



# FCC TEST REPORT

**REPORT NO.:** RF980812L08  
**MODEL NO.:** WNR1000 v2  
**RECEIVED:** Aug. 05, 2009  
**TESTED:** Aug. 25 ~ Aug. 28, 2009  
**ISSUED:** Sep. 04, 2009

**APPLICANT:** NETGEAR, INC.

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

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R.O.C.

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# 1. CERTIFICATION

**PRODUCT:** Wireless-N 150 Router  
**MODEL:** WNR1000 v2  
**BRAND:** NETGEAR  
**APPLICANT:** NETGEAR, INC.  
**TESTED:** Aug. 25 ~ Aug. 28, 2009  
**TEST SAMPLE:** ENGINEERING SAMPLE  
**STANDARDS: FCC Part 15, Subpart C (Section 15.247)**  
ANSI C63.4-2003

The above equipment (model: WNR1000 v2) 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** : Polly Chien , **DATE** : Sep. 04, 2009  
Polly Chien / Specialist

**TECHNICAL ACCEPTANCE** : Long Chen , **DATE** : Sep. 04, 2009  
Responsible for RF Long Chen / Senior Engineer

**APPROVED BY** : Gary Chang , **DATE** : Sep. 04, 2009  
Gary Chang / Assistant Manager

## 2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 15, Subpart C			
Standard Section	Test Type and Limit	Result	Remark
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -8.05dB at 0.654MHz.
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 -1.02dB 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:

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	150kHz~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.



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### 3. GENERAL INFORMATION

#### 3.1 GENERAL DESCRIPTION OF EUT

<b>PRODUCT</b>	Wireless-N 150 Router
<b>MODEL NO.</b>	WNR1000 v2
<b>FCC ID</b>	PY309300122
<b>POWER SUPPLY</b>	12Vdc from AC Adapter
<b>MODULATION TYPE</b>	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
<b>MODULATION TECHNOLOGY</b>	DSSS, OFDM
<b>TRANSFER RATE</b>	802.11b: 11.0/ 5.5/ 2.0/ 1.0Mbps 802.11g: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps Draft 802.11n: up to 150Mbps
<b>OPERATING FREQUENCY</b>	2412MHz ~ 2462MHz
<b>NUMBER OF CHANNEL</b>	11 for 802.11b, 802.11g, draft 802.11n (20MHz) 7 for draft 802.11n (40MHz)
<b>MAXIMUM OUTPUT POWER</b>	358.10mW
<b>ANTENNA TYPE</b>	Dipole antenna with 2dBi gain
<b>DATA CABLE</b>	NA
<b>I/O PORTS</b>	RJ45
<b>ACCESSORY DEVICES</b>	AC adapter

**NOTE:**

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

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

2. The EUT were operated with following power adapters:

<b>ADAPTER 1</b>	
<b>BRAND</b>	NETGEAR
<b>MODEL</b>	T012LF1209 16100-2LF
<b>P/N</b>	332-10166-01
<b>INPUT POWER</b>	100-120Vac, 50/60Hz, 0.5A
<b>OUTPUT POWER</b>	12Vdc, 1A
<b>POWER LINE</b>	1.8m non-shielded cable without core

<b>ADAPTER 2</b>	
<b>BRAND</b>	NETGEAR
<b>MODEL</b>	MT12-Y120100-A1
<b>P/N</b>	332-10190-01
<b>INPUT POWER</b>	100-120Vac, 60Hz, 0.3A
<b>OUTPUT POWER</b>	12Vdc, 1.0A
<b>POWER LINE</b>	1.8m non-shielded cable without core

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

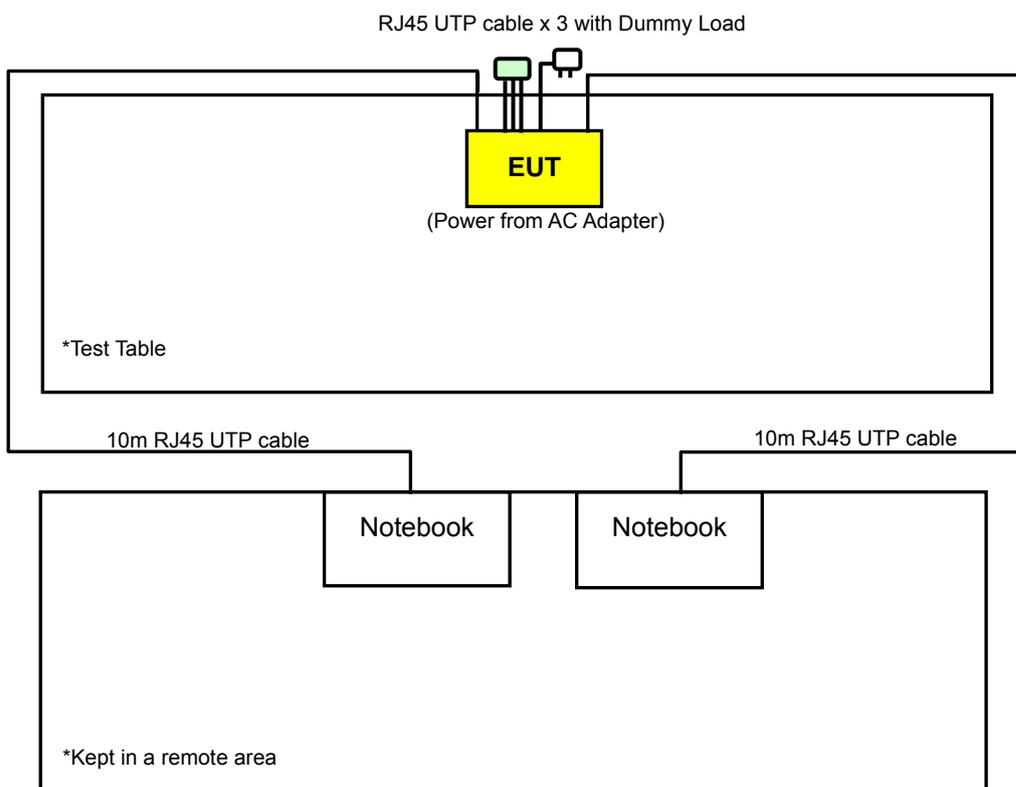
Eleven channels are provided for 802.11b, 802.11g and draft 802.11n (20MHz):

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		

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

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

#### 3.2.1 CONFIGURATION OF SYSTEM UNDER TEST





### 3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION	
	RE $\geq$ 1G	RE<1G	PLC	APCM		
A1	-	√	√	-	For Adapter 1	(EUT: X Axis)
A2	-	√	-	-	For Adapter 1	(EUT: Z Axis)
B1	√	√	√	√	For Adapter 2	(EUT: X Axis)
B2	-	√	-	-	For Adapter 2	(EUT: Z Axis)

Where **PLC**: Power Line Conducted Emission      **RE<1G**: Radiated Emission below 1GHz  
**RE $\geq$ 1G**: Radiated Emission above 1GHz      **APCM**: Antenna Port Conducted Measurement  
**NOTE**: "-" means no effect.

#### 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, XYZ axis 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)	AXIS
B1	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0	X
B1	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	X
B1	Draft 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5	X
B1	Draft 802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	13.5	X

#### 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, XYZ axis 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)	AXIS
A1	Draft 802.11n (20MHz)	1 to 11	6	OFDM	BPSK	6.5	X
A2	Draft 802.11n (20MHz)	1 to 11	6	OFDM	BPSK	6.5	Z
B1	Draft 802.11n (20MHz)	1 to 11	6	OFDM	BPSK	6.5	X
B2	Draft 802.11n (20MHz)	1 to 11	6	OFDM	BPSK	6.5	Z

**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)
A1	Draft 802.11n (20MHz)	1 to 11	6	OFDM	BPSK	6.5
B1	Draft 802.11n (20MHz)	1 to 11	6	OFDM	BPSK	6.5

**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)
B1	802.11b	1 to 11	1, 11	DSSS	DBPSK	1.0
B1	802.11g	1 to 11	1, 11	OFDM	BPSK	6.0
B1	Draft 802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	6.5
B1	Draft 802.11n (40MHz)	1 to 7	1, 7	OFDM	BPSK	13.5

**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)
B1	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
B1	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
B1	Draft 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
B1	Draft 802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	13.5

### 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	D600	CN-0G5152-4864 3-47H-7666	FCC DoC Approved
2	NOTEBOOK	DELL	D600	CN-0G5152-4864 3-49C-8226	FCC DoC Approved

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

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

## 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.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESI7	100033	Jul. 06, 2009	Jul. 05, 2010
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100076	May. 26, 2009	May. 25, 2010
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	Apr. 27, 2009	Apr. 26, 2010
HORN Antenna SCHWARZBECK	9120D	9120D-209	Jul. 01, 2009	Jun. 30, 2010
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170243	Dec. 25, 2008	Dec. 24, 2009
Preamplifier Agilent	8447D	2944A10633	Nov. 03, 2008	Nov. 02, 2009
Preamplifier Agilent	8449B	3008A01964	Oct. 23, 2008	Oct. 22, 2009
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	238141/4	May 13, 2009	May 12, 2010
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	12738/6	May 13, 2009	May 12, 2010
Software ADT.	ADT_Radiated_ V7.6.15.9.2	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 IC 7450F-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.

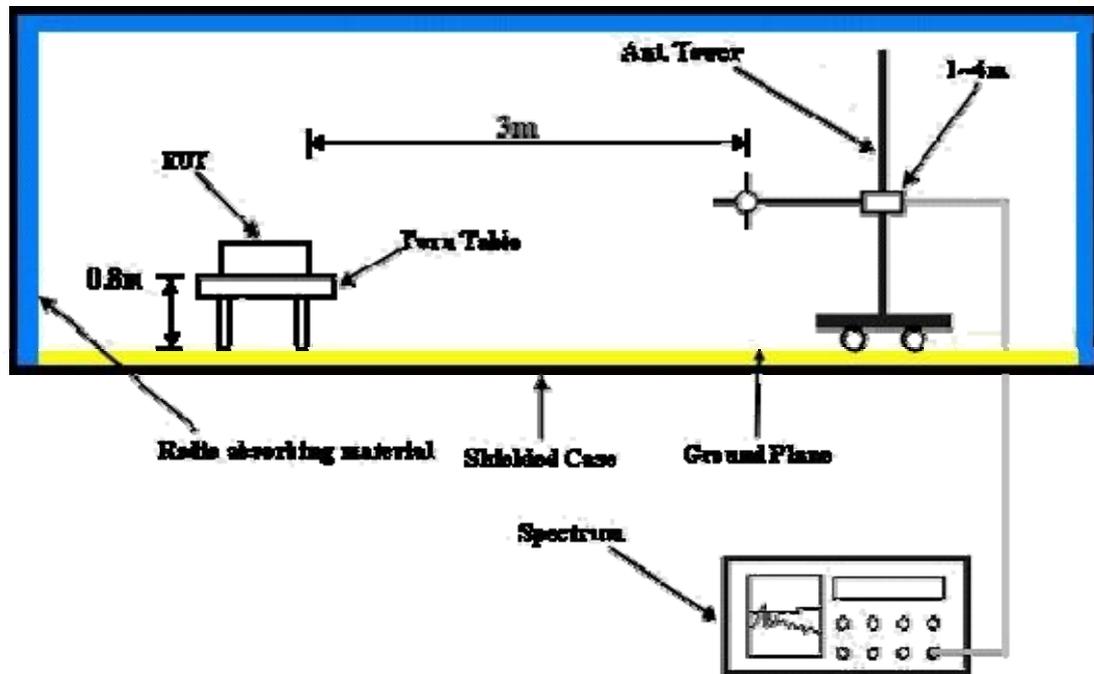
**NOTE:**

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for 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

- Placed the EUT on the testing table.
- Prepared notebook systems to act as communication partners and placed them outside of testing area.
- The communication partners connected with EUT via a UTP cable and run a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
- The communication partners sent data to EUT by command "PING".



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#### 4.1.7 TEST RESULTS

##### 802.11b DSSS MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1000 hPa	TESTED BY	Brad Wu
TEST MODE	B1		

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	56.43 PK	74.00	-17.57	1.00 H	192	25.68	30.75
2	2390.00	45.70 AV	54.00	-8.30	1.00 H	192	14.95	30.75
3	*2412.00	104.44 PK			1.00 H	192	73.61	30.83
4	*2412.00	99.78 AV			1.00 H	192	68.95	30.83
5	4824.00	49.70 PK	74.00	-24.30	1.00 H	161	13.05	36.65
6	4824.00	38.57 AV	54.00	-15.43	1.00 H	161	1.92	36.65
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	58.61 PK	74.00	-15.39	1.00 V	176	27.86	30.75
2	2390.00	47.91 AV	54.00	-6.09	1.00 V	176	17.16	30.75
3	*2412.00	111.13 PK			1.00 V	176	80.30	30.83
4	*2412.00	106.61 AV			1.00 V	176	75.78	30.83
5	4824.00	51.55 PK	74.00	-22.45	1.09 V	192	14.90	36.65
6	4824.00	45.05 AV	54.00	-8.95	1.09 V	192	8.40	36.65

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1000 hPa	TESTED BY	Brad Wu
TEST MODE	B1		

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	104.56 PK			1.01 H	193	73.65	30.91
2	*2437.00	99.92 AV			1.01 H	193	69.01	30.91
3	4874.00	50.21 PK	74.00	-23.79	1.08 H	262	13.49	36.72
4	4874.00	39.04 AV	54.00	-14.96	1.08 H	262	2.32	36.72
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	111.38 PK			1.00 V	184	80.47	30.91
2	*2437.00	106.72 AV			1.00 V	184	75.81	30.91
3	4874.00	51.08 PK	74.00	-22.92	1.00 V	235	14.36	36.72
4	4874.00	43.81 AV	54.00	-10.19	1.00 V	235	7.09	36.72

- 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.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1000 hPa	TESTED BY	Brad Wu
TEST MODE	B1		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	104.38 PK			1.02 H	195	73.39	30.99
2	*2462.00	99.81 AV			1.02 H	195	68.82	30.99
3	2483.50	59.02 PK	74.00	-14.98	1.02 H	195	27.96	31.06
4	2483.50	47.24 AV	54.00	-6.76	1.02 H	195	16.18	31.06
5	4924.00	50.01 PK	74.00	-23.99	1.01 H	24	13.16	36.85
6	4924.00	38.82 AV	54.00	-15.18	1.01 H	24	1.97	36.85
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	111.17 PK			1.05 V	219	80.18	30.99
2	*2462.00	106.50 AV			1.05 V	219	75.51	30.99
3	2483.50	59.54 PK	74.00	-14.46	1.05 V	219	28.48	31.06
4	2483.50	47.72 AV	54.00	-6.28	1.05 V	219	16.66	31.06
5	4924.00	51.24 PK	74.00	-22.76	1.07 V	198	14.39	36.85
6	4924.00	43.96 AV	54.00	-10.04	1.07 V	198	7.11	36.85

- 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	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1000 hPa	TESTED BY	Brad Wu
TEST MODE	B1		

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	69.65 PK	74.00	-4.35	1.00 H	195	38.90	30.75
2	2390.00	48.97 AV	54.00	-5.03	1.00 H	195	18.22	30.75
3	*2412.00	104.68 PK			1.00 H	195	73.85	30.83
4	*2412.00	94.19 AV			1.00 H	195	63.36	30.83
5	4824.00	47.68 PK	74.00	-26.32	1.04 H	129	11.03	36.65
6	4824.00	35.24 AV	54.00	-18.76	1.04 H	129	-1.41	36.65
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	72.53 PK	74.00	-1.47	1.00 V	179	41.78	30.75
2	2390.00	52.96 AV	54.00	-1.04	1.00 V	179	22.21	30.75
3	*2412.00	111.44 PK			1.00 V	176	80.61	30.83
4	*2412.00	100.95 AV			1.00 V	176	70.12	30.83
5	4824.00	48.79 PK	74.00	-25.21	1.04 V	262	12.14	36.65
6	4824.00	36.36 AV	54.00	-17.64	1.04 V	262	-0.29	36.65

- 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.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1000 hPa	TESTED BY	Brad Wu
TEST MODE	B1		

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	62.15 PK	74.00	-11.85	1.01 H	198	31.40	30.75
2	2390.00	48.03 AV	54.00	-5.97	1.01 H	198	17.28	30.75
3	*2437.00	107.82 PK			1.01 H	198	76.91	30.91
4	*2437.00	97.42 AV			1.01 H	198	66.51	30.91
5	2483.50	64.21 PK	74.00	-9.79	1.01 H	198	33.15	31.06
6	2483.50	49.15 AV	54.00	-4.85	1.01 H	198	18.09	31.06
7	4874.00	48.13 PK	74.00	-25.87	1.03 H	135	11.41	36.72
8	4874.00	35.82 AV	54.00	-18.18	1.03 H	135	-0.90	36.72
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	64.08 PK	74.00	-9.92	1.00 V	182	33.33	30.75
2	2390.00	49.84 AV	54.00	-4.16	1.00 V	182	19.09	30.75
3	*2437.00	114.72 PK			1.00 V	184	83.81	30.91
4	*2437.00	104.39 AV			1.00 V	184	73.48	30.91
5	2483.50	66.34 PK	74.00	-7.66	1.00 V	164	35.28	31.06
6	2483.50	51.26 AV	54.00	-2.74	1.00 V	164	20.20	31.06
7	4874.00	49.82 PK	74.00	-24.18	1.04 V	235	13.10	36.72
8	4874.00	37.64 AV	54.00	-16.36	1.04 V	235	0.92	36.72

- 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.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1000 hPa	TESTED BY	Brad Wu
TEST MODE	B1		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	104.45 PK			1.02 H	196	73.46	30.99
2	*2462.00	94.02 AV			1.02 H	196	63.03	30.99
3	2483.50	67.58 PK	74.00	-6.42	1.02 H	196	36.52	31.06
4	2483.50	50.16 AV	54.00	-3.84	1.02 H	196	19.10	31.06
5	4924.00	47.85 PK	74.00	-26.15	1.02 H	95	11.00	36.85
6	4924.00	35.42 AV	54.00	-18.58	1.02 H	95	-1.43	36.85
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	111.54 PK			1.00 V	183	80.55	30.99
2	*2462.00	101.07 AV			1.00 V	183	70.08	30.99
3	2483.50	69.75 PK	74.00	-4.25	1.00 V	183	38.69	31.06
4	2483.50	52.39 AV	54.00	-1.61	1.00 V	183	21.33	31.06
5	4924.00	48.92 PK	74.00	-25.08	1.01 V	269	12.07	36.85
6	4924.00	36.54 AV	54.00	-17.46	1.01 V	269	-0.31	36.85

- 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	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1000 hPa	TESTED BY	Brad Wu
TEST MODE	B1		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	68.45 PK	74.00	-5.55	1.02 H	191	37.70	30.75
2	2390.00	48.72 AV	54.00	-5.28	1.02 H	191	17.97	30.75
3	*2412.00	103.51 PK			1.02 H	191	72.68	30.83
4	*2412.00	93.03 AV			1.02 H	191	62.20	30.83
5	4824.00	47.54 PK	74.00	-26.46	1.06 H	29	10.89	36.65
6	4824.00	35.11 AV	54.00	-18.89	1.06 H	29	-1.54	36.65
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	71.57 PK	74.00	-2.43	1.00 V	182	40.82	30.75
2	2390.00	52.25 AV	54.00	-1.75	1.00 V	182	21.50	30.75
3	*2412.00	109.85 PK			1.00 V	177	79.02	30.83
4	*2412.00	99.28 AV			1.00 V	177	68.45	30.83
5	4824.00	48.86 PK	74.00	-25.14	1.03 V	251	12.21	36.65
6	4824.00	36.45 AV	54.00	-17.55	1.03 V	251	-0.20	36.65

- 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.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1000 hPa	TESTED BY	Brad Wu
TEST MODE	B1		

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	62.01 PK	74.00	-11.99	1.02 H	194	31.26	30.75
2	2390.00	47.94 AV	54.00	-6.06	1.02 H	194	17.19	30.75
3	*2437.00	107.31 PK			1.02 H	194	76.40	30.91
4	*2437.00	96.90 AV			1.02 H	194	65.99	30.91
5	2483.50	63.84 PK	74.00	-10.16	1.02 H	194	32.78	31.06
6	2483.50	48.86 AV	54.00	-5.14	1.02 H	194	17.80	31.06
7	4874.00	48.02 PK	74.00	-25.98	1.09 H	231	11.30	36.72
8	4874.00	35.66 AV	54.00	-18.34	1.09 H	231	-1.06	36.72
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	61.90 PK	74.00	-12.10	1.02 V	184	31.15	30.75
2	2390.00	48.37 AV	54.00	-5.63	1.02 V	184	17.62	30.75
3	*2437.00	114.12 PK			1.00 V	185	83.21	30.91
4	*2437.00	103.53 AV			1.00 V	185	72.62	30.91
5	2483.50	62.86 PK	74.00	-11.14	1.00 V	179	31.80	31.06
6	2483.50	50.54 AV	54.00	-3.46	1.00 V	179	19.48	31.06
7	4874.00	49.61 PK	74.00	-24.39	1.06 V	259	12.89	36.72
8	4874.00	37.46 AV	54.00	-16.54	1.06 V	259	0.74	36.72

- 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.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1000 hPa	TESTED BY	Brad Wu
TEST MODE	B1		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	103.56 PK			1.03 H	189	72.57	30.99
2	*2462.00	93.06 AV			1.03 H	189	62.07	30.99
3	2483.50	68.25 PK	74.00	-5.75	1.03 H	189	37.19	31.06
4	2483.50	48.41 AV	54.00	-5.59	1.03 H	189	17.35	31.06
5	4924.00	47.66 PK	74.00	-26.34	1.05 H	34	10.81	36.85
6	4924.00	35.28 AV	54.00	-18.72	1.05 H	34	-1.57	36.85
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	109.92 PK			1.00 V	184	78.93	30.99
2	*2462.00	99.35 AV			1.00 V	184	68.36	30.99
3	2483.50	70.34 PK	74.00	-3.66	1.00 V	184	39.28	31.06
4	2483.50	51.40 AV	54.00	-2.60	1.00 V	184	20.34	31.06
5	4924.00	48.81 PK	74.00	-25.19	1.03 V	229	11.96	36.85
6	4924.00	36.53 AV	54.00	-17.47	1.03 V	229	-0.32	36.85

- 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	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1000 hPa	TESTED BY	Brad Wu
TEST MODE	B1		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	68.09 PK	74.00	-5.91	1.03 H	186	37.34	30.75
2	2390.00	48.91 AV	54.00	-5.09	1.03 H	186	18.16	30.75
3	*2422.00	97.69 PK			1.03 H	186	66.83	30.86
4	*2422.00	87.21 AV			1.03 H	186	56.35	30.86
5	4844.00	57.68 PK	74.00	-16.32	1.01 H	206	21.00	36.68
6	4844.00	35.29 AV	54.00	-18.71	1.01 H	206	-1.39	36.68
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	71.84 PK	74.00	-2.16	1.02 V	185	41.09	30.75
2	2390.00	52.91 AV	54.00	-1.09	1.02 V	185	22.16	30.75
3	*2422.00	104.07 PK			1.00 V	185	73.21	30.86
4	*2422.00	93.81 AV			1.00 V	185	62.95	30.86
5	4844.00	48.24 PK	74.00	-25.76	1.06 V	57	11.56	36.68
6	4844.00	35.89 AV	54.00	-18.11	1.06 V	57	-0.79	36.68

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 4	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1000 hPa	TESTED BY	Brad Wu
TEST MODE	B1		

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	70.52 PK	74.00	-3.48	1.05 H	184	39.77	30.75
2	2390.00	50.81 AV	54.00	-3.19	1.05 H	184	20.06	30.75
3	*2437.00	101.04 PK			1.05 H	184	70.13	30.91
4	*2437.00	90.69 AV			1.05 H	184	59.78	30.91
5	2483.50	70.62 PK	74.00	-3.38	1.05 H	184	39.56	31.06
6	2483.50	50.31 AV	54.00	-3.69	1.05 H	184	19.25	31.06
7	4874.00	57.98 PK	74.00	-16.02	1.03 H	201	21.26	36.72
8	4874.00	35.61 AV	54.00	-18.39	1.03 H	201	-1.11	36.72
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	72.90 PK	74.00	-1.10	1.03 V	182	42.15	30.75
2	2390.00	52.95 AV	54.00	-1.05	1.03 V	182	22.20	30.75
3	*2437.00	107.75 PK			1.00 V	186	76.84	30.91
4	*2437.00	97.42 AV			1.00 V	186	66.51	30.91
5	2483.50	72.88 PK	74.00	-1.12	1.00 V	218	41.82	31.06
<b>6</b>	<b>2483.50</b>	<b>52.98 AV</b>	<b>54.00</b>	<b>-1.02</b>	<b>1.00 V</b>	<b>218</b>	<b>21.92</b>	<b>31.06</b>
7	4874.00	49.38 PK	74.00	-24.62	1.06 V	29	12.66	36.72
8	4874.00	37.08 AV	54.00	-16.92	1.06 V	29	0.36	36.72

- 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.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 7	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 1000 hPa	TESTED BY	Brad Wu
TEST MODE	B1		

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	97.82 PK			1.01 H	193	66.86	30.96
2	*2452.00	87.44 AV			1.01 H	193	56.48	30.96
3	2483.50	67.81 PK	74.00	-6.19	1.01 H	193	36.75	31.06
4	2483.50	48.82 AV	54.00	-5.18	1.01 H	193	17.76	31.06
5	4904.00	57.61 PK	74.00	-16.39	1.09 H	214	20.84	36.77
6	4904.00	35.29 AV	54.00	-18.71	1.09 H	214	-1.48	36.77
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	104.22 PK			1.00 V	185	73.26	30.96
2	*2452.00	93.94 AV			1.00 V	185	62.98	30.96
3	2483.50	69.82 PK	74.00	-4.18	1.00 V	185	38.76	31.06
4	2483.50	52.54 AV	54.00	-1.46	1.00 V	185	21.48	31.06
5	4904.00	48.36 PK	74.00	-25.64	1.05 V	291	11.59	36.77
6	4904.00	36.02 AV	54.00	-17.98	1.05 V	291	-0.75	36.77

- 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.



A D T

**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	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 999 hPa	TESTED BY	Brad Wu
TEST MODE	A1		

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	160.17	32.69 QP	43.50	-10.81	1.25 H	94	18.38	14.31
2	249.60	28.32 QP	46.00	-17.68	1.00 H	232	14.52	13.80
3	399.31	40.74 QP	46.00	-5.26	1.00 H	325	22.72	18.02
4	599.58	44.59 QP	46.00	-1.41	1.25 H	178	22.20	22.39
5	799.84	43.58 QP	46.00	-2.42	1.00 H	160	17.56	26.02
6	875.67	34.67 QP	46.00	-11.33	1.50 H	175	7.24	27.43
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	57.12	38.23 QP	40.00	-1.77	1.25 V	358	25.27	12.96
2	160.17	39.62 QP	43.50	-3.88	1.00 V	142	25.31	14.31
3	399.31	42.27 QP	46.00	-3.73	1.00 V	124	24.25	18.02
4	599.58	41.85 QP	46.00	-4.15	1.50 V	241	19.45	22.39
5	799.84	39.93 QP	46.00	-6.07	1.00 V	244	13.91	26.02
6	875.67	32.77 QP	46.00	-13.23	1.25 V	1	5.34	27.43

- 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.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 999 hPa	TESTED BY	Brad Wu
TEST MODE	A2		

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	160.17	36.10 QP	43.50	-7.40	1.50 H	91	21.79	14.31
2	249.60	31.31 QP	46.00	-14.69	1.00 H	238	17.50	13.80
3	399.31	38.97 QP	46.00	-7.03	1.00 H	64	20.96	18.02
4	599.58	37.05 QP	46.00	-8.95	1.25 H	127	14.66	22.39
5	799.84	39.37 QP	46.00	-6.63	1.00 H	244	13.35	26.02
6	908.72	30.09 QP	46.00	-15.91	1.00 H	22	2.07	28.02
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	55.18	33.48 QP	40.00	-6.52	1.00 V	292	20.46	13.03
2	160.17	39.79 QP	43.50	-3.71	1.00 V	277	25.48	14.31
3	399.31	44.33 QP	46.00	-1.67	1.00 V	142	26.31	18.02
4	599.58	41.10 QP	46.00	-4.90	1.00 V	172	18.71	22.39
5	799.84	44.88 QP	46.00	-1.12	1.25 V	88	18.86	26.02
6	875.67	37.53 QP	46.00	-8.47	1.00 V	178	10.10	27.43

- 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.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 999 hPa	TESTED BY	Brad Wu
TEST MODE	B1		

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	160.17	37.56 QP	43.50	-5.94	1.50 H	283	23.25	14.31
2	249.60	32.51 QP	46.00	-13.49	1.00 H	241	18.70	13.80
3	399.31	37.76 QP	46.00	-8.24	1.00 H	274	19.74	18.02
4	599.58	33.63 QP	46.00	-12.37	1.00 H	166	11.24	22.39
5	799.84	44.12 QP	46.00	-1.88	1.50 H	175	18.10	26.02
6	875.67	33.73 QP	46.00	-12.27	1.50 H	172	6.30	27.43
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	55.18	38.15 QP	40.00	-1.85	1.25 V	334	25.13	13.03
2	68.79	34.56 QP	40.00	-5.44	1.00 V	247	21.34	13.22
3	161.78	42.21 QP	43.50	-1.29	1.06 V	158	27.99	14.21
4	399.31	39.95 QP	46.00	-6.05	1.00 V	142	21.93	18.02
5	599.58	30.98 QP	46.00	-15.02	1.00 V	121	8.59	22.39
6	799.84	39.84 QP	46.00	-6.16	1.00 V	259	13.82	26.02

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 999 hPa	TESTED BY	Brad Wu
TEST MODE	B2		

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	167.94	36.54 QP	43.50	-6.96	1.50 H	115	22.71	13.83
2	399.31	40.44 QP	46.00	-5.56	2.00 H	238	22.42	18.02
3	500.42	28.96 QP	46.00	-17.04	2.00 H	178	8.53	20.44
4	599.58	32.76 QP	46.00	-13.24	2.00 H	13	10.37	22.39
5	799.84	39.88 QP	46.00	-6.12	1.50 H	133	13.86	26.02
6	875.67	30.69 QP	46.00	-15.31	1.00 H	172	3.26	27.43
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	55.18	38.60 QP	40.00	-1.40	1.25 V	346	25.57	13.03
2	101.84	38.69 QP	43.50	-4.81	1.25 V	115	27.11	11.58
3	160.17	41.48 QP	43.50	-2.02	1.00 V	277	27.17	14.31
4	399.31	44.11 QP	46.00	-1.89	1.00 V	136	26.09	18.02
5	599.58	43.63 QP	46.00	-2.37	1.00 V	79	21.24	22.39
6	799.84	44.86 QP	46.00	-1.14	1.25 V	85	18.84	26.02

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

## 4.2 CONDUCTED EMISSION MEASUREMENT

### 4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dB $\mu$ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

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

### 4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100288	Sep. 22, 2008	Sep. 21, 2009
RF signal cable Woken	5D-FB	Cable-HYCO2-01	Dec. 31, 2008	Dec. 30, 2009
LISN ROHDE & SCHWARZ	ESH2-Z5	100100	Dec. 29, 2008	Dec. 28, 2009
LISN ROHDE & SCHWARZ	ESH3-Z5	100311	Jul. 29, 2009	Jul. 28, 2010
Software ADT	ADT_Cond_ V7.3.7	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 2.
  3. The VCCI Site Registration No. is C-2047.

#### 4.2.3 TEST PROCEDURES

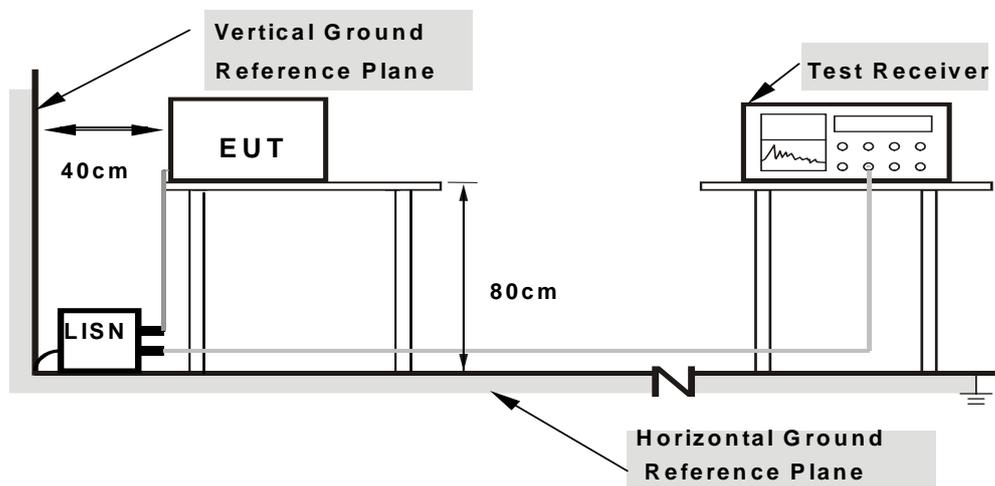
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling 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 Item 4.1.6.

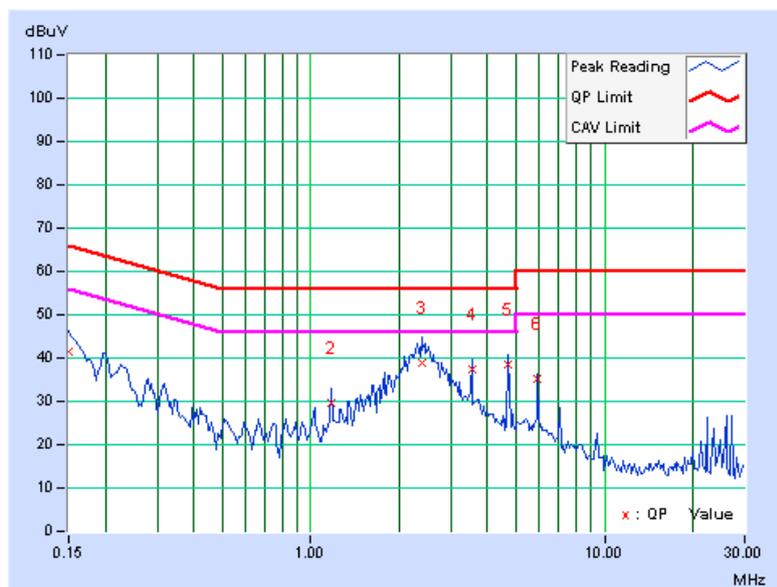
### 4.2.7 TEST RESULTS

#### 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	120Vac, 60Hz
TRANSFER RATE	6.5Mbps	6dB BANDWIDTH	9kHz
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH, 1019hPa	TESTED BY	Sun Lin
TEST MODE	A1		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.13	41.39	-	41.52	-	66.00	56.00	-24.48	-
2	1.180	0.17	29.30	-	29.47	-	56.00	46.00	-26.53	-
3	2.387	0.21	38.74	-	38.95	-	56.00	46.00	-17.05	-
4	3.535	0.26	37.28	-	37.54	-	56.00	46.00	-18.46	-
5	4.715	0.30	38.22	-	38.52	-	56.00	46.00	-17.48	-
6	5.891	0.33	34.68	-	35.01	-	60.00	50.00	-24.99	-

- 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.



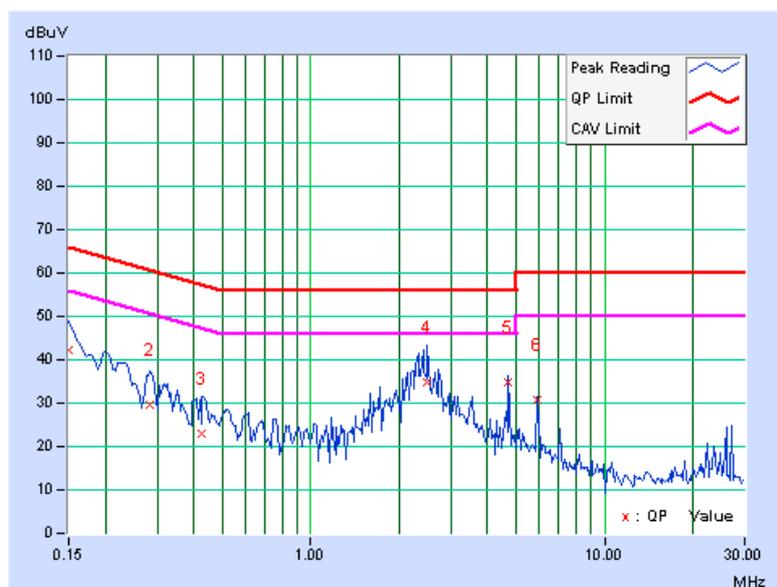


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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	PHASE	Line 2
MODULATION TYPE	BPSK	INPUT POWER	120Vac, 60Hz
TRANSFER RATE	6.5Mbps	6dB BANDWIDTH	9kHz
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH, 1019hPa	TESTED BY	Sun Lin
TEST MODE	A1		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.13	41.98	-	42.11	-	66.00	56.00	-23.89	-
2	0.283	0.14	29.42	-	29.56	-	60.73	50.73	-31.17	-
3	0.427	0.15	22.96	-	23.11	-	57.30	47.30	-34.19	-
4	2.500	0.22	34.46	-	34.68	-	56.00	46.00	-21.32	-
5	4.715	0.32	34.43	-	34.75	-	56.00	46.00	-21.25	-
6	5.891	0.36	30.23	-	30.59	-	60.00	50.00	-29.41	-

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



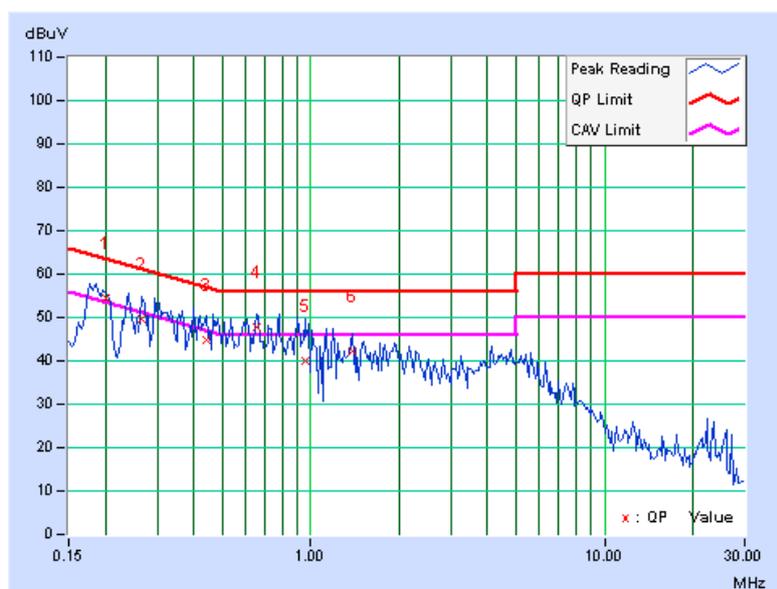


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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	PHASE	Line 1
MODULATION TYPE	BPSK	INPUT POWER	120Vac, 60Hz
TRANSFER RATE	6.5Mbps	6dB BANDWIDTH	9kHz
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH, 1019hPa	TESTED BY	Sun Lin
TEST MODE	B1		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.202	0.13	54.26	40.60	54.39	40.73	63.55	53.55	-9.16	-12.82
2	0.267	0.13	49.65	-	49.78	-	61.20	51.20	-11.42	-
3	0.443	0.14	44.72	-	44.86	-	57.01	47.01	-12.14	-
4	<b>0.654</b>	<b>0.15</b>	<b>47.80</b>	<b>36.83</b>	<b>47.95</b>	<b>36.98</b>	<b>56.00</b>	<b>46.00</b>	<b>-8.05</b>	<b>-9.02</b>
5	0.955	0.17	39.88	-	40.05	-	56.00	46.00	-15.95	-
6	1.383	0.18	42.02	-	42.20	-	56.00	46.00	-13.80	-

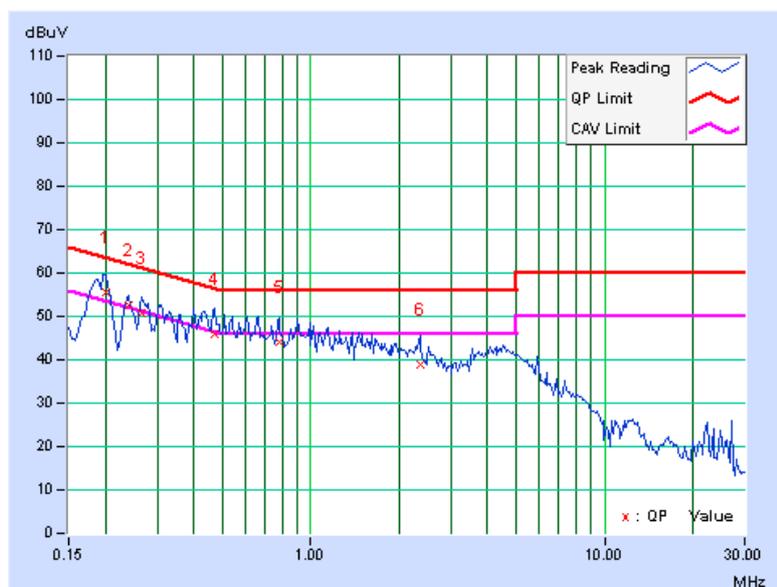
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
  2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
  3. The emission levels of other frequencies were very low against the limit.
  4. Margin value = 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	120Vac, 60Hz
TRANSFER RATE	6.5Mbps	6dB BANDWIDTH	9kHz
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH, 1019hPa	TESTED BY	Sun Lin
TEST MODE	B1		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.201	0.13	55.37	40.54	55.50	40.67	63.58	53.58	-8.08	-12.91
2	0.240	0.13	52.51	41.53	52.64	41.66	62.10	52.10	-9.46	-10.44
3	0.267	0.14	50.43	-	50.57	-	61.20	51.20	-10.64	-
4	0.470	0.15	45.65	-	45.80	-	56.51	46.51	-10.71	-
5	0.783	0.16	43.99	-	44.15	-	56.00	46.00	-11.85	-
6	2.355	0.22	38.56	-	38.78	-	56.00	46.00	-17.22	-

- 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	DUE DATE OF CALIBRATION
R&S SPECTRUM ANALYZER	FSP40	100041	May 13, 2009	May 12, 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.



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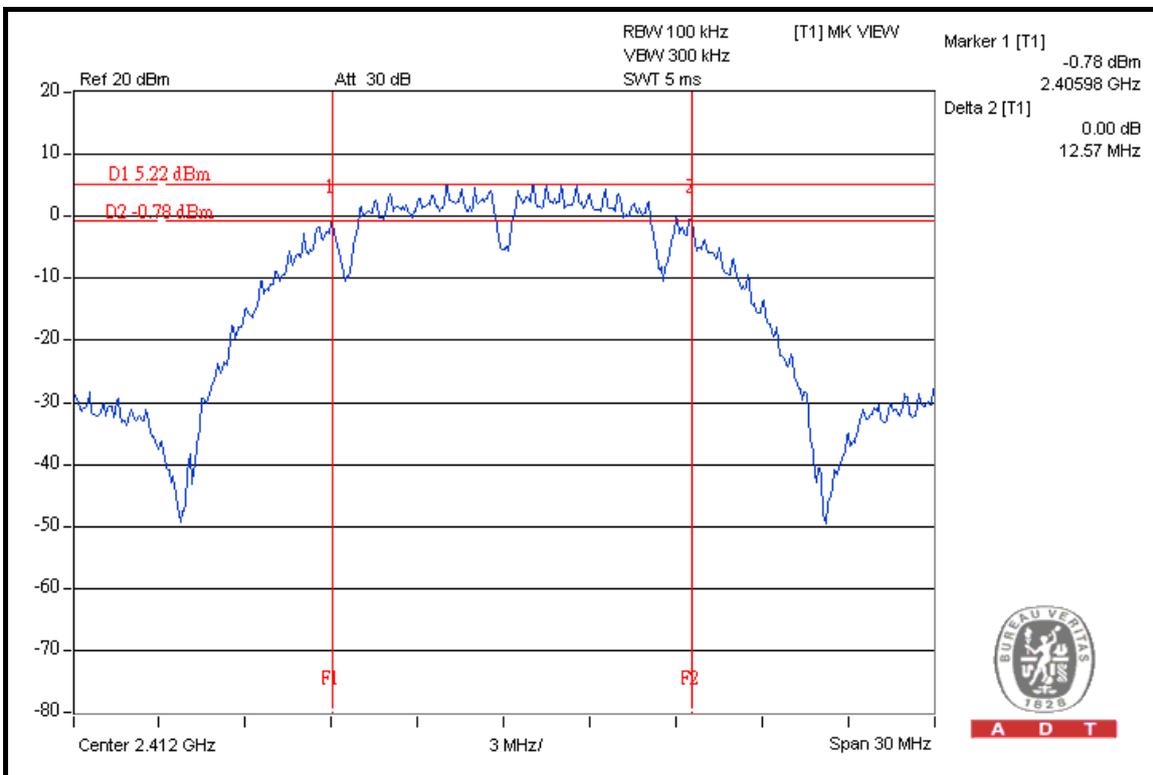
### 4.3.7 TEST RESULTS

#### 802.11b DSSS MODULATION

<b>MODULATION TYPE</b>	DBPSK	<b>TRANSFER RATE</b>	1.0Mbps
<b>INPUT POWER</b>	120Vac, 60 Hz	<b>ENVIRONMENTAL CONDITIONS</b>	25deg. C, 65%RH, 1019hPa
<b>TESTED BY</b>	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	12.57	0.5	PASS
6	2437	13.03	0.5	PASS
11	2462	12.07	0.5	PASS

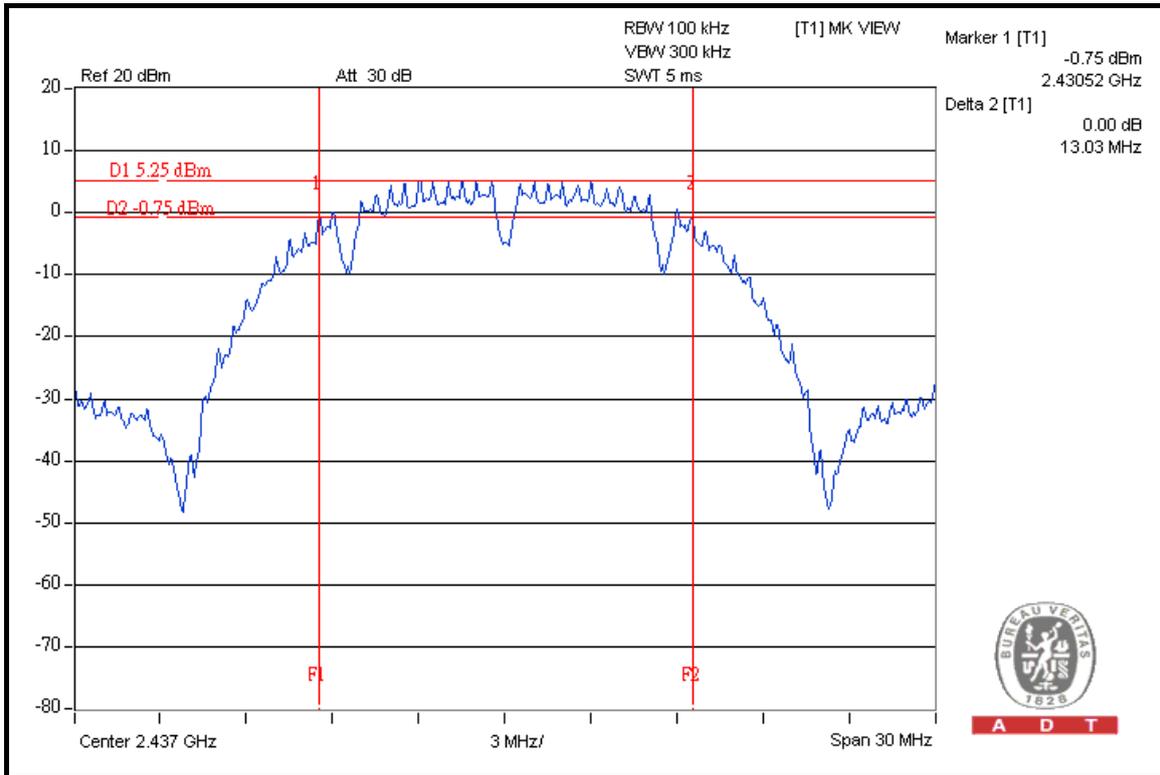
#### CH 1



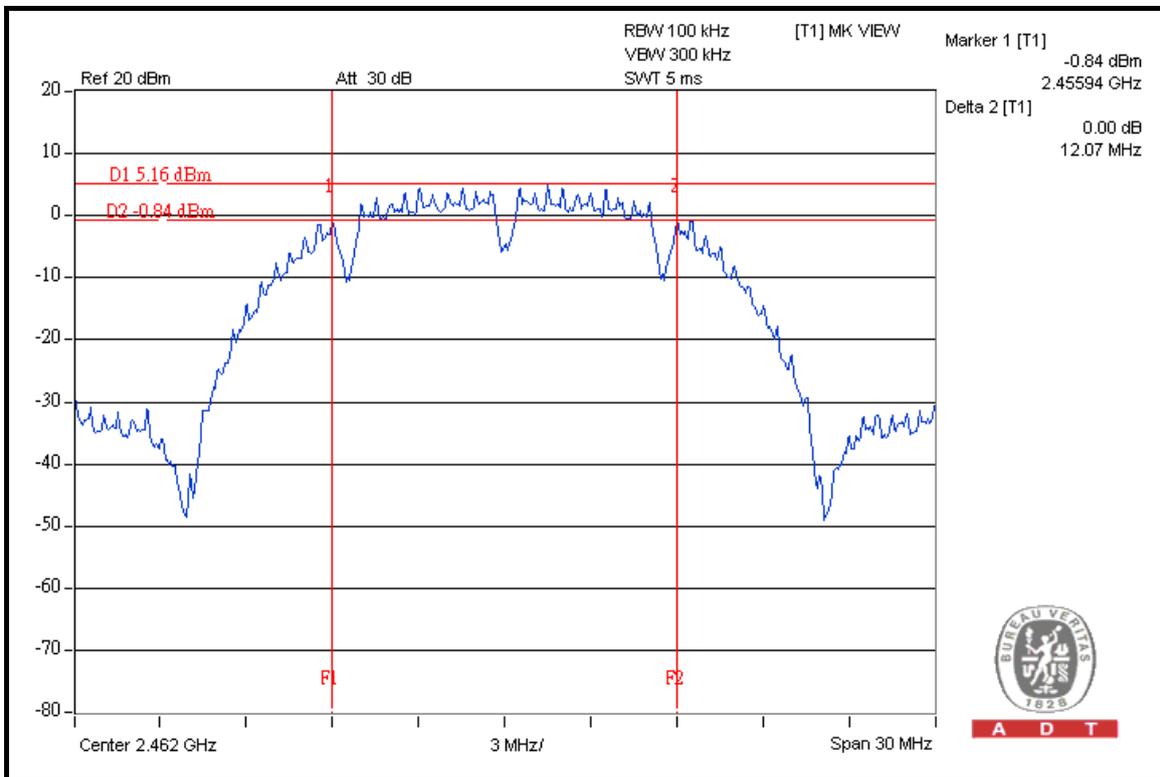


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### CH 6



### CH 11





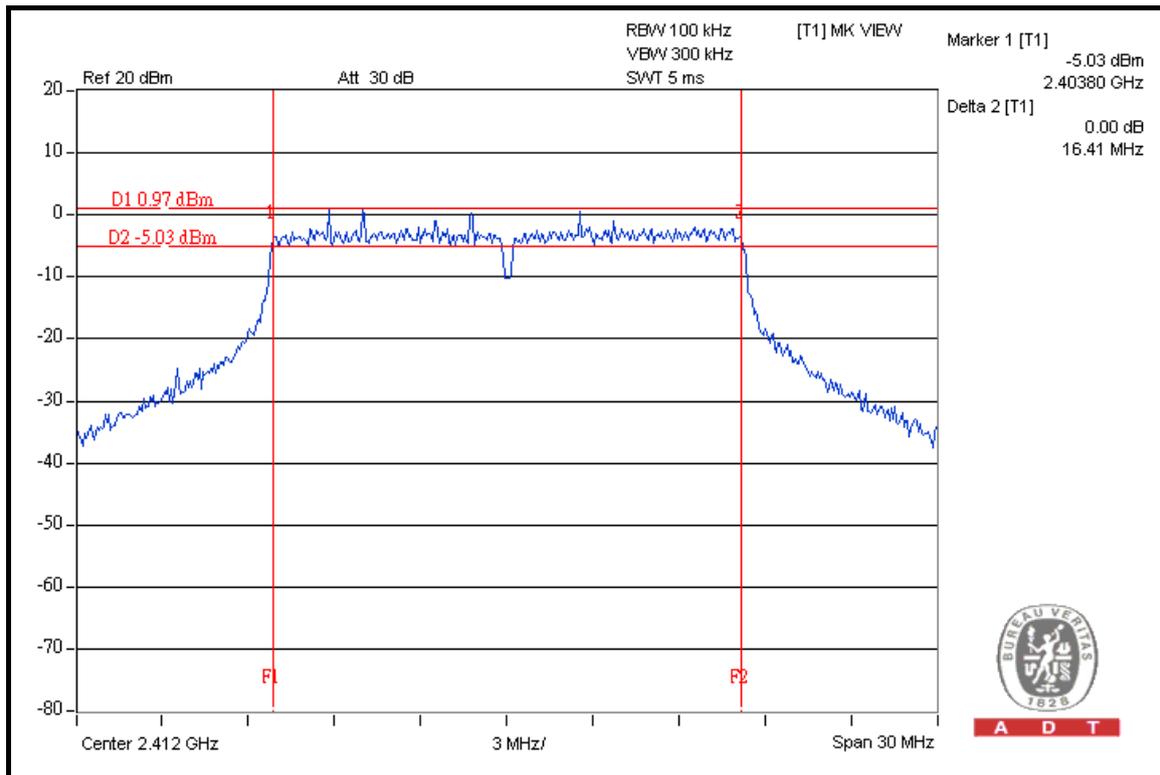
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### 802.11g OFDM MODULATION

<b>MODULATION TYPE</b>	BPSK	<b>TRANSFER RATE</b>	6.0Mbps
<b>INPUT POWER</b>	120Vac, 60 Hz	<b>ENVIRONMENTAL CONDITIONS</b>	23deg. C, 65%RH, 1019hPa
<b>TESTED BY</b>	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.41	0.5	PASS
6	2437	16.49	0.5	PASS
11	2462	16.49	0.5	PASS

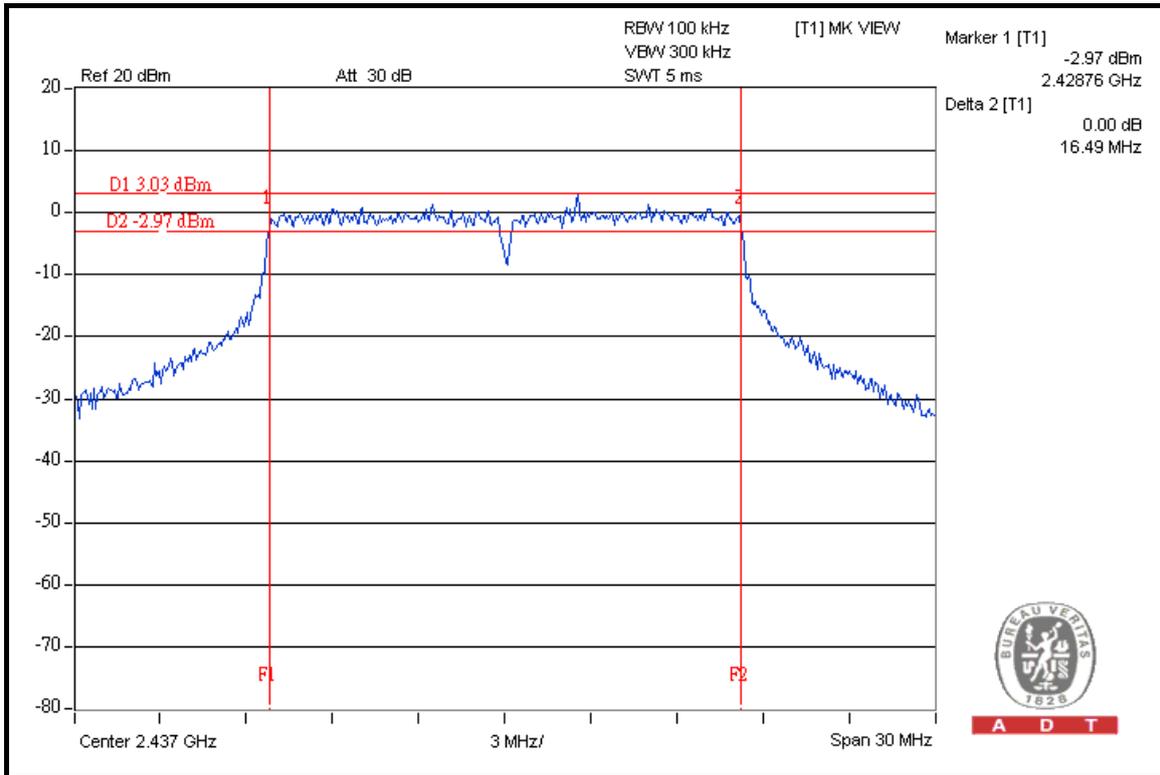
### CH 1



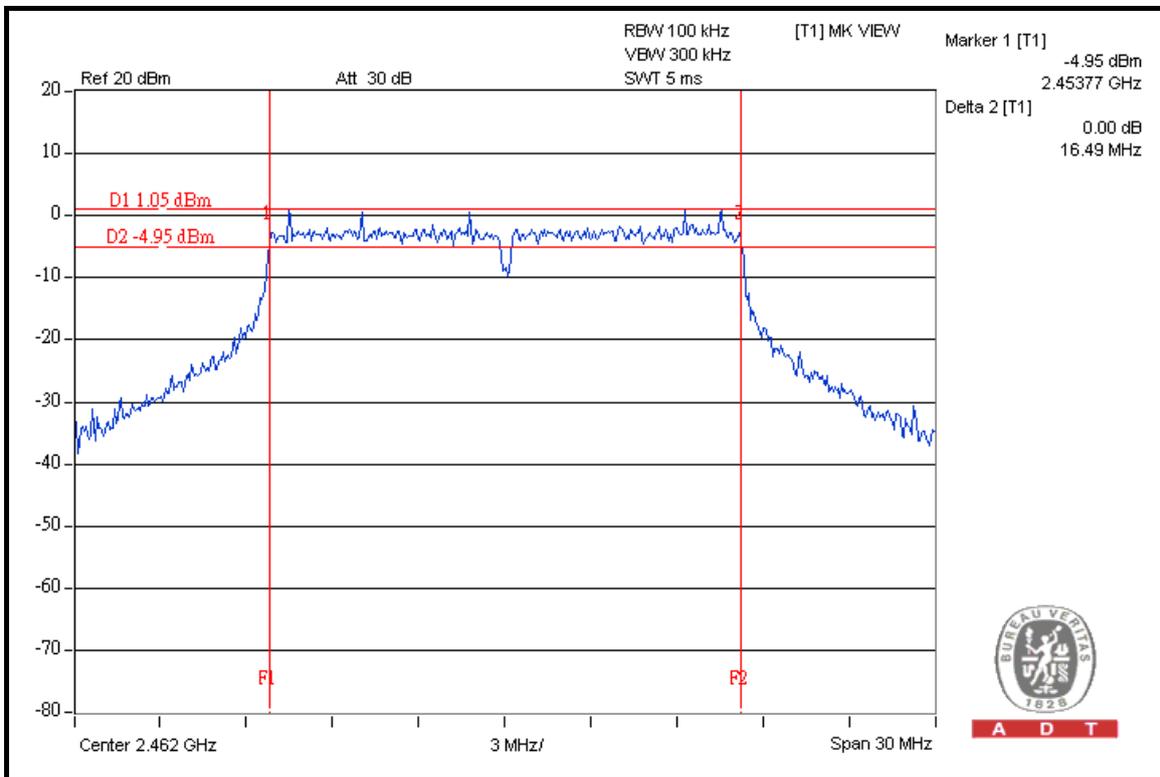


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### CH 6



### CH 11





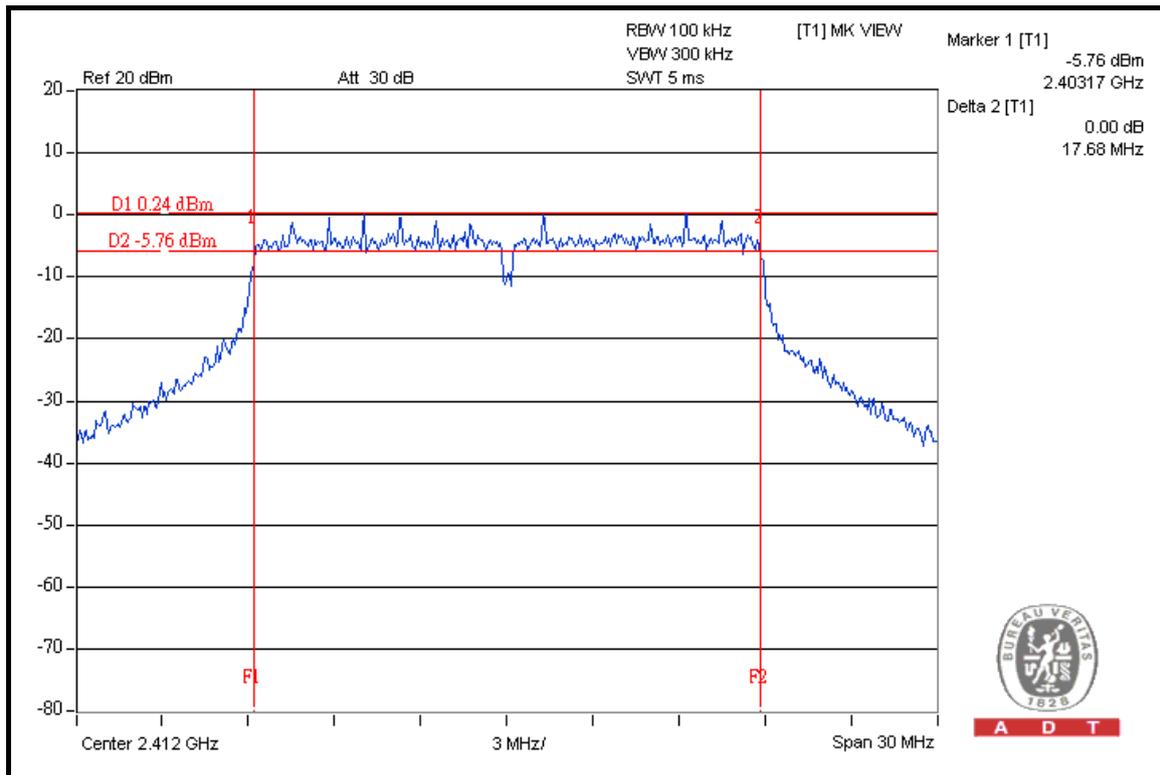
A D T

### DRAFT 802.11n (20MHz) OFDM MODULATION

<b>MODULATION TYPE</b>	BPSK	<b>TRANSFER RATE</b>	6.5Mbps
<b>INPUT POWER</b>	120Vac, 60 Hz	<b>ENVIRONMENTAL CONDITIONS</b>	23deg. C, 65%RH, 1019hPa
<b>TESTED BY</b>	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	17.68	0.5	PASS
6	2437	17.67	0.5	PASS
11	2462	17.65	0.5	PASS

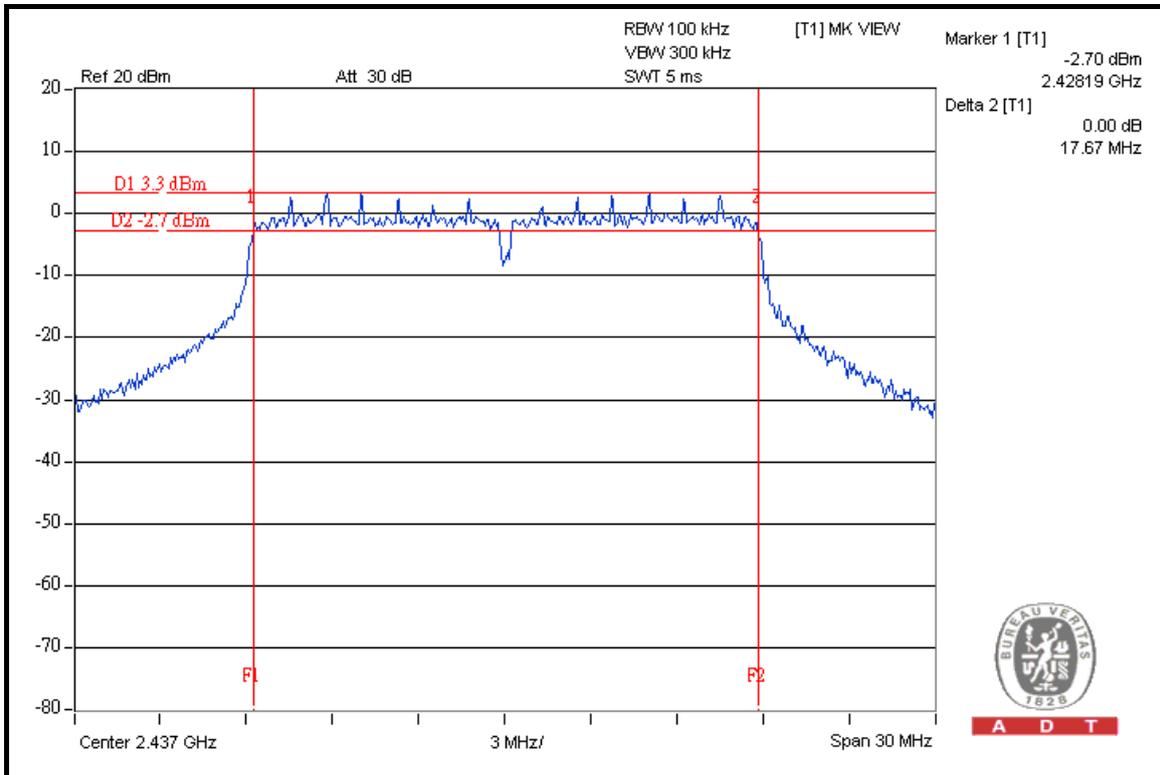
### CH 1



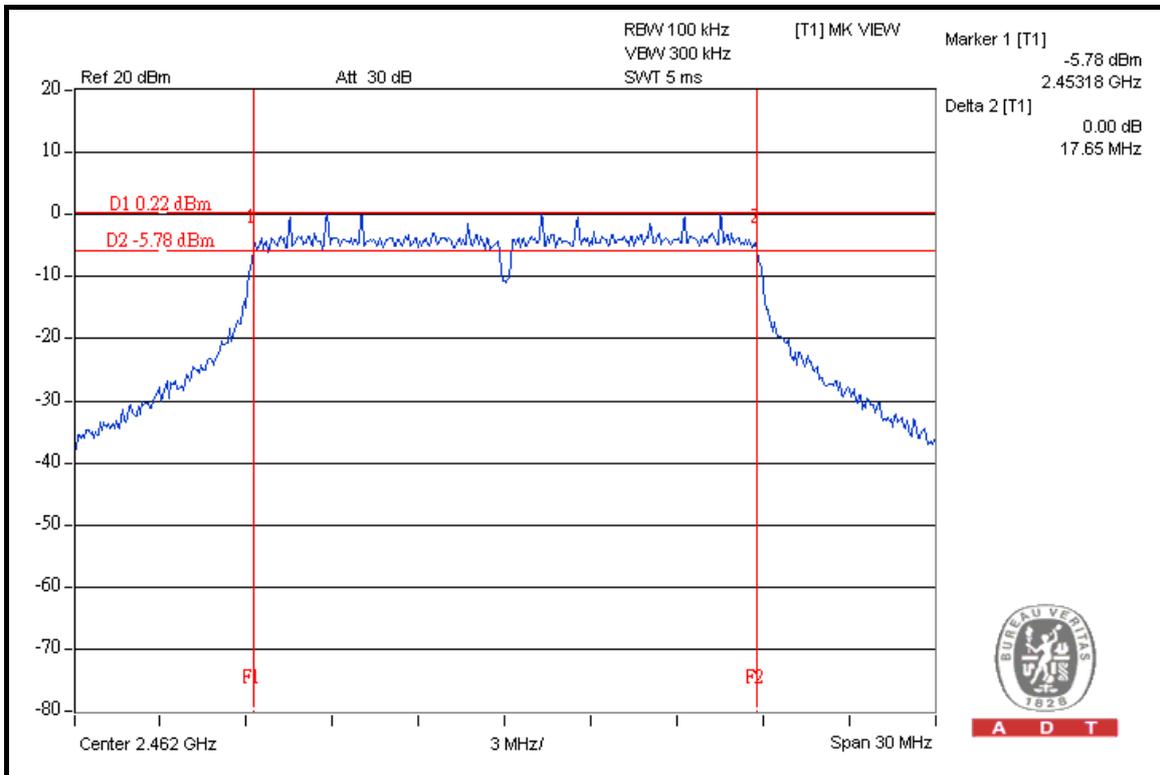


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### CH 6



### CH 11





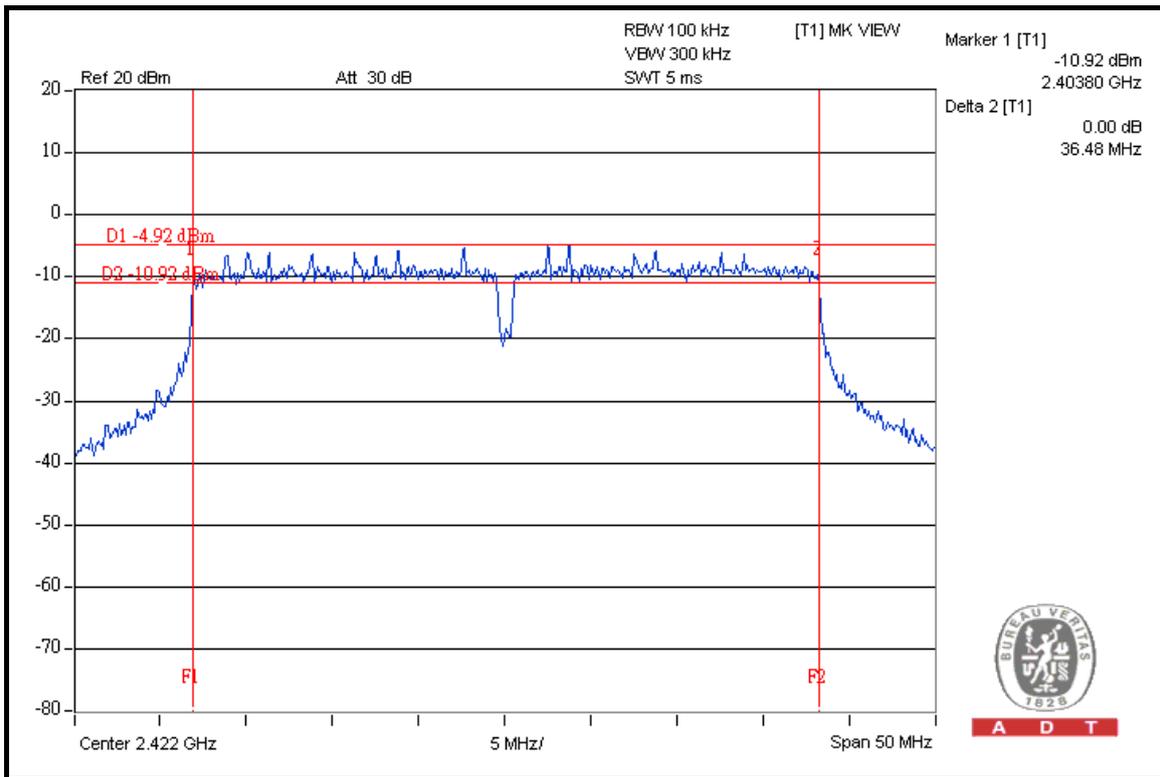
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### DRAFT 802.11n (40MHz) OFDM MODULATION

<b>MODULATION TYPE</b>	BPSK	<b>TRANSFER RATE</b>	13.5Mbps
<b>INPUT POWER</b>	120Vac, 60 Hz	<b>ENVIRONMENTAL CONDITIONS</b>	25deg. C, 65%RH, 1019hPa
<b>TESTED BY</b>	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2422	36.48	0.5	PASS
4	2437	36.46	0.5	PASS
7	2452	36.38	0.5	PASS

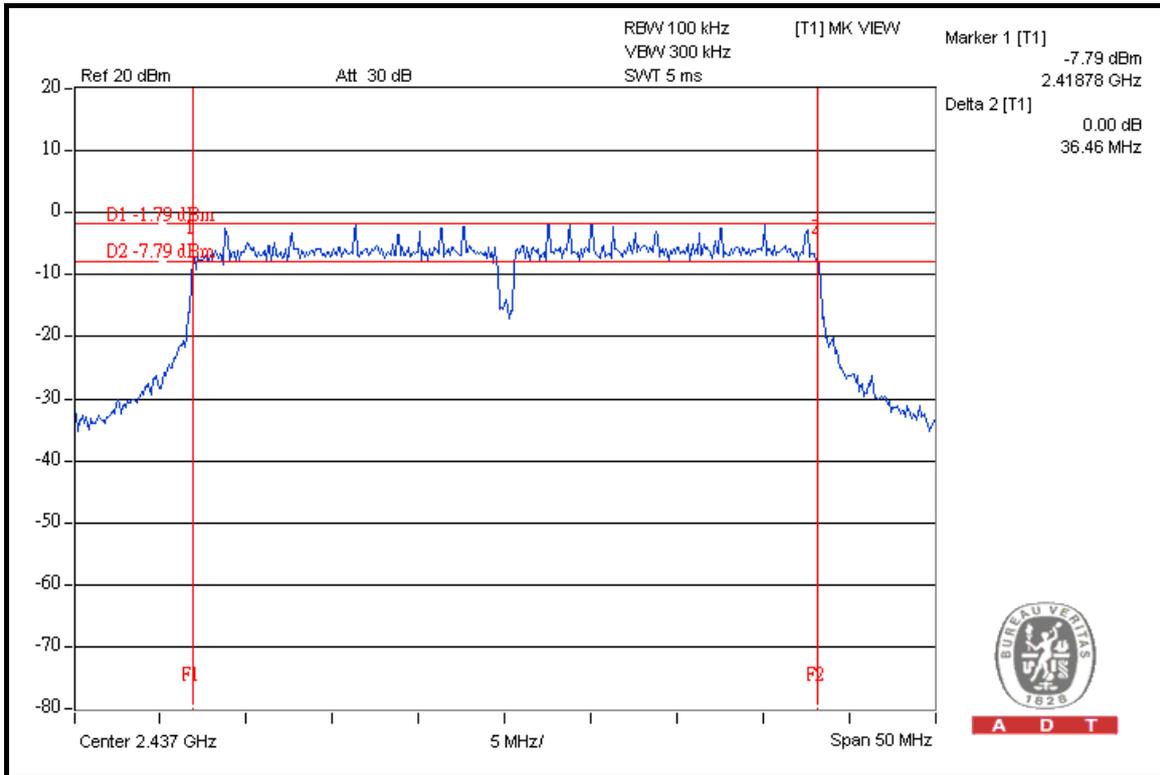
### CH 1



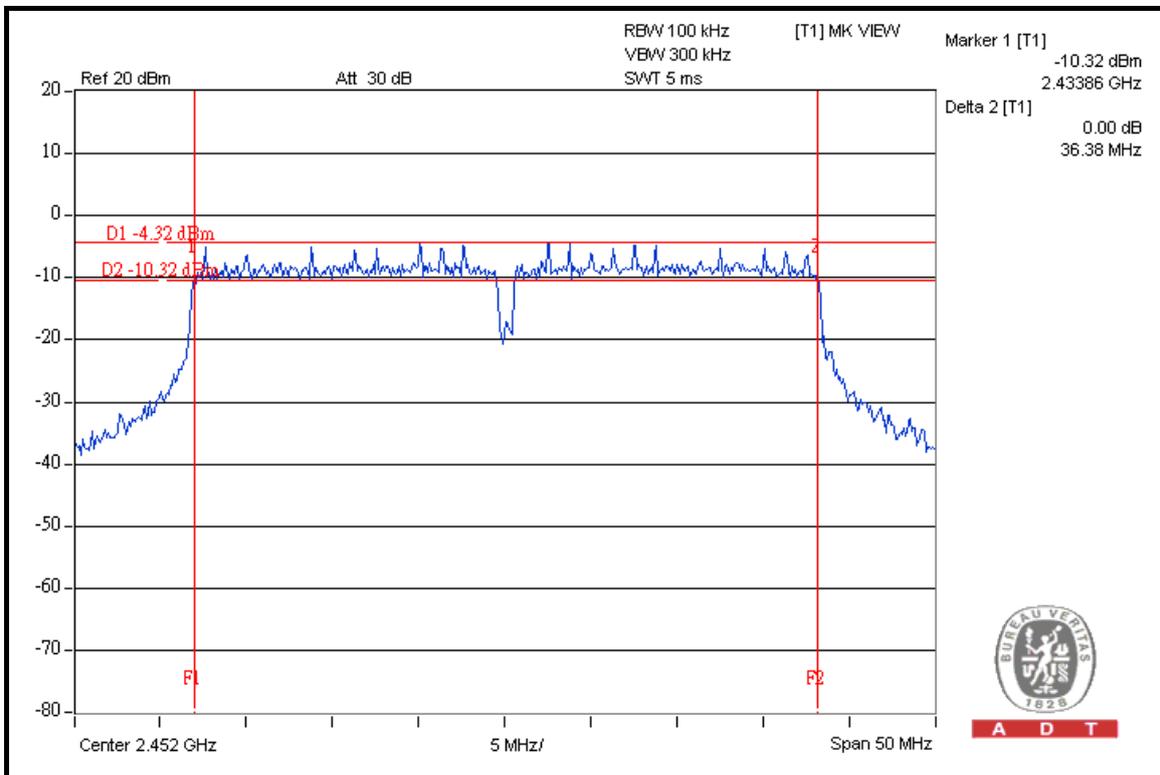


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### CH 4



### CH 7



#### 4.4 MAXIMUM PEAK OUTPUT POWER

##### 4.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

##### 4.4.2 INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
High Speed Peak Power Meter	ML2495A	0824011	Jul. 30, 2009	Jul. 29, 2010
Power Sensor	MA2411B	0738171	Jul. 30, 2009	Jul. 29, 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. Measurement Bandwidth of ML2495A is 65MHz greater than 6dB bandwidth of emission.

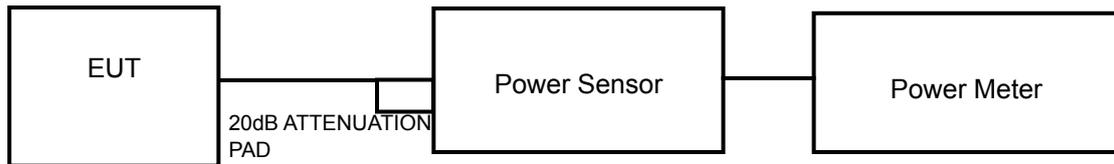
##### 4.4.3 TEST PROCEDURES

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

<b>MODULATION TYPE</b>	DBPSK	<b>TRANSFER RATE</b>	1.0Mbps
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>ENVIRONMENTAL CONDITIONS</b>	25deg. C, 65%RH, 1019hPa
<b>TESTED BY</b>	Brad Wu		

CHAN	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	89.74	19.53	30	PASS
6	2437	91.41	19.61	30	PASS
11	2462	90.57	19.57	30	PASS

##### 802.11g OFDM MODULATION

<b>MODULATION TYPE</b>	BPSK	<b>TRANSFER RATE</b>	6.0Mbps
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>ENVIRONMENTAL CONDITIONS</b>	25deg. C, 65%RH, 1019hPa
<b>TESTED BY</b>	Brad Wu		

CHAN	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	203.24	23.08	30	PASS
6	2437	319.15	25.04	30	PASS
11	2462	200.45	23.02	30	PASS



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**DRAFT 802.11n (20MHz) OFDM MODULATION**

<b>MODULATION TYPE</b>	BPSK	<b>TRANSFER RATE</b>	6.5Mbps
<b>INPUT POWER</b>	120Vac, 60 Hz	<b>ENVIRONMENTAL CONDITIONS</b>	25deg. C, 65%RH, 1019hPa
<b>TESTED BY</b>	Brad Wu		

CHAN	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	180.30	22.56	30	PASS
6	2437	<b>358.10</b>	25.54	30	PASS
11	2462	181.13	22.58	30	PASS

**DRAFT 802.11n (40MHz) OFDM MODULATION**

<b>MODULATION TYPE</b>	BPSK	<b>TRANSFER RATE</b>	13.5Mbps
<b>INPUT POWER</b>	120Vac, 60 Hz	<b>ENVIRONMENTAL CONDITIONS</b>	25deg. C, 65%RH, 1019hPa
<b>TESTED BY</b>	Brad Wu		

CHAN	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2422	101.86	20.08	30	PASS
4	2437	200.45	23.02	30	PASS
7	2452	113.24	20.54	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	DUE DATE OF CALIBRATION
R&S SPECTRUM ANALYZER	FSP40	100041	May 13, 2009	May 12, 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



#### 4.5.6 EUT OPERATING CONDITION

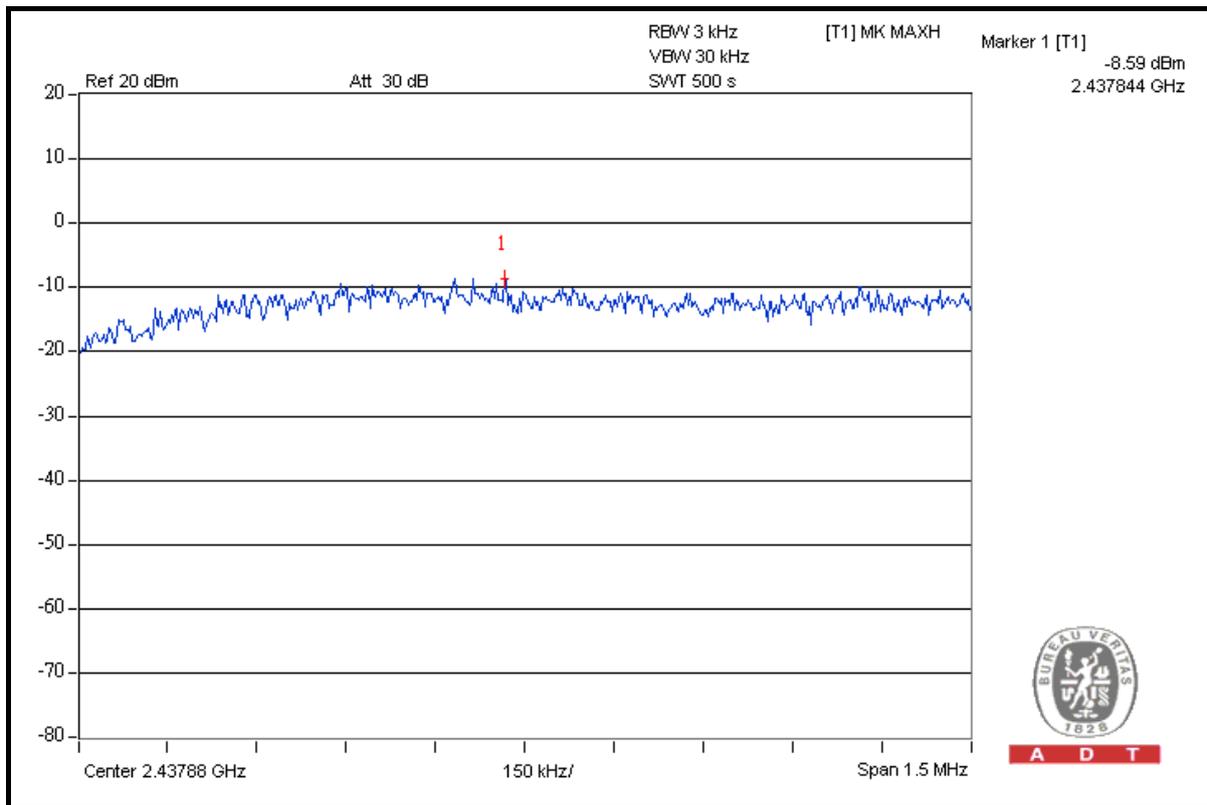
Same as Item 4.3.6.



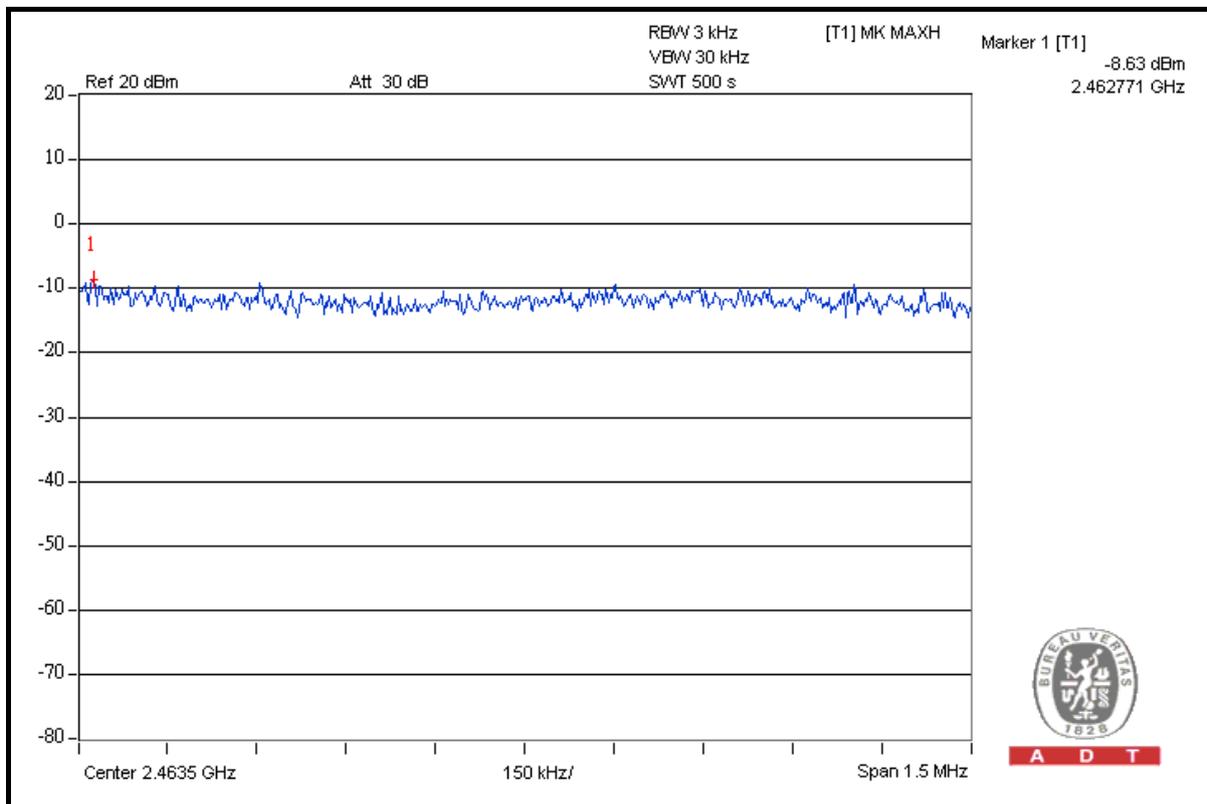


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### CH 6



### CH 11





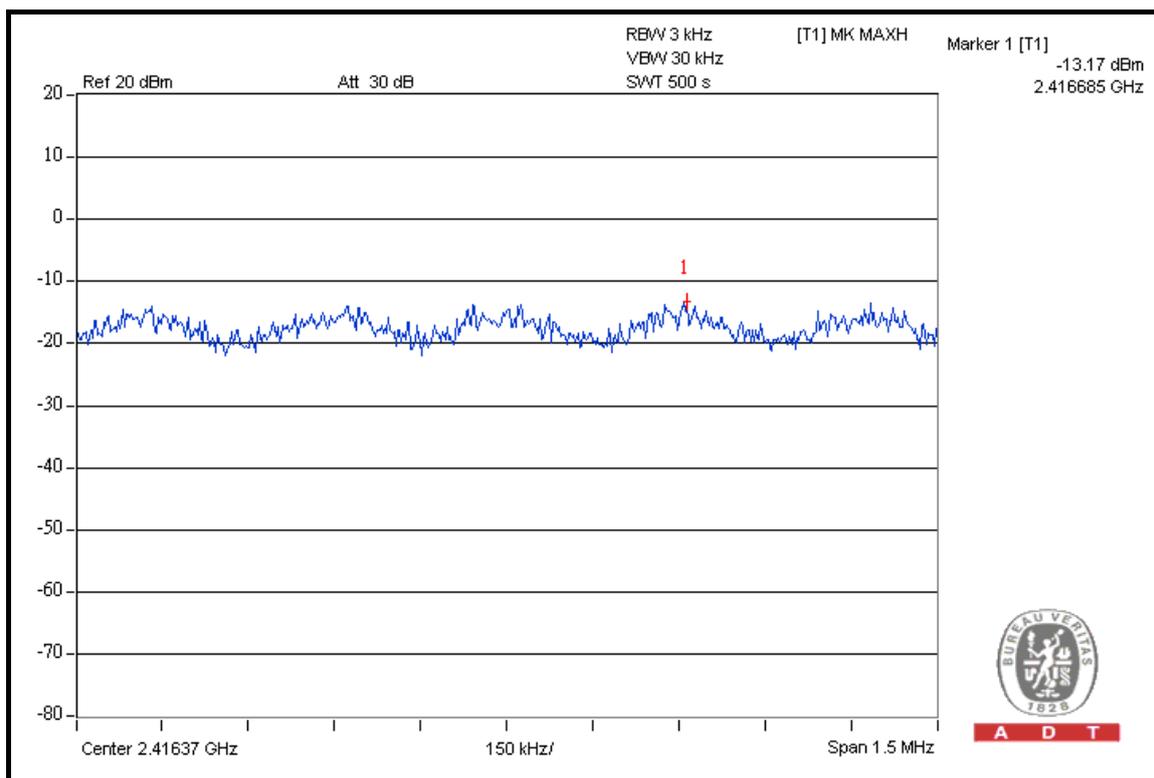
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### 802.11g OFDM MODULATION

<b>MODULATION TYPE</b>	BPSK	<b>TRANSFER RATE</b>	6.0Mbps
<b>INPUT POWER</b>	120Vac, 60 Hz	<b>ENVIRONMENTAL CONDITIONS</b>	25deg. C, 65%RH, 1019hPa
<b>TESTED BY</b>	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-13.17	8	PASS
6	2437	-11.09	8	PASS
11	2462	-13.06	8	PASS

### CH 1

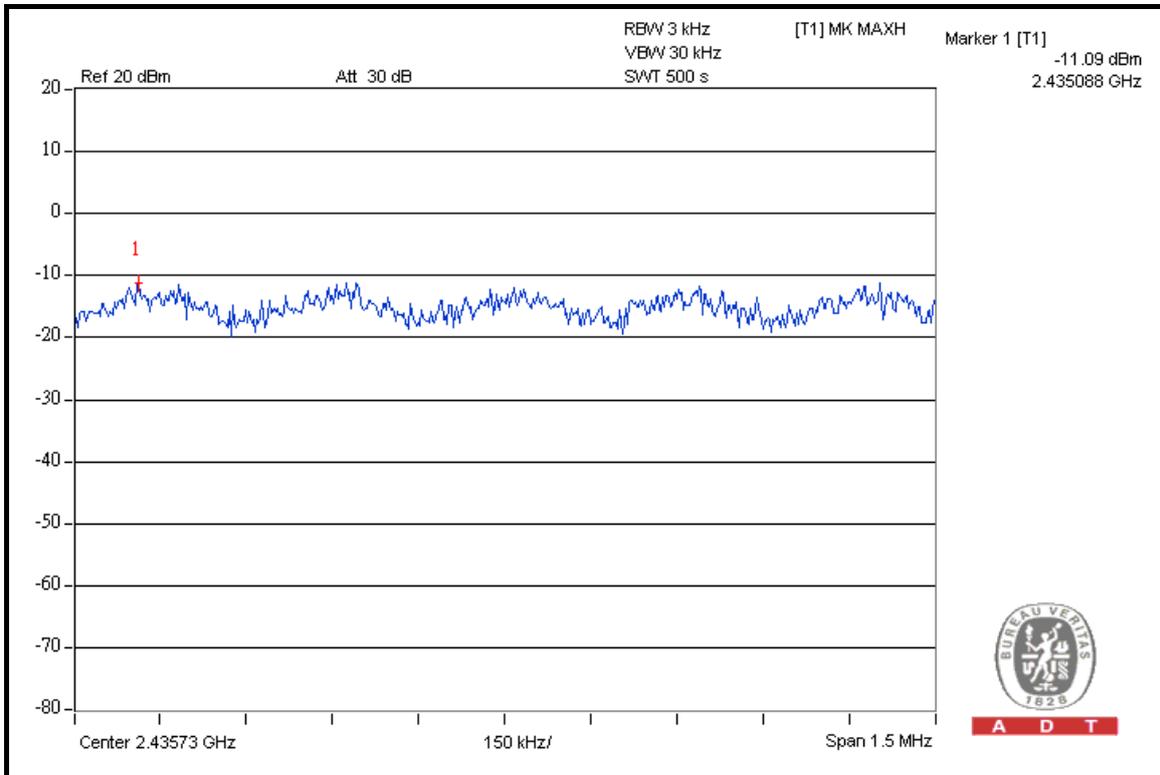


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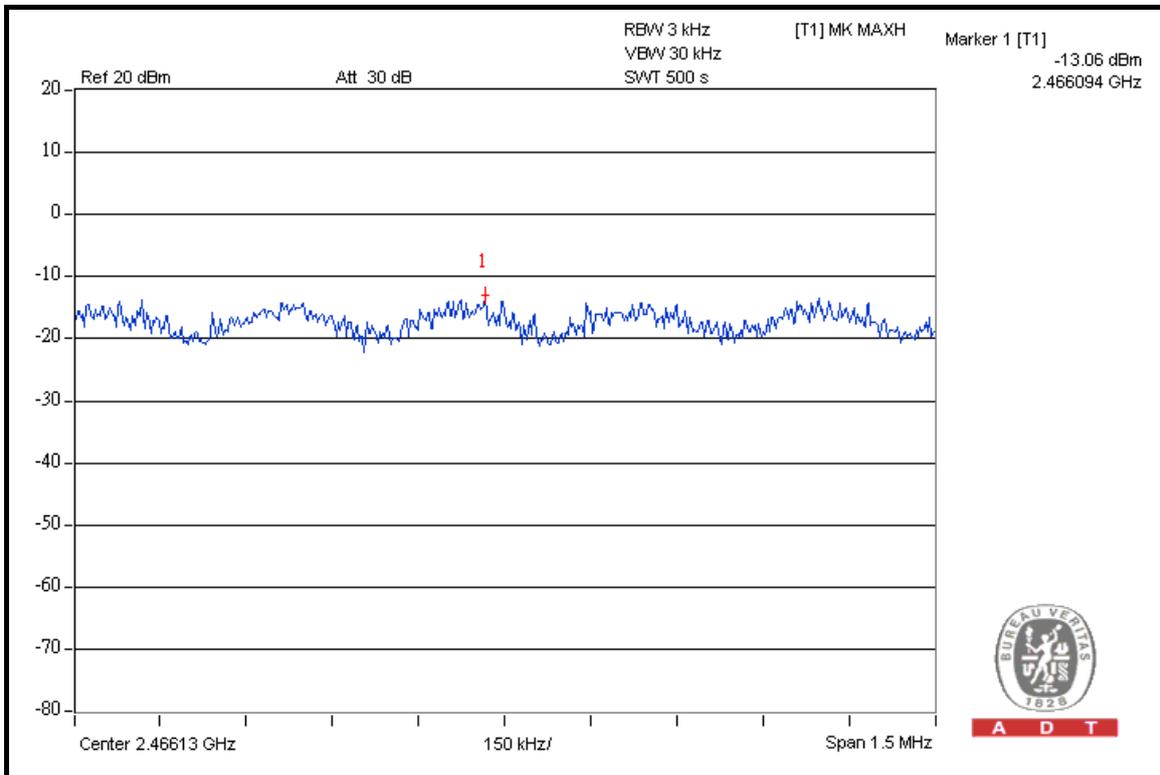


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### CH 6



### CH 11





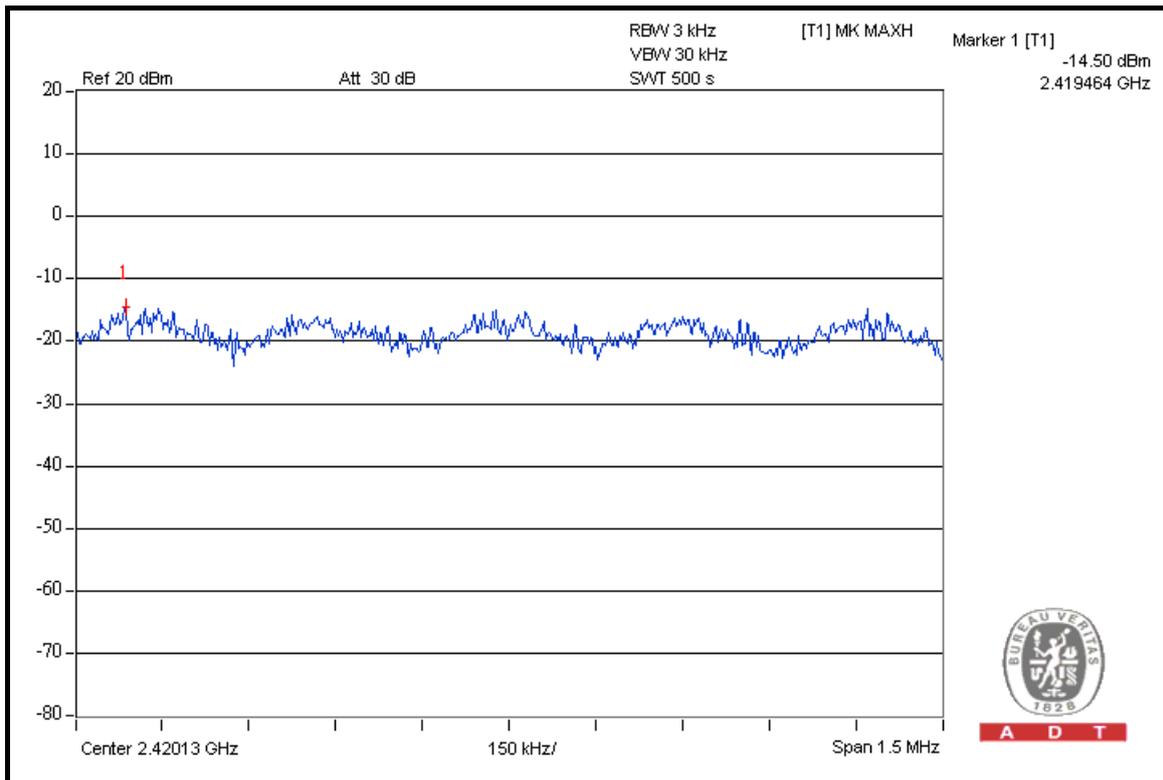
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DRAFT 802.11n (20MHz) OFDM MODULATION

<b>MODULATION TYPE</b>	BPSK	<b>TRANSFER RATE</b>	6.5Mbps
<b>INPUT POWER</b>	120Vac, 60 Hz	<b>ENVIRONMENTAL CONDITIONS</b>	25deg. C, 65%RH, 1019hPa
<b>TESTED BY</b>	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-14.50	8	PASS
6	2437	-11.35	8	PASS
11	2462	-14.32	8	PASS

CH 1

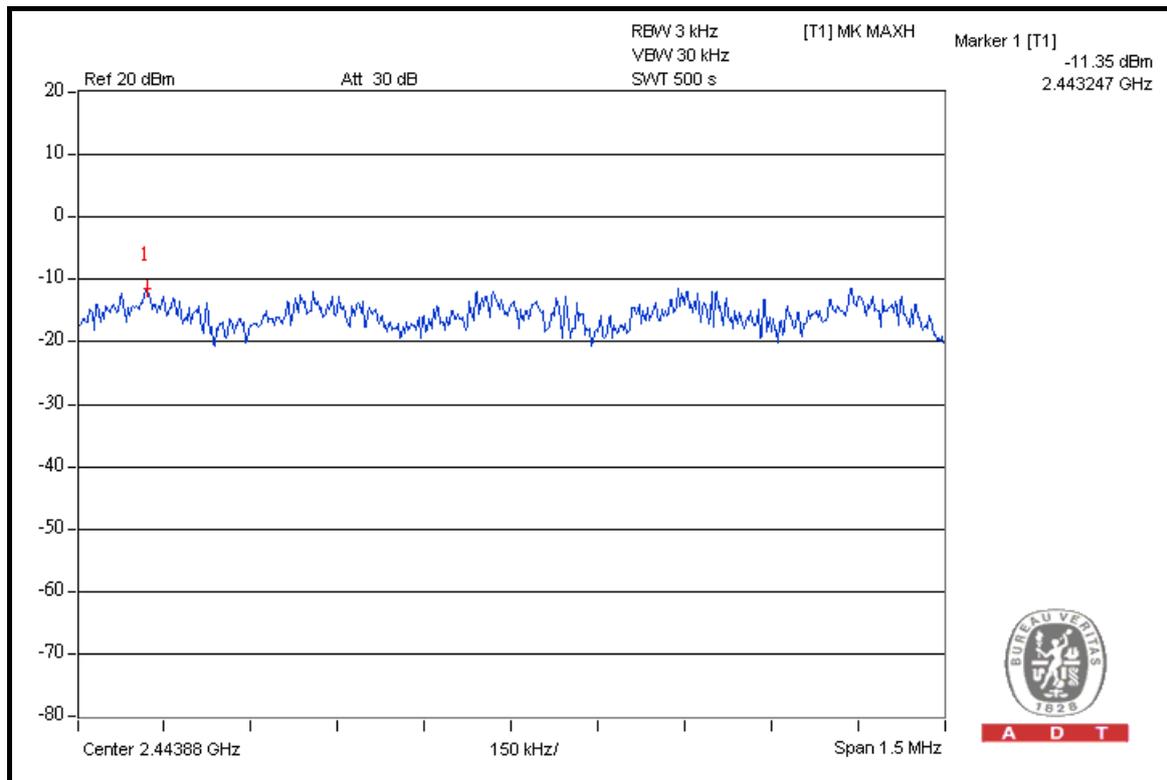


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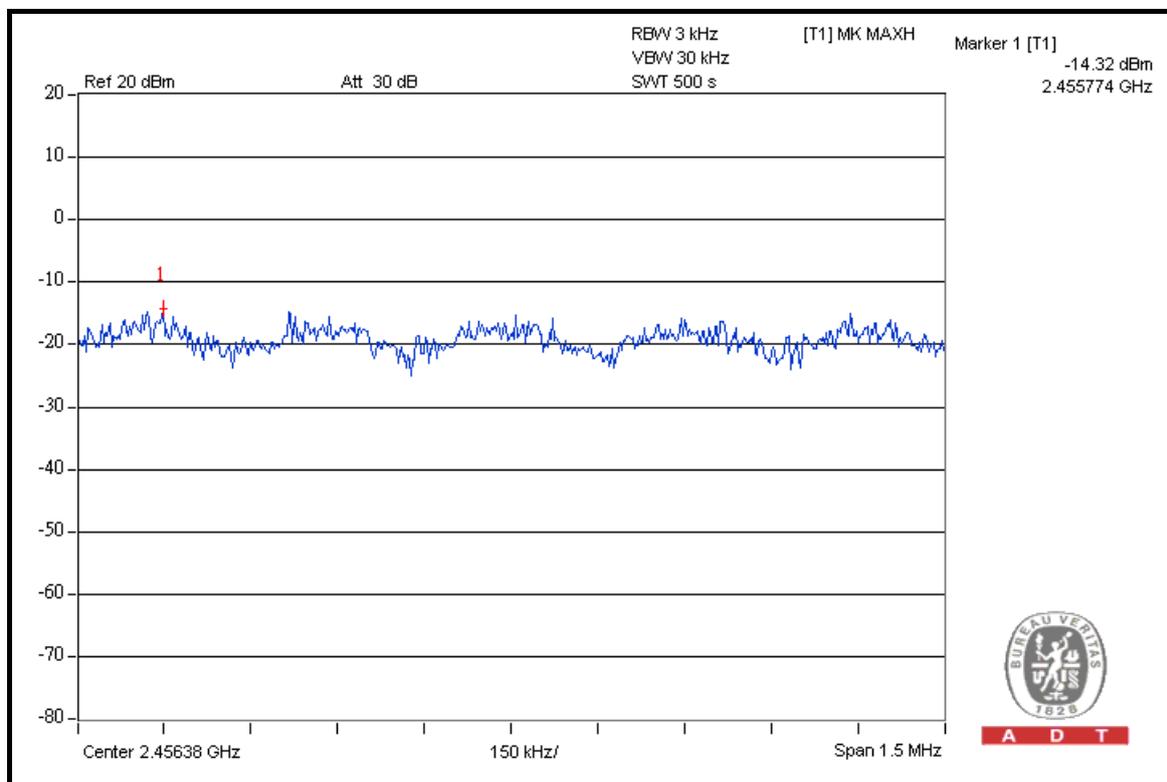


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### CH 6



### CH 11





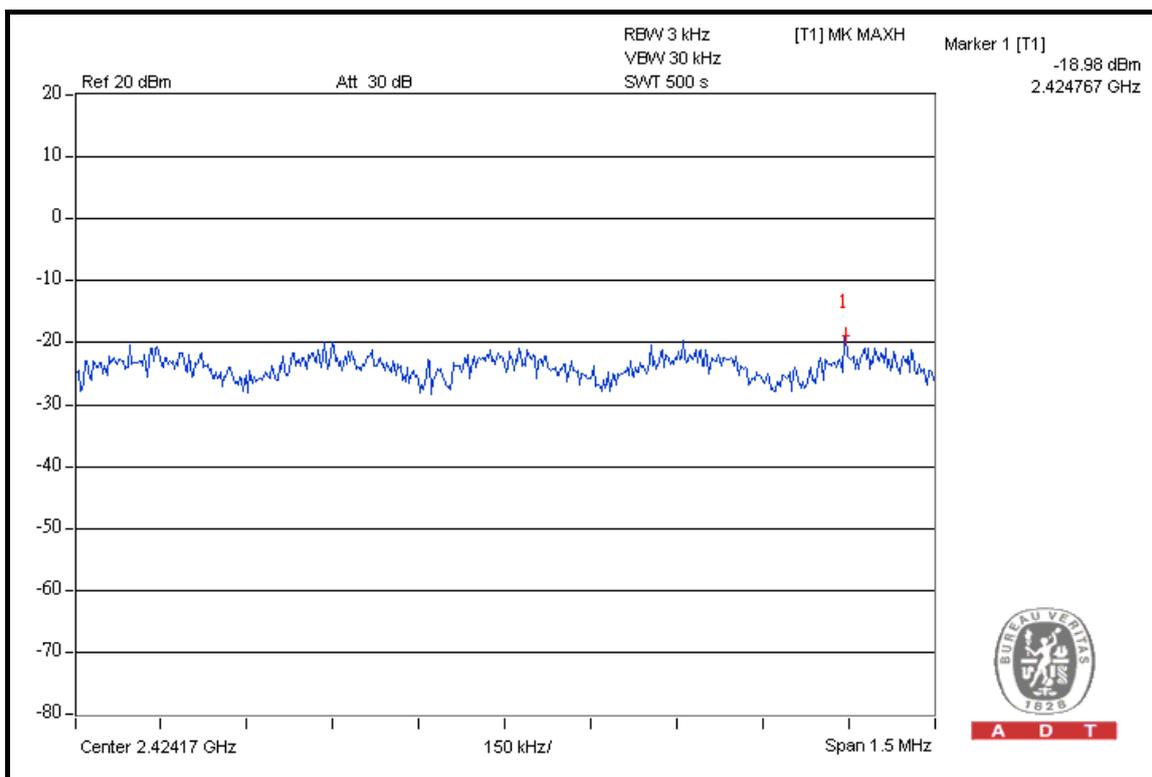
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### DRAFT 802.11n (40MHz) OFDM MODULATION

<b>MODULATION TYPE</b>	BPSK	<b>TRANSFER RATE</b>	13.5Mbps
<b>INPUT POWER</b>	120Vac, 60 Hz	<b>ENVIRONMENTAL CONDITIONS</b>	25deg. C, 65%RH, 1019hPa
<b>TESTED BY</b>	Brad Wu		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2422	-18.98	8	PASS
4	2437	-15.95	8	PASS
7	2452	-18.33	8	PASS

### CH 1

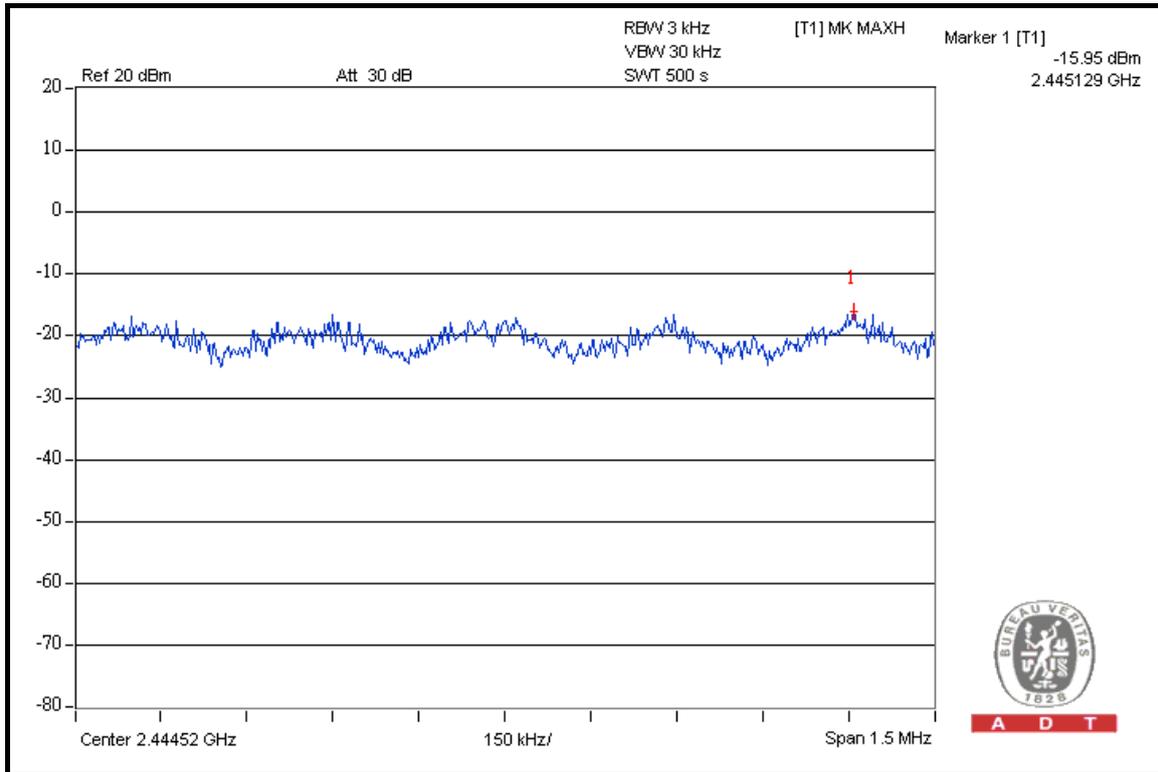


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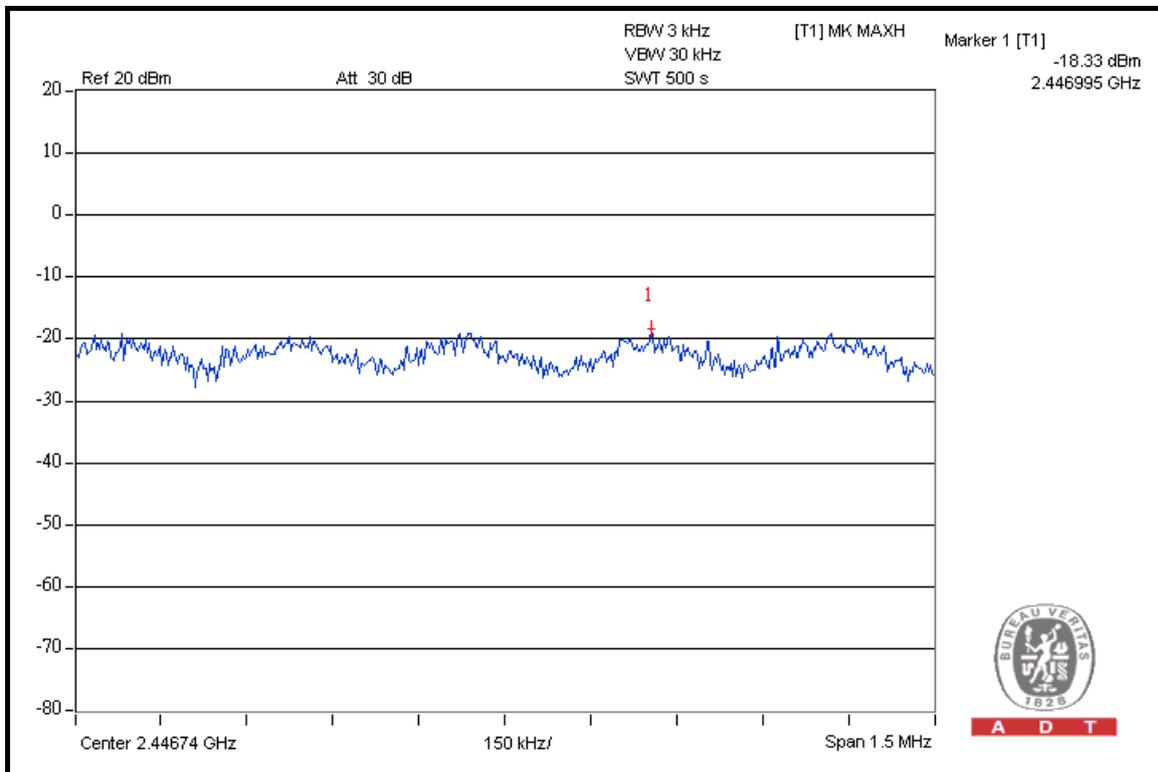


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### CH 4



### CH 7





## 4.6 BAND EDGES MEASUREMENT

### 4.6.1 LIMITS OF BAND EDGES MEASUREMENT

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

### 4.6.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
R&S SPECTRUM ANALYZER	FSP40	100041	May 13, 2009	May 12, 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

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.

### 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

**NOTE 1:** The band edge emission plot on the next page shows 52.64dBc between carrier maximum power and local maximum emission in restrict band (2.3750GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 111.13dBuV/m (Peak), so the maximum field strength in restrict band is  $111.13 - 52.64 = 58.49$ dBuV/m which is under 74dBuV/m limit.

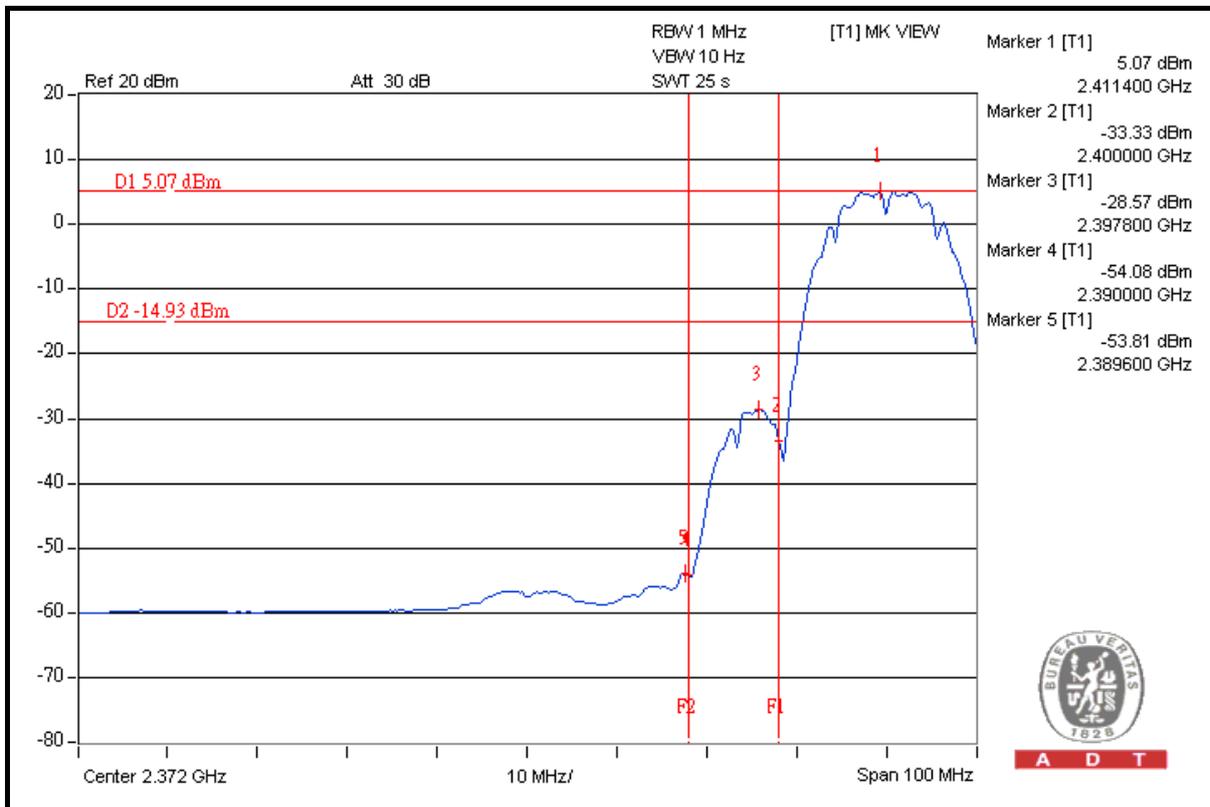
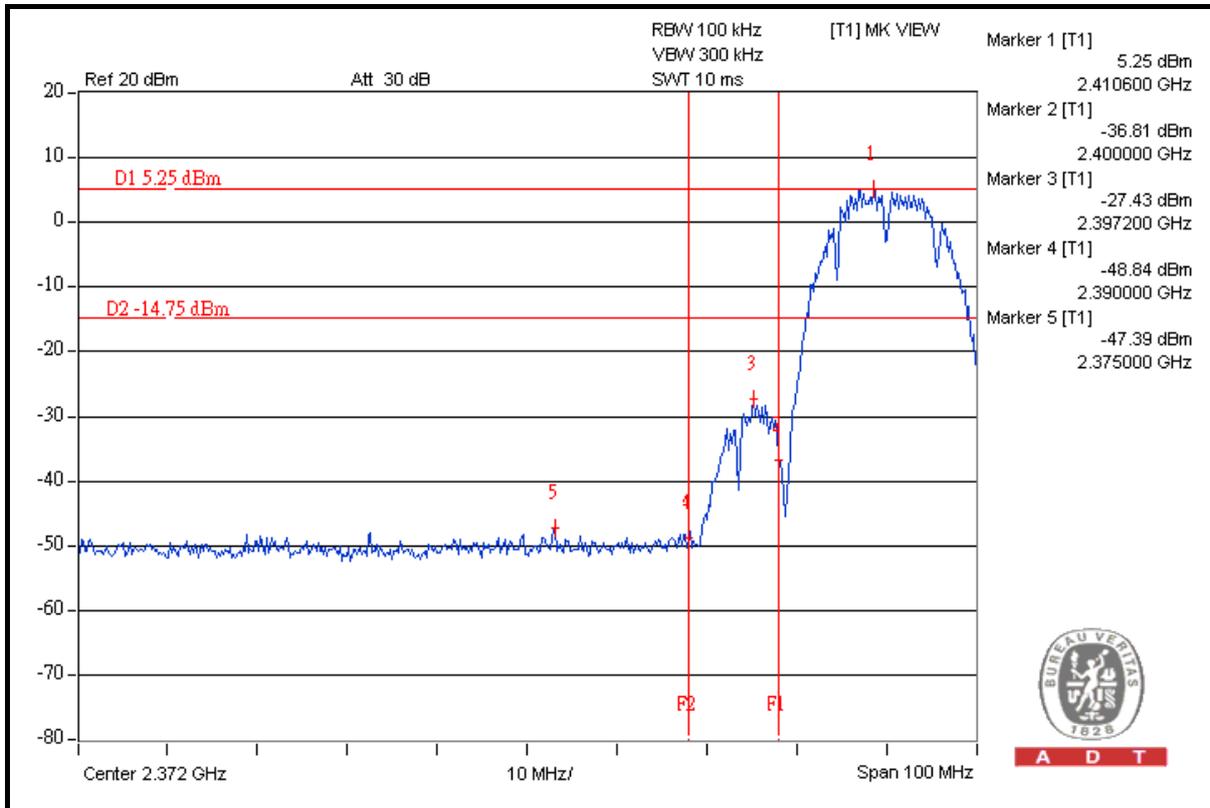
The band edge emission plot on the next page shows 58.88dBc between carrier maximum power and local maximum emission in restrict band (2.3896GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 106.61dBuV/m (Average), so the maximum field strength in restrict band is  $106.61 - 58.88 = 47.73$ dBuV/m which is under 54dBuV/m limit.

**NOTE 2:** The band edge emission plot on the next second page shows 52.72dBc between carrier maximum power and local maximum emission in restrict band (2.4950GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.1.7 is 111.17dBuV/m (Peak), so the maximum field strength in restrict band is  $111.17 - 52.72 = 58.45$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot on the next third page shows 58.96dBc 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 106.50dBuV/m (Average), so the maximum field strength in restrict band is  $106.50 - 58.96 = 47.54$ dBuV/m which is under 54dBuV/m limit.

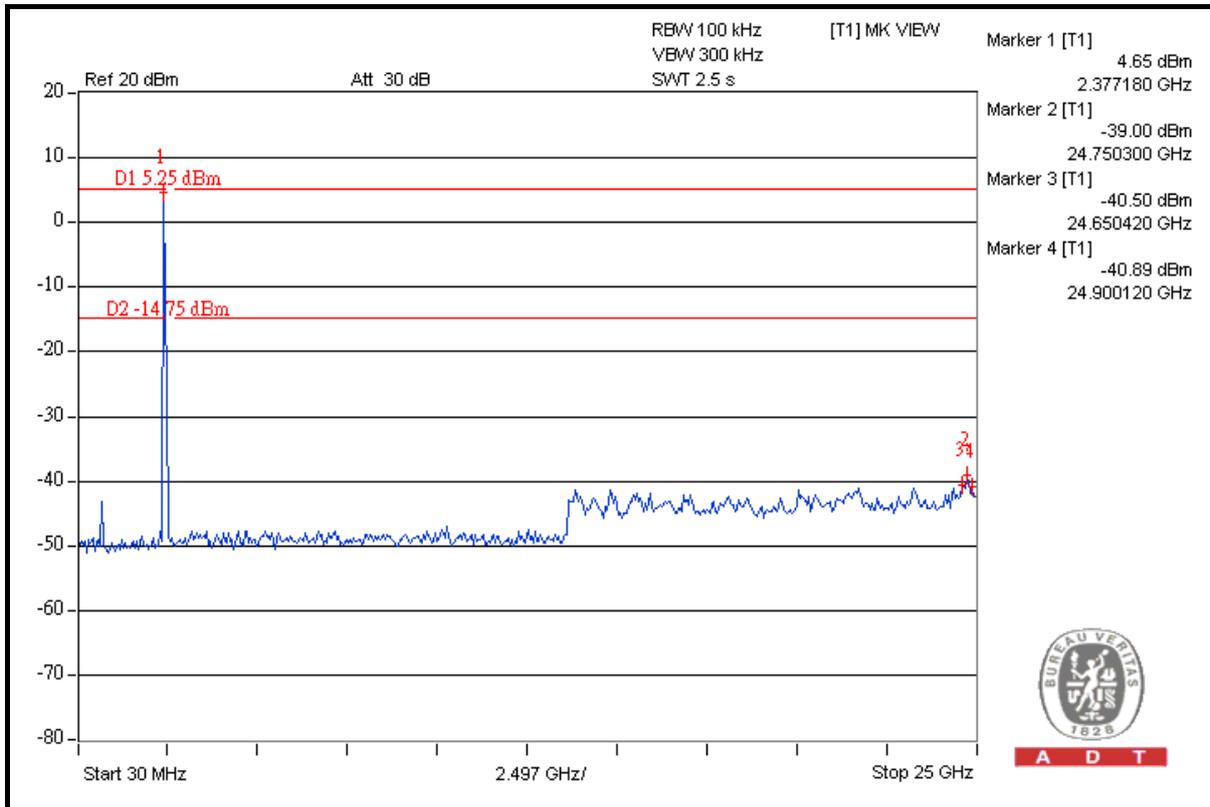


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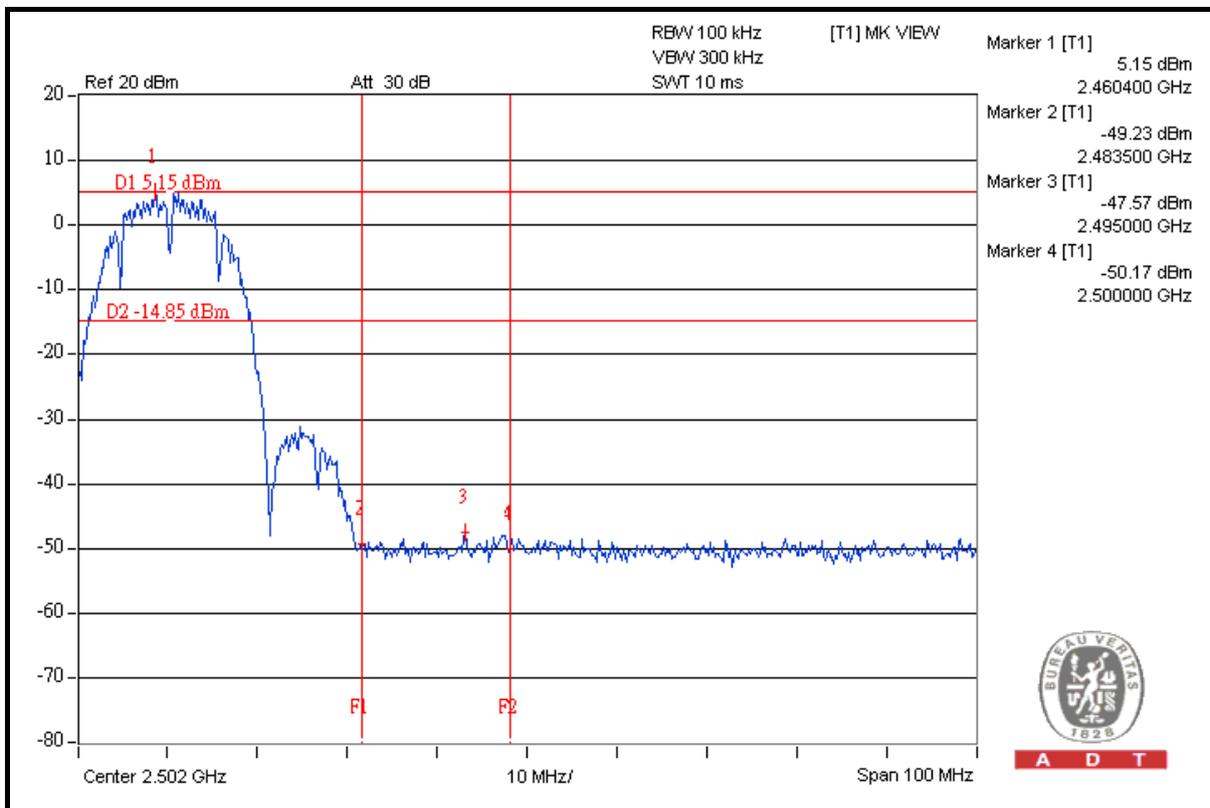




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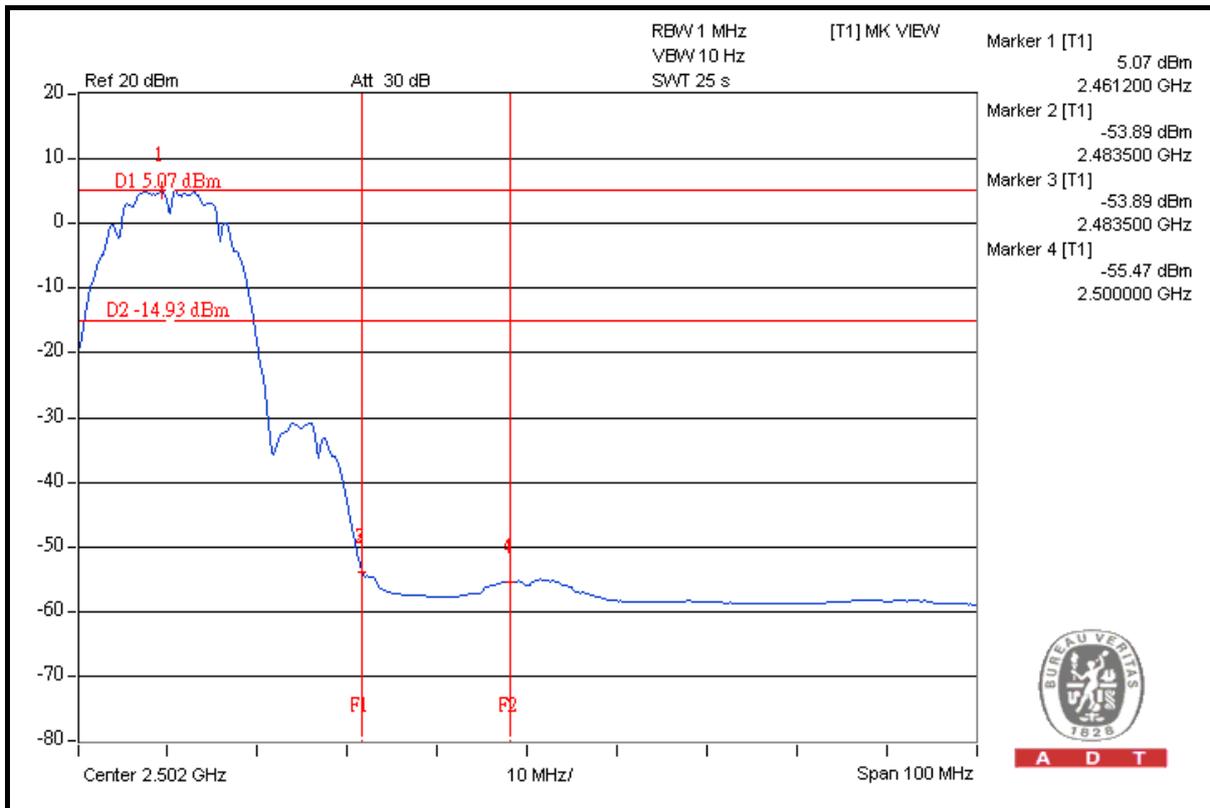
A D T



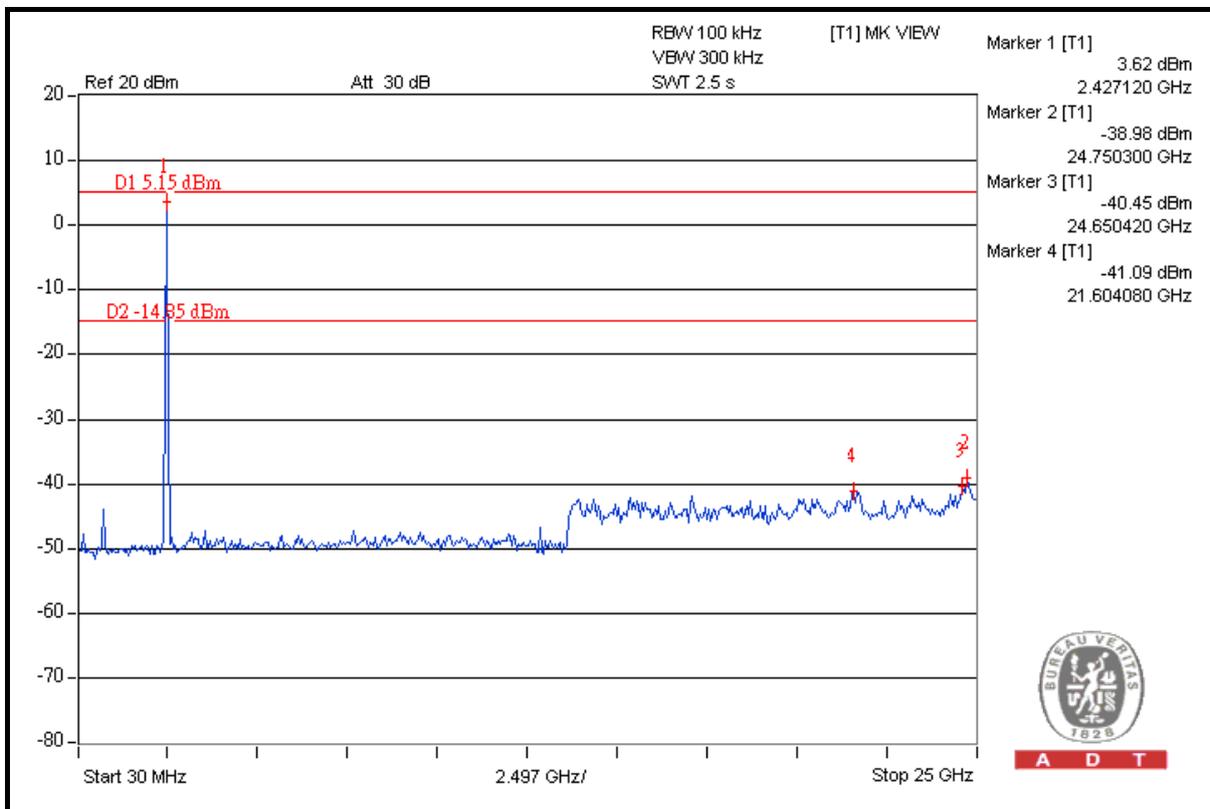
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## 802.11g OFDM MODULATION

**NOTE 1:** The band edge emission plot on the next page shows 47.33dBc between carrier maximum power and local maximum emission in restrict band (2.3892GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 111.44dBuV/m (Peak), so the maximum field strength in restrict band is  $111.44 - 47.33 = 64.11$ dBuV/m which is under 74dBuV/m limit.

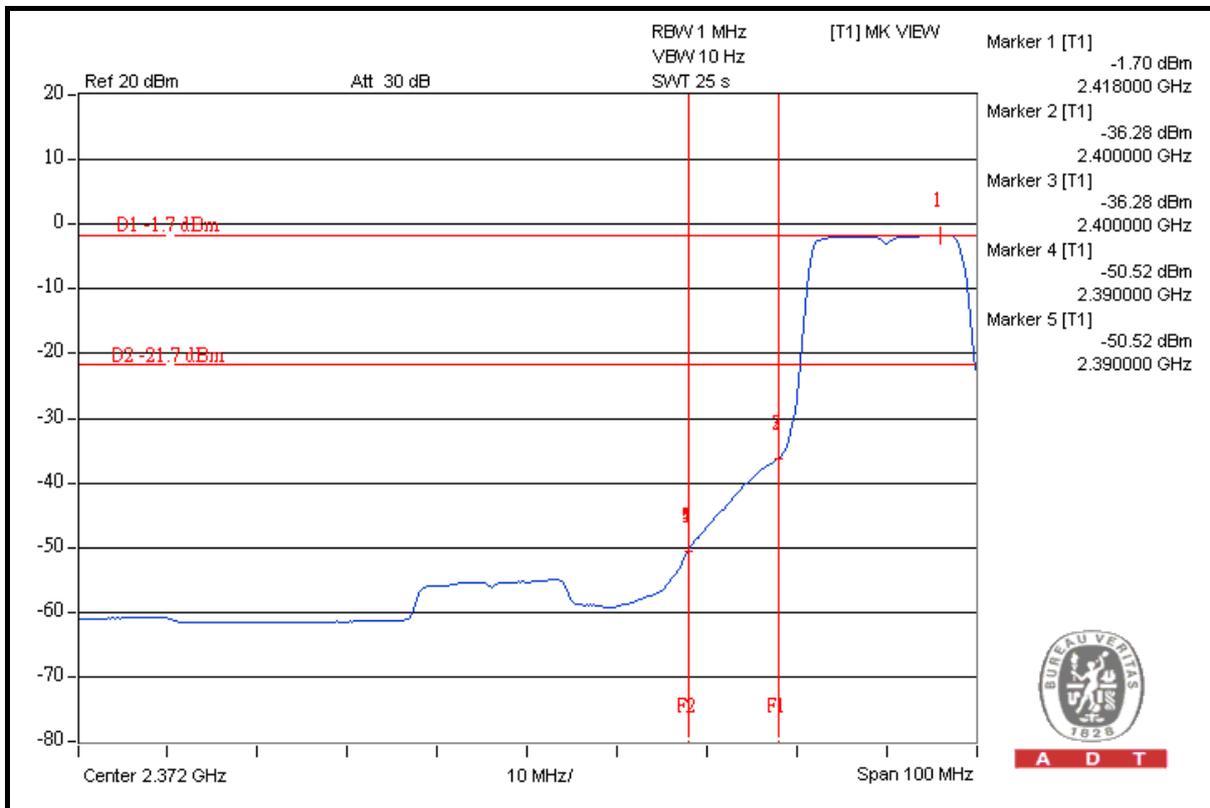
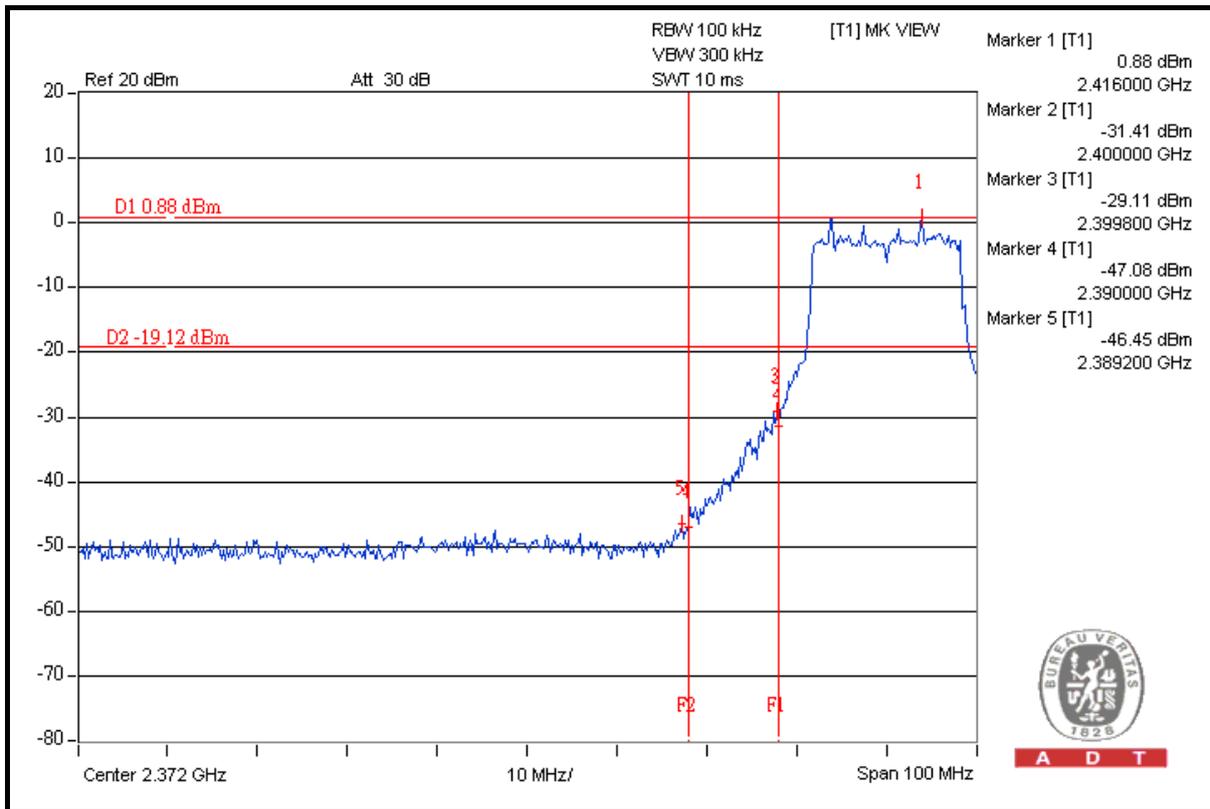
The band edge emission plot on the next page shows 48.82dBc between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 100.95dBuV/m (Average), so the maximum field strength in restrict band is  $100.95 - 48.82 = 52.13$ dBuV/m which is under 54dBuV/m limit.

**NOTE 2:** The band edge emission plot on the next second page shows 46.51dBc 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 11 at the item 4.1.7 is 111.51dBuV/m (Peak), so the maximum field strength in restrict band is  $111.51 - 46.51 = 65.03$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot on the next third page shows 48.84dBc 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 101.07dBuV/m (Average), so the maximum field strength in restrict band is  $101.07 - 48.84 = 52.23$ dBuV/m which is under 54dBuV/m limit.

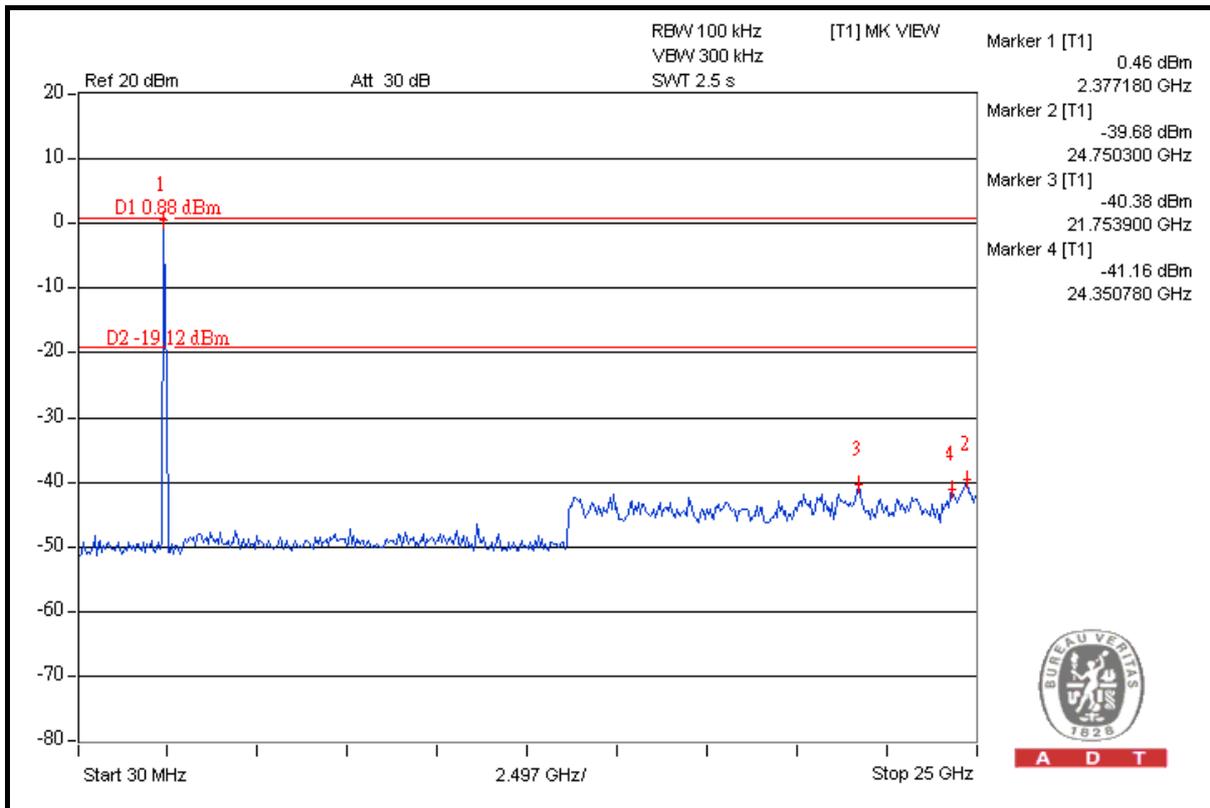


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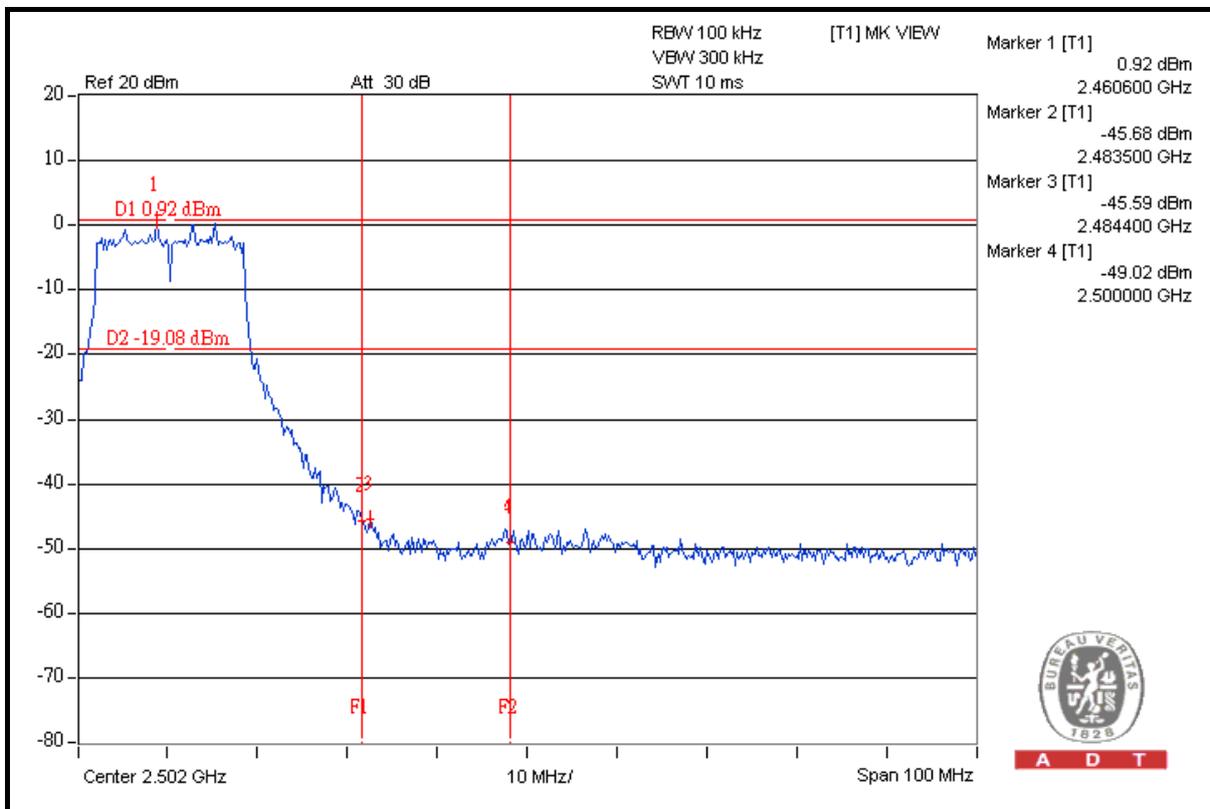




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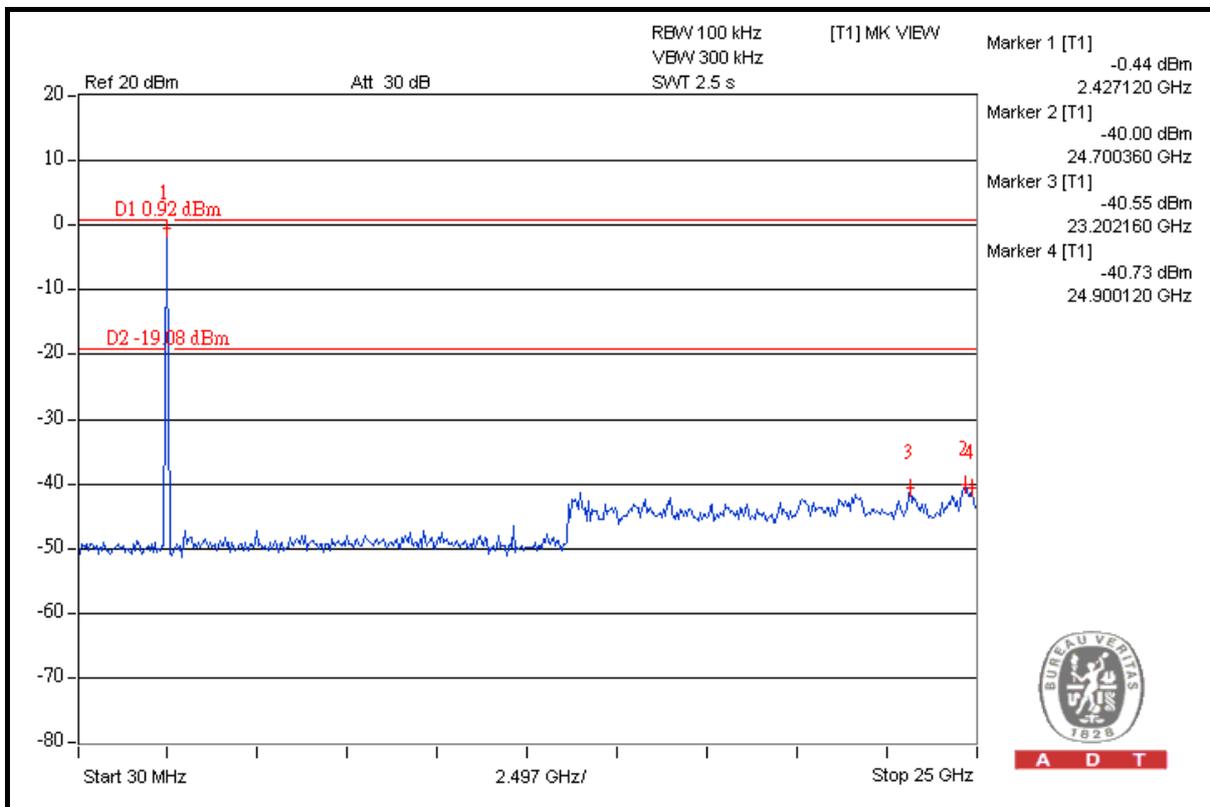
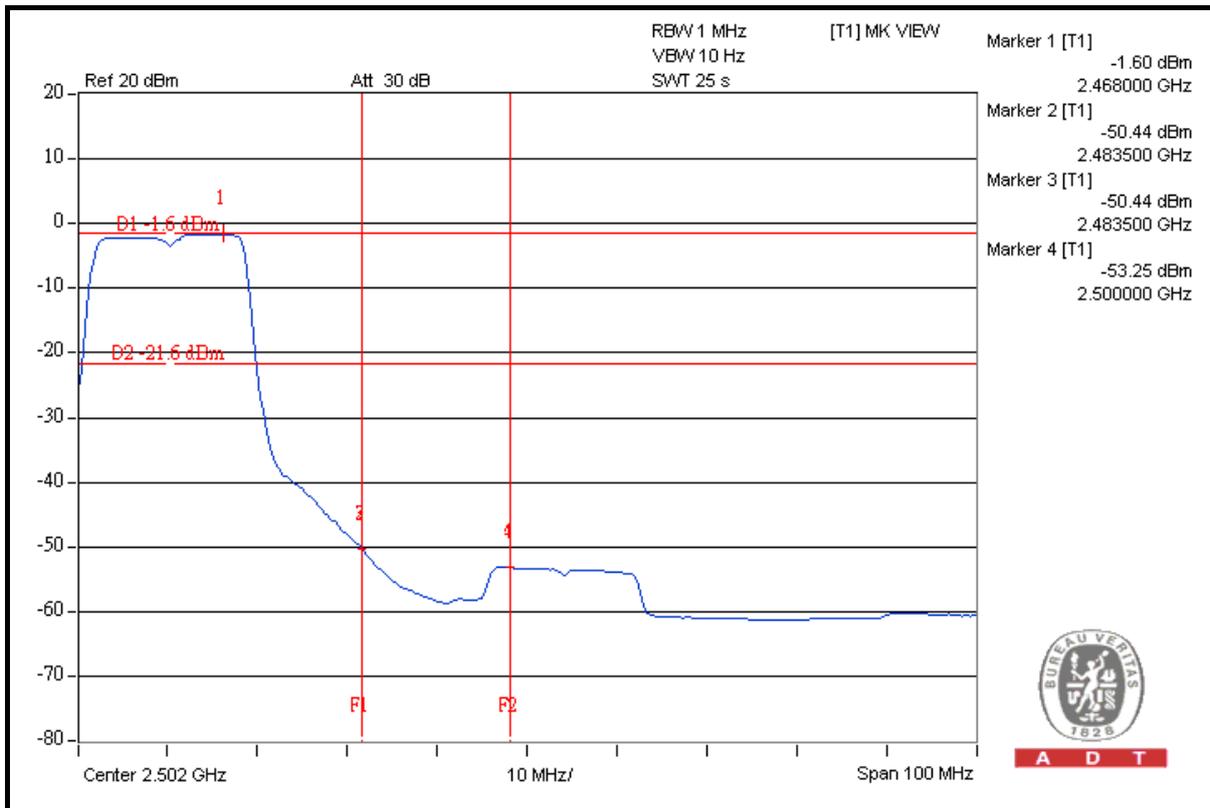
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## DRAFT 802.11n (20MHz) OFDM MODULATION

**NOTE 1:** The band edge emission plot on the next page shows 45.25dBc 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 109.85dBuV/m (Peak), so the maximum field strength in restrict band is  $109.85 - 45.25 = 64.60$ dBuV/m which is under 74dBuV/m limit.

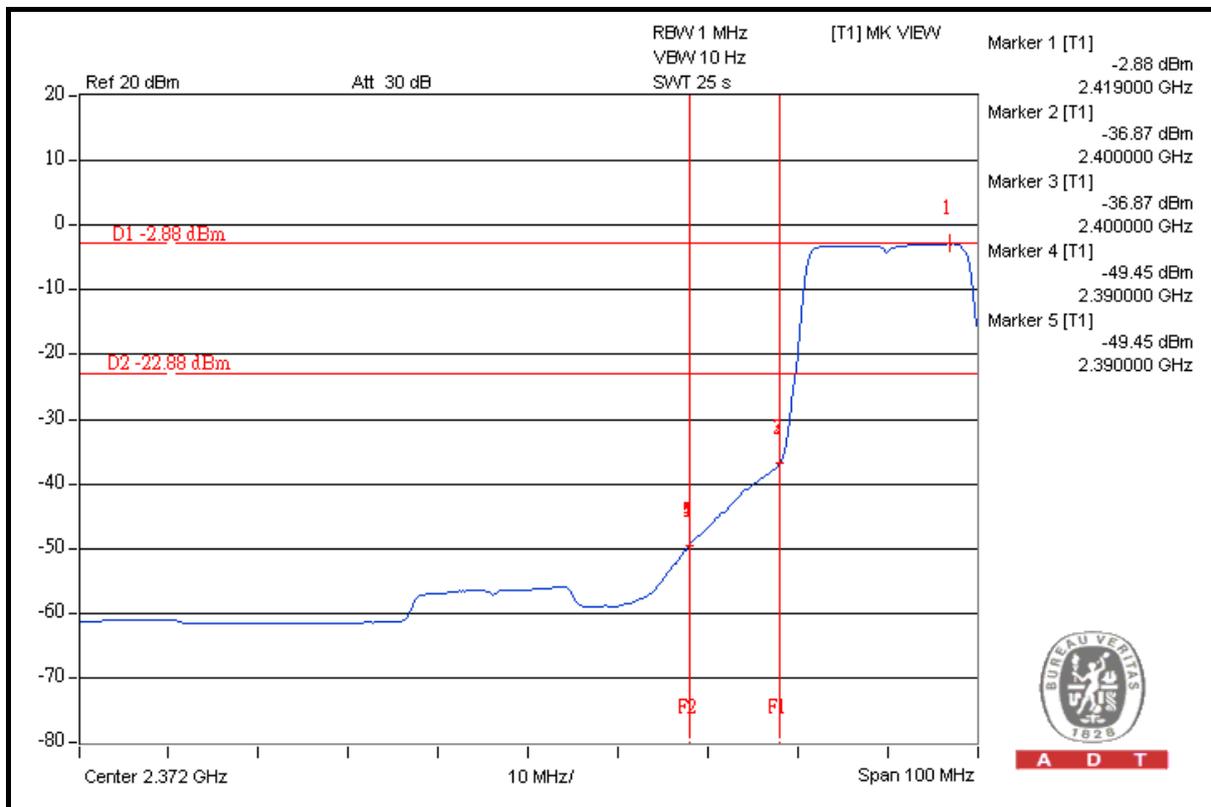
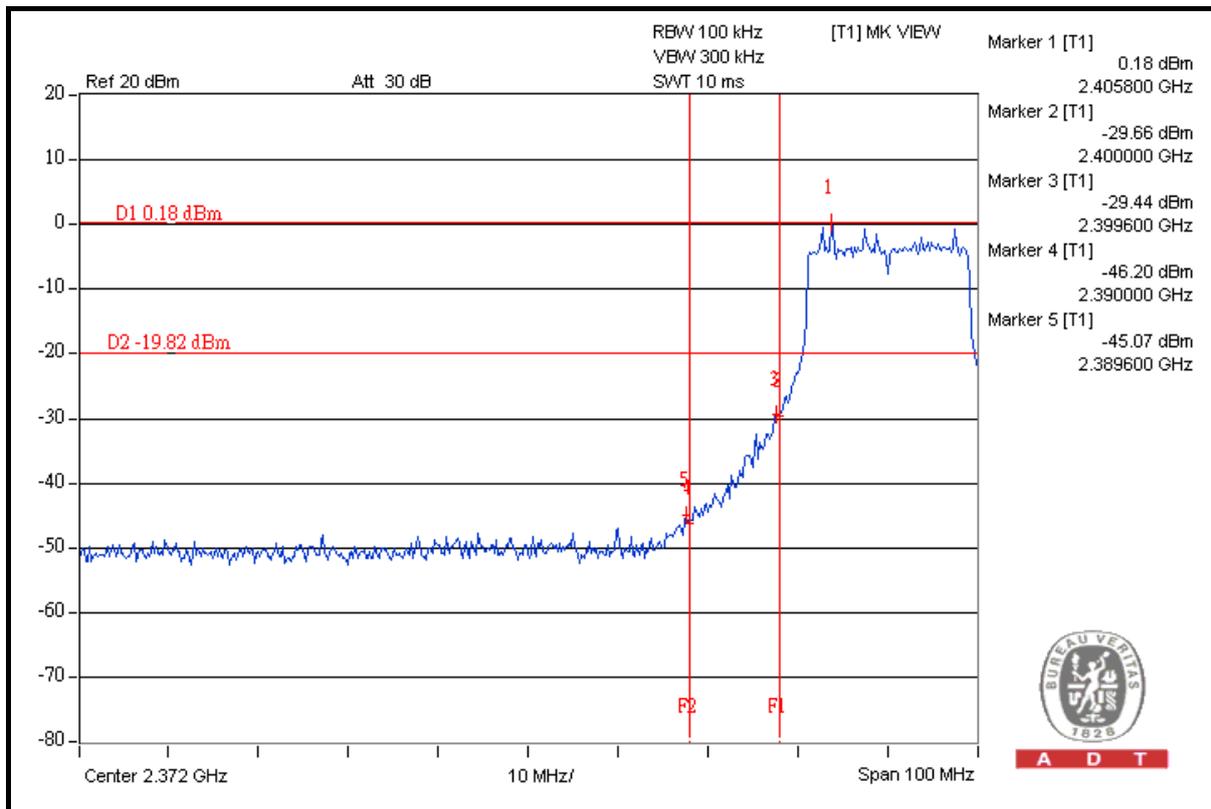
The band edge emission plot on the next page shows 46.57dBc between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 99.28dBuV/m (Average), so the maximum field strength in restrict band is  $99.28 - 46.57 = 52.71$ dBuV/m which is under 54dBuV/m limit.

**NOTE 2:** The band edge emission plot on the next second page shows 44.10dBc 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 109.92dBuV/m (Peak), so the maximum field strength in restrict band is  $109.92 - 44.10 = 65.82$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot on the next third page shows 47.09dBc 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 99.35dBuV/m (Average), so the maximum field strength in restrict band is  $99.35 - 47.09 = 52.26$ dBuV/m which is under 54dBuV/m limit.

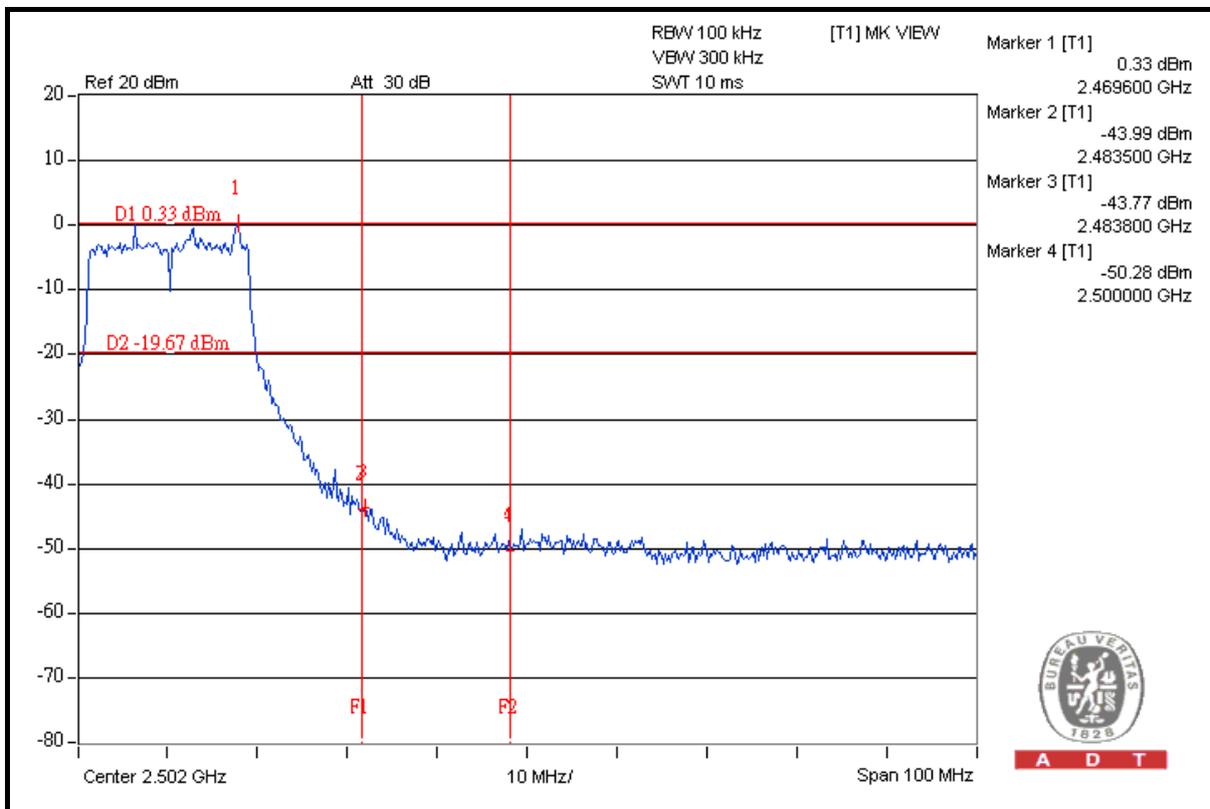
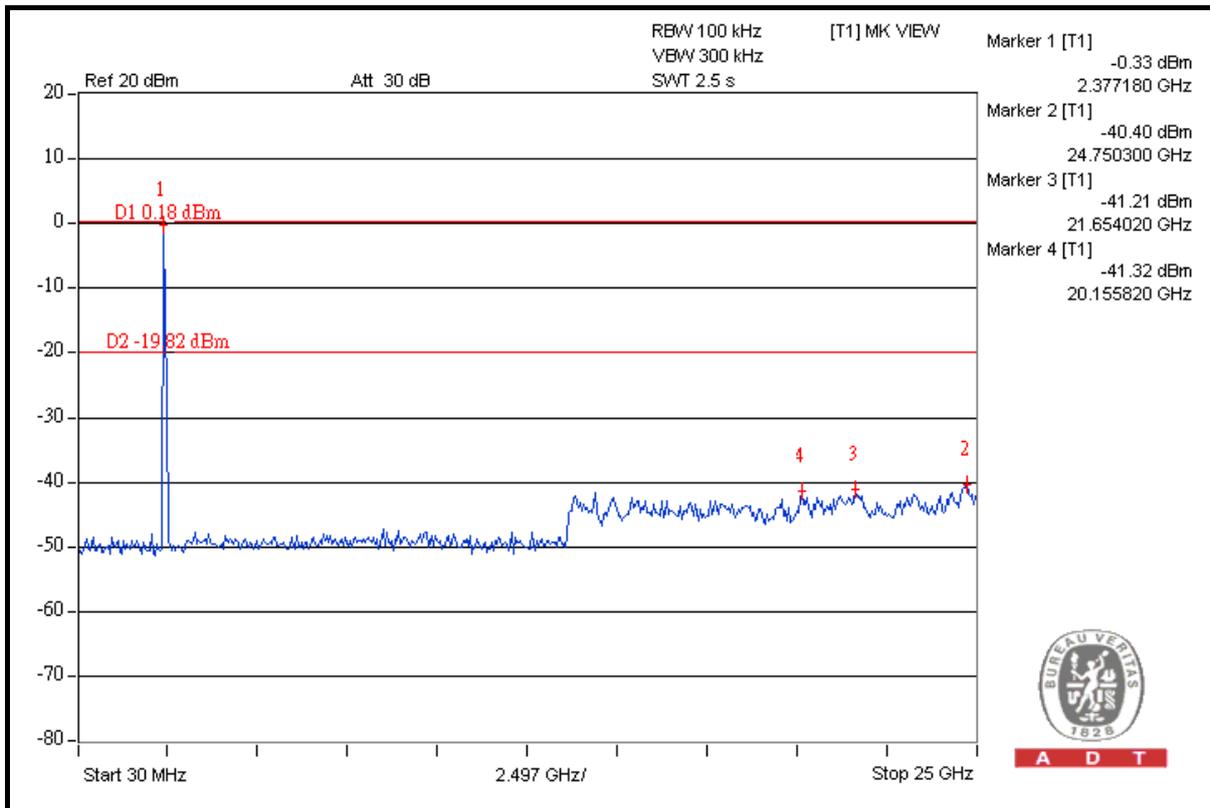


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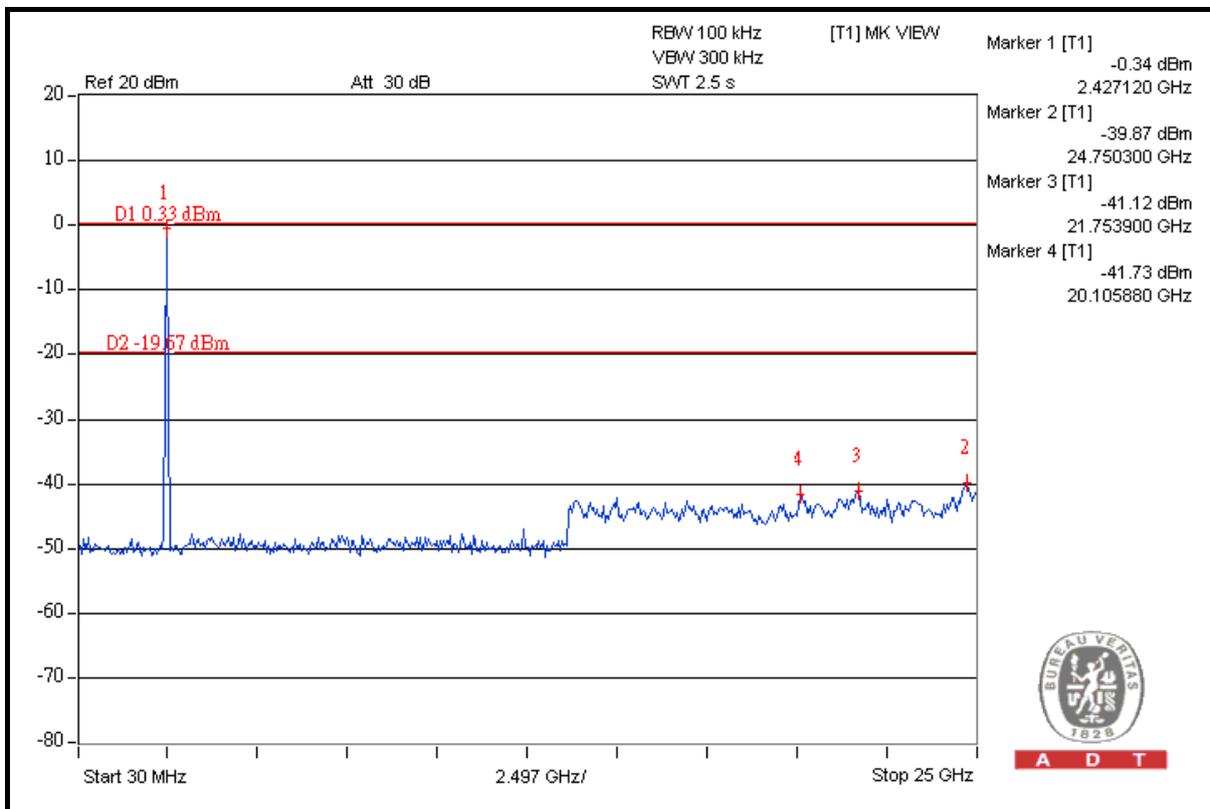
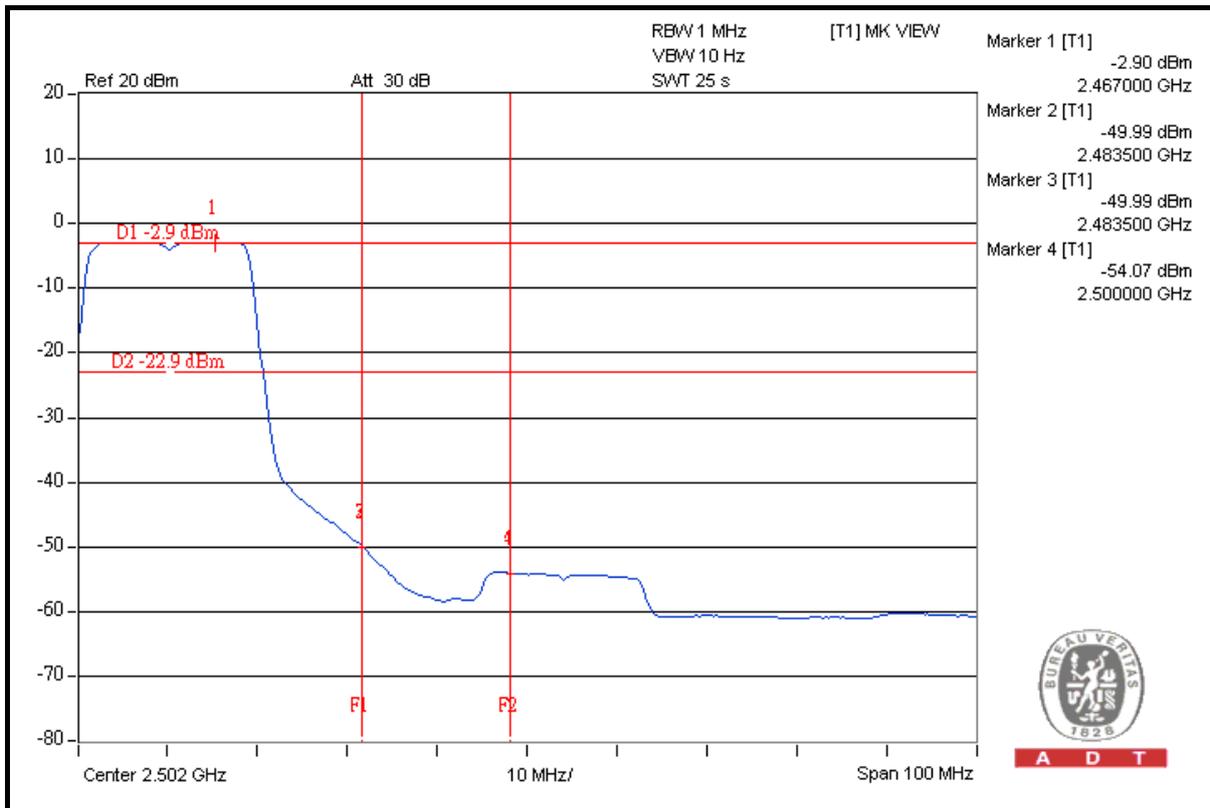


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## DRAFT 802.11n (40MHz) OFDM MODULATION

**NOTE 1:** The band edge emission plot on the next page shows 36.94dBc 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 104.07dBuV/m (Peak), so the maximum field strength in restrict band is  $104.07 - 36.94 = 67.13$ dBuV/m which is under 74dBuV/m limit.

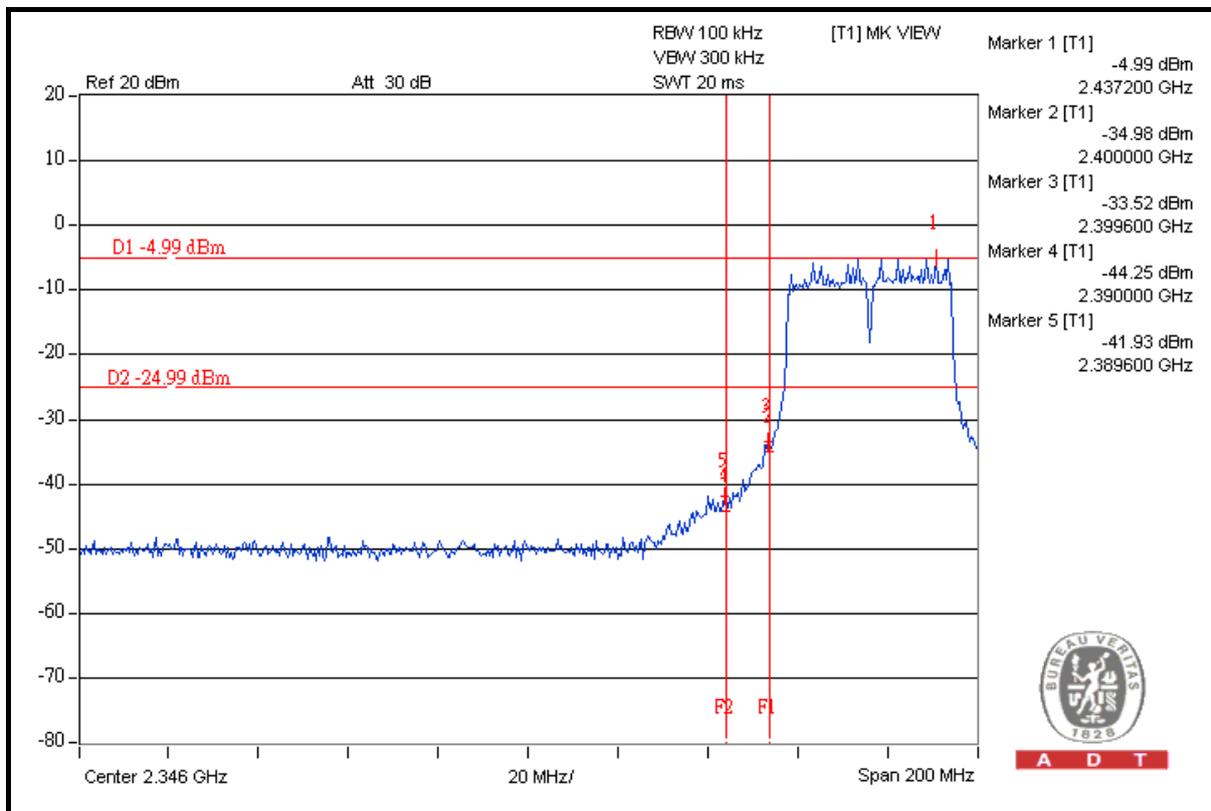
The band edge emission plot on the next page shows 40.85dBc between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.1.7 is 93.81dBuV/m (Average), so the maximum field strength in restrict band is  $93.81 - 40.85 = 52.96$ dBuV/m which is under 54dBuV/m limit.

**NOTE 2:** The band edge emission plot on the next second page shows 37.56dBc between carrier maximum power and local maximum emission in restrict band (2.4884GHz). The emission of carrier strength list in the test result of channel 7 at the item 4.1.7 is 104.22dBuV/m (Peak), so the maximum field strength in restrict band is  $104.22 - 37.56 = 66.66$ dBuV/m which is under 74dBuV/m limit.

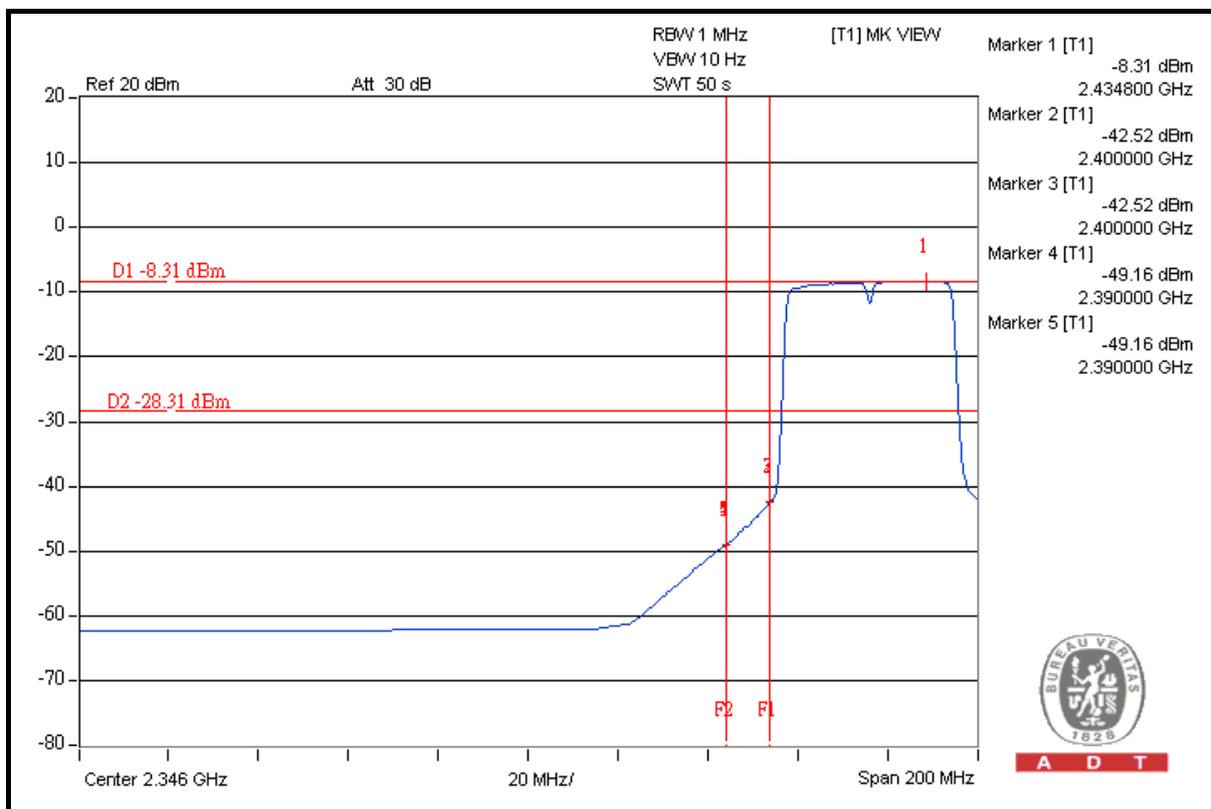
The band edge emission plot on the next third page shows 42.09dBc between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 7 at the item 4.1.7 is 93.94dBuV/m (Average), so the maximum field strength in restrict band is  $93.94 - 42.09 = 51.85$ dBuV/m which is under 54dBuV/m limit.



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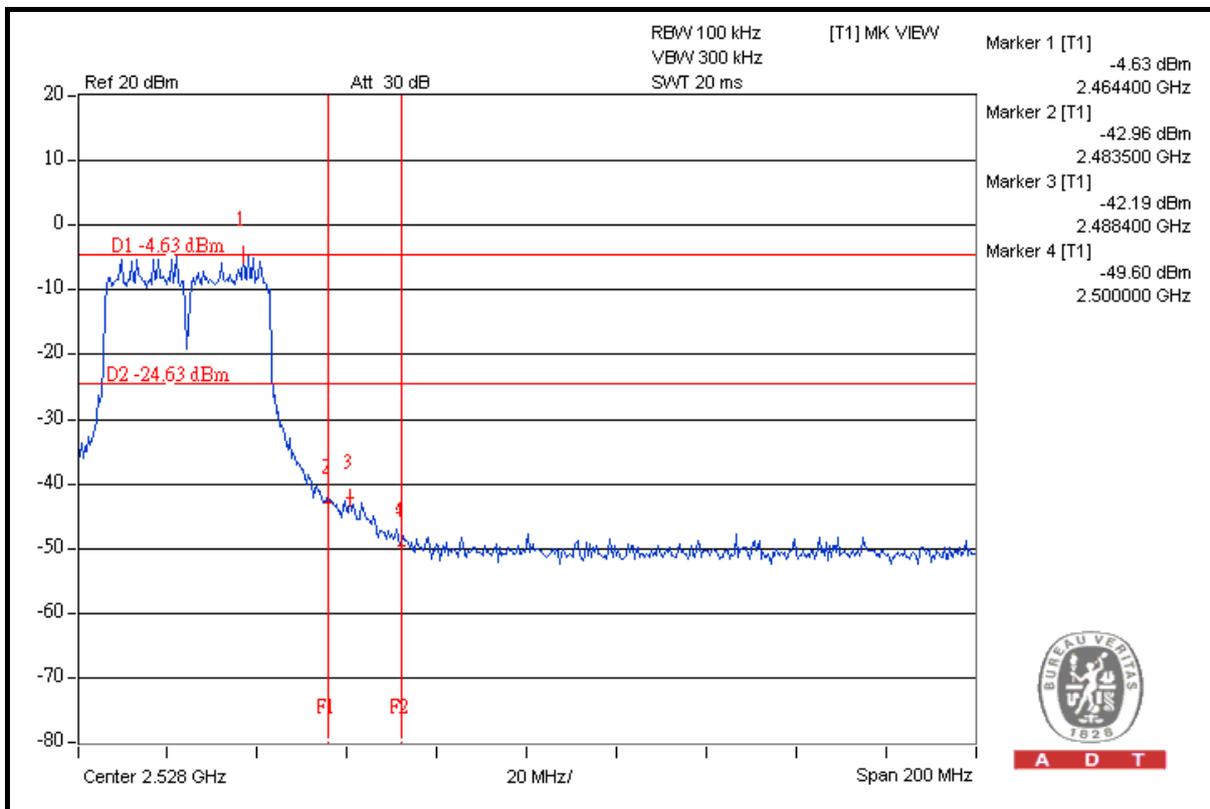
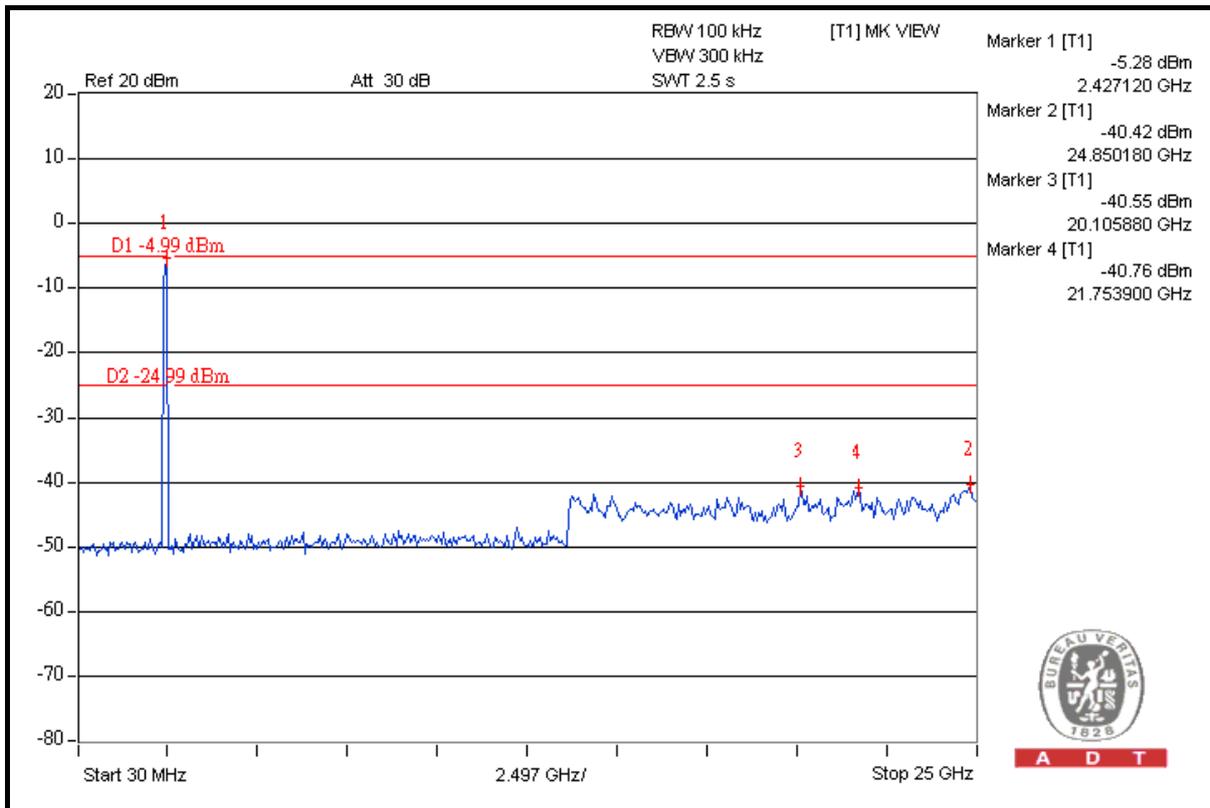
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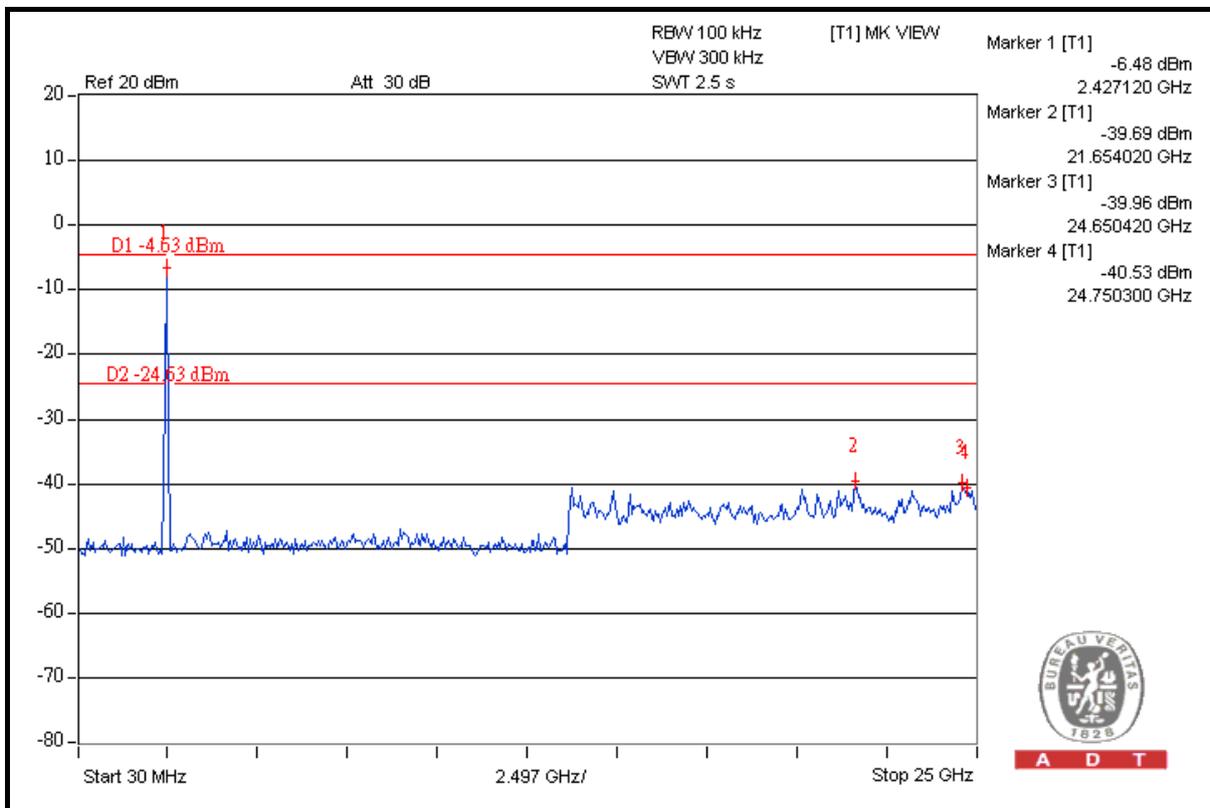
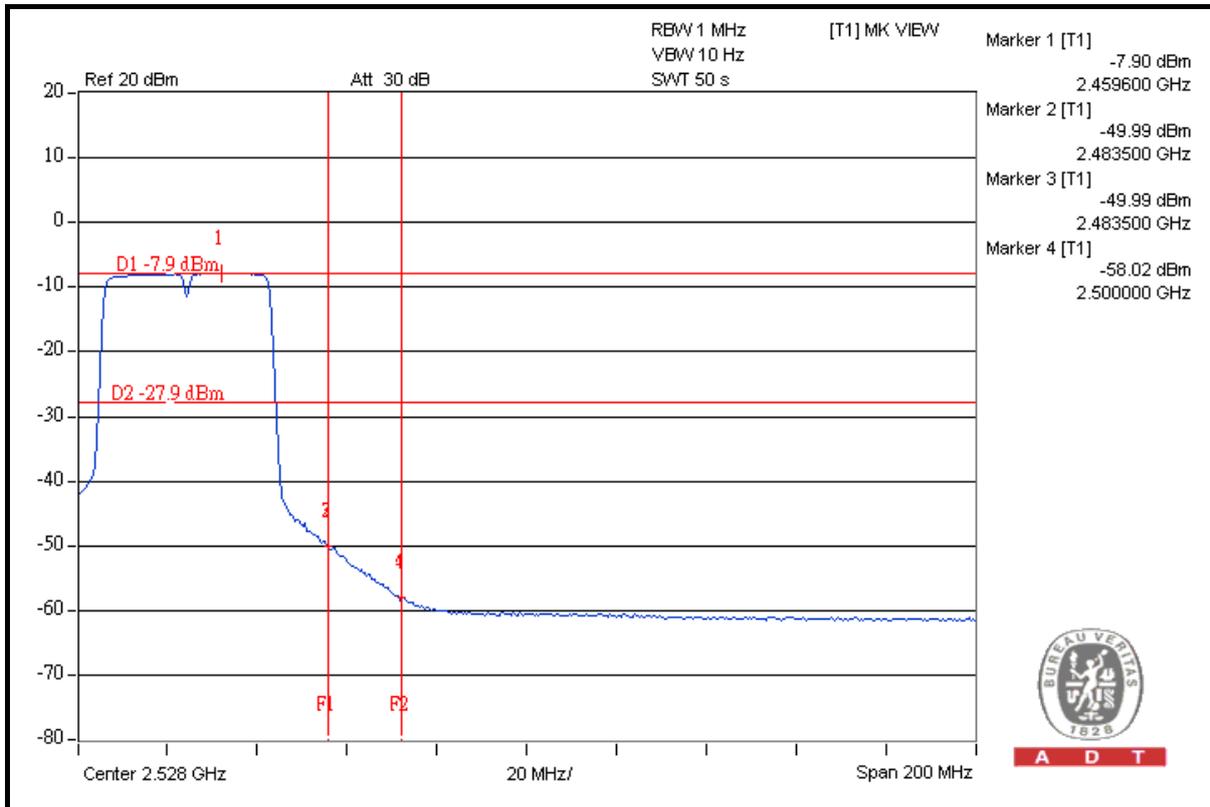


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## **4.7 ANTENNA REQUIREMENT**

### **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 Dipole antenna without antenna connector. The maximum Gain of the antenna is 2dBi.

## 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.

<b>USA</b>	FCC, NVLAP
<b>Germany</b>	TUV Rheinland
<b>Japan</b>	VCCI
<b>Norway</b>	NEMKO
<b>Canada</b>	INDUSTRY CANADA , CSA
<b>R.O.C.</b>	TAF, BSMI, NCC
<b>Netherlands</b>	Telefication
<b>Singapore</b>	GOST-ASIA(MOU)
<b>Russia</b>	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](http://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](http://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 ---**