FCC TEST REPORT (15.247)

REPORT NO.: RF970825L11

MODEL NO.: Goldcrest

RECEIVED: Aug. 25, 2008

TESTED: Sep. 22 ~ Oct. 01, 2008

ISSUED: Oct. 24, 2008

APPLICANT: Gemtek Technology Co., Ltd.

ADDRESS: No. 15-1, Zhonghua Rd, Hsinchu Industrial Park , Hsinchu County, Taiwan, R.O.C. 303

ISSUED BY: Advance Data Technology Corporation

LAB ADDRESS: No. 47, 14th Ling, Chia Pau Tsuen, Lin Kou Hsiang, Taipei Hsien 244, Taiwan, R.O.C.

TEST LOCATION: No. 19, Hwa Ya 2nd Rd, Wen Hwa Tsuen, Kwei Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C.

TABLE OF CONTENTS

1. CERTIFICATION 5
2. SUMMARY OF TEST RESULTS 6
2.1 MEASUREMENT UNCERTAINTY 6
3. GENERAL INFORMATION 7
3.1 GENERAL DESCRIPTION OF EUT 7
3.2 DESCRIPTION OF TEST MODES 9
3.2.1 CONFIGURATION OF SYSTEM UNDER TEST 10
3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL 11
3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS 15
3.4 DESCRIPTION OF SUPPORT UNITS 15
4. TEST TYPES AND RESULTS (FOR 2.4GHz BAND) 16
4.1 RADIATED EMISSION MEASUREMENT 16
4.1.1 LIMITS OF RADIATED EMISSION MEASUREMENT 16
4.1.2 TEST INSTRUMENTS 17
4.1.3 TEST PROCEDURES 18
4.1.4 DEVIATION FROM TEST STANDARD 18
4.1.5 TEST SETUP 19
4.1.6 EUT OPERATING CONDITIONS 19
4.1.7 TEST RESULTS 20
4.2 CONDUCTED EMISSION MEASUREMENT 47
4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT 47
4.2.2 TEST INSTRUMENTS 47
4.2.3 TEST PROCEDURES 48
4.2.4 DEVIATION FROM TEST STANDARD 48
4.2.5 TEST SETUP 49
4.2.6 EUT OPERATING CONDITIONS 49
4.2.7 TEST RESULTS 50
4.3 6dB BANDWIDTH MEASUREMENT 54
4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT 54
4.3.2 TEST INSTRUMENTS 54
4.3.3 TEST PROCEDURE 54
4.3.4 DEVIATION FROM TEST STANDARD 54
4.3.5 TEST SETUP 55
4.3.6 EUT OPERATING CONDITIONS 55
4.3.7 TEST RESULTS 56
4.4 MAXIMUM PEAK OUTPUT POWER 68
4.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT 68
4.4.2 INSTRUMENTS 68
4.4.3 TEST PROCEDURES 68
4.4.4 DEVIATION FROM TEST STANDARD 68
4.4.5 TEST SETUP 68
4.4.6 EUT OPERATING CONDITIONS 68
4.4.7 TEST RESULTS 69
4.5 POWER SPECTRAL DENSITY MEASUREMENT 71
4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT 71
4.5.2 TEST INSTRUMENTS 71
4.5.3 TEST PROCEDURE 71
4.5.4 DEVIATION FROM TEST STANDARD 71

4.5.5 TEST SETUP 71
4.5.6 EUT OPERATING CONDITION 71
4.5.7 TEST RESULTS 72
4.6 BAND EDGES MEASUREMENT 84
4.6.1 LIMITS OF BAND EDGES MEASUREMENT 84
4.6.2 TEST INSTRUMENTS 84
4.6.3 TEST PROCEDURE 85
4.6.4 DEVIATION FROM TEST STANDARD 85
4.6.5 EUT OPERATING CONDITION 85
4.6.6 TEST RESULTS 86
4.7 ANTENNA REQUIREMENT 112
4.7.1 STANDARD APPLICABLE 112
4.7.2 ANTENNA CONNECTED CONSTRUCTION 112
5. TEST TYPES AND RESULTS (FOR 5.0GHz BAND) 113
5.1 RADIATED EMISSION MEASUREMENT 113
5.1.1 LIMITS OF RADIATED EMISSION MEASUREMENT 113
5.1.2 TEST INSTRUMENTS 114
5.1.3 TEST PROCEDURES 115
5.1.4 DEVIATION FROM TEST STANDARD 115
5.1.5 TEST SETUP 116
5.1.6 EUT OPERATING CONDITIONS 116
5.1.7 TEST RESULTS 117
5.2 CONDUCTED EMISSION MEASUREMENT 136
5.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT 136
5.2.2 T EST INSTRUMENTS 136
5.2.3 TEST PROCEDURES 137
5.2.4 DEVIATION FROM TEST STANDARD 137
5.2.5 TEST SETUP 138
5.2.6 EUT OPERATING CONDITIONS 138
5.2.7 TEST RESULTS 139
5.3 6dB BANDWIDTH MEASUREMENT 143
5.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT 143
5.3.2 TEST INSTRUMENTS 143
5.3.3 TEST PROCEDURE 143
5.3.4 DEVIATION FROM TEST STANDARD 144
5.3.5 TEST SETUP 144
5.3.6 EUT OPERATING CONDITIONS 144
5.3.7 TEST RESULTS 145
5.4 MAXIMUM PEAK OUTPUT POWER 154
5.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT 154
5.4.2 INSTRUMENTS 154
5.4.3 TEST PROCEDURES 154
5.4.4 DEVIATION FROM TEST STANDARD 154
5.4.5 TEST SETUP 154
5.4.6 EUT OPERATING CONDITIONS 154
5.4.7 TEST RESULTS 155
5.5 POWER SPECTRAL DENSITY MEASUREMENT 157
5.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT 157
5.5.2 TEST INSTRUMENTS 157
5.5.3 TEST PROCEDURE 157
5.5.4 DEVIATION FROM TEST STANDARD 158

5.5.5 TEST SETUP 158
5.5.6 EUT OPERATING CONDITION 158
5.5.7 TEST RESULTS 159
5.6 BAND EDGES MEASUREMENT 168
5.6.1 LIMITS OF BAND EDGES MEASUREMENT 168
5.6.2 TEST INSTRUMENTS 168
5.6.3 TEST PROCEDURE 169
5.6.4 DEVIATION FROM TEST STANDARD 170
5.6.5 EUT OPERATING CONDITION 170
5.6.6 TEST RESULTS 170
5.7 ANTENNA REQUIREMENT 186
5.7.1 STANDARD APPLICABLE 186
5.7.2 ANTENNA CONNECTED CONSTRUCTION 186
6. PHOTOGRAPHS OF THE TEST CONFIGURATION 187
7. INFORMATION ON THE TESTING LABORATORIES 188
8. APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB 189

1. CERTIFICATION

PRODUCT: PCI Express Wireless Local Area Network (WLAN) 802.11 a/b/g/n Card

MODEL: Goldcrest

BRAND: Gemtek

APPLICANT: Gemtek Technology Co., Ltd.

TEST SAMPLE: ENGINEERING SAMPLE

TESTED: Sep. 22 ~ Oct. 01, 2008

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

The above equipment (Model: Goldcrest) 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 : Andrea Hsia , **DATE:** Oct. 24, 2008
Andrea Hsia / Specialist

TECHNICAL ACCEPTANCE : Long Chen , **DATE:** Oct. 24, 2008
Responsible for RF Long Chen / Senior Engineer

APPROVED BY : Gary Chang , **DATE:** Oct. 24, 2008
Gary Chang / Assistant Manager

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART C (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 -3.97dB at 0.150MHz
15.247(a)(2)	Spectrum Bandwidth of a Direct Sequence Spread Spectrum System Limit: min. 500kHz	PASS	Meet the requirement of limit.
15.247(b)	Maximum Peak Output Power Limit: max. 30dBm	PASS	Meet the requirement of limit.
15.247(d)	Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit. Minimum passing margin is -1.17dB at 2488.00MHz
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.

2.1 MEASUREMENT UNCERTAINTY

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

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	9kHz~30MHz	2.44 dB
Radiated emissions	30MHz ~ 200MHz	3.34 dB
	200MHz ~1000MHz	3.35 dB
	1GHz ~ 18GHz	2.26 dB
	18GHz ~ 40GHz	1.94 dB

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

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

EUT	PCI Express Wireless Local Area Network (WLAN) 802.11 a/b/g/n Card
MODEL NO.	Goldcrest
FCC ID	MXF-P970813N
POWER SUPPLY	5Vdc from host equipment
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b:11.0/ 5.5/ 2.0/ 1.0Mbps 802.11g: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps Draft 802.11n: up to 300.0Mbps
FREQUENCY RANGE	2.4GHz: 2400.0 ~ 2483.5MHz 5.0GHz: 5150.0 ~ 5350.0MHz, 5470.0 ~ 5725.0MHz, 5725 ~ 5850MHz
NUMBER OF CHANNEL	2.4GHz: 11 for 802.11b, 802.11g, draft 802.11n (20MHz) 7 for draft 802.11n (40MHz) 5.0GHz: 5150 ~ 5350MHz: 8 for 802.11a, draft 802.11n (20MHz) 4 for draft 802.11n (40MHz) 5470 ~ 5725MHz: 11 for 802.11a, draft 802.11n (20MHz) 5 for draft 802.11n (40MHz) 5725 ~ 5850MHz: 5 for 802.11a, draft 802.11n (20MHz) 2 for draft 802.11n (40MHz)
OUTPUT POWER	362.437mW for 2400.0 ~ 2483.5MHz 32.324mW for 5150.0 ~ 5350.0MHz 35.771mW for 5470.0 ~ 5725.0MHz 406.472mW for 5725.0 ~ 5850.0MHz
ANTENNA TYPE	Refer to note as below
DATA CABLE	NA
I/O PORTS	NA
ACCESSORY DEVICES	NA

NOTE:

1. The EUT is a PCI Express Wireless Local Area Network (WLAN) 802.11 a/b/g/n Card. The functions of EUT listed as below:

	TEST STANDARD	REFERENCE REPORT
WLAN 802.11b/g, draft 802.11n	FCC Part 15, Subpart C (Section 15.247)	RF970825L11
WLAN 802.11a, draft 802.11n (5725~5850 MHz)		
WLAN 802.11a, draft 802.11n (5150~ 5350MHz, 5470 ~ 5725MHz)	FCC Part 15, Subpart E (Section 15.407)	RF970825L11-1
WLAN 802.11a, draft 802.11n (5250~ 5350MHz, 5470 ~ 5725MHz) (For DFS report)	FCC Part 15, Subpart E (Section 15.407)	RF970825L11-2

2. The frequency bands used in this EUT are listed as follows:

Frequency Band (MHz)	2400~2483.5	5150~5350	5470 ~ 5725	5725~5850
802.11b	√	-	-	-
802.11g	√	-	-	-
802.11a	-	√	√	√
Draft 802.11n (20MHz)	√	√	√	√
Draft 802.11n (40MHz)	√	√	√	√

3. The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitters and two receivers.

MODULATION MODE	TX FUNCTION
802.11b	1TX
802.11g	1TX
802.11a	1TX
Draft 802.11n (20MHz)	2TX
Draft 802.11n (40MHz)	2TX

4. The following antennas were provided to this EUT.

Item	Antenna Type	Gain (dBi)		GAIN (dBi) (with cable loss)		Antenna connector
		2.4G	5.0G	2.4G	5.0G	
1	Dipole	1.26	1.58	-	-	R-SMA
2	PIFA (model: Neptune) (with electric conduction foam)	0.14	-0.26	-	-	UFL
3	PIFA (model: Virtus) (without electric conduction foam)	1.65	4.33	-	-	UFL
4	Dipole + RF cable	-	-	0.56	0.28	UFL

**For Item 2 & 3, only higher antenna gain was chosen for final test and presented in the test report

5. The following crystals were provided to this EUT.

ITEM	CRYSTAL	REMARK
1	170-100-0089R	X'TAL (R) 40MHz +/-5ppm 12pF3.2*2.5*0.65mm SMD 0~+85dCFL4000011B ECERA
2	170-100-0079R	X'TAL (HF) 40MHz +/-10ppm 12pF3.2*2.5*0.7mm SMD 0~+85dC7M40000005 TXC

**After pre-tested found item 2 was the worst, therefore we chosen for final test and presented in the test report.

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

FOR 2.4GHz:

11 channels are provided for 802.11b, 802.11g and 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		

7 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		

FOR 5.0GHz (5725 ~ 5850MHz):

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

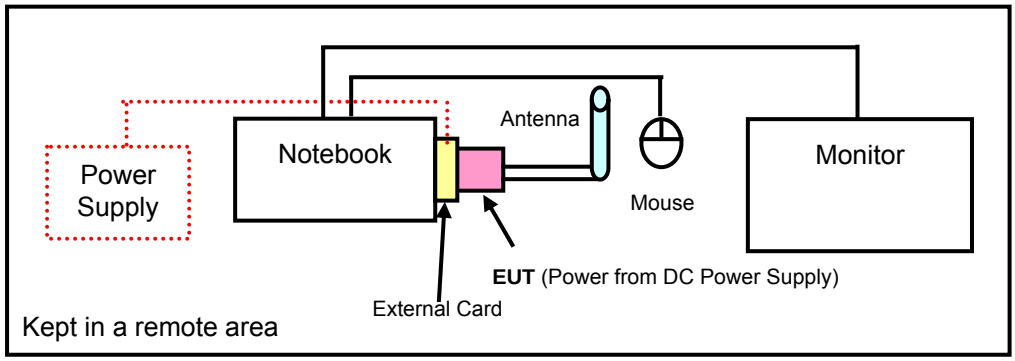
CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
149	5745MHz	161	5805MHz
153	5765MHz	165	5825MHz
157	5785MHz		

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

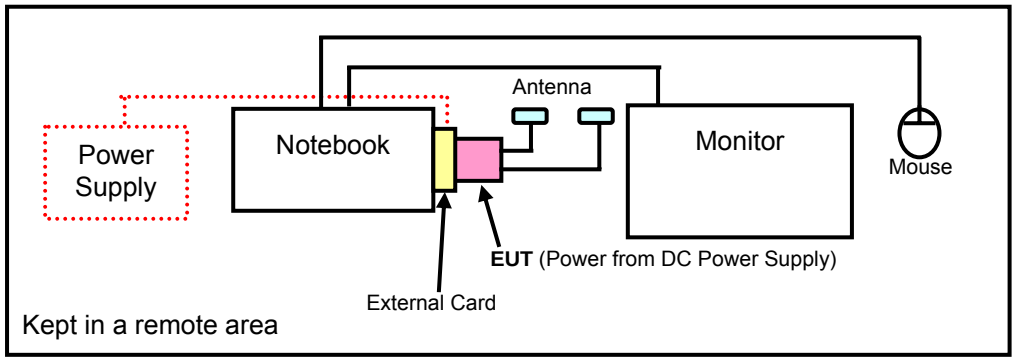
CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
151	5755MHz	159	5795MHz

3.2.1 CONFIGURATION OF SYSTEM UNDER TEST

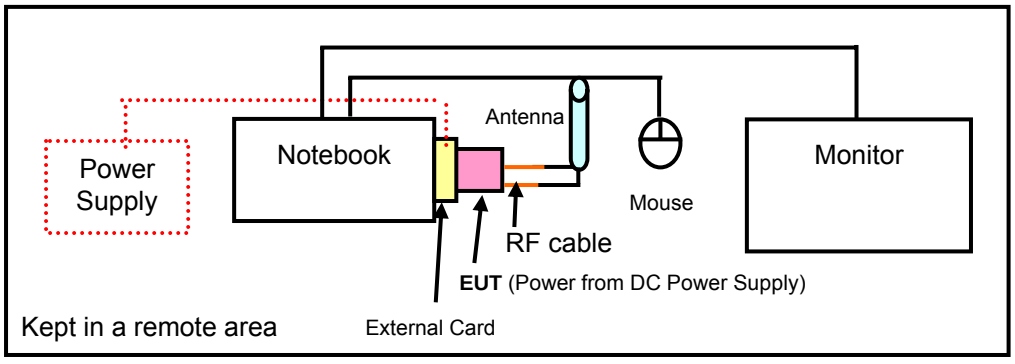
TEST MODE A



TEST MODE B



TEST MODE C



3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

FOR 2.4GHz:

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE≥1G	RE<1G	PLC	APCM	
A	√	√	√	√	Antenna item 1
B	√	√	√	-	Antenna item 3
C	-	√	-	-	Antenna item 4

Where **RE≥1G:** Radiated Emission above 1GHz **RE<1G:** Radiated Emission below 1GHz

PLC: Power Line Conducted Emission **APCM:** Antenna Port Conducted Measurement

NOTE: "-" means no effect.

RADIATED EMISSION TEST (ABOVE 1GHz):

☒ 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.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
B	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
B	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
A	Draft 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	7.2
B	Draft 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	7.2
A	Draft 802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	15.0
B	Draft 802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	15.0

RADIATED EMISSION TEST (BELOW 1GHz):

☒ 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.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	Draft 802.11n (20MHz)	1 to 11	6	OFDM	BPSK	7.2
B	Draft 802.11n (20MHz)	1 to 11	6	OFDM	BPSK	7.2
C	Draft 802.11n (20MHz)	1 to 11	6	OFDM	BPSK	7.2

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.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	Draft 802.11n (20MHz)	1 to 11	6	OFDM	BPSK	7.2
B	Draft 802.11n (20MHz)	1 to 11	6	OFDM	BPSK	7.2

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.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11b	1 to 11	1, 11	DSSS	DBPSK	1.0
B	802.11b	1 to 11	1, 11	DSSS	DBPSK	1.0
A	802.11g	1 to 11	1, 11	OFDM	BPSK	6.0
B	802.11g	1 to 11	1, 11	OFDM	BPSK	6.0
A	Draft 802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	7.2
B	Draft 802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	7.2
A	Draft 802.11n (40MHz)	1 to 7	1, 7	OFDM	BPSK	15.0
B	Draft 802.11n (40MHz)	1 to 7	1, 7	OFDM	BPSK	15.0

ANTENNA PORT CONDUCTED MEASUREMENT:

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

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
A	Draft 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	7.2
A	Draft 802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	15.0

FOR 5.0GHz (5.725 ~ 5.850GHz):

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	PLC	RE<1G	RE≥1G	APCM	
A	√	√	√	√	Antenna item 1
B	√	√	√	-	Antenna item 3
C	-	√	-	-	Antenna item 4

Where **RE≥1G:** Radiated Emission above 1GHz **RE<1G:** Radiated Emission below 1GHz

PLC: Power Line Conducted Emission **APCM:** Antenna Port Conducted Measurement

NOTE: "-" means no effect.

RADIATED EMISSION TEST (ABOVE 1GHz):

☒ 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.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6.0
B	802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6.0
A	Draft 802.11n (20MHz)	149 to 165	149, 157, 165	OFDM	BPSK	7.2
B	Draft 802.11n (20MHz)	149 to 165	149, 157, 165	OFDM	BPSK	7.2
A	Draft 802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	15.0
B	Draft 802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	15.0

RADIATED EMISSION TEST (BELOW 1GHz):

☒ 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.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	Draft 802.11n (20MHz)	149 to 165	165	OFDM	BPSK	7.2
B	Draft 802.11n (20MHz)	149 to 165	165	OFDM	BPSK	7.2
C	Draft 802.11n (20MHz)	149 to 165	165	OFDM	BPSK	7.2

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.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	Draft 802.11n (20MHz)	149 to 165	165	OFDM	BPSK	7.2
B	Draft 802.11n (20MHz)	149 to 165	165	OFDM	BPSK	7.2

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.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11a	149 to 165	149, 165	OFDM	BPSK	6.0
B	802.11a	149 to 165	149, 165	OFDM	BPSK	6.0
A	Draft 802.11n (20MHz)	149 to 165	149, 165	OFDM	BPSK	7.2
B	Draft 802.11n (20MHz)	149 to 165	149, 165	OFDM	BPSK	7.2
A	Draft 802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	15.0
B	Draft 802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	15.0

ANTENNA PORT CONDUCTED MEASUREMENT:

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

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6.0
A	Draft 802.11n (20MHz)	149 to 165	149, 157, 165	OFDM	BPSK	7.2
A	Draft 802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	15.0

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

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

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

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

3.4 DESCRIPTION OF SUPPORT UNITS

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

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK	DELL	D830	4C53R1S	E2K4965AGNM
2	LCD MONITOR	ACER	AL1511 bm	ET.L1408.0433480 0145PK01	NA
3	MOUSE	Logitech	M-S43	LZE00703157	DZL211106
4	POWER SUPPLY	TOP WARD	6306A	713585	NA

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA
2	1.8 m D-Sub shielded cable
3	1.8 m foil shielded wire, terminated with PS2 connector via drain wire, w/o core.
4	NA

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

4. TEST TYPES AND RESULTS (FOR 2.4GHz BAND)

4.1 RADIATED EMISSION MEASUREMENT

4.1.1 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.

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESI7	100033	Jun. 30, 2008	Jun. 29, 2009
Spectrum Analyzer Agilent	FSP	100041	Apr. 22, 2008	Apr. 21, 2009
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	May, 02, 2008	May, 01, 2009
HORN Antenna SCHWARZBECK	9120D	9120D-209	Jun. 24, 2008	Jun. 23, 2009
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170243	Dec. 25, 2007	Dec. 24, 2008
Preamplifier Agilent	8447D	2944A10633	Oct. 29, 2007	Oct. 28, 2008
Preamplifier Agilent	8449B	3008A01964	Oct. 24, 2007	Oct. 23, 2008
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	283402/4	Dec. 07, 2007	Dec. 06, 2008
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	251644/4	Dec. 07, 2007	Dec. 06, 2008
Software ADT.	ADT_Radiated_V7.6	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA	NA
Antenna Tower Controller inn-co GmbH	CO2000	017303	NA	NA
Turn Table ADT.	TT100.	TT93021703	NA	NA
Turn Table Controller ADT.	SC100.	SC93021703	NA	NA

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The test was performed in HwaYa Chamber 3.

3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.

4. The FCC Site Registration No. is 988962.

5. The IC Site Registration No. is IC3789B-3.

4.1.3 TEST PROCEDURES

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

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

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

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

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

f. If the emission level of the EUT in peak mode was lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

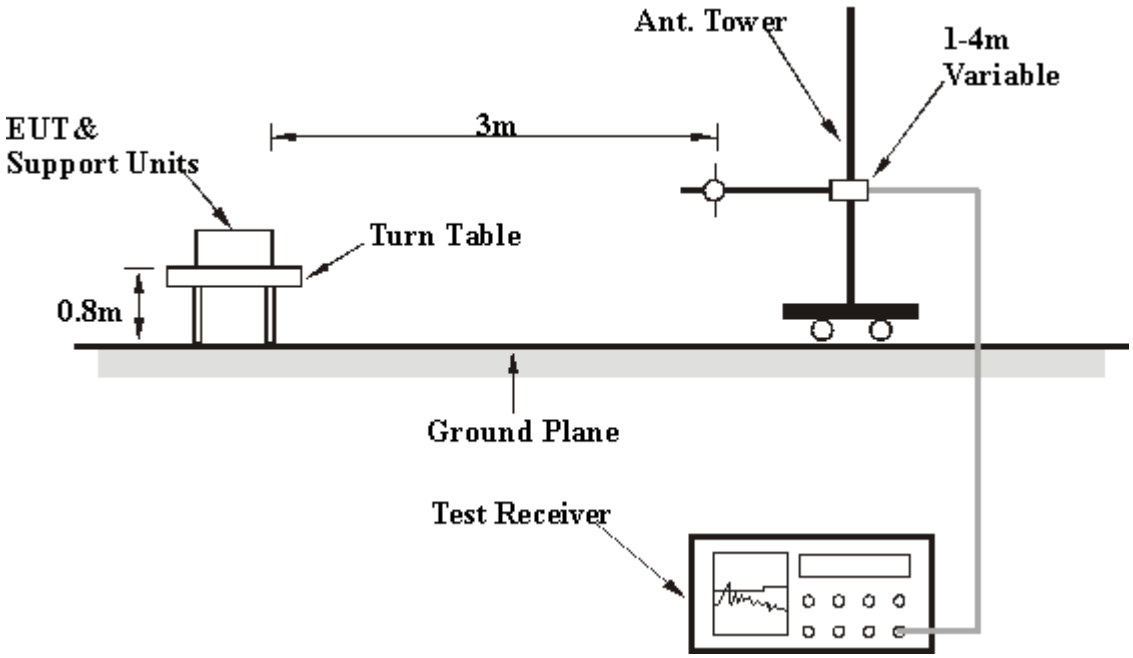
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.1.6 EUT OPERATING CONDITIONS

a. Connected the EUT into the notebook system via external card and placed on a testing table
b. The EUT ran a test program (provided by manufacturer) to enable all functions under transmission condition continuously at specific channel frequency.
c. The necessary accessories enable the EUT in full functions.

4.1.7 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	24deg. C, 64%RH 1000hPa	TEST MODE	A
TESTED BY	Match Tsui		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2386.00	56.95 PK	74.00	-17.05	1.29 H	57	24.52	32.43
2	2386.00	48.67 AV	54.00	-5.33	1.29 H	57	16.24	32.43
3	*2412.00	101.37 PK			1.29 H	57	68.85	32.52
4	*2412.00	96.97 AV			1.29 H	57	64.45	32.52
5	#3216.00	47.09 PK	81.37	-34.28	1.00 H	58	12.41	34.67
6	#3216.00	36.61 AV	76.97	-40.36	1.00 H	58	1.93	34.67
7	4824.00	52.75 PK	74.00	-21.25	1.47 H	64	14.45	38.30
8	4824.00	46.62 AV	54.00	-7.38	1.47 H	64	8.32	38.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2386.00	62.48 PK	74.00	-11.52	1.00 V	234	30.05	32.43
2	2386.00	52.25 AV	54.00	-1.75	1.00 V	234	19.82	32.43
3	*2412.00	108.40 PK			1.24 V	319	75.88	32.52
4	*2412.00	103.69 AV			1.24 V	319	71.17	32.52
5	#3216.00	48.64 PK	88.40	-39.76	1.11 V	6	13.96	34.67
6	#3216.00	41.49 AV	83.69	-42.20	1.11 V	6	6.81	34.67
7	4824.00	52.05 PK	74.00	-21.95	1.00 V	243	13.75	38.30
8	4824.00	45.68 AV	54.00	-8.32	1.00 V	243	7.38	38.30

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

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	24deg. C, 64%RH 1000hPa	TEST MODE	A
TESTED BY	Match Tsui		

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	100.84 PK			1.26 H	46	68.24	32.60
2	*2437.00	96.26 AV			1.26 H	46	63.66	32.60
3	4874.00	51.86 PK	74.00	-22.14	1.00 H	327	13.36	38.50
4	4874.00	44.10 AV	54.00	-9.90	1.00 H	327	5.60	38.50
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	108.57 PK			1.40 V	105	75.97	32.60
2	*2437.00	103.80 AV			1.40 V	105	71.20	32.60
3	4874.00	52.30 PK	74.00	-21.70	1.44 V	268	13.80	38.50
4	4874.00	44.85 AV	54.00	-9.15	1.44 V	268	6.35	38.50

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": 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	24deg. C, 64%RH 1000hPa	TEST MODE	A
TESTED BY	Match Tsui		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	101.69 PK			1.06 H	36	69.01	32.68
2	*2462.00	97.29 AV			1.06 H	36	64.61	32.68
3	2488.00	60.85 PK	74.00	-13.15	1.06 H	36	28.08	32.77
4	2488.00	49.59 AV	54.00	-4.41	1.06 H	36	16.82	32.77
5	4924.00	51.69 PK	74.00	-22.31	1.11 H	315	13.05	38.64
6	4924.00	45.28 AV	54.00	-8.72	1.11 H	315	6.64	38.64
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	109.13 PK			1.22 V	191	76.45	32.68
2	*2462.00	104.67 AV			1.22 V	191	71.99	32.68
3	2488.00	62.46 PK	74.00	-11.54	1.20 V	235	29.69	32.77
4	**2488.00**	**52.83 AV**	**54.00**	**-1.17**	**1.20 V**	**235**	**20.06**	**32.77**
5	4924.00	52.83 PK	74.00	-21.17	1.40 V	231	14.19	38.64
6	4924.00	46.30 AV	54.00	-7.70	1.40 V	231	7.66	38.64

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

5. " * ": Fundamental frequency.

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	24deg. C, 64%RH 1000hPa	TEST MODE	B
TESTED BY	Match Tsui		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2386.00	61.10 PK	74.00	-12.90	1.34 H	257	28.67	32.43
2	2386.00	51.62 AV	54.00	-2.38	1.34 H	257	19.19	32.43
3	*2412.00	105.42 PK			1.33 H	263	72.90	32.52
4	*2412.00	100.78 AV			1.33 H	263	68.26	32.52
5	#3216.00	49.64 PK	85.42	-35.78	1.15 H	0	14.96	34.67
6	#3216.00	41.20 AV	80.78	-39.58	1.15 H	0	6.52	34.67
7	4824.00	54.46 PK	74.00	-19.54	1.26 H	299	16.16	38.30
8	4824.00	50.69 AV	54.00	-3.31	1.26 H	299	12.39	38.30
9	#7236.00	57.10 PK	85.42	-28.32	1.12 H	315	12.91	44.19
10	#7236.00	46.87 AV	80.78	-33.91	1.12 H	315	2.68	44.19
11	#9648.00	65.31 PK	85.42	-20.11	1.12 H	74	17.06	48.25
12	#9648.00	61.13 AV	80.78	-19.65	1.12 H	74	12.88	48.25
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2386.00	61.56 PK	74.00	-12.44	1.00 V	284	29.13	32.43
2	2386.00	51.89 AV	54.00	-2.11	1.00 V	284	19.46	32.43
3	*2412.00	103.77 PK			1.00 V	283	71.25	32.52
4	*2412.00	98.91 AV			1.00 V	283	66.39	32.52
5	#3216.00	46.81 PK	83.77	-36.96	1.10 V	0	12.13	34.67
6	#3216.00	36.60 AV	78.91	-42.31	1.10 V	0	1.92	34.67
7	4824.00	55.07 PK	74.00	-18.93	1.37 V	252	16.77	38.30
8	4824.00	50.81 AV	54.00	-3.19	1.37 V	252	12.51	38.30
9	#9648.00	64.95 PK	83.77	-18.82	1.28 V	360	16.70	48.25
10	#9648.00	60.71 AV	78.91	-18.20	1.28 V	360	12.46	48.25

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

5. " * ": Fundamental frequency.

6. "#":The radiated frequency is out the restricted band.

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	24deg. C, 64%RH 1000hPa	TEST MODE	B
TESTED BY	Match Tsui		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	106.41 PK			1.33 H	81	73.81	32.60
2	*2437.00	101.94 AV			1.33 H	81	69.34	32.60
3	4874.00	52.24 PK	74.00	-21.76	1.17 H	326	13.74	38.50
4	4874.00	45.68 AV	54.00	-8.32	1.17 H	326	7.18	38.50
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	104.07 PK			1.00 V	283	71.47	32.60
2	*2437.00	99.46 AV			1.00 V	283	66.86	32.60
3	4874.00	53.47 PK	74.00	-20.53	1.14 V	242	14.97	38.50
4	4874.00	48.66 AV	54.00	-5.34	1.14 V	242	10.16	38.50

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

5. " * ": 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	24deg. C, 64%RH 1000hPa	TEST MODE	B
TESTED BY	Match Tsui		

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	107.35 PK			1.30 H	76	74.67	32.68
2	*2462.00	102.55 AV			1.30 H	76	69.87	32.68
3	2488.00	62.76 PK	74.00	-11.24	1.31 H	75	29.99	32.77
4	2488.00	49.17 AV	54.00	-4.83	1.31 H	75	16.40	32.77
5	4924.00	50.19 PK	74.00	-23.81	1.33 H	340	11.55	38.64
6	4924.00	41.96 AV	54.00	-12.04	1.33 H	340	3.32	38.64
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	103.11 PK			1.50 V	228	70.43	32.68
2	*2462.00	98.86 AV			1.50 V	228	66.18	32.68
3	2483.50	59.26 PK	74.00	-14.74	1.50 V	228	26.50	32.76
4	2483.50	48.68 AV	54.00	-5.32	1.50 V	228	15.92	32.76
5	4924.00	50.73 PK	74.00	-23.27	1.14 V	238	12.09	38.64
6	4924.00	42.03 AV	54.00	-11.97	1.14 V	238	3.39	38.64

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

5. " * ": Fundamental frequency.

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	24deg. C, 64%RH 1000hPa	TEST MODE	A
TESTED BY	Match Tsui		

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	62.37 PK	74.00	-11.63	1.28 H	59	29.93	32.44
2	2390.00	48.19 AV	54.00	-5.81	1.28 H	59	15.75	32.44
3	*2412.00	101.01 PK			1.28 H	59	68.49	32.52
4	*2412.00	90.74 AV			1.28 H	59	58.22	32.52
5	#3216.00	48.91 PK	81.01	-32.10	1.11 H	57	14.23	34.67
6	#3216.00	42.44 AV	70.74	-28.30	1.11 H	57	7.76	34.67
7	4824.00	49.49 PK	74.00	-24.51	1.06 H	0	11.19	38.30
8	4824.00	36.06 AV	54.00	-17.94	1.06 H	0	-2.24	38.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	67.38 PK	74.00	-6.62	1.27 V	198	34.94	32.44
2	2390.00	52.23 AV	54.00	-1.77	1.27 V	198	19.79	32.44
3	*2412.00	109.25 PK			1.24 V	188	76.73	32.52
4	*2412.00	99.13 AV			1.24 V	188	66.61	32.52
5	#3216.00	51.84 PK	89.25	-37.41	1.36 V	360	17.16	34.67
6	#3216.00	47.72 AV	79.13	-31.41	1.36 V	360	13.04	34.67
7	4824.00	49.63 PK	74.00	-24.37	1.00 V	0	11.33	38.30
8	4824.00	36.36 AV	54.00	-17.64	1.00 V	0	-1.94	38.30

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. "#":The radiated frequency is out the restricted band.

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	24deg. C, 64%RH 1000hPa	TEST MODE	A
TESTED BY	Match Tsui		

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	101.93 PK			1.01 H	43	69.33	32.60
2	*2437.00	91.51 AV			1.01 H	43	58.91	32.60
3	#3249.00	48.31 PK	81.93	-33.62	1.33 H	218	13.61	34.70
4	#3249.00	37.13 AV	71.51	-34.38	1.33 H	218	2.43	34.70
5	4874.00	49.03 PK	74.00	-24.97	1.20 H	360	10.53	38.50
6	4874.00	36.42 AV	54.00	-17.58	1.20 H	360	-2.08	38.50
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	111.06 PK			1.22 V	199	78.46	32.60
2	*2437.00	100.16 AV			1.22 V	199	67.56	32.60
3	#3249.00	49.88 PK	91.06	-41.18	1.10 V	21	15.18	34.70
4	#3249.00	43.26 AV	80.16	-36.90	1.10 V	21	8.56	34.70
5	4874.00	49.84 PK	74.00	-24.16	1.10 V	0	11.34	38.50
6	4874.00	36.92 AV	54.00	-17.08	1.10 V	0	-1.58	38.50

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. "#":The radiated frequency is out the restricted band.

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	24deg. C, 64%RH 1000hPa	TEST MODE	A
TESTED BY	Match Tsui		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	101.09 PK			1.03 H	360	68.41	32.68
2	*2462.00	90.23 AV			1.03 H	360	57.55	32.68
3	2483.50	57.18 PK	74.00	-16.82	1.03 H	36	24.42	32.76
4	2483.50	47.47 AV	54.00	-6.53	1.03 H	36	14.71	32.76
5	4924.00	48.82 PK	74.00	-25.18	1.30 H	360	10.18	38.64
6	4924.00	35.69 AV	54.00	-18.31	1.30 H	360	-2.95	38.64
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	110.01 PK			1.23 V	200	77.33	32.68
2	*2462.00	99.83 AV			1.23 V	200	67.15	32.68
3	2483.50	66.66 PK	74.00	-7.34	1.22 V	234	33.90	32.76
4	2483.50	51.76 AV	54.00	-2.24	1.22 V	234	19.00	32.76
5	4924.00	49.97 PK	74.00	-24.03	1.22 V	1	11.33	38.64
6	4924.00	37.18 AV	54.00	-16.82	1.22 V	1	-1.46	38.64

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

5. " * ": Fundamental frequency.

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	24deg. C, 64%RH 1000hPa	TEST MODE	B
TESTED BY	Match Tsui		

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	62.71 PK	74.00	-11.29	1.24 H	233	30.27	32.44
2	2390.00	49.81 AV	54.00	-4.19	1.24 H	233	17.37	32.44
3	*2412.00	104.23 PK			1.00 H	234	71.71	32.52
4	*2412.00	93.06 AV			1.00 H	234	60.54	32.52
5	#3216.00	48.06 PK	84.23	-36.17	1.17 H	0	13.38	34.67
6	#3216.00	39.92 AV	73.06	-33.14	1.17 H	0	5.24	34.67
7	4824.00	51.87 PK	74.00	-22.13	1.08 H	328	13.57	38.30
8	4824.00	37.92 AV	54.00	-16.08	1.08 H	328	-0.38	38.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	58.25 PK	74.00	-15.75	1.40 V	295	25.81	32.44
2	2390.00	47.52 AV	54.00	-6.48	1.40 V	295	15.08	32.44
3	*2412.00	104.01 PK			1.00 V	286	71.49	32.52
4	*2412.00	93.01 AV			1.00 V	286	60.49	32.52
5	#3216.00	46.78 PK	84.01	-37.23	1.13 V	0	12.10	34.67
6	#3216.00	34.53 AV	73.01	-38.48	1.13 V	0	-0.15	34.67
7	4824.00	50.58 PK	74.00	-23.42	1.25 V	254	12.28	38.30
8	4824.00	37.60 AV	54.00	-16.40	1.25 V	254	-0.70	38.30

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

5. " * ": Fundamental frequency.

6. "#":The radiated frequency is out the restricted band.

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	24deg. C, 64%RH 1000hPa	TEST MODE	B
TESTED BY	Match Tsui		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	104.53 PK			1.52 H	57	71.93	32.60
2	*2437.00	94.05 AV			1.52 H	57	61.45	32.60
3	4874.00	49.38 PK	74.00	-24.62	1.02 H	204	10.88	38.50
4	4874.00	37.04 AV	54.00	-16.96	1.02 H	204	-1.46	38.50
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	103.88 PK			1.00 V	286	71.28	32.60
2	*2437.00	93.74 AV			1.00 V	286	61.14	32.60
3	4874.00	49.00 PK	74.00	-25.00	1.00 V	360	10.50	38.50
4	4874.00	36.02 AV	54.00	-17.98	1.00 V	360	-2.48	38.50

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": 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	24deg. C, 64%RH 1000hPa	TEST MODE	B
TESTED BY	Match Tsui		

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	107.77 PK			1.30 H	262	75.09	32.68
2	*2462.00	97.43 AV			1.30 H	262	64.75	32.68
3	2483.50	65.58 PK	74.00	-8.42	1.28 H	264	32.82	32.76
4	2483.50	49.64 AV	54.00	-4.36	1.28 H	264	16.88	32.76
5	4924.00	49.59 PK	74.00	-24.41	1.28 H	360	10.95	38.64
6	4924.00	37.18 AV	54.00	-16.82	1.28 H	360	-1.46	38.64
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	106.05 PK			1.00 V	284	73.37	32.68
2	*2462.00	94.30 AV			1.00 V	284	61.62	32.68
3	2483.50	65.58 PK	74.00	-8.42	1.00 V	284	32.82	32.76
4	2483.50	48.50 AV	54.00	-5.50	1.00 V	284	15.74	32.76
5	4924.00	49.79 PK	74.00	-24.21	1.00 V	100	11.15	38.64
6	4924.00	37.17 AV	54.00	-16.83	1.00 V	100	-1.47	38.64

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

5. " * ": Fundamental frequency.

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	24deg. C, 64%RH 1000hPa	TEST MODE	A
TESTED BY	Match Tsui		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	59.05 PK	74.00	-14.95	1.04 H	38	26.61	32.44
2	2390.00	48.47 AV	54.00	-5.53	1.04 H	38	16.03	32.44
3	*2412.00	102.79 PK			1.04 H	38	70.27	32.52
4	*2412.00	92.53 AV			1.04 H	38	60.01	32.52
5	#3216.00	49.64 PK	82.79	-33.15	1.00 H	41	14.96	34.67
6	#3216.00	43.06 AV	72.53	-29.47	1.00 H	41	8.38	34.67
7	4824.00	48.96 PK	74.00	-25.04	1.00 H	0	10.66	38.30
8	4824.00	35.86 AV	54.00	-18.14	1.00 H	0	-2.44	38.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	71.25 PK	74.00	-2.75	1.26 V	197	38.81	32.44
2	2390.00	52.52 AV	54.00	-1.48	1.26 V	197	20.08	32.44
3	*2412.00	110.58 PK			1.00 V	188	78.06	32.52
4	*2412.00	100.55 AV			1.00 V	188	68.03	32.52
5	#3216.00	51.51 PK	90.58	-39.07	1.04 V	132	16.83	34.67
6	#3216.00	46.74 AV	80.55	-33.81	1.04 V	132	12.06	34.67
7	4824.00	49.43 PK	74.00	-24.57	1.20 V	0	11.13	38.30
8	4824.00	35.88 AV	54.00	-18.12	1.20 V	0	-2.42	38.30

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

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	24deg. C, 64%RH 1000hPa	TEST MODE	A
TESTED BY	Match Tsui		

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	103.16 PK			1.03 H	37	70.56	32.60
2	*2437.00	92.45 AV			1.03 H	37	59.85	32.60
3	4874.00	49.14 PK	74.00	-24.86	1.10 H	355	10.64	38.50
4	4874.00	36.02 AV	54.00	-17.98	1.10 H	355	-2.48	38.50
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	111.94 PK			1.21 V	199	79.34	32.60
2	*2437.00	100.78 AV			1.21 V	199	68.18	32.60
3	4874.00	49.74 PK	74.00	-24.26	1.20 V	10	11.24	38.50
4	4874.00	36.87 AV	54.00	-17.13	1.20 V	10	-1.63	38.50

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": 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	24deg. C, 64%RH 1000hPa	TEST MODE	A
TESTED BY	Match Tsui		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	101.40 PK			1.20 H	197	68.72	32.68
2	*2462.00	91.54 AV			1.20 H	197	58.86	32.68
3	2483.50	56.82 PK	74.00	-17.18	1.20 H	197	24.06	32.76
4	2483.50	47.08 AV	54.00	-6.92	1.20 H	197	14.32	32.76
5	4924.00	48.90 PK	74.00	-25.10	1.20 H	360	10.26	38.64
6	4924.00	35.77 AV	54.00	-18.23	1.20 H	360	-2.87	38.64
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	109.82 PK			1.16 V	236	77.14	32.68
2	*2462.00	99.91 AV			1.16 V	236	67.23	32.68
3	2483.50	65.81 PK	74.00	-8.19	1.16 V	234	33.05	32.76
4	2483.50	51.65 AV	54.00	-2.35	1.16 V	234	18.89	32.76
5	4924.00	49.43 PK	74.00	-24.57	1.16 V	0	10.79	38.64
6	4924.00	37.47 AV	54.00	-16.53	1.16 V	0	-1.17	38.64

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

5. " * ": Fundamental frequency.

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	24deg. C, 64%RH 1000hPa	TEST MODE	B
TESTED BY	Brad Wu		

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	60.78 PK	74.00	-13.22	1.00 H	212	28.34	32.44
2	2390.00	49.12 AV	54.00	-4.88	1.00 H	212	16.68	32.44
3	*2412.00	105.63 PK			1.00 H	212	73.11	32.52
4	*2412.00	94.82 AV			1.00 H	212	62.30	32.52
5	#3216.00	48.26 PK	85.63	-37.37	1.15 H	209	13.59	34.67
6	#3216.00	40.13 AV	74.82	-34.69	1.15 H	209	5.46	34.67
7	4824.00	51.99 PK	74.00	-22.01	1.06 H	251	13.69	38.30
8	4824.00	38.04 AV	54.00	-15.96	1.06 H	251	-0.26	38.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	60.49 PK	74.00	-13.51	1.00 V	268	28.05	32.44
2	2390.00	47.92 AV	54.00	-6.08	1.00 V	268	15.48	32.44
3	*2412.00	103.31 PK			1.00 V	268	70.79	32.52
4	*2412.00	93.13 AV			1.00 V	268	60.61	32.52
5	#3216.00	46.89 PK	83.31	-36.42	1.19 V	207	12.22	34.67
6	#3216.00	34.68 AV	73.13	-38.45	1.19 V	207	0.01	34.67
7	4824.00	50.84 PK	74.00	-23.16	1.10 V	273	12.54	38.30
8	4824.00	37.94 AV	54.00	-16.06	1.10 V	273	-0.36	38.30

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

5. " * ": Fundamental frequency.

6. "#":The radiated frequency is out the restricted band.

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	24deg. C, 64%RH 1000hPa	TEST MODE	B
TESTED BY	Brad Wu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	105.98 PK			1.00 H	213	73.38	32.60
2	*2437.00	95.13 AV			1.00 H	213	62.53	32.60
3	4874.00	49.13 PK	74.00	-24.87	1.06 H	221	10.63	38.50
4	4874.00	36.21 AV	54.00	-17.79	1.06 H	221	-2.29	38.50
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	103.86 PK			1.01 V	269	71.26	32.60
2	*2437.00	93.69 AV			1.01 V	269	61.09	32.60
3	4874.00	50.95 PK	74.00	-23.05	1.04 V	269	12.45	38.50
4	4874.00	38.12 AV	54.00	-15.88	1.04 V	269	-0.38	38.50

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": 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	24deg. C, 64%RH 1000hPa	TEST MODE	B
TESTED BY	Brad Wu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	106.34 PK			1.02 H	226	73.66	32.68
2	*2462.00	95.54 AV			1.02 H	226	62.86	32.68
3	2483.50	63.29 PK	74.00	-10.71	1.02 H	226	30.53	32.76
4	2483.50	50.15 AV	54.00	-3.85	1.02 H	226	17.39	32.76
5	4924.00	49.31 PK	74.00	-24.69	1.14 H	236	10.67	38.64
6	4924.00	36.91 AV	54.00	-17.09	1.14 H	236	-1.73	38.64
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	104.31 PK			1.03 V	271	71.63	32.68
2	*2462.00	94.06 AV			1.03 V	271	61.38	32.68
3	2483.50	62.14 PK	74.00	-11.86	1.03 V	271	29.38	32.76
4	2483.50	49.03 AV	54.00	-4.97	1.03 V	271	16.27	32.76
5	4924.00	49.46 PK	74.00	-24.54	1.17 V	219	10.82	38.64
6	4924.00	37.08 AV	54.00	-16.92	1.17 V	219	-1.56	38.64

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

5. " * ": Fundamental frequency.

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	24deg. C, 64%RH 1000hPa	TEST MODE	A
TESTED BY	Match Tsui		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	59.85 PK	74.00	-14.15	1.07 H	36	27.41	32.44
2	2390.00	48.18 AV	54.00	-5.82	1.07 H	36	15.74	32.44
3	*2422.00	98.14 PK			1.03 H	42	65.59	32.55
4	*2422.00	87.70 AV			1.03 H	42	55.15	32.55
5	4844.00	48.59 PK	74.00	-25.41	1.00 H	360	10.22	38.38
6	4844.00	35.76 AV	54.00	-18.24	1.00 H	360	-2.61	38.38
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	68.38 PK	74.00	-5.62	1.23 V	198	35.94	32.44
2	2390.00	52.29 AV	54.00	-1.71	1.23 V	198	19.85	32.44
3	*2422.00	106.30 PK			1.21 V	201	73.75	32.55
4	*2422.00	96.31 AV			1.21 V	201	63.76	32.55
5	#3229.00	49.39 PK	86.30	-36.91	1.10 V	198	14.71	34.69
6	#3229.00	43.37 AV	76.31	-32.94	1.10 V	198	8.69	34.69
7	4844.00	49.62 PK	74.00	-24.38	1.10 V	0	11.25	38.38
8	4844.00	36.98 AV	54.00	-17.02	1.10 V	0	-1.39	38.38

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

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	24deg. C, 64%RH 1000hPa	TEST MODE	A
TESTED BY	Match Tsui		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	99.41 PK			1.09 H	354	66.81	32.60
2	*2437.00	89.33 AV			1.09 H	354	56.73	32.60
3	4874.00	48.69 PK	74.00	-25.31	1.00 H	360	10.19	38.50
4	4874.00	35.98 AV	54.00	-18.02	1.00 H	360	-2.52	38.50
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	58.95 PK	74.00	-15.05	1.27 V	195	26.51	32.44
2	2390.00	48.07 AV	54.00	-5.93	1.27 V	195	15.63	32.44
3	*2437.00	106.89 PK			1.20 V	200	74.29	32.60
4	*2437.00	96.27 AV			1.20 V	200	63.67	32.60
5	2483.50	66.36 PK	74.00	-7.64	1.16 V	201	33.60	32.76
6	2483.50	47.93 AV	54.00	-6.07	1.16 V	201	15.17	32.76
7	4874.00	49.04 PK	74.00	-24.96	1.16 V	360	10.54	38.50
8	4874.00	37.32 AV	54.00	-16.68	1.16 V	360	-1.18	38.50

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": 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	24deg. C, 64%RH 1000hPa	TEST MODE	A
TESTED BY	Match Tsui		

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	97.77 PK			1.12 H	310	65.12	32.65
2	*2452.00	86.65 AV			1.12 H	310	54.00	32.65
3	2483.50	61.31 PK	74.00	-12.69	1.12 H	310	28.55	32.76
4	2483.50	47.99 AV	54.00	-6.01	1.12 H	310	15.23	32.76
5	4904.00	48.65 PK	74.00	-25.35	1.30 H	360	10.04	38.61
6	4904.00	36.04 AV	54.00	-17.96	1.30 H	360	-2.57	38.61
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	105.98 PK			1.21 V	201	73.33	32.65
2	*2452.00	95.22 AV			1.21 V	201	62.57	32.65
3	2483.50	68.64 PK	74.00	-5.36	1.44 V	185	35.88	32.76
4	2483.50	50.93 AV	54.00	-3.07	1.44 V	185	18.17	32.76
5	4904.00	49.12 PK	74.00	-24.88	1.40 V	5	10.51	38.61
6	4904.00	36.54 AV	54.00	-17.46	1.40 V	5	-2.07	38.61

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 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1000hPa	TEST MODE	B
TESTED BY	Brad Wu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	63.85 PK	74.00	-10.15	1.20 H	223	31.41	32.44
2	2390.00	49.85 AV	54.00	-4.15	1.20 H	223	17.41	32.44
3	*2422.00	101.15 PK			1.20 H	223	68.60	32.55
4	*2422.00	90.85 AV			1.20 H	223	58.30	32.55
5	4844.00	49.86 PK	74.00	-24.14	1.23 H	25	11.48	38.38
6	4844.00	37.04 AV	54.00	-16.96	1.23 H	25	-1.34	38.38
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	61.35 PK	74.00	-12.65	1.02 V	261	28.91	32.44
2	2390.00	48.82 AV	54.00	-5.18	1.02 V	261	16.38	32.44
3	*2422.00	99.24 PK			1.02 V	261	66.69	32.55
4	*2422.00	89.08 AV			1.02 V	261	56.53	32.55
5	4844.00	49.32 PK	74.00	-24.68	1.08 V	57	10.94	38.38
6	4844.00	36.44 AV	54.00	-17.56	1.08 V	57	-1.94	38.38

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	24deg. C, 64%RH 1000hPa	TEST MODE	B
TESTED BY	Brad Wu		

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	101.68 PK			1.18 H	230	69.08	32.60
2	*2437.00	91.36 AV			1.18 H	230	58.76	32.60
3	4874.00	49.62 PK	74.00	-24.38	1.17 H	243	11.12	38.50
4	4874.00	36.81 AV	54.00	-17.19	1.17 H	243	-1.69	38.50
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	99.81 PK			1.05 V	264	67.21	32.60
2	*2437.00	89.62 AV			1.05 V	264	57.02	32.60
3	4874.00	49.66 PK	74.00	-24.34	1.11 V	68	11.16	38.50
4	4874.00	36.81 AV	54.00	-17.19	1.11 V	68	-1.69	38.50

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": 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	24deg. C, 64%RH 1000hPa	TEST MODE	B
TESTED BY	Brad Wu		

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	101.25 PK			1.13 H	220	68.60	32.65
2	*2452.00	91.28 AV			1.13 H	220	58.63	32.65
3	2483.50	65.95 PK	74.00	-8.05	1.13 H	220	33.19	32.76
4	2483.50	50.35 AV	54.00	-3.65	1.13 H	220	17.59	32.76
5	4904.00	49.03 PK	74.00	-24.97	1.01 H	88	10.42	38.61
6	4904.00	36.42 AV	54.00	-17.58	1.01 H	88	-2.19	38.61
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	99.56 PK			1.03 V	262	66.91	32.65
2	*2452.00	89.41 AV			1.03 V	262	56.76	32.65
3	2483.50	61.12 PK	74.00	-12.88	1.03 V	262	28.36	32.76
4	2483.50	48.63 AV	54.00	-5.37	1.03 V	262	15.87	32.76
5	4904.00	49.45 PK	74.00	-24.55	1.08 V	238	10.84	38.61
6	4904.00	36.56 AV	54.00	-17.44	1.08 V	238	-2.05	38.61

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.

BELOW 1GHz WORST-CASE DATA：DRAFT 802.11n (20MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	26deg. C, 66%RH 999hPa	TEST MODE	A
TESTED BY	Antony Lee		

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	97.95	31.54 QP	43.50	-11.96	2.50 H	49	22.26	9.29
2	300.16	38.38 QP	46.00	-7.62	1.00 H	55	24.78	13.60
3	337.10	34.58 QP	46.00	-11.42	1.00 H	61	20.09	14.49
4	399.31	36.04 QP	46.00	-9.96	1.00 H	160	20.06	15.98
5	599.58	37.40 QP	46.00	-8.60	1.25 H	142	15.90	21.50
6	696.79	32.28 QP	46.00	-13.72	1.25 H	142	9.83	22.45
7	749.29	32.33 QP	46.00	-13.67	2.50 H	229	8.62	23.71
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	99.89	26.90 QP	43.50	-16.60	1.25 V	82	17.59	9.31
2	298.21	32.91 QP	46.00	-13.09	1.00 V	88	19.35	13.57
3	311.82	32.98 QP	46.00	-13.02	1.00 V	10	19.10	13.88
4	399.31	33.61 QP	46.00	-12.39	2.00 V	115	17.63	15.98
5	500.42	29.40 QP	46.00	-16.60	1.25 V	94	10.29	19.12
6	599.58	32.71 QP	46.00	-13.29	1.25 V	127	11.21	21.50
7	749.29	30.12 QP	46.00	-15.88	1.50 V	34	6.42	23.71

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	26deg. C, 66%RH 999hPa	TEST MODE	B
TESTED BY	Antony Lee		

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	97.95	39.34 QP	43.50	-4.16	1.50 H	319	30.05	9.29
2	298.21	36.62 QP	46.00	-9.38	1.00 H	163	23.06	13.57
3	337.10	31.26 QP	46.00	-14.74	1.00 H	136	16.78	14.49
4	467.36	30.49 QP	46.00	-15.51	1.00 H	265	12.42	18.07
5	597.63	34.54 QP	46.00	-11.46	1.25 H	307	13.08	21.45
6	665.68	37.25 QP	46.00	-8.75	1.25 H	325	15.11	22.14
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	97.95	32.65 QP	43.50	-10.85	1.00 V	301	23.37	9.29
2	173.78	28.00 QP	43.50	-15.50	1.00 V	121	15.31	12.69
3	300.16	33.98 QP	46.00	-12.02	1.50 V	100	20.38	13.60
4	397.37	33.06 QP	46.00	-12.94	1.25 V	235	17.12	15.93
5	432.37	31.88 QP	46.00	-14.12	1.25 V	55	14.90	16.98
6	599.58	34.04 QP	46.00	-11.96	1.25 V	100	12.54	21.50
7	663.74	36.05 QP	46.00	-9.95	1.50 V	340	13.93	22.12
8	749.29	34.14 QP	46.00	-11.86	1.50 V	31	10.43	23.71

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	26deg. C, 66%RH 999hPa	TEST MODE	C
TESTED BY	Antony Lee		

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	298.21	40.96 QP	46.00	-5.04	1.00 H	154	27.39	13.57
2	344.87	33.27 QP	46.00	-12.73	1.00 H	160	18.60	14.67
3	477.09	31.05 QP	46.00	-14.95	1.00 H	262	12.67	18.38
4	558.75	31.98 QP	46.00	-14.02	1.00 H	283	11.46	20.53
5	599.58	36.48 QP	46.00	-9.52	1.25 H	175	14.98	21.50
6	663.74	39.07 QP	46.00	-6.93	1.25 H	322	16.95	22.12
7	830.95	32.01 QP	46.00	-13.99	1.00 H	346	6.80	25.21
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	298.21	34.95 QP	46.00	-11.05	1.25 V	100	21.38	13.57
2	331.26	38.26 QP	46.00	-7.74	1.00 V	343	23.91	14.35
3	558.75	37.07 QP	46.00	-8.93	1.00 V	181	16.54	20.53
4	568.47	35.12 QP	46.00	-10.88	1.00 V	259	14.36	20.76
5	599.58	33.00 QP	46.00	-13.00	1.25 V	214	11.50	21.50
6	667.63	36.00 QP	46.00	-10.00	1.50 V	340	13.84	22.16
7	811.50	35.29 QP	46.00	-10.71	1.00 V	346	10.26	25.03

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.

4.2 CONDUCTED EMISSION MEASUREMENT

4.2.1 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 0.50MHz.

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.

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100291	Nov. 22, 2007	Nov. 21, 2008
RF signal cable Woken	5D-FB	Cable-HYC01-01	Jan. 04, 2008	Jan. 03, 2009
LISN ROHDE & SCHWARZ	ESH3-Z5	100312	Jun. 13, 2008	Jun. 12, 2009
V-LISN SCHWARZBECK	NNBL 8226-2	8226-142	Jun. 10, 2008	Jun. 09, 2009
Software ADT	ADT_Cond_V3	NA	NA	NA

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The test was performed in HwaYa Shielded Room 1.

3. The VCCI Site Registration No. is C-2040.

4.2.3 TEST PROCEDURES

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

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

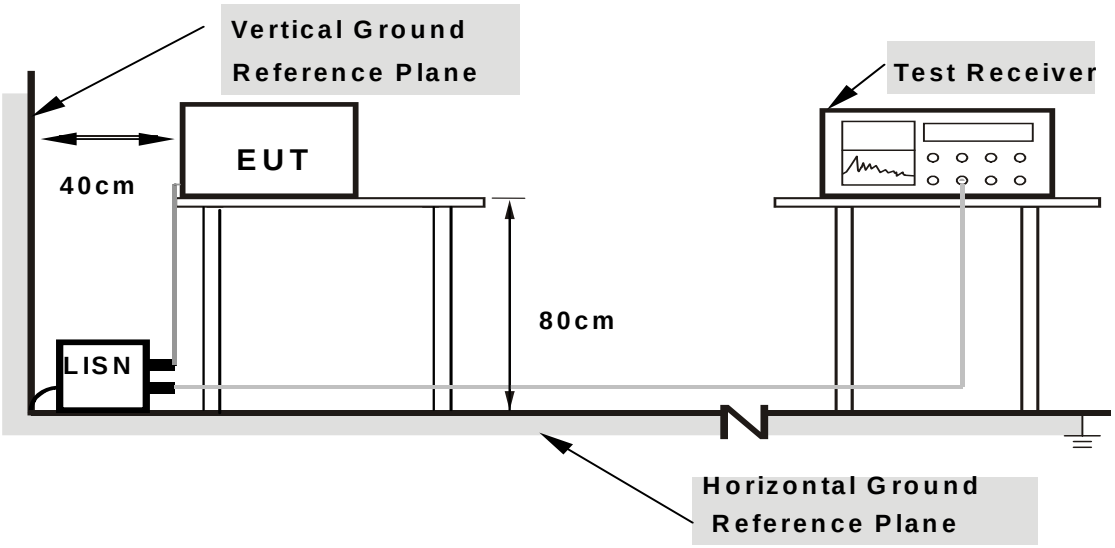
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

NOTE: All modes of operation were investigated and the worst-case emissions are reported.

4.2.4 DEVIATION FROM TEST STANDARD

No deviation

4.2.5 TEST SETUP



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

For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6.

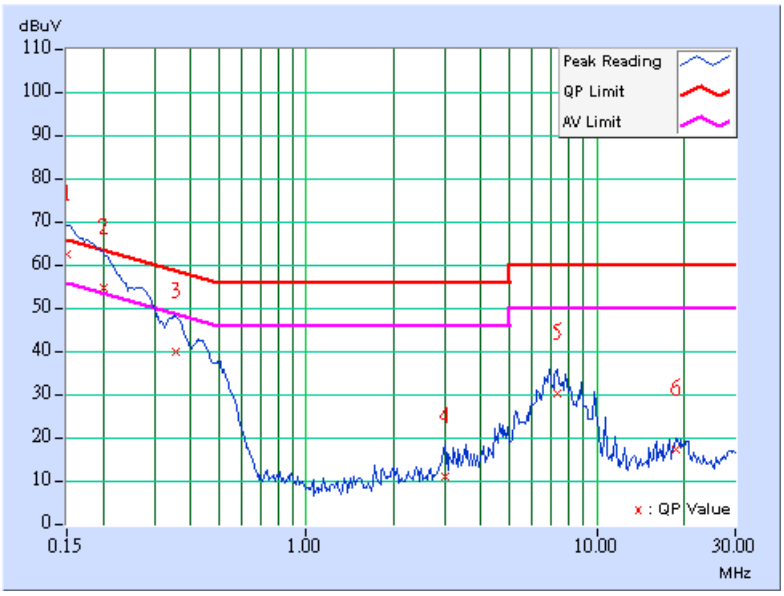
4.2.7 TEST RESULTS

CONDUCTED WORST-CASE DATA：DRAFT 802.11n (20MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	PHASE	Line 1
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60Hz
TRANSFER RATE	7.2Mbps	6dB BANDWIDTH	9kHz
ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 988hPa	TEST MODE	A
TESTED BY	Match Tsui		

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.20	61.67	31.33	61.87	31.53	66.00	56.00	-4.13	-24.47
2	0.201	0.20	53.90	24.45	54.10	24.65	63.58	53.58	-9.48	-28.93
3	0.357	0.20	38.90	-	39.10	-	58.80	48.80	-19.70	-
4	3.020	0.30	10.08	-	10.38	-	56.00	46.00	-45.62	-
5	7.320	0.47	29.43	-	29.90	-	60.00	50.00	-30.10	-
6	18.688	0.95	16.32	-	17.27	-	60.00	50.00	-42.73	-

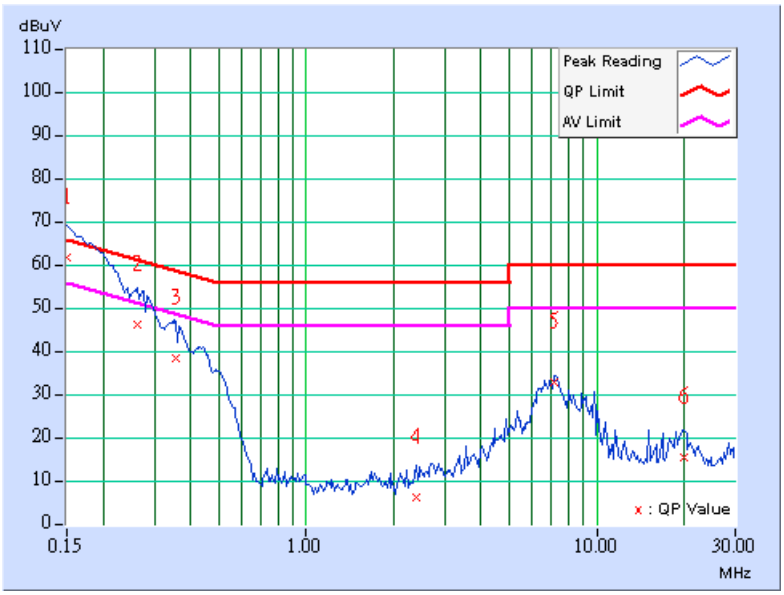
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	PHASE	Line 2
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60Hz
TRANSFER RATE	7.2Mbps	6dB BANDWIDTH	9kHz
ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 988hPa	TEST MODE	A
TESTED BY	Match Tsui		

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.20	61.39	31.35	61.59	31.55	66.00	56.00	-4.41	-24.45
2	0.263	0.20	45.66	-	45.86	-	61.33	51.33	-15.47	-
3	0.357	0.20	38.10	-	38.30	-	58.80	48.80	-20.50	-
4	2.379	0.24	5.67	-	5.91	-	56.00	46.00	-50.09	-
5	7.180	0.47	32.45	-	32.92	-	60.00	50.00	-27.08	-
6	19.922	0.51	14.93	-	15.44	-	60.00	50.00	-44.56	-

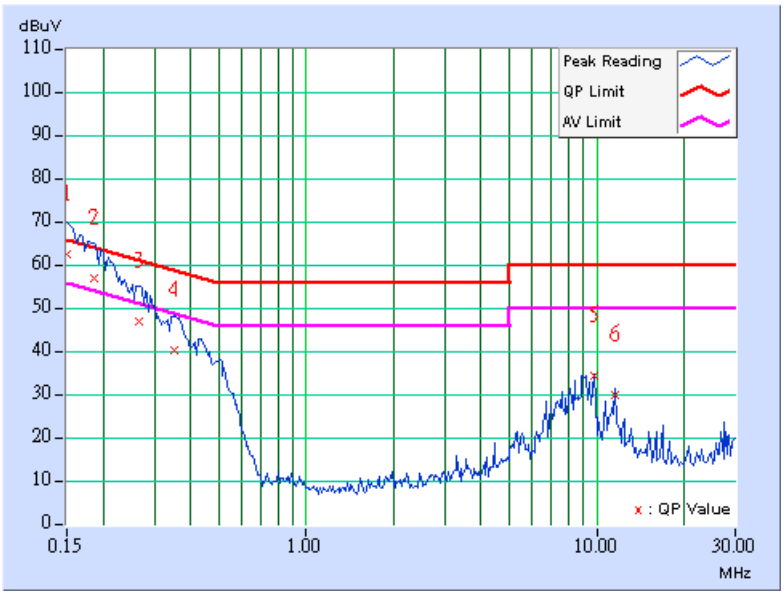
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	PHASE	Line 1
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60Hz
TRANSFER RATE	7.2Mbps	6dB BANDWIDTH	9kHz
ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 988hPa	TEST MODE	B
TESTED BY	Match Tsui		

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	**0.150**	**0.20**	**61.83**	**31.70**	**62.03**	**31.90**	**66.00**	**56.00**	**-3.97**	**-24.10**
2	0.185	0.20	56.51	26.41	56.71	26.61	64.25	54.25	-7.54	-27.64
3	0.267	0.20	46.40	-	46.60	-	61.20	51.20	-14.60	-
4	0.349	0.20	39.86	-	40.06	-	58.98	48.98	-18.92	-
5	9.789	0.53	33.88	-	34.41	-	60.00	50.00	-25.59	-
6	11.570	0.61	29.42	-	30.03	-	60.00	50.00	-29.97	-

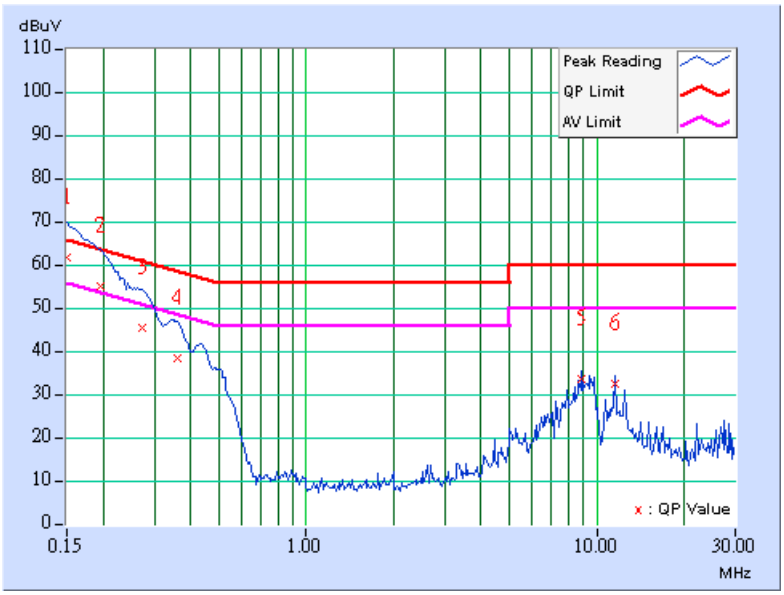
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	PHASE	Line 2
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60Hz
TRANSFER RATE	7.2Mbps	6dB BANDWIDTH	9kHz
ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 988hPa	TEST MODE	B
TESTED BY	Match Tsui		

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.20	61.51	31.33	61.71	31.53	66.00	56.00	-4.29	-24.47
2	0.197	0.20	54.68	24.59	54.88	24.79	63.74	53.74	-8.86	-28.95
3	0.271	0.20	44.97	-	45.17	-	61.08	51.08	-15.91	-
4	0.361	0.20	37.97	-	38.17	-	58.71	48.71	-20.54	-
5	8.898	0.51	33.17	-	33.68	-	60.00	50.00	-26.32	-
6	11.570	0.52	32.20	-	32.72	-	60.00	50.00	-27.28	-

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.



4.3 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.	DATE OF CALIBRATION	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100041	Apr. 22, 2008	Apr. 21, 2009

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

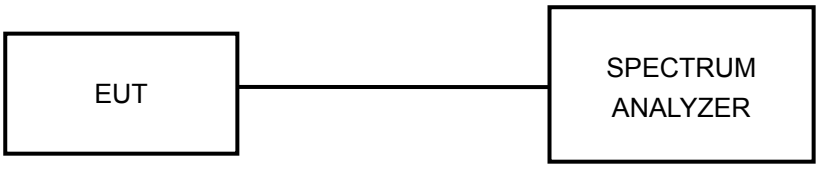
4.3.3 TEST PROCEDURE

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 300kHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation

4.3.5 TEST SETUP



4.3.6 EUT OPERATING CONDITIONS

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

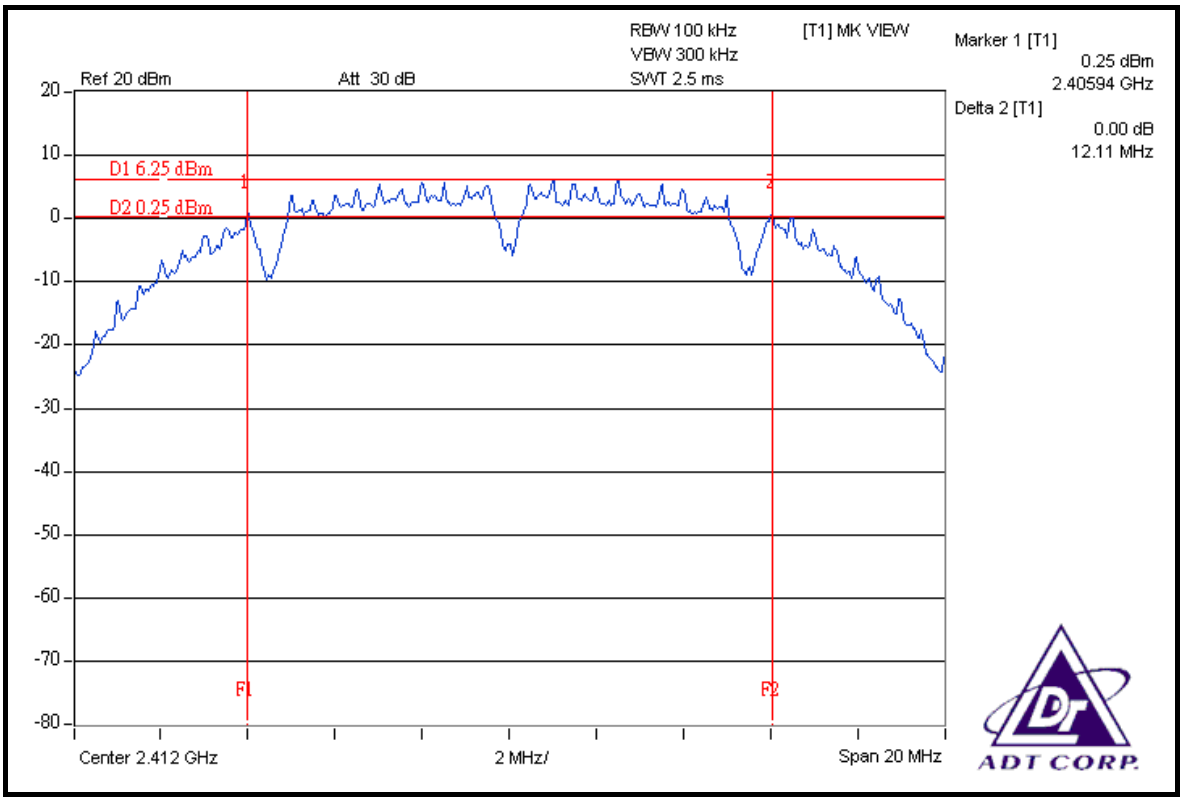
4.3.7 TEST RESULTS

802.11b DSSS MODULATION

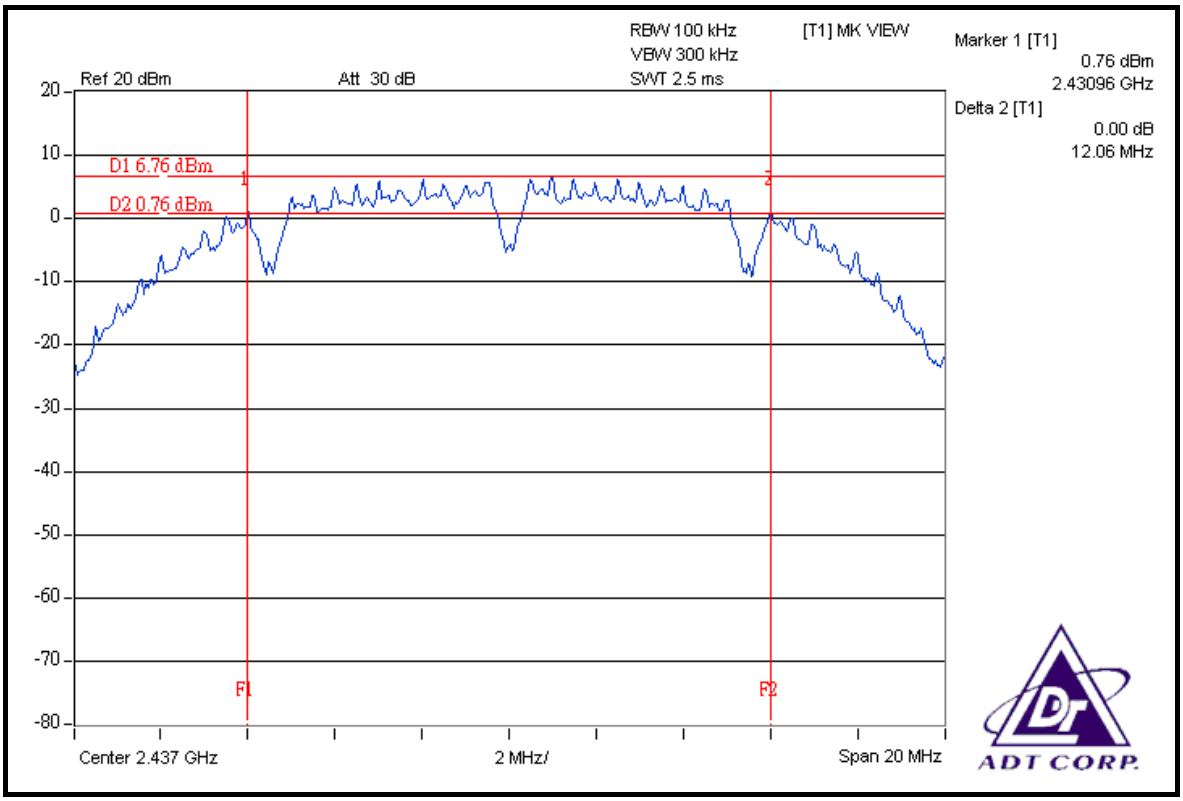
MODULATION TYPE	DBPSK	**TRANSFER RATE**	1.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	25deg.C, 65%RH, 991hPa
TESTED BY	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	12.11	0.5	PASS
6	2437	12.06	0.5	PASS
11	2462	11.12	0.5	PASS

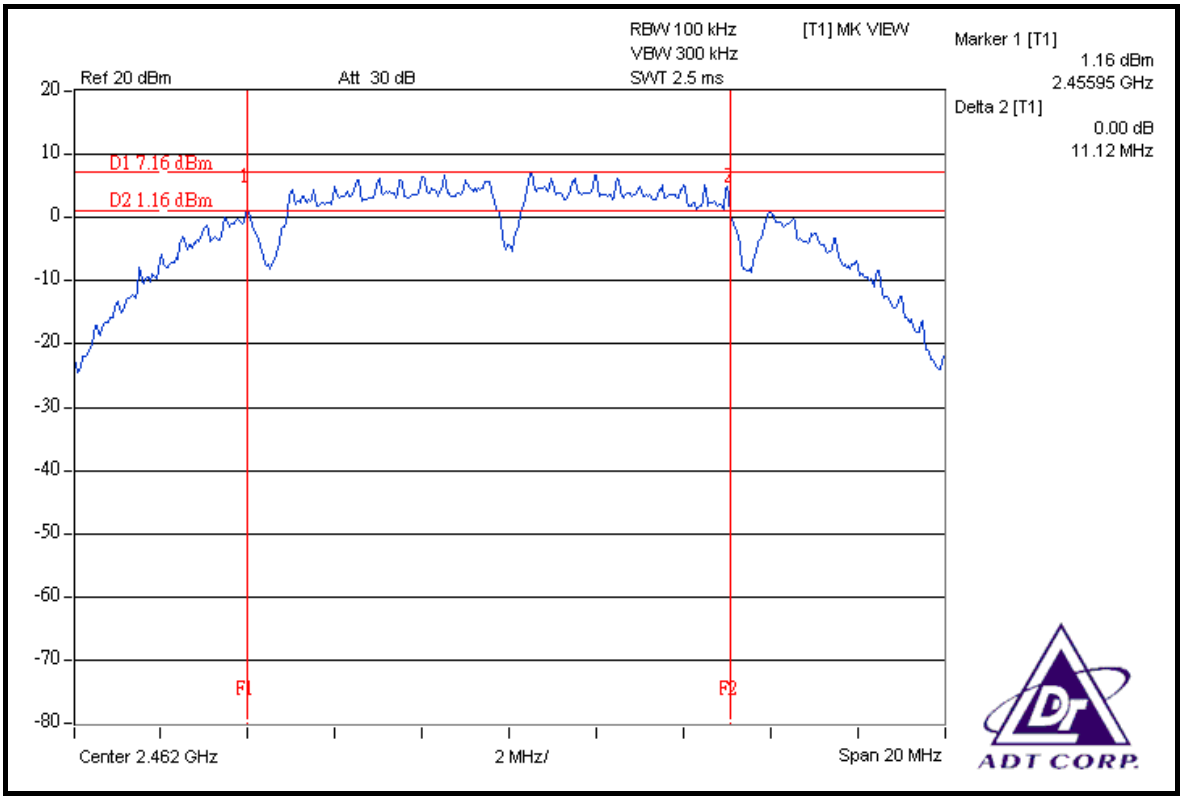
CH 1



CH 6


RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
[T1] MK VIEW
Marker 1 [T1]
0.76 dBm
2.43096 GHz
Delta 2 [T1]
0.00 dB
12.06 MHz
Ref 20 dBm
Att 30 dB
D1 6.76 dBm
D2 0.76 dBm
F1
F2
Center 2.437 GHz
2 MHz/
Span 20 MHz
ADT CORP.

CH 11

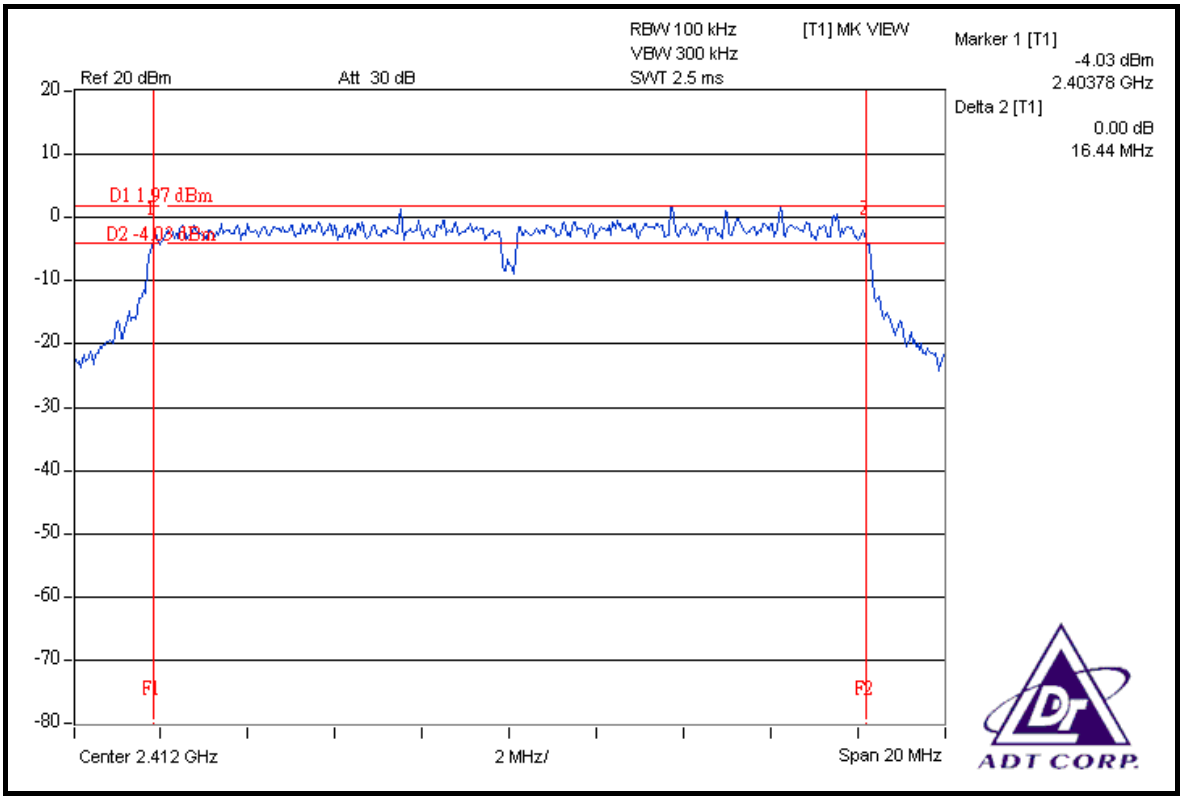

RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
[T1] MK VIEW
Marker 1 [T1]
1.16 dBm
2.45595 GHz
Delta 2 [T1]
0.00 dB
11.12 MHz
Ref 20 dBm
Att 30 dB
D1 7.16 dBm
D2 1.16 dBm
F1
F2
Center 2.462 GHz
2 MHz/
Span 20 MHz
ADT CORP.

802.11g OFDM MODULATION

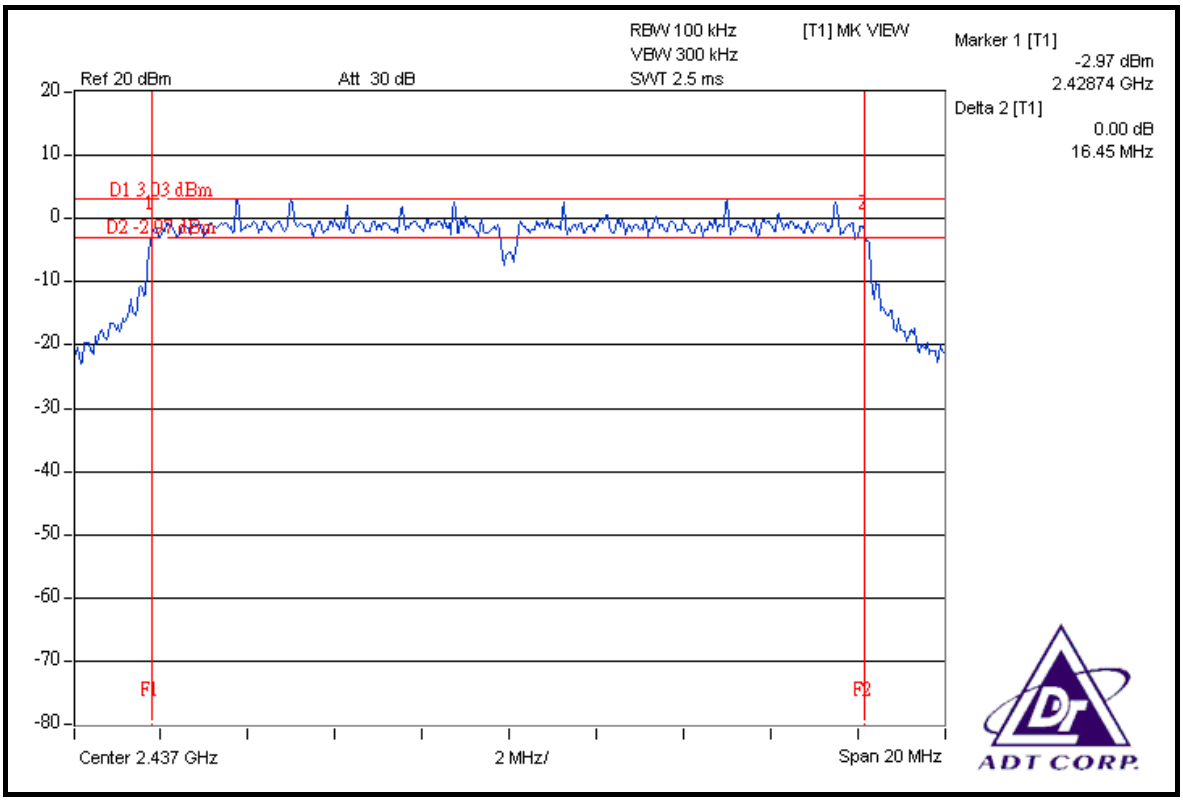
MODULATION TYPE	BPSK	TRANSFER RATE	6.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 65%RH, 991hPa
TESTED BY	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.44	0.5	PASS
6	2437	16.45	0.5	PASS
11	2462	16.45	0.5	PASS

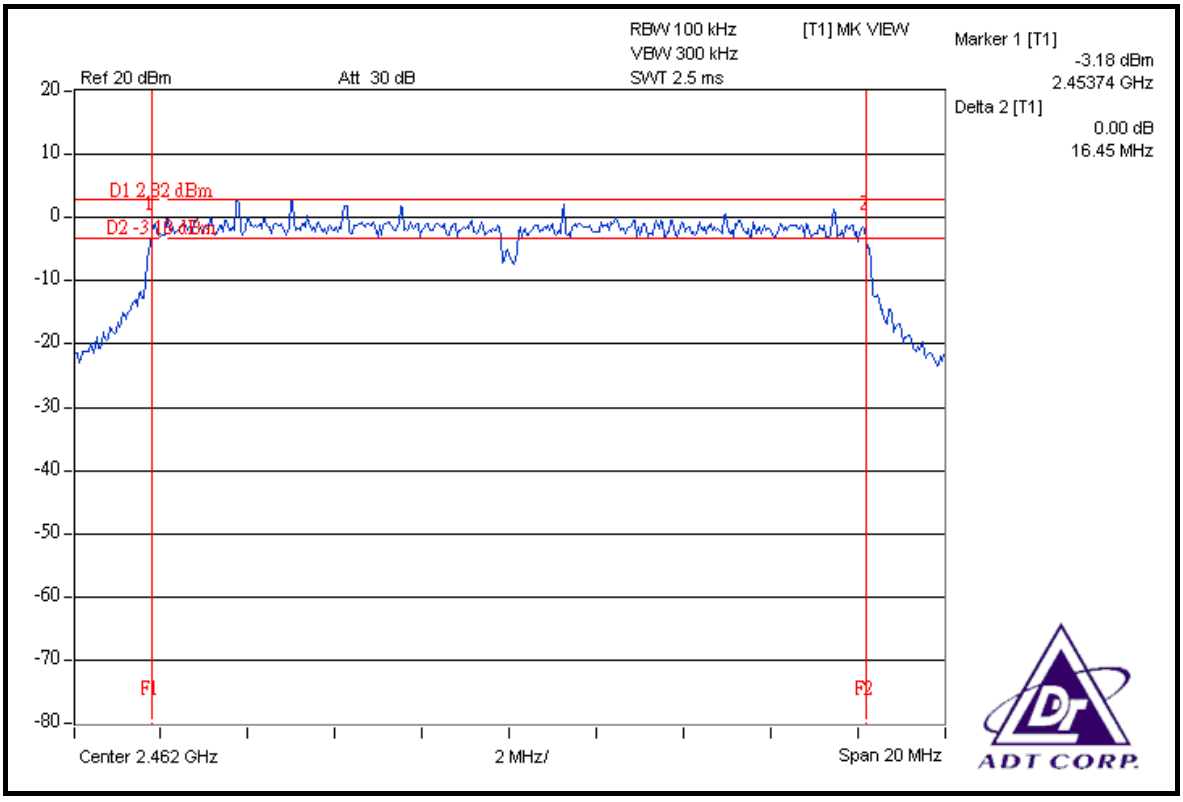
CH 1



CH 6


RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
[T1] MK VIEW
Marker 1 [T1]
-2.97 dBm
2.42874 GHz
Delta 2 [T1]
0.00 dB
16.45 MHz
Ref 20 dBm
Att 30 dB
D1 3.03 dBm
D2 -2.97 dBm
F1
F2
Center 2.437 GHz
2 MHz/
Span 20 MHz
ADT CORP.

CH 11

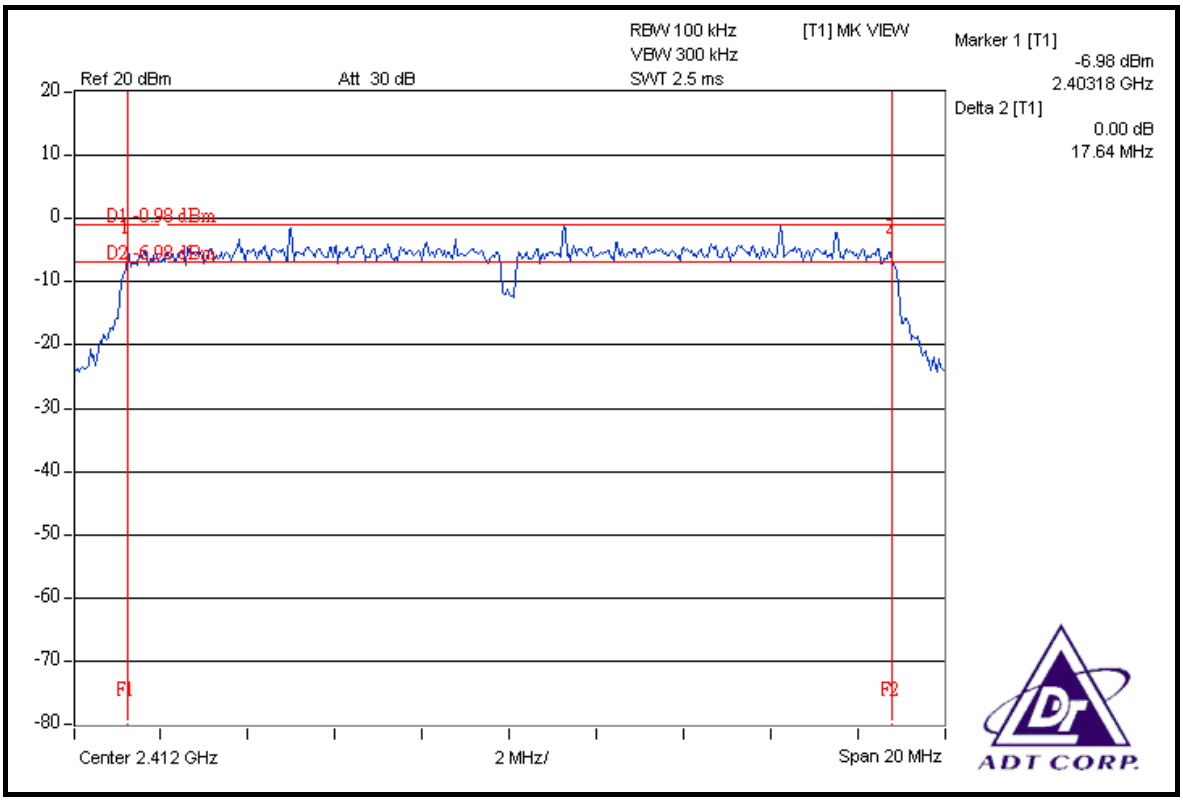

RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
[T1] MK VIEW
Marker 1 [T1]
-3.18 dBm
2.45374 GHz
Delta 2 [T1]
0.00 dB
16.45 MHz
Ref 20 dBm
Att 30 dB
D1 2.82 dBm
F1
F2
Center 2.462 GHz
2 MHz/
Span 20 MHz
ADT CORP.

DRAFT 802.11n (20MHz) OFDM MODULATION

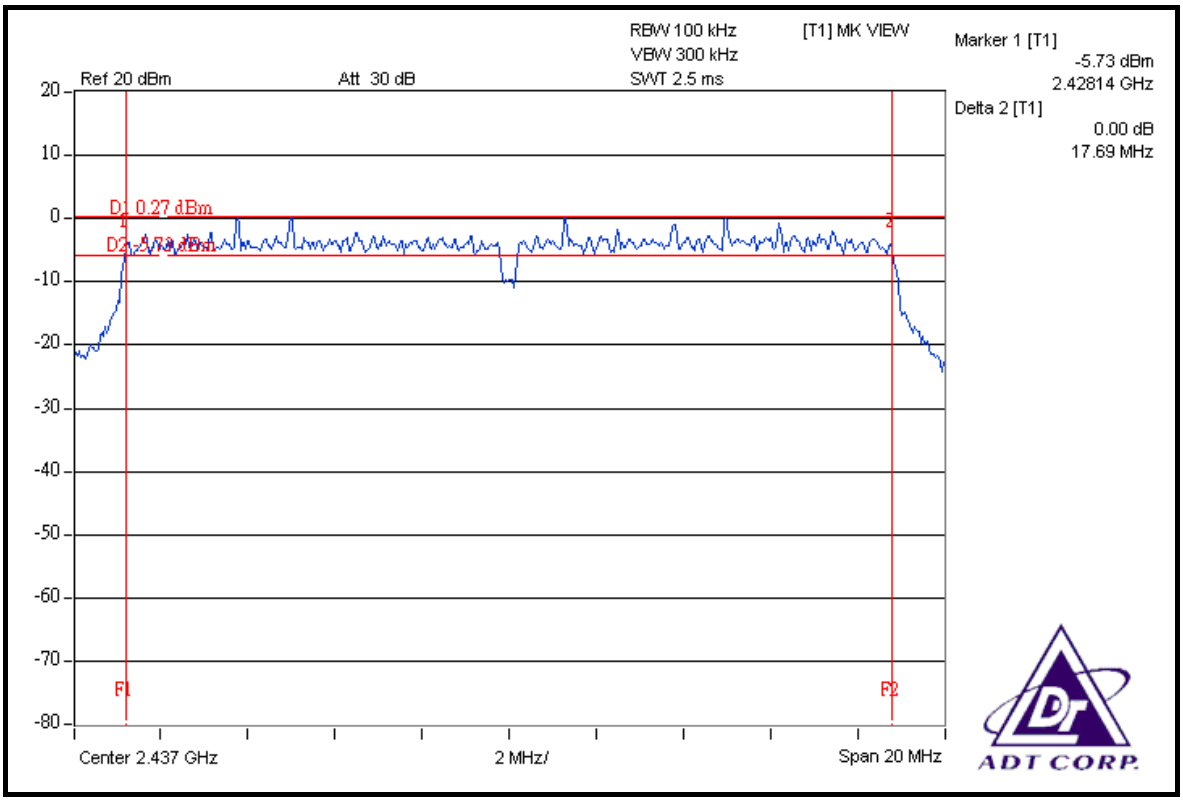
MODULATION TYPE	BPSK	**TRANSFER RATE**	7.2Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	25deg.C, 65%RH, 991hPa
TESTED BY	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	17.64	17.66	0.5	PASS
6	2437	17.69	17.71	0.5	PASS
11	2462	17.65	17.68	0.5	PASS

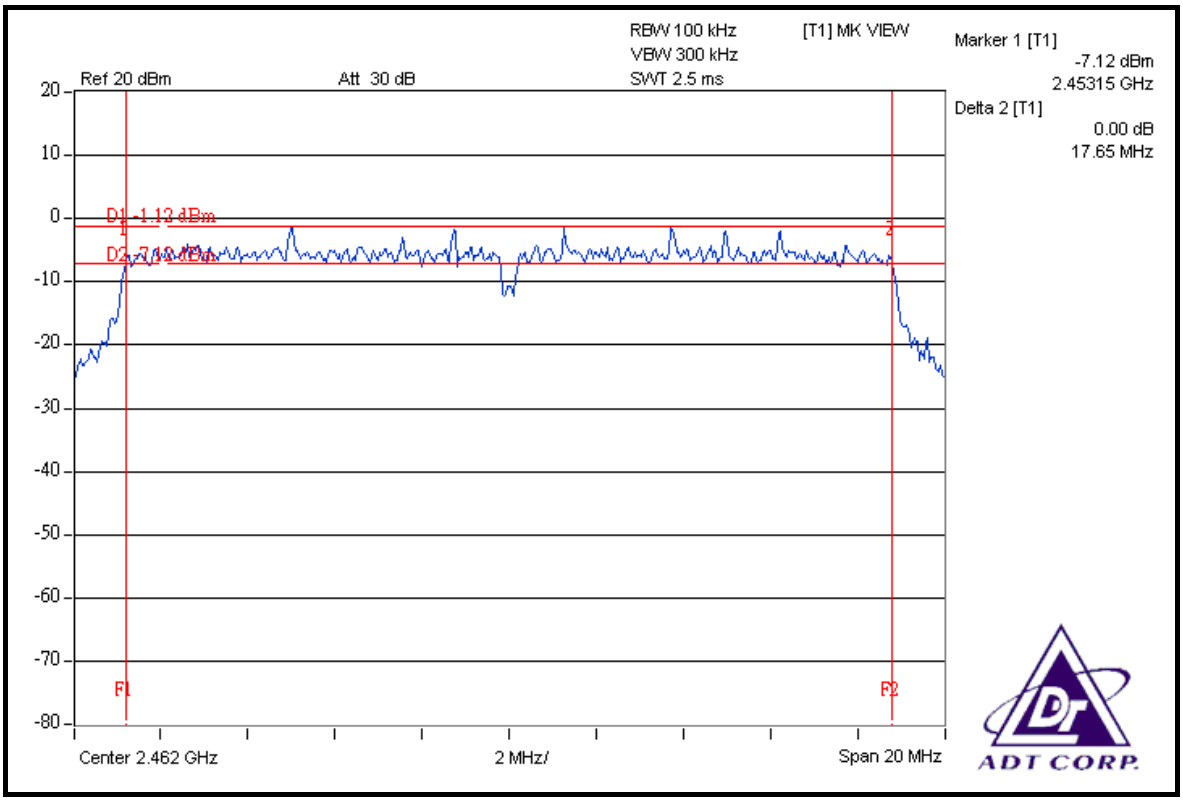
FOR CHAIN 0: CH 1



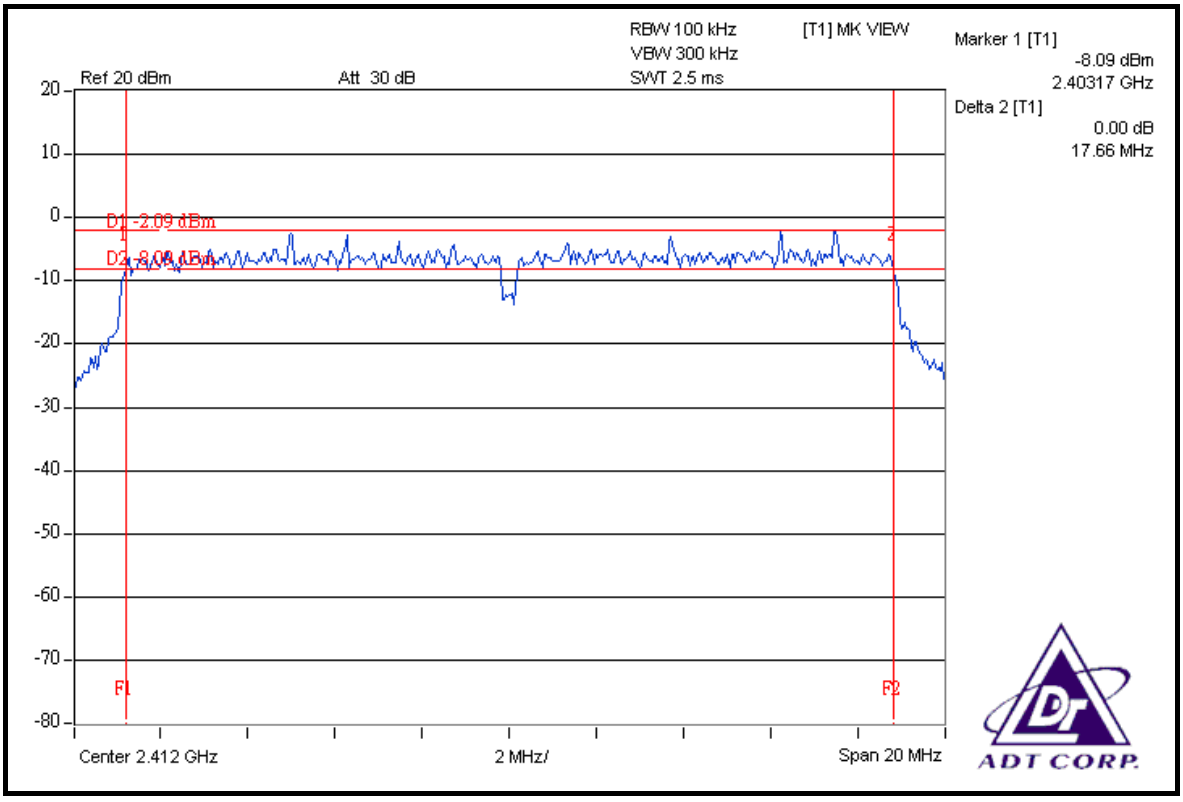
CH 6



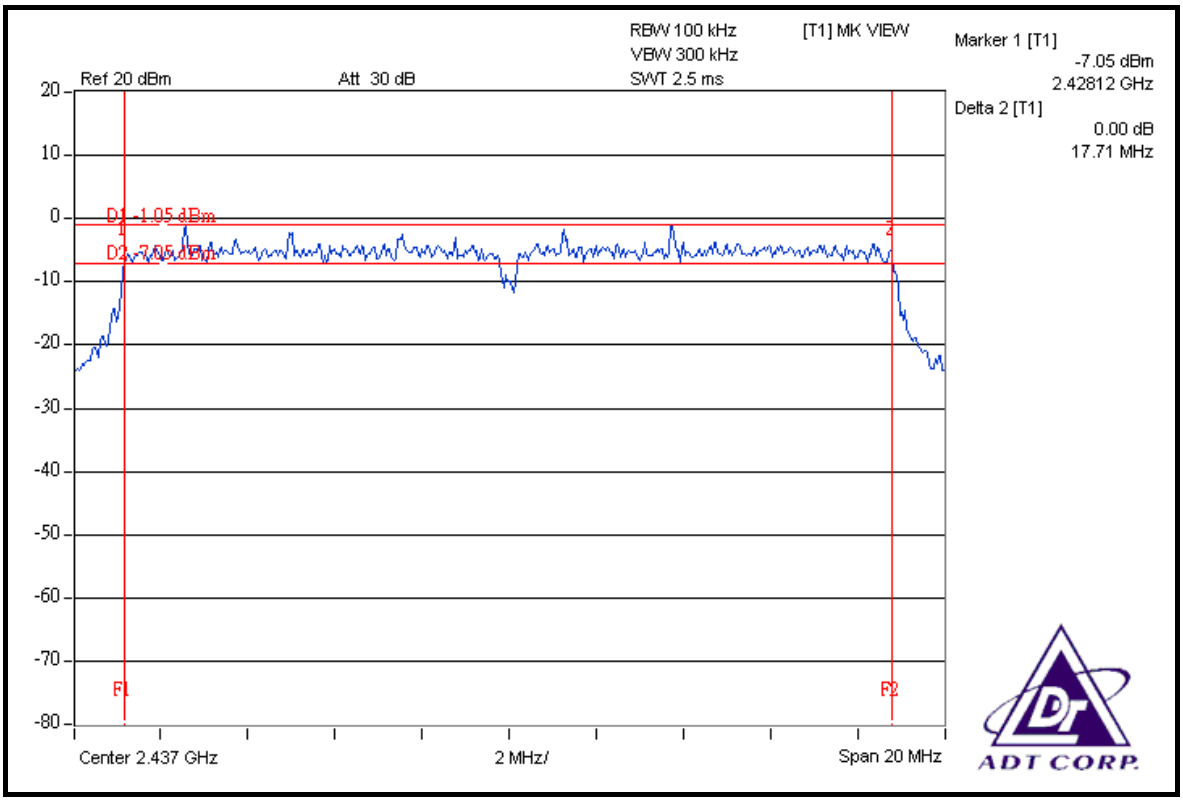
CH 11



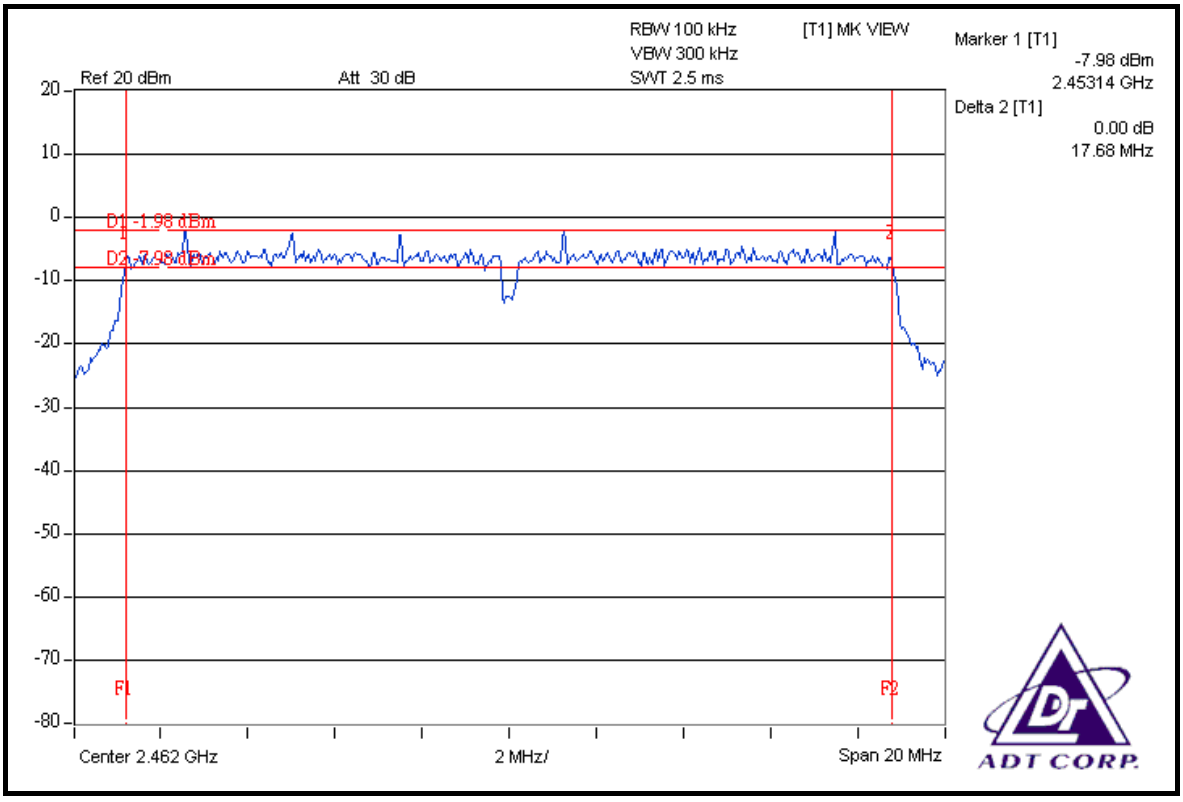
FOR CHAIN 1: CH 1



CH 6


RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
[T1] MK VIEW
Marker 1 [T1]
-7.05 dBm
2.42812 GHz
Delta 2 [T1]
0.00 dB
17.71 MHz
Ref 20 dBm
Att 30 dB
D1 -1.05 dBm
D2 -7.05 dBm
F1
F2
Center 2.437 GHz
2 MHz/
Span 20 MHz
ADT CORP.

CH 11

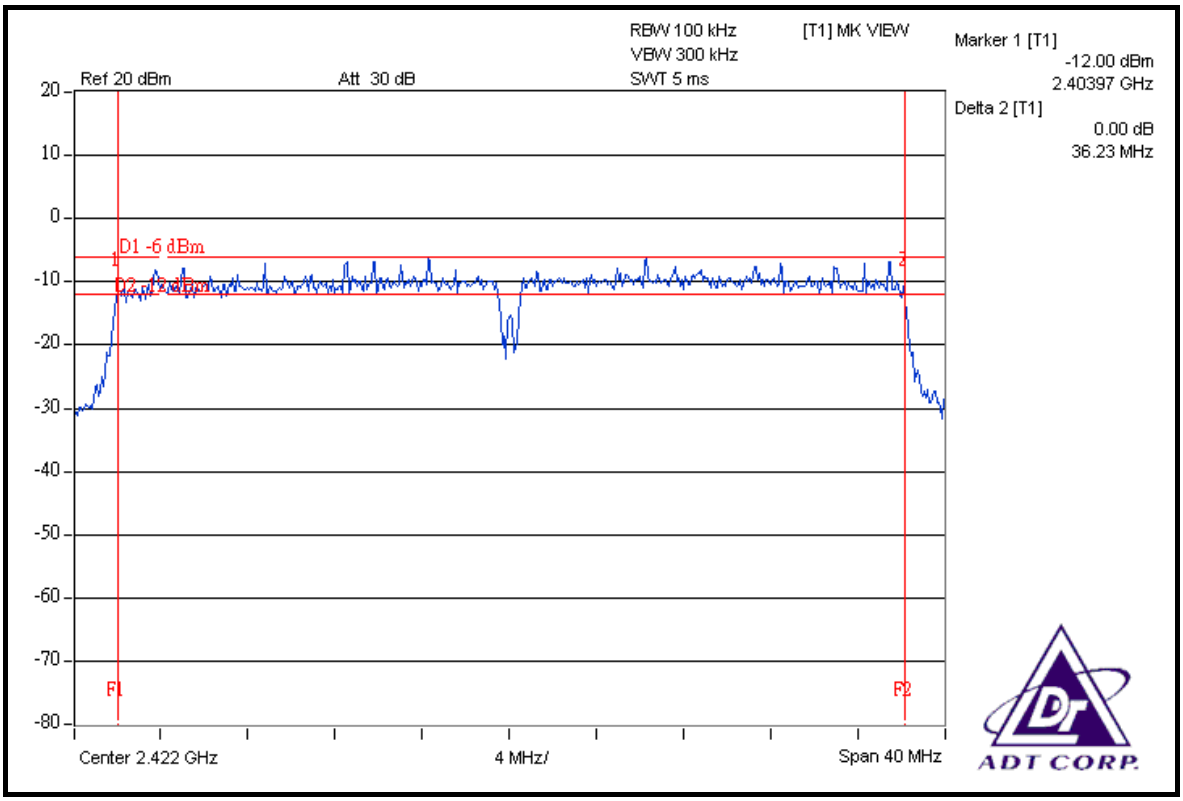

RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
[T1] MK VIEW
Marker 1 [T1]
-7.98 dBm
2.45314 GHz
Delta 2 [T1]
0.00 dB
17.68 MHz
Ref 20 dBm
Att 30 dB
D1 -1.98 dBm
D2 -7.98 dBm
F1
F2
Center 2.462 GHz
2 MHz/
Span 20 MHz
ADT CORP.

DRAFT 802.11n (40MHz) OFDM MODULATION

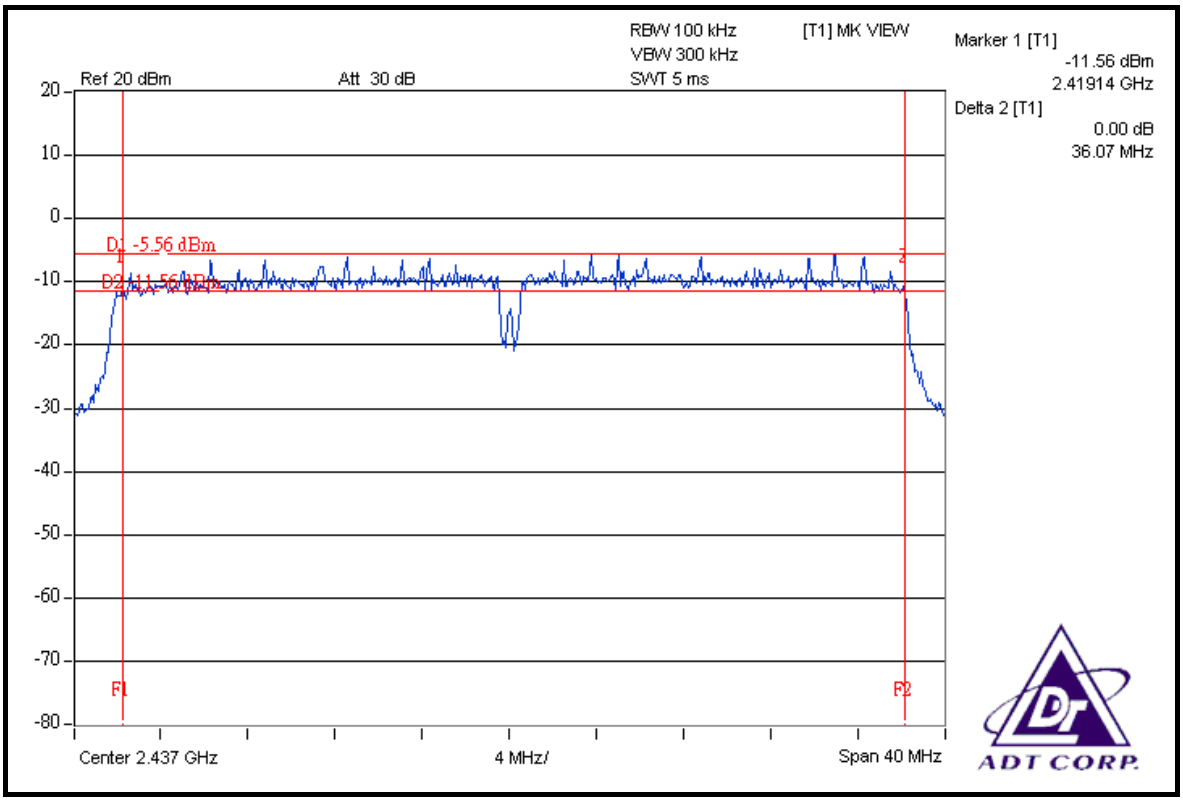
MODULATION TYPE	BPSK	**TRANSFER RATE**	15Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	25deg.C, 65%RH, 991hPa
TESTED BY	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2422	36.23	35.98	0.5	PASS
4	2437	36.07	36.41	0.5	PASS
7	2452	36.41	36.47	0.5	PASS

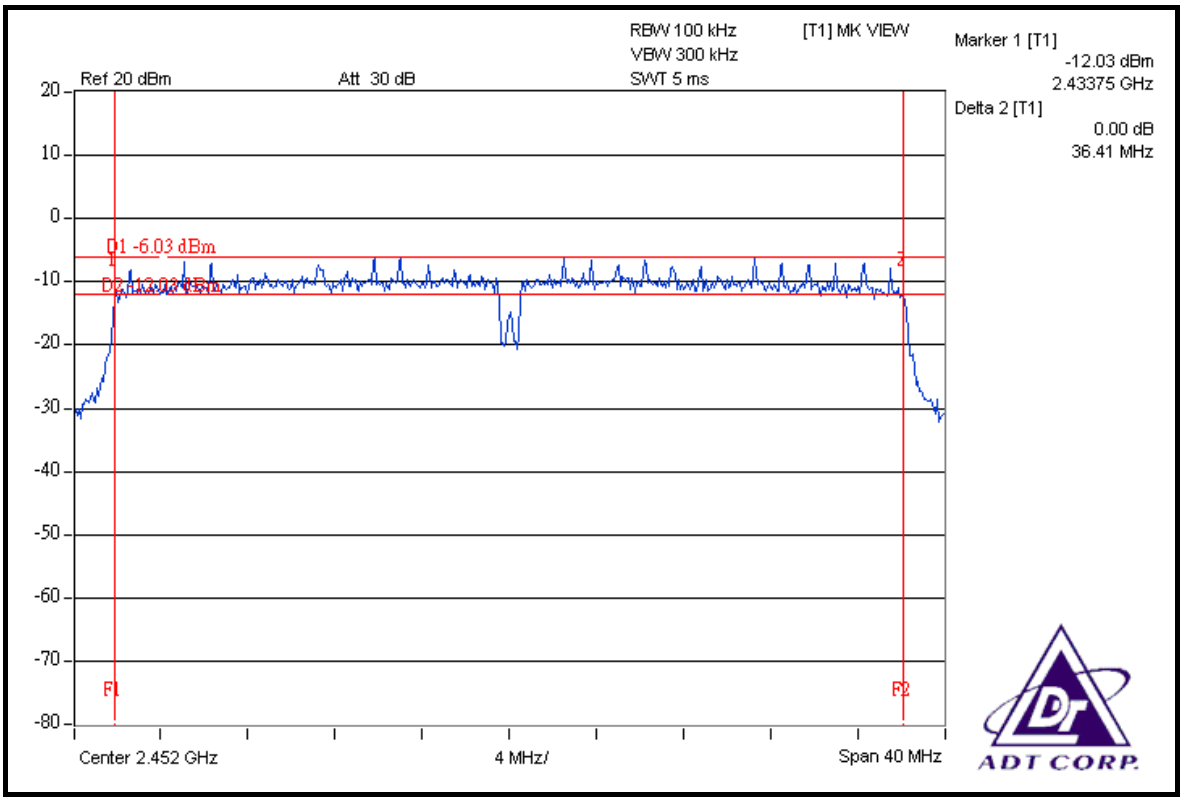
FOR CHAIN 0: CH 1



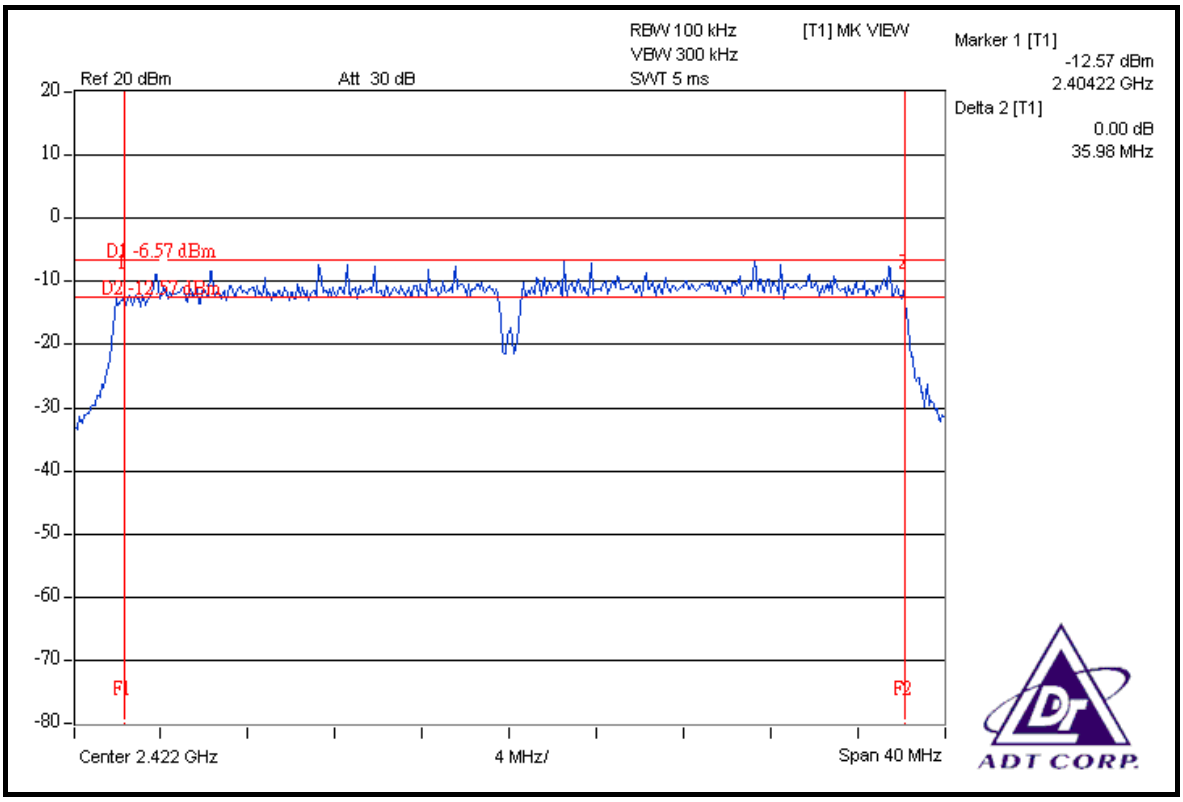
CH 4



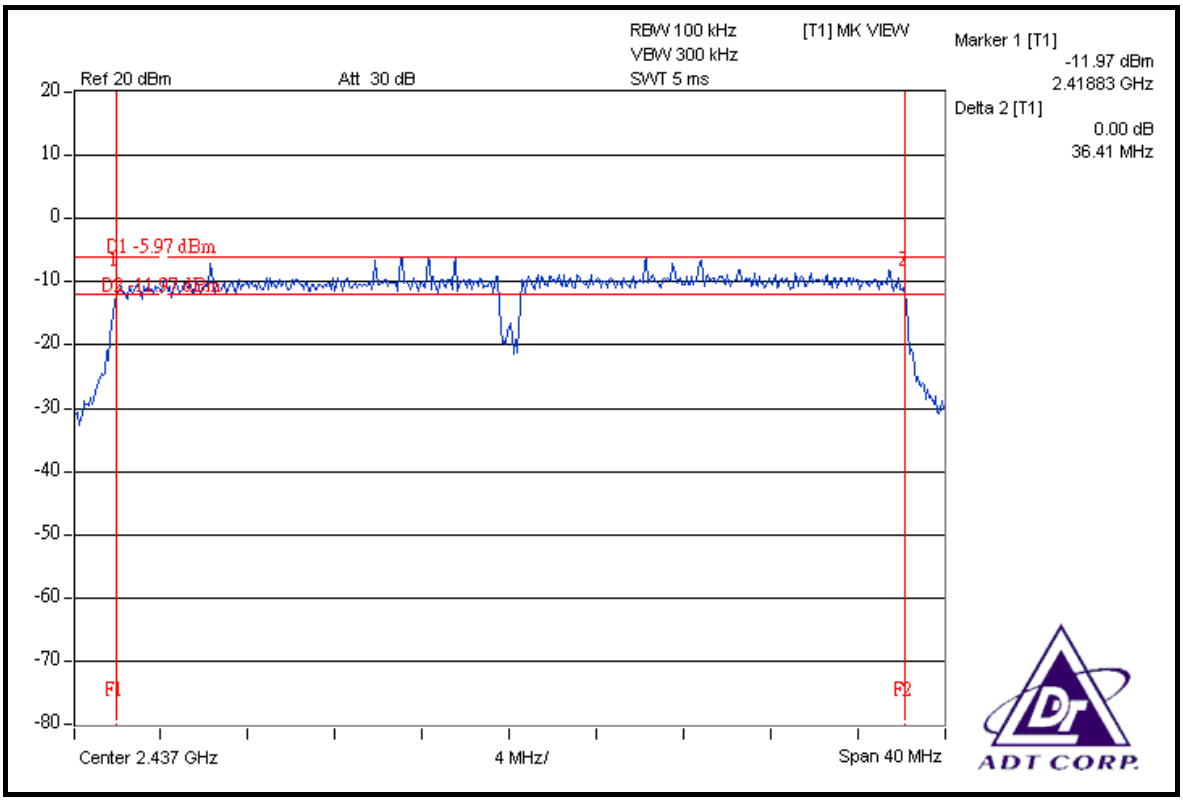
CH 7



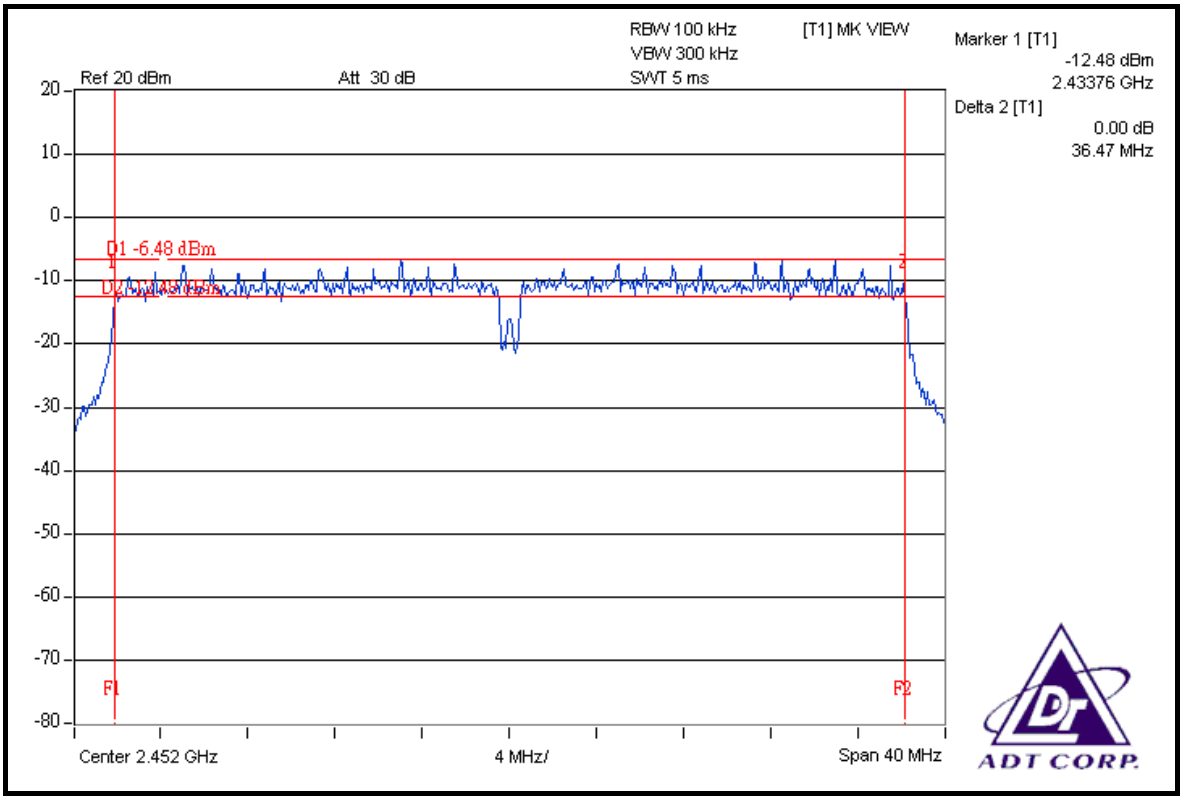
FOR CHAIN 1: CH 1



CH 4


RBW 100 kHz
VBW 300 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
-11.97 dBm
2.41883 GHz
Delta 2 [T1]
0.00 dB
36.41 MHz
Ref 20 dBm
Att 30 dB
D1 -5.97 dBm
F1
F2
Center 2.437 GHz
4 MHz/
Span 40 MHz
ADT CORP.

CH 7


RBW 100 kHz
VBW 300 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
-12.48 dBm
2.43376 GHz
Delta 2 [T1]
0.00 dB
36.47 MHz
Ref 20 dBm
Att 30 dB
D1 -6.48 dBm
F1
F2
Center 2.452 GHz
4 MHz/
Span 40 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.	DATE OF CALIBRATION	CALIBRATED UNTIL
High Speed Peak Power Meter	ML2495A	0824012	Aug. 04, 2008	Aug. 03, 2009
Power Sensor	MA2444B	0738138	Aug. 04, 2008	Aug. 03, 2009

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. Measurement Bandwidth of ML2495A is 65MHz greater than 6dB bandwidth of emission.

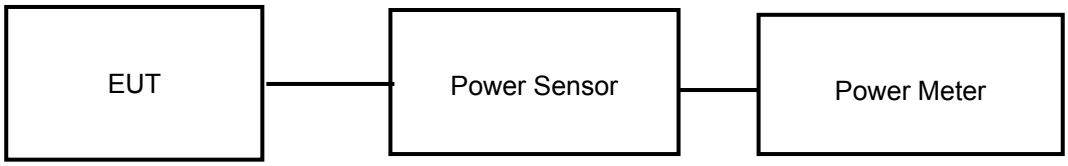
4.4.3 TEST PROCEDURES

A power sensor was used on the output port of the EUT. A power meter was used to read the response of the power sensor. Record the power level.

4.4.4 DEVIATION FROM TEST STANDARD

No deviation

4.4.5 TEST SETUP



4.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6

4.4.7 TEST RESULTS

802.11b DSSS MODULATION

MODULATION TYPE	DBPSK	TRANSFER RATE	1.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 65%RH, 991hPa
TESTED BY	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2412	100.925	20.04	30	PASS
6	2437	112.720	20.52	30	PASS
11	2462	127.644	21.06	30	PASS

802.11g OFDM MODULATION

MODULATION TYPE	BPSK	TRANSFER RATE	6.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25 deg.C, 65 %RH, 991hPa
TESTED BY	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2412	254.683	24.06	30	PASS
6	2437	317.687	25.02	30	PASS
11	2462	318.420	25.03	30	PASS

DRAFT 802.11n (20MHz) OFDM MODULATION

MODULATION TYPE	BPSK	**TRANSFER RATE**	7.2Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	25 deg.C, 65 %RH, 991hPa
TESTED BY	Brad Wu		

CHAN.	CHAN. FREQ. (MHz)	PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2412	22.07	21.04	288.122	24.60	30	PASS
6	2437	23.04	22.07	362.437	25.59	30	PASS
11	2462	22.10	21.01	288.364	24.60	30	PASS

DRAFT 802.11n (40MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	**TRANSFER RATE**	15Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	25deg.C, 65%RH, 991hPa
TESTED BY	Brad Wu		

CHAN.	CHAN. FREQ. (MHz)	PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2422	21.04	20.56	240.820	23.82	30	PASS
4	2437	21.06	21.04	254.701	24.06	30	PASS
7	2452	21.07	20.53	240.918	23.82	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.	DATE OF CALIBRATION	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100041	Apr. 22, 2008	Apr. 21, 2009

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

4.5.3 TEST PROCEDURE

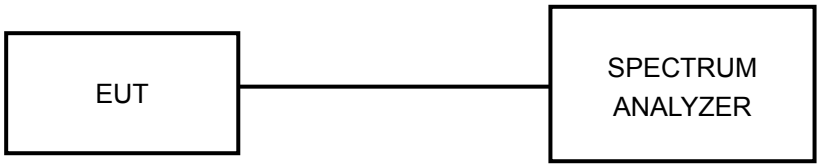
The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3kHz RBW and 30kHz VBW, set sweep time = span/3kHz. The power spectral density was measured and recorded.

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

4.5.4 DEVIATION FROM TEST STANDARD

No deviation

4.5.5 TEST SETUP



4.5.6 EUT OPERATING CONDITION

Same as Item 4.3.6

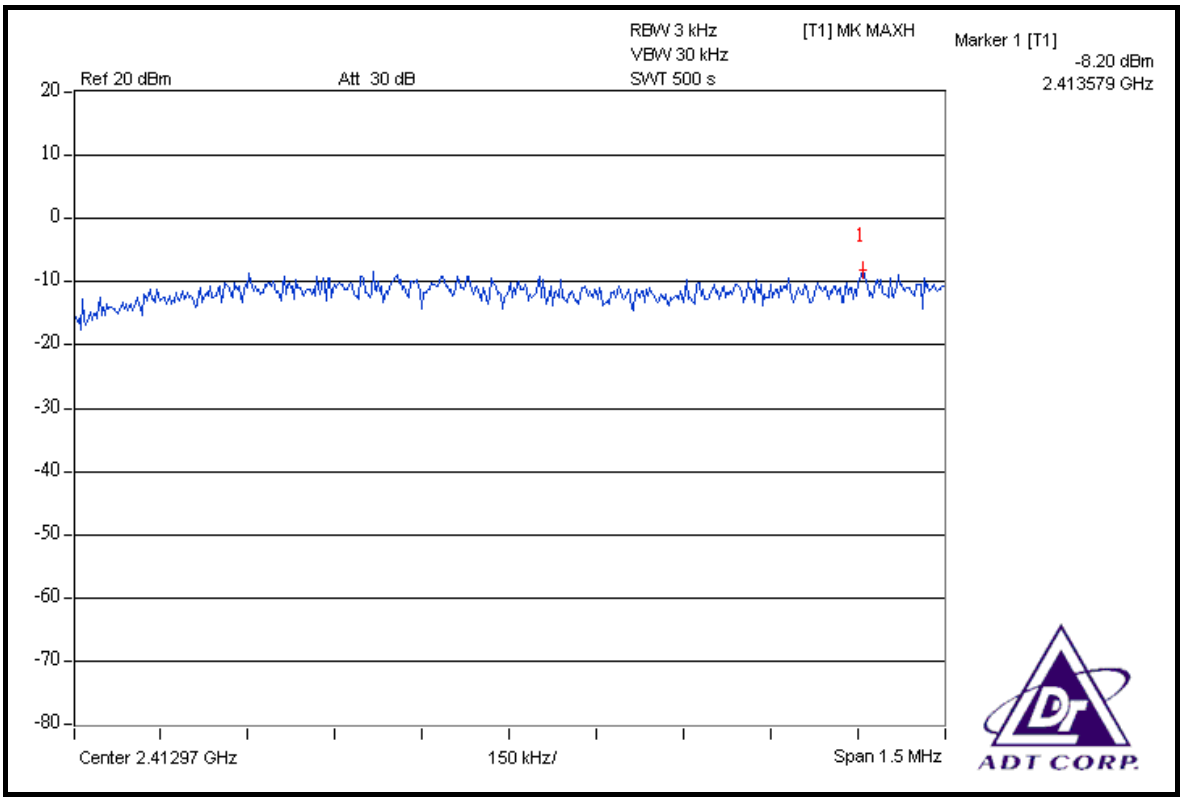
4.5.7 TEST RESULTS

802.11b DSSS MODULATION

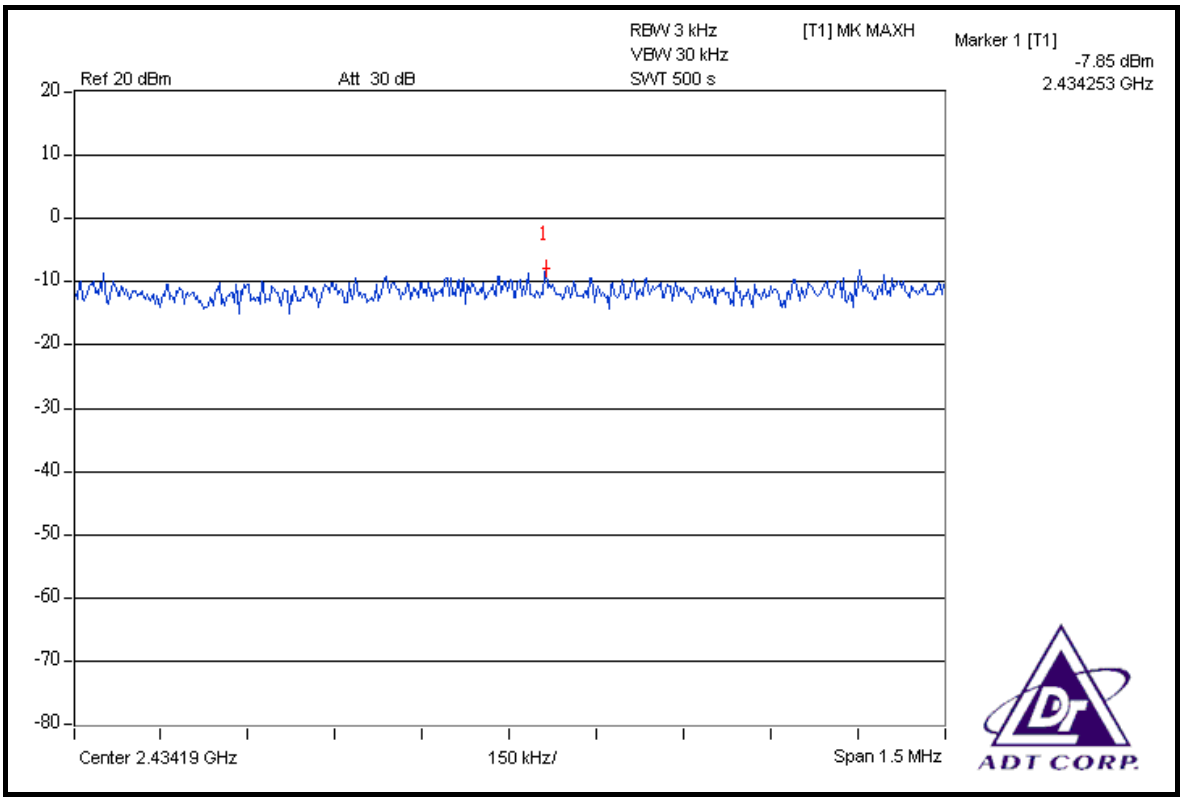
MODULATION TYPE	DBPSK	TRANSFER RATE	1.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 65%RH, 991hPa
TESTED BY	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	2412	-8.20	8	PASS
6	2437	-7.85	8	PASS
11	2462	-7.28	8	PASS

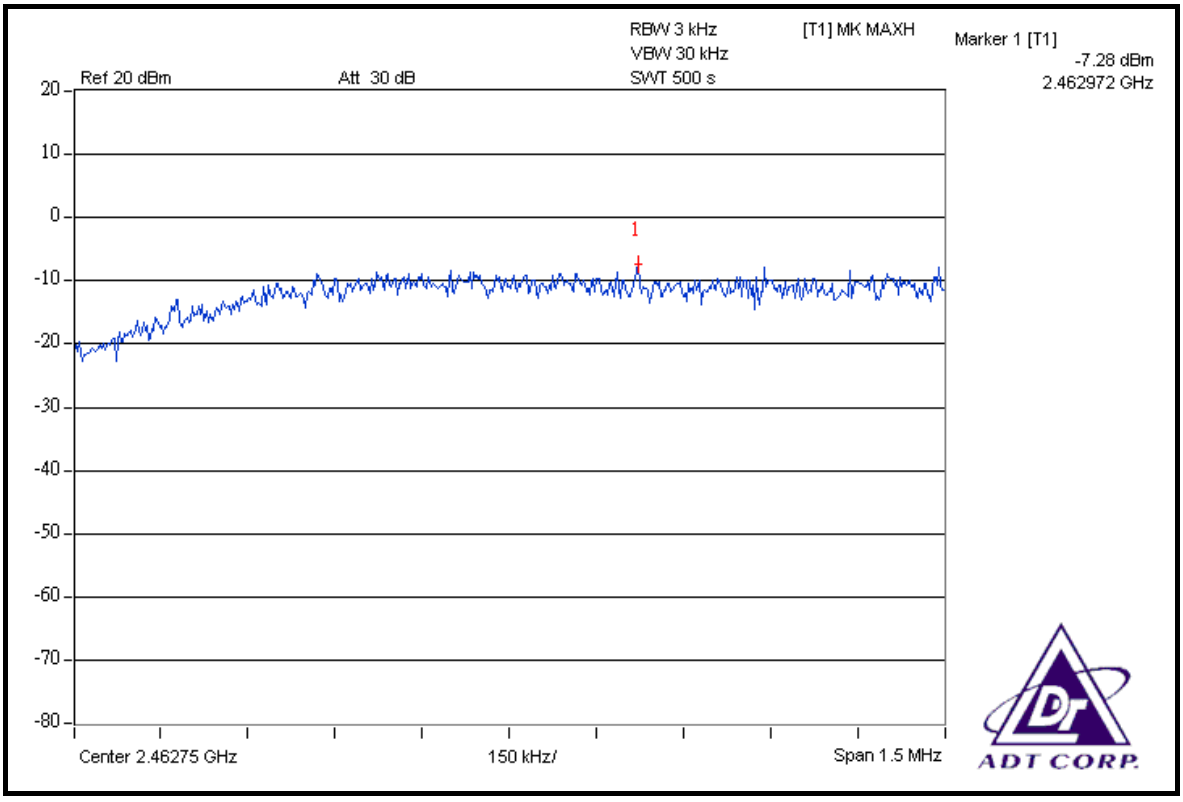
CH 1



CH 6


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-7.85 dBm
2.434253 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.43419 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

CH 11

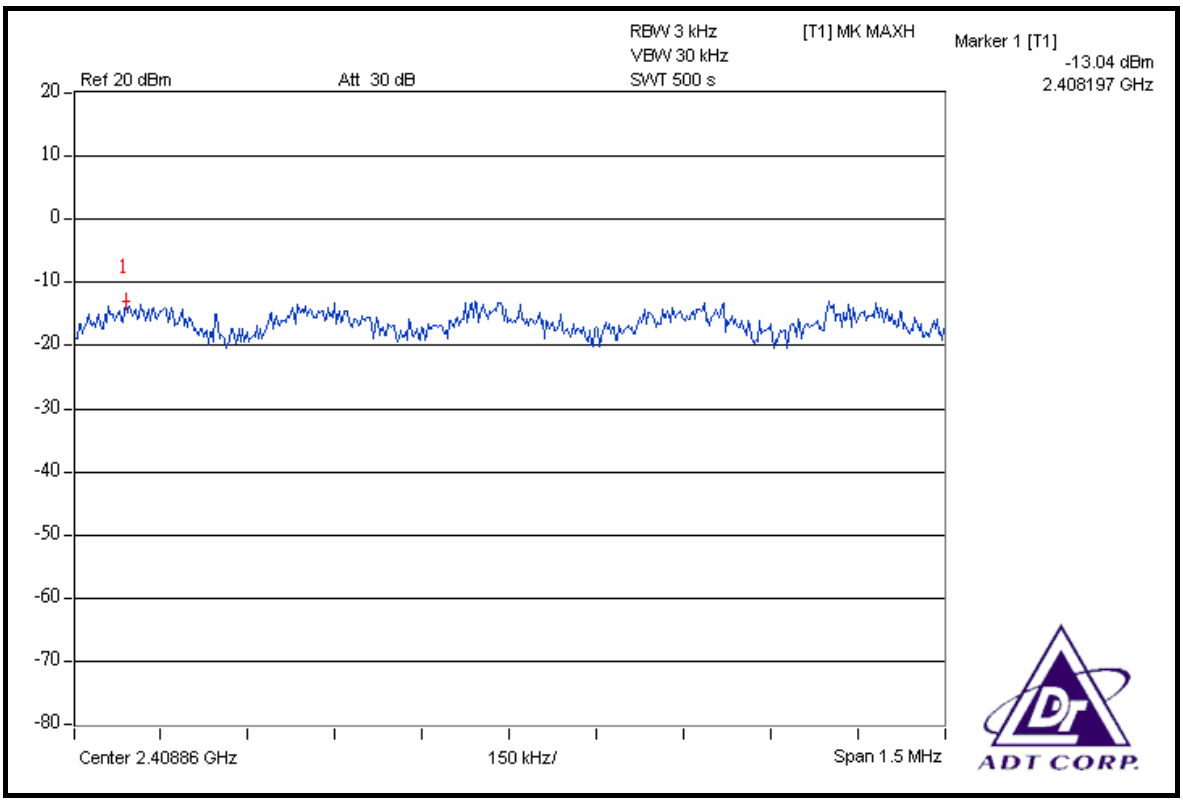

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-7.28 dBm
2.462972 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.46275 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

802.11g OFDM MODULATION

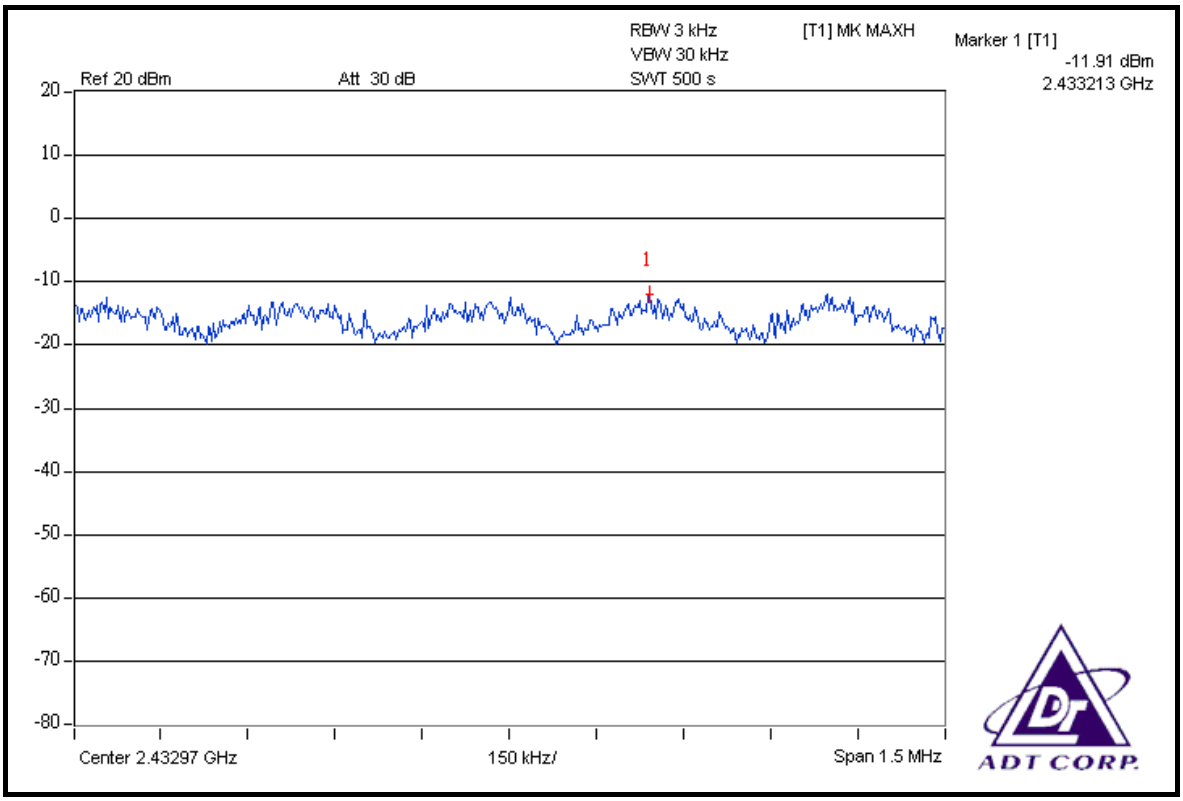
MODULATION TYPE	BPSK	TRANSFER RATE	6.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 65%RH, 991hPa
TESTED BY	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	2412	-13.04	8	PASS
6	2437	-11.91	8	PASS
11	2462	-11.87	8	PASS

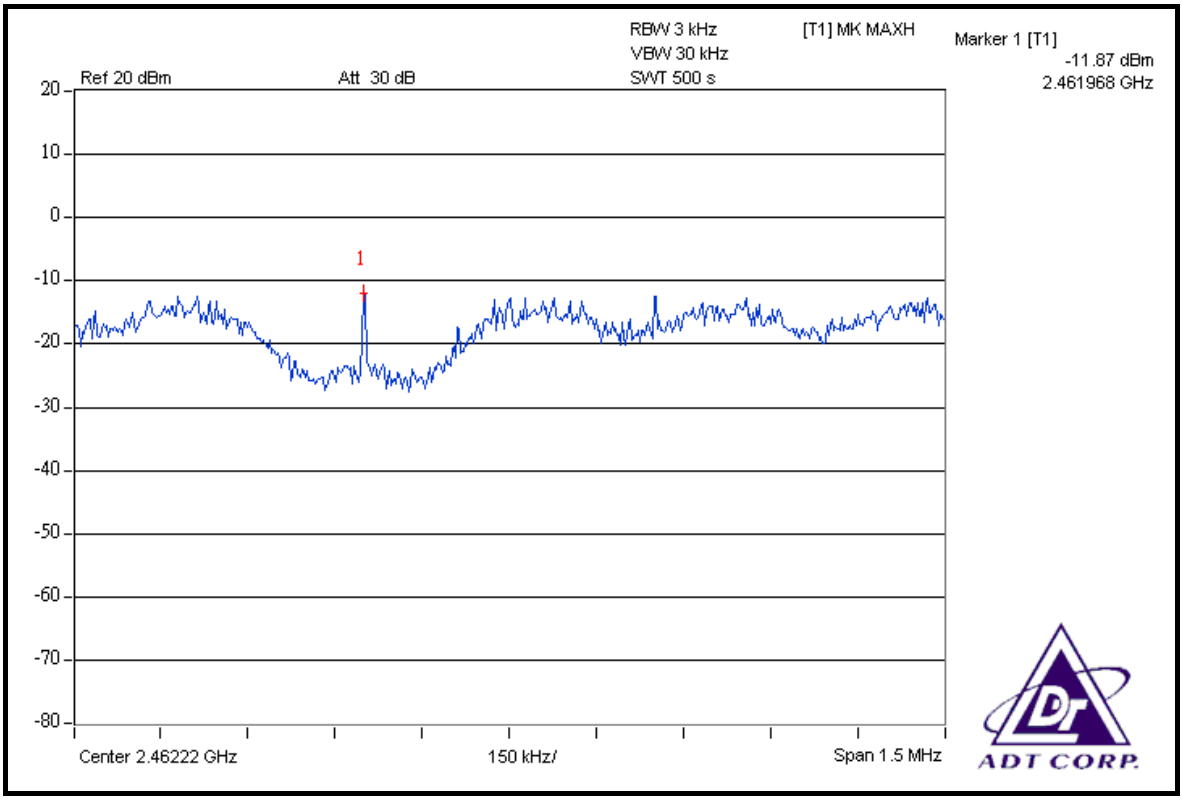
CH 1



CH 6


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-11.91 dBm
2.433213 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Center 2.43297 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

CH 11

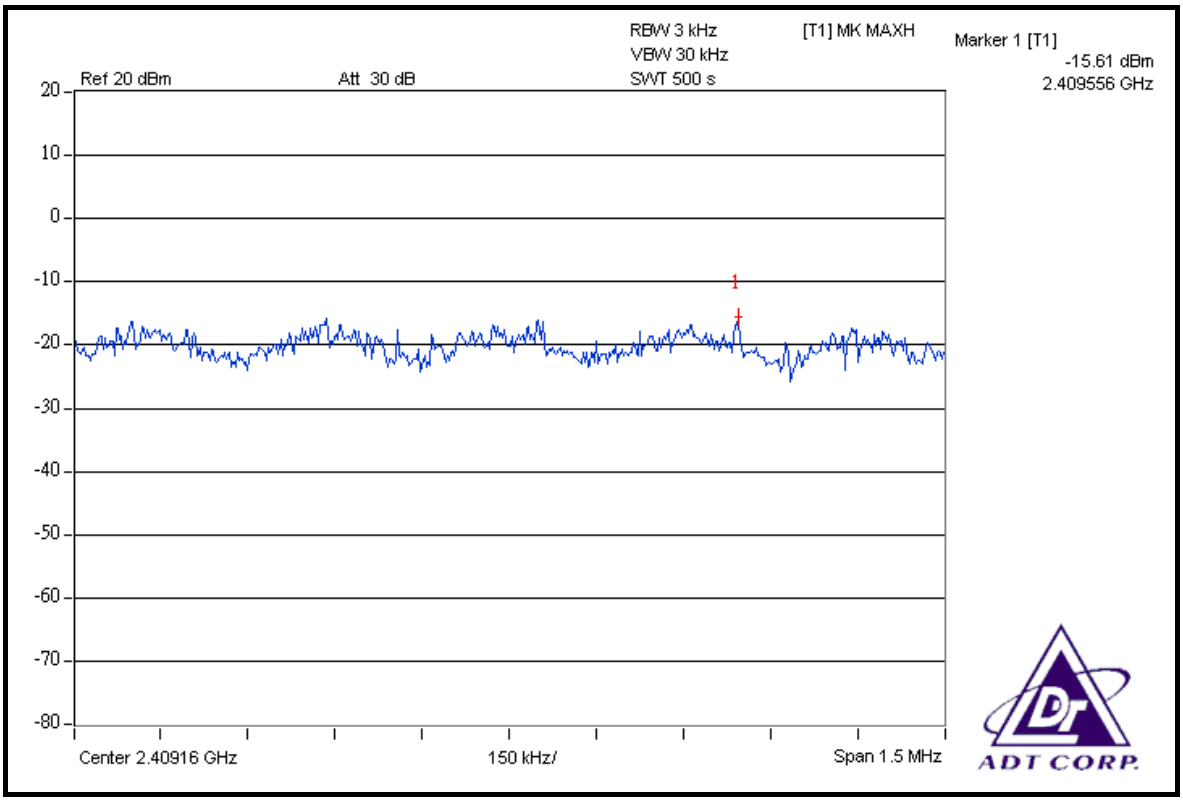

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-11.87 dBm
2.461968 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Center 2.46222 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

DRAFT 802.11n (20MHz) OFDM MODULATION

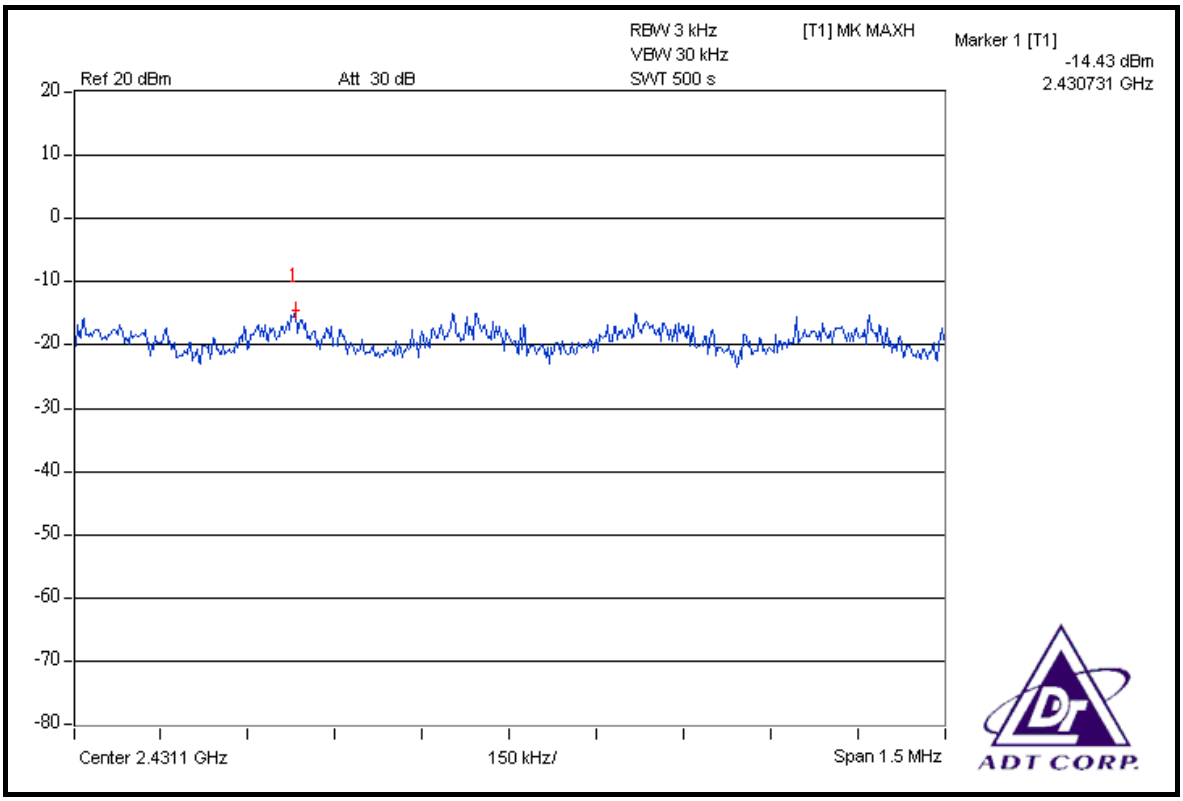
MODULATION TYPE	BPSK	**TRANSFER RATE**	7.2Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	25deg.C, 65%RH, 991hPa
TESTED BY	Brad Wu		

CHAN.	CHAN. FREQ. (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2412	-15.61	-16.53	0.050	-13.04	8	PASS
6	2437	-14.43	-15.39	0.065	-11.87	8	PASS
11	2462	-15.45	-16.42	0.051	-12.90	8	PASS

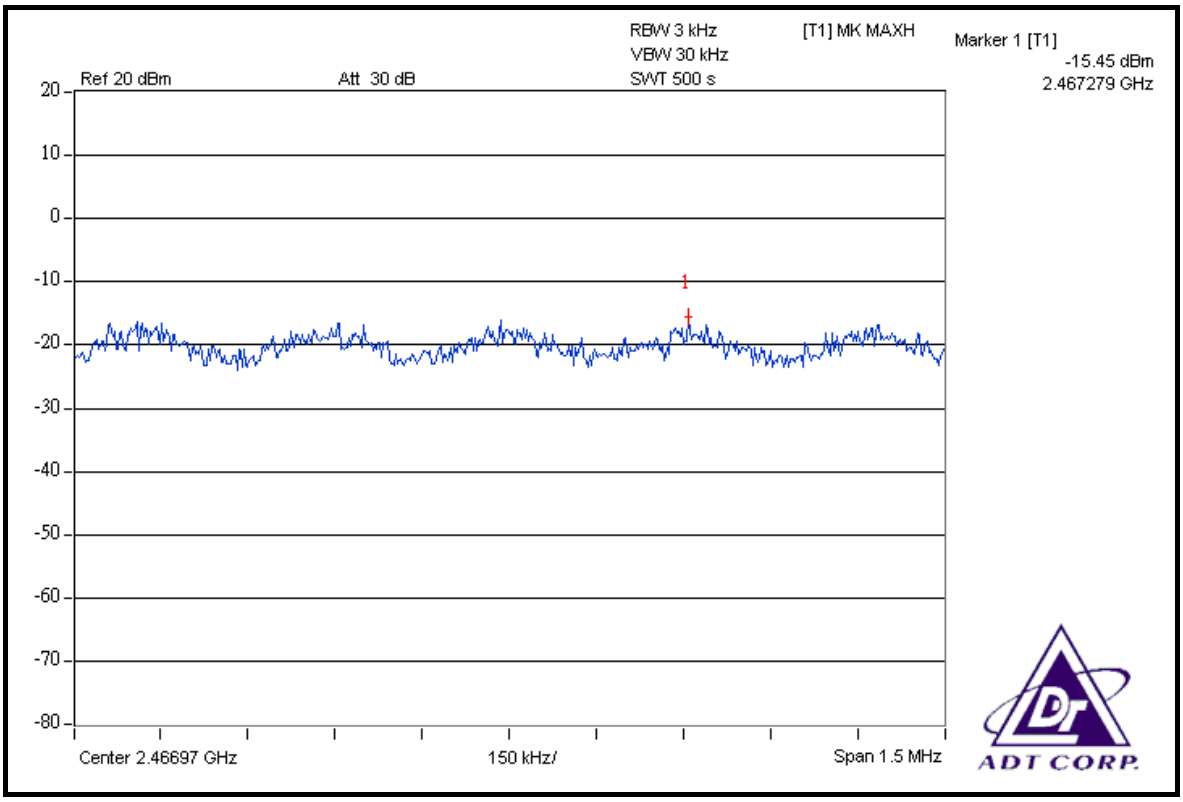
FOR CHAIN 0: CH 1



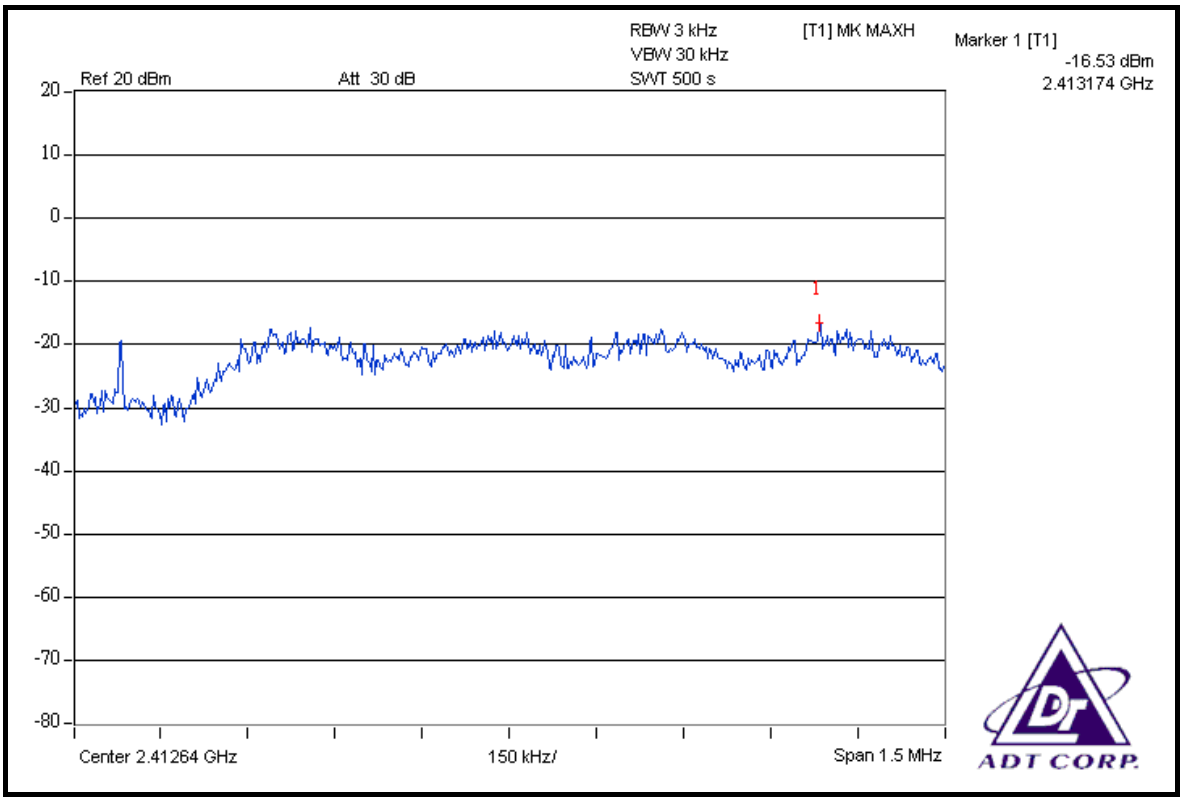
CH 6



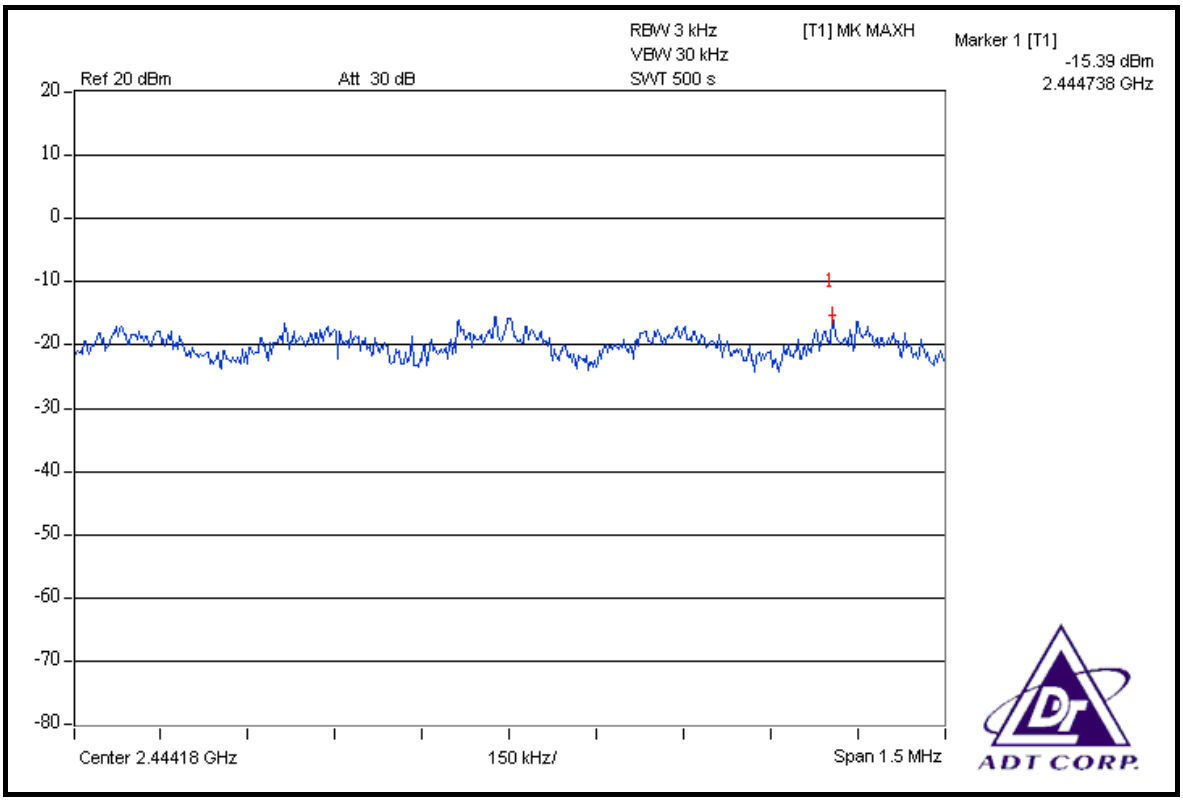
CH 11



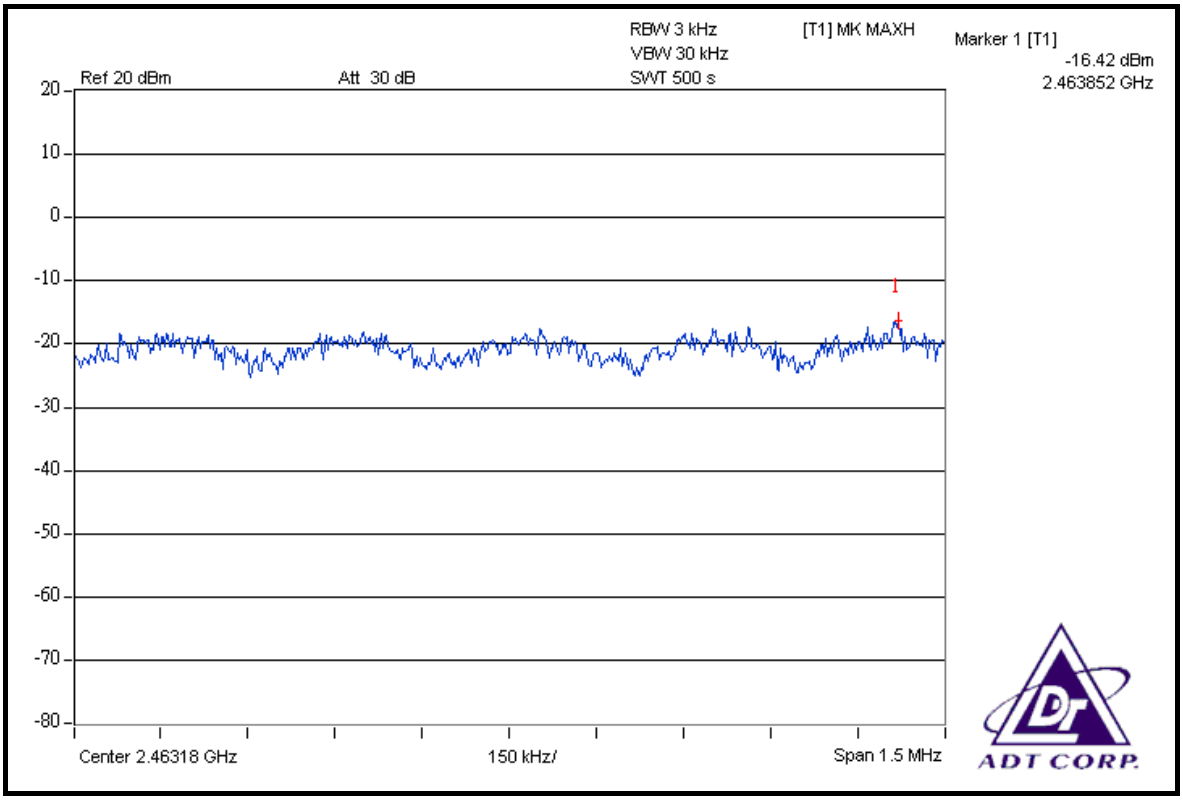
FOR CHAIN 1: CH 1



CH 6


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-15.39 dBm
2.444738 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.44418 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

CH 11

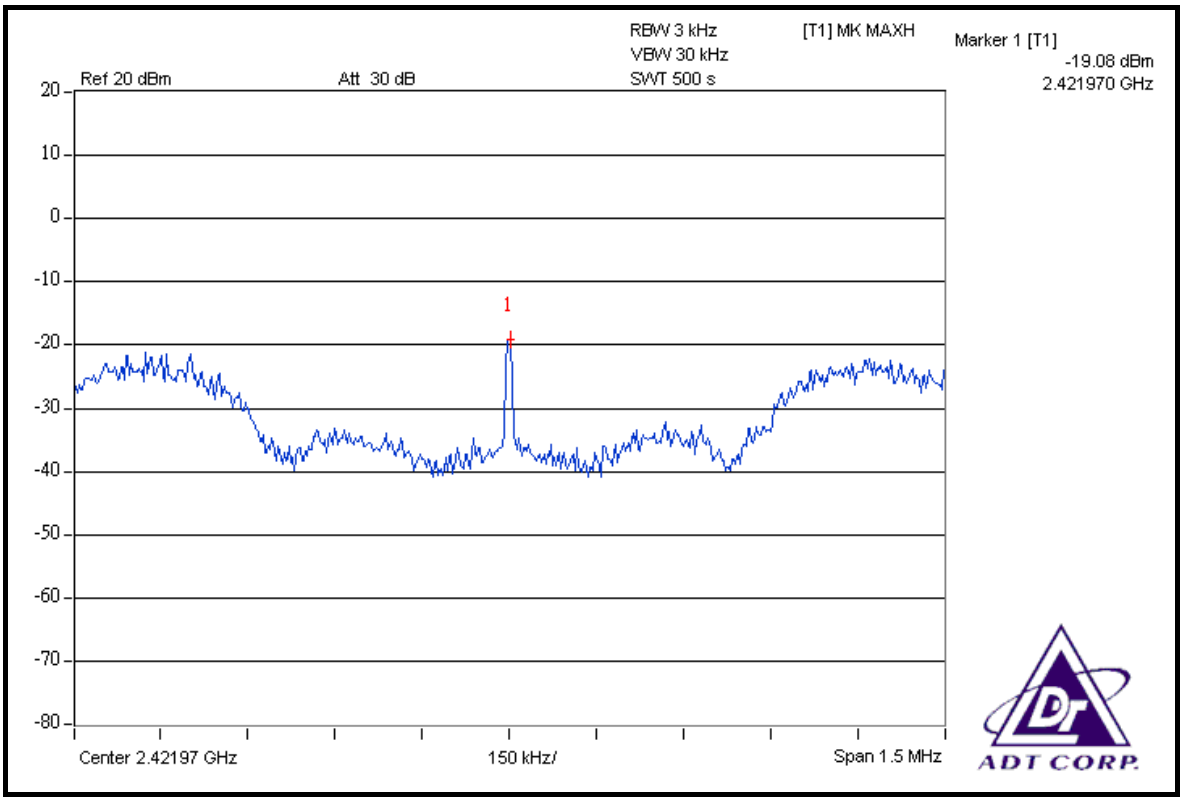

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-16.42 dBm
2.463852 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.46318 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

DRAFT 802.11n (40MHz) OFDM MODULATION

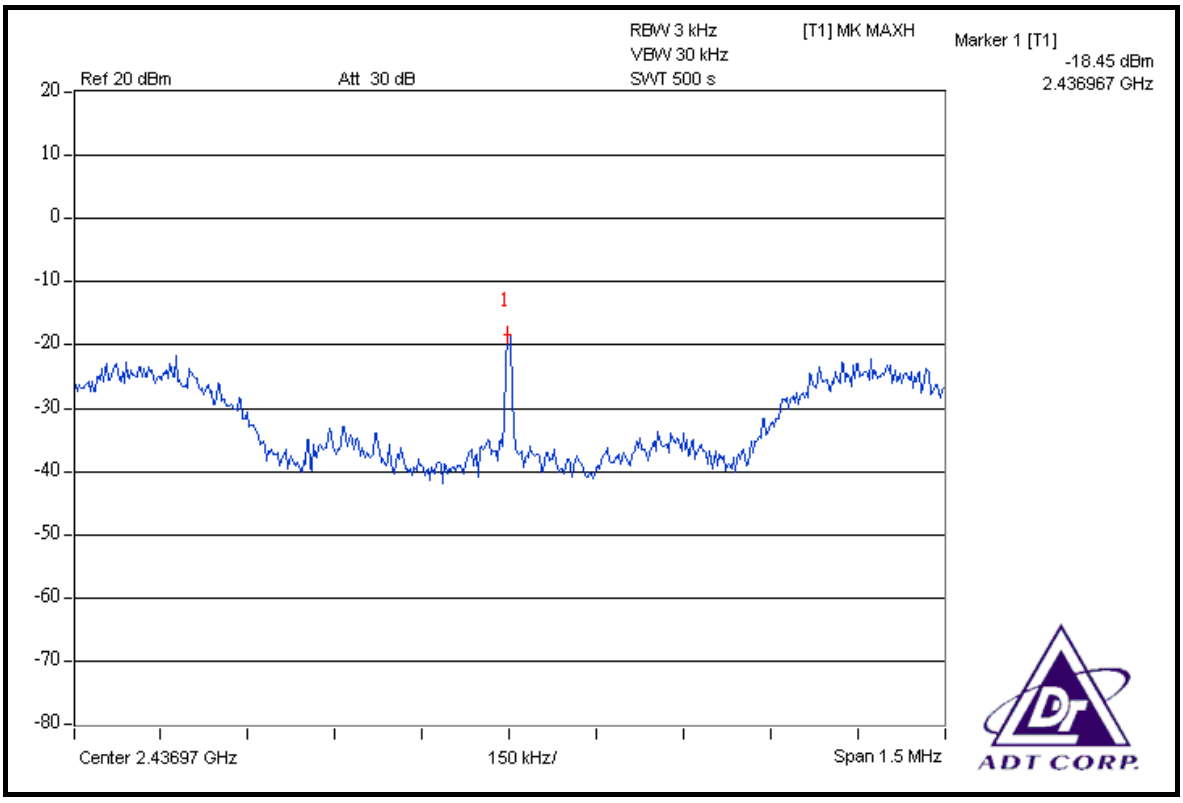
MODULATION TYPE	BPSK	**TRANSFER RATE**	15Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	25 deg.C, 65 %RH, 991hPa
TESTED BY	Brad Wu		

CHAN.	CHAN. FREQ. (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2422	-19.08	-19.46	0.024	-16.26	8	PASS
4	2437	-18.45	-18.73	0.028	-15.58	8	PASS
7	2452	-18.94	-19.37	0.024	-16.14	8	PASS

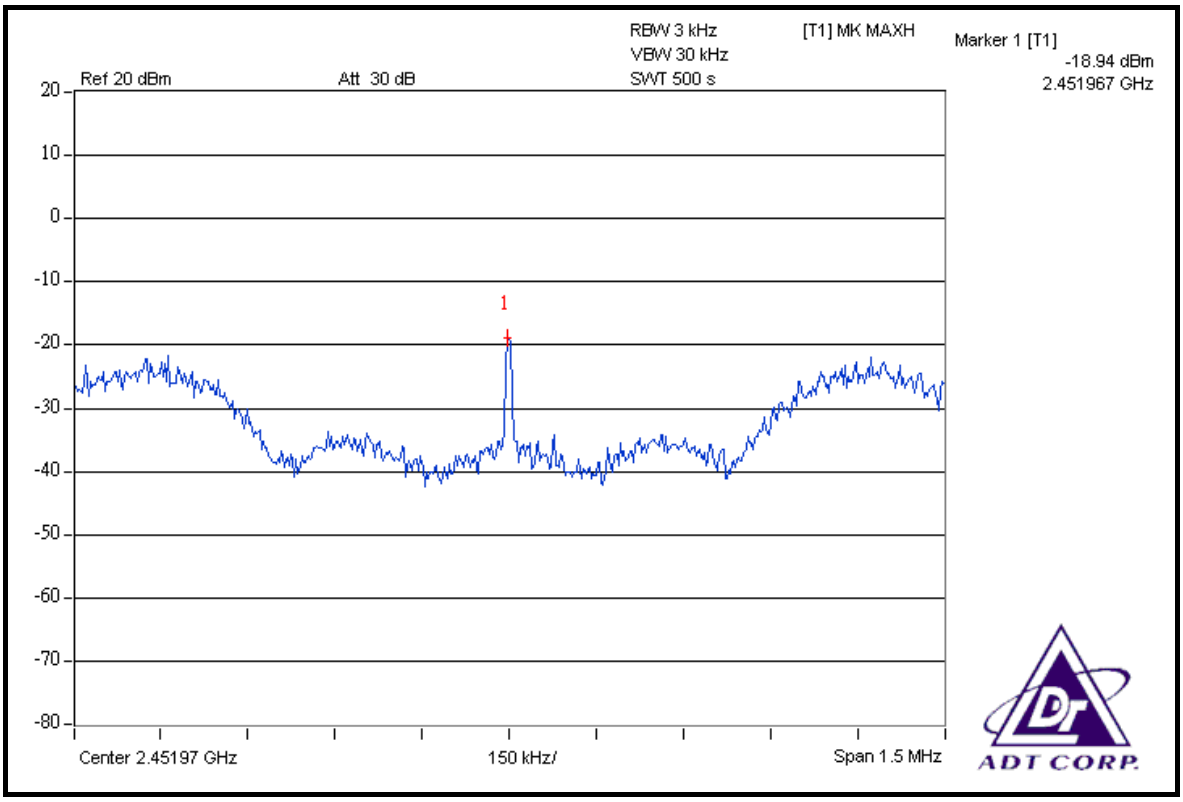
FOR CHAIN 0: CH 1



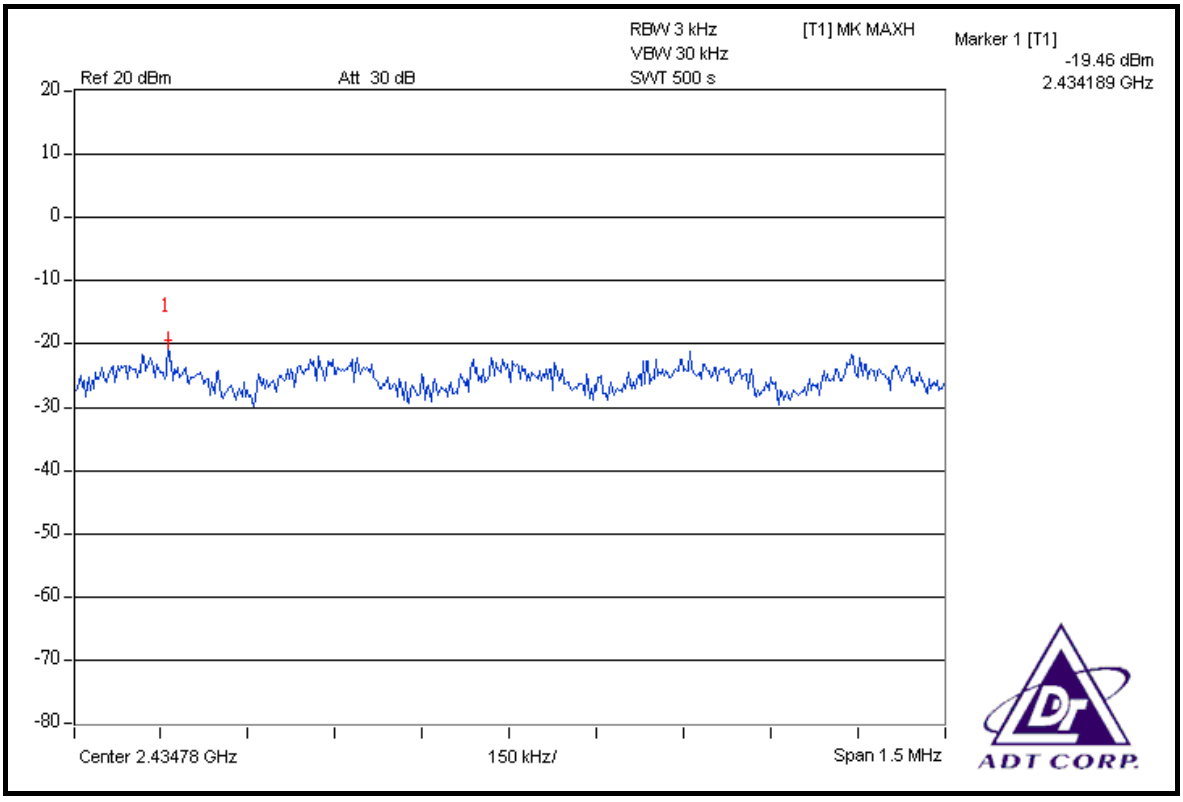
CH 4



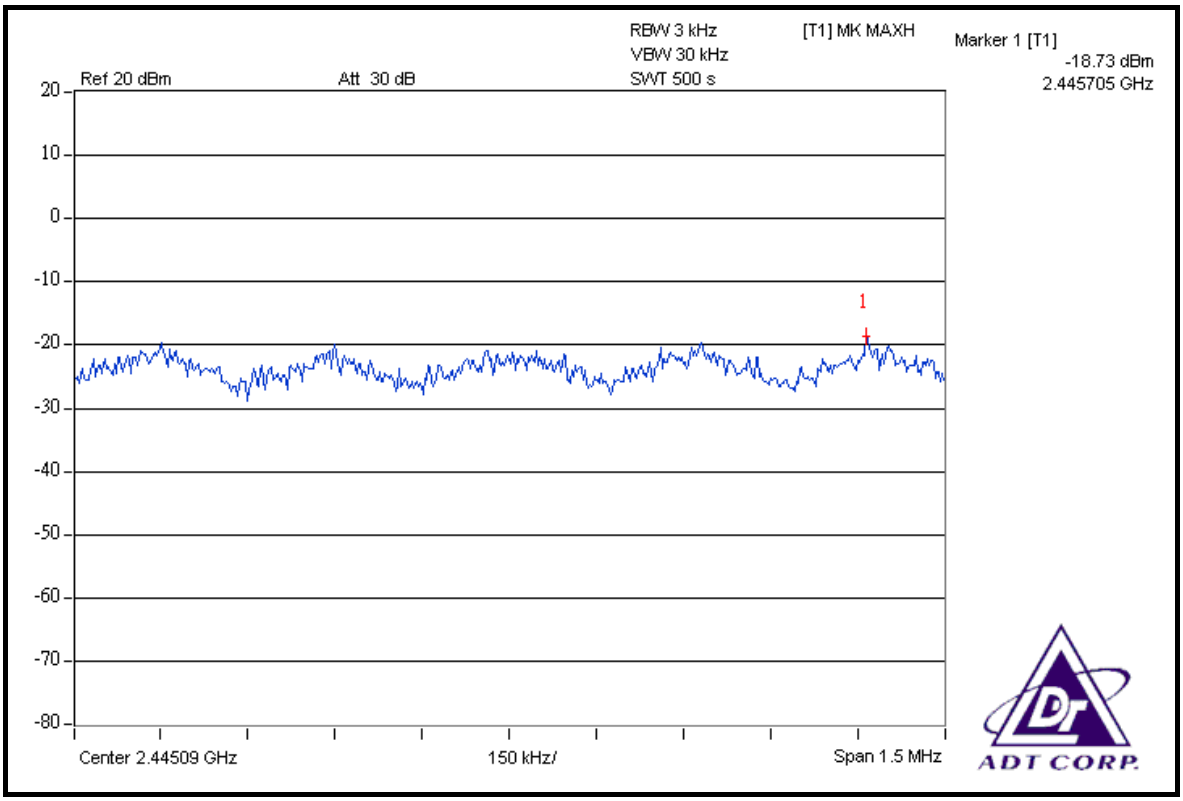
CH 7



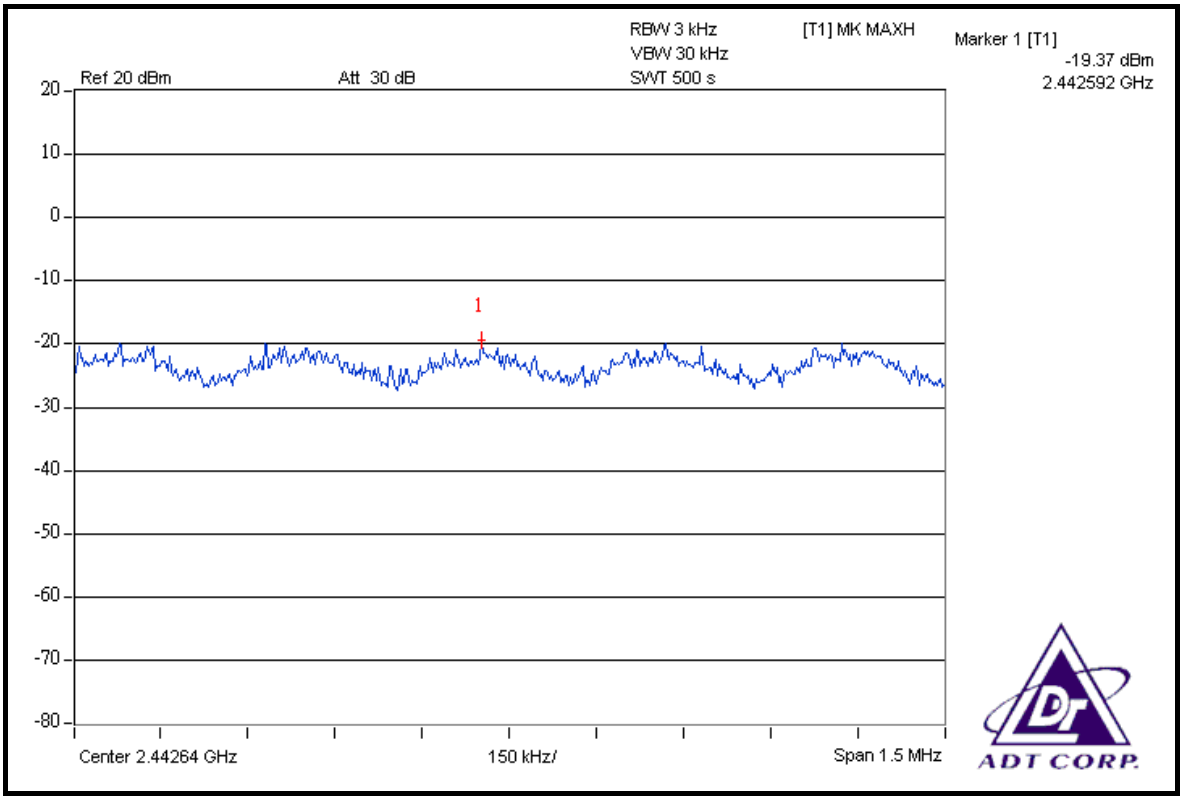
FOR CHAIN 1: CH 1



CH 4


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-18.73 dBm
2.445705 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Center 2.44509 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

CH 7


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-19.37 dBm
2.442592 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Center 2.44264 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.	DATE OF CALIBRATION	CALIBRATED UNTIL
FOR CONDUCTED MEASUREMENT:				
R&S SPECTRUM ANALYZER	FSP40	100041	Apr. 22, 2008	Apr. 21, 2009
FOR RADIATED MEASUREMENT:				
Test Receiver ROHDE & SCHWARZ	ESI7	100033	Jun. 30, 2008	Jun. 29, 2009
Spectrum Analyzer Agilent	FSP	100041	Apr. 22, 2008	Apr. 21, 2009
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	May, 02, 2008	May, 01, 2009
HORN Antenna SCHWARZBECK	9120D	9120D-209	Jun. 24, 2008	Jun. 23, 2009
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170243	Dec. 25, 2007	Dec. 24, 2008
Preamplifier Agilent	8447D	2944A10633	Oct. 29, 2007	Oct. 28, 2008
Preamplifier Agilent	8449B	3008A01964	Oct. 24, 2007	Oct. 23, 2008
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	283402/4	Dec. 07, 2007	Dec. 06, 2008
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	251644/4	Dec. 07, 2007	Dec. 06, 2008
Software ADT.	ADT_Radiated_V7.6	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA	NA
Antenna Tower Controller inn-co GmbH	CO2000	017303	NA	NA
Turn Table ADT.	TT100.	TT93021703	NA	NA
Turn Table Controller ADT.	SC100.	SC93021703	NA	NA

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

4.6.3 TEST PROCEDURE

FOR CONDUCTED MEASUREMENT:

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

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

FOR RADIATED MEASUREMENT:

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

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

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

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

e. Set both RBW and VBW of spectrum analyzer to 100kHz and 300kHz with suitable frequency span including 100MHz bandwidth from band edge. The band edges was measured and recorded.

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

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

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 EUT OPERATING CONDITION

Same as Item 4.3.6

4.6.6 TEST RESULTS

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

802.11b DSSS MODULATION

TEST MODE A

NOTE 1: The band edge emission plot on the next second page shows 51.11dBc between carrier maximum power and local maximum emission in restrict band (2.3864GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 108.40dBuV/m (Peak), so the maximum field strength in restrict band is 108.40 – 51.11 = 57.29dBuV/m which is under 74dBuV/m limit.

The band edge emission plot of on the next second page shows 53.54dBc between carrier maximum power and local maximum emission in restrict band (2.3868GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 103.69dBuV/m (Average), so the maximum field strength in restrict band is 103.69 – 53.54 = 50.15dBuV/m which is under 54dBuV/m limit.

NOTE 2: The band edge emission plot on the next third page shows 51.13dBc between carrier maximum power and local maximum emission in restrict band (2.4882GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.1.7 is 109.13dBuV/m (Peak), so the maximum field strength in restrict band is 109.13 – 51.13 = 58.00dBuV/m which is under 74dBuV/m limit.

The band edge emission plot on the next fourth page shows 52.23dBc between carrier maximum power and local maximum emission in restrict band (2.4872GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.1.7 is 104.67dBuV/m (Average), so the maximum field strength in restrict band is 104.67 – 52.23 = 52.44dBuV/m which is under 54dBuV/m limit.

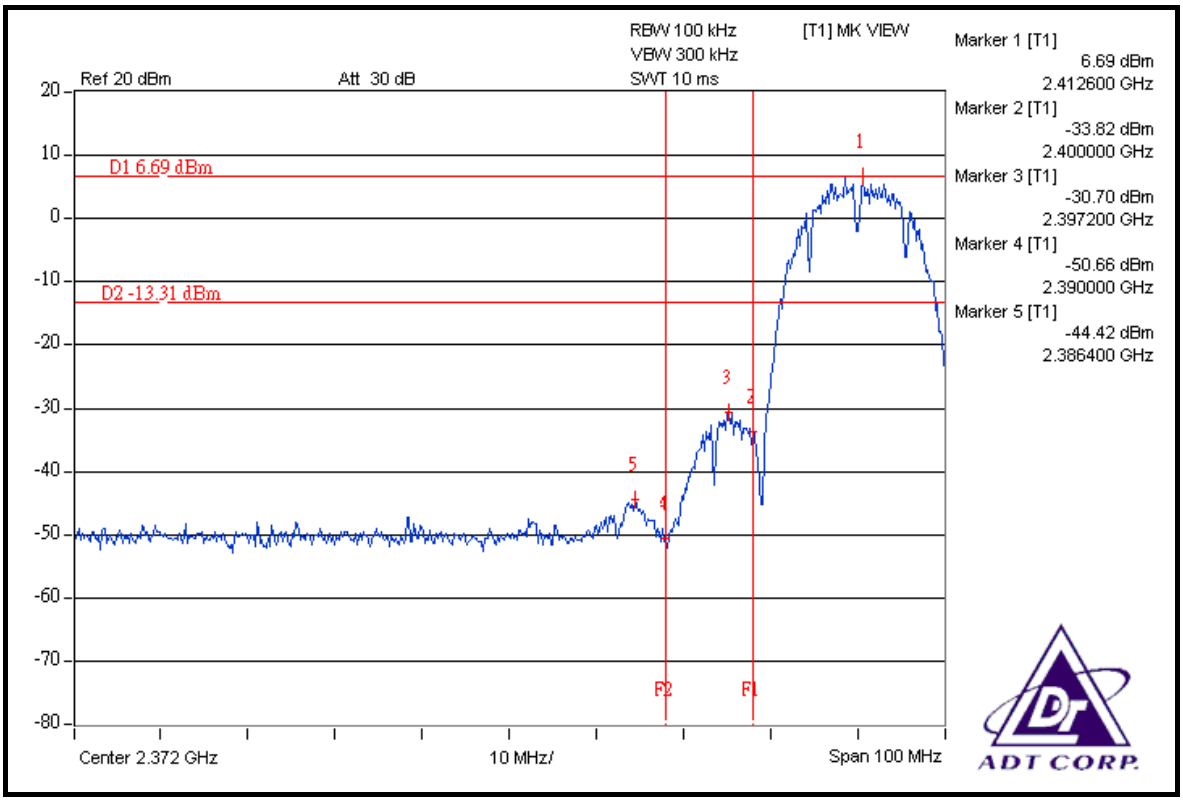
TEST MODE B

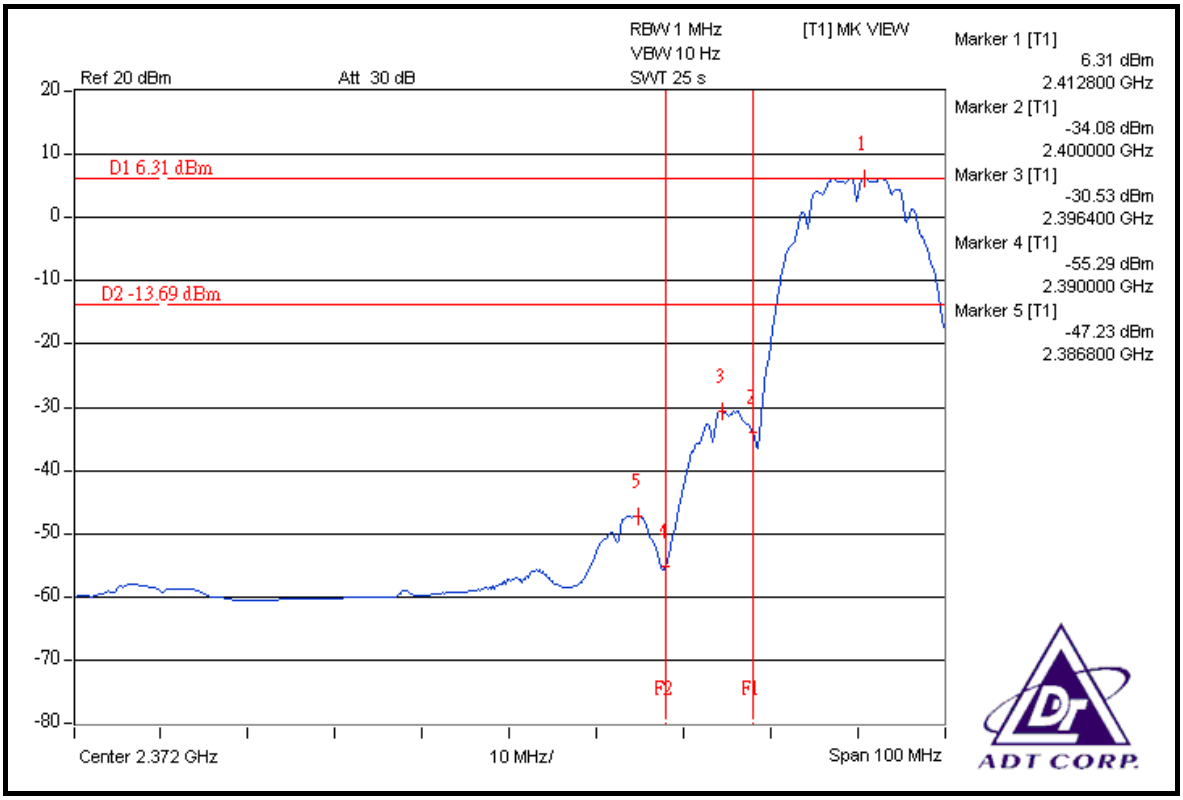
NOTE 1: The band edge emission plot on the next page shows 51.11dBc between carrier maximum power and local maximum emission in restrict band (2.3864GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 105.42dBuV/m (Peak), so the maximum field strength in restrict band is 105.42 – 51.11 = 54.31dBuV/m which is under 74dBuV/m limit.

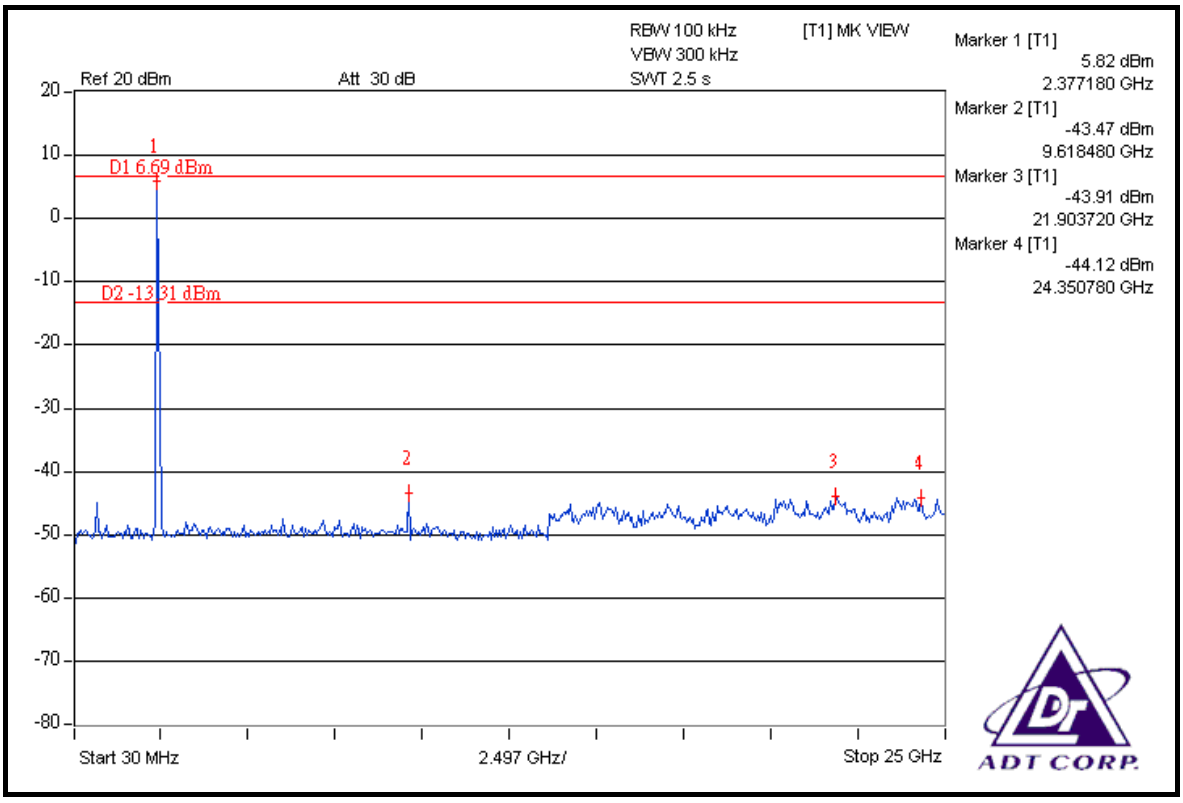
The band edge emission plot of on the next page shows 53.54dBc between carrier maximum power and local maximum emission in restrict band (2.3868GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 100.78dBuV/m (Average), so the maximum field strength in restrict band is 100.78 – 53.54 = 47.24dBuV/m which is under 54dBuV/m limit.

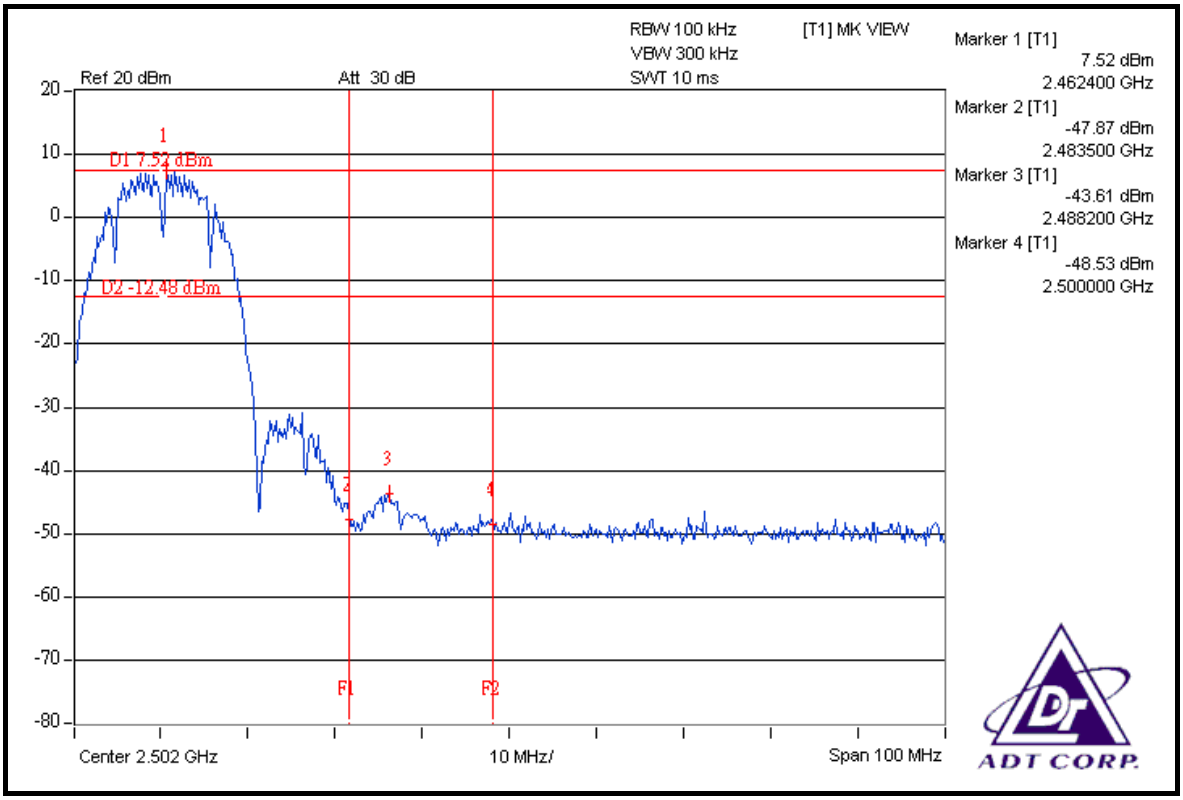
NOTE 2: The band edge emission plot on the next second page shows 51.13dBc between carrier maximum power and local maximum emission in restrict band (2.4882GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.1.7 is 107.35dBuV/m (Peak), so the maximum field strength in restrict band is 107.35 – 51.13 = 56.22dBuV/m which is under 74dBuV/m limit.

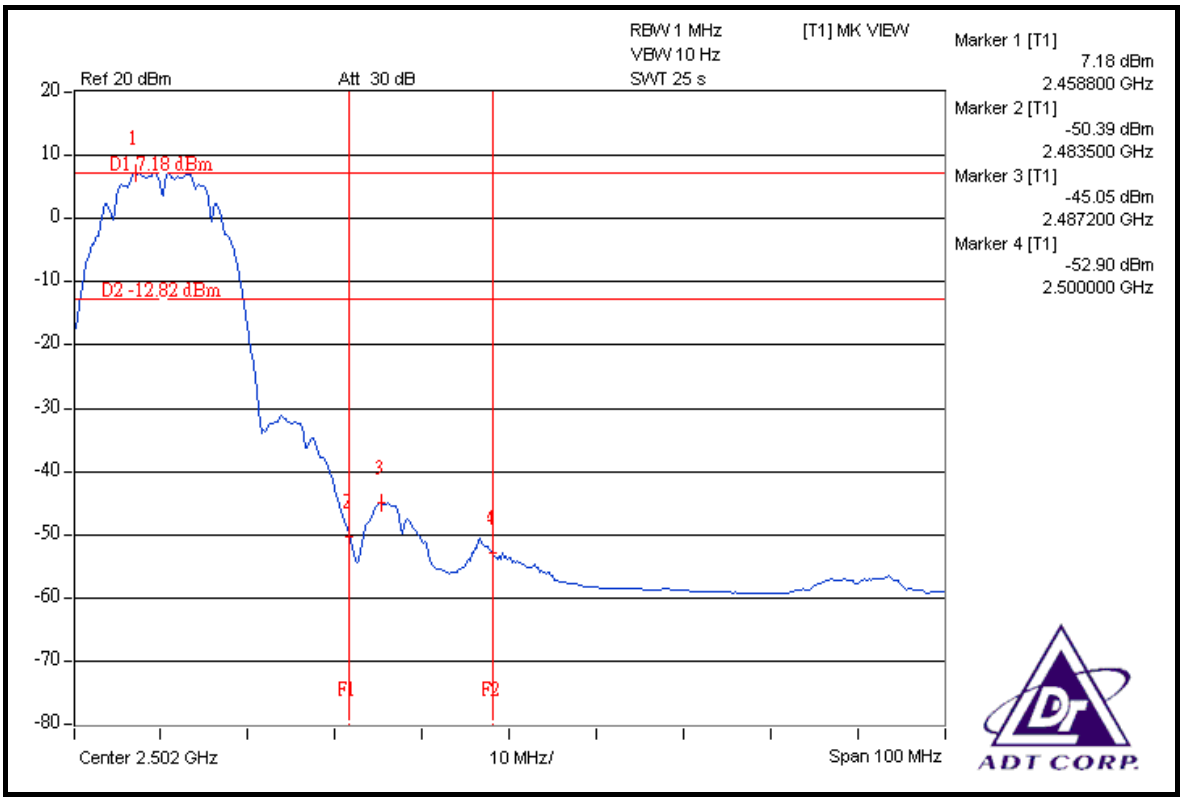
The band edge emission plot on the next third page shows 52.23dBc between carrier maximum power and local maximum emission in restrict band (2.4872GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.1.7 is 102.55dBuV/m (Average), so the maximum field strength in restrict band is 102.55 – 52.23 = 50.32dBuV/m which is under 54dBuV/m limit.

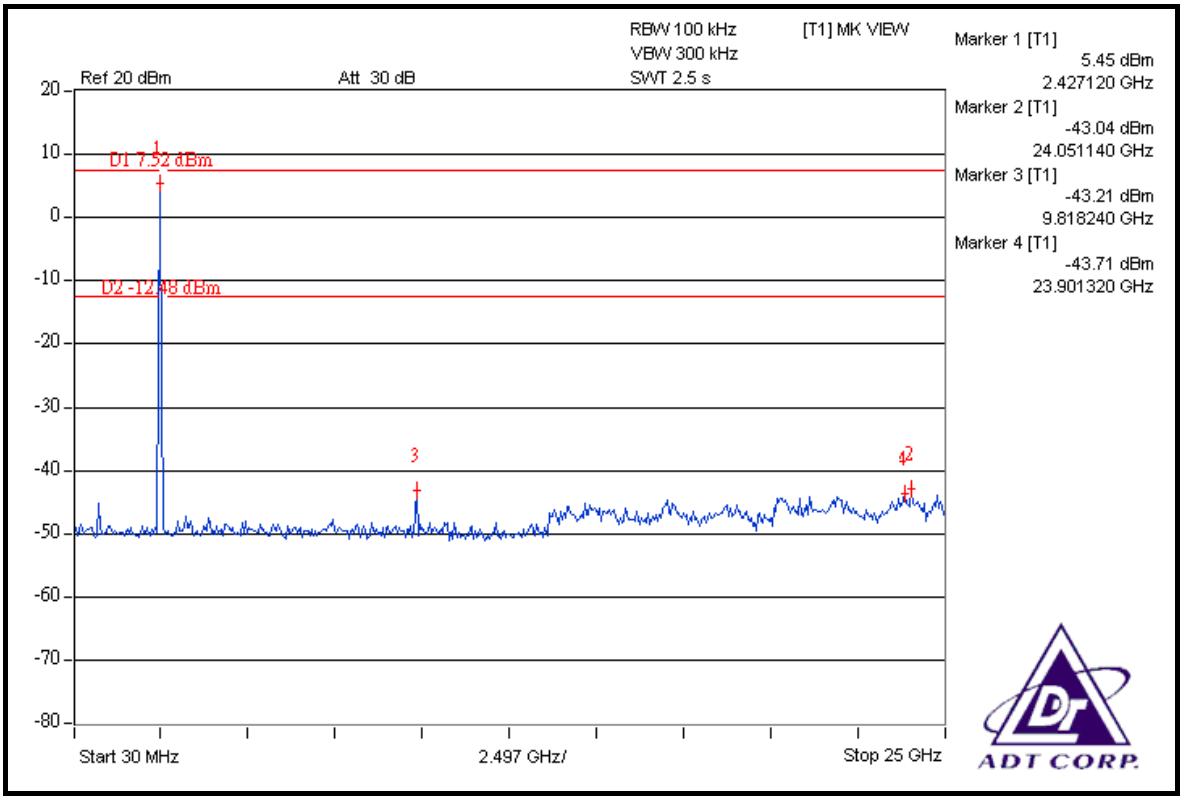

RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 6.69 dBm
D2 -13.31 dBm
Marker 1 [T1]
6.69 dBm
2.412600 GHz
Marker 2 [T1]
-33.82 dBm
2.400000 GHz
Marker 3 [T1]
-30.70 dBm
2.397200 GHz
Marker 4 [T1]
-50.66 dBm
2.390000 GHz
Marker 5 [T1]
-44.42 dBm
2.386400 GHz
Center 2.372 GHz
10 MHz/
Span 100 MHz
ADT CORP.


RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 6.31 dBm
D2 -13.69 dBm
Marker 1 [T1]
6.31 dBm
2.412800 GHz
Marker 2 [T1]
-34.08 dBm
2.400000 GHz
Marker 3 [T1]
-30.53 dBm
2.396400 GHz
Marker 4 [T1]
-55.29 dBm
2.390000 GHz
Marker 5 [T1]
-47.23 dBm
2.386800 GHz
Center 2.372 GHz
10 MHz/
Span 100 MHz
ADT CORP.


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 6.69 dBm
D2 -13.31 dBm
Marker 1 [T1]
5.82 dBm
2.377180 GHz
Marker 2 [T1]
-43.47 dBm
9.618480 GHz
Marker 3 [T1]
-43.91 dBm
21.903720 GHz
Marker 4 [T1]
-44.12 dBm
24.350780 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz
ADT CORP.


RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 7.52 dBm
D2 -12.48 dBm
Marker 1 [T1]
7.52 dBm
2.462400 GHz
Marker 2 [T1]
-47.87 dBm
2.483500 GHz
Marker 3 [T1]
-43.61 dBm
2.488200 GHz
Marker 4 [T1]
-48.53 dBm
2.500000 GHz
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz
ADT CORP.


RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 7.18 dBm
D2 -12.82 dBm
Marker 1 [T1]
7.18 dBm
2.458800 GHz
Marker 2 [T1]
-50.39 dBm
2.483500 GHz
Marker 3 [T1]
-45.05 dBm
2.487200 GHz
Marker 4 [T1]
-52.90 dBm
2.500000 GHz
Center 2.502 GHz
10 MHz/
Span 100 MHz


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 7.52 dBm
D2 -12.48 dBm
Marker 1 [T1]
5.45 dBm
2.427120 GHz
Marker 2 [T1]
-43.04 dBm
24.051140 GHz
Marker 3 [T1]
-43.21 dBm
9.818240 GHz
Marker 4 [T1]
-43.71 dBm
23.901320 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz

802.11g OFDM MODULATION

TEST MODE A

NOTE 1: The band edge emission plot on the next second page shows 45.16dBc between carrier maximum power and local maximum emission in restrict band (2.3894GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 109.25dBuV/m (Peak), so the maximum field strength in restrict band is 109.25 – 45.16 = 64.09dBuV/m which is under 74dBuV/m limit.

The band edge emission plot of on the next second page shows 47.54dBc between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 99.13dBuV/m (Average), so the maximum field strength in restrict band is 99.13 – 47.54 = 51.59dBuV/m which is under 54dBuV/m limit.

NOTE 2: The band edge emission plot on the next third page shows 47.46dBc between carrier maximum power and local maximum emission in restrict band (2.4838GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.1.7 is 110.01dBuV/m (Peak), so the maximum field strength in restrict band is 110.01 – 47.46 = 62.55dBuV/m which is under 74dBuV/m limit.

The band edge emission plot on the next fourth page shows 48.47dBc between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.1.7 is 99.83dBuV/m (Average), so the maximum field strength in restrict band is 99.83 – 48.47 = 51.36dBuV/m which is under 54dBuV/m limit.

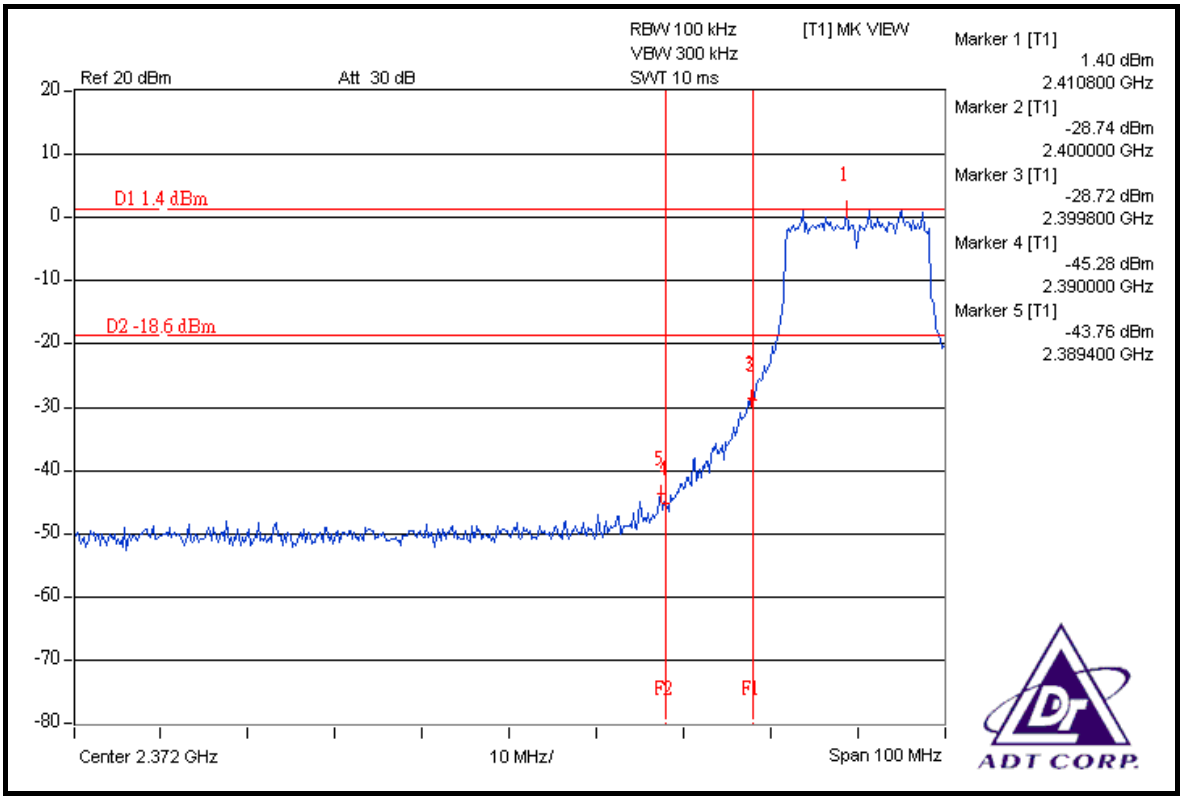
TEST MODE B

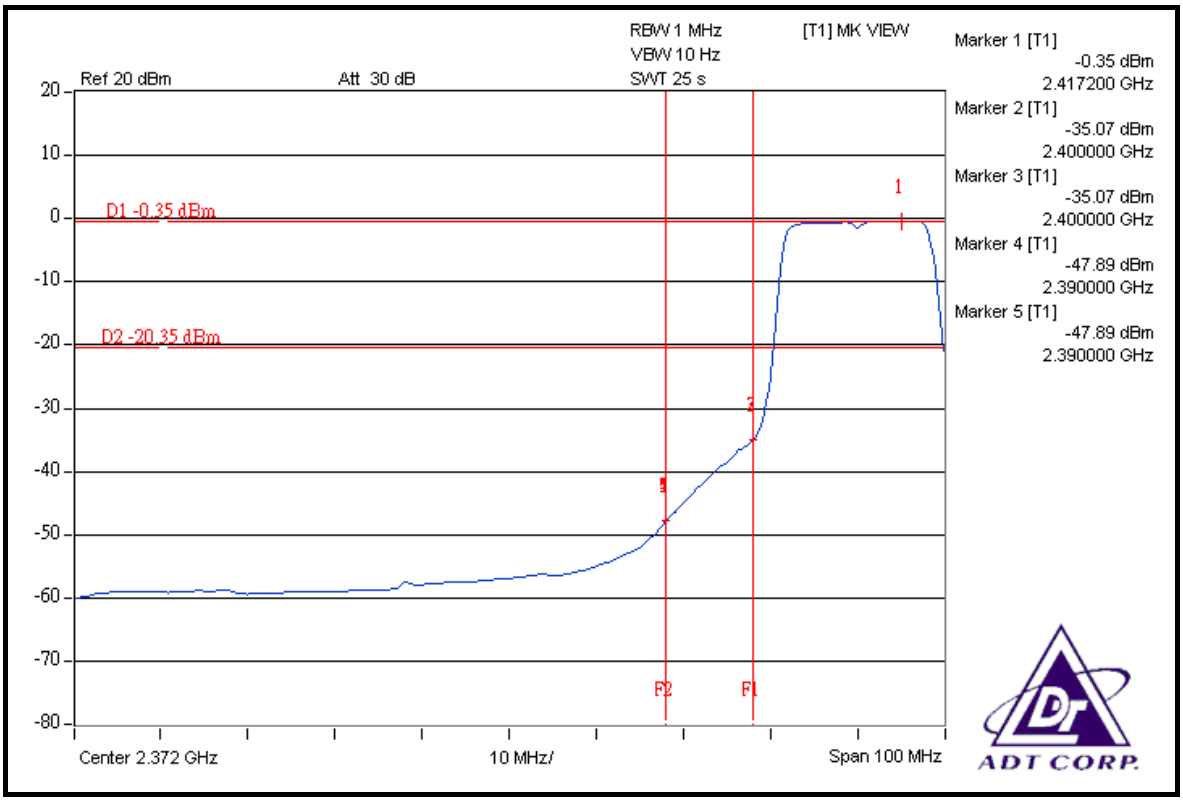
NOTE 1: The band edge emission plot on the next page shows 45.16dBc between carrier maximum power and local maximum emission in restrict band (2.3894GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 104.23dBuV/m (Peak), so the maximum field strength in restrict band is 104.23 – 45.16 = 59.07dBuV/m which is under 74dBuV/m limit.

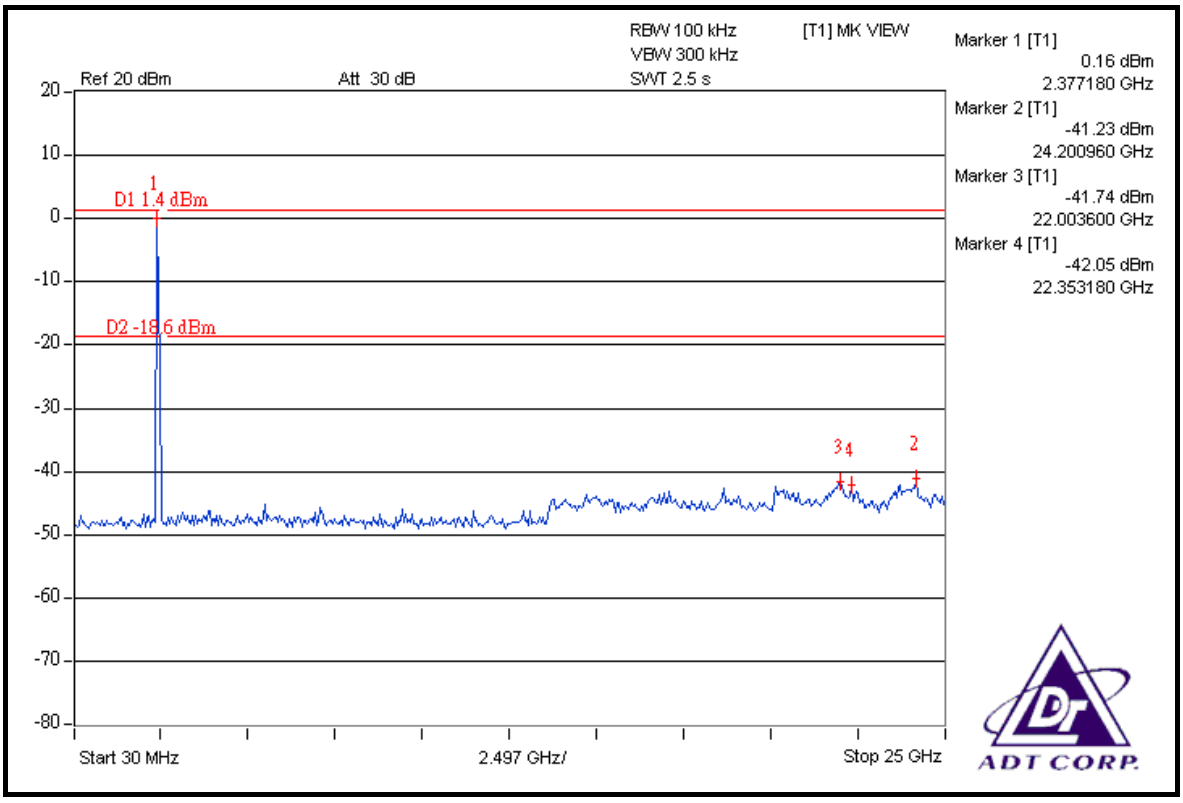
The band edge emission plot of on the next page shows 47.54dBc between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 93.06dBuV/m (Average), so the maximum field strength in restrict band is 93.06 – 47.54 = 45.52dBuV/m which is under 54dBuV/m limit.

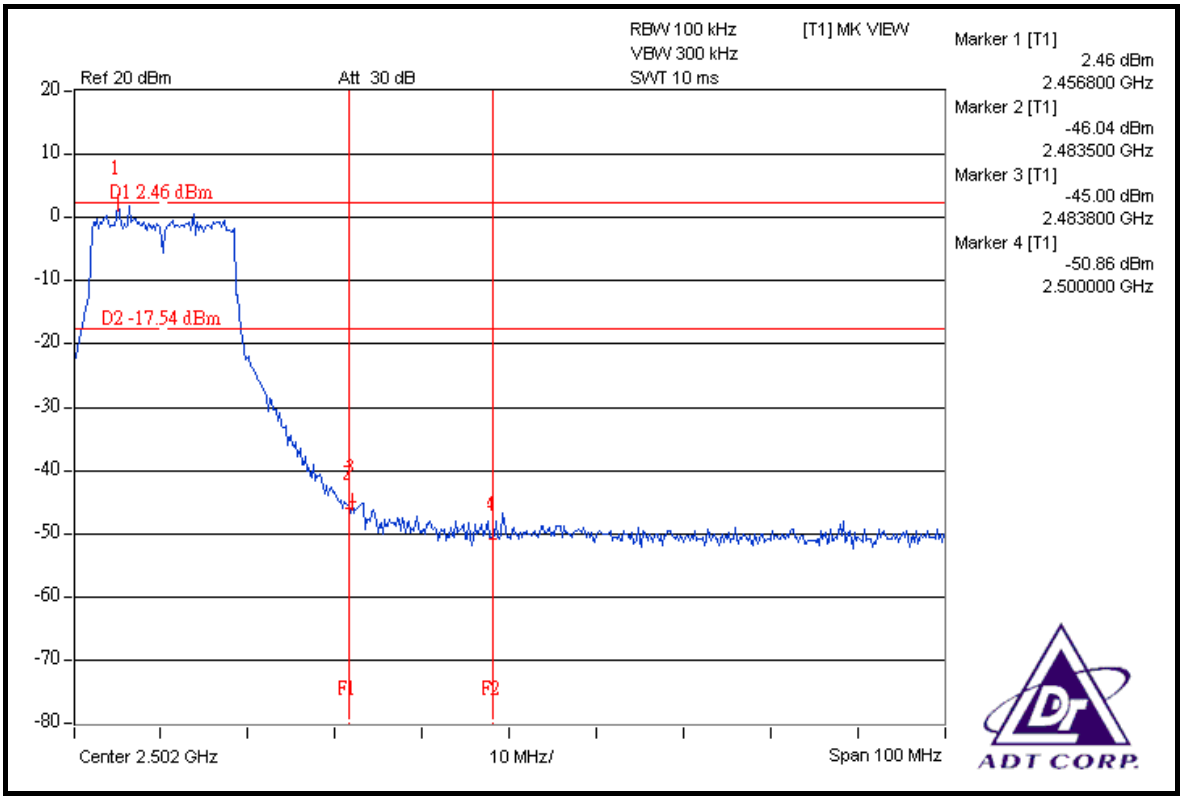
NOTE 2: The band edge emission plot on the next second page shows 47.46dBc between carrier maximum power and local maximum emission in restrict band (2.4838GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.1.7 is 107.77dBuV/m (Peak), so the maximum field strength in restrict band is 107.77 – 47.46 = 60.31dBuV/m which is under 74dBuV/m limit.

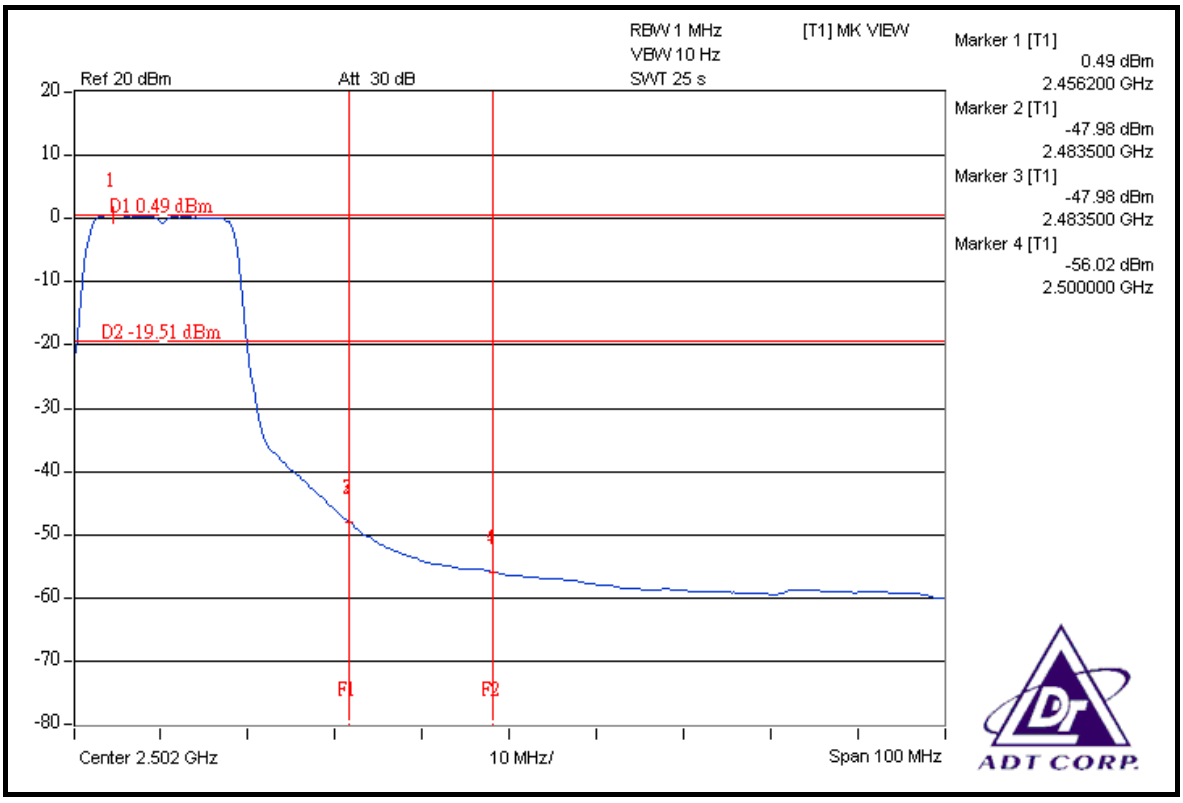
The band edge emission plot on the next third page shows 48.47dBc between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.1.7 is 97.43dBuV/m (Average), so the maximum field strength in restrict band is 97.43 – 48.47 = 48.96dBuV/m which is under 54dBuV/m limit.

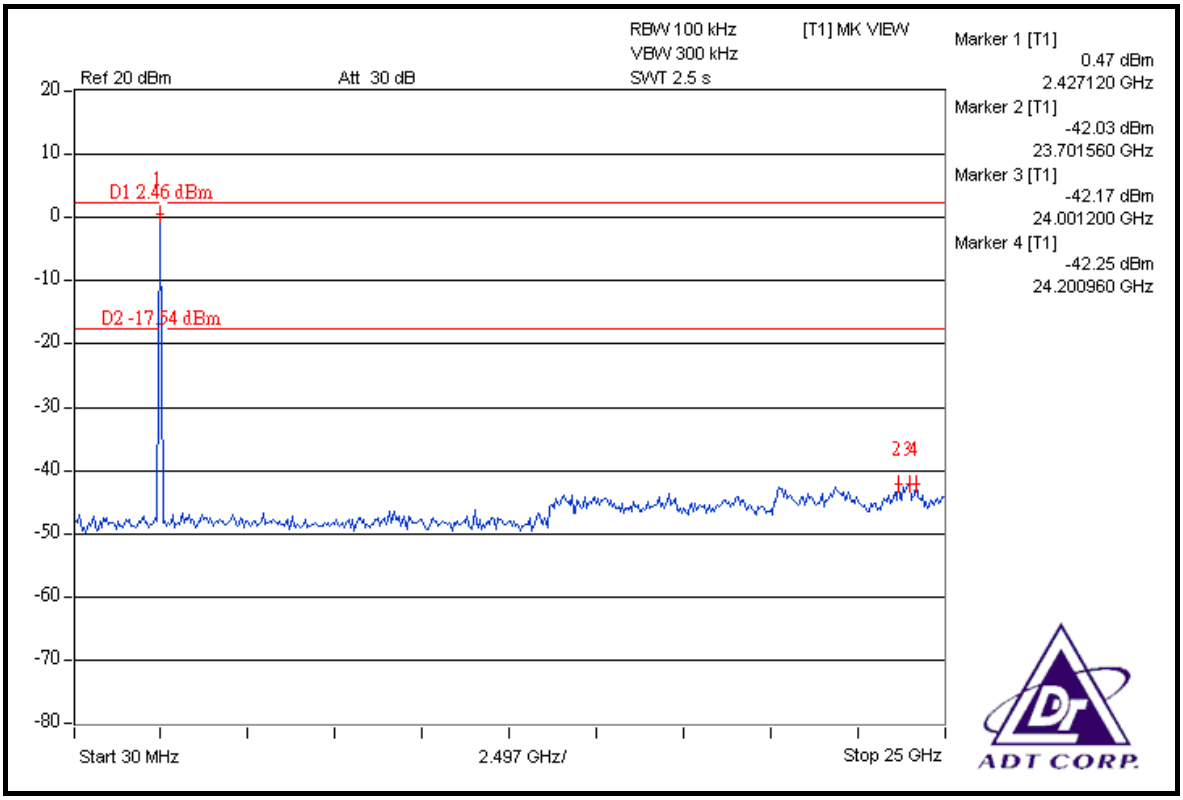

RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 1.4 dBm
D2 -18.6 dBm
Marker 1 [T1]
1.40 dBm
2.410800 GHz
Marker 2 [T1]
-28.74 dBm
2.400000 GHz
Marker 3 [T1]
-28.72 dBm
2.399800 GHz
Marker 4 [T1]
-45.28 dBm
2.390000 GHz
Marker 5 [T1]
-43.76 dBm
2.389400 GHz
Center 2.372 GHz
10 MHz/
Span 100 MHz
ADT CORP.


RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 -0.35 dBm
D2 -20.35 dBm
Marker 1 [T1]
-0.35 dBm
2.417200 GHz
Marker 2 [T1]
-35.07 dBm
2.400000 GHz
Marker 3 [T1]
-35.07 dBm
2.400000 GHz
Marker 4 [T1]
-47.89 dBm
2.390000 GHz
Marker 5 [T1]
-47.89 dBm
2.390000 GHz
Center 2.372 GHz
10 MHz/
Span 100 MHz
ADT CORP.


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 1.4 dBm
D2 -18.6 dBm
Marker 1 [T1]
0.16 dBm
2.377180 GHz
Marker 2 [T1]
-41.23 dBm
24.200960 GHz
Marker 3 [T1]
-41.74 dBm
22.003600 GHz
Marker 4 [T1]
-42.05 dBm
22.353180 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz
ADT CORP.


RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 2.46 dBm
D2 -17.54 dBm
Marker 1 [T1]
2.46 dBm
2.456800 GHz
Marker 2 [T1]
-46.04 dBm
2.483500 GHz
Marker 3 [T1]
-45.00 dBm
2.483800 GHz
Marker 4 [T1]
-50.86 dBm
2.500000 GHz
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz
ADT CORP.


RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
Marker 1 [T1]
0.49 dBm
2.456200 GHz
Marker 2 [T1]
-47.98 dBm
2.483500 GHz
Marker 3 [T1]
-47.98 dBm
2.483500 GHz
Marker 4 [T1]
-56.02 dBm
2.500000 GHz
D1 0.49 dBm
D2 -19.51 dBm
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz
ADT CORP.


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
Marker 1 [T1]
0.47 dBm
2.427120 GHz
Marker 2 [T1]
-42.03 dBm
23.701560 GHz
Marker 3 [T1]
-42.17 dBm
24.001200 GHz
Marker 4 [T1]
-42.25 dBm
24.200960 GHz
D1 2.46 dBm
D2 -17.54 dBm
Start 30 MHz
2.497 GHz/
Stop 25 GHz
ADT CORP.

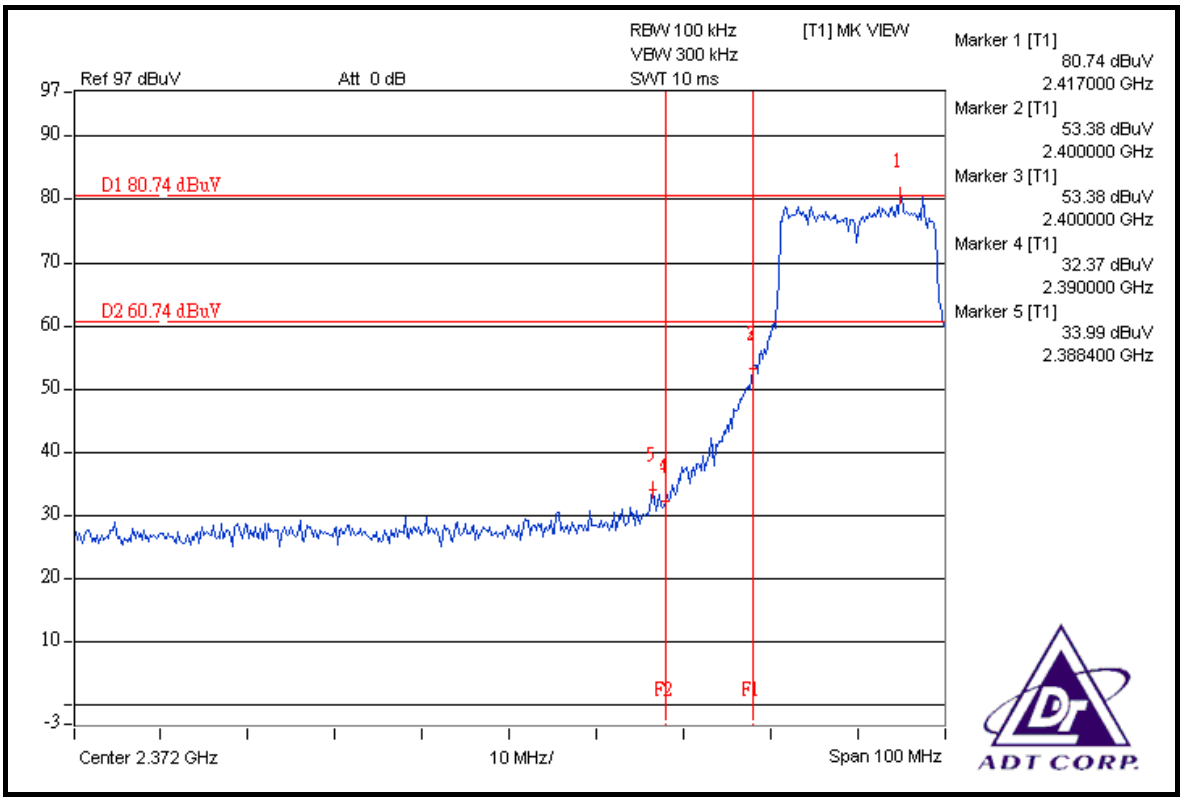
DRAFT 802.11n (20MHz) OFDM MODULATION
TEST MODE A

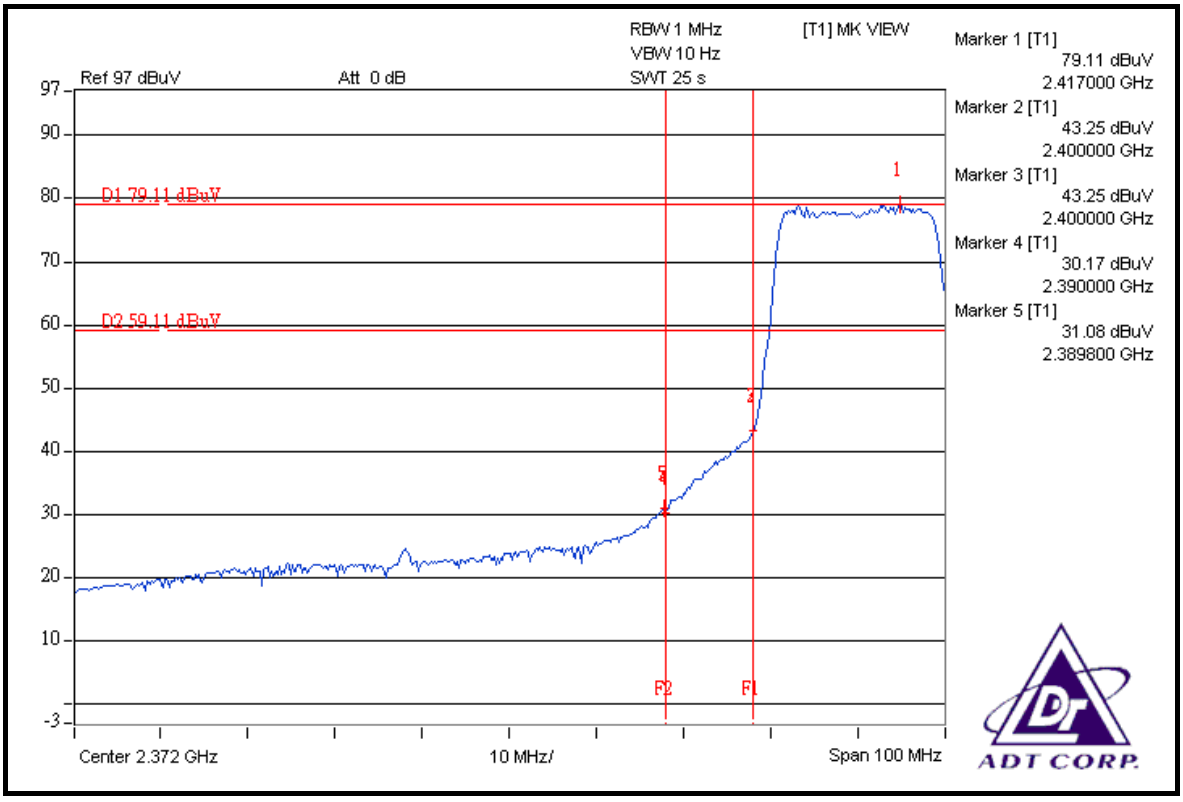
NOTE 1: The band edge emission plot on the next page shows 46.75dBc between carrier maximum power and local maximum emission in restrict band (2.3884GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 110.58dBuV/m (Peak), so the maximum field strength in restrict band is 110.58 – 46.75 = 63.83dBuV/m which is under 74dBuV/m limit.

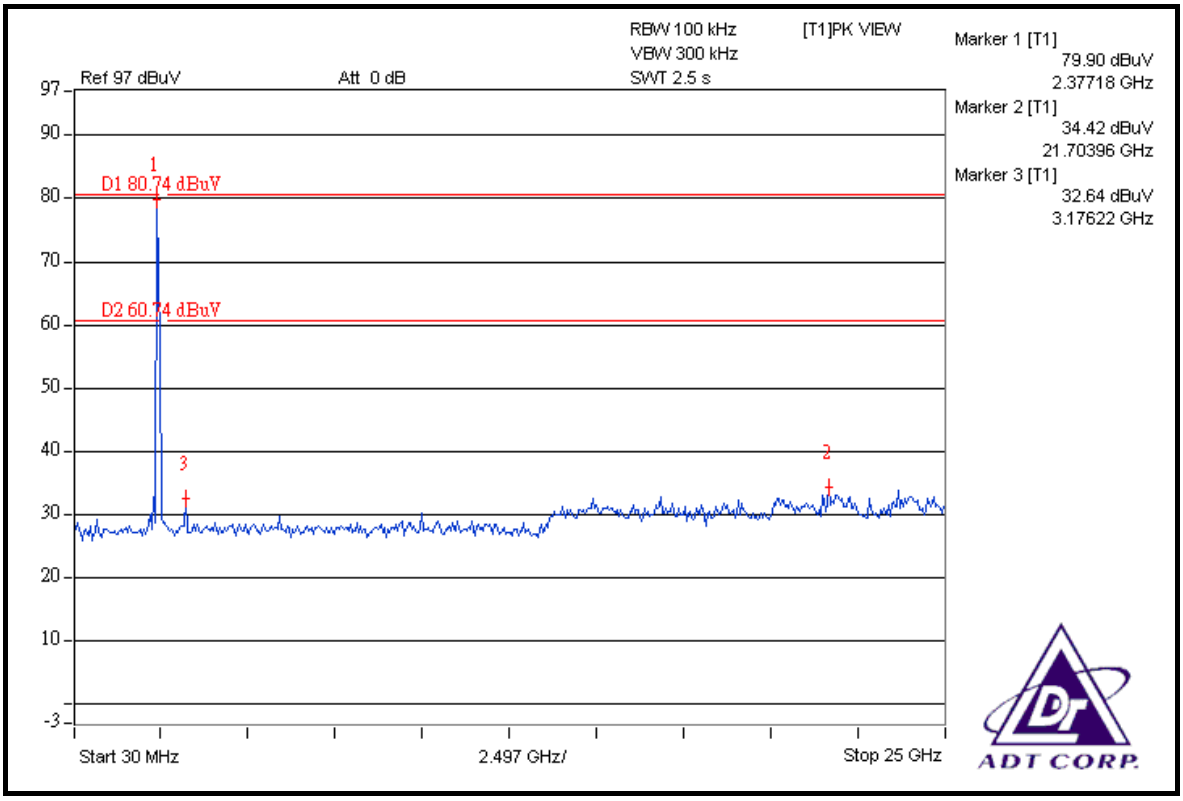
The band edge emission plot of on the next page shows 48.03dBc between carrier maximum power and local maximum emission in restrict band (2.3898GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 100.55dBuV/m (Average), so the maximum field strength in restrict band is 100.55 – 48.03 = 52.52dBuV/m which is under 54dBuV/m limit.

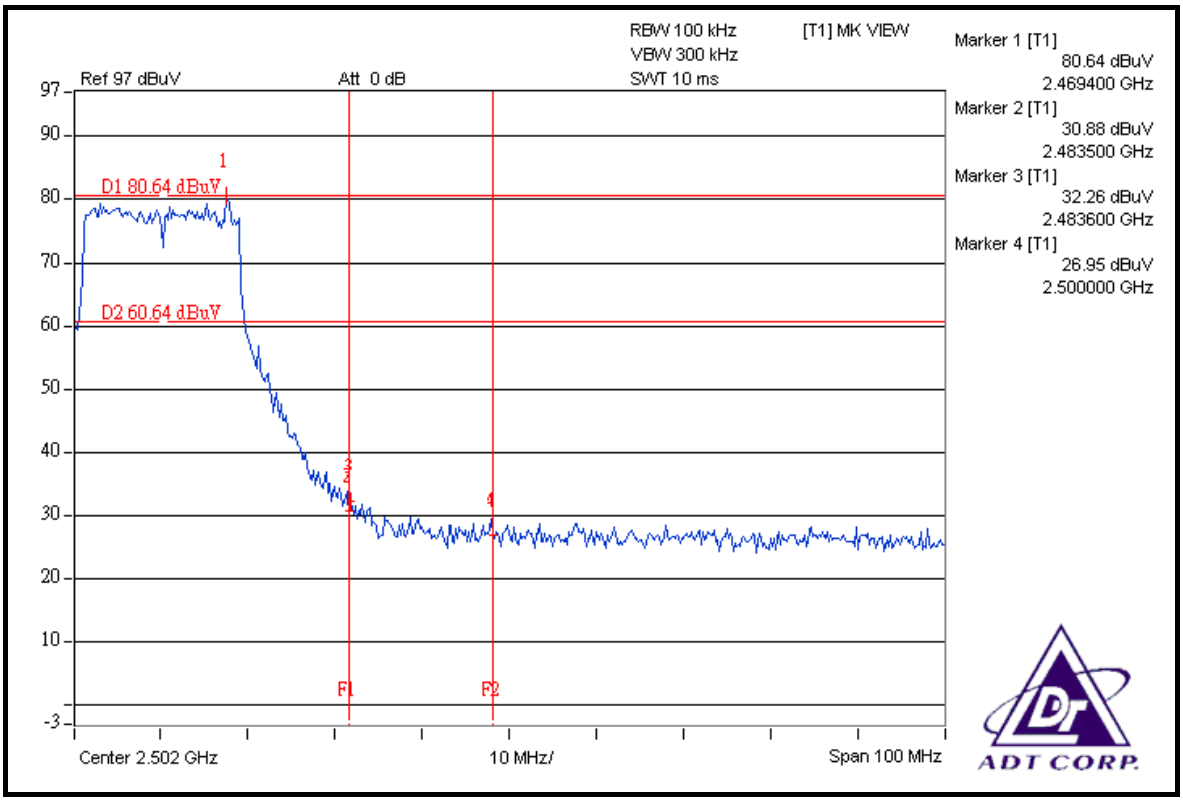
NOTE 2: The band edge emission plot on the next second page shows 48.38dBc between carrier maximum power and local maximum emission in restrict band (2.4836GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.1.7 is 109.82dBuV/m (Peak), so the maximum field strength in restrict band is 109.82 – 48.38 = 61.44dBuV/m which is under 74dBuV/m limit.

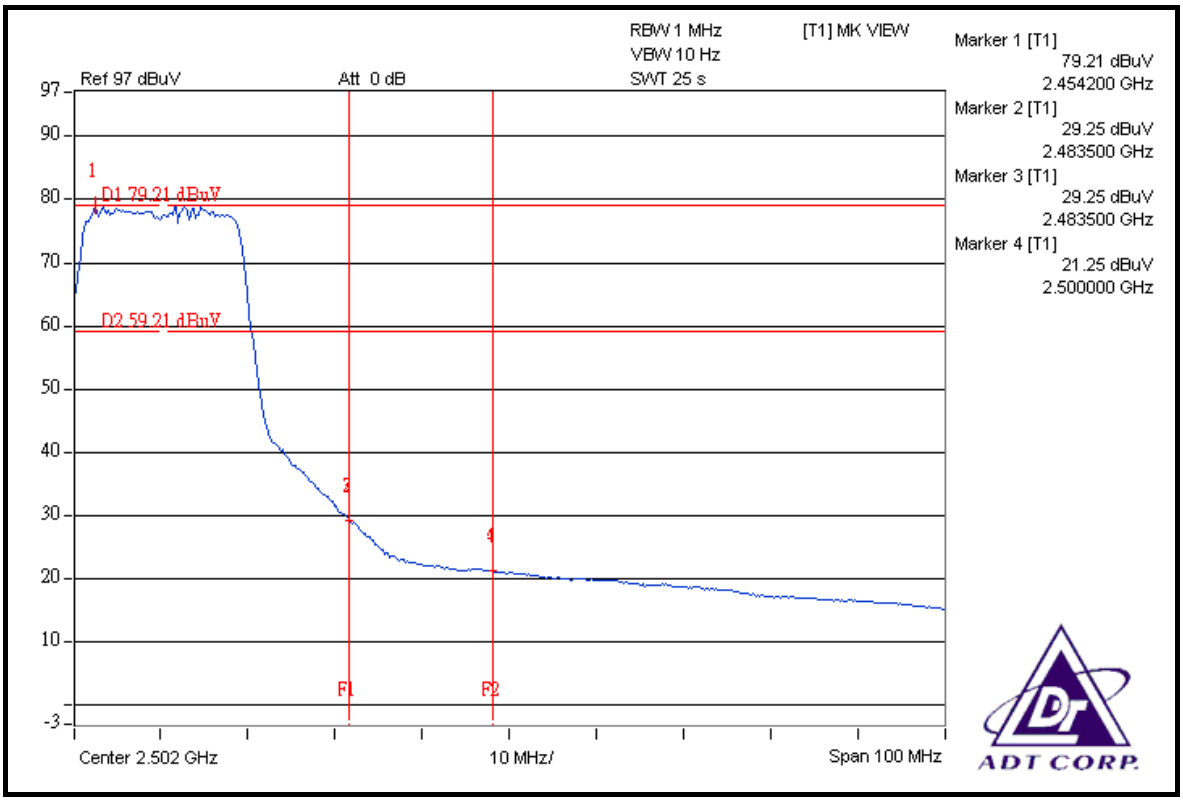
The band edge emission plot on the next third page shows 49.96dBc between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.1.7 is 99.91dBuV/m (Average), so the maximum field strength in restrict band is 99.91 – 49.96 = 49.95dBuV/m which is under 54dBuV/m limit.

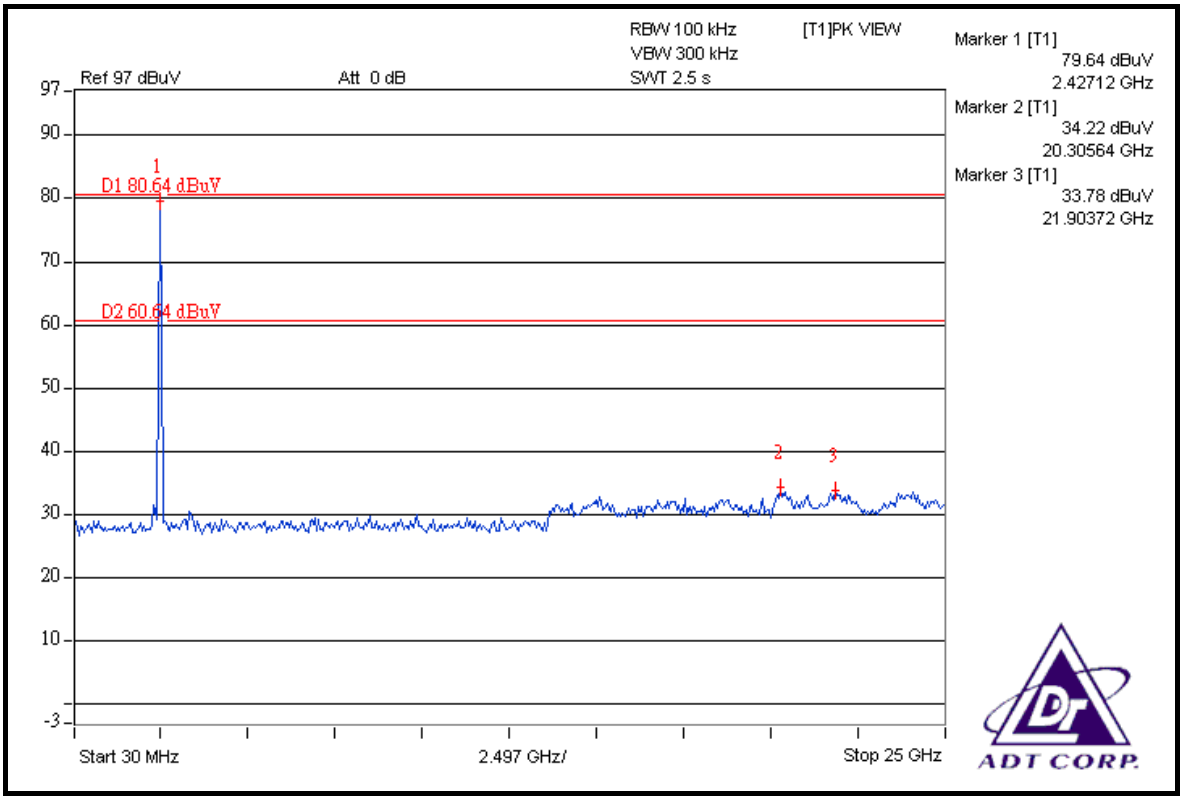

RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
D1 80.74 dBuV
D2 60.74 dBuV
Marker 1 [T1]
80.74 dBuV
2.417000 GHz
Marker 2 [T1]
53.38 dBuV
2.400000 GHz
Marker 3 [T1]
53.38 dBuV
2.400000 GHz
Marker 4 [T1]
32.37 dBuV
2.390000 GHz
Marker 5 [T1]
33.99 dBuV
2.388400 GHz
Center 2.372 GHz
10 MHz/
Span 100 MHz
ADT CORP.


RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
D1 79.11 dBuV
D2 59.11 dBuV
Marker 1 [T1]
79.11 dBuV
2.417000 GHz
Marker 2 [T1]
43.25 dBuV
2.400000 GHz
Marker 3 [T1]
43.25 dBuV
2.400000 GHz
Marker 4 [T1]
30.17 dBuV
2.390000 GHz
Marker 5 [T1]
31.08 dBuV
2.389800 GHz
Center 2.372 GHz
10 MHz/
Span 100 MHz
ADT CORP.


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1]PK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
79.90 dBuV
2.37718 GHz
Marker 2 [T1]
34.42 dBuV
21.70396 GHz
Marker 3 [T1]
32.64 dBuV
3.17622 GHz
D1 80.74 dBuV
D2 60.74 dBuV
97
90
80
70
60
50
40
30
20
10
-3
Start 30 MHz
2.497 GHz/
Stop 25 GHz
ADT CORP.


RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
80.64 dBuV
2.469400 GHz
Marker 2 [T1]
30.88 dBuV
2.483500 GHz
Marker 3 [T1]
32.26 dBuV
2.483600 GHz
Marker 4 [T1]
26.95 dBuV
2.500000 GHz
D1 80.64 dBuV
D2 60.64 dBuV
97
90
80
70
60
50
40
30
20
10
-3
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz
ADT CORP.


RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
79.21 dBuV
2.454200 GHz
Marker 2 [T1]
29.25 dBuV
2.483500 GHz
Marker 3 [T1]
29.25 dBuV
2.483500 GHz
Marker 4 [T1]
21.25 dBuV
2.500000 GHz
D1 79.21 dBuV
D2 59.21 dBuV
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz
ADT CORP.


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1]PK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
79.64 dBuV
2.42712 GHz
Marker 2 [T1]
34.22 dBuV
20.30564 GHz
Marker 3 [T1]
33.78 dBuV
21.90372 GHz
D1 80.64 dBuV
D2 60.64 dBuV
Start 30 MHz
2.497 GHz/
Stop 25 GHz
ADT CORP.

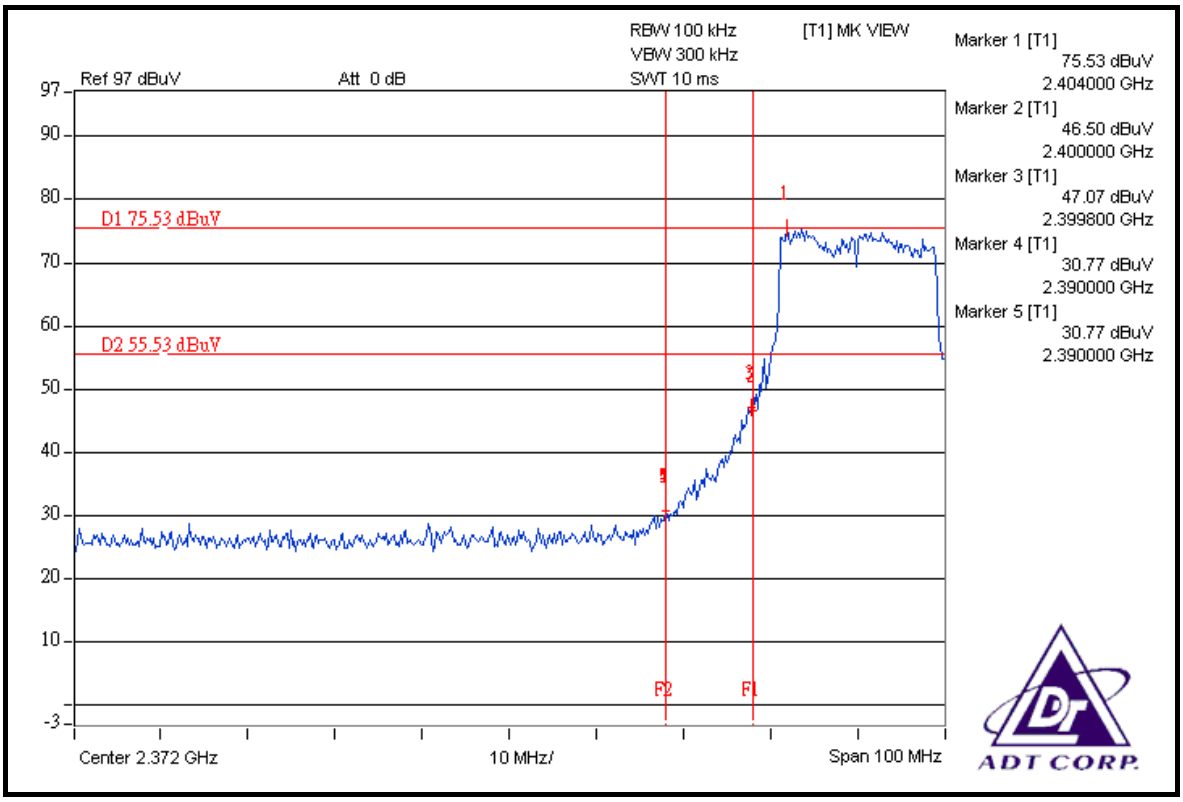
TEST MODE B

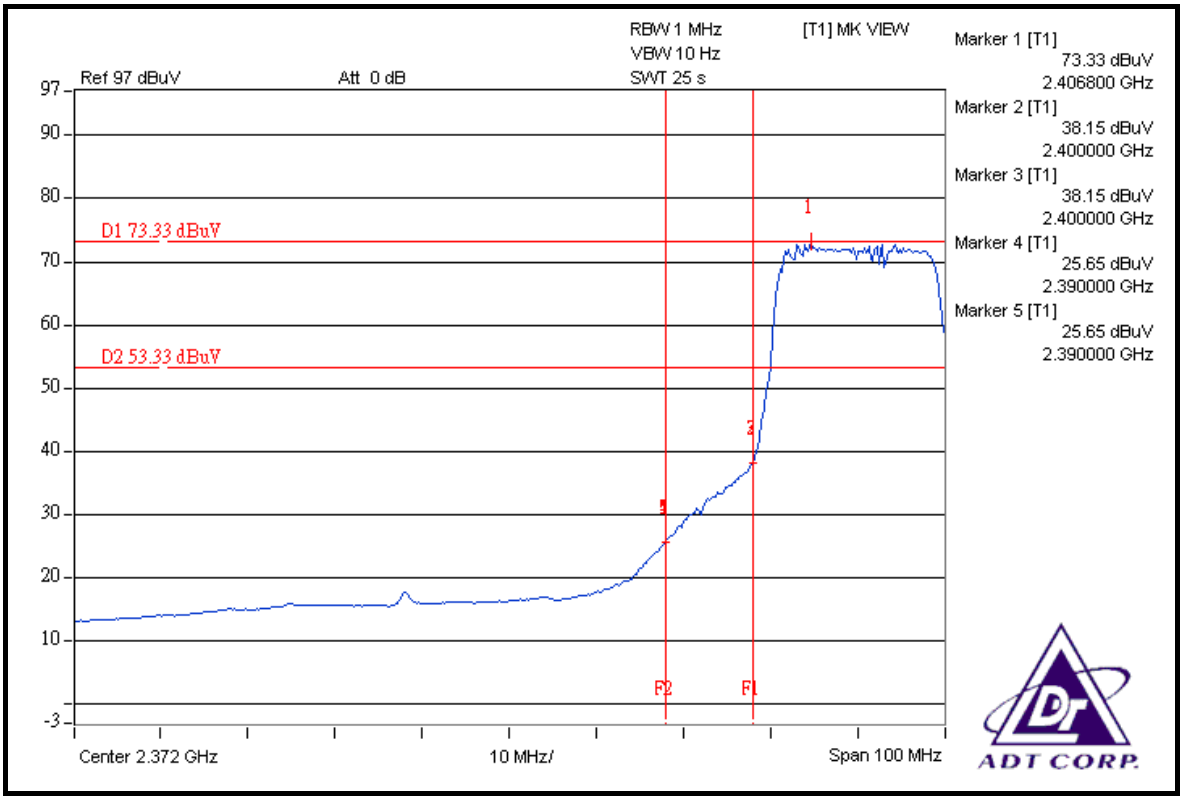
NOTE 1: The band edge emission plot on the next page shows 44.76dBc between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 105.63dBuV/m (Peak), so the maximum field strength in restrict band is 105.63 – 44.76 = 60.87dBuV/m which is under 74dBuV/m limit.

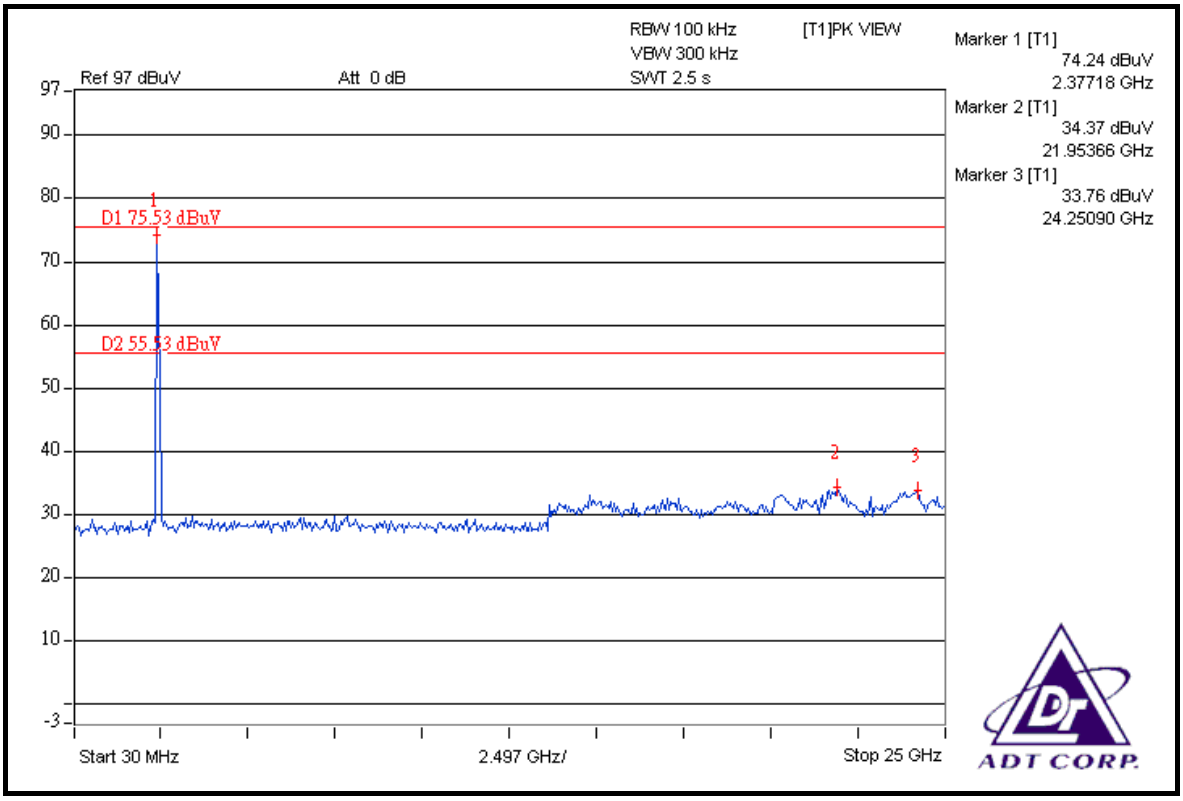
The band edge emission plot of on the next page shows 47.68dBc between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 94.82dBuV/m (Average), so the maximum field strength in restrict band is 94.82 – 47.68 = 47.14dBuV/m which is under 54dBuV/m limit.

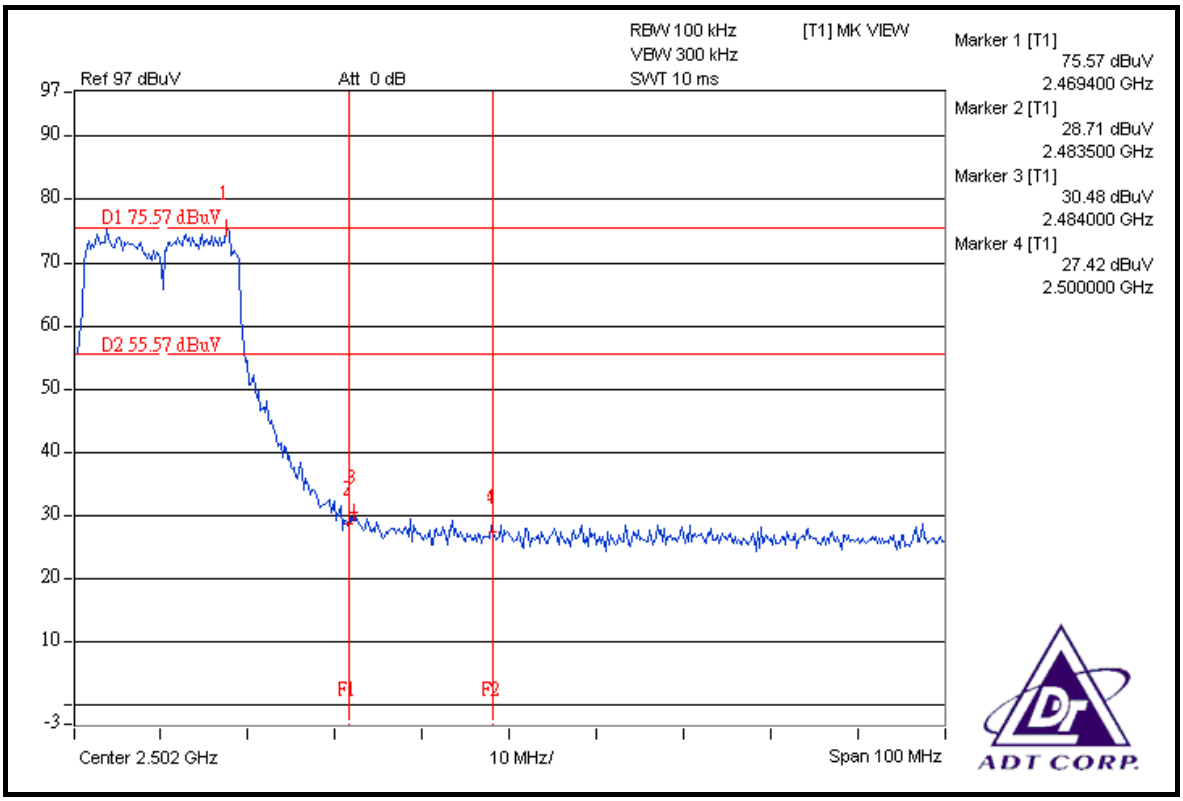
NOTE 2: The band edge emission plot on the next second page shows 45.09dBc between carrier maximum power and local maximum emission in restrict band (2.4840GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.1.7 is 106.34dBuV/m (Peak), so the maximum field strength in restrict band is 106.34 – 45.09 = 61.25dBuV/m which is under 74dBuV/m limit.

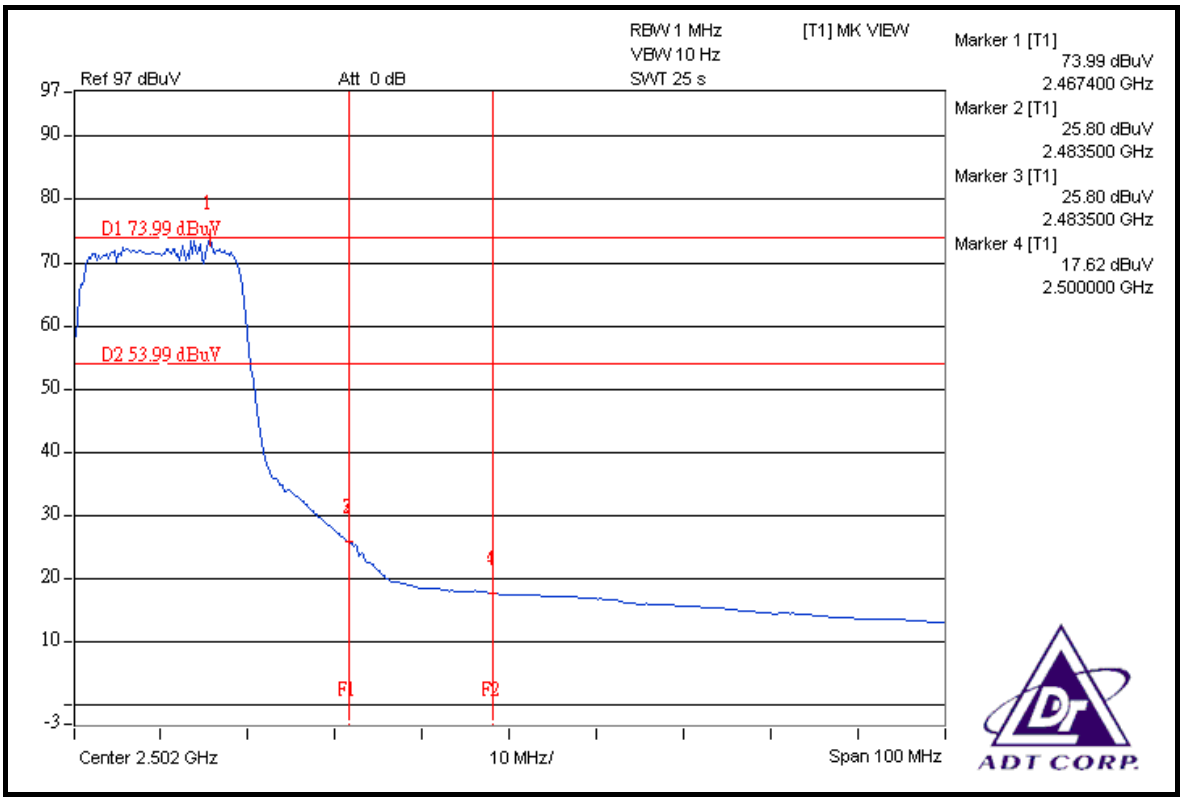
The band edge emission plot on the next third page shows 48.19dBc between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.1.7 is 95.54dBuV/m (Average), so the maximum field strength in restrict band is 95.54 – 48.19 = 47.35dBuV/m which is under 54dBuV/m limit.

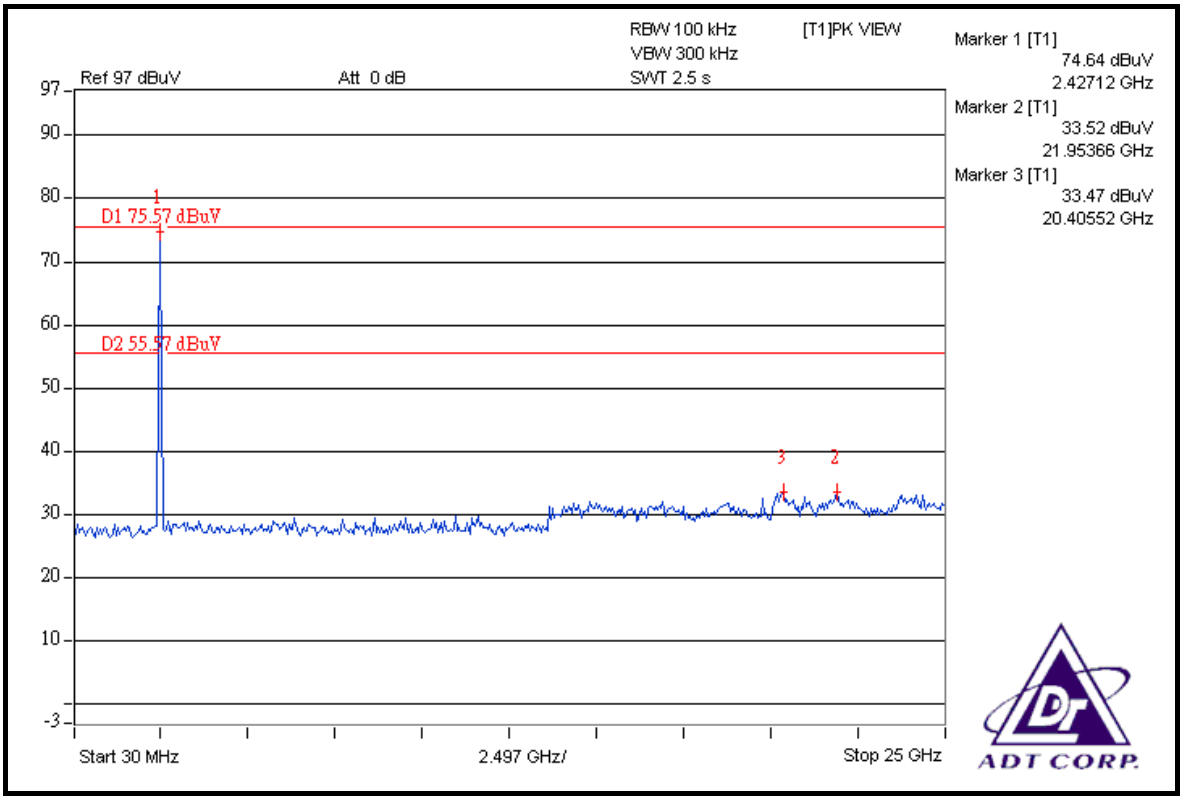

RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
D1 75.53 dBuV
D2 55.53 dBuV
Marker 1 [T1]
75.53 dBuV
2.404000 GHz
Marker 2 [T1]
46.50 dBuV
2.400000 GHz
Marker 3 [T1]
47.07 dBuV
2.399800 GHz
Marker 4 [T1]
30.77 dBuV
2.390000 GHz
Marker 5 [T1]
30.77 dBuV
2.390000 GHz
F2
F1
Center 2.372 GHz
10 MHz/
Span 100 MHz
ADT CORP.


RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
D1 73.33 dBuV
D2 53.33 dBuV
Marker 1 [T1]
73.33 dBuV
2.406800 GHz
Marker 2 [T1]
38.15 dBuV
2.400000 GHz
Marker 3 [T1]
38.15 dBuV
2.400000 GHz
Marker 4 [T1]
25.65 dBuV
2.390000 GHz
Marker 5 [T1]
25.65 dBuV
2.390000 GHz
F2
F1
Center 2.372 GHz
10 MHz/
Span 100 MHz
ADT CORP.


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1]PK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
74.24 dBuV
2.37718 GHz
Marker 2 [T1]
34.37 dBuV
21.95366 GHz
Marker 3 [T1]
33.76 dBuV
24.25090 GHz
D1 75.53 dBuV
D2 55.53 dBuV
97
90
80
70
60
50
40
30
20
10
-3
Start 30 MHz
2.497 GHz/
Stop 25 GHz
ADT CORP.


RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
75.57 dBuV
2.469400 GHz
Marker 2 [T1]
28.71 dBuV
2.483500 GHz
Marker 3 [T1]
30.48 dBuV
2.484000 GHz
Marker 4 [T1]
27.42 dBuV
2.500000 GHz
D1 75.57 dBuV
D2 55.57 dBuV
97
90
80
70
60
50
40
30
20
10
-3
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz
ADT CORP.


RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
73.99 dBuV
2.467400 GHz
Marker 2 [T1]
25.80 dBuV
2.483500 GHz
Marker 3 [T1]
25.80 dBuV
2.483500 GHz
Marker 4 [T1]
17.62 dBuV
2.500000 GHz
D1 73.99 dBuV
D2 53.99 dBuV
97
90
80
70
60
50
40
30
20
10
-3
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz
ADT CORP.


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1]PK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
74.64 dBuV
2.42712 GHz
Marker 2 [T1]
33.52 dBuV
21.95366 GHz
Marker 3 [T1]
33.47 dBuV
20.40552 GHz
D1 75.57 dBuV
D2 55.57 dBuV
97
90
80
70
60
50
40
30
20
10
-3
Start 30 MHz
2.497 GHz/
Stop 25 GHz
ADT CORP.

DRAFT 802.11n (40MHz) OFDM MODULATION

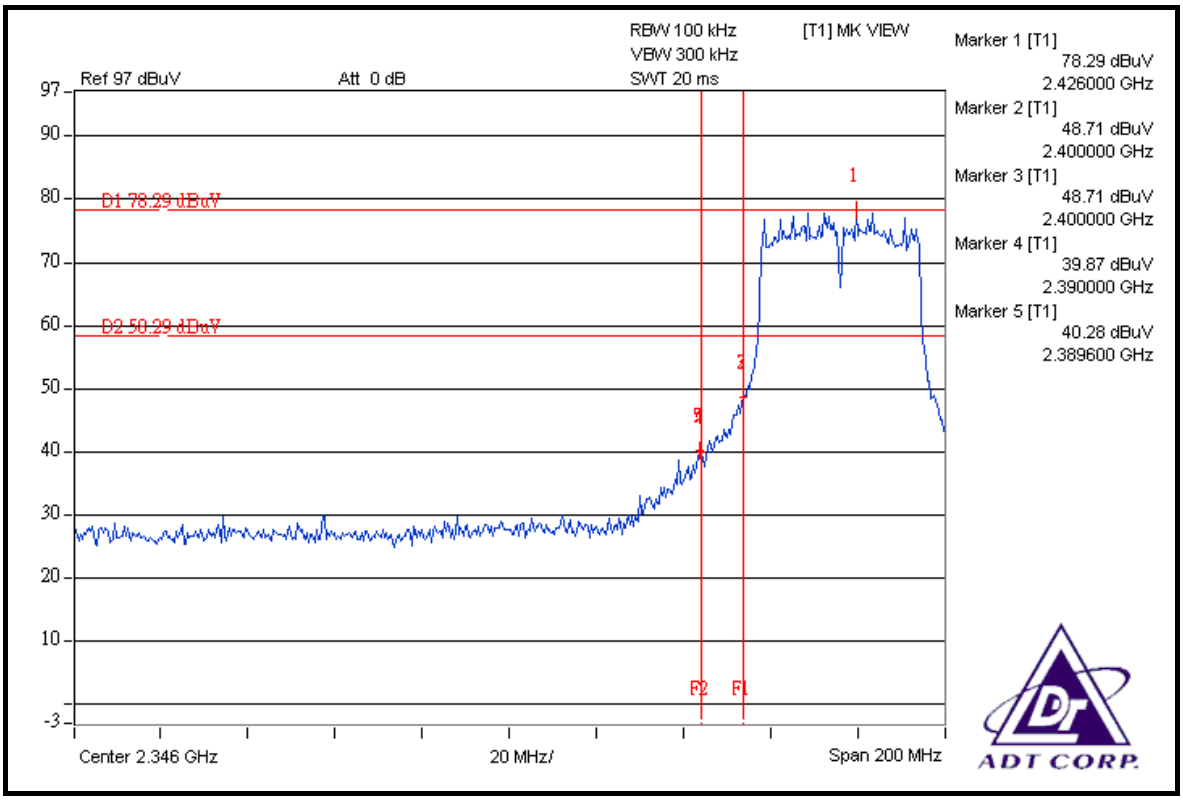
TEST MODE A

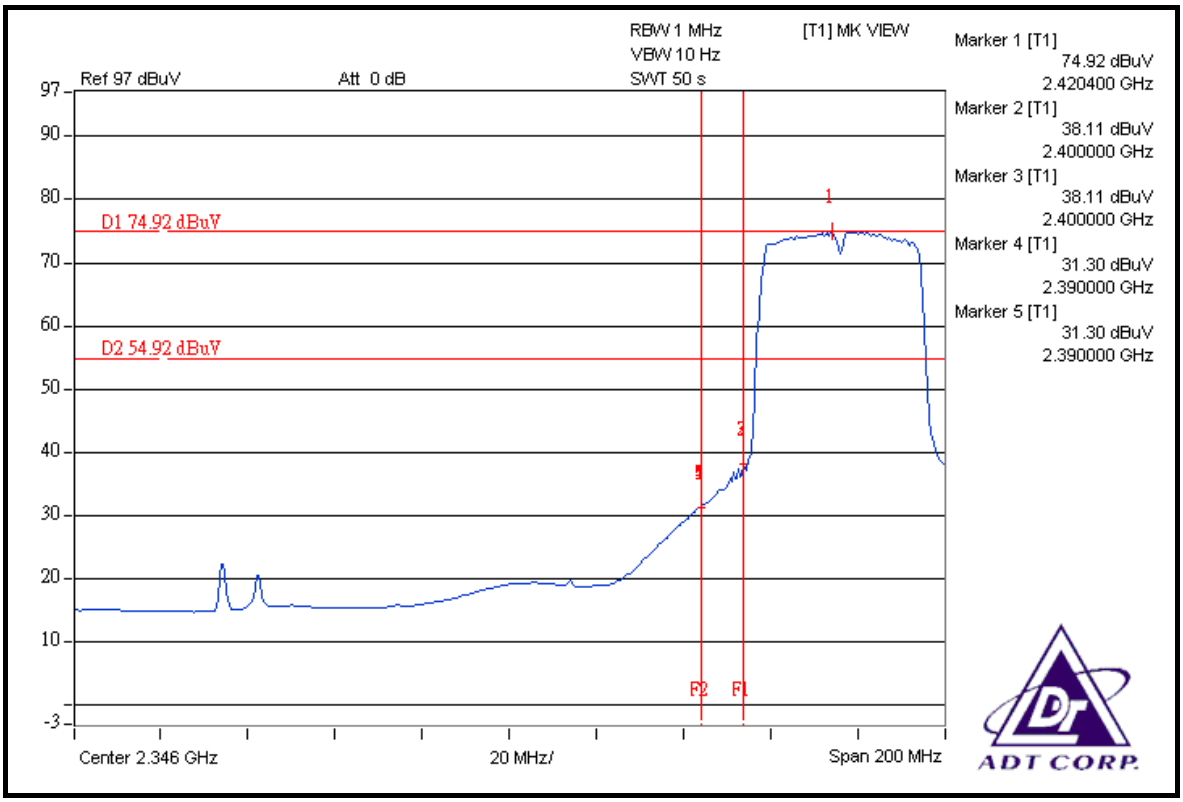
NOTE 1: The band edge emission plot on the next page shows 38.01dBc between carrier maximum power and local maximum emission in restrict band (2.3896GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 106.30dBuV/m (Peak), so the maximum field strength in restrict band is 106.30 – 38.01 = 68.29dBuV/m which is under 74dBuV/m limit.

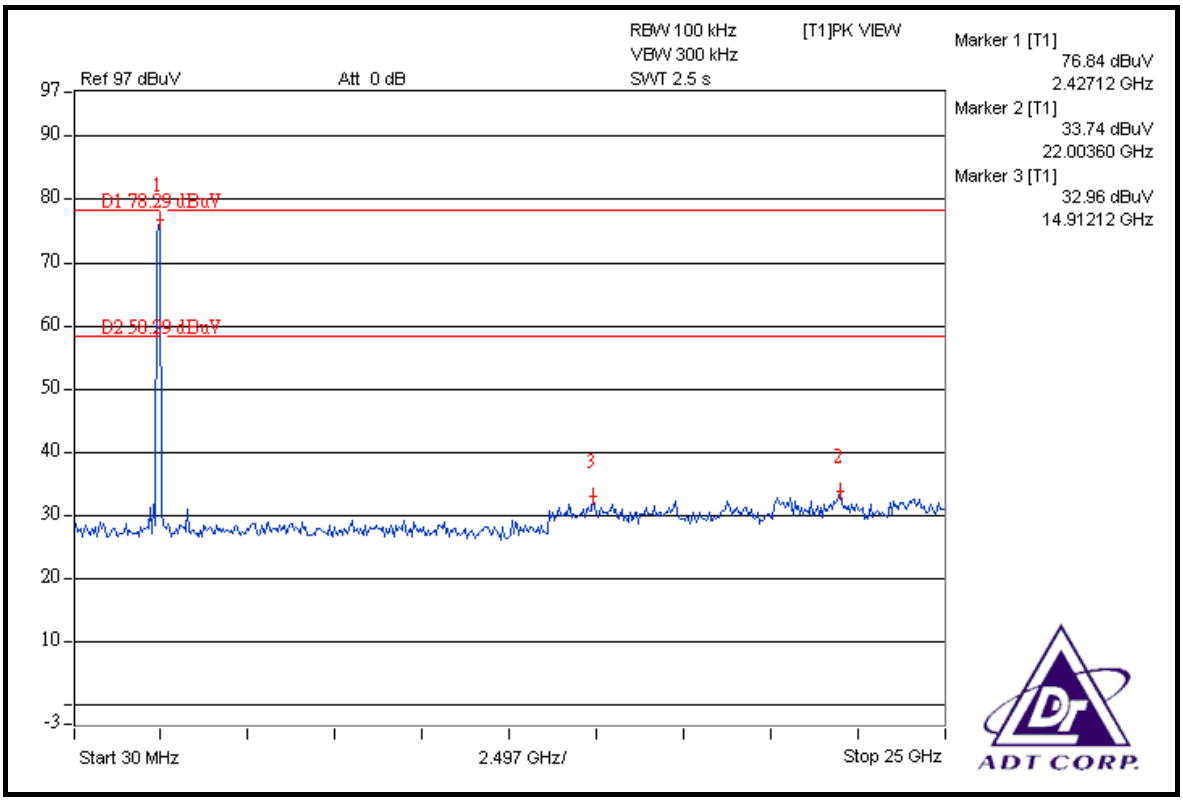
The band edge emission plot of on the next page shows 43.62dBc between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 96.31dBuV/m (Average), so the maximum field strength in restrict band is 96.31 – 43.62 = 52.69dBuV/m which is under 54dBuV/m limit.

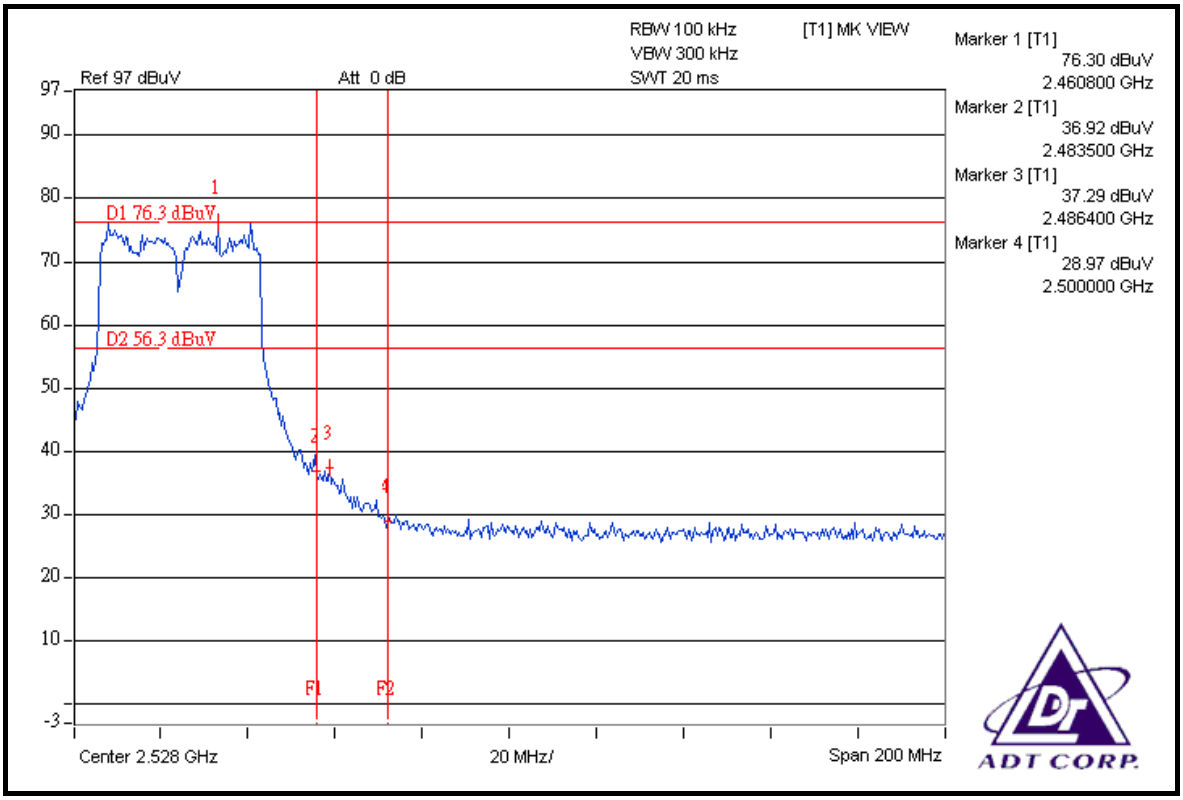
NOTE 2: The band edge emission plot on the next second page shows 39.01dBc between carrier maximum power and local maximum emission in restrict band (2.4864GHz). The emission of carrier strength list in the test result of channel 7 at the item 4.1.7 is 105.98dBuV/m (Peak), so the maximum field strength in restrict band is 105.98 – 39.01 = 66.97dBuV/m which is under 74dBuV/m limit.

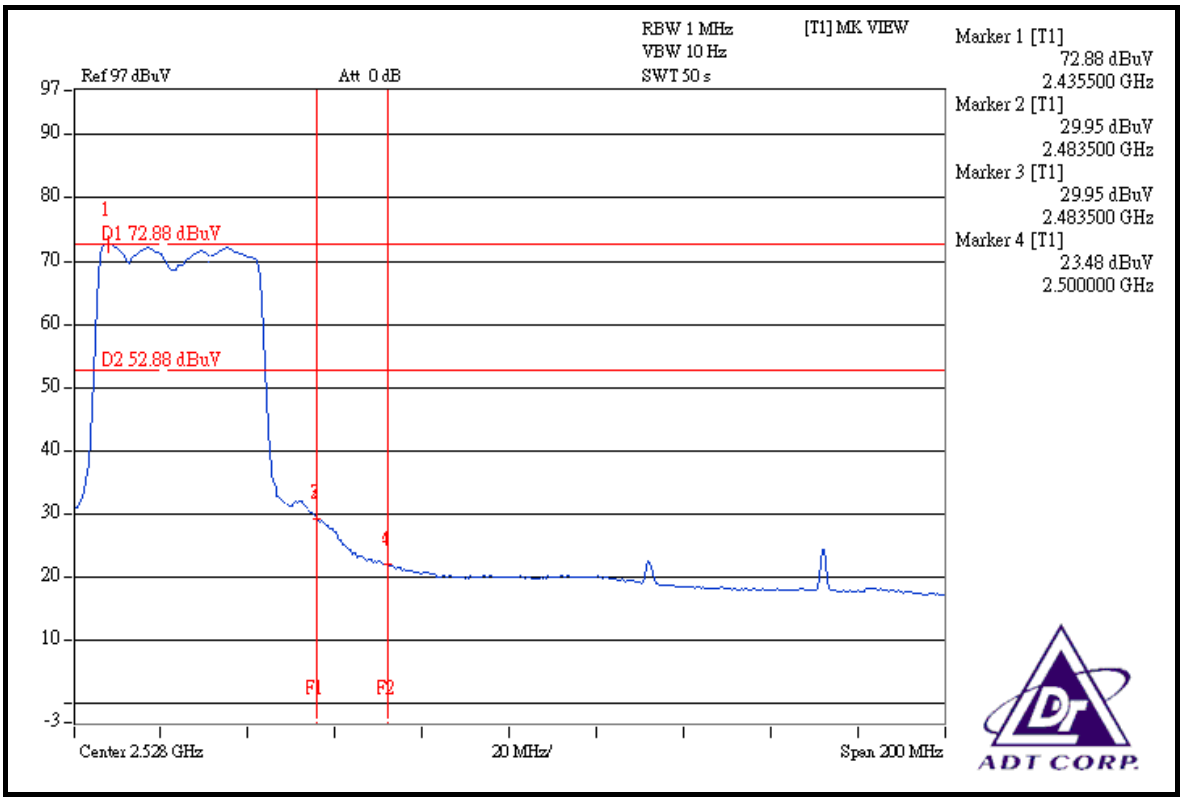
The band edge emission plot on the next third page shows 42.93dBc between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 7 at the item 4.1.7 is 95.22dBuV/m (Average), so the maximum field strength in restrict band is 95.22 – 42.93 = 52.29dBuV/m which is under 54dBuV/m limit.

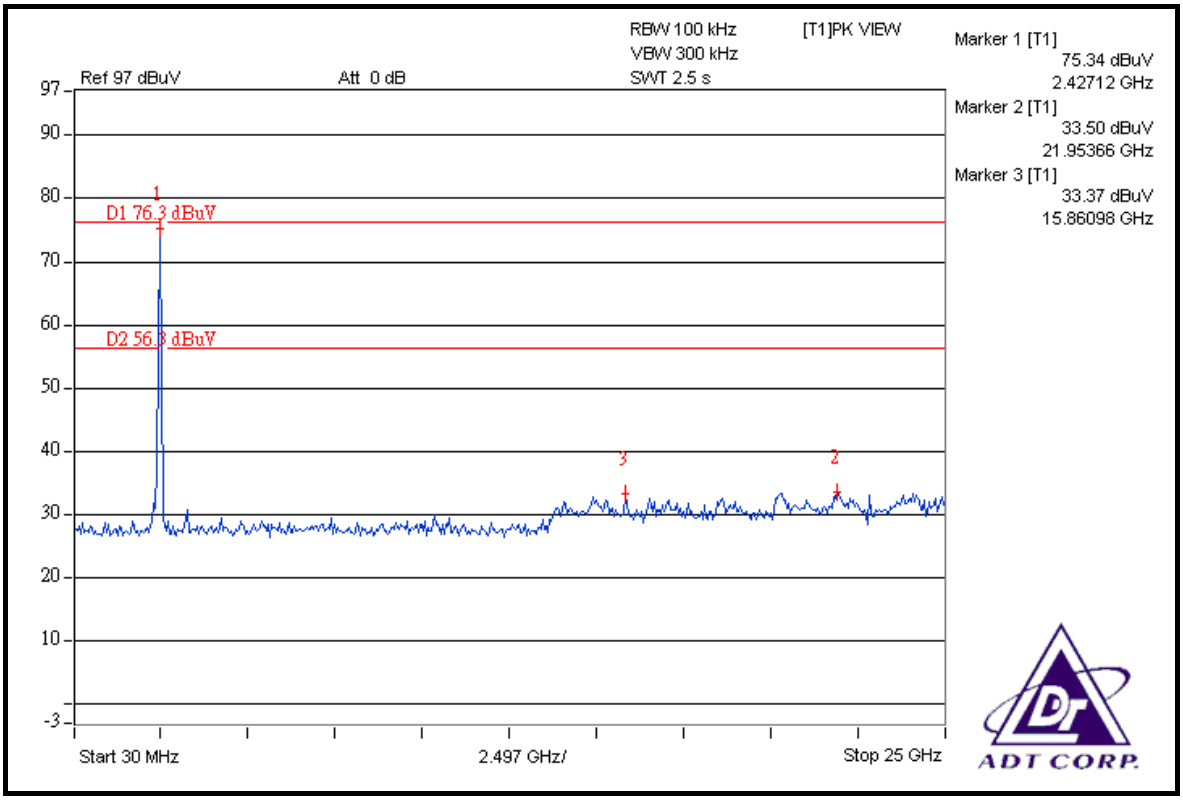

RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
D1 78.29 dBuV
D2 50.29 dBuV
Marker 1 [T1]
78.29 dBuV
2.426000 GHz
Marker 2 [T1]
48.71 dBuV
2.400000 GHz
Marker 3 [T1]
48.71 dBuV
2.400000 GHz
Marker 4 [T1]
39.87 dBuV
2.390000 GHz
Marker 5 [T1]
40.28 dBuV
2.389600 GHz
Center 2.346 GHz
20 MHz/
Span 200 MHz
ADT CORP.


RBW 1 MHz
VBW 10 Hz
SWT 50 s
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
D1 74.92 dBuV
D2 54.92 dBuV
Marker 1 [T1]
74.92 dBuV
2.420400 GHz
Marker 2 [T1]
38.11 dBuV
2.400000 GHz
Marker 3 [T1]
38.11 dBuV
2.400000 GHz
Marker 4 [T1]
31.30 dBuV
2.390000 GHz
Marker 5 [T1]
31.30 dBuV
2.390000 GHz
Center 2.346 GHz
20 MHz/
Span 200 MHz
ADT CORP.


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1]PK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
76.84 dBuV
2.42712 GHz
Marker 2 [T1]
33.74 dBuV
22.00360 GHz
Marker 3 [T1]
32.96 dBuV
14.91212 GHz
D1 78.29 dBuV
D2 50.29 dBuV
97
90
80
70
60
50
40
30
20
10
-3
Start 30 MHz
2.497 GHz/
Stop 25 GHz
ADT CORP.


RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
76.30 dBuV
2.460800 GHz
Marker 2 [T1]
36.92 dBuV
2.483500 GHz
Marker 3 [T1]
37.29 dBuV
2.486400 GHz
Marker 4 [T1]
28.97 dBuV
2.500000 GHz
D1 76.3 dBuV
D2 56.3 dBuV
97
90
80
70
60
50
40
30
20
10
-3
F1
F2
Center 2.528 GHz
20 MHz/
Span 200 MHz
ADT CORP.


RBW 1 MHz
VBW 10 Hz
SWT 50 s
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
72.88 dBuV
2.435500 GHz
Marker 2 [T1]
29.95 dBuV
2.483500 GHz
Marker 3 [T1]
29.95 dBuV
2.483500 GHz
Marker 4 [T1]
23.48 dBuV
2.500000 GHz
D1 72.88 dBuV
D2 52.88 dBuV
F1
F2
Center 2.528 GHz
20 MHz/
Span 200 MHz
ADT CORP.


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1]PK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
75.34 dBuV
2.42712 GHz
Marker 2 [T1]
33.50 dBuV
21.95366 GHz
Marker 3 [T1]
33.37 dBuV
15.86098 GHz
D1 76.3 dBuV
D2 56.3 dBuV
Start 30 MHz
2.497 GHz/
Stop 25 GHz
ADT CORP.

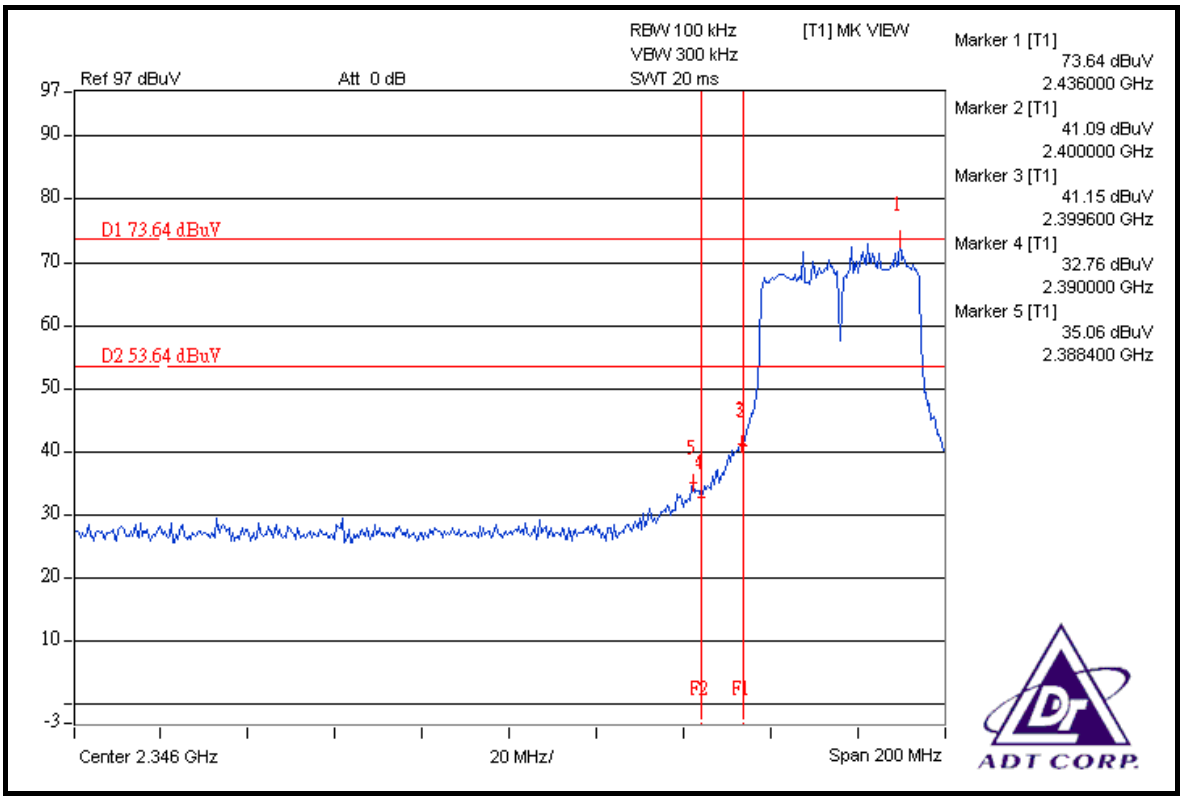
TEST MODE B

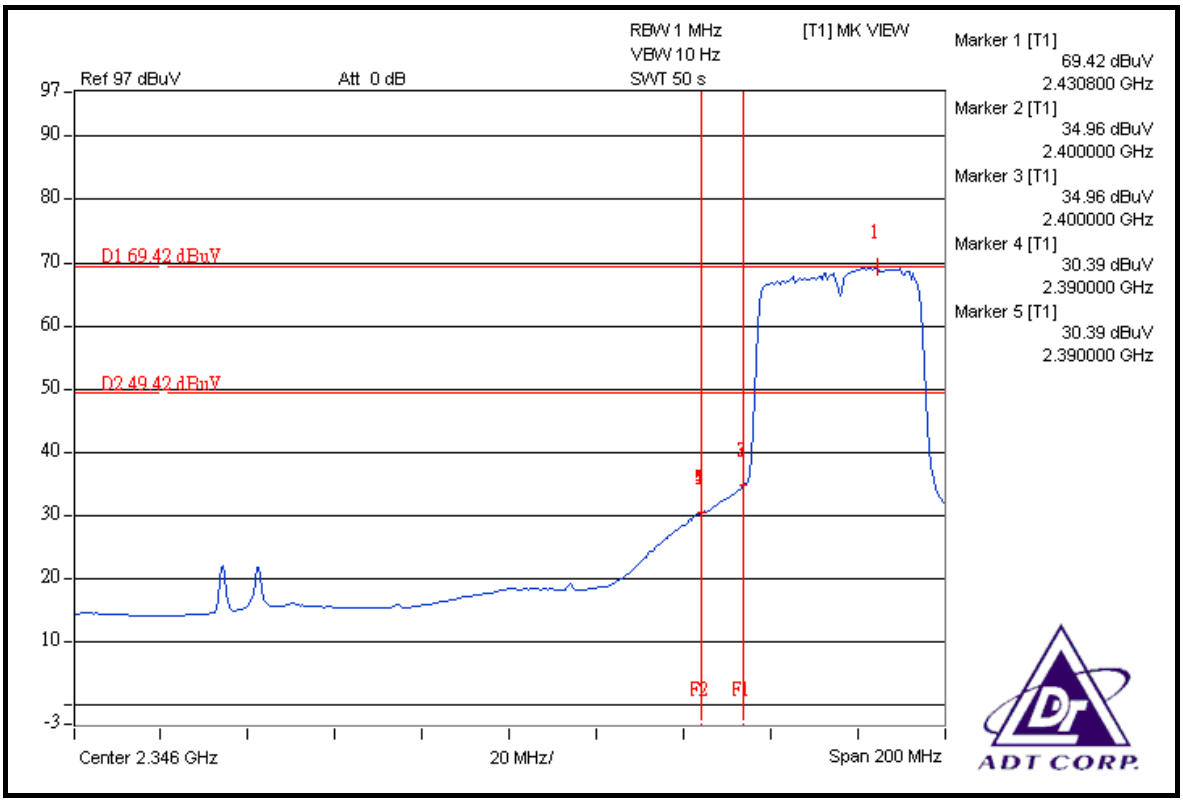
NOTE 1: The band edge emission plot on the next page shows 38.58dBc between carrier maximum power and local maximum emission in restrict band (2.3884GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 101.15dBuV/m (Peak), so the maximum field strength in restrict band is 101.15 – 38.58 = 62.57dBuV/m which is under 74dBuV/m limit.

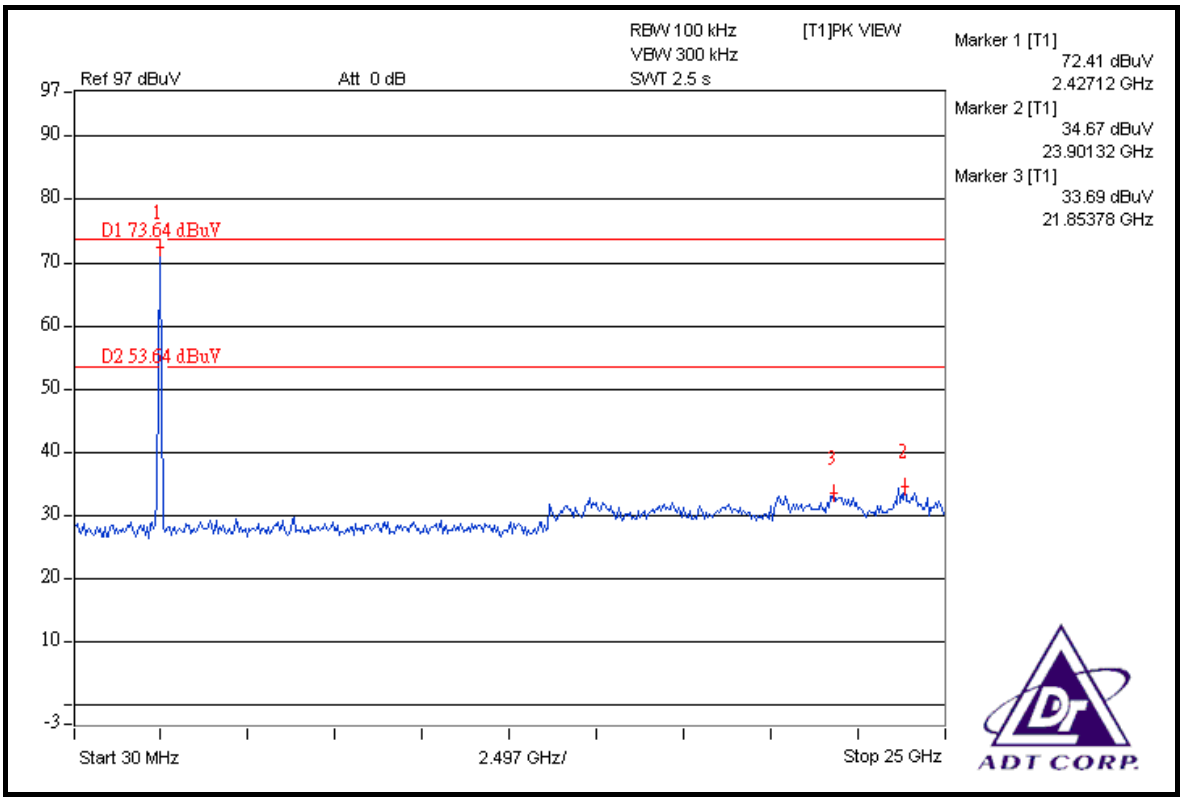
The band edge emission plot of on the next page shows 39.03dBc between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 90.85dBuV/m (Average), so the maximum field strength in restrict band is 90.85 – 39.03 = 51.82dBuV/m which is under 54dBuV/m limit.

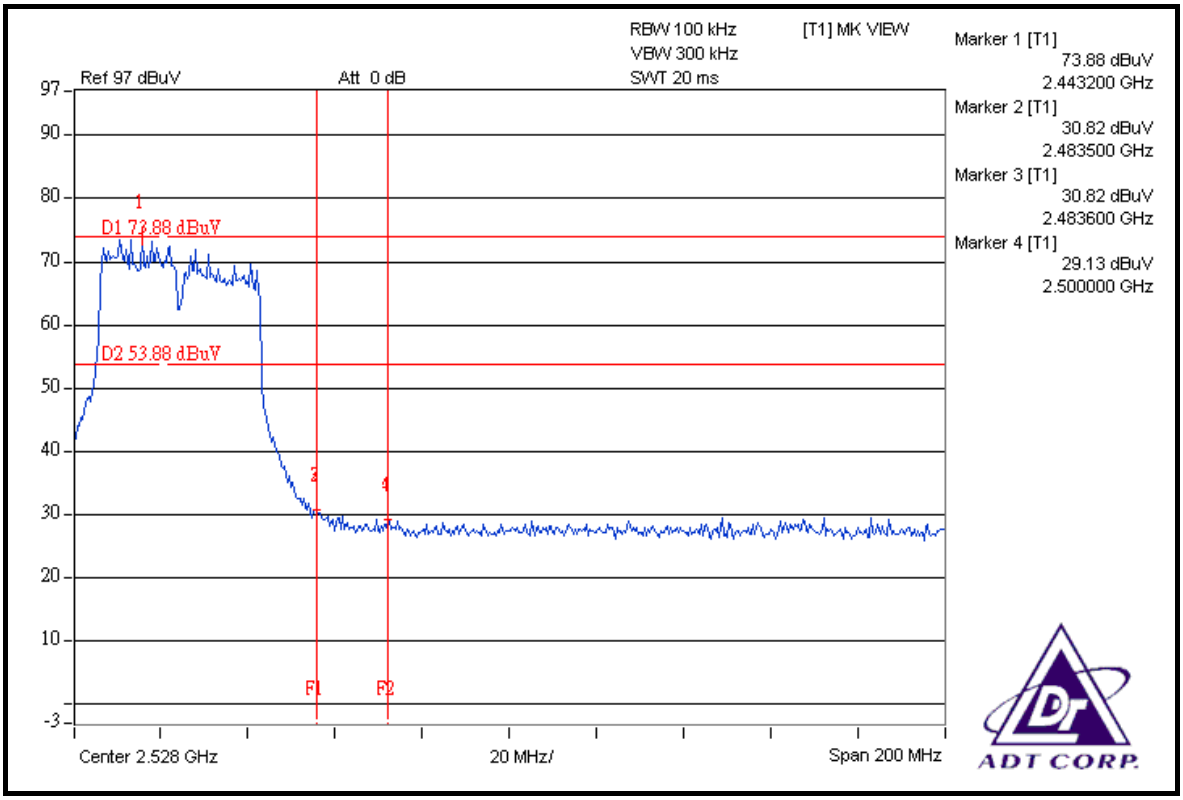
NOTE 2: The band edge emission plot on the next second page shows 43.06dBc between carrier maximum power and local maximum emission in restrict band (2.4836GHz). The emission of carrier strength list in the test result of channel 7 at the item 4.1.7 is 101.25dBuV/m (Peak), so the maximum field strength in restrict band is 101.25 – 43.06 = 58.19dBuV/m which is under 74dBuV/m limit.

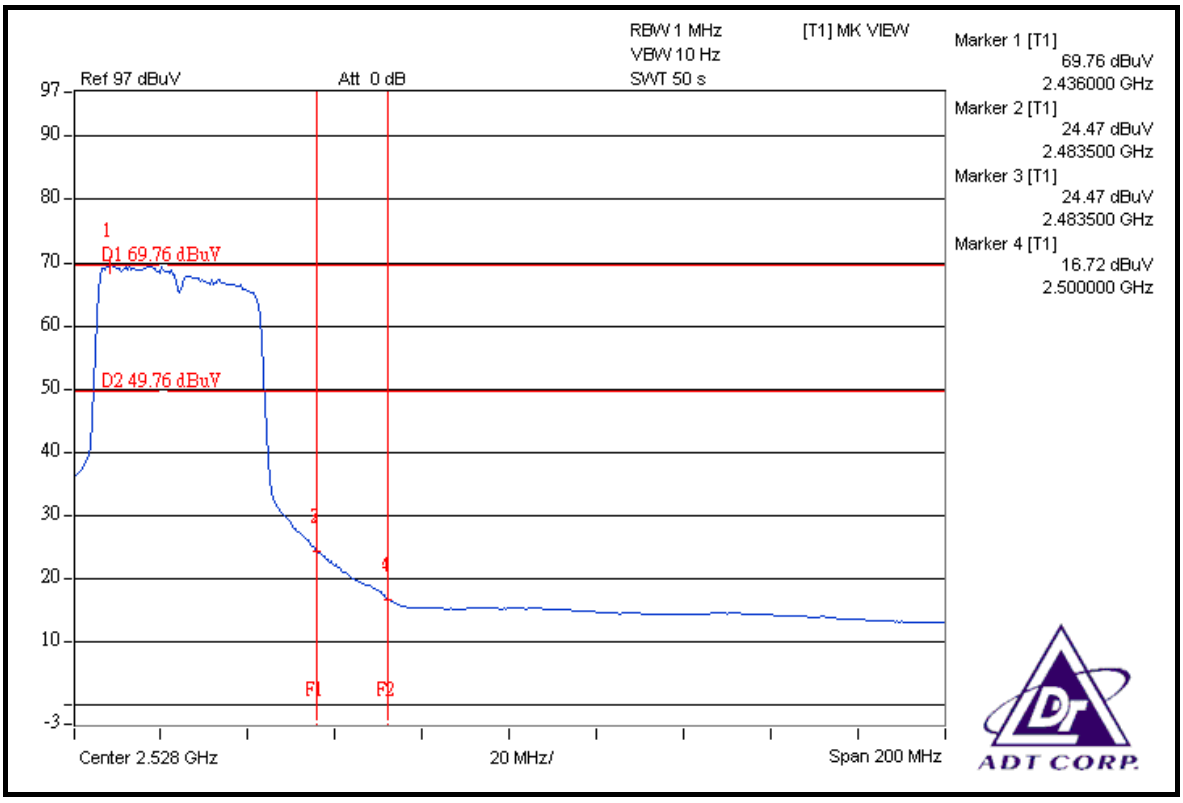
The band edge emission plot on the next third page shows 45.29dBc between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 7 at the item 4.1.7 is 91.28dBuV/m (Average), so the maximum field strength in restrict band is 91.28 – 45.29 = 45.99dBuV/m which is under 54dBuV/m limit.

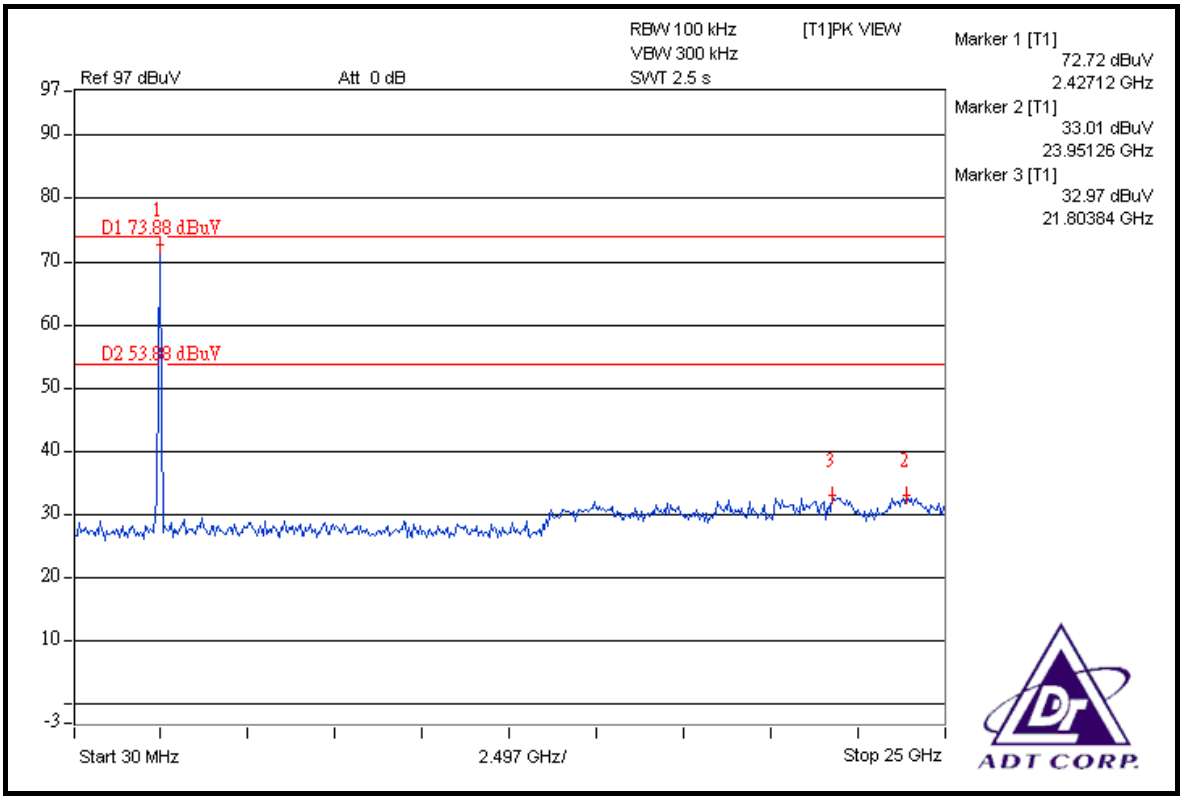

RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
D1 73.64 dBuV
D2 53.64 dBuV
Marker 1 [T1]
73.64 dBuV
2.436000 GHz
Marker 2 [T1]
41.09 dBuV
2.400000 GHz
Marker 3 [T1]
41.15 dBuV
2.399600 GHz
Marker 4 [T1]
32.76 dBuV
2.390000 GHz
Marker 5 [T1]
35.06 dBuV
2.388400 GHz
Center 2.346 GHz
20 MHz/
Span 200 MHz
ADT CORP.


RBW 1 MHz
VBW 10 Hz
SWT 50 s
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
D1 69.42 dBuV
D2 49.42 dBuV
Marker 1 [T1]
69.42 dBuV
2.430800 GHz
Marker 2 [T1]
34.96 dBuV
2.400000 GHz
Marker 3 [T1]
34.96 dBuV
2.400000 GHz
Marker 4 [T1]
30.39 dBuV
2.390000 GHz
Marker 5 [T1]
30.39 dBuV
2.390000 GHz
Center 2.346 GHz
20 MHz/
Span 200 MHz
ADT CORP.


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1]PK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
72.41 dBuV
2.42712 GHz
Marker 2 [T1]
34.67 dBuV
23.90132 GHz
Marker 3 [T1]
33.69 dBuV
21.85378 GHz
D1 73.64 dBuV
D2 53.64 dBuV
97
90
80
70
60
50
40
30
20
10
-3
Start 30 MHz
2.497 GHz/
Stop 25 GHz
ADT CORP.


RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
73.88 dBuV
2.443200 GHz
Marker 2 [T1]
30.82 dBuV
2.483500 GHz
Marker 3 [T1]
30.82 dBuV
2.483600 GHz
Marker 4 [T1]
29.13 dBuV
2.500000 GHz
D1 73.88 dBuV
D2 53.88 dBuV
F1
F2
97
90
80
70
60
50
40
30
20
10
-3
Center 2.528 GHz
20 MHz/
Span 200 MHz
ADT CORP.


RBW 1 MHz
VBW 10 Hz
SWT 50 s
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
69.76 dBuV
2.436000 GHz
Marker 2 [T1]
24.47 dBuV
2.483500 GHz
Marker 3 [T1]
24.47 dBuV
2.483500 GHz
Marker 4 [T1]
16.72 dBuV
2.500000 GHz
D1 69.76 dBuV
D2 49.76 dBuV
F1
F2
Center 2.528 GHz
20 MHz/
Span 200 MHz
ADT CORP.


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1]PK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
72.72 dBuV
2.42712 GHz
Marker 2 [T1]
33.01 dBuV
23.95126 GHz
Marker 3 [T1]
32.97 dBuV
21.80384 GHz
D1 73.88 dBuV
D2 53.88 dBuV
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

The antennas used in this product are PIFA antenna with UFL connector and Dipole antenna with R-SMA connector. The maximum Gain of the antenna is 1.65dBi.

5. TEST TYPES AND RESULTS (FOR 5.0GHz BAND)

5.1 RADIATED EMISSION MEASUREMENT

5.1.1 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.

5.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESI7	100033	Jun. 30, 2008	Jun. 29, 2009
Spectrum Analyzer Agilent	FSP	100041	Apr. 22, 2008	Apr. 21, 2009
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	May, 02, 2008	May, 01, 2009
HORN Antenna SCHWARZBECK	9120D	9120D-209	Jun. 24, 2008	Jun. 23, 2009
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170243	Dec. 25, 2007	Dec. 24, 2008
Preamplifier Agilent	8447D	2944A10633	Oct. 29, 2007	Oct. 28, 2008
Preamplifier Agilent	8449B	3008A01964	Oct. 24, 2007	Oct. 23, 2008
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	283402/4	Dec. 07, 2007	Dec. 06, 2008
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	251644/4	Dec. 07, 2007	Dec. 06, 2008
Software ADT.	ADT_Radiated_V7.6	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA	NA
Antenna Tower Controller inn-co GmbH	CO2000	017303	NA	NA
Turn Table ADT.	TT100.	TT93021703	NA	NA
Turn Table Controller ADT.	SC100.	SC93021703	NA	NA

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The test was performed in HwaYa Chamber 3.

3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.

4. The FCC Site Registration No. is 988962.

5. The IC Site Registration No. is IC3789B-3.

5.1.3 TEST PROCEDURES

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

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

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

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

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

f. If the emission level of the EUT in peak mode was lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

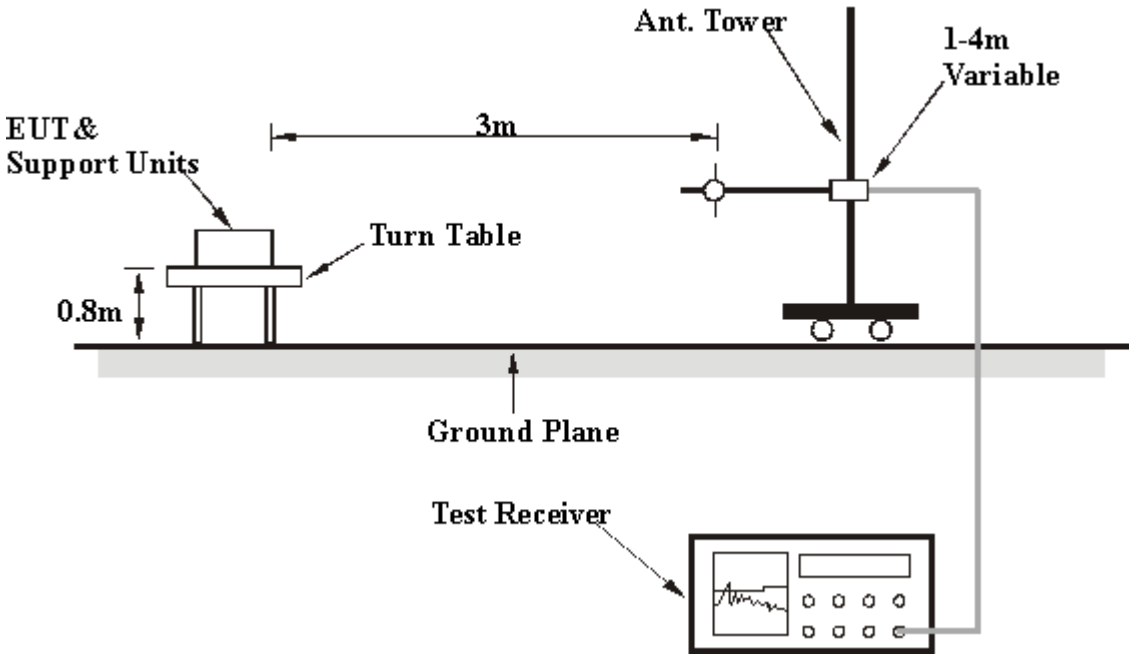
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

5.1.4 DEVIATION FROM TEST STANDARD

No deviation

5.1.5 TEST SETUP



For the actual test configuration, please refer to the attached file (Test Setup Photo).

5.1.6 EUT OPERATING CONDITIONS

Same as 4.1.6

5.1.7 TEST RESULTS

802.11a OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1000hPa	TEST MODE	A
TESTED BY	Match Tsui		

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	#5725.00	67.77 PK	81.66	-13.89	1.00 H	32	27.93	39.84
2	#5725.00	57.55 AV	71.21	-13.66	1.00 H	32	17.71	39.84
3	*5745.00	101.66 PK			1.39 H	32	61.79	39.87
4	*5745.00	91.21 AV			1.39 H	32	51.34	39.87
5	11490.00	60.35 PK	74.00	-13.65	1.39 H	0	10.35	50.00
6	11490.00	47.51 AV	54.00	-6.49	1.39 H	0	-2.49	50.00
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	#5725.00	76.31 PK	92.64	-16.33	1.54 V	229	36.47	39.84
2	#5725.00	62.61 AV	81.76	-19.15	1.54 V	229	22.77	39.84
3	*5745.00	112.64 PK			1.54 V	229	72.77	39.87
4	*5745.00	101.76 AV			1.54 V	229	61.89	39.87
5	11490.00	60.96 PK	74.00	-13.04	1.00 V	355	10.96	50.00
6	11490.00	48.56 AV	54.00	-5.44	1.00 V	355	-1.44	50.00

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 limit value is defined as per 15.247.
7. "#":The radiated frequency is out the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1000hPa	TEST MODE	A
TESTED BY	Match Tsui		

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	*5785.00	101.42 PK			1.19 H	355	61.49	39.93
2	*5785.00	91.59 AV			1.19 H	355	51.66	39.93
3	11570.00	60.12 PK	74.00	-13.88	1.20 H	360	10.23	49.89
4	11570.00	47.29 AV	54.00	-6.71	1.20 H	360	-2.60	49.89
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	*5785.00	112.76 PK			1.49 V	311	72.83	39.93
2	*5785.00	101.91 AV			1.49 V	311	61.98	39.93
3	11570.00	60.47 PK	74.00	-13.53	1.49 V	360	10.58	49.89
4	11570.00	48.16 AV	54.00	-5.84	1.49 V	360	-1.73	49.89

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1000hPa	TEST MODE	A
TESTED BY	Match Tsui		

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	*5825.00	100.62 PK			1.45 H	183	60.59	40.03
2	*5825.00	89.99 AV			1.45 H	183	49.96	40.03
3	#5850.00	68.16 PK	80.62	-12.46	1.45 H	183	28.06	40.10
4	#5850.00	57.43 AV	69.99	-12.56	1.45 H	183	17.33	40.10
5	11650.00	60.11 PK	74.00	-13.89	1.40 H	10	10.27	49.84
6	11650.00	48.35 AV	54.00	-5.65	1.40 H	10	-1.49	49.84
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	*5825.00	112.24 PK			1.39 V	241	72.21	40.03
2	*5825.00	101.58 AV			1.39 V	241	61.55	40.03
3	#5850.00	75.18 PK	92.24	-17.06	1.39 V	241	35.08	40.10
4	#5850.00	58.85 AV	81.58	-22.73	1.39 V	241	18.75	40.10
5	11650.00	60.73 PK	74.00	-13.27	1.30 V	355	10.89	49.84
6	11650.00	47.96 AV	54.00	-6.04	1.30 V	355	-1.88	49.84

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 limit value is defined as per 15.247.
7. "#":The radiated frequency is out the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1000hPa	TEST MODE	B
TESTED BY	Match Tsui		

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	#5725.00	78.68 PK	92.13	-13.45	1.31 H	332	38.84	39.84
2	#5725.00	62.16 AV	81.62	-19.46	1.31 H	332	22.32	39.84
3	*5745.00	112.13 PK			1.29 H	332	72.26	39.87
4	*5745.00	101.62 AV			1.29 H	332	61.75	39.87
5	11490.00	62.70 PK	74.00	-11.30	1.00 H	123	12.70	50.00
6	11490.00	49.16 AV	54.00	-4.84	1.00 H	123	-0.84	50.00
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	#5725.00	74.69 PK	88.79	-14.10	1.00 V	352	34.85	39.84
2	#5725.00	60.67 AV	78.11	-17.44	1.00 V	352	20.83	39.84
3	*5745.00	108.79 PK			1.00 V	352	68.92	39.87
4	*5745.00	98.11 AV			1.00 V	352	58.24	39.87
5	11490.00	62.29 PK	74.00	-11.71	1.00 V	215	12.29	50.00
6	11490.00	49.38 AV	54.00	-4.62	1.00 V	215	-0.62	50.00

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 limit value is defined as per 15.247.
7. "#":The radiated frequency is out the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1000hPa	TEST MODE	B
TESTED BY	Match Tsui		

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	*5785.00	111.87 PK			1.20 H	356	71.94	39.93
2	*5785.00	101.42 AV			1.20 H	356	61.49	39.93
3	11570.00	62.58 PK	74.00	-11.42	1.00 H	206	12.69	49.89
4	11570.00	49.04 AV	54.00	-4.96	1.00 H	206	-0.85	49.89
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	*5785.00	108.58 PK			1.00 V	354	68.65	39.93
2	*5785.00	97.86 AV			1.00 V	354	57.93	39.93
3	11570.00	62.01 PK	74.00	-11.99	1.00 V	195	12.12	49.89
4	11570.00	49.13 AV	54.00	-4.87	1.00 V	195	-0.76	49.89

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1000hPa	TEST MODE	B
TESTED BY	Match Tsui		

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	*5825.00	111.92 PK			1.17 H	336	71.89	40.03
2	*5825.00	101.56 AV			1.17 H	336	61.53	40.03
3	#5850.00	74.32 PK	91.92	-17.60	1.17 H	336	34.22	40.10
4	#5850.00	59.70 AV	81.56	-21.86	1.17 H	336	19.60	40.10
5	11650.00	62.96 PK	74.00	-11.04	1.05 H	214	13.12	49.84
6	11650.00	49.43 AV	54.00	-4.57	1.05 H	214	-0.41	49.84
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	*5825.00	108.71 PK			1.00 V	349	68.68	40.03
2	*5825.00	97.95 AV			1.00 V	349	57.92	40.03
3	#5850.00	71.96 PK	88.71	-16.75	1.00 V	349	31.86	40.10
4	#5850.00	58.16 AV	77.95	-19.79	1.00 V	349	18.06	40.10
5	11650.00	62.38 PK	74.00	-11.62	1.00 V	176	12.54	49.84
6	11650.00	49.46 AV	54.00	-4.54	1.00 V	176	-0.38	49.84

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 limit value is defined as per 15.247.
7. "#":The radiated frequency is out the restricted band.

DRAFT 802.11n (20MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1000hPa	TEST MODE	A
TESTED BY	Match Tsui		

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	#5725.00	67.26 PK	82.05	-14.79	1.40 H	28	27.42	39.84
2	#5725.00	55.46 AV	71.22	-15.76	1.40 H	28	15.62	39.84
3	*5745.00	102.05 PK			1.40 H	28	62.18	39.87
4	*5745.00	91.22 AV			1.40 H	28	51.35	39.87
5	11490.00	59.63 PK	74.00	-14.37	1.40 H	200	9.63	50.00
6	11490.00	47.15 AV	54.00	-6.85	1.40 H	200	-2.85	50.00
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	#5725.00	74.01 PK	92.15	-18.14	1.53 V	231	34.17	39.84
2	#5725.00	60.71 AV	82.21	-21.50	1.53 V	231	20.87	39.84
3	*5745.00	112.15 PK			1.54 V	242	72.28	39.87
4	*5745.00	102.21 AV			1.54 V	242	62.34	39.87
5	11490.00	60.36 PK	74.00	-13.64	1.50 V	360	10.36	50.00
6	11490.00	48.07 AV	54.00	-5.93	1.50 V	360	-1.93	50.00

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 limit value is defined as per 15.247.
7. "#":The radiated frequency is out the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1000hPa	TEST MODE	A
TESTED BY	Match Tsui		

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	*5785.00	102.32 PK			1.35 H	15	62.39	39.93
2	*5785.00	91.52 AV			1.35 H	15	51.59	39.93
3	11570.00	59.18 PK	74.00	-14.82	1.30 H	300	9.28	49.89
4	11570.00	46.98 AV	54.00	-7.02	1.30 H	300	-2.92	49.89
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	*5785.00	112.63 PK			1.49 V	310	72.70	39.93
2	*5785.00	102.51 AV			1.49 V	310	62.58	39.93
3	11570.00	60.18 PK	74.00	-13.82	1.00 V	360	10.28	49.89
4	11570.00	48.04 AV	54.00	-5.96	1.00 V	360	-1.86	49.89

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1000hPa	TEST MODE	A
TESTED BY	Match Tsui		

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	*5825.00	103.06 PK			1.17 H	46	63.03	40.03
2	*5825.00	92.67 AV			1.17 H	46	52.64	40.03
3	#5850.00	65.98 PK	83.06	-17.08	1.17 H	46	25.88	40.10
4	#5850.00	50.26 AV	72.67	-22.41	1.17 H	46	10.16	40.10
5	11650.00	59.42 PK	74.00	-14.58	1.13 H	0	9.58	49.84
6	11650.00	47.35 AV	54.00	-6.65	1.13 H	0	-2.49	49.84
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	*5825.00	114.12 PK			1.40 V	231	74.09	40.03
2	*5825.00	102.67 AV			1.40 V	231	62.64	40.03
3	#5850.00	74.53 PK	94.12	-19.59	1.40 V	231	34.43	40.10
4	#5850.00	58.55 AV	82.67	-24.12	1.40 V	231	18.45	40.10
5	11650.00	60.39 PK	74.00	-13.61	1.40 V	10	10.55	49.84
6	11650.00	47.95 AV	54.00	-6.05	1.40 V	10	-1.89	49.84

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 limit value is defined as per 15.247.

7. "#":The radiated frequency is out the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1000hPa	TEST MODE	B
TESTED BY	Match Tsui		

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	#5725.00	79.54 PK	93.25	-13.71	1.01 H	339	39.70	39.84
2	#5725.00	59.65 AV	83.01	-23.36	1.01 H	339	19.81	39.84
3	*5745.00	113.25 PK			1.01 H	339	73.38	39.87
4	*5745.00	103.01 AV			1.01 H	339	63.14	39.87
5	11490.00	62.51 PK	74.00	-11.49	1.04 H	136	12.51	50.00
6	11490.00	49.03 AV	54.00	-4.97	1.04 H	136	-0.97	50.00
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	#5725.00	70.36 PK	89.81	-19.45	1.02 V	356	30.52	39.84
2	#5725.00	54.49 AV	79.04	-24.55	1.02 V	356	14.65	39.84
3	*5745.00	109.81 PK			1.02 V	356	69.94	39.87
4	*5745.00	99.04 AV			1.02 V	356	59.17	39.87
5	11490.00	62.46 PK	74.00	-11.54	1.13 V	249	12.46	50.00
6	11490.00	49.53 AV	54.00	-4.47	1.13 V	249	-0.47	50.00

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 limit value is defined as per 15.247.
7. "#":The radiated frequency is out the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1000hPa	TEST MODE	B
TESTED BY	Match Tsui		

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	*5785.00	113.46 PK			1.02 H	342	73.53	39.93
2	*5785.00	103.24 AV			1.02 H	342	63.31	39.93
3	11570.00	62.34 PK	74.00	-11.66	1.08 H	51	12.45	49.89
4	11570.00	48.86 AV	54.00	-5.14	1.08 H	51	-1.03	49.89
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	*5785.00	109.96 PK			1.04 V	349	70.03	39.93
2	*5785.00	99.13 AV			1.04 V	349	59.20	39.93
3	11570.00	62.31 PK	74.00	-11.69	1.18 V	356	12.42	49.89
4	11570.00	49.48 AV	54.00	-4.52	1.18 V	356	-0.41	49.89

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1000hPa	TEST MODE	B
TESTED BY	Match Tsui		

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	*5825.00	113.46 PK			1.03 H	344	73.43	40.03
2	*5825.00	103.25 AV			1.03 H	344	63.22	40.03
3	#5850.00	73.86 PK	93.46	-19.60	1.03 H	344	33.76	40.10
4	#5850.00	59.01 AV	83.25	-24.24	1.03 H	344	18.91	40.10
5	11650.00	62.85 PK	74.00	-11.15	1.01 H	77	13.01	49.84
6	11650.00	49.31 AV	54.00	-4.69	1.01 H	77	-0.53	49.84
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	*5825.00	109.96 PK			1.04 V	348	69.93	40.03
2	*5825.00	99.15 AV			1.04 V	348	59.12	40.03
3	#5850.00	71.83 PK	89.96	-18.13	1.04 V	348	31.73	40.10
4	#5850.00	58.02 AV	79.15	-21.13	1.04 V	348	17.92	40.10
5	11650.00	62.12 PK	74.00	-11.88	1.08 V	326	12.28	49.84
6	11650.00	49.25 AV	54.00	-4.75	1.08 V	326	-0.59	49.84

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 limit value is defined as per 15.247.
7. "#":The radiated frequency is out the restricted band.

DRAFT 802.11n (40MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 151	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1000hPa	TEST MODE	A
TESTED BY	Match Tsui		

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	#5725.00	66.53 PK	78.58	-12.05	1.16 H	21	26.69	39.84
2	#5725.00	51.46 AV	67.84	-16.38	1.16 H	21	11.62	39.84
3	*5755.00	98.58 PK			1.16 H	21	58.70	39.88
4	*5755.00	87.84 AV			1.16 H	21	47.96	39.88
5	11510.00	59.76 PK	74.00	-14.24	1.01 H	239	9.77	49.98
6	11510.00	48.32 AV	54.00	-5.68	1.01 H	239	-1.66	49.98
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	#5725.00	75.68 PK	88.96	-13.28	1.38 V	215	35.84	39.84
2	#5725.00	58.57 AV	78.56	-19.99	1.38 V	215	18.73	39.84
3	*5755.00	108.96 PK			1.38 V	215	69.08	39.88
4	*5755.00	98.56 AV			1.38 V	215	58.68	39.88
5	11510.00	60.14 PK	74.00	-13.86	1.08 V	43	10.16	49.98
6	11510.00	48.73 AV	54.00	-5.27	1.08 V	43	-1.25	49.98

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 limit value is defined as per 15.247.
7. "#":The radiated frequency is out the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 159	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1000hPa	TEST MODE	A
TESTED BY	Match Tsui		

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	*5795.00	98.89 PK			1.15 H	28	58.95	39.94
2	*5795.00	88.15 AV			1.15 H	28	48.21	39.94
3	#5850.00	58.61 PK	78.89	-20.28	1.15 H	28	18.51	40.10
4	#5850.00	39.02 AV	68.15	-29.13	1.15 H	28	-1.08	40.10
5	11590.00	60.03 PK	74.00	-13.97	1.06 H	238	10.16	49.87
6	11590.00	47.46 AV	54.00	-6.54	1.06 H	238	-2.41	49.87
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	*5795.00	109.13 PK			1.38 V	215	69.19	39.94
2	*5795.00	99.06 AV			1.38 V	215	59.12	39.94
3	#5850.00	64.59 PK	89.13	-24.54	1.38 V	215	24.49	40.10
4	#5850.00	44.91 AV	79.06	-34.15	1.38 V	215	4.81	40.10
5	11590.00	60.34 PK	74.00	-13.66	1.04 V	286	10.47	49.87
6	11590.00	47.75 AV	54.00	-6.25	1.04 V	286	-2.12	49.87

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 limit value is defined as per 15.247.
7. "#":The radiated frequency is out the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 151	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1000hPa	TEST MODE	B
TESTED BY	Match Tsui		

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	#5725.00	81.77 PK	90.43	-8.66	1.02 H	342	41.93	39.84
2	#5725.00	63.07 AV	80.09	-17.02	1.02 H	342	23.23	39.84
3	*5755.00	110.43 PK			1.01 H	343	70.55	39.88
4	*5755.00	100.09 AV			1.01 H	343	60.21	39.88
5	11510.00	61.86 PK	74.00	-12.14	1.04 H	356	11.87	49.98
6	11510.00	49.14 AV	54.00	-4.86	1.04 H	356	-0.84	49.98
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	#5725.00	76.61 PK	84.32	-7.71	1.08 V	340	36.77	39.84
2	#5725.00	58.19 AV	74.43	-16.24	1.08 V	340	18.35	39.84
3	*5755.00	104.32 PK			1.08 V	340	64.44	39.88
4	*5755.00	94.43 AV			1.08 V	340	54.55	39.88
5	11510.00	61.98 PK	74.00	-12.02	1.03 V	29	11.99	49.98
6	11510.00	49.32 AV	54.00	-4.68	1.03 V	29	-0.66	49.98

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 limit value is defined as per 15.247.
7. "#":The radiated frequency is out the restricted band.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 159	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH 1000hPa	TEST MODE	B
TESTED BY	Match Tsui		

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	*5795.00	110.56 PK			1.01 H	336	70.62	39.94
2	*5795.00	100.24 AV			1.01 H	336	60.30	39.94
3	#5850.00	67.80 PK	90.56	-22.76	1.01 H	336	27.70	40.10
4	#5850.00	46.60 AV	80.24	-33.64	1.01 H	336	6.50	40.10
5	11590.00	61.95 PK	74.00	-12.05	1.06 H	321	12.09	49.87
6	11590.00	49.25 AV	54.00	-4.75	1.06 H	321	-0.62	49.87
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	*5795.00	104.69 PK			1.09 V	343	64.75	39.94
2	*5795.00	94.65 AV			1.09 V	343	54.71	39.94
3	#5850.00	64.34 PK	84.69	-20.35	1.09 V	343	24.24	40.10
4	#5850.00	43.16 AV	74.65	-31.49	1.09 V	343	3.06	40.10
5	11590.00	61.83 PK	74.00	-12.17	1.06 V	253	11.96	49.87
6	11590.00	49.14 AV	54.00	-4.86	1.06 V	253	-0.73	49.87

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 limit value is defined as per 15.247.
7. "#":The radiated frequency is out the restricted band.

BELOW 1GHz WORST-CASE DATA：DRAFT 802.11n (20MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	26deg. C, 66%RH 999hPa	TEST MODE	A
TESTED BY	Antony Lee		

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	99.89	31.05 QP	43.50	-12.45	1.50 H	7	21.74	9.31
2	199.05	30.61 QP	43.50	-12.89	1.00 H	34	19.98	10.63
3	298.21	39.22 QP	46.00	-6.78	1.00 H	37	25.66	13.57
4	337.10	35.90 QP	46.00	-10.10	1.00 H	67	21.41	14.49
5	397.37	35.83 QP	46.00	-10.17	1.00 H	160	19.89	15.93
6	597.63	37.16 QP	46.00	-8.84	1.25 H	139	15.71	21.45
7	698.74	34.30 QP	46.00	-11.70	1.25 H	151	11.83	22.47
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	99.89	31.01 QP	43.50	-12.49	1.50 V	85	21.70	9.31
2	195.16	28.90 QP	43.50	-14.60	1.25 V	253	17.94	10.96
3	300.16	34.13 QP	46.00	-11.87	1.25 V	88	20.53	13.60
4	399.31	33.18 QP	46.00	-12.82	1.00 V	19	17.20	15.98
5	558.75	35.86 QP	46.00	-10.14	1.00 V	175	15.33	20.53
6	599.58	34.17 QP	46.00	-11.83	1.00 V	91	12.67	21.50
7	704.57	36.20 QP	46.00	-9.80	1.00 V	232	13.60	22.60

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	26deg. C, 66%RH 999hPa	TEST MODE	B
TESTED BY	Antony Lee		

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	97.95	38.66 QP	43.50	-4.84	2.00 H	313	29.37	9.29
2	298.21	36.25 QP	46.00	-9.75	1.25 H	10	22.68	13.57
3	337.10	28.22 QP	46.00	-17.78	1.00 H	313	13.74	14.49
4	597.63	33.26 QP	46.00	-12.74	1.00 H	301	11.80	21.45
5	663.74	35.53 QP	46.00	-10.47	1.25 H	322	13.41	22.12
6	815.39	31.56 QP	46.00	-14.44	1.00 H	10	6.49	25.07
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	97.95	35.27 QP	43.50	-8.23	1.25 V	334	25.98	9.29
2	300.16	30.78 QP	46.00	-15.22	1.00 V	10	17.18	13.60
3	599.58	32.20 QP	46.00	-13.80	1.25 V	10	10.70	21.50
4	665.68	28.77 QP	46.00	-17.23	1.00 V	337	6.63	22.14
5	749.29	32.90 QP	46.00	-13.10	1.00 V	10	9.20	23.71
6	830.95	31.93 QP	46.00	-14.07	1.00 V	349	6.71	25.21

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	26deg. C, 66%RH 999hPa	TEST MODE	C
TESTED BY	Antony Lee		

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	300.16	41.30 QP	46.00	-4.70	1.00 H	136	27.70	13.60
2	352.65	32.51 QP	46.00	-13.49	1.00 H	136	17.65	14.86
3	597.63	29.62 QP	46.00	-16.38	1.00 H	10	8.17	21.45
4	663.74	33.92 QP	46.00	-12.08	1.00 H	55	11.80	22.12
5	797.89	31.23 QP	46.00	-14.77	1.00 H	64	6.35	24.88
6	848.45	29.83 QP	46.00	-16.17	1.00 H	58	4.45	25.38
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	99.89	26.75 QP	43.50	-16.75	1.25 V	37	17.44	9.31
2	300.16	32.58 QP	46.00	-13.42	1.00 V	97	18.98	13.60
3	498.47	28.87 QP	46.00	-17.13	1.00 V	10	9.82	19.06
4	597.63	32.76 QP	46.00	-13.24	1.00 V	85	11.30	21.45
5	768.73	28.23 QP	46.00	-17.77	1.50 V	10	4.05	24.18
6	852.33	28.78 QP	46.00	-17.22	1.00 V	10	3.37	25.41

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.

5.2 CONDUCTED EMISSION MEASUREMENT

5.2.1 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 0.50MHz.

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.

5.2.2 T EST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100291	Nov. 22, 2007	Nov. 21, 2008
RF signal cable Woken	5D-FB	Cable-HYC01-01	Jan. 04, 2008	Jan. 03, 2009
LISN ROHDE & SCHWARZ	ESH3-Z5	100312	Jun. 13, 2008	Jun. 12, 2009
V-LISN SCHWARZBECK	NNBL 8226-2	8226-142	Jun. 10, 2008	Jun. 09, 2009
Software ADT	ADT_Cond_V3	NA	NA	NA

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The test was performed in HwaYa Shielded Room 1.

3. The VCCI Site Registration No. is C-2040.

5.2.3 TEST PROCEDURES

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

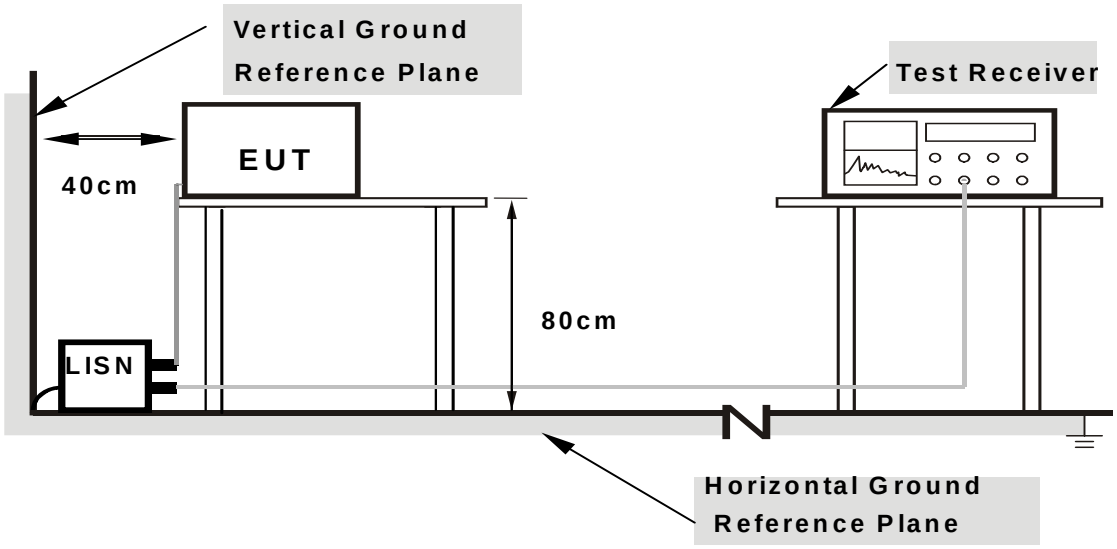
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

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

5.2.4 DEVIATION FROM TEST STANDARD

No deviation

5.2.5 TEST SETUP



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

For the actual test configuration, please refer to the attached file (Test Setup Photo).

5.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6

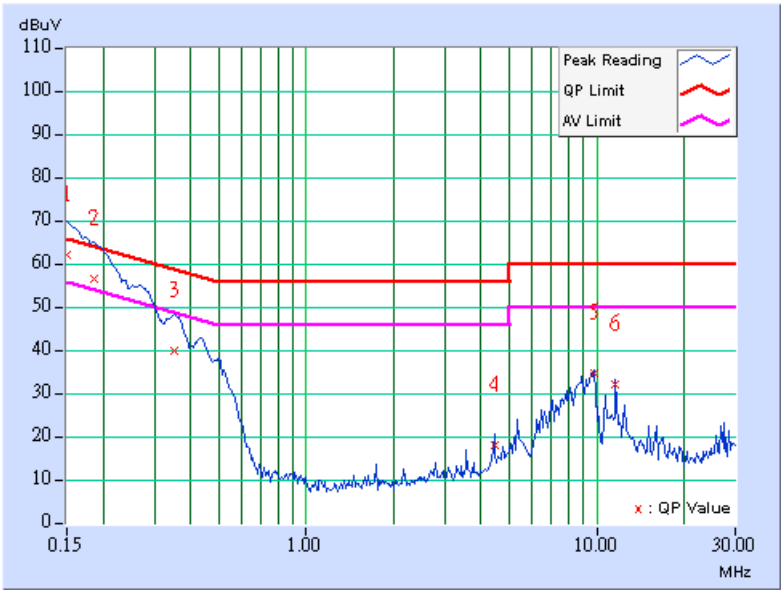
5.2.7 TEST RESULTS

CONDUCTED WORST-CASE DATA：DRAFT 802.11n (20MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	PHASE	Line 1
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60Hz
TRANSFER RATE	7.2Mbps	6dB BANDWIDTH	9kHz
ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 988hPa	TEST MODE	A
TESTED BY	Match Tsui		

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.20	61.68	31.44	61.88	31.64	66.00	56.00	-4.12	-24.36
2	0.185	0.20	56.17	26.37	56.37	26.57	64.25	54.25	-7.88	-27.68
3	0.349	0.20	39.35	-	39.55	-	58.98	48.98	-19.43	-
4	4.449	0.41	17.66	-	18.07	-	56.00	46.00	-37.93	-
5	9.789	0.53	34.36	-	34.89	-	60.00	50.00	-25.11	-
6	11.569	0.61	31.52	-	32.13	-	60.00	50.00	-27.87	-

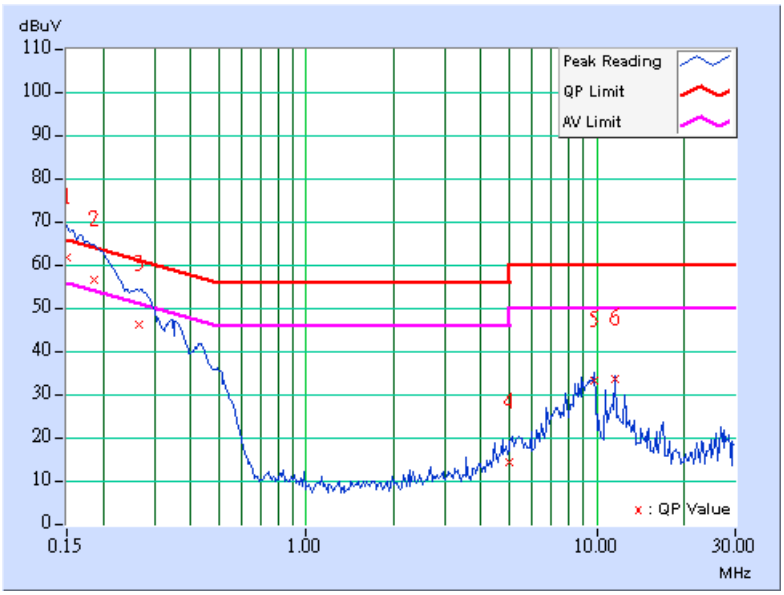
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	PHASE	Line 2
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60Hz
TRANSFER RATE	7.2Mbps	6dB BANDWIDTH	9kHz
ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 988hPa	TEST MODE	A
TESTED BY	Match Tsui		

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.20	61.27	31.08	61.47	31.28	66.00	56.00	-4.53	-24.72
2	0.185	0.20	56.09	26.08	56.29	26.28	64.25	54.25	-7.96	-27.97
3	0.267	0.20	45.72	-	45.92	-	61.20	51.20	-15.28	-
4	5.000	0.42	14.02	-	14.44	-	56.00	46.00	-41.56	-
5	9.789	0.53	32.95	-	33.48	-	60.00	50.00	-26.52	-
6	11.566	0.52	33.17	-	33.69	-	60.00	50.00	-26.31	-

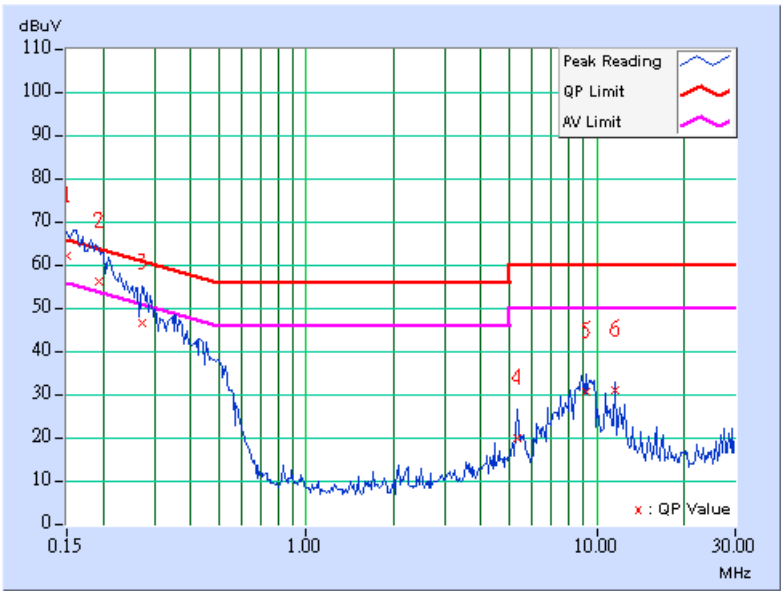
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	PHASE	Line 1
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60Hz
TRANSFER RATE	7.2Mbps	6dB BANDWIDTH	9kHz
ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 988hPa	TEST MODE	B
TESTED BY	Match Tsui		

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.20	61.59	31.54	61.79	31.74	66.00	56.00	-4.21	-24.26
2	0.193	0.20	55.50	25.49	55.70	25.69	63.91	53.91	-8.21	-28.22
3	0.271	0.20	46.12	-	46.32	-	61.08	51.08	-14.76	-
4	5.336	0.43	19.38	-	19.81	-	60.00	50.00	-40.19	-
5	9.195	0.51	30.07	-	30.58	-	60.00	50.00	-29.42	-
6	11.566	0.61	30.56	-	31.17	-	60.00	50.00	-28.83	-

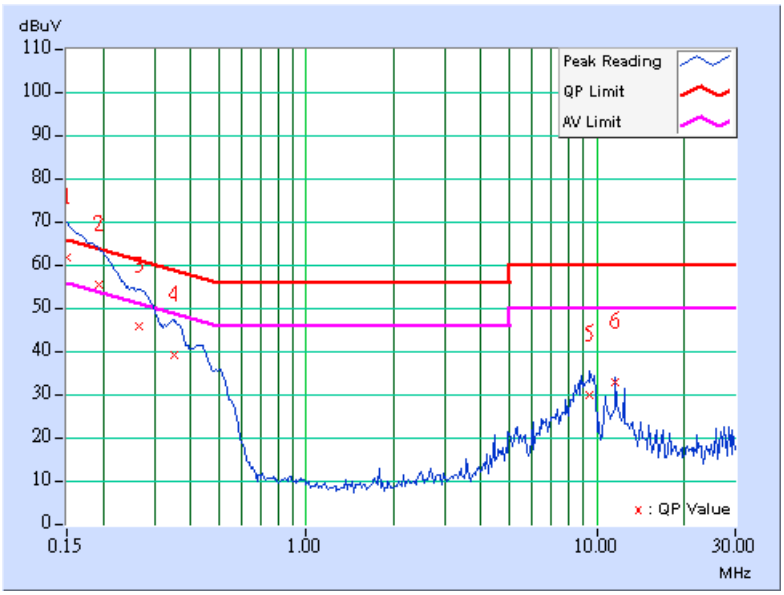
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	PHASE	Line 2
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60Hz
TRANSFER RATE	7.2Mbps	6dB BANDWIDTH	9kHz
ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 988hPa	TEST MODE	B
TESTED BY	Match Tsui		

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.20	61.41	31.17	61.61	31.37	66.00	56.00	-4.39	-24.63
2	0.193	0.20	55.16	25.03	55.36	25.23	63.91	53.91	-8.55	-28.68
3	0.267	0.20	45.25	-	45.45	-	61.20	51.20	-15.75	-
4	0.349	0.20	38.80	-	39.00	-	58.98	48.98	-19.98	-
5	9.484	0.52	29.52	-	30.04	-	60.00	50.00	-29.96	-
6	11.566	0.52	32.62	-	33.14	-	60.00	50.00	-26.86	-

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



5.3 6dB BANDWIDTH MEASUREMENT

5.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5MHz.

5.3.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100041	Apr. 22, 2008	Apr. 21, 2009

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

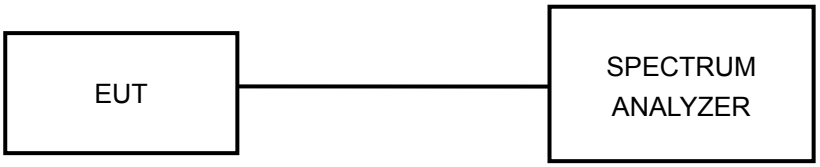
5.3.3 TEST PROCEDURE

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 300kHz 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.

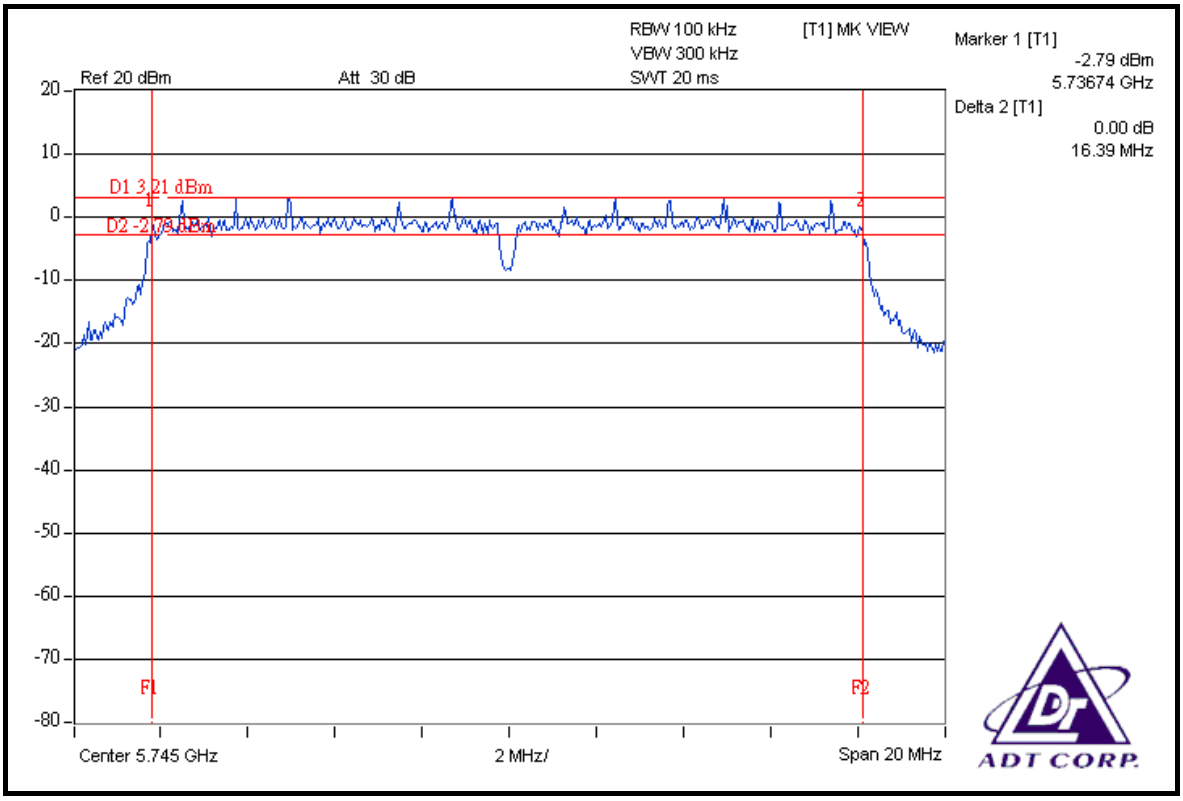
5.3.7 TEST RESULTS

802.11a OFDM MODULATION

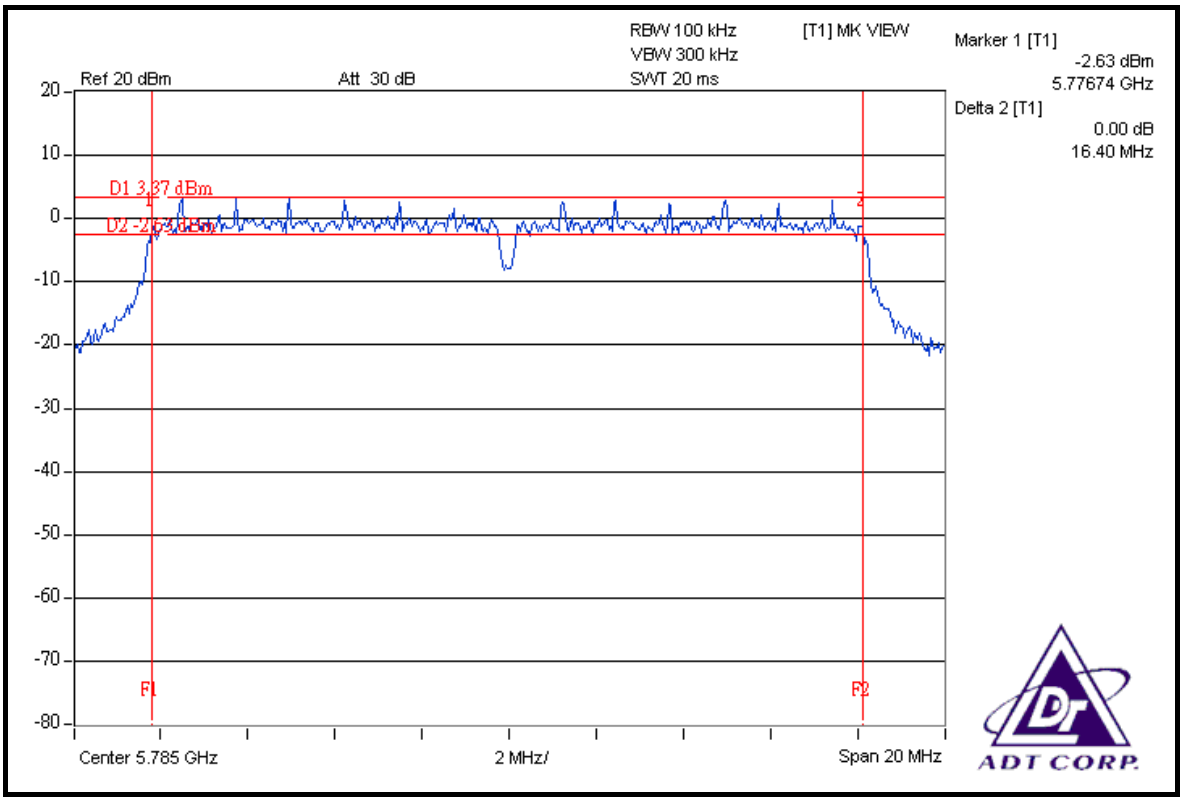
MODULATION TYPE	BPSK	TRANSFER RATE	6.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 65%RH, 991hPa
TESTED BY	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
149	5745	16.39	0.5	PASS
157	5785	16.40	0.5	PASS
165	5825	16.40	0.5	PASS

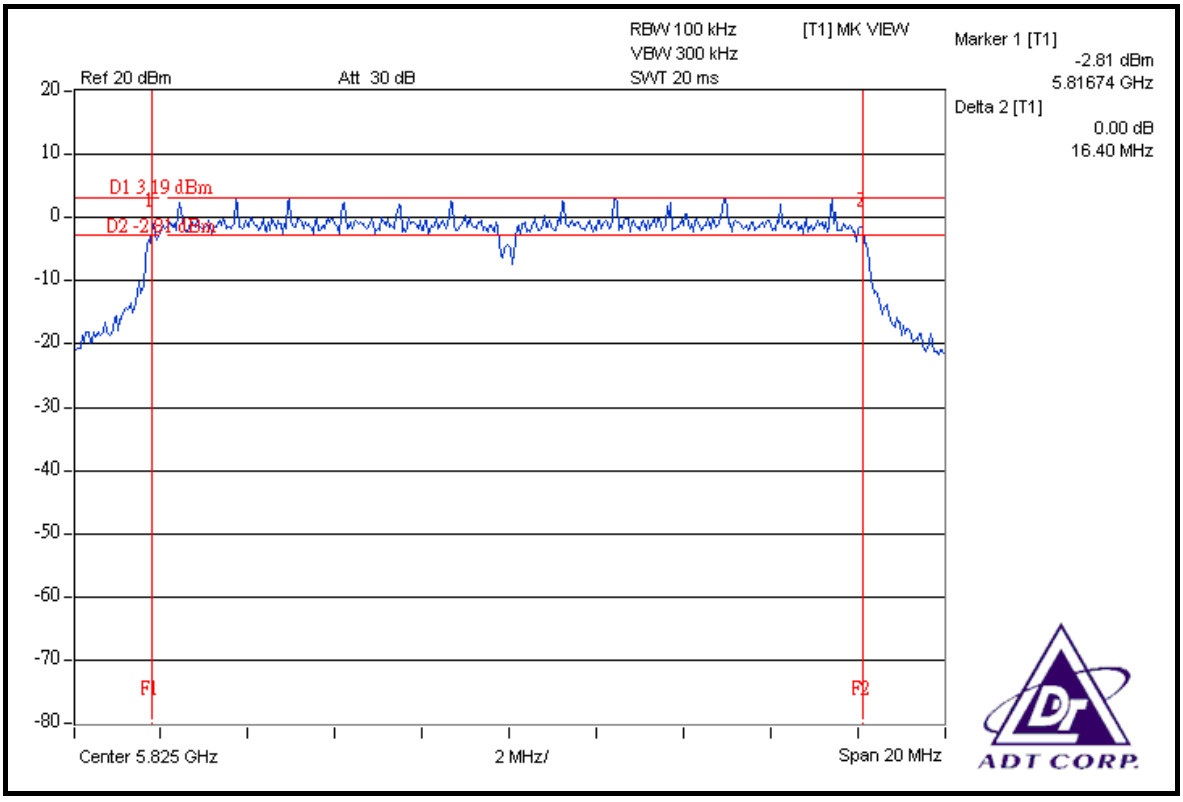
CH 149



CH 157


RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Marker 1 [T1]
-2.63 dBm
5.77674 GHz
Delta 2 [T1]
0.00 dB
16.40 MHz
Ref 20 dBm
Att 30 dB
D1 3.37 dBm
D2 -2.63 dBm
F1
F2
Center 5.785 GHz
2 MHz/
Span 20 MHz
ADT CORP.

CH 165

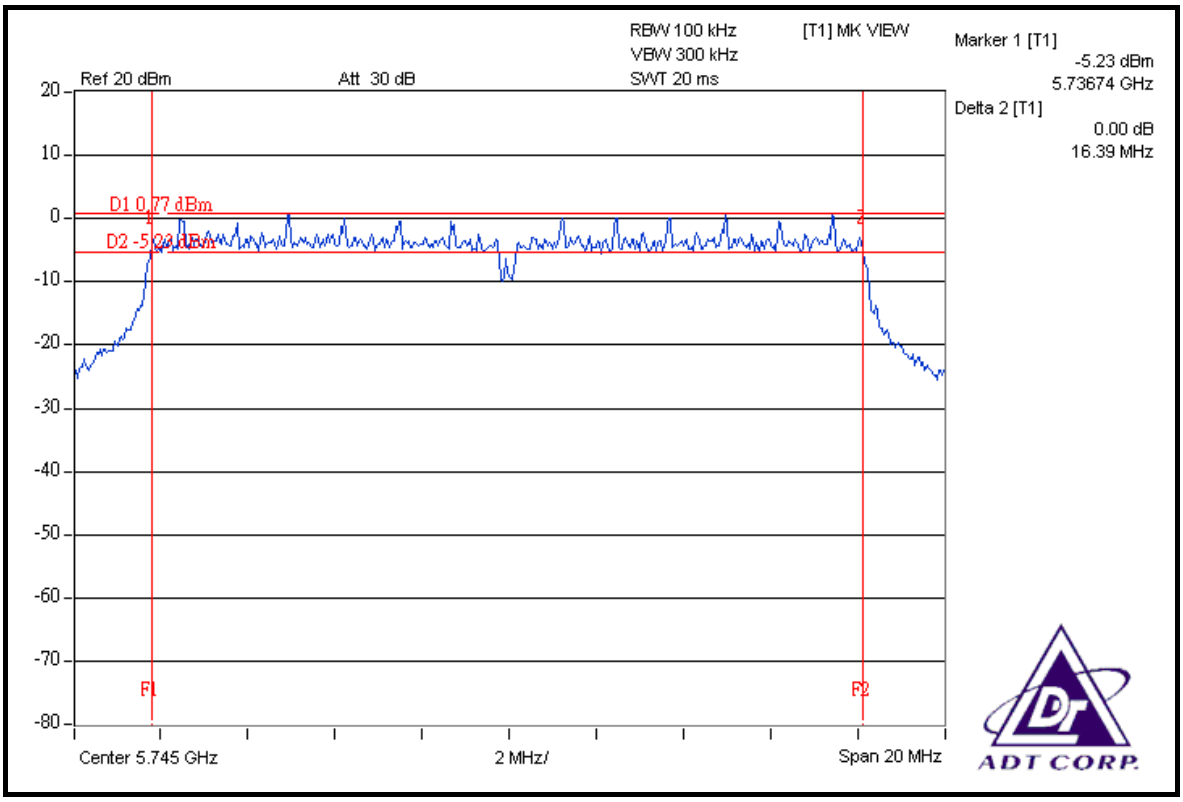

RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Marker 1 [T1]
-2.81 dBm
5.81674 GHz
Delta 2 [T1]
0.00 dB
16.40 MHz
Ref 20 dBm
Att 30 dB
D1 3.19 dBm
D2 -2.81 dBm
F1
F2
Center 5.825 GHz
2 MHz/
Span 20 MHz
ADT CORP.

DRAFT 802.11n (20MHz) OFDM MODULATION

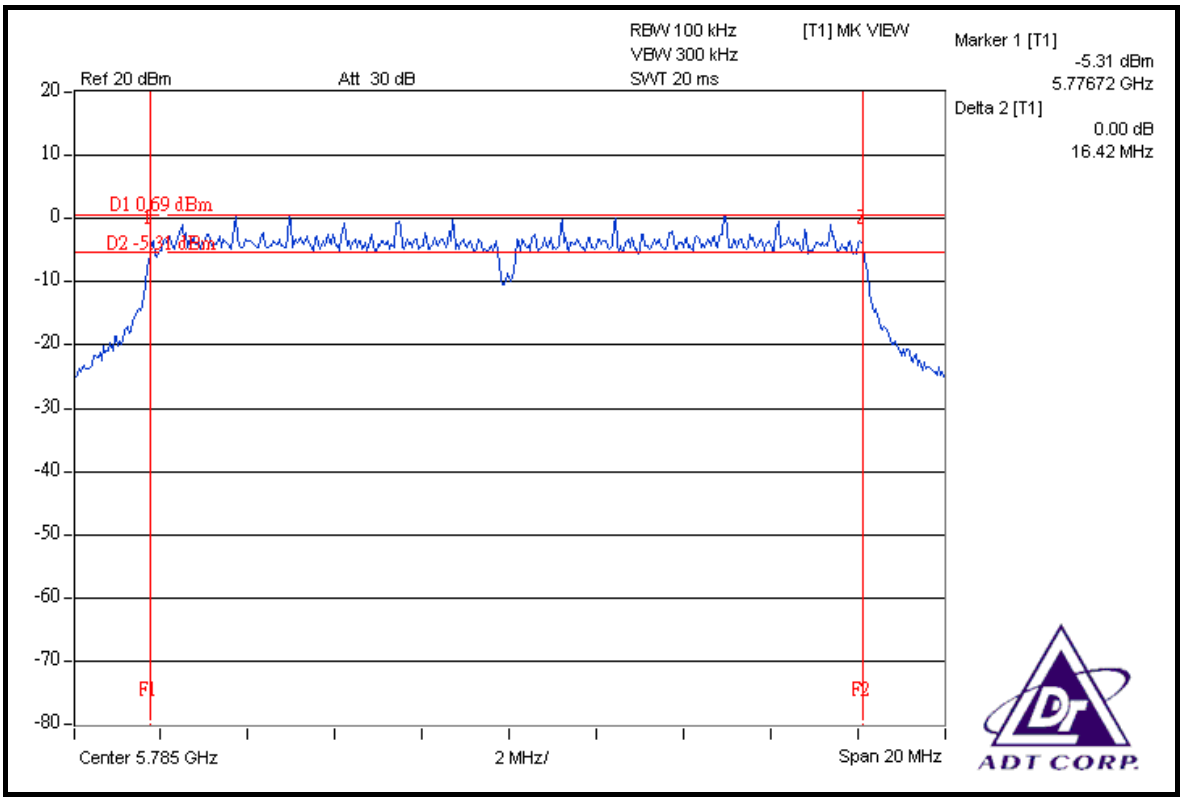
MODULATION TYPE	BPSK	**TRANSFER RATE**	7.2Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	25deg.C, 65%RH, 991hPa
TESTED BY	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
149	5745	16.39	16.39	0.5	PASS
157	5785	16.42	16.40	0.5	PASS
165	5825	16.42	16.41	0.5	PASS

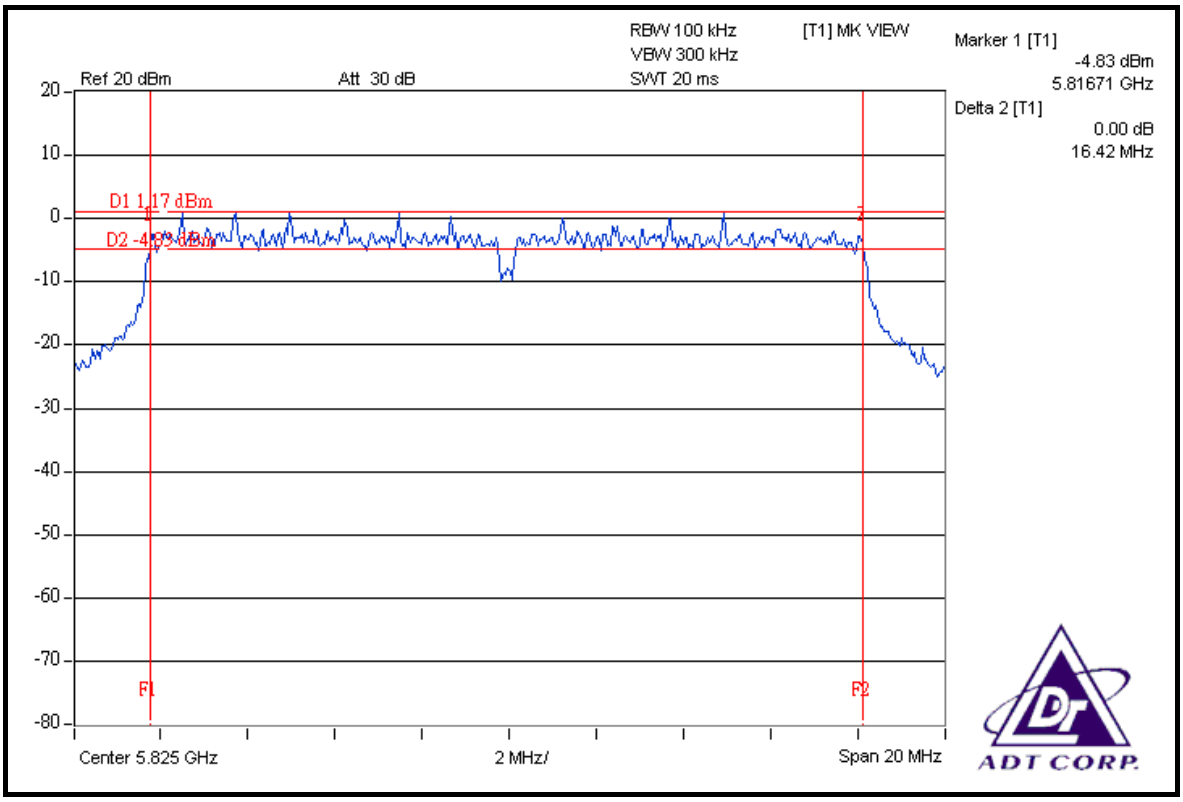
FOR CHAIN 0: CH 149



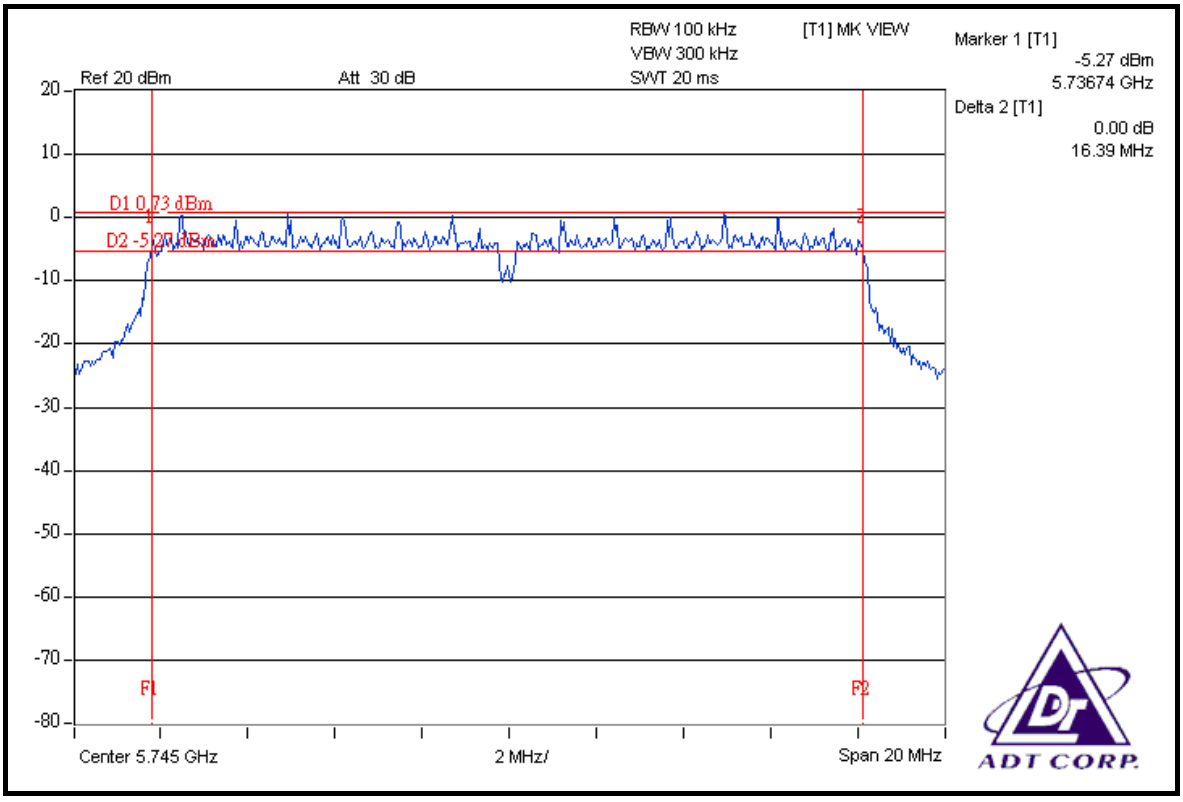
CH 157



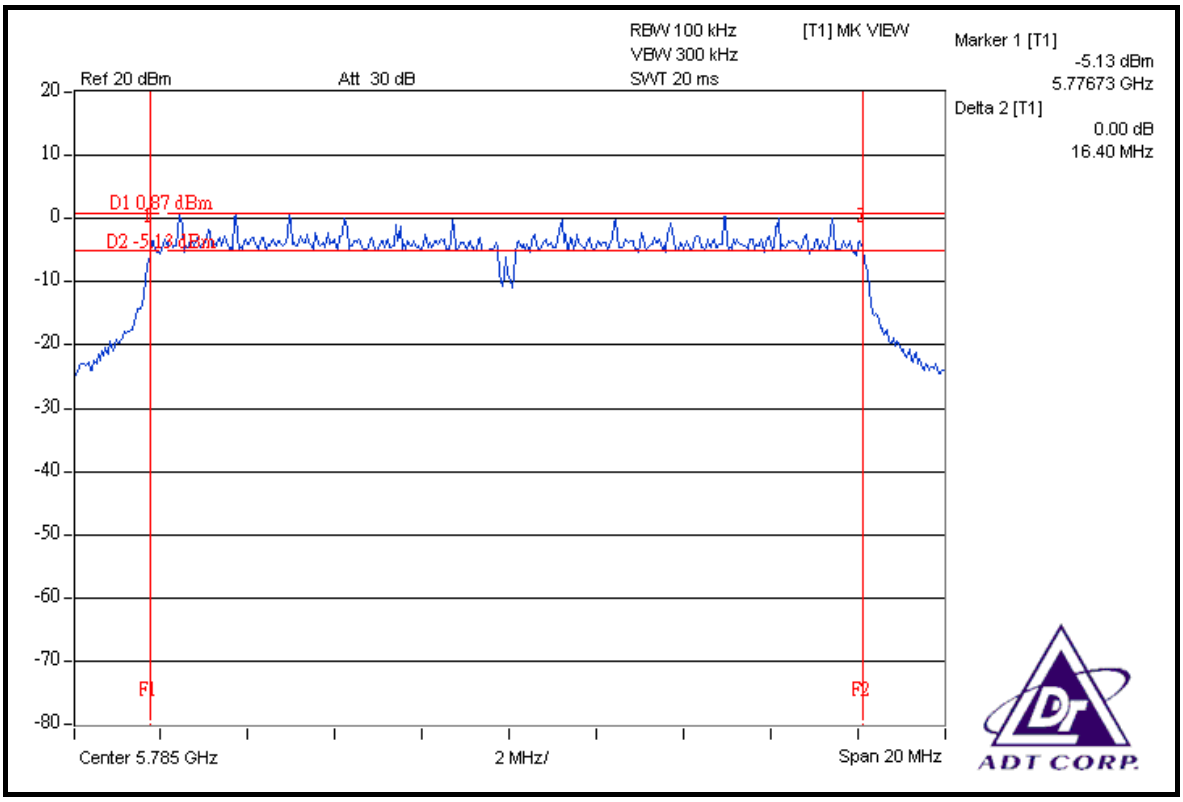
CH 165



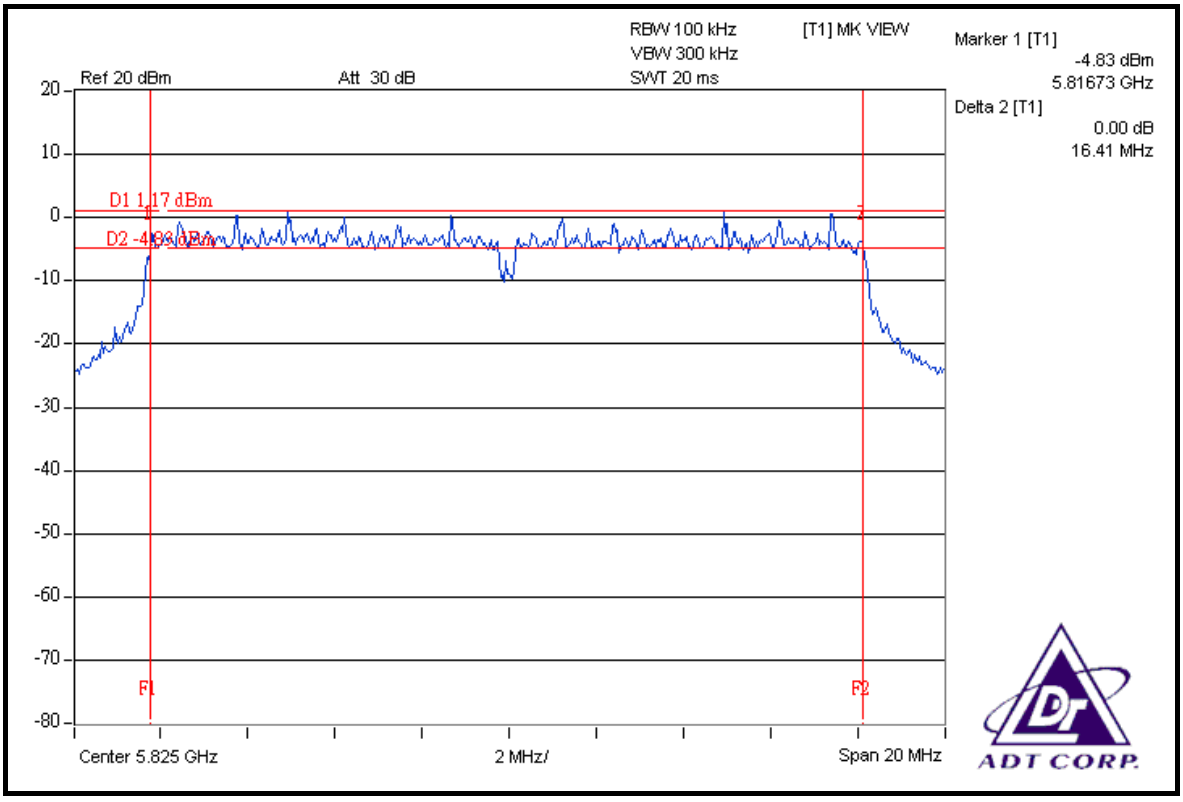
FOR CHAIN 1: CH 149



CH 157


RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Marker 1 [T1]
-5.13 dBm
5.77673 GHz
Delta 2 [T1]
0.00 dB
16.40 MHz
Ref 20 dBm
Att 30 dB
D1 0.87 dBm
D2 -5.13 dBm
F1
F2
Center 5.785 GHz
2 MHz/
Span 20 MHz
ADT CORP.

CH 165

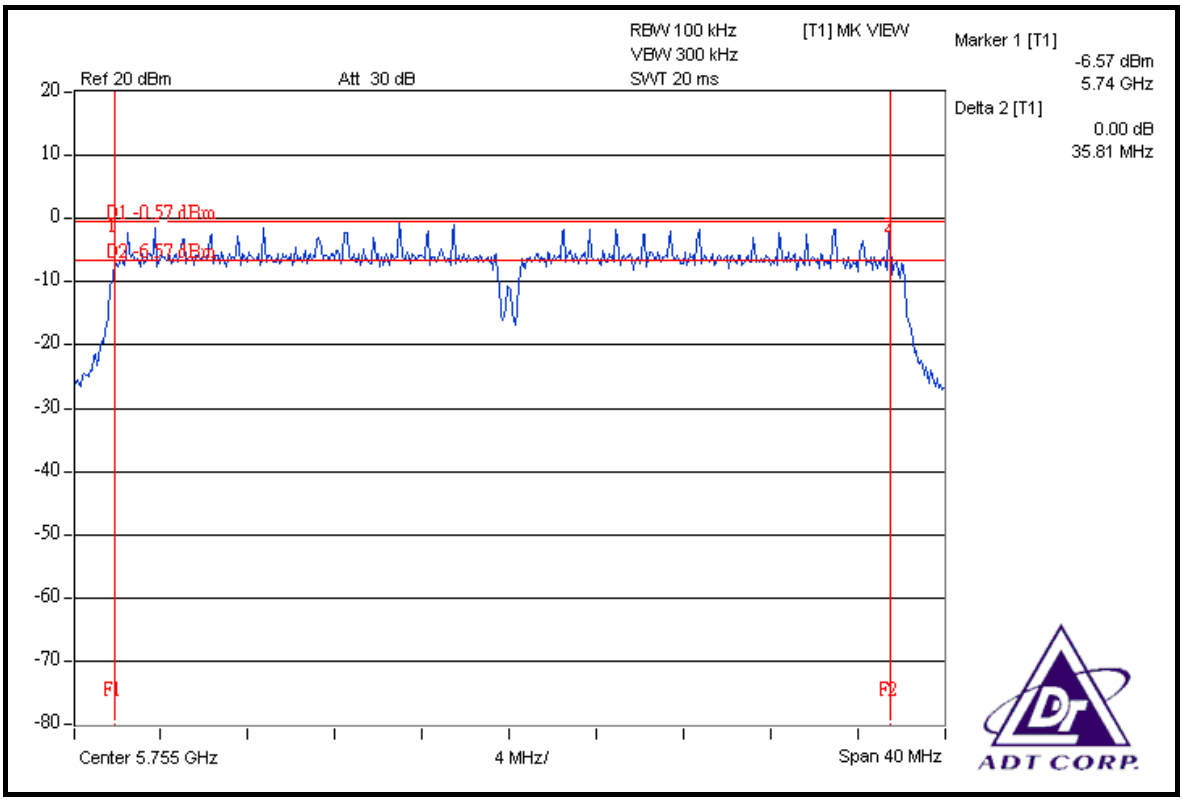

RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Marker 1 [T1]
-4.83 dBm
5.81673 GHz
Delta 2 [T1]
0.00 dB
16.41 MHz
Ref 20 dBm
Att 30 dB
D1 1.17 dBm
F1
F2
Center 5.825 GHz
2 MHz/
Span 20 MHz
ADT CORP.

DRAFT 802.11n (40MHz) OFDM MODULATION

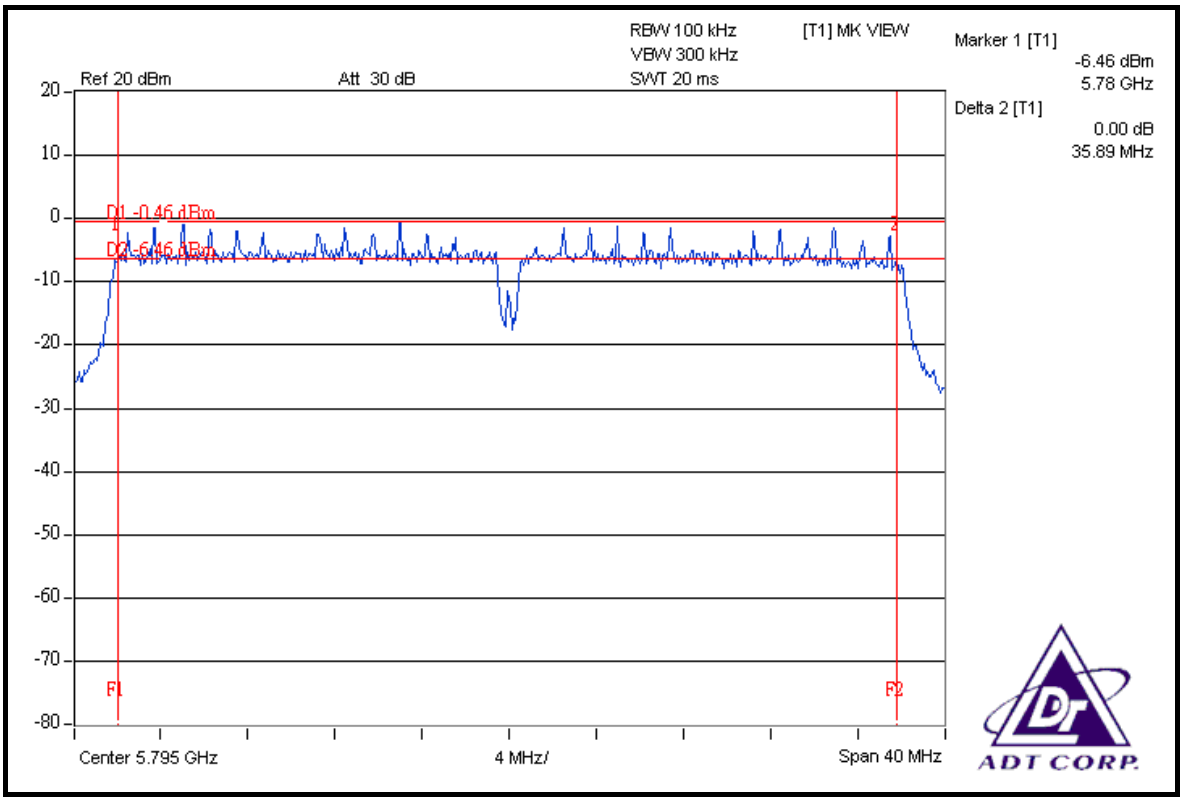
MODULATION TYPE	BPSK	**TRANSFER RATE**	15Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	25deg.C, 65%RH, 991hPa
TESTED BY	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
151	5755	35.81	36.11	0.5	PASS
159	5795	35.89	35.83	0.5	PASS

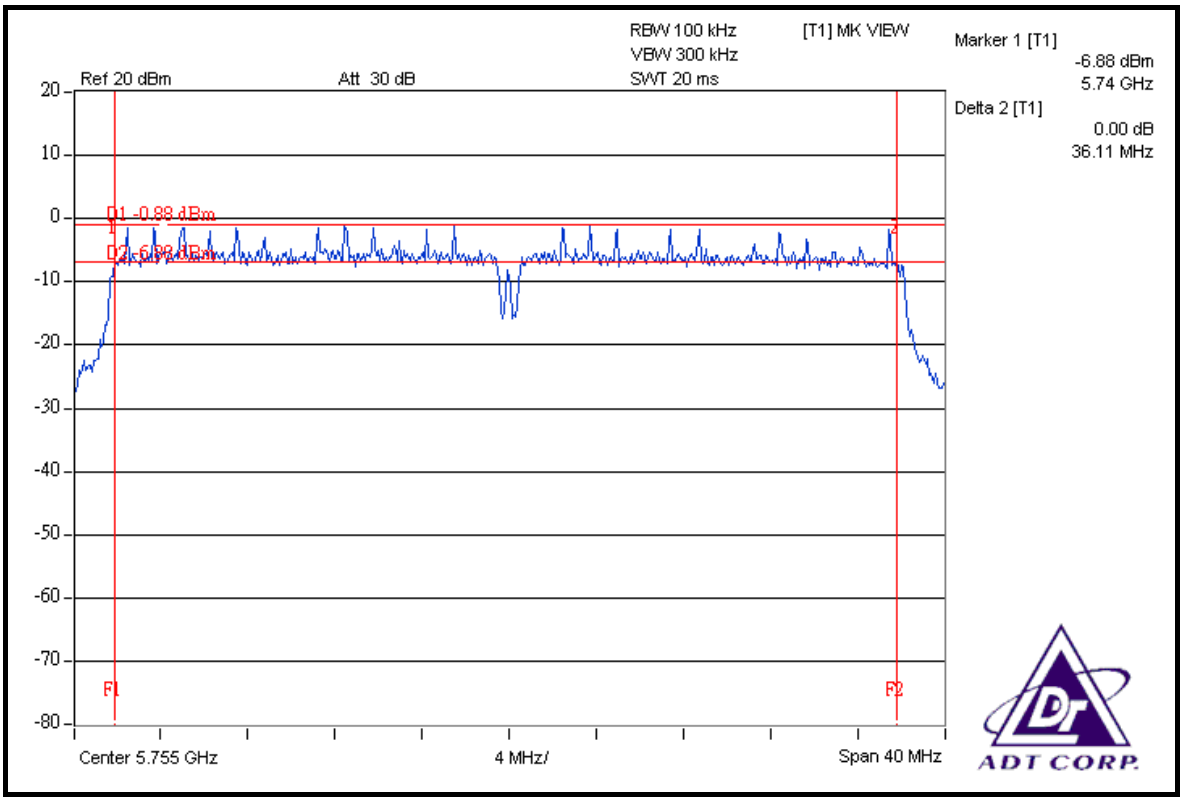
FOR CHAIN 0: CH 151



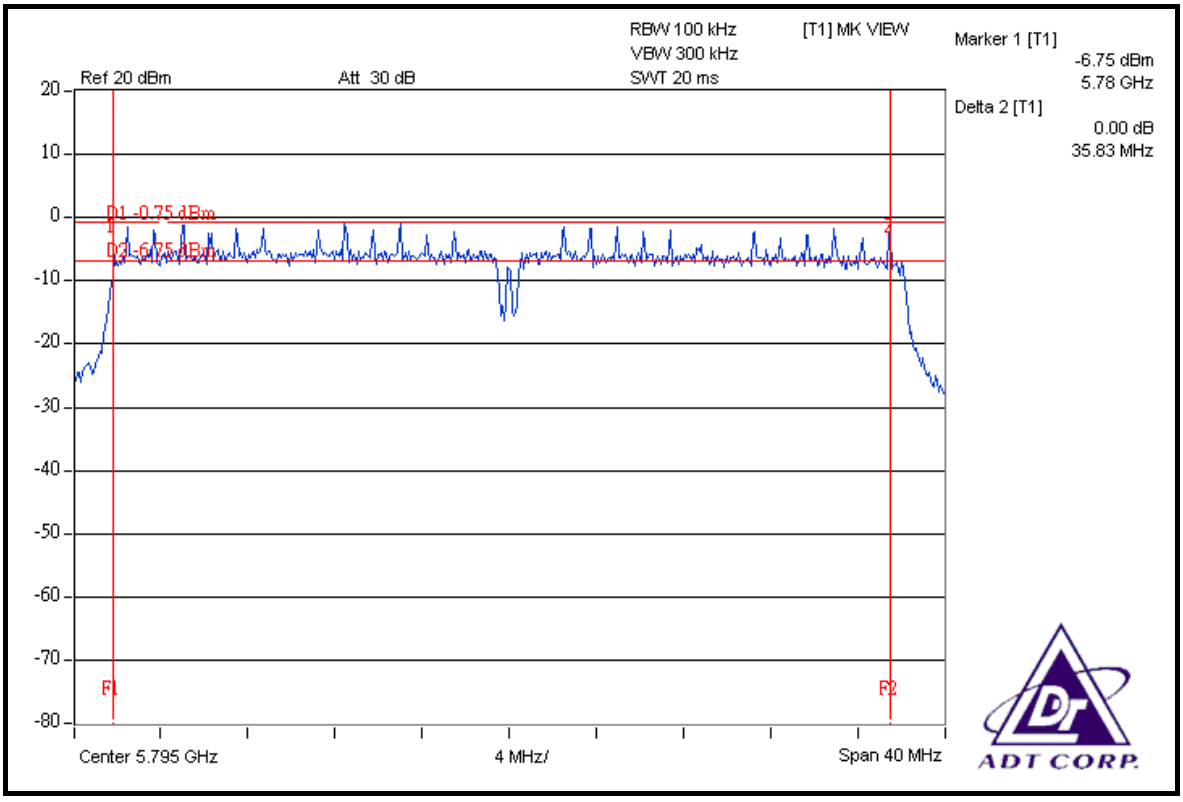
CH 159



FOR CHAIN 1: CH 151



CH 159



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.	DATE OF CALIBRATION	CALIBRATED UNTIL
High Speed Peak Power Meter	ML2495A	0824012	Aug. 04, 2008	Aug. 03, 2009
Power Sensor	MA2444B	0738138	Aug. 04, 2008	Aug. 03, 2009

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. Measurement Bandwidth of ML2495A is 65MHz greater than 6dB bandwidth of emission.

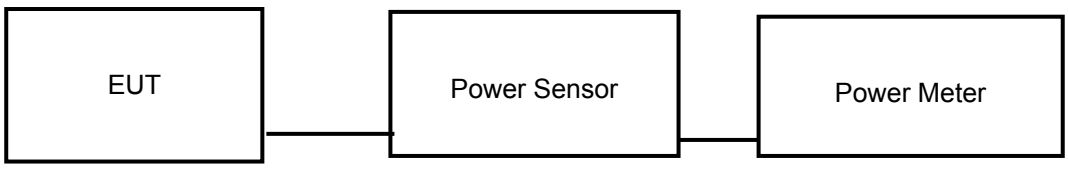
5.4.3 TEST PROCEDURES

A power sensor was used on the output port of the EUT. A power meter was used to read the response of the power sensor. 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 5.3.6

5.4.7 TEST RESULTS

802.11a OFDM MODULATION

MODULATION TYPE	BPSK	**TRANSFER RATE**	6.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	24deg.C, 64 %RH, 991hPa
TESTED BY	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
149	5745	252.930	24.03	30	PASS
157	5785	255.859	24.08	30	PASS
165	5825	254.683	24.06	30	PASS

DRAFT 802.11n (20MHz) OFDM MODULATION

MODULATION TYPE	BPSK	**TRANSFER RATE**	7.2Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	24deg.C, 64 %RH, 991hPa
TESTED BY	Brad Wu		

CHAN.	CHAN. FREQ. (MHz)	PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
149	5745	23.06	22.54	381.775	25.82	30	PASS
157	5785	23.04	22.58	382.506	25.83	30	PASS
165	5825	23.09	23.07	406.472	26.09	30	PASS

DRAFT 802.11n (40MHz) OFDM MODULATION

MODULATION TYPE	BPSK	**TRANSFER RATE**	15Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	25 deg.C, 65 %RH, 991hPa
TESTED BY	Brad Wu		

CHAN.	CHAN. FREQ. (MHz)	PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
151	5755	20.53	20.09	215.074	23.33	30	PASS
159	5795	20.07	20.13	204.663	23.11	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.	DATE OF CALIBRATION	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100041	Apr. 22, 2008	Apr. 21, 2009

NOTE: 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

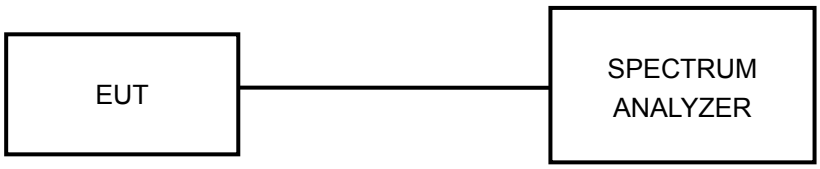
The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3kHz RBW and 30kHz VBW, set sweep time = span/3kHz. The power spectral density was measured and recorded.

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

5.5.4 DEVIATION FROM TEST STANDARD

No deviation

5.5.5 TEST SETUP



5.5.6 EUT OPERATING CONDITION

Same as Item 5.3.6

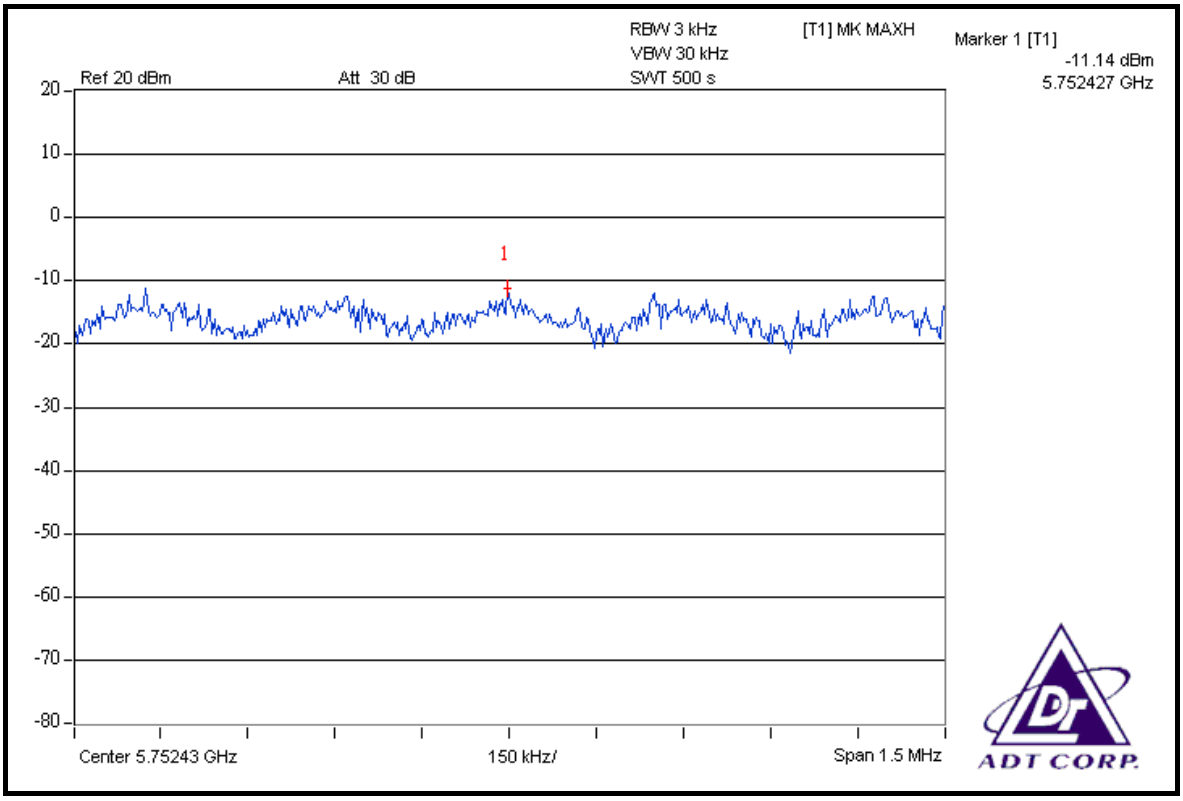
5.5.7 TEST RESULTS

802.11a OFDM MODULATION

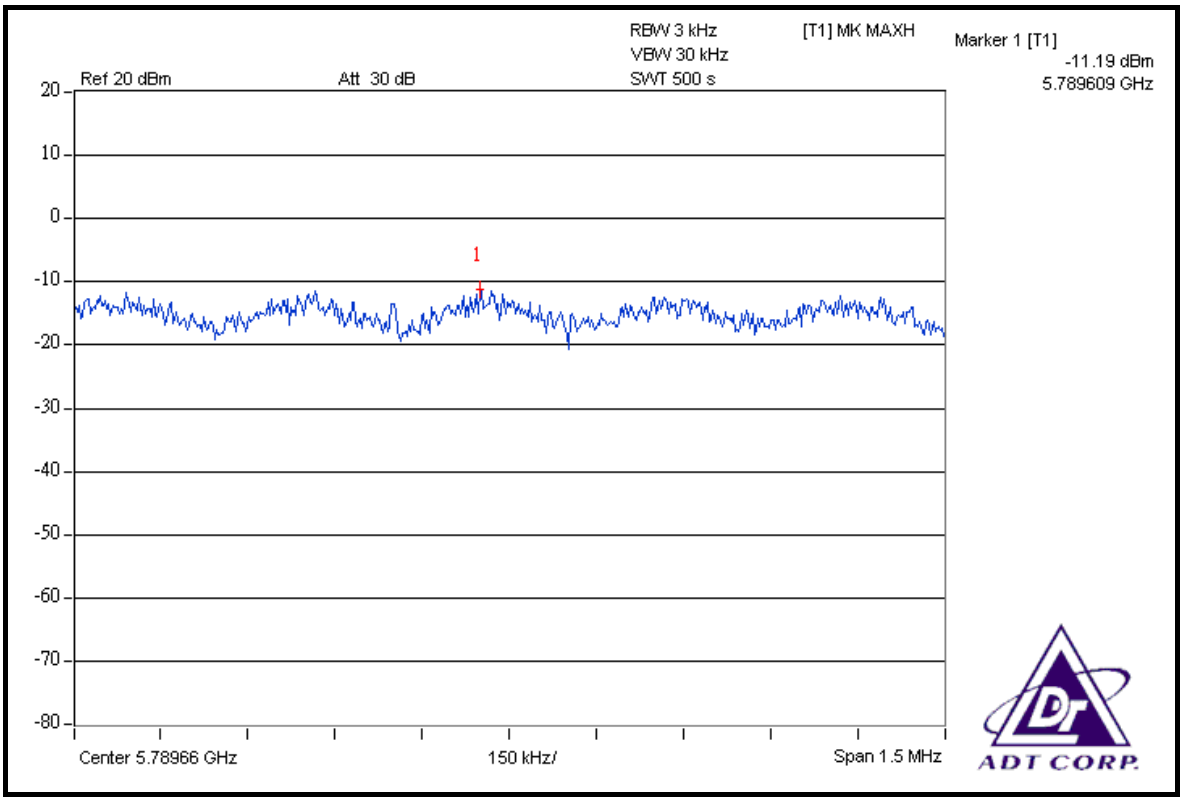
MODULATION TYPE	BPSK	TRANSFER RATE	6.0Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 65%RH, 991hPa
TESTED BY	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
149	5745	-11.14	8	PASS
157	5785	-11.19	8	PASS
165	5825	-11.17	8	PASS

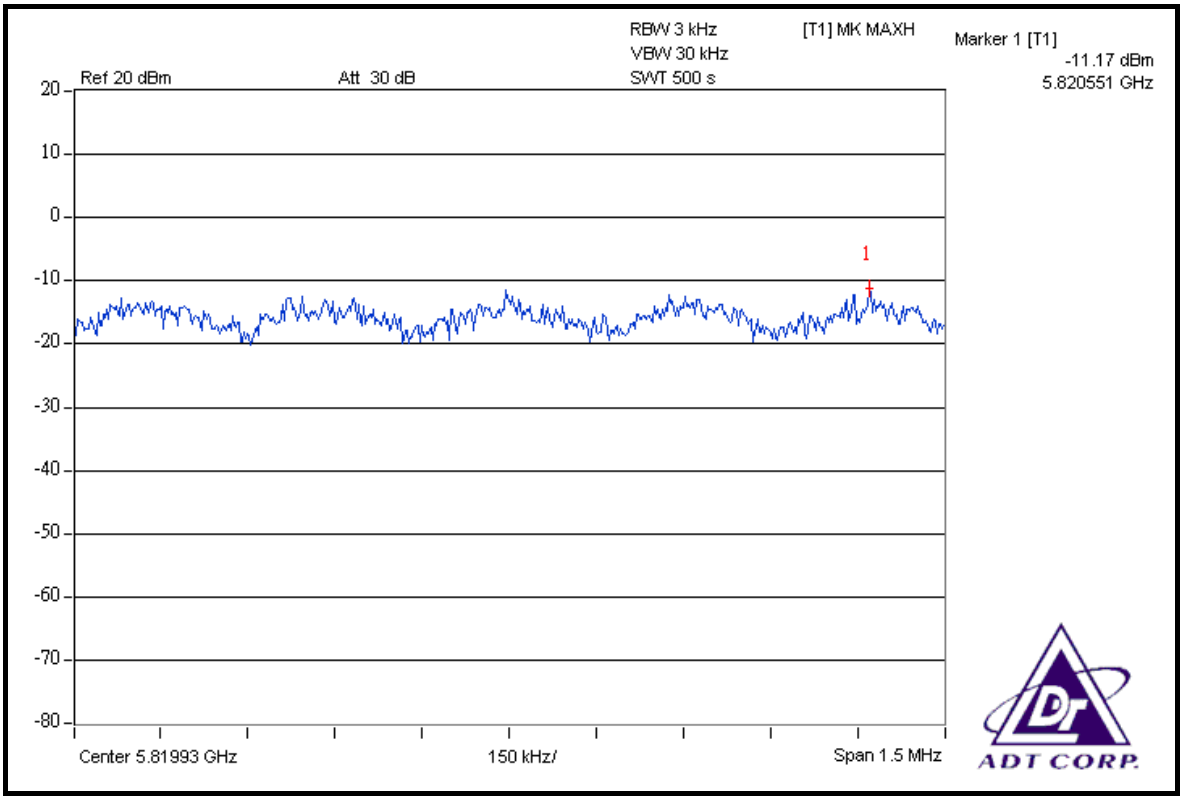
CH 149



CH 157


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-11.19 dBm
5.789609 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Center 5.78966 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

CH 165

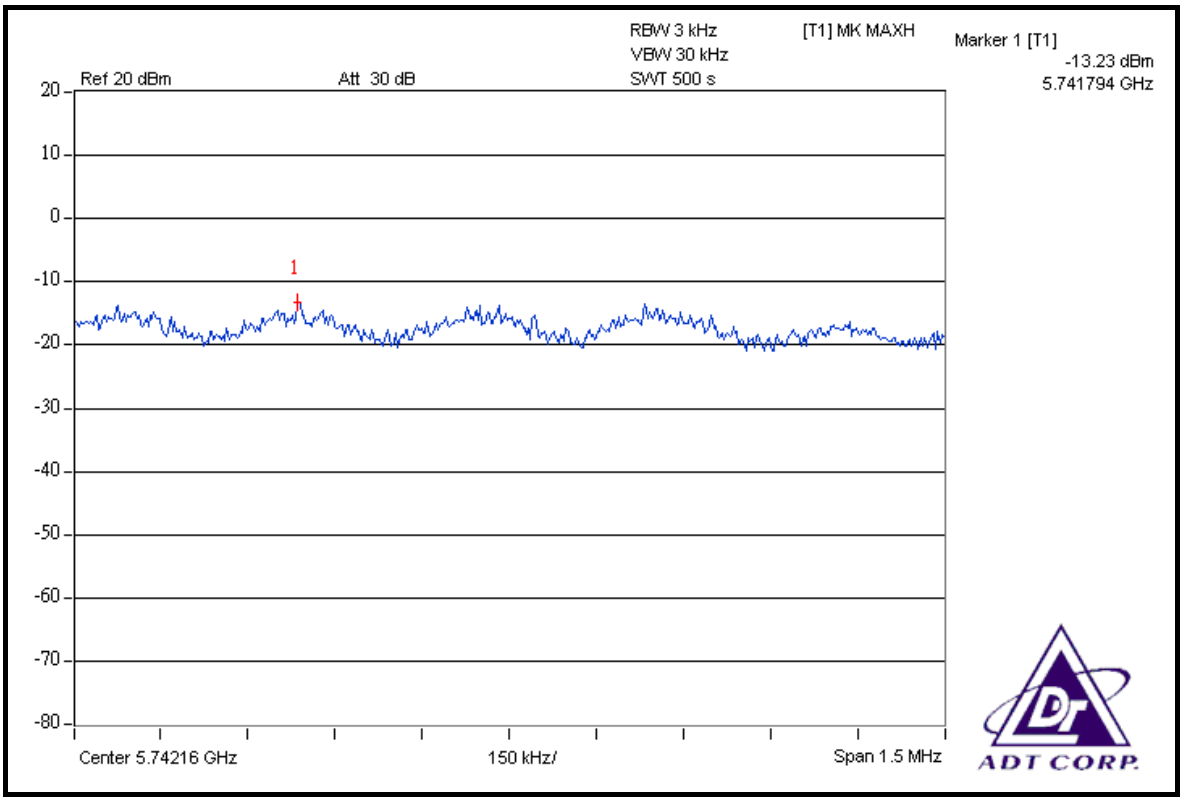

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-11.17 dBm
5.820551 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Center 5.81993 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

DRAFT 802.11n (20MHz) OFDM MODULATION

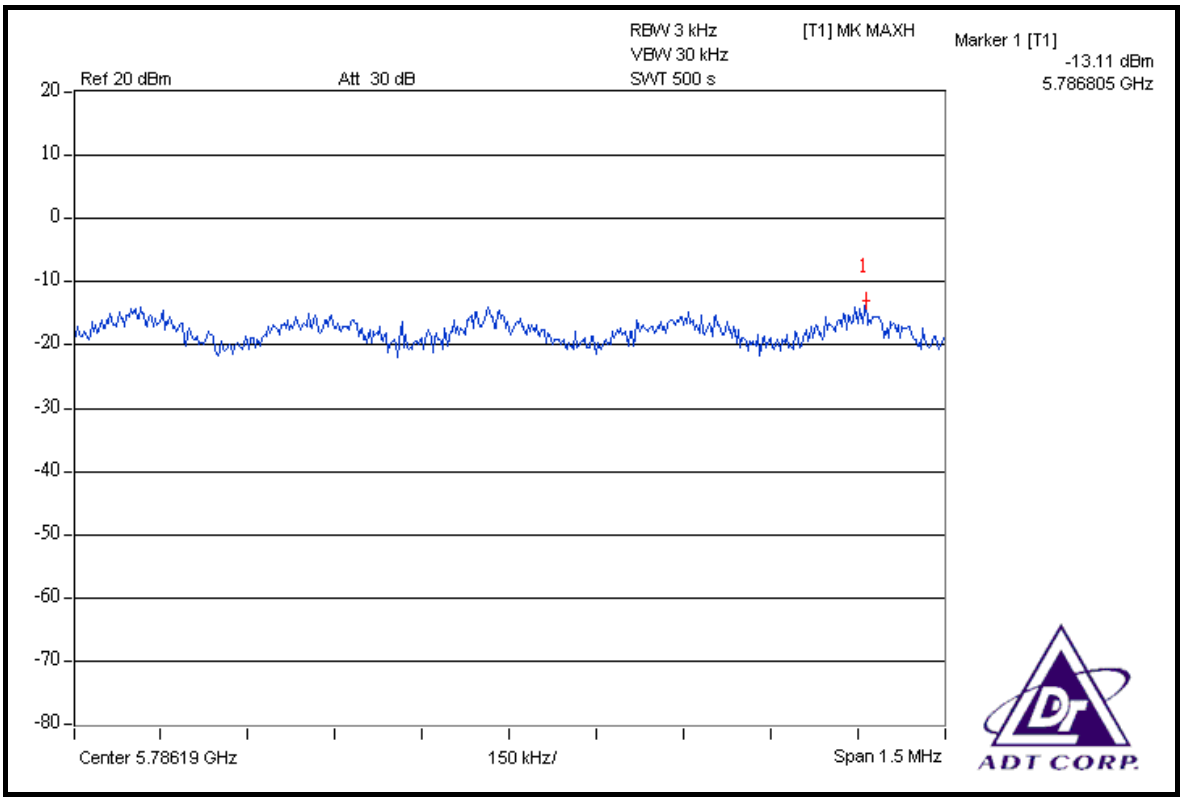
MODULATION TYPE	BPSK	**TRANSFER RATE**	7.2Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	25deg.C, 65%RH, 991hPa
TESTED BY	Brad Wu		

CHAN.	CHAN. FREQ. (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
149	5745	-13.23	-12.99	0.098	-10.10	8	PASS
157	5785	-13.11	-12.96	0.099	-10.02	8	PASS
165	5825	-12.65	-12.65	0.109	-9.64	8	PASS

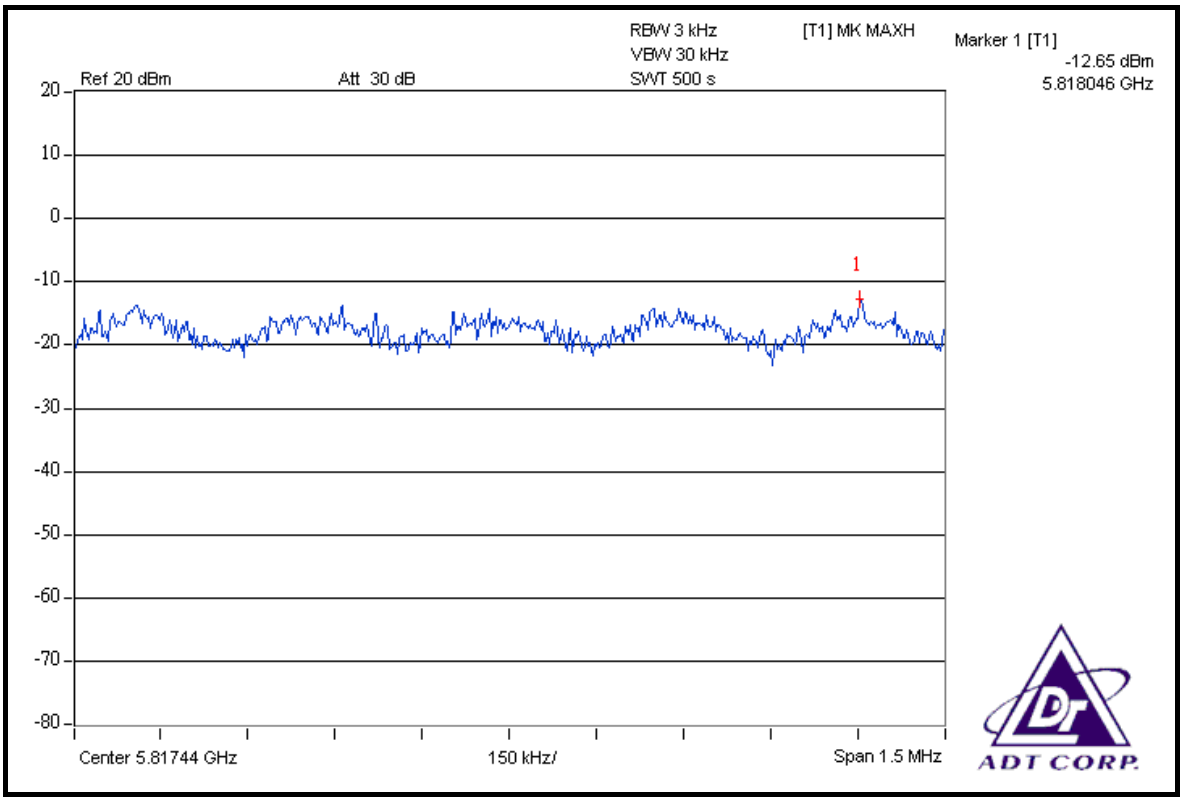
FOR CHAIN 0: CH 149



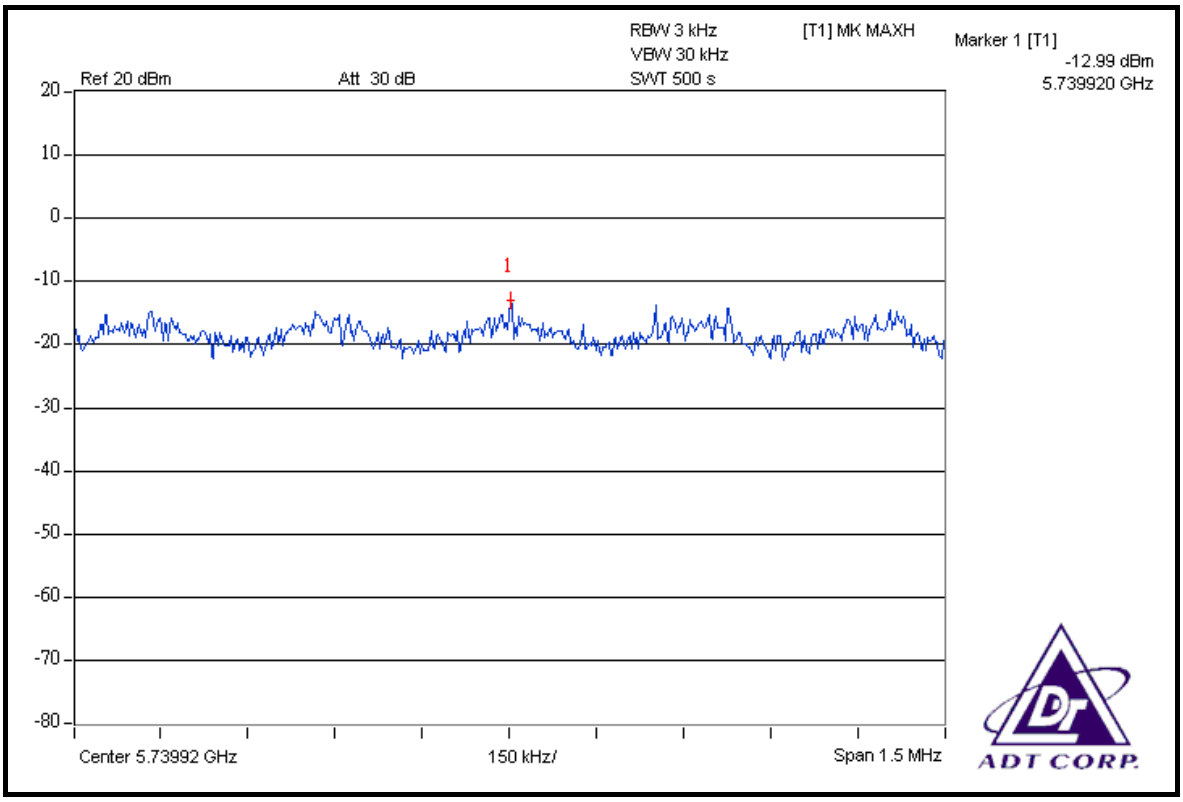
CH 157



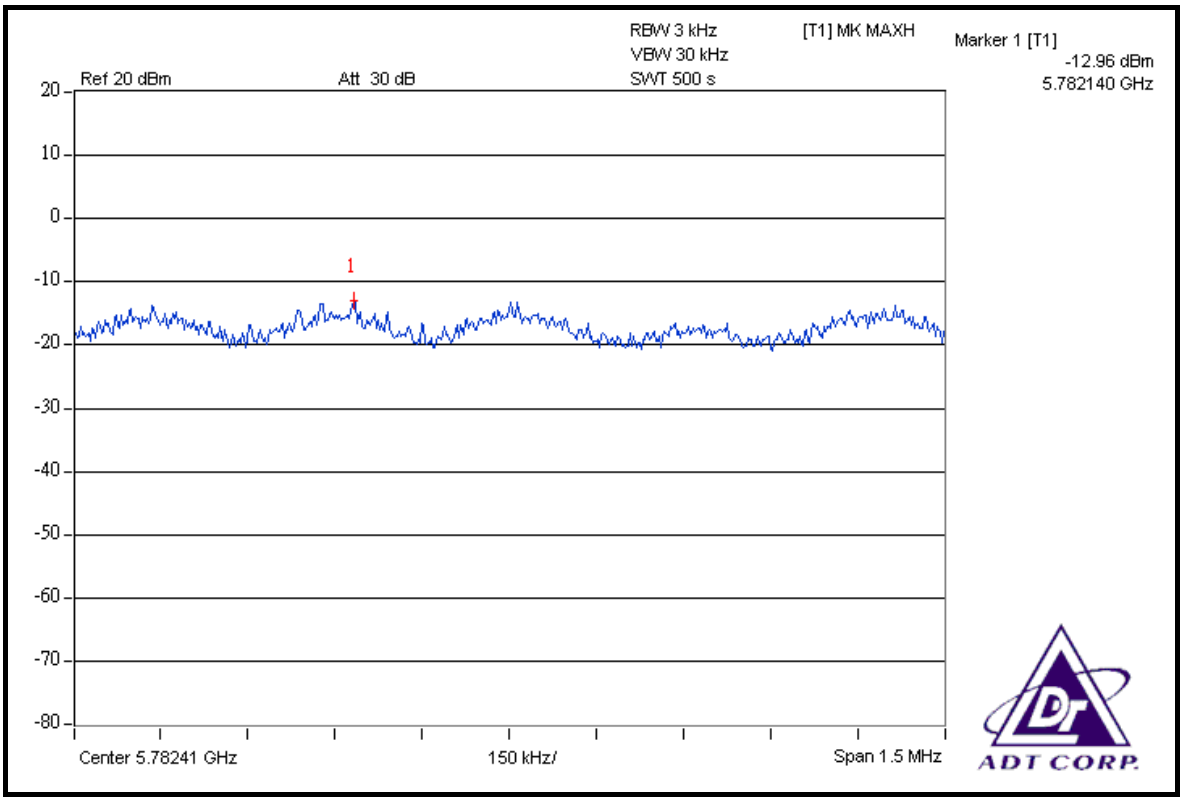
CH 165



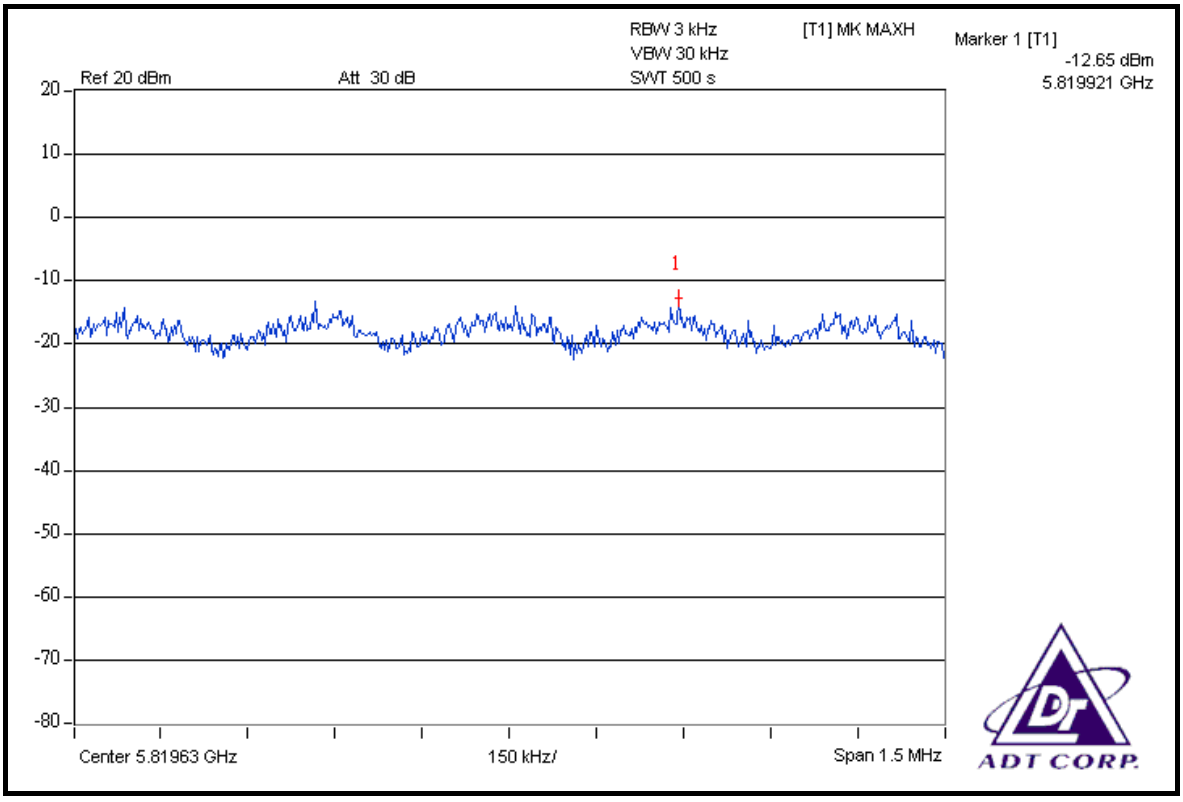
FOR CHAIN 1: CH 149



CH 157


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-12.96 dBm
5.782140 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Center 5.78241 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

CH 165

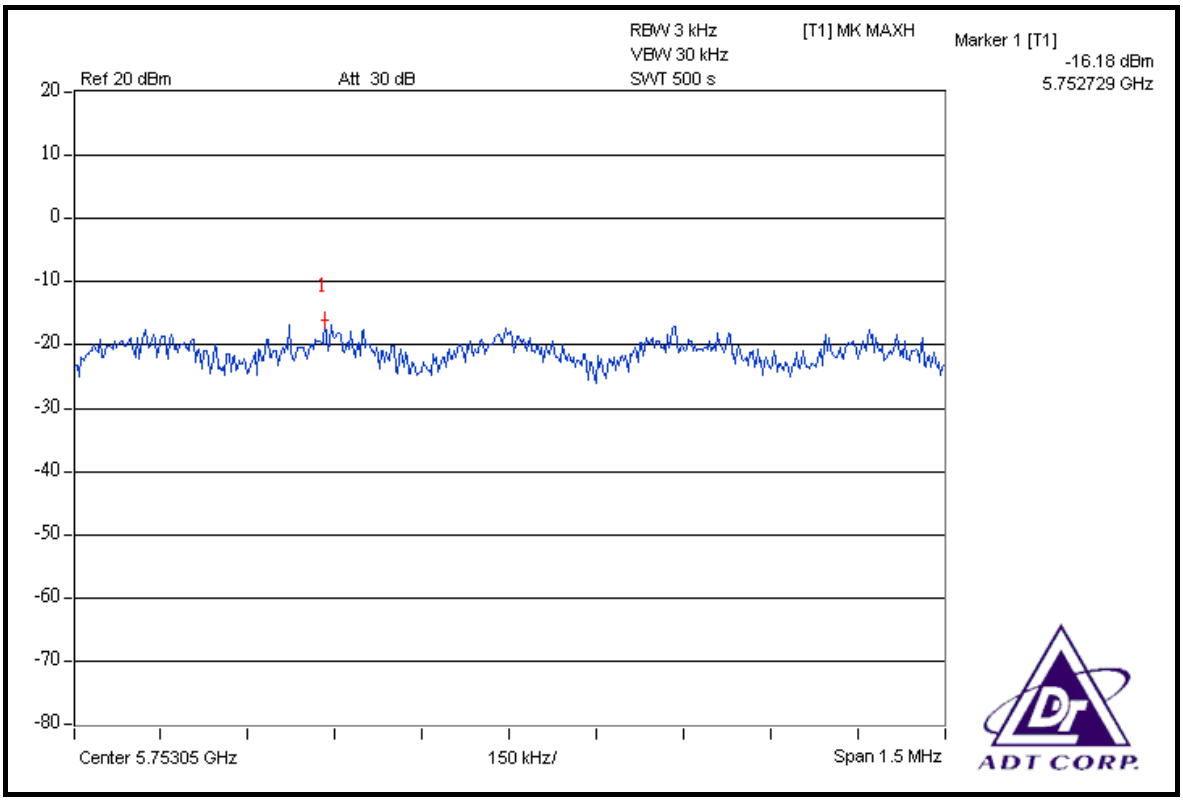

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-12.65 dBm
5.819921 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Center 5.81963 GHz
150 kHz/
Span 1.5 MHz
ADT CORP.

DRAFT 802.11n (40MHz) OFDM MODULATION

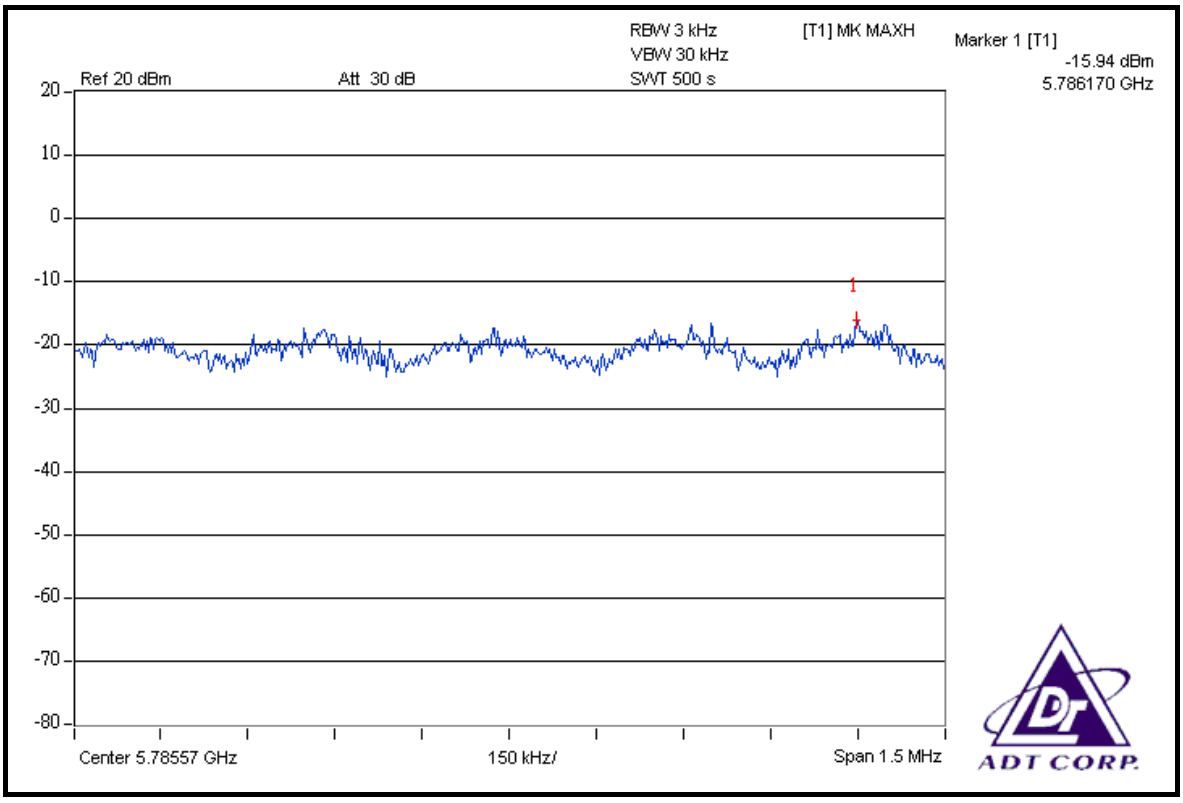
MODULATION TYPE	BPSK	**TRANSFER RATE**	15Mbps
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	25deg.C, 65%RH, 991hPa
TESTED BY	Brad Wu		

CHAN.	CHAN. FREQ. (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
151	5755	-16.18	-16.66	0.046	-13.40	8	PASS
159	5795	-15.94	-16.69	0.047	-13.29	8	PASS

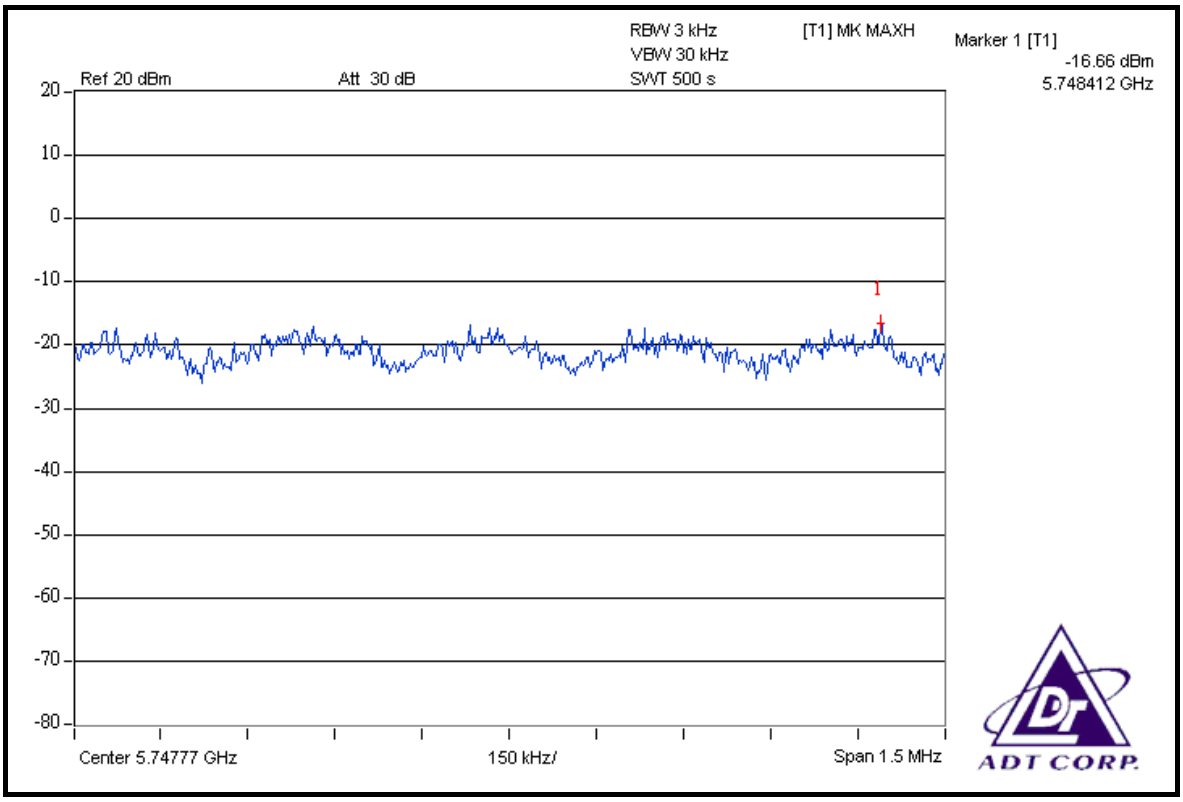
FOR CHAIN 0: CH 151



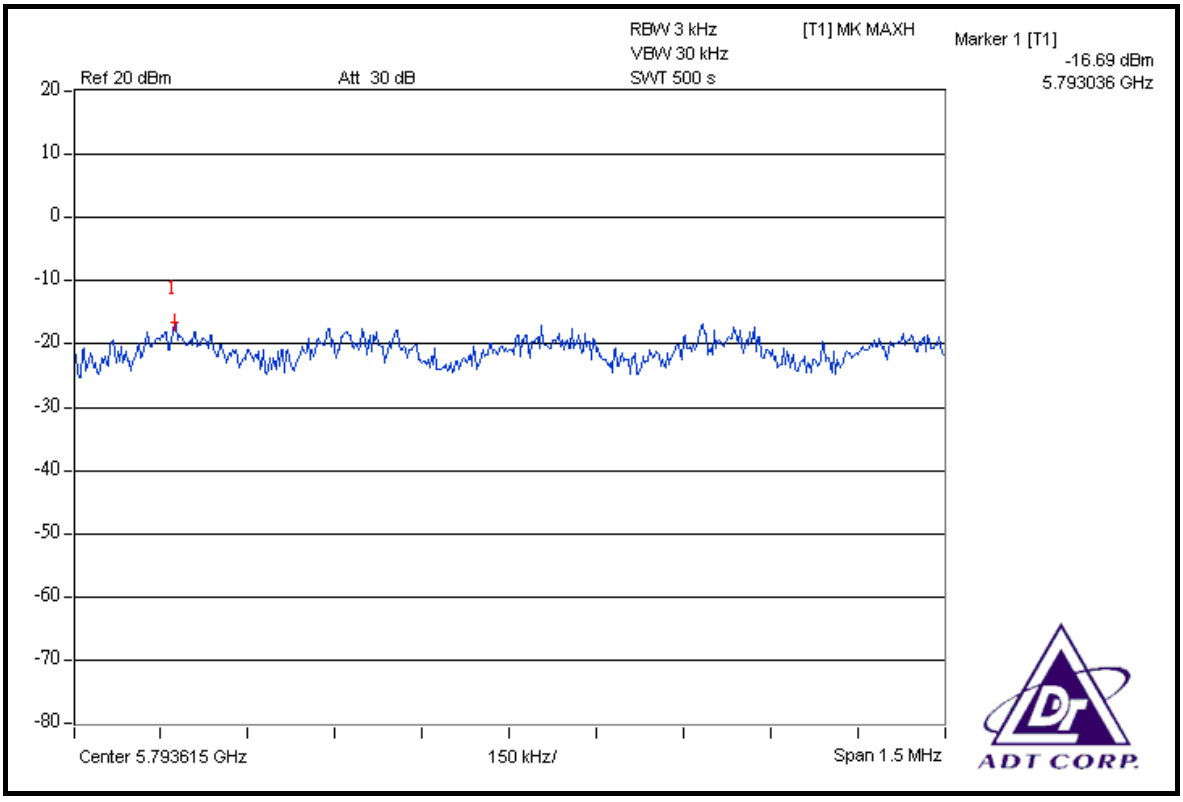
CH 159



FOR CHAIN 1: CH 151



CH 159



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.	DATE OF CALIBRATION	CALIBRATED UNTIL
FOR CONDUCTED MEASUREMENT:				
R&S SPECTRUM ANALYZER	FSP40	100041	Apr. 22, 2008	Apr. 21, 2009
FOR RADIATED MEASUREMENT:				
Test Receiver ROHDE & SCHWARZ	ESI7	100033	Jun. 30, 2008	Jun. 29, 2009
Spectrum Analyzer Agilent	FSP	100041	Apr. 22, 2008	Apr. 21, 2009
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	May, 02, 2008	May, 01, 2009
HORN Antenna SCHWARZBECK	9120D	9120D-209	Jun. 24, 2008	Jun. 23, 2009
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170243	Dec. 25, 2007	Dec. 24, 2008
Preamplifier Agilent	8447D	2944A10633	Oct. 29, 2007	Oct. 28, 2008
Preamplifier Agilent	8449B	3008A01964	Oct. 24, 2007	Oct. 23, 2008
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	283402/4	Dec. 07, 2007	Dec. 06, 2008
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	251644/4	Dec. 07, 2007	Dec. 06, 2008
Software ADT.	ADT_Radiated_V7.6	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA	NA
Antenna Tower Controller inn-co GmbH	CO2000	017303	NA	NA
Turn Table ADT.	TT100.	TT93021703	NA	NA
Turn Table Controller ADT.	SC100.	SC93021703	NA	NA

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

5.6.3 TEST PROCEDURE

FOR CONDUCTED MEASUREMENT:

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

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

FOR RADIATED MEASUREMENT:

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

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

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

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

e. Set both RBW and VBW of spectrum analyzer to 100kHz and 300kHz with suitable frequency span including 100MHz bandwidth from band edge. The band edges was measured and recorded.

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

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

5.6.4 DEVIATION FROM TEST STANDARD

No deviation

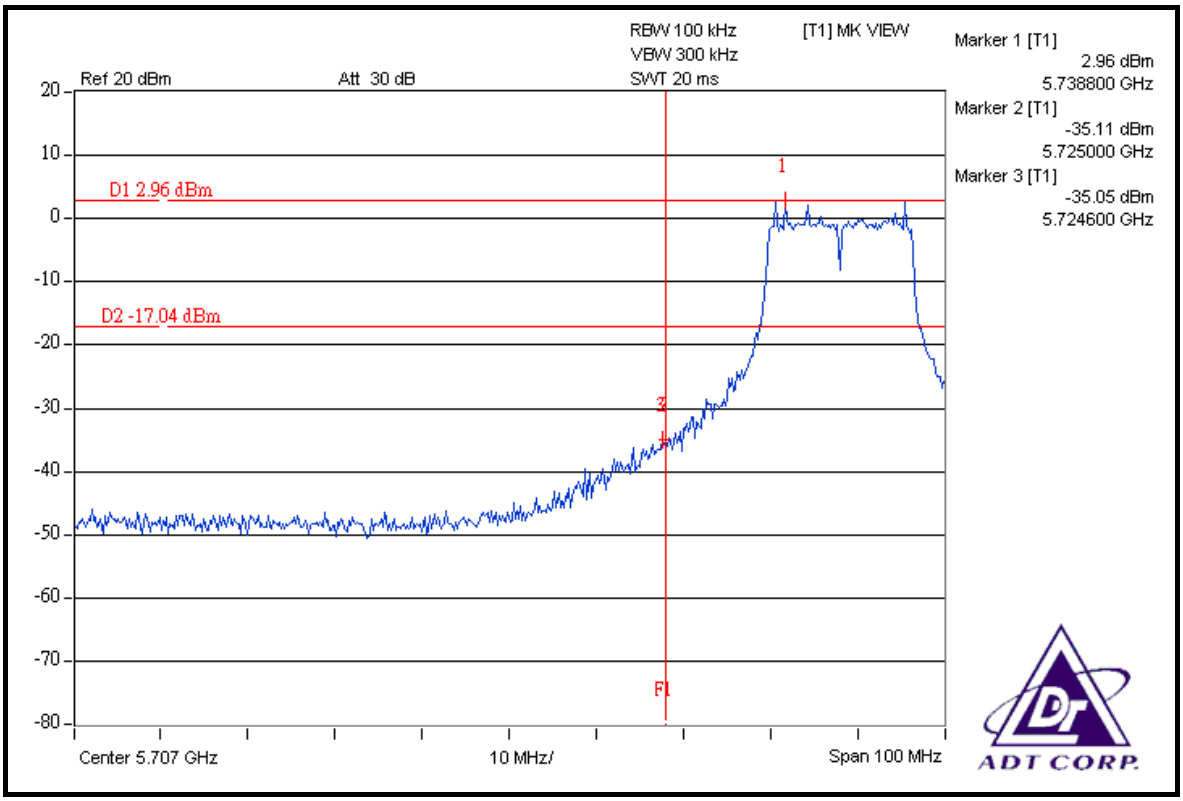
5.6.5 EUT OPERATING CONDITION

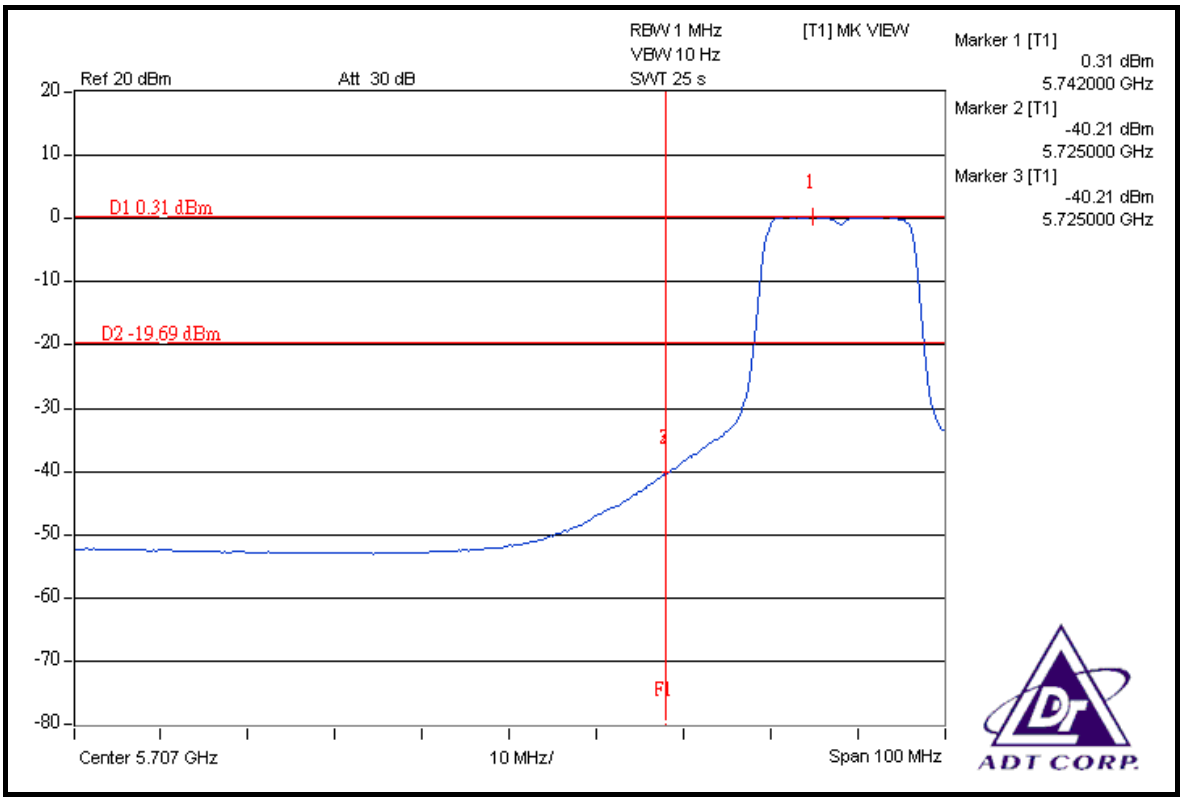
Same as Item 5.3.6

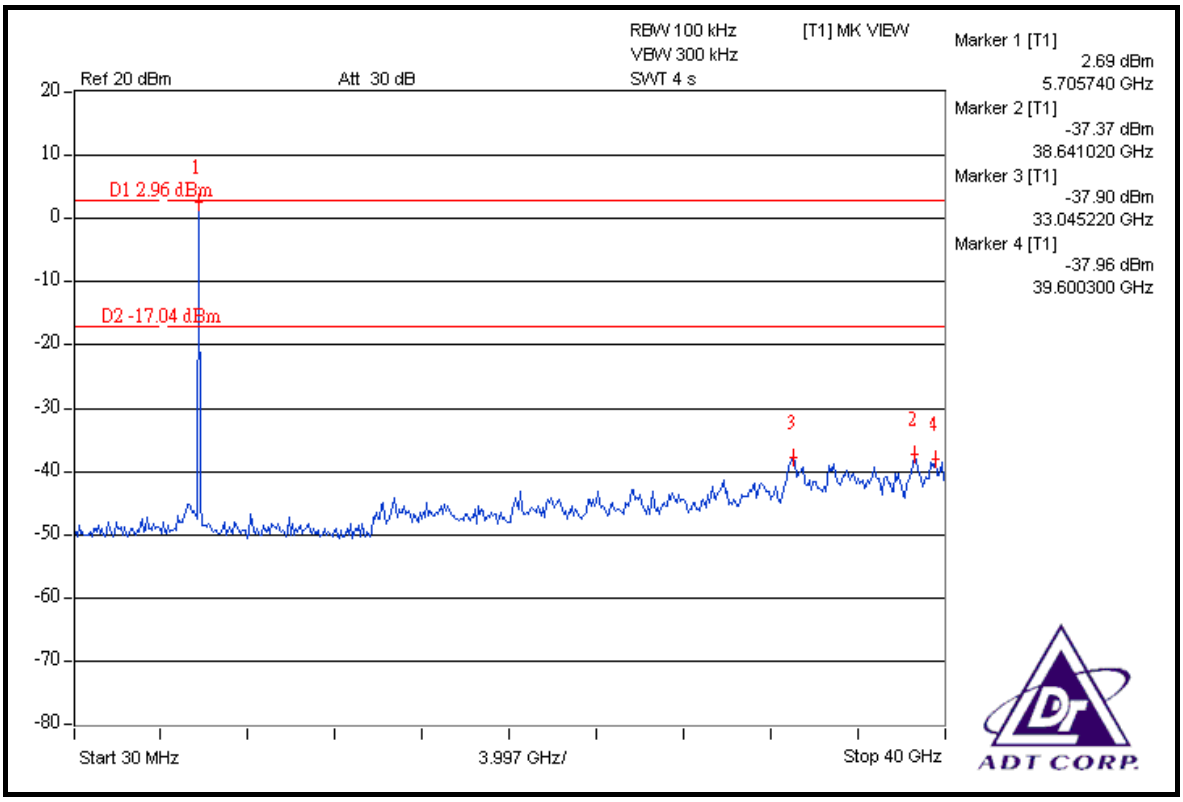
5.6.6 TEST RESULTS

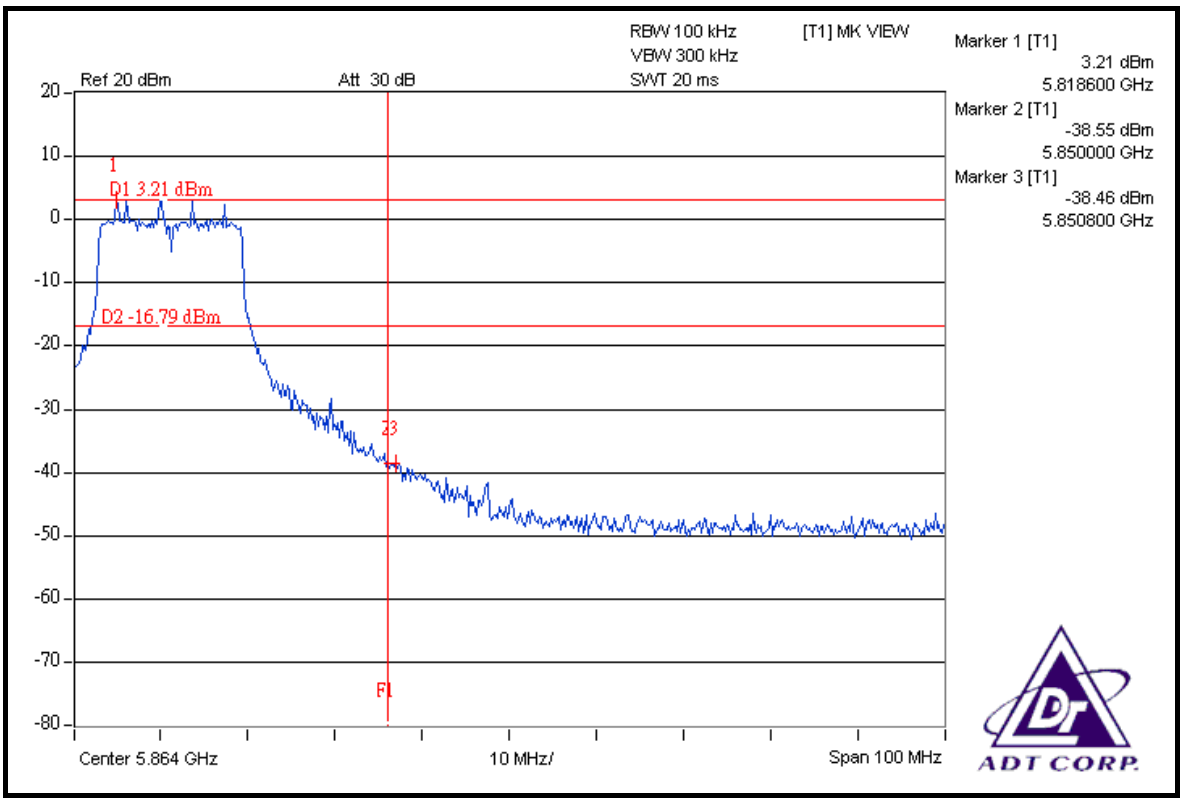
The spectrum plots are attached on the following pages. D1 line indicates the highest level, D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(d).

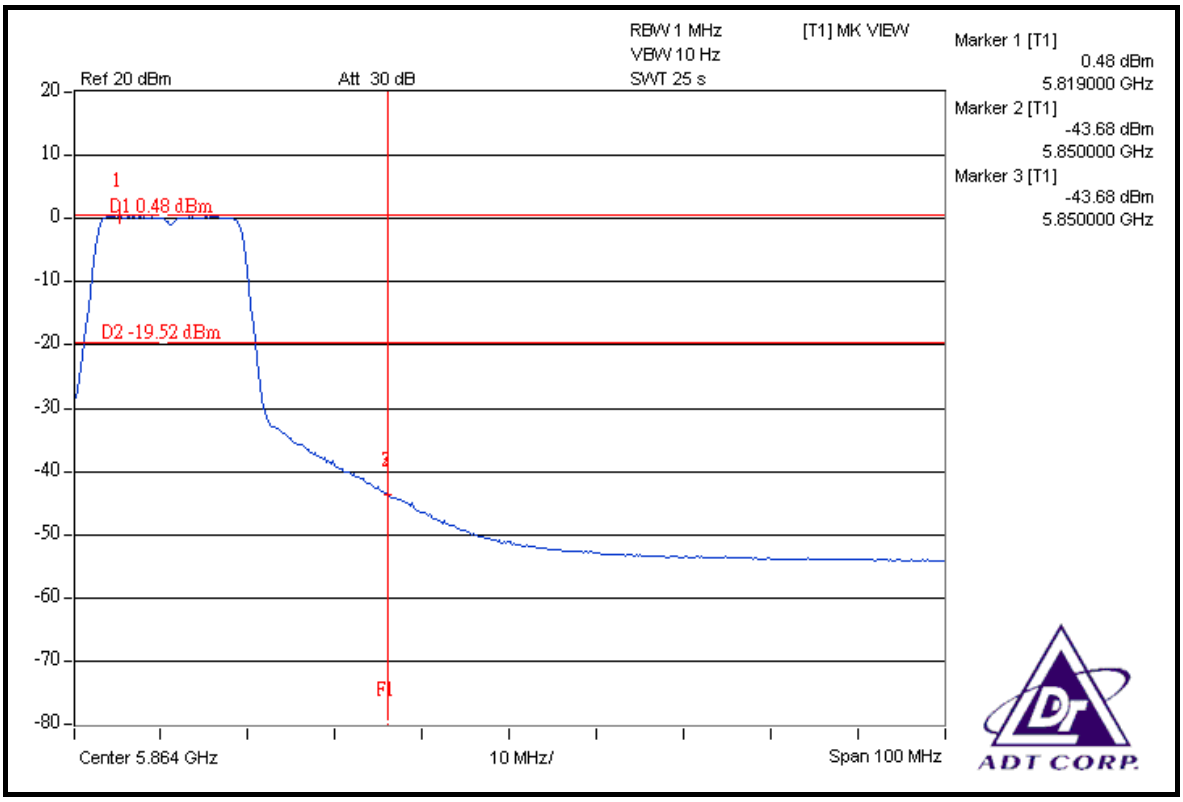
802.11a OFDM MODULATION

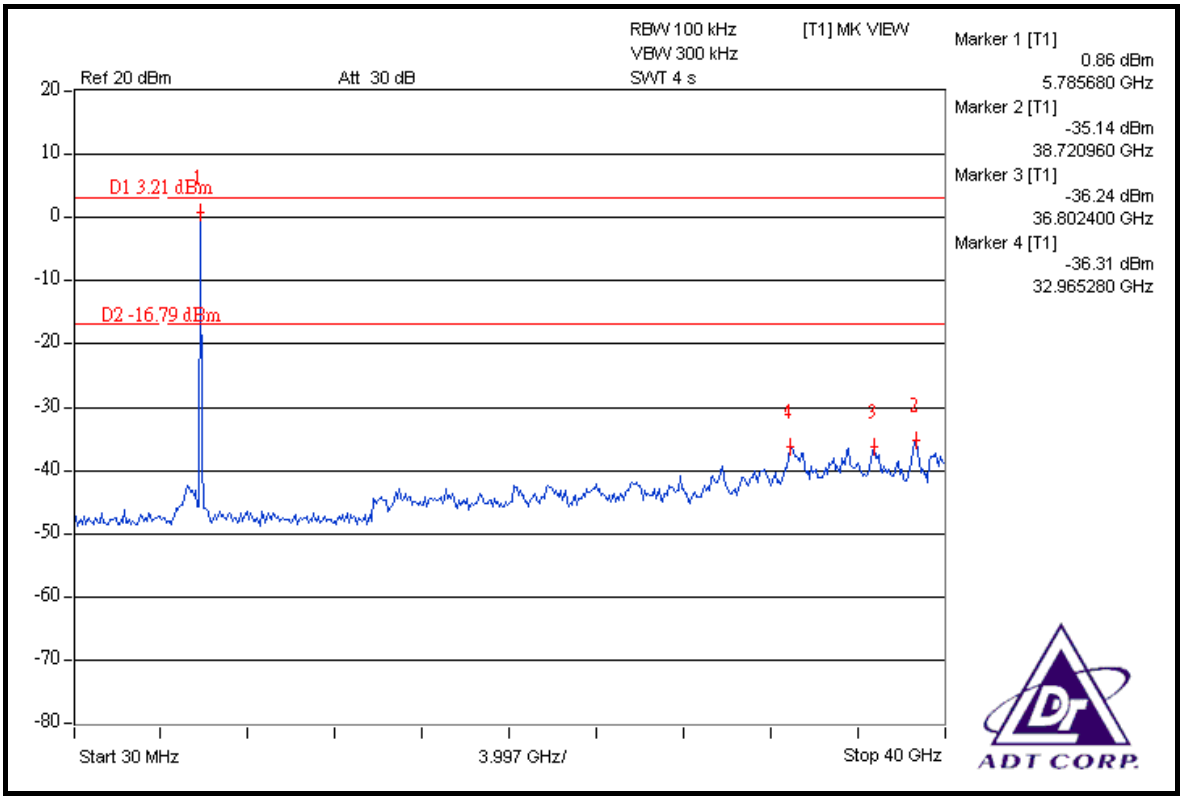





RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
Marker 1 [T1]
2.69 dBm
5.705740 GHz
Marker 2 [T1]
-37.37 dBm
38.641020 GHz
Marker 3 [T1]
-37.90 dBm
33.045220 GHz
Marker 4 [T1]
-37.96 dBm
39.600300 GHz
D1 2.96 dBm
D2 -17.04 dBm
Start 30 MHz
3.997 GHz/
Stop 40 GHz
ADT CORP.

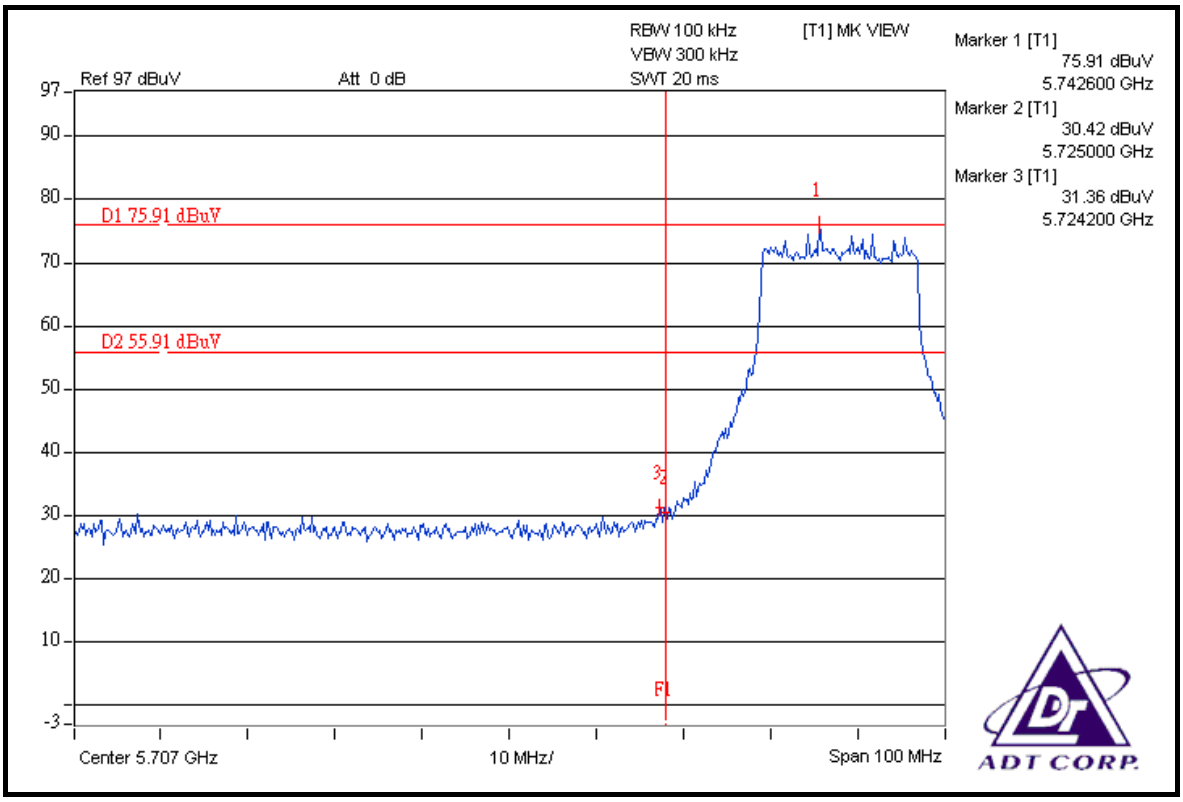

RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
Marker 1 [T1]
3.21 dBm
5.818600 GHz
Marker 2 [T1]
-38.55 dBm
5.850000 GHz
Marker 3 [T1]
-38.46 dBm
5.850800 GHz
D1 3.21 dBm
D2 -16.79 dBm
Center 5.864 GHz
10 MHz/
Span 100 MHz
ADT CORP.

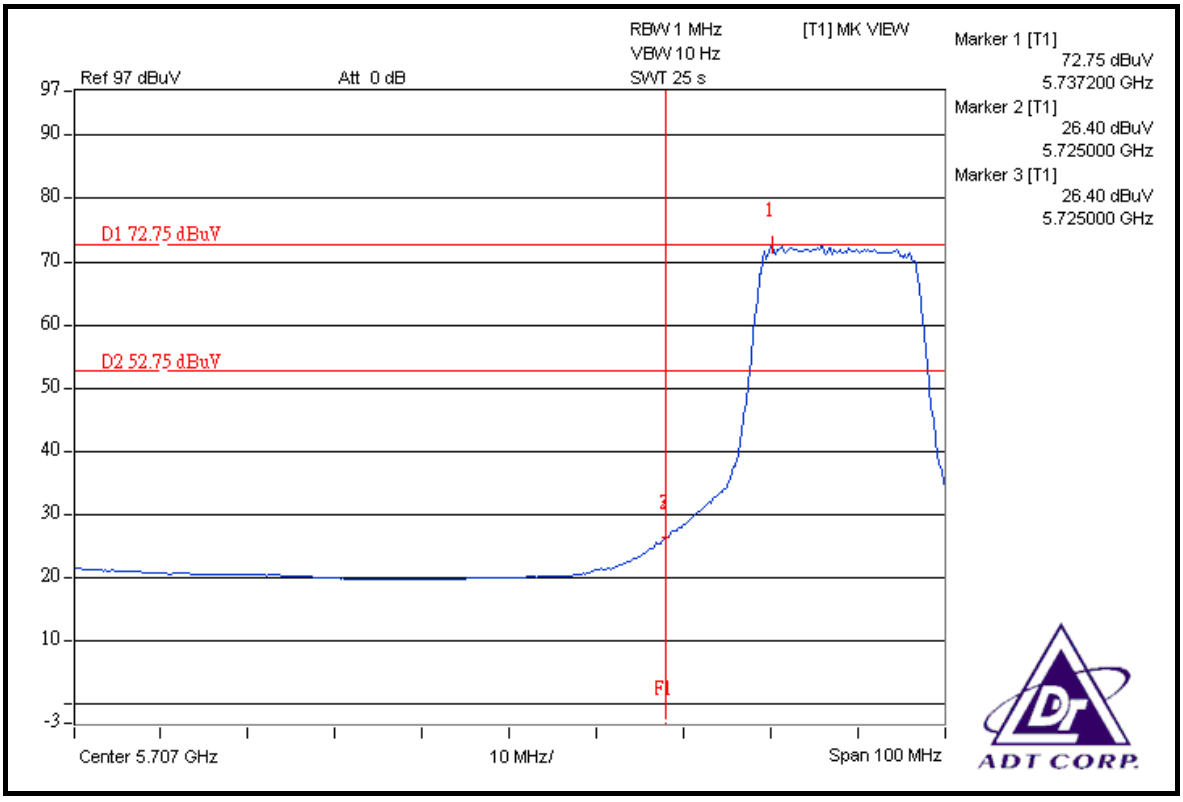

RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
Marker 1 [T1]
0.48 dBm
5.819000 GHz
Marker 2 [T1]
-43.68 dBm
5.850000 GHz
Marker 3 [T1]
-43.68 dBm
5.850000 GHz
D1 0.48 dBm
D2 -19.52 dBm
Center 5.864 GHz
10 MHz/
Span 100 MHz

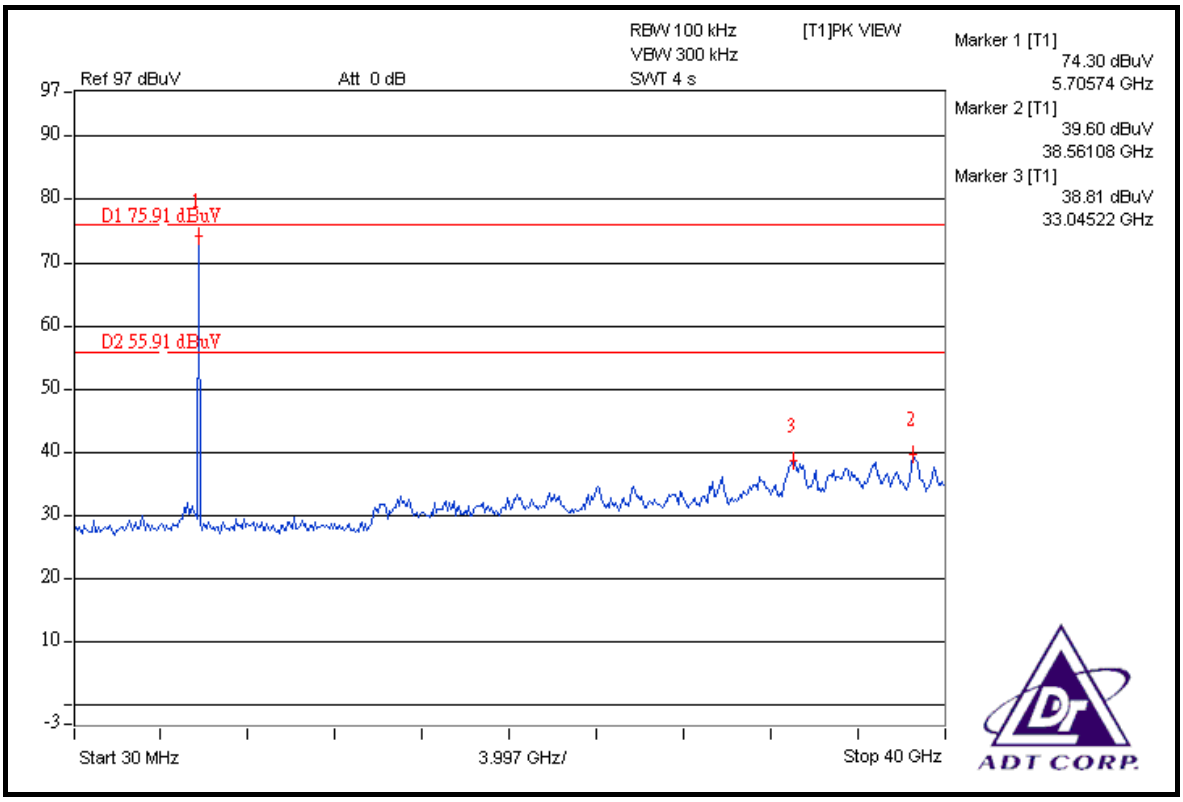

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
Marker 1 [T1]
0.86 dBm
5.785680 GHz
Marker 2 [T1]
-35.14 dBm
38.720960 GHz
Marker 3 [T1]
-36.24 dBm
36.802400 GHz
Marker 4 [T1]
-36.31 dBm
32.965280 GHz
D1 3.21 dBm
D2 -16.79 dBm
Start 30 MHz
3.997 GHz/
Stop 40 GHz

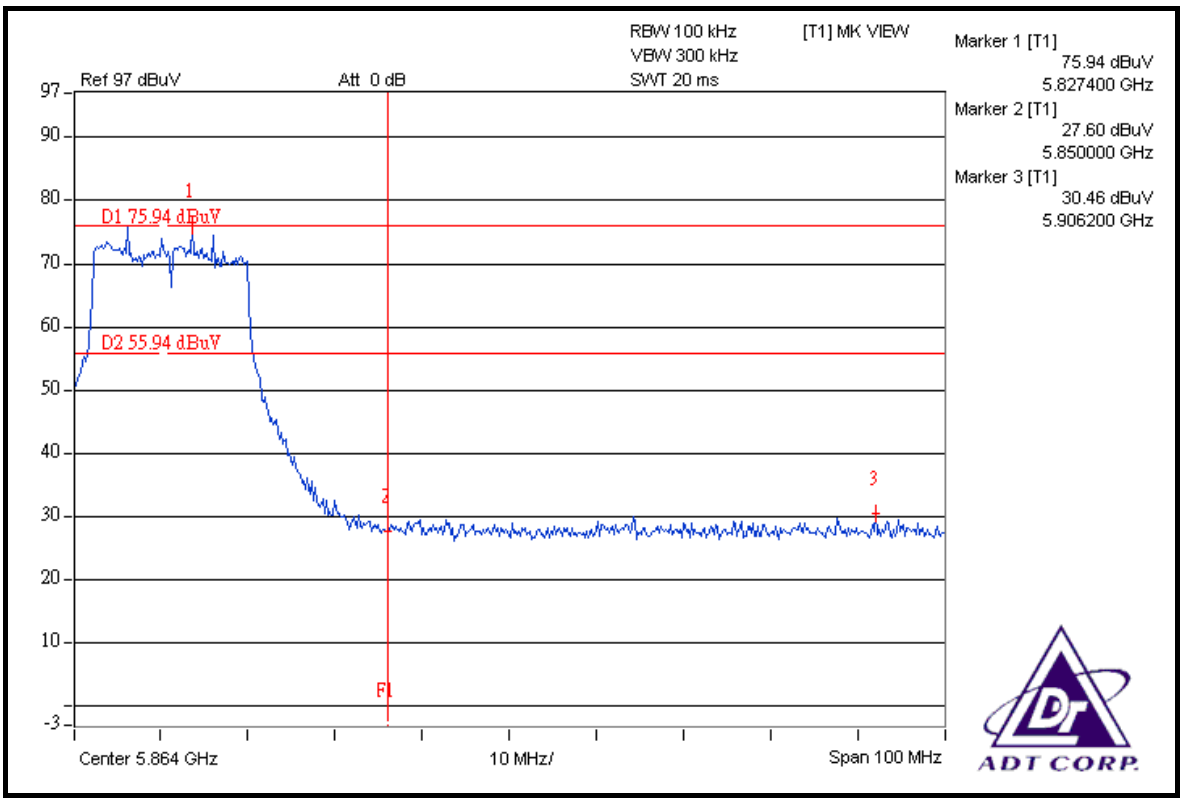
DRAFT 802.11n (20MHz) OFDM MODULATION

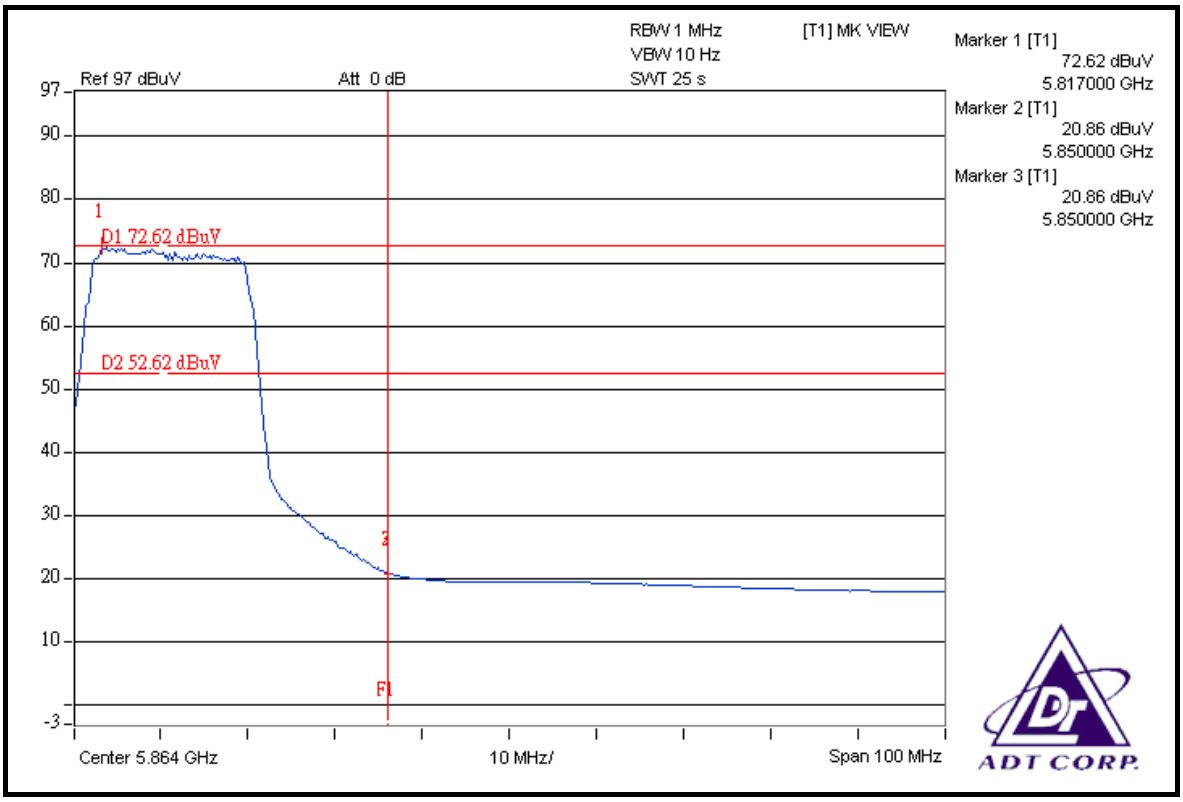
TEST MODE A

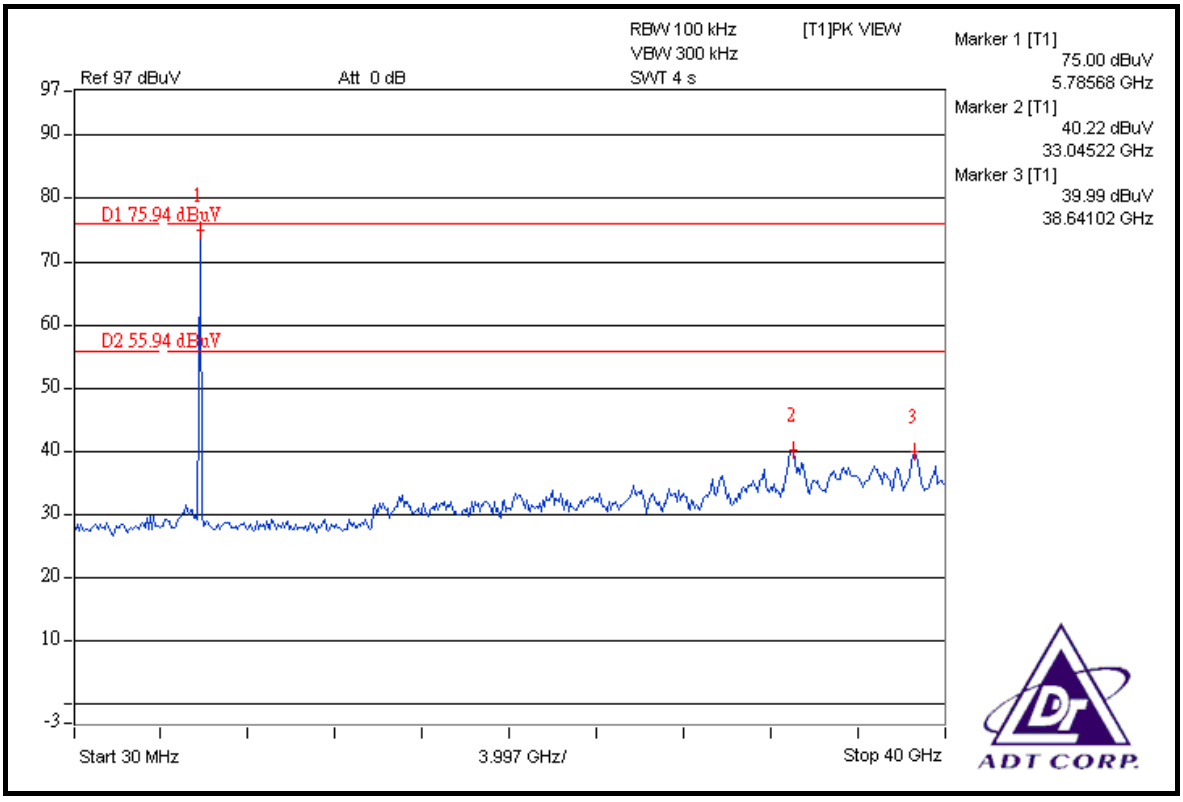




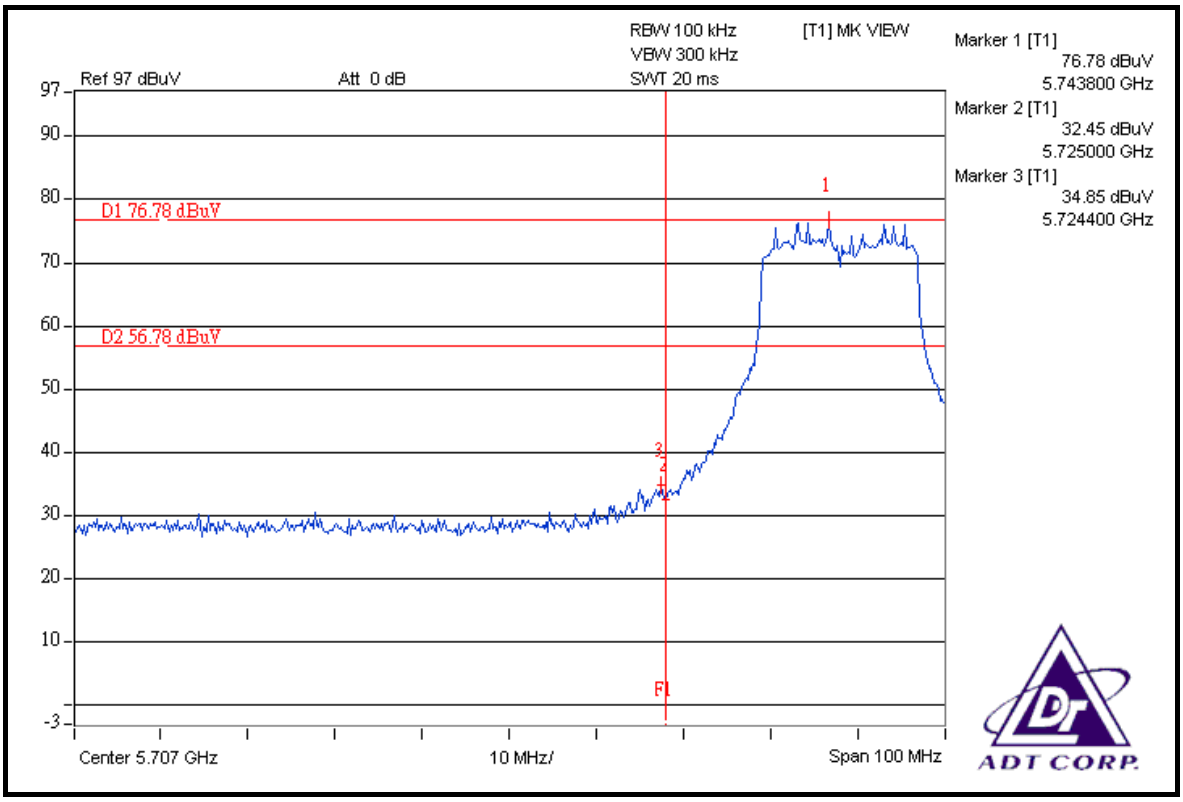

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1]PK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
74.30 dBuV
5.70574 GHz
Marker 2 [T1]
39.60 dBuV
38.56108 GHz
Marker 3 [T1]
38.81 dBuV
33.04522 GHz
D1 75.91 dBuV
D2 55.91 dBuV
Start 30 MHz
3.997 GHz/
Stop 40 GHz

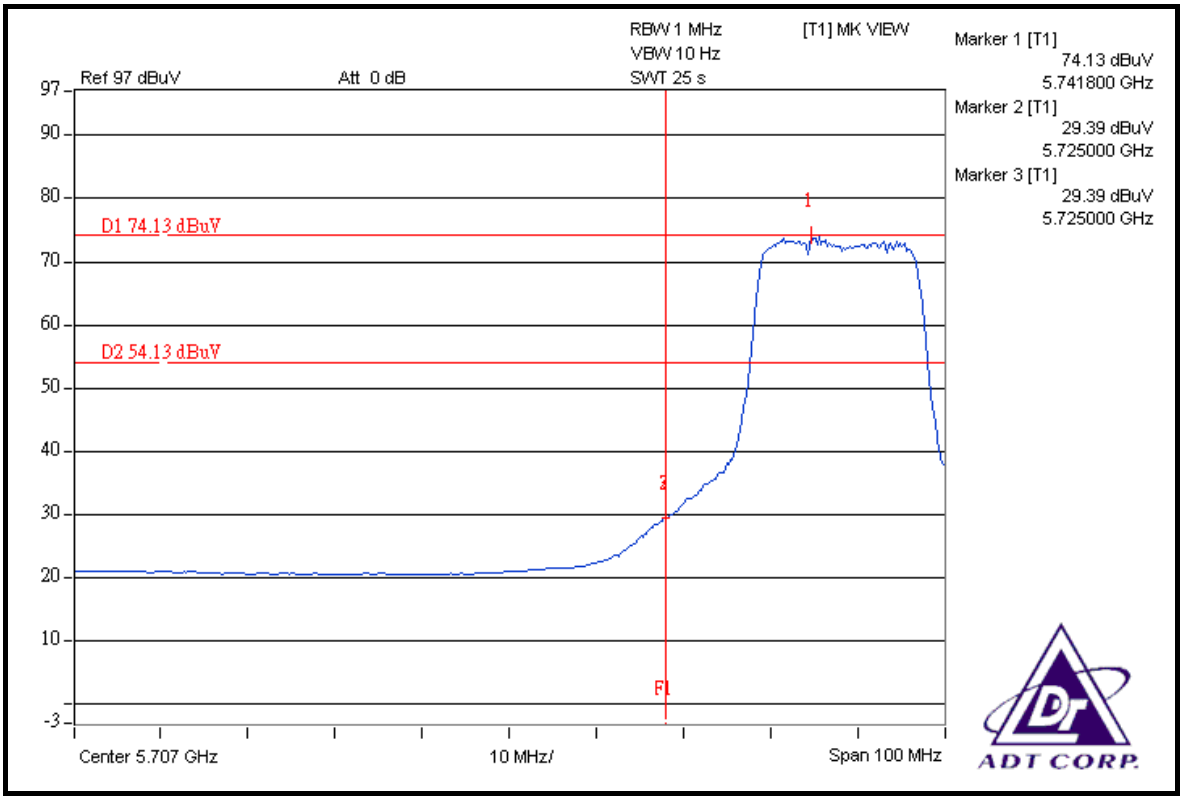

RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
75.94 dBuV
5.827400 GHz
Marker 2 [T1]
27.60 dBuV
5.850000 GHz
Marker 3 [T1]
30.46 dBuV
5.906200 GHz
D1 75.94 dBuV
D2 55.94 dBuV
Center 5.864 GHz
10 MHz/
Span 100 MHz

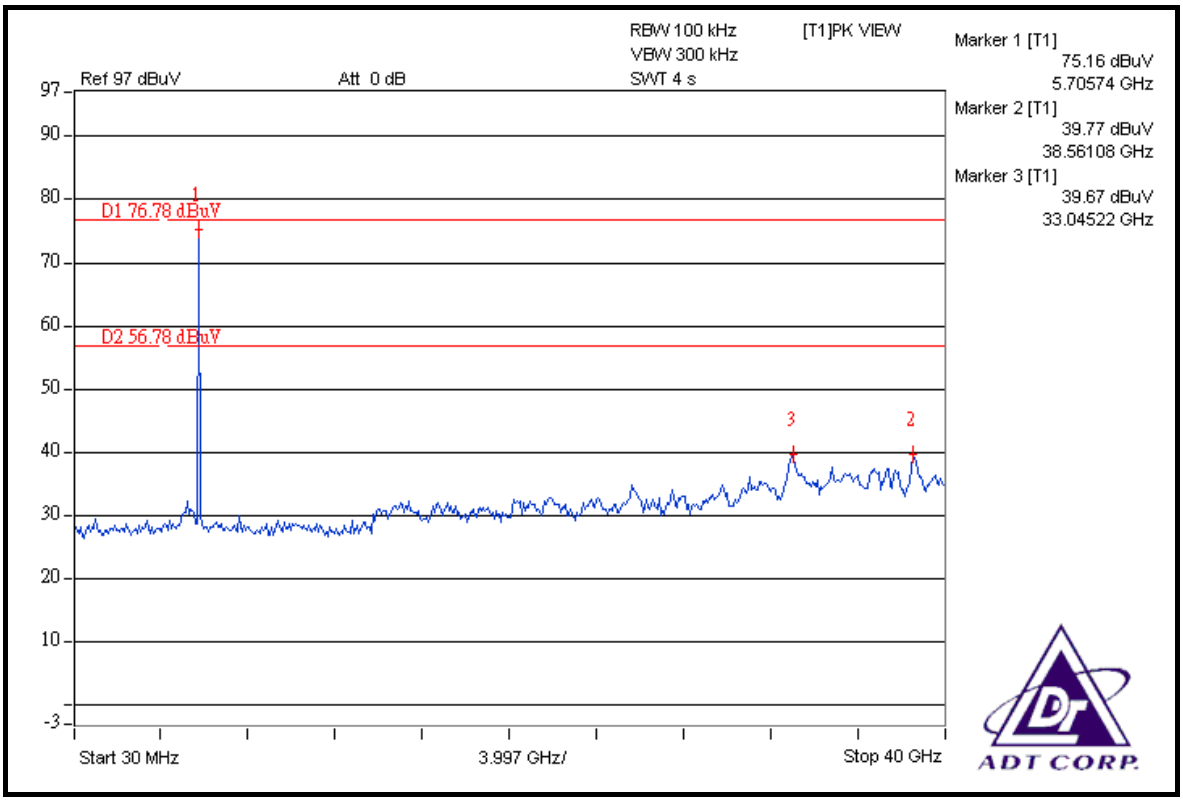

RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Marker 1 [T1]
72.62 dBuV
5.817000 GHz
Marker 2 [T1]
20.86 dBuV
5.850000 GHz
Marker 3 [T1]
20.86 dBuV
5.850000 GHz
Ref 97 dBuV
Att 0 dB
D1 72.62 dBuV
D2 52.62 dBuV
Center 5.864 GHz
10 MHz/
Span 100 MHz
ADT CORP.

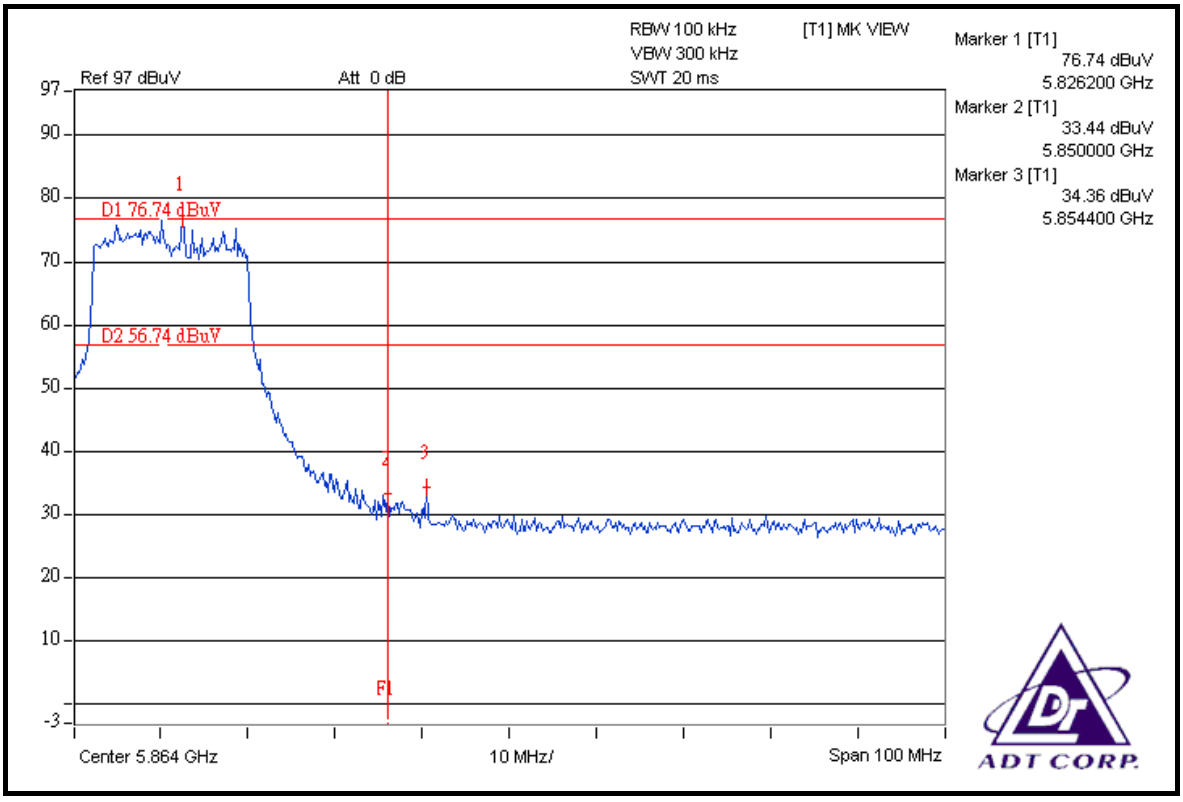

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1]PK VIEW
Marker 1 [T1]
75.00 dBuV
5.78568 GHz
Marker 2 [T1]
40.22 dBuV
33.04522 GHz
Marker 3 [T1]
39.99 dBuV
38.64102 GHz
Ref 97 dBuV
Att 0 dB
D1 75.94 dBuV
D2 55.94 dBuV
Start 30 MHz
3.997 GHz/
Stop 40 GHz
ADT CORP.

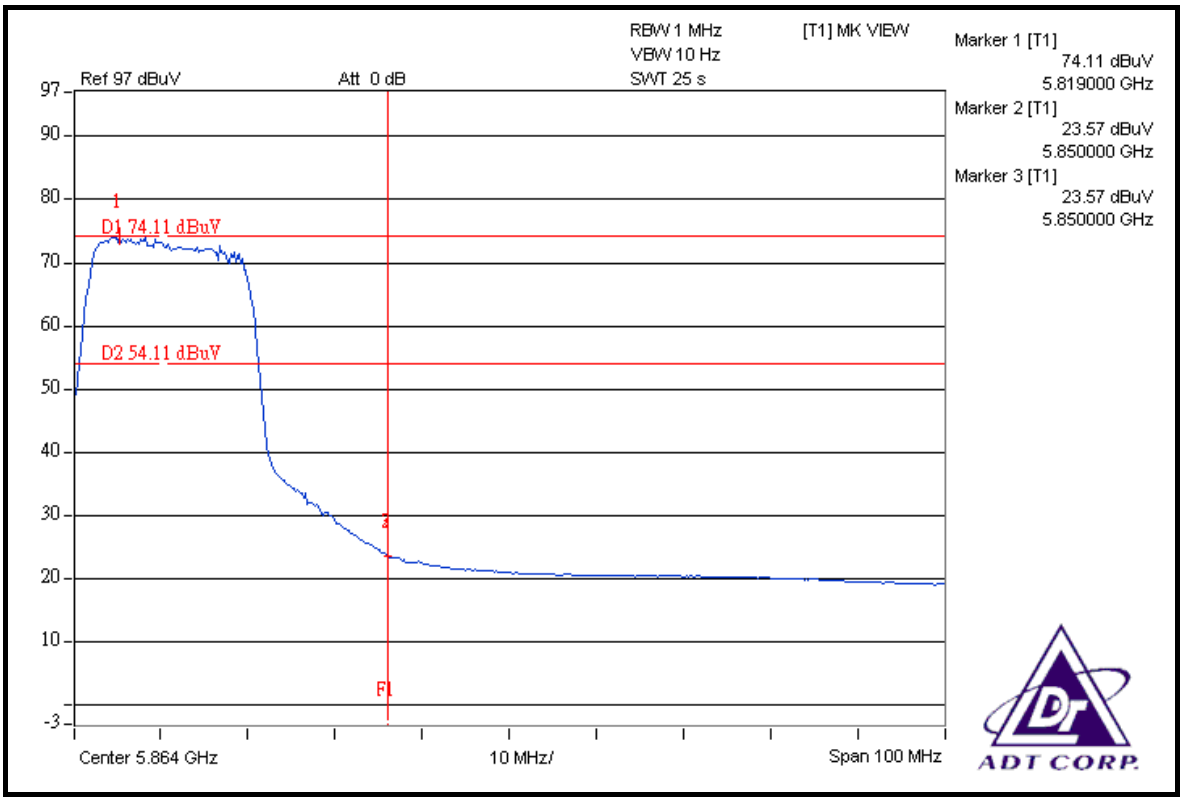
TEST MODE B

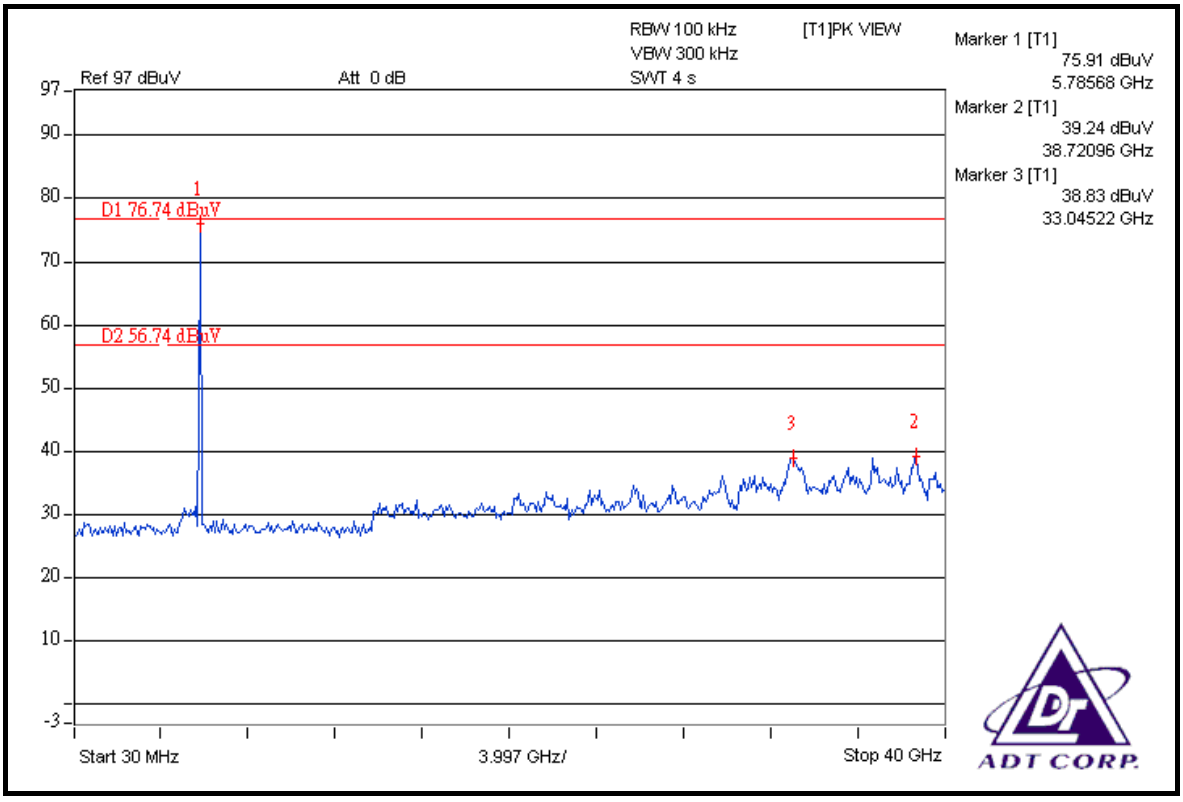

RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
76.78 dBuV
5.743800 GHz
Marker 2 [T1]
32.45 dBuV
5.725000 GHz
Marker 3 [T1]
34.85 dBuV
5.724400 GHz
D1 76.78 dBuV
D2 56.78 dBuV
97
90
80
70
60
50
40
30
20
10
-3
Center 5.707 GHz
10 MHz/
Span 100 MHz
ADT CORP.


RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
74.13 dBuV
5.741800 GHz
Marker 2 [T1]
29.39 dBuV
5.725000 GHz
Marker 3 [T1]
29.39 dBuV
5.725000 GHz
D1 74.13 dBuV
D2 54.13 dBuV
97
90
80
70
60
50
40
30
20
10
-3
Center 5.707 GHz
10 MHz/
Span 100 MHz
ADT CORP.


RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1]PK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
75.16 dBuV
5.70574 GHz
Marker 2 [T1]
39.77 dBuV
38.56108 GHz
Marker 3 [T1]
39.67 dBuV
33.04522 GHz
D1 76.78 dBuV
D2 56.78 dBuV
Start 30 MHz
3.997 GHz/
Stop 40 GHz
ADT CORP.

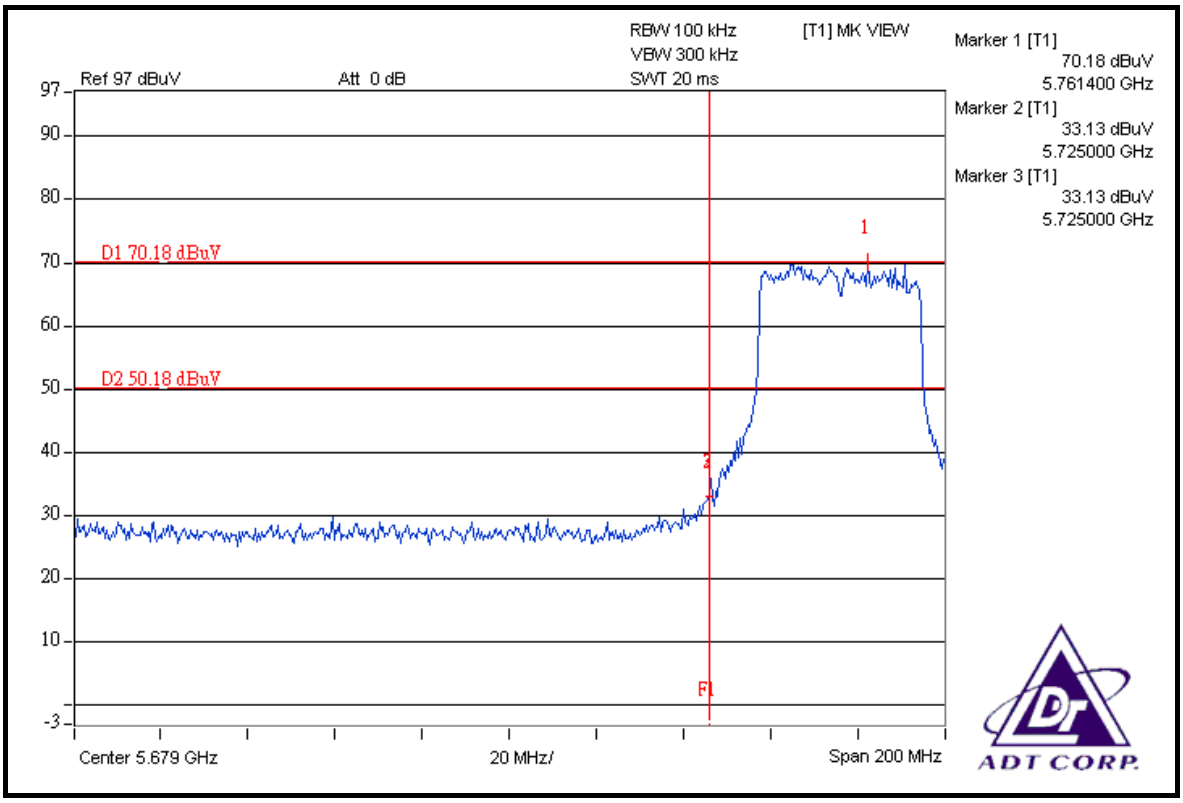

RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
76.74 dBuV
5.826200 GHz
Marker 2 [T1]
33.44 dBuV
5.850000 GHz
Marker 3 [T1]
34.36 dBuV
5.854400 GHz
D1 76.74 dBuV
D2 56.74 dBuV
Center 5.864 GHz
10 MHz/
Span 100 MHz
ADT CORP.

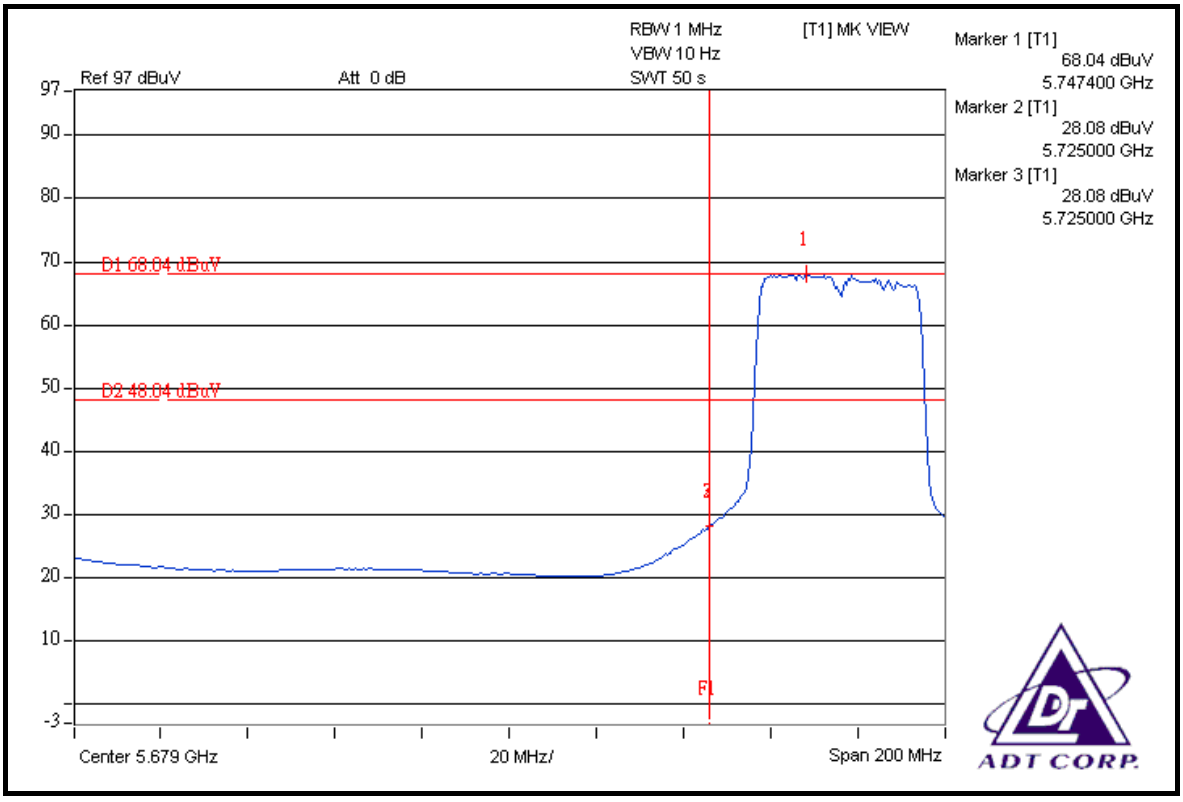

RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
74.11 dBuV
5.819000 GHz
Marker 2 [T1]
23.57 dBuV
5.850000 GHz
Marker 3 [T1]
23.57 dBuV
5.850000 GHz
D1 74.11 dBuV
D2 54.11 dBuV
Center 5.864 GHz
10 MHz/
Span 100 MHz

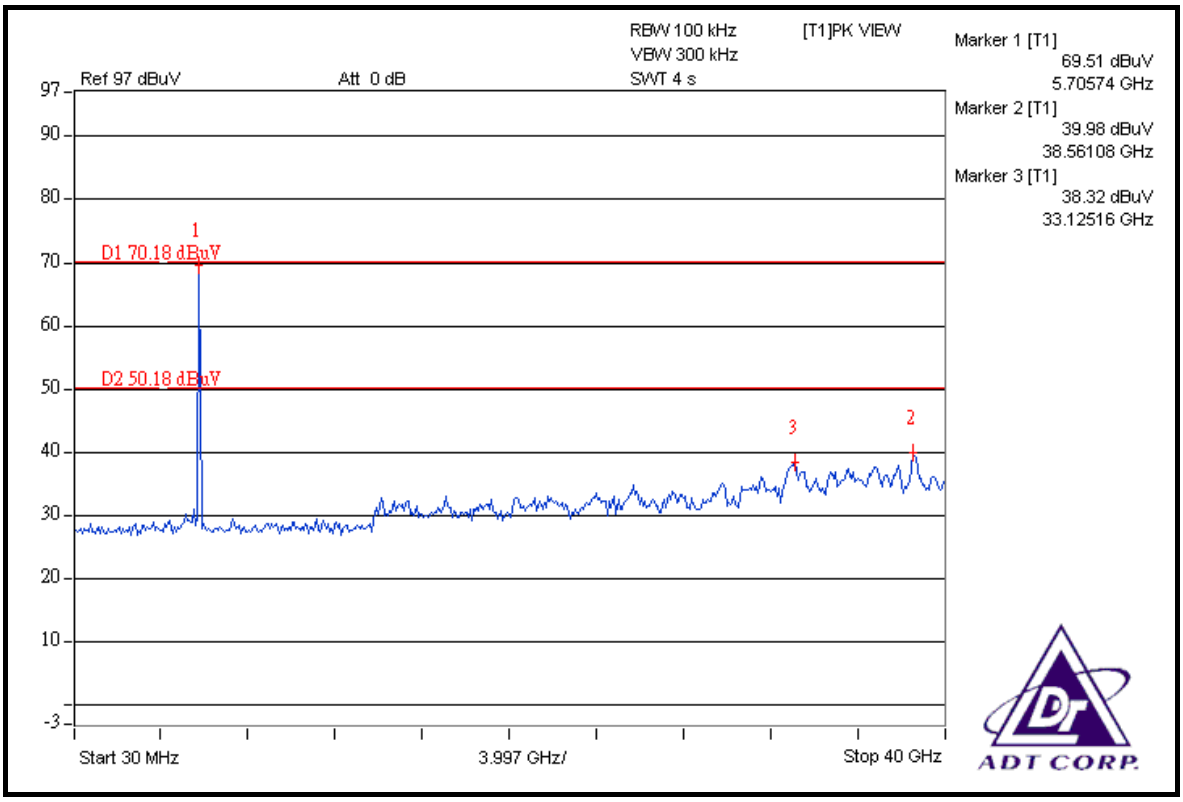

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1]PK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
75.91 dBuV
5.78568 GHz
Marker 2 [T1]
39.24 dBuV
38.72096 GHz
Marker 3 [T1]
38.83 dBuV
33.04522 GHz
D1 76.74 dBuV
D2 56.74 dBuV
Start 30 MHz
3.997 GHz/
Stop 40 GHz

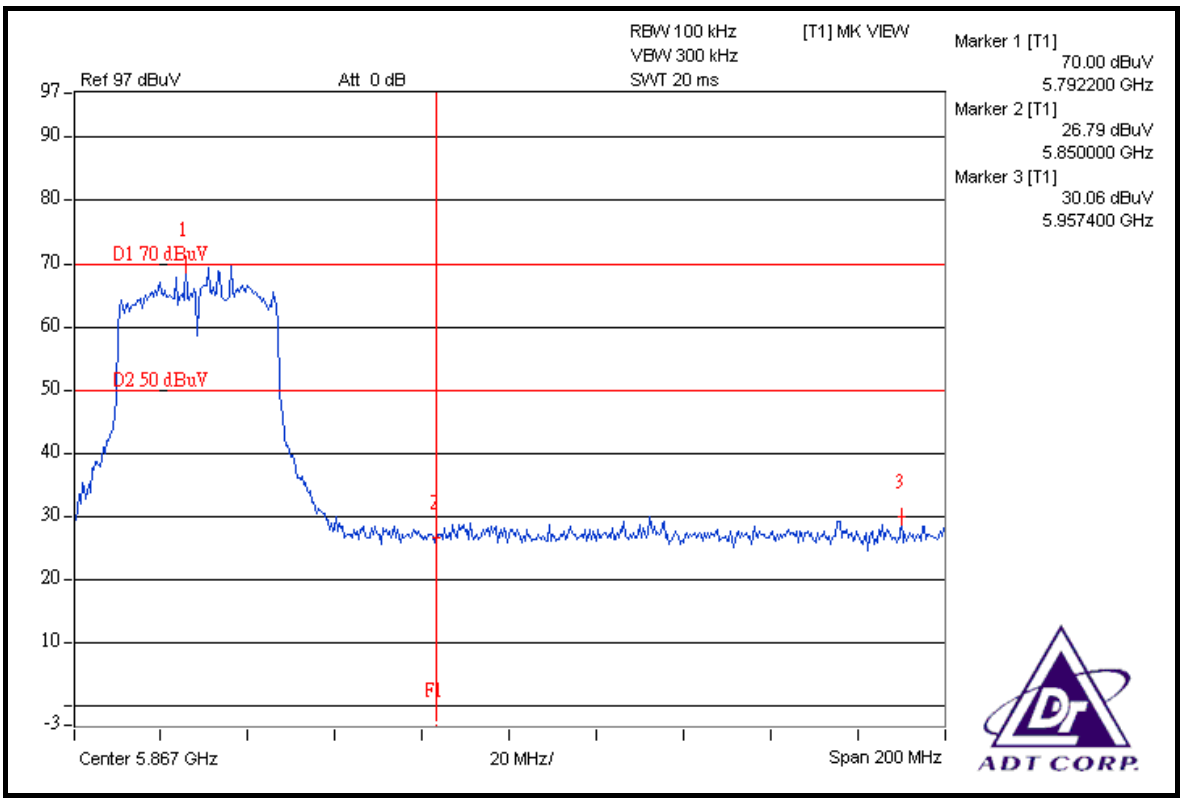
DRAFT 802.11n (40MHz) OFDM MODULATION

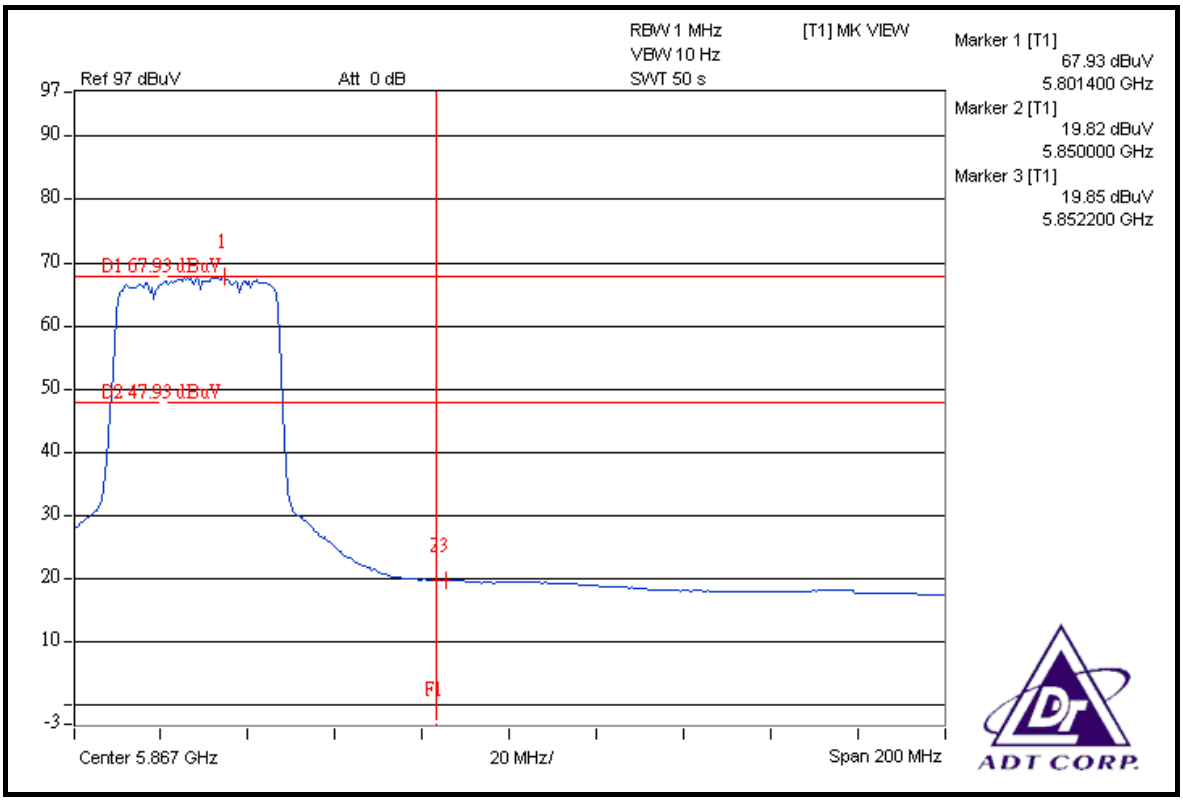
TEST MODE A

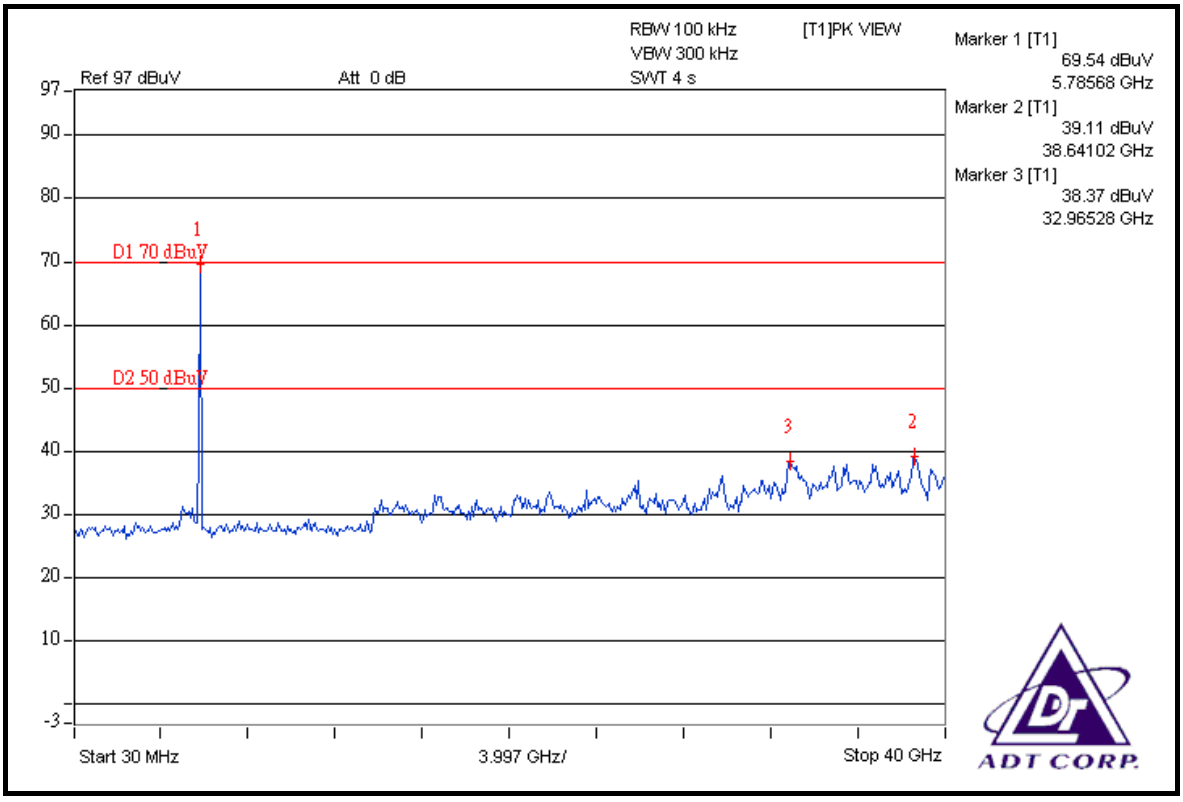




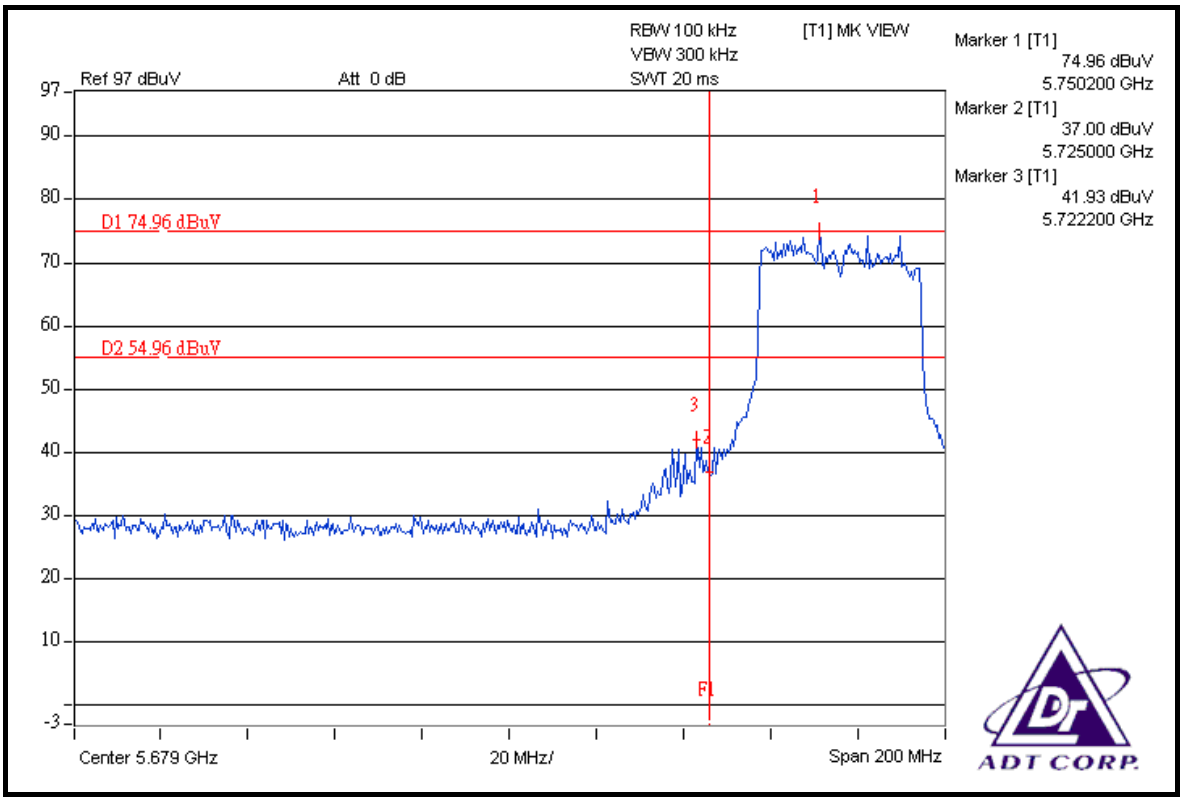

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1]PK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
69.51 dBuV
5.70574 GHz
Marker 2 [T1]
39.98 dBuV
38.56108 GHz
Marker 3 [T1]
38.32 dBuV
33.12516 GHz
D1 70.18 dBuV
D2 50.18 dBuV
Start 30 MHz
3.997 GHz/
Stop 40 GHz

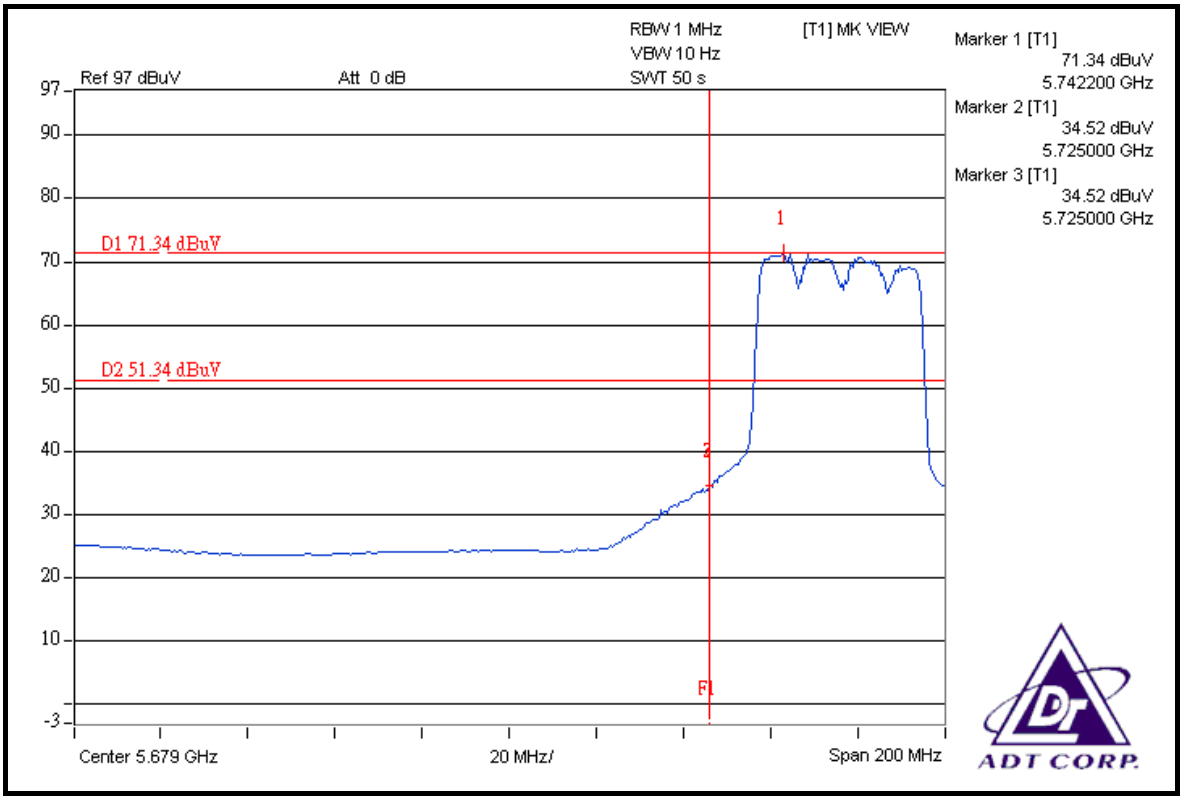

RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
70.00 dBuV
5.792200 GHz
Marker 2 [T1]
26.79 dBuV
5.850000 GHz
Marker 3 [T1]
30.06 dBuV
5.957400 GHz
D1 70 dBuV
D2 50 dBuV
Center 5.867 GHz
20 MHz/
Span 200 MHz

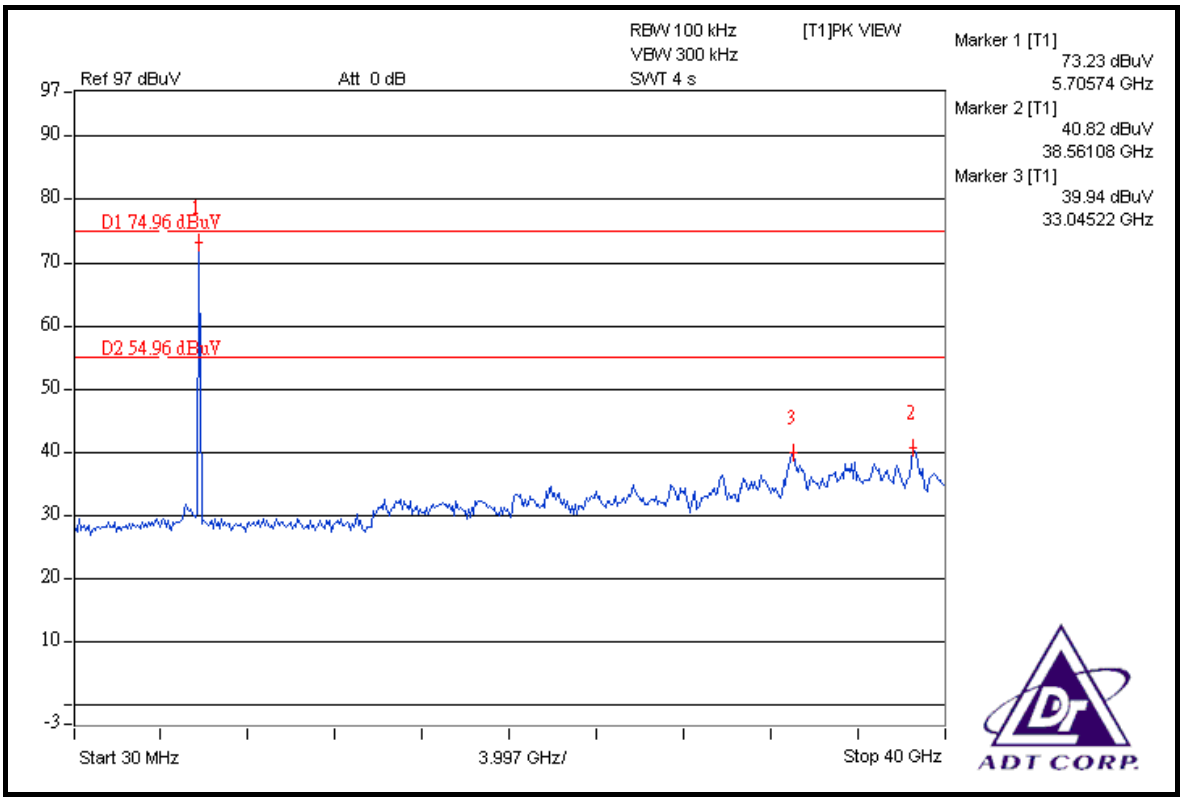

RBW 1 MHz
VBW 10 Hz
SWT 50 s
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
67.93 dBuV
5.801400 GHz
Marker 2 [T1]
19.82 dBuV
5.850000 GHz
Marker 3 [T1]
19.85 dBuV
5.852200 GHz
D1 67.93 dBuV
D2 47.93 dBuV
Center 5.867 GHz
20 MHz/
Span 200 MHz
ADT CORP.

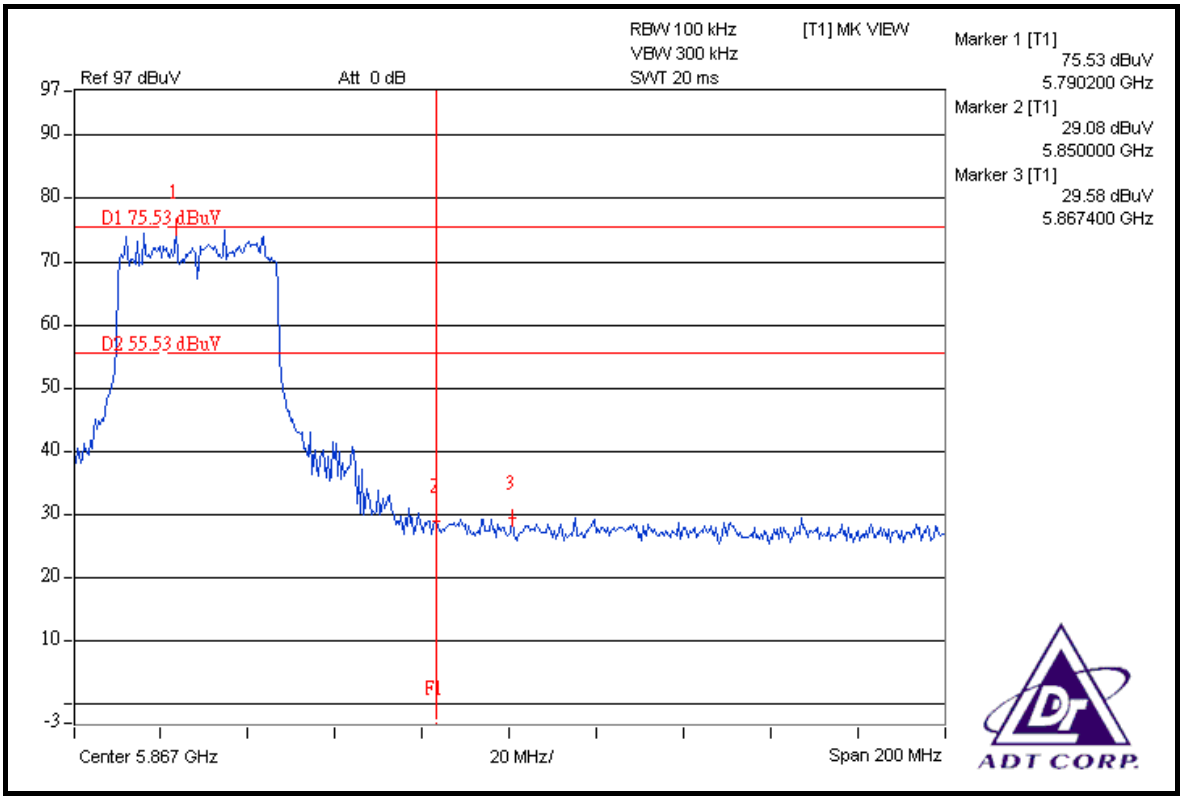

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1]PK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
69.54 dBuV
5.78568 GHz
Marker 2 [T1]
39.11 dBuV
38.64102 GHz
Marker 3 [T1]
38.37 dBuV
32.96528 GHz
D1 70 dBuV
D2 50 dBuV
Start 30 MHz
3.997 GHz/
Stop 40 GHz
ADT CORP.

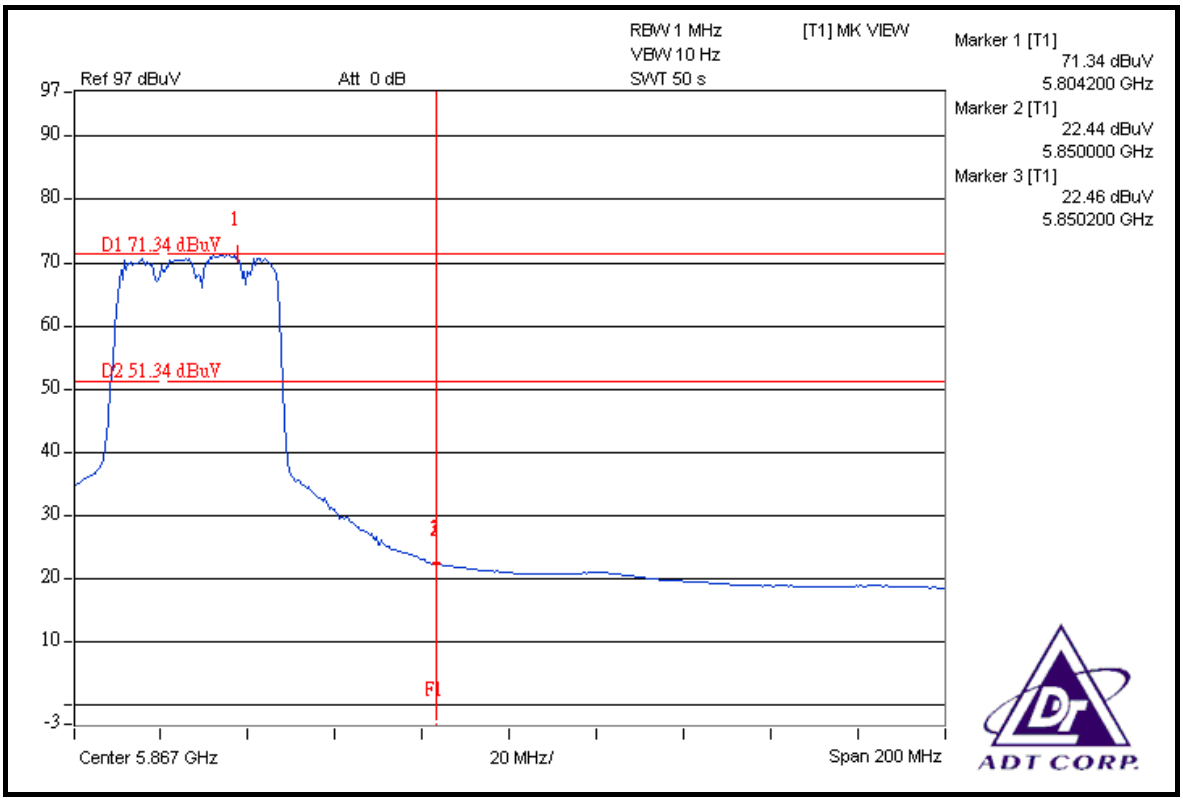
TEST MODE B

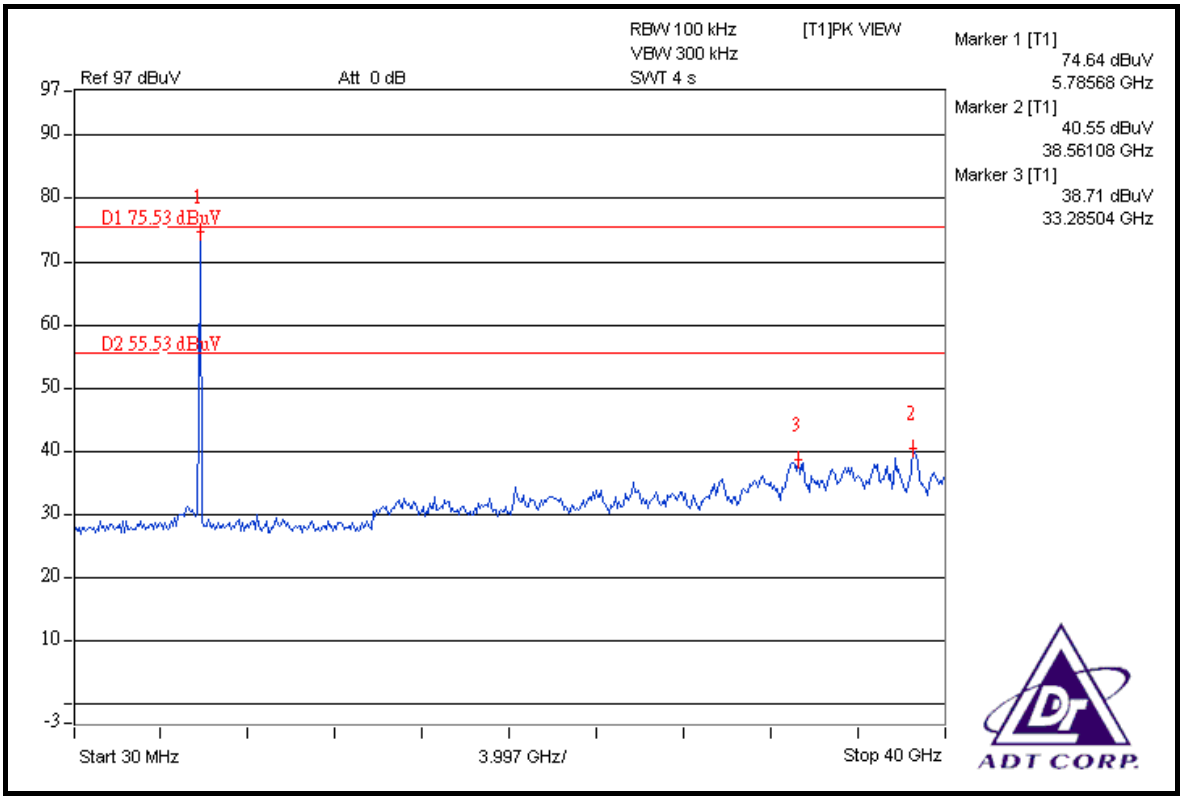

RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
74.96 dBuV
5.750200 GHz
Marker 2 [T1]
37.00 dBuV
5.725000 GHz
Marker 3 [T1]
41.93 dBuV
5.722200 GHz
D1 74.96 dBuV
D2 54.96 dBuV
97
90
80
70
60
50
40
30
20
10
-3
Center 5.679 GHz
20 MHz/
Span 200 MHz
ADT CORP.


RBW 1 MHz
VBW 10 Hz
SWT 50 s
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
71.34 dBuV
5.742200 GHz
Marker 2 [T1]
34.52 dBuV
5.725000 GHz
Marker 3 [T1]
34.52 dBuV
5.725000 GHz
D1 71.34 dBuV
D2 51.34 dBuV
97
90
80
70
60
50
40
30
20
10
-3
Center 5.679 GHz
20 MHz/
Span 200 MHz
ADT CORP.


RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1]PK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
73.23 dBuV
5.70574 GHz
Marker 2 [T1]
40.82 dBuV
38.56108 GHz
Marker 3 [T1]
39.94 dBuV
33.04522 GHz
D1 74.96 dBuV
D2 54.96 dBuV
97
90
80
70
60
50
40
30
20
10
-3
Start 30 MHz
3.997 GHz/
Stop 40 GHz
ADT CORP.


RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
75.53 dBuV
5.790200 GHz
Marker 2 [T1]
29.08 dBuV
5.850000 GHz
Marker 3 [T1]
29.58 dBuV
5.867400 GHz
D1 75.53 dBuV
D2 55.53 dBuV
97
90
80
70
60
50
40
30
20
10
-3
Center 5.867 GHz
20 MHz/
Span 200 MHz
ADT CORP.


RBW 1 MHz
VBW 10 Hz
SWT 50 s
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
71.34 dBuV
5.804200 GHz
Marker 2 [T1]
22.44 dBuV
5.850000 GHz
Marker 3 [T1]
22.46 dBuV
5.850200 GHz
D1 71.34 dBuV
D2 51.34 dBuV
97
90
80
70
60
50
40
30
20
10
-3
Center 5.867 GHz
20 MHz/
Span 200 MHz
ADT CORP.


RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1]PK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
74.64 dBuV
5.78568 GHz
Marker 2 [T1]
40.55 dBuV
38.56108 GHz
Marker 3 [T1]
38.71 dBuV
33.28504 GHz
D1 75.53 dBuV
D2 55.53 dBuV
97
90
80
70
60
50
40
30
20
10
-3
Start 30 MHz
3.997 GHz/
Stop 40 GHz
ADT CORP.

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

The antennas used in this product are PIFA antenna with UFL connector and Dipole antenna with R-SMA connector. The maximum Gain of the antenna is 4.33dBi.

6. PHOTOGRAPHS OF THE TEST CONFIGURATION

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

7. INFORMATION ON THE TESTING LABORATORIES

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

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

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

Linko EMC/RF Lab:
Tel: 886-2-26052180
Fax: 886-2-26051924

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.

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

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

---END---