



# FCC TEST REPORT (15.407)

**REPORT NO.:** RF110223C21-1

**MODEL NO.:** AE2500

**FCC ID:** Q87-AE2500

**RECEIVED:** Feb. 15, 2011

**TESTED:** Feb. 25 ~ Mar. 08, 2011

**ISSUED:** Mar. 28, 2011

**APPLICANT:** Cisco Consumer Products LLC

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## RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
Original release	N/A	Mar. 28, 2011



# 1. CERTIFICATION

**PRODUCT:** 802.11 a/b/g/n dongle

**MODEL:** AE2500

**BRAND:** CISCO

**APPLICANT:** Cisco Consumer Products LLC

**TEST SAMPLE:** ENGINEERING SAMPLE

**TESTED:** Feb. 25 ~ Mar. 08, 2011

**STANDARDS: FCC Part 15, Subpart E (Section 15.407)**

ANSI C63.4-2003

ANSI C63.10-2009

The above equipment (Model: AE2500) 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: Mar. 28, 2011  
Polly Chien / Specialist

APPROVED BY : *Gary Chang* , DATE: Mar. 28, 2011  
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 E (SECTION 15.407)			
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	REMARK
15.407(b)(5)	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -8.33dB at 4.125MHz.
15.407(b)(1/2/3) (b)(5)	Electric Field Strength Spurious Emissions, 30MHz ~ 40000MHz	PASS	Meet the requirement of limit. Minimum passing margin is -1.0dB at 5725.00MHz & 5350.00MHz.
15.407(a)(1/2/3)	Peak Transmit Power	PASS	Meet the requirement of limit.
15.407(a)(6)	Peak Power Excursion	PASS	Meet the requirement of limit.
15.407(a)(1/2/3)	Peak Power Spectral Density	PASS	Meet the requirement of limit.
15.407(g)	Frequency Stability	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	No antenna connector is used.

### 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>	802.11 a/b/g/n dongle
<b>MODEL NO.</b>	AE2500
<b>FCC ID</b>	Q87-AE2500
<b>POWER SUPPLY</b>	5.0Vdc (host equipment)
<b>MODULATION TYPE</b>	64QAM, 16QAM, QPSK, BPSK
<b>MODULATION TECHNOLOGY</b>	OFDM
<b>TRANSFER RATE</b>	802.11a: 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>	5180 ~ 5320MHz & 5500 ~ 5700MHz
<b>NUMBER OF CHANNEL</b>	5180 ~ 5320MHz: 8 for 802.11a, 802.11n (20MHz) 4 for 802.11n (40MHz) 5500 ~ 5700MHz: 8 for 802.11a, 802.11n (20MHz) 3 for 802.11n (40MHz)
<b>OUTPUT POWER</b>	48.0mW for 5180 ~ 5240MHz 64.9mW for 5260 ~ 5320MHz 62.5mW for 5500 ~ 5700MHz
<b>ANTENNA TYPE</b>	Refer to Note as below
<b>ANTENNA CONNECTOR</b>	NA
<b>I/O PORTS</b>	USB
<b>DATA CABLE</b>	NA
<b>ACCESSORY DEVICES</b>	NA

**NOTE:**

1. The EUT is an 802.11 a/b/g/n dongle. The test data are separated into following test reports.

	TEST STANDARD	REFERENCE REPORT
WLAN 802.11b/g, 802.11n	FCC Part 15, Subpart C (Section 15.247)	RF110223C21
WLAN 802.11a, 802.11n (5745~5825 MHz)		
WLAN 802.11a, 802.11n (5180~5320MHz & 5500~5700MHz)	FCC Part 15, Subpart E (Section 15.407)	RF110223C21-1
WLAN 802.11a, 802.11n (For DFS report) (5250~5350MHz & 5470~5725MHz)	FCC Part 15, Subpart E (Section 15.407)	RF110223C21-2

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

Frequency Band (MHz)	2412~2462	5180~5320	5500~5700	5745~5825
802.11b	√	-	-	-
802.11g	√	-	-	-
802.11a	-	√	√	√
802.11n (20MHz)	√	√	√	√
802.11n (40MHz)	√	√	√	√

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

MODULATION MODE	TX FUNCTION
802.11b	1TX (Antenna 0 only)
802.11g	1TX (Antenna 0 only)
802.11a	1TX (Antenna 0 only)
802.11n (20MHz)	2TX
802.11n (40MHz)	2TX

4. The antennas used in this EUT are listed as below table:

NO.	TYPE	CONNECTOR	GAIN (dBi)				
			2.4GHz band	5.0GHz band			
				5150~5250 MHz	5250~5350 MHz	5500~5700 MHz	5745~5825 MHz
Antenna 0	Printed	NA	2.54	2.01	2.33	2.52	2.55
Antenna 1	Printed	NA	2.58	2.32	1.74	2.48	2.39

5. 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

#### FOR 5180 ~ 5320MHz

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
36	5180 MHz	52	5260 MHz
40	5200 MHz	56	5280 MHz
44	5220 MHz	60	5300 MHz
48	5240 MHz	64	5320 MHz

4 channels are provided for 802.11n (40MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
38	5190 MHz	54	5270 MHz
46	5230 MHz	62	5310 MHz

#### FOR 5500 ~ 5700MHz

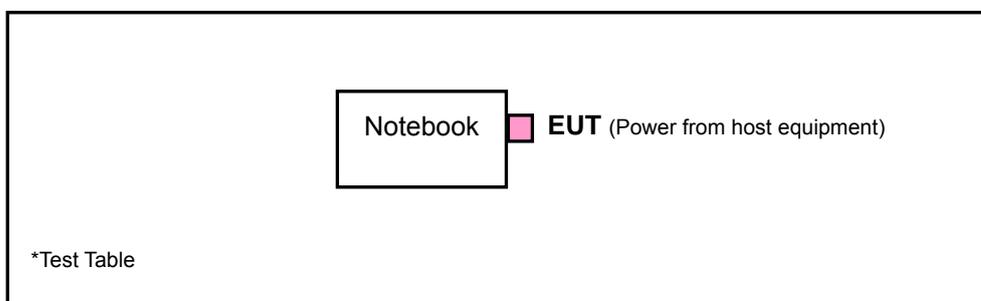
8 channels are provided for 802.11a, 802.11n (20MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
100	5500 MHz	116	5580 MHz
104	5520 MHz	132	5660 MHz
108	5540 MHz	136	5680 MHz
112	5560 MHz	140	5700 MHz

3 channels are provided for 802.11n (40MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
102	5510 MHz	134	5670 MHz
110	5550 MHz		

#### 3.2.1 CONFIGURATION OF SYSTEM UNDER TEST





### 3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

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

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

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

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

MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11a	5180-5320	36 to 64	36, 40, 48, 52, 60, 64	OFDM	BPSK	6.0
802.11n (20MHz)		36 to 64	36, 40, 48, 52, 60, 64	OFDM	BPSK	7.2
802.11n (40MHz)		38 to 62	38, 46, 54, 62	OFDM	BPSK	15.0
802.11a	5500-5700	100 to 140	100, 116, 132, 140	OFDM	BPSK	6.0
802.11n (20MHz)		100 to 140	100, 116, 132, 140	OFDM	BPSK	7.2
802.11n (40MHz)		102 to 134	102, 110, 134	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.

MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11n (20MHz)	5180-5320	36 to 64	60	OFDM	BPSK	7.2
802.11n (20MHz)	5500-5700	100 to 140	116	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.

MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11n (20MHz)	5180-5320	36 to 64	60	OFDM	BPSK	7.2
802.11n (20MHz)	5500-5700	100 to 140	116	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.

MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11a	5180-5320	36 to 64	36, 48, 52, 64	OFDM	BPSK	6.0
802.11n (20MHz)		36 to 64	36, 48, 52, 64	OFDM	BPSK	7.2
802.11n (40MHz)		38 to 62	38, 46, 54, 62	OFDM	BPSK	15.0
802.11a	5500-5700	100 to 140	100, 140	OFDM	BPSK	6.0
802.11n (20MHz)		100 to 140	100, 140	OFDM	BPSK	7.2
802.11n (40MHz)		102 to 134	102, 134	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.

MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11a	5180-5320	36 to 64	36, 40, 48, 52, 60, 64	OFDM	BPSK	6.0
802.11n (20MHz)		36 to 64	36, 40, 48, 52, 60, 64	OFDM	BPSK	7.2
802.11n (40MHz)		38 to 62	38, 46, 54, 62	OFDM	BPSK	15.0
802.11a	5500-5700	100 to 140	100, 116, 132, 140	OFDM	BPSK	6.0
802.11n (20MHz)		100 to 140	100, 116, 132, 140	OFDM	BPSK	7.2
802.11n (40MHz)		102 to 134	102, 110, 134	OFDM	BPSK	15.0

**TEST CONDITION:**

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (SYSTEM)	TESTED BY
RE <sub>≥</sub> 1G	23deg. C, 65%RH, 1012 hPa	120Vac, 60Hz	Frank Wang, Match Tsui
RE <sub>&lt;</sub> 1G	23deg. C, 65%RH, 1008 hPa	120Vac, 60Hz	Match Tsui
PLC	25deg. C, 65%RH, 1014 hPa	120Vac, 60Hz	David Huang
APCM	23deg. C, 65%RH, 1008 hPa	120Vac, 60Hz	Match Tsui

### 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 E (15.407)**

**ANSI C63.4-2003**

**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.

### 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	D531	CN-0XM006-48643-81U-2610	QDS-BRCM1020

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

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

## 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 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

FREQUENCIES (MHz)	EIRP LIMIT (dBm)	EQUIVALENT FIELD STRENGTH AT 3m (dBµV/m) *NOTE 3
	PK	PK
5150 ~ 5350	-27	68.3
5470 ~ 5725	-27	68.3

**NOTE:** The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

$$E = \frac{1000000\sqrt{30P}}{3} \mu\text{V/m, where P is the eirp (Watts).}$$

#### 4.1.3 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCI	100424	Aug. 04, 2010	Aug. 03, 2011
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100041	Jul. 09, 2010	Jul. 08, 2011
BILOG Antenna SCHWARZBECK	VULB9168	9168-156	Apr. 30, 2010	Apr. 29, 2011
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-209	Aug. 02, 2010	Aug. 01, 2011
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170243	Dec. 27, 2010	Dec. 26, 2011
Preamplifier Agilent	8449B	3008A01910	Sep. 09, 2010	Sep. 08, 2011
Preamplifier Agilent	8447D	2944A10638	Nov. 03, 2010	Nov. 02, 2011
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	218190/4 231241/4	May 14, 2010	May 13, 2011
RF signal cable Worken	8D-FB	Cable-HYCH9-01	Aug. 20, 2010	Aug. 19, 2011
Software	ADT_Radiated_ V7.6.15.9.2	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
26GHz ~ 40GHz Amplifier	EM26400	07026401	Aug. 25, 2010	Aug. 24, 2011

- 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 9.
  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 460141.
  5. The IC Site Registration No. is IC 7450F-4.

#### 4.1.4 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic 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 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

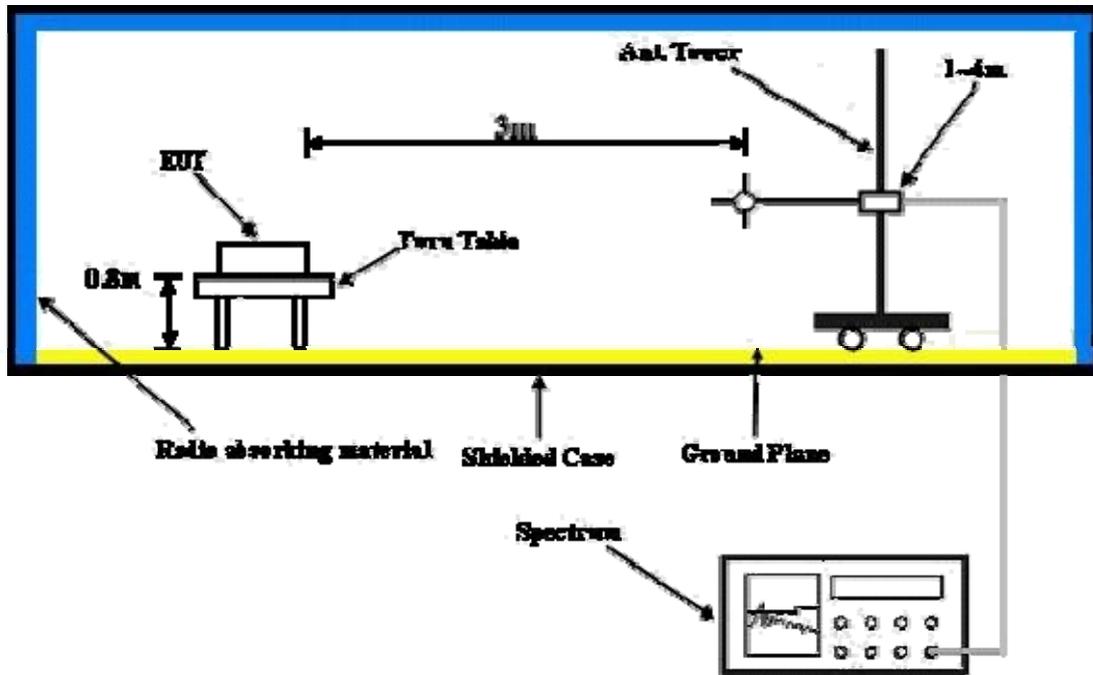
**NOTE:**

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

#### 4.1.5 DEVIATION FROM TEST STANDARD

No deviation.

#### 4.1.6 TEST SETUP



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

#### 4.1.7 EUT OPERATING CONDITION

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

#### 4.1.8 TEST RESULTS

##### 802.11a

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH 1012 hPa	TESTED BY	Frank Wang

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	5150.00	61.8 PK	74.0	-12.2	1.00 H	345	24.60	37.20
2	5150.00	43.7 AV	54.0	-10.3	1.00 H	345	6.50	37.20
3	*5180.00	105.7 PK			1.00 H	345	68.40	37.30
4	*5180.00	92.2 AV			1.00 H	345	54.90	37.30
5	#10360.00	58.3 PK	68.3	-10.0	1.00 H	207	10.10	48.20
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	5150.00	60.3 PK	74.0	-13.7	1.20 V	114	23.10	37.20
2	5150.00	43.2 AV	54.0	-10.8	1.20 V	114	6.00	37.20
3	*5180.00	103.6 PK			1.20 V	114	66.30	37.30
4	*5180.00	91.2 AV			1.20 V	114	53.90	37.30
5	#10360.00	53.5 PK	68.3	-14.8	1.00 V	155	5.30	48.20

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 40	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH 1012 hPa	TESTED BY	Frank Wang

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	*5200.00	103.5 PK			1.00 H	13	66.20	37.30
2	*5200.00	91.5 AV			1.00 H	13	54.20	37.30
3	#10400.00	58.8 PK	68.3	-9.5	1.00 H	209	10.60	48.20
4	15600.00	59.8 PK	74.0	-14.2	1.40 H	228	11.10	48.70
5	15600.00	46.3 AV	54.0	-7.7	1.40 H	228	-2.40	48.70
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	*5200.00	103.0 PK			1.17 V	124	65.70	37.30
2	*5200.00	91.0 AV			1.17 V	124	53.70	37.30
3	#10400.00	54.5 PK	68.3	-13.8	1.25 V	110	6.30	48.20
4	15600.00	60.3 PK	74.0	-13.7	1.35 V	296	11.60	48.70
5	15600.00	46.9 AV	54.0	-7.1	1.35 V	296	-1.80	48.70

- 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).
  3. The other emission levels were very low against the limit.
  4. Margin value = Emission level – Limit value.
  5. “ \* “: Fundamental frequency.
  6. “#”:The radiated frequency is out the restricted band.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH 1012 hPa	TESTED BY	Frank Wang

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	*5240.00	103.0 PK			1.00 H	30	65.60	37.40
2	*5240.00	91.5 AV			1.00 H	30	54.10	37.40
3	5350.00	52.6 PK	74.0	-21.4	1.00 H	30	15.10	37.50
4	5350.00	41.0 AV	54.0	-13.0	1.00 H	30	3.50	37.50
5	#10480.00	60.5 PK	68.3	-7.8	1.20 H	257	12.10	48.40
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	*5240.00	103.2 PK			1.29 V	136	65.80	37.40
2	*5240.00	90.7 AV			1.29 V	136	53.30	37.40
3	5350.00	52.3 PK	74.0	-21.7	1.29 V	136	14.80	37.50
4	5350.00	40.5 AV	54.0	-13.5	1.29 V	136	3.00	37.50
5	#10480.00	55.6 PK	68.3	-12.7	1.14 V	110	7.20	48.40

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 52	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH 1012 hPa	TESTED BY	Frank Wang

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	*5260.00	103.1 PK			1.00 H	162	65.70	37.40
2	*5260.00	91.8 AV			1.00 H	162	54.40	37.40
3	5350.00	53.2 PK	74.0	-20.8	1.00 H	162	15.70	37.50
4	5350.00	41.5 AV	54.0	-12.5	1.00 H	162	4.00	37.50
5	#10520.00	55.9 PK	68.3	-12.4	1.12 H	255	7.40	48.50
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5260.00	102.6 PK			1.40 V	303	65.20	37.40
2	*5260.00	90.9 AV			1.40 V	303	53.50	37.40
3	5350.00	52.8 PK	74.0	-21.2	1.40 V	303	15.30	37.50
4	5350.00	41.0 AV	54.0	-13.0	1.40 V	303	3.50	37.50
5	#10520.00	54.3 PK	68.3	-14.0	1.00 V	158	5.80	48.50

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 60	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH 1012 hPa	TESTED BY	Frank Wang

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	*5300.00	104.1 PK			1.00 H	166	66.60	37.50
2	*5300.00	92.7 AV			1.00 H	166	55.20	37.50
3	5350.00	53.1 PK	74.0	-20.9	1.00 H	166	15.60	37.50
4	5350.00	41.3 AV	54.0	-12.7	1.00 H	166	3.80	37.50
5	10600.00	54.3 PK	74.0	-19.7	1.12 H	161	5.70	48.60
6	10600.00	41.6 AV	54.0	-12.4	1.12 H	161	-7.00	48.60
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	*5300.00	103.4 PK			1.10 V	134	65.90	37.50
2	*5300.00	91.6 AV			1.10 V	134	54.10	37.50
3	5350.00	52.8 PK	74.0	-21.2	1.10 V	134	15.30	37.50
4	5350.00	41.3 AV	54.0	-12.7	1.10 V	134	3.80	37.50
5	10600.00	54.1 PK	74.0	-19.9	1.00 V	161	5.50	48.60
6	10600.00	40.3 AV	54.0	-13.7	1.00 V	161	-8.30	48.60

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 64	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH 1012 hPa	TESTED BY	Frank Wang

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	*5320.00	103.1 PK			1.02 H	163	65.60	37.50
2	*5320.00	92.2 AV			1.02 H	163	54.70	37.50
3	5350.00	60.4 PK	74.0	-13.6	1.16 H	165	22.90	37.50
4	5350.00	43.7 AV	54.0	-10.3	1.16 H	165	6.20	37.50
5	10640.00	57.7 PK	74.0	-16.3	1.33 H	128	9.00	48.70
6	10640.00	44.6 AV	54.0	-9.4	1.33 H	128	-4.10	48.70
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	*5320.00	101.7 PK			1.15 V	312	64.20	37.50
2	*5320.00	91.7 AV			1.15 V	312	54.20	37.50
3	5350.00	59.6 PK	74.0	-14.4	1.25 V	311	22.10	37.50
4	5350.00	43.7 AV	54.0	-10.3	1.25 V	311	6.20	37.50
5	10640.00	55.4 PK	74.0	-18.6	1.33 V	152	6.70	48.70
6	10640.00	42.7 AV	54.0	-11.3	1.33 V	152	-6.00	48.70

- 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).
  3. The other emission levels were very low against the limit.
  4. Margin value = Emission level – Limit value.
  5. “ \* “: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 100	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH 1012 hPa	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	63.0 PK	74.0	-11.0	1.01 H	165	25.30	37.70
2	5460.00	42.2 AV	54.0	-11.8	1.01 H	165	4.50	37.70
3	#5470.00	67.0 PK	68.3	-1.3	1.26 H	164	29.20	37.80
4	*5500.00	104.4 PK			1.00 H	160	66.60	37.80
5	*5500.00	93.3 AV			1.00 H	160	55.50	37.80
6	11000.00	61.8 PK	74.0	-12.2	1.45 H	143	12.30	49.50
7	11000.00	48.2 AV	54.0	-5.8	1.45 H	143	-1.30	49.50

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	62.0 PK	74.0	-12.0	1.23 V	310	24.30	37.70
2	5460.00	41.3 AV	54.0	-12.7	1.23 V	310	3.60	37.70
3	#5470.00	66.7 PK	68.3	-1.6	1.23 V	310	28.90	37.80
4	*5500.00	102.3 PK			1.11 V	300	64.50	37.80
5	*5500.00	92.0 AV			1.11 V	300	54.20	37.80
6	11000.00	58.2 PK	74.0	-15.8	1.44 V	317	8.70	49.50
7	11000.00	45.1 AV	54.0	-8.9	1.44 V	317	-4.40	49.50

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 116	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH 1012 hPa	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	60.2 PK	74.0	-13.8	1.00 H	159	22.50	37.70
2	5460.00	39.7 AV	54.0	-14.3	1.00 H	159	2.00	37.70
3	*5580.00	104.0 PK			1.00 H	159	66.00	38.00
4	*5580.00	93.1 AV			1.00 H	159	55.10	38.00
5	11160.00	62.1 PK	74.0	-11.9	1.34 H	150	12.60	49.50
6	11160.00	48.9 AV	54.0	-5.1	1.34 H	150	-0.60	49.50
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	59.7 PK	74.0	-14.3	1.11 V	299	22.00	37.70
2	5460.00	37.4 AV	54.0	-16.6	1.11 V	299	-0.30	37.70
3	*5580.00	102.0 PK			1.11 V	299	64.00	38.00
4	*5580.00	91.8 AV			1.11 V	299	53.80	38.00
5	11160.00	58.4 PK	74.0	-15.6	1.39 V	300	8.90	49.50
6	11160.00	45.7 AV	54.0	-8.3	1.39 V	300	-3.80	49.50

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 132	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH 1012 hPa	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5660.00	104.5 PK			1.00 H	169	66.30	38.20
2	*5660.00	93.8 AV			1.00 H	169	55.60	38.20
3	5725.00	64.2 PK	68.3	-4.1	1.04 H	172	25.90	38.30
4	11320.00	63.4 PK	74.0	-10.6	1.33 H	170	13.70	49.70
5	11320.00	49.4 AV	54.0	-4.6	1.33 H	170	-0.30	49.70
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	*5660.00	102.5 PK			1.19 V	299	64.30	38.20
2	*5660.00	92.4 AV			1.19 V	299	54.20	38.20
3	5725.00	59.7 PK	68.3	-8.6	1.19 V	274	21.40	38.30
4	11320.00	58.9 PK	74.0	-15.1	1.00 V	50	9.20	49.70
5	11320.00	46.7 AV	54.0	-7.3	1.00 V	50	-3.00	49.70

- 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).
  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 140	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH 1012 hPa	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	104.2 PK			1.00 H	163	65.90	38.30
2	*5700.00	93.7 AV			1.00 H	163	55.40	38.30
3	#5725.00	67.0 PK	68.3	-1.3	1.16 H	161	28.70	38.30
4	11400.00	63.3 PK	74.0	-10.7	1.34 H	168	13.70	49.60
5	11400.00	50.1 AV	54.0	-3.9	1.34 H	168	0.50	49.60
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	*5700.00	102.5 PK			1.18 V	297	64.20	38.30
2	*5700.00	92.3 AV			1.18 V	297	54.00	38.30
3	#5725.00	63.8 PK	68.3	-4.5	1.17 V	296	25.50	38.30
4	11400.00	58.7 PK	74.0	-15.3	1.00 V	41	9.10	49.60
5	11400.00	46.5 AV	54.0	-7.5	1.00 V	41	-3.10	49.60

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



802.11n (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH 1012 hPa	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	58.1 PK	74.0	-15.9	1.00 H	163	20.90	37.20
2	5150.00	44.2 AV	54.0	-9.8	1.00 H	163	7.00	37.20
3	*5180.00	104.1 PK			1.00 H	164	66.80	37.30
4	*5180.00	92.6 AV			1.00 H	164	55.30	37.30
5	#10360.00	52.9 PK	68.3	-15.4	1.00 H	15	4.70	48.20

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	5150.00	58.6 PK	74.0	-15.4	1.19 V	289	21.40	37.20
2	5150.00	43.8 AV	54.0	-10.2	1.19 V	289	6.60	37.20
3	*5180.00	103.5 PK			1.31 V	289	66.20	37.30
4	*5180.00	91.9 AV			1.31 V	289	54.60	37.30
5	#10360.00	53.1 PK	68.3	-15.2	1.05 V	342	4.90	48.20

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 40	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH 1012 hPa	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	44.9 PK	74.0	-29.1	1.00 H	161	7.70	37.20
2	5150.00	34.7 AV	54.0	-19.3	1.00 H	161	-2.50	37.20
3	*5200.00	104.3 PK			1.00 H	161	67.00	37.30
4	*5200.00	92.9 AV			1.00 H	161	55.60	37.30
5	#10400.00	53.2 PK	68.3	-15.1	1.00 H	355	5.00	48.20
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	5150.00	44.8 PK	74.0	-29.2	1.29 V	291	7.60	37.20
2	5150.00	34.4 AV	54.0	-19.6	1.29 V	291	-2.80	37.20
3	*5200.00	103.7 PK			1.29 V	291	66.40	37.30
4	*5200.00	91.8 AV			1.29 V	291	54.50	37.30
5	#10400.00	53.4 PK	68.3	-14.9	1.04 V	360	5.20	48.20

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH 1012 hPa	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	44.4 PK	74.0	-29.6	1.00 H	157	7.20	37.20
2	5150.00	34.2 AV	54.0	-19.8	1.00 H	157	-3.00	37.20
3	*5240.00	104.2 PK			1.00 H	159	66.80	37.40
4	*5240.00	92.9 AV			1.00 H	159	55.50	37.40
5	#10480.00	53.4 PK	68.3	-14.9	1.00 H	359	5.00	48.40
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	5150.00	44.5 PK	74.0	-29.5	1.29 V	300	7.30	37.20
2	5150.00	34.2 AV	54.0	-19.8	1.29 V	300	-3.00	37.20
3	*5240.00	103.8 PK			1.29 V	301	66.40	37.40
4	*5240.00	92.0 AV			1.29 V	301	54.60	37.40
5	#10480.00	53.2 PK	68.3	-15.1	1.29 V	360	4.80	48.40

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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 52	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH 1012 hPa	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5260.00	105.2 PK			1.00 H	166	67.80	37.40
2	*5260.00	94.1 AV			1.00 H	166	56.70	37.40
3	5350.00	45.4 PK	74.0	-28.6	1.00 H	166	7.90	37.50
4	5350.00	35.0 AV	54.0	-19.0	1.00 H	166	-2.50	37.50
5	#10520.00	53.6 PK	68.3	-14.7	1.10 H	300	5.10	48.50
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5260.00	105.1 PK			1.24 V	311	67.70	37.40
2	*5260.00	93.5 AV			1.24 V	311	56.10	37.40
3	5350.00	45.0 PK	74.0	-29.0	1.24 V	311	7.50	37.50
4	5350.00	34.7 AV	54.0	-19.3	1.24 V	311	-2.80	37.50
5	#10520.00	53.1 PK	68.3	-15.2	1.02 V	50	4.60	48.50

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 60	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH 1012 hPa	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	105.5 PK			1.00 H	164	68.00	37.50
2	*5300.00	94.3 AV			1.00 H	164	56.80	37.50
3	5350.00	45.2 PK	74.0	-28.8	1.00 H	164	7.70	37.50
4	5350.00	34.9 AV	54.0	-19.1	1.00 H	164	-2.60	37.50
5	10600.00	54.1 PK	74.0	-19.9	1.07 H	300	5.50	48.60
6	10600.00	42.4 AV	54.0	-11.6	1.07 H	300	-6.20	48.60
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	*5300.00	105.3 PK			1.26 V	310	67.80	37.50
2	*5300.00	93.4 AV			1.26 V	310	55.90	37.50
3	5350.00	46.4 PK	74.0	-27.6	1.26 V	310	8.90	37.50
4	5350.00	36.0 AV	54.0	-18.0	1.26 V	310	-1.50	37.50
5	10600.00	54.1 PK	74.0	-19.9	1.10 V	50	5.50	48.60
6	10600.00	43.0 AV	54.0	-11.0	1.10 V	50	-5.60	48.60

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 64	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH 1012 hPa	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	105.6 PK			1.02 H	163	68.10	37.50
2	*5320.00	94.4 AV			1.02 H	163	56.90	37.50
3	5350.00	61.1 PK	74.0	-12.9	1.15 H	159	23.60	37.50
4	5350.00	44.5 AV	54.0	-9.5	1.15 H	159	7.00	37.50
5	10640.00	53.4 PK	74.0	-20.6	1.11 H	327	4.70	48.70
6	10640.00	41.3 AV	54.0	-12.7	1.11 H	327	-7.40	48.70
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	*5320.00	105.0 PK			1.27 V	312	67.50	37.50
2	*5320.00	93.2 AV			1.27 V	312	55.70	37.50
3	5350.00	63.6 PK	74.0	-10.4	1.25 V	310	26.10	37.50
4	5350.00	45.9 AV	54.0	-8.1	1.25 V	310	8.40	37.50
5	10640.00	53.7 PK	74.0	-20.3	1.09 V	47	5.00	48.70
6	10640.00	42.1 AV	54.0	-11.9	1.09 V	47	-6.60	48.70

- 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).
  3. The other emission levels were very low against the limit.
  4. Margin value = Emission level – Limit value.
  5. “ \* “: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 100	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH 1012 hPa	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	55.2 PK	74.0	-18.8	1.00 H	38	17.50	37.70
2	5460.00	43.3 AV	54.0	-10.7	1.00 H	38	5.60	37.70
3	#5470.00	66.8 PK	68.3	-1.5	1.00 H	38	29.00	37.80
4	*5500.00	107.0 PK			1.00 H	42	69.20	37.80
5	*5500.00	95.4 AV			1.00 H	42	57.60	37.80
6	11000.00	56.2 PK	74.0	-17.8	1.37 H	184	6.70	49.50
7	11000.00	43.6 AV	54.0	-10.4	1.37 H	184	-5.90	49.50

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	56.9 PK	74.0	-17.1	1.24 V	288	19.20	37.70
2	5460.00	41.8 AV	54.0	-12.2	1.24 V	288	4.10	37.70
3	#5470.00	63.3 PK	68.3	-5.0	1.24 V	288	25.50	37.80
4	*5500.00	104.9 PK			1.23 V	309	67.10	37.80
5	*5500.00	93.4 AV			1.23 V	309	55.60	37.80
6	11000.00	55.0 PK	74.0	-19.0	1.06 V	25	5.50	49.50
7	11000.00	43.3 AV	54.0	-10.7	1.06 V	25	-6.20	49.50

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 116	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH 1012 hPa	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	51.1 PK	74.0	-22.9	1.00 H	38	13.40	37.70
2	5460.00	39.6 AV	54.0	-14.4	1.00 H	38	1.90	37.70
3	*5580.00	107.1 PK			1.00 H	42	69.10	38.00
4	*5580.00	95.6 AV			1.00 H	42	57.60	38.00
5	11160.00	56.8 PK	74.0	-17.2	1.00 H	174	7.30	49.50
6	11160.00	44.2 AV	54.0	-9.8	1.00 H	174	-5.30	49.50
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	52.7 PK	74.0	-21.3	1.19 V	279	15.00	37.70
2	5460.00	36.7 AV	54.0	-17.3	1.19 V	279	-1.00	37.70
3	*5580.00	104.8 PK			1.21 V	289	66.80	38.00
4	*5580.00	93.5 AV			1.21 V	289	55.50	38.00
5	11160.00	55.3 PK	74.0	-18.7	1.01 V	35	5.80	49.50
6	11160.00	43.4 AV	54.0	-10.6	1.01 V	35	-6.10	49.50

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 132	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH 1012 hPa	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5660.00	106.9 PK			1.01 H	37	68.70	38.20
2	*5660.00	95.1 AV			1.01 H	37	56.90	38.20
3	5725.00	63.0 PK	68.3	-5.3	1.01 H	37	24.70	38.30
4	5725.00	46.8 AV	54.0	-7.2	1.01 H	37	8.50	38.30
5	11320.00	56.8 PK	74.0	-17.2	1.00 H	180	7.10	49.70
6	11320.00	44.4 AV	54.0	-9.6	1.00 H	180	-5.30	49.70
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	*5660.00	104.5 PK			1.20 V	290	66.30	38.20
2	*5660.00	93.2 AV			1.20 V	290	55.00	38.20
3	5725.00	58.9 PK	68.3	-9.4	1.20 V	247	20.60	38.30
4	5725.00	44.9 AV	54.0	-9.1	1.20 V	247	6.60	38.30
5	11320.00	55.6 PK	74.0	-18.4	1.05 V	30	5.90	49.70
6	11320.00	44.2 AV	54.0	-9.8	1.05 V	30	-5.50	49.70

- 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).
  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 140	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH 1012 hPa	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	106.9 PK			1.09 H	40	68.60	38.30
2	*5700.00	94.7 AV			1.09 H	40	56.40	38.30
3	#5725.00	67.3 PK	68.3	-1.0	1.09 H	40	29.00	38.30
4	11400.00	57.1 PK	74.0	-16.9	1.01 H	168	7.50	49.60
5	11400.00	44.8 AV	54.0	-9.2	1.01 H	168	-4.80	49.60
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	*5700.00	104.5 PK			1.19 V	297	66.20	38.30
2	*5700.00	93.3 AV			1.19 V	297	55.00	38.30
3	#5725.00	63.7 PK	68.3	-4.6	1.19 V	294	25.40	38.30
4	11400.00	57.5 PK	74.0	-16.5	1.00 V	175	7.90	49.60
5	11400.00	45.3 AV	54.0	-8.7	1.00 V	175	-4.30	49.60

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

**802.11n (40MHz)**

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 38	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH 1012 hPa	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	71.4 PK	74.0	-2.6	1.00 H	163	34.20	37.20
2	5150.00	52.5 AV	54.0	-1.5	1.00 H	163	15.30	37.20
3	*5190.00	101.3 PK			1.00 H	163	64.00	37.30
4	*5190.00	89.9 AV			1.00 H	163	52.60	37.30
5	#10380.00	52.9 PK	68.3	-15.4	1.00 H	360	4.70	48.20
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	5150.00	70.0 PK	74.0	-4.0	1.18 V	294	32.80	37.20
2	5150.00	52.1 AV	54.0	-1.9	1.18 V	294	14.90	37.20
3	*5190.00	100.4 PK			1.19 V	304	63.10	37.30
4	*5190.00	88.7 AV			1.19 V	304	51.40	37.30
5	#10380.00	53.4 PK	68.3	-14.9	1.00 V	60	5.20	48.20

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 46	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH 1012 hPa	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	66.2 PK	74.0	-7.8	1.00 H	157	29.00	37.20
2	5150.00	46.6 AV	54.0	-7.4	1.00 H	157	9.40	37.20
3	*5230.00	101.5 PK			1.00 H	161	64.10	37.40
4	*5230.00	90.0 AV			1.00 H	161	52.60	37.40
5	#10460.00	53.2 PK	68.3	-15.1	1.00 H	360	4.80	48.40
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	5150.00	64.7 PK	74.0	-9.3	1.10 V	310	27.50	37.20
2	5150.00	43.9 AV	54.0	-10.1	1.10 V	310	6.70	37.20
3	*5230.00	100.5 PK			1.19 V	300	63.10	37.40
4	*5230.00	89.0 AV			1.19 V	300	51.60	37.40
5	#10460.00	53.9 PK	68.3	-14.4	1.19 V	360	5.50	48.40

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 54	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH 1012 hPa	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5270.00	102.6 PK			1.01 H	162	65.20	37.40
2	*5270.00	90.5 AV			1.01 H	162	53.10	37.40
3	5350.00	66.4 PK	74.0	-7.6	1.00 H	160	28.90	37.50
4	5350.00	47.2 AV	54.0	-6.8	1.00 H	160	9.70	37.50
5	#10540.00	53.9 PK	68.3	-14.4	1.00 H	180	5.40	48.50
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5270.00	100.9 PK			1.17 V	304	63.50	37.40
2	*5270.00	89.4 AV			1.17 V	304	52.00	37.40
3	5350.00	64.2 PK	74.0	-9.8	1.17 V	300	26.70	37.50
4	5350.00	45.2 AV	54.0	-8.8	1.17 V	300	7.70	37.50
5	#10540.00	53.4 PK	68.3	-14.9	1.00 V	360	4.90	48.50

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 62	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH 1012 hPa	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5310.00	102.9 PK			1.04 H	163	65.40	37.50
2	*5310.00	90.9 AV			1.04 H	163	53.40	37.50
3	5350.00	71.2 PK	74.0	-2.8	1.00 H	162	33.70	37.50
4	<b>5350.00</b>	<b>53.0 AV</b>	<b>54.0</b>	<b>-1.0</b>	<b>1.00 H</b>	<b>162</b>	<b>15.50</b>	<b>37.50</b>
5	10620.00	53.6 PK	74.0	-20.4	1.02 H	219	5.00	48.60
6	10620.00	41.3 AV	54.0	-12.7	1.02 H	219	-7.30	48.60
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	*5310.00	100.9 PK			1.15 V	311	63.40	37.50
2	*5310.00	89.6 AV			1.15 V	311	52.10	37.50
3	5350.00	71.2 PK	74.0	-2.8	1.13 V	309	33.70	37.50
4	<b>5350.00</b>	<b>53.0 AV</b>	<b>54.0</b>	<b>-1.0</b>	<b>1.13 V</b>	<b>309</b>	<b>15.50</b>	<b>37.50</b>
5	10620.00	54.6 PK	74.0	-19.4	1.01 V	360	6.00	48.60
6	10620.00	41.8 AV	54.0	-12.2	1.01 V	360	-6.80	48.60

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 102	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH 1012 hPa	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	57.4 PK	74.0	-16.6	1.00 H	160	19.70	37.70
2	5460.00	41.7 AV	54.0	-12.3	1.00 H	160	4.00	37.70
3	#5470.00	67.1 PK	68.3	-1.2	1.00 H	166	29.30	37.80
4	*5510.00	98.0 PK			1.00 H	166	60.10	37.90
5	*5510.00	87.7 AV			1.00 H	166	49.80	37.90
6	11020.00	53.9 PK	74.0	-20.1	1.00 H	207	4.40	49.50
7	11020.00	41.7 AV	54.0	-12.3	1.00 H	207	-7.80	49.50

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	53.9 PK	74.0	-20.1	1.13 V	296	16.20	37.70
2	5460.00	40.5 AV	54.0	-13.5	1.13 V	296	2.80	37.70
3	#5470.00	66.8 PK	68.3	-1.5	1.13 V	296	29.00	37.80
4	*5510.00	97.8 PK			1.24 V	295	59.90	37.90
5	*5510.00	86.9 AV			1.24 V	295	49.00	37.90
6	11020.00	54.1 PK	74.0	-19.9	1.00 V	355	4.60	49.50
7	11020.00	42.0 AV	54.0	-12.0	1.00 V	355	-7.50	49.50

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 110	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH 1012 hPa	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	3699.00	38.3 PK	74.0	-35.7	1.28 H	351	4.60	33.70
2	3699.00	27.5 AV	54.0	-26.5	1.28 H	351	-6.20	33.70
3	*5550.00	104.7 PK			1.00 H	40	66.80	37.90
4	*5550.00	91.1 AV			1.00 H	40	53.20	37.90
5	11100.00	55.8 PK	74.0	-18.2	1.29 H	73	6.30	49.50
6	11100.00	43.9 AV	54.0	-10.1	1.29 H	73	-5.60	49.50
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	3699.00	37.2 PK	74.0	-36.8	1.02 V	89	3.50	33.70
2	3699.00	26.4 AV	54.0	-27.6	1.02 V	89	-7.30	33.70
3	*5550.00	103.8 PK			1.23 V	298	65.90	37.90
4	*5550.00	90.4 AV			1.23 V	298	52.50	37.90
5	11100.00	54.2 PK	74.0	-19.8	1.43 V	163	4.70	49.50
6	11100.00	42.8 AV	54.0	-11.2	1.43 V	163	-6.70	49.50

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 134	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH 1012 hPa	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5670.00	105.0 PK			1.00 H	39	66.80	38.20
2	*5670.00	91.5 AV			1.00 H	39	53.30	38.20
3	5725.00	66.4 PK	68.3	-1.9	1.00 H	40	28.10	38.30
4	11340.00	60.1 PK	74.0	-13.9	1.29 H	75	10.40	49.70
5	11340.00	45.6 AV	54.0	-8.4	1.29 H	75	-4.10	49.70
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	*5670.00	104.1 PK			1.43 V	279	65.90	38.20
2	*5670.00	90.8 AV			1.43 V	279	52.60	38.20
3	5725.00	63.9 PK	68.3	-4.4	1.44 V	280	25.60	38.30
4	11340.00	55.7 PK	74.0	-18.3	1.38 V	167	6.00	49.70
5	11340.00	43.1 AV	54.0	-10.9	1.38 V	167	-6.60	49.70

- 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).
  3. The other emission levels were very low against the limit.
  4. Margin value = Emission level – Limit value.
  5. “ \* “: Fundamental frequency.

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 60	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH 1008 hPa	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	55.18	24.4 QP	40.0	-15.6	2.00 H	229	10.80	13.60
2	64.90	24.9 QP	40.0	-15.1	2.00 H	181	12.40	12.50
3	799.84	40.9 QP	46.0	-5.1	1.00 H	10	15.50	25.40
4	817.34	36.1 QP	46.0	-9.9	1.00 H	25	10.60	25.50
5	904.83	32.6 QP	46.0	-13.4	1.50 H	76	6.40	26.20
6	945.66	36.4 QP	46.0	-9.6	2.00 H	55	9.90	26.50
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	57.12	34.9 QP	40.0	-5.1	1.00 V	142	21.40	13.50
2	64.90	31.3 QP	40.0	-8.7	1.25 V	118	18.80	12.50
3	797.89	39.7 QP	46.0	-6.3	1.00 V	319	14.40	25.30
4	817.34	36.4 QP	46.0	-9.6	2.00 V	10	10.90	25.50
5	895.11	34.1 QP	46.0	-11.9	1.25 V	292	8.00	26.10
6	947.60	40.3 QP	46.0	-5.7	1.50 V	337	13.80	26.50

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 116	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	23deg. C, 65%RH 1008 hPa	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	55.18	25.5 QP	40.0	-14.5	2.00 H	88	11.90	13.60
2	64.90	24.6 QP	40.0	-15.4	2.00 H	181	12.10	12.50
3	797.89	40.2 QP	46.0	-5.8	1.00 H	358	14.90	25.30
4	817.34	35.8 QP	46.0	-10.2	1.00 H	343	10.30	25.50
5	920.38	34.6 QP	46.0	-11.4	1.25 H	10	8.30	26.30
6	947.60	37.4 QP	46.0	-8.6	2.00 H	79	10.90	26.50
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	55.18	34.9 QP	40.0	-5.1	1.00 V	175	21.30	13.60
2	64.90	30.9 QP	40.0	-9.1	1.50 V	100	18.40	12.50
3	797.89	38.9 QP	46.0	-7.1	1.00 V	319	13.60	25.30
4	817.34	36.1 QP	46.0	-9.9	2.00 V	358	10.60	25.50
5	897.05	33.5 QP	46.0	-12.5	1.50 V	322	7.40	26.10
6	947.60	40.0 QP	46.0	-6.0	1.50 V	331	13.50	26.50

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

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

### 4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100291	Nov. 30, 2010	Nov. 29, 2011
RF signal cable Woken	5D-FB	Cable-HYC01-01	Dec. 30, 2010	Dec. 29, 2011
LISN ROHDE & SCHWARZ	ESH3-Z5	100312	Jun. 28, 2010	Jun. 27, 2011
V-LISN SCHWARZBECK	NNBL 8226-2	8226-142	Jul. 12, 2010	Jul. 11, 2011
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 1.
3. The VCCI Site Registration No. is C-2040.

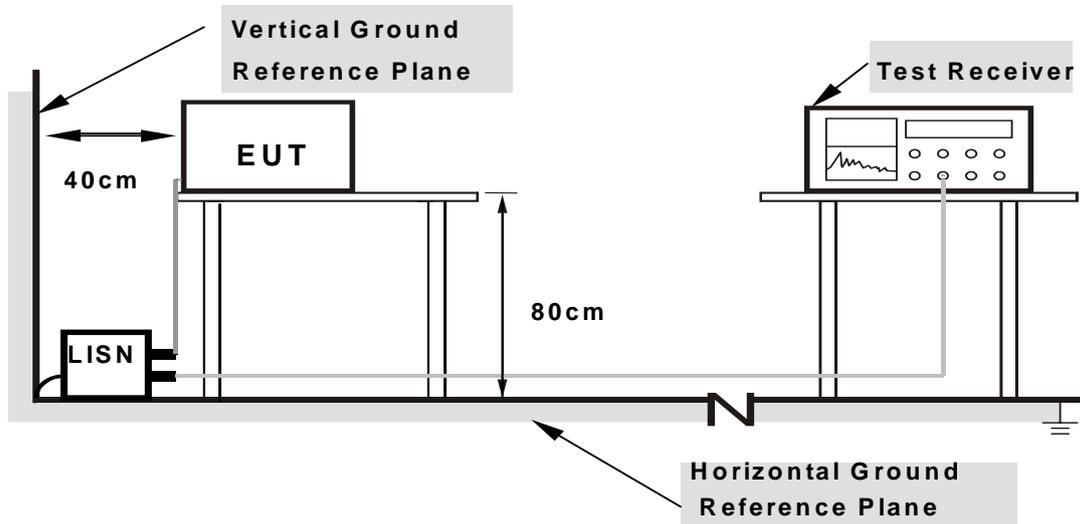
#### 4.2.3 TEST PROCEDURES

- 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.

#### 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.



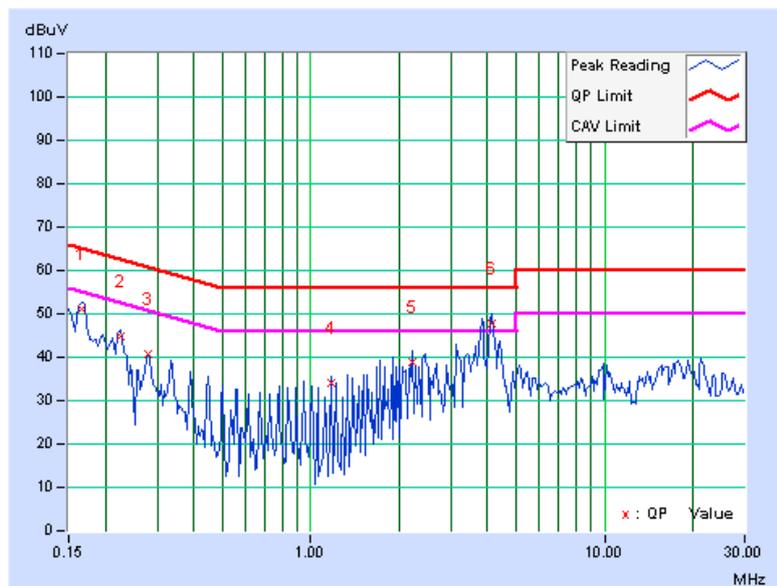
### 4.2.7 TEST RESULTS

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

<b>CHANNEL</b>	Channel 60	<b>PHASE</b>	Line 1
<b>6dB BANDWIDTH</b>	9kHz		

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	0.166	0.14	51.13	-	51.27	-	65.18	55.18	-13.90	-
2	0.224	0.14	44.49	-	44.63	-	62.66	52.66	-18.03	-
3	0.279	0.14	40.64	-	40.78	-	60.85	50.85	-20.06	-
4	1.172	0.20	33.77	-	33.97	-	56.00	46.00	-22.03	-
5	2.230	0.24	38.65	-	38.89	-	56.00	46.00	-17.11	-
6	4.125	0.37	47.30	34.19	47.67	34.56	56.00	46.00	-8.33	-11.44

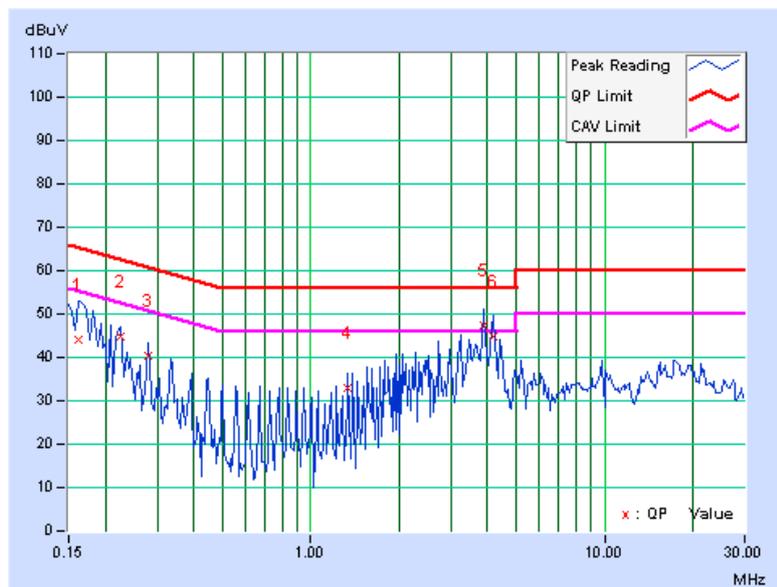
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
  2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
  3. The emission levels of other frequencies were very low against the limit.
  4. Margin value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



<b>CHANNEL</b>	Channel 60	<b>PHASE</b>	Line 2
<b>6dB BANDWIDTH</b>	9kHz		

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	0.162	0.13	43.97	-	44.10	-	65.38	55.38	-21.28	-
2	0.224	0.13	44.86	-	44.99	-	62.66	52.66	-17.67	-
3	0.279	0.13	40.28	-	40.41	-	60.85	50.85	-20.43	-
4	1.340	0.19	32.72	-	32.91	-	56.00	46.00	-23.09	-
5	3.898	0.32	47.03	35.07	47.35	35.39	56.00	46.00	-8.65	-10.61
6	4.180	0.34	44.38	-	44.72	-	56.00	46.00	-11.28	-

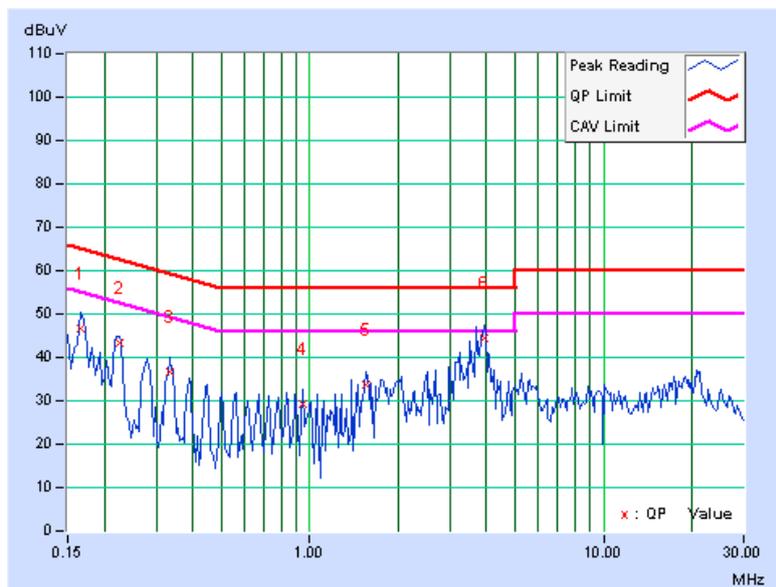
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
  2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
  3. The emission levels of other frequencies were very low against the limit.
  4. Margin value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



<b>CHANNEL</b>	Channel 116	<b>PHASE</b>	Line 1
<b>6dB BANDWIDTH</b>	9kHz		

No	Freq. [MHz]	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.166	0.14	46.69	-	46.83	-	65.18	55.18	-18.34	-
2	0.224	0.14	43.37	-	43.51	-	62.66	52.66	-19.15	-
3	0.334	0.15	36.69	-	36.84	-	59.36	49.36	-22.52	-
4	0.951	0.19	29.16	-	29.35	-	56.00	46.00	-26.65	-
5	1.563	0.21	33.54	-	33.75	-	56.00	46.00	-22.25	-
6	3.906	0.35	43.93	-	44.28	-	56.00	46.00	-11.72	-

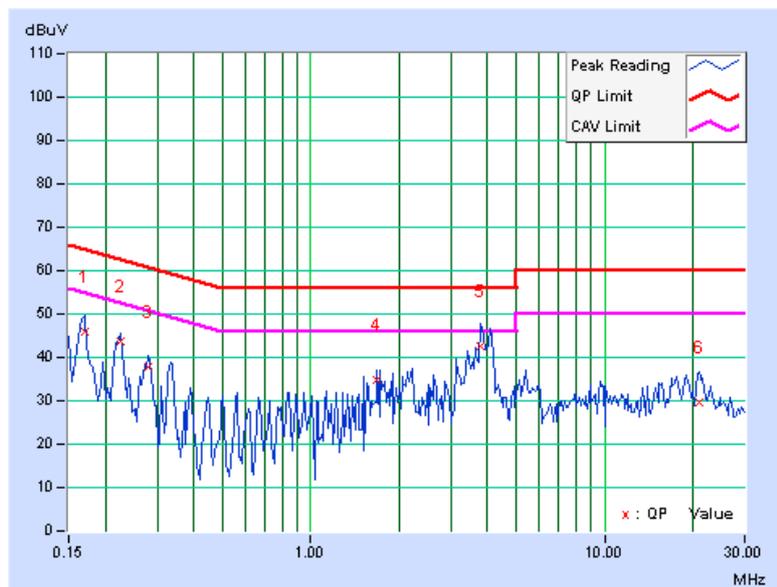
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
  2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
  3. The emission levels of other frequencies were very low against the limit.
  4. Margin value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



<b>CHANNEL</b>	Channel 116	<b>PHASE</b>	Line 2
<b>6dB BANDWIDTH</b>	9kHz		

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	0.170	0.13	45.87	-	46.00	-	64.98	54.98	-18.99	-
2	0.224	0.13	43.59	-	43.72	-	62.66	52.66	-18.94	-
3	0.279	0.13	37.50	-	37.63	-	60.85	50.85	-23.21	-
4	1.676	0.20	34.48	-	34.68	-	56.00	46.00	-21.32	-
5	3.797	0.32	42.45	-	42.77	-	56.00	46.00	-13.23	-
6	21.078	1.39	28.38	-	29.77	-	60.00	50.00	-30.23	-

- 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 MAXIMUM CONDUCTED OUTPUT POWER MEASUREMENT

#### 4.3.1 LIMITS OF MAXIMUM CONDUCTED OUTPUT POWER MEASUREMENT

FREQUENCY BAND	LIMIT
5.150 ~ 5.250GHz	The lesser of 50mW (17dBm) or 4dBm + 10logB
5.250 ~ 5.350GHz	The lesser of 250mW (24dBm) or 11dBm + 10logB
5.470 ~ 5.725GHz	The lesser of 250mW (24dBm) or 11dBm + 10logB

**NOTE:** Where B is the 26dB emission bandwidth in MHz.

#### 4.3.2 TEST INSTRUMENTS

##### FOR POWER OUTPUT MEASUREMENT

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
High Speed Peak Power Meter	ML2495A	0842014	Apr. 21, 2010	Apr. 20, 2011
Power Sensor	MA2411B	0738404	Apr. 21, 2010	Apr. 20, 2011

**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 26dB bandwidth of emission.

##### FOR 26dB OCCUPIED BANDWIDTH

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
SPECTRUM ANALYZER R&S	FSP40	100039	Jul. 09, 2010	Jul. 08, 2011

**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

#### FOR POWER OUTPUT MEASUREMENT

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.

#### FOR 26dB OCCUPIED BANDWIDTH

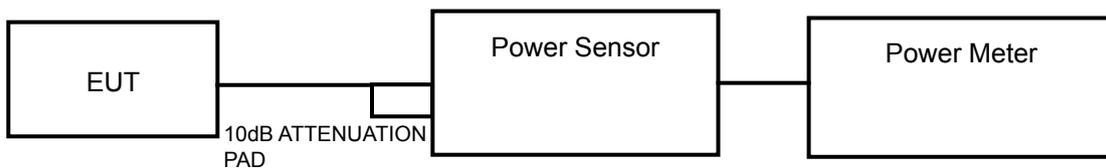
The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 300kHz RBW and 1MHz VBW. The 26dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 26dB.

### 4.3.4 DEVIATION FROM TEST STANDARD

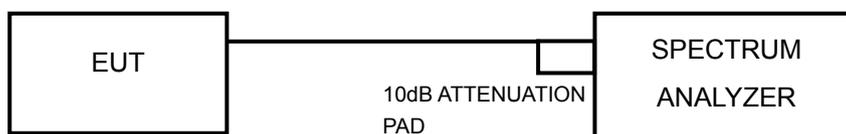
No deviation.

### 4.3.5 TEST SETUP

#### FOR POWER OUTPUT MEASUREMENT



#### FOR 26dB OCCUPIED BANDWIDTH



### 4.3.6 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

### 4.3.7 TEST RESULTS

#### POWER OUTPUT: 802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	OUTPUT POWER (mW)	OUTPUT POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
36	5180	31.6	15.0	17	PASS
40	5200	34.7	15.4	17	PASS
48	5240	32.4	15.1	17	PASS
52	5260	33.1	15.2	24	PASS
60	5300	33.9	15.3	24	PASS
64	5320	33.1	15.2	24	PASS
100	5500	29.5	14.7	24	PASS
116	5580	33.1	15.2	24	PASS
132	5660	31.6	15.0	24	PASS
140	5700	30.9	14.9	24	PASS



**802.11n (20MHz)**

CHAN.	CHAN. FREQ. (MHz)	POWER OUTPUT (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
36	5180	14.3	13.0	46.9	16.7	17	PASS
40	5200	14.4	13.1	48.0	16.8	17	PASS
48	5240	13.9	13.5	46.9	16.7	17	PASS
52	5260	15.2	14.6	62.0	17.9	24	PASS
60	5300	15.4	14.8	<b>64.9</b>	18.1	24	PASS
64	5320	15.3	14.7	63.4	18.0	24	PASS
100	5500	15.0	14.5	59.8	17.8	24	PASS
116	5580	15.0	14.9	<b>62.5</b>	18.0	24	PASS
132	5660	15.1	14.0	57.5	17.6	24	PASS
140	5700	15.0	14.4	59.2	17.7	24	PASS

**802.11n (40MHz)**

CHAN.	CHAN. FREQ. (MHz)	POWER OUTPUT (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
38	5190	13.6	13.4	44.8	16.5	17	PASS
46	5230	13.8	13.4	45.9	16.6	17	PASS
54	5270	15.1	14.7	61.9	17.9	24	PASS
62	5310	15.1	14.2	58.7	17.7	24	PASS
102	5510	10.4	10.1	21.2	13.3	24	PASS
110	5550	15.1	14.7	61.9	17.9	24	PASS
134	5670	15.0	14.5	59.8	17.8	24	PASS

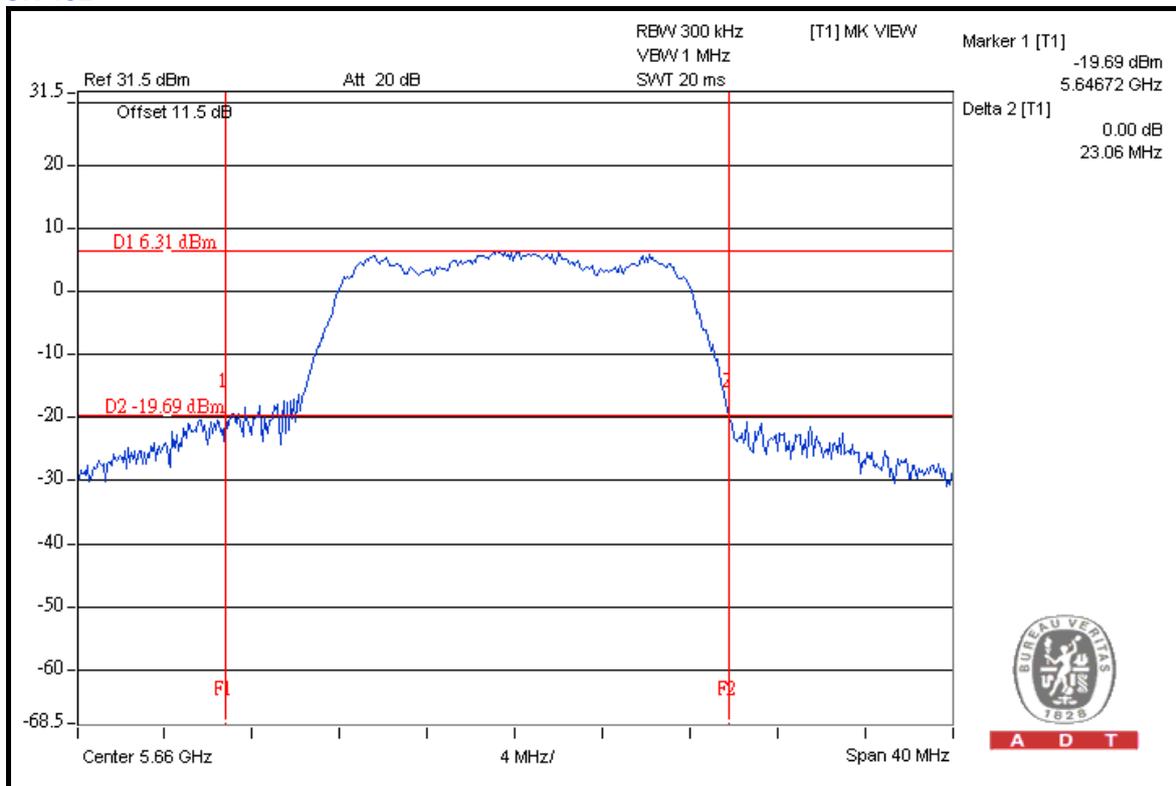


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### 26dB OCCUPIED BANDWIDTH: 802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc OCCUPIED BANDWIDTH (MHz)	PASS / FAIL
36	5180	22.68	PASS
40	5200	19.65	PASS
48	5240	19.56	PASS
52	5260	19.85	PASS
60	5300	19.99	PASS
64	5320	19.65	PASS
100	5500	20.06	PASS
116	5580	19.58	PASS
132	5660	23.06	PASS
140	5700	20.19	PASS

### CH 132



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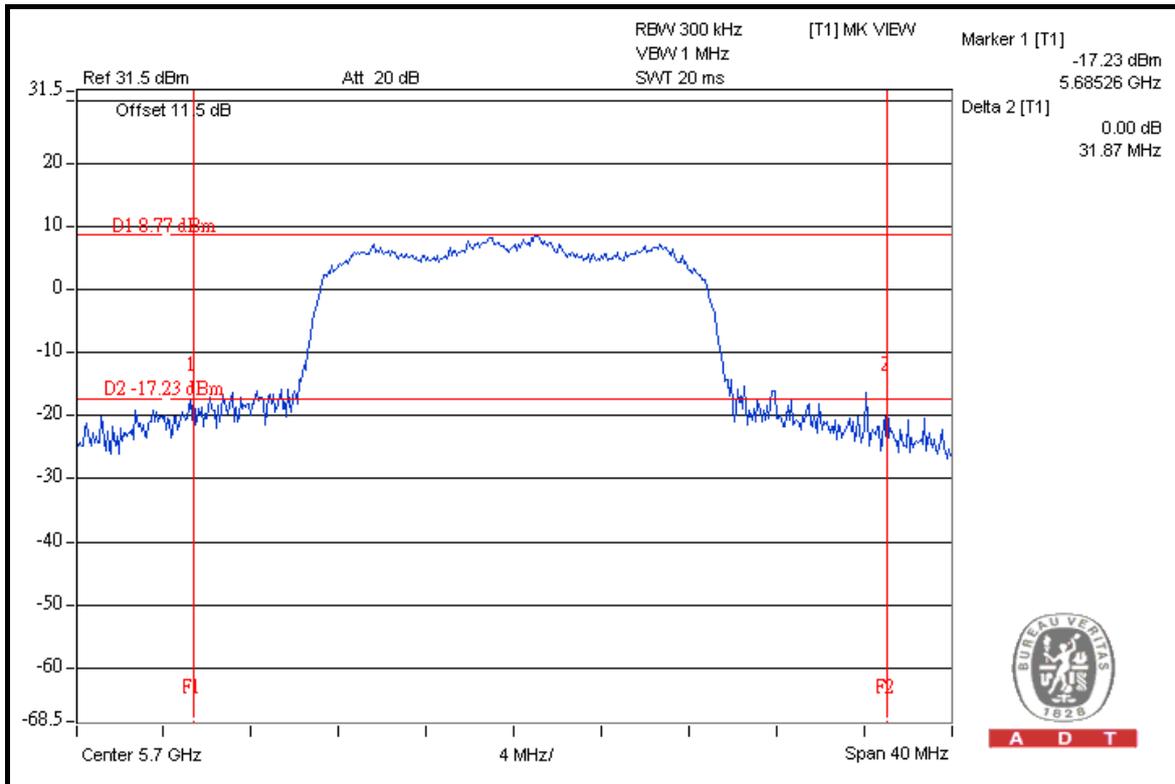


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### 802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc OCCUPIED BANDWIDTH (MHz)		PASS / FAIL
		CHAIN 0	CHAIN 1	
36	5180	27.80	19.68	PASS
40	5200	22.52	19.69	PASS
48	5240	23.63	19.70	PASS
52	5260	23.56	19.69	PASS
60	5300	31.31	19.79	PASS
64	5320	31.14	19.63	PASS
100	5500	22.31	19.74	PASS
116	5580	21.62	19.71	PASS
132	5660	30.89	19.89	PASS
140	5700	31.87	25.45	PASS

### FOR CHAIN 0: CH 140



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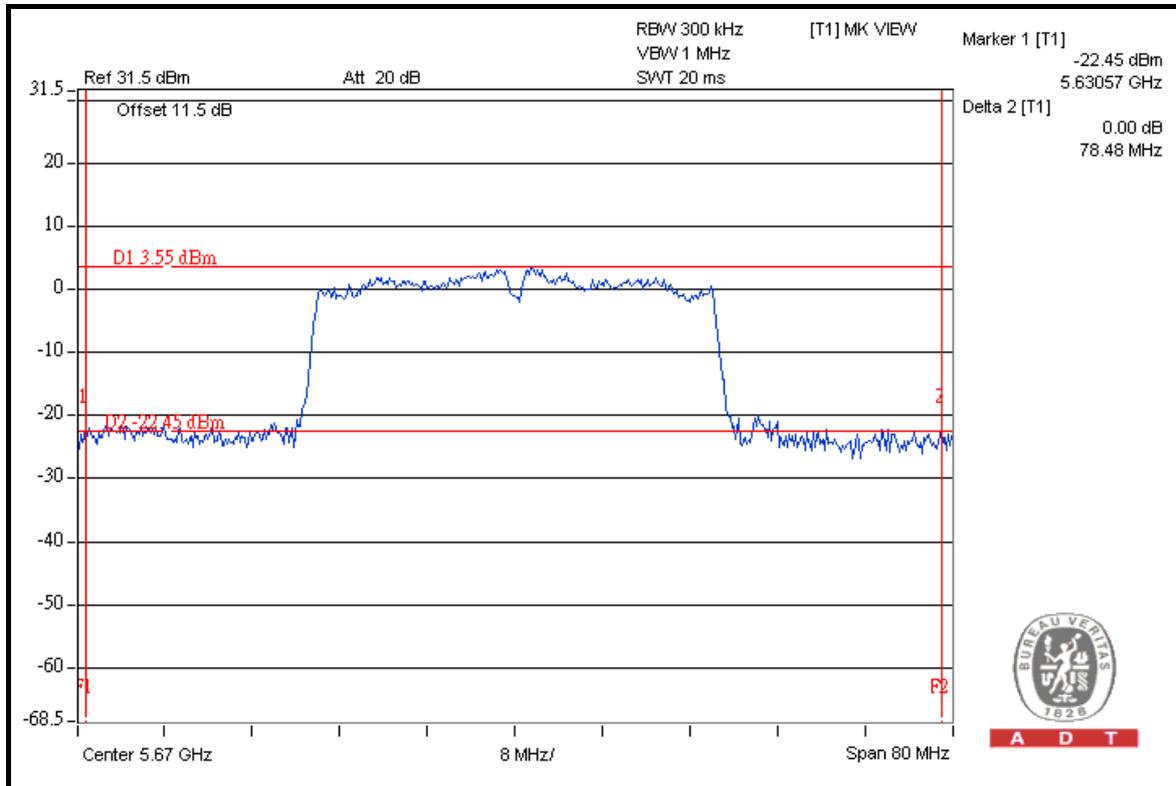


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### 802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc OCCUPIED BANDWIDTH (MHz)		PASS / FAIL
		CHAIN 0	CHAIN 1	
38	5190	39.17	45.23	PASS
46	5230	39.51	43.09	PASS
54	5270	54.73	53.74	PASS
62	5310	59.04	56.80	PASS
102	5510	39.28	39.54	PASS
110	5550	39.00	39.61	PASS
134	5670	54.89	78.48	PASS

### CHAIN 1: CH 134



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#### 4.4 PEAK POWER EXCURSION MEASUREMENT

##### 4.4.1 LIMITS OF PEAK POWER EXCURSION MEASUREMENT

FREQUENCY BAND	LIMIT
5.150 ~ 5.250GHz	13dB
5.250 ~ 5.350GHz	13dB
5.470 ~ 5.725GHz	13dB

##### 4.4.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
SPECTRUM ANALYZER R&S	FSP40	100039	Jul. 09, 2010	Jul. 08, 2011

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

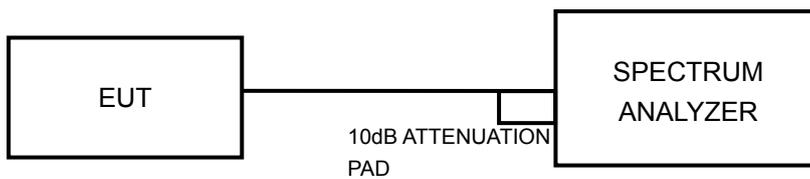
##### 4.4.3 TEST PROCEDURE

- a. The transmitter output was connected to the spectrum analyzer.
- b. Set the spectrum bandwidth span to view the entire spectrum.
- c. Using peak detector and Max-hold function for Trace 1 (RB = 1MHz, VB = 3MHz) and 2 (RB = 1MHz, VB = 300kHz).
- d. The differences between Trace1 and Trace 2 in any 1MHz band at f1 to f2 range were recorded and showed to another trace.

#### 4.4.4 DEVIATION FROM TEST STANDARD

No deviation.

#### 4.4.5 TEST SETUP



#### 4.4.6 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

#### 4.4.7 TEST RESULTS

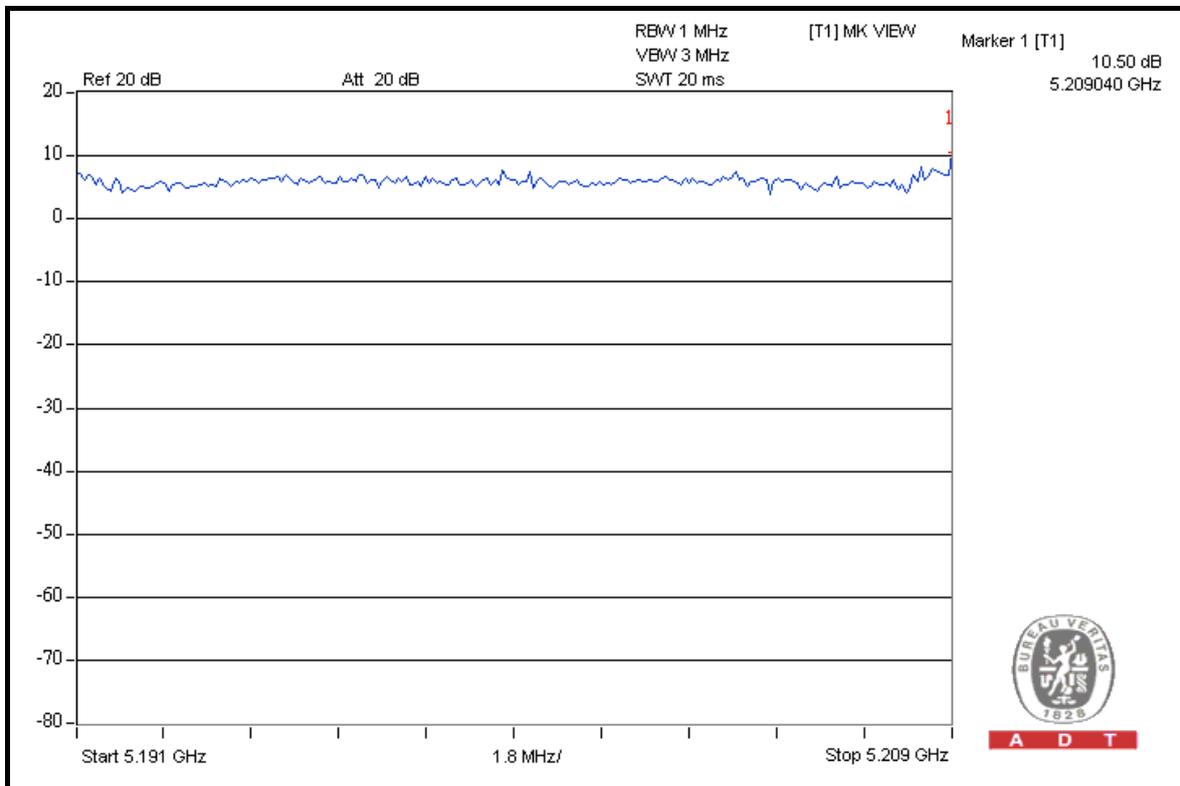
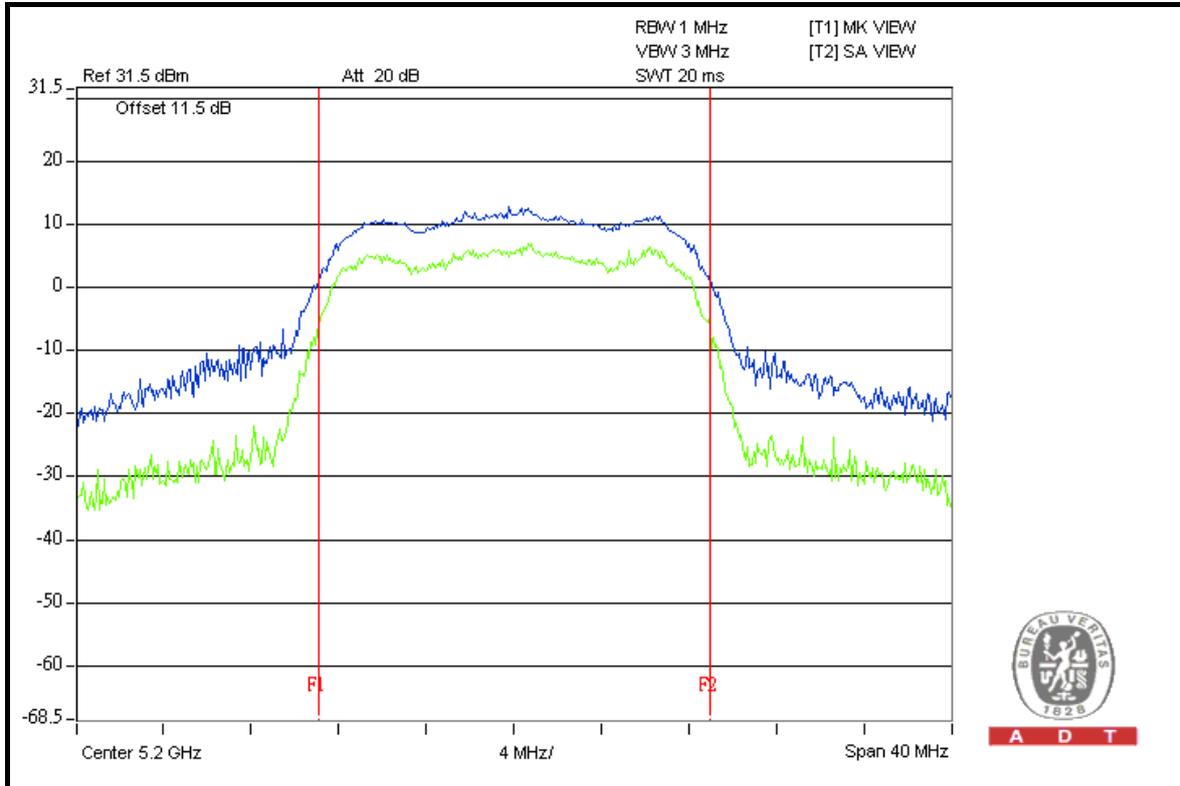
##### 802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)	PEAK TO AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
36	5180	8.56	13	PASS
40	5200	10.50	13	PASS
48	5240	8.65	13	PASS
52	5260	8.97	13	PASS
60	5300	9.56	13	PASS
64	5320	8.55	13	PASS
100	5500	8.30	13	PASS
116	5580	9.18	13	PASS
132	5660	9.67	13	PASS
140	5700	8.90	13	PASS



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### CH 40





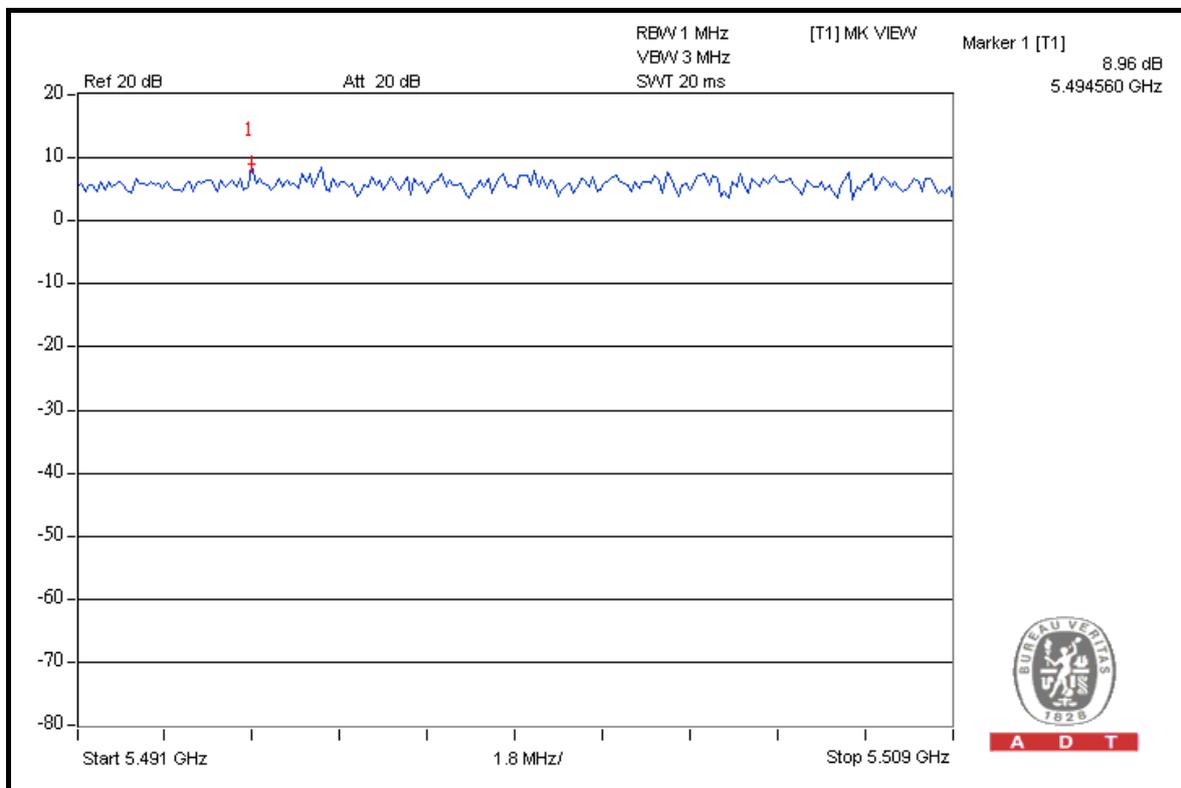
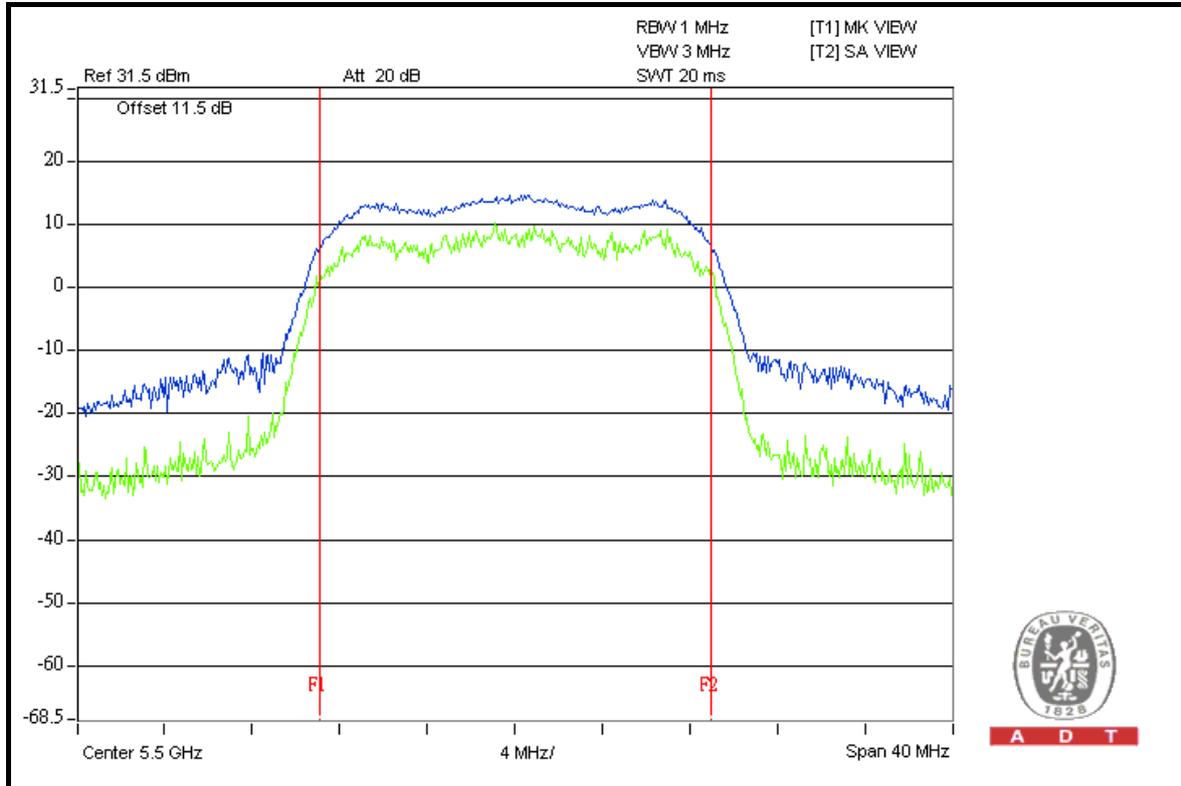
802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)		PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
		CHAIN 0	CHAIN 1		
36	5180	7.79	8.03	13	PASS
40	5200	8.15	7.63	13	PASS
48	5240	7.72	8.27	13	PASS
52	5260	8.59	8.35	13	PASS
60	5300	8.05	8.11	13	PASS
64	5320	8.15	8.38	13	PASS
100	5500	8.36	8.96	13	PASS
116	5580	7.95	7.76	13	PASS
132	5660	7.80	7.84	13	PASS
140	5700	7.77	7.82	13	PASS



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### CHAIN 1: CH 100





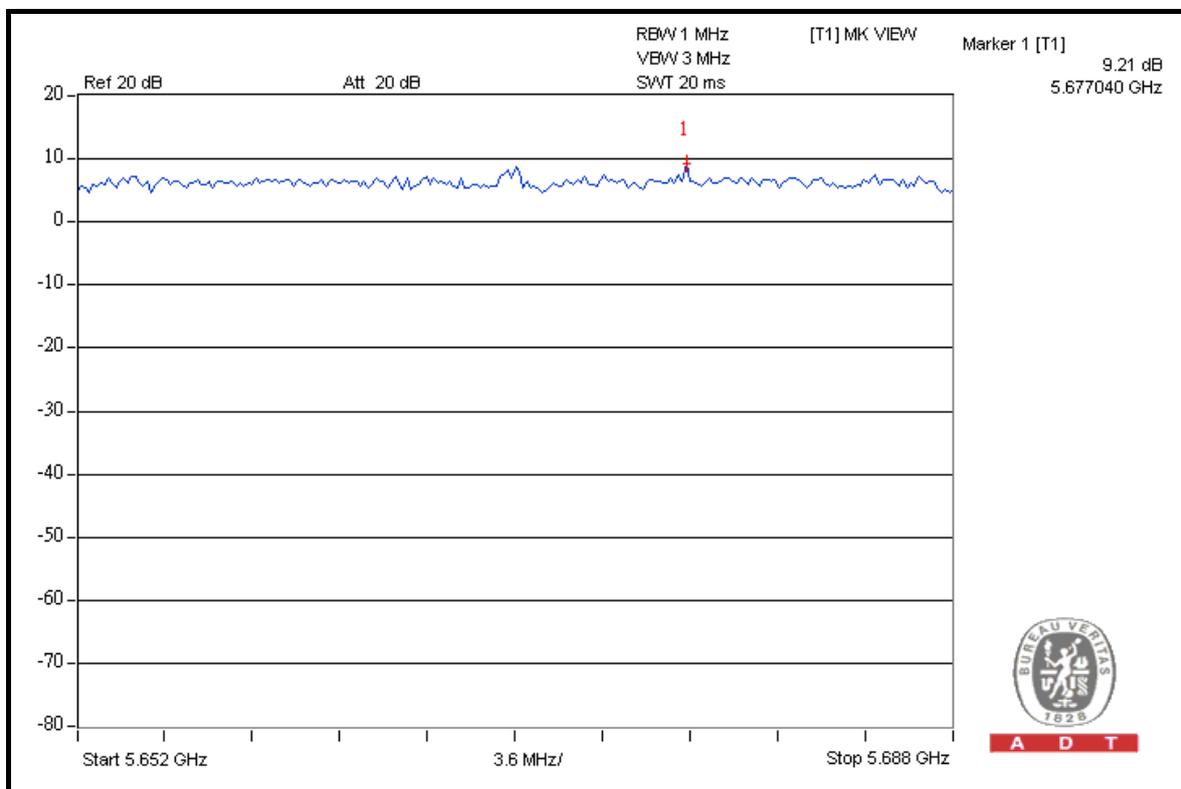
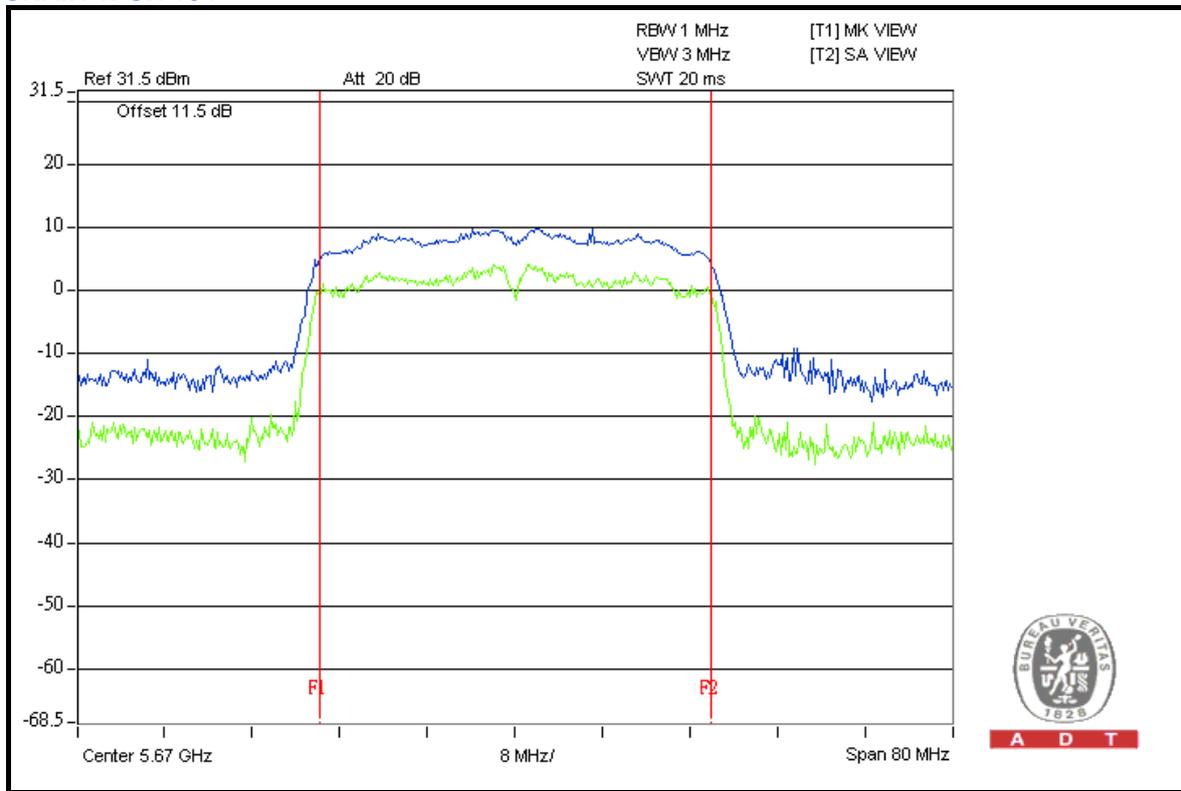
802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)		PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
		CHAIN 0	CHAIN 1		
38	5190	8.92	8.09	13	PASS
46	5230	7.94	8.11	13	PASS
54	5270	8.38	8.55	13	PASS
62	5310	8.97	8.21	13	PASS
102	5510	8.56	8.04	13	PASS
110	5550	8.34	7.96	13	PASS
134	5670	9.00	9.21	13	PASS



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### CHAIN 1: CH 134



## 4.5 PEAK POWER SPECTRAL DENSITY MEASUREMENT

### 4.5.1 LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT

FREQUENCY BAND	LIMIT
5.150 ~ 5.250GHz	4dBm
5.250 ~ 5.350GHz	11dBm
5.470 ~ 5.725GHz	11dBm

### 4.5.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
SPECTRUM ANALYZER R&S	FSP40	100039	Jul. 09, 2010	Jul. 08, 2011

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

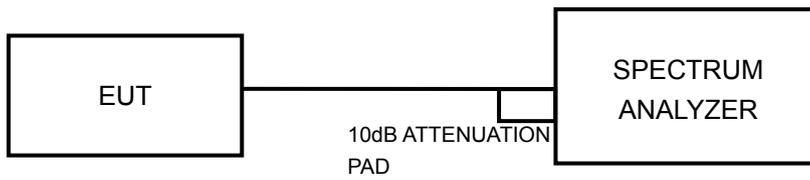
### 4.5.3 TEST PROCEDURES

- a. The transmitter output was connected to the spectrum analyzer.
- b. Set RBW = 1MHz, VBW = 3MHz. The PPSD is the highest level found across the emission in any 1MHz band.

#### 4.5.4 DEVIATION FROM TEST STANDARD

No deviation.

#### 4.5.5 TEST SETUP



#### 4.5.6 EUT OPERATING CONDITIONS

Same as 5.3.6.



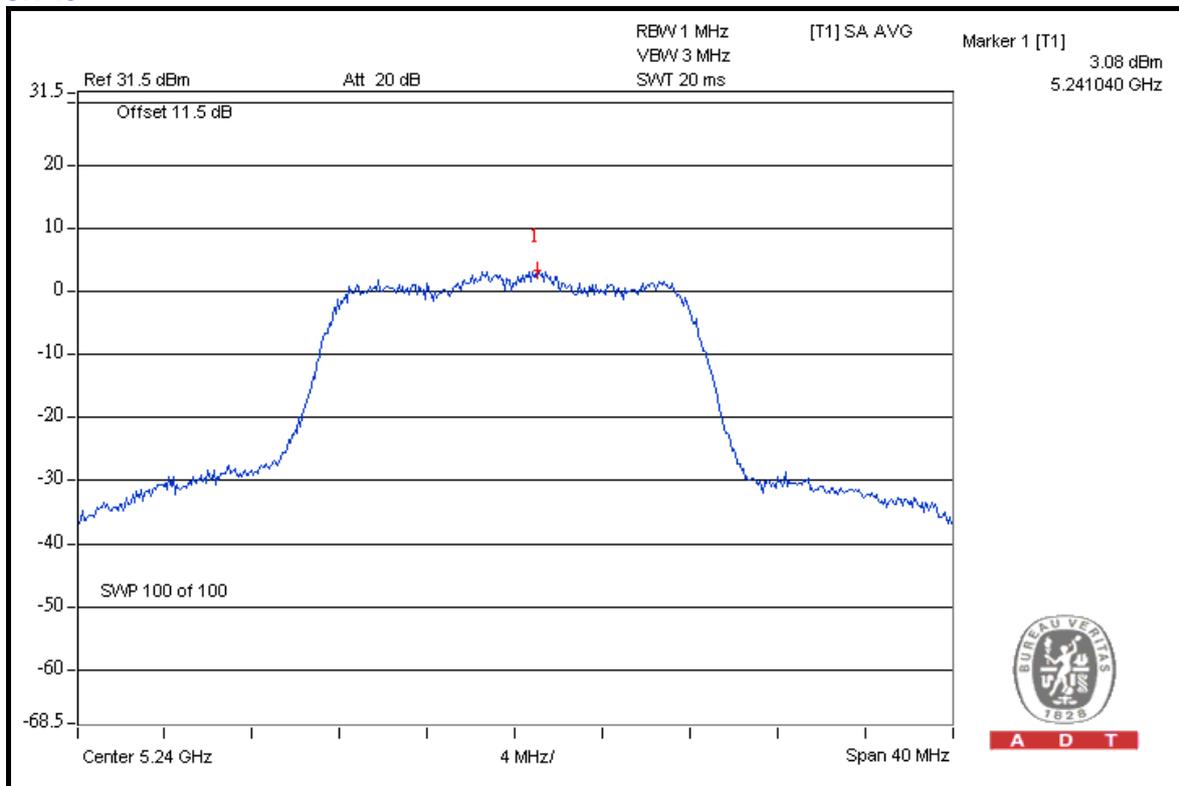
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### 4.5.7 TEST RESULTS

#### 802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 1MHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
36	5180	2.6	4	PASS
40	5200	2.8	4	PASS
48	5240	3.1	4	PASS
52	5260	1.7	11	PASS
60	5300	2.9	11	PASS
64	5320	1.2	11	PASS
100	5500	1.5	11	PASS
116	5580	2.7	11	PASS
132	5660	1.5	11	PASS
140	5700	1.4	11	PASS

#### CH 48



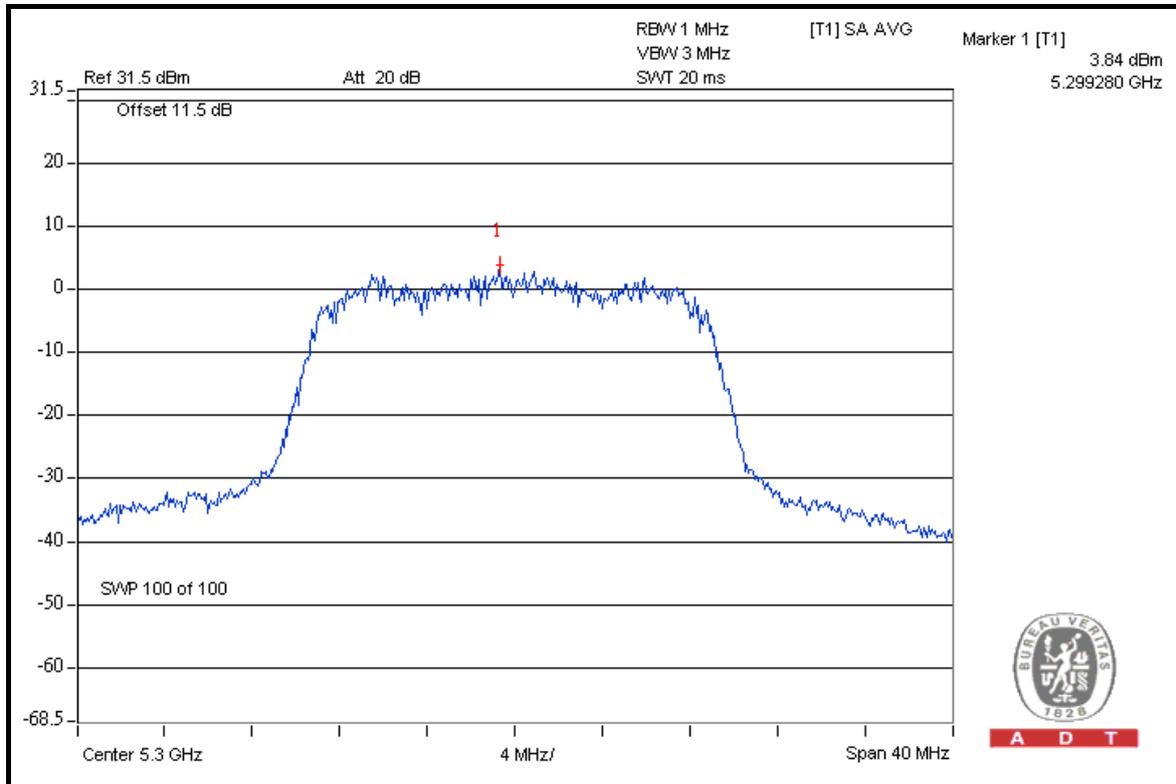


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### 802.11n (20MHz)

CHAN.	CHAN. FREQ. (MHz)	RF POWER LEVEL IN 1MHz BW (dBm)		TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1			
36	5180	0.1	0.6	3.4	4	PASS
40	5200	0.9	0.3	3.6	4	PASS
48	5240	0.9	0.8	3.8	4	PASS
52	5260	3.6	3.3	6.5	11	PASS
60	5300	3.8	3.0	6.5	11	PASS
64	5320	3.6	3.3	6.5	11	PASS
100	5500	3.0	2.9	5.9	11	PASS
116	5580	3.5	2.7	6.2	11	PASS
132	5660	3.6	2.5	6.1	11	PASS
140	5700	3.0	2.9	6.0	11	PASS

### CHAIN 0: CH 60



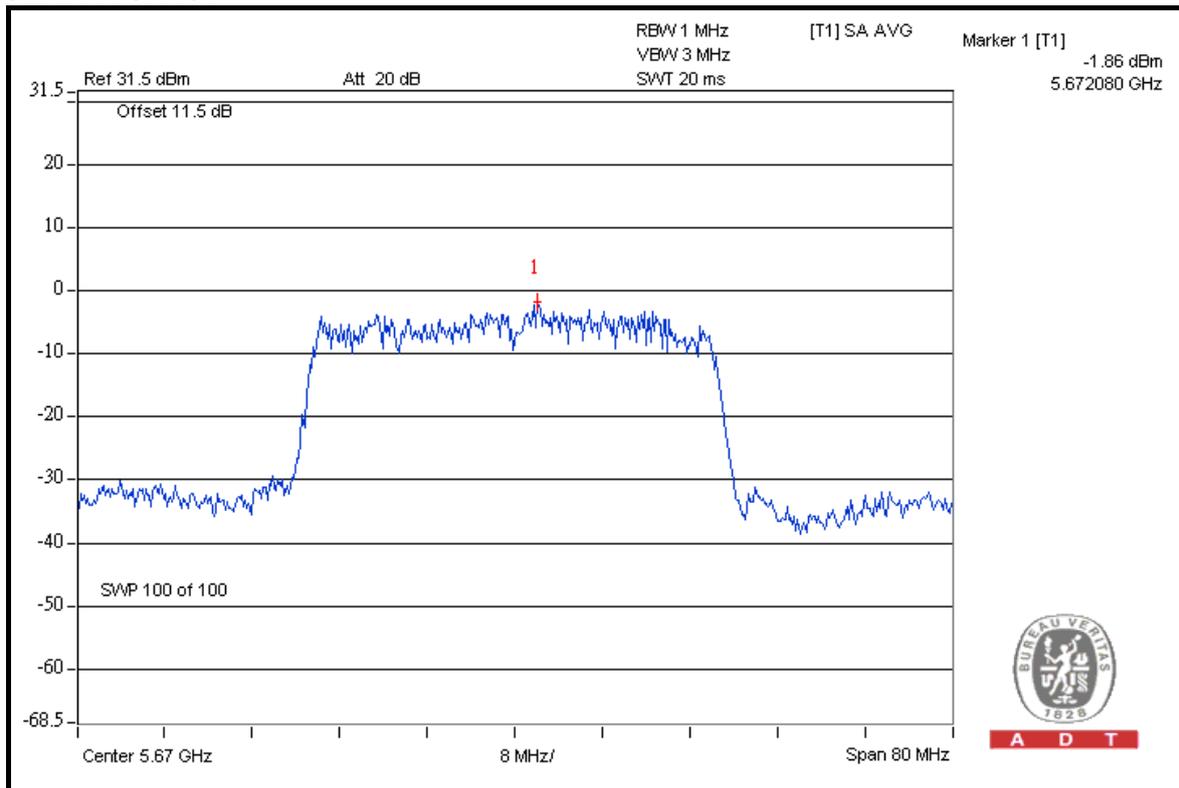


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### 802.11n (40MHz)

CHAN.	CHAN. FREQ. (MHz)	RF POWER LEVEL IN 1MHz BW (dBm)		TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1			
38	5190	-3.6	-4.1	-0.9	4	PASS
46	5230	-3.0	-3.6	-0.3	4	PASS
54	5270	-2.3	-2.9	0.4	11	PASS
62	5310	-2.9	-3.0	0.1	11	PASS
102	5510	-6.4	-5.9	-3.2	11	PASS
110	5550	-2.9	-2.0	0.6	11	PASS
134	5670	-3.1	-1.9	0.6	11	PASS

### CHAIN 1: CH 134



## 4.6 FREQUENCY STABILITY

### 4.6.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

The frequency tolerance of the carrier signal shall be maintained within the band of operation frequency over a temperature variation of –30 degrees to 50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C.

### 4.6.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
SPECTRUM ANALYZER R&S	FSP40	100039	Jul. 09, 2010	Jul. 08, 2011
WIT STANDARD TEMPERATURE AND HUMIDITY CHAMBER	TH-4S-C	W981030	Jun. 28, 2010	Jun. 27, 2011

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

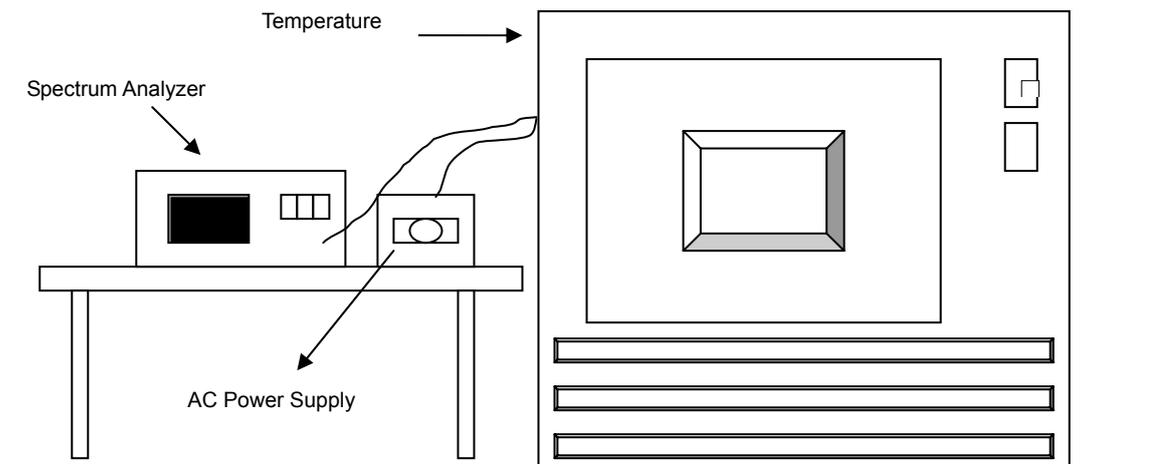
### 4.6.3 TEST PROCEDURE

- a. The EUT was placed inside the environmental test chamber and powered by nominal DC voltage.
- b. Turn the EUT on and couple its output to a spectrum analyzer.
- c. Turn the EUT off and set the chamber to the highest temperature specified.
- d. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
- e. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
- f. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

#### 4.6.4 DEVIATION FROM TEST STANDARD

No deviation.

#### 4.6.5 TEST SETUP



#### 4.6.6 EUT OPERATING CONDITION

Same as Item 4.1.6.



#### 4.6.7 TEST RESULTS

FREQUENCY STABILITY VERSUS TEMP.									
OPERATING FREQUENCY: 5200MHz									
TEMP. (°C)	POWER SUPPLY (Vac)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE	
		Measured Frequency (MHz)	Frequency Drift (ppm)						
55	110.0	5199.970077	-5.754	5199.969911	-5.786	5199.970403	-5.692	5199.970070	-5.756
50	110.0	5199.975132	-4.782	5199.974922	-4.823	5199.974884	-4.830	5199.975426	-4.726
40	110.0	5199.977313	-4.363	5199.977172	-4.390	5199.977074	-4.409	5199.977353	-4.355
30	110.0	5199.983717	-3.131	5199.983199	-3.231	5199.982976	-3.274	5199.982982	-3.273
20	110.0	5199.991953	-1.547	5199.991980	-1.542	5199.992212	-1.498	5199.992386	-1.464
10	110.0	5199.979754	-3.893	5199.980014	-3.843	5199.979735	-3.897	5199.979838	-3.877
0	110.0	5200.001718	0.330	5200.001151	0.221	5200.001026	0.197	5200.001420	0.273
-10	110.0	5200.002676	0.515	5200.002549	0.490	5200.002239	0.431	5200.002451	0.471
-20	110.0	5200.004434	0.853	5200.004861	0.935	5200.004812	0.925	5200.004554	0.876

FREQUENCY STABILITY VERSUS VOLTAGE									
OPERATING FREQUENCY: 5200MHz									
TEMP. (°C)	POWER SUPPLY (Vac)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE	
		Measured Frequency (MHz)	Frequency Drift (ppm)						
20	93.5	5199.984063	-3.065	5199.983882	-3.100	5199.984122	-3.053	5199.983622	-3.150
	110.0	5199.991953	-1.547	5199.991980	-1.542	5199.992212	-1.498	5199.992386	-1.464
	126.5	5199.979739	-3.896	5199.979695	-3.905	5199.979851	-3.875	5199.979897	-3.866

## 4.7 BAND EDGES MEASUREMENT

### 4.7.1 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
<b>FOR CONDUCTED MEASUREMENT:</b>				
SPECTRUM ANALYZER R&S	FSP40	100039	Jul. 09, 2010	Jul. 08, 2011
<b>FOR RADIATED MEASUREMENT:</b>				
Test Receiver ROHDE & SCHWARZ	ESCI	100424	Aug. 04, 2010	Aug. 03, 2011
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100041	Jul. 09, 2010	Jul. 08, 2011
BILOG Antenna SCHWARZBECK	VULB9168	9168-156	Apr. 30, 2010	Apr. 29, 2011
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-209	Aug. 02, 2010	Aug. 01, 2011
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170243	Dec. 27, 2010	Dec. 26, 2011
Preamplifier Agilent	8449B	3008A01910	Sep. 09, 2010	Sep. 08, 2011
Preamplifier Agilent	8447D	2944A10638	Nov. 03, 2010	Nov. 02, 2011
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	218190/4 231241/4	May 14, 2010	May 13, 2011
RF signal cable Worken	8D-FB	Cable-HYCH9-01	Aug. 20, 2010	Aug. 19, 2011
Software	ADT_Radiated_ V7.6.15.9.2	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
26GHz ~ 40GHz Amplifier	EM26400	07026401	Aug. 25, 2010	Aug. 24, 2011

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

#### 4.7.2 TEST PROCEDURE

##### FOR CONDUCTED MEASUREMENT:

The transmitter output was connected to the spectrum analyzer via a low loss cable. Set both RBW and VBW of spectrum analyzer to 1MHz and 3MHz with suitable frequency span including 100MHz bandwidth from band edge. The band edges was measured and recorded.

##### FOR RADIATED MEASUREMENT:

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. Set both RBW and VBW of spectrum analyzer to 1MHz and 3MHz with suitable frequency span including 100MHz bandwidth from band edge. The band edges was measured and recorded.

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

#### 4.7.3 EUT OPERATING CONDITION

The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

#### 4.7.4 TEST RESULTS

For signals in the restricted bands above and below the 5.15 to 5.32GHz, 5.50 to 5.70GHz allocated band a measurement was made of the amplitude of the spurious emissions with respect to the intentional signals. The relative amplitude, in dBc, was applied to the average and peak field strength of the intentional signal made on the OATS to calculate the field strength of the unintentional signals.

The spectrum plots (Peak RBW = 1MHz, VBW = 3MHz) are attached on the following pages.

#### FOR 5180-5320MHz BAND: 802.11a

##### RESTRICT BAND (4500 ~ 5150 MHz)

FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
5180.00 (PK)	105.7	38.33	67.37	74.00
5180.00 (AV)	92.2	46.95	45.25	54.00

##### RESTRICT BAND (5350 ~ 5460 MHz)

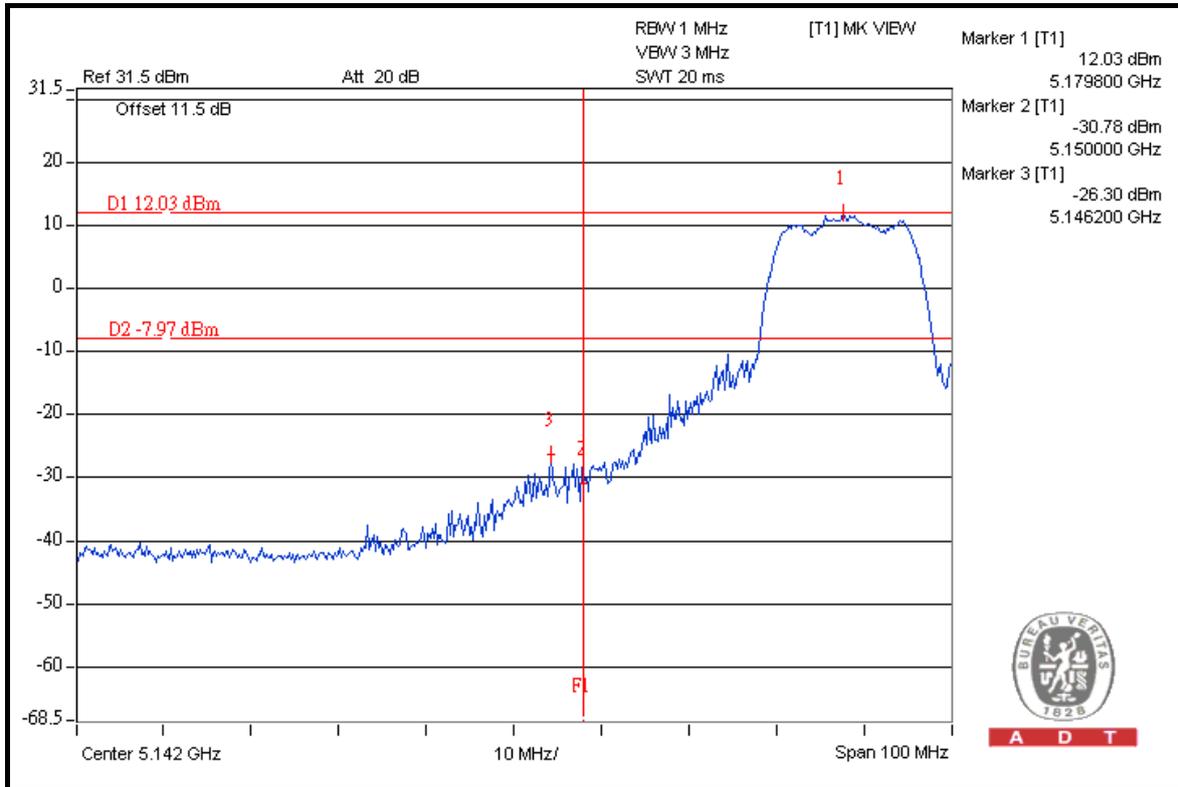
FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
5320.00 (PK)	103.1	45.63	57.47	74.00
5320.00 (AV)	92.2	46.58	45.62	54.00

#### NOTE:

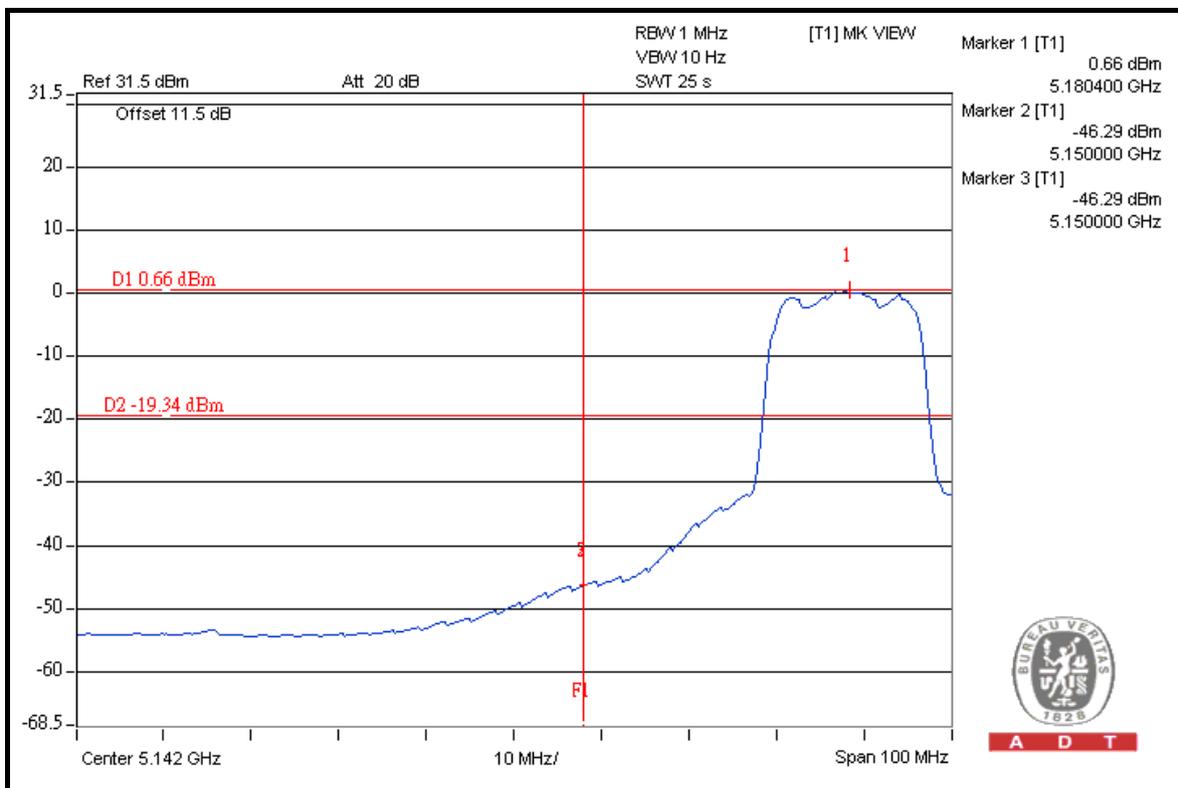
- Delta = Amplitude between the peak of the fundamental and the peak of the band edge emission. Please check following 3 pages.
- Maximum field strength in restrict band = Fundamental emission – Delta.



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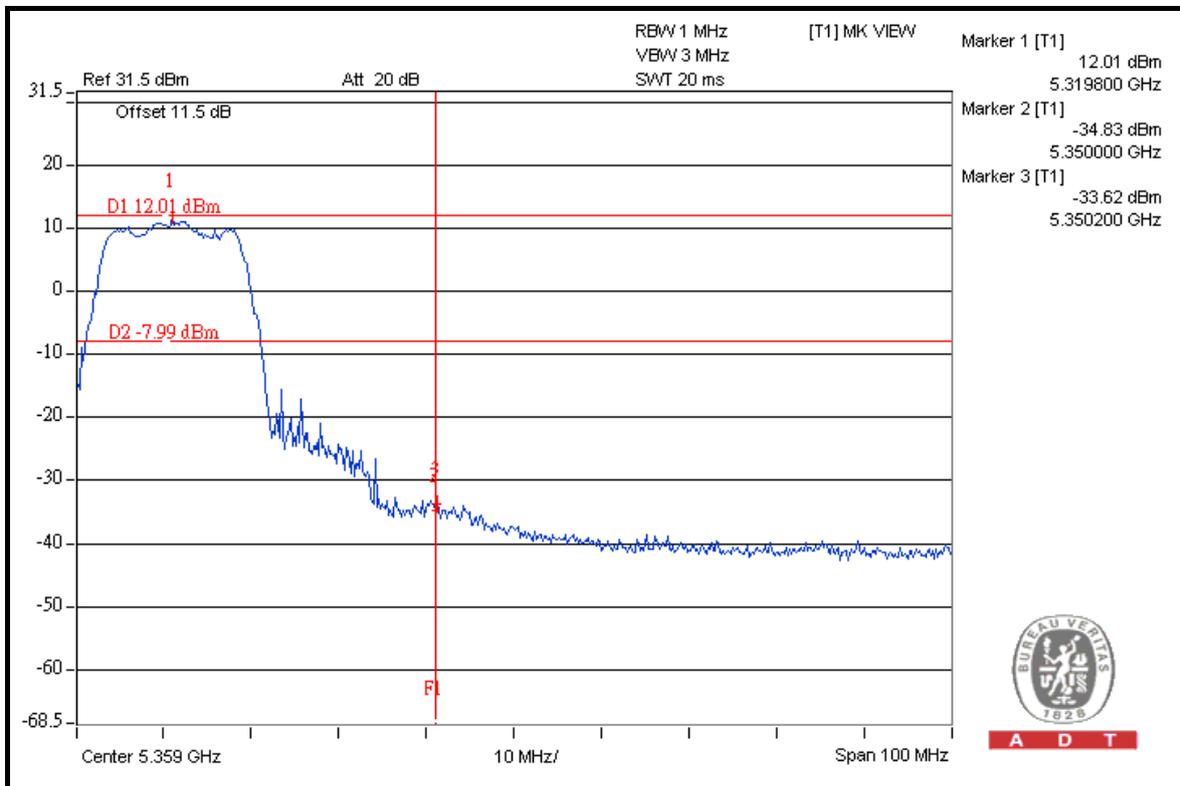
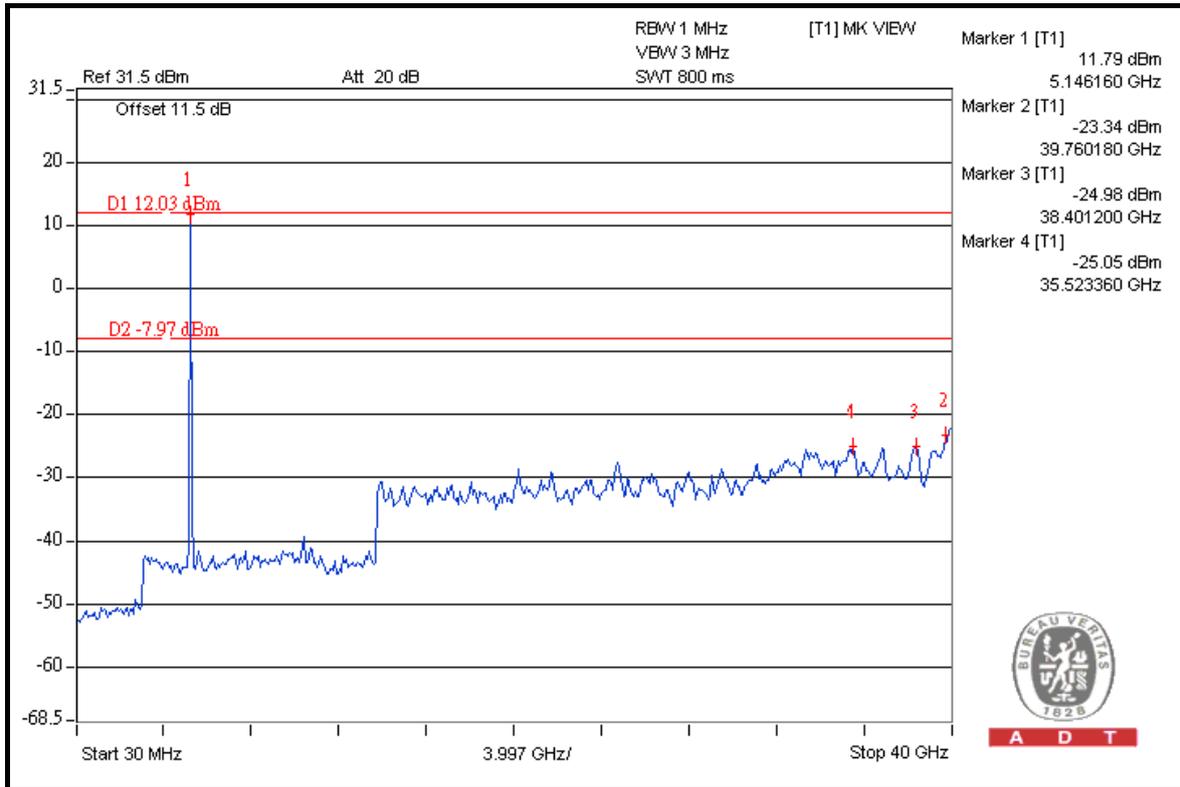
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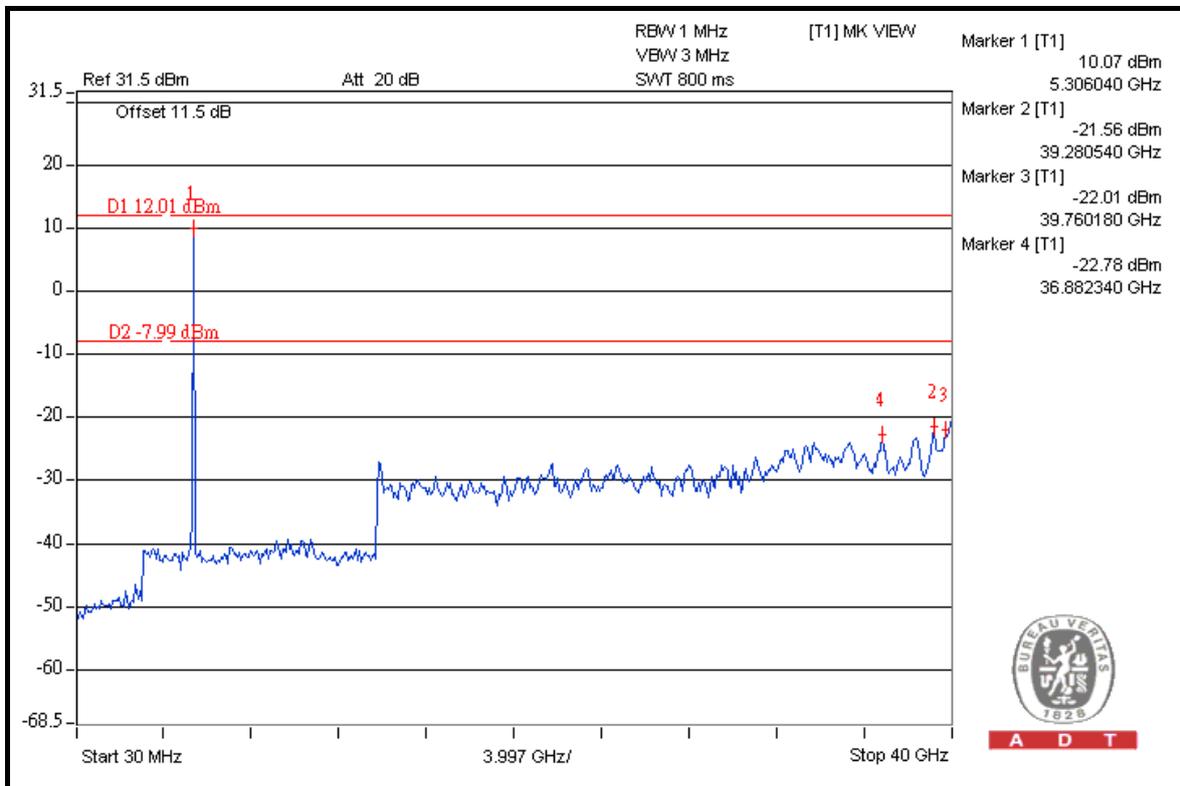
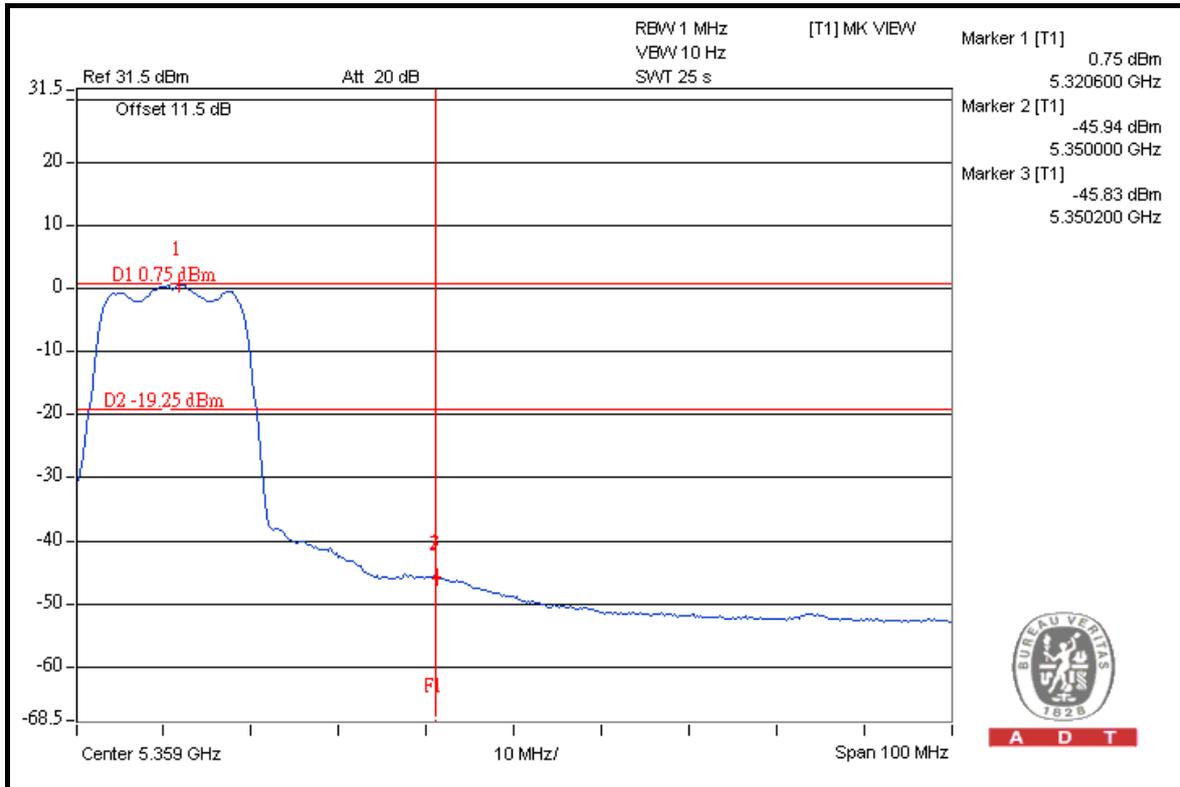


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**FOR 5500-5700MHz BAND:**

**802.11a**

**5500MHz**

**RESTRICT BAND (5350 ~ 5460 MHz)**

FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
5500.00 (PK)	104.4	50.19	54.21	74.00
5500.00 (AV)	93.3	51.79	41.51	54.00

**FREQUENCY BAND (5460 ~ 5470 MHz)**

FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH (dBuV/m)	LIMIT (dBuV/m)
5500.00 (PK)	104.4	43.79	60.61	68.30

**5700MHz**

**ABOVE 5725 MHz**

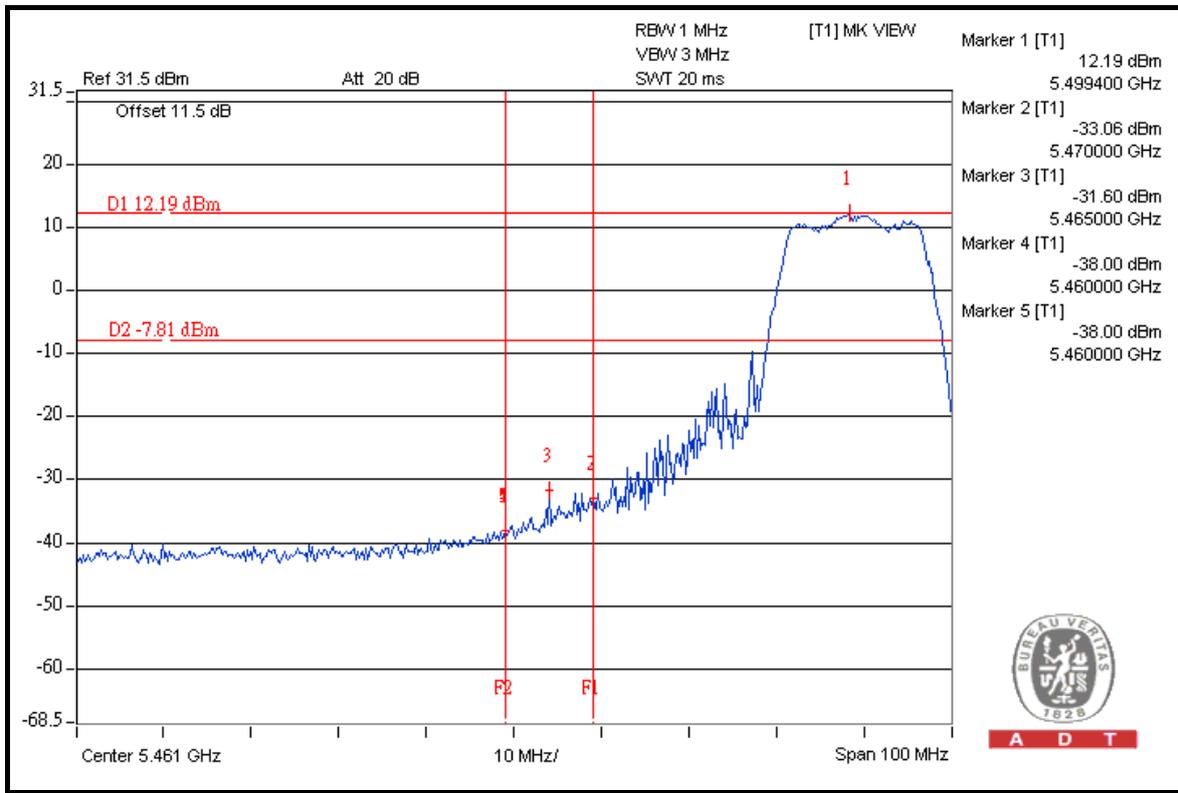
FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH (dBuV/m)	LIMIT (dBuV/m)
5700.00 (PK)	104.2	40.37	63.83	68.30

**NOTE:**

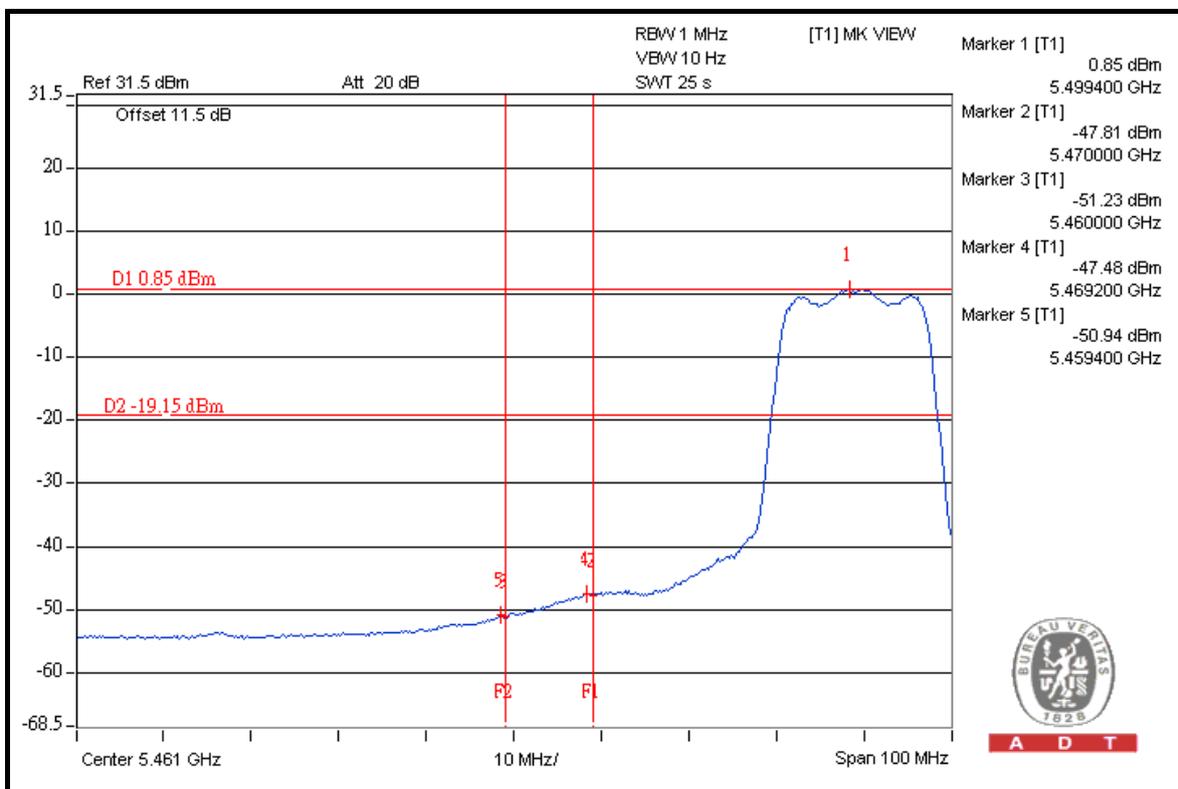
1. Delta = Amplitude between the peak of the fundamental and the peak of the band edge emission. Please check following 3 pages.
2. Maximum field strength in restrict band = Fundamental emission – Delta.



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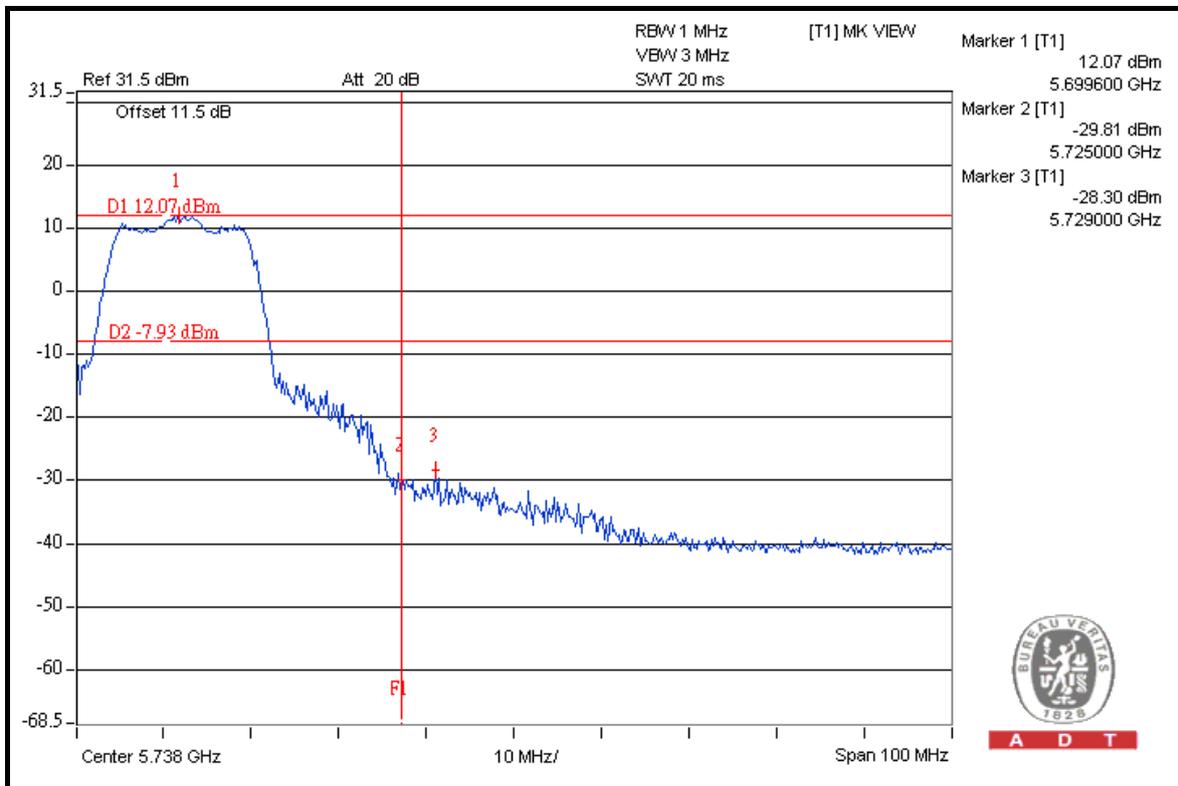
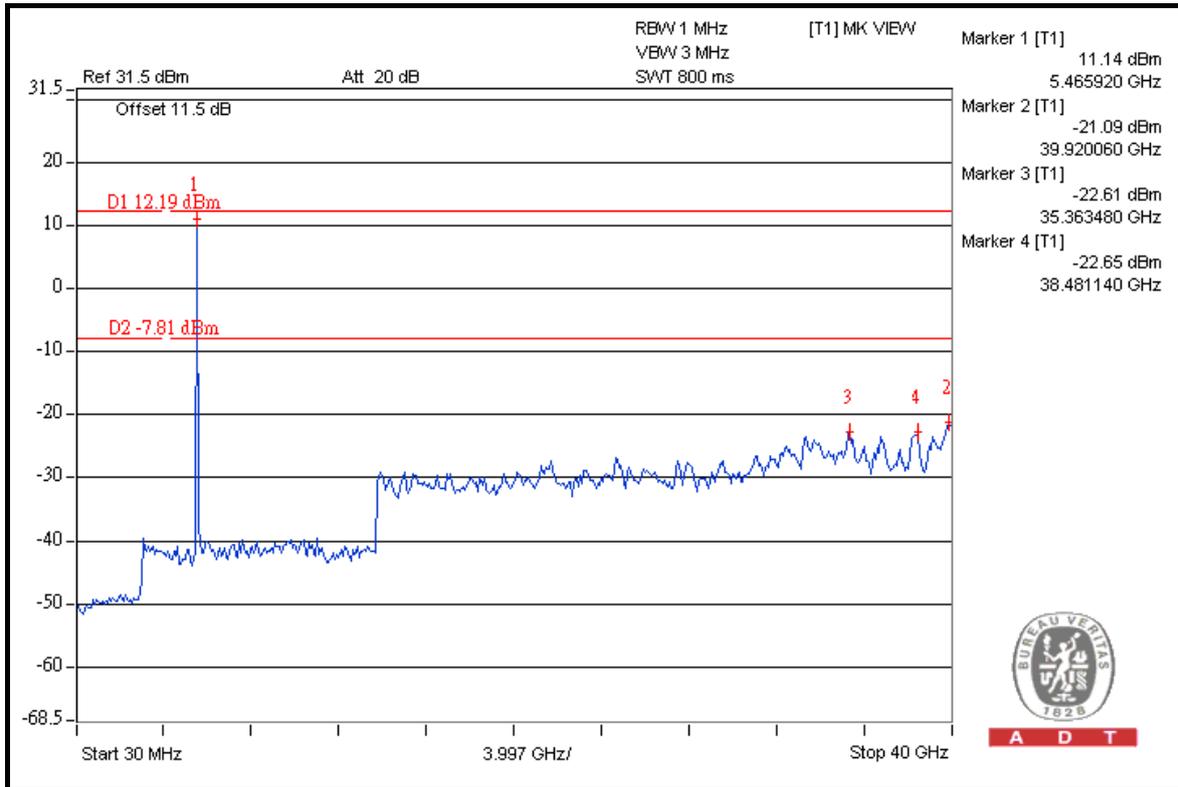
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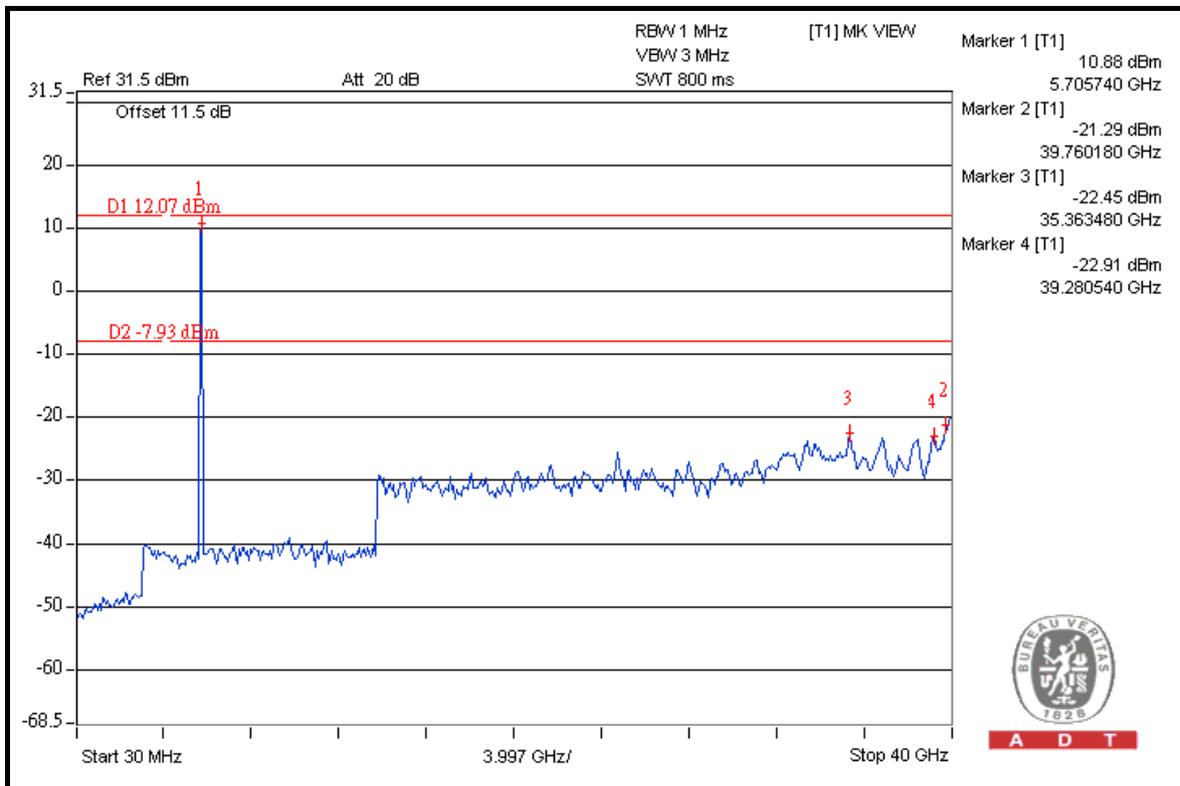
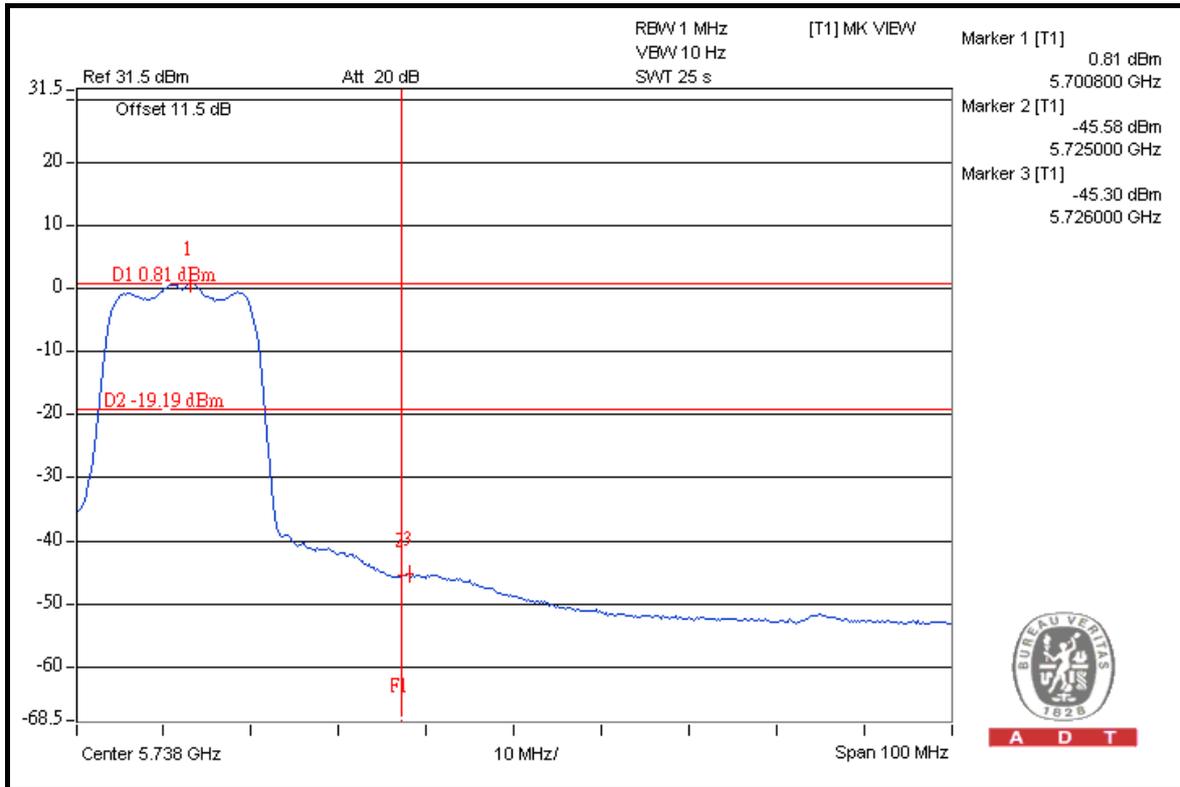


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**FOR 5180-5320MHz BAND:**

**802.11n (20MHz)**

**RESTRICT BAND (4500 ~ 5150 MHz)**

FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
5180.00 (PK)	104.1	39.01	65.09	74.00
5180.00 (AV)	92.6	41.64	50.96	54.00

**RESTRICT BAND (5350 ~ 5460 MHz)**

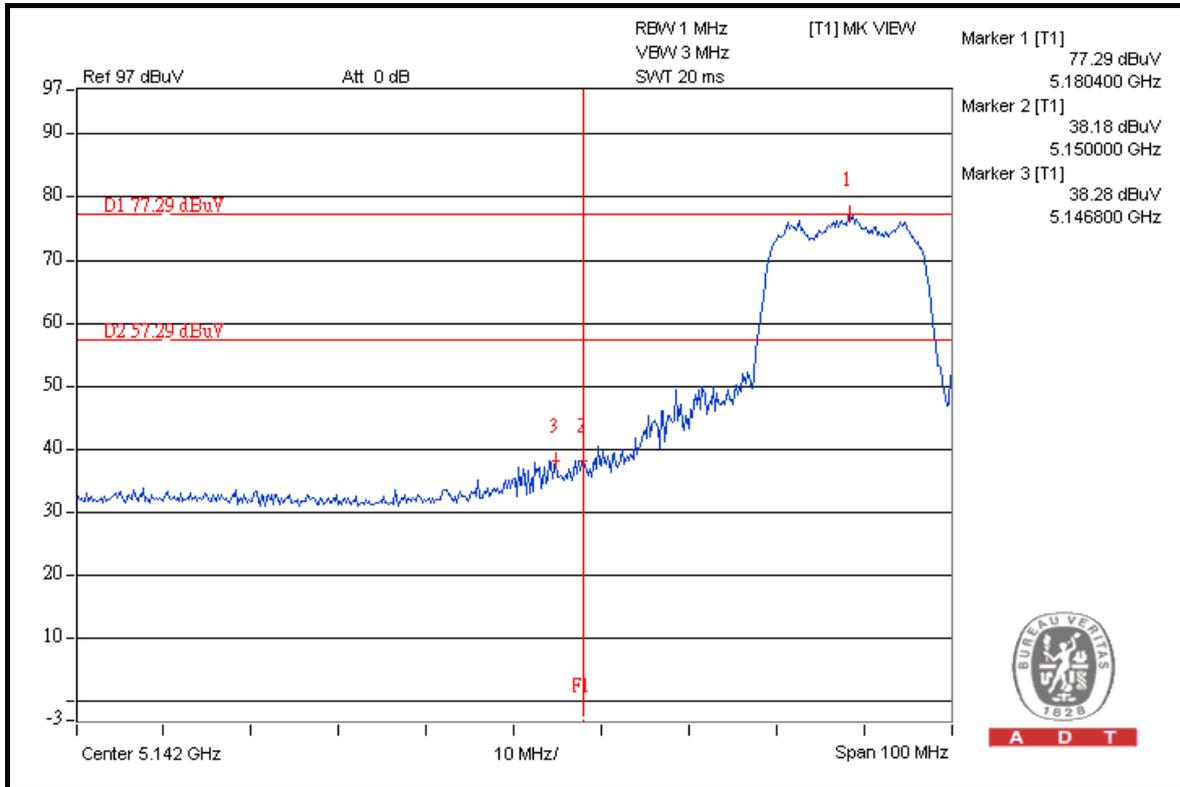
FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
5320.00 (PK)	105.6	35.35	70.25	74.00
5320.00 (AV)	94.4	43.57	50.83	54.00

**NOTE:**

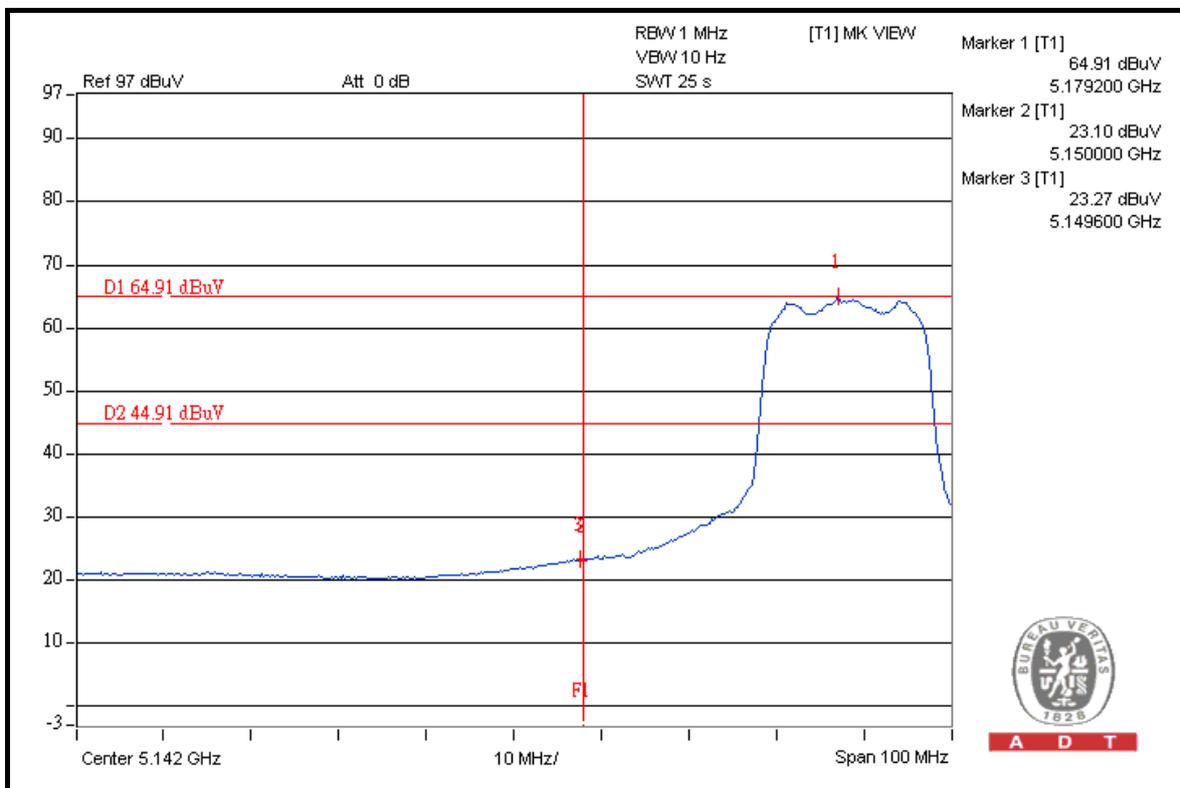
1. Delta = Amplitude between the peak of the fundamental and the peak of the band edge emission. Please check following 3 pages.
2. Maximum field strength in restrict band = Fundamental emission – Delta.



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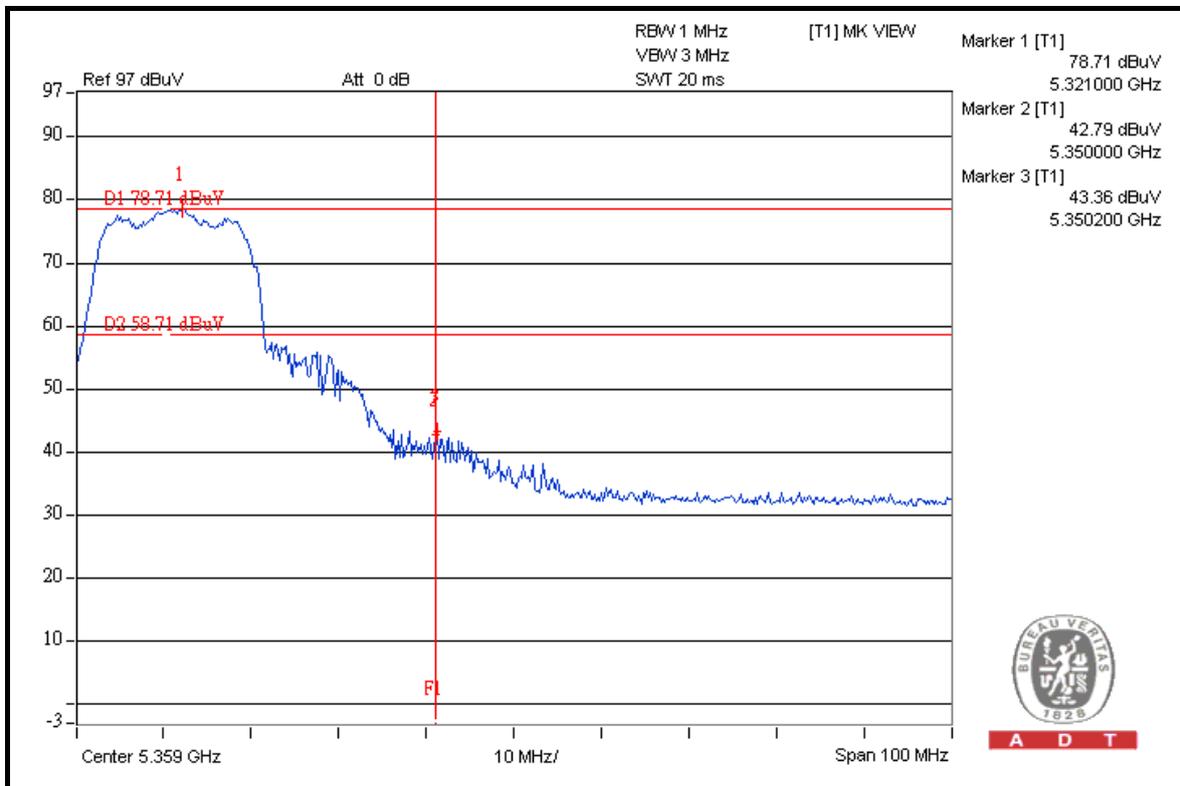
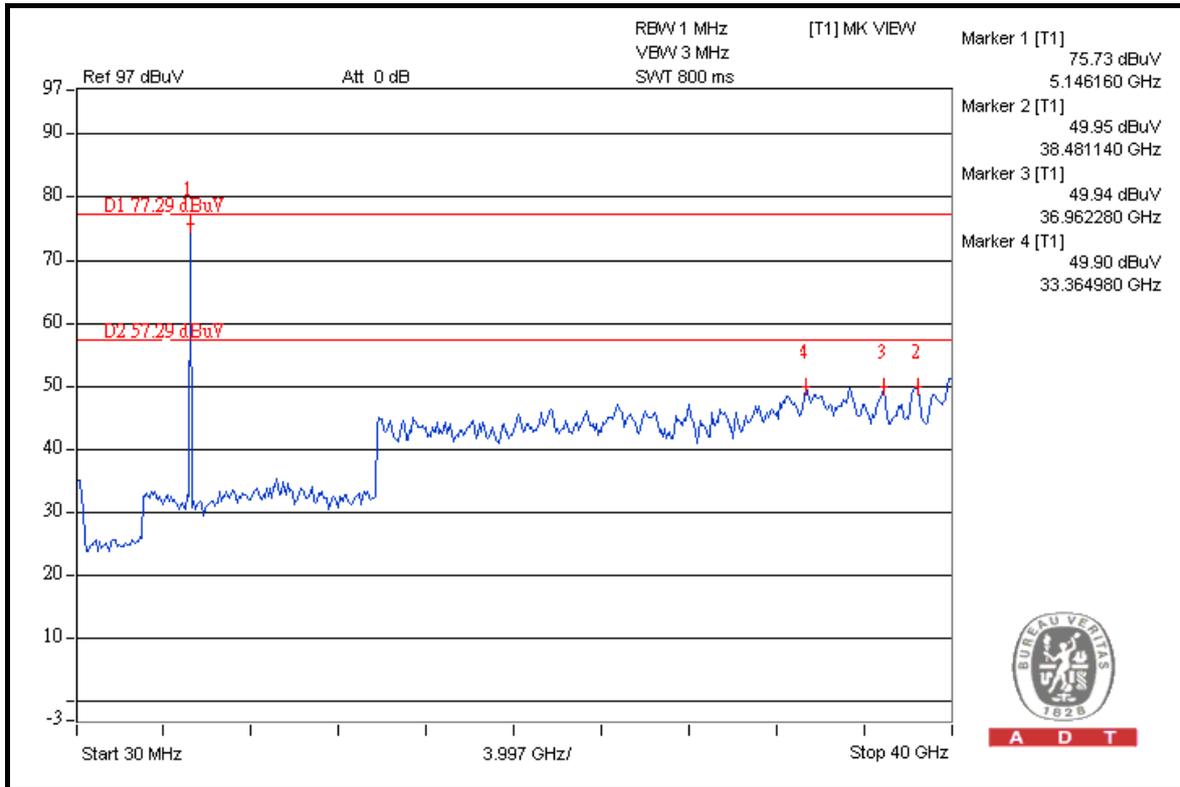
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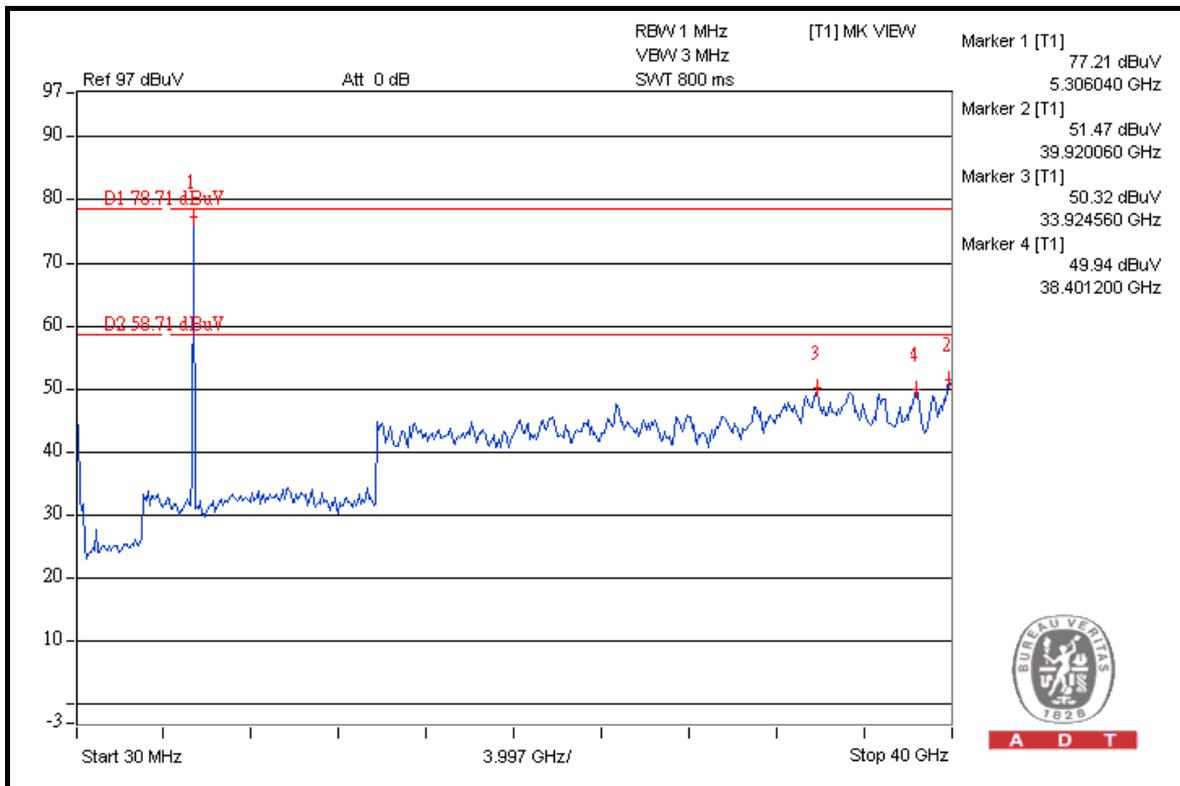
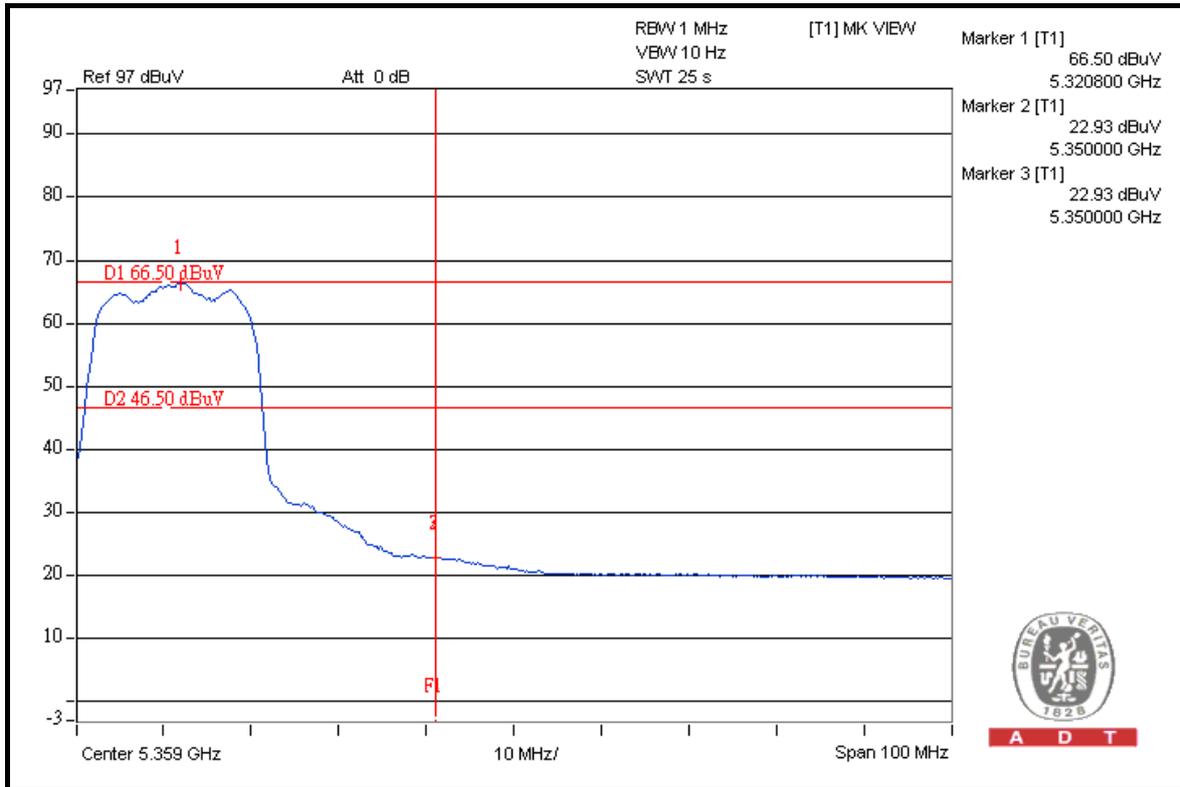


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**FOR 5500-5700MHz BAND:**

**802.11n (20MHz)**

**5500MHz**

**RESTRICT BAND (5350 ~ 5460 MHz)**

FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
5500.00 (PK)	107.0	44.40	62.60	74.00
5500.00 (AV)	95.4	46.78	48.62	54.00

**FREQUENCY BAND (5460 ~ 5470 MHz)**

FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH (dBuV/m)	LIMIT (dBuV/m)
5500.00 (PK)	107.0	39.80	67.20	68.30

**5700MHz**

**ABOVE 5725 MHz**

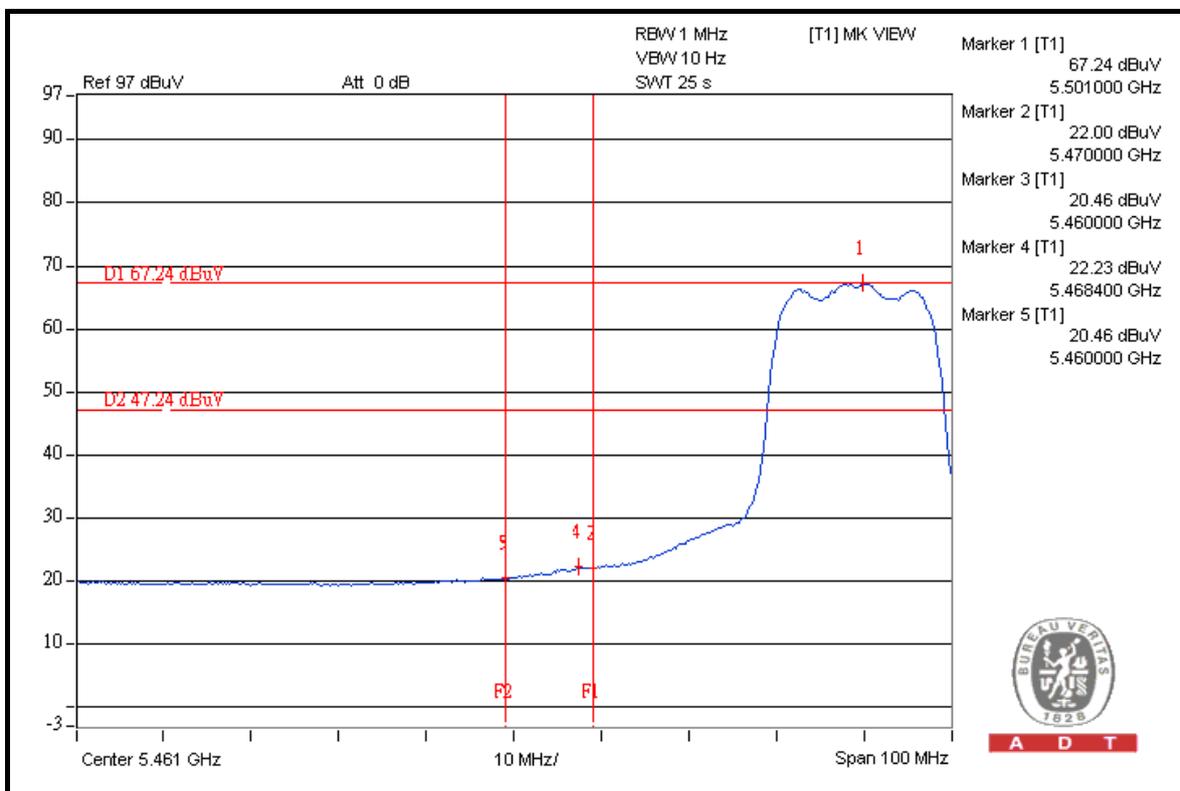
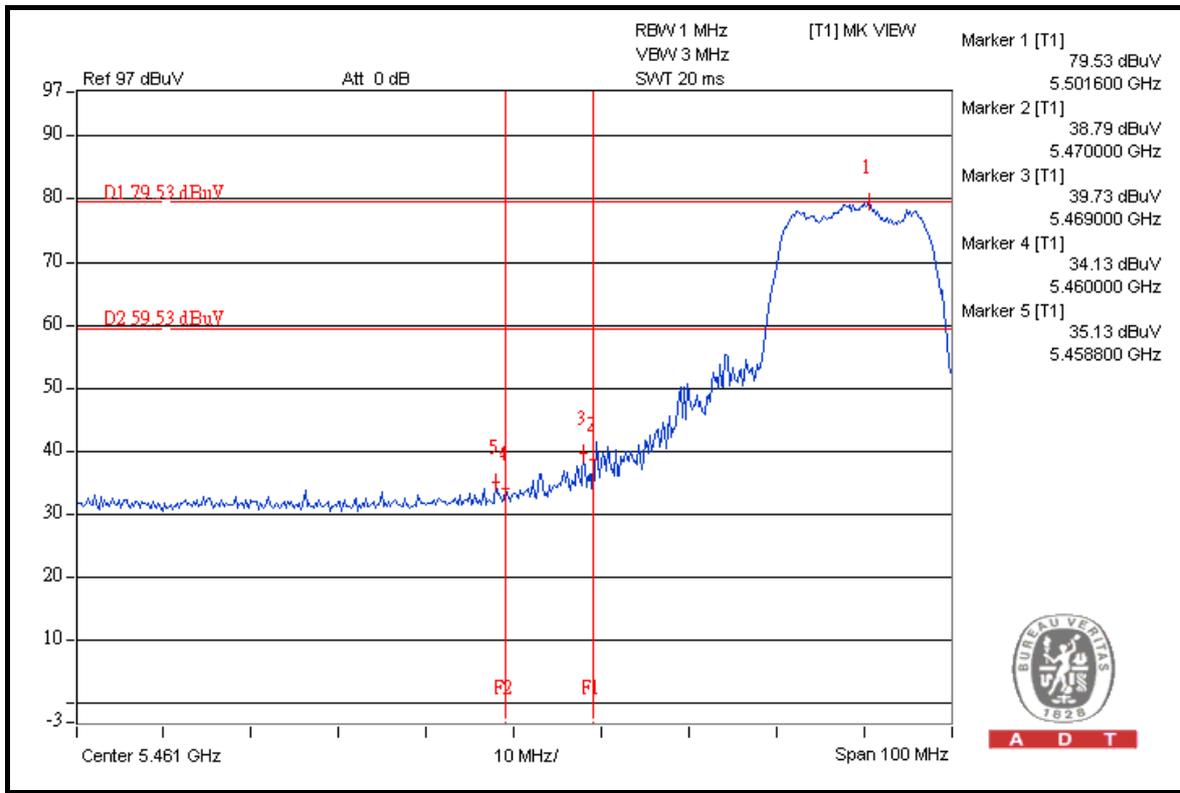
FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH (dBuV/m)	LIMIT (dBuV/m)
5700.00 (PK)	106.9	40.76	66.14	68.30

**NOTE:**

- Delta = Amplitude between the peak of the fundamental and the peak of the band edge emission. Please check following 3 pages.
- Maximum field strength in restrict band = Fundamental emission – Delta.

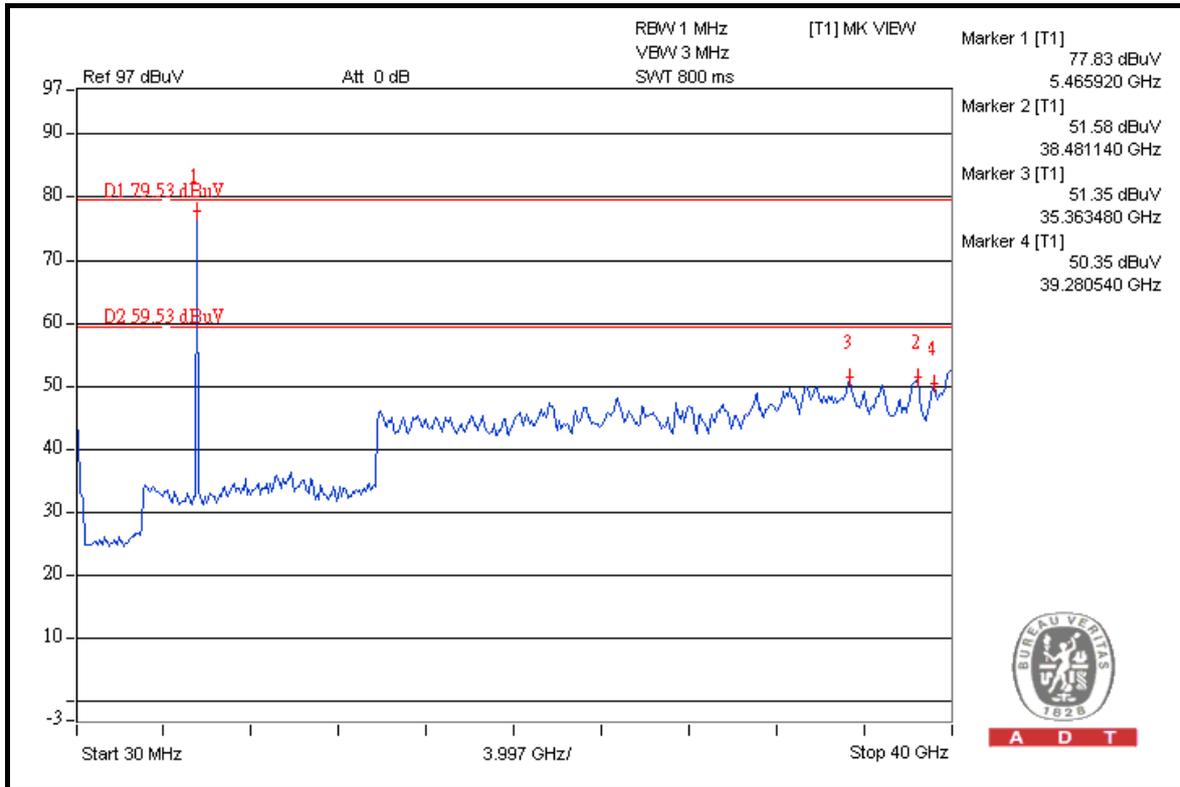


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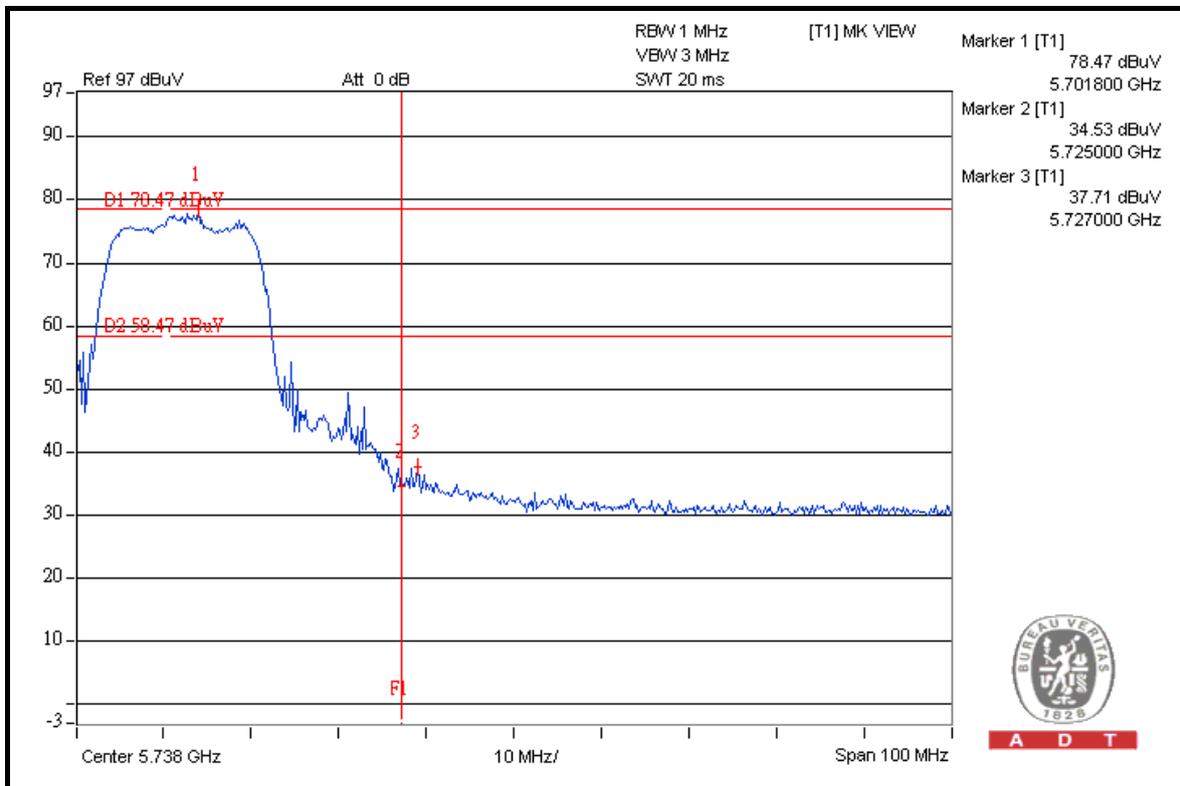




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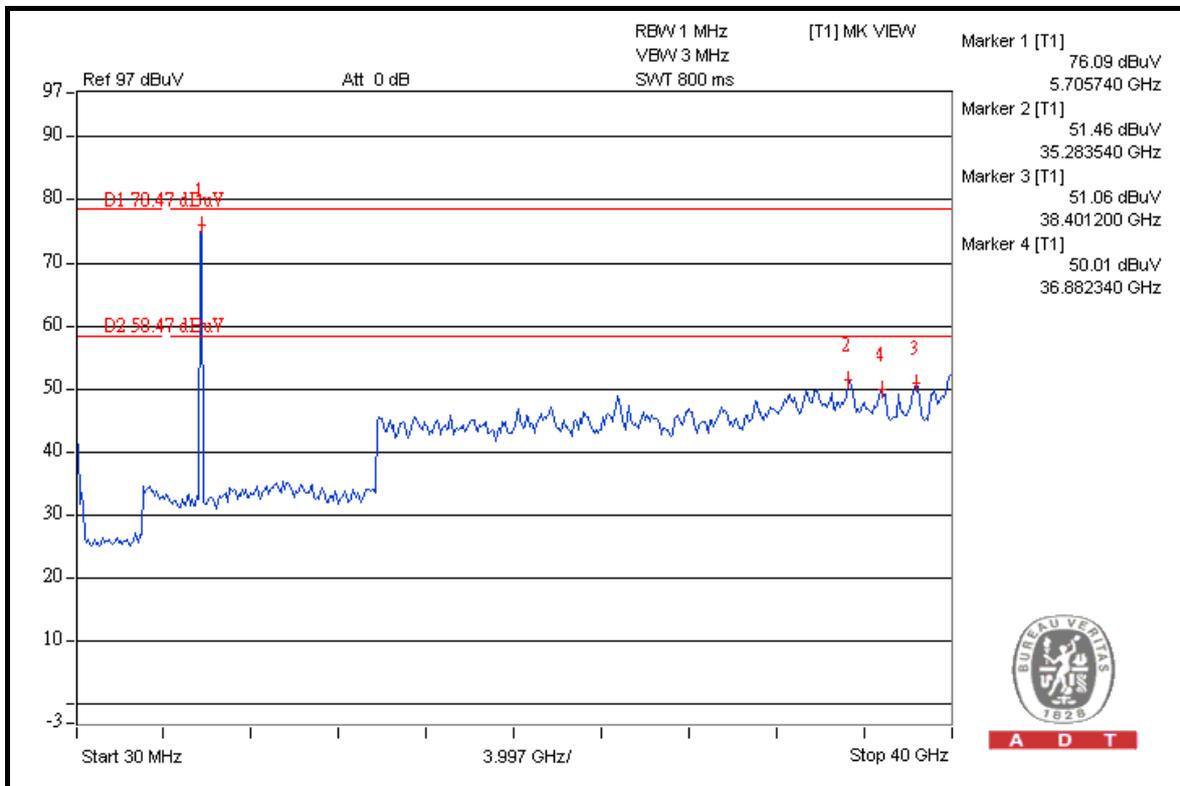
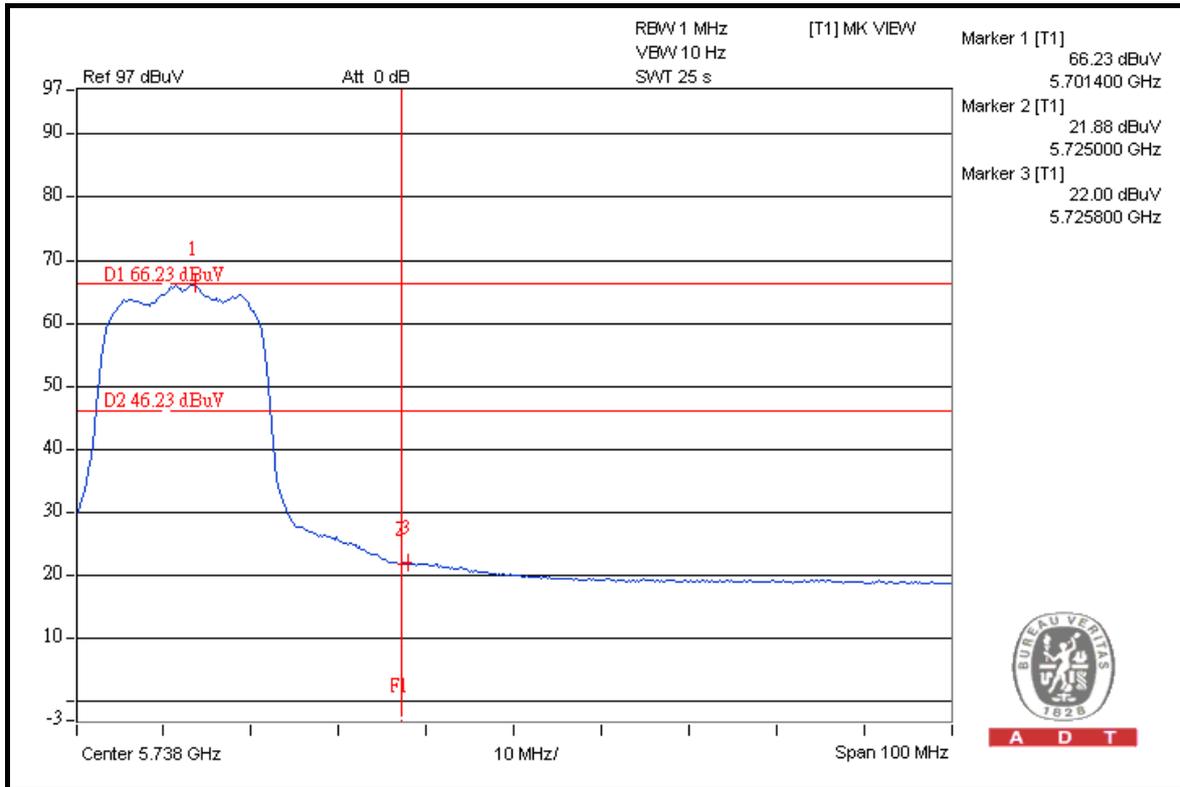
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**FOR 5180-5320MHz BAND:**

**802.11n (40MHz)**

**RESTRICT BAND (4500 ~ 5150 MHz)**

FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
5190.00 (PK)	101.3	33.41	67.89	74.00
5190.00 (AV)	89.9	37.62	52.28	54.00

**RESTRICT BAND (5350 ~ 5460 MHz)**

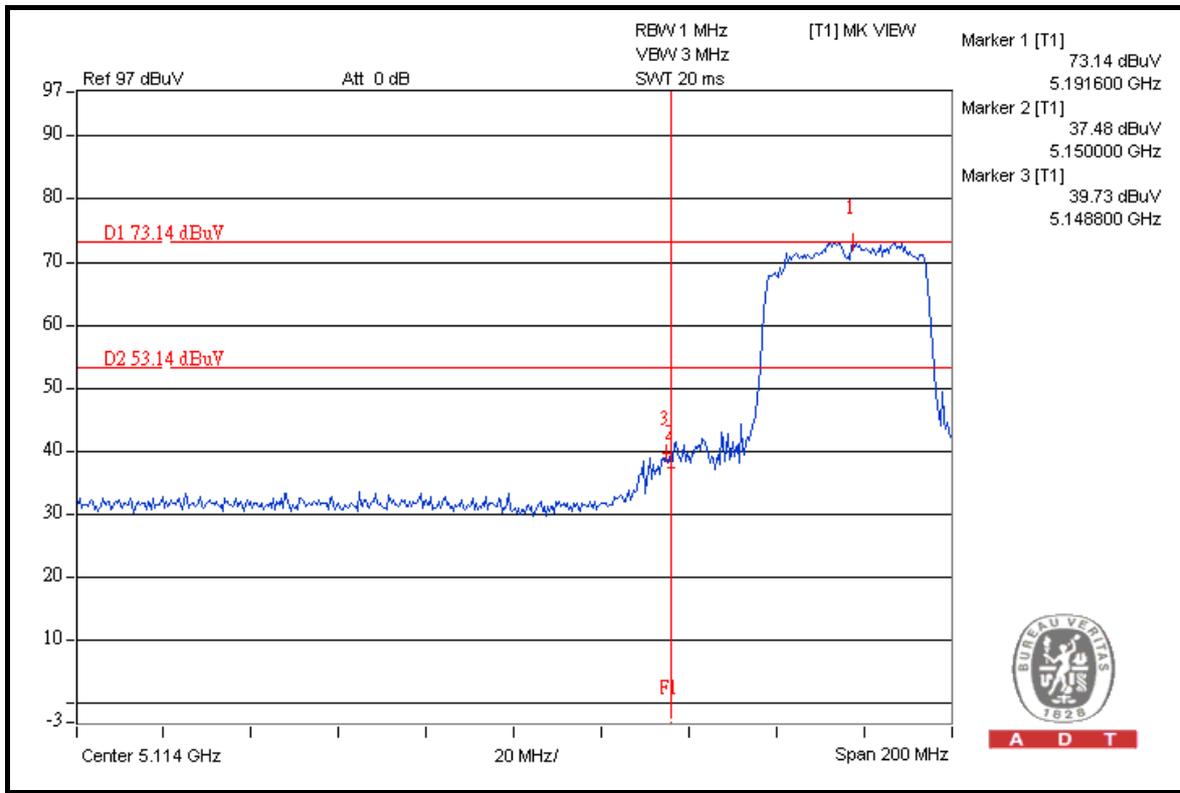
FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
5310.00 (PK)	102.9	32.81	70.09	74.00
5310.00 (AV)	90.9	38.43	52.47	54.00

**NOTE:**

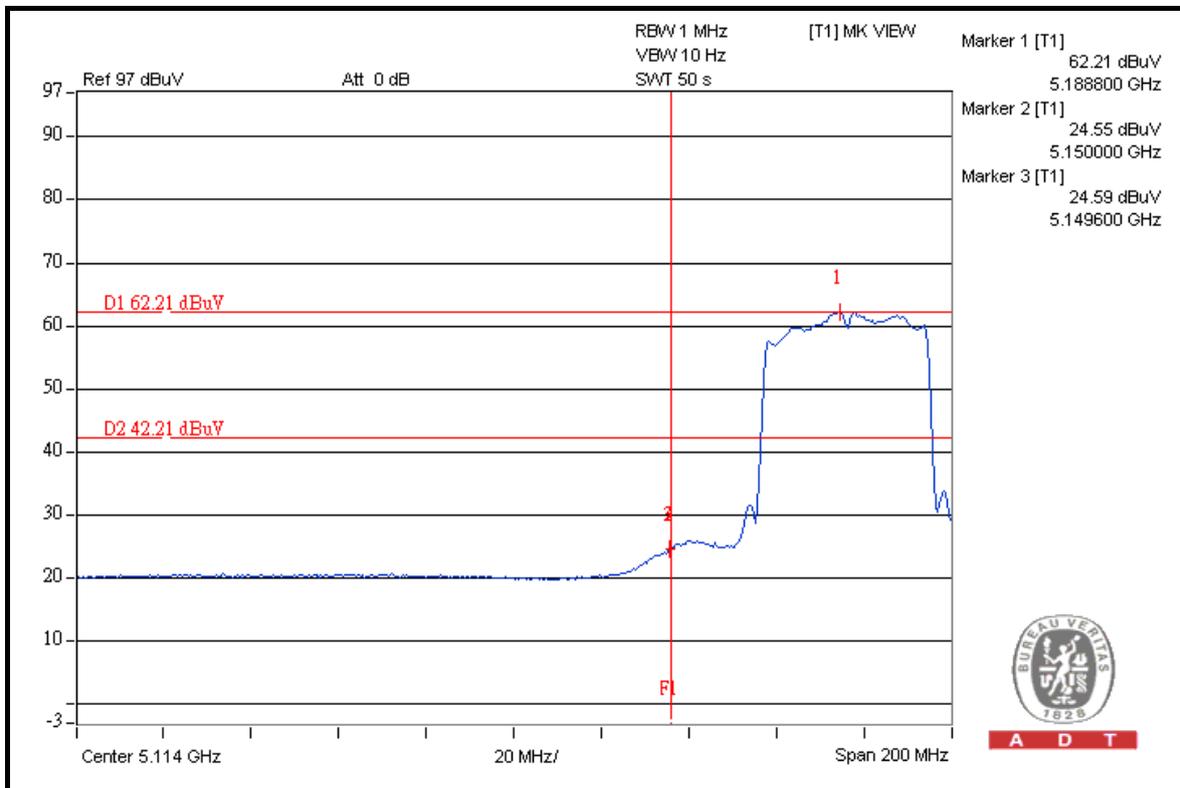
- Delta = Amplitude between the peak of the fundamental and the peak of the band edge emission. Please check following 3 pages.
- Maximum field strength in restrict band = Fundamental emission – Delta.



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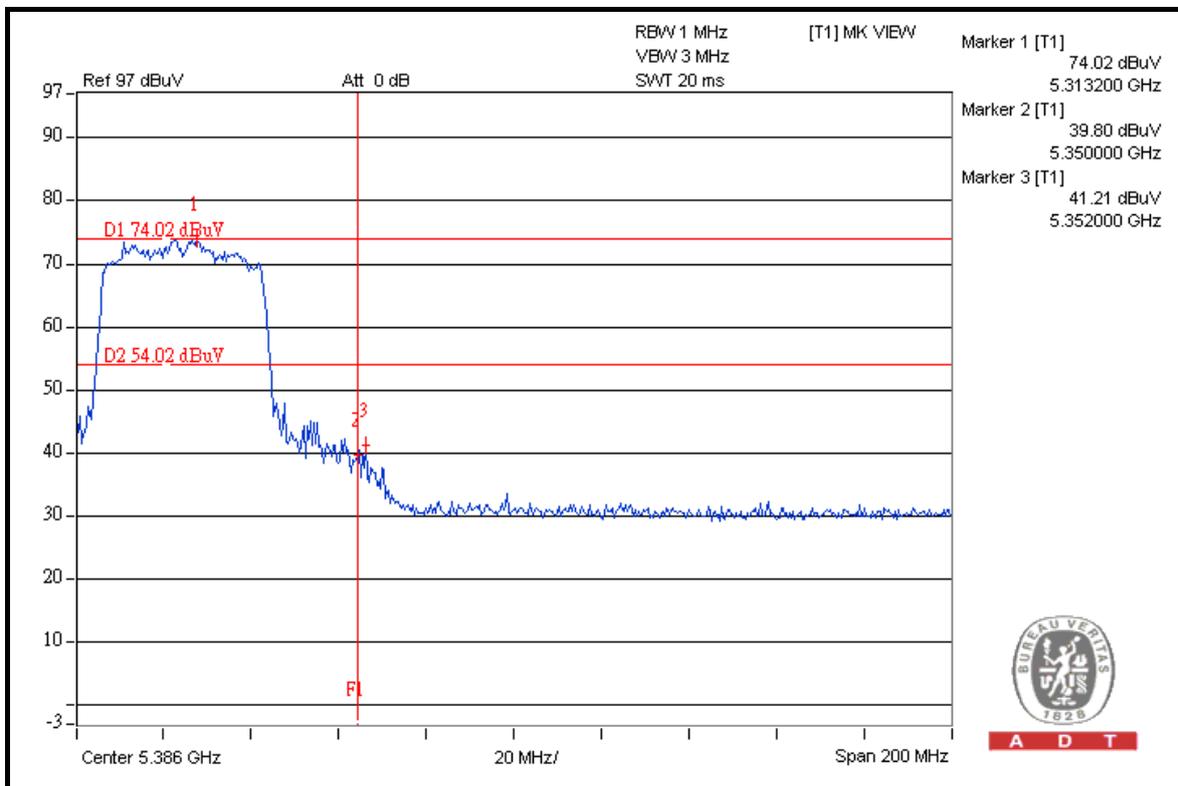
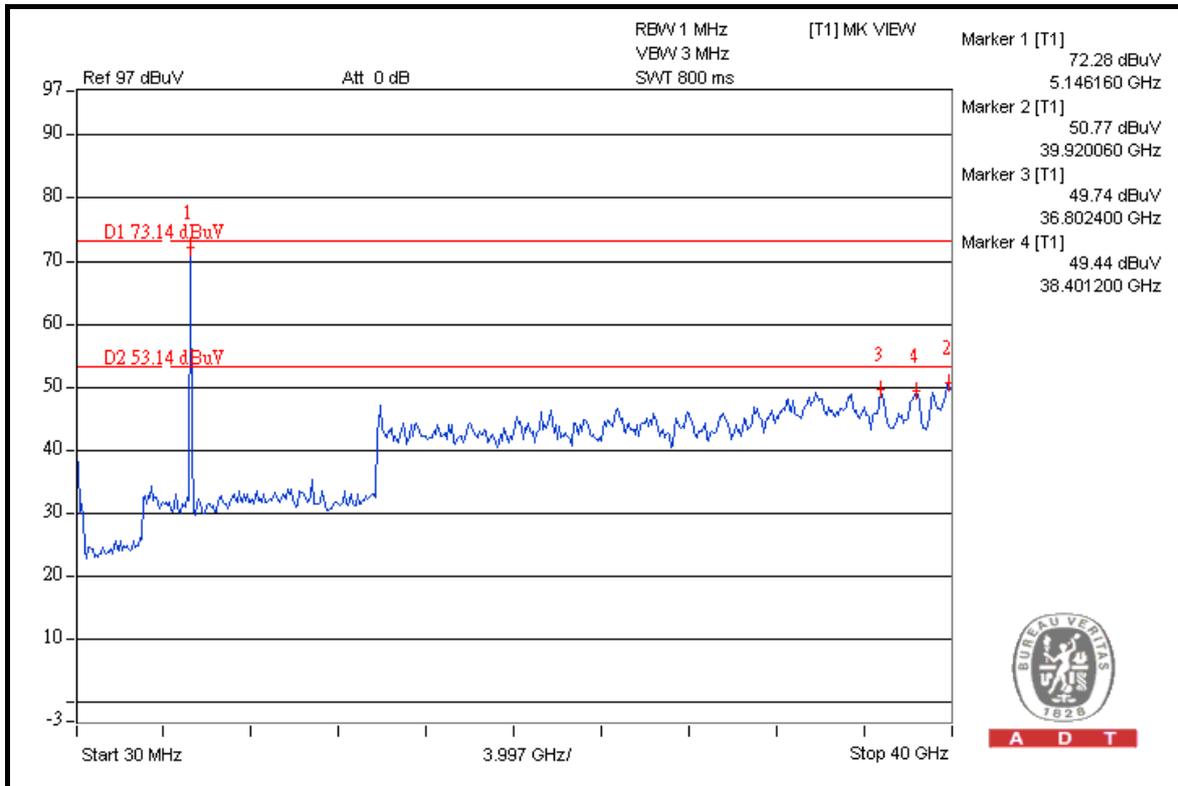
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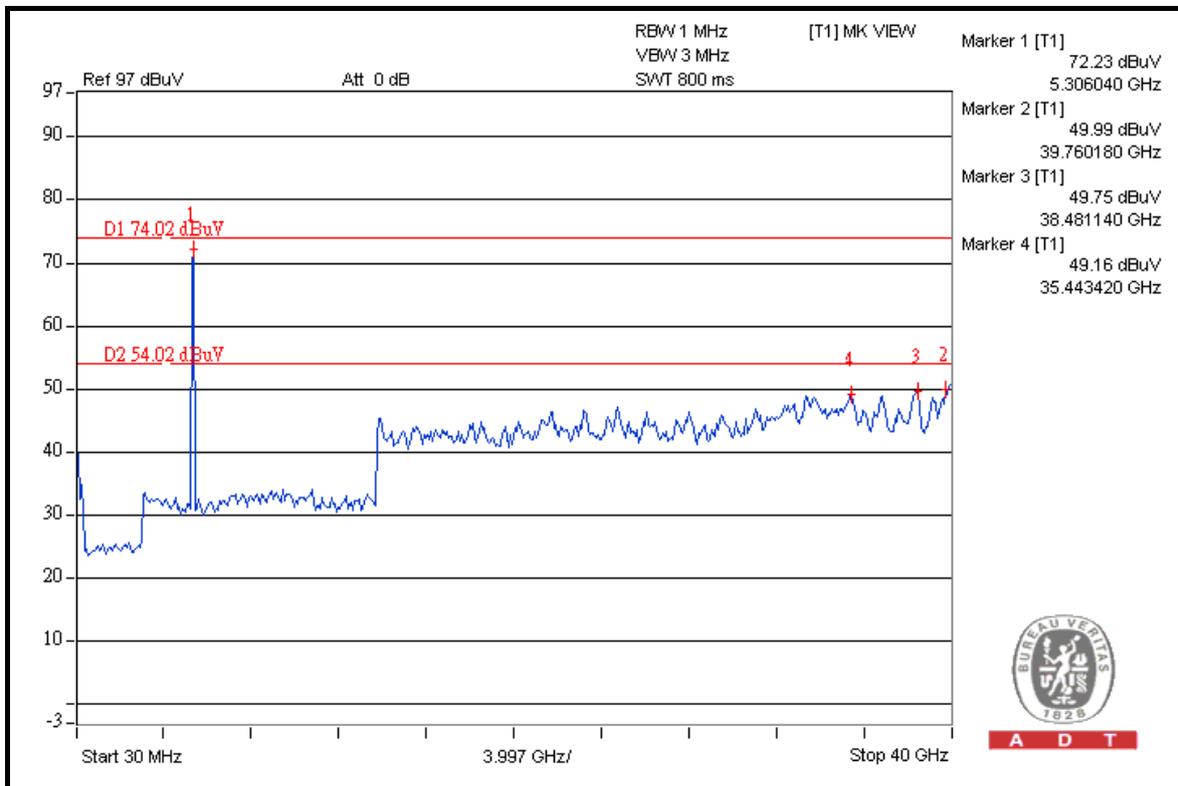
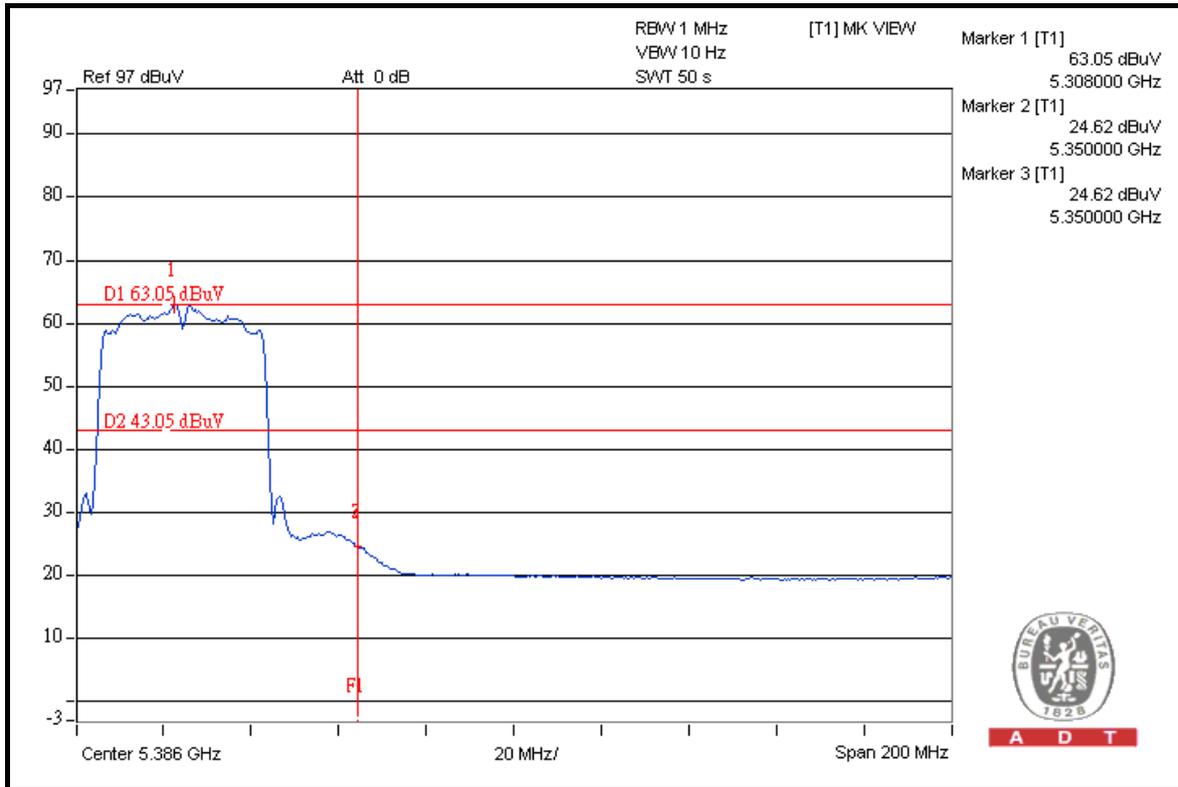


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**FOR 5500-5700MHz BAND:**

**802.11n (40MHz)**

**5510MHz**

**RESTRICT BAND (5350 ~ 5460 MHz)**

FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m)	LIMIT (dBuV/m)
5510.00 (PK)	98.0	37.22	60.78	74.00
5510.00 (AV)	87.7	38.99	48.71	54.00

**FREQUENCY BAND (5460 ~ 5470 MHz)**

FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH (dBuV/m)	LIMIT (dBuV/m)
5510.00 (PK)	98.0	31.07	66.93	68.30

**5670MHz**

**ABOVE 5725 MHz**

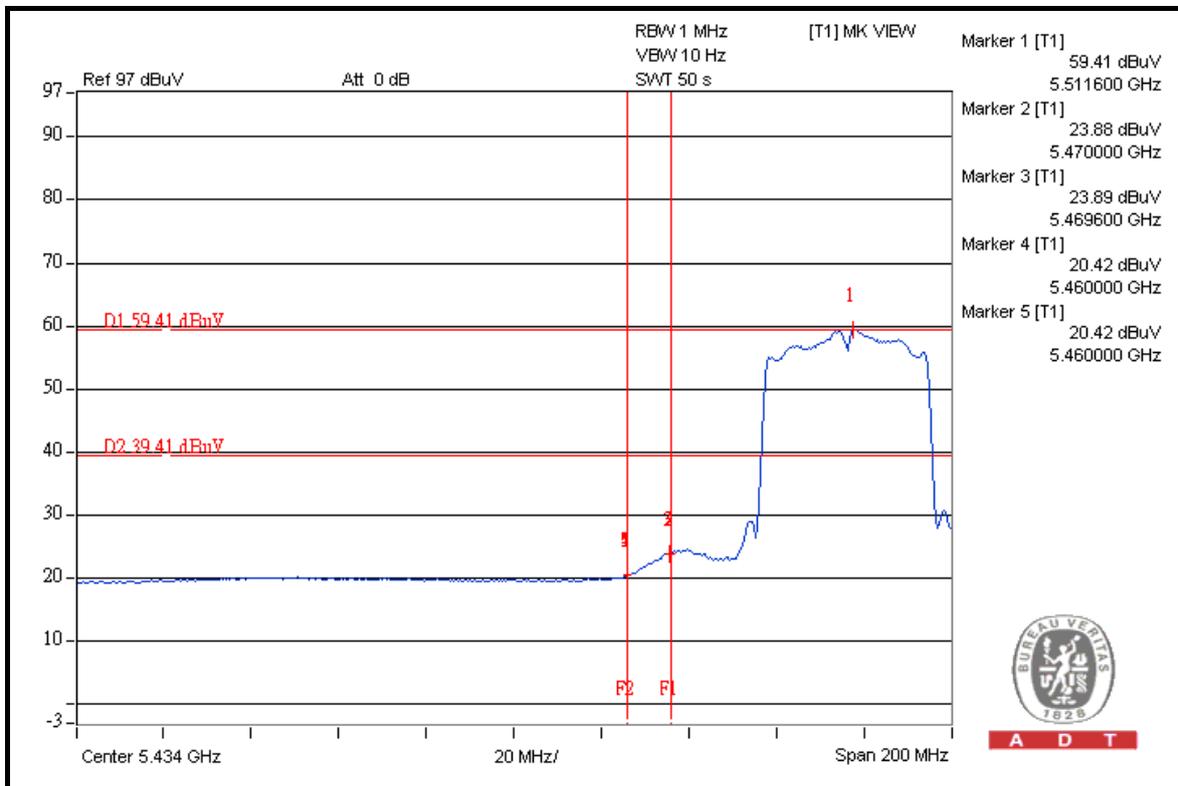
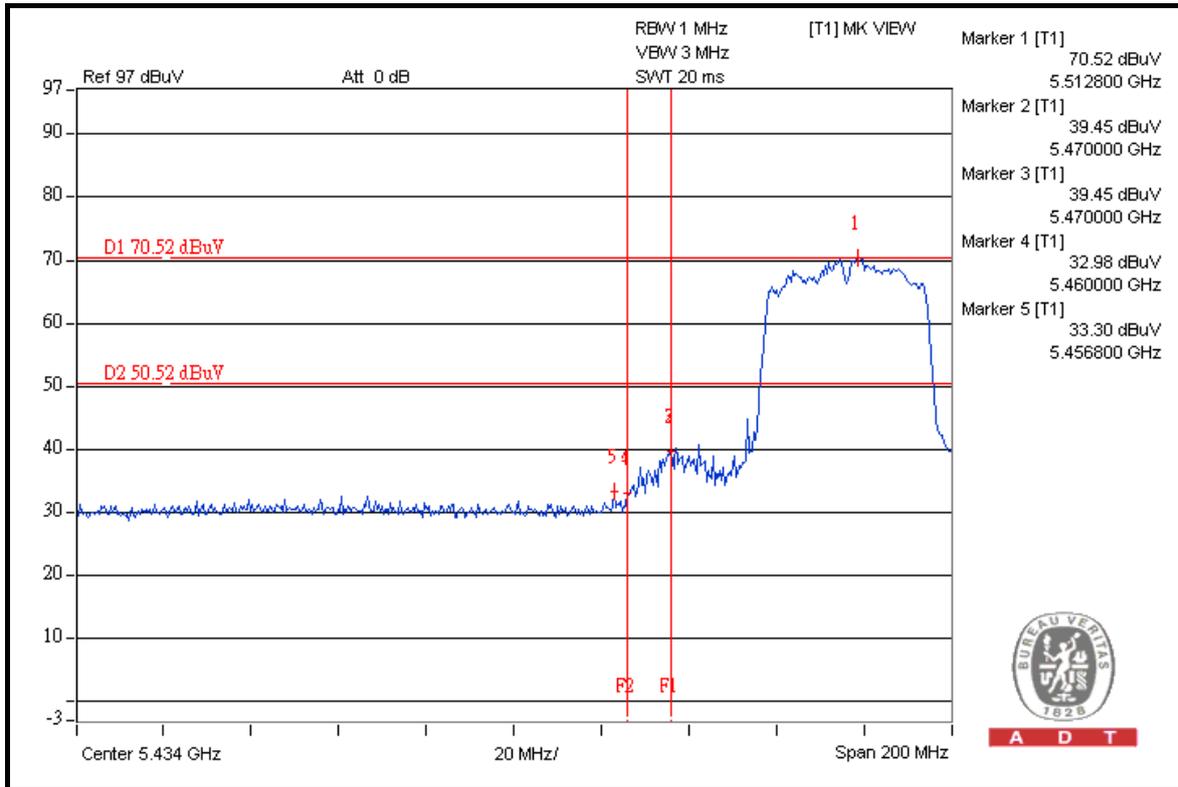
FREQUENCY (MHz)	FUNDAMENTAL EMISSION (dBuV/m)	DELTA (dB)	MAXIMUM FIELD STRENGTH (dBuV/m)	LIMIT (dBuV/m)
5670.00 (PK)	105.0	41.16	63.84	68.30

**NOTE:**

- Delta = Amplitude between the peak of the fundamental and the peak of the band edge emission. Please check following 3 pages.
- Maximum field strength in restrict band = Fundamental emission – Delta.

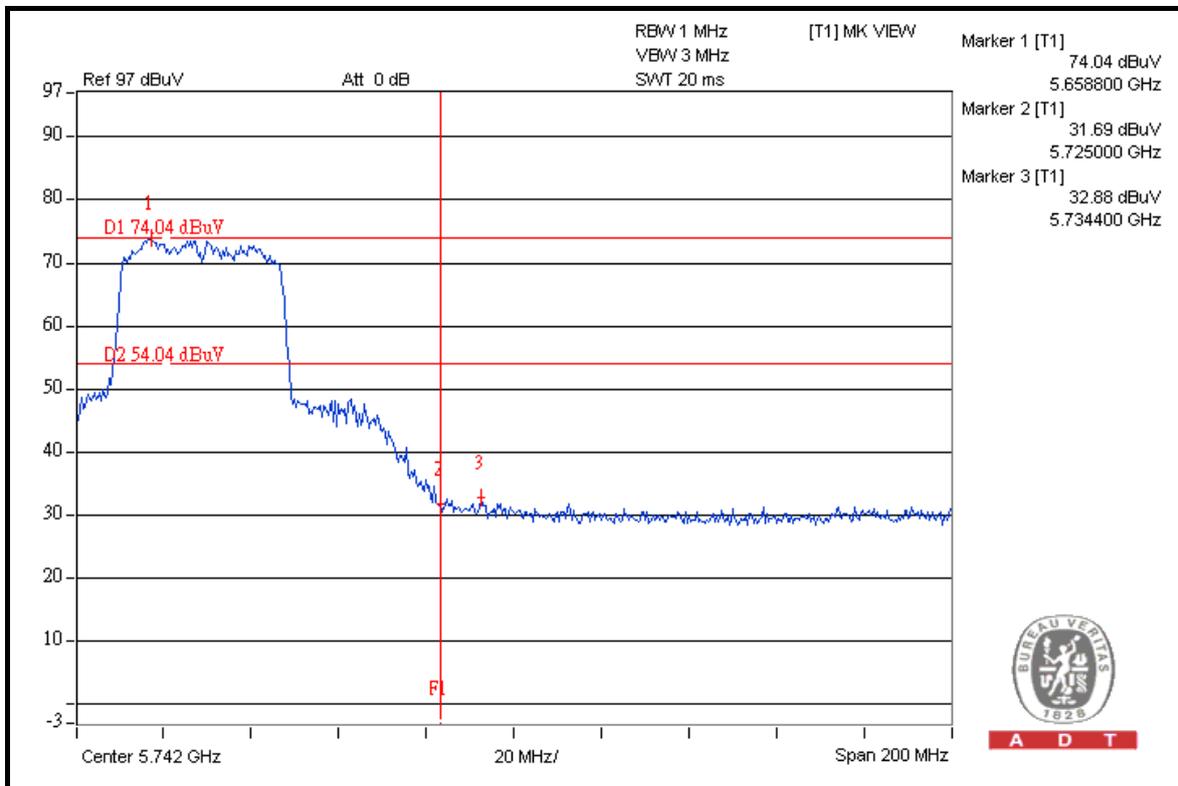
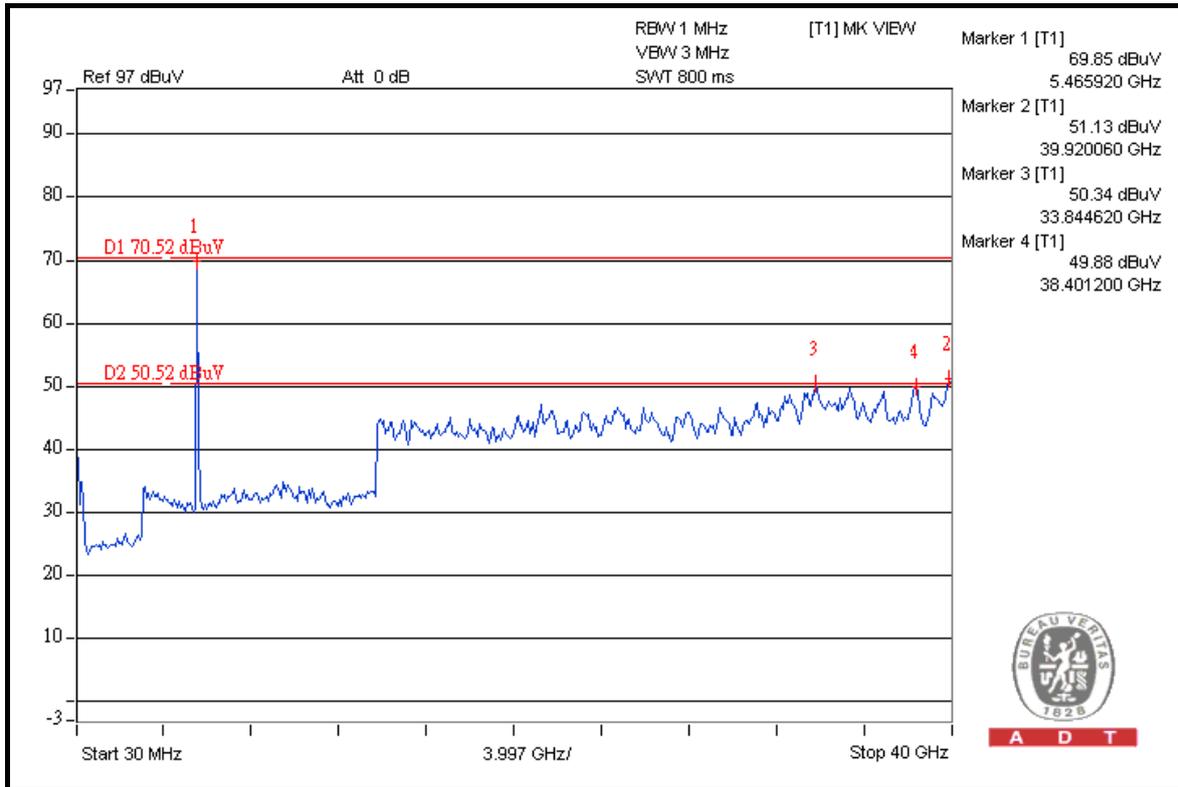


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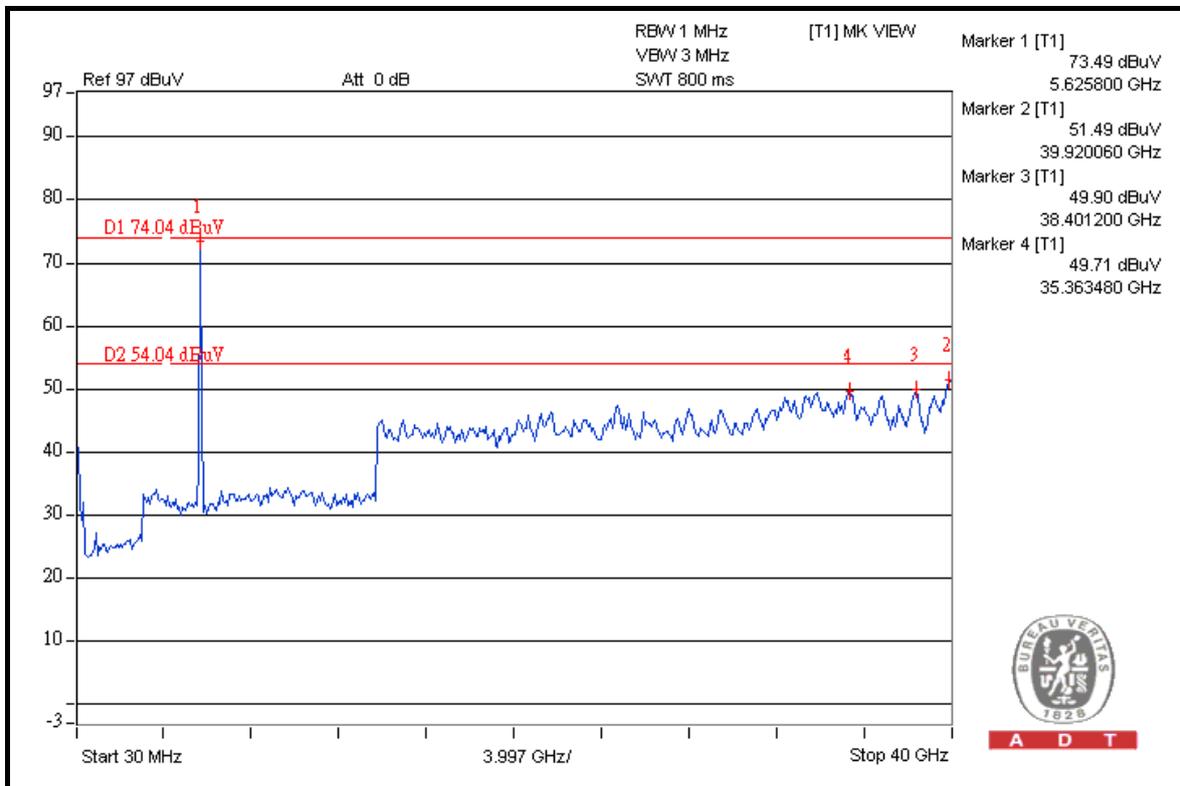
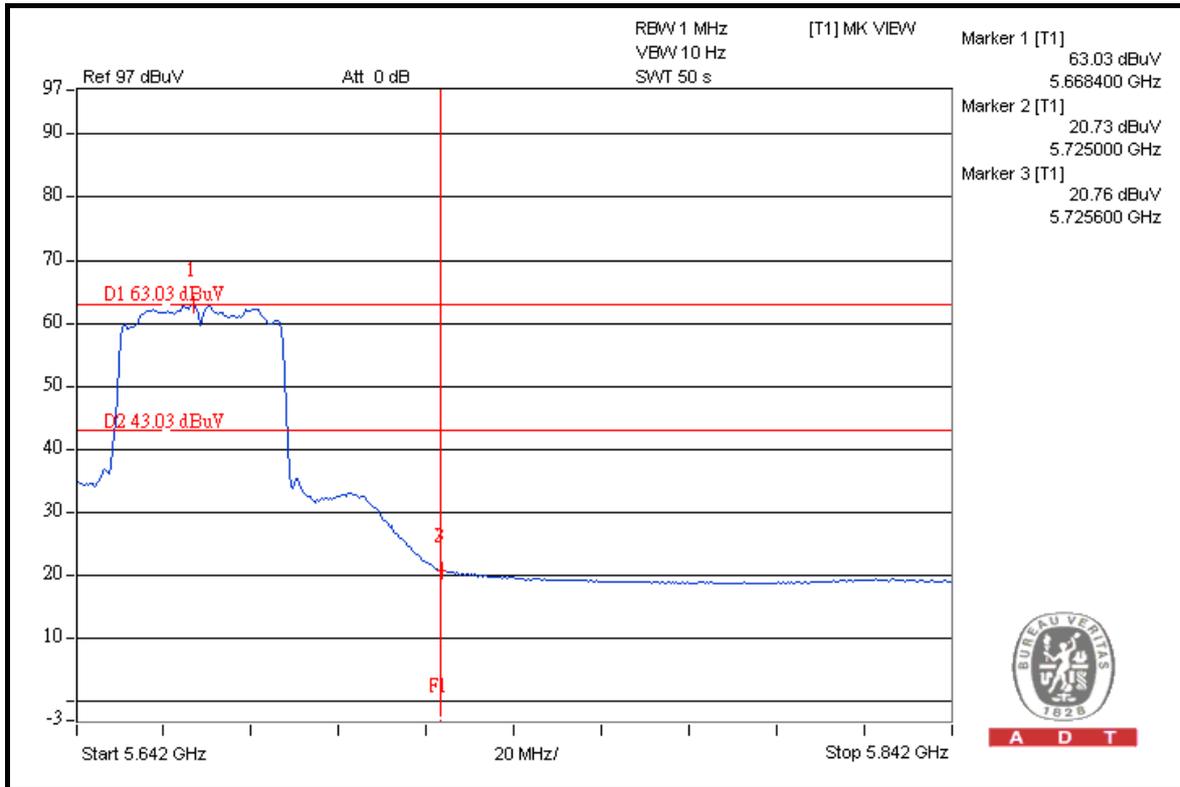


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## 5. PHOTOGRAPHS OF THE TEST CONFIGURATION

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.

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---**