



FCC TEST REPORT

REPORT NO.: RF960213H01D

MODEL NO.: C300Ri

RECEIVED: Aug. 15, 2007

TESTED: Aug. 22 to Sep. 11, 2007

ISSUED: Sep. 17, 2007

APPLICANT: Alpha Networks Inc.

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ISSUED BY: Advance Data Technology Corporation

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No. 2177-01

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1. CERTIFICATION

PRODUCT : 300Mbps Wireless PCI Card

MODEL NO.: C300Ri

BRAND: CONCEPTRONIC

APPLICANT : Alpha Networks Inc.

TESTED: Aug. 22 to Sep. 11, 2007

TEST SAMPLE: R&D SAMPLE

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

The above equipment (Model: C300Ri) 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 : Carol Liao , **DATE:** Sep. 17, 2007
(Carol Liao, Specialist)

TECHNICAL
ACCEPTANCE : Hank Chung , **DATE:** Sep. 17, 2007
Responsible for RF (Hank Chung, Deputy Manager)

APPROVED BY : May Chen , **DATE:** Sep. 17, 2007
(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 -18.81dB at 0.545MHz.
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 -0.30dB at 2483.50MHz.
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.

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	300Mbps Wireless PCI Card
MODEL NO.	C300Ri
FCC ID	RRK-C300Ri
POWER SUPPLY	DC 3.3~5V 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 Draft 802.11n (20MHz): 144.4/130.0/115.5/86.6/ 72.2/65.0/57.8/43.3/28.9/21.7/14.4/7.2Mbps Draft 802.11n (40MHz): 300/ 270/ 240/ 180/150/135/120/90/60/45/30/15Mbps
FREQUENCY RANGE	2412MHz ~ 2462MHz
NUMBER OF CHANNEL	11 for 802.11b, 802.11g, draft 802.11n (20MHz) 7 for draft 802.11n (40MHz)
MAXIMUM OUTPUT POWER	802.11b: 104.713mW 802.11g: 52.481mW draft 802.11n (20MHz): 124.836mW draft 802.11n (40MHz): 58.185mW
ANTENNA TYPE	Please see note 1
DATA CABLE	NA
I/O PORTS	NA

NOTE:

1. There is one antenna provided to this EUT, please refer to the following table:

Model No.	Antenna Type	Antenna Connector	Antenna Gain(dBi)	Note
C037-510734-A	Dipole	SMA Plug Reverse	2.0	Omni-directional

2. The EUT incorporates a MIMO function with 802.11b, 802.11g, draft 802.11n. Physically, the card provides two completed transmit and three completed receivers.
3. The EUT is 2 * 3 spatial MIMO (2Tx & 3Rx) without beam forming function. The antenna configurations are two transmitter antennas and three receiver antennas, as there are 3 dipole antennas. Spatial multiplexing modes for simultaneous transmission using 2 antennas, and for simultaneous receiver using 3 antennas.
4. 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.
5. The EUT complies with draft 802.11n standards and backwards compatible with 802.11b, 802.11g products.
6. The EUT operates in the 2.4GHz frequency spectrum with data rate up to 300Mbps.
7. For conducted the EUT was pre-tested under following test mode, and the test data was recorded in this report:

Pre-test Mode	Description
Mode A	802.11b
Mode B	802.11g
Mode C	Draft 802.11n (20MHz)
Mode D	Draft 802.11n (40MHz)

The worst emission level was found in Mode A, Mode C & Mode D. The final test was executed under test mode with highest emission and recorded in this report individually.

8. For radiated test (Below 1 GHz) the EUT was pre-tested under following test mode, and the test data was recorded in this report:

Pre-test Mode	Description
Mode A	802.11b
Mode B	802.11g
Mode C	Draft 802.11n (20MHz)
Mode D	Draft 802.11n (40MHz)

The worst emission level was found in Mode A. The final test was executed under test mode with highest emission and recorded in this report individually

9. 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 ³ 1G	APCM	
-	√	√	√	√	-

Where **PLC**: Power Line Conducted Emission

RE < 1G: Radiated Emission below 1GHz

RE ³ 1G: Radiated Emission above 1GHz

APCM: Antenna Port Conducted Measurement

COMBINATION MODE:

COMBINATION MODE	OPERATION MODE	TX CHAIN(0)	TX CHAIN(1)	TX CHAIN(2)
A	802.11 b	ü		
B	802.11g	ü		
C	DRAFT 802.11n(20MHz)	ü		ü
D	DRAFT 802.11n(40MHz)	ü		ü

COMBINATION MODE	OPERATION MODE	RX CHAIN(0)	RX CHAIN(1)	RX CHAIN(2)
E	802.11 b	ü		
F	802.11g	ü		
G	DRAFT 802.11n(20MHz)	ü	ü	ü
H	DRAFT 802.11n(40MHz)	ü	ü	ü

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.

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	CCK	1	A
Draft 802.11n (20MHz)	1 to 11	1	OFDM	BPSK	7.2	C
Draft 802.11n (40MHz)	1 to 7	1	OFDM	BPSK	15	D

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	CCK	1	A

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	CCK	1	A
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6	B
Draft 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	7.2	C
Draft 802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	15	D

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)	TX COMBINATION
802.11b	1 to 11	1, 11	DSSS	CCK	1	A
802.11g	1 to 11	1, 11	OFDM	BPSK	6	B
Draft 802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	7.2	C
Draft 802.11n (40MHz)	1 to 7	1, 7	OFDM	BPSK	15	D

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	CCK	11	A
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6	B
Draft 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	7.2	C
Draft 802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	15	D



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.

3.4 DESCRIPTION OF SUPPORT UNITS

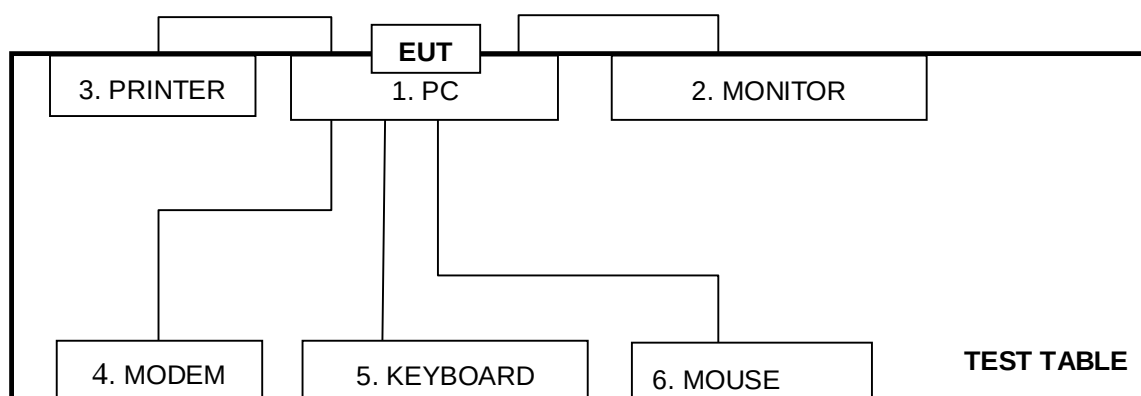
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	COMPUTER	DELL	4600	00043-517-542-486	DoC
2	MONITOR	ADI	G1000	240058T00100081	DoC
3	PRINTER	HP	C2642A	MY79J1D00G	B94C2642X
4	MODEM	ACEEX	1414	0206026779	IFAXDM1414
5	KEYBOARD	BTC	KB-5200T	F24800406	E5XKB5122WTH0110
6	MOUSE	BTC	M851	G00347024440	DoC

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA
2	1.4 m braid shielded wire, terminated with VGA connector via metallic frame, w/o core
3	1.8m braid shielded wire, terminated with DB25 and Centronics connector via metallic frame, w/o core
4	1 m braid shielded wire, terminated with DB25 and DB9 connector via metallic frame, w/o core.
5	1.7 m foil shielded wire, terminal by frame, PS/2 Connector, with one core.
6	1.5 m foil shielded wire, terminal by frame, PS/2 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



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
Test Receiver	ESCS 30	847124/029	Mar. 28, 2008
Line-Impedance Stabilization Network(for EUT)	ENV-216	100071	Nov. 26, 2007
Line-Impedance Stabilization Network(for Peripheral)	ESH3-Z5	848773/004	Oct. 26, 2007
RF Cable (JETBAO)	RG233/U	Cable_CB_01	Dec. 09, 2007
Terminator	50	2	Oct. 30, 2007
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. B.
3. The VCCI Con B Registration No. is C-2193.

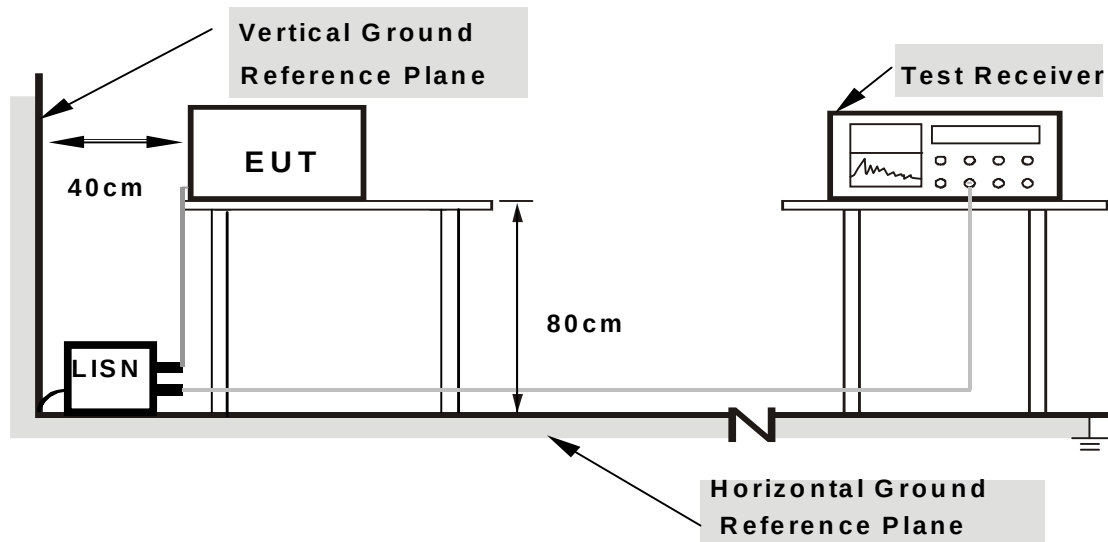
4.1.3 TEST PROCEDURES

- 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) 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

1. Plug the EUT into the support unit 1 (Personal computer) which placed on a testing table.
2. The support unit 1 (Personal computer) ran a test program “QA RT2860 V1 0 1 7” to enable EUT under transmission condition continuously.

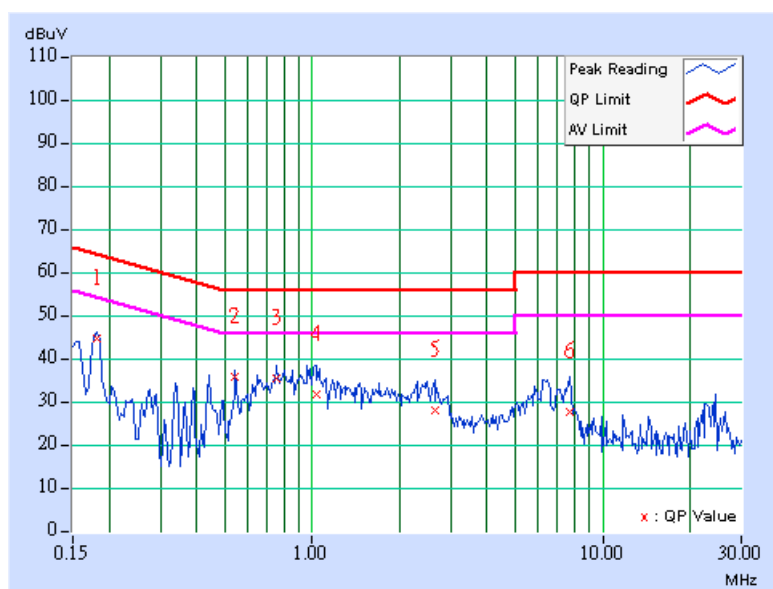
4.1.7 TEST RESULTS

802.11b DSSS MODULATION:

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	PHASE	Line (L)
MODULATION TYPE	CCK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	1Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	27deg. C, 59%RH, 955hPa	TESTED BY	Tony Chen

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	0.181	0.40	43.91	-	44.31	-	64.43	54.43	-20.12	-
2	0.545	0.40	35.31	-	35.71	-	56.00	46.00	-20.29	-
3	0.752	0.40	34.83	-	35.23	-	56.00	46.00	-20.77	-
4	1.037	0.40	31.03	-	31.43	-	56.00	46.00	-24.57	-
5	2.650	0.53	27.26	-	27.79	-	56.00	46.00	-28.21	-
6	7.691	0.72	27.16	-	27.88	-	60.00	50.00	-32.12	-

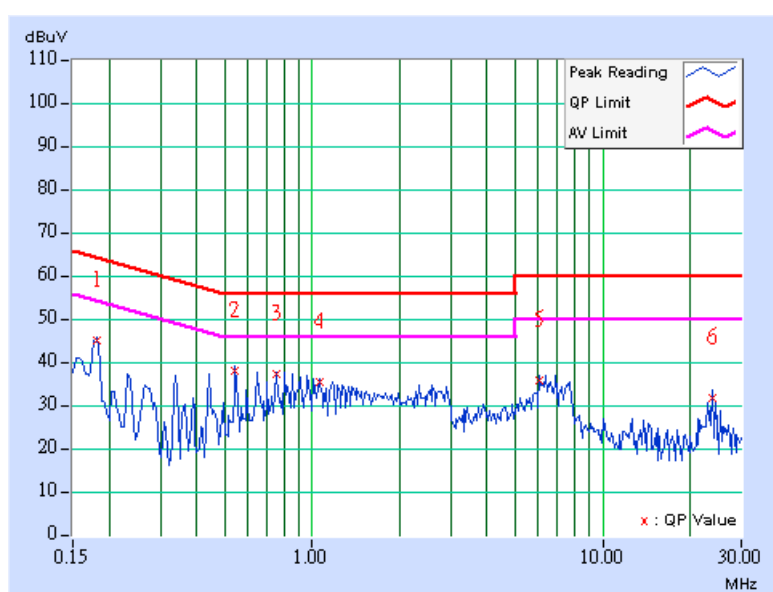
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	PHASE	Neutral (N)
MODULATION TYPE	CCK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	1Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	27deg. C, 59%RH, 955hPa	TESTED BY	Tony Chen

No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.181	0.20	43.95	-	44.15	-	64.43	54.43	-20.28	-
2	0.545	0.22	36.72	-	36.94	-	56.00	46.00	-19.06	-
3	0.752	0.26	36.06	-	36.32	-	56.00	46.00	-19.68	-
4	1.064	0.31	34.25	-	34.56	-	56.00	46.00	-21.44	-
5	6.047	0.64	34.56	-	35.20	-	60.00	50.00	-24.80	-
6	23.730	1.37	30.57	-	31.94	-	60.00	50.00	-28.06	-

- 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.

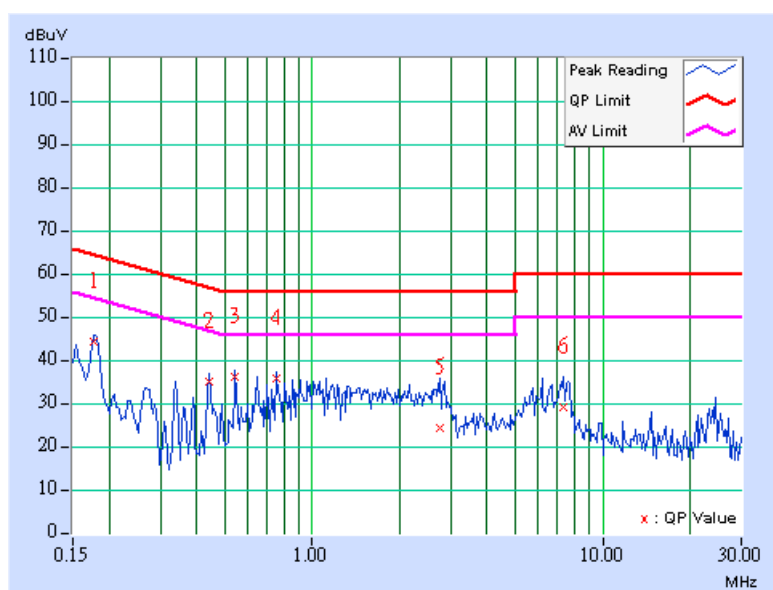


DRAFT 802.11n (20MHz) OFDM MODULATION:

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	PHASE	Line (L)
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	7.2Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	27deg. C, 59%RH, 955hPa	TESTED BY	Tony Chen

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	0.177	0.40	43.67	-	44.07	-	64.61	54.61	-20.54	-
2	0.439	0.40	34.45	-	34.85	-	57.08	47.08	-22.23	-
3	0.545	0.40	35.61	-	36.01	-	56.00	46.00	-19.99	-
4	0.752	0.40	35.36	-	35.76	-	56.00	46.00	-20.24	-
5	2.740	0.54	23.71	-	24.25	-	56.00	46.00	-31.75	-
6	7.344	0.71	28.70	-	29.41	-	60.00	50.00	-30.59	-

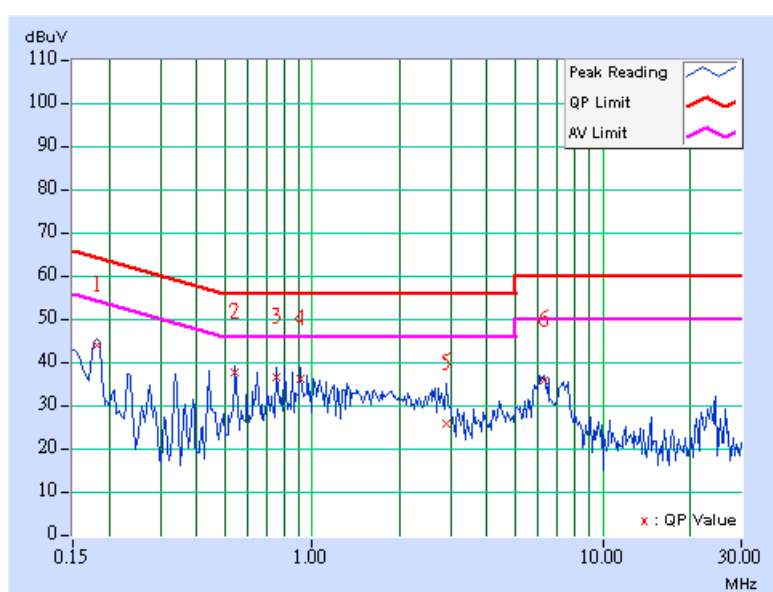
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	PHASE	Neutral (N)
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	7.2Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	27deg. C, 59%RH, 955hPa	TESTED BY	Tony Chen

No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.181	0.20	43.50	-	43.70	-	64.43	54.43	-20.73	-
2	0.545	0.22	36.97	-	37.19	-	56.00	46.00	-18.81	-
3	0.752	0.26	36.14	-	36.40	-	56.00	46.00	-19.60	-
4	0.908	0.28	35.51	-	35.79	-	56.00	46.00	-20.21	-
5	2.880	0.44	25.21	-	25.65	-	56.00	46.00	-30.35	-
6	6.250	0.65	35.10	-	35.75	-	60.00	50.00	-24.25	-

- 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.

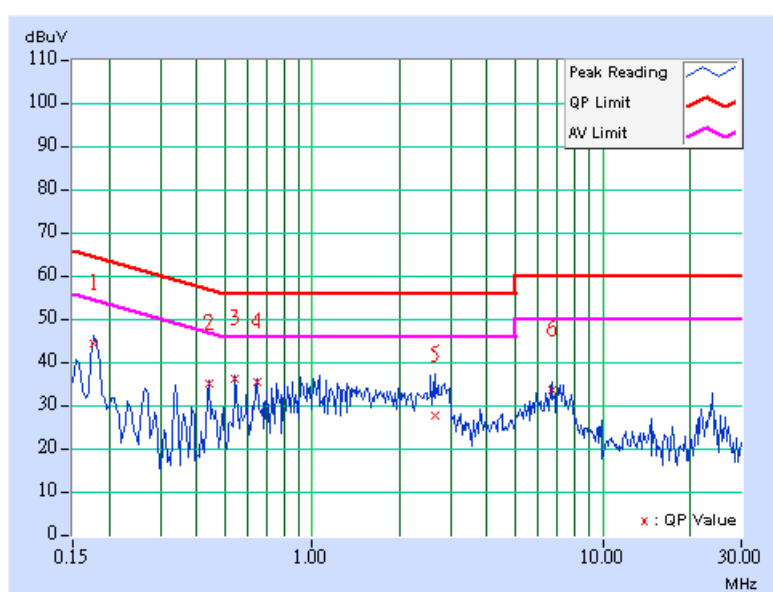


DRAFT 802.11n (40MHz) OFDM MODULATION:

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	PHASE	Line (L)
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	15Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	27deg. C, 59%RH, 955hPa	TESTED BY	Tony Chen

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	0.177	0.40	43.75	-	44.15	-	64.61	54.61	-20.46	-
2	0.439	0.40	34.63	-	35.03	-	57.08	47.08	-22.05	-
3	0.545	0.40	35.55	-	35.95	-	56.00	46.00	-20.05	-
4	0.646	0.40	34.76	-	35.16	-	56.00	46.00	-20.84	-
5	2.642	0.53	27.17	-	27.70	-	56.00	46.00	-28.30	-
6	6.715	0.69	32.90	-	33.59	-	60.00	50.00	-26.41	-

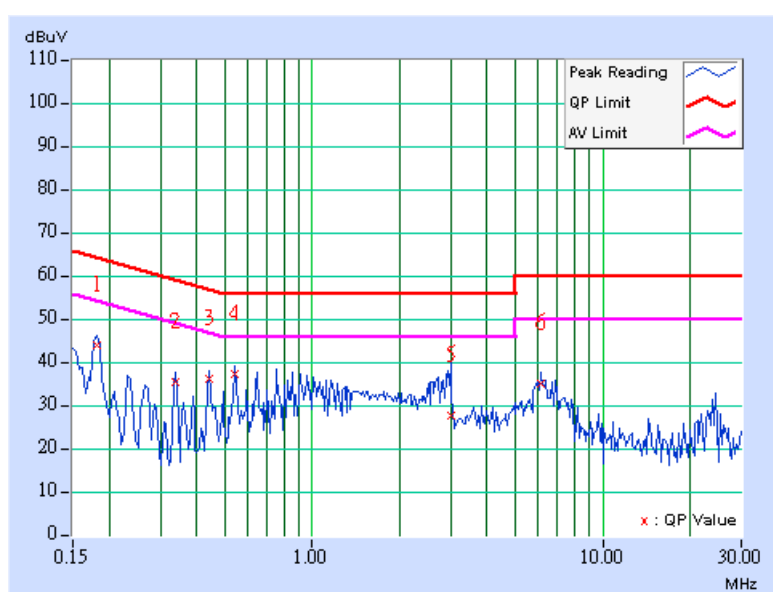
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = 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	15Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	27deg. C, 59%RH, 955hPa	TESTED BY	Tony Chen

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	0.181	0.20	43.52	-	43.72	-	64.43	54.43	-20.71	-
2	0.338	0.20	34.95	-	35.15	-	59.26	49.26	-24.11	-
3	0.439	0.21	35.56	-	35.77	-	57.08	47.08	-21.31	-
4	0.545	0.22	36.80	-	37.02	-	56.00	46.00	-18.98	-
5	3.005	0.45	27.28	-	27.73	-	56.00	46.00	-28.27	-
6	6.144	0.64	34.63	-	35.27	-	60.00	50.00	-24.73	-

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



4.2 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, 2008
HP Pre_Amplifier	8449B	3008A01922	Sep. 18, 2007
ROHDE & SCHWARZ Test Receiver	ESCS30	100375	Sep. 20, 2007
CHASE Broadband Antenna	VULB 9168	138	July 26, 2008
Schwarzbeck Horn_Antenna	BBHA9120	D124	Jan. 01, 2008
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 25, 2008
TRILOG Broad Band Antenna	VULB 9168	138	July 26, 2008
RF Switches (ARNITSU)	CS-201	1565157	Aug. 13, 2008
RF CABLE (Chaintek)	SF102	22054-2	Nov. 14, 2007
RF Cable(RICHTEC)	9913-30M N-N Cable	STCCAB-30M-1 GHz	Aug. 13, 2008
Software	ADT_Radiated_V 7.6.15.7	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 4824A-3.
7. The following table is for the measurement uncertainty, which is calculated as per the document 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
Radiated emissions (30MHz-1GHz)	2.98 dB
Radiated emissions (1GHz ~18GHz)	2.21 dB
Radiated emissions (18GHz ~40GHz)	1.88 dB

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.

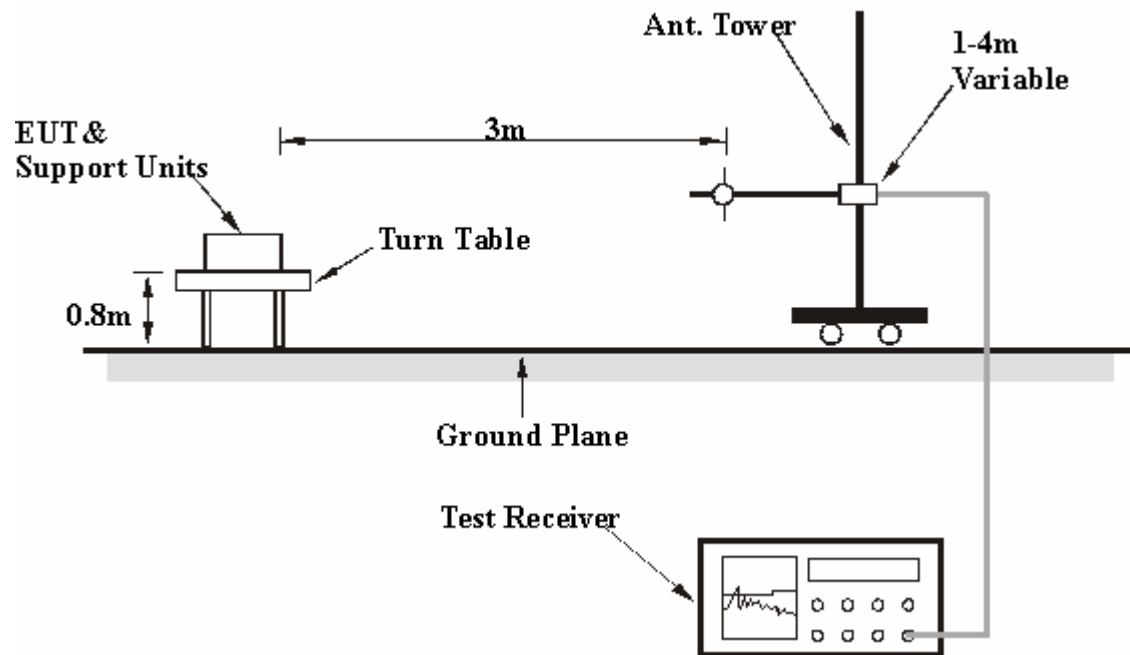
NOTE:

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 item 4.1.6

Below 1GHz Test Data

4.2.7 TEST RESULTS

802.11b DSSS MODULATION:

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	Below 1000MHz
MODULATION TYPE	CCK	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TRANSFER RATE	1Mbps	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 66%RH, 955hPa	TESTED BY	Phoenix Huang

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	80.00	28.71 QP	40.00	-11.29	2.20 H	77	18.57	10.14
2	119.75	29.65 QP	43.50	-13.85	1.01 H	168	17.86	11.79
3	166.66	28.63 QP	43.50	-14.87	1.05 H	32	14.88	13.75
4	199.85	37.74 QP	43.50	-5.76	1.05 H	57	26.13	11.61
5	300.00	32.74 QP	46.00	-13.26	1.39 H	1	15.91	16.83
6	500.00	32.88 QP	46.00	-13.12	1.22 H	1	11.12	21.76
7	768.09	38.25 QP	46.00	-7.75	1.00 H	66	10.82	27.43
8	816.10	40.81 QP	46.00	-5.19	1.00 H	303	12.98	27.83
9	864.10	41.23 QP	46.00	-4.77	1.00 H	291	12.70	28.53

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	43.91	35.49 QP	40.00	-4.51	1.00 V	60	20.99	14.50
2	80.00	37.38 QP	40.00	-2.62	1.00 V	263	27.24	10.14
3	120.12	32.80 QP	43.50	-10.70	1.00 V	29	20.97	11.83
4	199.83	38.72 QP	43.50	-4.78	1.00 V	32	27.11	11.61
5	299.94	31.89 QP	46.00	-14.11	1.00 V	123	15.06	16.83
6	500.50	32.16 QP	46.00	-13.84	1.00 V	114	10.39	21.77
7	768.09	33.88 QP	46.00	-12.12	1.18 V	49	6.45	27.43
8	802.10	34.66 QP	46.00	-11.34	1.29 V	292	7.06	27.60
9	864.10	41.01 QP	46.00	-4.99	1.16 V	70	12.48	28.53

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.

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
MODULATION TYPE	CCK	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TRANSFER RATE	1Mbps	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 61%RH, 955hPa	TESTED BY	Sky Liao

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	59.40 PK	74.00	-14.60	1.95 H	64	27.50	31.90
1	2390.00	46.80 AV	54.00	-7.20	1.95 H	64	14.90	31.90
2	*2412.00	105.60 PK			1.97 H	65	73.60	32.00
2	*2412.00	100.90 AV			1.97 H	65	68.90	32.00
3	4824.00	51.20 PK	74.00	-22.80	1.40 H	16	15.20	36.00
3	4824.00	45.40 AV	54.00	-8.60	1.40 H	16	9.40	36.00
4	7236.00	55.60 PK	74.00	-18.40	1.55 H	25	13.40	42.20
4	7236.00	45.80 AV	54.00	-8.20	1.55 H	25	3.60	42.20

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	62.20 PK	74.00	-11.80	1.00 V	19	30.30	31.90
1	2390.00	52.00 AV	54.00	-2.00	1.00 V	19	20.10	31.90
2	*2412.00	109.90 PK			1.00 V	21	77.90	32.00
2	*2412.00	105.30 AV			1.00 V	21	73.30	32.00
3	4824.00	52.30 PK	74.00	-21.70	1.45 V	16	16.30	36.00
3	4824.00	45.80 AV	54.00	-8.20	1.45 V	16	9.80	36.00
4	7236.00	56.00 PK	74.00	-18.00	1.40 V	250	13.80	42.20
4	7236.00	46.20 AV	54.00	-7.80	1.40 V	250	4.00	42.20

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. The limit value is defined as per 15.247.
 6. “ * ”: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	CCK	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TRANSFER RATE	1Mbps	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 61%RH, 955hPa	TESTED BY	Sky Liao

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	107.20 PK			1.71 H	52	75.10	32.10
1	*2437.00	102.50 AV			1.71 H	52	70.40	32.10
2	4874.00	53.00 PK	74.00	-21.00	1.57 H	14	16.90	36.10
2	4874.00	49.10 AV	54.00	-4.90	1.57 H	14	13.00	36.10
3	7311.00	56.90 PK	74.00	-17.10	1.33 H	254	14.40	42.50
3	7311.00	48.60 AV	54.00	-5.40	1.33 H	254	6.10	42.50

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	112.50 PK			1.70 V	296	80.40	32.10
1	*2437.00	108.20 AV			1.70 V	296	76.10	32.10
2	4874.00	54.20 PK	74.00	-19.80	1.02 V	1	18.10	36.10
2	4874.00	50.80 AV	54.00	-3.20	1.02 V	1	14.70	36.10
3	7311.00	58.20 PK	74.00	-15.80	1.50 V	1	15.70	42.50
3	7311.00	50.90 AV	54.00	-3.10	1.50 V	1	8.40	42.50

- 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. The limit value is defined as per 15.247.
 6. “ * “: Fundamental frequency.

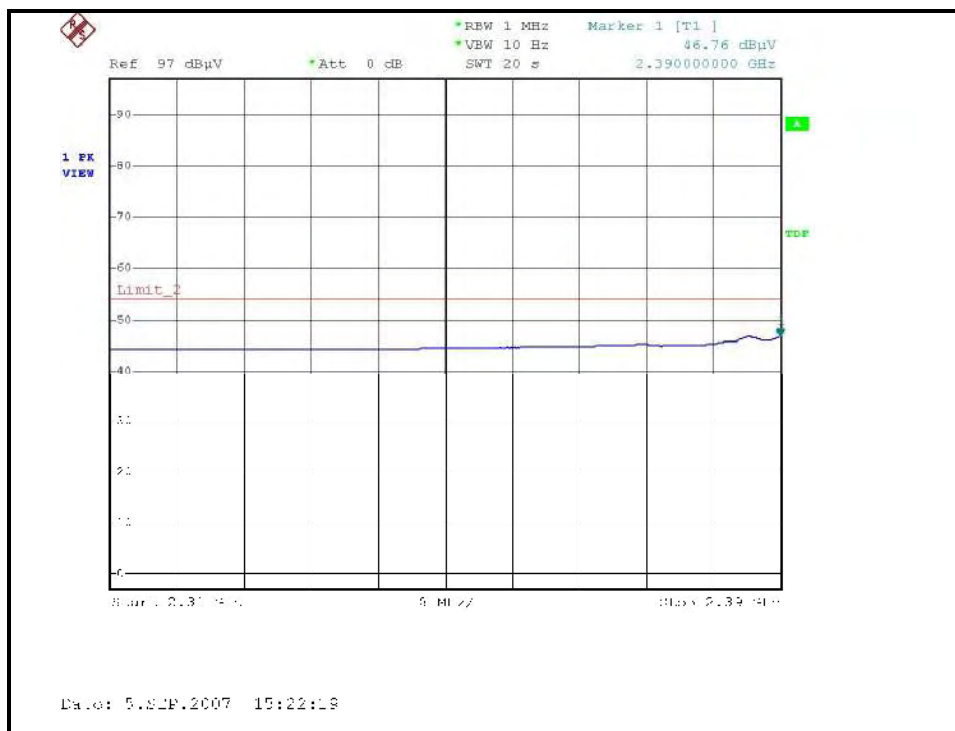
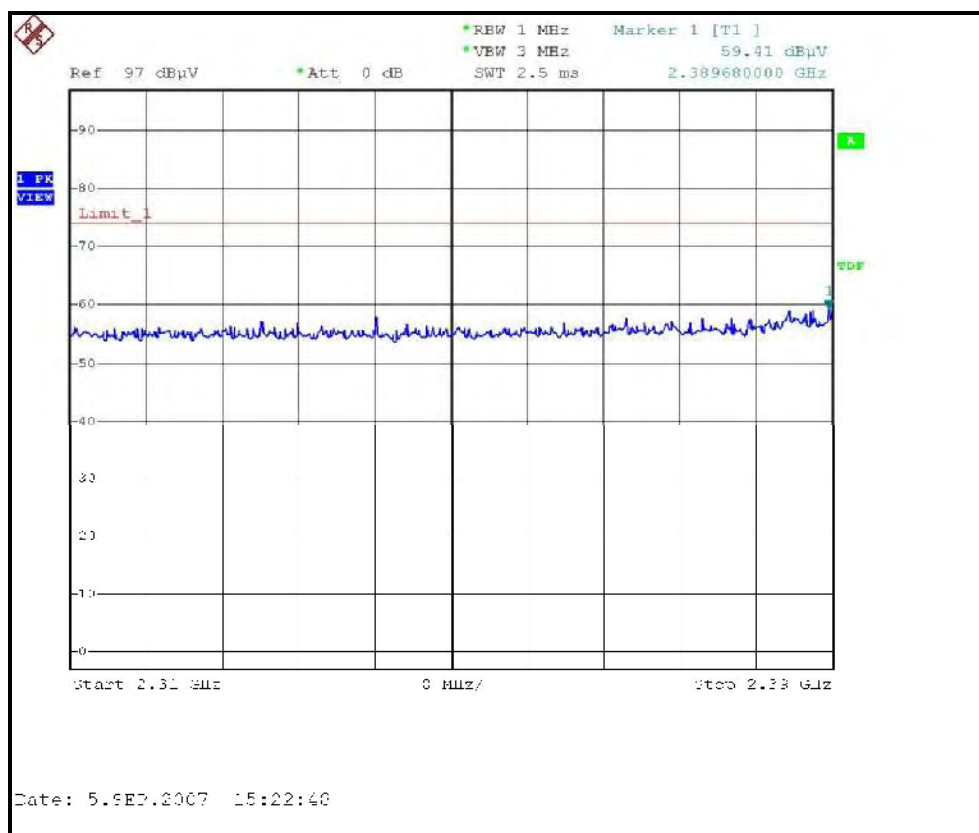
EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	CCK	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TRANSFER RATE	1Mbps	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 61%RH, 955hPa	TESTED BY	Sky Liao

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	104.20 PK			1.72 H	51	72.00	32.20
1	*2462.00	99.20 AV			1.72 H	51	67.00	32.20
2	2487.60	57.90 PK	74.00	-16.10	1.71 H	50	25.60	32.30
2	2487.60	45.40 AV	54.00	-8.60	1.71 H	50	13.10	32.30
3	4924.00	53.20 PK	74.00	-20.80	1.50 H	21	17.00	36.20
3	4924.00	49.60 AV	54.00	-4.40	1.50 H	21	13.40	36.20
4	7386.00	54.60 PK	74.00	-19.40	1.54 H	24	11.80	42.80
4	7386.00	43.70 AV	54.00	-10.30	1.54 H	24	0.90	42.80

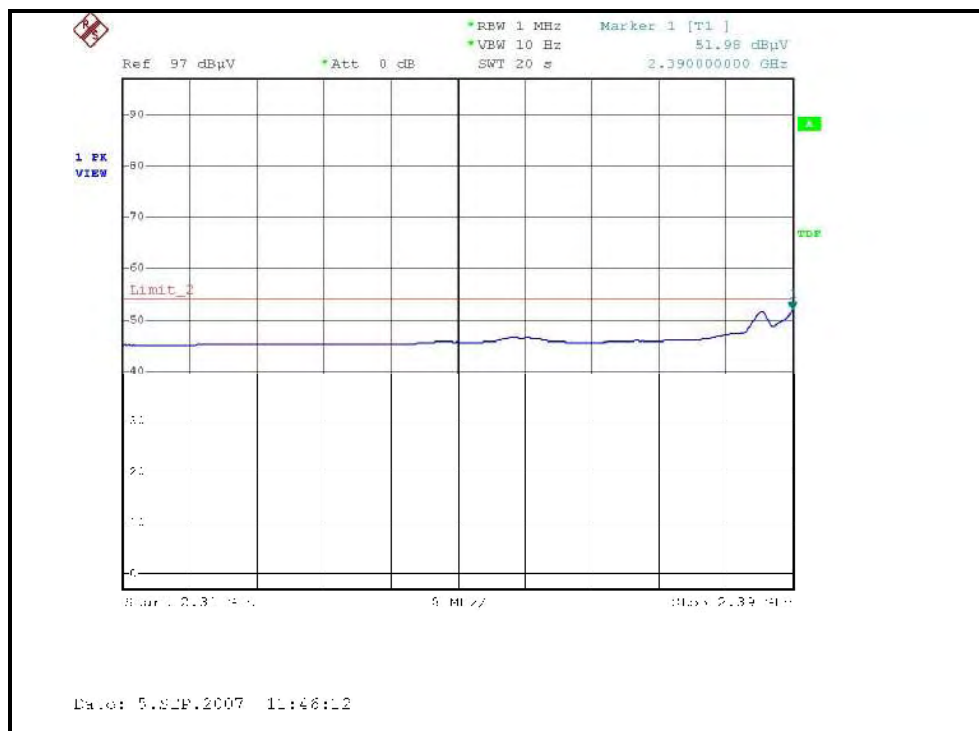
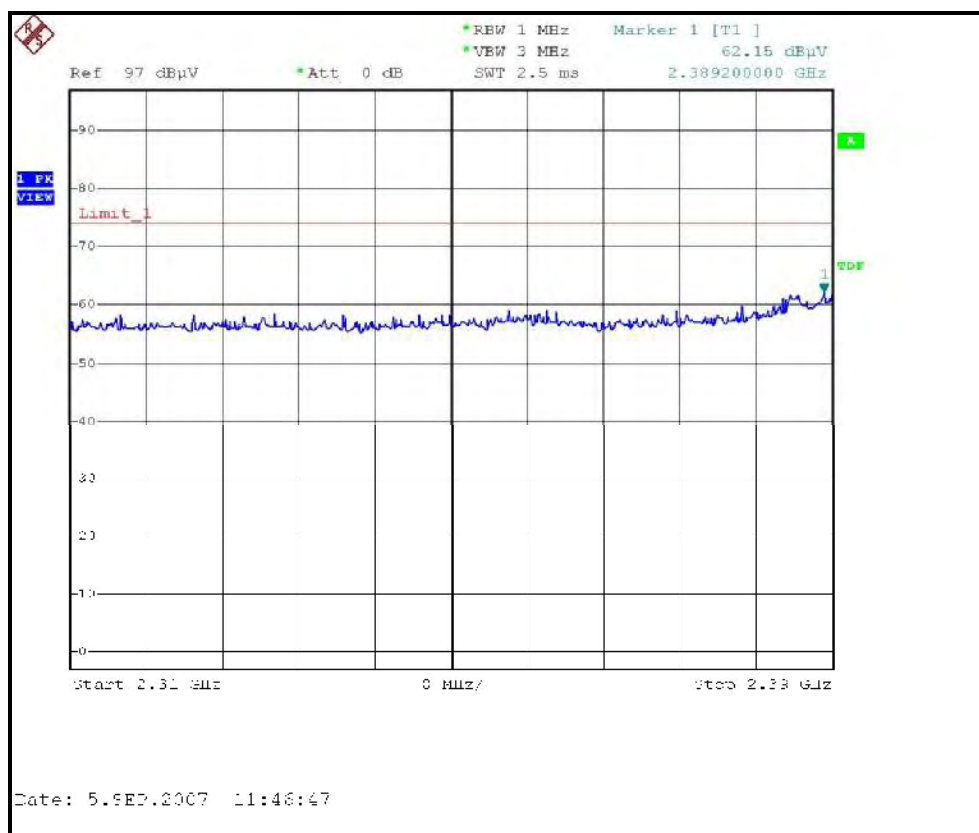
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	109.50 PK			1.64 V	306	77.30	32.20
1	*2462.00	105.00 AV			1.64 V	306	72.80	32.20
2	2487.00	62.00 PK	74.00	-12.00	1.70 V	265	29.60	32.30
2	2487.00	51.20 AV	54.00	-2.80	1.70 V	265	18.90	32.30
3	4924.00	53.50 PK	74.00	-20.50	1.25 V	21	17.30	36.20
3	4924.00	49.70 AV	54.00	-4.30	1.25 V	21	13.50	36.20
4	7386.00	56.70 PK	74.00	-17.30	1.28 V	328	13.90	42.80
4	7386.00	47.50 AV	54.00	-6.50	1.28 V	328	4.70	42.80

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. The limit value is defined as per 15.247.
 6. “ * ”: Fundamental frequency.

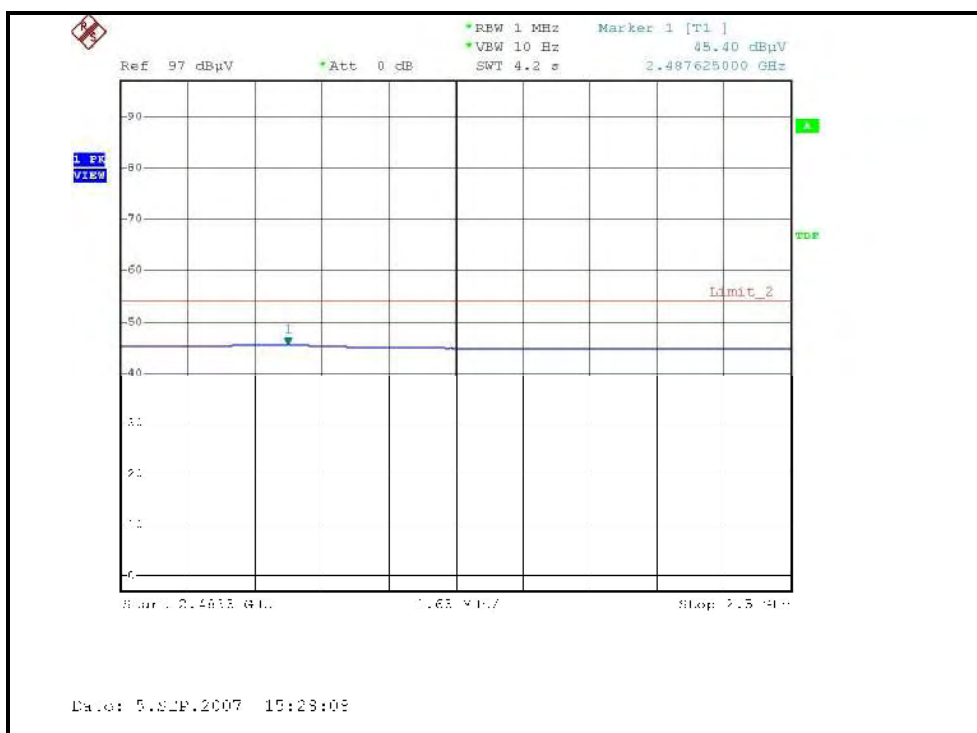
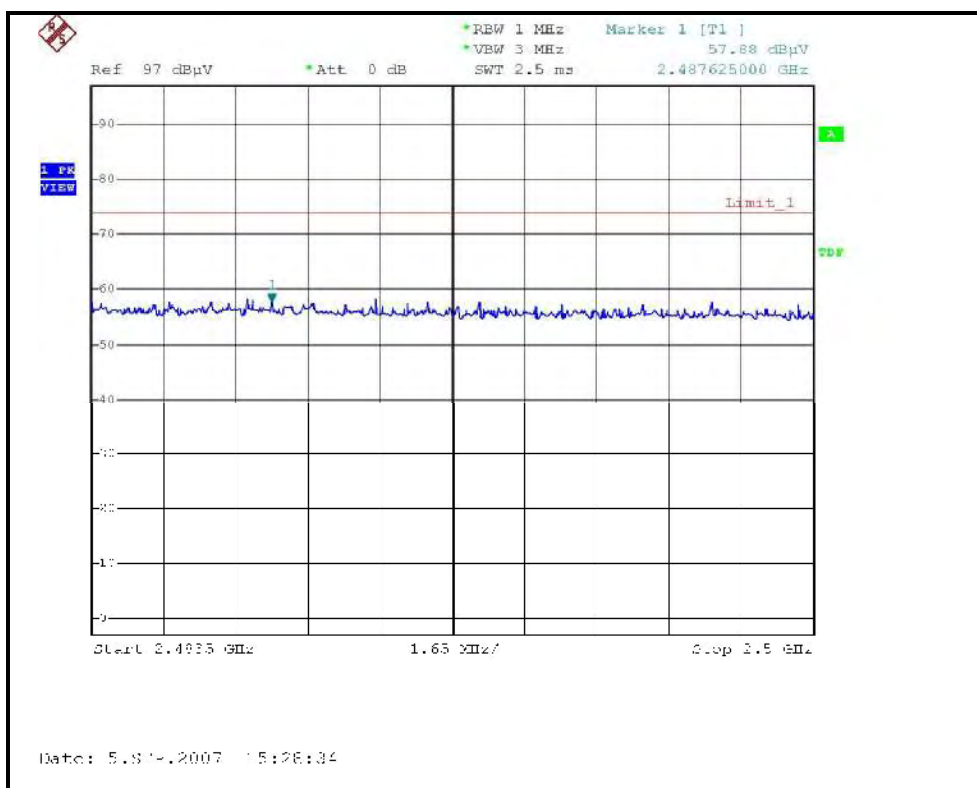
RESTRICTED BANDEDGE (802.11b MODE, CH1, HORIZONTAL)



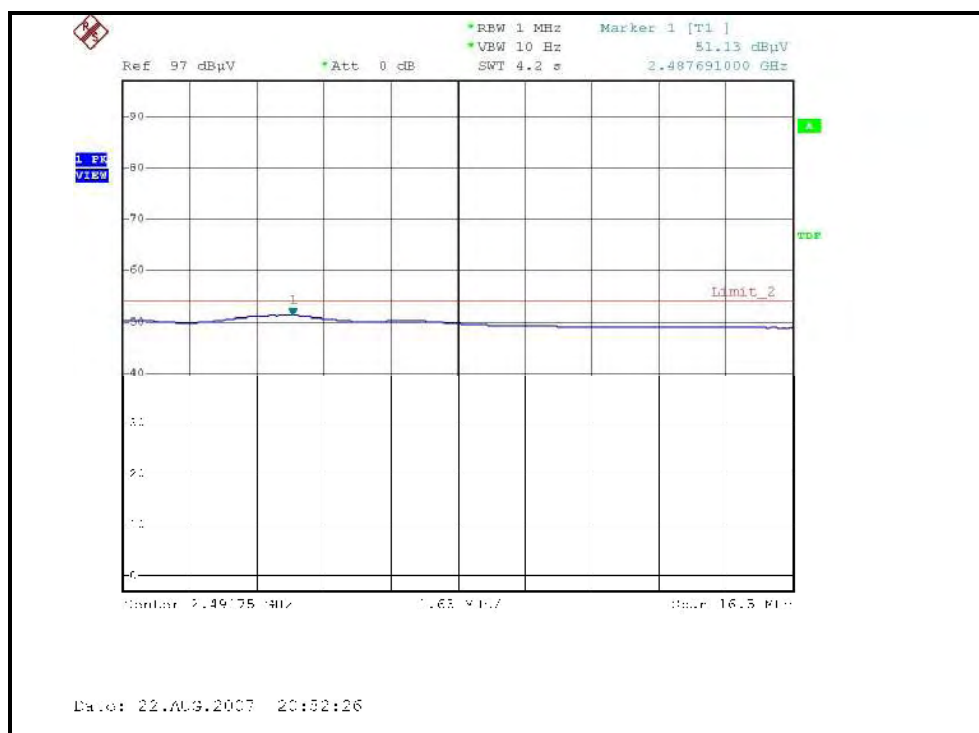
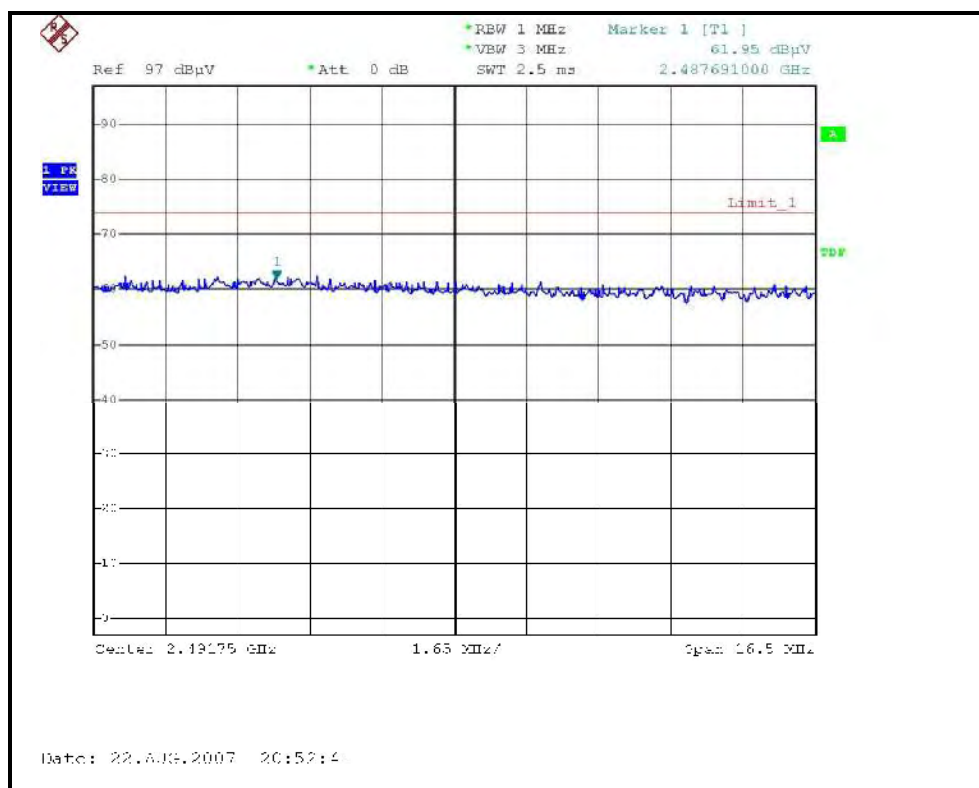
RESTRICTED BANDEDGE (802.11b MODE, CH1, VERTICAL)



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
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TRANSFER RATE	6Mbps	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 61%RH, 955hPa	TESTED BY	Sky Liao

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	62.30 PK	74.00	-11.70	1.96 H	63	30.40	31.90
1	2390.00	46.80 AV	54.00	-7.20	1.96 H	63	14.90	31.90
2	*2412.00	105.90 PK			1.97 H	62	73.90	32.00
2	*2412.00	95.00 AV			1.97 H	62	63.00	32.00
3	4824.00	52.40 PK	74.00	-21.60	1.54 H	300	16.40	36.00
3	4824.00	37.70 AV	54.00	-16.30	1.54 H	300	1.70	36.00
4	7236.00	57.80 PK	74.00	-16.20	1.60 H	320	15.60	42.20
4	7236.00	42.20 AV	54.00	-11.80	1.60 H	320	0.00	42.20

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	65.50 PK	74.00	-8.50	1.81 V	331	33.60	31.90
1	2390.00	50.50 AV	54.00	-3.50	1.81 V	331	18.60	31.90
2	*2412.00	110.60 PK			1.80 V	327	78.60	32.00
2	*2412.00	100.70 AV			1.80 V	327	68.70	32.00
3	4824.00	53.20 PK	74.00	-20.80	1.14 V	18	17.20	36.00
3	4824.00	39.90 AV	54.00	-14.10	1.14 V	18	3.90	36.00
4	7236.00	58.20 PK	74.00	-15.80	1.07 V	36	16.00	42.20
4	7236.00	42.70 AV	54.00	-11.30	1.07 V	36	0.50	42.20

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. The limit value is defined as per 15.247.
6. “ * ”: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TRANSFER RATE	6Mbps	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 61%RH, 955hPa	TESTED BY	Sky Liao

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	106.30 PK			4.00 H	46	74.20	32.10
1	*2437.00	95.60 AV			4.00 H	46	63.50	32.10
2	4874.00	51.60 PK	74.00	-22.40	1.52 H	12	15.50	36.10
2	4874.00	37.70 AV	54.00	-16.30	1.52 H	12	1.60	36.10
3	7311.00	57.00 PK	74.00	-17.00	1.20 H	336	14.50	42.50
3	7311.00	42.60 AV	54.00	-11.40	1.20 H	336	0.10	42.50

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	112.20 PK			1.68 V	317	80.10	32.10
1	*2437.00	101.50 AV			1.68 V	317	69.40	32.10
2	4874.00	53.50 PK	74.00	-20.50	1.35 V	322	17.40	36.10
2	4874.00	37.60 AV	54.00	-16.40	1.35 V	322	1.50	36.10
3	7311.00	61.00 PK	74.00	-13.00	1.40 V	350	18.50	42.50
3	7311.00	46.30 AV	54.00	-7.70	1.40 V	350	3.80	42.50

- 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. The limit value is defined as per 15.247.
 6. “ * “: Fundamental frequency.

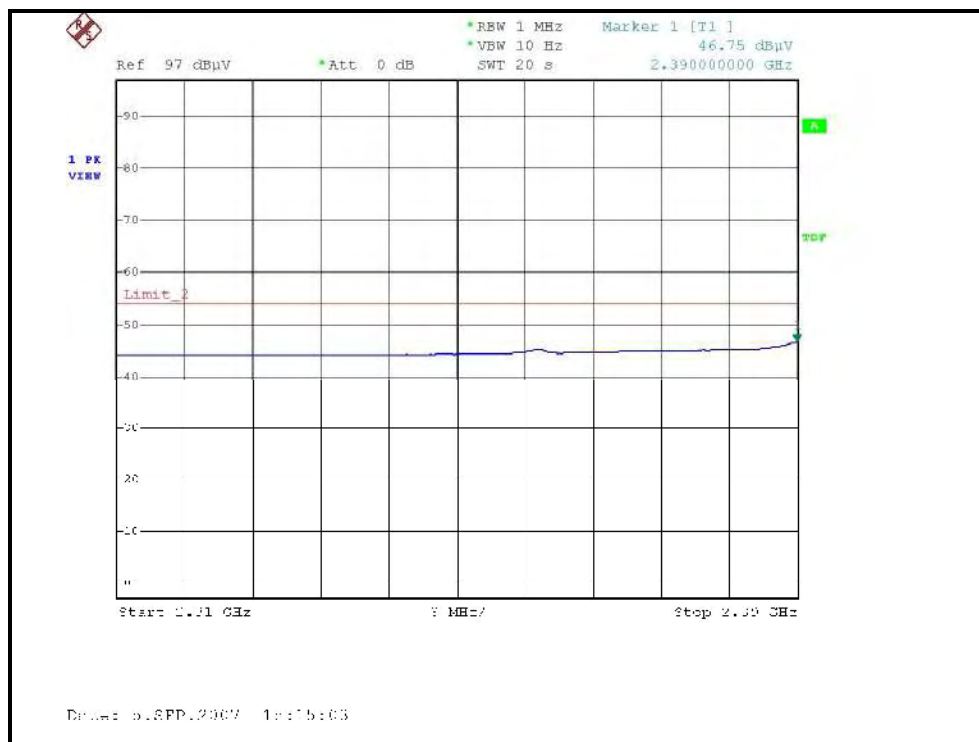
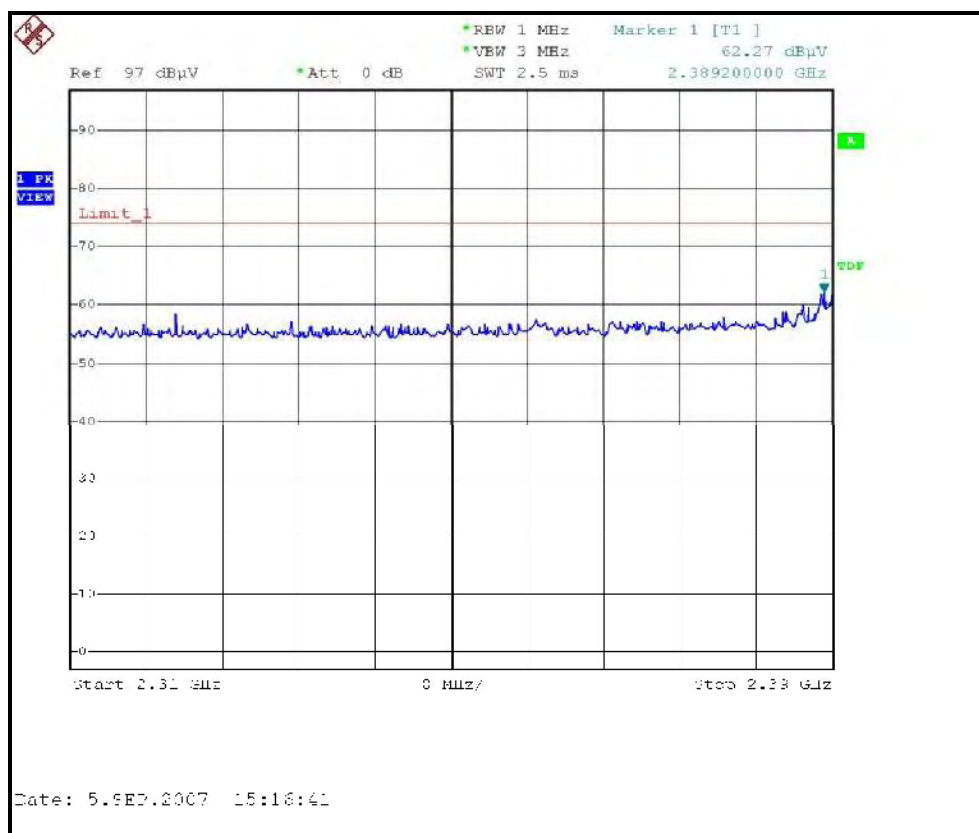
EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TRANSFER RATE	6Mbps	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 61%RH, 955hPa	TESTED BY	Sky Liao

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	103.50 PK			1.86 H	45	71.30	32.20
1	*2462.00	92.70 AV			1.86 H	45	60.50	32.20
2	2483.50	57.70 PK	74.00	-16.30	1.84 H	46	25.40	32.30
2	2483.50	45.20 AV	54.00	-8.80	1.84 H	46	12.90	32.30
3	4924.00	52.20 PK	74.00	-21.80	1.58 H	280	16.00	36.20
3	4924.00	38.00 AV	54.00	-16.00	1.58 H	280	1.80	36.20
4	7386.00	57.20 PK	74.00	-16.80	1.22 H	308	14.40	42.80
4	7386.00	45.50 AV	54.00	-8.50	1.22 H	308	2.70	42.80

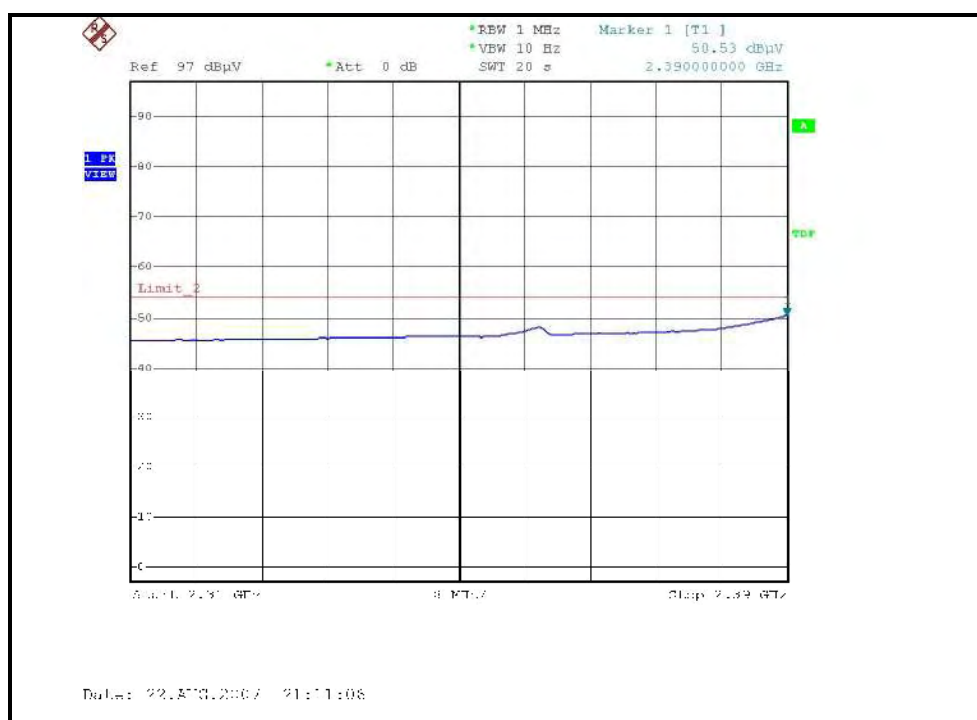
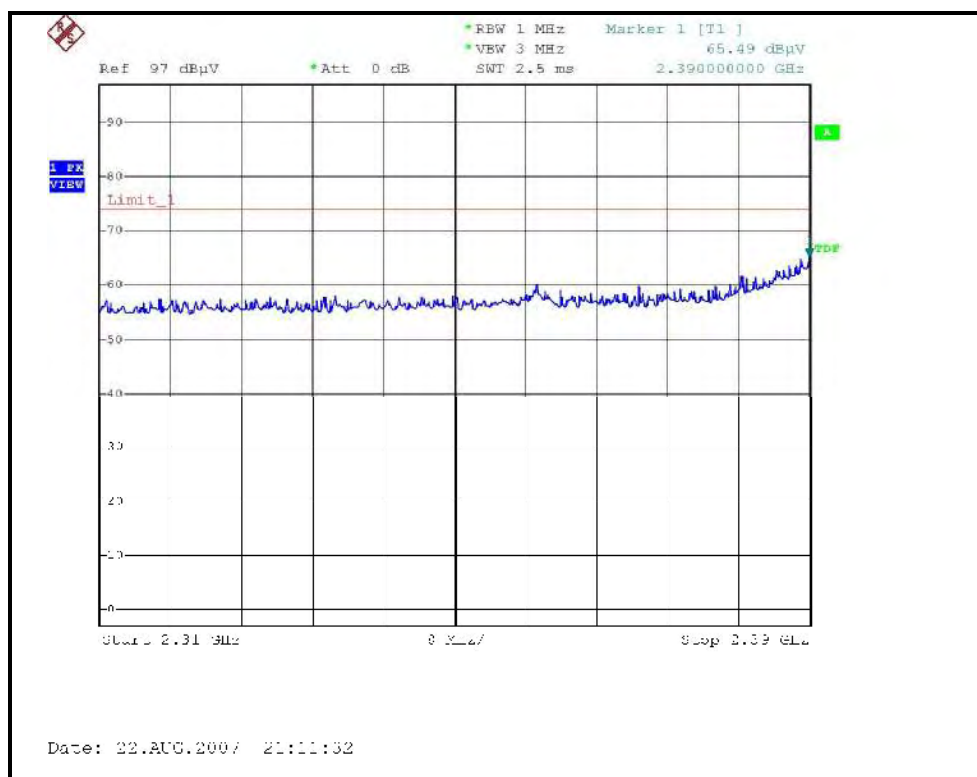
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	109.10 PK			1.64 V	306	76.90	32.20
1	*2462.00	98.80 AV			1.64 V	306	66.60	32.20
2	2483.50	67.70 PK	74.00	-6.30	1.72 V	25	35.40	32.30
2	2483.50	52.70 AV	54.00	-1.30	1.72 V	25	20.40	32.30
3	4924.00	54.80 PK	74.00	-19.20	1.13 V	12	18.60	36.20
3	4924.00	40.60 AV	54.00	-13.40	1.13 V	12	4.40	36.20
4	7386.00	58.60 PK	74.00	-15.40	1.60 V	343	15.80	42.80
4	7386.00	44.40 AV	54.00	-9.60	1.60 V	343	1.60	42.80

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. The limit value is defined as per 15.247.
 6. “ * ”: Fundamental frequency.

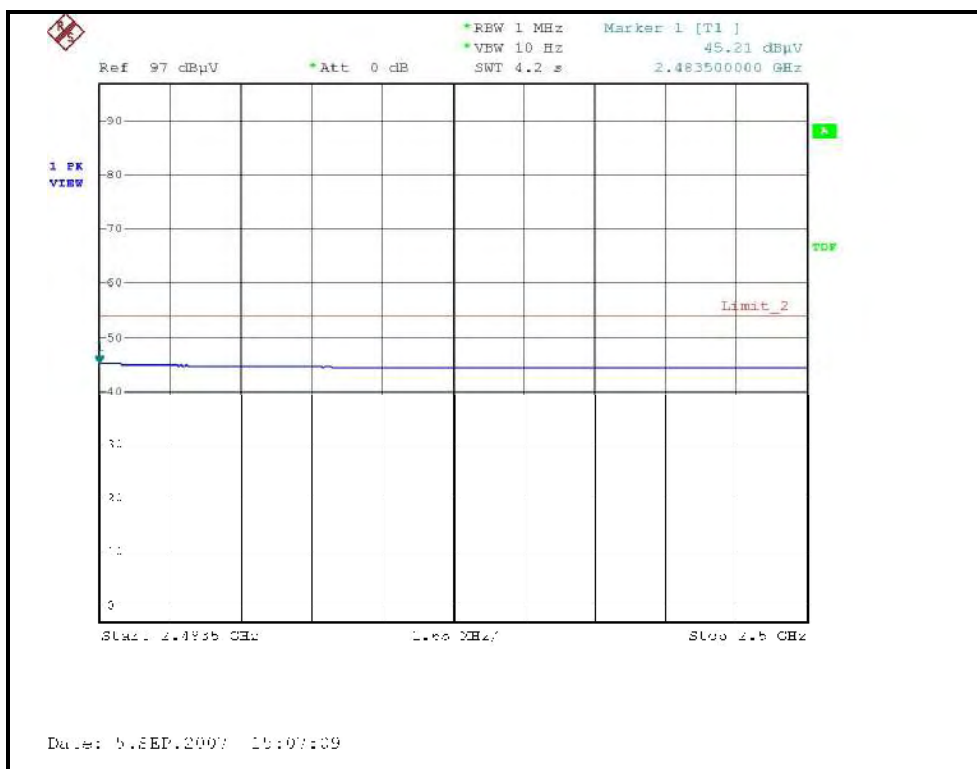
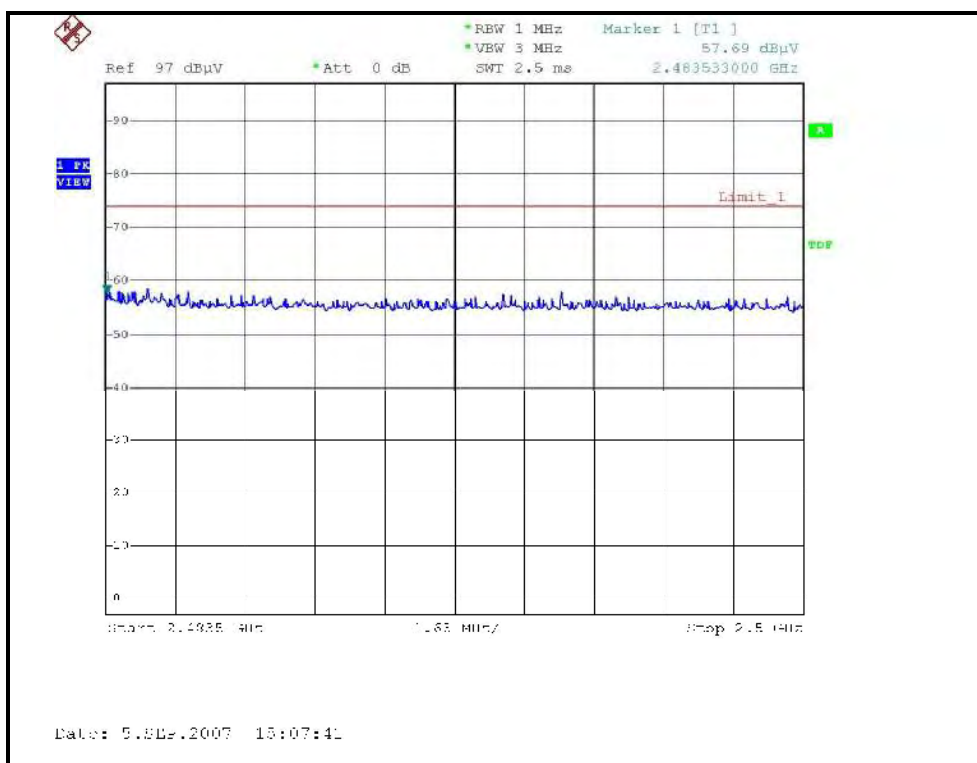
RESTRICTED BANDEDGE (802.11g MODE, CH1, HORIZONTAL)



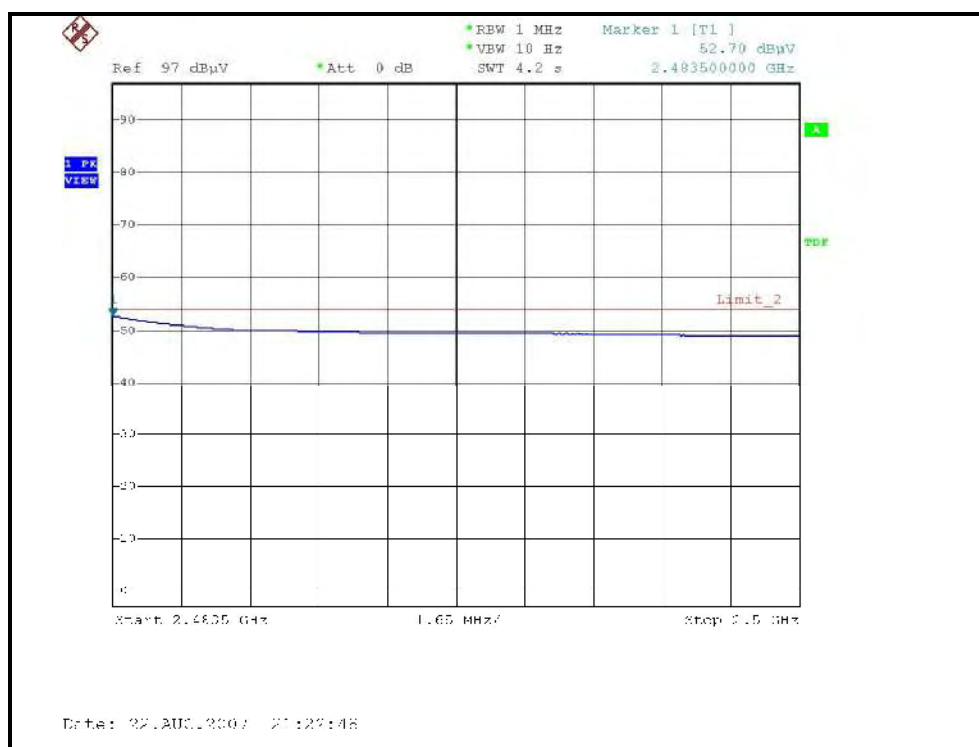
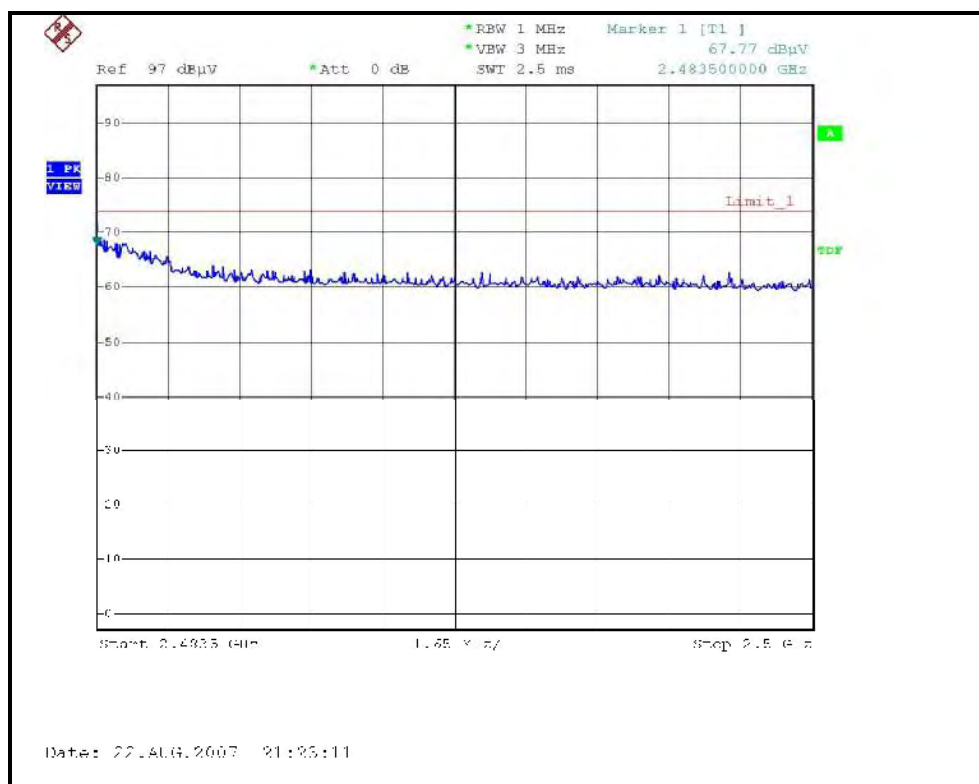
RESTRICTED BANDEDGE (802.11g MODE, CH1, VERTICAL)



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
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TRANSFER RATE	7.2Mbps	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 61%RH, 955hPa	TESTED BY	Sky Liao

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	64.90 PK	74.00	-9.10	1.93 H	44	33.00	31.90
1	2390.00	46.90 AV	54.00	-7.10	1.93 H	44	15.00	31.90
2	*2412.00	107.70 PK			1.94 H	46	75.70	32.00
2	*2412.00	96.90 AV			1.94 H	46	64.90	32.00
3	4824.00	53.50 PK	74.00	-20.50	1.39 H	136	17.50	36.00
3	4824.00	38.20 AV	54.00	-15.80	1.39 H	136	2.20	36.00
4	7236.00	54.20 PK	74.00	-19.80	1.39 H	136	12.00	42.20
4	7236.00	39.90 AV	54.00	-14.10	1.39 H	136	-2.30	42.20

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	71.90 PK	74.00	-2.10	1.68 V	318	40.00	31.90
1	2390.00	53.60 AV	54.00	-0.40	1.68 V	318	21.60	31.90
2	*2412.00	113.10 PK			1.69 V	316	81.10	32.00
2	*2412.00	102.10 AV			1.69 V	316	70.10	32.00
3	4824.00	55.30 PK	74.00	-18.70	1.21 V	35	19.30	36.00
3	4824.00	39.50 AV	54.00	-14.50	1.21 V	35	3.50	36.00
4	7236.00	57.70 PK	74.00	-16.30	1.60 V	355	15.50	42.20
4	7236.00	41.70 AV	54.00	-12.30	1.60 V	355	-0.50	42.20

- 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. The limit value is defined as per 15.247.
 6. “ * “: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TRANSFER RATE	7.2Mbps	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 61%RH, 955hPa	TESTED BY	Sky Liao

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	111.70 PK			1.97 H	48	79.60	32.10
1	*2437.00	100.60 AV			1.97 H	48	68.50	32.10
2	4874.00	57.50 PK	74.00	-16.50	1.60 H	24	21.40	36.10
2	4874.00	41.00 AV	54.00	-13.00	1.60 H	24	4.90	36.10
3	7311.00	62.20 PK	74.00	-11.80	1.87 H	172	19.70	42.50
3	7311.00	44.90 AV	54.00	-9.10	1.87 H	172	2.40	42.50

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	117.80 PK			1.66 V	322	85.70	32.10
1	*2437.00	107.30 AV			1.66 V	322	75.20	32.10
2	4874.00	54.40 PK	74.00	-19.60	1.66 V	332	18.30	36.10
2	4874.00	38.30 AV	54.00	-15.70	1.66 V	332	2.20	36.10
3	7311.00	62.30 PK	74.00	-11.70	1.42 V	46	19.80	42.50
3	7311.00	45.40 AV	54.00	-8.60	1.42 V	46	2.90	42.50

- 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. The limit value is defined as per 15.247.
 6. “ * “: Fundamental frequency.

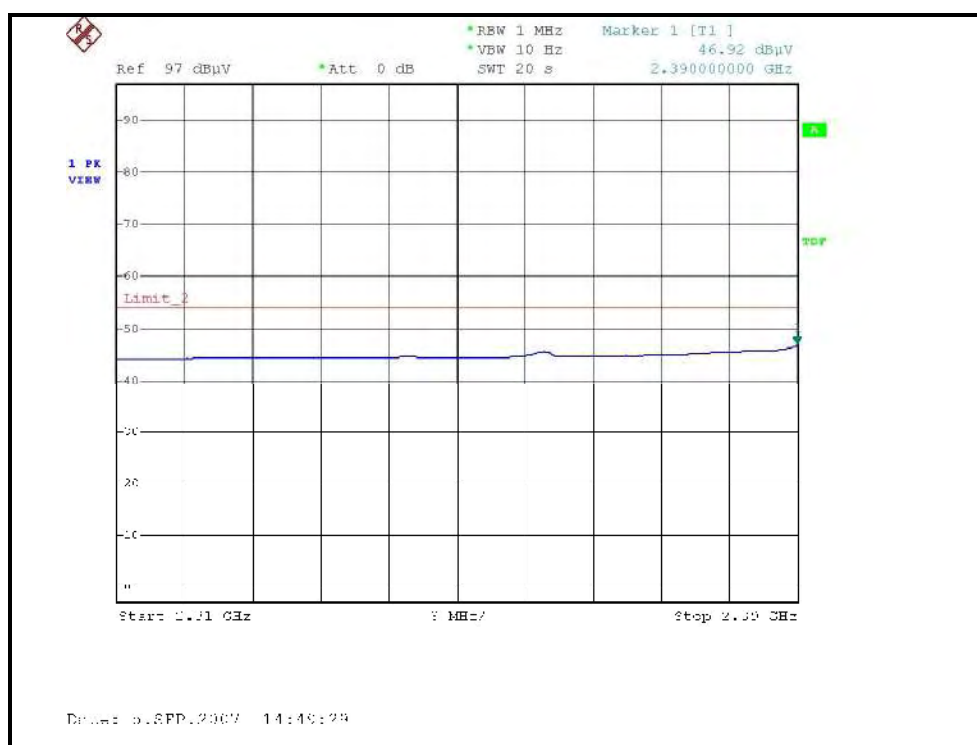
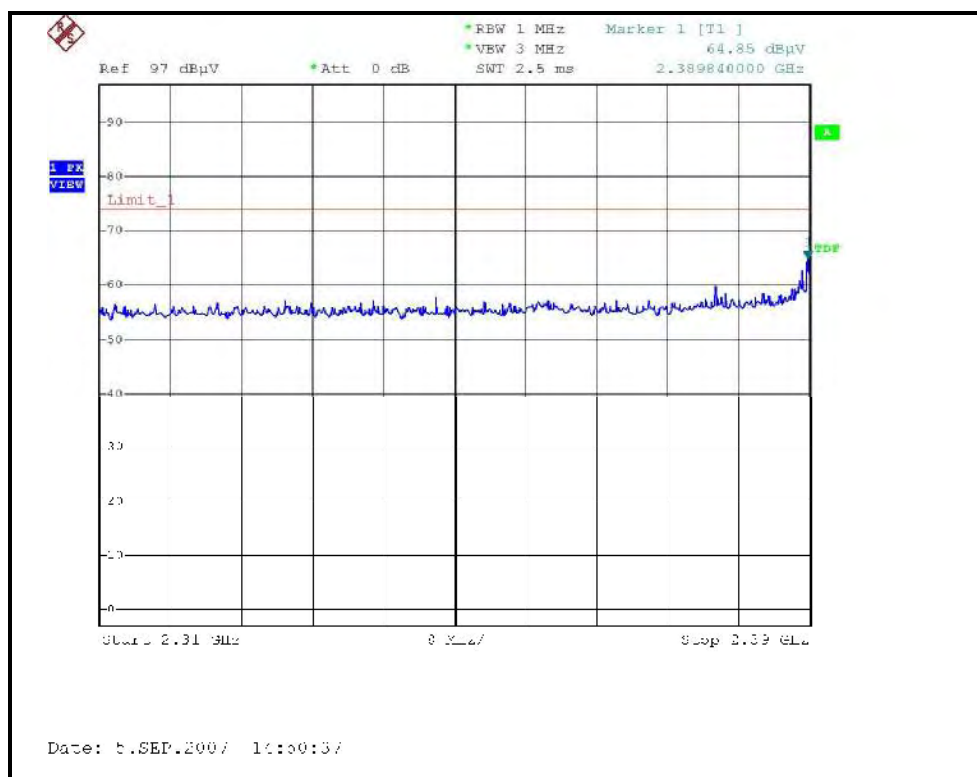
EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TRANSFER RATE	7.2Mbps	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 61%RH, 955hPa	TESTED BY	Sky Liao

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	106.20 PK			1.96 H	60	74.00	32.20
1	*2462.00	95.30 AV			1.96 H	60	63.10	32.20
2	2483.50	59.10 PK	74.00	-14.90	1.36 H	310	26.80	32.30
2	2483.50	45.20 AV	54.00	-8.80	1.36 H	310	12.90	32.30
3	4924.00	53.00 PK	74.00	-21.00	1.45 H	107	16.80	36.20
3	4924.00	37.30 AV	54.00	-16.70	1.45 H	107	1.10	36.20
4	7386.00	53.30 PK	74.00	-20.70	1.40 H	130	10.50	42.80
4	7386.00	38.70 AV	54.00	-15.30	1.40 H	130	-4.10	42.80

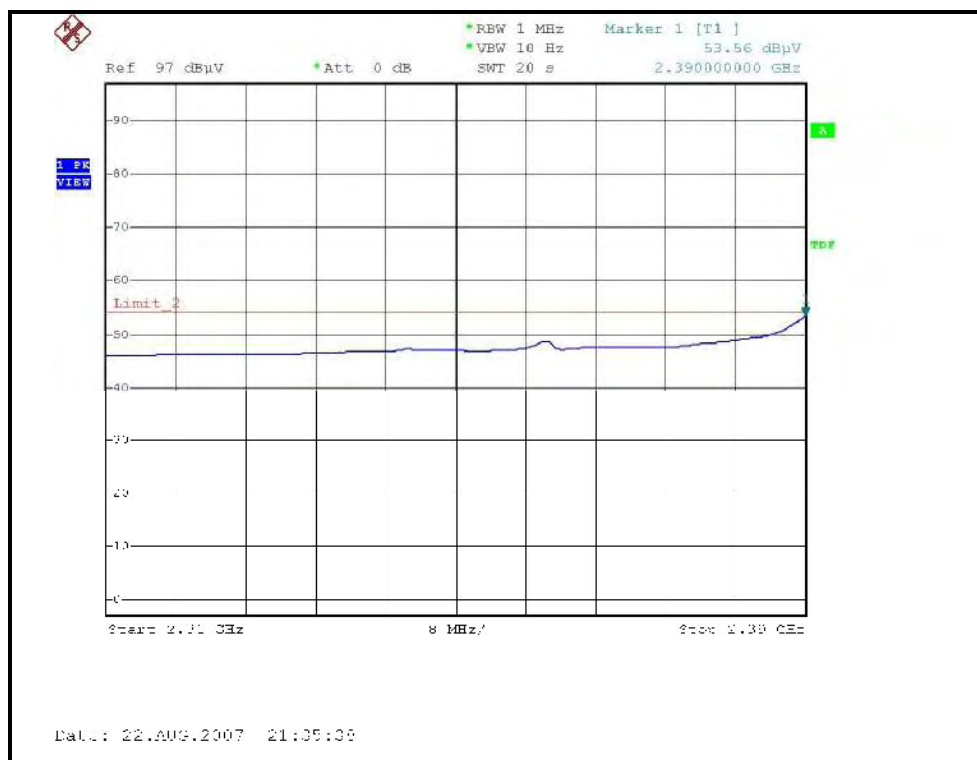
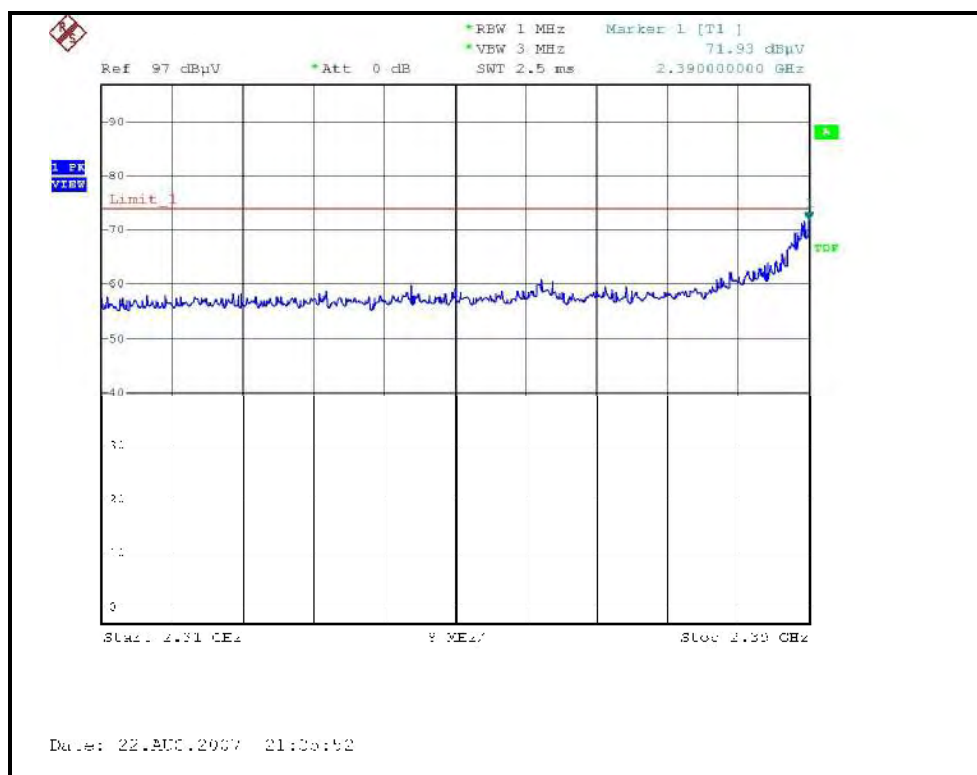
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	113.50 PK			1.71 V	303	81.30	32.20
1	*2462.00	102.40 AV			1.71 V	303	70.20	32.20
2	2483.50	71.30 PK	74.00	-2.70	1.76 V	27	39.00	32.30
2	2483.50	53.70 AV	54.00	-0.30	1.76 V	27	21.40	32.30
3	4924.00	54.40 PK	74.00	-19.60	1.18 V	30	18.20	36.20
3	4924.00	38.30 AV	54.00	-15.70	1.18 V	30	2.10	36.20
4	7386.00	56.40 PK	74.00	-17.60	1.54 V	341	13.60	42.80
4	7386.00	40.60 AV	54.00	-13.40	1.54 V	341	-2.20	42.80

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. The limit value is defined as per 15.247.
 6. “ * ”: Fundamental frequency.

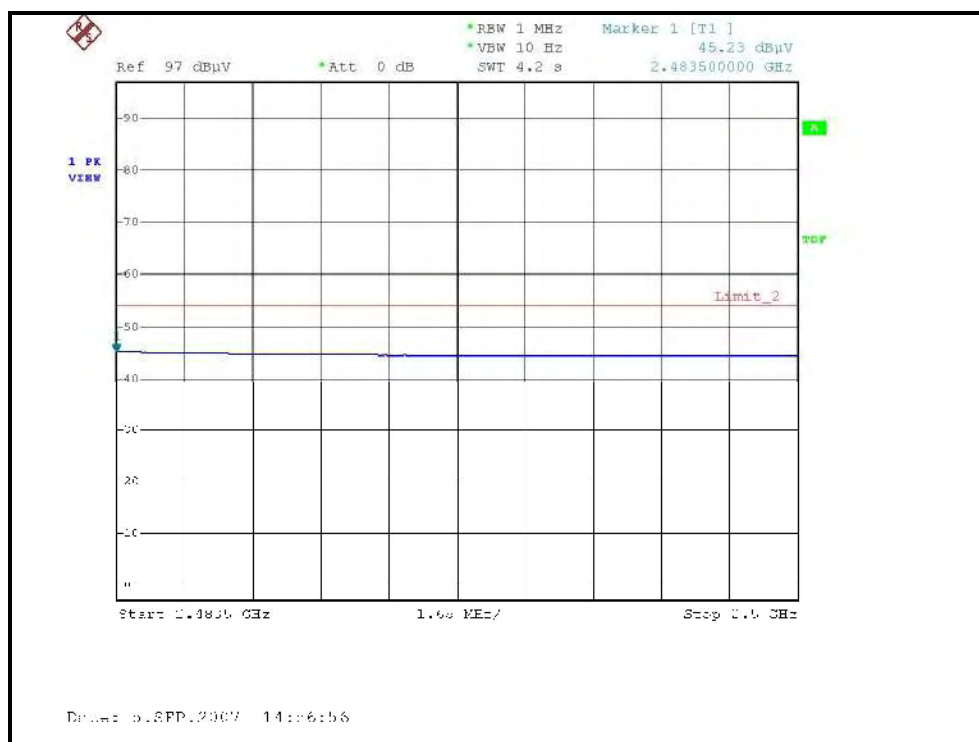
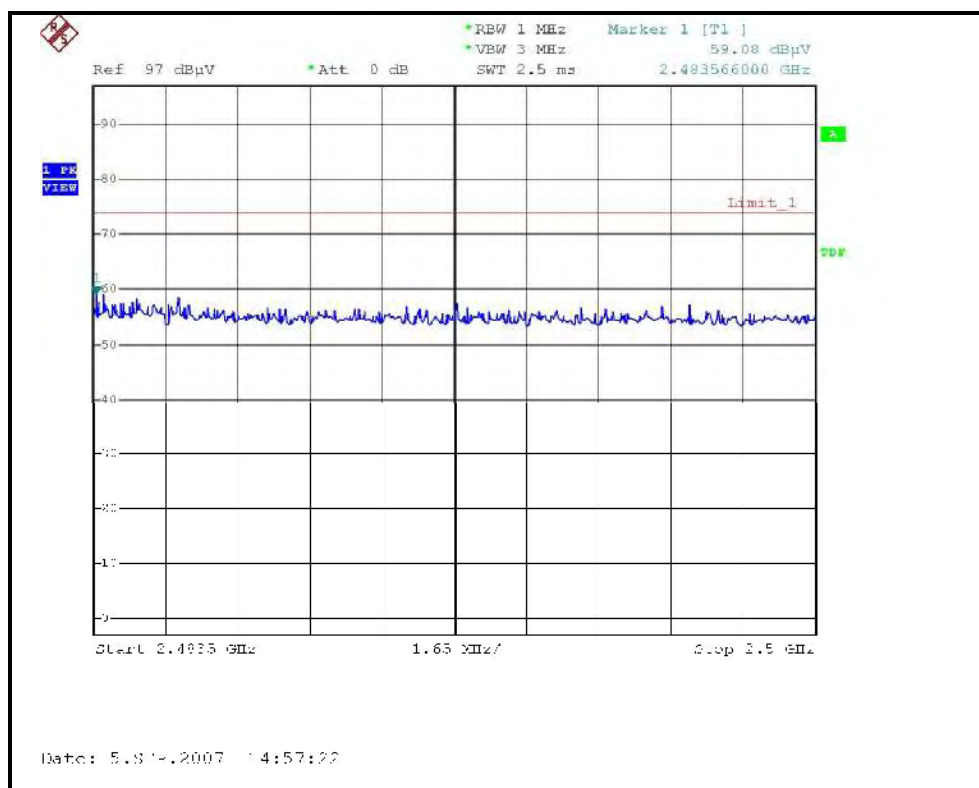
RESTRICTED BANDEDGE (DRAFT 802.11n (20MHz) MODE, CH1, HORIZONTAL)



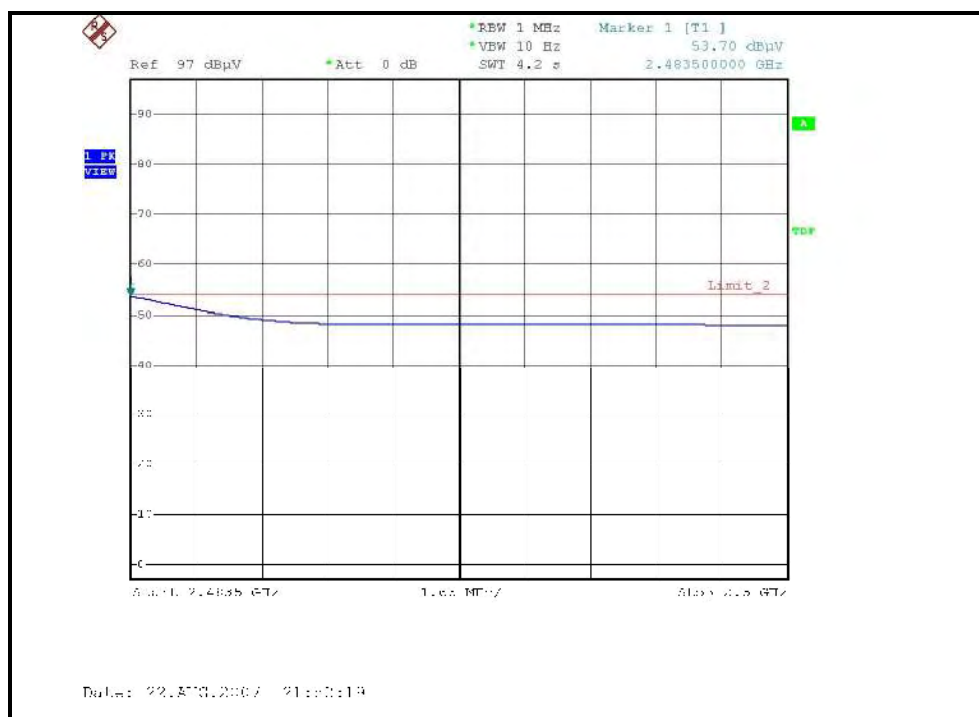
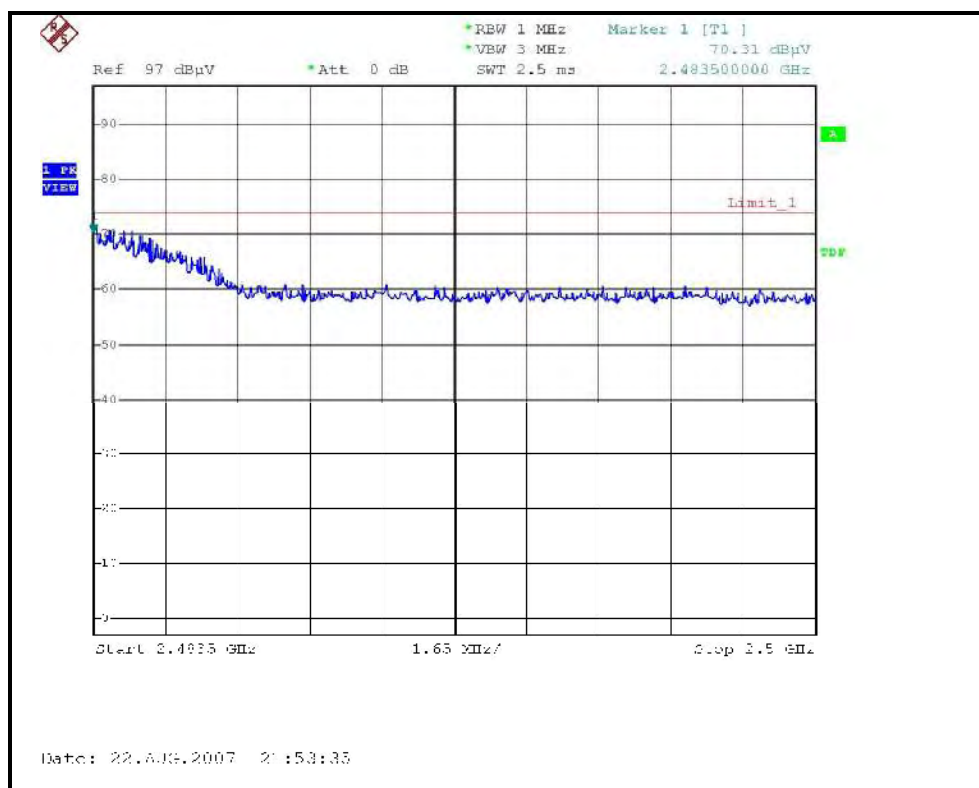
RESTRICTED BANDEDGE (DRAFT 802.11n (20MHz) MODE,CH1, VERTICAL)



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
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TRANSFER RATE	15Mbps	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 61%RH, 955hPa	TESTED BY	Sky Liao

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	61.60 PK	74.00	-12.40	1.92 H	46	29.70	31.90
1	2390.00	48.20 AV	54.00	-5.80	1.92 H	46	16.30	31.90
2	*2422.00	102.20 PK			1.96 H	46	70.10	32.10
2	*2422.00	91.40 AV			1.96 H	46	59.30	32.10
3	4844.00	48.70 PK	74.00	-25.30	1.03 H	17	12.70	36.00
3	4844.00	36.10 AV	54.00	-17.90	1.03 H	17	0.10	36.00
4	7266.00	53.30 PK	74.00	-20.70	1.37 H	25	11.00	42.30
4	7266.00	40.00 AV	54.00	-14.00	1.37 H	25	-2.30	42.30

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	64.70 PK	74.00	-9.30	1.82 V	25	32.70	31.90
1	2390.00	52.80 AV	54.00	-1.20	1.82 V	25	20.80	31.90
2	*2422.00	107.70 PK			1.60 V	319	75.60	32.10
2	*2422.00	96.50 AV			1.60 V	319	64.50	32.10
3	4844.00	48.50 PK	74.00	-25.50	1.20 V	21	12.50	36.00
3	4844.00	35.30 AV	54.00	-18.70	1.20 V	21	-0.70	36.00
4	7266.00	53.10 PK	74.00	-20.90	1.50 V	355	10.80	42.30
4	7266.00	40.30 AV	54.00	-13.70	1.50 V	355	-2.00	42.30

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. The limit value is defined as per 15.247.
6. “ * ”: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 4	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TRANSFER RATE	15Mbps	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 61%RH, 955hPa	TESTED BY	Sky Liao

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	105.20 PK			1.34 H	65	73.10	32.10
1	*2437.00	94.50 AV			1.34 H	65	62.40	32.10
2	4874.00	50.10 PK	74.00	-23.90	1.02 H	16	14.00	36.10
2	4874.00	37.60 AV	54.00	-16.40	1.02 H	16	1.50	36.10
3	7311.00	54.70 PK	74.00	-19.30	1.44 H	44	12.20	42.50
3	7311.00	41.20 AV	54.00	-12.80	1.44 H	44	-1.30	42.50

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	111.60 PK			1.66 V	316	79.50	32.10
1	*2437.00	101.10 AV			1.66 V	316	69.00	32.10
2	4874.00	50.00 PK	74.00	-24.00	1.18 V	20	13.90	36.10
2	4874.00	37.20 AV	54.00	-16.80	1.18 V	20	1.10	36.10
3	7311.00	54.40 PK	74.00	-19.60	1.54 V	336	11.90	42.50
3	7311.00	41.50 AV	54.00	-12.50	1.54 V	336	-1.00	42.50

- 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. The limit value is defined as per 15.247.
 6. “ * “: Fundamental frequency.

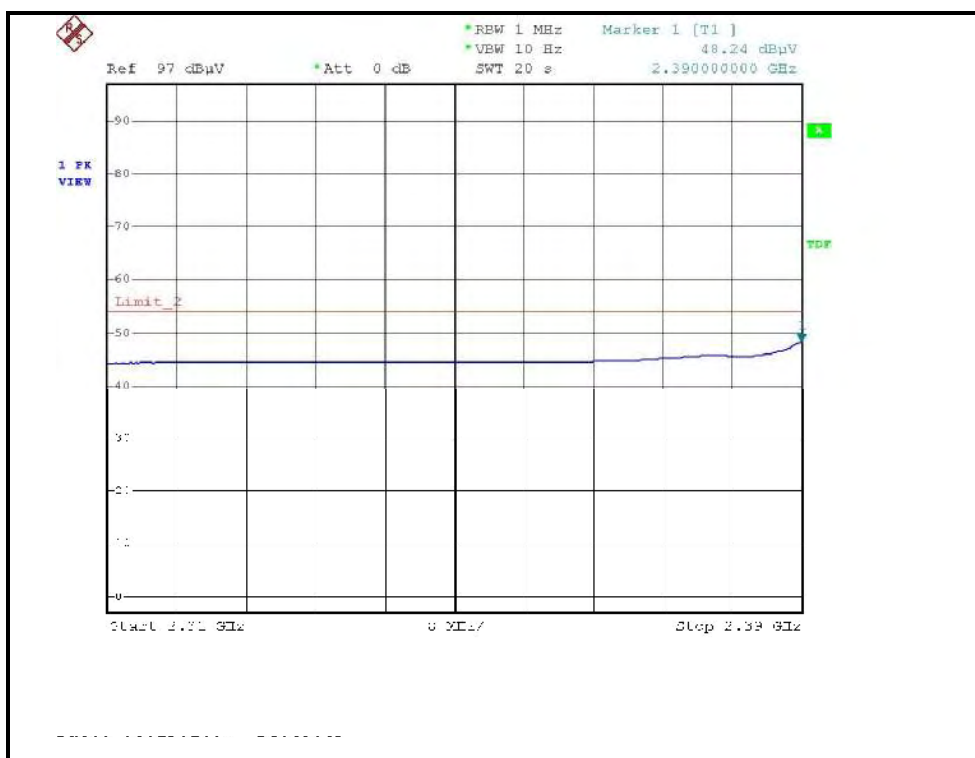
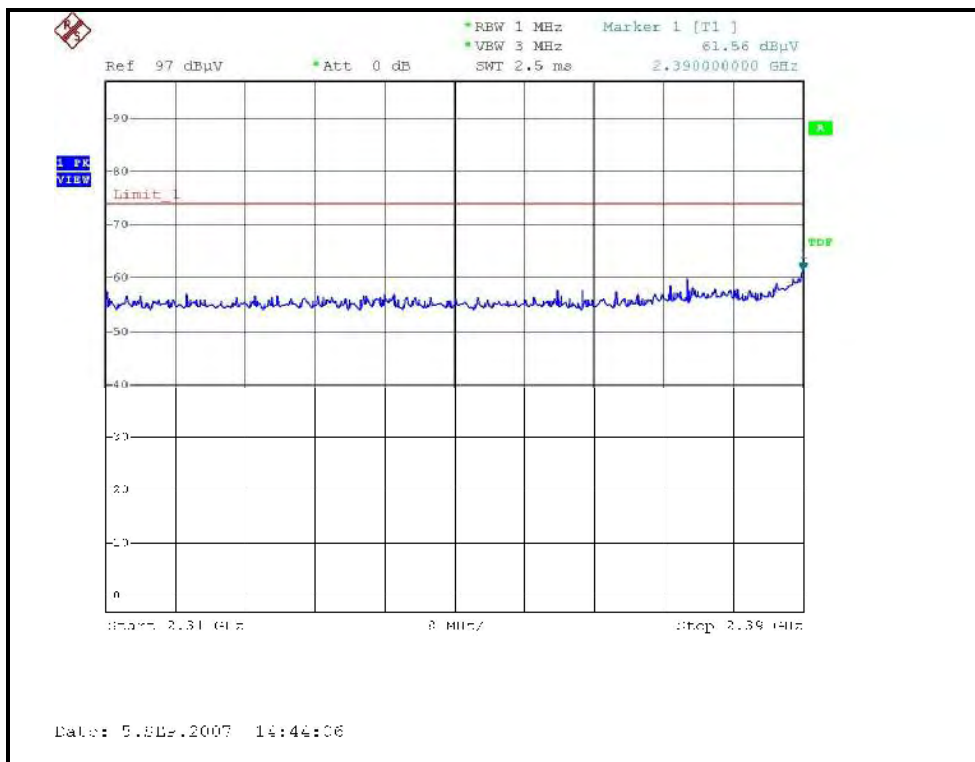
EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 7	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TRANSFER RATE	15Mbps	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 61%RH, 955hPa	TESTED BY	Sky Liao

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	101.00 PK			1.97 H	57	68.80	32.20
1	*2452.00	90.30 AV			1.97 H	57	58.10	32.20
2	2483.50	58.70 PK	74.00	-15.30	1.54 H	44	26.40	32.30
2	2483.50	46.10 AV	54.00	-7.90	1.54 H	44	13.80	32.30
3	4904.00	48.50 PK	74.00	-25.50	1.05 H	11	12.40	36.10
3	4904.00	35.30 AV	54.00	-18.70	1.05 H	11	-0.80	36.10
4	7356.00	53.00 PK	74.00	-21.00	1.33 H	22	10.30	42.70
4	7356.00	39.50 AV	54.00	-14.50	1.33 H	22	-3.20	42.70

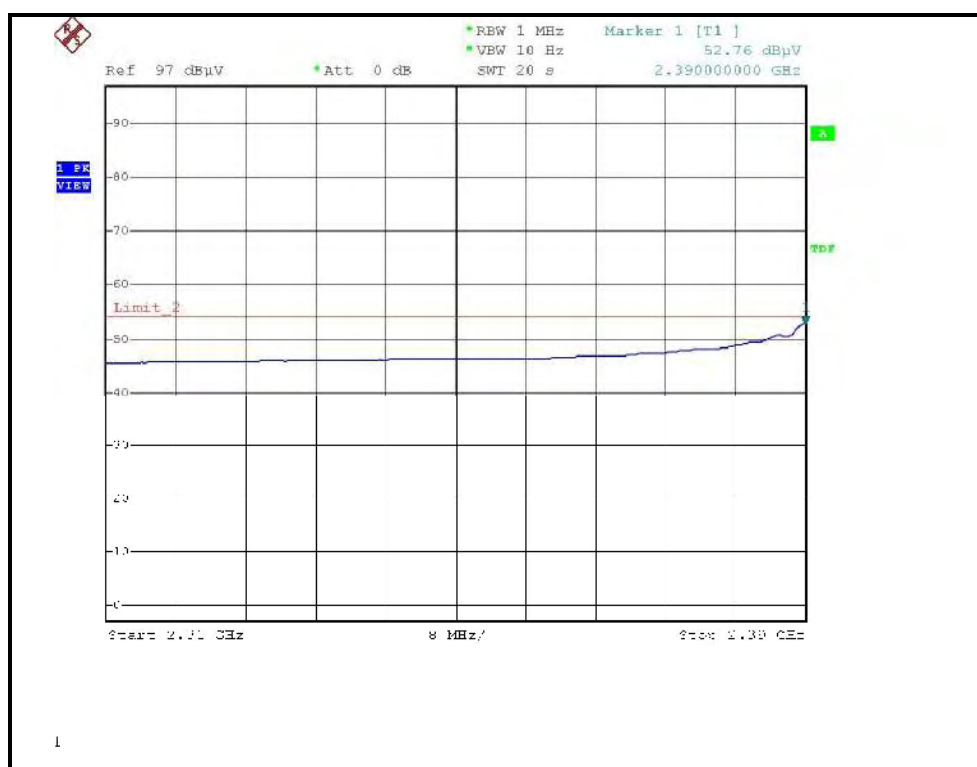
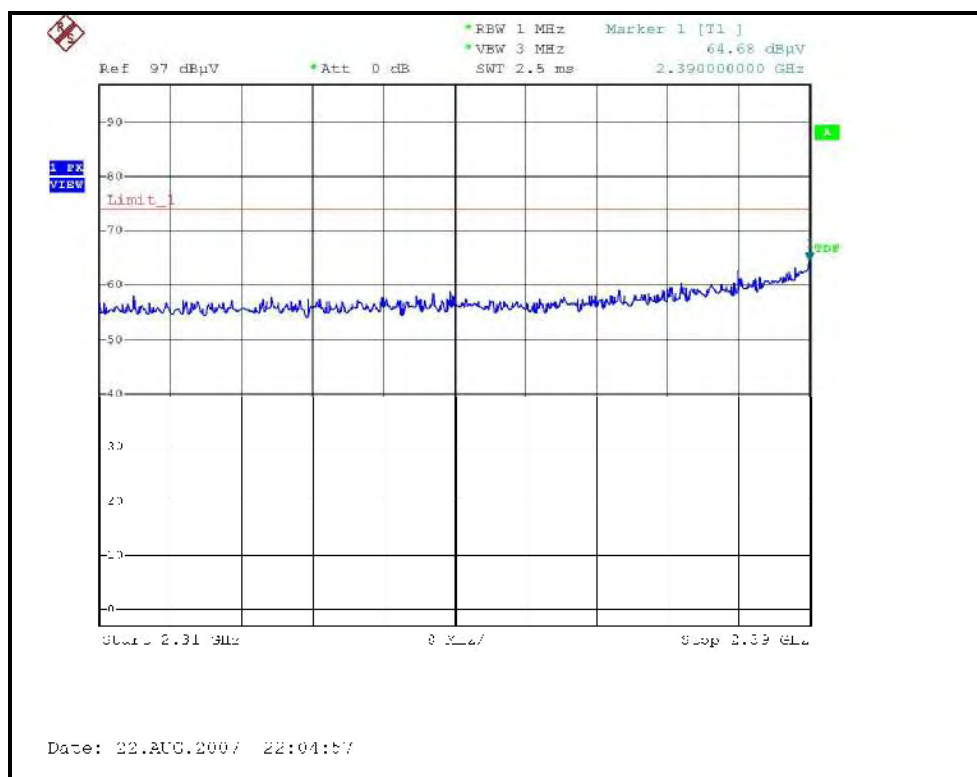
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	106.10 PK			1.66 V	318	73.90	32.20
1	*2452.00	95.50 AV			1.66 V	318	63.30	32.20
2	2487.00	68.60 PK	74.00	-5.40	1.69 V	311	36.30	32.30
2	2487.00	53.60 AV	54.00	-0.40	1.69 V	311	21.30	32.30
3	4904.00	48.30 PK	74.00	-25.70	1.19 V	32	12.20	36.10
3	4904.00	35.00 AV	54.00	-19.00	1.19 V	32	-1.10	36.10
4	7356.00	53.00 PK	74.00	-21.00	1.44 V	307	10.30	42.70
4	7356.00	40.20 AV	54.00	-13.80	1.44 V	307	-2.50	42.70

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. The limit value is defined as per 15.247.
 6. “ * ”: Fundamental frequency.

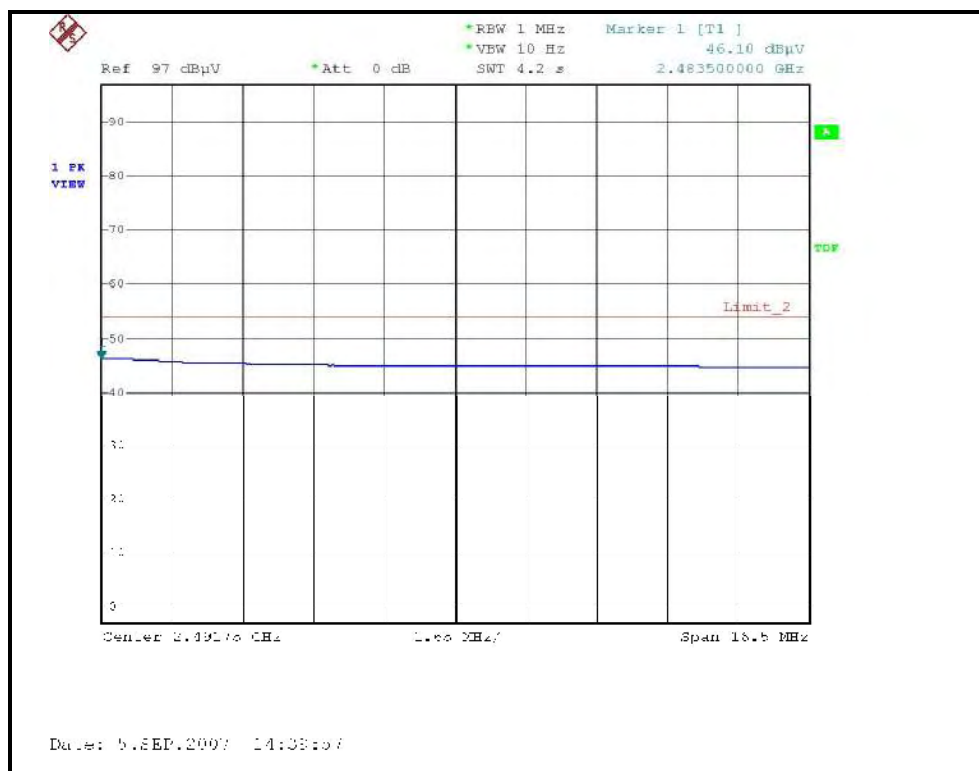
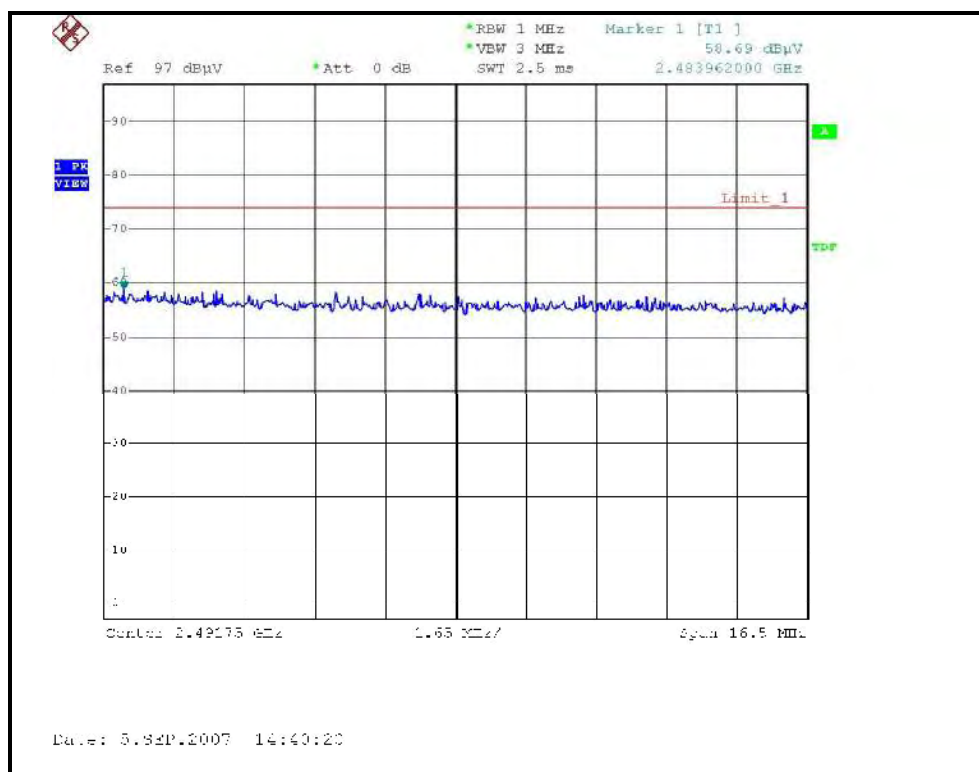
RESTRICTED BANDEDGE (DRAFT 802.11n (40MHz) MODE, CH1, HORIZONTAL)



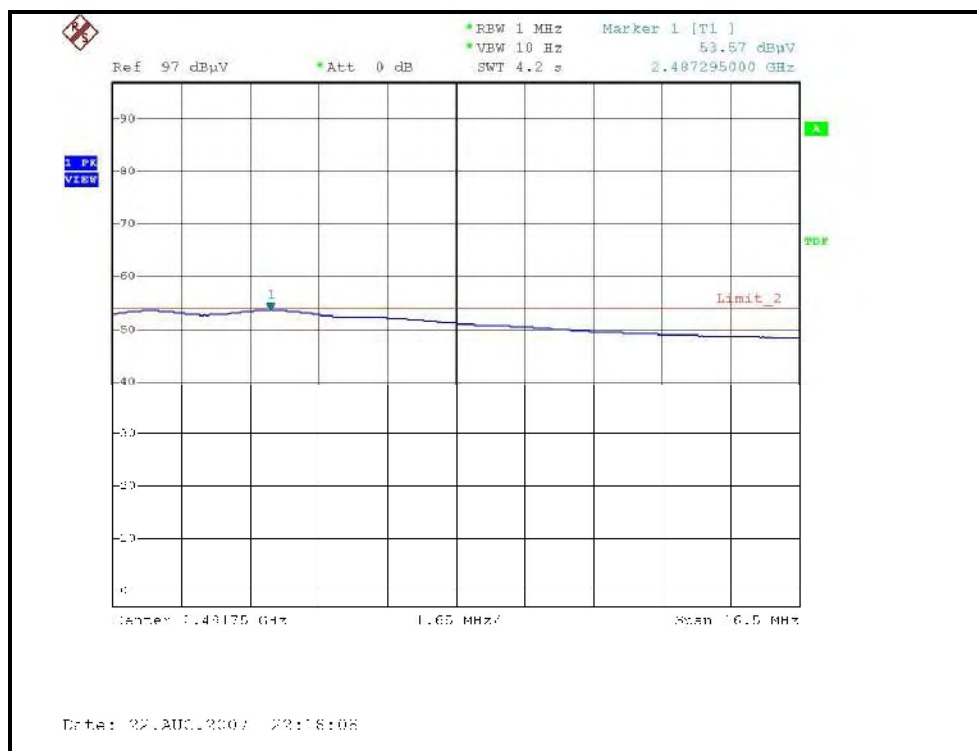
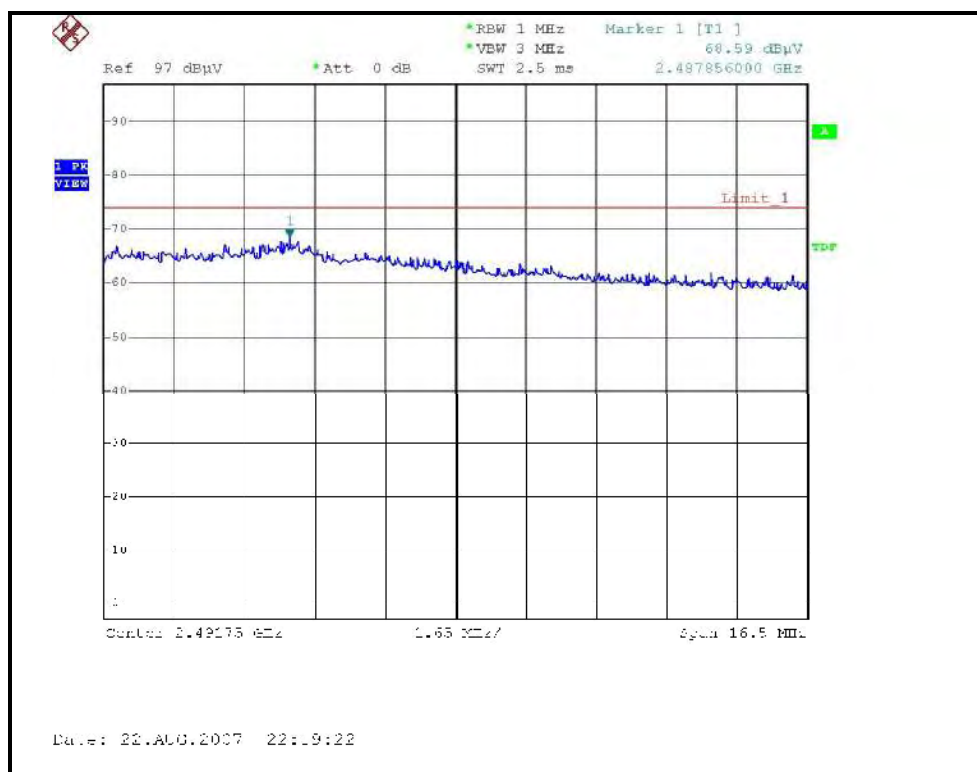
RESTRICTED BANDEDGE (DRAFT 802.11n (40MHz) MODE,CH1, VERTICAL)



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	Nov. 23, 2007

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.

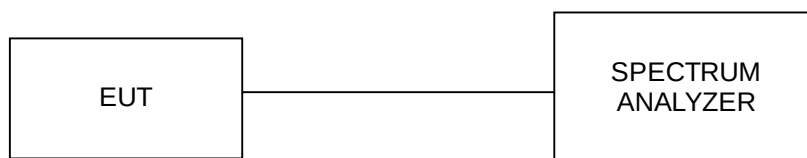
4.3.3 TEST PROCEDURE

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.

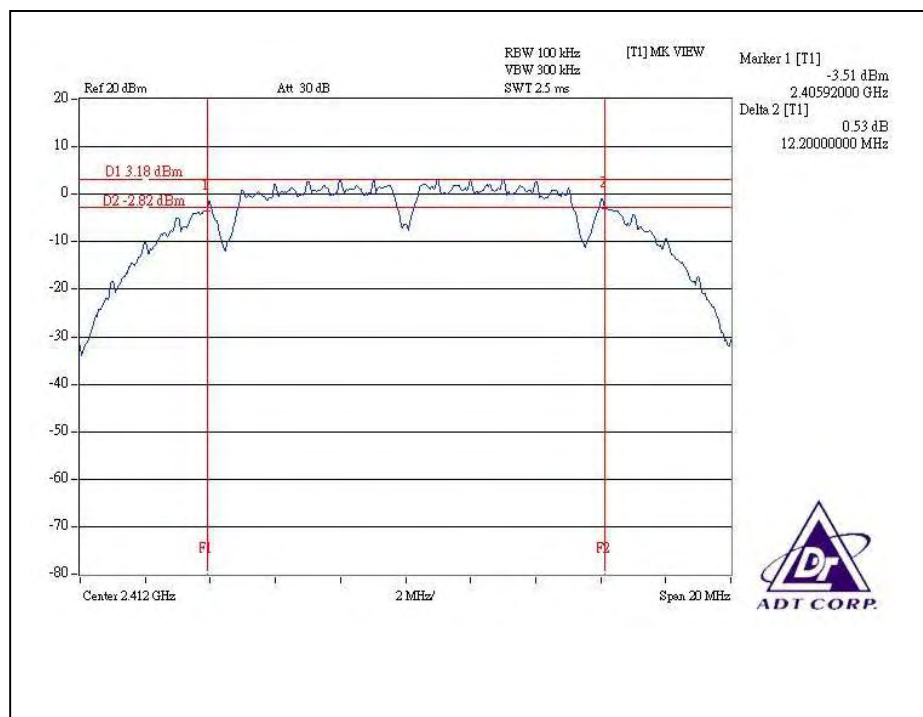
4.3.7 TEST RESULTS

802.11b DSSS MODULATION:

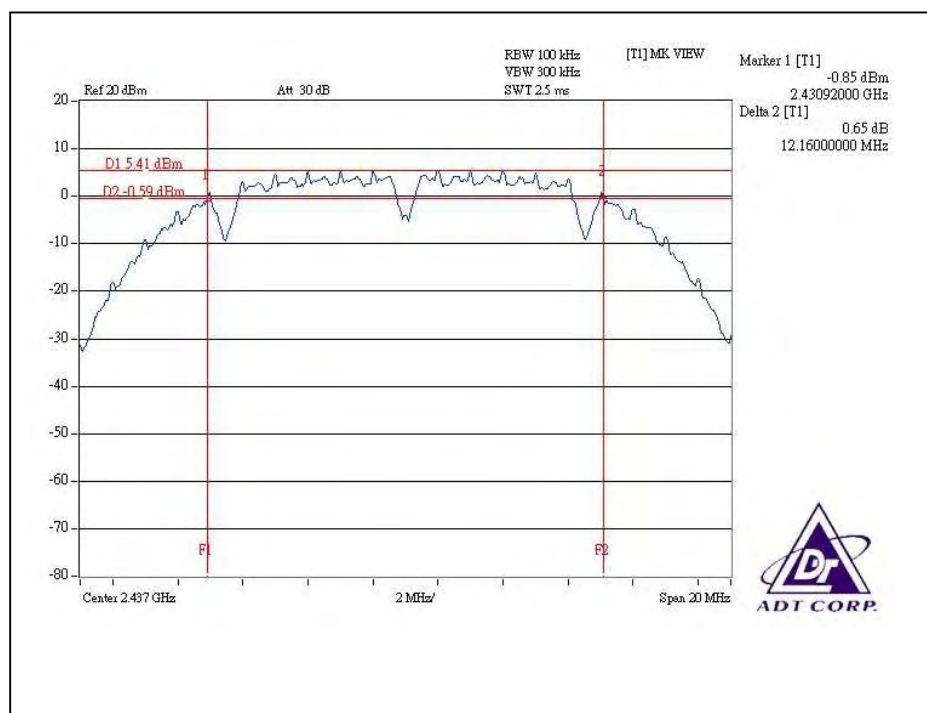
MODULATION TYPE	CCK	TRANSFER RATE	11Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	28deg.C, 62%RH, 955hPa
TESTED BY	Wen Yu		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	12.20	0.5	PASS
6	2437	12.16	0.5	PASS
11	2462	12.16	0.5	PASS

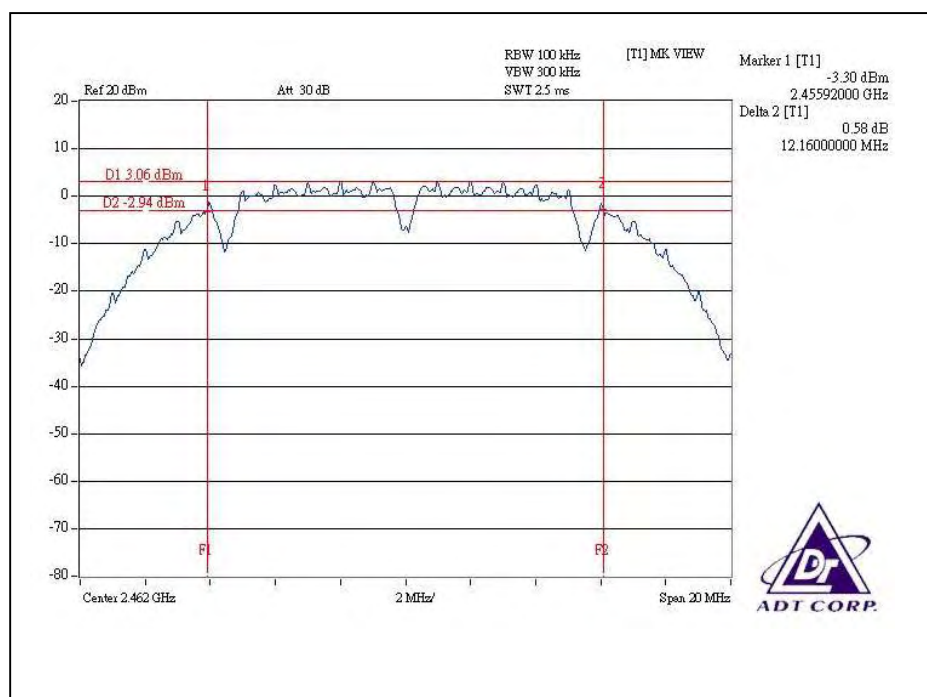
CH1



CH6



CH11

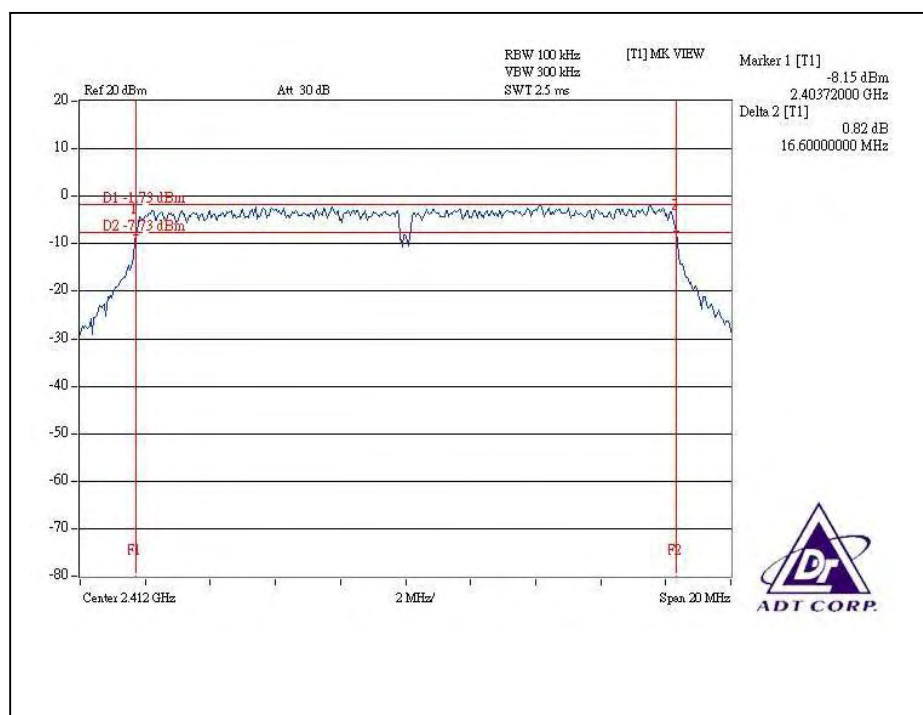


802.11g OFDM MODULATION:

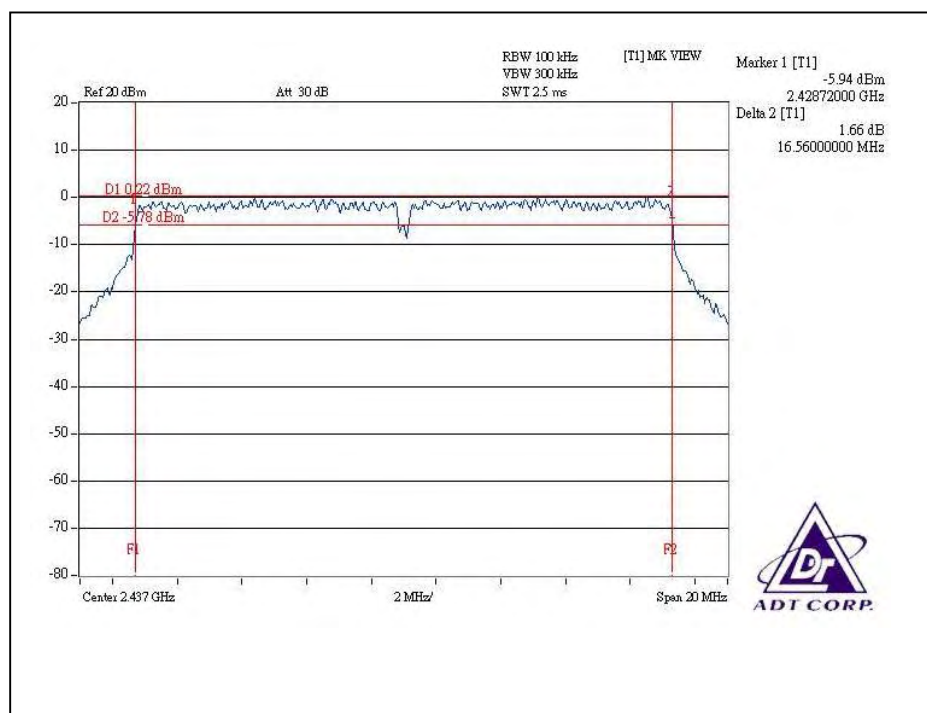
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	28deg.C, 62%RH, 955hPa
TESTED BY	Wen Yu		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.60	0.5	PASS
6	2437	16.56	0.5	PASS
11	2462	16.64	0.5	PASS

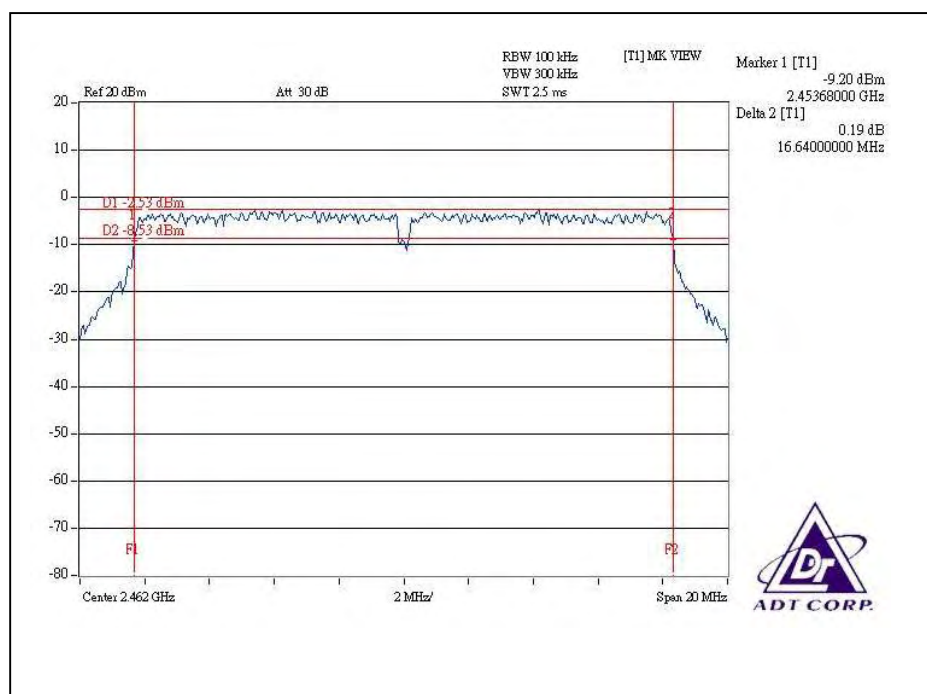
CH1



CH6



CH11

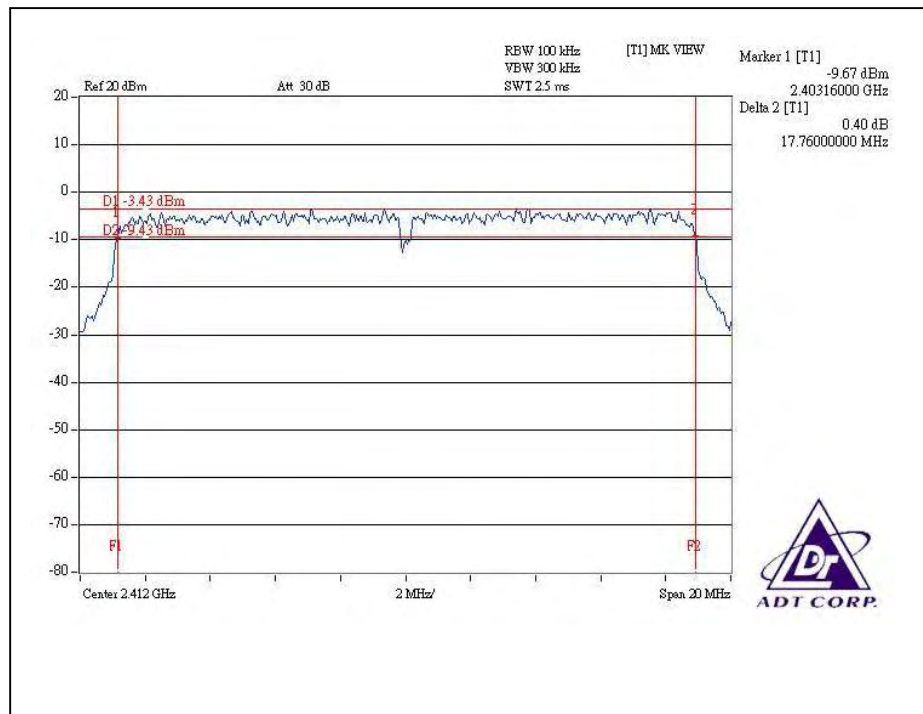


DRAFT 802.11n (20MHz) OFDM MODULATION:

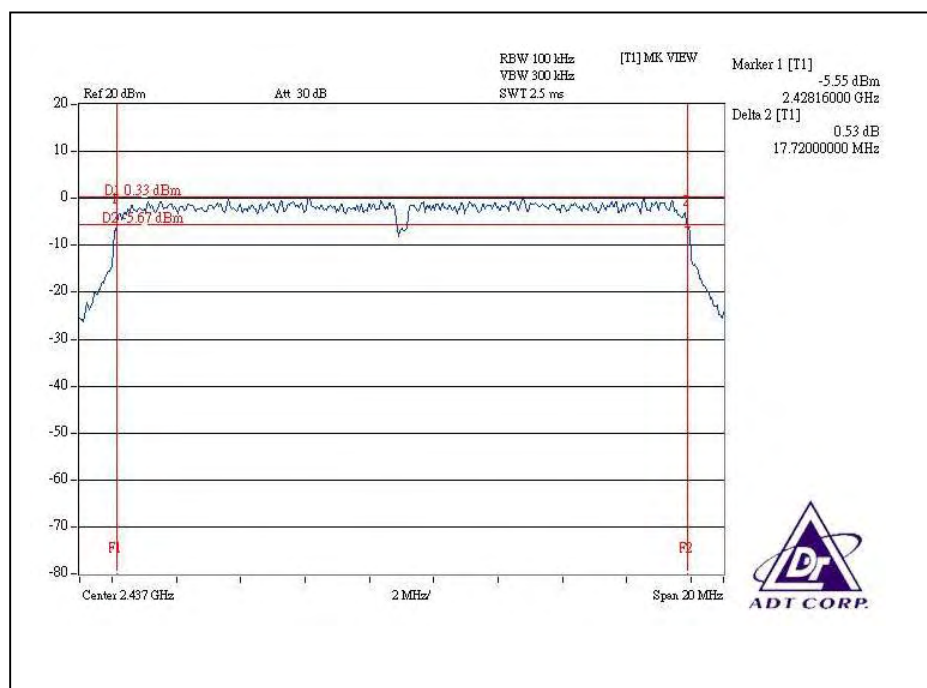
MODULATION TYPE	BPSK	TRANSFER RATE	7.2Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	28deg.C, 68%RH, 955hPa
TESTED BY	Wen Yu		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN(0)	CHAIN(2)		
1	2412	17.76	17.76	0.5	PASS
6	2437	17.72	17.68	0.5	PASS
11	2462	17.72	17.72	0.5	PASS

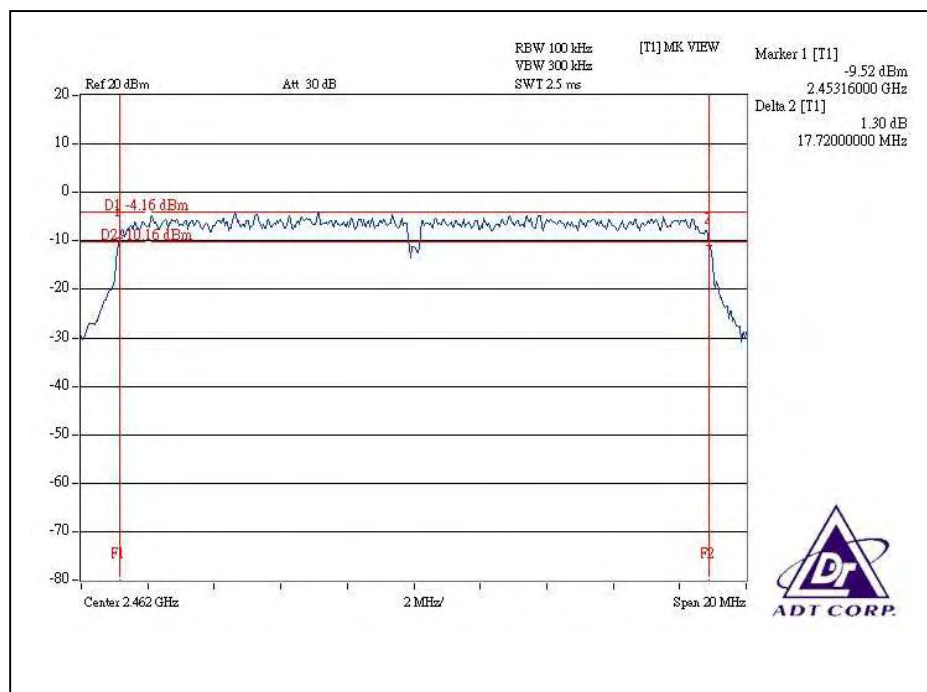
For Chain(0): CH1



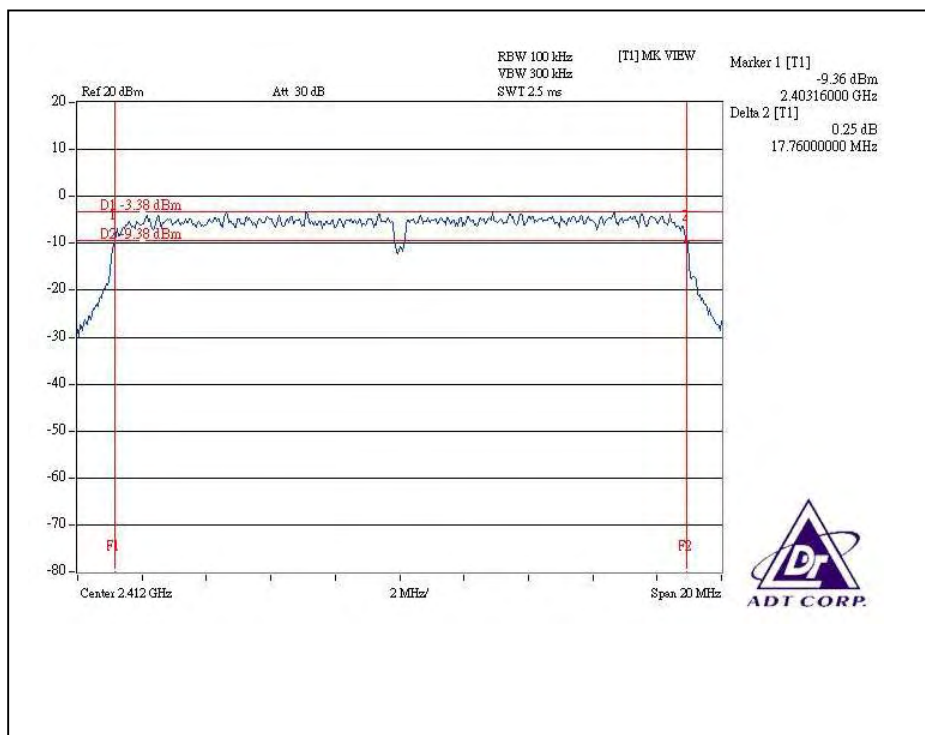
CH6



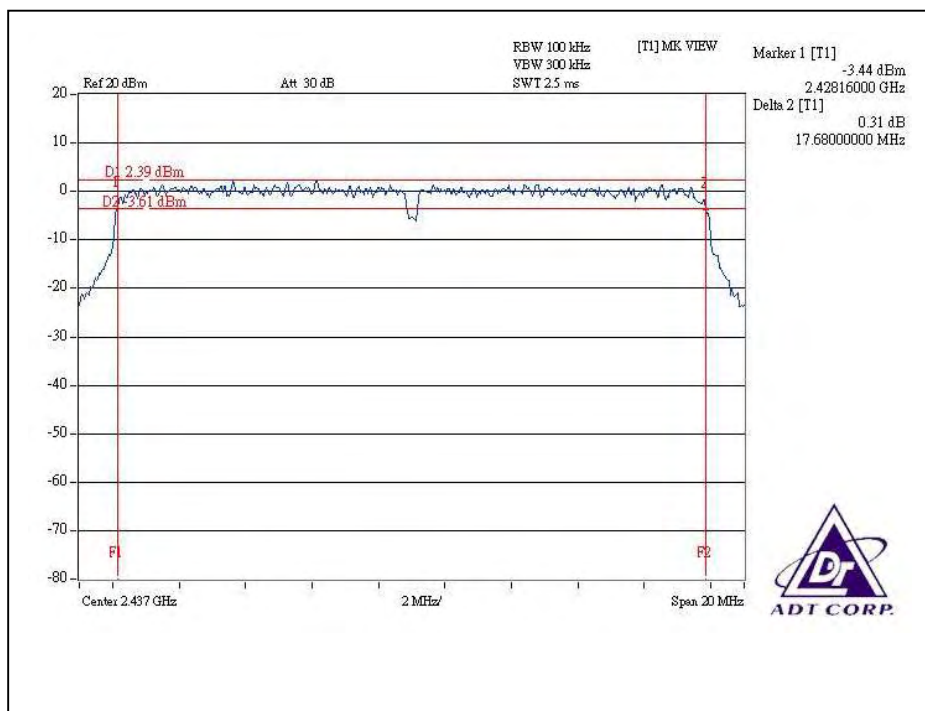
CH11



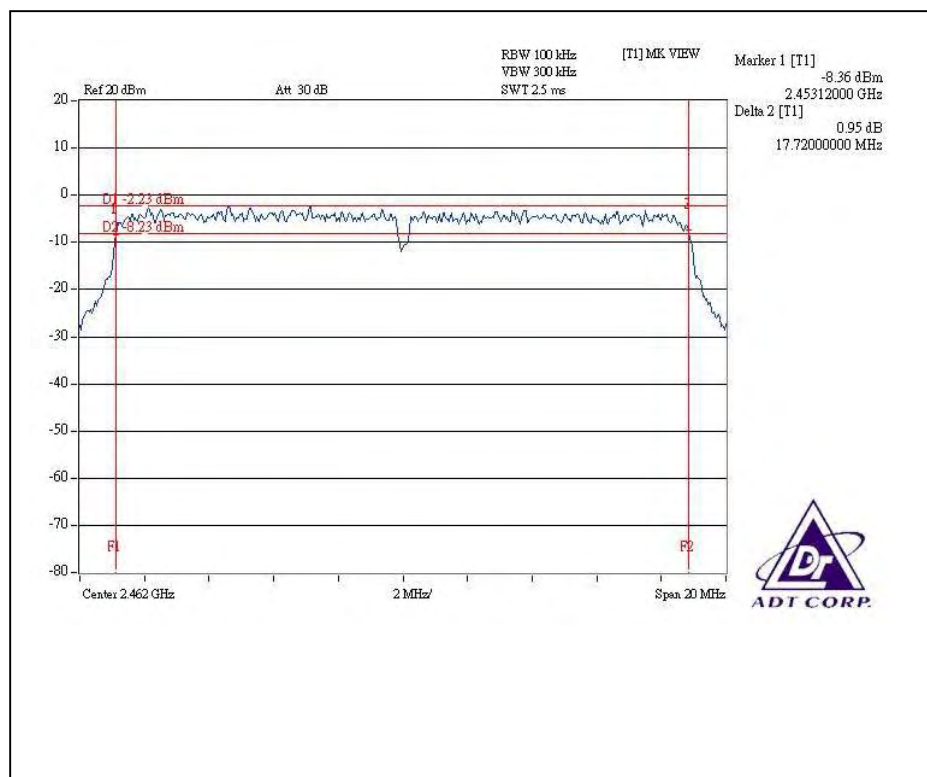
For Chain(2): CH1



CH6



CH11

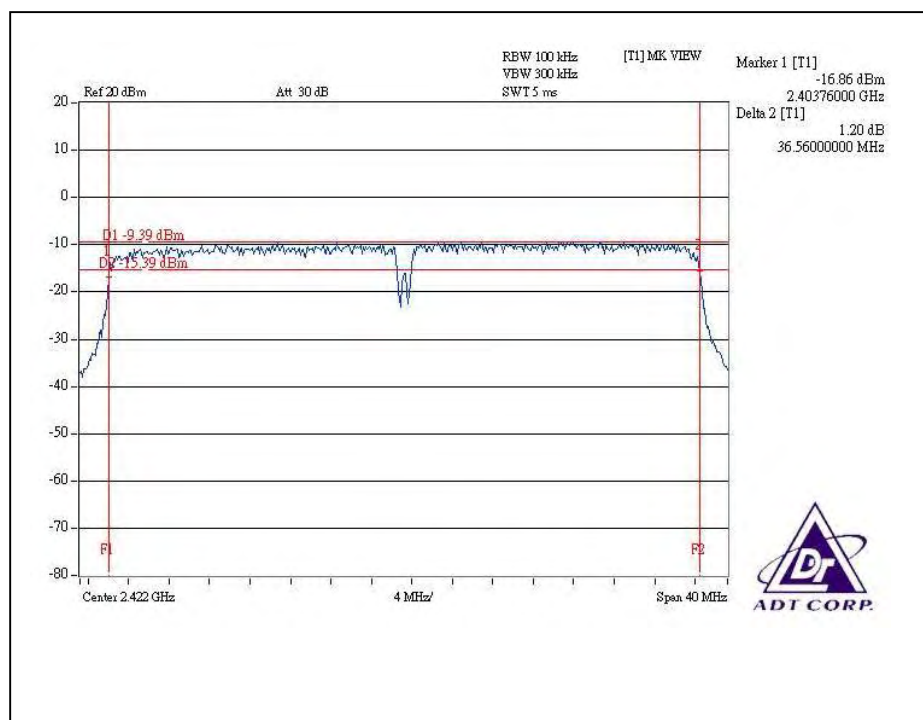


DRAFT 802.11n (40MHz) OFDM MODULATION:

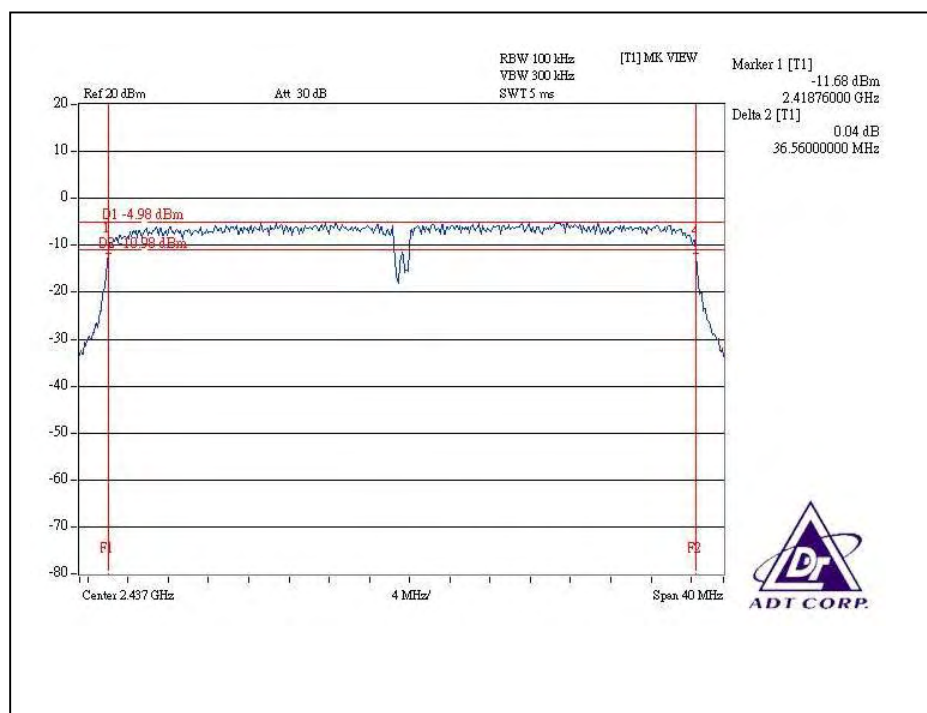
MODULATION TYPE	BPSK	TRANSFER RATE	15Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	28deg.C, 68%RH, 955hPa
TESTED BY	Tony Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN(0)	CHAIN(2)		
1	2422	36.56	36.40	0.5	PASS
4	2437	36.56	36.56	0.5	PASS
7	2452	36.56	36.56	0.5	PASS

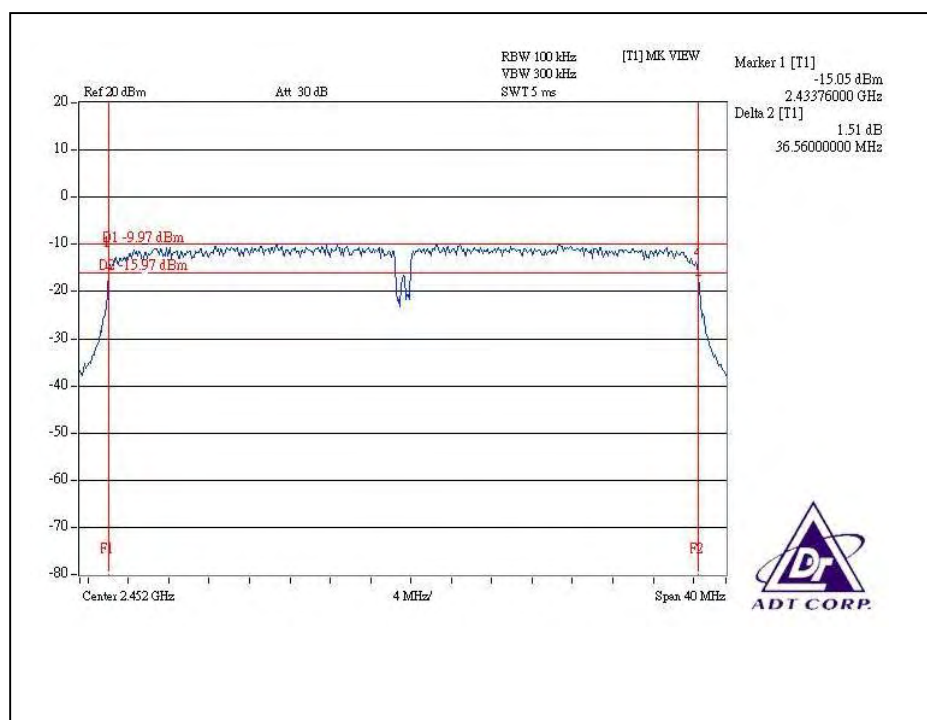
For Chain (0): CH1



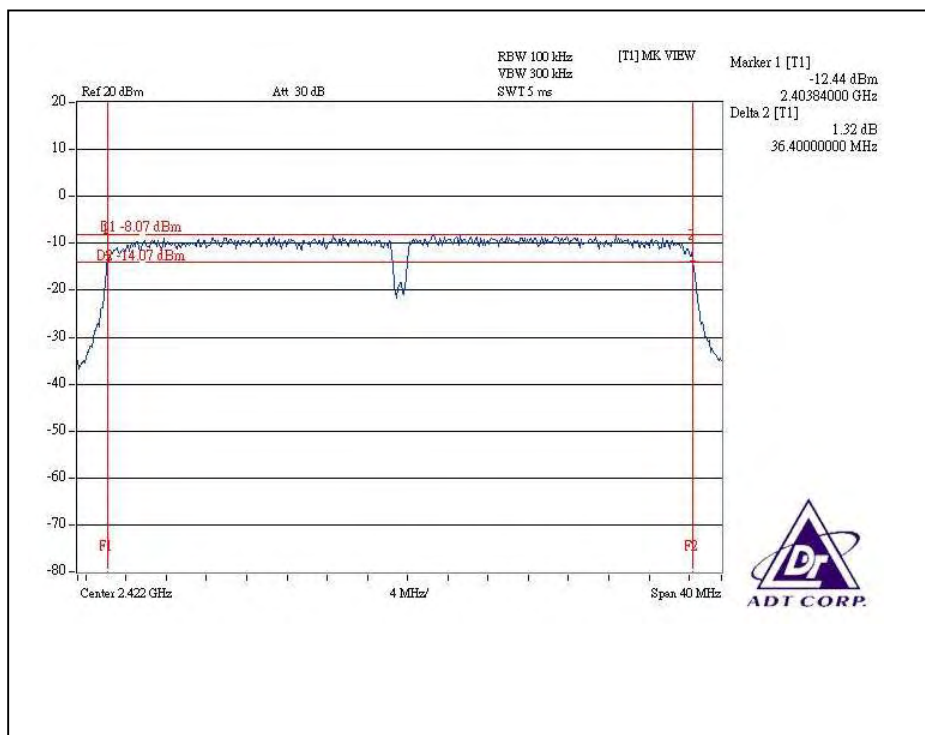
CH4



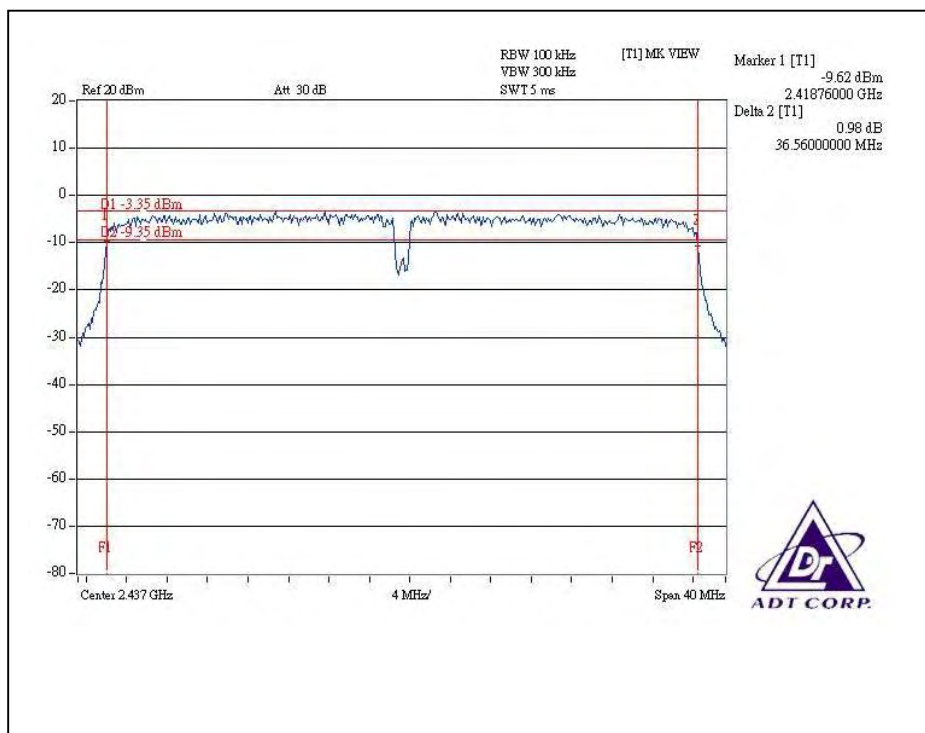
CH7



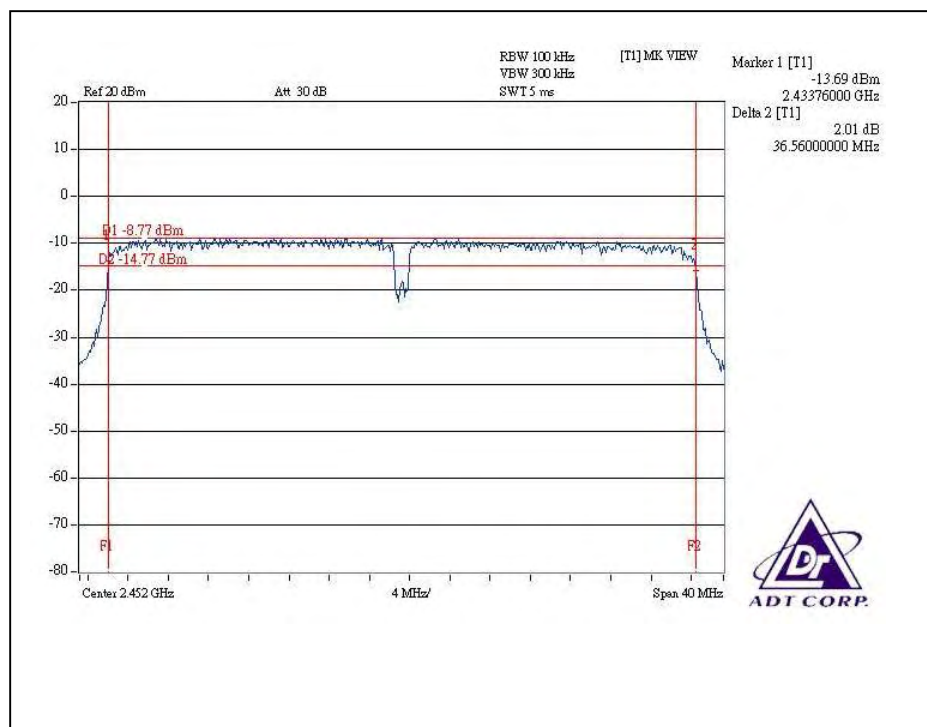
For Chain (2): CH1



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	100036	Nov. 23, 2007
Agilent SIGNAL GENERATOR	E8257C	MY43320668	Dec. 28, 2007
TEKTRONIX OSCILLOSCOPE	TDS380	B016335	July 15, 2008
NARDA DETECTOR	4503A	FSCM99899	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. A detector was used on the output port of the EUT. An oscilloscope was used to read the response of the detector.
2. Replaced the EUT by the signal generator. The center frequency of the S.G was adjusted to the center frequency of the measured channel.
3. Adjusted the power to have the same reading on oscilloscope. 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	CCK	TRANSFER RATE	11Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	28deg.C, 62%RH, 955hPa
TESTED BY	Wen Yu		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2412	67.608	18.30	30	PASS
6	2437	104.713	20.20	30	PASS
11	2462	72.444	18.60	30	PASS

802.11g OFDM MODULATION:

MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	28deg.C, 62%RH, 955hPa
TESTED BY	Wen Yu		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2412	34.674	15.40	30	PASS
6	2437	52.481	17.20	30	PASS
11	2462	31.623	15.00	30	PASS

DRAFT 802.11n (20MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	TRANSFER RATE	7.2Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	28deg.C, 68%RH, 955hPa
TESTED BY	Wen Yu		

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(2)	CHAIN(0)	CHAIN(2)				
1	2412	26.303	23.988	14.2	13.8	50.291	17.0	30	PASS
6	2437	48.978	75.858	16.9	18.8	124.836	21.0	30	PASS
11	2462	19.055	26.303	12.8	14.2	45.357	16.6	30	PASS

DRAFT 802.11n (40MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	TRANSFER RATE	15Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	28deg.C, 68%RH, 955hPa
TESTED BY	Wen Yu		

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(2)	CHAIN(0)	CHAIN(2)				
1	2422	7.244	12.589	8.6	11.0	19.834	13.0	30	PASS
4	2437	21.878	36.308	13.4	15.6	58.185	17.6	30	PASS
7	2452	7.079	10.471	8.5	10.2	17.551	12.4	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	Nov. 23, 2007

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

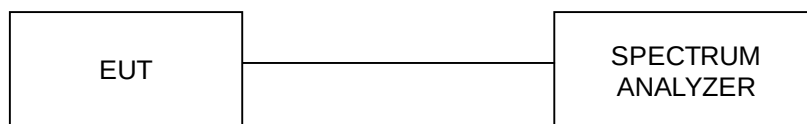
The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3kHz RBW and 30kHz VBW, set sweep time = span/3kHz. The power spectral density was measured and recorded.

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 4.3.6

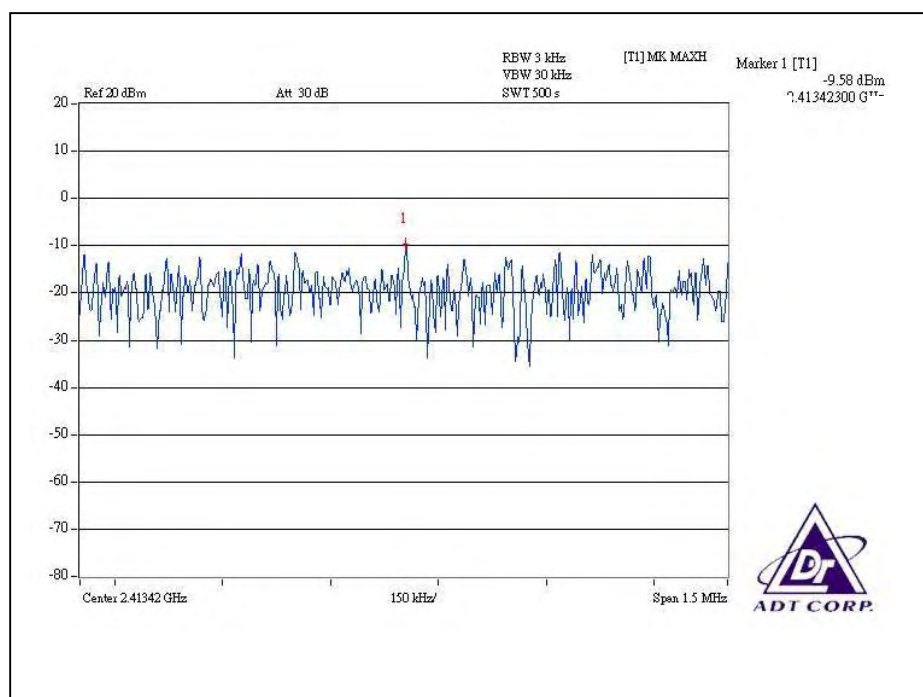
4.5.7 TEST RESULTS

802.11b DSSS MODULATION:

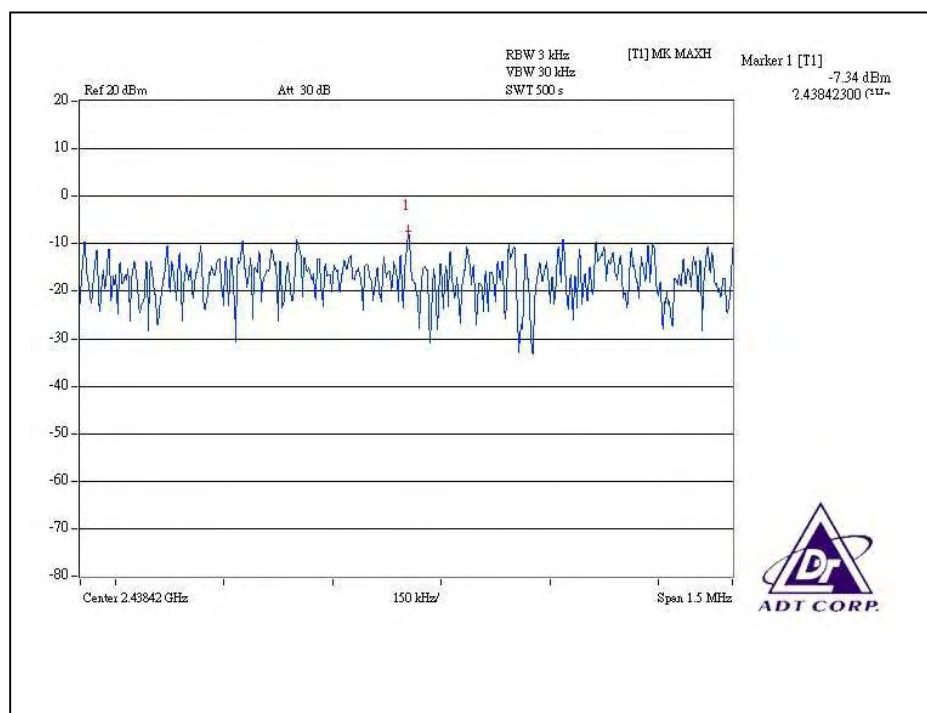
MODULATION TYPE	CCK	TRANSFER RATE	11Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	28deg.C, 62%RH, 955hPa
TESTED BY	Wen Yu		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	2412	-9.58	8	PASS
6	2437	-7.34	8	PASS
11	2462	-9.72	8	PASS

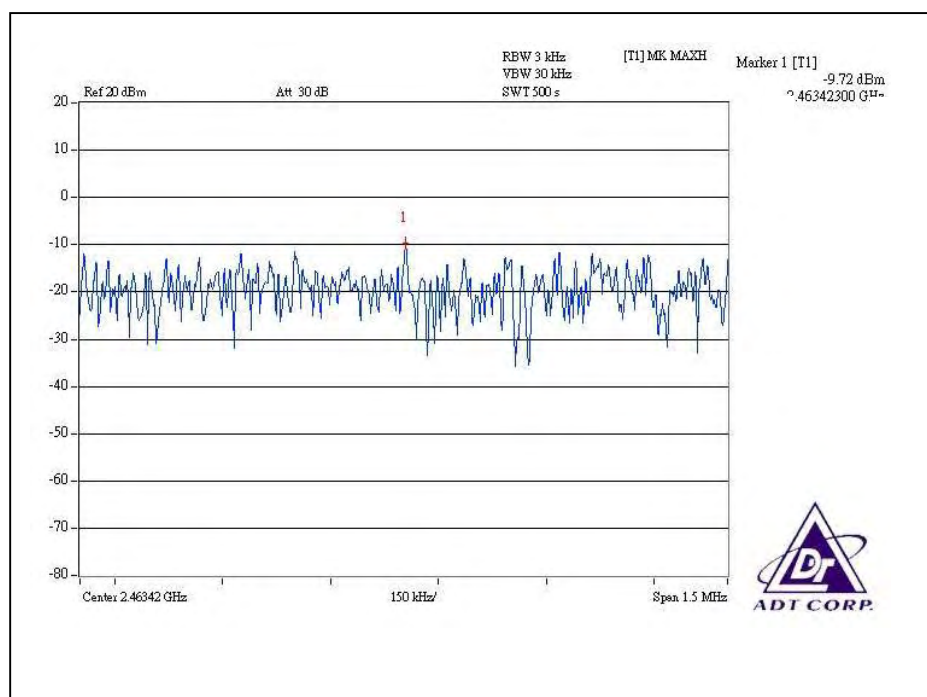
CH1



CH6



CH11

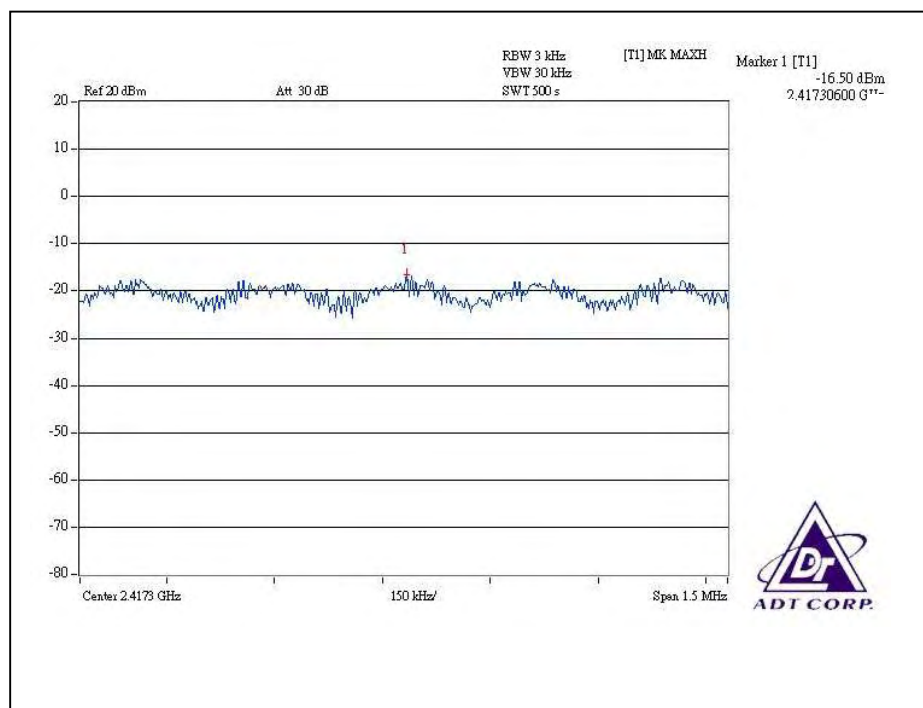


802.11g OFDM MODULATION:

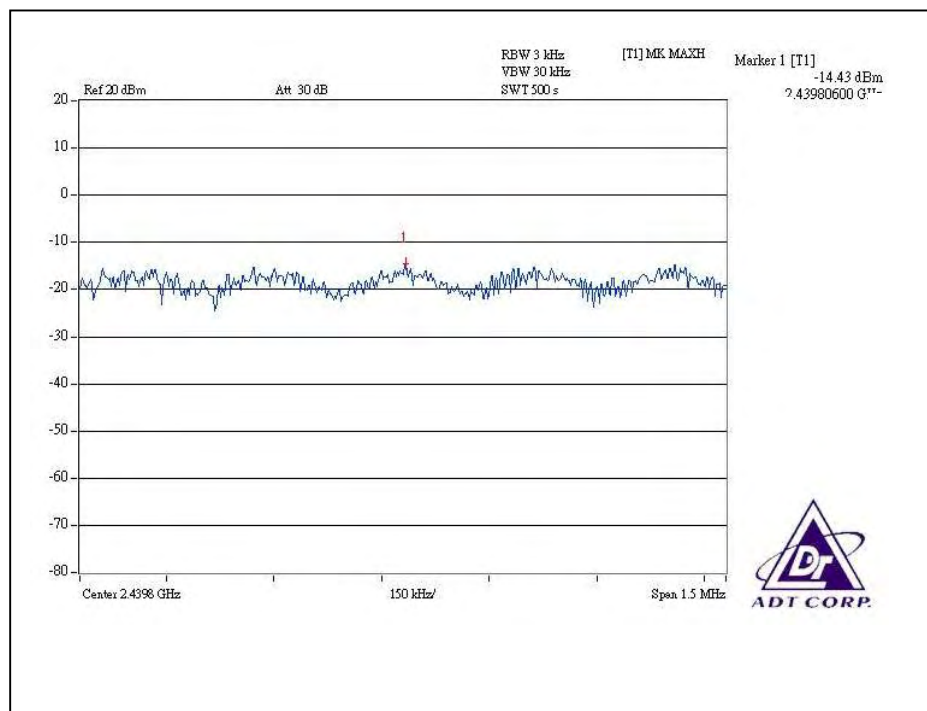
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	28deg.C, 62%RH, 955hPa
TESTED BY	Wen Yu		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	2412	-16.50	8	PASS
6	2437	-14.43	8	PASS
11	2462	-17.12	8	PASS

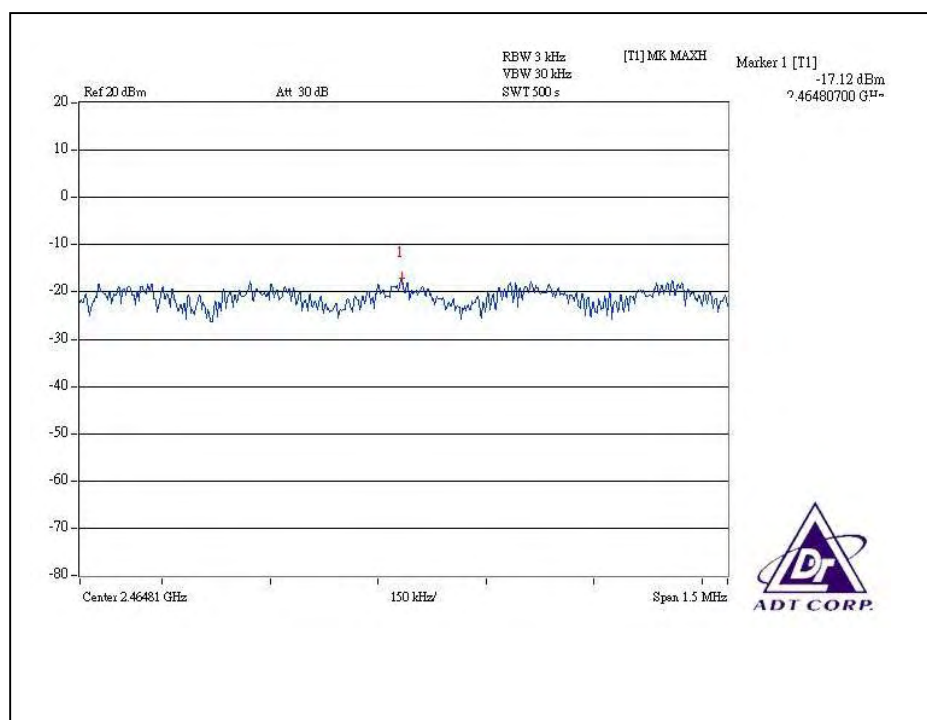
CH1



CH6



CH11

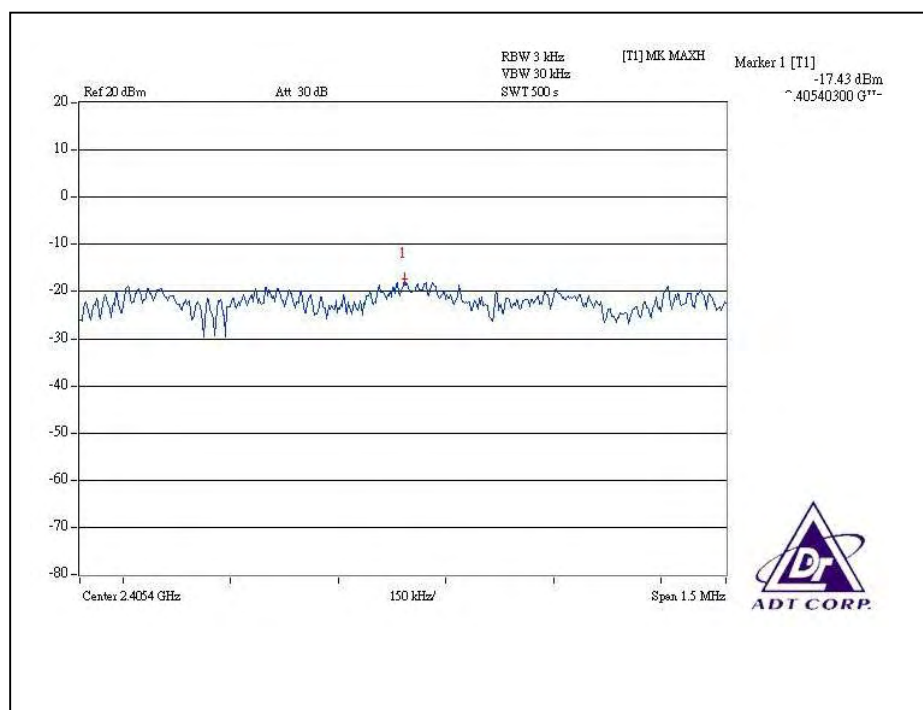


DRAFT 802.11n (20MHz) OFDM MODULATION:

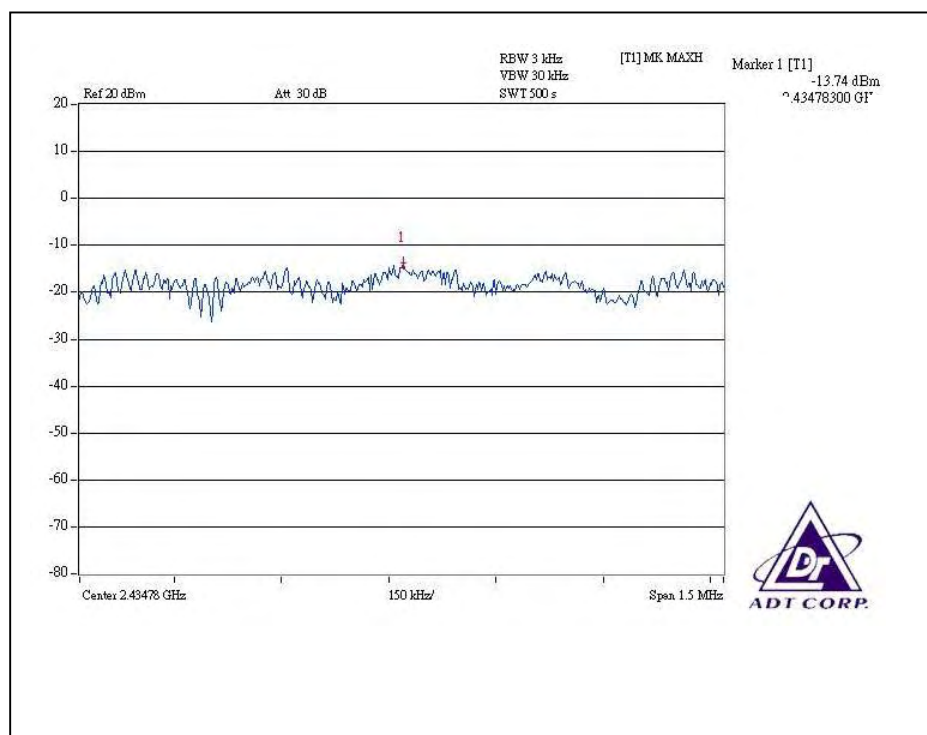
MODULATION TYPE	BPSK	TRANSFER RATE	7.2Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	28deg.C, 68%RH, 955hPa
TESTED BY	Wen Yu		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(2)		
1	2412	-17.43	-17.19	8	PASS
6	2437	-13.74	-12.64	8	PASS
11	2462	-17.98	-16.06	8	PASS

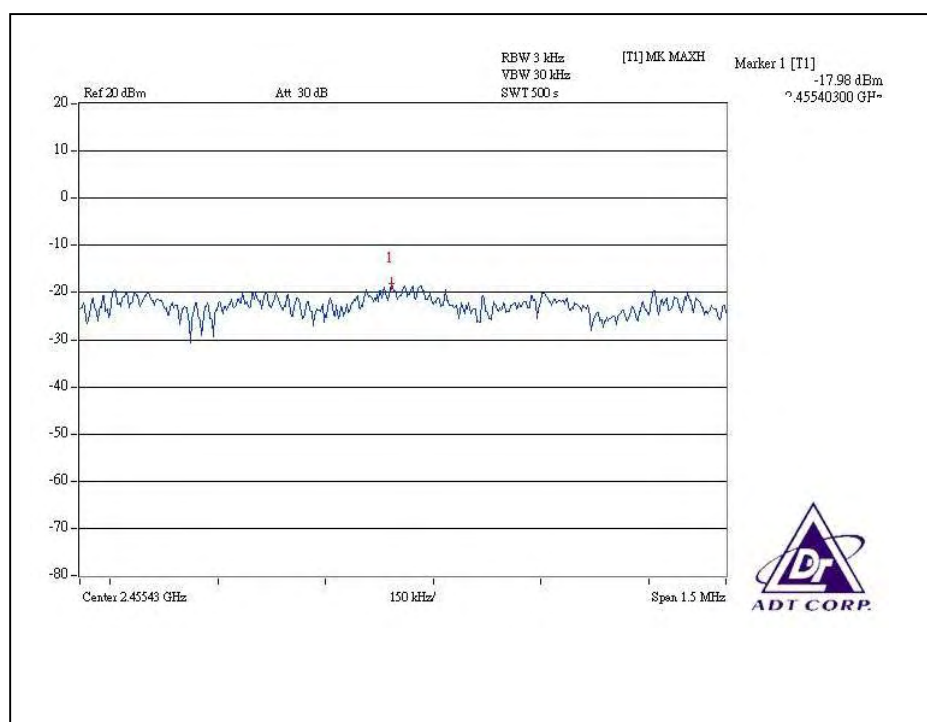
For Chain(0): CH1



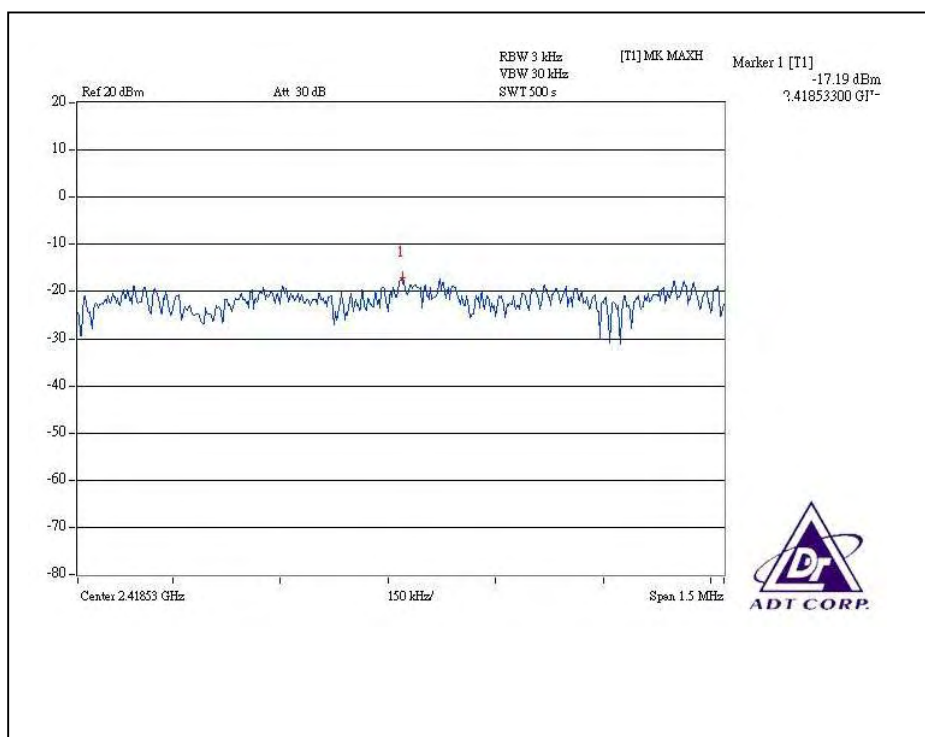
CH6



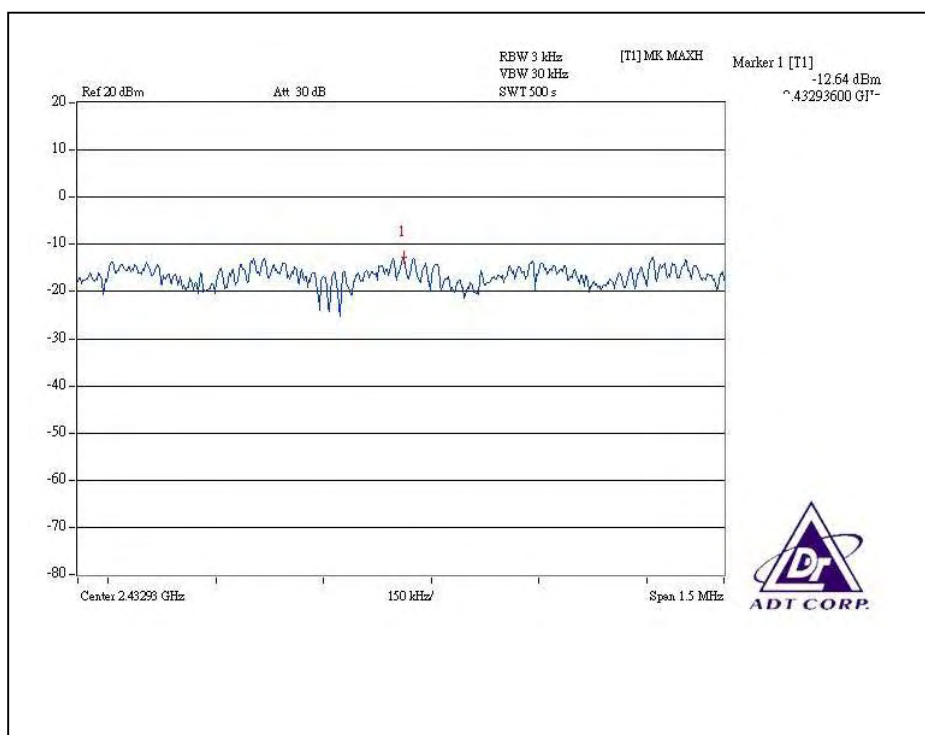
CH11



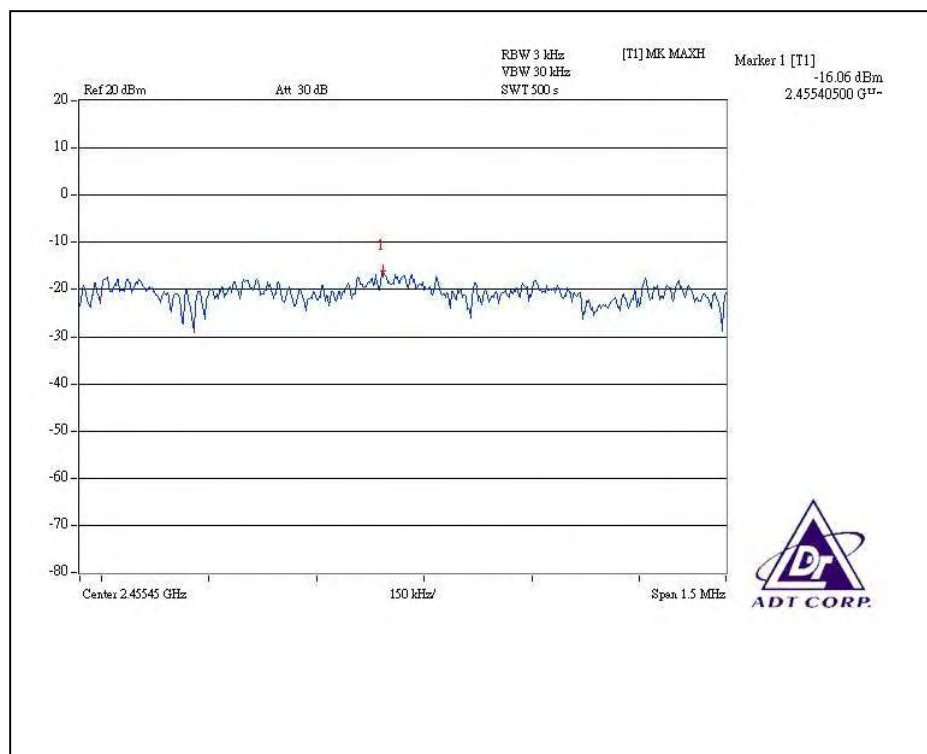
For Chain (2): CH1



CH6



CH11

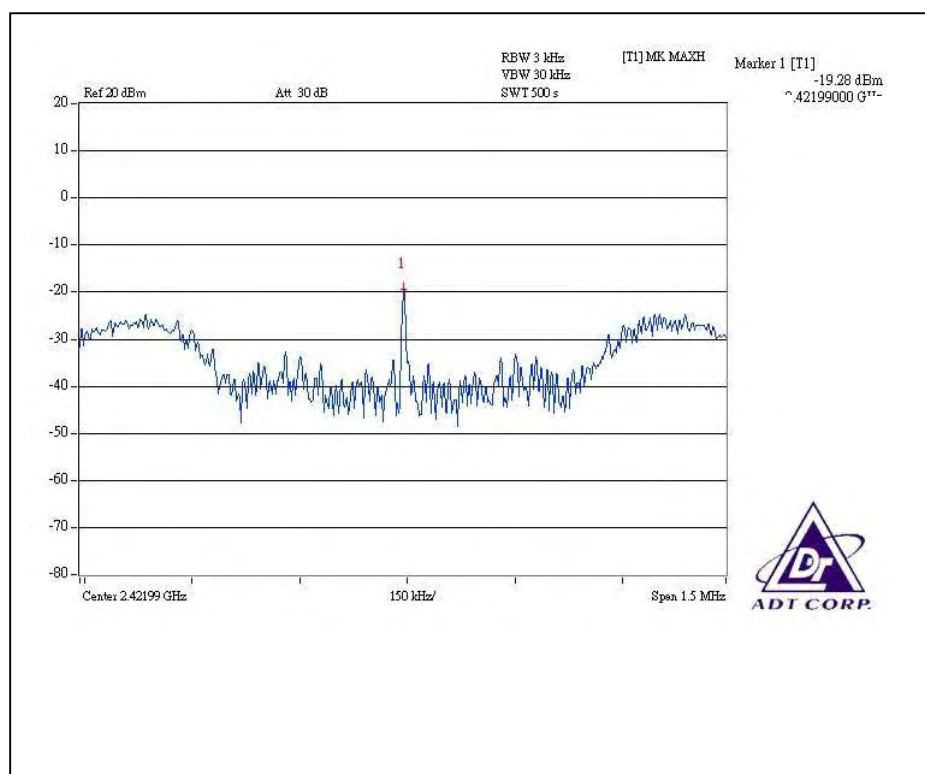


DRAFT 802.11n (40MHz) OFDM MODULATION:

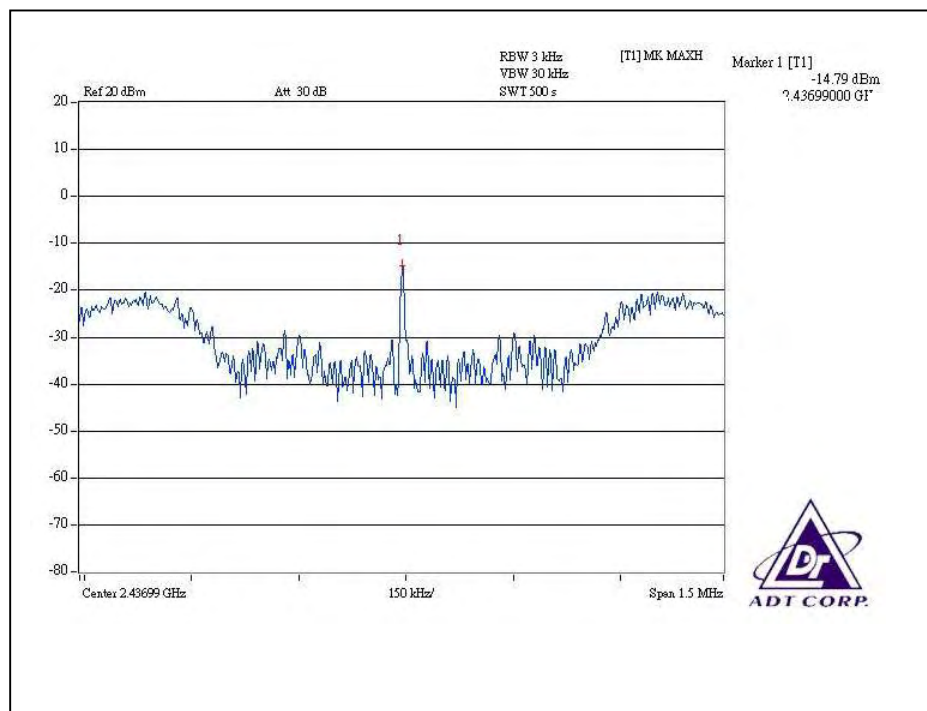
MODULATION TYPE	BPSK	TRANSFER RATE	15Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	28deg.C, 68%RH, 955hPa
TESTED BY	Wen Yu		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(2)		
1	2422	-19.28	-21.68	8	PASS
4	2437	-14.79	-16.67	8	PASS
7	2452	-19.74	-21.70	8	PASS

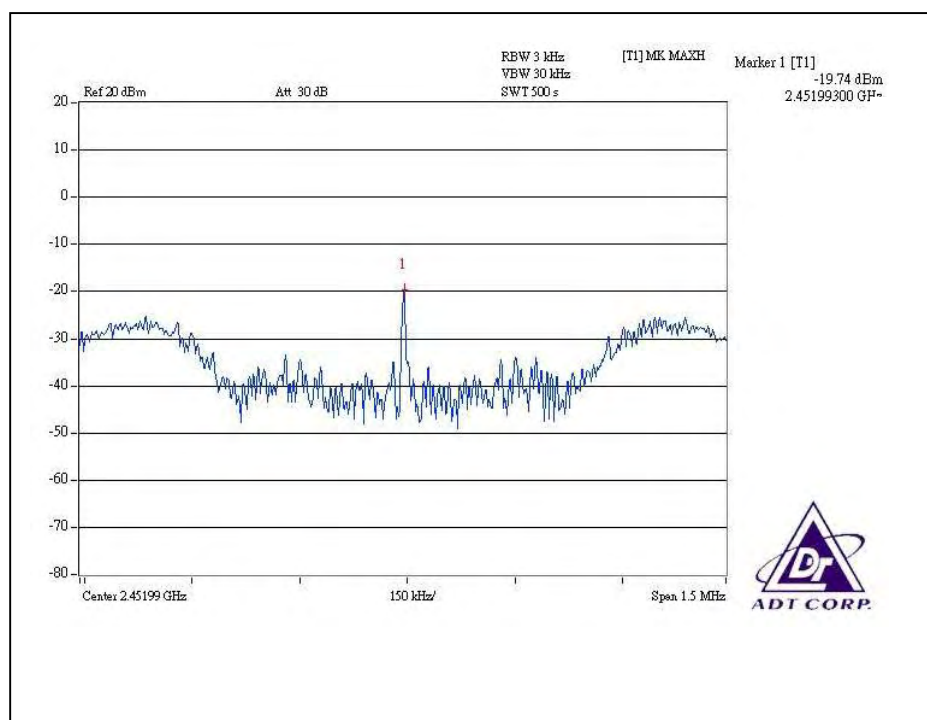
For Chain (0): CH1



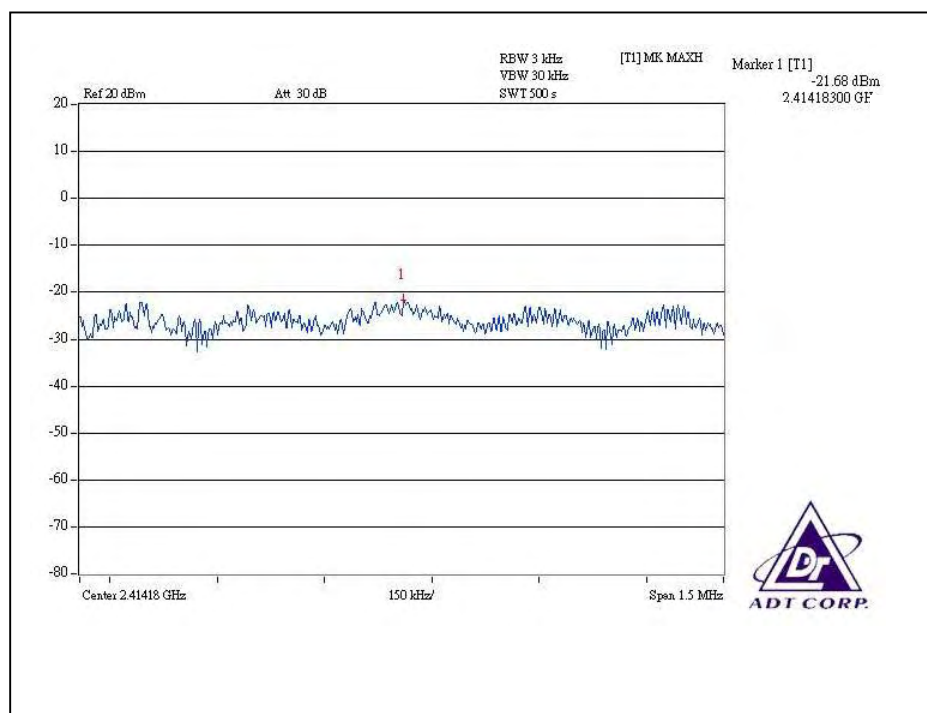
CH4



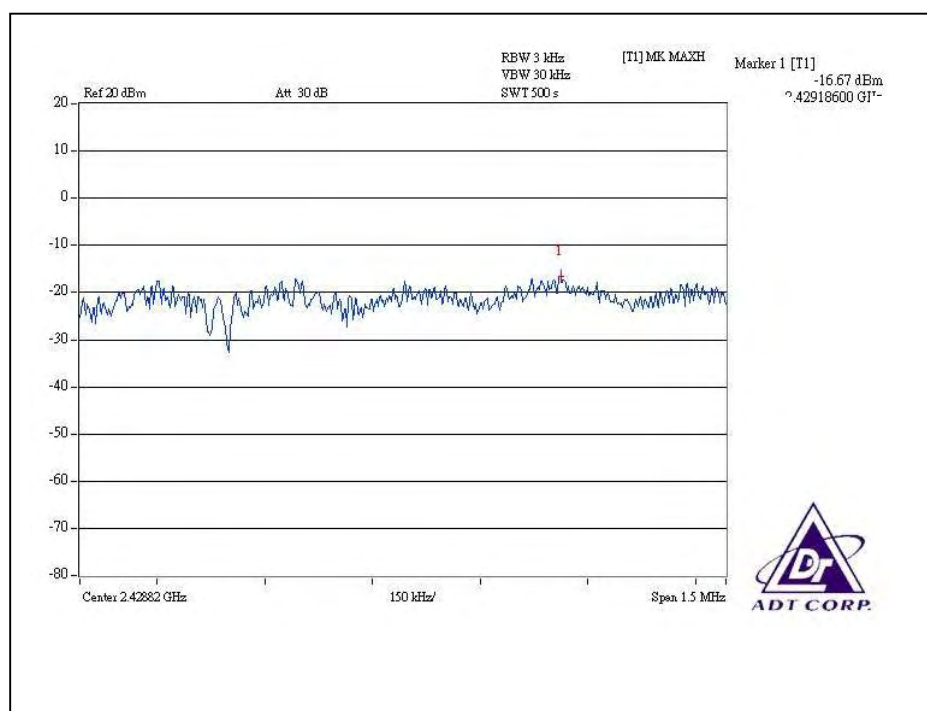
CH7



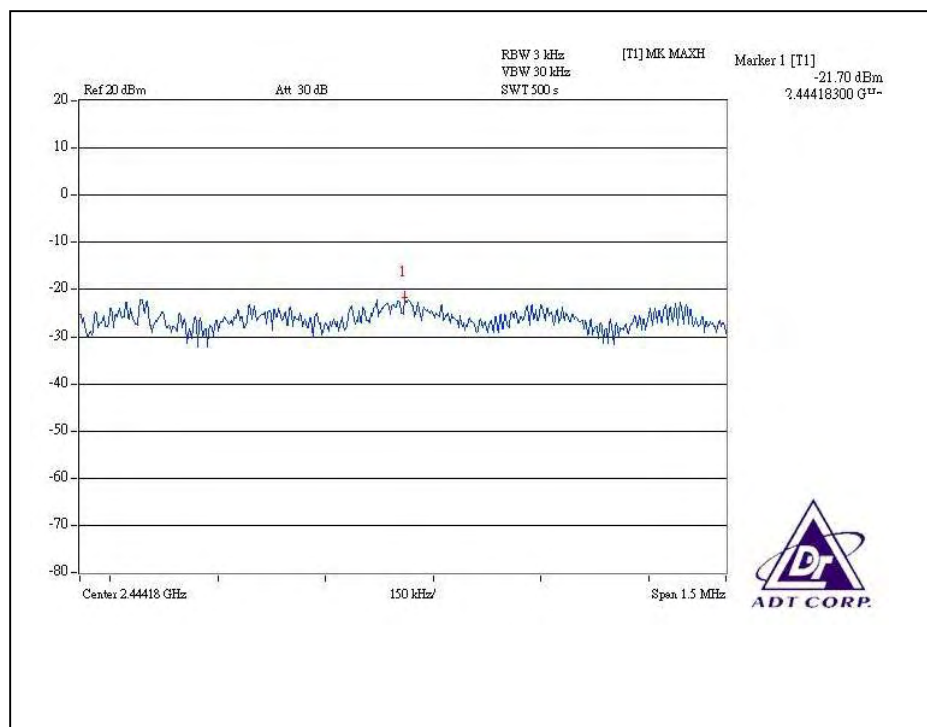
For Chain (2): CH1



CH4



CH7



4.6 CONDUCTED EMISSION AND BAND EDGES MEASUREMENT

4.6.1 LIMITS OF CONDUCTED EMISSION AND BAND EDGES MEASUREMENT

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

4.6.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSP40	100036	Nov. 23, 2007

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.

4.6.3 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

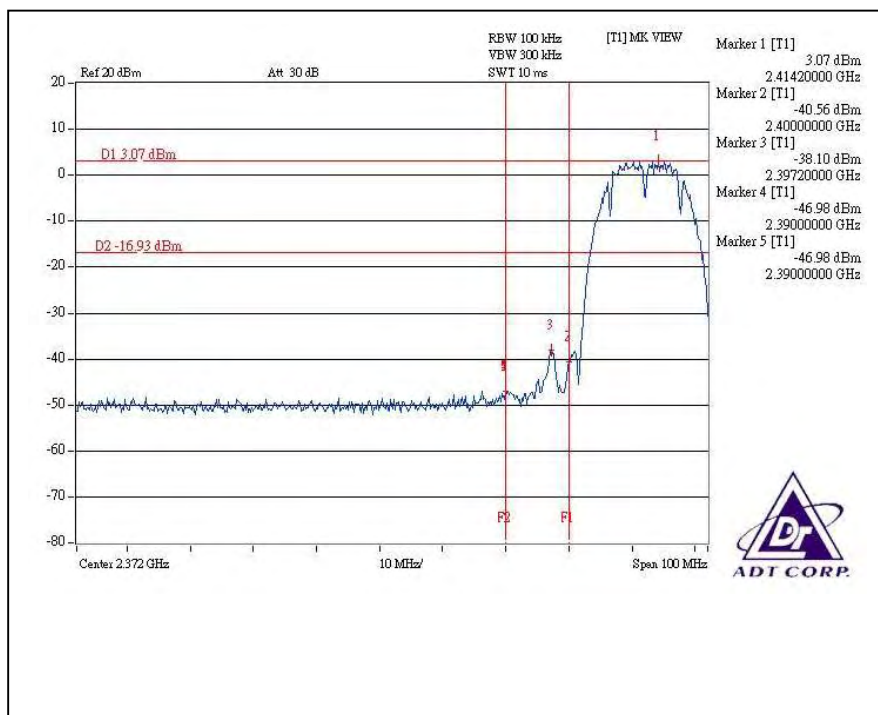
4.6.5 EUT OPERATING CONDITION

Same as Item 4.3.6

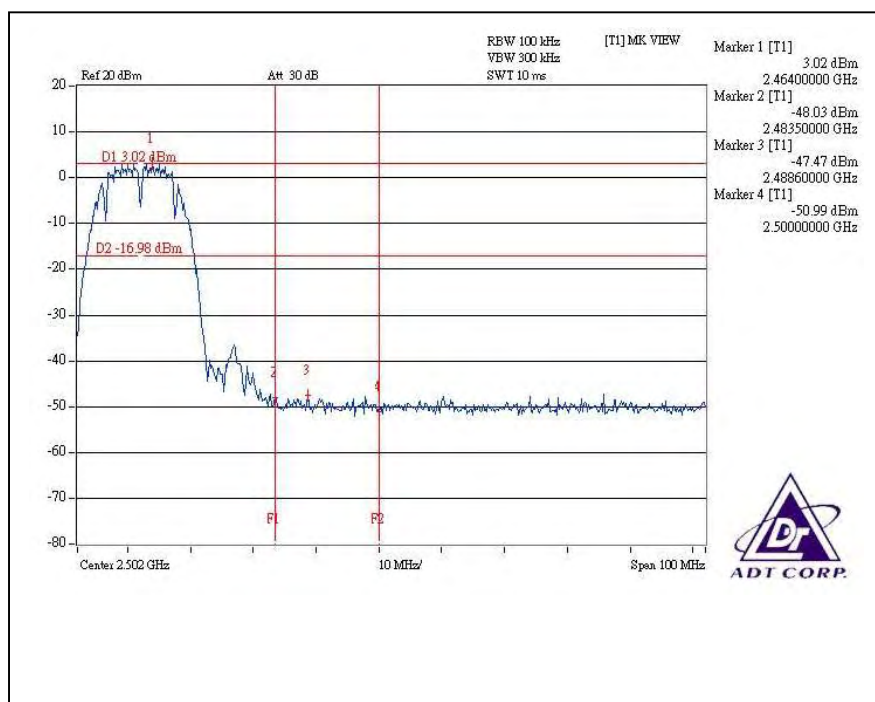
4.6.6 TEST RESULTS

The spectrum plots are attached on the following 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).

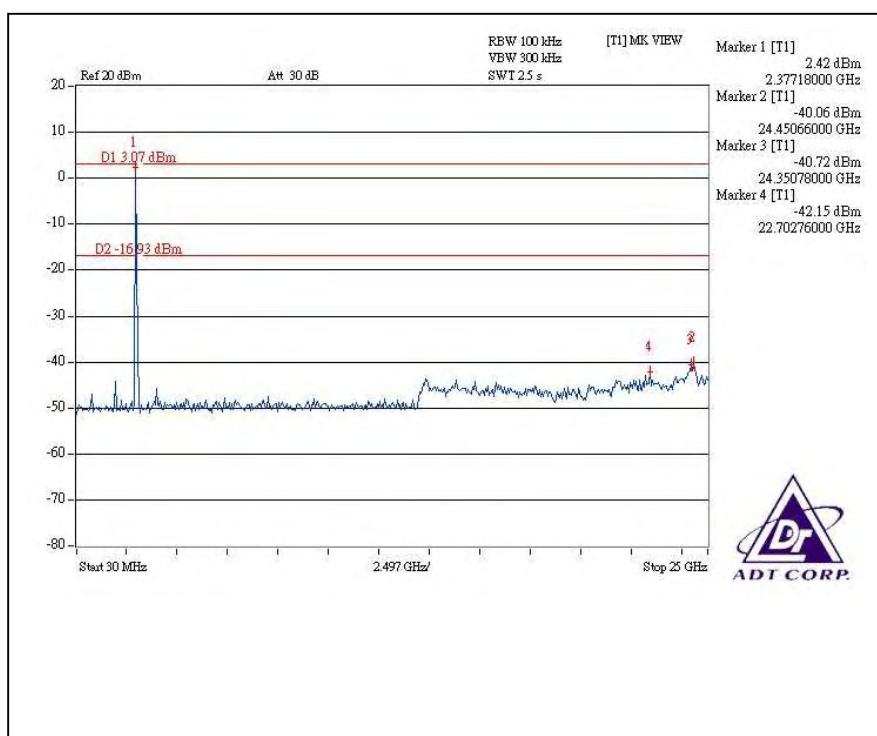
802.11b DSSS MODULATION: CH1



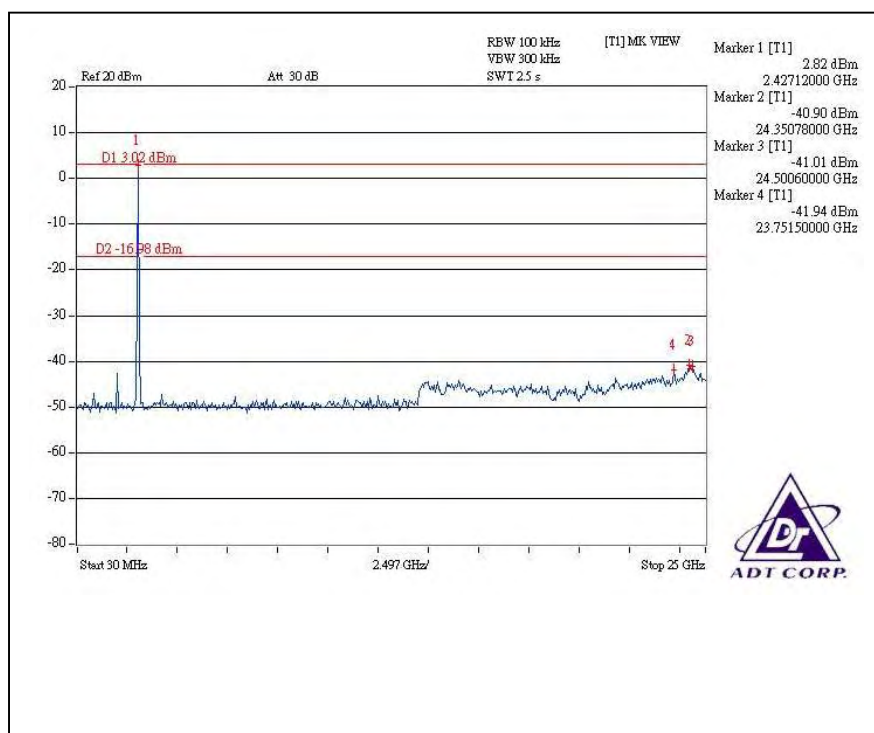
CH11



CH1

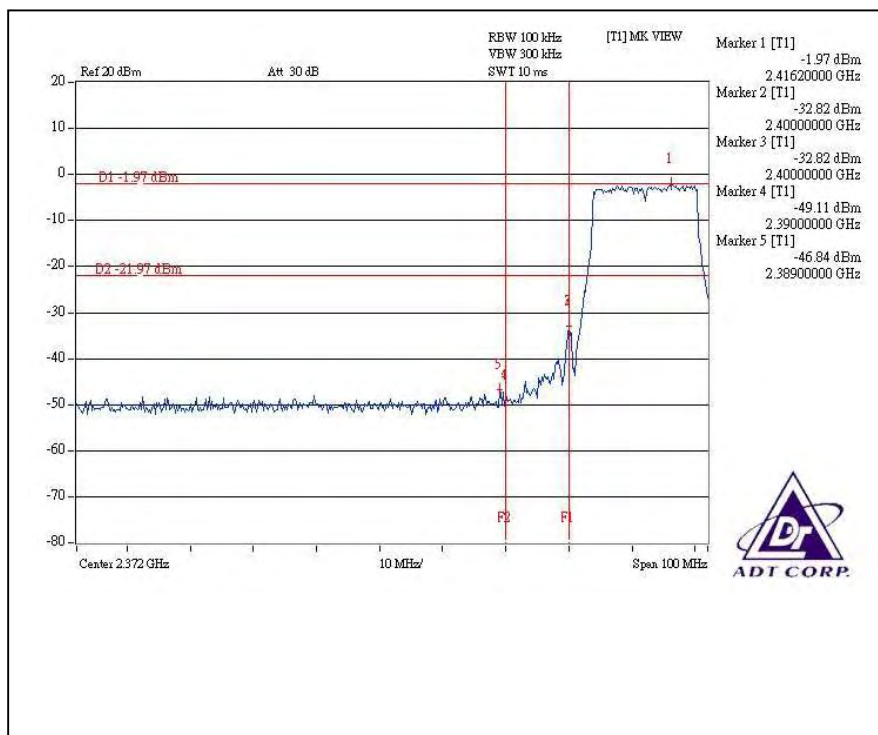


CH11

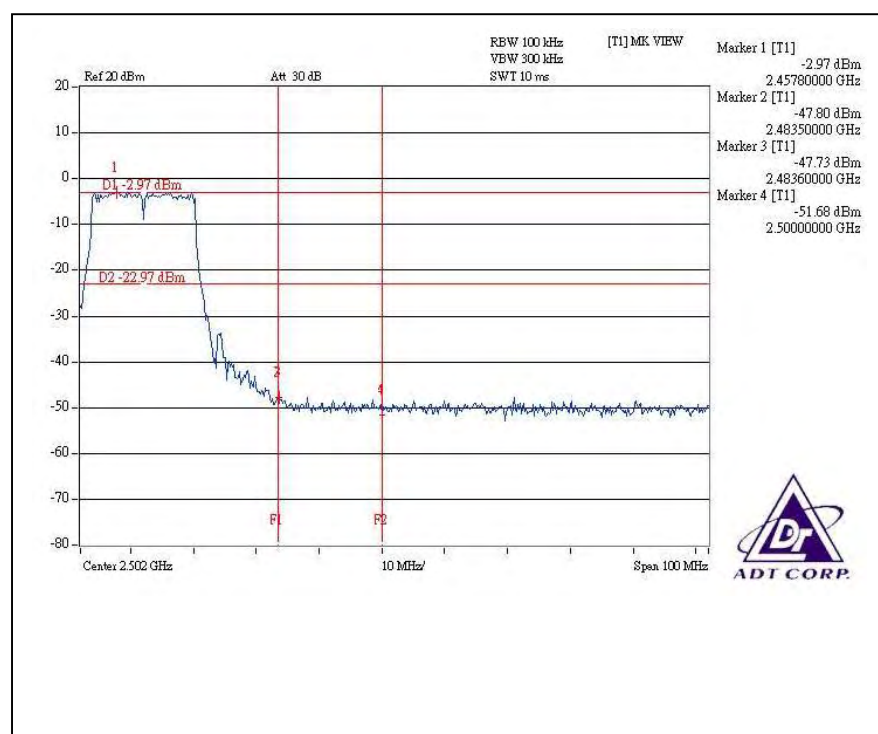


802.11g OFDM MODULATION:

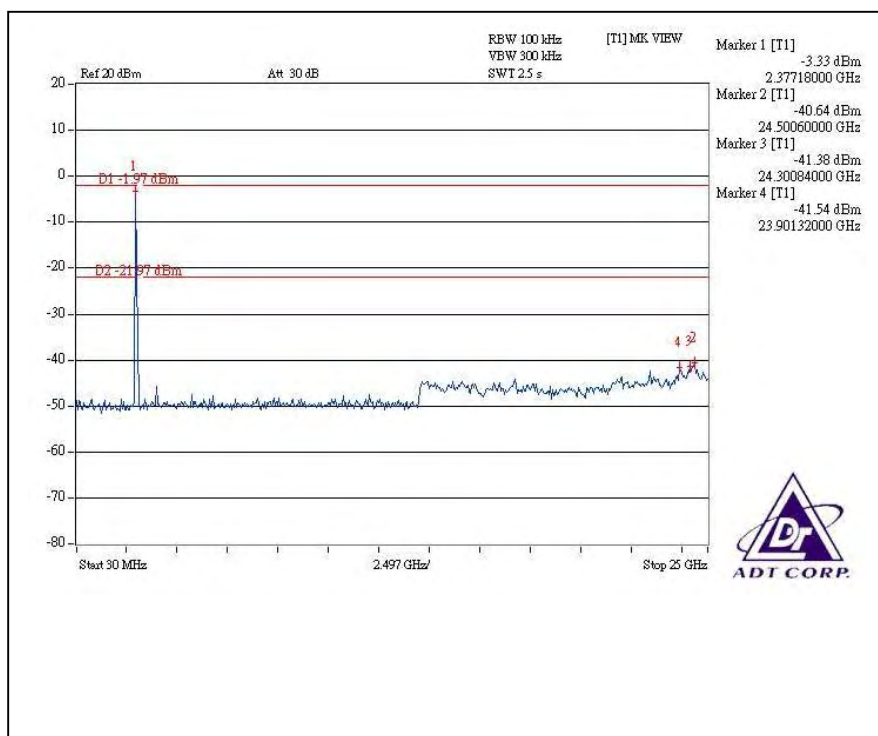
CH 1



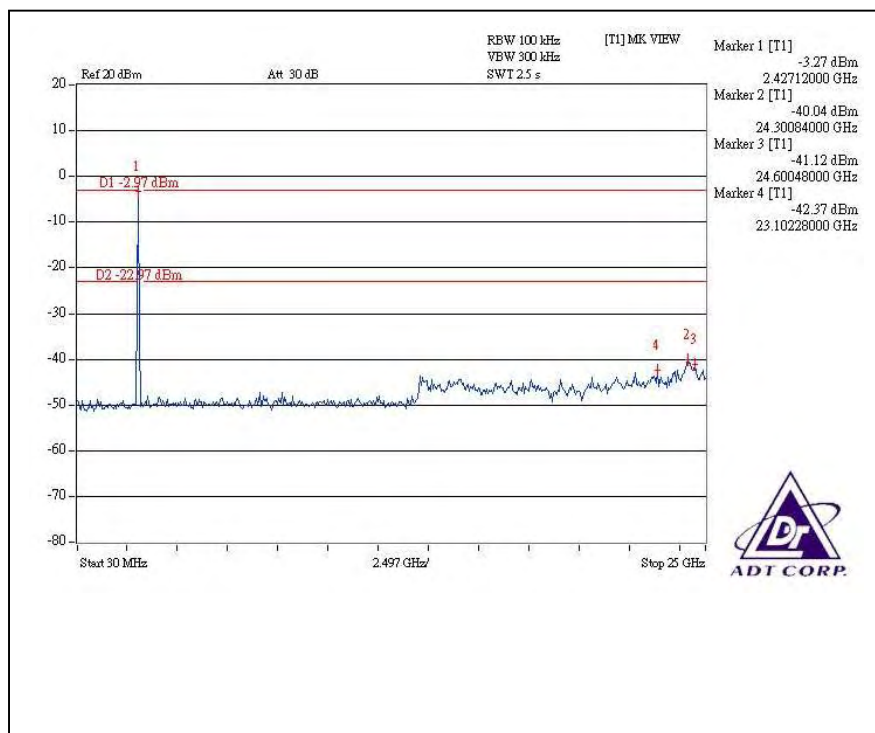
CH11



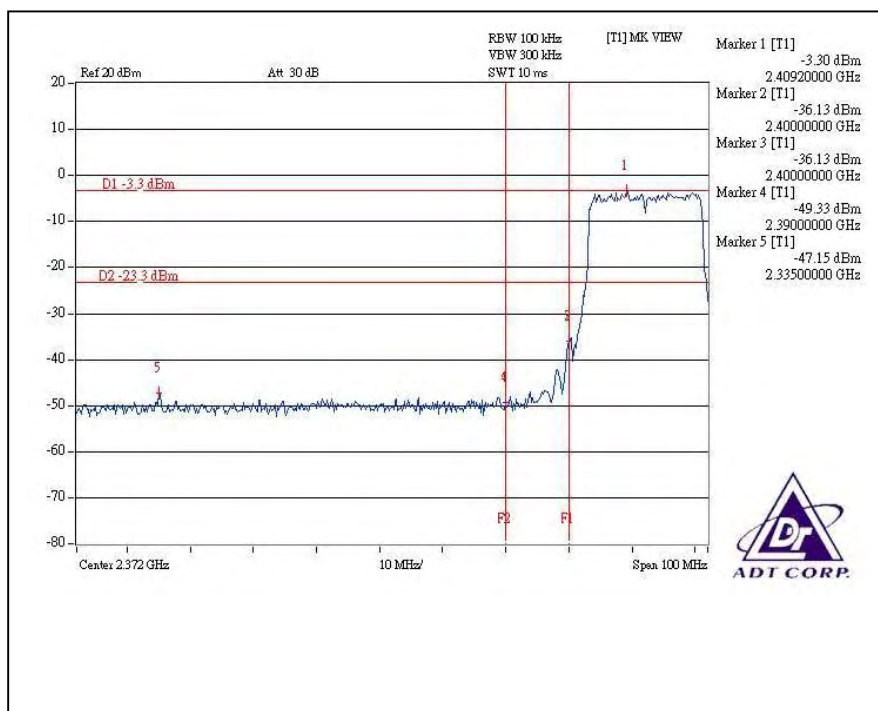
CH1



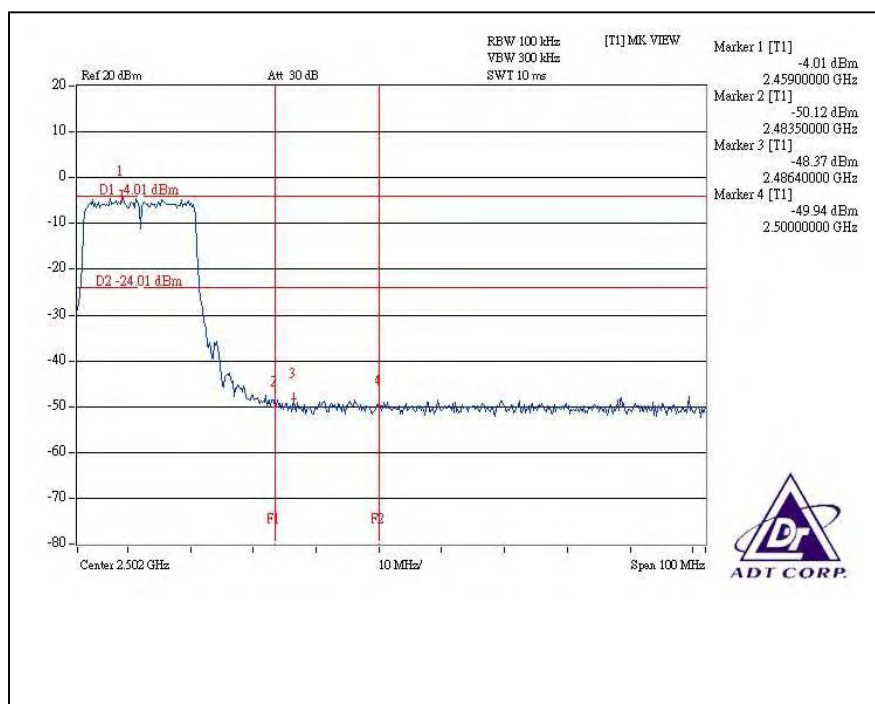
CH11



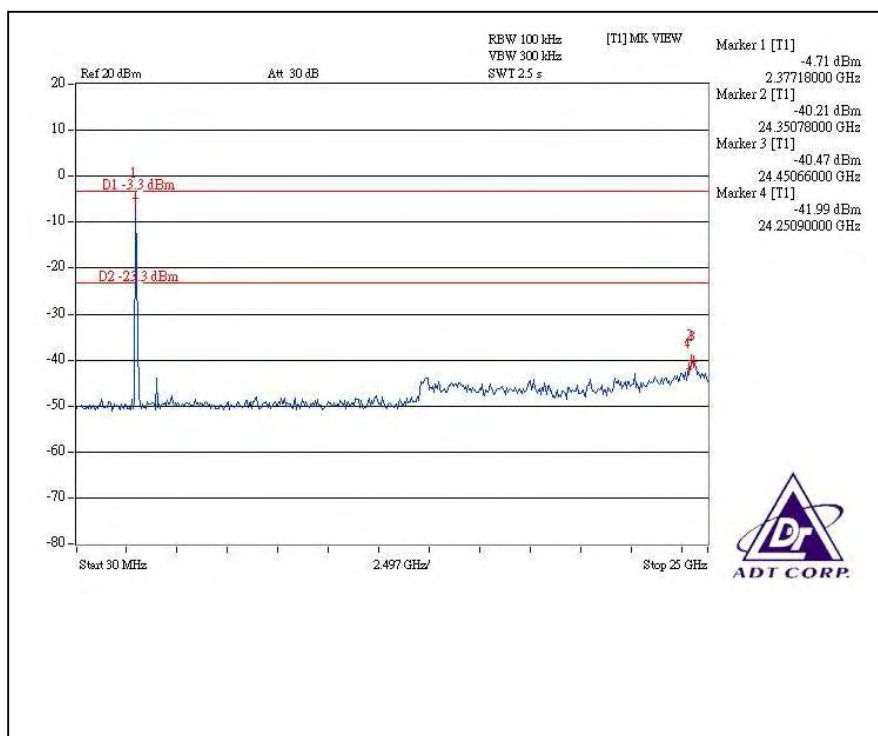
DRAFT 802.11n (20MHz) OFDM MODULATION: For Chain (0):CH1



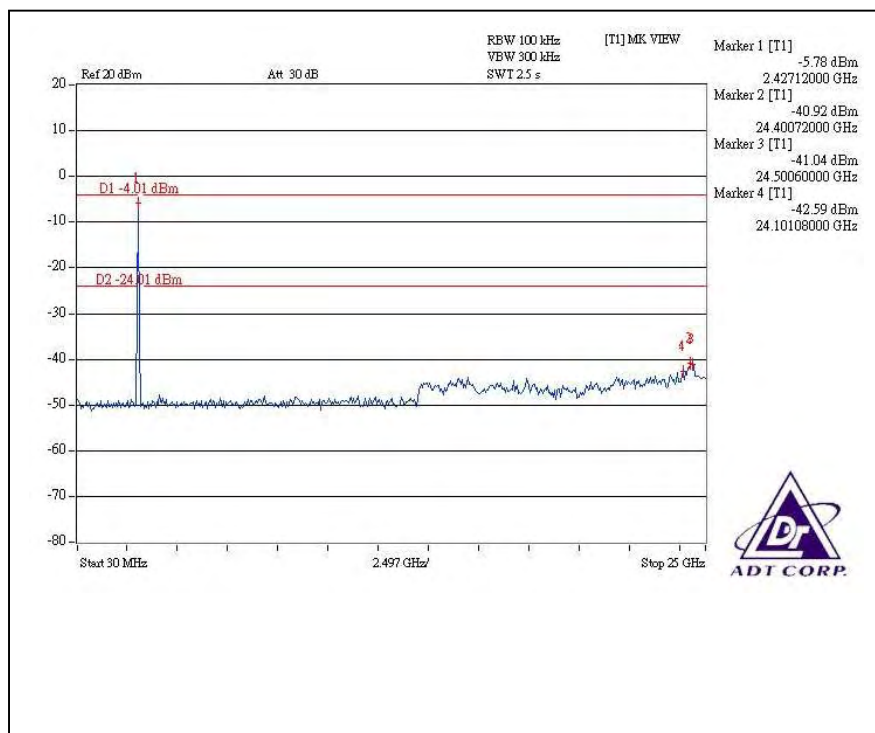
CH11



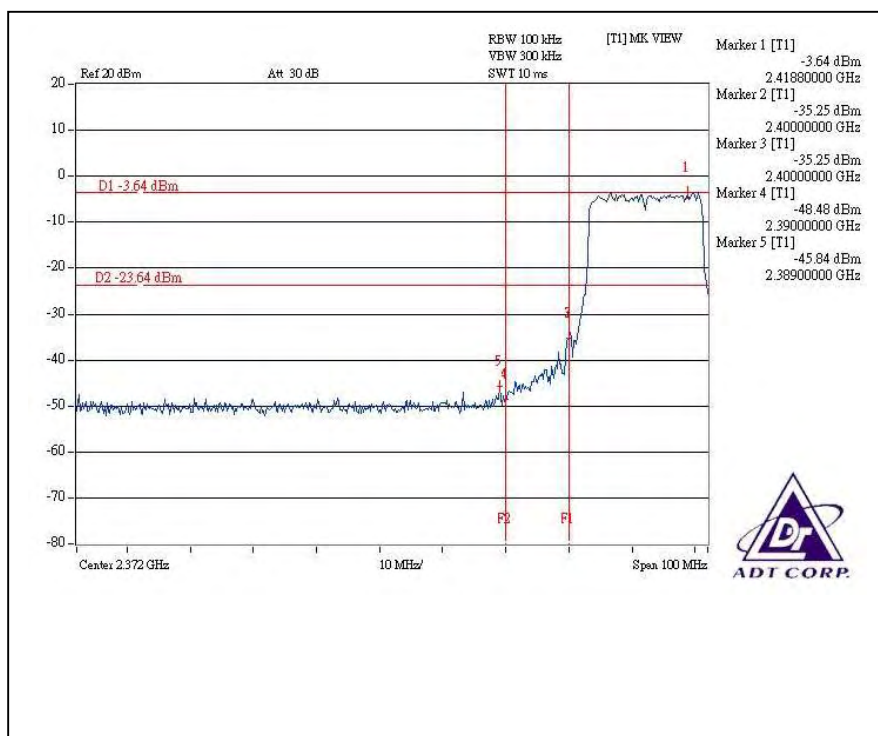
CH1



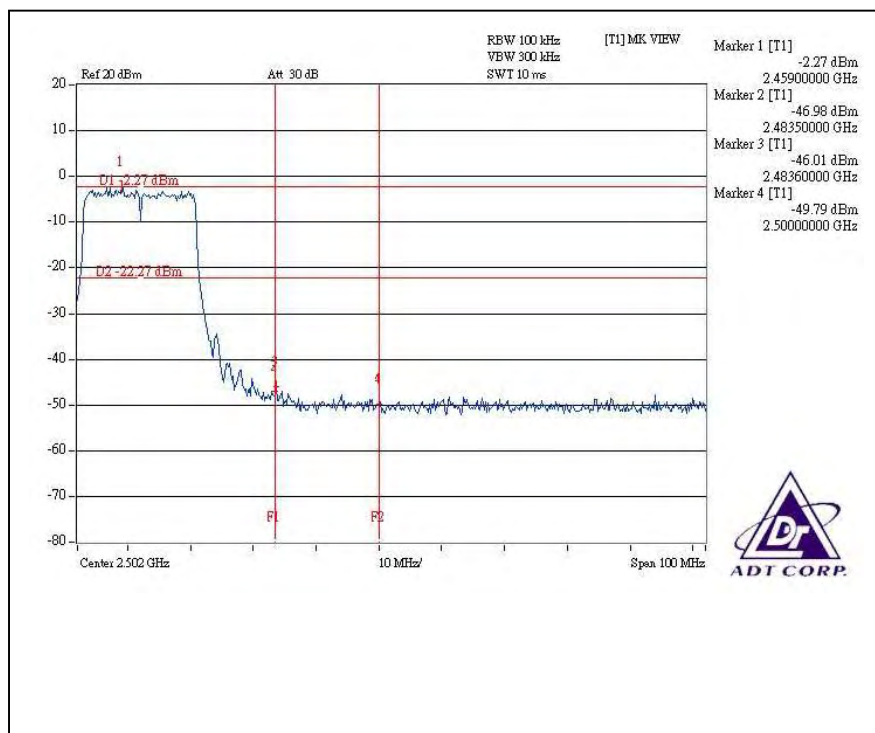
CH11



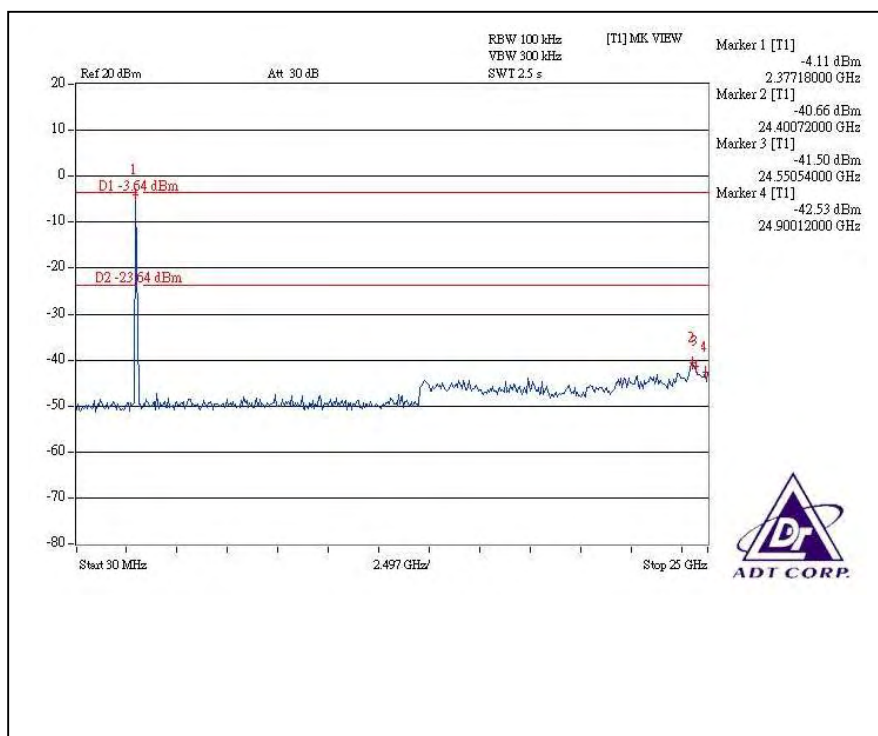
For Chain (2):CH1



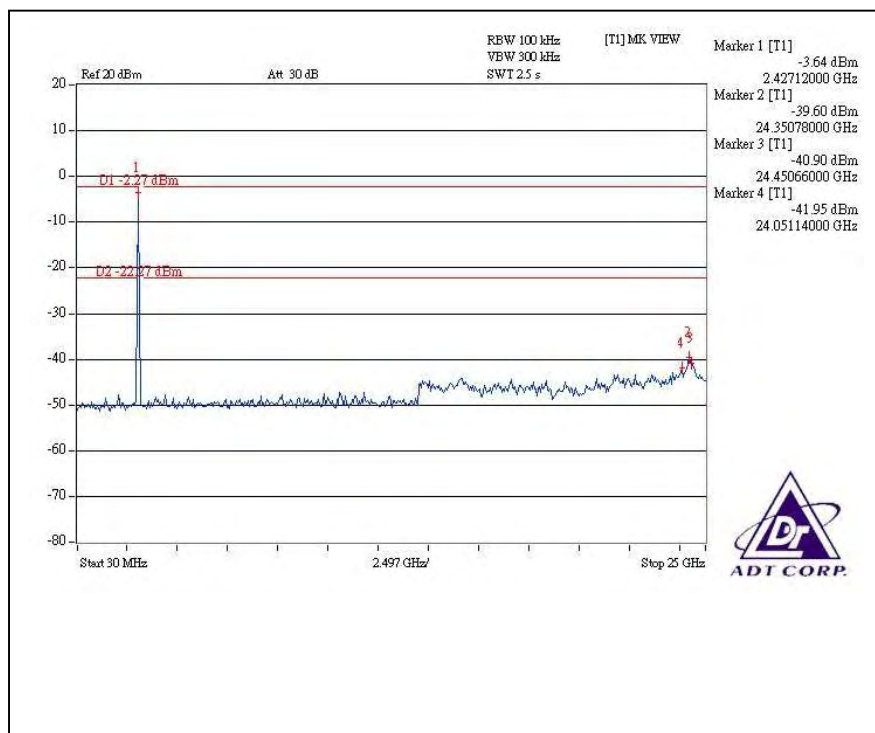
CH11



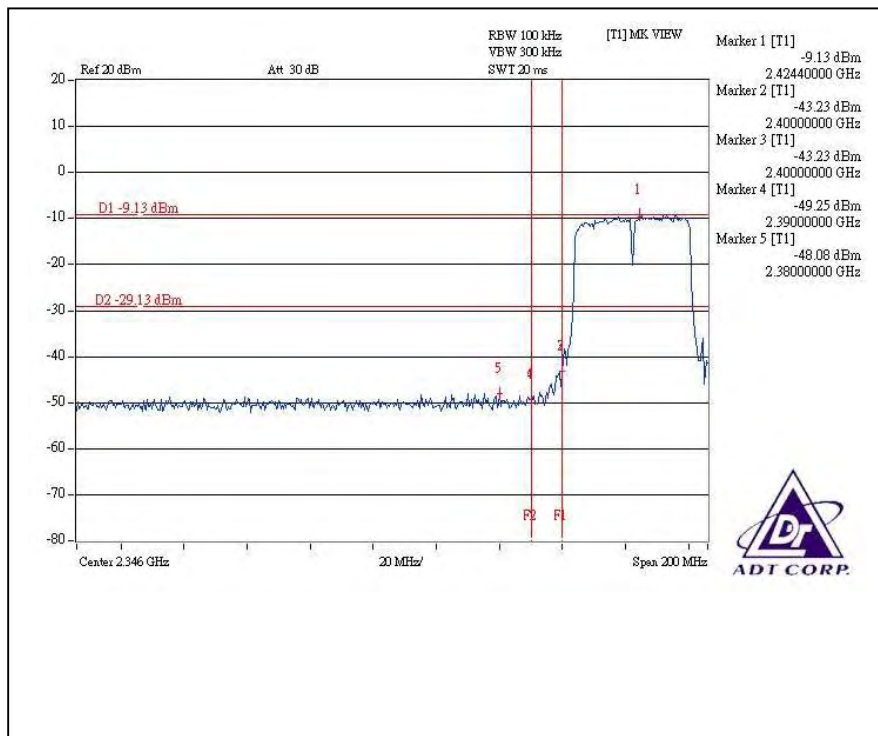
CH1



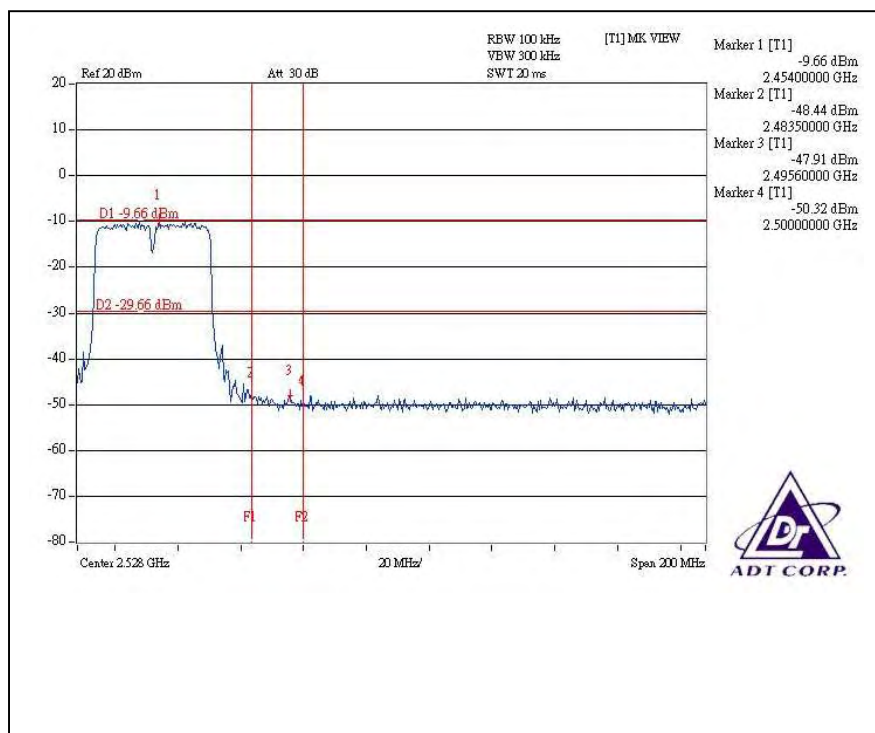
CH11



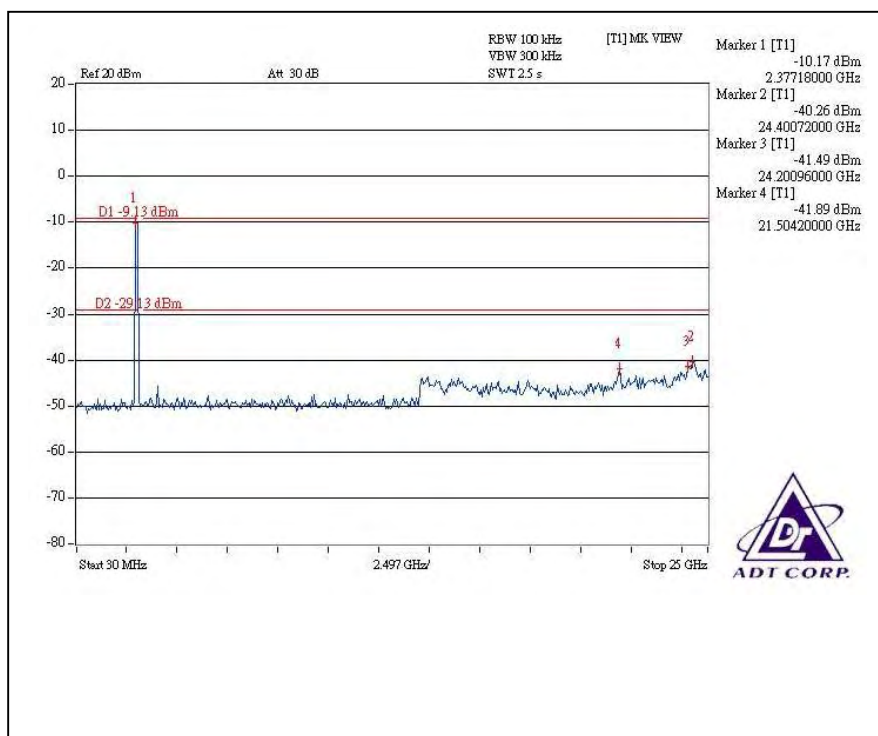
DRAFT 802.11n (40MHz) OFDM MODULATION: For Chain (0):CH1



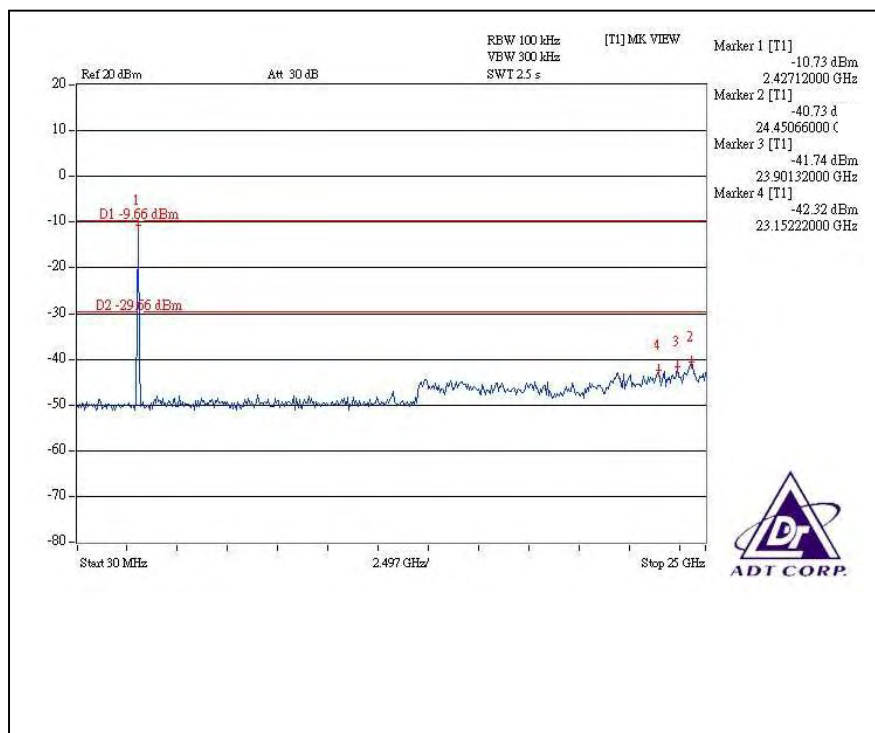
CH7



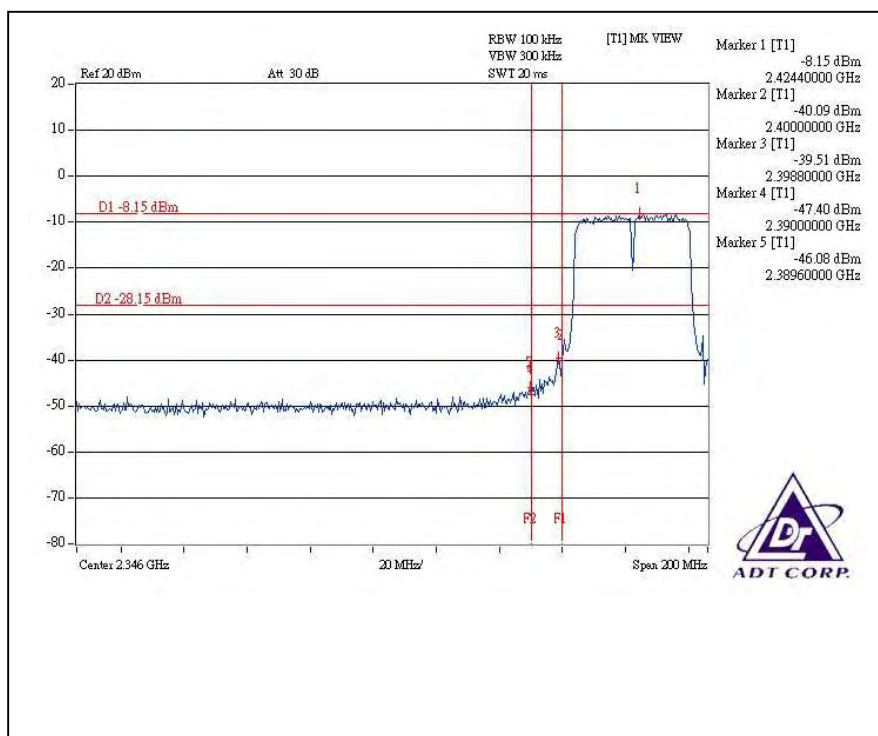
CH1



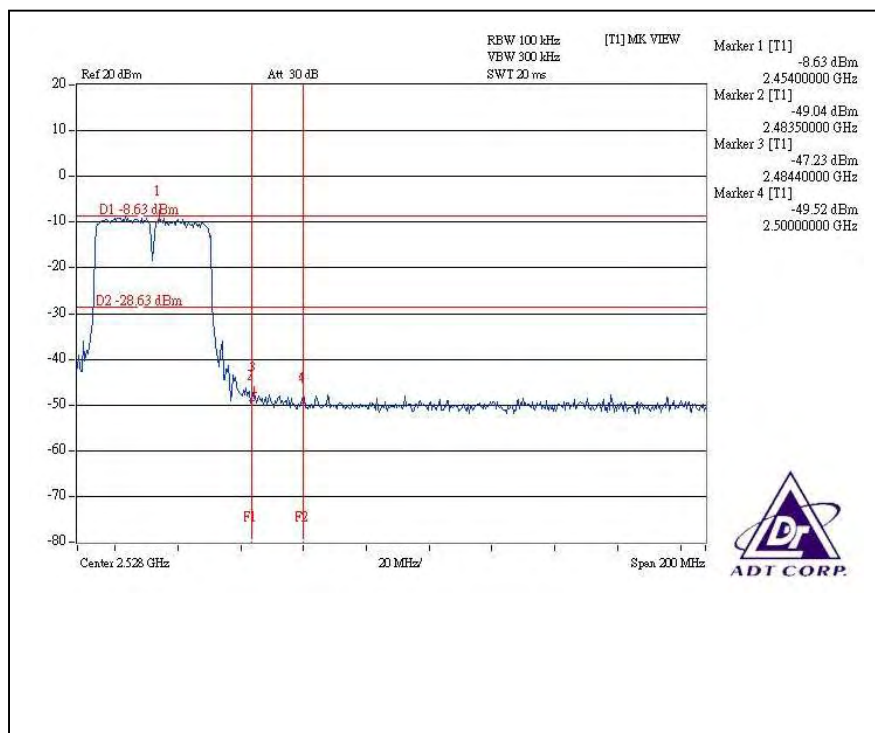
CH7



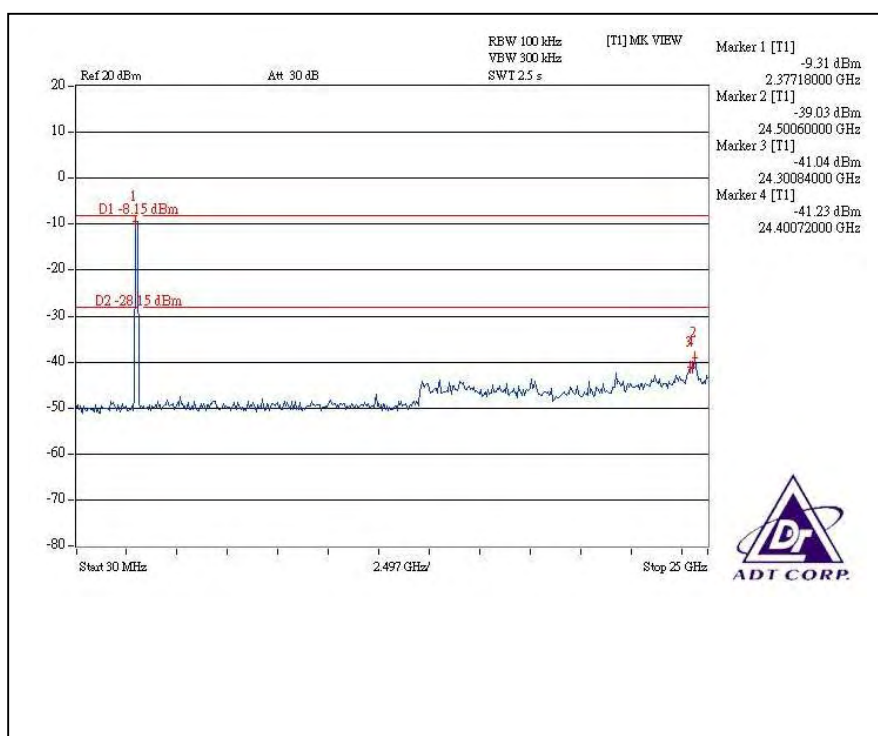
For Chain (2):CH1



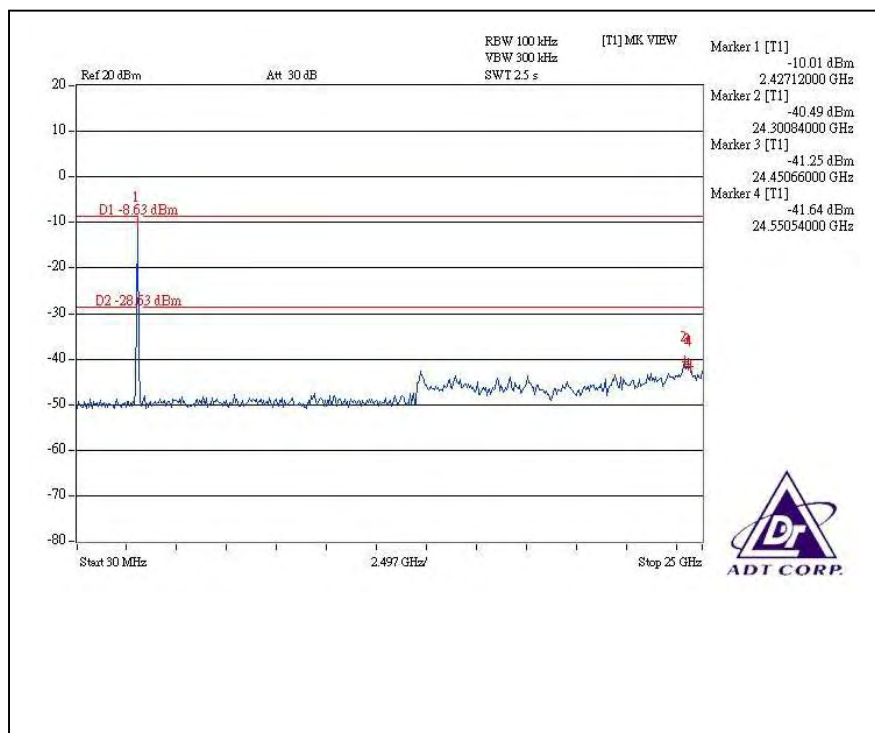
CH7



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

The antenna used in this product is as below.

Model No.	Antenna Type	Antenna Connector	Antenna Gain(dBi)	Note
C037-510734-A	Dipole	SMA Plug Reverse	2.0	Omni-directional



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, A2LA
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.

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.