FCC TEST REPORT (15.247)

REPORT NO.:	RF961122H02
MODEL NO.:	WUSB600N
RECEIVED:	Nov. 22, 2007
TESTED:	Nov. 24 to Dec. 05, 2007
ISSUED:	Dec. 10, 2007

APPLICANT:	Cisco-Linksys LLC
ADDRESS:	121 Theory Drive Irvine, CA 92617(USA)

ISSUED BY:	Advance Data Technology Corporation
TEST LOCATION:	No. 81-1, Lu Liao Keng, 9 Ling, Wu Lung Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien, Taiwan, R.O.C.

Testing Laboratory 0536

No. 2177-01

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1. CERTIFICATION

PRODUCT:	Dual-Band Wireless-N USB Network Adapter
BRAND NAME:	Linksys
MODEL NO.:	WUSB600N
TEST SAMPLE:	R&D SAMPLE
TESTED:	Nov. 24 to Dec. 05, 2007
APPLICANT:	Cisco-Linksys LLC
STANDARDS:	FCC Part 15, Subpart C (Section 15.247), ANSI C63.4-2003

The above equipment (Model: WUSB600N) 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 : _____ , **DATE:** Dec. 10, 2007
(Midoli Peng, Specialist)

TECHNICAL ACCEPTANCE : _____ , **DATE:** Dec. 10, 2007
Responsible for RF
(Hank Chung, Deputy Manager)

APPROVED BY : _____ , **DATE:** Dec. 10, 2007
(May Chen, Deputy Manager)

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

For 802.11b & g, 2412~2462MHz Band

APPLIED STANDARD: FCC Part 15, Subpart C (Section 15.247)			
Standard Section	**Test Type and Limit**	**Result**	**Remark**
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is –10.28dB at 0.177MHz
15.247(a)(2)	Spectrum Bandwidth of a Direct Sequence Spread Spectrum System Limit: min. 500kHz	PASS	Meet the requirement of limit.
15.247(b)	Maximum Peak Output Power Limit: max. 30dBm	PASS	Meet the requirement of limit.
15.247(d)	Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit. Minimum passing margin is –0.33dB at 2390.00MHz
15.247(e)	Power Spectral Density Limit: max. 8dBm	PASS	Meet the requirement of limit.
15.247(d)	Band Edge Measurement Limit: 20dB less than the peak value of fundamental frequency	PASS	Meet the requirement of limit.

For 802.11a, 5725~5850MHz Band

APPLIED STANDARD: FCC Part 15, Subpart C (Section 15.247)			
Standard Section	**Test Type and Limit**	**Result**	**Remark**
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is –11.19dB at 0.177MHz
15.247(a)(2)	Spectrum Bandwidth of a Direct Sequence Spread Spectrum System Limit: min. 500kHz	PASS	Meet the requirement of limit.
15.247(b)	Maximum Peak Output Power Limit: max. 30dBm	PASS	Meet the requirement of limit.
15.247(d)	Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit. Minimum passing margin is –0.5dB at 9192.00MHz
15.247(e)	Power Spectral Density Limit: max. 8dBm	PASS	Meet the requirement of limit.
15.247(d)	Band Edge Measurement Limit: 20dB less than the peak value of fundamental frequency	PASS	Meet the requirement of limit.

NOTE:

1. The EUT was operating in 2.412 ~ 2.462GHz, 5.15~5.35GHz, 5.47~5.725GHz and 5.725~5.850GHz frequencies band. This report was recorded the RF parameters including 2.412 ~ 2.462GHz and 5.725 ~ 5.850GHz. For the 5.15~5.35GHz and 5.47~5.725GHz RF parameters was recorded in another test report.

2.1 MEASUREMENT UNCERTAINTY

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

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

Measurement	Value
Conducted emissions	2.44 dB
Radiated emissions (30MHz-1GHz)	3.94 dB
Radiated emissions (1GHz -18GHz)	2.33 dB
Radiated emissions (18GHz -40GHz)	2.55 dB

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Dual-Band Wireless-N USB Network Adapter
MODEL NO.	WUSB600N
FCC ID	Q87-WUSB600N
POWER SUPPLY	DC 5V from host equipment
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b: 11 / 5.5 / 2 / 1Mbps 802.11g: 54 / 48 / 36 / 24 / 18 / 12 / 9 / 6Mbps 802.11a: 54 / 48 / 36 / 24 / 18 / 12 / 9 / 6Mbps Draft 802.11n (20MHz): 130 / 117 / 104 / 78 / 65 / 58.5 / 52 / 39 / 26 / 19.5 /13 / 6.5Mbps Draft 802.11n (40MHz): 270 / 243 / 216 / 162 / 135 / 121.5 / 108 / 81 /54 / 40.5 / 27 / 13.5Mbps
FREQUENCY RANGE	For 15.407 802.11a: 5.18 ~ 5.32GHz and 5.50 ~ 5.70GHz
	For 15.247 802.11b & 802.11g: 2412 ~ 2462MHz 802.11a: 5.745 ~ 5.825GHz
NUMBER OF CHANNEL	**For 15.407** 19 for 802.11a, draft 802.11n (20MHz) 9 for draft 802.11n (40MHz)
	For 15.247(2.4GHz) 11 for 802.11b, 802.11g, draft 802.11n (20MHz) 7 for draft 802.11n (40MHz) **For 15.247(5GHz)** 5 for 802.11a, draft 802.11n (20MHz) 3 for draft 802.11n (40MHz)

MAXIMUM OUTPUT POWER	**For 15.407** 802.11a: 32.961mW draft 802.11n (20MHz): 32.489mW draft 802.11n (40MHz): 36.377mW **For 15.247(2.4GHz)** 802.11b: 34.674mW 802.11g: 97.724mW draft 802.11n (20MHz): 133.677mW draft 802.11n (40MHz): 132.138mW **For 15.247(5GHz)** 802.11a: 47.863mW draft 802.11n (20MHz): 81.563mW draft 802.11n (40MHz): 85.882mW
ANTENNA TYPE	Please see note 1
DATA CABLE	NA
INTERFACE	USB
ASSOCIATED DEVICES	Cradle (with 1.8m cable, shielded)

NOTE:

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

No.	Antenna Type	For 2.4GHz Gain (dBi)	For 5GHz Gain (dBi)	Antenna Connector
1	PCB Print	2	4	NA
2	PCB Print	2	4	NA

2. The EUT incorporates a MIMO function with 802.11a, 802.11b, 802.11g, draft 802.11n. Physically, the EUT provides two completed transmit and two completed receivers.

3. The EUT is 2 * 2 spatial MIMO (2Tx & 2Rx) without beam forming function. The antenna configurations are two transmitter antennas and two receiver antennas, as there are 2 PCB Print antennas. Spatial multiplexing modes for simultaneous transmission using 2 antennas, and for simultaneous receiver using 2 antennas.

4. When the EUT operating in draft 802.11n, the software operation, which is defined by manufacturer, MCS (Modulation and Coding Schemes) from 0 to 15.

5. The EUT complies with draft 802.11n standards and backwards compatible with 802. 11a, 802.11b, 802.11g products.

6. The above EUT information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

3.2 DESCRIPTION OF TEST MODES

Operated in 2400 ~ 2483.5MHz band:

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2412MHz	7	2442MHz
2	2417MHz	8	2447MHz
3	2422MHz	9	2452MHz
4	2427MHz	10	2457MHz
5	2432MHz	11	2462MHz
6	2437MHz		

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2422MHz	5	2442MHz
2	2427MHz	6	2447MHz
3	2432MHz	7	2452MHz
4	2437MHz		

Operated in 5725 ~ 5850MHz band:

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	5745 MHz	4	5805 MHz
2	5765 MHz	5	5825 MHz
3	5785 MHz		

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

CHANNEL	FREQUENCY
1	5755 MHz
2	5775 MHz
3	5795 MHz

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL:

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	PLC	RE < 1G	RE ≥ 1G	APCM	
-	√	√	√	√	-

Where **PLC:** Power Line Conducted Emission **RE < 1G:** Radiated Emission below 1GHz

RE ≥ 1G: Radiated Emission above 1GHz **APCM:** Antenna Port Conducted Measurement

ANTENNA COMBINATION MODE:

COMBINATION MODE	OPERATION MODE	CHAIN(0) (TX/RX)	CHAIN(1) (TX/RX)
A	802.11a, b, g	√	
B	DRAFT 802.11n(20MHz)	√	√
C	DRAFT 802.11n(40MHz)	√	√

Note:
1. The above information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.
2. Antenna 1 and Antenna 2 are PCB Print antennas.

POWER LINE CONDUCTED EMISSION TEST:

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX COMBINATION
For 2.4 GHz Draft 802.11n (20MHz)	1 to 11	1	OFDM	BPSK	13	B
For 5 GHz Draft 802.11n (20MHz)	1 to 5	1	OFDM	BPSK	13	B

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

TEST MODE	DESCRIPTION
Mode A	**With Cradle**
Mode B	Without Cradle

The worst case was found in Mode A. Their test data were recorded in this report individually.

RADIATED EMISSION TEST (BELOW 1 GHz):

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX COMBINATION
For 2.4 GHz Draft 802.11n (20MHz)	1 to 3	1	DSSS	DBPSK	1	A
For 5 GHz Draft 802.11n (20MHz)	1 to 5	1	OFDM	BPSK	13	B

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

TEST MODE	DESCRIPTION
Mode A	**With Cradle**
Mode B	Without Cradle

The worst case was found in Mode A. Their test data were recorded in this report individually.

RADIATED EMISSION TEST (ABOVE 1 GHz):

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX COMBINATION
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1	A
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6	A
For 2.4 GHz Draft 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	13	B
For 2.4 GHz Draft 802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	27	C
802.11a	1 to 5	1,3, 5	OFDM	BPSK	6	A
For 5 GHz Draft 802.11n (20MHz)	1 to 5	1, 3, 5	OFDM	BPSK	13	B
For 5 GHz Draft 802.11n (40MHz)	1 to 3	1, 3	OFDM	BPSK	27	C

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

TEST MODE	DESCRIPTION
Mode A	**With Cradle**
Mode B	Without Cradle

The worst case was found in Mode A. Their test data were recorded in this report individually.

BANDEDGE MEASUREMENT:

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX COMBINATION
802.11b	1 to 11	1, 11	DSSS	DBPSK	1	A
802.11g	1 to 11	1, 11	OFDM	BPSK	6	A
For 2.4 GHz Draft 802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	13	B
For 2.4 GHz Draft 802.11n (40MHz)	1 to 7	1, 7	OFDM	BPSK	27	C
802.11a	1 to 5	1, 5	OFDM	BPSK	6	A
For 5 GHz Draft 802.11n (20MHz)	1 to 5	1, 5	OFDM	BPSK	13	B
For 5 GHz Draft 802.11n (40MHz)	1 to 3	1, 3	OFDM	BPSK	27	C

ANTENNA PORT CONDUCTED MEASUREMENT:

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX COMBINATION
802.11b	1 to 11	1, 6, 11	DSSS	CCK	11	A
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6	A
For 2.4 GHz Draft 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	13	B
For 2.4 GHz Draft 802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	27	C
802.11a	1 to 5	1, 3, 5	OFDM	BPSK	6	A
For 5 GHz Draft 802.11n (20MHz)	1 to 5	1, 3, 5	OFDM	BPSK	13	B
For 5 GHz Draft 802.11n (40MHz)	1 to 3	1, 3	OFDM	BPSK	27	C

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a Dual-Band Wireless-N USB Network Adapter. 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

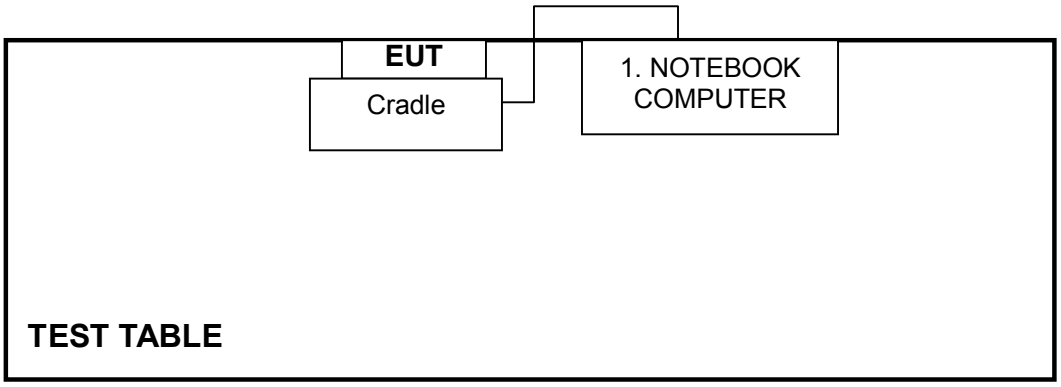
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP18L	6976685584	FCC DoC

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA

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

3.5 CONFIGURATION OF SYSTEM UNDER TEST



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

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

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

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
Test Receiver	ESCS 30	847124/029	Mar. 28, 2008
Line-Impedance Stabilization Network(for EUT)	ENV-216	100071	Nov. 26, 2008
Line-Impedance Stabilization Network(for Peripheral)	ESH3-Z5	848773/004	Nov. 08, 2008
RF Cable (JETBAO)	RG233/U	Cable_CB_01	Dec. 09, 2007
Terminator	50	2	Oct. 30, 2008
Software	ADT_Cond_V7.3.2	NA	NA

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in ADT Shielded Room No. B.
3. The VCCI Con B Registration No. is C-2193.

4.1.3 TEST PROCEDURES

a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.

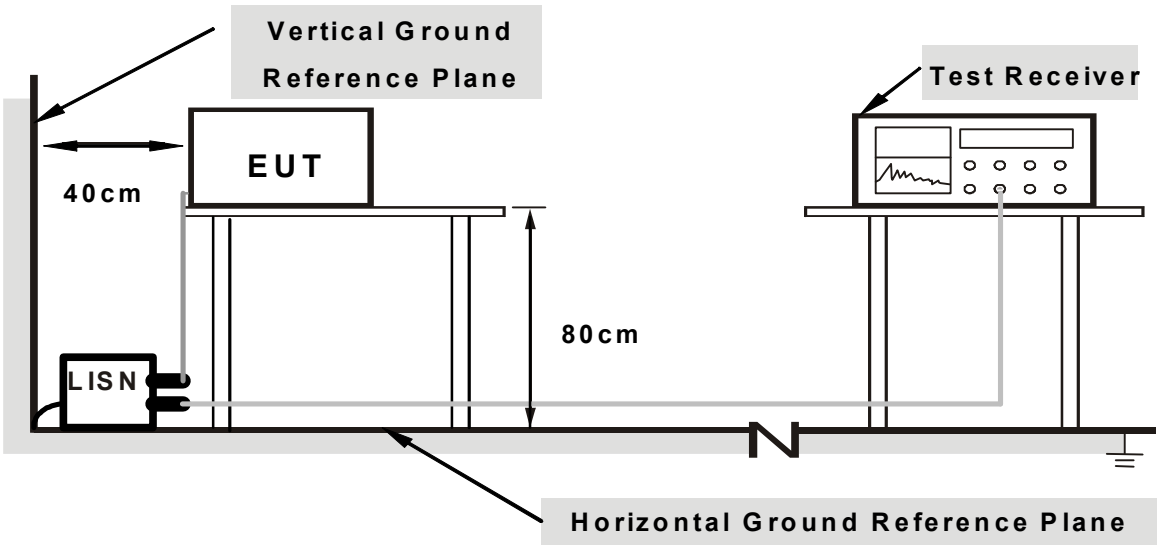
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

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

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



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

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

4.1.6 EUT OPERATING CONDITIONS

a. Connect the EUT with the support unit 1 (Notebook computer) which placed on a testing table.

b. The support unit 1 (Notebook computer) ran a test program “RT2870QA .exe” to enable EUT under transmission condition continuously.

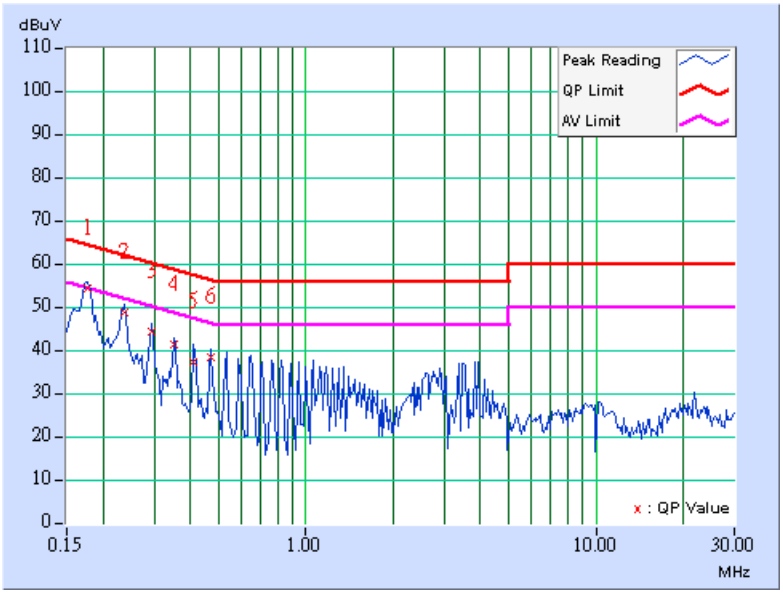
4.1.7 TEST RESULTS

DRAFT 802.11n (20MHz) OFDM MODULATION:

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	**PHASE**	Line (L)
MODULATION TYPE	BPSK	**6dB BANDWIDTH**	9 kHz
TRANSFER RATE	13Mbps	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 971hPa	**TESTED BY**	Moris Lin

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	**0.177**	**0.15**	**54.18**	**-**	**54.33**	**-**	**64.61**	**54.61**	**-10.28**	**-**
2	0.236	0.16	48.68	-	48.84	-	62.24	52.24	-13.40	-
3	0.295	0.16	44.22	-	44.38	-	60.40	50.40	-16.01	-
4	0.353	0.17	41.12	-	41.29	-	58.89	48.89	-17.60	-
5	0.408	0.17	37.09	-	37.26	-	57.69	47.69	-20.43	-
6	0.470	0.18	38.18	-	38.36	-	56.51	46.51	-18.15	-

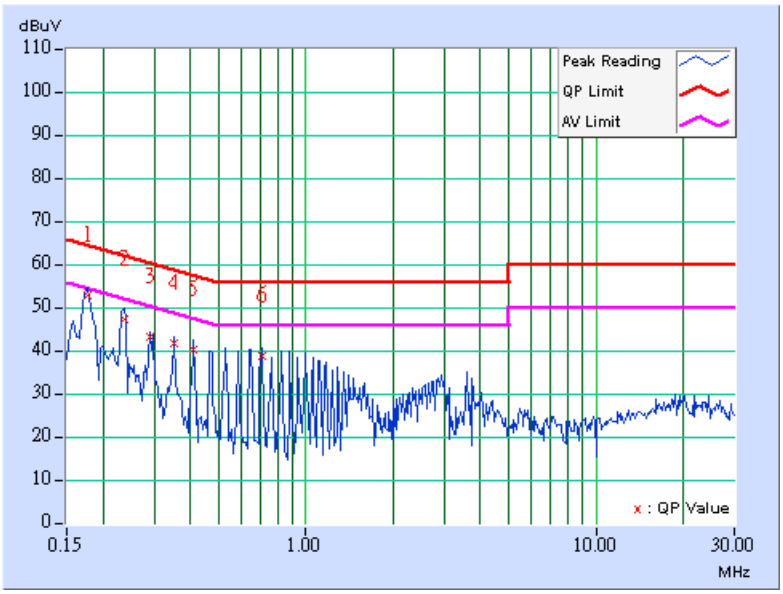
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	PHASE	Neutral (N)
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	13Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 971hPa	TESTED BY	Max Tseng

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.177	0.08	52.80	-	52.88	-	64.61	54.61	-11.73	-
2	0.236	0.08	47.38	-	47.46	-	62.24	52.24	-14.78	-
3	0.291	0.08	43.20	-	43.28	-	60.51	50.51	-17.23	-
4	0.353	0.08	41.70	-	41.78	-	58.89	48.89	-17.11	-
5	0.412	0.08	40.15	-	40.23	-	57.61	47.61	-17.38	-
6	0.705	0.14	38.78	-	38.92	-	56.00	46.00	-17.08	-

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



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

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

Frequencies (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

NOTE:

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

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
ADVANTEST Spectrum Analyzer	R3271A	85060311	July 15, 2008
HP Pre_Amplifier	8449B	3008A01922	Oct. 04, 2008
ROHDE & SCHWARZ Test Receiver	ESCS30	100375	Mar. 26, 2008
CHASE Broadband Antenna	VULB 9168	138	July 26, 2008
Schwarzbeck Horn_Antenna	BBHA9120	D124	Jan. 01, 2008
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 25, 2008
TRILOG Broad Band Antenna	VULB 9168	138	July 26, 2008
RF Switches (ARNITSU)	CS-201	1565157	Aug. 13, 2008
RF CABLE (Chaintek)	SF102	22054-2	Nov. 14. 2008
RF Cable(RICHTEC)	9913-30M N-N Cable	STCCAB-30M-1 GHz	Aug. 13, 2008
Software	ADT_Radiated_V 7.6.15.7	NA	NA
CHANCE MOST Antenna Tower	AT-100	0203	NA
CHANCE MOST Turn Table	TT-100	0203	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna, HP preamplifier (model: 8449B) and Spectrum Analyzer (model: R3271A) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in ADT Open Site No. C.
4. The FCC Site Registration No. is 656396.
5. The VCCI Site Registration No. is R-1626.
6. The CANADA Site Registration No. is IC 4824A-3.

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 meter semi- anechoic. 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 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 dB margin would be re-tested one by one using the quasi-peak method or average method as specified and then reported in Data sheet peak mode and QP mode.

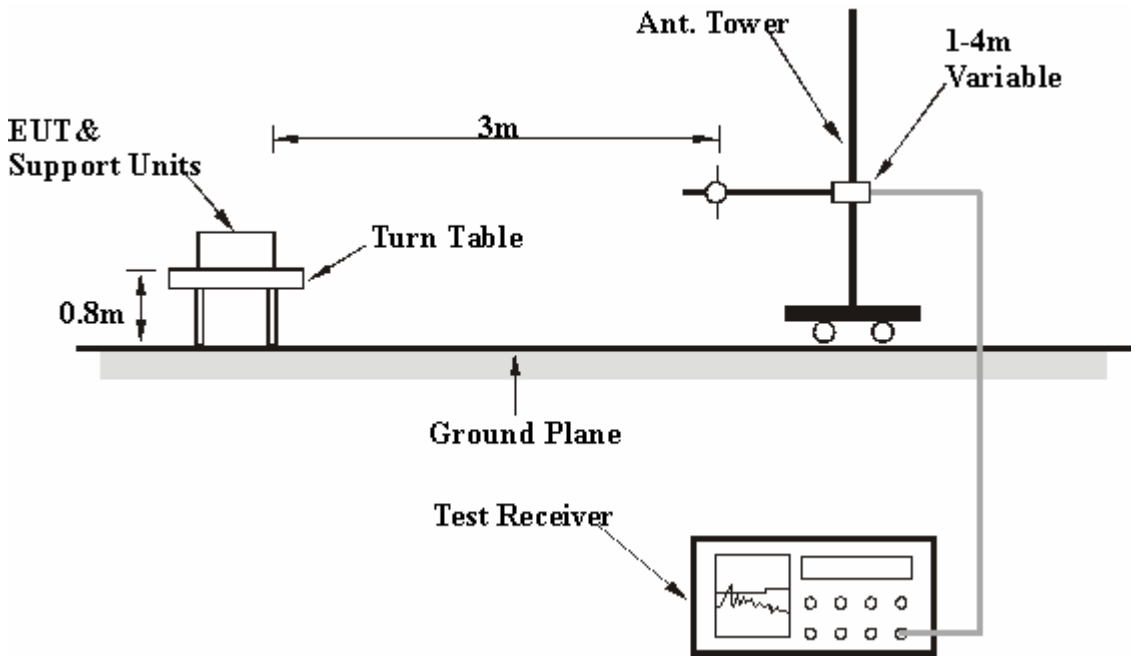
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz for Average detection (AV) at frequency above 1GHz.

4.2.4 DEVIATION FROM TEST STANDARD

No deviation

4.2.5 TEST SETUP



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

4.2.6 EUT OPERATING CONDITIONS

Same as the 4.1.6

Below 1GHz Test Data

4.2.7 TEST RESULTS

802.11n (20MHz) OFDM MODULATION:

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	20deg. C, 74%RH, 971hPa	TESTED BY	Sky Liao

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	80.00	35.31 QP	40.00	-4.69	2.37 H	21	25.15	10.16
2	120.00	41.60 QP	43.50	-1.90	2.09 H	236	28.73	12.87
3	240.00	22.64 QP	46.00	-23.36	1.14 H	358	9.97	12.67
4	360.00	22.52 QP	46.00	-23.48	1.06 H	274	5.38	17.14
5	480.00	27.36 QP	46.00	-18.64	1.29 H	273	6.78	20.58
6	600.00	26.72 QP	46.00	-19.28	1.14 H	320	3.18	23.54
7	840.00	29.59 QP	46.00	-16.41	1.00 H	263	1.20	28.39
8	960.00	39.44 QP	46.00	-6.56	1.09 H	282	9.77	29.67

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	80.00	32.26 QP	40.00	-7.74	1.00 V	311	22.10	10.16
2	120.00	36.18 QP	43.50	-7.32	1.00 V	155	23.31	12.87
3	200.00	24.00 QP	43.50	-19.50	1.00 V	282	11.97	12.03
4	360.00	23.06 QP	46.00	-22.94	1.38 V	317	5.92	17.14
5	480.03	25.77 QP	46.00	-20.23	1.00 V	4	5.19	20.58
6	600.03	23.46 QP	46.00	-22.54	1.39 V	75	-0.08	23.54
7	840.03	28.52 QP	46.00	-17.48	1.32 V	209	0.13	28.39
8	959.99	37.72 QP	46.00	-8.28	1.23 V	185	8.05	29.67

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

Above 1GHz Test Data

4.2.8 TEST RESULTS

802.11b DSSS MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	19deg. C, 70%RH 960hPa	TESTED BY	Moris Lin

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	2387.00	55.72 PK	74.00	-18.28	1.54 H	10	25.34	30.38
2	2387.00	44.94 AV	54.00	-9.06	1.54 H	10	14.56	30.38
3	*2412.00	93.83 PK			1.55 H	20	63.34	30.49
4	*2412.00	89.39 AV			1.55 H	20	58.90	30.49
5	4824.00	55.39 PK	74.00	-18.61	1.53 H	347	19.70	35.69
6	4824.00	52.73 AV	54.00	-1.27	1.53 H	347	17.04	35.69
7	7236.00	54.38 PK	73.83	-19.45	1.36 H	226	12.14	42.24
8	7236.00	42.38 AV	69.39	-27.01	1.36 H	226	0.14	42.24

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	2387.00	57.78 PK	74.00	-16.22	1.38 V	149	27.40	30.38
2	2387.00	46.93 AV	54.00	-7.07	1.38 V	149	16.55	30.38
3	*2412.00	105.20 PK			1.04 V	300	74.71	30.49
4	*2412.00	101.20 AV			1.04 V	300	70.71	30.49
5	4824.00	49.45 PK	74.00	-24.55	1.37 V	279	13.76	35.69
6	4824.00	41.64 AV	54.00	-12.36	1.37 V	279	5.95	35.69
7	7236.00	54.47 PK	85.20	-30.73	1.00 V	360	12.23	42.24
8	7236.00	40.67 AV	81.20	-40.53	1.00 V	360	-1.57	42.24

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	19deg. C, 70%RH 960hPa	TESTED BY	Moris Lin

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	94.20 PK			1.60 H	298	63.59	30.61
2	*2437.00	90.21 AV			1.60 H	298	59.60	30.61
3	4874.00	55.07 PK	74.00	-18.93	1.21 H	360	19.27	35.80
4	4874.00	52.94 AV	54.00	-1.06	1.21 H	360	17.14	35.80
5	7311.00	53.42 PK	74.00	-20.58	1.34 H	34	10.90	42.52
6	7311.00	41.28 AV	54.00	-12.72	1.34 H	34	-1.24	42.52

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	*2437.00	106.80 PK			1.33 V	129	76.19	30.61
2	*2437.00	102.20 AV			1.33 V	129	71.59	30.61
3	4874.00	49.06 PK	74.00	-24.94	1.19 V	284	13.26	35.80
4	4874.00	39.95 AV	54.00	-14.05	1.19 V	284	4.15	35.80
5	7311.00	54.60 PK	74.00	-19.40	1.00 V	360	12.08	42.52
6	7311.00	40.81 AV	54.00	-13.19	1.00 V	360	-1.71	42.52

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 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	19deg. C, 70%RH 960hPa	TESTED BY	Moris Lin

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	95.63 PK			1.70 H	300	64.91	30.72
2	*2462.00	91.24 AV			1.70 H	300	60.52	30.72
3	2487.00	56.00 PK	74.00	-18.00	1.75 H	358	25.17	30.83
4	2487.00	44.95 AV	54.00	-9.05	1.75 H	358	14.12	30.83
5	4924.00	55.08 PK	74.00	-18.92	1.47 H	12	19.18	35.90
6	4924.00	52.70 AV	54.00	-1.30	1.47 H	12	16.80	35.90
7	7386.00	52.42 PK	74.00	-21.58	1.22 H	19	9.62	42.80
8	7386.00	40.29 AV	54.00	-13.71	1.22 H	19	-2.51	42.80

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	102.70 PK			1.40 V	126	71.98	30.72
2	*2462.00	98.31 AV			1.40 V	126	67.59	30.72
3	2487.00	57.48 PK	74.00	-16.52	1.39 V	212	26.65	30.83
4	2487.00	46.00 AV	54.00	-8.00	1.39 V	212	15.17	30.83
5	4924.00	47.89 PK	74.00	-26.11	1.67 V	360	11.99	35.90
6	4924.00	36.78 AV	54.00	-17.22	1.67 V	360	0.88	35.90
7	7386.00	54.06 PK	74.00	-19.94	1.00 V	360	11.26	42.80
8	7386.00	40.71 AV	54.00	-13.29	1.00 V	360	-2.09	42.80

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

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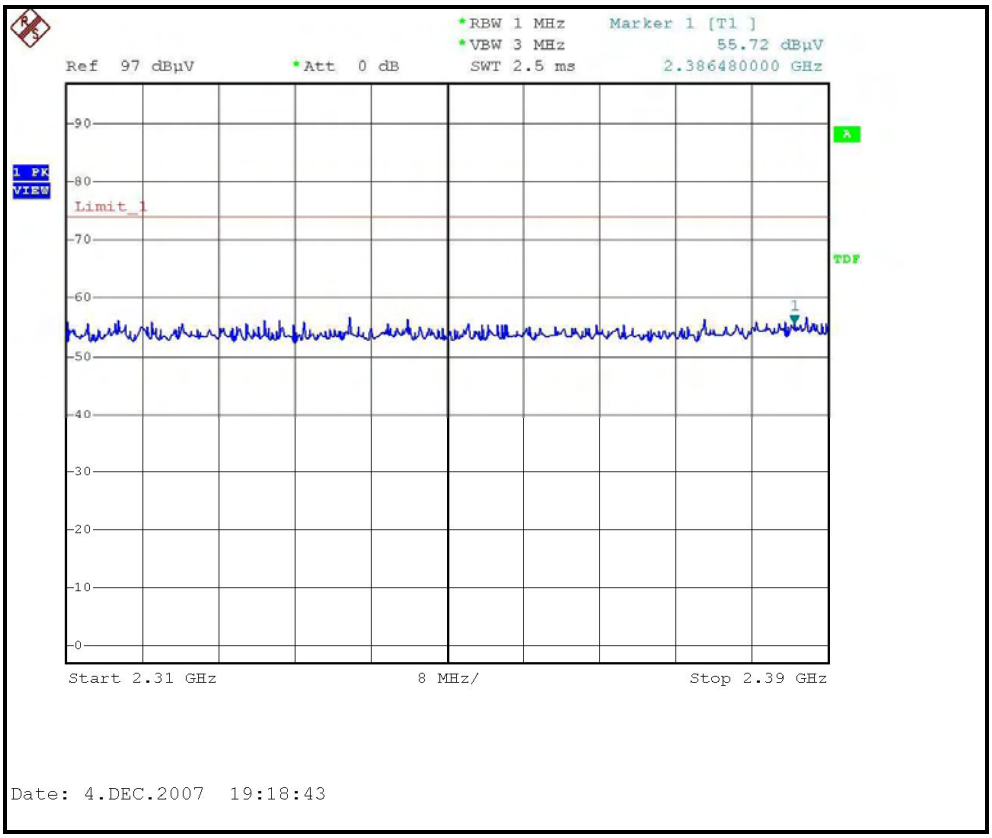

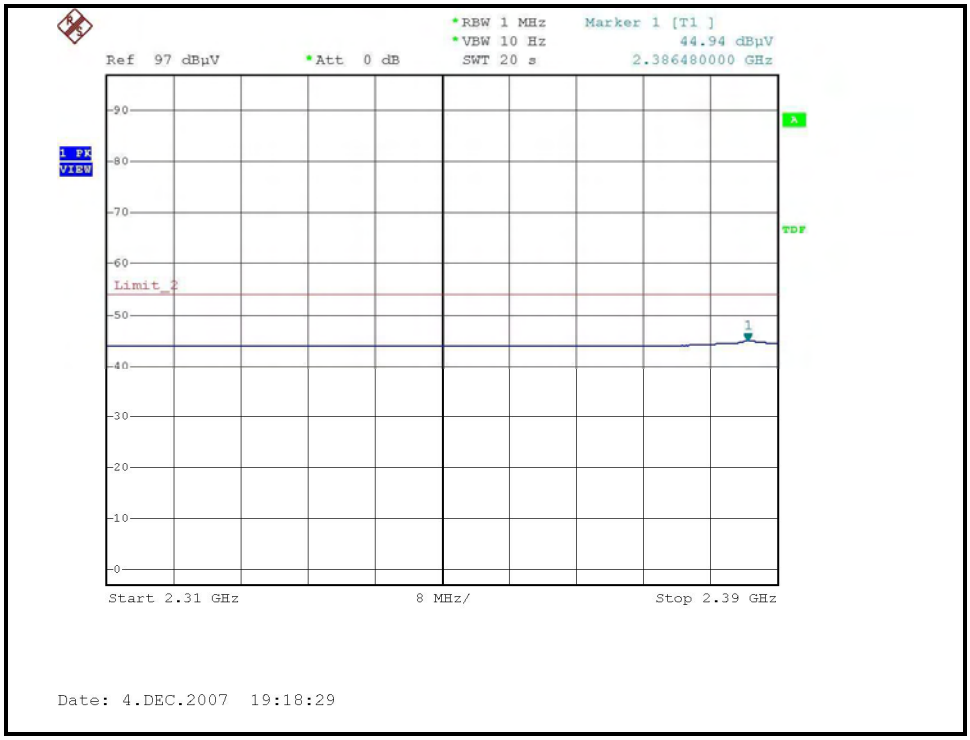

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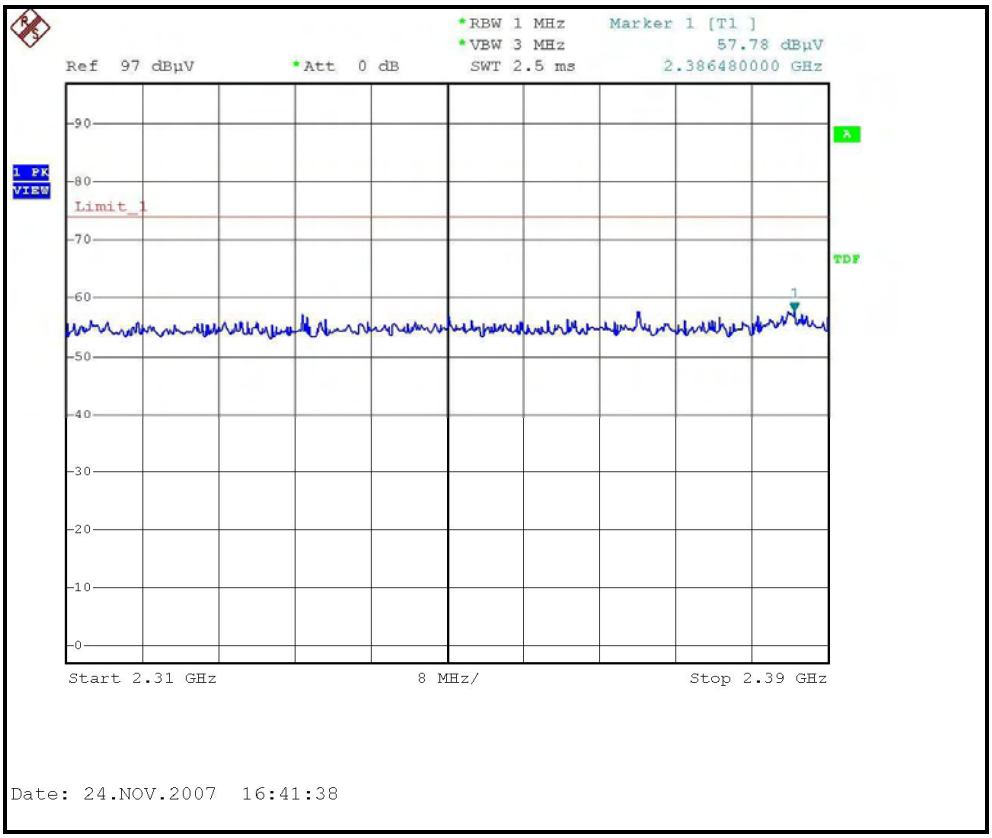

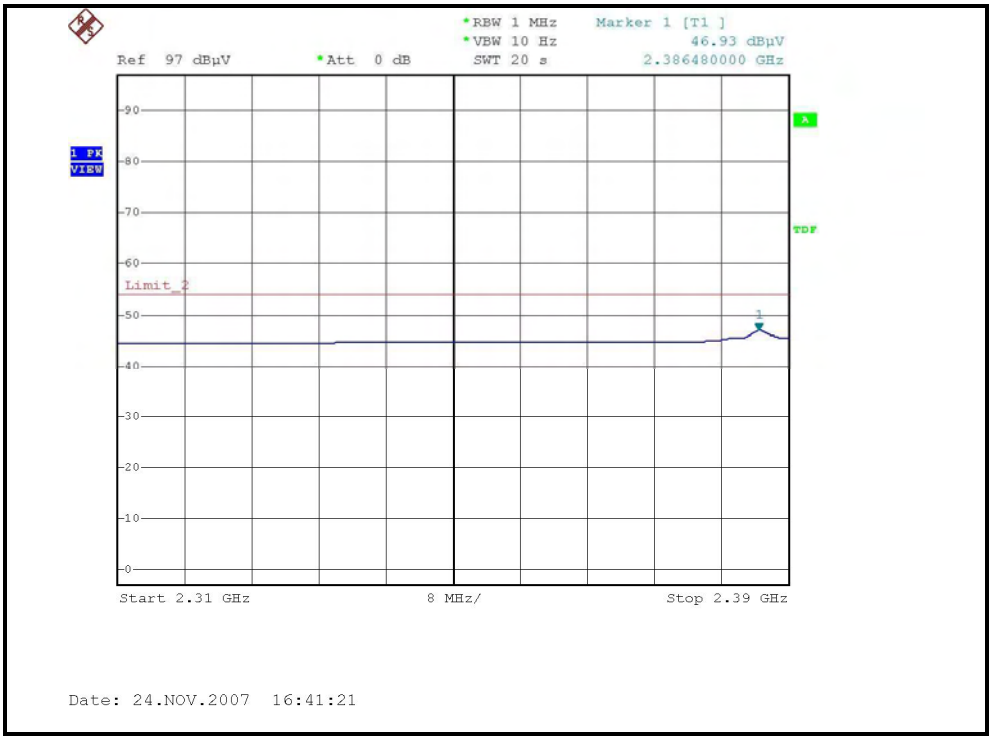

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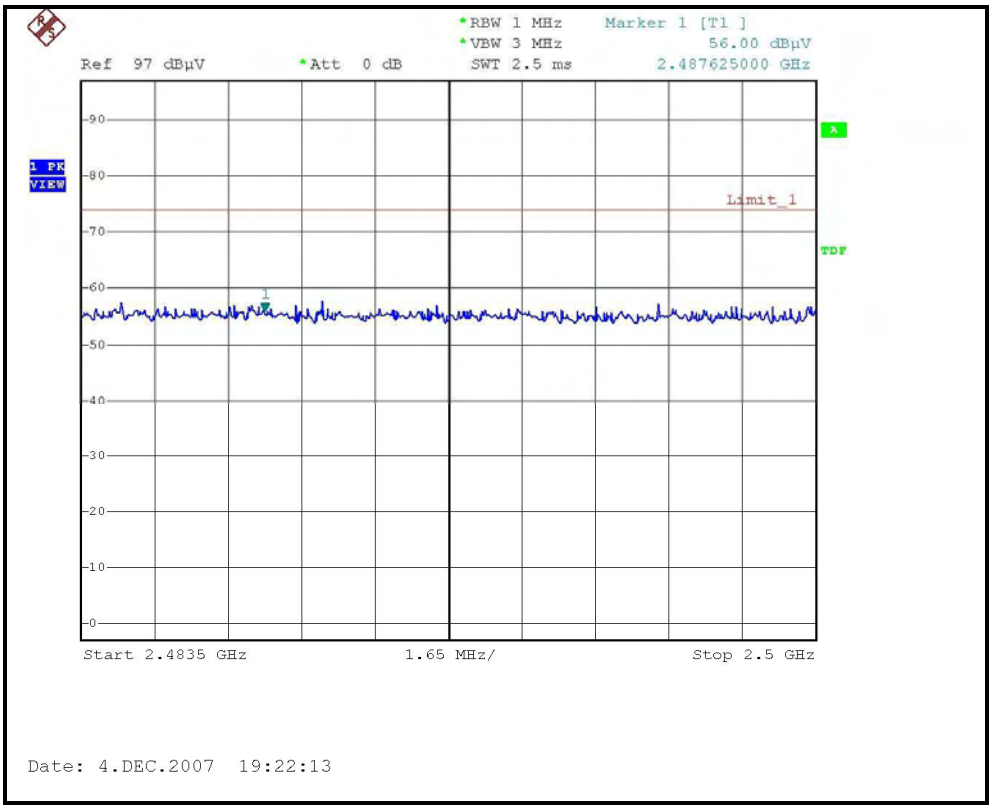
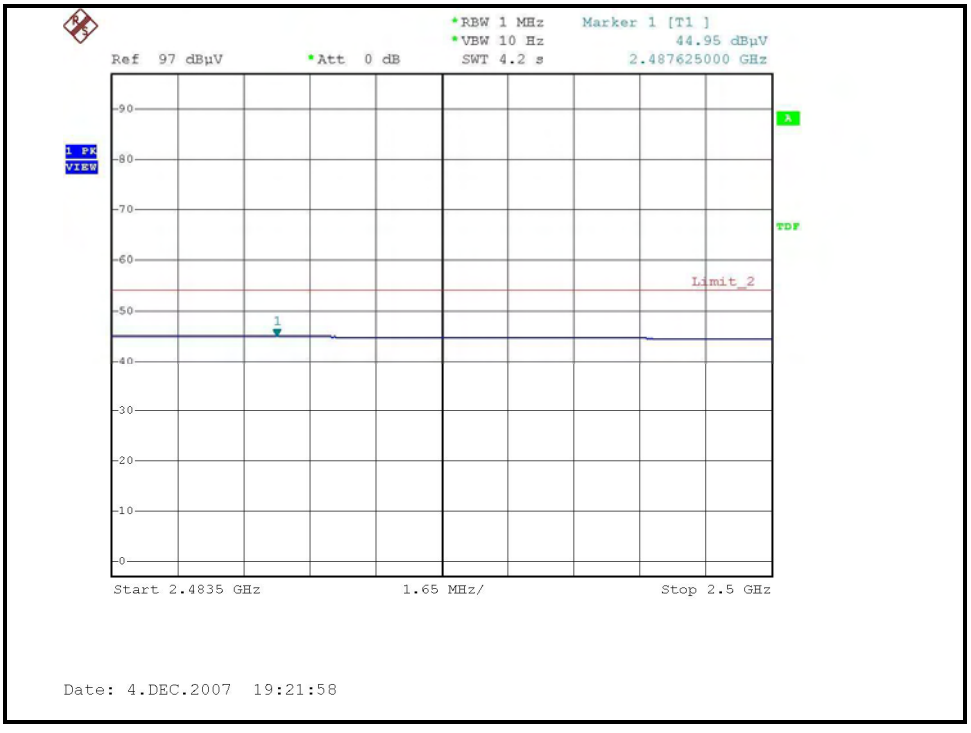
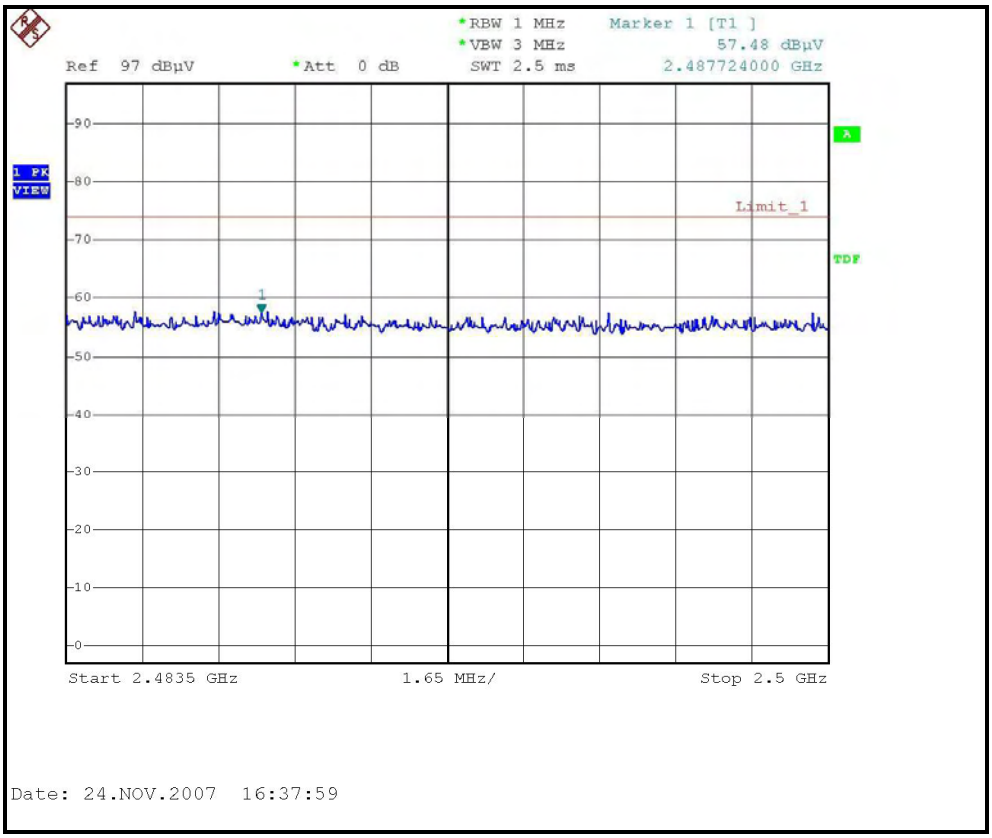
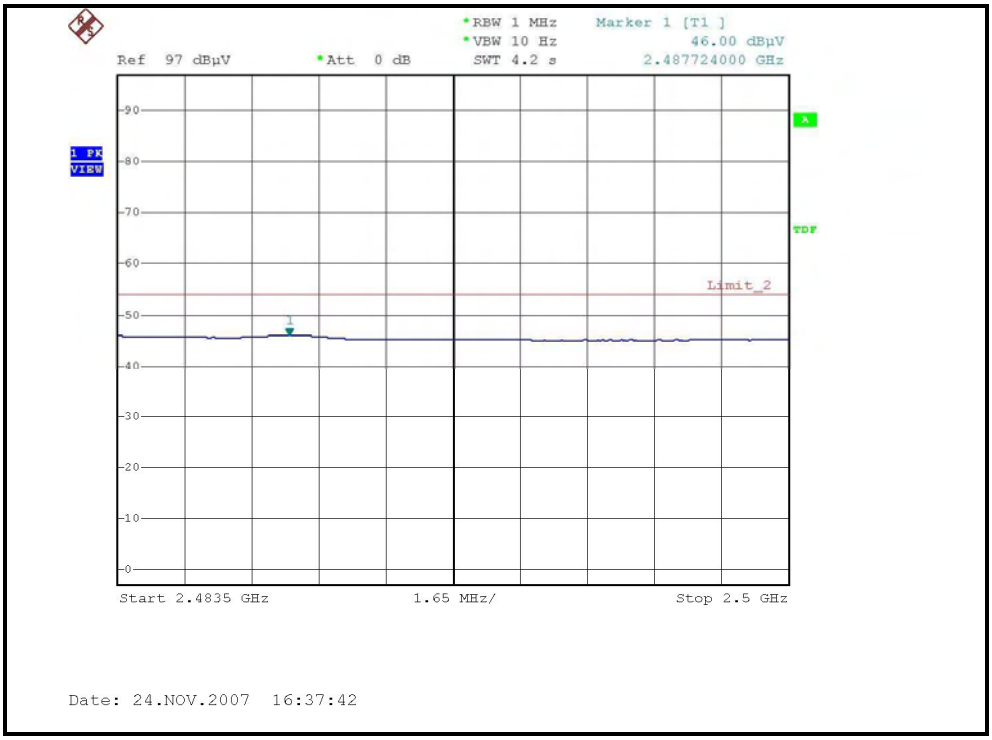




RESTRICTED BANDEDGE (802.11b MODE,CH11, VERTICAL)





802.11g OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	19deg. C, 70%RH 960hPa	TESTED BY	Moris Lin

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	68.00 PK	74.00	-6.00	1.54 H	5	37.60	30.40
2	2390.00	50.54 AV	54.00	-3.46	1.54 H	5	20.14	30.40
3	*2412.00	106.83 PK			1.55 H	60	76.34	30.49
4	*2412.00	90.45 AV			1.55 H	60	59.96	30.49
5	4824.00	58.80 PK	74.00	-15.20	1.47 H	359	23.11	35.69
6	4824.00	45.51 AV	54.00	-8.49	1.47 H	359	9.82	35.69
7	7236.00	59.53 PK	86.83	-27.30	1.25 H	10	17.29	42.24
8	7236.00	45.52 AV	70.45	-24.93	1.25 H	10	3.28	42.24

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	68.63 PK	74.00	-5.37	1.39 V	148	38.23	30.40
2	2390.00	52.95 AV	54.00	-1.05	1.39 V	148	22.55	30.40
3	*2412.00	106.20 PK			1.40 V	262	75.71	30.49
4	*2412.00	97.64 AV			1.40 V	262	67.15	30.49
5	4824.00	50.00 PK	74.00	-24.00	1.09 V	287	14.31	35.69
6	4824.00	36.35 AV	54.00	-17.65	1.09 V	287	0.66	35.69
7	7236.00	54.09 PK	86.20	-32.11	1.00 V	360	11.85	42.24
8	7236.00	40.43 AV	77.64	-37.21	1.00 V	360	-1.81	42.24

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	19deg. C, 70%RH 960hPa	TESTED BY	Moris Lin

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	102.70 PK			1.79 H	260	72.09	30.61
2	*2437.00	92.20 AV			1.79 H	260	61.59	30.61
3	4874.00	58.17 PK	74.00	-15.83	1.23 H	357	22.37	35.80
4	4874.00	45.17 AV	54.00	-8.83	1.23 H	357	9.37	35.80
5	7311.00	58.73 PK	74.00	-15.27	1.34 H	10	16.21	42.52
6	7311.00	44.69 AV	54.00	-9.31	1.34 H	10	2.17	42.52

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	*2437.00	108.26 PK			1.40 V	298	77.65	30.61
2	*2437.00	98.10 AV			1.40 V	298	67.49	30.61
3	4874.00	48.90 PK	74.00	-25.10	1.08 V	277	13.10	35.80
4	4874.00	35.35 AV	54.00	-18.65	1.08 V	277	-0.45	35.80
5	7311.00	54.29 PK	74.00	-19.71	1.00 V	360	11.77	42.52
6	7311.00	40.91 AV	54.00	-13.09	1.00 V	360	-1.61	42.52

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.

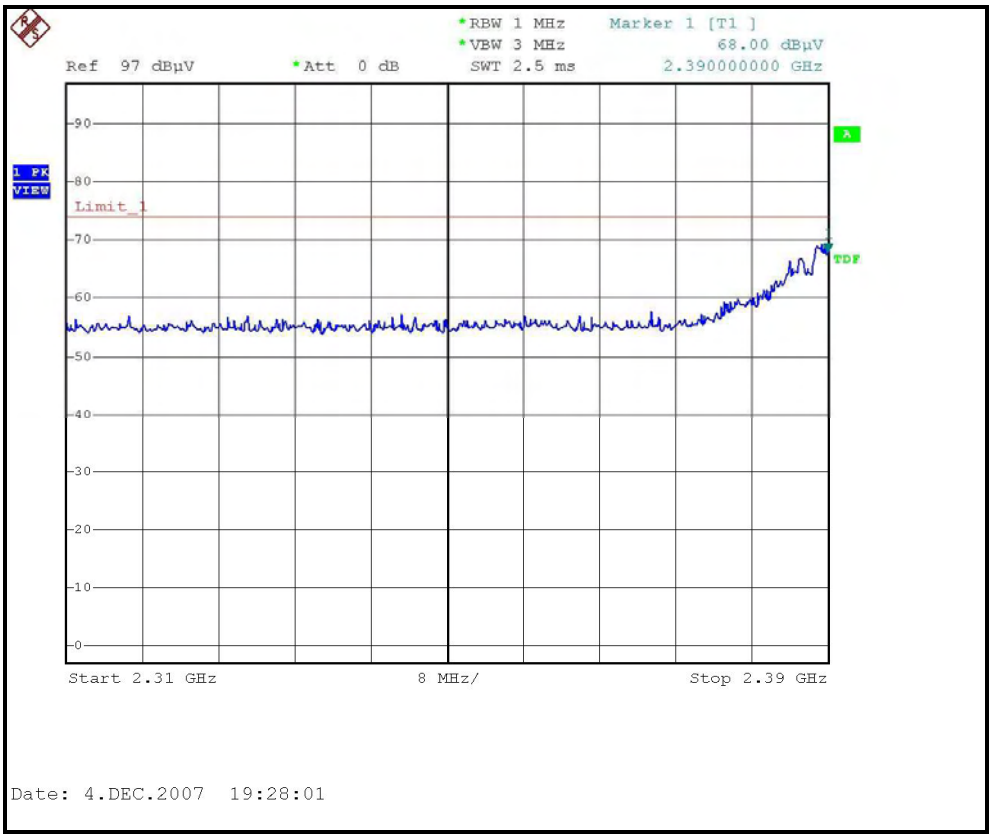
EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	19deg. C, 70%RH 960hPa	TESTED BY	Moris Lin

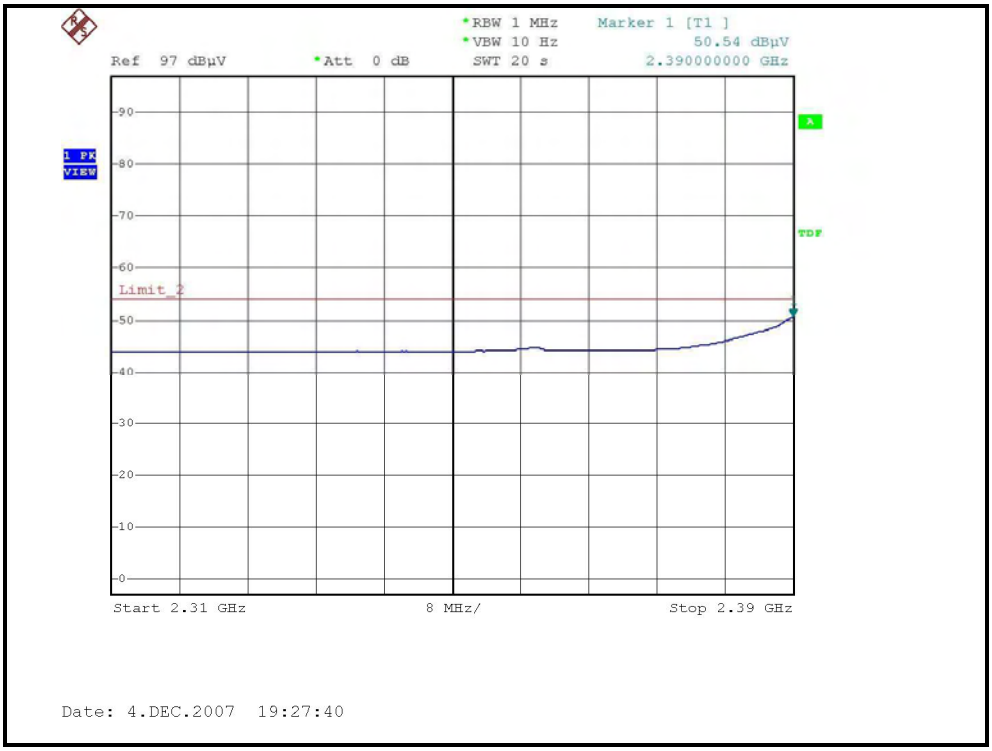
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	102.42 PK			1.80 H	212	71.70	30.72
2	*2462.00	92.03 AV			1.80 H	212	61.31	30.72
3	2483.50	68.14 PK	74.00	-5.86	1.77 H	187	37.32	30.82
4	2483.50	47.89 AV	54.00	-6.11	1.77 H	187	17.07	30.82
5	4924.00	56.60 PK	74.00	-17.40	1.48 H	359	20.70	35.90
6	4924.00	44.31 AV	54.00	-9.69	1.48 H	359	8.41	35.90
7	7386.00	58.06 PK	74.00	-15.94	1.16 H	219	15.26	42.80
8	7386.00	43.71 AV	54.00	-10.29	1.16 H	219	0.91	42.80

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	109.20 PK			1.40 V	22	78.48	30.72
2	*2462.00	98.01 AV			1.40 V	22	67.29	30.72
3	2483.50	67.91 PK	74.00	-6.09	1.39 V	306	37.09	30.82
4	2483.50	51.82 AV	54.00	-2.18	1.39 V	306	21.00	30.82
5	4924.00	47.94 PK	74.00	-26.06	1.20 V	289	12.04	35.90
6	4924.00	34.87 AV	54.00	-19.13	1.20 V	289	-1.03	35.90
7	7386.00	53.76 PK	74.00	-20.24	1.00 V	360	10.96	42.80
8	7386.00	40.59 AV	54.00	-13.41	1.00 V	360	-2.21	42.80

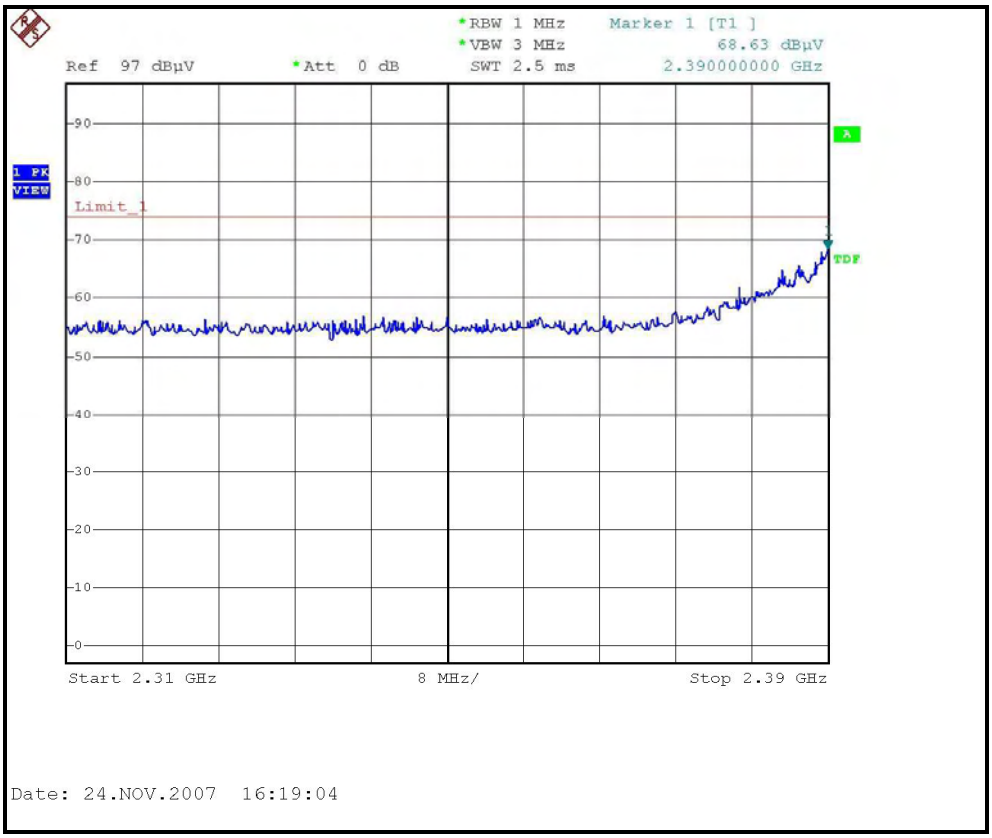
REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

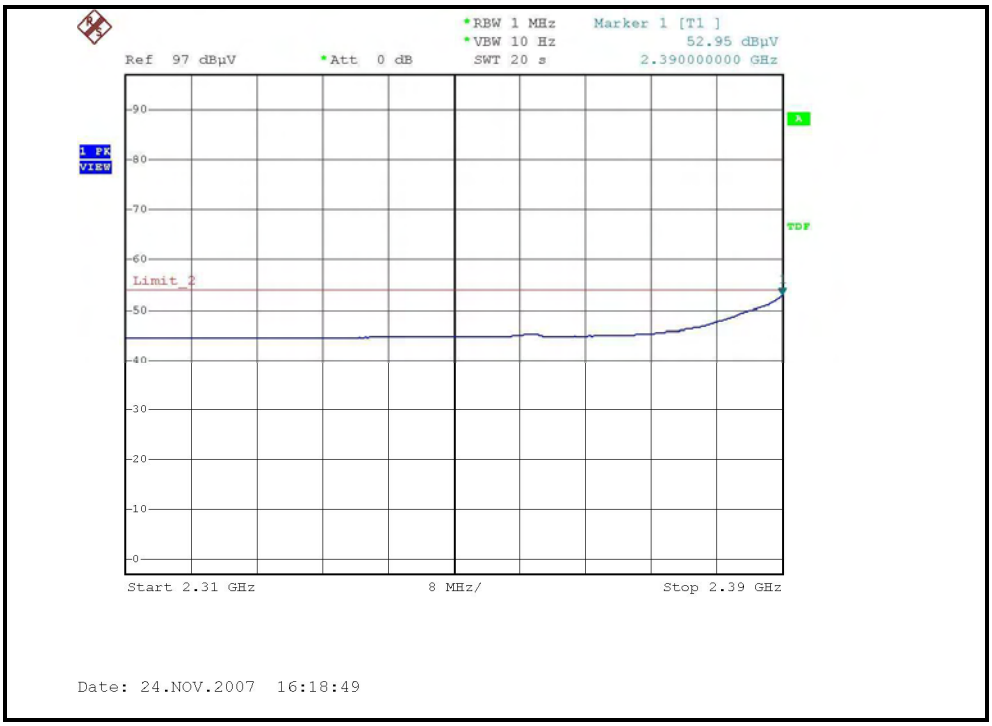
RESTRICTED BANDEDGE (802.11g MODE,CH1, HORIZONTAL)





RESTRICTED BANDEDGE (802.11g MODE,CH1, VERTICAL)





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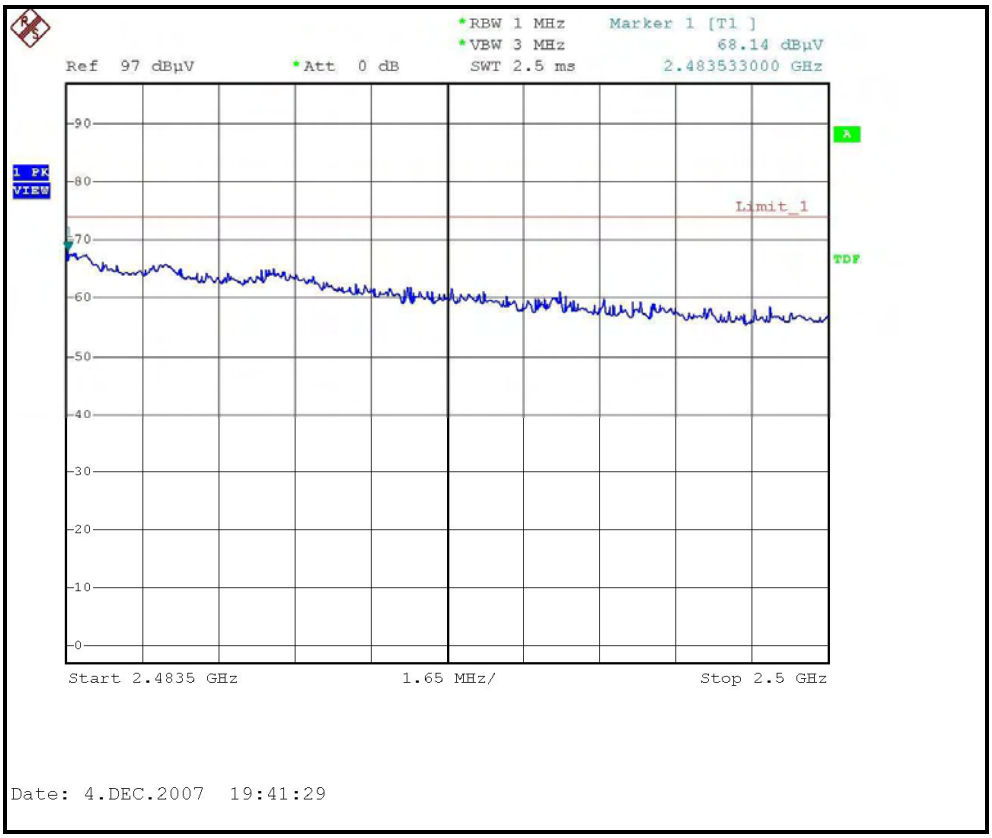
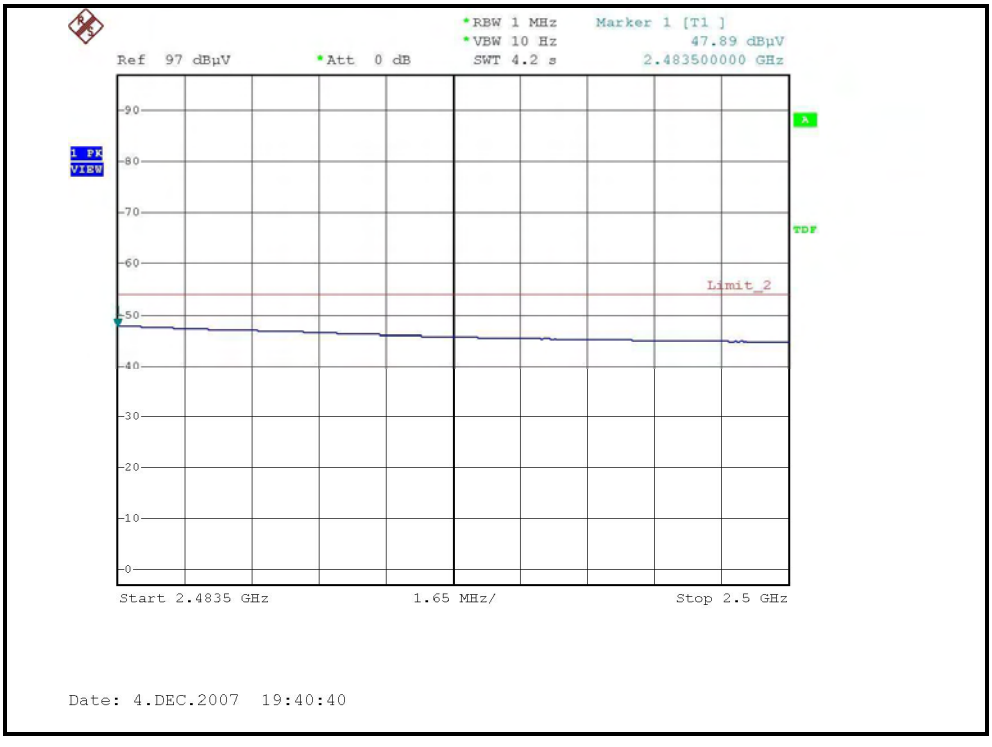
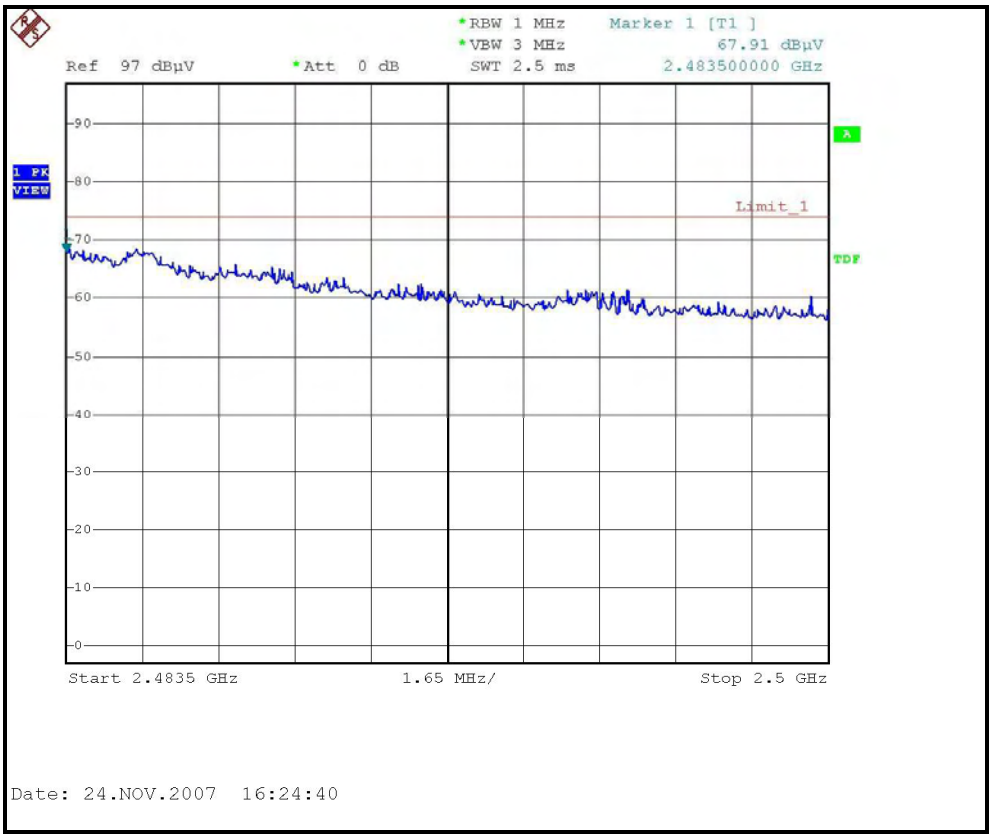
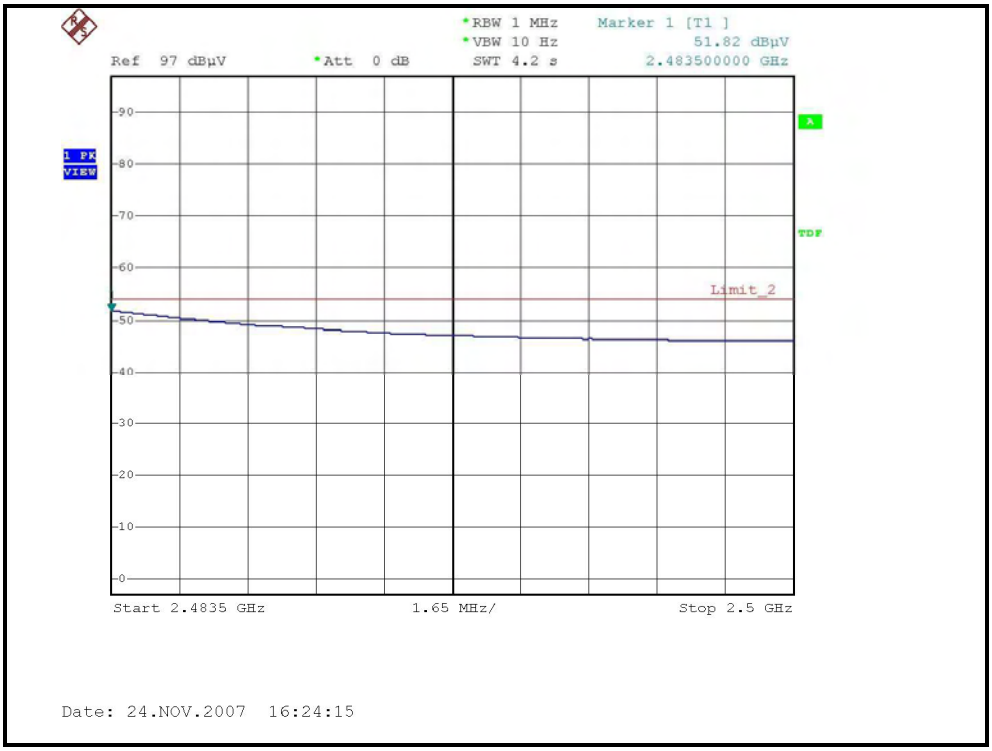




RESTRICTED BANDEDGE (802.11g MODE,CH11, VERTICAL)





DRAFT 802.11n (20MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	19deg. C, 70%RH 960hPa	TESTED BY	Moris Lin

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	60.97 PK	74.00	-13.03	1.52 H	285	30.57	30.40
2	2390.00	47.11 AV	54.00	-6.89	1.52 H	285	16.71	30.40
3	*2412.00	101.28 PK			1.53 H	200	70.79	30.49
4	*2412.00	90.58 AV			1.53 H	200	60.09	30.49
5	4824.00	63.84 PK	74.00	-10.16	1.48 H	340	28.15	35.69
6	4824.00	49.17 AV	54.00	-4.83	1.48 H	340	13.48	35.69
7	7236.00	63.95 PK	81.28	-17.33	1.26 H	7	21.71	42.24
8	7236.00	48.06 AV	70.58	-22.52	1.26 H	7	5.82	42.24

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	70.36 PK	74.00	-3.64	1.37 V	148	39.96	30.40
2	**2390.00**	**53.67 AV**	**54.00**	**-0.33**	**1.37 V**	**148**	**23.27**	**30.40**
3	*2412.00	108.72 PK			1.40 V	209	78.23	30.49
4	*2412.00	99.21 AV			1.40 V	209	68.72	30.49
5	4824.00	56.10 PK	74.00	-17.90	1.44 V	13	20.41	35.69
6	4824.00	41.60 AV	54.00	-12.40	1.44 V	13	5.91	35.69
7	7236.00	54.20 PK	88.72	-34.52	1.00 V	360	11.96	42.24
8	7236.00	40.91 AV	79.21	-38.30	1.00 V	360	-1.33	42.24

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	19deg. C, 70%RH 960hPa	TESTED BY	Moris Lin

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	101.70 PK			1.77 H	126	71.09	30.61
2	*2437.00	91.80 AV			1.77 H	126	61.19	30.61
3	4874.00	62.74 PK	74.00	-11.26	1.58 H	329	26.94	35.80
4	4874.00	48.23 AV	54.00	-5.77	1.58 H	329	12.43	35.80
5	7311.00	61.73 PK	74.00	-12.27	1.33 H	23	19.21	42.52
6	7311.00	46.74 AV	54.00	-7.26	1.33 H	23	4.22	42.52

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	*2437.00	112.80 PK			1.35 V	269	82.19	30.61
2	*2437.00	101.20 AV			1.35 V	269	70.59	30.61
3	4874.00	58.22 PK	74.00	-15.78	1.28 V	2	22.42	35.80
4	4874.00	43.48 AV	54.00	-10.52	1.28 V	2	7.68	35.80
5	7311.00	55.07 PK	74.00	-18.93	1.00 V	360	12.55	42.52
6	7311.00	41.52 AV	54.00	-12.48	1.00 V	360	-1.00	42.52

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.

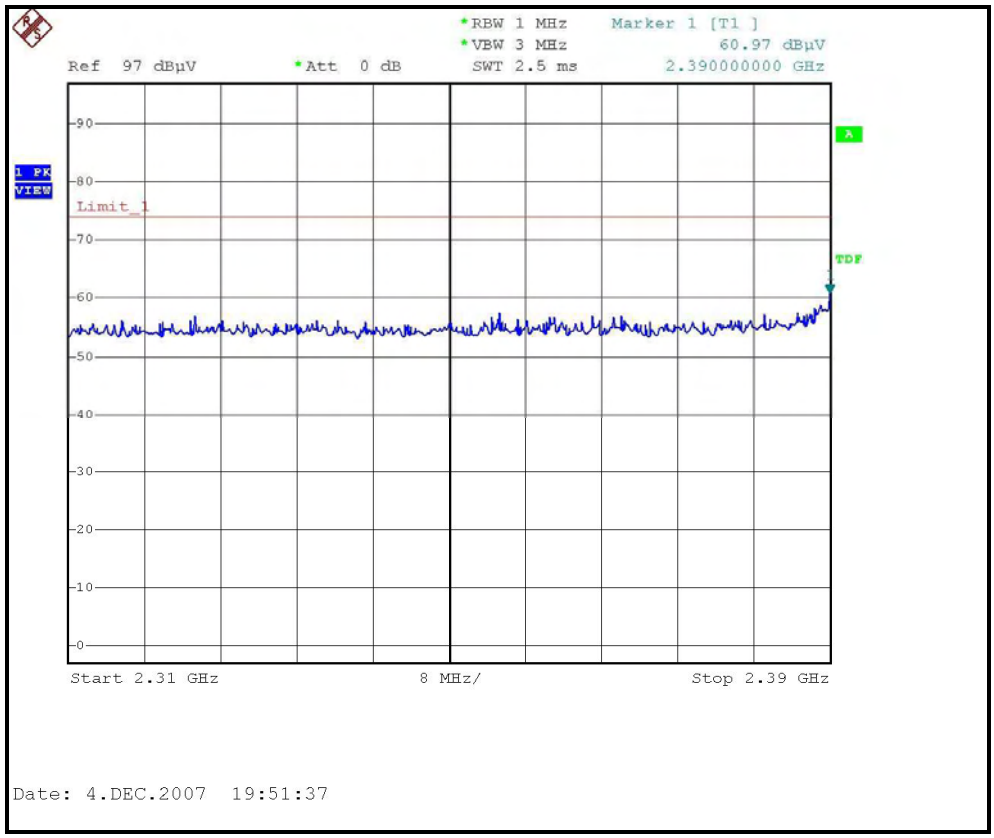
EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	19deg. C, 70%RH 960hPa	TESTED BY	Moris Lin

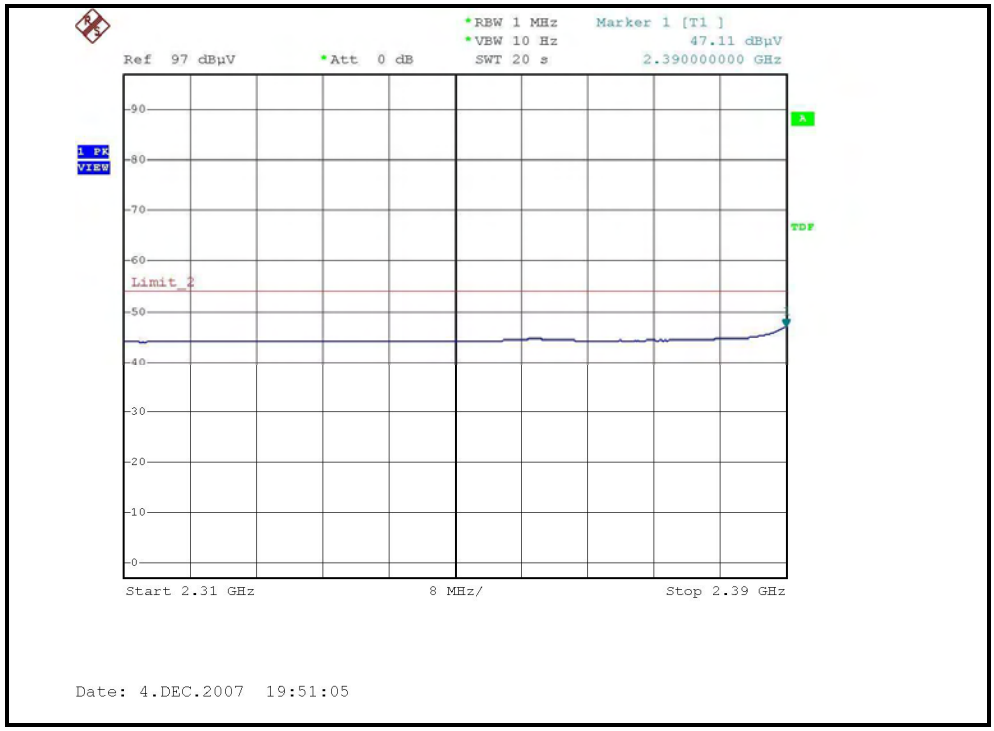
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	103.80 PK			1.80 H	21	73.08	30.72
2	*2462.00	93.95 AV			1.80 H	21	63.23	30.72
3	2483.50	64.27 PK	74.00	-9.73	1.76 H	358	33.45	30.82
4	2483.50	46.97 AV	54.00	-7.03	1.76 H	358	16.15	30.82
5	4924.00	62.67 PK	74.00	-11.33	1.44 H	343	26.77	35.90
6	4924.00	47.44 AV	54.00	-6.56	1.44 H	343	11.54	35.90
7	7386.00	62.78 PK	74.00	-11.22	1.14 H	134	19.98	42.80
8	7386.00	47.77 AV	54.00	-6.23	1.14 H	134	4.97	42.80

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	109.70 PK			1.09 V	266	78.98	30.72
2	*2462.00	98.26 AV			1.09 V	266	67.54	30.72
3	2483.50	67.82 PK	74.00	-6.18	1.00 V	265	37.00	30.82
4	2483.50	52.93 AV	54.00	-1.07	1.00 V	265	22.11	30.82
5	4924.00	58.60 PK	74.00	-15.40	1.42 V	349	22.70	35.90
6	4924.00	44.85 AV	54.00	-9.15	1.42 V	349	8.95	35.90
7	7386.00	54.77 PK	74.00	-19.23	1.00 V	360	11.97	42.80
8	7386.00	41.69 AV	54.00	-12.31	1.00 V	360	-1.11	42.80

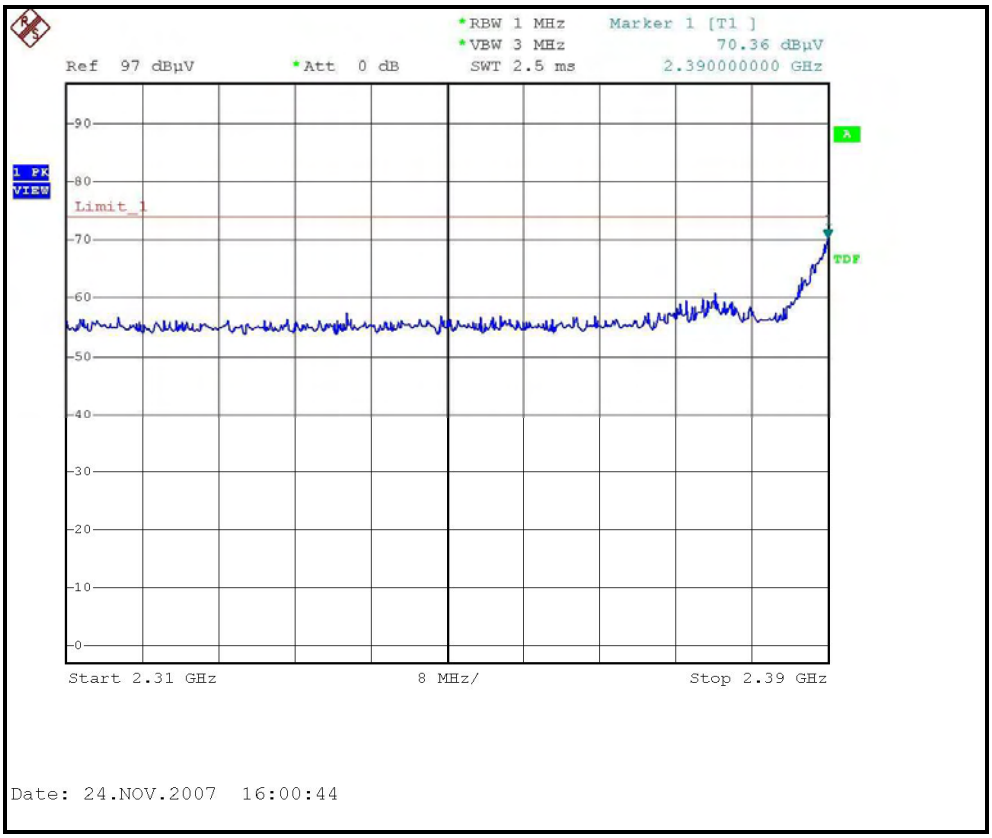
REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

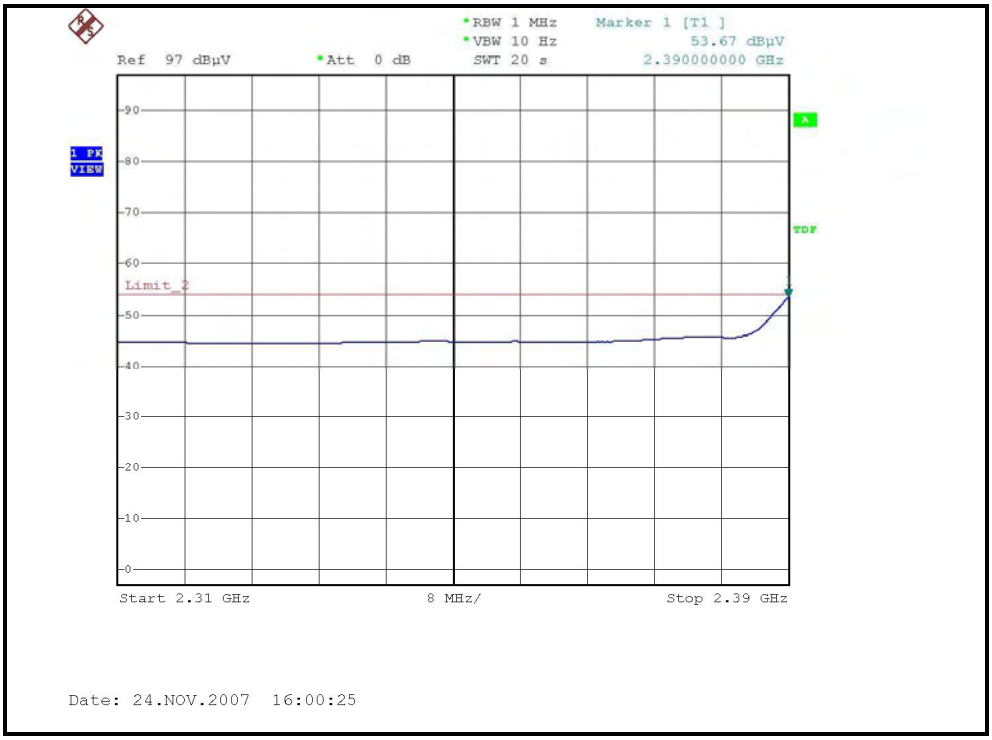
RESTRICTED BANDEDGE (DRAFT 802.11n (20MHz) MODE,CH1, HORIZONTAL)



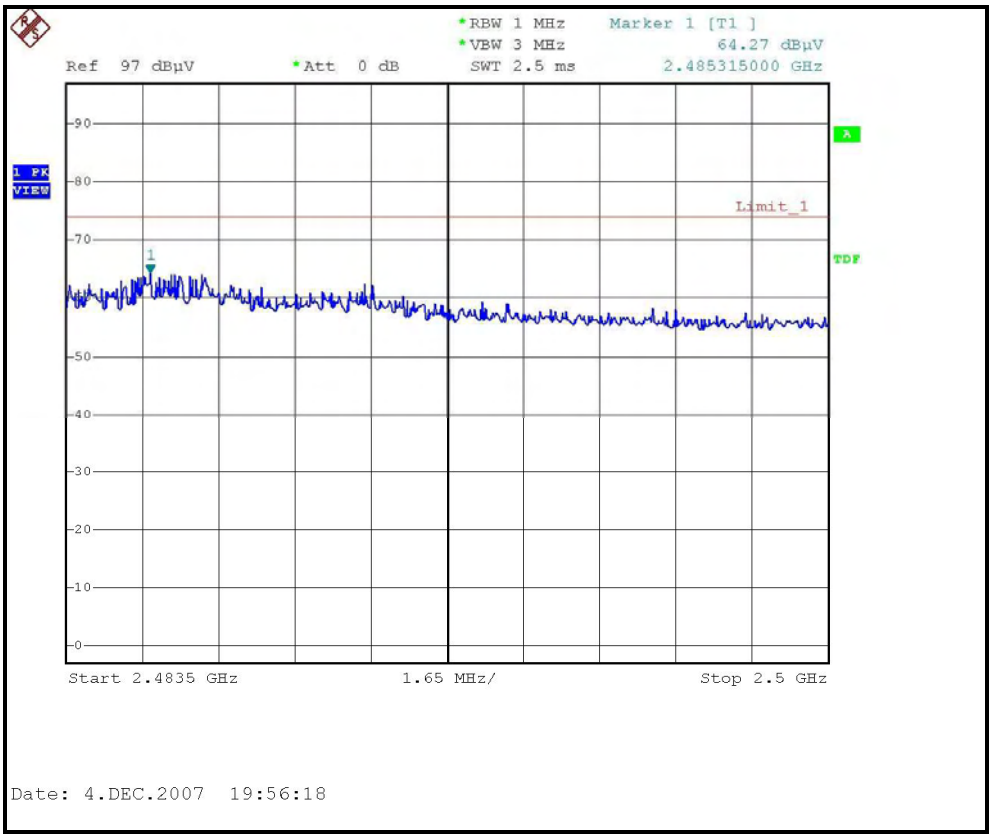


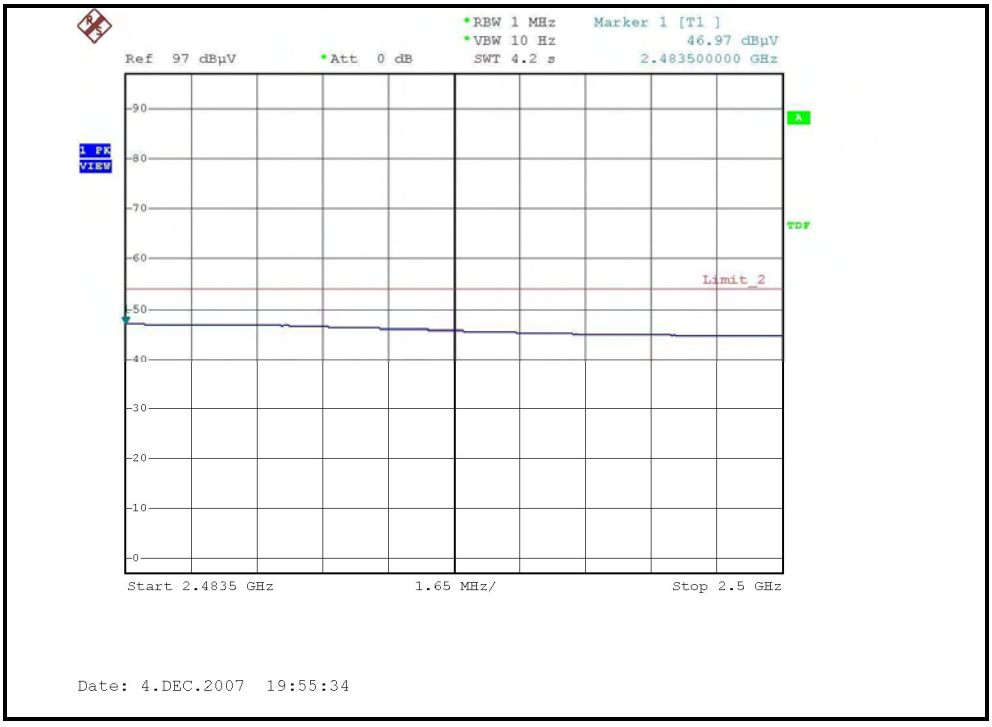
RESTRICTED BANDEDGE (DRAFT 802.11n (20MHz) MODE,CH1, VERTICAL)



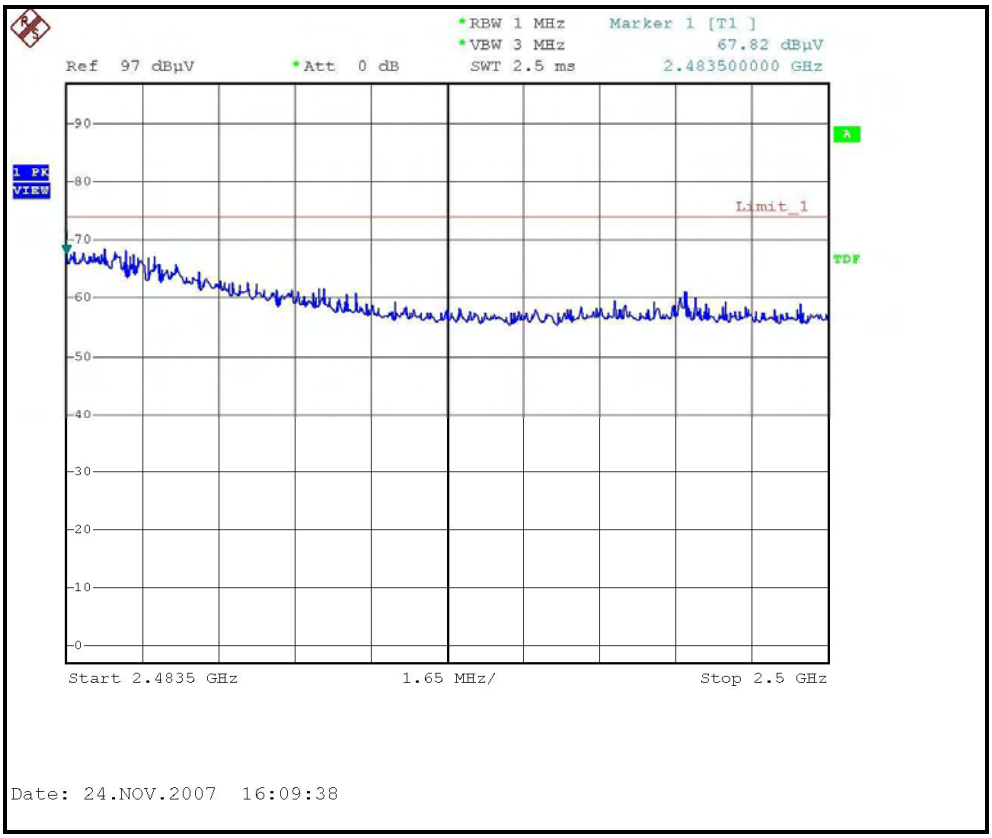


RESTRICTED BANDEDGE (DRAFT 802.11n (20MHz) MODE,CH11, HORIZONTAL)





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



DRAFT 802.11n (40MHz) OFDM MODULATION:

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	19deg. C, 70%RH 960hPa	TESTED BY	Moris Lin

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	62.79 PK	74.00	-11.21	1.54 H	354	32.39	30.40
2	2390.00	49.88 AV	54.00	-4.12	1.54 H	354	19.48	30.40
3	*2422.00	99.46 PK			1.55 H	38	68.92	30.54
4	*2422.00	89.10 AV			1.55 H	38	58.56	30.54
5	4844.00	58.76 PK	74.00	-15.24	1.58 H	352	23.02	35.74
6	4844.00	47.11 AV	54.00	-6.89	1.58 H	352	11.37	35.74
7	7266.00	58.33 PK	74.00	-15.67	1.34 H	0	15.98	42.35
8	7266.00	46.17 AV	54.00	-7.83	1.34 H	0	3.82	42.35

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.16 PK	74.00	-8.84	1.38 V	148	34.76	30.40
2	2390.00	51.84 AV	54.00	-2.16	1.38 V	148	21.45	30.40
3	*2422.00	102.70 PK			1.40 V	270	72.16	30.54
4	*2422.00	92.63 AV			1.40 V	270	62.09	30.54
5	4844.00	51.76 PK	74.00	-22.24	1.42 V	12	16.02	35.74
6	4844.00	39.41 AV	54.00	-14.59	1.42 V	12	3.67	35.74
7	7266.00	53.80 PK	74.00	-20.20	1.00 V	360	11.45	42.35
8	7266.00	40.64 AV	54.00	-13.36	1.00 V	360	-1.71	42.35

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 4	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	19deg. C, 70%RH 960hPa	TESTED BY	Moris Lin

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	100.40 PK			1.79 H	186	69.79	30.61
2	*2437.00	89.90 AV			1.79 H	186	59.29	30.61
3	4874.00	58.33 PK	74.00	-15.67	1.50 H	347	22.53	35.80
4	4874.00	46.79 AV	54.00	-7.21	1.50 H	347	10.99	35.80
5	7311.00	58.88 PK	74.00	-15.12	1.35 H	10	16.36	42.52
6	7311.00	45.34 AV	54.00	-8.66	1.35 H	10	2.82	42.52

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	*2437.00	108.90 PK			1.40 V	269	78.29	30.61
2	*2437.00	97.19 AV			1.40 V	269	66.58	30.61
3	4874.00	55.43 PK	74.00	-18.57	1.28 V	29	19.63	35.80
4	4874.00	43.43 AV	54.00	-10.57	1.28 V	29	7.63	35.80
5	7311.00	54.40 PK	74.00	-19.60	1.00 V	360	11.88	42.52
6	7311.00	41.47 AV	54.00	-12.53	1.00 V	360	-1.05	42.52

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

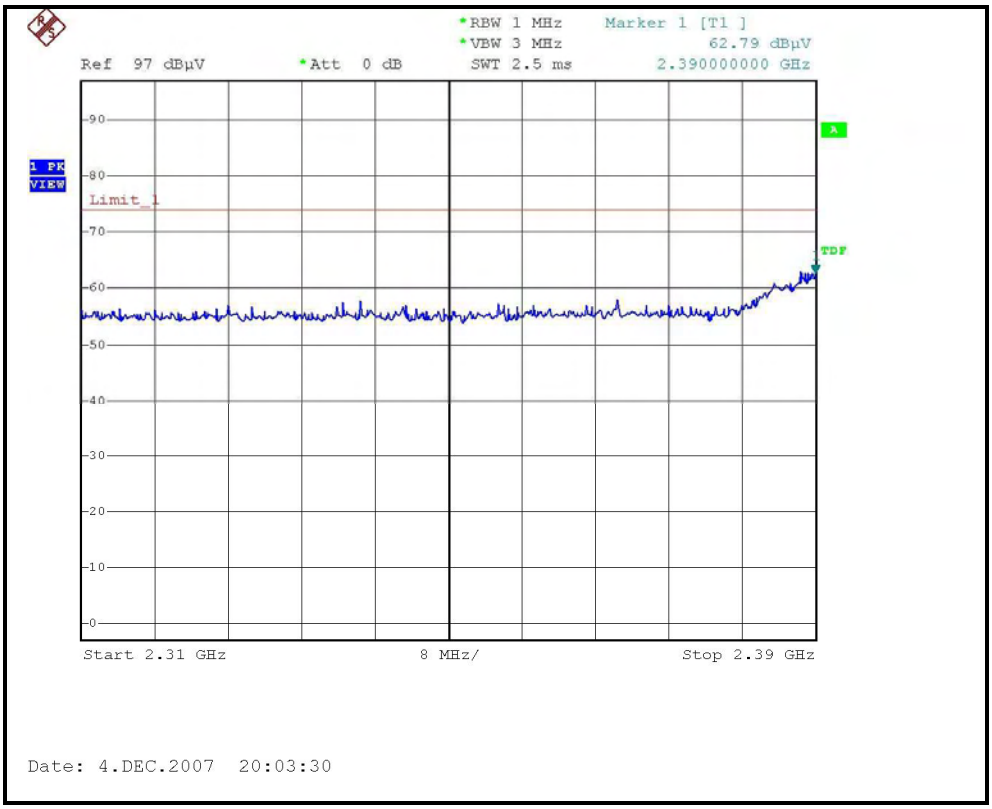
EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 7	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	19deg. C, 70%RH 960hPa	TESTED BY	Moris Lin

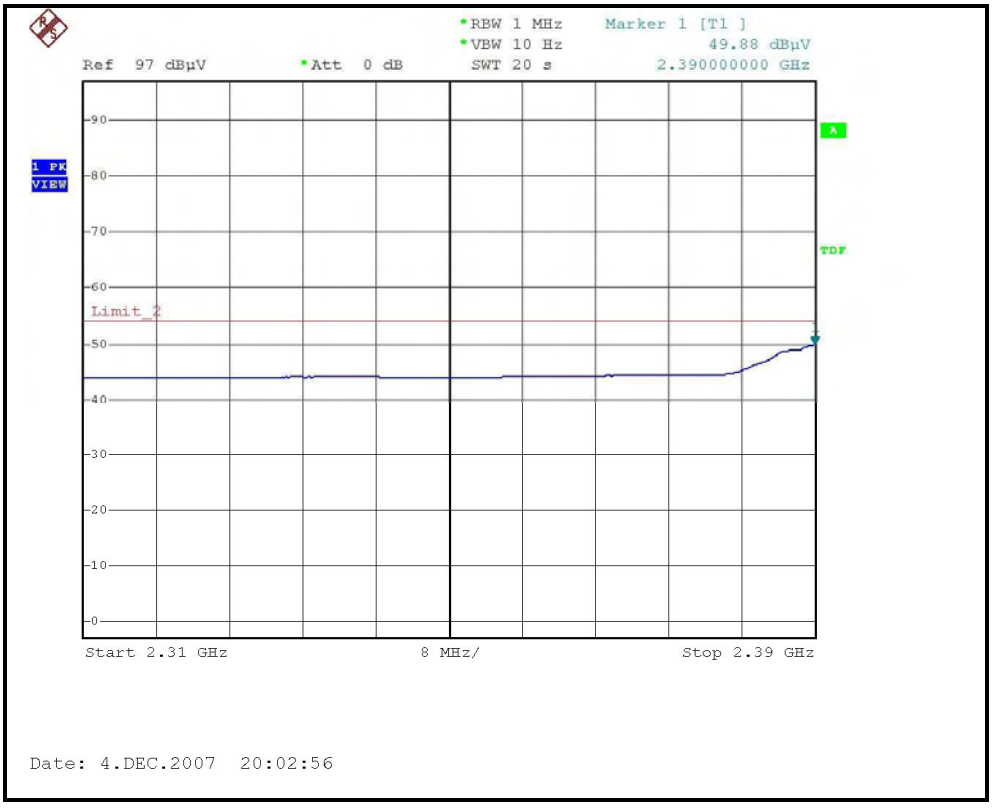
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	101.30 PK			1.80 H	13	70.63	30.67
2	*2452.00	90.92 AV			1.80 H	13	60.25	30.67
3	2483.50	60.87 PK	74.00	-13.13	1.77 H	0	30.05	30.82
4	2483.50	47.18 AV	54.00	-6.82	1.77 H	0	16.36	30.82
5	4904.00	57.82 PK	74.00	-16.18	1.46 H	358	21.96	35.86
6	4904.00	46.15 AV	54.00	-7.85	1.46 H	358	10.29	35.86
7	7356.00	59.77 PK	74.00	-14.23	1.21 H	8	17.09	42.68
8	7356.00	46.76 AV	54.00	-7.24	1.21 H	8	4.08	42.68

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	*2452.00	108.90 PK			1.12 V	360	78.23	30.67
2	*2452.00	99.01 AV			1.12 V	360	68.34	30.67
3	2494.00	67.07 PK	74.00	-6.93	1.00 V	298	36.21	30.86
4	2494.00	52.39 AV	54.00	-1.61	1.00 V	298	21.53	30.86
5	4904.00	55.20 PK	74.00	-18.80	1.26 V	28	19.34	35.86
6	4904.00	43.94 AV	54.00	-10.06	1.26 V	28	8.08	35.86
7	7356.00	53.73 PK	74.00	-20.27	1.00 V	360	11.05	42.68
8	7356.00	41.14 AV	54.00	-12.86	1.00 V	360	-1.54	42.68

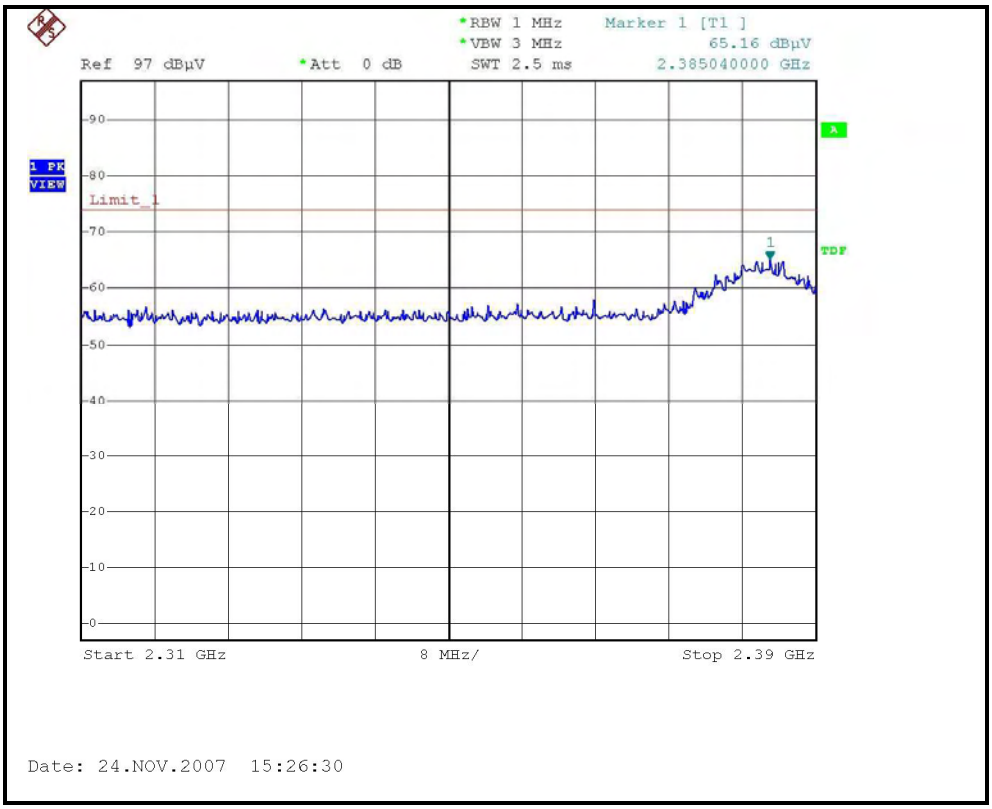
REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

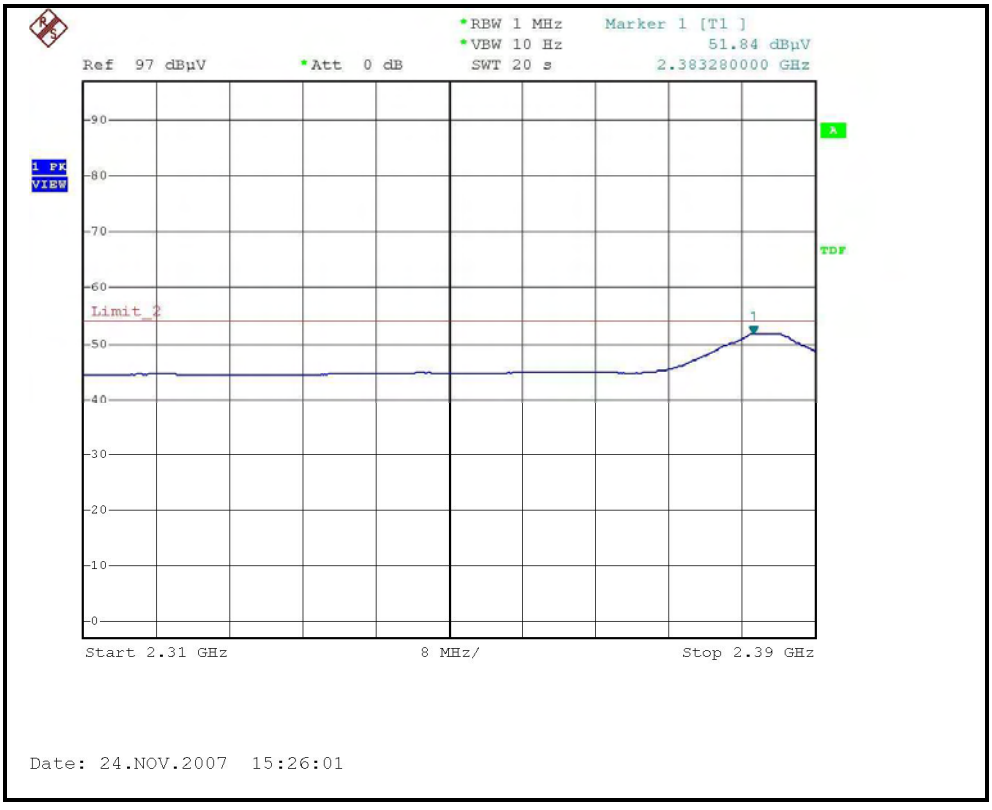
RESTRICTED BANDEDGE (DRAFT 802.11n (40MHz) MODE,CH1, HORIZONTAL)



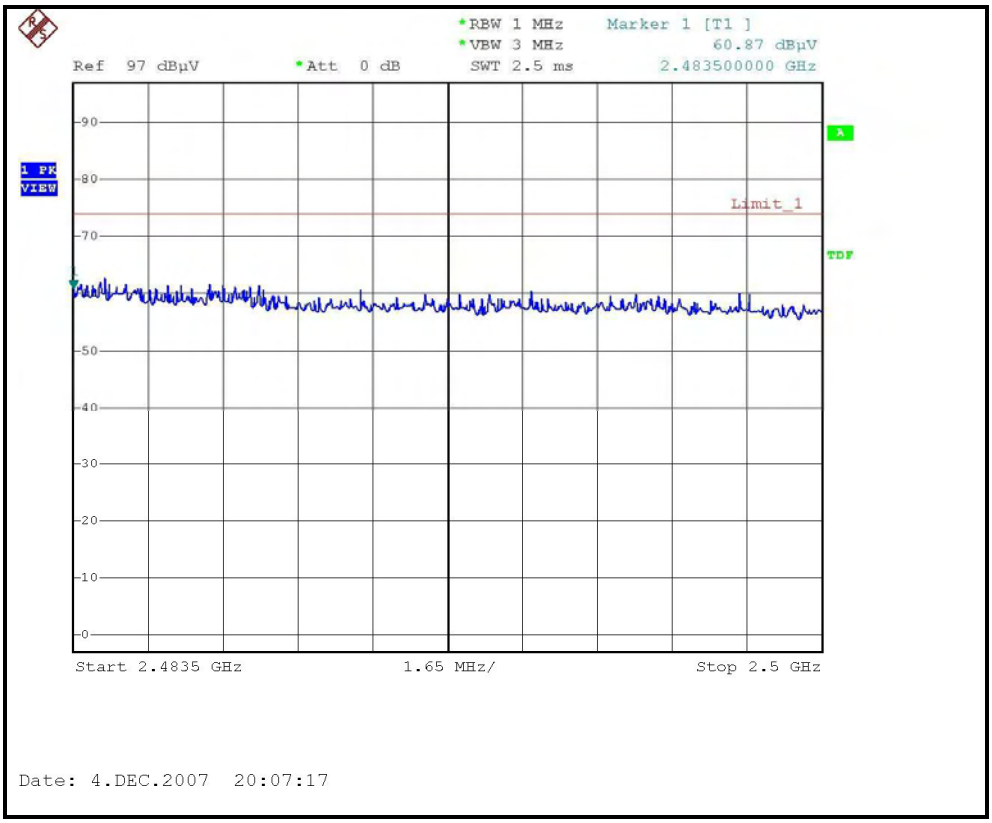


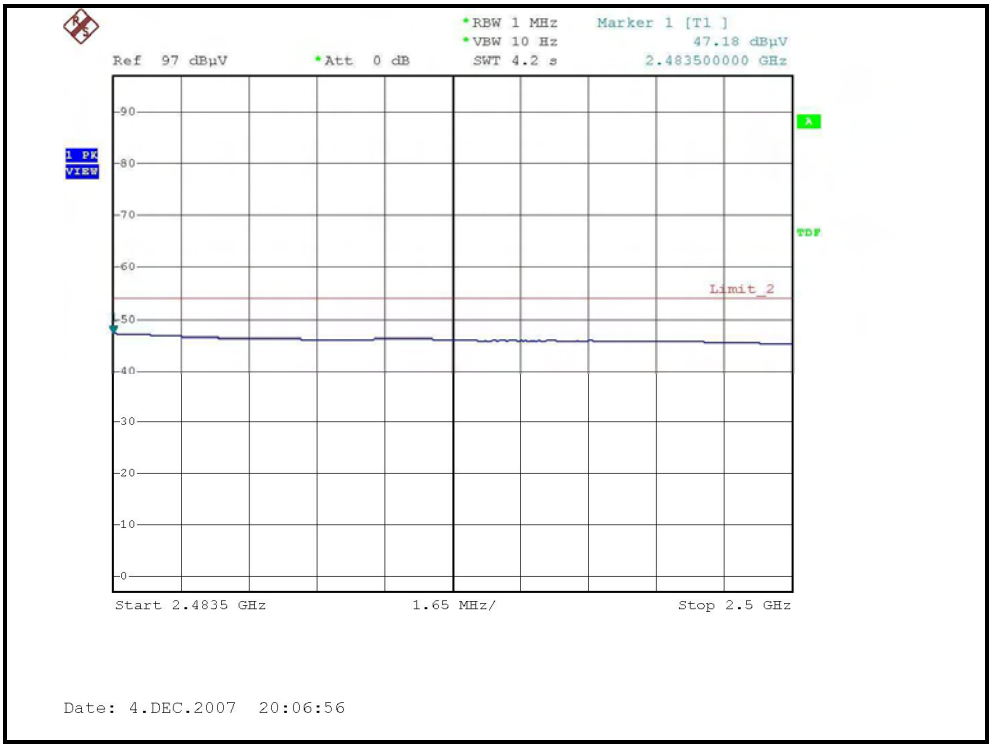
RESTRICTED BANDEDGE (DRAFT 802.11n (40MHz) MODE,CH1, VERTICAL)



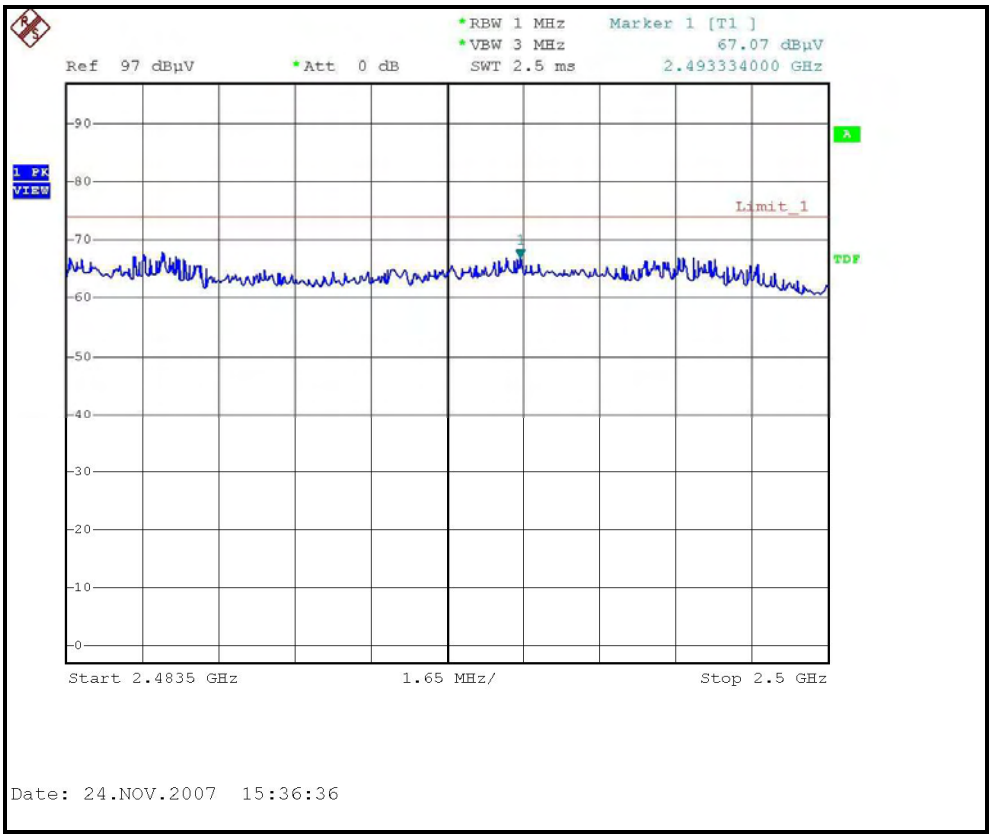


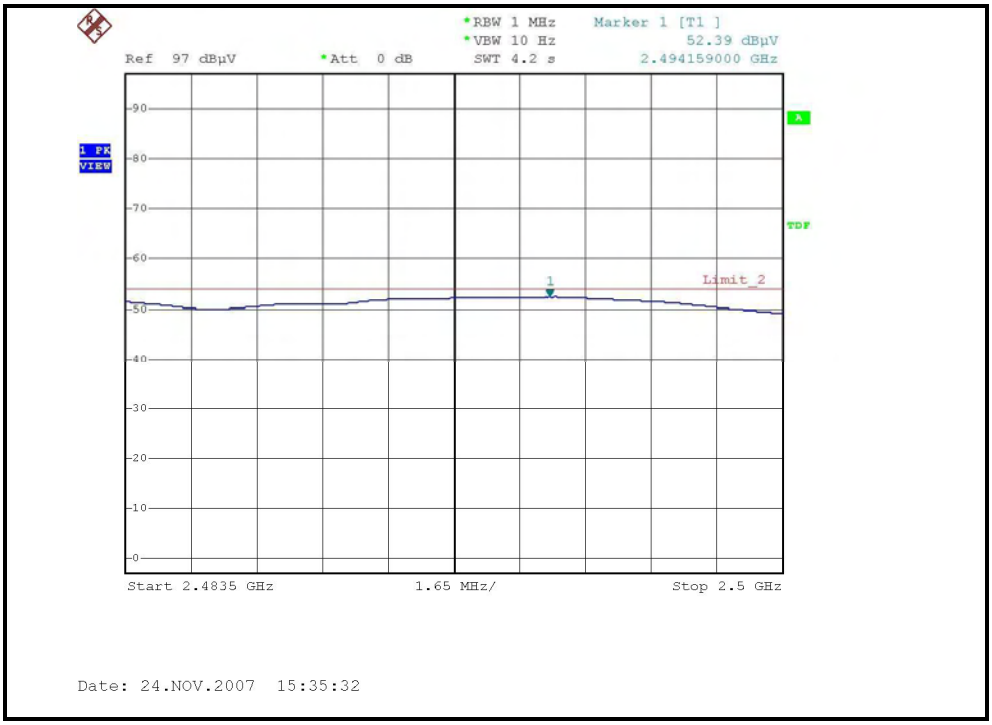
RESTRICTED BANDEDGE (DRAFT 802.11n (40MHz) MODE,CH7, HORIZONTAL)





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





4.3 6dB BANDWIDTH MEASUREMENT

4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 12, 2008

NOTE:

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

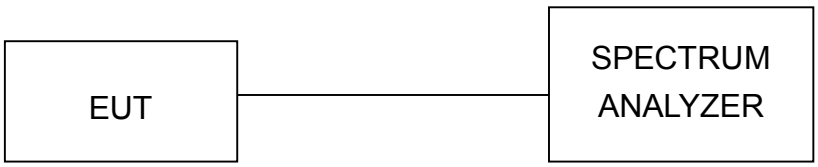
4.3.3 TEST PROCEDURE

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

4.3.4 DEVIATION FROM TEST STANDARD

No deviation

4.3.5 TEST SETUP



4.3.6 EUT OPERATING CONDITIONS

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

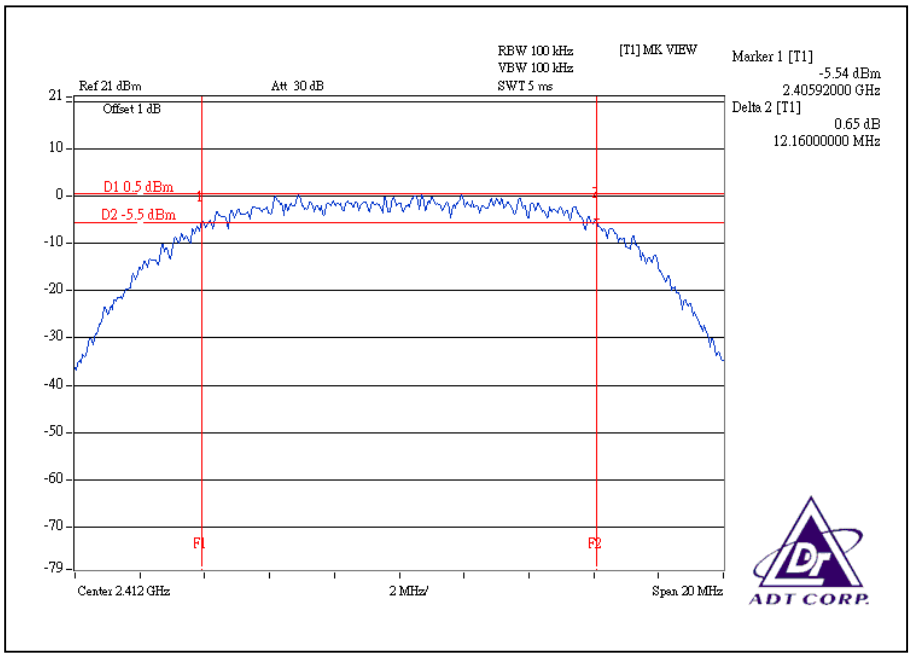
4.3.7 TEST RESULTS

802.11b DSSS MODULATION:

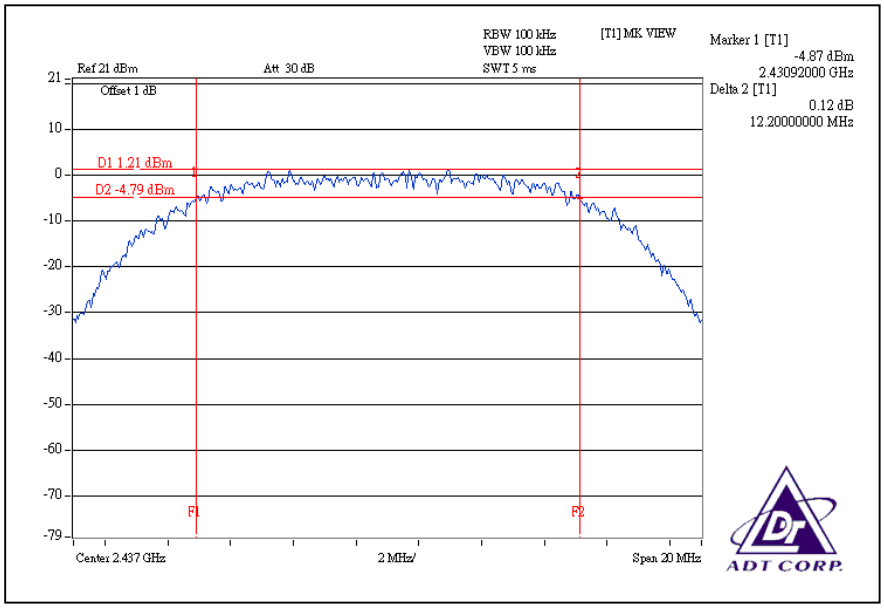
MODULATION TYPE	CCK	TRANSFER RATE	11Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH, 971hPa
TESTED BY	Rex Huang		

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

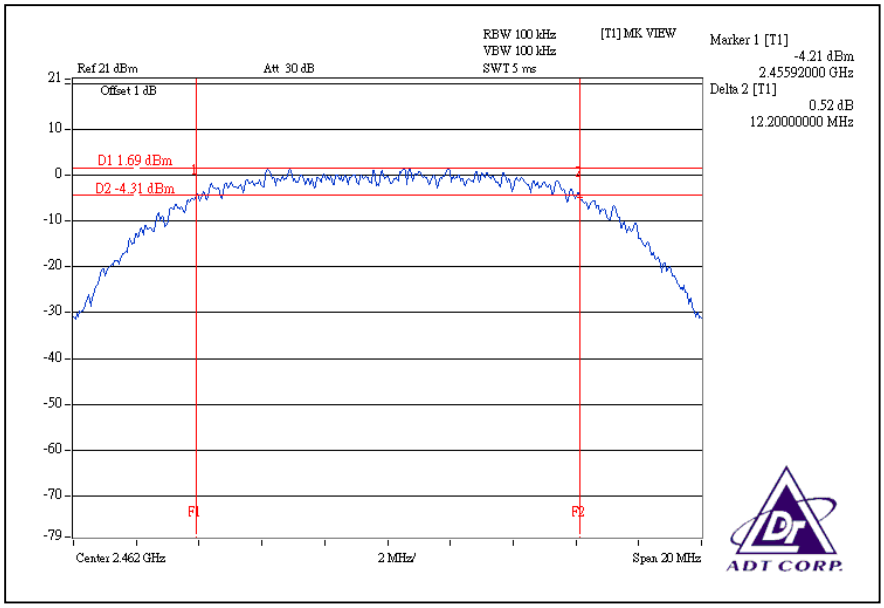
CH1



CH6


RBW 100 kHz
VBW 100 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
-4.87 dBm
2.43092000 GHz
Delta 2 [T1]
0.12 dB
12.20000000 MHz
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 1.21 dBm
D2 -4.79 dBm
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
F1
F2
Center 2.437 GHz
2 MHz/
Span 20 MHz
ADT CORP.

CH11

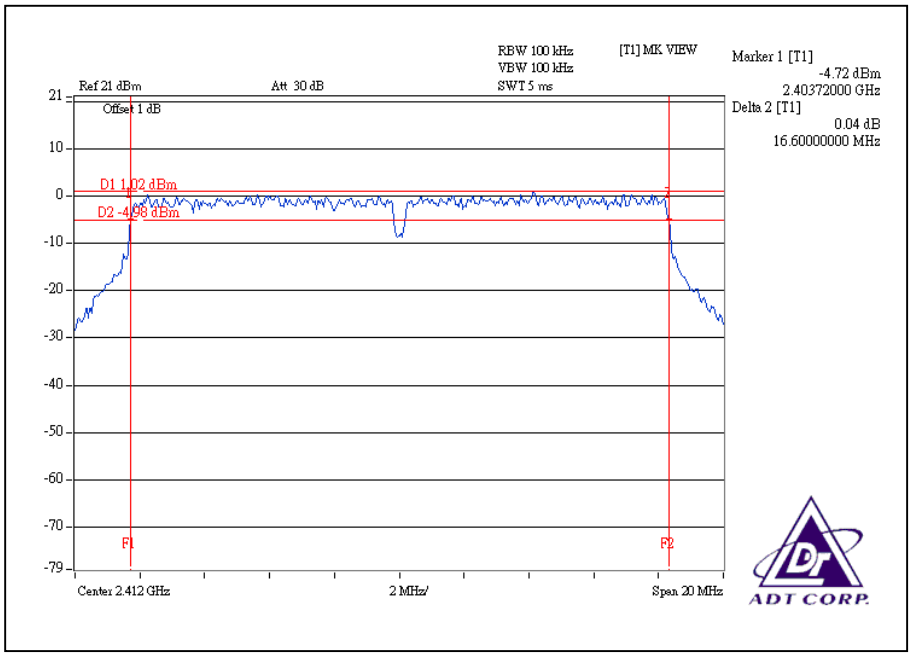

RBW 100 kHz
VBW 100 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
-4.21 dBm
2.45592000 GHz
Delta 2 [T1]
0.52 dB
12.20000000 MHz
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 1.69 dBm
D2 -4.31 dBm
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
F1
F2
Center 2.462 GHz
2 MHz/
Span 20 MHz
ADT CORP.

802.11g OFDM MODULATION:

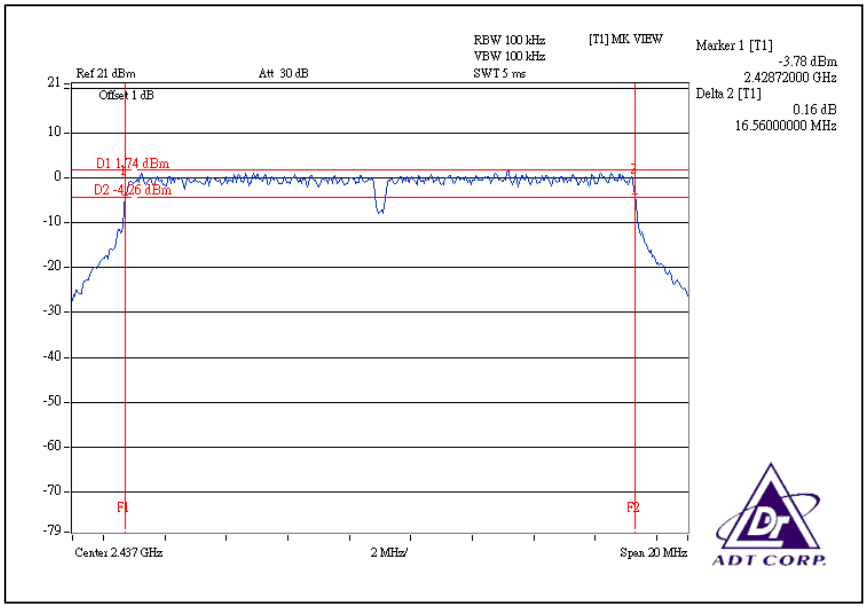
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH, 971hPa
TESTED BY	Rex Huang		

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

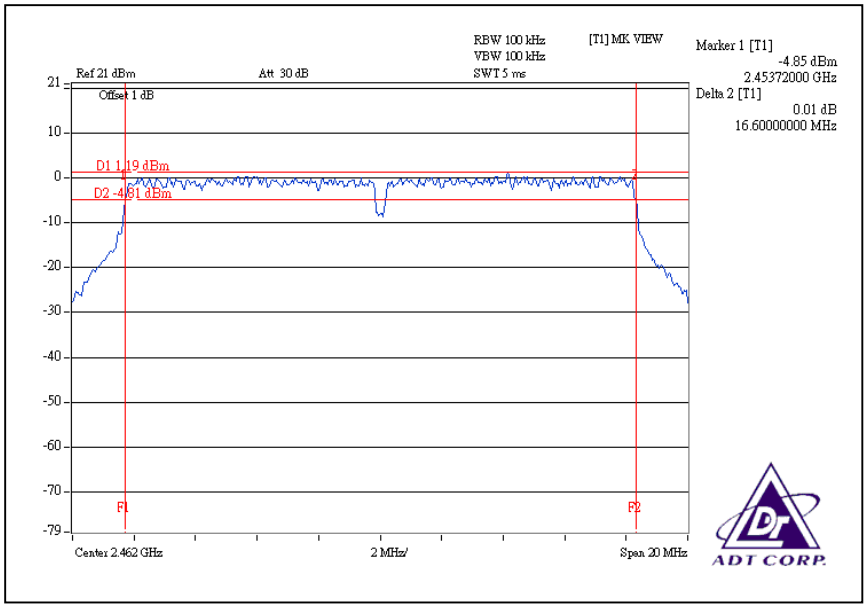
CH1



CH6


RBW 100 kHz
VBW 100 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
-3.78 dBm
2.42872000 GHz
Delta 2 [T1]
0.16 dB
16.56000000 MHz
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 1.74 dBm
D2 -4.26 dBm
F1
F2
Center 2.437 GHz
2 MHz/
Span 20 MHz
ADT CORP.

CH11

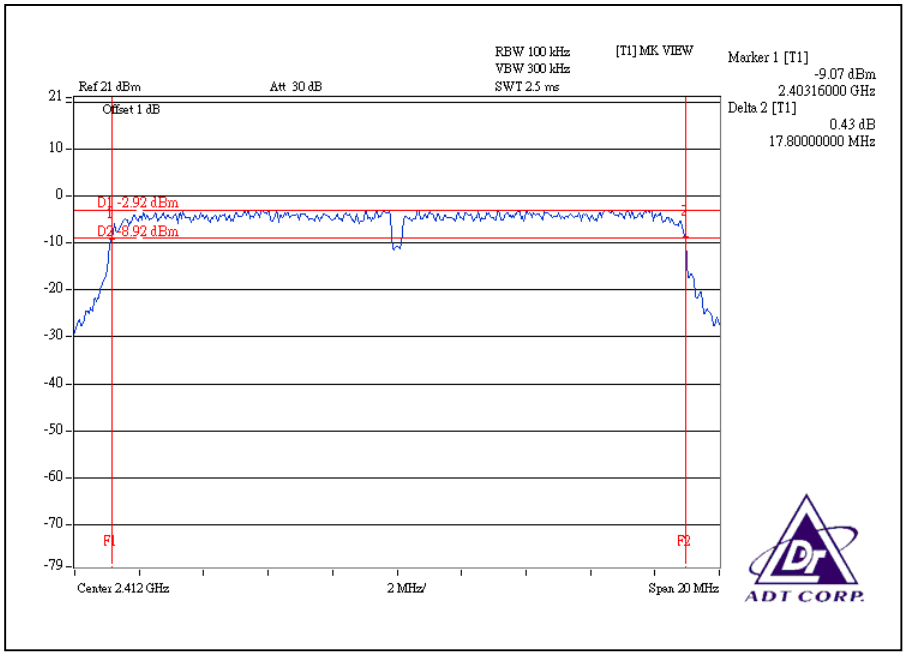

RBW 100 kHz
VBW 100 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
-4.85 dBm
2.45372000 GHz
Delta 2 [T1]
0.01 dB
16.60000000 MHz
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 1.19 dBm
D2 -4.81 dBm
F1
F2
Center 2.462 GHz
2 MHz/
Span 20 MHz
ADT CORP.

DRAFT 802.11n (20MHz) OFDM MODULATION:

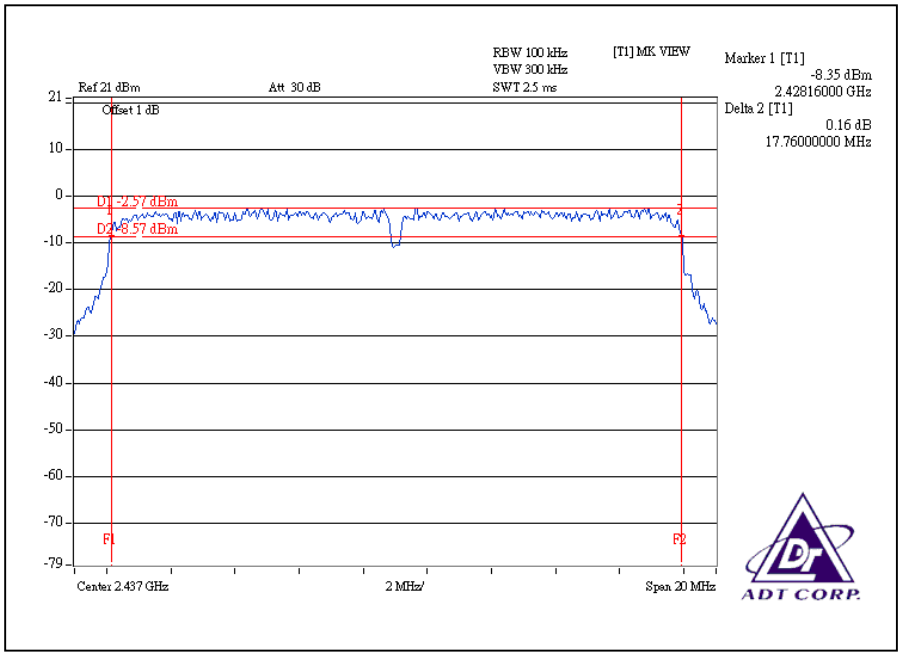
MODULATION TYPE	BPSK	TRANSFER RATE	13Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH, 971hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN(0)	CHAIN(1)		
1	2412	17.80	17.72	0.5	PASS
6	2437	17.76	17.72	0.5	PASS
11	2462	17.76	17.68	0.5	PASS

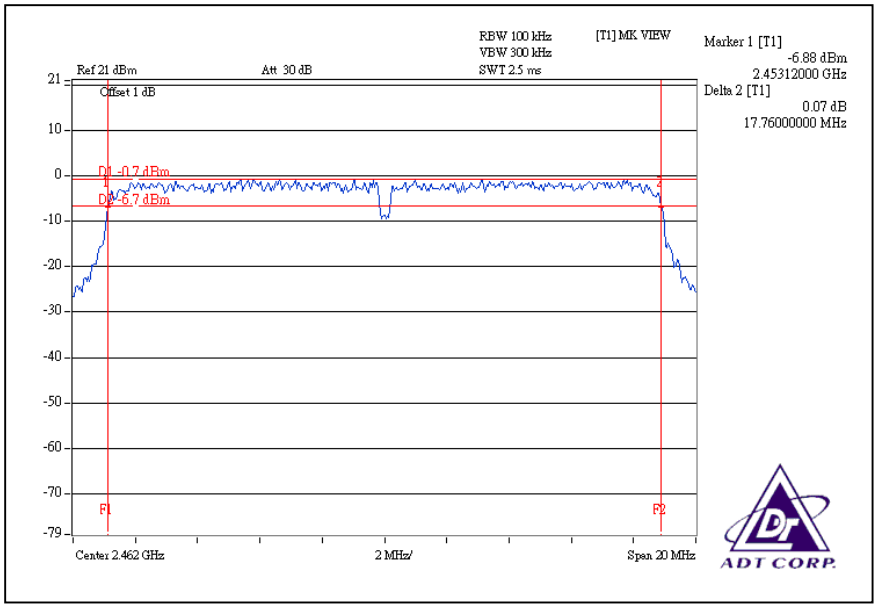
For Chain(0): CH1



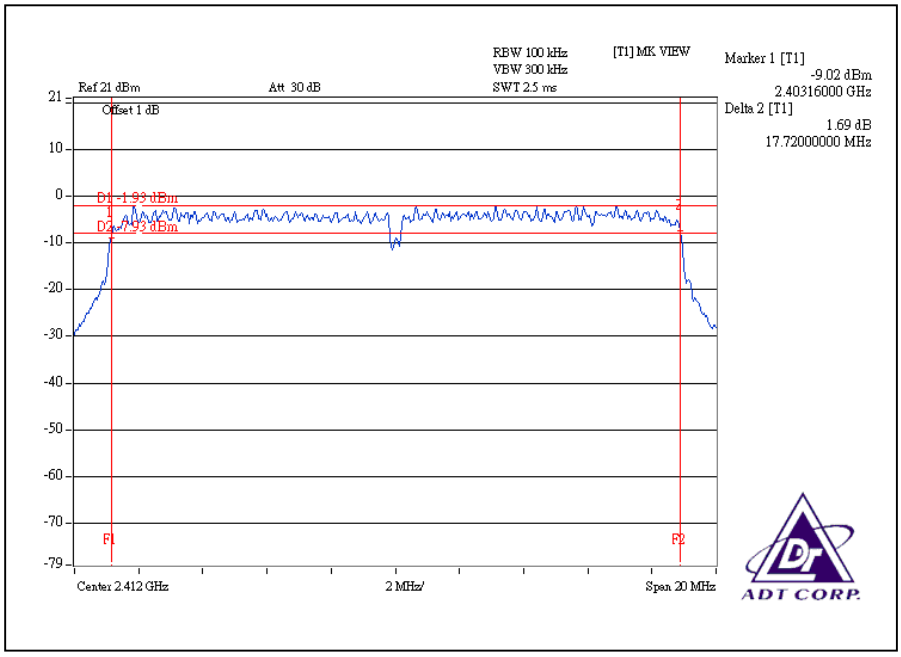
CH6


RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
[T1] MK VIEW
Marker 1 [T1]
-8.35 dBm
2.42816000 GHz
Delta 2 [T1]
0.16 dB
17.76000000 MHz
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 -2.57 dBm
D2 -8.57 dBm
F1
F2
Center 2.437 GHz
2 MHz/
Span 20 MHz
ADT CORP.

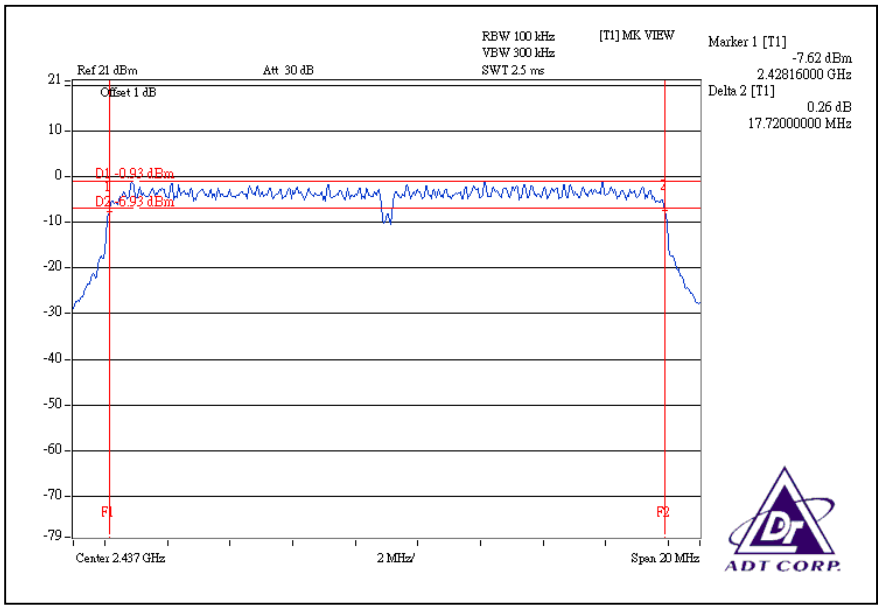
CH11


RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
[T1] MK VIEW
Marker 1 [T1]
-6.88 dBm
2.45312000 GHz
Delta 2 [T1]
0.07 dB
17.76000000 MHz
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 -0.7 dBm
D2 -6.7 dBm
F1
F2
Center 2.462 GHz
2 MHz/
Span 20 MHz
ADT CORP.

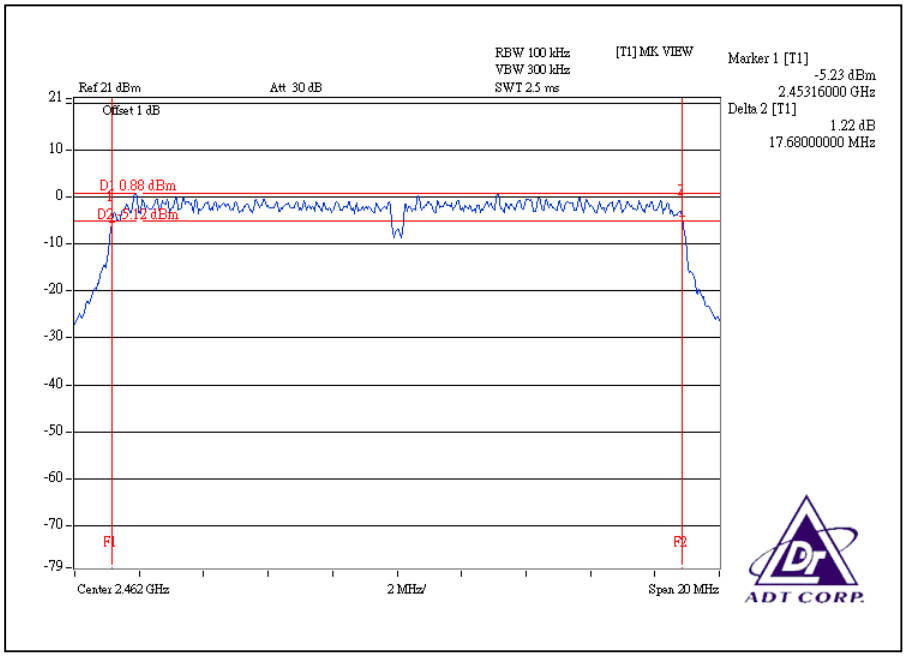
For CHAIN(1): CH1



CH6



CH11

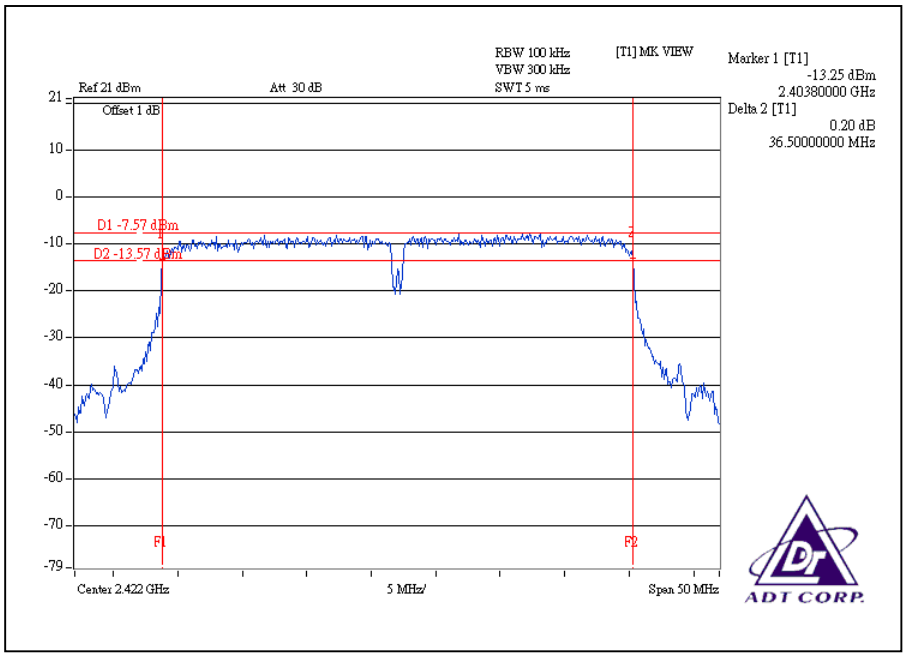

RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
[T1] MK VIEW
Marker 1 [T1]
-5.23 dBm
2.45316000 GHz
Delta 2 [T1]
1.22 dB
17.68000000 MHz
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 0.88 dBm
D2 -0.34 dBm
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
F1
F2
Center 2.462 GHz
2 MHz/
Span 20 MHz
ADT CORP.

DRAFT 802.11n (40MHz) OFDM MODULATION:

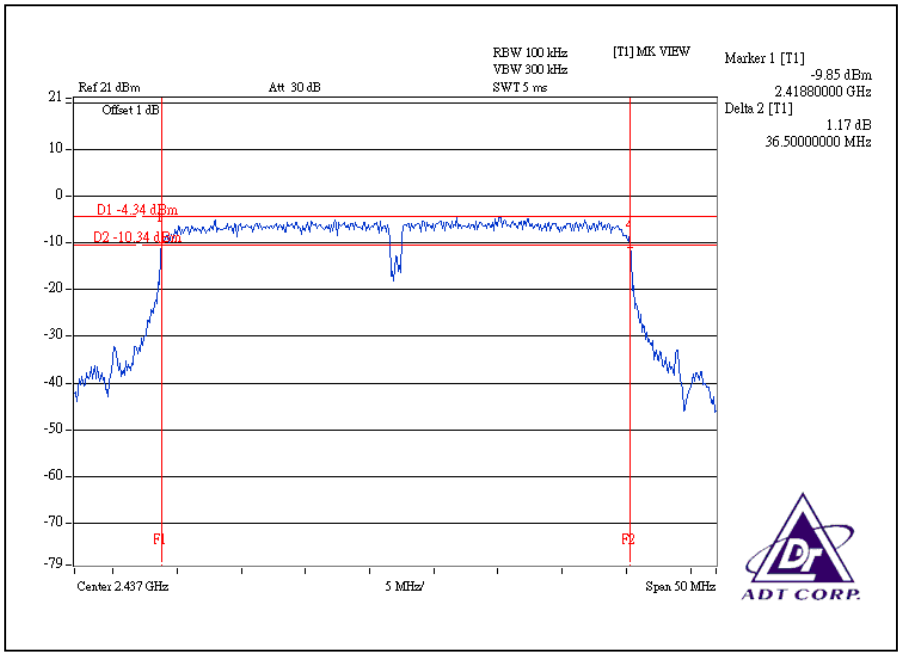
MODULATION TYPE	BPSK	TRANSFER RATE	27Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH, 971hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN(0)	CHAIN(1)		
1	2422	36.50	36.50	0.5	PASS
4	2437	36.50	36.40	0.5	PASS
7	2452	36.50	36.50	0.5	PASS

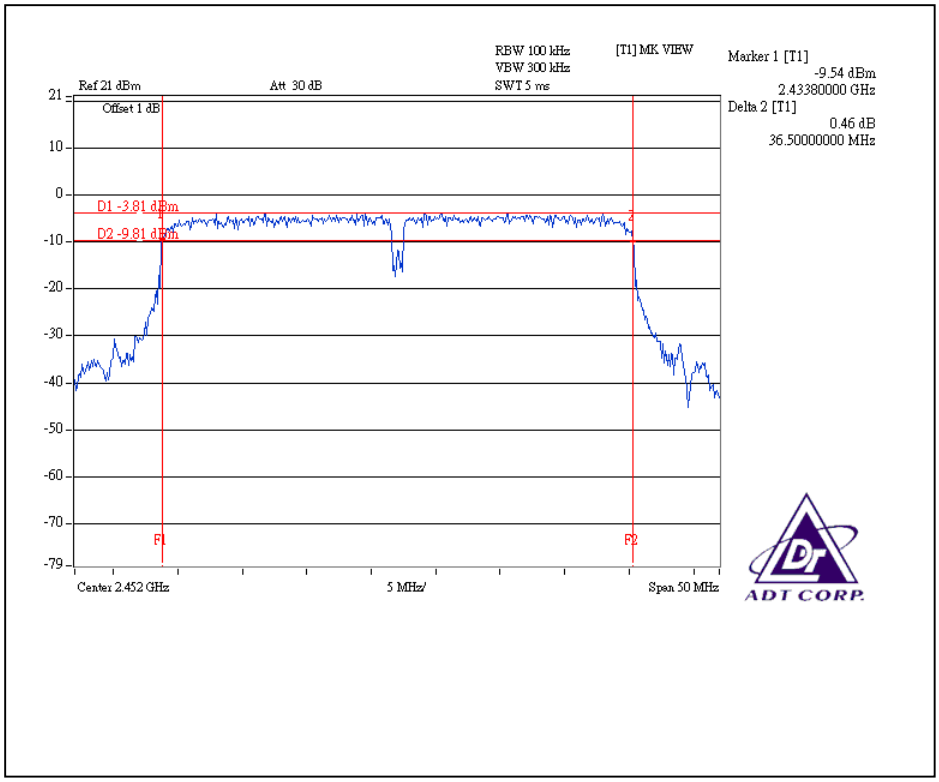
For Chain (0): CH1



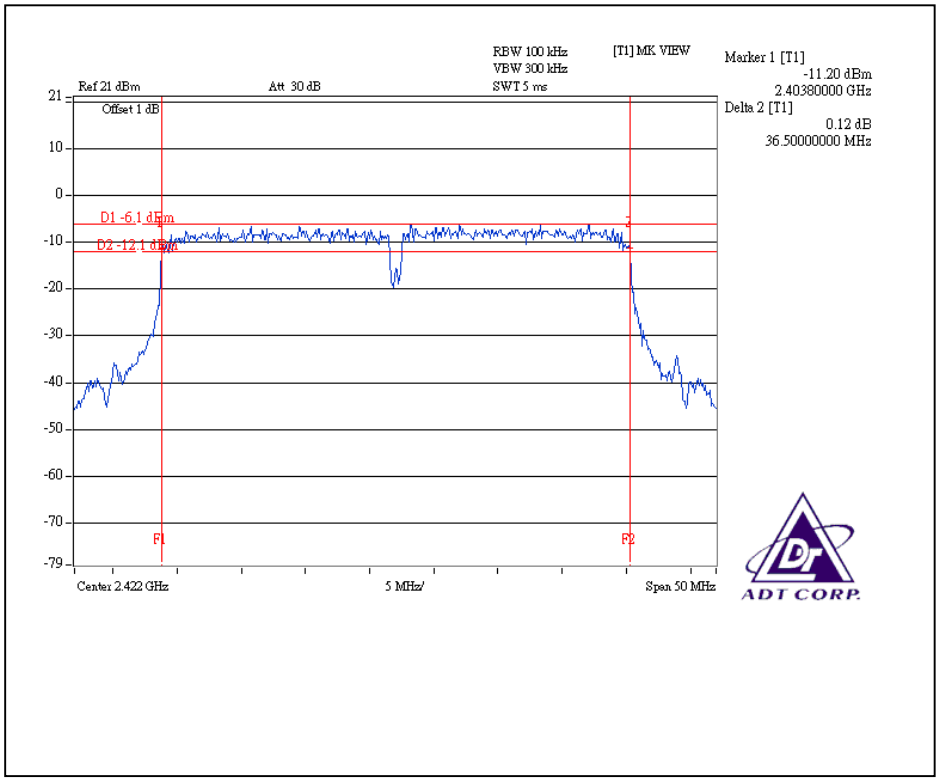
CH4


RBW 100 kHz
VBW 300 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
-9.85 dBm
2.41880000 GHz
Delta 2 [T1]
1.17 dB
36.50000000 MHz
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 -4.34 dBm
D2 -10.34 dBm
F1
F2
Center 2.437 GHz
5 MHz/
Span 50 MHz
ADT CORP.

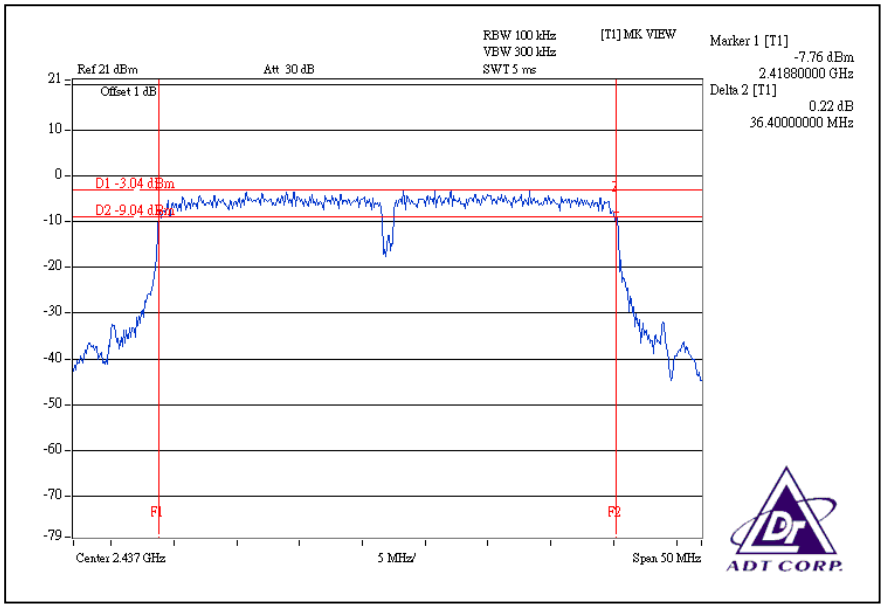
CH7


RBW 100 kHz
VBW 300 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
-9.54 dBm
2.43380000 GHz
Delta 2 [T1]
0.46 dB
36.50000000 MHz
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 -3.81 dBm
D2 -9.81 dBm
F1
F2
Center 2.452 GHz
5 MHz/
Span 50 MHz
ADT CORP.

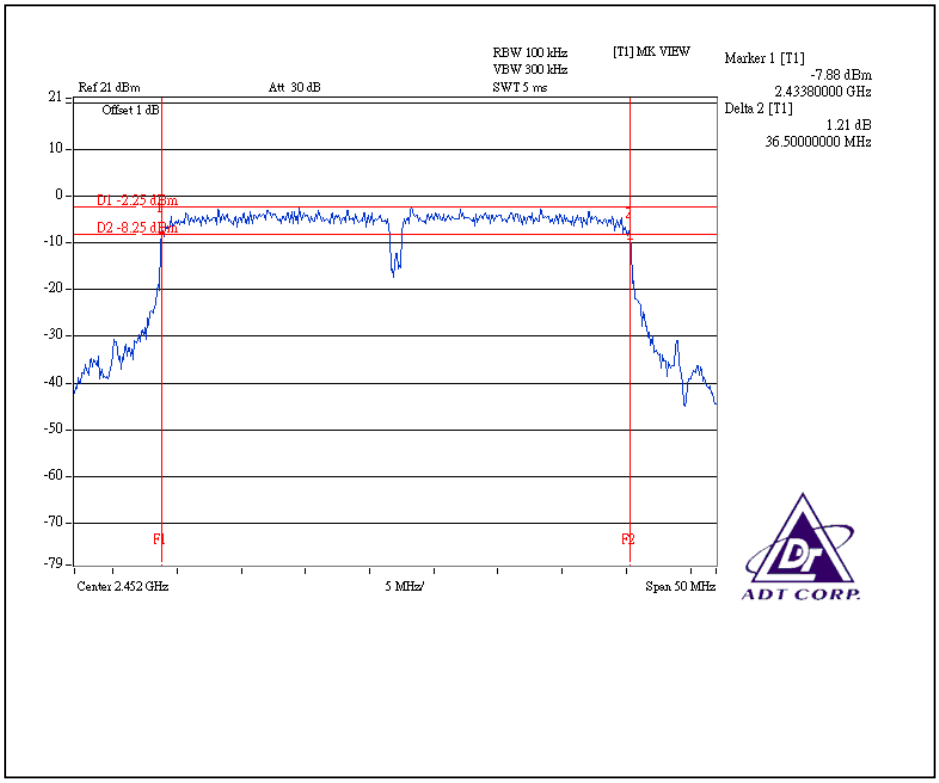
For Chain (1): CH1



CH4



CH7


RBW 100 kHz
VBW 300 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
-7.88 dBm
2.43380000 GHz
Delta 2 [T1]
1.21 dB
36.50000000 MHz
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 -2.25 dBm
D2 -8.25 dBm
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
F1
F2
Center 2.452 GHz
5 MHz/
Span 50 MHz
ADT CORP.

4.4 MAXIMUM PEAK OUTPUT POWER

4.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

4.4.2 INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 12, 2008
Agilent SIGNAL GENERATOR	E8257C	MY43320668	Dec. 07, 2007
TEKTRONIX OSCILLOSCOPE	TDS380	B016335	Aug. 15, 2008
NARDA DETECTOR	4503A	FSCM99899	NA

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

4.4.3 TEST PROCEDURES

1. A detector was used on the output port of the EUT. An oscilloscope was used to read the response of the detector.
2. Replaced the EUT by the signal generator. The center frequency of the S.G was adjusted to the center frequency of the measured channel.
3. Adjusted the power to have the same reading on oscilloscope. Record the power level.

4.4.4 DEVIATION FROM TEST STANDARD

No deviation

4.4.5 TEST SETUP

4.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6

4.4.7 TEST RESULTS

802.11b DSSS MODULATION:

MODULATION TYPE	CCK	TRANSFER RATE	11Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH, 971hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2412	25.704	14.10	30	PASS
6	2437	31.623	15.00	30	PASS
11	2462	34.674	15.40	30	PASS

802.11g OFDM MODULATION:

MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH, 971hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2412	93.325	19.70	30	PASS
6	2437	97.724	19.90	30	PASS
11	2462	91.201	19.60	30	PASS

DRAFT 802.11n (20MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	TRANSFER RATE	13Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH, 971hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)		PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)	CHAIN(0)	CHAIN(1)				
1	2412	39.811	40.738	16.00	16.10	80.549	19.06	30	PASS
6	2437	46.774	45.709	16.70	16.60	92.483	19.66	30	PASS
11	2462	66.069	67.608	18.20	18.30	133.677	21.26	30	PASS

DRAFT 802.11n (40MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	TRANSFER RATE	27Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH, 971hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)		PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)	CHAIN(0)	CHAIN(1)				
1	2422	25.704	26.303	14.10	14.20	52.007	17.16	30	PASS
4	2437	48.978	51.286	16.90	17.10	100.264	20.01	30	PASS
7	2452	66.069	66.069	18.20	18.20	132.138	21.21	30	PASS

4.5 POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

4.5.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 12, 2008

NOTE:

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

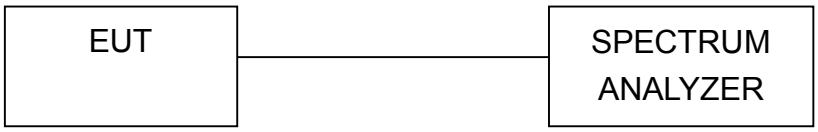
4.5.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3kHz RBW and 30kHz VBW, set sweep time = span/3kHz. The power spectral density was measured and recorded.
The sweep time is allowed to be longer than span/3kHz for a full response of the mixer in the spectrum analyzer.

4.5.4 DEVIATION FROM TEST STANDARD

No deviation

4.5.5 TEST SETUP



4.5.6 EUT OPERATING CONDITION

Same as Item 4.3.6

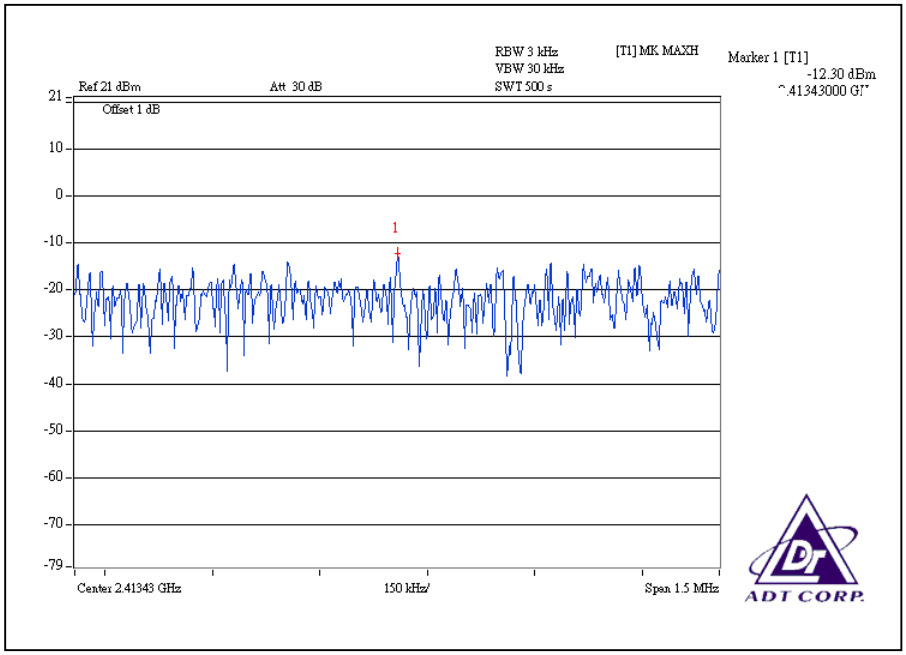
4.5.7 TEST RESULTS

802.11b DSSS MODULATION:

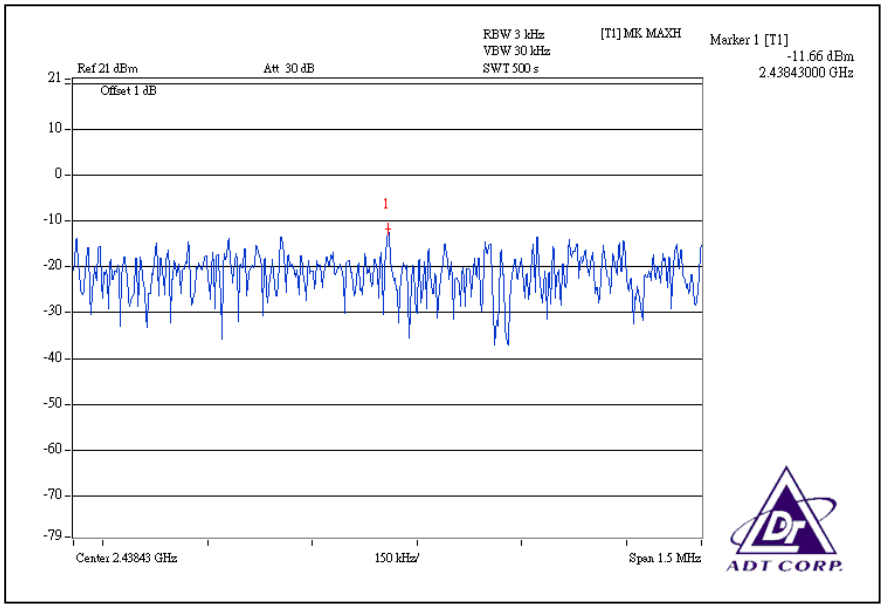
MODULATION TYPE	CCK	TRANSFER RATE	11Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH, 971hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	2412	-12.30	8	PASS
6	2437	-11.66	8	PASS
11	2462	-11.09	8	PASS

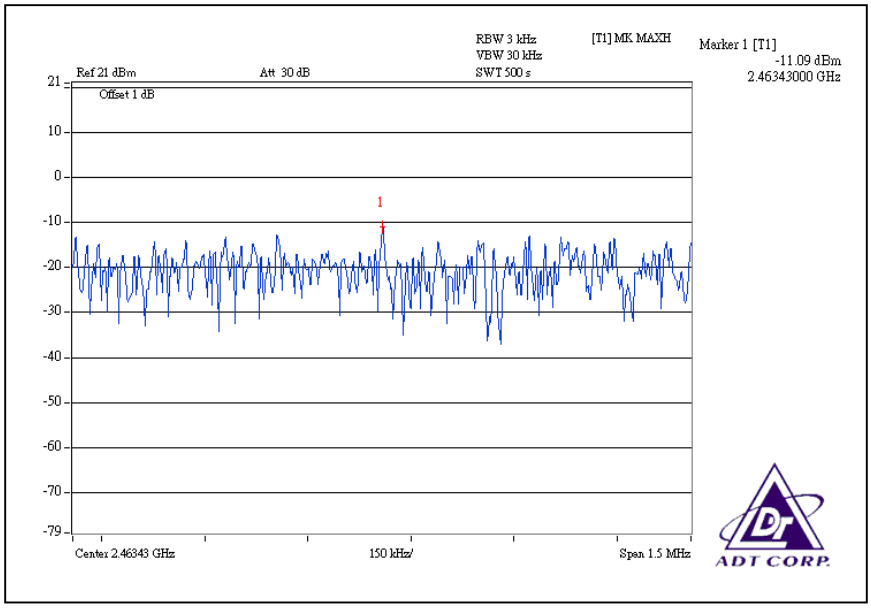
CH1



CH6


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-11.66 dBm
2.43843000 GHz
Ref 21 dBm
Att 30 dB
Offset 1 dB
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
Center 2.43843 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

CH11

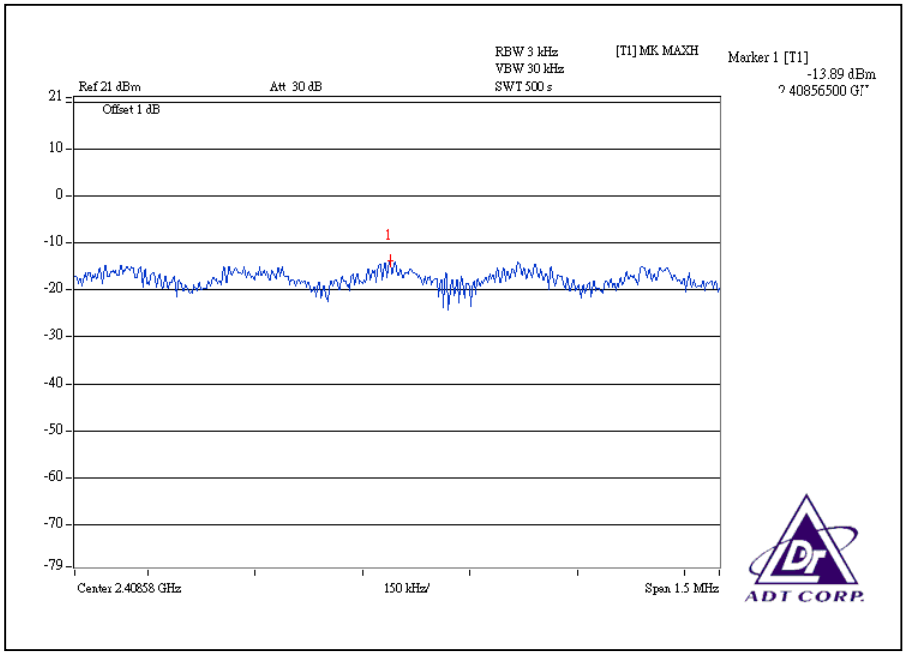

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-11.09 dBm
2.46343000 GHz
Ref 21 dBm
Att 30 dB
Offset 1 dB
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
Center 2.46343 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

802.11g OFDM MODULATION:

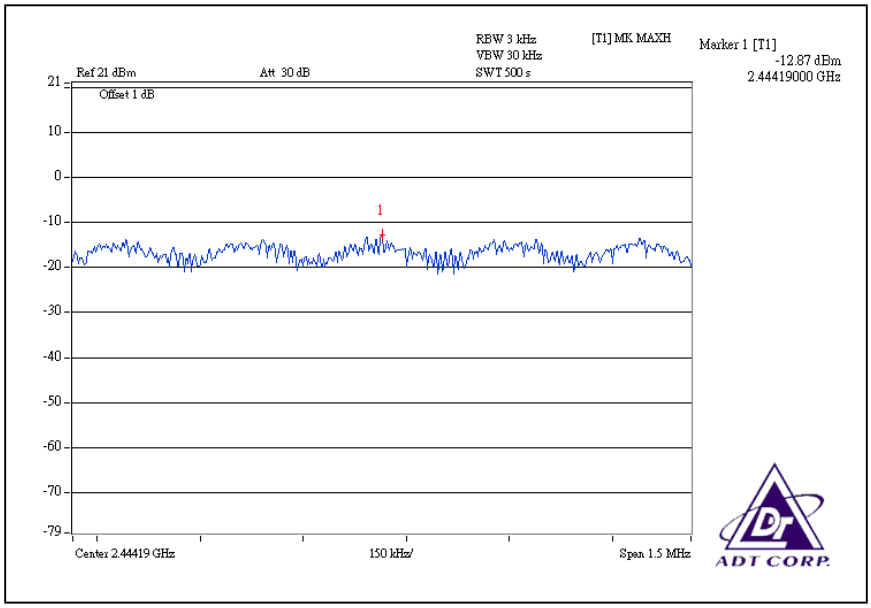
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH, 971hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	2412	-13.89	8	PASS
6	2437	-12.87	8	PASS
11	2462	-13.59	8	PASS

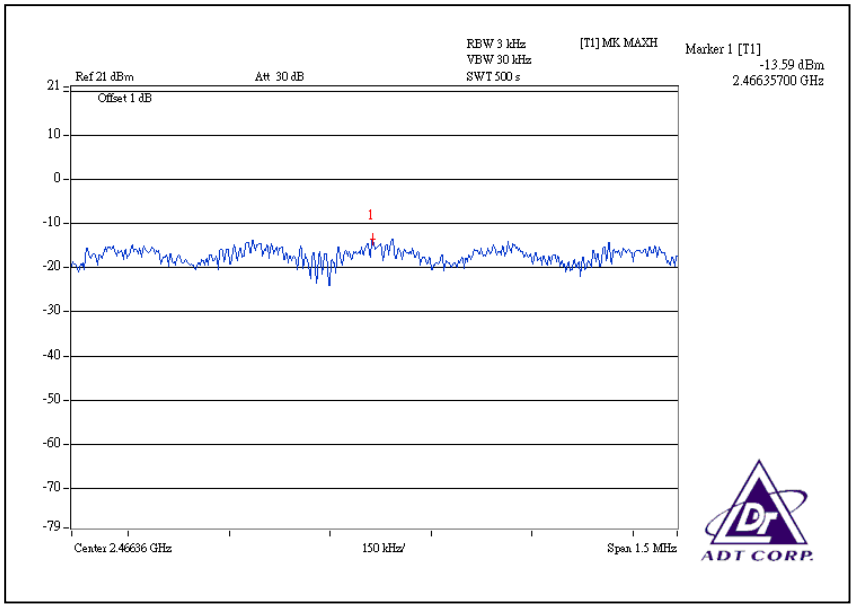
CH1



CH6


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-12.87 dBm
2.44419000 GHz
Ref 21 dBm
Att 30 dB
Offset 1 dB
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
Center 2.44419 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

CH11

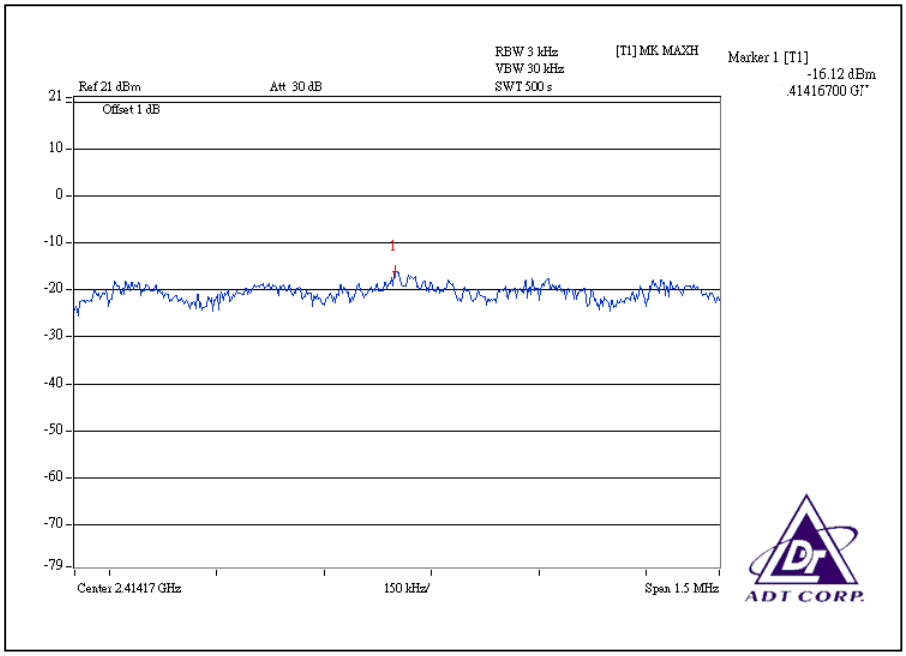

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-13.59 dBm
2.46635700 GHz
Ref 21 dBm
Att 30 dB
Offset 1 dB
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
Center 2.46636 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

DRAFT 802.11n (20MHz) OFDM MODULATION:

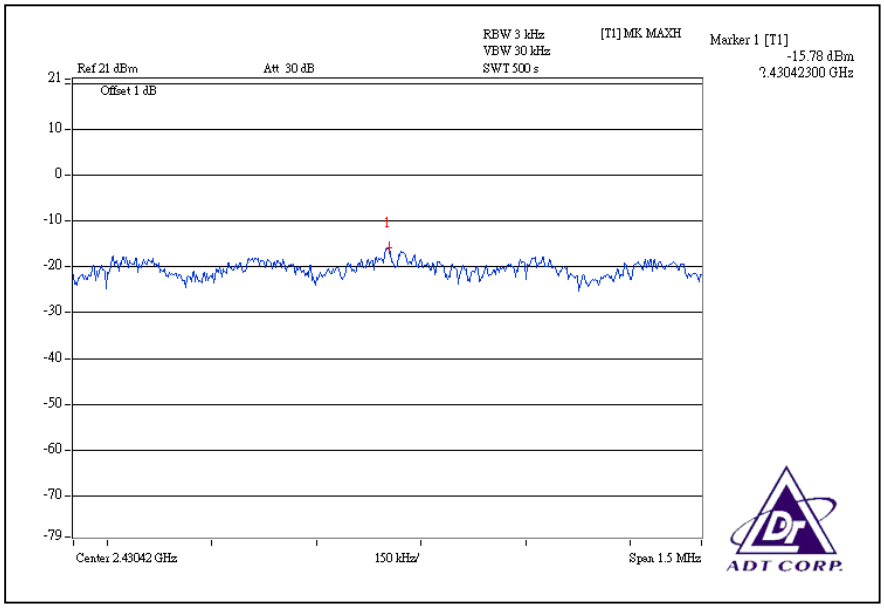
MODULATION TYPE	BPSK	TRANSFER RATE	13Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	20 deg.C, 60%RH, 971hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (mW)		RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)	CHAIN(0)	CHAIN(1)				
1	2412	0.024	0.022	-16.12	-16.53	0.046	-13.37	8	PASS
6	2437	0.026	0.027	-15.78	-15.62	0.053	-12.76	8	PASS
11	2462	0.041	0.043	-13.84	-13.66	0.084	-10.76	8	PASS

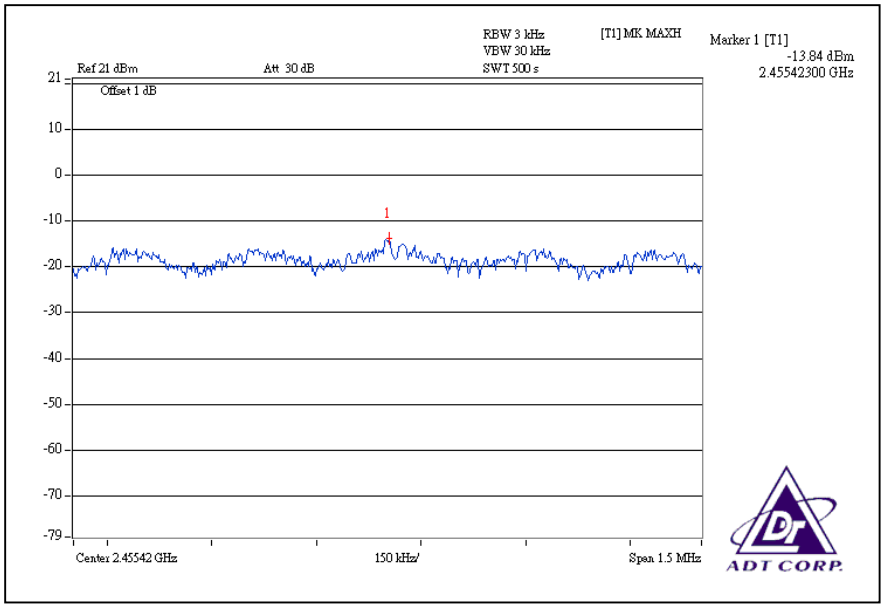
For Chain(0): CH1



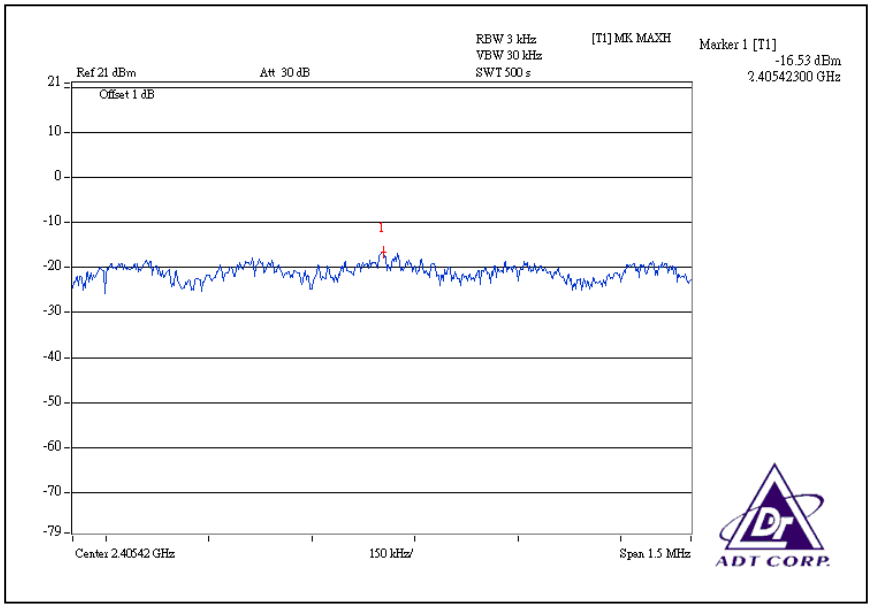
CH6


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-15.78 dBm
?.43042300 GHz
Ref 21 dBm
Att 30 dB
Offset 1 dB
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
Center 2.43042 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

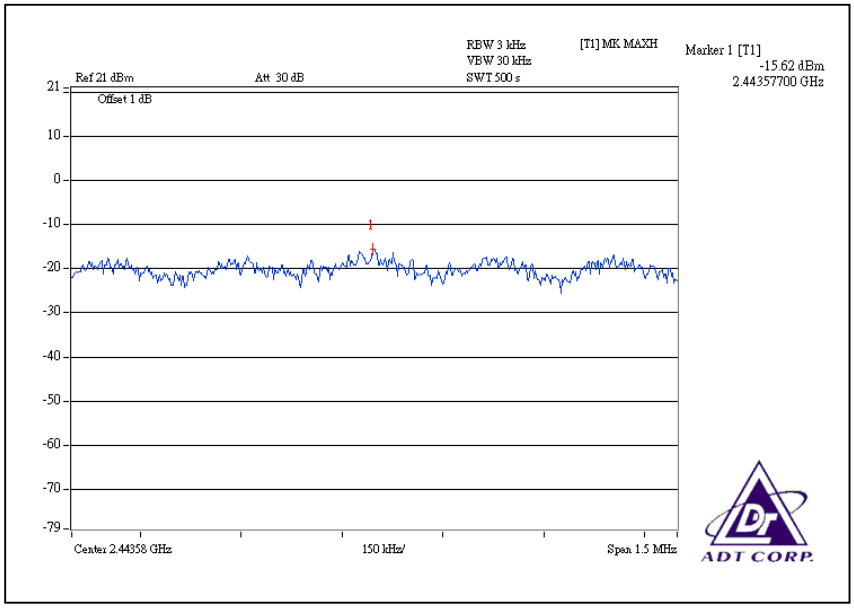
CH11


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-13.84 dBm
2.45542300 GHz
Ref 21 dBm
Att 30 dB
Offset 1 dB
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
Center 2.45542 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

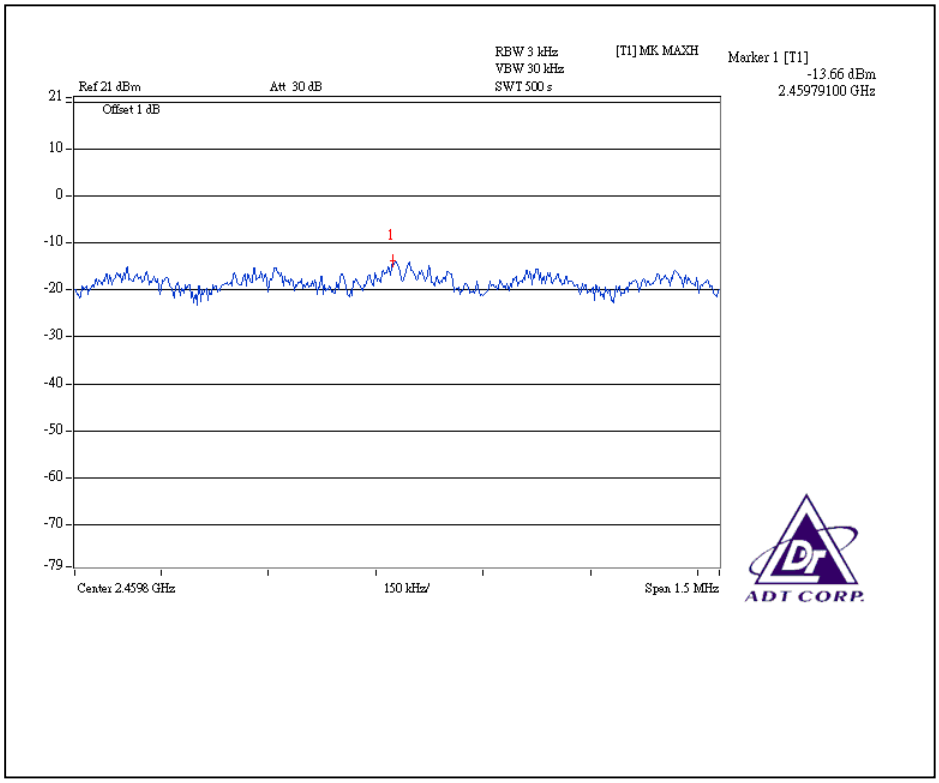
For Chain (1): CH1



CH6



CH11

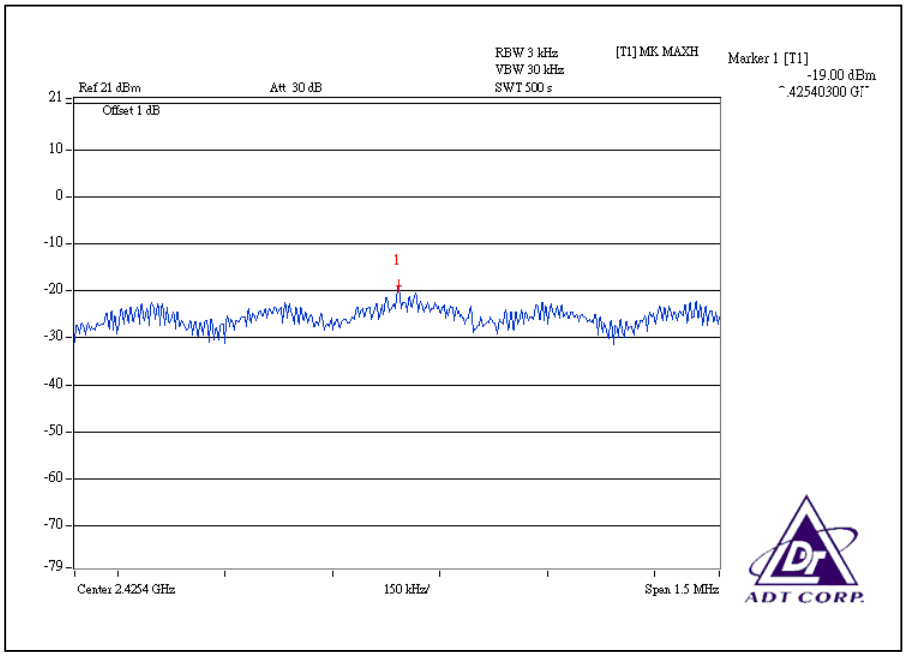

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-13.66 dBm
2.45979100 GHz
Ref 21 dBm
Att 30 dB
Offset 1 dB
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
Center 2.4598 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

DRAFT 802.11n (40MHz) OFDM MODULATION:

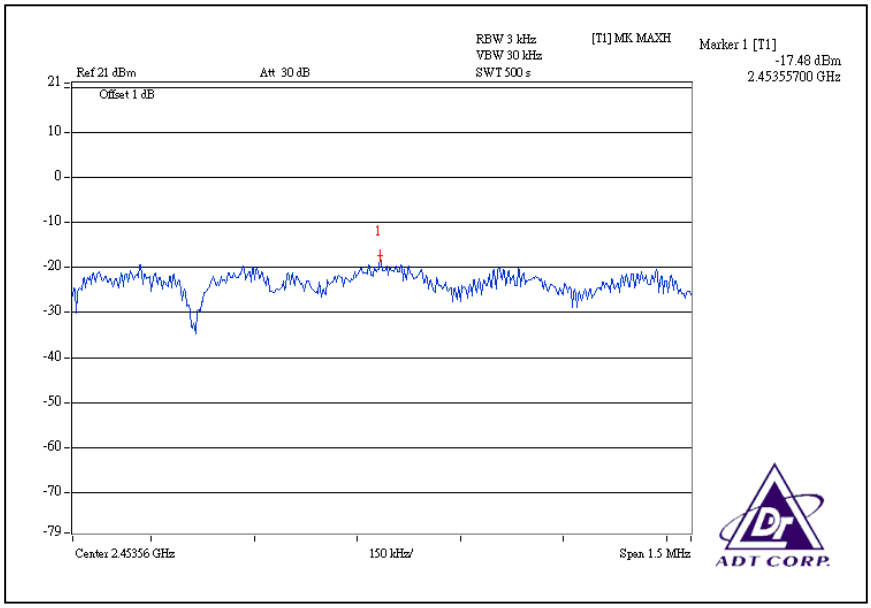
MODULATION TYPE	BPSK	TRANSFER RATE	27Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH, 971hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (mW)		RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)	CHAIN(0)	CHAIN(1)				
1	2422	0.013	0.009	-19.00	-20.56	0.022	-16.58	8	PASS
4	2437	0.018	0.017	-17.48	-17.76	0.035	-14.56	8	PASS
7	2452	0.033	0.021	-14.76	-16.88	0.054	-12.68	8	PASS

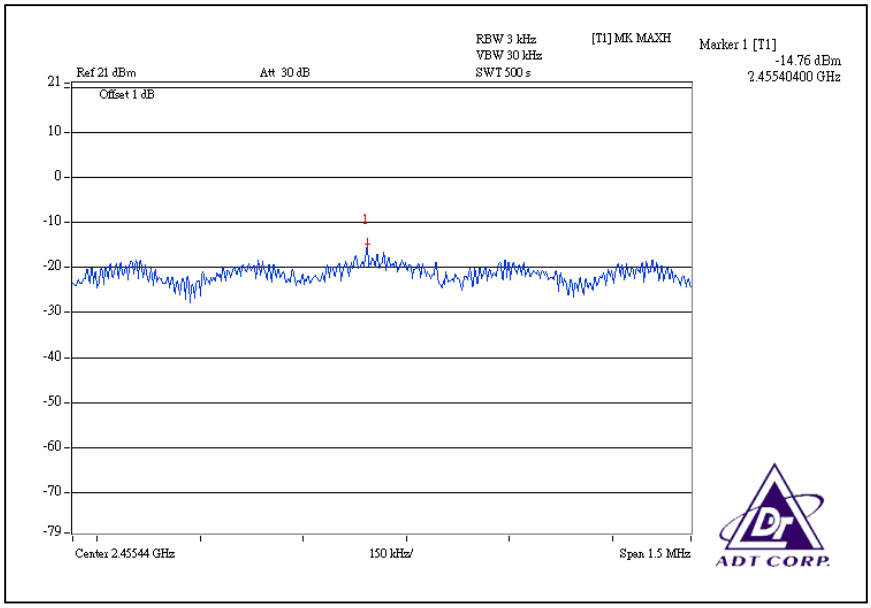
For Chain (0): CH1



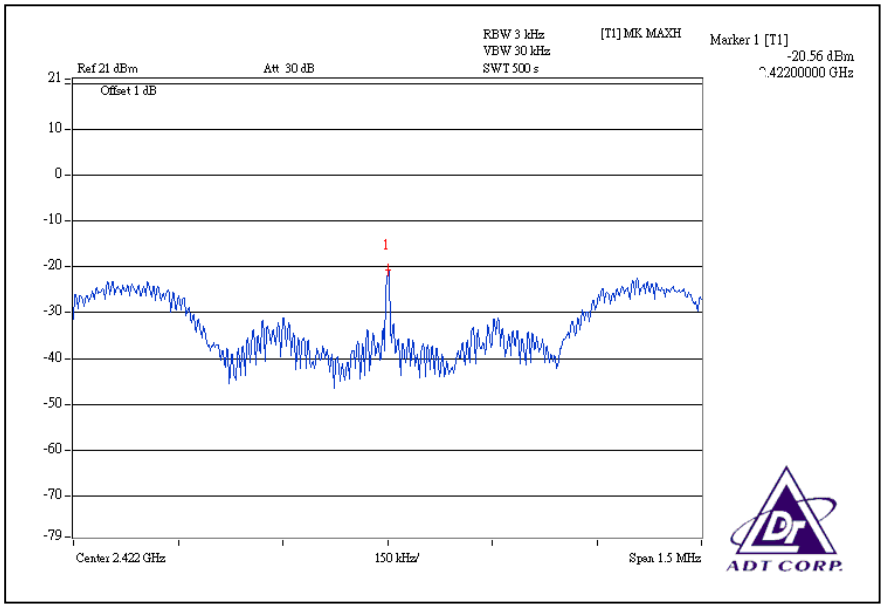
CH4


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-17.48 dBm
2.45355700 GHz
Ref 21 dBm
Att 30 dB
Offset 1 dB
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
Center 2.45356 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

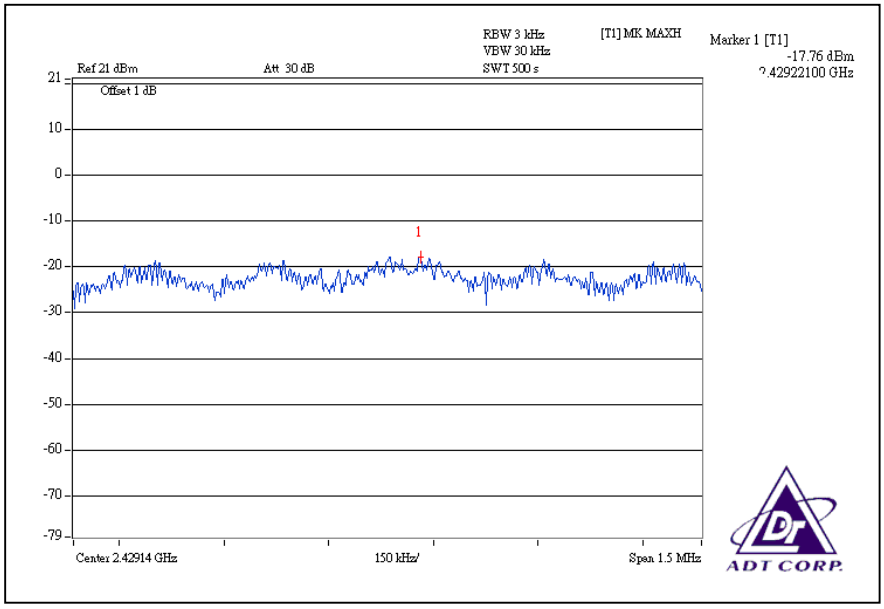
CH7


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-14.76 dBm
2.45540400 GHz
Ref 21 dBm
Att 30 dB
Offset 1 dB
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
Center 2.45544 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

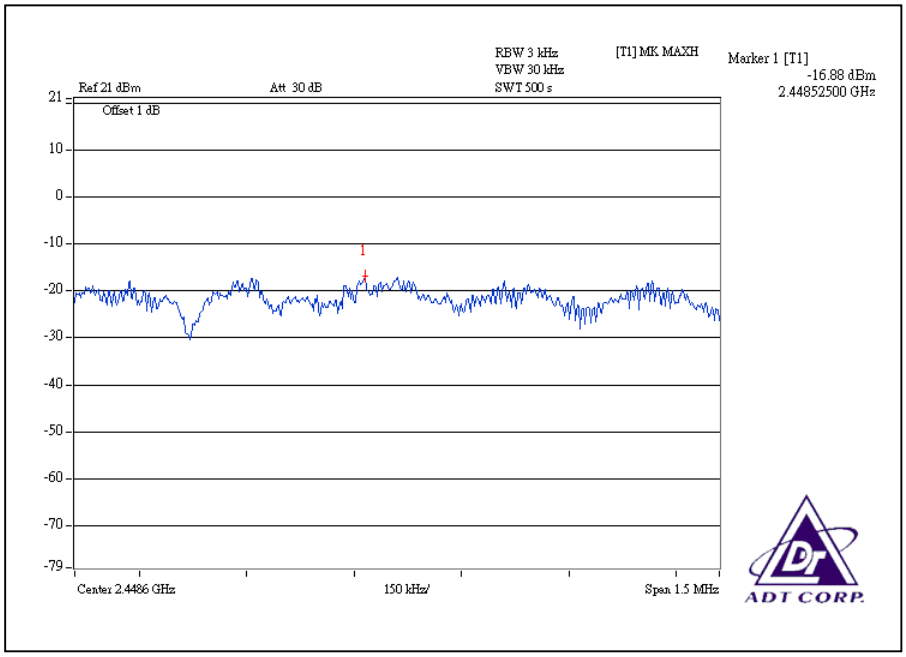
For Chain (1): CH1



CH4



CH7


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-16.88 dBm
2.44852500 GHz
Ref 21 dBm
Att 30 dB
Offset 1 dB
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
Center 2.4486 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

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
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 12, 2008

NOTE:

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

4.6.3 TEST PROCEDURE

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

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

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 EUT OPERATING CONDITION

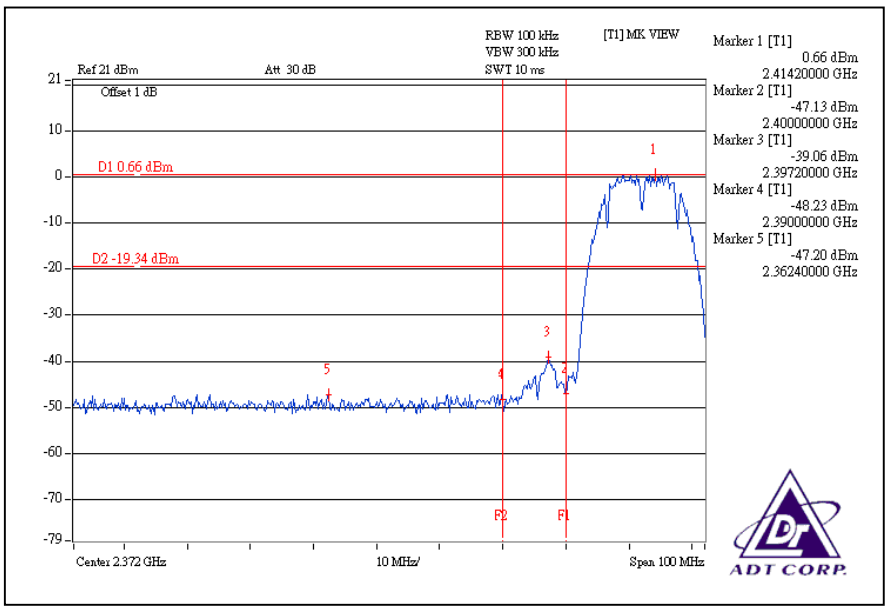
Same as Item 4.3.6

4.6.6 TEST RESULTS

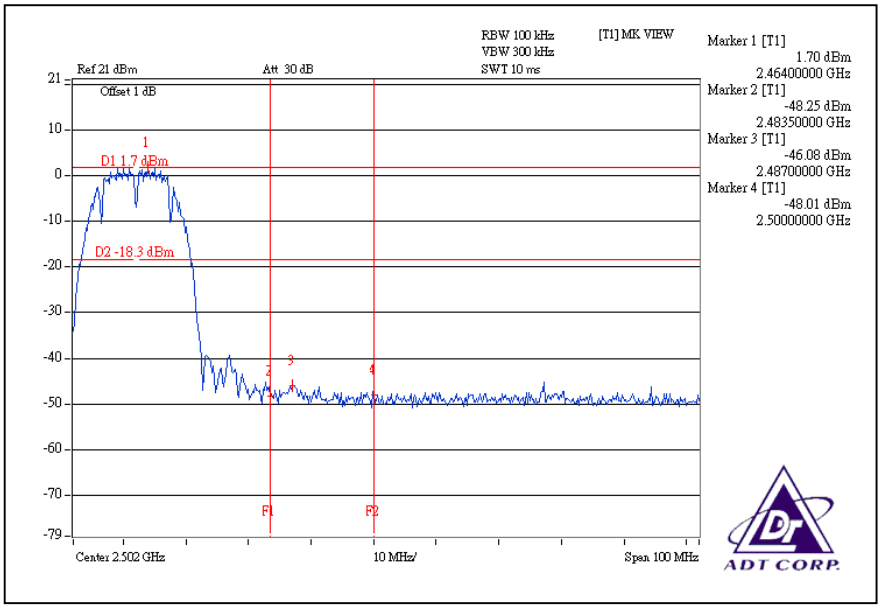
The spectrum plots are attached on the following 12 images. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(d).

802.11b DSSS MODULATION:

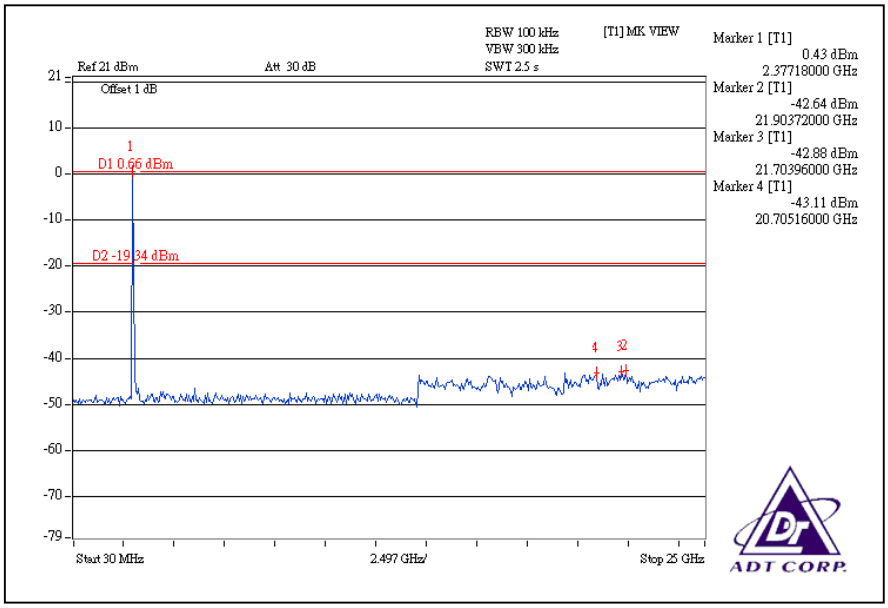
CH1



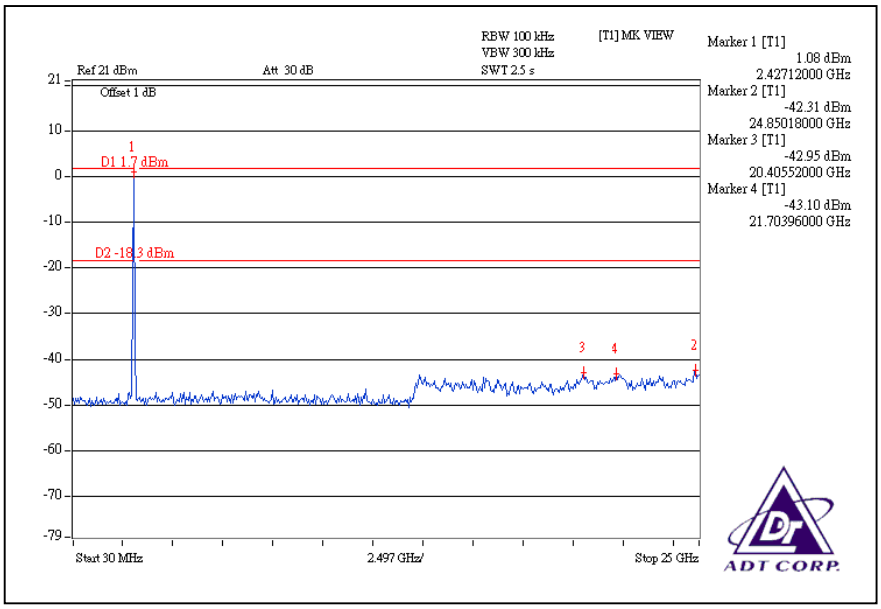
CH11



CH1

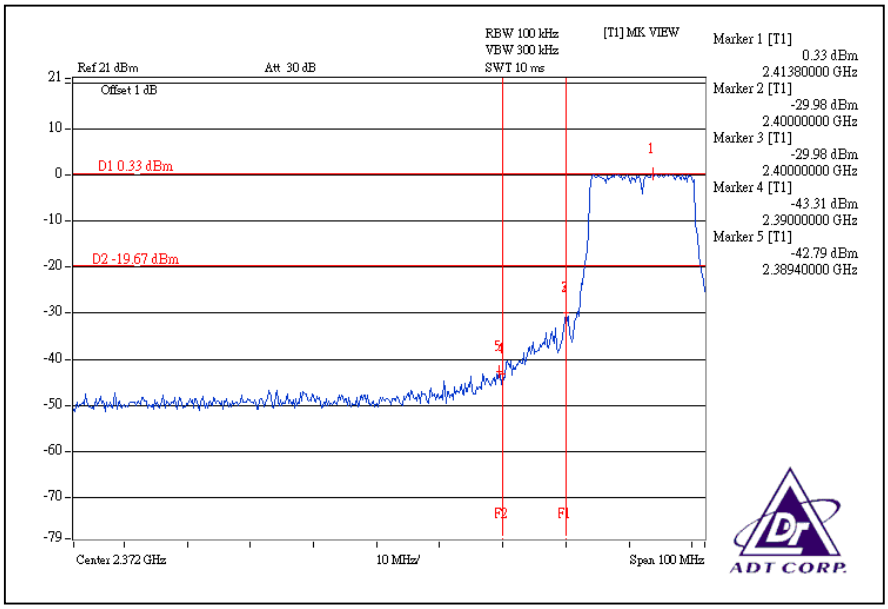

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 0.66 dBm
D2 -19.34 dBm
Marker 1 [T1]
0.43 dBm
2.37718000 GHz
Marker 2 [T1]
-42.64 dBm
21.90372000 GHz
Marker 3 [T1]
-42.88 dBm
21.70396000 GHz
Marker 4 [T1]
-43.11 dBm
20.70516000 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz
ADT CORP.

CH11

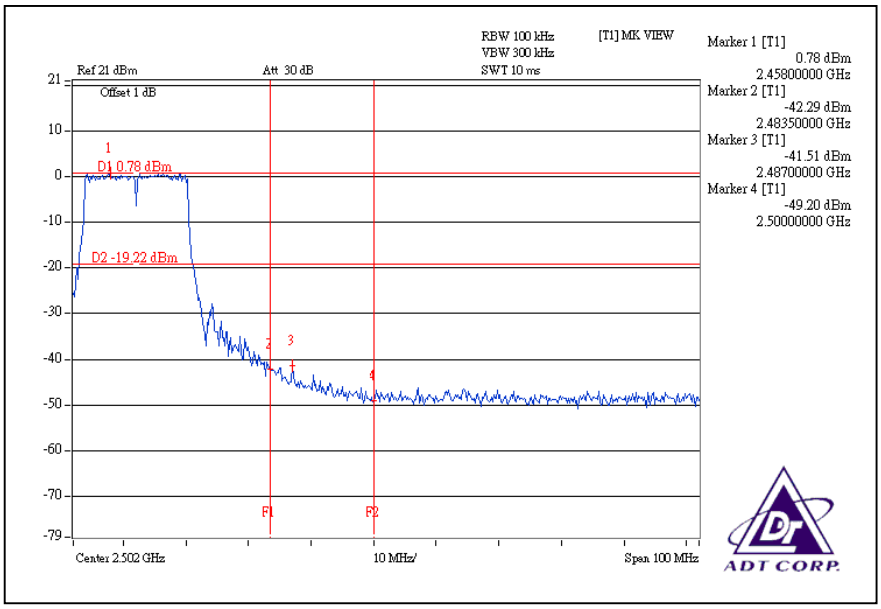

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 1.7 dBm
D2 -18.3 dBm
Marker 1 [T1]
1.08 dBm
2.42712000 GHz
Marker 2 [T1]
-42.31 dBm
24.85018000 GHz
Marker 3 [T1]
-42.95 dBm
20.40552000 GHz
Marker 4 [T1]
-43.10 dBm
21.70396000 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz
ADT CORP.

802.11g OFDM MODULATION:

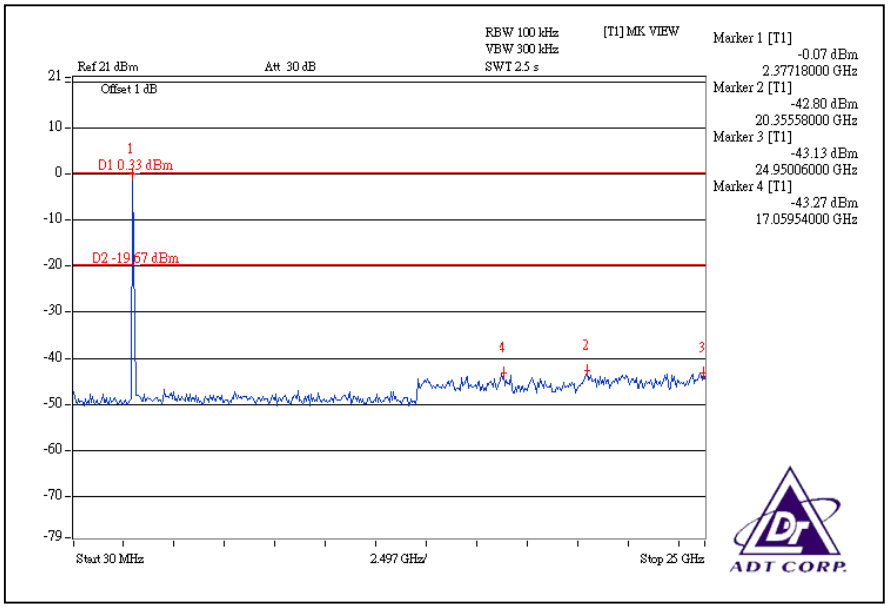
CH 1



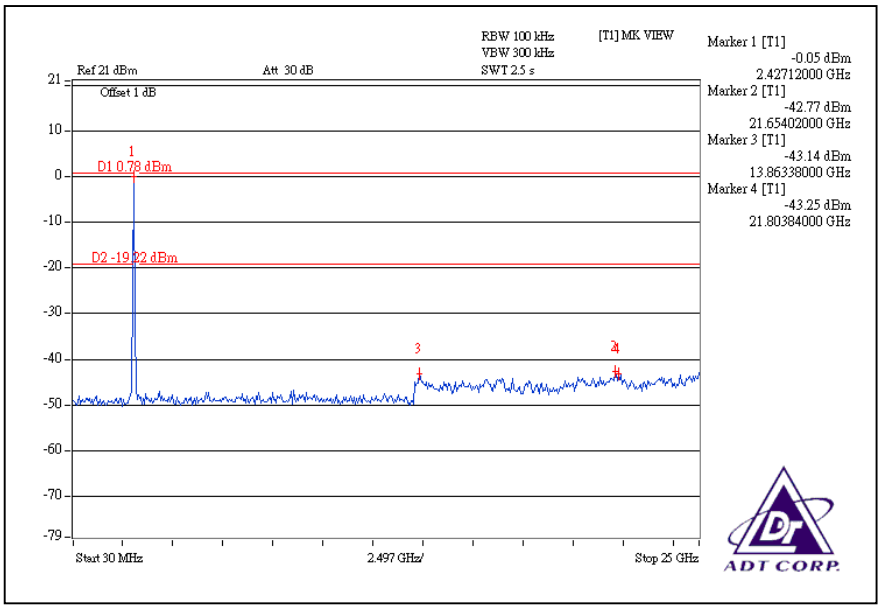
CH11



CH1

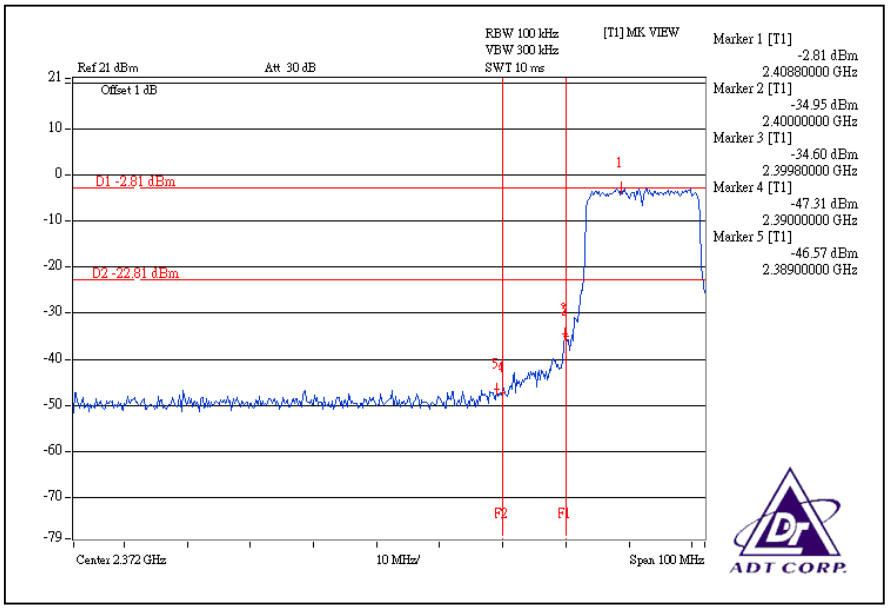

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 0.33 dBm
D2 -19.67 dBm
Marker 1 [T1]
-0.07 dBm
2.37718000 GHz
Marker 2 [T1]
-42.80 dBm
20.35558000 GHz
Marker 3 [T1]
-43.13 dBm
24.95006000 GHz
Marker 4 [T1]
-43.27 dBm
17.05954000 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz
ADT CORP.

CH11

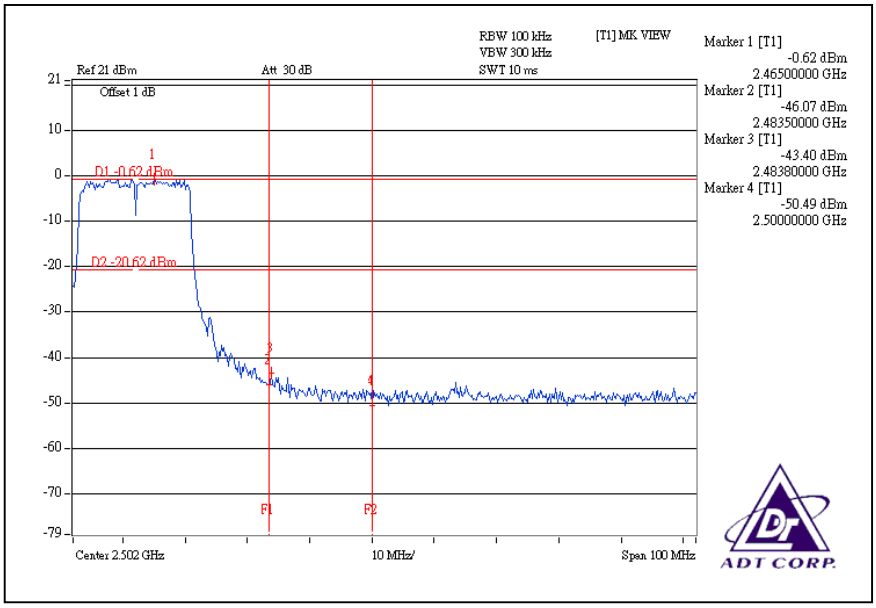

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 0.78 dBm
D2 -19.22 dBm
Marker 1 [T1]
-0.05 dBm
2.42712000 GHz
Marker 2 [T1]
-42.77 dBm
21.65402000 GHz
Marker 3 [T1]
-43.14 dBm
13.86338000 GHz
Marker 4 [T1]
-43.25 dBm
21.80384000 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz
ADT CORP.

DRAFT 802.11n (20MHz) OFDM MODULATION:

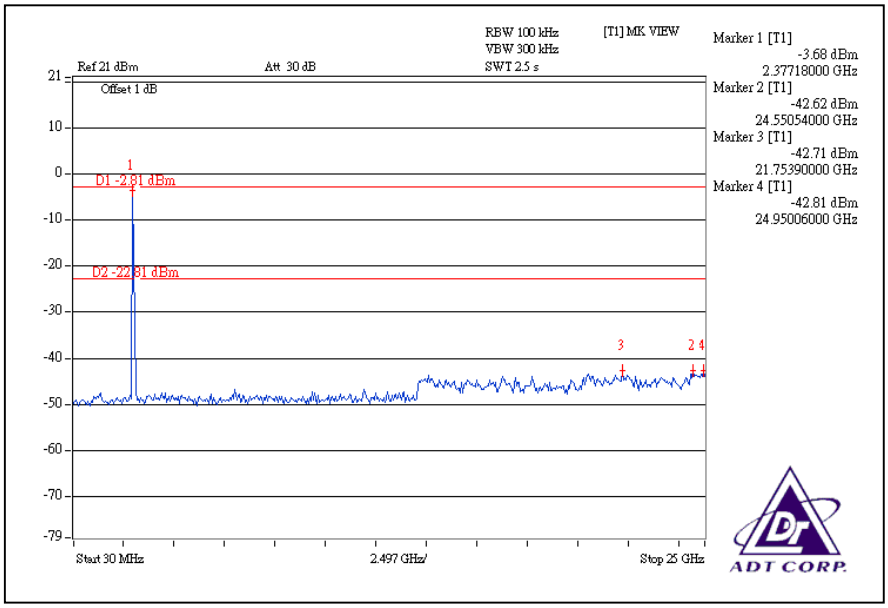
For Chain (0):CH1



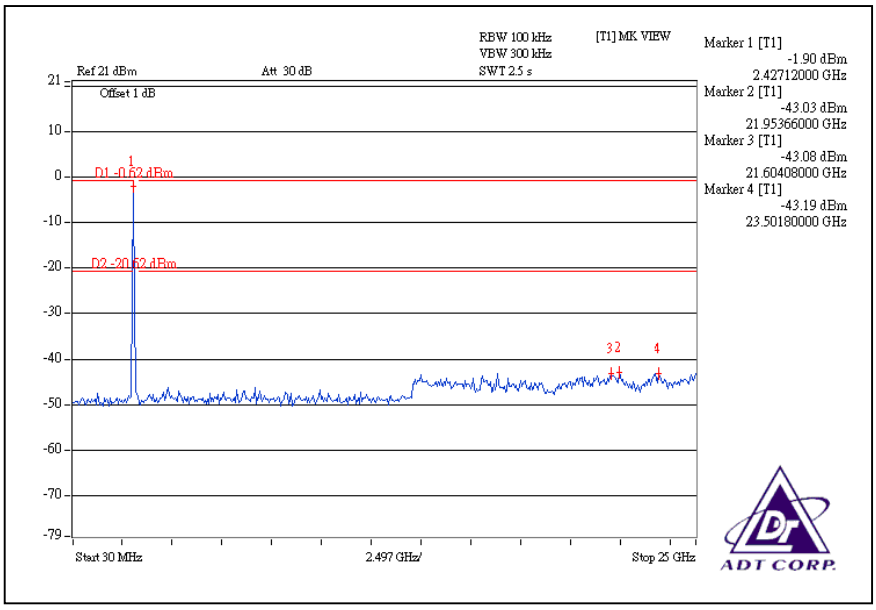
CH11



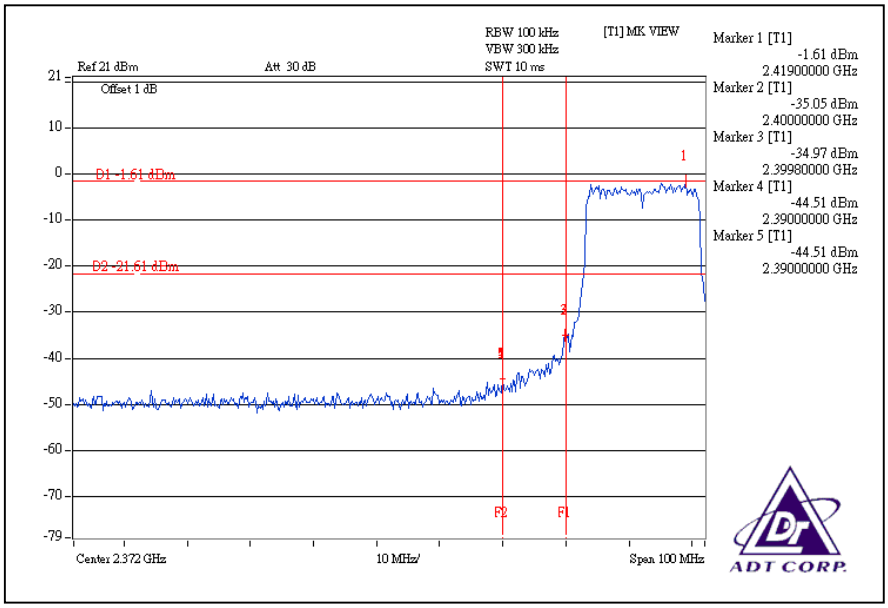
CH1


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 -2.81 dBm
D2 -22.81 dBm
Marker 1 [T1]
-3.68 dBm
2.37718000 GHz
Marker 2 [T1]
-42.62 dBm
24.55054000 GHz
Marker 3 [T1]
-42.71 dBm
21.75390000 GHz
Marker 4 [T1]
-42.81 dBm
24.95006000 GHz
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
Start 30 MHz
2.497 GHz/
Stop 25 GHz
ADT CORP.

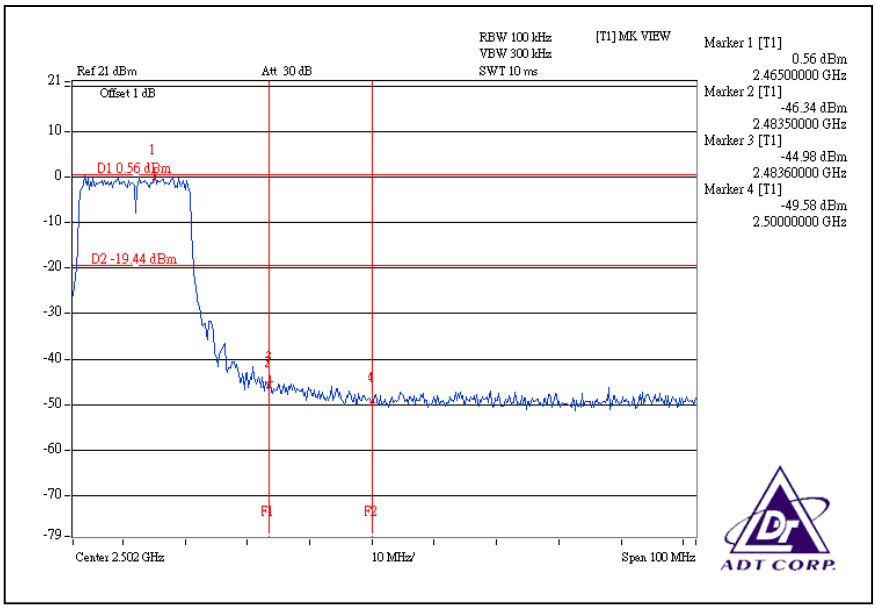
CH11


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 -1.62 dBm
D2 -21.62 dBm
Marker 1 [T1]
-1.90 dBm
2.42712000 GHz
Marker 2 [T1]
-43.03 dBm
21.95366000 GHz
Marker 3 [T1]
-43.08 dBm
21.60408000 GHz
Marker 4 [T1]
-43.19 dBm
23.50180000 GHz
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
Start 30 MHz
2.497 GHz/
Stop 25 GHz
ADT CORP.

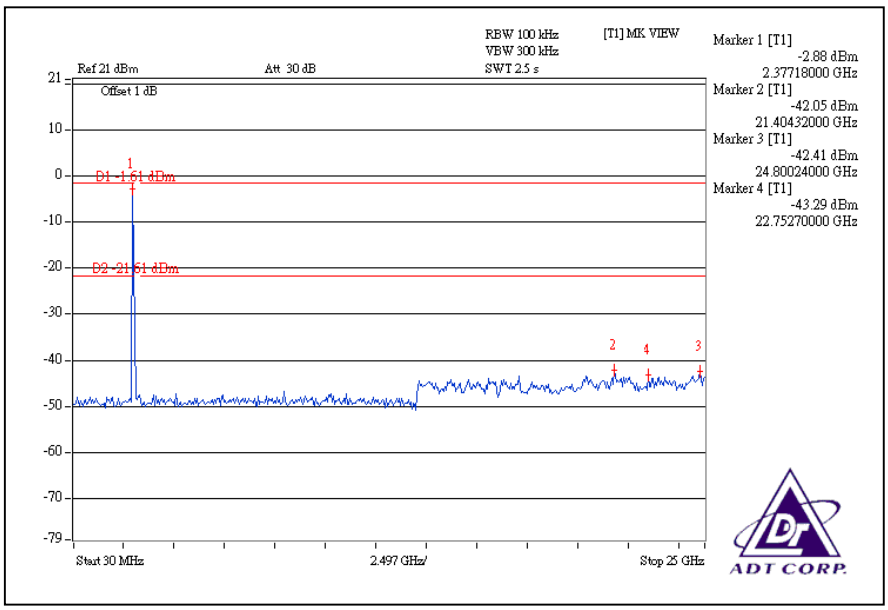
For Chain (1):CH1



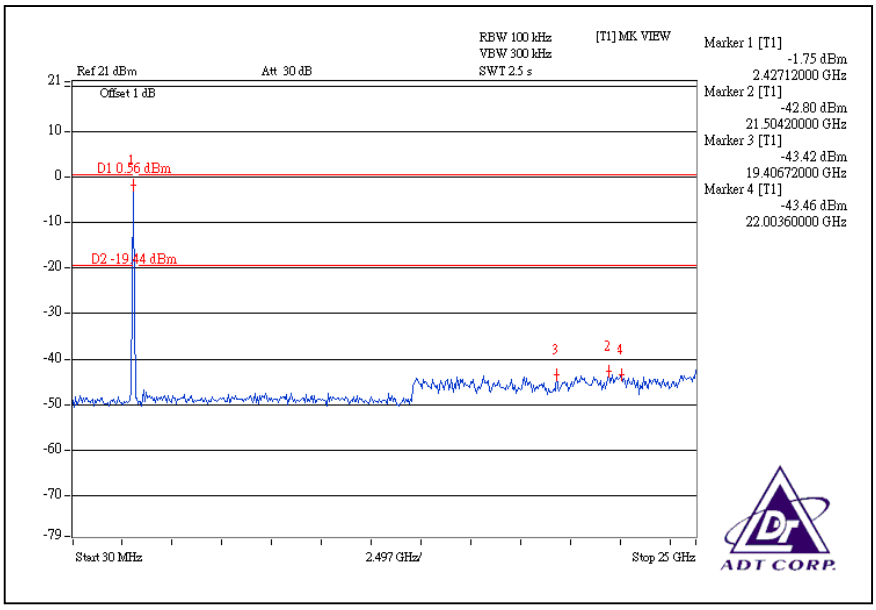
CH11



CH1

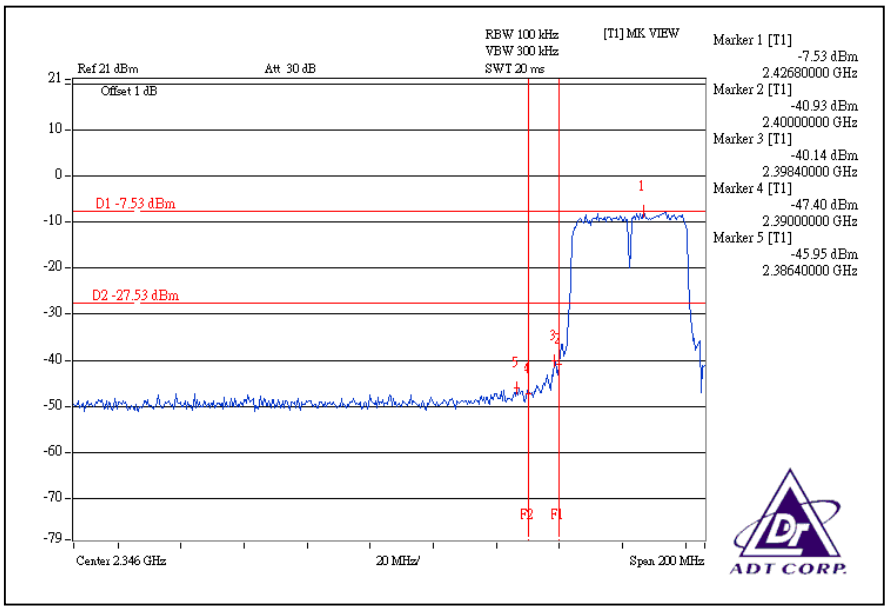

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 -1.61 dBm
D2 -21.61 dBm
Marker 1 [T1]
-2.88 dBm
2.37718000 GHz
Marker 2 [T1]
-42.05 dBm
21.40432000 GHz
Marker 3 [T1]
-42.41 dBm
24.80024000 GHz
Marker 4 [T1]
-43.29 dBm
22.75270000 GHz
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
Start 30 MHz
2.497 GHz/
Stop 25 GHz
ADT CORP.

CH11

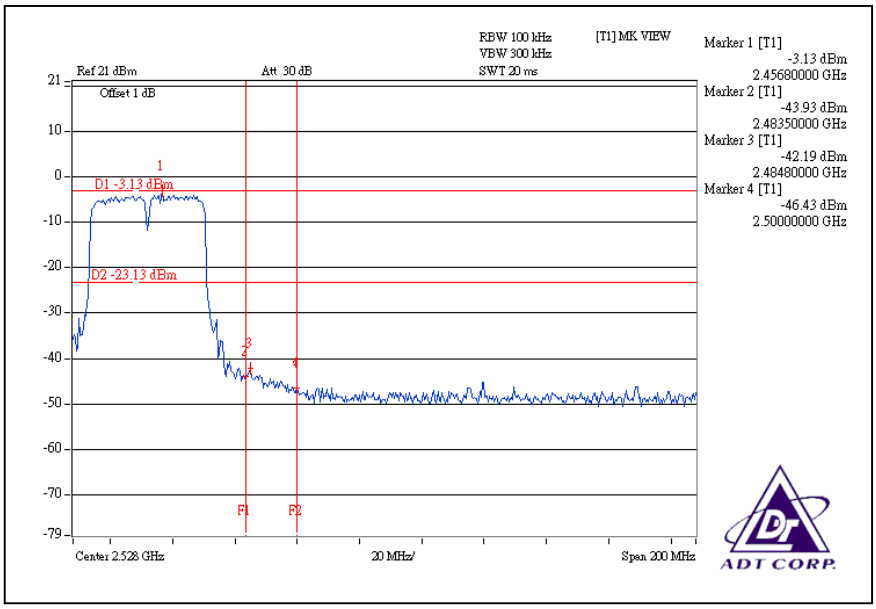

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 0.56 dBm
D2 -19.44 dBm
Marker 1 [T1]
-1.75 dBm
2.42712000 GHz
Marker 2 [T1]
-42.80 dBm
21.50420000 GHz
Marker 3 [T1]
-43.42 dBm
19.40672000 GHz
Marker 4 [T1]
-43.46 dBm
22.00360000 GHz
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
Start 30 MHz
2.497 GHz/
Stop 25 GHz
ADT CORP.

DRAFT 802.11n (40MHz) OFDM MODULATION:

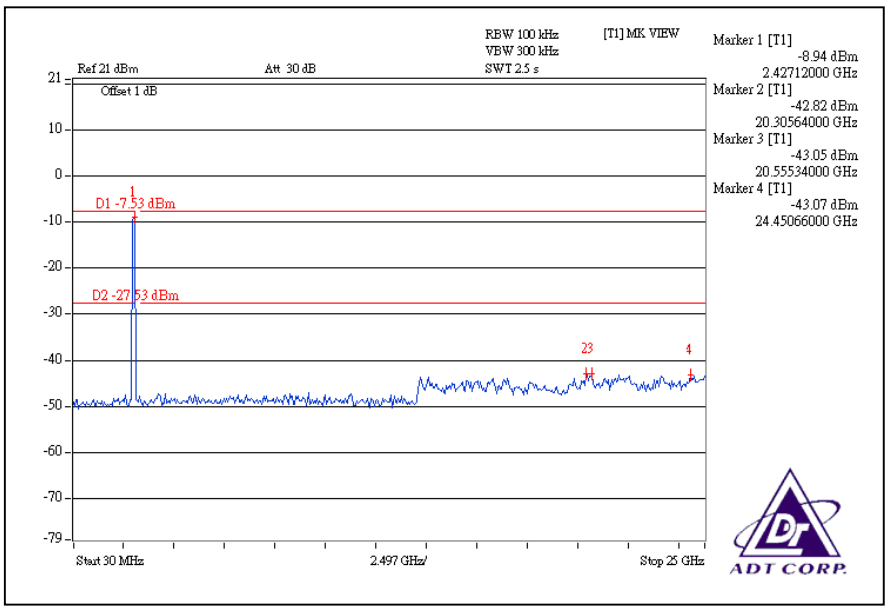
For Chain (0):CH1



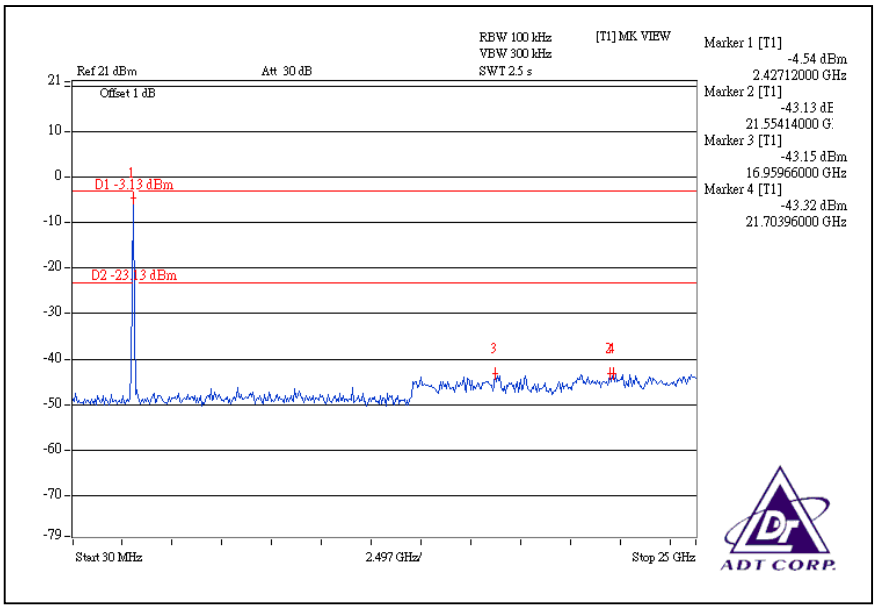
CH7



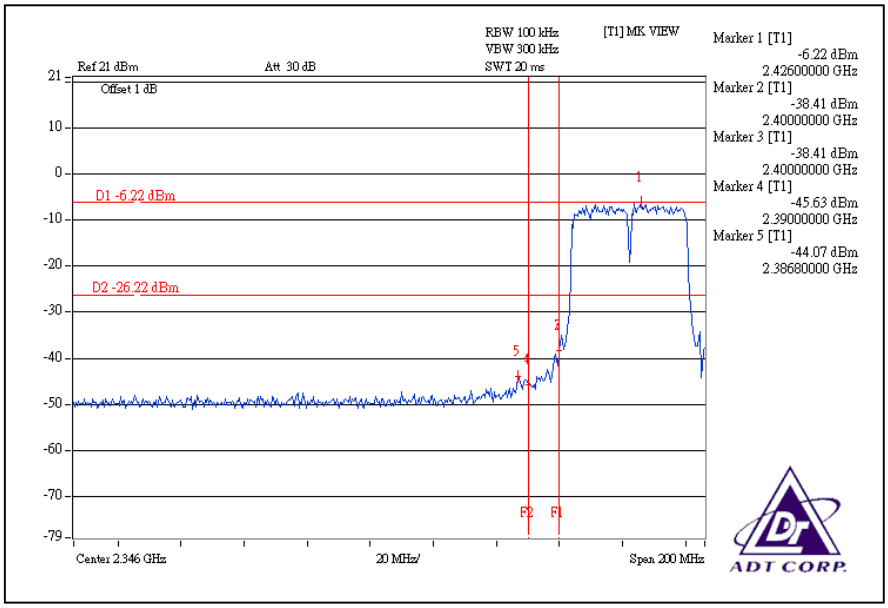
CH1


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 -7.53 dBm
D2 -27.53 dBm
Marker 1 [T1]
-8.94 dBm
2.42712000 GHz
Marker 2 [T1]
-42.82 dBm
20.30564000 GHz
Marker 3 [T1]
-43.05 dBm
20.55534000 GHz
Marker 4 [T1]
-43.07 dBm
24.45066000 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz
ADT CORP.

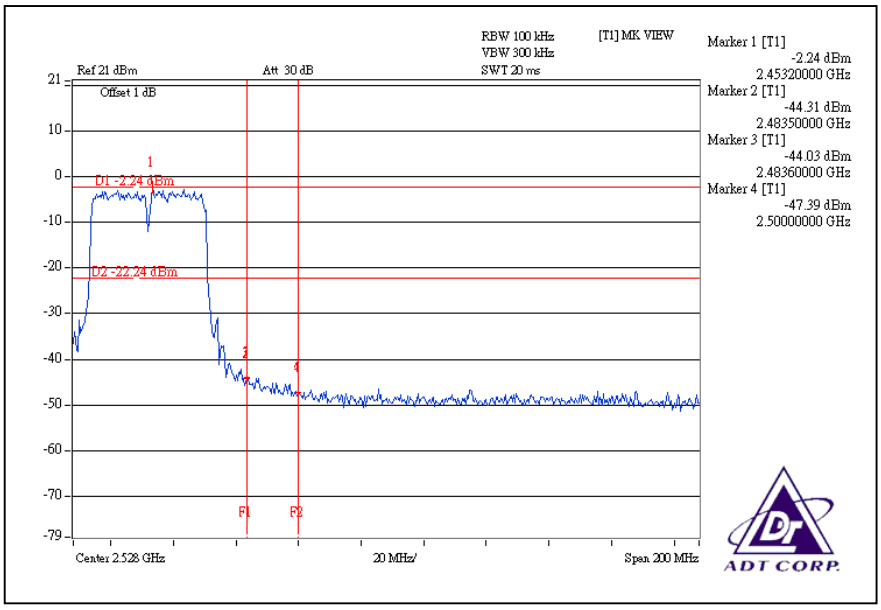
CH7


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 -3.13 dBm
D2 -23.13 dBm
Marker 1 [T1]
-4.54 dBm
2.42712000 GHz
Marker 2 [T1]
-43.13 dE
21.55414000 G
Marker 3 [T1]
-43.15 dBm
16.95966000 GHz
Marker 4 [T1]
-43.32 dBm
21.70396000 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz
ADT CORP.

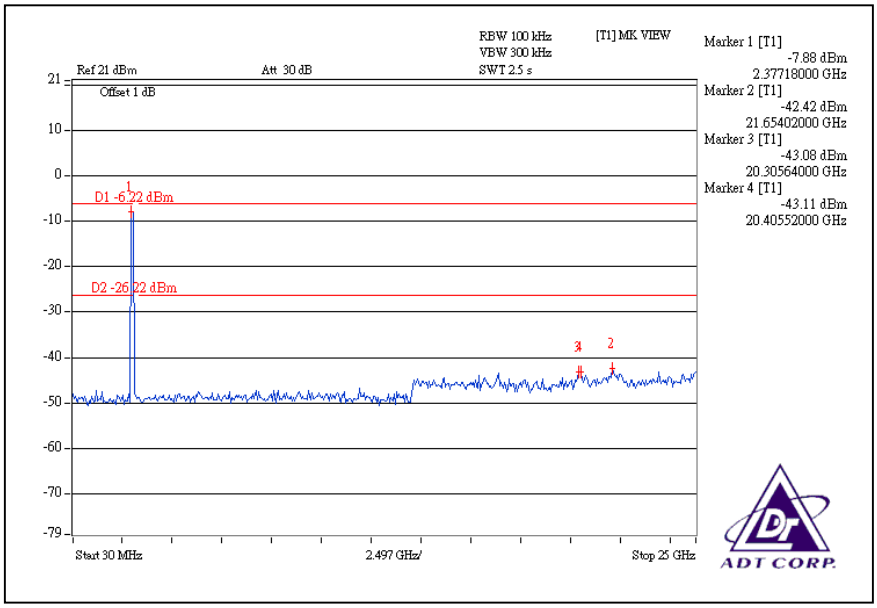
For Chain (1):CH1



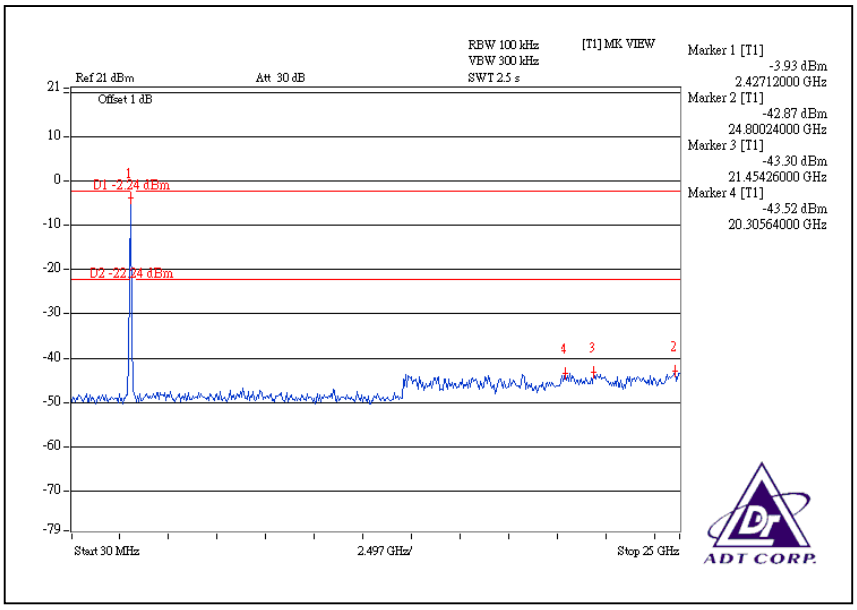
CH7



CH1


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 -6.22 dBm
D2 -26.22 dBm
Marker 1 [T1]
-7.88 dBm
2.37718000 GHz
Marker 2 [T1]
-42.42 dBm
21.65402000 GHz
Marker 3 [T1]
-43.08 dBm
20.30564000 GHz
Marker 4 [T1]
-43.11 dBm
20.40552000 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz
ADT CORP.

CH7


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 -2.24 dBm
D2 -22.24 dBm
Marker 1 [T1]
-3.93 dBm
2.42712000 GHz
Marker 2 [T1]
-42.87 dBm
24.80024000 GHz
Marker 3 [T1]
-43.30 dBm
21.45426000 GHz
Marker 4 [T1]
-43.52 dBm
20.30564000 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz
ADT CORP.

4.7 ANTENNA REQUIREMENT

4.7.1 STANDARD APPLICABLE

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

4.7.2 ANTENNA CONNECTED CONSTRUCTION

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

No.	Antenna Type	For 2.4GHz / Gain (dBi)	Antenna Connector
1	PCB Print	2	NA
2	PCB Print	2	NA

5. TEST TYPES AND RESULTS (802.11a, 5725~5850MHz Band)

5.1 CONDUCTED EMISSION MEASUREMENT

5.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

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

5.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
Test Receiver	ESCS 30	847124/029	Mar. 28, 2008
Line-Impedance Stabilization Network(for EUT)	ENV-216	100071	Nov. 26, 2008
Line-Impedance Stabilization Network(for Peripheral)	ESH3-Z5	848773/004	Nov. 08, 2008
RF Cable (JETBAO)	RG233/U	Cable_CB_01	Dec. 09, 2007
Terminator	50	2	Oct. 30, 2008
Software	ADT_Cond_V7.3.2	NA	NA

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
4. The test was performed in ADT Shielded Room No. B.
5. The VCCI Con B Registration No. is C-2193.

5.1.3 TEST PROCEDURES

a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.

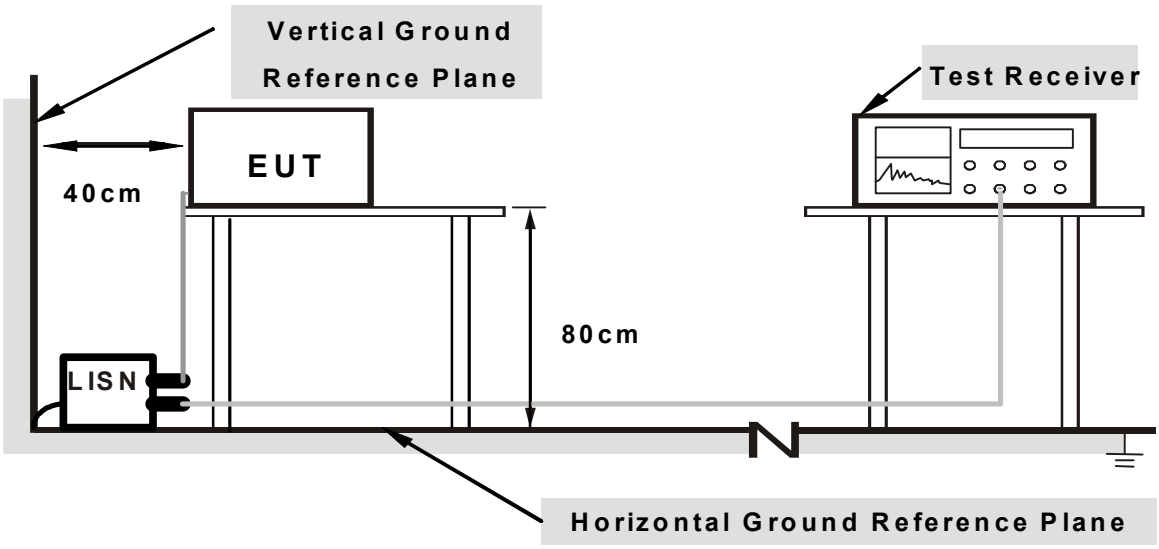
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

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

5.1.4 DEVIATION FROM TEST STANDARD

No deviation

5.1.5 TEST SETUP



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

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

5.1.6 EUT OPERATING CONDITIONS

Same as the 4.1.6

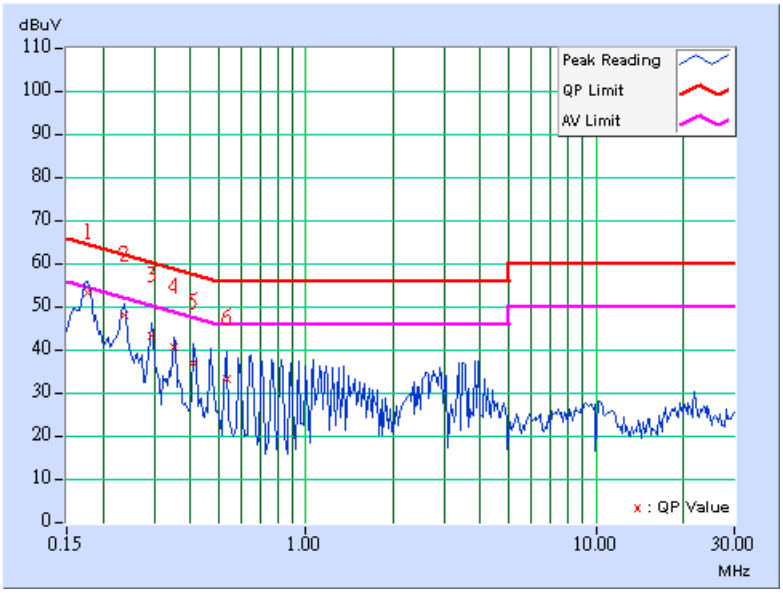
5.1.7 TEST RESULTS

DRAFT 802.11n (20MHz) OFDM MODULATION:

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	PHASE	Line (L)
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	13Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 971hPa	TESTED BY	Moris Lin

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	**0.177**	**0.15**	**53.27**	**-**	**53.42**	**-**	**64.61**	**54.61**	**-11.19**	**-**
2	0.236	0.16	47.78	-	47.94	-	62.24	52.24	-14.30	-
3	0.295	0.16	43.04	-	43.20	-	60.40	50.40	-17.19	-
4	0.353	0.17	40.70	-	40.87	-	58.89	48.89	-18.02	-
5	0.408	0.17	36.67	-	36.84	-	57.69	47.69	-20.85	-
6	0.533	0.19	33.20	-	33.39	-	56.00	46.00	-22.61	-

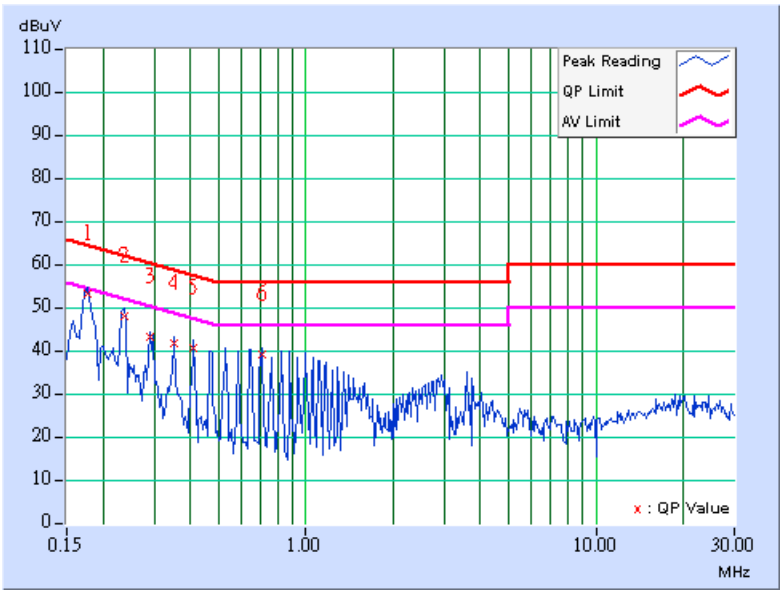
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	PHASE	Neutral (N)
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	13Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 971hPa	TESTED BY	Moris Lin

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.177	0.08	53.31	-	53.39	-	64.61	54.61	-11.22	-
2	0.236	0.08	48.00	-	48.08	-	62.24	52.24	-14.16	-
3	0.291	0.08	43.04	-	43.12	-	60.51	50.51	-17.39	-
4	0.353	0.08	41.56	-	41.64	-	58.89	48.89	-17.25	-
5	0.412	0.08	40.43	-	40.51	-	57.61	47.61	-17.10	-
6	0.705	0.14	39.02	-	39.16	-	56.00	46.00	-16.84	-

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.



5.2 RADIATED EMISSION MEASUREMENT

5.2.1 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.

5.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
ADVANTEST Spectrum Analyzer	R3271A	85060311	July 15, 2008
HP Pre_Amplifier	8449B	3008A01922	Oct. 04, 2008
ROHDE & SCHWARZ Test Receiver	ESCS30	100375	Mar. 26, 2008
CHASE Broadband Antenna	VULB 9168	138	July 26, 2008
Schwarzbeck Horn_Antenna	BBHA9120	D124	Jan. 01, 2008
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 25, 2008
TRILOG Broad Band Antenna	VULB 9168	138	July 26, 2008
RF Switches (ARNITSU)	CS-201	1565157	Aug. 13, 2008
RF CABLE (Chaintek)	SF102	22054-2	Nov. 14. 2008
RF Cable(RICHTEC)	9913-30M N-N Cable	STCCAB-30M-1 GHz	Aug. 13, 2008
Software	ADT_Radiated_V 7.6.15.7	NA	NA
CHANCE MOST Antenna Tower	AT-100	0203	NA
CHANCE MOST Turn Table	TT-100	0203	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna, HP preamplifier (model: 8449B) and Spectrum Analyzer (model: R3271A) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in ADT Open Site No. C.
4. The FCC Site Registration No. is 656396.
5. The VCCI Site Registration No. is R-1626.
6. The CANADA Site Registration No. is IC 4824A-3.

5.2.3 TEST PROCEDURES

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

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

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

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

e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

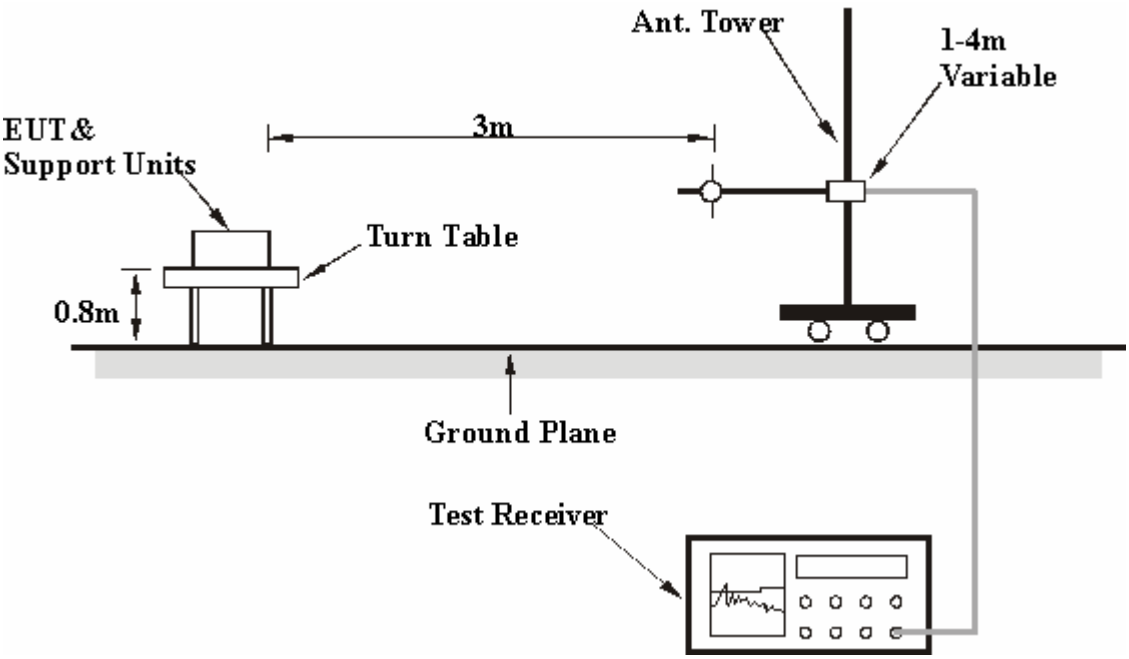
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz for Average detection (AV) at frequency above 1GHz.

5.2.4 DEVIATION FROM TEST STANDARD

No deviation

5.2.5 TEST SETUP



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

5.2.6 EUT OPERATING CONDITIONS

Same as the 4.1.6

Below 1GHz Test Data

5.2.7 TEST RESULTS

802.11n (20MHz) OFDM MODULATION:

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	26deg. C, 68%RH, 971hPa	TESTED BY	Sky Liao

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	80.00	36.00 QP	40.00	-4.00	2.28 H	12	25.86	10.14
2	120.00	41.50 QP	43.50	-2.00	1.96 H	216	29.68	11.82
3	240.00	22.80 QP	46.00	-23.20	1.35 H	15	9.46	13.34
4	360.00	23.20 QP	46.00	-22.80	1.22 H	216	5.49	17.71
5	480.00	28.00 QP	46.00	-18.00	1.30 H	285	6.75	21.25
6	600.00	26.90 QP	46.00	-19.10	1.28 H	293	2.42	24.48
7	840.00	29.80 QP	46.00	-16.20	1.16 H	208	1.57	28.23
8	960.00	39.50 QP	46.00	-6.50	1.16 H	108	9.61	29.89

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	80.00	32.80 QP	40.00	-7.20	1.00 V	266	22.66	10.14
2	120.00	36.90 QP	43.50	-6.60	1.00 V	144	25.08	11.82
3	200.00	25.20 QP	43.50	-18.30	1.00 V	248	13.60	11.60
4	360.00	23.80 QP	46.00	-22.20	1.00 V	308	6.09	17.71
5	480.00	25.20 QP	46.00	-20.80	1.00 V	30	3.95	21.25
6	600.00	23.50 QP	46.00	-22.50	1.52 V	82	-0.98	24.48
7	840.00	28.20 QP	46.00	-17.80	1.20 V	265	-0.03	28.23
8	960.00	37.90 QP	46.00	-8.10	1.18 V	162	8.01	29.89

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

Above 1GHz Test Data

5.2.8 TEST RESULTS

802.11a OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	19deg. C, 70%RH 960hPa	TESTED BY	Phoenix Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#4596.00	56.80 PK	74.00	-17.20	1.35 H	347	21.58	35.22
2	#4596.00	48.90 AV	54.00	-5.10	1.35 H	347	13.68	35.22
3	*5745.00	100.22 PK			1.47 H	303	62.96	37.26
4	*5745.00	90.34 AV			1.47 H	303	53.08	37.26
5	#9192.00	60.50 PK	74.00	-13.50	1.18 H	281	15.71	44.79
6	**#9192.00**	**53.50 AV**	**54.00**	**-0.50**	**1.18 H**	**281**	**8.71**	**44.79**
7	#11490.00	65.00 PK	74.00	-9.00	1.10 H	338	17.98	47.02
8	#11490.00	48.50 AV	54.00	-5.50	1.10 H	338	1.48	47.02

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	#4596.00	56.42 PK	74.00	-17.58	1.70 V	266	21.20	35.22
2	#4596.00	49.33 AV	54.00	-4.67	1.70 V	266	14.11	35.22
3	*5745.00	105.40 PK			1.22 V	91	68.14	37.26
4	*5745.00	95.00 AV			1.22 V	91	57.74	37.26
5	#9192.00	60.11 PK	74.00	-13.89	1.24 V	33	15.32	44.79
6	#9192.00	52.70 AV	54.00	-1.30	1.24 V	33	7.91	44.79
7	#11490.00	60.93 PK	74.00	-13.07	1.50 V	279	13.91	47.02
8	#11490.00	46.50 AV	54.00	-7.50	1.50 V	279	-0.52	47.02

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 3	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	19deg. C, 70%RH 960hPa	TESTED BY	Phoenix Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#4628.00	57.10 PK	74.00	-16.90	1.36 H	355	21.81	35.29
2	#4628.00	48.30 AV	54.00	-5.70	1.36 H	355	13.01	35.29
3	*5785.00	100.10 PK			1.42 H	20	62.74	37.36
4	*5785.00	90.10 AV			1.42 H	20	52.74	37.36
5	#11570.00	64.10 PK	74.00	-9.90	1.09 H	331	17.15	46.95
6	#11570.00	48.40 AV	54.00	-5.60	1.09 H	331	1.45	46.95

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	#4628.00	57.88 PK	74.00	-16.12	1.57 V	243	22.59	35.29
2	#4628.00	49.41 AV	54.00	-4.59	1.57 V	243	14.12	35.29
3	*5785.00	105.70 PK			1.23 V	99	68.34	37.36
4	*5785.00	95.10 AV			1.23 V	99	57.74	37.36
5	#11570.00	62.14 PK	74.00	-11.86	1.90 V	21	15.19	46.95
6	#11570.00	46.22 AV	54.00	-7.78	1.90 V	21	-0.73	46.95

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 5	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	19deg. C, 70%RH 960hPa	TESTED BY	Phoenix Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#4660.00	56.20 PK	74.00	-17.80	1.24 H	355	20.85	35.35
2	#4660.00	45.70 AV	54.00	-8.30	1.24 H	355	10.35	35.35
3	*5825.00	99.33 PK			1.42 H	357	61.88	37.45
4	*5825.00	89.97 AV			1.42 H	357	52.52	37.45
5	#9320.00	58.30 PK	74.00	-15.70	1.32 H	289	13.42	44.88
6	#9320.00	51.90 AV	54.00	-2.10	1.32 H	289	7.02	44.88
7	#11650.00	61.20 PK	74.00	-12.80	1.14 H	332	14.33	46.87
8	#11650.00	46.00 AV	54.00	-8.00	1.14 H	332	-0.87	46.87

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	#4660.00	56.42 PK	74.00	-17.58	1.30 V	219	21.07	35.35
2	#4660.00	47.21 AV	54.00	-6.79	1.30 V	219	11.86	35.35
3	*5825.00	105.30 PK			1.20 V	77	67.85	37.45
4	*5825.00	94.70 AV			1.20 V	77	57.25	37.45
5	#9320.00	57.26 PK	74.00	-16.74	1.10 V	263	12.38	44.88
6	#9320.00	50.45 AV	54.00	-3.55	1.10 V	263	5.57	44.88
7	#11650.00	69.38 PK	74.00	-4.62	1.52 V	39	22.51	46.87
8	#11650.00	45.21 AV	54.00	-8.79	1.52 V	39	-1.66	46.87

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

DRAFT 802.11n (20MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	19deg. C, 70%RH 960hPa	TESTED BY	Phoenix Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#4596.00	57.30 PK	74.00	-16.70	1.33 H	350	22.08	35.22
2	#4596.00	49.20 AV	54.00	-4.80	1.33 H	350	13.98	35.22
3	*5745.00	98.45 PK			1.15 H	42	61.19	37.26
4	*5745.00	88.30 AV			1.15 H	42	51.04	37.26
5	#9192.00	59.70 PK	74.00	-14.30	1.26 H	286	14.91	44.79
6	#9192.00	53.30 AV	54.00	-0.70	1.26 H	286	8.51	44.79
7	#11490.00	64.20 PK	74.00	-9.80	1.66 H	327	17.18	47.02
8	#11490.00	49.60 AV	54.00	-4.40	1.66 H	327	2.58	47.02

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	#4596.00	60.88 PK	74.00	-13.12	1.44 V	251	25.66	35.22
2	#4596.00	52.94 AV	54.00	-1.06	1.44 V	251	17.72	35.22
3	*5745.00	105.00 PK			1.04 V	104	67.74	37.26
4	*5745.00	93.50 AV			1.04 V	104	56.24	37.26
5	#9192.00	55.26 PK	74.00	-18.74	1.68 V	87	10.47	44.79
6	#9192.00	48.41 AV	54.00	-5.59	1.68 V	87	3.62	44.79
7	#11490.00	57.34 PK	74.00	-16.66	1.30 V	223	10.32	47.02
8	#11490.00	45.69 AV	54.00	-8.31	1.30 V	223	-1.33	47.02

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 3	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	19deg. C, 70%RH 960hPa	TESTED BY	Phoenix Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#4628.00	56.90 PK	74.00	-17.10	1.35 H	353	21.61	35.29
2	#4628.00	48.00 AV	54.00	-6.00	1.35 H	353	12.71	35.29
3	*5785.00	101.30 PK			1.09 H	84	63.94	37.36
4	*5785.00	91.32 AV			1.09 H	84	53.96	37.36
5	#11570.00	64.90 PK	74.00	-9.10	1.57 H	41	17.95	46.95
6	#11570.00	50.70 AV	54.00	-3.30	1.57 H	41	3.75	46.95

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	#4628.00	56.34 PK	74.00	-17.66	1.38 V	22	21.05	35.29
2	#4628.00	49.12 AV	54.00	-4.88	1.38 V	22	13.83	35.29
3	*5785.00	108.80 PK			1.01 V	103	71.44	37.36
4	*5785.00	97.00 AV			1.01 V	103	59.64	37.36
5	#11570.00	61.47 PK	74.00	-12.53	1.69 V	89	14.52	46.95
6	#11570.00	48.15 AV	54.00	-5.85	1.69 V	89	1.20	46.95

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 5	**FREQUENCY RANGE**	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	19deg. C, 70%RH 960hPa	**TESTED BY**	Phoenix Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	#4660.00	55.50 PK	74.00	-18.50	1.26 H	336	20.15	35.35
2	#4660.00	44.70 AV	54.00	-9.30	1.26 H	336	9.35	35.35
3	*5825.00	100.34 PK			1.04 H	298	62.89	37.45
4	*5825.00	90.11 AV			1.04 H	298	52.66	37.45
5	#9320.00	57.70 PK	74.00	-16.30	1.29 H	237	12.82	44.88
6	#9320.00	50.90 AV	54.00	-3.10	1.29 H	237	6.02	44.88
7	#11650.00	62.00 PK	74.00	-12.00	1.63 H	328	15.13	46.87
8	#11650.00	47.80 AV	54.00	-6.20	1.63 H	328	0.93	46.87

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	#4660.00	56.41 PK	74.00	-17.59	1.41 V	26	21.06	35.35
2	#4660.00	48.93 AV	54.00	-5.07	1.41 V	26	13.58	35.35
3	*5825.00	105.80 PK			1.01 V	104	68.35	37.45
4	*5825.00	94.80 AV			1.01 V	104	57.35	37.45
5	#9320.00	57.96 PK	74.00	-16.04	1.64 V	233	13.08	44.88
6	#9320.00	50.11 AV	54.00	-3.89	1.64 V	233	5.23	44.88
7	#11650.00	59.24 PK	74.00	-14.76	1.45 V	273	12.37	46.87
8	#11650.00	45.81 AV	54.00	-8.19	1.45 V	273	-1.06	46.87

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

DRAFT 802.11n (40MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	19deg. C, 70%RH 960hPa	TESTED BY	Phoenix Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#4604.00	56.90 PK	74.00	-17.10	1.03 H	357	21.66	35.24
2	#4604.00	48.20 AV	54.00	-5.80	1.03 H	357	12.96	35.24
3	*5755.00	99.70 PK			1.17 H	93	62.42	37.28
4	*5755.00	89.40 AV			1.17 H	93	52.12	37.28
5	#11510.00	58.50 PK	74.00	-15.50	1.64 H	41	11.48	47.02
6	#11510.00	45.50 AV	54.00	-8.50	1.64 H	41	-1.52	47.02

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	#4604.00	55.32 PK	74.00	-18.68	1.29 V	26	20.08	35.24
2	#4604.00	47.26 AV	54.00	-6.74	1.29 V	26	12.02	35.24
3	*5755.00	103.80 PK			1.00 V	93	66.52	37.28
4	*5755.00	93.00 AV			1.00 V	93	55.72	37.28
5	#11510.00	56.92 PK	74.00	-17.08	1.50 V	37	9.90	47.02
6	#11510.00	44.19 AV	54.00	-9.81	1.50 V	37	-2.83	47.02

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 2	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	19deg. C, 70%RH 960hPa	TESTED BY	Phoenix Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#4636.00	56.40 PK	74.00	-17.60	1.17 H	323	21.10	35.30
2	#4636.00	46.60 AV	54.00	-7.40	1.17 H	323	11.30	35.30
3	*5795.00	97.92 PK			1.20 H	11	60.54	37.38
4	*5795.00	88.65 AV			1.20 H	11	51.27	37.38
5	#11590.00	61.50 PK	74.00	-12.50	1.68 H	327	14.57	46.93
6	#11590.00	46.30 AV	54.00	-7.70	1.68 H	327	-0.63	46.93

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#4636.00	56.24 PK	74.00	-17.76	1.43 V	49	20.94	35.30
2	#4636.00	48.33 AV	54.00	-5.67	1.43 V	49	13.03	35.30
3	*5795.00	103.70 PK			1.00 V	63	66.32	37.38
4	*5795.00	92.70 AV			1.00 V	63	55.32	37.38
5	#11590.00	58.68 PK	74.00	-15.32	1.50 V	99	11.75	46.93
6	#11590.00	45.11 AV	54.00	-8.89	1.50 V	99	-1.82	46.93

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

5.3 6dB BANDWIDTH MEASUREMENT

5.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

5.3.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 12, 2008

NOTE:

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

5.3.3 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.

5.3.4 DEVIATION FROM TEST STANDARD

No deviation

5.3.5 TEST SETUP

5.3.6 EUT OPERATING CONDITIONS

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

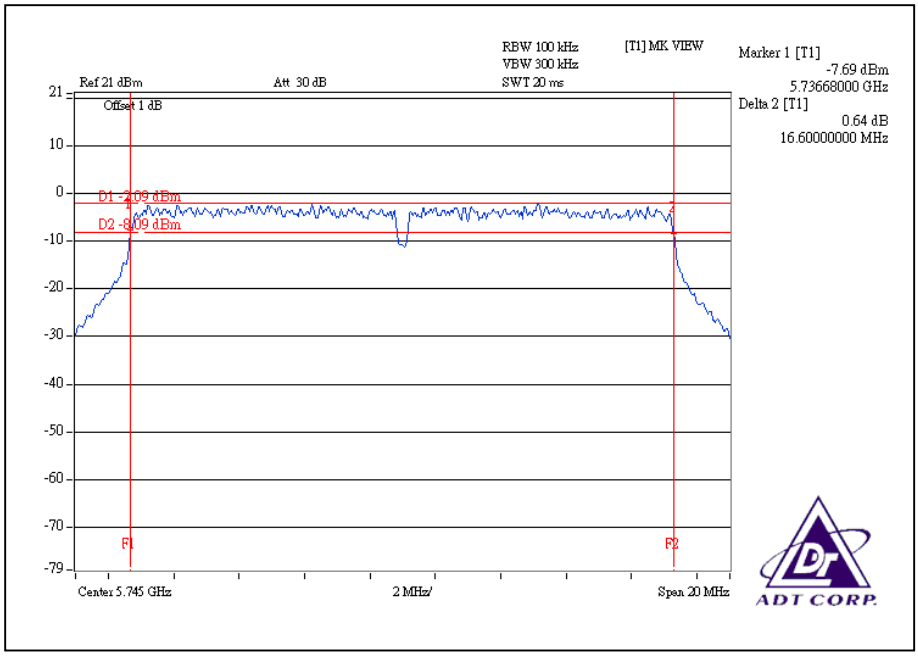
5.3.7 TEST RESULTS

802.11a OFDM MODULATION:

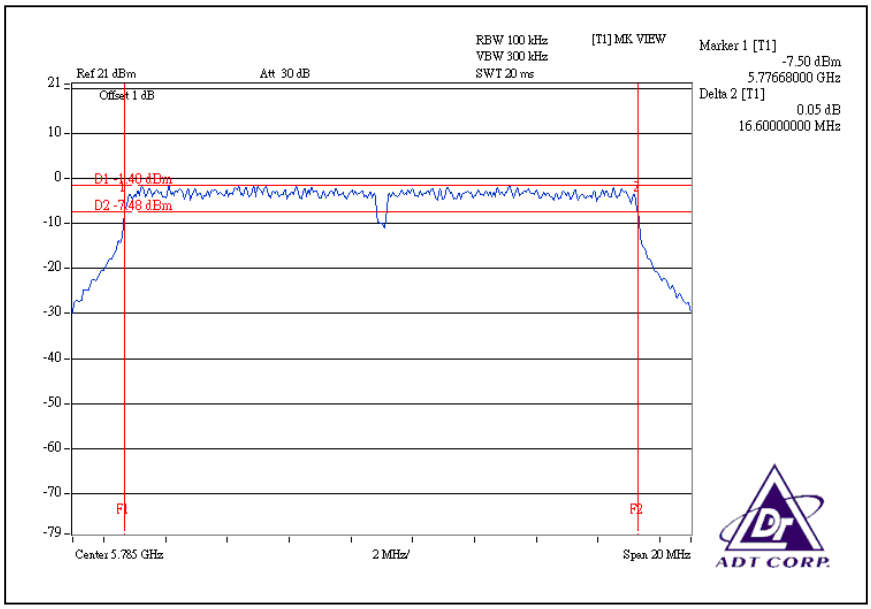
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	20deg. C, 66%RH, 972hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	5745	16.60	0.5	PASS
3	5785	16.60	0.5	PASS
5	5825	16.60	0.5	PASS

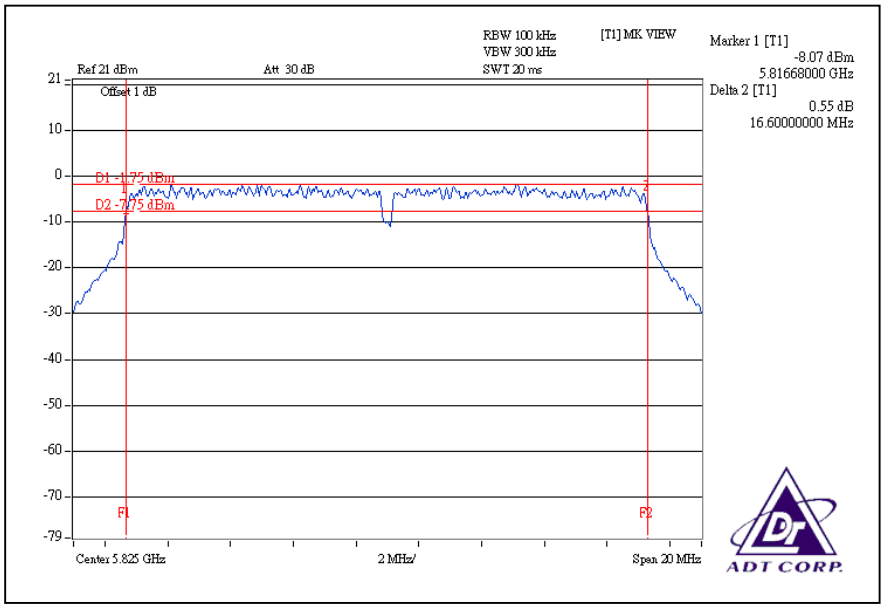
CH1



CH3


RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Marker 1 [T1]
-7.50 dBm
5.77668000 GHz
Delta 2 [T1]
0.05 dB
16.60000000 MHz
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 -1.40 dBm
D2 -7.48 dBm
F1
F2
Center 5.785 GHz
2 MHz/
Span 20 MHz
ADT CORP.

CH5

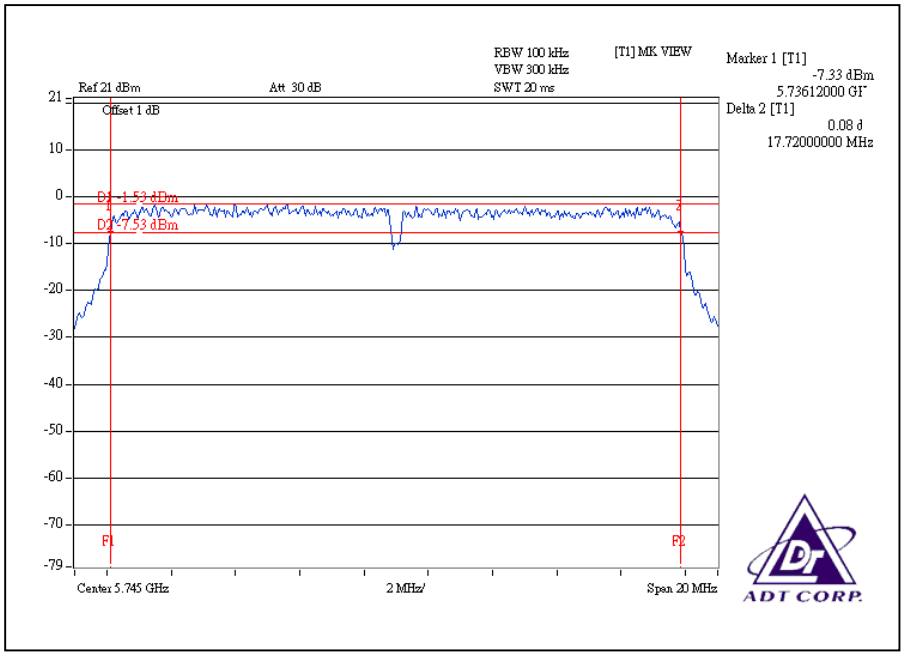

RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Marker 1 [T1]
-8.07 dBm
5.81668000 GHz
Delta 2 [T1]
0.55 dB
16.60000000 MHz
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 -1.75 dBm
D2 -7.75 dBm
F1
F2
Center 5.825 GHz
2 MHz/
Span 20 MHz
ADT CORP.

DRAFT 802.11n (20MHz) OFDM MODULATION:

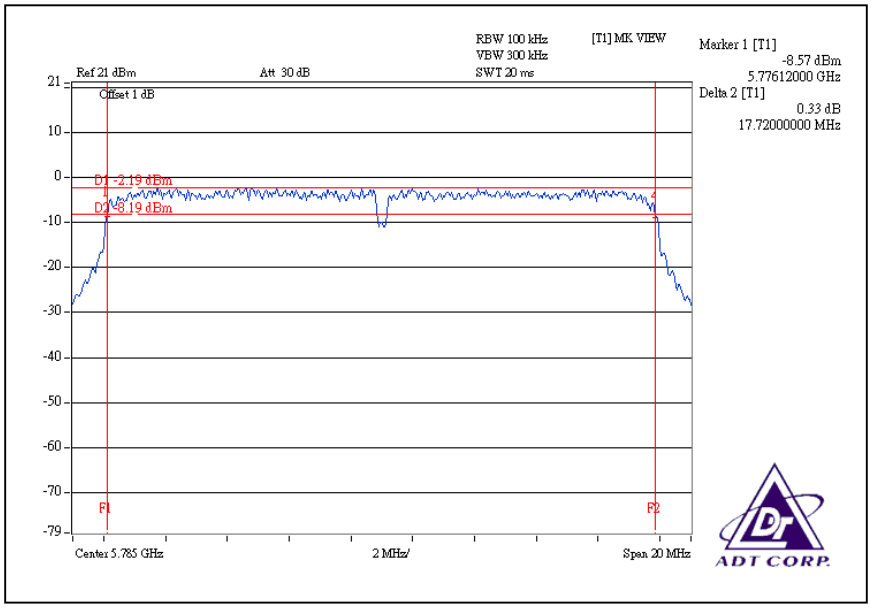
MODULATION TYPE	BPSK	**TRANSFER RATE**	13Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	20deg.C, 60%RH, 972hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN(0)	CHAIN(1)		
1	5745	17.72	17.68	0.5	PASS
3	5785	17.72	17.68	0.5	PASS
5	5825	17.72	17.68	0.5	PASS

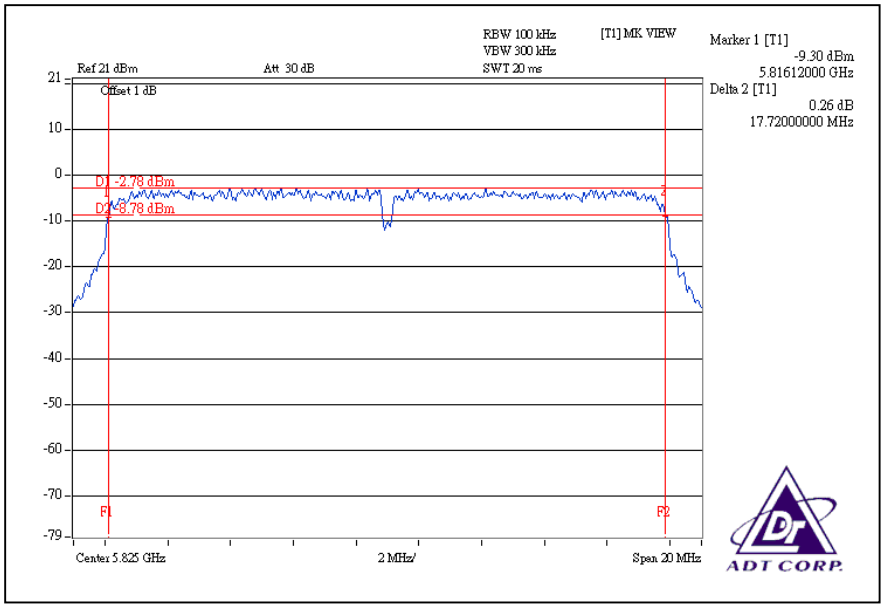
For Chain (0): CH1



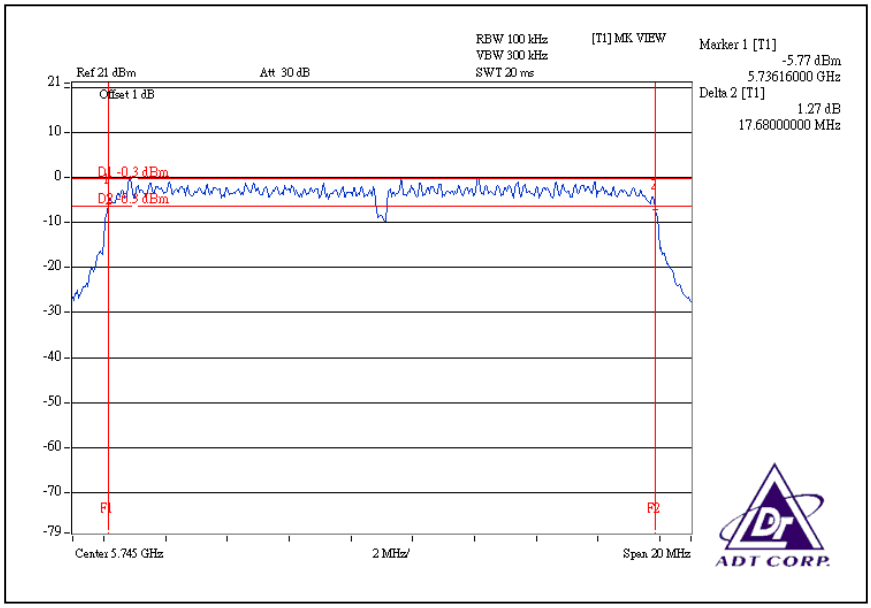
CH3


RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Marker 1 [T1]
-8.57 dBm
5.77612000 GHz
Delta 2 [T1]
0.33 dB
17.72000000 MHz
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 -2.19 dBm
D2 -8.19 dBm
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
F1
F2
Center 5.785 GHz
2 MHz/
Span 20 MHz
ADT CORP.

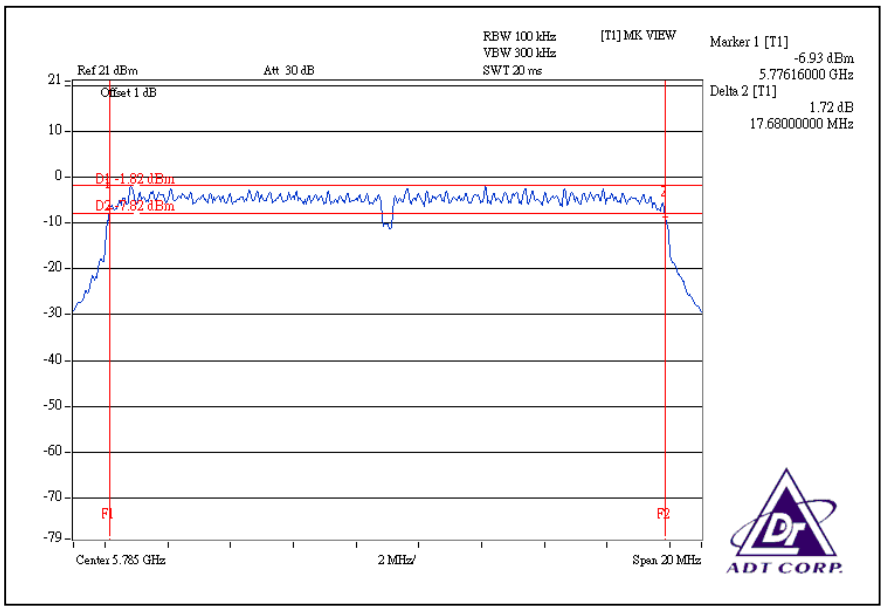
CH5


RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Marker 1 [T1]
-9.30 dBm
5.81612000 GHz
Delta 2 [T1]
0.26 dB
17.72000000 MHz
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 -2.78 dBm
D2 -8.78 dBm
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
F1
F2
Center 5.825 GHz
2 MHz/
Span 20 MHz
ADT CORP.

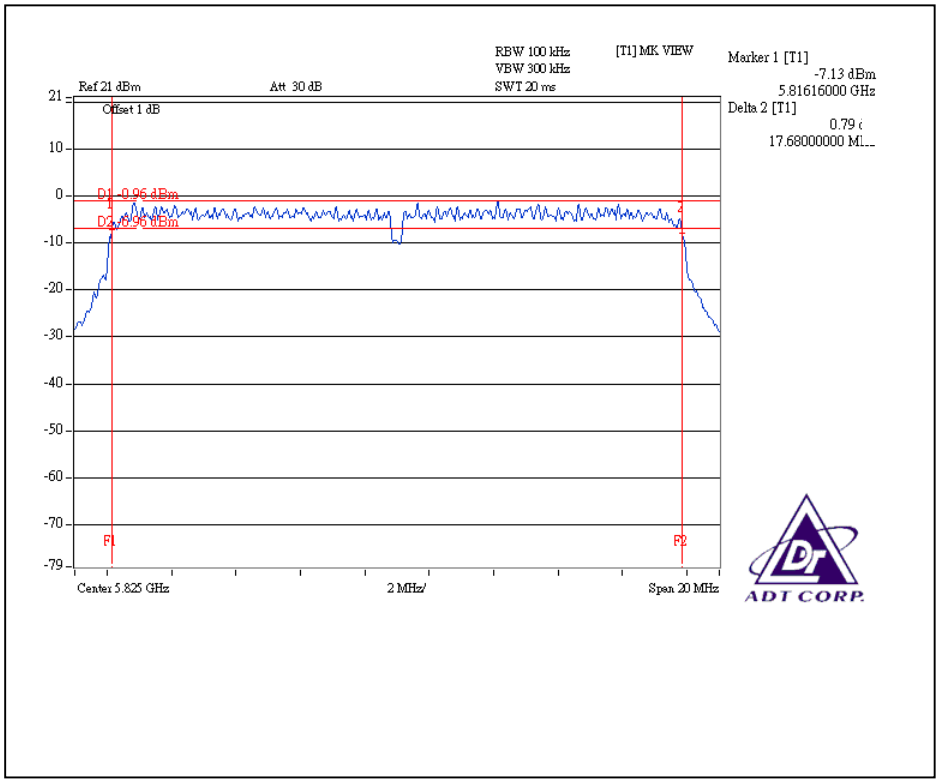
For Chain (1): CH1



CH3



CH5

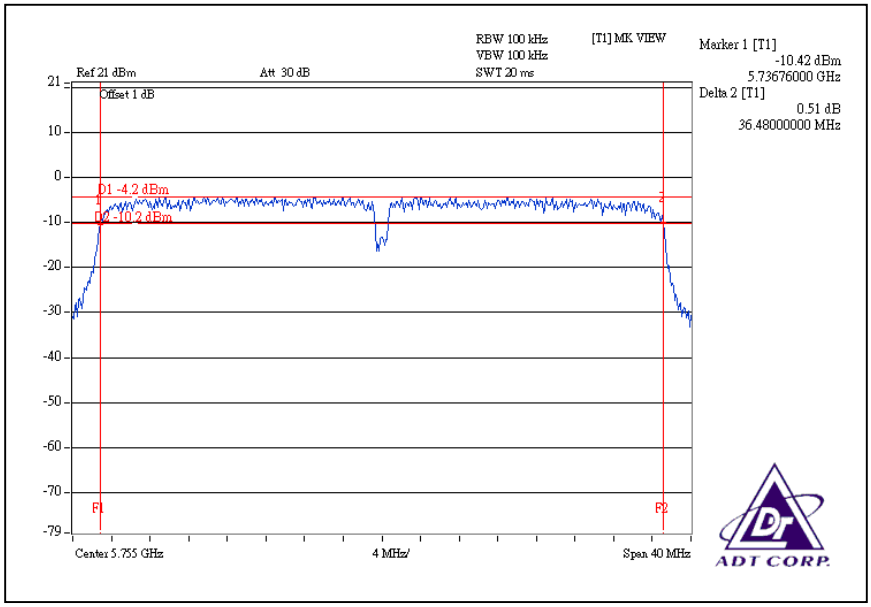

RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Marker 1 [T1]
-7.13 dBm
5.81616000 GHz
Delta 2 [T1]
0.79 d
17.68000000 M
Ref 21 dBm
Att 30 dB
Offset 1 dB
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
D1 -0.96 dBm
D2 -0.96 dBm
F1
F2
Center 5.825 GHz
2 MHz/
Span 20 MHz
ADT CORP.

DRAFT 802.11n (40MHz) OFDM MODULATION:

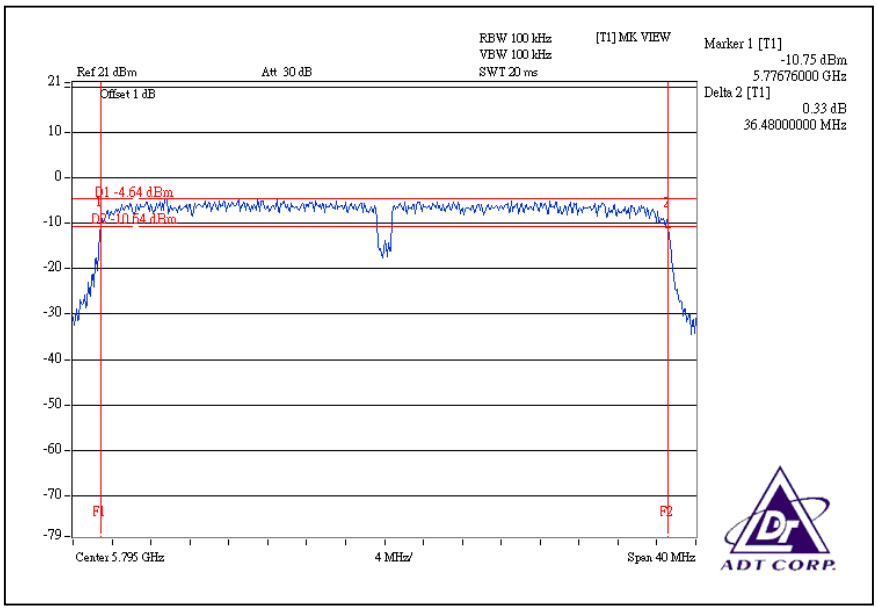
MODULATION TYPE	BPSK	**TRANSFER RATE**	27Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	20deg. C, 60%RH, 972hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN(0)	CHAIN(1)		
1	5755	36.48	36.40	0.5	PASS
3	5795	36.48	36.32	0.5	PASS

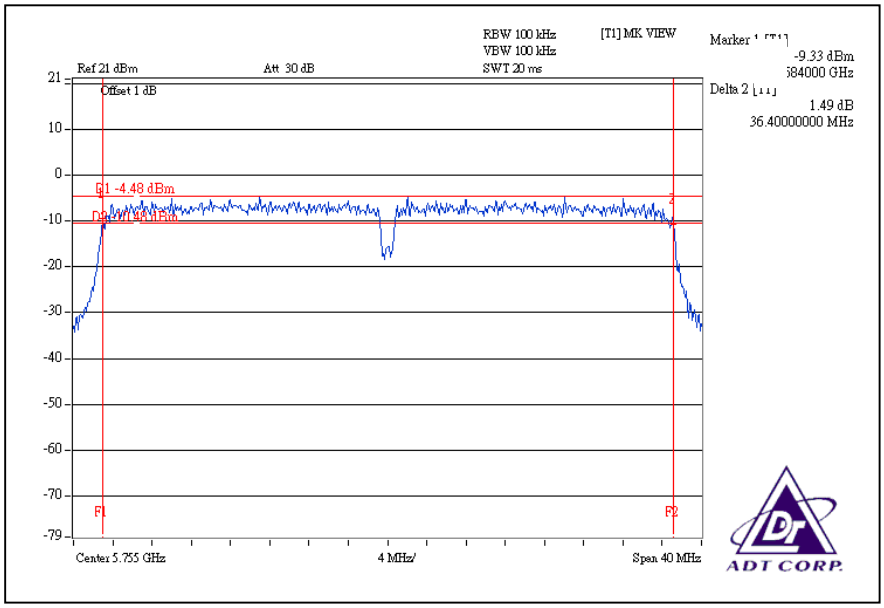
For Chain (0): CH1



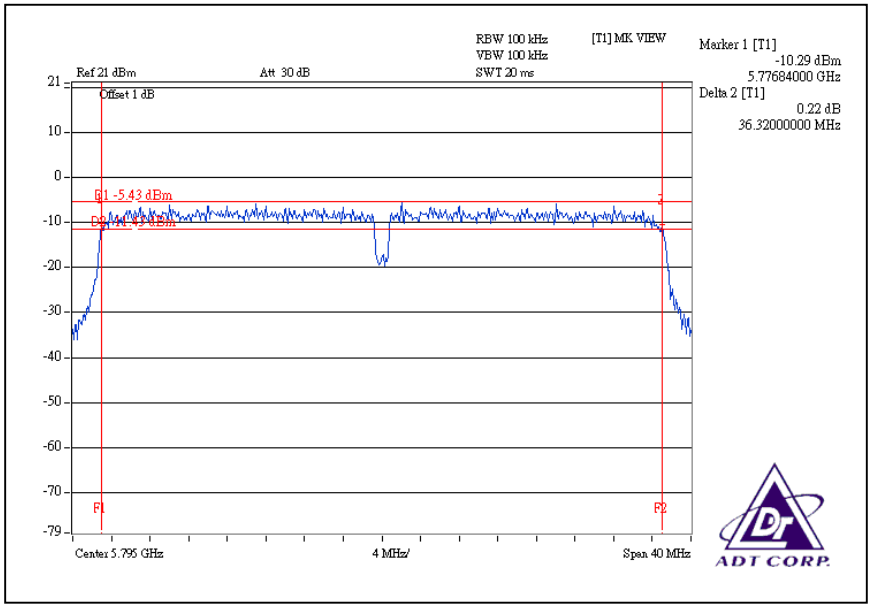
CH3



For Chain (1): CH1



CH3



5.4 MAXIMUM PEAK OUTPUT POWER

5.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

5.4.2 INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 12, 2008
Agilent SIGNAL GENERATOR	E8257C	MY43320668	Dec. 07, 2007
TEKTRONIX OSCILLOSCOPE	TDS380	B016335	Jul. 15, 2008
NARDA DETECTOR	4503A	FSCM99899	NA

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

5.4.3 TEST PROCEDURES

1. A detector was used on the output port of the EUT. An oscilloscope was used to read the response of the detector.
2. Replaced the EUT by the signal generator. The center frequency of the S.G was adjusted to the center frequency of the measured channel.
3. Adjusted the power to have the same reading on oscilloscope. Record the power level.

5.4.4 DEVIATION FROM TEST STANDARD

No deviation

5.4.5 TEST SETUP

5.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6

5.4.7 TEST RESULTS

802.11a OFDM modulation

MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 972hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	5745	43.652	16.40	30	PASS
3	5785	47.863	16.80	30	PASS
5	5825	46.774	16.70	30	PASS

DRAFT 802.11n (20MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	TRANSFER RATE	13Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 972hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)		PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)	CHAIN(0)	CHAIN(1)				
1	5745	38.905	42.658	15.90	16.30	81.563	19.11	30	PASS
3	5785	43.652	25.119	16.40	14.00	68.771	18.37	30	PASS
5	5825	37.154	28.184	15.70	14.50	65.338	18.15	30	PASS

DRAFT 802.11n (40MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	TRANSFER RATE	27Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 972hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)		PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)	CHAIN(0)	CHAIN(1)				
1	5755	47.863	38.019	16.80	15.80	85.882	19.34	30	PASS
3	5795	44.668	37.154	16.50	15.70	81.822	19.13	30	PASS

5.5 POWER SPECTRAL DENSITY MEASUREMENT

5.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

5.5.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 12, 2008

NOTE:

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

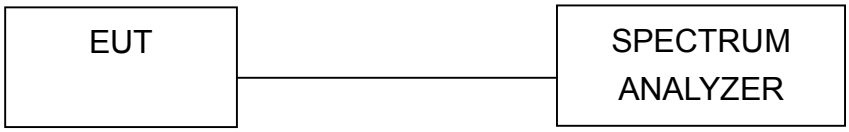
5.5.3 TEST PROCEDURE

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 3 kHz RBW and 30 kHz VBW, set sweep time = span/3 kHz. The power spectral density was measured and recorded.
The sweep time is allowed to be longer than span/3 kHz for a full response of the mixer in the spectrum analyzer.

5.5.4 DEVIATION FROM TEST STANDARD

No deviation

5.5.5 TEST SETUP



5.5.6 EUT OPERATING CONDITION

Same as Item 4.3.6

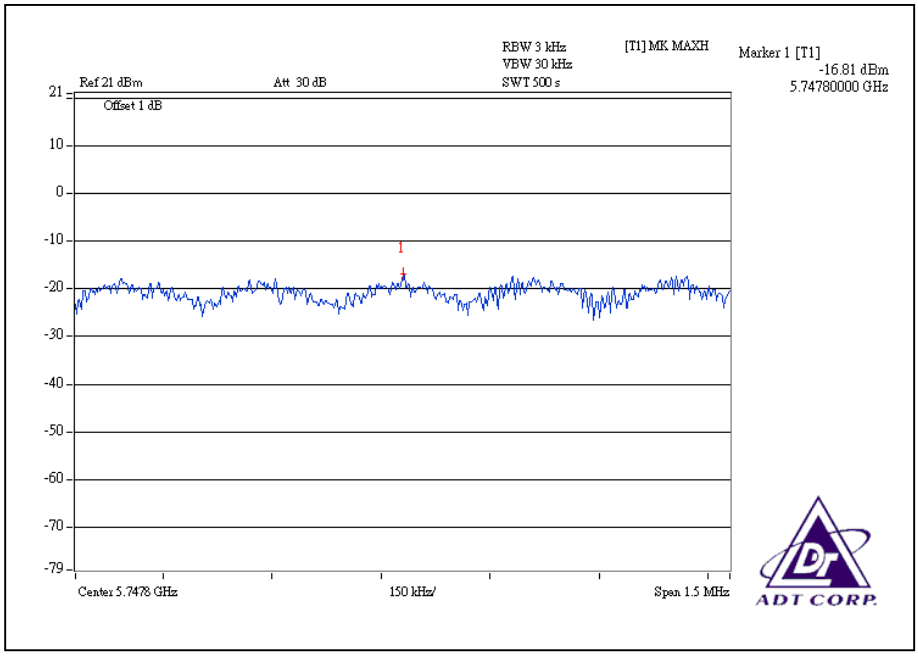
5.5.7 TEST RESULTS

802.11a OFDM modulation

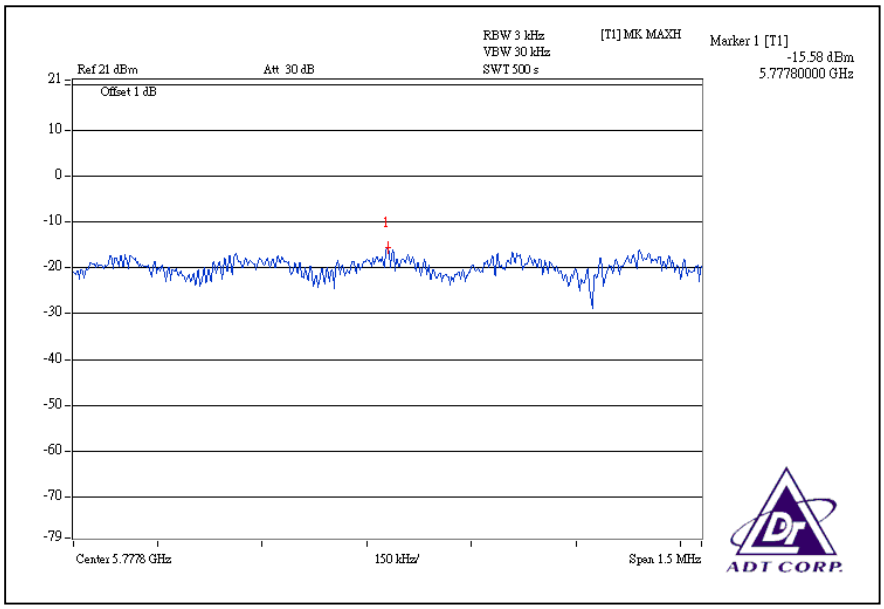
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH, 971hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	5745	-16.81	8	PASS
3	5785	-15.58	8	PASS
5	5825	-15.90	8	PASS

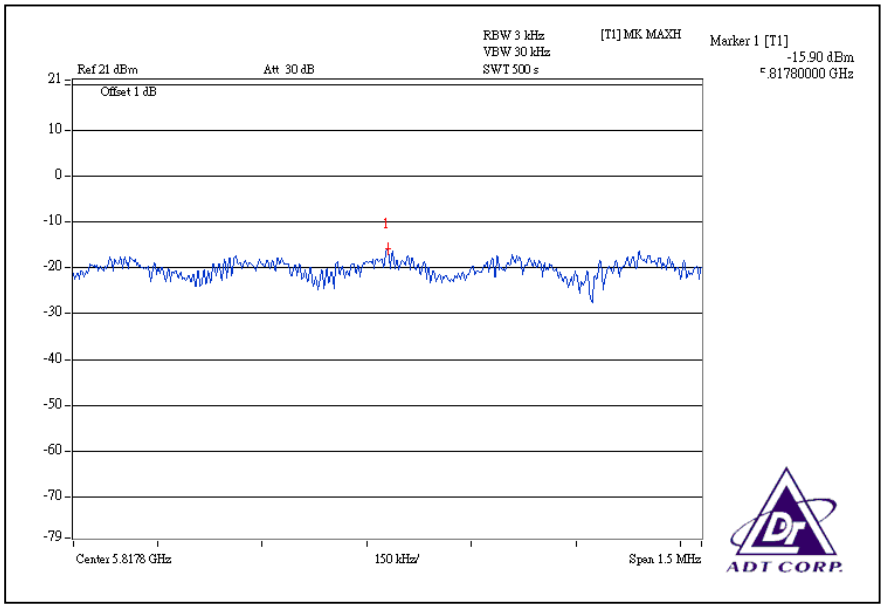
CH1



CH3


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-15.58 dBm
5.77780000 GHz
Ref 21 dBm
Att 30 dB
Offset 1 dB
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
Center 5.7778 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

CH5

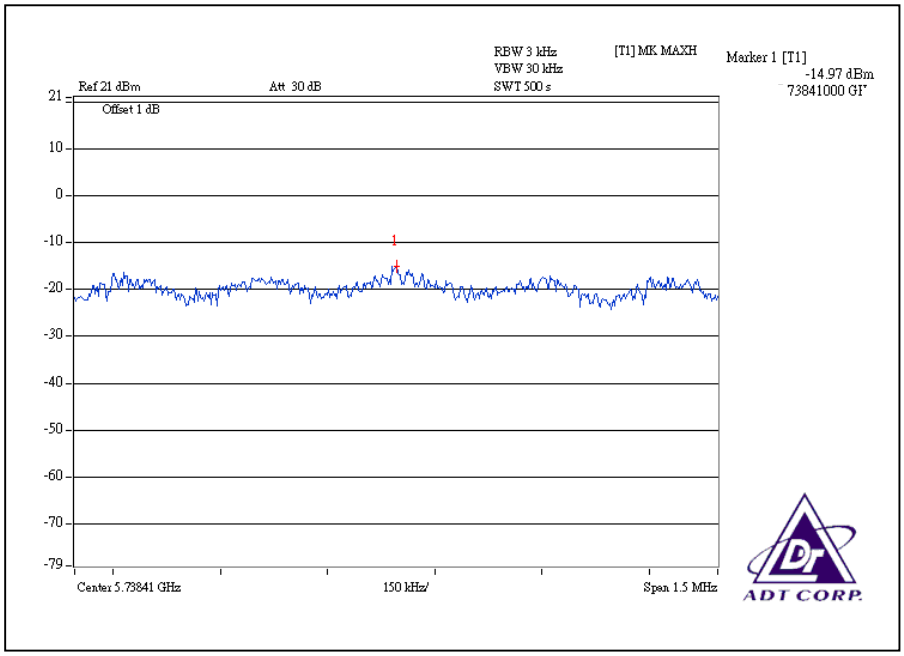

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-15.90 dBm
5.81780000 GHz
Ref 21 dBm
Att 30 dB
Offset 1 dB
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
Center 5.8178 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

DRAFT 802.11n (20MHz) OFDM MODULATION:

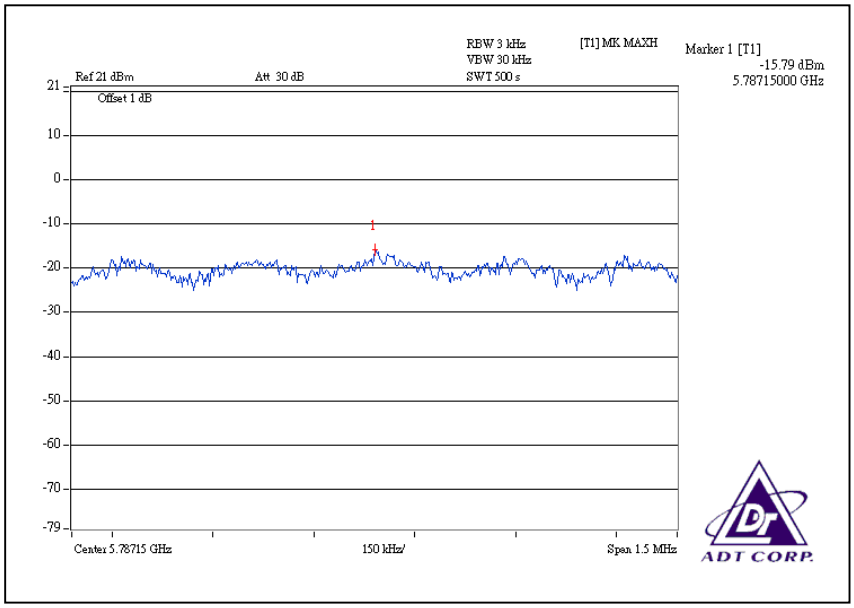
MODULATION TYPE	BPSK	TRANSFER RATE	13Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH, 971hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (mW)		RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)	CHAIN(0)	CHAIN(1)				
1	5745	0.032	0.028	-14.97	-15.55	0.060	-12.22	8	PASS
3	5785	0.026	0.022	-15.79	-16.61	0.048	-13.19	8	PASS
5	5825	0.021	0.028	-16.81	-15.60	0.049	-13.10	8	PASS

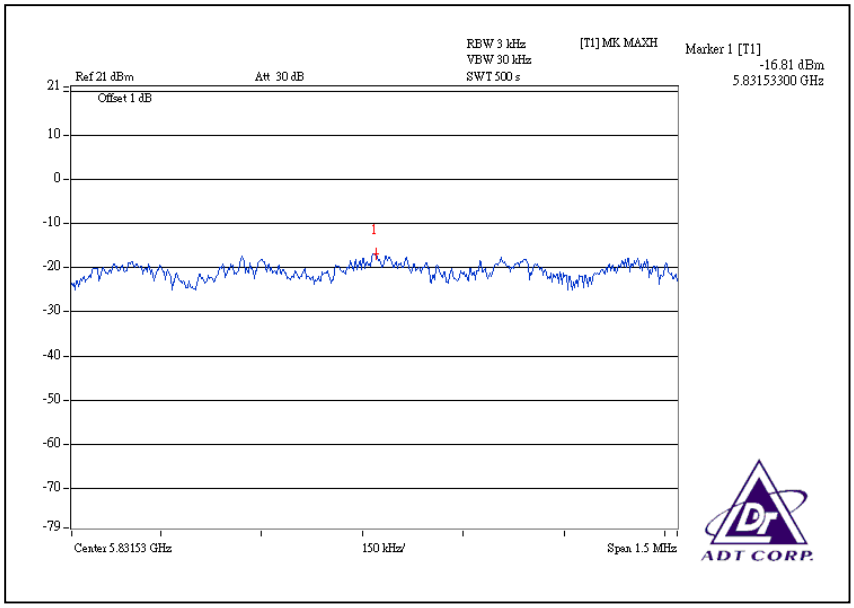
For Chain(0): CH1



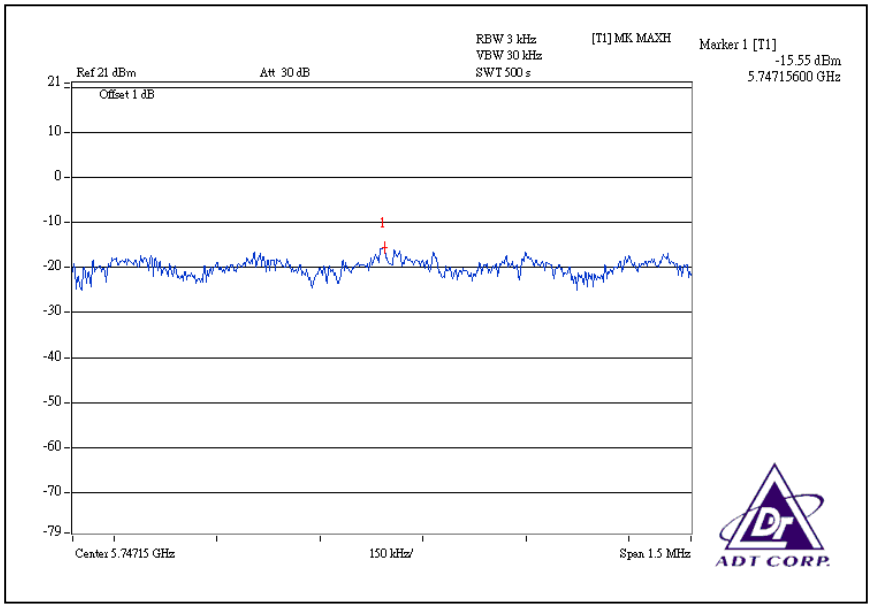
CH3


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-15.79 dBm
5.78715000 GHz
Ref 21 dBm
Att 30 dB
Offset 1 dB
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
Center 5.78715 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

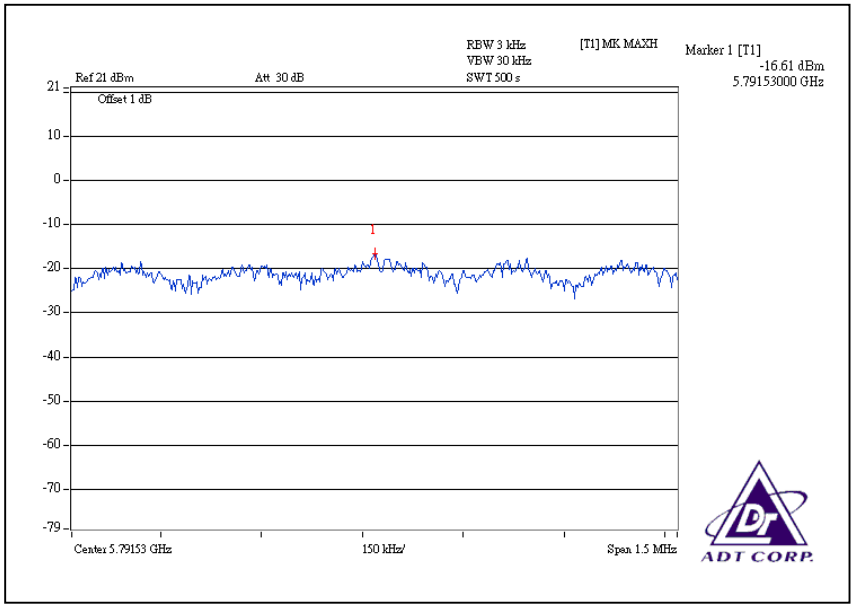
CH5


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-16.81 dBm
5.83153300 GHz
Ref 21 dBm
Att 30 dB
Offset 1 dB
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
Center 5.83153 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

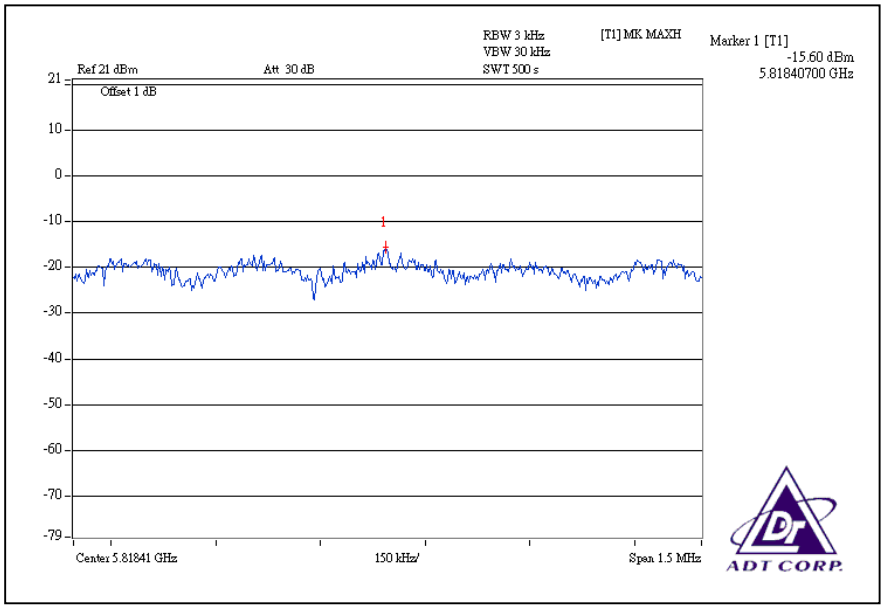
For Chain (1): CH1



CH3



CH5

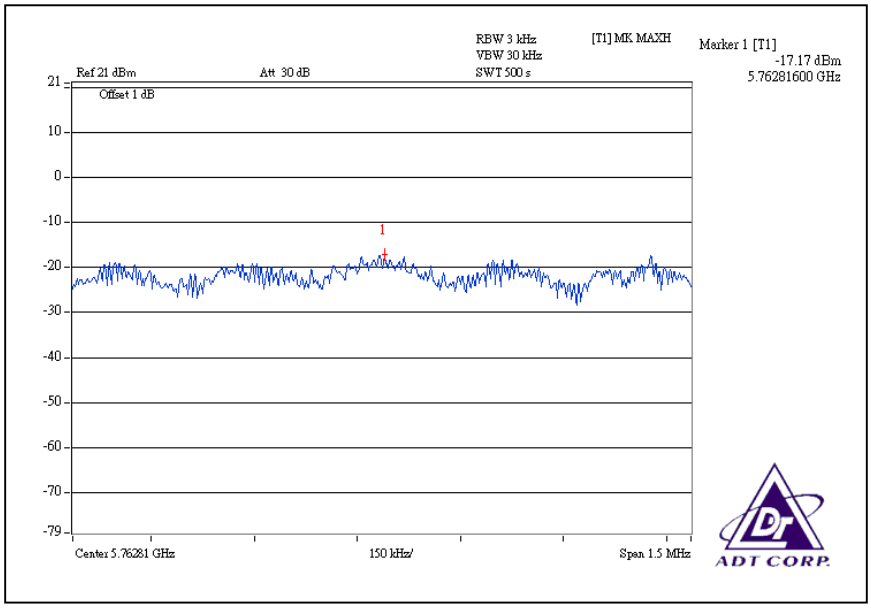

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-15.60 dBm
5.81840700 GHz
Ref 21 dBm
Att 30 dB
Offset 1 dB
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
Center 5.81841 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

DRAFT 802.11n (40MHz) OFDM MODULATION:

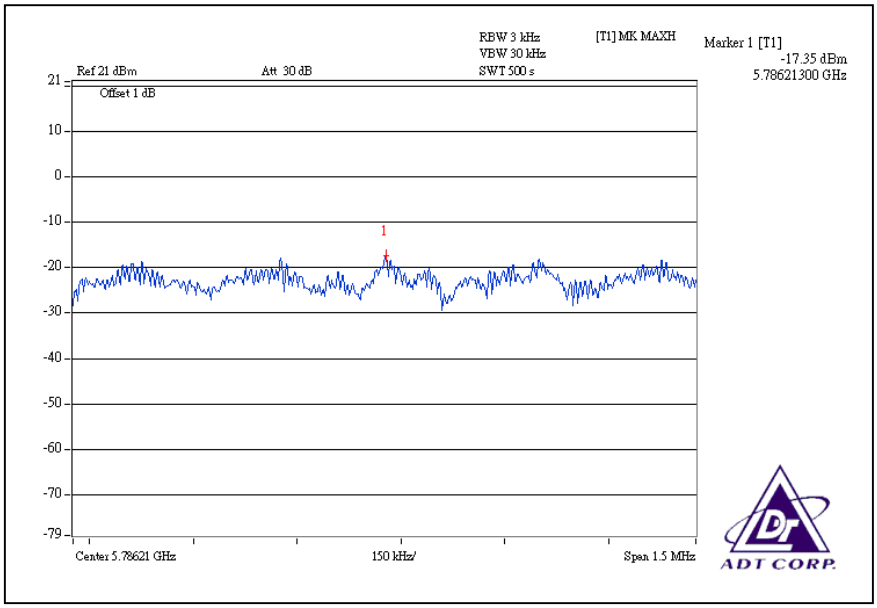
MODULATION TYPE	BPSK	TRANSFER RATE	27Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH, 971hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (mW)		RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)	CHAIN(0)	CHAIN(1)				
1	5755	0.019	0.012	-17.17	-19.08	0.031	-15.086	8	PASS
3	5795	0.018	0.008	-17.35	-20.80	0.026	-15.850	8	PASS

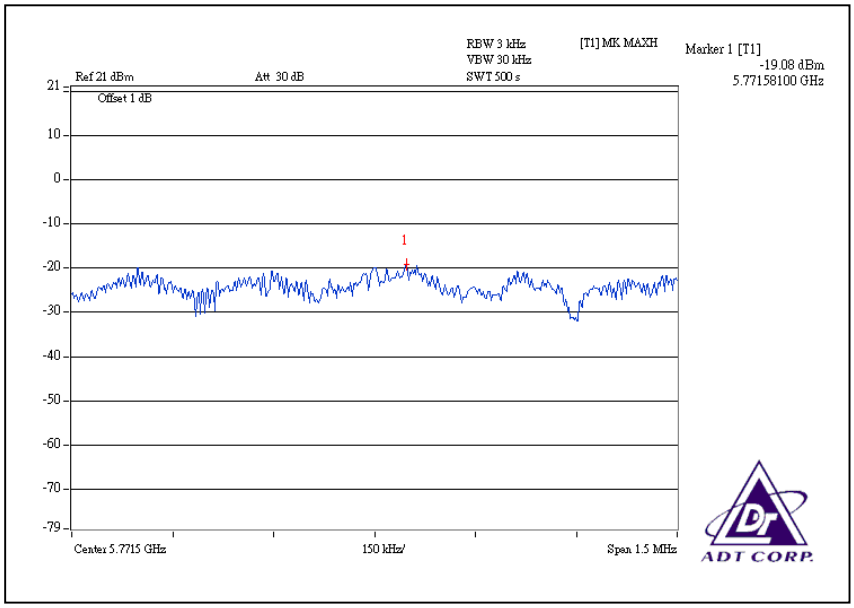
For Chain(0): CH1



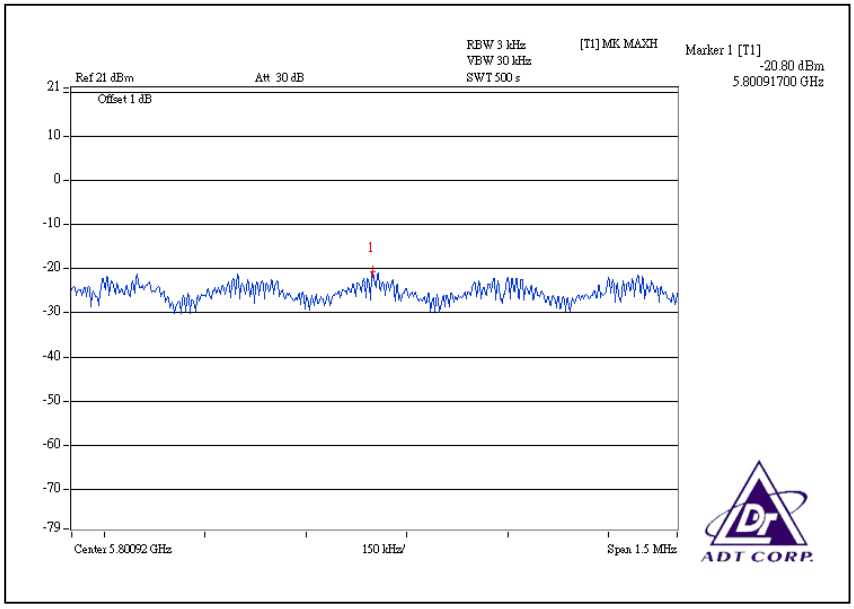
CH3



For Chain (1): CH1



CH3



5.6 BAND EDGES MEASUREMENT

5.6.1 LIMITS OF BAND EDGES MEASUREMENT

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

5.6.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 12, 2008

NOTE:

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

5.6.3 TEST PROCEDURE

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

5.6.4 DEVIATION FROM TEST STANDARD

No deviation

5.6.5 EUT OPERATING CONDITION

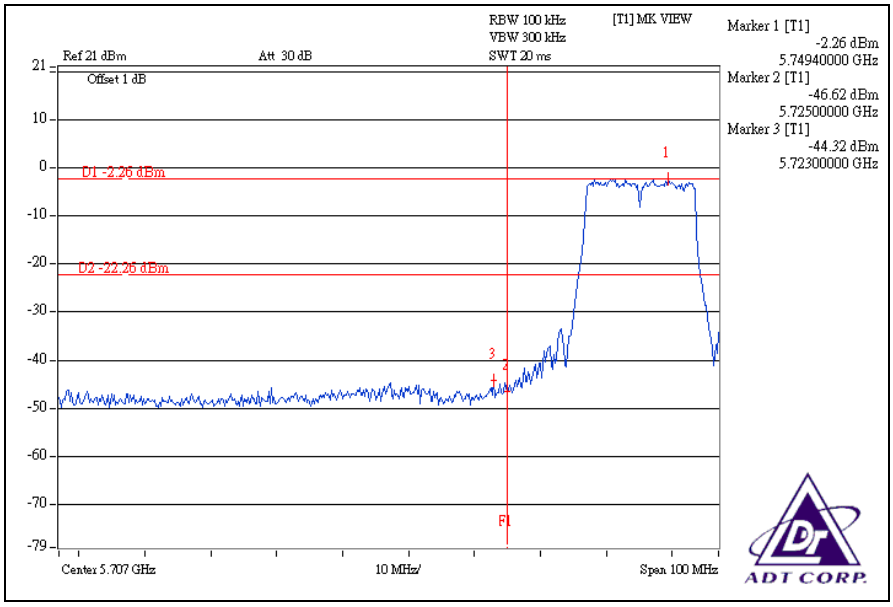
Same as Item 4.3.6

5.6.6 TEST RESULTS

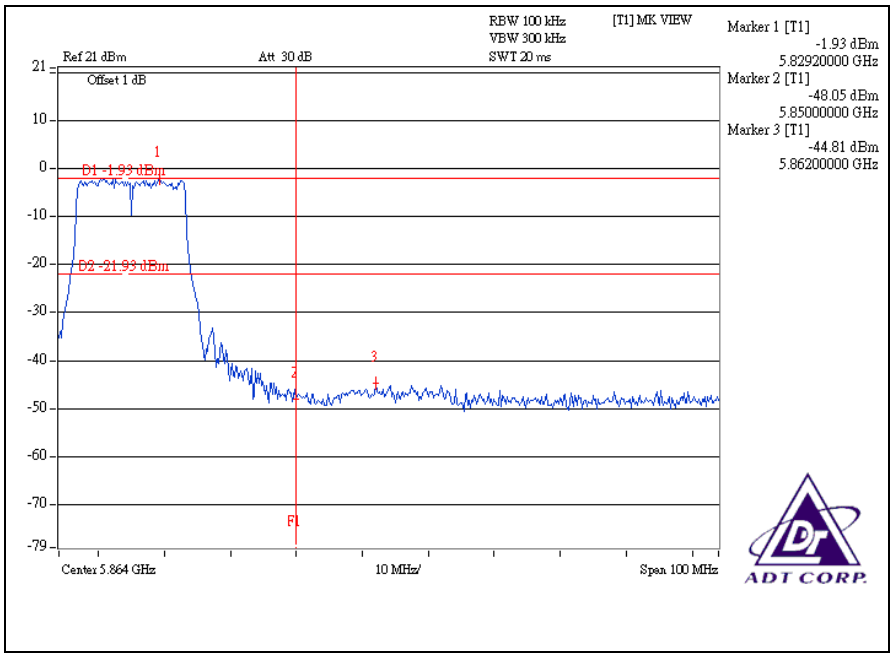
The spectrum plots are attached on the following pages. D2 line indicates the highest level, D1 line indicates the 20dB offset below D2. It shows compliance with the requirement in part 15.247(d).

802.11a OFDM modulation

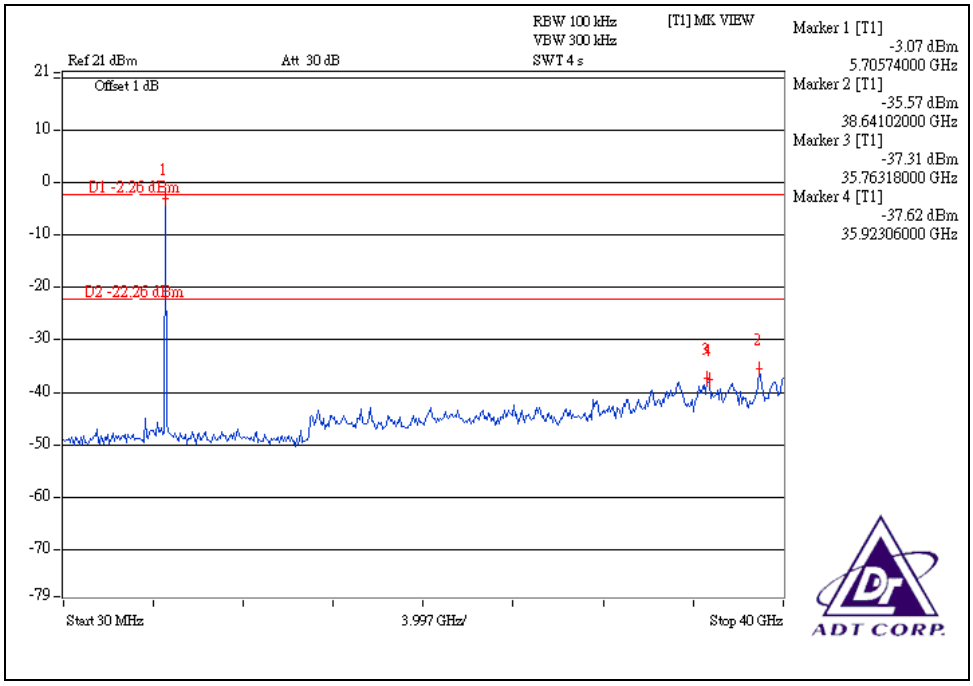
CH1



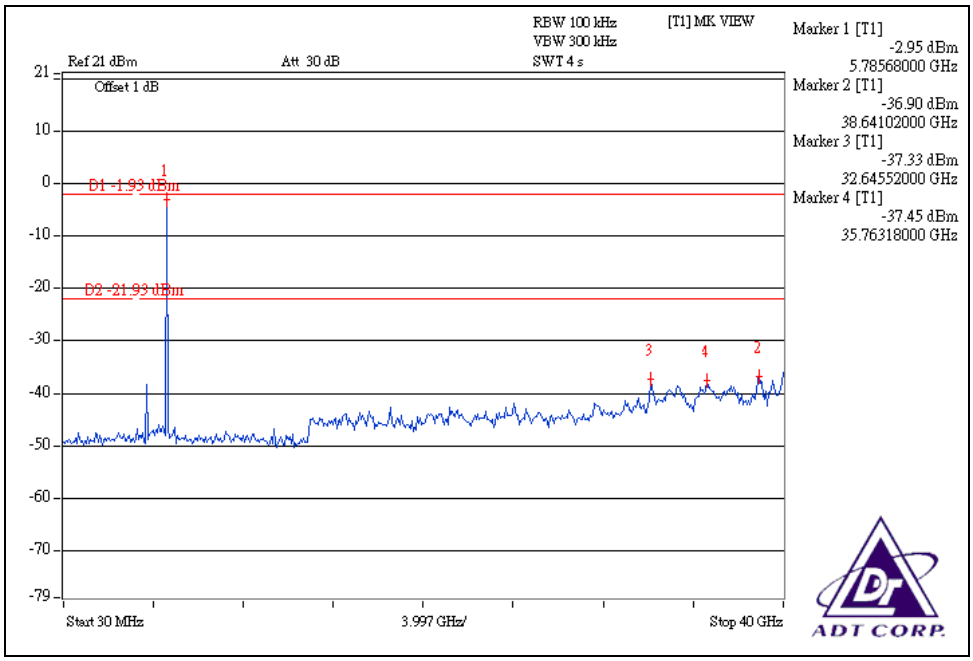
CH5



CH1

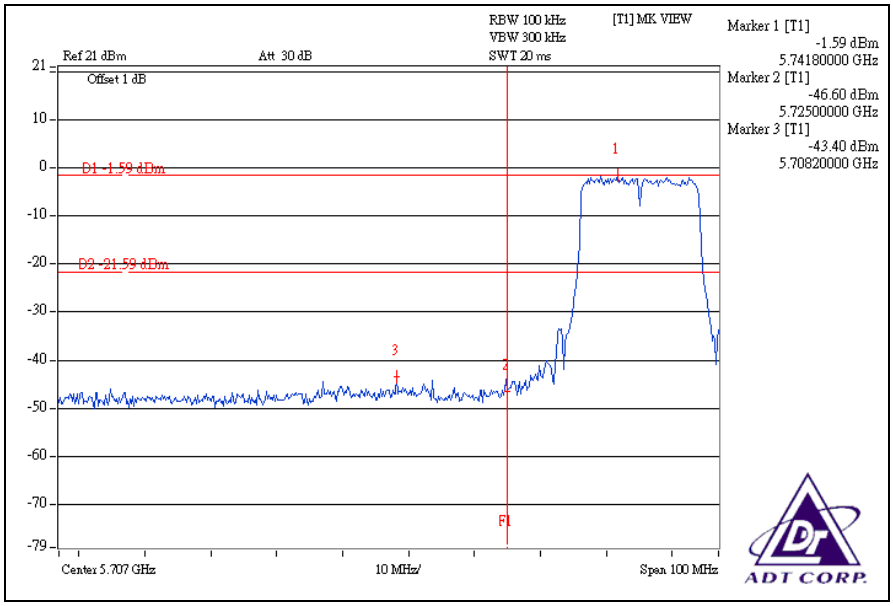

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 -2.26 dBm
D2 -22.26 dBm
Marker 1 [T1]
-3.07 dBm
5.70574000 GHz
Marker 2 [T1]
-35.57 dBm
38.64102000 GHz
Marker 3 [T1]
-37.31 dBm
35.76318000 GHz
Marker 4 [T1]
-37.62 dBm
35.92306000 GHz
Start 30 MHz
3.997 GHz/
Stop 40 GHz
ADT CORP.

CH5

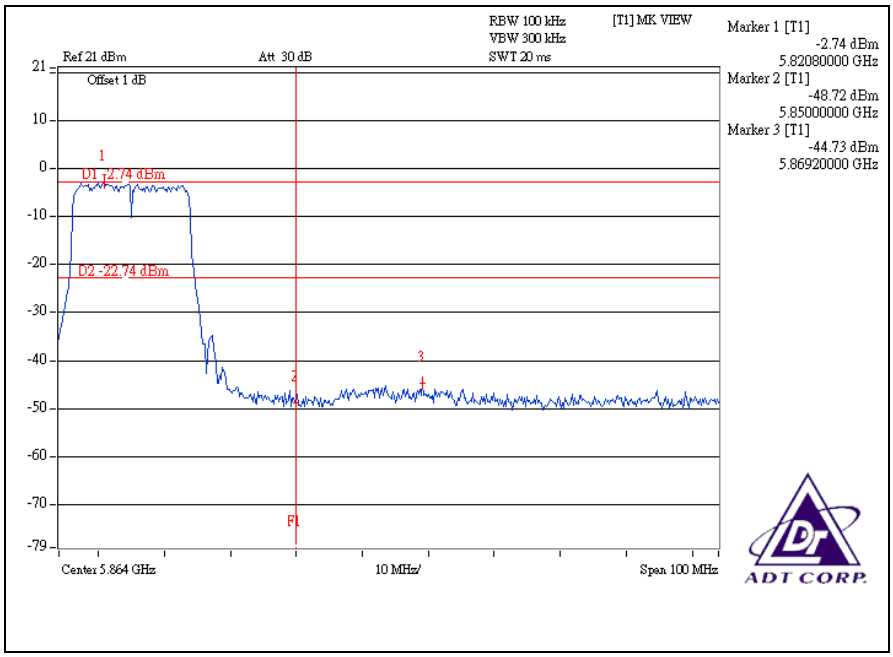

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 -1.93 dBm
D2 -21.93 dBm
Marker 1 [T1]
-2.95 dBm
5.78568000 GHz
Marker 2 [T1]
-36.90 dBm
38.64102000 GHz
Marker 3 [T1]
-37.33 dBm
32.64552000 GHz
Marker 4 [T1]
-37.45 dBm
35.76318000 GHz
Start 30 MHz
3.997 GHz/
Stop 40 GHz
ADT CORP.

DRAFT 802.11n (20MHz) OFDM MODULATION:

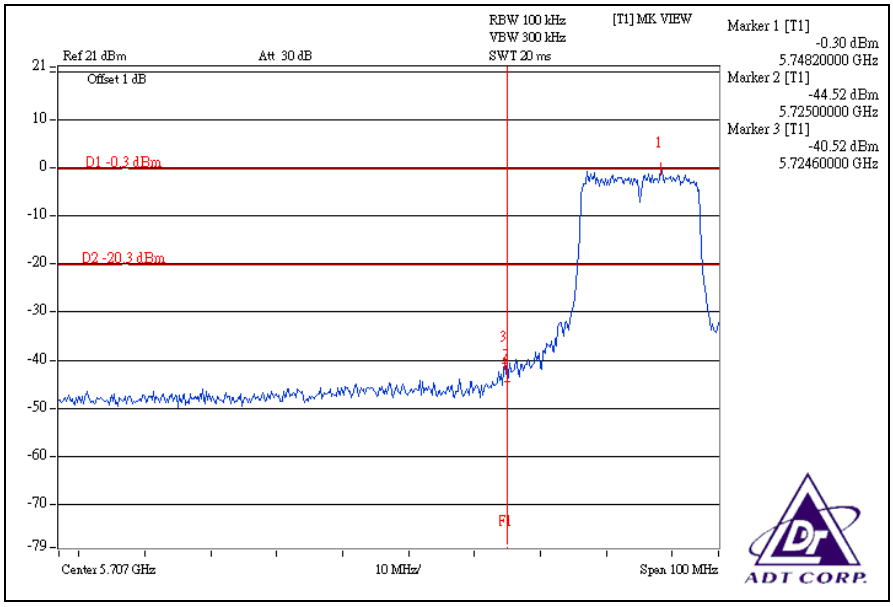
For chain (0) :CH1



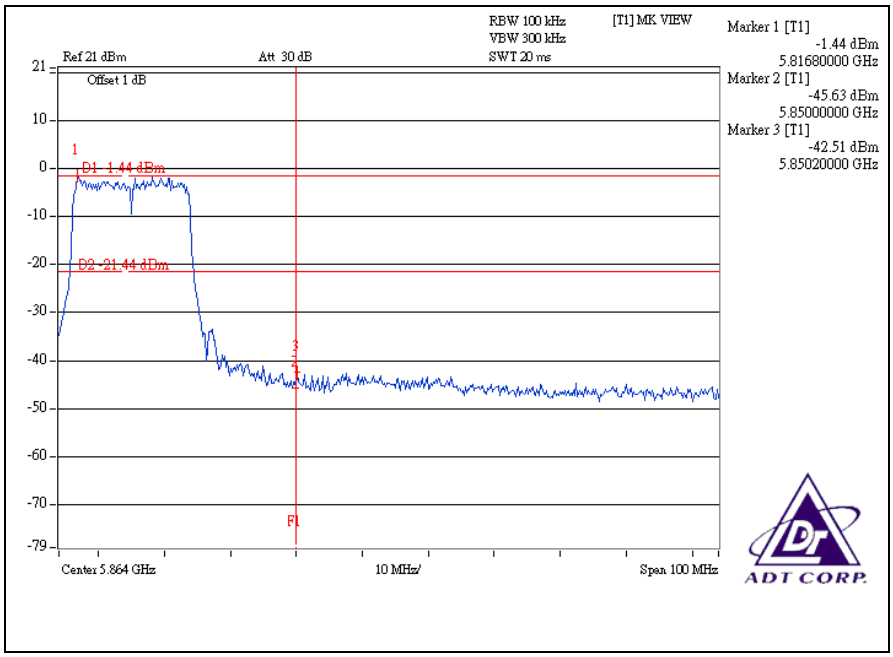
CH5



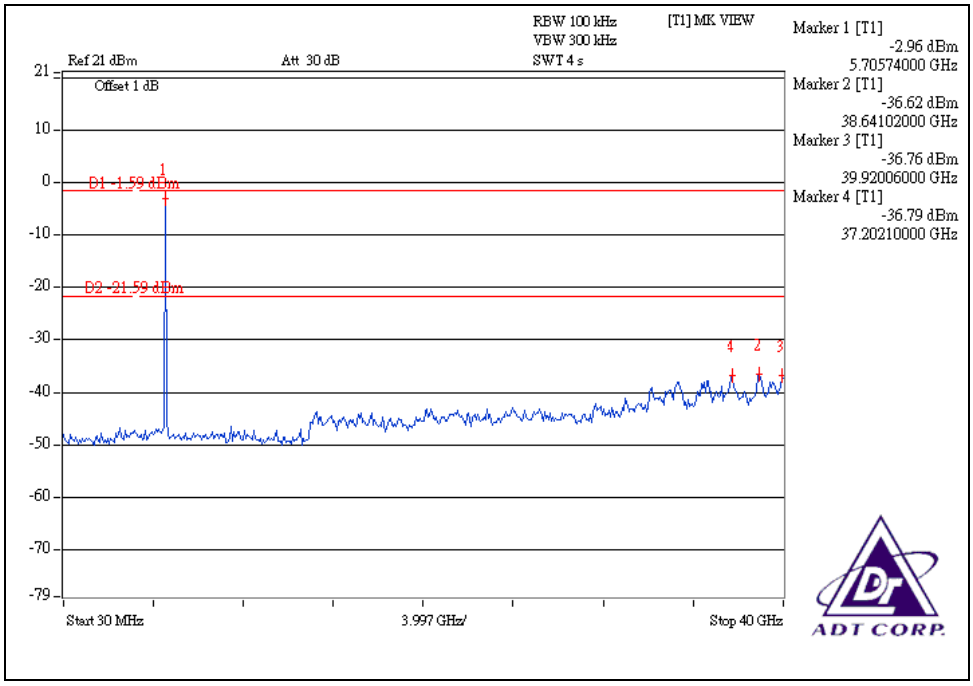
For chain (1) :CH1



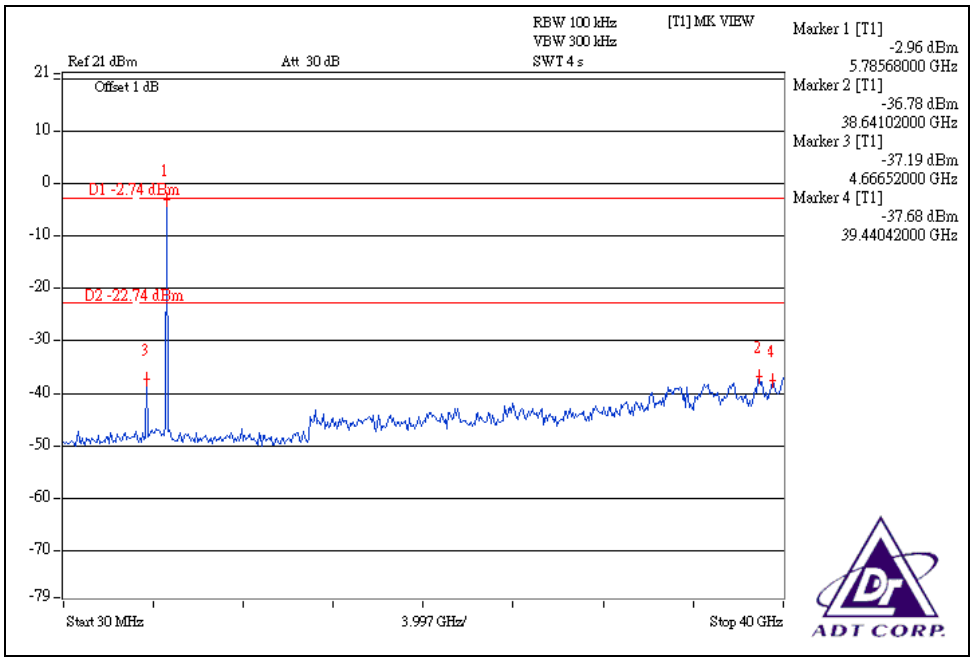
CH5



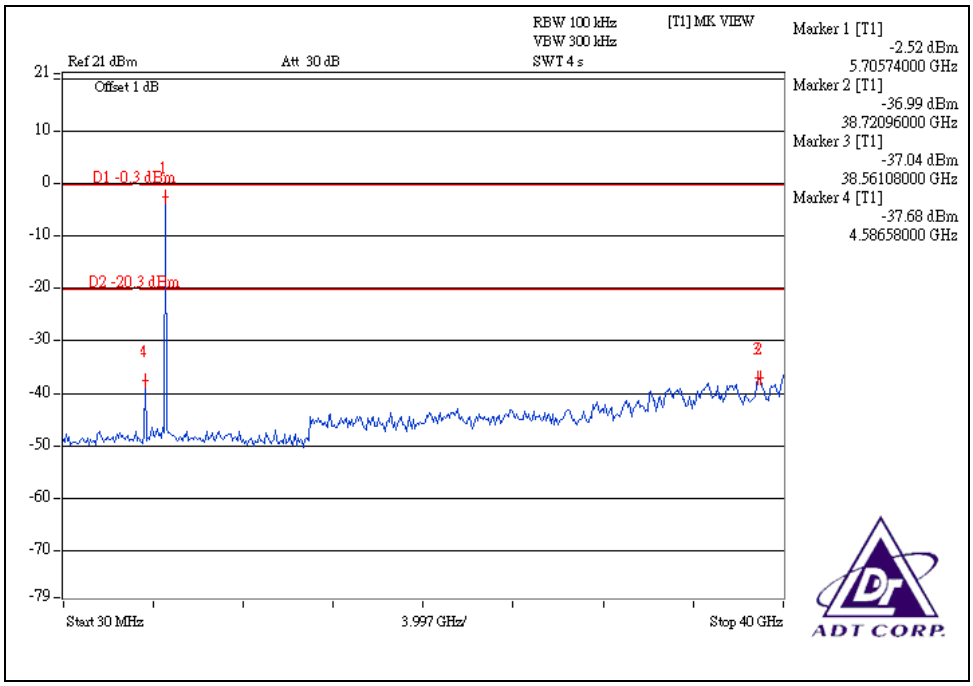
For chain (0) :CH1



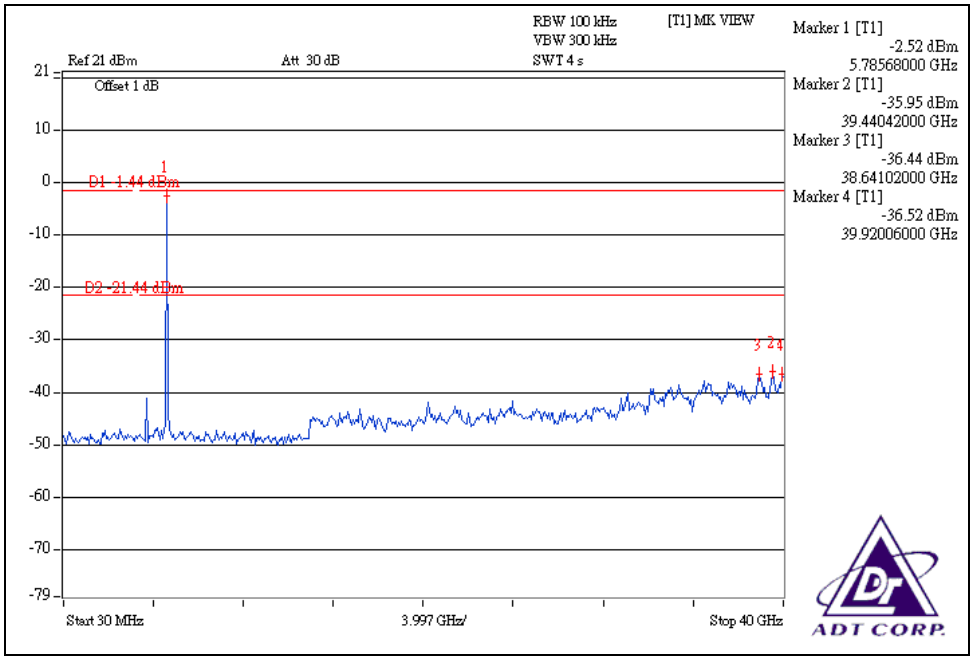
CH5



For chain (1) :CH1

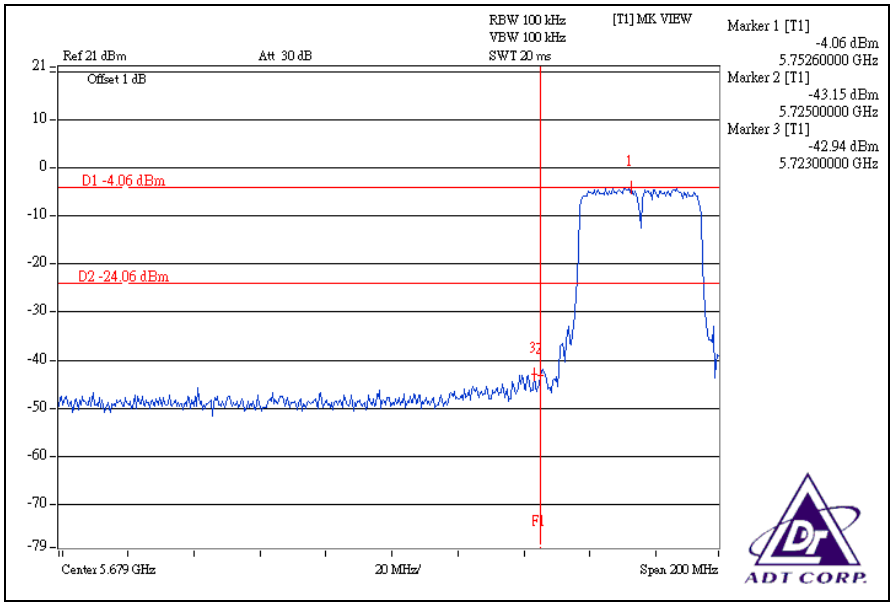


CH5

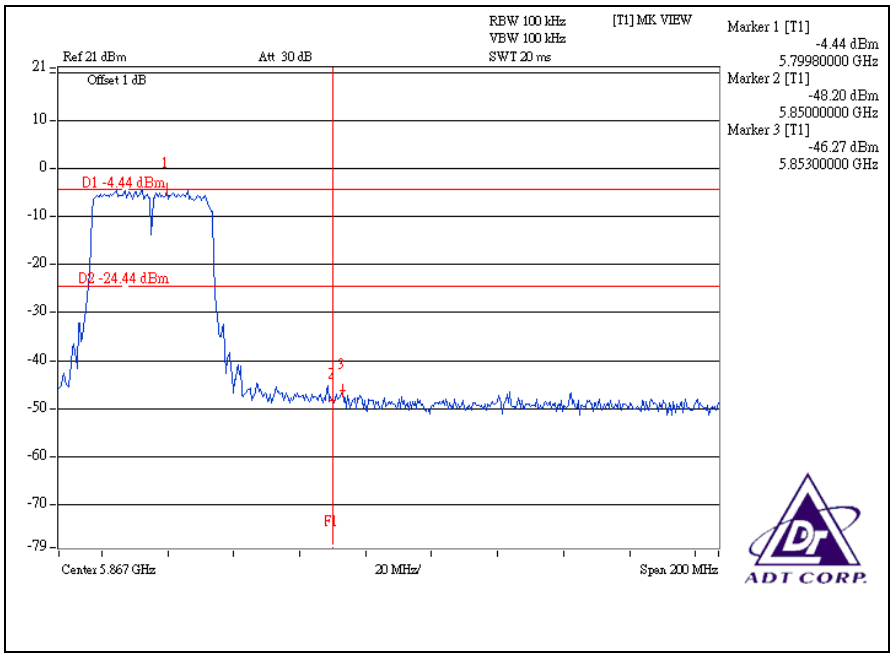


DRAFT 802.11n (40MHz) OFDM MODULATION:

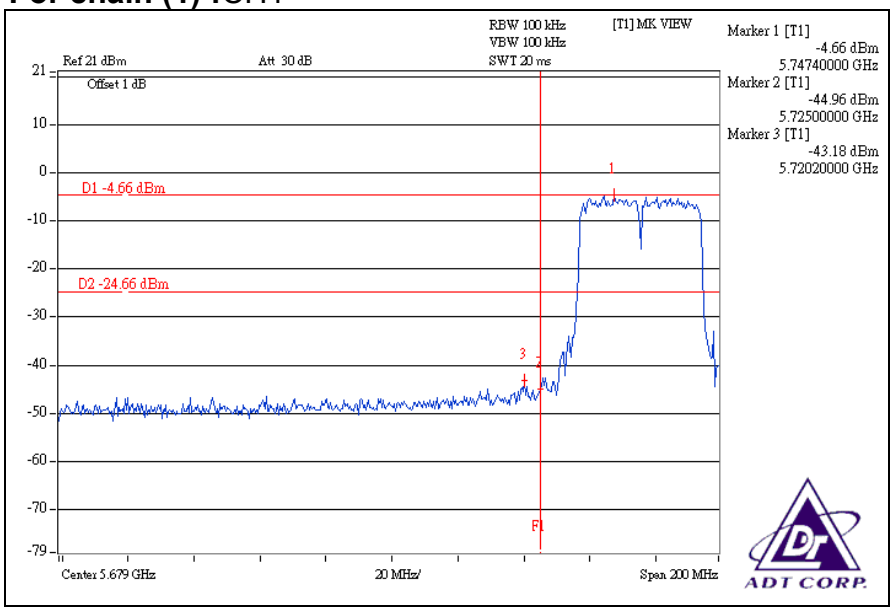
For chain (0) :CH1



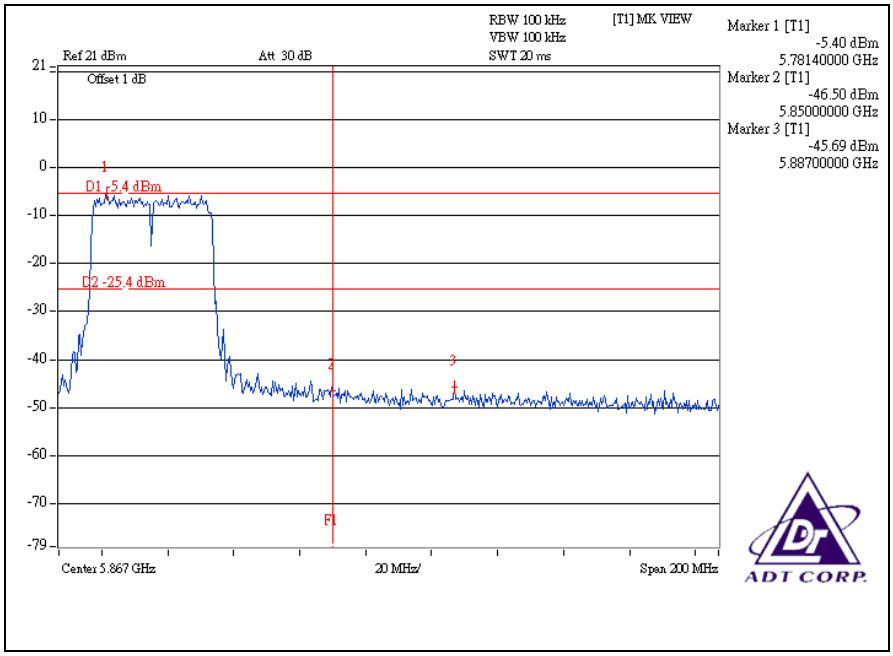
CH3



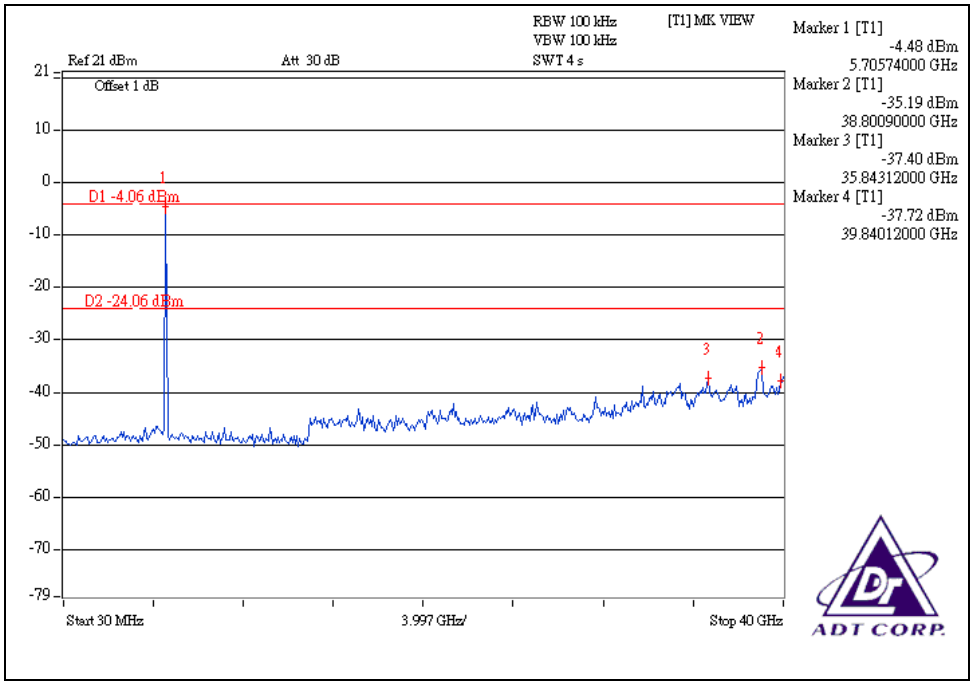
For chain (1) :CH1



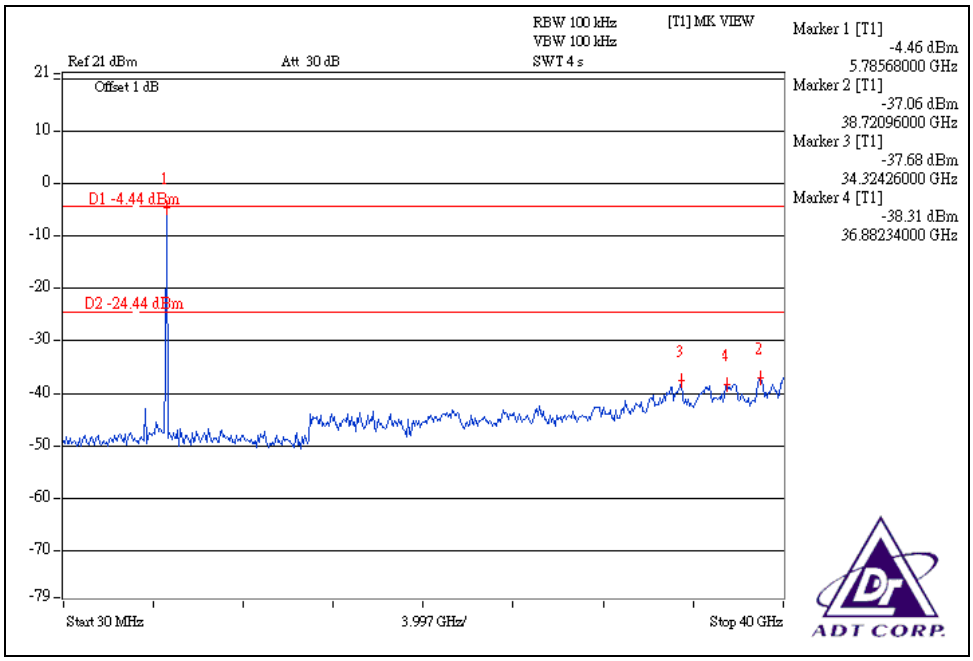
CH3



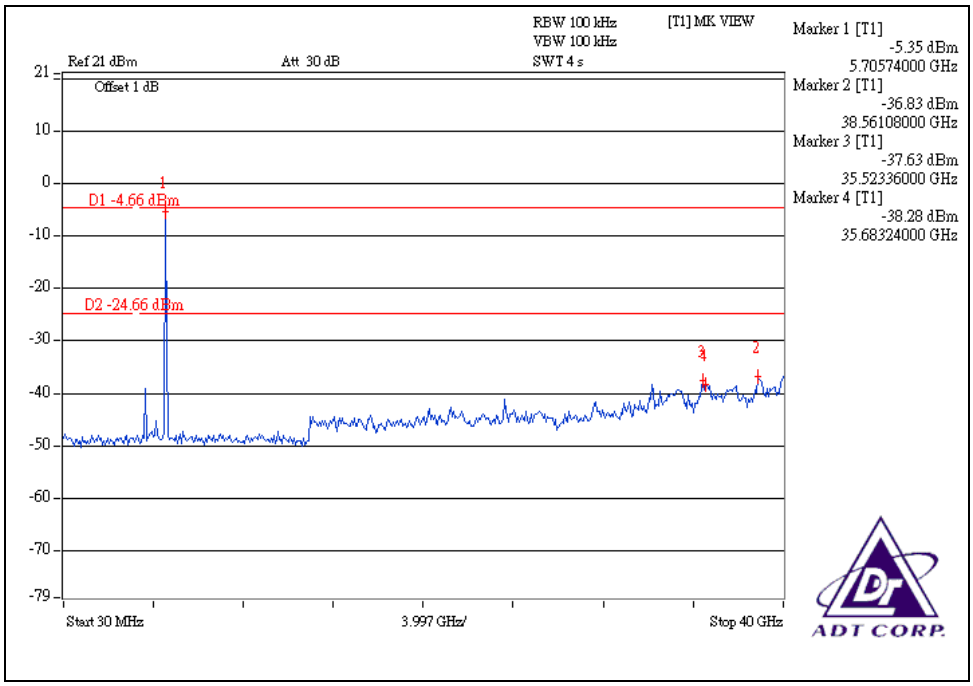
For chain (0) :CH1



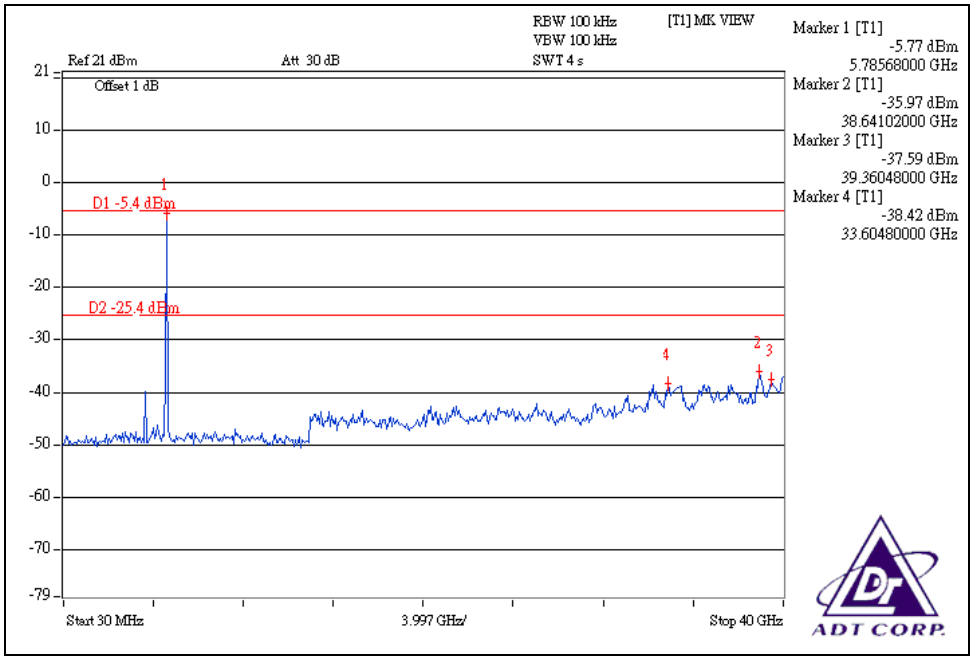
CH3



For chain (1) :CH1



CH5



5.7 ANTENNA REQUIREMENT

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

5.7.2 ANTENNA CONNECTED CONSTRUCTION

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

No.	Antenna Type	For 5GHz / Gain (dBi)	Antenna Connector
1	PCB Print	4	NA
2	PCB Print	4	NA

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	GOST-ASIA(MOU)
Russia	CERTIS(MOU)

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site: www.adt.com.tw/index.5/phtml. If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab:
Tel: 886-2-26052180
Fax: 886-2-26052943

Hsin Chu EMC/RF Lab:
Tel: 886-3-5935343
Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety Telecom Lab:
Tel: 886-3-3183232
Fax: 886-3-3185050

Web Site: www.adt.com.tw

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

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.