



# FCC TEST REPORT (PART 27)

**REPORT NO.:** RF970702H03

**MODEL NO.:** OD200-2.5-ODU

**RECEIVED:** July 02, 2008

**TESTED:** July 09 to Aug. 05, 2008

**ISSUED:** Aug. 06, 2008

**APPLICANT:** Accton Wireless Broadband Corp.

**ADDRESS:** 3F, No. 1 Creation Rd. III, Science-based Industrial  
Park Hsinchu 30077, Taiwan, R.O.C.

**ISSUED BY :** Advance Data Technology Corporation

**LAB LOCATION :** No. 81-1, Lu Liao Keng, 9th Ling, Wu Lung Tsuen,  
Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan,  
R.O.C.

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# 1 CERTIFICATION

**PRODUCT:** WiMAX 802.16e Wave 2 Outdoor CPE Outdoor unit  
**BRAND NAME:** AWB  
**MODEL NO.:** OD200-2.5-ODU  
**APPLICANT:** Accton Wireless Broadband Corp.  
**TESTED:** July 09 to Aug. 05, 2008  
**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.: OD200-2.5-ODU) has been tested by **Advance Data Technology Corporation**, 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** : Carol Liao , **DATE:** Aug 06, 2008  
( Carol Liao, Specialist )

**TECHNICAL ACCEPTANCE** : Hank Chung , **DATE:** Aug 06, 2008  
Responsible for RF ( Hank Chung, Deputy Manager )

**APPROVED BY** : May Chen , **DATE:** Aug 06, 2008  
(May Chen, Deputy Manager )

## 2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 27 & Part 2			
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	REMARK
2.1046 27.50(h)(2)	Maximum Peak Output Power Limit: max. 2 watts conducted peak 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.

## 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:

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)	2.33 dB
Radiated emissions (18GHz -40GHz)	2.55 dB

### 3 GENERAL INFORMATION

#### 3.1 GENERAL DESCRIPTION OF EUT

<b>PRODUCT</b>	WiMAX 802.16e Wave 2 Outdoor CPE Outdoor unit
<b>MODEL NO.</b>	OD200-2.5-ODU
<b>FCC ID</b>	V8YFW181OD25000W
<b>POWER SUPPLY</b>	DC 55V, 350 mA from POE (Remark: OD200-IDU)
<b>MODULATION TECHNOLOGY</b>	OFDMA
<b>MODULATION</b>	QPSK-1/2&-3/4, 16QAM-1/2&3/4, 64QAM-1/2&-2/3&-3/4&-5/6 (64QAM for Rx only)
<b>FREQUENCY RANGE</b>	2505MHz ~ 2685MHz
<b>CHANNEL BANDWIDTH</b>	5MHz&10MHz
<b>MAX. CONDUCTED POWER</b>	5MHz: 24.24dBm 10MHz 23.43dBm
<b>ANTENNA TYPE</b>	Please see note 3
<b>DATA CABLE</b>	NA
<b>I/O PORTS</b>	LAN Port x 1, USB Port x 1, Antenna Port x 1
<b>ASSOCIATED DEVICES</b>	NA

**NOTE:**

- The EUT (WiMAX product) was sold together with one Wi-Fi product. The detail information is as below:

<b>Wi-Fi product</b>	
Model Name	Description
OD200-IDU	4 LAN port +2 VOIP port + 1 WLAN
OD200-IDU-4D1W	4 LAN port + 1 WLAN
OD200-IDU-4D2V1W	4 LAN port +2 VOIP port + 1 WLAN
<b>WiMAX product</b>	
Model Name	Description
OD200-2.5-ODU	1 LAN Port + 1 USB Port + 1 Antenna Port

2. According to the note 1 description, this report was recorded the test data of WiMAX product. The test data for Wi-Fi product was recorded in another test report< RF970702H03 - 1>.

3. There are two same antennas provided to this EUT, please refer to the following table:

Antenna Type	Antenna Connector	Gain(dBi)
DUAL POLARIZATION ANTENNA	MMCX	12

4. The device has different DL/UL ration in normal operation. It was tested with continuous mode, which is the worse mode, and controlled by software.

5. The EUT must be supplied with a POE as following :

<b>Brand:</b>	AWB
<b>Model No.:</b>	OD200-IDU
<b>Input power :</b>	DC 10-19V, 2A
<b>Output power :</b>	DC 55V, 350 mA

6. The above EUT information was declared by manufacturer and for more detailed features description, 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&10MHz**

**Low channel (L):** 2505MHz.

**Middle channel (M):** 2600MHz.

**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 CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE
L, M, H	OFDMA	QPSK

#### **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 CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE
L, M, H	OFDMA	QPSK

**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	16QAM
MODE 2	L, M, H	OFDMA	QPSK

**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	16QAM
MODE 2	L, M, H	OFDMA	QPSK

**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	16QAM
MODE 2	L	OFDMA	QPSK

**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	16QAM
MODE 2	L, M, H	OFDMA	QPSK

**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.

### 3.4 DESCRIPTION OF SUPPORT UNITS

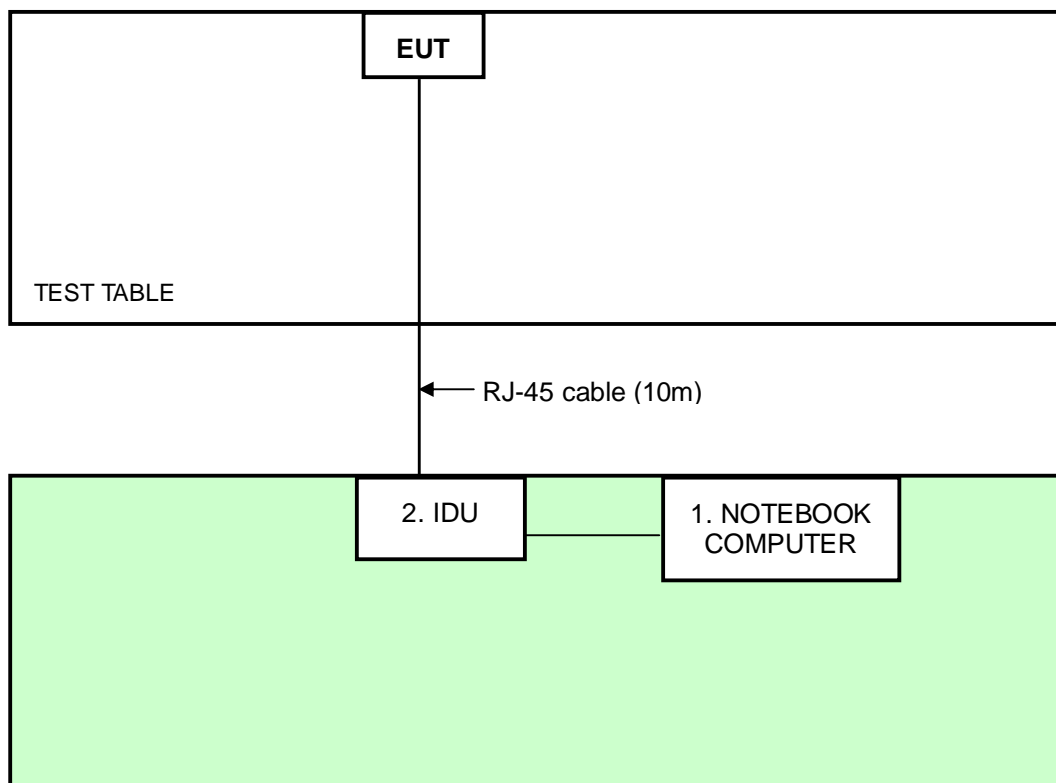
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK	DELL	PP18L	6976685584	FCC DoC
2	IDU	AWB	OD200-IDU	NA	NA

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA
2	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 "Other User stations are limited to 2 watts 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

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
Agilent Spectrum Analyzer	E4440A	MY46185282	Jun.14, 2009
HUBER+SUHNER	SUCOFLEX104	22076614	Nov. 13, 2008
JFW 10dB attenuation	50HF-010-SMA	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.

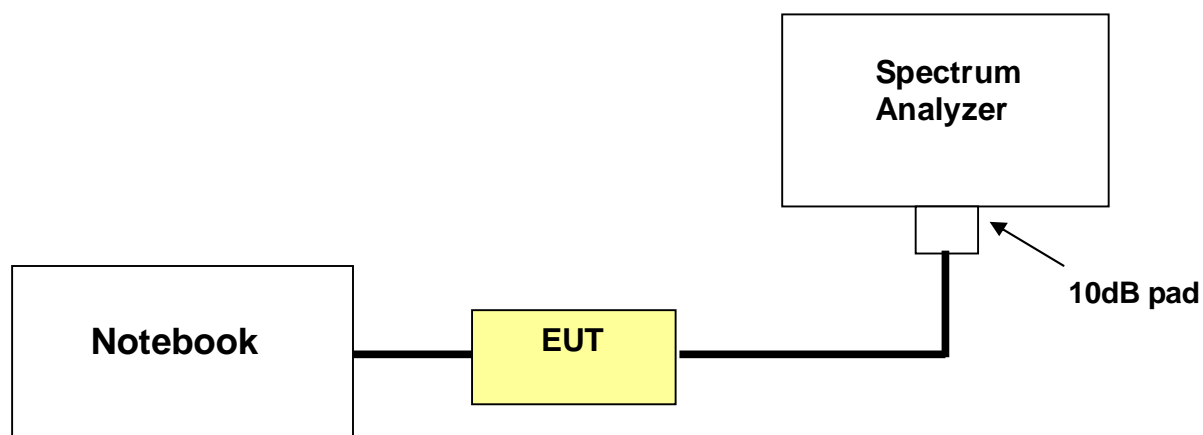


### 4.1.3 TEST PROCEDURES

For Conducted Power:

- a. Set span to encompass the entire emission bandwidth (EBW) of the signal.
- b. For Channel bandwidth: 5 MHz:  
Set RBW=51kHz, VBW=150kHz, Detector mode=RMS.
- c. For Channel bandwidth: 10 MHz:  
Set RBW=100kHz, VBW=300kHz, Detector mode=RMS.
- d. Computer power by integrating the spectrum across the 26dB EBW of the signal.
- e. Record the power level.
- f. The “Read Value” is the spectrum reading the maximum power value.

#### 4.1.4 TEST SETUP



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

#### 4.1.5 EUT OPERATING CONDITIONS

1. Placed the EUT on testing table.
2. Prepared other computer systems (support unit 1, 2) to act as communication partners and placed them outside of testing area.
3. The communication partners run test program “BCS200 Control Panel 2.3.2” to enable EUT under transmission mode and specific channel frequency via UTP cable.



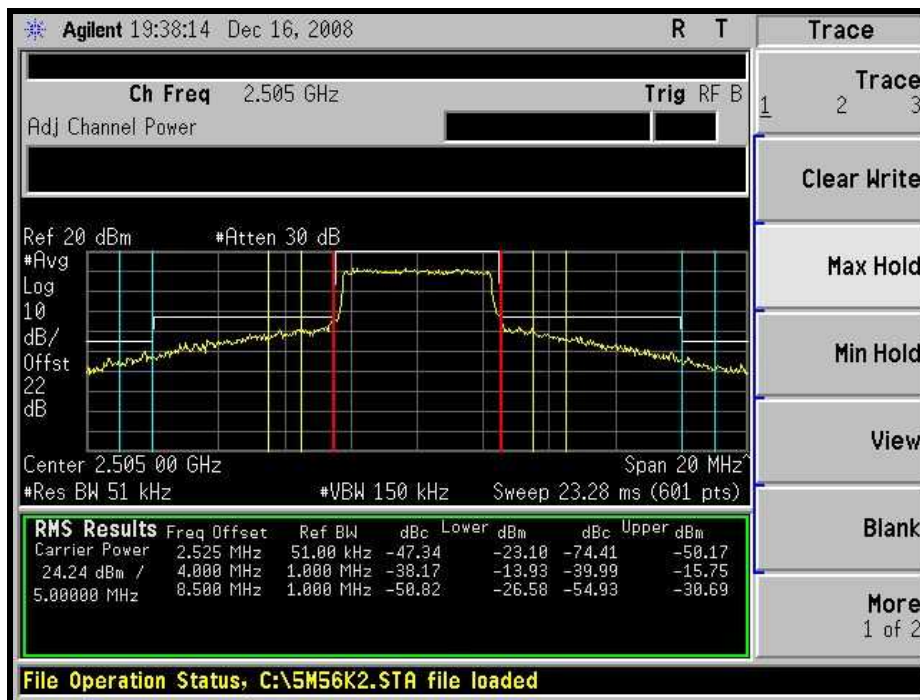
#### 4.1.6 TEST RESULTS

##### CHANNEL BANDWIDTH: 5MHz

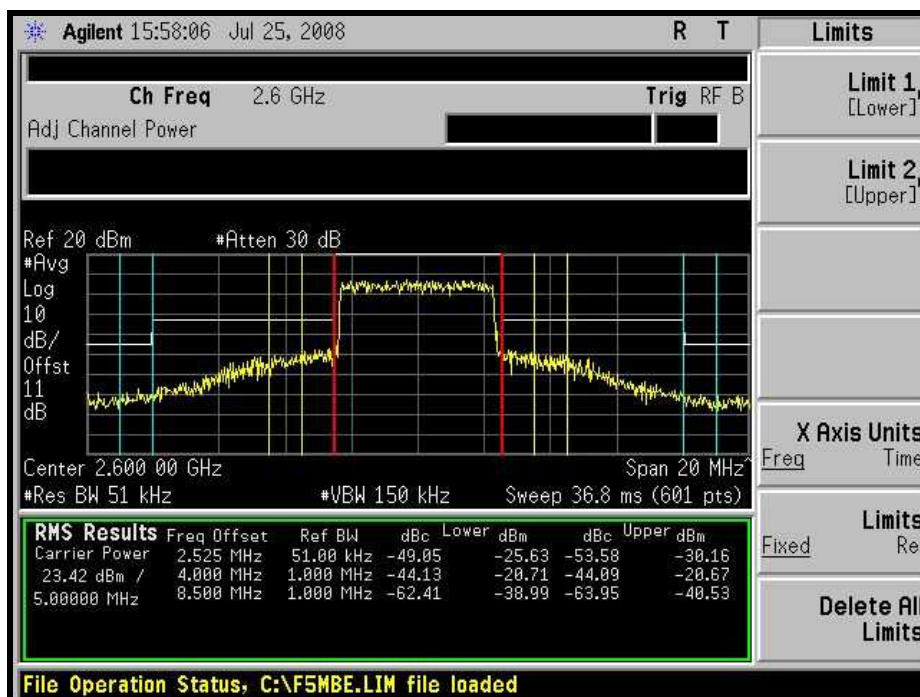
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60Hz	<b>DETECTOR FUNCTION</b>	RMS
<b>ENVIRONMENTAL CONDITIONS</b>	20deg°C, 60%RH 965hPa	<b>TESTED BY</b>	Wen Yu

CONDUCTED POWER			
CHANNEL	FREQUENCY (MHz)	PEAK POWER OUTPUT(mW)	PEAK POWER OUTPUT(dBm)
Low	2505	265.461	24.24
Middle	2600	219.786	23.42
High	2685	207.491	23.17

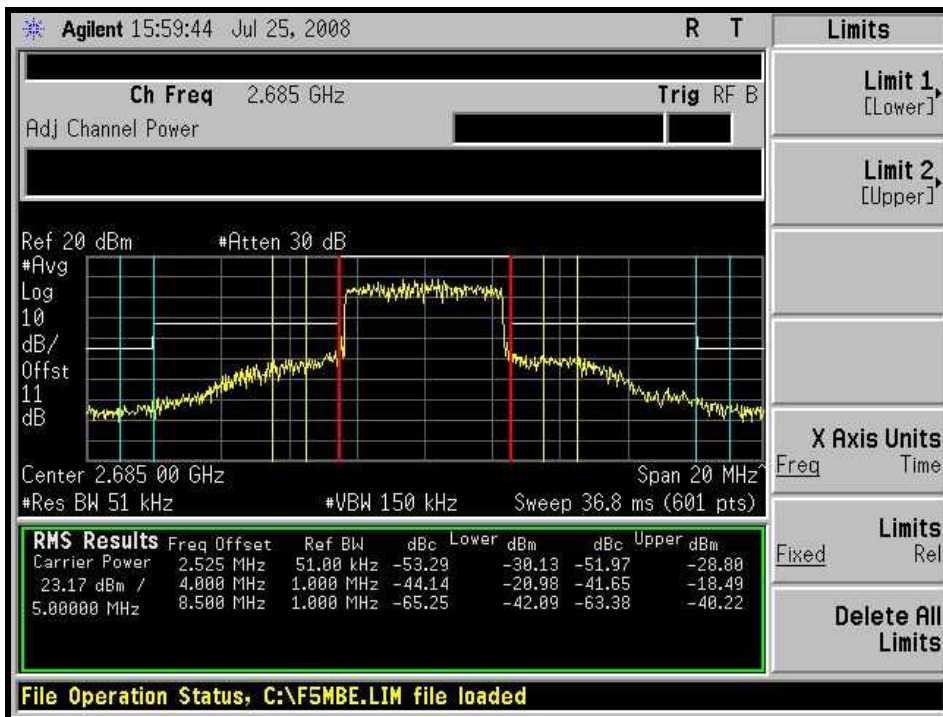
### LOW CHANNEL



### MIDDLE CHANNEL



### HIGH CHANNEL



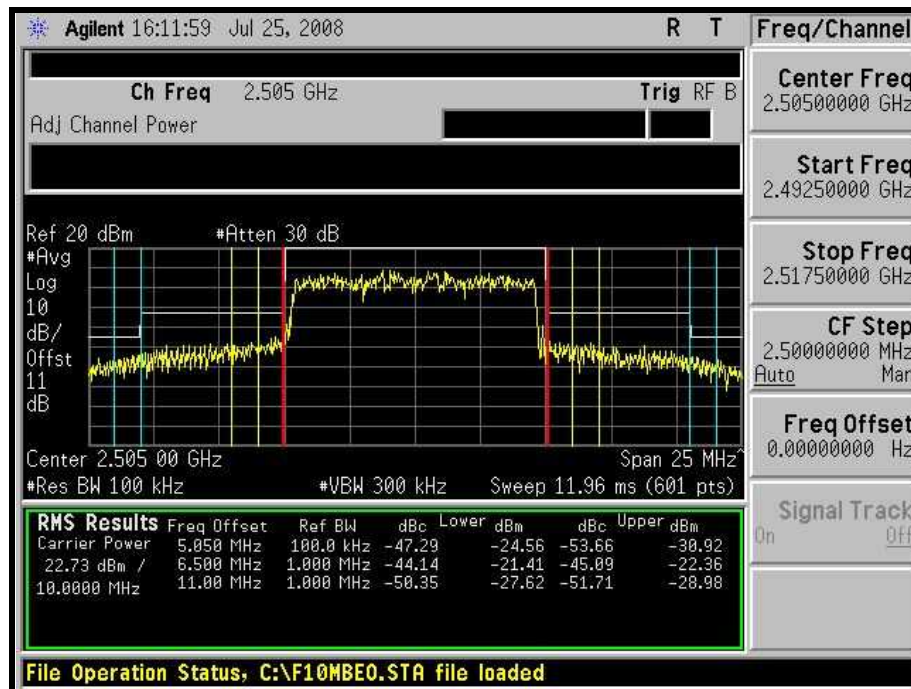


**CHANNEL BANDWIDTH: 10MHz**

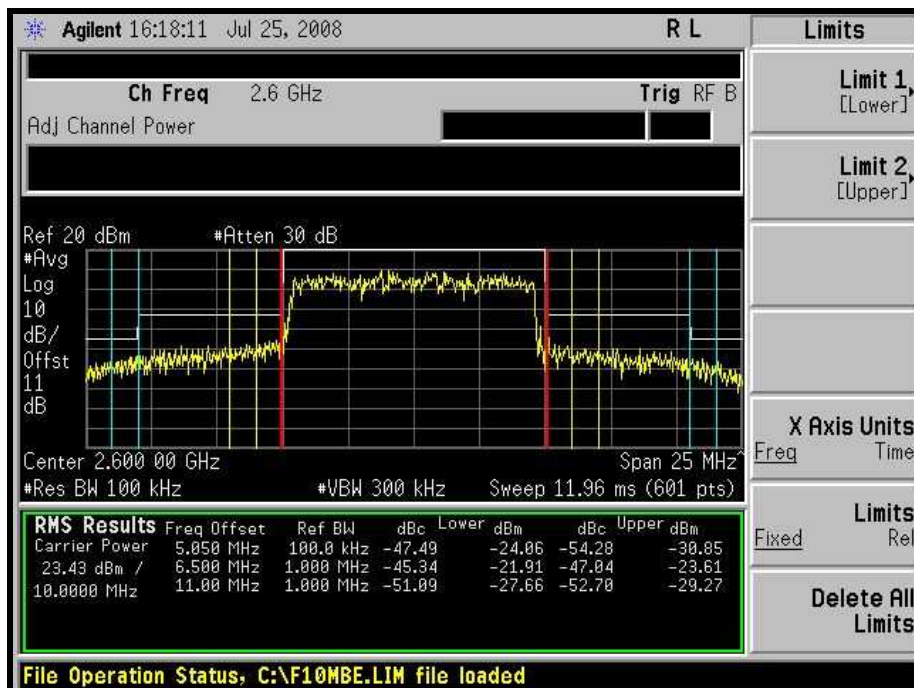
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60Hz	<b>DETECTOR FUNCTION</b>	RMS
<b>ENVIRONMENTAL CONDITIONS</b>	20deg°C, 60%RH 965hPa	<b>TESTED BY</b>	Wen Yu

<b>CONDUCTED POWER</b>			
<b>CHANNEL</b>	<b>FREQUENCY (MHz)</b>	<b>PEAK POWER OUTPUT(mW)</b>	<b>PEAK POWER OUTPUT(dBm)</b>
Low	2505	187.499	22.73
Middle	2600	220.293	23.43
High	2685	204.174	23.10

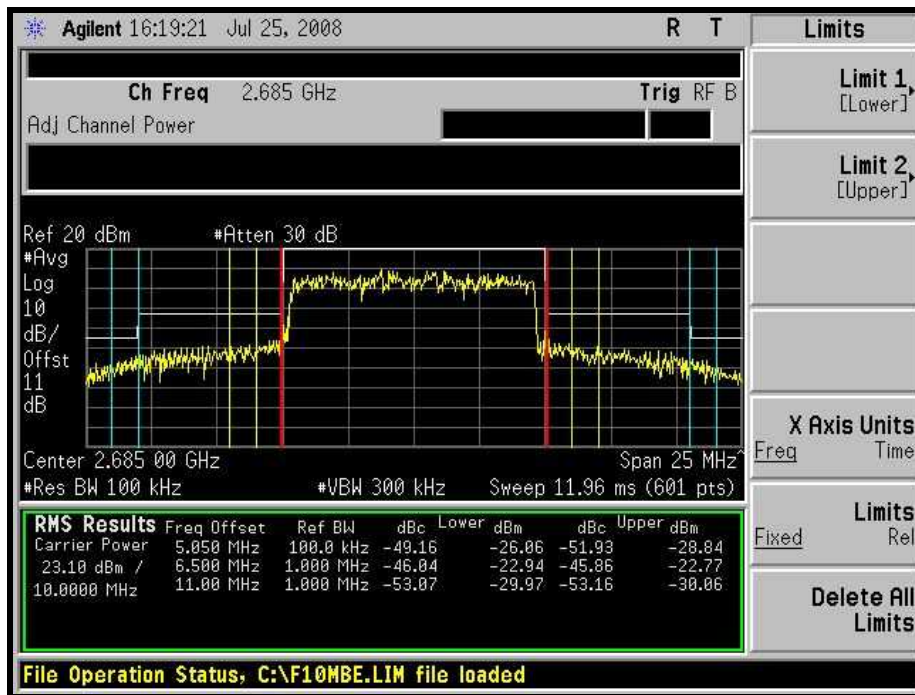
### LOW CHANNEL



### MIDDLE CHANNEL



## HIGH CHANNEL







## 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  $-40^{\circ}\text{C} \sim 50^{\circ}\text{C}$ .

### 4.2.2 TEST INSTRUMENTS

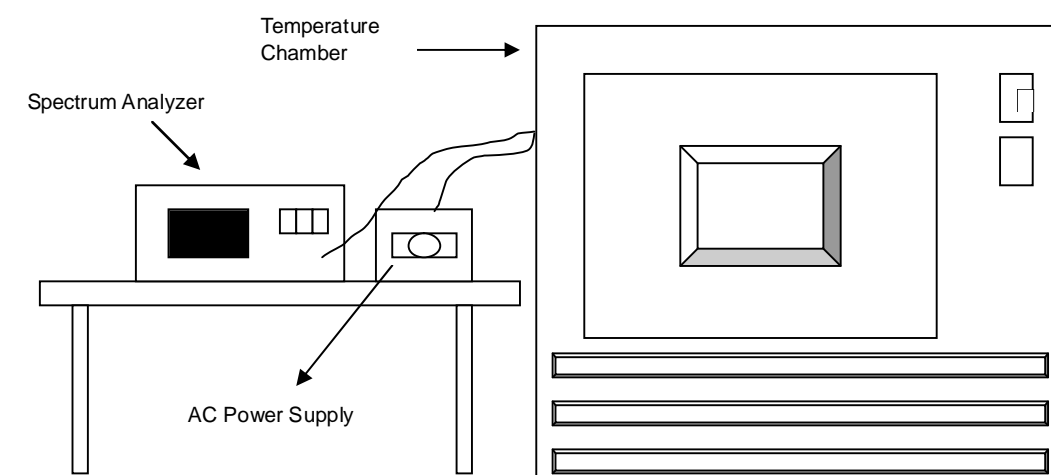
DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 12, 2008
OVEN	MHU-225AU	911033	Dec. 04, 2008
HUBER+SUHNER	SUCOFLEX104	22076614	Nov. 13, 2008
AC POWER SOURCE	6205	1140503	N/A

**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 DC 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



#### 4.2.5 TEST RESULTS

<b>MODE</b>	Middle channel (2600MHz)	<b>INPUT POWER (SYSTEM)</b>	120Vac, 60Hz
<b>ENVIRONMENTAL CONDITIONS</b>	20deg°C, 60%RH 965hPa	<b>TESTED BY</b>	Wen Yu

<b>AFC FREQUENCY ERROR VS. VOLTAGE</b>		
<b>VOLTAGE (Volts)</b>	<b>FREQUENCY (MHz)</b>	<b>FREQUENCY DRIFT (ppm)</b>
138	2599.9938	0.000238
120	2599.9934	0.000254
102	2599.9931	0.000265



<b>MODE</b>	Middle channel (2600MHz)	<b>INPUT POWER (SYSTEM)</b>	120Vac, 60Hz
<b>ENVIRONMENTAL CONDITIONS</b>	20deg°C, 60%RH 965hPa	<b>TESTED BY</b>	Wen Yu

<b>AFC FREQUENCY ERROR VS. TEMP.</b>		
<b>TEMP. (°C)</b>	<b>FREQUENCY (MHz)</b>	<b>FREQUENCY DRIFT (ppm)</b>
55	2599.9808	0.000738
40	2599.9859	0.000542
30	2599.9925	0.000288
20	2599.9934	0.000254
10	2599.9959	0.000158
0	2600.0001	0.000004
-10	2600.0054	0.000208
-20	2600.0097	0.000373
-30	2600.0102	0.000392
-40	2600.0115	0.000444

### 4.3 EMISSION BANDWIDTH MEASUREMENT

#### 4.3.1 LIMITS OF EMISSION BANDWIDTH MEASUREMENT

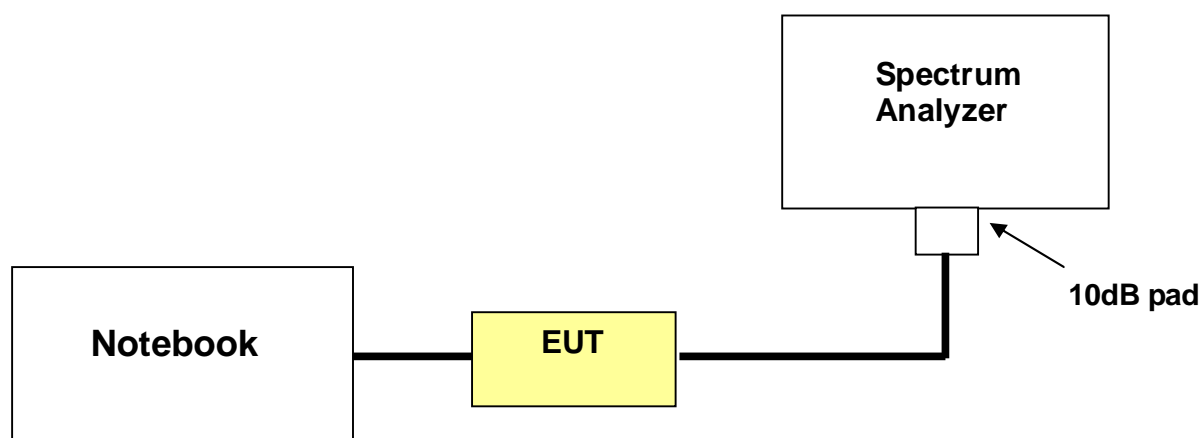
According to FCC 27.53(m)(6) specified that emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26dB below the transmitter power.

#### 4.3.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
Agilent Spectrum Analyzer	E4440A	MY46185282	Jun.14, 2009
HUBER+SUHNER	SUCOFLEX104	22076614	Nov. 13, 2008
JFW 10dB attenuation	50HF-010-SMA	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.

#### 4.3.3 TEST SETUP



#### 4.3.4 TEST PROCEDURES

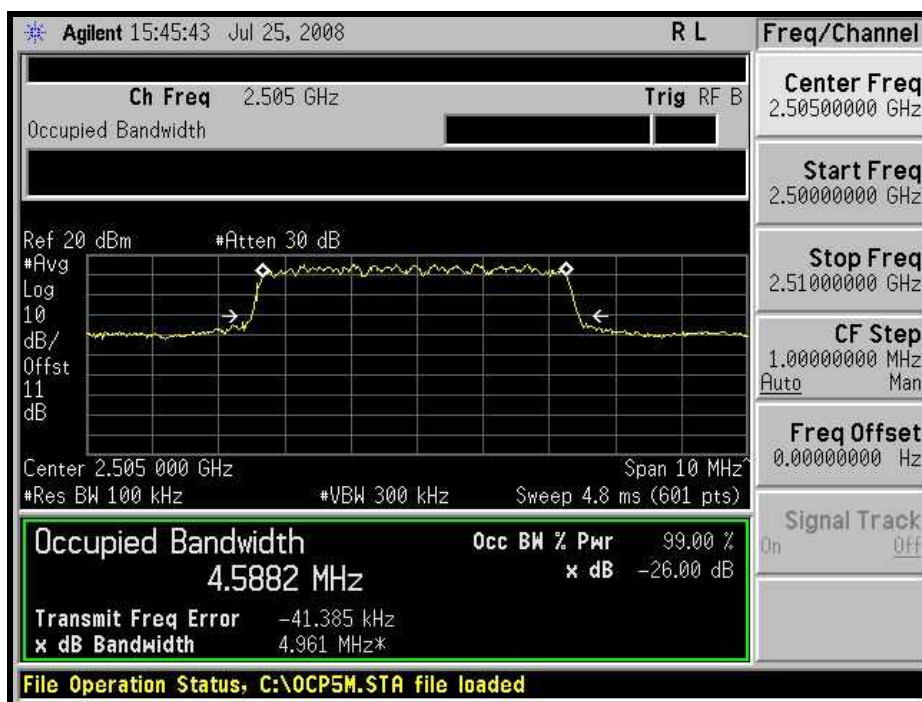
- a. The Notebook controlled EUT to export rated output power under transmission mode and specific channel frequency. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100kHz RBW and 300kHz VBW. The 26dB bandwidth is define as the total spectrum the power of which is higher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

### 4.3.5 TEST RESULTS

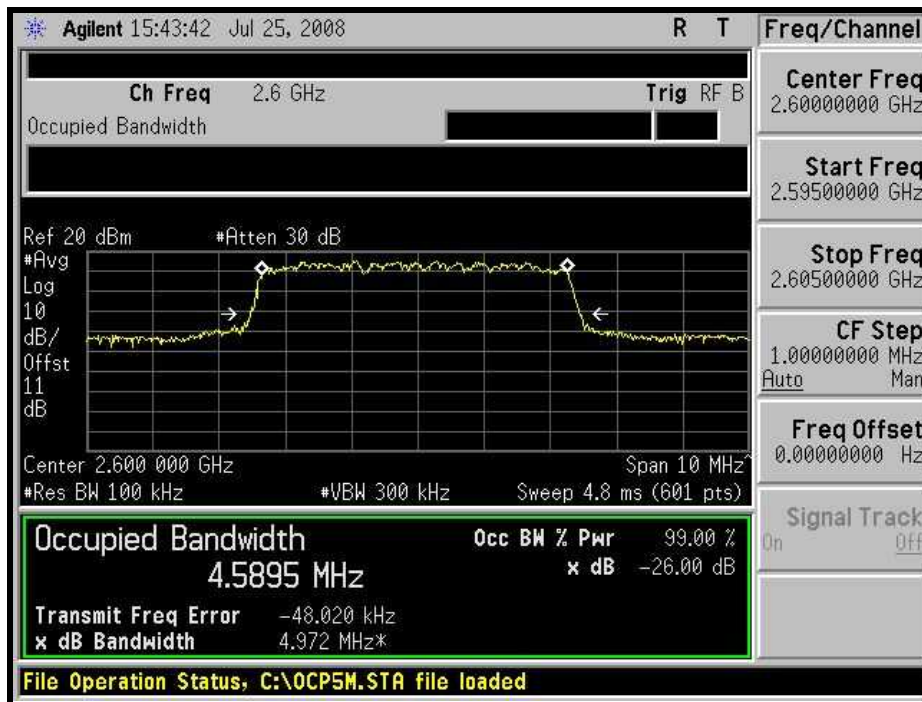
#### CHANNEL BANDWIDTH: 5MHz

FREQUENCY (MHz)	-26 dBc BANDWIDTH (MHz)
2505	4.961
2600	4.972
2685	4.979

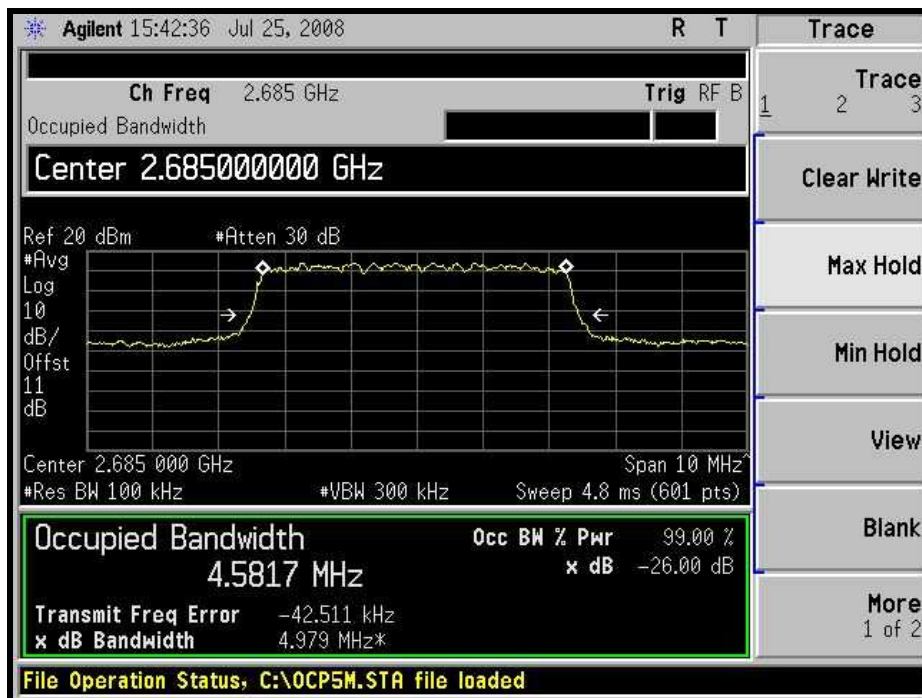
#### LOW CHANNEL



### MIDDLE CHANNEL



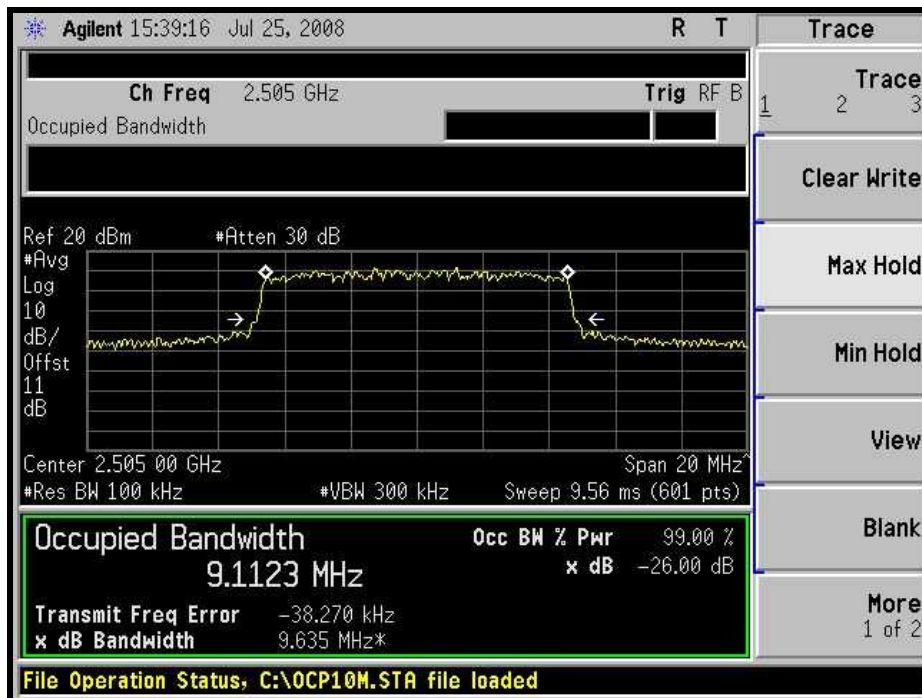
### HIGH CHANNEL



### CHANNEL BANDWIDTH: 10MHz

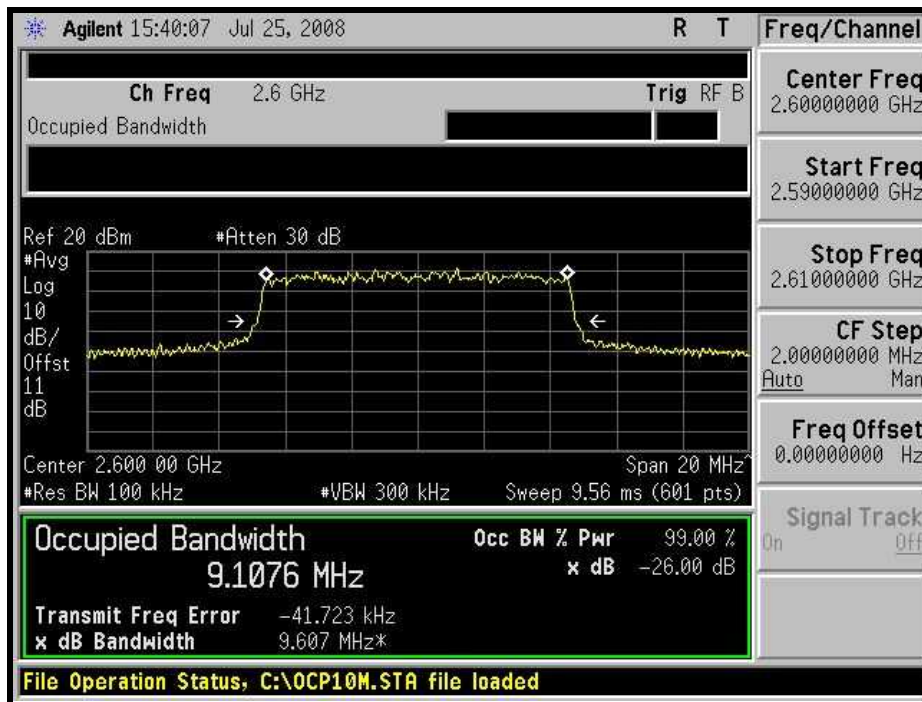
FREQUENCY (MHz)	-26 dBc BANDWIDTH (MHz)
2505	9.635
2600	9.607
2685	9.607

### LOW CHANNEL

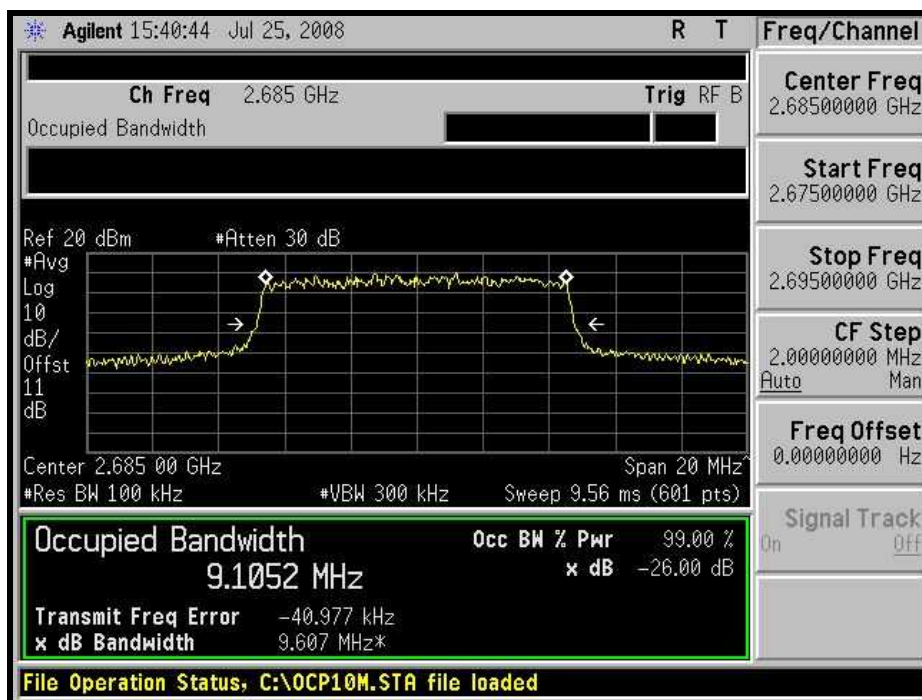




### MIDDLE CHANNEL



### 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 UNTIL
Agilent Spectrum Analyzer	E4440A	MY46185282	Jun.14, 2009
HUBER+SUHNER	SUCOFLEX104	22076614	Nov. 13, 2008
JFW 10dB attenuation	50HF-010-SMA	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.

##### 4.4.3 TEST SETUP

Same as Item 4.3.3

#### 4.4.4 TEST PROCEDURES

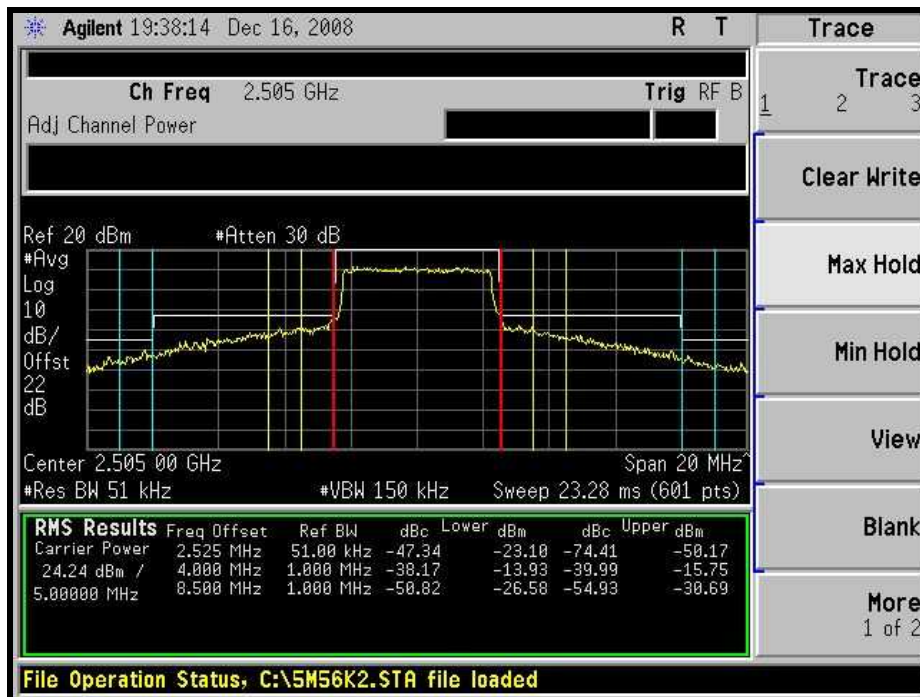
- a. The EUT was set up for the rated peak power . The power was measured with Spectrum Analyzer. All measurements were done at 3 channels: low, middle and high operational frequency range.
- b. For Channel bandwidth: 5 MHz:  
The center frequency of spectrum is the band edge frequency and span is 20MHz. 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 25MHz. RB of the spectrum is 100kHz and VB of the spectrum is 300kHz.
- d. Record the max trace plot into the test report.

#### 4.4.5 EUT OPERATING CONDITION

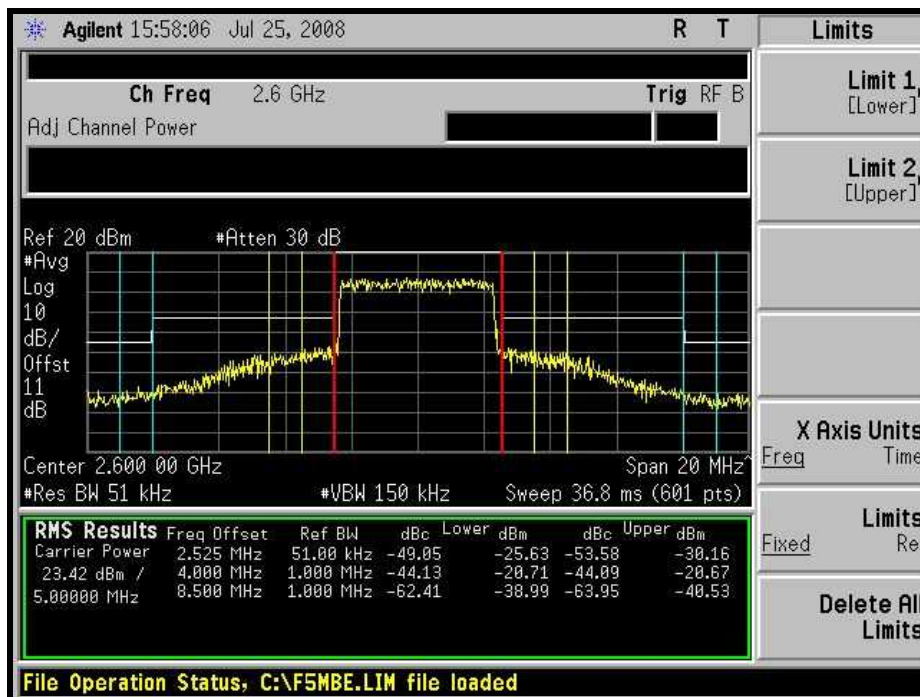
1. Placed the EUT on testing table.
2. Prepared other computer systems (support unit 1, 2) to act as communication partners and placed them outside of testing area.
3. The communication partners run test program “BCS200 Control Panel 2.3.2” to enable EUT under transmission mode and specific channel frequency via UTP cable.

#### 4.4.6 TEST RESULTS

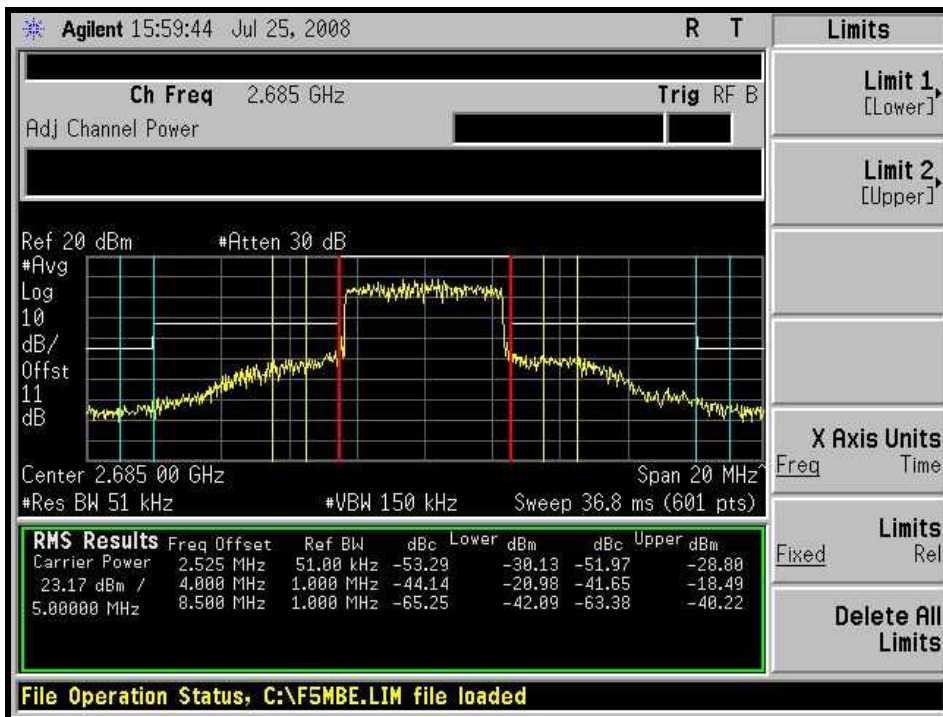
### CHANNEL BANDWIDTH: 5MHz LOW CHANNEL



### MIDDLE CHANNEL

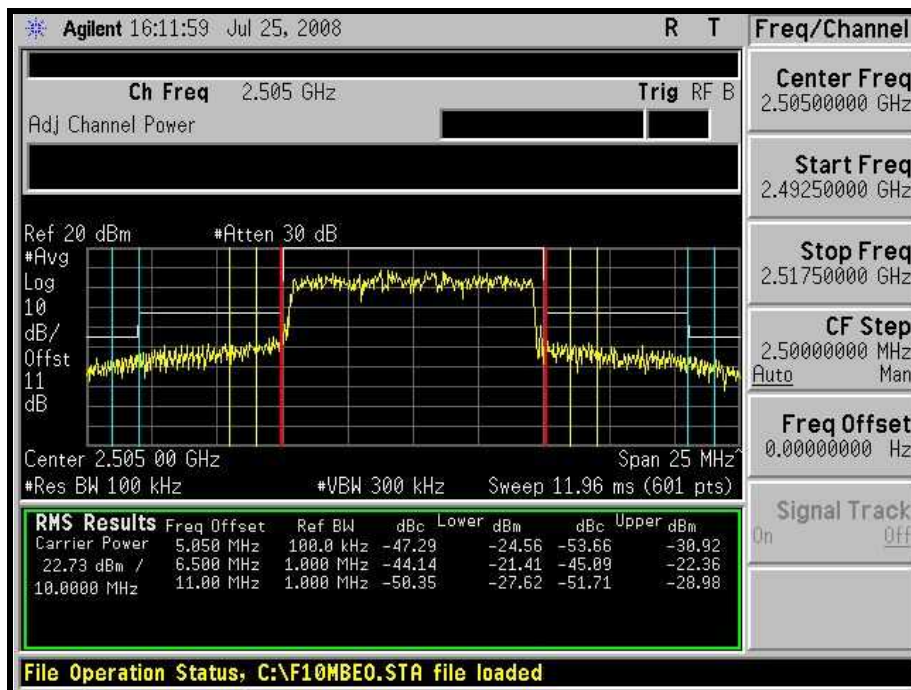


### HIGH CHANNEL

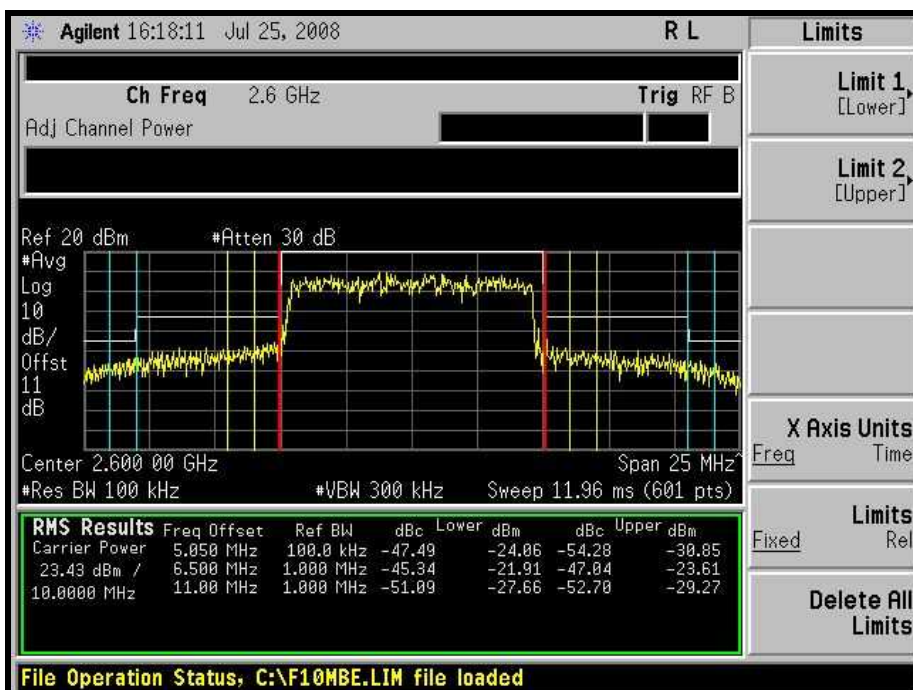


## CHANNEL BANDWIDTH: 10MHz

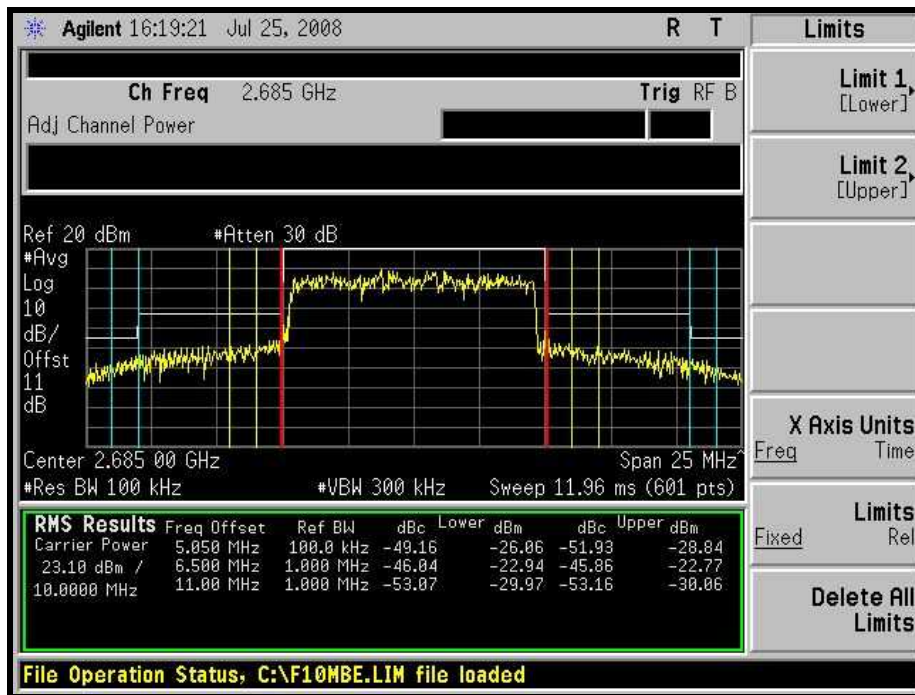
### LOW CHANNEL



### MIDDLE CHANNEL



## 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 UNTIL
Agilent Spectrum Analyzer	E4440A	MY46185282	Jun.14, 2009
HUBER+SUHNER	SUCOFLEX104	22076614	Nov. 13, 2008
JFW 10dB attenuation	50HF-010-SMA	NA	NA
Wainwright Instruments High Pass Filter	WHK3.1/18G-10SS	ZZ-010091	NA

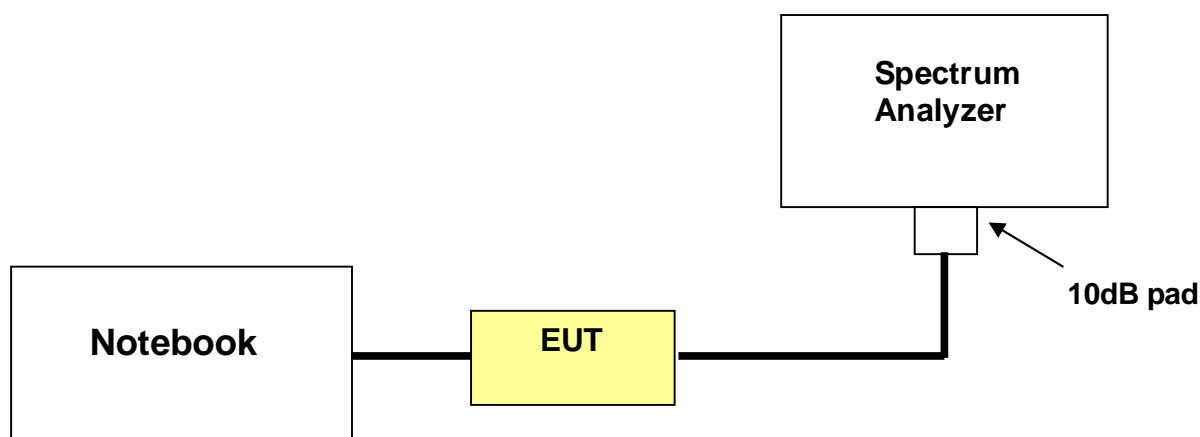
NOTE: 1. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to NML/ROC and NIST/USA.



#### 4.5.3 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 3GHz, it shall be connected to the 10dB pad attenuated the carried frequency. The spectrum set RB = 1MHz, VB = 3MHz.
- c. When the spectrum scanned from 3GHz to 27GHz, it shall be connected to the high pass filter attenuated the carried frequency. The spectrum set RB = 1MHz, VB = 3MHz.

#### 4.5.4 TEST SETUP

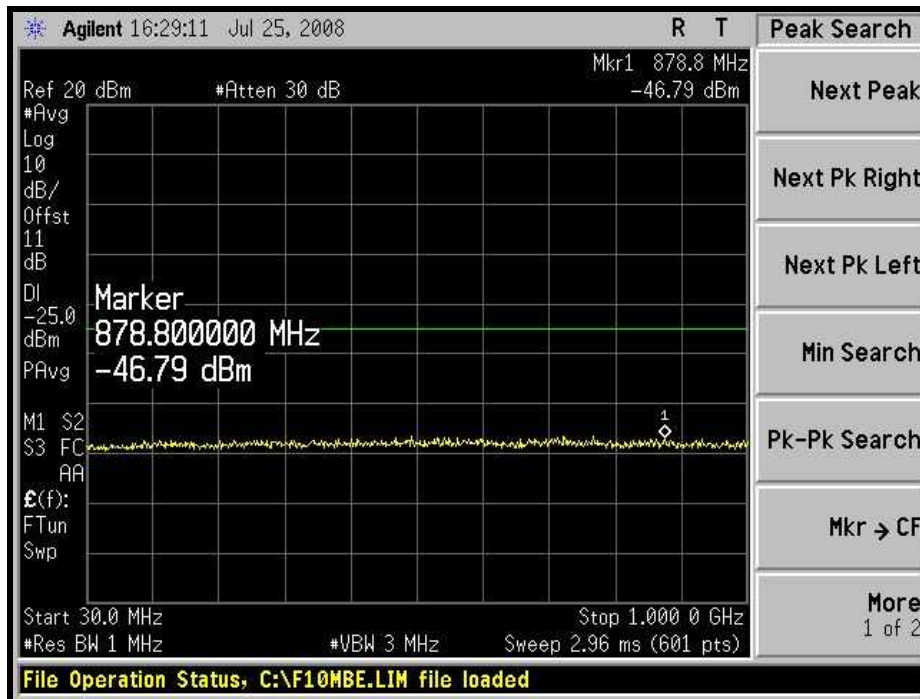


#### 4.5.5 EUT OPERATING CONDITIONS

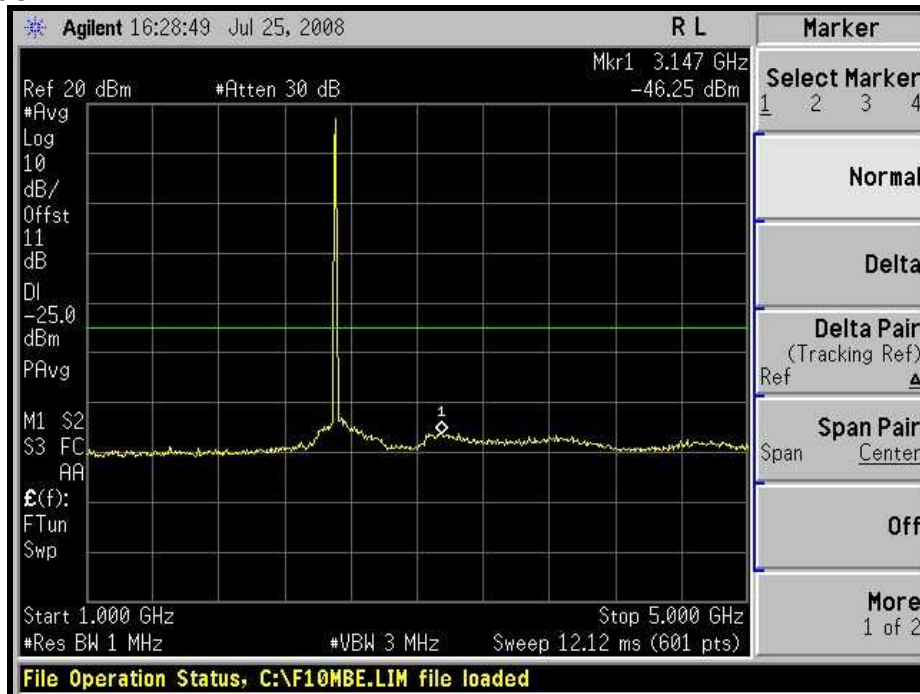
1. Placed the EUT on testing table.
2. Prepared other computer systems (support unit 1, 2) to act as communication partners and placed them outside of testing area.
3. The communication partners run test program “BCS200 Control Panel 2.3.2” to enable EUT under transmission mode and specific channel frequency via UTP cable.

#### 4.5.6 TEST RESULTS

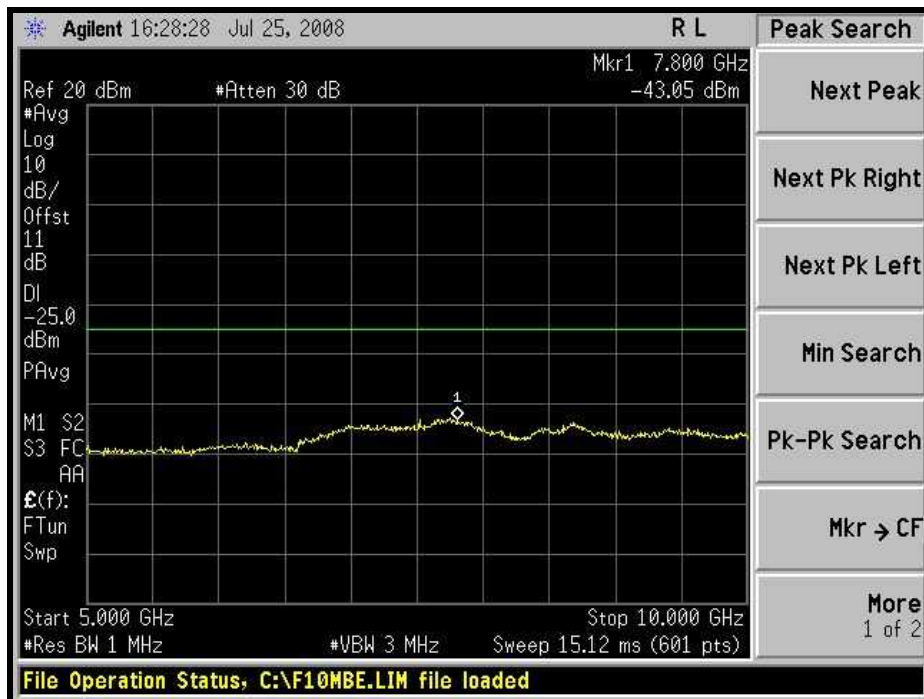
**CHANNEL BANDWIDTH: 5MHz**  
**LOW CHANNEL: 30MHz ~ 1GHz:**



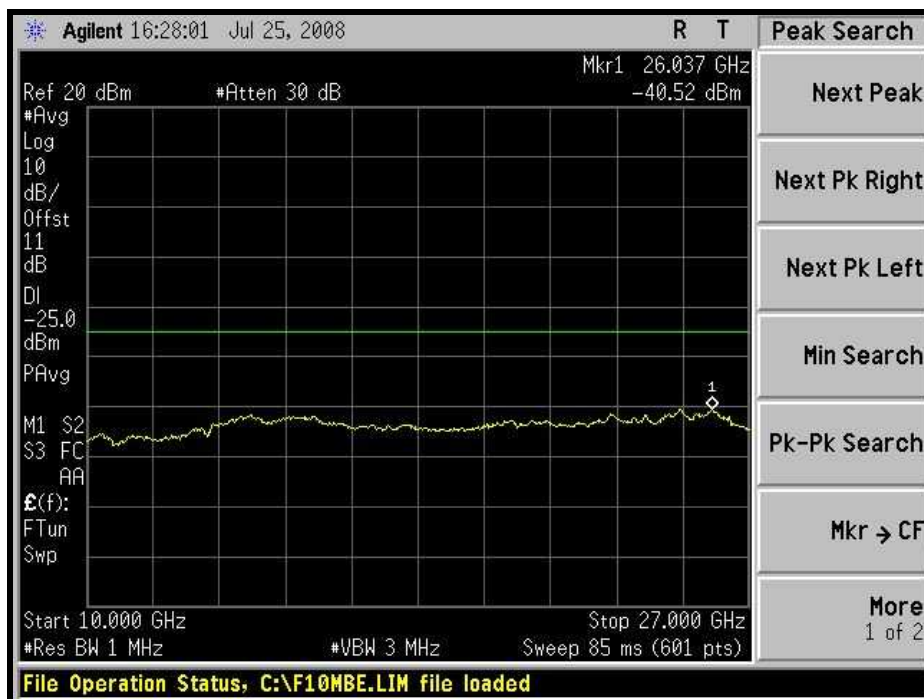
1GHz ~ 5GHz:



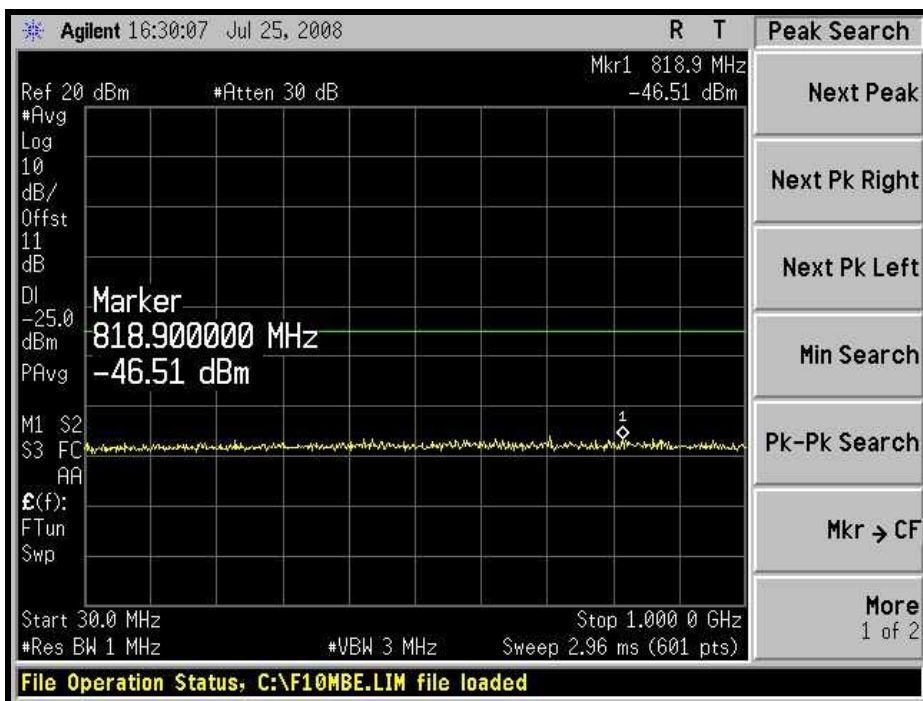
5GHz ~ 10GHz:



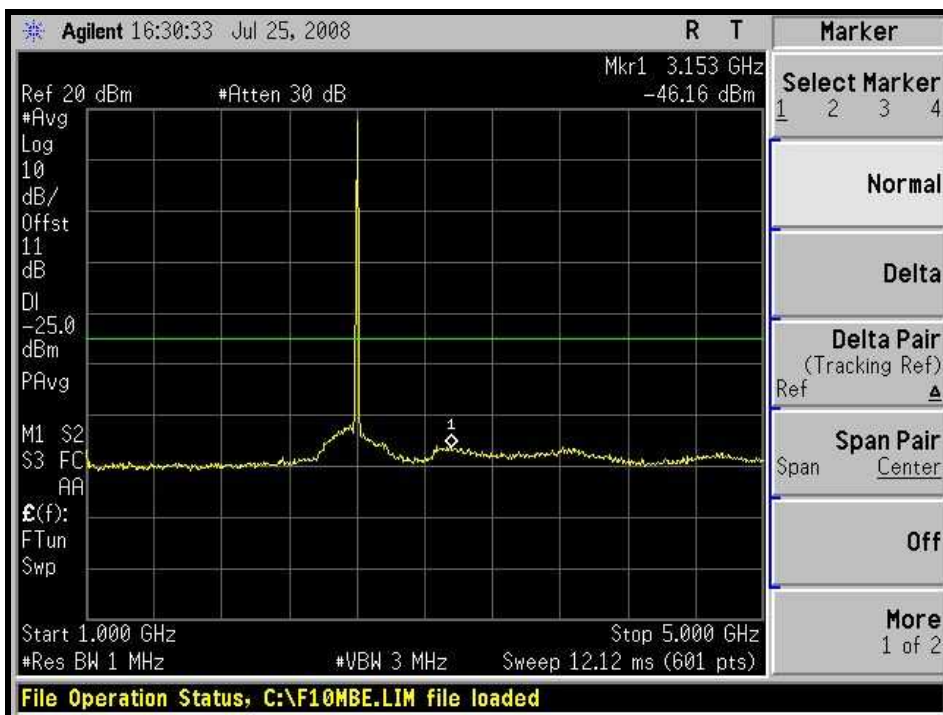
10GHz ~ 27GHz:



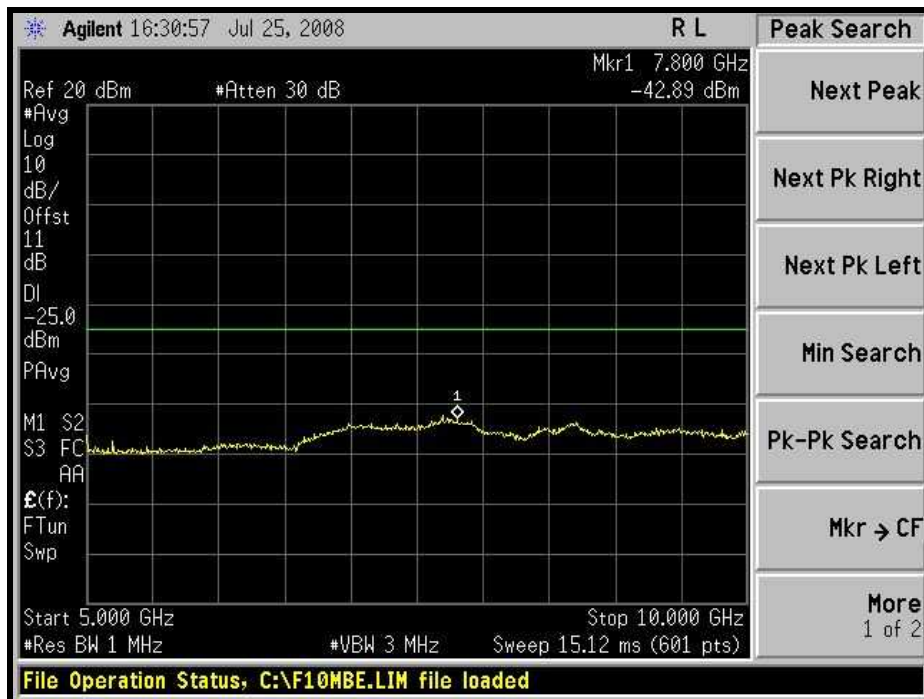
**MIDDLE CHANNEL: 30MHz ~ 1GHz:**



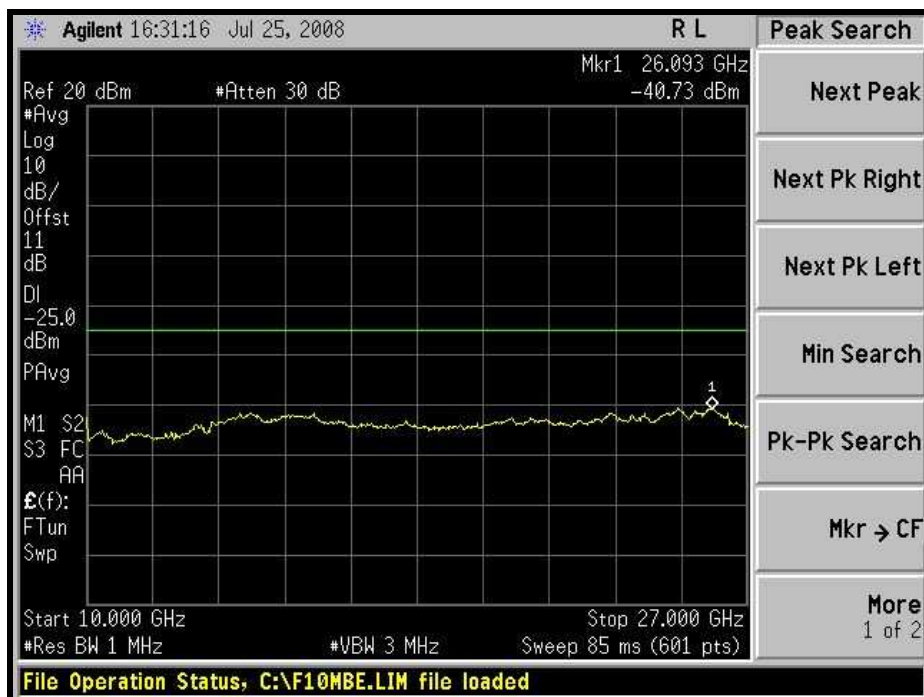
**1GHz ~ 5GHz:**



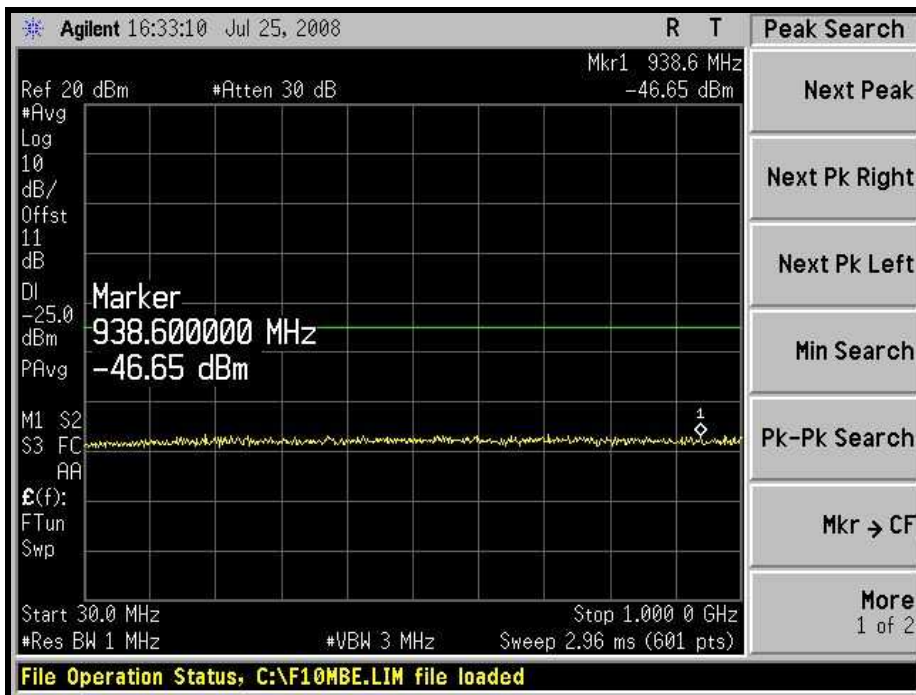
5GHz ~ 10GHz:



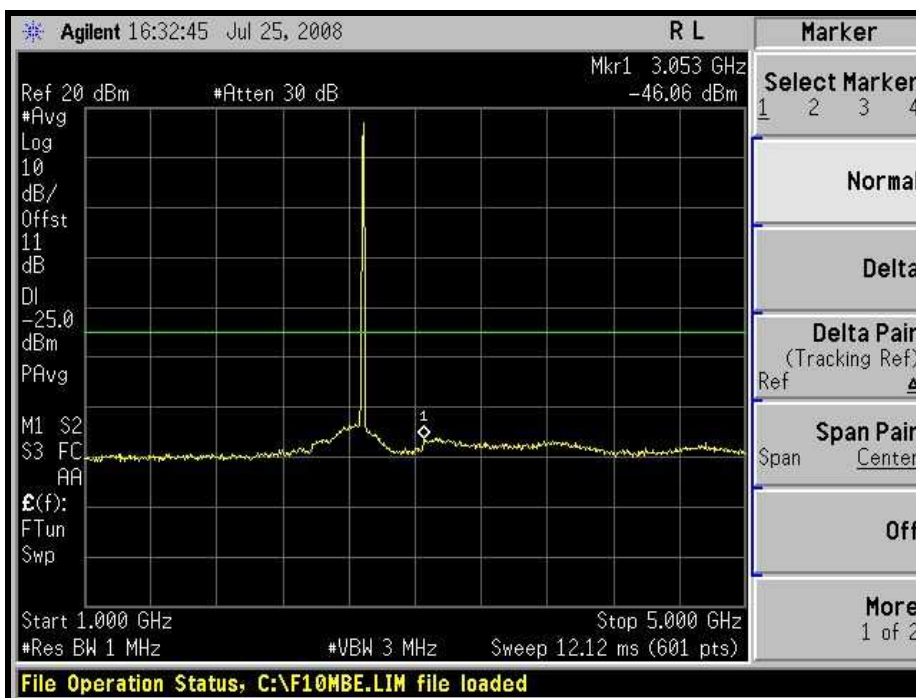
10GHz ~ 27GHz:



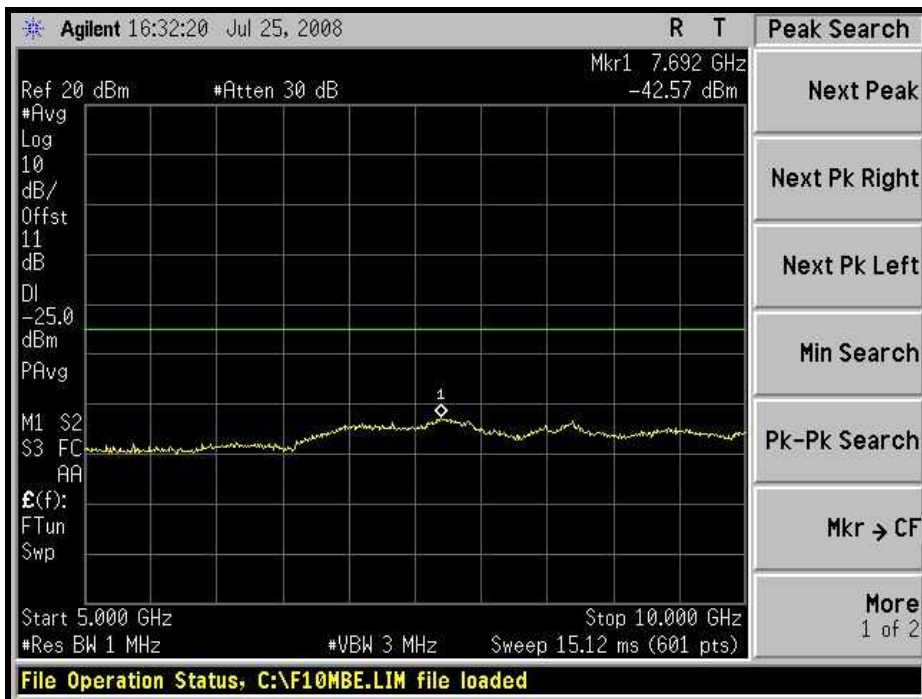
**HIGH CHANNEL: 30MHz ~ 1GHz:**



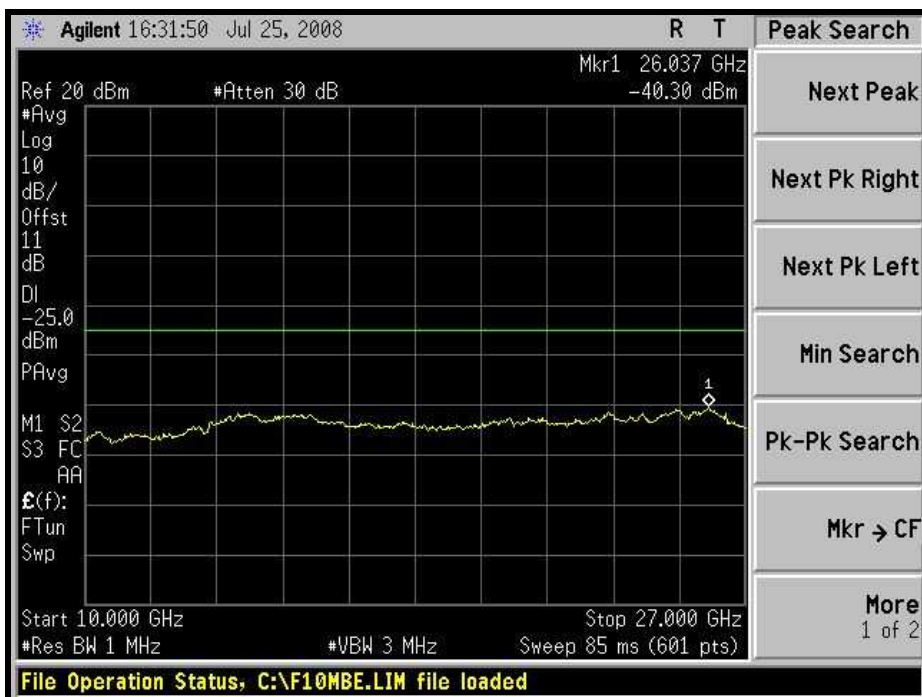
**1GHz ~ 5GHz:**



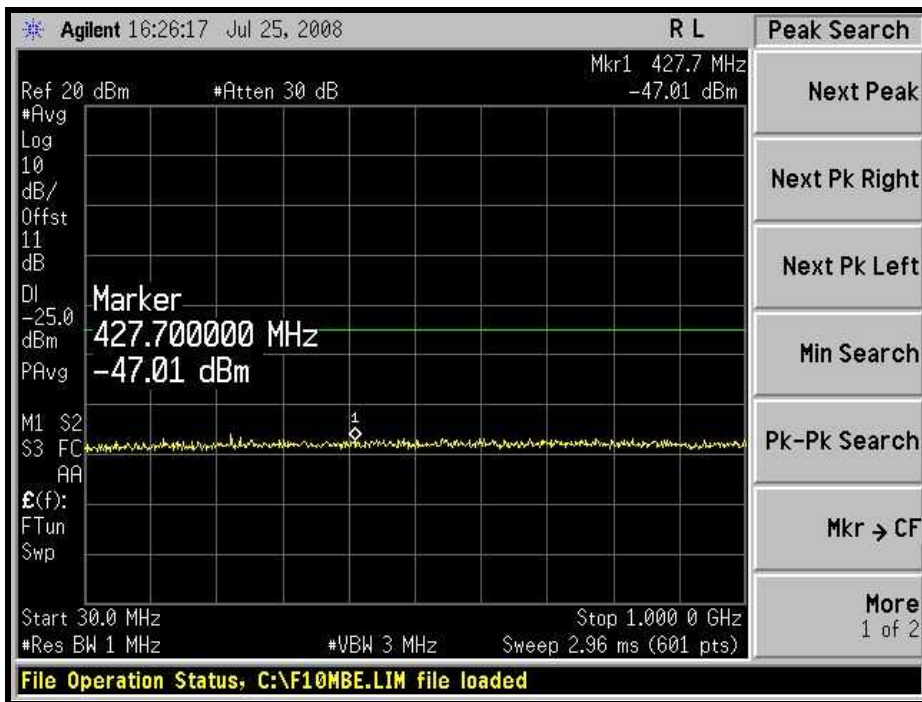
5GHz ~ 10GHz:



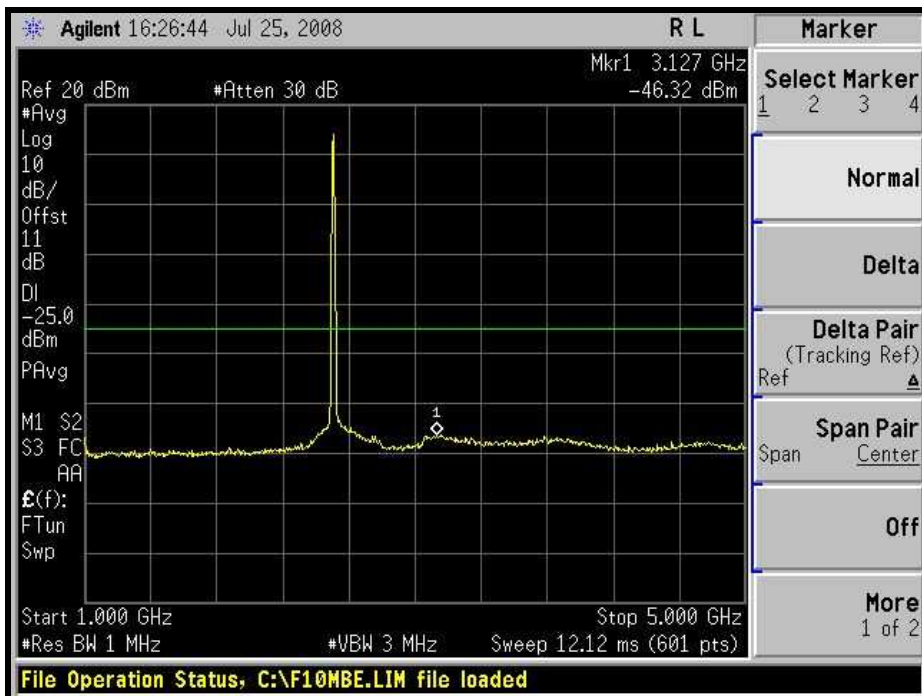
10GHz ~ 27GHz:



**CHANNEL BANDWIDTH: 10MHz**  
**LOW CHANNEL: 30MHz ~ 1GHz:**

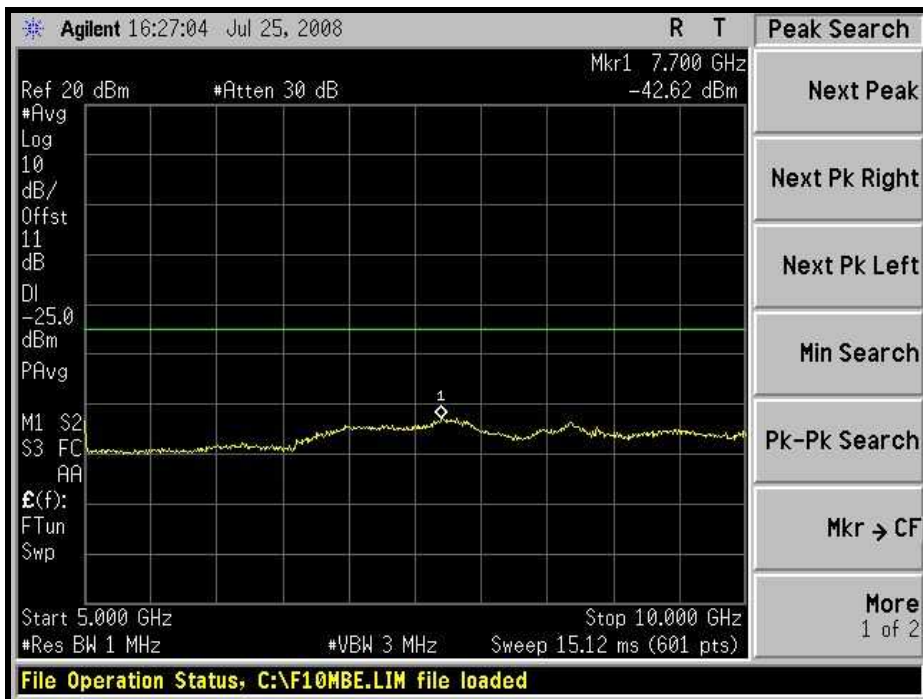


**1GHz ~ 5GHz:**

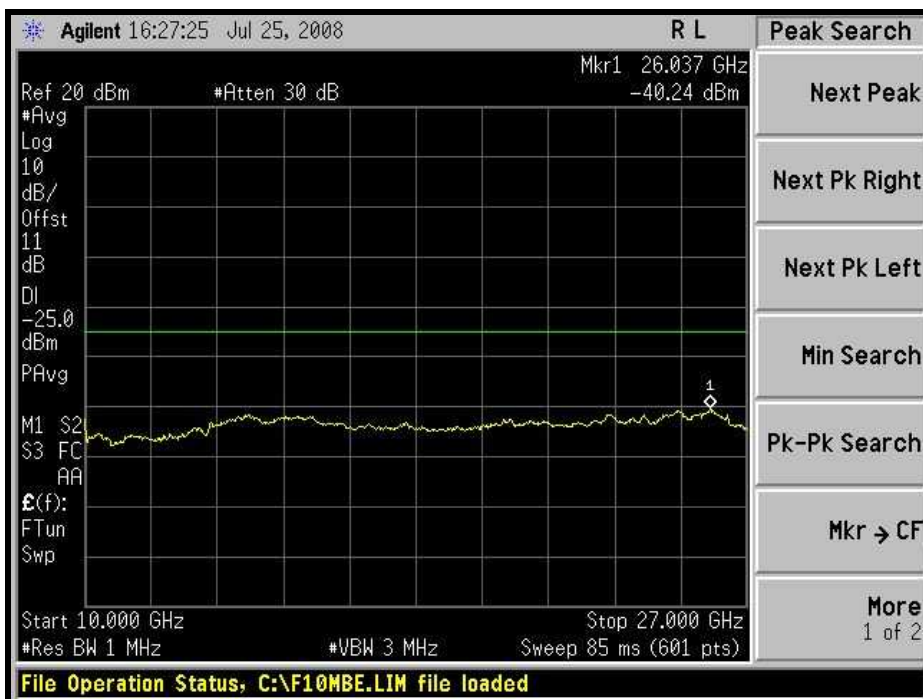




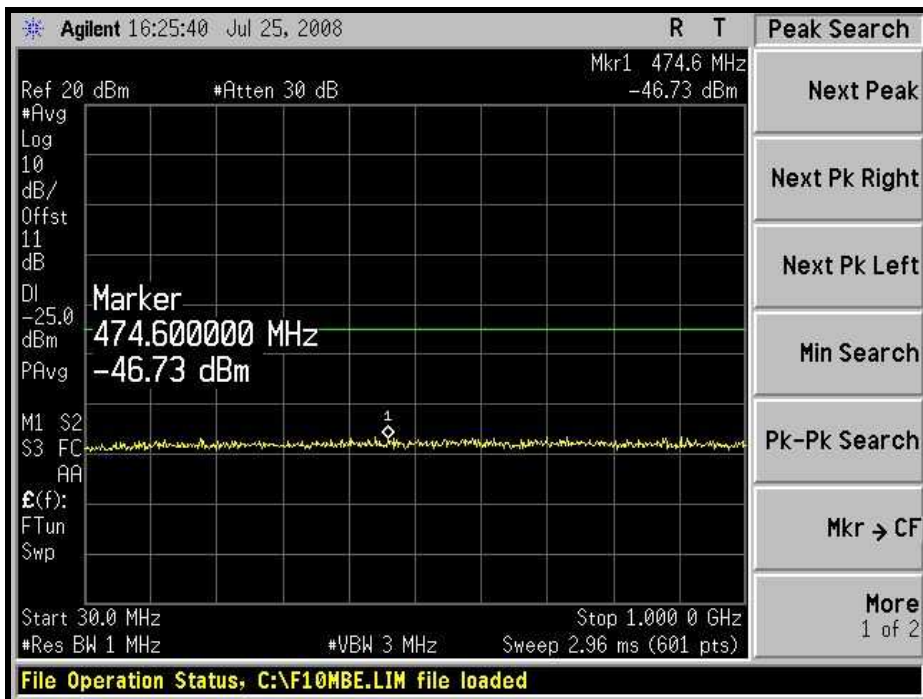
5GHz ~ 10GHz:



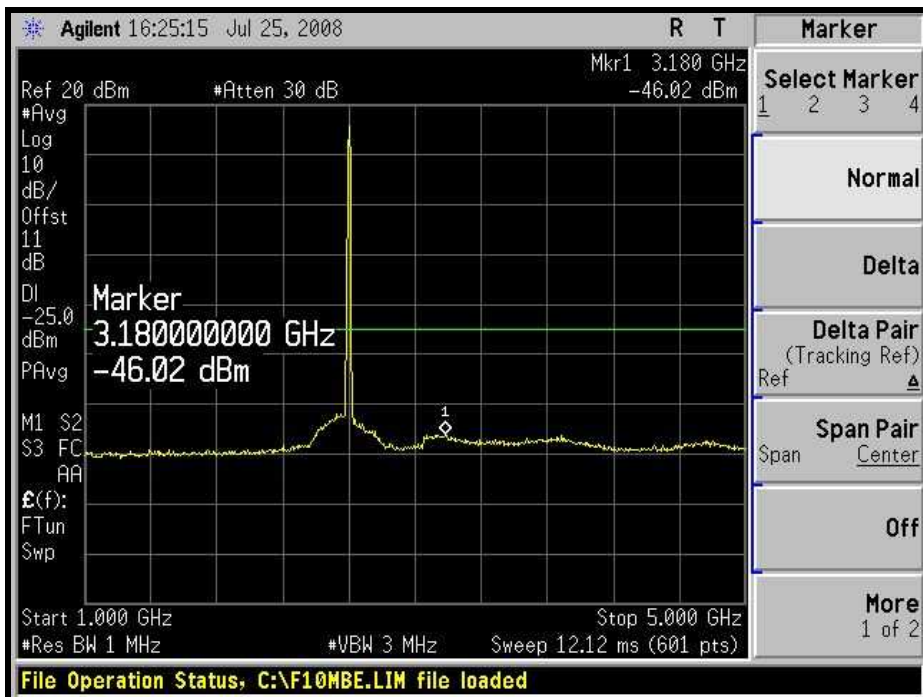
10GHz ~ 27GHz:



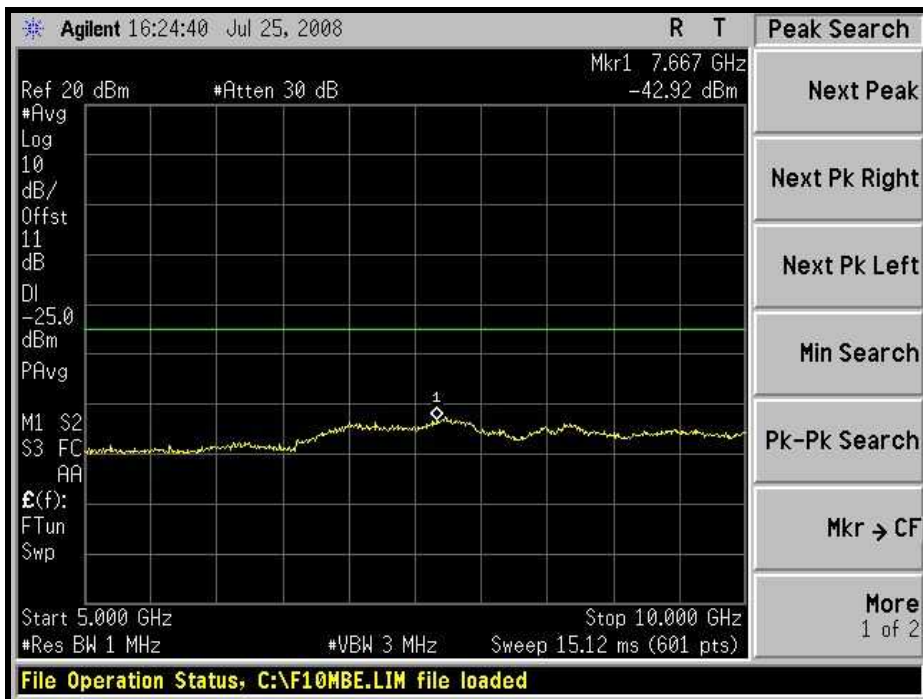
**MIDDLE CHANNEL: 30MHz ~ 1GHz:**



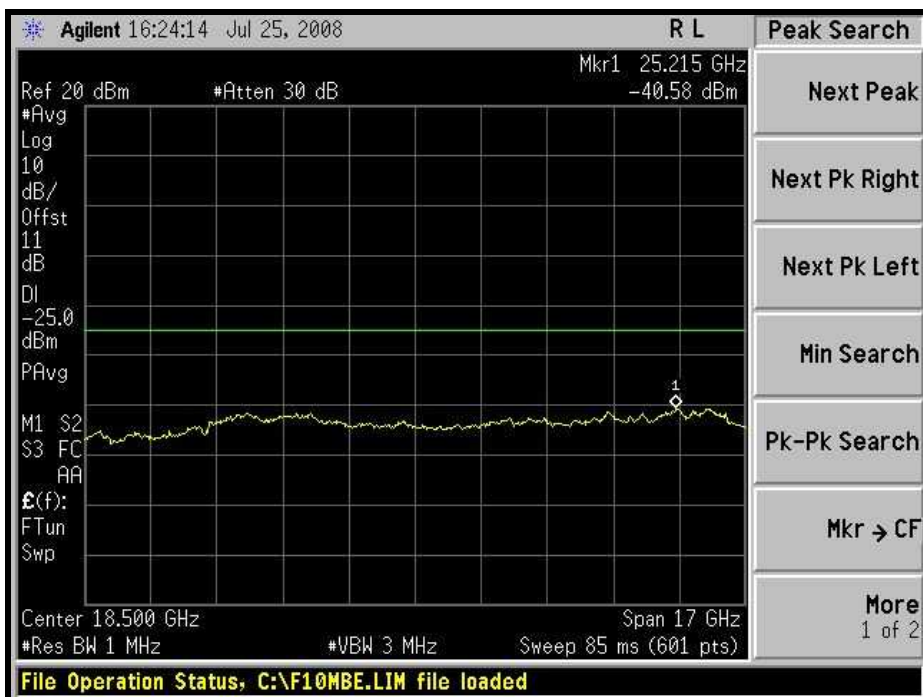
**1GHz ~ 5GHz:**



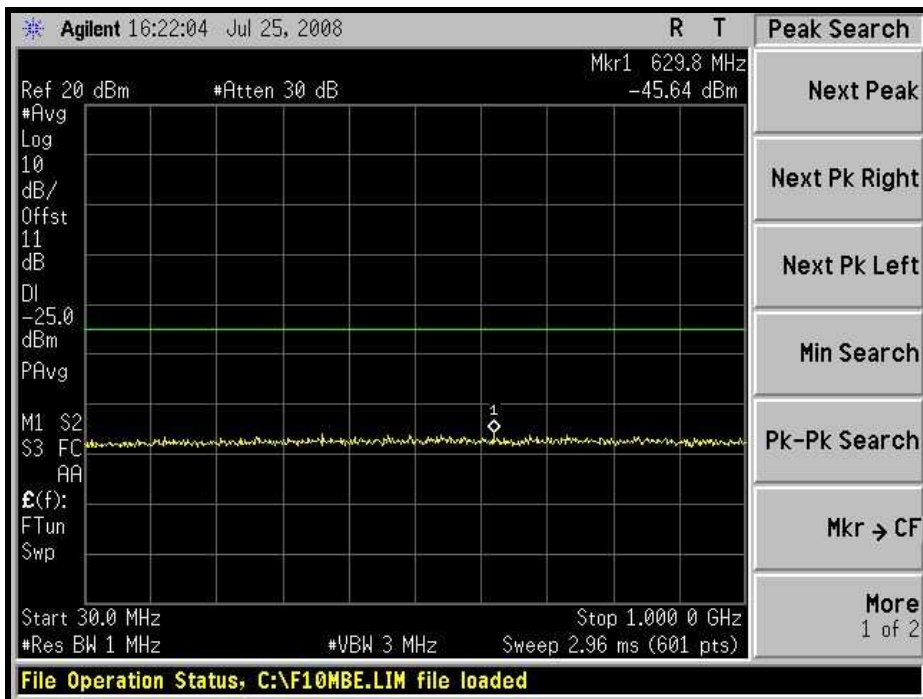
5GHz ~ 10GHz:



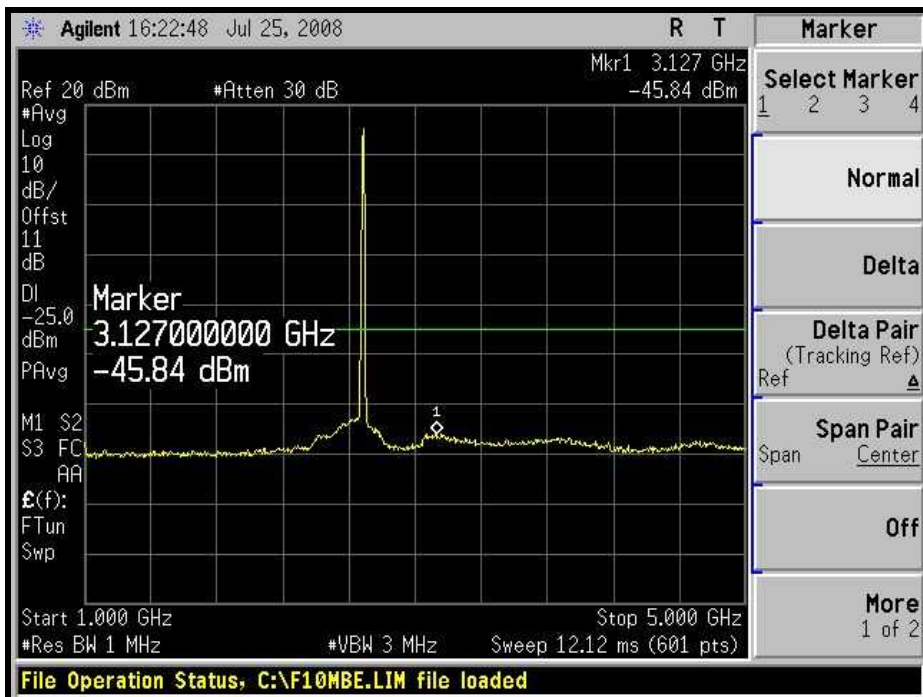
10GHz ~ 27GHz:



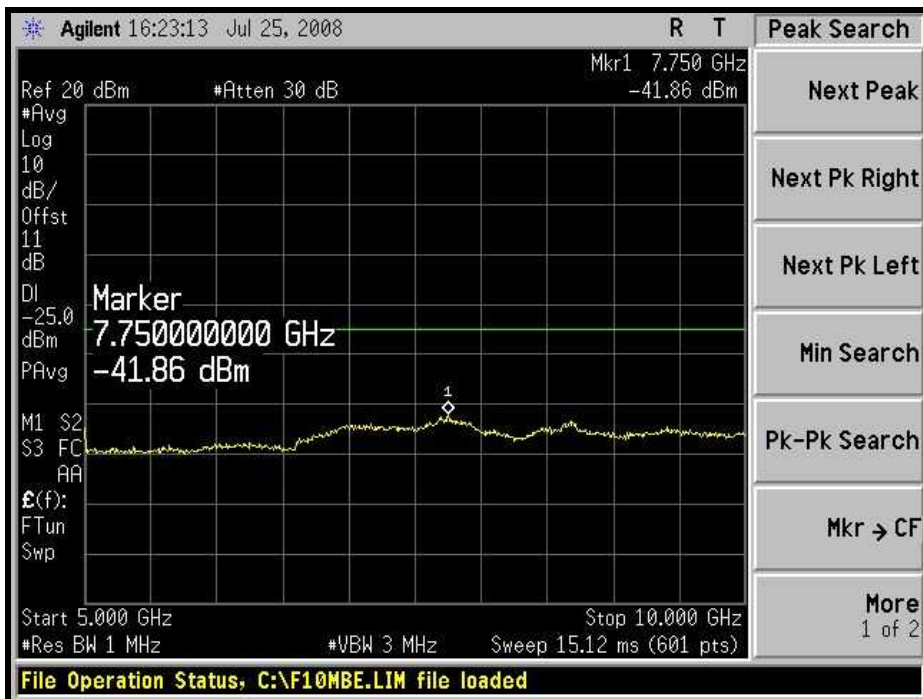
**HIGH CHANNEL: 30MHz ~ 1GHz:**



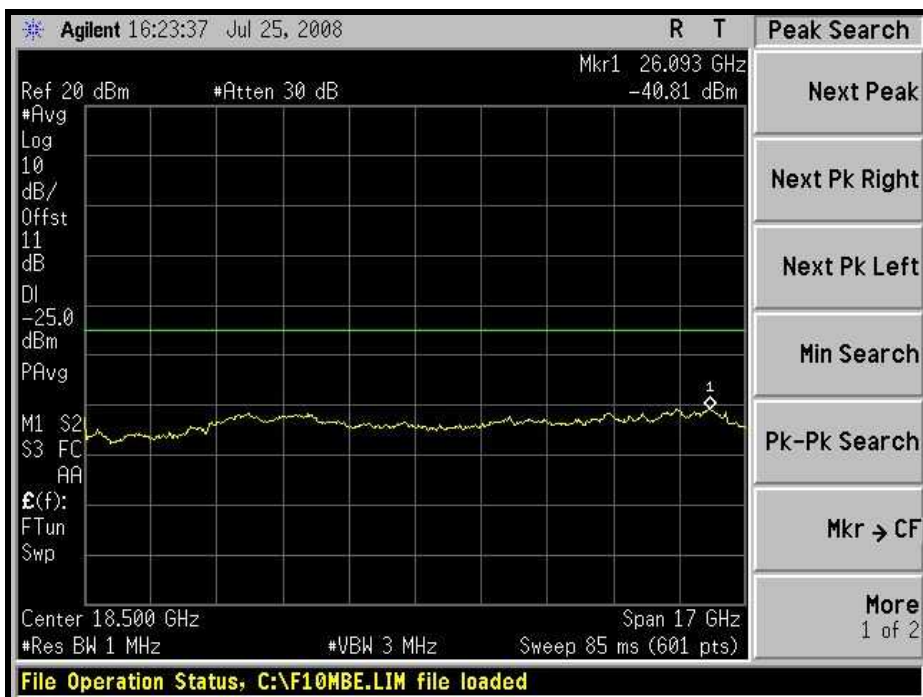
**1GHz ~ 5GHz:**



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 UNTIL
ADVANTEST Spectrum Analyzer	R3271A	85060311	July 15, 2009
HP Pre_Amplifier	8449B	3008A01922	Oct. 04, 2008
ROHDE & SCHWARZ Test Receiver	ESCS30	100375	Mar. 31, 2009
SCHWARZBECK TRILOG Broadband Antenna	VULB 9168	138	April 29, 2009
Schwarzbeck Horn_Antenna	BBHA9120	D124	Dec. 16, 2008
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 27, 2009
R&S Loop Antenna	HFH2-Z2	100070	Jan. 13, 2009
RF Switches (ARNITSU)	CS-201	1565157	Aug. 13, 2008
RF CABLE (Chaintek)	SF102	22054-2	Dec. 06. 2008
RF Cable(RICHTEC)	9913-30M N-N Cable	STCCAB-30M-1 GHz	Aug. 13, 2008
Software	ADT_Radiated_V 7.6.15.8	NA	NA
CHANCE MOST Antenna Tower	AT-100	0203	NA
CHANCE MOST Turn Table	TT-100	0203	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, HP preamplifier (model: 8449B) and Spectrum Analyzer (model: R3271A) are used only for the measurement of emission frequency above 1GHz if tested.  
 3. The test was performed in ADT 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 3789C-3.

#### 4.6.3 TEST PROCEDURES

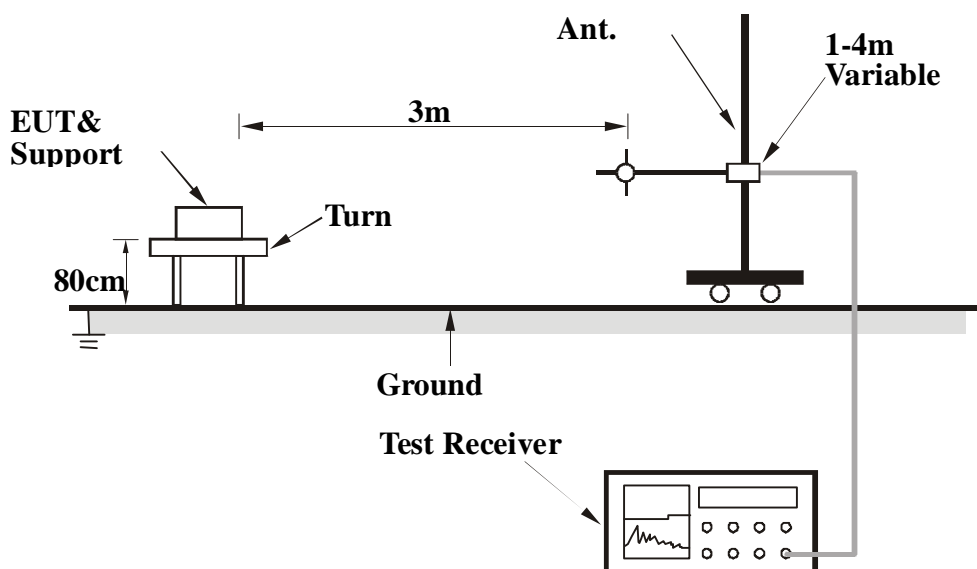
- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the receiving antenna, which was mounted on antenna tower and its position at 0.8 m above the 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

1. Placed the EUT on testing table.
2. Prepared other computer systems (support unit 1, 2) to act as communication partners and placed them outside of testing area.
3. The communication partners run test program “BCS200 Control Panel 2.3.2” to enable EUT under transmission mode and specific channel frequency via UTP cable.





#### 4.6.7 TEST RESULTS

##### CHANNEL BANDWIDTH: 5MHz

<b>MODE</b>	Low channel	<b>FREQUENCY RANGE</b>	Below 1000MHz
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60Hz	<b>ENVIRONMENTAL CONDITIONS</b>	20deg°C, 60%RH 965hPa
<b>TESTED BY</b>	Wen Yu		

<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>						
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	POWER VALUE(dBm)
1	199.99	23.54	-25	-71.95	4.34	-67.61
2	224.99	27.96	-25	-67.45	4.01	-63.43
3	249.99	26.97	-25	-67.99	3.89	-64.10
4	274.99	27.45	-25	-67.58	3.88	-63.70
5	374.99	27.68	-25	-70.17	3.46	-66.71
6	400.00	25.67	-25	-72.17	3.33	-68.84
7	749.97	31.88	-25	-64.49	0.82	-63.68
8	874.97	32.47	-25	-64.22	0.76	-63.46
9	999.97	38.25	-25	-58.23	0.59	-57.63

<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>						
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	POWER VALUE(dBm)
1	48.95	30.45	-25	-47.67	-10.27	-57.95
2	200.00	25.64	-25	-69.85	4.34	-65.51
3	250.00	25.74	-25	-69.22	3.89	-65.33
4	274.99	27.66	-25	-67.37	3.88	-63.49
5	299.99	27.69	-25	-68.09	3.71	-64.38
6	400.00	30.42	-25	-67.42	3.33	-64.09
7	749.97	35.24	-25	-61.13	0.82	-60.32
8	874.97	32.57	-25	-64.12	0.76	-63.36
9	999.97	35.69	-25	-60.79	0.59	-60.19

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



**CHANNEL BANDWIDTH: 10MHz**

<b>MODE</b>	Low channel	<b>FREQUENCY RANGE</b>	Below 1000MHz
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60Hz	<b>ENVIRONMENTAL CONDITIONS</b>	20deg°C, 60%RH 965hPa
<b>TESTED BY</b>	Wen Yu		

<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>						
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	POWER VALUE(dBm)
1	199.99	23.45	-25	-72.04	4.34	-67.70
2	224.99	27.88	-25	-67.53	4.01	-63.51
3	249.99	26.89	-25	-68.07	3.89	-64.18
4	274.99	27.65	-25	-67.38	3.88	-63.50
5	374.99	27.48	-25	-70.37	3.46	-66.91
6	400.00	25.66	-25	-72.18	3.33	-68.85
7	749.97	31.48	-25	-64.89	0.82	-64.08
8	874.97	32.58	-25	-64.11	0.76	-63.35
9	999.97	38.42	-25	-58.06	0.59	-57.46

<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>						
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	POWER VALUE(dBm)
1	48.95	30.54	-25	-47.58	-10.27	-57.86
2	200.00	25.68	-25	-69.81	4.34	-65.47
3	250.00	25.98	-25	-68.98	3.89	-65.09
4	274.99	27.58	-25	-67.45	3.88	-63.57
5	299.99	27.75	-25	-68.03	3.71	-64.32
6	400.00	30.32	-25	-67.52	3.33	-64.19
7	749.97	35.31	-25	-61.06	0.82	-60.25
8	874.97	32.47	-25	-64.22	0.76	-63.46
9	999.97	35.25	-25	-61.23	0.59	-60.63

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



## 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 UNTIL
ADVANTEST Spectrum Analyzer	R3271A	85060311	July 15, 2009
HP Pre_Amplifier	8449B	3008A01922	Oct. 04, 2008
ROHDE & SCHWARZ Test Receiver	ESCS30	100375	Mar. 31, 2009
SCHWARZBECK TRILOG Broadband Antenna	VULB 9168	138	April 29, 2009
Schwarzbeck Horn_Antenna	BBHA9120	D124	Dec. 16, 2008
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 27, 2009
R&S Loop Antenna	HFH2-Z2	100070	Jan. 13, 2009
RF Switches (ARNITSU)	CS-201	1565157	Aug. 13, 2008
RF CABLE (Chaintek)	SF102	22054-2	Dec. 06. 2008
RF Cable(RICHTEC)	9913-30M N-N Cable	STCCAB-30M-1 GHz	Aug. 13, 2008
Software	ADT_Radiated_V 7.6.15.8	NA	NA
CHANCE Antenna Tower	MOST AT-100	0203	NA
CHANCE MOST Turn Table	TT-100	0203	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, HP preamplifier (model: 8449B) and Spectrum Analyzer (model: R3271A) are used only for the measurement of emission frequency above 1GHz if tested.  
 3. The test was performed in ADT 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 3789C-3.

#### 4.7.3 TEST PROCEDURES

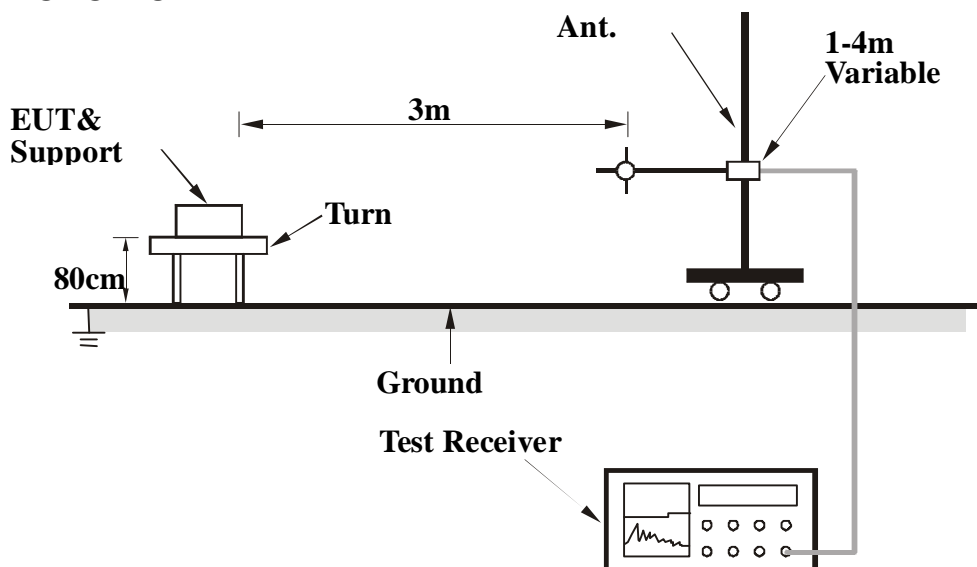
- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the receiving antenna, which was mounted on antenna tower and its position at 0.8 m above the 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

1. Placed the EUT on testing table.
2. Prepared other computer systems (support unit 1, 2) to act as communication partners and placed them outside of testing area.
3. The communication partners run test program “BCS200 Control Panel 2.3.2” to enable EUT under transmission mode and specific channel frequency via UTP cable.



#### 4.7.7 TEST RESULTS

##### CHANNEL BANDWIDTH: 5MHz

<b>MODE</b>	Low channel	<b>FREQUENCY RANGE</b>	Above 1000MHz
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60Hz	<b>ENVIRONMENTAL CONDITIONS</b>	20deg°C, 60%RH 965hPa
<b>TESTED BY</b>	Wen Yu		

<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)
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	POWER VALUE(dBm)
1	2540	65.41	-25	-33.36	6.69	-26.67
2	3340	43.48	-25	-59.52	7.62	-51.91
3	5010	45.41	-25	-58.84	7.01	-51.82
4	7515	50.25	-25	-52.37	4.53	-47.84
5	10020	53.04	-25	-48.54	4.02	-44.52

<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>						
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	POWER VALUE(dBm)
1	2540	63.6	-25	-35.17	6.69	-28.48
2	3340	39.77	-25	-63.23	7.62	-55.62
3	5010	41.59	-25	-62.66	7.01	-55.64
4	7515	50.02	-25	-52.60	4.53	-48.07
5	10020	50.59	-25	-50.99	4.02	-46.97

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



<b>MODE</b>	Middle channel	<b>FREQUENCY RANGE</b>	Above 1000MHz
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60Hz	<b>ENVIRONMENTAL CONDITIONS</b>	20deg°C, 60%RH 965hPa
<b>TESTED BY</b>	Wen Yu		

<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>						
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	POWER VALUE(dBm)
1	2666.6	62.18	-25	-37.64	6.81	-30.83
2	3466.6	36.01	-25	-67.15	7.80	-59.35
3	5200	47.34	-25	-57.19	7.05	-50.14
4	7800	54.81	-25	-47.81	4.29	-43.52
5	10400	54.38	-25	-47.63	3.66	-43.96

<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>						
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	POWER VALUE(dBm)
1	2666.6	60.38	-25	-39.44	6.81	-32.63
2	3466.6	33.17	-25	-69.99	7.80	-62.19
3	5200	48.13	-25	-56.40	7.05	-49.35
4	7800	51.21	-25	-51.41	4.29	-47.12
5	10400	51.25	-25	-50.76	3.66	-47.09

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



<b>MODE</b>	High channel	<b>FREQUENCY RANGE</b>	Above 1000MHz
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60Hz	<b>ENVIRONMENTAL CONDITIONS</b>	20deg°C, 60%RH 965hPa
<b>TESTED BY</b>	Wen Yu		

<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>						
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	POWER VALUE(dBm)
1	2780	61.32	-25	-39.44	6.92	-32.52
2	3580	33.68	-25	-69.81	7.80	-62.02
3	5370	50.1	-25	-54.69	7.09	-47.59
4	8055	49.6	-25	-53.02	4.13	-48.89
5	10740	55.31	-25	-46.54	3.34	-43.20

<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>						
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	POWER VALUE(dBm)
1	2780	58.31	-25	-42.45	6.92	-35.53
2	3580	33.02	-25	-70.47	7.80	-62.68
3	5370	41.45	-25	-63.34	7.09	-56.24
4	8055	45.91	-25	-56.71	4.13	-52.58
5	10740	55.01	-25	-46.84	3.34	-43.50

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





**CHANNEL BANDWIDTH: 10MHz**

<b>MODE</b>	Low channel	<b>FREQUENCY RANGE</b>	Above 1000MHz
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60Hz	<b>ENVIRONMENTAL CONDITIONS</b>	20deg°C, 60%RH 965hPa
<b>TESTED BY</b>	Wen Yu		

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

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	POWER VALUE(dBm)
1	2540	64.61	-25	-34.16	6.69	-27.47
2	3340	42.17	-25	-60.83	7.62	-53.22
3	5010	43.68	-25	-60.57	7.01	-53.55
4	7515	48.39	-25	-54.23	4.53	-49.70
5	10020	51.63	-25	-49.95	4.02	-45.93

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

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	POWER VALUE(dBm)
1	2540	62.37	-25	-36.40	6.69	-29.71
2	3340	39.09	-25	-63.91	7.62	-56.30
3	5010	39.24	-25	-65.01	7.01	-57.99
4	7515	44.7	-25	-57.92	4.53	-53.39
5	10020	48.52	-25	-53.06	4.02	-49.04

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



<b>MODE</b>	Middle channel	<b>FREQUENCY RANGE</b>	Above 1000MHz
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60Hz	<b>ENVIRONMENTAL CONDITIONS</b>	20deg°C, 60%RH 965hPa
<b>TESTED BY</b>	Wen Yu		

<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>						
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	POWER VALUE(dBm)
1	2666.6	61.29	-25	-38.53	6.81	-31.72
2	3466.6	35.67	-25	-67.49	7.80	-59.69
3	5200	45.21	-25	-59.32	7.05	-52.27
4	7800	52.83	-25	-49.79	4.29	-45.50
5	10400	52.62	-25	-49.39	3.66	-45.72

<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>						
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	POWER VALUE(dBm)
1	2666.6	60.32	-25	-39.50	6.81	-32.69
2	3466.6	33.08	-25	-70.08	7.80	-62.28
3	5200	46.17	-25	-58.36	7.05	-51.31
4	7800	48.15	-25	-54.47	4.29	-50.18
5	10400	50.69	-25	-51.32	3.66	-47.65

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



<b>MODE</b>	High channel	<b>FREQUENCY RANGE</b>	Above 1000MHz
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60Hz	<b>ENVIRONMENTAL CONDITIONS</b>	20deg°C, 60%RH 965hPa
<b>TESTED BY</b>	Wen Yu		

<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>						
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	POWER VALUE(dBm)
1	2780	59.8	-25	-40.96	6.92	-34.04
2	3580	33.63	-25	-69.86	7.80	-62.07
3	5370	48.24	-25	-56.55	7.09	-49.45
4	8055	47.24	-25	-55.38	4.13	-51.25
5	10740	53.1	-25	-48.75	3.34	-45.41

<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>						
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	POWER VALUE(dBm)
1	2780	57.31	-25	-43.45	6.92	-36.53
2	3580	33.17	-25	-70.32	7.80	-62.53
3	5370	40.83	-25	-63.96	7.09	-56.86
4	8055	44.77	-25	-57.85	4.13	-53.72
5	10740	53.15	-25	-48.70	3.34	-45.36

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



## 5 PHOTOGRAPHS OF THE TEST CONFIGURATION

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



## 6 INFORMATION ON THE TESTING LABORATORIES

We, ADT Corp., were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

<b>USA</b>	FCC, UL
<b>GERMANY</b>	TUV Rheinland
<b>JAPAN</b>	VCCI
<b>NORWAY</b>	NEMKO
<b>CANADA</b>	INDUSTRY CANADA , CSA
<b>R.O.C.</b>	TAF, BSMI, NCC
<b>NETHERLANDS</b>	Telefication
<b>SINGAPORE</b>	GOST-ASIA (MOU)
<b>RUSSIA</b>	CERTIS (MOU)

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

**Linko EMC/RF Lab:**

Tel: 886-2-26052180

Fax: 886-2-26051924

**Hsin Chu EMC/RF Lab:**

Tel: 886-3-5935343

Fax: 886-3-5935342

**Hwa Ya EMC/RF/Safety/Telecom Lab: Web Site: [www.adt.com.tw](http://www.adt.com.tw)**

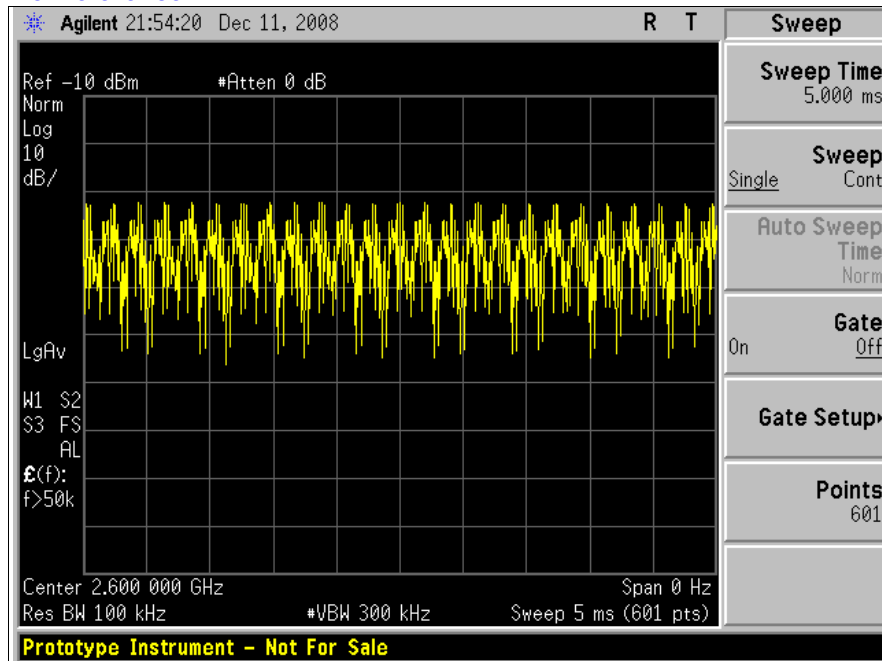
Tel: 886-3-3183232

Fax: 886-3-3185050

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



The ration is approximate 99%.

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