



# FCC TEST REPORT (PART 27)

**REPORT NO.:** RF980511H07

**MODEL NO.:** PXU1900

**RECEIVED:** May 11, 2009

**TESTED:** Aug. 18 to Sep. 04, 2009

**ISSUED:** Oct. 07, 2009

**APPLICANT:** Ubee Interactive Corp.

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**ISSUED BY :** Bureau Veritas Consumer Products Services (H.K.)  
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# 1 CERTIFICATION

**PRODUCT:** 4G Mobile USB  
**BRAND NAME:** Ubee  
**MODEL NO.:** PXU1900  
**APPLICANT:** Ubee Interactive Corp.  
**TESTED:** Aug. 18 to Sep. 04, 2009  
**TEST SAMPLE:** R&D 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.: PXU1900) 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 :** Sunny Wen , **DATE:** Oct. 07, 2009  
( Sunny Wen, Specialist )

**TECHNICAL ACCEPTANCE :** Hank Chung , **DATE:** Oct. 07, 2009  
Responsible for RF ( Hank Chung, Deputy Manager )

**APPROVED BY :** May Chen , **DATE:** Oct. 07, 2009  
( 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 16-4-2:

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>	4G Mobile USB
<b>MODEL NO.</b>	PXU1900
<b>FCC ID</b>	XCNPXU1900
<b>POWER SUPPLY</b>	DC 5V from host equipment
<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>FREQUENCY RANGE</b>	2499MHz ~ 2686.75MHz
<b>CHANNEL BANDWIDTH</b>	5MHz & 10MHz
<b>MAX. EIRP POWER</b>	5MHz: 28.2dBm 10MHz: 28.05dBm
<b>MAX. CONDUCTED POWER</b>	5MHz: 23.34dBm 10MHz: 23.43dBm
<b>ANTENNA TYPE</b>	Please see note 1
<b>DATA CABLE</b>	NA
<b>INTERFACE</b>	USB port
<b>ASSOCIATED DEVICES</b>	Right Angle Connector (Rotary USB Adapter)

**NOTE:**

1. There is one dual feed antenna in the EUT and please refer to the following table for specification:

Brand	Model No.	Gain (dBi)	Antenna Type	Connector	Frequency range (MHz)	Cable Loss (dB)	Cable Length
Skycross	iMAT-1115	3	dual feed, combined monopole	NA	2496 ~ 2690	NA	NA

There are two antennas within the USB Performance Dock (Antenna Cradle) and please refer to the following table for specifications:

Brand	Model No.	Gain (dBi)	Antenna Type	Connector	Frequency range (MHz)	Cable Loss (dB)	Cable Length
Skycross	2-3515	6.5	planar coaxial dipole array	MS-147	2496 ~ 2690	0.3	95mm
	2-3516						
Data cable	USB cable (shielded 0.9m)			Note	This is optional device for marketing.		



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2. For the EUT modulation type and coding rate. After pre-testing items of output power and spurious emissions, QPSK-3/4 was found to be 5MHz worst case, 16QAM-3/4 was found to be 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

3. The measured conducted output powers are listed below.

Conducted power of Ant 1 ( dBm )				Conducted power of Ant 2 ( dBm )			
QPSK 1/2				QPSK 1/2			
Frequency (MHz)	BW :5MHz	Frequency (MHz)	BW:10MHz	Frequency (MHz)	BW :5MHz	Frequency (MHz)	BW:10MHz
2499.00	23.22	2508.5	22.54	2499	23.20	2508.5	22.50
2600.00	23.13	2600	23.09	2600	23.11	2600	23.05
2686.75	23.24	2683.5	23.07	2686.75	23.20	2683.5	23.00
QPSK 3/4				QPSK 3/4			
Frequency (MHz)	BW :5MHz	Frequency (MHz)	BW:10MHz	Frequency (MHz)	BW :5MHz	Frequency (MHz)	BW:10MHz
2499.00	23.12	2508.50	22.65	2499.00	23.11	2508.50	22.63
2600.00	23.20	2600.00	23.43	2600.00	23.18	2600.00	23.28
2686.75	23.34	2683.50	22.9	2686.75	23.31	2683.50	22.81
16QAM 1/2				16QAM 1/2			
Frequency (MHz)	BW :5MHz	Frequency (MHz)	BW:10MHz	Frequency (MHz)	BW :5MHz	Frequency (MHz)	BW:10MHz
2499.00	23.16	2508.50	22.82	2499.00	23.13	2508.50	22.69
2600.00	23.14	2600.00	23.19	2600.00	23.11	2600.00	23.17
2686.75	23.15	2683.50	23.18	2686.75	23.14	2683.50	23.13
16QAM 3/4				16QAM 3/4			
Frequency (MHz)	BW :5MHz	Frequency (MHz)	BW:10MHz	Frequency (MHz)	BW :5MHz	Frequency (MHz)	BW:10MHz
2499.00	23.02	2508.50	23.07	2499.00	23.00	2508.50	22.47
2600.00	23.33	2600.00	23.19	2600.00	23.18	2600.00	23.11
2686.75	23.33	2683.50	23.11	2686.75	23.30	2683.50	23.07



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4. The EUT was pre-tested in chamber in the following procedure:

With Right Angle Connector as an accessory, the EUT with and without the Right Angel Connector are evaluated.

Base on the investigation of spurious emission, the worst case happens while testing the EUT with the Right Angle Connector.

The table below is the summary of the test modes for the EUT with Right Angle Connector:

Test Mode	Description
Mode A	Vertical orientation on USB dongle
Mode B	Horizontal orientation on USB dongle
Mode C	Horizontal orientation on USB dongle and connector swivel to 0° at XY axis.
<b>Mode D</b>	<b>Horizontal orientation on USB dongle and connector swivel to 90° at XY axis.</b>
Mode E	Horizontal orientation on USB dongle and connector swivel to 180° at XY axis

From the above modes, the radiated emission worse case was found in **Mode D**. Therefore only the test data of the mode was recorded in this report.

5. The EUT supports MIMO in the Downlink and SIMO in the Uplink. The EUT has two antennas, two receivers and one transmitter. During the downlink portion of the WiMAX frame the two antennas are connected to two receivers in the modem. The transmitter output is connected via a switch to both antennas. This allows the modem to use either antenna 1 or antenna 2 during the uplink portion of the WiMAX frame.
6. There EUT runs embedded WiMAX software. The EUT is plugged into a notebook computer. An application running on the notebook computer is used to set the transmit power.
7. The EUT supports a range of DL/UL ratios. The maximum DL:UL ratio will be set to 29:18 for 5MHz and 10MHz by software. This ratio was chosen because it is the agreed upon ratio used by carriers in the US. The max. UL consists of 18 symbols. The first 3 symbols are allocated for control symbols.
8. 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):** 2499MHz.

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

**High channel (H):** 2686.75MHz.

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

**Low channel (L):** 2508.5MHz.

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

**High channel (H):** 2683.5MHz.



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### 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 With extension Right Angle Connector
MODE 2	√	-	√	√	√	√	√	Channel Bandwidth: 10MHz With extension Right Angle Connector
MODE 3	√	-	-	-	-	√	√	Channel Bandwidth: 5MHz with USB Performance Dock
MODE 4	√	-	-	-	-	√	√	Channel Bandwidth: 10MHz with USB Performance Dock

Where **OP**: Output power  
**EB**: Emission bandwidth  
**CSE**: Conducted spurious emissions  
**RE<sup>3</sup>1G**: Radiated emission above 1GHz  
**FS**: Frequency stability  
**CE**: Channel edge  
**RE<1G**: Radiated emission below 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
MODE 2	L, M, H	OFDMA	16QAM
MODE 3	L, M, H	OFDMA	QPSK
MODE 4	L, M, H	OFDMA	16QAM

**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	Un-modulation

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

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

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

**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	H	OFDMA	QPSK
MODE 2	M	OFDMA	16QAM
MODE 3	H	OFDMA	QPSK
MODE 4	M	OFDMA	16QAM

**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
MODE 2	L, M, H	OFDMA	16QAM
MODE 3	L, M, H	OFDMA	QPSK
MODE 4	L, M, H	OFDMA	16QAM

### 3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT has RF transmitter and receiver. 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.

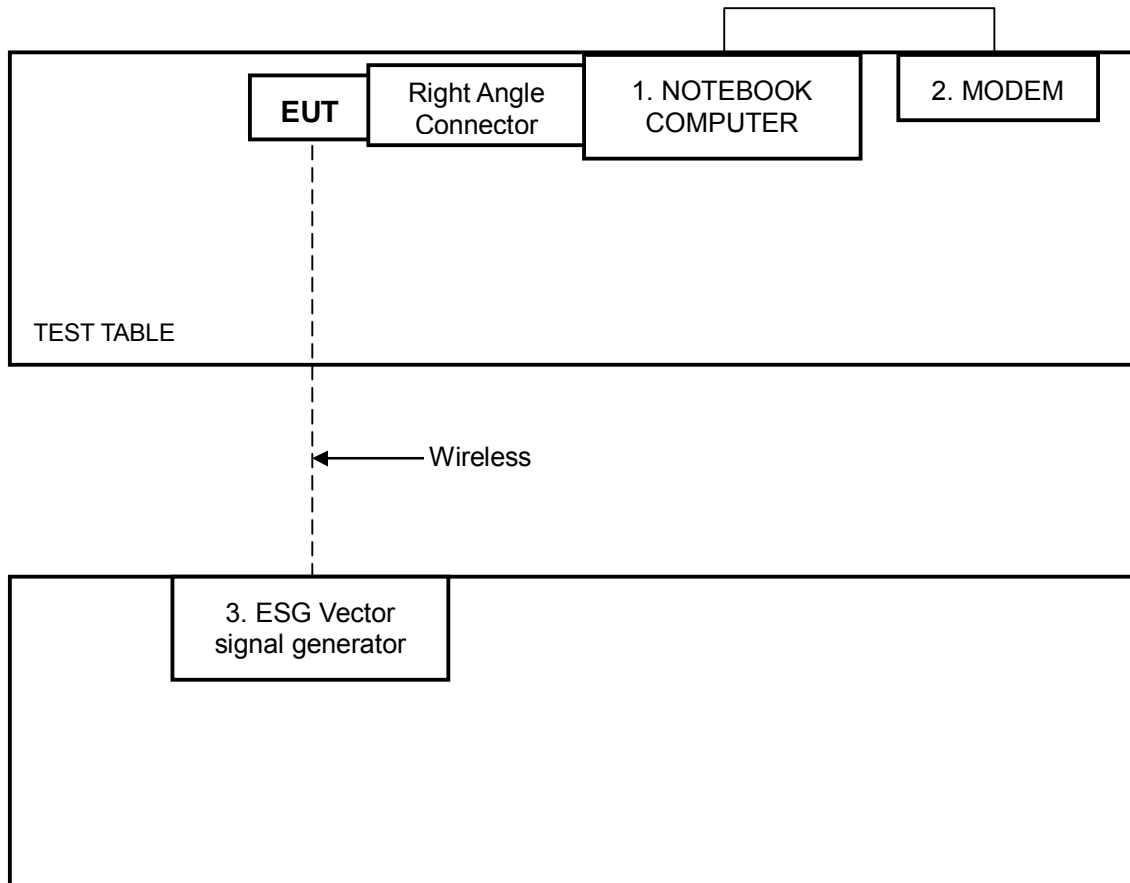
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP17L	CN-ONF743-48643-7AV-0124	DoC
2	MODEM	ACEEX	1414	0206026776	IFAXDM1414
3	ESG Vector signal generator	Agilent	E4438C	MY45094468/005 506 602 UK6 UNJ	NA

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA
2	1.2 m braid shielded wire, terminated with DB25 and DB9 connector via metallic frame, w/o core.
3	NA

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

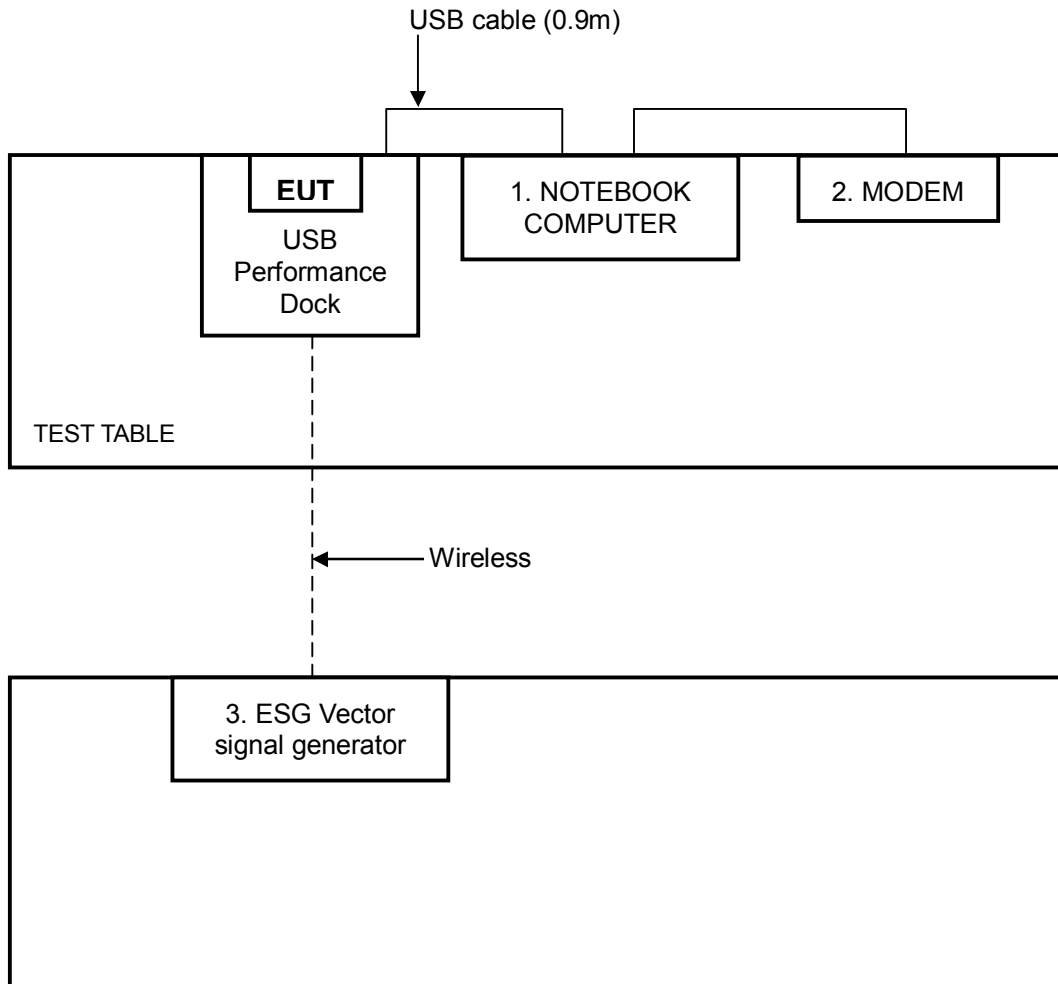
### 3.4.1 CONFIGURATION OF SYSTEM UNDER TEST

#### With Right Angle Connector test:





**With USB Performance Dock 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.”



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#### 4.1.2 TEST INSTRUMENTS

For Conducted Power:

Description & Manufacturer	Model No.	Serial No.	CALIBRATED DATE	CALIBRATED UNTIL
Agilent Spectrum Analyzer	E4440A	MY46185282	June 29, 2009	June 28, 2010
HUBER+SUHNER	SUCOFLEX104	222684/4	Aug. 15, 2009	Aug. 14, 2010

**NOTE:**

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

For EIRP Power:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Spectrum Analyzer	FSP40	100036	Dec. 09, 2008	Dec. 08, 2009
Agilent PSA Spectrum Analyzer	E4446A	MY46180622	Apr. 24, 2009	Apr. 23, 2010
HP Pre_Amplifier	8449B	3008A01923	Nov. 10, 2008	Nov. 09, 2009
ROHDE & SCHWARZ Test Receiver	ESCS30	847124/029	Sep. 09, 2008	Sep. 08, 2009
SCHWARZBECK TRILOG Broadband Antenna	VULB 9168	138	April 29, 2009	April 28, 2010
Schwarzbeck Horn_Antenna	BBHA9120	D124	Dec. 09, 2008	Dec. 08, 2009
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 22, 2009	Jan. 21, 2010
RF Switches	EMH-011	08009	Oct. 07, 2008	Oct. 06, 2009
RF CABLE (Chaintek)	Sucoflex 106	28077	Aug. 15, 2009	Aug. 14, 2010
RF Cable	8DFB	STCCAB-30M-1GHz	Oct. 07, 2008	Oct. 06, 2009
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, HP 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:

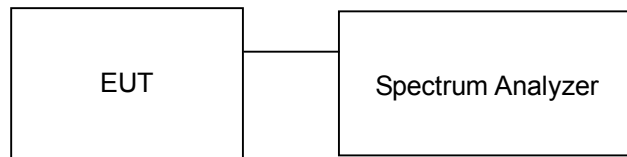
- a. Set span to encompass the entire emission bandwidth (EBW) of the signal.
- b. For Channel bandwidth: 5 MHz:  
Set RBW=56kHz, VBW=160kHz, Detector mode=RMS.
- c. For Channel bandwidth: 10 MHz:  
Set RBW=110kHz, VBW=330kHz, Detector mode= RMS.
- d. Computer power by integrating the spectrum across the 26dB EBW of the signal.
- e. Record the power level.
- f. The “Read Value” is the spectrum reading the maximum power value.

For EIRP Power:

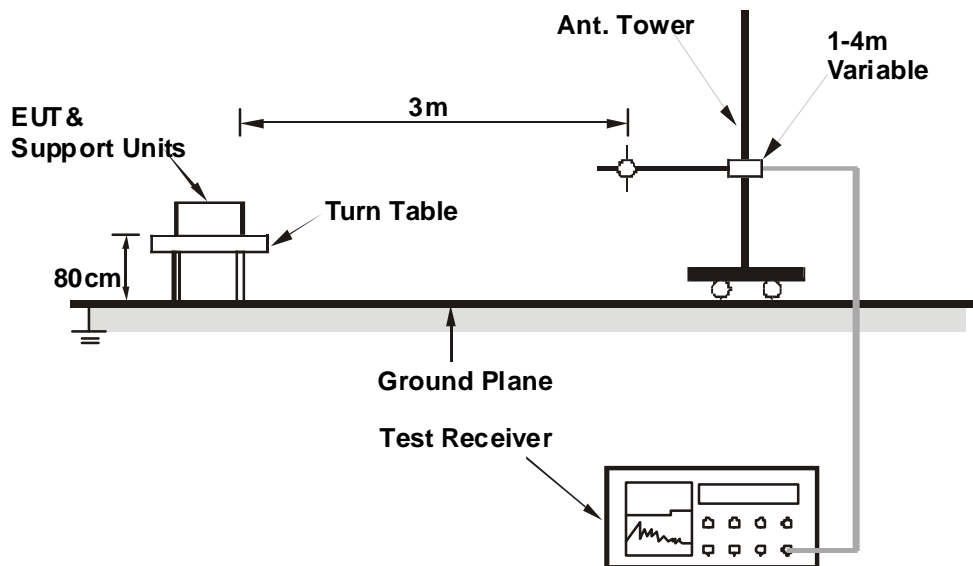
- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the receiving antenna, which was mounted on antenna tower and its position at 0.8 m above the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

##### CONDUCTED POWER MEASUREMENT:



##### EIRP POWER MEASUREMENT:



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

#### 4.1.5 EUT OPERATING CONDITIONS

- a. Connect the EUT with the support unit 1 (Notebook Computer) which is placed on a testing table.
- b. Running on the notebook computer, the test program “Beceem Diagnostic Control Panel 3.3.0” was used to set the frequency and force the dongle into continuous transmit mode.



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#### 4.1.6 TEST RESULTS

##### CHANNEL BANDWIDTH: 5MHz with Right Angle Connector

<b>INPUT POWER (SYSTEM)</b>	120Vac, 60Hz	<b>DETECTOR FUNCTION</b>	RMS
<b>ENVIRONMENTAL CONDITIONS</b>	20deg°C, 60%RH 960hPa	<b>TESTED BY</b>	Phoenix Huang

EIRP POWER						
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	2499	117.23	33	18.75	6.65	25.4
2	2600	117.84	33	18.57	6.75	25.32
3	2686.75	118.65	33	18.67	6.83	25.5
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	2499	108.63	33	10.15	6.65	16.8
2	2600	109.94	33	10.67	6.75	17.42
3	2686.75	110.35	33	10.37	6.83	17.2

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	2499	205.116	23.12
Middle	2600	208.930	23.2
High	2686.75	215.774	23.34



A D T

### CHANNEL BANDWIDTH: 5MHz with USB Performance Dock

<b>INPUT POWER (SYSTEM)</b>	120Vac, 60Hz	<b>DETECTOR FUNCTION</b>	RMS
<b>ENVIRONMENTAL CONDITIONS</b>	20deg°C, 60%RH 960hPa	<b>TESTED BY</b>	Phoenix Huang

### EIRP POWER

#### 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	2499	109.63	33	11.15	6.65	17.8
2	2600	109.82	33	10.55	6.75	17.3
3	2686.75	110.55	33	10.57	6.83	17.4

#### 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	2499	119.95	33	21.47	6.65	28.12
2	2600	120.68	33	21.41	6.75	28.16
3	2686.75	121.35	33	21.37	6.83	28.2

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

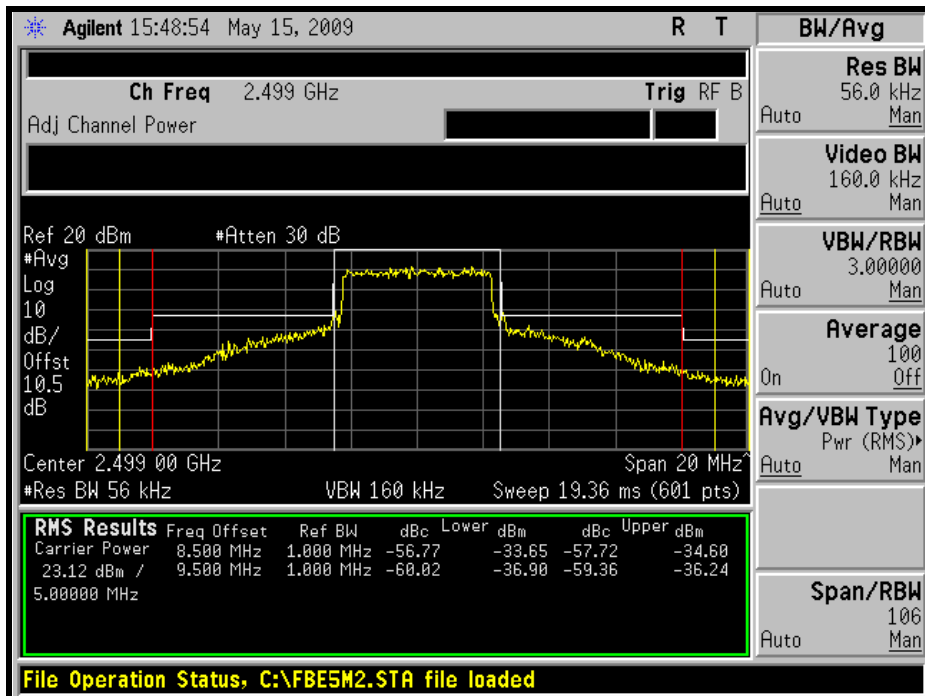
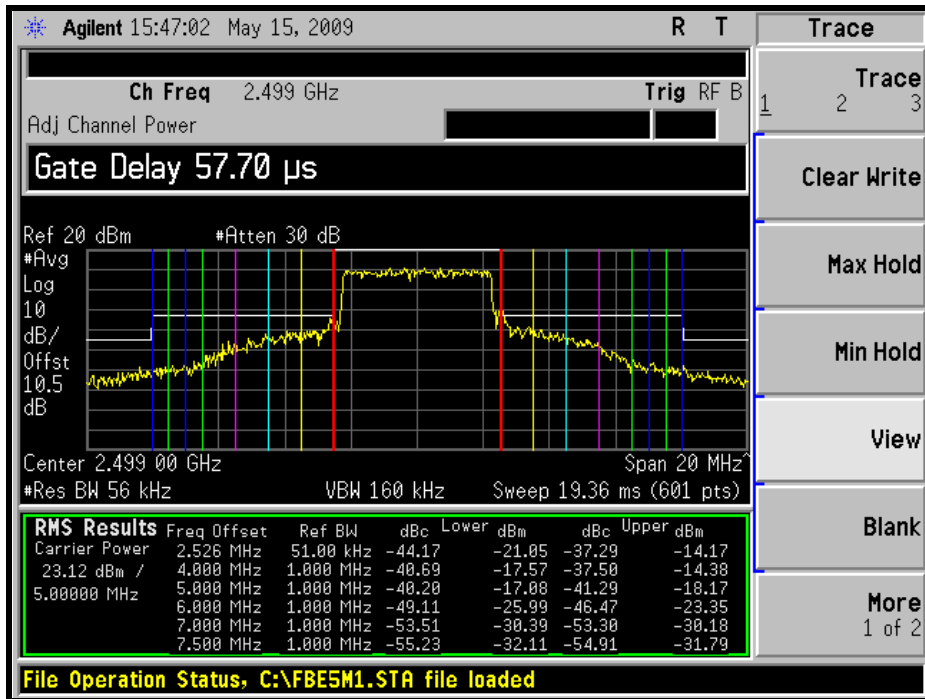
### CONDUCTED POWER

CHANNEL	FREQUENCY (MHz)	POWER OUTPUT(mW)	POWER OUTPUT(dBm)
Low	2499	205.116	23.12
Middle	2600	208.930	23.2
High	2686.75	215.774	23.34



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LOW CHANNEL

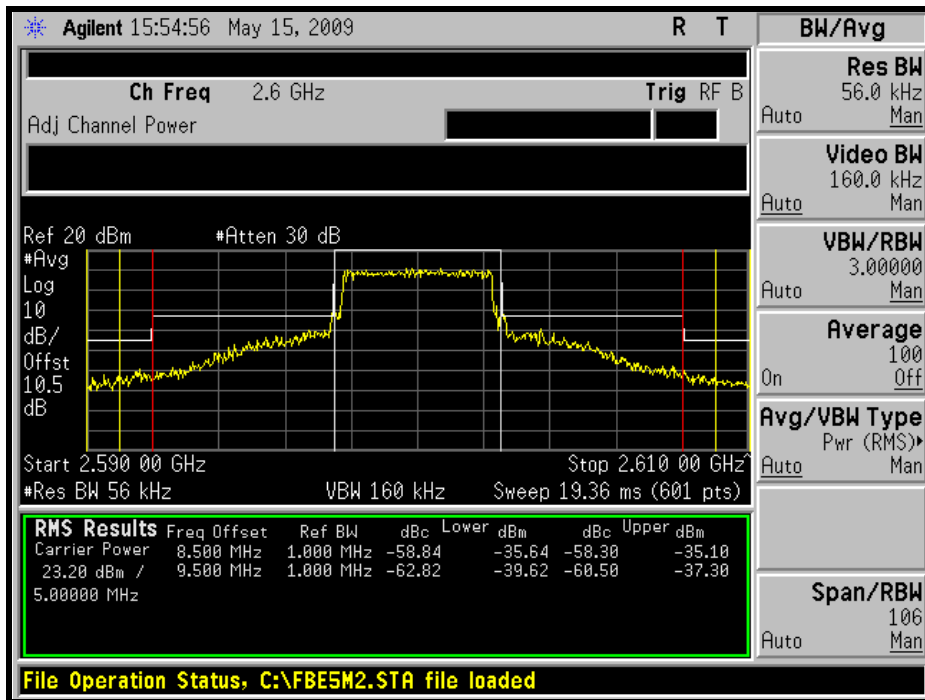
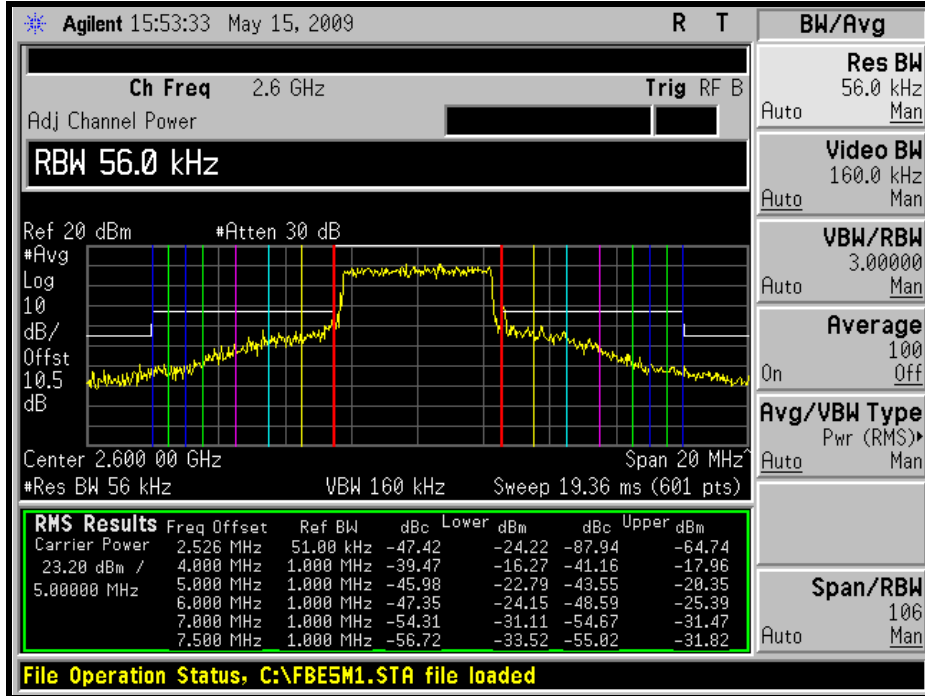






A D T

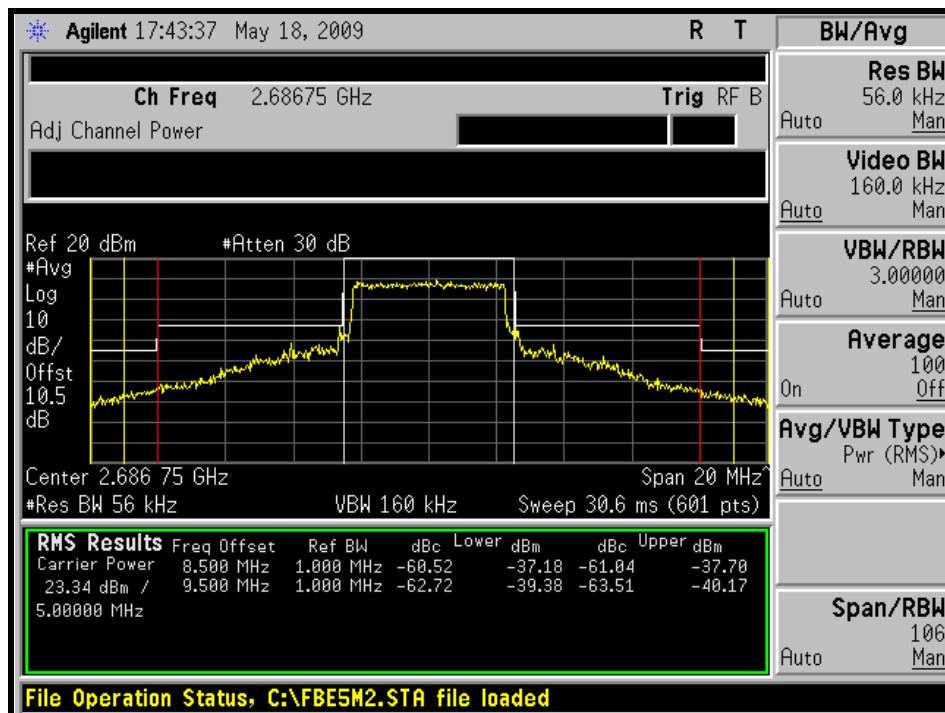
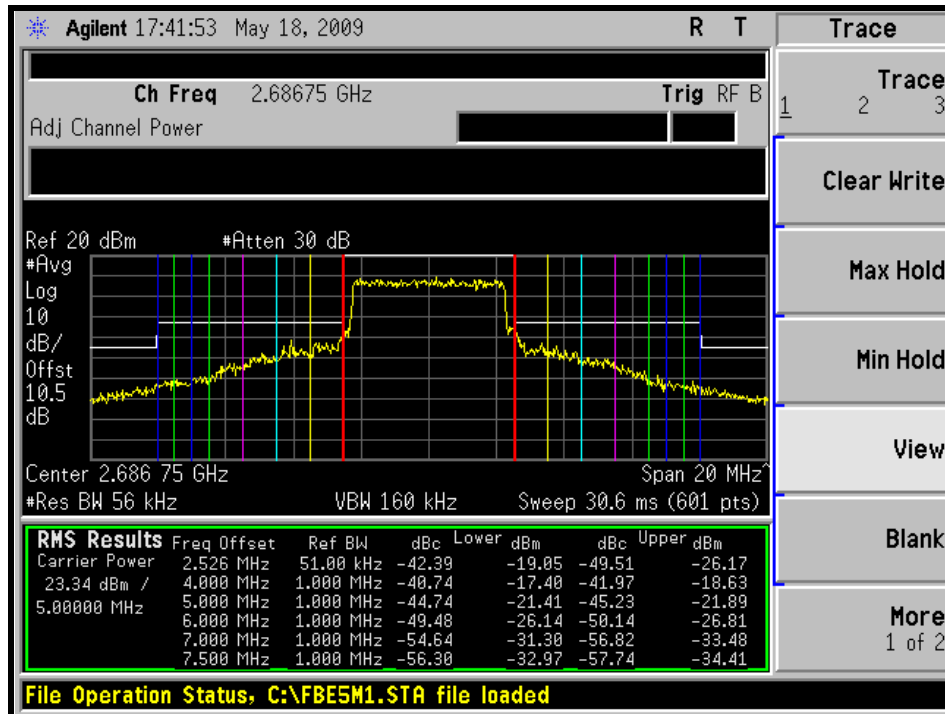
MIDDLE CHANNEL





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### HIGH CHANNEL





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**CHANNEL BANDWIDTH: 10MHz with Right Angle Connector**

<b>INPUT POWER (SYSTEM)</b>	120Vac, 60Hz	<b>DETECTOR FUNCTION</b>	RMS
<b>ENVIRONMENTAL CONDITIONS</b>	20deg°C, 60%RH 960hPa	<b>TESTED BY</b>	Phoenix Huang

**EIRP POWER**

**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	2508.5	117.13	33	18.65	6.65	25.3
2	2600	117.92	33	18.65	6.75	25.4
3	2683.5	118.45	33	18.47	6.83	25.3

**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	2508.5	110.33	33	11.85	6.65	18.5
2	2600	110.72	33	11.45	6.75	18.2
3	2683.5	111.45	33	11.47	6.83	18.3

**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	2508.5	202.768	23.07
Middle	2600	208.449	23.19
High	2683.5	204.644	23.11



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**CHANNEL BANDWIDTH: 10MHz with USB Performance Dock**

<b>INPUT POWER (SYSTEM)</b>	120Vac, 60Hz	<b>DETECTOR FUNCTION</b>	RMS
<b>ENVIRONMENTAL CONDITIONS</b>	20deg°C, 60%RH 960hPa	<b>TESTED BY</b>	Phoenix Huang

**EIRP POWER**

**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	2508.5	108.58	33	10.1	6.65	16.75
2	2600	109.24	33	9.97	6.75	16.72
3	2683.5	109.57	33	9.59	6.83	16.42

**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	2508.5	119.88	33	21.4	6.65	28.05
2	2600	120.55	33	21.28	6.75	28.03
3	2683.5	121.17	33	21.19	6.83	28.02

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

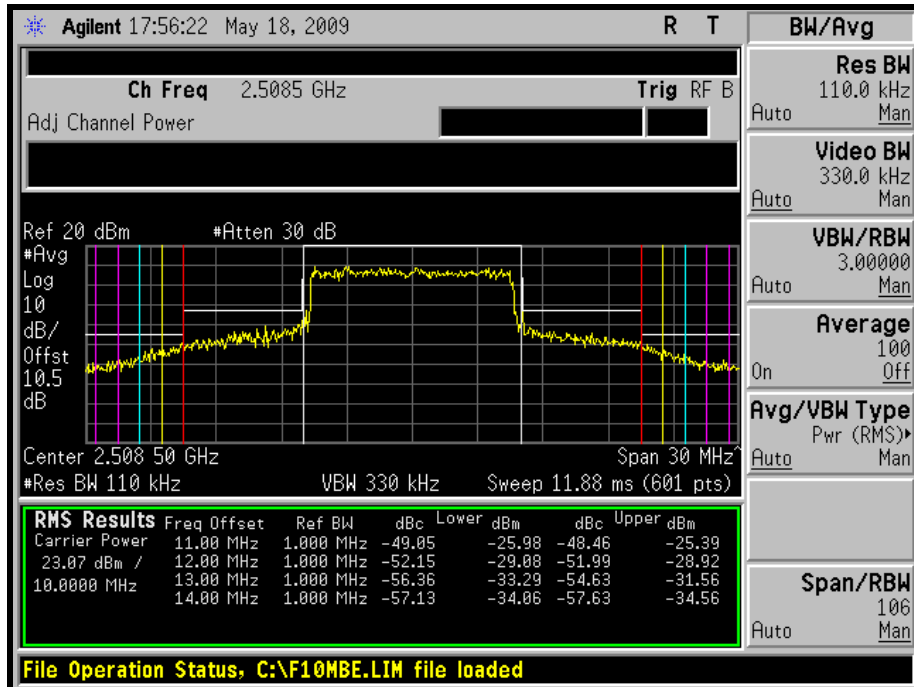
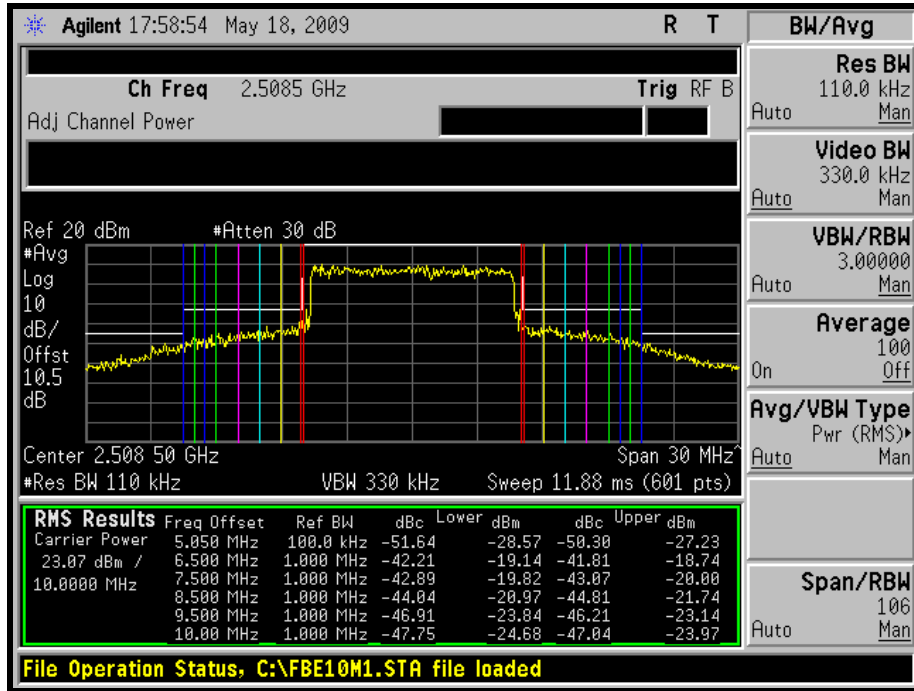
**CONDUCTED POWER**

CHANNEL	FREQUENCY (MHz)	POWER OUTPUT(mW)	POWER OUTPUT(dBm)
Low	2508.5	202.768	23.07
Middle	2600	208.449	23.19
High	2683.5	204.644	23.11



A D T

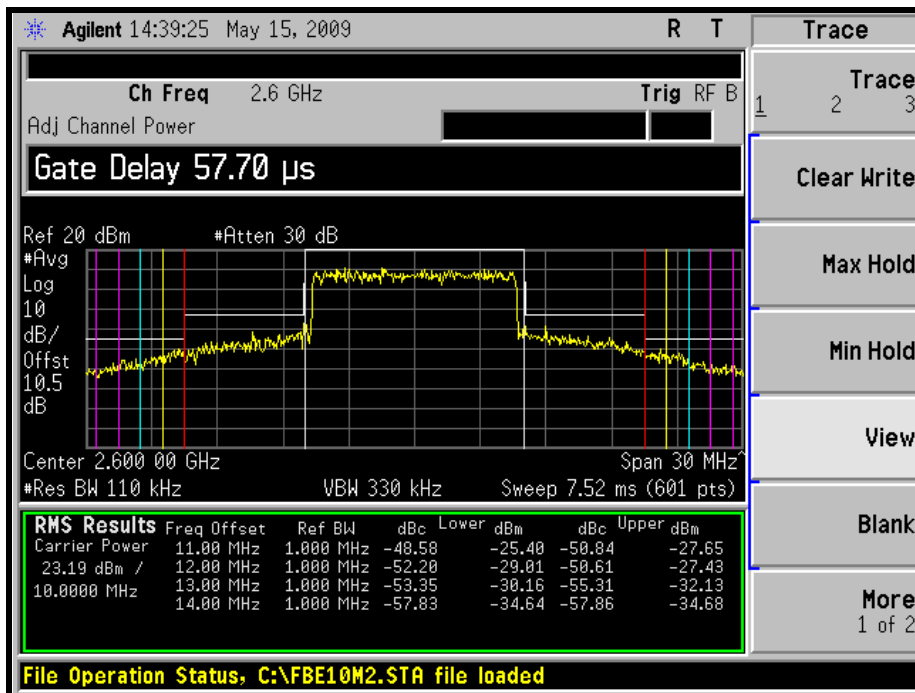
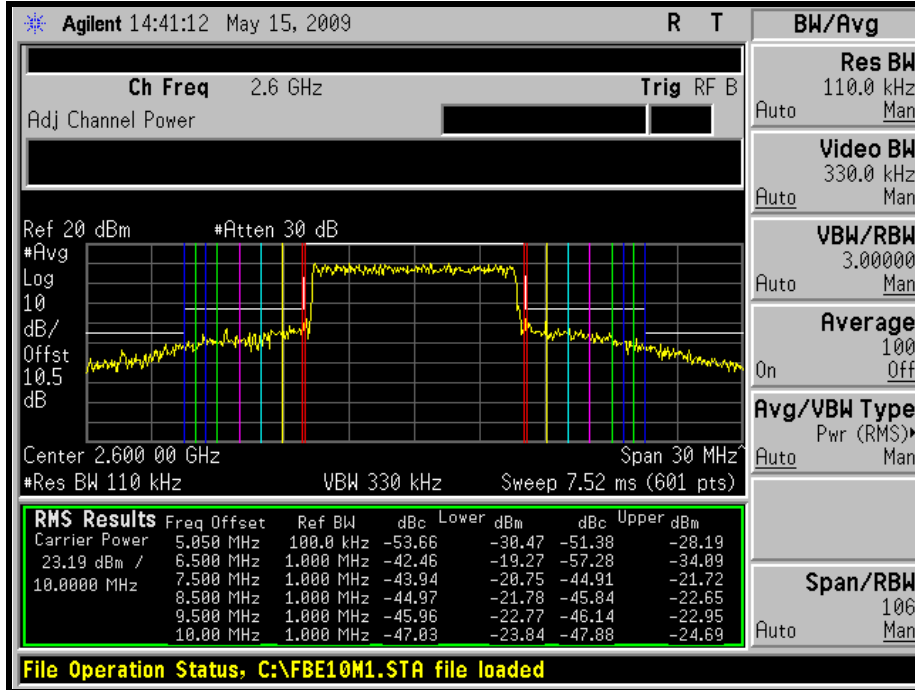
LOW CHANNEL





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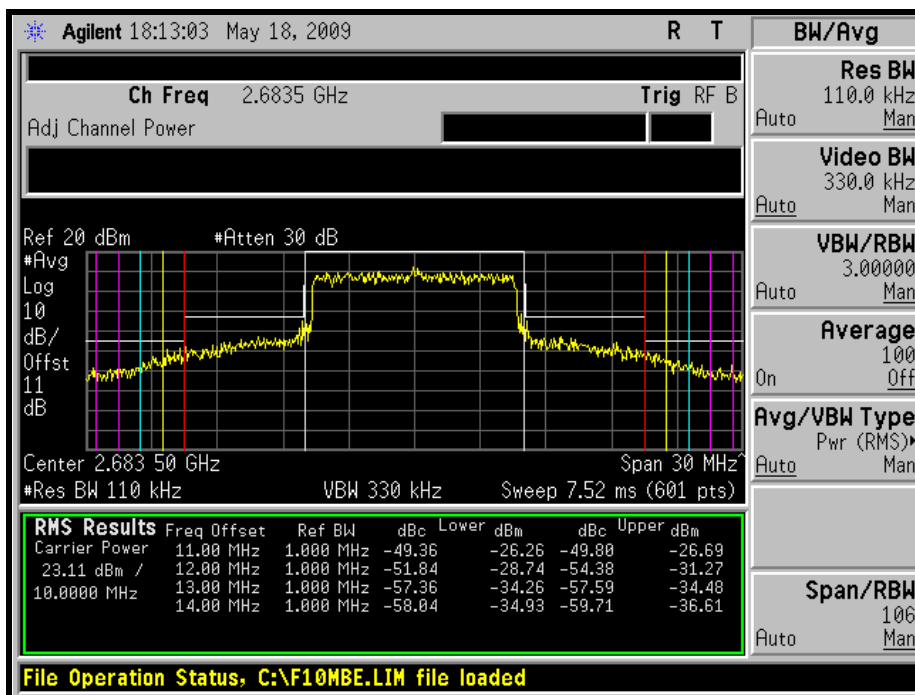
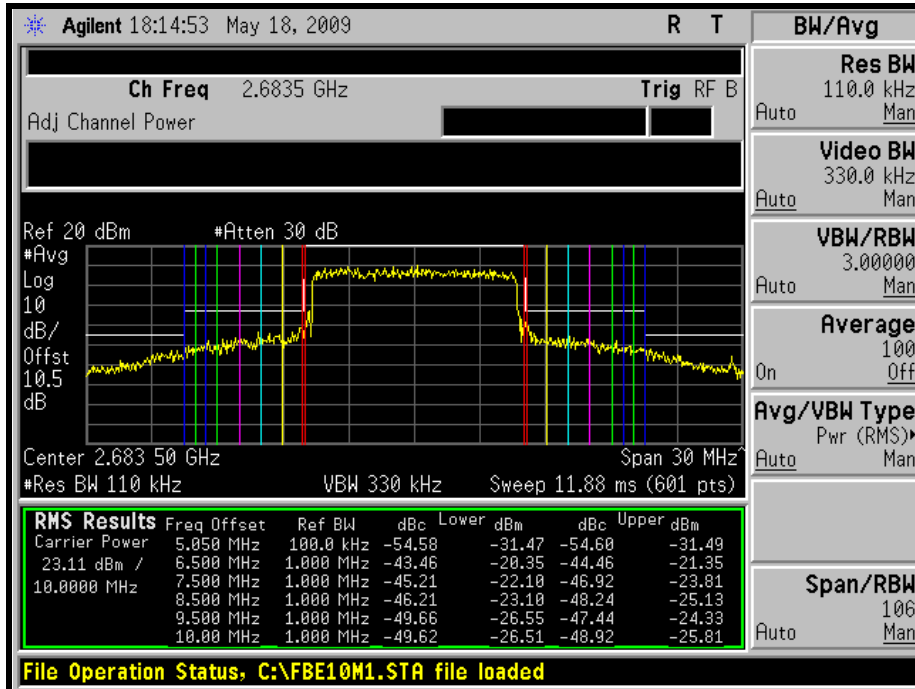
MIDDLE CHANNEL





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### 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  $-30^{\circ}\text{C} \sim 50^{\circ}\text{C}$ .

### 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. 18, 2008	Dec. 17, 2009
HUBER+SUHNER	SUCOFLEX104	222684/4	Aug. 15, 2009	Aug. 14, 2010
AC POWER SOURCE	6205	1140503	NA	NA

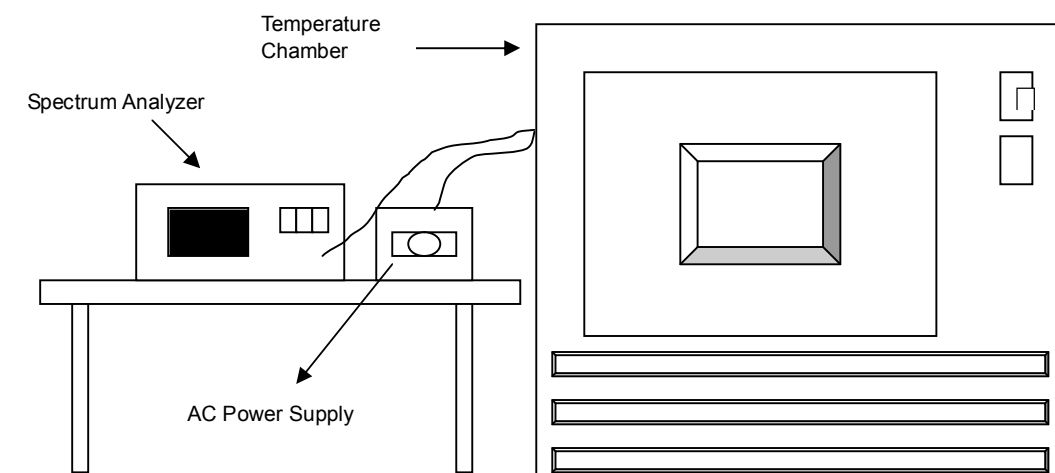
**NOTE:** 1. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to NML/ROC and NIST/USA.



#### 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 (2600MHz)	<b>INPUT POWER (SYSTEM)</b>	120Vac, 60Hz
<b>ENVIRONMENTAL CONDITIONS</b>	20deg°C, 60%RH 960hPa	<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	2599.9997	0.000012	2599.9800	0.000769	2599.9820	0.000692
120	2599.99977	0.000009	2599.9940	0.000231	2599.9890	0.000423
102	2599.9998	0.000008	2599.9870	0.000500	2599.9910	0.000346

AFC FREQUENCY ERROR VS. TEMP						
TEMP (°C)	2Minutes		5Minutes		10Minutes	
	FREQUENCY (MHz)	PPM (%)	FREQUENCY (MHz)	PPM (%)	FREQUENCY (MHz)	PPM (%)
50	2599.9997	0.000012	2599.9999	0.000004	2599.9998	0.000008
40	2599.9993	0.000027	2599.9995	0.000019	2599.9996	0.000015
30	2599.9992	0.000031	2599.9994	0.000023	2599.9993	0.000027
20	2599.99977	0.000009	2599.9940	0.000231	2599.9890	0.000423
10	2600.0045	0.000173	2600.047	0.001808	2600.0440	0.001692
0	2600.0081	0.000312	2600.0077	0.000296	2600.0078	0.000300
-10	2600.01164	0.000448	2600.0118	0.000454	2600.0115	0.000442
-20	2600.0126	0.000485	2600.0128	0.000492	2600.0125	0.000481
-30	2600.0143	0.000550	2600.1460	0.005615	2600.1450	0.005577

### 4.3 EMISSION BANDWIDTH MEASUREMENT

#### 4.3.1 LIMITS OF EMISSION BANDWIDTH MEASUREMENT

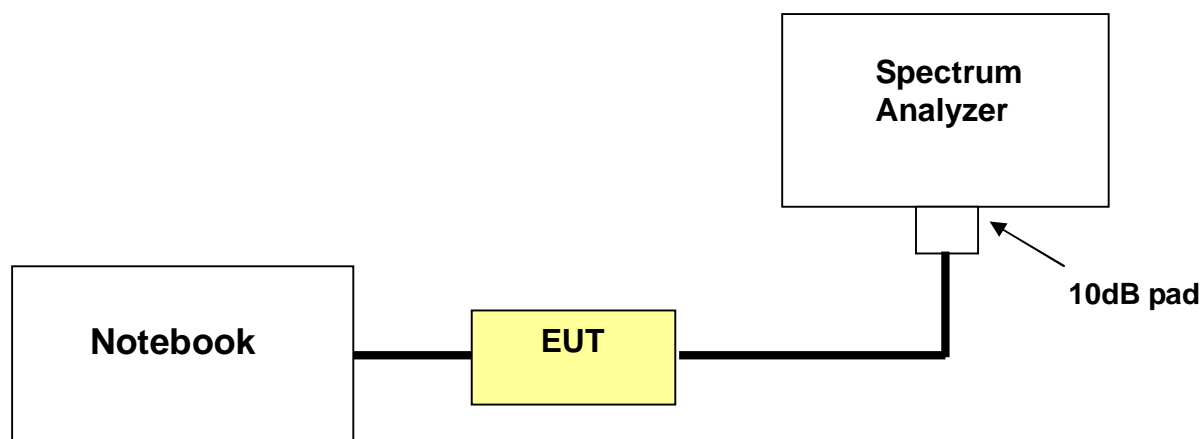
According to FCC 27.53(m)(6) specified that emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26dB below the transmitter power.

#### 4.3.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	CALIBRATED DATE	CALIBRATED UNTIL
Agilent Spectrum Analyzer	E4446A	MY46180622	Apr. 24 , 2009	Apr. 23 , 2010
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.



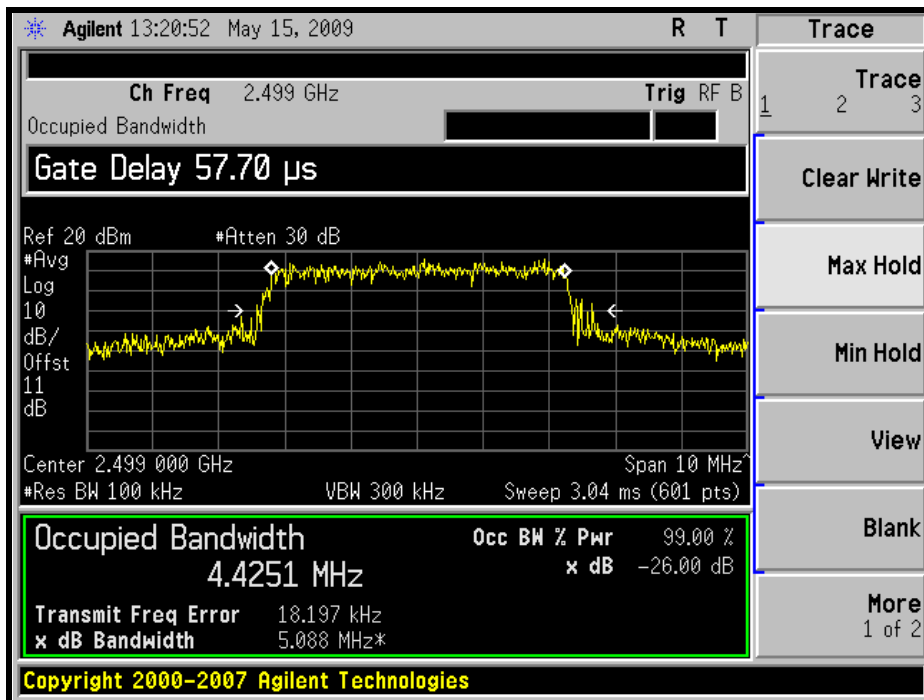
A D T

### 4.3.5 TEST RESULTS

#### CHANNEL BANDWIDTH: 5MHz

FREQUENCY (MHz)	-26 dBc BANDWIDTH (MHz)
2499	5.088
2600	5.186
2686.75	5.334

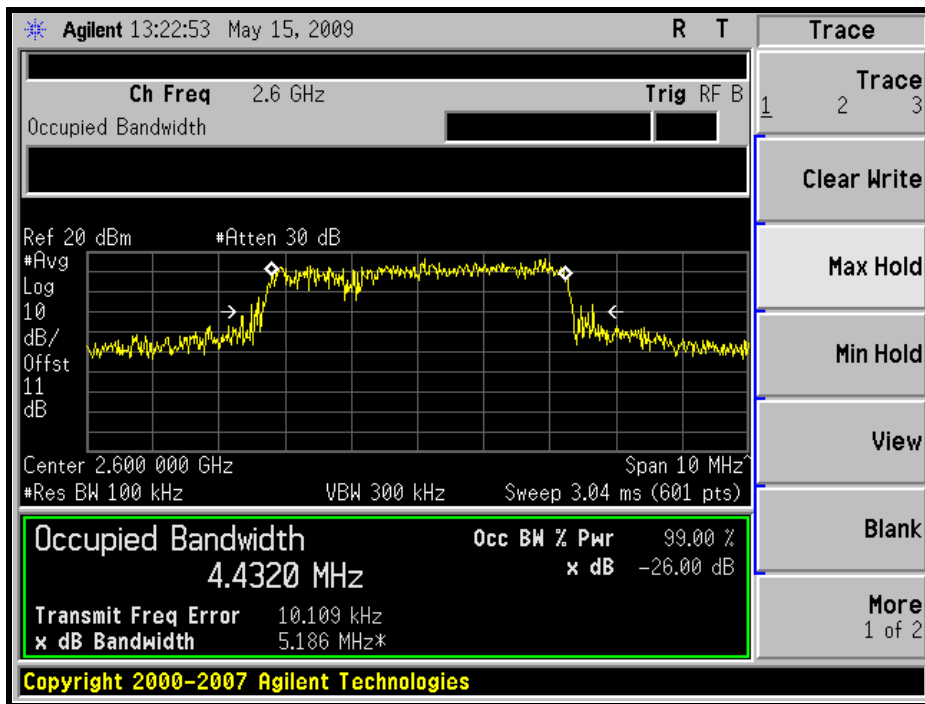
#### LOW CHANNEL



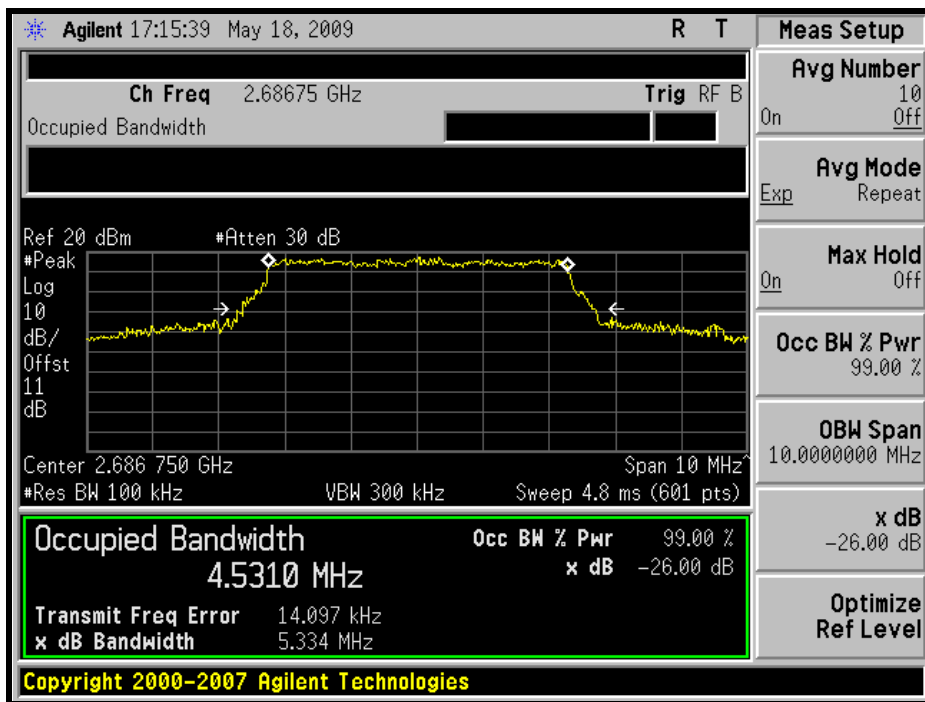


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### MIDDLE CHANNEL



### HIGH CHANNEL



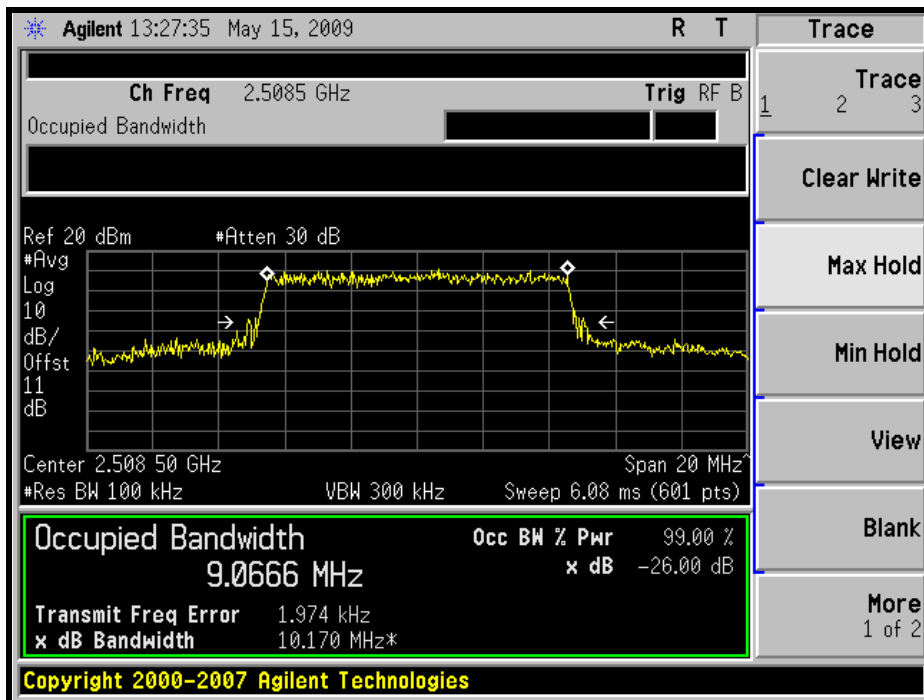


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### CHANNEL BANDWIDTH: 10MHz

FREQUENCY (MHz)	-26 dBc BANDWIDTH (MHz)
2508.5	10.17
2600	10.212
2683.5	10.218

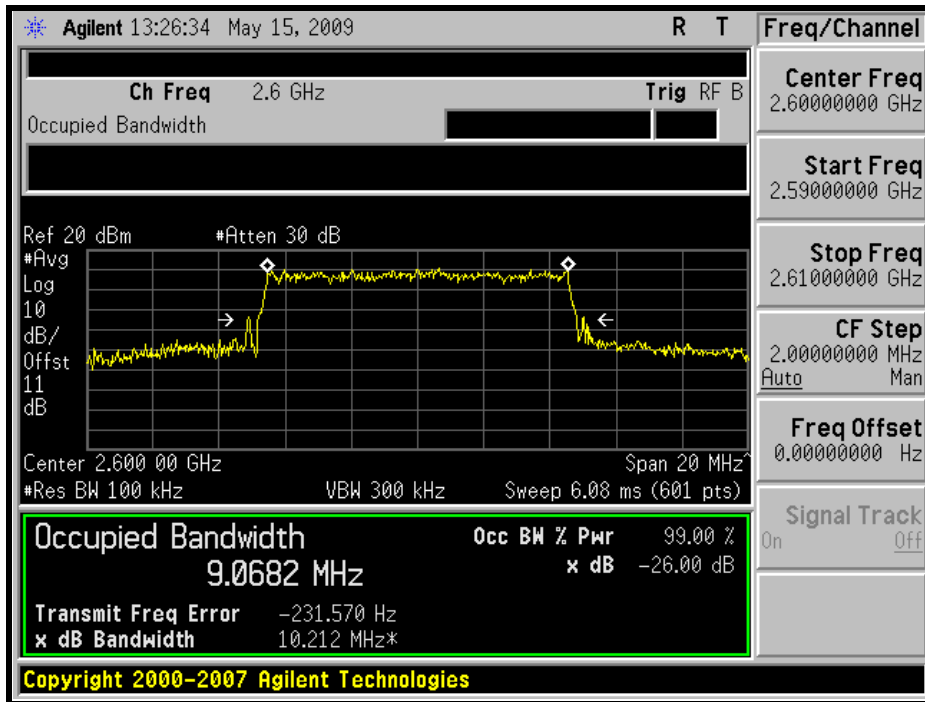
### LOW CHANNEL



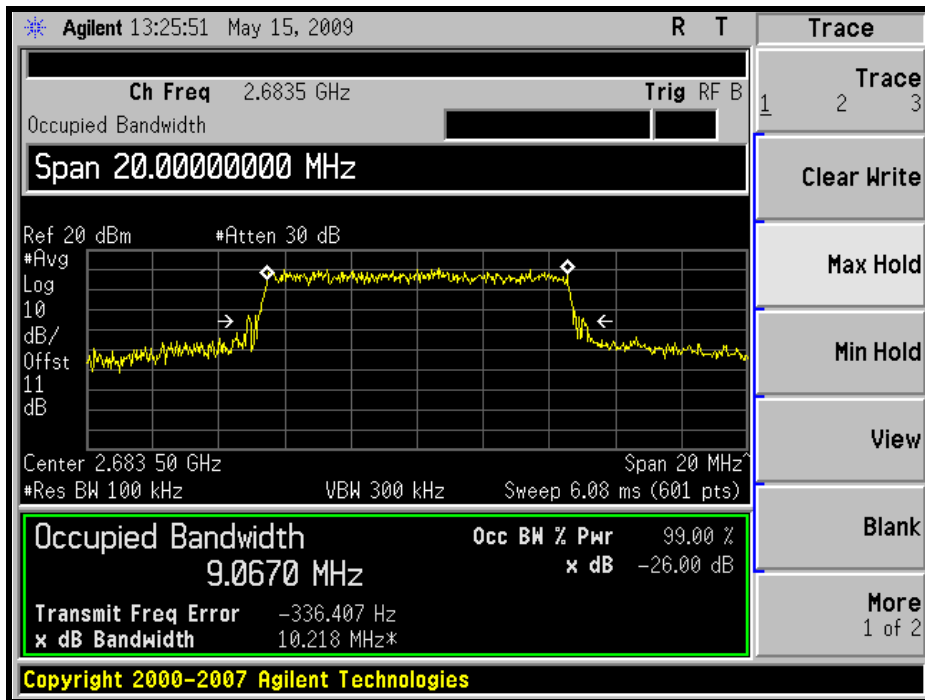


A D T

### 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	Apr. 24 , 2009	Apr. 23 , 2010
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 56kHz and VB of the spectrum is 160kHz.
- c. For Channel bandwidth: 10 MHz:  
The center frequency of spectrum is the band edge frequency and span is 30MHz. RB of the spectrum is 110kHz and VB of the spectrum is 330kHz.
- d. Record the max trace plot into the test report.

#### 4.4.5 EUT OPERATING CONDITION

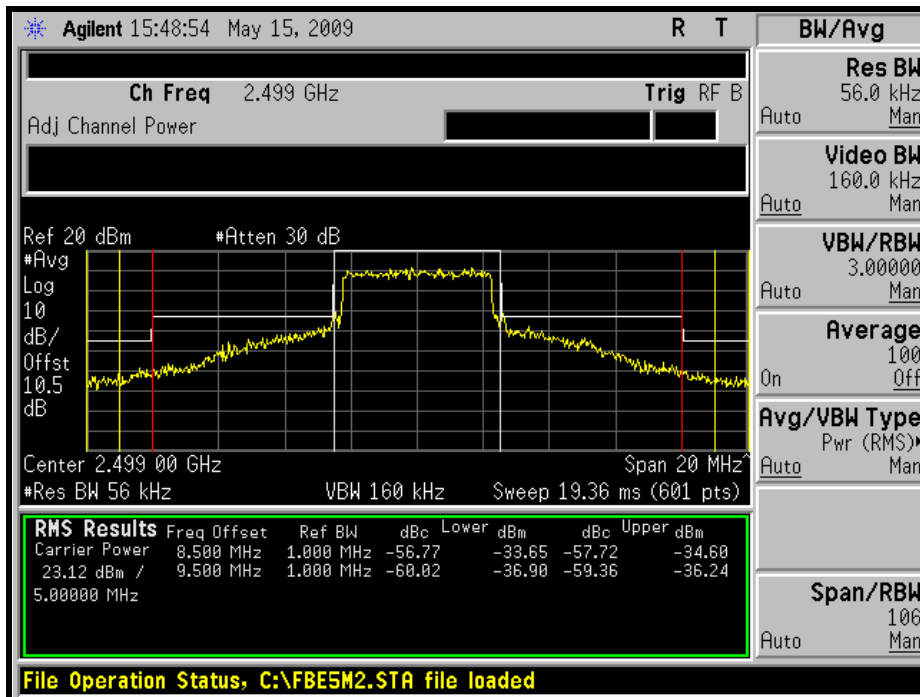
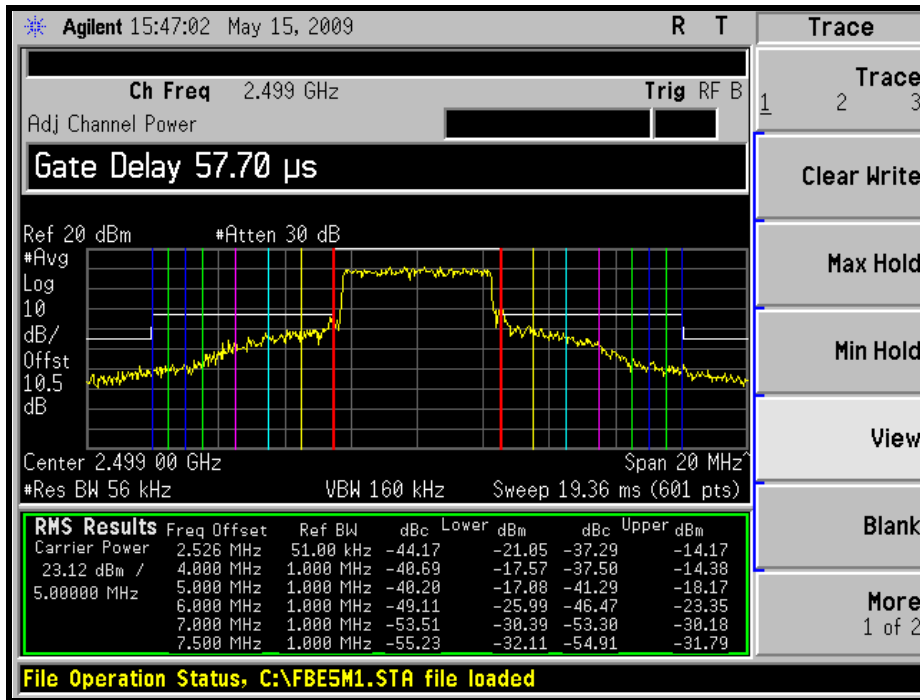
Same as item 4.1.5



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#### 4.4.6 TEST RESULTS

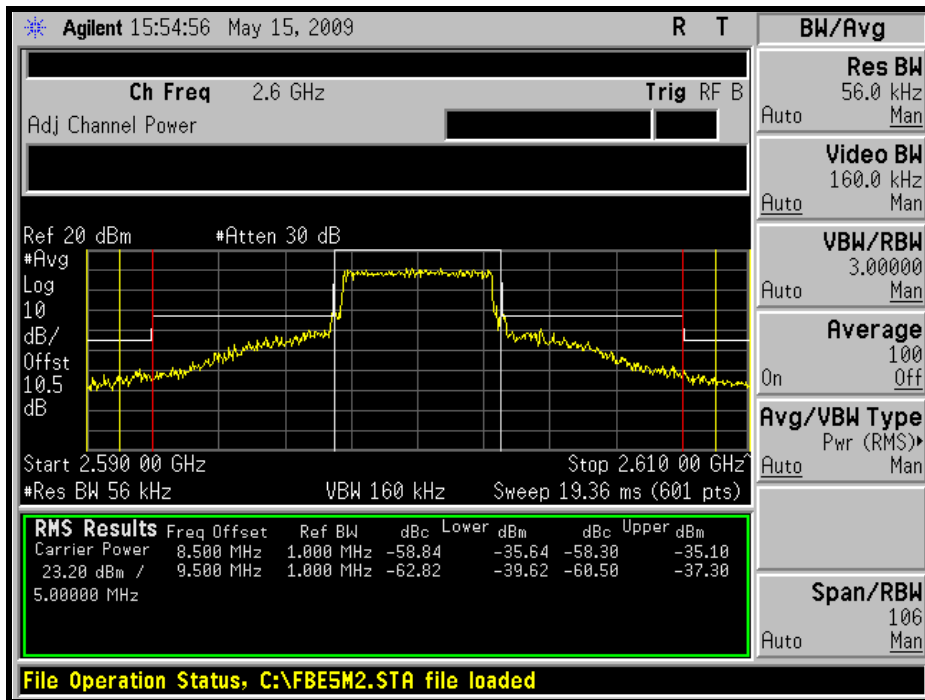
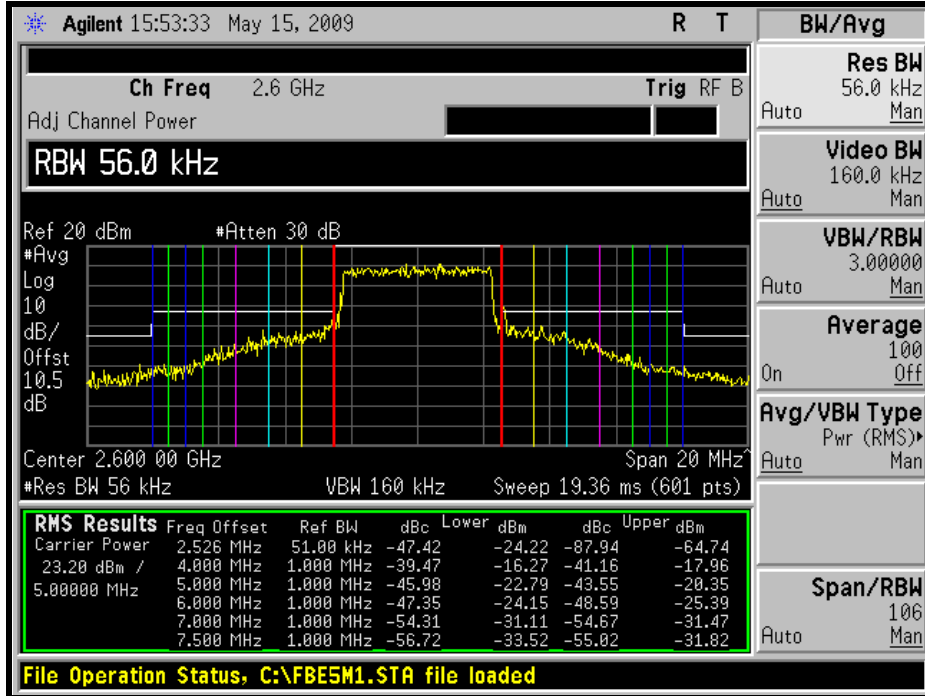
### CHANNEL BANDWIDTH: 5MHz LOW CHANNEL





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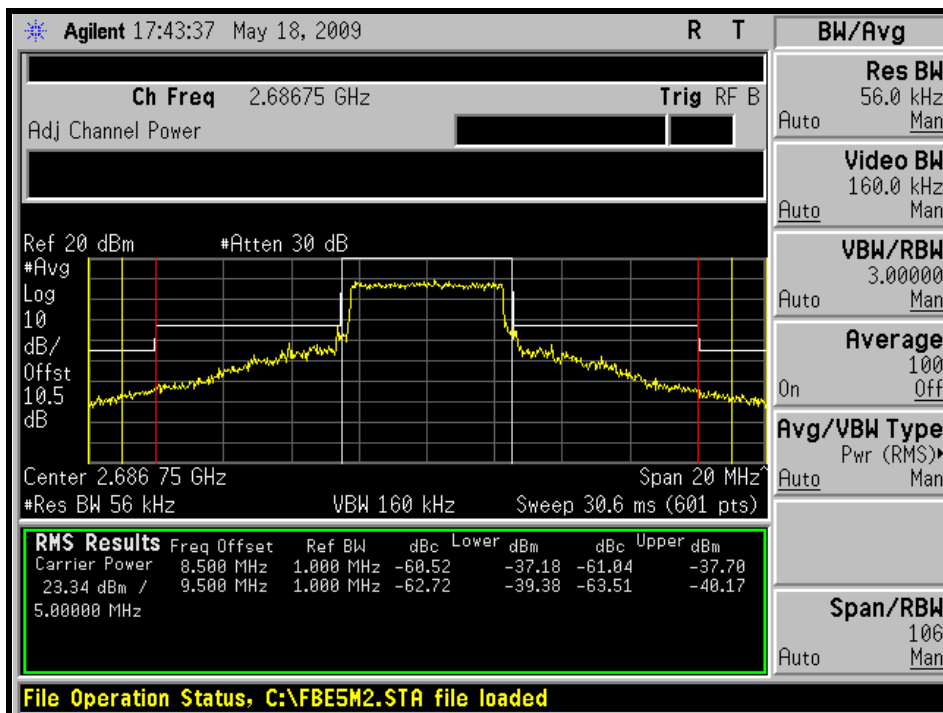
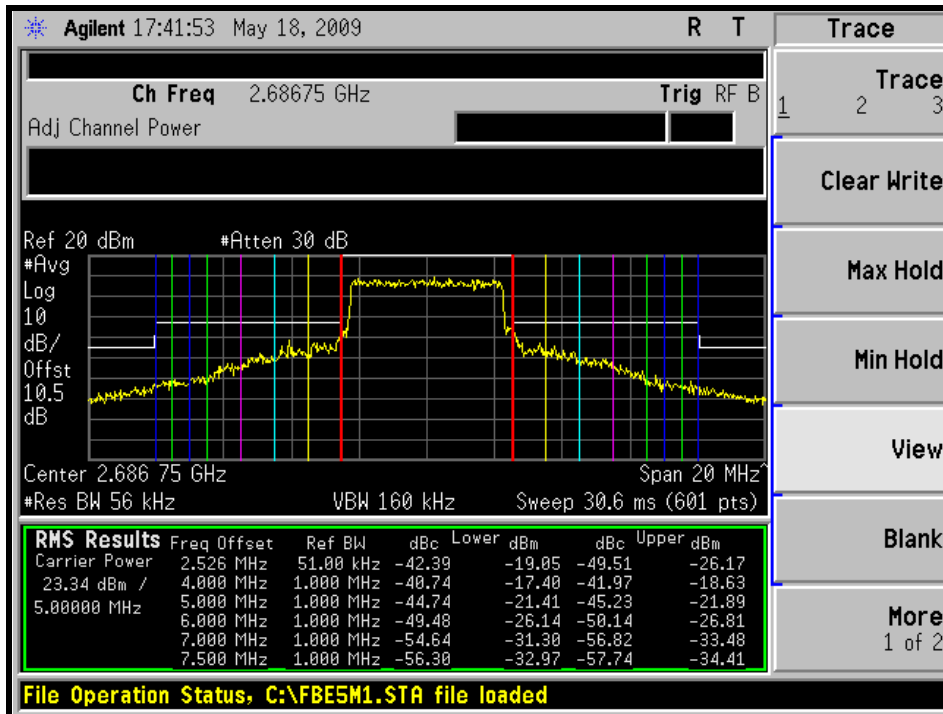
MIDDLE CHANNEL





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### HIGH CHANNEL

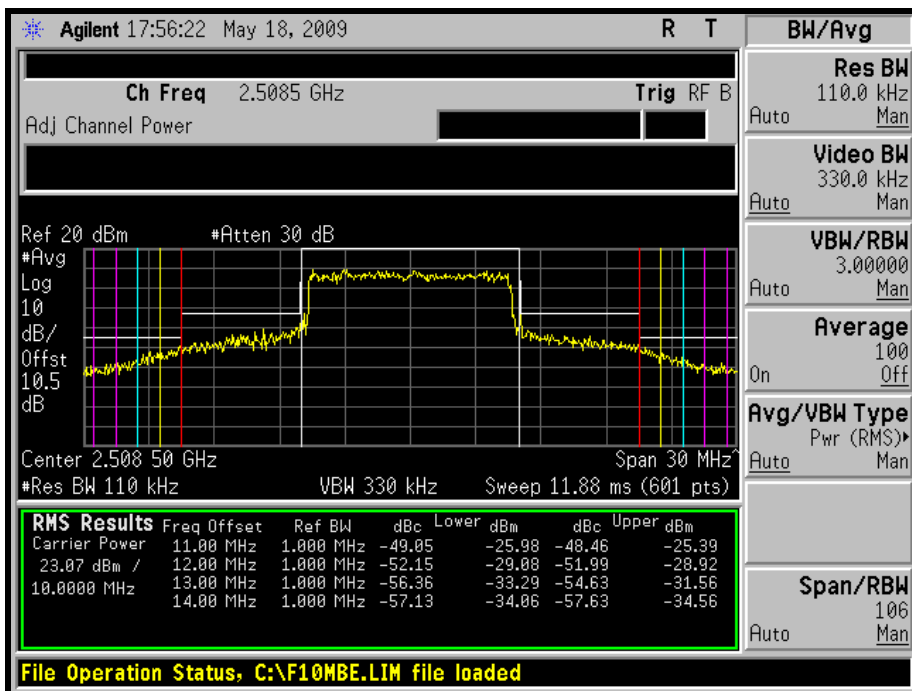
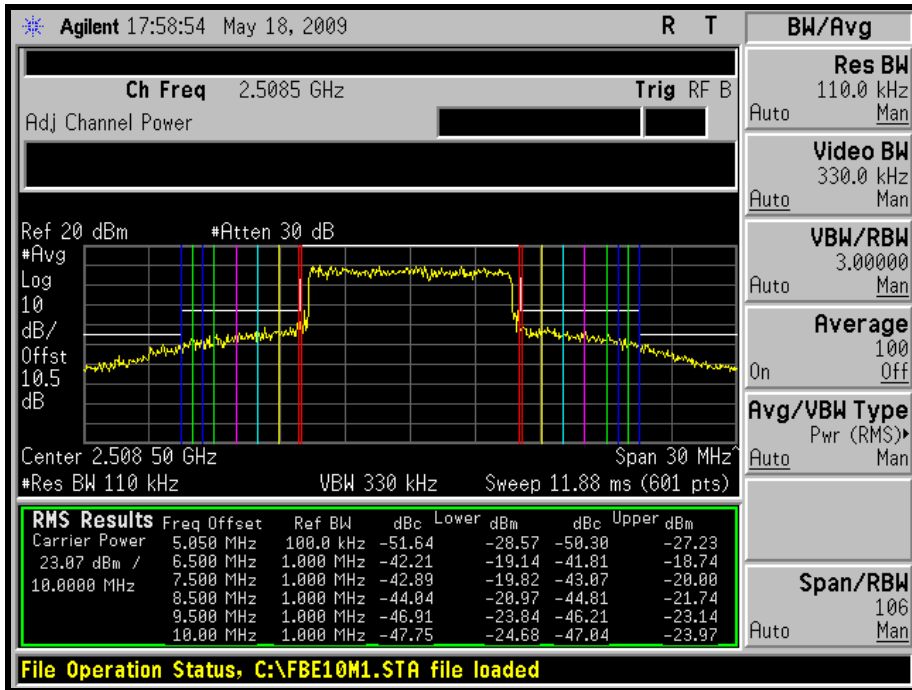




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# CHANNEL BANDWIDTH: 10MHz

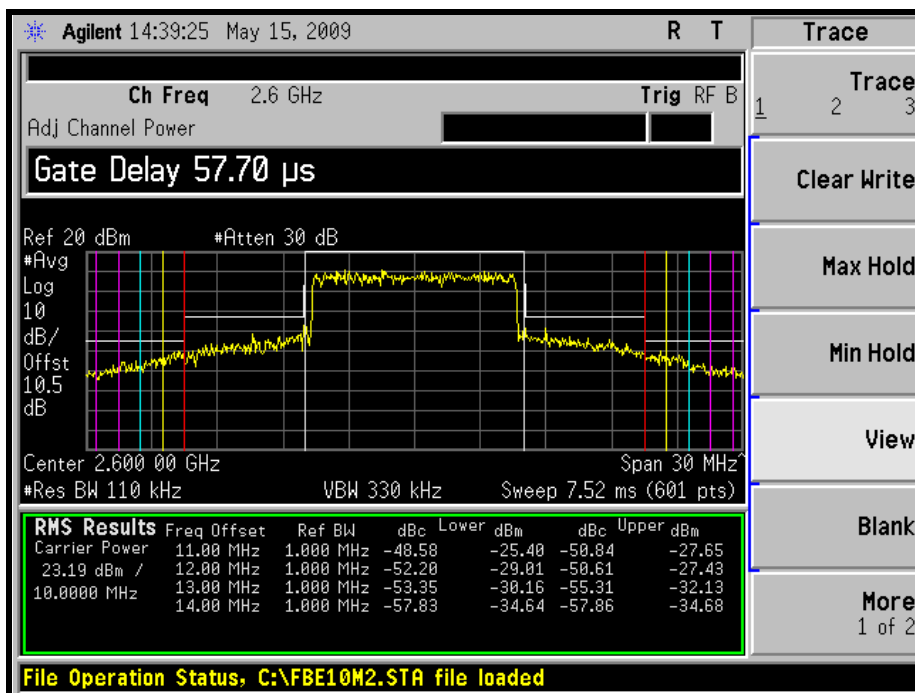
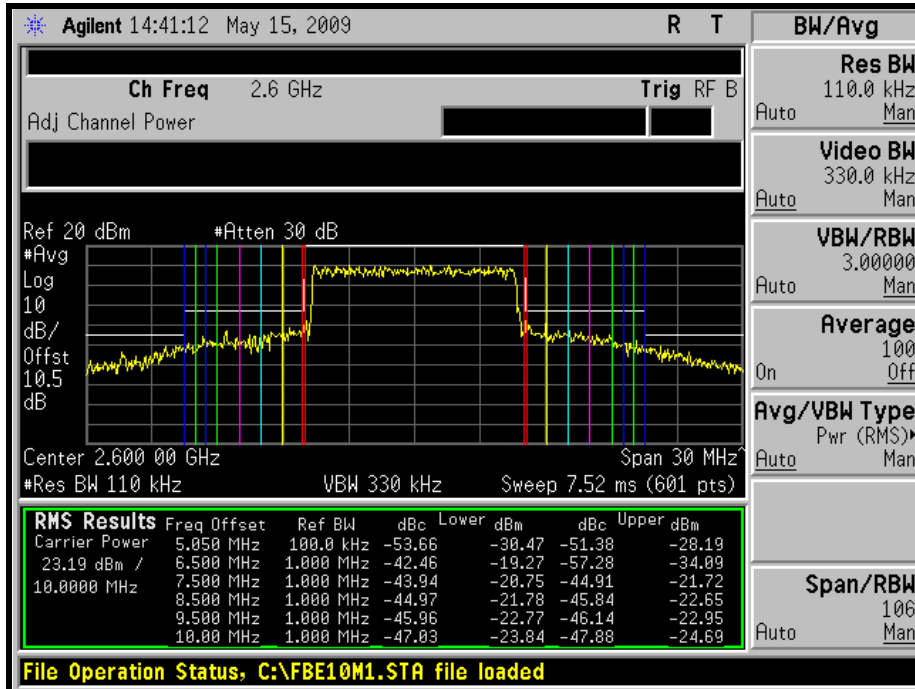
## LOW CHANNEL





A D T

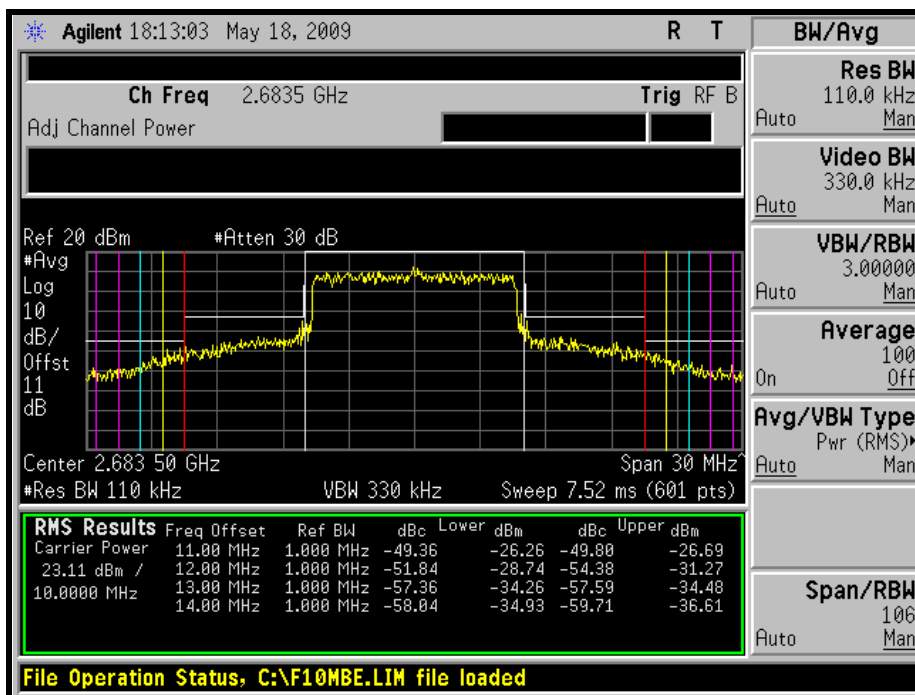
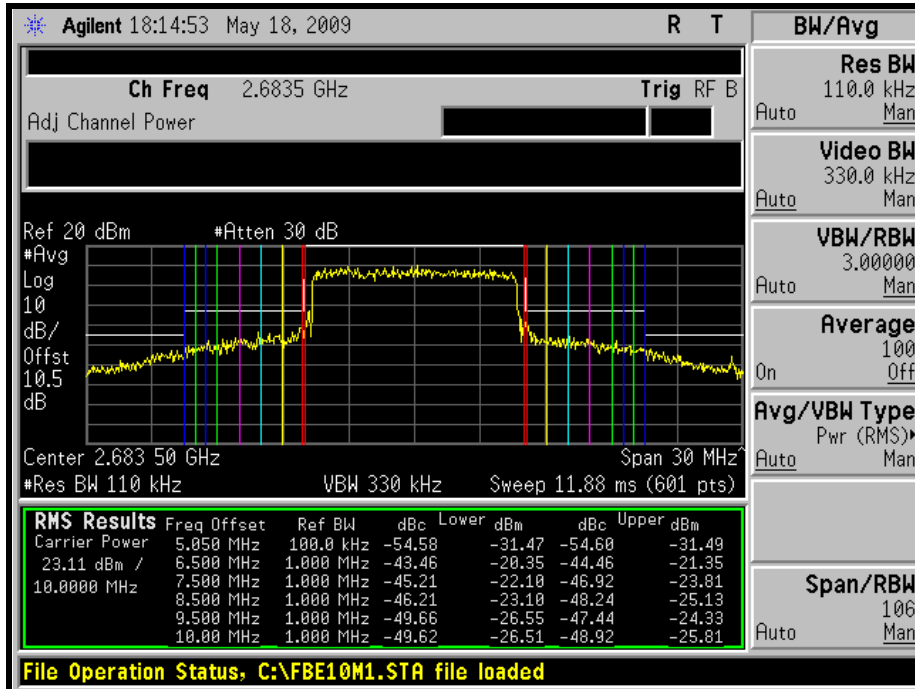
MIDDLE CHANNEL





A D T

### 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

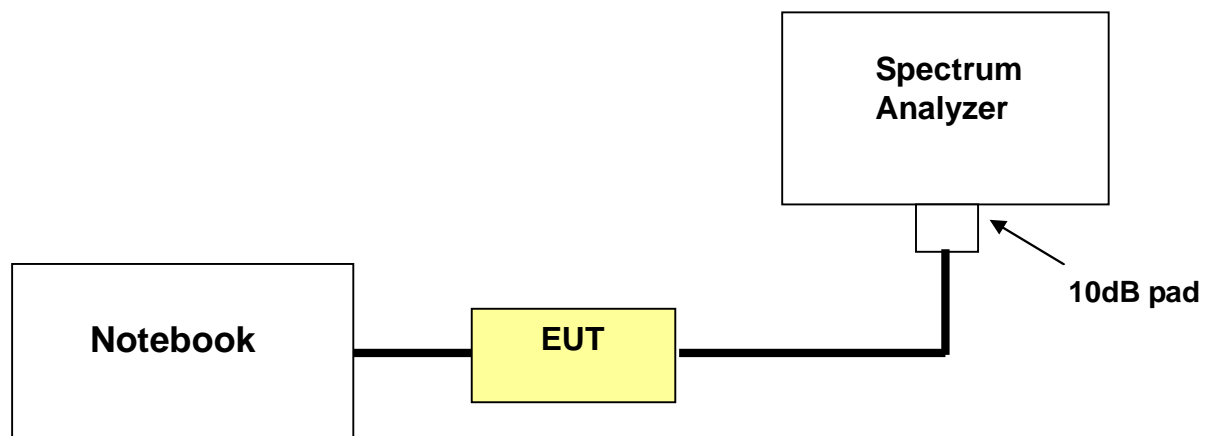
Description & Manufacturer	Model No.	Serial No.	CALIBRATED DATE	CALIBRATED UNTIL
Agilent Spectrum Analyzer	E4446A	MY46180622	Apr. 24 , 2009	Apr. 23, 2010
HUBER+SUHNER	SUCOFLEX104	22238114	July 31, 2009	July 30, 2010
JFW 10dB attenuation	50HF-010-SMA	N/A	N/A	N/A
Wainwright Instruments High Pass Filter	WHK3.1/18G-1 0SS	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 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 26.5GHz, 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

Same as item 4.1.5

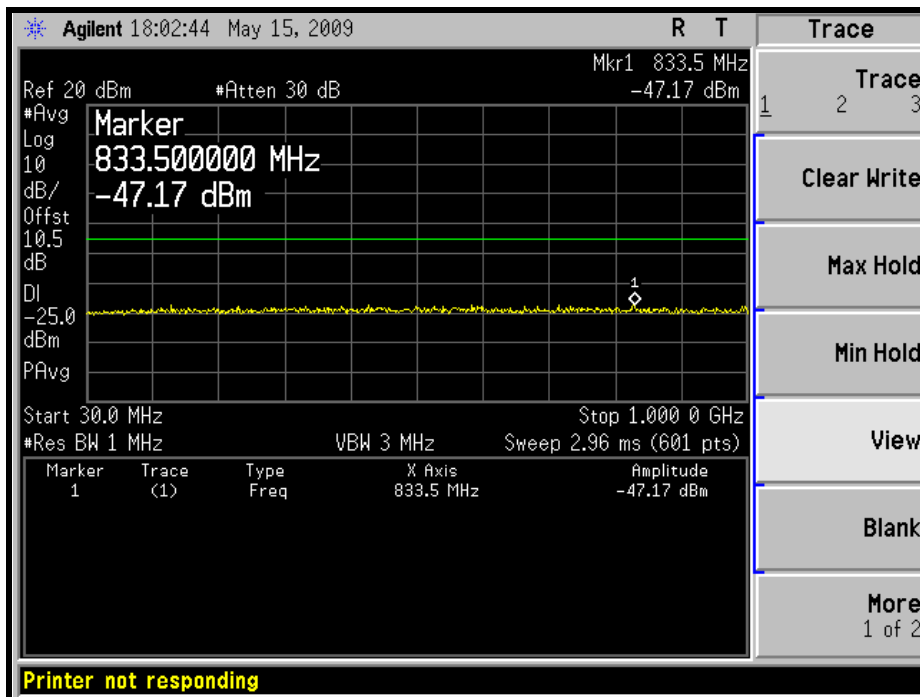


A D T

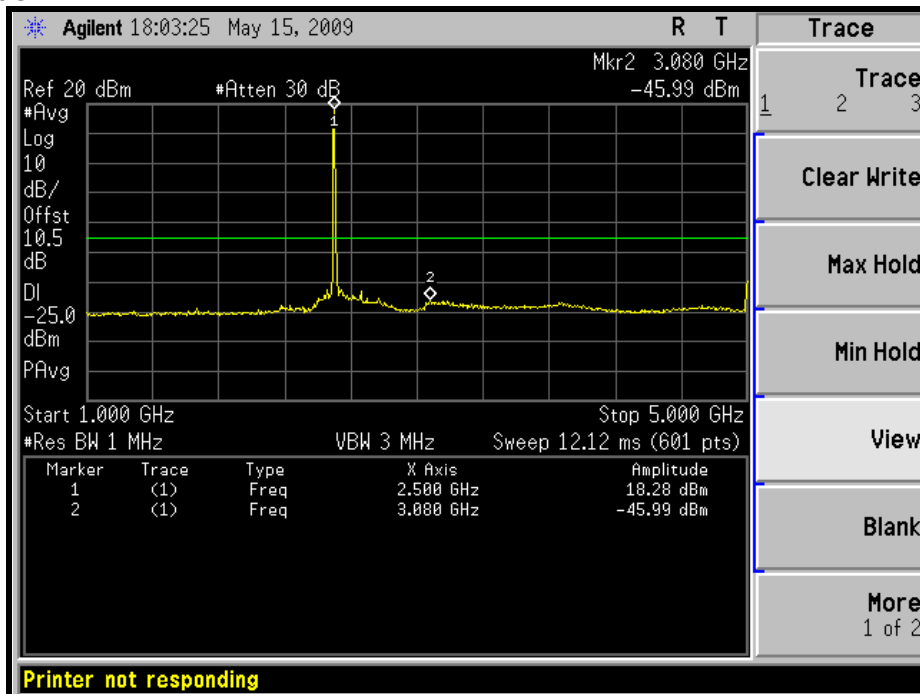
### 4.5.6 TEST RESULTS

#### CHANNEL BANDWIDTH: 5MHz

LOW CHANNEL: 30MHz ~ 1GHz:



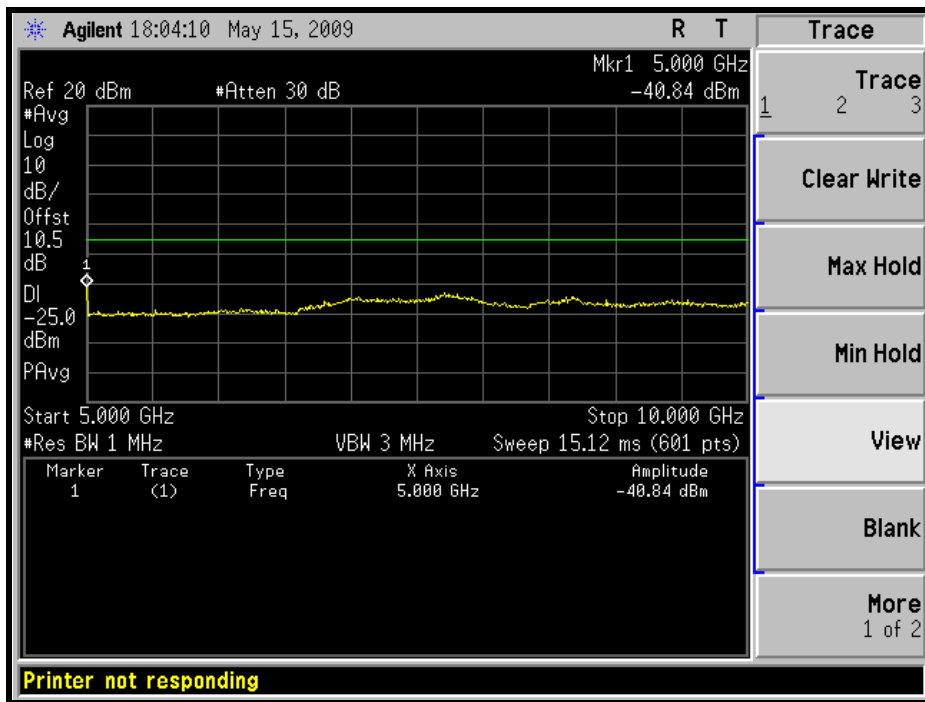
1GHz ~ 5GHz:



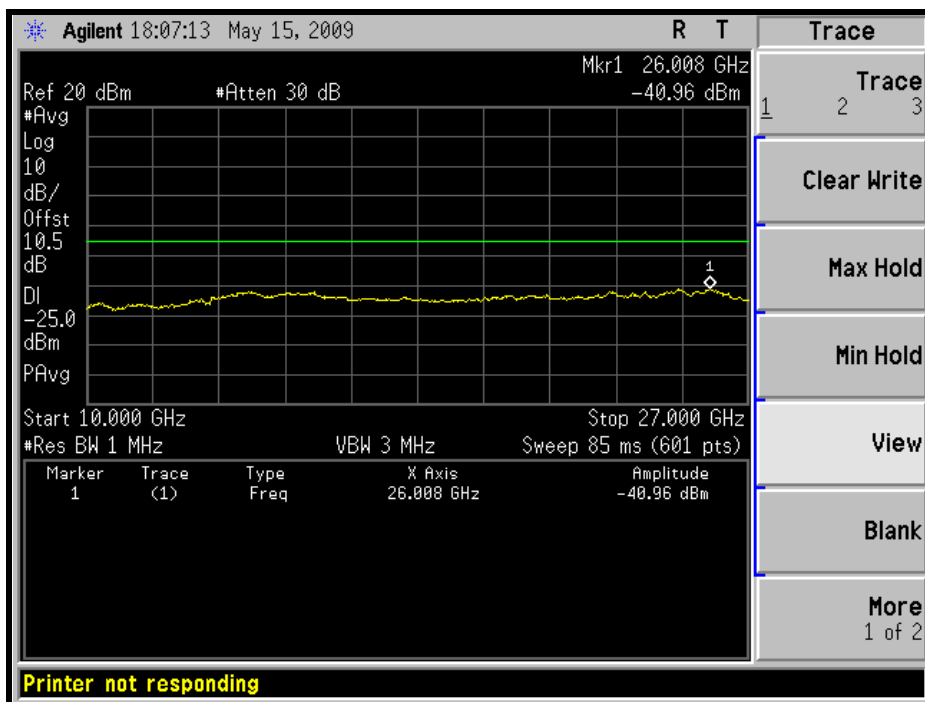


A D T

5GHz ~ 10GHz:



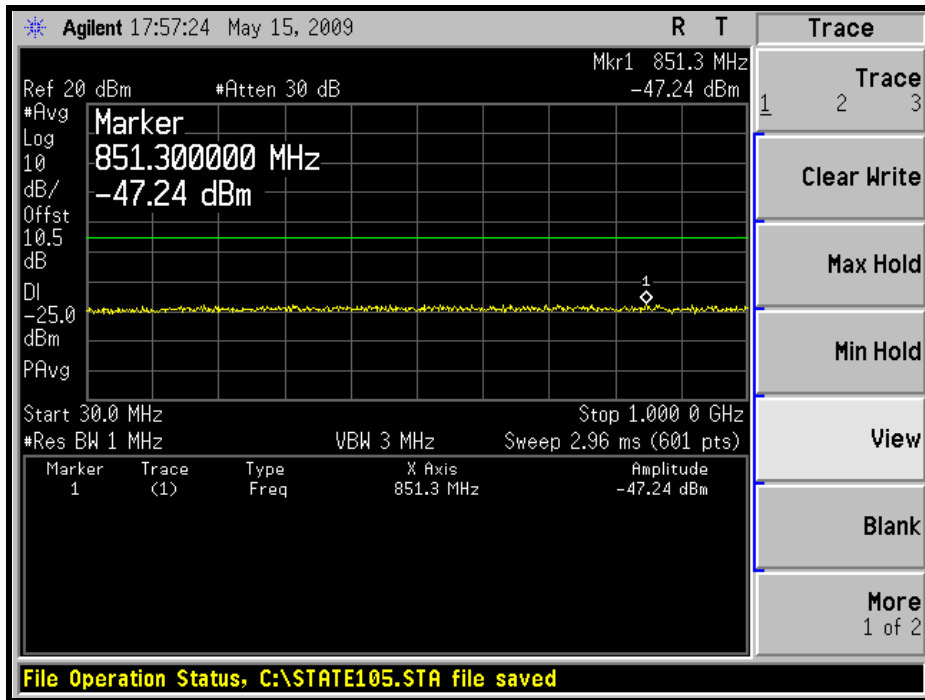
10GHz ~ 27GHz:



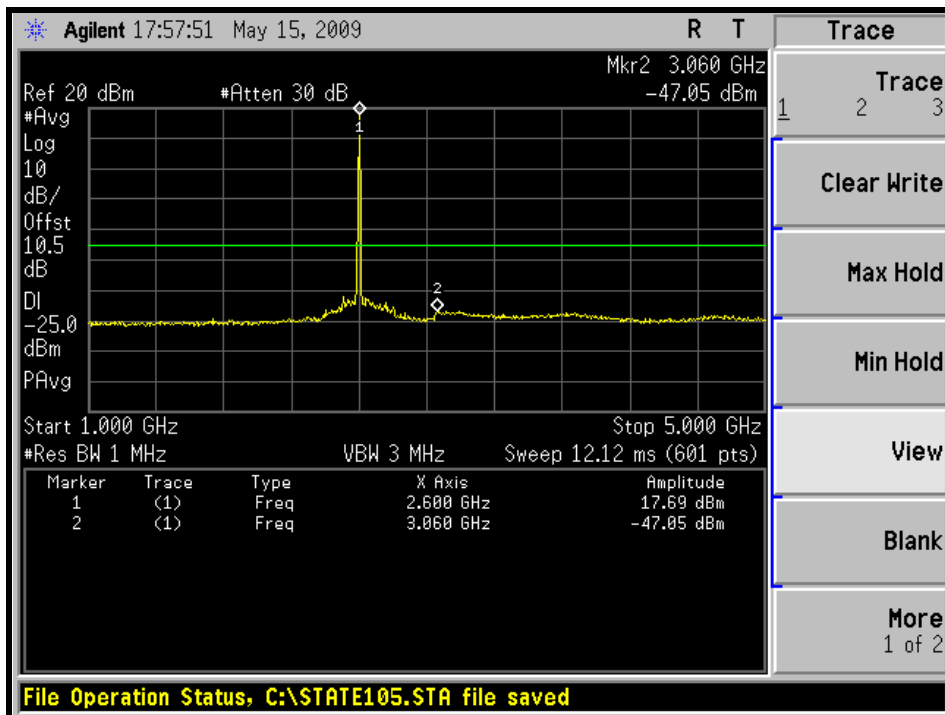


A D T

MIDDLE CHANNEL: 30MHz ~ 1GHz:



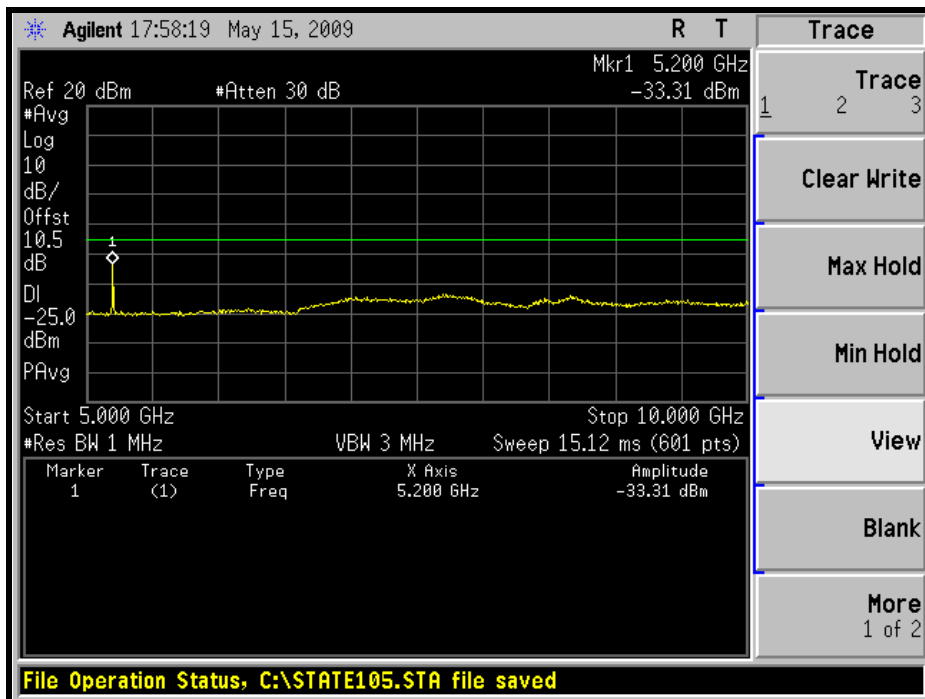
1GHz ~ 5GHz:



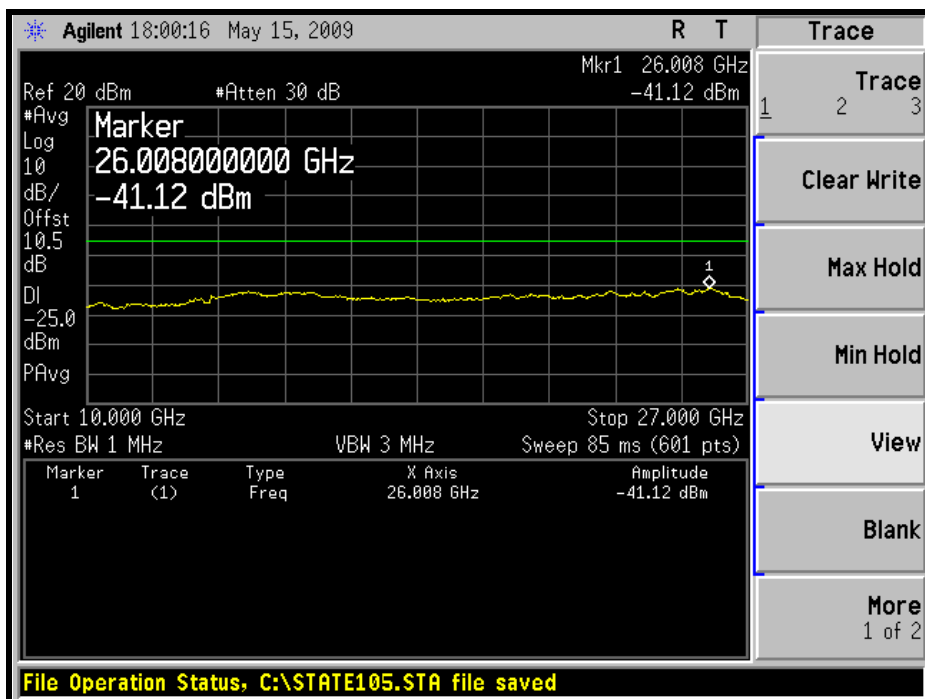


A D T

5GHz ~ 10GHz:



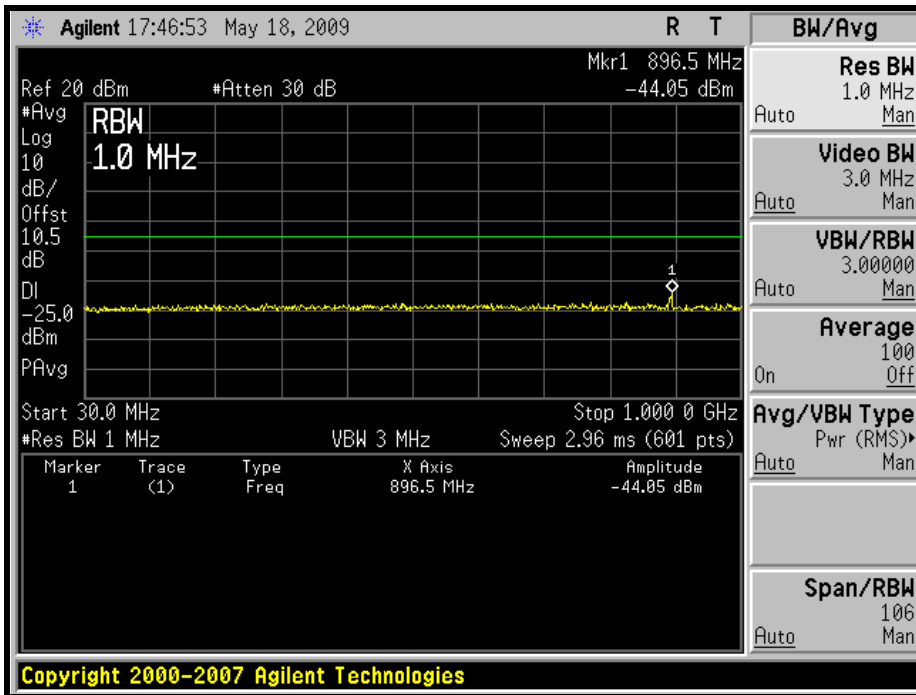
10GHz ~ 27GHz:



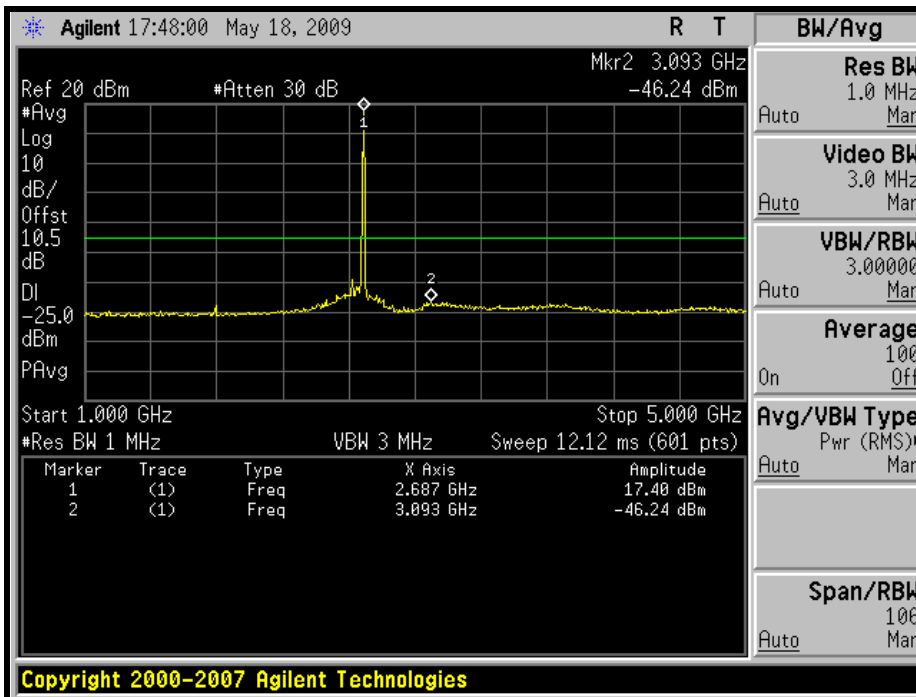


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### HIGH CHANNEL: 30MHz ~ 1GHz:



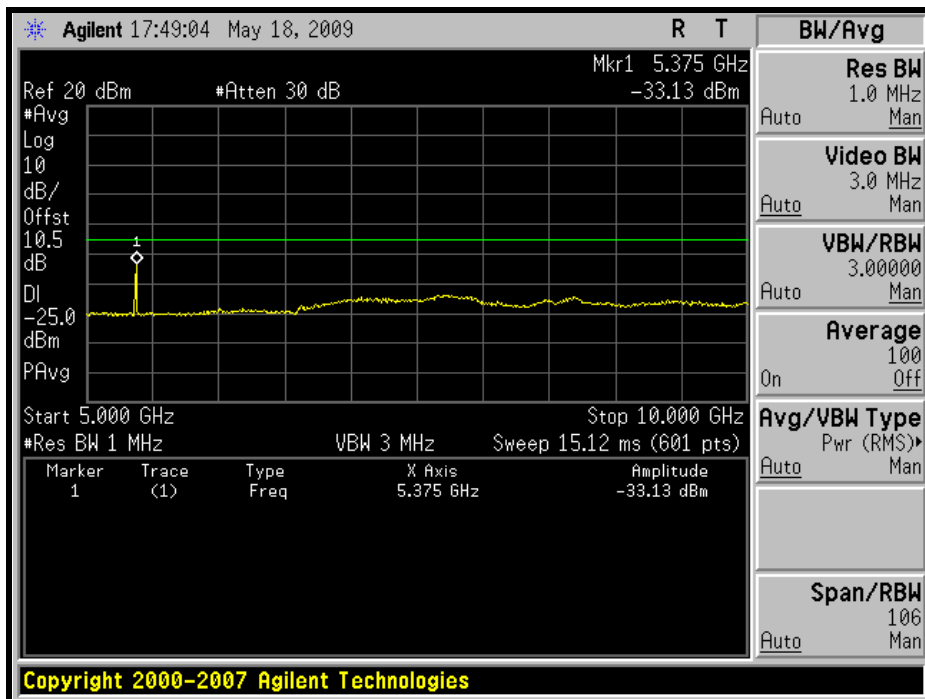
### 1GHz ~ 5GHz:



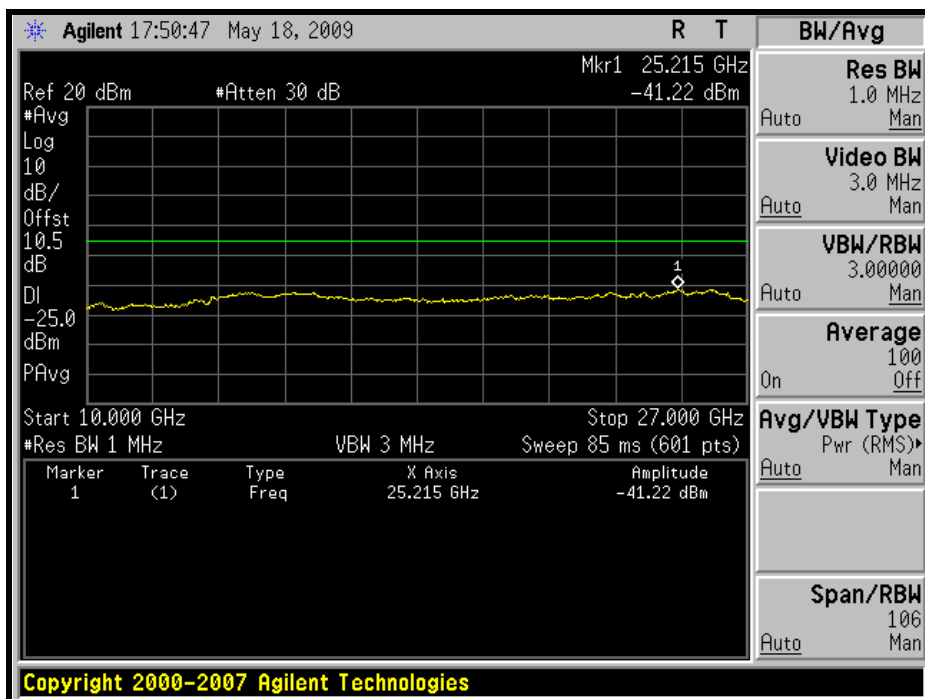


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5GHz ~ 10GHz:



10GHz ~ 27GHz:



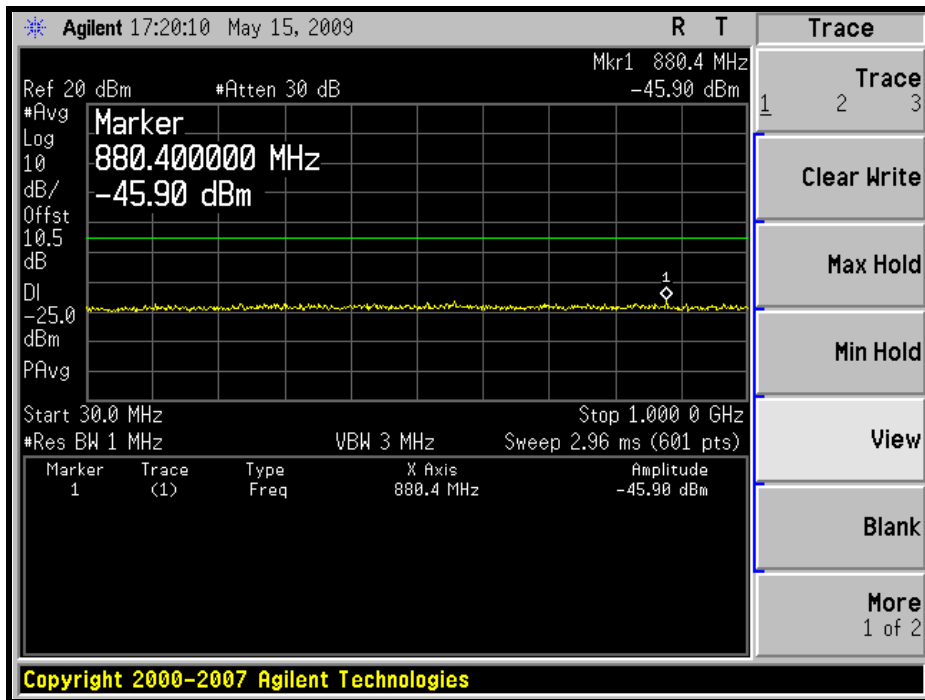




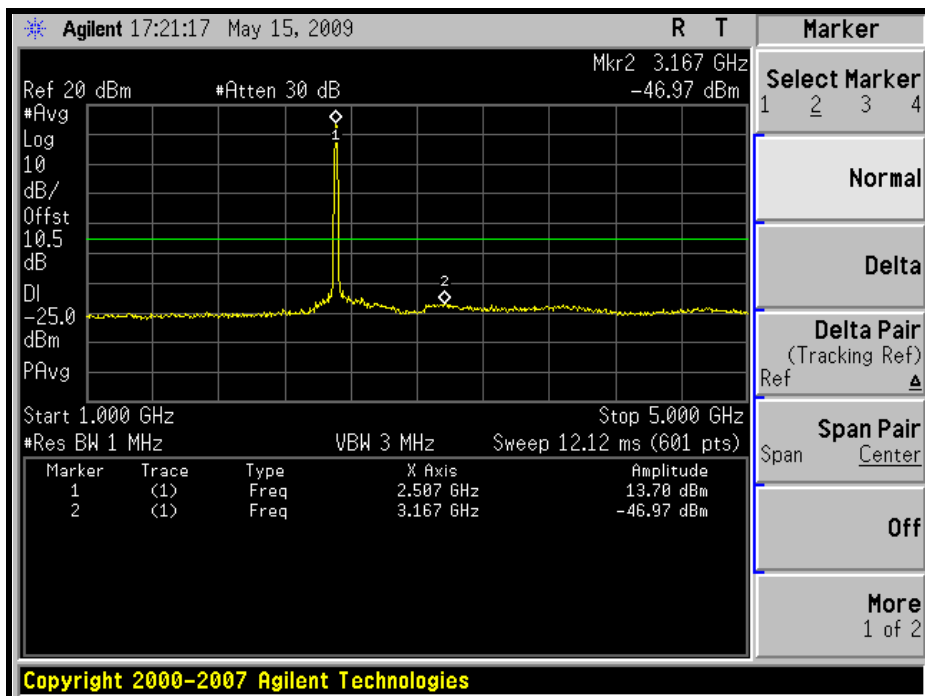
A D T

### CHANNEL BANDWIDTH: 10MHz

LOW CHANNEL: 30MHz ~ 1GHz:



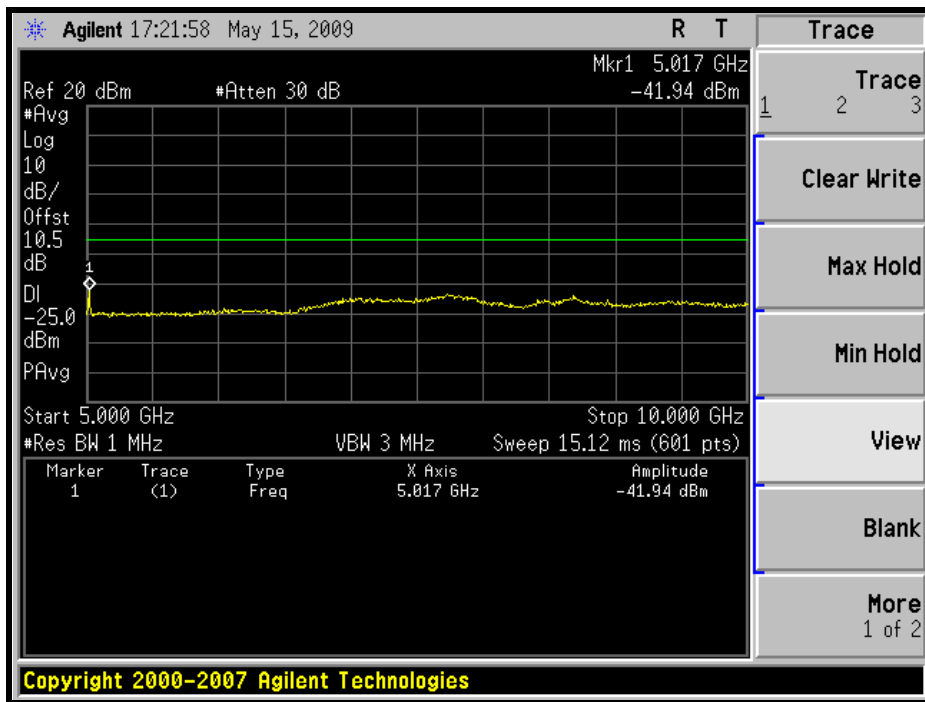
1GHz ~ 5GHz:



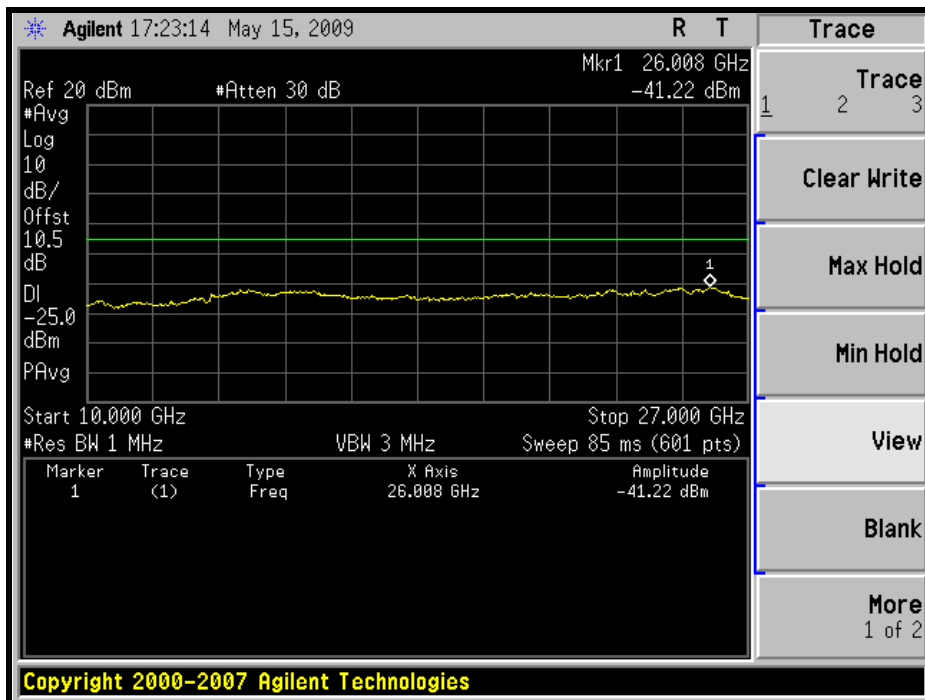


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5GHz ~ 10GHz:



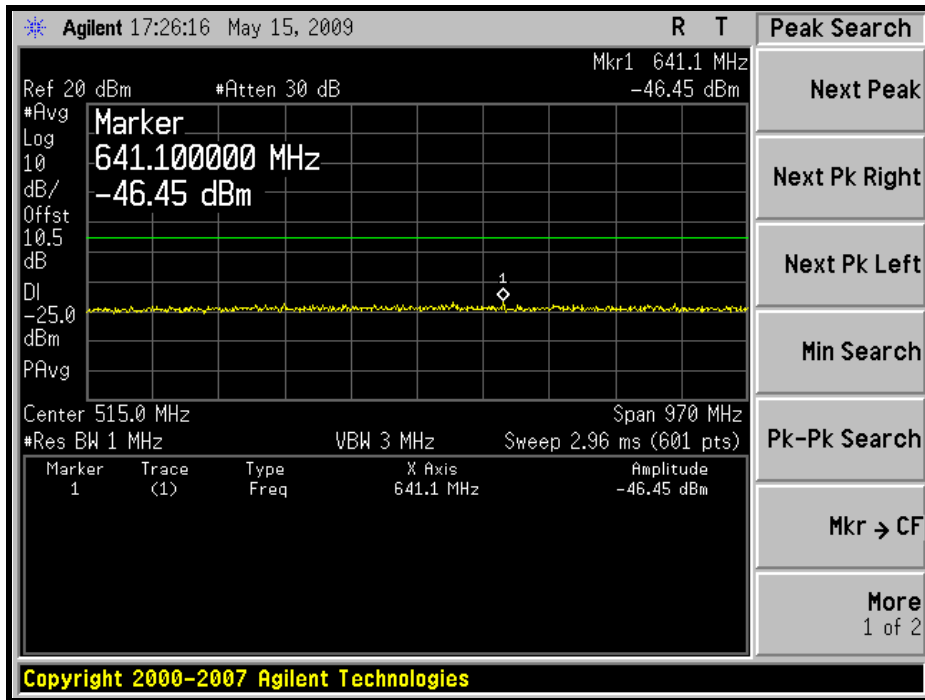
10GHz ~ 27GHz:



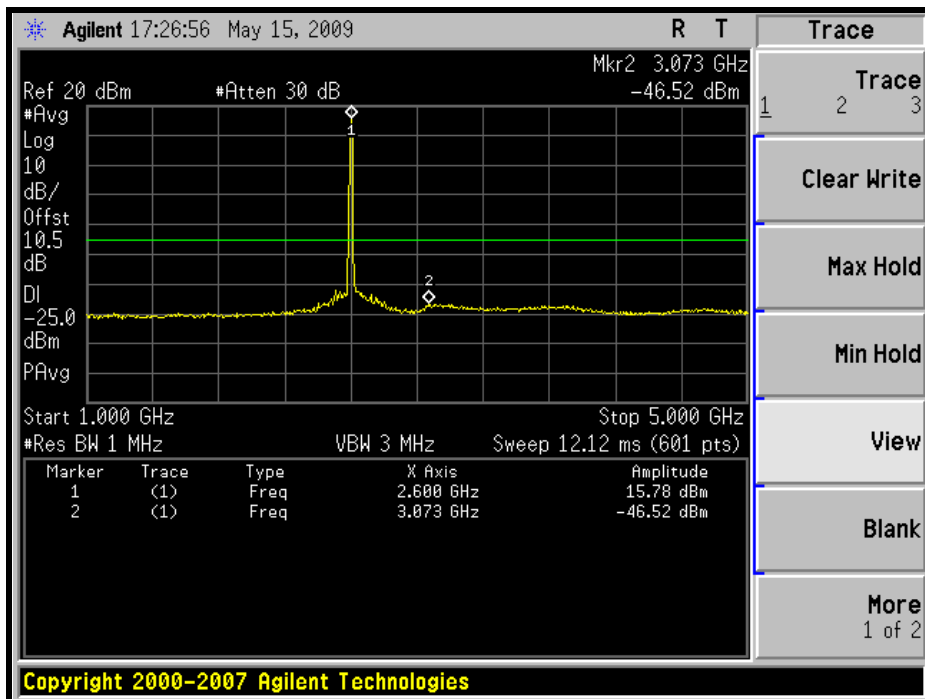


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MIDDLE CHANNEL: 30MHz ~ 1GHz:



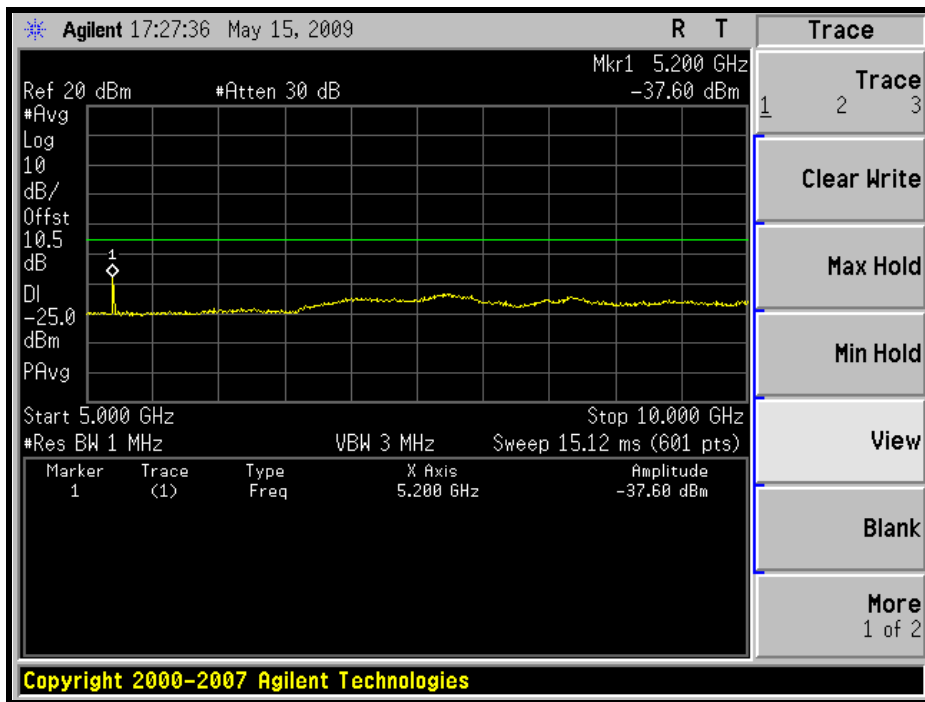
1GHz ~ 5GHz:



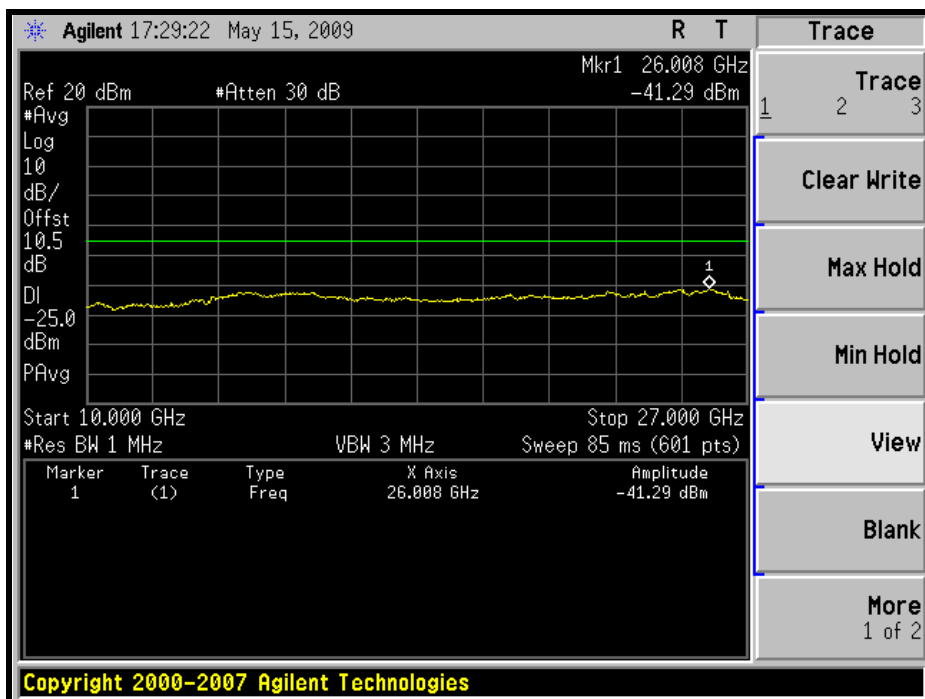


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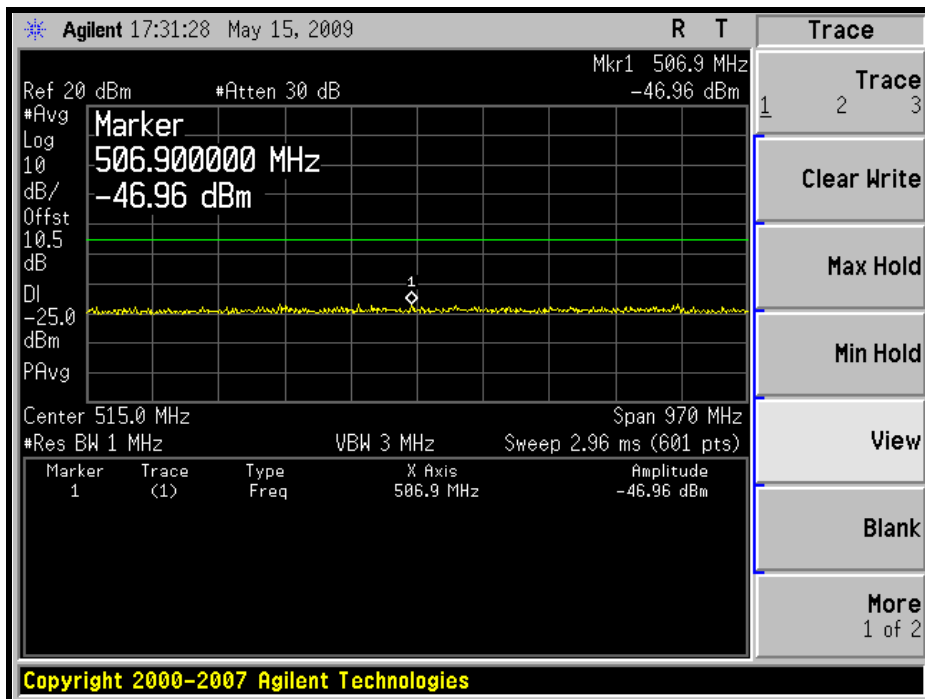
5GHz ~ 10GHz:



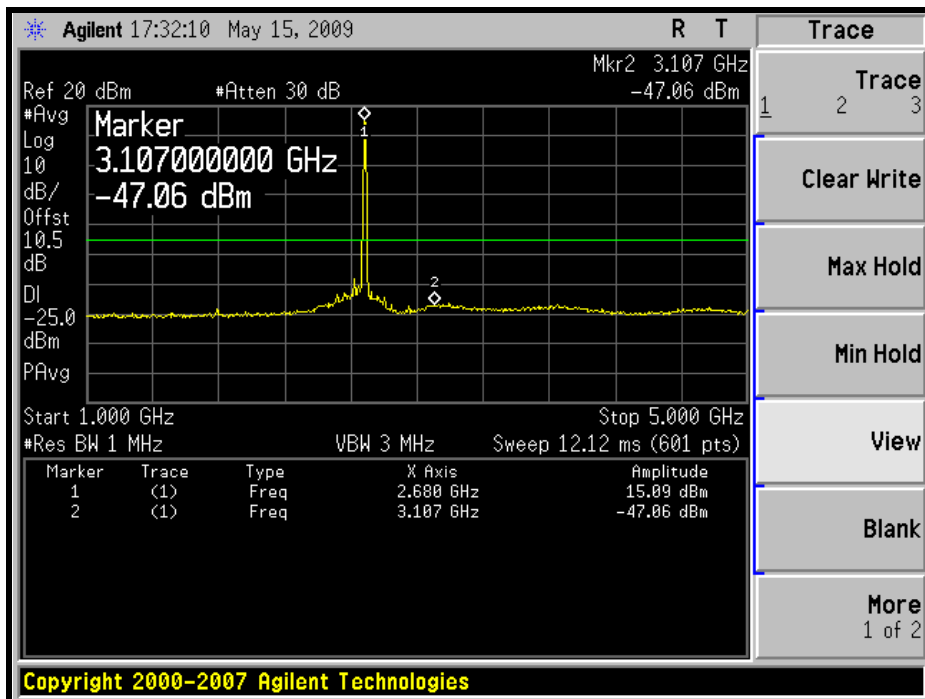
10GHz ~ 27GHz:



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



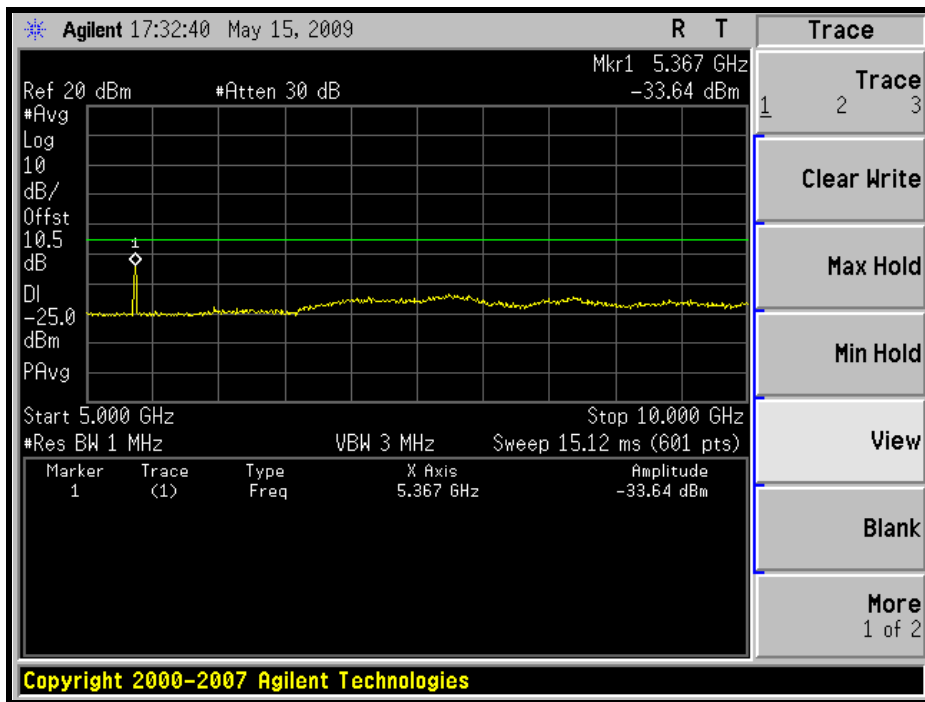
**1GHz ~ 5GHz:**



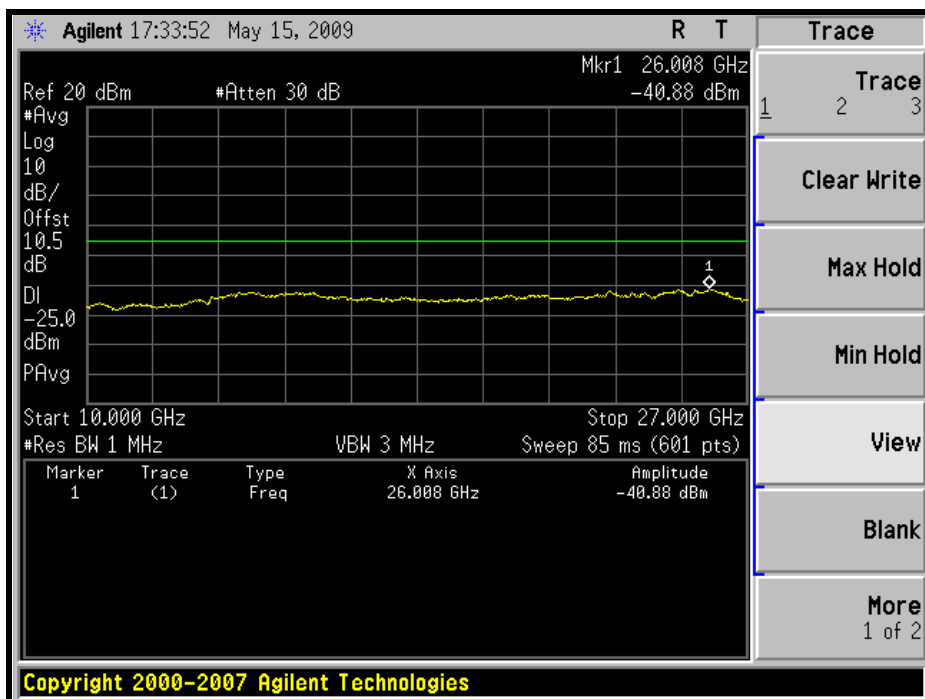


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5GHz ~ 10GHz:



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. 09, 2008	Dec. 08, 2009
Agilent PSA Spectrum Analyzer	E4446A	MY46180622	Apr. 24, 2009	Apr. 23, 2010
HP Pre_Amplifier	8449B	3008A01923	Nov. 10, 2008	Nov. 09, 2009
ROHDE & SCHWARZ Test Receiver	ESCS30	847124/029	Sep. 09, 2008	Sep. 08, 2009
SCHWARZBECK TRILOG Broadband Antenna	VULB 9168	138	April 29, 2009	April 28, 2010
Schwarzbeck Horn_Antenna	BBHA9120	D124	Dec. 09, 2008	Dec. 08, 2009
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 22, 2009	Jan. 21, 2010
RF Switches	EMH-011	08009	Oct. 07, 2008	Oct. 06, 2009
RF CABLE (Chaintek)	Sucoflex 106	28077	Aug. 15, 2009	Aug. 14, 2010
RF Cable	8DFB	STCCAB-30M-1GHz	Oct. 07, 2008	Oct. 06, 2009
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, HP 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.

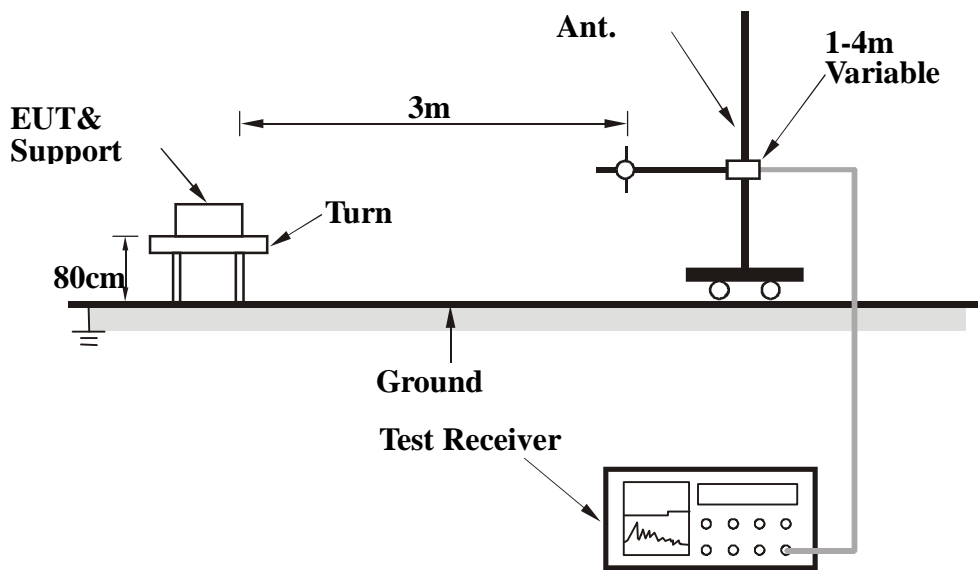
**NOTE:** The resolution bandwidth of spectrum analyzer is 1MHz and the video bandwidth is 3MHz.

#### 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 with Right Angle Connector

<b>MODE</b>	High channel	<b>FREQUENCY RANGE</b>	Below 1000MHz
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60Hz	<b>ENVIRONMENTAL CONDITIONS</b>	20deg°C, 60%RH 960hPa
<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	67.9	45	-25	-41.86	-5.29	-47.15
2	188	43.4	-25	-51.07	3.05	-48.03
3	243.57	46.22	-25	-49.00	3.84	-45.15
4	337.98	45.9	-25	-51.46	3.62	-47.84
5	565.7	39.9	-25	-54.93	2.29	-52.64
6	779	36.6	-25	-61.14	1.24	-59.89
7	997.5	43.4	-25	-53.16	0.58	-52.58

<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	68.1	43.8	-25	-43.18	-5.23	-48.41
2	244	35.2	-25	-60.00	3.85	-56.15
3	337.8	39.9	-25	-57.46	3.62	-53.83
4	432.14	37.7	-25	-60.41	2.99	-57.41
5	720.02	33.12	-25	-63.23	1.30	-61.94
6	831.7	32.5	-25	-60.66	1.23	-59.43
7	997.5	40.2	-25	-56.36	0.58	-55.78

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



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### CHANNEL BANDWIDTH: 5MHz with USB Performance Dock

<b>MODE</b>	High channel	<b>FREQUENCY RANGE</b>	Below 1000MHz
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60Hz	<b>ENVIRONMENTAL CONDITIONS</b>	20deg°C, 60%RH 960hPa
<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	69.5	28.9	-25	-58.92	-4.82	-63.74
2	202.1	42.4	-25	-53.09	4.32	-48.77
3	365.7	42.9	-25	-54.96	3.51	-51.45
4	432.28	39.9	-25	-58.21	2.99	-55.22
5	565.1	38.2	-25	-56.64	2.30	-54.34
6	644.92	39.8	-25	-55.16	1.75	-53.41
7	720	39.8	-25	-56.55	1.30	-55.26
8	880	35.2	-25	-61.90	0.71	-61.19
9	997.4	42	-25	-54.56	0.58	-53.98

<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	69.5	41.5	-25	-46.32	-4.82	-51.14
2	213.3	32.6	-25	-62.85	4.17	-58.68
3	365.8	33.9	-25	-63.96	3.51	-60.45
4	432.3	34.2	-25	-63.91	2.99	-60.92
5	665.8	34.8	-25	-60.62	1.70	-58.91
6	720	37.52	-25	-58.83	1.30	-57.54
7	879.8	33.5	-25	-63.58	0.71	-62.87
8	998.6	42.9	-25	-53.62	0.59	-53.03

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



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**CHANNEL BANDWIDTH: 10MHz with Right Angle Connector**

<b>MODE</b>	Middle channel	<b>FREQUENCY RANGE</b>	Below 1000MHz
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60Hz	<b>ENVIRONMENTAL CONDITIONS</b>	20deg°C, 60%RH 960hPa
<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	67.75	45.12	-25	-41.65	-5.33	-46.98
2	188.21	43.32	-25	-51.17	3.07	-48.10
3	243.54	46.14	-25	-49.08	3.84	-45.23
4	337.95	45.85	-25	-51.51	3.62	-47.89
5	566.01	39.74	-25	-55.09	2.29	-52.80
6	779.15	36.14	-25	-61.60	1.25	-60.36
7	997.34	42.15	-25	-54.41	0.58	-53.83

**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	68.42	43.51	-25	-43.66	-5.14	-48.80
2	244.35	35.74	-25	-59.45	3.85	-55.60
3	338.05	39.77	-25	-57.60	3.62	-53.97
4	432.52	37.56	-25	-60.55	2.99	-57.56
5	720	33.24	-25	-63.11	1.30	-61.82
6	832.01	32.57	-25	-60.61	1.23	-59.39
7	997.53	41	-25	-55.56	0.58	-54.98

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



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**CHANNEL BANDWIDTH: 10MHz with USB Performance Dock**

<b>MODE</b>	Middle channel	<b>FREQUENCY RANGE</b>	Below 1000MHz
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60Hz	<b>ENVIRONMENTAL CONDITIONS</b>	20deg°C, 60%RH 960hPa
<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	68.5	29.1	-25	-58.12	-5.11	-63.23
2	202.5	42.85	-25	-52.63	4.31	-48.32
3	366.01	42.86	-25	-55.00	3.51	-51.49
4	432.15	40.01	-25	-58.10	2.99	-55.10
5	565.06	39.1	-25	-55.74	2.30	-53.44
6	664.88	40.2	-25	-55.19	1.71	-53.49
7	720.05	39.7	-25	-56.65	1.30	-55.36
8	880.02	36.26	-25	-60.84	0.71	-60.13
9	997.33	42.8	-25	-53.76	0.58	-53.18

**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	70.01	42.05	-25	-46.07	-4.68	-50.75
2	213.8	33.04	-25	-62.41	4.16	-58.24
3	365.74	33.5	-25	-64.36	3.51	-60.85
4	432.42	34.5	-25	-63.61	2.99	-60.62
5	665.75	34.12	-25	-61.30	1.70	-59.59
6	720.1	38.05	-25	-58.30	1.30	-57.01
7	879.7	34.11	-25	-62.97	0.71	-62.25
8	998.42	42.87	-25	-53.66	0.59	-53.07

**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 DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Spectrum Analyzer	FSP40	100036	Dec. 09, 2008	Dec. 08, 2009
Agilent PSA Spectrum Analyzer	E4446A	MY46180622	Apr. 24 , 2009	Apr. 23 , 2010
HP Pre_Amplifier	8449B	3008A01923	Nov. 10, 2008	Nov. 09, 2009
ROHDE & SCHWARZ Test Receiver	ESCS30	847124/029	Sep. 09, 2008	Sep. 08, 2009
SCHWARZBECK TRILOG Broadband Antenna	VULB 9168	138	April 29, 2009	April 28, 2010
Schwarzbeck Horn_Antenna	BBHA9120	D124	Dec. 09, 2008	Dec. 08, 2009
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 22, 2009	Jan. 21, 2010
RF Switches	EMH-011	08009	Oct. 07, 2008	Oct. 06, 2009
RF CABLE (Chaintek)	Sucoflex 106	28077	Aug. 15, 2009	Aug. 14, 2010
RF Cable	8DFB	STCCAB-30M-1GHz	Oct. 07, 2008	Oct. 06, 2009
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, HP 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

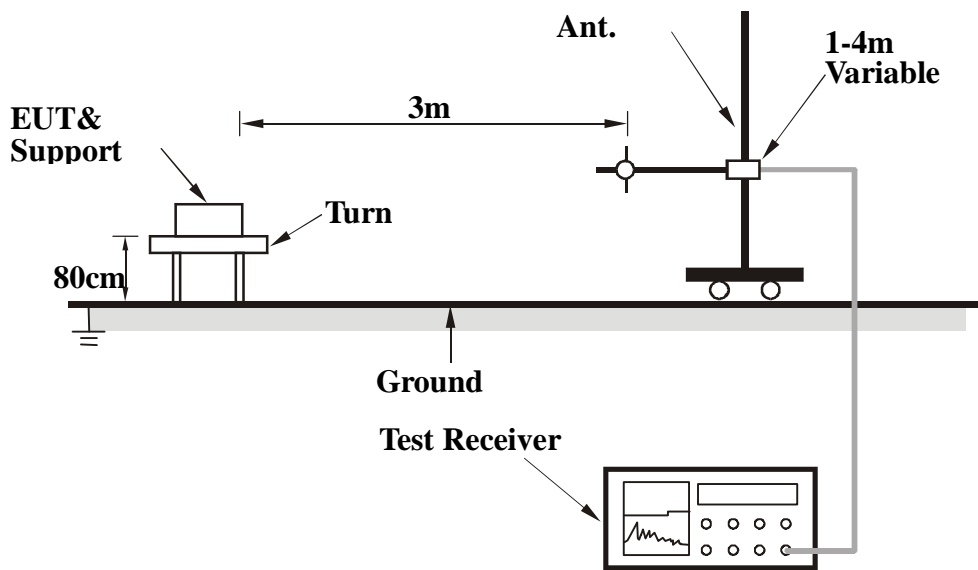
- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the receiving antenna, which was mounted on antenna tower and its position at 0.8 m above the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

<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 960hPa
<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	4998	54.8	-25	-49.43	7.01	-42.42
2	7497	49.5	-25	-53.12	4.55	-48.57
3	9996	55.84	-25	-45.72	4.04	-41.68

##### 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	4998	61.8	-25	-42.43	7.01	-35.42
2	7497	52.1	-25	-50.52	4.55	-45.97
3	9996	53.4	-25	-48.16	4.04	-44.12

**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 (SYSTEM)</b>	120Vac, 60Hz	<b>ENVIRONMENTAL CONDITIONS</b>	20deg°C, 60%RH 960hPa
<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	5200	63.7	-25	-40.83	7.05	-33.78
2	7800	53	-25	-49.62	4.29	-45.33
3	10400	58.7	-25	-43.31	3.66	-39.64

**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	5200	70.4	-25	-34.13	7.05	-27.08
2	7800	55.1	-25	-47.52	4.29	-43.23
3	10400	54	-25	-48.01	3.66	-44.34

**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 (SYSTEM)</b>	120Vac, 60Hz	<b>ENVIRONMENTAL CONDITIONS</b>	20deg°C, 60%RH 960hPa
<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	5373.5	60.5	-25	-44.29	7.09	-37.20
2	8060.25	55.8	-25	-46.82	4.13	-42.69
3	10747	57.1	-25	-44.74	3.33	-41.40

**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	5373.5	65.8	-25	-38.99	7.09	-31.90
2	8060.25	57.5	-25	-45.12	4.13	-40.99
3	10747	54.5	-25	-47.34	3.33	-44.00

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



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### CHANNEL BANDWIDTH: 5MHz with USB Performance Dock

<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 960hPa
<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	4998	63.98	-25	-40.25	7.01	-33.24
2	7497	51.13	-25	-51.49	4.55	-46.94
3	9996	57.26	-25	-44.30	4.04	-40.26
4	12495	57.2	-25	-44.40	4.34	-40.06

### 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	4998	61.03	-25	-43.20	7.01	-36.19
2	7497	58.42	-25	-44.20	4.55	-39.65
3	9996	56.21	-25	-45.35	4.04	-41.31
4	12495	56.99	-25	-44.61	4.34	-40.27

**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 (SYSTEM)</b>	120Vac, 60Hz	<b>ENVIRONMENTAL CONDITIONS</b>	20deg°C, 60%RH 960hPa
<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	5200	65.24	-25	-39.29	7.05	-32.24
2	7800	51	-25	-51.62	4.29	-47.33
3	10400	57.78	-25	-44.23	3.66	-40.56
4	13000	56.9	-25	-43.93	4.45	-39.48

<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	5200	62.04	-25	-42.49	7.05	-35.44
2	7800	59.8	-25	-42.82	4.29	-38.53
3	10400	56.5	-25	-45.51	3.66	-41.84
4	13000	56.8	-25	-44.03	4.45	-39.58

**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 (SYSTEM)</b>	120Vac, 60Hz	<b>ENVIRONMENTAL CONDITIONS</b>	20deg°C, 60%RH 960hPa
<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	5373.5	66.3	-25	-38.49	7.09	-31.40
2	8060.25	55.6	-25	-47.02	4.13	-42.89
3	10747	58.18	-25	-43.66	3.33	-40.32
4	13433.75	57.24	-25	-42.98	3.41	-39.57

<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	5373.5	64.4	-25	-40.39	7.09	-33.30
2	8060.25	60.57	-25	-42.05	4.13	-37.92
3	10747	57.6	-25	-44.24	3.33	-40.90
4	13433.75	57.9	-25	-42.32	3.41	-38.91

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



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### CHANNEL BANDWIDTH: 10MHz with Right Angle Connector

<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 960hPa
<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	5017	51.6	-25	-52.66	7.01	-45.64
2	7525.5	52	-25	-50.62	4.52	-46.10
3	10034	54.1	-25	-47.50	4.01	-43.49

### 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	5017	60	-25	-44.26	7.01	-37.24
2	7525.5	50.3	-25	-52.32	4.52	-47.80
3	10034	52.8	-25	-48.80	4.01	-44.79

**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 (SYSTEM)</b>	120Vac, 60Hz	<b>ENVIRONMENTAL CONDITIONS</b>	20deg°C, 60%RH 960hPa
<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	5200	62.2	-25	-42.33	7.05	-35.28
2	7800	52.1	-25	-50.52	4.29	-46.23
3	10400	55	-25	-47.01	3.66	-43.34

**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	5200	67	-25	-37.53	7.05	-30.48
2	7800	52.3	-25	-50.32	4.29	-46.03
3	10400	53	-25	-49.01	3.66	-45.34

**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 (SYSTEM)</b>	120Vac, 60Hz	<b>ENVIRONMENTAL CONDITIONS</b>	20deg°C, 60%RH 960hPa
<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	5367	54.6	-25	-50.18	7.09	-43.09
2	8050.5	53.3	-25	-49.32	4.13	-45.19
3	10734	54.5	-25	-47.35	3.35	-44.01

**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	5367	62.9	-25	-41.88	7.09	-34.79
2	8050.5	55.8	-25	-46.82	4.13	-42.69
3	10734	54	-25	-47.85	3.35	-44.51

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



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### CHANNEL BANDWIDTH: 10MHz with USB Performance Dock

<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 960hPa
<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	5017	59.23	-25	-45.03	7.01	-38.01
2	7525.5	51.64	-25	-50.98	4.52	-46.46
3	10034	54.19	-25	-47.41	4.01	-43.40
4	12542.5	57.11	-25	-44.42	4.35	-40.08

<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	5017	60.24	-25	-44.02	7.01	-37.00
2	7525.5	57.62	-25	-45.00	4.52	-40.48
3	10034	53.31	-25	-48.29	4.01	-44.28
4	12542.5	57.66	-25	-43.87	4.35	-39.53

**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 (SYSTEM)</b>	120Vac, 60Hz	<b>ENVIRONMENTAL CONDITIONS</b>	20deg°C, 60%RH 960hPa
<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	5200	63.07	-25	-41.46	7.05	-34.41
2	7800	52.67	-25	-49.95	4.29	-45.66
3	10400	55.23	-25	-46.78	3.66	-43.11
4	13000	57.42	-25	-43.41	4.45	-38.96

**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	5200	61.13	-25	-43.40	7.05	-36.35
2	7800	58.43	-25	-44.19	4.29	-39.90
3	10400	54.29	-25	-47.72	3.66	-44.05
4	13000	58.44	-25	-42.39	4.45	-37.94

**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 (SYSTEM)</b>	120Vac, 60Hz	<b>ENVIRONMENTAL CONDITIONS</b>	20deg°C, 60%RH 960hPa
<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	5367	64.35	-25	-40.43	7.09	-33.34
2	8050.5	54.07	-25	-48.55	4.13	-44.42
3	10734	56.06	-25	-45.79	3.35	-42.45
4	13417.5	58.43	-25	-41.82	3.45	-38.37

**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	5367	62.09	-25	-42.69	7.09	-35.60
2	8050.5	59.05	-25	-43.57	4.13	-39.44
3	10734	55.3	-25	-46.55	3.35	-43.21
4	13417.5	59.3	-25	-40.95	3.45	-37.50

**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).





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## 6 INFORMATION ON THE TESTING LABORATORIES

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

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

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site:

[www.adt.com.tw/index.5/phtml](http://www.adt.com.tw/index.5/phtml). If you have any comments, please feel free to contact us at the following:

**Linko EMC/RF Lab:**

Tel: 886-2-26052180

Fax: 886-2-26051924

**Hsin Chu EMC/RF Lab:**

Tel: 886-3-5935343

Fax: 886-3-5935342

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

Tel: 886-3-3183232

Fax: 886-3-3185050

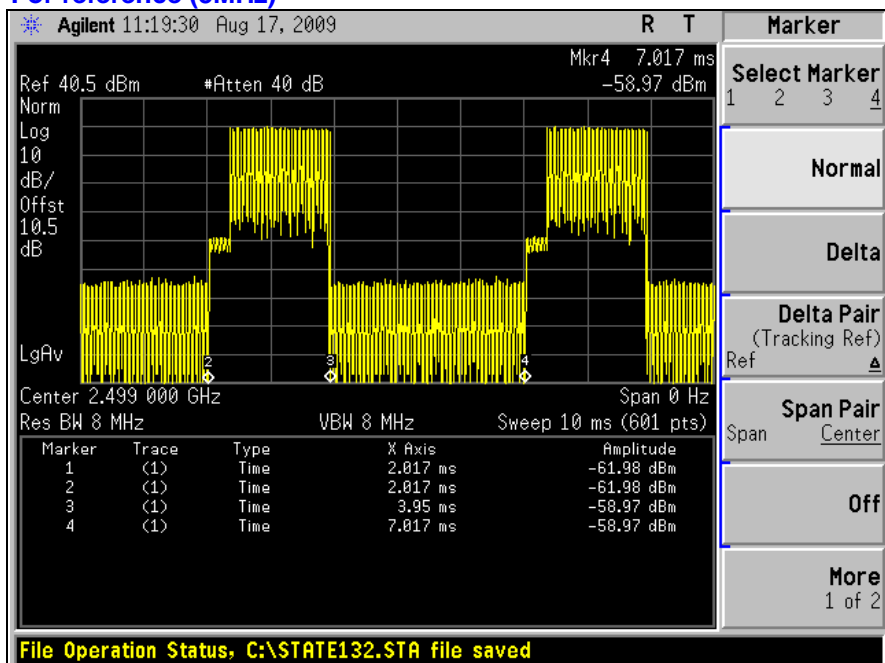
The address and road map of all our labs can be found in our web site also.



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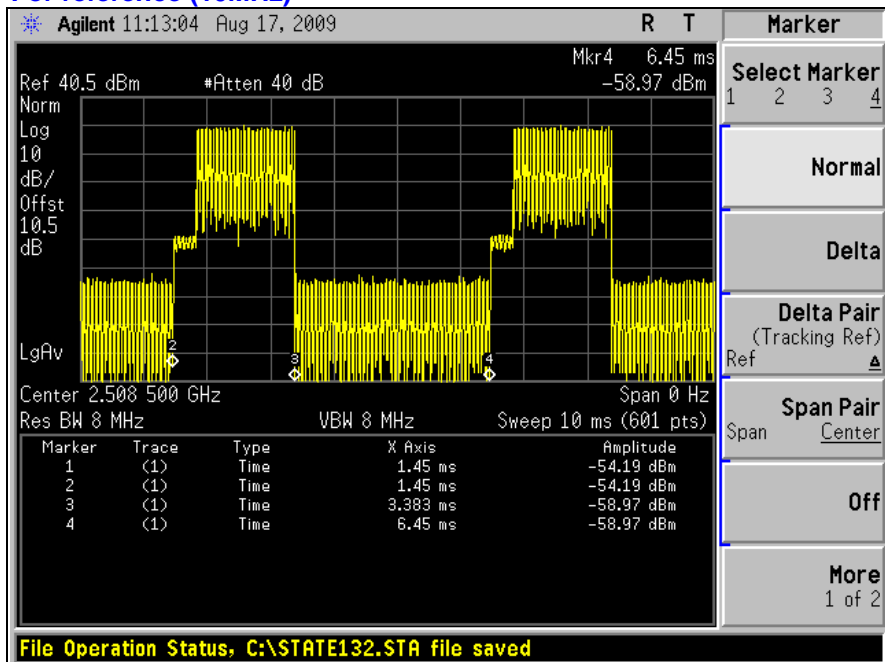
## 7 APPENDIX- A DL/UL RATION FOR TEST

### For reference (5MHz)



$$\text{Ratio} = [(3.95-2.017) / (7.017-2.017)] * \% = 38.66\%$$

### For reference (10MHz)



$$\text{Ratio} = [(3.383-1.45) / (6.45-1.45)] * \% = 38.66\%$$

--- END ---