



# FCC TEST REPORT

**REPORT NO.:** RF130708C19

**MODEL NO.:** TD-W8968

**FCC ID:** TE7TDW8968V2

**RECEIVED:** Jul. 08, 2013

**TESTED:** Sep. 19 ~ Oct. 18, 2013

**ISSUED:** Oct. 22, 2013

**APPLICANT:** TP-LINK TECHNOLOGIES CO., LTD.

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

**LAB ADDRESS:** No. 47, 14th Ling, Chia Pau Vil., Lin Kou Dist.,  
New Taipei City, Taiwan, R.O.C.

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

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## RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF130708C19	Original release	Oct. 22, 2013



## 1. CERTIFICATION

**PRODUCT:** 300Mbps Wireless N USB ADSL2+ Modem Router  
**MODEL NO.:** TD-W8968  
**BRAND:** TP-LINK  
**APPLICANT:** TP-LINK TECHNOLOGIES CO., LTD.  
**TESTED:** Sep. 19 ~ Oct. 18, 2013  
**TEST SAMPLE:** PRODUCTION SAMPLE  
**STANDARDS:** **FCC Part 15, Subpart C (Section 15.247)**  
ANSI C63.10-2009

The above equipment (model: TD-W8968) 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** :  , **DATE** : Oct. 22, 2013  
Pettie Chen / Senior Specialist

**APPROVED BY** :  , **DATE** : Oct. 22, 2013  
Ken Liu / Senior 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	RESULT	REMARK
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -7.04dB at 0.52363MHz.
15.247(d) 15.209	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -1.1dB at 2483.50MHz.
15.247(d)	Band Edge Measurement	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Antenna connector is murata not a standard connector.

### 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	2.93 dB
	200MHz ~1000MHz	2.95 dB
	1GHz ~ 18GHz	2.26 dB
	18GHz ~ 40GHz	1.94 dB

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



### 3. GENERAL INFORMATION

#### 3.1 GENERAL DESCRIPTION OF EUT

<b>EUT</b>	300Mbps Wireless N USB ADSL2+ Modem Router
<b>MODEL NO.</b>	TD-W8968
<b>POWER SUPPLY</b>	12Vdc (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 802.11n: up to 300.0Mbps
<b>OPERATING FREQUENCY</b>	2412 ~ 2462MHz
<b>NUMBER OF CHANNEL</b>	11 for 802.11b, 802.11g, 802.11n (20MHz) 7 for 802.11n (40MHz)
<b>OUTPUT POWER</b>	524.423 mW
<b>ANTENNA TYPE</b>	Dipole antenna with 5dBi gain
<b>ANTENNA CONNECTOR</b>	murata
<b>DATA CABLE</b>	NA
<b>I/O PORTS</b>	Refer to user's manual
<b>ACCESSORY DEVICES</b>	Adapter

**NOTE:**

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

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

2. The EUT consumes power from the following adapter.

ADAPTER	
<b>BRAND:</b>	TP-LINK TECHNOLOGIES CO., LTD.
<b>MODEL:</b>	T120100-2B1
<b>INPUT:</b>	100-240Vac, 50/60Hz, 0.3A
<b>OUTPUT:</b>	12Vdc, 1A
<b>POWER LINE:</b>	1.5m cable without core attached on adapter

3. The above EUT information is 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 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 802.11n (40MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
3	2422MHz	7	2442MHz
4	2427MHz	8	2447MHz
5	2432MHz	9	2452MHz
6	2437MHz		



### 3.2.1 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      **RE<1G**: Radiated Emission below 1GHz  
**PLC**: Power Line Conducted Emission      **APCM**: Antenna Port Conducted Measurement

**NOTE:** The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on Z-plane.

#### **RADIATED EMISSION TEST (ABOVE 1GHz):**

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
-	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
-	802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	7.2
-	802.11n (40MHz)	3 to 9	3, 6, 9	OFDM	BPSK	15.0

#### **RADIATED EMISSION TEST (BELOW 1GHz):**

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

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

#### **POWER LINE CONDUCTED EMISSION TEST:**

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

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



**BANDEDGE MEASUREMENT:**

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11b	1 to 11	1, 11	DSSS	DBPSK	1.0
-	802.11g	1 to 11	1, 11	OFDM	BPSK	6.0
-	802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	7.2
-	802.11n (40MHz)	3 to 9	3, 9	OFDM	BPSK	15.0

**ANTENNA PORT CONDUCTED MEASUREMENT:**

- This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- 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)
-	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
-	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
-	802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	7.2
-	802.11n (40MHz)	3 to 9	3, 6, 9	OFDM	BPSK	15.0

**TEST CONDITION:**

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	24deg. C, 66%RH	120Vac, 60Hz	Ted Chang
RE<1G	23deg. C, 64%RH	120Vac, 60Hz	Cedric Wu
PLC	25deg. C, 62%RH	120Vac, 60Hz	Jones Chang
APCM	25deg. C, 65%RH	120Vac, 60Hz	Jun Wu

### 3.3 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.

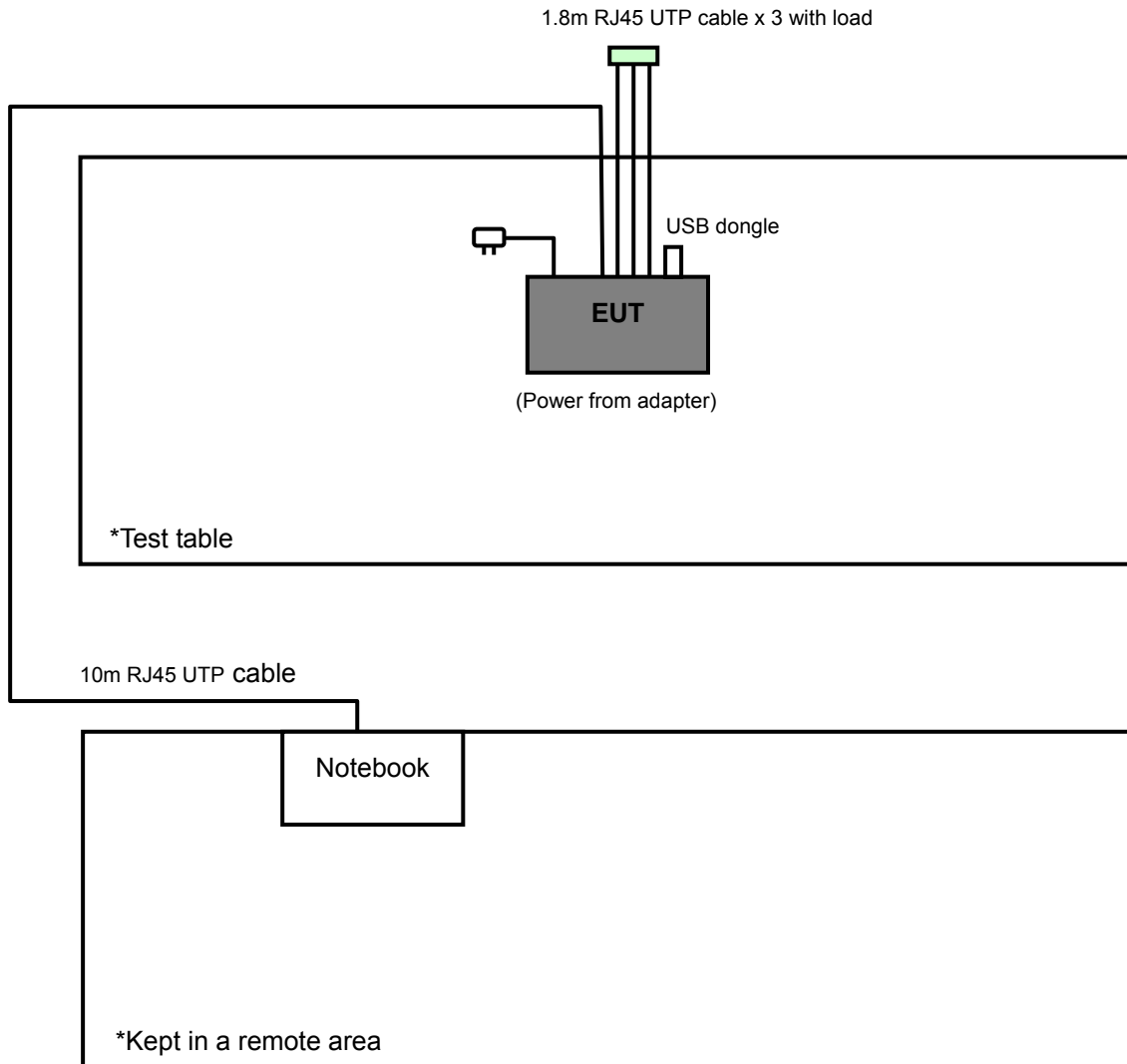
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Notebook	DELL	E5420	33MJMQ1	FCC DoC Approved
2	USB Dongle	SANDISK	SDCZ6-1024	N/A	NA

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

**NOTE:**

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

### 3.3.1 CONFIGURATION OF SYSTEM UNDER TEST



### 3.4 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)**

**558074 D01 DTS Meas Guidance v03r01**

**662911 D01 Multiple Transmitter Output v02**

**ANSI C63.10-2009**

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.

## 4. TEST TYPES AND RESULTS

### 4.1 RADIATED EMISSION AND BANDEDGE MEASUREMENT

#### 4.1.1 LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20dB below the highest level of the desired power:

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. 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.



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#### 4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100289	Nov. 16, 2012	Nov. 15, 2013
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Jan. 28, 2013	Jan. 27, 2014
BILOG Antenna SCHWARZBECK	VULB9168	9168-156	Mar. 22, 2013	Mar. 21, 2014
HORN Antenna SCHWARZBECK	BBHA 9120 D	209	Sep. 12, 2013	Sep. 11, 2014
HORN Antenna SCHWARZBECK	BBHA 9170	148	Jul. 15, 2013	Jul. 14, 2014
Preamplifier Agilent	8449B	3008A01911	Oct. 25, 2012	Oct. 24, 2013
Preamplifier Agilent	8447D	2944A10638	Oct. 25, 2012	Oct. 24, 2013
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	309222/4 248780/4 274392/4	Aug. 22, 2013	Aug. 21, 2014
RF signal cable Worken	8D-FB	Cable-HYCH9-01	Aug. 11, 2013	Aug. 10, 2014
Software BV ADT	ADT_Radiated_ V7.6.15.9.4	NA	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA	NA
Turn Table EMCO	2087-2.03	NA	NA	NA
Antenna Tower & Turn Table Controller EMCO	2090	NA	NA	NA
High Speed Power Meter	ML2495A	0824011	Jul. 29, 2013	Jul. 28, 2014
Power Sensor	MA2411B	0738171	Jul. 29, 2013	Jul. 28, 2014

- 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 calibration interval of the loop antenna is 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
  3. The test was performed in HwaYa Chamber 9.
  4. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
  5. The FCC Site Registration No. is 215374.
  6. The IC Site Registration No. is IC 7450F-9.

#### 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. Height of receiving 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 Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 1kHz(Duty cycle < 98%) or 10Hz(Duty cycle > 98%) for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

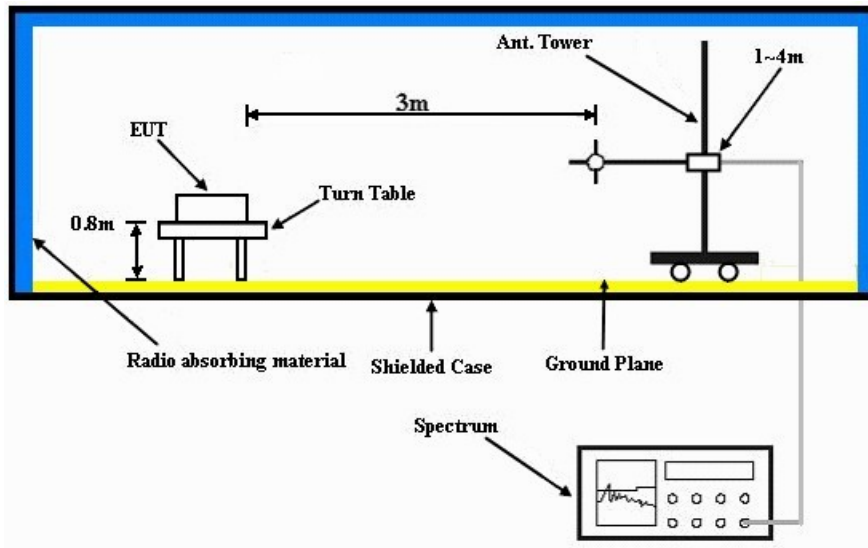
#### 4.1.4 DEVIATION FROM TEST STANDARD

No deviation.

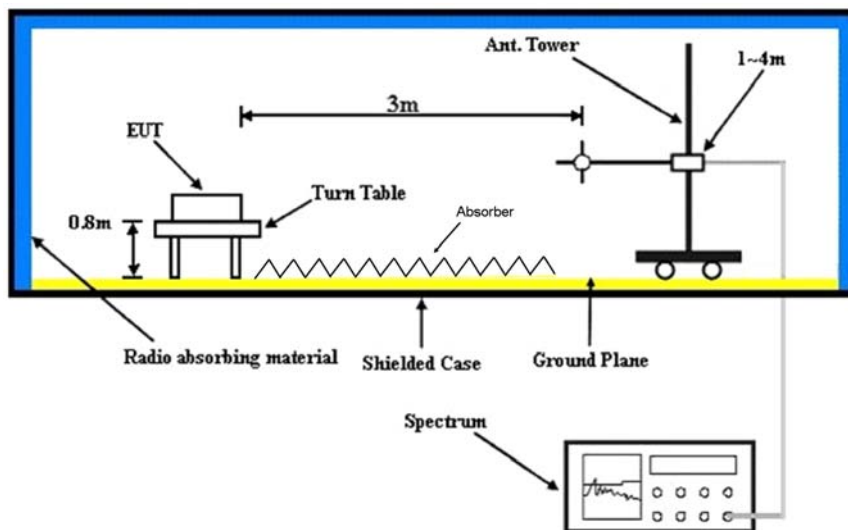


#### 4.1.5 TEST SETUP

##### Frequency range 30MHz~1GHz



##### Frequency range above 1GHz



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

#### 4.1.6 EUT OPERATING CONDITIONS

- a. Placed the EUT on the testing table.
- b. Prepared notebook to act as communication partner and placed it outside of testing area.
- c. The communication partner connected with EUT via a RJ45 cable and ran a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
- d. The communication partner sent data to EUT by command "PING".
- e. The necessary accessories enable the system in full functions.



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### 4.1.7 TEST RESULTS

#### ABOVE 1GHz DATA :

#### 802.11b

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 66%RH	TESTED BY	Ted Chang

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	58.0 PK	74.0	-16.0	1.23 H	132	24.60	33.40
2	2390.00	46.1 AV	54.0	-7.9	1.23 H	132	12.70	33.40
3	*2412.00	93.3 PK			1.23 H	133	59.80	33.50
4	*2412.00	89.0 AV			1.23 H	133	55.50	33.50
5	4824.00	52.1 PK	74.0	-21.9	1.56 H	324	48.50	3.60
6	4824.00	43.4 AV	54.0	-10.6	1.56 H	324	39.80	3.60

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	2333.00	59.8 PK	74.0	-14.2	1.00 V	162	26.40	33.40
2	2333.00	49.4 AV	54.0	-4.6	1.00 V	162	16.00	33.40
3	2390.00	57.1 PK	74.0	-16.9	1.00 V	215	23.70	33.40
4	2390.00	46.1 AV	54.0	-7.9	1.00 V	215	12.70	33.40
5	*2412.00	106.5 PK			1.00 V	215	73.00	33.50
6	*2412.00	102.3 AV			1.00 V	215	68.80	33.50
7	4824.00	55.2 PK	74.0	-18.8	1.00 V	25	51.60	3.60
8	4824.00	49.0 AV	54.0	-5.0	1.00 V	25	45.40	3.60

#### REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier 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 (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 66%RH	TESTED BY	Ted Chang

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	92.7 PK			1.00 H	146	59.20	33.50
2	*2437.00	89.0 AV			1.00 H	146	55.50	33.50
3	4874.00	53.4 PK	74.0	-20.6	1.00 H	330	49.60	3.80
4	4874.00	45.5 AV	54.0	-8.5	1.00 H	330	41.70	3.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2356.00	59.7 PK	74.0	-14.3	1.00 V	174	26.30	33.40
2	2356.00	49.8 AV	54.0	-4.2	1.00 V	174	16.40	33.40
3	*2437.00	106.9 PK			1.00 V	167	73.40	33.50
4	*2437.00	102.5 AV			1.00 V	167	69.00	33.50
5	4874.00	57.4 PK	74.0	-16.6	1.00 V	4	53.60	3.80
6	4874.00	52.0 AV	54.0	-2.0	1.00 V	4	48.20	3.80

**REMARKS:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier 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 (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 66%RH	TESTED BY	Ted Chang

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	89.7 PK			1.00 H	125	56.10	33.60
2	*2462.00	85.6 AV			1.00 H	125	52.00	33.60
3	2483.50	59.2 PK	74.0	-14.8	1.00 H	120	25.50	33.70
4	2483.50	46.2 AV	54.0	-7.8	1.00 H	120	12.50	33.70
5	4924.00	52.2 PK	74.0	-21.8	1.21 H	125	48.30	3.90
6	4924.00	43.1 AV	54.0	-10.9	1.21 H	125	39.20	3.90
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	2380.00	59.7 PK	74.0	-14.3	1.00 V	339	26.30	33.40
2	2380.00	48.8 AV	54.0	-5.2	1.00 V	339	15.40	33.40
3	*2462.00	103.3 PK			1.00 V	211	69.70	33.60
4	*2462.00	98.9 AV			1.00 V	211	65.30	33.60
5	2483.50	58.0 PK	74.0	-16.0	1.00 V	210	24.30	33.70
6	2483.50	46.3 AV	54.0	-7.7	1.00 V	210	12.60	33.70
7	4924.00	55.4 PK	74.0	-18.6	1.00 V	2	51.50	3.90
8	4924.00	48.8 AV	54.0	-5.2	1.00 V	2	44.90	3.90

**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) – Pre-Amplifier 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

802.11g

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 66%RH	TESTED BY	Ted Chang

**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	58.2 PK	74.0	-15.8	1.00 H	115	24.80	33.40
2	2390.00	46.6 AV	54.0	-7.4	1.00 H	115	13.20	33.40
3	*2412.00	93.5 PK			1.00 H	117	60.00	33.50
4	*2412.00	82.5 AV			1.00 H	117	49.00	33.50
5	4824.00	48.8 PK	74.0	-25.2	1.02 H	325	45.20	3.60
6	4824.00	36.1 AV	54.0	-17.9	1.02 H	325	32.50	3.60

**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	2330.00	60.0 PK	74.0	-14.0	1.00 V	233	26.60	33.40
2	2330.00	49.5 AV	54.0	-4.5	1.00 V	233	16.10	33.40
3	2390.00	62.2 PK	74.0	-11.8	1.00 V	230	28.80	33.40
4	2390.00	47.8 AV	54.0	-6.2	1.00 V	230	14.40	33.40
5	*2412.00	108.6 PK			1.00 V	214	75.10	33.50
6	*2412.00	97.3 AV			1.00 V	214	63.80	33.50
7	4824.00	50.6 PK	74.0	-23.4	1.02 V	271	47.00	3.60
8	4824.00	38.1 AV	54.0	-15.9	1.02 V	271	34.50	3.60

**REMARKS:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier 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 (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 66%RH	TESTED BY	Ted Chang

**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	98.3 PK			1.00 H	148	64.80	33.50
2	*2437.00	87.1 AV			1.00 H	148	53.60	33.50
3	4874.00	50.0 PK	74.0	-24.0	1.02 H	251	46.20	3.80
4	4874.00	35.0 AV	54.0	-19.0	1.02 H	251	31.20	3.80

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2352.00	61.7 PK	74.0	-12.3	1.00 V	173	28.30	33.40
2	2352.00	50.8 AV	54.0	-3.2	1.00 V	173	17.40	33.40
3	*2437.00	111.0 PK			1.00 V	167	77.50	33.50
4	*2437.00	99.5 AV			1.00 V	167	66.00	33.50
5	4874.00	51.5 PK	74.0	-22.5	1.02 V	256	47.70	3.80
6	4874.00	38.3 AV	54.0	-15.7	1.02 V	256	34.50	3.80

**REMARKS:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)  
– Pre-Amplifier 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 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 66%RH	TESTED BY	Ted Chang

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	93.7 PK			1.00 H	124	60.10	33.60
2	*2462.00	82.8 AV			1.00 H	124	49.20	33.60
3	2483.50	58.6 PK	74.0	-15.4	1.00 H	120	24.90	33.70
4	2483.50	46.7 AV	54.0	-7.3	1.00 H	120	13.00	33.70
5	4924.00	52.5 PK	74.0	-21.5	1.03 H	248	48.60	3.90
6	4924.00	38.6 AV	54.0	-15.4	1.03 H	248	34.70	3.90
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	2378.00	61.6 PK	74.0	-12.4	1.00 V	348	28.20	33.40
2	2378.00	49.5 AV	54.0	-4.5	1.00 V	348	16.10	33.40
3	*2462.00	106.5 PK			1.00 V	222	72.90	33.60
4	*2462.00	95.4 AV			1.00 V	222	61.80	33.60
5	2483.50	62.0 PK	74.0	-12.0	1.00 V	220	28.30	33.70
6	2483.50	48.0 AV	54.0	-6.0	1.00 V	220	14.30	33.70
7	4924.00	52.6 PK	74.0	-21.4	1.02 V	226	48.70	3.90
8	4924.00	39.1 AV	54.0	-14.9	1.02 V	226	35.20	3.90

**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) – Pre-Amplifier 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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802.11n (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 66%RH	TESTED BY	Ted Chang

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	62.0 PK	74.0	-12.0	1.03 H	225	28.60	33.40
2	2390.00	46.8 AV	54.0	-7.2	1.03 H	225	13.40	33.40
3	*2412.00	99.6 PK			1.03 H	224	66.10	33.50
4	*2412.00	89.7 AV			1.03 H	224	56.20	33.50
5	4824.00	51.9 PK	74.0	-22.1	1.02 H	325	48.30	3.60
6	4824.00	36.8 AV	54.0	-17.2	1.02 H	325	33.20	3.60

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	72.2 PK	74.0	-1.8	1.00 V	344	38.80	33.40
2	2390.00	52.5 AV	54.0	-1.5	1.00 V	344	19.10	33.40
3	*2412.00	111.2 PK			1.00 V	35	77.70	33.50
4	*2412.00	101.2 AV			1.00 V	35	67.70	33.50
5	4824.00	55.0 PK	74.0	-19.0	1.00 V	358	51.40	3.60
6	4824.00	40.2 AV	54.0	-13.8	1.00 V	358	36.60	3.60

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)  
- Pre-Amplifier 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 (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 66%RH	TESTED BY	Ted Chang

**ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M**

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	100.5 PK			1.00 H	220	67.00	33.50
2	*2437.00	90.3 AV			1.00 H	220	56.80	33.50
3	4874.00	50.0 PK	74.0	-24.0	1.02 H	116	46.20	3.80
4	4874.00	35.0 AV	54.0	-19.0	1.02 H	116	31.20	3.80

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2385.00	61.1 PK	74.0	-12.9	1.00 V	167	27.70	33.40
2	2385.00	51.0 AV	54.0	-3.0	1.00 V	167	17.60	33.40
3	*2437.00	111.7 PK			1.00 V	240	78.20	33.50
4	*2437.00	101.3 AV			1.00 V	240	67.80	33.50
5	4874.00	60.0 PK	74.0	-14.0	1.00 V	2	56.20	3.80
6	4874.00	43.8 AV	54.0	-10.2	1.00 V	2	40.00	3.80

**REMARKS:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)  
– Pre-Amplifier 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 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 66%RH	TESTED BY	Ted Chang

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	96.5 PK			1.02 H	221	62.90	33.60
2	*2462.00	86.8 AV			1.02 H	221	53.20	33.60
3	2483.50	61.1 PK	74.0	-12.9	1.00 H	220	27.40	33.70
4	2483.50	47.3 AV	54.0	-6.7	1.00 H	220	13.60	33.70
5	4924.00	48.4 PK	74.0	-25.6	1.08 H	264	44.50	3.90
6	4924.00	37.1 AV	54.0	-16.9	1.08 H	264	33.20	3.90
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	108.2 PK			1.00 V	219	74.60	33.60
2	*2462.00	99.0 AV			1.00 V	219	65.40	33.60
3	2483.50	72.4 PK	74.0	-1.6	1.00 V	212	38.70	33.70
4	2483.50	51.6 AV	54.0	-2.4	1.00 V	212	17.90	33.70
5	4924.00	56.8 PK	74.0	-17.2	1.00 V	2	52.90	3.90
6	4924.00	40.9 AV	54.0	-13.1	1.00 V	2	37.00	3.90

**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)  
– Pre-Amplifier 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

802.11n (40MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 3	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 66%RH	TESTED BY	Ted Chang

**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	58.1 PK	74.0	-15.9	1.00 H	241	24.70	33.40
2	2390.00	46.3 AV	54.0	-7.7	1.00 H	241	12.90	33.40
3	*2422.00	93.1 PK			1.00 H	211	59.60	33.50
4	*2422.00	81.2 AV			1.00 H	211	47.70	33.50
5	4844.00	47.4 PK	74.0	-26.6	1.00 H	141	43.70	3.70
6	4844.00	36.2 AV	54.0	-17.8	1.00 H	141	32.50	3.70

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	67.0 PK	74.0	-7.0	1.00 V	42	33.60	33.40
2	2390.00	52.8 AV	54.0	-1.2	1.00 V	42	19.40	33.40
3	*2422.00	105.3 PK			1.00 V	338	71.80	33.50
4	*2422.00	96.1 AV			1.00 V	338	62.60	33.50
5	4844.00	52.3 PK	74.0	-21.7	1.00 V	198	48.60	3.70
6	4844.00	39.1 AV	54.0	-14.9	1.00 V	198	35.40	3.70

**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)  
– Pre-Amplifier 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 (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 66%RH	TESTED BY	Ted Chang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	60.0 PK	74.0	-14.0	1.00 H	214	26.60	33.40
2	2390.00	48.0 AV	54.0	-6.0	1.00 H	214	14.60	33.40
3	*2437.00	95.3 PK			1.00 H	213	61.80	33.50
4	*2437.00	85.7 AV			1.00 H	213	52.20	33.50
5	2483.50	59.6 PK	74.0	-14.4	1.01 H	249	25.90	33.70
6	2483.50	47.1 AV	54.0	-6.9	1.01 H	249	13.40	33.70
7	4874.00	48.9 PK	74.0	-25.1	1.00 H	329	45.10	3.80
8	4874.00	37.7 AV	54.0	-16.3	1.00 H	329	33.90	3.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	64.8 PK	74.0	-9.2	1.00 V	206	31.40	33.40
2	2390.00	52.8 AV	54.0	-1.2	1.00 V	206	19.40	33.40
3	*2437.00	109.1 PK			1.00 V	212	75.60	33.50
4	*2437.00	99.7 AV			1.00 V	212	66.20	33.50
5	2483.50	64.8 PK	74.0	-9.2	1.00 V	156	31.10	33.70
6	2483.50	51.2 AV	54.0	-2.8	1.00 V	156	17.50	33.70
7	4874.00	53.4 PK	74.0	-20.6	1.00 V	24	49.60	3.80
8	4874.00	40.6 AV	54.0	-13.4	1.00 V	24	36.80	3.80

**REMARKS:**

- Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
- Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)  
– Pre-Amplifier Factor(dB)
- The other emission levels were very low against the limit.
- Margin value = Emission Level – Limit value
- \* \*: Fundamental frequency.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 9	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 66%RH	TESTED BY	Ted Chang

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	91.2 PK			1.00 H	114	57.60	33.60
2	*2452.00	81.4 AV			1.00 H	114	47.80	33.60
3	2483.50	58.0 PK	74.0	-16.0	1.00 H	259	24.30	33.70
4	2483.50	46.5 AV	54.0	-7.5	1.00 H	259	12.80	33.70
5	4904.00	50.4 PK	74.0	-23.6	1.00 H	241	46.50	3.90
6	4904.00	37.4 AV	54.0	-16.6	1.00 H	241	33.50	3.90
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	105.6 PK			1.00 V	203	72.00	33.60
2	*2452.00	95.8 AV			1.00 V	203	62.20	33.60
3	2483.50	69.8 PK	74.0	-4.2	1.00 V	158	36.10	33.70
4	<b>2483.50</b>	<b>52.9 AV</b>	<b>54.0</b>	<b>-1.1</b>	<b>1.00 V</b>	<b>158</b>	<b>19.20</b>	<b>33.70</b>
5	4904.00	52.4 PK	74.0	-21.6	1.00 V	278	48.50	3.90
6	4904.00	39.0 AV	54.0	-15.0	1.00 V	278	35.10	3.90

**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)  
– Pre-Amplifier 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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**BELOW 1GHz WORST-CASE DATA : 802.11n (20MHz)**

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	23deg. C, 64%RH	TESTED BY	Cedric Wu

**ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M**

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	282.20	41.5 QP	46.0	-4.5	1.24 H	268	54.40	-12.90
2	300.00	44.8 QP	46.0	-1.2	1.24 H	169	57.20	-12.40
3	499.48	40.2 QP	46.0	-5.8	1.50 H	196	48.50	-8.30
4	610.06	37.5 QP	46.0	-8.5	1.99 H	295	43.70	-6.20
5	629.46	38.5 QP	46.0	-7.5	1.24 H	225	44.30	-5.80
6	701.24	42.4 QP	46.0	-3.6	1.01 H	64	47.20	-4.80

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	51.34	37.0 QP	40.0	-3.0	1.00 V	166	51.30	-14.30
2	282.20	39.5 QP	46.0	-6.5	1.50 V	247	52.40	-12.90
3	300.00	44.6 QP	46.0	-1.4	1.99 V	23	57.00	-12.40
4	419.94	39.8 QP	46.0	-6.2	1.24 V	319	49.50	-9.70
5	499.48	42.5 QP	46.0	-3.5	1.24 V	264	50.80	-8.30
6	701.24	44.4 QP	46.0	-1.6	1.50 V	124	49.20	-4.80

**REMARKS:**

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



## 4.2 CONDUCTED EMISSION MEASUREMENT

### 4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

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

### 4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100289	Nov. 16, 2012	Nov. 15, 2013
RF signal cable Woken	5D-FB	Cable-HYC01-01	Dec. 28, 2012	Dec. 27, 2013
LISN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Feb. 04, 2013	Feb. 03, 2014
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100312	Jul. 08, 2013	Jul. 07, 2014
Software ADT	BV ADT_Cond_ V7.3.7.3	NA	NA	NA

- NOTE:** 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Shielded Room 1.
3. The VCCI Site Registration No. is C-2040.



#### 4.2.3 TEST PROCEDURES

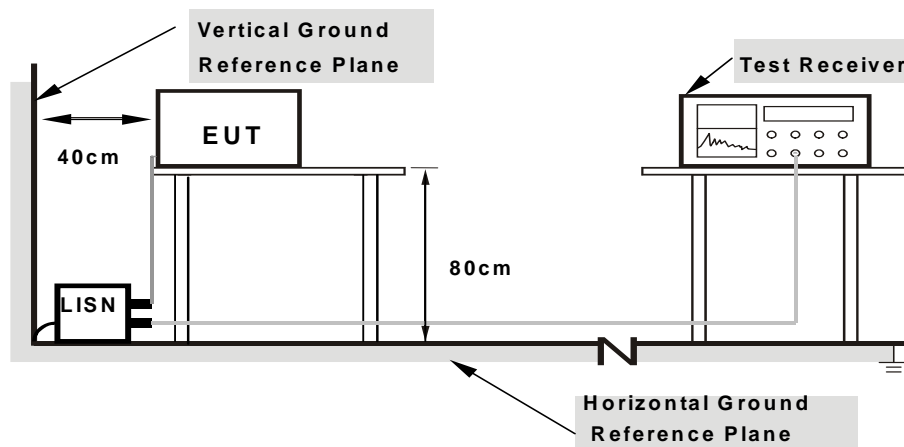
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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

#### 4.2.4 DEVIATION FROM TEST STANDARD

No deviation.

#### 4.2.5 TEST SETUP



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

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

#### 4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6.

## 4.2.7 TEST RESULTS

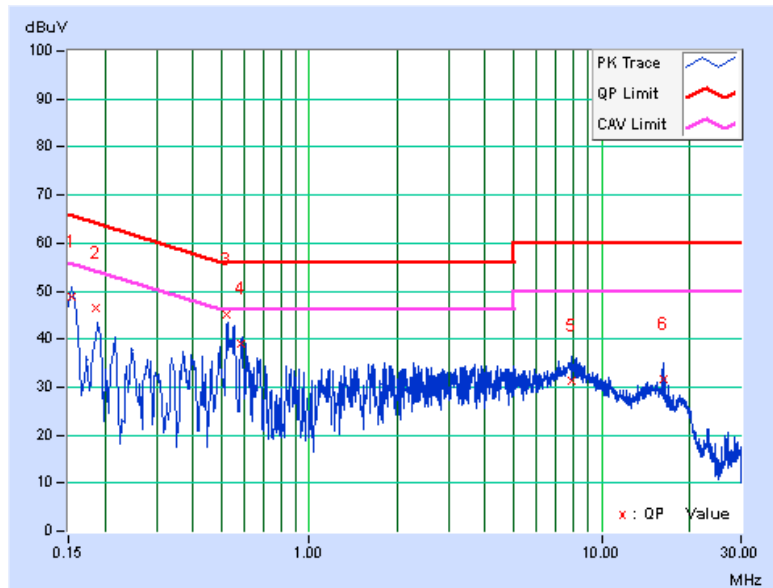
### CONDUCTED WORST-CASE DATA : 802.11n (20MHz)

PHASE	Line 1	6dB BANDWIDTH	9kHz
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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	0.15456	0.16	48.69	41.20	48.85	41.36	65.75	55.75	-16.91	-14.40
2	0.18592	0.16	46.44	38.50	46.60	38.66	64.22	54.22	-17.62	-15.56
<b>3</b>	<b>0.52363</b>	<b>0.23</b>	<b>44.72</b>	<b>38.73</b>	<b>44.95</b>	<b>38.96</b>	<b>56.00</b>	<b>46.00</b>	<b>-11.05</b>	<b>-7.04</b>
4	0.58604	0.24	38.86	31.20	39.10	31.44	56.00	46.00	-16.90	-14.56
5	7.92308	0.61	30.87	23.72	31.48	24.33	60.00	50.00	-28.52	-25.67
6	16.22792	1.03	30.66	27.78	31.69	28.81	60.00	50.00	-28.31	-21.19

#### REMARKS:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

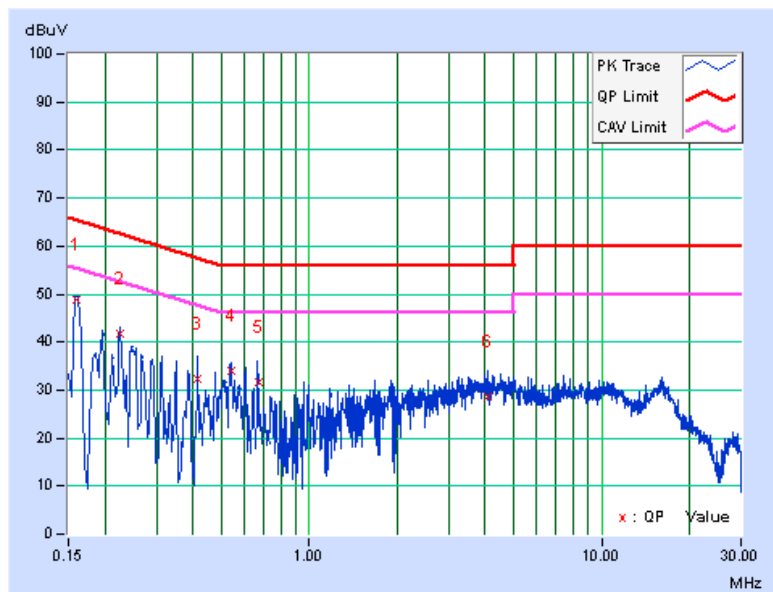


PHASE	Line 2	6dB BANDWIDTH	9kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15956	0.17	48.72	39.07	48.89	39.24	65.49	55.49	-16.60	-16.25
2	0.22434	0.18	41.66	32.42	41.84	32.60	62.66	52.66	-20.82	-20.06
3	0.41588	0.24	32.05	21.04	32.29	21.28	57.53	47.53	-25.24	-26.25
4	0.54304	0.24	33.78	28.43	34.02	28.67	56.00	46.00	-21.98	-17.33
5	0.67205	0.24	31.48	19.96	31.72	20.20	56.00	46.00	-24.28	-25.80
6	4.07955	0.38	28.37	19.71	28.75	20.09	56.00	46.00	-27.25	-25.91

**REMARKS:**

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

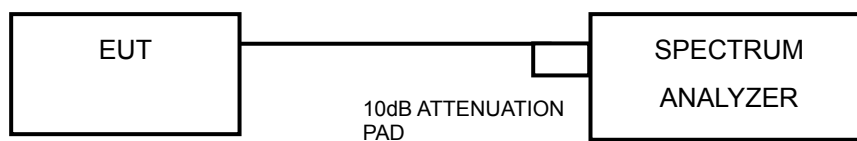


### 4.3 6dB BANDWIDTH MEASUREMENT

#### 4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

#### 4.3.2 TEST SETUP



#### 4.3.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

#### 4.3.4 TEST PROCEDURE

- a. Set resolution bandwidth (RBW) = 100kHz
- b. Set the video bandwidth (VBW)  $\geq 3 \times$  RBW, Detector = Peak.
- c. Trace mode = max hold.
- d. Sweep = auto couple.
- e. Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission

#### 4.3.5 DEVIATION FROM TEST STANDARD

No deviation.

#### 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

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	10.25	0.5	PASS
6	2437	10.29	0.5	PASS
11	2462	10.21	0.5	PASS

##### 802.11g

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.10	0.5	PASS
6	2437	15.87	0.5	PASS
11	2462	15.83	0.5	PASS

##### 802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	15.64	16.37	0.5	PASS
6	2437	15.98	16.35	0.5	PASS
11	2462	16.28	15.50	0.5	PASS

##### 802.11n (40MHz)

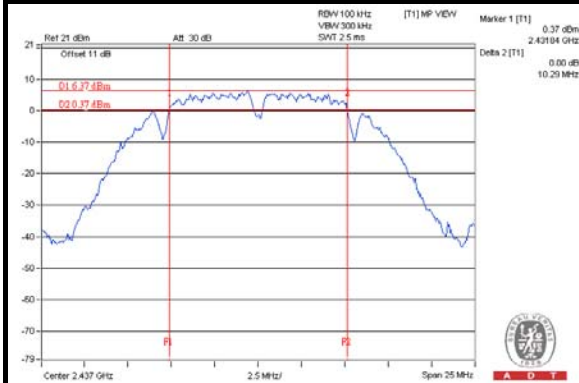
CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
3	2422	35.42	35.53	0.5	PASS
6	2437	35.64	35.64	0.5	PASS
9	2452	35.43	35.63	0.5	PASS



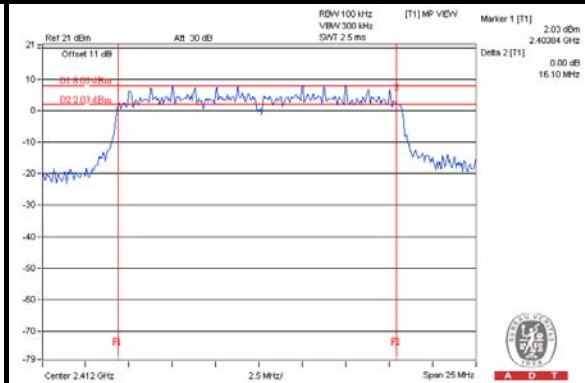
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### SPECTRUM PLOT OF WORST VALUE

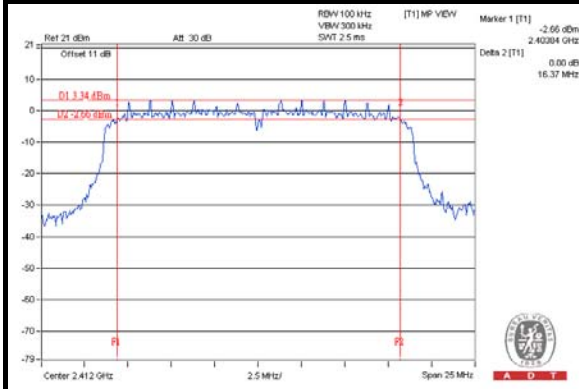
**802.11b**



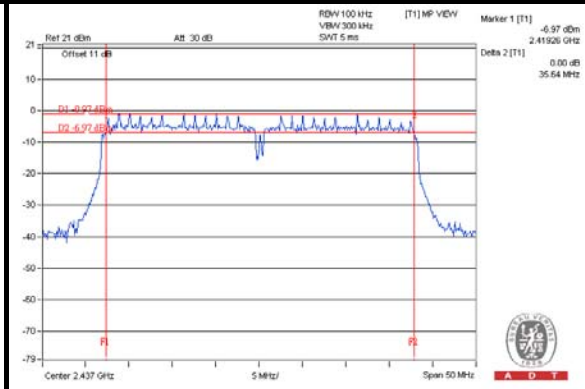
**802.11g**



**802.11n (20MHz)**



**802.11n (40MHz)**



## 4.4 CONDUCTED OUTPUT POWER

### 4.4.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT

For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30dBm)

Per KDB 662911 D01 Multiple Transmitter Output v01r02 Method of conducted output power measurement on IEEE 802.11 devices,

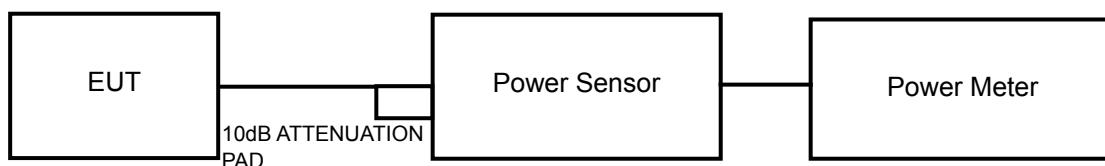
Array Gain = 0 dB (i.e., no array gain) for  $NANT \leq 4$ ;

Array Gain = 0 dB (i.e., no array gain) for channel widths  $\geq 40$  MHz for any NANT;

Array Gain =  $5 \log(NANT/NSS)$  dB or 3 dB, whichever is less for 20-MHz channel widths with  $NANT \geq 5$ .

For power measurements on all other devices: Array Gain =  $10 \log(NANT/NSS)$  dB.

### 4.4.2 TEST SETUP



### 4.4.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

### 4.4.4 TEST PROCEDURES

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

#### 4.4.5 DEVIATION FROM TEST STANDARD

No deviation.

#### 4.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6.



#### 4.4.7 TEST RESULTS

##### FOR PEAK POWER

###### 802.11b

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
1	2412	75.509	18.78	30	PASS
6	2437	91.411	19.61	30	PASS
11	2462	75.336	18.77	30	PASS

###### 802.11g

CHANNEL	FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	LIMIT (dBm)	PASS/FAIL
1	2412	252.348	24.02	30	PASS
6	2437	283.792	24.53	30	PASS
11	2462	242.661	23.85	30	PASS

###### 802.11n (20MHz)

CHAN.	FREQ. (MHz)	PEAK POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2412	23.30	23.10	417.970	26.21	30	PASS
6	2437	24.15	23.95	508.329	27.06	30	PASS
11	2462	24.30	24.07	<b>524.423</b>	27.20	30	PASS

###### 802.11n (40MHz)

CHAN.	FREQ. (MHz)	PEAK POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
3	2422	20.51	20.12	215.262	23.33	30	PASS
6	2437	22.14	22.29	333.116	25.23	30	PASS
9	2452	20.95	20.94	248.616	23.96	30	PASS

**FOR AVERAGE POWER****802.11b**

CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)
1	2412	43.251	16.36
6	2437	52.360	17.19
11	2462	42.756	16.31

**802.11g**

CHANNEL	FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)
1	2412	43.752	16.41
6	2437	52.602	17.21
11	2462	42.756	16.31

**802.11n (20MHz)**

CHAN.	FREQUENCY (MHz)	AVG. POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)
		CHAIN 0	CHAIN 1		
1	2412	15.32	15.25	67.538	18.30
6	2437	16.36	16.28	85.713	19.33
11	2462	15.27	15.12	66.160	18.21

**802.11n (40MHz)**

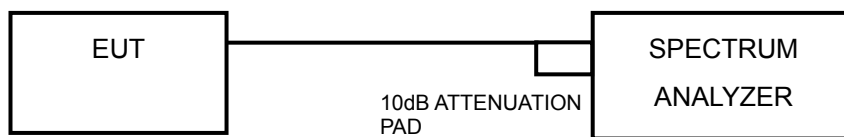
CHAN.	FREQUENCY (MHz)	AVG. POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)
		CHAIN 0	CHAIN 1		
3	2422	9.73	10.75	21.282	13.28
6	2437	13.88	14.22	50.858	17.06
9	2452	12.46	10.62	29.155	14.65

## 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 SETUP



### 4.5.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

### 4.5.4 TEST PROCEDURE

- Set the RBW = 3 kHz, VBW = 10 kHz, Detector = peak.
- Sweep time = auto couple, Trace mode = max hold, allow trace to fully stabilize.
- Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

### 4.5.5 DEVIATION FROM TEST STANDARD

No deviation.

### 4.5.6 EUT OPERATING CONDITION

Same as Item 4.3.6

## 4.5.7 TEST RESULTS

### 802.11b

Channel	Freq. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-9.34	8	PASS
6	2437	-8.79	8	PASS
11	2462	-9.46	8	PASS

### 802.11g

Channel	Freq. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-6.14	8	PASS
6	2437	-4.82	8	PASS
11	2462	-6.04	8	PASS

### 802.11n (20MHz)

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	1	2412	-9.58	3.01	-6.57	5.99	PASS
	6	2437	-9.26	3.01	-6.25	5.99	PASS
	11	2462	-7.86	3.01	-4.85	5.99	PASS
1	1	2412	-9.79	3.01	-6.78	5.99	PASS
	6	2437	-9.51	3.01	-6.50	5.99	PASS
	11	2462	-9.54	3.01	-6.53	5.99	PASS

**NOTE:** Directional gain = 5dBi + 10log(2) = 8.01dBi > 6dBi , so the power density limit shall be reduced to 8-(8.01-6) = 5.99dBm.

### 802.11n (40MHz)

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	3	2422	-16.87	3.01	-13.86	5.99	PASS
	6	2437	-12.71	3.01	-9.70	5.99	PASS
	9	2452	-14.34	3.01	-11.33	5.99	PASS
1	3	2422	-15.11	3.01	-12.10	5.99	PASS
	6	2437	-10.02	3.01	-7.01	5.99	PASS
	9	2452	-14.78	3.01	-11.77	5.99	PASS

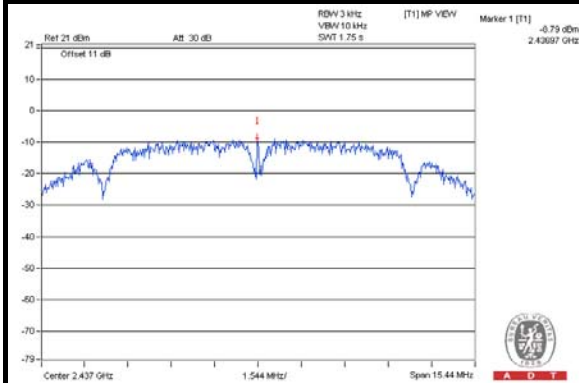
**NOTE:** Directional gain = 5dBi + 10log(2) = 8.01dBi > 6dBi , so the power density limit shall be reduced to 8-(8.01-6) = 5.99dBm.



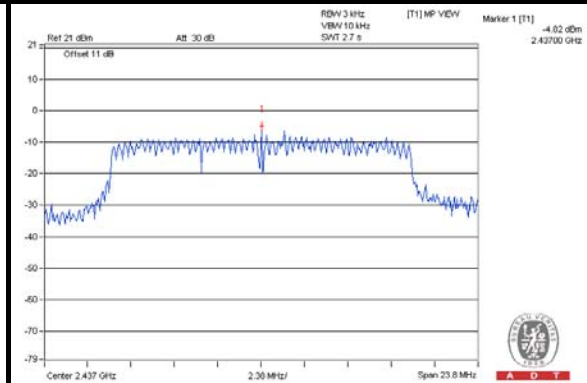
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### SPECTRUM PLOT OF WORST VALUE

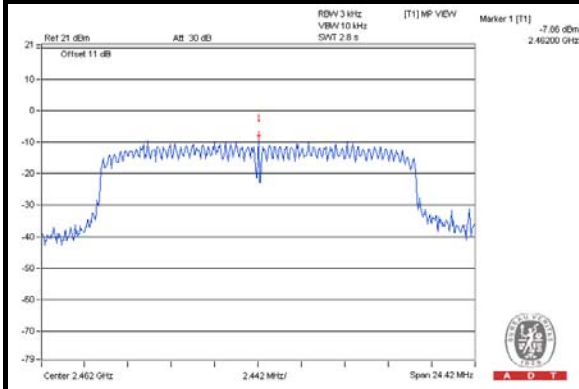
**802.11b**



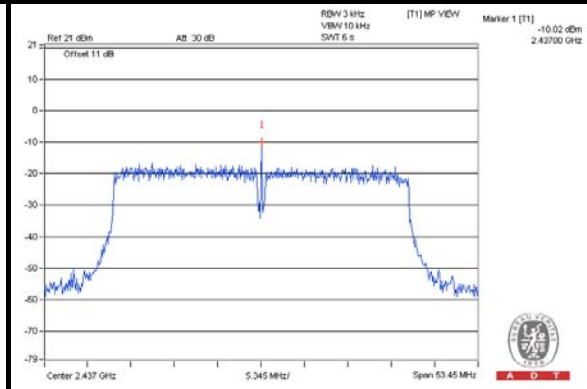
**802.11g**



**802.11n (20MHz)**



**802.11n (40MHz)**

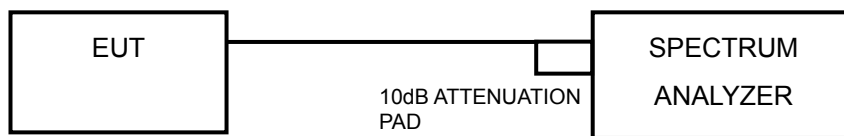


## 4.6 CONDUCTED OUT OF BAND EMISSION MEASUREMENT

### 4.6.1 LIMITS OF CONDUCTED OUT OF BAND EMISSION MEASUREMENT

Below  $-20\text{dB}$  of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

### 4.6.2 TEST SETUP



### 4.6.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

### 4.6.4 TEST PROCEDURE

#### MEASUREMENT PROCEDURE REF

1. Set the RBW = 100 kHz.
2. Set the VBW  $\geq$  300 kHz.
3. Detector = peak.
4. Sweep time = auto couple.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

## MEASUREMENT PROCEDURE OOB

1. Set RBW = 100 kHz.
2. Set VBW  $\geq$  300 kHz.
3. Set span to encompass the spectrum to be examined.
4. Detector = peak.
5. Trace Mode = max hold.
6. Sweep = auto couple.

### 4.6.5 DEVIATION FROM TEST STANDARD

No deviation.

### 4.6.6 EUT OPERATING CONDITION

Same as Item 4.3.6

### 4.6.7 TEST RESULTS

The conducted emission test is performed on each TX port of operating mode without summing or adding  $10\log(N)$  since the limit is relative emission limit.

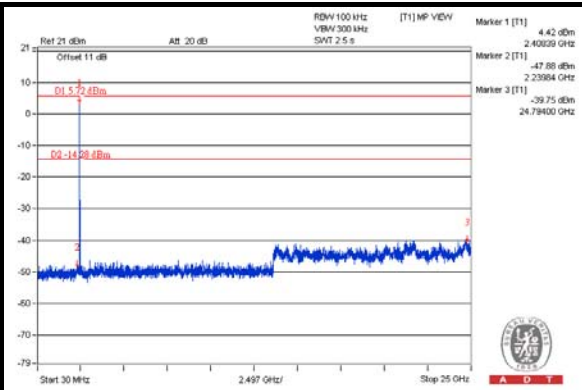
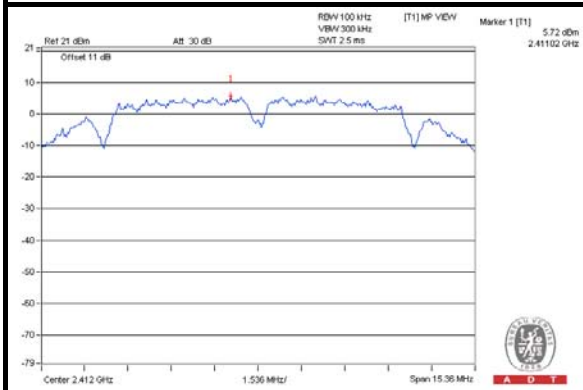
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement.



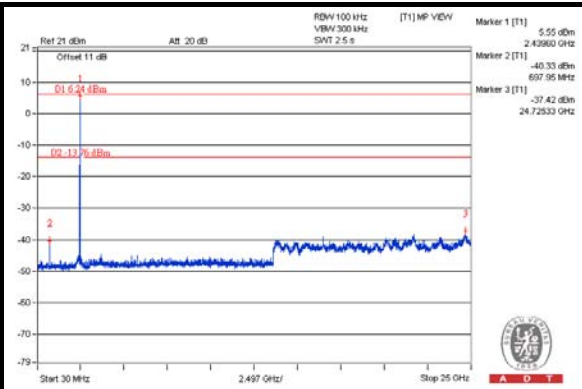
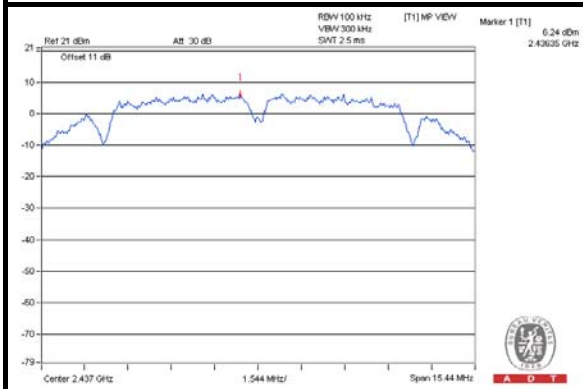
A D T

802.11b

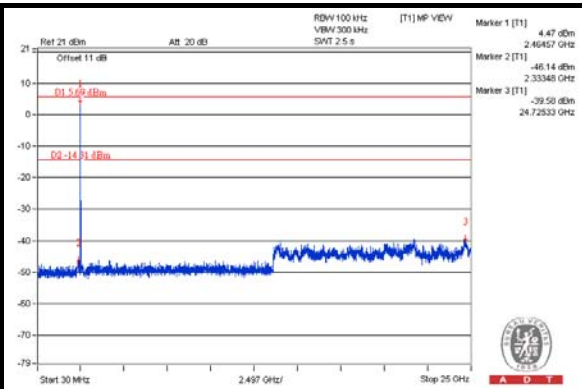
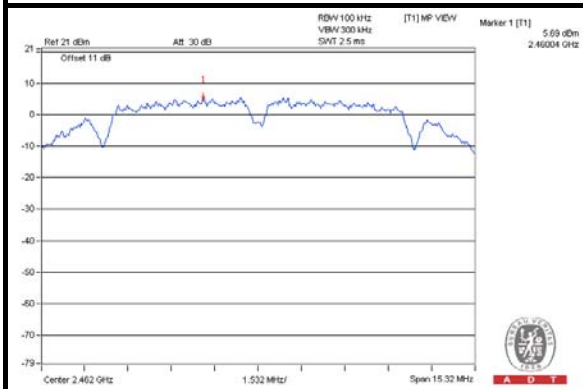
### CH 1



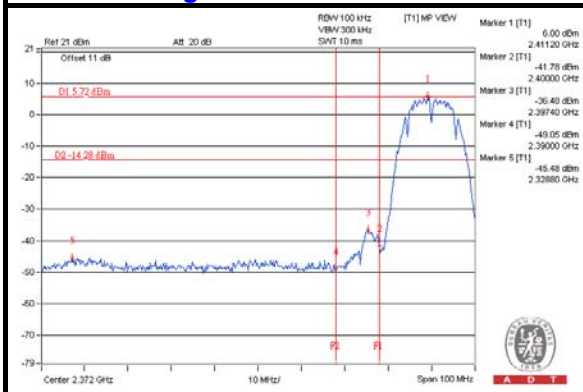
### CH 6



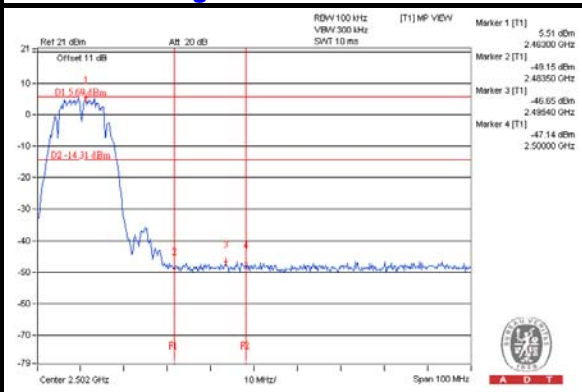
### CH 11



### CH 1 Band edge



### CH 11 Band edge



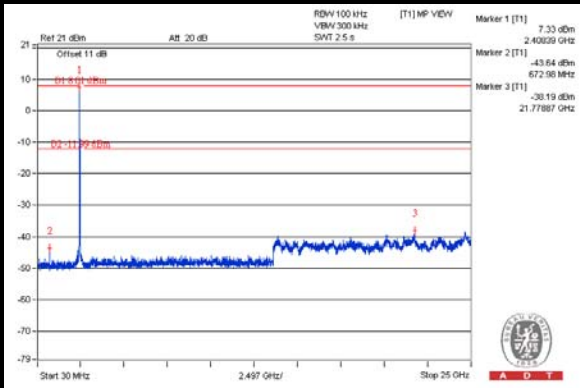
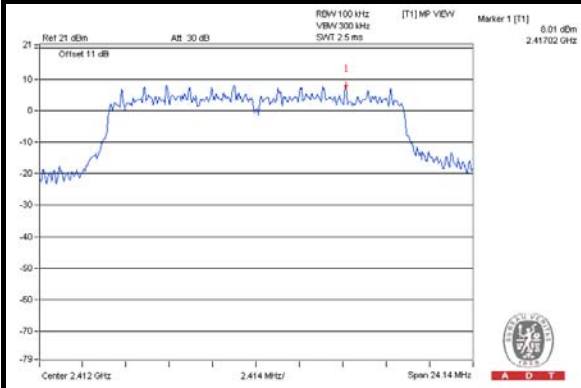




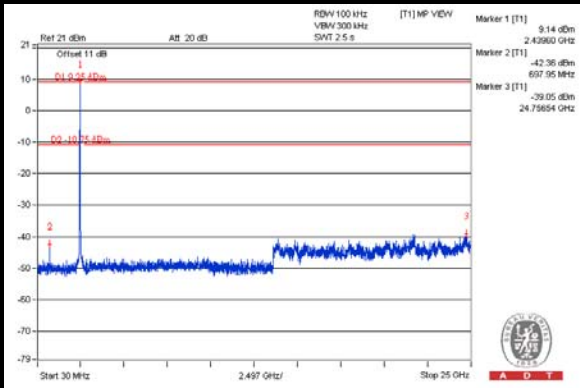
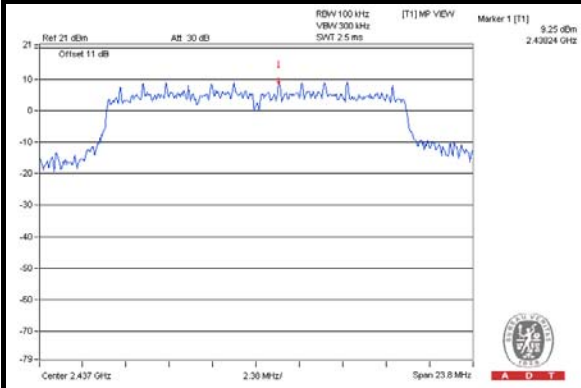
A D T

### 802.11g

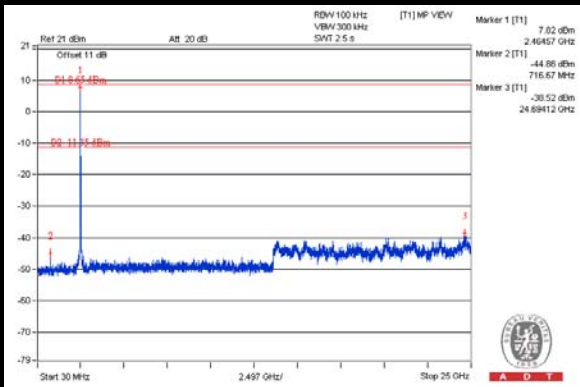
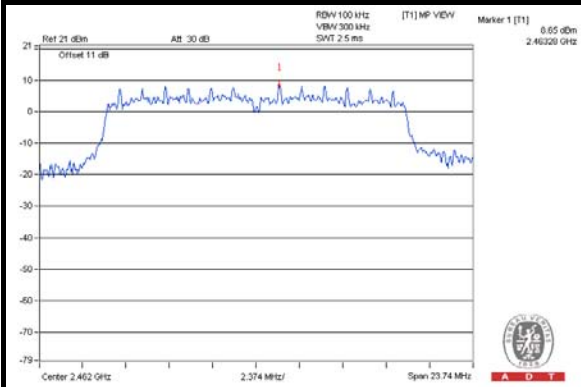
#### CH 1



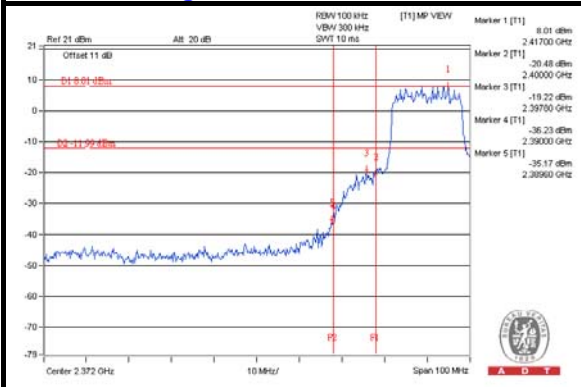
#### CH 6



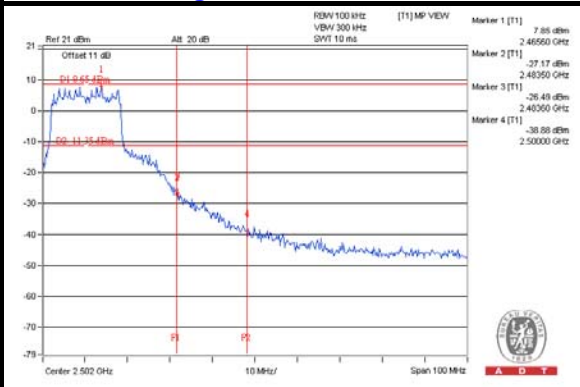
#### CH 11



#### CH 1 Band edge



#### CH 11 Band edge

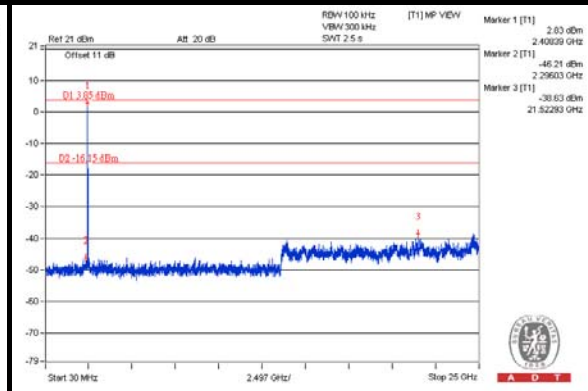
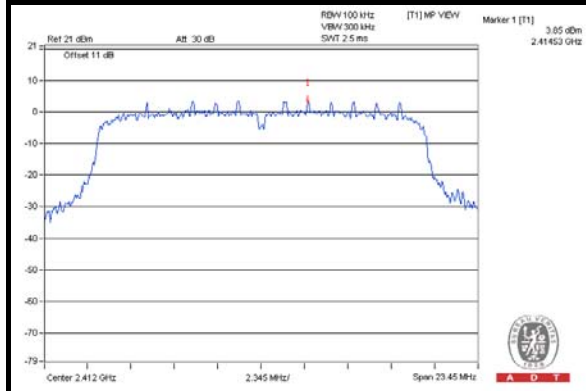




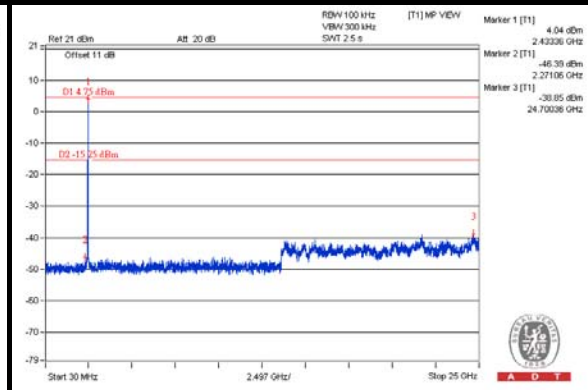
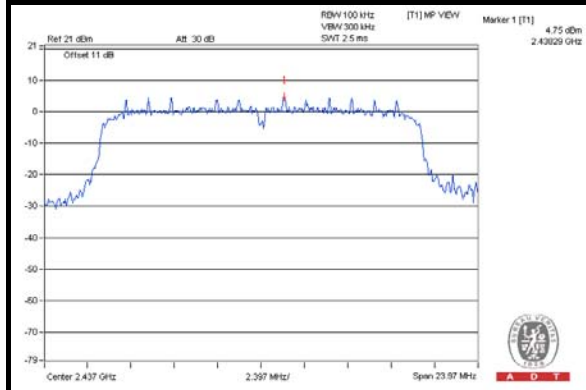
A D T

# 802.11n (20MHz) CHAIN 0

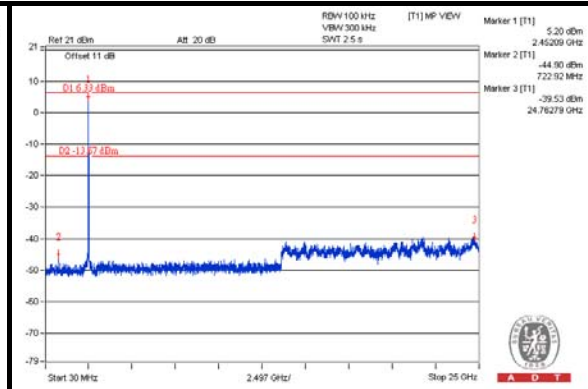
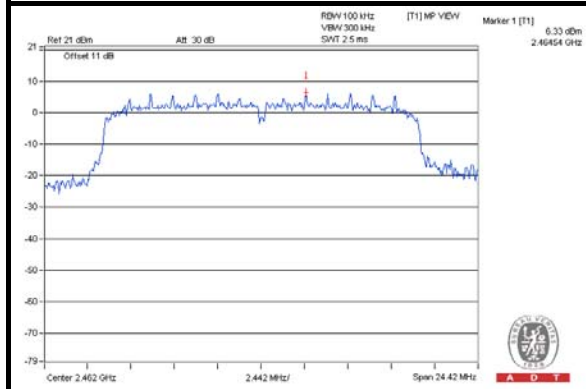
## CH 1



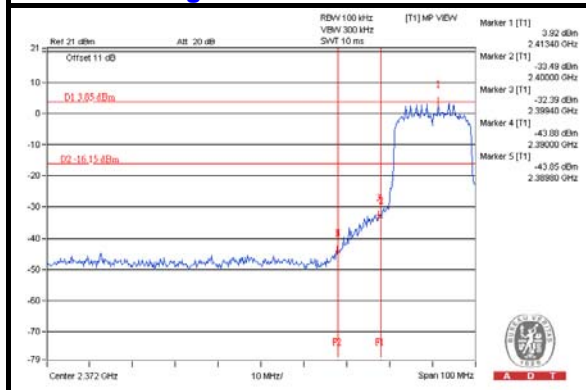
## CH 6



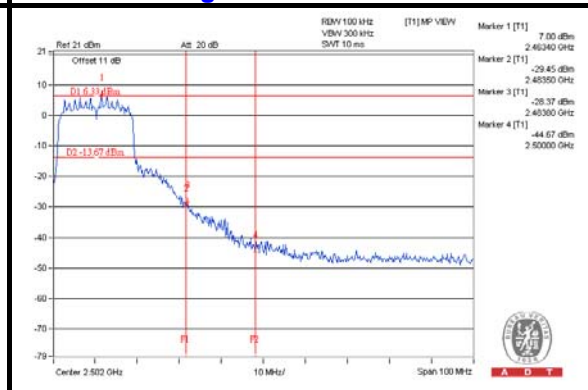
## CH 11



## CH 1 Band edge



## CH 11 Band edge

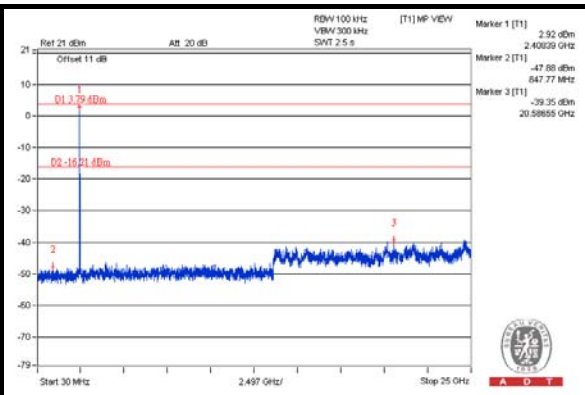
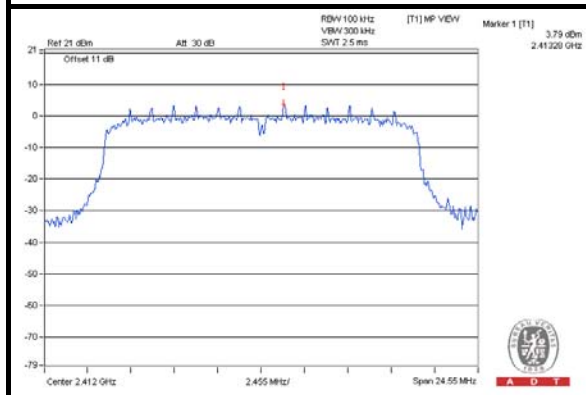




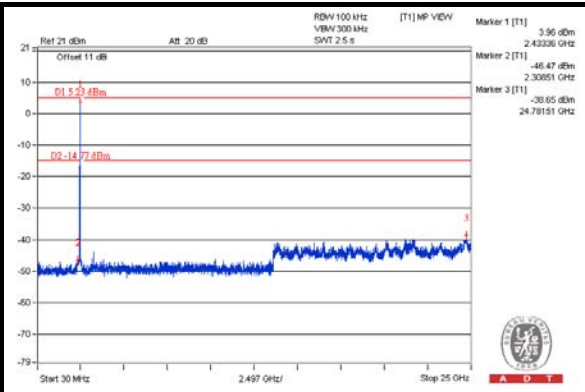
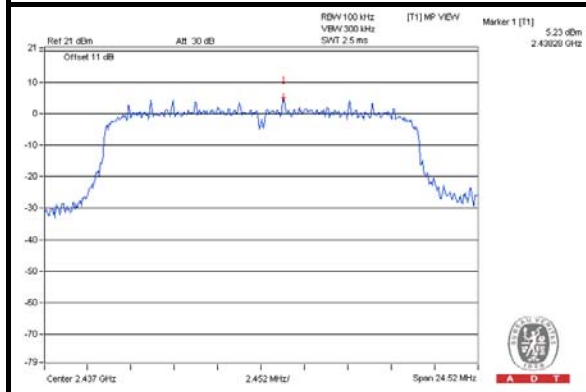
A D T

### CHAIN 1

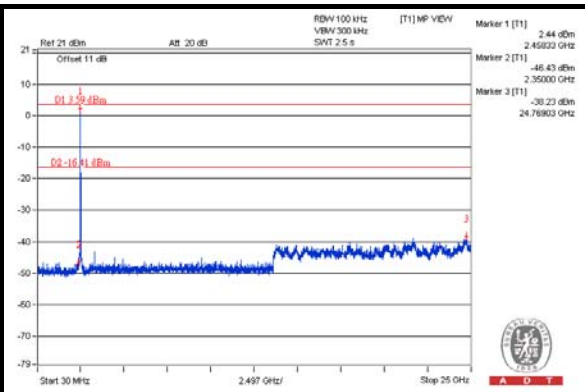
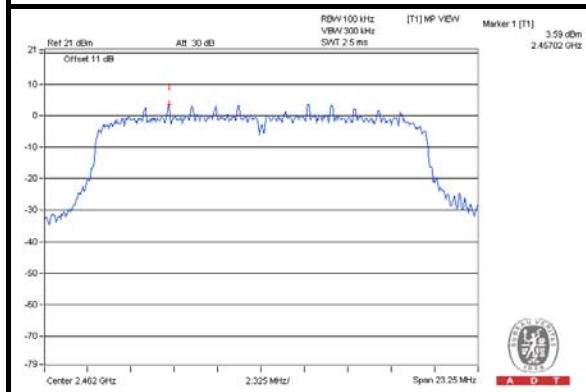
#### CH 1



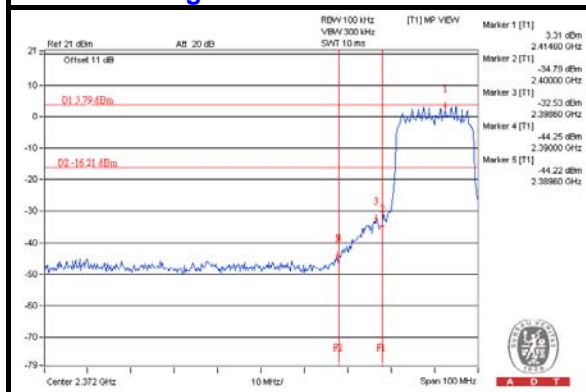
#### CH 6



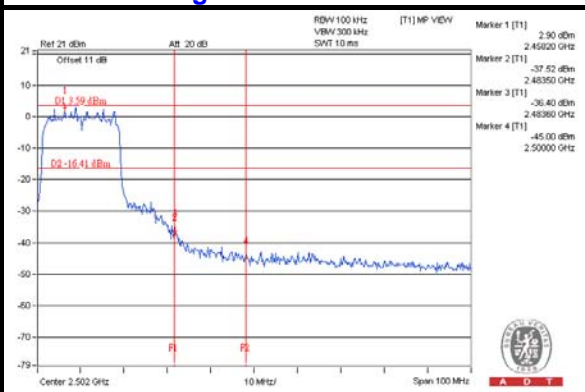
#### CH 11



#### CH 1 Band edge



#### CH 11 Band edge

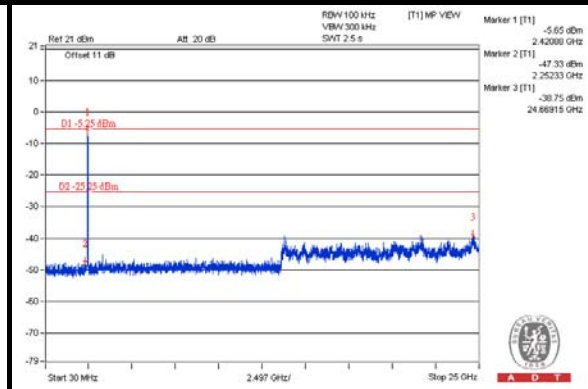
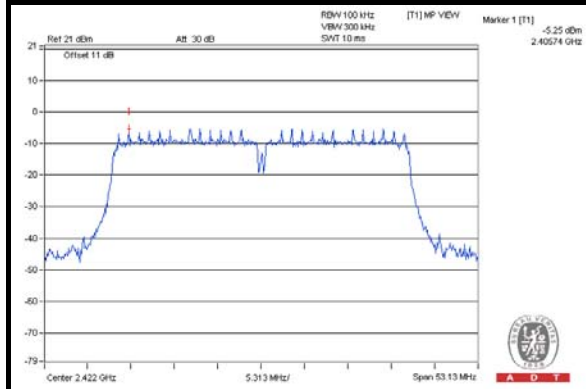




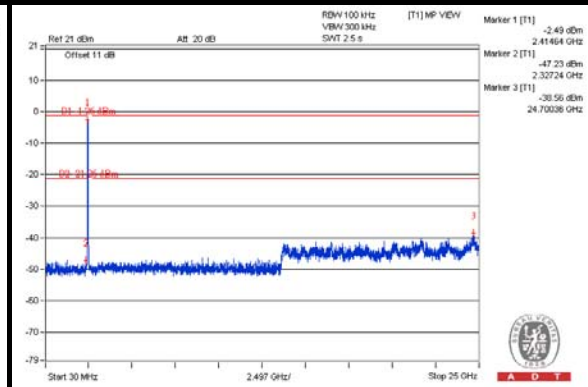
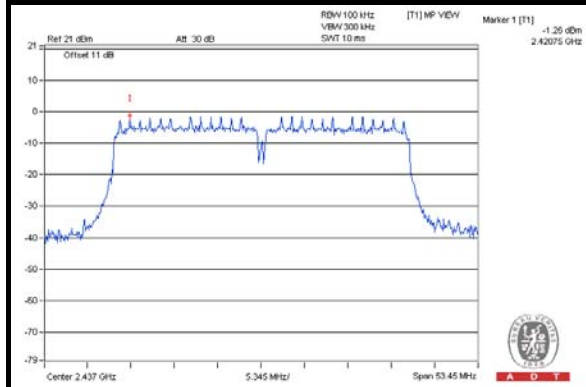
A D T

### 802.11n (40MHz) CHAIN 0

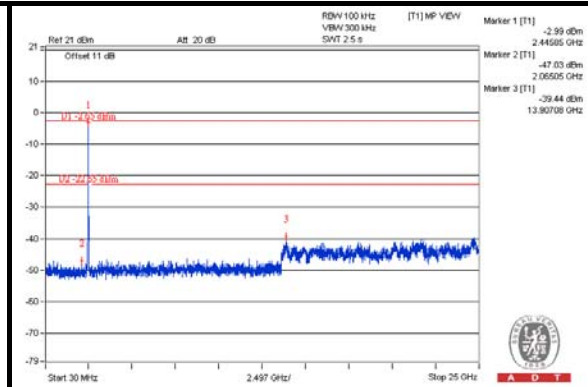
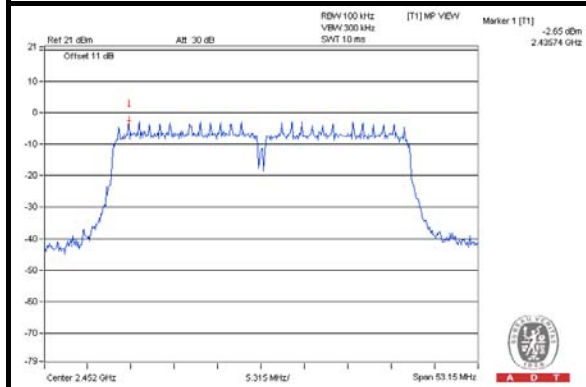
#### CH 3



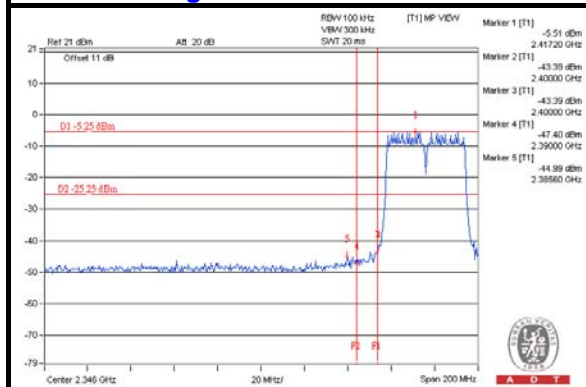
#### CH 6



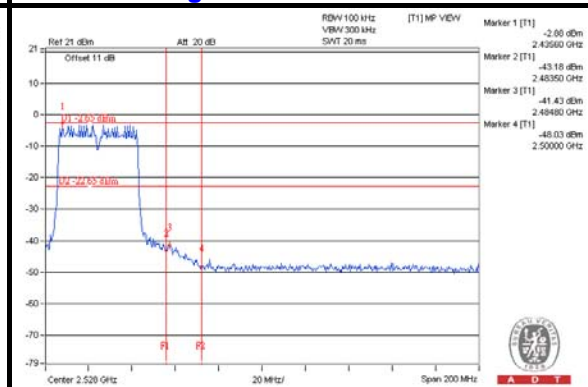
#### CH 9



#### CH 3 Band edge



#### CH 9 Band edge

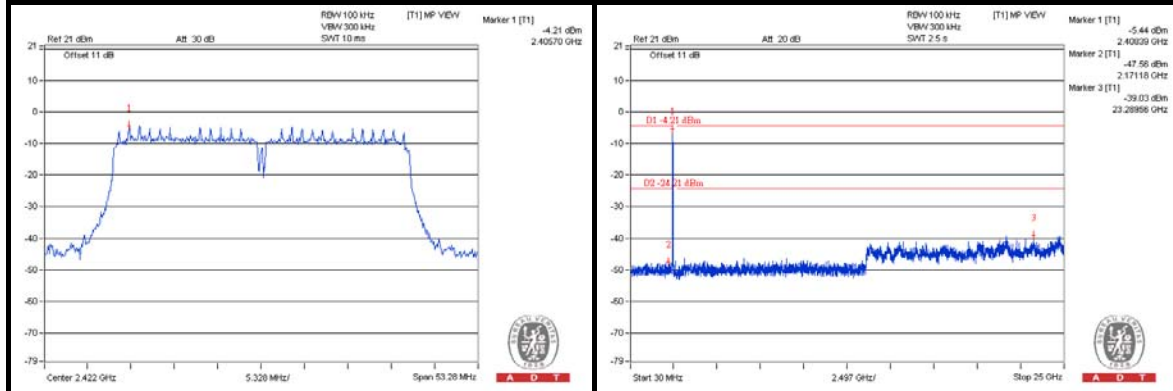




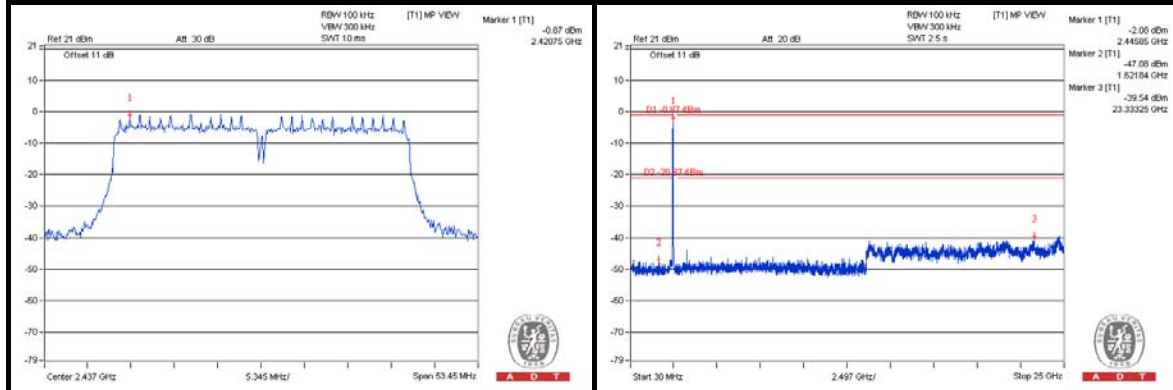
A D T

### CHAIN 1

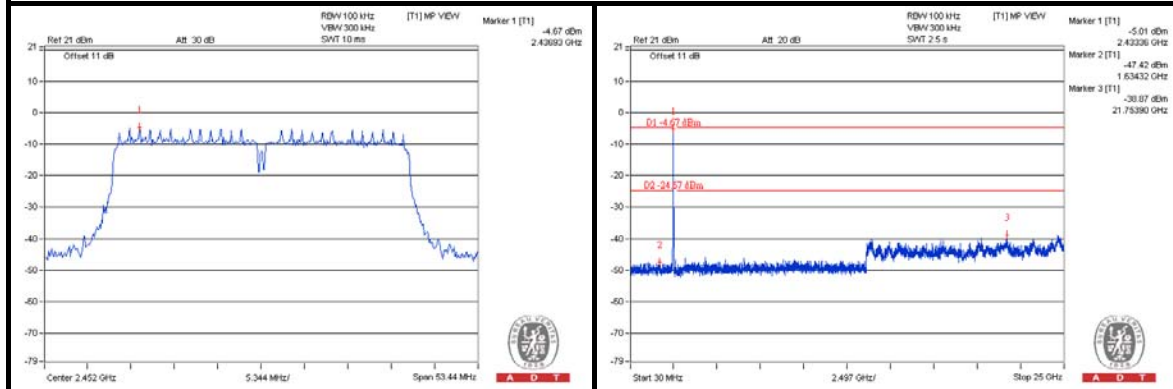
#### CH 3



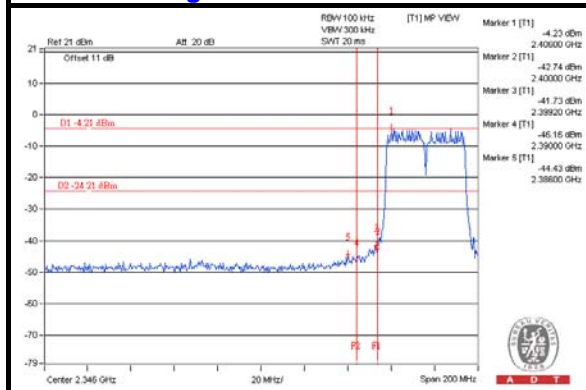
#### CH 6



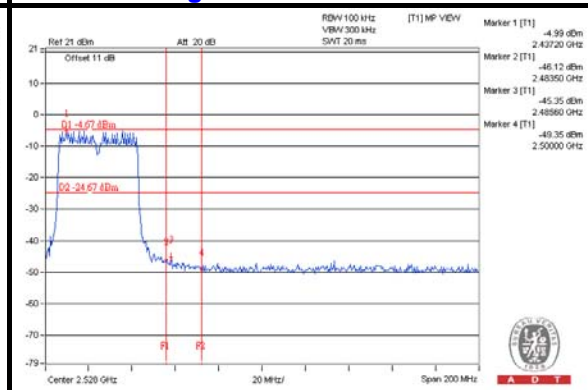
#### CH 9



#### CH 3 Band edge



#### CH 9 Band edge





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## 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 according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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Fax: 886-2-26051924

**Hsin Chu EMC/RF Lab:**

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**Web Site:** [www.bureauveritas-adt.com](http://www.bureauveritas-adt.com)

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



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## **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---**