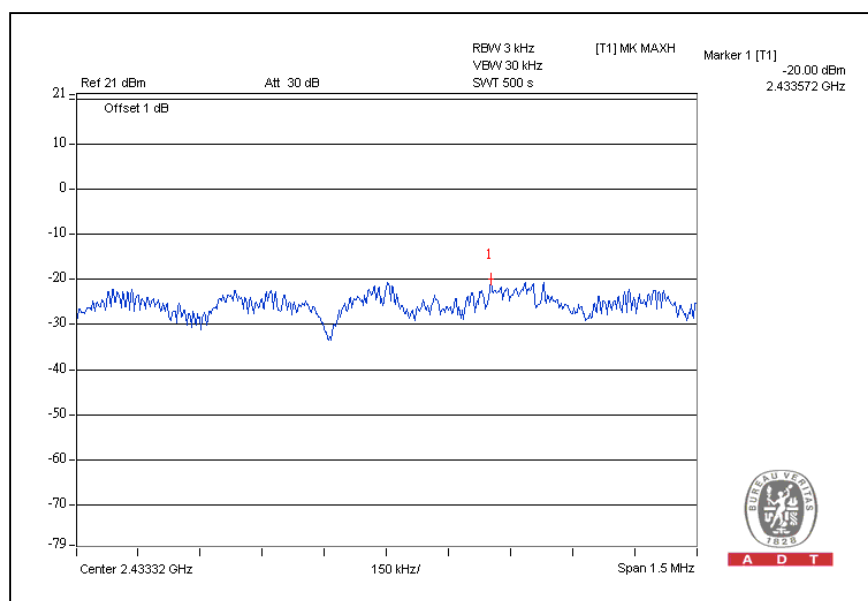


A D T

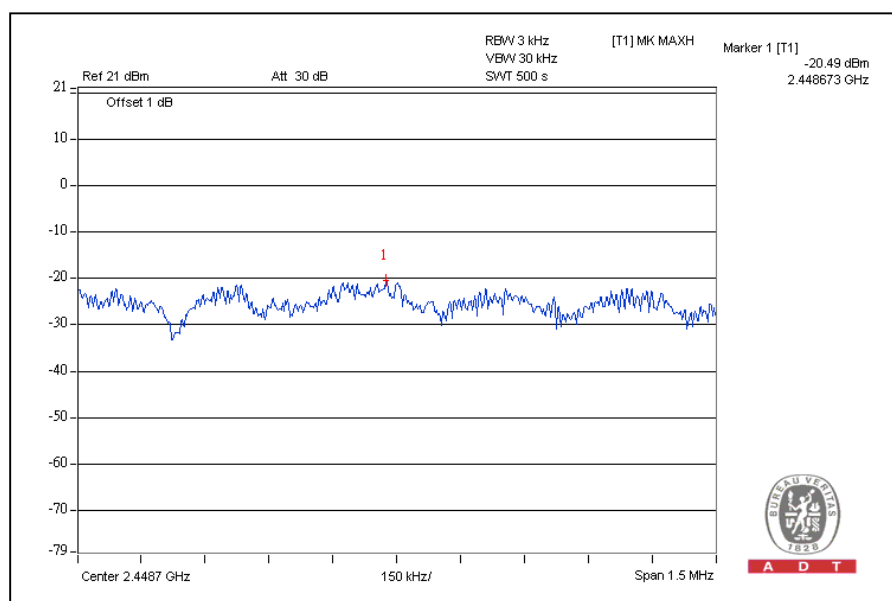
For Chain (1): CH1



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 DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 09, 2008	Aug. 08, 2009

NOTE:

1. The measurement uncertainty is less than $\pm 2.6\text{dB}$, which is calculated as per the NAMAS document NIS81. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.
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 RBW of spectrum analyzer to 100kHz and VBW of spectrum analyzer to 300kHz with suitable frequency span including 100 MHz bandwidth from band edge. The band edges were measured and recorded.

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

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 EUT OPERATING CONDITION

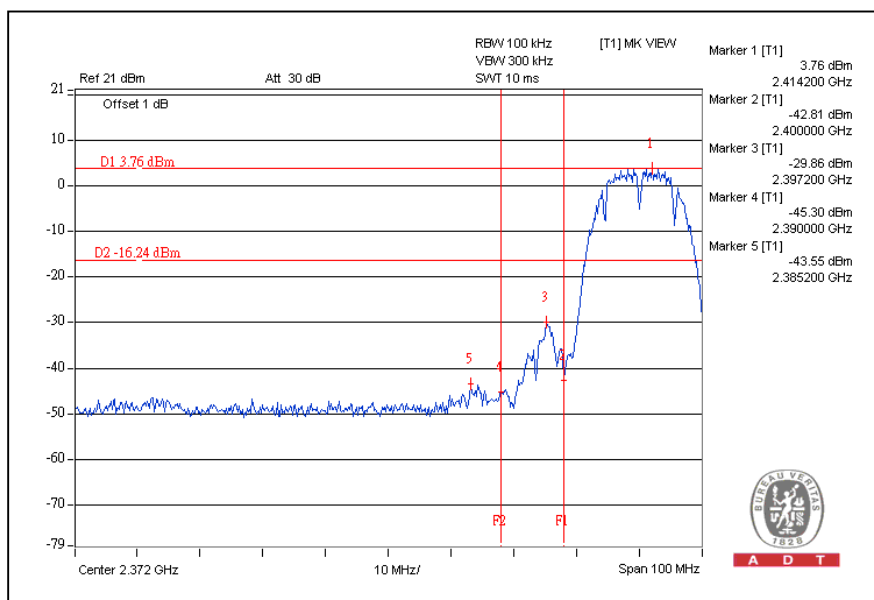
Same as Item 4.3.6

4.6.6 TEST RESULTS

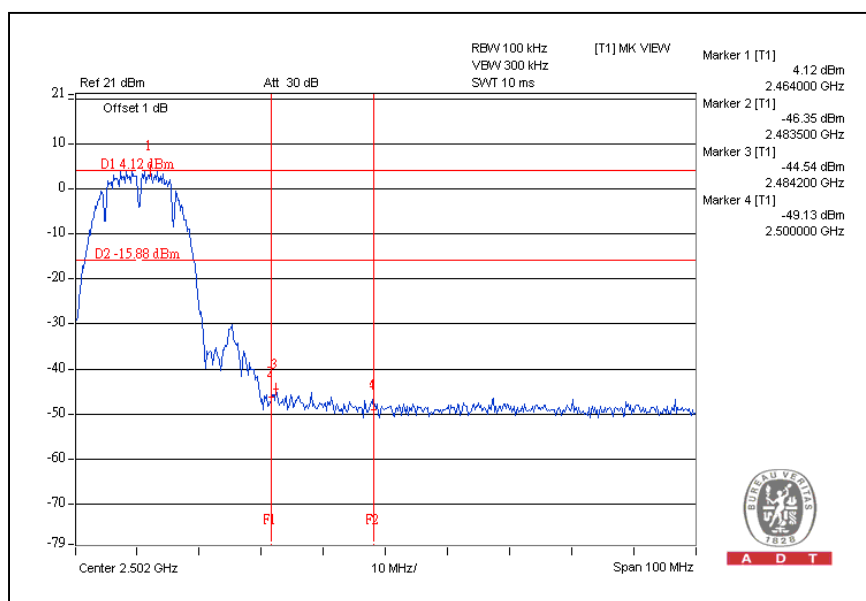
The spectrum plots are attached on the following images. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(d).

802.11b DSSS MODULATION:

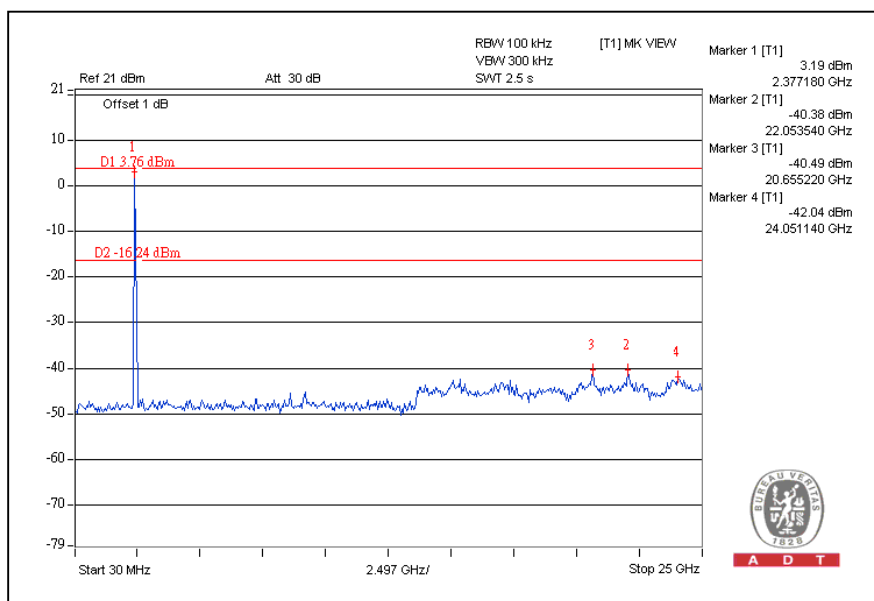
CH1



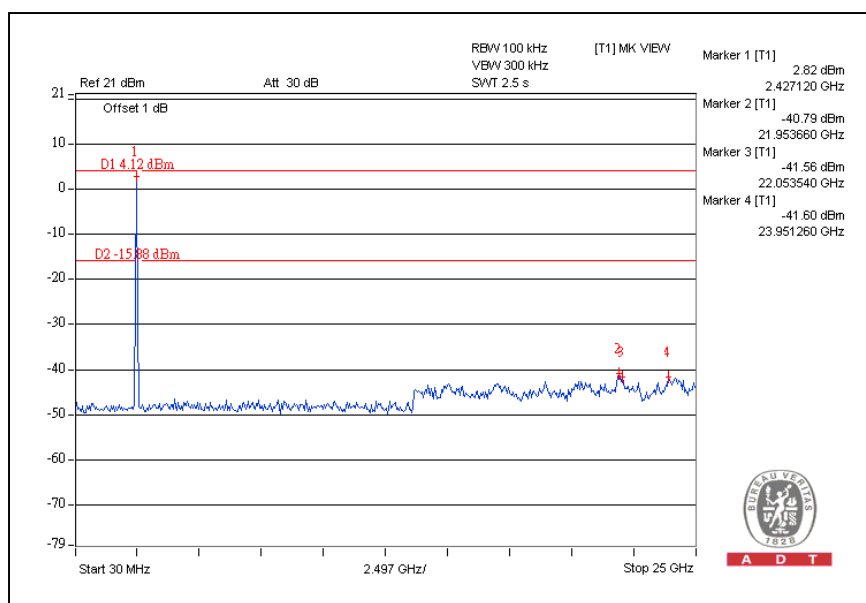
CH11



CH1

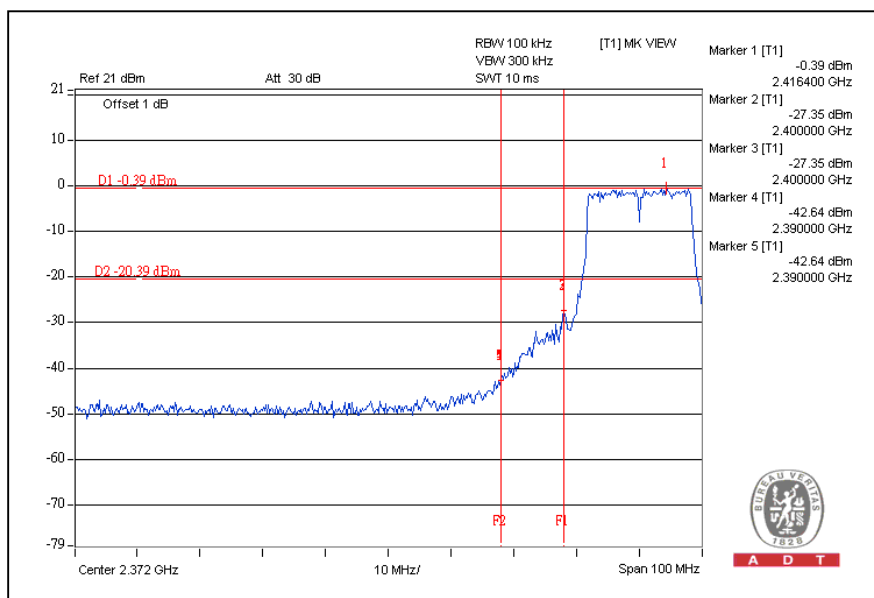


CH11

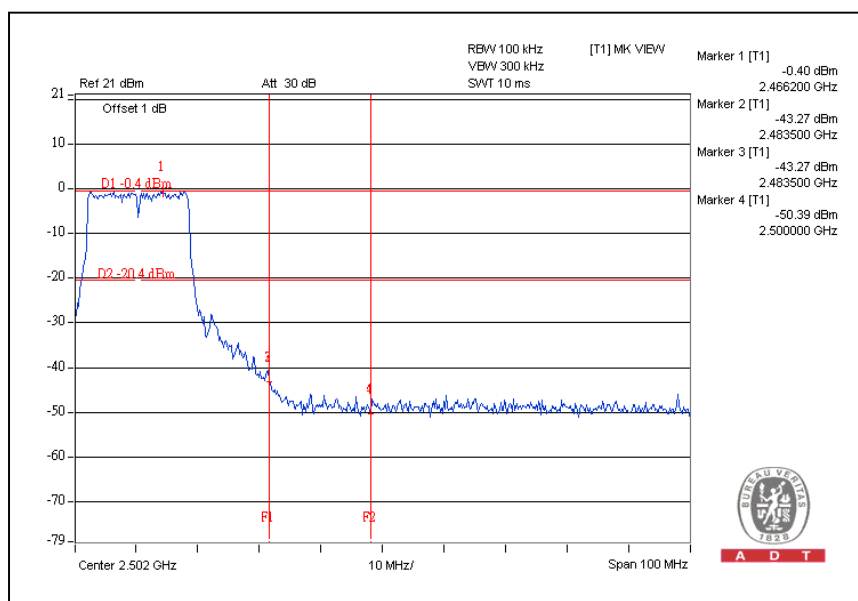


802.11g OFDM MODULATION:

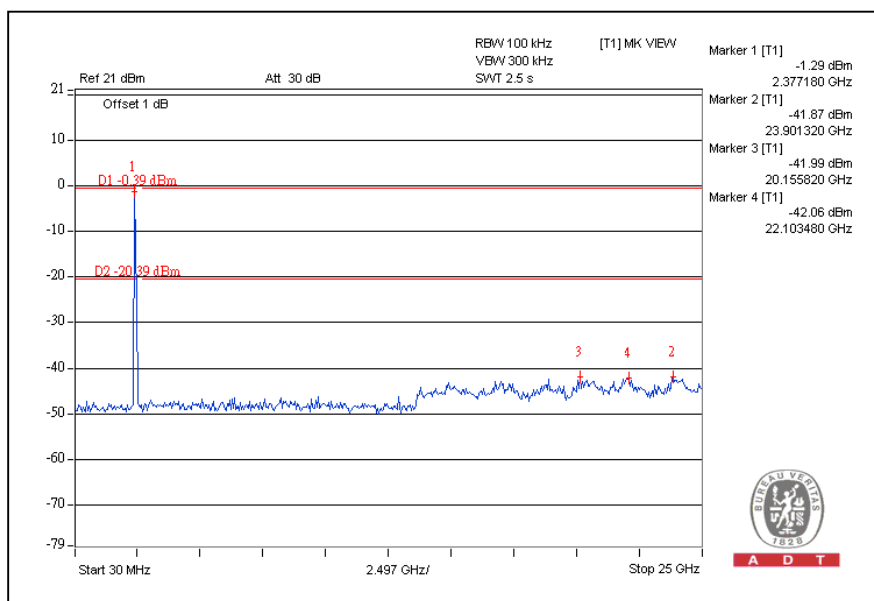
CH1



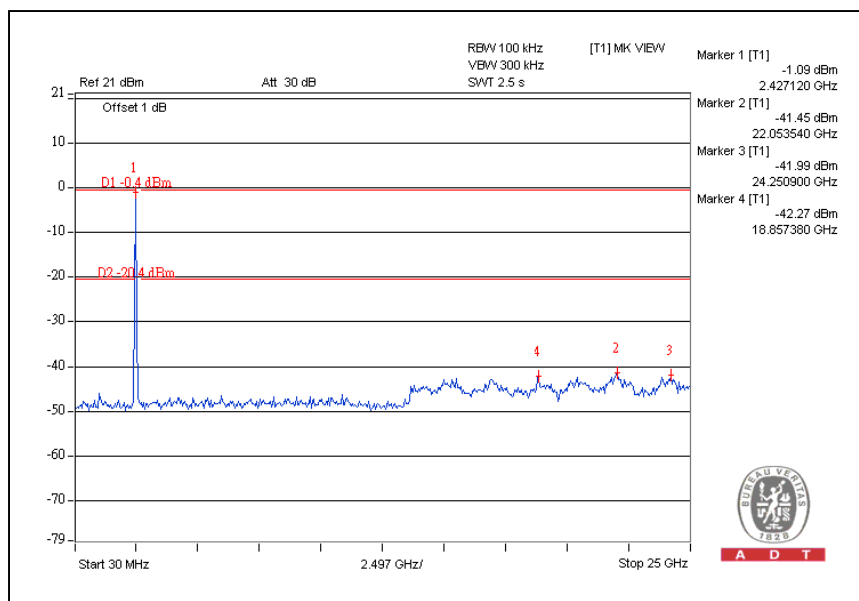
CH11



CH1

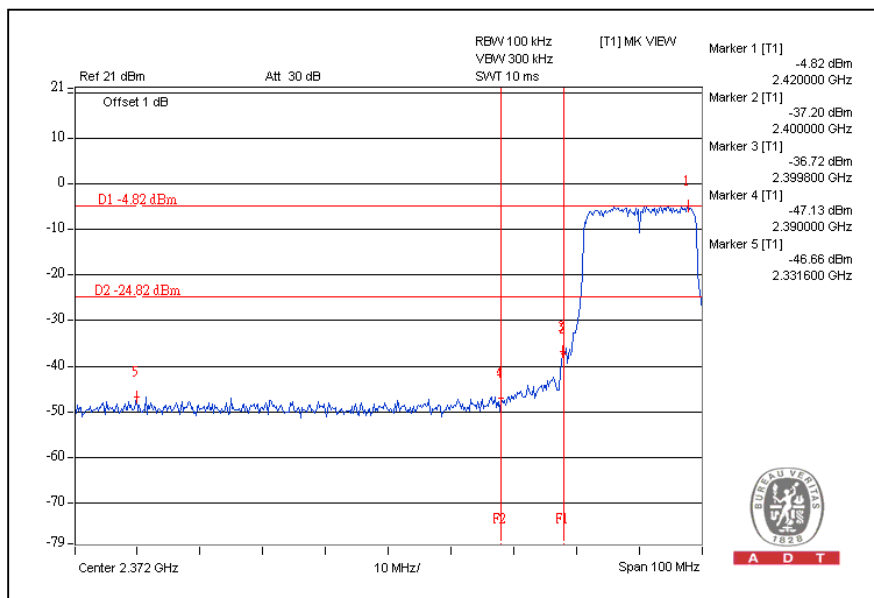


CH11

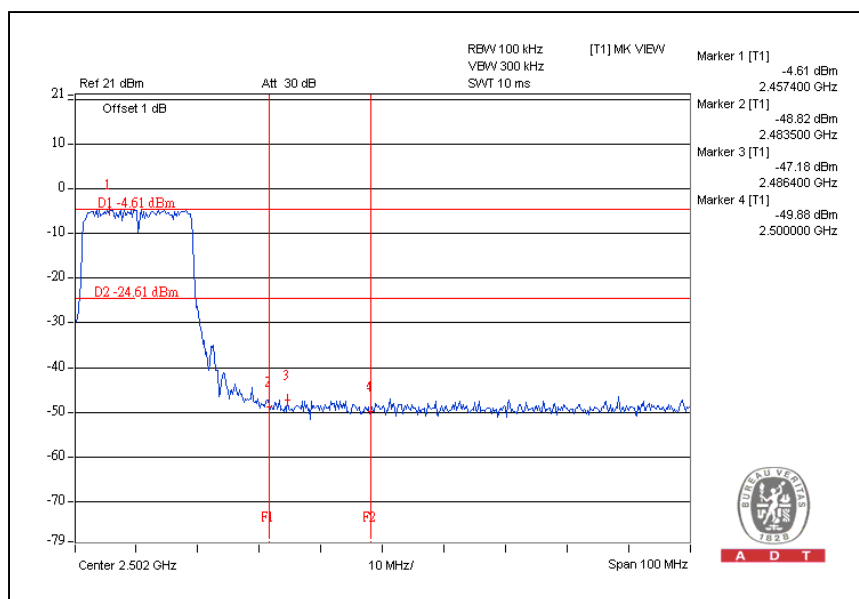


DRAFT 802.11n (20MHz) OFDM MODULATION:

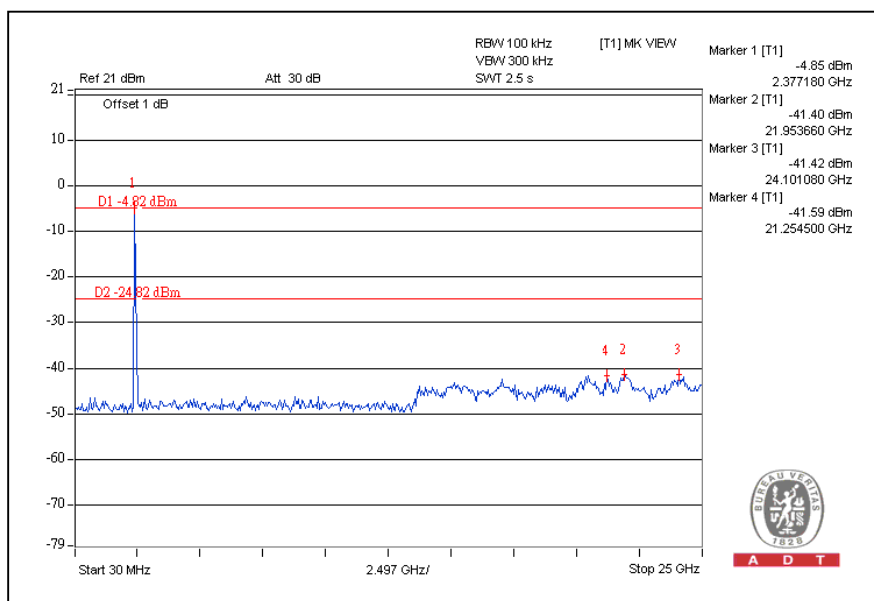
For Chain (0):CH1



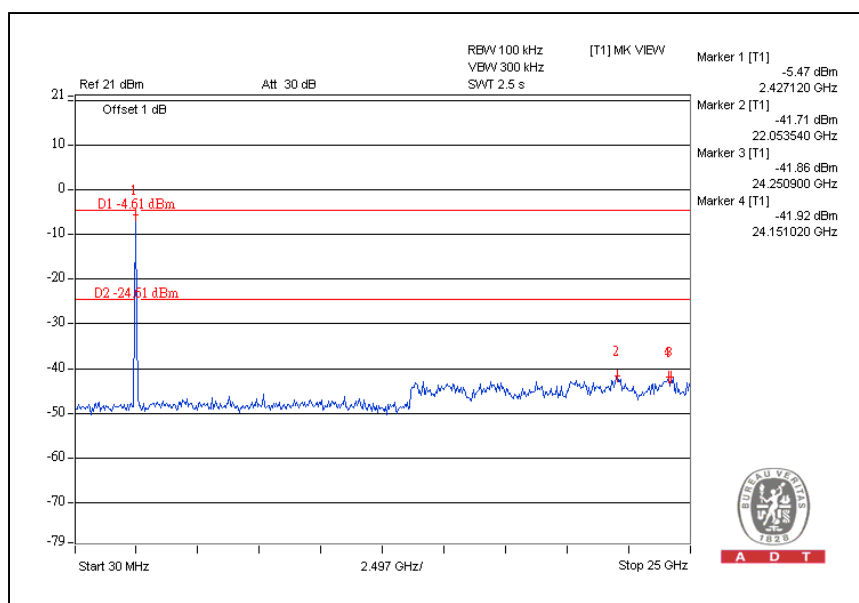
CH11



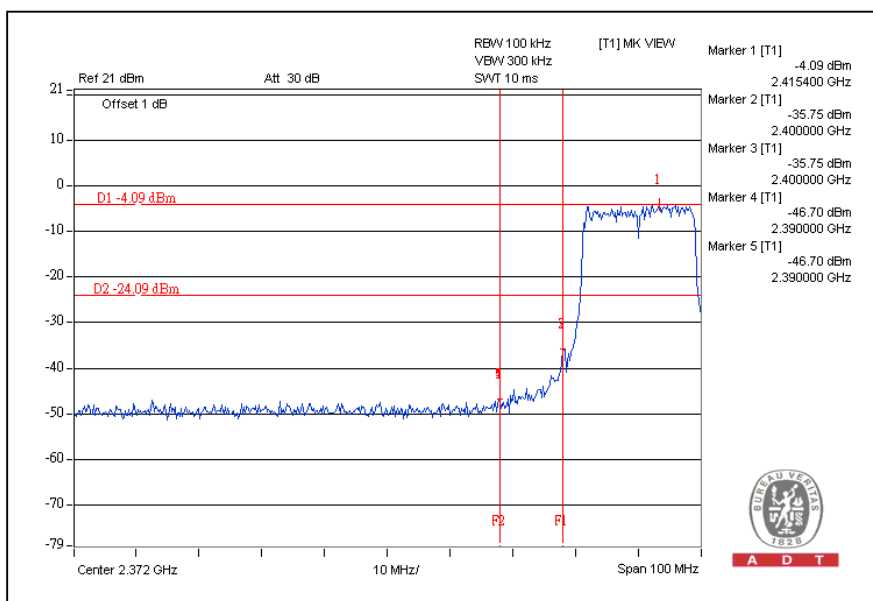
CH1



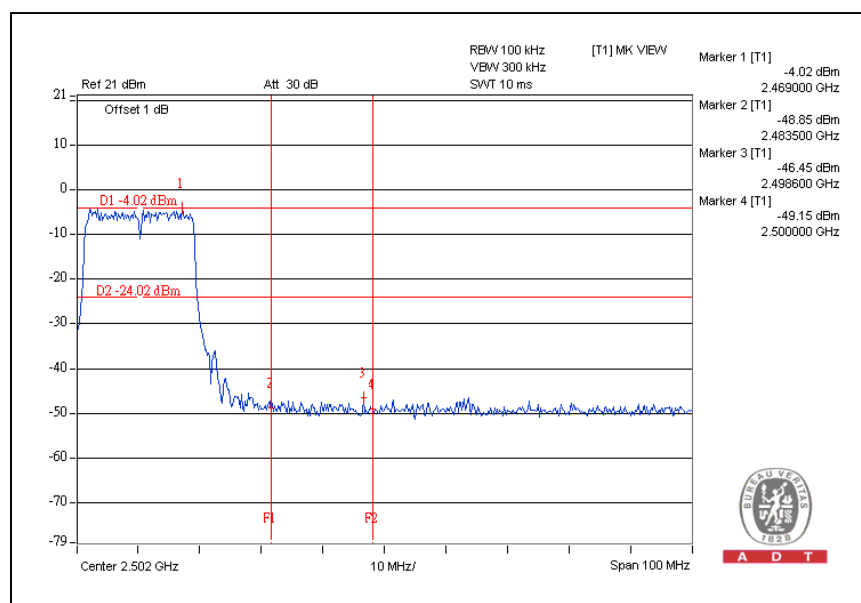
CH11



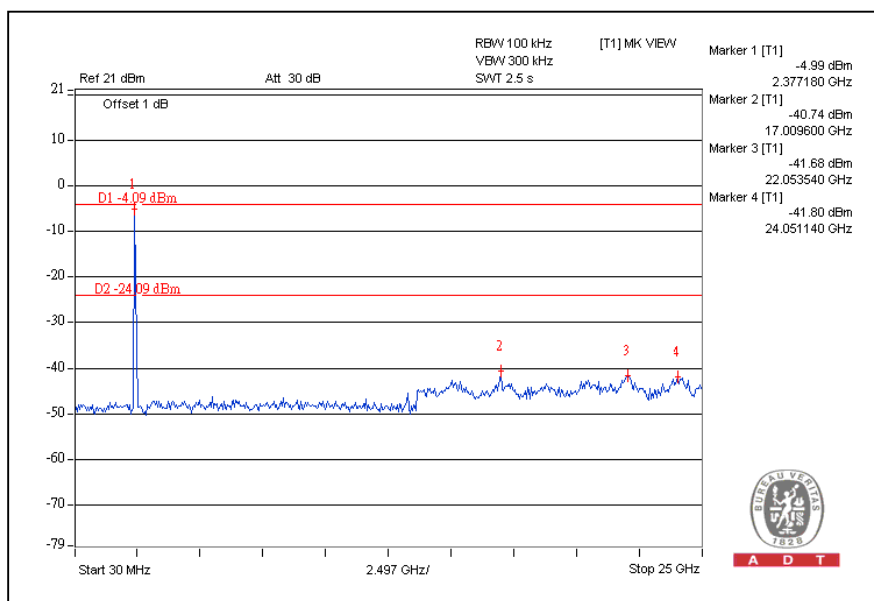
For Chain (1):CH1



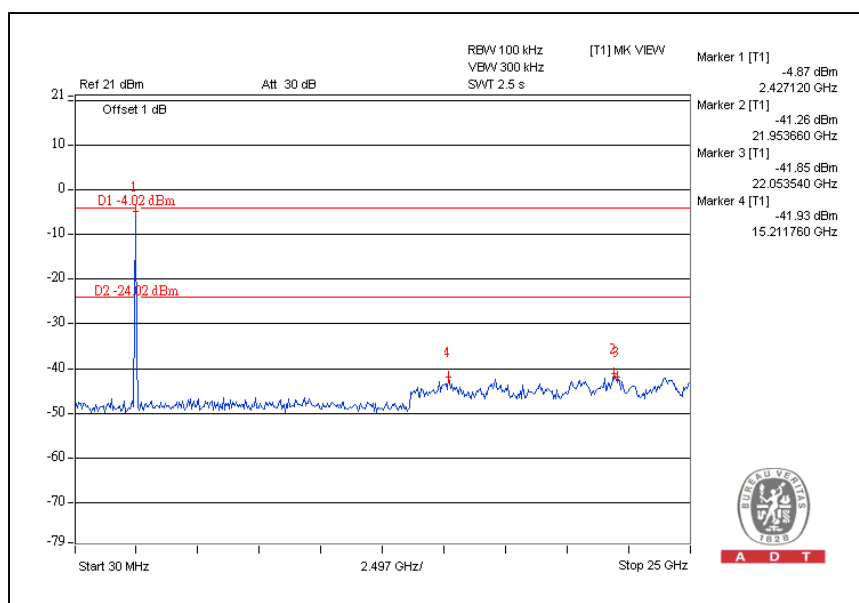
CH11



CH1

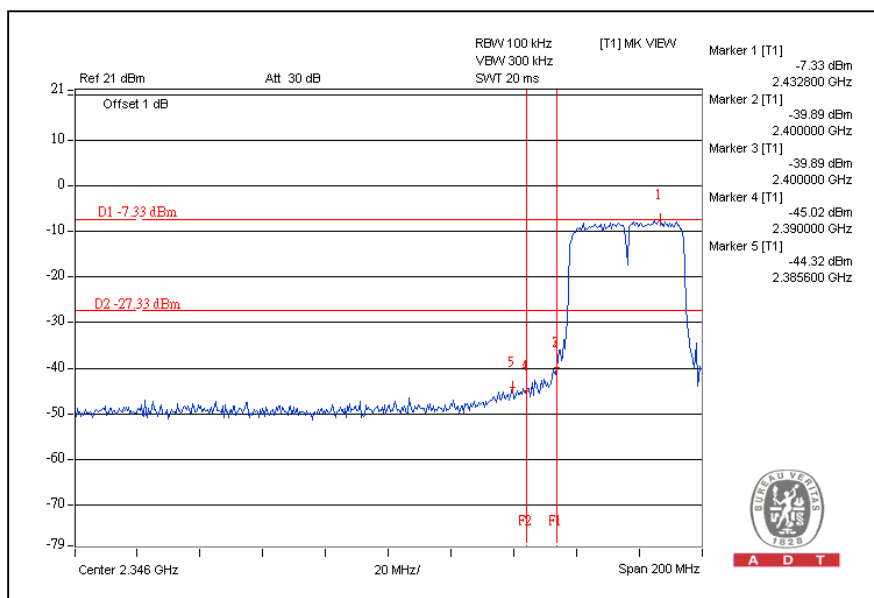


CH11

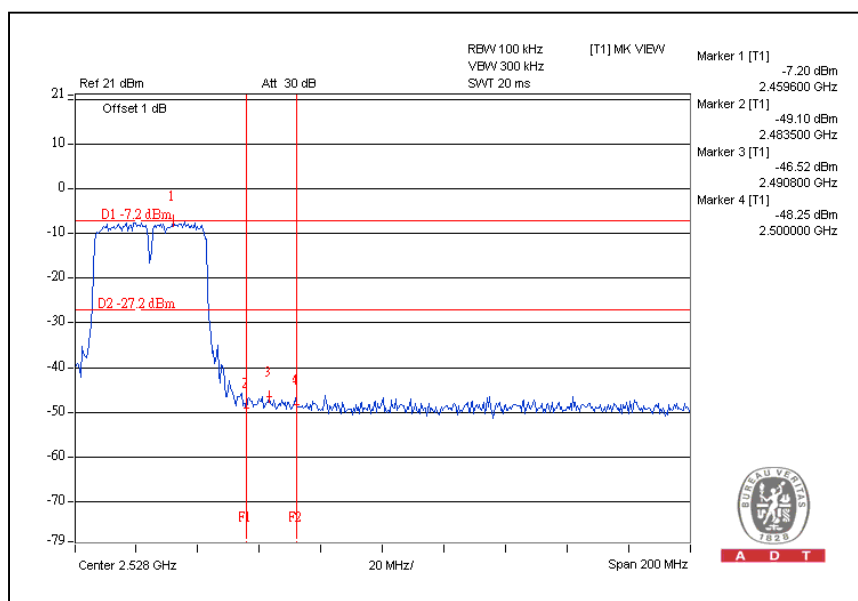


DRAFT 802.11n (40MHz) OFDM MODULATION:

For Chain (0):CH1



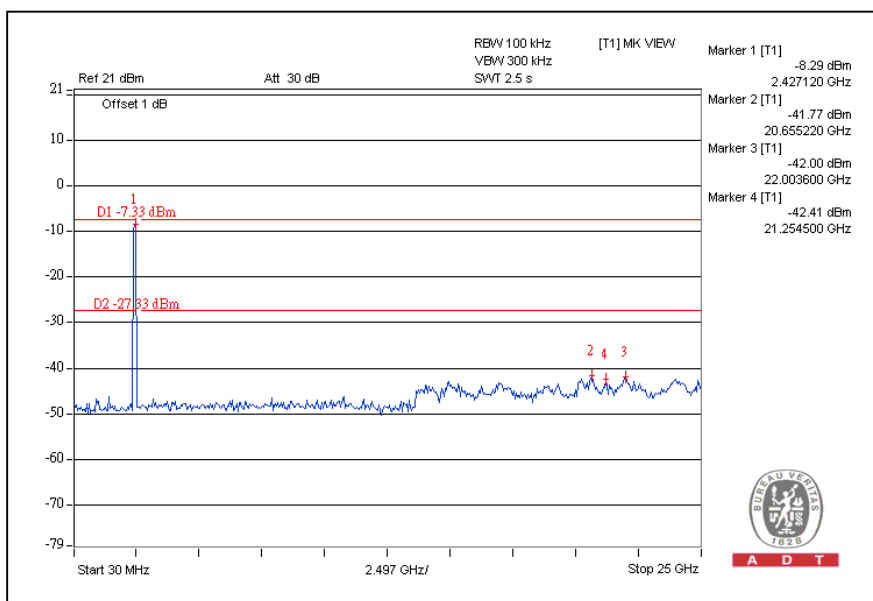
CH7



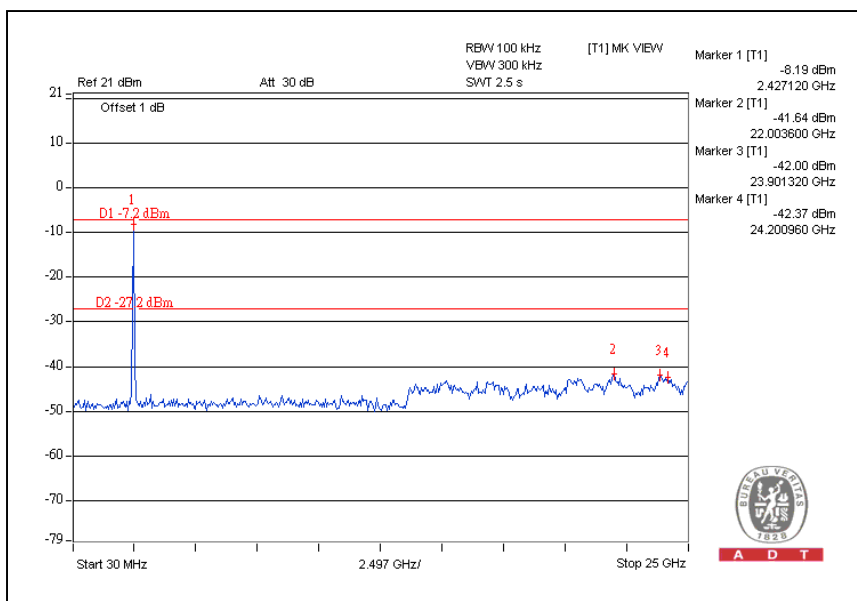


A D T

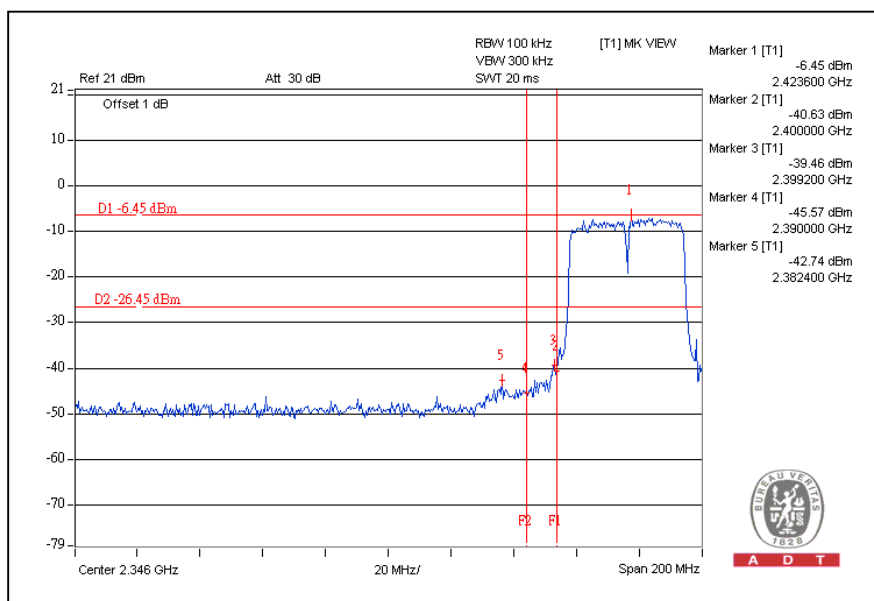
CH1



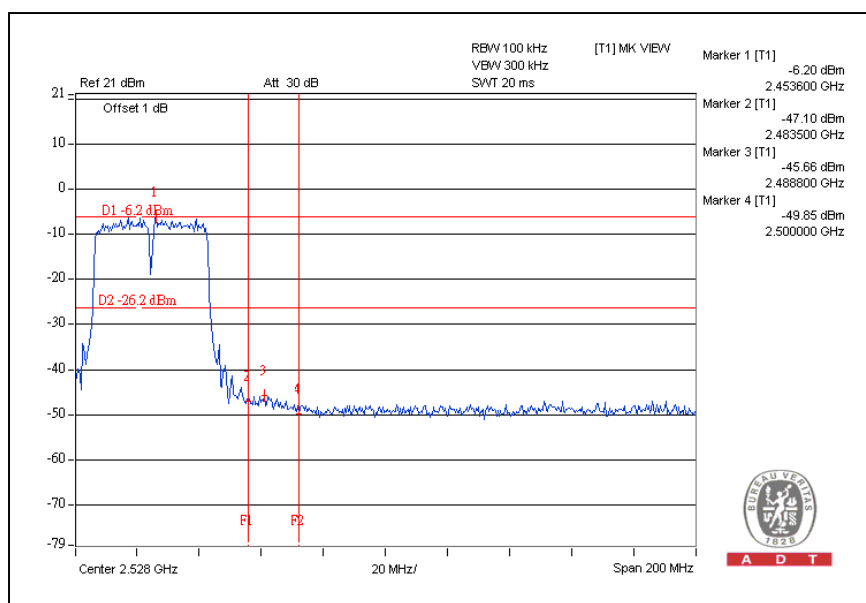
CH7



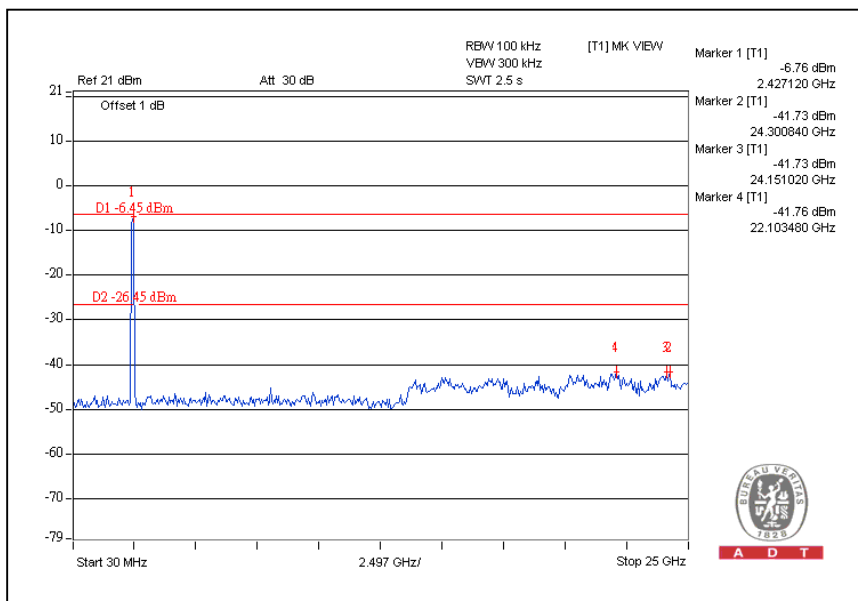
For Chain (1):CH1



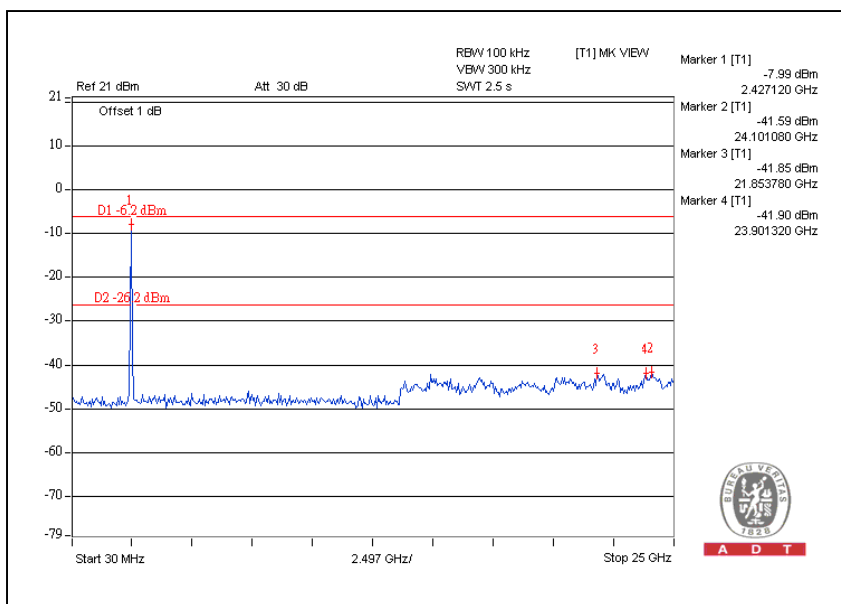
CH7



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:

No.	Antenna Type	For 2.4GHz Gain (dBi)	For 5GHz Gain (dBi)	Antenna Connector
CHAIN(0)	Dipole	0	3.5 (5250-5350MHz) 3 (5470-5725MHz) 3 (5725-5825MHz)	UFL-style
CHAIN(1)	Dipole	1.5	3	UFL-style

**A D T**

5. 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: 886-2-26052943

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



A D T

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.

---END---