



# FCC TEST REPORT (PART 27)

**REPORT NO.:** RF990526E01-1

**MODEL NO.:** CDP-PCK2005

**RECEIVED:** May 26, 2010

**TESTED:** June 09 to 25, 2010

**ISSUED:** June 29, 2010

**APPLICANT:** Cradlepoint, Inc.

**ADDRESS:** 805 W. Franklin Street, Boise, ID 83702

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

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# 1 CERTIFICATION

**PRODUCT:** Portable WiFi WiMAX Router  
**BRAND NAME:** Cradlepoint  
**MODEL NO.:** CDP-PCK2005  
**APPLICANT:** Cradlepoint, Inc.  
**TESTED:** June 09 to 25, 2010  
**TEST SAMPLE:** ENGINEERING SAMPLE  
**TEST STANDARDS:** FCC 47 CFR Part 2  
FCC 47 CFR Part 27, Subpart C & M  
ANSI/TIA/EIA-603-C-2004

The above equipment (Model No.: CDP-PCK2005) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

**PREPARED BY** :  , **DATE:** June 29, 2010  
( Claire Kaun, Specialist )

**TECHNICAL ACCEPTANCE** :  , **DATE:** June 29, 2010  
( Hank Chung, Deputy Manager )

**APPROVED BY** :  , **DATE:** June 29, 2010  
( May Chen, Deputy Manager )

## 2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

<b>APPLIED STANDARD: FCC Part 27 &amp; Part 2</b>			
<b>STANDARD SECTION</b>	<b>TEST TYPE AND LIMIT</b>	<b>RESULT</b>	<b>REMARK</b>
2.1046 27.50(h)(2)	Maximum Peak Output Power Limit: max. 2 watts EIRP power	PASS	Meet the requirement of limit.
2.1055 27.54	Frequency Stability Stay with the authorized bands of operation	PASS	Meet the requirement of limit.
2.1049 27.53(m)(6)	Emission Bandwidth	PASS	Meet the requirement of limit.
2.1051 27.53(m)(4)(6)	Band Edge Measurements	PASS	Meet the requirement of limit.
2.1051 27.53(m)(4)(6)	Conducted Spurious Emissions	PASS	Meet the requirement of limit.
2.1053 27.53(m)(4)(6)	Radiated Spurious Emissions	PASS	Meet the requirement of limit.



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## 2.1 MEASUREMENT UNCERTAINTY

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

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

Measurement	Value
Radiated emissions (30MHz-1GHz)	3.94 dB
Radiated emissions (1GHz -18GHz)	2.49 dB
Radiated emissions (18GHz -40GHz)	2.70 dB

### 3 GENERAL INFORMATION

#### 3.1 GENERAL DESCRIPTION OF EUT

<b>PRODUCT</b>	Portable WiFi WiMAX Router
<b>MODEL NO.</b>	CDP-PCK2005
<b>POWER SUPPLY</b>	DC 5V from adapter and car charger or DC 3.7V from battery
<b>MODULATION TECHNOLOGY</b>	OFDMA
<b>MODULATION</b>	Up-Link: QPSK-1/2, -3/4, 16QAM-1/2, 3/4
	Down-Link: QPSK-1/2, -3/4, 16QAM-1/2, 3/4, 64QAM-1/2, -2/3, -3/4, -5/6
<b>OPERATING FREQUENCY</b>	5MHz: 2498.5MHz ~ 2687.5MHz 10MHz: 2501MHz ~ 2685MHz
<b>CHANNEL BANDWIDTH</b>	5MHz & 10MHz
<b>MAX. EIRP POWER</b>	5MHz: 27.2dBm 10MHz: 27.5dBm
<b>MAX. CONDUCTED POWER</b>	5MHz: 23.7dBm 10MHz: 24.1dBm
<b>ANTENNA TYPE</b>	Please see note 2
<b>DATA CABLE</b>	Micro USB cable (Shielded, 1.0m) Micro USB cable (Unshielded, 1.0m)
<b>I/O PORTS</b>	Micro USB port x 1
<b>ASSOCIATED DEVICES</b>	Adapter x 1 Battery x 1 Micro USB cable x 1 Car charger x 1

**NOTE:**

1. The EUT is Portable WiFi WiMAX Router, this report was recorded the **WiMAX** test data. For the WiFi test data was recorded in another test report<RF990526E01>.



2. There are two sets of antennas provided to this EUT, please refer to the following table:

Set 1 for WiMAX antenna						
Antenna	Antenna Type	Antenna Connector	Gain (dBi)	Cable Length(cm)	Frequency range (MHz)	Diversity Function
1	PCB	I-PEX	4.5	3	2500~2700	YES
2	PCB	I-PEX	5	9	2500~2700	YES
Set 2 for WIFI antenna						
Antenna	Antenna Type	Antenna Connector	Gain (dBi)	Cable Length(cm)	Frequency range (MHz)	Diversity Function
1	Printed PCB	NA	2.7	-	2412~2472	YES
2	Printed PCB	NA	1.7	-	2412~2472	YES

3. The EUT could be supplied with 3.7V battery, car charger or the following power adapter which will be sold together with the EUT :

Item	Brand	Model No.	Spec.
Adapter 1	TenPao	S005SU0500070	AC I/P: 100-240V, 50/60Hz, 150mA DC O/P: 5V, 700mA
Adapter 2	Maxtela	MUC-5EJ1	AC I/P: 100-240V, 50/60Hz, 0.15A DC O/P: 5V, 1A
Battery	ETI CA	0340-1371080001 (BP08-000720)	DC 3.7V, 1900mAh
Car charger 1	Atech	CC615-0510A21	AC I/P: 12-24V, 1A MAX DC O/P: 5V, 1A
Car charger 2	Maxtela	MCC-5K	AC I/P: 12-24V, 600mA DC O/P: 5V, 1A

4. The EUT must be supplied with a USB cable and following two different USB cable could be chosen:

Cable	Description
Cable 1	Micro USB cable (Shielded, 1.0m)
Cable 2	Micro USB cable (Unshielded, 1.0m)

5. The EUT was pre-tested under the following modes:

Test Mode	Description
Mode A	EUT + Battery
Mode B	EUT + Battery + Adapter 1 with cable 1
Mode C	EUT + Battery + Adapter 2 with cable 1
Mode D	EUT + Battery + Car Charger 1 with cable 1
Mode E	EUT + Battery + Car Charger 2 with cable 1
<b>Mode F</b>	<b>EUT + Battery + Adapter 2 with cable 2</b>

The worst radiated emission was found in **Mode F**. Therefore only the test data of the mode was recorded in this report individually.



6. For the EUT Modulation type and coding rate. After pre-testing items of output power and spurious emissions, QPSK-1/2 was found to be 5MHz & 10MHz worst case, and was selected for the final test configuration.

Up Link		Down Link	
Modulation	Coding rate	Modulation	Coding rate
QPSK	1/2	QPSK	1/2
	3/4		3/4
16QAM	1/2	16QAM	1/2
	3/4		3/4
/		64QAM	1/2
			2/3
			3/4
			5/6

7. The EUT embedded a firmware for testing that needs to control from Notebook computer to let EUT with different DL/UL ration.
8. The device has different DL/UL ration in normal operation. It was tested with (DL:UL= 29:18) duty cycle mode for 5MHz and 10MHz, which is the worse mode, and controlled by software. (The detail duty cycle refer to appendix A).
9. The above EUT information was declared by manufacturer and for more detailed feature descriptions, please refers to the manufacturer's specifications or User's Manual.

### 3.2 DESCRIPTION OF TEST MODES

Three channels have been tested and presented.

#### **CHANNEL BANDWIDTH: 5MHz**

**Low channel (L):** 2498.5MHz.

**Middle channel (M):** 2587MHz.

**High channel (H):** 2687.5MHz.

#### **CHANNEL BANDWIDTH: 10MHz**

**Low channel (L):** 2501MHz.

**Middle channel (M):** 2593MHz.

**High channel (H):** 2685MHz.



### 3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO							DESCRIPTION
	OP	FS	EB	CE	CSE	RE<1G	RE <sup>3</sup> 1G	
MODE 1	√	-	√	√	√	√	√	Channel Bandwidth: 5MHz
MODE 2	√	√	√	√	√	√	√	Channel Bandwidth: 10MHz

Where **OP**: Output power **FS**: Frequency stability  
**EB**: Emission bandwidth **CE**: Channel edge  
**CSE**: Conducted spurious emissions **RE<1G**: Radiated emission below 1GHz  
**RE<sup>3</sup>1G**: Radiated emission above 1GHz

#### **OUTPUT POWER 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.

TESTED MODE	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE
MODE 1	L, M, H	OFDMA	QPSK-1/2
MODE 2	L, M, H	OFDMA	QPSK-1/2

#### **FREQUENCY STABILITY 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.

TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE
M	OFDMA	Unmodulation

**EMISSION BANDWIDTH 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.

TESTED MODE	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE
MODE 1	L, M, H	OFDMA	QPSK-1/2
MODE 2	L, M, H	OFDMA	QPSK-1/2

**CHANNEL EDGE 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.

TESTED MODE	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE
MODE 1	L, M, H	OFDMA	QPSK-1/2
MODE 2	L, M, H	OFDMA	QPSK-1/2

**CONDUCTED SPURIOUS EMISSIONS 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.

TESTED MODE	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE
MODE 1	L, M, H	OFDMA	QPSK-1/2
MODE 2	L, M, H	OFDMA	QPSK-1/2

**RADIATED EMISSION MEASUREMENT (BELOW 1 GHz):**

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

TESTED MODE	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE
MODE 1	L	OFDMA	QPSK-1/2
MODE 2	M	OFDMA	QPSK-1/2

**RADIATED EMISSION MEASUREMENT (ABOVE 1 GHz):**

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

TESTED MODE	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE
MODE 1	L, M, H	OFDMA	QPSK-1/2
MODE 2	L, M, H	OFDMA	QPSK-1/2

### 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 47 CFR Part 2**

**FCC 47 CFR Part 27, Subpart C & M**

**ANSI/TIA/EIA-603-C-2004**

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.



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### 3.4 DESCRIPTION OF SUPPORT UNITS

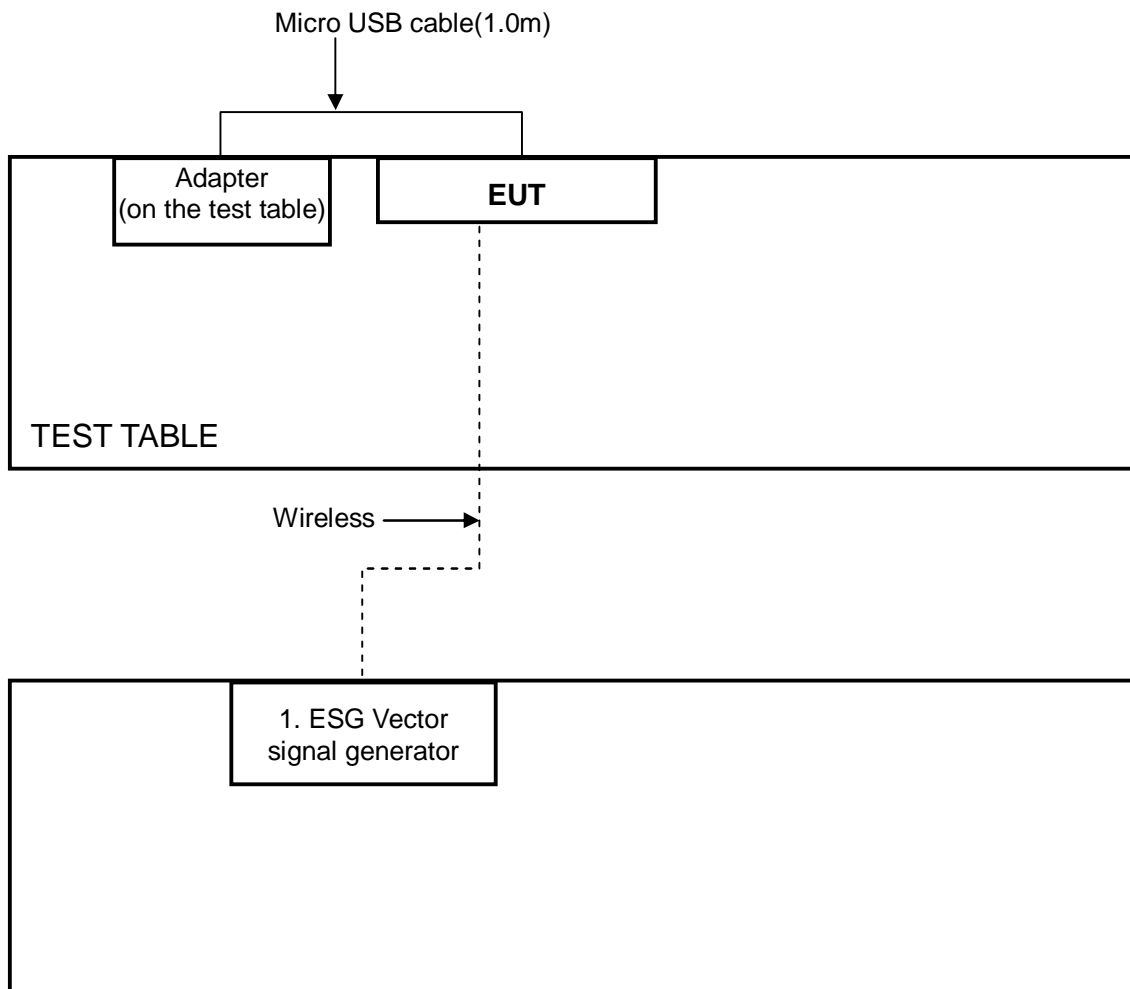
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	ESG Vector signal generator	Agilent	E4438C	MY45094468/005 506 602 UK6 UNJ	NA

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).

### 3.4.1 CONFIGURATION OF SYSTEM UNDER TEST





## 4 TEST TYPES AND RESULTS

### 4.1 OUTPUT POWER MEASUREMENT

#### 4.1.1 LIMITS OF OUTPUT POWER MEASUREMENT

The radiated peak output power shall be according to the specific rule Part 27.50(h)(2) that “Mobile stations are limited to 2.0 watts EIRP and 27.50(i) specific that “Peak transmit power must be measure over any interval of continuous transmission using instrumentation calibration in terms of rms-equivalent voltage.”

#### 4.1.2 TEST INSTRUMENTS

For Conducted Power:

Description & Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Anritsu Power meter	ML2495A	0824006	April 25, 2010	April 24, 2011
JFW 10dB attenuation	50HF-010-SMA	N/A	NA	NA

**NOTE:**

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





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For EIRP Power:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Spectrum Analyzer	FSP40	100036	Dec. 18, 2009	Dec. 17, 2010
Agilent PSA Spectrum Analyzer	E4446A	MY46180622	May 12 , 2010	May 11 , 2011
HP Pre_Amplifier	8449B	300801923	Nov. 02, 2009	Nov. 01, 2010
ROHDE & SCHWARZ Test Receiver	ESCS30	847124/029	Aug. 28, 2009	Aug. 27, 2010
SCHWARZBECK TRILOG Broadband Antenna	VULB 9168	138	Apr. 28, 2010	Apr. 27, 2011
Schwarzbeck Horn_Antenna	BBHA9120	D124	Dec. 18, 2009	Dec. 17, 2010
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 22, 2010	Jan. 21, 2011
RF Switches	EMH-011	1001	NA	NA
RF CABLE (Chaintek)	Sucoflex 106	28077	Aug. 14, 2009	Aug. 13, 2010
RF Cable	8DFB	STCCAB-30M-1GHz	NA	NA
Software	ADT_Radiated_V7.6.15.9.2	NA	NA	NA
CT Antenna Tower & Turn Table	NA	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 horn antenna, preamplifier (model: 8449B) and Spectrum Analyzer (model: FSP40) are used only for the measurement of emission frequency above 1GHz if tested.

3. The test was performed in Open Site No. C.

4. The FCC Site Registration No. is 656396.

5. The VCCI Site Registration No. is R-1626.

6. The CANADA Site Registration No. is IC 7450G-3.

#### 4.1.3 TEST PROCEDURES

##### For Conducted Power:

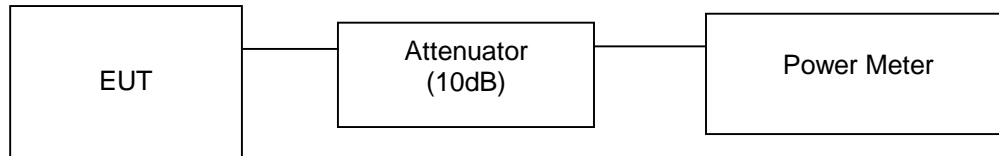
The transmitter output was connected to power meter through an attenuator. The test result was measured and recorded.

##### For EIRP Power:

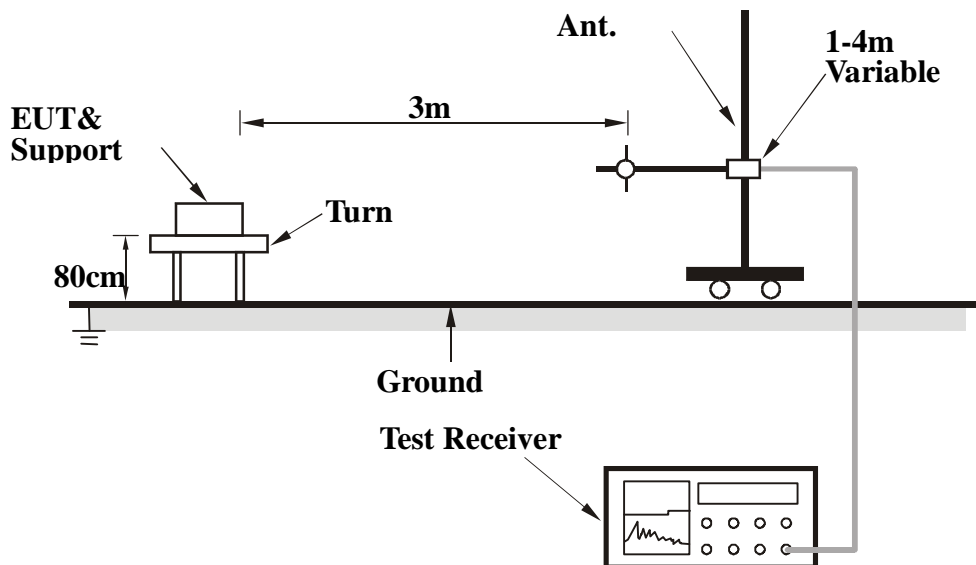
- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the receiving antenna, which was mounted on antenna tower and its position at 0.8 m above the ground.
- c. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading and recorded the value.
- d. The EUT is replaced by a horn antenna connected to a signal generator tuned to the frequency of emission.
- e. The signal generator level has to be adjusted to have the same emission nature.
- f. The radiated power can be calculated via the factor and antenna gain.
- g. Repeat step a ~ f for horizontal polarization.

#### 4.1.4 TEST SETUP

For Conducted Power:



For EIRP Power:



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

#### 4.1.5 EUT OPERATING CONDITIONS

1. Support unit 1 (ESG Vector signal generator) ran test program “Beceem Diagnostic Control Panel 3.4.0” to enable EUT under transmission/receiving condition continuously via wireless transmission.



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## 4.1.6 TEST RESULTS

**CHANNEL BANDWIDTH: 5MHz**

<b>INPUT POWER</b>	120Vac, 60Hz		
<b>ENVIRONMENTAL CONDITIONS</b>	20deg°C, 60%RH 1014hPa	<b>TESTED BY</b>	Phoenix Huang

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

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	2498.5	120.35	33	15.94	6.65	22.6
2	2587	120.64	33	16.59	6.65	23.2
3	2687.5	120.76	33	16.38	6.65	23.0

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

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	2498.5	125.12	33	20.24	6.65	26.9
2	2587	125.16	33	20.59	6.65	27.2
3	2687.5	125.45	33	20.58	6.65	27.2

**REMARKS:** 1. Power Value(dBm)=S.G Power Value (dBm) + Correction Factor(dB)

**CONDUCTED POWER**

CHANNEL	FREQUENCY (MHz)	POWER OUTPUT(mW)	POWER OUTPUT(dBm)
Low	2498.5	223.9	23.5
Middle	2587	234.4	23.7
High	2687.5	234.4	23.7



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**CHANNEL BANDWIDTH: 10MHz**

<b>INPUT POWER</b>	120Vac, 60Hz		
<b>ENVIRONMENTAL CONDITIONS</b>	20deg°C, 60%RH 1014hPa	<b>TESTED BY</b>	Phoenix Huang

**EIRP POWER**

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

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	2501	119.62	33	14.73	6.65	21.4
2	2593	119.48	33	15.07	6.65	21.7
3	2685	119.24	33	14.86	6.65	21.5

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

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	2501	123.47	33	20.8	6.65	27.5
2	2593	124.01	33	20.61	6.65	27.3
3	2685	123.85	33	20.63	6.65	27.3

**REMARKS:** 1. Power Value(dBm)=S.G Power Value (dBm) + Correction Factor(dB)

**CONDUCTED POWER**

CHANNEL	FREQUENCY (MHz)	POWER OUTPUT(mW)	POWER OUTPUT(dBm)
Low	2501	251.2	24.0
Middle	2593	251.2	24.1
High	2685	251.2	24.1



## 4.2 FREQUENCY STABILITY MEASUREMENT

### 4.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

According to the FCC part 2.1055 shall be tested the frequency stability. The rule is defined that” The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.” The test extreme voltage is according to the 2.1055(d)(1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment and the extreme temperature rule is comply with specification of EUT -30°C ~ 50°C .

### 4.2.2 TEST INSTRUMENTS

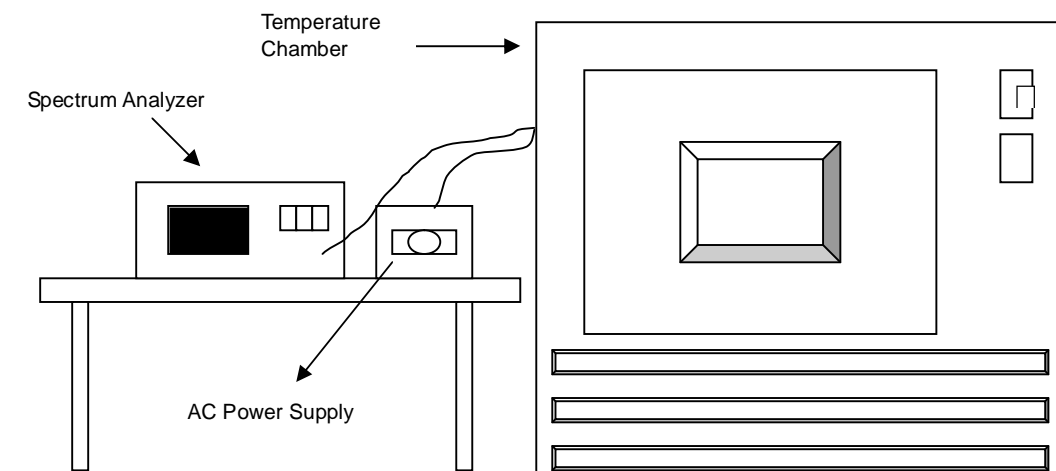
DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 03, 2009	Aug. 02, 2010
OVEN	MHU-225AU	911033	Dec. 17, 2009	Dec. 16, 2010
HUBER+SUHNER	SUCOFLEX104	222684/4	Aug. 15, 2009	Aug. 14, 2010
AC POWER SOURCE	6205	1140503	NA	NA

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

#### 4.2.3 TEST PROCEDURE

- a. Power must be removed when changing from one temperature to another or one voltage to another voltage. Power warm up is at least 15 min and power applied should perform before recording frequency error.
- b. EUT is connected the external power supply to control the AC input power. The various Volts from the minimum 102 Volts to 138 Volts. Each step shall be record the frequency error rate.
- c. The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the  $\pm 0.5^{\circ}\text{C}$  during the measurement testing.
- d. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

#### 4.2.4 TEST SETUP







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#### 4.2.5 TEST RESULTS

<b>MODE</b>	Middle channel (2593MHz)	<b>INPUT POWER</b>	120Vac, 60Hz
<b>ENVIRONMENTAL CONDITIONS</b>	20deg°C, 60%RH 1014hPa	<b>TESTED BY</b>	Phoenix Huang

AFC FREQUENCY ERROR VS. VOLTAGE						
VOLTAGE (Volts)	2Minutes		5Minutes		10Minutes	
	FREQUENCY (MHz)	PPM (%)	FREQUENCY (MHz)	PPM (%)	FREQUENCY (MHz)	PPM (%)
138	2501.022	0.000880	2501.0221	0.000884	2501.0214	0.000856
120	2501.023	0.000920	2501.0235	0.000940	2501.0237	0.000948
102	2501.024	0.000960	2501.0246	0.000984	2501.0243	0.000972

AFC FREQUENCY ERROR VS. TEMP						
TEMP (°C)	2Minutes		5Minutes		10Minutes	
	FREQUENCY (MHz)	PPM (%)	FREQUENCY (MHz)	PPM (%)	FREQUENCY (MHz)	PPM (%)
50	2501.027	0.001080	2501.028	0.001120	2501.0272	0.001088
40	2501.025	0.001000	2501.026	0.001040	2501.0254	0.001016
30	2501.024	0.000960	2501.023	0.000920	2501.0227	0.000908
20	2501.023	0.000920	2501.0235	0.000940	2501.0237	0.000948
10	2501.0233	0.000932	2501.0228	0.000912	2501.0227	0.000908
0	2501.0245	0.000980	2501.0249	0.000996	2501.0253	0.001012
-10	2501.0248	0.000992	2501.0251	0.001004	2501.0257	0.001028
-20	2501.0253	0.001012	2501.0257	0.001028	2501.0246	0.000984

**NOTE:** The EUT can't operate and without any TX signal at -30°C.



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### 4.3 EMISSION BANDWIDTH MEASUREMENT

#### 4.3.1 LIMITS OF EMISSION BANDWIDTH MEASUREMENT

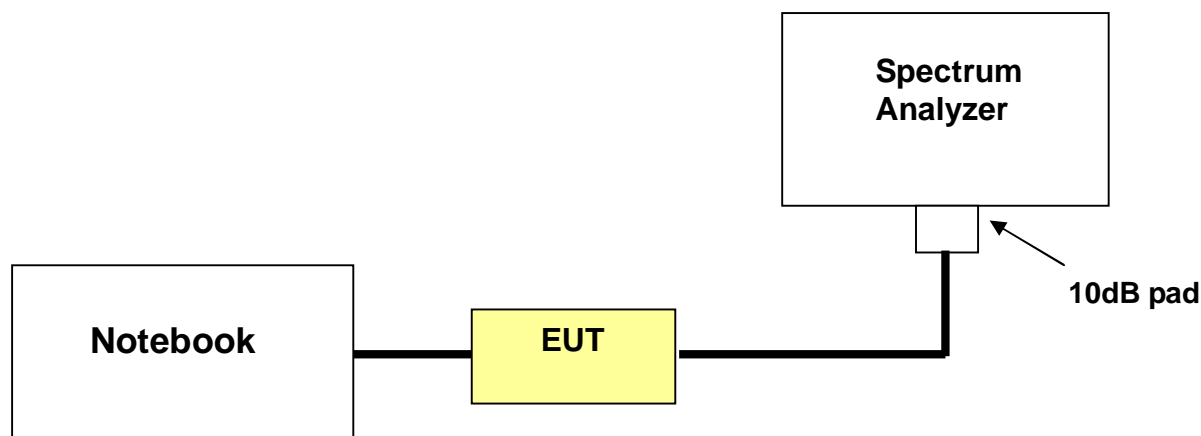
According to FCC 27.53(m)(6) specified that emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26dB below the transmitter power.

#### 4.3.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	CALIBRATED DATE	CALIBRATED UNTIL
Agilent Spectrum Analyzer	E4446A	MY46180622	Apr. 23 , 2010	Apr. 22 , 2011
HUBER+SUHNER	SUCOFLEX104	222684/4	Aug. 15, 2009	Aug. 14, 2010
JFW 10dB attenuation	50HF-010-SMA	N/A	N/A	N/A

**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 SETUP



#### 4.3.4 TEST PROCEDURES

- a. The Notebook controlled EUT to export rated output power under transmission mode and specific channel frequency. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100kHz RBW and 300kHz VBW. The 26dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 26dB.



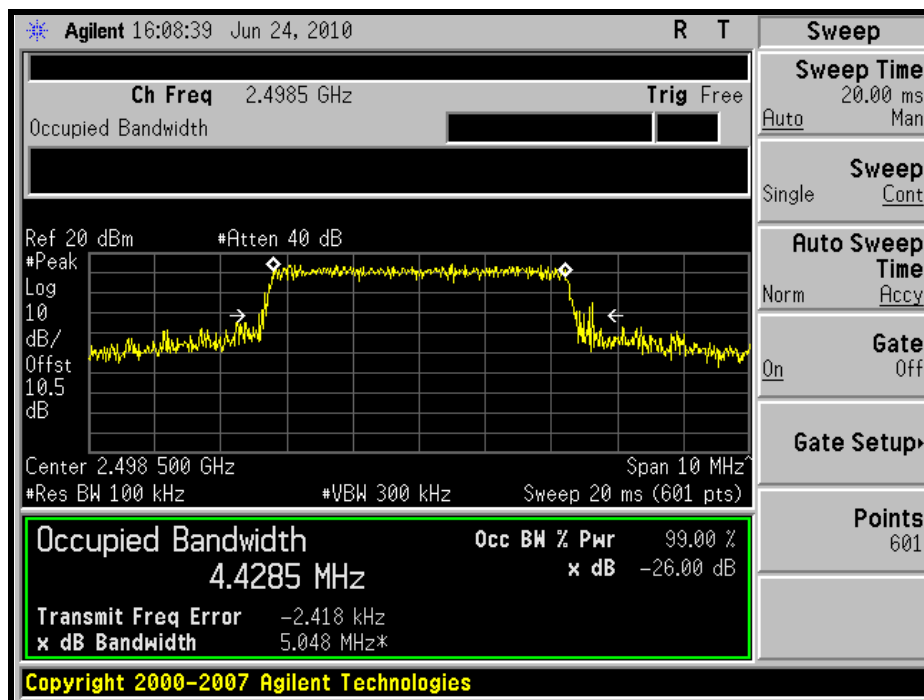
A D T

### 4.3.5 TEST RESULTS

#### CHANNEL BANDWIDTH: 5MHz

FREQUENCY (MHz)	-26 dBc BANDWIDTH (MHz)
2498.5	5.04
2587	5.02
2687.5	5.02

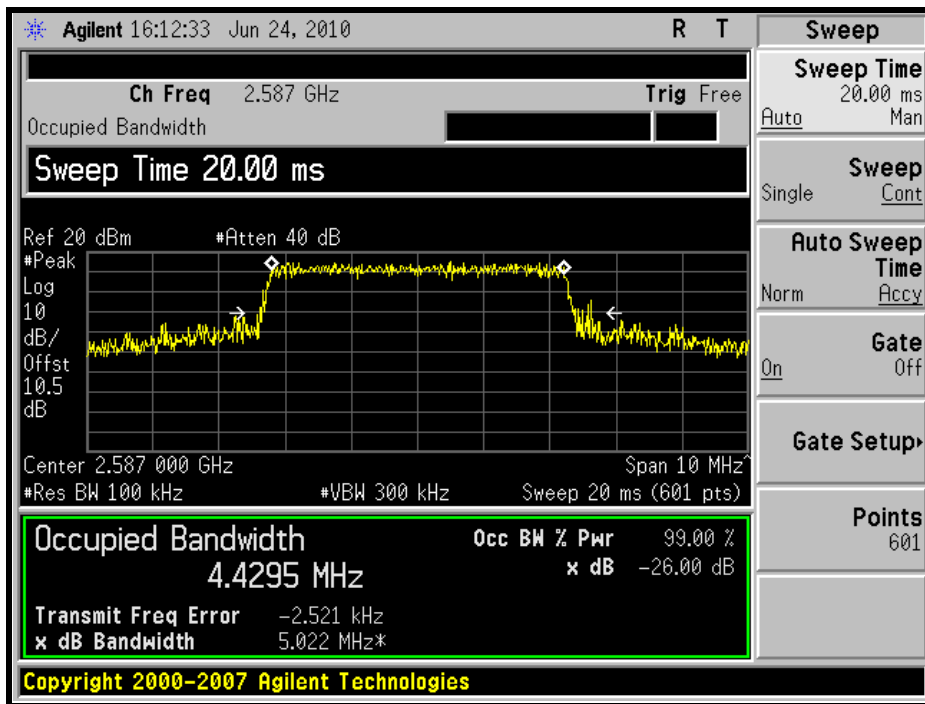
#### LOW CHANNEL



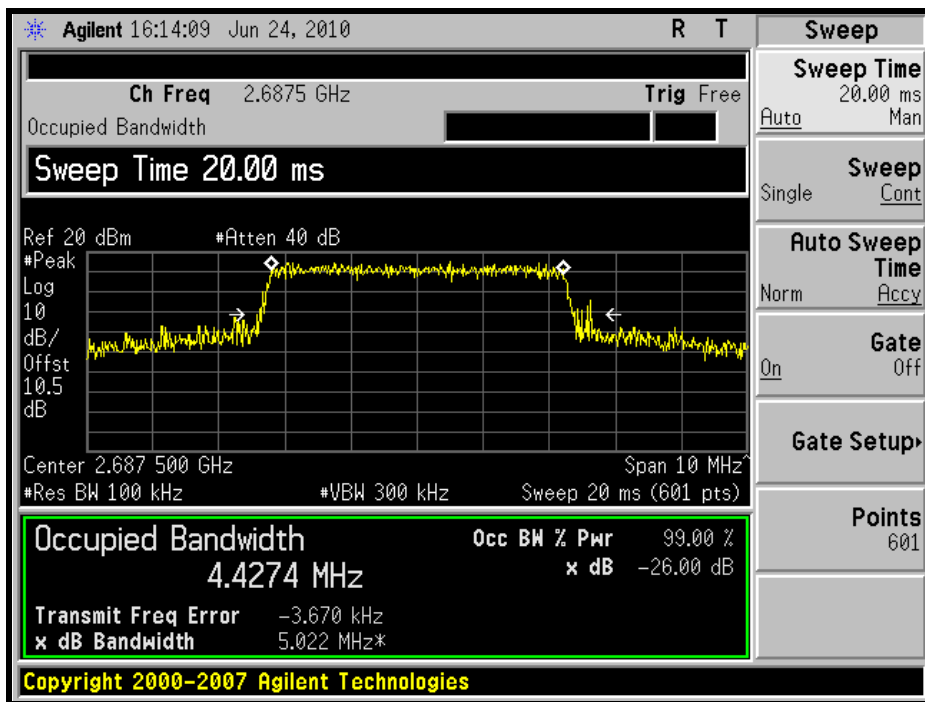


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### MIDDLE CHANNEL



### HIGH CHANNEL



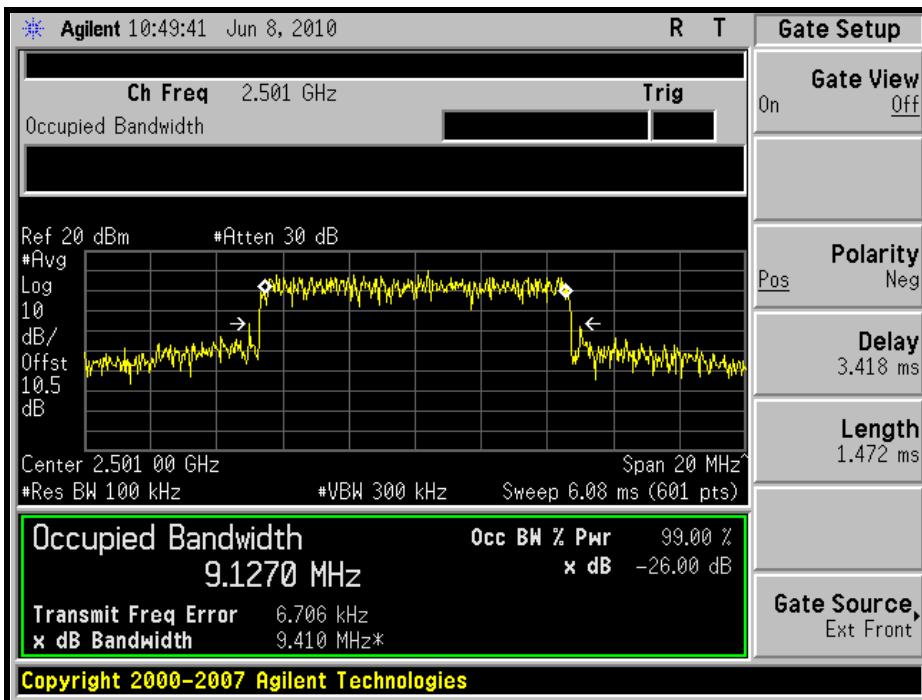


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### CHANNEL BANDWIDTH: 10MHz

FREQUENCY (MHz)	-26 dBc BANDWIDTH (MHz)
2501	9.41
2593	9.40
2685	9.70

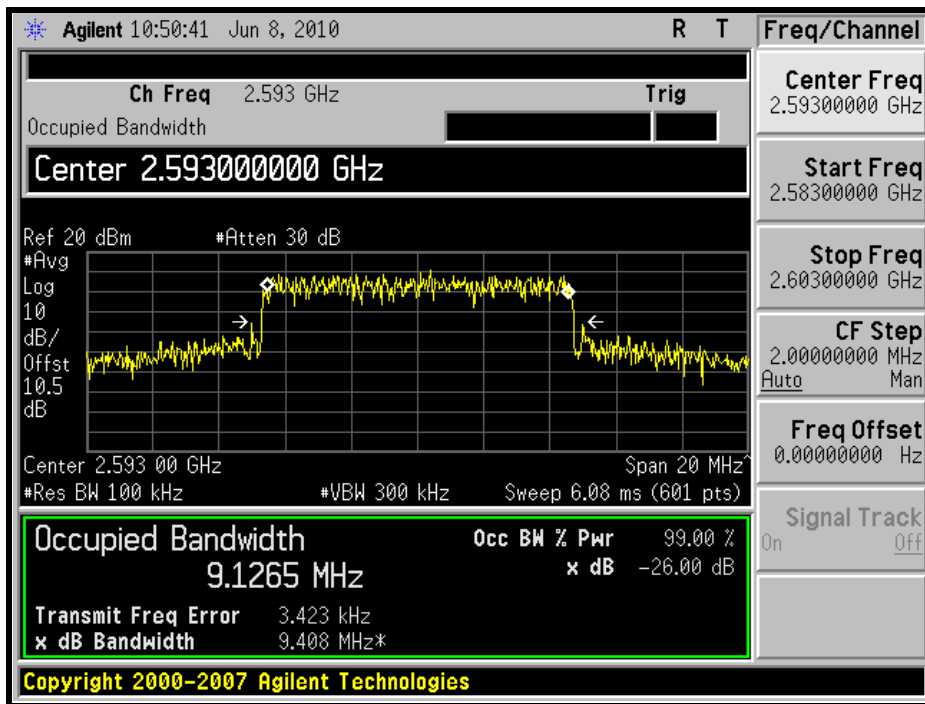
### LOW CHANNEL



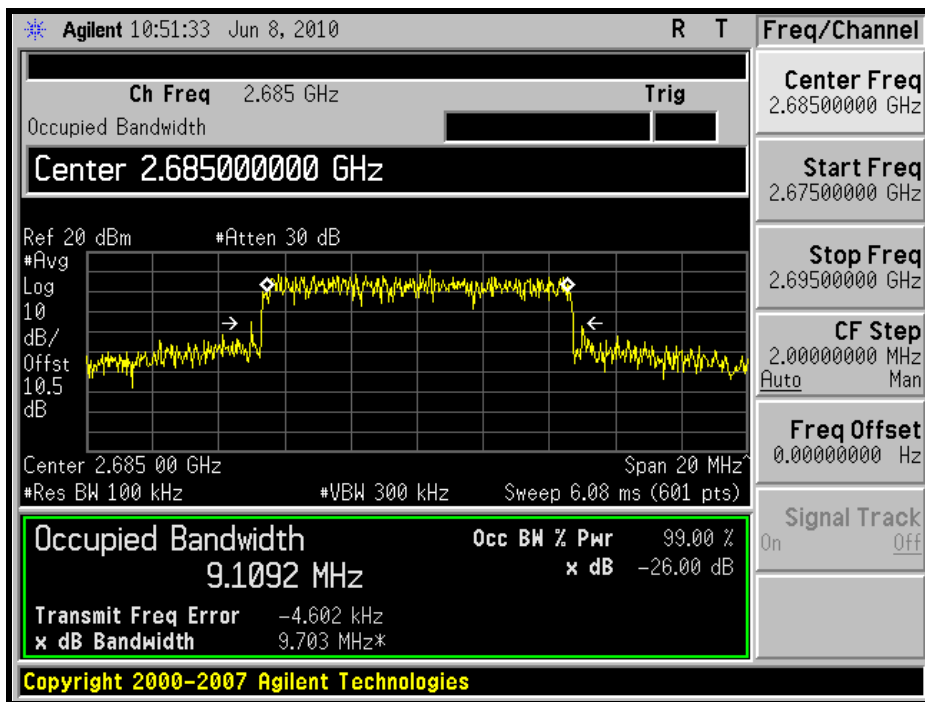


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### MIDDLE CHANNEL



### HIGH CHANNEL





## 4.4 CHANNEL EDGE MEASUREMENT

### 4.4.1 LIMITS OF CHANNEL EDGE MEASUREMENT

According to FCC 27.53(m)(4) specified that power of any emission outside of the channel edge must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB and  $55 + 10 \log(P)$  dB at 5.5 MHz from the channel edges. In the 1MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

### 4.4.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	CALIBRATED DATE	CALIBRATED UNTIL
Agilent Spectrum Analyzer	E4446A	MY46180622	May 12, 2010	May 11, 2011
HUBER+SUHNER	SUCOFLEX104	222684/4	Aug. 15, 2009	Aug. 14, 2010
JFW 10dB attenuation	50HF-010-SMA	NA	NA	NA

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

### 4.4.3 TEST SETUP

Same as Item 4.3.3



#### 4.4.4 TEST PROCEDURES

- a. The EUT was set up for the rated peak power. The power was measured with Spectrum Analyzer. All measurements were done at 3 channels: low, middle and high operational frequency range.
- b. For Channel bandwidth: 5 MHz:  
The center frequency of spectrum is the band edge frequency and span is 20MHz. RB of the spectrum is 51kHz and VB of the spectrum is 150kHz.
- c. For Channel bandwidth: 10 MHz:  
The center frequency of spectrum is the band edge frequency and span is 30MHz. RB W of the spectrum is 100kHz and VBW of the spectrum is 300kHz.
- d. Record the max trace plot into the test report.

#### 4.4.5 EUT OPERATING CONDITION

Same as item 4.1.5

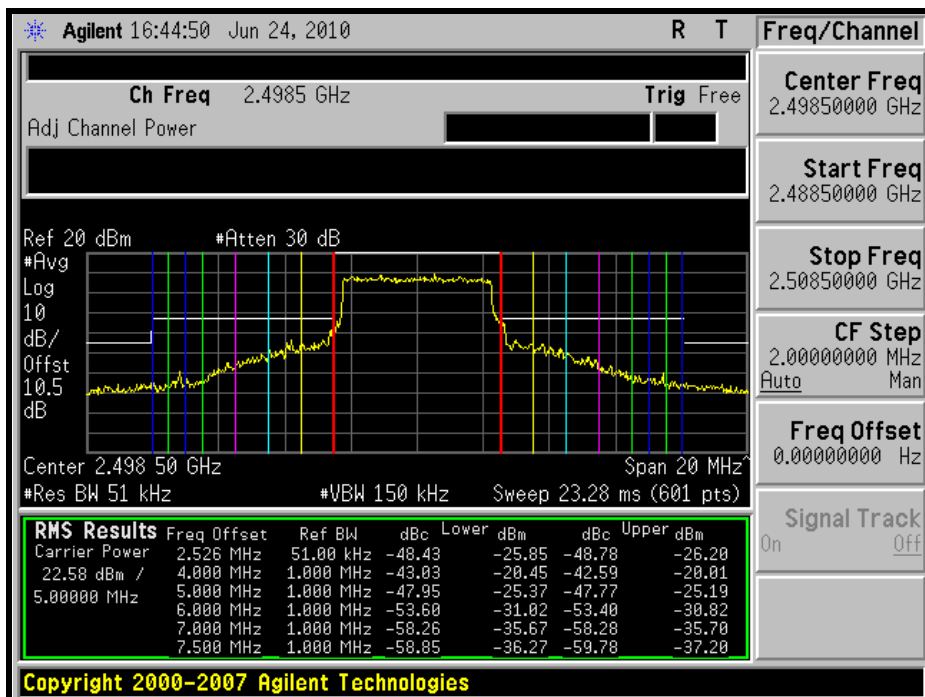
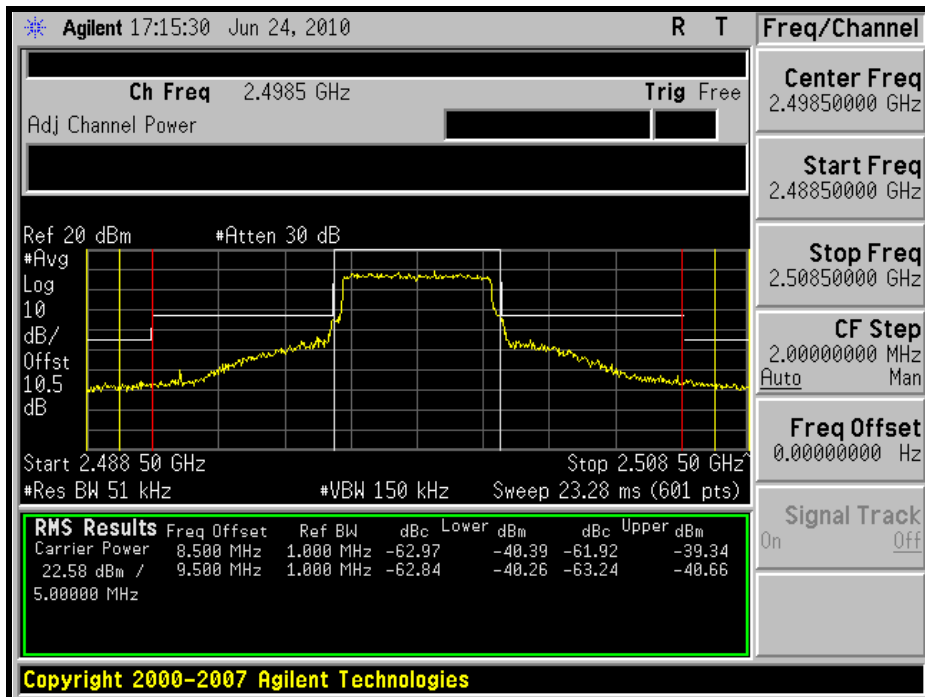


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#### 4.4.6 TEST RESULTS

### CHANNEL BANDWIDTH: 5MHz

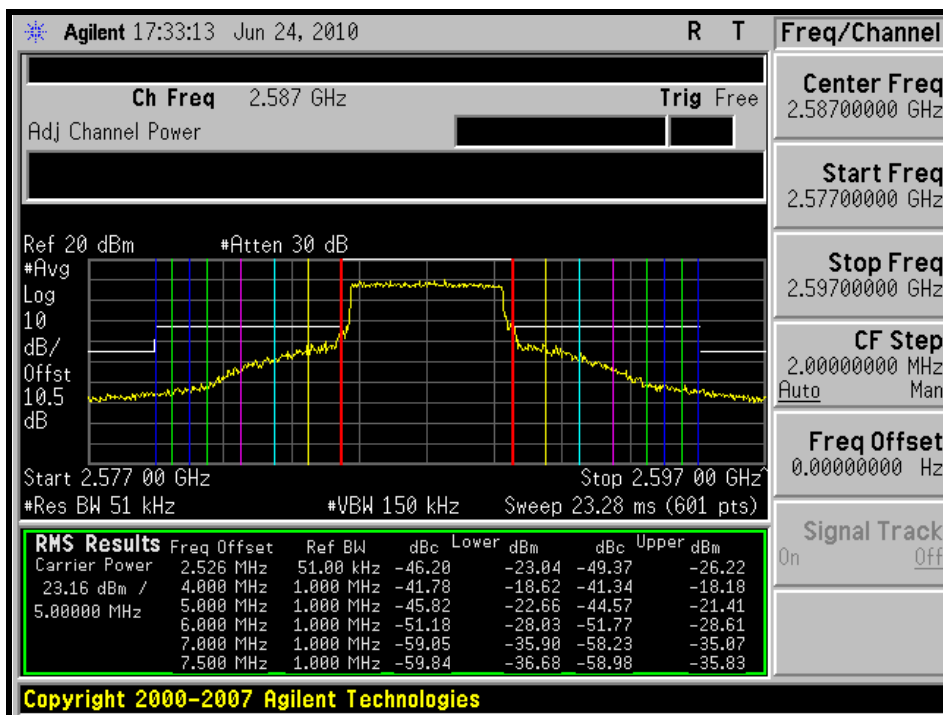
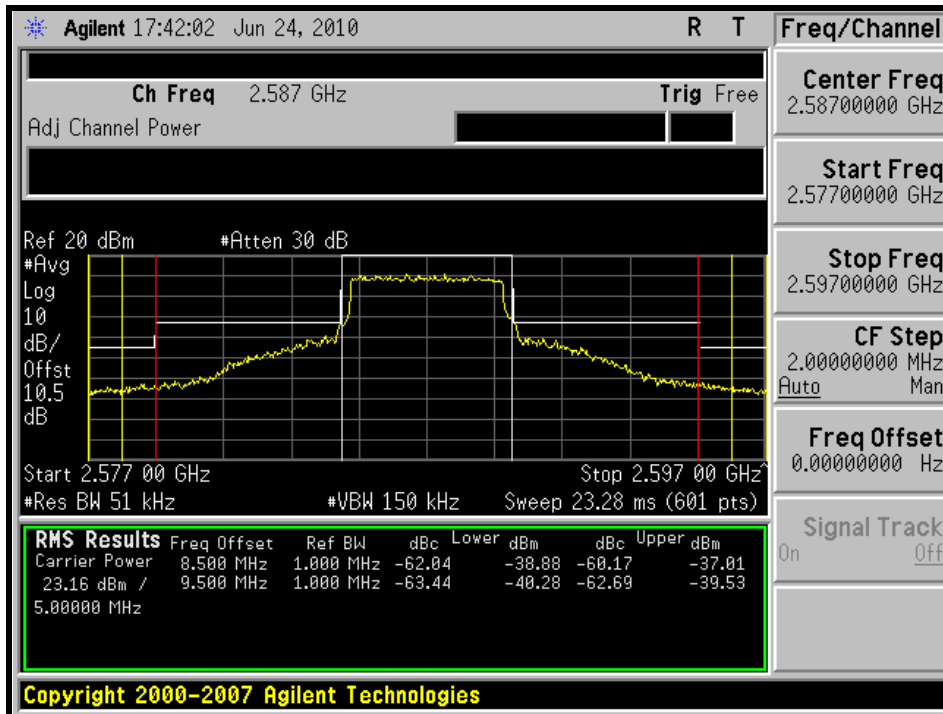
#### LOW CHANNEL





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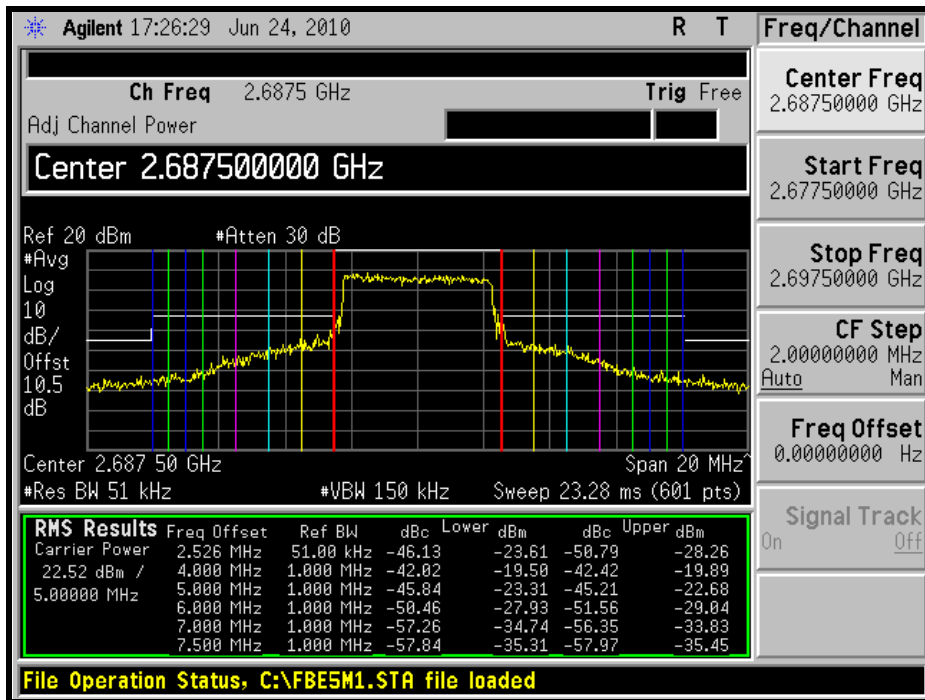
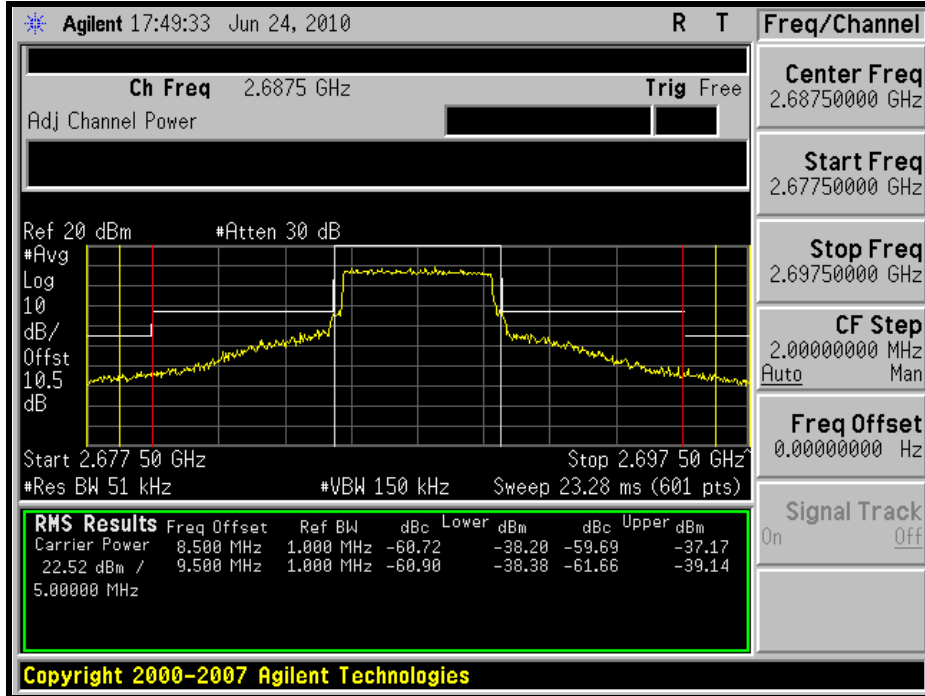
MIDDLE CHANNEL





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**HIGH CHANNEL**

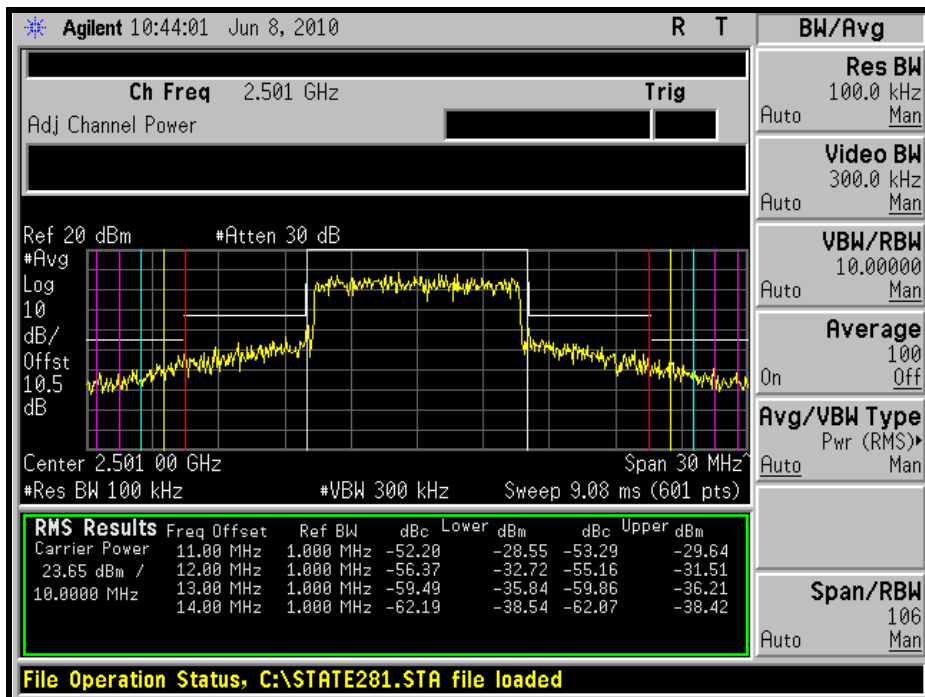
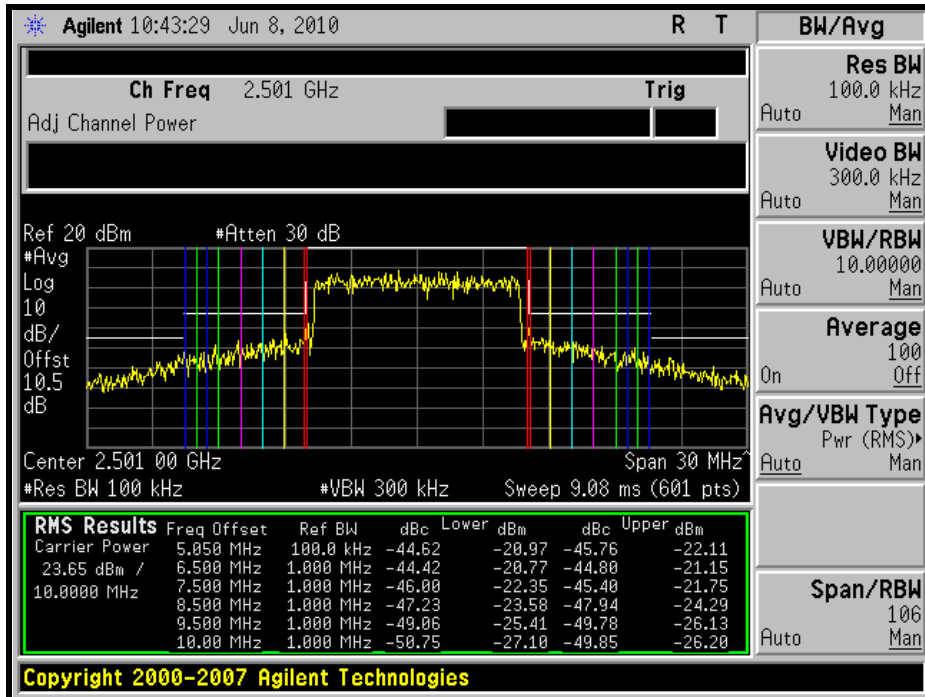




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# CHANNEL BANDWIDTH: 10MHz

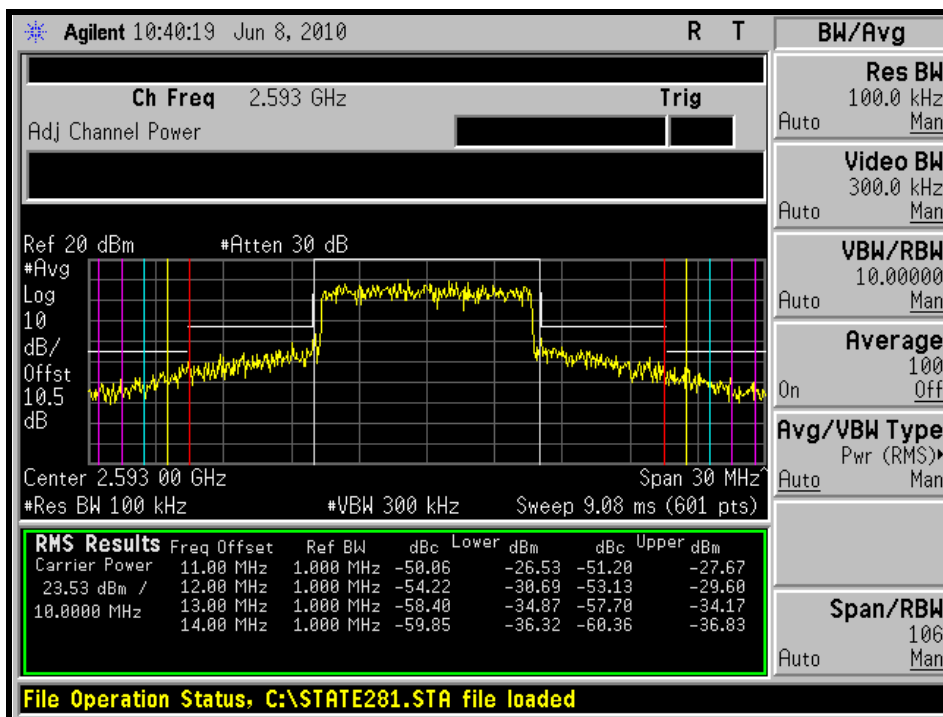
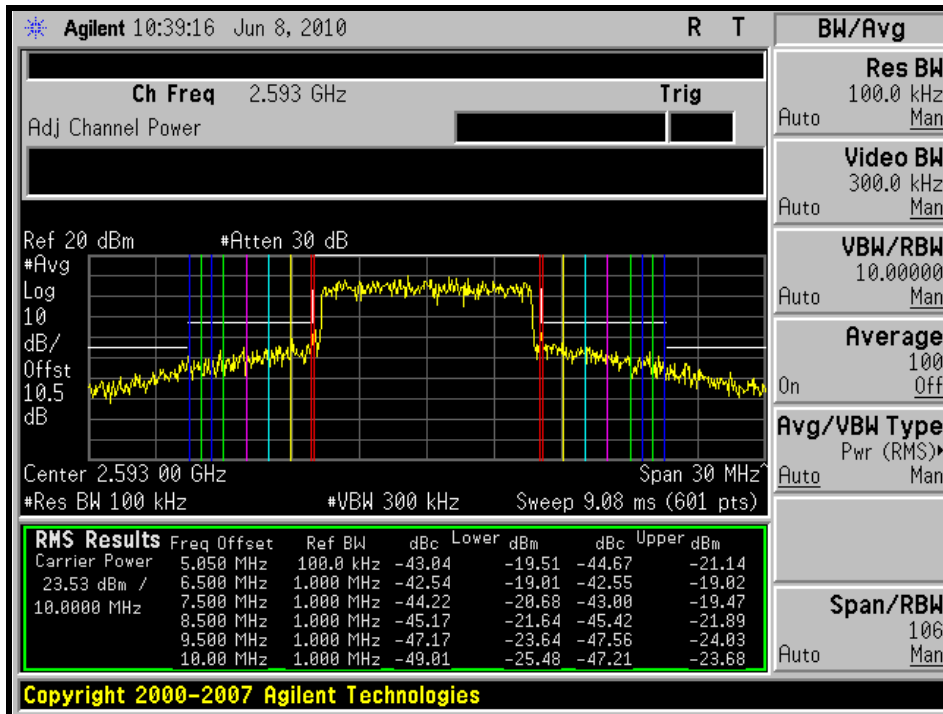
## LOW CHANNEL





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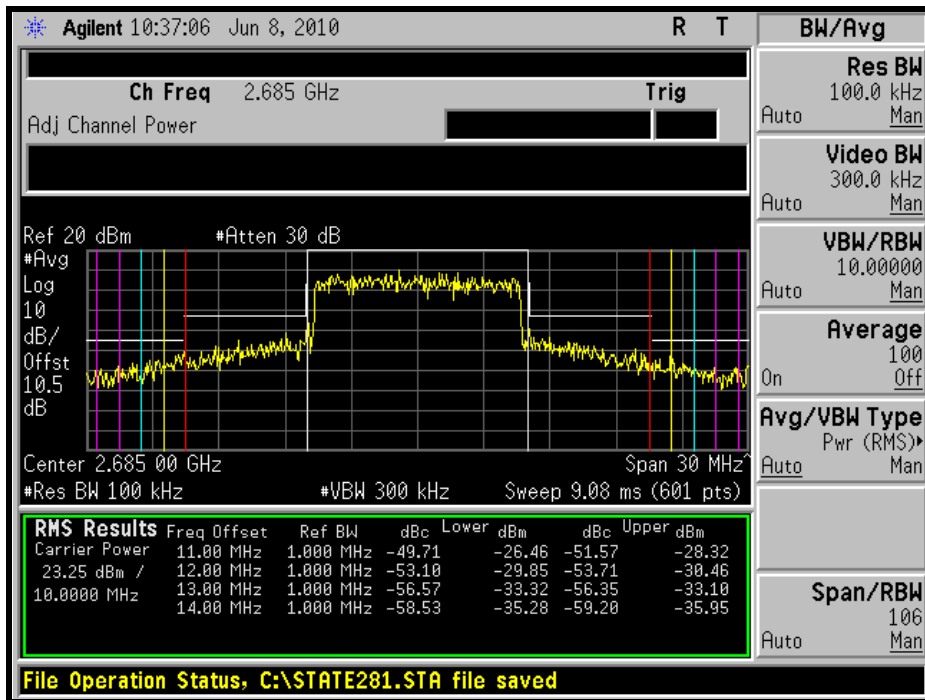
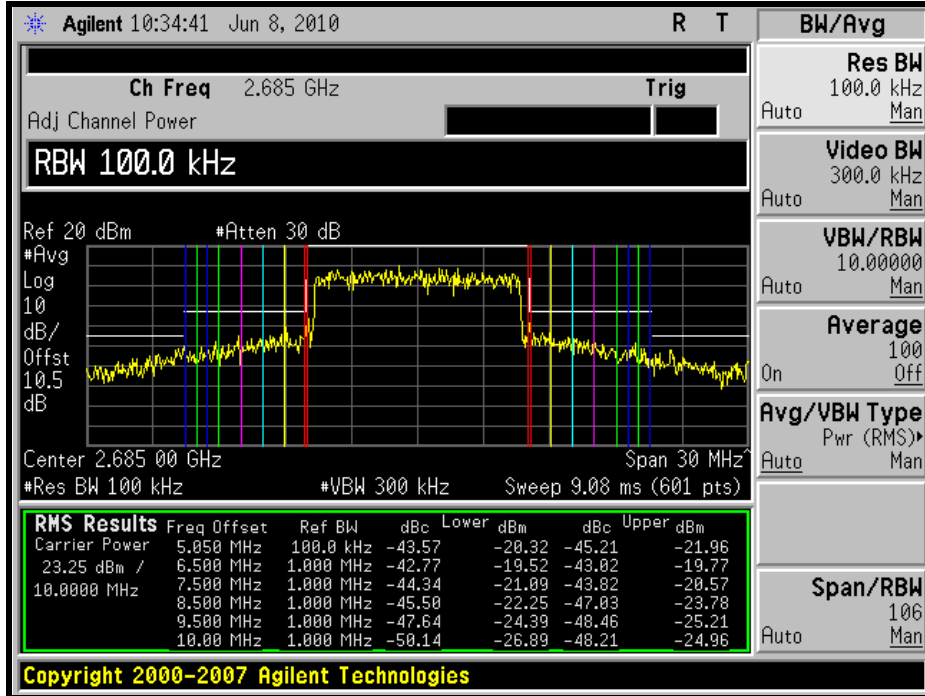
MIDDLE CHANNEL





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### HIGH CHANNEL





## 4.5 CONDUCTED SPURIOUS EMISSIONS

### 4.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

In the FCC 27.53(m)(4), On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least  $43 + 10 \log (P)$  dB and  $55 + 10 \log (P)$  dB at 5.5 MHz from the channel edges.

### 4.5.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	CALIBRATED DATE	CALIBRATED UNTIL
Agilent Spectrum Analyzer	E4446A	MY46180622	May 12, 2010	May 11, 2011
HUBER+SUHNER	SUCOFLEX104	22238114	July 31, 2009	July 30, 2010
JFW 10dB attenuation	50HF-010-SMA	N/A	N/A	N/A
Wainwright Instruments High Pass Filter	WHK3.1/18G-10 SS	ZZ-010091	N/A	N/A

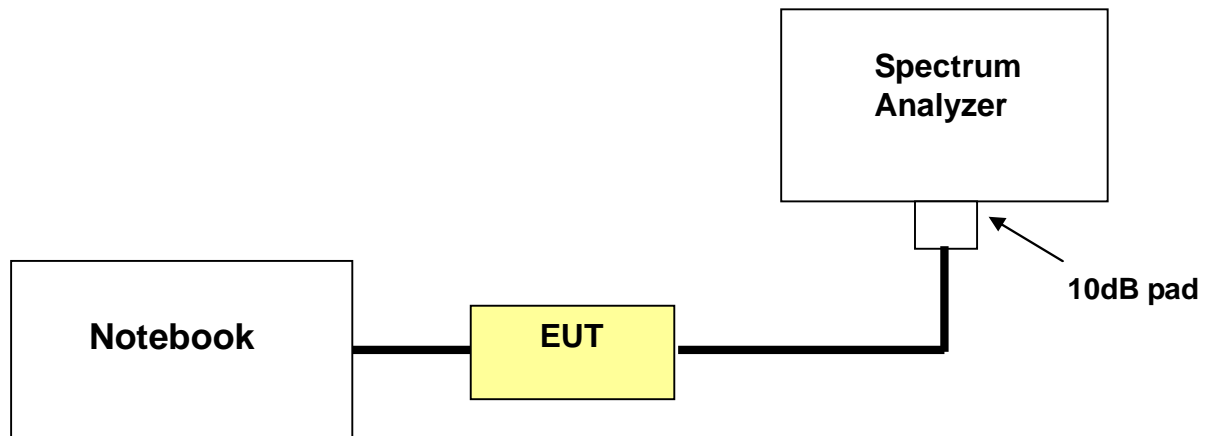
**NOTE:** The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.



#### 4.5.3 TEST PROCEDURE

- a. The EUT was set up for the rated peak power. The power was measured with Spectrum Analyzer. All measurements were done at 3 channels: low, middle and high operational frequency range.
- b. When the spectrum scanned from 30MHz to 26.5GHz, it shall be connected to the 10dB pad attenuated the carried frequency. The spectrum set  $RB = 1\text{MHz}$ ,  $VB = 3\text{MHz}$ .

#### 4.5.4 TEST SETUP



#### 4.5.5 EUT OPERATING CONDITIONS

Same as item 4.1.5

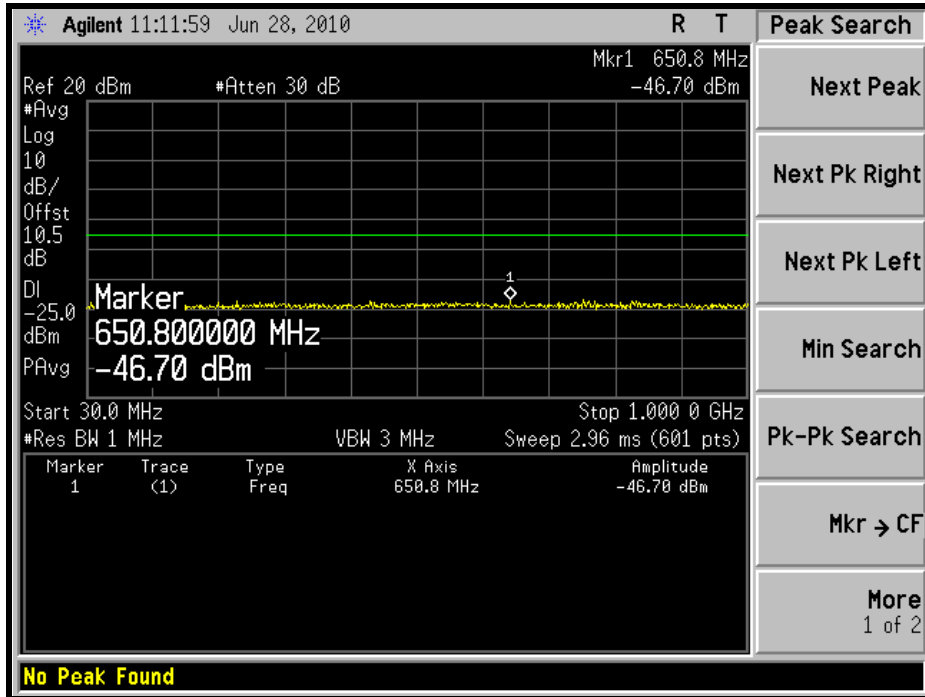


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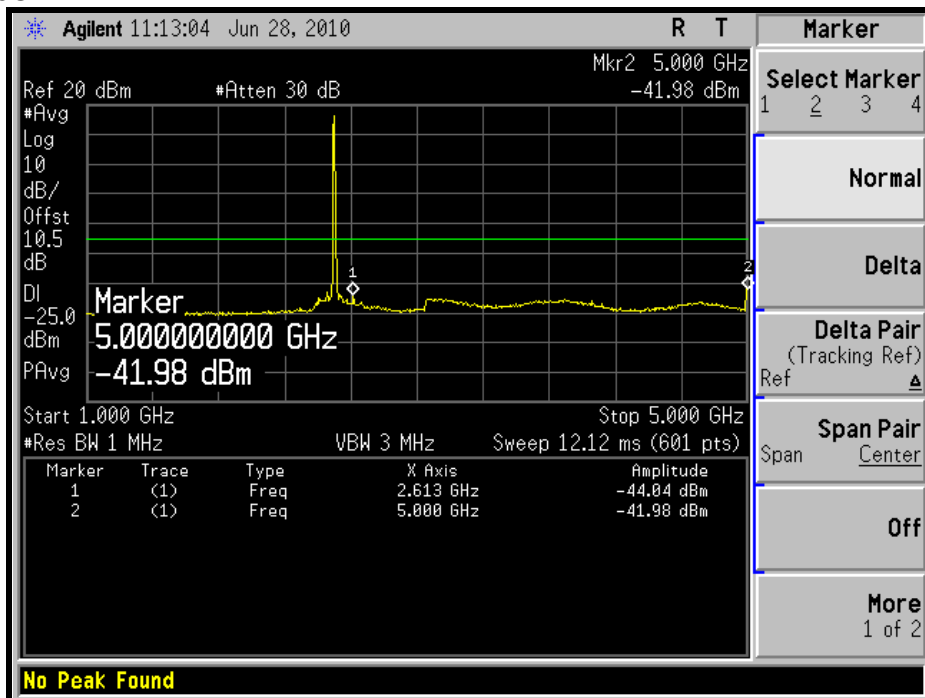
### 4.5.6 TEST RESULTS

#### CHANNEL BANDWIDTH: 5MHz

LOW CHANNEL: 30MHz ~ 1GHz:



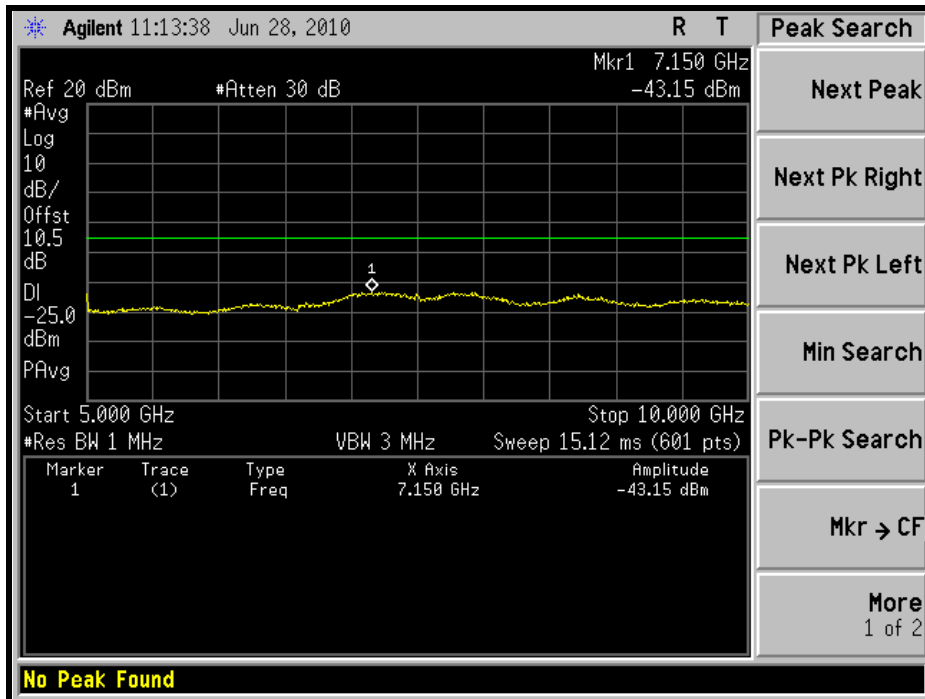
1GHz ~ 5GHz:



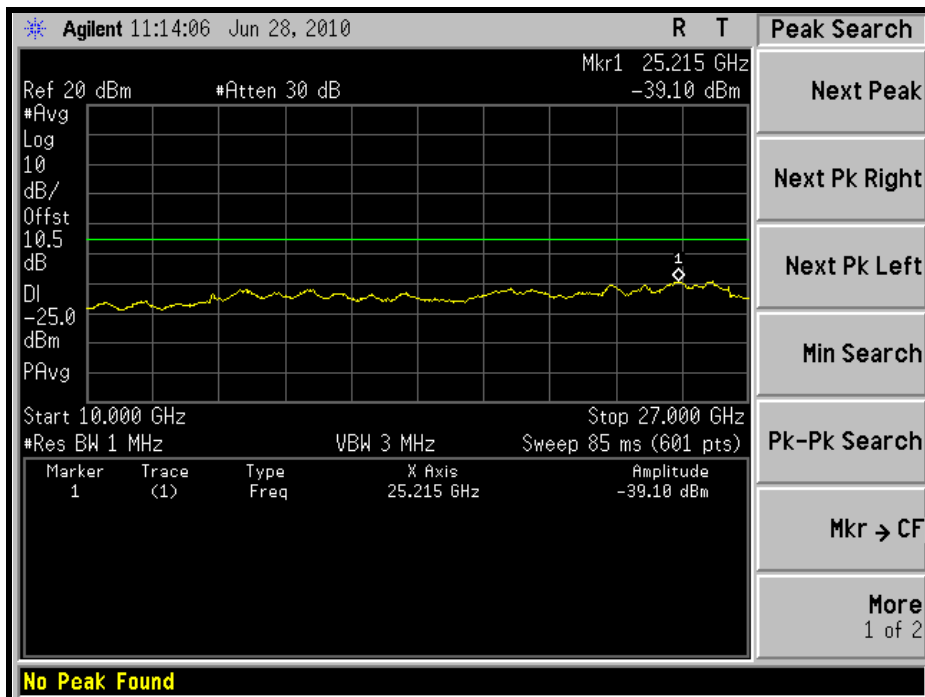


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5GHz ~ 10GHz:



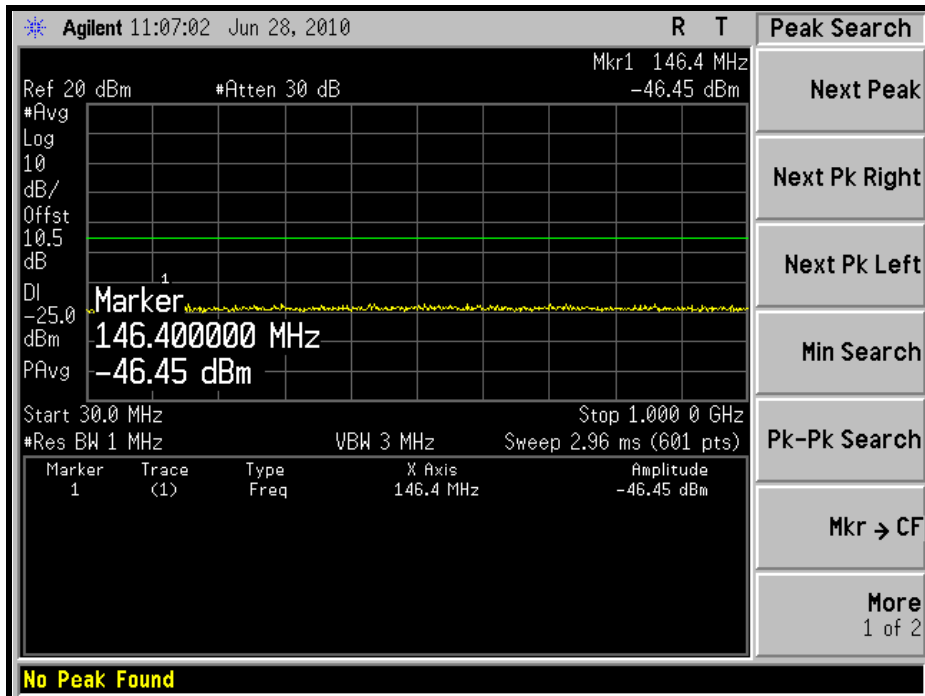
10GHz ~ 27GHz:



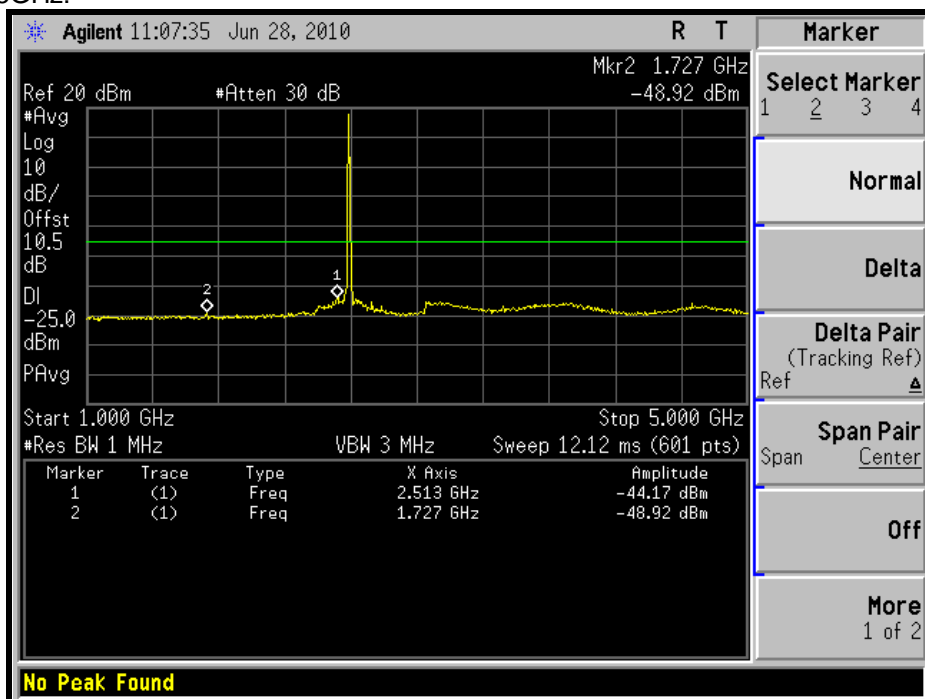


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### MIDDLE CHANNEL: 30MHz ~ 1GHz:



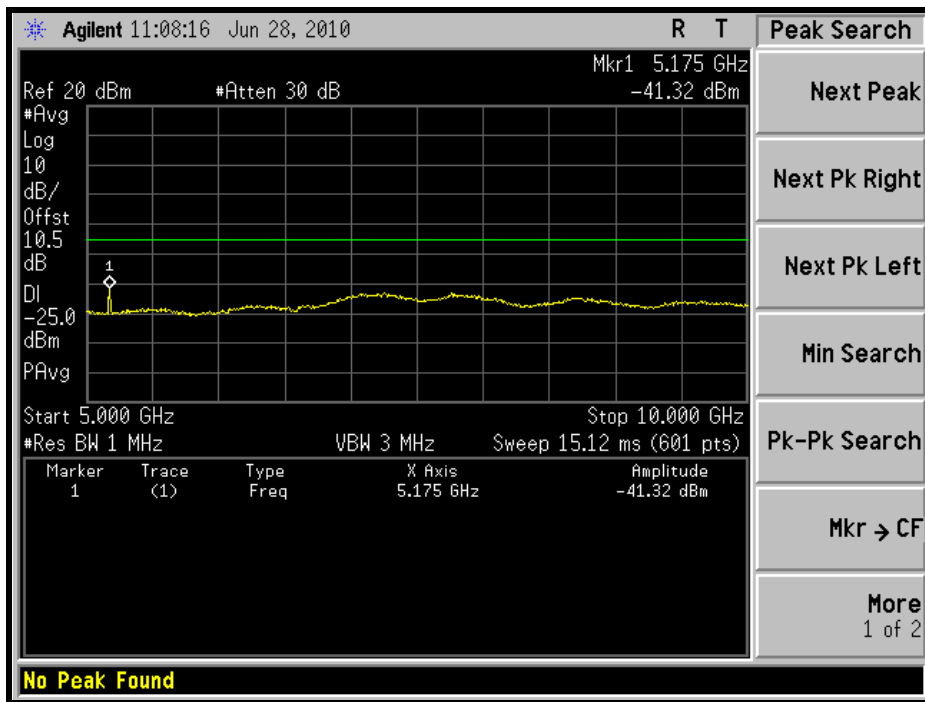
### 1GHz ~ 5GHz:



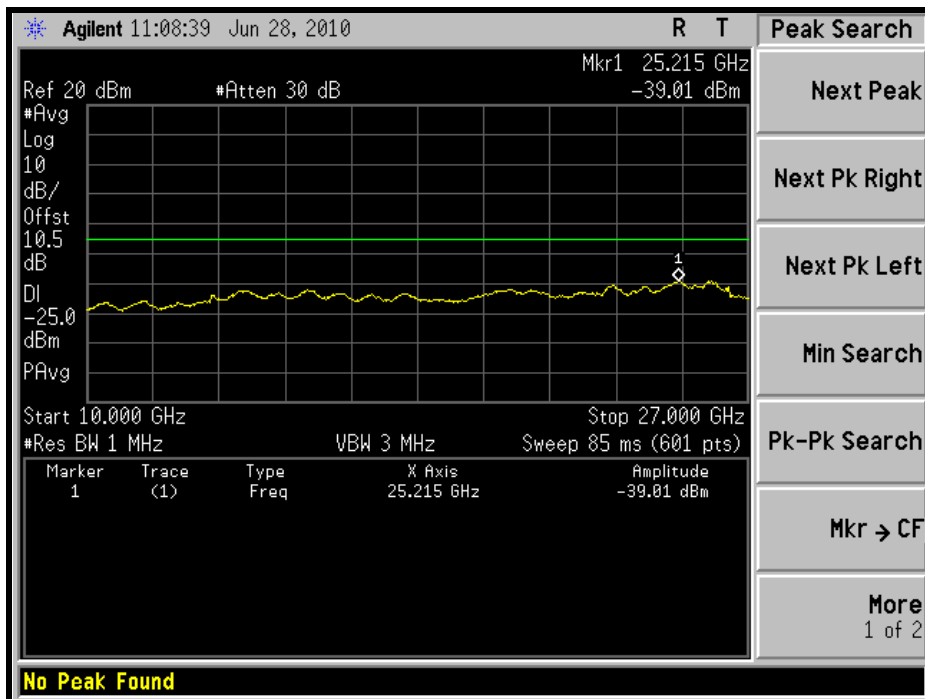


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5GHz ~ 10GHz:



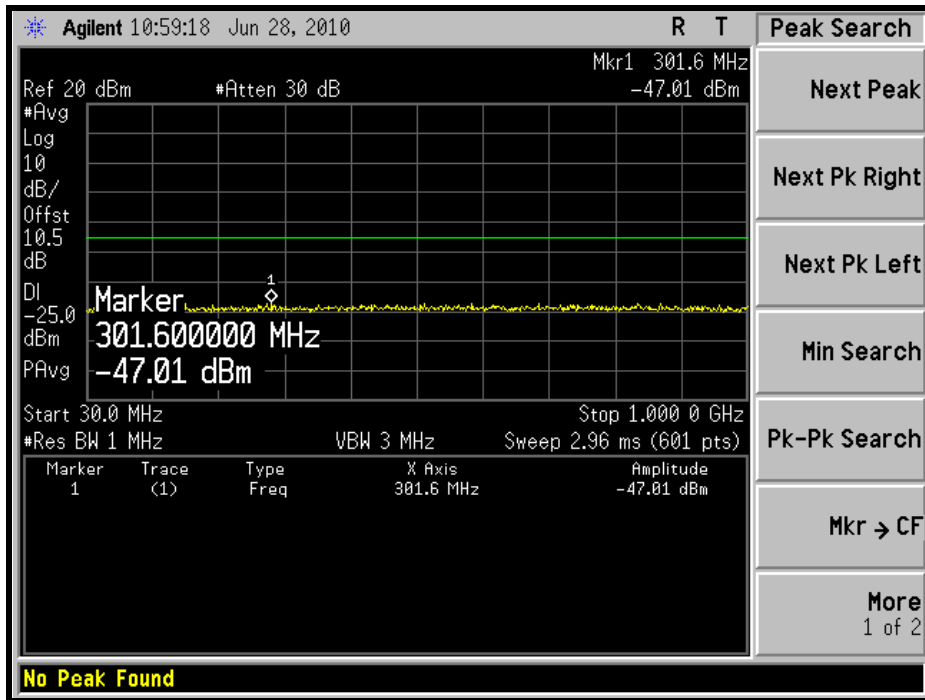
10GHz ~ 27GHz:



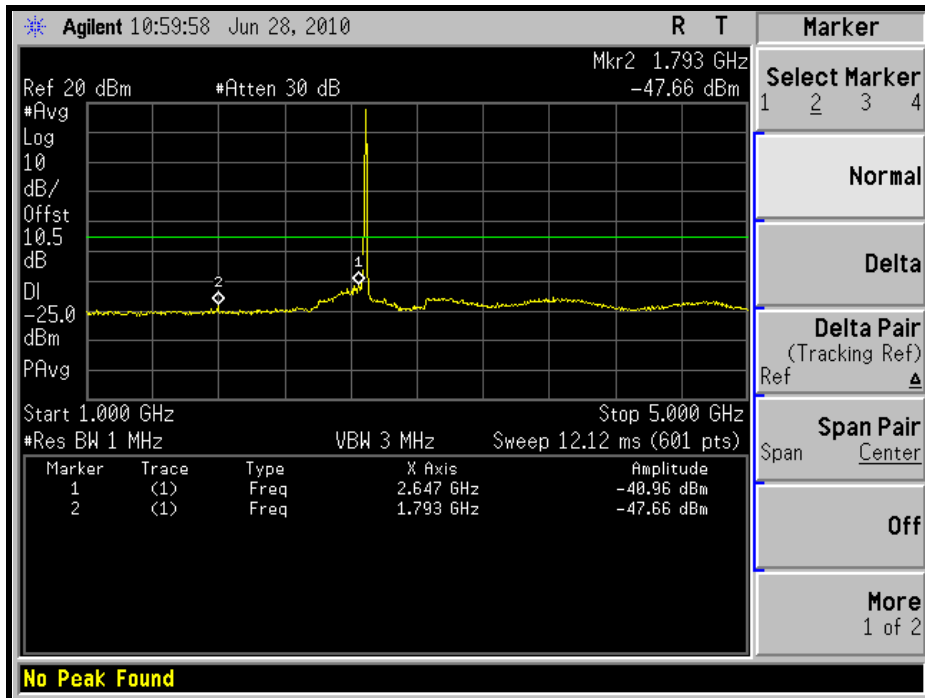


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### HIGH CHANNEL: 30MHz ~ 1GHz:



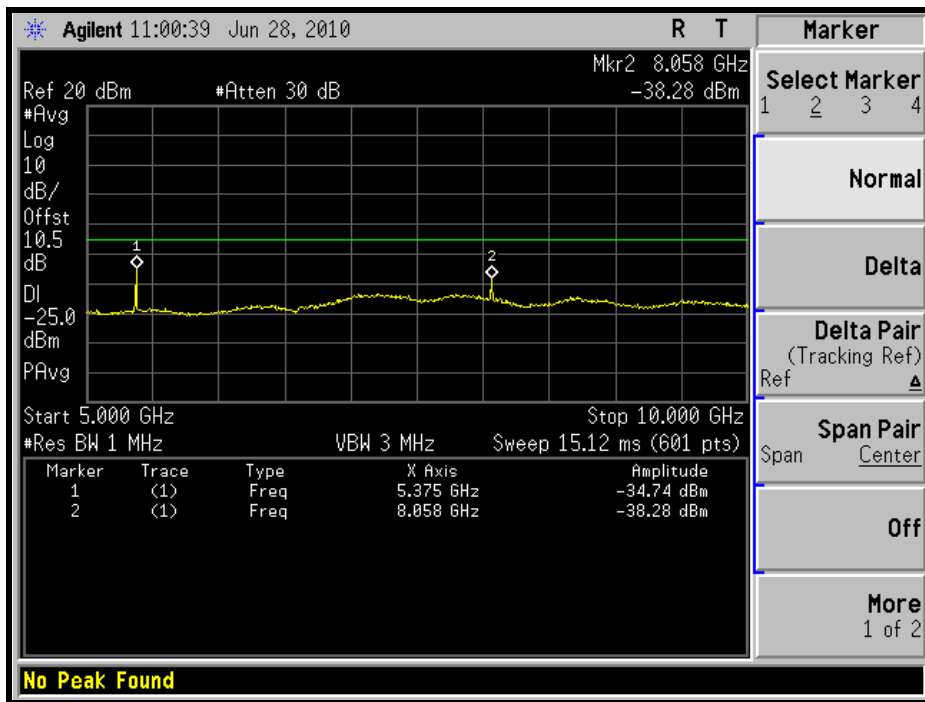
### 1GHz ~ 5GHz:



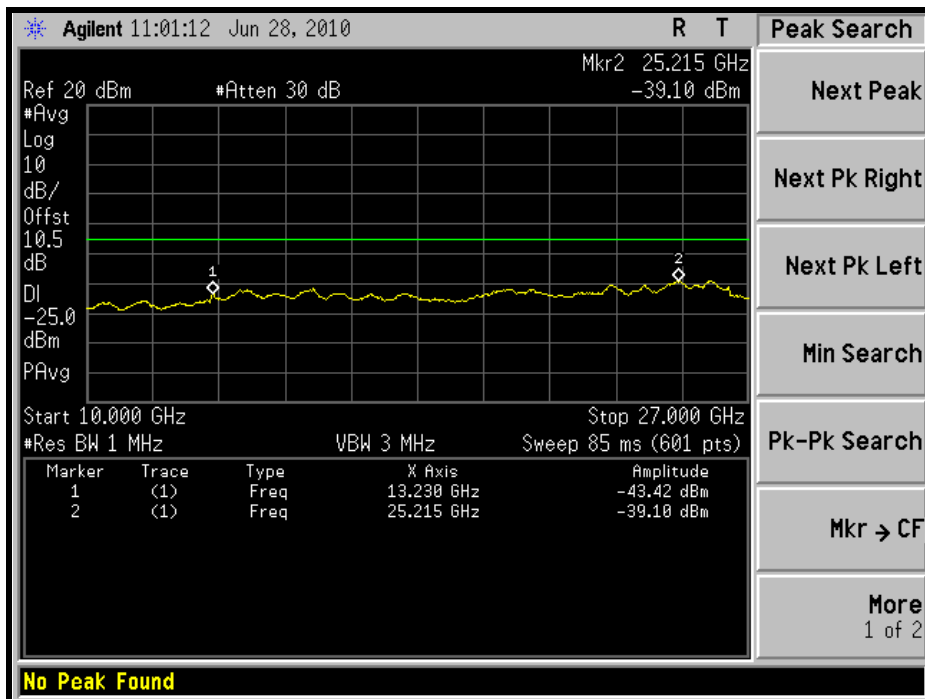


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5GHz ~ 10GHz:



10GHz ~ 27GHz:

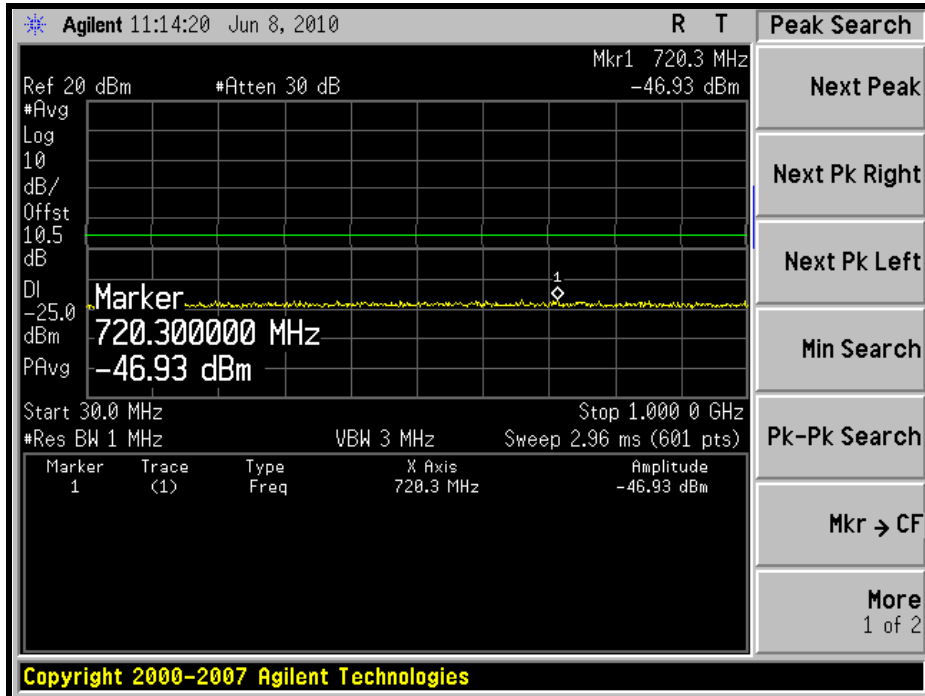




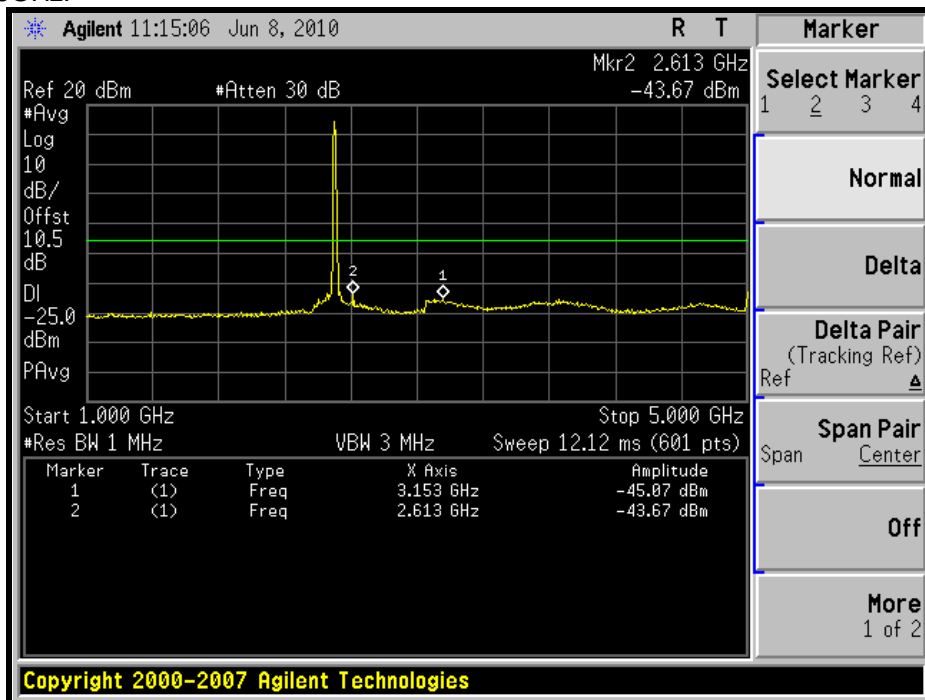
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### CHANNEL BANDWIDTH: 10MHz

LOW CHANNEL: 30MHz ~ 1GHz:



1GHz ~ 5GHz:

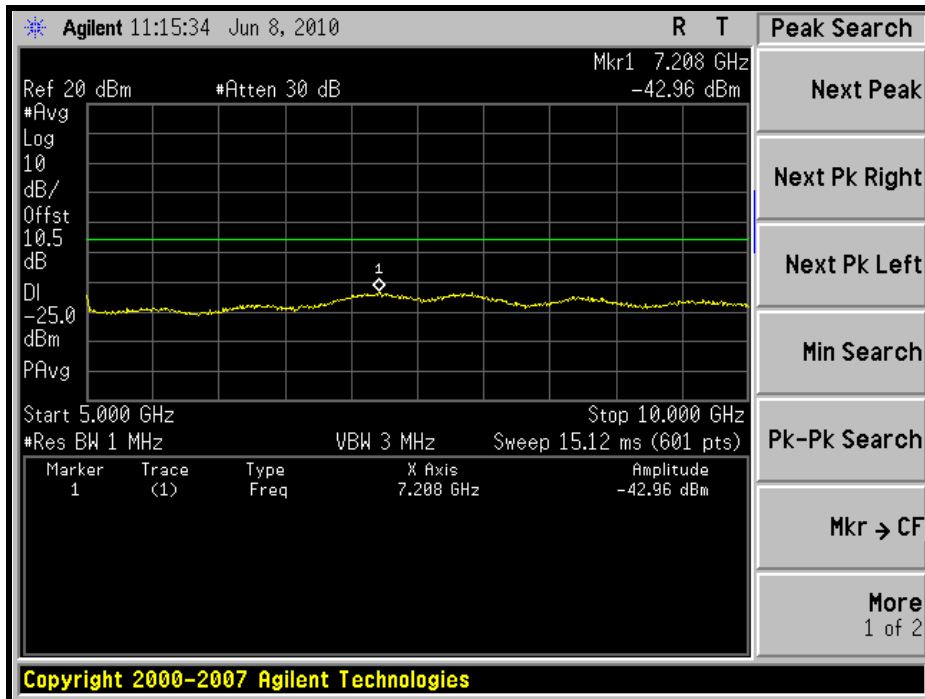




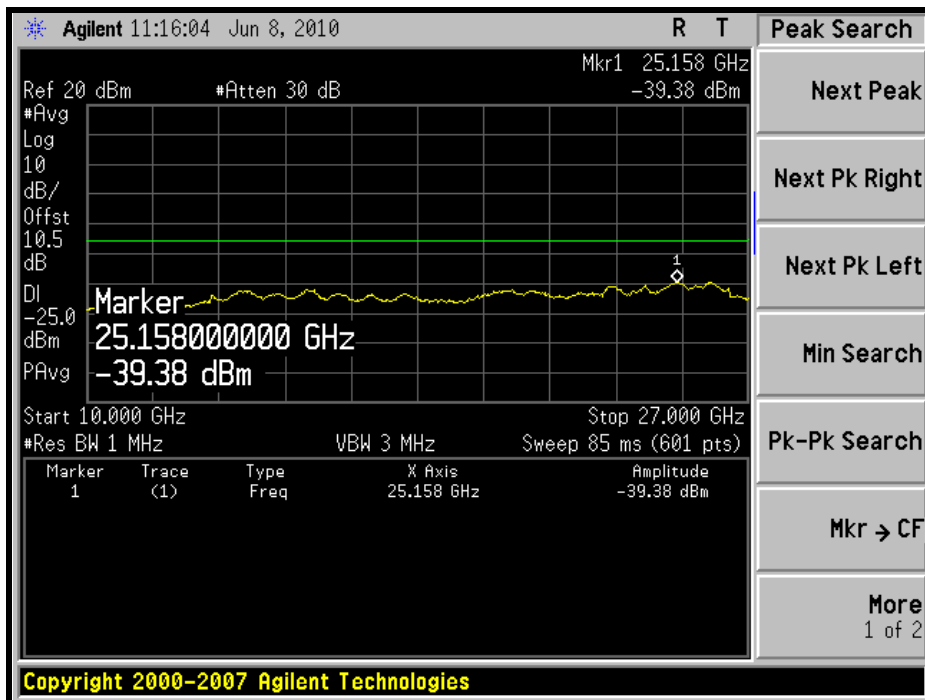


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5GHz ~ 10GHz:



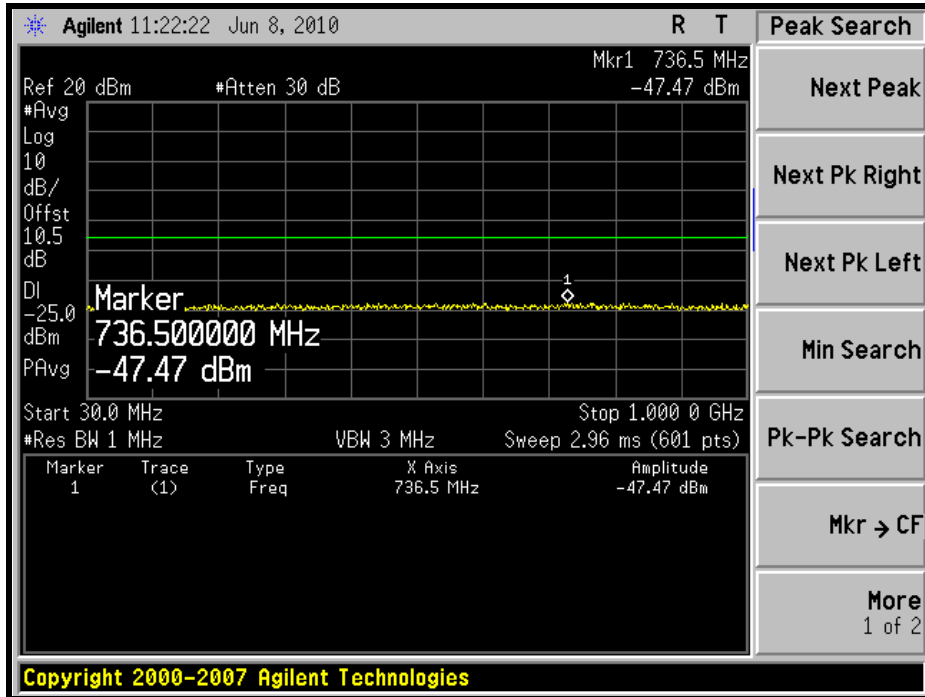
10GHz ~ 27GHz:



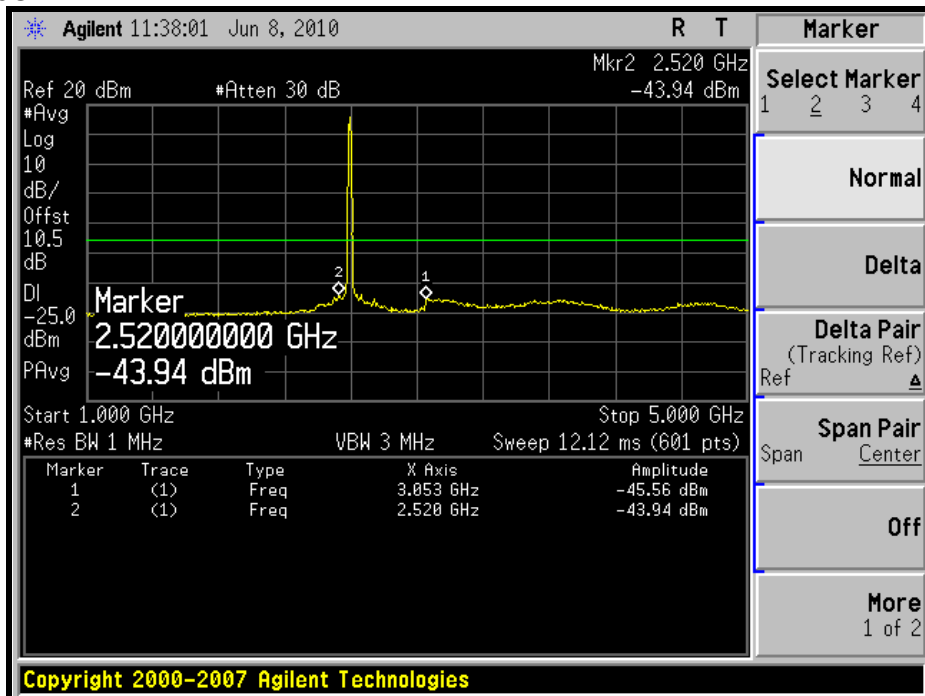


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MIDDLE CHANNEL: 30MHz ~ 1GHz:



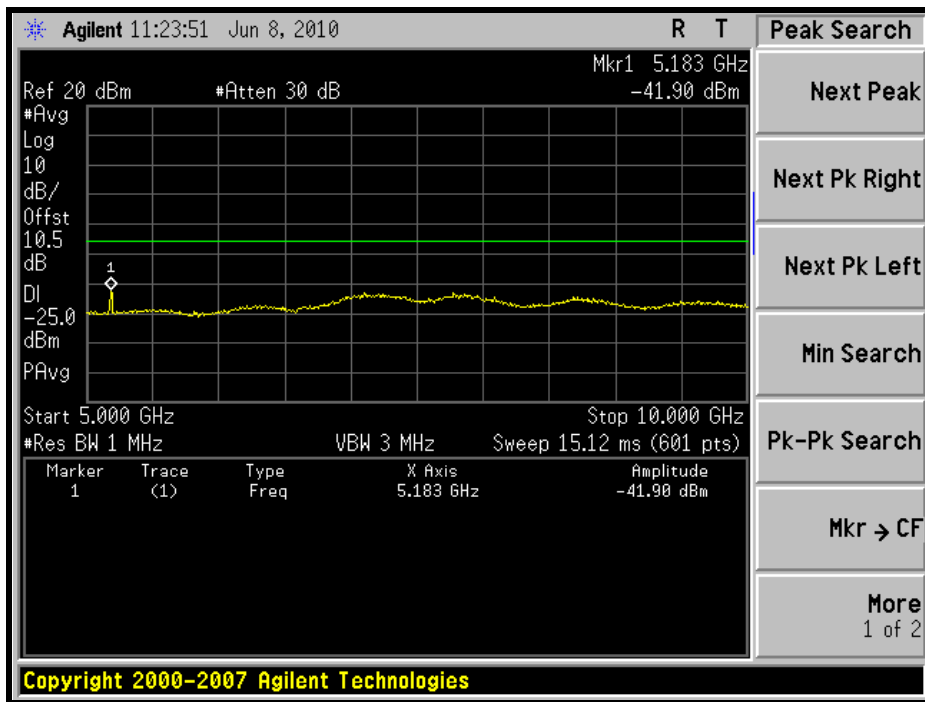
1GHz ~ 5GHz:



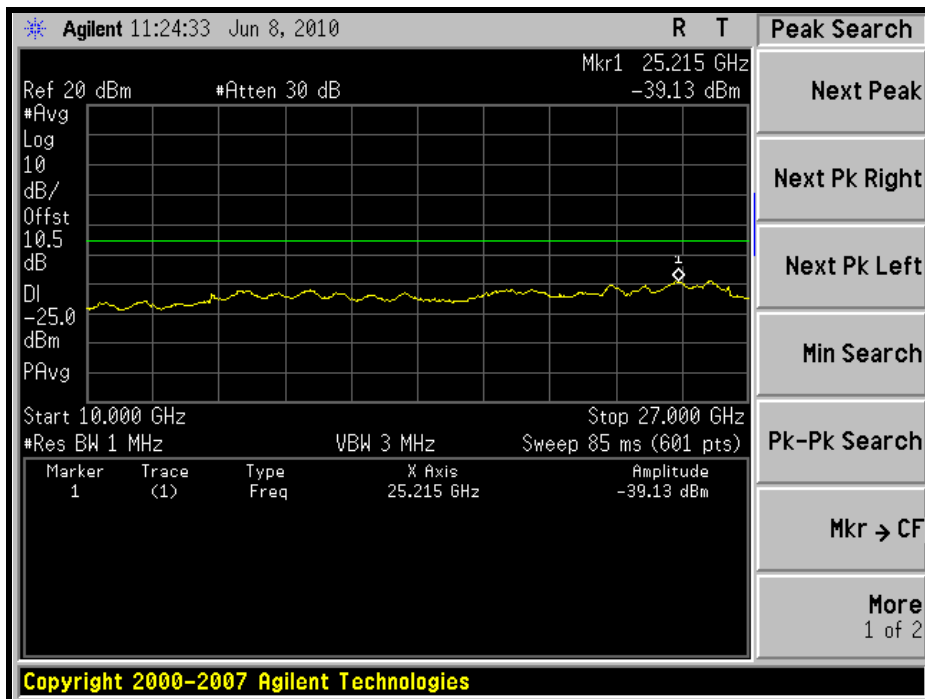


A D T

5GHz ~ 10GHz:



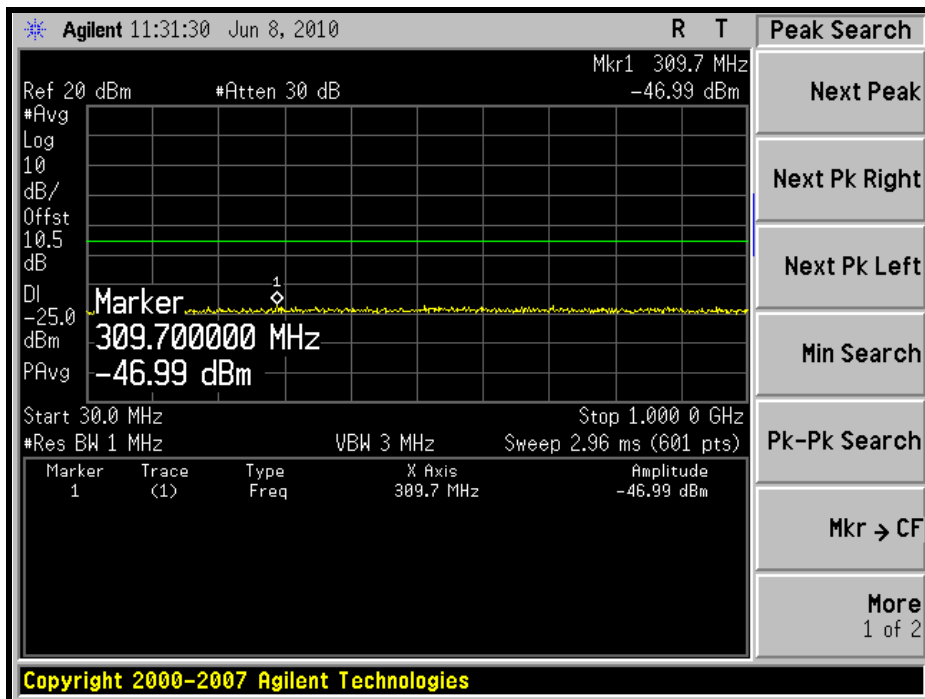
10GHz ~ 27GHz:



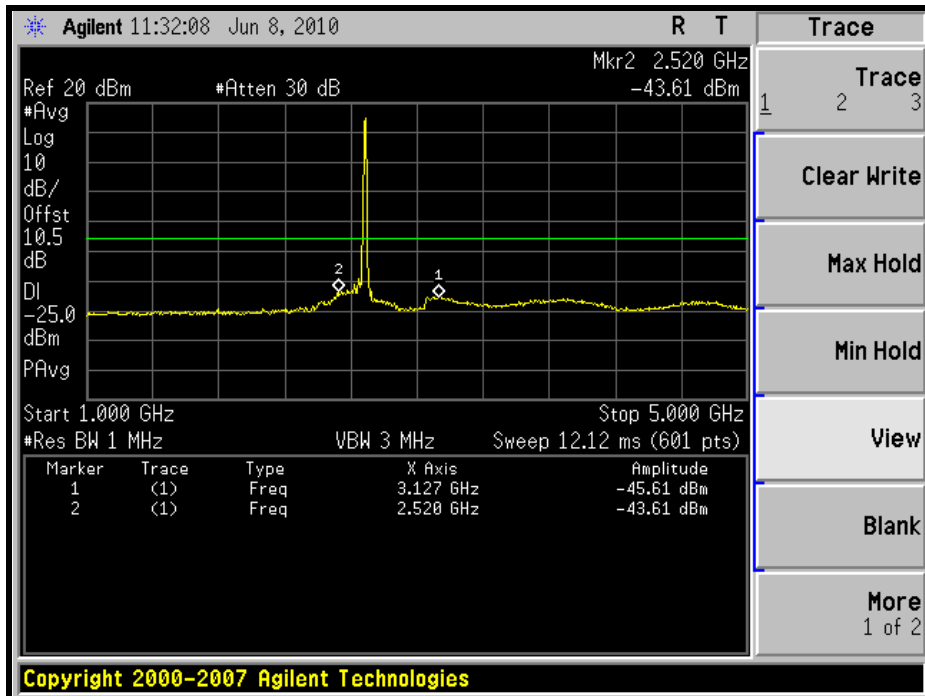


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**HIGH CHANNEL: 30MHz ~ 1GHz:**



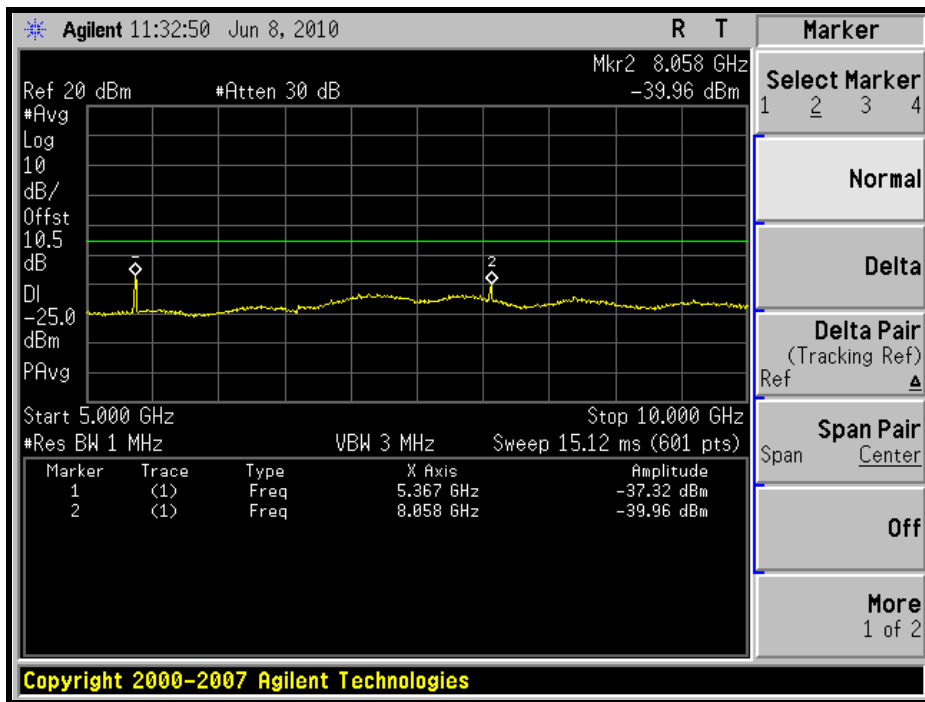
**1GHz ~ 5GHz:**



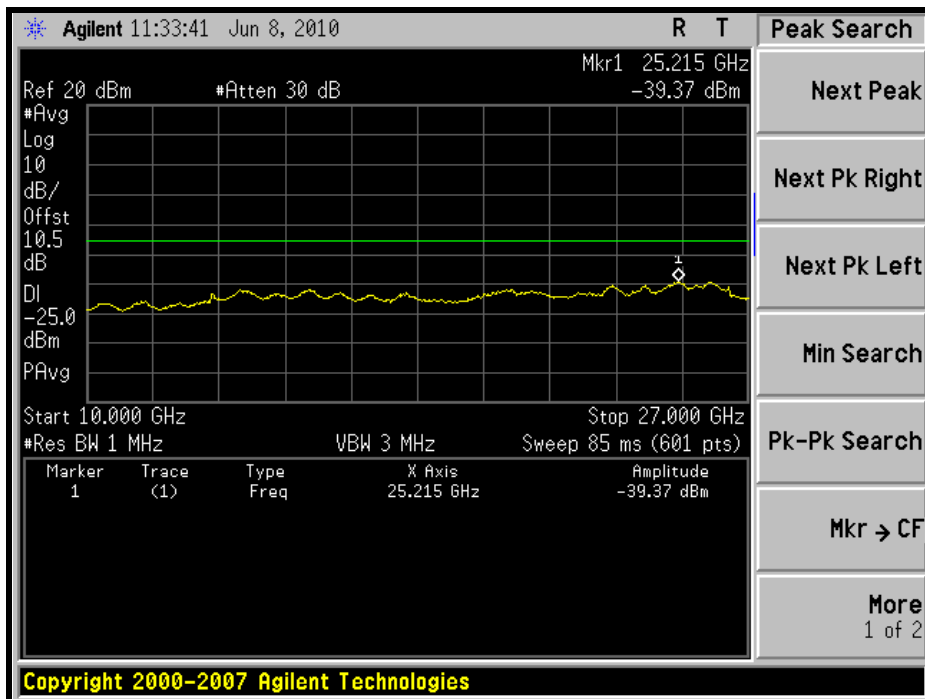


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5GHz ~ 10GHz:



10GHz ~ 27GHz:



## 4.6 RADIATED EMISSION MEASUREMENT (BELOW 1GHz)

### 4.6.1 LIMITS OF RADIATED EMISSION MEASUREMENT

In the FCC 27.53(m) (4), On any frequency outside a licensee's frequency block the power of any emission shall be attenuated below the transmitter power (P) by at least  $43 + 10 \log (P)$  dB and  $55 + 10 \log (P)$  dB at 5.5 MHz from the channel edges.

### 4.6.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Spectrum Analyzer	FSP40	100036	Dec. 18, 2009	Dec. 17, 2010
Agilent PSA Spectrum Analyzer	E4446A	MY46180622	May 12, 2010	May 11, 2011
HP Pre_Amplifier	8449B	300801923	Nov. 02, 2009	Nov. 01, 2010
ROHDE & SCHWARZ Test Receiver	ESCS30	847124/029	Aug. 28, 2009	Aug. 27, 2010
SCHWARZBECK TRILOG Broadband Antenna	VULB 9168	138	Apr. 28, 2010	Apr. 27, 2011
Schwarzbeck Horn_Antenna	BBHA9120	D124	Dec. 18, 2009	Dec. 17, 2010
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 22, 2010	Jan. 21, 2011
R&S Loop Antenna	HFH2-Z2	100070	Feb. 03, 2010	Feb. 02, 2012
RF Switches	EMH-011	1001	NA	NA
RF CABLE (Chaintek)	Sucoflex 106	28077	Aug. 14, 2009	Aug. 13, 2010
RF Cable	8DFB	STCCAB-30M-1GHz	NA	NA
Software	ADT_Radiated_V7.6.15.9.2	NA	NA	NA
CT Antenna Tower & Turn Table	NA	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 horn antenna, preamplifier (model: 8449B) and Spectrum Analyzer (model: FSP40) are used only for the measurement of emission frequency above 1GHz if tested.

3. The test was performed in Open Site No. C.

4. The FCC Site Registration No. is 656396.

5. The VCCI Site Registration No. is R-1626.

6. The CANADA Site Registration No. is IC 7450G-3

#### 4.6.3 TEST PROCEDURES

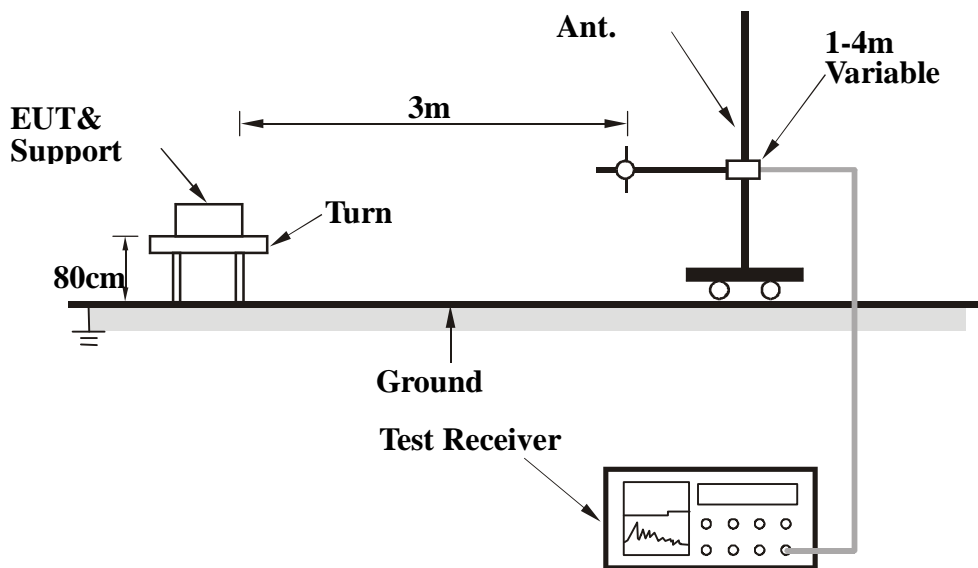
- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the receiving antenna, which was mounted on antenna tower and its position at 0.8 m above the ground.
- c. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading and recorded the value.
- d. The EUT is replaced by a horn antenna connected to a signal generator tuned to the frequency of emission.
- e. The signal generator level has to be adjusted to have the same emission nature.
- f. The radiated power can be calculated via the factor and antenna gain.
- g. Repeat step a ~ f for horizontal polarization.

**NOTE:** The resolution bandwidth of spectrum analyzer is 1MHz and the video bandwidth is 3MHz.

#### 4.6.4 DEVIATION FROM TEST STANDARD

No deviation

#### 4.6.5 TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

#### 4.6.6 EUT OPERATING CONDITIONS

Same as item 4.1.5





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#### 4.6.7 TEST RESULTS

##### CHANNEL BANDWIDTH: 5MHz

<b>MODE</b>	Middle channel	<b>FREQUENCY RANGE</b>	Below 1000MHz
<b>INPUT POWER</b>	120Vac, 60Hz	<b>ENVIRONMENTAL CONDITIONS</b>	20deg°C, 60%RH 1011hPa
<b>TESTED BY</b>	Timmy Hu		

<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>						
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	50.5	29.3	-25	-49.38	-9.90	-59.28
2	76.61	29.9	-25	-62.18	-2.76	-64.94
3	144.03	36.4	-25	-56.38	-1.19	-57.57
4	184.31	28.6	-25	-65.56	2.65	-62.91
5	216.3	30.9	-25	-64.54	4.13	-60.41
6	479.25	33.2	-25	-63.46	2.86	-60.60

<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>						
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	52.27	27.5	-25	-51.82	-9.46	-61.29
2	73.22	28.3	-25	-61.75	-3.74	-65.49
3	114.95	30.4	-25	-59.47	-1.04	-60.51
4	145.43	29.2	-25	-63.18	-1.14	-64.33
5	233.31	33.5	-25	-61.88	3.90	-57.97
6	479.25	32.1	-25	-64.56	2.86	-61.70

**REMARKS:** 1. Power Value(dBm)=S.G Power Value (dBm) + Correction Factor(dB)



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**CHANNEL BANDWIDTH: 10MHz**

<b>MODE</b>	Low channel	<b>FREQUENCY RANGE</b>	Below 1000MHz
<b>INPUT POWER</b>	120Vac, 60Hz	<b>ENVIRONMENTAL CONDITIONS</b>	20deg°C, 60%RH 1011hPa
<b>TESTED BY</b>	Timmy Hu		

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

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	50.5	28.79	-25	-49.89	-9.90	-59.79
2	76.61	29.23	-25	-62.85	-2.76	-65.61
3	144.03	35.39	-25	-57.39	-1.19	-58.58
4	184.31	28.59	-25	-65.57	2.65	-62.92
5	216.3	30.73	-25	-64.71	4.13	-60.58
6	479.25	33.04	-25	-63.62	2.86	-60.76

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

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	52.27	28.04	-25	-51.28	-9.46	-60.75
2	73.22	27.16	-25	-62.89	-3.74	-66.63
3	114.95	30.37	-25	-59.50	-1.04	-60.54
4	145.43	28.12	-25	-64.26	-1.14	-65.41
5	233.31	32.92	-25	-62.46	3.90	-58.55
6	479.25	31.15	-25	-65.51	2.86	-62.65

**REMARKS:** 1. Power Value(dBm)=S.G Power Value (dBm) + Correction Factor(dB)



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## 4.7 RADIATED EMISSION MEASUREMENT (ABOVE 1GHz)

### 4.7.1 LIMITS OF RADIATED EMISSION MEASUREMENT

In the FCC 27.53(m) (4), On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least  $43 + 10 \log (P)$ dB.

### 4.7.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Spectrum Analyzer	FSP40	100036	Dec. 18, 2009	Dec. 17, 2010
Agilent PSA Spectrum Analyzer	E4446A	MY46180622	May 12, 2010	May 11, 2011
HP Pre_Amplifier	8449B	300801923	Nov. 02, 2009	Nov. 01, 2010
ROHDE & SCHWARZ Test Receiver	ESCS30	847124/029	Aug. 28, 2009	Aug. 27, 2010
SCHWARZBECK TRILOG Broadband Antenna	VULB 9168	138	Apr. 28, 2010	Apr. 27, 2011
Schwarzbeck Horn_Antenna	BBHA9120	D124	Dec. 18, 2009	Dec. 17, 2010
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 22, 2010	Jan. 21, 2011
R&S Loop Antenna	HFH2-Z2	100070	Feb. 03, 2010	Feb. 02, 2012
RF Switches	EMH-011	1001	NA	NA
RF CABLE (Chaintek)	Sucoflex 106	28077	Aug. 14, 2009	Aug. 13, 2010
RF Cable	8DFB	STCCAB-30M-1GHz	NA	NA
Software	ADT_Radiated_V7.6.15.9.2	NA	NA	NA
CT Antenna Tower & Turn Table	NA	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 horn antenna, preamplifier (model: 8449B) and Spectrum Analyzer (model: FSP40) are used only for the measurement of emission frequency above 1GHz if tested.

3. The test was performed in Open Site No. C.

4. The FCC Site Registration No. is 656396.

5. The VCCI Site Registration No. is R-1626.

6. The CANADA Site Registration No. is IC 7450G-3

#### 4.7.3 TEST PROCEDURES

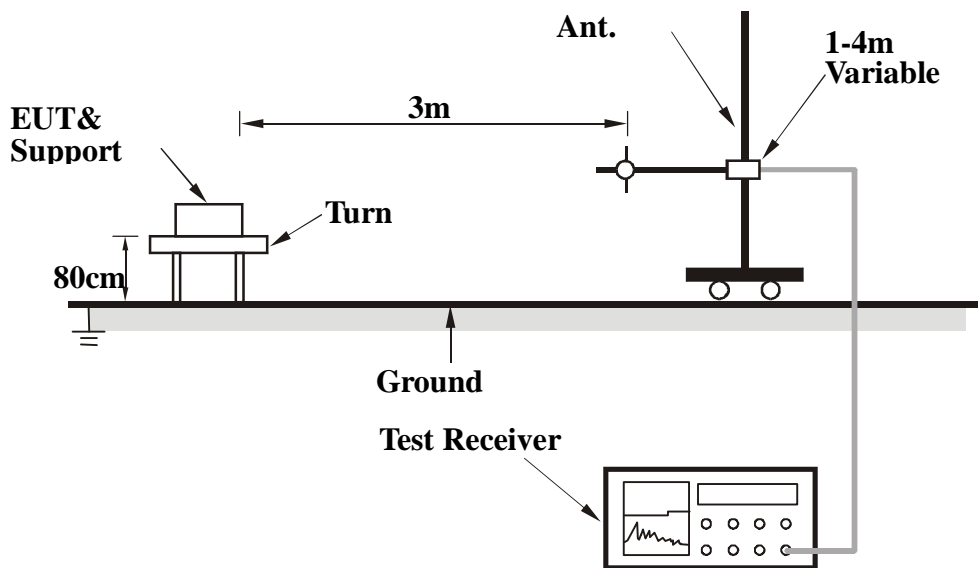
- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the receiving antenna, which was mounted on antenna tower and its position at 0.8 m above the ground.
- c. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading and recorded the value.
- d. The EUT is replaced by a horn antenna connected to a signal generator tuned to the frequency of emission.
- e. The signal generator level has to be adjusted to have the same emission nature.
- f. The radiated power can be calculated via the factor and antenna gain.
- g. Repeat step a ~ f for horizontal polarization.

**NOTE:** The resolution bandwidth of spectrum analyzer is 1MHz and the video bandwidth is 3MHz.

#### 4.7.4 DEVIATION FROM TEST STANDARD

No deviation

#### 4.7.5 TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

#### 4.7.6 EUT OPERATING CONDITIONS

Same as item 4.1.5



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### 4.7.7 TEST RESULTS

#### CHANNEL BANDWIDTH: 5MHz

<b>MODE</b>	Low channel	<b>FREQUENCY RANGE</b>	Above 1000MHz
<b>INPUT POWER</b>	120Vac, 60Hz	<b>ENVIRONMENTAL CONDITIONS</b>	20deg°C, 60%RH 1014hPa
<b>TESTED BY</b>	Phoenix Huang		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	4997	50.1	-25	-54.13	7.01	-47.12
2	7495.5	65.8	-25	-36.82	4.55	-32.27

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	4997	46.8	-25	-57.43	7.01	-50.42
2	7495.5	66	-25	-36.62	4.55	-32.07

REMARKS: 1. Power Value(dBm)=S.G Power Value (dBm) + Correction Factor(dB)



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<b>MODE</b>	Middle channel	<b>FREQUENCY RANGE</b>	Above 1000MHz
<b>INPUT POWER</b>	120Vac, 60Hz	<b>ENVIRONMENTAL CONDITIONS</b>	20deg°C, 60%RH 1014hPa
<b>TESTED BY</b>	Phoenix Huang		

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

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	5174	61.9	-25	-42.59	7.05	-35.54
2	7761	56.6	-25	-46.02	4.32	-41.70

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

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	5174	54.4	-25	-50.09	7.05	-43.04
2	7761	55.9	-25	-46.72	4.32	-42.40

**REMARKS:** 1. Power Value(dBm)=S.G Power Value (dBm) + Correction Factor(dB)



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<b>MODE</b>	High channel	<b>FREQUENCY RANGE</b>	Above 1000MHz
<b>INPUT POWER</b>	120Vac, 60Hz	<b>ENVIRONMENTAL CONDITIONS</b>	20deg°C, 60%RH 1014hPa
<b>TESTED BY</b>	Phoenix Huang		

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

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	5375	67.8	-25	-37.39	7.21	-30.18
2	8062.5	62.4	-25	-40.22	4.13	-36.09

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

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	5375	62.3	-25	-42.89	7.21	-35.68
2	8062.5	61.5	-25	-41.12	4.13	-36.99

**REMARKS:** 1. Power Value(dBm)=S.G Power Value (dBm) + Correction Factor(dB)





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**CHANNEL BANDWIDTH: 10MHz**

<b>MODE</b>	Low channel	<b>FREQUENCY RANGE</b>	Above 1000MHz
<b>INPUT POWER</b>	120Vac, 60Hz	<b>ENVIRONMENTAL CONDITIONS</b>	20deg°C, 60%RH 1014hPa
<b>TESTED BY</b>	Phoenix Huang		

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

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	5502	44.9	-25	-59.33	7.01	-52.32
2	7503	53.4	-25	-49.22	4.54	-44.68

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

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	5502	45	-25	-59.23	7.01	-52.22
2	7503	52.8	-25	-49.82	4.54	-45.28

**REMARKS:** 1. Power Value(dBm)=S.G Power Value (dBm) + Correction Factor(dB)



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<b>MODE</b>	Middle channel	<b>FREQUENCY RANGE</b>	Above 1000MHz
<b>INPUT POWER</b>	120Vac, 60Hz	<b>ENVIRONMENTAL CONDITIONS</b>	20deg°C, 60%RH 1014hPa
<b>TESTED BY</b>	Phoenix Huang		

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

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	5186	49.8	-25	-54.71	7.05	-47.66
2	7779	53.1	-25	-49.52	4.31	-45.21

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

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	5186	47.9	-25	-56.61	7.05	-49.56
2	7779	52.2	-25	-50.42	4.31	-46.11

**REMARKS:** 1. Power Value(dBm)=S.G Power Value (dBm) + Correction Factor(dB)



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<b>MODE</b>	High channel	<b>FREQUENCY RANGE</b>	Above 1000MHz
<b>INPUT POWER</b>	120Vac, 60Hz	<b>ENVIRONMENTAL CONDITIONS</b>	20deg°C, 60%RH 1014hPa
<b>TESTED BY</b>	Phoenix Huang		

<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>						
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	5370	53.7	-25	-51.09	7.09	-43.99
2	8055	54.1	-25	-48.52	4.13	-44.39

<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>						
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	5370	52.3	-25	-52.49	7.09	-45.39
2	8055	55.1	-25	-47.52	4.13	-43.39

**REMARKS:** 1. Power Value(dBm)=S.G Power Value (dBm) + Correction Factor(dB)



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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: 886-2-26052943

**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

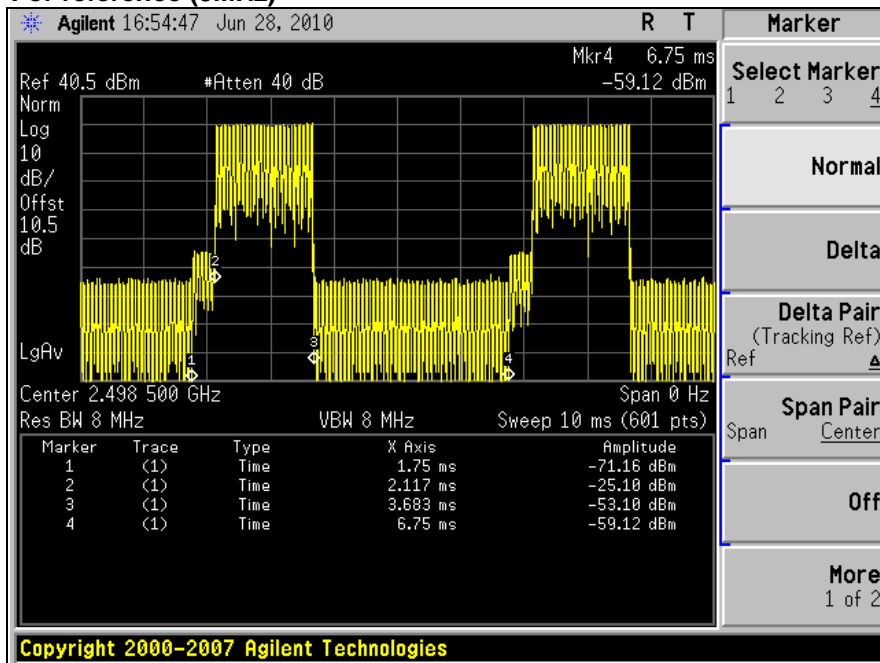
**Email:** [service@adt.com.tw](mailto:service@adt.com.tw)

**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.

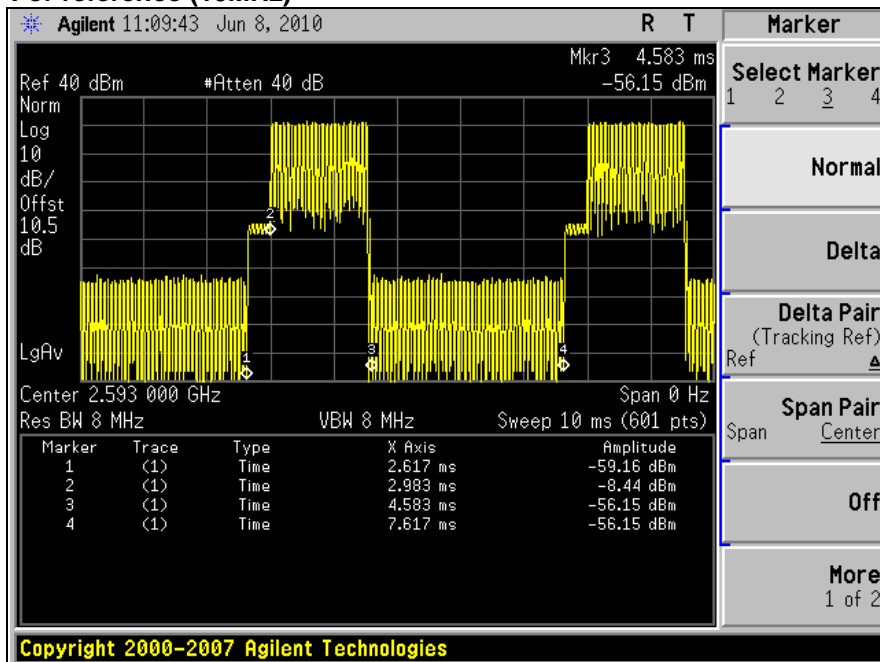
## 7 APPENDIX - A DL/UL RATION FOR TEST

### For reference (5MHz)



$$\text{Ratio} = (1.6 / 5) \% = 32\%$$

### For reference (10MHz)



$$\text{Ratio} = (1.6 / 5) \% = 32\%$$

--- END ---