

FCC TEST REPORT

(PART 27)

REPORT NO.: RF110617D07B-2

MODEL NO.: PCG-41218L

FCC ID: AK8PCG41218L

RECEIVED: Jun. 17, 2011

TESTED: Jul. 14 ~ Jul. 17, 2011

ISSUED: Jul. 19, 2011

APPLICANT: Sony Corporation

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ISSUED BY: Bureau Veritas Consumer Products Services (H.K.)
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Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C.

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TABLE OF CONTENTS

RELEASE CONTROL RECORD	4
1 CERTIFICATION	5
2 SUMMARY OF TEST RESULTS	6
2.1 MEASUREMENT UNCERTAINTY	6
3 GENERAL INFORMATION	7
3.1 GENERAL DESCRIPTION OF EUT	7
3.2 DESCRIPTION OF TEST MODES	9
3.2.1 CONFIGURATION OF SYSTEM UNDER TEST	9
3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL	10
3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS	12
3.4 DESCRIPTION OF SUPPORT UNITS	12
4 TEST TYPES AND RESULTS	13
4.1 OUTPUT POWER MEASUREMENT	13
4.1.1 LIMITS OF OUTPUT POWER MEASUREMENT	13
4.1.2 TEST INSTRUMENTS	13
4.1.3 TEST PROCEDURES	15
4.1.4 TEST SETUP	16
4.1.5 EUT OPERATING CONDITIONS	16
4.1.6 TEST RESULTS	17
4.2 FREQUENCY STABILITY MEASUREMENT	19
4.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT	19
4.2.2 TEST INSTRUMENTS	19
4.2.3 TEST PROCEDURE	20
4.2.4 TEST SETUP	20
4.2.5 EUT OPERATING CONDITIONS	20
4.2.6 TEST RESULTS	21
4.3 EMISSION BANDWIDTH MEASUREMENT	23
4.3.1 LIMITS OF EMISSION BANDWIDTH MEASUREMENT	23
4.3.2 TEST INSTRUMENTS	23
4.3.3 TEST PROCEDURE	23
4.3.4 TEST SETUP	24
4.3.5 EUT OPERATING CONDITIONS	24
4.3.6 TEST RESULTS	25
4.4 CHANNEL EDGE MEASUREMENT	27
4.4.1 LIMITS OF CHANNEL EDGE MEASUREMENT	27
4.4.2 TEST INSTRUMENTS	27
4.4.3 TEST SETUP	27
4.4.4 TEST PROCEDURES	28
4.4.5 EUT OPERATING CONDITION	28
4.4.6 TEST RESULTS	29
4.5 CONDUCTED SPURIOUS EMISSIONS	35
4.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT	35
4.5.2 TEST INSTRUMENTS	35
4.5.3 TEST PROCEDURE	36
4.5.4 TEST SETUP	36
4.5.5 EUT OPERATING CONDITIONS	36
4.5.6 TEST RESULTS	37
4.6 RADIATED EMISSION MEASUREMENT (BELOW 1GHz)	49
4.6.1 LIMITS OF RADIATED EMISSION MEASUREMENT	49
4.6.2 TEST INSTRUMENTS	50



A D T

4.6.3	TEST PROCEDURES	51
4.6.4	DEVIATION FROM TEST STANDARD	51
4.6.5	TEST SETUP	52
4.6.6	EUT OPERATING CONDITIONS	52
4.6.7	TEST RESULTS	53
4.7	RADIATED EMISSION MEASUREMENT (ABOVE 1GHz)	55
4.7.1	LIMITS OF RADIATED EMISSION MEASUREMENT	55
4.7.2	TEST INSTRUMENTS.....	55
4.7.3	TEST PROCEDURES	55
4.7.4	DEVIATION FROM TEST STANDARD	56
4.7.5	TEST SETUP.....	56
4.7.6	EUT OPERATING CONDITIONS	56
4.7.7	TEST RESULTS	57
5	PHOTOGRAPHS OF THE TEST CONFIGURATION.....	63
6	INFORMATION ON THE TESTING LABORATORIES	64



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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
Original release	N/A	Jul. 19, 2011



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1 CERTIFICATION

PRODUCT: Personal Computer

MODEL: PCG-41218L

BRAND: SONY

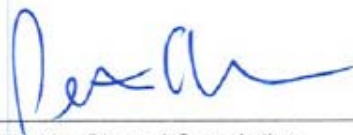
APPLICANT: Sony Corporation

TESTED: Jul. 14 ~ Jul. 17, 2011

TEST SAMPLE: ENGINEERING SAMPLE

TEST STANDARDS: FCC Part 27, Subpart C & M

The above equipment (Model: PCG-41218L) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY :  , DATE : Jul. 19, 2011
Pettie Chen / Specialist

APPROVED BY :  , DATE : Jul. 19, 2011
Gary Chang / Assistant Manager

2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	REMARK
FCC Part 27 & Part 2			
2.1046 27.50(h)(2)	Maximum Peak Output Power Limit: max. 2 Watt.	PASS	Meet the requirement of limit. Minimum passing margin is 26.1dBm at 2593MHz.
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. Minimum passing margin is -18dB at 8062.5MHz.

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:

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	9kHz~30MHz	2.44 dB
Radiated emissions	30MHz ~ 200MHz	3.19 dB
	200MHz ~1000MHz	3.21 dB
	1GHz ~ 18GHz	2.26 dB
	18GHz ~ 40GHz	1.94 dB

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



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3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

EUT	Personal Computer		
MODEL NO.	PCG-41218L		
FCC ID	AK8PCG41218L		
NOMINAL VOLTAGE	19.5Vdc or 5Vdc from AC adapter 11.1Vdc from battery		
CODED TYPE/MODULATION/ CODING RATE	UL	QPSK: 1/2, 3/4	
		16QAM: 1/2, 3/4	
	DL	QPSK: 1/2, 3/4	
		16QAM: 1/2, 3/4	
		64QAM: 1/2, 2/3, 3/4, 5/6	
MODULATION TECHNOLOGY	OFDMA		
DUPLEX METHOD	TDD		
OPERATING RANGE	2498.5MHz ~ 2687.5MHz		
CHANNEL BANDWIDTH	5MHz, 10MHz		
MAX. EIRP POWER	Channel Bandwidth: 5MHz: 25.9dBm (0.3890W) Channel Bandwidth: 10MHz: 26.1dBm (0.4074W)		
ANTENNA TYPE	Refer to Note		
OPERATION TEMPERATURE RANGE	-20°C ~ 55°C		
DATA CABLE	NA		
I/O PORTS	Refer to user's manual		
ACCESSORY DEVICES	Adapter		

NOTE:

1. The EUT is a Personal Computer. The test data are separated into following test reports.

Function		Test Standard	Reference Report
WLAN IEEE802.11bgn + WiMax Mini-PCI Card (Brand: Intel, Model: 612BNXHMW)	WLAN 802.11bgn	FCC Part 15, Subpart C (Section 15.247)	RF110617D07B
	WiMax	FCC Part 27, Subpart C & M	RF110617D07B-2
Bluetooth module (Brand: Foxconn, Model: T77H114)		FCC Part 15, Subpart C (Section 15.247)	RF110617D07B-1

2. The case of EUT has two kinds of material: MG & CFRP. During the test, the MG material case was the worst case and only its test data was recorded in this report.

3. The following antennas were applied to the EUT:

Type	Connector	Manufacture	Gain	
			MG material case	CFRP material case
PIFA	Hirose U.FL	ACON	-1.80dBi (PN: 390-0001-483_X00)	-1.26dBi (P/N:390-0011-483_X00)
			1.54dBi (PN: 390-0001-484_X00)	1.16dBi (P/N:390-00001-492_X00)

4. The EUT consumes power from a power adapter/ battery and there are the following sources could be chosen:

Power Source	Brand	Model No.	Spec.
AC adapter 1	NJRC	VGP-AC19V31	AC Input: 100-240V, 1.5A, 50-60Hz DC Output: 19.5V, 4.7A Non-shielded AC 2Pin (0.8m) Non-shielded DC (1.8m)
AC adapter 2	NJRC	VGP-AC19V32	AC Input: 100-240V, 1.5A, 50-60Hz DC Output: 19.5V, 4.7A Non-shielded AC 3Pin (0.8m) Non-shielded DC (1.8m)
AC adapter 3	Liteon	VGP-AC19V36	AC Input: 100-240V, 1.5A, 50/60Hz DC Output: 19.5V, 4.7A Non-shielded AC 3Pin (0.8m) Non-shielded DC (1.8m)
AC adapter 4	Delta	VGP-AC19V42	AC Input: 100-240V, 1.5A 50-60Hz DC Output: 19.5V, 4.7A Non-shielded AC 3Pin (0.8m) Non-shielded DC (1.8m)
AC adapter 5	Delta	VGP-AC19V51	AC Input: 100-240V, 1.5A, 50/60Hz DC Output 1: 19.5Vdc 4.7A DC Output 2: 5Vdc 1.5A DC Output 3: 5Vdc 1.5A Non-shielded AC 3Pin (0.8m) Non-shielded DC (1.8m)
Battery	Sony	VGP-BPS24	11.1V, 4400mAh

*After pre-tested above AC adapters, the **AC Adapter 3** was the worst case, therefore, only its test data was recorded in this report.

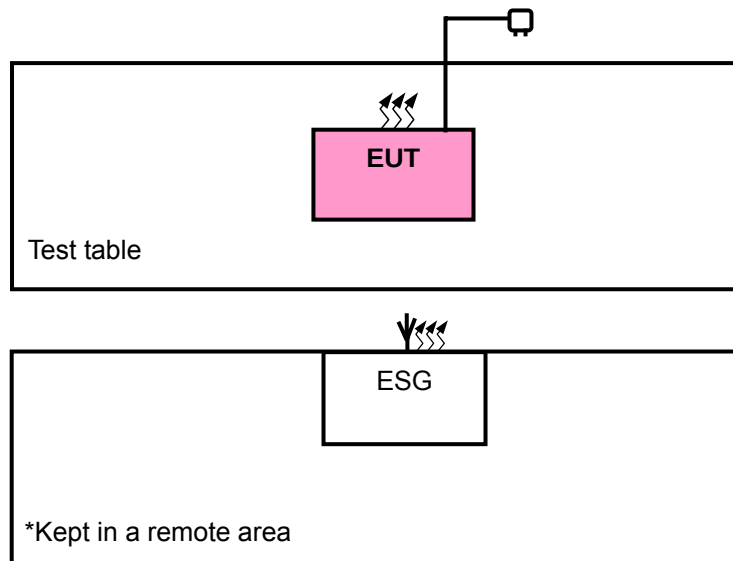
5. The above EUT information is declared by manufacturer and for more detailed feature description please refers to the manufacturer's specifications or User's Manual.

3.2 DESCRIPTION OF TEST MODES

Three channels of each channel bandwidth had been tested.

CHANNEL (MHz)	CHANNEL BANDWIDTH	
	5.0 MHz	10.0 MHz
LOW	2498.5MHz	2501.0MHz
MIDDLE	2593.0MHz	2593.0MHz
HIGH	2687.5MHz	2685.0MHz

3.2.1 CONFIGURATION OF SYSTEM UNDER TEST



3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO							DESCRIPTION
	OP	FS	EB	CE	CSE	RE<1G	RE≥1G	
-	√	√	√	√	√	√	√	-

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, XYZ axis and antenna ports (if EUT with antenna diversity architecture).

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

EUT CONFIGURE MODE	TESTED CHANNEL	MODULATION TECHNOLOGY	CHANNEL BANDWIDTH	MODULATION TYPE	CODING RATE
-	L, M, H	OFDMA	5MHz	QPSK	1/2
-	L, M, H	OFDMA	10MHz	QPSK	1/2

FREQUENCY STABILITY MEASUREMENT:

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

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

EUT CONFIGURE MODE	TESTED CHANNEL	MODULATION TECHNOLOGY	CHANNEL BANDWIDTH	MODULATION TYPE	CODING RATE
-	H	OFDMA	5MHz	QPSK	1/2
-	L	OFDMA	10MHz	QPSK	1/2

EMISSION BANDWIDTH MEASUREMENT:

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

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

EUT CONFIGURE MODE	TESTED CHANNEL	MODULATION TECHNOLOGY	CHANNEL BANDWIDTH	MODULATION TYPE	CODING RATE
-	L, M, H	OFDMA	5MHz	QPSK	1/2
-	L, M, H	OFDMA	10MHz	QPSK	1/2

CHANNEL EDGE MEASUREMENT:

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

EUT CONFIGURE MODE	TESTED CHANNEL	MODULATION TECHNOLOGY	CHANNEL BANDWIDTH	MODULATION TYPE	CODING RATE
-	L, M, H	OFDMA	5MHz	QPSK	1/2
-	L, M, H	OFDMA	10MHz	QPSK	1/2

CONDUCTED SPURIOUS EMISSIONS MEASUREMENT:

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

EUT CONFIGURE MODE	TESTED CHANNEL	MODULATION TECHNOLOGY	CHANNEL BANDWIDTH	MODULATION TYPE	CODING RATE
-	L, M, H	OFDMA	5MHz	QPSK	1/2
-	L, M, H	OFDMA	10MHz	QPSK	1/2

RADIATED EMISSION MEASUREMENT (BELOW 1 GHz):

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

EUT CONFIGURE MODE	TESTED CHANNEL	MODULATION TECHNOLOGY	CHANNEL BANDWIDTH	MODULATION TYPE	CODING RATE
-	H	OFDMA	5MHz	QPSK	1/2
-	L	OFDMA	10MHz	QPSK	1/2

RADIATED EMISSION MEASUREMENT (ABOVE 1 GHz):

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

EUT CONFIGURE MODE	TESTED CHANNEL	MODULATION TECHNOLOGY	CHANNEL BANDWIDTH	MODULATION TYPE	CODING RATE
-	L, M, H	OFDMA	5MHz	QPSK	1/2
-	L, M, H	OFDMA	10MHz	QPSK	1/2

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
OP	27deg. C, 63%RH	120Vac, 60Hz	Mark Liao
FS	27deg. C, 63%RH	120Vac, 60Hz	Mark Liao
EB	27deg. C, 63%RH	120Vac, 60Hz	Mark Liao
CE	27deg. C, 63%RH	120Vac, 60Hz	Mark Liao
CSE	27deg. C, 63%RH	120Vac, 60Hz	Mark Liao
RE≥1G	25deg. C, 65%RH	120Vac, 60Hz	Antony Li
RE<1G	25deg. C, 65%RH	120Vac, 60Hz	Antony Li

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a WiMAX 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

ANSI/TIA/EIA-603-C-2004

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	SIGNAL GENERATOR	Agilent	E4438C	MY45092849	NA

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

NOTE:

1. All power cords of the above support units are non shielded (1.8m).
2. Items 1 acted as communication partners to transfer data.

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 “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

CONDUCTED POWER MEASUREMENT:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
High Speed Peak Power Meter	ML2495A	0824011	Aug. 02, 2010	Aug. 01, 2011
Power Sensor	MA2411B	0738171	Aug. 02, 2010	Aug. 01, 2011

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. Measurement Bandwidth of ML2495A is 65MHz greater than 26dB bandwidth of emission.

**A D T****EIRP POWER MEASUREMENT:**

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESIB7	100212	Jul. 22, 2010	Jul. 21, 2011
Spectrum Analyzer Agilent	E4446A	MY48250266	Aug. 11, 2010	Aug. 10, 2011
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	Apr. 13, 2011	Apr. 12, 2012
HORN Antenna SCHWARZBECK	9120D	9120D-405	Feb. 08, 2011	Feb. 07, 2012
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170243	Dec. 27, 2010	Dec. 26, 2011
Preamplifier Agilent	8447D	2944A10633	Nov. 02, 2010	Nov. 01, 2011
Preamplifier Agilent	8449B	3008A01964	Nov. 02, 2010	Nov. 01, 2011
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	295014/4	Sep. 03, 2010	Sep. 02, 2011
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	12738/6	Sep. 03, 2010	Sep. 02, 2011
Software ADT.	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA	NA
Antenna Tower Controller inn-co GmbH	CO2000	017303	NA	NA
Turn Table ADT.	TT100.	TT93021703	NA	NA
Turn Table Controller ADT.	SC100.	SC93021703	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 test was performed in HwaYa Chamber 3.
3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
4. The FCC Site Registration No. is 988962.
5. The IC Site Registration No. is IC 7450F-3.

4.1.3 TEST PROCEDURES

CONDUCTED POWER MEASUREMENT:

A power sensor was used on the output port of the EUT. A power meter was used to read the response of the power sensor. Record the power level.

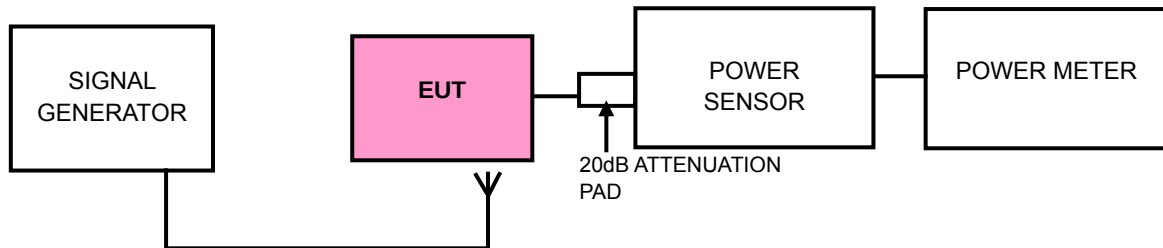
EIRP POWER MEASUREMENT:

- a. The power was measured with R&S Spectrum Analyzer. All measurements were done at 3 channels (low, middle and high operational frequency range.)
- b. The conducted peak output power used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer. The path loss included the splitter loss, cable loss and 20dB pad loss. The spectrum set RB/VB 3MHz, then read peak power value and record to the test. (All transmitted path loss shall be considered in the test report data.)
- c. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, 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.
- d. The substitution horn 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
- e. $EIRP = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}.$

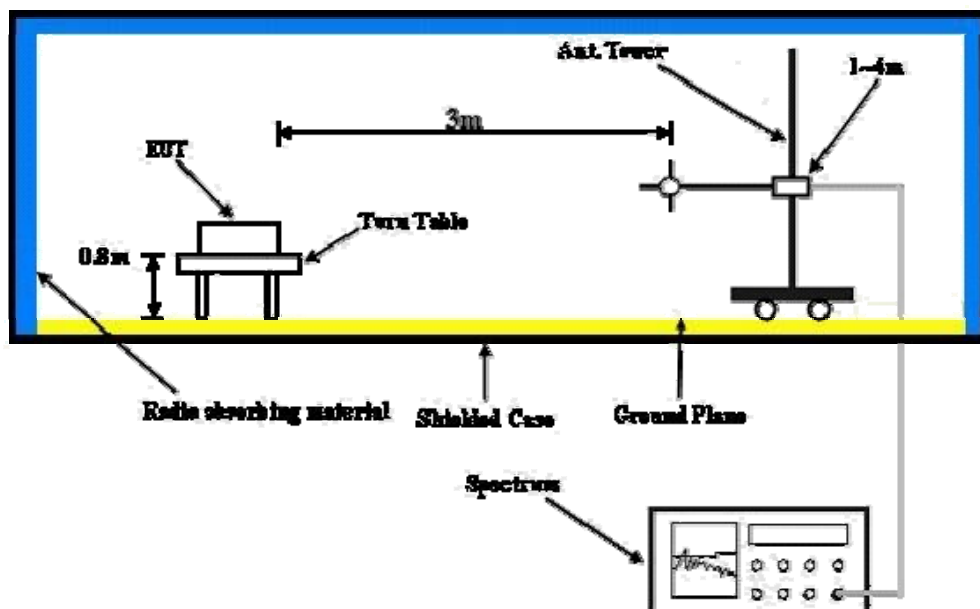
NOTE: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 10MHz/10MHz.

4.1.4 TEST SETUP

CONDUCTED POWER MEASUREMENT:



EIRP POWER MEASUREMENT:



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.1.5 EUT OPERATING CONDITIONS

- Link up EUT with signal generator.
- The signal generator controlled EUT to export rated output power under transmission mode and specific channel frequency.

4.1.6 TEST RESULTS

CHANNEL BANDWIDTH: 5MHz

CONDUCTED POWER (RMS)					
CHANNEL	FREQUENCY (MHz)	C.F (dB)	POWER METER READING (dBm)	POWER (dBm)	POWER (W)
Low	2498.5	21.0	2.2	23.24	0.2109
Middle	2593.0	21.0	2.2	23.22	0.2099
High	2687.5	21.0	2.3	23.28	0.2128

NOTE: C.F = attenuator + cable loss

EIRP POWER (RMS)					
CHANNEL	FREQUENCY (MHz)	C.F (dB)	S.G. LEVEL (dBm)	TOTAL POWER (dBm)	TOTAL POWER (W)
Low	2498.5	8.3	17.6	25.9	0.3890
Middle	2593.0	8.5	16.9	25.4	0.3467
High	2687.5	8.5	16.6	25.1	0.3236

NOTE: C.F = Substitution antenna gain + cable loss

CHANNEL BANDWIDTH: 10MHz

CONDUCTED POWER (RMS)					
CHANNEL	FREQUENCY (MHz)	C.F (dB)	POWER METER READING (dBm)	POWER (dBm)	POWER (W)
Low	2501	21.0	2.3	23.31	0.2143
Middle	2593	21.0	2.2	23.16	0.2070
High	2685	21.0	2.0	23.02	0.2004

NOTE: C.F = attenuator + cable loss

EIRP POWER (RMS)					
CHANNEL	FREQUENCY (MHz)	C.F (dB)	S.G. LEVEL (dBm)	TOTAL POWER (dBm)	TOTAL POWER (W)
Low	2501	8.3	17.0	25.3	0.3388
Middle	2593	8.5	17.6	26.1	0.4074
High	2685	8.5	16.4	24.9	0.3090

NOTE: C.F = Substitution antenna gain + cable loss

4.2 FREQUENCY STABILITY MEASUREMENT

4.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

According to the FCC part 2.1055 shall be tested the frequency stability. The rule is defined that "The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block." The test extreme voltage is according to the 2.1055(d)(1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment and the extreme temperature rule is comply with specification of EUT -40°C ~ 70°C.

4.2.2 TEST INSTRUMENTS

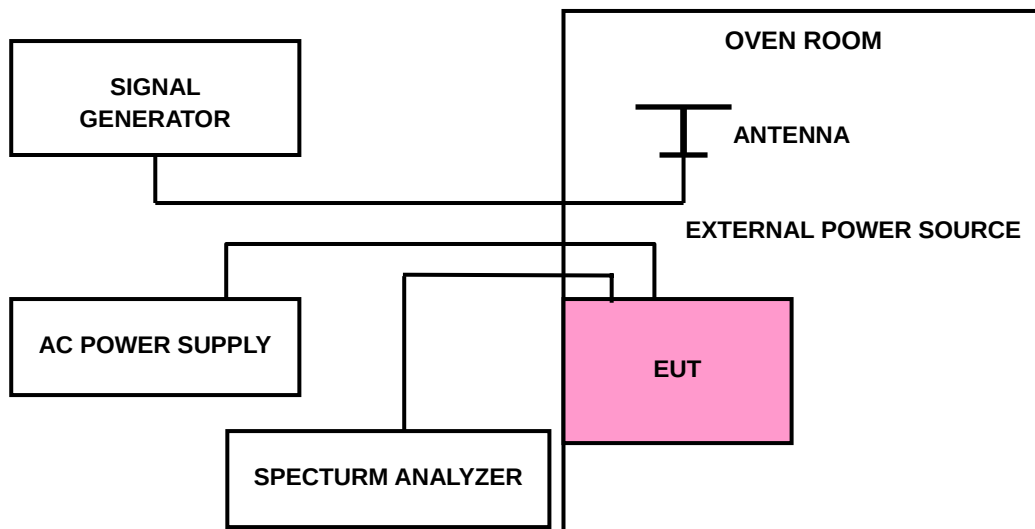
DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Spectrum Analyzer Agilent	E4446A	MY44360124	Dec. 29, 2010	Dec. 28, 2011
RF cable	SUCOFLEX 104	274403/4	Aug. 20, 2010	Aug. 19, 2011
WIT Standard Temperature & Humidity Chamber	TH-4S-C	W981030	Jun. 15, 2011	Jun. 14, 2012

NOTE: 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

- 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.
- EUT is connected the external power supply to control the AC input power. The various Volts from the minimum 93.5 Volts to 126.5 Volts. Each step shall be record the frequency error rate.
- 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.
- 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 EUT OPERATING CONDITIONS

Same as 4.1.5

4.2.6 TEST RESULTS

CHANNEL BANDWIDTH	5MHz	MODE	High Channel
--------------------------	------	-------------	--------------

AFC FREQUENCY ERROR VS. VOLTAGE			
VOLTAGE (Volts)	TEMP. (°C)	FREQUENCY (MHz)	FREQUENCY ERROR (ppm)
93.5	20	2687.504706	1.751
110.0	20	2687.504466	1.662
126.5	20	2687.504457	1.658

AFC FREQUENCY ERROR VS. TEMP.			
VOLTAGE (Volts)	TEMP. (°C)	FREQUENCY (MHz)	FREQUENCY ERROR (ppm)
110.0	60	2687.504634	1.724
110.0	50	2687.504805	1.788
110.0	40	2687.504768	1.774
110.0	30	2687.504932	1.835
110.0	20	2687.504466	1.662
110.0	10	2687.504387	1.632
110.0	0	2687.504420	1.645
110.0	-10	2687.504601	1.712
110.0	-20	2687.504528	1.685
110.0	-30	2687.504589	1.708



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CHANNEL BANDWIDTH	10MHz	MODE	Low channel
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AFC FREQUENCY ERROR VS. VOLTAGE			
VOLTAGE (Volts)	TEMP. (°C)	FREQUENCY (MHz)	FREQUENCY ERROR (ppm)
93.5	20	2501.004867	1.946
110.0	20	2501.004489	1.795
126.5	20	2501.004533	1.812

AFC FREQUENCY ERROR VS. TEMP.			
VOLTAGE (Volts)	TEMP. (°C)	FREQUENCY (MHz)	FREQUENCY ERROR (ppm)
110.0	60	2501.004901	1.960
110.0	50	2501.005153	2.060
110.0	40	2501.005266	2.106
110.0	30	2501.004675	1.869
110.0	20	2501.004489	1.795
110.0	10	2501.004789	1.915
110.0	0	2501.004513	1.804
110.0	-10	2501.004454	1.781
110.0	-20	2501.004254	1.701
110.0	-30	2501.004690	1.875

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

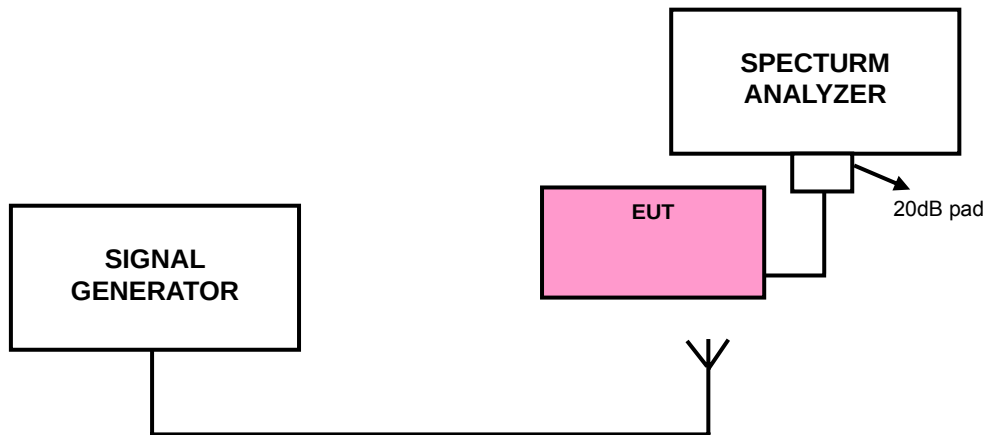
DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Spectrum Analyzer Agilent	E4446A	MY44360124	Dec. 29, 2010	Dec. 28, 2011
RF cable	SUCOFLEX 104	274403/4	Aug. 20, 2010	Aug. 19, 2011
DC-6GHz 20dB 50W Fixed attenuator Woken	MDC9331N-20	0724	May 13, 2011	May 12, 2012

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 PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with RBW = 51kHz, VBW = 160kHz. The 26dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 26dB.

4.3.4 TEST SETUP



4.3.5 EUT OPERATING CONDITIONS

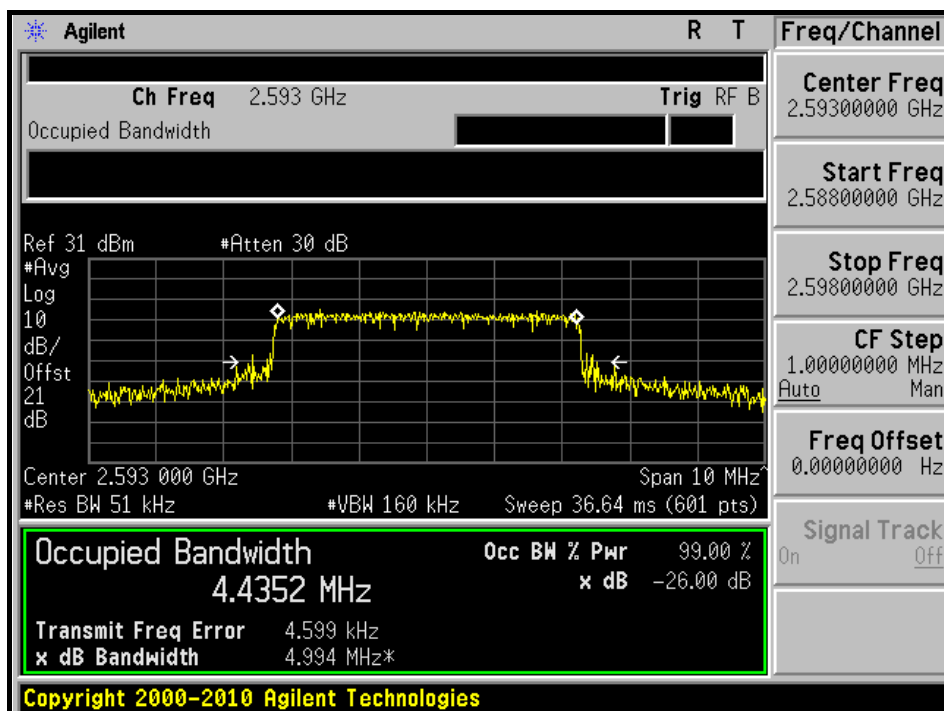
Same as 4.1.5

4.3.6 TEST RESULTS

CHANNEL BANDWIDTH: 5MHz

CHANNEL	-26dBc BANDWIDTH (MHz)
Low	4.986
Middle	4.994
High	4.968

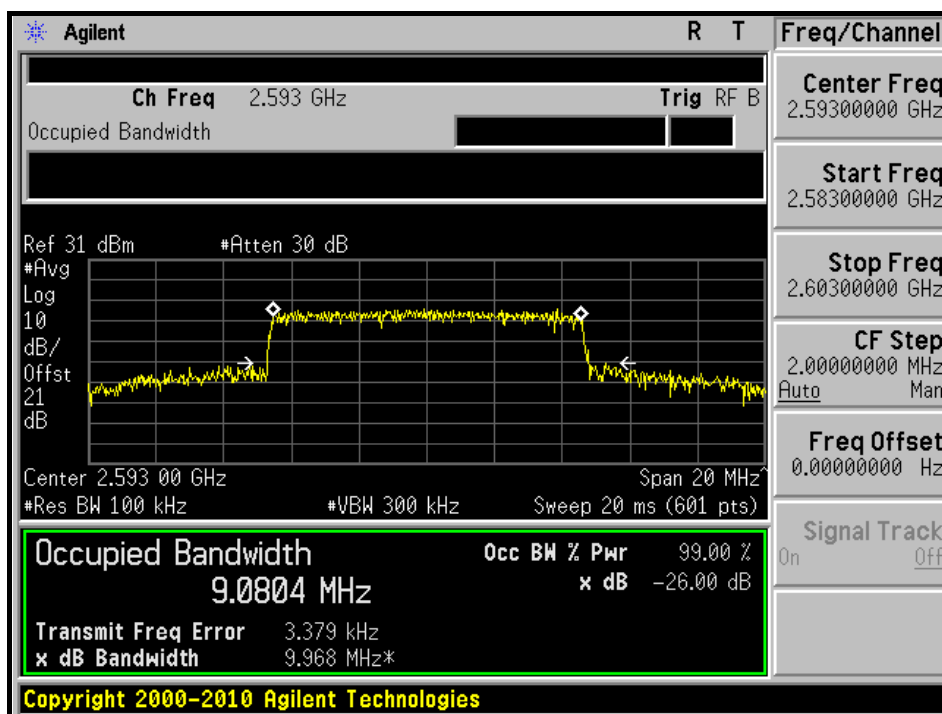
MIDDLE CHANNEL



CHANNEL BANDWIDTH: 10MHz

CHANNEL	-26dBc BANDWIDTH (MHz)
Low	9.492
Middle	9.968
High	9.908

MIDDLE 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 shall be not less than $43 + 10 \log (P)$ dB at the channel edge, the limit of emission equal to -13dBm . And $55 + 10 \log (P)$ dB at 5.5 MHz from the channel edges, the limit of emission equal to -25dBm . 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.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Spectrum Analyzer Agilent	E4446A	MY44360124	Dec. 29, 2010	Dec. 28, 2011
RF cable	SUCOFLEX 104	274403/4	Aug. 20, 2010	Aug. 19, 2011
WIT Standard Temperature & Humidity Chamber	TH-4S-C	W981030	Jun. 15, 2011	Jun. 14, 2012

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 4.3.4

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. The center frequency of spectrum is the band edge frequency and span is 20MHz (Channel Bandwidth: 5MHz) / 30MHz (Channel Bandwidth: 10MHz). RBW of the spectrum is 51kHz (Channel Bandwidth: 5MHz) / 100kHz (Channel Bandwidth: 10MHz).
- c. Record the max trace plot into the test report.

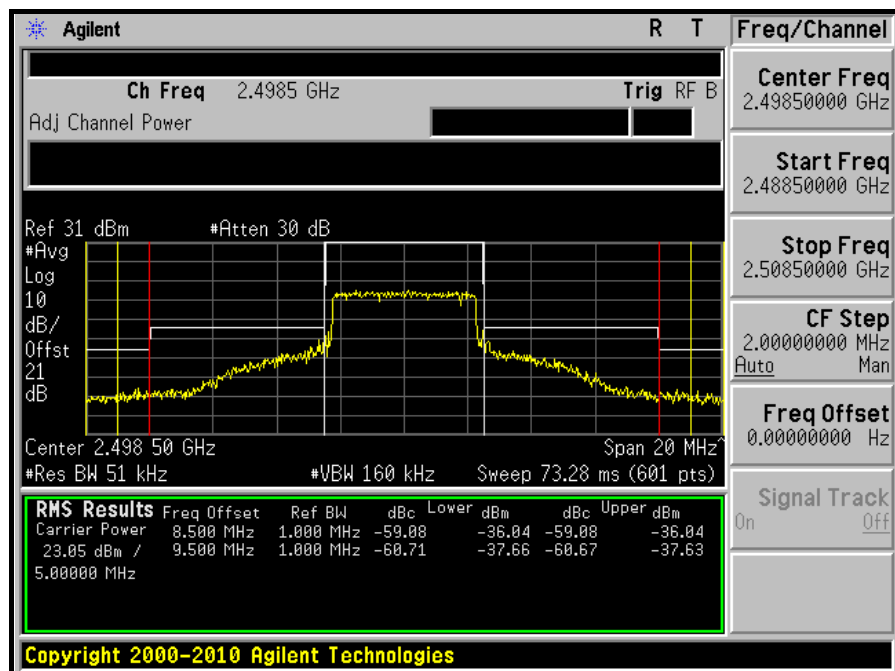
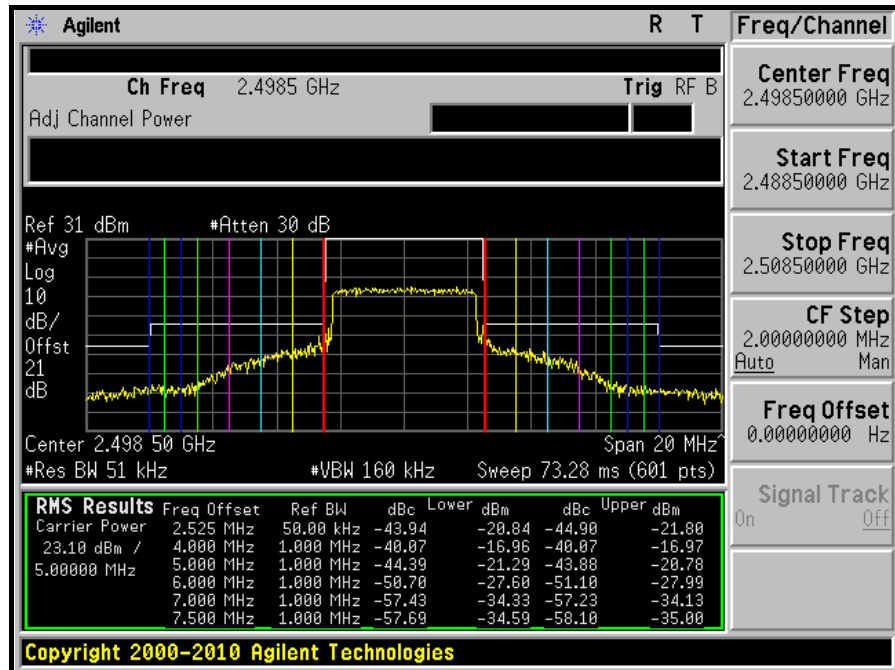
4.4.5 EUT OPERATING CONDITION

Same as 4.1.5

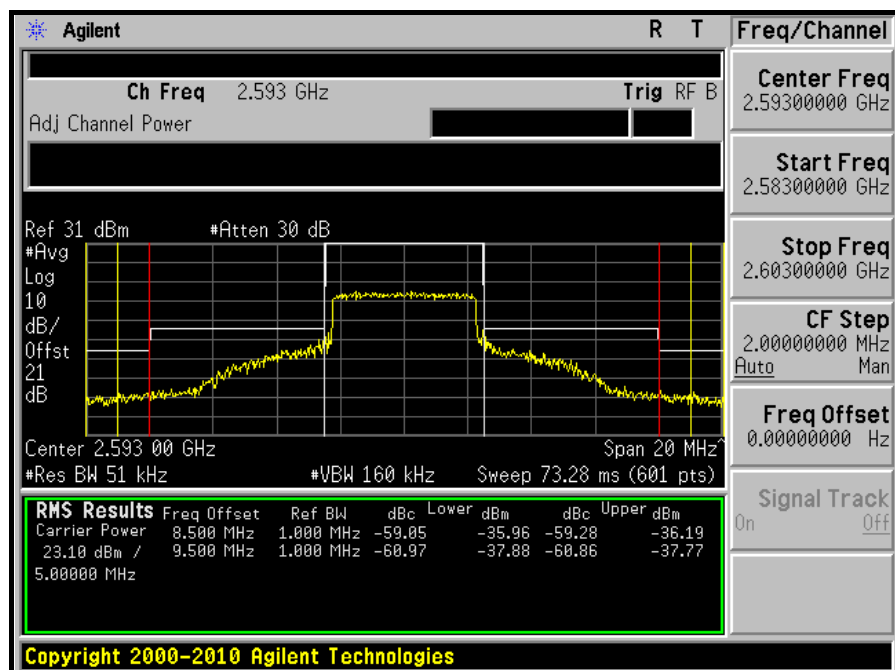
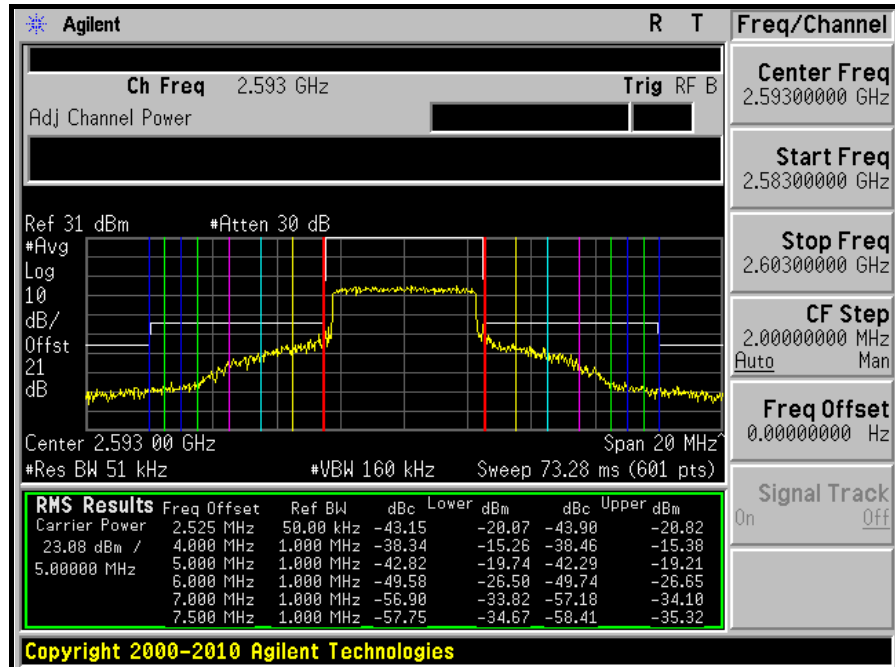
4.4.6 TEST RESULTS

CHANNEL BANDWIDTH: 5MHz

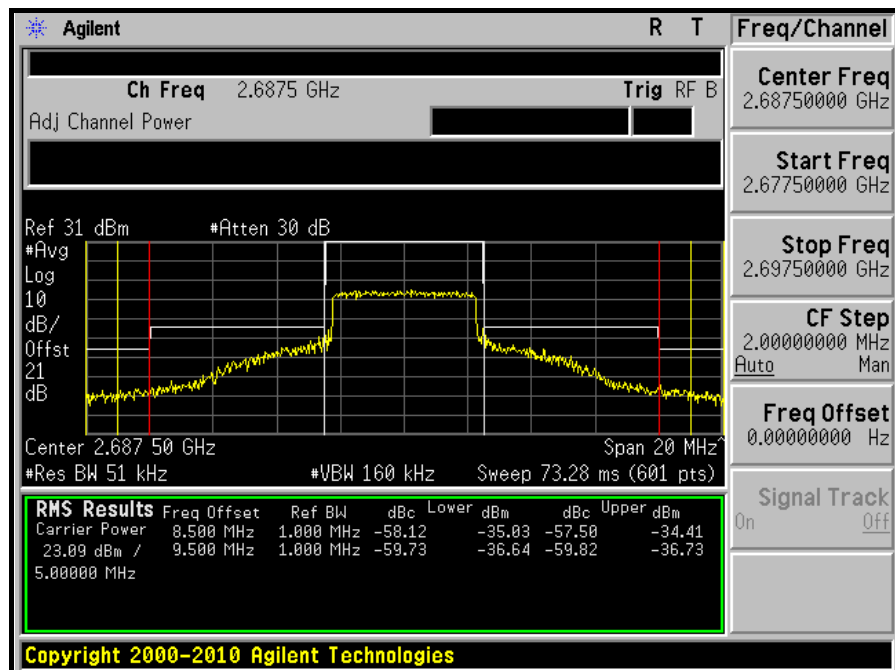
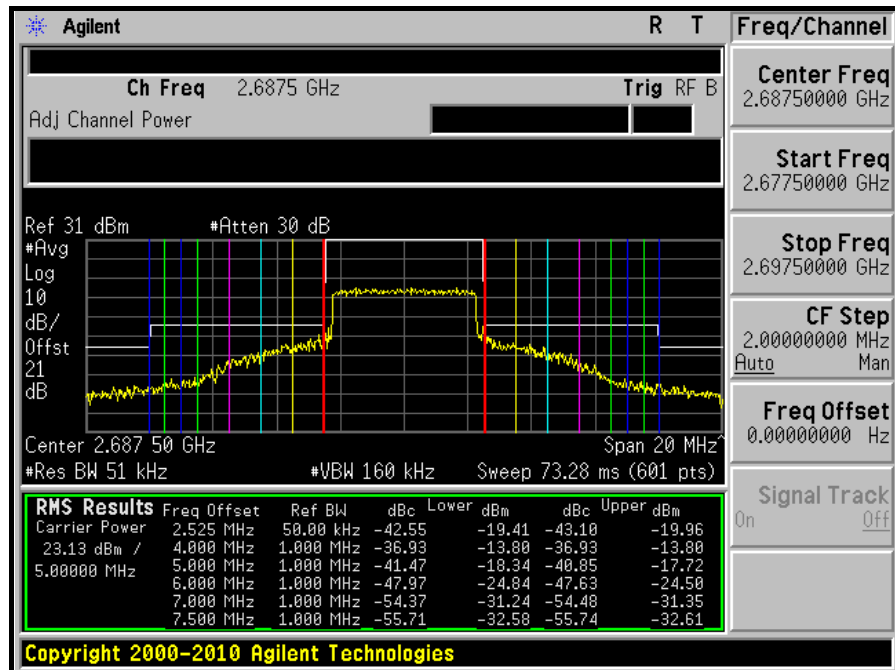
LOW CHANNEL



MIDDLE CHANNEL

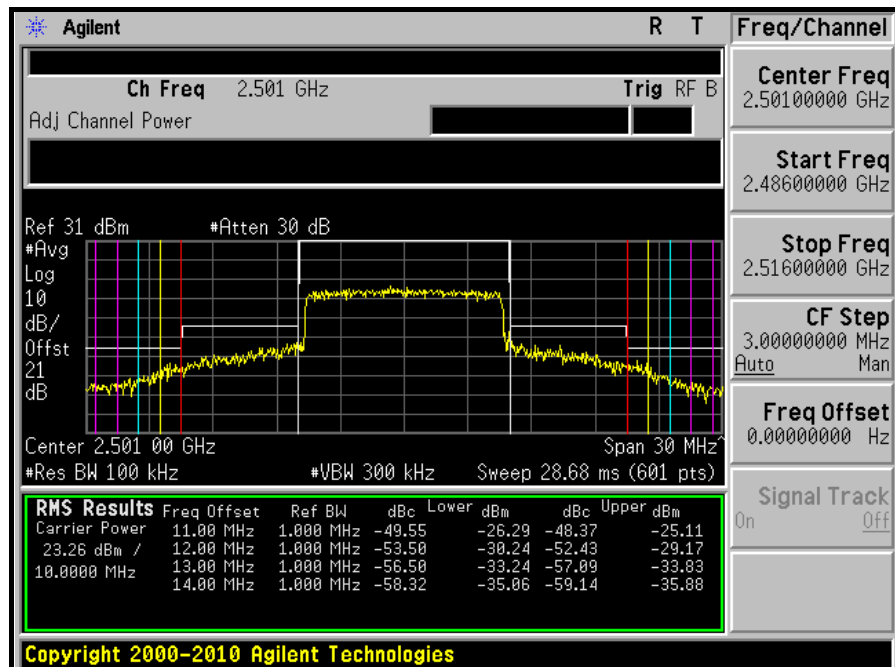
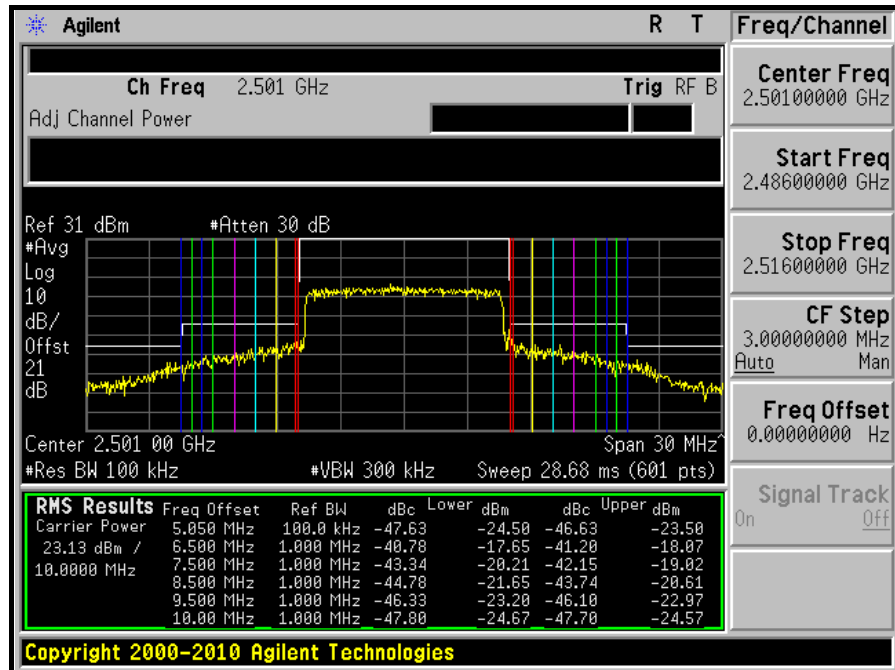


HIGH CHANNEL

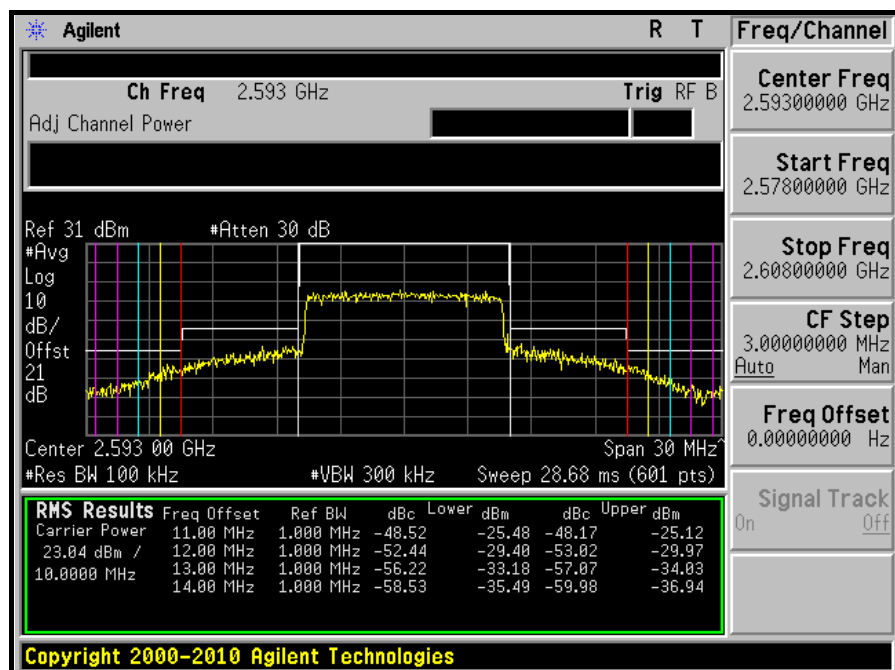
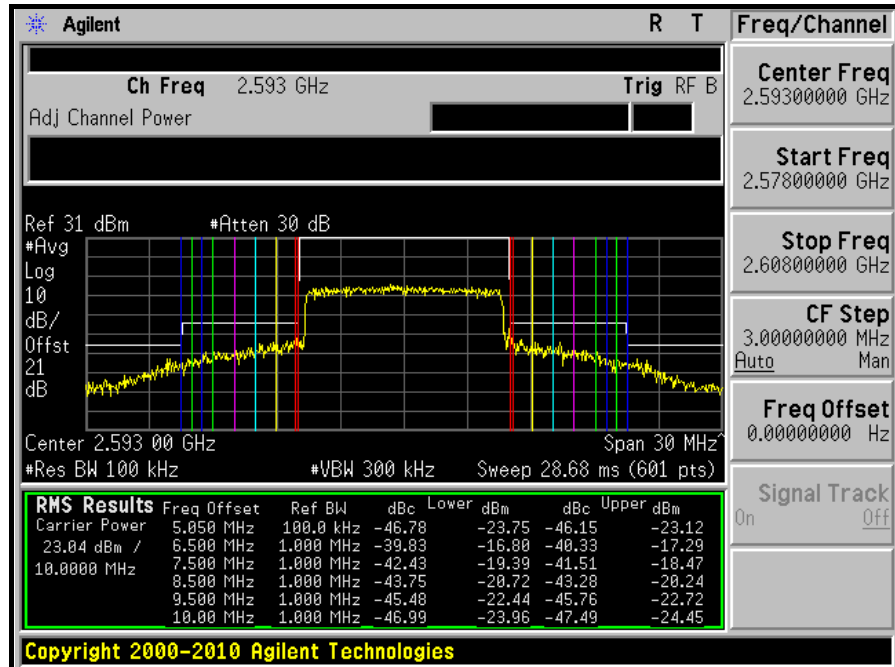


CHANNEL BANDWIDTH: 10MHz

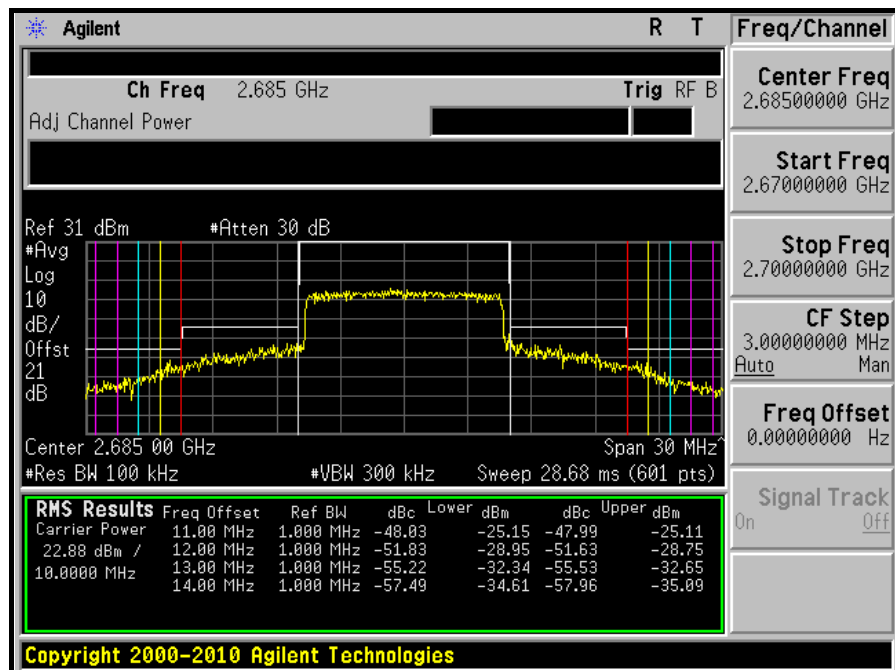
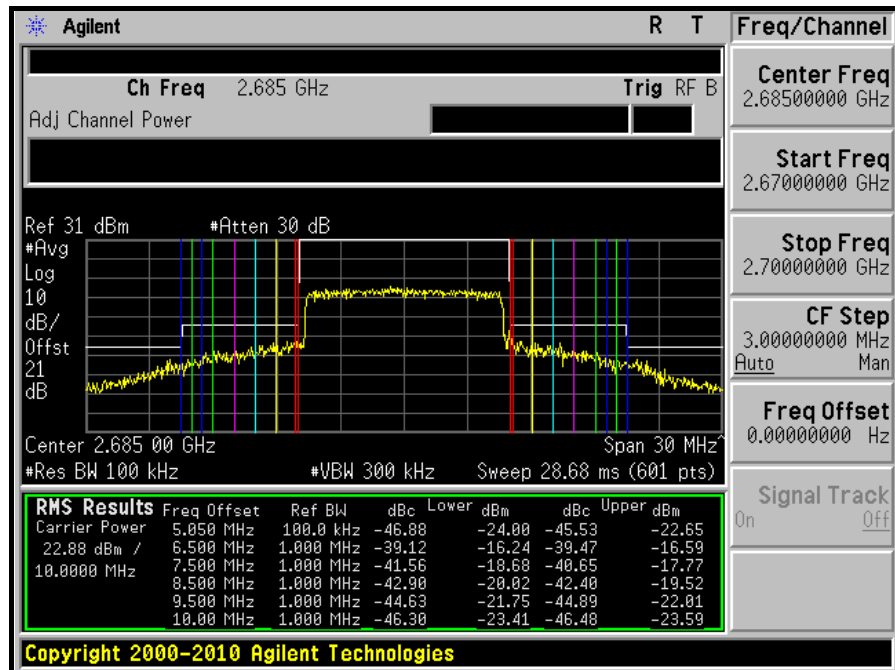
LOW CHANNEL



MIDDLE CHANNEL



HIGH CHANNEL



4.5 CONDUCTED SPURIOUS EMISSIONS

4.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

In the FCC 27.53(m)(4), On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least $55 + 10 \log (P)$ dB. The limit of emission equal to -25 dBm.

4.5.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Spectrum Analyzer Agilent	E4446A	MY44360128	Feb. 22, 2011	Feb. 21, 2012
Wainwright Instruments High Pass Filter	WHK3.1/18G-10 SS	ZZ-010096	Mar. 24, 2011	Mar. 23, 2012
JFW 20dB attenuation	50HF-020-SMA	NA	NA	NA
RF cable	SUCOFLEX 104	257029	Sep. 11, 2010	Sep. 10, 2011

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. 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 20dB pad attenuated the carried frequency. The spectrum set $RB = 1\text{MHz}$, $VB = 3\text{MHz}$.

4.5.4 TEST SETUP

Same as 4.3.4

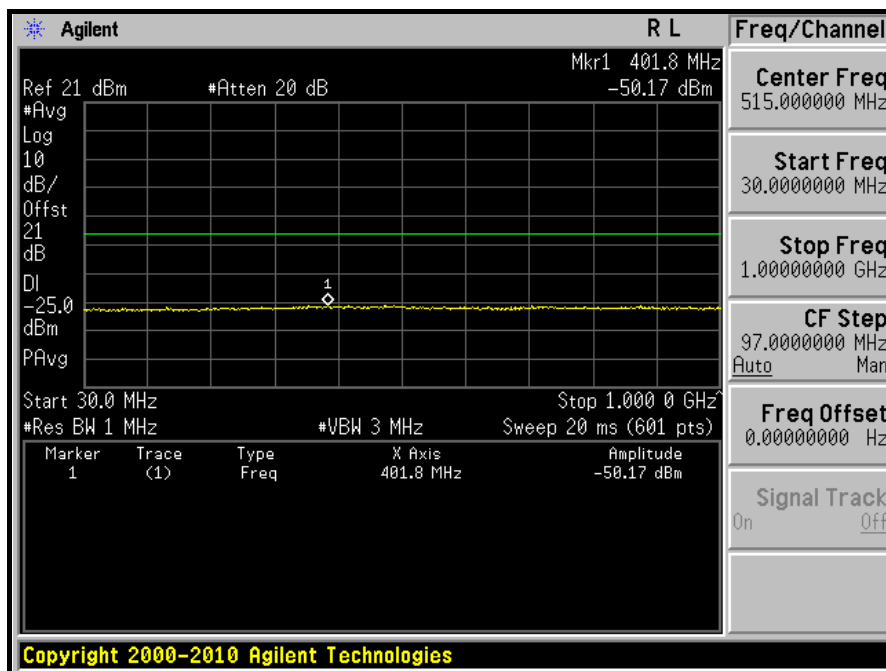
4.5.5 EUT OPERATING CONDITIONS

Same as 4.1.5

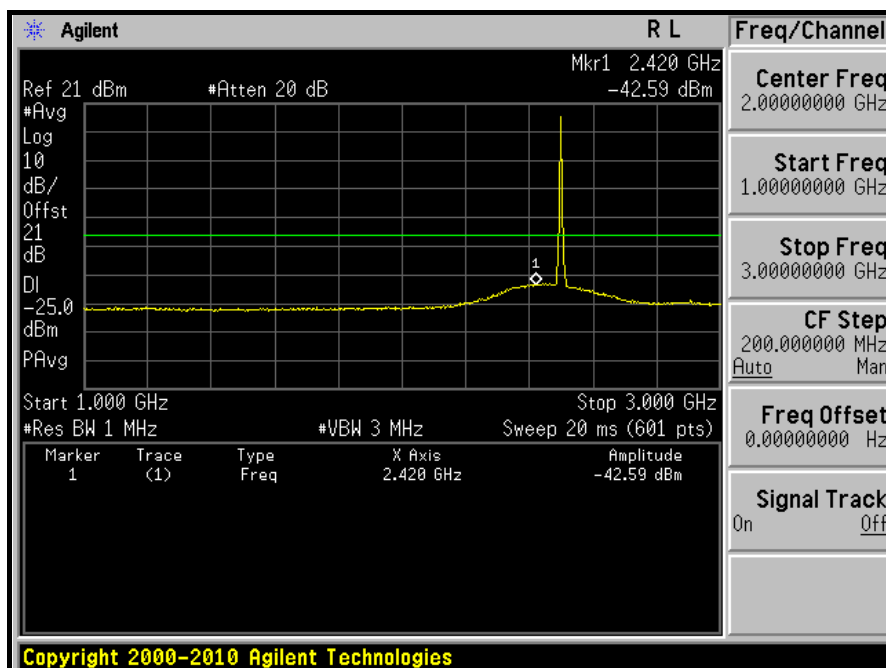
4.5.6 TEST RESULTS

CHANNEL BANDWIDTH: 5MHz

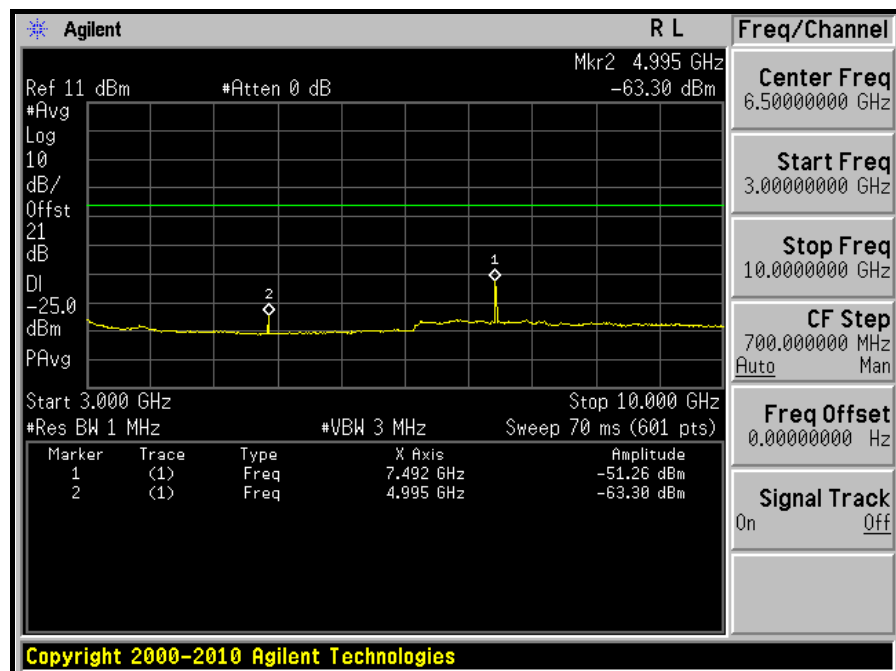
LOW CHANNEL: 30MHz ~ 1GHz:



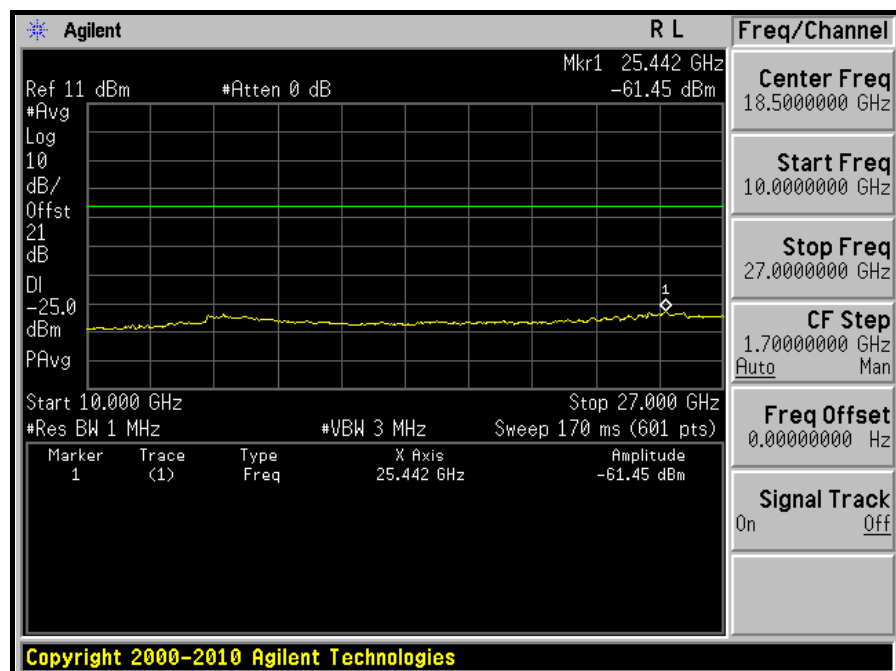
1GHz ~ 3GHz:



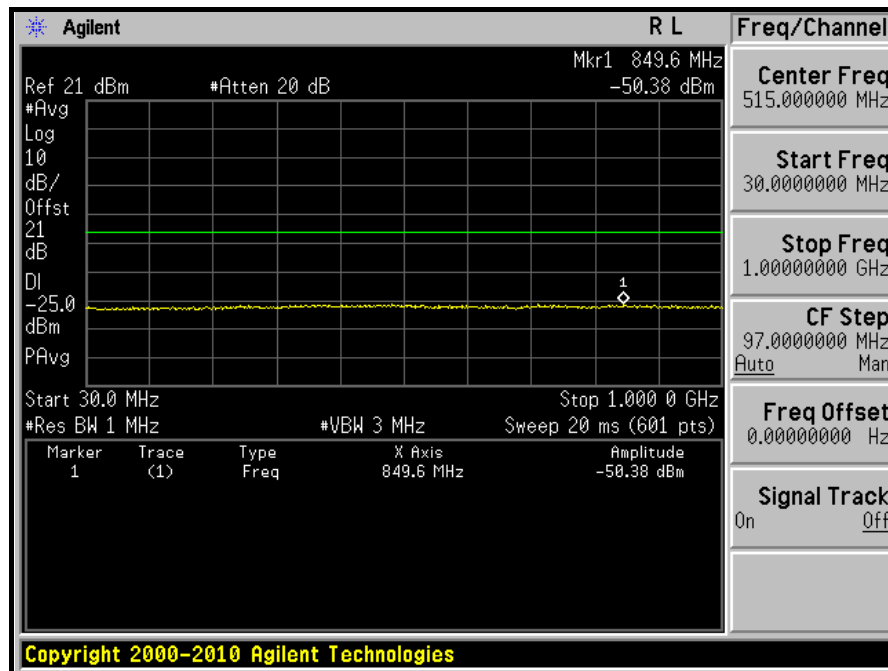
3GHz ~ 10GHz:



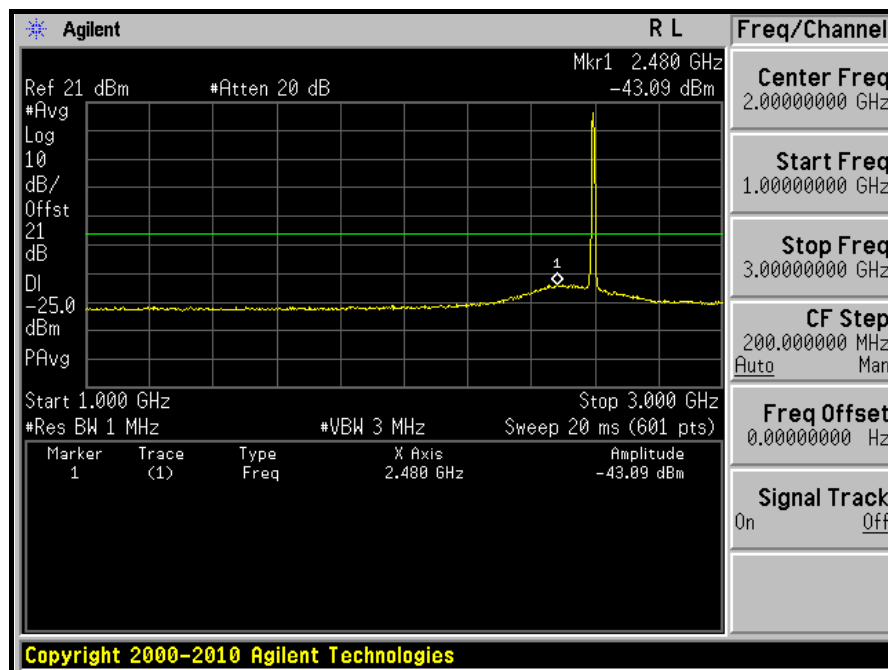
10GHz ~ 27GHz:



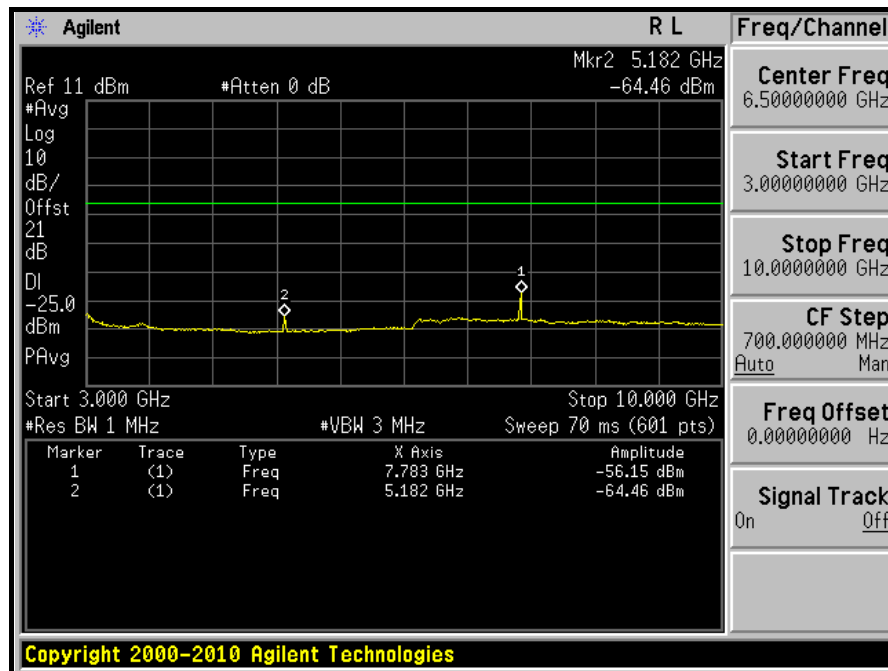
MIDDLE CHANNEL: 30MHz ~ 1GHz:



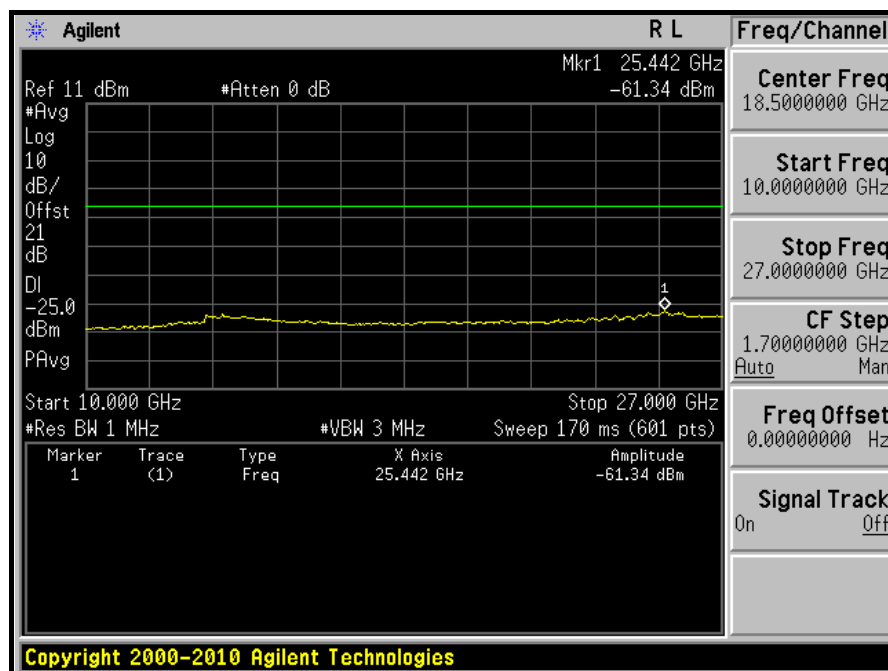
1GHz ~ 3GHz:



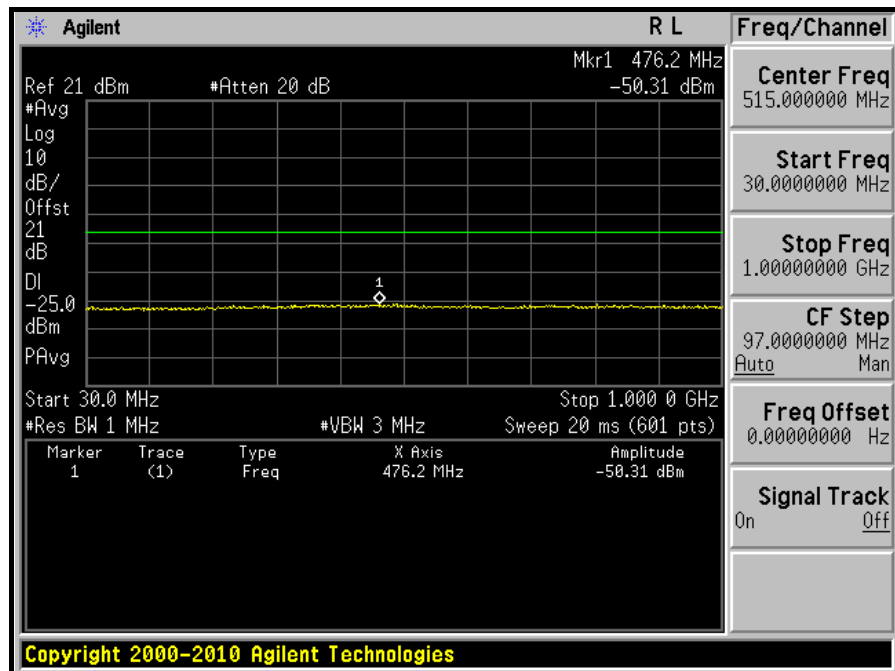
3GHz ~ 10GHz:



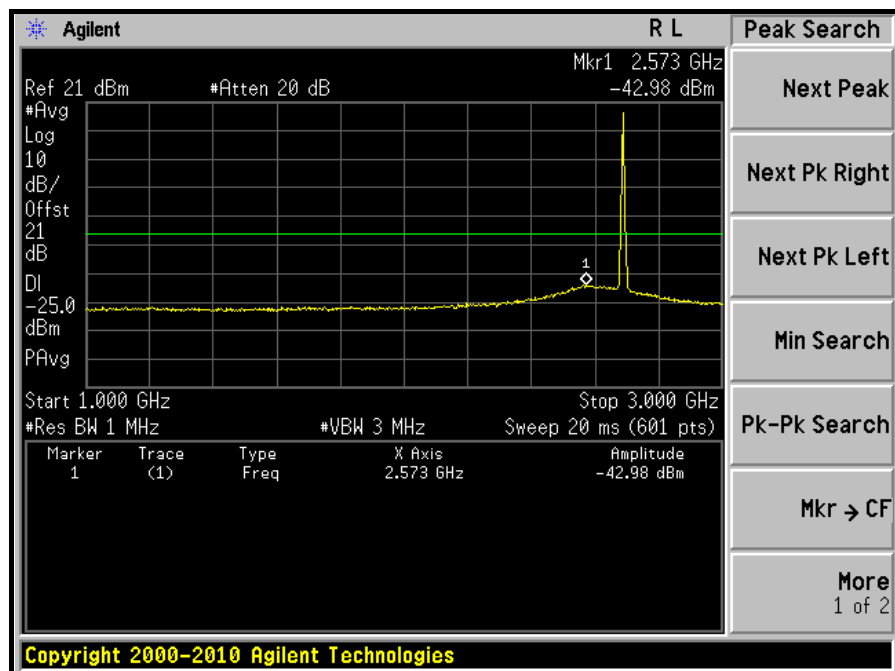
10GHz ~ 27GHz:



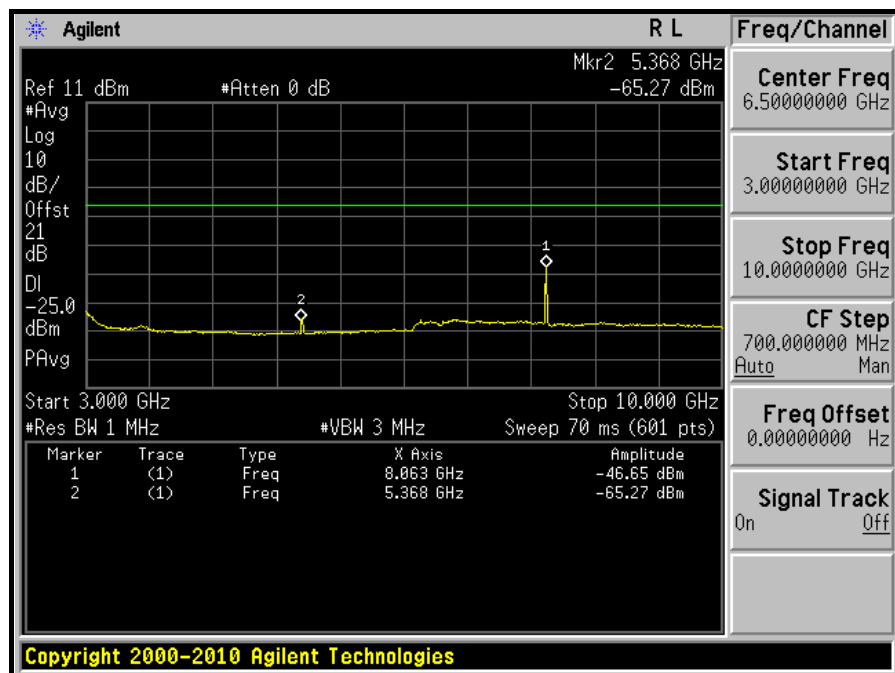
HIGH CHANNEL: 30MHz ~ 1GHz:



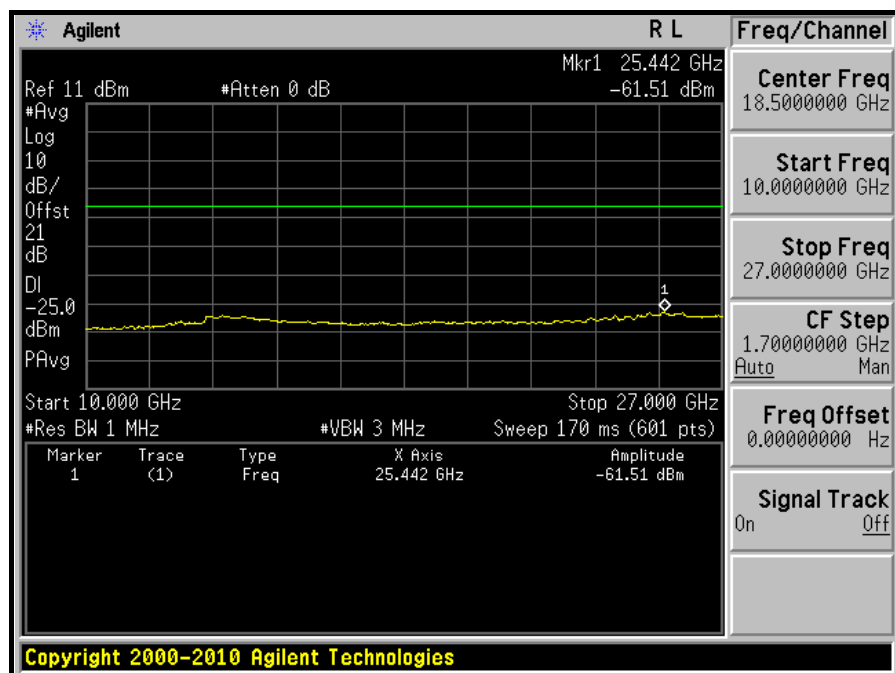
1GHz ~ 3GHz:



3GHz ~ 10GHz:

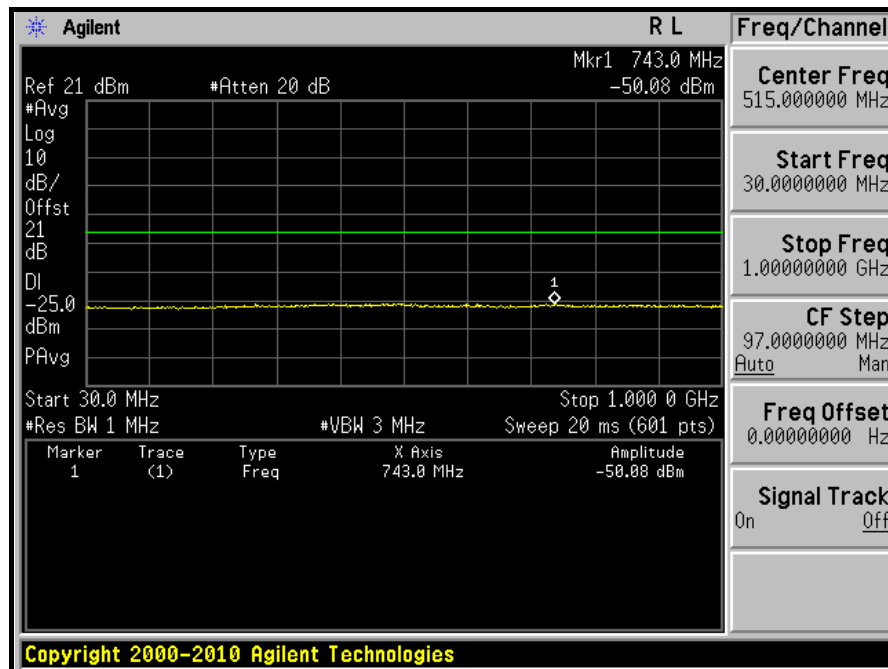


10GHz ~ 27GHz:

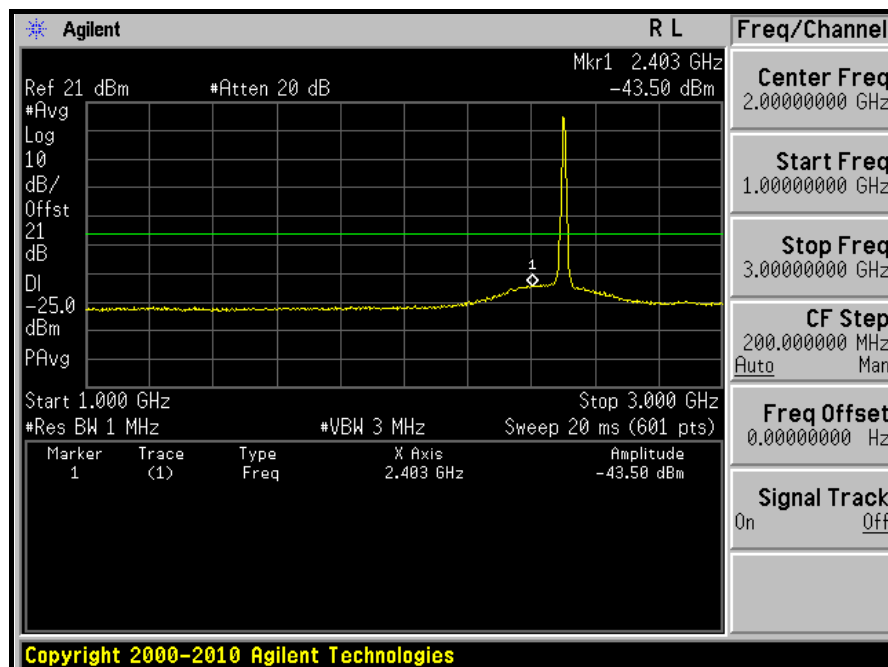


CHANNEL BANDWIDTH: 10MHz

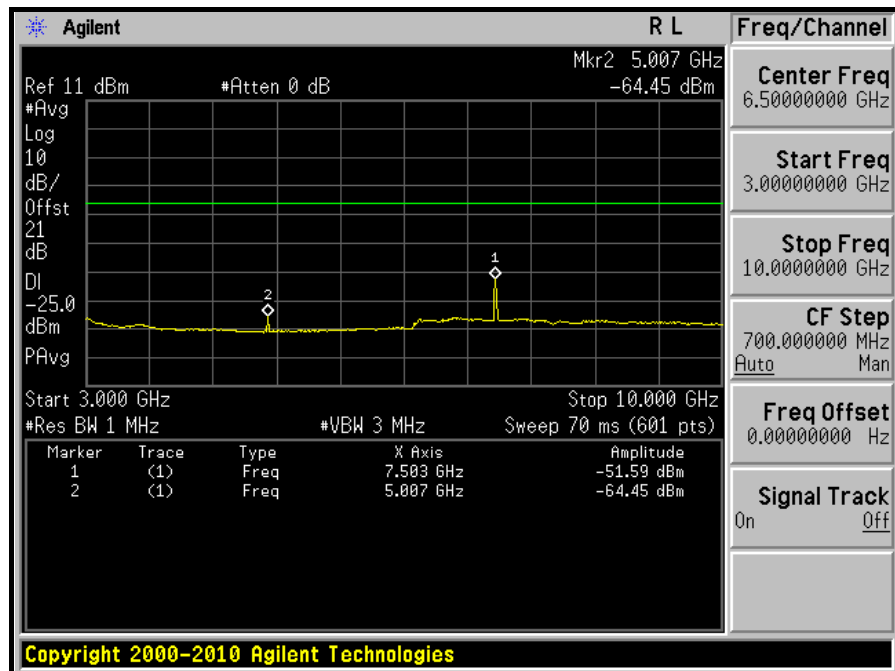
LOW CHANNEL: 30MHz ~ 1GHz:



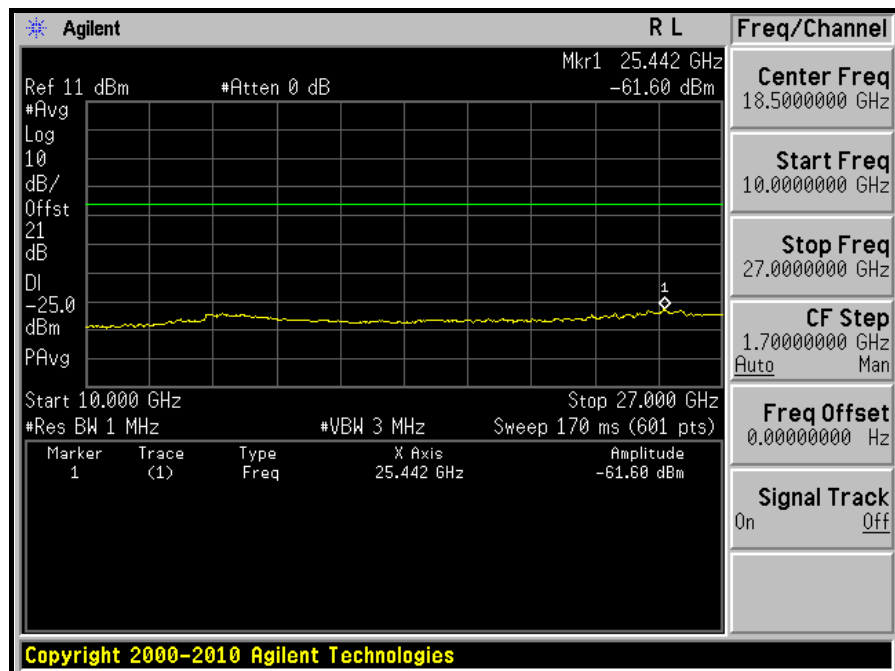
1GHz ~ 3GHz:



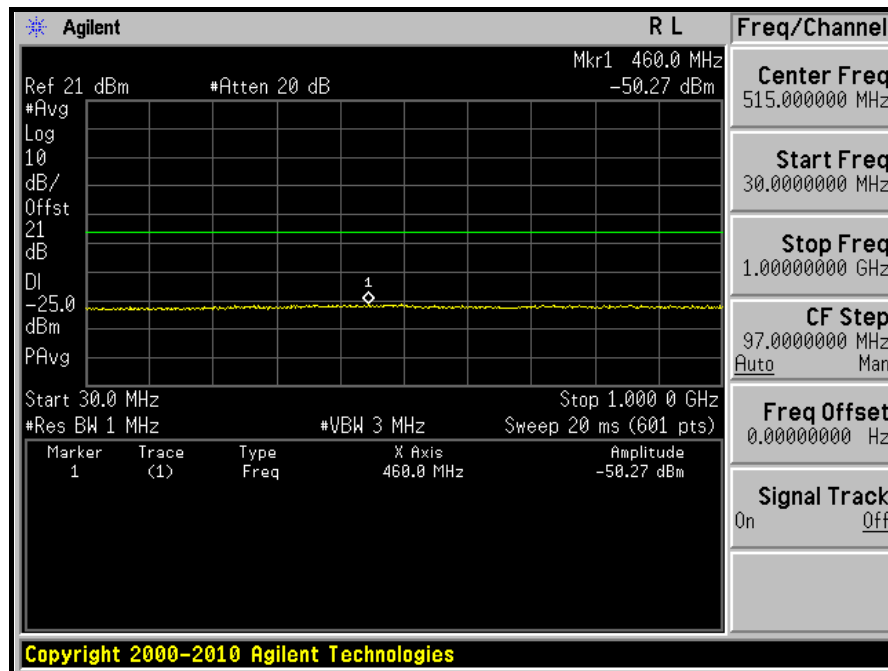
3GHz ~ 10GHz:



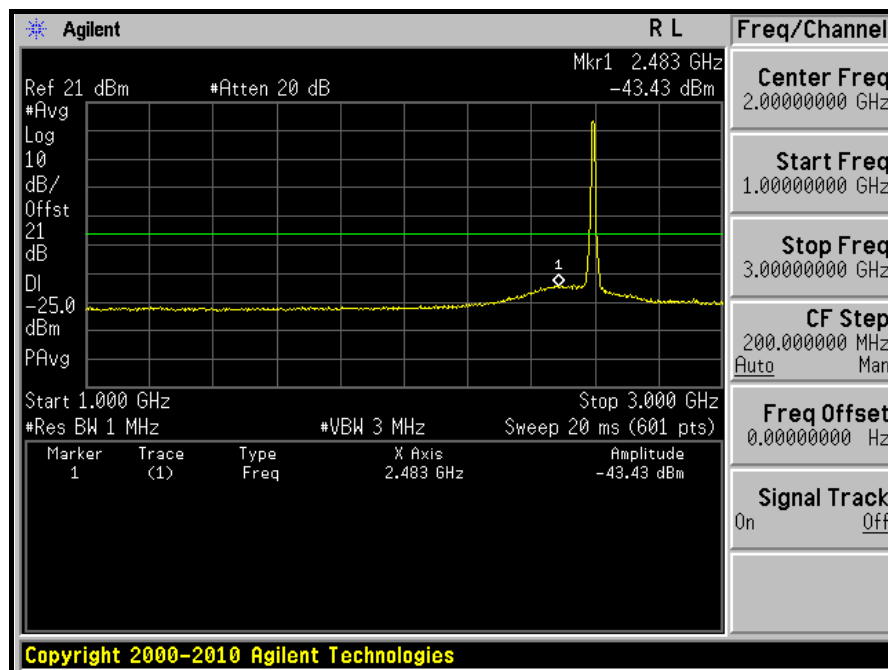
10GHz ~ 27GHz:



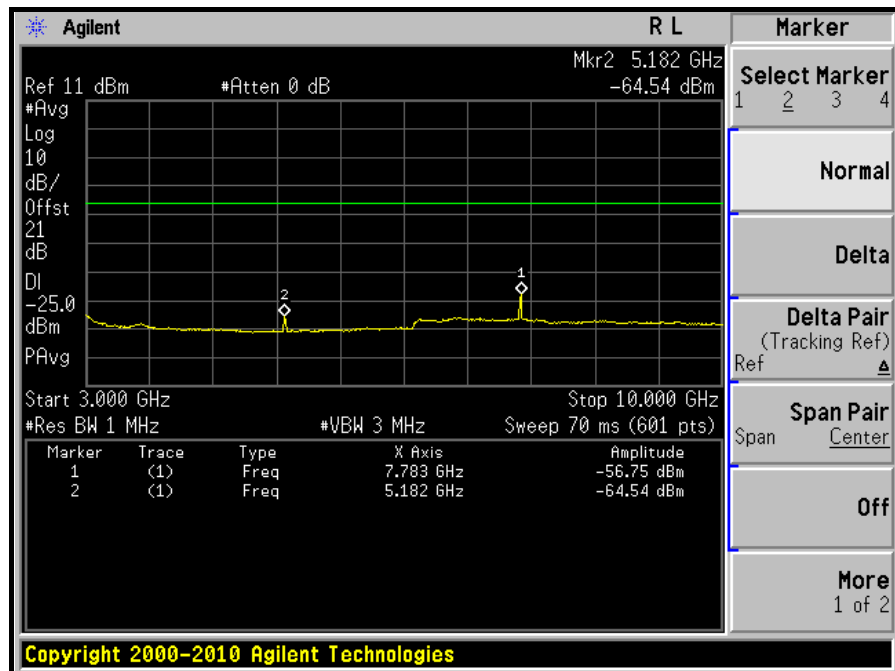
MIDDLE CHANNEL: 30MHz ~ 1GHz:



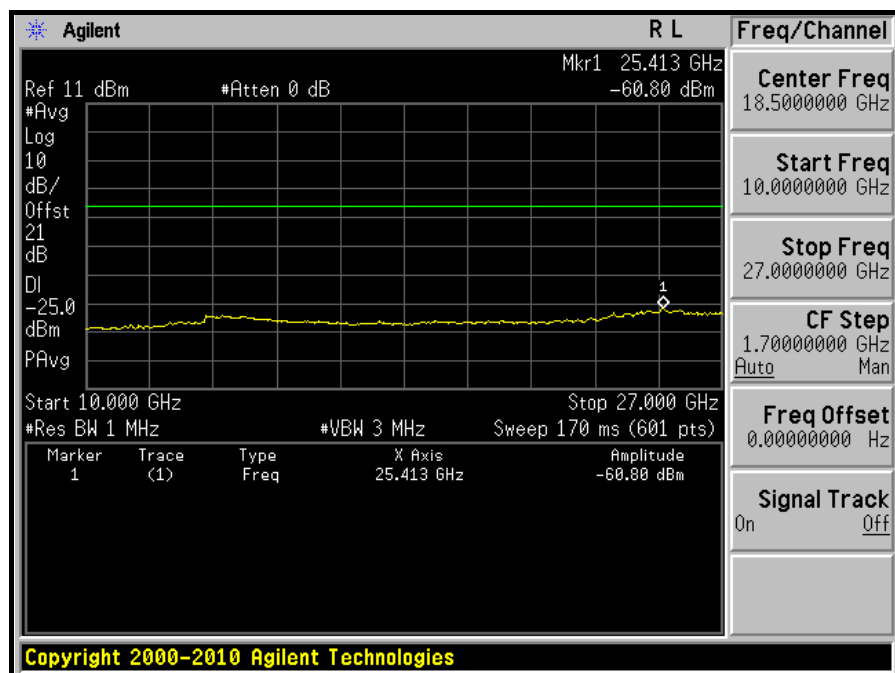
1GHz ~ 3GHz:



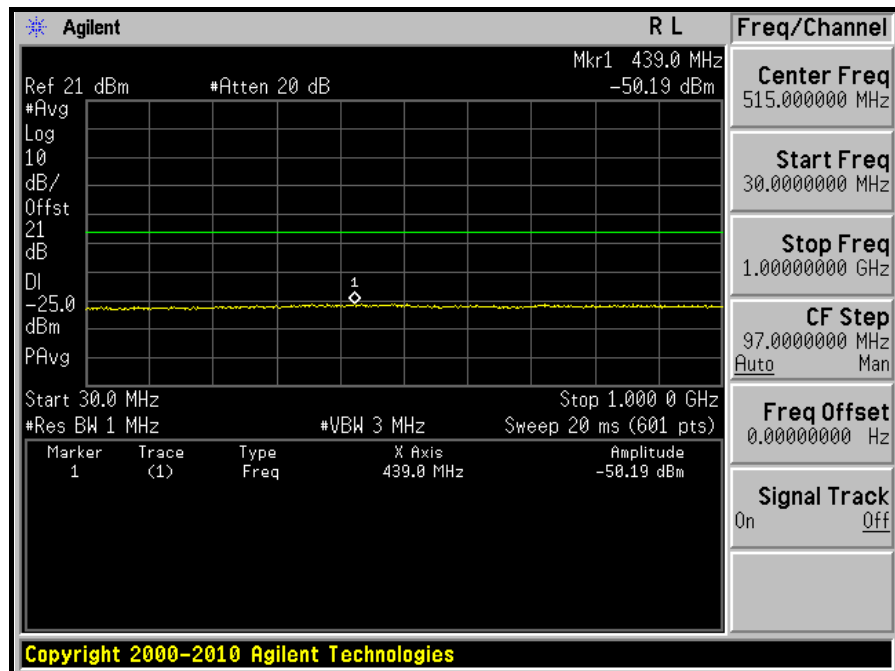
3GHz ~ 10GHz:



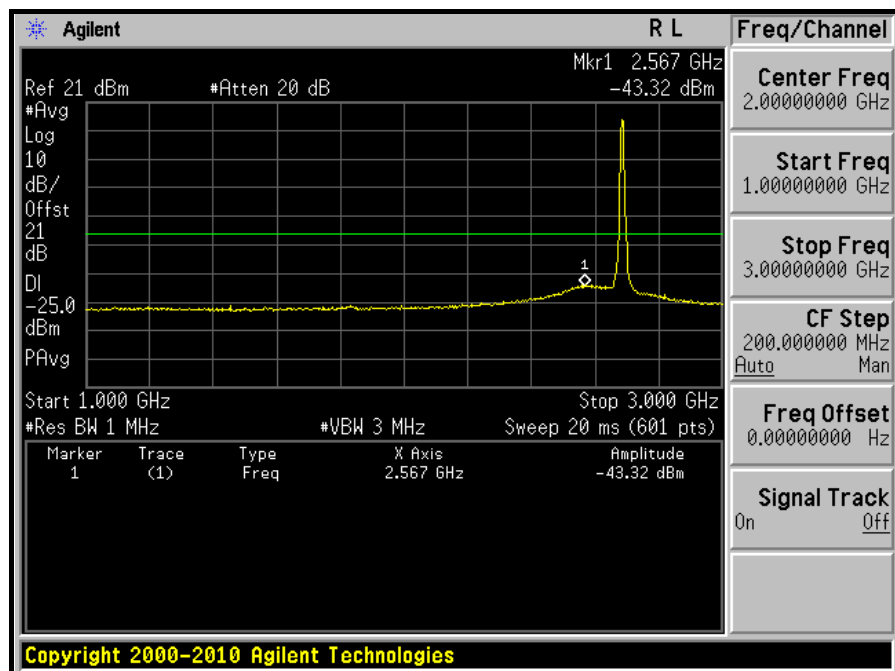
10GHz ~ 27GHz:



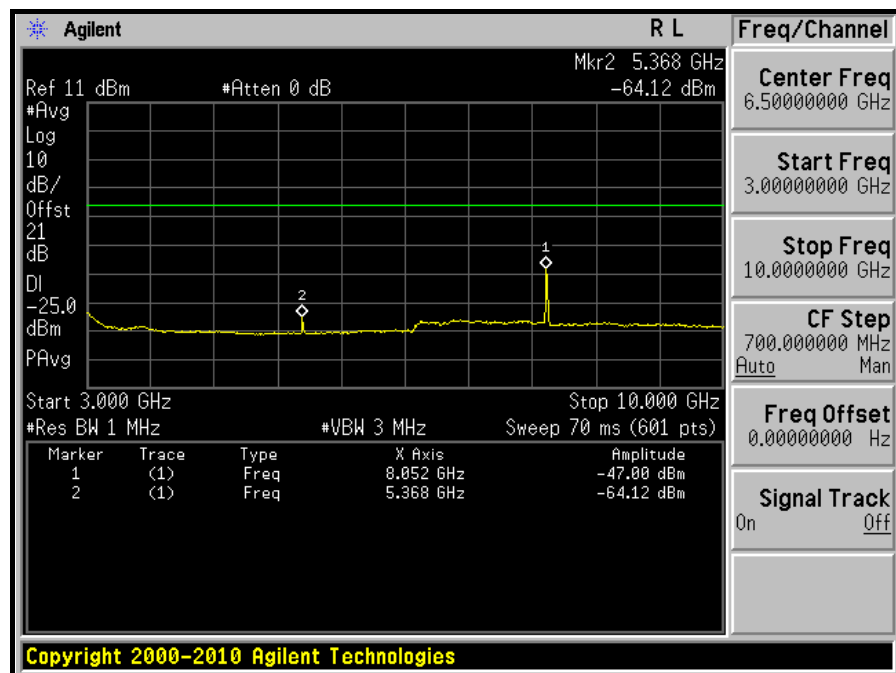
HIGH CHANNEL: 30MHz ~ 1GHz:



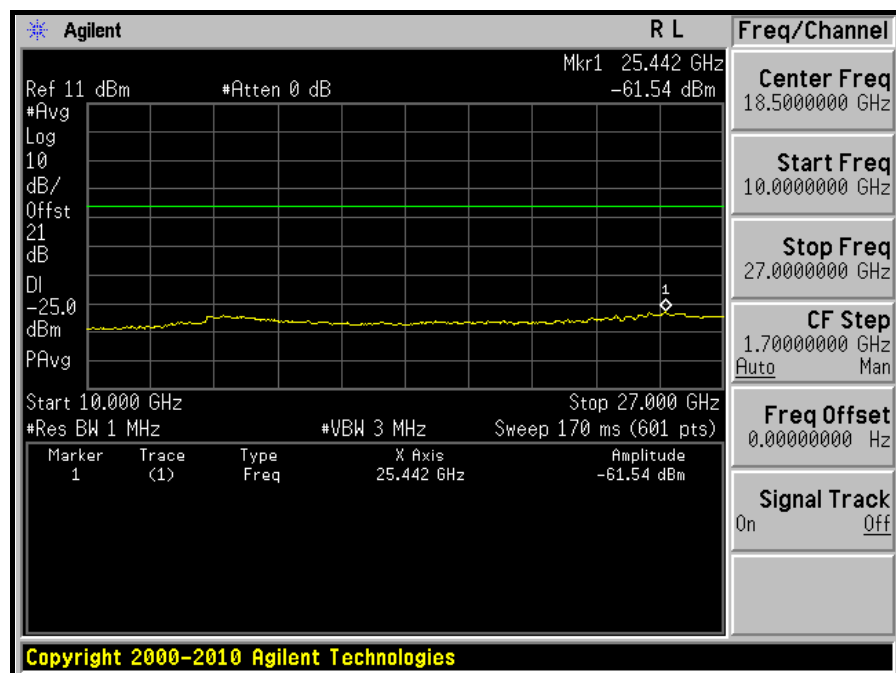
1GHz ~ 3GHz:



3GHz ~ 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 $55 + 10 \log (P)$ dB. The limit of emission equal to -25 dBm.

LIMIT (dBm)	EQUIVALENT FIELD STRENGTH AT 3m (dBuV/m) (NOTE)
-25	70.2

NOTE: The following formula is used to convert the equipment radiated power to field strength.

$$E = [1000000 \sqrt{(30P)}] / 3 \text{ uV/m, where P is Watts.}$$

4.6.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESI7	838496/016	Dec. 27, 2010	Dec. 26, 2011
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	100115	Aug. 02, 2010	Aug. 01, 2011
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Apr. 12, 2011	Apr. 11, 2012
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-408	Jan. 06, 2011	Jan. 05, 2012
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170243	Dec. 27, 2010	Dec. 26, 2011
Preamplifier Agilent	8449B	3008A01961	Nov. 02, 2010	Nov. 01, 2011
Preamplifier Agilent	8447D	2944A10738	Nov. 02, 2010	Nov. 01, 2011
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	250792/4	Sep. 03, 2010	Sep. 02, 2011
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	283397/4	Sep. 03, 2010	Sep. 02, 2011
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	295012/4	Sep. 03, 2010	Sep. 02, 2011
Software ADT.	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA	NA
Antenna Tower Controller inn-co GmbH	CO2000	019303	NA	NA
Turn Table ADT.	TT100.	TT93021704	NA	NA
Turn Table Controller ADT.	SC100.	SC93021704	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 test was performed in HwaYa Chamber 4.

3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.

4. The FCC Site Registration No. is 988962.

5. The IC Site Registration No. is IC7450F-4.

4.6.3 TEST PROCEDURES

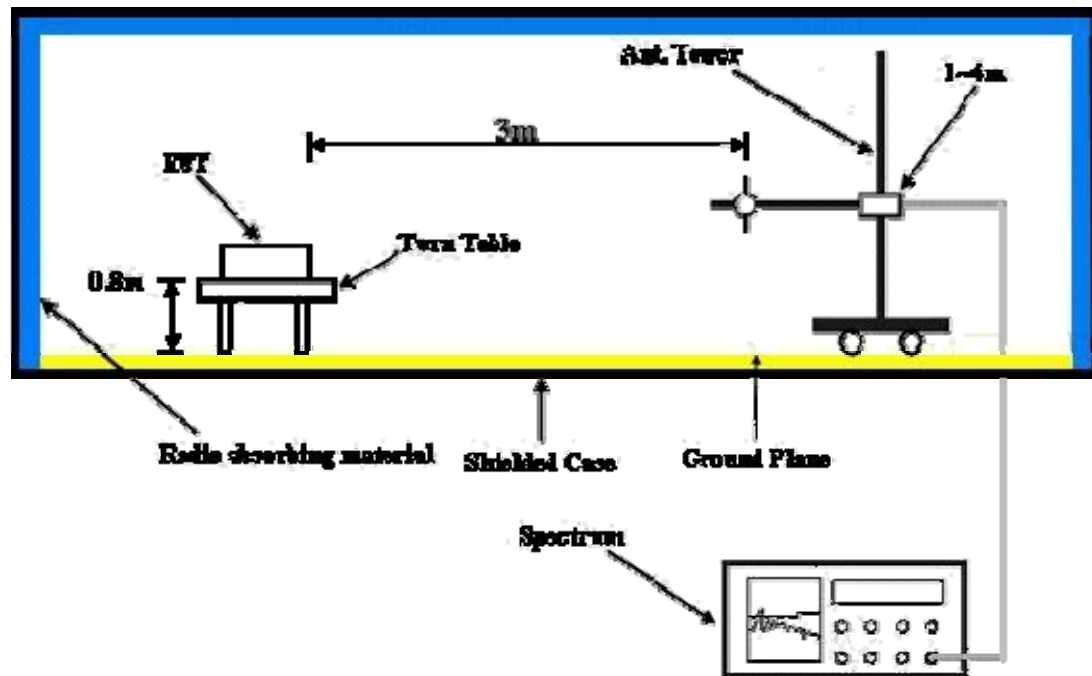
- a. The power was measured with R&S Spectrum Analyzer. All measurements were done at 3 channels (low, middle and high channel of operational frequency range.)
- b. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated 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.
- c. 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
- d. $EIRP = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution antenna}.$

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 4.1.5

4.6.7 TEST RESULTS

BELOW 1GHz WORST-CASE DATA

MODE	High channel	CHANNEL BANDWIDTH	5MHz
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ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	160.24	44.9	70.2	-25.3	1.25 H	97	30.20	14.70
2	302.14	50.0	70.2	-20.2	1.00 H	238	35.00	15.00
3	449.88	44.8	70.2	-25.4	2.00 H	4	26.00	18.80
4	665.65	46.1	70.2	-24.1	1.00 H	304	22.60	23.50
5	749.24	42.4	70.2	-27.8	1.00 H	217	17.70	24.70
6	900.86	39.8	70.2	-30.4	1.50 H	247	12.80	27.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	162.18	45.4	70.2	-24.8	1.00 V	58	30.90	14.50
2	306.03	46.1	70.2	-24.1	1.50 V	142	31.00	15.10
3	498.48	41.9	70.2	-28.3	1.00 V	169	21.70	20.20
4	665.65	41.1	70.2	-29.1	1.25 V	184	17.60	23.50
5	751.18	40.5	70.2	-29.7	2.00 V	52	15.80	24.70
6	902.81	46.4	70.2	-23.8	1.00 V	184	19.40	27.00

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.



A D T

MODE	Low channel	CHANNEL BANDWIDTH	10MHz
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ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	160.24	44.4	70.2	-25.8	1.50 H	94	29.70	14.70
2	311.86	49.2	70.2	-21.0	1.00 H	244	34.00	15.20
3	449.88	44.6	70.2	-25.6	2.00 H	337	25.80	18.80
4	566.51	42.7	70.2	-27.5	1.50 H	295	21.00	21.70
5	665.65	43.5	70.2	-26.7	1.00 H	298	20.00	23.50
6	751.18	41.2	70.2	-29.0	2.00 H	205	16.50	24.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	37.78	48.2	70.2	-22.0	1.00 V	154	34.70	13.50
2	162.18	44.0	70.2	-26.2	1.00 V	106	29.50	14.50
3	306.03	45.3	70.2	-24.9	1.50 V	154	30.20	15.10
4	535.41	42.0	70.2	-28.2	1.25 V	157	21.00	21.00
5	667.60	42.4	70.2	-27.8	1.50 V	124	18.80	23.60
6	749.24	40.3	70.2	-29.9	2.00 V	94	15.60	24.70

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.

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 $55 + 10 \log (P)$ dB. The limit of emission equal to -25 dBm.

4.7.2 TEST INSTRUMENTS

Same as 4.6.2

4.7.3 TEST PROCEDURES

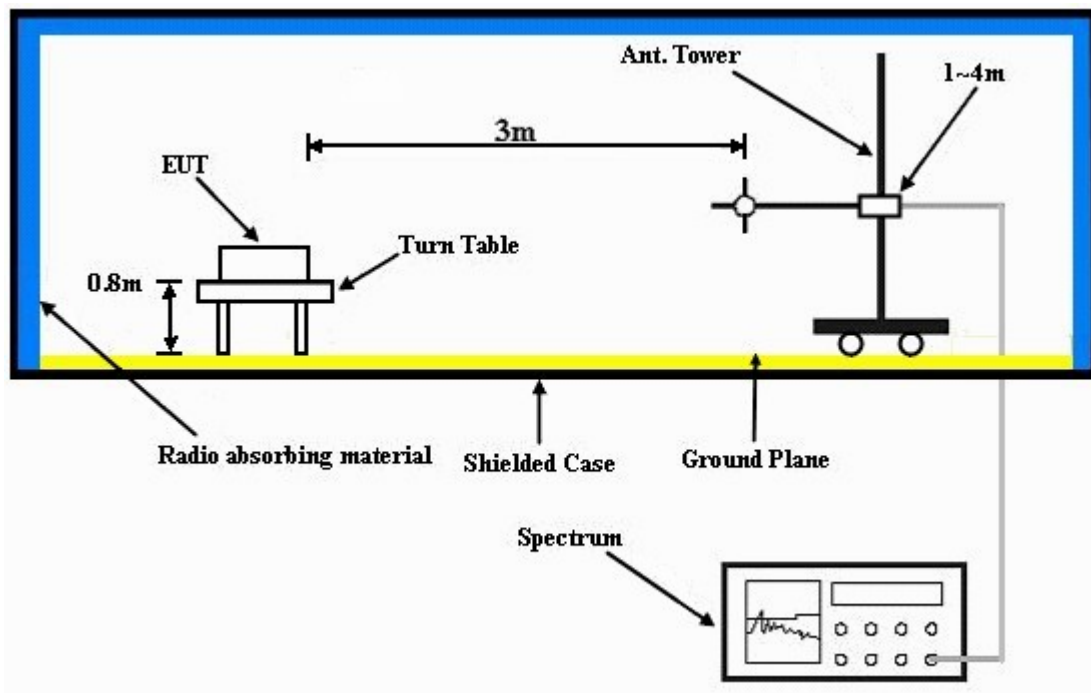
- a. The power was measured with R&S Spectrum Analyzer. All measurements were done at 3 channels (low, middle and high channel of operational frequency range.)
- b. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated 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.
- c. 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
- d. 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

4.7.4 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 4.6.6.



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4.7.7 TEST RESULTS

MODE	Low channel	FREQUENCY RANGE	Above 1000MHz
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25degoC, 65%RH
CHANNEL BANDWIDTH	5MHz	TESTED BY	Mark Liao

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3m						
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV)	LIMIT (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	POWER VALUE (dBm)
1	4997.0	42.1	-25.0	-62.0	9.5	-52.5
2	7495.5	51.1	-25.0	-51.2	7.8	-43.4
3	9994.0	47.7	-25.0	-54.2	7.5	-46.7
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3m						
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV)	LIMIT (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	POWER VALUE (dBm)
1	4997.0	39.9	-25.0	-64.2	9.5	-54.7
2	7495.5	50.2	-25.0	-52.1	7.8	-44.3
3	9994.0	48.4	-25.0	-53.5	7.5	-46.0

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

NOTE 2: Correction Factor = Antenna gain of substitution antenna- tx cable loss

**A D T**

MODE	Middle channel	FREQUENCY RANGE	Above 1000MHz
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25degoC, 65%RH
CHANNEL BANDWIDTH	5MHz	TESTED BY	Mark Liao

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3m						
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV)	LIMIT (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	POWER VALUE (dBm)
1	5186.0	41.8	-25.0	-62.5	9.7	-52.8
2	7779.0	51.2	-25.0	-51.1	7.8	-43.3
3	10372.0	47.5	-25.0	-54.1	7.1	-47.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3m						
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV)	LIMIT (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	POWER VALUE (dBm)
1	5186.0	39.6	-25.0	-64.7	9.7	-55.0
2	7779.0	50.8	-25.0	-51.5	7.8	-43.7
3	10372.0	48.6	-25.0	-53.0	7.1	-45.9

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

NOTE 2: Correction Factor = Antenna gain of substitution antenna- tx cable loss



A D T

MODE	High channel	FREQUENCY RANGE	Above 1000MHz
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25degoC, 65%RH
CHANNEL BANDWIDTH	5MHz	TESTED BY	Mark Liao

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3m						
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV)	LIMIT (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	POWER VALUE (dBm)
1	5375.0	43.2	-25.0	-61.0	9.7	-51.3
2	8062.5	51.6	-25.0	-50.8	7.8	-43.0
3	10750.0	48.9	-25.0	-52.2	6.7	-45.5
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3m						
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV)	LIMIT (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	POWER VALUE (dBm)
1	5375.0	40.2	-25.0	-64.0	9.7	-54.3
2	8062.5	49.3	-25.0	-53.1	7.8	-45.3
3	10750.0	49.1	-25.0	-52.0	6.7	-45.3

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

NOTE 2: Correction Factor = Antenna gain of substitution antenna- tx cable loss



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MODE	Low channel	FREQUENCY RANGE	Above 1000MHz
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25degoC, 65%RH
CHANNEL BANDWIDTH	10MHz	TESTED BY	Mark Liao

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3m						
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV)	LIMIT (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	POWER VALUE (dBm)
1	5002.0	37.5	-25.0	-66.6	9.5	-57.1
2	7503.0	45.3	-25.0	-57.0	7.8	-49.2
3	10004.0	47.6	-25.0	-54.3	7.5	-46.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3m						
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV)	LIMIT (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	POWER VALUE (dBm)
1	5002.0	39.4	-25.0	-64.7	9.5	-55.2
2	7503.0	46.9	-25.0	-55.4	7.8	-47.6
3	10004.0	48.4	-25.0	-53.5	7.5	-46.0

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

NOTE 2: Correction Factor = Antenna gain of substitution antenna- tx cable loss

**A D T**

MODE	Middle channel	FREQUENCY RANGE	Above 1000MHz
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25degoC, 65%RH
CHANNEL BANDWIDTH	10MHz	TESTED BY	Mark Liao

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3m						
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV)	LIMIT (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	POWER VALUE (dBm)
1	5186.0	36.9	-25.0	-67.4	9.7	-57.7
2	7779.0	48.4	-25.0	-53.9	7.8	-46.1
3	10372.0	48.6	-25.0	-53.0	7.1	-45.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3m						
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV)	LIMIT (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	POWER VALUE (dBm)
1	5186.0	39.1	-25.0	-65.2	9.7	-55.5
2	7779.0	39.0	-25.0	-63.3	7.8	-55.5
3	10372.0	48.2	-25.0	-53.4	7.1	-46.3

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

NOTE 2: Correction Factor = Antenna gain of substitution antenna- tx cable loss



A D T

MODE	High channel	FREQUENCY RANGE	Above 1000MHz
INPUT POWER	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	25degoC, 65%RH
CHANNEL BANDWIDTH	10MHz	TESTED BY	Mark Liao

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3m						
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV)	LIMIT (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	POWER VALUE (dBm)
1	5370.0	39.5	-25.0	-64.7	9.7	-55.0
2	8055.0	47.8	-25.0	-54.6	7.8	-46.8
3	10740.0	48.5	-25.0	-52.6	6.7	-45.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3m						
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV)	LIMIT (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	POWER VALUE (dBm)
1	5370.0	38.7	-25.0	-65.5	9.7	-55.8
2	8055.0	48.4	-25.0	-54.0	7.8	-46.2
3	10740.0	48.9	-25.0	-52.2	6.7	-45.5

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

NOTE 2: Correction Factor = Antenna gain of substitution antenna- tx cable loss



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5 PHOTOGRAPHS OF THE TEST CONFIGURATION

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



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6 INFORMATION ON THE TESTING LABORATORIES

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