FCC TEST REPORT (PART 27)

REPORT NO.: RF970804H03A
MODEL NO.: XS-615-25S-102, XS-615-25S-001, XS-615-25M-001
RECEIVED: Sep. 18, 2008
TESTED: Oct. 04 to 22, 2008
ISSUED: Nov. 06, 2008

APPLICANT: Microelectronics Technology Inc.

ADDRESS: 1, Innovation Road II, Hsinchu Science-based Industrial Park, Hsinchu, Taiwan, R.O.C.

ISSUED BY : Advance Data Technology Corporation

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

TABLE OF CONTENTS

1 CERTIFICATION

PRODUCT: WiMAX 2.5GHz Outdoor Mobile CPE
BRAND NAME: MTI, ConvergEX
MODEL NO.: XS-615-25S-102, XS-615-25S-001, XS-615-25M-001
APPLICANT: Microelectronics Technology Inc.
TESTED: Oct. 04 to 22, 2008
TEST SAMPLE: MASS-PRODUCTION
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.: XS-615-25S-001) 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 : Sunny Wen **, DATE:** Nov. 06, 2008
(Sunny Wen, Specialist)

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

APPROVED BY : May Chen **, DATE:** Nov. 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

PRODUCT	WiMAX 2.5GHz Outdoor Mobile CPE
MODEL NO.	XS-615-25S-102, XS-615-25S-001, XS-615-25M-001
FCC ID	MAD-XS-615-25
POWER SUPPLY	DC 48V from POE
MODULATION TECHNOLOGY	OFDMA
MODULATION	QPSK-1/2,-3/4, 16QAM-1/2, -3/4, 64QAM-1/2, -2/3, -3/4, -5/6
FREQUENCY RANGE	2500MHz ~ 2690MHz
CHANNEL BANDWIDTH	5MHz&10MHz
MAX. CONDUCTED POWER	5MHz - Antenna 1: 25.90dBm Antenna 2: 25.90dBm 10MHz - Antenna 1: 25.13dBm Antenna 2: 25.13dBm
ANTENNA TYPE	Please see note 4
DATA CABLE	RJ45 cable (shielded, 2.0m)
I/O PORTS	RJ-45 port x 1
ASSOCIATED DEVICES	NA

NOTE:

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

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

2. The EUT has two brand names and three model names which are identical to each other in all aspects except for the following:

Brand	Model No.	Difference
ConvergEX	XS-615-25S-102	For marketing requirement
MTI	XS-615-25M-001	
MTI	XS-615-25S-001	

From the above models, model: **XS-615-25S-001** was selected as representative model for the test and its data was recorded in this report.

3. The EUT must be supplied with a POE as below:

Brand	Model No.	Spec.
PHIHONG	PSA16U-480	AC Input: 100-240V, 50-60Hz, 0.4A AC input cable (shielded, 1.8m)
		DC Output: 48V, 0.32A

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

Antenna No.	Antenna Type	Antenna Gain (dBi)	Operating Frequency
Antenna 1	Patch	13	2.3~2.7GHz
Antenna 2	Dual Polarization	11	2.3~2.7GHz

5. The device has different DL/UL ration in normal operation. It was tested with 43.6% duty cycle mode, which is the worse mode, and controlled by software.

6. The EUT embedded a firmware for testing that needs to control from Notebook computer to let EUT can continue Tx and 43.6% duty cycle.

7. 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

Low channel (L): 2502.5MHz.

Middle channel (M): 2600MHz.

High channel (H): 2687.5MHz.

CHANNEL BANDWIDTH: 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≥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≥1G: Radiated emission above 1GHz

OUTPUT POWER MEASUREMENT:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

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

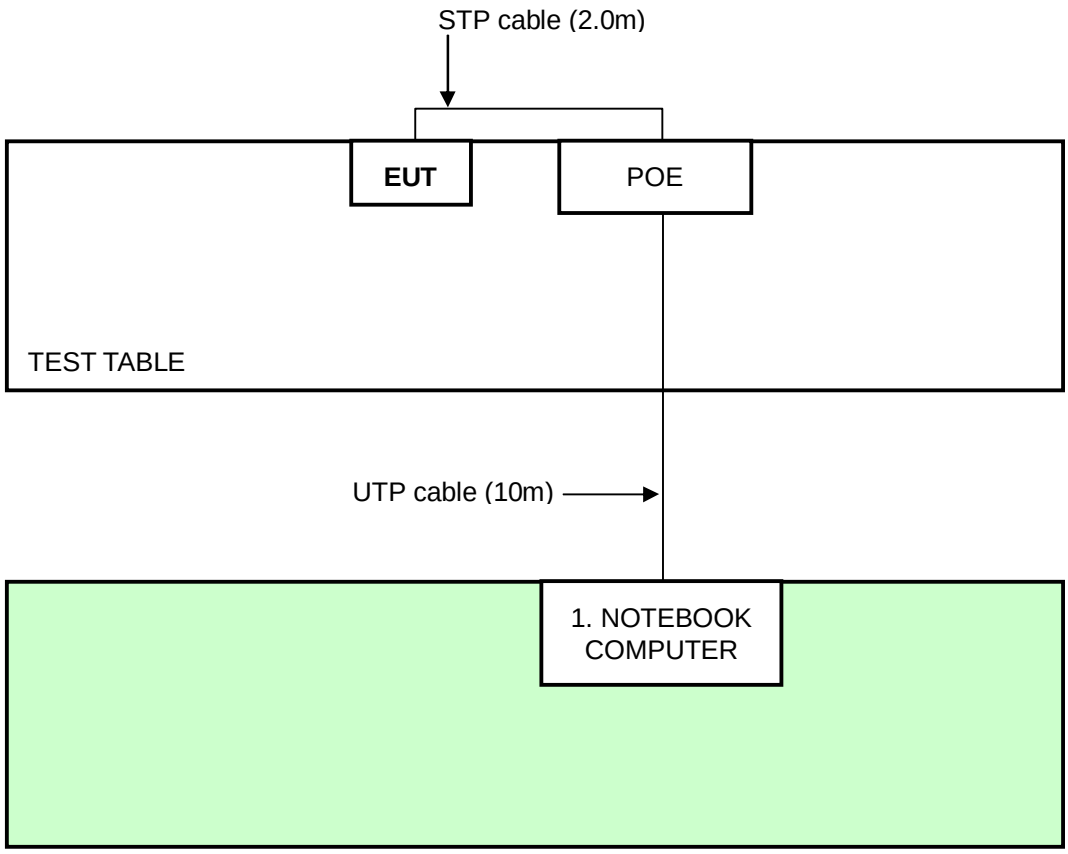
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	D531	CN-0XM006-48643-86L-4472	QDS-BRCM1019

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

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

3.4.1 CONFIGURATION OF SYSTEM UNDER TEST



4 TEST TYPES AND RESULTS

4.1 OUTPUT POWER MEASUREMENT

4.1.1 LIMITS OF OUTPUT POWER MEASUREMENT

The radiated peak output power shall be according to the specific rule Part 27.50(h)(2) that “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=56kHz, VBW=180kHz, Detector mode=Avg.

c. For Channel bandwidth: 10 MHz:

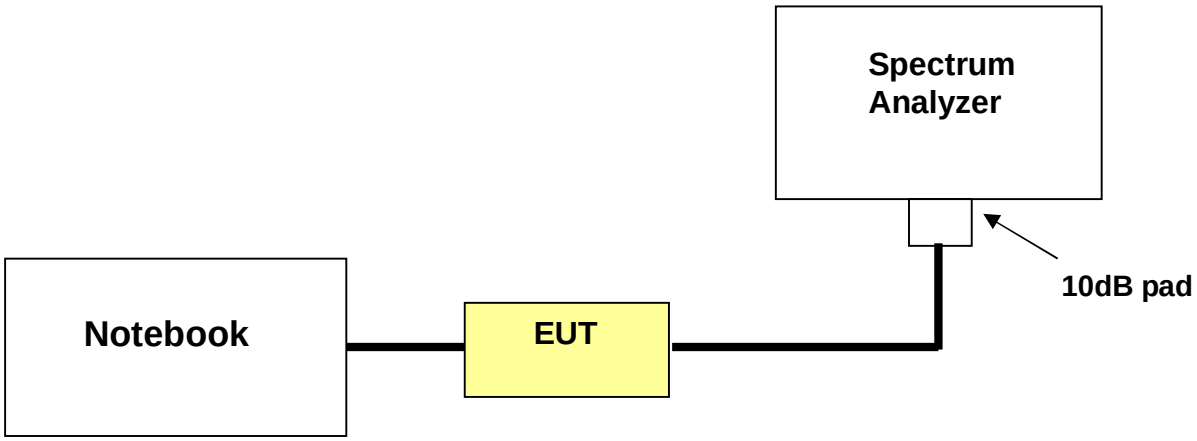
Set RBW=110kHz, VBW=330kHz, Detector mode=Avg.

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

a. The Notebook controlled EUT to export rated output power under transmission mode and specific channel frequency.

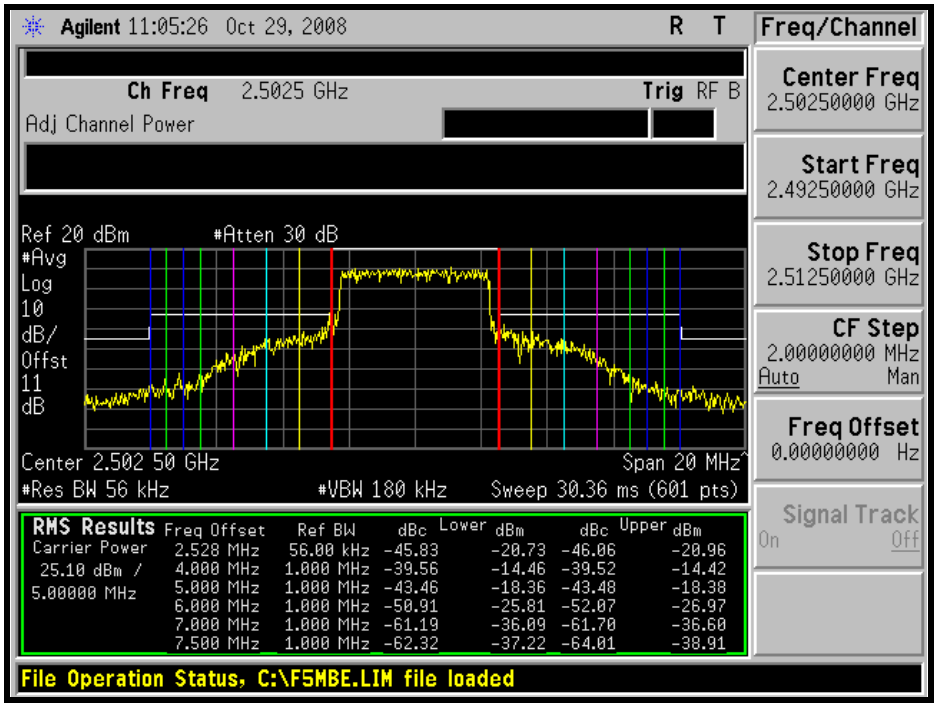
4.1.6 TEST RESULTS

CHANNEL BANDWIDTH: 5MHz with antenna 1

INPUT POWER (SYSTEM)	120Vac, 60Hz	**DETECTOR FUNCTION**	Avg
ENVIRONMENTAL CONDITIONS	20deg°C, 60%RH 960hPa	**TESTED BY**	Rex Huang

CONDUCTED POWER			
CHANNEL	**FREQUENCY (MHz)**	**PEAK POWER OUTPUT(mW)**	**PEAK POWER OUTPUT(dBm)**
Low	2502.5	323.594	25.10
Middle	2600	389.045	25.90
High	2687.5	386.367	25.87

LOW CHANNEL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R T
Freq/Channel
Ch Freq 2.5025 GHz
Trig RF B
Adj Channel Power
Ref 20 dBm
#Atten 30 dB
#Avg
Log
10
dB/
Offst
11
dB
Center 2.502 50 GHz
Span 20 MHz
#Res BW 56 kHz
#VBW 180 kHz
Sweep 30.36 ms (601 pts)
RMS Results
Freq Offset
Ref BW
dBc
Lower dBm
dBc
Upper dBm
Carrier Power
25.10 dBm /
5.00000 MHz
2.528 MHz 56.00 kHz -45.83 -20.73 -46.06 -20.96
4.000 MHz 1.000 MHz -39.56 -14.46 -39.52 -14.42
5.000 MHz 1.000 MHz -43.46 -18.36 -43.48 -18.38
6.000 MHz 1.000 MHz -50.91 -25.81 -52.07 -26.97
7.000 MHz 1.000 MHz -61.19 -36.09 -61.70 -36.60
7.500 MHz 1.000 MHz -62.32 -37.22 -64.01 -38.91
Center Freq
2.50250000 GHz
Start Freq
2.49250000 GHz
Stop Freq
2.51250000 GHz
CF Step
2.00000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
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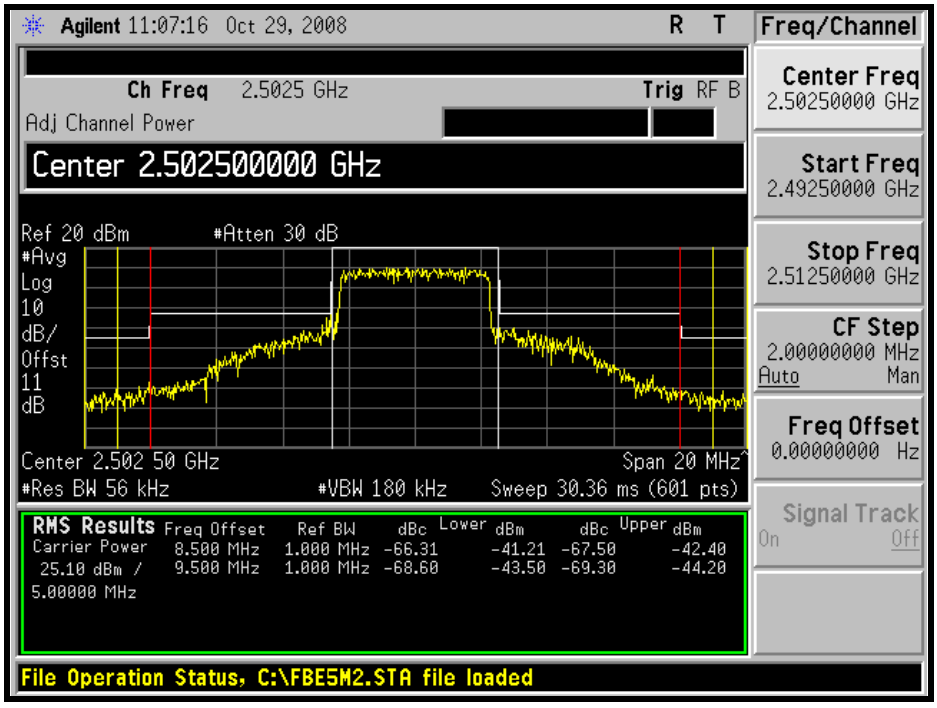
Agilent 11:07:16 Oct 29, 2008
R T
Freq/Channel
Ch Freq 2.5025 GHz
Trig RF B
Adj Channel Power
Center 2.502500000 GHz
Ref 20 dBm
#Atten 30 dB
#Avg
Log
10
dB/
Offst
11
dB
Center 2.502 50 GHz
Span 20 MHz
#Res BW 56 kHz
#VBW 180 kHz
Sweep 30.36 ms (601 pts)
RMS Results
Freq Offset
Ref BW
dBc
Lower dBm
dBc
Upper dBm
Carrier Power
25.10 dBm /
5.00000 MHz
8.500 MHz 1.000 MHz -66.31 -41.21 -67.50 -42.40
9.500 MHz 1.000 MHz -68.60 -43.50 -69.30 -44.20
Center Freq
2.50250000 GHz
Start Freq
2.49250000 GHz
Stop Freq
2.51250000 GHz
CF Step
2.00000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
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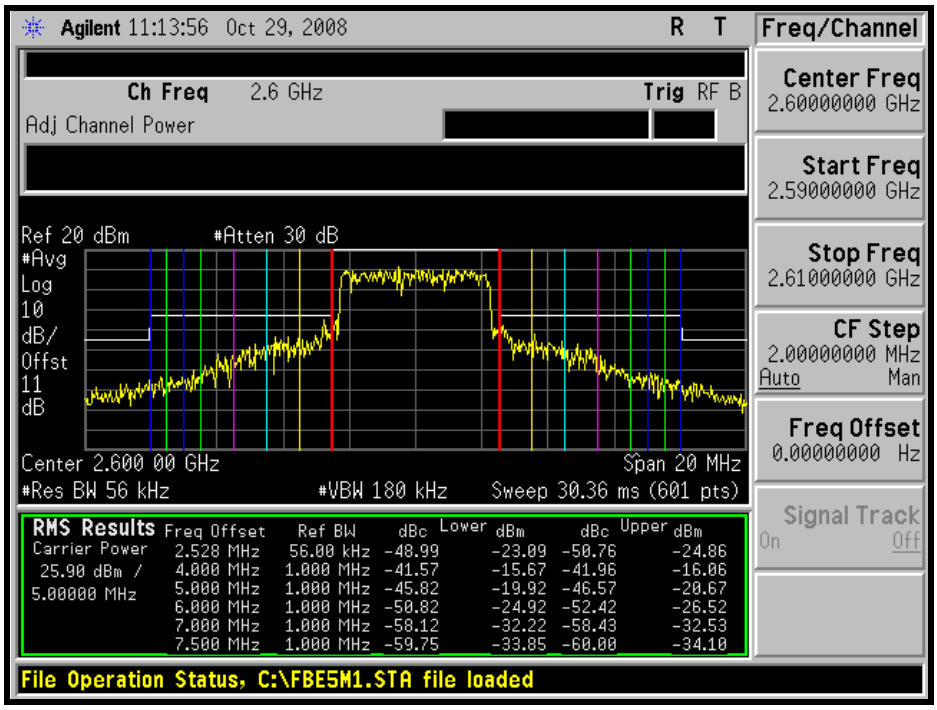
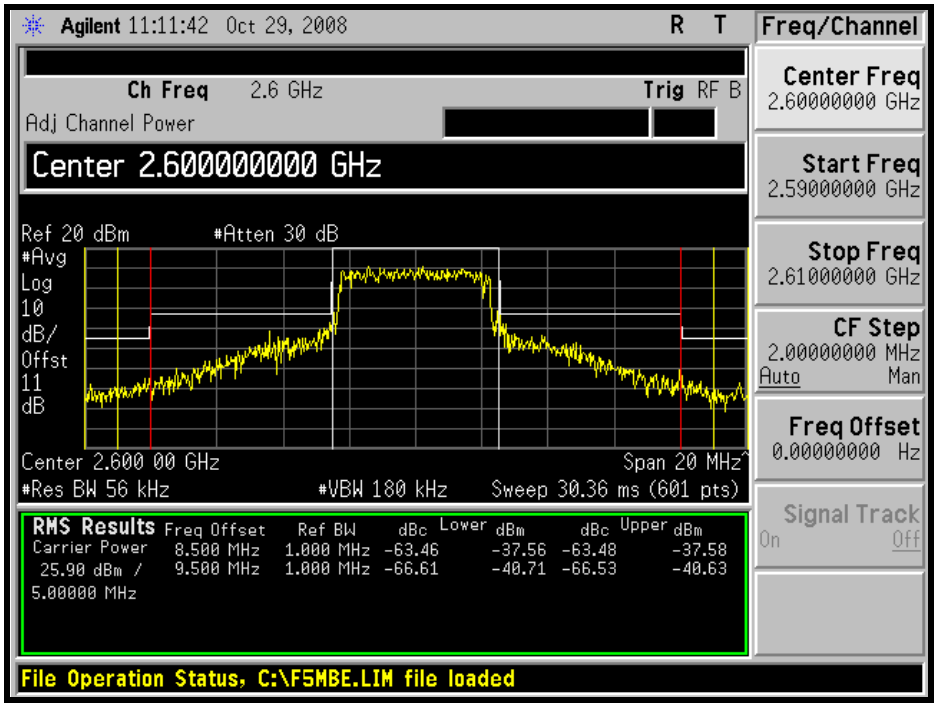
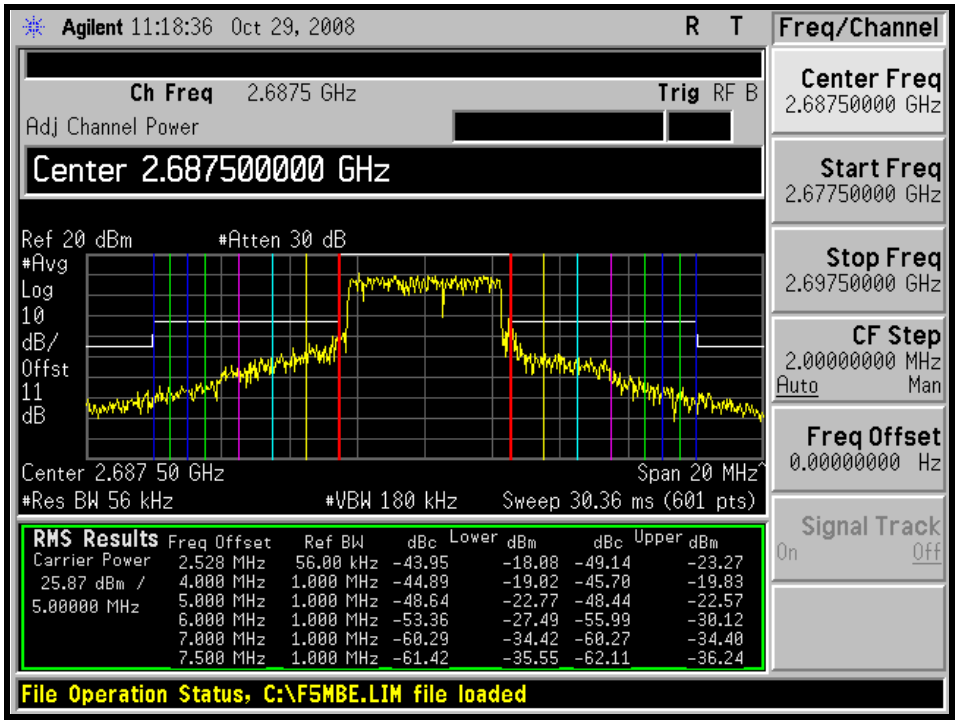
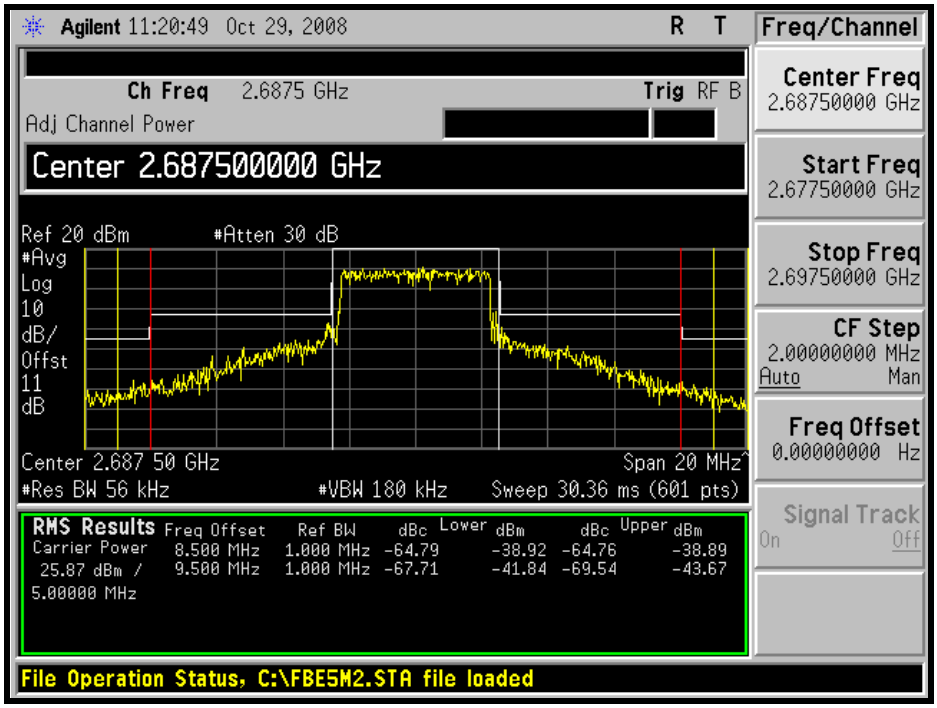
MIDDLE CHANNEL





HIGH CHANNEL



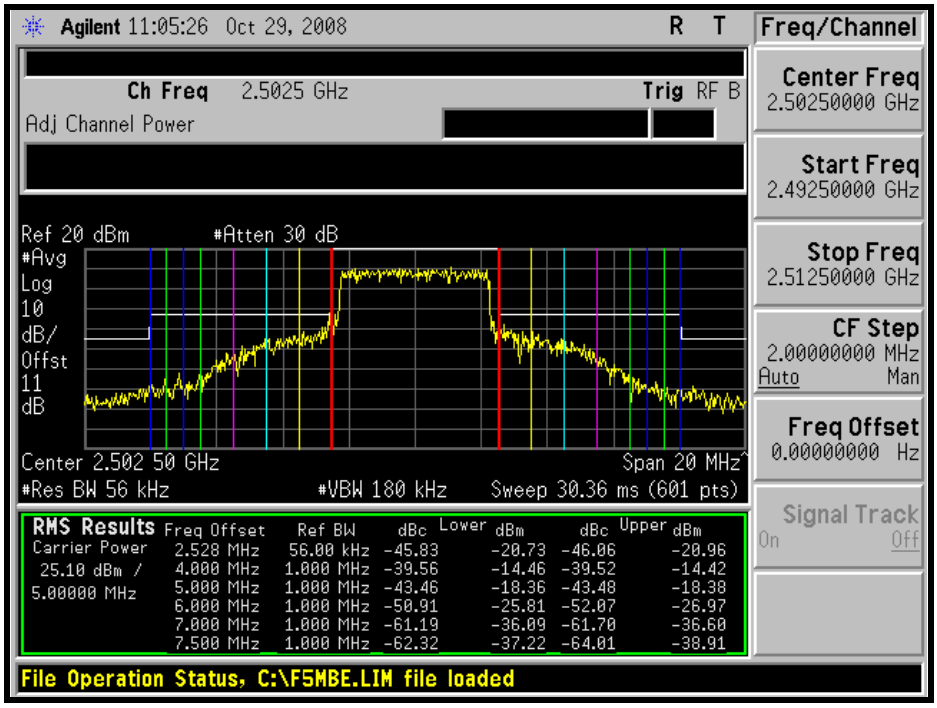


CHANNEL BANDWIDTH: 5MHz with antenna 2

INPUT POWER (SYSTEM)	120Vac, 60Hz	**DETECTOR FUNCTION**	Avg
ENVIRONMENTAL CONDITIONS	20deg°C, 60%RH 960hPa	**TESTED BY**	Rex Huang

CONDUCTED POWER			
CHANNEL	**FREQUENCY (MHz)**	**PEAK POWER OUTPUT(mW)**	**PEAK POWER OUTPUT(dBm)**
Low	2502.5	323.594	25.10
Middle	2600	389.045	25.90
High	2687.5	386.367	25.87

LOW CHANNEL


Agilent 11:05:26 Oct 29, 2008
R T
Freq/Channel
Ch Freq 2.5025 GHz
Trig RF B
Adj Channel Power
Ref 20 dBm
#Atten 30 dB
#Avg
Log
10
dB/
Offst
11
dB
Center 2.502 50 GHz
Span 20 MHz
#Res BW 56 kHz
#VBW 180 kHz
Sweep 30.36 ms (601 pts)
RMS Results
Freq Offset
Ref BW
dBc
Lower dBm
dBc
Upper dBm
Carrier Power
25.10 dBm /
5.00000 MHz
2.528 MHz 56.00 kHz -45.83 -20.73 -46.06 -20.96
4.000 MHz 1.000 MHz -39.56 -14.46 -39.52 -14.42
5.000 MHz 1.000 MHz -43.46 -18.36 -43.48 -18.38
6.000 MHz 1.000 MHz -50.91 -25.81 -52.07 -26.97
7.000 MHz 1.000 MHz -61.19 -36.09 -61.70 -36.60
7.500 MHz 1.000 MHz -62.32 -37.22 -64.01 -38.91
Center Freq
2.50250000 GHz
Start Freq
2.49250000 GHz
Stop Freq
2.51250000 GHz
CF Step
2.00000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
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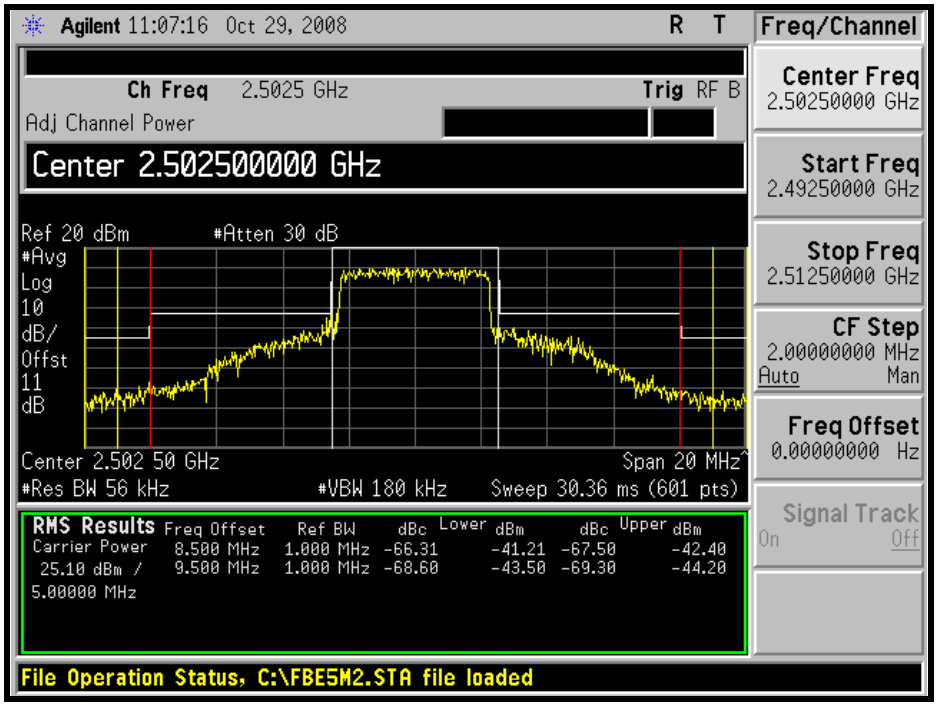
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R T
Freq/Channel
Ch Freq 2.5025 GHz
Trig RF B
Adj Channel Power
Center 2.502500000 GHz
Ref 20 dBm
#Atten 30 dB
#Avg
Log
10
dB/
Offst
11
dB
Center 2.502 50 GHz
Span 20 MHz
#Res BW 56 kHz
#VBW 180 kHz
Sweep 30.36 ms (601 pts)
RMS Results
Freq Offset
Ref BW
dBc
Lower dBm
dBc
Upper dBm
Carrier Power
25.10 dBm /
5.00000 MHz
8.500 MHz 1.000 MHz -66.31 -41.21 -67.50 -42.40
9.500 MHz 1.000 MHz -68.60 -43.50 -69.30 -44.20
Center Freq
2.50250000 GHz
Start Freq
2.49250000 GHz
Stop Freq
2.51250000 GHz
CF Step
2.00000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
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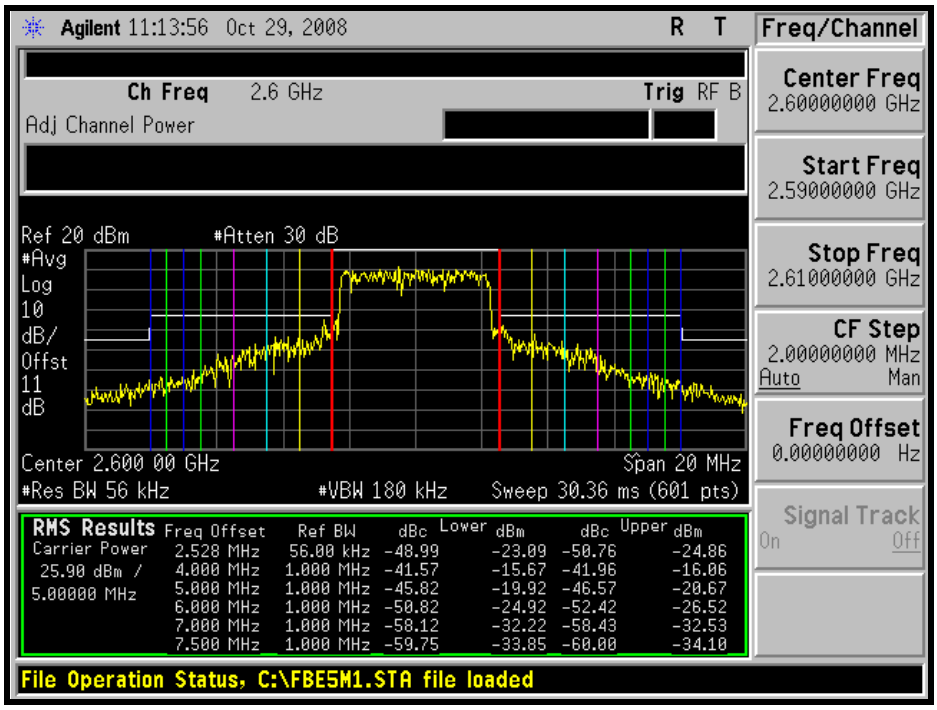
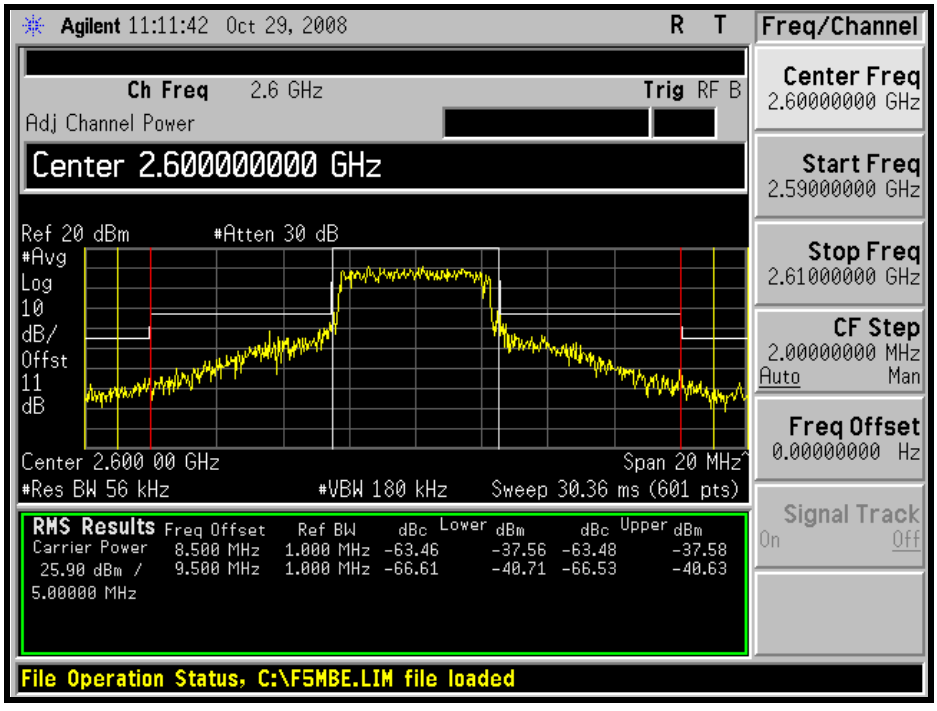
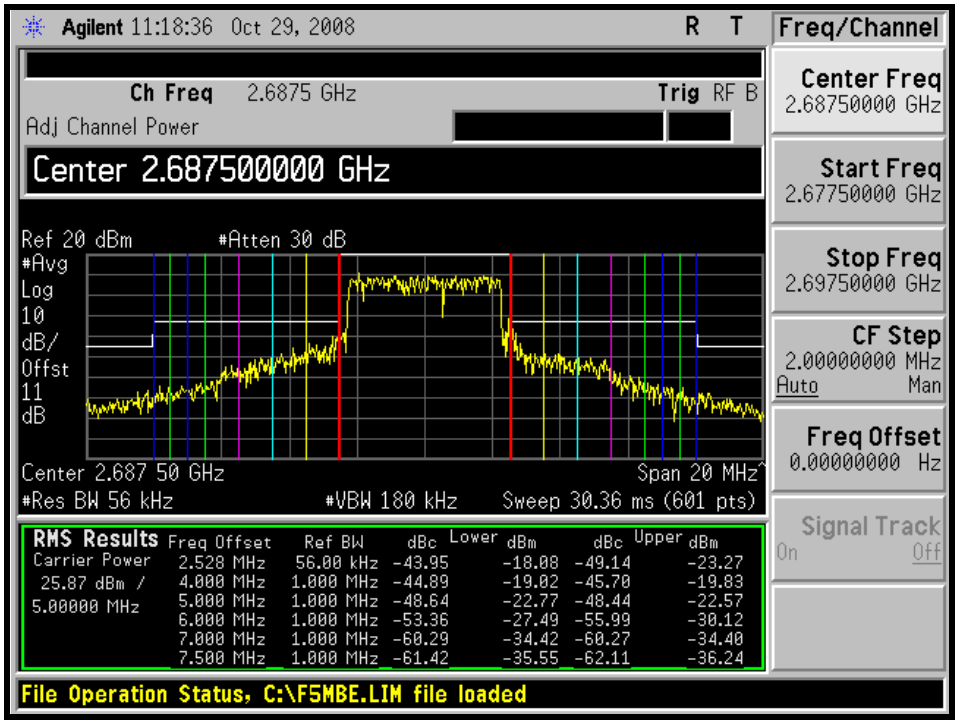
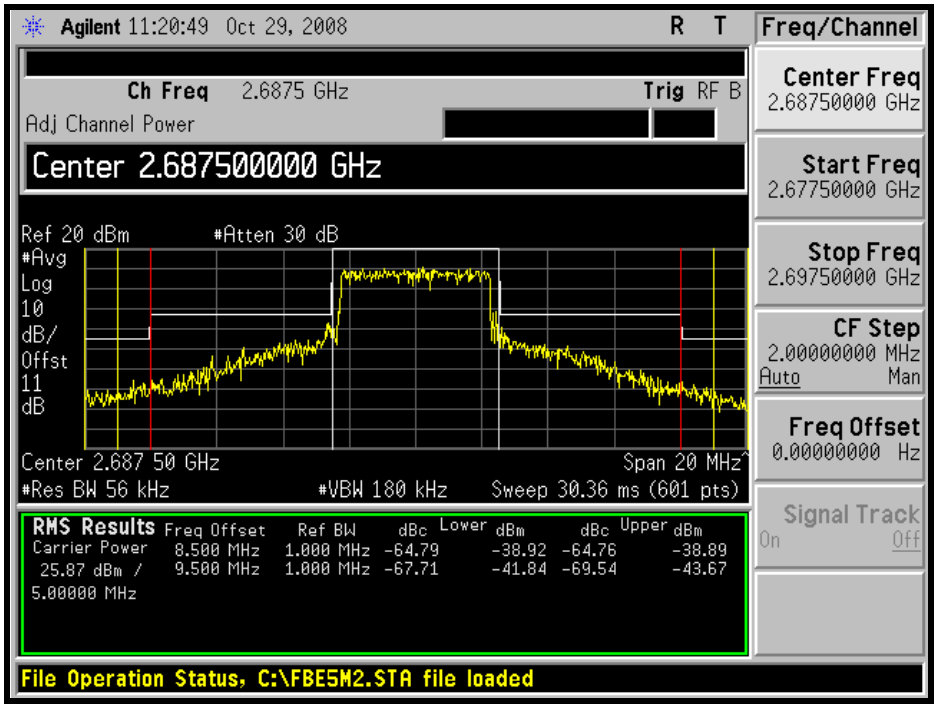
MIDDLE CHANNEL





HIGH CHANNEL



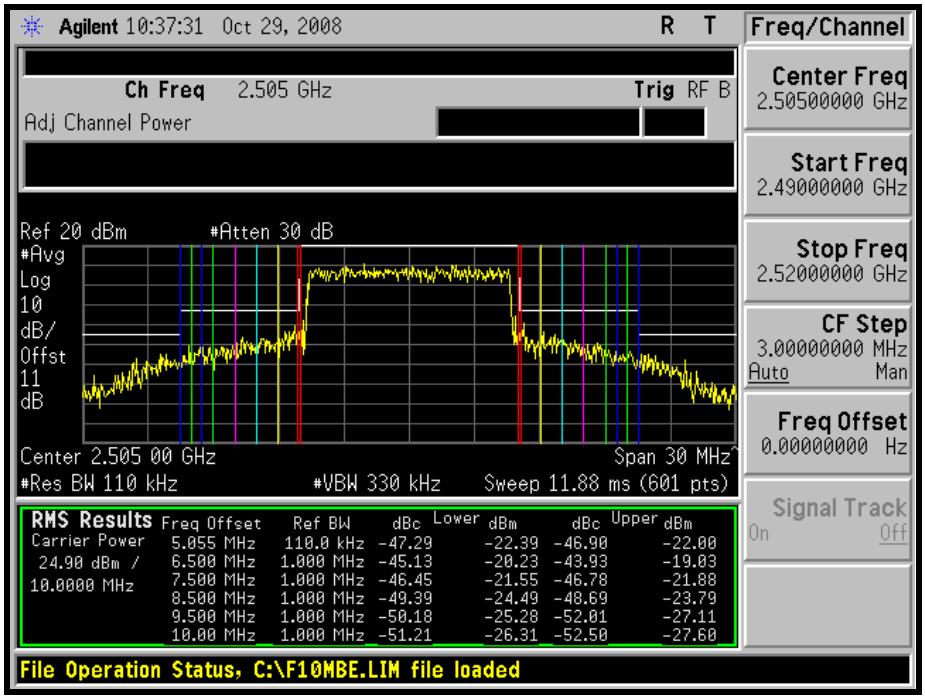


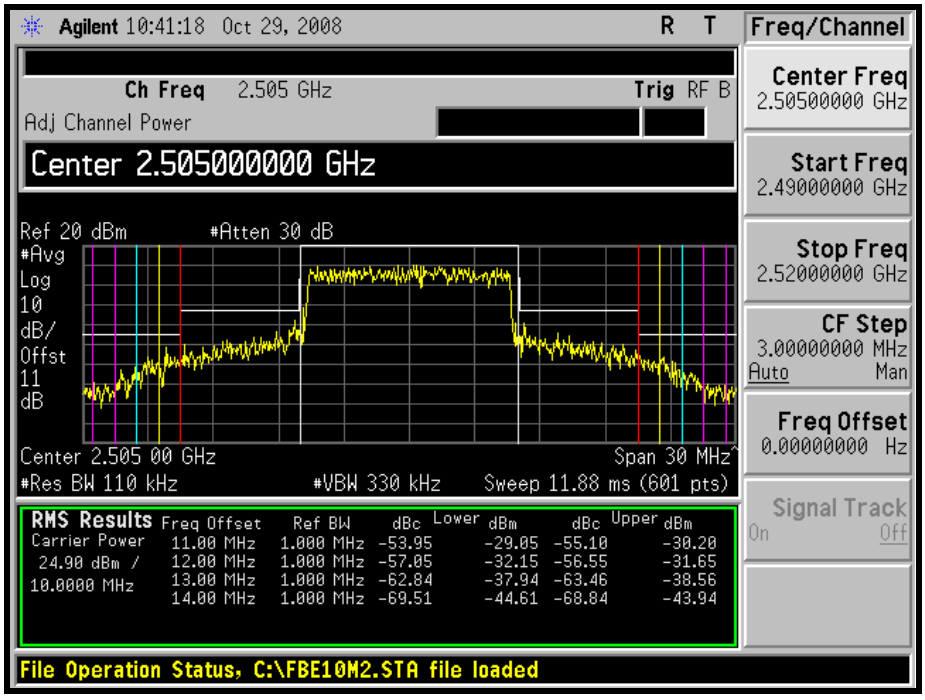
CHANNEL BANDWIDTH: 10MHz with antenna 1

INPUT POWER (SYSTEM)	120Vac, 60Hz	**DETECTOR FUNCTION**	Avg
ENVIRONMENTAL CONDITIONS	20deg°C, 60%RH 960hPa	**TESTED BY**	Rex Huang

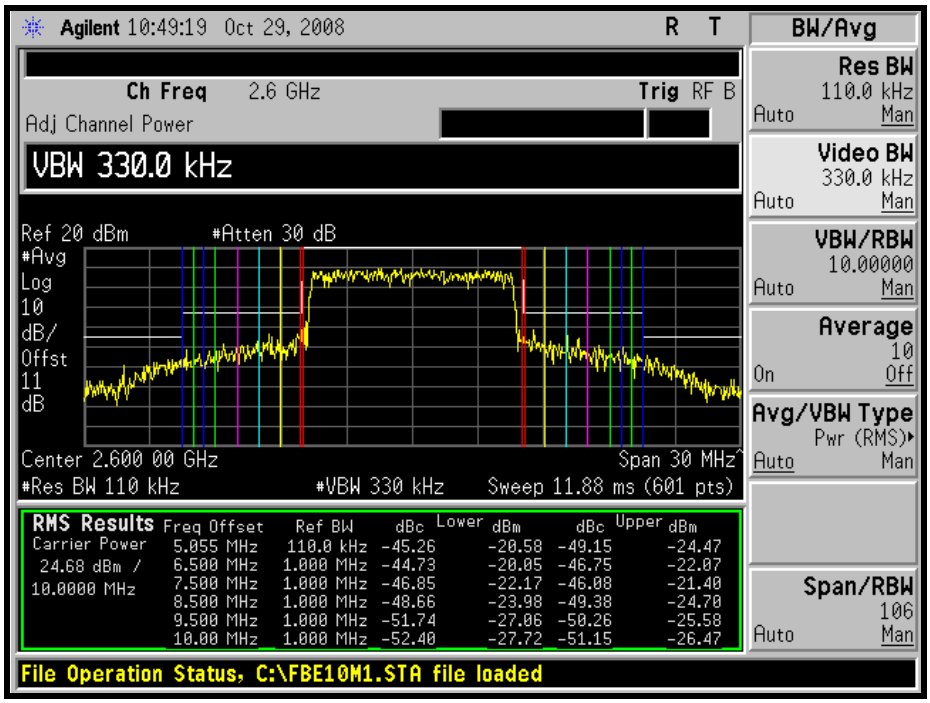
CONDUCTED POWER			
CHANNEL	**FREQUENCY (MHz)**	**PEAK POWER OUTPUT(mW)**	**PEAK POWER OUTPUT(dBm)**
Low	2505	309.030	24.90
Middle	2600	293.765	24.68
High	2685	325.837	25.13

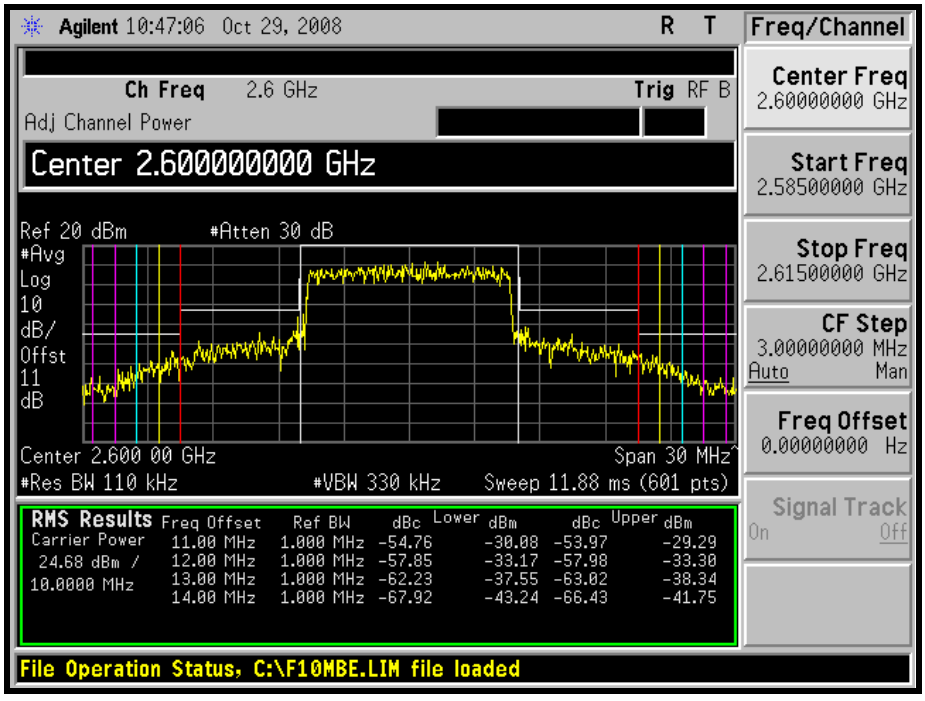
LOW CHANNEL


Agilent 10:37:31 Oct 29, 2008
R T
Freq/Channel
Ch Freq 2.505 GHz
Trig RF B
Adj Channel Power
Center Freq
2.50500000 GHz
Start Freq
2.49000000 GHz
Stop Freq
2.52000000 GHz
CF Step
3.00000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Ref 20 dBm
#Atten 30 dB
#Avg
Log
10
dB/
Offst
11
dB
Center 2.505 00 GHz
Span 30 MHz
#Res BW 110 kHz
#VBW 330 kHz
Sweep 11.88 ms (601 pts)
RMS Results
Freq Offset Ref BW dBc Lower dBm dBc Upper dBm
Carrier Power
24.90 dBm /
10.0000 MHz
5.055 MHz 110.0 kHz -47.29 -22.39 -46.90 -22.00
6.500 MHz 1.000 MHz -45.13 -20.23 -43.93 -19.03
7.500 MHz 1.000 MHz -46.45 -21.55 -46.78 -21.88
8.500 MHz 1.000 MHz -49.39 -24.49 -48.69 -23.79
9.500 MHz 1.000 MHz -50.18 -25.28 -52.01 -27.11
10.00 MHz 1.000 MHz -51.21 -26.31 -52.50 -27.60
File Operation Status, C:\F10MBE.LIM file loaded

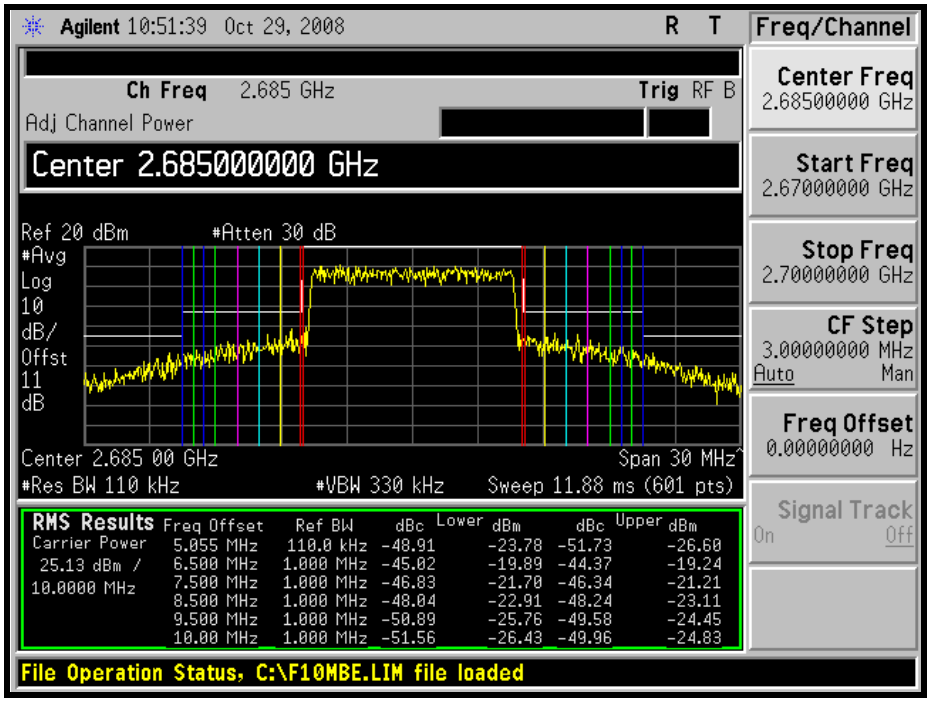

Agilent 10:41:18 Oct 29, 2008
R T
Freq/Channel
Ch Freq 2.505 GHz
Trig RF B
Adj Channel Power
Center 2.505000000 GHz
Center Freq
2.50500000 GHz
Start Freq
2.49000000 GHz
Stop Freq
2.52000000 GHz
CF Step
3.00000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Ref 20 dBm
#Atten 30 dB
#Avg
Log
10
dB/
Offst
11
dB
Center 2.505 00 GHz
Span 30 MHz
#Res BW 110 kHz
#VBW 330 kHz
Sweep 11.88 ms (601 pts)
RMS Results
Freq Offset Ref BW dBc Lower dBm dBc Upper dBm
Carrier Power
24.90 dBm /
10.0000 MHz
11.00 MHz 1.000 MHz -53.95 -29.05 -55.10 -30.20
12.00 MHz 1.000 MHz -57.05 -32.15 -56.55 -31.65
13.00 MHz 1.000 MHz -62.84 -37.94 -63.46 -38.56
14.00 MHz 1.000 MHz -69.51 -44.61 -68.84 -43.94
File Operation Status, C:\FBE10M2.STA file loaded

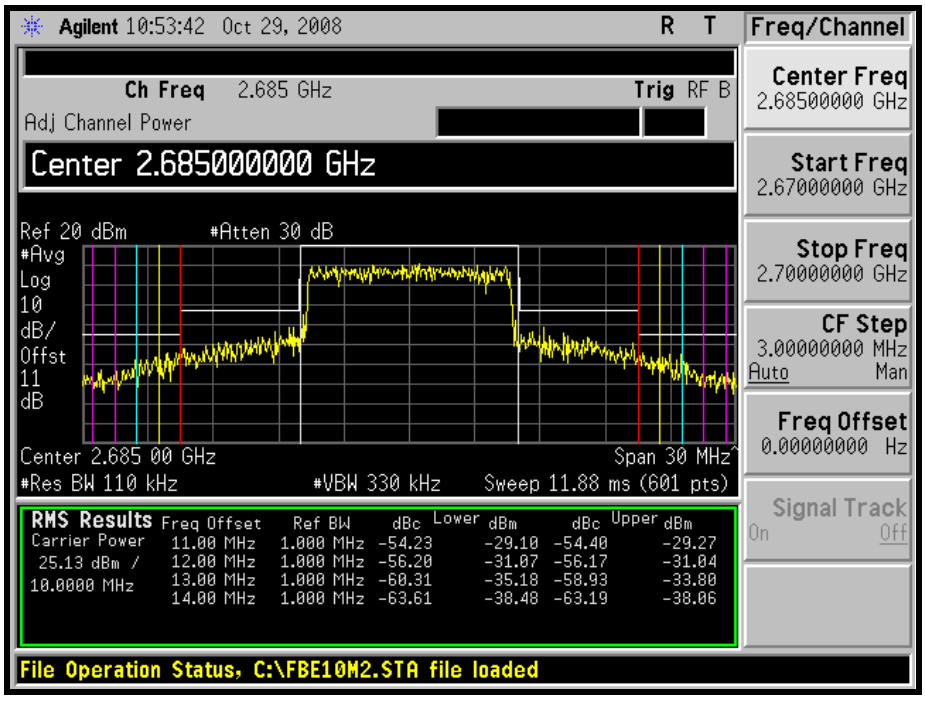
MIDDLE CHANNEL





HIGH CHANNEL



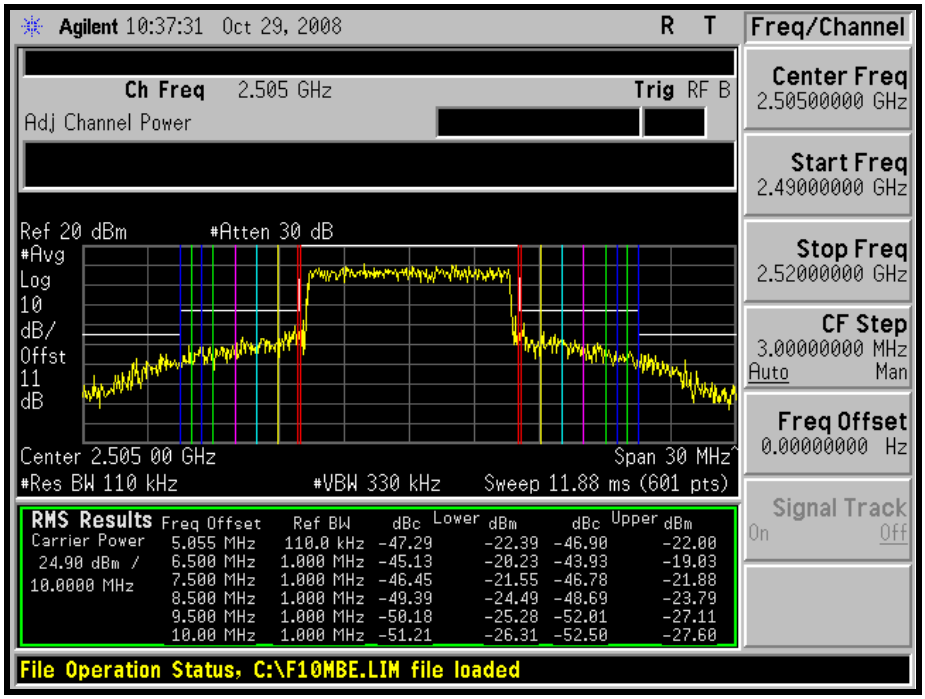


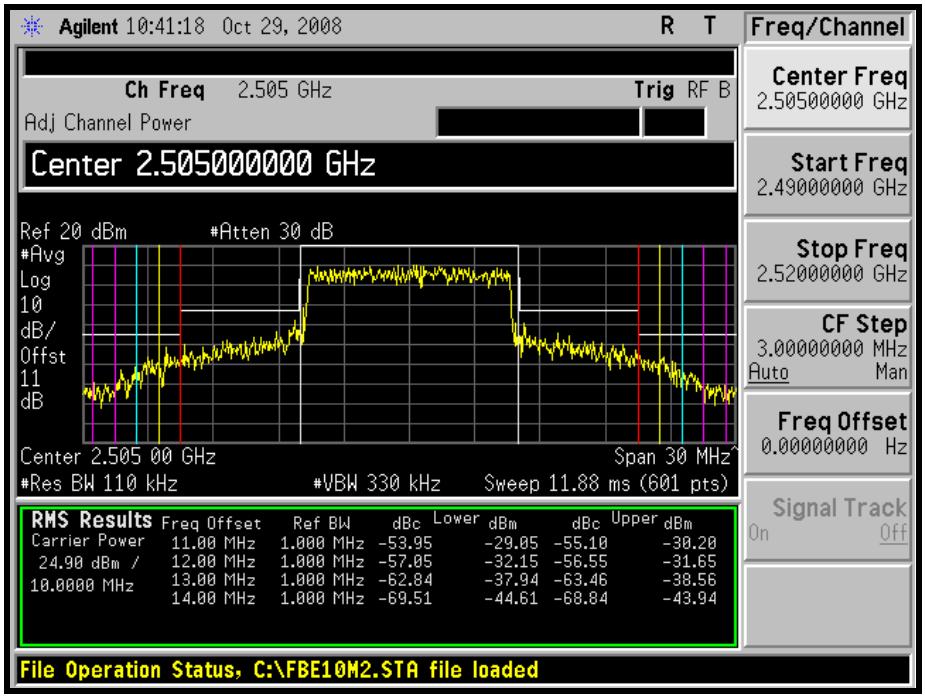
CHANNEL BANDWIDTH: 10MHz with antenna 2

INPUT POWER (SYSTEM)	120Vac, 60Hz	**DETECTOR FUNCTION**	Avg
ENVIRONMENTAL CONDITIONS	20deg°C, 60%RH 960hPa	**TESTED BY**	Rex Huang

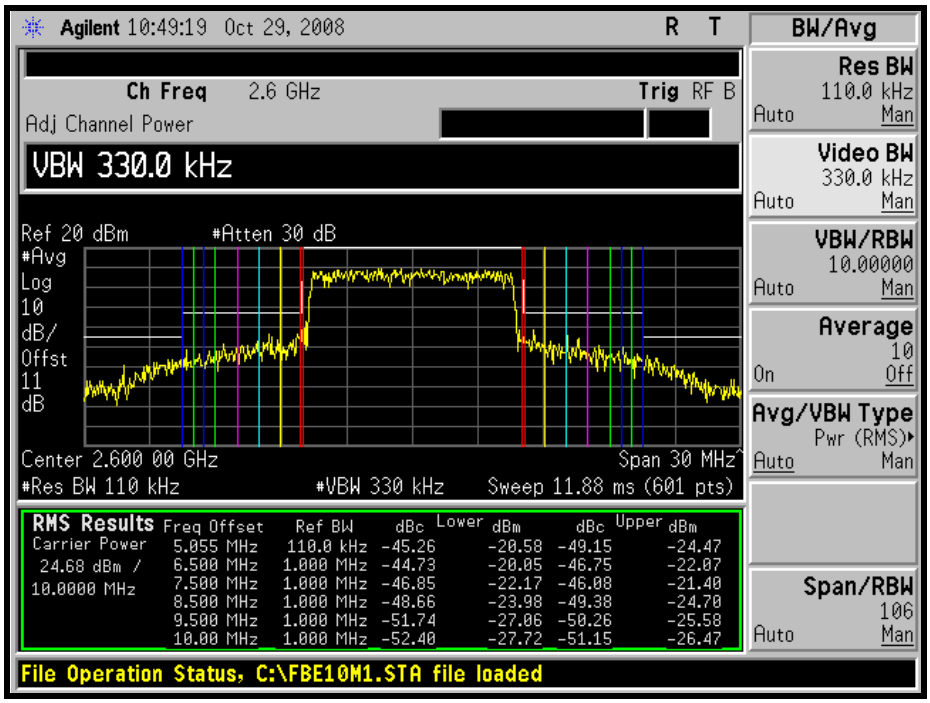
CONDUCTED POWER			
CHANNEL	**FREQUENCY (MHz)**	**PEAK POWER OUTPUT(mW)**	**PEAK POWER OUTPUT(dBm)**
Low	2505	309.030	24.90
Middle	2600	293.765	24.68
High	2685	325.837	25.13

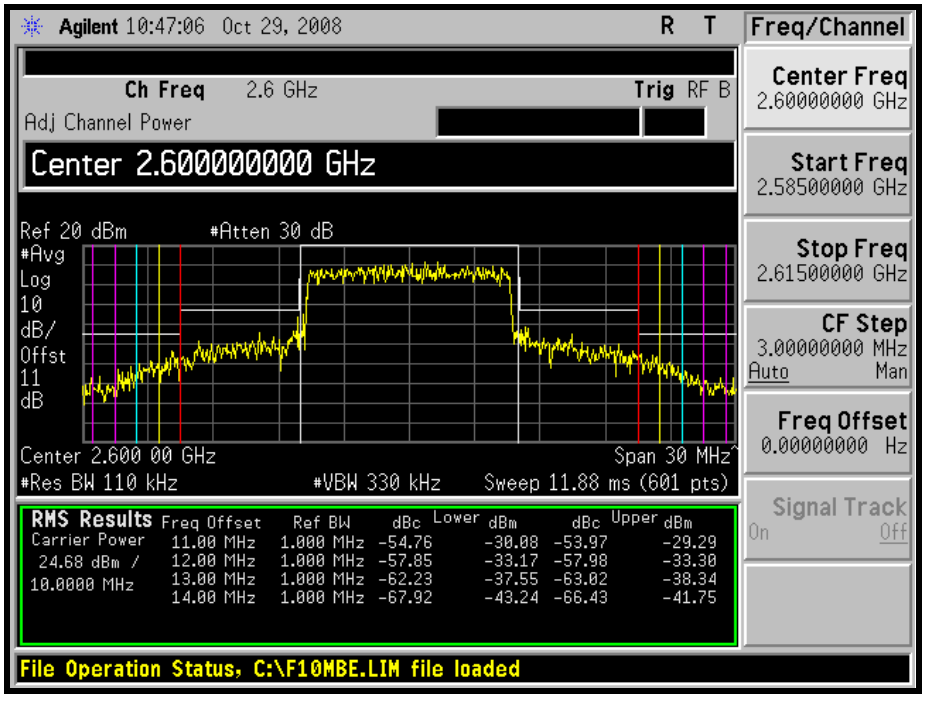
LOW CHANNEL


Agilent 10:37:31 Oct 29, 2008
R T
Freq/Channel
Ch Freq 2.505 GHz
Trig RF B
Adj Channel Power
Center Freq
2.50500000 GHz
Start Freq
2.49000000 GHz
Stop Freq
2.52000000 GHz
CF Step
3.00000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Ref 20 dBm
#Atten 30 dB
#Avg
Log
10
dB/
Offst
11
dB
Center 2.505 00 GHz
Span 30 MHz
#Res BW 110 kHz
#VBW 330 kHz
Sweep 11.88 ms (601 pts)
RMS Results
Freq Offset Ref BW dBc Lower dBm dBc Upper dBm
Carrier Power
24.90 dBm /
10.0000 MHz
5.055 MHz 110.0 kHz -47.29 -22.39 -46.90 -22.00
6.500 MHz 1.000 MHz -45.13 -20.23 -43.93 -19.03
7.500 MHz 1.000 MHz -46.45 -21.55 -46.78 -21.88
8.500 MHz 1.000 MHz -49.39 -24.49 -48.69 -23.79
9.500 MHz 1.000 MHz -50.18 -25.28 -52.01 -27.11
10.00 MHz 1.000 MHz -51.21 -26.31 -52.50 -27.60
File Operation Status, C:\F10MBE.LIM file loaded

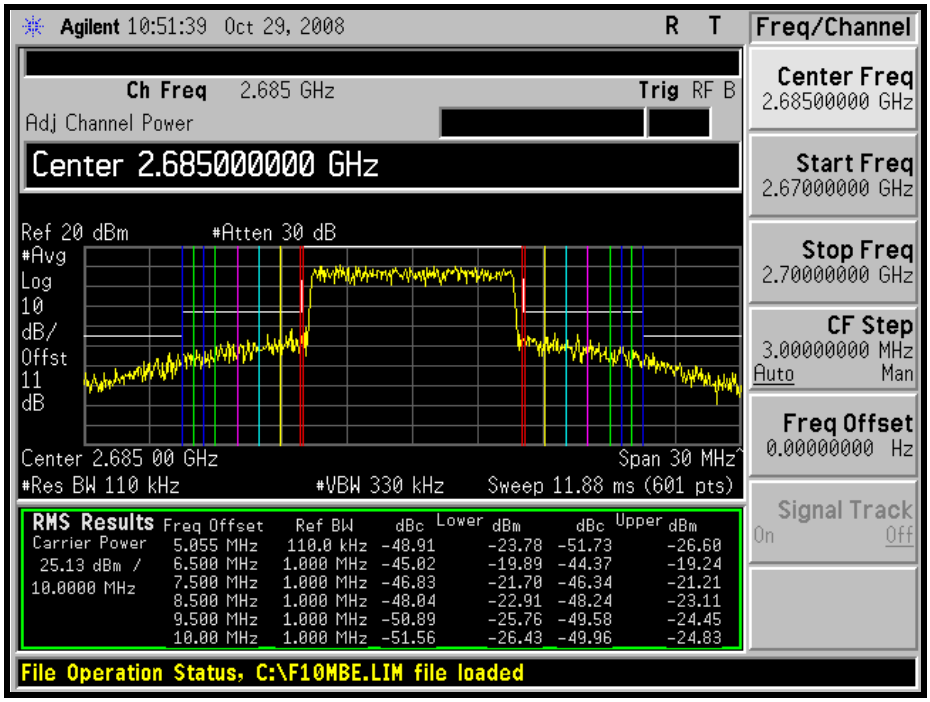

Agilent 10:41:18 Oct 29, 2008
R T
Freq/Channel
Ch Freq 2.505 GHz
Trig RF B
Adj Channel Power
Center 2.505000000 GHz
Center Freq
2.50500000 GHz
Start Freq
2.49000000 GHz
Stop Freq
2.52000000 GHz
CF Step
3.00000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Ref 20 dBm
#Atten 30 dB
#Avg
Log
10
dB/
Offst
11
dB
Center 2.505 00 GHz
Span 30 MHz
#Res BW 110 kHz
#VBW 330 kHz
Sweep 11.88 ms (601 pts)
RMS Results
Freq Offset Ref BW dBc Lower dBm dBc Upper dBm
Carrier Power
24.90 dBm /
10.0000 MHz
11.00 MHz 1.000 MHz -53.95 -29.05 -55.10 -30.20
12.00 MHz 1.000 MHz -57.05 -32.15 -56.55 -31.65
13.00 MHz 1.000 MHz -62.84 -37.94 -63.46 -38.56
14.00 MHz 1.000 MHz -69.51 -44.61 -68.84 -43.94
File Operation Status, C:\FBE10M2.STA file loaded

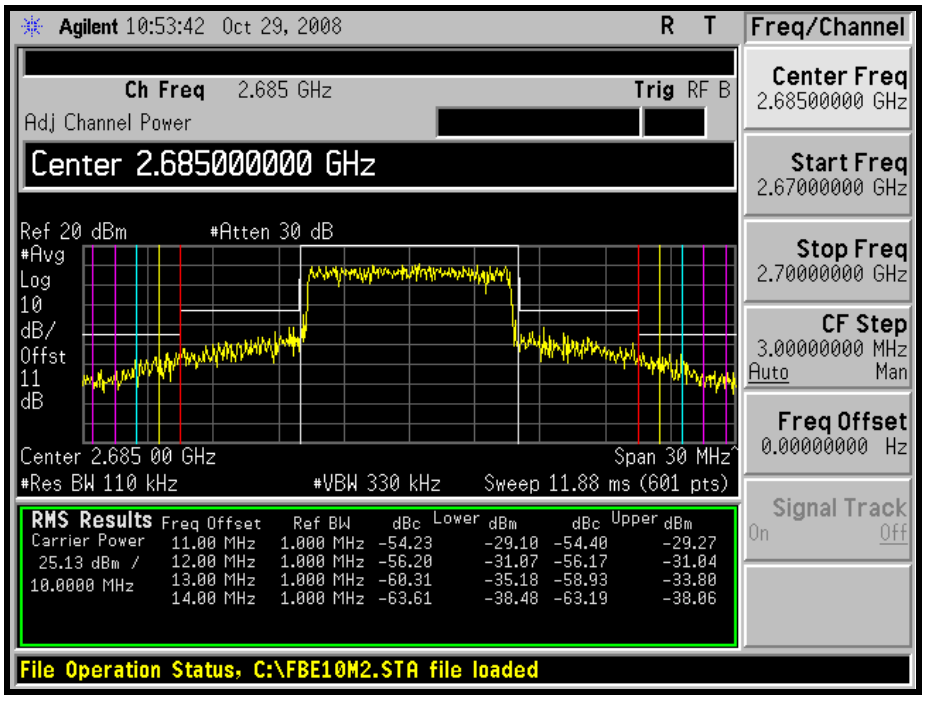
MIDDLE CHANNEL





HIGH CHANNEL





4.2 FREQUENCY STABILITY MEASUREMENT

4.2.1 LIMITS OF FREQUENCY STABILIITY 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℃ ~ 50℃.

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 08, 2009
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

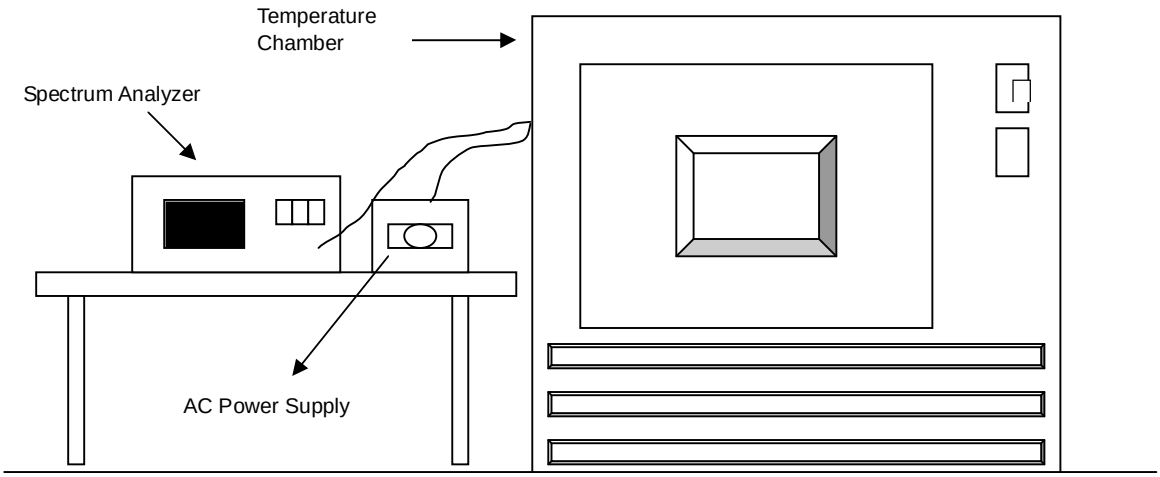
a. Power must be removed when changing from one temperature to another or one voltage to another voltage. Power warm up is at least 15 min and power applied should perform before recording frequency error.

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 ±0.5℃ 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

MODE	Middle channel (2600MHz)	**INPUT POWER (SYSTEM)**	120Vac, 60Hz
ENVIRONMENTAL CONDITIONS	20deg°C, 60%RH 960hPa	**TESTED BY**	Rex Huang

AFC FREQUENCY ERROR VS. VOLTAGE		
VOLTAGE (Volts)	**FREQUENCY (MHz)**	**FREQUENCY DRIFT (ppm)**
138	2600.04476	0.001722
120	2600.0447	0.001719
102	2600.04482	0.001724

AFC FREQUENCY ERROR VS. TEMP.		
TEMP. (℃)	**FREQUENCY (MHz)**	**FREQUENCY DRIFT (ppm)**
60	2600.0548	0.002108
50	2600.0524	0.002015
40	2600.0532	0.002046
30	2600.0506	0.001946
20	2600.0447	0.001719
10	2600.0128	0.000492
0	2600.0297	0.001142
-10	2600.0086	0.000331
-20	2599.99569	0.000166
-30	2599.9838	0.000625
-40	2599.9976	0.000092

According to the manufacturer's specification add test at temperature -40℃ and 60℃.

4.3 EMISSION BANDWIDTH MEASUREMENT

4.3.1 LIMITS OF EMISSION BANDWIDTH MEASUREMENT

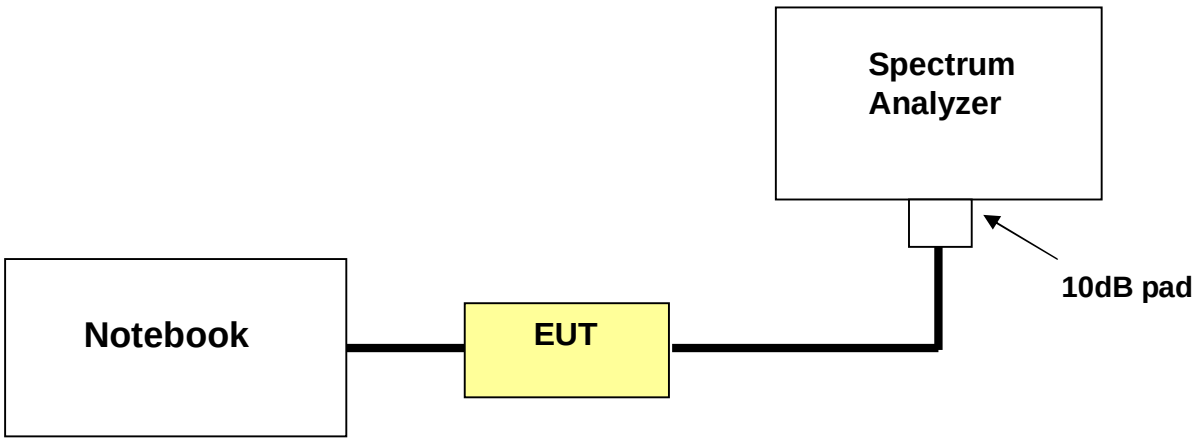
According to FCC 27.53(m)(6) specified that emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26dB below the transmitter power.

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

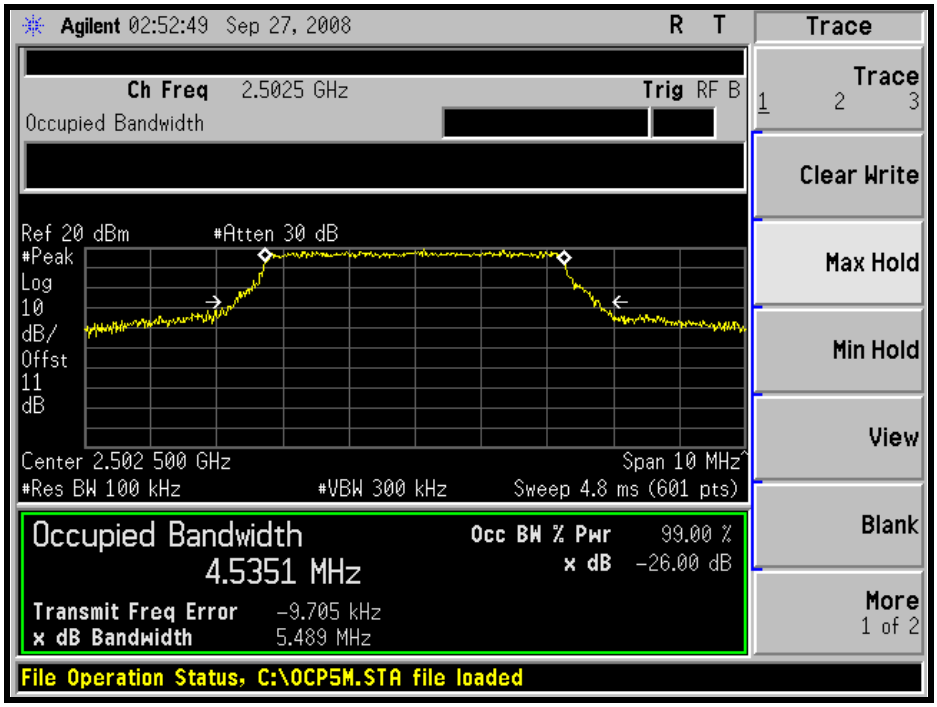
a. The Notebook controlled EUT to export rated output power under transmission mode and specific channel frequency. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100kHz RBW and 300kHz VBW. The 26dB bandwidth is define as the total spectrum the power of which is higher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

4.3.5 TEST RESULTS

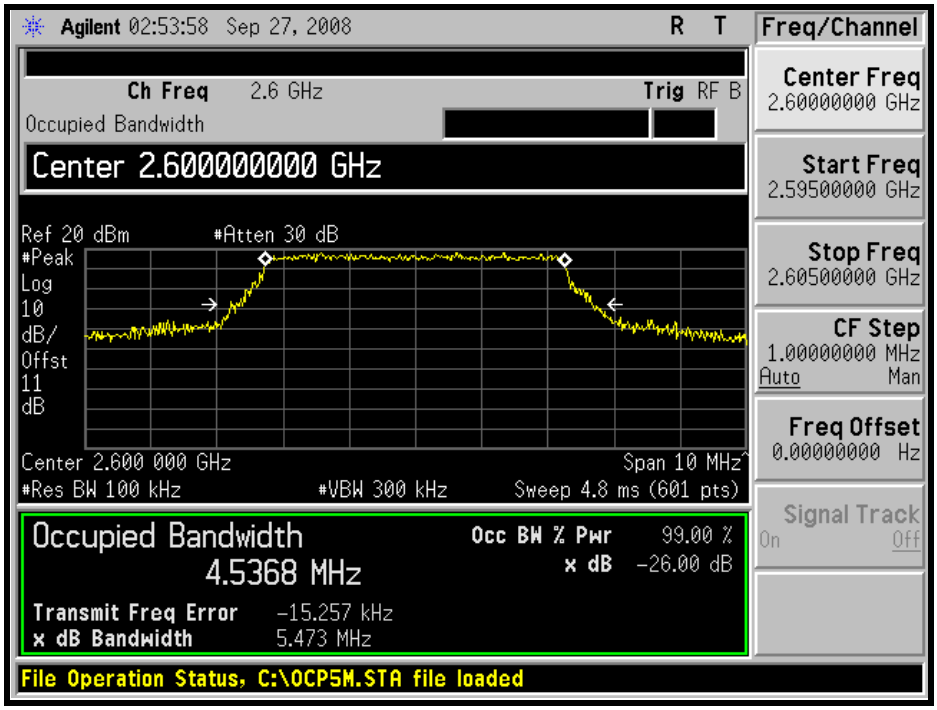
CHANNEL BANDWIDTH: 5MHz

FREQUENCY (MHz)	-26 dBc BANDWIDTH (MHz)
2502.5	5.489
2600	5.473
2687.5	5.559

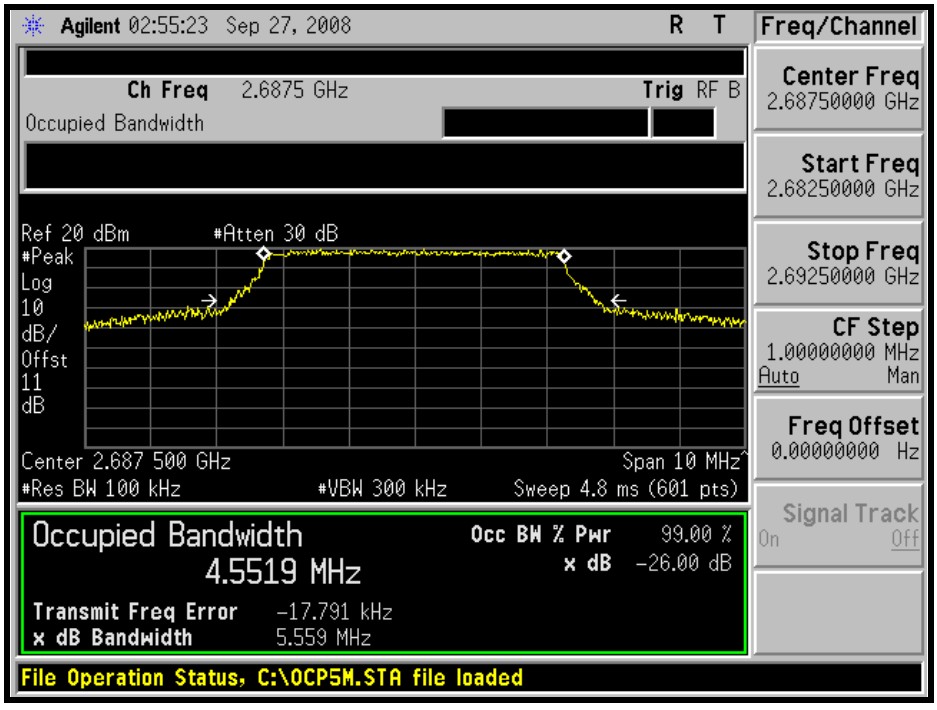
LOW CHANNEL



MIDDLE CHANNEL



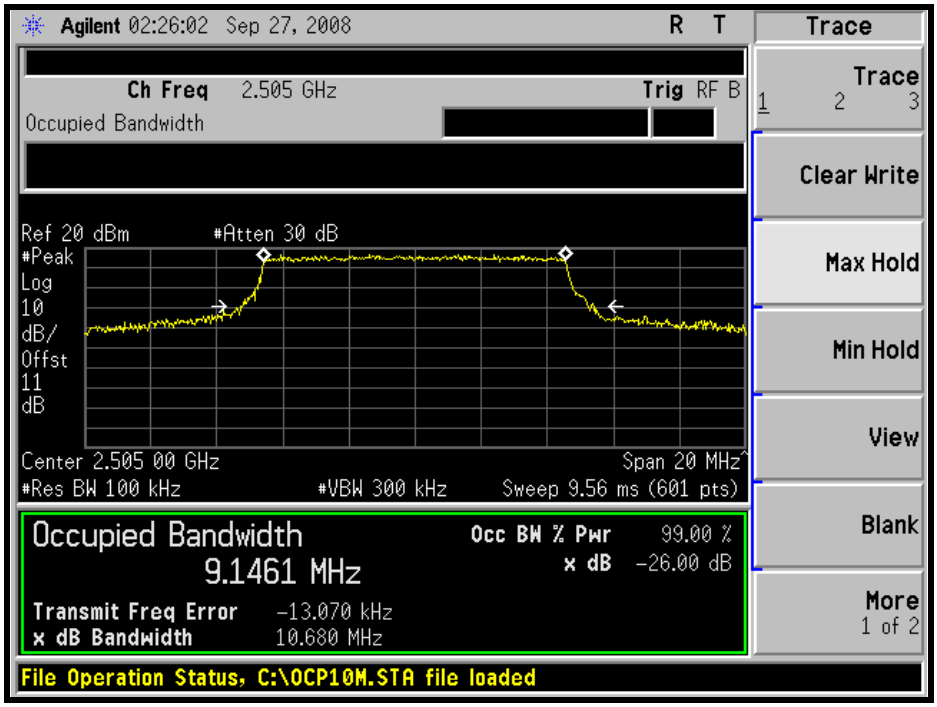
HIGH CHANNEL



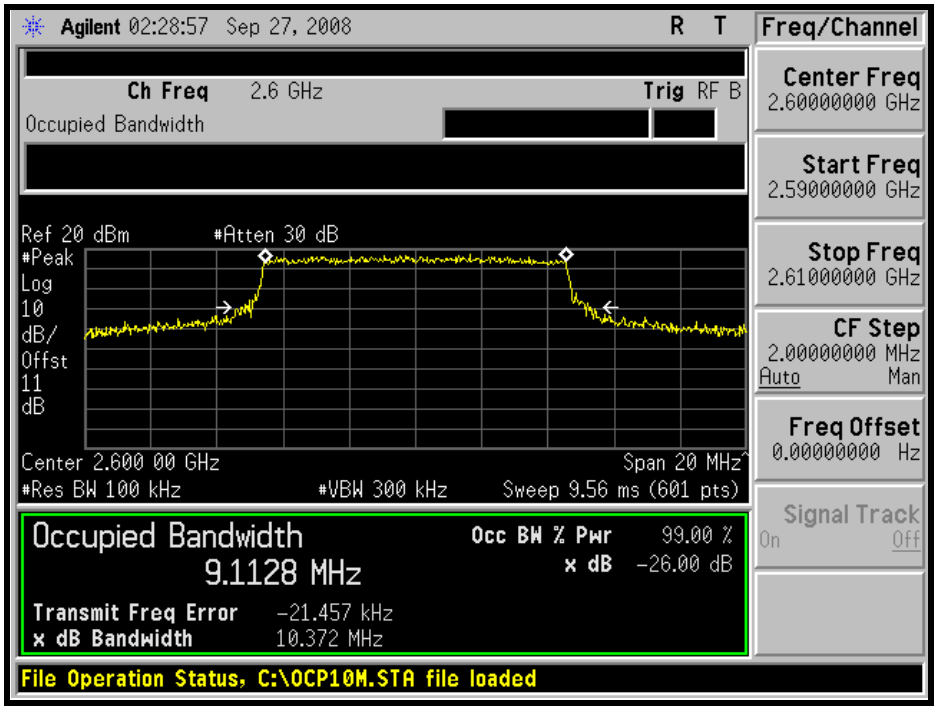
CHANNEL BANDWIDTH: 10MHz

FREQUENCY (MHz)	-26 dBc BANDWIDTH (MHz)
2505	10.680
2600	10.372
2685	10.962

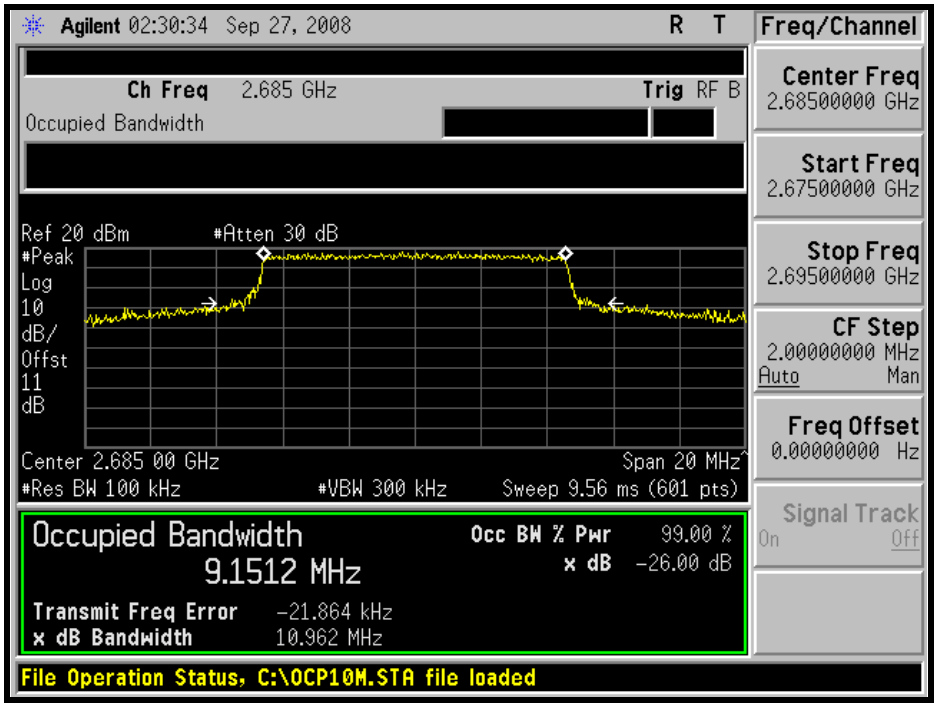
LOW CHANNEL



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 56kHz and VB of the spectrum is 180kHz.

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.

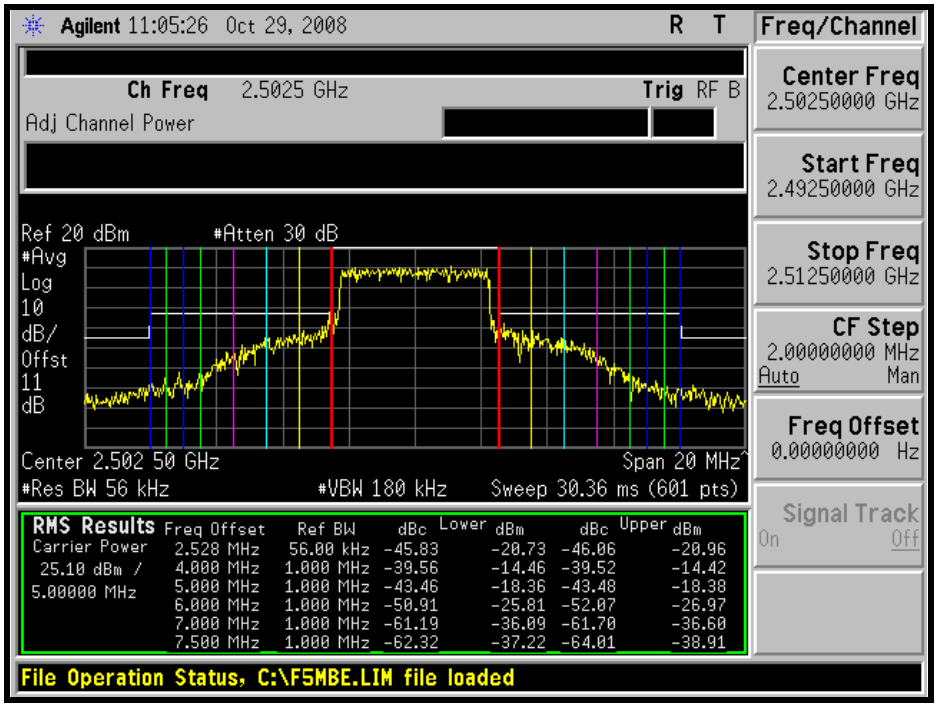
4.4.5 EUT OPERATING CONDITION

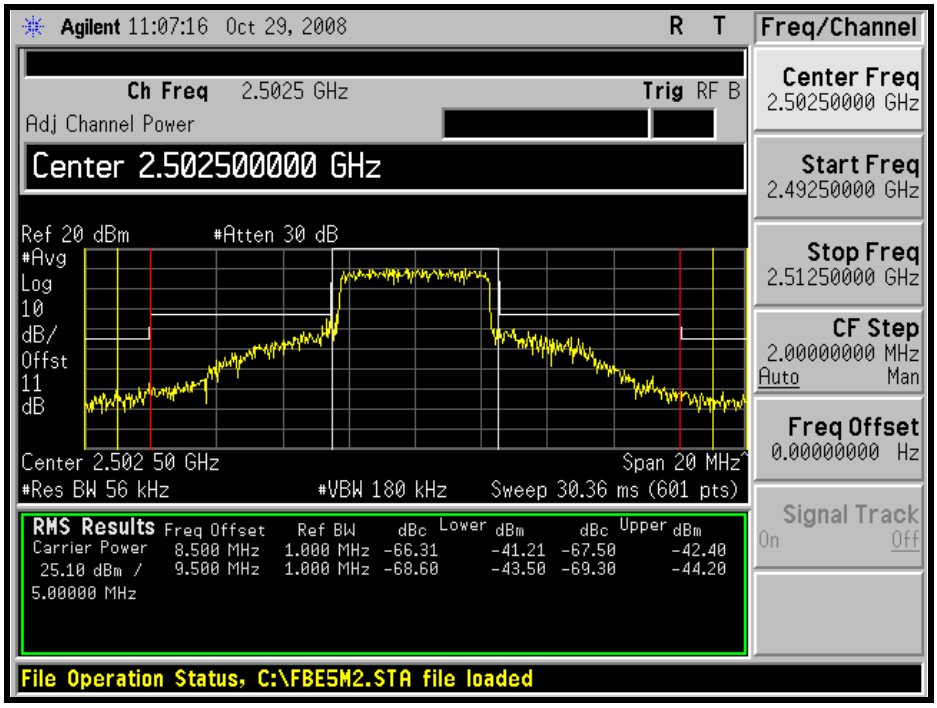
a. The Notebook controlled EUT to export rated output power under transmission mode and specific channel frequency.

4.4.6 TEST RESULTS

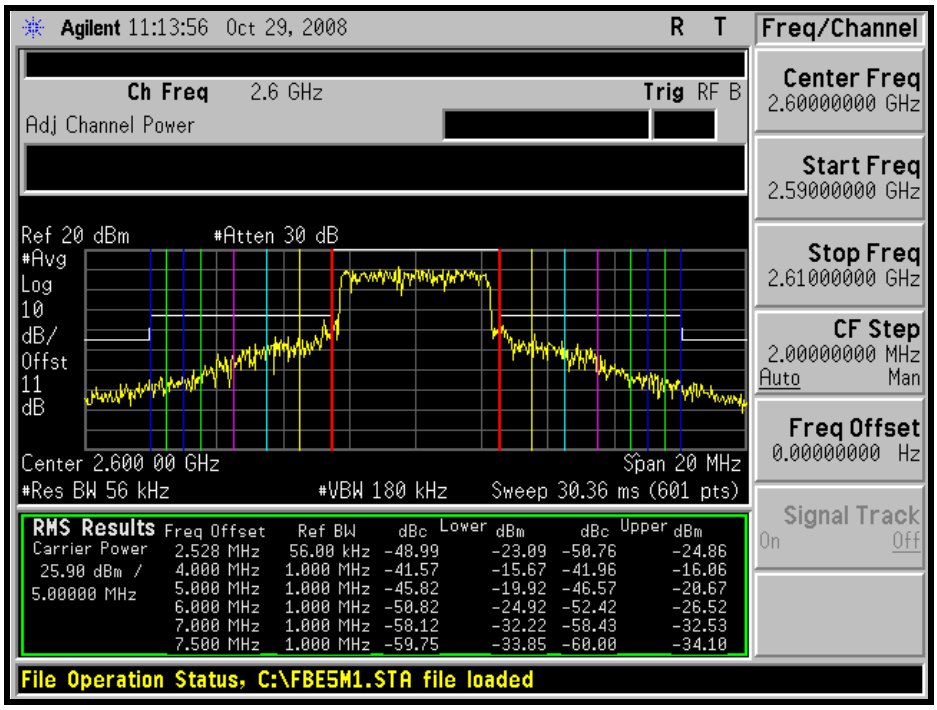
CHANNEL BANDWIDTH: 5MHz with antenna 1

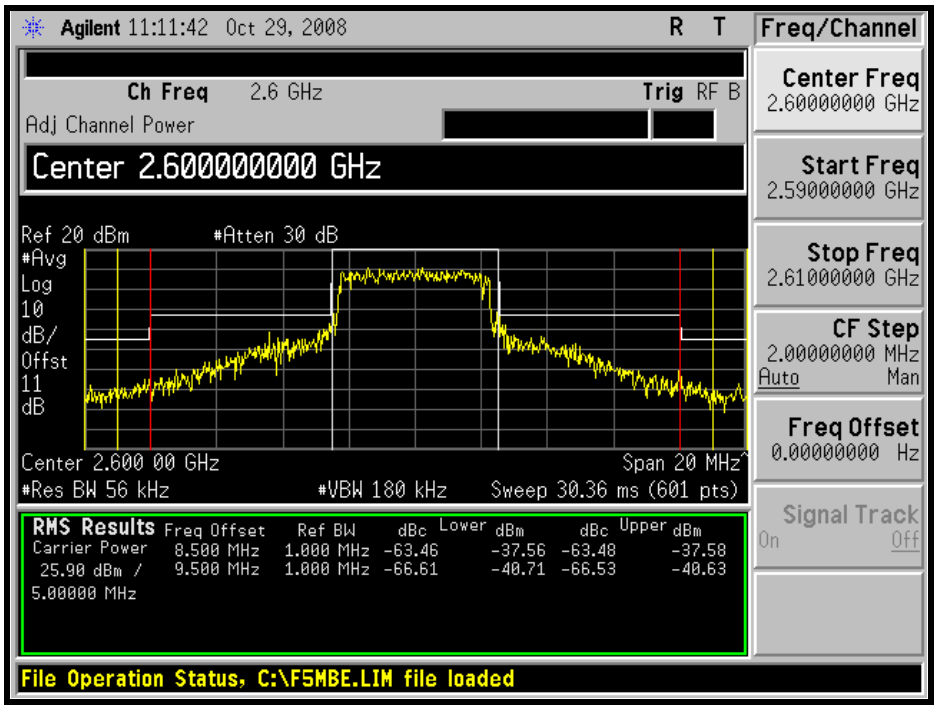
LOW CHANNEL



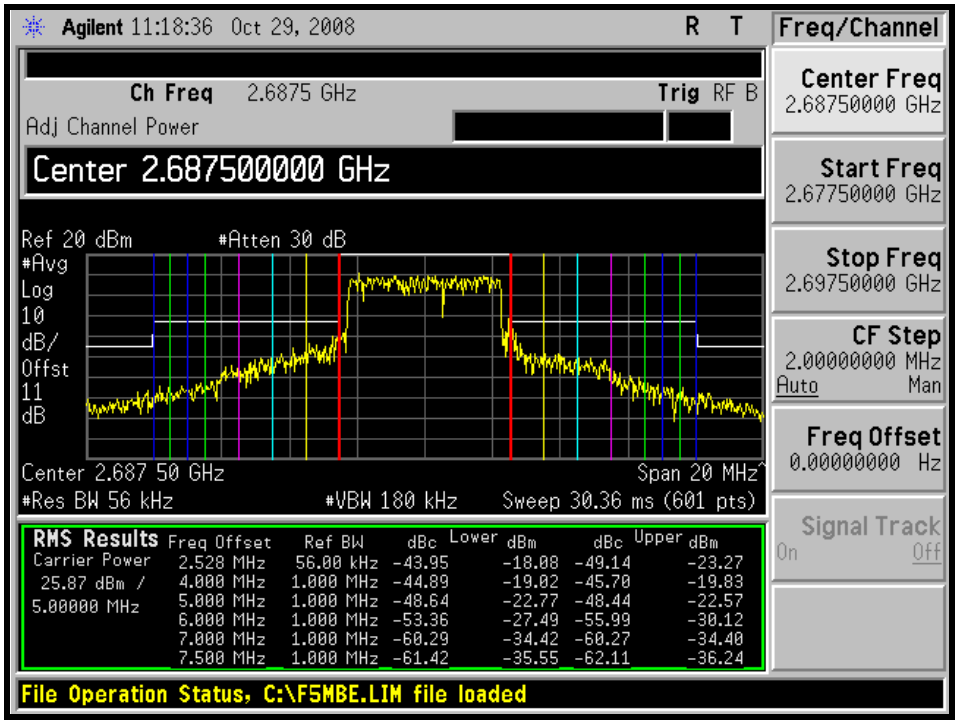


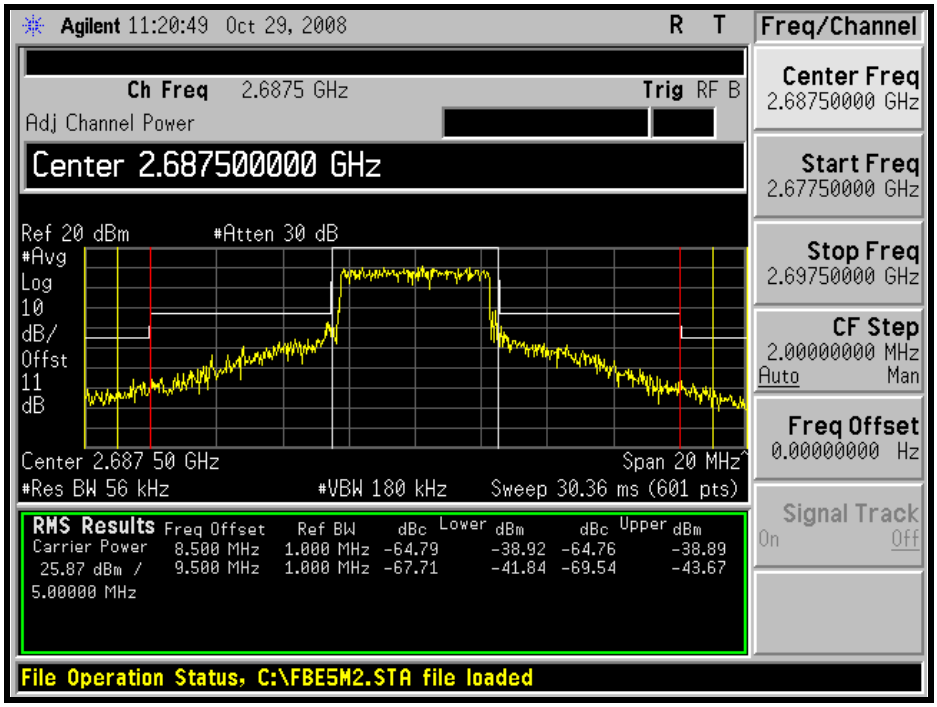
MIDDLE CHANNEL





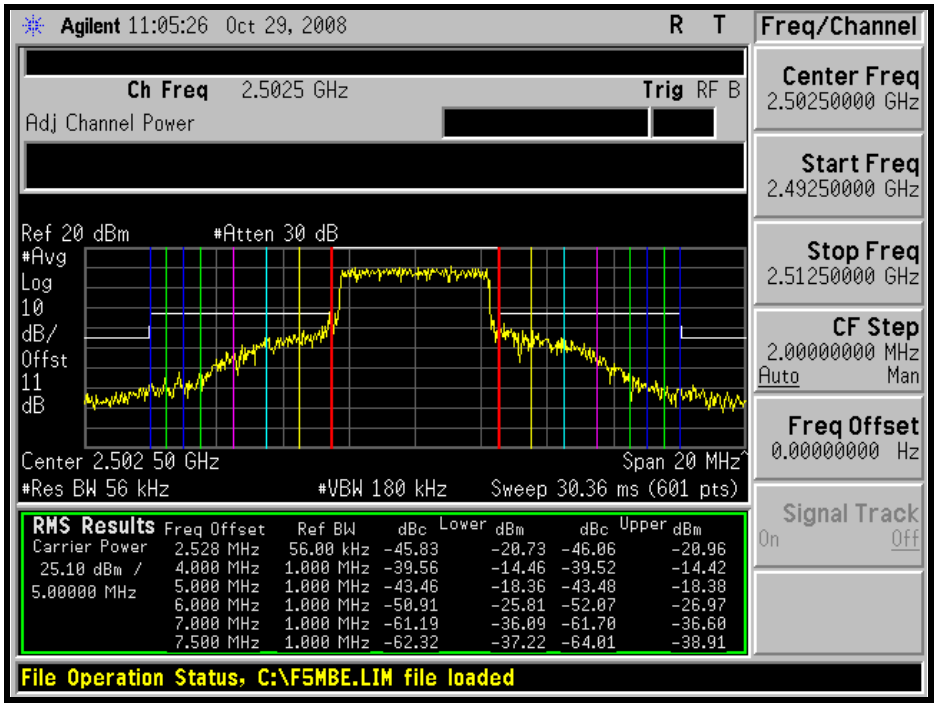
HIGH CHANNEL

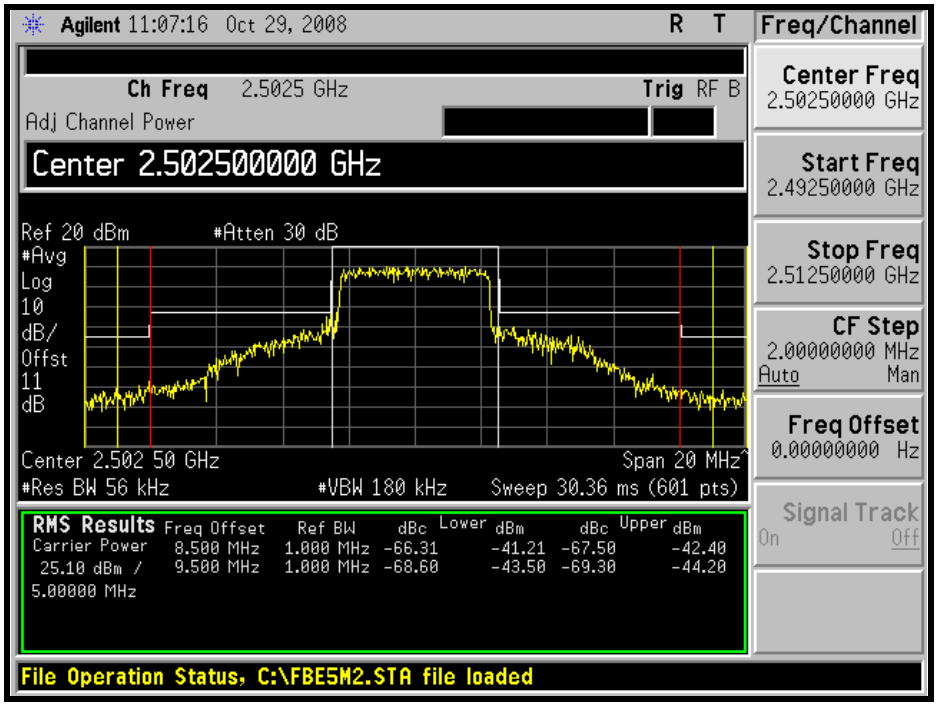




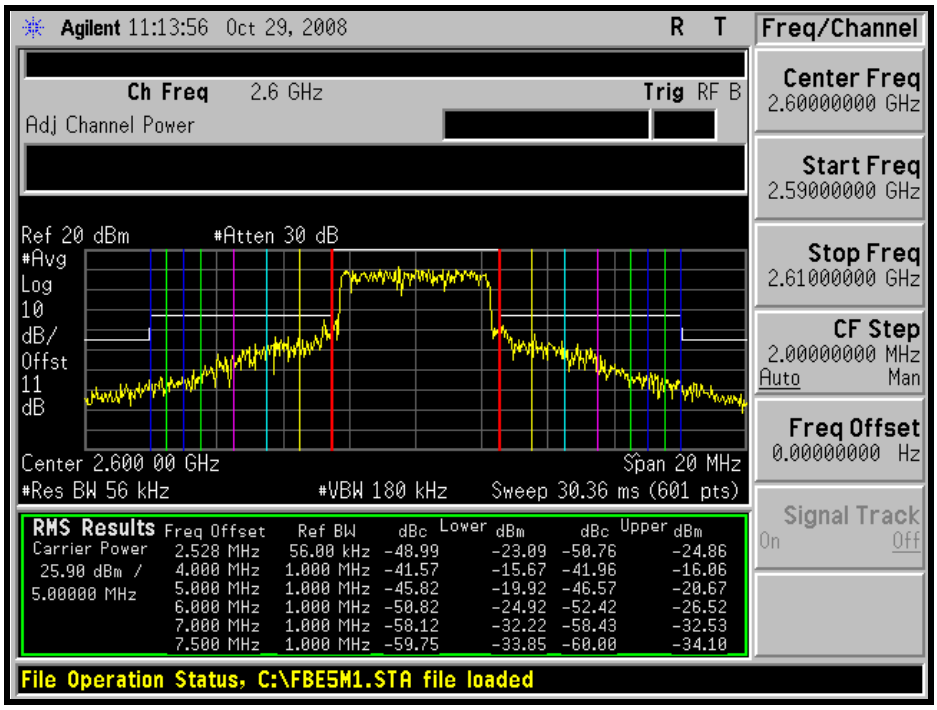
CHANNEL BANDWIDTH: 5MHz with antenna 2

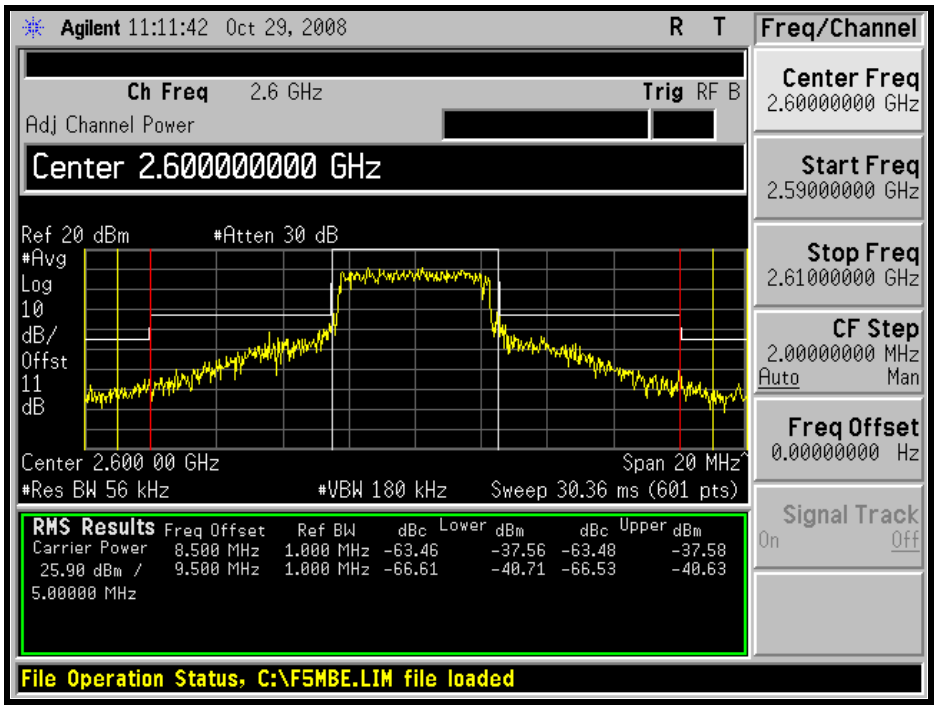
LOW CHANNEL



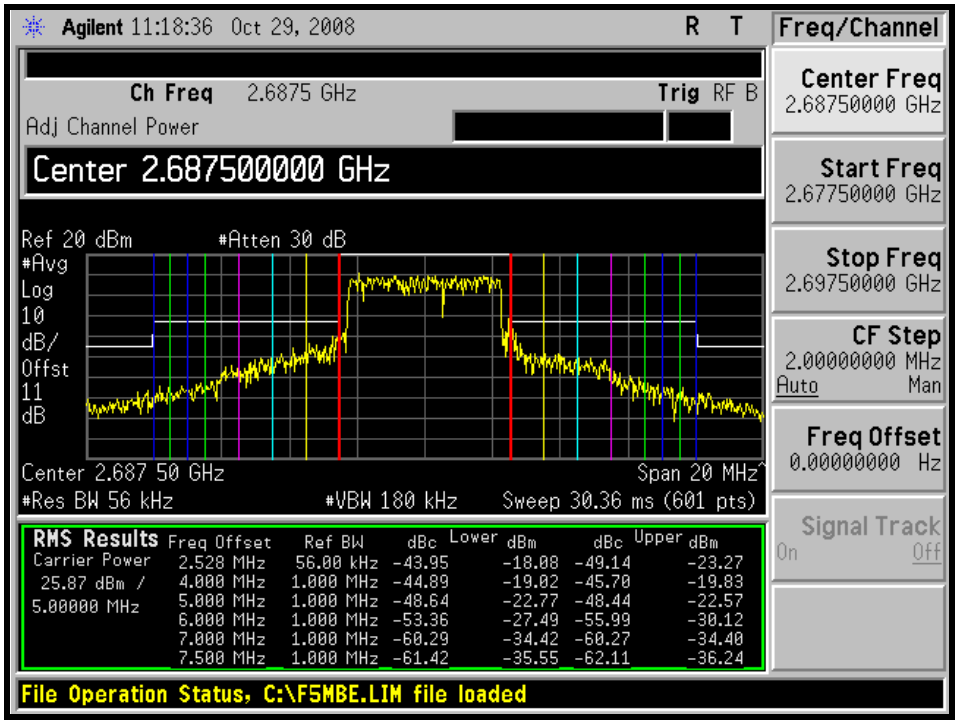


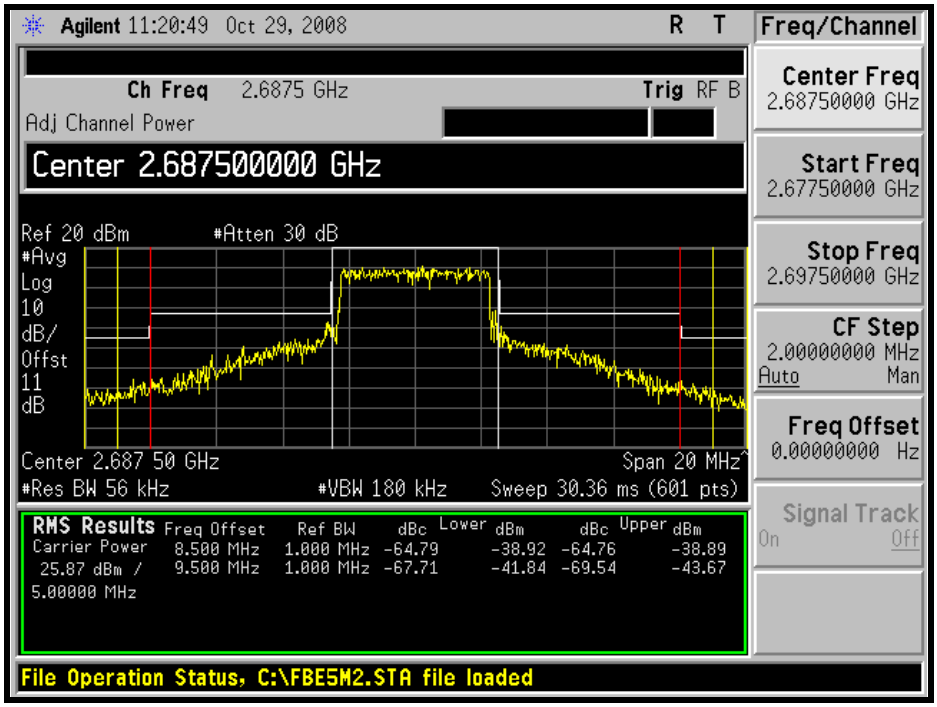
MIDDLE CHANNEL





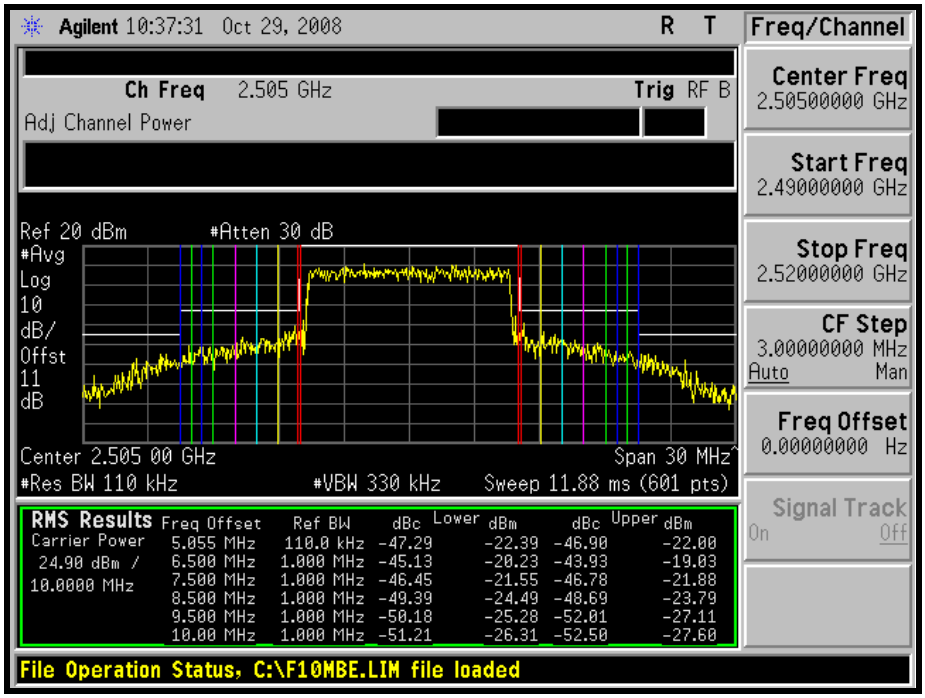
HIGH CHANNEL

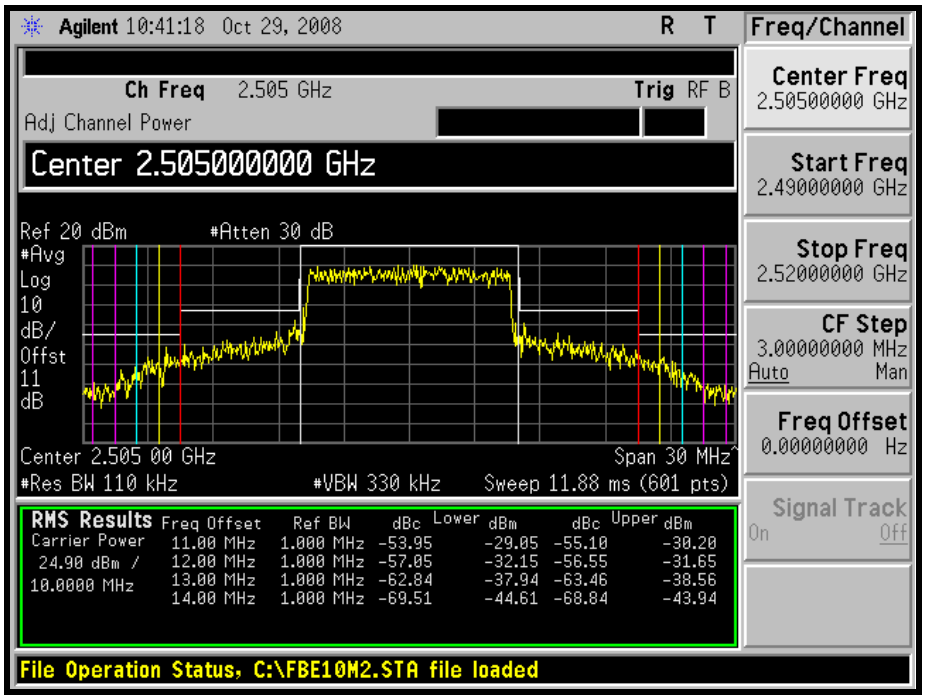




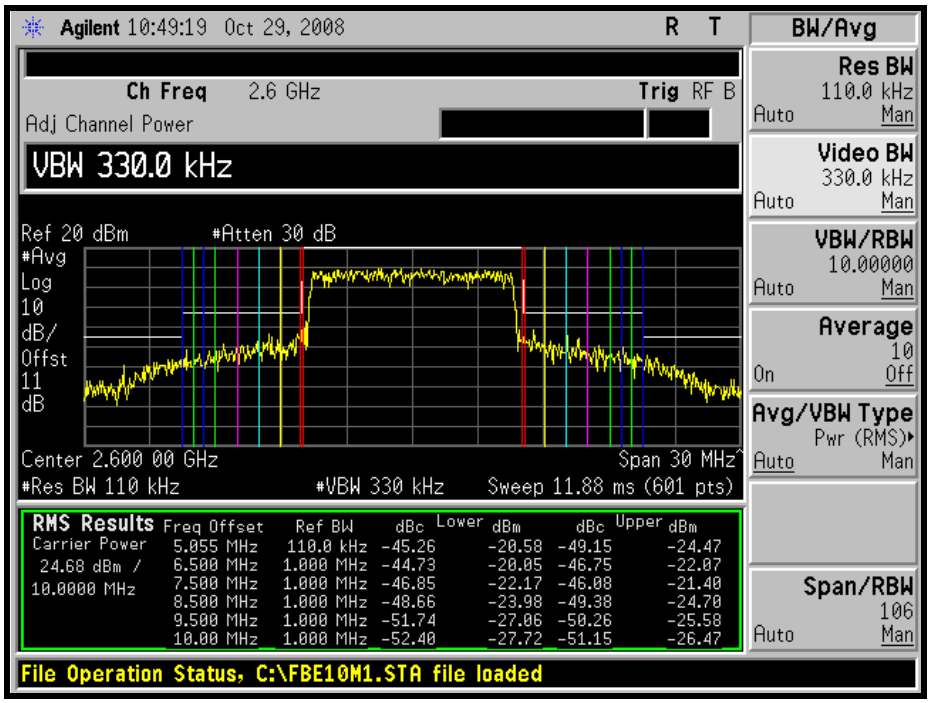
CHANNEL BANDWIDTH: 10MHz with antenna 1

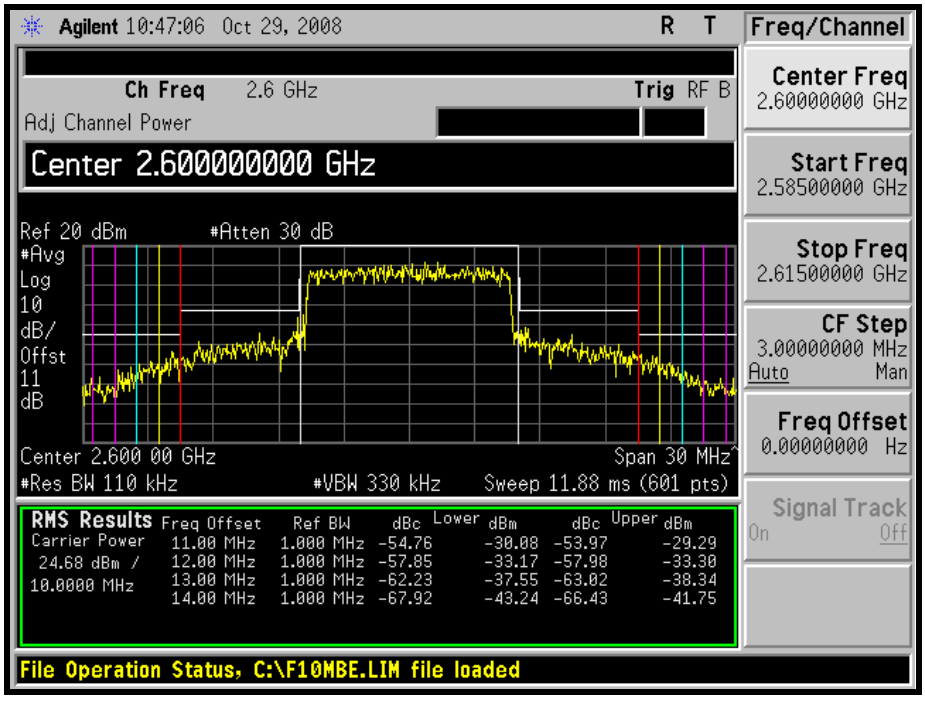
LOW CHANNEL



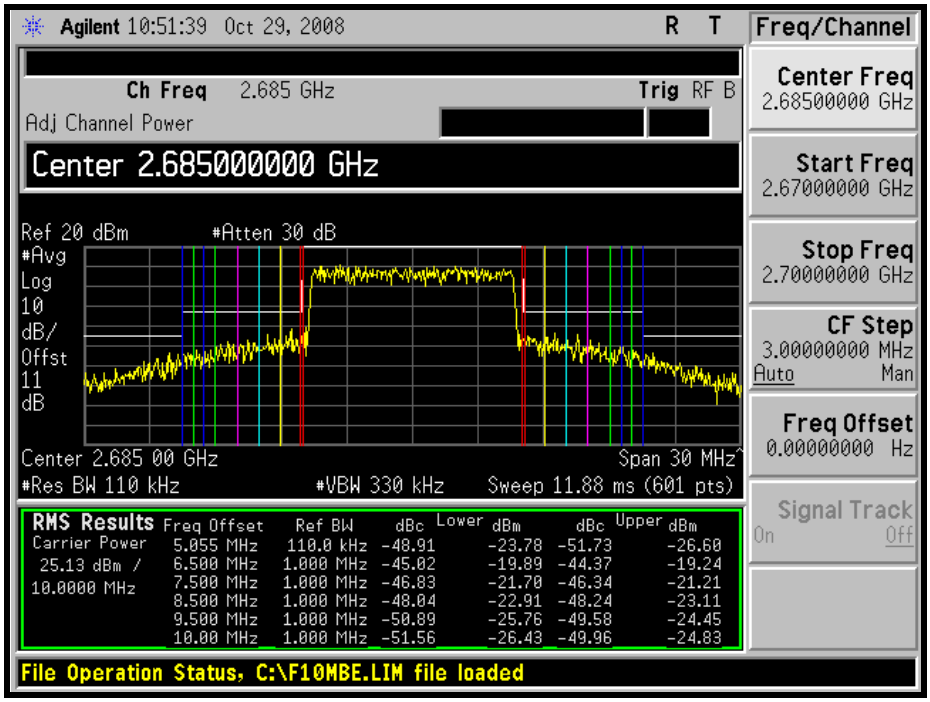


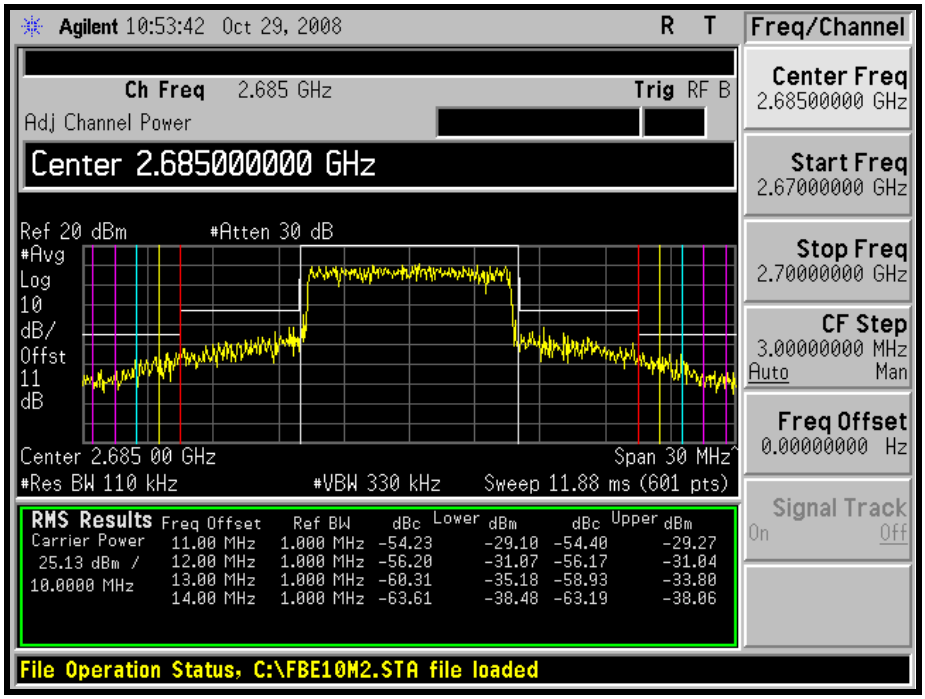
MIDDLE CHANNEL





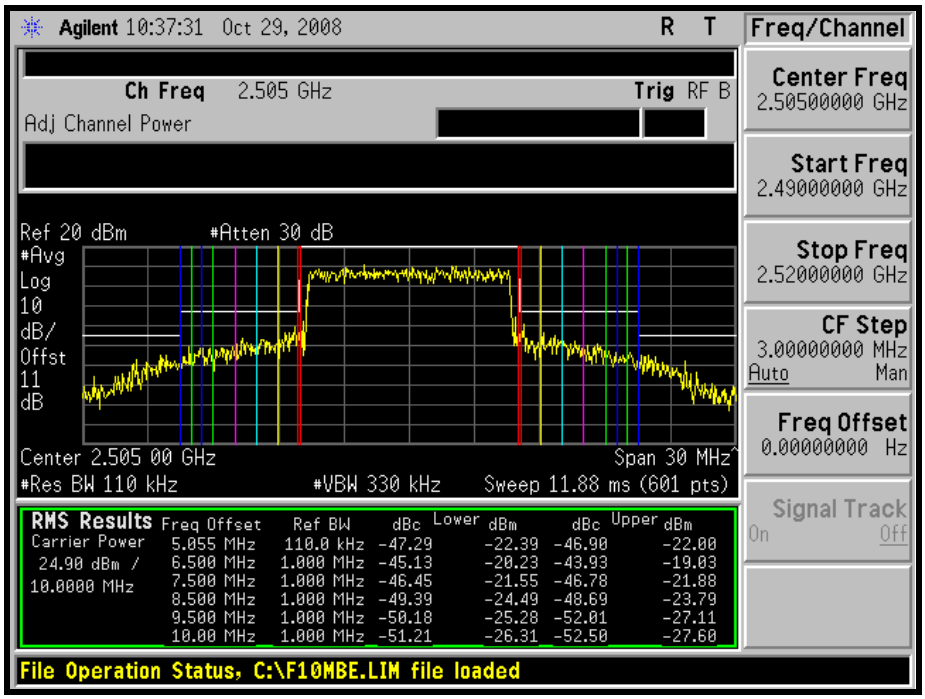
HIGH CHANNEL

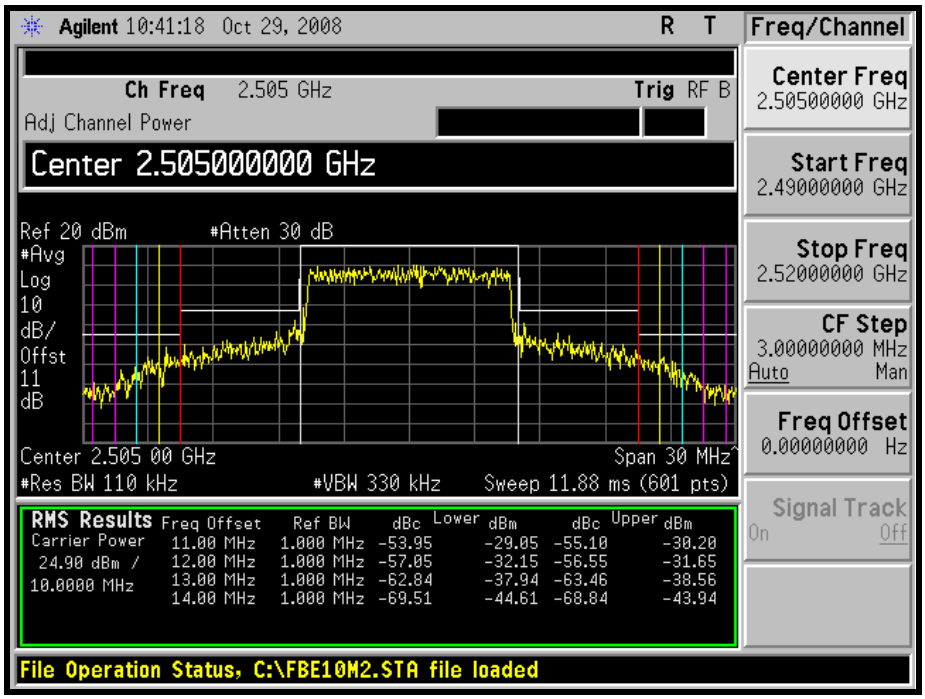




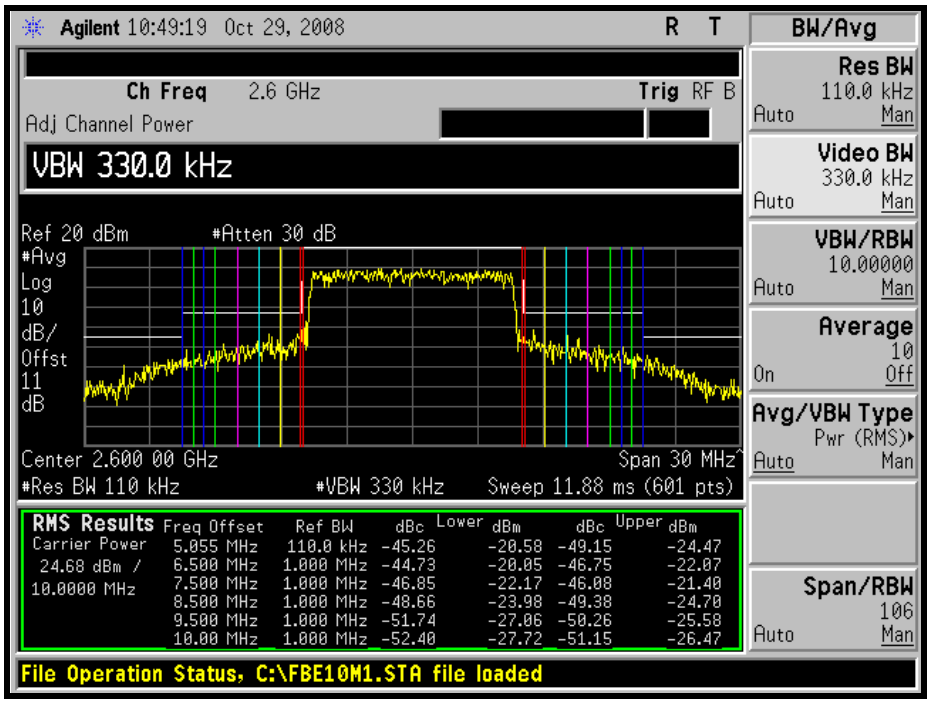
CHANNEL BANDWIDTH: 10MHz with antenna 2

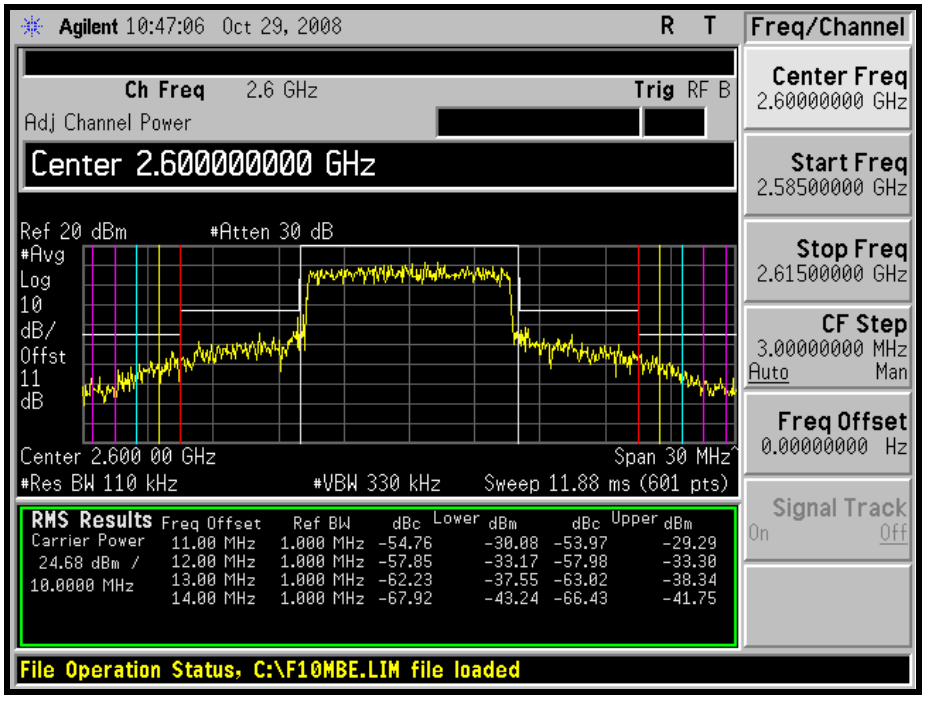
LOW CHANNEL



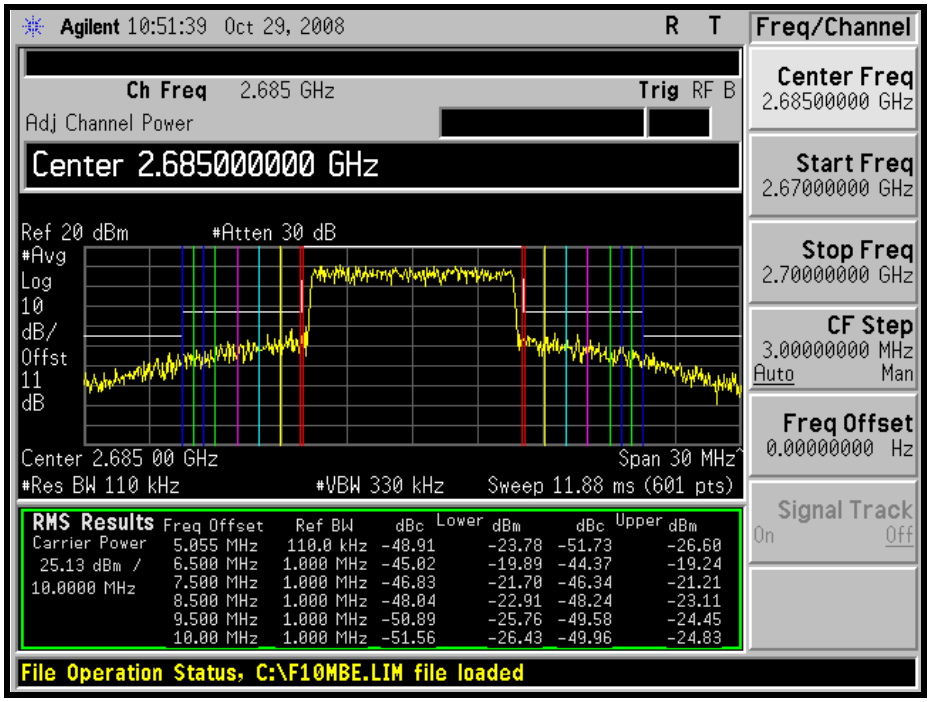


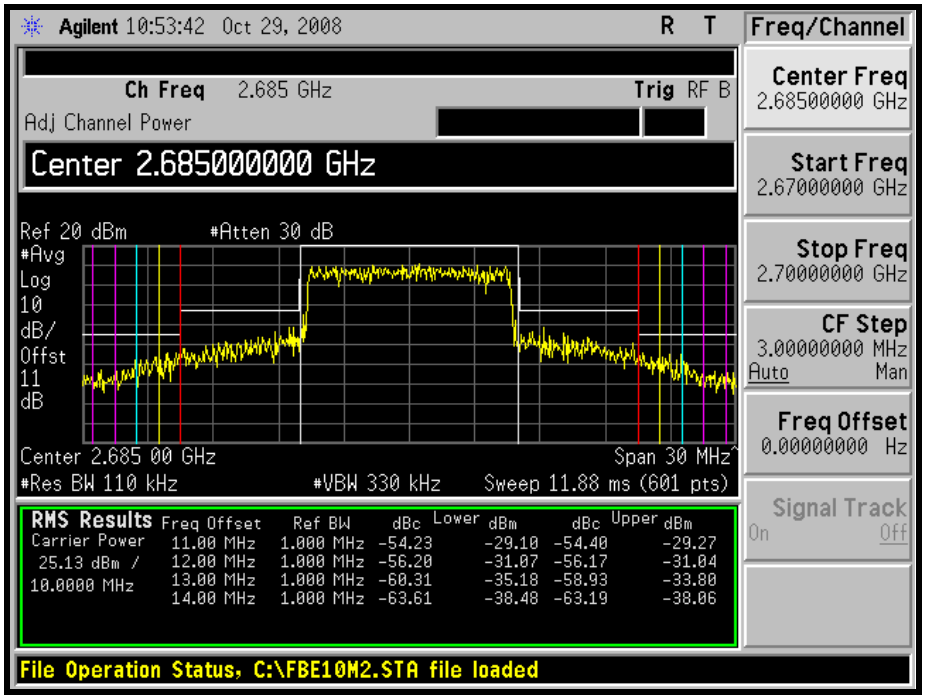
MIDDLE CHANNEL





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.

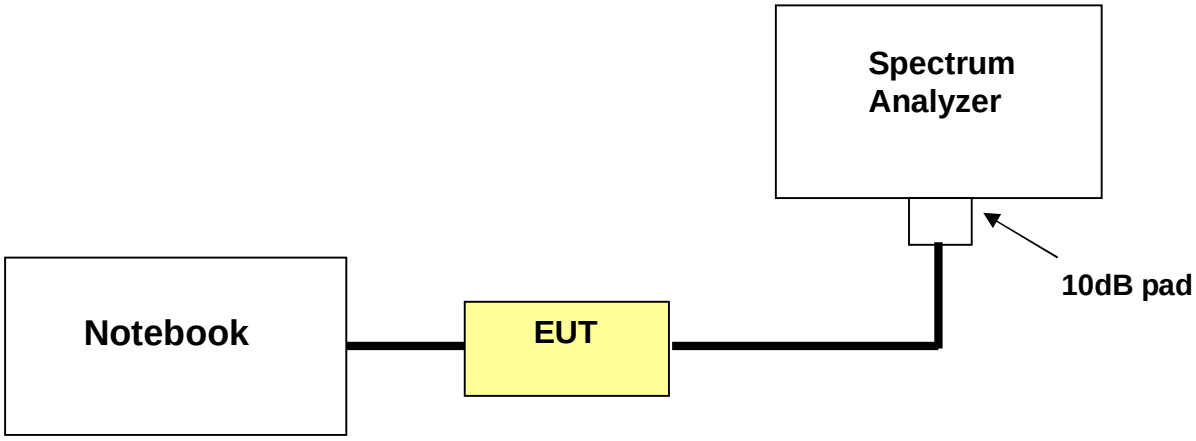
4.5.3 TEST PROCEDURE

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 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



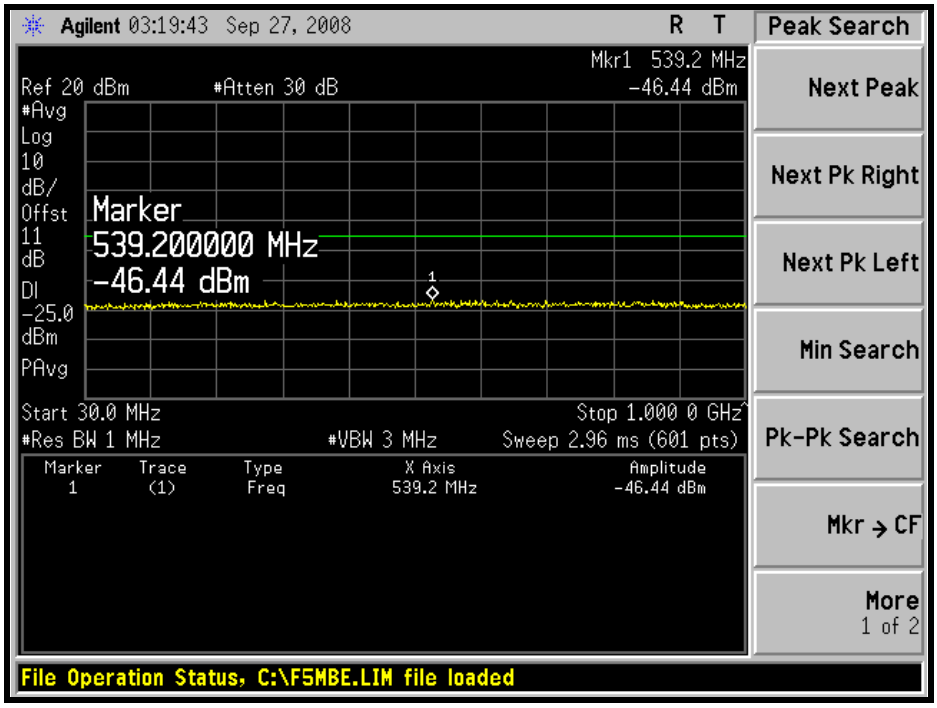
4.5.5 EUT OPERATING CONDITIONS

a. The Notebook controlled EUT to export rated output power under transmission mode and specific channel frequency.

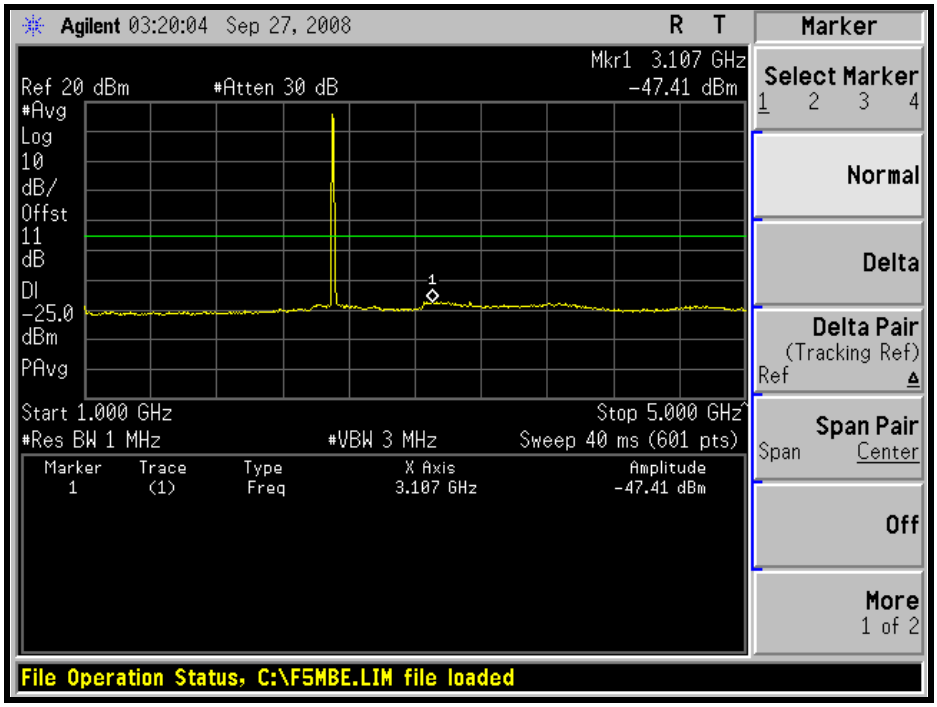
4.5.6 TEST RESULTS

CHANNEL BANDWIDTH: 5MHz

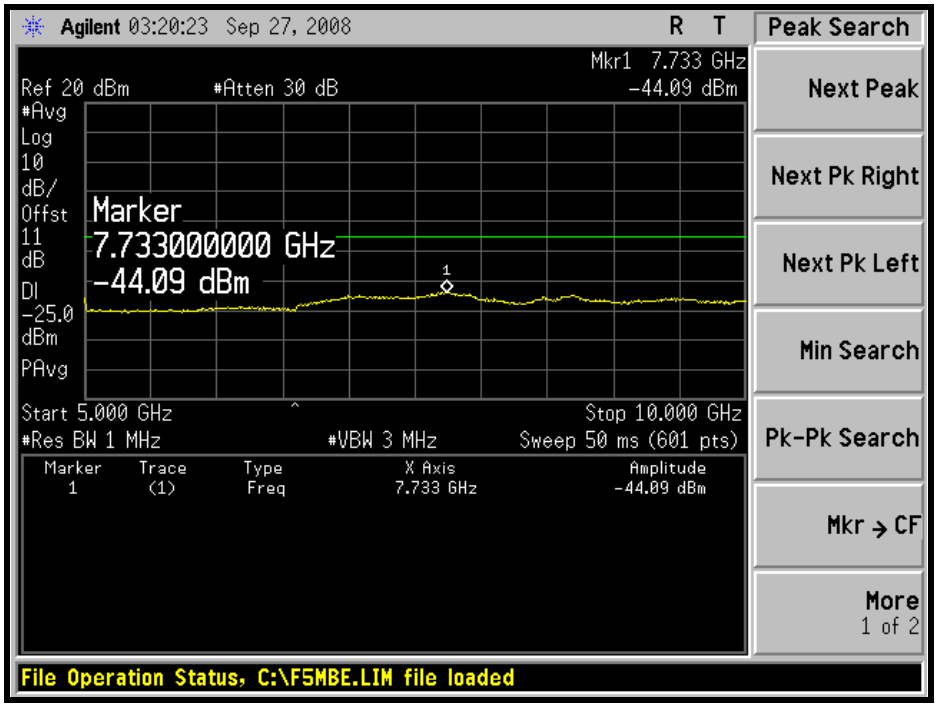
LOW CHANNEL: 30MHz ~ 1GHz:



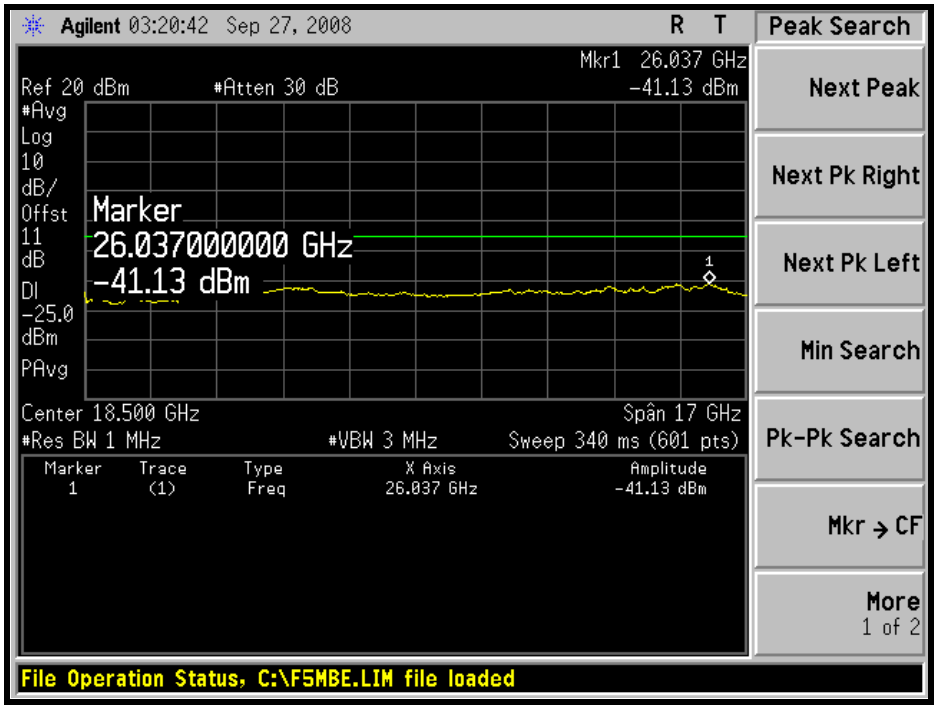
1GHz ~ 5GHz:



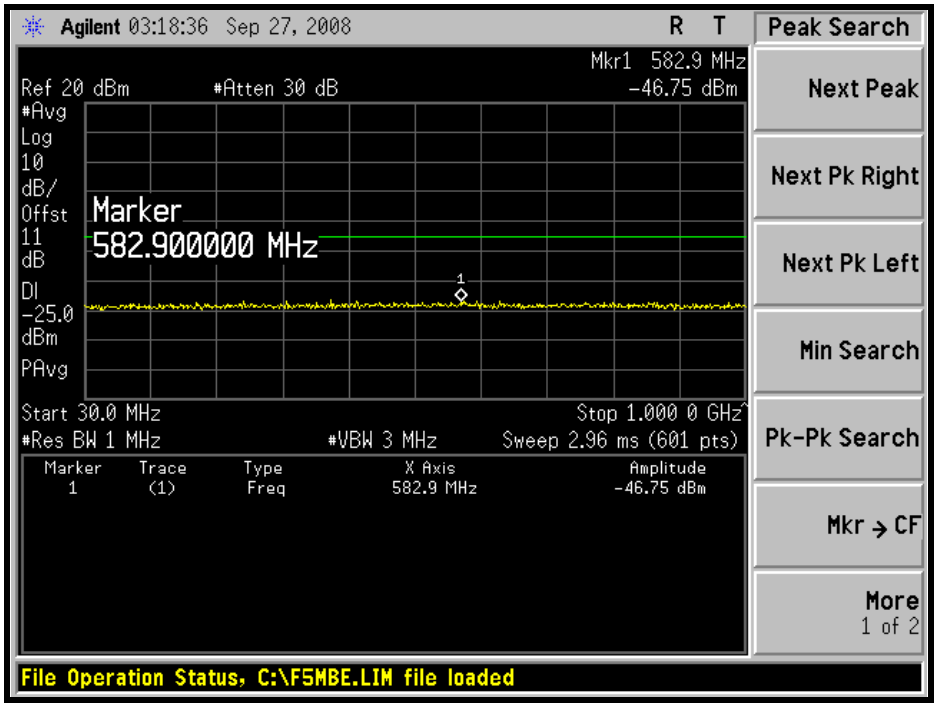
5GHz ~ 10GHz:



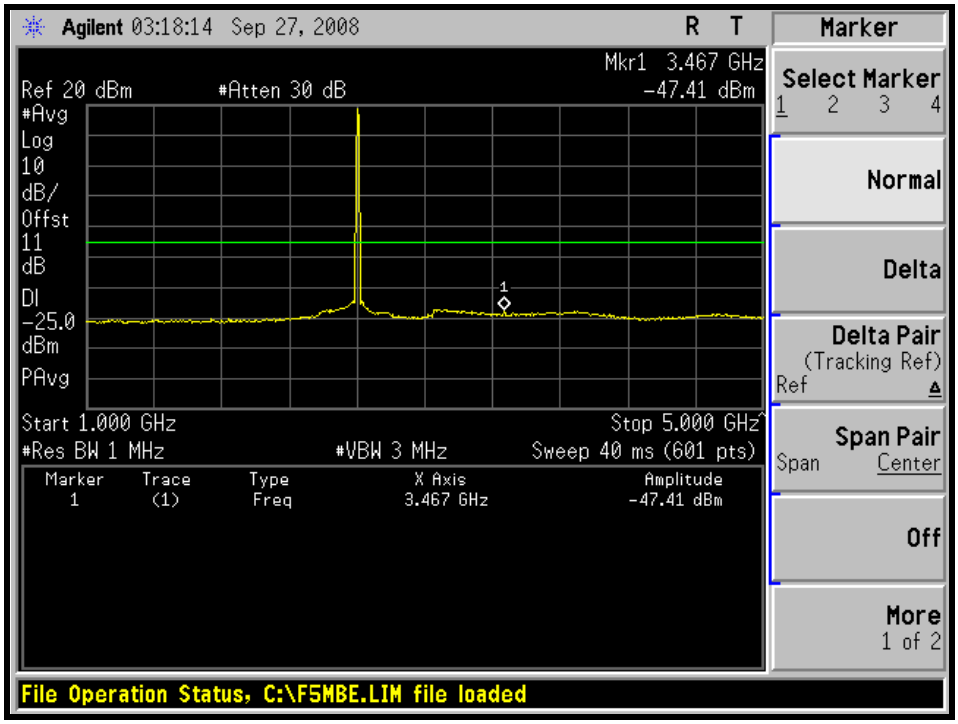
10GHz ~ 27GHz:



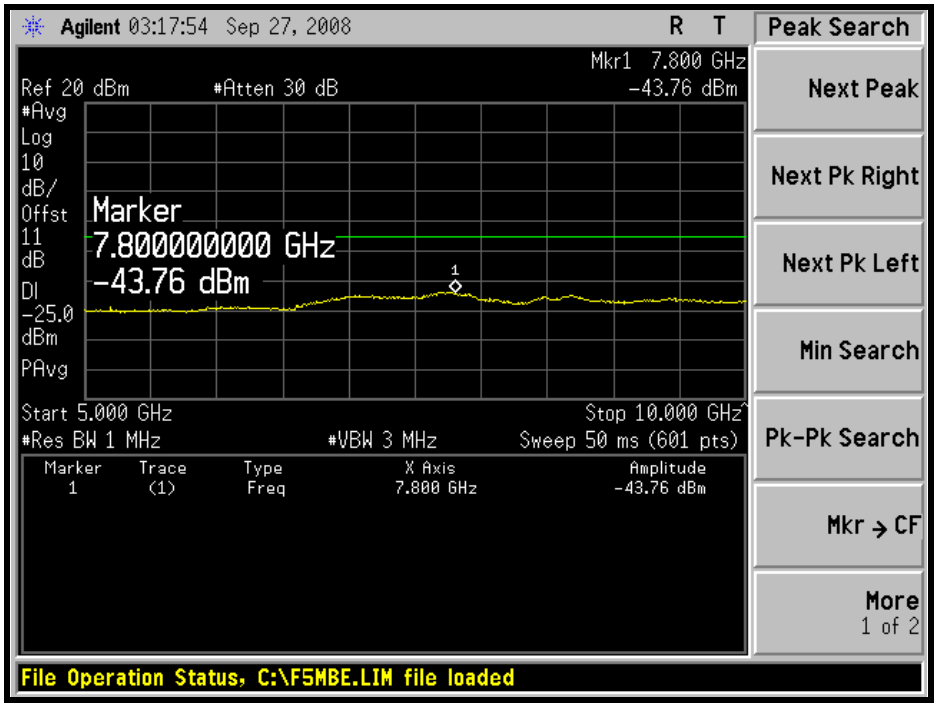
MIDDLE CHANNEL: 30MHz ~ 1GHz:



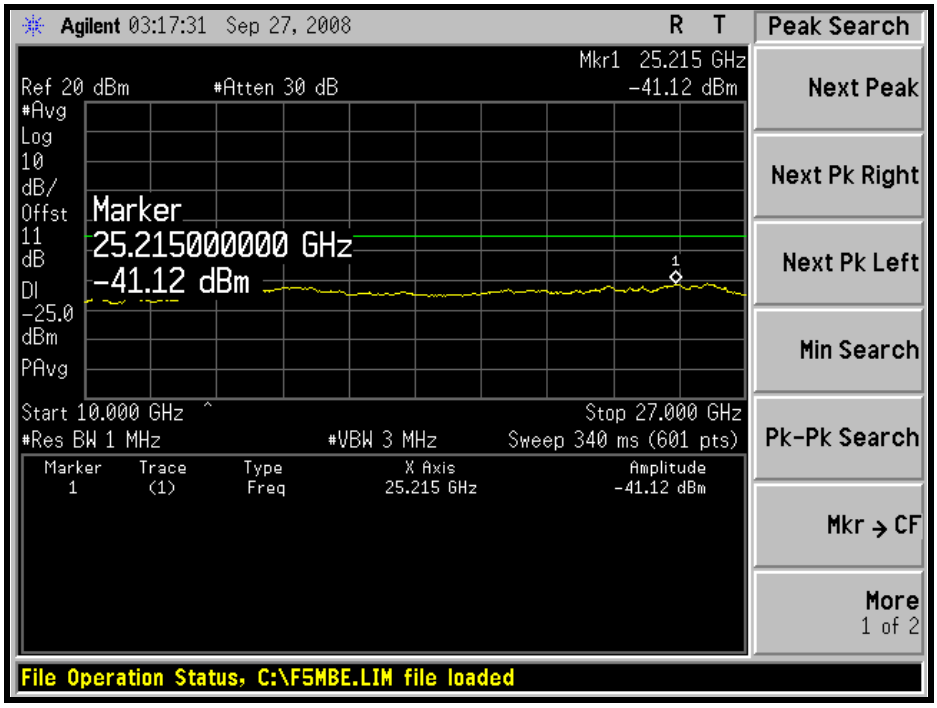
1GHz ~ 5GHz:



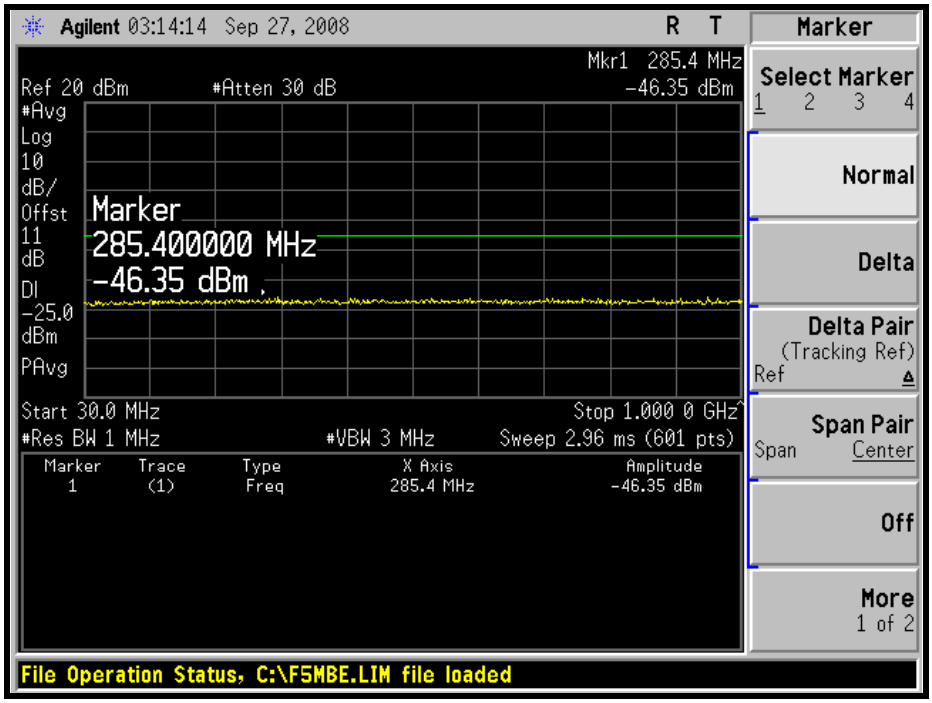
5GHz ~ 10GHz:



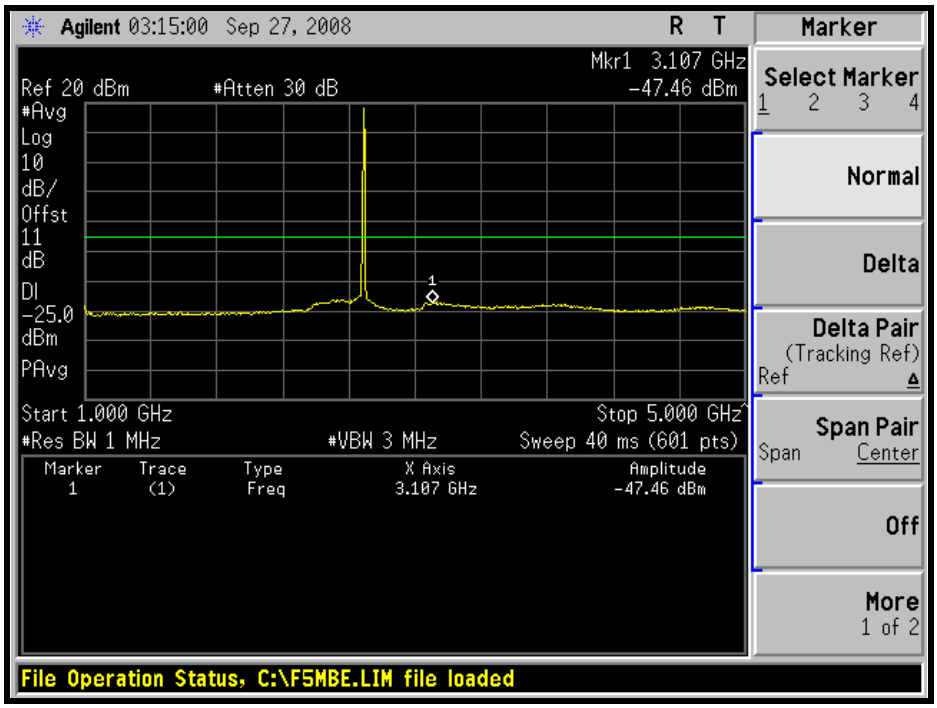
10GHz ~ 27GHz:



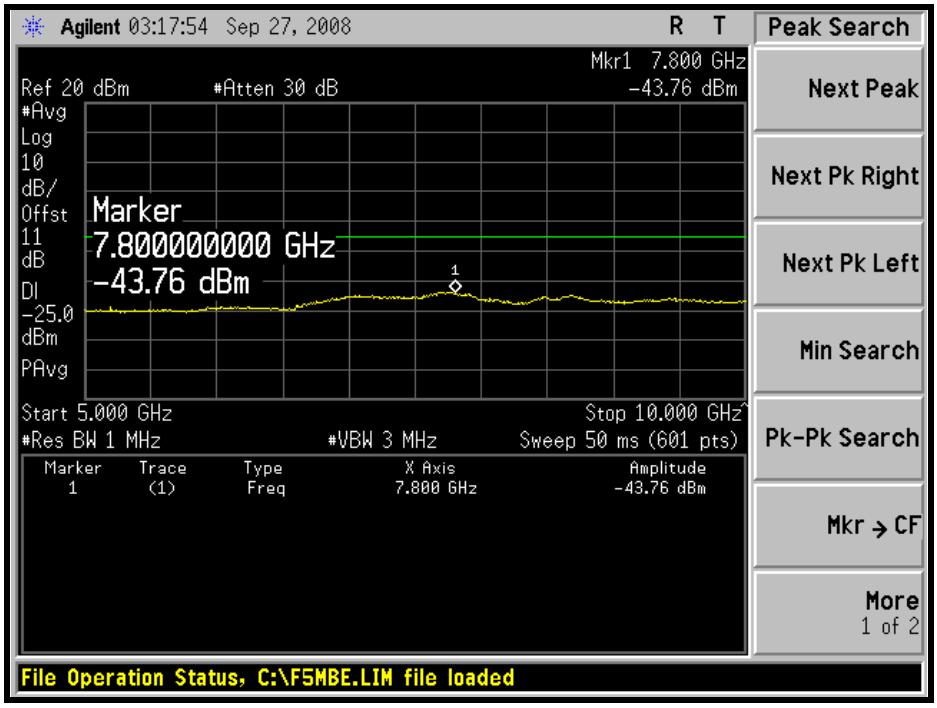
HIGH CHANNEL: 30MHz ~ 1GHz:



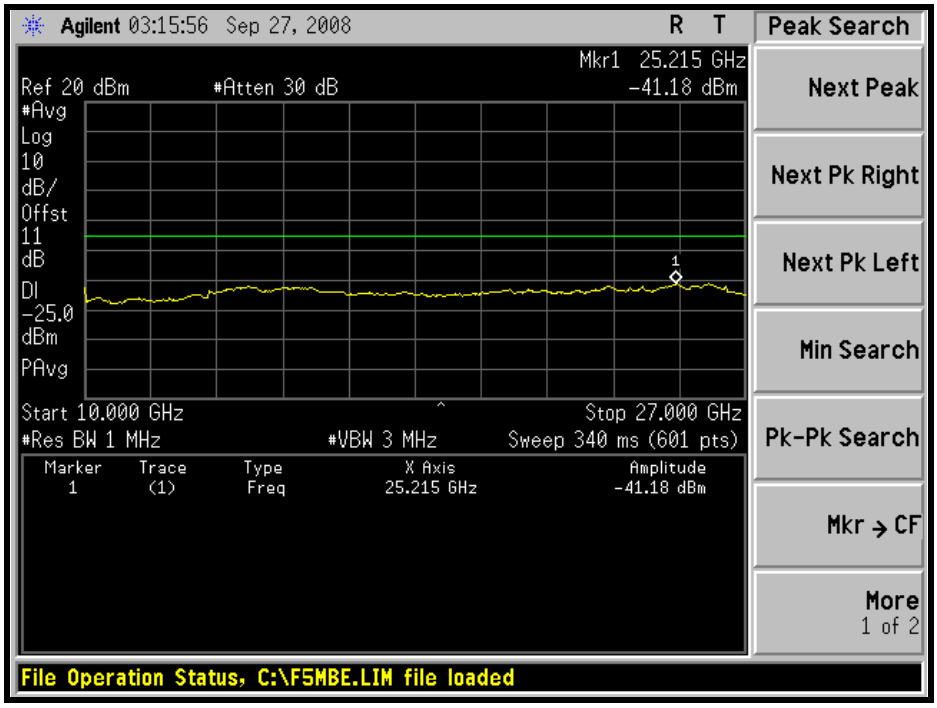
1GHz ~ 5GHz:



5GHz ~ 10GHz:

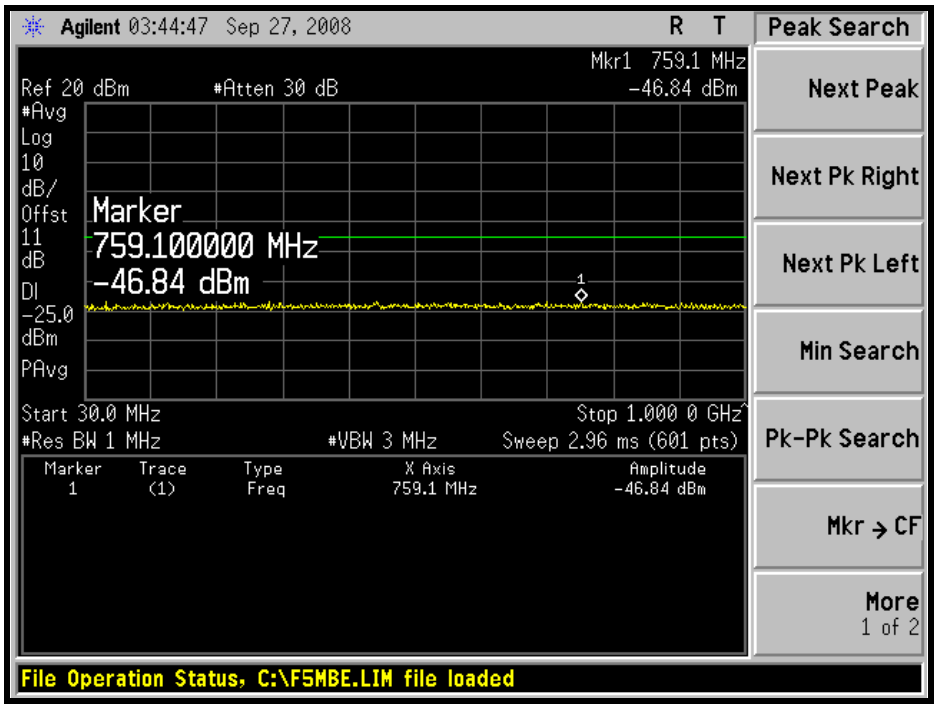


10GHz ~ 27GHz:

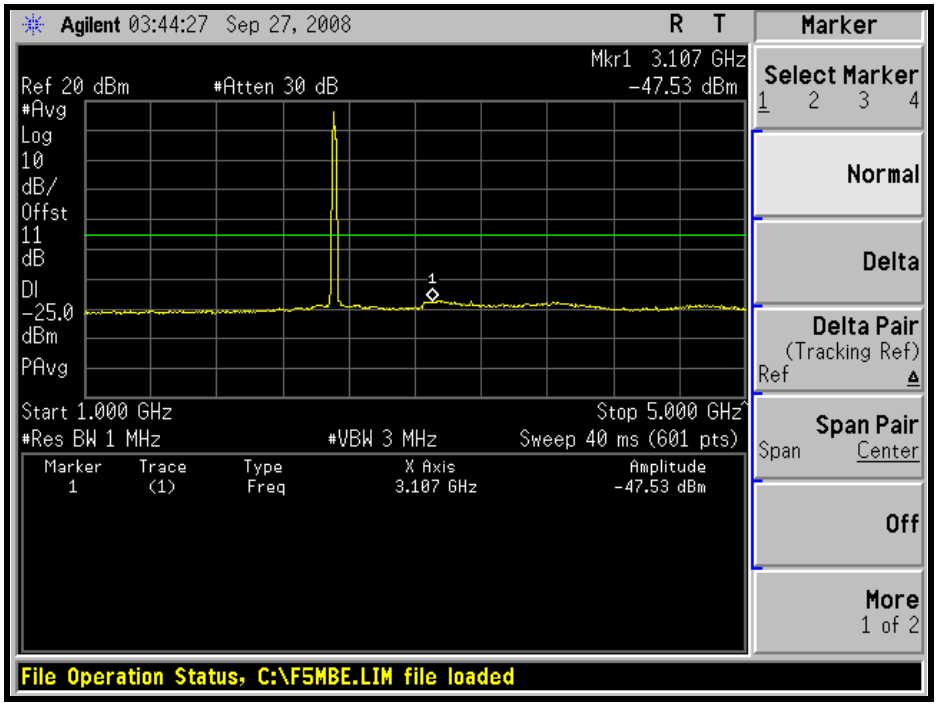


CHANNEL BANDWIDTH: 10MHz

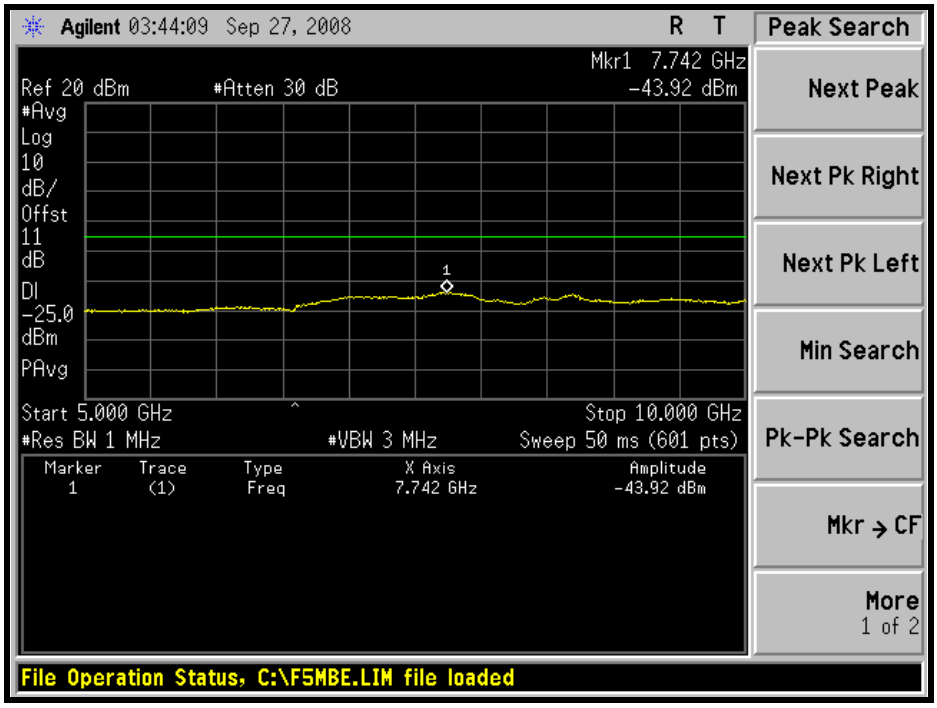
LOW CHANNEL: 30MHz ~ 1GHz:



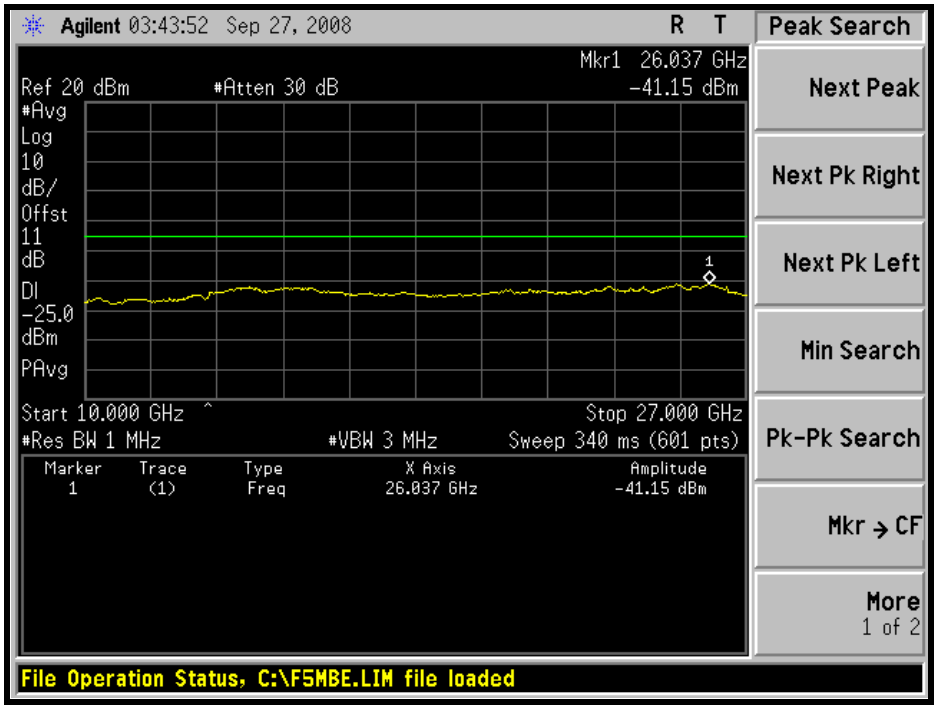
1GHz ~ 5GHz:



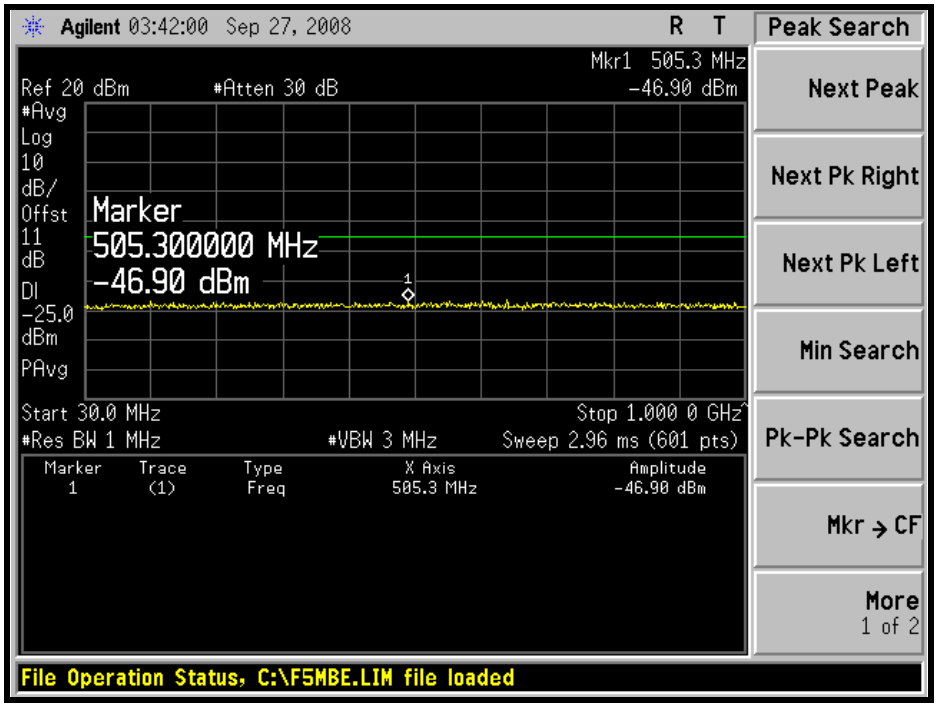
5GHz ~ 10GHz:



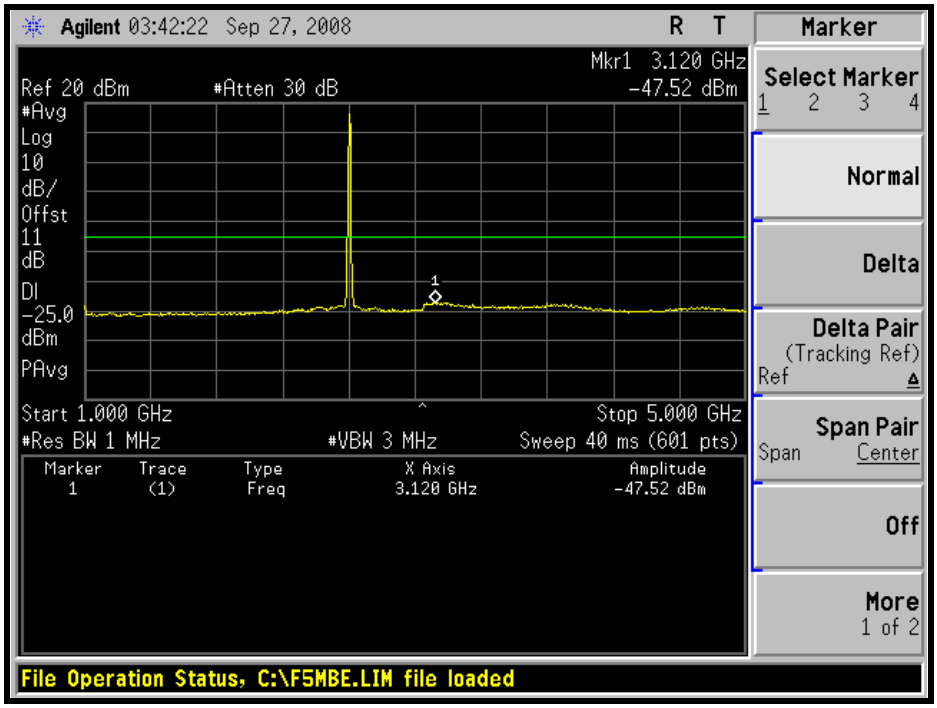
10GHz ~ 27GHz:



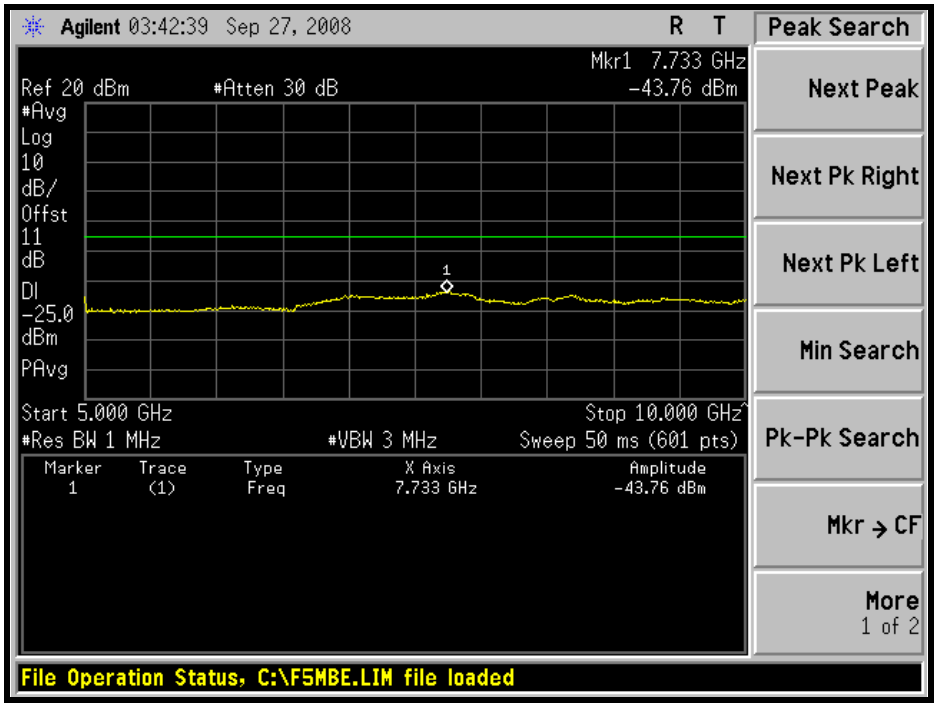
MIDDLE CHANNEL: 30MHz ~ 1GHz:



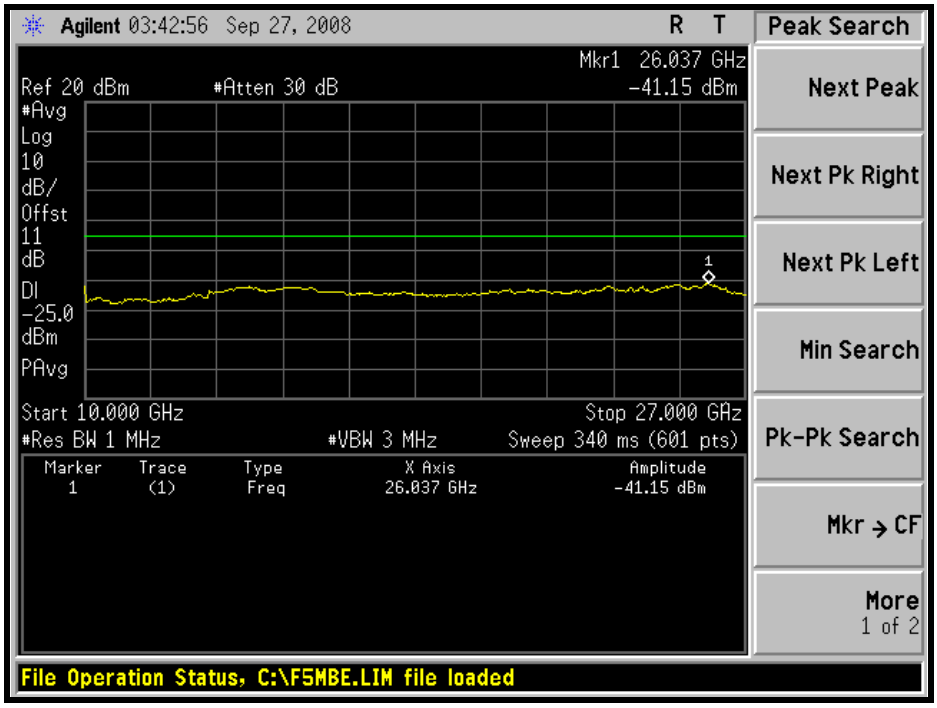
1GHz ~ 5GHz:



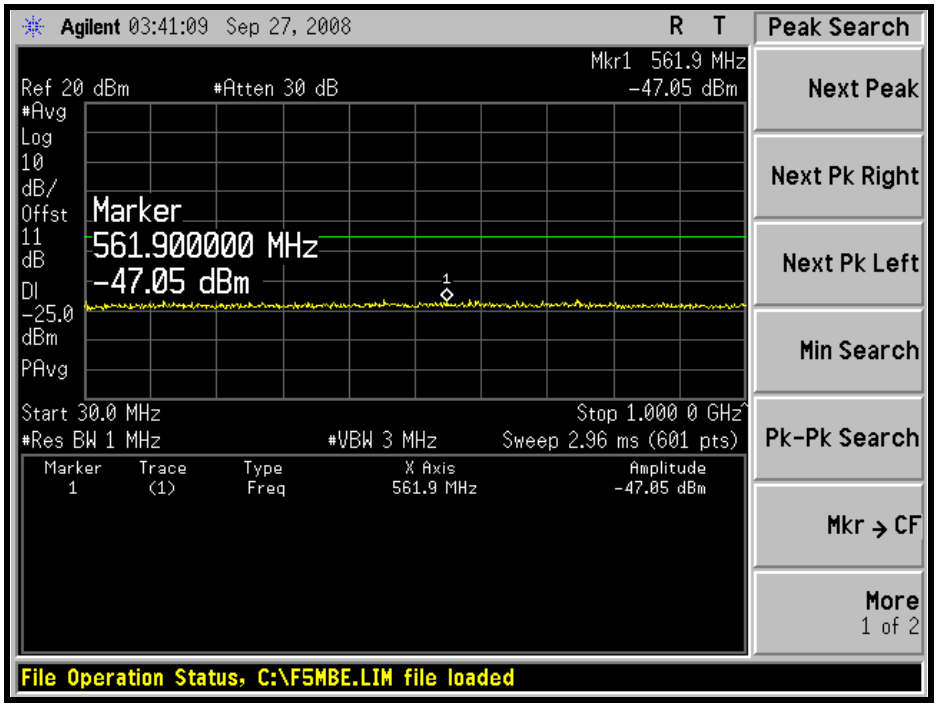
5GHz ~ 10GHz:



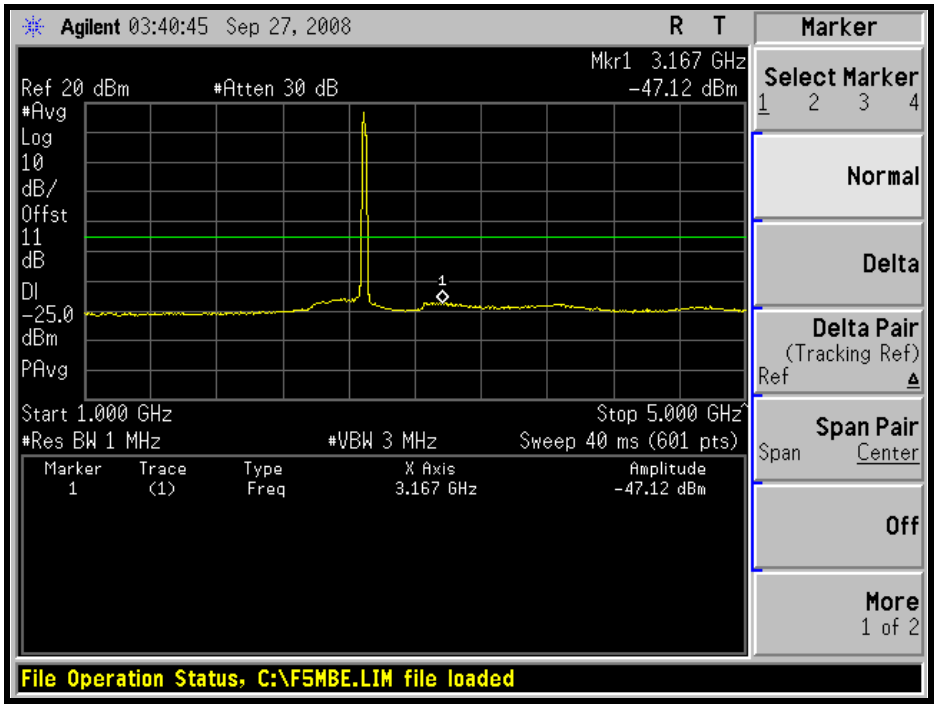
10GHz ~ 27GHz:



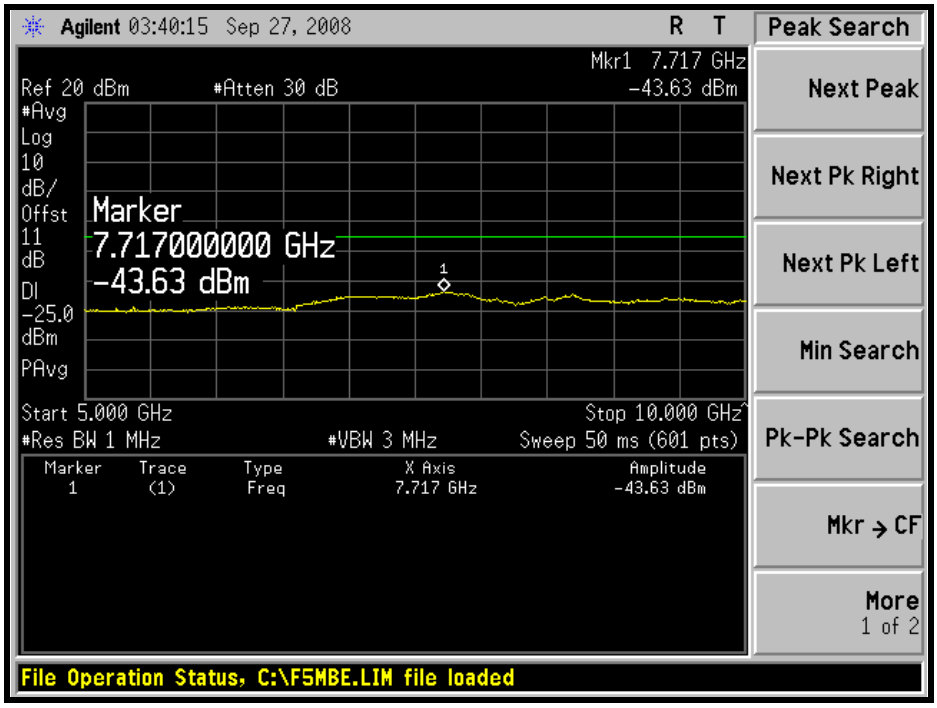
HIGH CHANNEL: 30MHz ~ 1GHz:



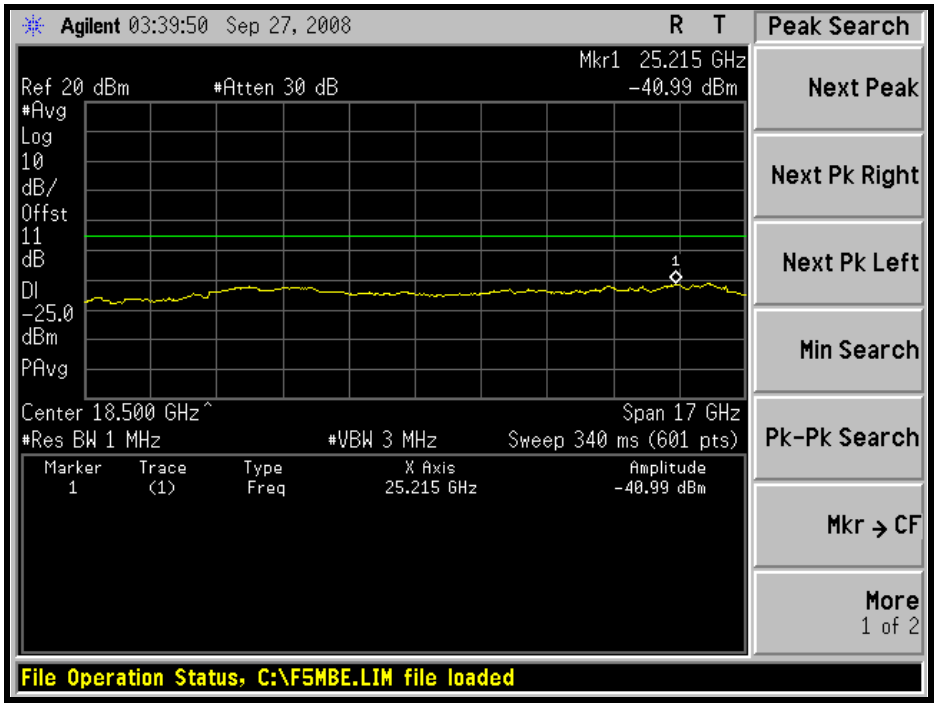
1GHz ~ 5GHz:



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 DATE	CALIBRATED UNTIL
ADVANTEST Spectrum Analyzer	R3271A	85060311	July 16, 2008	July 15, 2009
HP Pre_Amplifier	8449B	3008A01922	Sep. 25, 2008	Sep. 24, 2009
ROHDE & SCHWARZ Test Receiver	ESCS30	100375	April 01, 2008	Mar. 31, 2009
SCHWARZBECK TRILOG Broadband Antenna	VULB 9168	138	April 30, 2008	April 29, 2009
Schwarzbeck Horn_Antenna	BBHA9120	D124	Dec. 17, 2007	Dec. 16, 2008
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 28, 2008	Jan. 27, 2009
RF Switches	EMH-011	08009	Oct. 07, 2008	Oct. 06, 2009
RF CABLE (Chaintek)	SF102	22054-2	Dec. 07, 2007	Dec. 06, 2008
RF Cable	8DFB	STCCAB-30M-1 GHz	Oct. 07, 2008	Oct. 06, 2009
Software	ADT_Radiated _V7.6.15.8	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: 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.

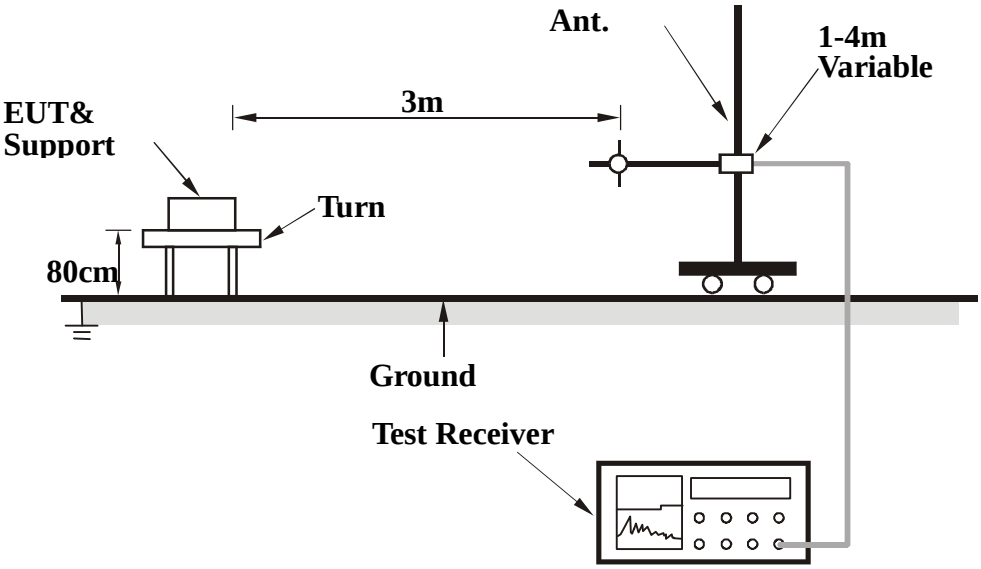
g. Repeat step a ~ f for horizontal polarization.

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

a. The Notebook controlled EUT to export rated output power under transmission mode and specific channel frequency.

4.6.7 TEST RESULTS

CHANNEL BANDWIDTH: 5MHz with antenna 1

MODE	Low channel	**FREQUENCY RANGE**	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	20deg°C, 60%RH 960hPa
TESTED BY	Frank Liu		

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	63.63	41.25	-25	-43.05	-6.53	-49.57
2	125	31.52	-25	-59.16	-1.21	-60.38
3	199.25	41.95	-25	-53.48	4.26	-49.22
4	250.12	40.251	-25	-54.71	3.90	-50.81
5	300	45.21	-25	-50.57	3.71	-46.86
6	500.01	42.15	-25	-53.37	2.89	-50.48
7	550	41.21	-25	-53.72	2.52	-51.20
8	675.12	46.24	-25	-49.43	1.68	-47.75
9	725.12	40.15	-25	-56.21	1.21	-54.99
10	800.11	35.21	-25	-63.50	1.55	-61.95

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	64.26	35.95	-25	-48.73	-6.34	-55.07
2	125	32.77	-25	-57.91	-1.21	-59.13
3	250	38.88	-25	-56.08	3.89	-52.19
4	300	39.01	-25	-56.77	3.71	-53.06
5	500	35.06	-25	-60.46	2.89	-57.57
6	550	37.19	-25	-57.74	2.52	-55.22
7	675.01	44.28	-25	-51.39	1.68	-49.71
8	725.03	39.65	-25	-56.71	1.22	-55.49
9	800	35.52	-25	-63.20	1.55	-61.65

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

CHANNEL BANDWIDTH: 5MHz with antenna 2

MODE	Low channel	**FREQUENCY RANGE**	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	20deg°C, 60%RH 960hPa
TESTED BY	Frank Liu		

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	65.89	37.14	-25	-48.51	-5.87	-54.38
2	108.83	36.57	-25	-53.63	-0.87	-54.50
3	179.5	30.41	-25	-63.25	2.11	-61.13
4	209.9	45.78	-25	-49.68	4.21	-45.47
5	209.9	45.78	-25	-49.68	4.21	-45.47
6	250	36.62	-25	-58.34	3.89	-54.45
7	375	36.96	-25	-60.89	3.46	-57.43
8	425	37.16	-25	-60.89	3.07	-57.82
9	925	31.19	-25	-67.26	0.42	-66.85

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	63.35	50.79	-25	-33.34	-6.61	-39.95
2	108.77	40.05	-25	-50.15	-0.87	-51.02
3	139.25	31.52	-25	-62.26	-1.31	-63.56
4	201	41.96	-25	-53.62	4.45	-49.17
5	209	46.92	-25	-48.54	4.22	-44.32
6	250	33	-25	-61.96	3.89	-58.07
7	425	35.68	-25	-62.37	3.07	-59.30
8	466.75	30.83	-25	-66.51	2.83	-63.68
9	925	32	-25	-66.45	0.42	-66.04

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

CHANNEL BANDWIDTH: 10MHz with antenna 1

MODE	Low channel	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	20deg°C, 60%RH 960hPa
TESTED BY	Frank Liu		

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	60.74	33.854	-25	-48.71	-7.36	-56.08
2	125	30.74	-25	-59.94	-1.21	-61.16
3	197.05	41.85	-25	-53.39	4.02	-49.37
4	250.02	40.16	-25	-55.16	3.68	-51.48
5	300.01	45.94	-25	-49.84	3.71	-46.13
6	400	38.45	-25	-59.39	3.33	-56.06
7	550.11	38.95	-25	-55.98	2.52	-53.46
8	625	36.24	-25	-58.57	1.77	-56.80
9	675.05	43.26	-25	-52.41	1.68	-50.73
10	725.06	36.95	-25	-59.41	1.22	-58.19

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	64.16	36.85	-25	-47.77	-6.37	-54.14
2	198.38	40.62	-25	-54.74	4.17	-50.57
3	250	40.15	-25	-54.81	3.89	-50.92
4	300	40.16	-25	-55.62	3.71	-51.91
5	375	33.95	-25	-63.90	3.46	-60.44
6	550	36.74	-25	-58.19	2.52	-55.67
7	625.12	33.25	-25	-61.56	1.77	-59.79
8	750	32.62	-25	-63.76	0.82	-62.94
9	925	34.96	-25	-63.49	0.42	-63.08

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

CHANNEL BANDWIDTH: 10MHz with antenna 2

MODE	Low channel	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	20deg°C, 60%RH 960hPa
TESTED BY	Frank Liu		

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	63.35	38.67	-25	-45.46	-6.61	-52.07
2	108.78	34.99	-25	-55.21	-0.87	-56.08
3	150.01	31.86	-25	-59.21	-1.00	-60.21
4	210.7	46.05	-25	-49.41	4.20	-45.20
5	250	38.92	-25	-56.04	3.89	-52.15
6	425	37.14	-25	-60.91	3.07	-57.84
7	475	38.12	-25	-58.77	2.85	-55.92
8	651.25	35.35	-25	-59.65	1.74	-57.91
9	800	34.93	-25	-63.79	1.55	-62.24

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	63.34	51.75	-25	-32.37	-6.61	-38.98
2	108.78	40.25	-25	-49.95	-0.87	-50.82
3	151.65	31.7	-25	-58.90	-0.95	-59.85
4	210.1	46.36	-25	-49.10	4.21	-44.89
5	250	33.38	-25	-61.58	3.89	-57.69
6	425	36.51	-25	-61.54	3.07	-58.47
7	525	35.89	-25	-59.33	2.70	-56.63
8	800	30.38	-25	-68.34	1.55	-66.79

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
ADVANTEST Spectrum Analyzer	R3271A	85060311	July 16, 2008	July 15, 2009
HP Pre_Amplifier	8449B	3008A01922	Sep. 25, 2008	Sep. 24, 2009
ROHDE & SCHWARZ Test Receiver	ESCS30	100375	April 01, 2008	Mar. 31, 2009
SCHWARZBECK TRILOG Broadband Antenna	VULB 9168	138	April 30, 2008	April 29, 2009
Schwarzbeck Horn_Antenna	BBHA9120	D124	Dec. 17, 2007	Dec. 16, 2008
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 28, 2008	Jan. 27, 2009
RF Switches	EMH-011	08009	Oct. 07, 2008	Oct. 06, 2009
RF CABLE (Chaintek)	SF102	22054-2	Dec. 07, 2007	Dec. 06, 2008
RF Cable	8DFB	STCCAB-30M-1 GHz	Oct. 07, 2008	Oct. 06, 2009
Software	ADT_Radiated _V7.6.15.8	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: 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.

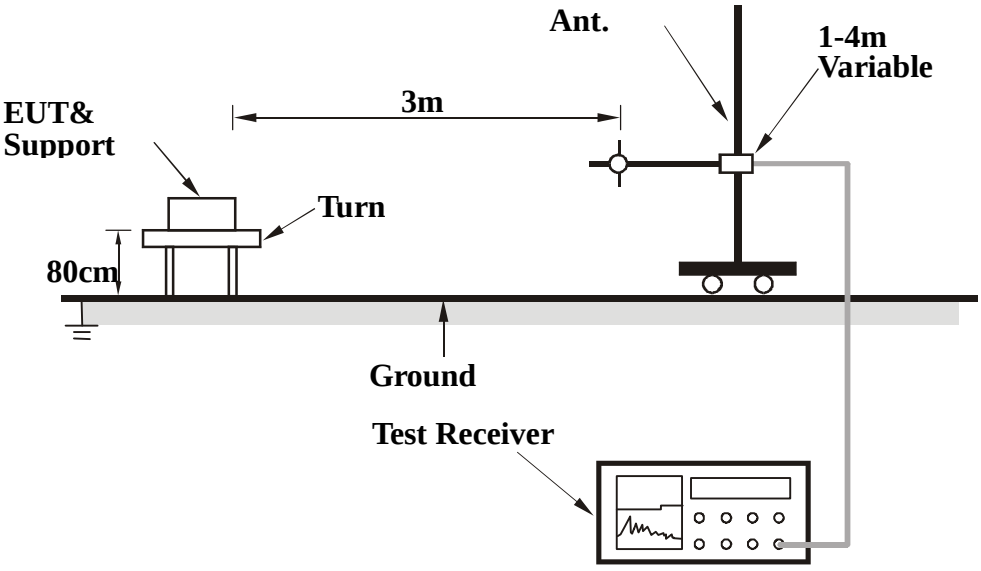
g. Repeat step a ~ f for horizontal polarization.

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

a. The Notebook controlled EUT to export rated output power under transmission mode and specific channel frequency.

4.7.7 TEST RESULTS

CHANNEL BANDWIDTH: 5MHz with antenna 1

MODE	Low channel	**FREQUENCY RANGE**	Above 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	20deg°C, 60%RH 960hPa
TESTED BY	Rex 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	5005	49	-25	-55.24	7.01	-48.23
2	7507.5	57.2	-25	-45.42	4.54	-40.88
3	10010	51.6	-25	-49.97	4.03	-45.94

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	5005	42.3	-25	-61.94	7.01	-54.93
2	7507.5	53.6	-25	-49.02	4.54	-44.48
3	10010	49.5	-25	-52.07	4.03	-48.04

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

MODE	Middle channel	**FREQUENCY RANGE**	Above 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	20deg°C, 60%RH 960hPa
TESTED BY	Rex 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	42.6	-25	-61.93	7.05	-54.88
2	7800	48.9	-25	-53.72	4.29	-49.43
3	10400	50.3	-25	-51.71	3.66	-48.04

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	48.6	-25	-55.93	7.05	-48.88
2	7800	52.7	-25	-49.92	4.29	-45.63
3	10400	52.4	-25	-49.61	3.66	-45.94

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

MODE	High channel	**FREQUENCY RANGE**	Above 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	20deg°C, 60%RH 960hPa
TESTED BY	Rex Huang		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	5375	43.4	-25	-61.39	7.09	-54.30
2	8062.5	51.3	-25	-51.32	4.13	-47.19
3	10750	48.6	-25	-53.24	3.33	-49.90

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	5375	49.2	-25	-55.59	7.09	-48.50
2	8062.5	55.3	-25	-47.32	4.13	-43.19
3	10750	49.6	-25	-52.24	3.33	-48.90

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

CHANNEL BANDWIDTH: 5MHz with antenna 2

MODE	Low channel	**FREQUENCY RANGE**	Above 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	20deg°C, 60%RH 960hPa
TESTED BY	Rex 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	5005	41	-25	-63.24	7.01	-56.23
2	7507.5	52.4	-25	-50.22	4.54	-45.68
3	10010	48.8	-25	-52.77	4.03	-48.74

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	5005	46	-25	-58.24	7.01	-51.23
2	7507.5	56.5	-25	-46.12	4.54	-41.58
3	10010	50.5	-25	-51.07	4.03	-47.04

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

MODE	Middle channel	**FREQUENCY RANGE**	Above 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	20deg°C, 60%RH 960hPa
TESTED BY	Rex 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	42.3	-25	-62.23	7.05	-55.18
2	7800	47.4	-25	-55.22	4.29	-50.93
3	10400	49.6	-25	-52.41	3.66	-48.74

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	47.4	-25	-57.13	7.05	-50.08
2	7800	51.3	-25	-51.32	4.29	-47.03
3	10400	51.4	-25	-50.61	3.66	-46.94

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

MODE	High channel	**FREQUENCY RANGE**	Above 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	20deg°C, 60%RH 960hPa
TESTED BY	Rex Huang		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	5375	42.6	-25	-62.19	7.09	-55.10
2	8062.5	50.7	-25	-51.92	4.13	-47.79
3	10750	47.8	-25	-54.04	3.33	-50.70

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	5375	48.7	-25	-56.09	7.09	-49.00
2	8062.5	54.1	-25	-48.52	4.13	-44.39
3	10750	48.9	-25	-52.94	3.33	-49.60

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

CHANNEL BANDWIDTH: 10MHz with antenna 1

MODE	Low channel	**FREQUENCY RANGE**	Above 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	20deg°C, 60%RH 960hPa
TESTED BY	Rex 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	5010	39.3	-25	-64.95	7.01	-57.93
2	7515	49.5	-25	-53.12	4.53	-48.59
3	10020	48.2	-25	-53.38	4.02	-49.36

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	5010	42.7	-25	-61.55	7.01	-54.53
2	7515	50.2	-25	-52.42	4.53	-47.89
3	10020	50.6	-25	-50.98	4.02	-46.96

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

MODE	Middle channel	**FREQUENCY RANGE**	Above 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	20deg°C, 60%RH 960hPa
TESTED BY	Rex 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	40.2	-25	-64.33	7.05	-57.28
2	7800	46.3	-25	-56.32	4.29	-52.03
3	10400	49.4	-25	-52.61	3.66	-48.94

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	44.6	-25	-59.93	7.05	-52.88
2	7800	48.2	-25	-54.42	4.29	-50.13
3	10400	51.3	-25	-50.71	3.66	-47.04

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

MODE	High channel	**FREQUENCY RANGE**	Above 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	20deg°C, 60%RH 960hPa
TESTED BY	Rex 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	5370	42.5	-25	-62.29	7.09	-55.19
2	8055	50.3	-25	-52.32	4.13	-48.19
3	10740	48.4	-25	-53.45	3.34	-50.11

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	5370	44.7	-25	-60.09	7.09	-52.99
2	8055	52.3	-25	-50.32	4.13	-46.19
3	10740	48.6	-25	-53.25	3.34	-49.91

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

CHANNEL BANDWIDTH: 10MHz with antenna 2

MODE	Low channel	**FREQUENCY RANGE**	Above 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	20deg°C, 60%RH 960hPa
TESTED BY	Rex 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	5010	38.8	-25	-65.45	7.01	-58.43
2	7515	48.5	-25	-54.12	4.53	-49.59
3	10020	47.5	-25	-54.08	4.02	-50.06

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	5010	41.8	-25	-62.45	7.01	-55.43
2	7515	49.5	-25	-53.12	4.53	-48.59
3	10020	49.3	-25	-52.28	4.02	-48.26

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

MODE	Middle channel	**FREQUENCY RANGE**	Above 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	20deg°C, 60%RH 960hPa
TESTED BY	Rex 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	43.8	-25	-60.73	7.05	-53.68
2	7800	47.5	-25	-55.12	4.29	-50.83
3	10400	50.2	-25	-51.81	3.66	-48.14

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	39.9	-25	-64.63	7.05	-57.58
2	7800	45.2	-25	-57.42	4.29	-53.13
3	10400	48.1	-25	-53.91	3.66	-50.24

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

MODE	High channel	**FREQUENCY RANGE**	Above 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	20deg°C, 60%RH 960hPa
TESTED BY	Rex 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	5370	41.2	-25	-63.59	7.09	-56.49
2	8055	49.1	-25	-53.52	4.13	-49.39
3	10740	47.3	-25	-54.55	3.34	-51.21

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	5370	44.5	-25	-60.29	7.09	-53.19
2	8055	51.5	-25	-51.12	4.13	-46.99
3	10740	47.4	-25	-54.45	3.34	-51.11

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.

USA	FCC, UL
GERMANY	TUV Rheinland
JAPAN	VCCI
NORWAY	NEMKO
CANADA	INDUSTRY CANADA, CSA
R.O.C.	TAF, BSMI, NCC
NETHERLANDS	Telefication
SINGAPORE	GOST-ASIA (MOU)
RUSSIA	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. If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab:
Tel: 886-2-26052180
Fax: 886-2-26051924

Hsin Chu EMC/RF Lab:
Tel: 886-3-5935343
Fax: 886-3-5935342

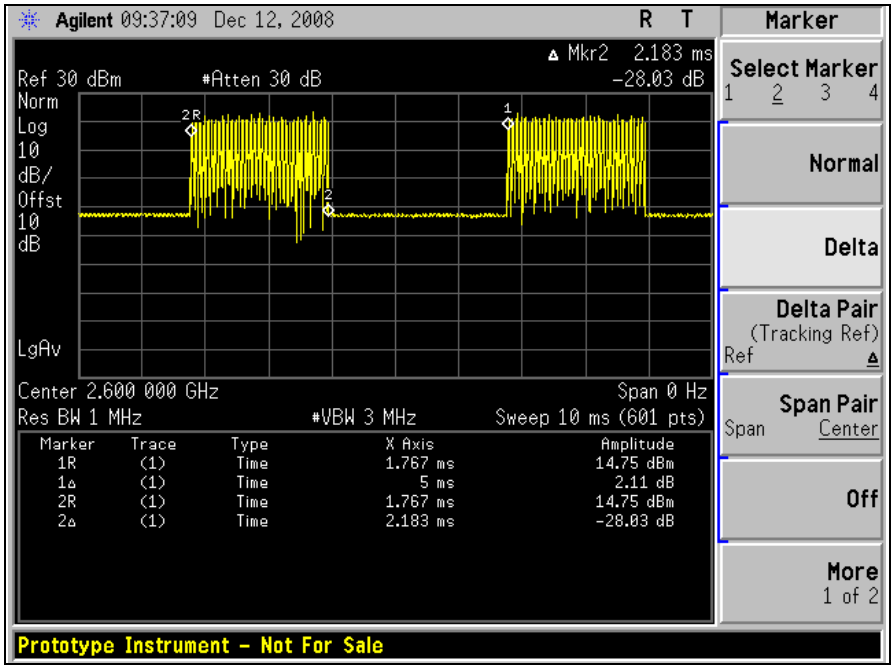
Hwa Ya EMC/RF/Safety/Telecom Lab:
Tel: 886-3-3183232
Fax: 886-3-3185050

Web Site: www.adt.com.tw

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 43.6%.

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