FCC TEST REPORT

REPORT NO.: RF980320A03
MODEL NO.: WL-166N11
RECEIVED: March 20, 2009
TESTED: April 2 ~ 7, 2009
ISSUED: April 15, 2009

APPLICANT: PEGATRON CORPORATION

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

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1. CERTIFICATION

PRODUCT: Wireless USB Dongle

BRAND: Pegatron

MODEL: WL-166N11

APPLICANT: PEGATRON CORPORATION

TESTED: April 2 ~ 7, 2009

TEST SAMPLE: ENGINEERING SAMPLE

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

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**,, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : Annie Chang , **DATE:** April 15, 2009
(Annie Chang / Senior Specialist)

TECHNICAL ACCEPTANCE : Jamison Chan , **DATE:** April 15, 2009
Responsible for RF
(Jamison Chan / Supervisor)

APPROVED BY : Ken Liu , **DATE:** April 15, 2009
(Ken Liu / 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 -16.20dB at 0.170MHz.
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 -4.84dB at 2483.50MHz.
15.247(e)	Power Spectral Density Limit: max. 8dBm	PASS	Meet the requirement of limit.
15.247(d)	Band Edge Measurement Limit: 20dB less than the peak value of fundamental frequency	PASS	Meet the requirement of limit.

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:

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

Measurement	Frequency	Uncertainty
Conducted emissions	150kHz ~ 30MHz	2.44 dB
Radiated emissions	30MHz ~ 1GHz	3.72 dB
	1GHz ~ 40GHz	2.89 dB

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Wireless USB Dongle
MODEL NO.	WL-166N11
FCC ID	VUIWL166N11
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: 11/5.5/2/1Mbps 802.11g: 54/48/36/24/18/12/9/6Mbps Draft 802.11n: up to 130Mbps
OPERATING FREQUENCY	2412MHz ~ 2462MHz
NUMBER OF CHANNEL	11 for 802.11b, 802.11g, Draft 802.11n (20MHz) 7 for Draft 802.11n (40MHz)
MAXIMUM OUTPUT POWER	146.893mW
ANTENNA TYPE	Printed antenna with 2.95dBi gain
DATA CABLE	NA
I/O PORTS	USB
ACCESSORY DEVICES	NA

NOTE:

1. The EUT has two different appearances.

Brand	Model	Remark
Pegatron	WL-166N11	White appearance
		Black appearance

2. The EUT provides one completed transmitter and one receiver.

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

3. 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

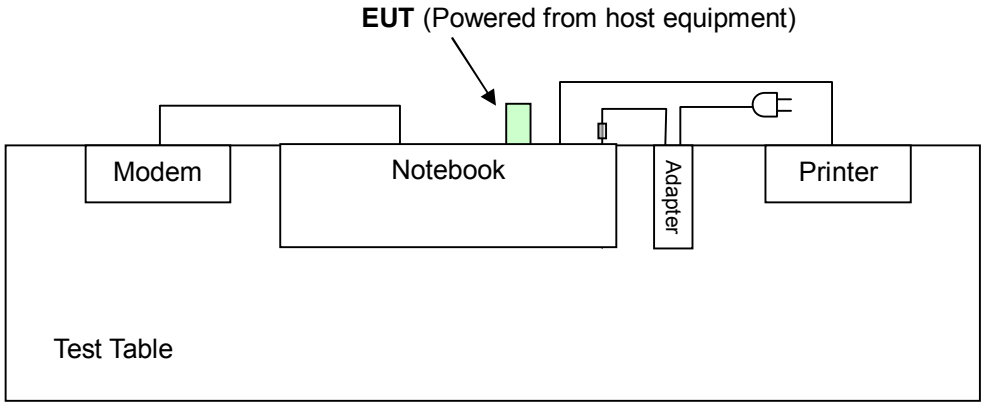
11 channels are provided for 802.11b, 802.11g and draft 802.11n (20MHz):

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		

3.2.1 CONFIGURATION OF SYSTEM UNDER TEST



3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

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

Where **RE≥1G:** Radiated Emission above 1GHz **PLC:** Power Line Conducted Emission
RE<1G: Radiated Emission below 1GHz **APCM:** Antenna Port Conducted Measurement

RADIATED EMISSION TEST (ABOVE 1 GHz):

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
Draft 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
Draft 802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	13

RADIATED EMISSION TEST (BELOW 1 GHz):

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1	DSSS	DBPSK	1

POWER LINE CONDUCTED EMISSION TEST:

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1	DSSS	DBPSK	1

BANDEDGE MEASUREMENT:

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 11	OFDM	BPSK	6
Draft 802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	6.5
Draft 802.11n (40MHz)	1 to 7	1, 7	OFDM	BPSK	13

ANTENNA PORT CONDUCTED MEASUREMENT:

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
Draft 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
Draft 802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	13

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

FCC Part 15, Subpart C. (15.247)

ANSI C63.4-2003

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

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

3.4 DESCRIPTION OF SUPPORT UNITS

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

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP05L	20375526736	FCC DoC Approved
2	PRINTER	EPSON	LQ-300+	DCGY017054	FCC DoC Approved
3	MODEM	ACEEX	1414	980020520	IFAXDM1414

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	N/A
2	1.8m braid shielded wire, terminated with DB25 and Centronics connector via metallic frame, w/o core
3	1.2 m braid shielded wire, terminated with DB25 and DB9 connector via metallic frame, w/o core.

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

4. TEST TYPES AND RESULTS

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.	CALIBRATED DATE	CALIBRATED UNTIL
HP Preamplifier	8447D	2432A03504	May 09, 2008	May 08, 2009
HP Preamplifier	8449B	3008A01924	Sep. 03, 2008	Sep. 02, 2009
HP Preamplifier	8449B	3008A01292	Aug. 06, 2008	Aug. 05, 2009
ROHDE & SCHWARZ TEST RECEIVER	ESI7	836697/012	Dec. 04, 2008	Dec. 03, 2009
Schwarzbeck Antenna	VULB 9168	137	May 02, 2008	May 01, 2009
Schwarzbeck Antenna	VHBA 9123	480	Apr. 23, 2008	Apr. 22, 2009
EMCO Horn Antenna	3115	6714	Oct. 17, 2008	Oct. 16, 2009
EMCO Horn Antenna	3115	9312-4192	Apr. 21, 2008	Apr. 20, 2009
ADT. Turn Table	TT100	0306	NA	NA
ADT. Tower	AT100	0306	NA	NA
Software	ADT_Radiated_V 7.6.15.9.2	NA	NA	NA
SUHNER RF cable	SF104-26.5	CABLE-CH6-17m -01	Aug. 22, 2008	Aug. 21, 2009
ROHDE & SCHWARZ Spectrum Analyzer	FSP 40	100036	Mar. 24, 2009	Mar. 23, 2010

NOTE: 1. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in Chamber No. 6.
4. The Industry Canada Reference No. IC 7450E-6.
5. The FCC Site Registration No. is 447212.

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

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

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

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

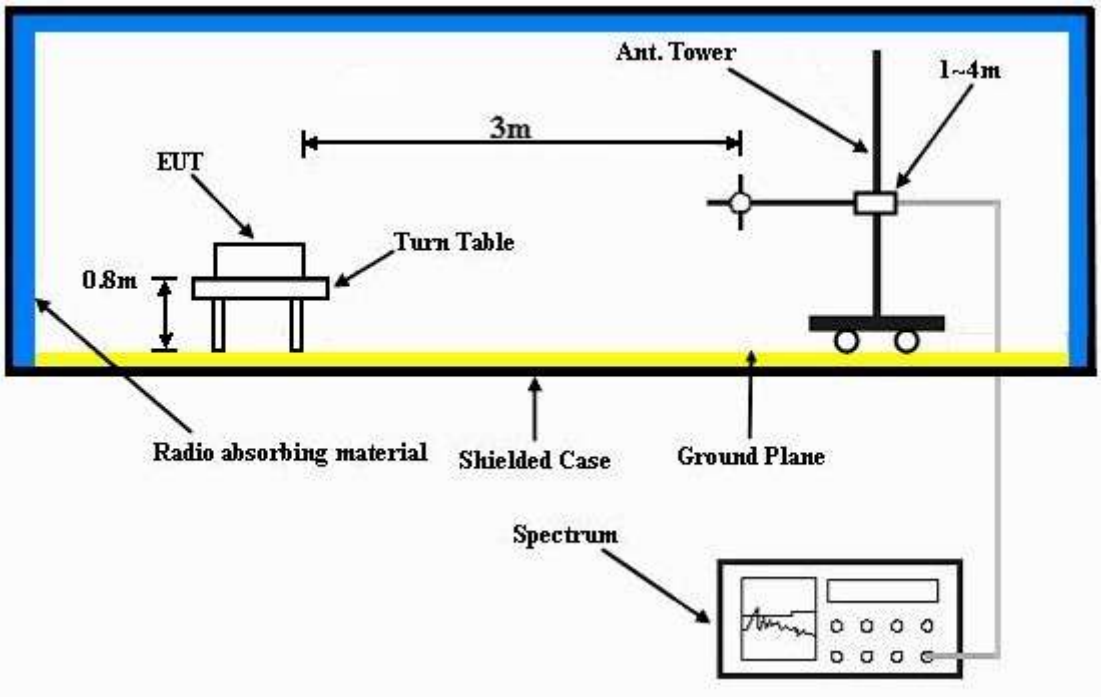
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz for Average detection (AV) at frequency above 1GHz.
4. 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 to a notebook placed on a testing table.
b. The notebook ran a test program (provided by manufacturer) to enable EUT under transmission/receiving condition continuously at specific channel frequency.
c. The notebook sent messages to printer and the printer printed them out.
d. The notebook sent messages to modem.
e. Repeated c ~ e.

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	17deg. C, 66%RH 1025hPa	TESTED BY	Chad 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	2390.00	61.07 PK	74.00	-12.93	1.03 H	242	26.00	35.07
2	2390.00	47.54 AV	54.00	-6.46	1.03 H	242	12.47	35.07
3	*2412.00	109.21 PK			1.03 H	242	74.10	35.11
4	*2412.00	105.07 AV			1.03 H	242	69.96	35.11
5	4824.00	52.00 PK	74.00	-22.00	1.03 H	336	8.97	43.03
6	4824.00	39.22 AV	54.00	-14.78	1.03 H	336	-3.81	43.03
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	60.43 PK	74.00	-13.57	1.00 V	297	25.36	35.07
2	2390.00	46.62 AV	54.00	-7.38	1.00 V	297	11.56	35.07
3	*2412.00	107.05 PK			1.00 V	297	71.94	35.11
4	*2412.00	102.35 AV			1.00 V	297	67.24	35.11
5	4824.00	51.64 PK	74.00	-22.36	1.00 V	296	8.61	43.03
6	4824.00	37.75 AV	54.00	-16.25	1.00 V	296	-5.28	43.03

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.
5. " * ": Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	17deg. C, 66%RH 1025hPa	TESTED BY	Chad 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	*2437.00	110.63 PK			1.02 H	243	75.47	35.16
2	*2437.00	105.51 AV			1.02 H	243	70.35	35.16
3	4874.00	52.41 PK	74.00	-21.59	1.00 H	55	9.28	43.13
4	4874.00	39.31 AV	54.00	-14.69	1.00 H	55	-3.82	43.13
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	106.34 PK			1.00 V	360	71.18	35.16
2	*2437.00	100.98 AV			1.00 V	360	65.82	35.16
3	4874.00	52.29 PK	74.00	-21.71	1.00 V	162	9.16	43.13
4	4874.00	40.36 AV	54.00	-13.64	1.00 V	162	-2.77	43.13

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	17deg. C, 66%RH 1025hPa	TESTED BY	Chad 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	*2462.00	109.57 PK			1.00 H	242	74.36	35.21
2	*2462.00	104.60 AV			1.00 H	242	69.39	35.21
3	2483.50	66.51 PK	74.00	-7.49	1.00 H	242	31.25	35.26
4	2483.50	48.60 AV	54.00	-5.40	1.00 H	242	13.34	35.26
5	4924.00	52.12 PK	74.00	-21.88	1.00 H	354	8.89	43.23
6	4924.00	39.43 AV	54.00	-14.57	1.00 H	354	-3.80	43.23
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	106.28 PK			1.00 V	297	71.07	35.21
2	*2462.00	101.20 AV			1.00 V	297	65.99	35.21
3	2483.50	65.14 PK	74.00	-8.86	1.00 V	297	29.88	35.26
4	2483.50	48.50 AV	54.00	-5.50	1.00 V	297	13.24	35.26
5	4924.00	51.74 PK	74.00	-22.26	1.00 V	287	8.51	43.23
6	4924.00	37.68 AV	54.00	-16.32	1.00 V	287	-5.55	43.23

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

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	17deg. C, 66%RH 1025hPa	TESTED BY	Chad 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	2390.00	65.29 PK	74.00	-8.71	1.30 H	241	30.22	35.07
2	2390.00	48.87 AV	54.00	-5.13	1.30 H	241	13.80	35.07
3	*2412.00	112.22 PK			1.30 H	241	77.11	35.11
4	*2412.00	101.61 AV			1.30 H	241	66.50	35.11
5	4824.00	51.68 PK	74.00	-22.32	1.00 H	79	8.65	43.03
6	4824.00	40.03 AV	54.00	-13.97	1.00 H	79	-3.00	43.03
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.07 PK	74.00	-8.93	1.00 V	297	30.00	35.07
2	2390.00	48.67 AV	54.00	-5.33	1.00 V	297	13.60	35.07
3	*2412.00	110.41 PK			1.00 V	297	75.30	35.11
4	*2412.00	99.11 AV			1.00 V	297	64.00	35.11
5	4824.00	52.41 PK	74.00	-21.59	1.00 V	266	9.38	43.03
6	4824.00	38.39 AV	54.00	-15.61	1.00 V	266	-4.64	43.03

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.
5. " * ": Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	17deg. C, 66%RH 1025hPa	TESTED BY	Chad 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	*2437.00	113.30 PK			1.00 H	242	78.14	35.16
2	*2437.00	103.66 AV			1.00 H	242	68.50	35.16
3	4874.00	52.01 PK	74.00	-21.99	1.00 H	53	8.88	43.13
4	4874.00	40.28 AV	54.00	-13.72	1.00 H	53	-2.85	43.13
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	110.16 PK			1.00 V	295	75.00	35.16
2	*2437.00	99.96 AV			1.00 V	295	64.80	35.16
3	4874.00	52.53 PK	74.00	-21.47	1.00 V	274	9.40	43.13
4	4874.00	38.68 AV	54.00	-15.32	1.00 V	274	-4.45	43.13

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	17deg. C, 66%RH 1025hPa	TESTED BY	Chad 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	*2462.00	113.38 PK			1.01 H	241	78.17	35.21
2	*2462.00	103.11 AV			1.01 H	241	67.90	35.21
3	2483.50	64.86 PK	74.00	-9.14	1.01 H	241	29.60	35.26
4	2483.50	48.96 AV	54.00	-5.04	1.01 H	241	13.70	35.26
5	4924.00	52.06 PK	74.00	-21.94	1.00 H	66	8.83	43.23
6	4924.00	40.33 AV	54.00	-13.67	1.00 H	66	-2.90	43.23
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	109.81 PK			1.00 V	295	74.60	35.21
2	*2462.00	99.41 AV			1.00 V	295	64.20	35.21
3	2483.50	64.96 PK	74.00	-9.04	1.00 V	295	29.70	35.26
4	**2483.50**	**49.16 AV**	**54.00**	**-4.84**	**1.00 V**	**295**	**13.90**	**35.26**
5	4924.00	52.46 PK	74.00	-21.54	1.00 V	269	9.23	43.23
6	4924.00	38.53 AV	54.00	-15.47	1.00 V	269	-4.70	43.23

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

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	17deg. C, 66%RH 1025hPa	TESTED BY	Chad 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	2390.00	65.22 PK	74.00	-8.78	1.03 H	242	30.15	35.07
2	2390.00	48.81 AV	54.00	-5.19	1.03 H	242	13.74	35.07
3	*2412.00	112.71 PK			1.03 H	242	77.60	35.11
4	*2412.00	102.61 AV			1.03 H	242	67.50	35.11
5	4824.00	51.66 PK	74.00	-22.34	1.00 H	89	8.63	43.03
6	4824.00	40.01 AV	54.00	-13.99	1.00 H	89	-3.02	43.03
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	64.77 PK	74.00	-9.23	1.00 V	296	29.70	35.07
2	2390.00	48.87 AV	54.00	-5.13	1.00 V	296	13.80	35.07
3	*2412.00	109.20 PK			1.00 V	296	74.09	35.11
4	*2412.00	99.41 AV			1.00 V	296	64.30	35.11
5	4824.00	51.97 PK	74.00	-22.03	1.00 V	6	8.94	43.03
6	4824.00	38.93 AV	54.00	-15.07	1.00 V	6	-4.10	43.03

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.
5. " * ": Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	17deg. C, 66%RH 1025hPa	TESTED BY	Chad 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	*2437.00	113.02 PK			1.01 H	241	77.86	35.16
2	*2437.00	102.66 AV			1.01 H	241	67.50	35.16
3	4874.00	51.74 PK	74.00	-22.26	1.00 H	102	8.61	43.13
4	4874.00	40.68 AV	54.00	-13.32	1.00 H	102	-2.45	43.13
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	109.33 PK			1.00 V	296	74.17	35.16
2	*2437.00	98.69 AV			1.00 V	296	63.53	35.16
3	4874.00	51.82 PK	74.00	-22.18	1.00 V	16	8.69	43.13
4	4874.00	38.67 AV	54.00	-15.33	1.00 V	16	-4.46	43.13

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	17deg. C, 66%RH 1025hPa	TESTED BY	Chad 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	*2462.00	113.33 PK			1.00 H	242	78.12	35.21
2	*2462.00	102.51 AV			1.00 H	242	67.30	35.21
3	2483.50	65.26 PK	74.00	-8.74	1.00 H	242	30.00	35.26
4	2483.50	49.12 AV	54.00	-4.88	1.00 H	242	13.86	35.26
5	4924.00	52.63 PK	74.00	-21.37	1.00 H	16	9.40	43.23
6	4924.00	40.96 AV	54.00	-13.04	1.00 H	16	-2.27	43.23
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	109.22 PK			1.17 V	301	74.01	35.21
2	*2462.00	98.31 AV			1.17 V	301	63.10	35.21
3	2483.50	68.31 PK	74.00	-5.69	1.17 V	301	33.05	35.26
4	**2483.50**	**49.16 AV**	**54.00**	**-4.84**	**1.17 V**	**301**	**13.90**	**35.26**
5	4924.00	51.93 PK	74.00	-22.07	1.00 V	6	8.70	43.23
6	4924.00	39.10 AV	54.00	-14.90	1.00 V	6	-4.13	43.23

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

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	17deg. C, 66%RH 1025hPa	TESTED BY	Chad 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	2390.00	65.59 PK	74.00	-8.41	1.00 H	241	30.52	35.07
2	2390.00	48.47 AV	54.00	-5.53	1.00 H	241	13.40	35.07
3	*2422.00	109.50 PK			1.00 H	241	74.37	35.13
4	*2422.00	97.93 AV			1.00 H	241	62.80	35.13
5	4844.00	51.26 PK	74.00	-22.74	1.00 H	165	8.19	43.07
6	4844.00	39.31 AV	54.00	-14.69	1.00 H	165	-3.76	43.07
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	2390.00	62.63 PK	74.00	-11.37	1.00 V	334	27.56	35.07
2	2390.00	48.12 AV	54.00	-5.88	1.00 V	334	13.05	35.07
3	*2422.00	106.17 PK			1.00 V	334	71.04	35.13
4	*2422.00	95.03 AV			1.00 V	334	59.90	35.13
5	4844.00	51.59 PK	74.00	-22.41	1.00 V	9	8.52	43.07
6	4844.00	39.40 AV	54.00	-14.60	1.00 V	9	-3.67	43.07

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	17deg. C, 66%RH 1025hPa	TESTED BY	Chad 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	*2437.00	107.53 PK			1.04 H	242	72.37	35.16
2	*2437.00	96.76 AV			1.04 H	242	61.60	35.16
3	4874.00	51.09 PK	74.00	-22.91	1.00 H	16	7.96	43.13
4	4874.00	39.14 AV	54.00	-14.86	1.00 H	16	-3.99	43.13
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	104.48 PK			1.00 V	294	69.32	35.16
2	*2437.00	93.86 AV			1.00 V	294	58.70	35.16
3	4874.00	51.28 PK	74.00	-22.72	1.00 V	2	8.15	43.13
4	4874.00	39.51 AV	54.00	-14.49	1.00 V	2	-3.62	43.13

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	17deg. C, 66%RH 1025hPa	TESTED BY	Chad 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	*2452.00	107.63 PK			1.00 H	240	72.44	35.19
2	*2452.00	96.39 AV			1.00 H	240	61.20	35.19
3	2483.50	68.06 PK	74.00	-5.94	1.00 H	240	32.80	35.26
4	**2483.50**	**49.16 AV**	**54.00**	**-4.84**	**1.00 H**	**240**	**13.90**	**35.26**
5	4904.00	50.24 PK	74.00	-23.76	1.00 H	161	7.05	43.19
6	4904.00	38.59 AV	54.00	-15.41	1.00 H	161	-4.60	43.19
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	103.27 PK			1.00 V	294	68.08	35.19
2	*2452.00	92.69 AV			1.00 V	294	57.50	35.19
3	2483.50	65.66 PK	74.00	-8.34	1.00 V	294	30.40	35.26
4	2483.50	48.86 AV	54.00	-5.14	1.00 V	294	13.60	35.26
5	4904.00	51.32 PK	74.00	-22.68	1.00 V	6	8.13	43.19
6	4904.00	39.16 AV	54.00	-14.84	1.00 V	6	-4.03	43.19

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：802.11b DSSS MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	17deg. C, 66%RH 1025hPa	TESTED BY	Chad 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	129.14	27.05 QP	43.50	-16.45	1.55 H	280	13.35	13.70
2	185.51	29.83 QP	43.50	-13.67	1.42 H	175	17.59	12.24
3	199.12	29.45 QP	43.50	-14.05	1.08 H	175	17.76	11.69
4	729.80	33.40 QP	46.00	-12.60	1.00 H	277	8.14	25.26
5	867.82	37.70 QP	46.00	-8.30	1.13 H	298	9.75	27.95
6	916.41	29.20 QP	46.00	-16.80	1.58 H	316	0.58	28.62
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	195.23	31.69 QP	43.50	-11.81	1.14 V	241	19.85	11.84
2	241.88	27.05 QP	46.00	-18.95	1.53 V	247	12.42	14.63
3	333.25	28.33 QP	46.00	-17.67	1.54 V	253	11.43	16.90
4	463.49	27.11 QP	46.00	-18.89	1.43 V	280	6.70	20.41
5	729.80	37.63 QP	46.00	-8.37	1.44 V	1	12.37	25.26
6	906.69	27.09 QP	46.00	-18.91	1.58 V	106	-1.40	28.49

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 0.50 MHz.
3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Test Receiver	ESCS 30	838251/021	Mar. 05, 2009	Mar. 04, 2010
ROHDE & SCHWARZ Artificial Mains Network (for EUT)	ESH3-Z5	100218	Nov. 26, 2008	Nov. 25, 2009
LISN With Adapter (for EUT)	AD10	C10Ada-001	Nov. 26, 2008	Nov. 25, 2009
ROHDE & SCHWARZ Artificial Mains Network (for peripherals)	ESH3-Z5	100219	Nov. 20, 2008	Nov. 19, 2009
Software	ADT_Cond_V7.3.7	NA	NA	NA
Software	ADT_ISN_V7.3.7	NA	NA	NA
RF cable (JYEBAO)	5D-FB	Cable-C10.01	Feb. 26, 2009	Feb. 25, 2010
SUHNER Terminator (For ROHDE & SCHWARZ LISN)	65BNC-5001	E1-010773	Feb. 27, 2009	Feb. 26, 2010

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Shielded Room No. 10.
3. The VCCI Site Registration No. C-1852.

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.

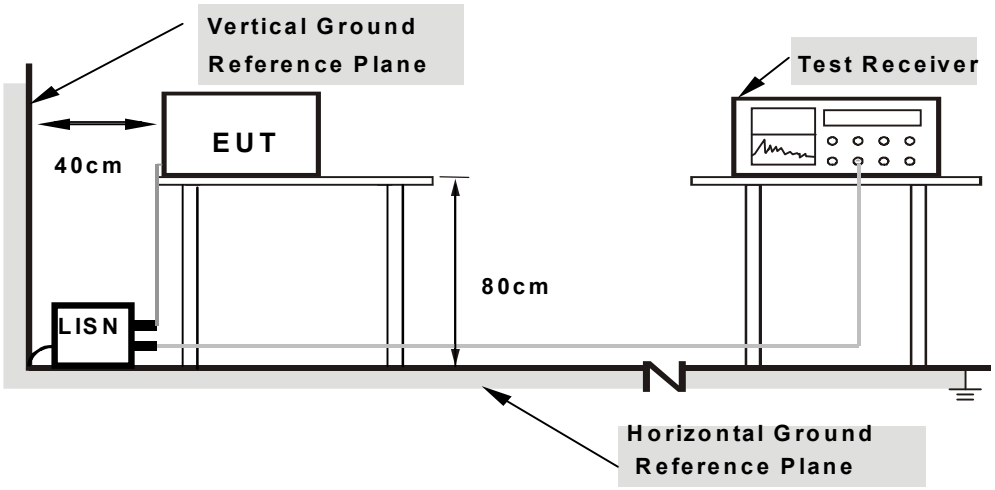
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

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

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

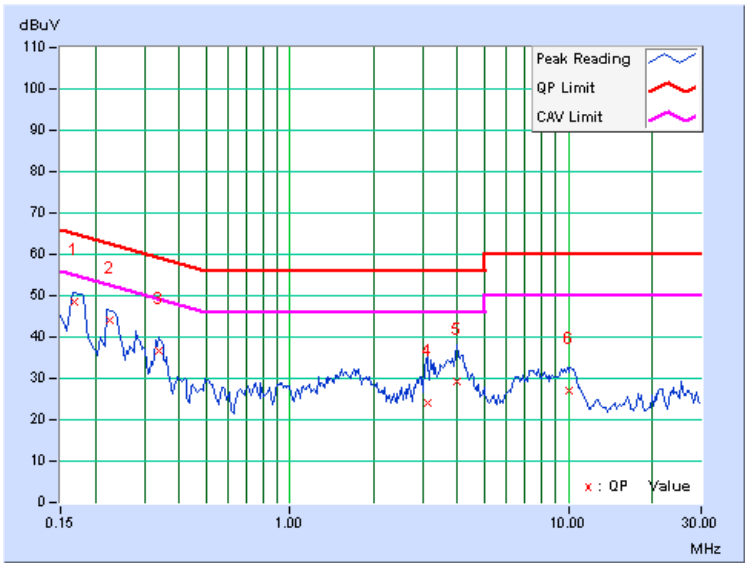
4.2.7 TEST RESULTS

CONDUCTED WORST-CASE DATA: 802.11g OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	PHASE	Line 1
INPUT POWER (SYSTEM)	120Vac, 60 Hz	6dB BANDWIDTH	9 kHz
ENVIRONMENTAL CONDITIONS	19deg. C, 73%RH, 1015hPa	TESTED BY	Nick Chen

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.168	0.12	48.55	-	48.67	-	65.05	-	-16.38	-
2	0.227	0.13	44.07	-	44.20	-	62.58	-	-18.37	-
3	0.340	0.19	36.54	-	36.73	-	59.20	-	-22.47	-
4	3.108	0.32	23.72	-	24.04	-	56.00	-	-31.96	-
5	3.961	0.36	28.77	-	29.13	-	56.00	-	-26.87	-
6	10.039	0.65	26.34	-	26.99	-	60.00	-	-33.01	-

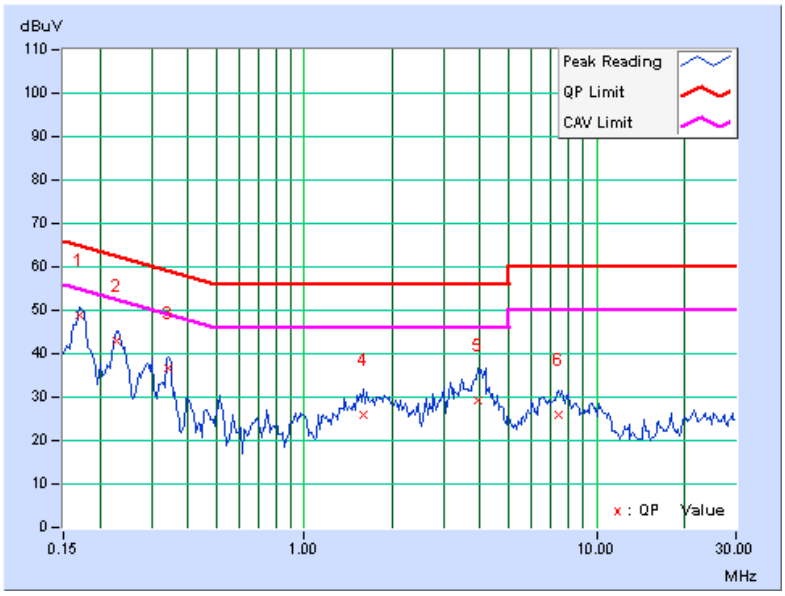
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	**PHASE**	Line 2
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**6dB BANDWIDTH**	9 kHz
ENVIRONMENTAL CONDITIONS	19deg. C, 73%RH, 1015hPa	**TESTED BY**	Nick Chen

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	**0.170**	**0.09**	**48.69**	**-**	**48.78**	**-**	**64.98**	**-**	**-16.20**	**-**
2	0.228	0.11	42.70	-	42.81	-	62.52	-	-19.71	-
3	0.341	0.17	36.37	-	36.54	-	59.17	-	-22.63	-
4	1.598	0.24	25.80	-	26.04	-	56.00	-	-29.96	-
5	3.938	0.31	29.06	-	29.37	-	56.00	-	-26.63	-
6	7.406	0.43	25.37	-	25.80	-	60.00	-	-34.20	-

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	FSP 40	100035	Mar. 24, 2009	Mar. 23, 2010

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

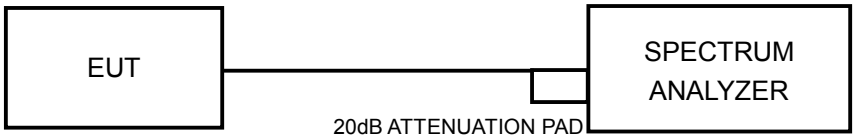
4.3.3 TEST PROCEDURE

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.

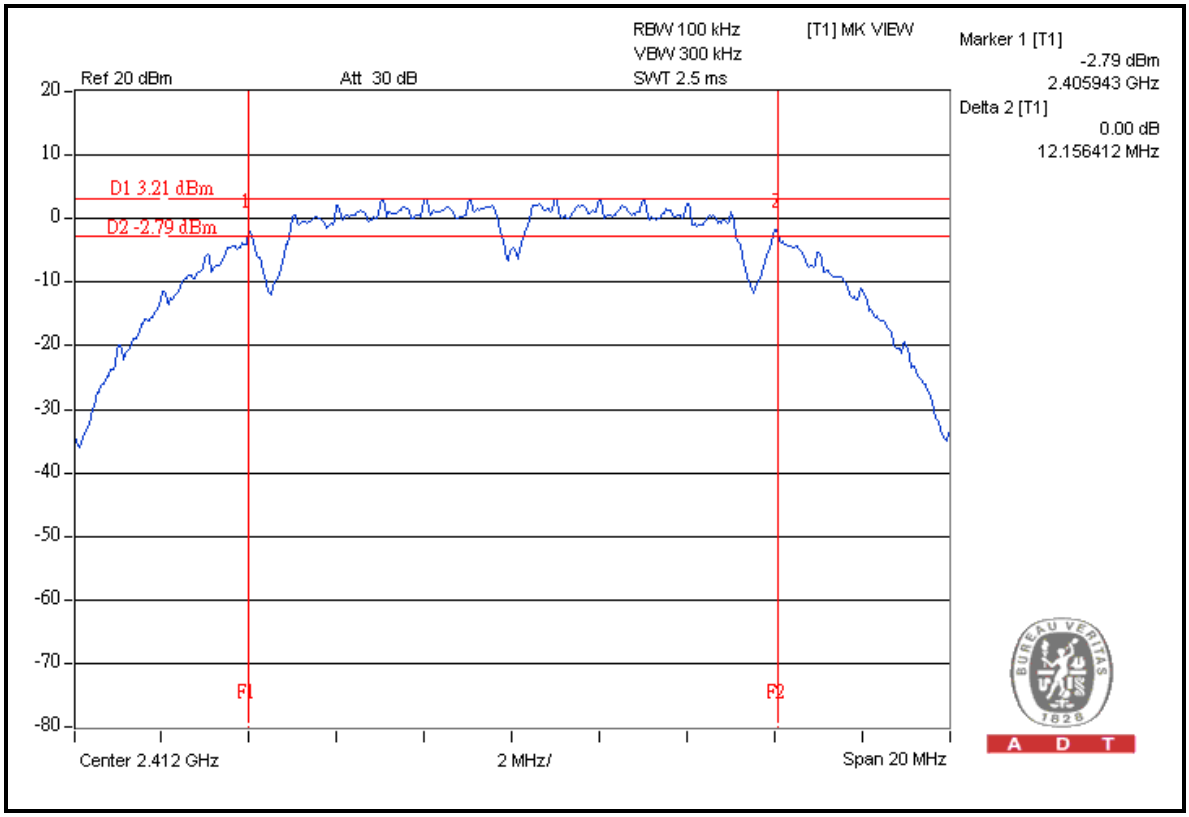
4.3.7 TEST RESULTS

802.11b DSSS MODULATION

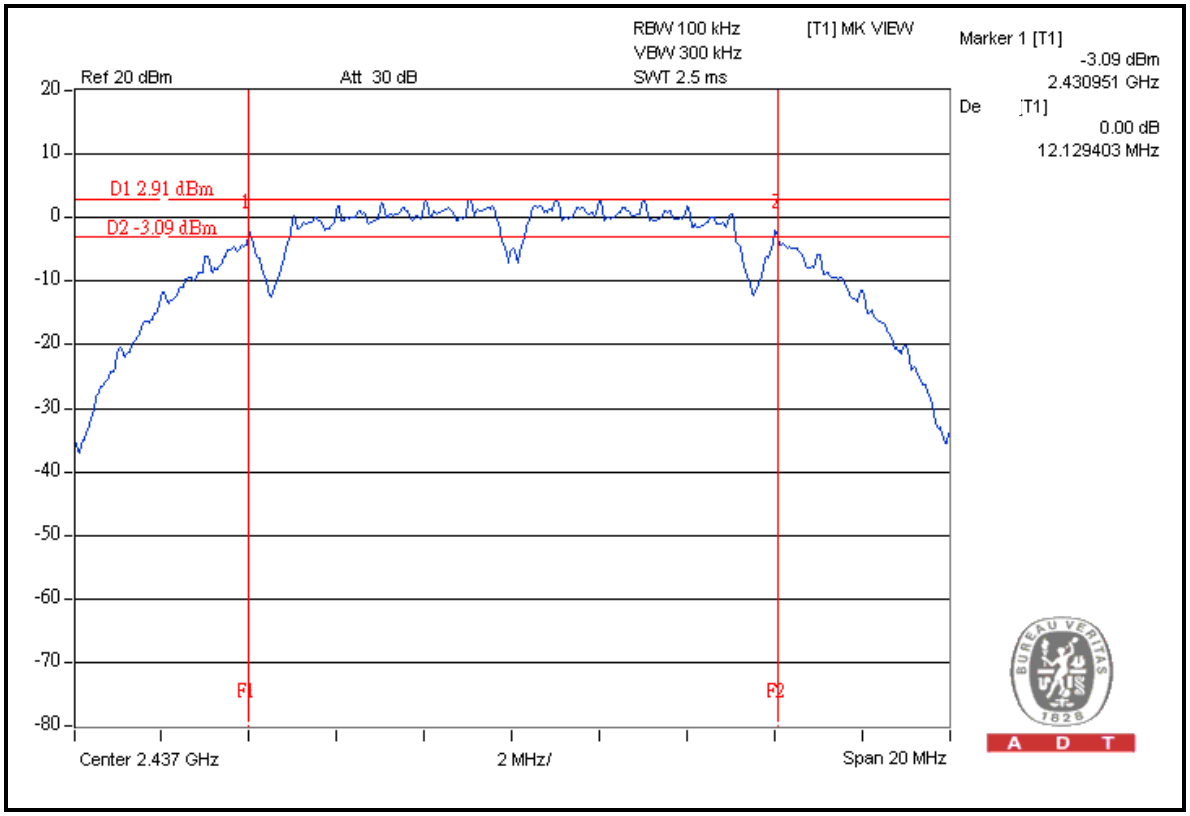
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	17deg.C, 66%RH, 1025hPa
TESTED BY	Chad Lee		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	12.156	0.5	PASS
6	2437	12.129	0.5	PASS
11	2462	12.133	0.5	PASS

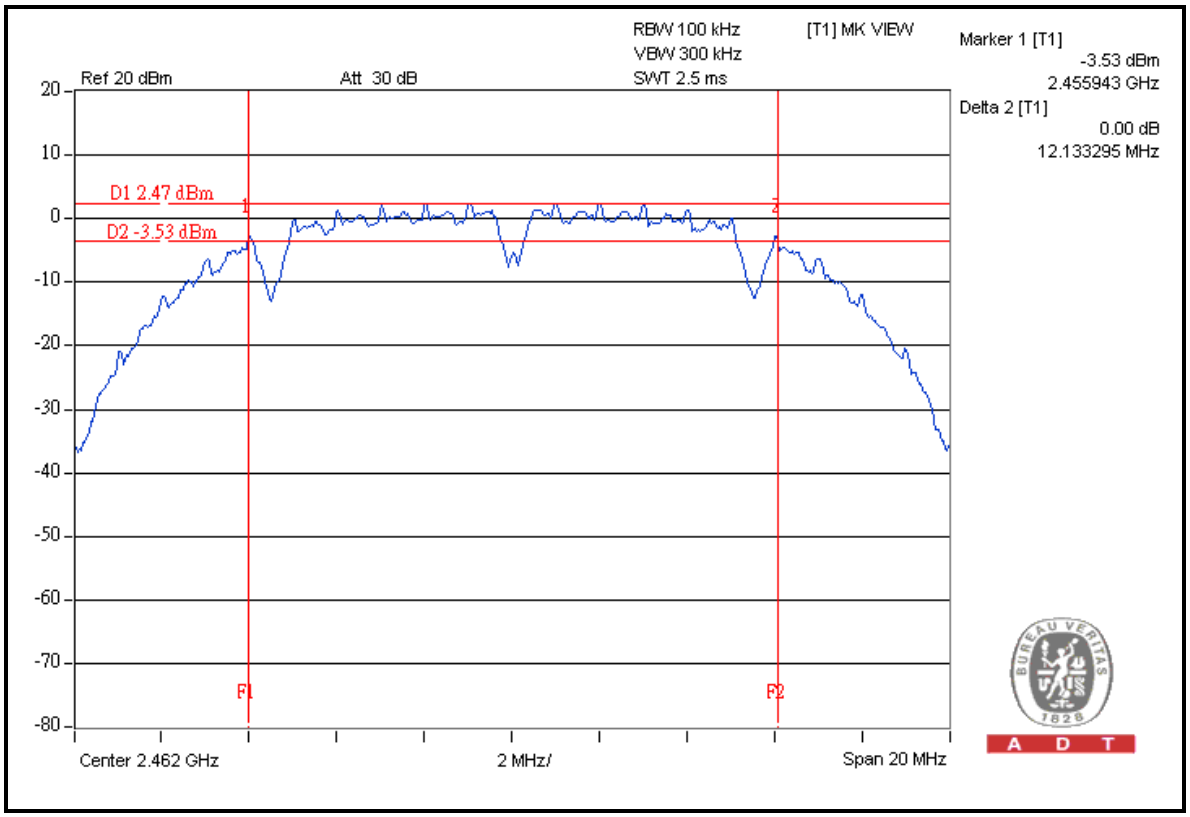
CH 1



CH 6


RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
[T1] MK VIEW
Marker 1 [T1]
-3.09 dBm
2.430951 GHz
De [T1]
0.00 dB
12.129403 MHz
Ref 20 dBm
Att 30 dB
D1 2.91 dBm
D2 -3.09 dBm
F1
F2
Center 2.437 GHz
2 MHz/
Span 20 MHz

CH 11

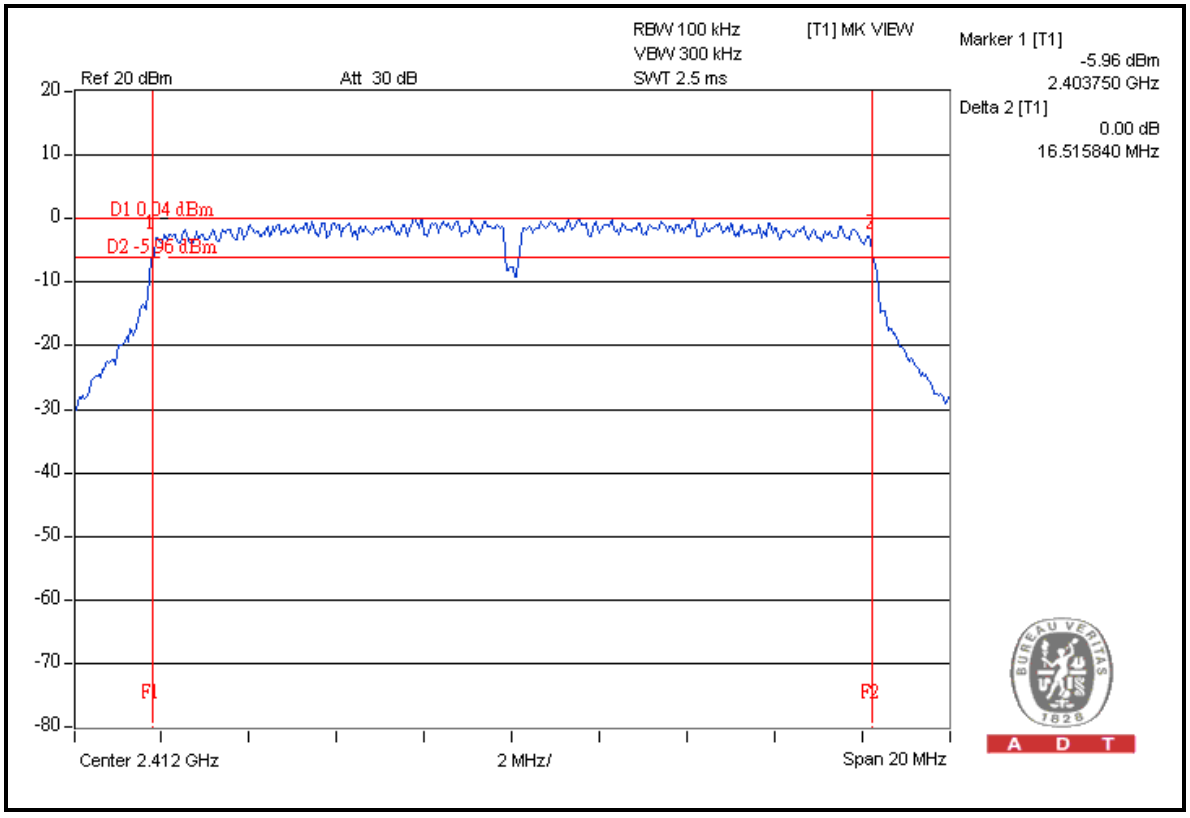

RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
[T1] MK VIEW
Marker 1 [T1]
-3.53 dBm
2.455943 GHz
Delta 2 [T1]
0.00 dB
12.133295 MHz
Ref 20 dBm
Att 30 dB
D1 2.47 dBm
D2 -3.53 dBm
F1
F2
Center 2.462 GHz
2 MHz/
Span 20 MHz

802.11g OFDM MODULATION

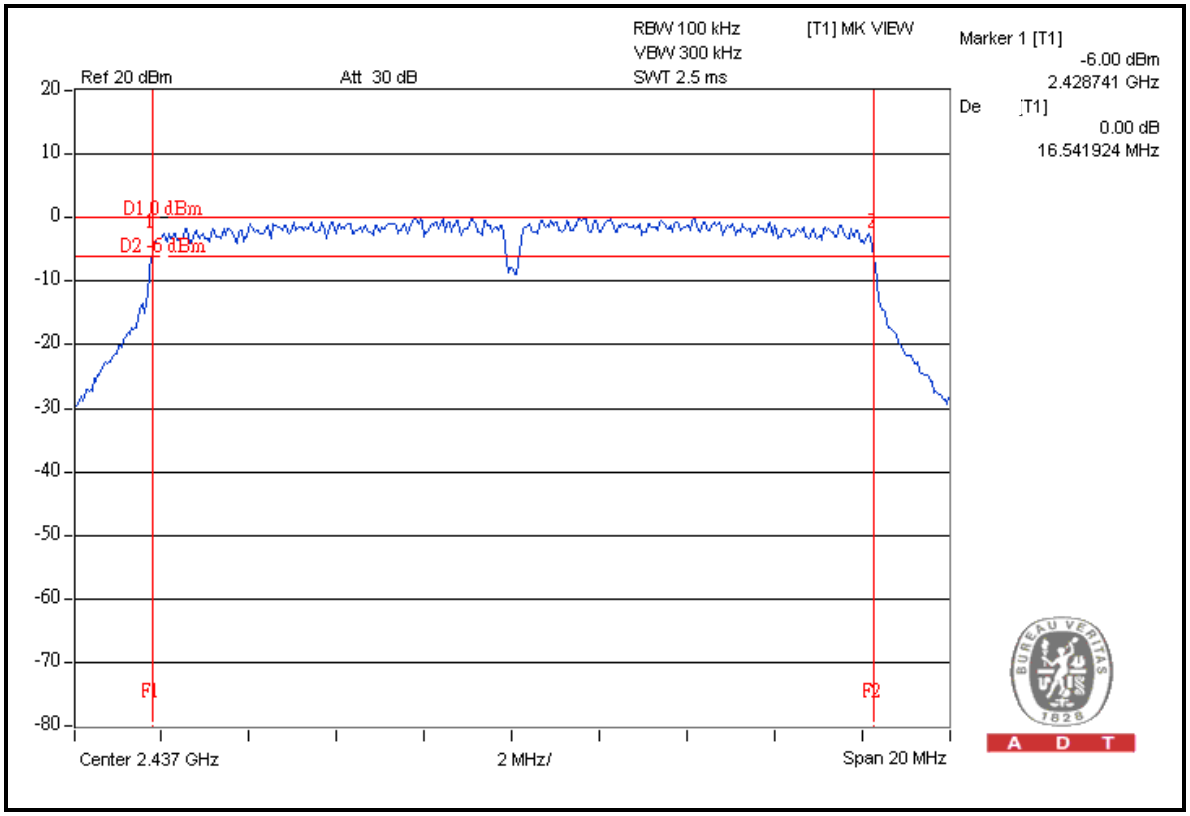
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	17deg.C, 66%RH, 1025hPa
TESTED BY	Chad Lee		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.515	0.5	PASS
6	2437	16.541	0.5	PASS
11	2462	16.522	0.5	PASS

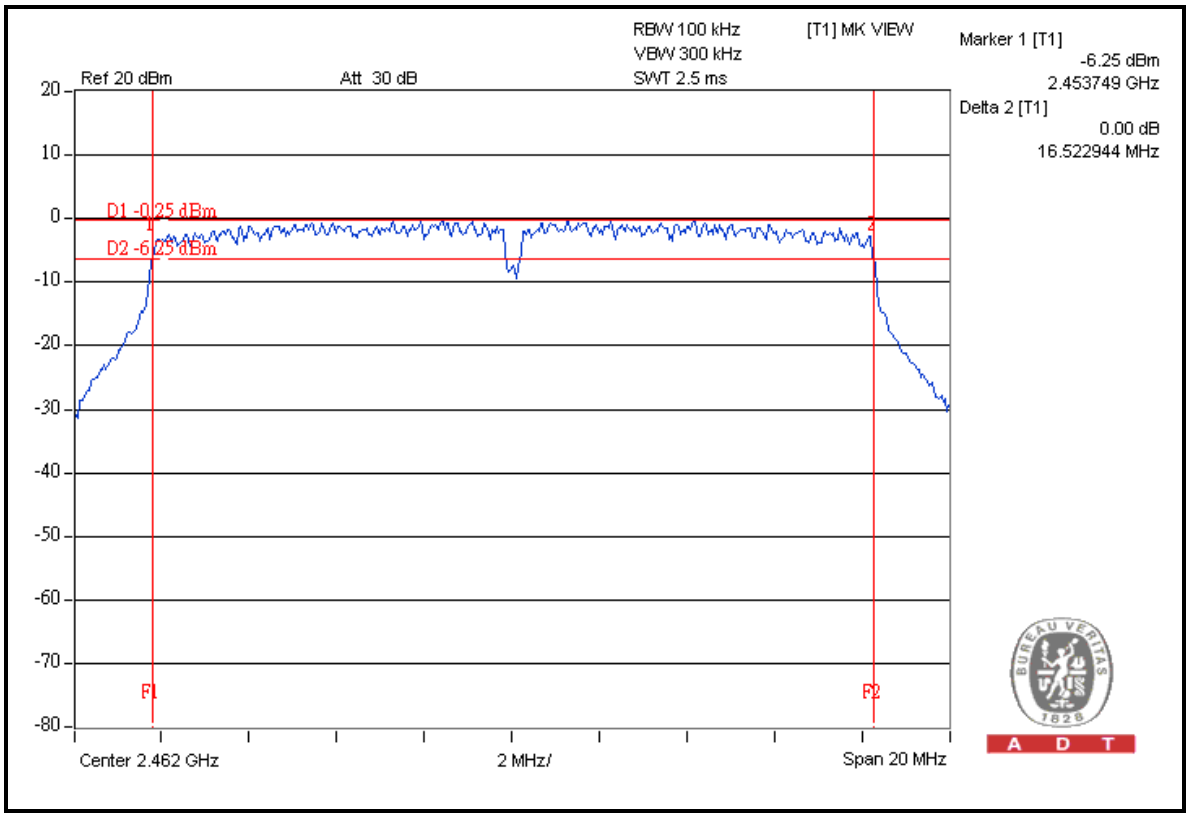
CH 1



CH 6


RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
[T1] MK VIEW
Marker 1 [T1]
-6.00 dBm
2.428741 GHz
De [T1]
0.00 dB
16.541924 MHz
Ref 20 dBm
Att 30 dB
D1 0 dBm
D2 -6 dBm
F1
F2
Center 2.437 GHz
2 MHz/
Span 20 MHz

CH 11

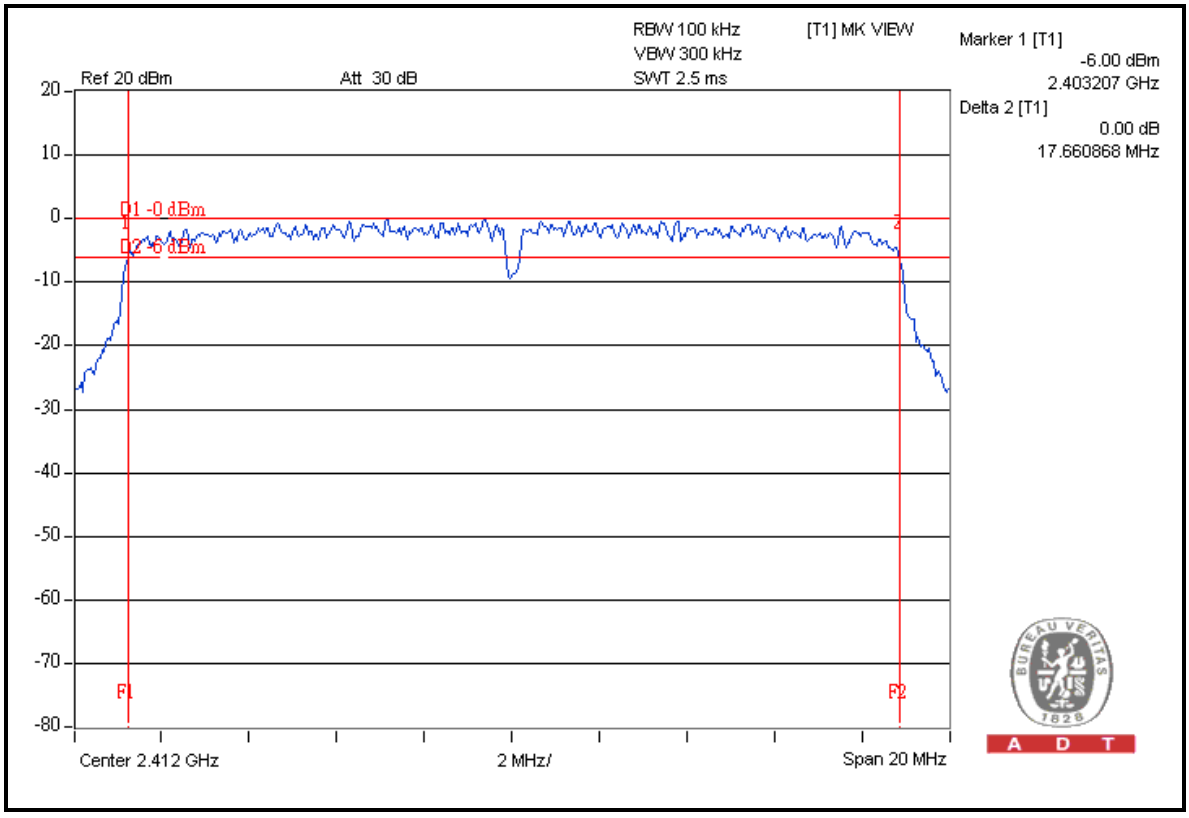

RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
[T1] MK VIEW
Marker 1 [T1]
-6.25 dBm
2.453749 GHz
Delta 2 [T1]
0.00 dB
16.522944 MHz
Ref 20 dBm
Att 30 dB
D1 -0.25 dBm
D2 -6.25 dBm
F1
F2
Center 2.462 GHz
2 MHz/
Span 20 MHz

DRAFT 802.11n (20MHz) OFDM MODULATION

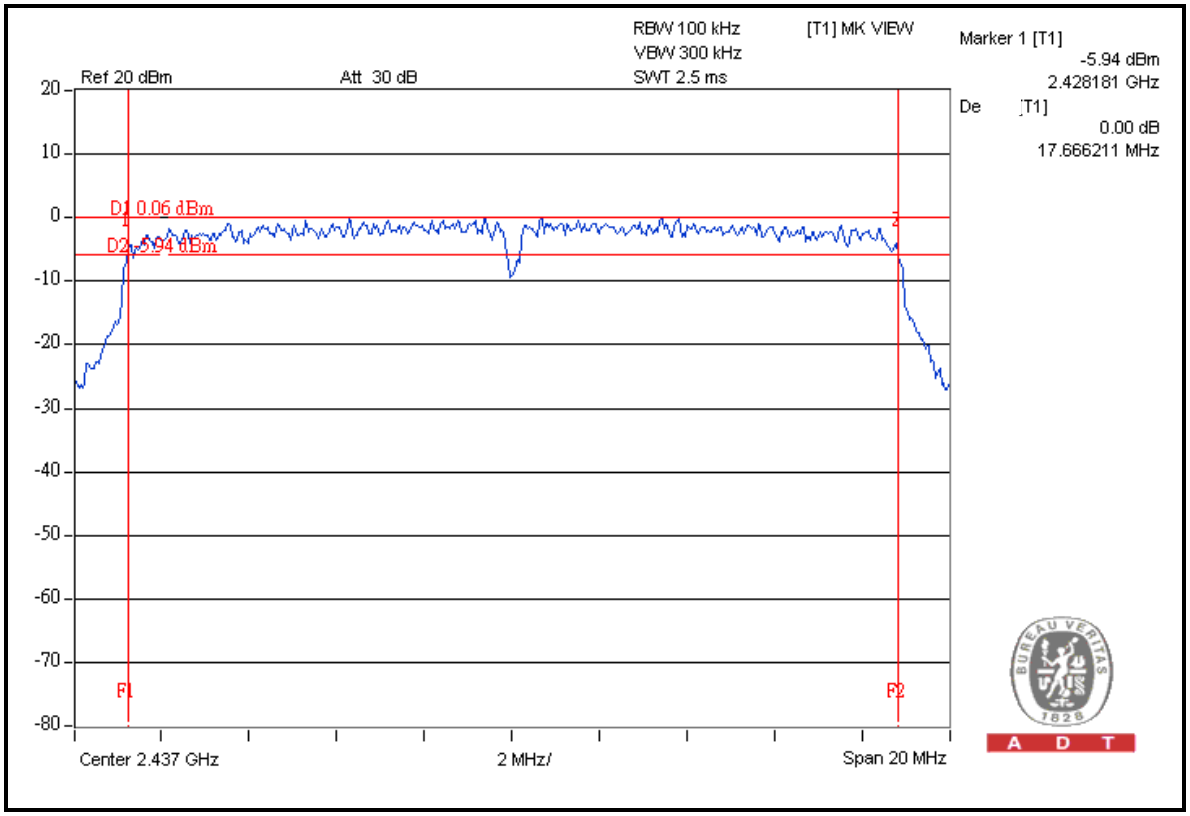
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	17deg.C, 66%RH, 1025hPa
TESTED BY	Chad Lee		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	17.660	0.5	PASS
6	2437	17.666	0.5	PASS
11	2462	17.674	0.5	PASS

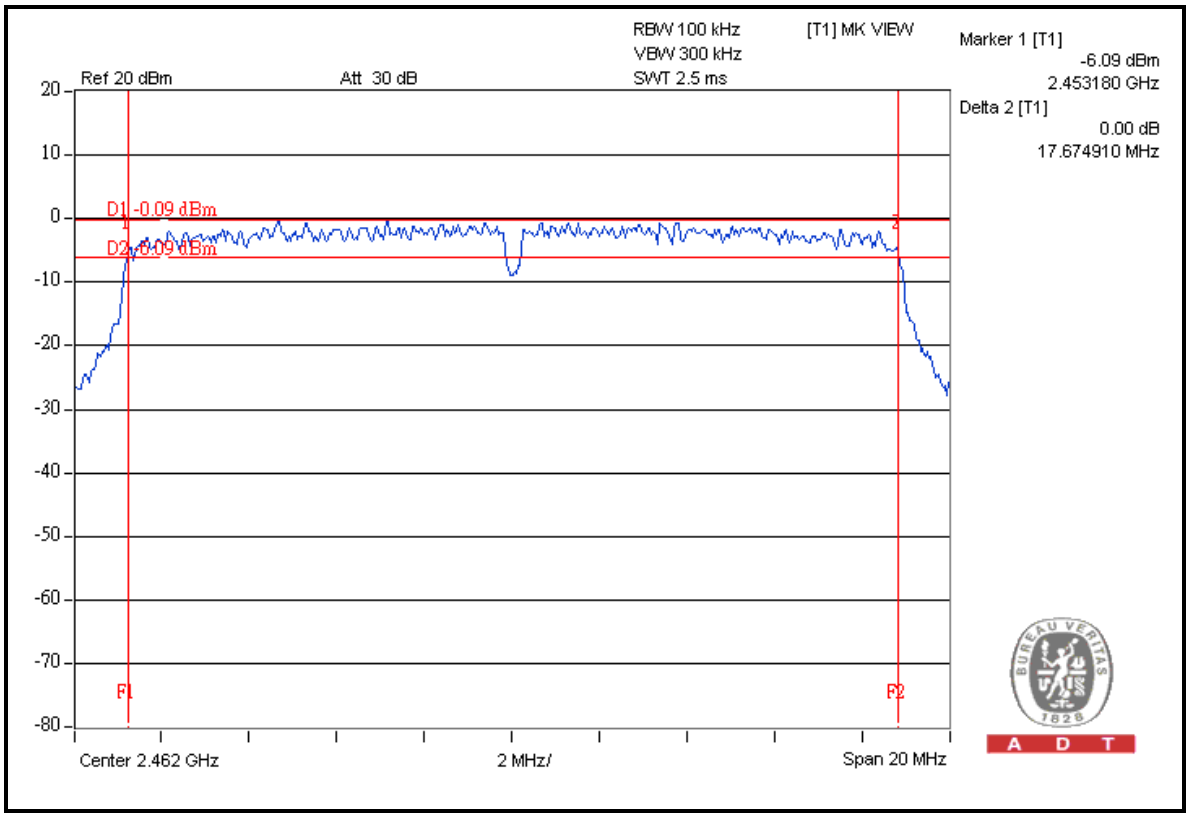
CH 1



CH 6


RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
[T1] MK VIEW
Marker 1 [T1]
-5.94 dBm
2.428181 GHz
De [T1]
0.00 dB
17.666211 MHz
Ref 20 dBm
Att 30 dB
D1 0.06 dBm
D2 -5.94 dBm
F1
F2
Center 2.437 GHz
2 MHz/
Span 20 MHz

CH 11

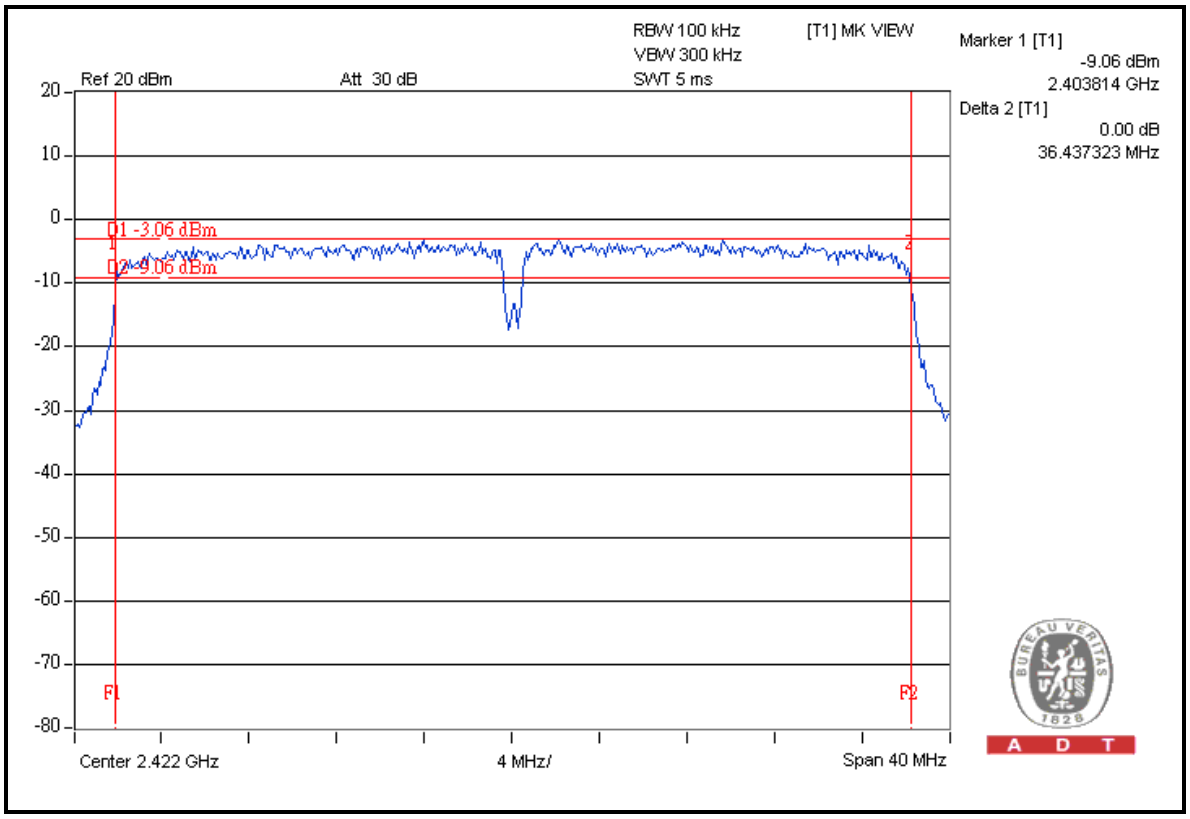

RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
[T1] MK VIEW
Marker 1 [T1]
-6.09 dBm
2.453180 GHz
Delta 2 [T1]
0.00 dB
17.674910 MHz
Ref 20 dBm
Att 30 dB
D1 -0.09 dBm
D2 -6.09 dBm
F1
F2
Center 2.462 GHz
2 MHz/
Span 20 MHz

DRAFT 802.11n (40MHz) OFDM MODULATION

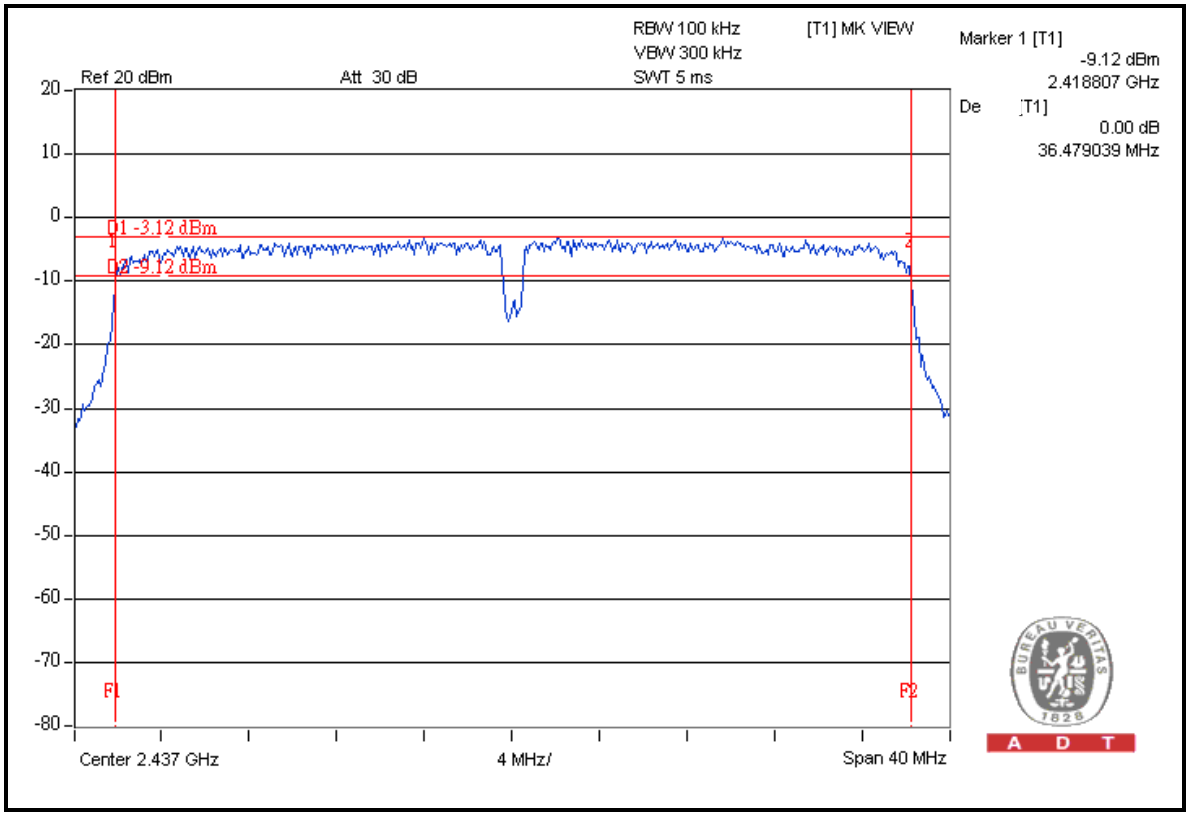
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	17deg.C, 66%RH, 1025hPa
TESTED BY	Chad Lee		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2422	36.437	0.5	PASS
4	2437	36.479	0.5	PASS
7	2452	36.465	0.5	PASS

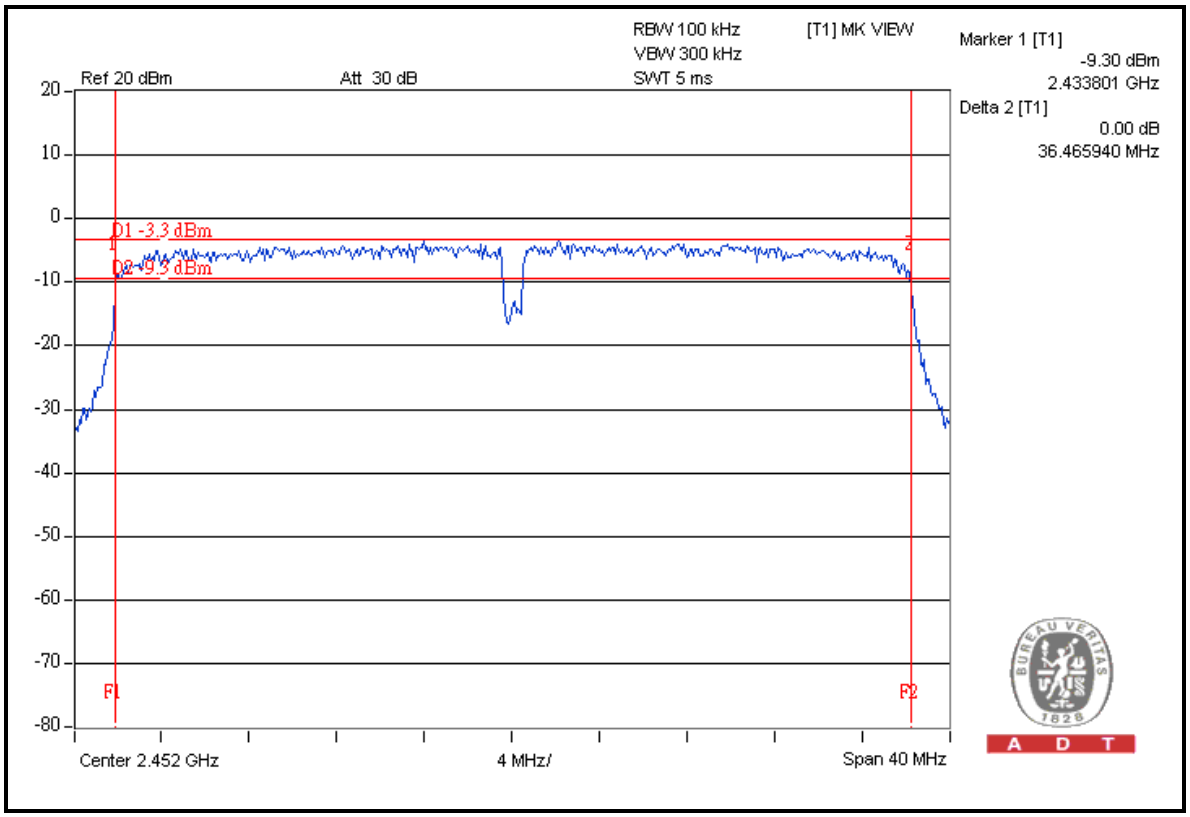
CH 1



CH 4


RBW 100 kHz
VBW 300 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
-9.12 dBm
2.418807 GHz
De [T1]
0.00 dB
36.479039 MHz
Ref 20 dBm
Att 30 dB
D1 -3.12 dBm
D2 -9.12 dBm
F1
F2
Center 2.437 GHz
4 MHz/
Span 40 MHz

CH 7


RBW 100 kHz
VBW 300 kHz
SWT 5 ms
[T1] MK VIEW
Marker 1 [T1]
-9.30 dBm
2.433801 GHz
Delta 2 [T1]
0.00 dB
36.465940 MHz
Ref 20 dBm
Att 30 dB
D1 -3.3 dBm
D2 -9.3 dBm
F1
F2
Center 2.452 GHz
4 MHz/
Span 40 MHz

4.4 MAXIMUM PEAK OUTPUT POWER

4.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

4.4.2 INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
POWER METER	E4416A	GB41291595	Dec. 24, 2008	Dec. 23, 2009
PEAK POWER SENSOR	E9327A	US40441076	Dec. 24, 2008	Dec. 23, 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.

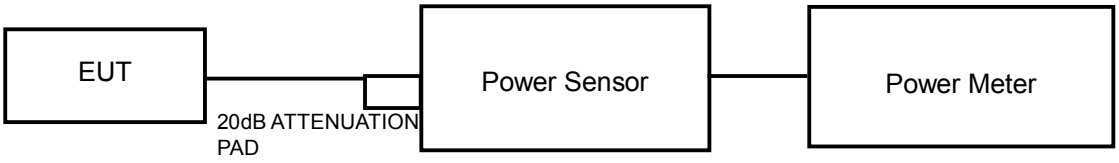
4.4.3 TEST PROCEDURES

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

INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	17deg.C, 66%RH, 1025hPa
TESTED BY	Chad Lee		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER OUTPUT (mW)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2412	17.24	52.966	30	PASS
6	2437	16.86	48.529	30	PASS
11	2462	17.12	51.523	30	PASS

802.11g OFDM MODULATION

INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	17deg.C, 66%RH, 1025hPa
TESTED BY	Chad Lee		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER OUTPUT (mW)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2412	21.08	128.233	30	PASS
6	2437	21.33	135.831	30	PASS
11	2462	21.01	126.183	30	PASS

DRAFT 802.11n (20MHz) OFDM MODULATION

INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	17deg.C, 66%RH, 1025hPa
TESTED BY	Chad Lee		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER OUTPUT (mW)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2412	21.48	140.605	30	PASS
6	2437	21.67	146.893	30	PASS
11	2462	21.20	131.826	30	PASS

DRAFT 802.11n (40MHz) OFDM MODULATION

INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	17deg.C, 66%RH, 1025hPa
TESTED BY	Chad Lee		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER OUTPUT (mW)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2422	21.19	131.522	30	PASS
4	2437	21.35	136.458	30	PASS
7	2452	20.85	121.619	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	FSP 40	100035	Mar. 24, 2009	Mar. 23, 2010

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

Same as Item 4.3.5.

4.5.6 EUT OPERATING CONDITION

Same as Item 4.3.6.

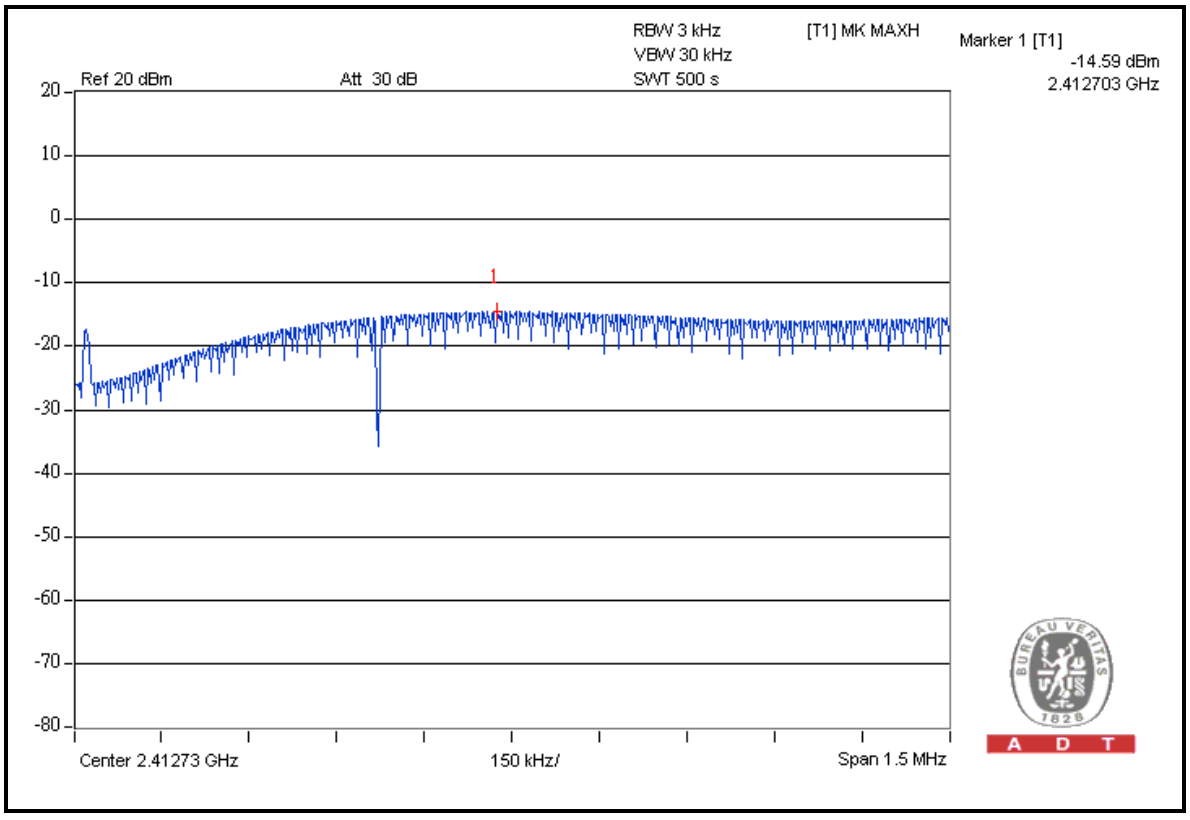
4.5.7 TEST RESULTS

802.11b DSSS MODULATION

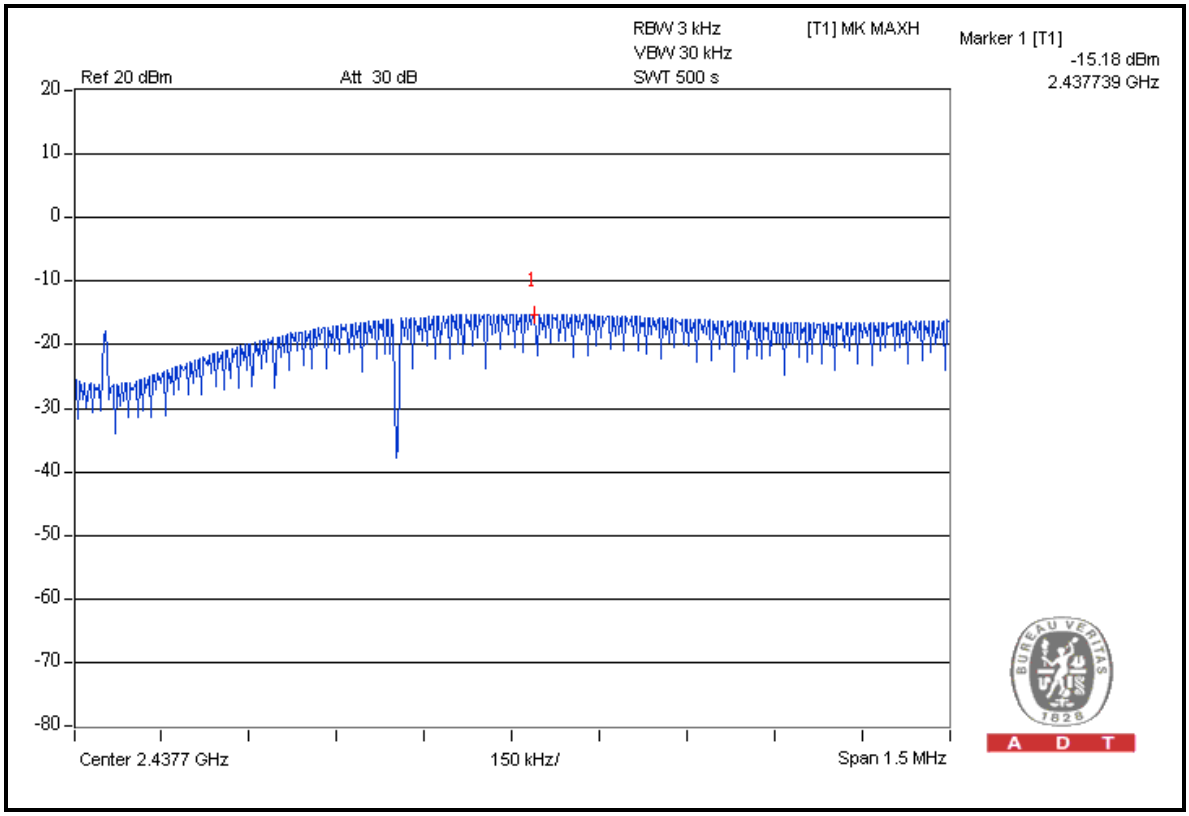
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	17deg.C, 66%RH, 1025hPa
TESTED BY	Chad Lee		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
1	2412	-14.59	8	PASS
6	2437	-15.18	8	PASS
11	2462	-15.57	8	PASS

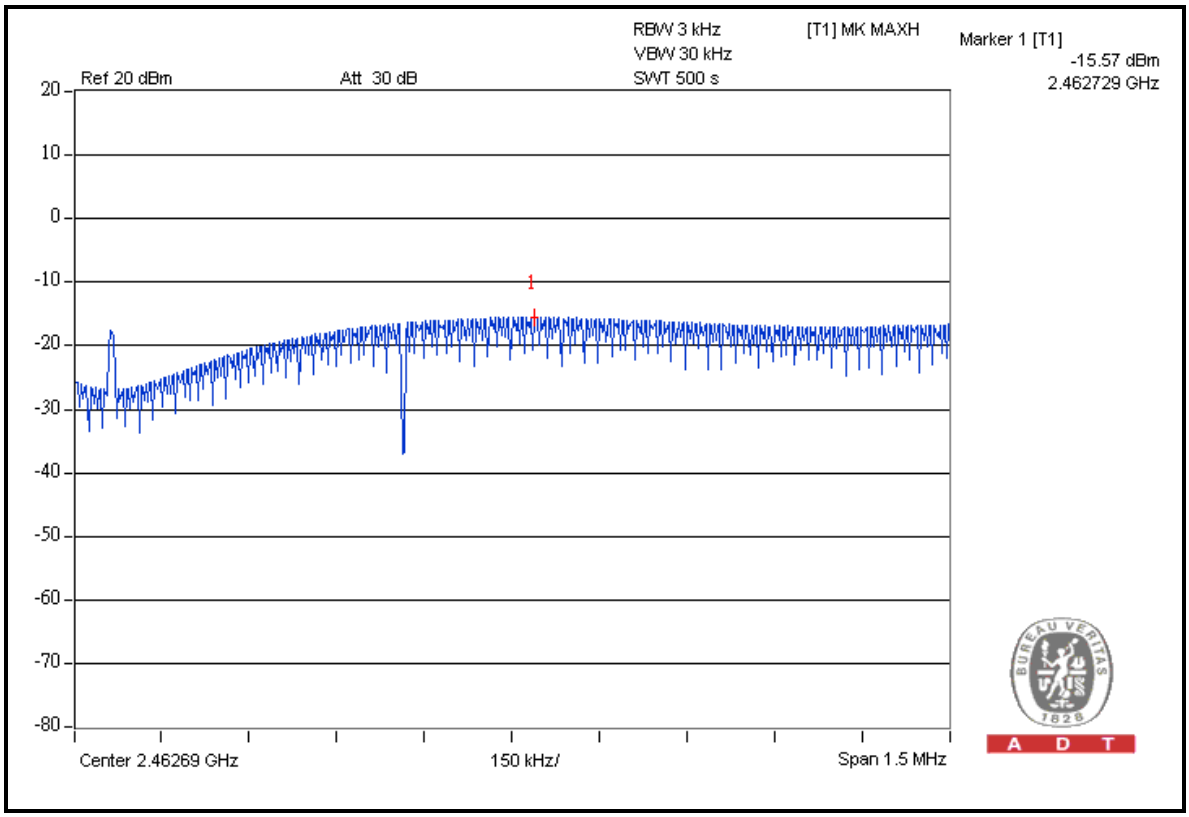
CH 1



CH 6


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-15.18 dBm
2.437739 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.4377 GHz
150 kHz/
Span 1.5 MHz

CH 11

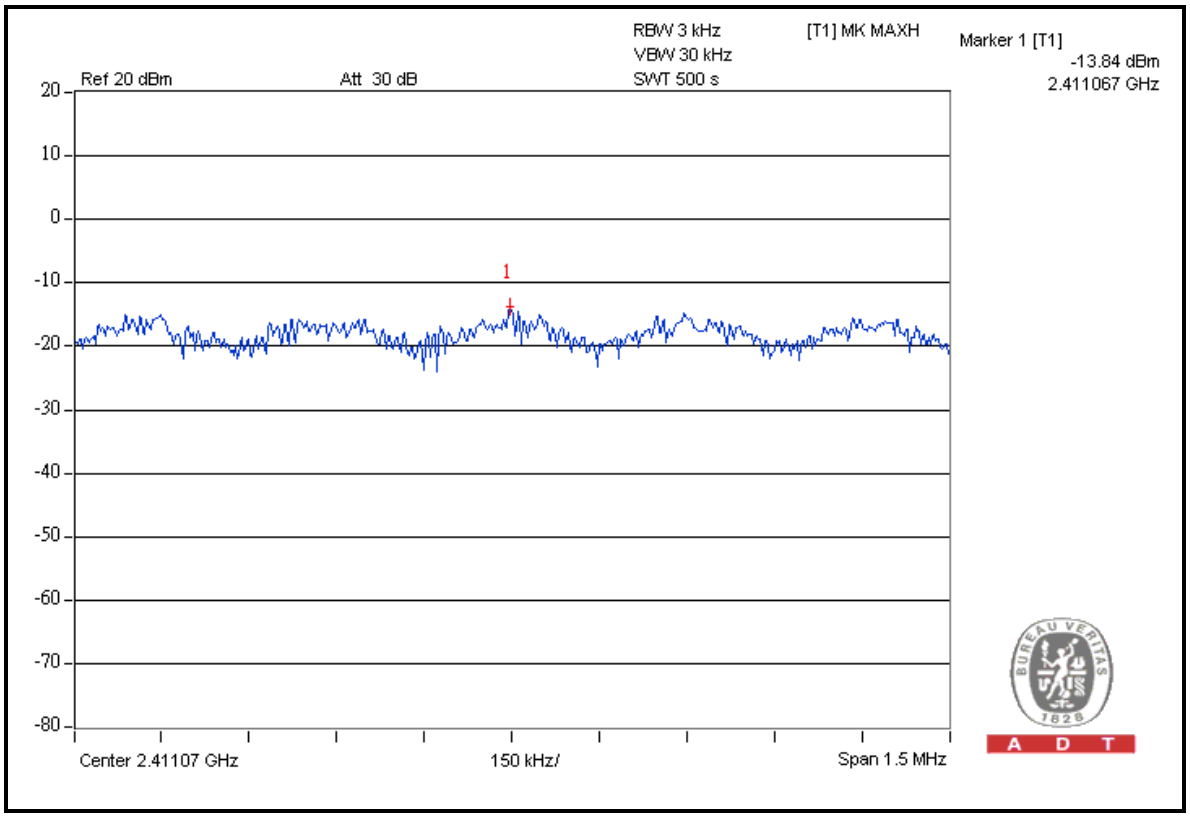

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-15.57 dBm
2.462729 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.46269 GHz
150 kHz/
Span 1.5 MHz

802.11g OFDM MODULATION

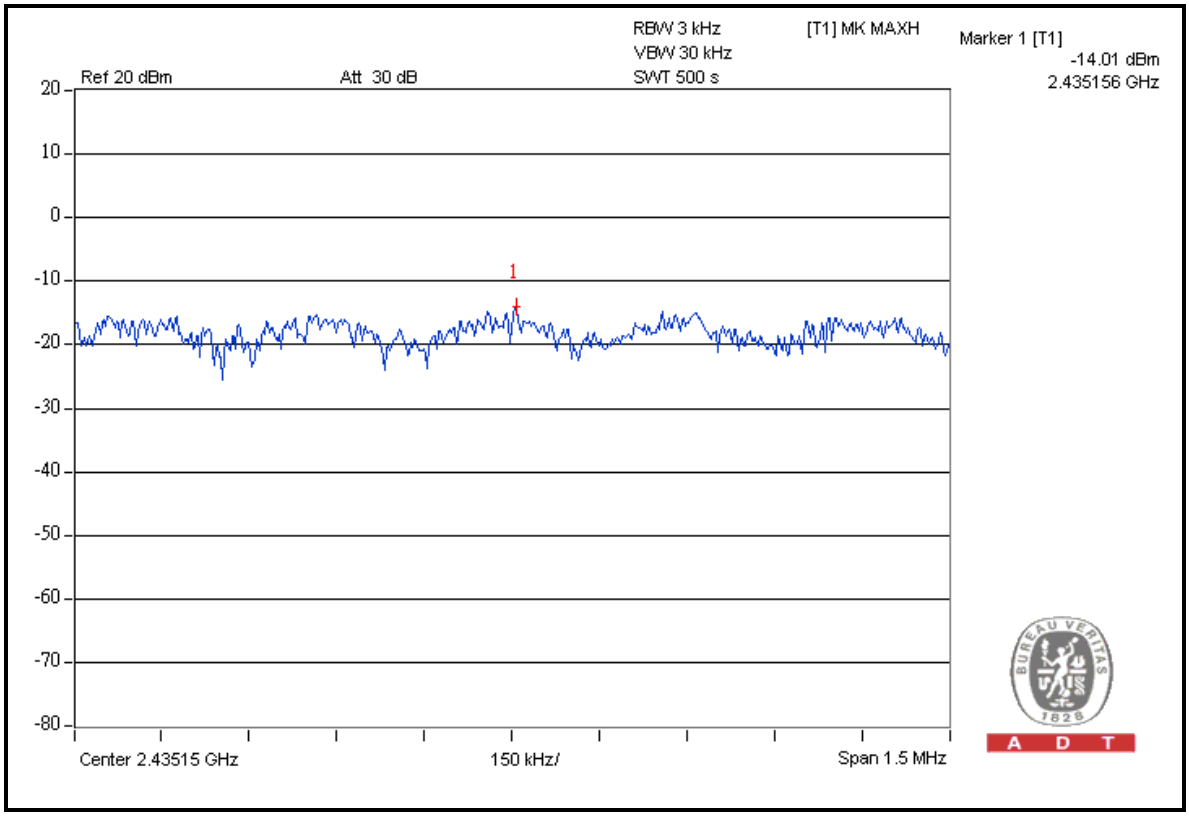
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	17deg.C, 66%RH, 1025hPa
TESTED BY	Chad Lee		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
1	2412	-13.84	8	PASS
6	2437	-14.01	8	PASS
11	2462	-14.19	8	PASS

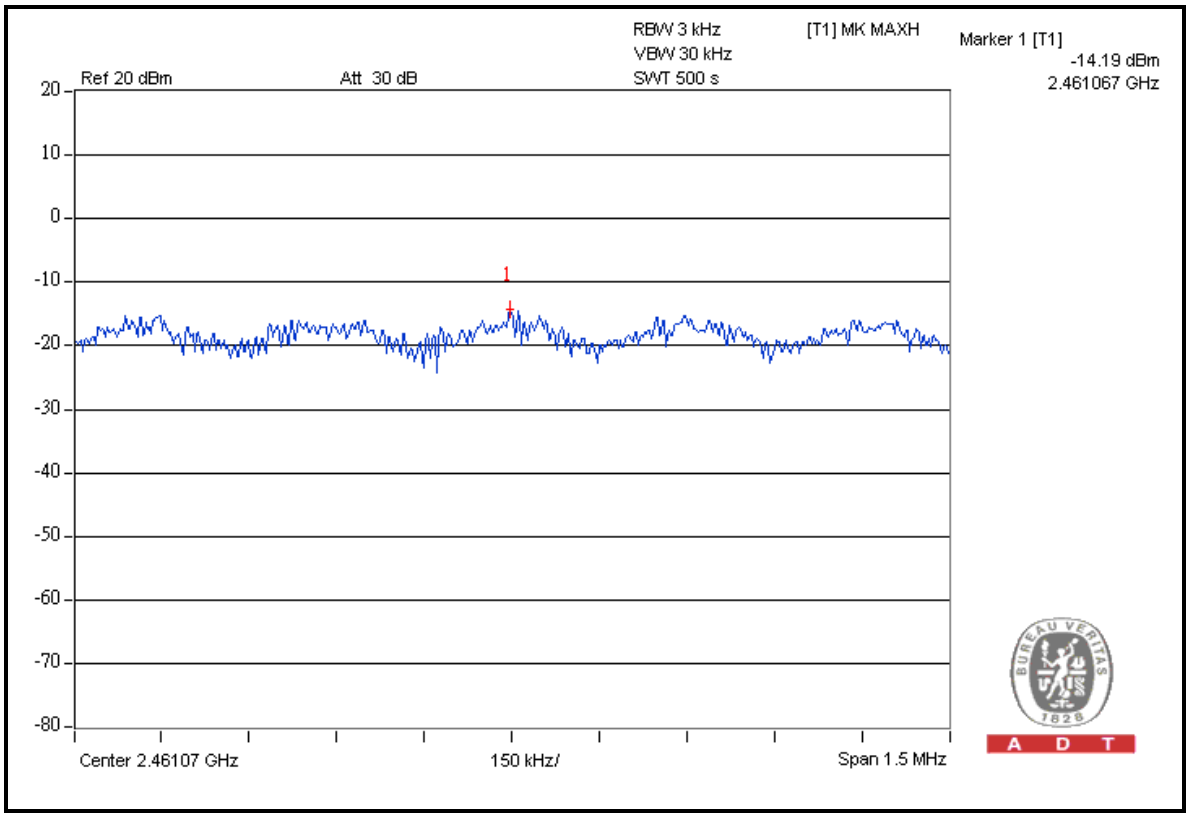
CH 1



CH 6


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-14.01 dBm
2.435156 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.43515 GHz
150 kHz/
Span 1.5 MHz

CH 11

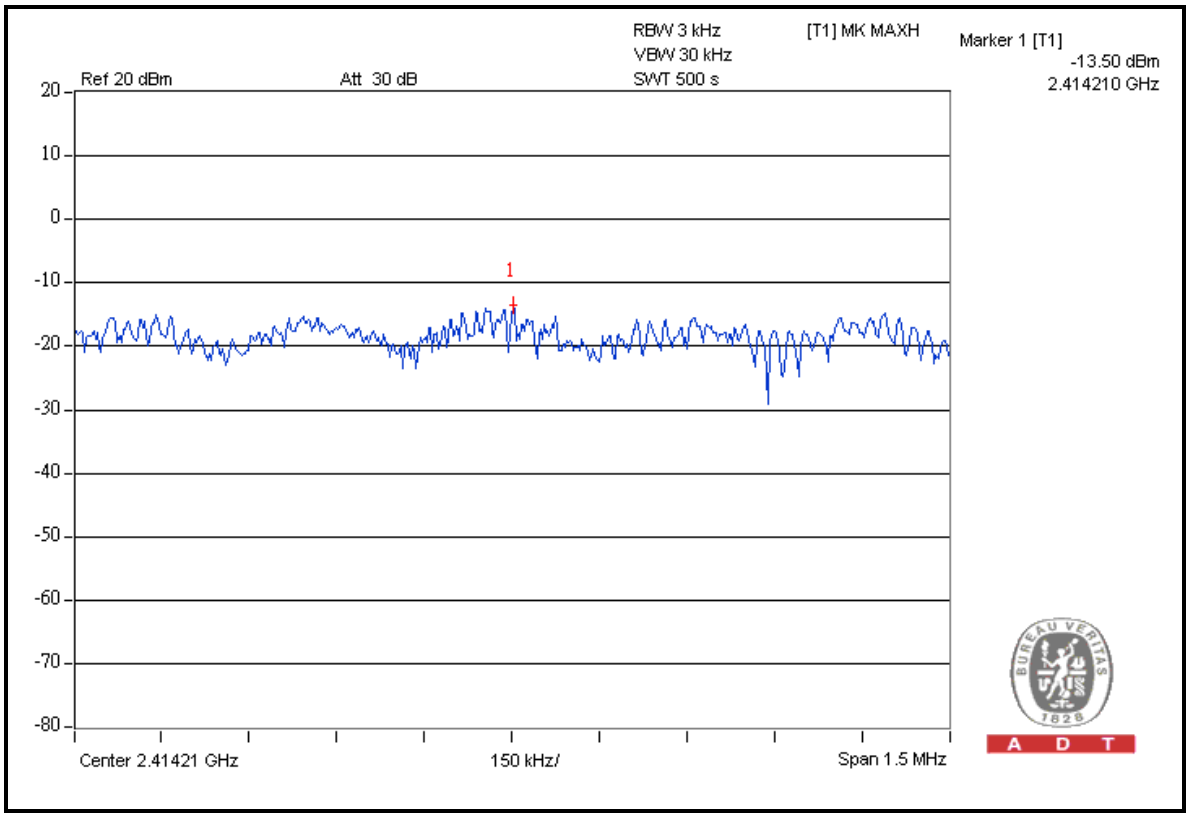

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-14.19 dBm
2.461067 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.46107 GHz
150 kHz/
Span 1.5 MHz

DRAFT 802.11n (20MHz) OFDM MODULATION

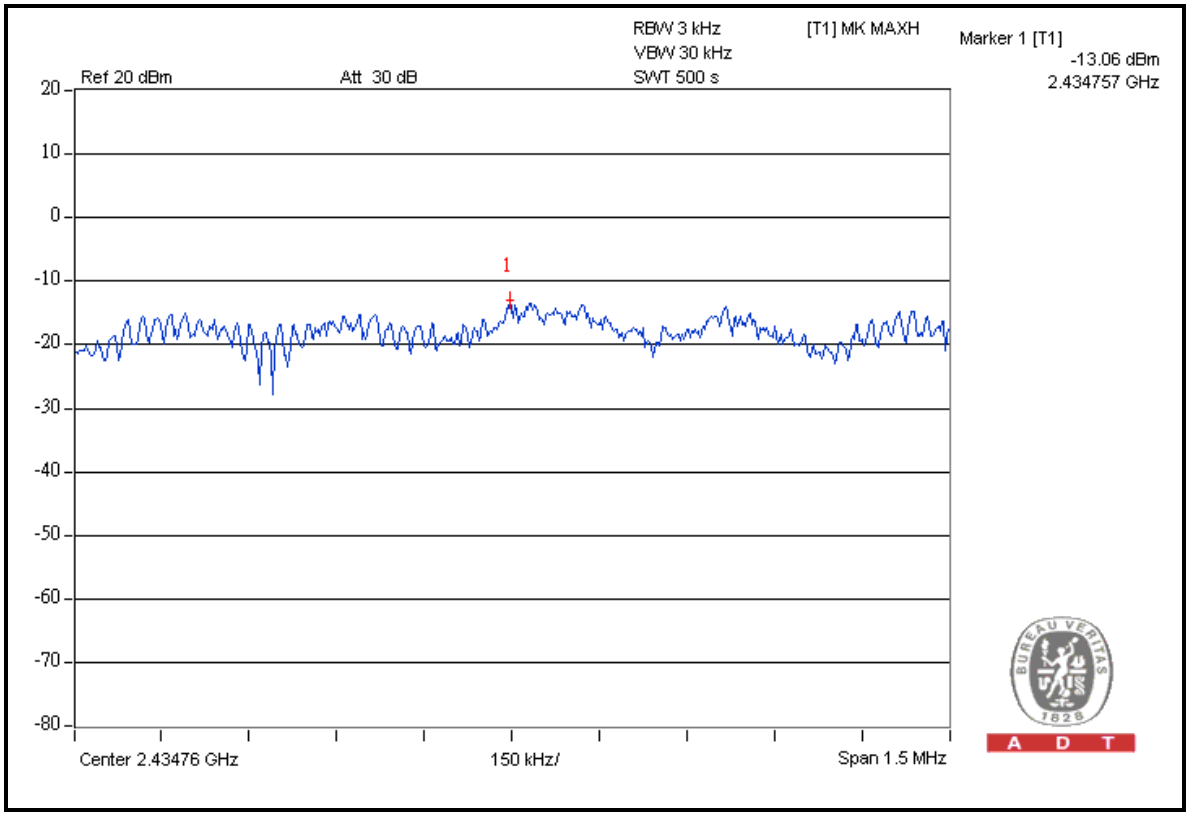
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	17deg.C, 66%RH, 1025hPa
TESTED BY	Chad Lee		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
1	2412	-13.50	8	PASS
6	2437	-13.06	8	PASS
11	2462	-13.78	8	PASS

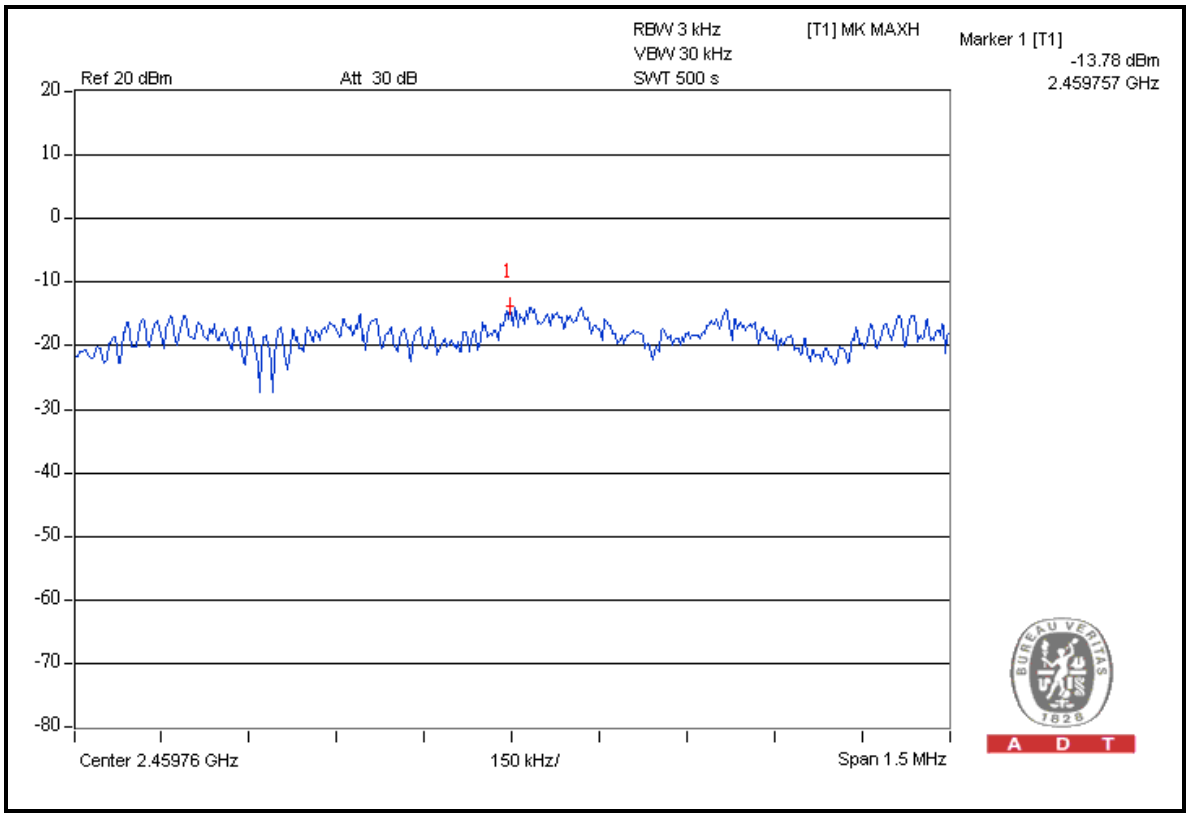
CH 1



CH 6


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-13.06 dBm
2.434757 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Center 2.43476 GHz
150 kHz/
Span 1.5 MHz

CH 11

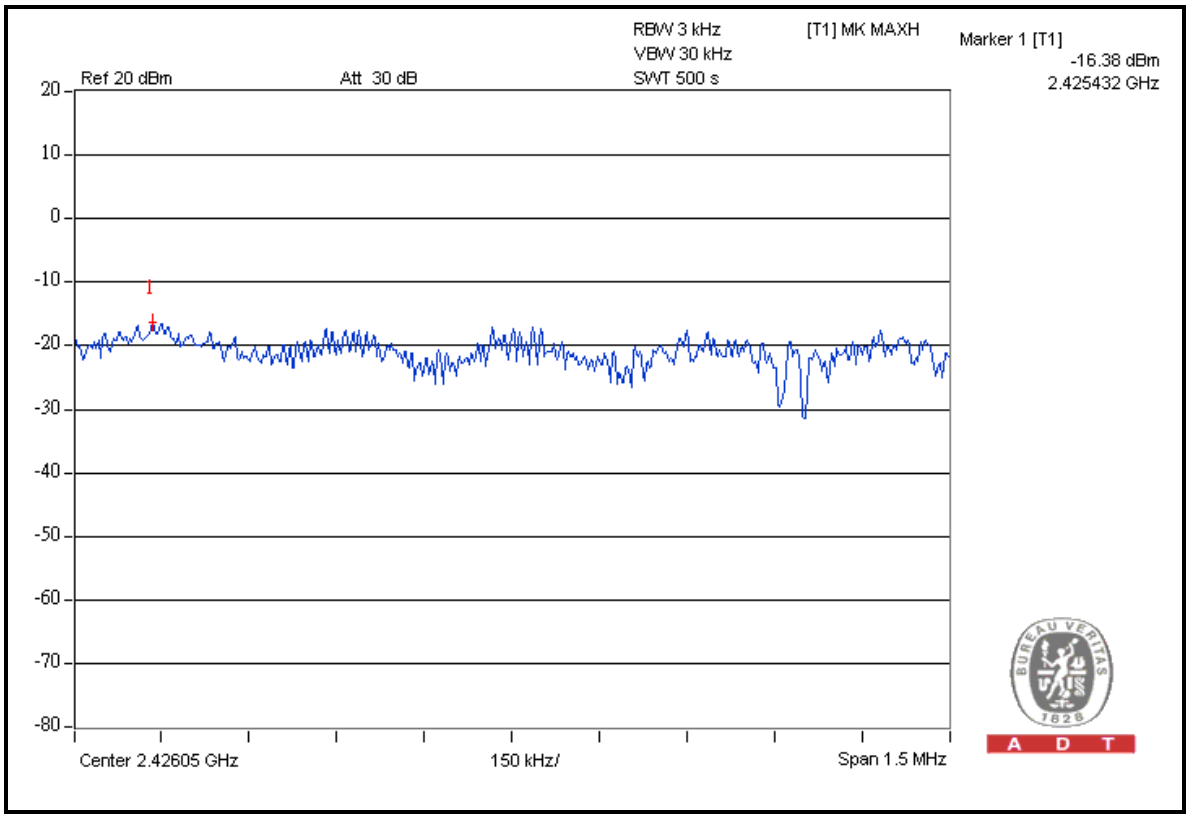

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-13.78 dBm
2.459757 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1
Center 2.45976 GHz
150 kHz/
Span 1.5 MHz

DRAFT 802.11n (40MHz) OFDM MODULATION

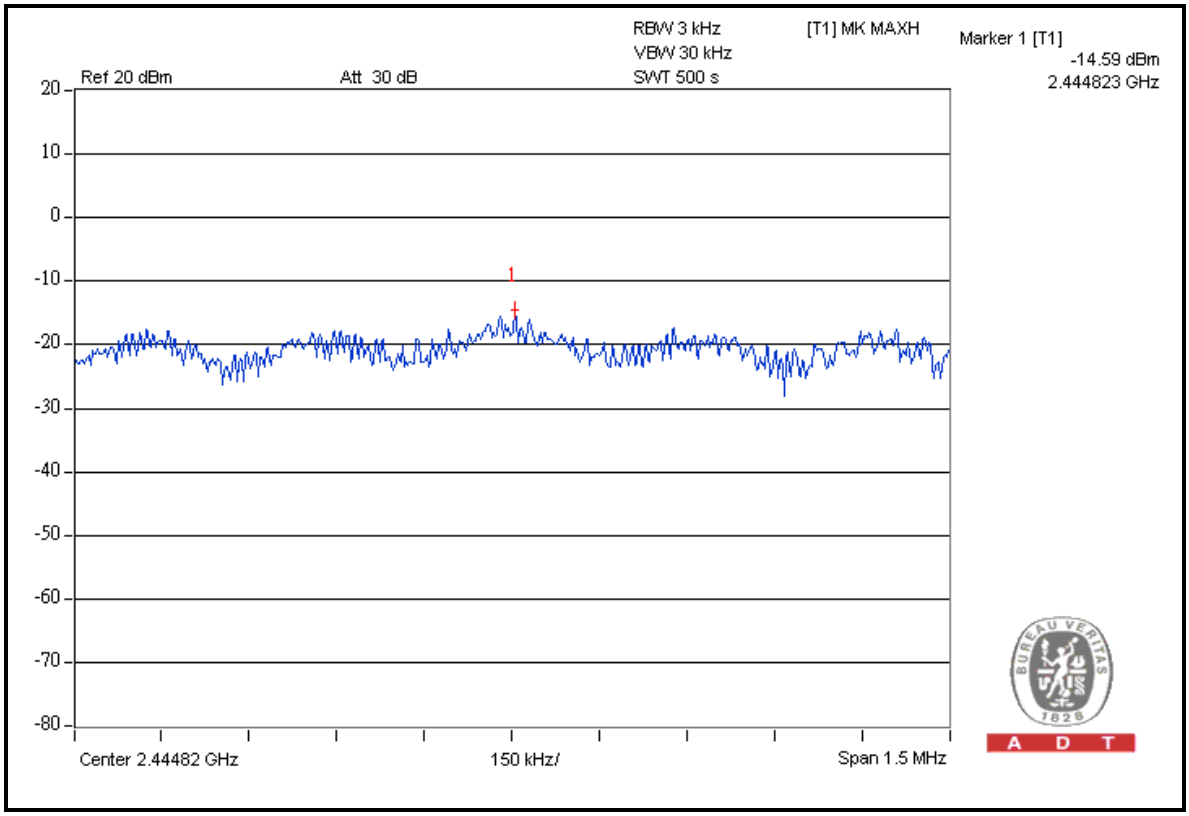
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	17deg.C, 66%RH, 1025hPa
TESTED BY	Chad Lee		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
1	2422	-16.38	8	PASS
4	2437	-14.59	8	PASS
7	2452	-15.75	8	PASS

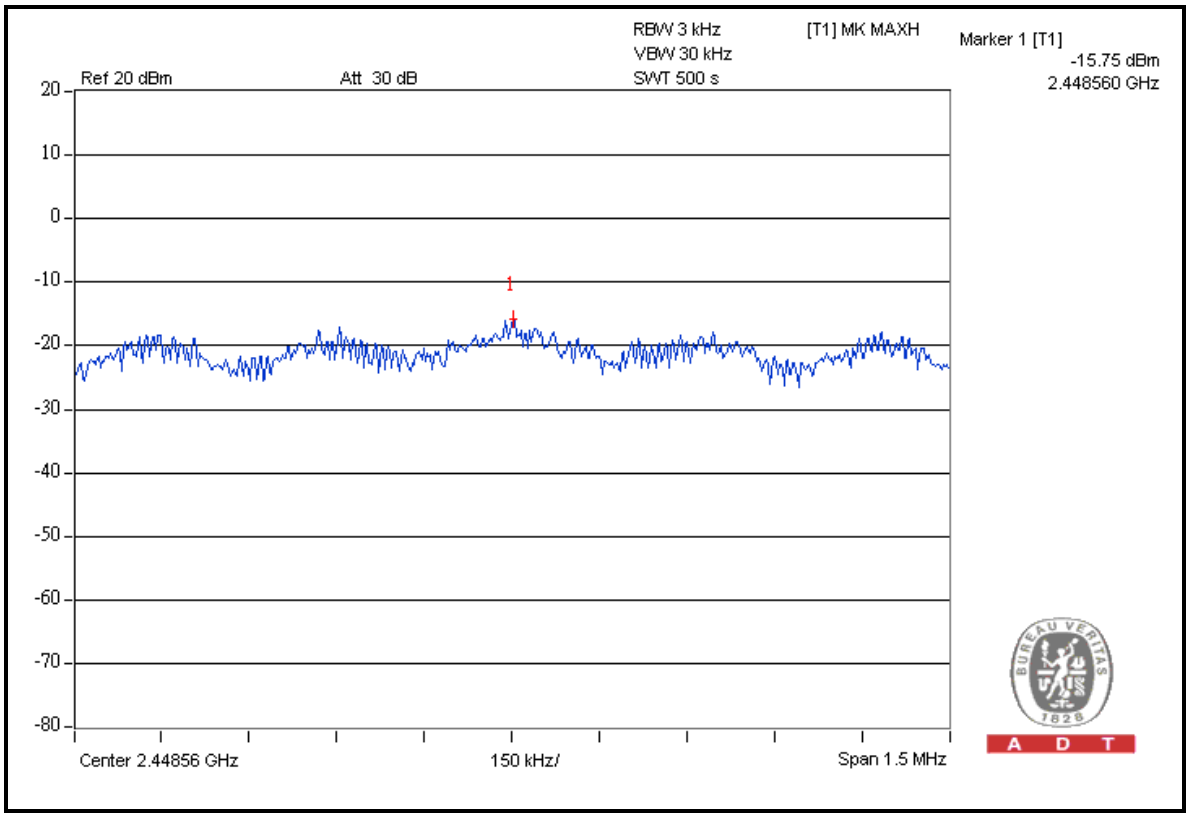
CH 1



CH 4


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-14.59 dBm
2.444823 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.44482 GHz
150 kHz/
Span 1.5 MHz

CH 7


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-15.75 dBm
2.448560 GHz
Ref 20 dBm
Att 30 dB
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.44856 GHz
150 kHz/
Span 1.5 MHz

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	DUE DATE OF CALIBRATION
FOR CONDUCTED MEASUREMENT				
R&S SPECTRUM ANALYZER	FSP 40	100035	Mar. 24, 2009	Mar. 23, 2010
FOR RADIATED MEASUREMENT				
HP Preamplifier	8447D	2432A03504	May 09, 2008	May 08, 2009
HP Preamplifier	8449B	3008A01924	Sep. 03, 2008	Sep. 02, 2009
HP Preamplifier	8449B	3008A01292	Aug. 06, 2008	Aug. 05, 2009
ROHDE & SCHWARZ TEST RECEIVER	ESI7	836697/012	Dec. 04, 2008	Dec. 03, 2009
Schwarzbeck Antenna	VULB 9168	137	May 02, 2008	May 01, 2009
Schwarzbeck Antenna	VHBA 9123	480	Apr. 23, 2008	Apr. 22, 2009
EMCO Horn Antenna	3115	6714	Oct. 17, 2008	Oct. 16, 2009
EMCO Horn Antenna	3115	9312-4192	Apr. 21, 2008	Apr. 20, 2009
ADT. Turn Table	TT100	0306	NA	NA
ADT. Tower	AT100	0306	NA	NA
Software	ADT_Radiated_V 7.6.15.9.2	NA	NA	NA
SUHNER RF cable	SF104-26.5	CABLE-CH6-17 m-01	Aug. 22, 2008	Aug. 21, 2009
ROHDE & SCHWARZ Spectrum Analyzer	FSP 40	100036	Mar. 24, 2009	Mar. 23, 2010

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; Average RBW=1MHz, VBW= 10Hz 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 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; Average RBW = 1MHz, VBW = 10Hz)

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 EUT OPERATING CONDITION

Same as Item 4.3.6

4.6.6 TEST RESULTS

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

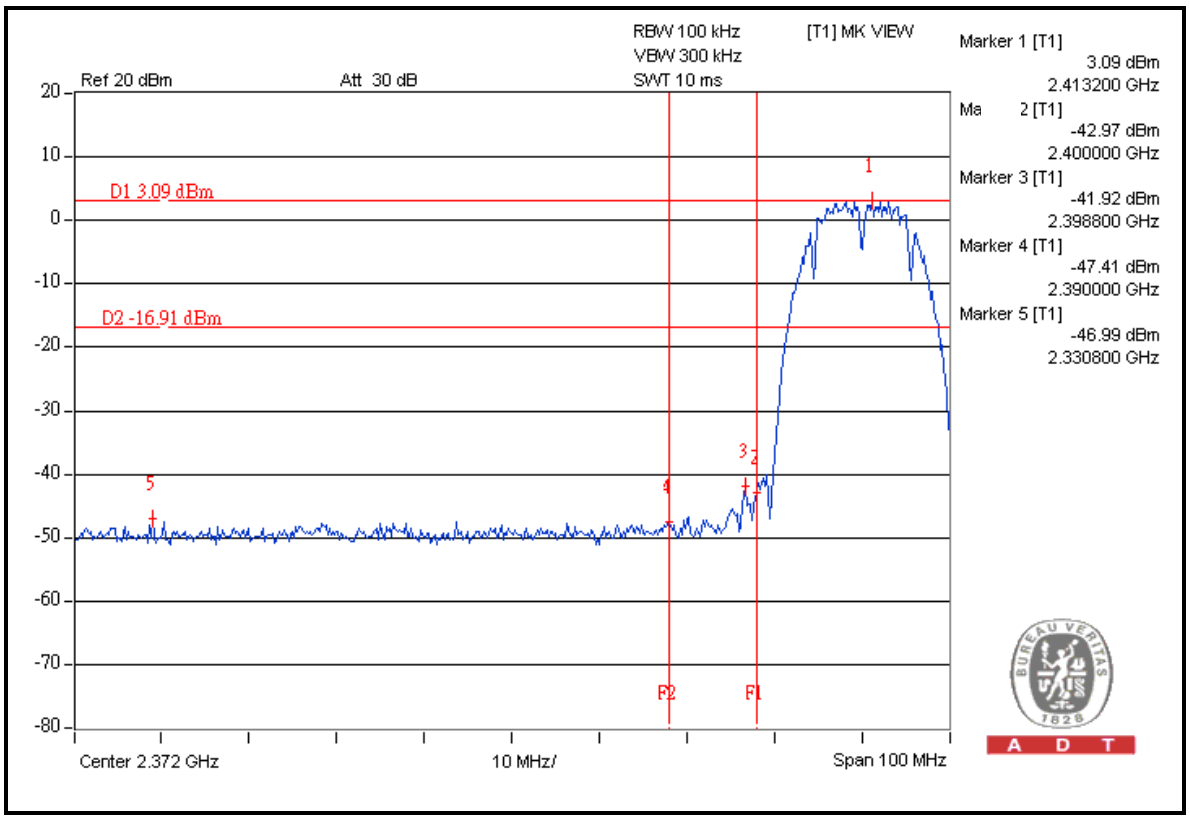
802.11b DSSS MODULATION

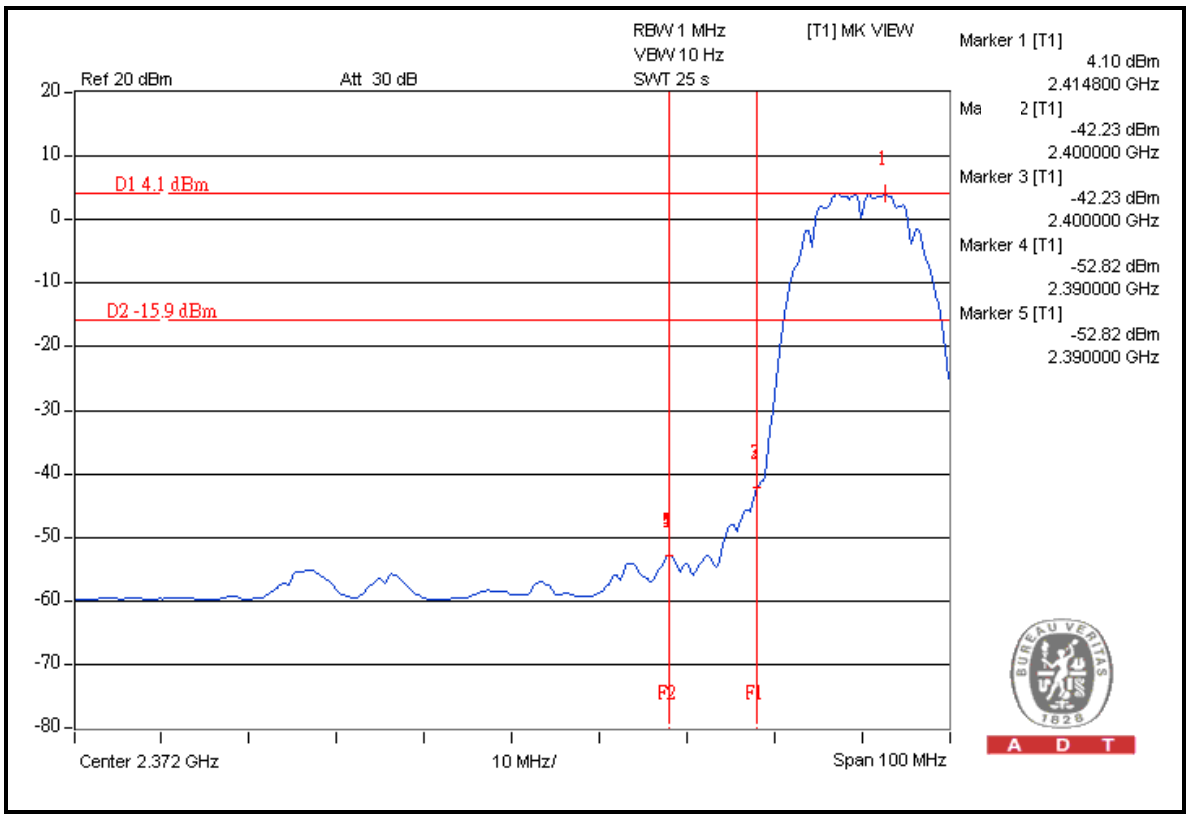
NOTE 1: The band edge emission plot on the next page shows 50.08dBc between carrier maximum power and local maximum emission in restrict band (2.3308GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 109.21dBuV/m (Peak), so the maximum field strength in restrict band is 109.21 – 50.08 = 59.13dBuV/m which is under 74dBuV/m limit.

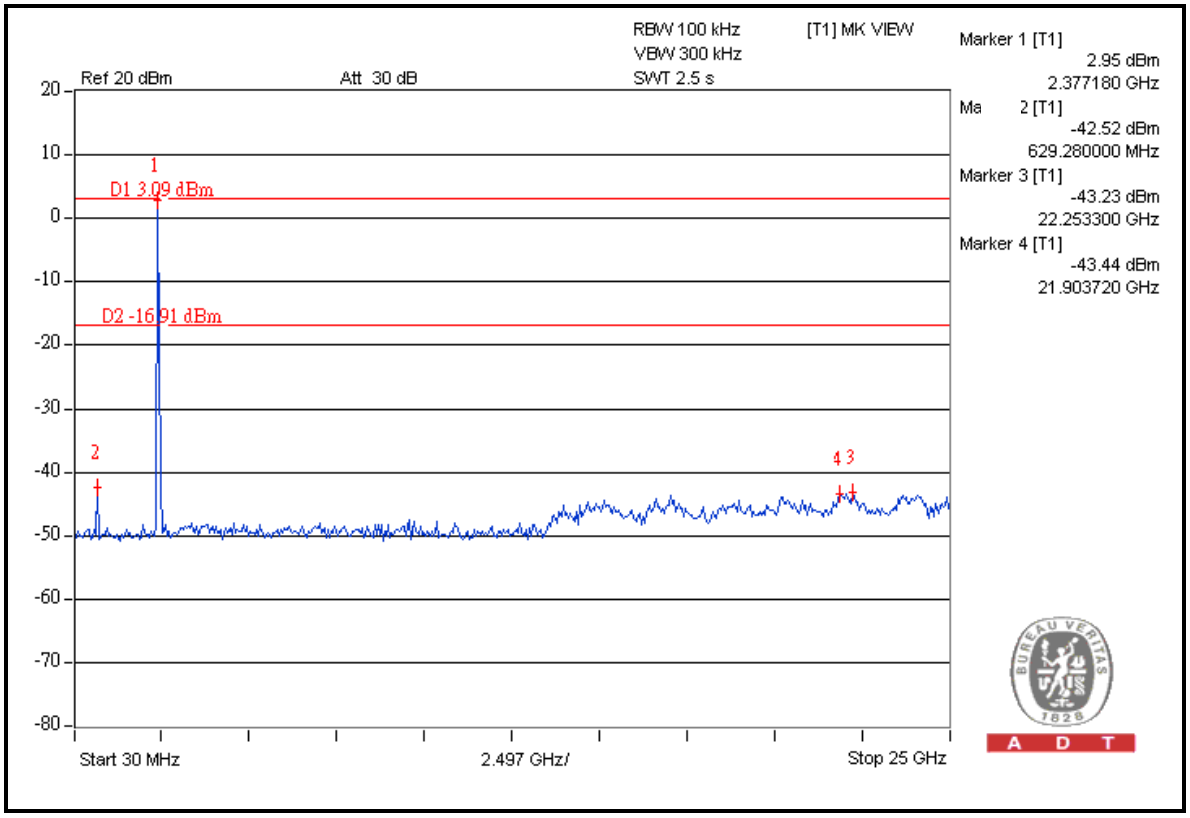
The band edge emission plot on the next page shows 56.92dBc between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 105.07dBuV/m (Average), so the maximum field strength in restrict band is 105.07 – 56.92 = 48.15dBuV/m which is under 54dBuV/m limit.

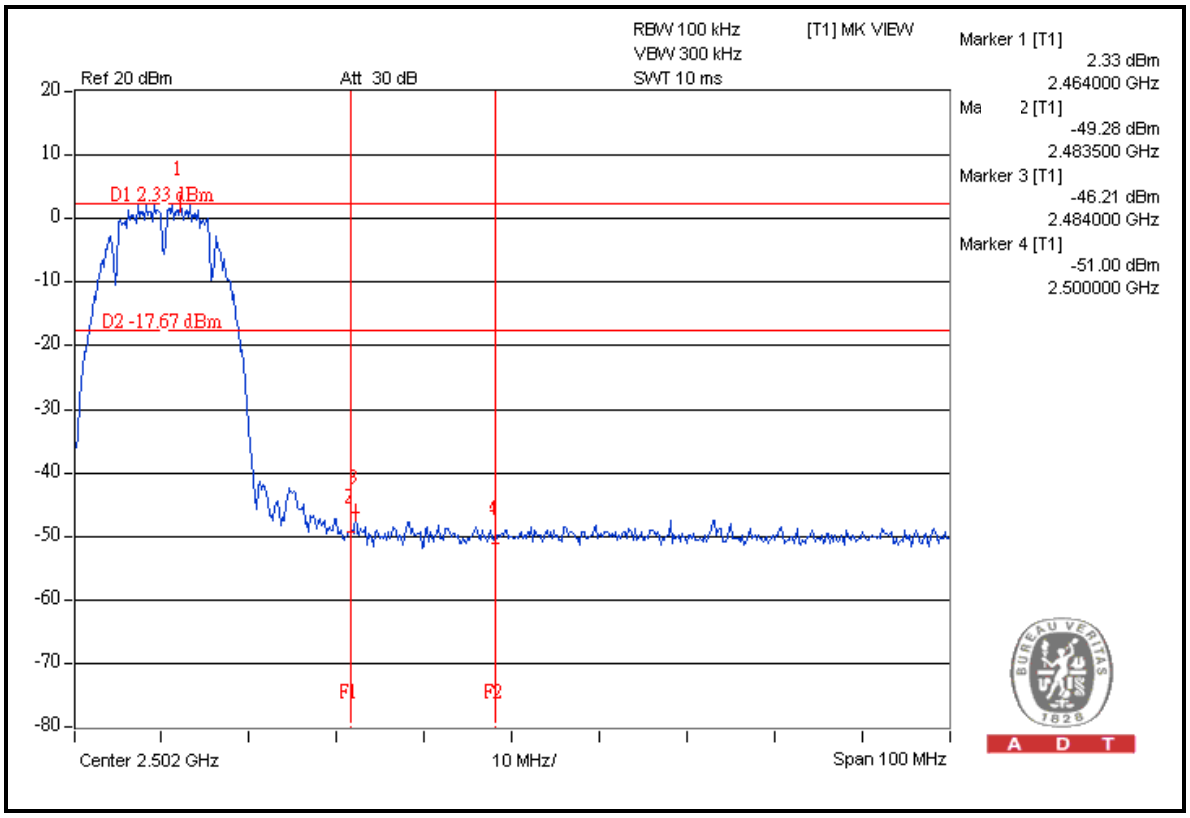
NOTE 2: The band edge emission plot on the next second page shows 48.54dBc between carrier maximum power and local maximum emission in restrict band (2.4840GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.1.7 is 109.57dBuV/m (Peak), so the maximum field strength in restrict band is 109.57 – 48.54 = 61.03dBuV/m which is under 74dBuV/m limit.

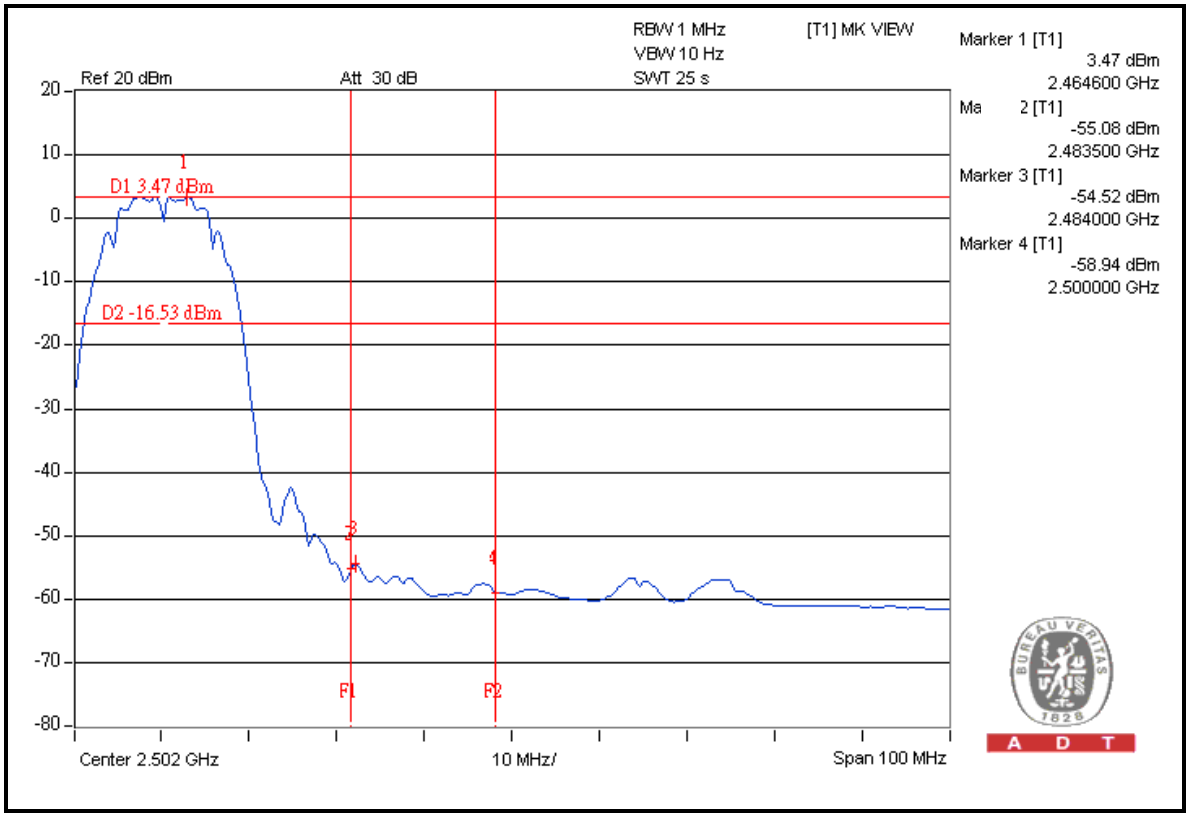
The band edge emission plot on the next third page shows 57.99dBc between carrier maximum power and local maximum emission in restrict band (2.4840GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.1.7 is 104.60dBuV/m (Average), so the maximum field strength in restrict band is 104.60 – 57.99 = 46.61dBuV/m which is under 54dBuV/m limit.

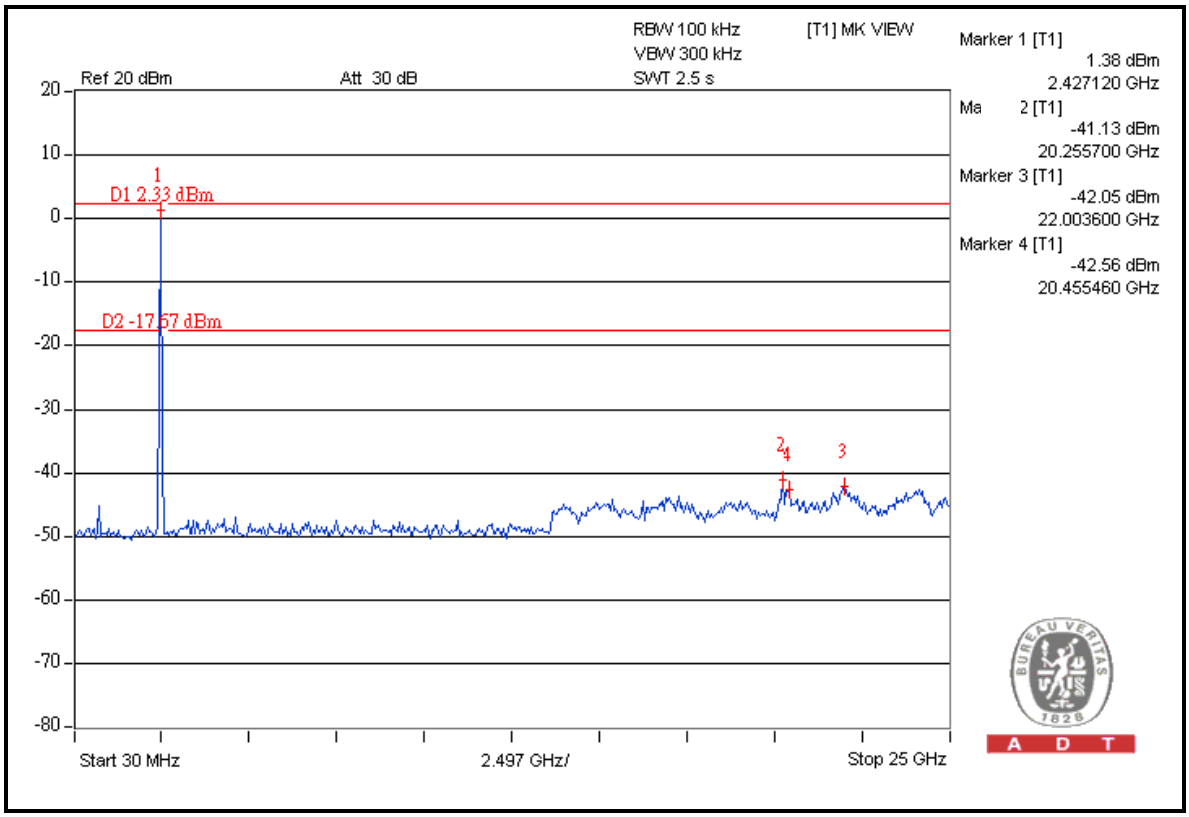

RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 3.09 dBm
D2 -16.91 dBm
Marker 1 [T1]
3.09 dBm
2.413200 GHz
Ma 2 [T1]
-42.97 dBm
2.400000 GHz
Marker 3 [T1]
-41.92 dBm
2.398800 GHz
Marker 4 [T1]
-47.41 dBm
2.390000 GHz
Marker 5 [T1]
-46.99 dBm
2.330800 GHz
Center 2.372 GHz
10 MHz/
Span 100 MHz


RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 4.1 dBm
D2 -15.9 dBm
Marker 1 [T1]
4.10 dBm
2.414800 GHz
Ma 2 [T1]
-42.23 dBm
2.400000 GHz
Marker 3 [T1]
-42.23 dBm
2.400000 GHz
Marker 4 [T1]
-52.82 dBm
2.390000 GHz
Marker 5 [T1]
-52.82 dBm
2.390000 GHz
Center 2.372 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 3.09 dBm
D2 -16.91 dBm
Marker 1 [T1]
2.95 dBm
2.377180 GHz
Ma 2 [T1]
-42.52 dBm
629.280000 MHz
Marker 3 [T1]
-43.23 dBm
22.253300 GHz
Marker 4 [T1]
-43.44 dBm
21.903720 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz


RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 2.33 dBm
D2 -17.67 dBm
Marker 1 [T1]
2.33 dBm
2.464000 GHz
Ma 2 [T1]
-49.28 dBm
2.483500 GHz
Marker 3 [T1]
-46.21 dBm
2.484000 GHz
Marker 4 [T1]
-51.00 dBm
2.500000 GHz
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz


RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
Marker 1 [T1]
3.47 dBm
2.464600 GHz
Ma 2 [T1]
-55.08 dBm
2.483500 GHz
Marker 3 [T1]
-54.52 dBm
2.484000 GHz
Marker 4 [T1]
-58.94 dBm
2.500000 GHz
D1 3.47 dBm
D2 -16.53 dBm
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
Marker 1 [T1]
1.38 dBm
2.427120 GHz
Ma 2 [T1]
-41.13 dBm
20.255700 GHz
Marker 3 [T1]
-42.05 dBm
22.003600 GHz
Marker 4 [T1]
-42.56 dBm
20.455460 GHz
D1 2.33 dBm
D2 -17.67 dBm
Start 30 MHz
2.497 GHz/
Stop 25 GHz

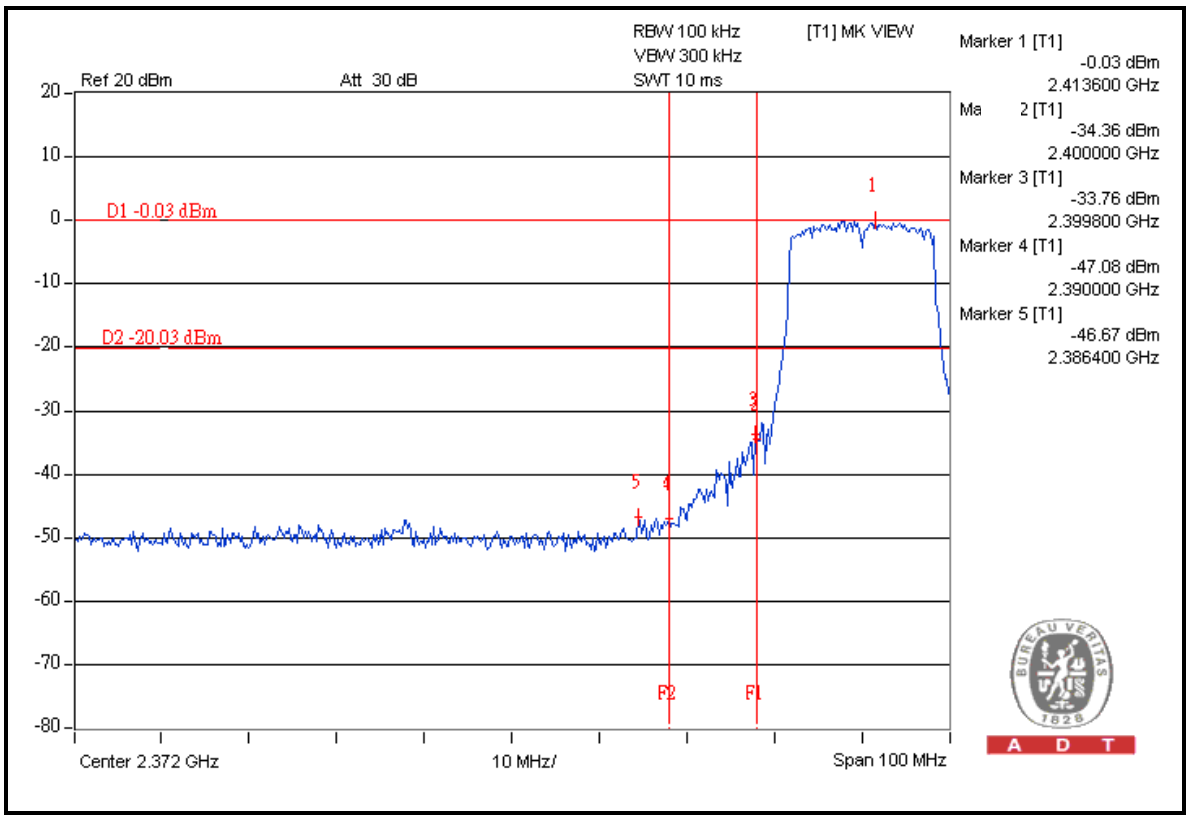
802.11g OFDM MODULATION

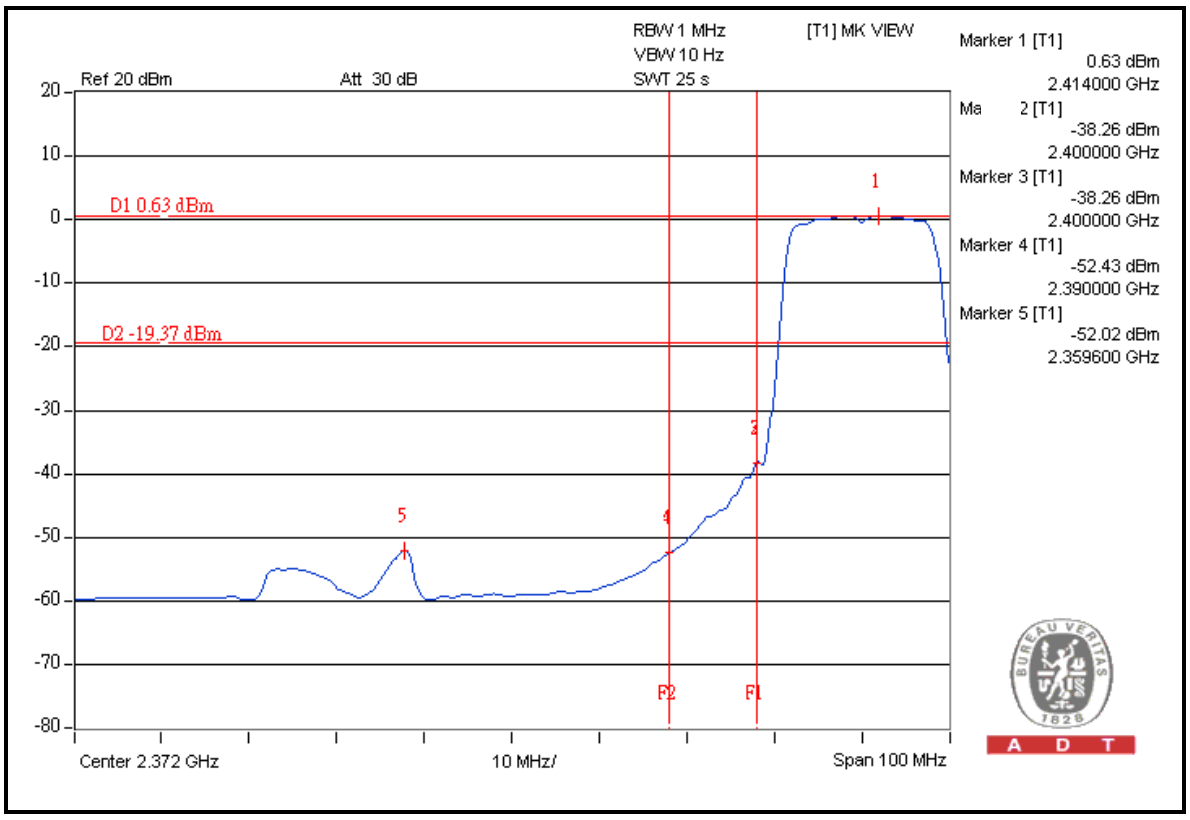
NOTE 1: The band edge emission plot on the next page shows 46.64dBc between carrier maximum power and local maximum emission in restrict band (2.3864GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 112.22dBuV/m (Peak), so the maximum field strength in restrict band is 112.22 – 46.64 = 65.58dBuV/m which is under 74dBuV/m limit.

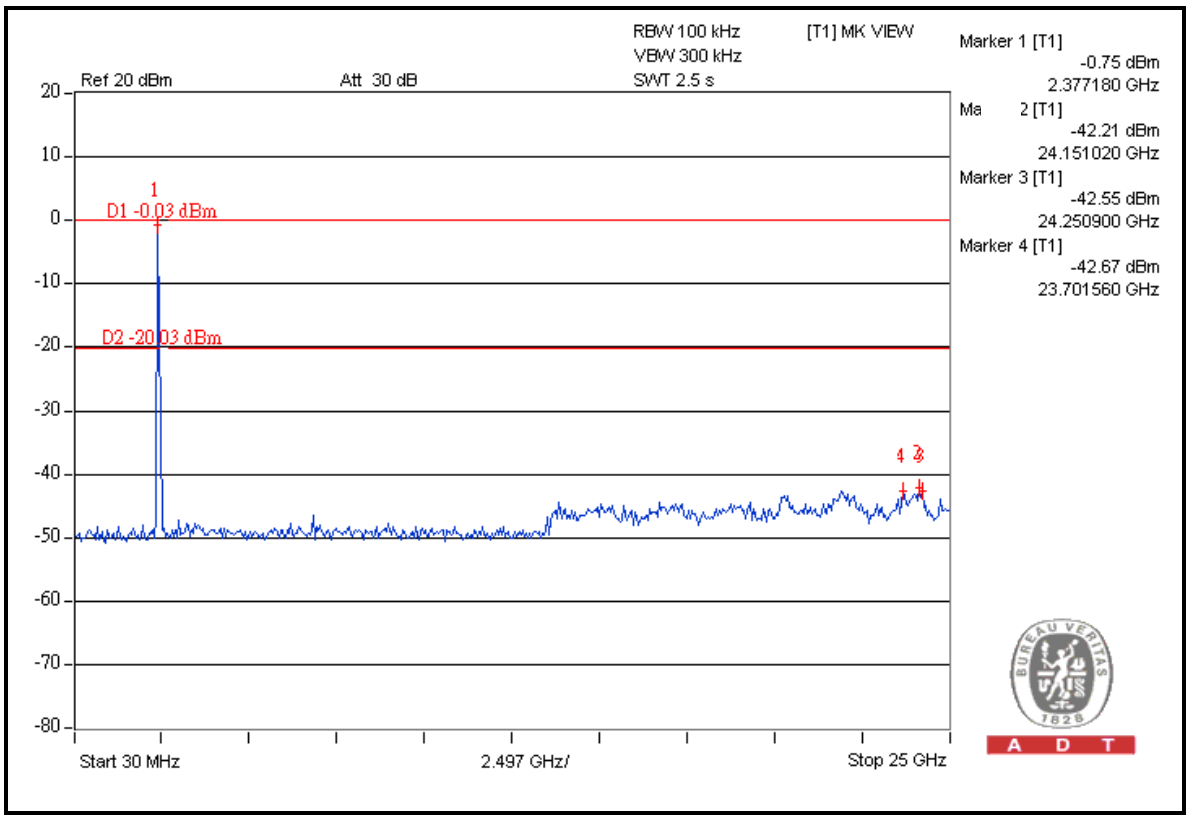
The band edge emission plot on the next page shows 52.65dBc between carrier maximum power and local maximum emission in restrict band (2.3596GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 1010.61BuV/m (Average), so the maximum field strength in restrict band is 101.61 – 52.65 = 48.96dBuV/m which is under 54dBuV/m limit.

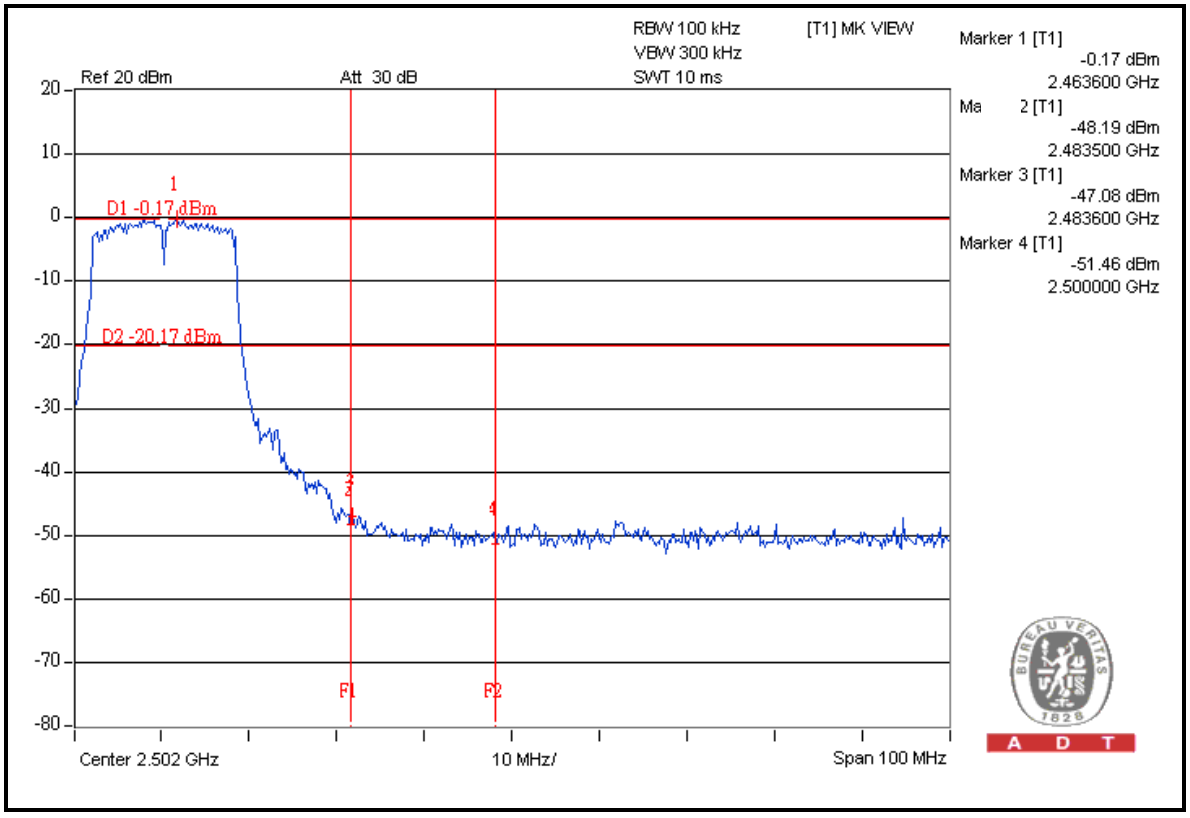
NOTE 2: The band edge emission plot on the next second page shows 46.91dBc between carrier maximum power and local maximum emission in restrict band (2.4836GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.1.7 is 113.38dBuV/m (Peak), so the maximum field strength in restrict band is 113.38 – 46.91 = 66.47dBuV/m which is under 74dBuV/m limit.

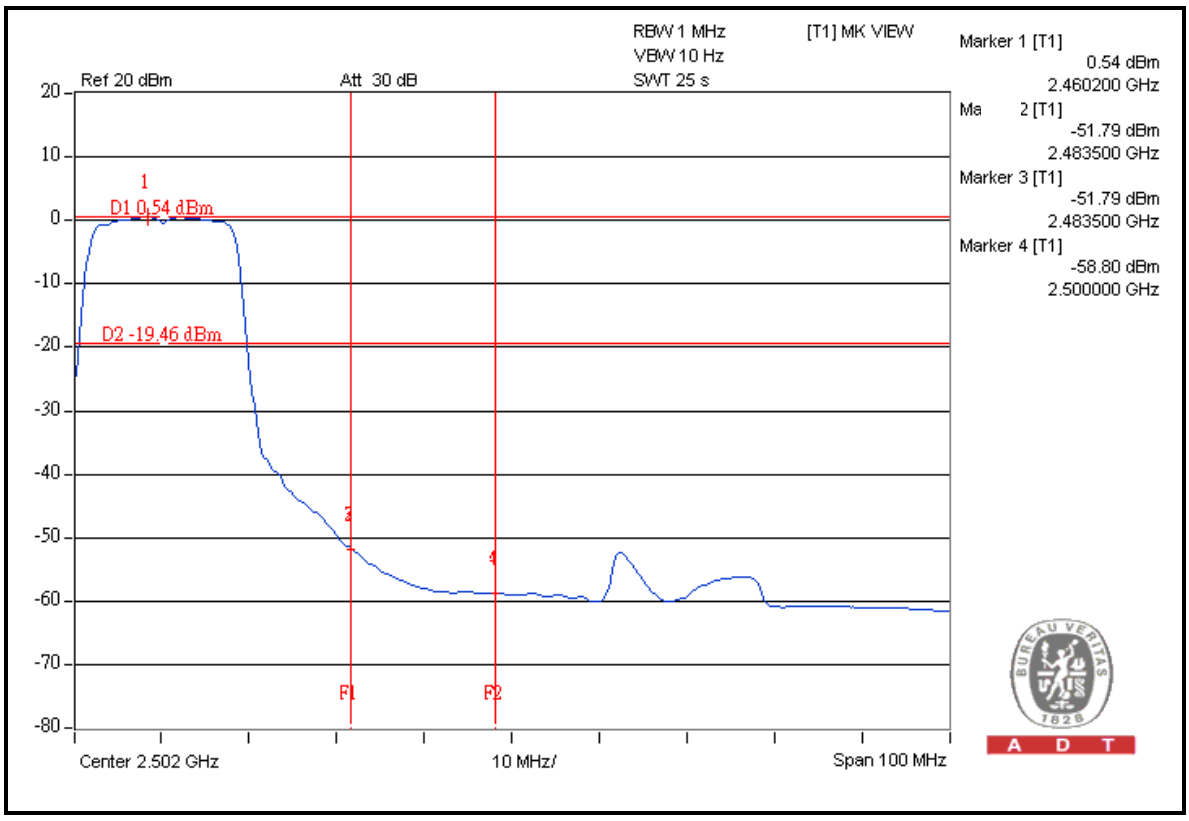
The band edge emission plot on the next third page shows 52.33dBc between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.1.7 is 103.11dBuV/m (Average), so the maximum field strength in restrict band is 103.11 – 52.33 = 50.78dBuV/m which is under 54dBuV/m limit.

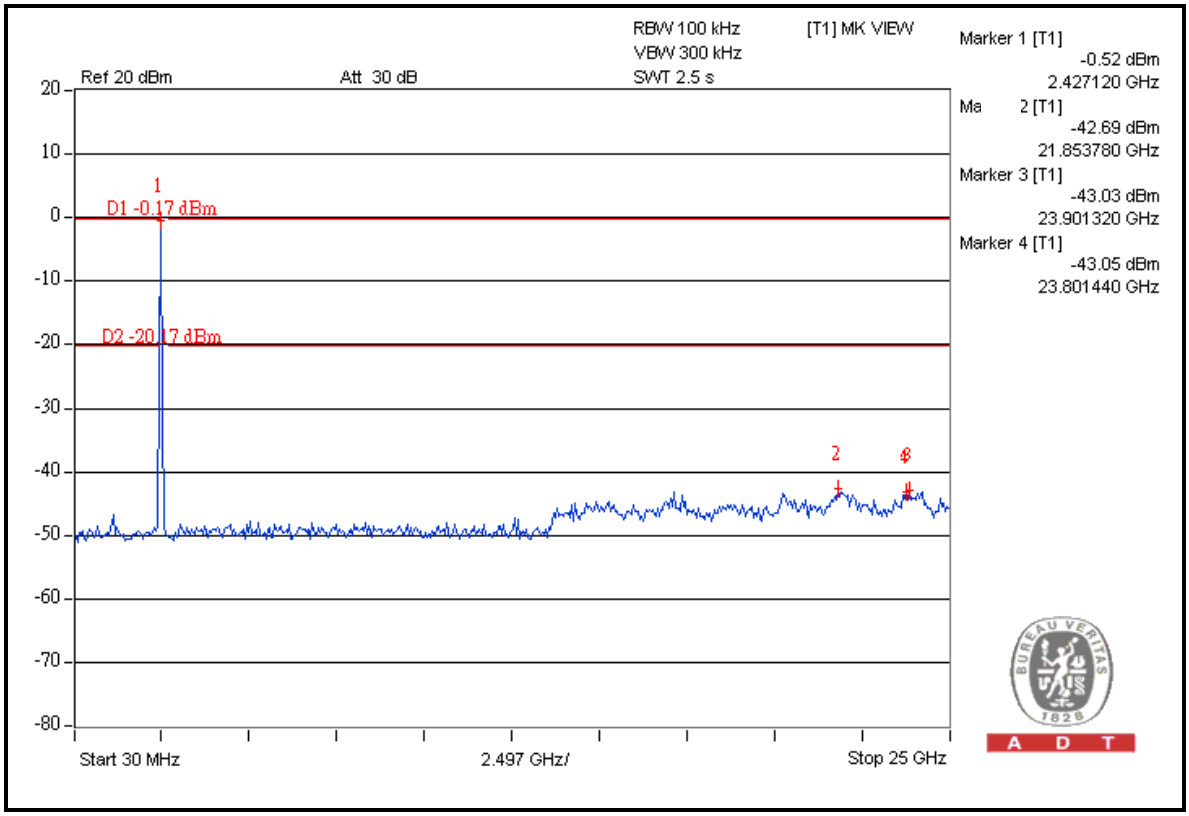

RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 -0.03 dBm
D2 -20.03 dBm
Marker 1 [T1]
-0.03 dBm
2.413600 GHz
Ma 2 [T1]
-34.36 dBm
2.400000 GHz
Marker 3 [T1]
-33.76 dBm
2.399800 GHz
Marker 4 [T1]
-47.08 dBm
2.390000 GHz
Marker 5 [T1]
-46.67 dBm
2.386400 GHz
Center 2.372 GHz
10 MHz/
Span 100 MHz


RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 0.63 dBm
D2 -19.37 dBm
Marker 1 [T1]
0.63 dBm
2.414000 GHz
Ma 2 [T1]
-38.26 dBm
2.400000 GHz
Marker 3 [T1]
-38.26 dBm
2.400000 GHz
Marker 4 [T1]
-52.43 dBm
2.390000 GHz
Marker 5 [T1]
-52.02 dBm
2.359600 GHz
Center 2.372 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
Marker 1 [T1]
-0.75 dBm
2.377180 GHz
Ma 2 [T1]
-42.21 dBm
24.151020 GHz
Marker 3 [T1]
-42.55 dBm
24.250900 GHz
Marker 4 [T1]
-42.67 dBm
23.701560 GHz
D1 -0.03 dBm
D2 -20.03 dBm
Start 30 MHz
2.497 GHz/
Stop 25 GHz


RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
Marker 1 [T1]
-0.17 dBm
2.463600 GHz
Ma 2 [T1]
-48.19 dBm
2.483500 GHz
Marker 3 [T1]
-47.08 dBm
2.483600 GHz
Marker 4 [T1]
-51.46 dBm
2.500000 GHz
D1 -0.17 dBm
D2 -20.17 dBm
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz


RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
Marker 1 [T1]
0.54 dBm
2.460200 GHz
Ma 2 [T1]
-51.79 dBm
2.483500 GHz
Marker 3 [T1]
-51.79 dBm
2.483500 GHz
Marker 4 [T1]
-58.80 dBm
2.500000 GHz
D1 0.54 dBm
D2 -19.46 dBm
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
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
Marker 1 [T1]
-0.52 dBm
2.427120 GHz
Ma 2 [T1]
-42.69 dBm
21.853780 GHz
Marker 3 [T1]
-43.03 dBm
23.901320 GHz
Marker 4 [T1]
-43.05 dBm
23.801440 GHz
D1 -0.17 dBm
D2 -20.17 dBm
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Start 30 MHz
2.497 GHz/
Stop 25 GHz

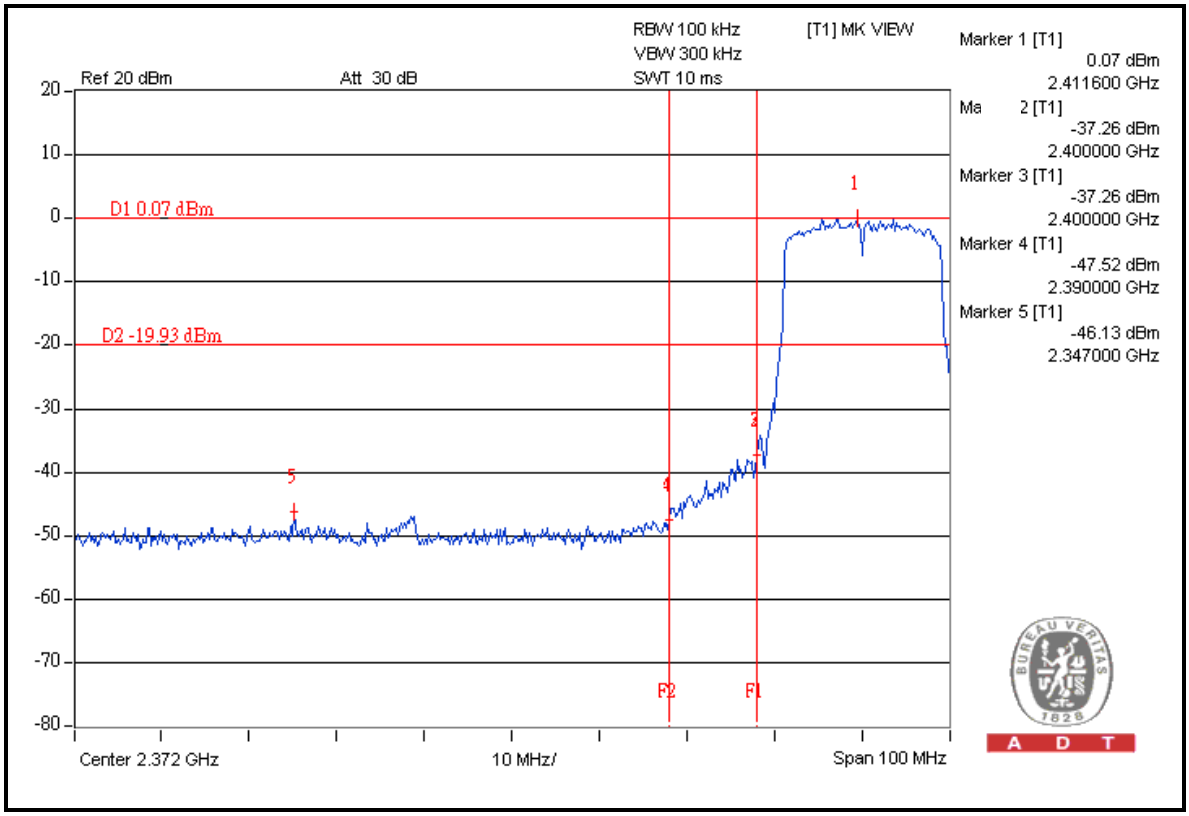
DRAFT 802.11n (20MHz) OFDM MODULATION

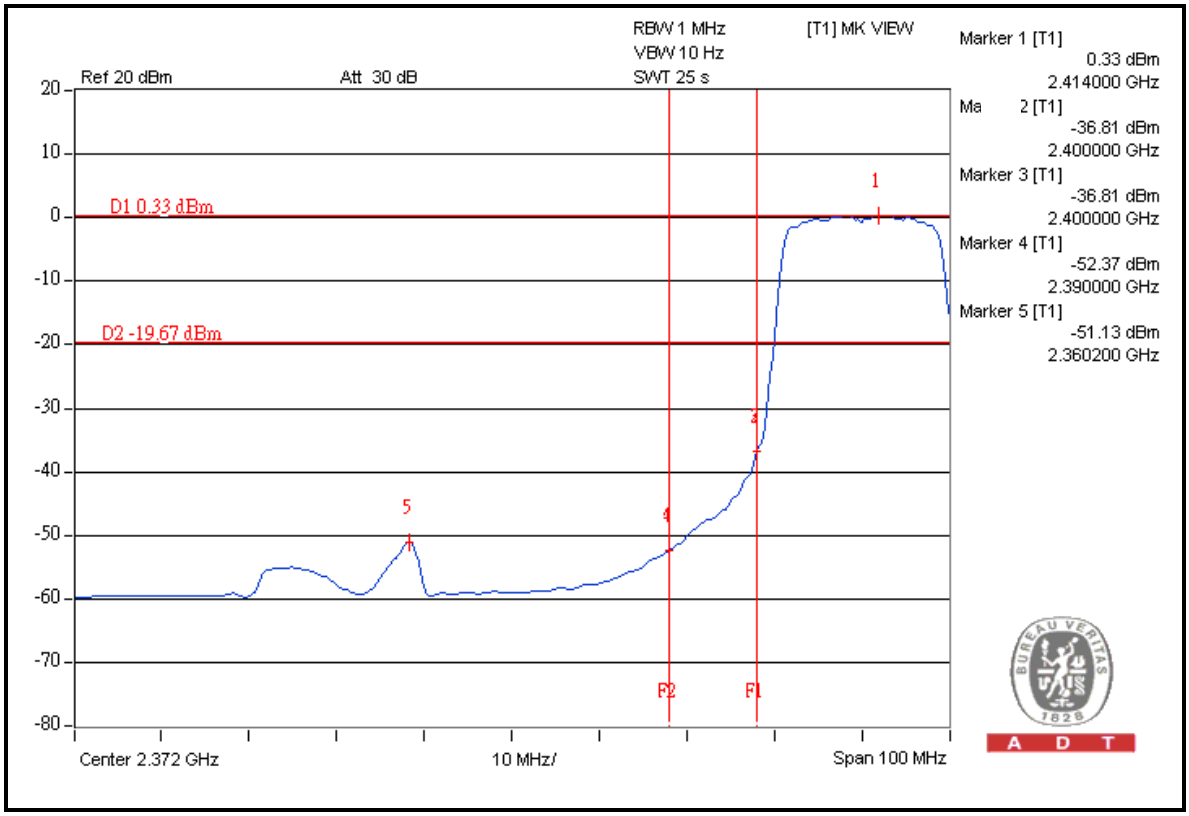
NOTE 1: The band edge emission plot on the next page shows 46.20dBc between carrier maximum power and local maximum emission in restrict band (2.3470GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 112.71dBuV/m (Peak), so the maximum field strength in restrict band is 112.71 – 46.20 = 66.51dBuV/m which is under 74dBuV/m limit.

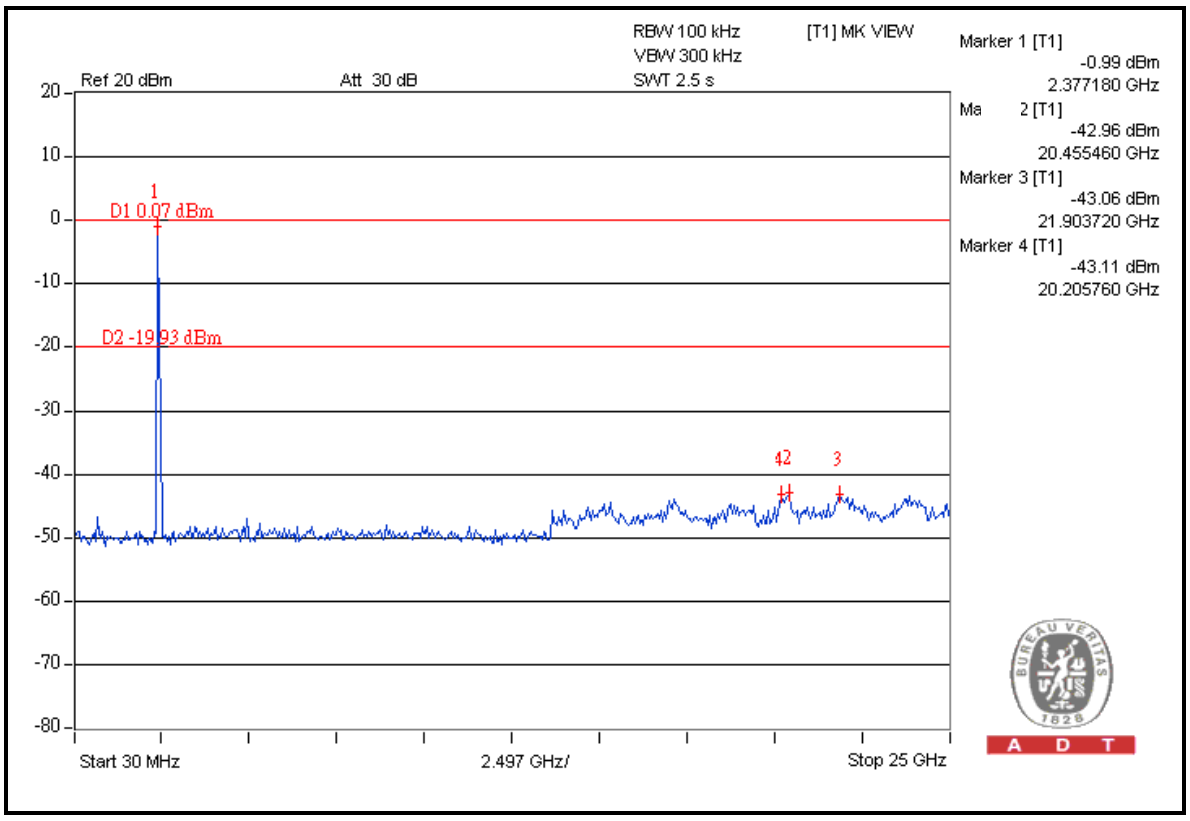
The band edge emission plot on the next page shows 51.46dBc between carrier maximum power and local maximum emission in restrict band (2.3602GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 102.61dBuV/m (Average), so the maximum field strength in restrict band is 102.61 – 51.46 = 51.15dBuV/m which is under 54dBuV/m limit.

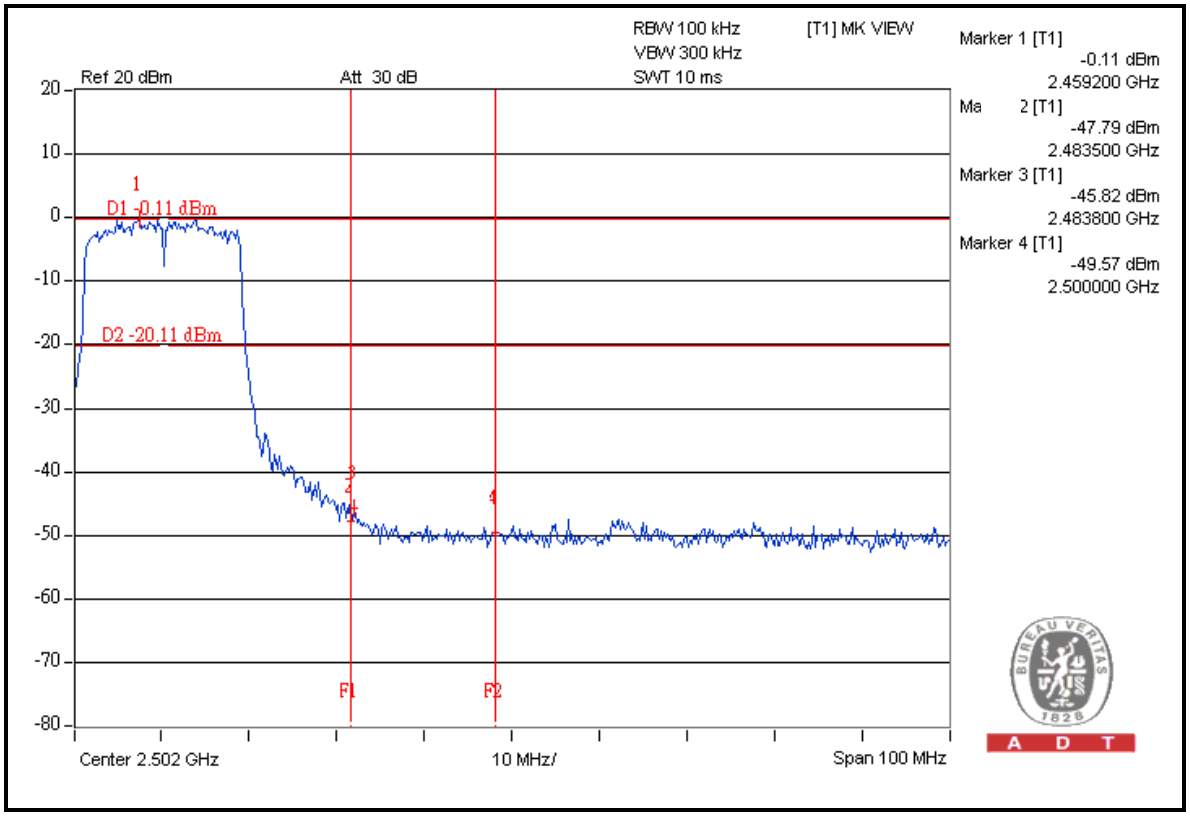
NOTE 2: The band edge emission plot on the next second page shows 45.71dBc between carrier maximum power and local maximum emission in restrict band (2.4838GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.1.7 is 113.33dBuV/m (Peak), so the maximum field strength in restrict band is 113.33 – 45.71 = 67.62dBuV/m which is under 74dBuV/m limit.

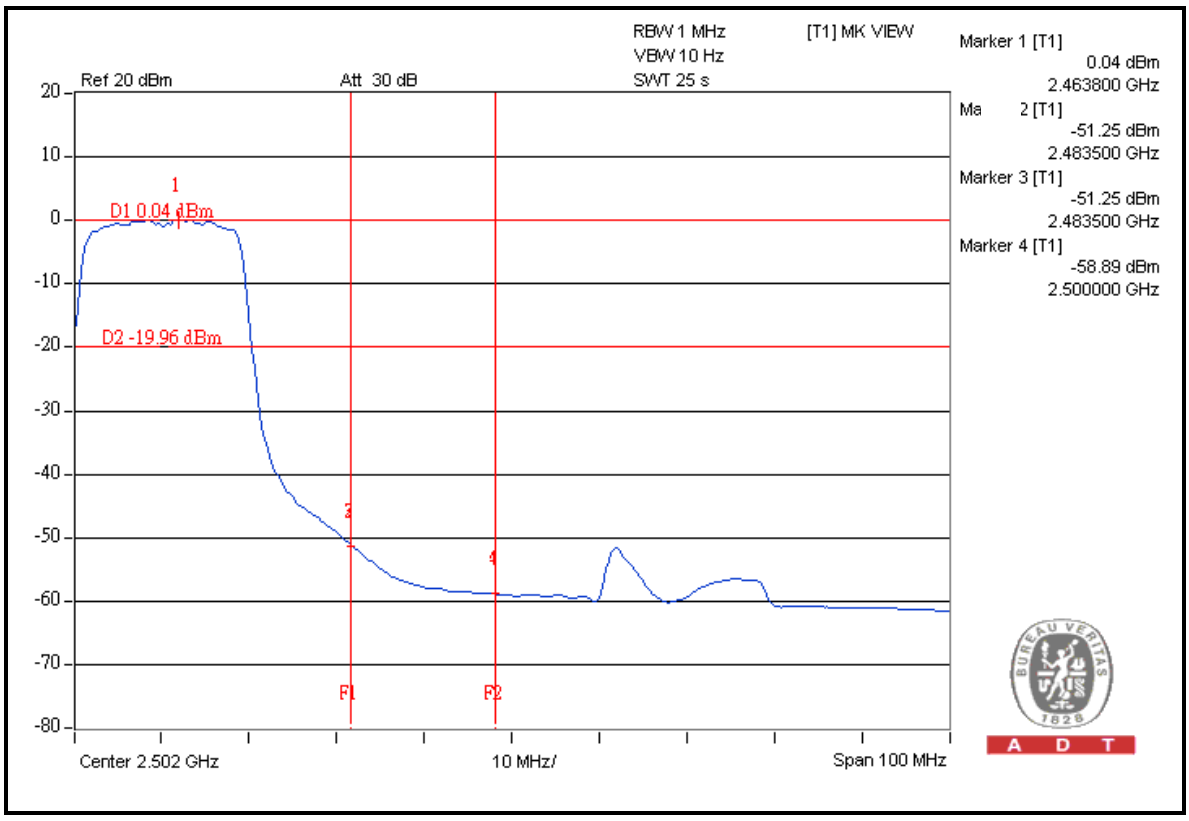
The band edge emission plot on the next third page shows 51.29dBc between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.1.7 is 102.51dBuV/m (Average), so the maximum field strength in restrict band is 102.51 – 51.29 = 51.22dBuV/m which is under 54dBuV/m limit.

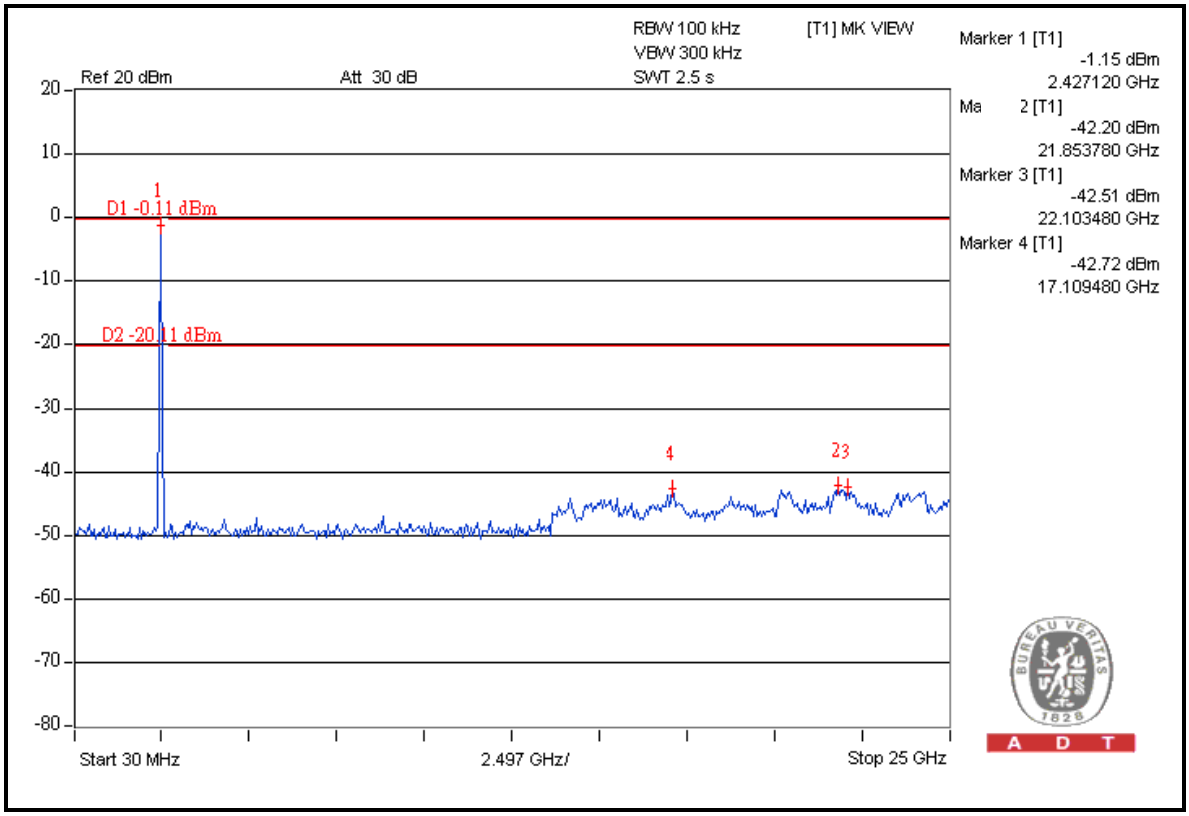

RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 0.07 dBm
D2 -19.93 dBm
Marker 1 [T1]
0.07 dBm
2.411600 GHz
Ma 2 [T1]
-37.26 dBm
2.400000 GHz
Marker 3 [T1]
-37.26 dBm
2.400000 GHz
Marker 4 [T1]
-47.52 dBm
2.390000 GHz
Marker 5 [T1]
-46.13 dBm
2.347000 GHz
Center 2.372 GHz
10 MHz/
Span 100 MHz


RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 0.33 dBm
D2 -19.67 dBm
Marker 1 [T1]
0.33 dBm
2.414000 GHz
Ma 2 [T1]
-36.81 dBm
2.400000 GHz
Marker 3 [T1]
-36.81 dBm
2.400000 GHz
Marker 4 [T1]
-52.37 dBm
2.390000 GHz
Marker 5 [T1]
-51.13 dBm
2.360200 GHz
Center 2.372 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
Marker 1 [T1]
-0.99 dBm
2.377180 GHz
Ma 2 [T1]
-42.96 dBm
20.455460 GHz
Marker 3 [T1]
-43.06 dBm
21.903720 GHz
Marker 4 [T1]
-43.11 dBm
20.205760 GHz
D1 0.07 dBm
D2 -19.93 dBm
Start 30 MHz
2.497 GHz/
Stop 25 GHz


RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
Marker 1 [T1]
-0.11 dBm
2.459200 GHz
Ma 2 [T1]
-47.79 dBm
2.483500 GHz
Marker 3 [T1]
-45.82 dBm
2.483800 GHz
Marker 4 [T1]
-49.57 dBm
2.500000 GHz
D1 -0.11 dBm
D2 -20.11 dBm
Center 2.502 GHz
10 MHz/
Span 100 MHz


RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
Marker 1 [T1]
0.04 dBm
2.463800 GHz
Ma 2 [T1]
-51.25 dBm
2.483500 GHz
Marker 3 [T1]
-51.25 dBm
2.483500 GHz
Marker 4 [T1]
-58.89 dBm
2.500000 GHz
D1 0.04 dBm
D2 -19.96 dBm
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
Marker 1 [T1]
-1.15 dBm
2.427120 GHz
Ma 2 [T1]
-42.20 dBm
21.853780 GHz
Marker 3 [T1]
-42.51 dBm
22.103480 GHz
Marker 4 [T1]
-42.72 dBm
17.109480 GHz
D1 -0.11 dBm
D2 -20.11 dBm
Start 30 MHz
2.497 GHz/
Stop 25 GHz

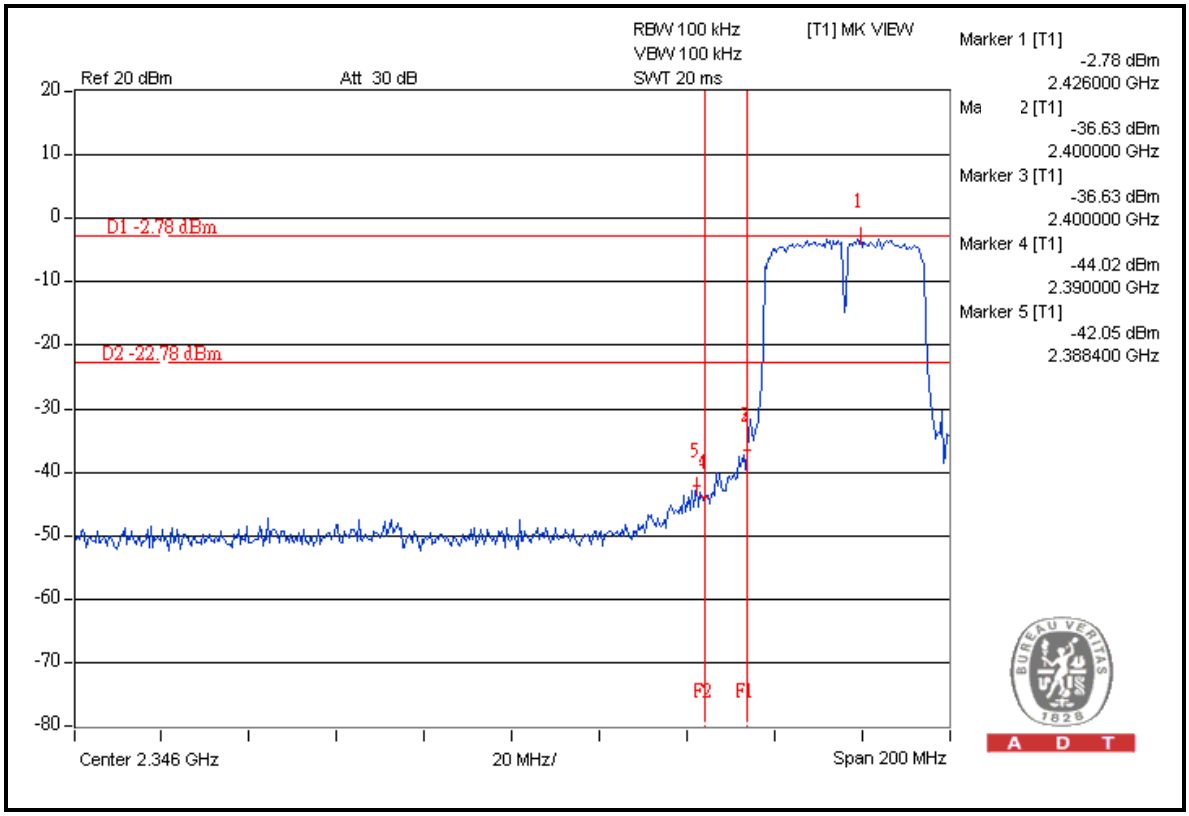
DRAFT 802.11n (40MHz) OFDM MODULATION

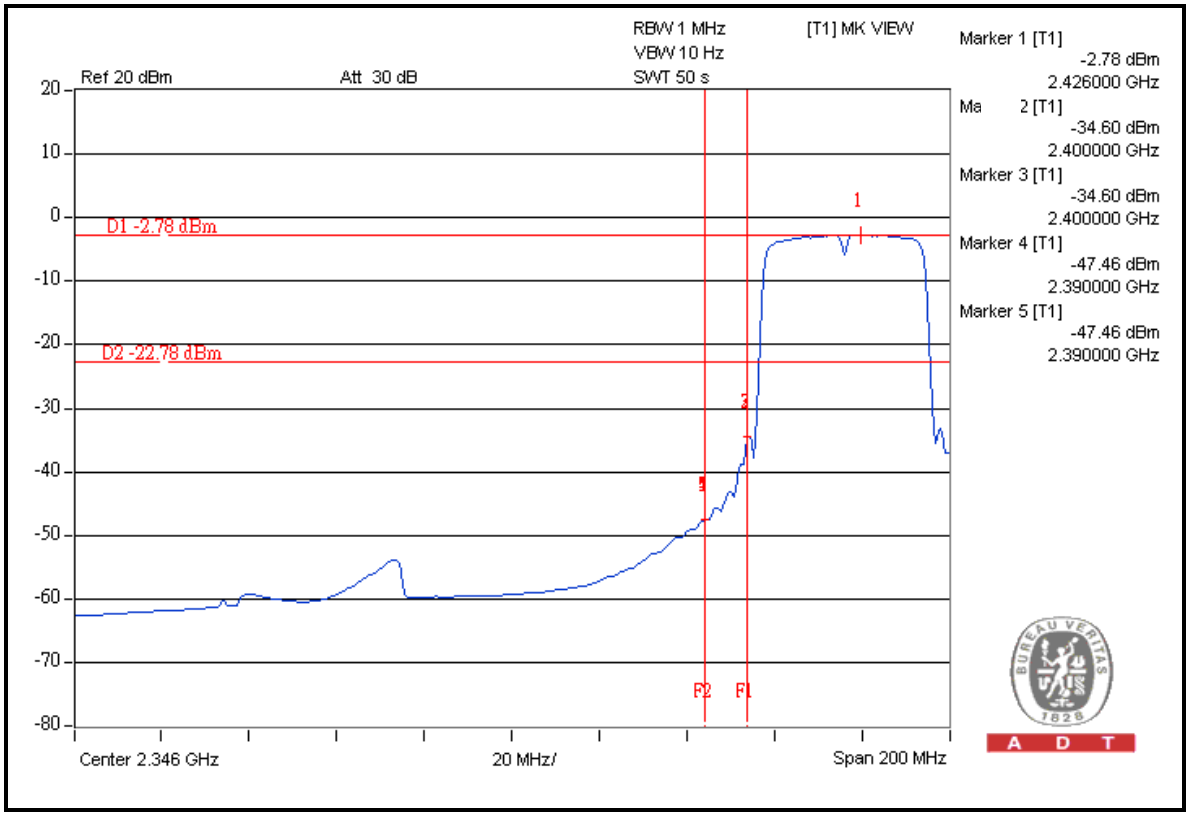
NOTE 1: The band edge emission plot on the next page shows 39.27dBc between carrier maximum power and local maximum emission in restrict band (2.3884GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 109.50dBuV/m (Peak), so the maximum field strength in restrict band is 109.50 – 39.27 = 70.23dBuV/m which is under 74dBuV/m limit.

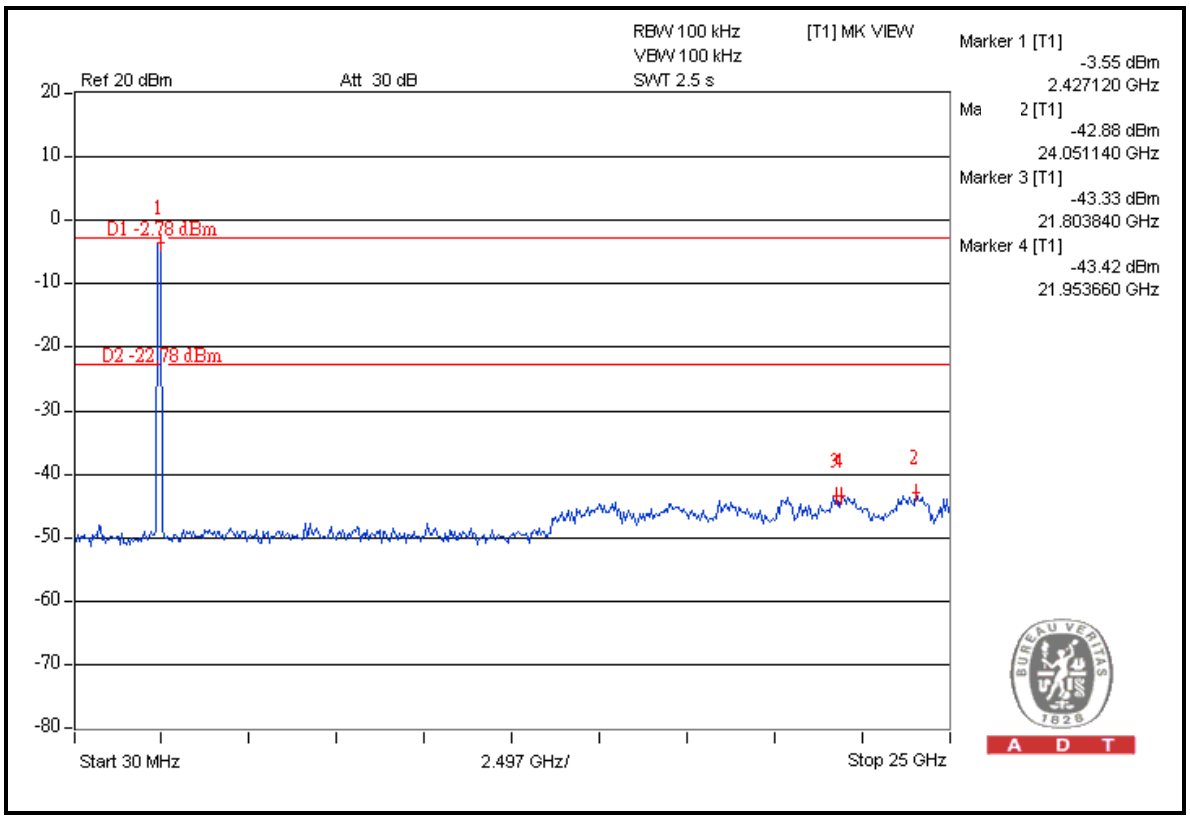
The band edge emission plot on the next page shows 44.68dBc between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 97.93dBuV/m (Average), so the maximum field strength in restrict band is 97.93 – 44.68 = 53.25dBuV/m which is under 54dBuV/m limit.

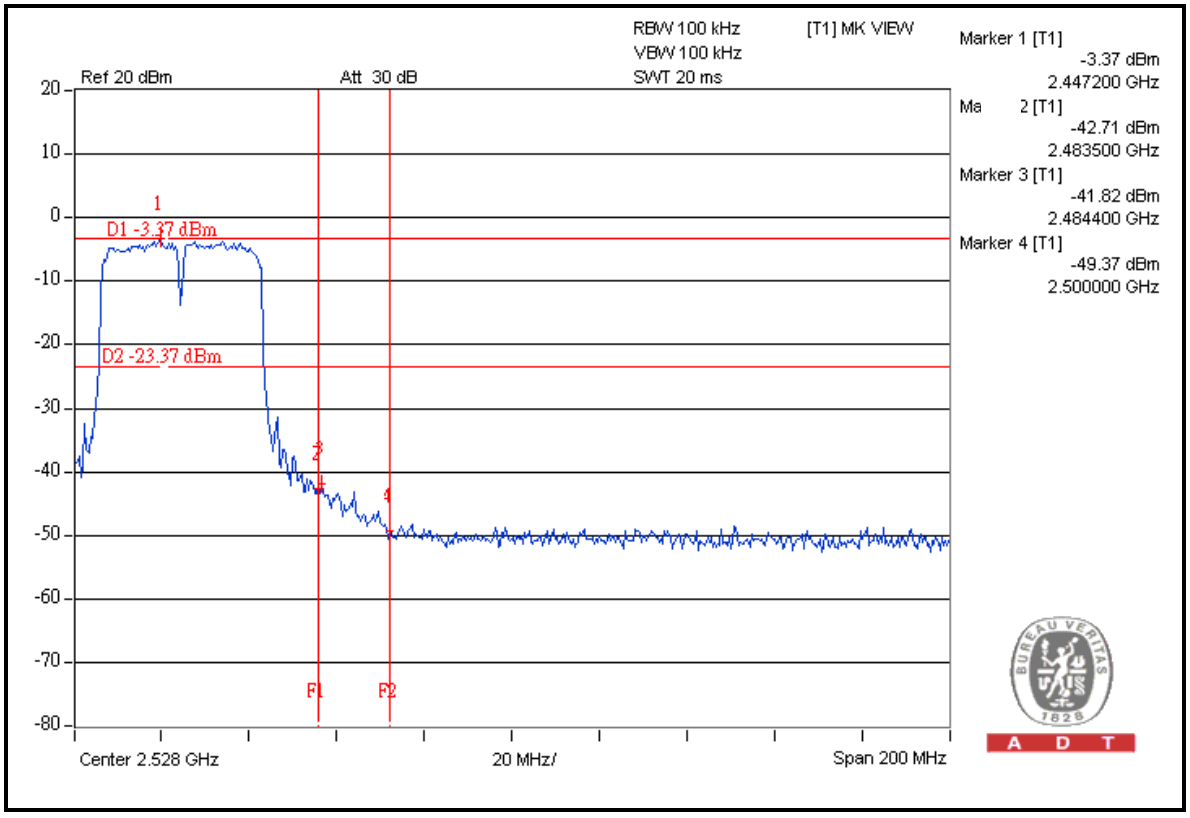
NOTE 2: The band edge emission plot on the next second page shows 38.45dBc between carrier maximum power and local maximum emission in restrict band (2.4844GHz). The emission of carrier strength list in the test result of channel 7 at the item 4.1.7 is 107.63dBuV/m (Peak), so the maximum field strength in restrict band is 107.63 – 38.45 = 69.18dBuV/m which is under 74dBuV/m limit.

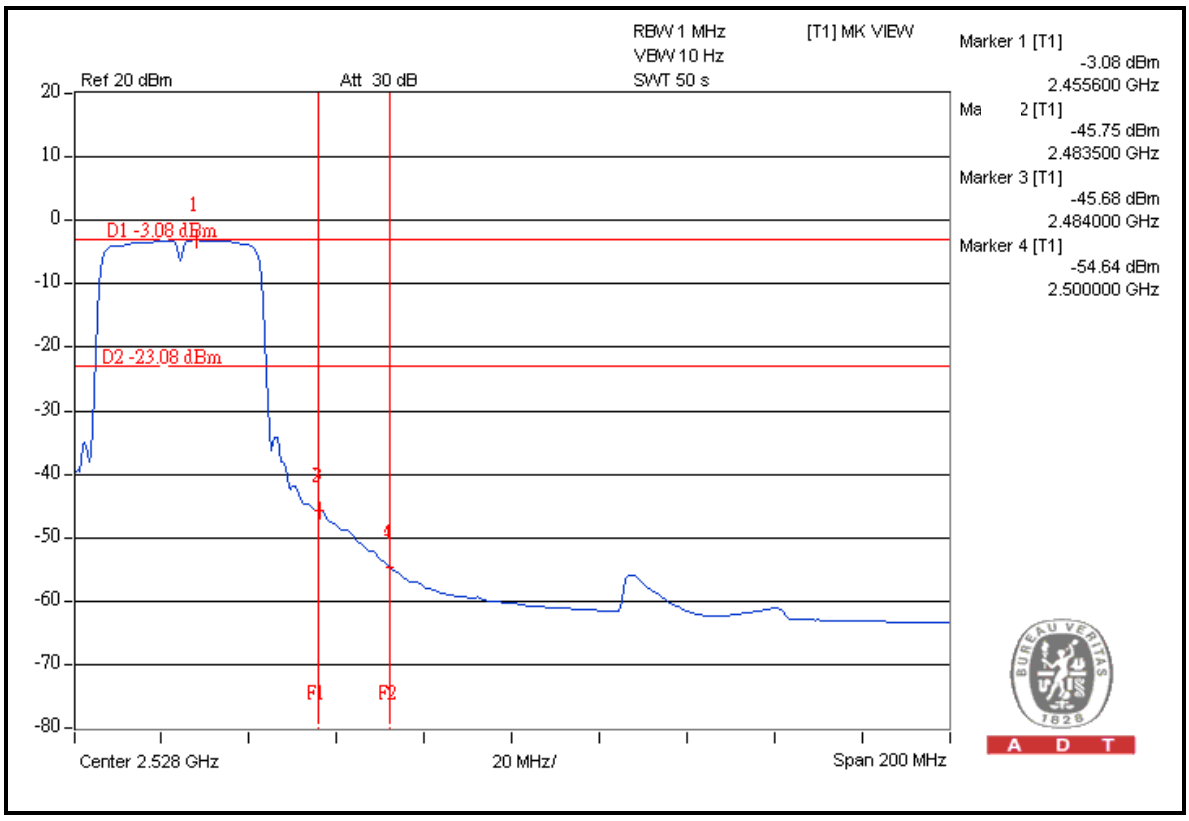
The band edge emission plot on the next third page shows 42.60dBc between carrier maximum power and local maximum emission in restrict band (2.4840GHz). The emission of carrier strength list in the test result of channel 7 at the item 4.1.7 is 96.39dBuV/m (Average), so the maximum field strength in restrict band is 96.39 – 42.60 = 53.79dBuV/m which is under 54dBuV/m limit.

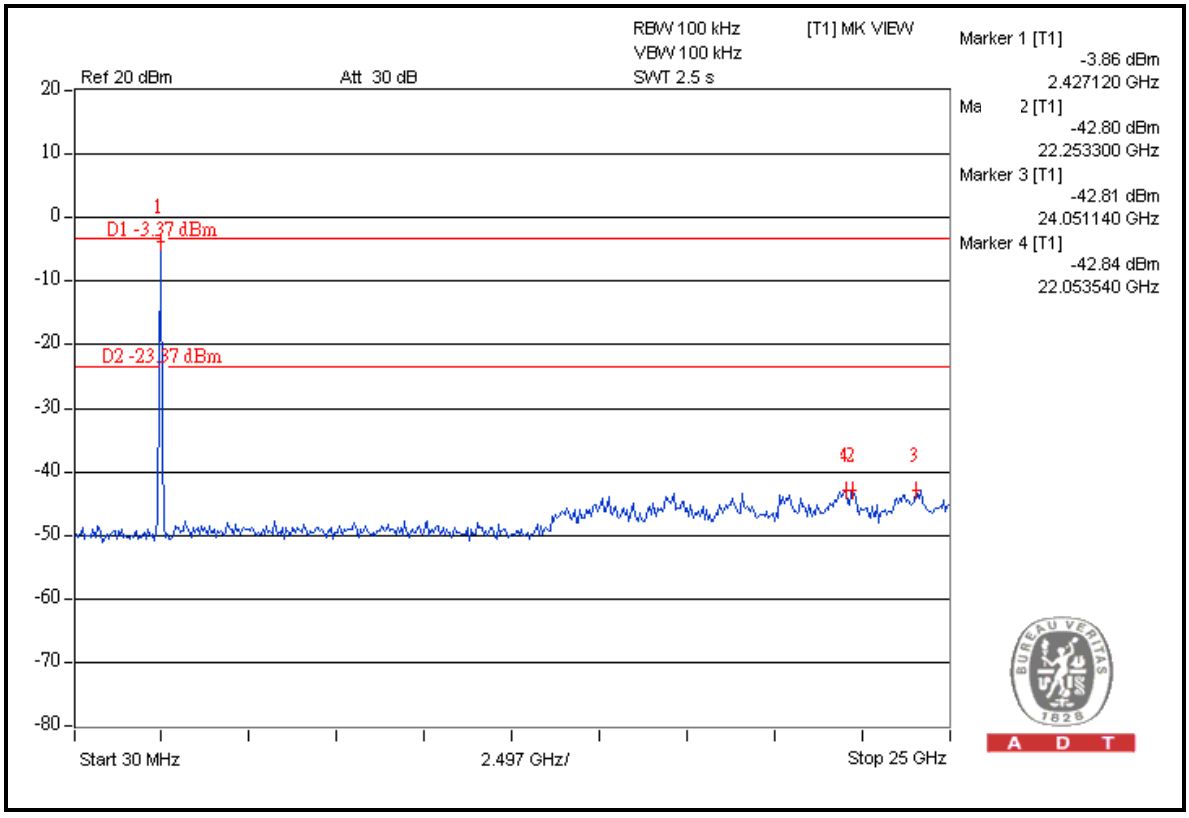

RBW 100 kHz
VBW 100 kHz
SWT 20 ms
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 -2.78 dBm
D2 -22.78 dBm
Marker 1 [T1]
-2.78 dBm
2.426000 GHz
Ma 2 [T1]
-36.63 dBm
2.400000 GHz
Marker 3 [T1]
-36.63 dBm
2.400000 GHz
Marker 4 [T1]
-44.02 dBm
2.390000 GHz
Marker 5 [T1]
-42.05 dBm
2.388400 GHz
Center 2.346 GHz
20 MHz/
Span 200 MHz


RBW 1 MHz
VBW 10 Hz
SWT 50 s
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
D1 -2.78 dBm
D2 -22.78 dBm
Marker 1 [T1]
-2.78 dBm
2.426000 GHz
Ma 2 [T1]
-34.60 dBm
2.400000 GHz
Marker 3 [T1]
-34.60 dBm
2.400000 GHz
Marker 4 [T1]
-47.46 dBm
2.390000 GHz
Marker 5 [T1]
-47.46 dBm
2.390000 GHz
Center 2.346 GHz
20 MHz/
Span 200 MHz


RBW 100 kHz
VBW 100 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
Marker 1 [T1]
-3.55 dBm
2.427120 GHz
Ma 2 [T1]
-42.88 dBm
24.051140 GHz
Marker 3 [T1]
-43.33 dBm
21.803840 GHz
Marker 4 [T1]
-43.42 dBm
21.953660 GHz
D1 -2.78 dBm
D2 -22.78 dBm
Start 30 MHz
2.497 GHz/
Stop 25 GHz


RBW 100 kHz
VBW 100 kHz
SWT 20 ms
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
Marker 1 [T1]
-3.37 dBm
2.447200 GHz
Ma 2 [T1]
-42.71 dBm
2.483500 GHz
Marker 3 [T1]
-41.82 dBm
2.484400 GHz
Marker 4 [T1]
-49.37 dBm
2.500000 GHz
D1 -3.37 dBm
D2 -23.37 dBm
F1
F2
Center 2.528 GHz
20 MHz/
Span 200 MHz


RBW 1 MHz
VBW 10 Hz
SWT 50 s
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
Marker 1 [T1]
-3.08 dBm
2.455600 GHz
Ma 2 [T1]
-45.75 dBm
2.483500 GHz
Marker 3 [T1]
-45.68 dBm
2.484000 GHz
Marker 4 [T1]
-54.64 dBm
2.500000 GHz
D1 -3.08 dBm
D2 -23.08 dBm
F1
F2
Center 2.528 GHz
20 MHz/
Span 200 MHz


RBW 100 kHz
VBW 100 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20 dBm
Att 30 dB
Marker 1 [T1]
-3.86 dBm
2.427120 GHz
Ma 2 [T1]
-42.80 dBm
22.253300 GHz
Marker 3 [T1]
-42.81 dBm
24.051140 GHz
Marker 4 [T1]
-42.84 dBm
22.053540 GHz
D1 -3.37 dBm
D2 -23.37 dBm
Start 30 MHz
2.497 GHz/
Stop 25 GHz

4.7 ANTENNA REQUIREMENT

4.7.1 STANDARD APPLICABLE

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

4.7.2 ANTENNA CONNECTED CONSTRUCTION

The antenna used in this product is Printed antenna. The maximum Gain of the antenna is 2.95dBi.

5. PHOTOGRAPHS OF THE TEST CONFIGURATION

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

6. INFORMATION ON THE TESTING LABORATORIES

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

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

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

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

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.

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

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

--- END ---