



FCC TEST REPORT (PART 27)

REPORT NO.: RF110105E12-1

MODEL NO.: CPEi25890

FCC ID: VYO-CPE25890

RECEIVED: Jan. 05, 2011

TESTED: Jan. 11 to 21, 2011

ISSUED: Mar. 03, 2011

APPLICANT: Motorola Home & Networks Mobility • Broadband
Access Solutions

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
Original release	NA	Mar. 03, 2011





1 CERTIFICATION

PRODUCT: WiMAX CPE

BRAND NAME: Motorola

MODEL NO.: CPEi25890

APPLICANT: Motorola Home & Networks Mobility • Broadband Access Solutions

TESTED: Jan. 11 to 21, 2011

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.: CPEi25890) 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 : Claire Kuan, **DATE:** Mar. 03, 2011
(Claire Kuan, Specialist)

APPROVED BY : May Chen, **DATE:** Mar. 03, 2011
(May Chen, Deputy Manager)



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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.



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2.1 MEASUREMENT UNCERTAINTY

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

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

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

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	WiMAX CPE
MODEL NO.	CPEi25890
FCC ID	VYO-CPE25890
POWER SUPPLY	DC 12V from power adapter
MODULATION TECHNOLOGY	OFDMA
MODULATION	Up Link : QPSK-1/2, -3/4, 16QAM-1/2, 3/4
	Down Link: QPSK-1/2, -3/4, -2/3, -5/6, 16QAM-1/2, 3/4, -2/3, -5/6, 64QAM-1/2, -3/4, -2/3, -5/6
OPERATING FREQUENCY	5MHz: 2498.5MHz ~ 2687.5MHz
	10MHz: 2501MHz ~ 2685MHz
CHANNEL BANDWIDTH	5MHz & 10MHz
MAX. CONDUCTED POWER	5MHz: 30.3dBm
	10MHz: 30.3dBm
ANTENNA TYPE	Please see note
DATA CABLE	NA
I/O PORTS	RJ-45 port x 2
	RJ-11 port x 2
ASSOCIATED DEVICES	Adapter x 1

NOTE:

1. There are WiMAX technology and WiFi technology used for the EUT, this report was recorded the **WiMAX** test data. For the WiFi test data was recorded in another test report<RF110105E12>.
2. Spurious emission of the simultaneous operation (WiFi & WiMAX) has been evaluated and no non-compliance found.

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

WiMAX ANTENNA						
No.	Transmitter Circuit	Antenna Type	Antenna Connector	Antenna Gain (dBi)	Frequency range (MHz)	Diversity Function
1	Chain(0)	Dipole	NA	5	2500-2700	YES
2	Chain(1)	Dipole	NA	5	2500-2700	YES
WiFi ANTENNA						
No.	Transmitter Circuit	Antenna Type	Antenna Connector	Antenna Gain (dBi)	Frequency range (MHz)	Diversity Function
1	Chain(0)	Dipole	NA	4	2412~2462	YES
2	Chain(1)	Dipole	NA	4	2412~2462	YES

4. The EUT must be supplied with a power adapter as following table:

Brand	Model No.	Spec.
OPERATING	OTE-20-12L US 120200	AC Input: 100-120V, 50/60Hz, 0.7A DC Output: 12V, 1.66A DC output cable(Unshielded, 3m)

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

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

6. The EUT is 2 * 2 spatial MIMO without beam forming function.

7. The EUT embedded a firmware for testing that needs to control from Notebook computer to let EUT with different DL/UL ration.



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

3.2 DESCRIPTION OF TEST MODES

Three channels have been tested and presented.

CHANNEL BANDWIDTH: 5MHz

Low channel (L): 2498.5MHz.

Middle channel (M): 2593MHz.

High channel (H): 2687.5MHz.

CHANNEL BANDWIDTH: 10MHz

Low channel (L): 2501MHz.

Middle channel (M): 2593MHz.

High channel (H): 2685MHz.



3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO							DESCRIPTION
	OP	FS	EB	CE	CSE	RE<1G	RE ³ 1G	
MODE 1	√	√	√	√	√	√	√	Channel Bandwidth: 5MHz Non-MIMO
MODE 2	√	-	-	√	√	√	√	Channel Bandwidth: 5MHz with MIMO
MODE 3	√	-	√	√	√	√	√	Channel Bandwidth: 10MHz Non-MIMO
MODE 4	√	-	-	√	√	√	√	Channel Bandwidth: 10MHz with MIMO

Where **OP**: Output power **FS**: Frequency stability
EB: Emission bandwidth **CE**: Channel edge
CSE: Conducted spurious emissions **RE<1G**: Radiated emission below 1GHz
RE³1G: 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.

CONFIGURE MODE	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE
MODE 1	L, M, H	OFDMA	QPSK
MODE 2	L, M, H	OFDMA	QPSK
MODE 3	L, M, H	OFDMA	QPSK
MODE 4	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.

CONFIGURE MODE	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE
MODE 1	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.

CONFIGURE MODE	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE
MODE 1	L, M, H	OFDMA	QPSK
MODE 3	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.

CONFIGURE MODE	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE
MODE 1	L, M, H	OFDMA	QPSK
MODE 2	L, M, H	OFDMA	QPSK
MODE 3	L, M, H	OFDMA	QPSK
MODE 4	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.

CONFIGURE MODE	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE
MODE 1	L, M, H	OFDMA	QPSK
MODE 2	L, M, H	OFDMA	QPSK
MODE 3	L, M, H	OFDMA	QPSK
MODE 4	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.

CONFIGURE MODE	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE
MODE 1	H	OFDMA	QPSK
MODE 2	H	OFDMA	QPSK
MODE 3	L	OFDMA	QPSK
MODE 4	H	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.

CONFIGURE MODE	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE
MODE 1	L, M, H	OFDMA	QPSK
MODE 2	L, M, H	OFDMA	QPSK
MODE 3	L, M, H	OFDMA	QPSK
MODE 4	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.



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3.4 DESCRIPTION OF SUPPORT UNITS

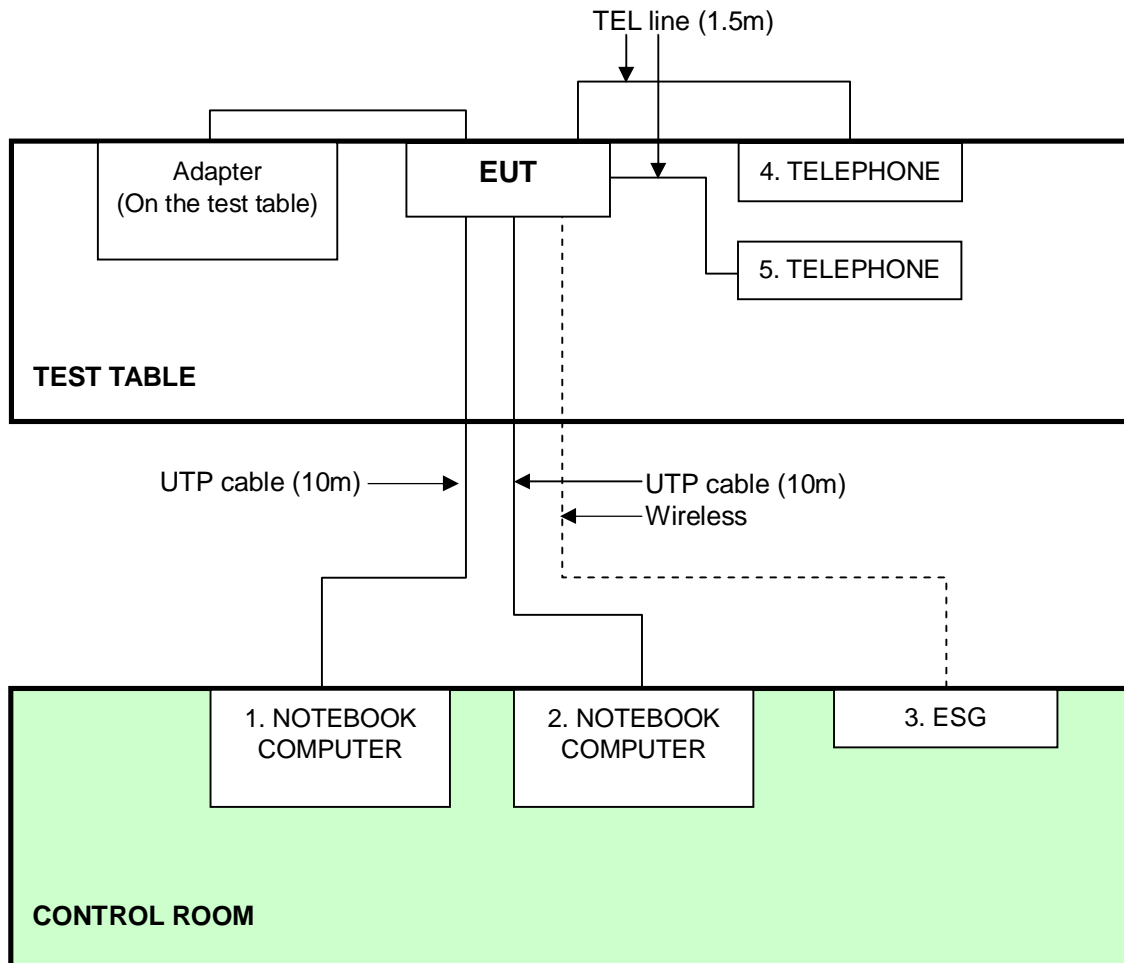
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP32LA	FSLB32S	FCC DoC
2	NOTEBOOK COMPUTER	DELL	PP32LA	GSLB32S	FCC DoC
3	ESG	Agilent	E4438C	MY45094468/005 506 602 UK6 UNJ	NA
4	TELEPHONE	REMEO	TE-812	97280926	NA
5	TELEPHONE	DAISHO	DS-03	N/A	NA

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	10m UTP cable
2	10m UTP cable
3	NA
4	1.5m TEL line
5	1.5m TEL line

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 conducted peak output power shall be according to the specific rule Part 27.50(h)(2) that “All User stations are limited to 2 watts and 27.50(i) specific that “Peak transmit power shall 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
Anritsu Power meter	ML2495A	0824006	April 24, 2011
JFW 10dB attenuation	50HF-010-SMA	N/A	NA

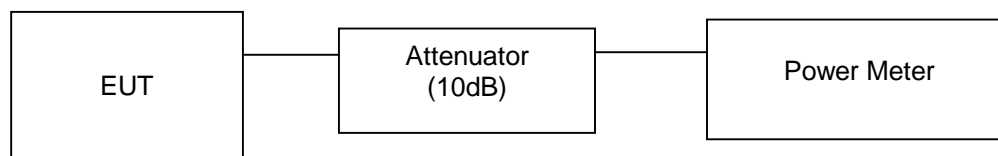
NOTE:

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

4.1.3 TEST PROCEDURES

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

4.1.4 TEST SETUP



4.1.5 EUT OPERATING CONDITIONS

1. Support unit 1 (ESG) ran test program “Beceem X350 VGS Control Panel 4.02.00” to enable EUT under transmission/receiving condition continuously via wireless transmission.
2. Support unit 4 (Telephone) communicated to support unit 5 (Telephone) via EUT by two Tel lines.



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4.1.6 TEST RESULTS(MODE 1)

CHANNEL BANDWIDTH: 5MHz

INPUT POWER	120Vac, 60Hz		
ENVIRONMENTAL CONDITIONS	20deg°C, 60%RH 1025hPa	TESTED BY	Rex Huang

CONDUCTED POWER			
CHANNEL	FREQUENCY (MHz)	POWER OUTPUT(mW)	POWER OUTPUT(dBm)
Low	2498.5	1000.0	30.0
Middle	2593	1000.0	30.0
High	2687.5	1071.5	30.3

4.1.7 TEST RESULTS(MODE 2)

CHANNEL BANDWIDTH: 5MHz

INPUT POWER	120Vac, 60Hz		
ENVIRONMENTAL CONDITIONS	20deg°C, 60%RH 1025hPa	TESTED BY	Rex Huang

CHANNEL BANDWIDTH: 5MHz

CONDUCTED POWER							
CHANNEL	FREQUENCY (MHz)	POWER OUTPUT(dBm)		POWER OUTPUT(mW)		TOTAL POWER OUTPUT (mW)	TOTAL POWER OUTPUT (dBm)
		CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1		
Low	2498.5	26.3	26.0	426.580	398.107	824.700	29.2
Middle	2593	27.0	27.0	501.187	501.187	1002.400	30.0
High	2687.5	27.4	27.0	549.541	501.187	1050.700	30.2



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4.1.8 TEST RESULTS(MODE 3)

CHANNEL BANDWIDTH: 10MHz

INPUT POWER	120Vac, 60Hz		
ENVIRONMENTAL CONDITIONS	20deg°C, 60%RH 1025hPa	TESTED BY	Rex Huang

CONDUCTED POWER			
CHANNEL	FREQUENCY (MHz)	POWER OUTPUT(mW)	POWER OUTPUT(dBm)
Low	2501	1071.5	30.3
Middle	2593	1000.0	30.0
High	2685	1000.0	30.0

4.1.9 TEST RESULTS(MODE 4)

CHANNEL BANDWIDTH: 10MHz

INPUT POWER	120Vac, 60Hz		
ENVIRONMENTAL CONDITIONS	20deg°C, 60%RH 1025hPa	TESTED BY	Rex Huang

CHANNEL BANDWIDTH: 10MHz

CONDUCTED POWER							
CHANNEL	FREQUENCY (MHz)	POWER OUTPUT(dBm)		POWER OUTPUT(mW)		TOTAL POWER OUTPUT (mW)	TOTAL POWER OUTPUT (dBm)
		CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1		
Low	2501	26.0	26.1	398.107	407.380	805.500	29.10
Middle	2593	26.8	27.1	478.630	512.861	991.500	30.00
High	2685	27.0	26.9	501.187	489.779	991.000	30.00



4.2 FREQUENCY STABILITY MEASUREMENT

4.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

According to the FCC part 2.1055 and 27.54 shall be tested the frequency stability. The rule is defined that "The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block." The test extreme voltage is according to the 2.1055(d)(1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment and the extreme temperature rule is comply with specification of EUT -30°C ~ 50°C.

4.2.2 TEST INSTRUMENTS

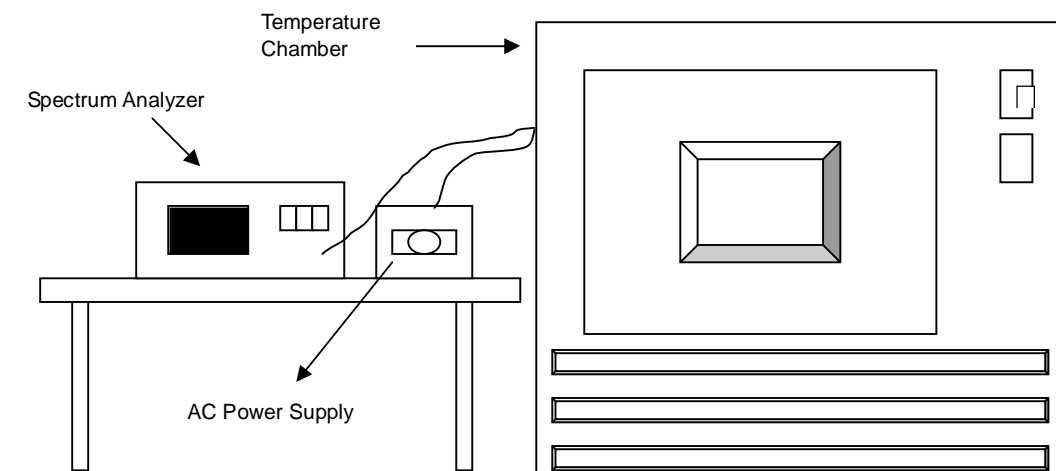
DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 02, 2010	Aug. 01, 2011
OVEN	MHU-225AU	911033	Dec. 16, 2010	Dec. 15, 2011
HUBER+SUHNER	SUCOFLEX104	222684/4	Aug. 14, 2010	Aug. 13, 2011
AC POWER SOURCE	6205	1140503	NA	NA

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

MODE	Middle channel (2593MHz)	INPUT POWER	120Vac, 60Hz
ENVIRONMENTAL CONDITIONS	20deg°C, 60%RH 1025hPa	TESTED BY	Rex Huang

AFC FREQUENCY ERROR VS. VOLTAGE								
VOLTAGE (Volts)	0Minutes		2Minutes		5Minutes		10Minutes	
	FREQUENCY (MHz)	PPM (%)	FREQUENCY (MHz)	PPM (%)	FREQUENCY (MHz)	PPM (%)	FREQUENCY (MHz)	PPM (%)
138	2593.0018	0.000069	2593.0019	0.000073	2593.002	0.000077	2593.0021	0.000081
120	2593.0021	0.000081	2593.0022	0.000085	2593.0023	0.000089	2593.0024	0.000093
102	2593.0026	0.000100	2593.003	0.000116	2593.0028	0.000108	2593.0029	0.000112

AFC FREQUENCY ERROR VS. TEMP								
TEMP (°C)	0Minutes		2Minutes		5Minutes		10Minutes	
	FREQUENCY (MHz)	PPM (%)	FREQUENCY (MHz)	PPM (%)	FREQUENCY (MHz)	PPM (%)	FREQUENCY (MHz)	PPM (%)
50	2592.9991	0.000035	2592.9992	0.000031	2592.9993	0.000027	2592.9994	0.000023
40	2593.001	0.000039	2593.0009	0.000035	2593.0008	0.000031	2593.0007	0.000027
30	2593.0011	0.000042	2593.0012	0.000046	2593.0013	0.000050	2593.0015	0.000058
20	2593.0021	0.000081	2593.0022	0.000085	2593.0023	0.000089	2593.0024	0.000093
10	2593.0027	0.000104	2593.0028	0.000108	2593.0029	0.000112	2593.003	0.000116
0	2593.0037	0.000143	2593.0038	0.000147	2593.0039	0.000150	2593.004	0.000154
-10	2593.0058	0.000224	2593.0059	0.000228	2593.006	0.000231	2593.0057	0.000220
-20	2593.0074	0.000285	2593.0075	0.000289	2593.0077	0.000297	2593.0079	0.000305
-30	2593.0088	0.000340	2593.0089	0.000343	2593.0087	0.000336	2593.0086	0.000332

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

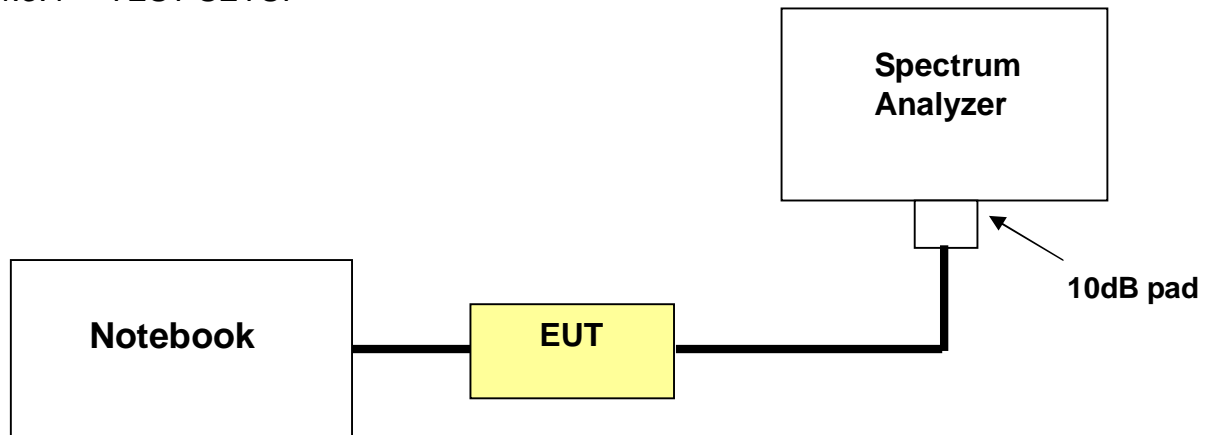
DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Agilent Spectrum Analyzer	E4446A	MY46180622	May 12, 2010	May 11, 2011
HUBER+SUHNER	SUCOFLEX104	222684/4	Aug. 14, 2010	Aug. 13, 2011
JFW 10dB attenuation	50HF-010-SMA	N/A	N/A	N/A

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 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. Measure the band width at the -26dB levels with respect to the reference level.

4.3.4 TEST SETUP



4.3.5 EUT OPERATING CONDITIONS

Same as 4.1.5



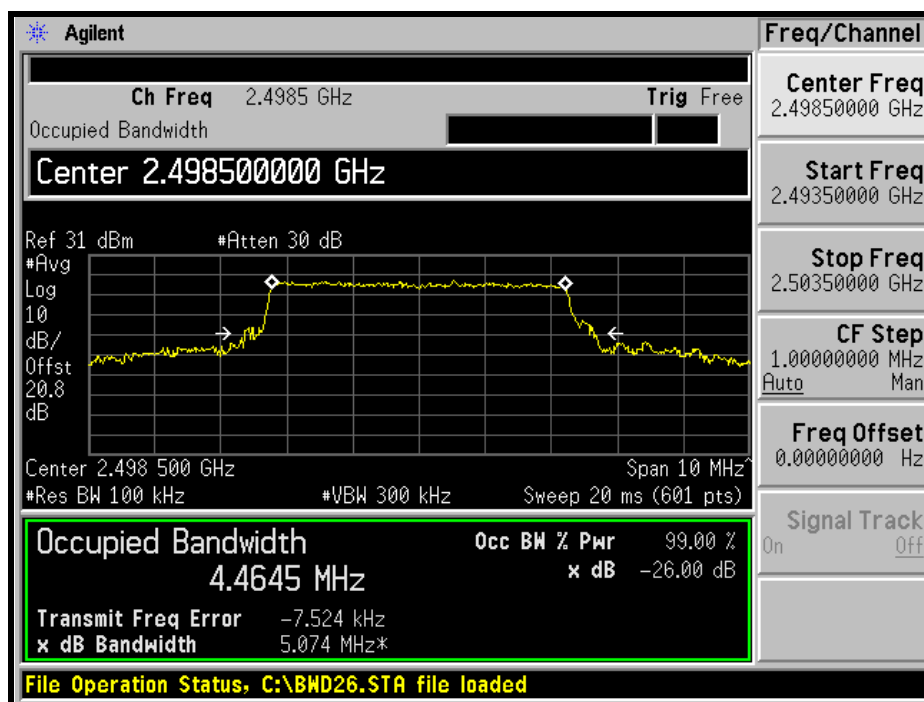
A D T

4.3.6 TEST RESULTS(MODE 1)

CHANNEL BANDWIDTH: 5MHz

FREQUENCY (MHz)	-26 dBc BANDWIDTH (MHz)
2498.5	5.07
2593	5.09
2687.5	5.09

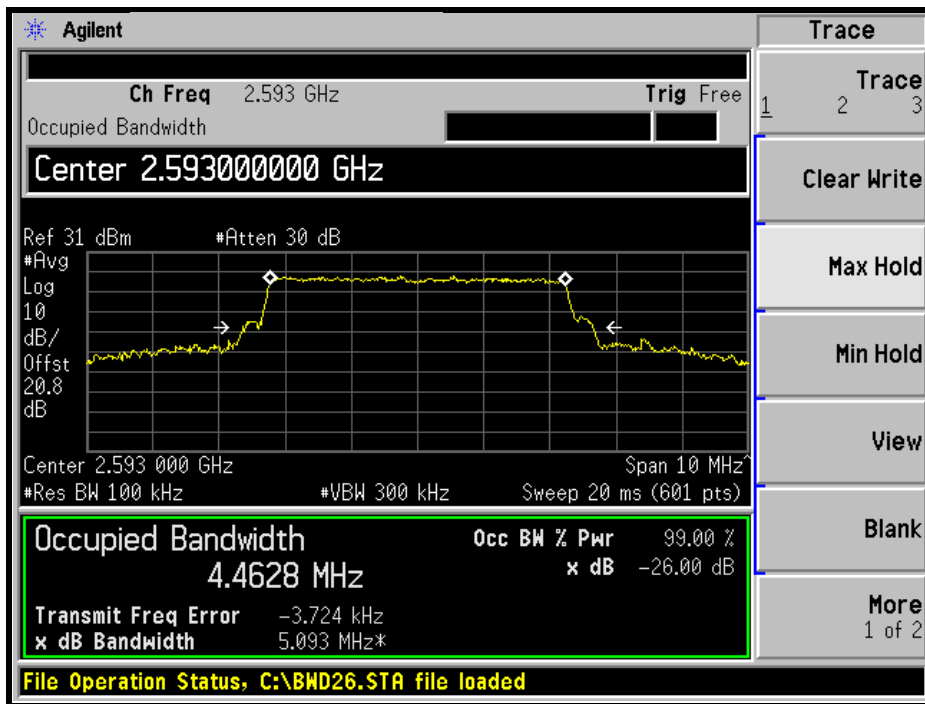
LOW CHANNEL



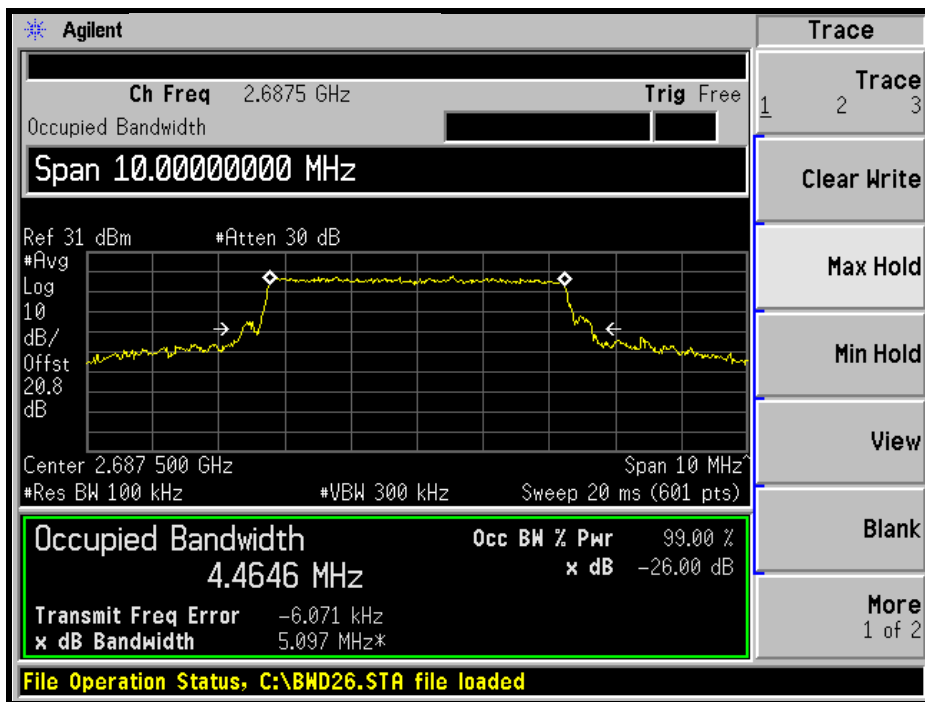


A D T

MIDDLE CHANNEL



HIGH CHANNEL





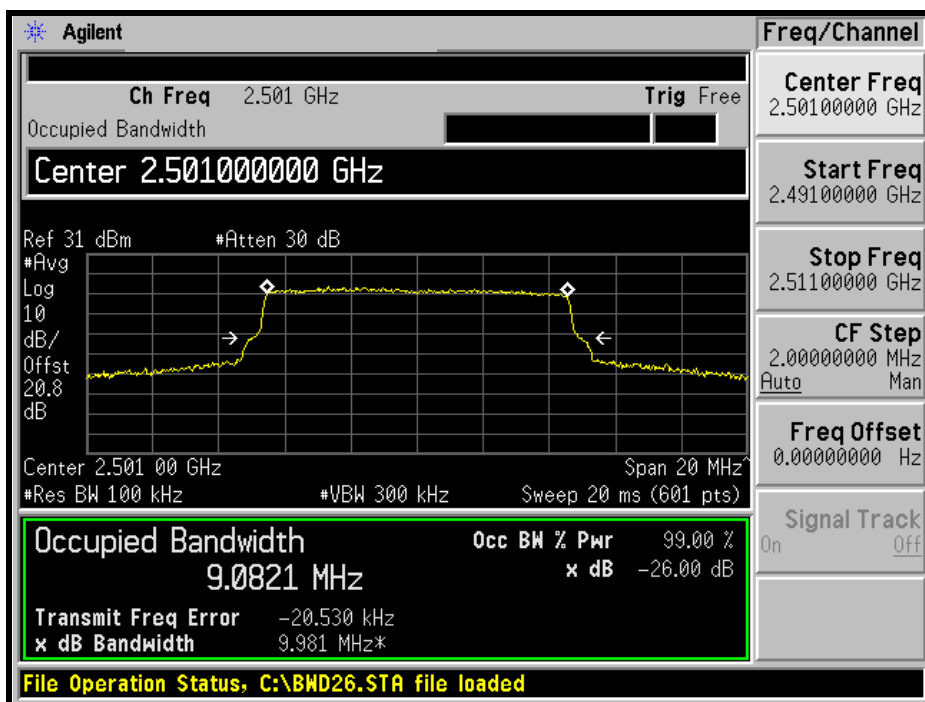
A D T

4.3.7 TEST RESULTS(MODE 3)

CHANNEL BANDWIDTH: 10MHz

FREQUENCY (MHz)	-26 dBc BANDWIDTH (MHz)
2501	9.98
2593	9.98
2685	9.90

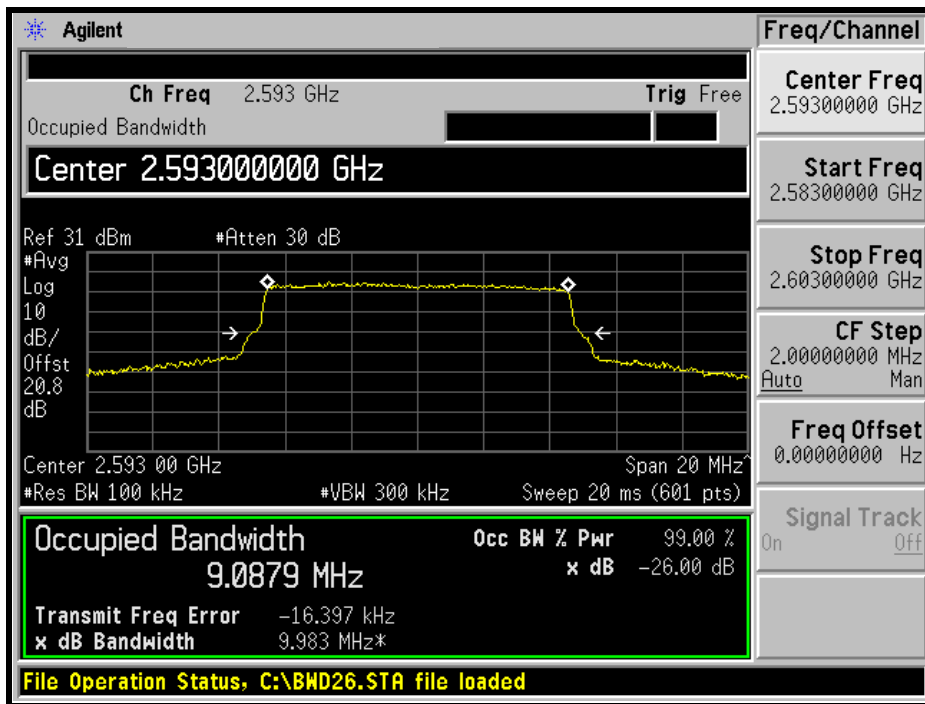
LOW CHANNEL



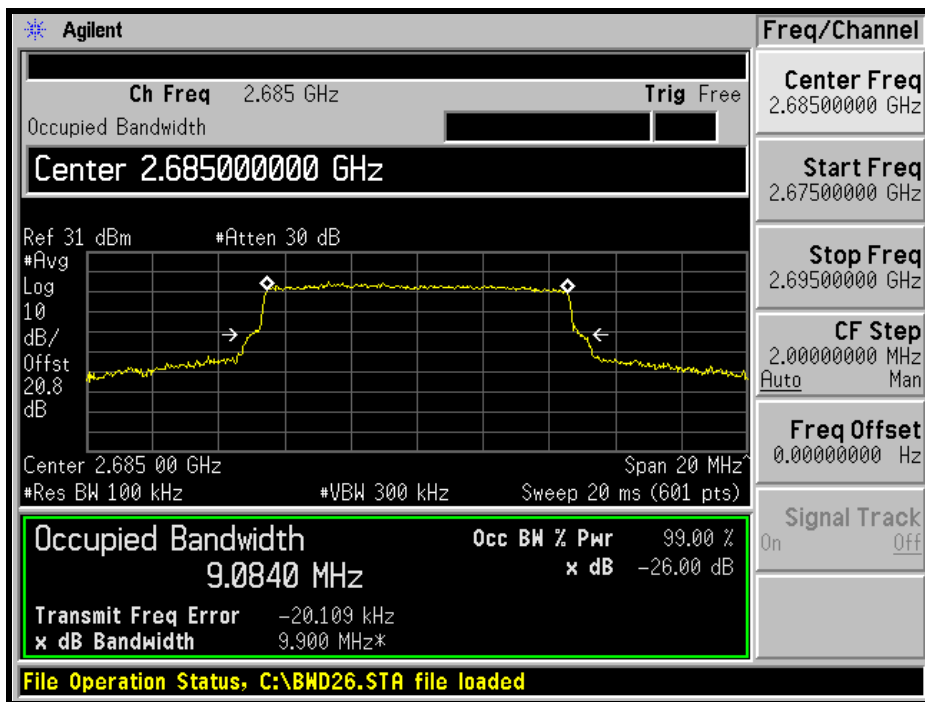


A D T

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	May 12, 2010	May 11, 2011
HUBER+SUHNER	SUCOFLEX104	222684/4	Aug. 14, 2010	Aug. 13, 2011
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. RBW of the spectrum is 51kHz and VB W 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 W of the spectrum is 100kHz and VB W of the spectrum is 300kHz.
- d. Record the max trace plot into the test report.

4.4.5 EUT OPERATING CONDITION

Same as item 4.1.5

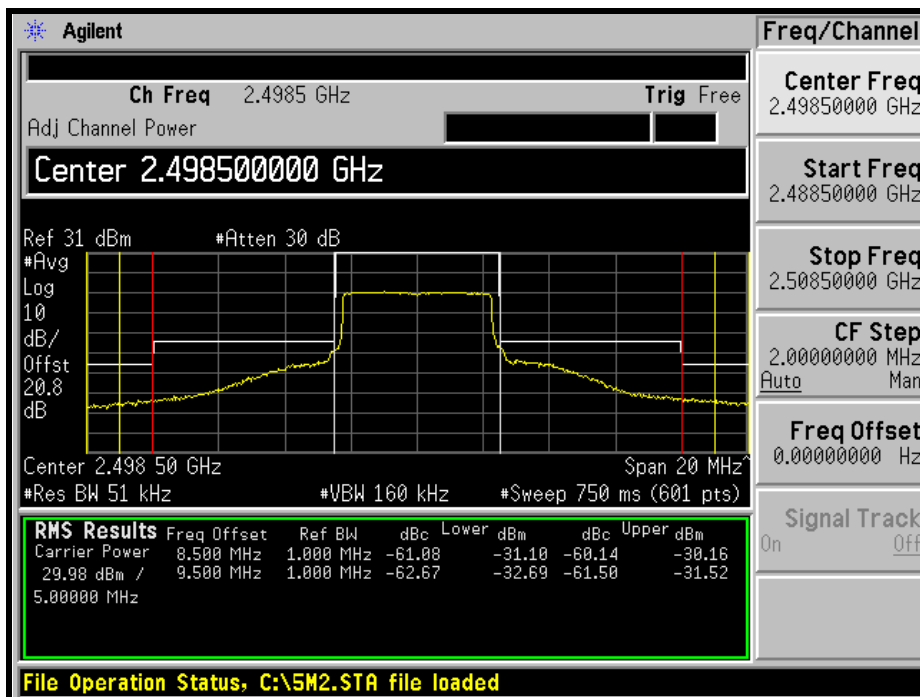
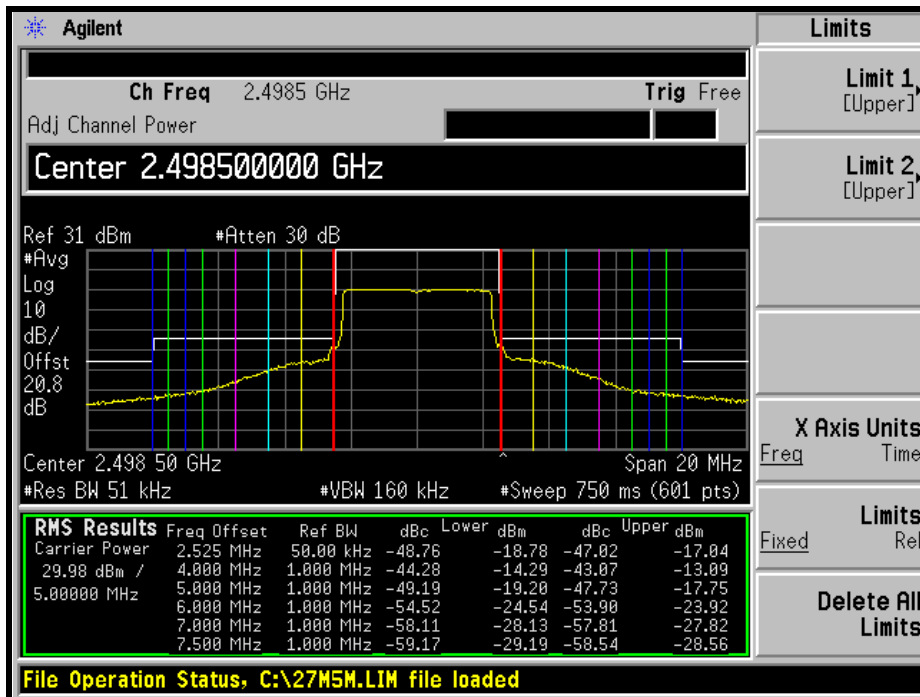


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4.4.6 TEST RESULTS(MODE 1)

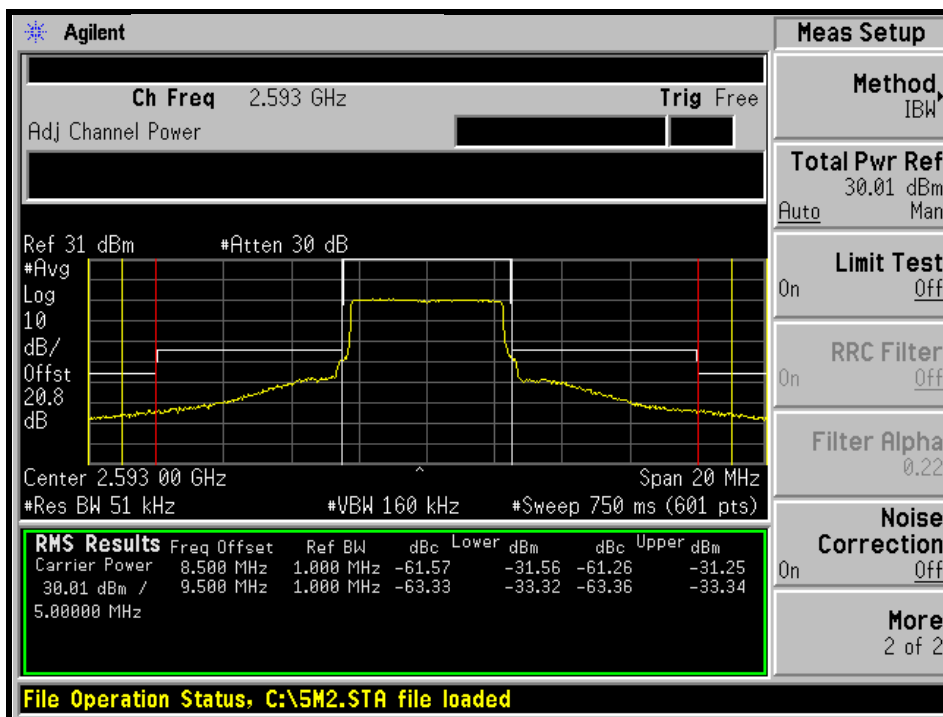
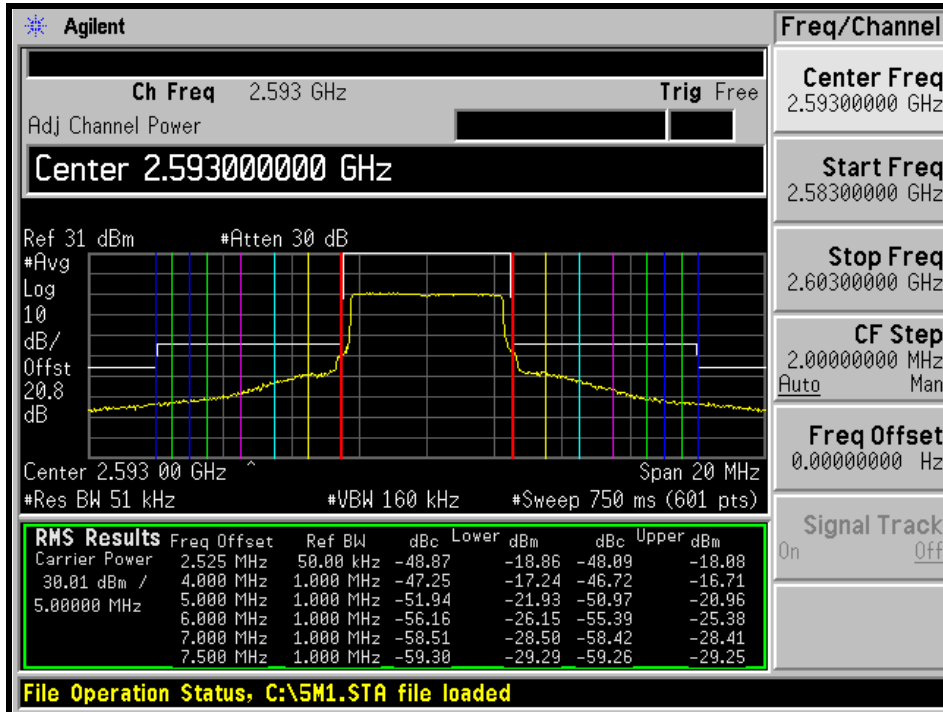
CHANNEL BANDWIDTH: 5MHz

LOW CHANNEL





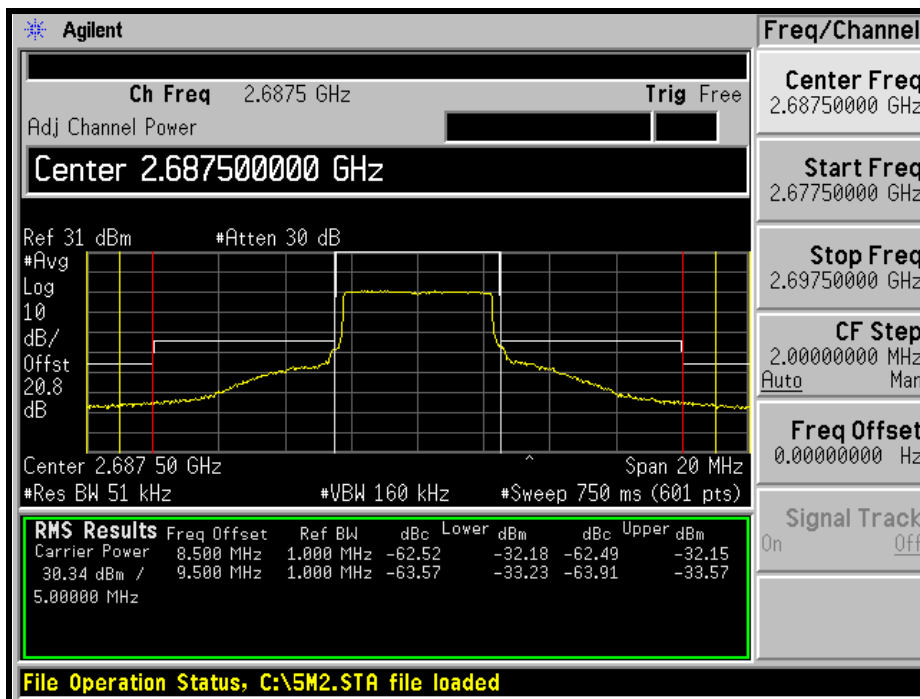
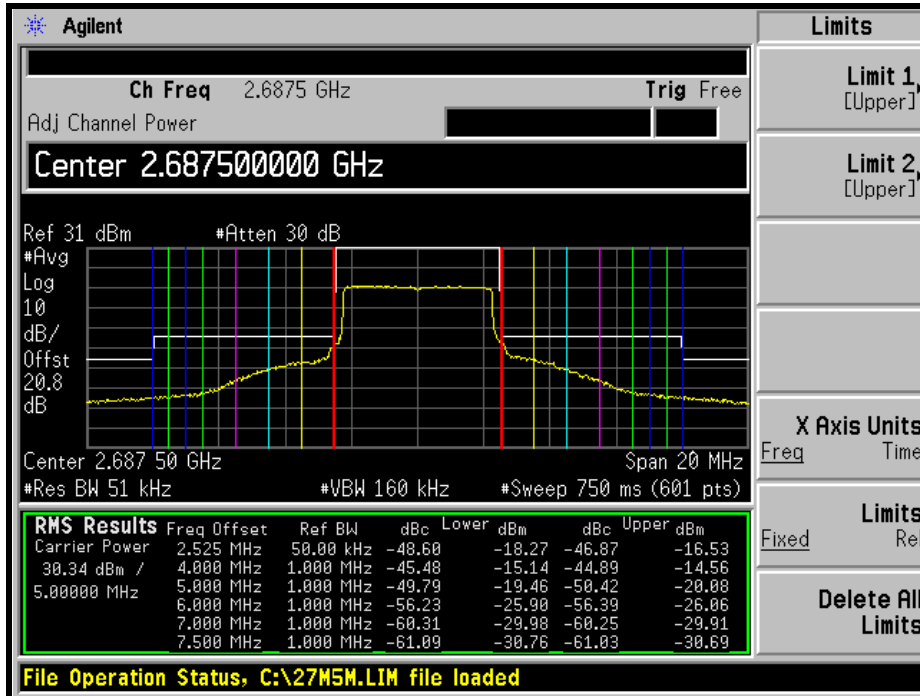
MIDDLE CHANNEL





A D T

HIGH CHANNEL





A D T

4.4.7 TEST RESULTS(MODE 2)

CHANNEL BANDWIDTH: 5MHz LOW CHANNEL-LEFT

CHANNEL	EMISSION FREQUENCY (MHz)	EMISSION OF AT EACH ANTENNA PORT (dBm)		TOTAL EMISSION (mW)	TOTAL EMISSION (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)				
2498.5	2495.974	-22.67	-20.61	0.014	-18.50	-13	PASS
	2494.5	-17.74	-18.86	0.030	-15.30	-13	PASS
	2493.5	-22.38	-23.50	0.010	-19.90	-13	PASS
	2492.5	-26.96	-28.16	0.004	-24.50	-13	PASS
	2491.5	-30.15	-31.07	0.002	-27.60	-13	PASS
	2491	-31.53	-32.09	0.001	-28.80	-13	PASS
	2490	-33.24	-34.02	0.001	-30.60	-25	PASS
	2489	-34.75	-35.56	0.001	-32.10	-25	PASS

NOTE:

Measure conducted emissions of at each antenna port and add the emissions in linear power units. Emission limits apply to the total of emissions from all outputs.

LOW CHANNEL-RIGHT

CHANNEL	CHANNEL FREQUENCY (MHz)	EMISSION OF AT EACH ANTENNA PORT (dBm)		TOTAL EMISSION (mW)	TOTAL EMISSION (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)				
2498.5	2501.026	-22.54	-19.57	0.017	-17.80	-13	PASS
	2502.5	-17.17	-16.60	0.041	-13.90	-13	PASS
	2503.5	-20.49	-20.60	0.018	-17.50	-13	PASS
	2504.5	-25.86	-25.61	0.005	-22.70	-13	PASS
	2505.5	-29.69	-29.56	0.002	-26.60	-13	PASS
	2506	-30.57	-30.50	0.002	-27.50	-13	PASS
	2507	-32.21	-31.90	0.001	-29.00	-25	PASS
	2508	-33.96	-33.84	0.001	-30.90	-25	PASS

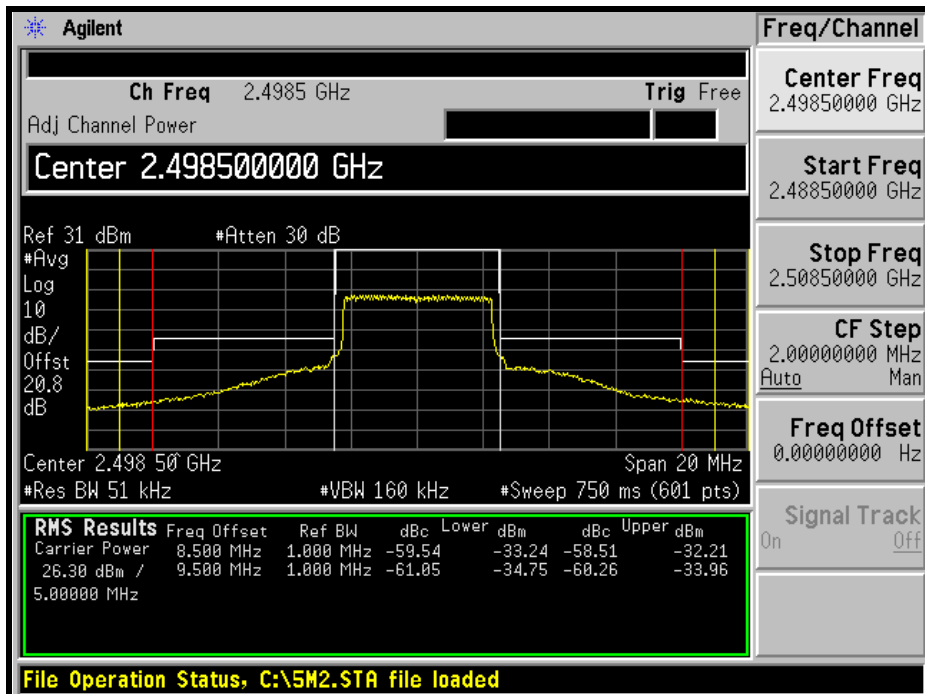
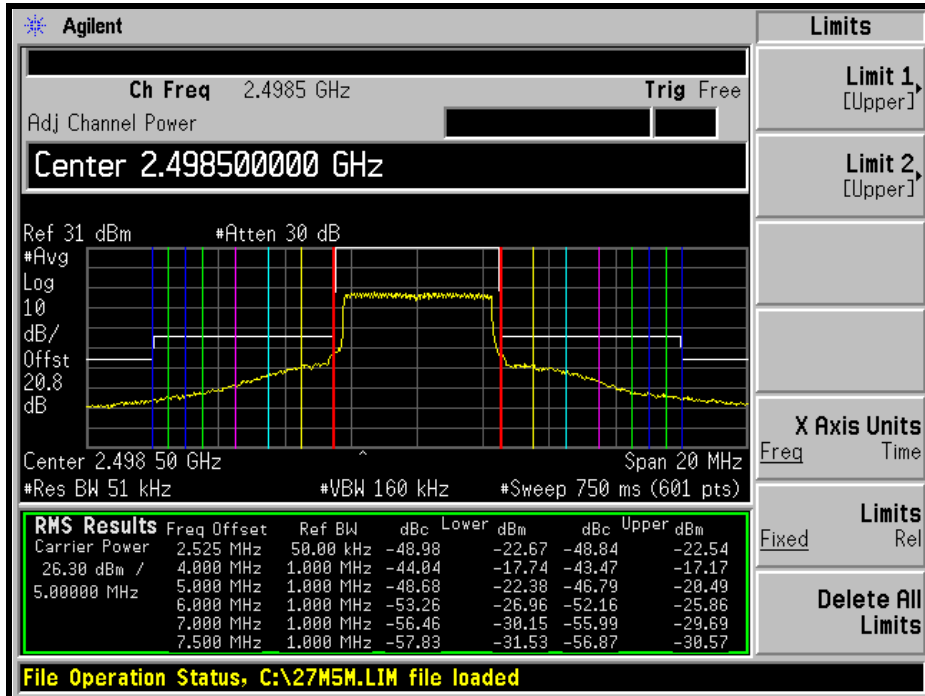
NOTE:

Measure conducted emissions of at each antenna port and add the emissions in linear power units. Emission limits apply to the total of emissions from all outputs.



A D T

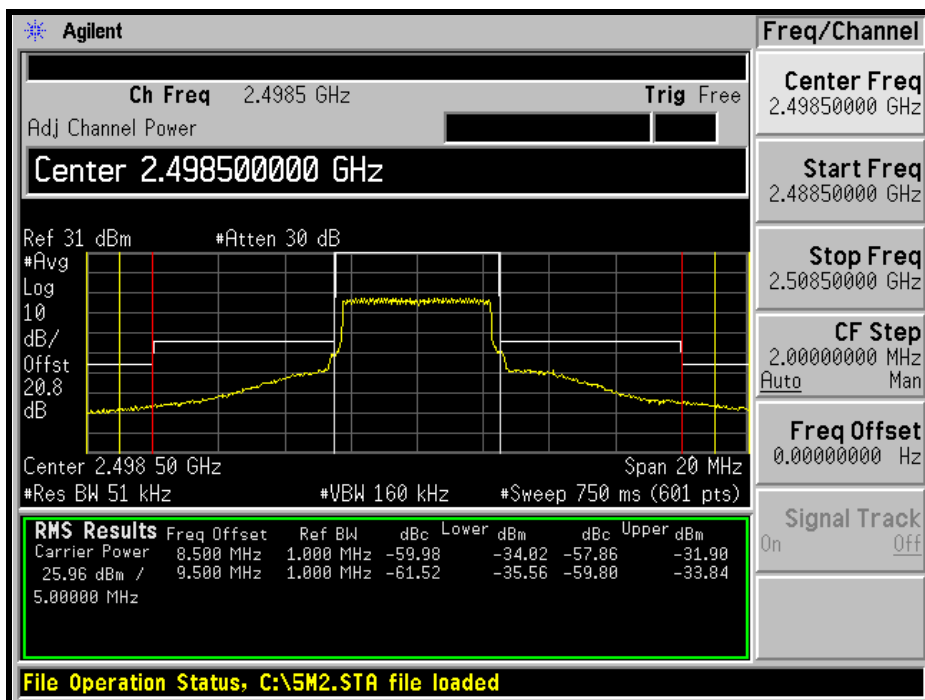
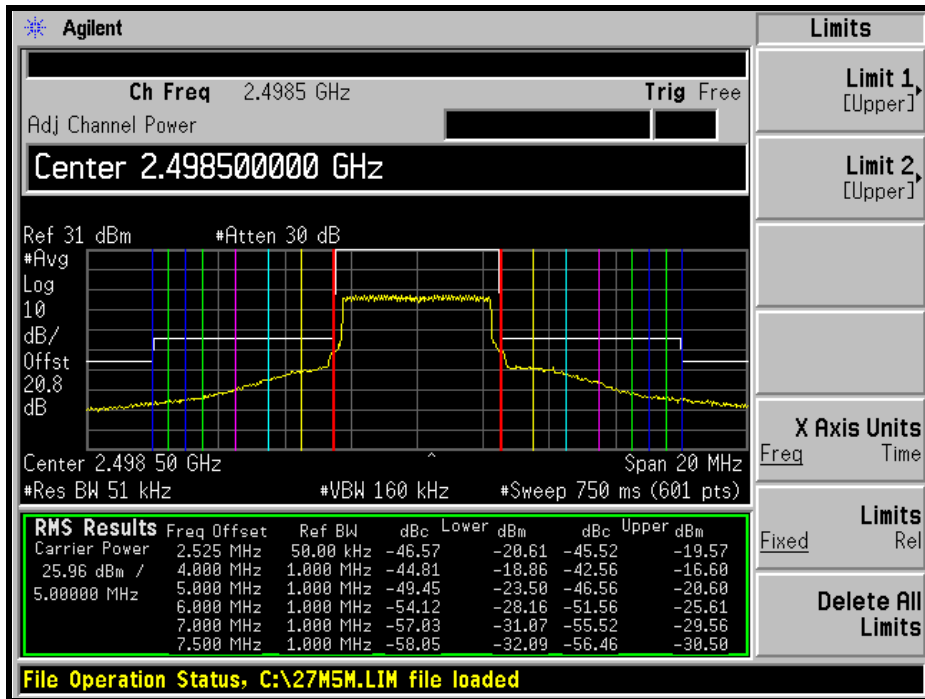
CHAIN 0
LOW CHANNEL





A D T

CHAIN 1
LOW CHANNEL





MIDDLE CHANNEL-LEFT

CHANNEL	CHANNEL FREQUENCY (MHz)	EMISSION OF AT EACH ANTENNA PORT (dBm)		TOTAL EMISSION (mW)	TOTAL EMISSION (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)				
2593	2590.474	-22.08	-19.21	0.018	-17.40	-13	PASS
	2589	-18.47	-19.06	0.027	-15.70	-13	PASS
	2588	-22.46	-22.75	0.011	-19.60	-13	PASS
	2587	-26.01	-26.45	0.005	-23.20	-13	PASS
	2586	-28.58	-29.18	0.003	-25.90	-13	PASS
	2585.5	-29.71	-30.29	0.002	-27.00	-13	PASS
	2584.5	-32.38	-33.34	0.001	-29.80	-25	PASS
	2583.5	-34.51	-35.00	0.001	-31.70	-25	PASS

NOTE:

Measure conducted emissions of at each antenna port and add the emissions in linear power units. Emission limits apply to the total of emissions from all outputs.

MIDDLE CHANNEL-RIGHT

CHANNEL	CHANNEL FREQUENCY (MHz)	EMISSION OF AT EACH ANTENNA PORT (dBm)		TOTAL EMISSION (mW)	TOTAL EMISSION (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)				
2593	2595.526	-22.12	-19.09	0.018	-17.30	-13	PASS
	2597	-18.81	-18.64	0.027	-15.70	-13	PASS
	2598	-22.00	-22.83	0.012	-19.40	-13	PASS
	2599	-25.73	-26.42	0.005	-23.10	-13	PASS
	2600	-28.82	-29.51	0.002	-26.10	-13	PASS
	2600.5	-29.78	-30.41	0.002	-27.10	-13	PASS
	2601.5	-32.43	-33.11	0.001	-29.70	-25	PASS
	2602.5	-34.64	-34.97	0.001	-31.80	-25	PASS

NOTE:

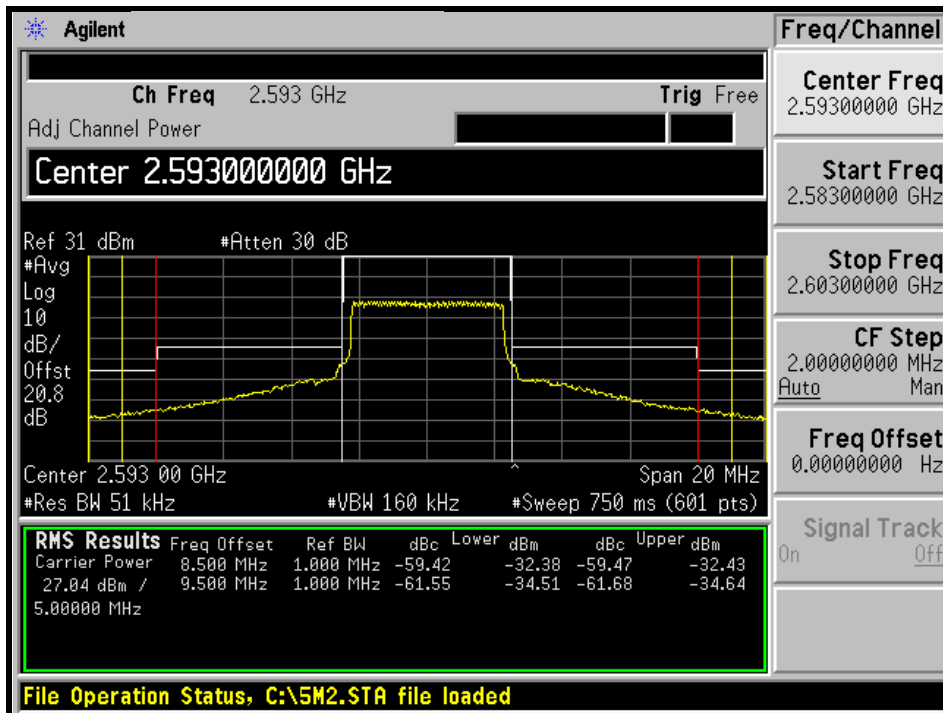
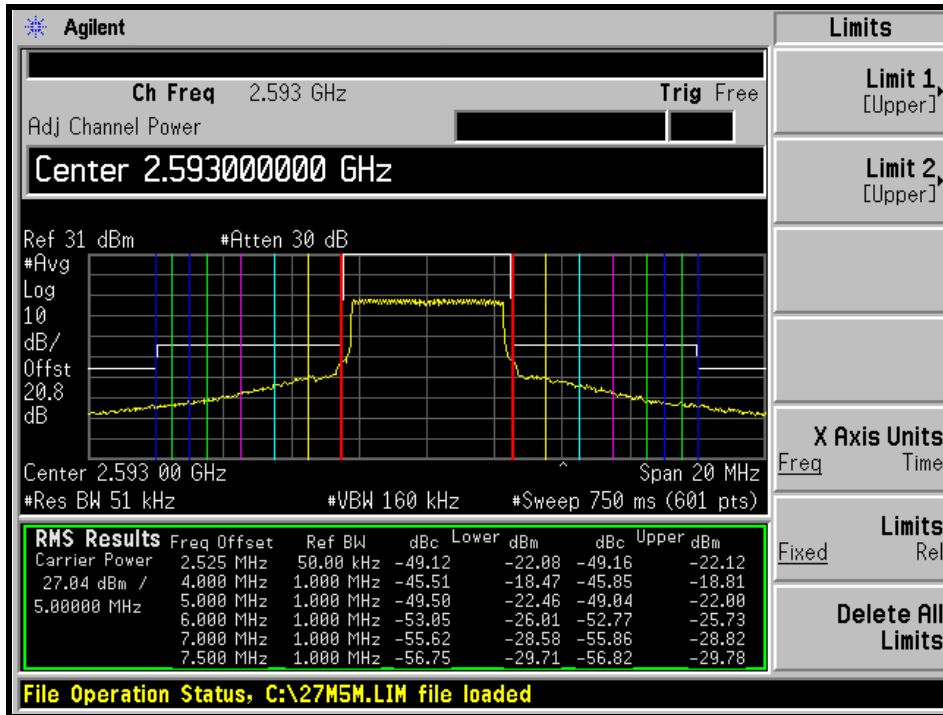
Measure conducted emissions of at each antenna port and add the emissions in linear power units. Emission limits apply to the total of emissions from all outputs.



A D T

CHAIN 0

MIDDLE CHANNEL

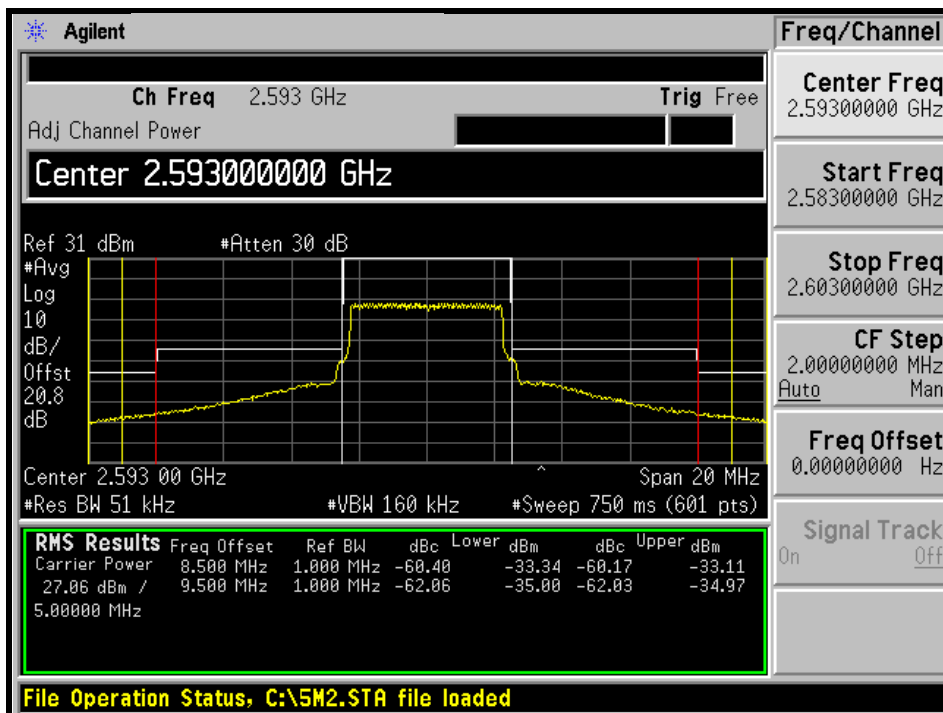
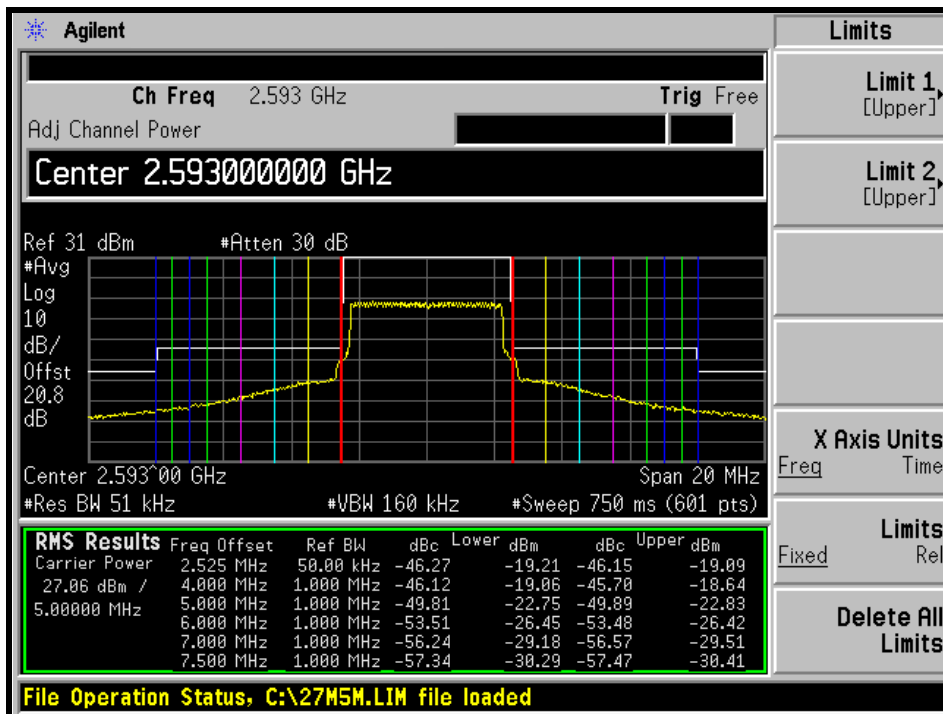




A D T

CHAIN 1

MIDDLE CHANNEL





A D T

HIGH CHANNEL-LEFT

CHANNEL	CHANNEL FREQUENCY (MHz)	EMISSION OF AT EACH ANTENNA PORT (dBm)		TOTAL EMISSION (mW)	TOTAL EMISSION (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)				
2687.5	2684.974	-22.04	-19.29	0.018	-17.40	-13	PASS
	2683.5	-18.82	-17.51	0.031	-15.10	-13	PASS
	2682.5	-23.44	-22.00	0.011	-19.70	-13	PASS
	2681.5	-29.08	-27.96	0.003	-25.50	-13	PASS
	2680.5	-31.92	-31.42	0.001	-28.70	-13	PASS
	2680	-32.51	-32.31	0.001	-29.40	-13	PASS
	2679	-34.31	-33.81	0.001	-31.00	-25	PASS
	2678	-35.26	-35.02	0.001	-32.10	-25	PASS

NOTE:

Measure conducted emissions of at each antenna port and add the emissions in linear power units. Emission limits apply to the total of emissions from all outputs.

HIGH CHANNEL-RIGHT

CHANNEL	CHANNEL FREQUENCY (MHz)	EMISSION OF AT EACH ANTENNA PORT (dBm)		TOTAL EMISSION (mW)	TOTAL EMISSION (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)				
2687.5	2690.026	-21.28	-18.55	0.021	-16.70	-13	PASS
	2691.5	-18.50	-17.26	0.033	-14.80	-13	PASS
	2692.5	-23.10	-22.22	0.011	-19.60	-13	PASS
	2693.5	-28.34	-27.69	0.003	-25.00	-13	PASS
	2694.5	-31.34	-31.45	0.001	-28.40	-13	PASS
	2695	-32.18	-32.32	0.001	-29.20	-13	PASS
	2696	-33.93	-33.87	0.001	-30.90	-25	PASS
	2697	-35.39	-35.52	0.001	-32.40	-25	PASS

NOTE:

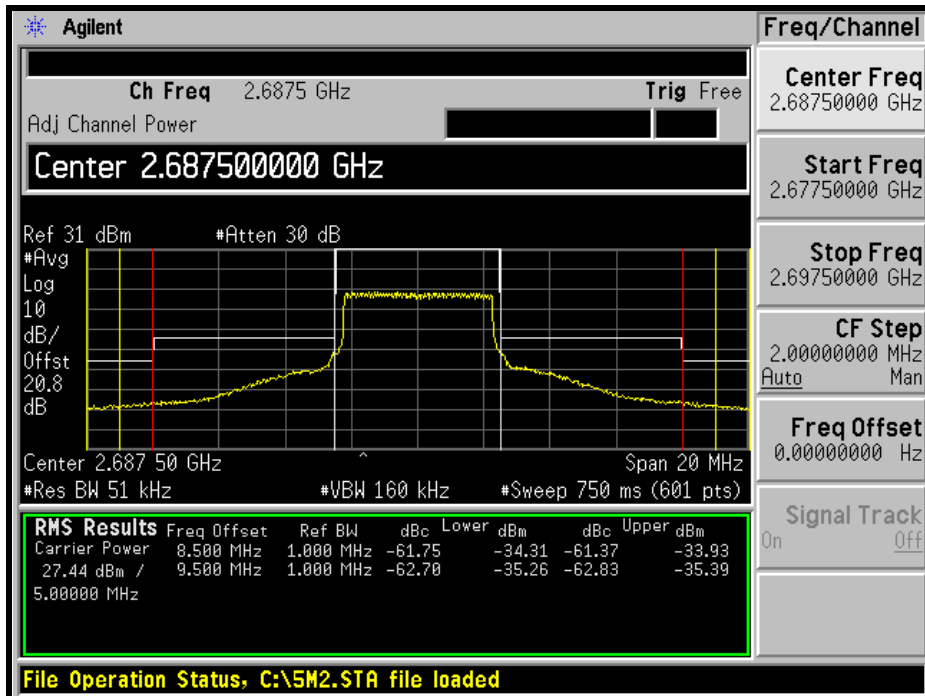
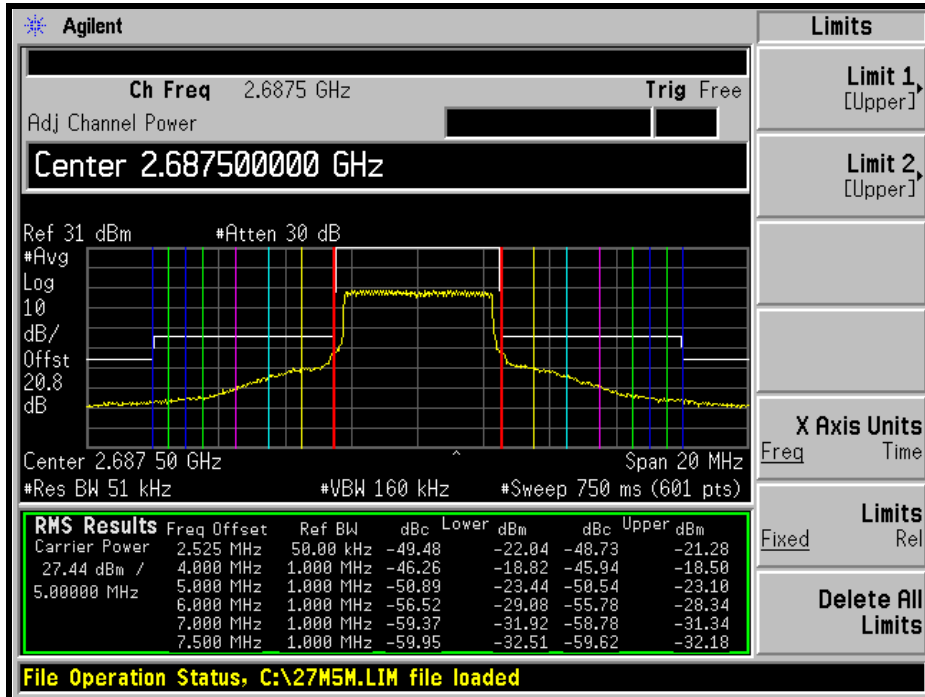
Measure conducted emissions of at each antenna port and add the emissions in linear power units. Emission limits apply to the total of emissions from all outputs.



A D T

CHAIN 0

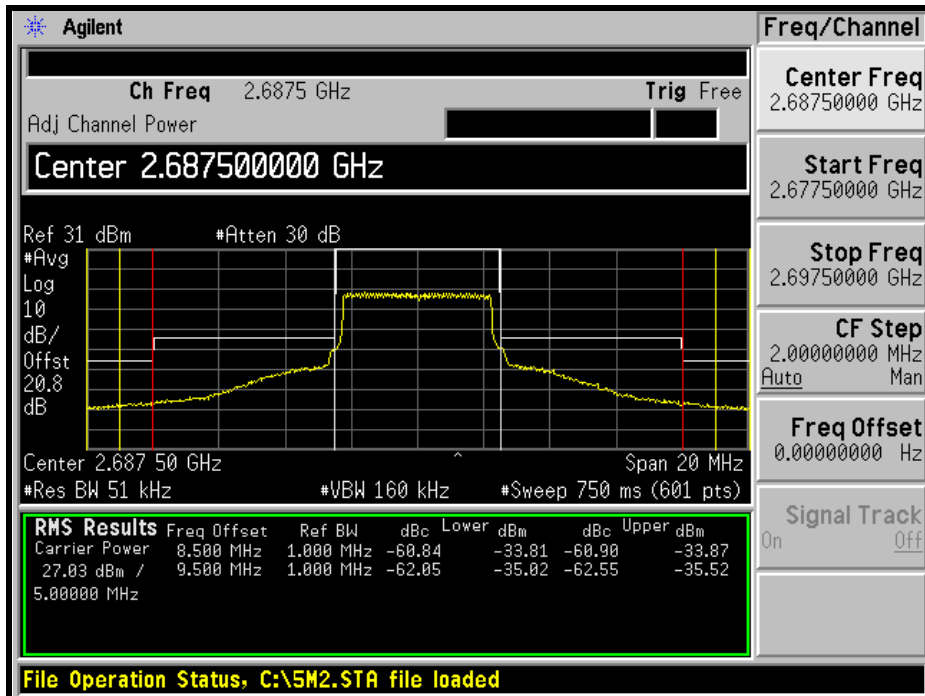
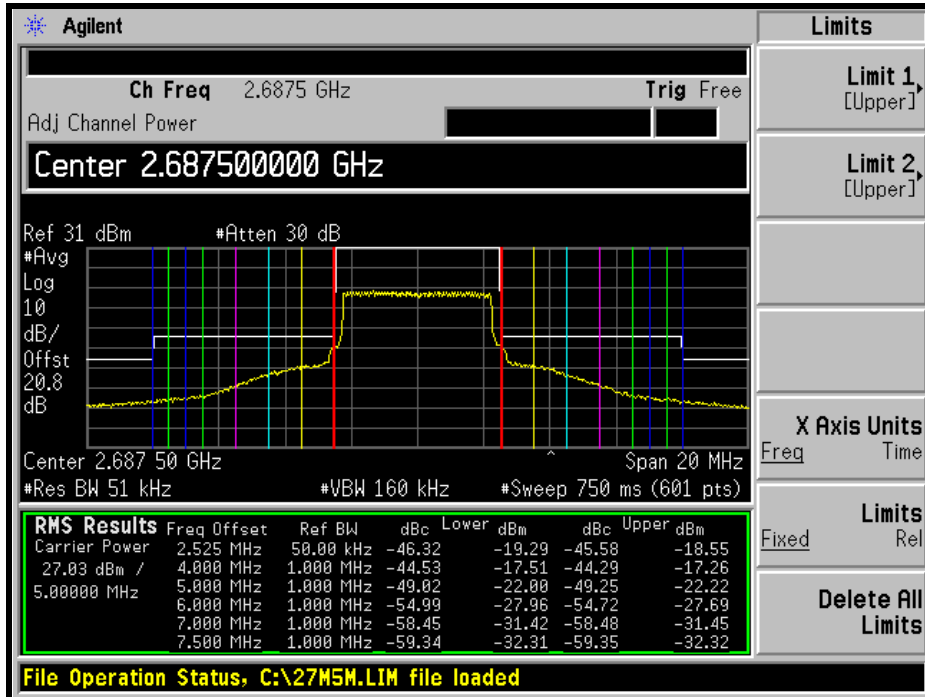
HIGH CHANNEL





A D T

HIGH CHANNEL



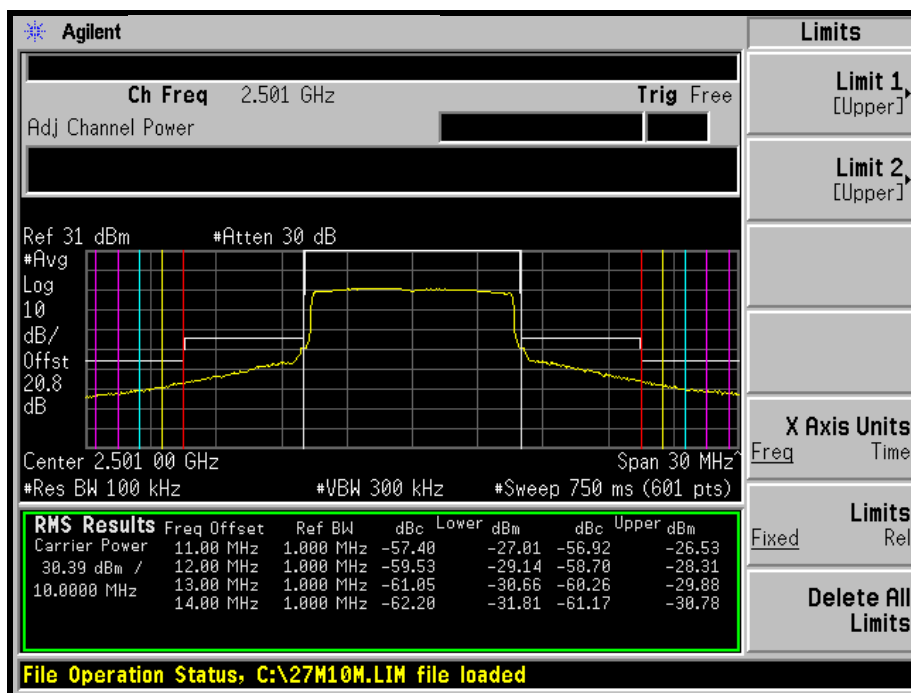
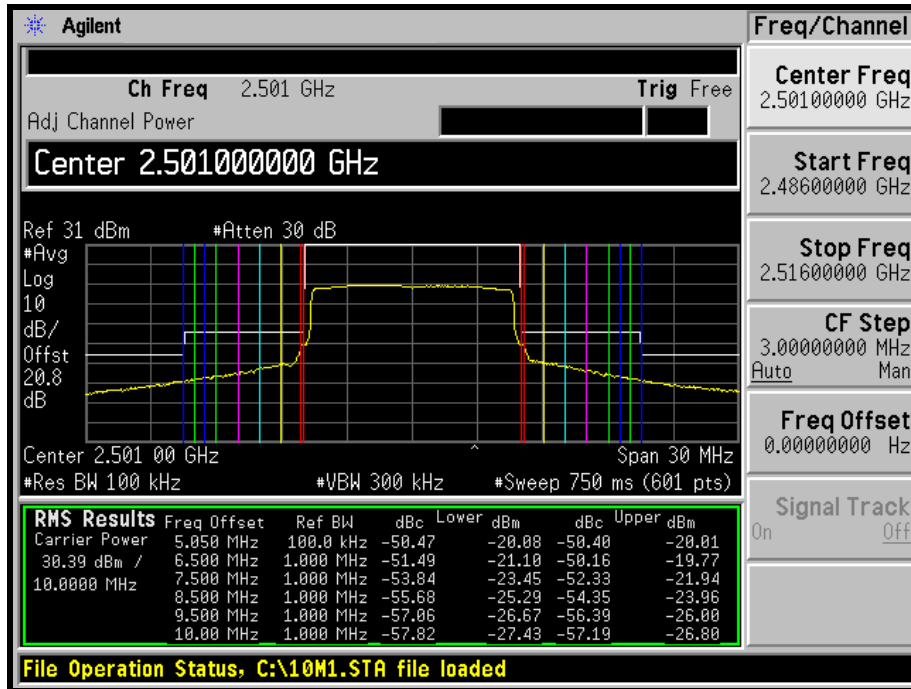


A D T

4.4.8 TEST RESULTS(MODE 3)

CHANNEL BANDWIDTH: 10MHz

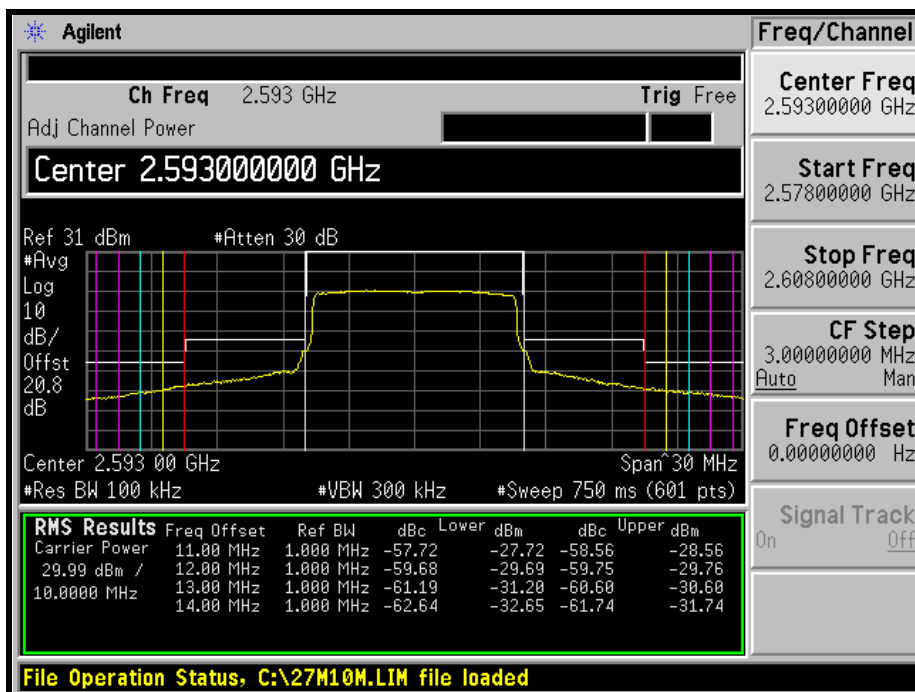
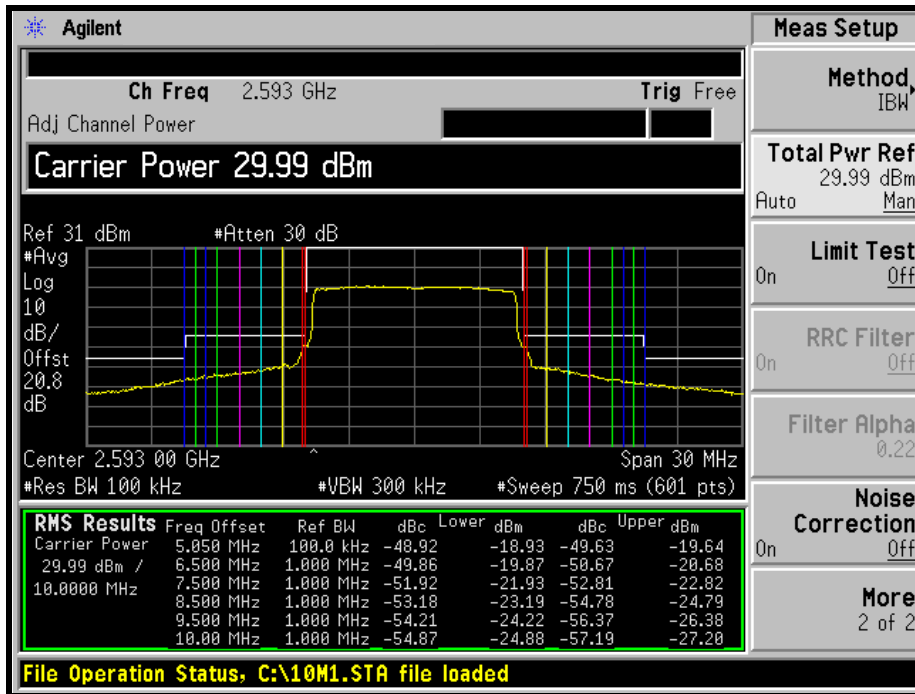
LOW CHANNEL





A D T

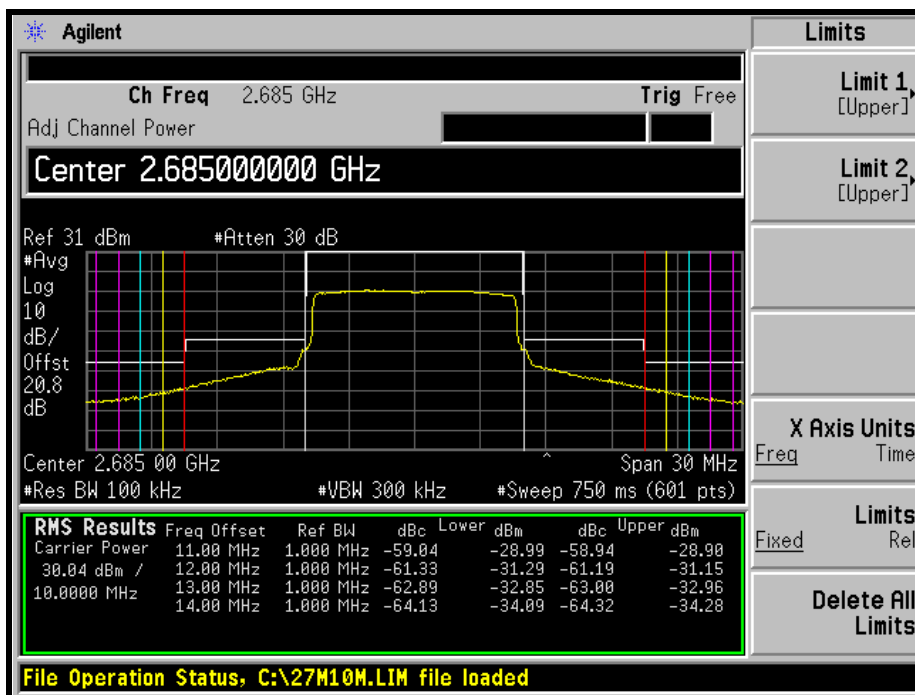
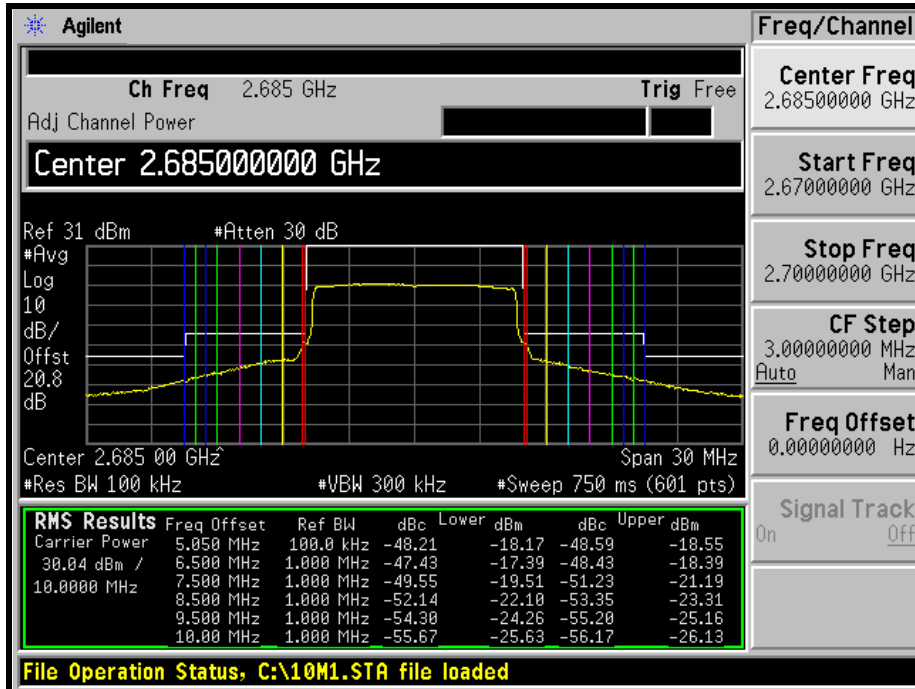
MIDDLE CHANNEL





A D T

HIGH CHANNEL





4.4.9 TEST RESULTS(MODE 4)

CHANNEL BANDWIDTH: 10MHz
LOW CHANNEL-LEFT

CHANNEL	CHANNEL FREQUENCY (MHz)	EMISSION OF AT EACH ANTENNA PORT (dBm)		TOTAL EMISSION (mW)	TOTAL EMISSION (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)				
2501	2495.95	-21.94	-23.30	0.011	-19.60	-13	PASS
	2494.5	-20.26	-20.96	0.017	-17.60	-13	PASS
	2493.5	-22.22	-23.13	0.011	-19.60	-13	PASS
	2492.5	-23.80	-24.59	0.008	-21.20	-13	PASS
	2491.5	-25.07	-26.23	0.005	-22.60	-13	PASS
	2491	-26.06	-27.06	0.004	-23.50	-13	PASS
	2490	-28.83	-29.43	0.002	-26.10	-25	PASS
	2489	-31.03	-31.65	0.001	-28.30	-25	PASS
	2488	-32.83	-33.19	0.001	-30.00	-25	PASS
	2487	-34.23	-34.61	0.001	-31.40	-25	PASS

NOTE:

Measure conducted emissions of at each antenna port and add the emissions in linear power units. Emission limits apply to the total of emissions from all outputs.



A D T

LOW CHANNEL-RIGHT

CHANNEL	CHANNEL FREQUENCY (MHz)	EMISSION OF AT EACH ANTENNA PORT (dBm)		TOTAL EMISSION (mW)	TOTAL EMISSION (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)				
2501	2506.05	-21.74	-22.59	0.012	-19.10	-13	PASS
	2507.5	-19.44	-18.51	0.025	-15.90	-13	PASS
	2508.5	-21.02	-20.34	0.017	-17.70	-13	PASS
	2509.5	-22.73	-22.22	0.011	-19.50	-13	PASS
	2510.5	-24.50	-24.22	0.007	-21.30	-13	PASS
	2511	-25.74	-25.34	0.006	-22.50	-13	PASS
	2512	-28.83	-28.19	0.003	-25.50	-25	PASS
	2513	-30.70	-30.23	0.002	-27.40	-25	PASS
	2514	-32.26	-31.67	0.001	-28.90	-25	PASS
	2515	-33.37	-32.81	0.001	-30.10	-25	PASS

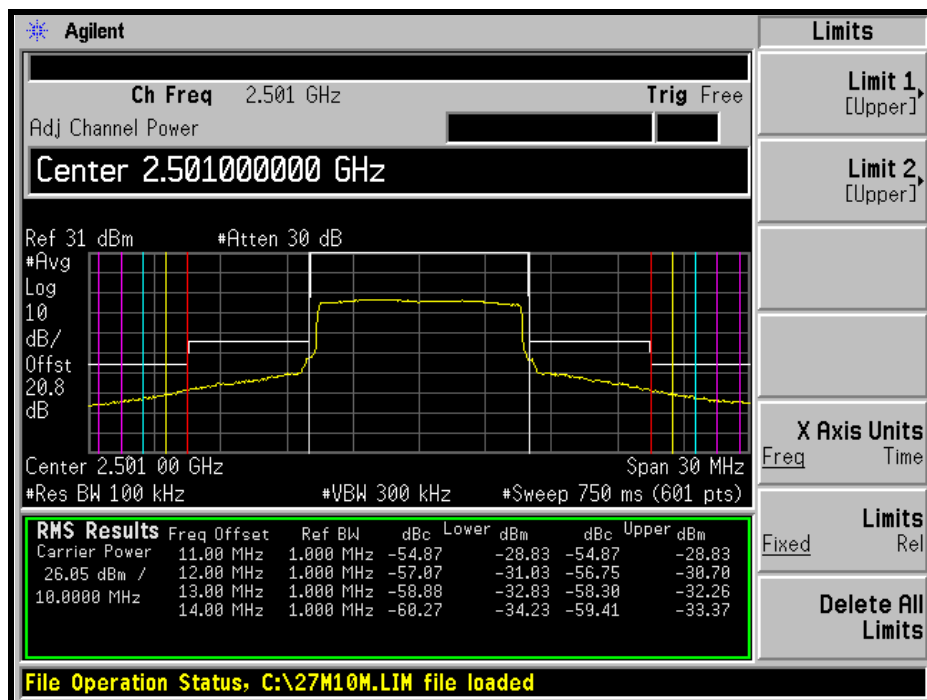
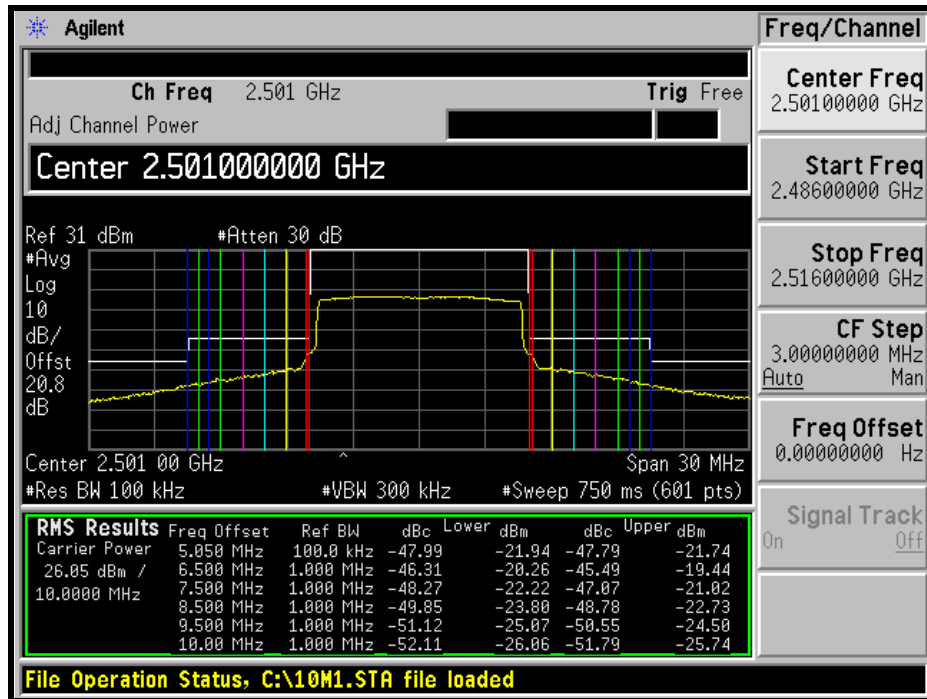
NOTE:

Measure conducted emissions of at each antenna port and add the emissions in linear power units. Emission limits apply to the total of emissions from all outputs.



A D T

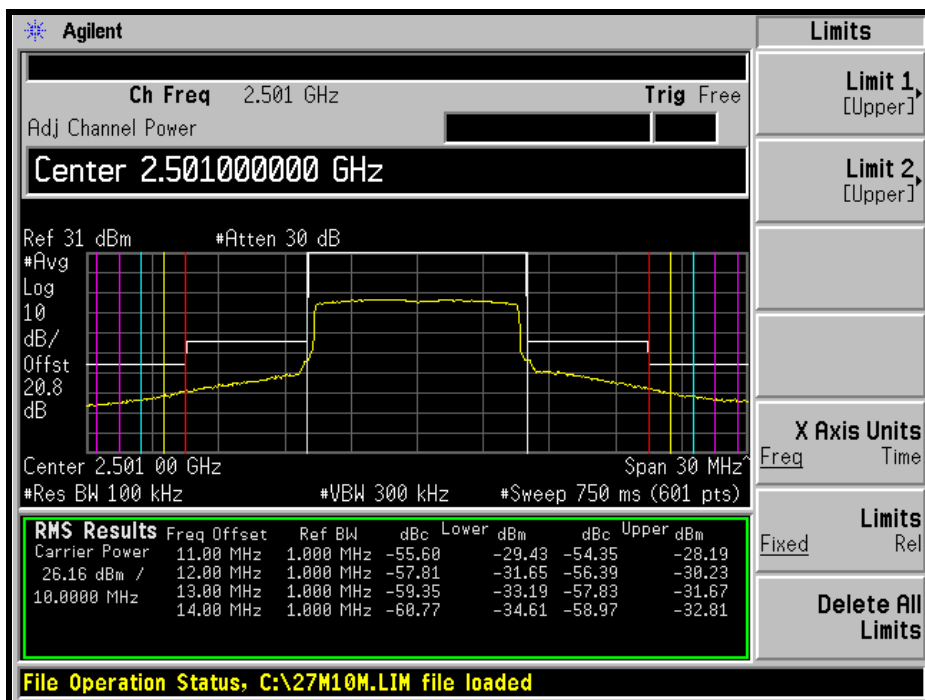
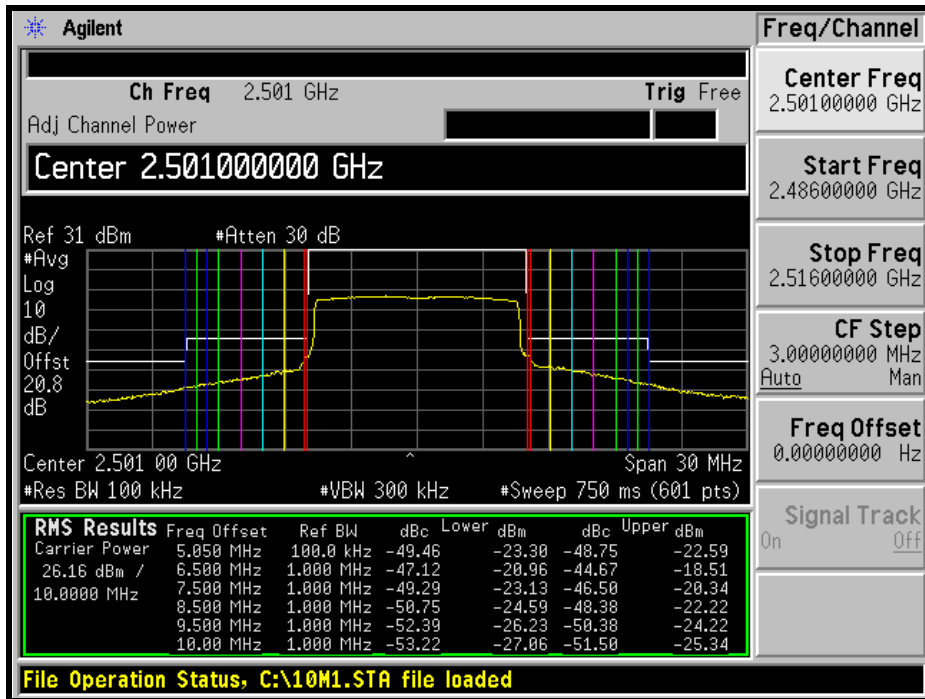
CHAIN 0
LOW CHANNEL





A D T

CHAIN 1
LOW CHANNEL





A D T

MIDDLE CHANNEL-LEFT

CHANNEL	CHANNEL FREQUENCY (MHz)	EMISSION OF AT EACH ANTENNA PORT (dBm)		TOTAL EMISSION (mW)	TOTAL EMISSION (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)				
2593	2587.95	-20.64	-22.44	0.014	-18.40	-13	PASS
	2586.5	-21.24	-21.79	0.014	-18.50	-13	PASS
	2585.5	-23.25	-23.51	0.009	-20.40	-13	PASS
	2584.5	-24.32	-24.61	0.007	-21.50	-13	PASS
	2583.5	-25.47	-26.08	0.005	-22.80	-13	PASS
	2583	-26.16	-26.74	0.005	-23.40	-13	PASS
	2582	-28.01	-28.11	0.003	-25.00	-25	PASS
	2581	-29.65	-29.81	0.002	-26.70	-25	PASS
	2580	-31.21	-31.21	0.002	-28.20	-25	PASS
	2579	-32.37	-32.38	0.001	-29.40	-25	PASS

NOTE:

Measure conducted emissions of at each antenna port and add the emissions in linear power units. Emission limits apply to the total of emissions from all outputs.



A D T

MIDDLE CHANNEL-RIGHT

CHANNEL	CHANNEL FREQUENCY (MHz)	EMISSION OF AT EACH ANTENNA PORT (dBm)		TOTAL EMISSION (mW)	TOTAL EMISSION (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)				
2593	2598.05	-21.98	-22.95	0.011	-19.40	-13	PASS
	2599.5	-21.93	-21.39	0.014	-18.60	-13	PASS
	2600.5	-23.64	-23.37	0.009	-20.50	-13	PASS
	2601.5	-24.91	-24.89	0.006	-21.90	-13	PASS
	2602.5	-26.34	-26.41	0.005	-23.40	-13	PASS
	2603	-27.22	-27.09	0.004	-24.10	-13	PASS
	2604	-28.55	-28.76	0.003	-25.60	-25	PASS
	2605	-29.87	-30.23	0.002	-27.00	-25	PASS
	2606	-31.26	-31.49	0.001	-28.40	-25	PASS
	2607	-32.53	-32.66	0.001	-29.60	-25	PASS

NOTE:

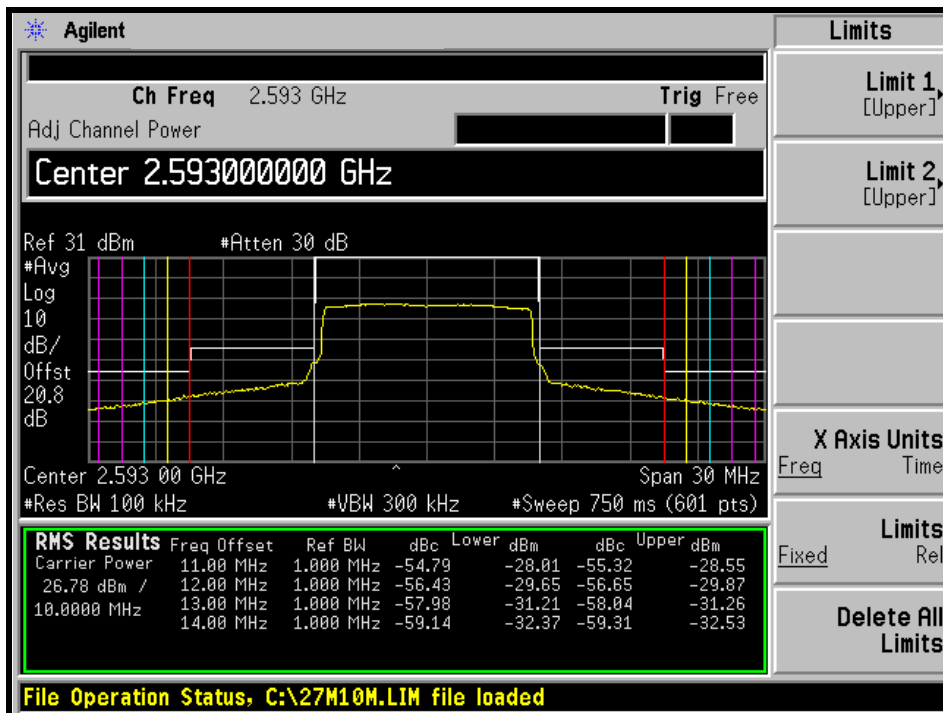
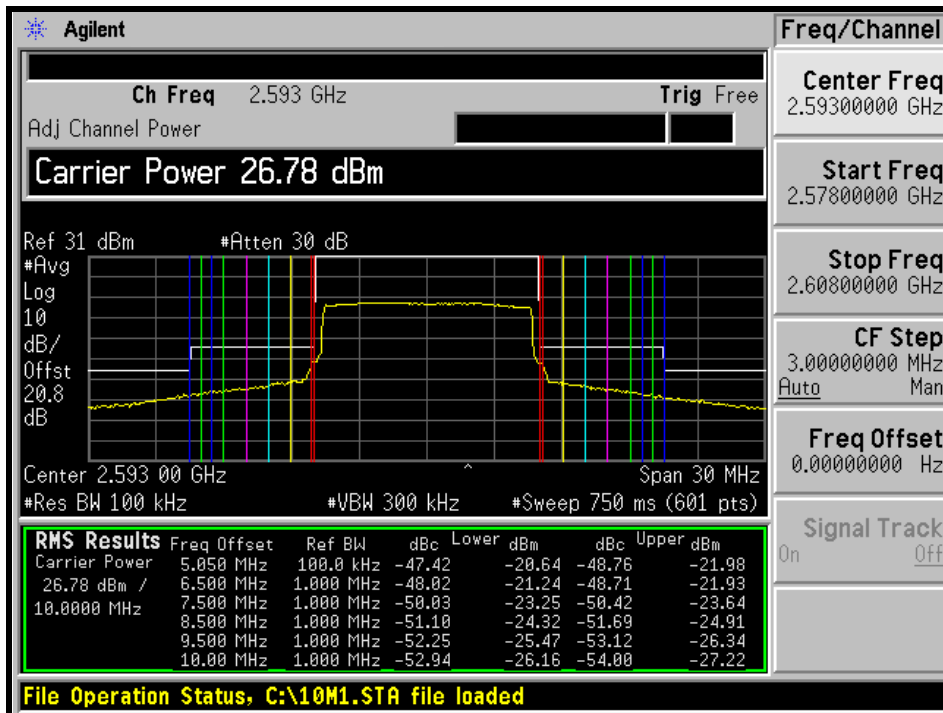
Measure conducted emissions of at each antenna port and add the emissions in linear power units. Emission limits apply to the total of emissions from all outputs.



A D T

CHAIN 0

MIDDLE CHANNEL

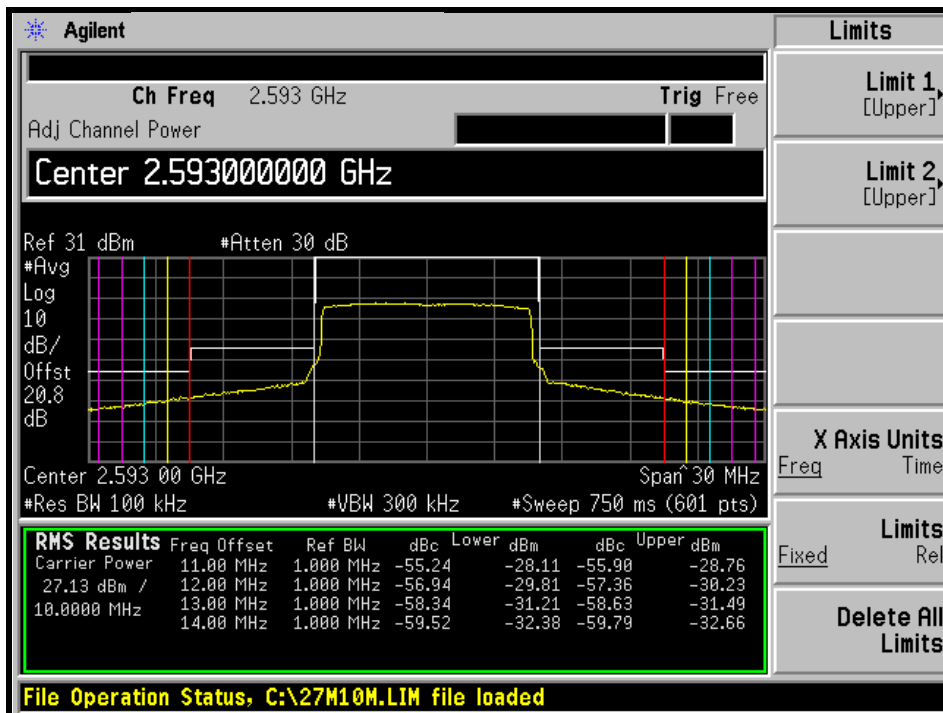
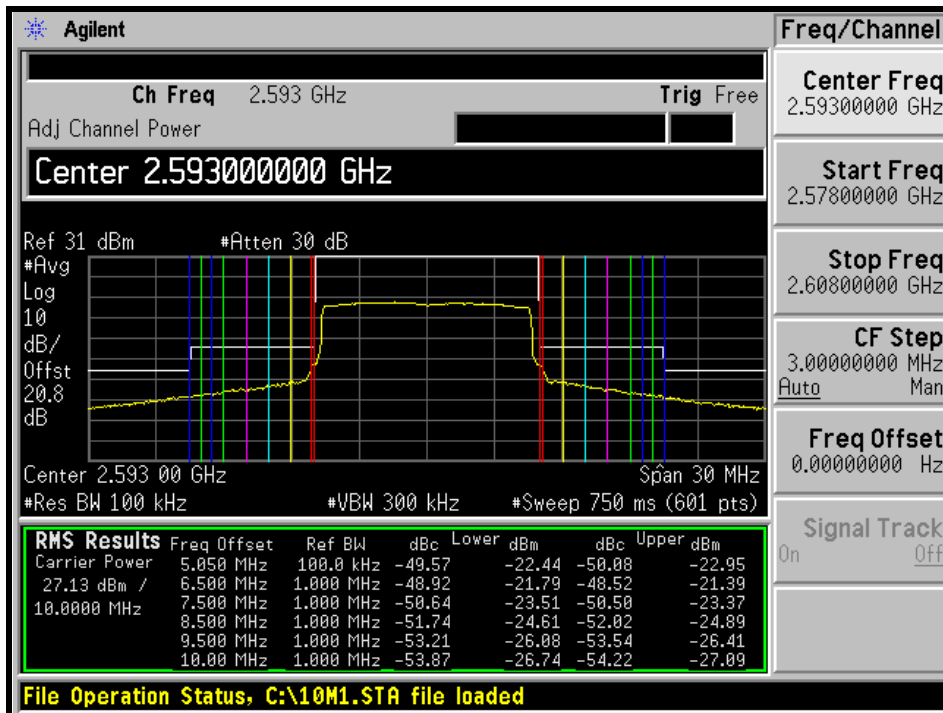




A D T

CHAIN 1

MIDDLE CHANNEL





A D T

HIGH CHANNEL-LEFT

CHANNEL	CHANNEL FREQUENCY (MHz)	EMISSION OF AT EACH ANTENNA PORT (dBm)		TOTAL EMISSION (mW)	TOTAL EMISSION (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)				
2685	2679.95	-20.41	-22.56	0.015	-18.30	-13	PASS
	2678.5	-21.50	-21.64	0.014	-18.60	-13	PASS
	2677.5	-24.04	-23.79	0.008	-20.90	-13	PASS
	2676.5	-26.04	-25.90	0.005	-23.00	-13	PASS
	2675.5	-27.75	-27.79	0.003	-24.80	-13	PASS
	2675	-28.53	-28.63	0.003	-25.60	-13	PASS
	2674	-31.33	-30.76	0.002	-28.00	-25	PASS
	2673	-32.66	-32.10	0.001	-29.40	-25	PASS
	2672	-33.92	-33.62	0.001	-30.80	-25	PASS
	2671	-35.04	-34.57	0.001	-31.80	-25	PASS

NOTE:

Measure conducted emissions of at each antenna port and add the emissions in linear power units. Emission limits apply to the total of emissions from all outputs.



A D T

HIGH CHANNEL-RIGHT

CHANNEL	CHANNEL FREQUENCY (MHz)	EMISSION OF AT EACH ANTENNA PORT (dBm)		TOTAL EMISSION (mW)	TOTAL EMISSION (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)				
2685	2690.05	-21.17	-23.00	0.013	-19.00	-13	PASS
	2691.5	-21.21	-21.13	0.015	-18.20	-13	PASS
	2692.5	-23.29	-23.47	0.009	-20.40	-13	PASS
	2693.5	-24.86	-25.28	0.006	-22.10	-13	PASS
	2694.5	-26.76	-27.11	0.004	-23.90	-13	PASS
	2695	-27.72	-28.04	0.003	-24.90	-13	PASS
	2696	-30.34	-30.11	0.002	-27.20	-25	PASS
	2697	-31.98	-32.04	0.001	-29.00	-25	PASS
	2698	-33.53	-33.33	0.001	-30.40	-25	PASS
	2699	-34.68	-34.82	0.001	-31.70	-25	PASS

NOTE:

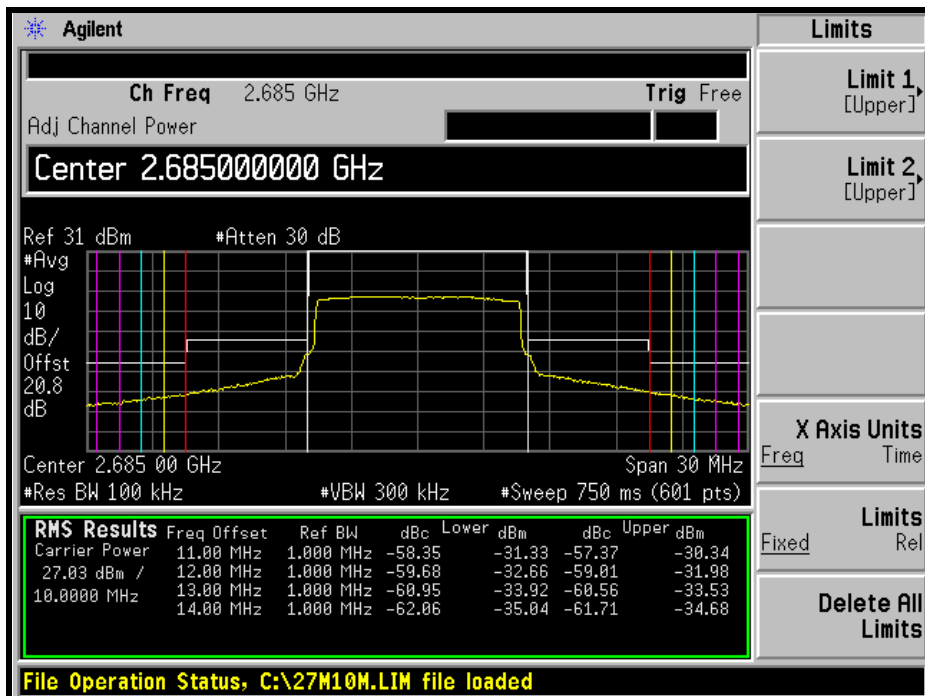
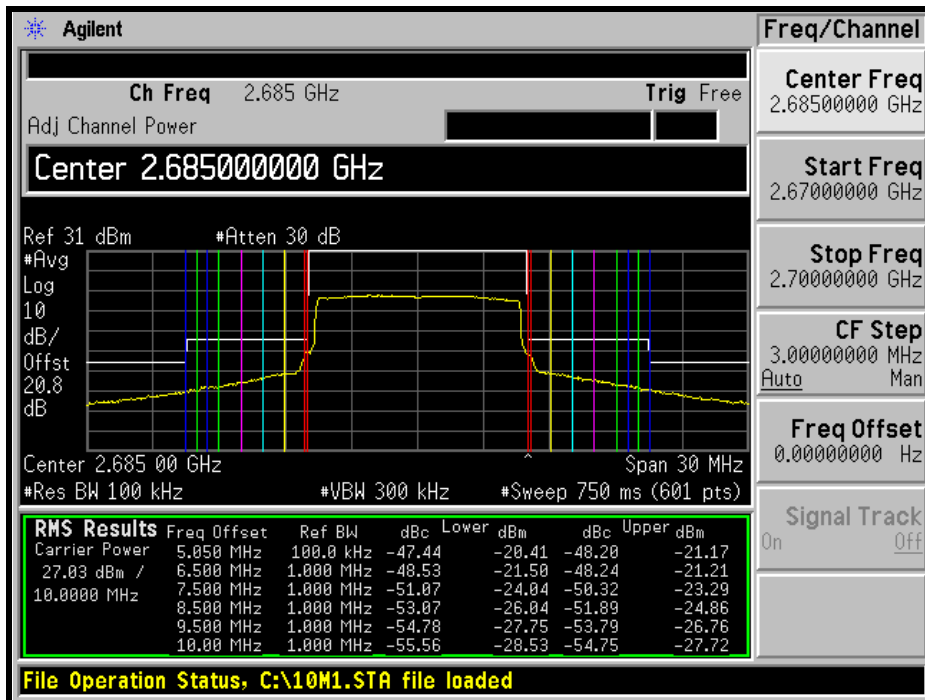
Measure conducted emissions of at each antenna port and add the emissions in linear power units. Emission limits apply to the total of emissions from all outputs.



A D T

CHAIN 0

HIGH CHANNEL

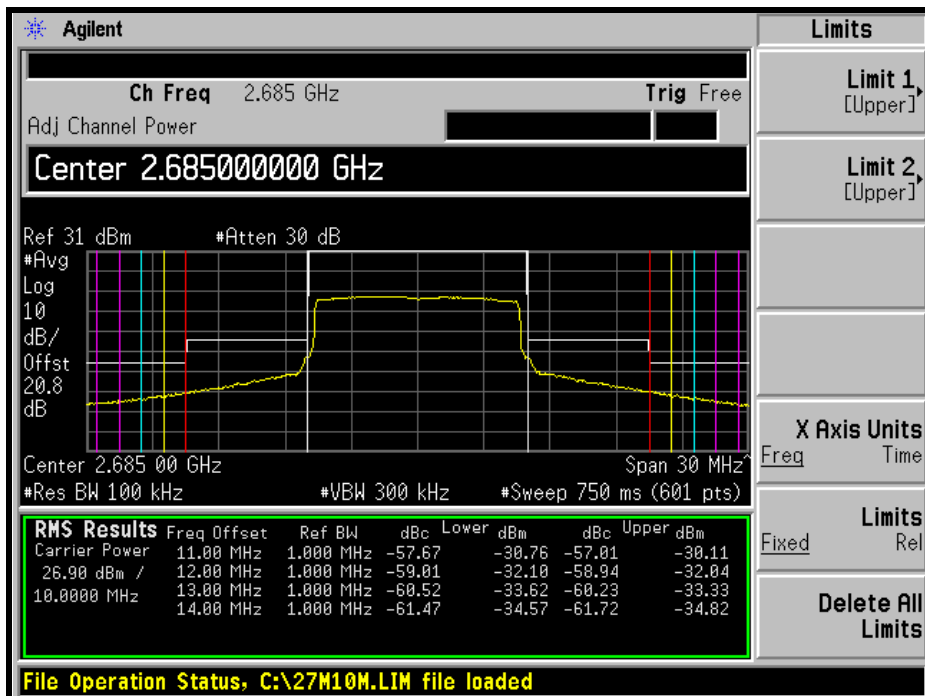
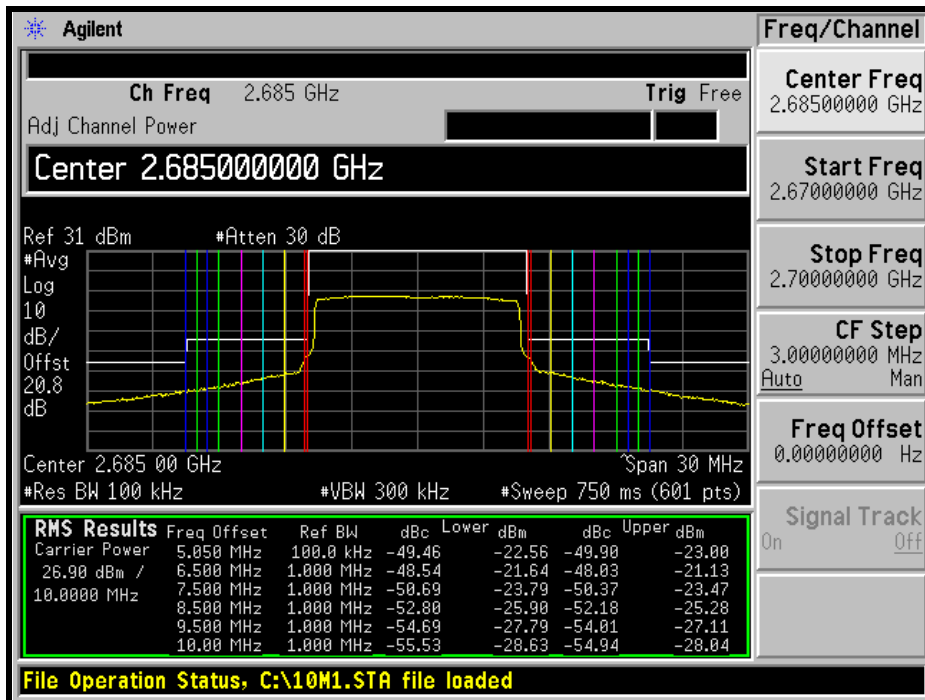




A D T

CHAIN 1

HIGH CHANNEL





4.5 CONDUCTED SPURIOUS EMISSIONS

4.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

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

4.5.2 TEST INSTRUMENTS

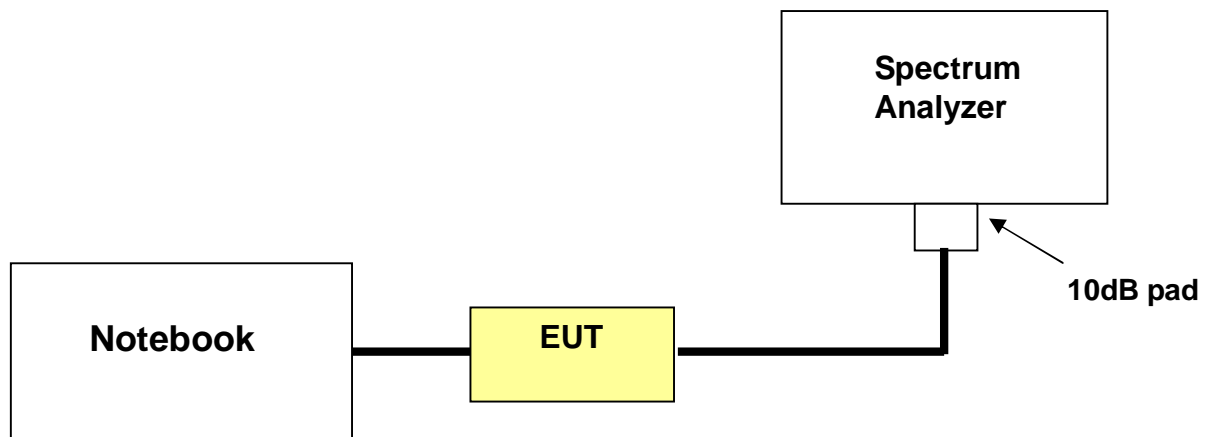
DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Agilent Spectrum Analyzer	E4446A	MY46180622	May 12, 2010	May 11, 2011
HUBER+SUHNER	SUCOFLEX104	222684/4	Aug. 14, 2010	Aug. 13, 2011
JFW 10dB attenuation	50HF-010-SMA	NA	NA	NA

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

4.5.3 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 27GHz, it shall be connected to the 10dB pad 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

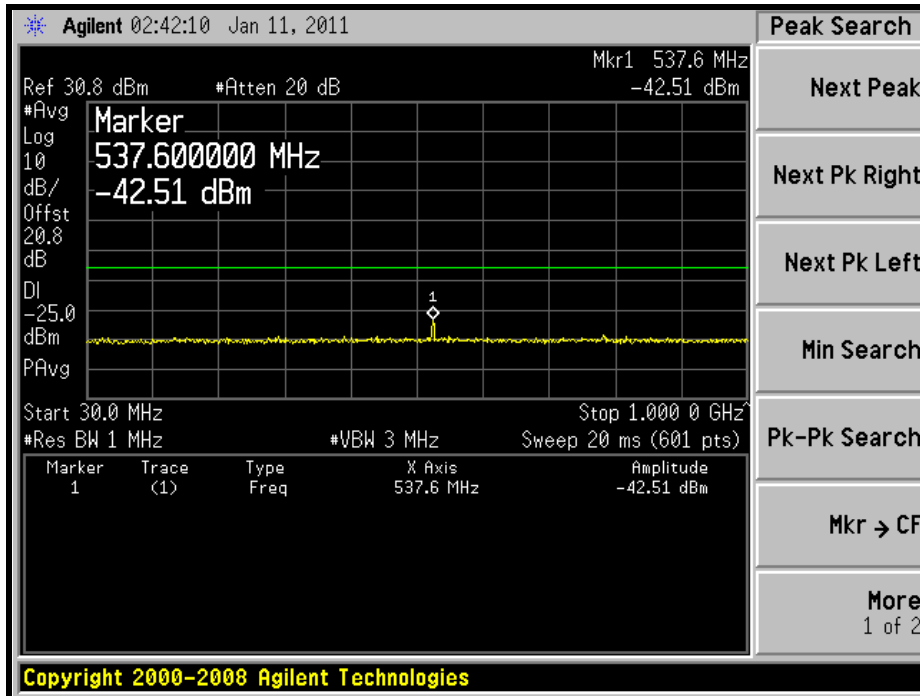


A D T

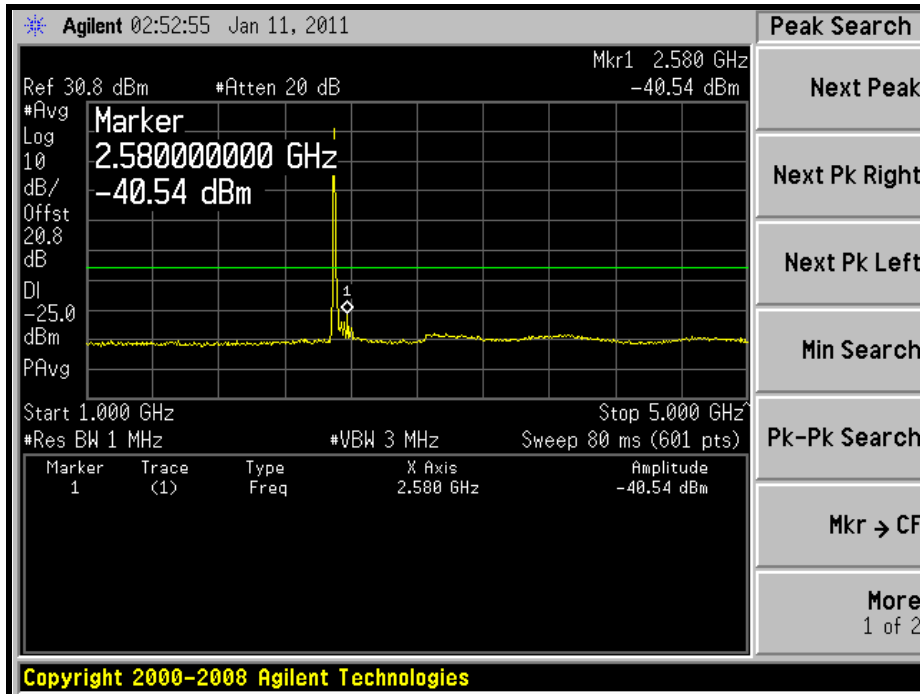
4.5.6 TEST RESULTS(MODE 1)

CHANNEL BANDWIDTH: 5MHz

LOW CHANNEL: 30MHz ~ 1GHz:



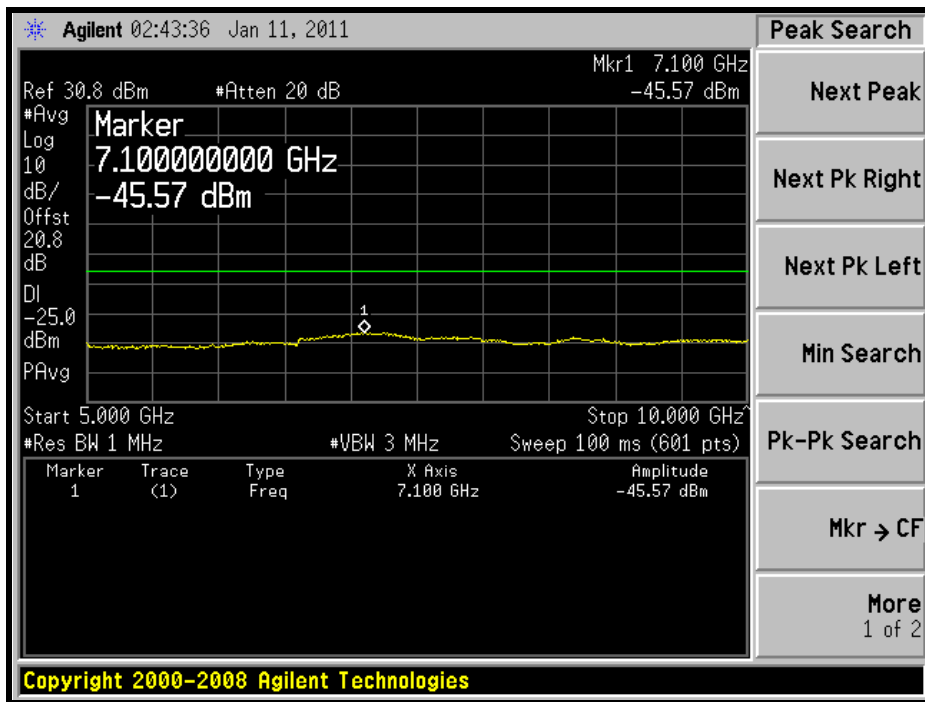
1GHz ~ 5GHz:



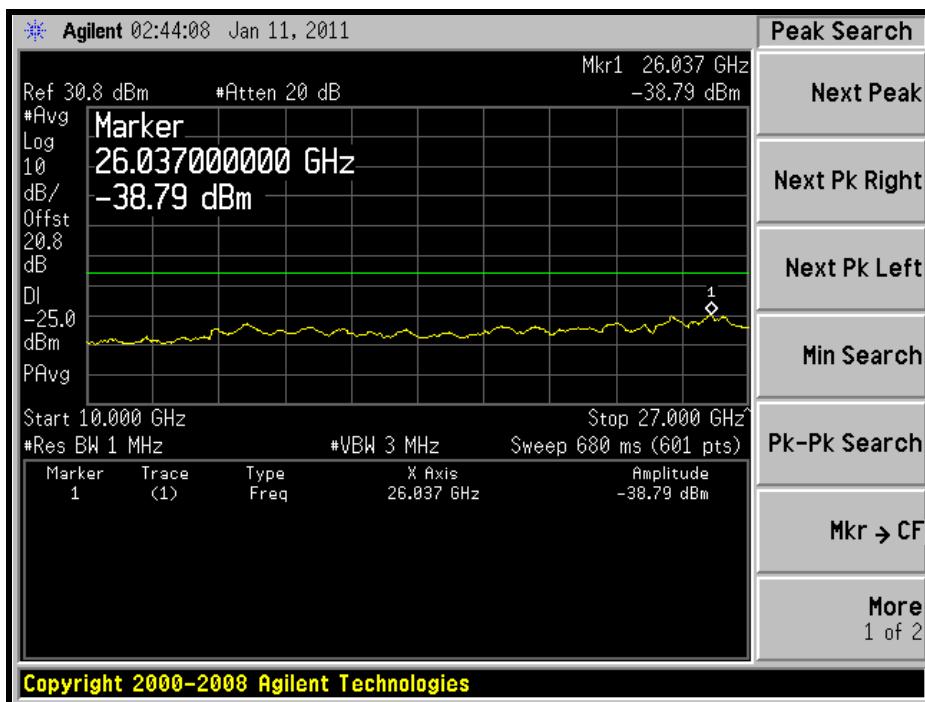


A D T

5GHz ~ 10GHz:



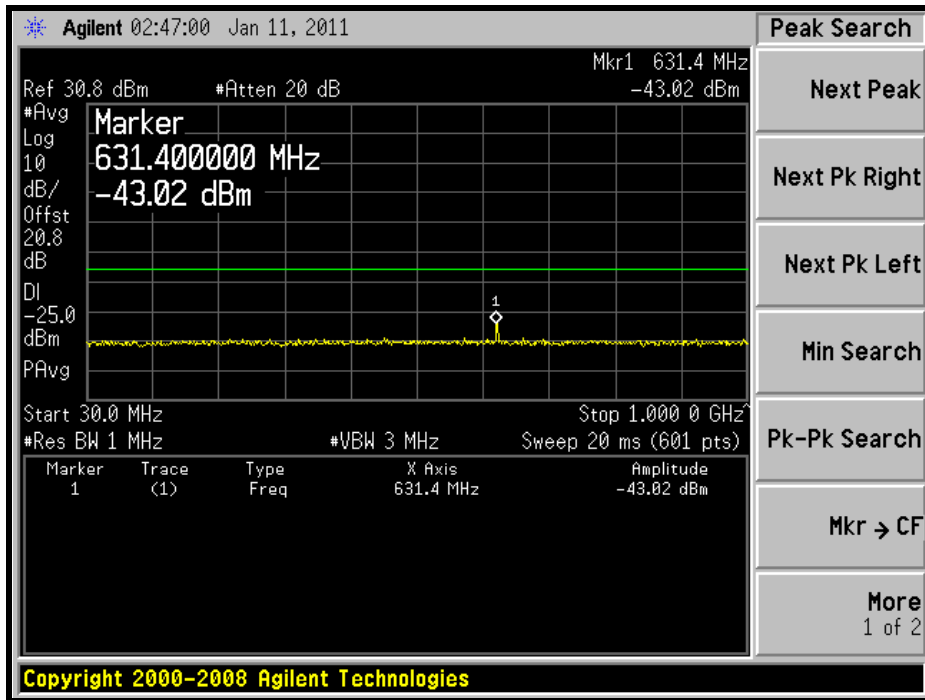
10GHz ~ 27GHz:



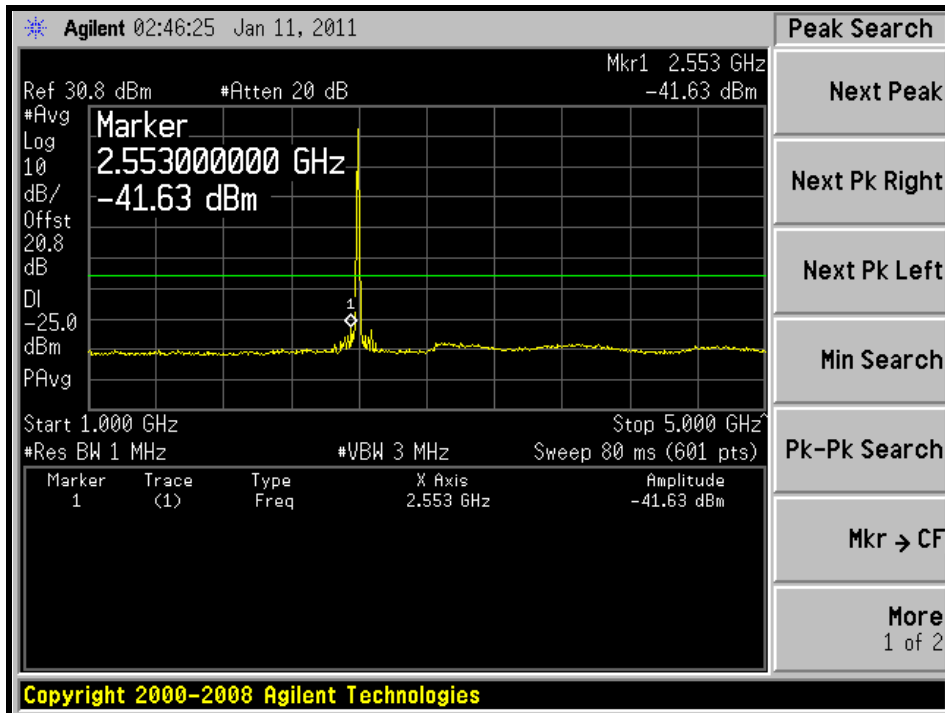


A D T

MIDDLE CHANNEL: 30MHz ~ 1GHz:



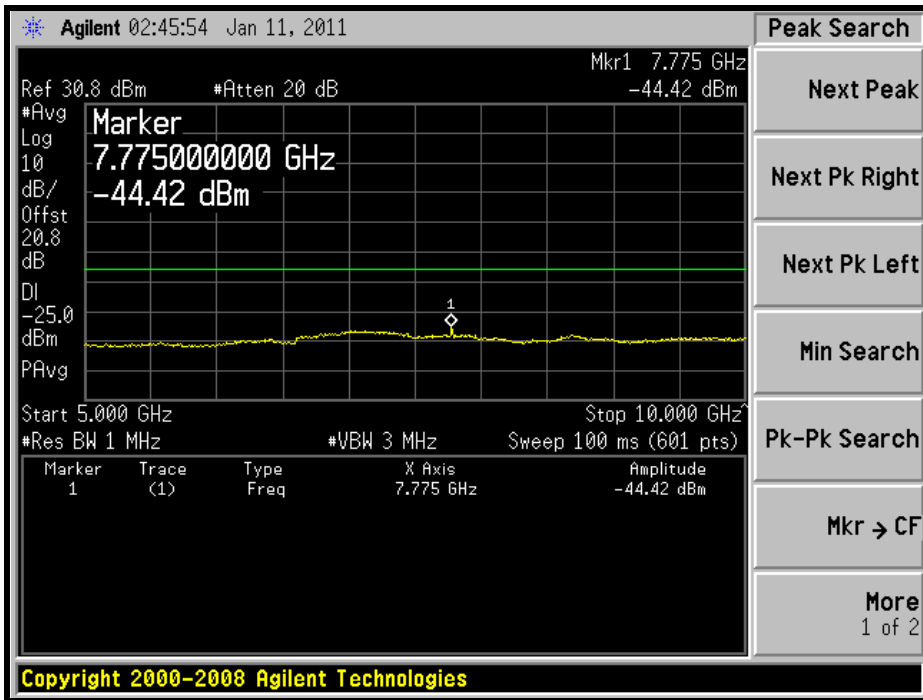
1GHz ~ 5GHz:



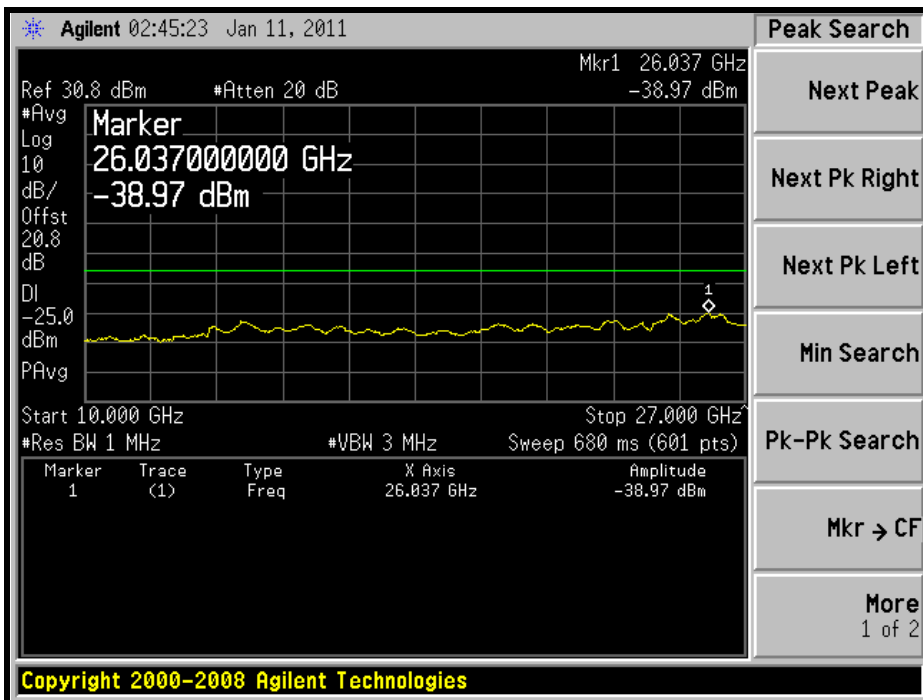


A D T

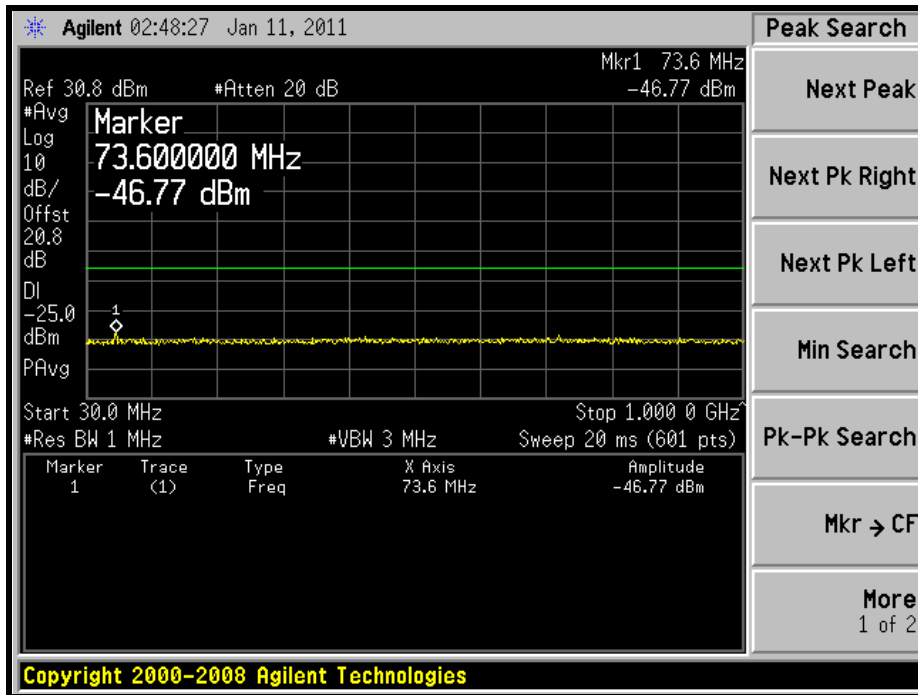
5GHz ~ 10GHz:



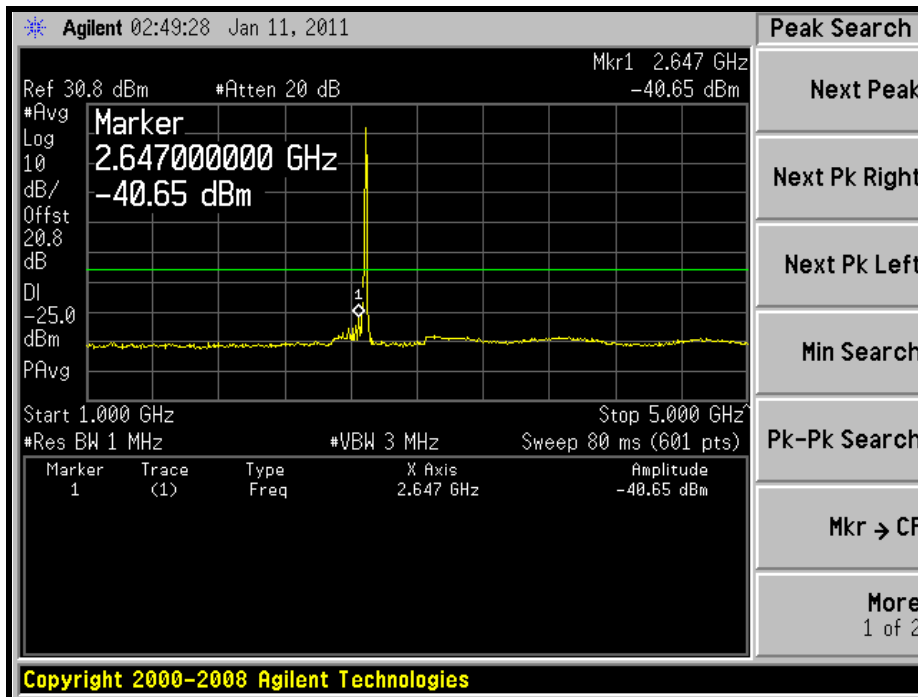
10GHz ~ 27GHz:



HIGH CHANNEL: 30MHz ~ 1GHz:



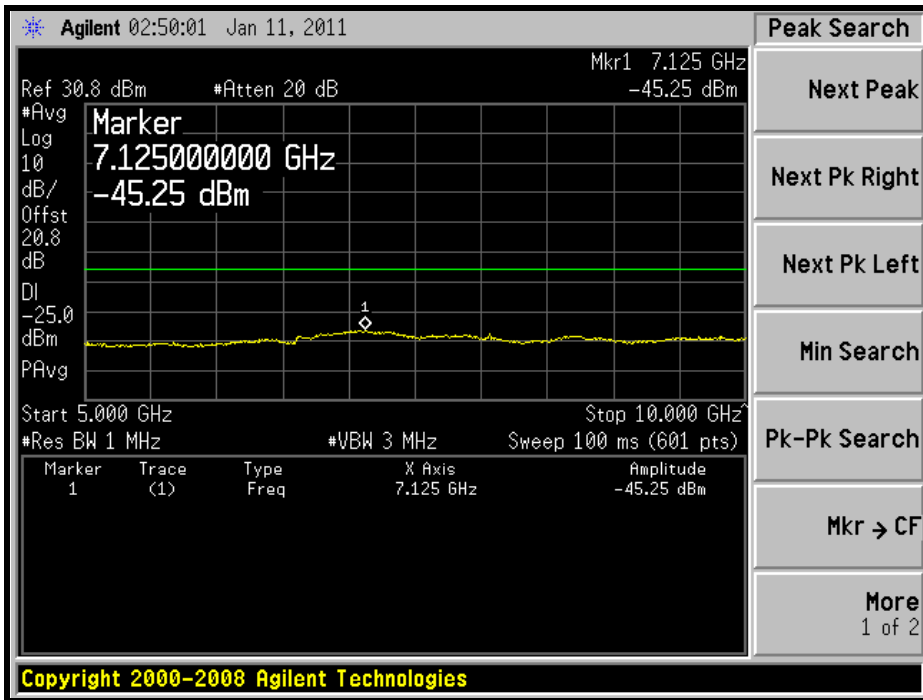
1GHz ~ 5GHz:



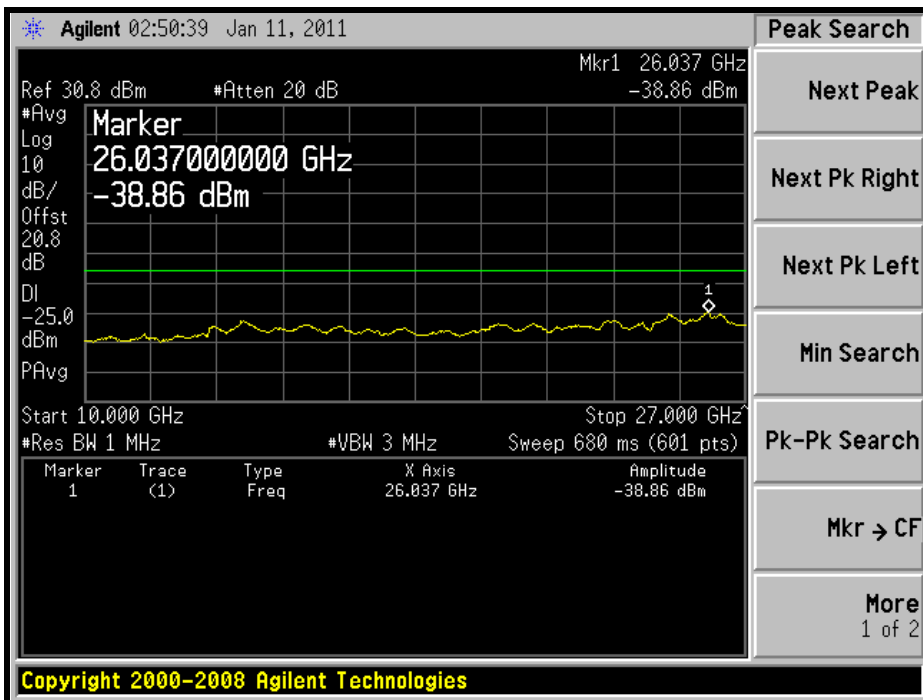


A D T

5GHz ~ 10GHz:



10GHz ~ 27GHz:



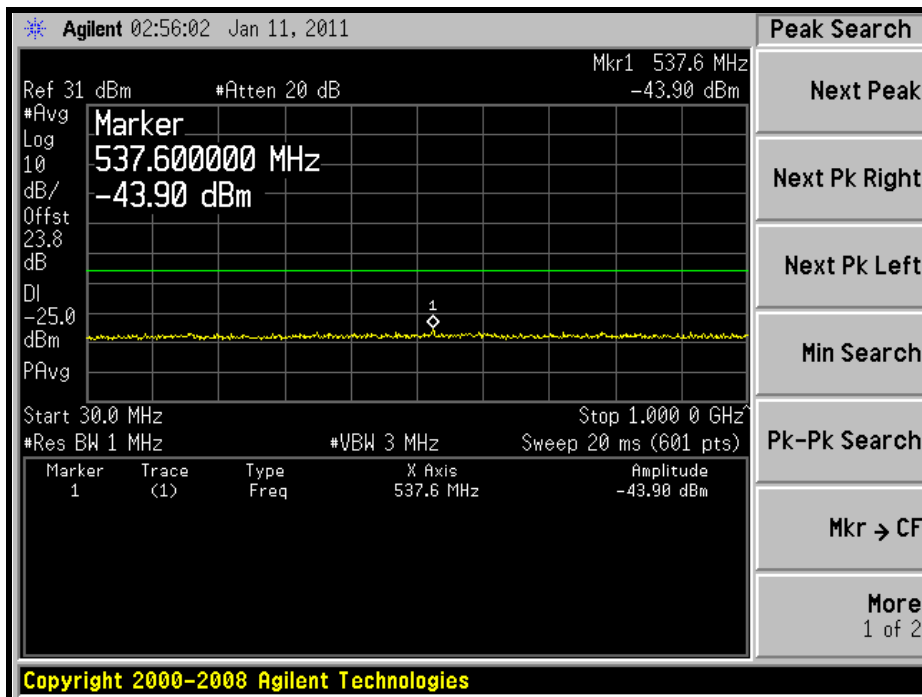


A D T

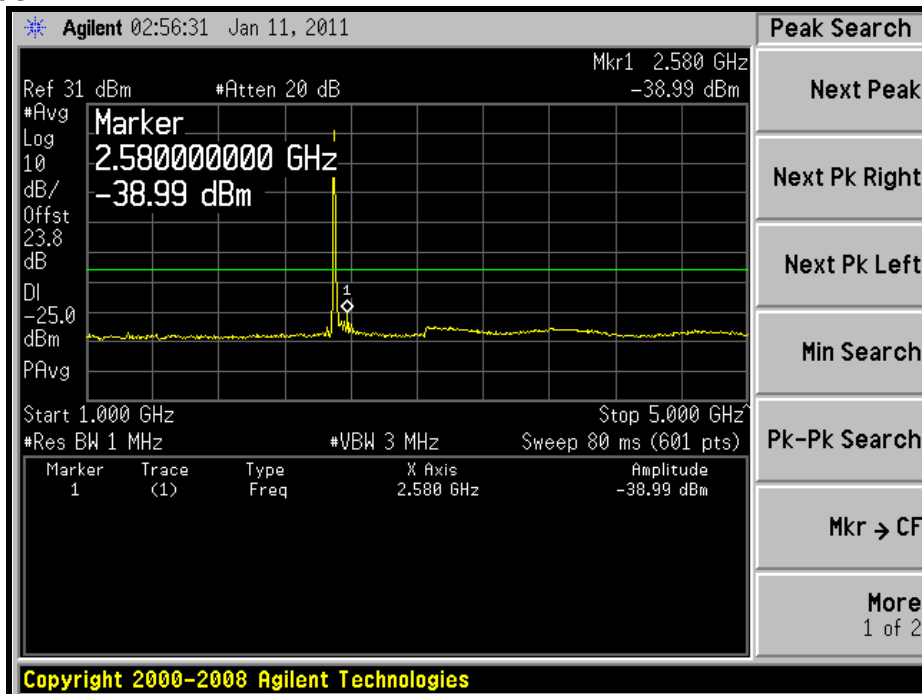
4.5.7 TEST RESULTS(MODE 2)

CHANNEL BANDWIDTH: 5MHz

LOW CHANNEL: 30MHz ~ 1GHz:



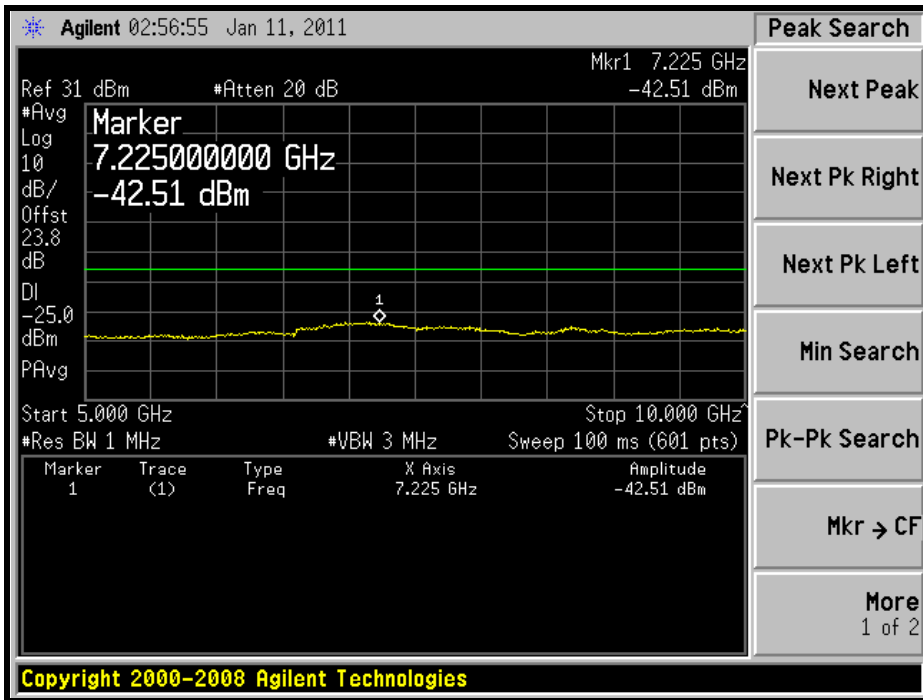
1GHz ~ 5GHz:



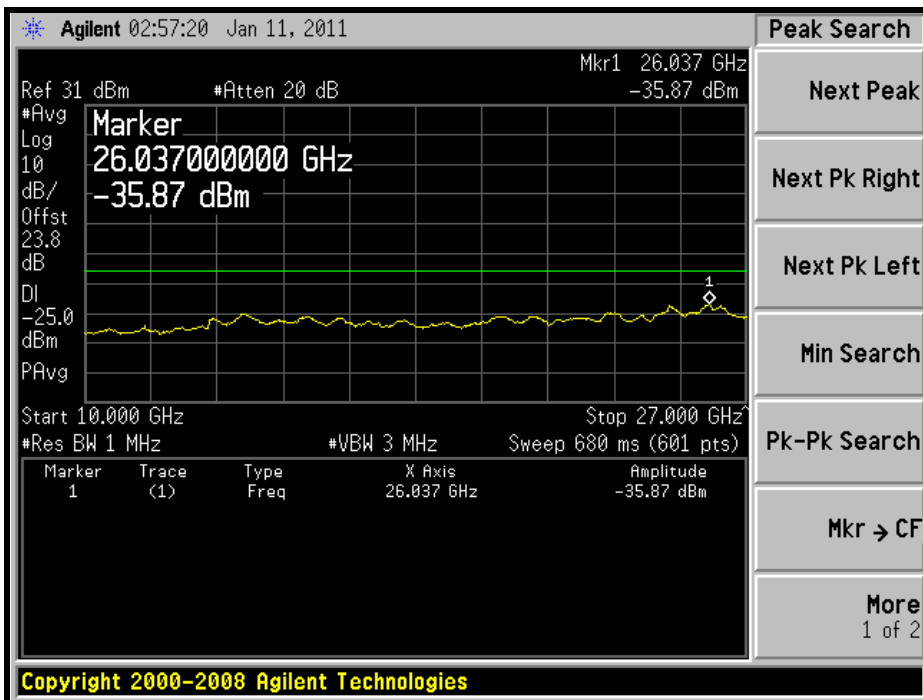


A D T

5GHz ~ 10GHz:



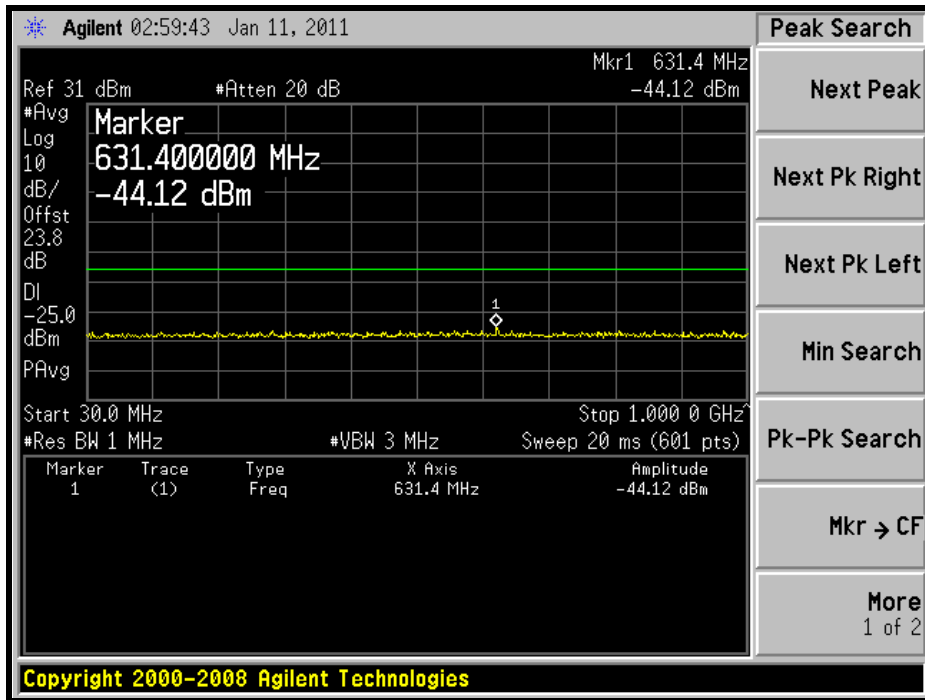
10GHz ~ 27GHz:



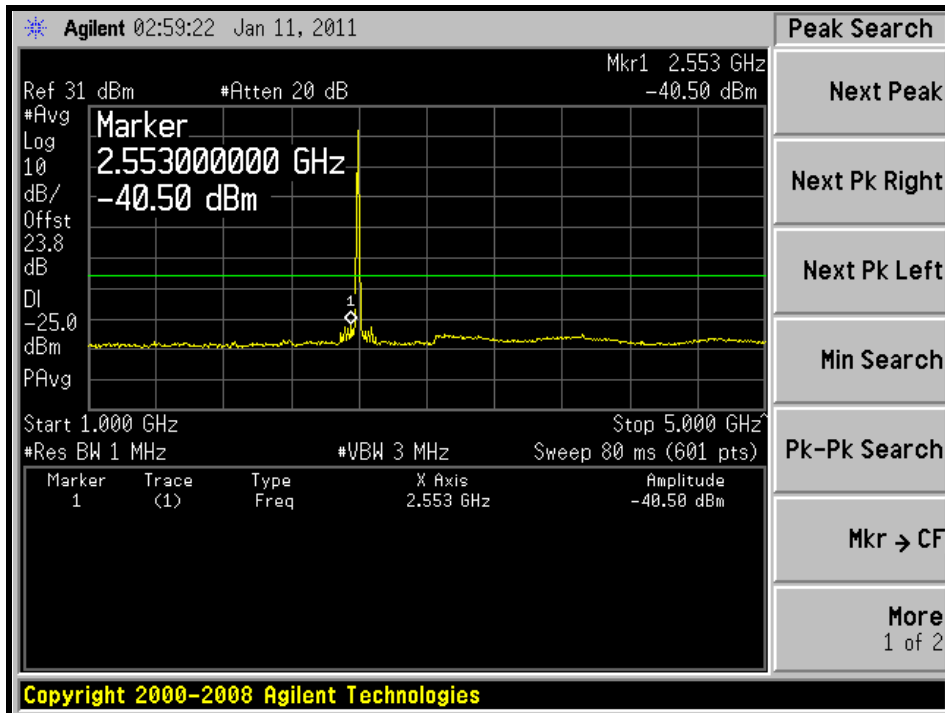


A D T

MIDDLE CHANNEL: 30MHz ~ 1GHz:



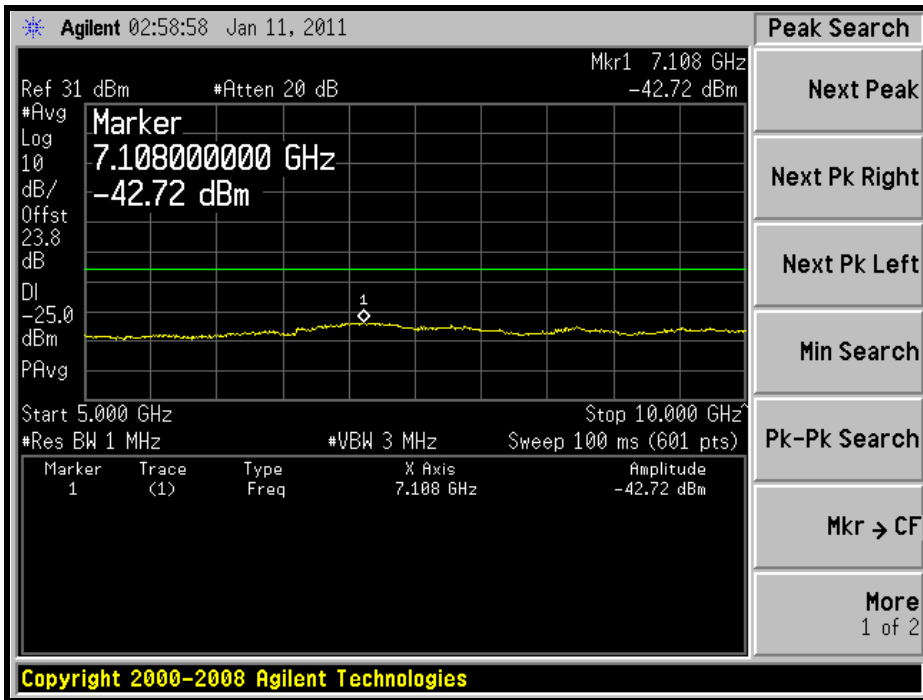
1GHz ~ 5GHz:



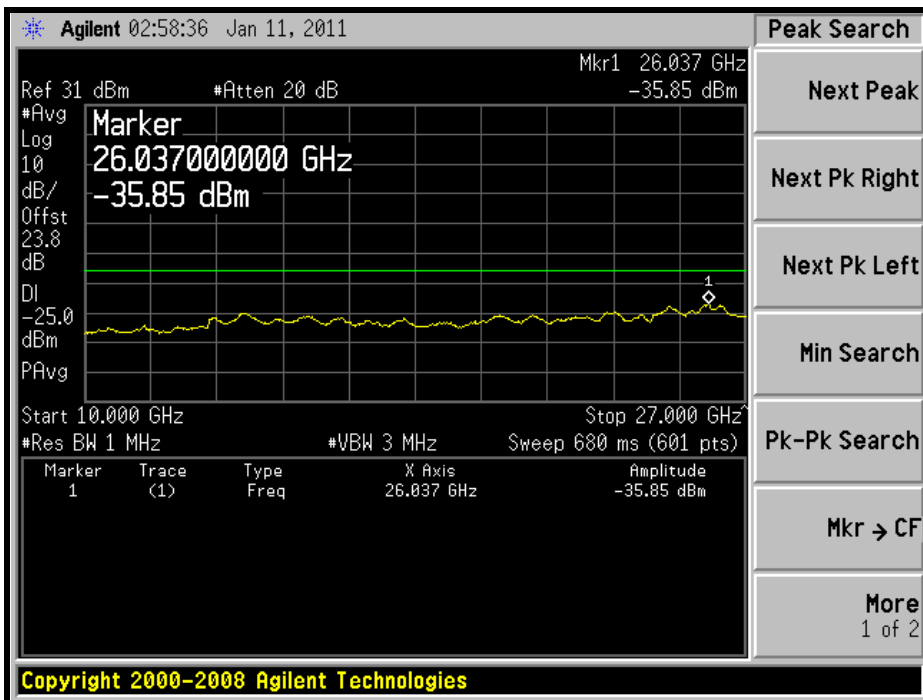


A D T

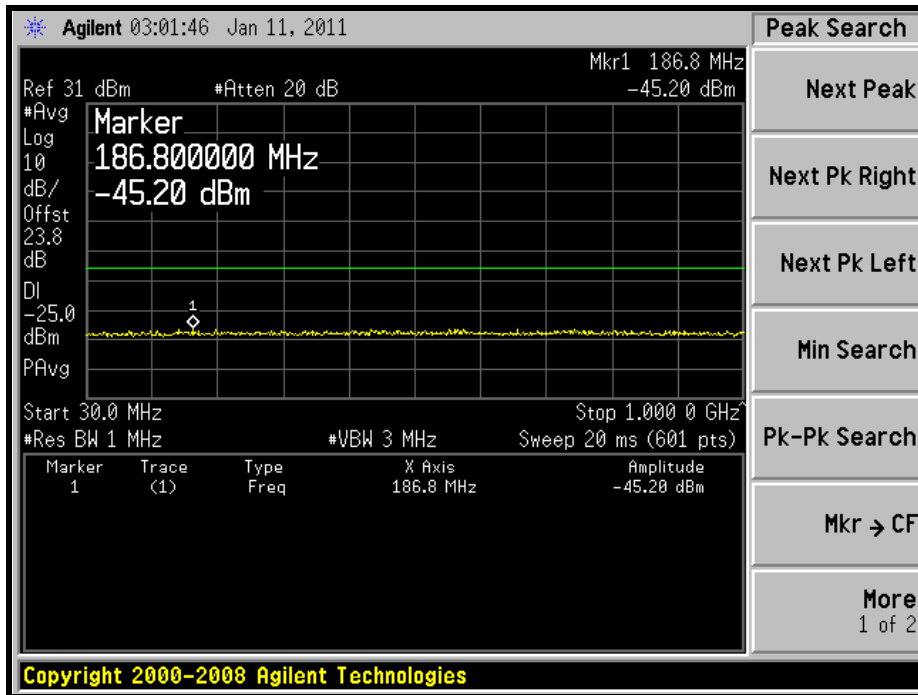
5GHz ~ 10GHz:



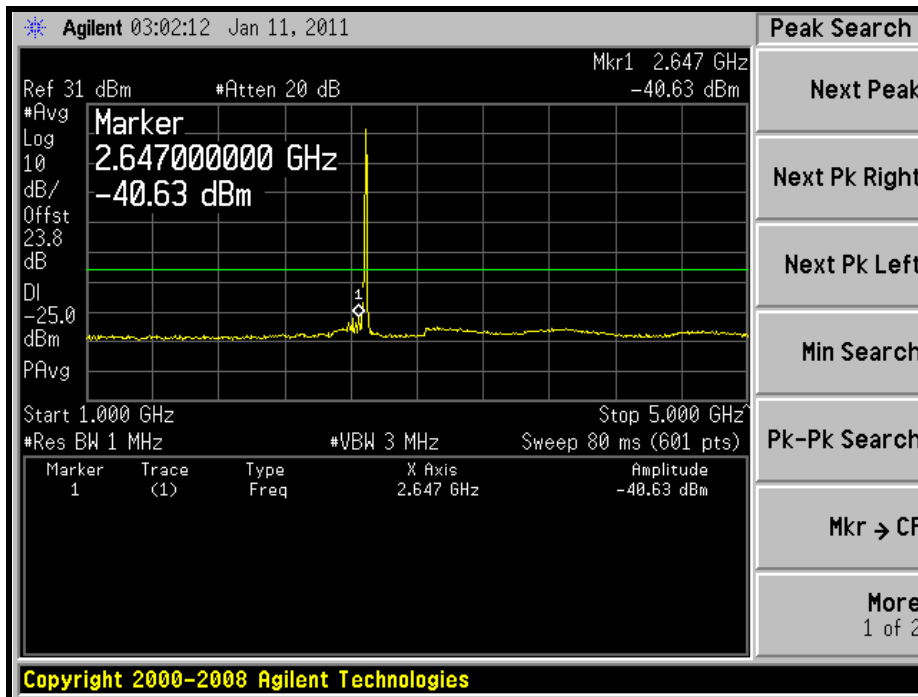
10GHz ~ 27GHz:



HIGH CHANNEL: 30MHz ~ 1GHz:



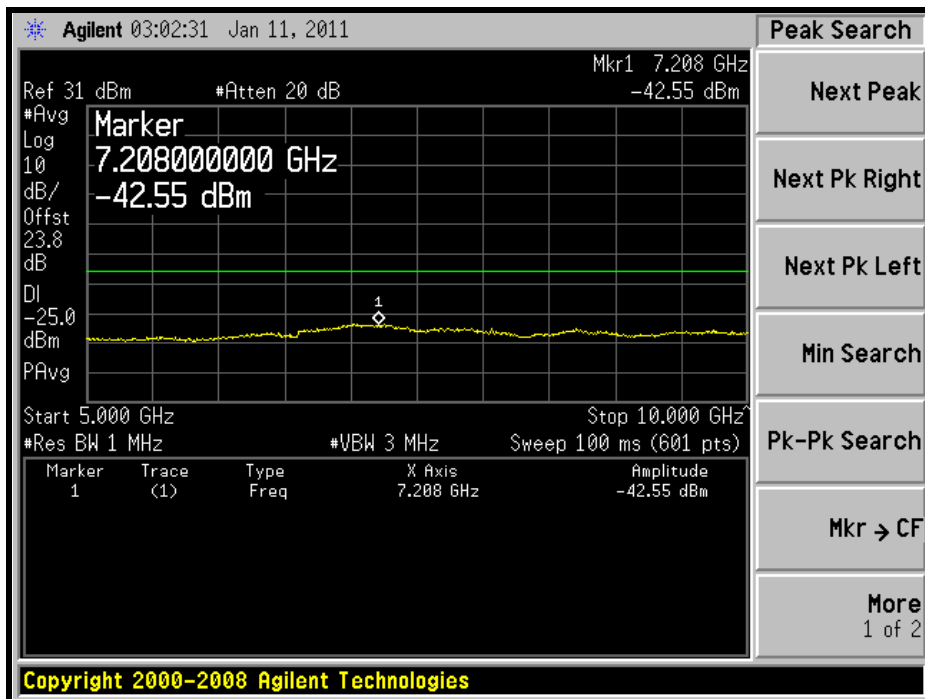
1GHz ~ 5GHz:



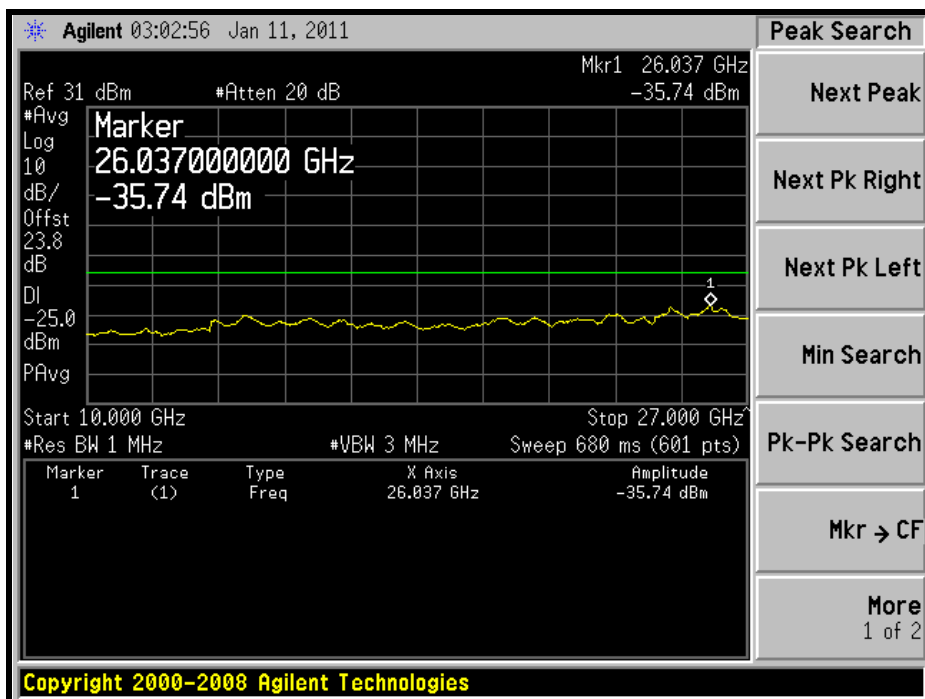


A D T

5GHz ~ 10GHz:



10GHz ~ 27GHz:



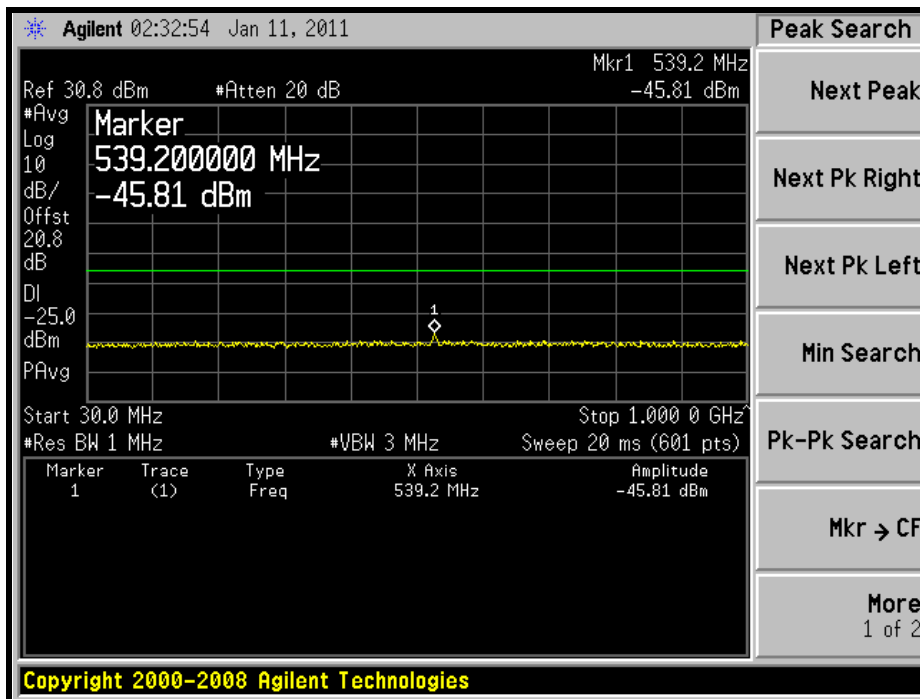


A D T

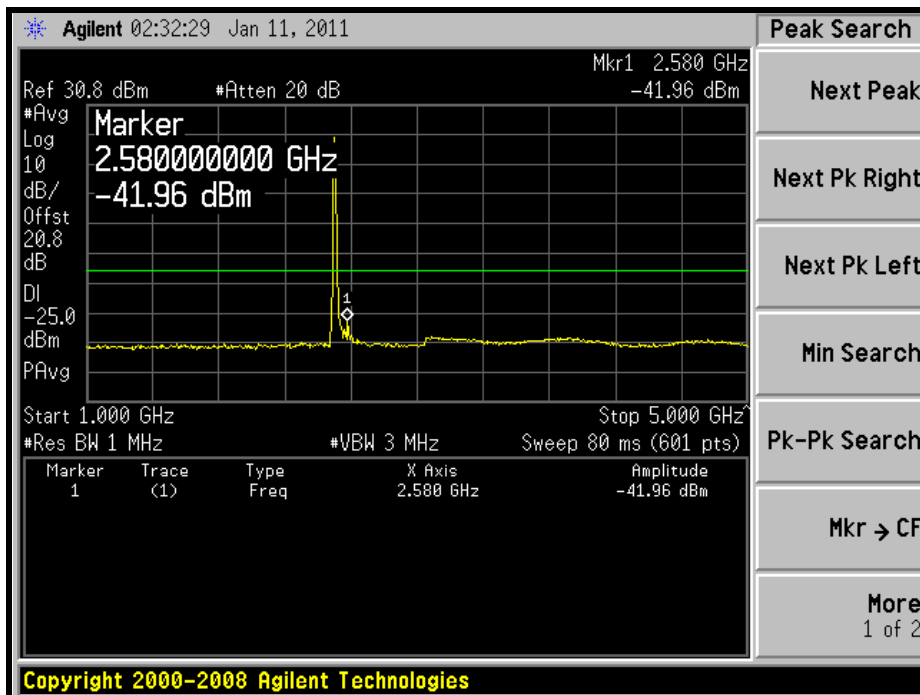
4.5.8 TEST RESULTS(MODE 3)

CHANNEL BANDWIDTH: 10MHz

LOW CHANNEL: 30MHz ~ 1GHz:



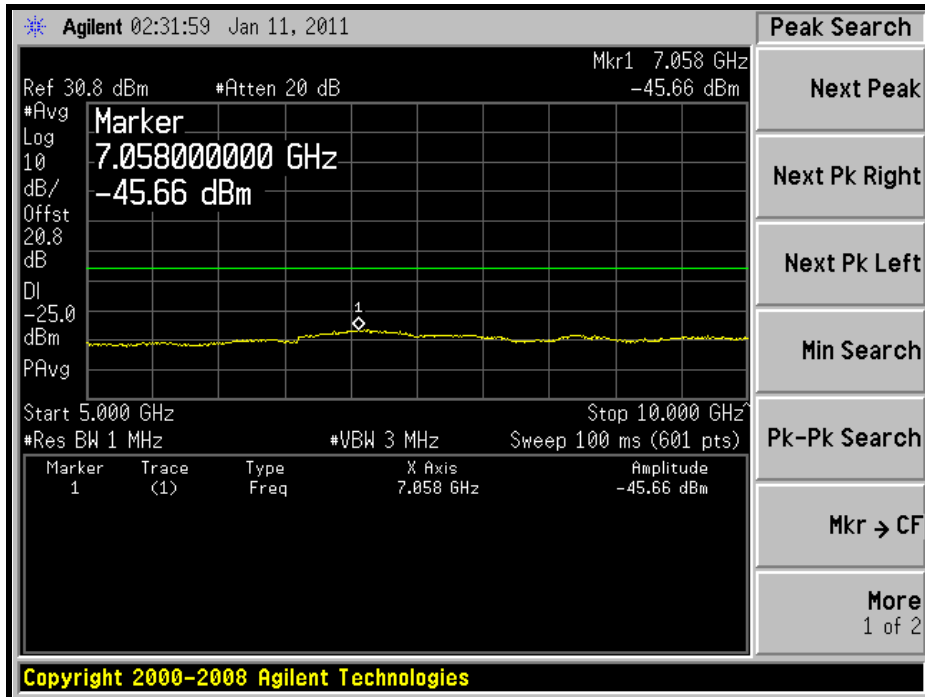
1GHz ~ 5GHz:



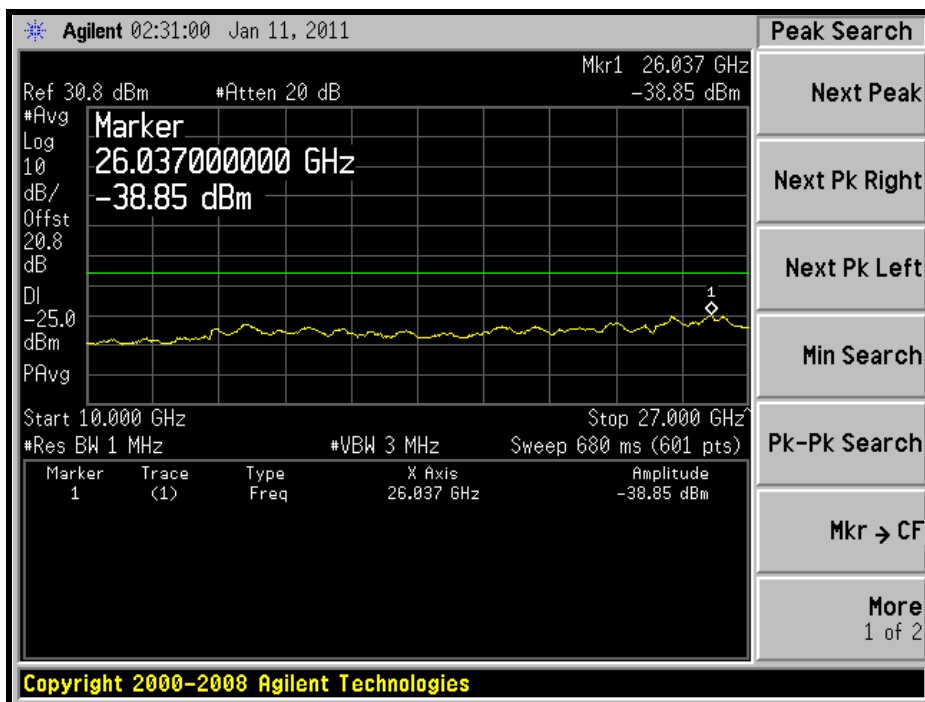


A D T

5GHz ~ 10GHz:



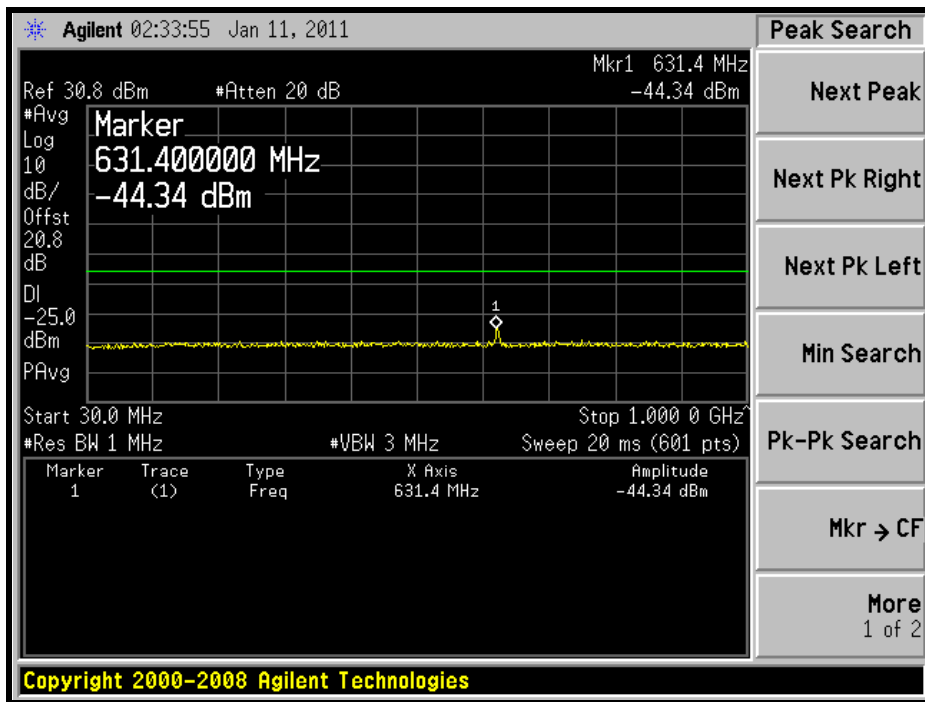
10GHz ~ 27GHz:



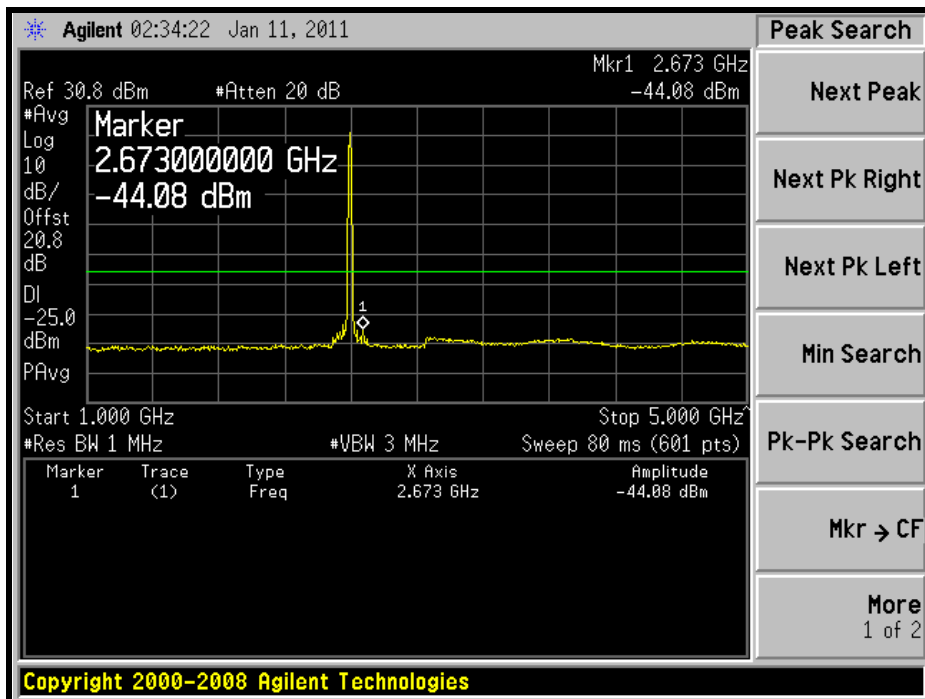


A D T

MIDDLE CHANNEL: 30MHz ~ 1GHz:



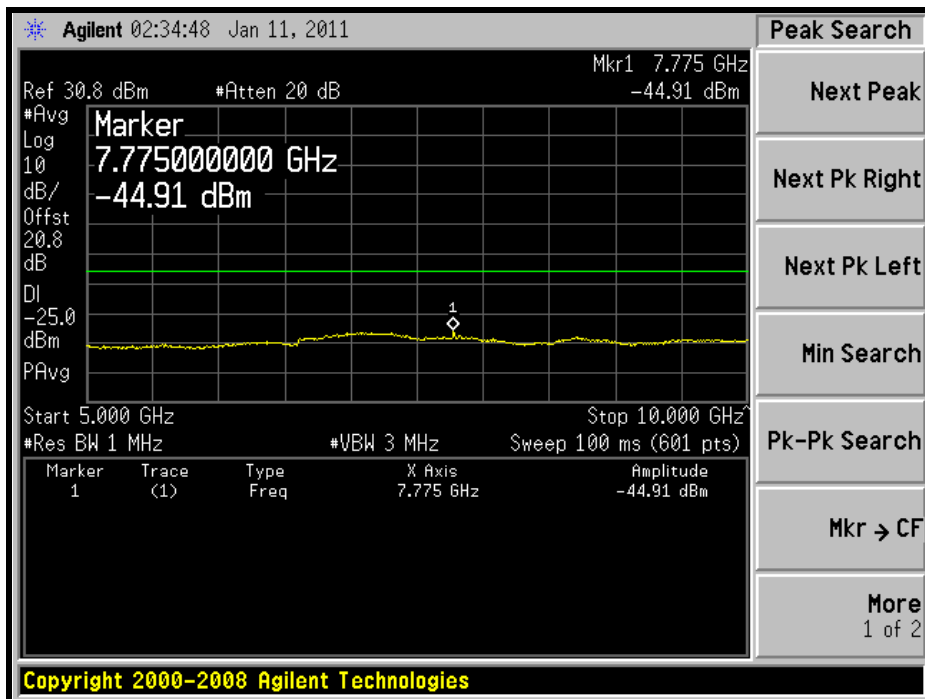
1GHz ~ 5GHz:



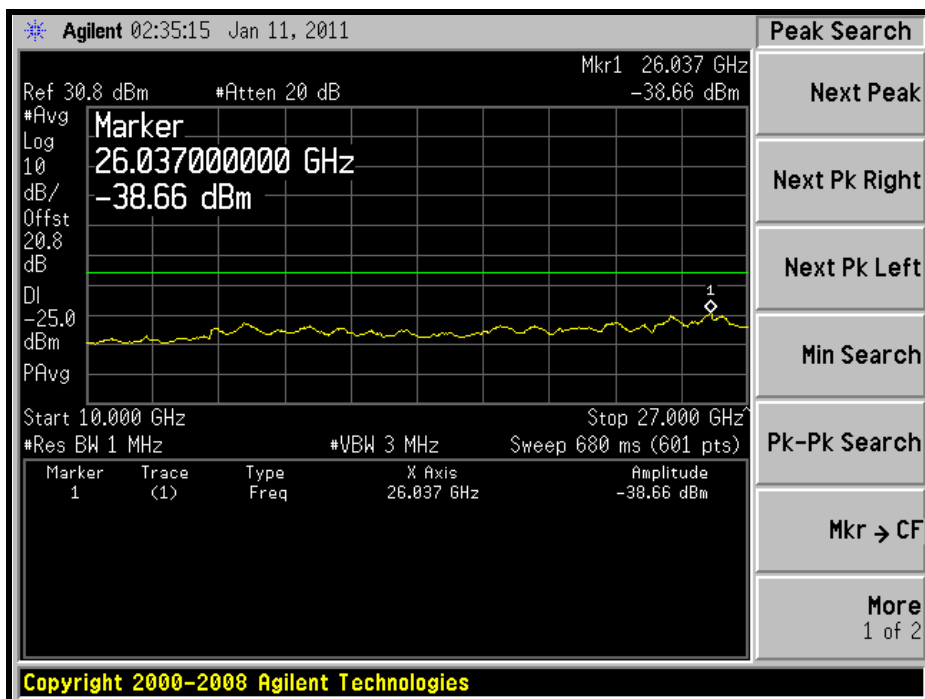


A D T

5GHz ~ 10GHz:



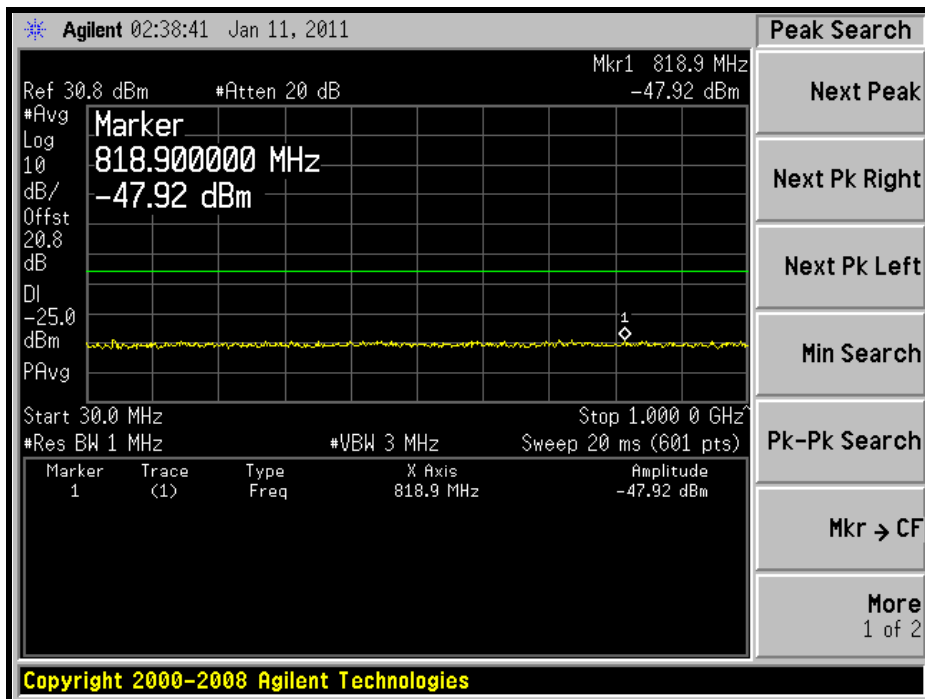
10GHz ~ 27GHz:



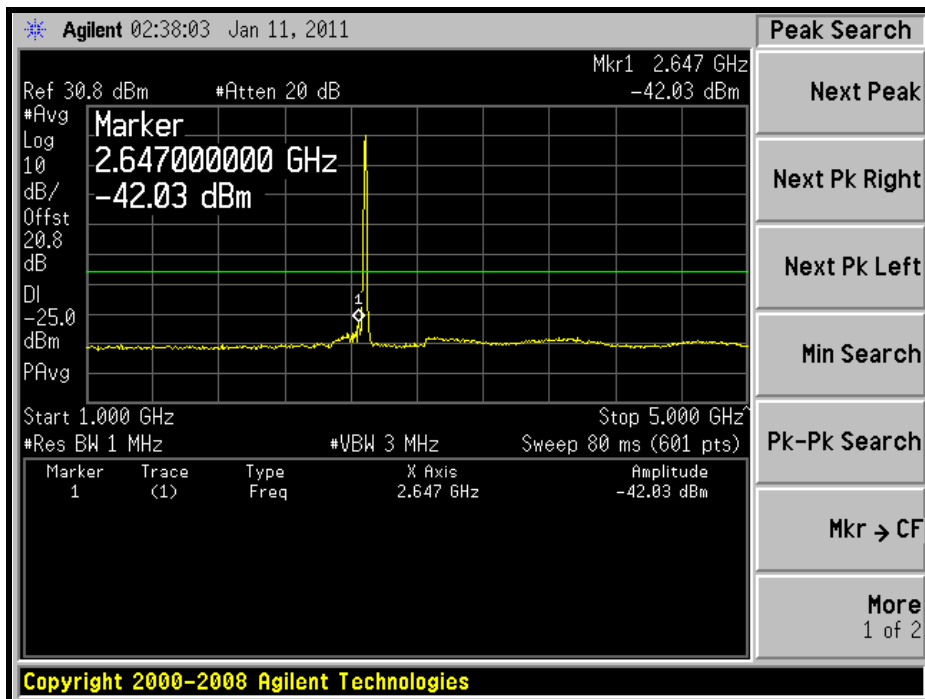


A D T

HIGH CHANNEL: 30MHz ~ 1GHz:



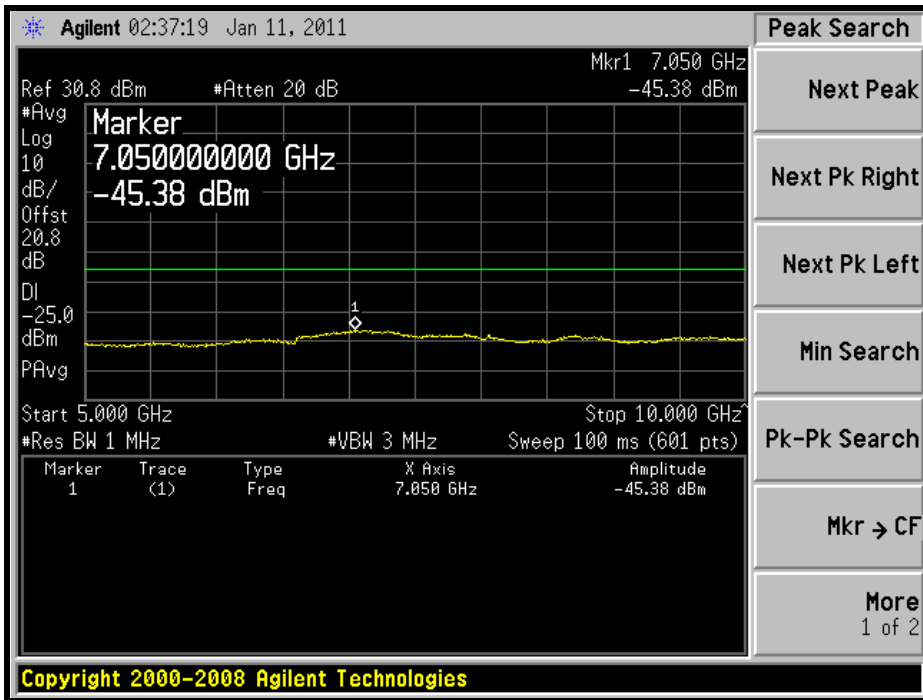
1GHz ~ 5GHz:



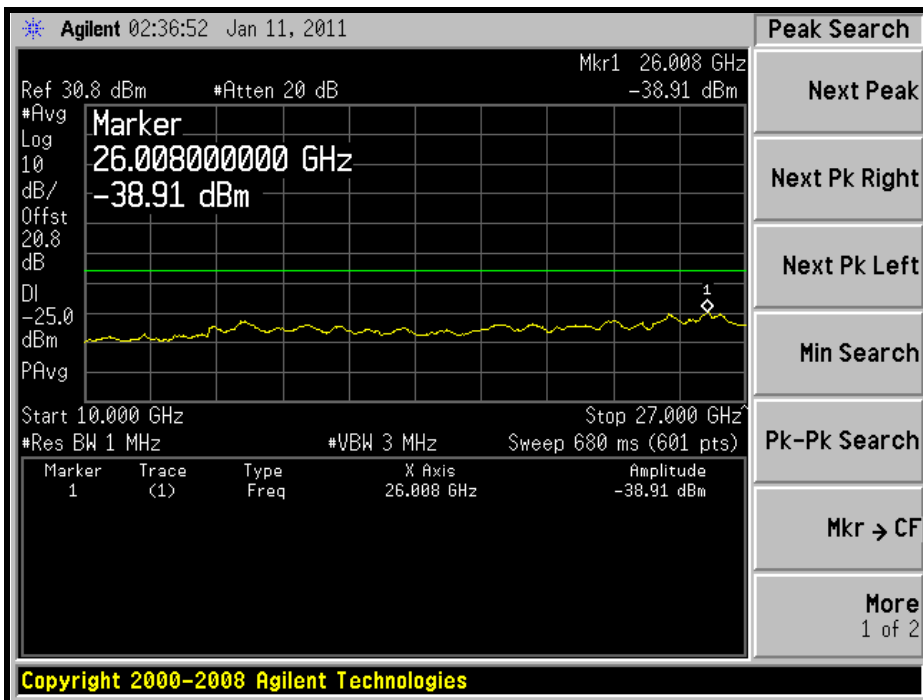


A D T

5GHz ~ 10GHz:



10GHz ~ 27GHz:



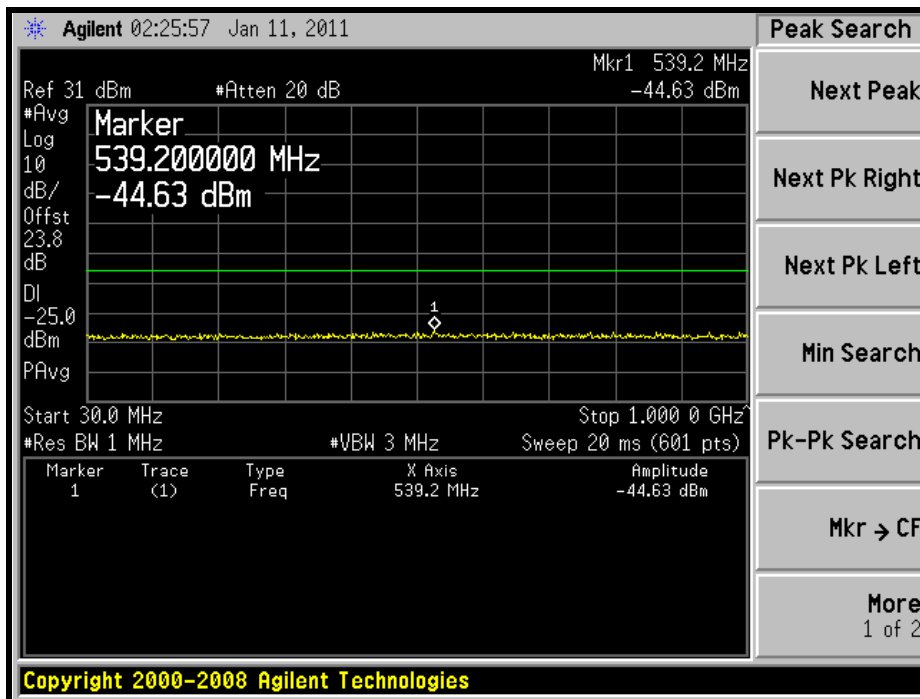


A D T

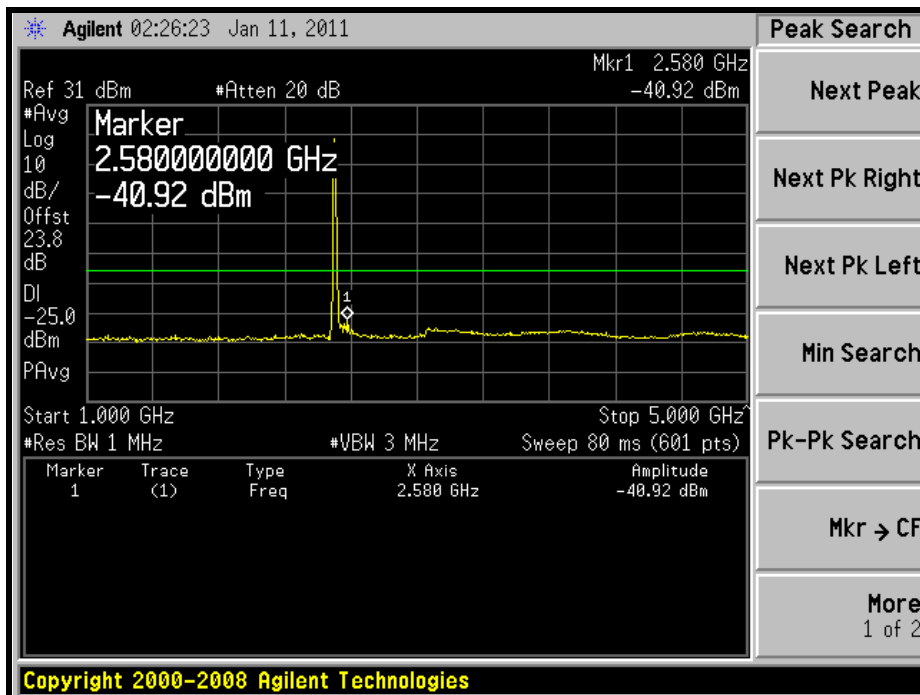
4.5.9 TEST RESULTS(MODE 4)

CHANNEL BANDWIDTH: 10MHz

LOW CHANNEL: 30MHz ~ 1GHz:



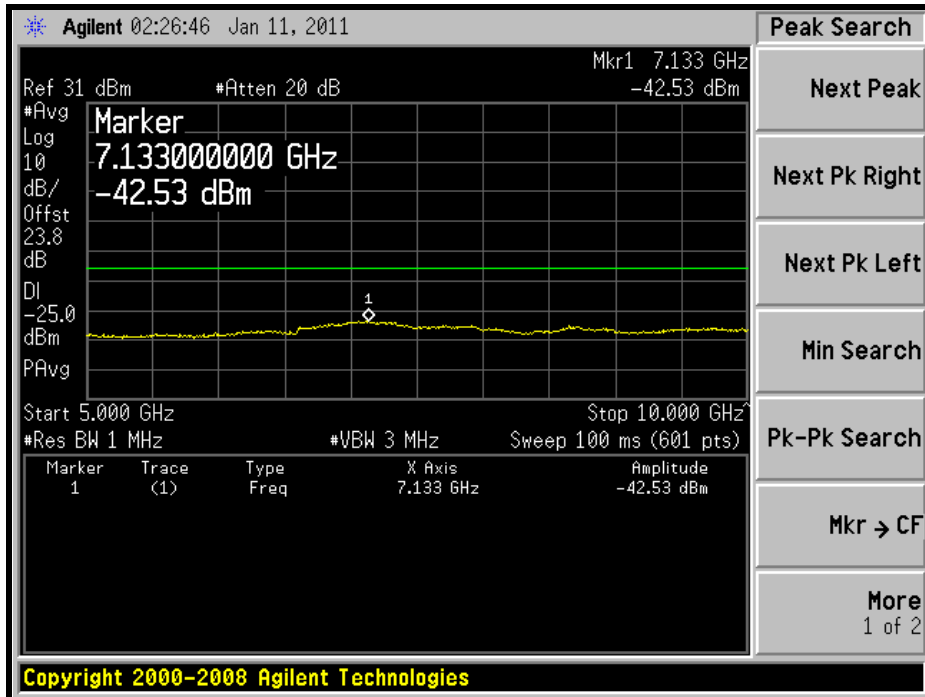
1GHz ~ 5GHz:



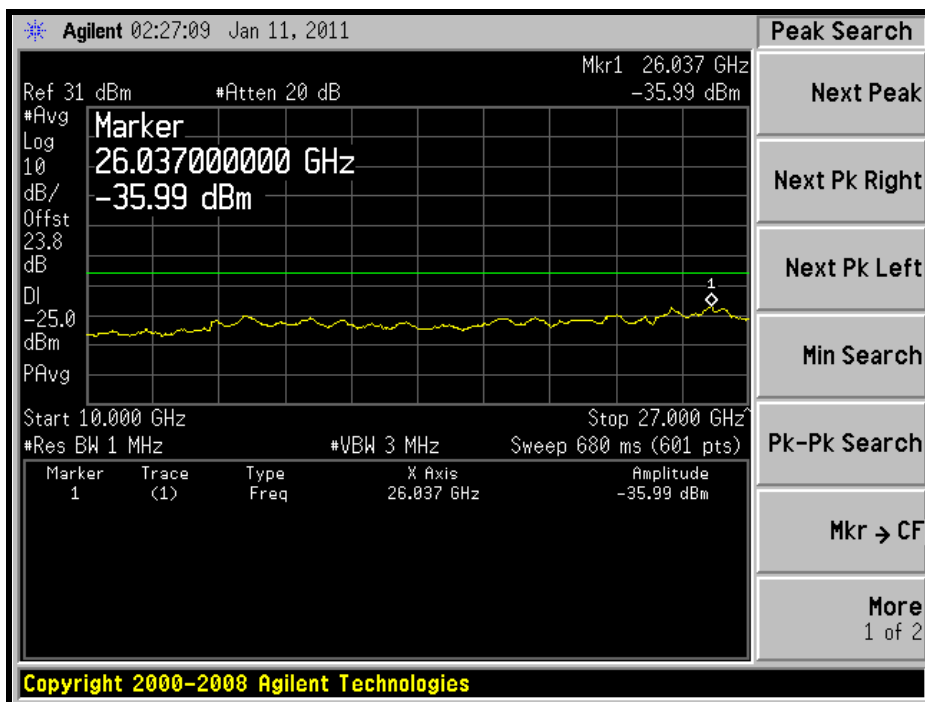


A D T

5GHz ~ 10GHz:



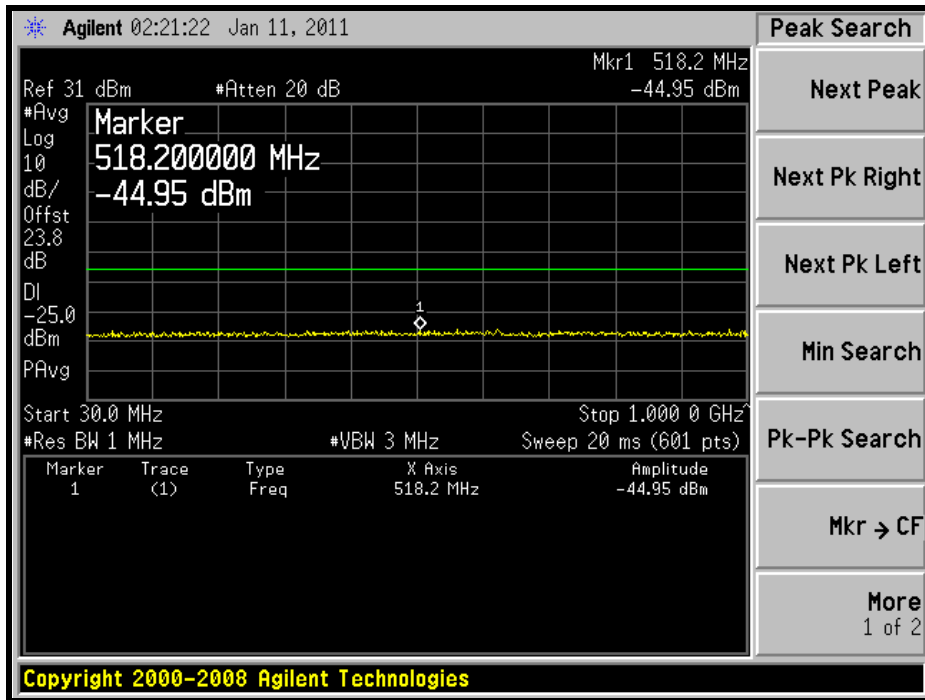
10GHz ~ 27GHz:



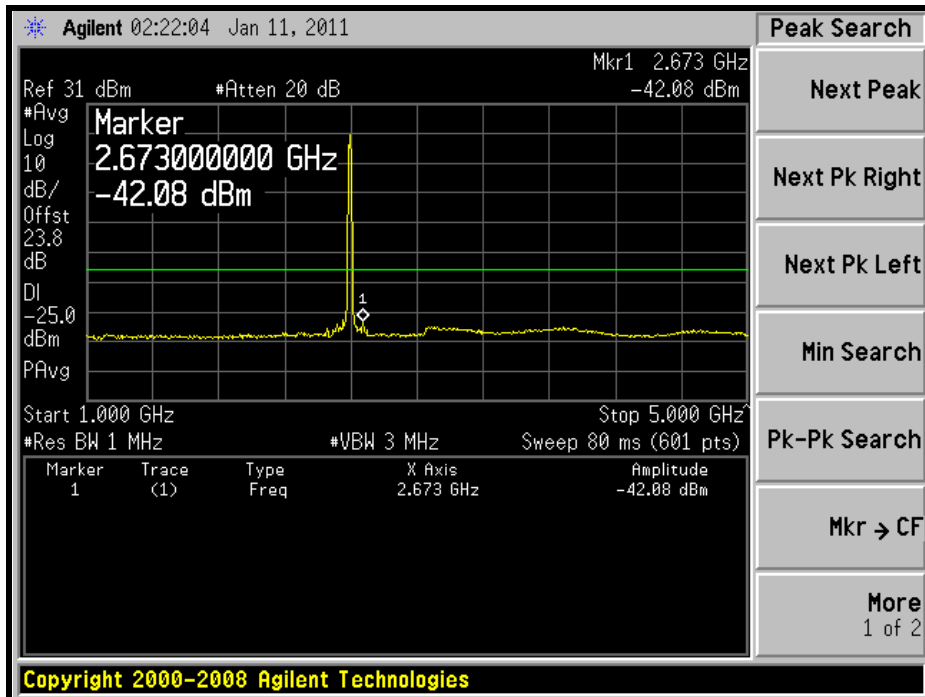


A D T

MIDDLE CHANNEL: 30MHz ~ 1GHz:



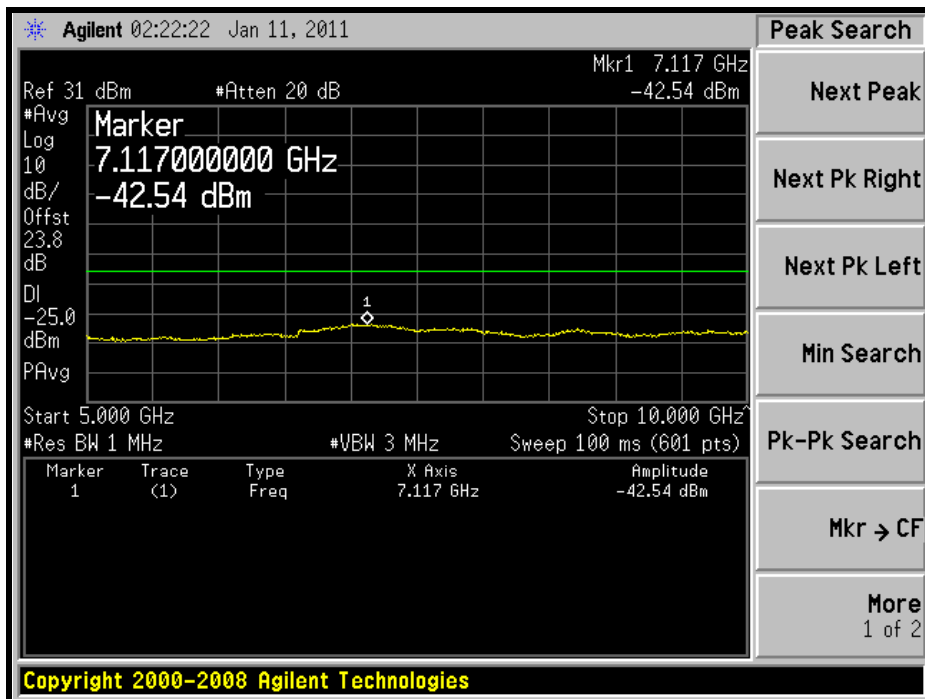
1GHz ~ 5GHz:



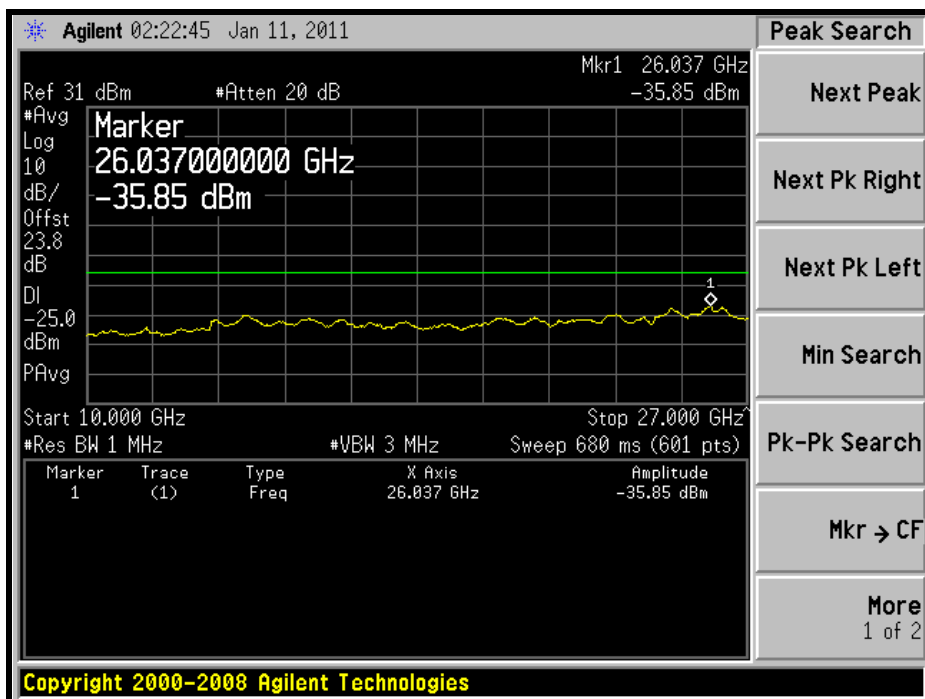


A D T

5GHz ~ 10GHz:



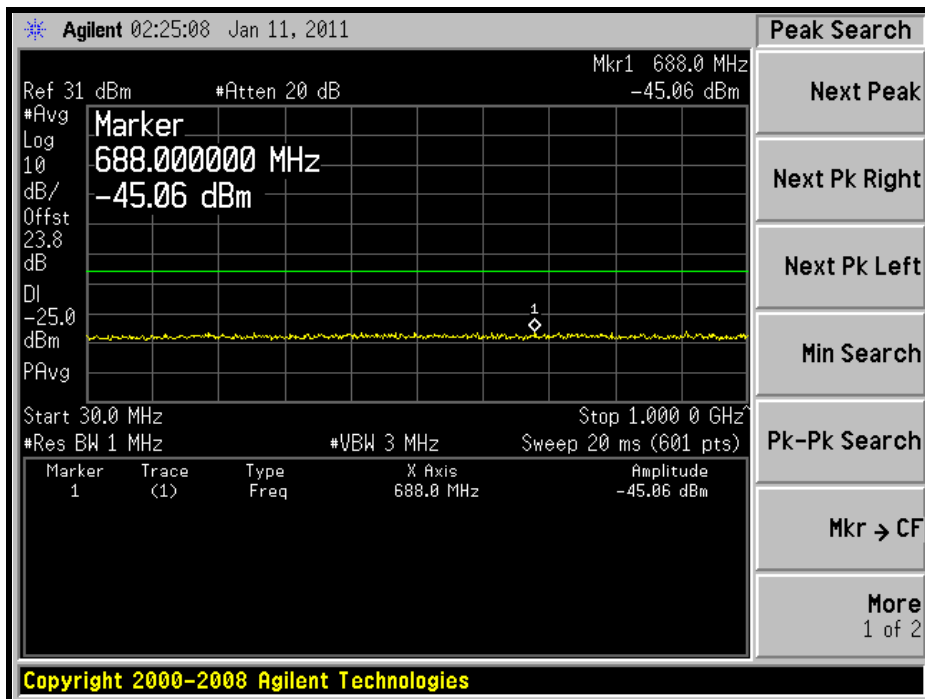
10GHz ~ 27GHz:



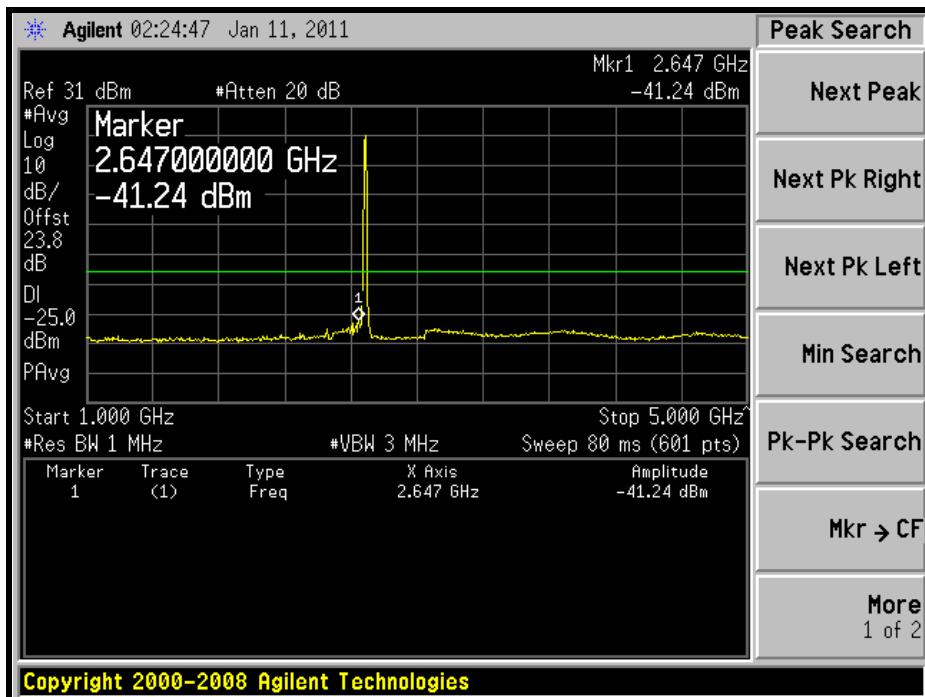


A D T

HIGH CHANNEL: 30MHz ~ 1GHz:



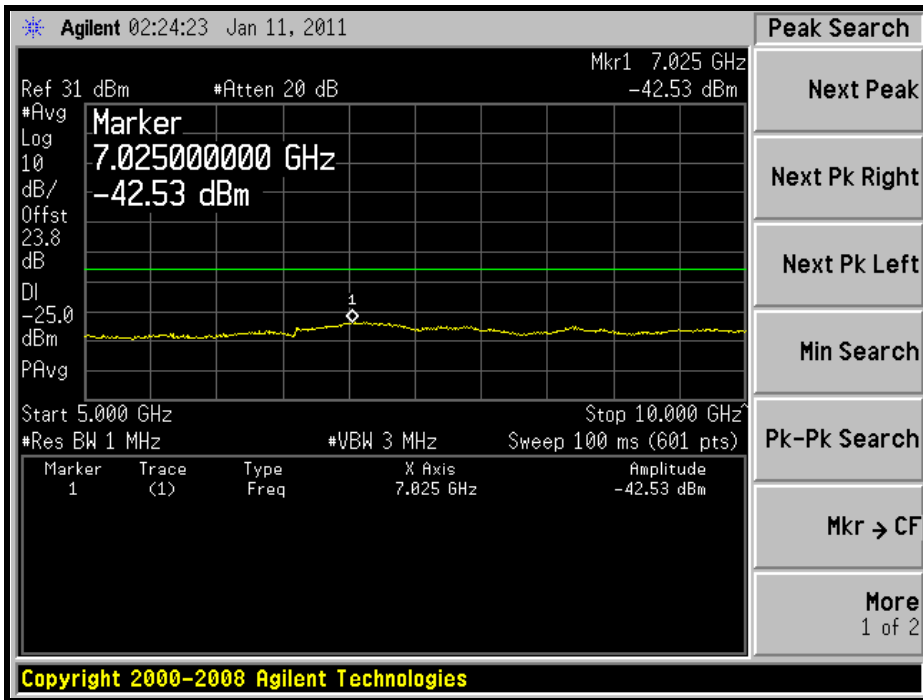
1GHz ~ 5GHz:



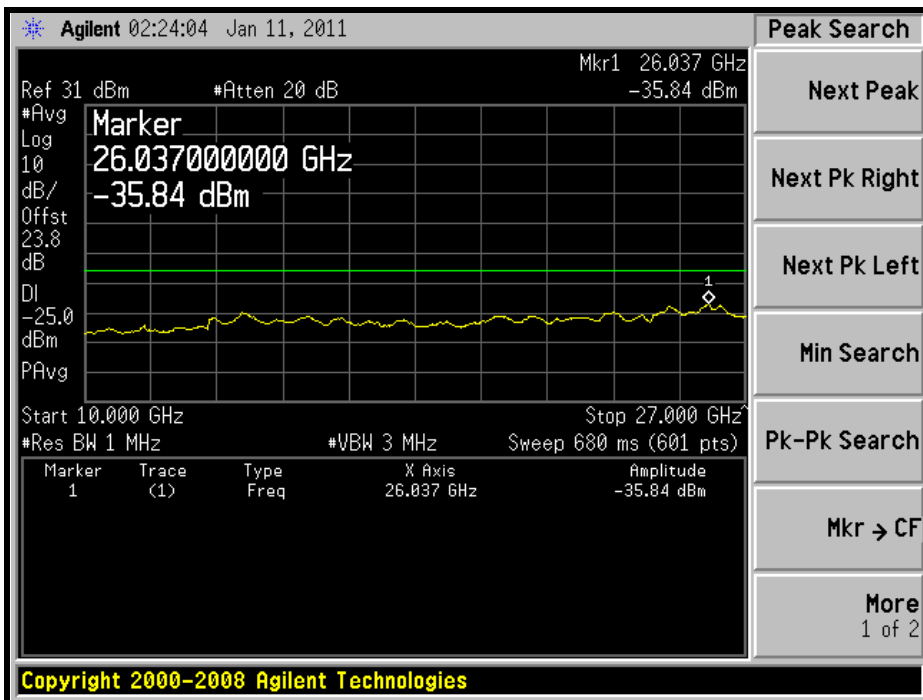


A D T

5GHz ~ 10GHz:



10GHz ~ 27GHz:





A D T

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

Test date: Jan. 21, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Spectrum Analyzer	FSP40	100036	Dec. 08, 2010	Dec. 07, 2011
Agilent PSA Spectrum Analyzer	E4446A	MY46180622	May 12 , 2010	May 11 , 2011
HP Pre_Amplifier	8449B	300801923	Nov. 01, 2010	Oct. 31, 2011
ROHDE & SCHWARZ Test Receiver	ESCS30	847124/029	Sep. 03, 2010	Sep. 02, 2011
SCHWARZBECK TRILOG Broadband Antenna	VULB 9168	138	Apr. 28, 2010	Apr. 27, 2011
Schwarzbeck Horn_Antenna	BBHA9120	D124	Dec. 17, 2010	Dec. 16, 2011
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 17, 2011	Jan. 16, 2012
RF Switches	EMH-011	1001	NA	NA
RF CABLE (Chaintek)	Sucoflex 104+ Sucoflex 106	RF104-101+R F106-101	Aug. 24, 2010	Aug. 23, 2011
RF Cable	8DFB	STCCAB-30M-1GHz	NA	NA
Software	ADT_Radiated_V7.6.15.9.2	NA	NA	NA
CT Antenna Tower & Turn Table	NA	NA	NA	NA

- Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna, preamplifier (model: 8449B) and Spectrum Analyzer (model: FSP40) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in Open Site No. C.
4. The FCC Site Registration No. is 656396.
5. The VCCI Site Registration No. is R-1626.
6. The CANADA Site Registration No. is IC 7450G-3.

4.6.3 TEST PROCEDURES

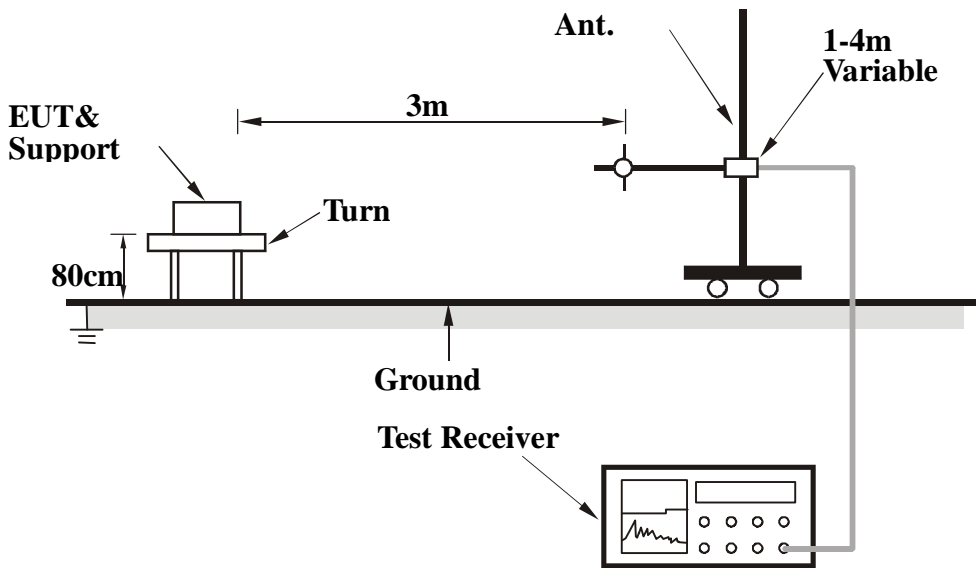
1. The power was measured with Spectrum Analyzer. All measurements were done at 3 channels (low, middle and high channel of operational frequency range.)
2. Substitution method is used for E.I.R.P measurement. In the open area test site, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.
3. The substitution antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a tx cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to “Read Value “ of step b. Record the power level of S.G
4. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution antenna.

NOTE: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/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



A D T

4.6.7 TEST RESULTS(MODE 1)

CHANNEL BANDWIDTH: 5MHz

MODE	Low channel	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	20deg°C, 60%RH 1025hPa
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	98.5	33.99	-25	-56.94	-0.71	-57.65
2	150	32.25	-25	-58.82	-1.00	-59.83
3	375	33.94	-25	-63.91	3.46	-60.45
4	500	34.78	-25	-61.53	3.68	-57.85
5	750	35.25	-25	-64.26	3.95	-60.31
6	875	36.40	-25	-63.75	4.22	-59.53
7	975	40.76	-25	-60.66	4.56	-56.10

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	98.5	33.67	-25	-57.26	-0.71	-57.97
2	150	36.01	-25	-55.06	-1.00	-56.07
3	375	39.53	-25	-58.32	3.46	-54.86
4	500	36.09	-25	-60.22	3.68	-56.54
5	750	36.66	-25	-62.85	3.95	-58.90
6	875	37.27	-25	-62.88	4.22	-58.66
7	975	36.67	-25	-64.75	4.56	-60.19

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



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4.6.8 TEST RESULTS(MODE 2)

CHANNEL BANDWIDTH: 5MHz

MODE	Low channel	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	20deg°C, 60%RH 1025hPa
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	98.5	33.86	-25	-57.07	-0.71	-57.78
2	150	32.14	-25	-58.93	-1.00	-59.94
3	375	33.07	-25	-64.78	3.46	-61.32
4	500	34.21	-25	-62.10	3.68	-58.42
5	750	35.33	-25	-64.18	3.95	-60.23
6	875	36.22	-25	-63.93	4.22	-59.71
7	975	41.24	-25	-60.18	4.56	-55.62

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	98.5	34.17	-25	-56.76	-0.71	-57.47
2	150	35.54	-25	-55.53	-1.00	-56.54
3	375	39.00	-25	-58.85	3.46	-55.39
4	500	35.63	-25	-60.68	3.68	-57.00
5	750	37.22	-25	-62.29	3.95	-58.34
6	875	36.45	-25	-63.70	4.22	-59.48
7	975	36.99	-25	-64.43	4.56	-59.87

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



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4.6.9 TEST RESULTS(MODE 3)

CHANNEL BANDWIDTH: 10MHz

MODE	High channel	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	20deg°C, 60%RH 1025hPa
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	98.5	34.69	-25	-56.24	-0.71	-56.95
2	150	33.03	-25	-58.04	-1.00	-59.05
3	375	33.36	-25	-64.49	3.46	-61.03
4	500	34.03	-25	-62.28	3.68	-58.60
5	750	33.82	-25	-65.69	3.95	-61.74
6	875	36.25	-25	-63.90	4.22	-59.68
7	975	41.78	-25	-59.64	4.56	-55.08

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	98.5	34.54	-25	-56.39	-0.71	-57.10
2	150	36.19	-25	-54.88	-1.00	-55.89
3	375	39.55	-25	-58.30	3.46	-54.84
4	500	35.79	-25	-60.52	3.68	-56.84
5	750	37.87	-25	-61.64	3.95	-57.69
6	875	38.64	-25	-61.51	4.22	-57.29
7	975	38.52	-25	-62.90	4.56	-58.34

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



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4.6.10 TEST RESULTS(MODE 4)

CHANNEL BANDWIDTH: 10MHz

MODE	High channel	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	20deg°C, 60%RH 1025hPa
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	98.5	33.62	-25	-57.31	-0.71	-58.02
2	150	31.84	-25	-59.23	-1.00	-60.24
3	375	33.65	-25	-64.20	3.46	-60.74
4	500	33.58	-25	-62.73	3.68	-59.05
5	750	34.61	-25	-64.90	3.95	-60.95
6	875	35.44	-25	-64.71	4.22	-60.49
7	975	41.74	-25	-59.68	4.56	-55.12

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	98.5	35.71	-25	-55.22	-0.71	-55.93
2	150	36.27	-25	-54.80	-1.00	-55.81
3	375	39.97	-25	-57.88	3.46	-54.42
4	500	36.97	-25	-59.34	3.68	-55.66
5	750	37.27	-25	-62.24	3.95	-58.29
6	875	37.94	-25	-62.21	4.22	-57.99
7	975	38.11	-25	-63.31	4.56	-58.75

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 and $55 + 10 \log (P)$ dB at 5.5 MHz from the channel edges.

4.7.2 TEST INSTRUMENTS

Test date: Feb. 22, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Spectrum Analyzer	FSP40	100036	Dec. 08, 2010	Dec. 07, 2011
Agilent PSA Spectrum Analyzer	E4446A	MY46180622	May 12 , 2010	May 11 , 2011
HP Pre_Amplifier	8449B	300801923	Nov. 01, 2010	Oct. 31, 2011
ROHDE & SCHWARZ Test Receiver	ESCS30	847124/029	Sep. 03, 2010	Sep. 02, 2011
SCHWARZBECK TRILOG Broadband Antenna	VULB 9168	138	Apr. 28, 2010	Apr. 27, 2011
Schwarzbeck Horn_Antenna	BBHA9120	D124	Dec. 17, 2010	Dec. 16, 2011
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 17, 2011	Jan. 16, 2012
RF Switches	EMH-011	1001	NA	NA
RF CABLE (Chaintek)	Sucoflex 104+ Sucoflex 106	RF104-101+R F106-101	Aug. 24, 2010	Aug. 23, 2011
RF Cable	8DFB	STCCAB-30M- 1GHz	NA	NA
Software	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
CT Antenna Tower & Turn Table	NA	NA	NA	NA

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

2. The horn antenna, preamplifier (model: 8449B) and Spectrum Analyzer (model: FSP40) are used only for the measurement of emission frequency above 1GHz if tested.

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

4. The FCC Site Registration No. is 656396.

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

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

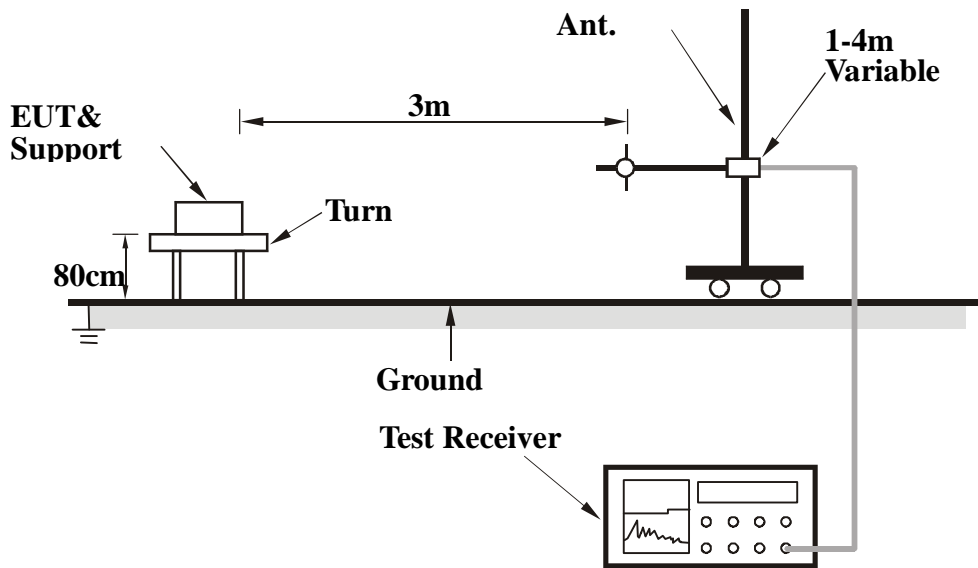
4.7.3 TEST PROCEDURES

1. The power was measured with Spectrum Analyzer. All measurements were done at 3 channels (low, middle and high channel of operational frequency range.)
2. Substitution method is used for E.I.R.P measurement. In the open area test site, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.
3. The substitution antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a tx cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to “Read Value “ of step b. Record the power level of S.G
4. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution antenna.
5. NOTE: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/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(MODE 1)

CHANNEL BANDWIDTH: 5MHz

MODE	Low channel	FREQUENCY RANGE	Above 1000MHz
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	20deg°C, 60%RH 1025hPa
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	4997	51.60	-25	-52.63	7.01	-45.62
2	7495.5	60.10	-25	-45.83	7.87	-37.96
3	9994	58.60	-25	-47.48	8.56	-38.92
4	12492.5	59.60	-25	-46.87	9.21	-37.66

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	4997	51.20	-25	-53.03	7.01	-46.02
2	7495.5	63.00	-25	-42.93	7.87	-35.06
3	9994	65.80	-25	-40.28	8.56	-31.72
4	12492.5	64.10	-25	-42.37	9.21	-33.16

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



A D T

MODE	Middle channel	FREQUENCY RANGE	Above 1000MHz
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	20deg°C, 60%RH 1025hPa
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	5186	51.10	-25	-53.41	7.05	-46.36
2	7779	57.20	-25	-49.08	7.98	-41.10
3	10372	60.10	-25	-47.03	8.85	-38.18
4	12965	58.80	-25	-47.61	9.96	-37.65

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	5186	55.70	-25	-48.81	7.05	-41.76
2	7779	61.20	-25	-45.08	7.98	-37.10
3	10372	70.20	-25	-36.93	8.85	-28.08
4	12965	64.70	-25	-41.71	9.96	-31.75

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



A D T

MODE	High channel	FREQUENCY RANGE	Above 1000MHz
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	20deg°C, 60%RH 1025hPa
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	52.30	-25	-52.49	7.09	-45.40
2	8062.5	60.70	-25	-46.05	8.26	-37.79
3	10750	58.50	-25	-49.05	9.05	-40.00
4	13437.5	61.30	-25	-45.75	10.24	-35.51

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	53.30	-25	-51.49	7.09	-44.40
2	8062.5	64.50	-25	-42.25	8.26	-33.99
3	10750	68.10	-25	-39.45	9.05	-30.40
4	13437.5	65.70	-25	-41.35	10.24	-31.11

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



A D T

4.7.8 TEST RESULTS(MODE 2)

CHANNEL BANDWIDTH: 5MHz

MODE	Low channel	FREQUENCY RANGE	Above 1000MHz
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	20deg°C, 60%RH 1025hPa
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	4997	50.50	-25	-53.73	7.01	-46.72
2	7495.5	59.70	-25	-46.23	7.87	-38.36
3	9994	56.40	-25	-49.68	8.56	-41.12
4	12492.5	57.90	-25	-48.57	9.21	-39.36

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	4997	50.70	-25	-53.53	7.01	-46.52
2	7495.5	62.60	-25	-43.33	7.87	-35.46
3	9994	63.80	-25	-42.28	8.56	-33.72
4	12492.5	63.10	-25	-43.37	9.21	-34.16

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



A D T

MODE	Middle channel	FREQUENCY RANGE	Above 1000MHz
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	20deg°C, 60%RH 1025hPa
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	5186	49.20	-25	-55.31	7.05	-48.26
2	7779	56.50	-25	-49.78	7.98	-41.80
3	10372	59.30	-25	-47.83	8.85	-38.98
4	12965	56.90	-25	-49.51	9.96	-39.55

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	5186	53.90	-25	-50.61	7.05	-43.56
2	7779	58.90	-25	-47.38	7.98	-39.40
3	10372	69.50	-25	-37.63	8.85	-28.78
4	12965	62.70	-25	-43.71	9.96	-33.75

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



A D T

MODE	High channel	FREQUENCY RANGE	Above 1000MHz
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	20deg°C, 60%RH 1025hPa
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	51.70	-25	-53.09	7.09	-46.00
2	8062.5	60.50	-25	-46.25	8.26	-37.99
3	10750	58.10	-25	-49.45	9.05	-40.40
4	13437.5	59.80	-25	-47.25	10.24	-37.01

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	5375	51.20	-25	-53.59	7.09	-46.50
2	8062.5	62.80	-25	-43.95	8.26	-35.69
3	10750	65.70	-25	-41.85	9.05	-32.80
4	13437.5	64.30	-25	-42.75	10.24	-32.51

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



A D T

4.7.9 TEST RESULTS(MODE 3)

CHANNEL BANDWIDTH: 10MHz

MODE	Low channel	FREQUENCY RANGE	Above 1000MHz
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	20deg°C, 60%RH 1025hPa
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	5002	51.50	-25	-52.73	7.01	-45.73
2	7503	59.30	-25	-46.65	7.87	-38.78
3	10004	58.40	-25	-47.72	8.59	-39.13
4	12505	59.00	-25	-47.50	9.24	-38.26

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	5002	51.70	-25	-52.53	7.01	-45.53
2	7503	62.80	-25	-43.15	7.87	-35.28
3	10004	64.80	-25	-41.32	8.59	-32.73
4	12505	64.20	-25	-42.30	9.24	-33.06

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



A D T

MODE	Middle channel	FREQUENCY RANGE	Above 1000MHz
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	20deg°C, 60%RH 1025hPa
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	5186	48.30	-25	-56.21	7.05	-49.16
2	7779	56.30	-25	-49.98	7.98	-42.00
3	10372	59.50	-25	-47.63	8.85	-38.78
4	12965	57.00	-25	-49.41	9.96	-39.45

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	5186	53.10	-25	-51.41	7.05	-44.36
2	7779	59.80	-25	-46.48	7.98	-38.50
3	10372	71.40	-25	-35.73	8.85	-26.88
4	12965	62.90	-25	-43.51	9.96	-33.55

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



A D T

MODE	High channel	FREQUENCY RANGE	Above 1000MHz
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	20deg°C, 60%RH 1025hPa
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	53.30	-25	-51.48	7.09	-44.39
2	8055	62.70	-25	-43.91	8.12	-35.79
3	10740	58.70	-25	-48.79	8.98	-39.81
4	13425	60.00	-25	-46.91	10.11	-36.80

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	52.80	-25	-51.98	7.09	-44.89
2	8055	62.40	-25	-44.21	8.12	-36.09
3	10740	66.60	-25	-40.89	8.98	-31.91
4	13425	65.60	-25	-41.31	10.11	-31.20

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



A D T

4.7.10 TEST RESULTS(MODE 4)

CHANNEL BANDWIDTH: 10MHz

MODE	Low channel	FREQUENCY RANGE	Above 1000MHz
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	20deg°C, 60%RH 1025hPa
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	5002	49.60	-25	-54.63	7.01	-47.63
2	7503	58.00	-25	-47.95	7.87	-40.08
3	10004	56.40	-25	-49.72	8.59	-41.13
4	12505	57.20	-25	-49.30	9.24	-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	5002	51.00	-25	-53.23	7.01	-46.23
2	7503	62.70	-25	-43.25	7.87	-35.38
3	10004	64.10	-25	-42.02	8.59	-33.43
4	12505	62.80	-25	-43.70	9.24	-34.46

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



A D T

MODE	Middle channel	FREQUENCY RANGE	Above 1000MHz
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	20deg°C, 60%RH 1025hPa
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	5186	47.40	-25	-57.11	7.05	-50.06
2	7779	55.70	-25	-50.58	7.98	-42.60
3	10372	58.70	-25	-48.43	8.85	-39.58
4	12965	56.30	-25	-50.11	9.96	-40.15

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	5186	52.30	-25	-52.21	7.05	-45.16
2	7779	57.60	-25	-48.68	7.98	-40.70
3	10372	69.00	-25	-38.13	8.85	-29.28
4	12965	61.20	-25	-45.21	9.96	-35.25

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



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MODE	High channel	FREQUENCY RANGE	Above 1000MHz
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	20deg°C, 60%RH 1025hPa
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	50.90	-25	-53.88	7.09	-46.79
2	8055	60.50	-25	-46.11	8.12	-37.99
3	10740	56.30	-25	-51.19	8.98	-42.21
4	13425	59.20	-25	-47.71	10.11	-37.60

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	51.10	-25	-53.68	7.09	-46.59
2	8055	61.90	-25	-44.71	8.12	-36.59
3	10740	64.80	-25	-42.69	8.98	-33.71
4	13425	63.60	-25	-43.31	10.11	-33.20

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



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5 PHOTOGRAPHS OF THE TEST CONFIGURATION

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





6 INFORMATION ON THE TESTING LABORATORIES

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

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site: www.adt.com.tw/index.5.phtml.

If you have any comments, please feel free to contact us at the following:

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Fax: 886-2-26052943

Hsin Chu EMC/RF Lab:

Tel: 886-3-5935343

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Hwa Ya EMC/RF/Safety/Telecom Lab:

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Email: service@adt.com.tw

Web Site: www.adt.com.tw

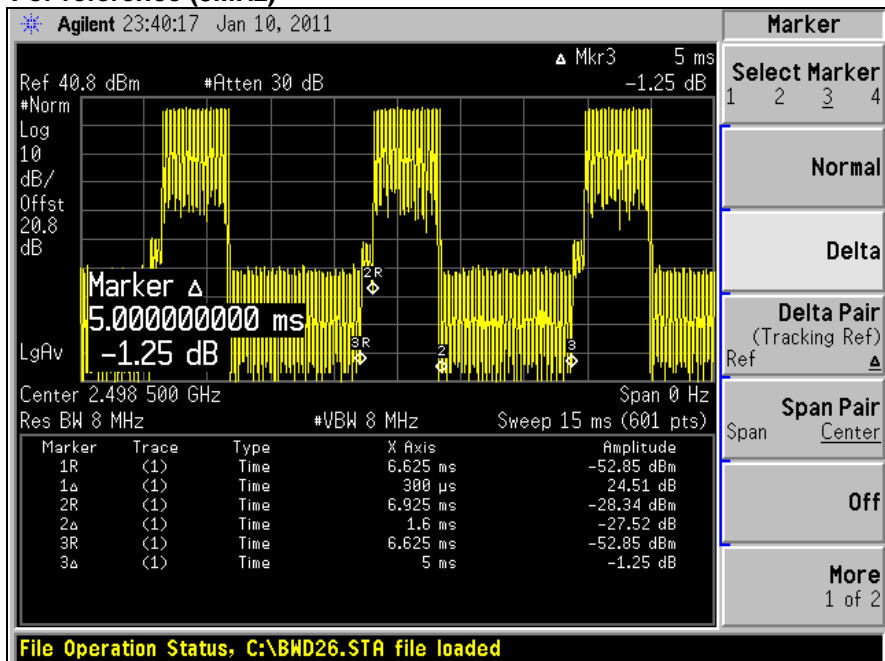
The address and road map of all our labs can be found in our web site also.



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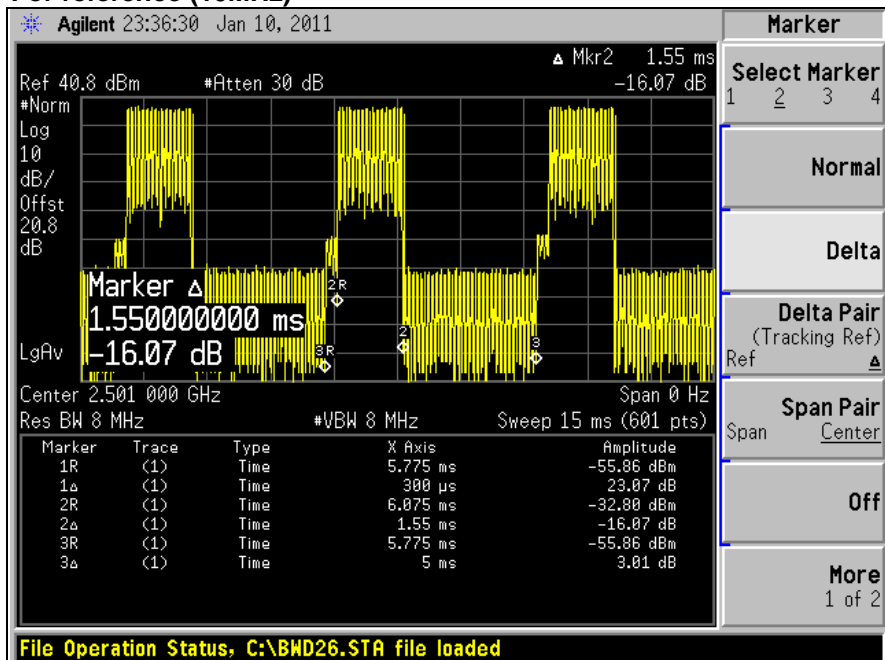
7 APPENDIX - A DL/UL RATION FOR TEST

For reference (5MHz)



Ratio = $(1.6 / 5) \% = 32\%$

For reference (10MHz)



Ratio = $(1.55 / 5) \% = 31\%$

--- END ---