



FCC TEST REPORT

REPORT NO.: RF960620L06

MODEL NO.: WRT-390U

RECEIVED: Jun. 20, 2007

TESTED: Jul. 11 ~ Jul. 16, 2007

ISSUED: Jul. 18, 2007

APPLICANT: U-MEDIA Communications, Inc.

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ISSUED BY: Advance Data Technology Corporation

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1. CERTIFICATION

PRODUCT : 2.4GHz Wireless 802.11n(DRAFT) Giga Router
MODEL NO.: WRT-390U
BRAND: U-MEDIA
APPLICANT : U-MEDIA Communications, Inc.
TESTED: Jul. 11 ~ Jul. 16, 2007
TEST SAMPLE: ENGINEERING SAMPLE
STANDARDS : **FCC Part 15, Subpart C (Section 15.247)**
ANSI C63.4-2003

The above equipment (model: WRT-390U) 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 : Rennie Wang , **DATE:** Jul. 18, 2007
Rennie Wang / Senior Specialist

TECHNICAL ACCEPTANCE : Long Chen , **DATE:** Jul. 18, 2007
Responsible for RF Long Chen / Senior Engineer

APPROVED BY : Gary Chang , **DATE:** Jul. 18, 2007
Gary Chang / Assistant Manager

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 15, Subpart C			
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	REMARK
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -2.94dB at 1.875MHz.
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 -0.91dB at 624.85MHz.
15.247(e)	Power Spectral Density Limit: max. 8dBm	PASS	Meet the requirement of limit.
15.247(d)	Band Edge Measurement Limit: 20dB less than the peak value of fundamental frequency	PASS	Meet the requirement of limit.

2.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	9kHz ~ 30MHz	2.44dB
Radiated emissions	30MHz ~ 200MHz	2.93 dB
	200MHz ~1000MHz	2.95 dB
	1GHz ~ 18GHz	2.26 dB
	18GHz ~ 40GHz	1.94 dB

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

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	2.4GHz Wireless 802.11n(DRAFT) Giga Router
MODEL NO.	WRT-390U
FCC ID	SI5WRT390U
POWER SUPPLY	12Vdc from AC adapter
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b: 11.0/ 5.5/ 2.0/ 1.0Mbps 802.11g: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps Draft 802.11n (20MHz): 144.44/ 130.00/ 115.56/ 86.67/ 57.78/ 43.33/ 28.89/ 14.44/ 72.2/ 65.0/ 57.8/ 43.3/ 28.9/ 21.7/ 14.4/ 7.2Mbps Draft 802.11n (40MHz): 300.0/ 270.0/ 240.0/ 180.0/ 120.0/ 90.0/ 60.0/ 30.0/ 150.0/ 135.0/ 120.0/ 90.0/ 60.0/ 45.0/ 30.0/ 15.0Mbps
FREQUENCY RANGE	2412MHz ~ 2462MHz
NUMBER OF CHANNEL	11 for 802.11b, 802.11g, draft 802.11n (20MHz) 7 for draft 802.11n (40MHz)
MAXIMUM OUTPUT POWER	76.464mW
ANTENNA TYPE	Dipole antenna with 4dBi gain
DATA CABLE	NA
I/O PORTS	RJ45, USB
ACCESSORY DEVICES	Adapter

NOTE:

1. The EUT was powered by the following adapter:

BRAND	LEADER ELECTRONICS INC.
MODEL	MT12-4120100-A1
INPUT POWER	120Vac, 50-60Hz, 0.3A
OUTPUT POWER	12Vdc, 1A
POWER LINE	1.8m non-shielded cable without core

2. The EUT incorporates a MIMO function. Physically, the EUT provides three completed transmitters and three receivers.
3. The EUT is 3 * 3 spatial MIMO (3Tx & 3Rx) without beam forming function.
4. When the EUT operating in 802.11b is for single Tx.



5. When the EUT operating in 802.11g is for dual Tx.
6. When the EUT operating in draft 802.11n, the software operation, which is defined by manufacturer, only set 0 ~ 15 of "MCS" (MCS: Modulation and Coding Schemes) for triple Tx.
7. The EUT complies with draft 802.11n standards and backwards compatible with 802.11b, 802.11g products.
8. The EUT operates in the 2.4GHz frequency spectrum with throughput of up to 300Mbps.
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

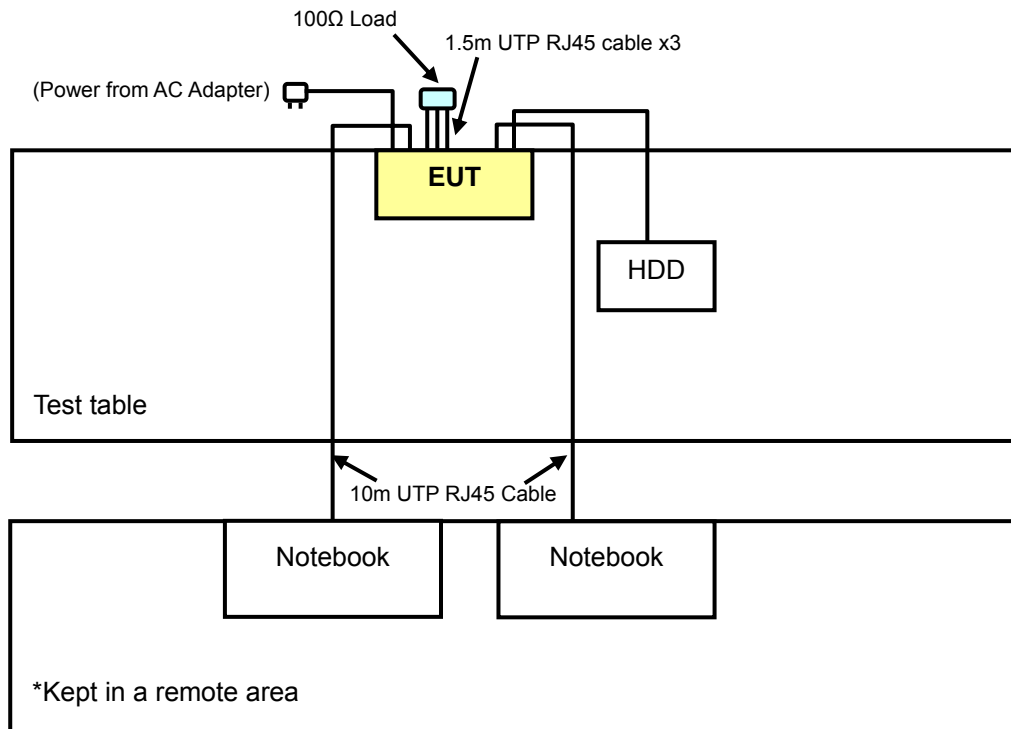
Eleven channels are provided for 802.11b, 802.11g, draft 802.11n (20MHz):

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 CONFIGURATION OF SYSTEM UNDER TEST



3.2.2 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

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)
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
Draft 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	7.2
Draft 802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	15.0

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, X, Y, Z axis 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)	AXIS
802.11g	1 to 11	1	OFDM	BPSK	6.0	Z
Draft 802.11n (20MHz)	1 to 11	1	OFDM	BPSK	7.2	Z
Draft 802.11n (40MHz)	1 to 7	1	OFDM	BPSK	15.0	Z

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, X, Y, Z axis 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)	AXIS
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0	Z
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	Z
Draft 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	7.2	Z
Draft 802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	15.0	Z

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)
802.11b	1 to 11	1, 11	DSSS	DBPSK	1.0
802.11g	1 to 11	1, 11	OFDM	BPSK	6.0
Draft 802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	7.2
Draft 802.11n (40MHz)	1 to 7	1, 7	OFDM	BPSK	15.0

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)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
Draft 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	7.2
Draft 802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	15.0



3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart C. (15.247)

ANSI C63.4-2003

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

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

3.4 DESCRIPTION OF SUPPORT UNITS

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

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP05L	16484462992	E2K24CLNS
2	NOTEBOOK COMPUTER	DELL	PP05L	12130898320	E2K24CLNS
3	FIREWIRE HARD DRIVE	Terasys	F12-UF	A0100222-4860017	FCC DoC Approved

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	10m UTP RJ45 Cable
2	10m UTP RJ45 Cable
3	1.2m USB cable

NOTE:

1. All power cords of the above support units are non-shielded (1.8m).
2. Item 1-2 acted as communication partners to transfer data.



4. TEST TYPES AND RESULTS

4.1 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 ROHDE & SCHWARZ	ESCS30	100288	Sep. 25, 2007
RF signal cable Woken	5D-FB	Cable-HYCO3-01	Jan. 06, 2008
LISN ROHDE & SCHWARZ	ESH2-Z5	100100	Jan. 08, 2008
LISN ROHDE & SCHWARZ	ESH3-Z5	100311	Jan. 16, 2008
Software ADT	ADT_Cond_V3	NA	NA

- NOTE:**
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in HwaYa Shielded Room 2.
 3. The VCCI Site Registration No. is C-2047.

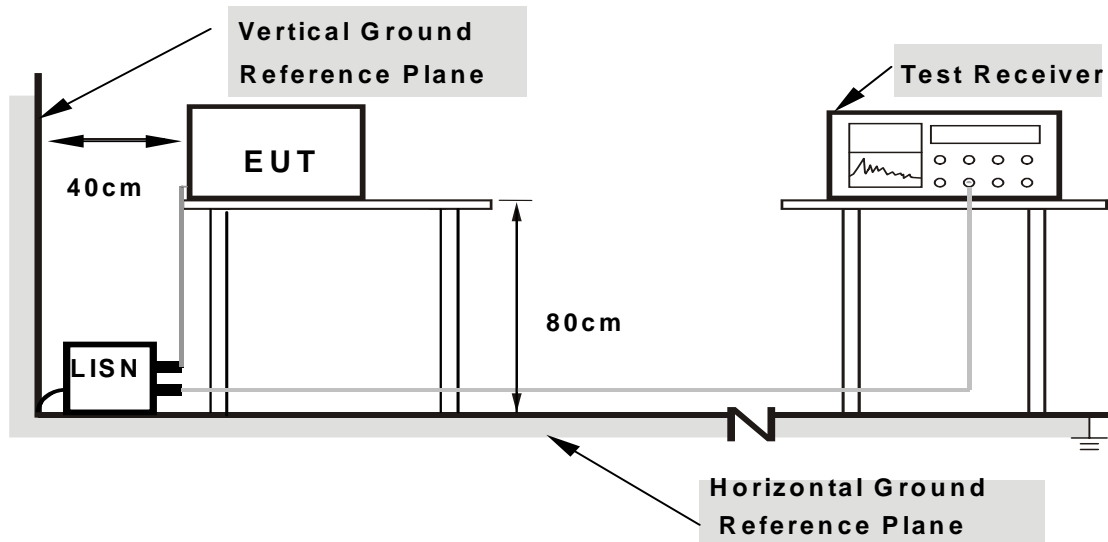
4.1.3 TEST PROCEDURES

- 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 attached file (Test Setup Photo).

4.1.6 EUT OPERATING CONDITIONS

- a. Placed the EUT on a testing table.
- b. Prepared notebook computers and placed them outside of testing area to act as communication partners for EUT via RJ45 cable.
- c. The notebook systems ran a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
- d. The necessary accessories enable the system in full functions.

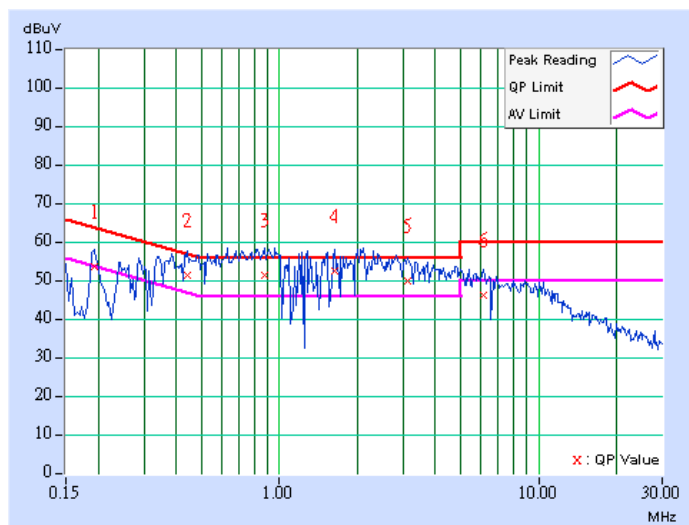
4.1.7 TEST RESULTS

CONDUCTED WORST-CASE DATA 802.11g OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	PHASE	Line 1
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6.0Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	20deg. C, 65% RH, 983hPa	TESTED BY	Match Tsui

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	0.193	0.10	53.36	-	53.46	-	63.91
2	0.439	0.10	51.14	37.59	51.24	37.69	57.08	47.08	-5.84	-9.39
3	0.873	0.11	51.15	32.46	51.26	32.57	56.00	46.00	-4.74	-13.43
4	1.629	0.18	52.27	32.83	52.45	33.01	56.00	46.00	-3.55	-12.99
5	3.141	0.25	49.57	31.06	49.82	31.31	56.00	46.00	-6.18	-14.69
6	6.148	0.30	46.04	-	46.34	-	60.00	50.00	-13.66	-

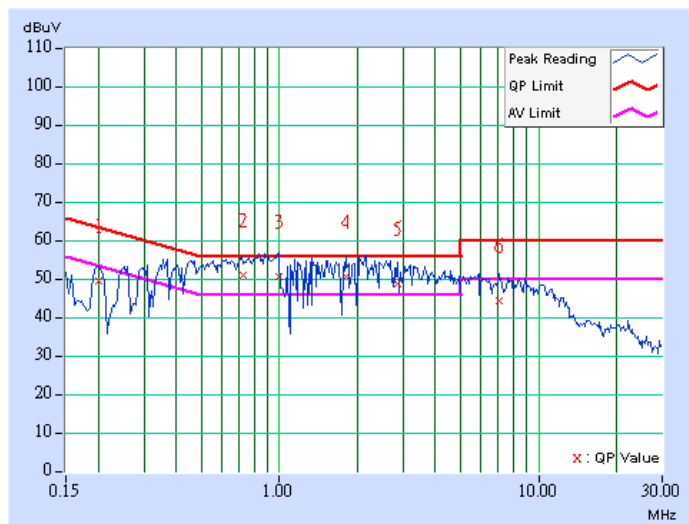
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = 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	Line 2
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6.0Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	20deg. C, 65% RH, 983hPa	TESTED BY	Match Tsui

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	0.201	0.10	49.32	-	49.42	-	63.58	53.58	-14.16	-
2	0.729	0.16	50.78	32.20	50.94	32.36	56.00	46.00	-5.06	-13.64
3	0.994	0.21	50.48	32.97	50.69	33.18	56.00	46.00	-5.31	-12.82
4	1.801	0.22	50.44	33.31	50.66	33.53	56.00	46.00	-5.34	-12.47
5	2.844	0.25	48.66	30.97	48.91	31.22	56.00	46.00	-7.09	-14.78
6	7.004	0.36	43.95	-	44.31	-	60.00	50.00	-15.69	-

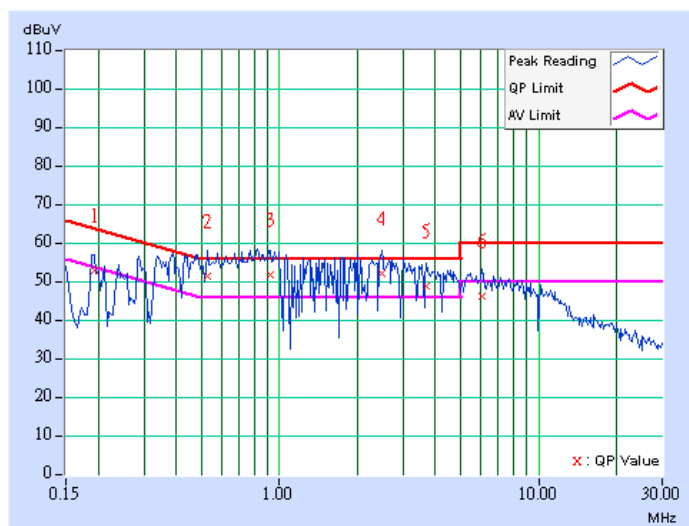
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	PHASE	Line 1
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6.0Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	20deg. C, 65% RH, 983hPa	TESTED BY	Match Tsui

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	0.193	0.10	52.78	-	52.88	-	63.91
2	0.529	0.10	51.34	35.52	51.44	35.62	56.00	46.00	-4.56	-10.38
3	0.920	0.11	51.40	33.02	51.51	33.13	56.00	46.00	-4.49	-12.87
4	2.473	0.23	51.82	33.93	52.05	34.16	56.00	46.00	-3.95	-11.84
5	3.707	0.27	48.75	30.52	49.02	30.79	56.00	46.00	-6.98	-15.21
6	6.070	0.30	45.84	-	46.14	-	60.00	50.00	-13.86	-

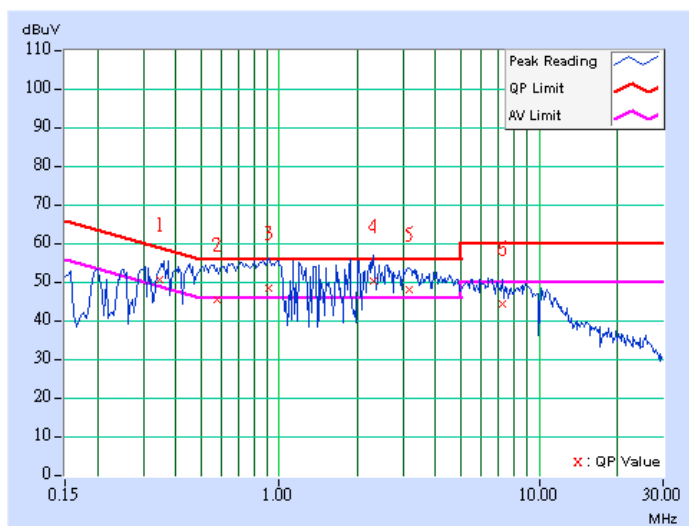
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	PHASE	Line 2
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6.0Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	20deg. C, 65% RH, 983hPa	TESTED BY	Match Tsui

No	Freq. [MHz]	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.346	0.10	50.25	33.10	50.35	33.20	59.07	49.07	-8.72	-15.87
2	0.573	0.13	45.08	-	45.21	-	56.00	46.00	-10.79	-
3	0.912	0.19	48.17	27.84	48.36	28.03	56.00	46.00	-7.64	-17.97
4	2.297	0.23	50.15	30.70	50.38	30.93	56.00	46.00	-5.62	-15.07
5	3.184	0.26	47.90	29.11	48.16	29.37	56.00	46.00	-7.84	-16.63
6	7.199	0.36	44.11	-	44.47	-	60.00	50.00	-15.53	-

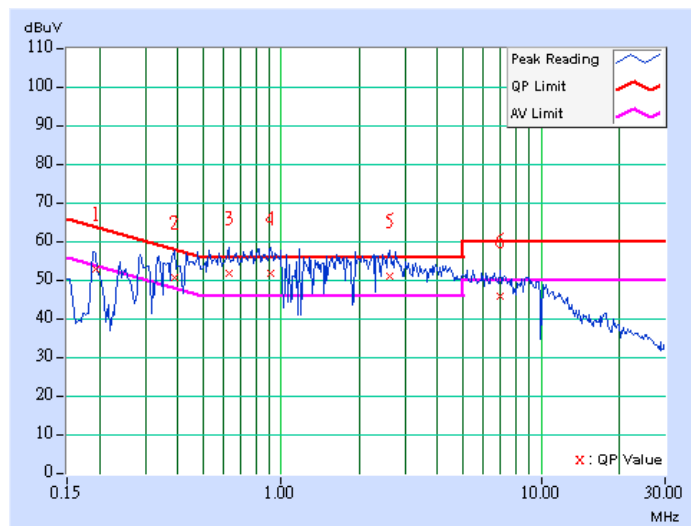
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = 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 11	PHASE	Line 1
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6.0Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	20deg. C, 65% RH, 983hPa	TESTED BY	Match Tsui

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	0.193	0.10	52.76	-	52.86	-	63.91
2	0.388	0.10	50.56	38.37	50.66	38.47	58.10	48.10	-7.44	-9.63
3	0.627	0.10	51.49	35.43	51.59	35.53	56.00	46.00	-4.41	-10.47
4	0.912	0.11	51.62	31.79	51.73	31.90	56.00	46.00	-4.27	-14.10
5	2.602	0.24	50.78	33.54	51.02	33.78	56.00	46.00	-4.98	-12.22
6	6.965	0.30	45.56	-	45.86	-	60.00	50.00	-14.14	-

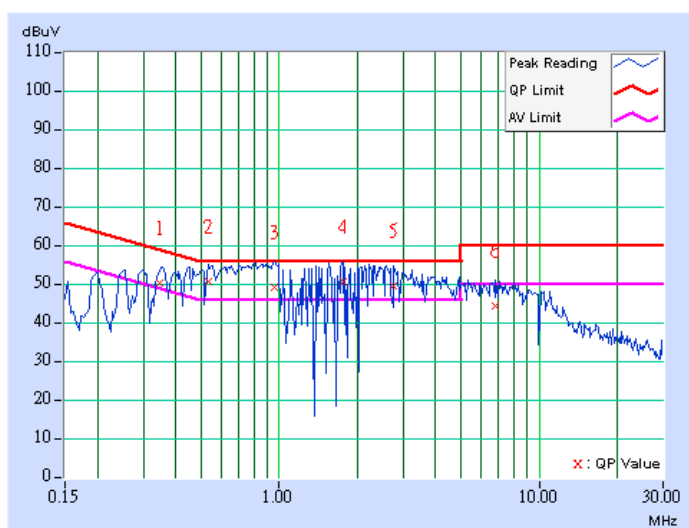
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = 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 11	PHASE	Line 2
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6.0Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	20deg. C, 65% RH, 983hPa	TESTED BY	Match Tsui

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	0.345	0.10	50.15	32.74	50.25	32.84	59.07
2	0.533	0.12	50.56	33.25	50.68	33.37	56.00	46.00	-5.32	-12.63
3	0.963	0.20	48.82	28.86	49.02	29.06	56.00	46.00	-6.98	-16.94
4	1.758	0.22	50.32	31.47	50.54	31.69	56.00	46.00	-5.46	-14.31
5	2.770	0.24	49.24	30.54	49.48	30.78	56.00	46.00	-6.52	-15.22
6	6.809	0.35	44.14	-	44.49	-	60.00	50.00	-15.51	-

- 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.

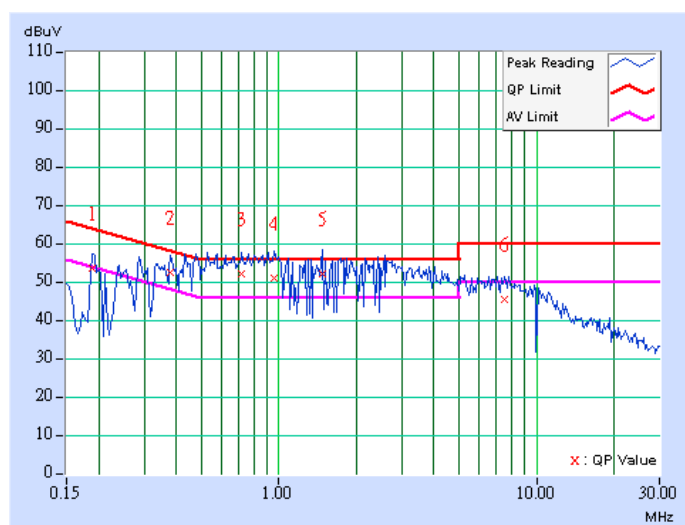


DRAFT 802.11n (20MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	PHASE	Line 1
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	7.2Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	20deg. C, 65% RH, 983hPa	TESTED BY	Match Tsui

No	Freq. [MHz]	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.189	0.10	53.26	-	53.36	-	64.08	54.08	-10.72	-
2	0.380	0.10	52.41	38.37	52.51	38.47	58.27	48.27	-5.76	-9.80
3	0.716	0.11	51.85	33.67	51.96	33.78	56.00	46.00	-4.04	-12.22
4	0.959	0.11	50.74	31.24	50.85	31.35	56.00	46.00	-5.15	-14.65
5	1.477	0.16	52.05	33.26	52.21	33.42	56.00	46.00	-3.79	-12.58
6	7.500	0.31	45.07	-	45.38	-	60.00	50.00	-14.62	-

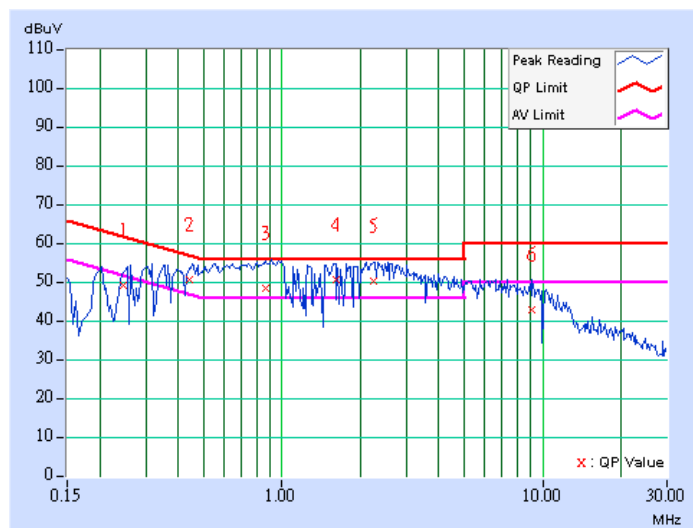
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = 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	Line 2
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	7.2Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	20deg. C, 65% RH, 983hPa	TESTED BY	Match Tsui

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	0.247	0.10	48.98	-	49.08	-	61.87
2	0.443	0.11	50.34	32.71	50.45	32.82	57.00	47.00	-6.55	-14.18
3	0.865	0.19	48.04	28.18	48.23	28.37	56.00	46.00	-7.77	-17.63
4	1.605	0.22	50.42	34.16	50.64	34.38	56.00	46.00	-5.36	-11.62
5	2.258	0.23	50.04	31.38	50.27	31.61	56.00	46.00	-5.73	-14.39
6	9.113	0.41	42.62	-	43.03	-	60.00	50.00	-16.97	-

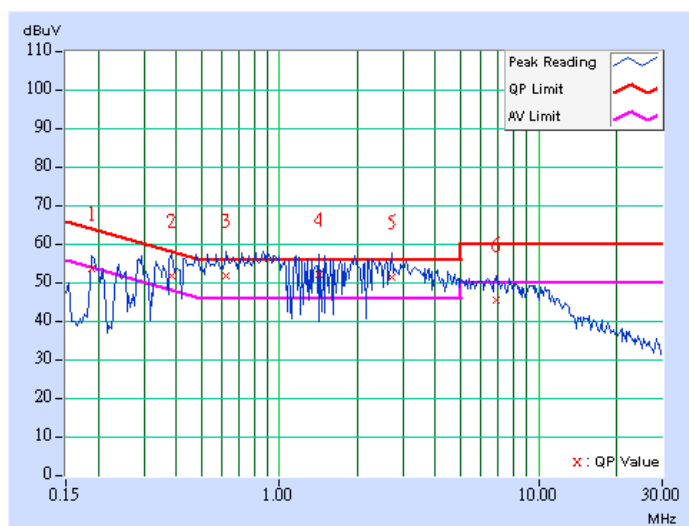
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	PHASE	Line 1
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	7.2Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	20deg. C, 65% RH, 983hPa	TESTED BY	Match Tsui

No	Freq. [MHz]	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.189	0.10	53.26	-	53.36	-	64.08	54.08	-10.72	-
2	0.384	0.10	51.48	38.48	51.58	38.58	58.18	48.18	-6.60	-9.60
3	0.623	0.10	51.61	34.26	51.71	34.36	56.00	46.00	-4.29	-11.64
4	1.430	0.16	51.97	33.73	52.13	33.89	56.00	46.00	-3.87	-12.11
5	2.707	0.24	51.11	33.17	51.35	33.41	56.00	46.00	-4.65	-12.59
6	6.863	0.30	45.30	-	45.60	-	60.00	50.00	-14.40	-

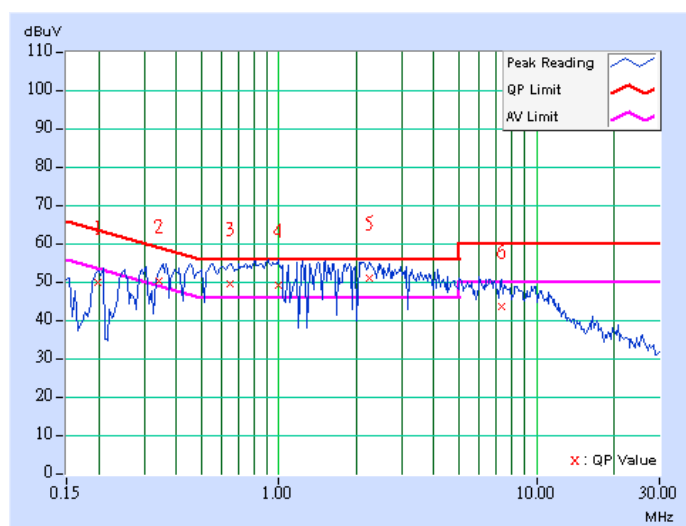
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	PHASE	Line 2
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	7.2Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	20deg. C, 65% RH, 983hPa	TESTED BY	Match Tsui

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	0.197	0.10	49.77	-	49.87	-	63.73
2	0.343	0.10	50.02	34.73	50.12	34.83	59.13	49.13	-9.01	-14.30
3	0.646	0.15	49.34	25.99	49.49	26.14	56.00	46.00	-6.51	-19.86
4	0.994	0.21	49.06	32.55	49.27	32.76	56.00	46.00	-6.73	-13.24
5	2.246	0.23	50.60	31.26	50.83	31.49	56.00	46.00	-5.17	-14.51
6	7.348	0.36	43.46	-	43.82	-	60.00	50.00	-16.18	-

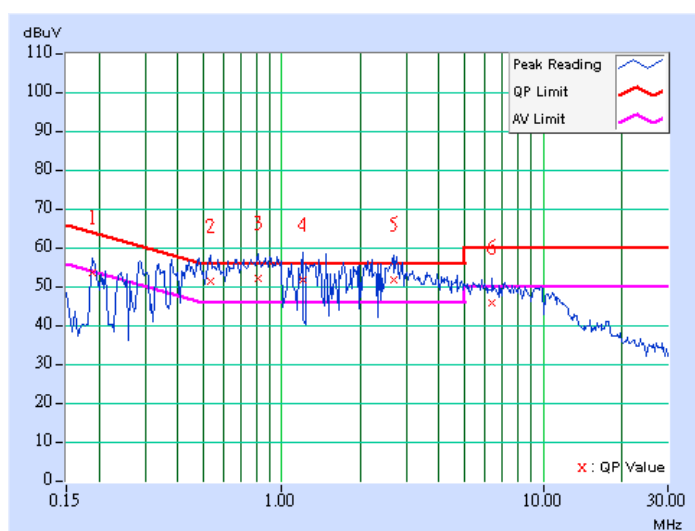
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = 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 11	PHASE	Line 1
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	7.2Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	20deg. C, 65% RH, 983hPa	TESTED BY	Match Tsui

No	Freq. [MHz]	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.189	0.10	53.40	-	53.50	-	64.08	54.08	-10.58	-
2	0.537	0.10	51.36	36.57	51.46	36.67	56.00	46.00	-4.54	-9.33
3	0.814	0.11	51.74	32.46	51.85	32.57	56.00	46.00	-4.15	-13.43
4	1.199	0.13	51.43	30.59	51.56	30.72	56.00	46.00	-4.44	-15.28
5	2.668	0.24	51.52	33.60	51.76	33.84	56.00	46.00	-4.24	-12.16
6	6.391	0.30	45.66	-	45.96	-	60.00	50.00	-14.04	-

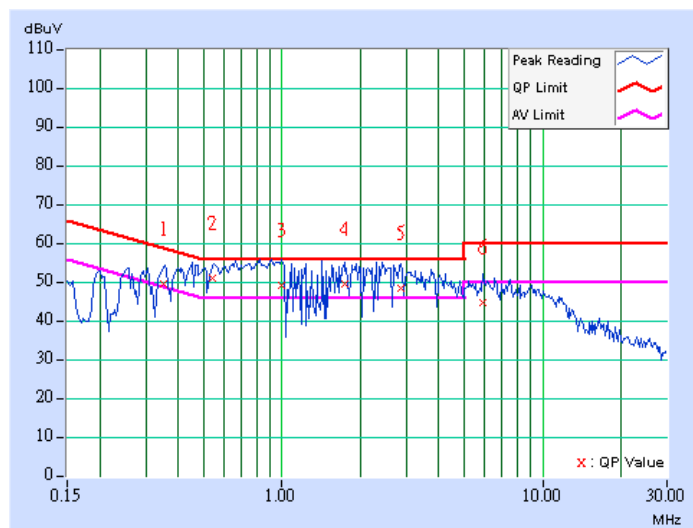
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = 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 11	PHASE	Line 2
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	7.2Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	20deg. C, 65% RH, 983hPa	TESTED BY	Match Tsui

No	Freq. [MHz]	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.349	0.10	49.48	28.20	49.58	28.30	58.98	48.98	-9.40	-20.68
2	0.541	0.13	50.60	32.54	50.73	32.67	56.00	46.00	-5.27	-13.33
3	0.994	0.21	48.76	32.29	48.97	32.50	56.00	46.00	-7.03	-13.50
4	1.738	0.22	49.43	30.84	49.65	31.06	56.00	46.00	-6.35	-14.94
5	2.844	0.25	48.31	30.55	48.56	30.80	56.00	46.00	-7.44	-15.20
6	5.895	0.33	44.37	-	44.70	-	60.00	50.00	-15.30	-

- 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.

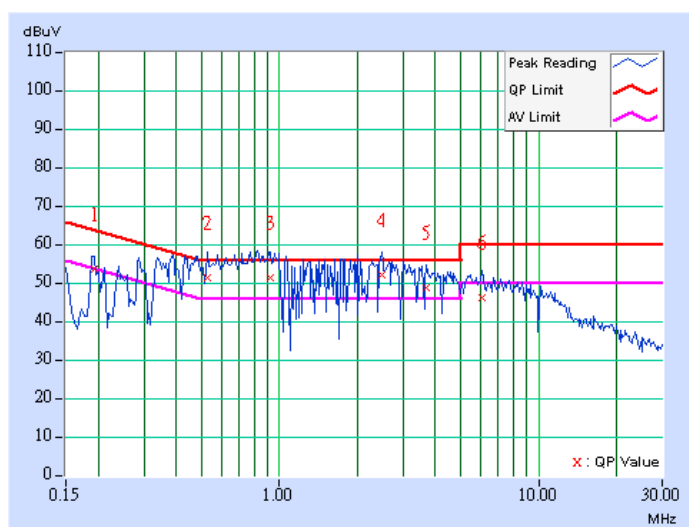


DRAFT 802.11n (40MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	PHASE	Line 1
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	15.0Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	20deg. C, 65% RH, 983hPa	TESTED BY	Match Tsui

No	Freq. [MHz]	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.193	0.10	53.25	-	53.35	-	63.90	53.90	-10.55	-
2	0.530	0.10	51.34	35.69	51.44	35.79	56.00	46.00	-4.56	-10.21
3	0.920	0.11	51.09	33.52	51.20	33.63	56.00	46.00	-4.80	-12.37
4	2.473	0.23	51.82	34.06	52.05	34.29	56.00	46.00	-3.95	-11.71
5	3.708	0.27	48.53	30.85	48.80	31.12	56.00	46.00	-7.20	-14.88
6	6.071	0.30	45.84	-	46.14	-	60.00	50.00	-13.86	-

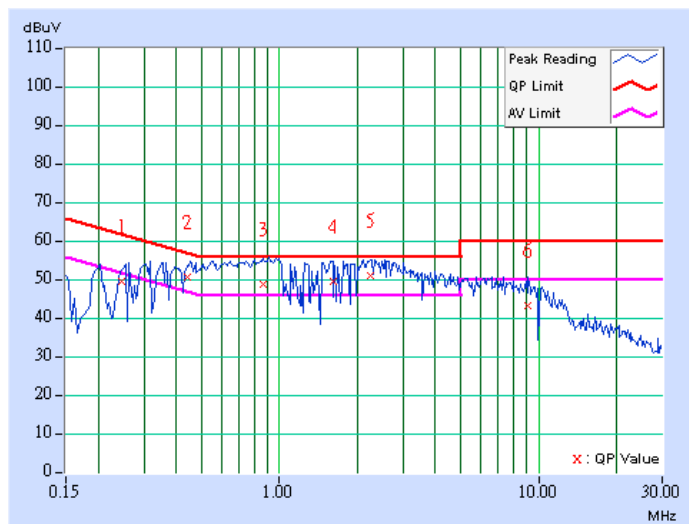
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	PHASE	Line 2
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	15.0Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	20deg. C, 65% RH, 983hPa	TESTED BY	Match Tsui

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	0.247	0.10	49.35	-	49.45	-	61.85	51.85	-12.40	-
2	0.444	0.11	50.34	32.96	50.45	33.07	56.98	46.98	-6.53	-13.91
3	0.865	0.19	48.57	28.56	48.76	28.75	56.00	46.00	-7.24	-17.25
4	1.606	0.22	49.34	34.47	49.56	34.69	56.00	46.00	-6.44	-11.31
5	2.258	0.23	50.58	32.47	50.81	32.70	56.00	46.00	-5.19	-13.30
6	9.114	0.41	42.89	-	43.30	-	60.00	50.00	-16.70	-

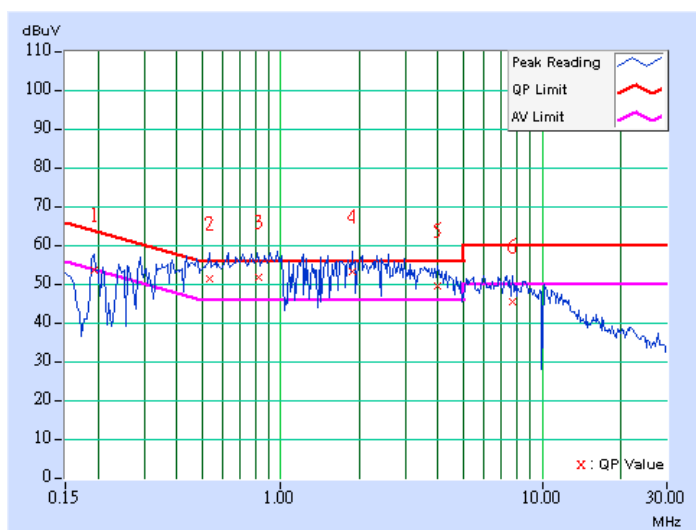
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = 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 4	PHASE	Line 1
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	15.0Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	20deg. C, 65% RH, 983hPa	TESTED BY	Match Tsui

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	0.193	0.10	53.52	-	53.62	-	63.90
2	0.533	0.10	51.28	35.07	51.38	35.17	56.00	46.00	-4.62	-10.83
3	0.818	0.11	51.47	32.91	51.58	33.02	56.00	46.00	-4.42	-12.98
4	1.875	0.21	52.85	33.28	53.06	33.49	56.00	46.00	-2.94	-12.51
5	3.961	0.28	49.31	30.70	49.59	30.98	56.00	46.00	-6.41	-15.02
6	7.727	0.31	45.17	-	45.48	-	60.00	50.00	-14.52	-

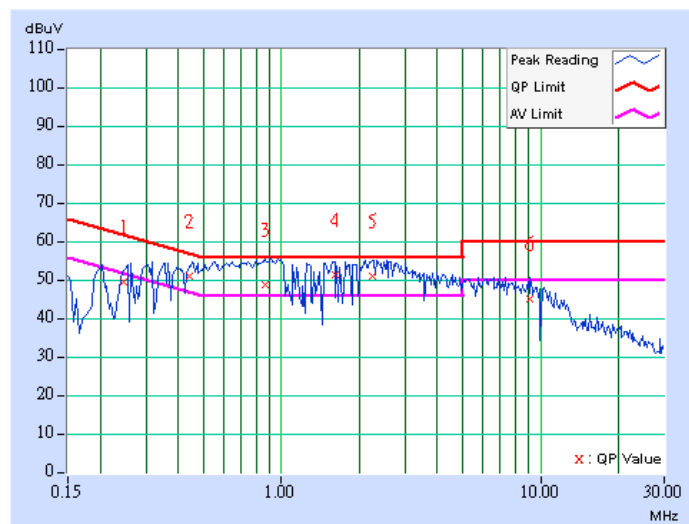
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = 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 4	PHASE	Line 2
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	15.0Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	20deg. C, 65% RH, 983hPa	TESTED BY	Match Tsui

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	0.247	0.10	49.34	-	49.44	-	61.85
2	0.444	0.11	50.58	32.96	50.69	33.07	56.99	46.99	-6.31	-13.93
3	0.865	0.19	48.57	28.53	48.76	28.72	56.00	46.00	-7.24	-17.28
4	1.606	0.22	51.14	34.52	51.36	34.74	56.00	46.00	-4.64	-11.26
5	2.257	0.23	50.52	31.96	50.75	32.19	56.00	46.00	-5.25	-13.81
6	9.113	0.41	44.62	-	45.03	-	60.00	50.00	-14.97	-

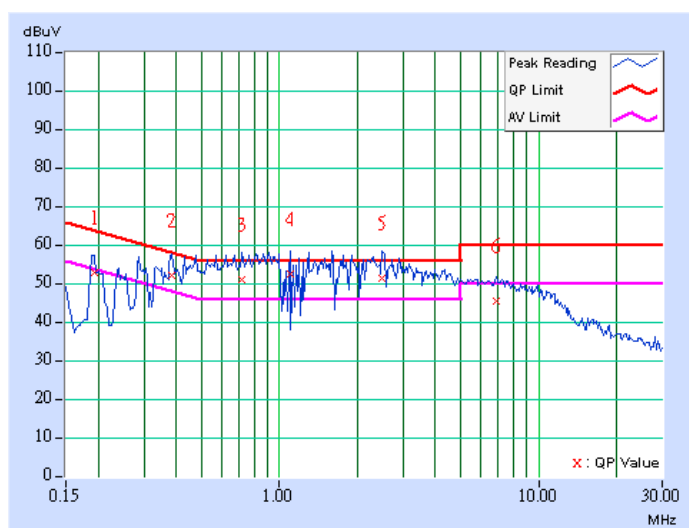
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = 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 7	PHASE	Line 1
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	15.0Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	20deg. C, 65% RH, 983hPa	TESTED BY	Match Tsui

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	0.193	0.10	52.52	-	52.62	-	63.91
2	0.384	0.10	51.77	38.59	51.87	38.69	58.18	48.18	-6.31	-9.49
3	0.720	0.11	50.80	33.43	50.91	33.54	56.00	46.00	-5.09	-12.46
4	1.098	0.12	52.19	32.60	52.31	32.72	56.00	46.00	-3.69	-13.28
5	2.492	0.23	51.28	32.20	51.51	32.43	56.00	46.00	-4.49	-13.57
6	6.895	0.30	45.26	-	45.56	-	60.00	50.00	-14.44	-

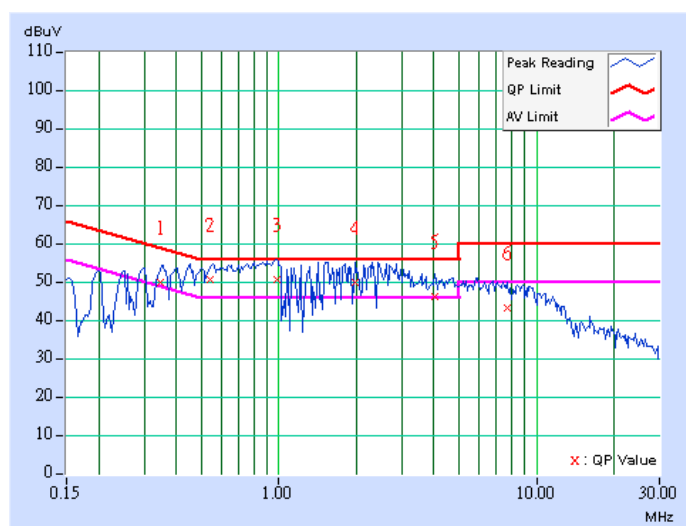
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 7	PHASE	Line 2
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	15.0Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	20deg. C, 65% RH, 983hPa	TESTED BY	Match Tsui

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	0.345	0.10	49.68	32.95	49.78	33.05	59.07
2	0.541	0.13	50.40	32.27	50.53	32.40	56.00	46.00	-5.47	-13.60
3	0.982	0.21	50.24	29.87	50.45	30.08	56.00	46.00	-5.55	-15.92
4	1.969	0.22	49.57	29.38	49.79	29.60	56.00	46.00	-6.21	-16.40
5	4.047	0.28	45.74	28.02	46.02	28.30	56.00	46.00	-9.98	-17.70
6	7.664	0.37	42.94	-	43.31	-	60.00	50.00	-16.69	-

- 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
Test Receiver ROHDE & SCHWARZ	ESCI	100424	Aug. 04, 2007
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Aug. 07, 2007
BILOG Antenna SCHWARZBECK	VULB9168	9168-153	Jan. 04, 2008
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-563	Jul. 26, 2007
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170242	Jan. 16, 2008
Preamplifier Agilent	8449B	3008A01911	Sep. 13, 2007
Preamplifier Agilent	8447D	2944A10638	Dec. 20, 2007
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	218188/218189	Nov. 14, 2007
RF signal cable Worken	8D-FB	Cable-HYCH9-01	Aug. 16, 2007
Software	ADT_Radiated_V7.6	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA
Turn Table EMCO	2087-2.03	NA	NA
Antenna Tower & Turn Table Controller EMCO	2090	NA	NA

- NOTE:**
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in HwaYa Chamber 9.
 3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
 4. The IC Site Registration No. is IC3789B-9.

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.

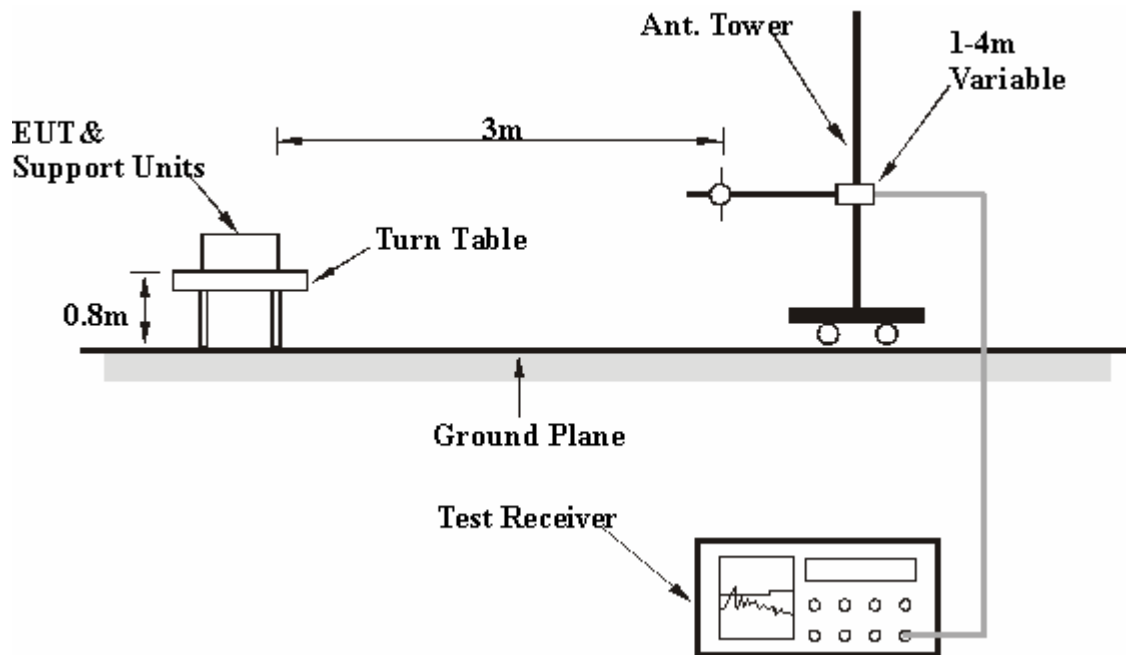
NOTE:

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

4.2.4 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 4.1.6

4.2.7 TEST RESULTS

BELOW 1GHz WORST-CASE DATA 802.11g OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	Below 1000MHz
MODULATION TYPE	BPSK for 802.11g	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TRANSFER RATE	6.0Mbps	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 70% RH, 985hPa	TESTED BY	Lori Chiu

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	125.17	36.67 QP	43.50	-6.83	1.50 H	169	24.91	11.76
2	249.60	43.00 QP	46.00	-3.00	1.50 H	187	30.46	12.54
3	319.60	37.10 QP	46.00	-8.90	1.00 H	10	23.27	13.83
4	374.04	43.22 QP	46.00	-2.78	1.00 H	148	28.11	15.11
5	500.42	43.37 QP	46.00	-2.63	1.50 H	223	24.61	18.76
6	624.85	44.51 QP	46.00	-1.49	1.50 H	52	23.19	21.32
7	751.23	43.49 QP	46.00	-2.51	2.00 H	319	20.27	23.22
8	875.11	44.80 QP	46.00	-1.20	1.00 H	230	19.72	25.08

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	43.51	31.93 QP	40.00	-8.07	1.00 V	274	19.60	12.32
2	125.17	39.48 QP	43.50	-4.02	1.00 V	151	27.72	11.76
3	374.04	41.74 QP	46.00	-4.26	1.50 V	118	26.63	15.11
4	500.42	41.93 QP	46.00	-4.07	1.00 V	157	23.16	18.76
5	624.85	39.60 QP	46.00	-6.40	1.00 V	109	18.28	21.32
6	751.23	44.07 QP	46.00	-1.93	1.50 V	148	20.85	23.22
7	799.84	38.80 QP	46.00	-7.20	1.50 V	97	14.44	24.36
8	875.67	44.87 QP	46.00	-1.13	1.00 V	199	19.78	25.09

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

DRAFT 802.11n (20MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	Below 1000MHz
MODULATION TYPE	BPSK for 802.11g	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TRANSFER RATE	7.2Mbps	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 70% RH, 985hPa	TESTED BY	Lori Chiu

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	125.17	35.85 QP	43.50	-7.65	1.50 H	175	24.09	11.76
2	249.60	42.55 QP	46.00	-3.45	1.00 H	187	30.02	12.54
3	374.04	44.02 QP	46.00	-1.98	1.00 H	142	28.91	15.11
4	500.42	41.54 QP	46.00	-4.46	1.50 H	235	22.78	18.76
5	624.85	45.09 QP	46.00	-0.91	1.50 H	70	23.77	21.32
6	751.23	43.51 QP	46.00	-2.49	1.00 H	73	20.29	23.22
7	875.67	44.88 QP	46.00	-1.12	1.00 H	196	19.79	25.09

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	47.40	33.30 QP	40.00	-6.70	1.00 V	10	20.31	12.99
2	125.17	40.74 QP	43.50	-2.76	1.00 V	151	28.98	11.76
3	374.04	41.79 QP	46.00	-4.21	1.00 V	274	26.67	15.11
4	500.42	40.99 QP	46.00	-5.01	1.00 V	202	22.22	18.76
5	624.85	39.69 QP	46.00	-6.31	1.50 V	202	18.37	21.32
6	751.23	42.73 QP	46.00	-3.27	1.50 V	322	19.50	23.22
7	799.84	38.74 QP	46.00	-7.26	1.50 V	106	14.38	24.36
8	875.67	44.76 QP	46.00	-1.24	1.00 V	214	19.67	25.09

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

DRAFT 802.11n (40MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	Below 1000MHz
MODULATION TYPE	BPSK for 802.11g	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TRANSFER RATE	15.0Mbps	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 70% RH, 985hPa	TESTED BY	Lori Chiu

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	125.17	36.71 QP	43.50	-6.79	2.00 H	133	24.95	11.76
2	249.60	42.64 QP	46.00	-3.36	1.00 H	196	30.10	12.54
3	374.04	43.92 QP	46.00	-2.08	1.00 H	166	28.81	15.11
4	500.42	41.23 QP	46.00	-4.77	2.00 H	244	22.47	18.76
5	624.85	44.71 QP	46.00	-1.29	1.50 H	67	23.39	21.32
6	751.23	43.43 QP	46.00	-2.57	2.00 H	319	20.21	23.22
7	875.67	44.89 QP	46.00	-1.11	1.50 H	151	19.80	25.09

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	125.17	41.09 QP	43.50	-2.41	1.00 V	133	29.33	11.76
2	249.60	38.03 QP	46.00	-7.97	1.00 V	163	25.49	12.54
3	374.04	41.84 QP	46.00	-4.16	1.50 V	118	26.73	15.11
4	500.42	41.72 QP	46.00	-4.28	1.50 V	325	22.96	18.76
5	624.85	39.80 QP	46.00	-6.20	1.50 V	199	18.48	21.32
6	751.23	42.81 QP	46.00	-3.19	1.50 V	148	19.58	23.22
7	799.84	38.52 QP	46.00	-7.48	1.50 V	94	14.16	24.36
8	875.67	44.25 QP	46.00	-1.75	1.00 V	184	19.17	25.09

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

802.11b DSSS MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	DBPSK	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TRANSFER RATE	1.0Mbps	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 70% RH, 985hPa	TESTED BY	Lori Chiu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2386.00	58.11 PK	74.00	-15.89	1.04 H	3	26.89	31.22
2	2386.00	45.82 AV	54.00	-8.18	1.04 H	3	14.60	31.22
3	*2412.00	95.50 PK			1.04 H	359	64.29	31.21
4	*2412.00	91.06 AV			1.04 H	359	59.85	31.21
5	4824.00	45.84 PK	74.00	-28.16	1.03 H	38	9.36	36.48
6	4824.00	33.39 AV	54.00	-20.61	1.03 H	38	-3.09	36.48

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2386.00	62.59 PK	74.00	-11.41	1.07 V	21	31.37	31.22
2	2386.00	52.04 AV	54.00	-1.96	1.07 V	21	20.82	31.22
3	*2412.00	109.77 PK			1.07 V	33	78.56	31.21
4	*2412.00	105.30 AV			1.07 V	33	74.09	31.21
5	4824.00	47.25 PK	74.00	-26.75	1.09 V	342	10.77	36.48
6	4824.00	34.86 AV	54.00	-19.14	1.09 V	342	-1.62	36.48

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	DBPSK	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TRANSFER RATE	1.0Mbps	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 70% RH, 985hPa	TESTED BY	Lori Chiu

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	99.54 PK			1.17 H	82	68.32	31.22
2	*2437.00	94.71 AV			1.17 H	82	63.49	31.22
3	4874.00	47.89 PK	74.00	-26.11	1.20 H	358	11.31	36.58
4	4874.00	40.50 AV	54.00	-13.50	1.20 H	358	3.92	36.58

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	113.08 PK			1.06 V	27	81.86	31.22
2	*2437.00	108.37 AV			1.06 V	27	77.15	31.22
3	4874.00	49.42 PK	74.00	-24.58	1.21 V	11	12.84	36.58
4	4874.00	43.20 AV	54.00	-10.80	1.21 V	11	6.62	36.58

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	DBPSK	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TRANSFER RATE	1.0Mbps	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 70% RH, 985hPa	TESTED BY	Lori Chiu

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	95.88 PK			1.03 H	317	64.65	31.23
2	*2462.00	91.53 AV			1.03 H	317	60.30	31.23
3	2487.00	56.42 PK	74.00	-17.58	1.03 H	317	25.18	31.24
4	2487.00	45.78 AV	54.00	-8.22	1.03 H	317	14.54	31.24
5	4924.00	46.12 PK	74.00	-27.88	1.06 H	35	9.44	36.68
6	4924.00	37.56 AV	54.00	-16.44	1.06 H	35	0.88	36.68

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	109.96 PK			1.06 V	37	78.73	31.23
2	*2462.00	105.37 AV			1.06 V	37	74.14	31.23
3	2487.00	61.57 PK	74.00	-12.43	1.03 V	37	30.33	31.24
4	2487.00	52.07 AV	54.00	-1.93	1.03 V	37	20.83	31.24
5	4924.00	47.10 PK	74.00	-26.90	1.08 V	138	10.42	36.68
6	4924.00	38.17 AV	54.00	-15.83	1.08 V	138	1.49	36.68

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

802.11g OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TRANSFER RATE	6.0Mbps	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 70% RH, 985hPa	TESTED BY	Lori Chiu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	57.85 PK	74.00	-16.15	1.04 H	199	26.63	31.22
2	2390.00	45.52 AV	54.00	-8.48	1.04 H	199	14.30	31.22
3	*2412.00	100.73 PK			1.04 H	201	69.52	31.21
4	*2412.00	90.11 AV			1.04 H	201	58.90	31.21
5	4824.00	46.62 PK	74.00	-27.38	1.11 H	35	10.14	36.48
6	4824.00	33.55 AV	54.00	-20.45	1.11 H	35	-2.93	36.48

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	67.13 PK	74.00	-6.87	1.07 V	24	35.91	31.22
2	2390.00	51.82 AV	54.00	-2.18	1.07 V	24	20.60	31.22
3	*2412.00	113.82 PK			1.04 V	27	82.61	31.21
4	*2412.00	104.21 AV			1.04 V	27	73.00	31.21
5	4824.00	47.80 PK	74.00	-26.20	1.04 V	225	11.32	36.48
6	4824.00	34.15 AV	54.00	-19.85	1.04 V	225	-2.33	36.48

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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TRANSFER RATE	6.0Mbps	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 70% RH, 985hPa	TESTED BY	Lori Chiu

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	101.24 PK			1.02 H	211	70.02	31.22
2	*2437.00	91.08 AV			1.02 H	211	59.86	31.22
3	4874.00	47.35 PK	74.00	-26.65	1.10 H	308	10.77	36.58
4	4874.00	34.67 AV	54.00	-19.33	1.10 H	308	-1.91	36.58

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	114.81 PK			1.06 V	29	83.59	31.22
2	*2437.00	104.65 AV			1.06 V	29	73.43	31.22
3	4874.00	48.52 PK	74.00	-25.48	1.01 V	157	11.94	36.58
4	4874.00	35.87 AV	54.00	-18.13	1.01 V	157	-0.71	36.58

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TRANSFER RATE	6.0Mbps	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 70% RH, 985hPa	TESTED BY	Lori Chiu

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	100.86 PK			1.03 H	234	69.63	31.23
2	*2462.00	90.79 AV			1.03 H	234	59.56	31.23
3	2483.50	57.53 PK	74.00	-16.47	1.00 H	236	26.29	31.24
4	2483.50	46.05 AV	54.00	-7.95	1.00 H	236	14.81	31.24
5	4924.00	46.59 PK	74.00	-27.41	1.00 H	166	9.91	36.68
6	4924.00	33.21 AV	54.00	-20.79	1.00 H	166	-3.47	36.68

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	114.13 PK			1.03 V	1	82.90	31.23
2	*2462.00	104.34 AV			1.03 V	1	73.11	31.23
3	2483.50	66.79 PK	74.00	-7.21	1.07 V	359	35.55	31.24
4	2483.50	52.73 AV	54.00	-1.27	1.07 V	359	21.49	31.24
5	4924.00	47.88 PK	74.00	-26.12	1.03 V	325	11.20	36.68
6	4924.00	34.12 AV	54.00	-19.88	1.03 V	325	-2.56	36.68

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



DRAFT 802.11n (20MHz) OFDM MODULATION

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	25deg. C, 70% RH, 985hPa	TESTED BY	Lori Chiu

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	54.99 PK	74.00	-19.01	1.07 H	217	23.77	31.22
2	2390.00	45.27 AV	54.00	-8.73	1.07 H	217	14.05	31.22
3	*2412.00	101.01 PK			1.07 H	217	69.80	31.21
4	*2412.00	90.42 AV			1.07 H	217	59.21	31.21
5	4824.00	45.67 PK	74.00	-28.33	1.02 H	10	9.19	36.48
6	4824.00	33.60 AV	54.00	-20.40	1.02 H	10	-2.88	36.48

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	68.58 PK	74.00	-5.42	1.08 V	21	37.36	31.22
2	2390.00	51.68 AV	54.00	-2.32	1.08 V	21	20.46	31.22
3	*2412.00	116.50 PK			1.08 V	27	85.29	31.21
4	*2412.00	106.14 AV			1.08 V	27	74.93	31.21
5	4824.00	46.92 PK	74.00	-27.08	1.06 V	224	10.44	36.48
6	4824.00	34.30 AV	54.00	-19.70	1.06 V	224	-2.18	36.48

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TRANSFER RATE	7.2Mbps	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 70% RH, 985hPa	TESTED BY	Lori Chiu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	102.12 PK			1.05 H	207	70.90	31.22
2	*2437.00	91.30 AV			1.05 H	207	60.08	31.22
3	4874.00	48.80 PK	74.00	-25.20	1.00 H	11	12.22	36.58
4	4874.00	35.65 AV	54.00	-18.35	1.00 H	11	-0.93	36.58

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	117.05 PK			1.04 V	7	85.83	31.22
2	*2437.00	106.66 AV			1.04 V	7	75.44	31.22
3	4874.00	49.05 PK	74.00	-24.95	1.10 V	215	12.47	36.58
4	4874.00	36.48 AV	54.00	-17.52	1.10 V	215	-0.10	36.58

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

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	25deg. C, 70% RH, 985hPa	TESTED BY	Lori Chiu

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	101.34 PK			1.06 H	223	70.11	31.23
2	*2462.00	90.88 AV			1.06 H	223	59.65	31.23
3	2483.50	55.33 PK	74.00	-18.67	1.06 H	223	24.09	31.24
4	2483.50	45.45 AV	54.00	-8.55	1.06 H	223	14.21	31.24
5	4924.00	46.82 PK	74.00	-27.18	1.08 H	251	10.14	36.68
6	4924.00	33.27 AV	54.00	-20.73	1.08 H	251	-3.41	36.68

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	116.81 PK			1.04 V	25	85.58	31.23
2	*2462.00	106.24 AV			1.04 V	25	75.01	31.23
3	2483.50	69.52 PK	74.00	-4.48	1.02 V	29	38.28	31.24
4	2483.50	52.19 AV	54.00	-1.81	1.02 V	29	20.95	31.24
5	4924.00	47.11 PK	74.00	-26.89	1.01 V	136	10.43	36.68
6	4924.00	34.58 AV	54.00	-19.42	1.01 V	136	-2.10	36.68

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

DRAFT 802.11n (40MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TRANSFER RATE	15.0Mbps	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 70% RH, 985hPa	TESTED BY	Lori Chiu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	57.93 PK	74.00	-16.07	1.02 H	239	26.71	31.22
2	2390.00	45.92 AV	54.00	-8.08	1.02 H	239	14.70	31.22
3	*2422.00	94.88 PK			1.04 H	240	63.66	31.22
4	*2422.00	85.23 AV			1.04 H	240	54.01	31.22
5	4844.00	45.72 PK	74.00	-28.28	1.02 H	199	9.20	36.52
6	4844.00	32.86 AV	54.00	-21.14	1.02 H	199	-3.66	36.52

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	69.13 PK	74.00	-4.87	1.09 V	40	37.91	31.22
2	2390.00	52.81 AV	54.00	-1.19	1.09 V	40	21.59	31.22
3	*2422.00	110.13 PK			1.06 V	29	78.91	31.22
4	*2422.00	99.68 AV			1.06 V	29	68.46	31.22
5	4844.00	46.64 PK	74.00	-27.36	1.18 V	297	10.12	36.52
6	4844.00	33.49 AV	54.00	-20.51	1.18 V	297	-3.03	36.52

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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 4	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TRANSFER RATE	15.0Mbps	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 70% RH, 985hPa	TESTED BY	Lori Chiu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	57.22 PK	74.00	-16.78	1.06 H	237	26.00	31.22
2	2390.00	46.88 AV	54.00	-7.12	1.06 H	237	15.66	31.22
3	*2437.00	95.49 PK			1.06 H	237	64.27	31.22
4	*2437.00	86.67 AV			1.06 H	237	55.45	31.22
5	2483.50	56.33 PK	74.00	-17.67	1.07 H	238	25.09	31.24
6	2483.50	45.78 AV	54.00	-8.22	1.07 H	238	14.54	31.24
7	4874.00	46.63 PK	74.00	-27.37	1.00 H	176	10.05	36.58
8	4874.00	33.58 AV	54.00	-20.42	1.00 H	176	-3.00	36.58

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	66.43 PK	74.00	-7.57	1.07 V	12	35.21	31.22
2	2390.00	52.04 AV	54.00	-1.96	1.07 V	12	20.82	31.22
3	*2437.00	111.49 PK			1.02 V	21	80.27	31.22
4	*2437.00	101.64 AV			1.02 V	21	70.42	31.22
5	2483.50	63.76 PK	74.00	-10.24	1.03 V	356	32.52	31.24
6	2483.50	51.85 AV	54.00	-2.15	1.03 V	356	20.61	31.24
7	4874.00	47.76 PK	74.00	-26.24	1.11 V	205	11.18	36.58
8	4874.00	34.84 AV	54.00	-19.16	1.11 V	205	-1.74	36.58

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 7	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TRANSFER RATE	15.0Mbps	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 70% RH, 985hPa	TESTED BY	Lori Chiu

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	94.37 PK			1.06 H	237	63.14	31.23
2	*2452.00	85.06 AV			1.06 H	237	53.83	31.23
3	2483.50	57.81 PK	74.00	-16.19	1.06 H	237	26.57	31.24
4	2483.50	45.60 AV	54.00	-8.40	1.06 H	237	14.36	31.24
5	4904.00	45.90 PK	74.00	-28.10	1.16 H	130	9.26	36.64
6	4904.00	32.77 AV	54.00	-21.23	1.16 H	130	-3.87	36.64

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2452.00	109.96 PK			1.03 V	15	78.73	31.23
2	*2452.00	99.61 AV			1.03 V	15	68.38	31.23
3	2483.50	70.72 PK	74.00	-3.28	1.02 V	29	39.48	31.24
4	2483.50	52.83 AV	54.00	-1.17	1.02 V	29	21.59	31.24
5	4904.00	46.52 PK	74.00	-27.48	1.00 V	52	9.88	36.64
6	4904.00	33.61 AV	54.00	-20.39	1.00 V	52	-3.03	36.64

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



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
SPECTRUM ANALYZER	FSP40	100040	Jun. 28, 2008

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

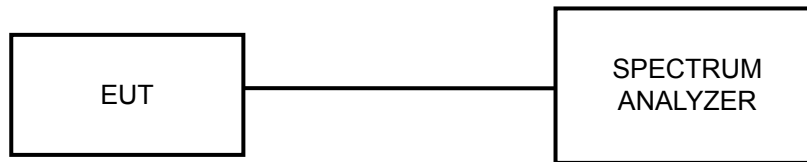
4.3.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100kHz RBW and 100kHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation

4.3.5 TEST SETUP



4.3.6 EUT OPERATING CONDITIONS

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

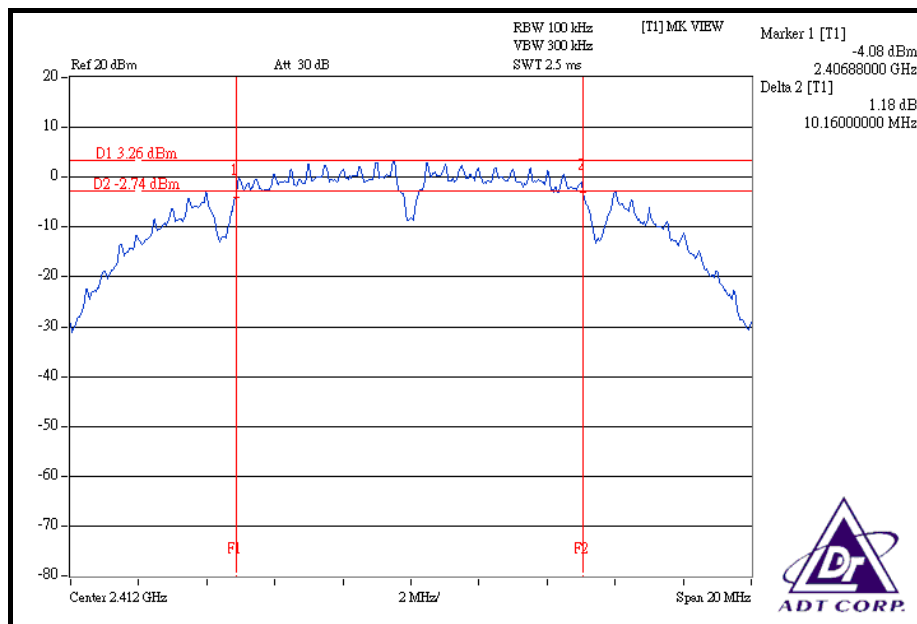
4.3.7 TEST RESULTS

802.11b DSSS MODULATION

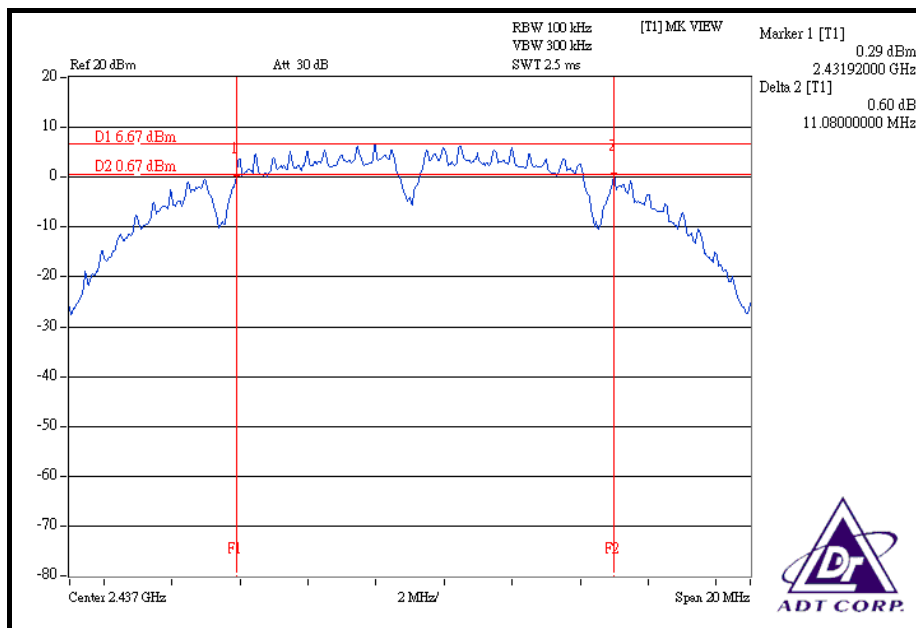
MODULATION TYPE	DBPSK	TRANSFER RATE	1.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 66% RH, 987hPa
TESTED BY	Morgan Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	10.16	0.5	PASS
6	2437	11.08	0.5	PASS
11	2462	10.12	0.5	PASS

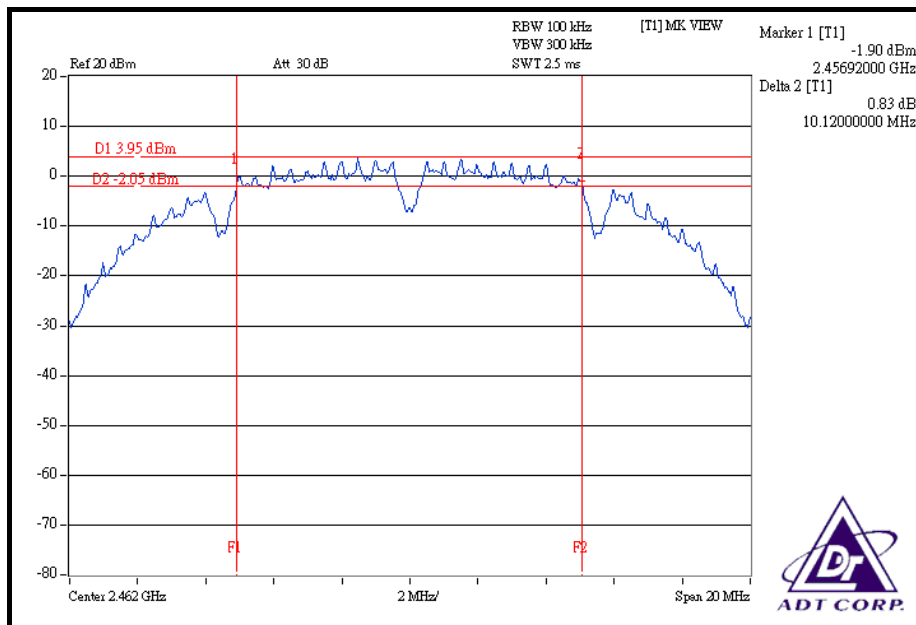
CH 1



CH 6



CH 11



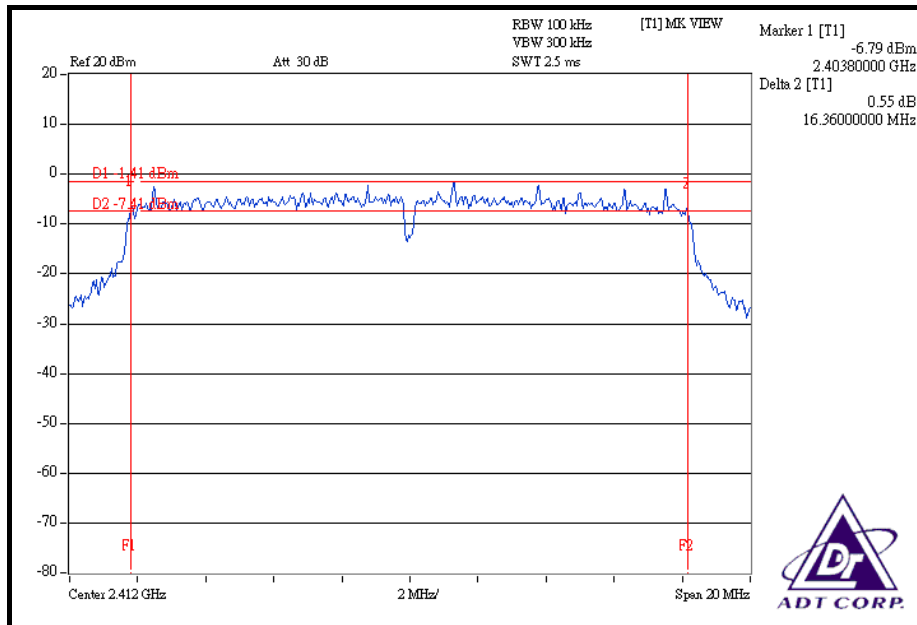


802.11g OFDM MODULATION

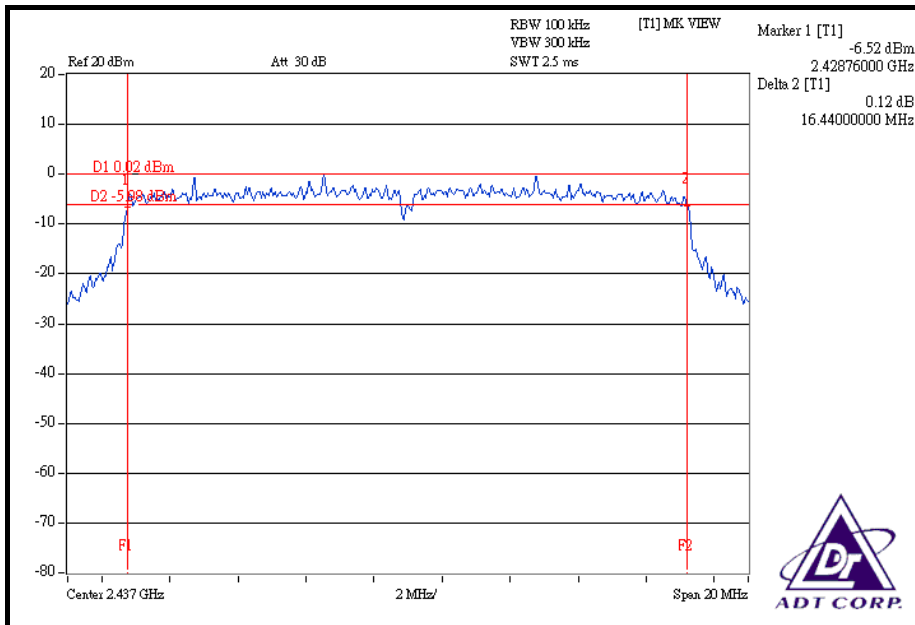
MODULATION TYPE	BPSK	TRANSFER RATE	6.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 66% RH, 987hPa
TESTED BY	Morgan Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	16.36	16.40	0.5	PASS
6	2437	16.44	16.44	0.5	PASS
11	2462	16.44	16.44	0.5	PASS

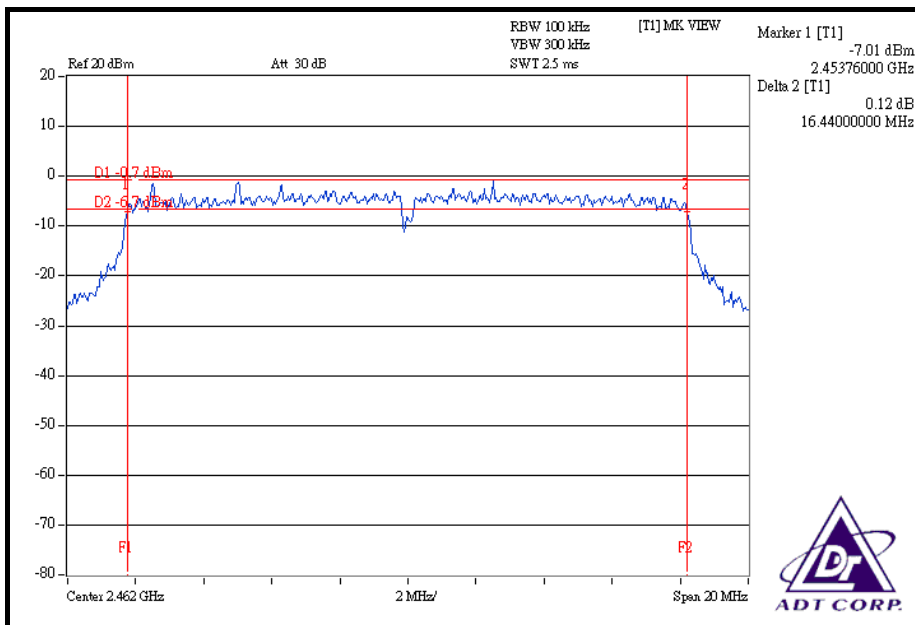
FOR CHAIN 0: CH 1



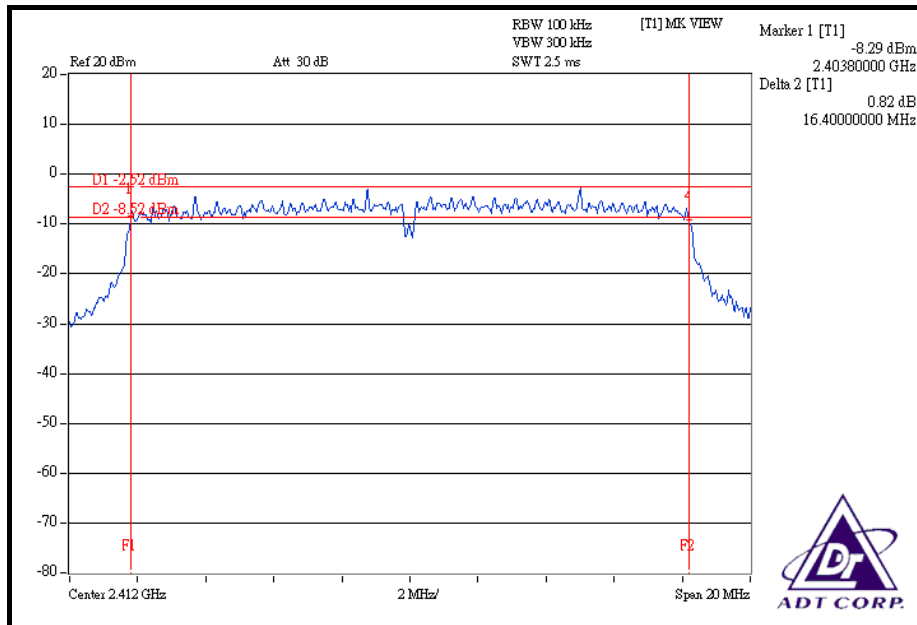
CH 6



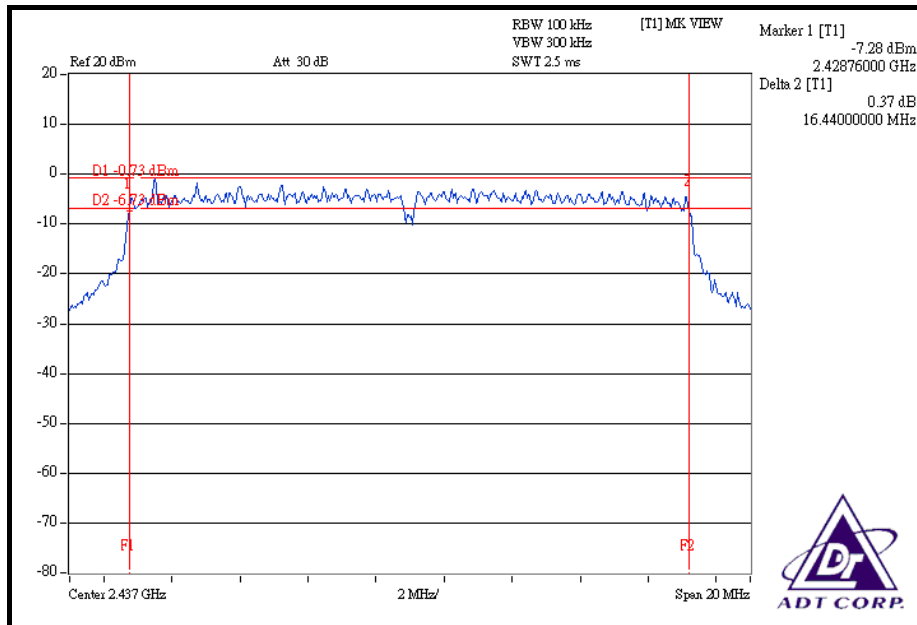
CH 11



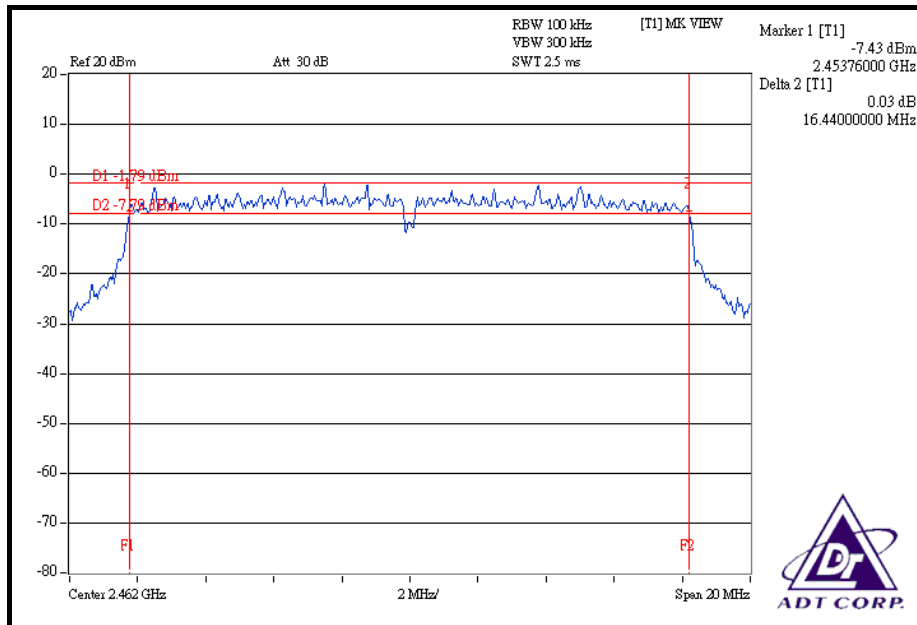
FOR CHAIN 1: CH 1



CH 6



CH 11



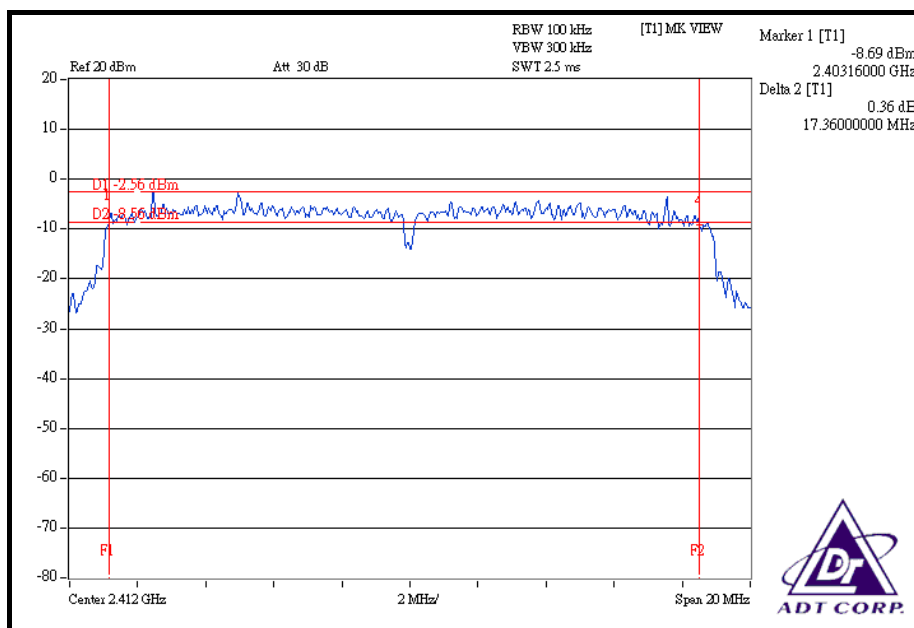


DRAFT 802.11n (20MHz) OFDM MODULATION

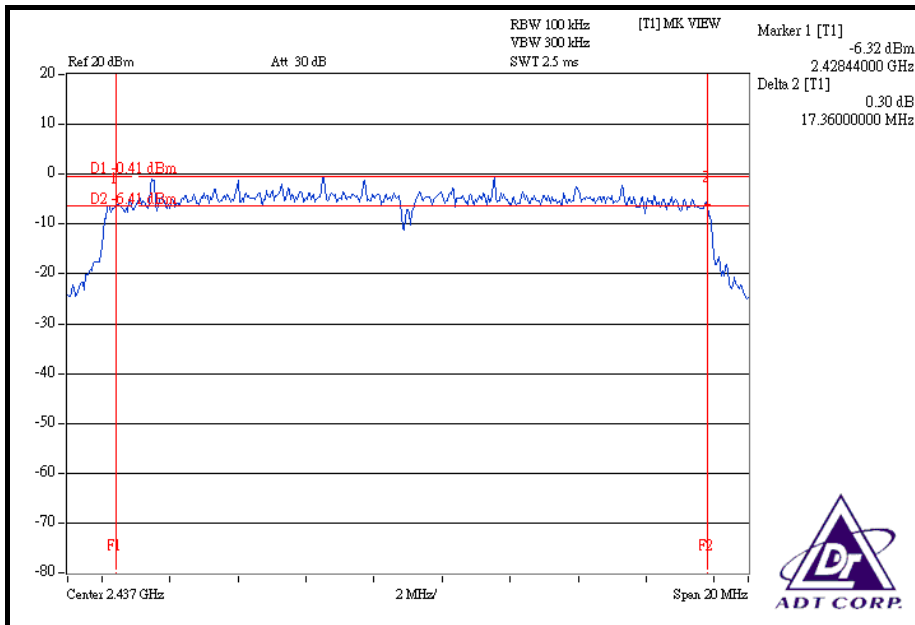
MODULATION TYPE	BPSK	TRANSFER RATE	7.2Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 66% RH, 987hPa
TESTED BY	Morgan Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)			MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2		
1	2412	17.36	16.32	17.36	0.5	PASS
6	2437	17.36	17.64	17.60	0.5	PASS
11	2462	17.60	17.60	17.56	0.5	PASS

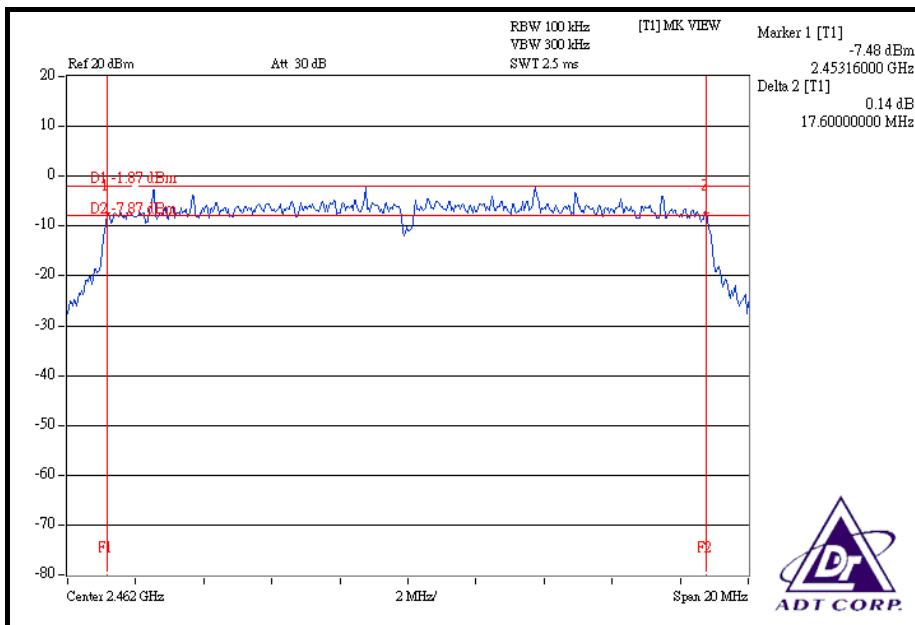
FOR CHAIN 0: CH 1



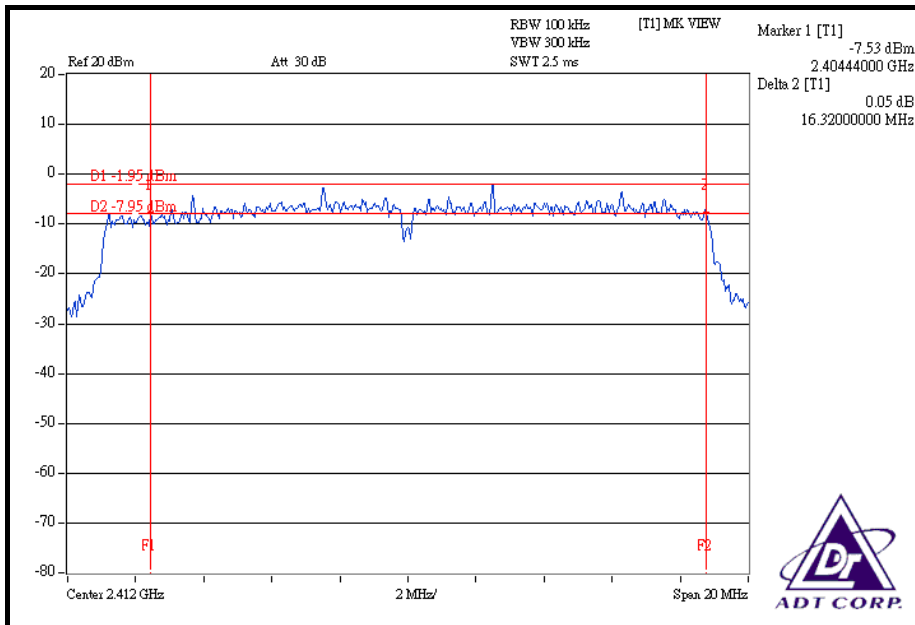
CH 6



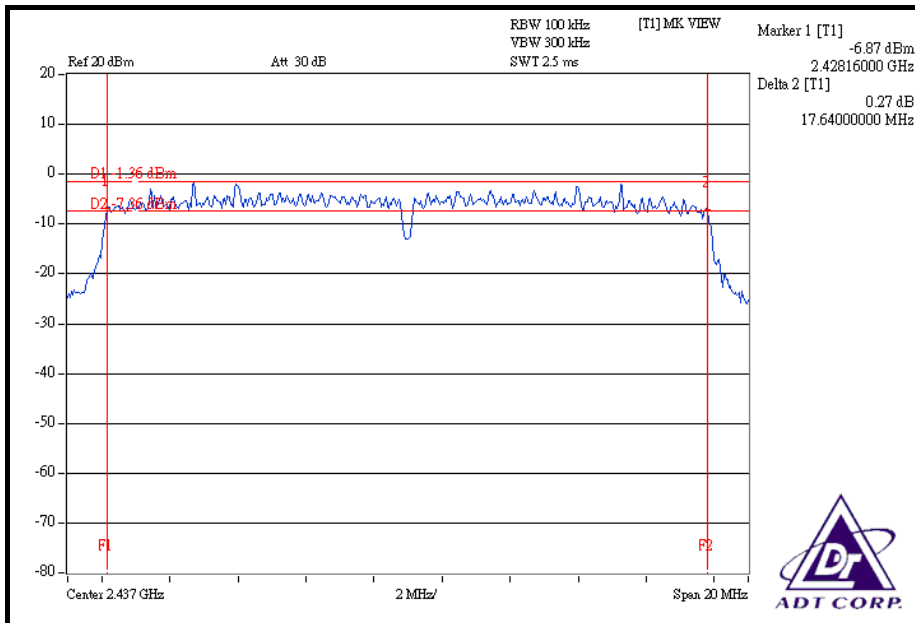
CH 11



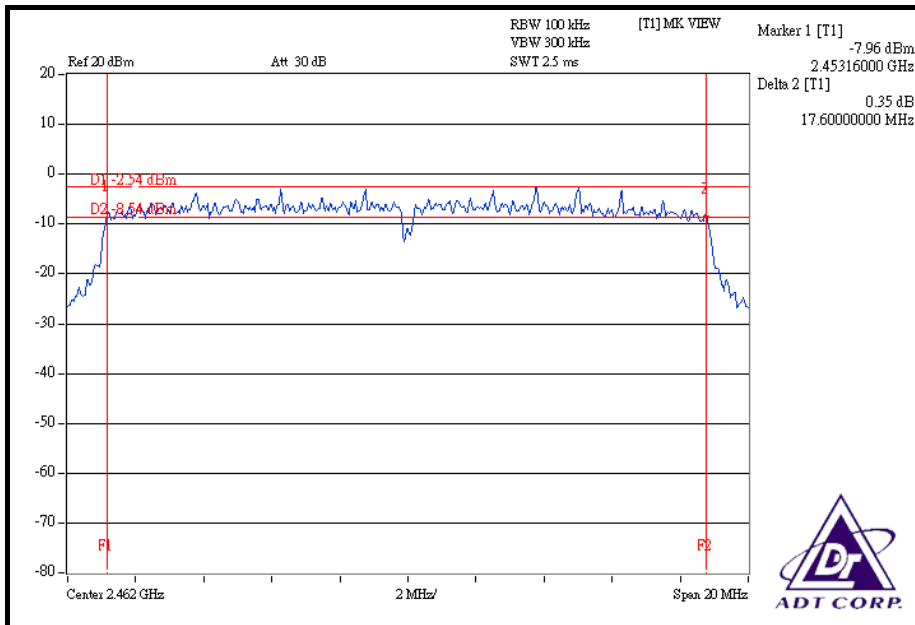
FOR CHAIN 1: CH 1



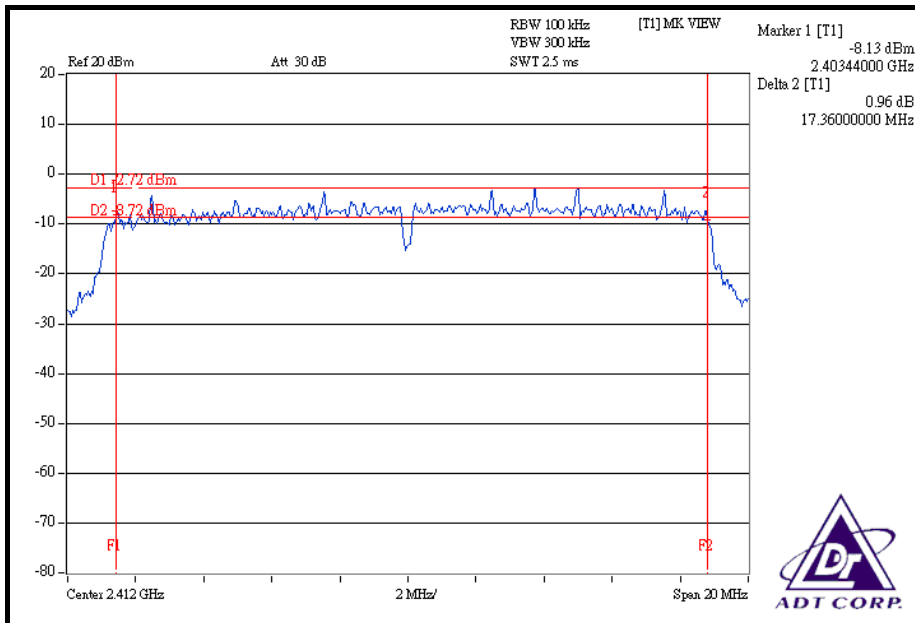
CH 6



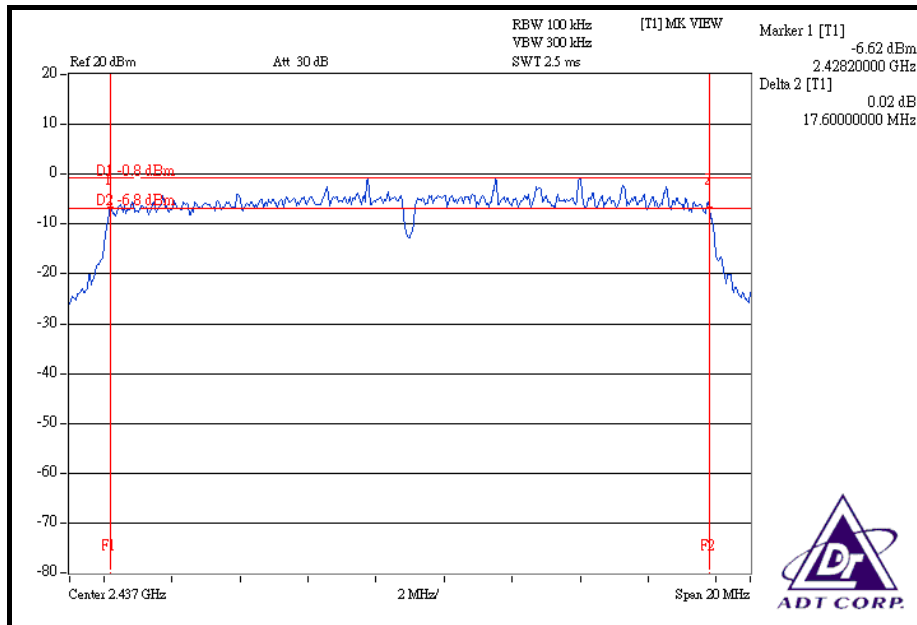
CH 11



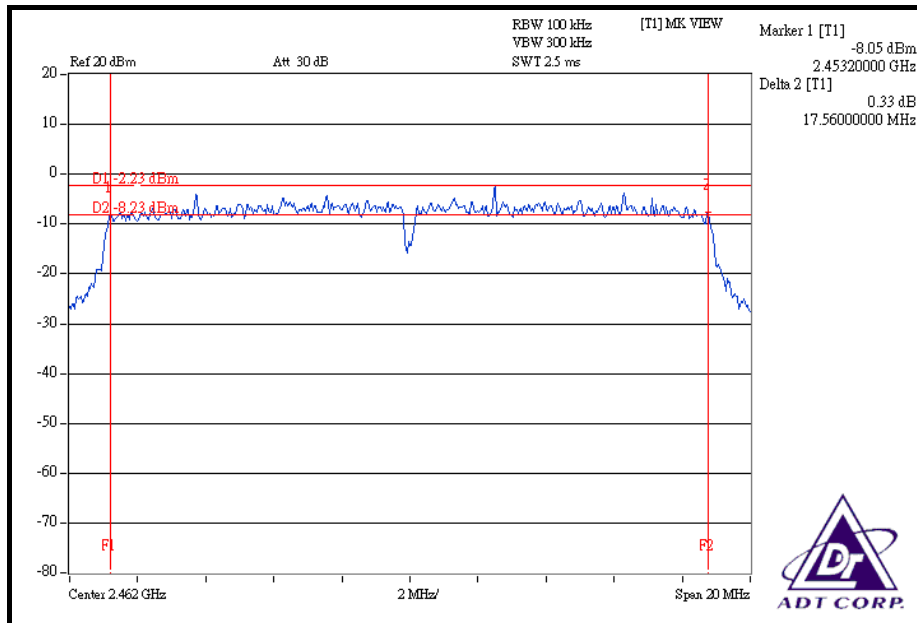
FOR CHAIN 2: CH 1



CH 6



CH 11



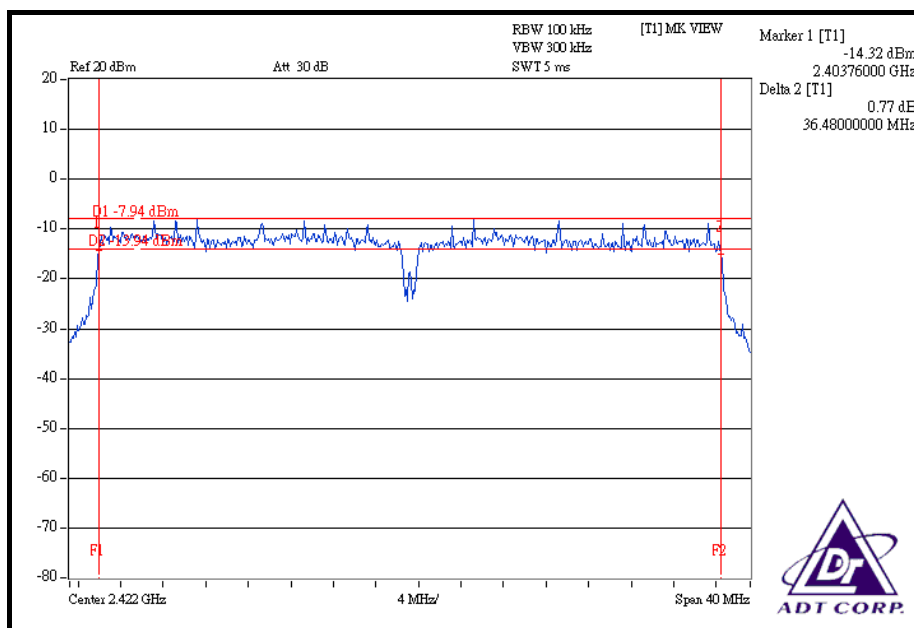


DRAFT 802.11n (40MHz) OFDM MODULATION

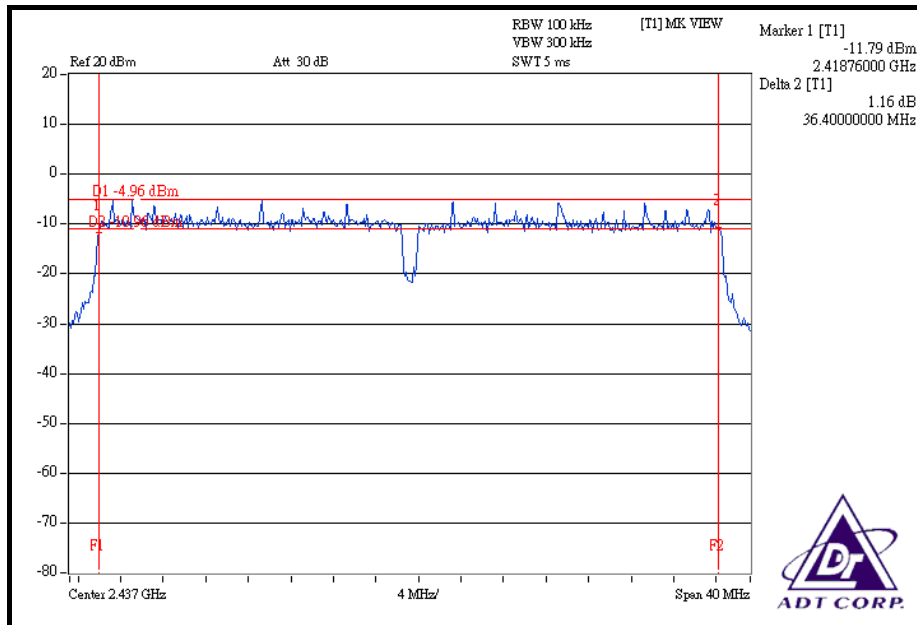
MODULATION TYPE	BPSK	TRANSFER RATE	15.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 66% RH, 987hPa
TESTED BY	Morgan Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)			MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2		
1	2422	36.48	36.40	34.64	0.5	PASS
4	2437	36.40	36.48	35.12	0.5	PASS
7	2452	36.48	36.48	36.48	0.5	PASS

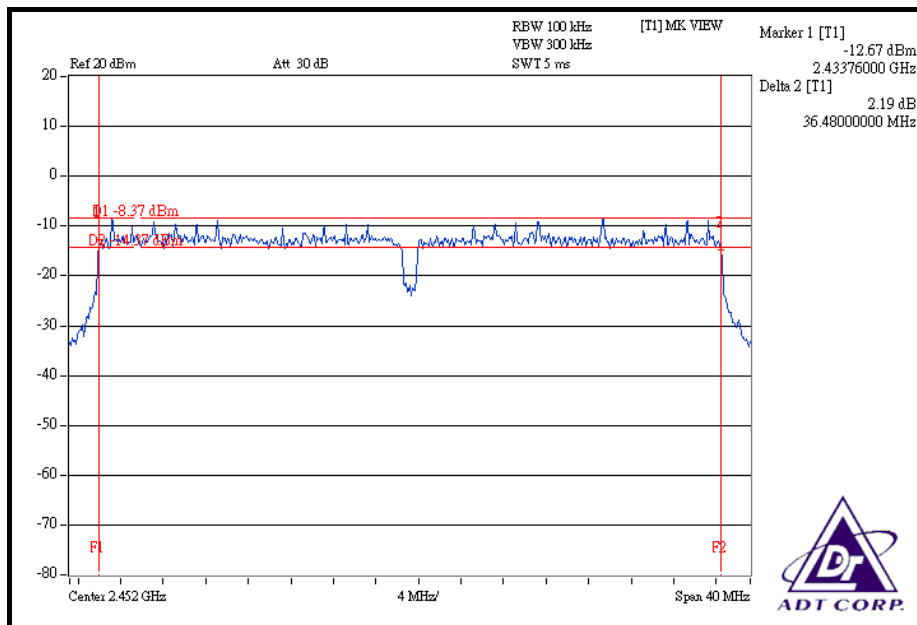
FOR CHAIN 0: CH 1



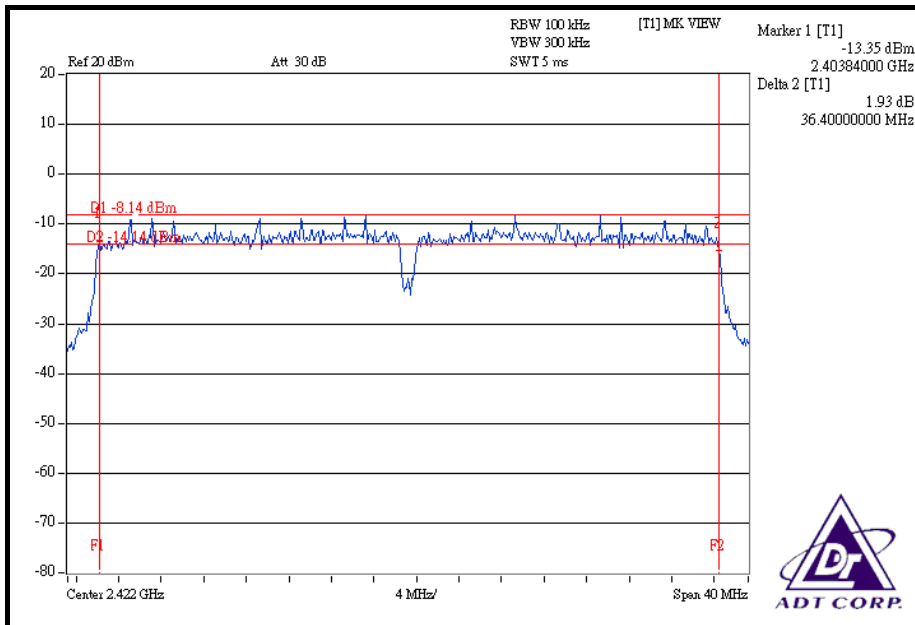
CH 4



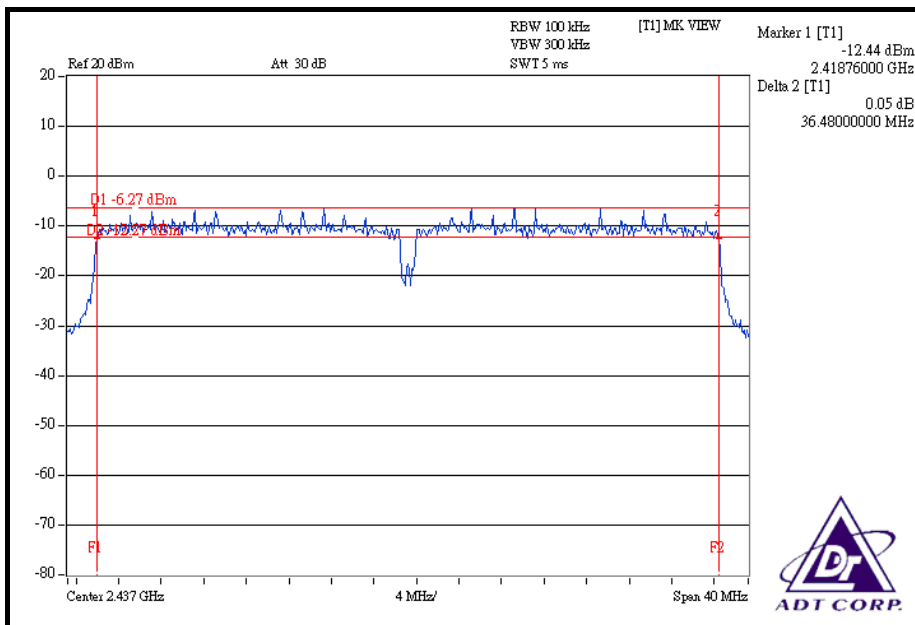
CH 7



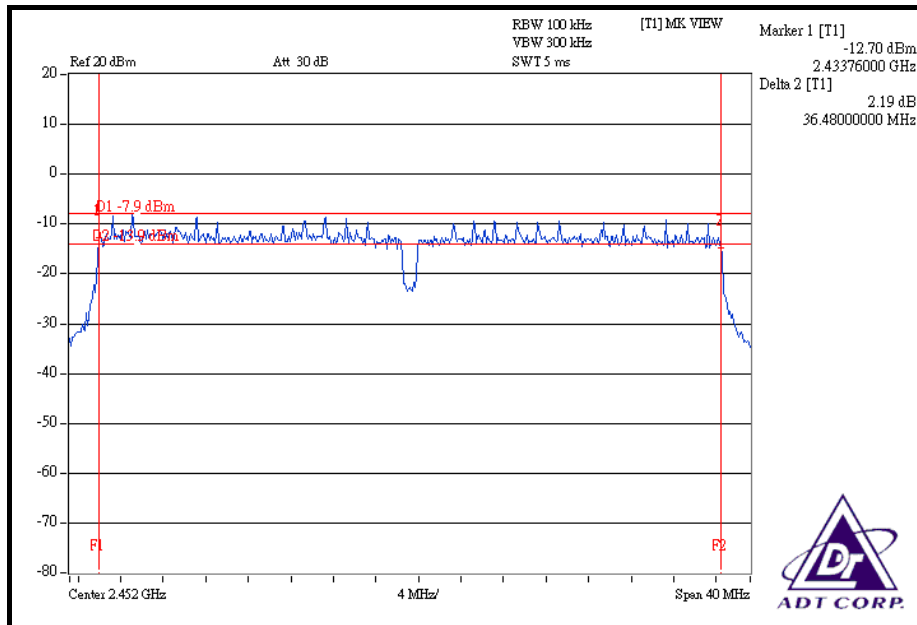
FOR CHAIN 1: CH 1



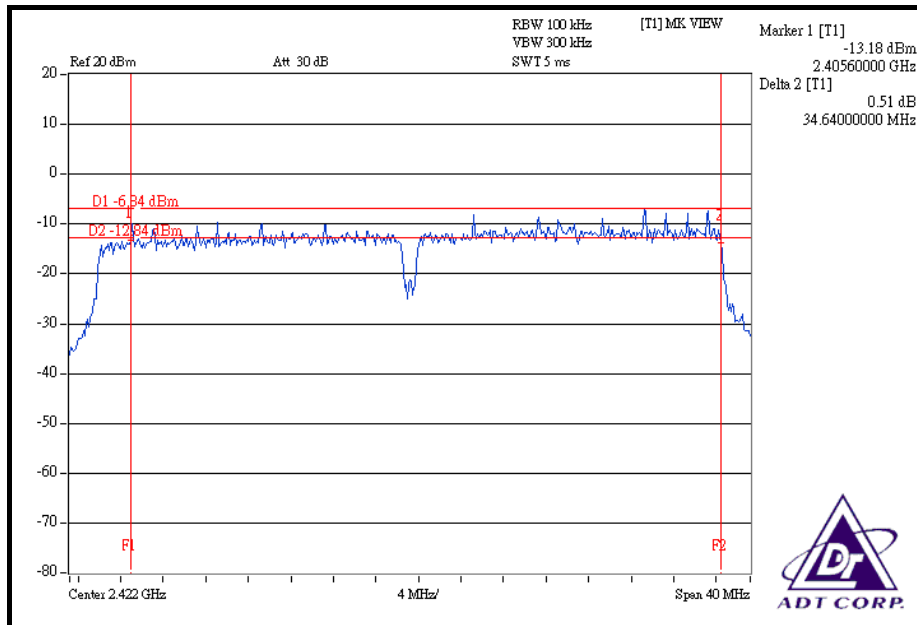
CH 4



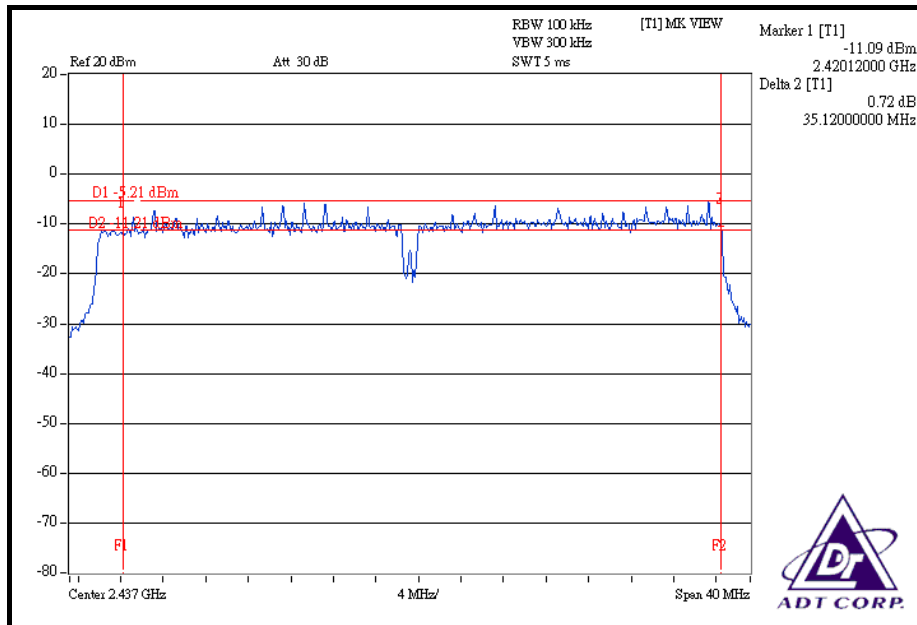
CH 7



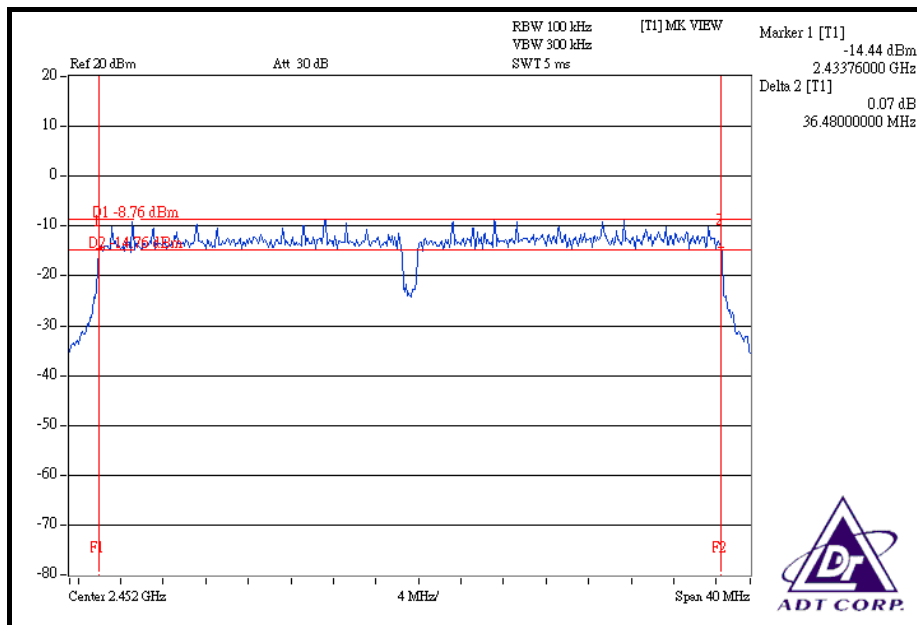
FOR CHAIN 2: CH 1



CH 4



CH 7





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	100040	Jun. 28, 2008
AGILENT SIGNAL GENERATOR	E8257C	MY43320668	Dec. 28, 2007
TEKTRONIX OSCILLOSCOPE	TDS1012	C037299	Nov. 27, 2007
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

- a. A detector was used on the output port of the EUT. An oscilloscope was used to read the response of the detector.
- b. Replaced the EUT by the signal generator. The center frequency of the S.G was adjusted to the center frequency of the measured channel.
- c. 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	DBPSK	TRANSFER RATE	1.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 66% RH, 987hPa
TESTED BY	Morgan Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	28.510	14.55	30	PASS
6	2437	63.826	18.05	30	PASS
11	2462	32.063	15.06	30	PASS

802.11g OFDM MODULATION

MODULATION TYPE	BPSK	TRANSFER RATE	6.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 66% RH, 987hPa
TESTED BY	Morgan Chen		

CHAN.	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	22.856	22.909	13.59	13.60	45.765	16.61	30	PASS
6	2437	32.659	32.734	15.14	15.15	65.393	18.16	30	PASS
11	2462	28.907	28.249	14.61	14.51	57.156	17.57	30	PASS



DRAFT 802.11N (20MHz) OFDM MODULATION

MODULATION TYPE	BPSK	TRANSFER RATE	7.2Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 66% RH, 987hPa
TESTED BY	Morgan Chen		

CHAN.	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
		CHAIN0	CHAIN1	CHAIN2	CHAIN0	CHAIN1	CHAIN2				
1	2412	18.072	17.947	18.113	12.57	12.54	12.58	54.132	17.33	30	PASS
6	2437	25.586	25.410	25.468	14.08	14.05	14.06	76.464	18.83	30	PASS
11	2462	20.324	20.370	20.324	13.08	13.09	13.08	61.018	17.85	30	PASS

DRAFT 802.11N (40MHz) OFDM MODULATION

MODULATION TYPE	BPSK	TRANSFER RATE	15.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 66% RH, 987hPa
TESTED BY	Morgan Chen		

CHAN.	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
		CHAIN0	CHAIN1	CHAIN2	CHAIN0	CHAIN1	CHAIN2				
1	2422	9.016	9.078	9.057	9.55	9.58	9.57	27.151	14.34	30	PASS
4	2437	14.454	14.256	14.421	11.60	11.54	11.59	43.131	16.35	30	PASS
7	2452	8.995	9.099	8.913	9.54	9.59	9.50	27.007	14.31	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
SPECTRUM ANALYZER	FSP40	100040	Jun. 28, 2008

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

4.5.3 TEST PROCEDURE

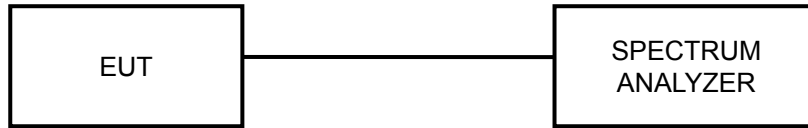
The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3kHz RBW and 30kHz VBW, set sweep time = span/3kHz. The power spectral density was measured and recorded.

The sweep time is allowed to be longer than span/3kHz for a full response of the mixer in the spectrum analyzer.

4.5.4 DEVIATION FROM TEST STANDARD

No deviation

4.5.5 TEST SETUP



4.5.6 EUT OPERATING CONDITION

Same as Item 4.3.6

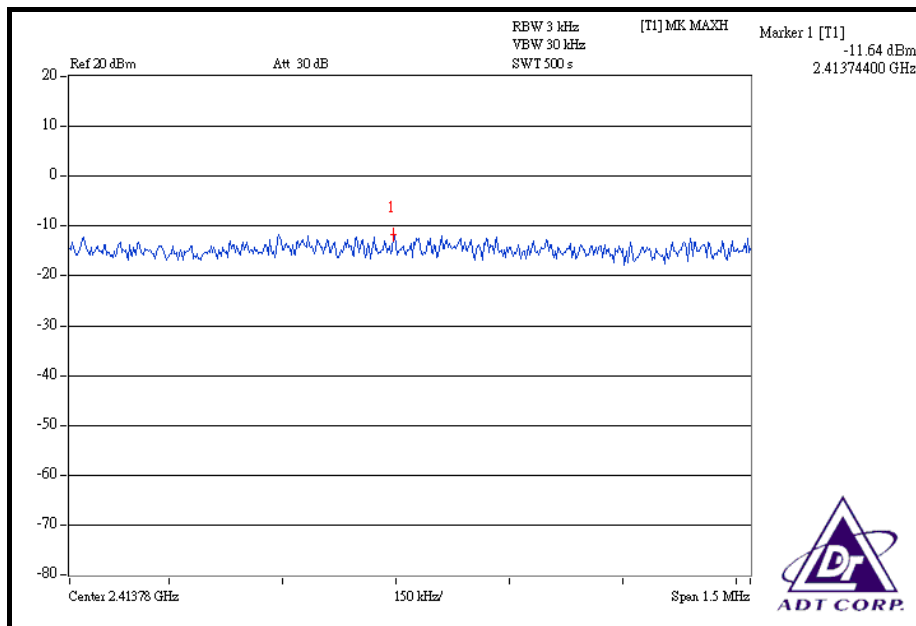
4.5.7 TEST RESULTS

802.11b DSSS MODULATION

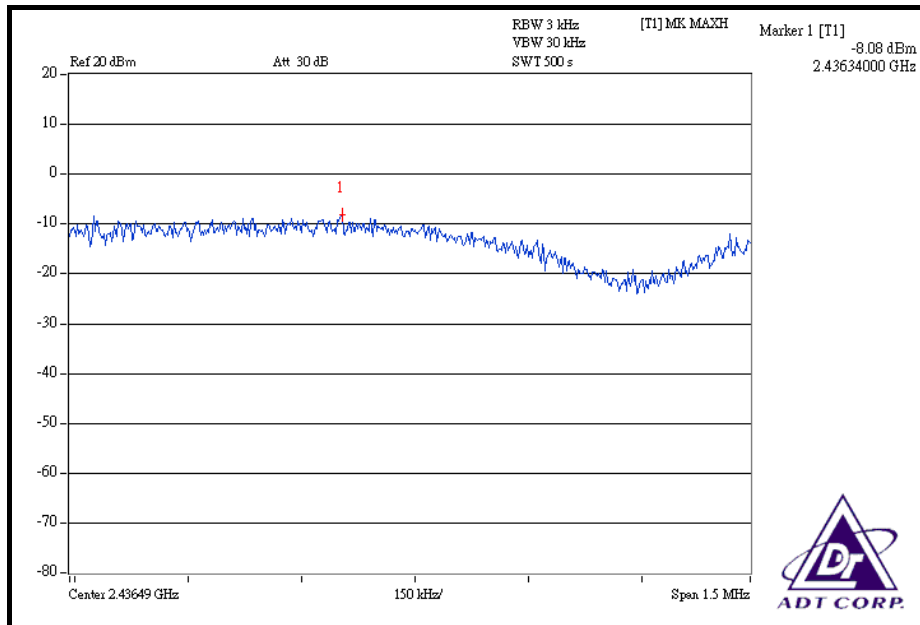
MODULATION TYPE	DBPSK	TRANSFER RATE	1.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 66% RH, 987hPa
TESTED BY	Morgan Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-11.64	8	PASS
6	2437	-8.08	8	PASS
11	2462	-11.20	8	PASS

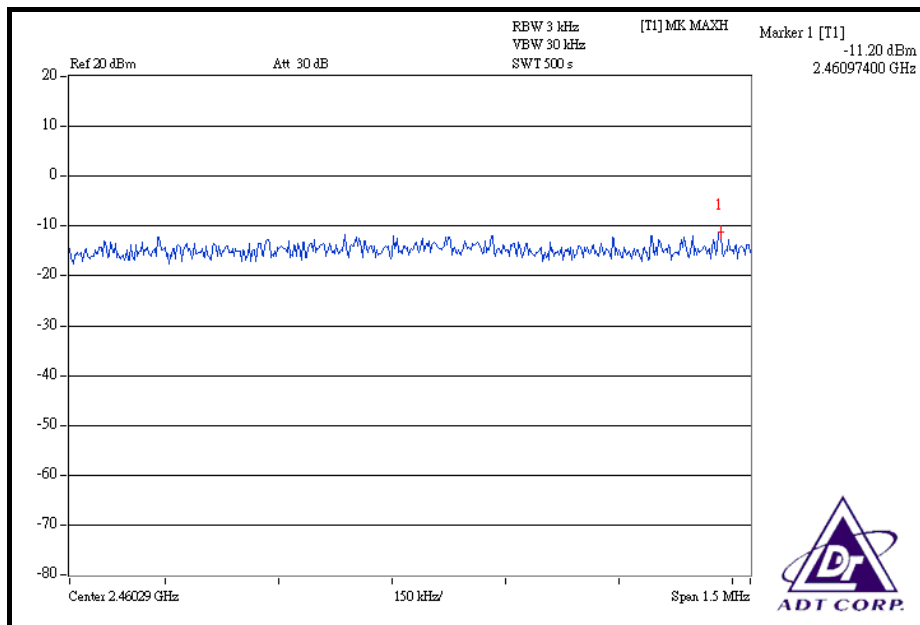
CH 1



CH 6



CH 11



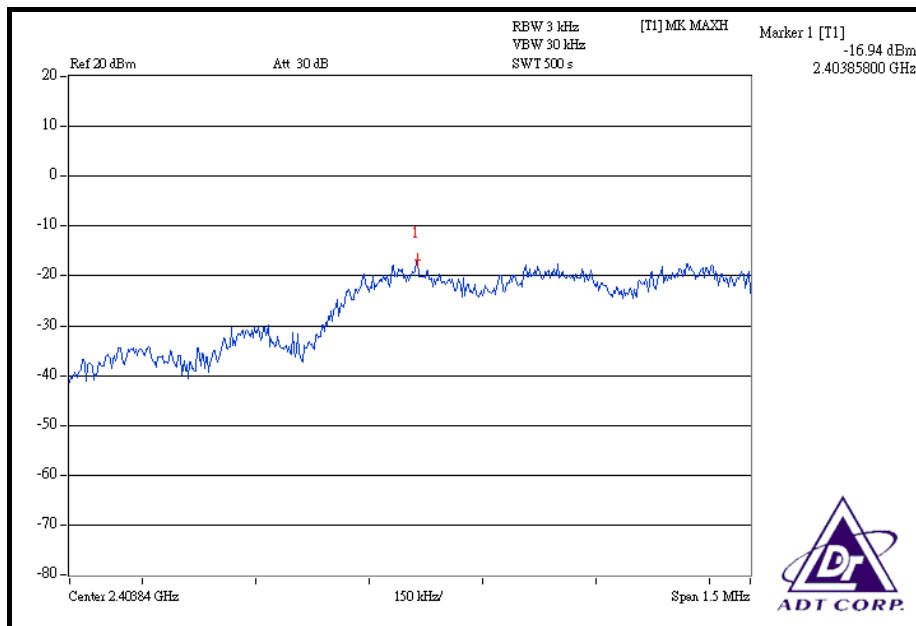


802.11g OFDM MODULATION

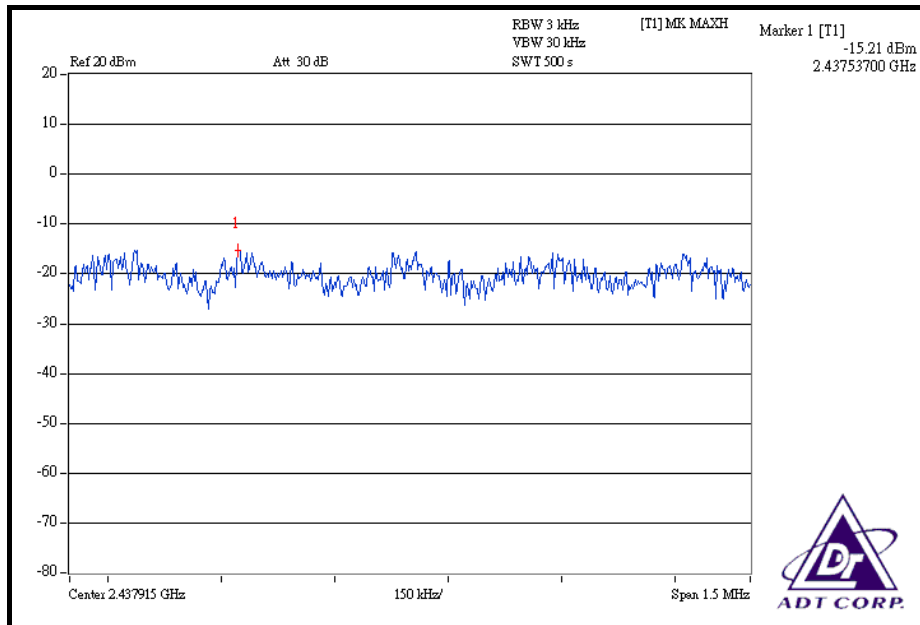
MODULATION TYPE	BPSK	TRANSFER RATE	6.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 66% RH, 987hPa
TESTED BY	Morgan Chen		

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)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1				
1	2412	0.020	0.022	-16.94	-16.62	0.042	-13.77	8	PASS
6	2437	0.030	0.034	-15.21	-14.69	0.064	-11.93	8	PASS
11	2462	0.027	0.029	-15.74	-15.37	0.056	-12.54	8	PASS

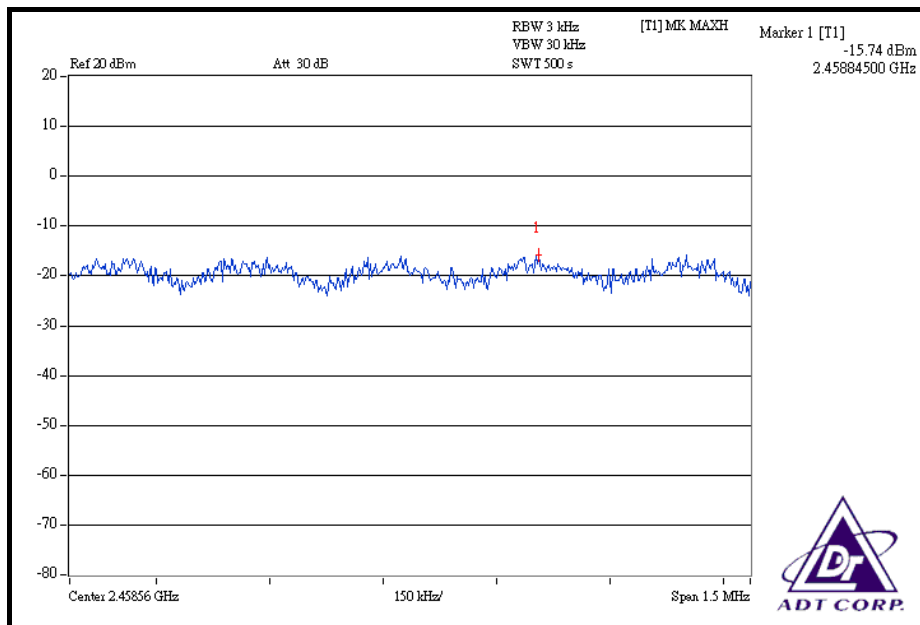
FOR CHAIN 0: CH 1



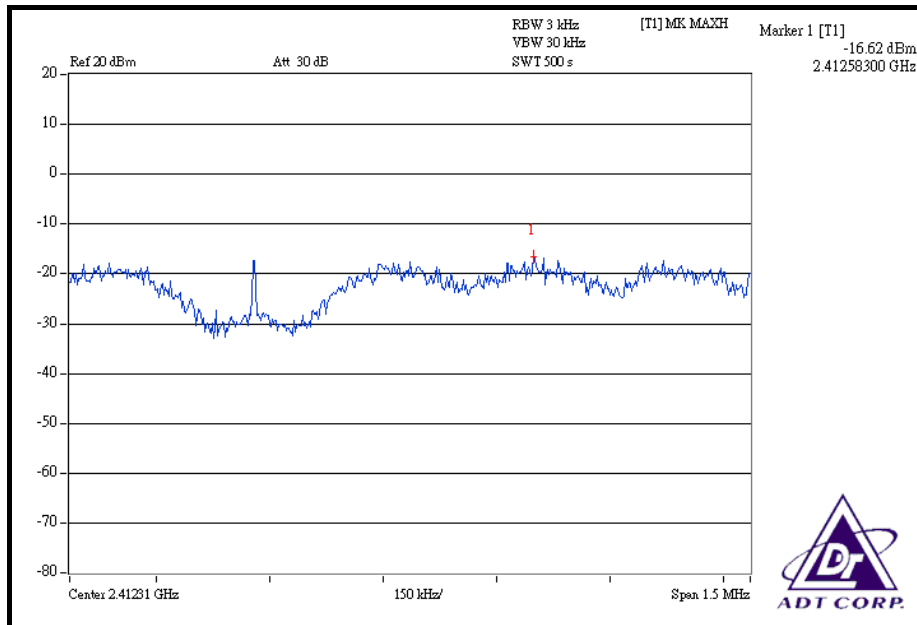
CH 6



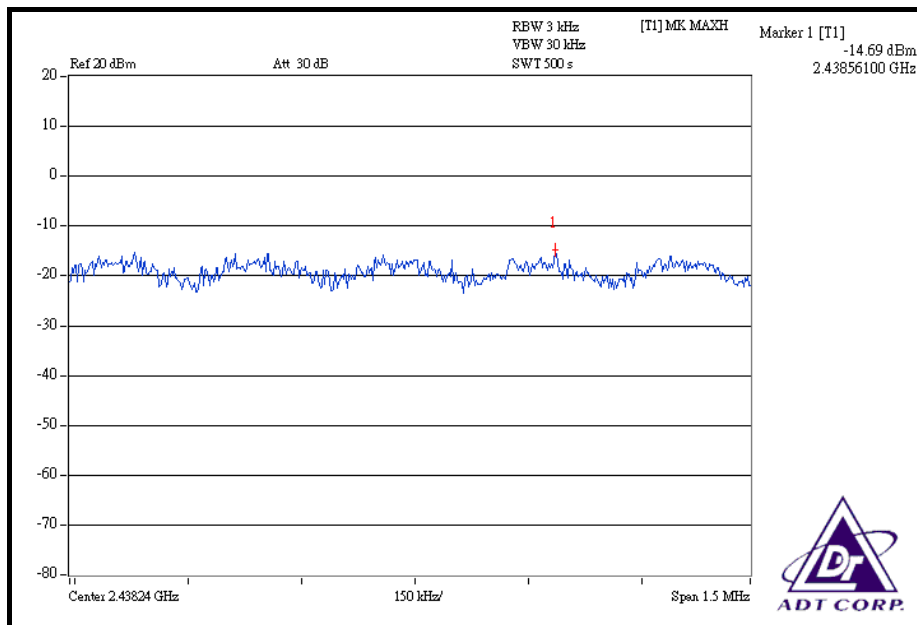
CH 11



FOR CHAIN 1: CH 1

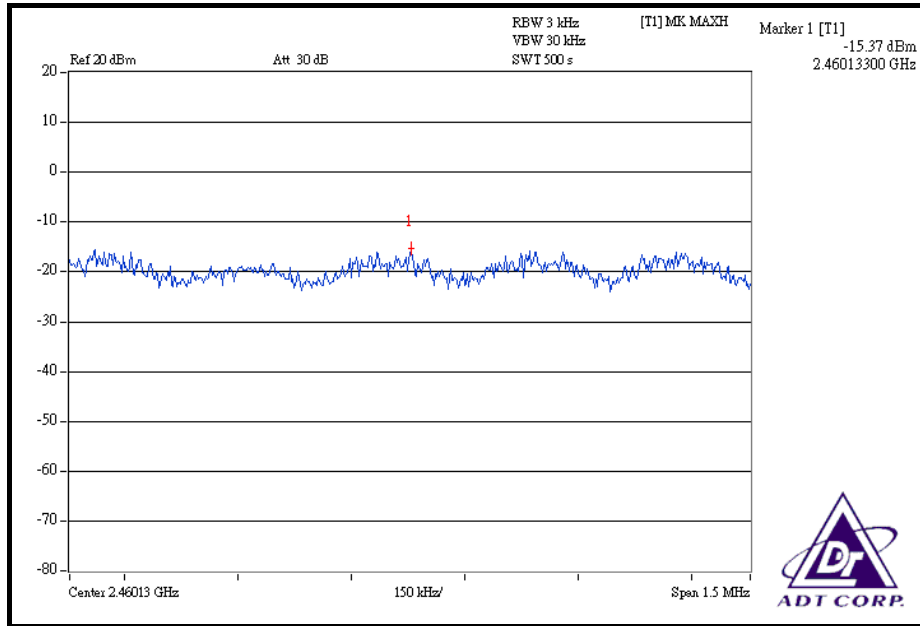


CH 6





CH 11



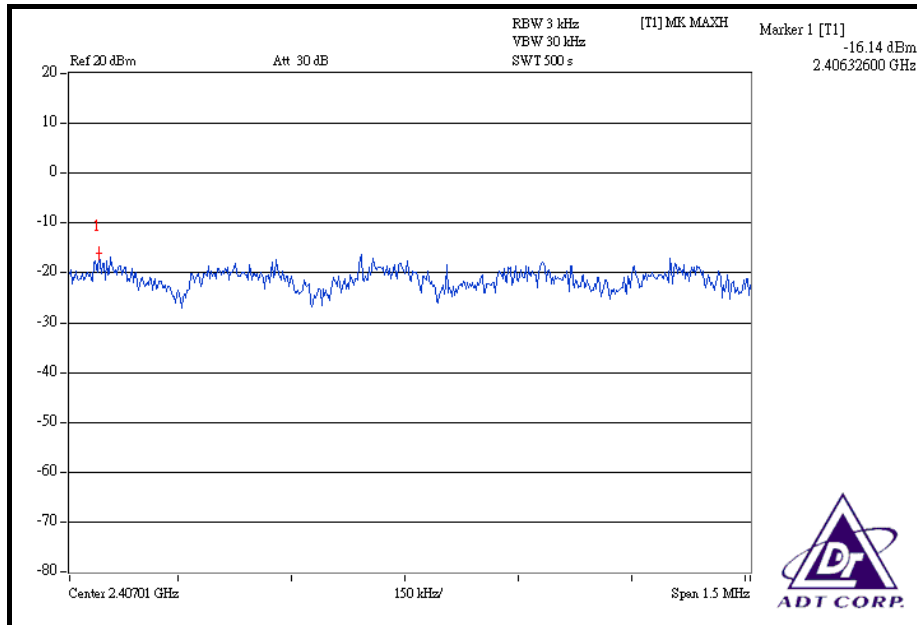


DRAFT 802.11N (20MHz) OFDM MODULATION

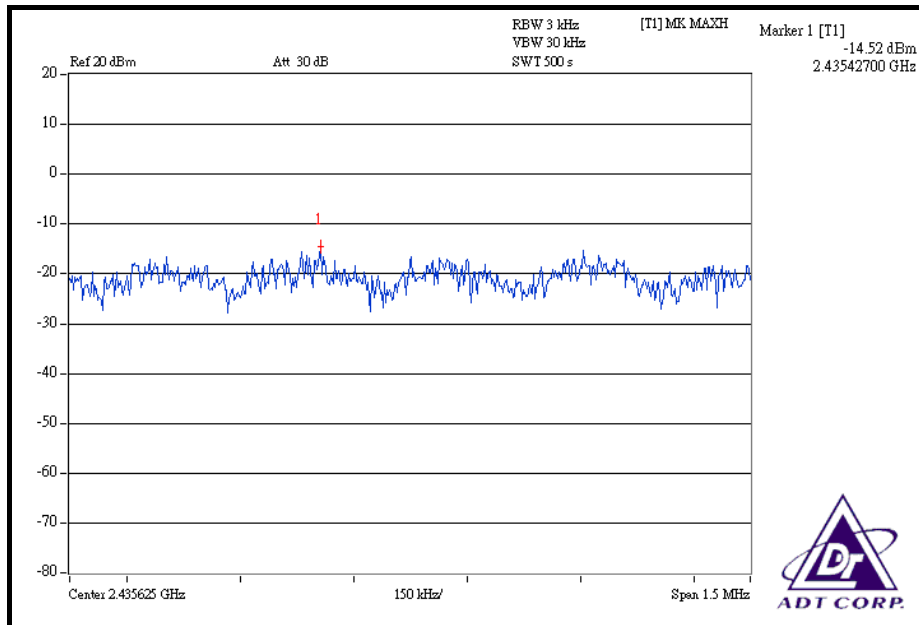
MODULATION TYPE	BPSK	TRANSFER RATE	7.2Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 66% RH, 987hPa
TESTED BY	Morgan Chen		

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)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN0	CHAIN1	CHAIN2	CHAIN0	CHAIN1	CHAIN2				
1	2412	0.024	0.024	0.020	-16.14	-16.22	-17.07	0.068	-11.69	8	PASS
6	2437	0.035	0.032	0.029	-14.52	-14.90	-15.43	0.096	-10.16	8	PASS
11	2462	0.028	0.028	0.021	-15.60	-15.58	-16.78	0.077	-11.18	8	PASS

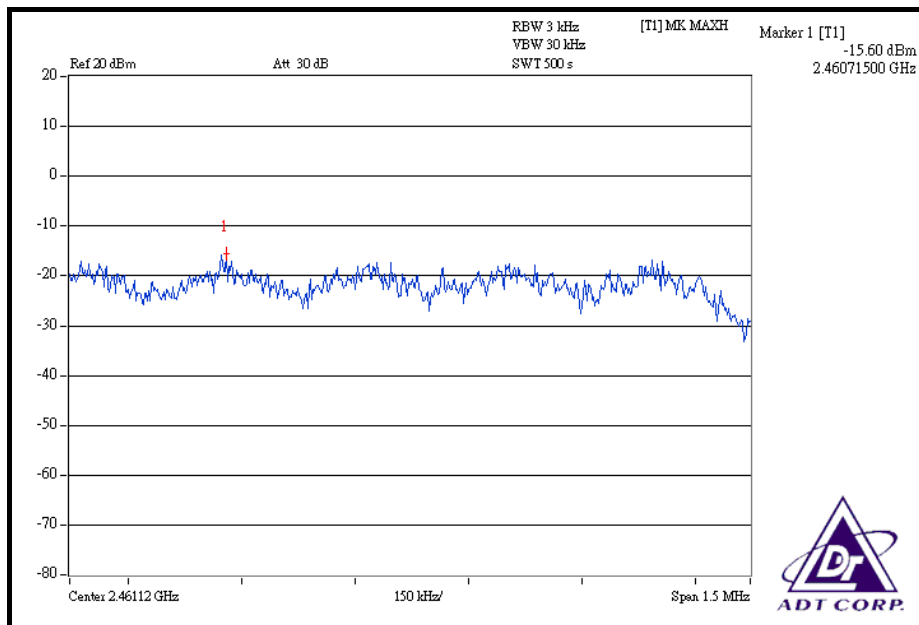
FOR CHAIN 0: CH 1



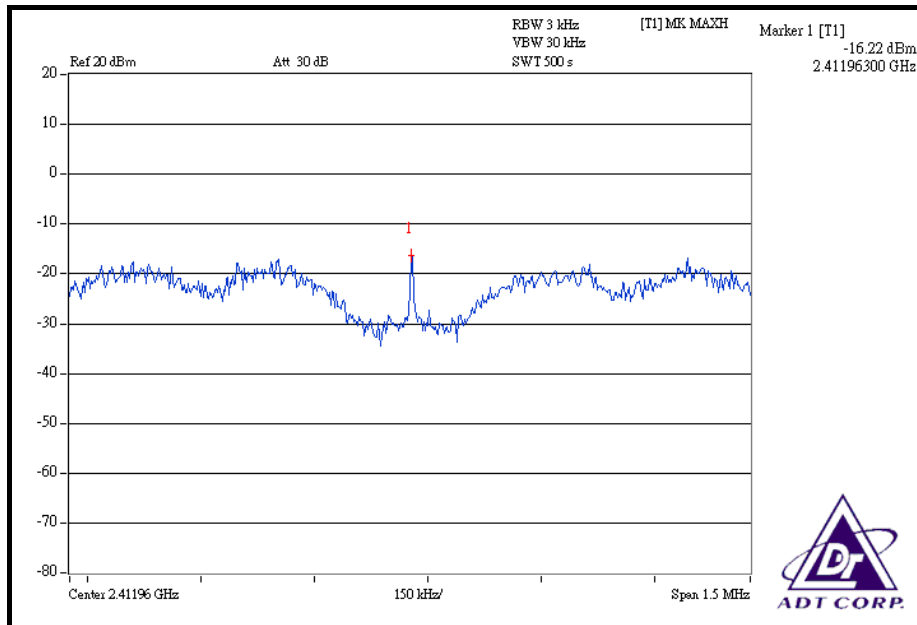
CH 6



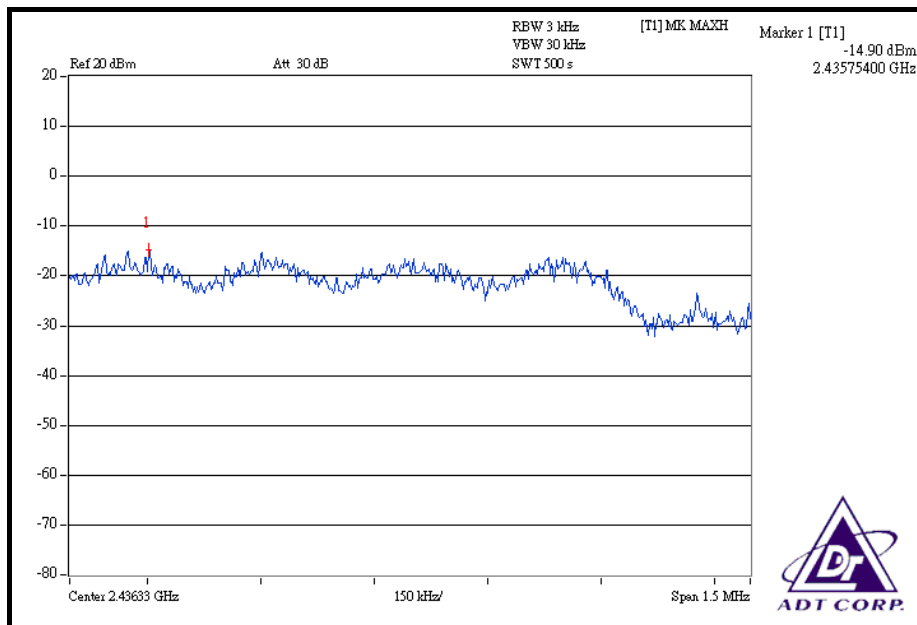
CH 11



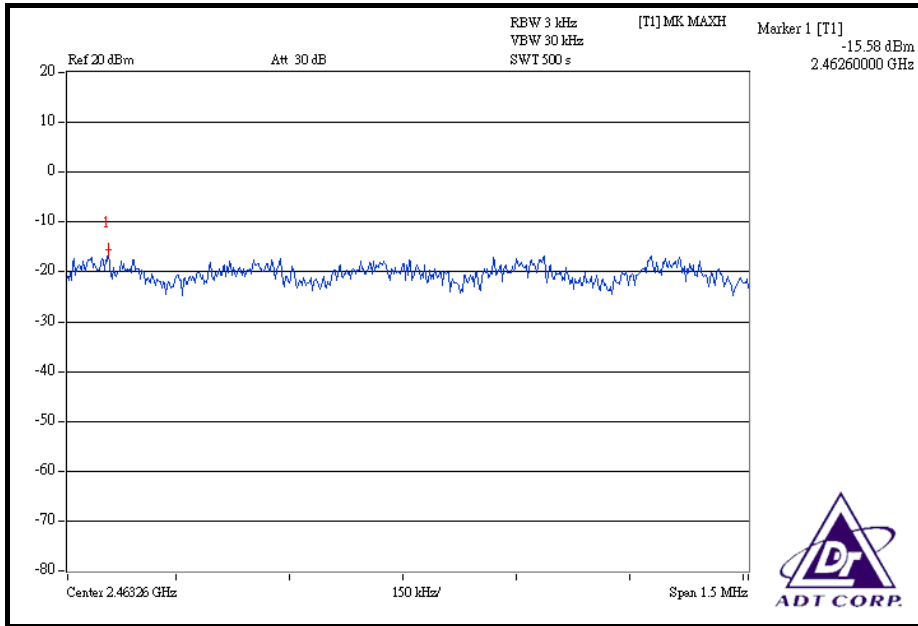
FOR CHAIN 1: CH 1



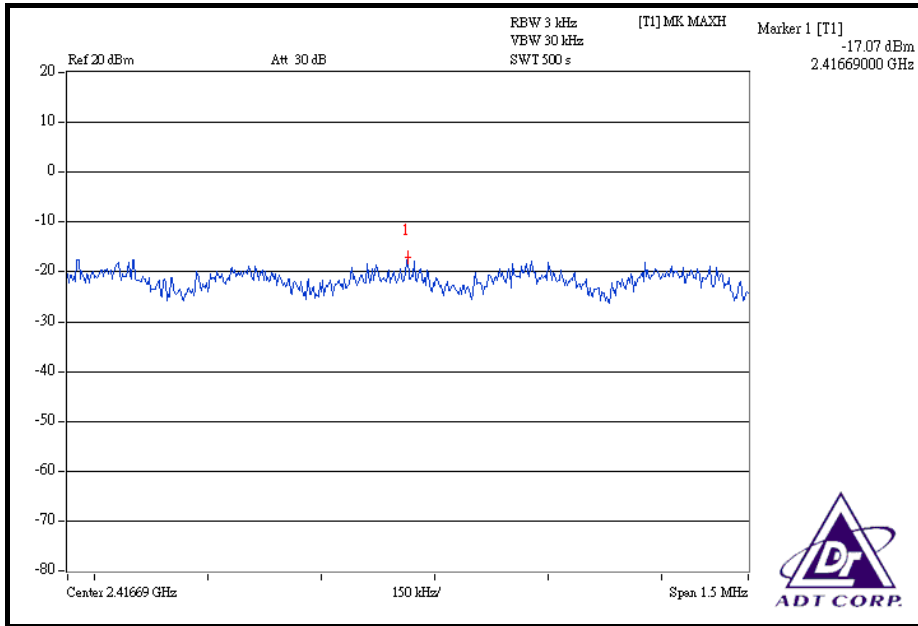
CH 6



CH 11

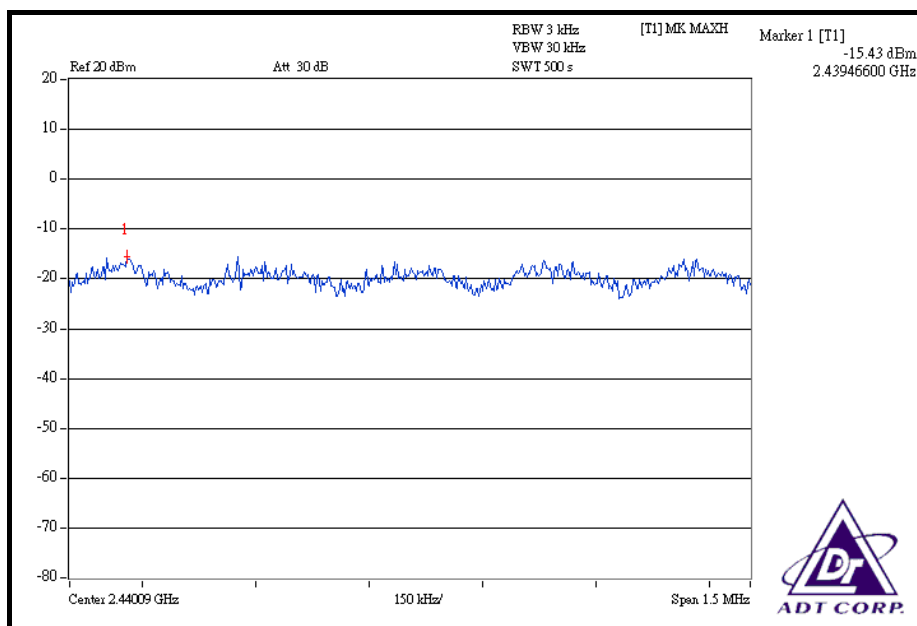


FOR CHAIN 2: CH 1

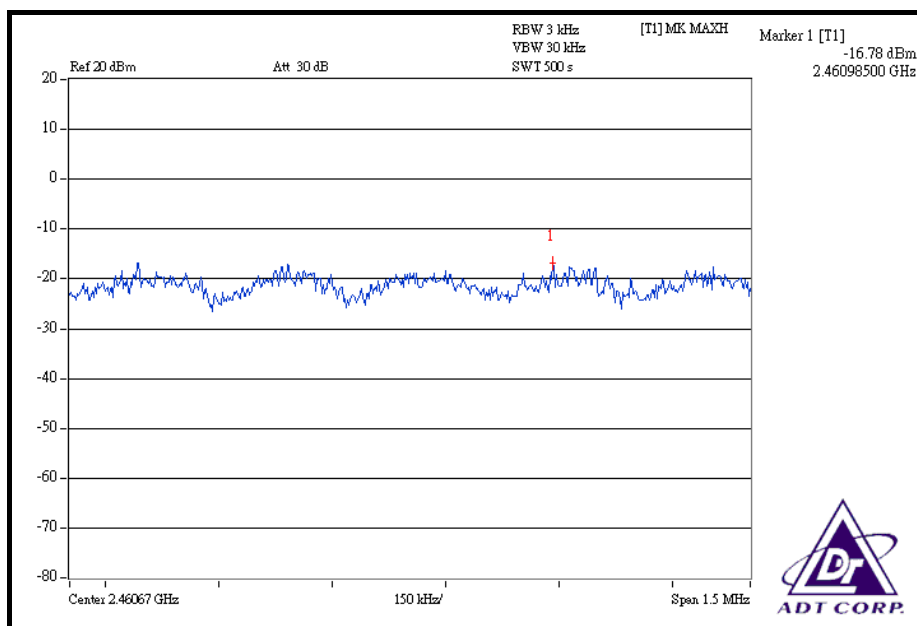




CH 6



CH 11



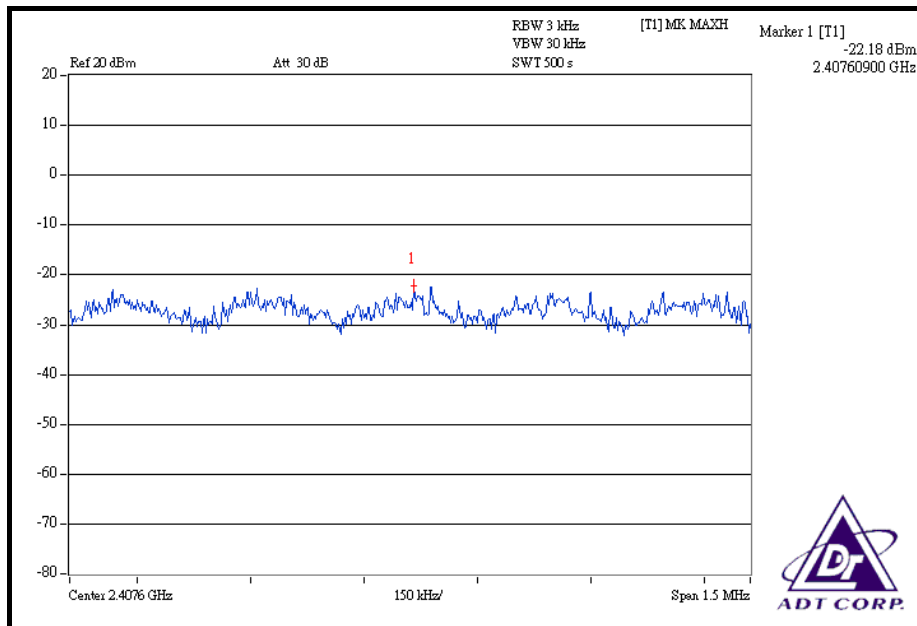


DRAFT 802.11n (40MHz) OFDM MODULATION

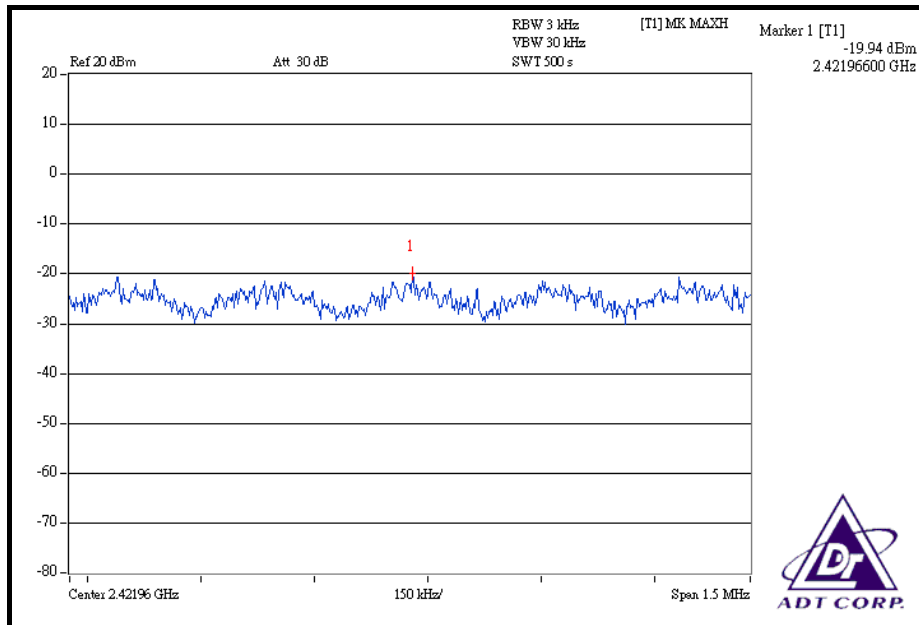
MODULATION TYPE	BPSK	TRANSFER RATE	15.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 66% RH, 987hPa
TESTED BY	Morgan Chen		

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)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN0	CHAIN1	CHAIN2	CHAIN0	CHAIN1	CHAIN2				
1	2422	0.006	0.006	0.006	-22.18	-22.12	-22.05	0.018	-17.35	8	PASS
4	2437	0.010	0.010	0.010	-19.94	-19.95	-19.85	0.030	-15.14	8	PASS
7	2452	0.006	0.006	0.006	-22.08	-21.96	-22.11	0.018	-17.28	8	PASS

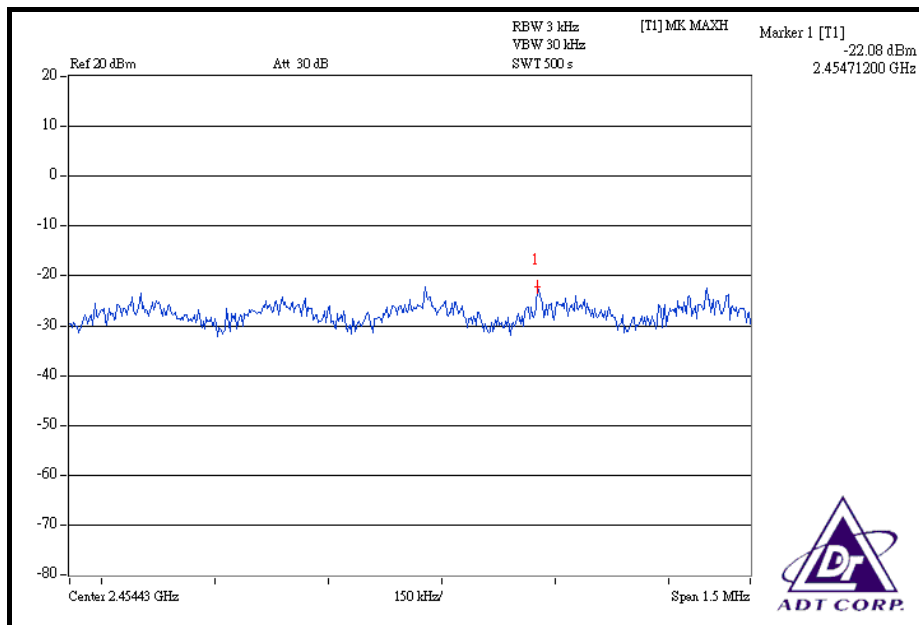
FOR CHAIN 0: CH 1



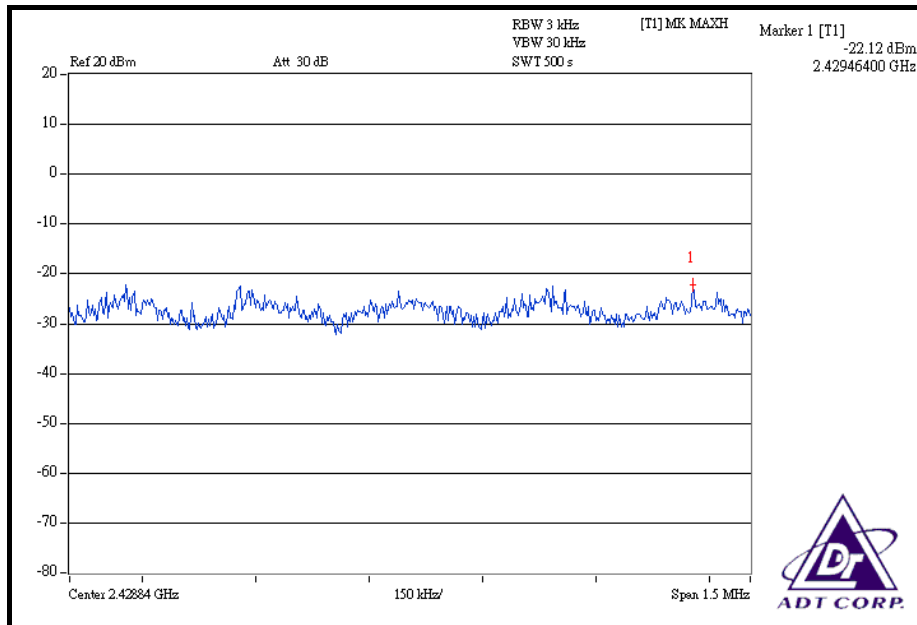
CH 4



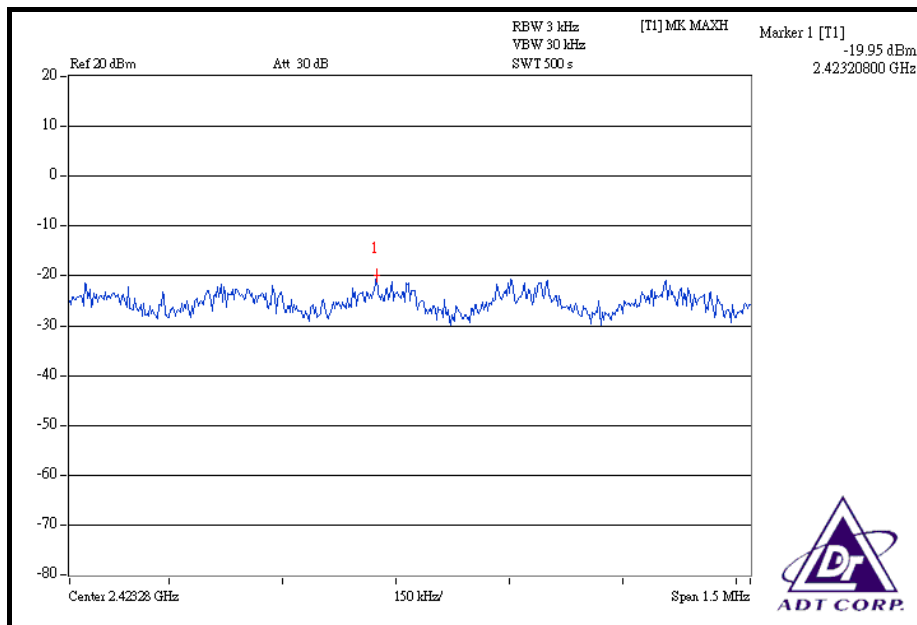
CH 7



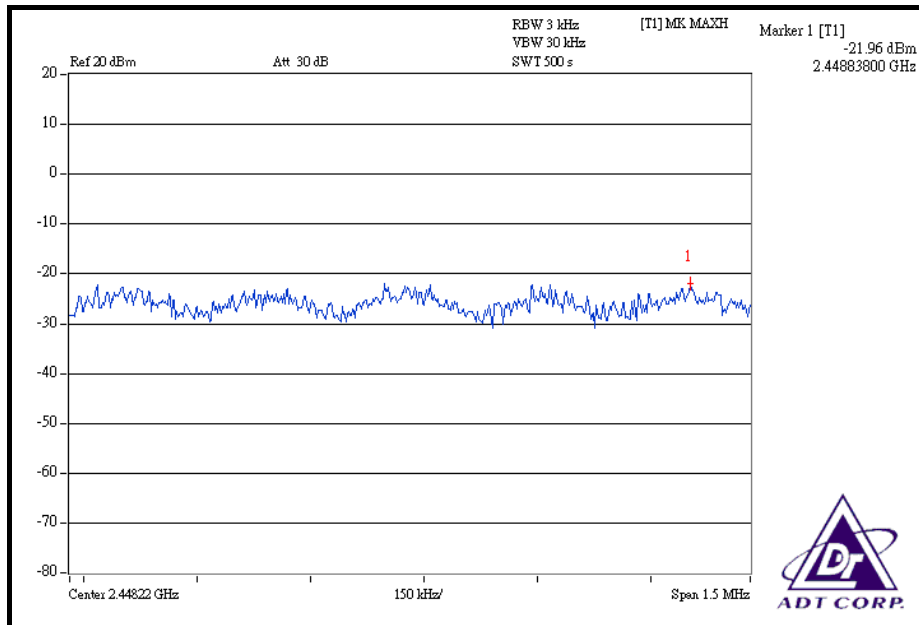
FOR CHAIN 1: CH 1



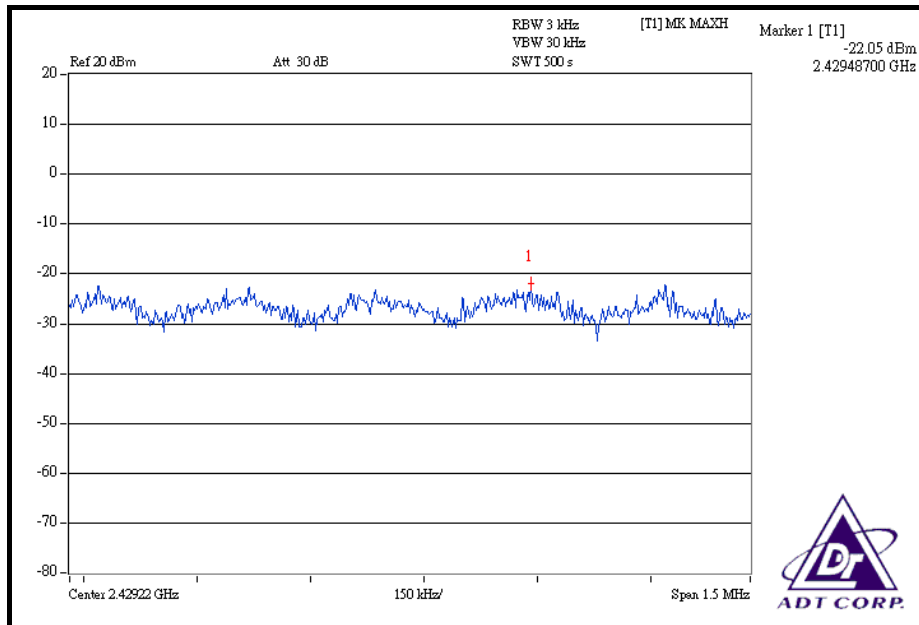
CH 4



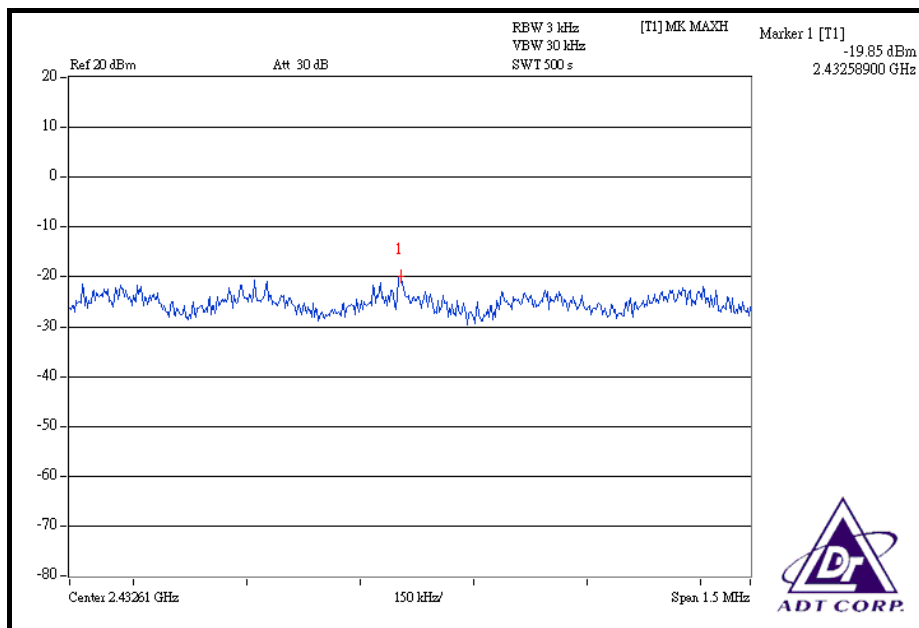
CH 7



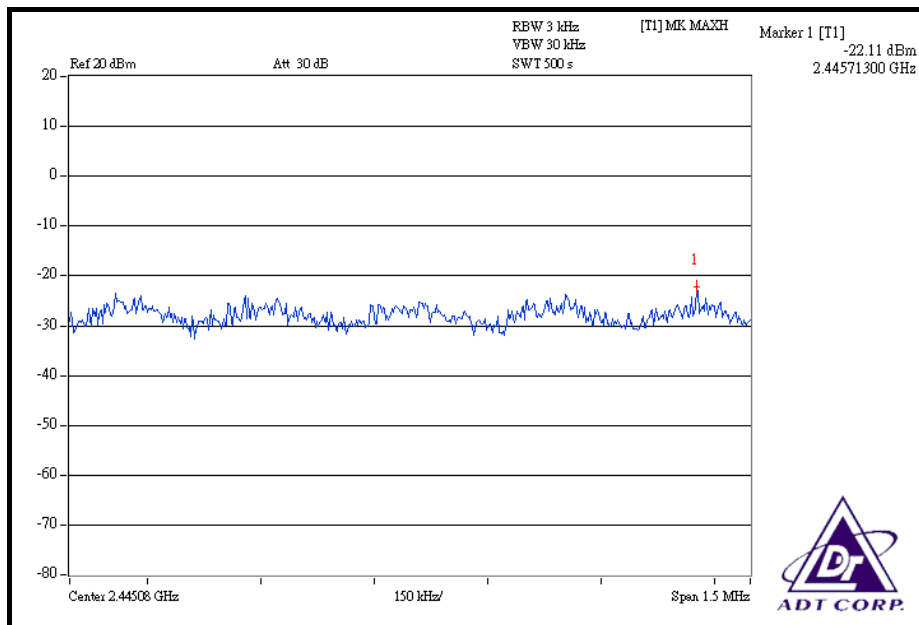
FOR CHAIN 2: CH 1



CH 4



CH 7





4.6 BAND EDGES MEASUREMENT

4.6.1 LIMITS OF BAND EDGES MEASUREMENT

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

4.6.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
802.11b:			
R&S SPECTRUM ANALYZER	FSP40	100040	Jun. 28, 2008
802.11g, DRAFT 802.11n (20MHz), DRAFT 802.11n (40MHz):			
Test Receiver ROHDE & SCHWARZ	ESCI	100424	Aug. 04, 2007
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Aug. 07, 2007
BILOG Antenna SCHWARZBECK	VULB9168	9168-153	Jan. 04, 2008
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-563	Jul. 26, 2007
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170242	Jan. 16, 2008
Preamplifier Agilent	8449B	3008A01911	Sep. 13, 2007
Preamplifier Agilent	8447D	2944A10638	Dec. 20, 2007
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	218188/218189	Nov. 14, 2007
RF signal cable Worken	8D-FB	Cable-HYCH9-01	Aug. 16, 2007
Software	ADT_Radiated_V7.6	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA
Turn Table EMCO	2087-2.03	NA	NA
Antenna Tower & Turn Table Controller EMCO	2090	NA	NA

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

4.6.3 TEST PROCEDURE

For 802.11b

The transmitter output was connected to the spectrum analyzer via a low loss cable. Set both RBW and VBW of spectrum analyzer to 100kHz with suitable frequency span including 10Hz bandwidth from band edge. The band edges was measured and recorded.

The spectrum plots (Peak RBW = VBW = 100kHz; Average RBW = 1MHz, VBW = 10Hz) are attached on the following pages.

For 802.11g, DRAFT 802.11n (20MHz), DRAFT 802.11n (40MHz):

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. Set both RBW and VBW of spectrum analyzer to 100kHz with suitable frequency span including 100MHz bandwidth from band edge. The band edges was measured and recorded.

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

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

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 EUT OPERATING CONDITION

Same as Item 4.3.6

4.6.6 TEST RESULTS

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

802.11b DSSS MODULATION

NOTE 1:

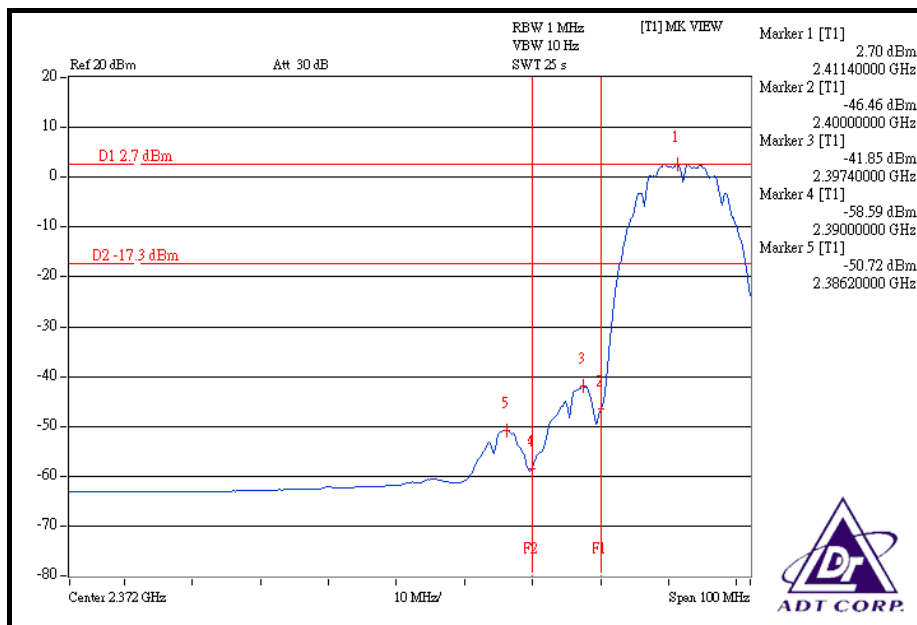
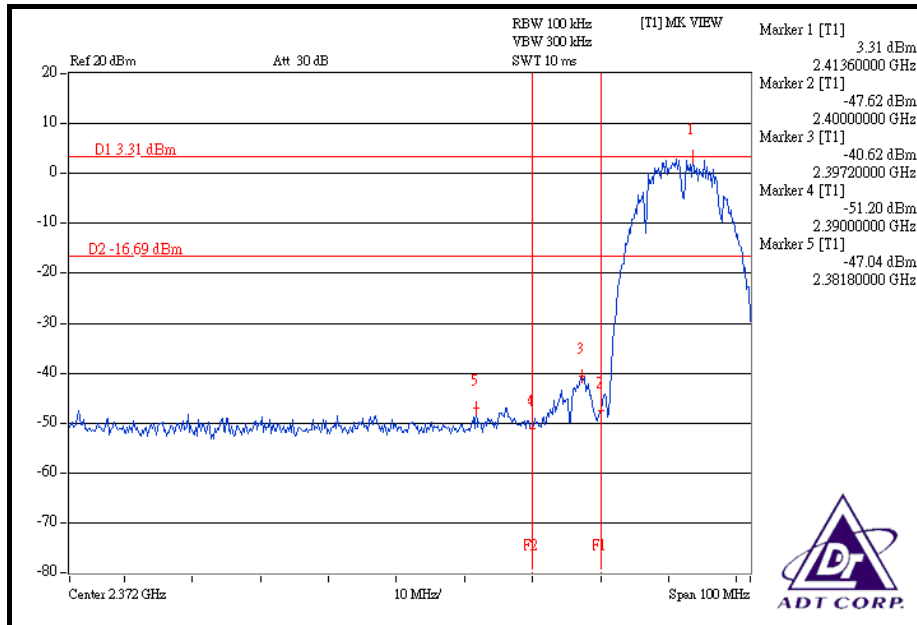
The band edge emission plot on the next page shows 50.35dBc between carrier maximum power and local maximum emission in restrict band (2.38180GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 109.77dBuV/m (Peak), so the maximum field strength in restrict band is $109.77 - 50.35 = 59.42$ dBuV/m which is under 74dBuV/m limit.

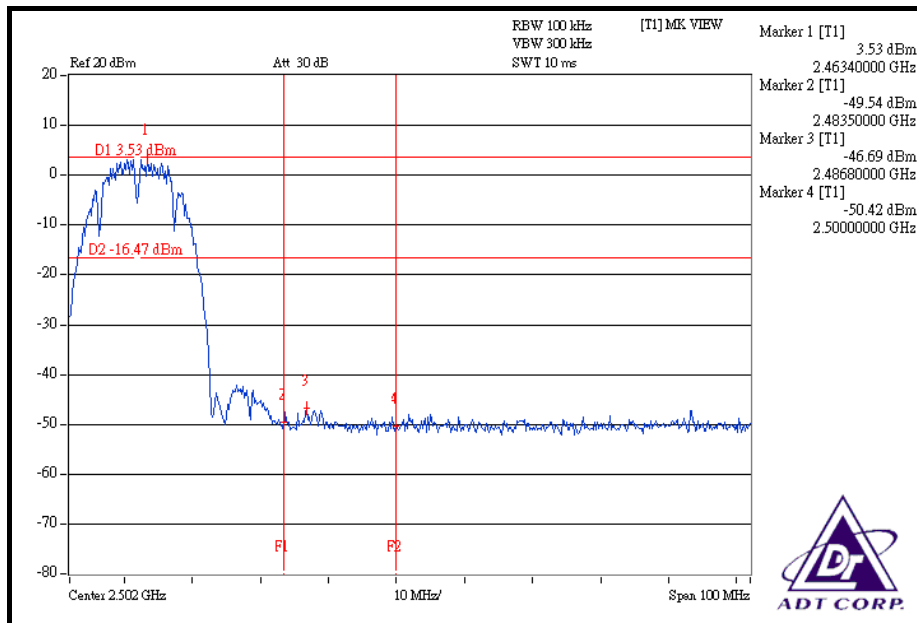
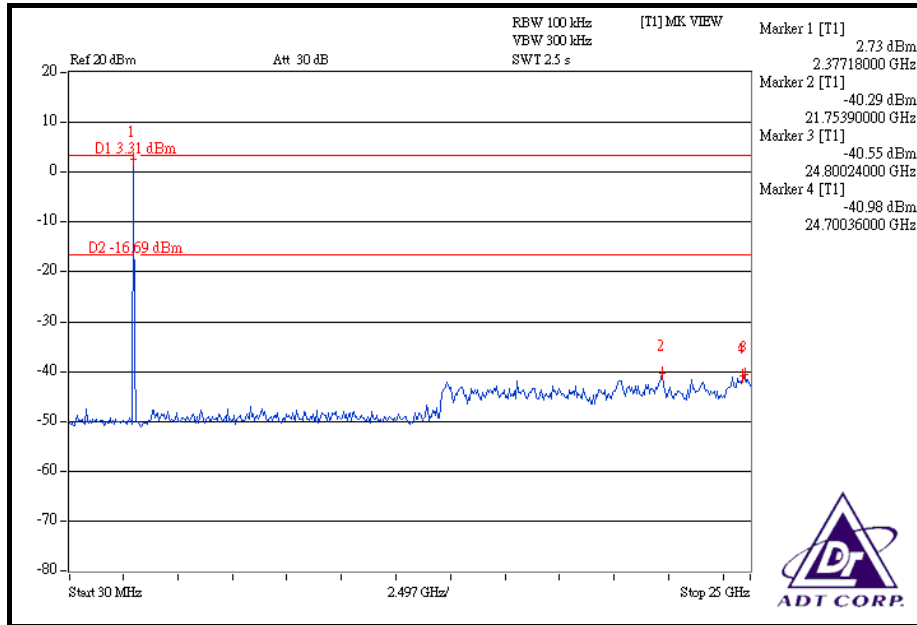
The band edge emission plot of on the next page shows 53.42dBc between carrier maximum power and local maximum emission in restrict band (2.38620GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 105.30dBuV/m (Average), so the maximum field strength in restrict band is $105.30 - 53.42 = 51.88$ dBuV/m which is under 54dBuV/m limit.

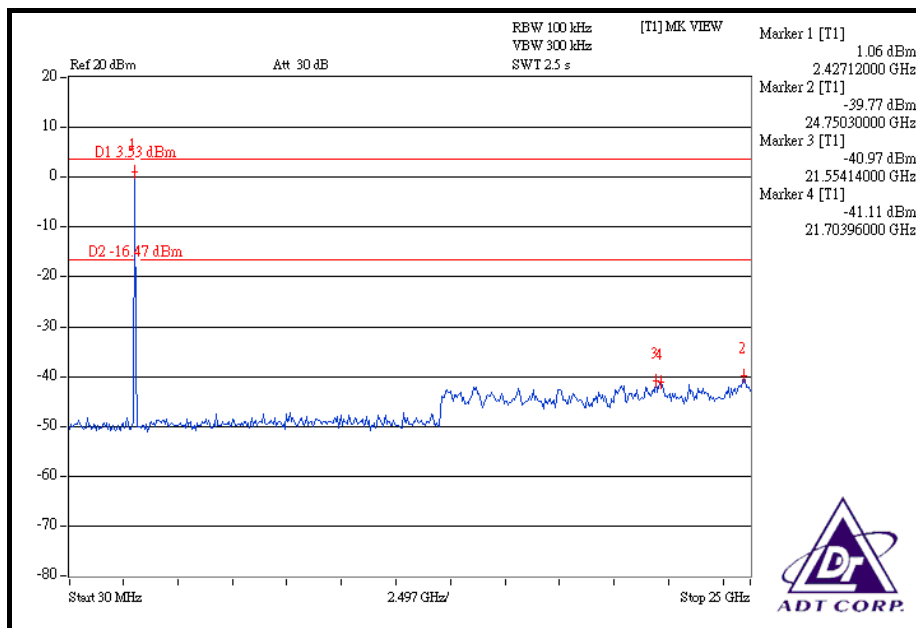
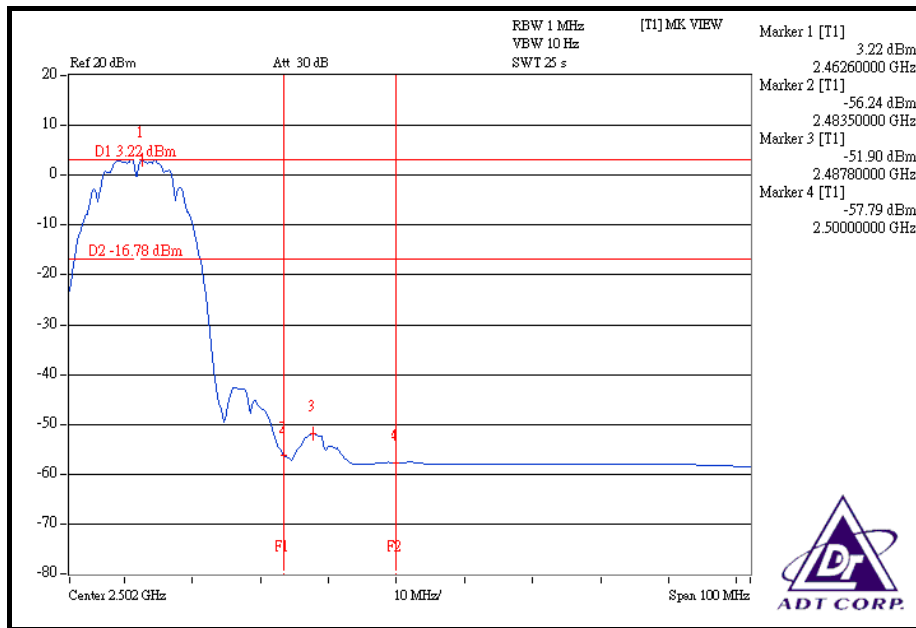
NOTE 2:

The band edge emission plot on the next second page shows 50.22dBc between carrier maximum power and local maximum emission in restrict band (2.48680GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 109.96dBuV/m (Peak), so the maximum field strength in restrict band is $109.96 - 50.22 = 59.74$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot on the next third page shows 55.12dBc between carrier maximum power and local maximum emission in restrict band (2.48780GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 105.37dBuV/m (Average), so the maximum field strength in restrict band is $105.37 - 55.12 = 50.25$ dBuV/m which is under 54dBuV/m limit.







802.11g OFDM MODULATION

NOTE 1:

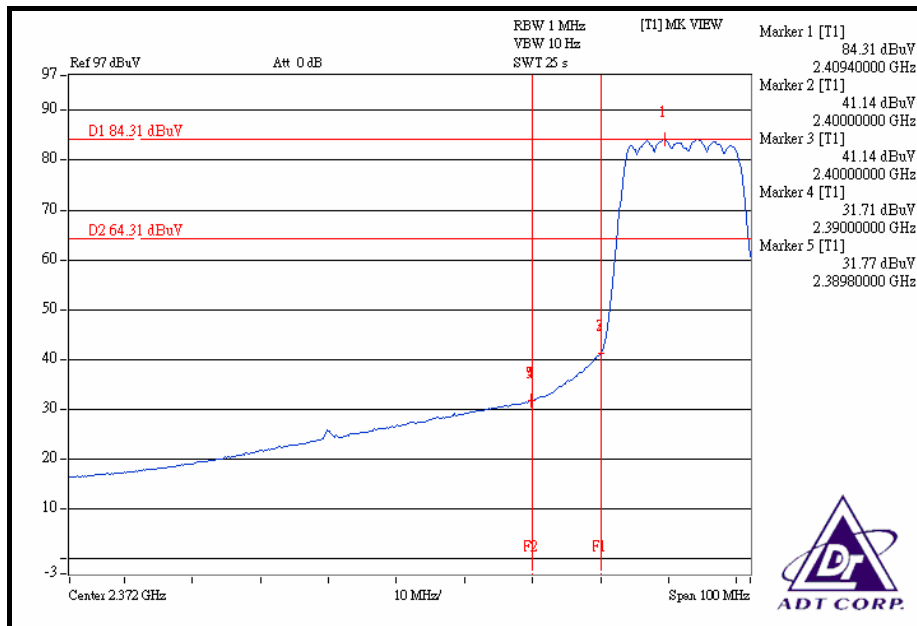
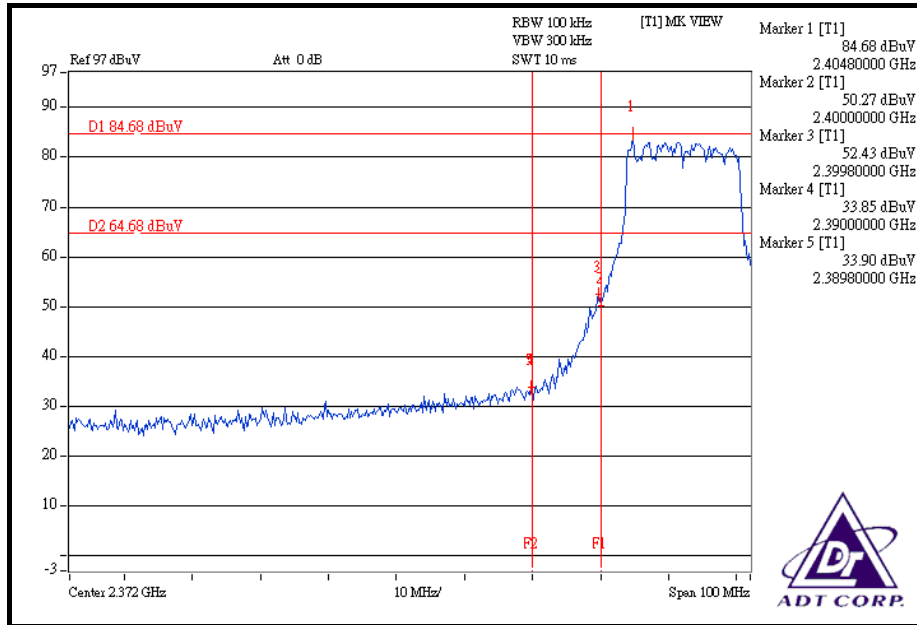
The band edge emission plot on the next page shows 50.78dBc between carrier maximum power and local maximum emission in restrict band (2.38980GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 113.82dBuV/m (Peak), so the maximum field strength in restrict band is $113.82 - 50.78 = 63.04$ dBuV/m which is under 74dBuV/m limit.

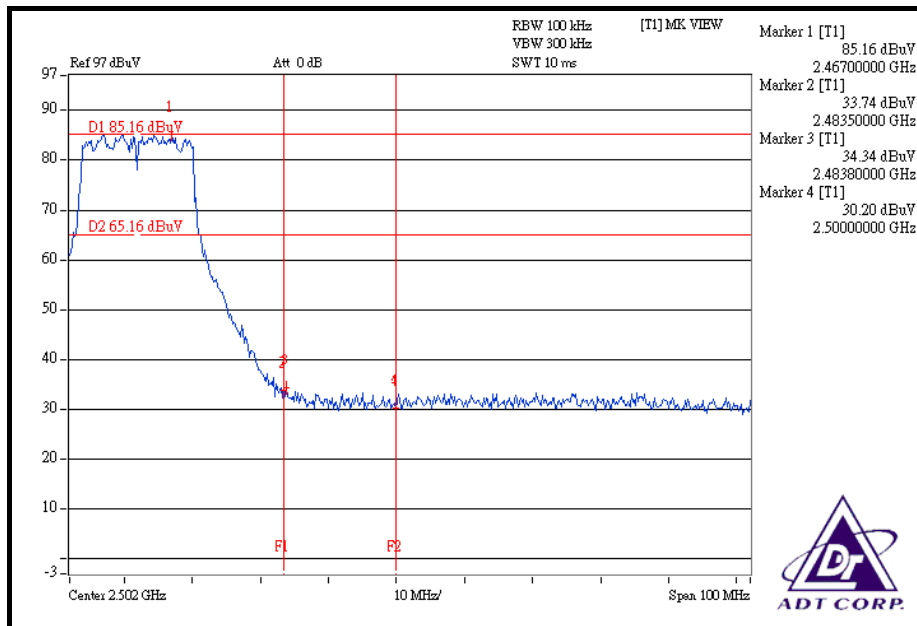
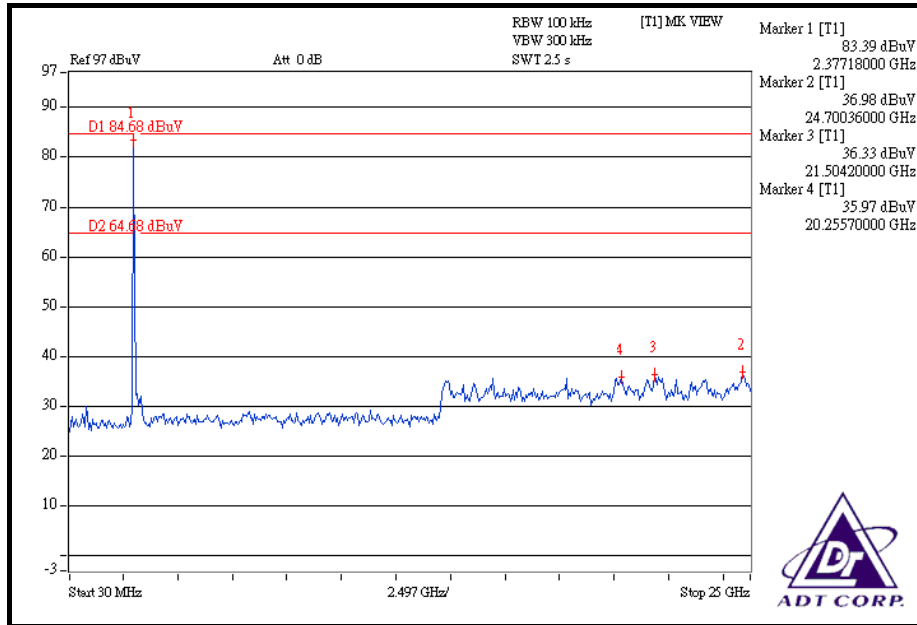
The band edge emission plot of on the next page shows 52.54dBc between carrier maximum power and local maximum emission in restrict band (2.38980GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 104.21dBuV/m (Average), so the maximum field strength in restrict band is $104.21 - 52.54 = 51.67$ dBuV/m which is under 54dBuV/m limit.

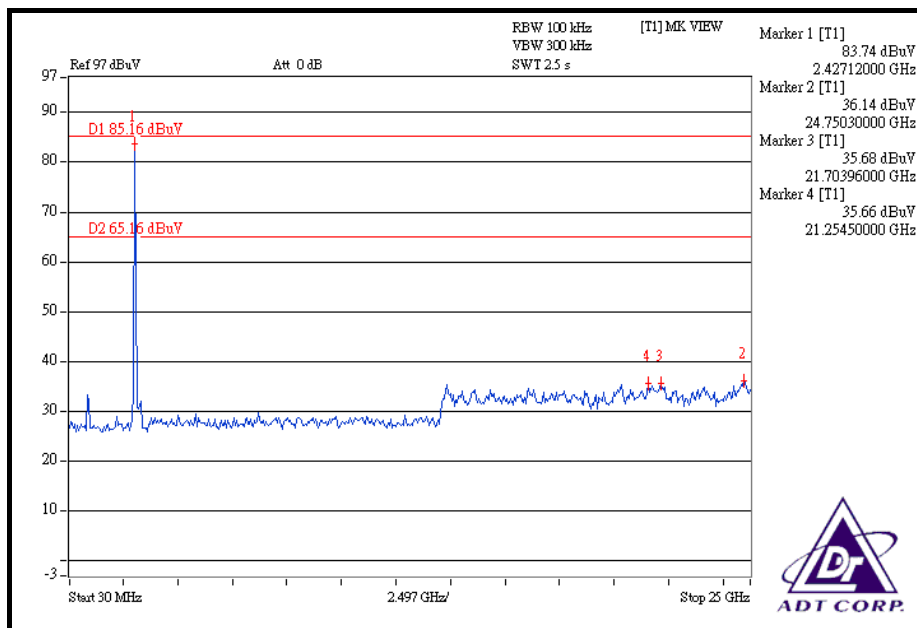
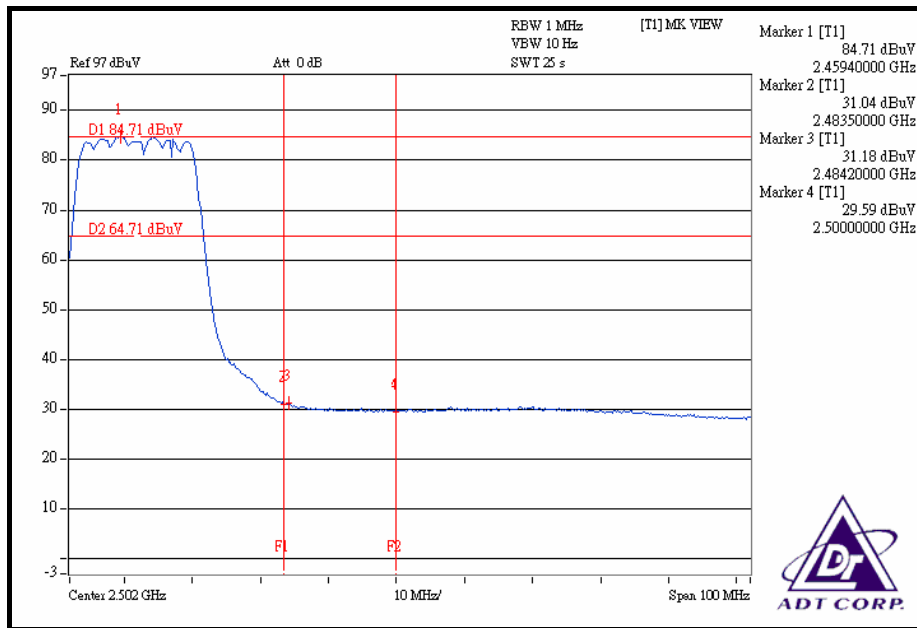
NOTE 2:

The band edge emission plot on the next second page shows 50.82dBc between carrier maximum power and local maximum emission in restrict band (2.48380GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 114.13dBuV/m (Peak), so the maximum field strength in restrict band is $114.13 - 50.82 = 63.31$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot on the next third page shows 53.53dBc between carrier maximum power and local maximum emission in restrict band (2.48420GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 104.34dBuV/m (Average), so the maximum field strength in restrict band is $104.34 - 53.53 = 50.81$ dBuV/m which is under 54dBuV/m limit.







DRAFT 802.11n (20MHz) OFDM MODULATION:

NOTE 1:

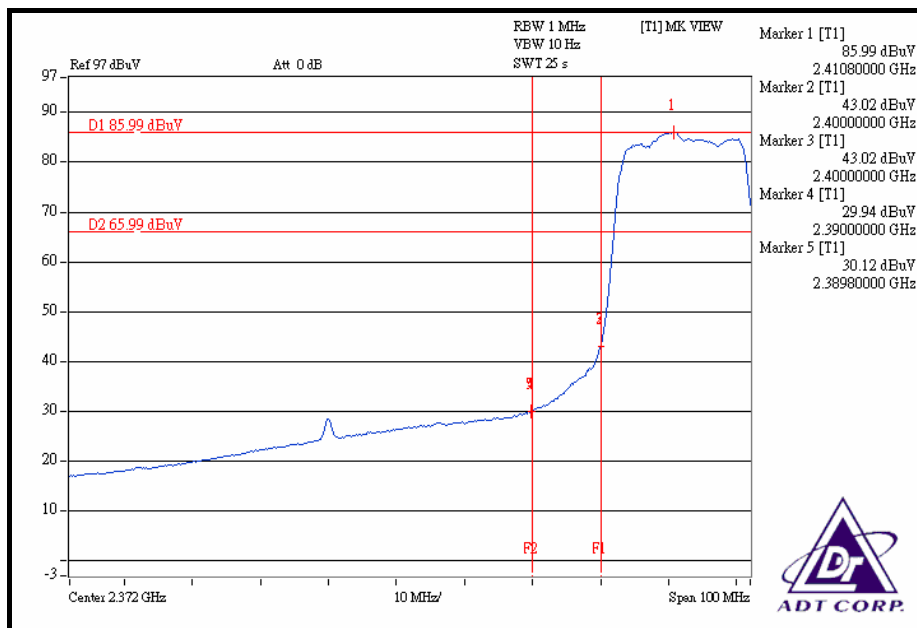
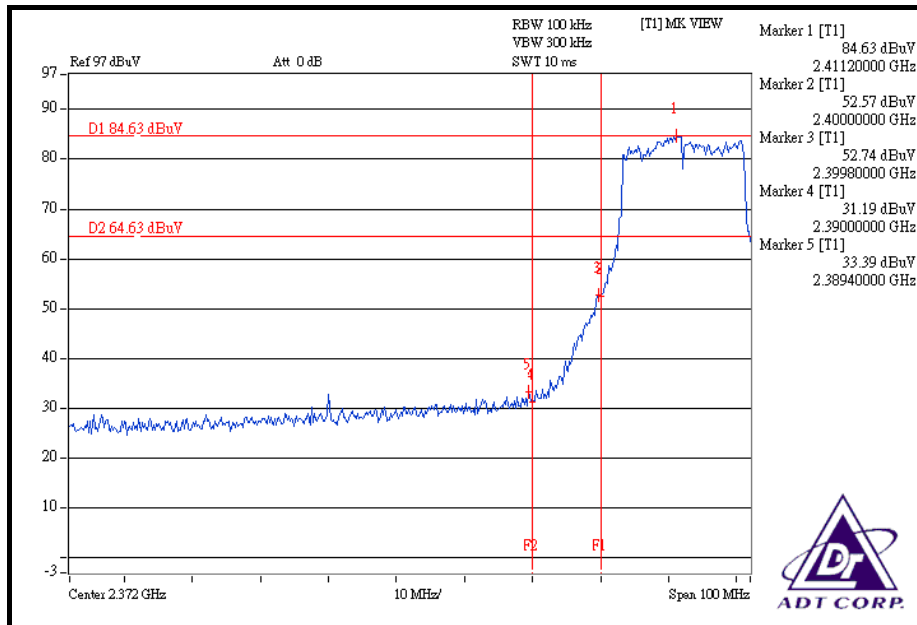
The band edge emission plot of OFDM technique on the next page shows 51.24dBc between carrier maximum power and local maximum emission in restrict band (2.38940GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 116.50dBuV/m (Peak), so the maximum field strength in restrict band is $116.50 - 51.24 = 65.26$ dBuV/m which is under 74dBuV/m limit.

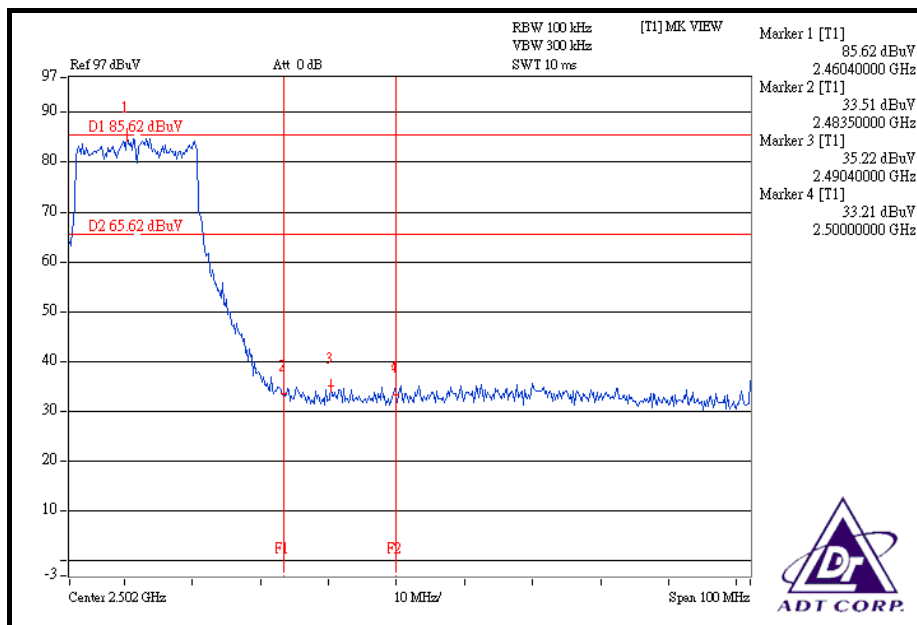
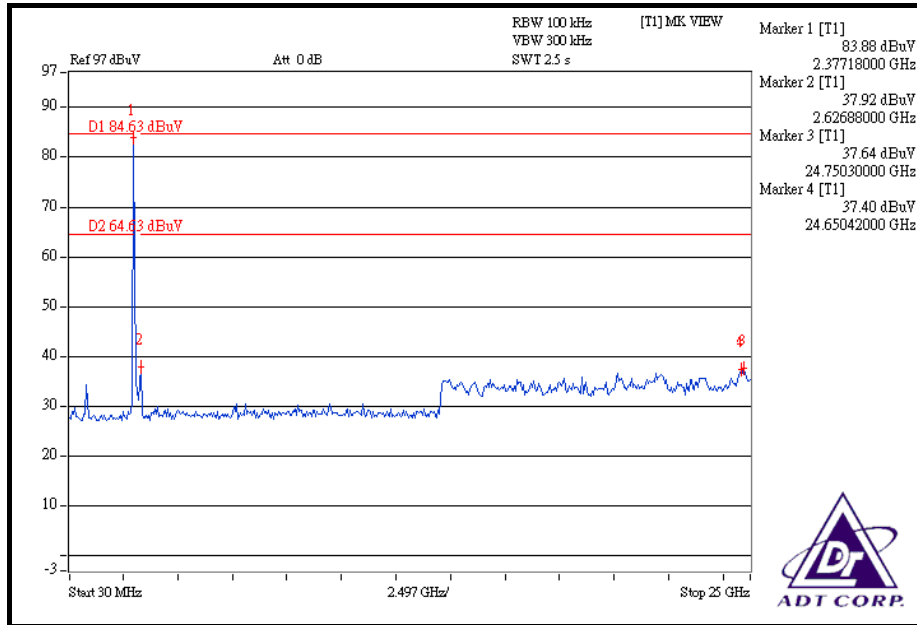
The band edge emission plot of OFDM technique on the next page shows 55.87dBc between carrier maximum power and local maximum emission in restrict band (2.38980GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 106.14dBuV/m (Average), so the maximum field strength in restrict band is $106.14 - 55.87 = 50.27$ dBuV/m which is under 54dBuV/m limit.

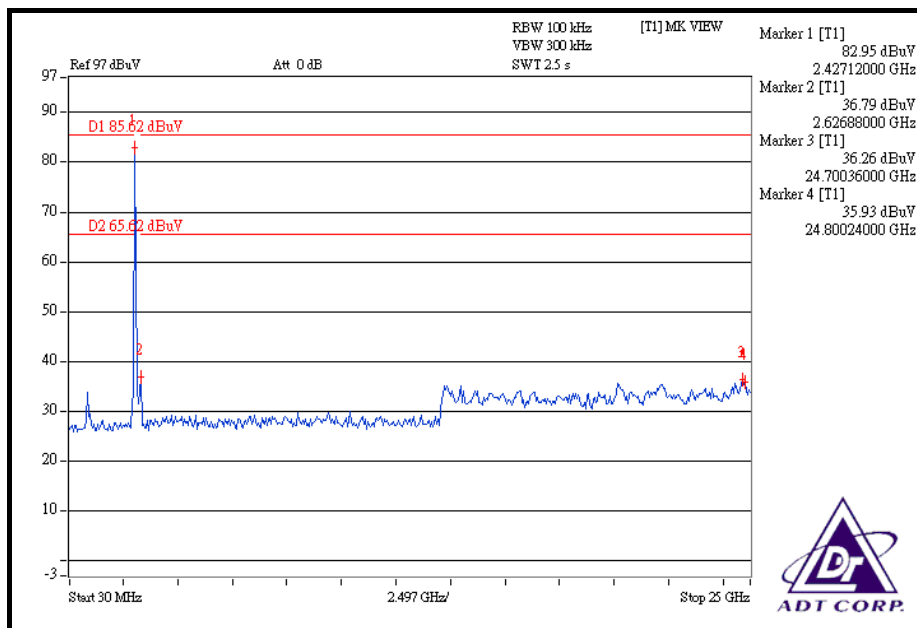
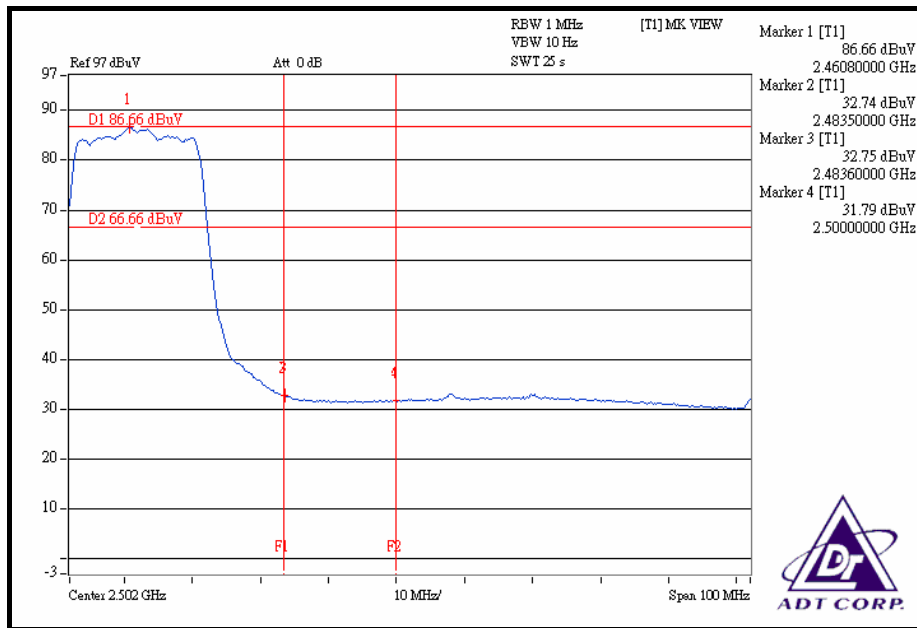
NOTE 2:

The band edge emission plot of OFDM technique on the next second page shows 50.40dBc between carrier maximum power and local maximum emission in restrict band (2.49040GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 116.81dBuV/m (Peak), so the maximum field strength in restrict band is $116.81 - 50.40 = 66.41$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot of OFDM technique on the next third page shows 53.91dBc between carrier maximum power and local maximum emission in restrict band (2.48360GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 106.24dBuV/m (Average), so the maximum field strength in restrict band is $106.24 - 53.91 = 52.33$ dBuV/m which is under 54dBuV/m limit.







DRAFT 802.11n (40MHz) OFDM MODULATION:

NOTE 1:

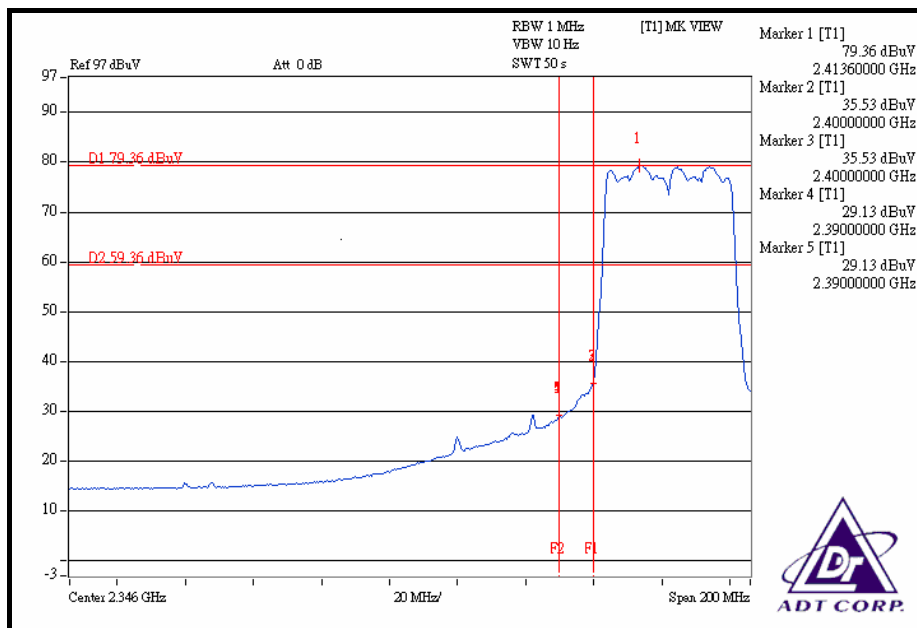
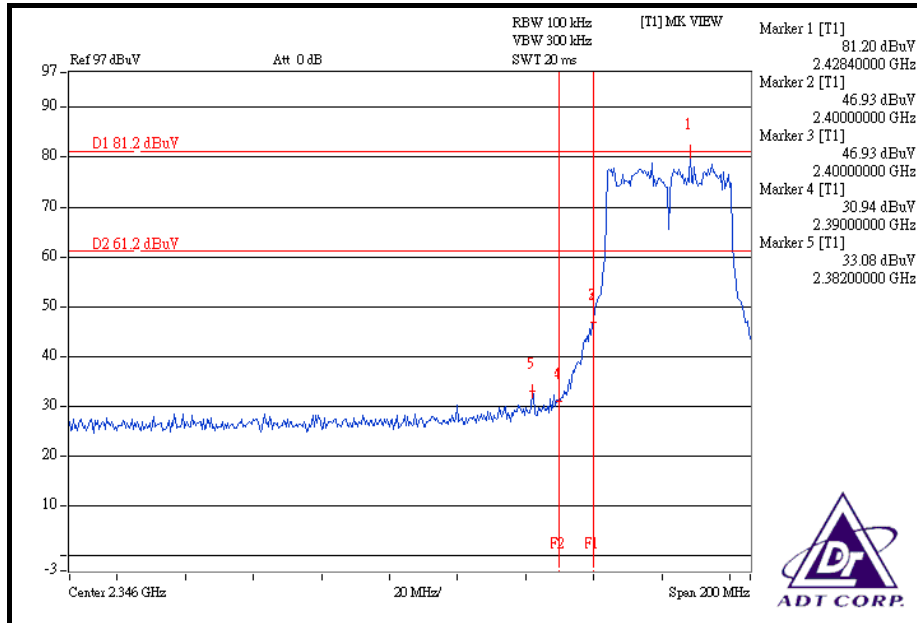
The band edge emission plot of OFDM technique on the next page shows 48.12dBc between carrier maximum power and local maximum emission in restrict band (2.38200GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 110.13dBuV/m (Peak), so the maximum field strength in restrict band is $110.13 - 48.12 = 62.01$ dBuV/m which is under 74dBuV/m limit.

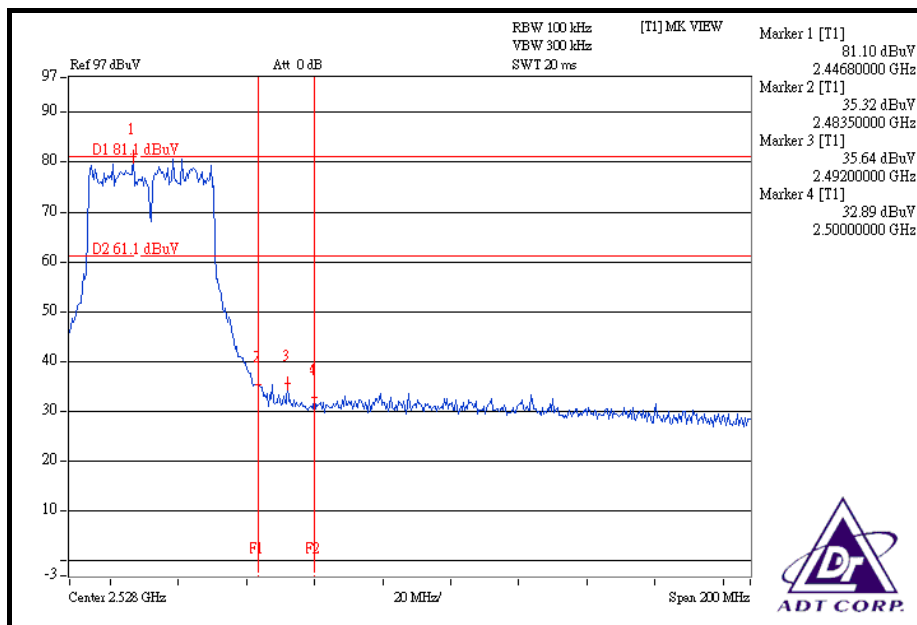
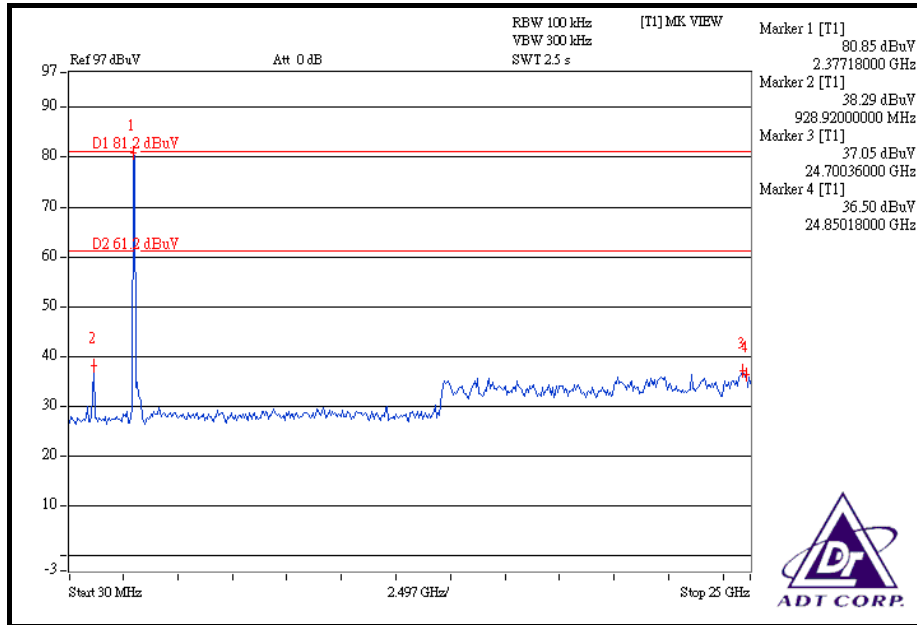
The band edge emission plot of OFDM technique on the next page shows 50.23dBc between carrier maximum power and local maximum emission in restrict band (2.39000GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 99.68dBuV/m (Average), so the maximum field strength in restrict band is $99.68 - 50.23 = 49.45$ dBuV/m which is under 54dBuV/m limit.

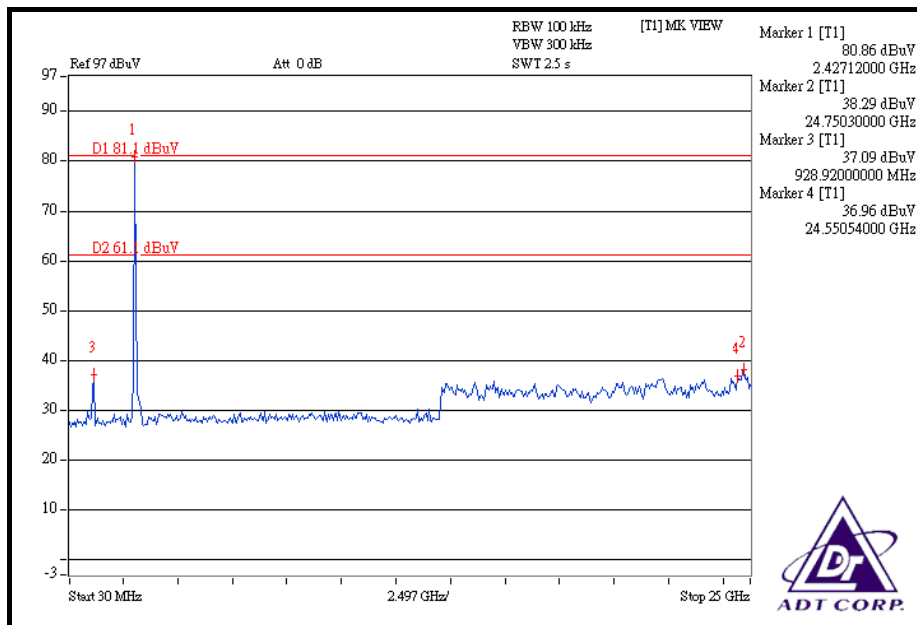
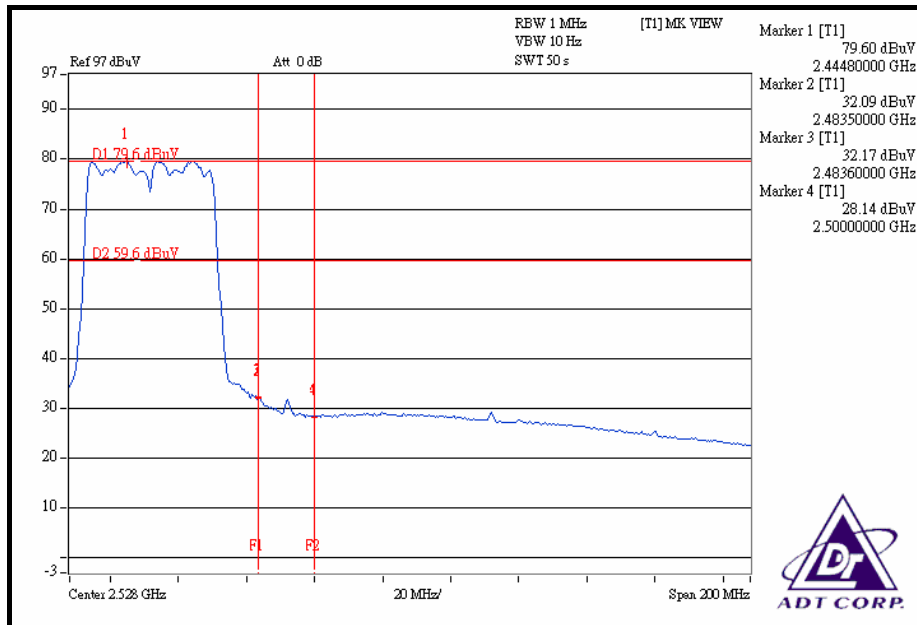
NOTE 2:

The band edge emission plot of OFDM technique on the next second page shows 45.46dBc between carrier maximum power and local maximum emission in restrict band (2.49200GHz). The emission of carrier strength list in the test result of channel 7 at the item 4.2.7 is 109.96dBuV/m (Peak), so the maximum field strength in restrict band is $109.96 - 45.46 = 64.50$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot of OFDM technique on the next third page shows 47.43dBc between carrier maximum power and local maximum emission in restrict band (2.48360GHz). The emission of carrier strength list in the test result of channel 7 at the item 4.2.7 is 99.61dBuV/m (Average), so the maximum field strength in restrict band is $99.61 - 47.43 = 52.18$ dBuV/m which is under 54dBuV/m limit.









4.7 ANTENNA REQUIREMENT

4.7.1 STANDARD APPLICABLE

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

4.7.2 ANTENNA CONNECTED CONSTRUCTION

The antenna used in this product is Dipole antenna with UFL connector. The maximum Gain of the antenna is 4dBi.



5. PHOTOGRAPHS OF THE TEST CONFIGURATION

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



6. INFORMATION ON THE TESTING LABORATORIES

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

USA	FCC, UL, A2LA
Germany	TUV Rheinland
Japan	VCCI
Norway	NEMKO
Canada	INDUSTRY CANADA , CSA
R.O.C.	TAF, BSMI, NCC
Netherlands	Telefication
Singapore	PSB , GOST-ASIA(MOU)
Russia	CERTIS(MOU)

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site:

www.adt.com.tw/index.5/phtml. If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab:

Tel: 886-2-26052180

Fax: 886-2-26051924

Hsin Chu EMC/RF Lab:

Tel: 886-3-5935343

Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety Telecom Lab: Linko RF Lab.

Tel: 886-3-3183232

Fax: 886-3-3185050

Tel: 886-3-3270910

Fax: 886-3-3270892

Web Site: www.adt.com.tw

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

7. APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications are made to the EUT by the lab during the test.