



**FCC CFR47 PART 15 SUBPART C
INDUSTRY CANADA RSS-210 ISSUE 7**

CERTIFICATION TEST REPORT

FOR

2.4 GHZ TRANSCEIVER

MODEL NUMBER: A2500R24C, A2500R24A

FCC ID: X7J-A10030501

IC: 8975A-A10030501

REPORT NUMBER: 10U13225-1, Revision A

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Prepared for

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NVLAP LAB CODE 200065-0

Revision History

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
--	06/15/10	Initial Issue	T. Chan
A	7/12/10	Correction on MSK 99% BW	C. Pang

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: ANAREN, INC
6635 KIRKVILLE ROAD
EAST SYRACUSE, NY, 13057, U.S.A.

EUT DESCRIPTION: 2.4 GHZ TRANSCEIVER

MODEL: A2500R24C, A2500R24A

SERIAL NUMBER: 0002581020

DATE TESTED: MAY 28-JUNE 08, 2010

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	Pass
INDUSTRY CANADA RSS-210 Issue 7 Annex 8	Pass
INDUSTRY CANADA RSS-GEN Issue 2	Pass

Compliance Certification Services, Inc. (CCS) tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by CCS based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by CCS and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by CCS will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Approved & Released For CCS By:

Tested By:



THU CHAN
EMC MANAGER
COMPLIANCE CERTIFICATION SERVICES

CHIN PANG
EMC ENGINEER
COMPLIANCE CERTIFICATION SERVICES

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10-2009, FCC CFR 47 Part 2, FCC CFR 47 Part 15, RSS-GEN Issue 2, and RSS-210 Issue 7.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA.

CCS is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at <http://www.ccsemc.com>.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

$$\begin{aligned} \text{Field Strength (dBuV/m)} &= \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \\ &\text{Cable Loss (dB)} - \text{Preamp Gain (dB)} \\ 36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} &= 28.9 \text{ dBuV/m} \end{aligned}$$

4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	3.52 dB
Radiated Disturbance, 30 to 1000 MHz	4.94 dB

Uncertainty figures are valid to a confidence level of 95%.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a 2.4 GHz Transceiver.

5.2. MANUFACTURER'S DESCRIPTION OF MODEL DIFFERENCES

A2500R24C and A2500R24A are Identical, except A2500R24C has a U.FL connector, and A2500R24A has an integral printed antenna.

5.3. MAXIMUM OUTPUT POWER

The transmitter has a maximum peak conducted output power as follows:

Frequency Range (MHz)	Mode	Modulation	Output Power (dBm)	Output Power (mW)
2401.3 - 2480.4	DSSS	2FSK	1.32	1.36
2401.8 - 2480.3	DSSS	MSK	1.24	1.33

5.4. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes Patch, Monopole and PCB antenna with maximum peak gains of 5dBi on patch antenna, 3dBi gain on Monopole and 2dBi on PCB antennas.

5.5. SOFTWARE AND FIRMWARE

The EUT Firmware software installed during testing was v01.00

The test utility software used during testing was AirFCC, V1.0.0.7.

5.6. WORST-CASE CONFIGURATION AND MODE

The worst-case channel is determined as the channel with the highest output power.

The EUT with patch and PCB antenna have been investigated on X, Y and Z position. The worst case was found to be at Y orientation.

5.7. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
Laptop	Lenovo	T61	L3-B9034	DoC
AC Adapter	Lenovo	92P1105	11S92P1105Z1ZBW973VOK	DoC

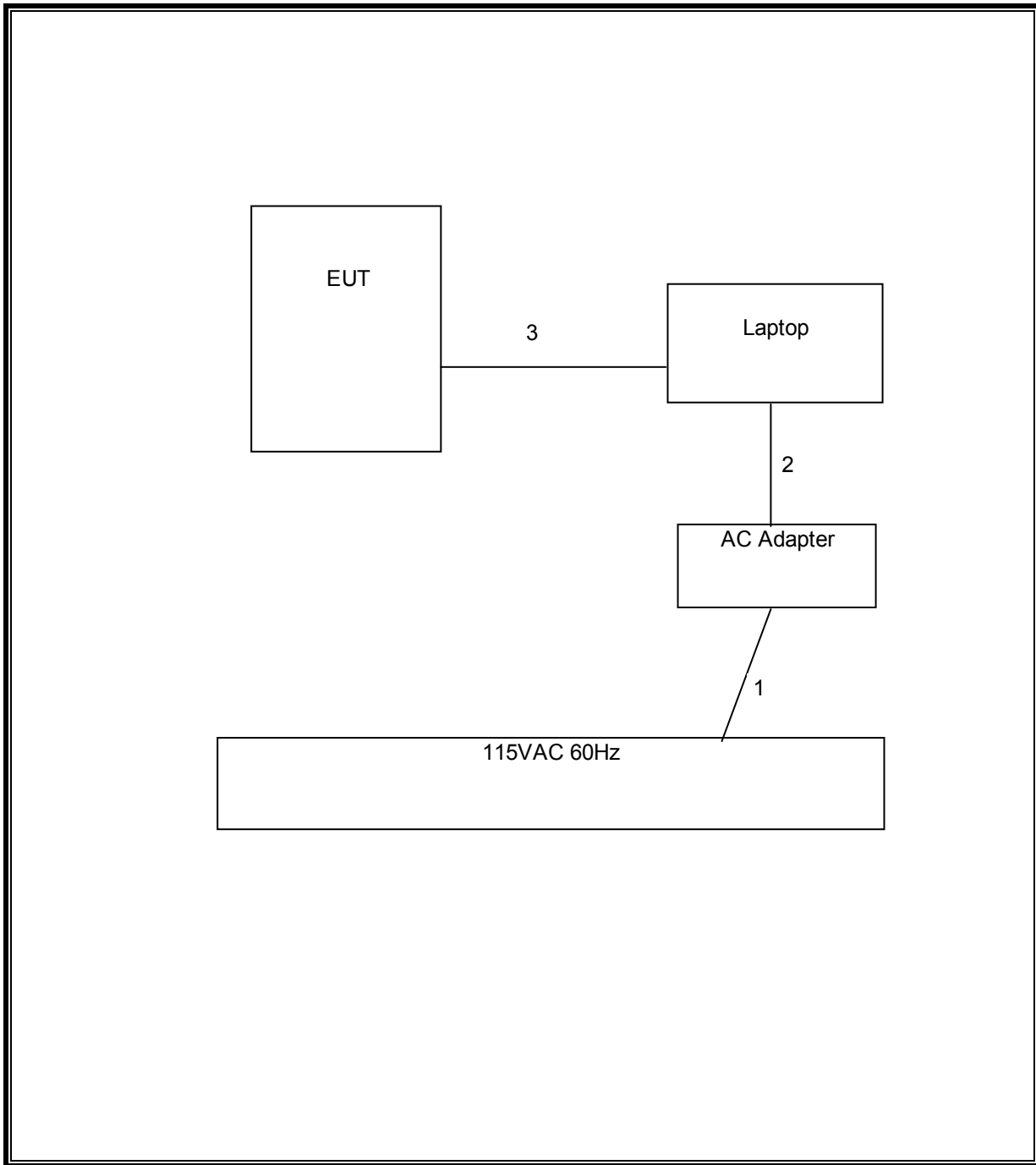
I/O CABLES

I/O CABLE LIST						
Cable No.	Port	# of Identic Ports	Connector Type	Cable Type	Cable Length	Remarks
1	AC	1	US 115V	Un-shielded	2m	One ferrite at Laptop's end.
2	DC	1	DC	Un-shielded	2m	NA
3	USB	1	EUT	Un-shielded	2m	NA

TEST SETUP

The EUT is connected to a host laptop computer during the tests. Test software exercised the radio card.

SETUP DIAGRAM FOR TESTS



6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

TEST EQUIPMENT LIST				
Description	Manufacturer	Model	Asset	Cal Due
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01016	07/14/10
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01052	08/04/10
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01176	08/24/10
Antenna, Horn, 18 GHz	EMCO	3115	C00945	07/29/10
LISN, 30 MHz	FCC	LISN-50/250-25-2	N02625	11/06/10
EMI Test Receiver, 30 MHz	R & S	ESHS 20	N02396	05/06/11
Reject Filter, 2.4-2.5 GHz	Micro-Tronics	BRC13192	N02683	CNR
Peak Power Meter	Boonton	4541	C01186	03/01/11
Peak Power Sensor	Boonton	57318	C01202	02/23/11

7. ANTENNA PORT TEST RESULTS

7.1.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

IC RSS-210 A8.2 (a)

The minimum 6 dB bandwidth shall be at least 500 kHz.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

RESULTS

2FSK MODE

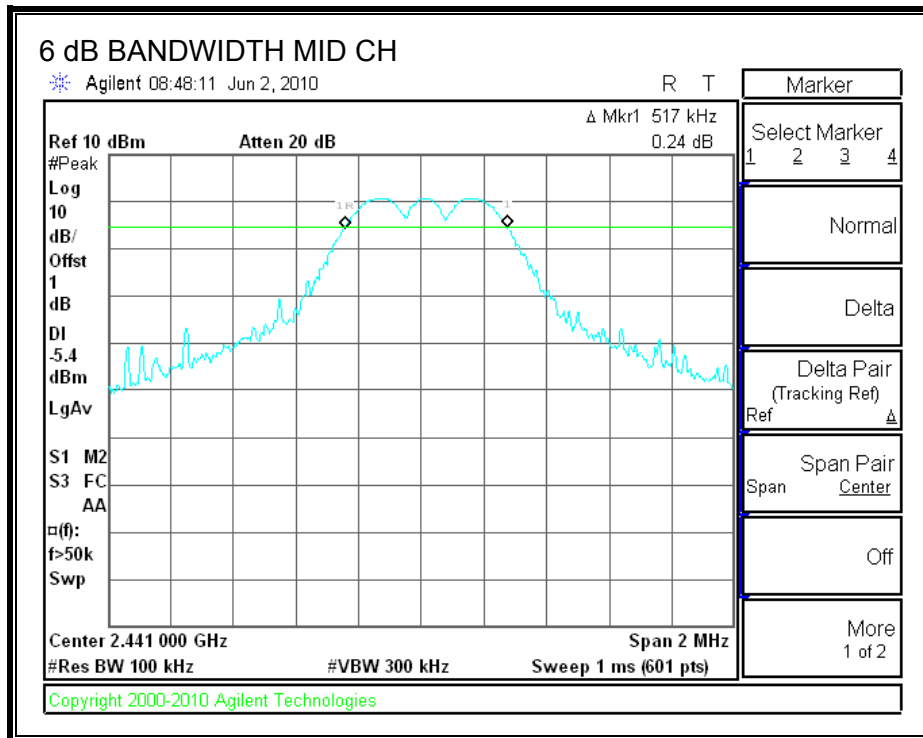
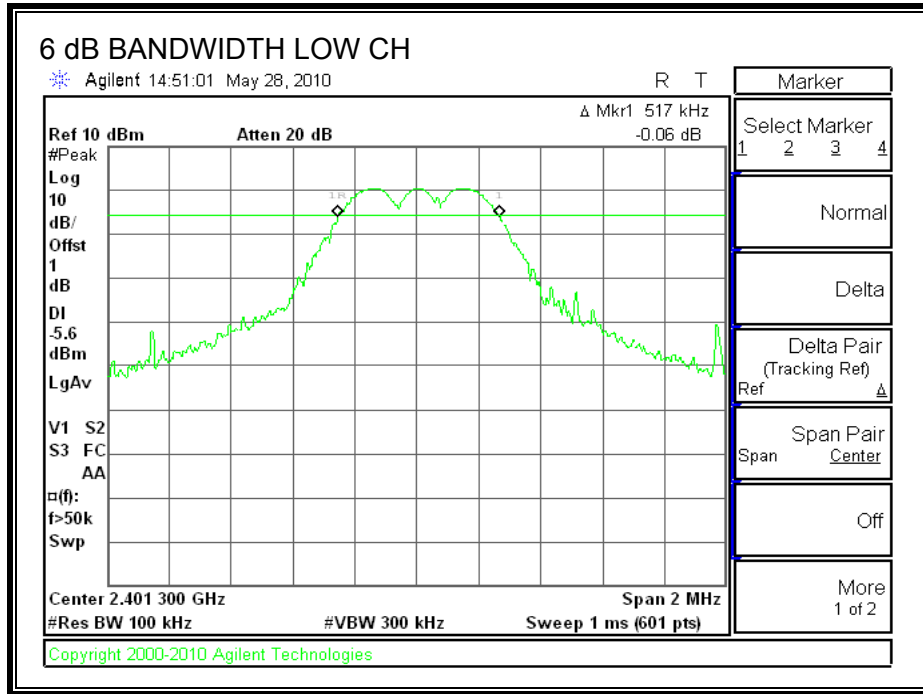
Channel	Frequency (MHz)	6 dB Bandwidth (KHz)	Minimum Limit (MHz)
Low	2401.3	517	0.5
Middle	2441.0	517	0.5
High	2480.4	507	0.5

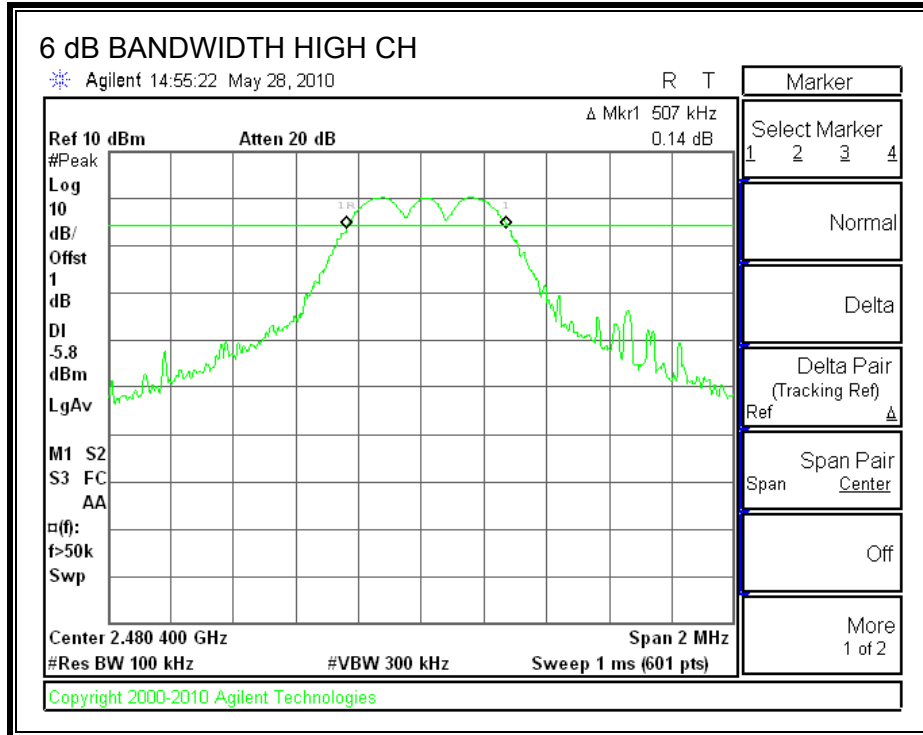
MSK MODE

Channel	Frequency (MHz)	6 dB Bandwidth (KHz)	Minimum Limit (MHz)
Low	2401.8	583	0.5
Middle	2441.2	580	0.5
High	2480.3	577	0.5

2FSK MODE

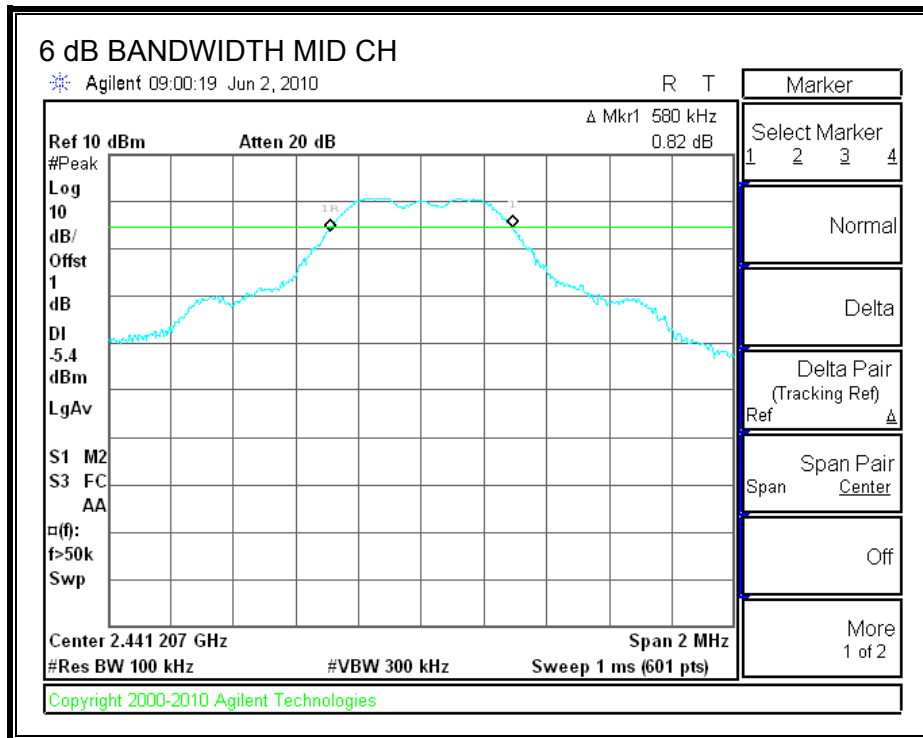
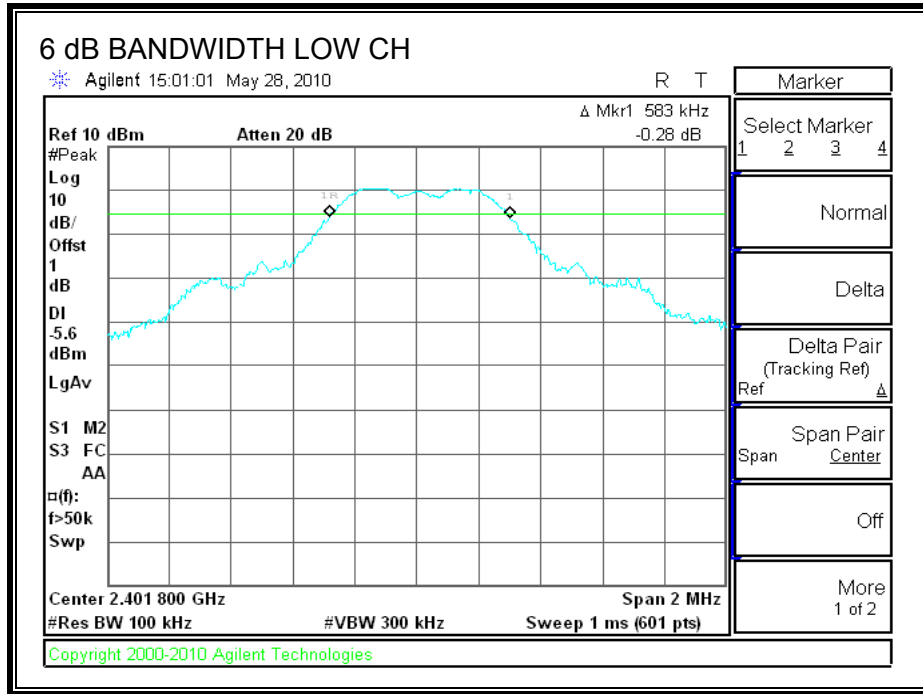
6 dB BANDWIDTH

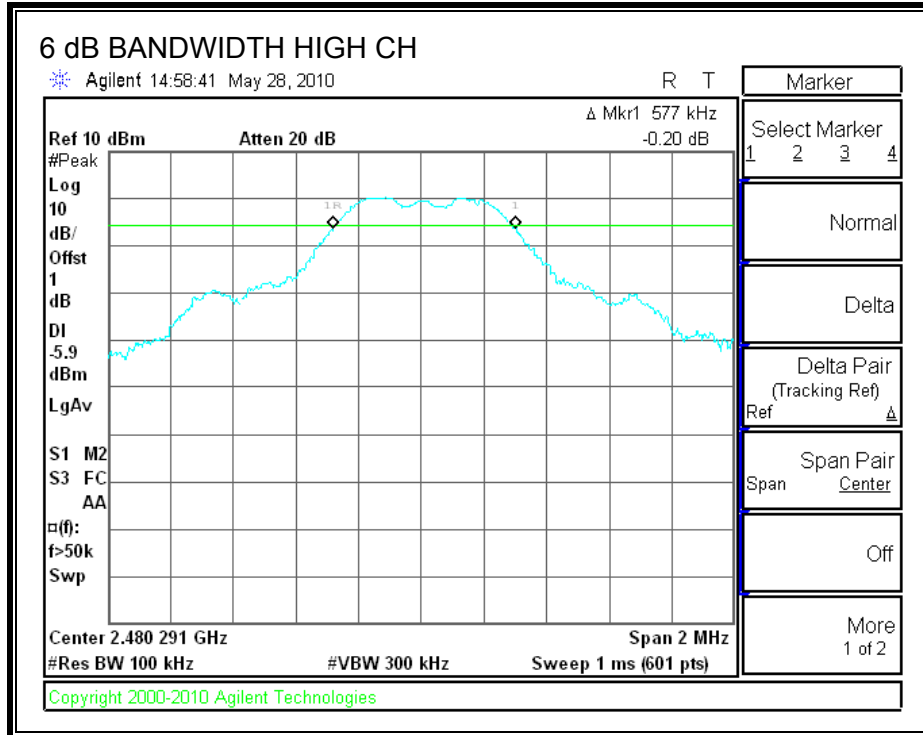




MSK MODE

6 dB BANDWIDTH





7.1.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

RESULTS

2FSK MODE

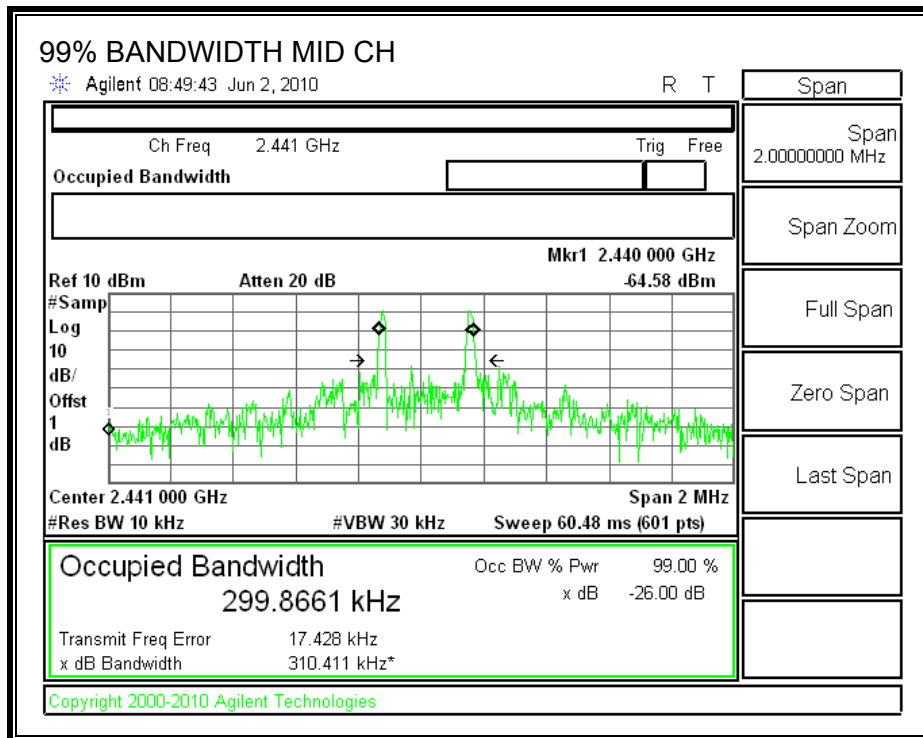
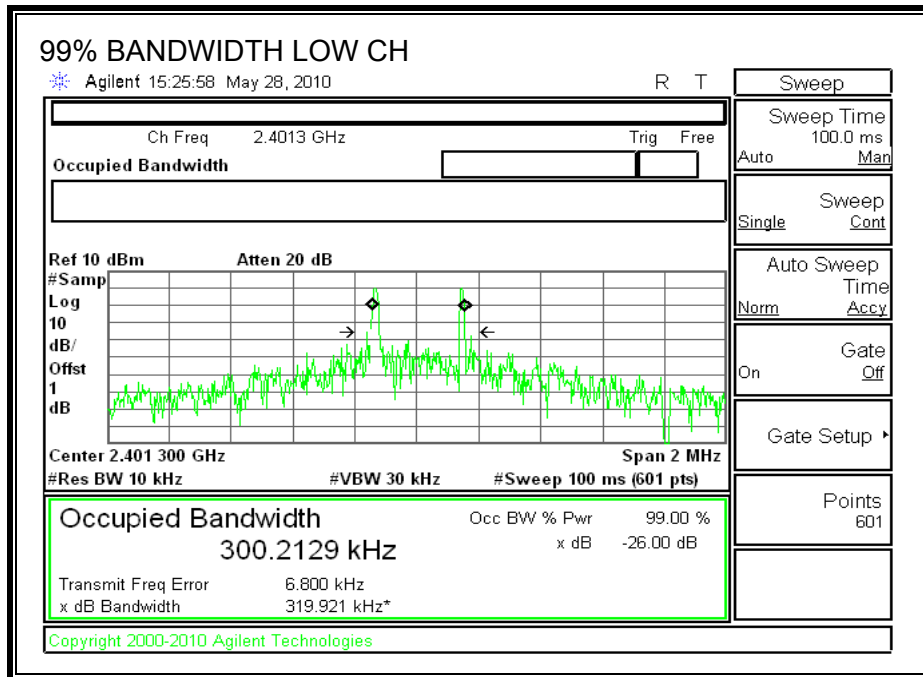
Channel	Frequency (MHz)	99% Bandwidth (KHz)
Low	2401.3	300.2129
Middle	2441.0	299.8661
High	2480.4	298.8035

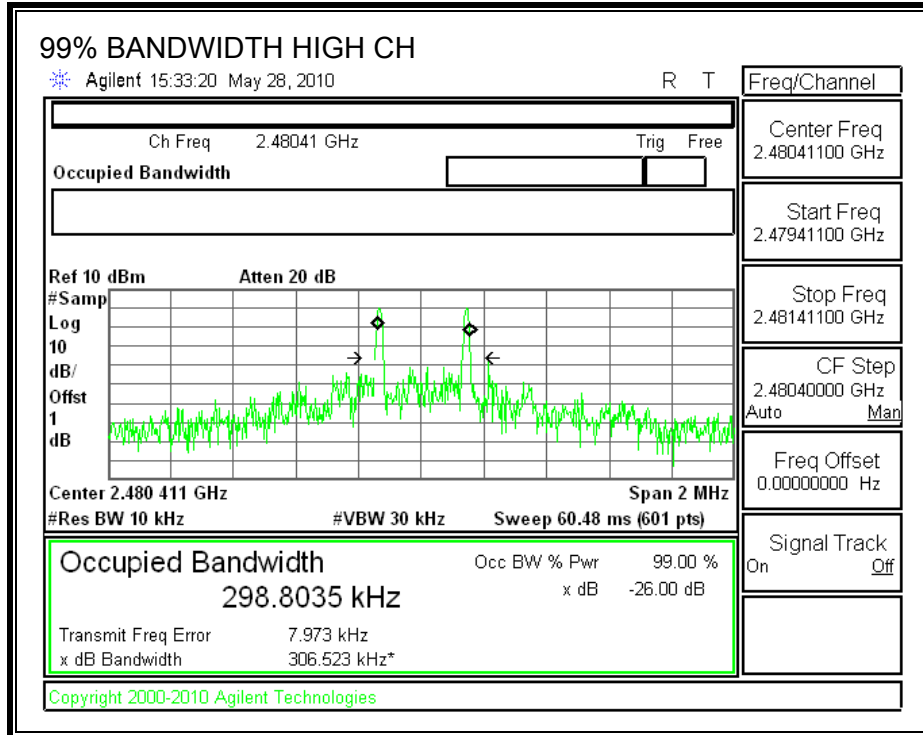
MSK MODE

Channel	Frequency (MHz)	99% Bandwidth (KHz)
Low	2401.8	881.1228
Middle	2441.2	879.4045
High	2480.3	900.7886

2FSK MODE

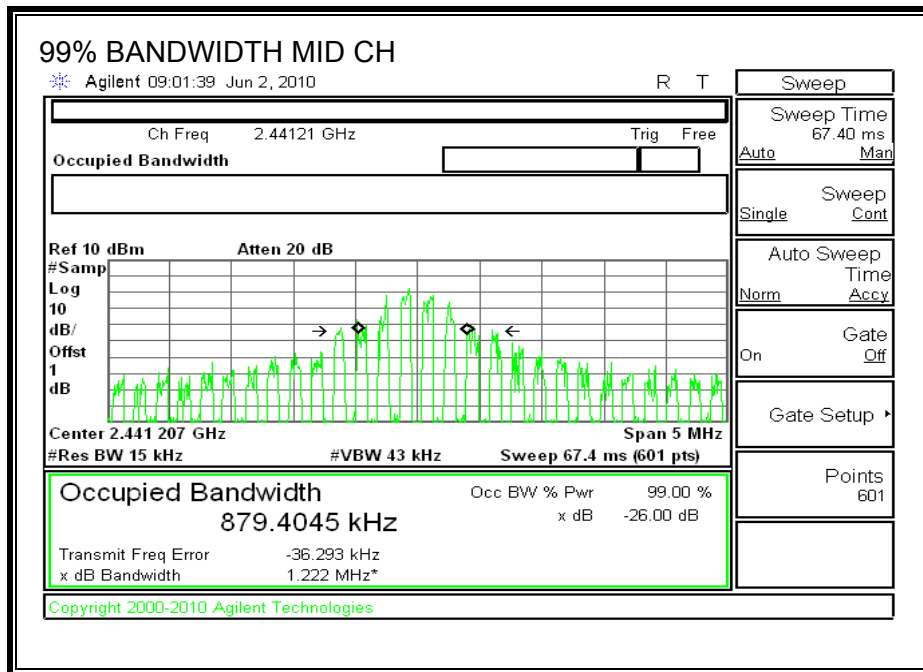
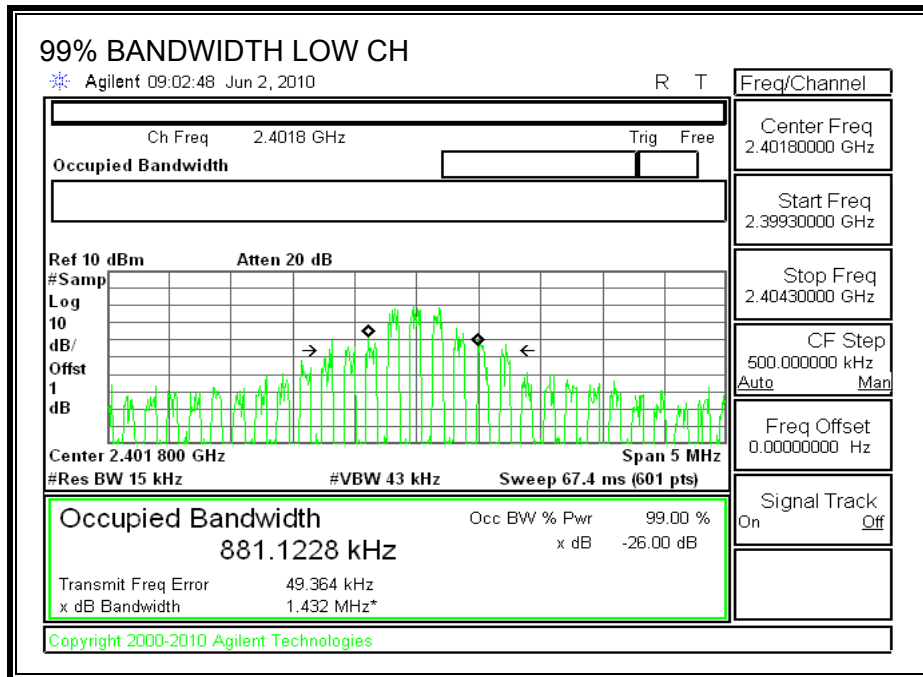
99% BANDWIDTH

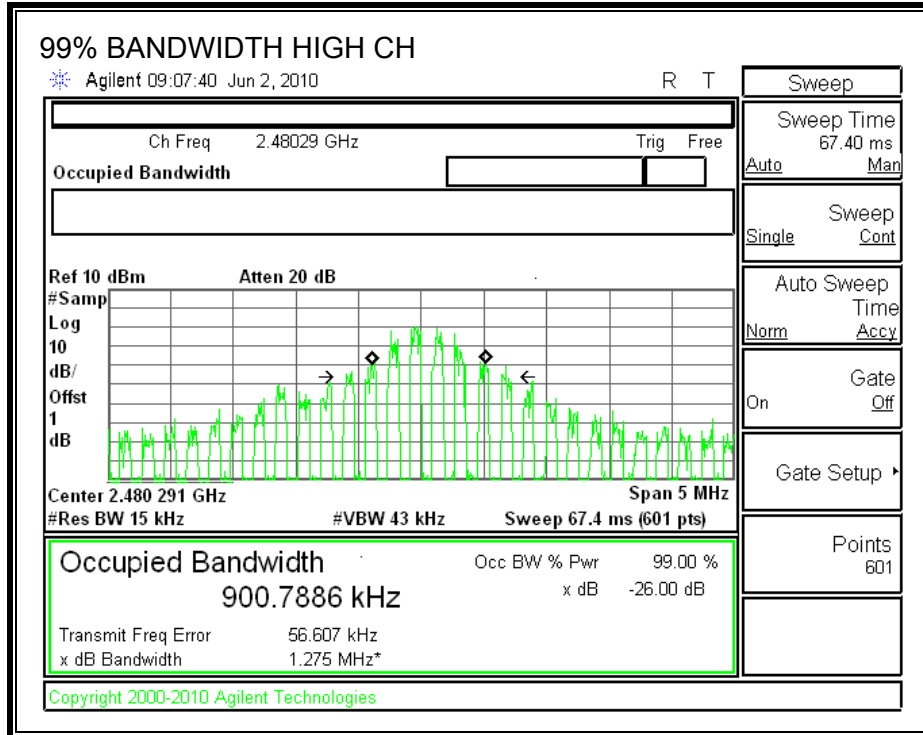




MSK MODE

99% BANDWIDTH





7.1.3. OUTPUT POWER

LIMITS

FCC §15.247 (b)

IC RSS-210 A8.4

The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 30 dBm.

TEST PROCEDURE

Peak power is measured by the power meter.

RESULTS

2FSK Mode

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2401.3	1.14	30	-28.86
Middle	2441.0	1.20	30	-28.80
High	2480.4	1.32	30	-28.68

MSK Mode

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2401.8	1.10	30	-28.90
Middle	2441.2	1.13	30	-28.87
High	2480.3	1.24	30	-28.76

7.1.4. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 1dB was entered as an offset in the power meter to allow for direct reading of power.

2FSK

Channel	Frequency (MHz)	Power (dBm)
Low	2401.3	1.12
Middle	2441.0	1.16
High	2480.4	1.29

MSK

Channel	Frequency (MHz)	Power (dBm)
Low	2401.8	1.08
Middle	2441.2	1.10
High	2480.3	1.22

7.1.5. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

IC RSS-210 A8.2 (b)

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

TEST PROCEDURE

Output power was measured based on the use of a peak measurement, therefore the power spectral density was measured using PSD Option 1 in accordance with FCC document "Measurement of Digital Transmission Systems Operating under Section 15.247", March 23, 2005.

RESULTS

2FSK MODE

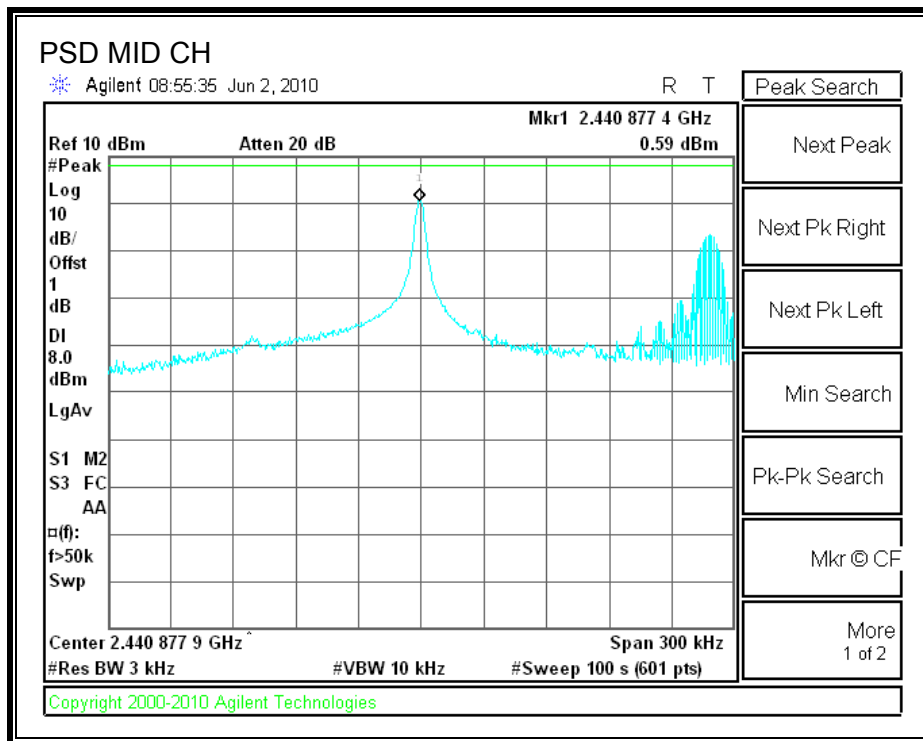
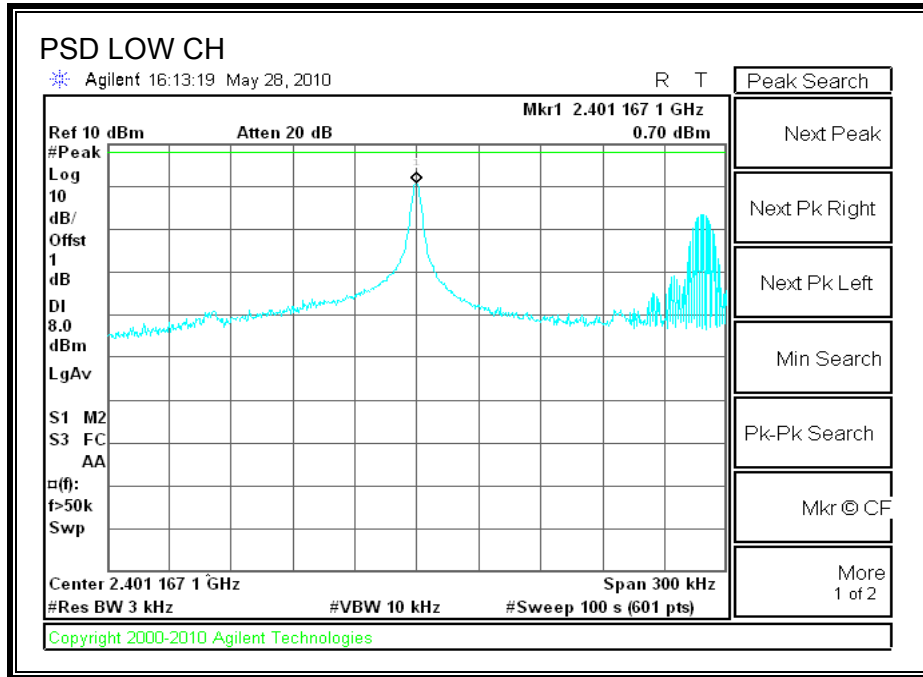
Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
Low	2401.3	0.70	8	-7.30
Middle	2441.0	0.59	8	-7.41
High	2480.4	0.50	8	-7.50

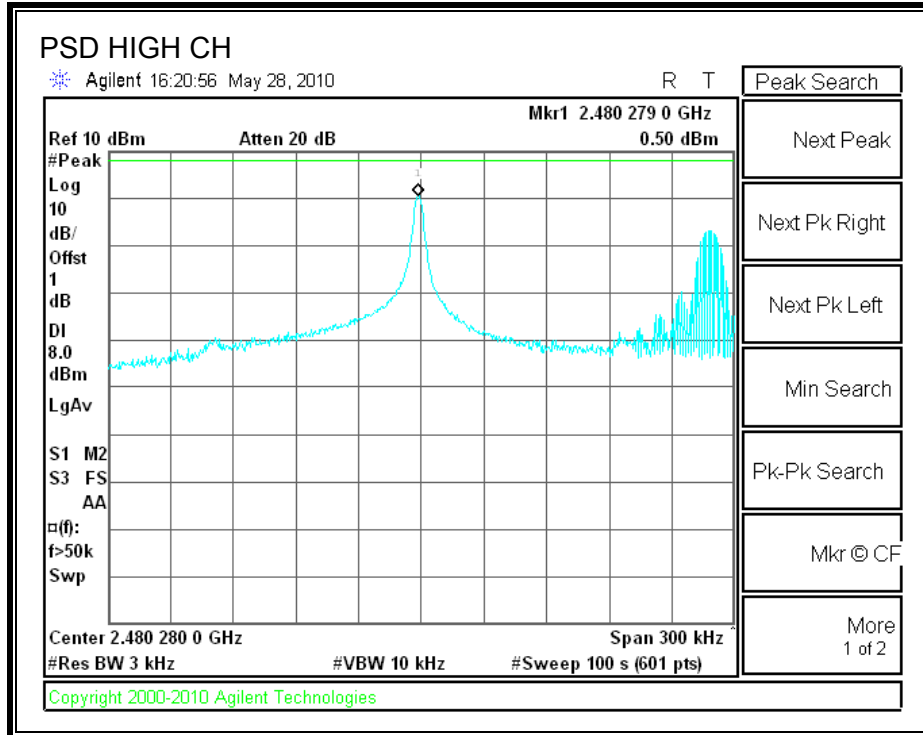
MSK MODE

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
Low	2401.8	-5.03	8	-13.03
Middle	2441.2	-5.36	8	-13.36
High	2480.3	-5.48	8	-13.48

2FSK MODE

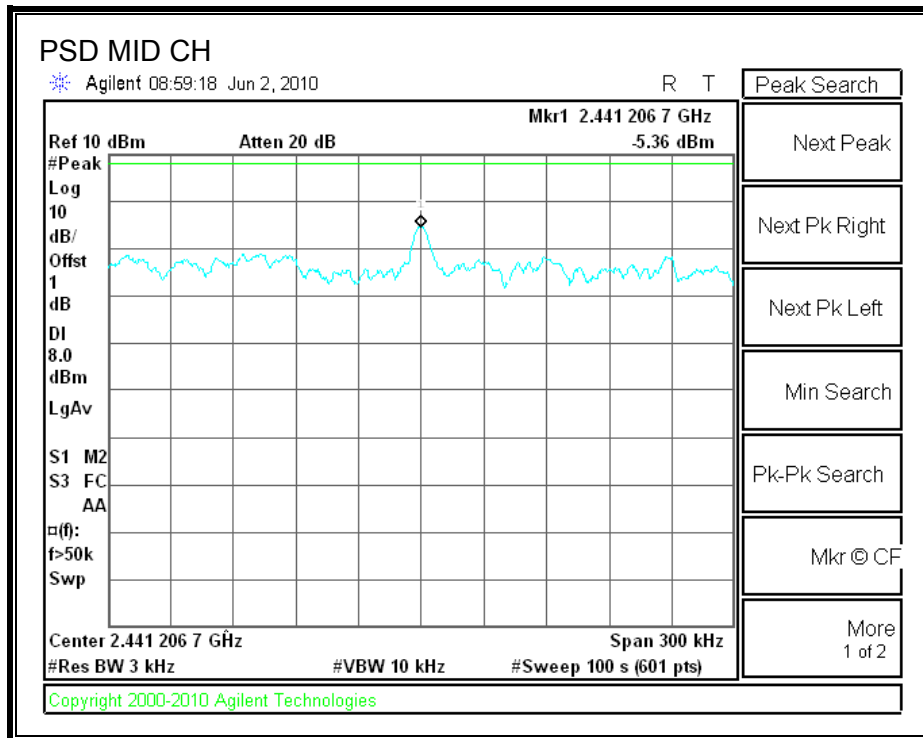
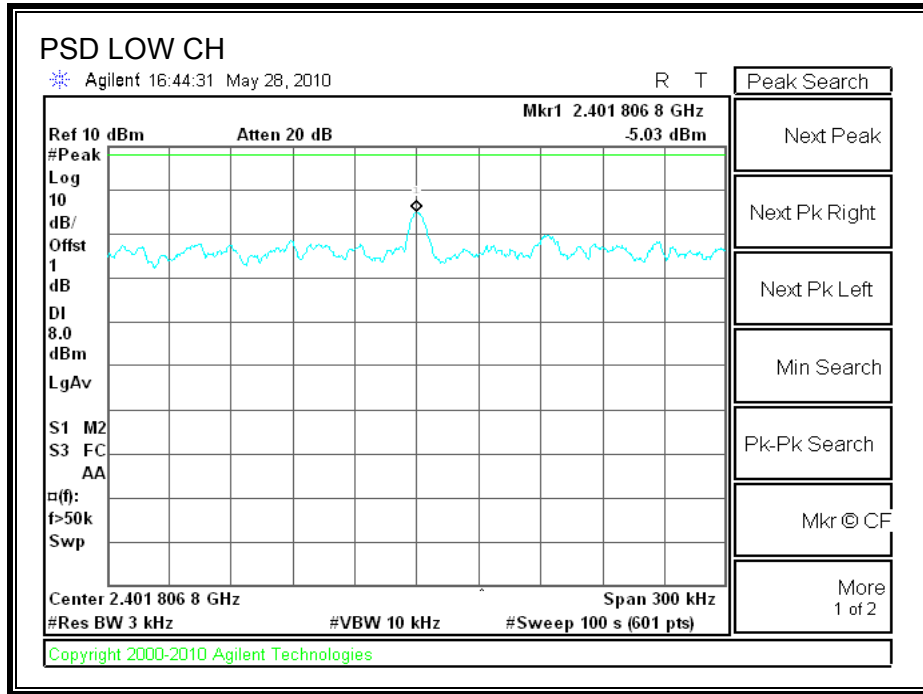
POWER SPECTRAL DENSITY

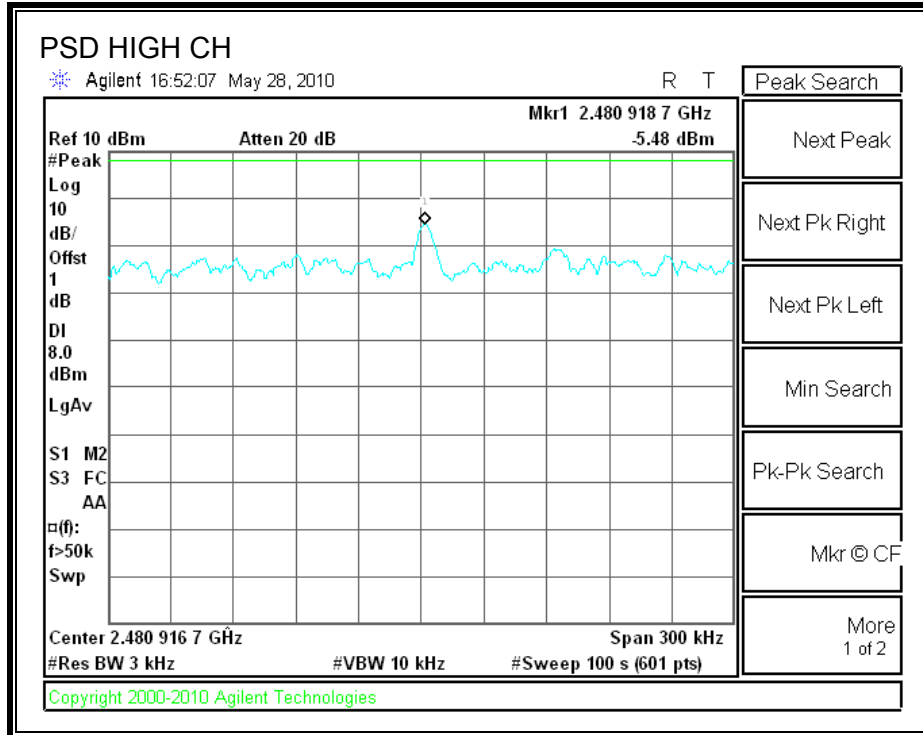




MSK MODE

POWER SPECTRAL DENSITY





7.1.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

Output power was measured based on the use of a peak measurement, therefore the required attenuation is 20 dB.

TEST PROCEDURE

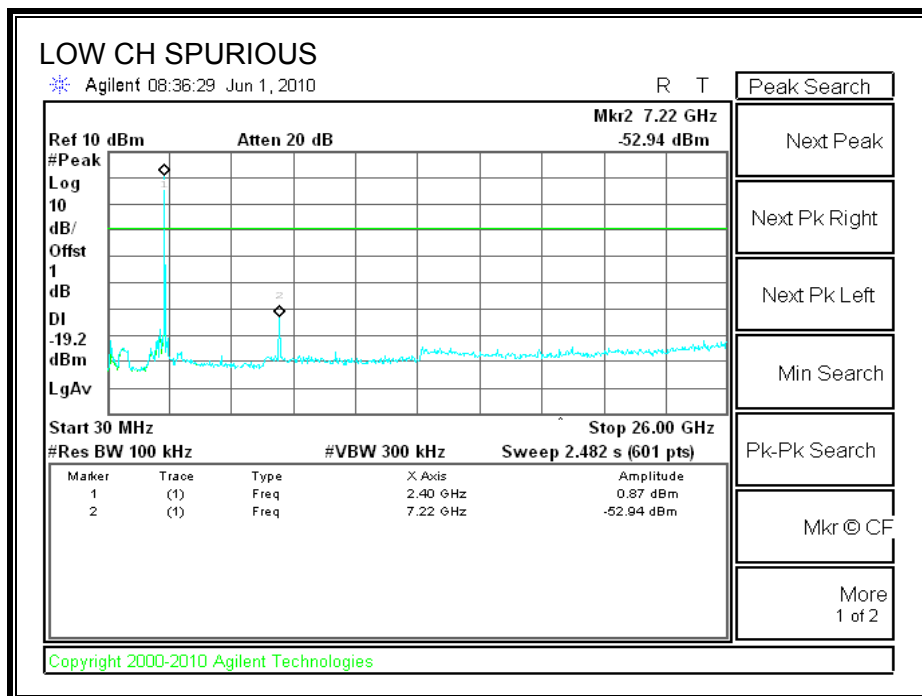
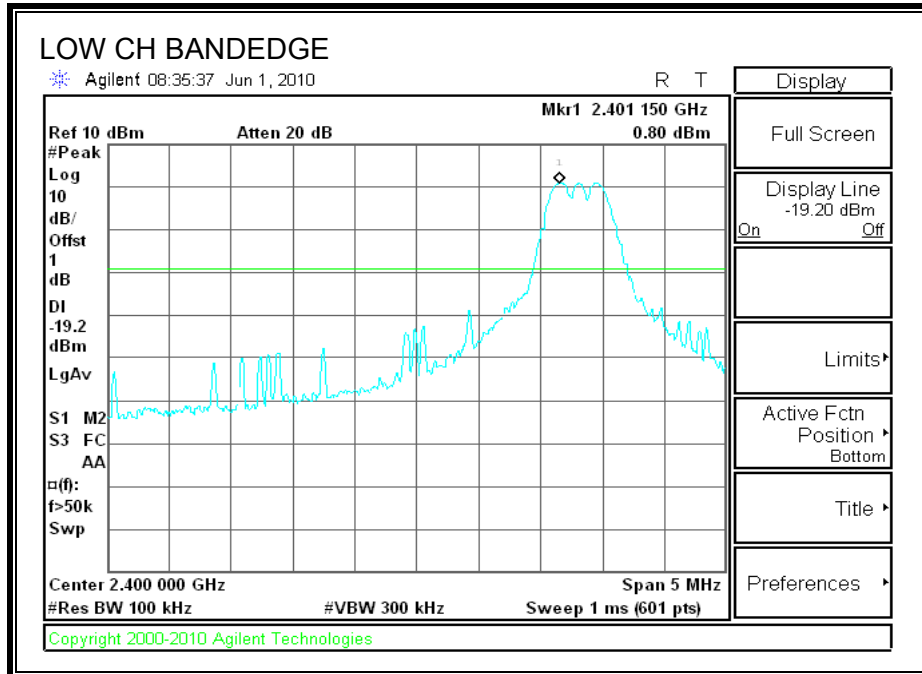
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

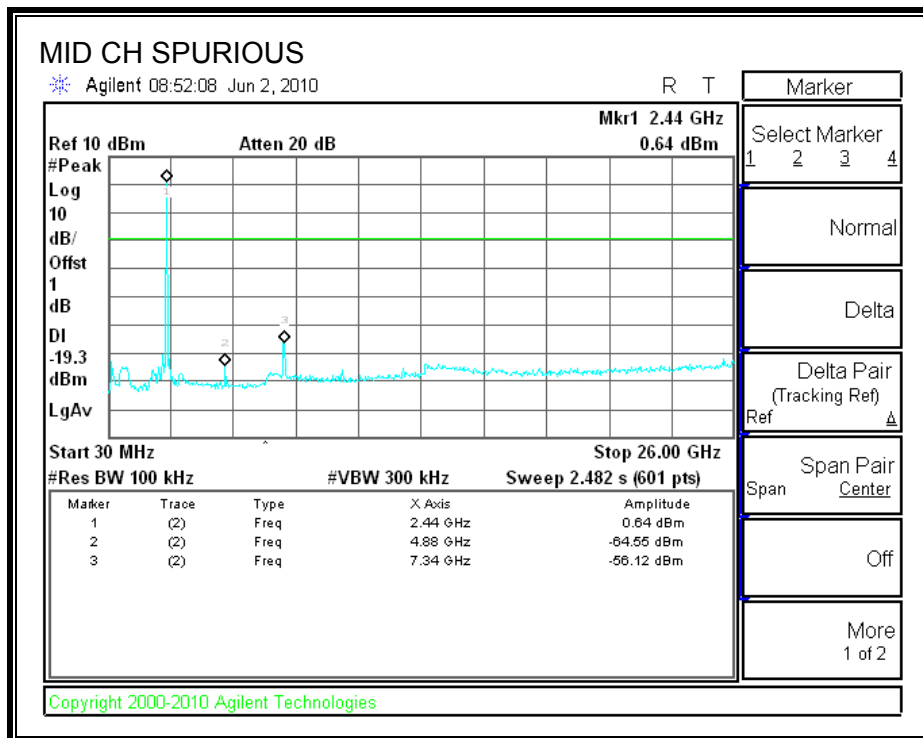
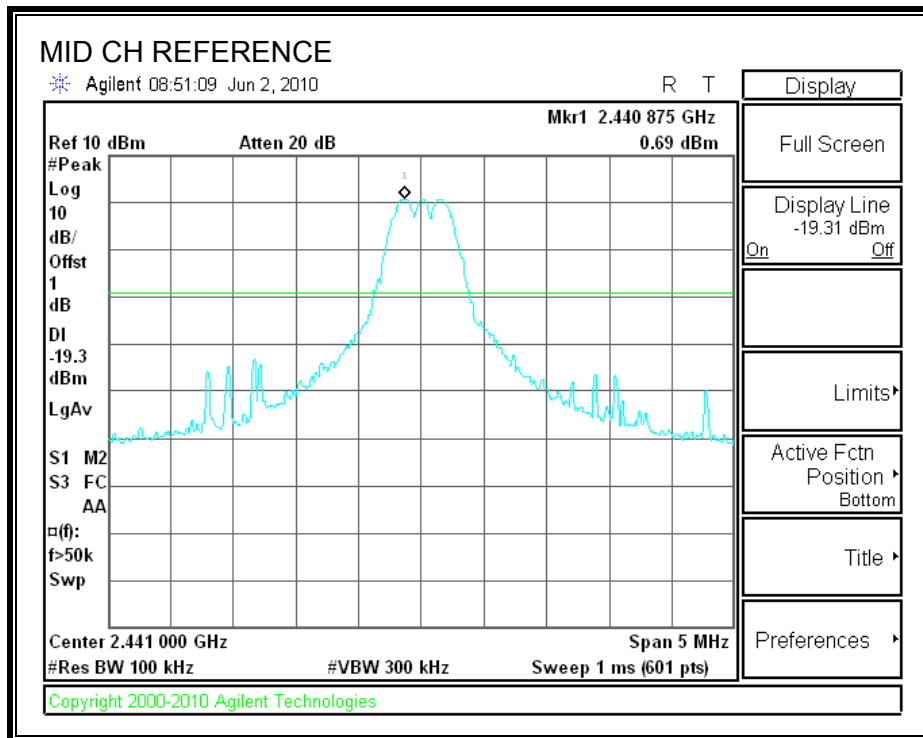
RESULTS

2FSK MODE

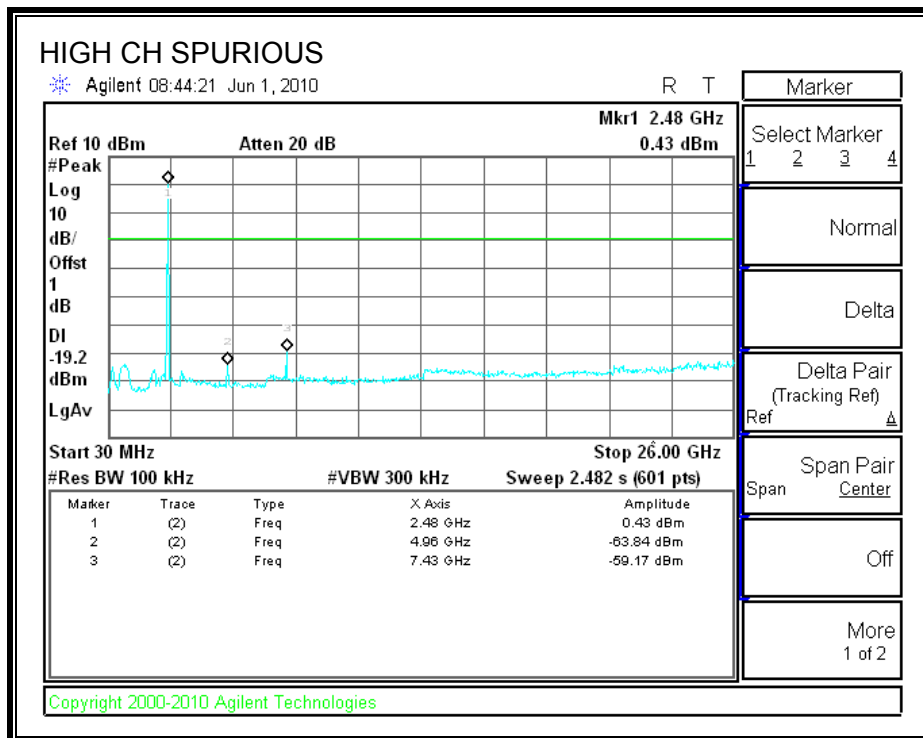
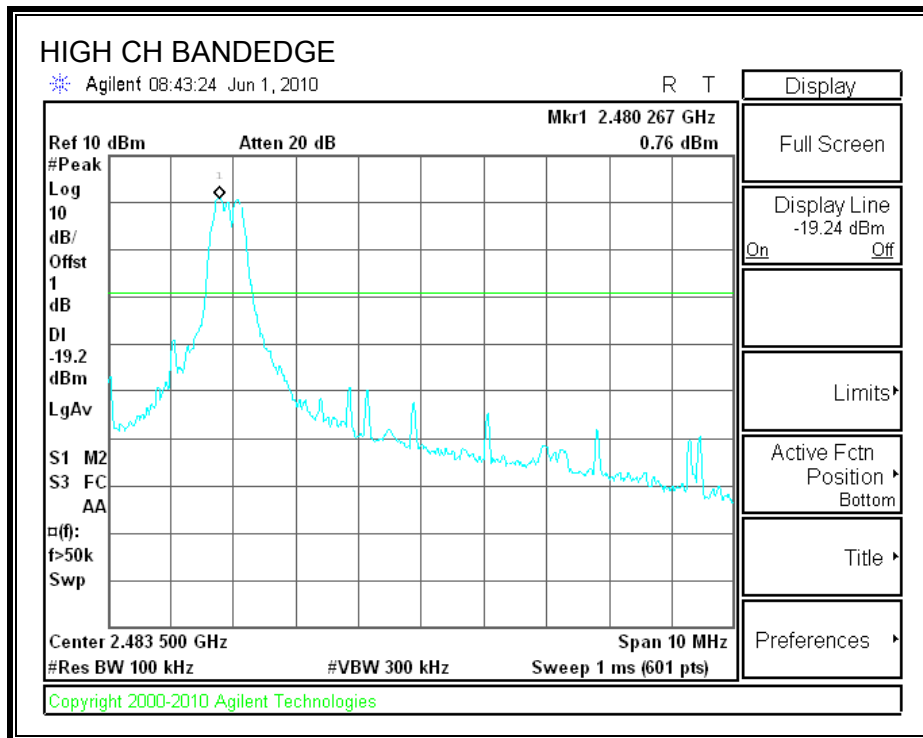
SPURIOUS EMISSIONS, LOW CHANNEL



SPURIOUS EMISSIONS, MID CHANNEL

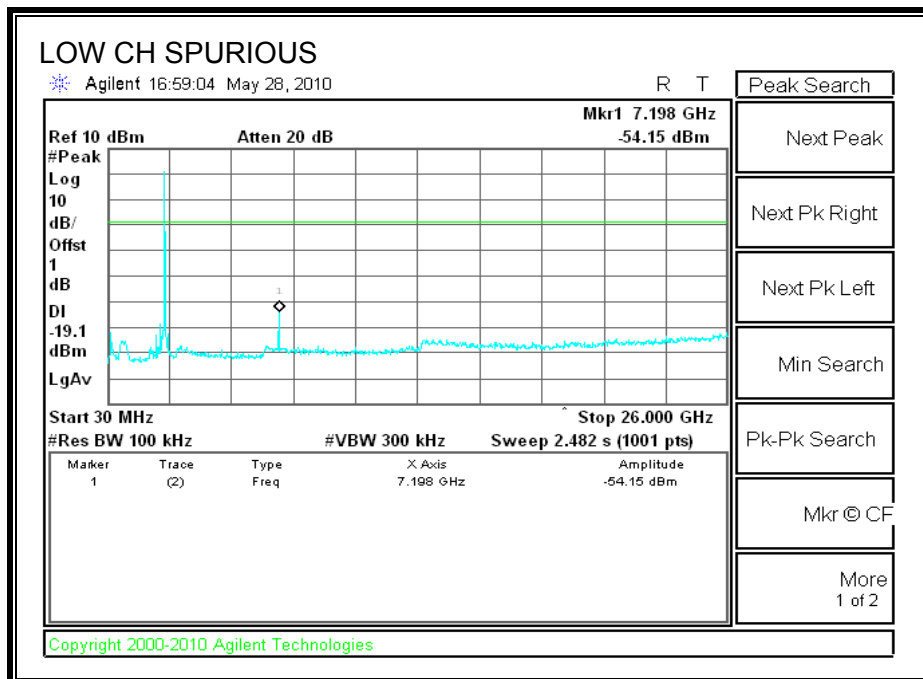
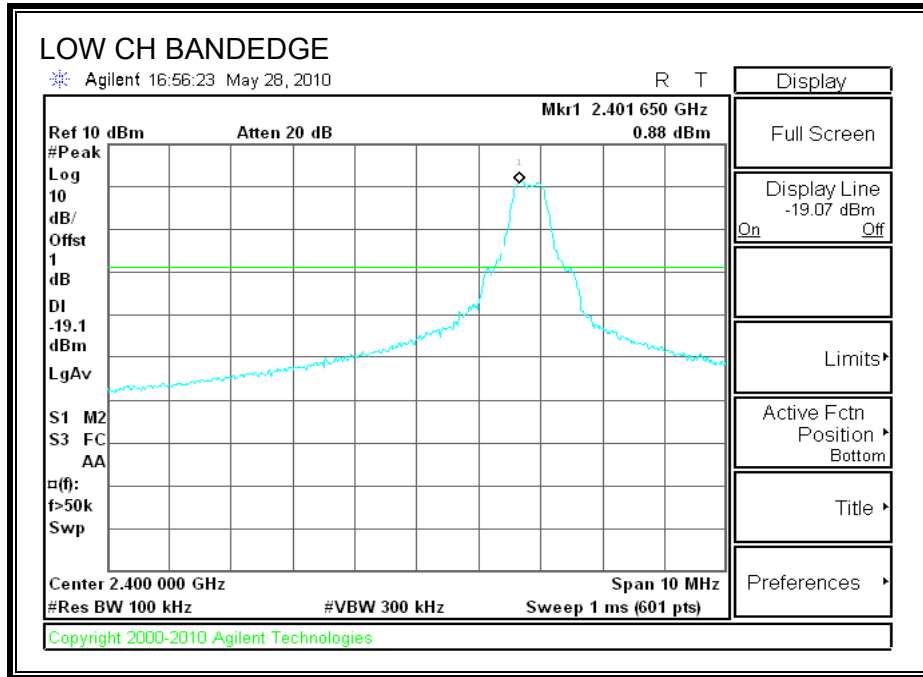


SPURIOUS EMISSIONS, HIGH CHANNEL

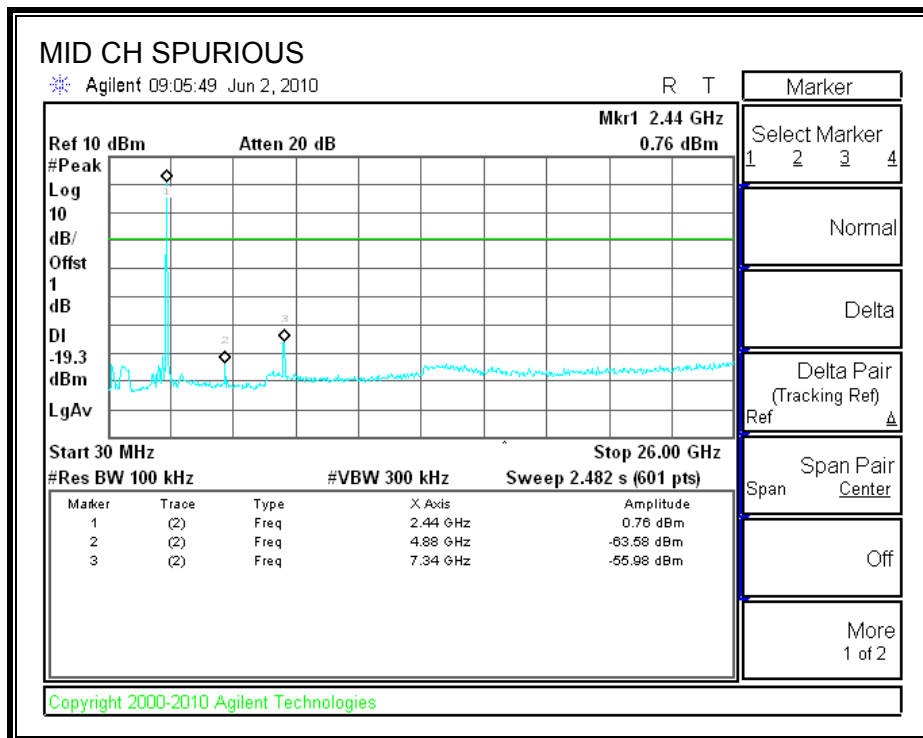
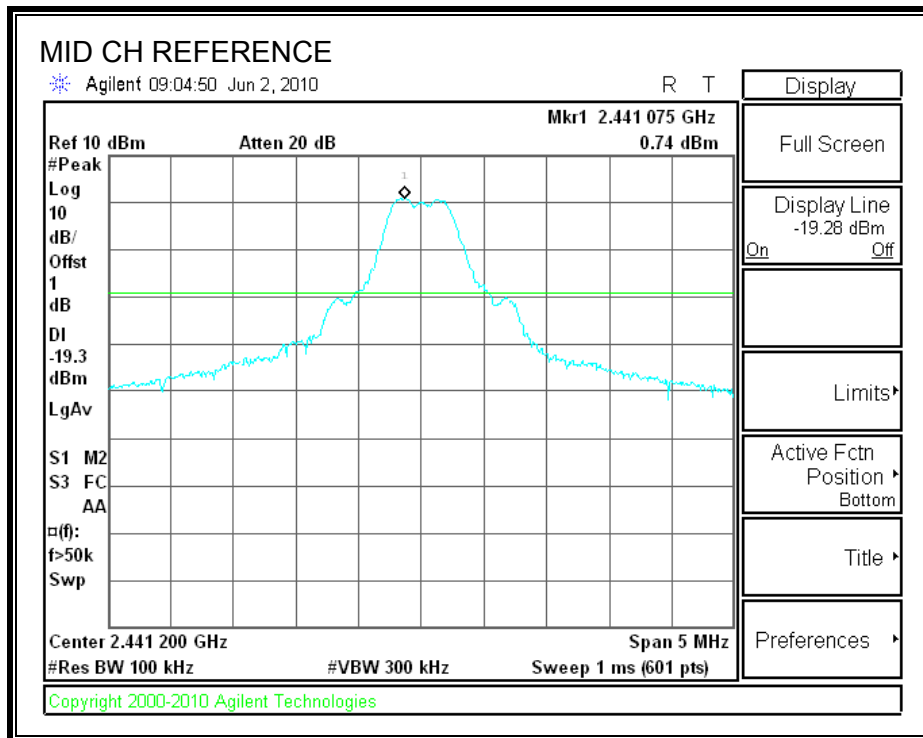


MSK MODE

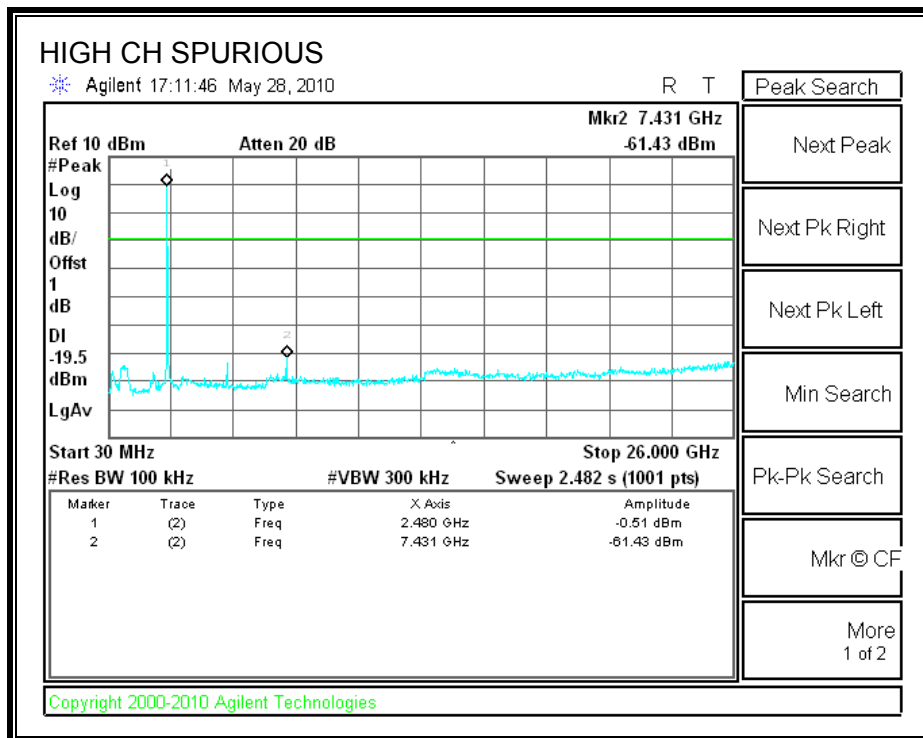
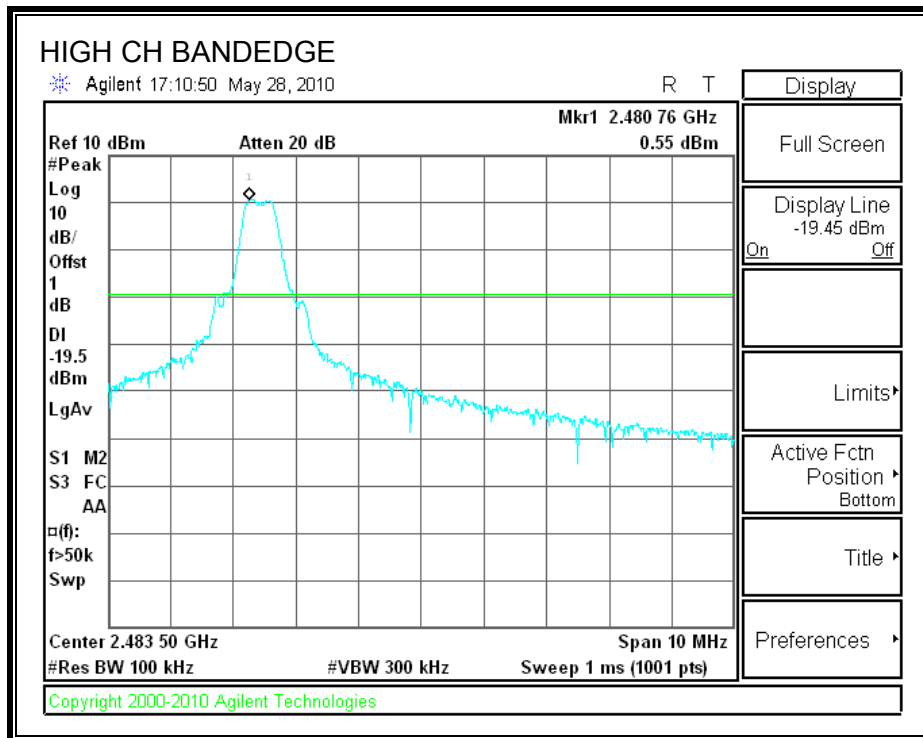
SPURIOUS EMISSIONS, LOW CHANNEL



SPURIOUS EMISSIONS, MID CHANNEL



SPURIOUS EMISSIONS, HIGH CHANNEL



8. RADIATED TEST RESULTS

8.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

IC RSS-210 Clause 2.6 (Transmitter)

IC RSS-GEN Clause 6 (Receiver)

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.4. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.

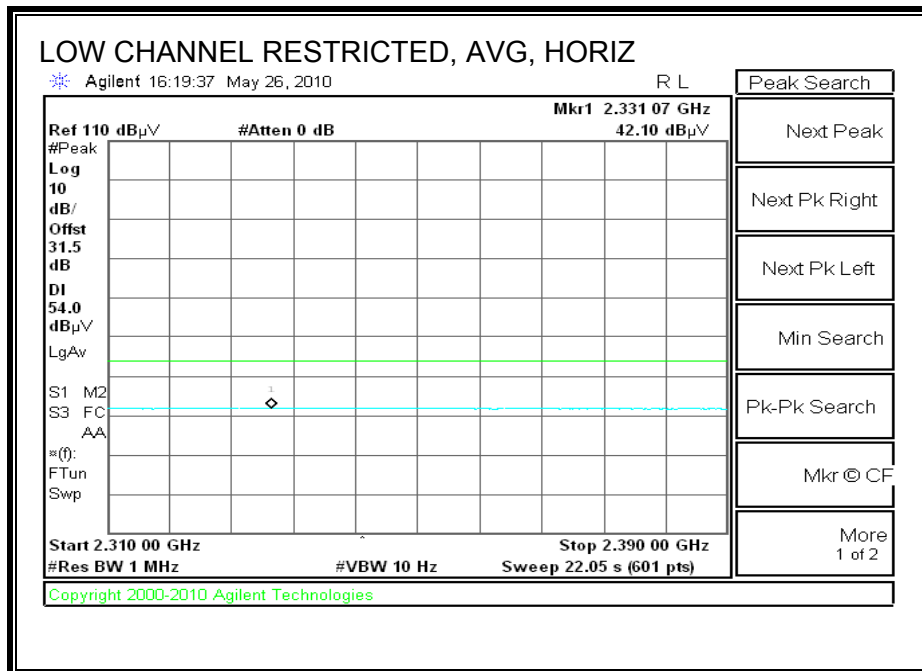
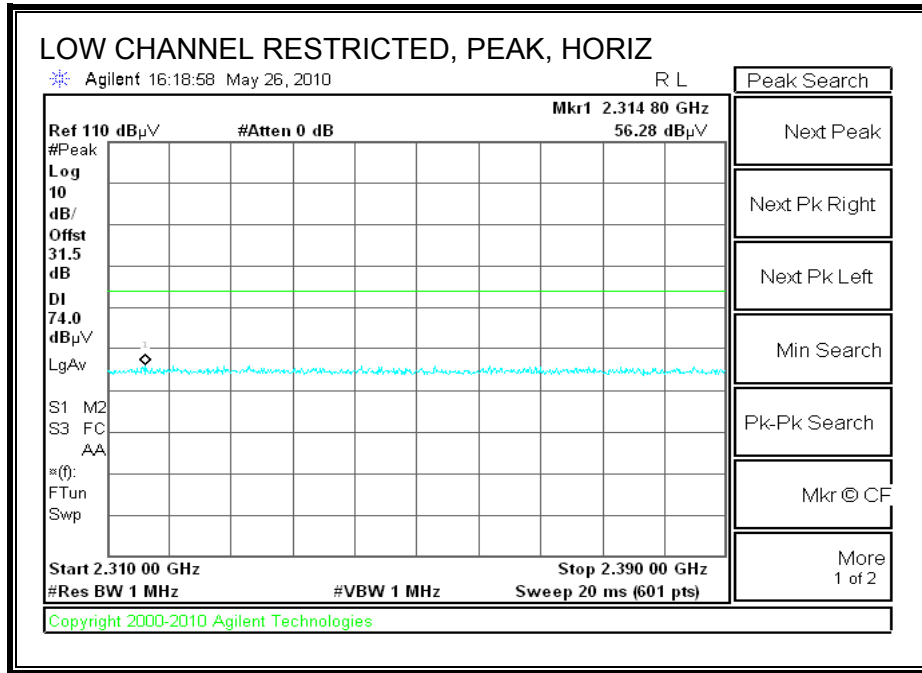
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

8.2. TRANSMITTER ABOVE 1 GHz

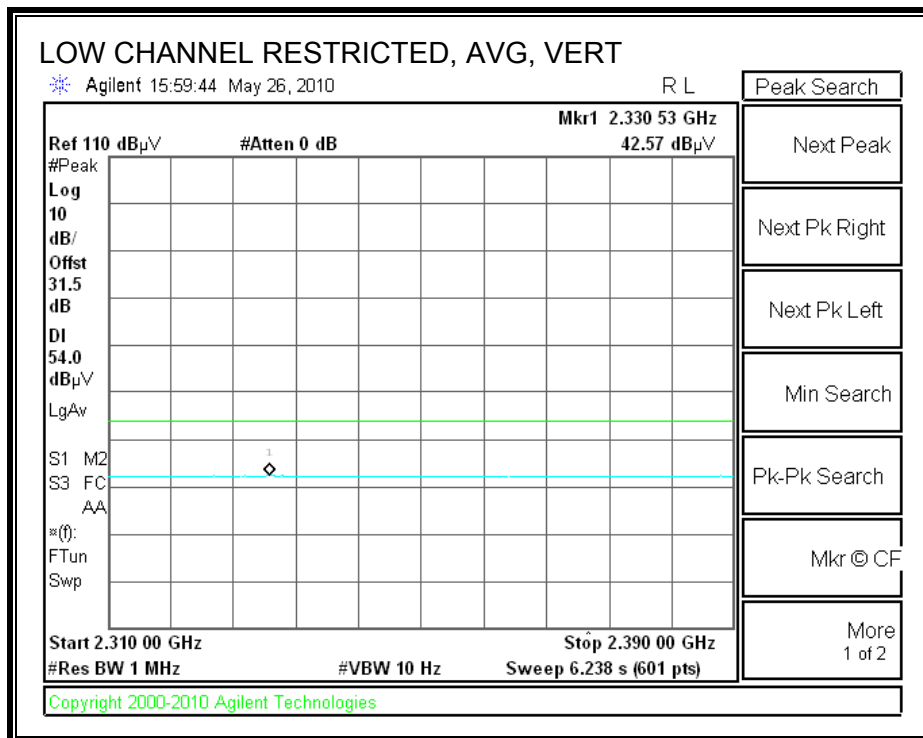
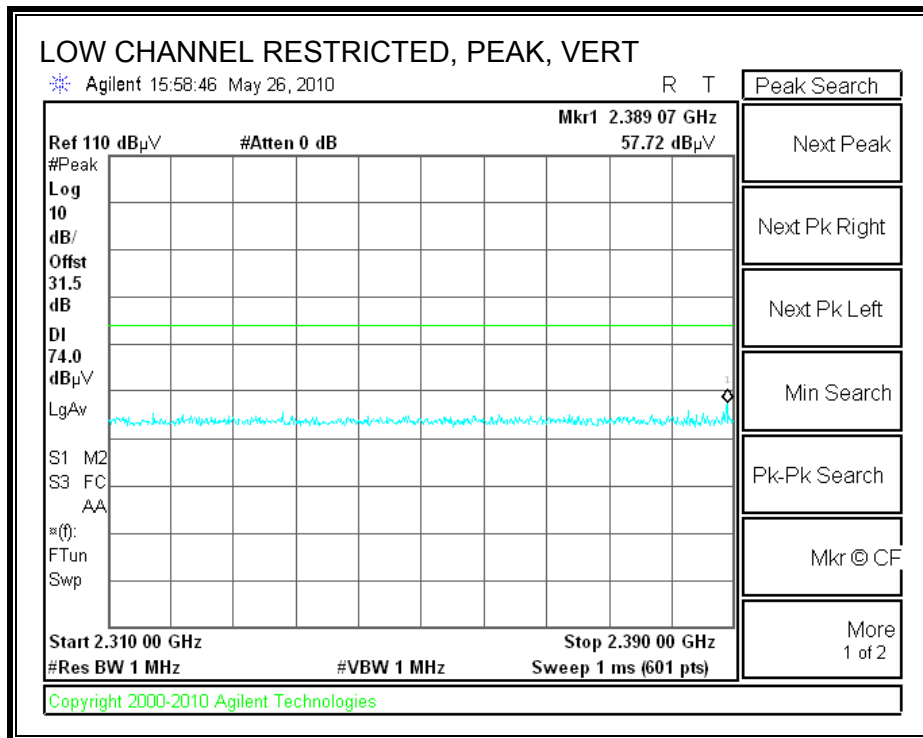
8.2.1. TRANSMITTER ABOVE 1 GHz FOR 2FSK MODE

5dBi PATCH ANTENNA

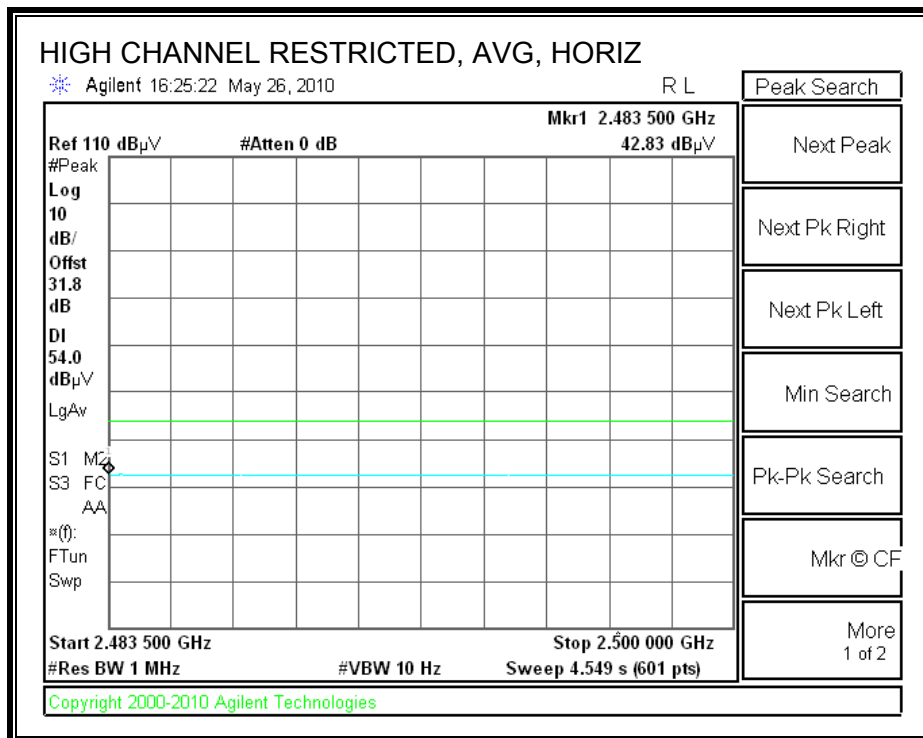
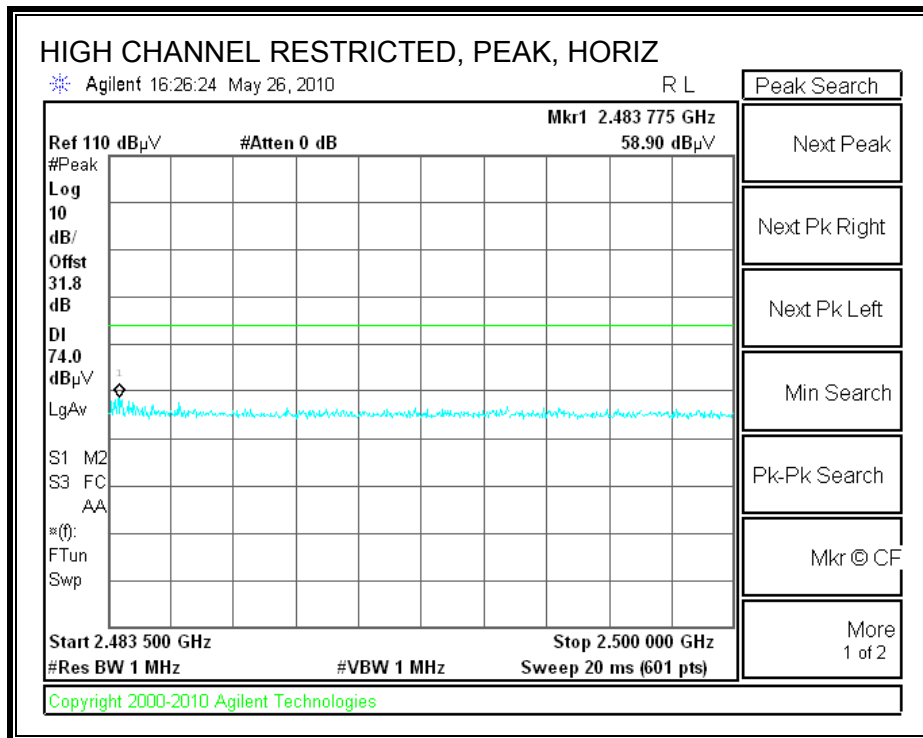
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



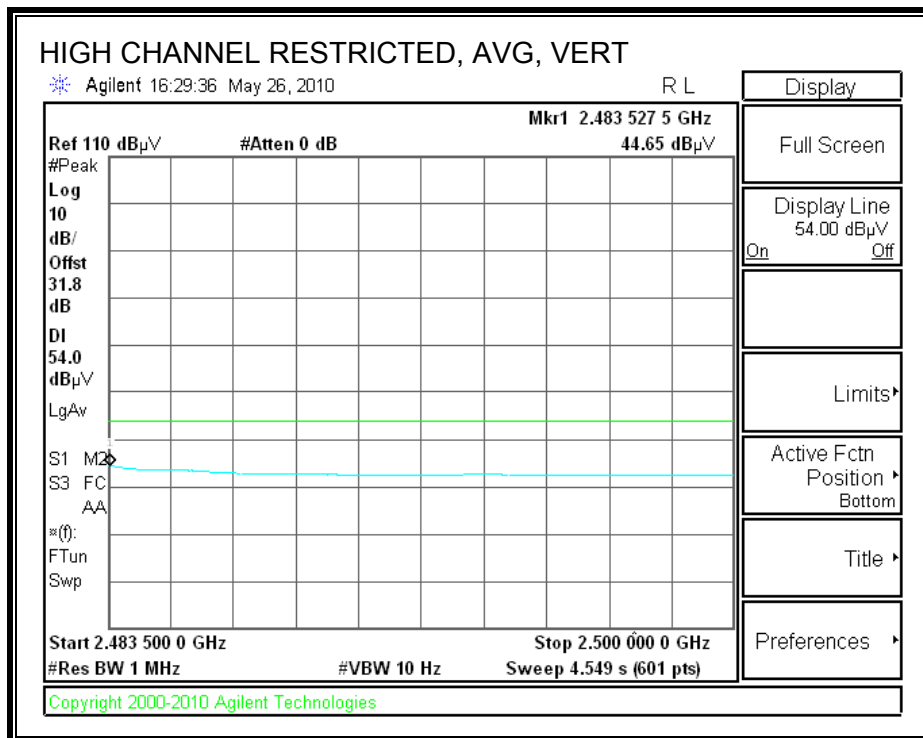
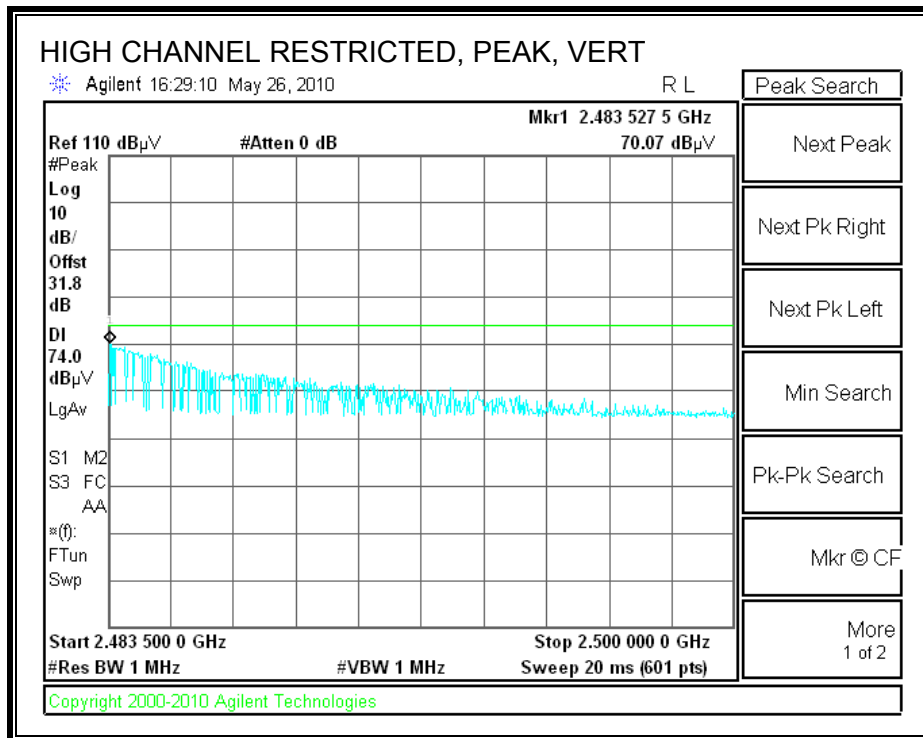
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

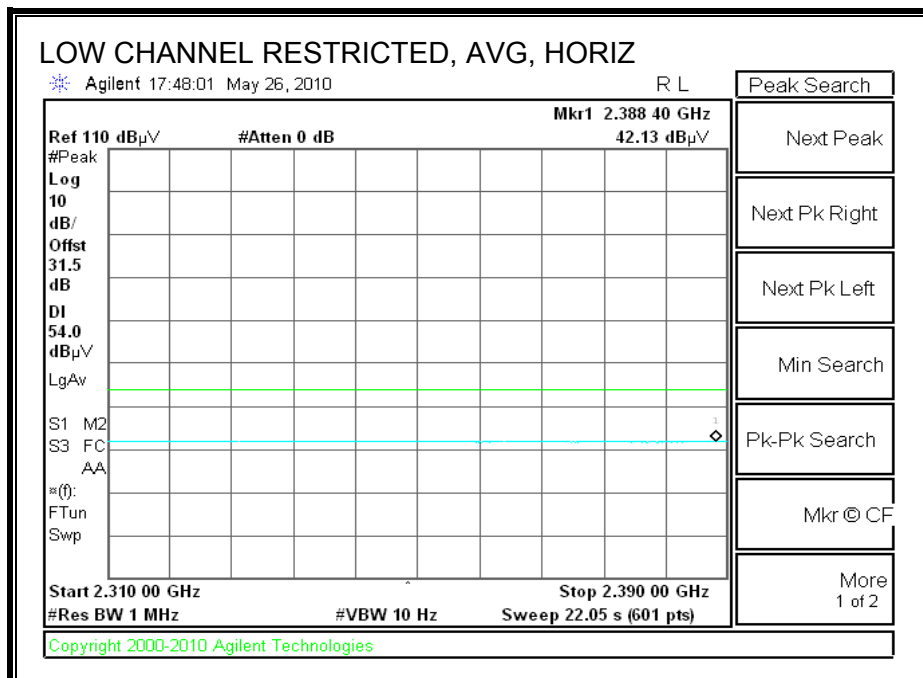
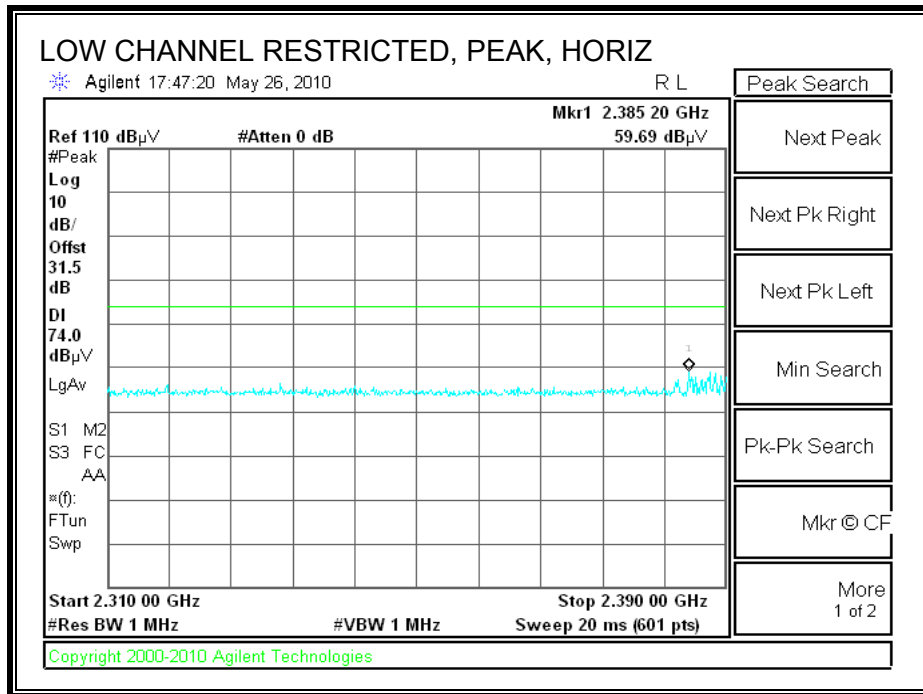


HARMONICS AND SPURIOUS EMISSIONS

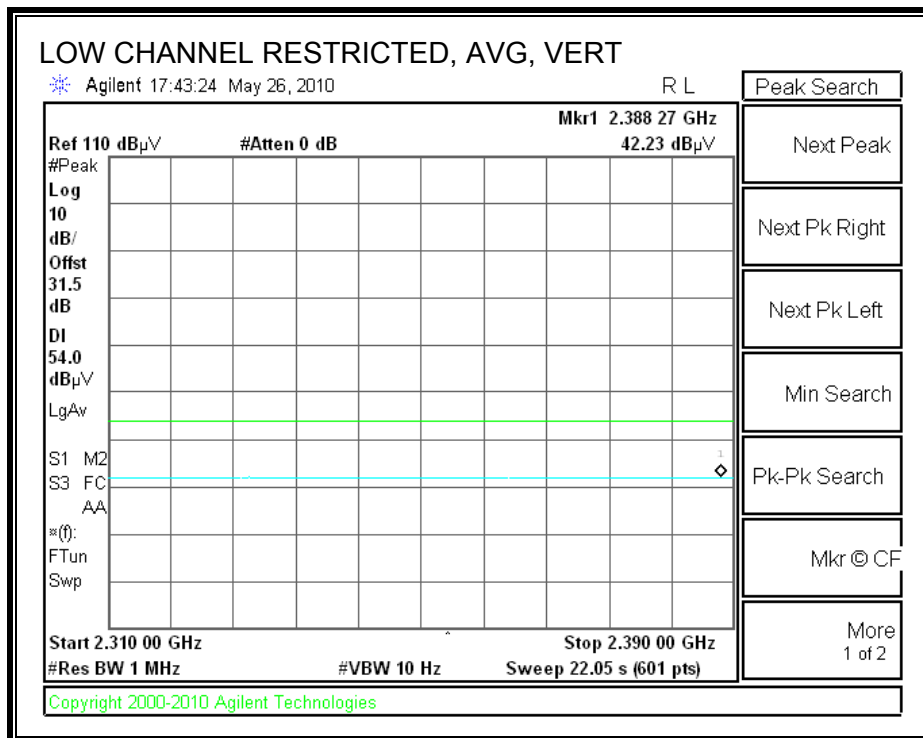
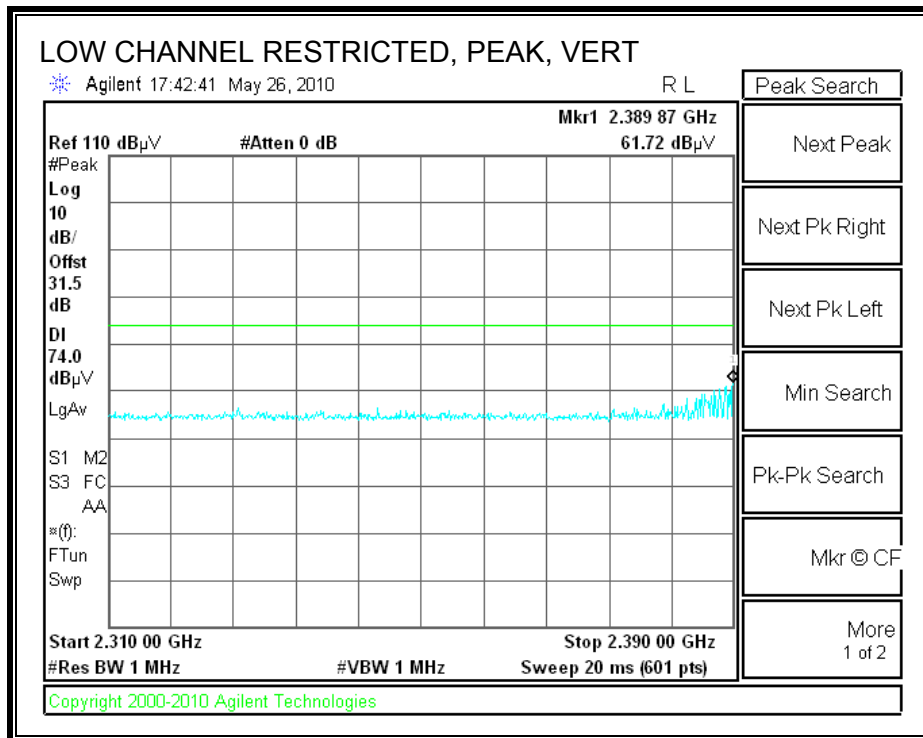
High Frequency Measurement													
Compliance Certification Services, Fremont 5m Chamber													
Test Engr:		Chin Pang											
Date:		05/27/10											
Project #:		10U13225											
Company:		Anaren, Inc.											
EUT Description:		2.4 GHz Transceiver											
EUT M/N:		A2500R24C, A2500R24A											
Test Target:		FCC15.247											
Mode Oper:		TX, 2FSK Mode, 5dBi Patch Antenna											
f	Measurement Frequency	Amp	Preamp Gain					Average Field Strength Limit					
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters					Peak Field Strength Limit					
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m					Margin vs. Average Limit					
AF	Antenna Factor	Peak	Calculated Peak Field Strength					Margin vs. Peak Limit					
CL	Cable Loss	HPF	High Pass Filter										
f	Dist	Read	AF	CL	Amp	D Corr	Fldr	Corr.	Limit	Margin	Ant. Pol	Det	Notes
GHz	(m)	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBuV/m	dB	V/H	P/A/QP	
Low ch													
4.803	3.0	44.9	33.0	5.8	-36.5	0.0	0.0	47.2	74.0	-26.8	V	P	
4.803	3.0	40.6	33.0	5.8	-36.5	0.0	0.0	42.9	54.0	-11.1	V	A	
4.803	3.0	46.0	33.0	5.8	-36.5	0.0	0.0	48.3	74.0	-25.7	H	P	
4.803	3.0	41.0	33.0	5.8	-36.5	0.0	0.0	43.3	54.0	-10.7	H	A	
Mid Ch													
4.882	3.0	45.3	33.1	5.8	-36.5	0.0	0.0	47.8	74.0	-26.2	V	P	
4.882	3.0	41.1	33.1	5.8	-36.5	0.0	0.0	43.6	54.0	-10.4	V	A	
7.323	3.0	42.5	35.3	7.3	-36.2	0.0	0.0	48.8	74.0	-25.2	V	P	
7.323	3.0	35.6	35.3	7.3	-36.2	0.0	0.0	41.9	54.0	-12.1	V	A	
4.882	3.0	46.3	33.1	5.8	-36.5	0.0	0.0	48.8	74.0	-25.2	H	P	
4.882	3.0	42.5	33.1	5.8	-36.5	0.0	0.0	45.0	54.0	-9.0	H	A	
7.323	3.0	38.3	35.3	7.3	-36.2	0.0	0.0	44.7	74.0	-29.3	H	P	
7.323	3.0	28.0	35.3	7.3	-36.2	0.0	0.0	34.3	54.0	-19.7	H	A	
High Ch													
4.961	3.0	46.0	33.2	5.9	-36.5	0.0	0.0	48.7	74.0	-25.3	V	P	
4.961	3.0	42.9	33.2	5.9	-36.5	0.0	0.0	45.5	54.0	-8.5	V	A	
7.441	3.0	37.2	35.5	7.3	-36.2	0.0	0.0	43.9	74.0	-30.1	V	P	
7.441	3.0	24.7	35.5	7.3	-36.2	0.0	0.0	31.4	54.0	-22.6	V	A	
4.961	3.0	45.6	33.2	5.9	-36.5	0.0	0.0	48.2	74.0	-25.8	H	P	
4.961	3.0	42.1	33.2	5.9	-36.5	0.0	0.0	44.7	54.0	-9.3	H	A	
7.441	3.0	37.7	35.5	7.3	-36.2	0.0	0.0	44.3	74.0	-29.7	H	P	
7.441	3.0	24.8	35.5	7.3	-36.2	0.0	0.0	31.4	54.0	-22.6	H	A	
Rev. 4.1.2.7													
Note: No other emissions were detected above the system noise floor.													

3dB MONOPOLE ANTENNA

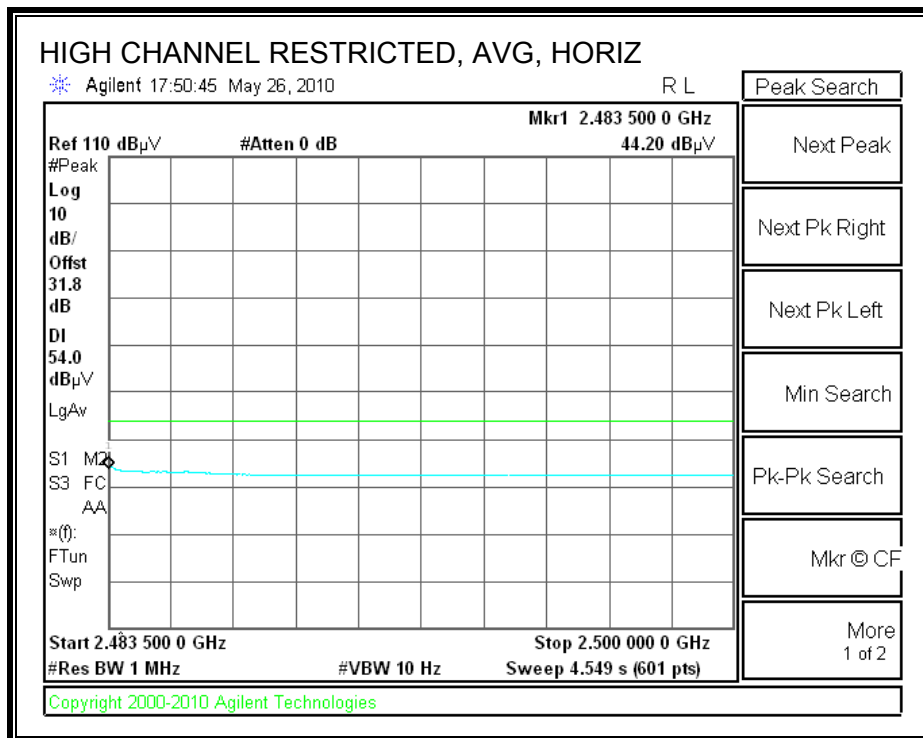
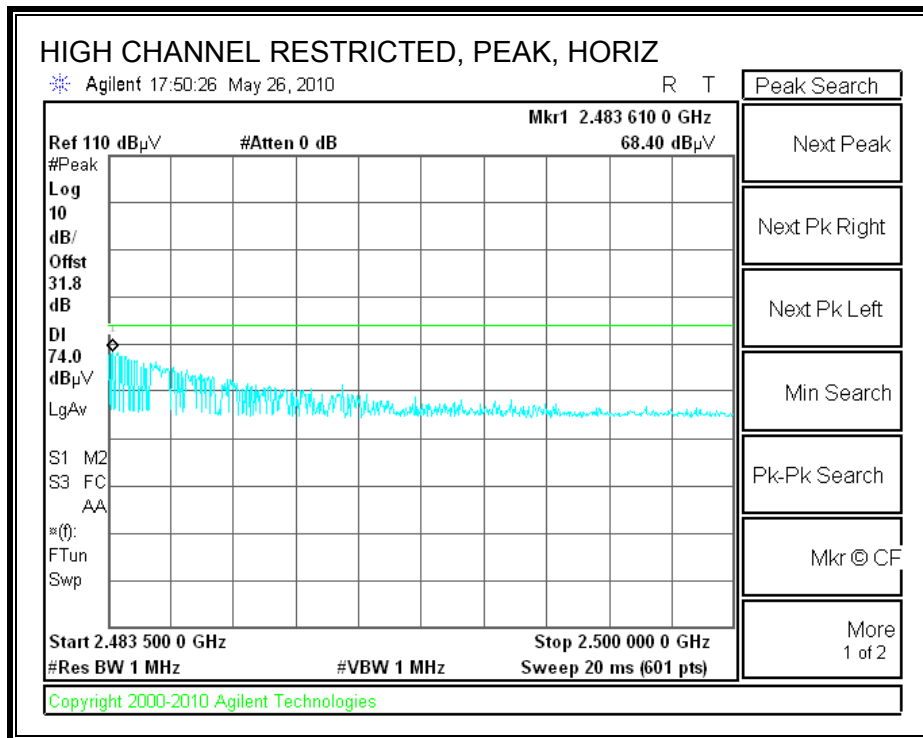
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



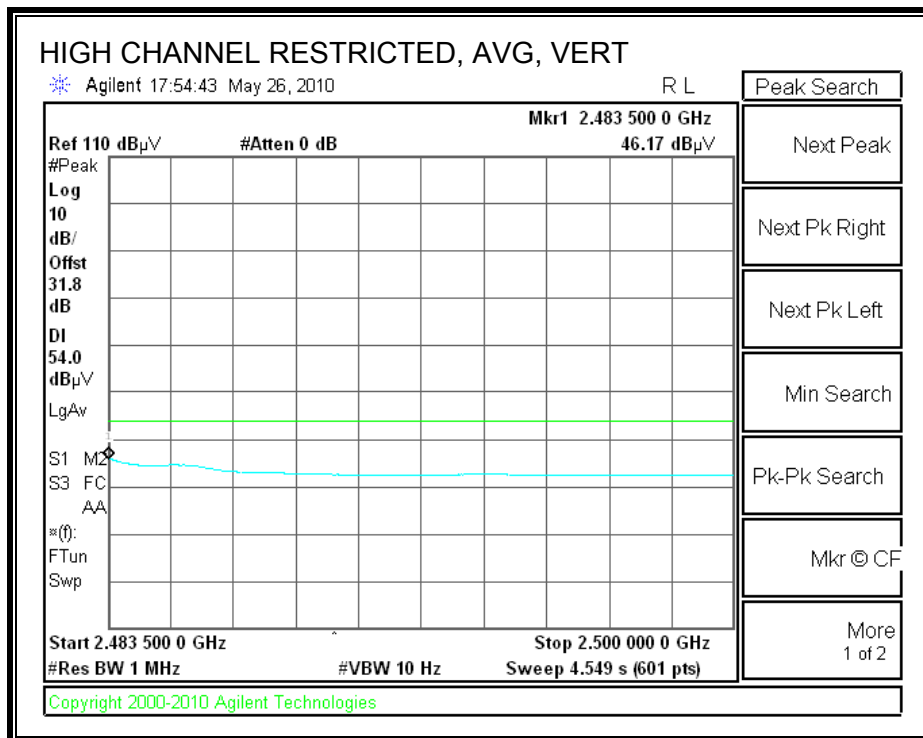
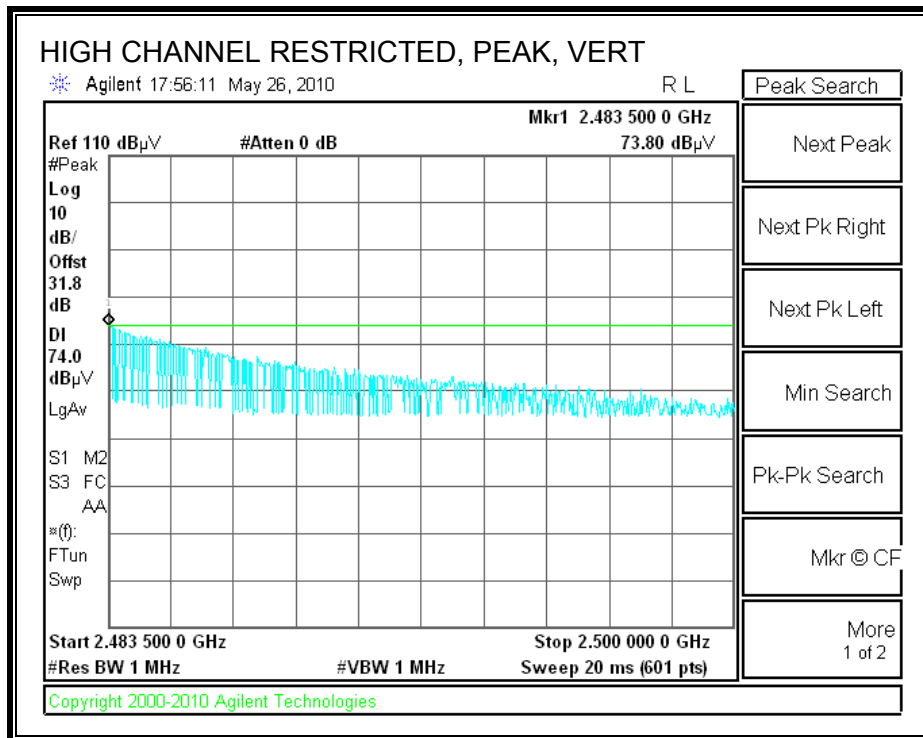
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

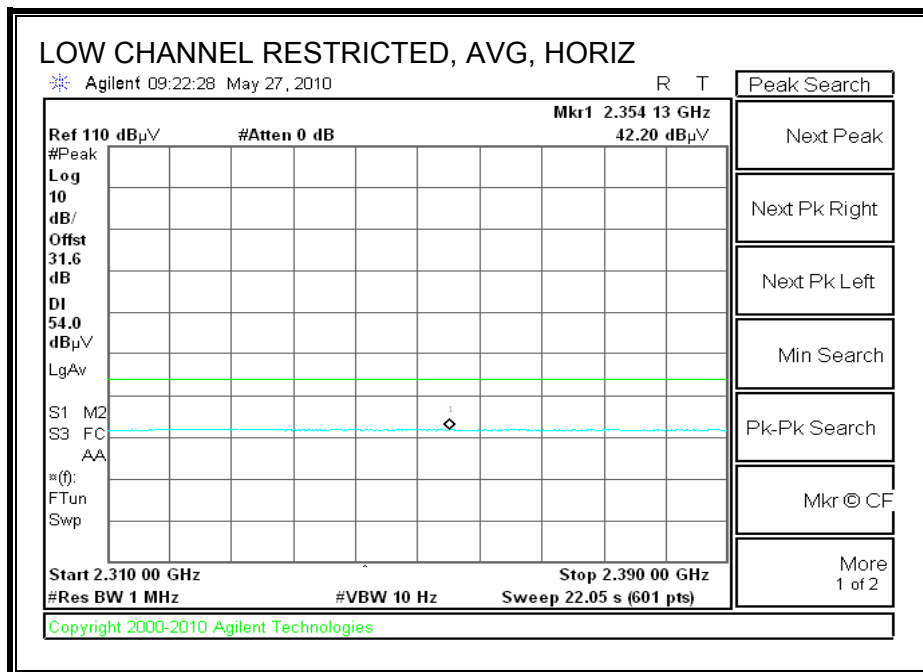
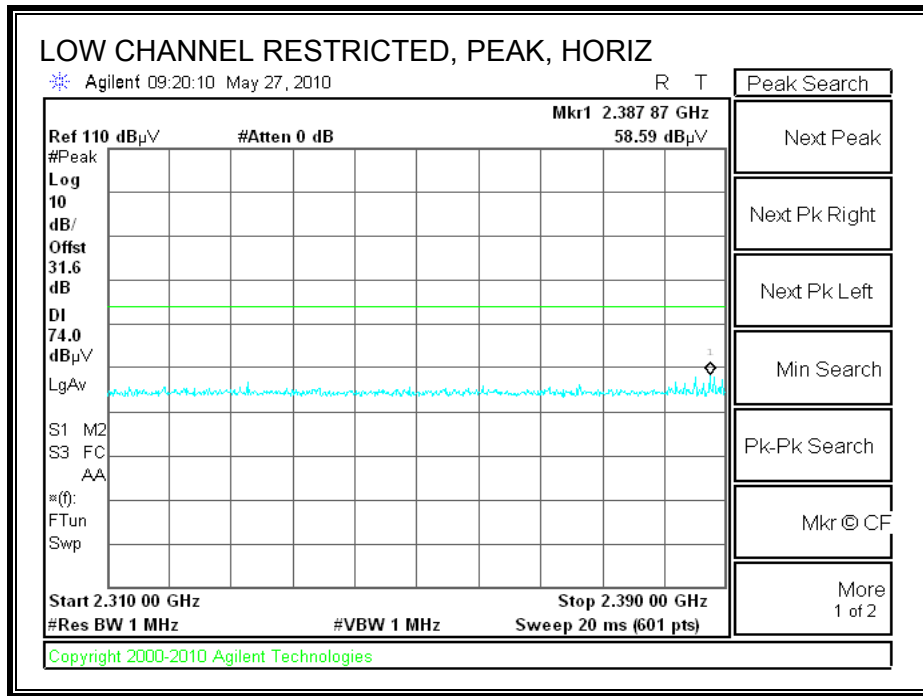


HARMONICS AND SPURIOUS EMISSIONS

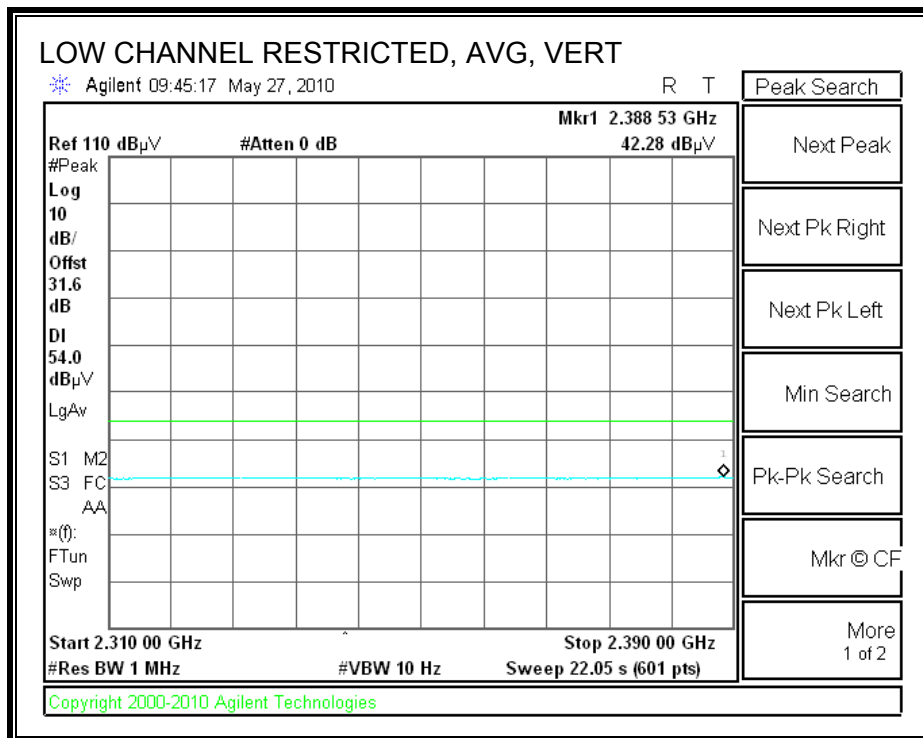
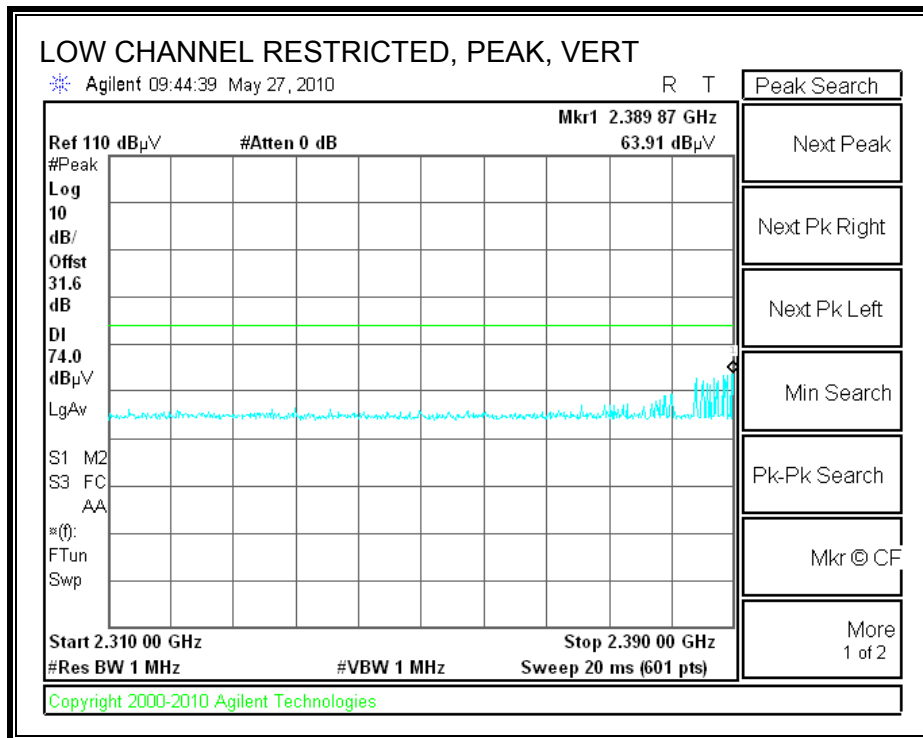
High Frequency Measurement													
Compliance Certification Services, Fremont 5m Chamber													
Test Engr:		Chin Pang											
Date:		05/27/10											
Project #:		10U13225											
Company:		Anaren, Inc.											
EUT Description:		2.4 GHz Transceiver											
EUT M/N:		A2500R24C, A2500R24A											
Test Target:		FCC15.247											
Mode Oper:		TX, 2FSK Mode, 3dBi Monopole Antenna											
f	Measurement Frequency			Amp	Preamp Gain			Average Field Strength Limit					
Dist	Distance to Antenna			D Corr	Distance Correct to 3 meters			Peak Field Strength Limit					
Read	Analyzer Reading			Avg	Average Field Strength @ 3 m			Margin vs. Average Limit					
AF	Antenna Factor			Peak	Calculated Peak Field Strength			Margin vs. Peak Limit					
CL	Cable Loss			HPF	High Pass Filter								
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Notes
Low Ch													
4.803	3.0	40.7	33.0	5.8	-36.5	0.0	0.0	43.0	74.0	-31.0	V	P	
4.803	3.0	33.5	33.0	5.8	-36.5	0.0	0.0	35.8	54.0	-18.2	V	A	
4.803	3.0	38.2	33.0	5.8	-36.5	0.0	0.0	40.6	74.0	-33.4	H	P	
4.803	3.0	26.4	33.0	5.8	-36.5	0.0	0.0	28.8	54.0	-25.2	H	A	
Mid Ch													
4.882	3.0	39.3	33.1	5.8	-36.5	0.0	0.0	41.7	74.0	-32.3	V	P	
4.882	3.0	29.8	33.1	5.8	-36.5	0.0	0.0	32.2	54.0	-21.8	V	A	
7.323	3.0	38.2	35.3	7.3	-36.2	0.0	0.0	44.5	74.0	-29.5	V	P	
7.323	3.0	27.6	35.3	7.3	-36.2	0.0	0.0	34.0	54.0	-20.0	V	A	
4.882	3.0	38.1	33.1	5.8	-36.5	0.0	0.0	40.6	74.0	-33.4	H	P	
4.882	3.0	25.9	33.1	5.8	-36.5	0.0	0.0	28.3	54.0	-25.7	H	A	
7.323	3.0	37.7	35.3	7.3	-36.2	0.0	0.0	44.0	74.0	-30.0	H	P	
7.323	3.0	26.1	35.3	7.3	-36.2	0.0	0.0	32.5	54.0	-21.5	H	A	
High Ch													
4.961	3.0	38.5	33.2	5.9	-36.5	0.0	0.0	41.1	74.0	-32.9	V	P	
4.961	3.0	28.9	33.2	5.9	-36.5	0.0	0.0	31.5	54.0	-22.5	V	A	
7.441	3.0	39.5	35.5	7.3	-36.2	0.0	0.0	46.1	74.0	-27.9	V	P	
7.441	3.0	30.9	35.5	7.3	-36.2	0.0	0.0	37.5	54.0	-16.5	V	A	
4.961	3.0	37.8	33.2	5.9	-36.5	0.0	0.0	40.4	74.0	-33.6	H	P	
4.961	3.0	25.5	33.2	5.9	-36.5	0.0	0.0	28.1	54.0	-25.9	H	A	
7.441	3.0	37.4	35.5	7.3	-36.2	0.0	0.0	44.0	74.0	-30.0	H	P	
7.441	3.0	25.1	35.5	7.3	-36.2	0.0	0.0	31.7	54.0	-22.3	H	A	
Rev. 4.1.2.7													
Note: No other emissions were detected above the system noise floor.													

2dBi PCB ANTENNA

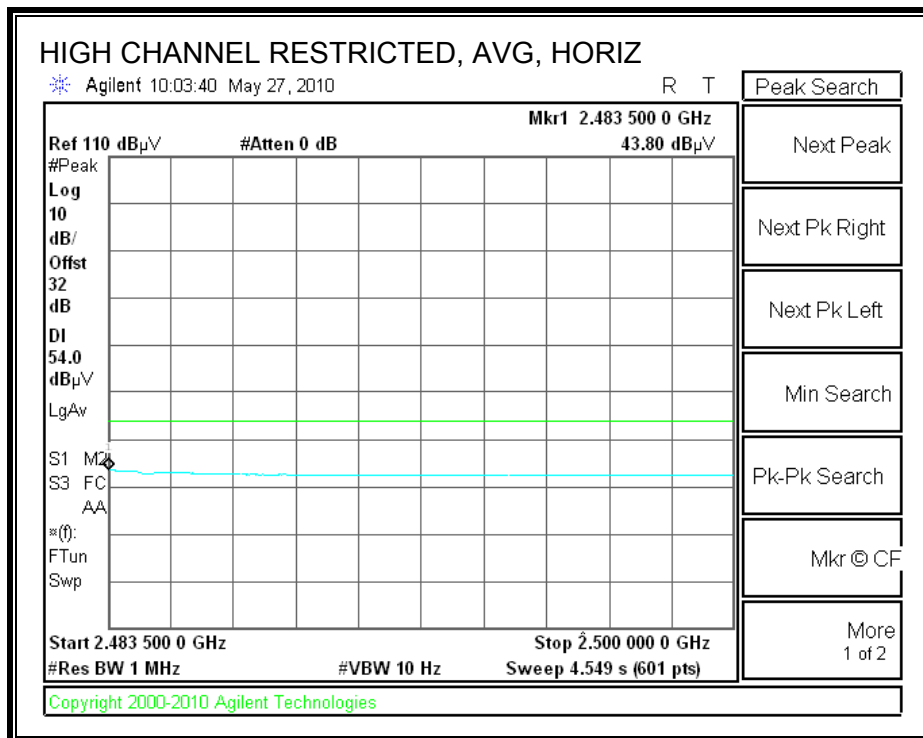
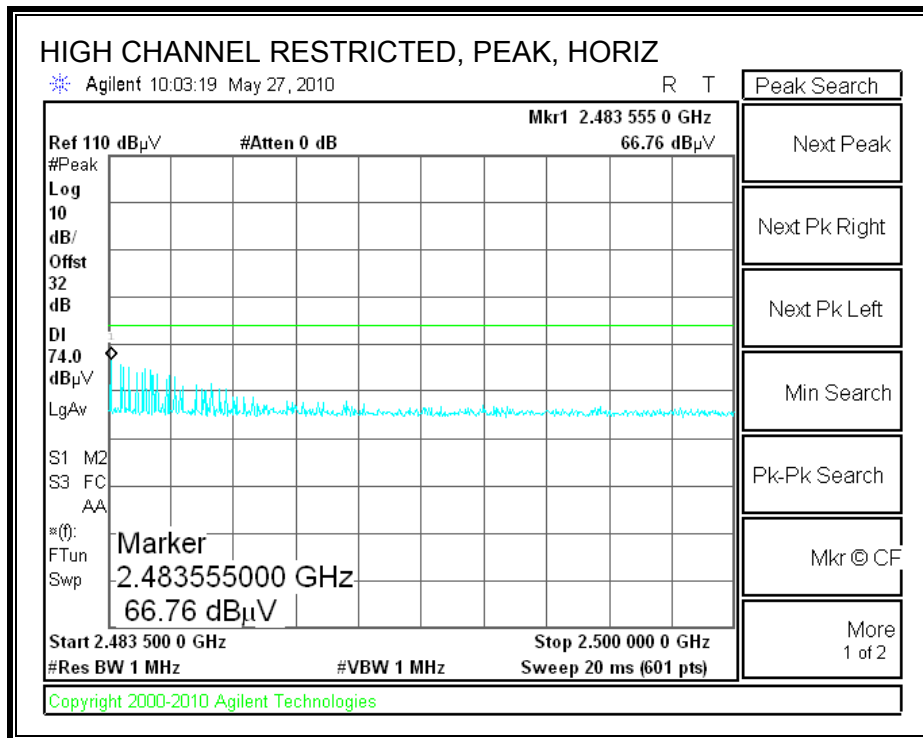
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



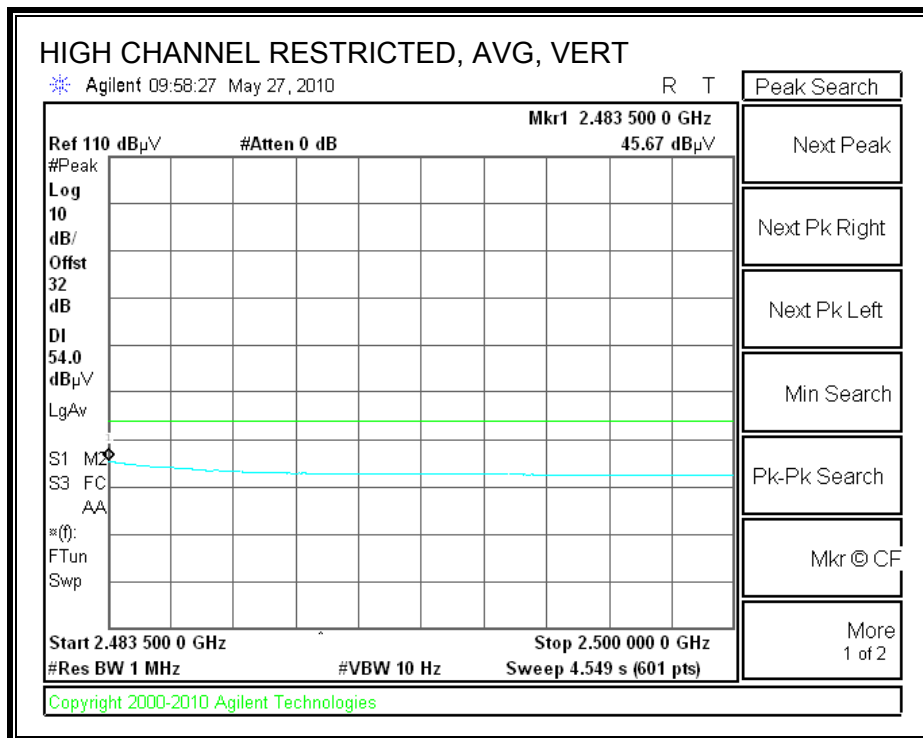
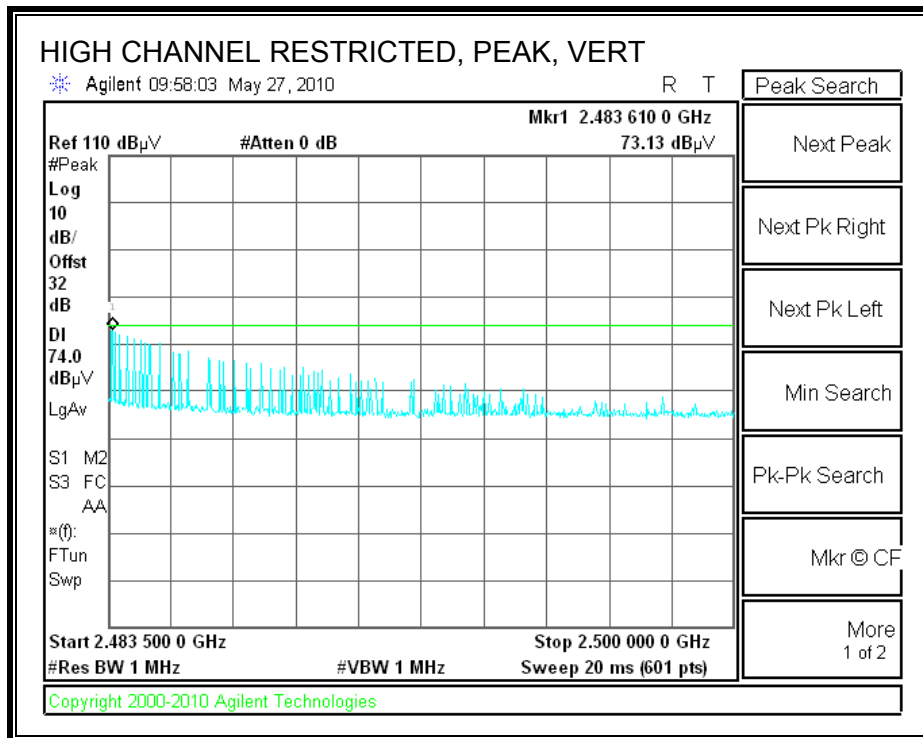
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



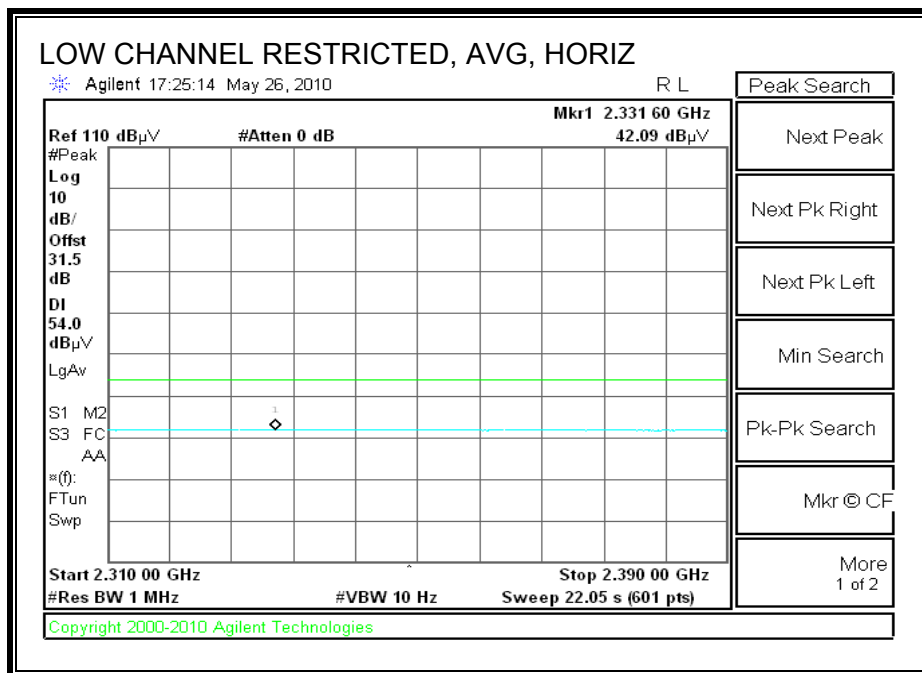
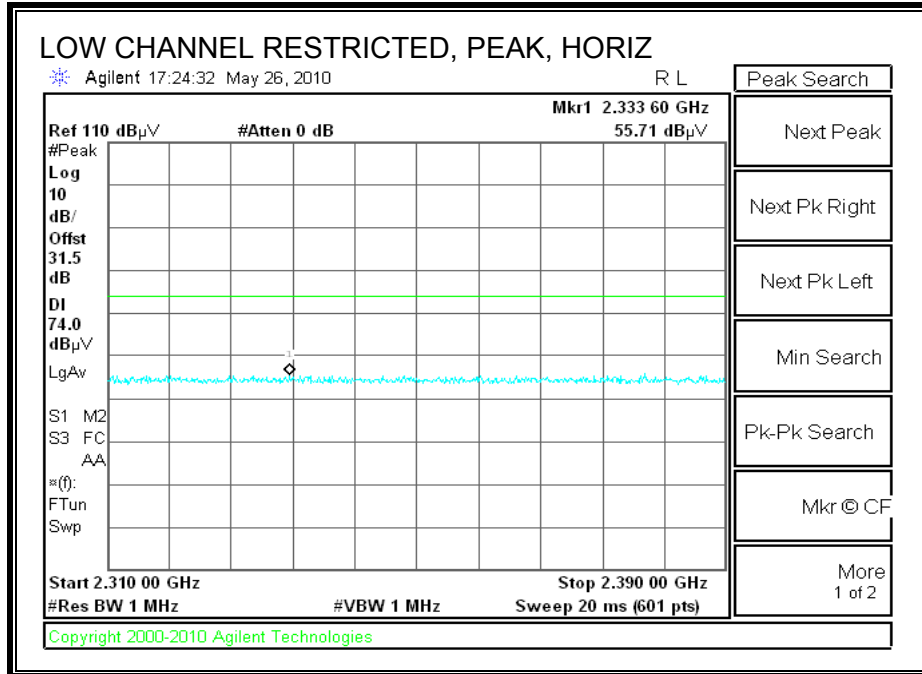
HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement														
Compliance Certification Services, Fremont 5m Chamber														
Test Engr:		Chin Pang												
Date:		05/28/10												
Project #:		10U13225												
Company:		Anaren												
EUT Description:		2.4 GHz Transceiver												
EUT M/N:		A2500R24C, A2500R24A												
Test Target:		fCC 15.247												
Mode Oper:		TX, 2FSK Mode, 2dBi PCB Antenna												
f	Measurement Frequency	Amp	Preamp Gain											Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters											Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m											Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength											Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter											
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filtr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Notes	
Low Ch														
4803	3.0	46.2	33.0	5.8	-36.5	0.0	0.0	48.5	74.0	-25.5	V	P		
4803	3.0	42.9	33.0	5.8	-36.5	0.0	0.0	45.2	54.0	-8.8	V	A		
4803	3.0	43.0	33.0	5.8	-36.5	0.0	0.0	45.3	74.0	-28.7	H	P		
4803	3.0	38.6	33.0	5.8	-36.5	0.0	0.0	40.9	54.0	-13.1	H	A		
Mid Ch														
4882	3.0	46.9	33.1	5.8	-36.5	0.0	0.0	49.4	74.0	-24.6	V	P		
4882	3.0	42.8	33.1	5.8	-36.5	0.0	0.0	45.3	54.0	-8.7	V	A		
7323	3.0	46.5	35.3	7.3	-36.2	0.0	0.0	52.9	74.0	-21.1	V	P		
7323	3.0	41.3	35.3	7.3	-36.2	0.0	0.0	47.6	54.0	-6.4	V	A		
4882	3.0	43.7	33.1	5.8	-36.5	0.0	0.0	46.2	74.0	-27.8	H	P		
4882	3.0	38.7	33.1	5.8	-36.5	0.0	0.0	41.2	54.0	-12.8	H	A		
7323	3.0	47.2	35.3	7.3	-36.2	0.0	0.0	53.6	74.0	-20.4	H	P		
7323	3.0	43.4	35.3	7.3	-36.2	0.0	0.0	49.8	54.0	-4.2	H	A		
High Ch														
4961	3.0	47.5	33.2	5.9	-36.5	0.0	0.0	50.1	74.0	-23.9	V	P		
4961	3.0	44.6	33.2	5.9	-36.5	0.0	0.0	47.2	54.0	-6.8	V	A		
7441	3.0	38.2	35.5	7.3	-36.2	0.0	0.0	44.8	74.0	-29.2	V	P		
7441	3.0	28.6	35.5	7.3	-36.2	0.0	0.0	35.2	54.0	-18.8	V	A		
4961	3.0	42.2	33.2	5.9	-36.5	0.0	0.0	44.8	74.0	-29.2	H	P		
4961	3.0	36.8	33.2	5.9	-36.5	0.0	0.0	39.4	54.0	-14.6	H	A		
7441	3.0	37.9	35.5	7.3	-36.2	0.0	0.0	44.5	74.0	-29.5	H	P		
7441	3.0	28.5	35.5	7.3	-36.2	0.0	0.0	35.1	54.0	-18.9	H	A		
Rev. 4.1.2.7														
Note: No other emissions were detected above the system noise floor.														

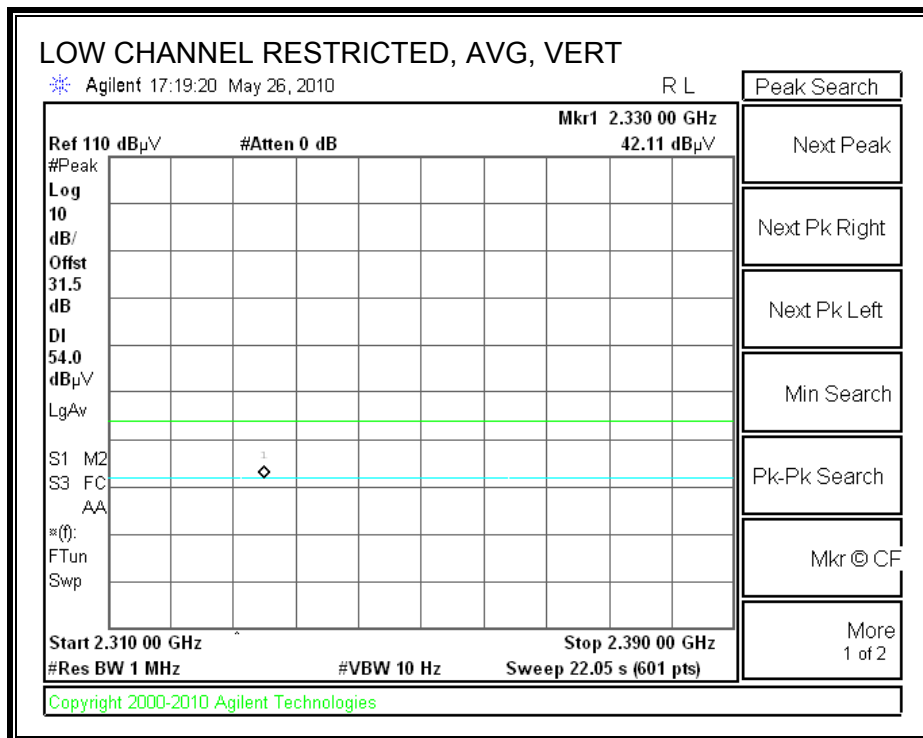
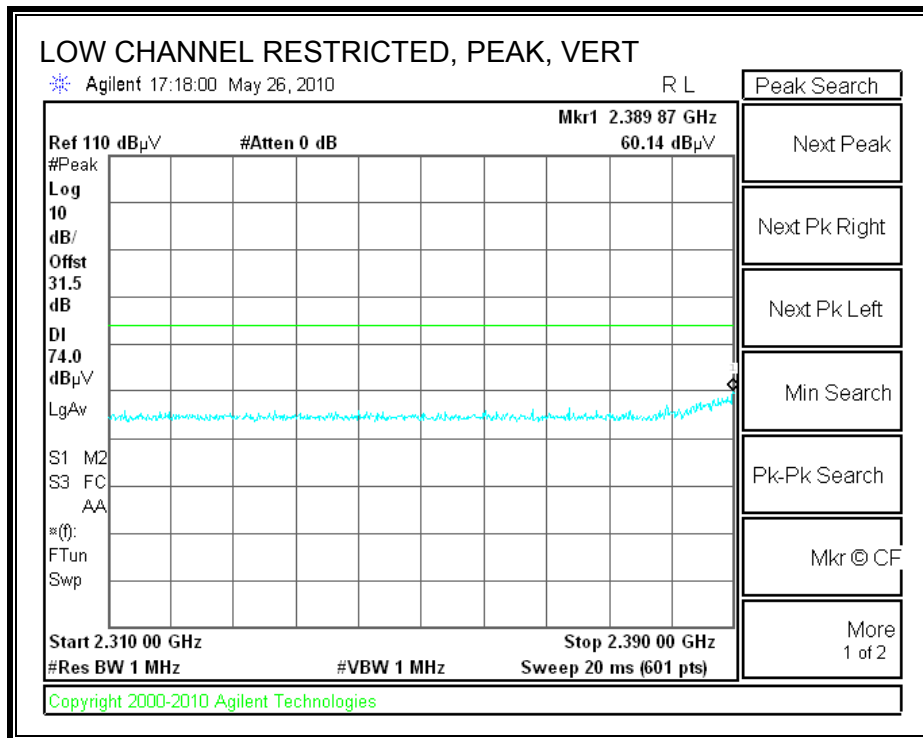
8.2.2. TRANSMITTER ABOVE 1 GHz FOR MSK MODE

5dBi PATCH ANTENNA

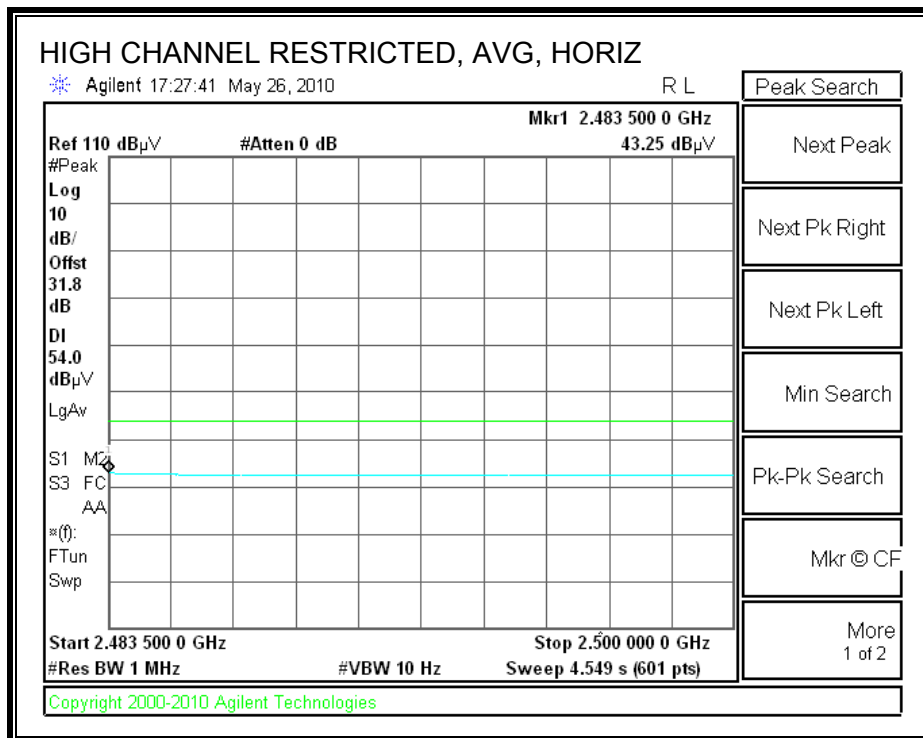
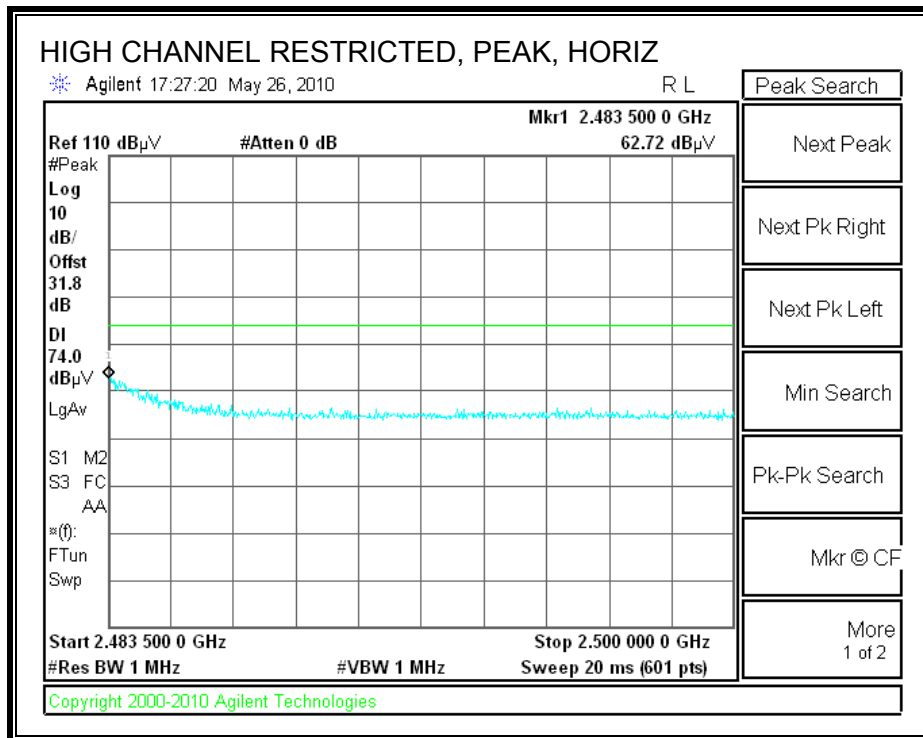
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



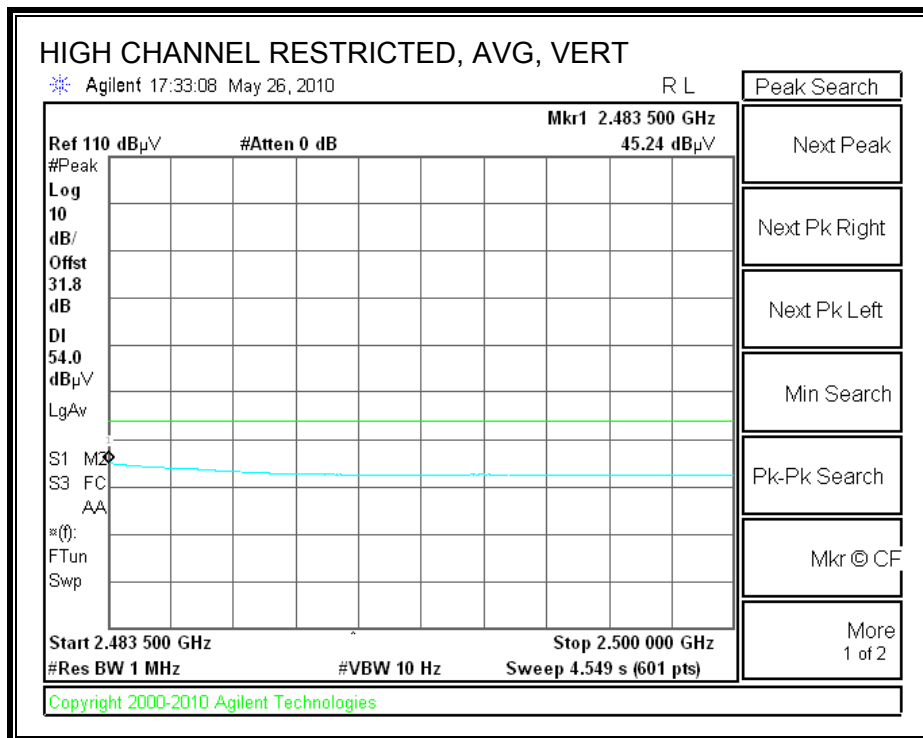
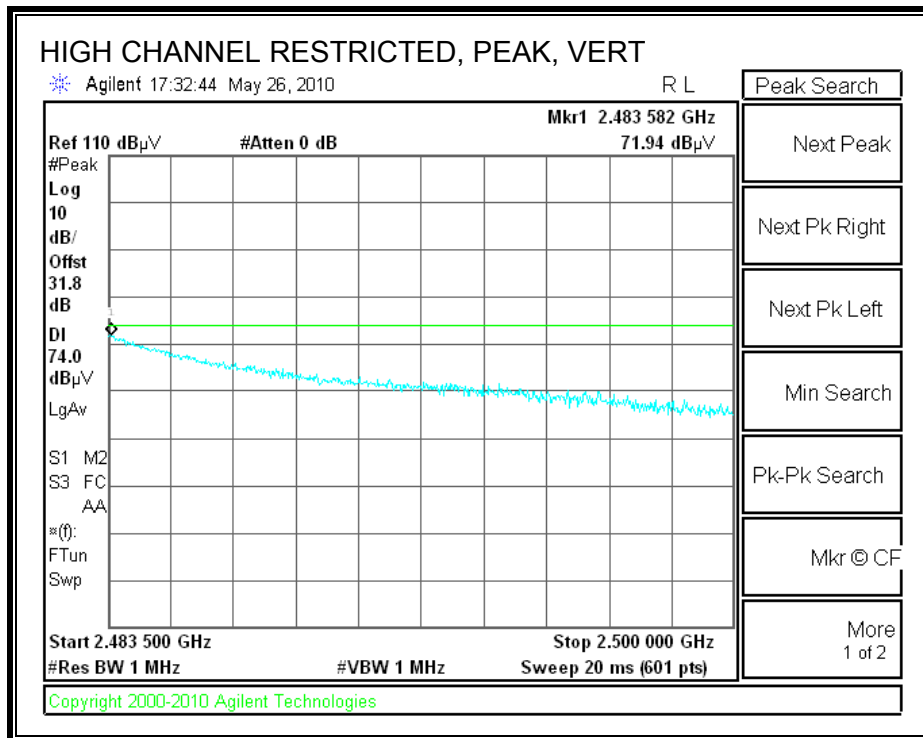
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

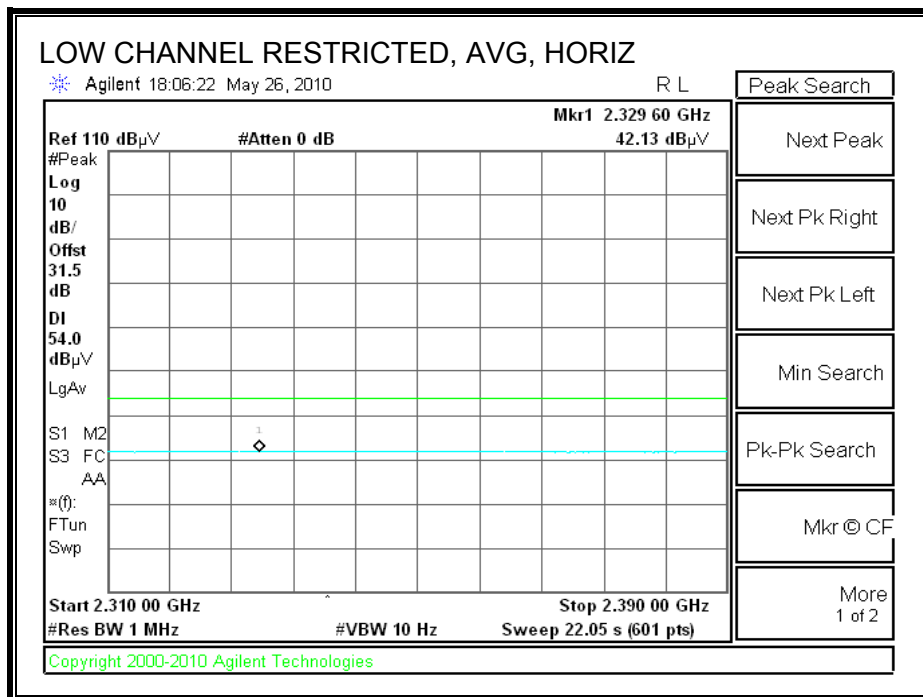
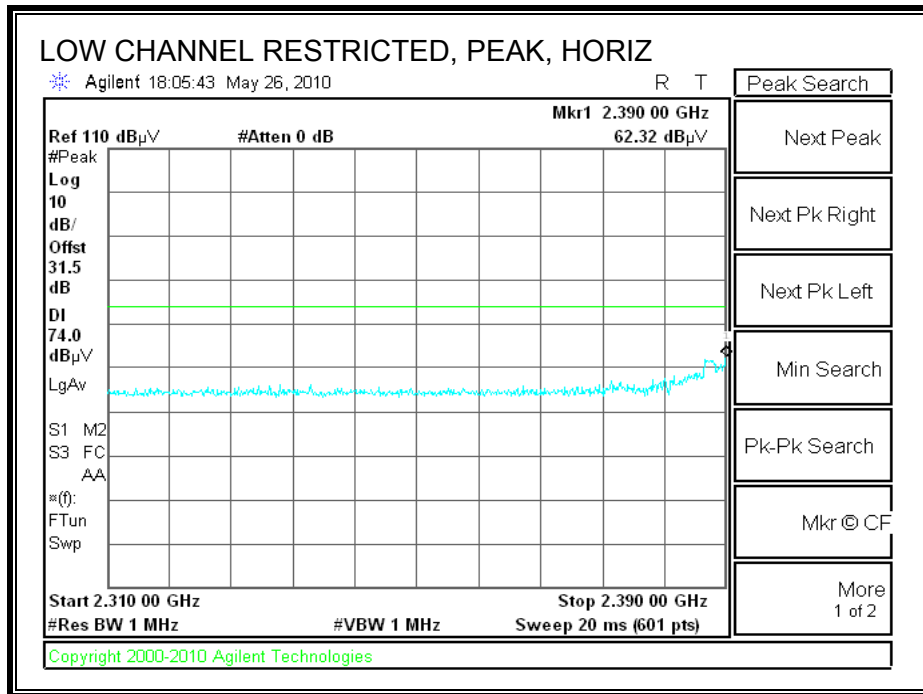


HARMONICS AND SPURIOUS EMISSIONS

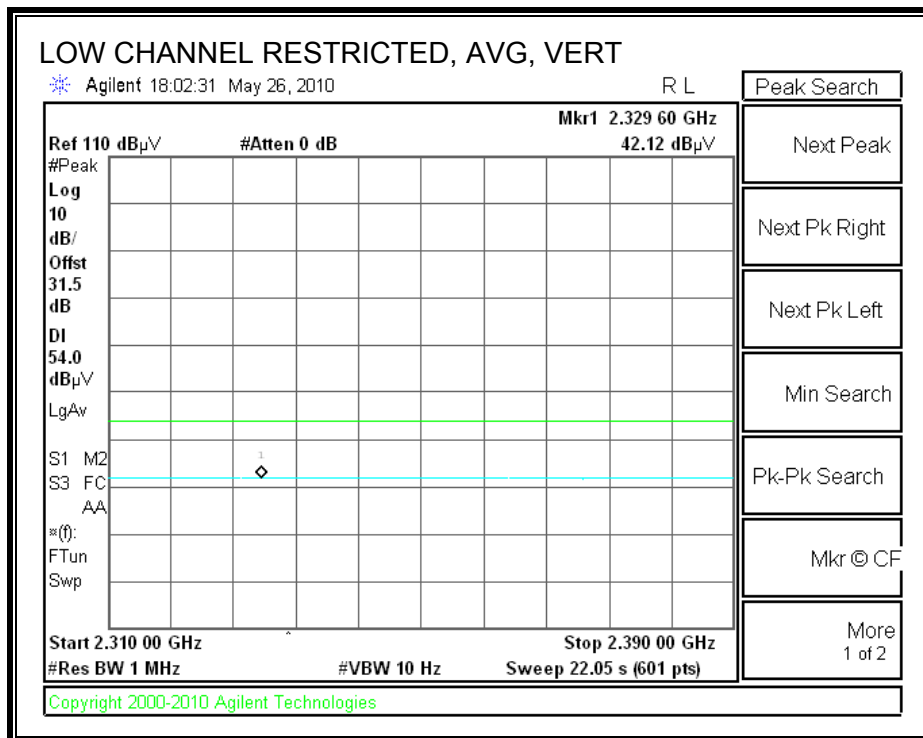
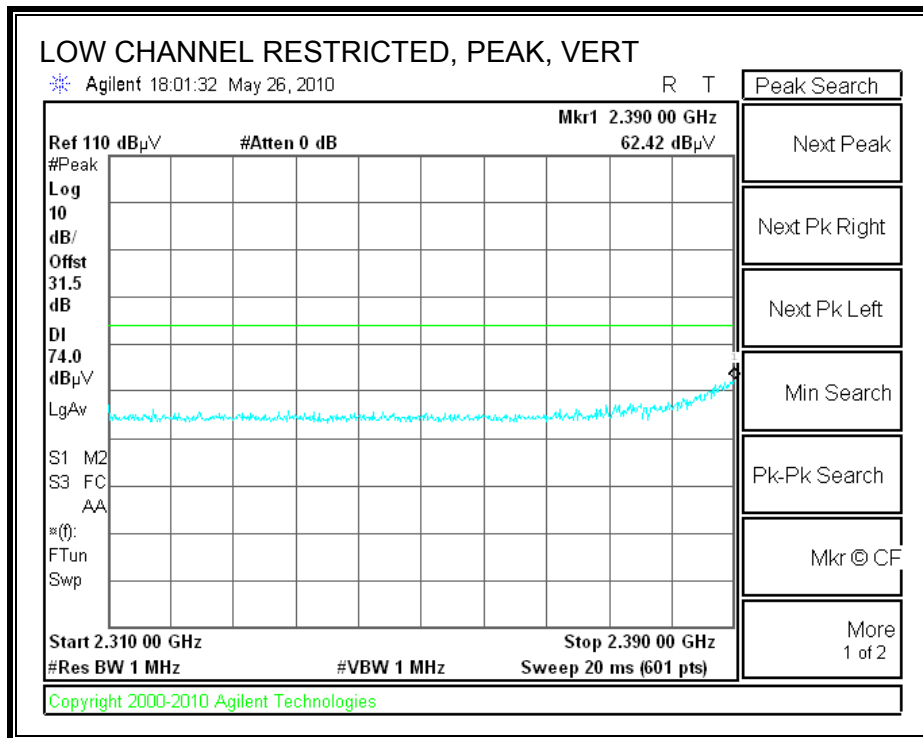
High Frequency Measurement													
Compliance Certification Services, Fremont 5m Chamber													
Test Engr:		Chin Pang											
Date:		05/28/10											
Project #:		10U13225											
Company:		Anaren, Inc.											
EUT Description:		2.4GHz Transceiver											
EUT M/N:		A2500R24C, A2500R24A											
Test Target:		FCC 15.247											
Mode Oper:		TX, FSK Mode, 5dBi Patch Antenna											
f	Measurement Frequency	Amp	Preamp Gain										Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters										Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m										Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength										Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter										
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filtr dB	Corr. dB	Limit dBuV/m	Margin dB	Ant. Pol V/H	Det P/A/QP	Notes
Low Ch													
4.804	3.0	44.4	33.0	5.8	-36.5	0.0	0.0	46.8	74.0	-27.2	V	P	
4.804	3.0	33.4	33.0	5.8	-36.5	0.0	0.0	35.8	54.0	-18.2	V	A	
4.804	3.0	44.4	33.0	5.8	-36.5	0.0	0.0	46.7	74.0	-27.3	H	P	
4.804	3.0	33.0	33.0	5.8	-36.5	0.0	0.0	35.3	54.0	-18.7	H	A	
Mid Ch													
4.882	3.0	44.9	33.1	5.8	-36.5	0.0	0.0	47.4	74.0	-26.6	V	P	
4.882	3.0	33.4	33.1	5.8	-36.5	0.0	0.0	35.9	54.0	-18.1	V	A	
7.323	3.0	41.4	35.3	7.3	-36.2	0.0	0.0	47.7	74.0	-26.3	V	P	
7.323	3.0	29.9	35.3	7.3	-36.2	0.0	0.0	36.3	54.0	-17.7	V	A	
4.882	3.0	45.4	33.1	5.8	-36.5	0.0	0.0	47.9	74.0	-26.1	H	P	
4.882	3.0	33.9	33.1	5.8	-36.5	0.0	0.0	36.4	54.0	-17.6	H	A	
7.323	3.0	38.6	35.3	7.3	-36.2	0.0	0.0	45.0	74.0	-29.0	H	P	
7.323	3.0	26.2	35.3	7.3	-36.2	0.0	0.0	32.5	54.0	-21.5	H	A	
High Ch													
4.961	3.0	45.6	33.2	5.9	-36.5	0.0	0.0	48.2	74.0	-25.8	V	P	
4.961	3.0	33.4	33.2	5.9	-36.5	0.0	0.0	36.0	54.0	-18.0	V	A	
7.441	3.0	37.2	35.5	7.3	-36.2	0.0	0.0	43.8	74.0	-30.2	V	P	
7.441	3.0	24.8	35.5	7.3	-36.2	0.0	0.0	31.4	54.0	-22.6	V	A	
4.961	3.0	44.4	33.2	5.9	-36.5	0.0	0.0	47.0	74.0	-27.0	H	P	
4.961	3.0	32.8	33.2	5.9	-36.5	0.0	0.0	35.5	54.0	-18.5	H	A	
7.441	3.0	37.7	35.5	7.3	-36.2	0.0	0.0	44.3	74.0	-29.7	H	P	
7.441	3.0	24.9	35.5	7.3	-36.2	0.0	0.0	31.5	54.0	-22.5	H	A	
Rev. 4.1.2.7													
Note: No other emissions were detected above the system noise floor.													

3dB MONOPOLE ANTENNA

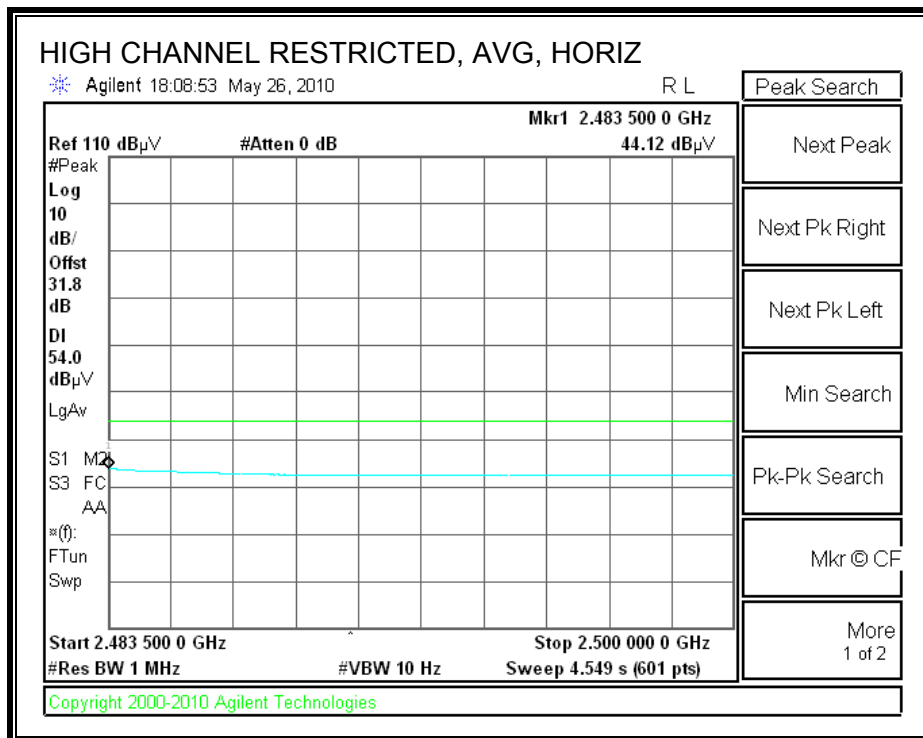
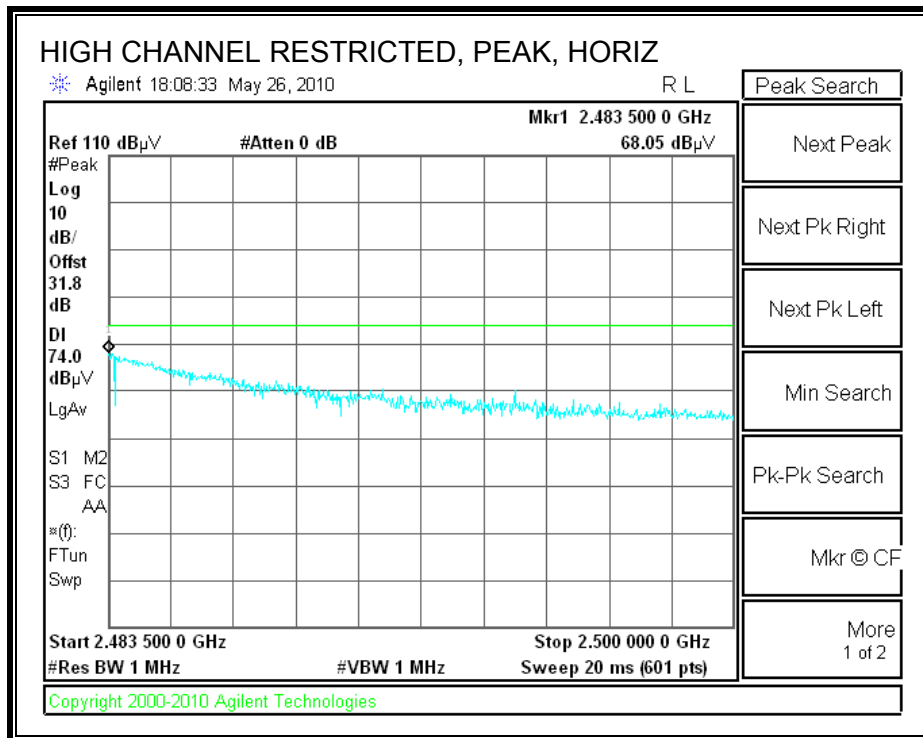
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



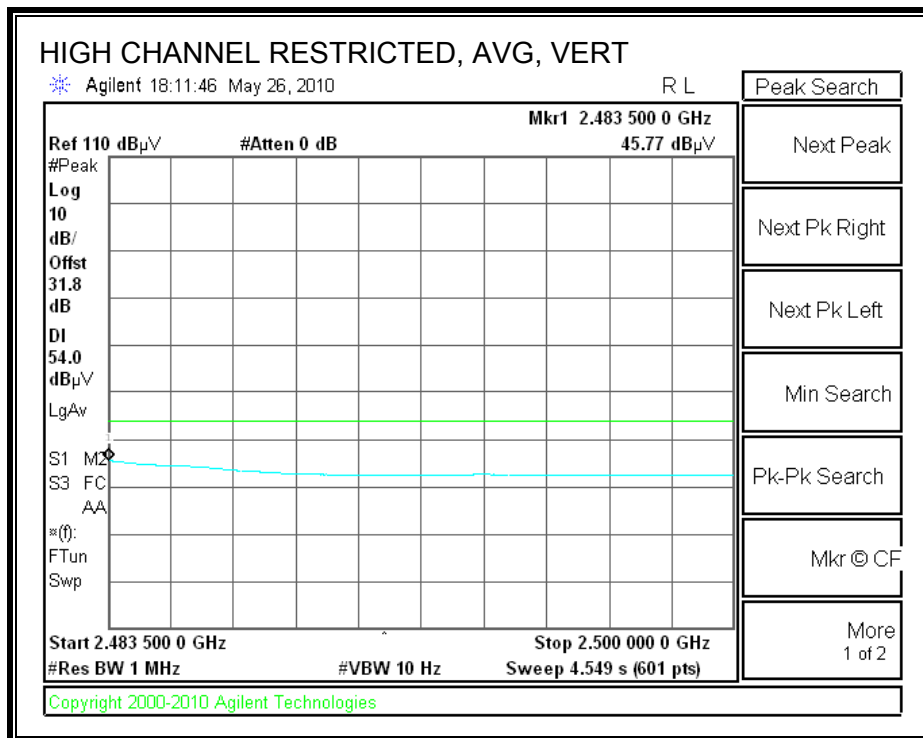
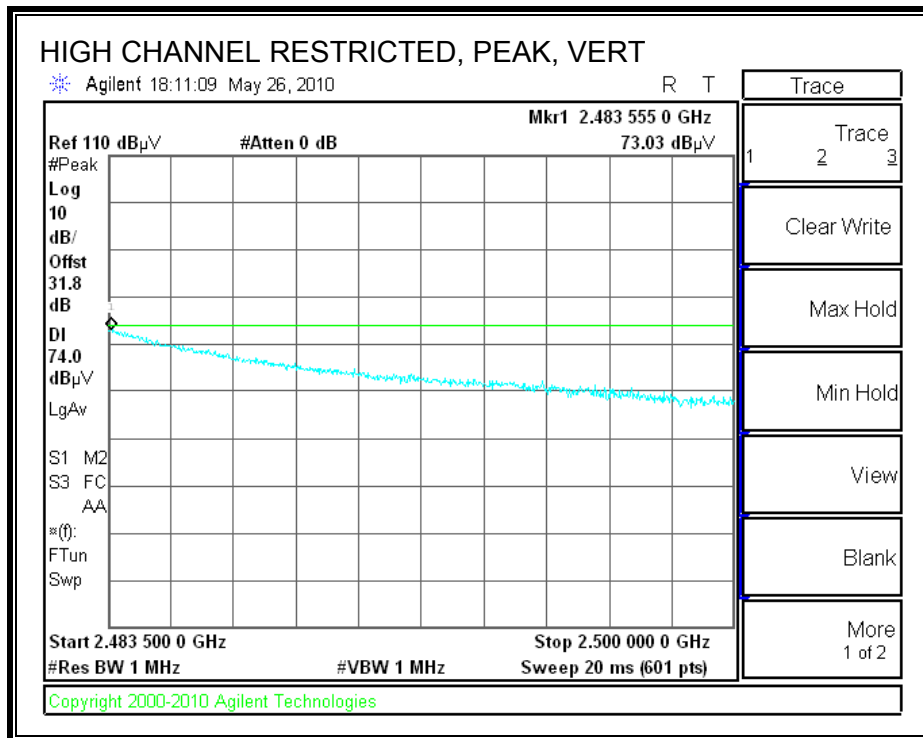
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

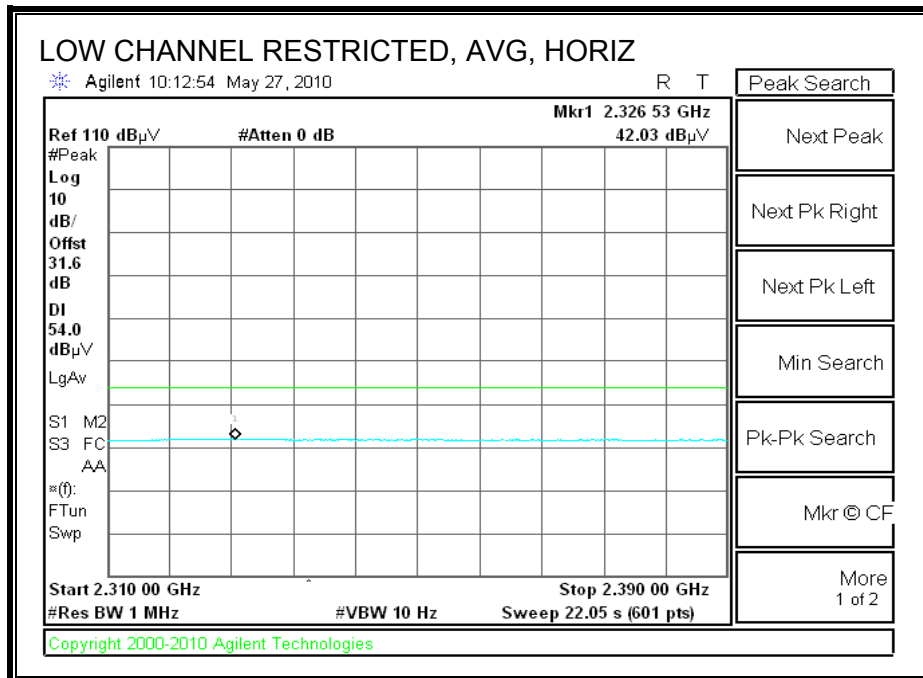
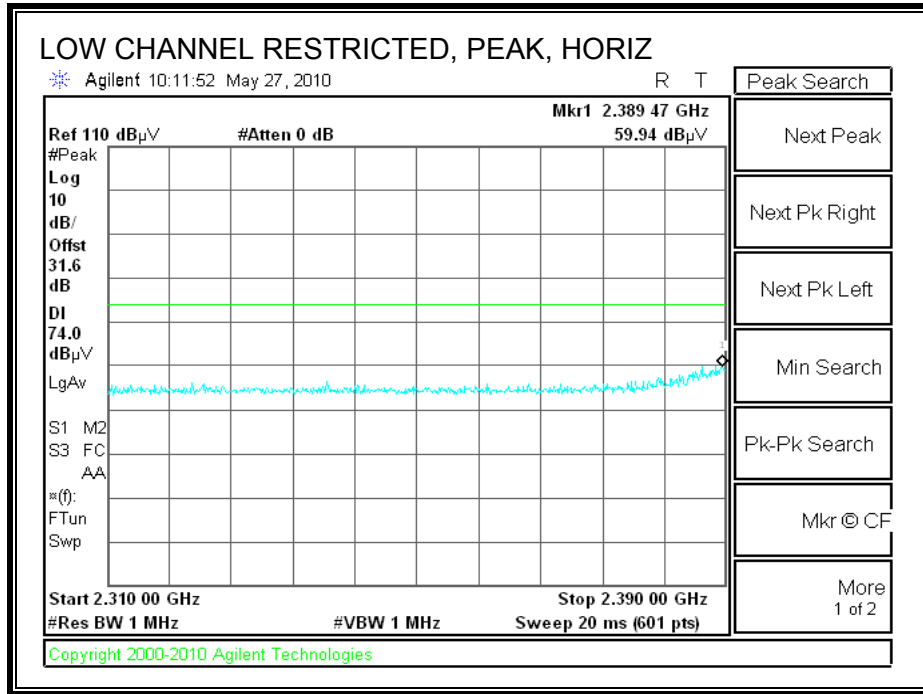


HARMONICS AND SPURIOUS EMISSIONS

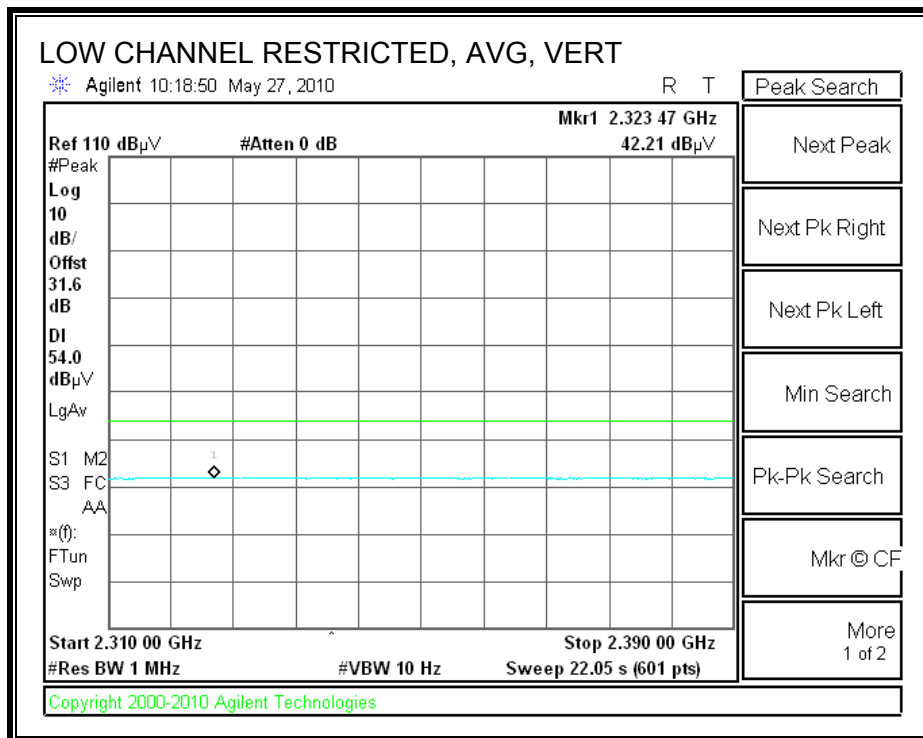
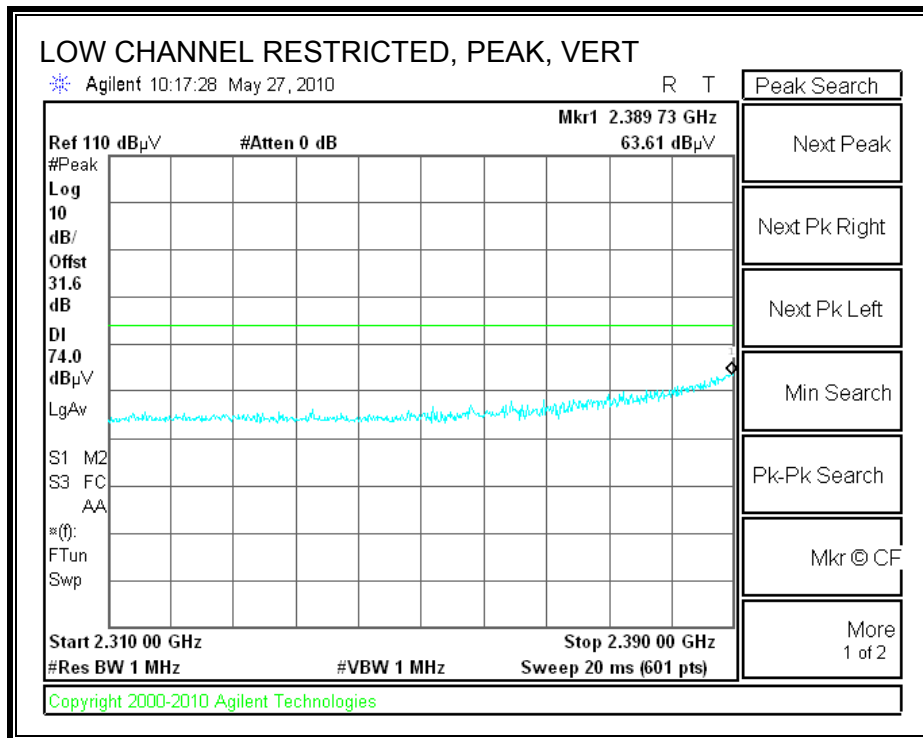
High Frequency Measurement													
Compliance Certification Services, Fremont 5m Chamber													
Test Engr:		Chin Pang											
Date:		05/27/10											
Project #:		10U13225											
Company:		Anaren											
EUT Description:		2.4 GHz Transceiver											
EUT M/N:		A2500R24C, A2500R24A											
Test Target:		fCC 15.247											
Mode Oper:		TX, MSK Mode, 3dBi Monopole Antenna											
f	Measurement Frequency	Amp	Preamp Gain										Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters										Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m										Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength										Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter										
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filtr dB	Corr. dB	Limit dBuV/m	Margin dB	Ant. Pol V/H	Det P/A/QP	Notes
Low Ch													
4.804	3.0	41.4	33.0	5.8	-36.5	0.0	0.0	43.7	74.0	-30.3	V	P	
4.804	3.0	29.8	33.0	5.8	-36.5	0.0	0.0	32.1	54.0	-21.9	V	A	
4.804	3.0	38.7	33.0	5.8	-36.5	0.0	0.0	41.1	74.0	-32.9	H	P	
4.804	3.0	26.2	33.0	5.8	-36.5	0.0	0.0	28.5	54.0	-25.5	H	A	
Mid Ch													
4.882	3.0	38.5	33.1	5.8	-36.5	0.0	0.0	41.0	74.0	-33.0	V	P	
4.882	3.0	26.2	33.1	5.8	-36.5	0.0	0.0	28.6	54.0	-25.4	V	A	
7.323	3.0	40.8	35.3	7.3	-36.2	0.0	0.0	47.1	74.0	-26.9	V	P	
7.323	3.0	29.2	35.3	7.3	-36.2	0.0	0.0	35.6	54.0	-18.4	V	A	
4.882	3.0	38.0	33.1	5.8	-36.5	0.0	0.0	40.4	74.0	-33.6	H	P	
4.882	3.0	25.6	33.1	5.8	-36.5	0.0	0.0	28.1	54.0	-25.9	H	A	
7.323	3.0	37.5	35.3	7.3	-36.2	0.0	0.0	43.8	74.0	-30.2	H	P	
7.323	3.0	25.5	35.3	7.3	-36.2	0.0	0.0	31.9	54.0	-22.1	H	A	
High Ch													
4.961	3.0	39.1	33.2	5.9	-36.5	0.0	0.0	41.7	74.0	-32.3	V	P	
4.961	3.0	27.0	33.2	5.9	-36.5	0.0	0.0	29.6	54.0	-24.4	V	A	
7.441	3.0	37.4	35.5	7.3	-36.2	0.0	0.0	44.1	74.0	-29.9	V	P	
7.441	3.0	25.2	35.5	7.3	-36.2	0.0	0.0	31.9	54.0	-22.1	V	A	
4.961	3.0	38.4	33.2	5.9	-36.5	0.0	0.0	41.0	74.0	-33.0	H	P	
4.961	3.0	26.5	33.2	5.9	-36.5	0.0	0.0	29.1	54.0	-24.9	H	A	
7.441	3.0	37.0	35.5	7.3	-36.2	0.0	0.0	43.6	74.0	-30.4	H	P	
7.441	3.0	24.6	35.5	7.3	-36.2	0.0	0.0	31.2	54.0	-22.8	H	A	
Rev. 4.1.2.7													
Note: No other emissions were detected above the system noise floor.													

2dBi PCB ANTENNA

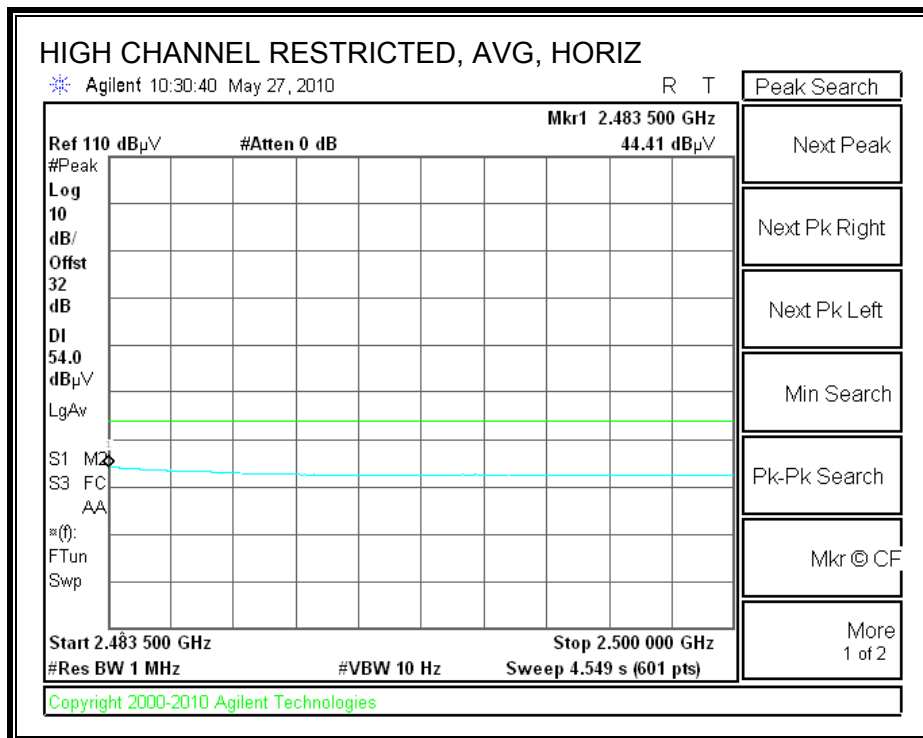
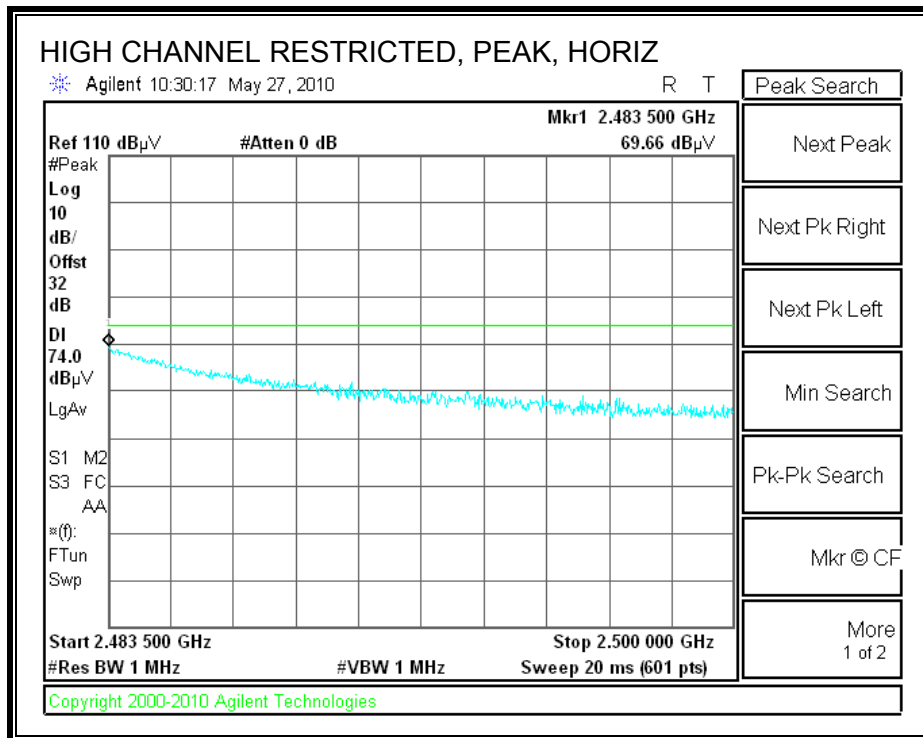
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



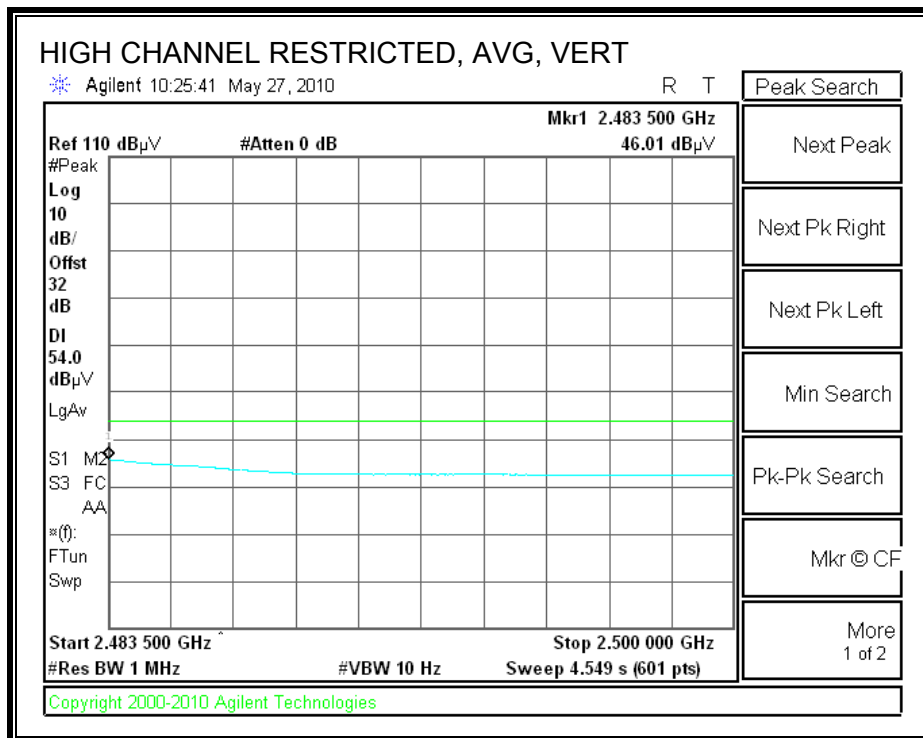
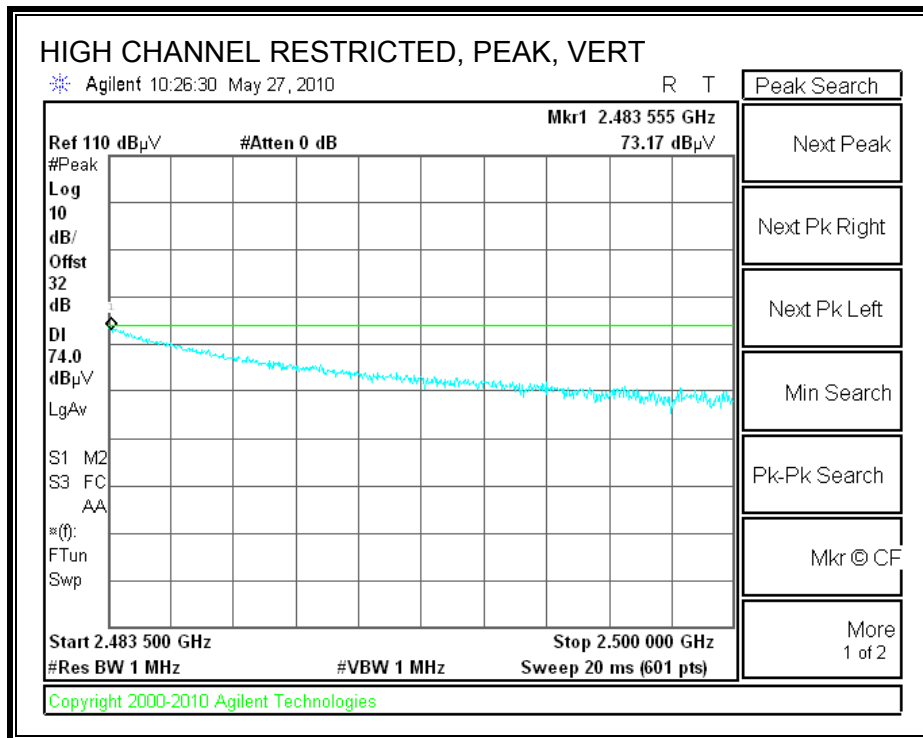
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

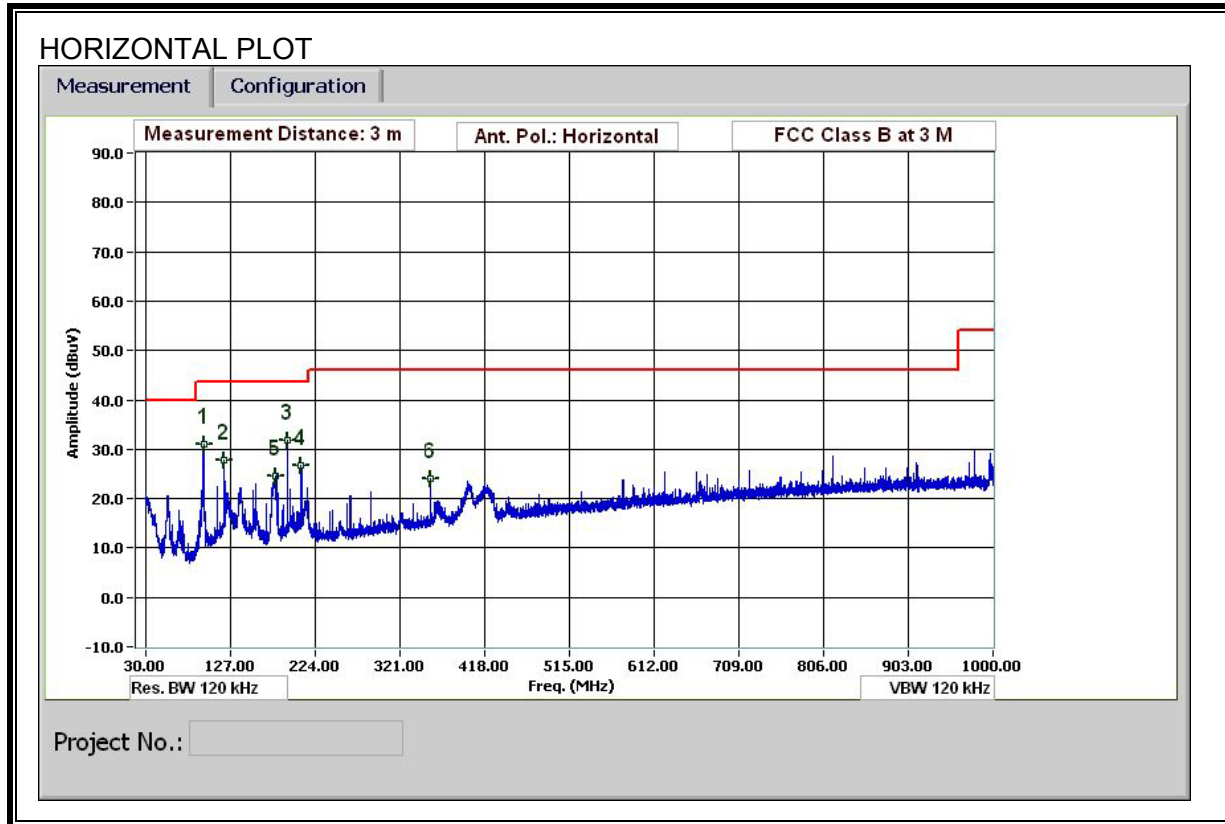


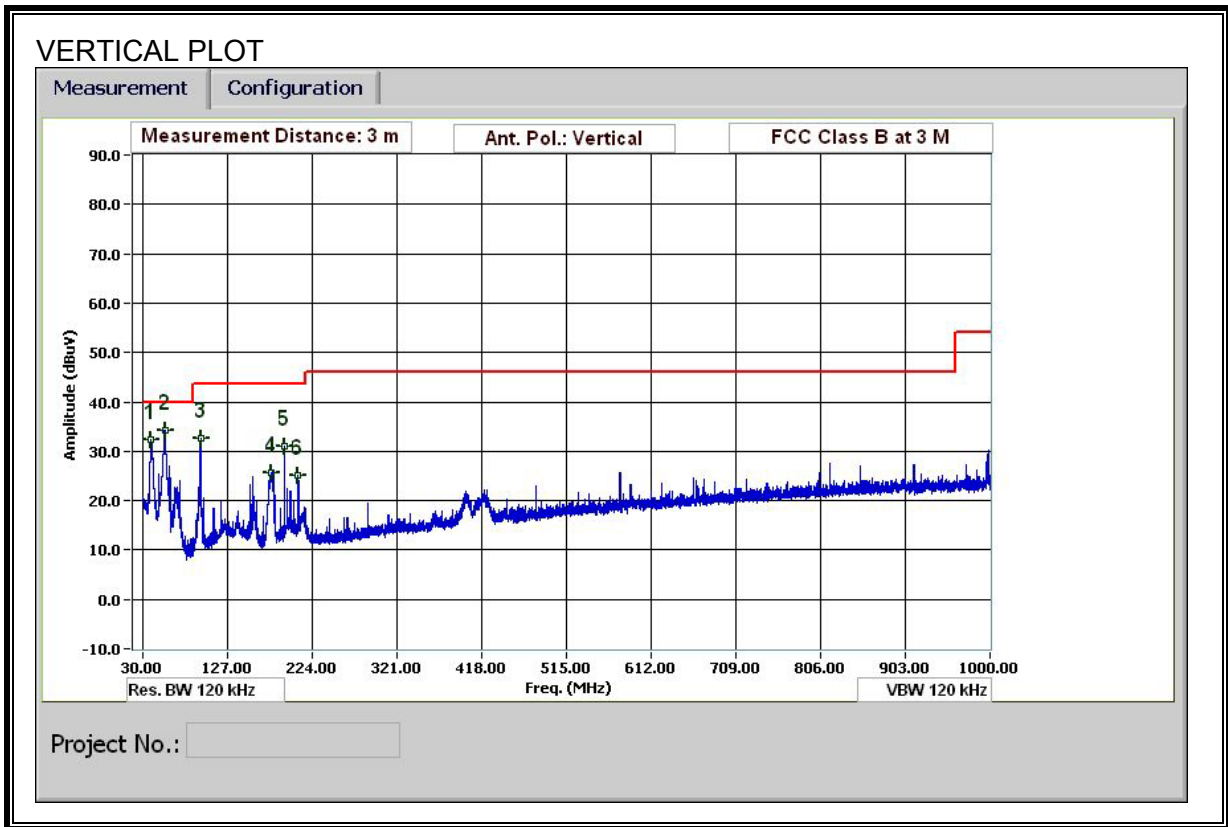
HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement													
Compliance Certification Services, Fremont 5m Chamber													
Test Engr:		Chin Pang											
Date:		05/27/10											
Project #:		10U13225											
Company:		Anaren, Inc.											
EUT Description:		2.4 GHz Transceiver											
EUT M/N:		A2500R24C, A2500R24A											
Test Target:		FCC15.247											
Mode Oper:		TX, MSK Mode, 2dBi PCB Antenna											
f	Measurement Frequency	Amp	Preamp Gain					Average Field Strength Limit					
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters					Peak Field Strength Limit					
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m					Margin vs. Average Limit					
AF	Antenna Factor	Peak	Calculated Peak Field Strength					Margin vs. Peak Limit					
CL	Cable Loss	HPF	High Pass Filter										
f GHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Corr. dB	Limit dBuV/m	Margin dB	Ant. Pol V/H	Det P/A/QP	Notes
Low Ch													
4.804	3.0	46.1	33.0	5.8	-36.5	0.0	0.0	48.4	74.0	-25.6	V	P	
4.804	3.0	34.2	33.0	5.8	-36.5	0.0	0.0	36.5	54.0	-17.5	V	A	
4.804	3.0	43.3	33.0	5.8	-36.5	0.0	0.0	45.6	74.0	-28.4	H	P	
4.804	3.0	32.6	33.0	5.8	-36.5	0.0	0.0	34.9	54.0	-19.1	H	A	
Mid Ch													
4.882	3.0	47.3	33.1	5.8	-36.5	0.0	0.0	49.7	74.0	-24.3	V	P	
4.882	3.0	34.6	33.1	5.8	-36.5	0.0	0.0	37.0	54.0	-17.0	V	A	
7.323	3.0	46.0	35.3	7.3	-36.2	0.0	0.0	52.3	74.0	-21.7	V	P	
7.323	3.0	32.9	35.3	7.3	-36.2	0.0	0.0	39.2	54.0	-14.8	V	A	
4.882	3.0	43.5	33.1	5.8	-36.5	0.0	0.0	46.0	74.0	-28.0	H	P	
4.882	3.0	32.2	33.1	5.8	-36.5	0.0	0.0	34.6	54.0	-19.4	H	A	
7.323	3.0	47.4	35.3	7.3	-36.2	0.0	0.0	53.8	74.0	-20.2	H	P	
7.323	3.0	34.2	35.3	7.3	-36.2	0.0	0.0	40.6	54.0	-13.4	H	A	
High Ch													
4.961	3.0	47.3	33.2	5.9	-36.5	0.0	0.0	50.0	74.0	-24.0	V	P	
4.961	3.0	35.1	33.2	5.9	-36.5	0.0	0.0	37.7	54.0	-16.3	V	A	
7.441	3.0	38.7	35.5	7.3	-36.2	0.0	0.0	45.3	74.0	-28.7	V	P	
7.441	3.0	26.7	35.5	7.3	-36.2	0.0	0.0	33.4	54.0	-20.6	V	A	
4.961	3.0	42.3	33.2	5.9	-36.5	0.0	0.0	44.9	74.0	-29.1	H	P	
4.961	3.0	31.4	33.2	5.9	-36.5	0.0	0.0	34.1	54.0	-19.9	H	A	
7.441	3.0	38.8	35.5	7.3	-36.2	0.0	0.0	45.4	74.0	-28.6	H	P	
7.441	3.0	27.9	35.5	7.3	-36.2	0.0	0.0	34.5	54.0	-19.5	H	A	
Rev. 4.1.2.7													
Note: No other emissions were detected above the system noise floor.													

8.3. WORST-CASE BELOW 1 GHz

5dBi PATCH ANTENNA, 2FSK MODE

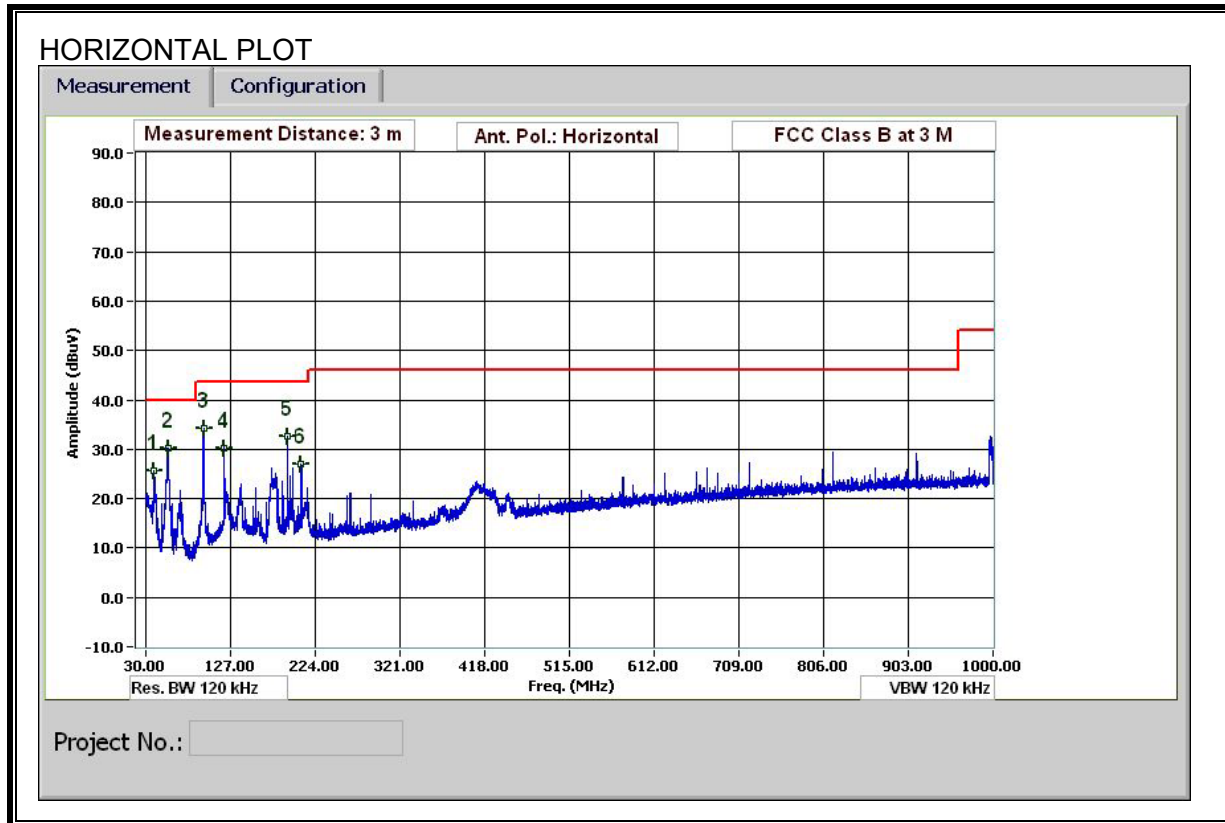


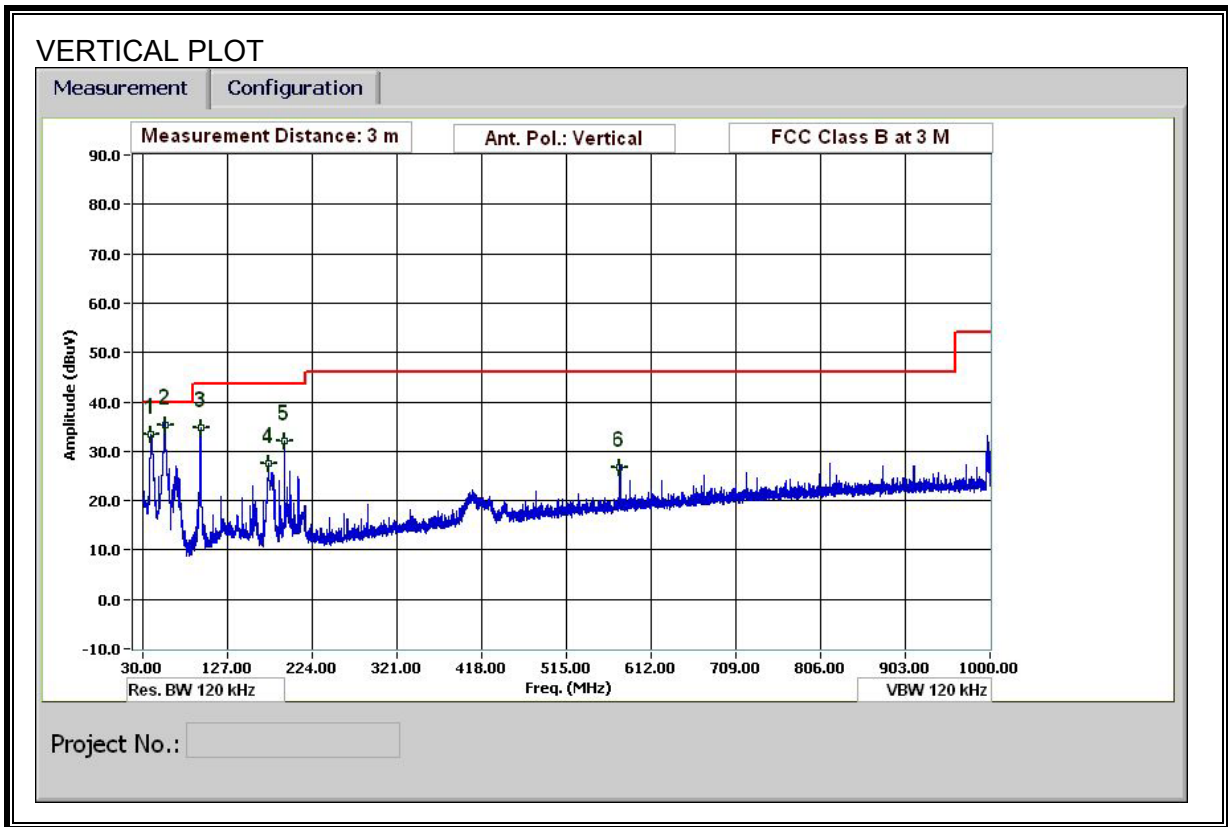


VERTICAL AND HORIZONTAL DATA

30-1000MHz Frequency Measurement													
Compliance Certification Services, Fremont 5m Chamber													
Test Engr:		Chin Pang											
Date:		05/27/10											
Project #:		10U13225											
Company:		Anaren, Inc.											
EUT Description:		2.4GHz Transceiver											
EUT M/N:		A2500R24C, A2500R24A											
Test Target:		FCC 15B											
Mode Oper:		TX, 5dBI patch Antenna, 2FSK mode											
f	Measurement Frequency	Amp	Preamp Gain		Margin	Margin vs. Limit							
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters										
Read	Analyzer Reading	Filter	Filter Insert Loss										
AF	Antenna Factor	Corr.	Calculated Field Strength										
CL	Cable Loss	Limit	Field Strength Limit										
f	Dist	Read	AF	CL	Amp	D Corr	Filter	Corr.	Limit	Margin	Ant. Pol.	Det.	Notes
MHz	(m)	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBuV/m	dB	V/H	P/A/QP	
39.720	3.0	46.1	14.1	0.6	28.4	0.0	0.0	32.4	40.0	-7.6	V	P	
55.201	3.0	53.9	8.1	0.7	28.4	0.0	0.0	34.3	40.0	-5.7	V	P	
96.123	3.0	50.9	9.0	0.9	28.3	0.0	0.0	32.5	43.5	-11.0	V	P	
177.366	3.0	42.0	10.8	1.2	28.2	0.0	0.0	25.7	43.5	-17.8	V	P	
192.127	3.0	46.6	11.5	1.2	28.2	0.0	0.0	31.0	43.5	-12.5	V	P	
207.967	3.0	40.1	12.0	1.3	28.2	0.0	0.0	25.1	43.5	-18.4	V	P	
96.123	3.0	49.4	9.0	0.9	28.3	0.0	0.0	31.0	43.5	-12.5	H	P	
120.124	3.0	41.5	13.6	1.0	28.3	0.0	0.0	27.9	43.5	-15.6	H	P	
178.326	3.0	40.9	10.9	1.2	28.2	0.0	0.0	24.7	43.5	-18.8	H	P	
192.127	3.0	47.3	11.5	1.2	28.2	0.0	0.0	31.7	43.5	-11.8	H	P	
207.967	3.0	41.6	12.0	1.3	28.2	0.0	0.0	26.6	43.5	-16.9	H	P	
355.933	3.0	36.3	14.3	1.7	28.1	0.0	0.0	24.2	46.0	-21.8	H	P	

5dBi PATCH ANTENNA, MSK MODE

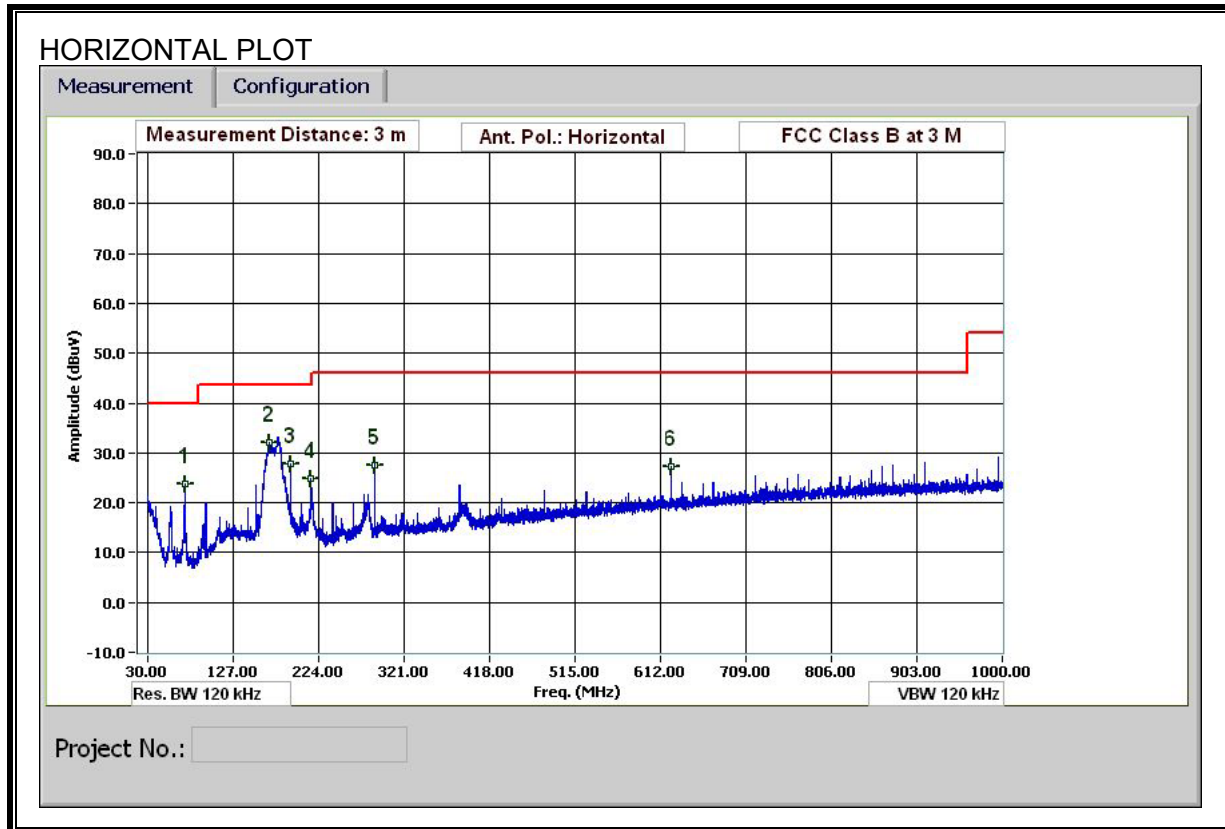


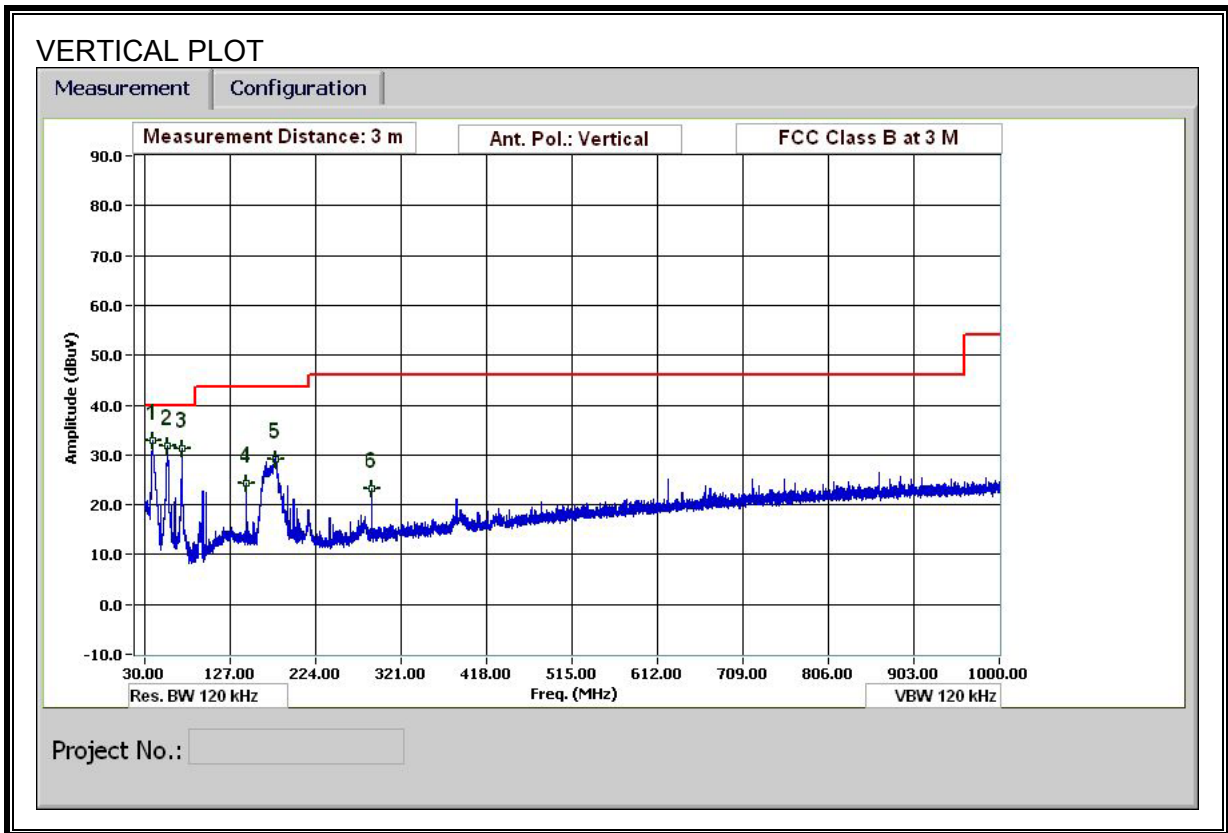


VERTICAL AND HORIZONTAL DATA

30-1000MHz Frequency Measurement													
Compliance Certification Services, Fremont 5m Chamber													
Test Engr:		Chin Pang											
Date:		05/27/10											
Project #:		10U13225											
Company:		Anaren											
EUT Description:		2.4GHz Transceiver											
EUT M/N:		A2500R24C, A2500R24A											
Test Target:		FCC 15B											
Mode Oper:		TX, MSK Mode, 5dBi Patch Antenna											
f	Measurement Frequency	Amp	Preamp Gain	Margin	Margin vs. Limit								
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters										
Read	Analyzer Reading	Filter	Filter Insert Loss										
AF	Antenna Factor	Corr.	Calculated Field Strength										
CL	Cable Loss	Limit	Field Strength Limit										
f	Dist	Read	AF	CL	Amp	D Corr	Filter	Corr.	Limit	Margin	Ant. Pol.	Det.	Notes
MHz	(m)	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBuV/m	dB	V/H	P/A/QP	
39.840	3.0	39.4	14.0	0.6	28.4	0.0	0.0	25.6	40.0	-14.4	H	P	
55.081	3.0	49.7	8.1	0.7	28.4	0.0	0.0	30.1	40.0	-9.9	H	P	
96.123	3.0	52.8	9.0	0.9	28.3	0.0	0.0	34.4	43.5	-9.1	H	P	
120.004	3.0	43.7	13.6	1.0	28.3	0.0	0.0	30.1	43.5	-13.4	H	P	
192.127	3.0	48.2	11.5	1.2	28.2	0.0	0.0	32.6	43.5	-10.9	H	P	
207.967	3.0	42.1	12.0	1.3	28.2	0.0	0.0	27.1	43.5	-16.4	H	P	
39.840	3.0	47.2	14.0	0.6	28.4	0.0	0.0	33.4	40.0	-6.6	V	P	
55.201	3.0	54.9	8.1	0.7	28.4	0.0	0.0	35.3	40.0	-4.7	V	P	
96.123	3.0	53.1	9.0	0.9	28.3	0.0	0.0	34.7	43.5	-8.8	V	P	
174.126	3.0	44.1	10.5	1.2	28.2	0.0	0.0	27.6	43.5	-15.9	V	P	
192.127	3.0	47.6	11.5	1.2	28.2	0.0	0.0	32.1	43.5	-11.4	V	P	
576.383	3.0	34.2	18.0	2.2	27.6	0.0	0.0	26.8	46.0	-19.2	V	P	

3dB MONOPOLE ANTENNA, 2FSK MODE

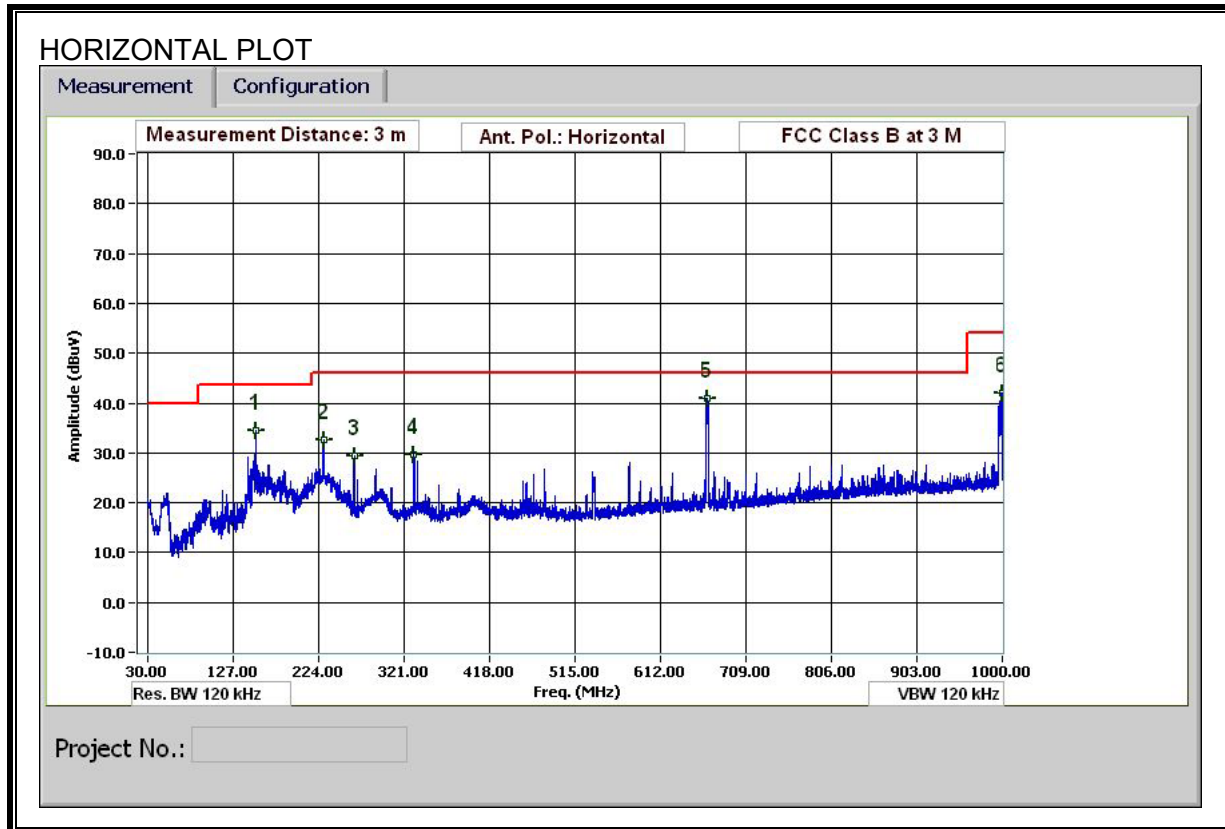


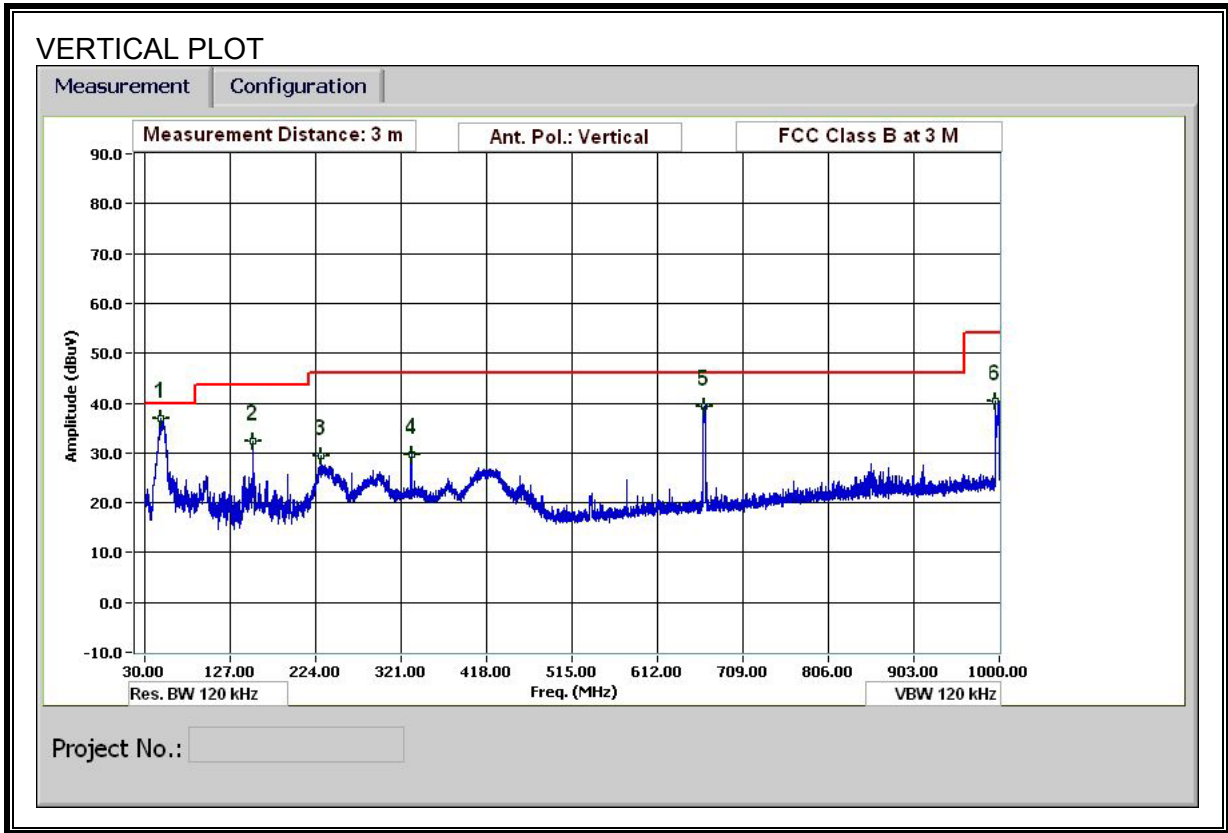


VERTICAL AND HORIZONTAL DATA

30-1000MHz Frequency Measurement													
Compliance Certification Services, Fremont 5m Chamber													
Test Engr:		Chin Pang											
Date:		05/27/10											
Project #:		10U13225											
Company:		Anaren											
EUT Description:		2.4GHz Transceiver											
EUT M/N:		A2500R24C, A2500R24A											
Test Target:		FCC 15B											
Mode Oper:		TX ,2FSK, 3dBi Monopole Antenna											
f	Measurement Frequency	Amp	Preamp Gain	Margin	Margin vs. Limit								
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters										
Read	Analyzer Reading	Filter	Filter Insert Loss										
AF	Antenna Factor	Corr.	Calculated Field Strength										
CL	Cable Loss	Limit	Field Strength Limit										
f	Dist	Read	AF	CL	Amp	D Corr	Filter	Corr.	Limit	Margin	Ant. Pol.	Det.	Notes
MHz	(m)	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBuV/m	dB	V/H	P/A/QP	
horiz													
72.002	3.0	43.5	7.9	0.7	28.3	0.0	0.0	23.8	40.0	-16.2	H	P	
168.006	3.0	48.2	11.0	1.2	28.2	0.0	0.0	32.1	43.5	-11.4	H	P	
192.007	3.0	43.5	11.5	1.2	28.2	0.0	0.0	27.9	43.5	-15.6	H	P	
214.808	3.0	39.9	11.9	1.3	28.2	0.0	0.0	24.9	43.5	-18.6	H	P	
287.891	3.0	41.2	13.0	1.5	28.1	0.0	0.0	27.5	46.0	-18.5	H	P	
623.904	3.0	33.7	18.7	2.3	27.4	0.0	0.0	27.2	46.0	-18.8	H	P	
39.000	3.0	46.0	14.7	0.6	28.4	0.0	0.0	32.9	40.0	-7.1	V	P	
56.161	3.0	51.5	8.1	0.7	28.4	0.0	0.0	31.9	40.0	-8.1	V	P	
72.002	3.0	51.0	7.9	0.7	28.3	0.0	0.0	31.3	40.0	-8.7	V	P	
145.805	3.0	38.7	12.9	1.1	28.3	0.0	0.0	24.4	43.5	-19.1	V	P	
178.926	3.0	45.3	11.0	1.2	28.2	0.0	0.0	29.3	43.5	-14.2	V	P	
288.011	3.0	36.8	13.0	1.5	28.1	0.0	0.0	23.2	46.0	-22.8	V	P	

3dB MONOPOLE ANTENNA, MSK MODE

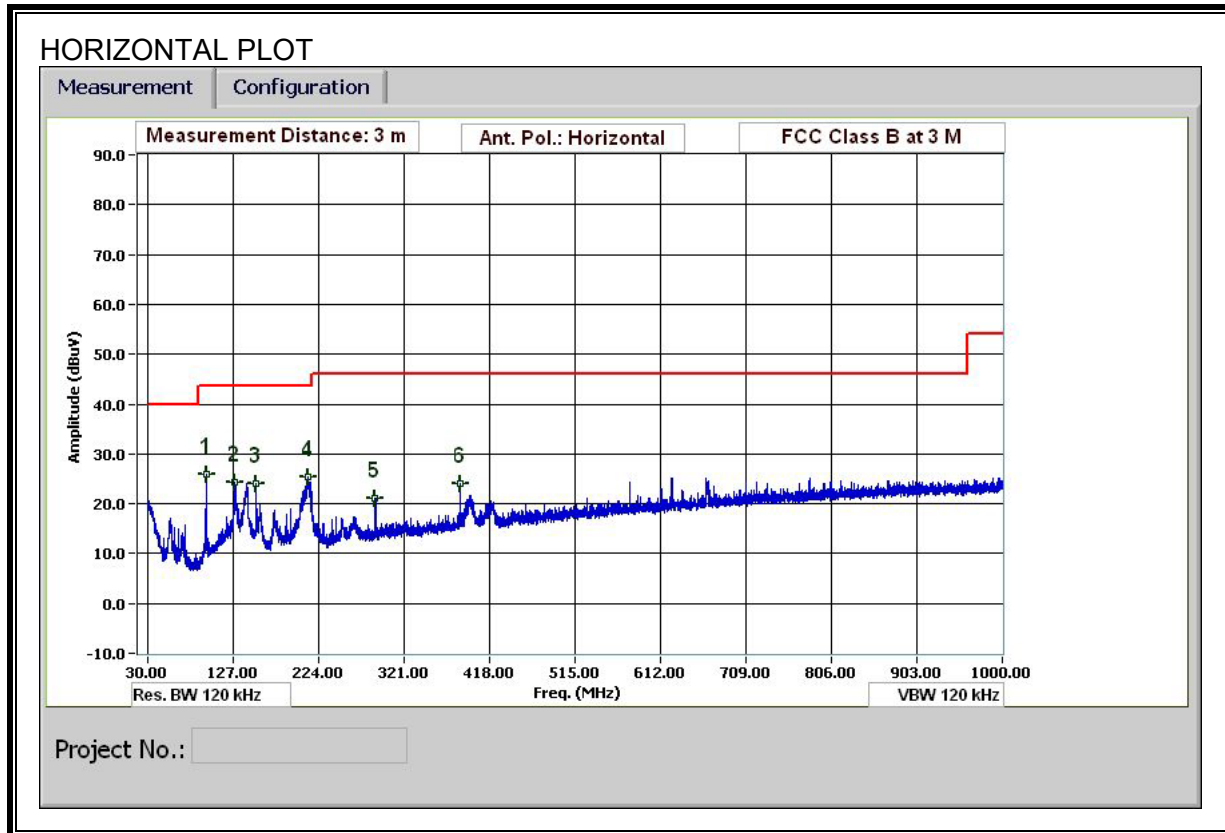


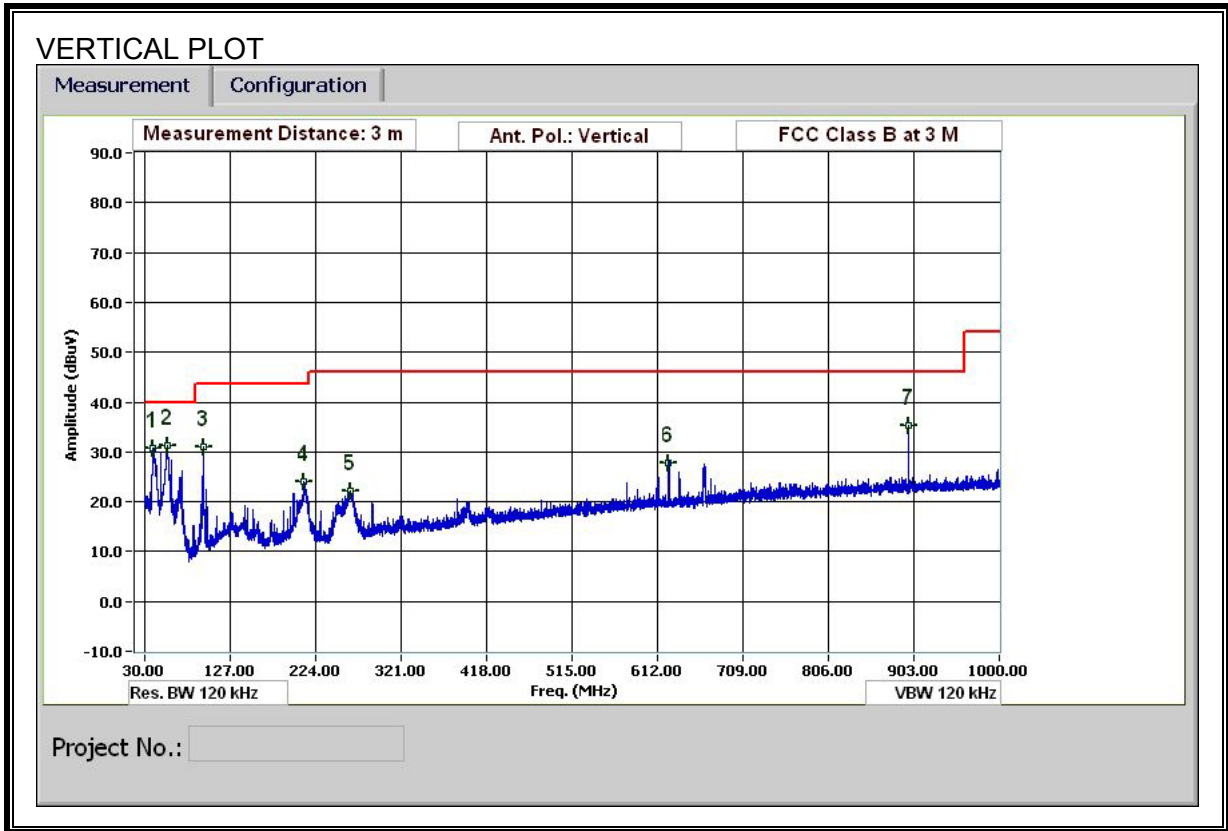


VERTICAL AND HORIZONTAL DATA

30-1000MHz Frequency Measurement													
Compliance Certification Services, Fremont 5m Chamber													
Test Engr:		Chin Pang											
Date:		06/08/10											
Project #:		10U13225											
Company:		Anaren, Inc.											
EUT Description:		2.4GHz Transceiver											
Configuration:		EUT with 3dBi Monopole Antenna											
Test Target:		FCC 15B											
Mode Oper:		TX, MSK mode											
f	Measurement Frequency	Amp	Preamp Gain	Margin	Margin vs. Limit								
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters										
Read	Analyzer Reading	Filter	Filter Insert Loss										
AF	Antenna Factor	Corr.	Calculated Field Strength										
CL	Cable Loss	Limit	Field Strength Limit										
f	Dist	Read	AF	CL	Amp	D Corr	Filter	Corr.	Limit	Margin	Ant. Pol.	Det.	Notes
MHz	(m)	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBuV/m	dB	V/H	P/A/QP	
48.001	3.0	56.8	9.2	0.6	29.6	0.0	0.0	37.0	40.0	-3.0	V	P	
48.001	3.0	53.5	9.2	0.6	29.6	0.0	0.0	33.7	40.0	-6.3	V	QP	
153.005	3.0	48.5	12.1	1.1	29.3	0.0	0.0	32.4	43.5	-11.1	V	P	
229.568	3.0	44.9	11.9	1.4	28.8	0.0	0.0	29.3	46.0	-16.7	V	P	
332.772	3.0	43.0	13.9	1.7	29.0	0.0	0.0	29.6	46.0	-16.4	V	P	
664.946	3.0	47.5	18.9	2.5	29.6	0.0	0.0	39.3	46.0	-6.7	V	P	
995.680	3.0	43.0	22.5	3.2	28.4	0.0	0.0	40.4	54.0	-13.6	V	P	
153.365	3.0	50.6	12.0	1.1	29.3	0.0	0.0	34.4	43.5	-9.1	H	P	
229.688	3.0	48.3	11.9	1.4	28.8	0.0	0.0	32.7	46.0	-13.3	H	P	
264.490	3.0	44.5	12.2	1.5	28.8	0.0	0.0	29.4	46.0	-16.6	H	P	
331.812	3.0	43.1	13.8	1.7	28.9	0.0	0.0	29.6	46.0	-16.4	H	P	
664.346	3.0	49.1	18.9	2.5	29.6	0.0	0.0	41.0	46.0	-5.0	H	P	
999.400	3.0	44.7	22.6	3.2	28.4	0.0	0.0	42.1	54.0	-11.9	H	P	

2dBi PCB ANTENNA, 2FSK MODE





VERTICAL AND HORIZONTAL DATA

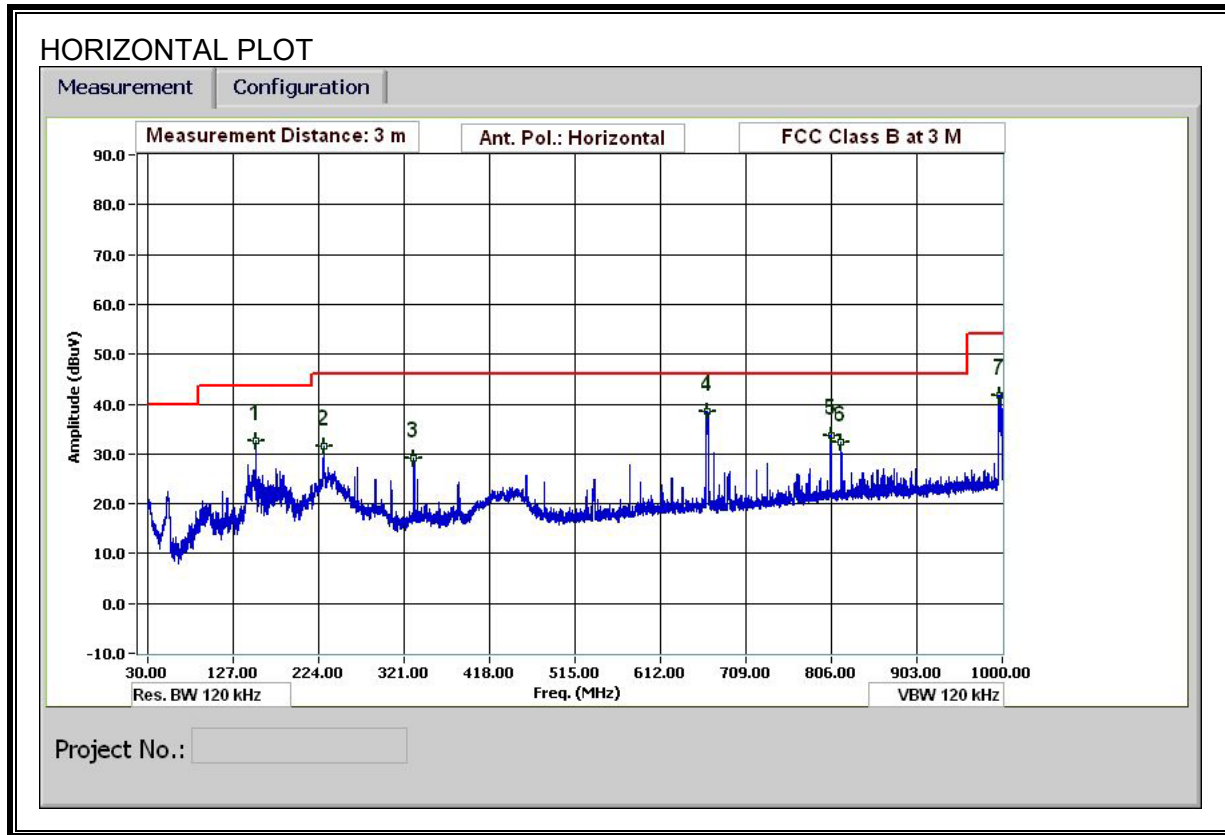
30-1000MHz Frequency Measurement
 Compliance Certification Services, Fremont 5m Chamber

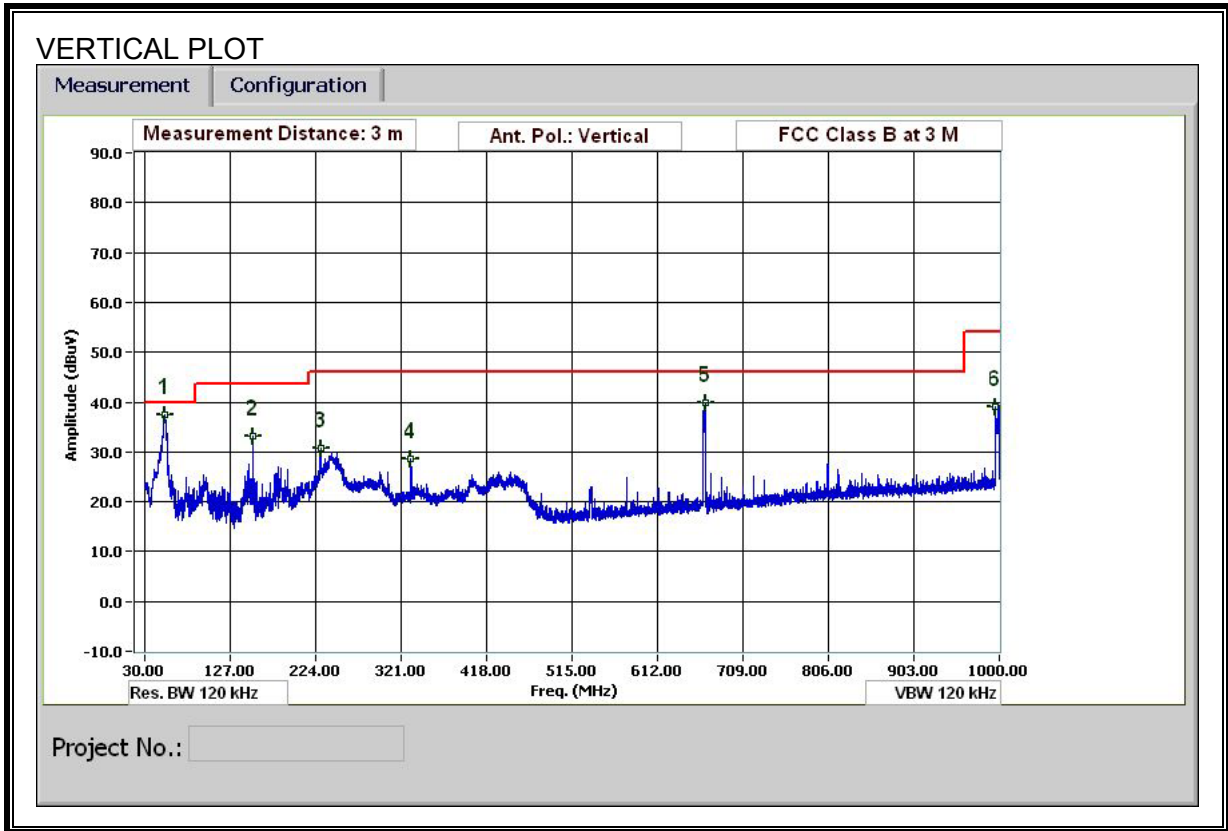
Test Engr: Chin Pang
 Date: 05/27/10
 Project #: 10U13225
 Company: Anaren
 EUT Description: 2.4GHz Transceiver
 EUT M/N: A2500R24C, A2500R24A
 Test Target: FCC 15B
 Mode Oper: TX, 2FSK, 2dBi PCB Antenna

f Measurement Frequency Amp Preamp Gain Margin Margin vs. Limit
 Dist Distance to Antenna D Corr Distance Correct to 3 meters
 Read Analyzer Reading Filter Filter Insert Loss
 AF Antenna Factor Corr. Calculated Field Strength
 CL Cable Loss Limit Field Strength Limit

f MHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filter dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Notes
vert													
39.840	3.0	44.4	14.0	0.6	28.4	0.0	0.0	30.7	40.0	-9.3	V	P	
55.201	3.0	50.8	8.1	0.7	28.4	0.0	0.0	31.3	40.0	-8.7	V	P	
96.123	3.0	49.5	9.0	0.9	28.3	0.0	0.0	31.1	43.5	-12.4	V	P	
210.727	3.0	39.1	12.0	1.3	28.2	0.0	0.0	24.1	43.5	-19.4	V	P	
263.050	3.0	36.7	12.2	1.4	28.2	0.0	0.0	22.2	46.0	-23.8	V	P	
624.865	3.0	34.2	18.7	2.3	27.4	0.0	0.0	27.8	46.0	-18.2	V	P	
896.556	3.0	38.4	21.8	2.8	27.8	0.0	0.0	35.3	46.0	-10.7	V	P	
96.123	3.0	44.4	9.0	0.9	28.3	0.0	0.0	26.0	43.5	-17.5	H	P	
129.244	3.0	38.1	13.6	1.1	28.3	0.0	0.0	24.4	43.5	-19.1	H	P	
153.005	3.0	38.9	12.3	1.1	28.3	0.0	0.0	24.1	43.5	-19.4	H	P	
212.048	3.0	40.5	11.9	1.3	28.2	0.0	0.0	25.5	43.5	-18.0	H	P	
288.371	3.0	34.8	13.0	1.5	28.1	0.0	0.0	21.2	46.0	-24.8	H	P	
384.615	3.0	35.6	14.7	1.8	28.1	0.0	0.0	23.9	46.0	-22.1	H	P	

2dBi PCB ANTENNA, MSK MODE





VERTICAL AND HORIZONTAL DATA

30-1000MHz Frequency Measurement													
Compliance Certification Services, Fremont 5m Chamber													
Test Engr:		Chin Pang											
Date:		06/08/10											
Project #:		10U13225											
Company:		Anaren, Inc.											
EUT Description:		2.4GHz Transceiver											
EUT M/N:		EUT with 2dBi PCB antenna											
Test Target:		FCC 15B											
Mode Oper:		TX, MSK mode											
f	Measurement Frequency	Amp	Preamp Gain							Margin	Margin vs. Limit		
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters										
Read	Analyzer Reading	Filter	Filter Insert Loss										
AF	Antenna Factor	Corr.	Calculated Field Strength										
CL	Cable Loss	Limit	Field Strength Limit										

f MHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filter dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Notes
horiz													
153.005	3.0	48.7	12.1	1.1	29.3	0.0	0.0	32.6	43.5	-10.9	H	P	
230.048	3.0	47.0	11.9	1.4	28.8	0.0	0.0	31.4	46.0	-14.6	H	P	
331.932	3.0	42.6	13.8	1.7	28.9	0.0	0.0	29.2	46.0	-16.8	H	P	
664.346	3.0	46.6	18.9	2.5	29.6	0.0	0.0	38.4	46.0	-7.6	H	P	
805.352	3.0	38.9	21.0	2.8	29.1	0.0	0.0	33.6	46.0	-12.4	H	P	
817.352	3.0	37.5	21.1	2.8	29.1	0.0	0.0	32.4	46.0	-13.6	H	P	
996.280	3.0	44.3	22.6	3.2	28.4	0.0	0.0	41.6	54.0	-12.4	H	P	
52.321	3.0	58.4	8.0	0.6	29.6	0.0	0.0	37.3	40.0	-2.7	V	P	
52.321	3.0	55.1	8.0	0.6	29.6	0.0	0.0	34.0	40.0	-6.0	V	QP	
153.365	3.0	49.3	12.0	1.1	29.3	0.0	0.0	33.1	43.5	-10.4	V	P	
229.448	3.0	46.2	11.9	1.4	28.8	0.0	0.0	30.7	46.0	-15.3	V	P	
332.172	3.0	41.9	13.8	1.7	28.9	0.0	0.0	28.5	46.0	-17.5	V	P	
666.146	3.0	48.1	18.9	2.5	29.6	0.0	0.0	39.9	46.0	-6.1	V	P	
995.800	3.0	41.6	22.5	3.2	28.4	0.0	0.0	38.9	54.0	-15.1	V	P	

8.4. RECEIVER ABOVE 1 GHz

2FSK Mode with 5dBi PATCH Antenna

High Frequency Measurement
 Compliance Certification Services, Fremont 5m Chamber

Company: Anaren
 Project #: 10U13225
 Date: 5/27/10
 Test Engineer: Chin Pang
 Configuration: EUT with 5dBi Patch Antenna
 Mode: RX, 2FSK mode, with 5dBi patch antenna

Test Equipment:

Horn 1-18GHz T73; S/N: 6717 @3m	Pre-amplifer 1-26GHz T144 Miteq 3008A00931	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit FCC 15.209
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Hi Frequency Cables

3' cable 22807700 3' cable 22807700	12' cable 22807600 12' cable 22807600	20' cable 22807500 20' cable 22807500	HPF	Reject Filter	<u>Peak Measurements</u> RBW=VBW=1MHz <u>Average Measurements</u> RBW=1MHz ; VBW=10Hz
--	--	--	-----	---------------	--

f GHz	Dist (m)	Read Pk dBuV	Read Avg dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
1.008	3.0	50.8	45.8	23.9	2.4	-39.5	0.0	0.0	37.6	32.6	74	54	-36.4	-21.4	H
4.870	3.0	46.0	41.6	33.1	5.8	-36.5	0.0	0.0	48.5	44.1	74	54	-25.5	-9.9	H
1.008	3.0	56.0	42.0	23.9	2.4	-39.5	0.0	0.0	42.8	28.8	74	54	-31.2	-25.2	V
4.870	3.0	47.6	43.0	33.1	5.8	-36.5	0.0	0.0	50.1	45.5	74	54	-23.9	-8.5	V

Rev. 07.22.09
 Note: No other emissions were detected above the system noise floor.

f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Pk Mar	Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter		

MSK Mode with 5dBi PATCH Antenna

High Frequency Measurement
 Compliance Certification Services, Fremont 5m Chamber

Company: Anaren
 Project #: 10U13225
 Date: 5/27/10
 Test Engineer: Chin Pang
 Configuration: EUT with 5dBi Patch Antenna
 Mode: RX, MSK mode, with 5dBi patch antenna

Test Equipment:

Horn 1-18GHz	Pre-amplifier 1-26GHz	Pre-amplifier 26-40GHz	Horn > 18GHz	Limit
T73; S/N: 6717 @3m	T144 Miteq 3008A00931			FCC 15.209

Hi Frequency Cables

3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF	Reject Filter	Peak Measurements RBW=VBW=1MHz
3' cable 22807700	12' cable 22807600	20' cable 22807500			Average Measurements RBW=1MHz; VBW=10Hz

f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filtr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
1.008	3.0	52.0	46.3	23.9	2.4	-39.5	0.0	0.0	38.8	33.1	74	54	-35.2	-20.9	H
4.870	3.0	45.3	41.9	33.1	5.8	-36.5	0.0	0.0	47.8	44.4	74	54	-26.2	-9.6	H
1.008	3.0	51.4	45.8	23.9	2.4	-39.5	0.0	0.0	38.2	32.6	74	54	-35.8	-21.4	V
4.874	3.0	44.5	40.5	33.1	5.8	-36.5	0.0	0.0	47.0	43.0	74	54	-27.0	-11.0	V

Rev. 07.22.09
Note: No other emissions were detected above the system noise floor.

f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Pk Mar	Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter		

2FSK Mode with 3dBi Monopole Antenna

High Frequency Measurement
 Compliance Certification Services, Fremont 5m Chamber

Company: Anaren
 Project #: 10U13225
 Date: 6/8/10
 Test Engineer: Chin Pang
 Configuration: EUT with 3dBi Monopole Antenna
 Mode: RX, 2FSK mode.

Test Equipment:

Horn 1-18GHz	Pre-amplifier 1-26GHz	Pre-amplifier 26-40GHz	Horn > 18GHz	Limit
T59; S/N: 3245 @3m	T145 Agilent 3008A0056			FCC 15.209

Hi Frequency Cables

3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF	Reject Filter	Peak Measurements RBW=VBW=1MHz
3' cable 22807700	12' cable 22807600	20' cable 22807500			Average Measurements RBW=1MHz ; VBW=10Hz

f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fldr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Mid Ch															
1.665	3.0	49.0	33.5	26.4	3.1	-35.6	0.0	0.0	42.9	27.4	74	54	-31.1	-26.6	H
4.882	3.0	42.0	30.0	32.8	5.8	-34.9	0.0	0.0	45.8	33.8	74	54	-28.2	-20.2	H
1.327	3.0	54.0	35.6	25.1	2.7	-35.9	0.0	0.0	46.0	27.6	74	54	-28.0	-26.4	V
4.882	3.0	42.5	32.6	32.8	5.8	-34.9	0.0	0.0	46.3	36.4	74	54	-27.7	-17.6	V

Rev. 07 22.09
Note: No other emissions were detected above the system noise floor.

f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Pk Mar	Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter		

MSK Mode with 3dBi Monopole Antenna

High Frequency Measurement
 Compliance Certification Services, Fremont 5m Chamber

Company: Anaren
 Project #: 10U13225
 Date: 6/8/10
 Test Engineer: Chin Pang
 Configuration: EUT with 3dBi Monopole Antenna
 Mode: RX, MSK mode.

Test Equipment:

Horn 1-18GHz	Pre-amplifier 1-26GHz	Pre-amplifier 26-40GHz	Horn > 18GHz	Limit
T59; S/N: 3245 @3m	T145 Agilent 3008A0056			FCC 15.209

Hi Frequency Cables

3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF	Reject Filter	Peak Measurements RBW=VBW=1MHz
3' cable 22807700	12' cable 22807600	20' cable 22807500			Average Measurements RBW=1MHz ; VBW=10Hz

f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fldr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Mid Ch															
1.330	3.0	48.5	34.5	25.2	2.7	-35.9	0.0	0.0	40.5	26.5	74	54	-33.5	-27.5	H
4.882	3.0	40.0	28.5	32.8	5.8	-34.9	0.0	0.0	43.8	32.3	74	54	-30.2	-21.7	H
1.330	3.0	54.6	35.4	25.2	2.7	-35.9	0.0	0.0	46.6	27.4	74	54	-27.4	-26.6	V
4.882	3.0	41.4	29.2	32.8	5.8	-34.9	0.0	0.0	45.2	33.0	74	54	-28.8	-21.0	V

Rev. 07 22.09
Note: No other emissions were detected above the system noise floor.

f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Pk Mar	Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter		

2FSK Mode with 2dBi PCB Antenna

High Frequency Measurement
 Compliance Certification Services, Fremont 5m Chamber

Company: Anaren
 Project #: 10U13225
 Date: 6/8/10
 Test Engineer: Chin Pang
 Configuration: EUT with 2dBi PCB Antenna
 Mode: RX, 2FSK mode.

Test Equipment:

Horn 1-18GHz	Pre-amplifier 1-26GHz	Pre-amplifier 26-40GHz	Horn > 18GHz	Limit
T59; S/N: 3245 @3m	T145 Agilent 3008A005c			FCC 15.209

Hi Frequency Cables

3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF	Reject Filter	Peak Measurements RBW=VBW=1MHz Average Measurements RBW=1MHz ; VBW=10Hz
3' cable 22807700	12' cable 22807600	20' cable 22807500			

f	Dist	Read Pk	Read Avg.	AF	CL	Amp	D Corr	Filtr	Peak	Avg	Pk Lim	Avg Lim	Pk Mar	Avg Mar	Notes
GHz	(m)	dBuV	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBuV/m	dBuV/m	dBuV/m	dB	dB	(V/H)
Mid Ch															
1.665	3.0	47.6	32.0	26.4	3.1	-35.6	0.0	0.0	41.5	25.9	74	54	-32.5	-28.1	H
4.882	3.0	41.5	32.5	32.8	5.8	-34.9	0.0	0.0	45.3	36.3	74	54	-28.7	-17.7	H
1.330	3.0	53.6	34.0	25.2	2.7	-35.9	0.0	0.0	45.6	26.0	74	54	-28.4	-28.0	V
4.882	3.0	43.2	34.0	32.8	5.8	-34.9	0.0	0.0	47.0	37.8	74	54	-27.0	-16.2	V

Rev: 07.22.09
Note: No other emissions were detected above the system noise floor.

f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Pk Mar	Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter		

MSK Mode with 2dBi PCB Antenna

High Frequency Measurement
 Compliance Certification Services, Fremont 5m Chamber

Company: Anaren
 Project #: 10U13225
 Date: 6/8/10
 Test Engineer: Chin Pang
 Configuration: EUT with 2dBi PCB Antenna
 Mode: RX, MSK mode.

Test Equipment:

Horn 1-18GHz	Pre-amplifier 1-26GHz	Pre-amplifier 26-40GHz	Horn > 18GHz	Limit
T59; S/N: 3245 @3m	T145 Agilent 3008A0050			FCC 15.209

Hi Frequency Cables

3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF	Reject Filter	Peak Measurements RBW=VBW=1MHz
3' cable 22807700	12' cable 22807600	20' cable 22807500			Average Measurements RBW=1MHz ; VBW=10Hz

f	Dist	Read Pk	Read Avg.	AF	CL	Amp	D Corr	Ftr	Peak	Avg	Pk Lim	Avg Lim	Pk Mar	Avg Mar	Notes
GHz	(m)	dBuV	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBuV/m	dBuV/m	dBuV/m	dB	dB	(V/H)
Mid Ch															
1.330	3.0	50.0	33.5	25.2	2.7	-35.9	0.0	0.0	42.0	25.5	74	54	-32.0	-28.5	H
4.882	3.0	41.0	31.7	32.8	5.8	-34.9	0.0	0.0	44.8	35.5	74	54	-29.2	-18.5	H
1.330	3.0	53.0	34.6	25.2	2.7	-35.9	0.0	0.0	45.0	26.6	74	54	-29.0	-27.4	V
4.882	3.0	43.5	33.8	32.8	5.8	-34.9	0.0	0.0	47.3	37.6	74	54	-26.7	-16.4	V

Rev: 07.22.09
Note: No other emissions were detected above the system noise floor.

f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Pk Mar	Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter		

9. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

RSS-Gen 7.2.2

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

TEST PROCEDURE

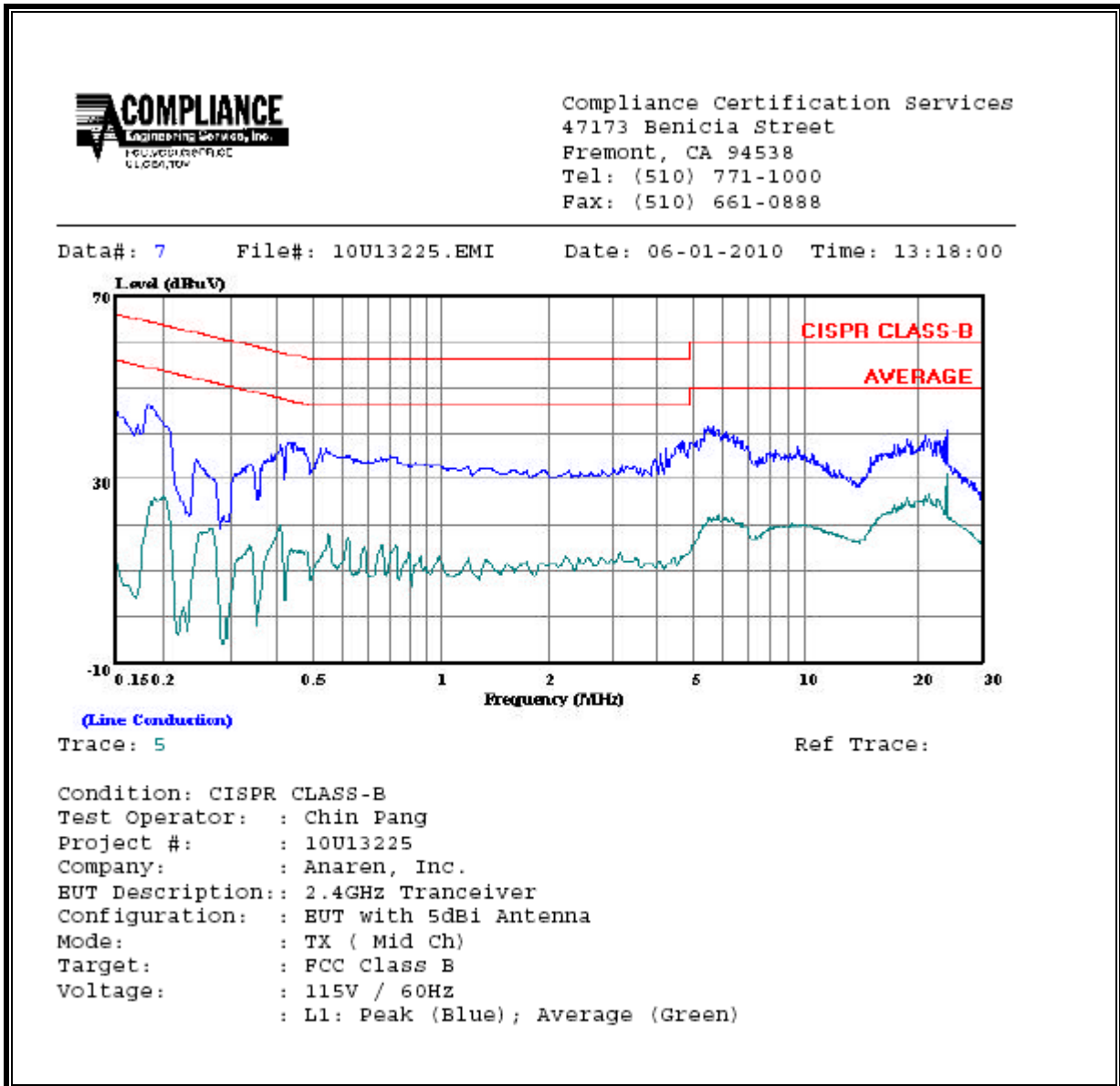
ANSI C63.4

RESULTS

6 WORST EMISSIONS (WORST CASE)

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq.	Reading			Closs	Limit	EN B	Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
0.20	46.11	--	26.38	0.00	63.61	53.61	-17.50	-27.23	L1
0.41	37.91	--	20.10	0.00	57.65	47.65	-19.74	-27.55	L1
24.01	40.48	--	31.17	0.00	60.00	50.00	-19.52	-18.83	L1
0.20	46.61	--	27.40	0.00	63.61	53.61	-17.00	-26.21	L2
0.34	38.59	--	23.10	0.00	59.23	49.23	-20.64	-26.13	L2
24.01	37.99	--	28.68	0.00	60.00	50.00	-22.01	-21.32	L2
6 Worst Data									

LINE 1 RESULTS

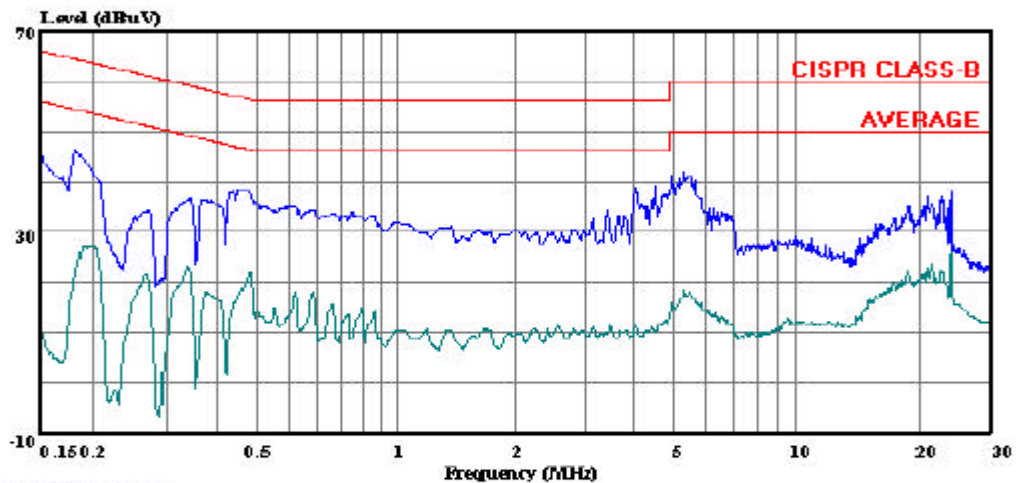


LINE 2 RESULTS



Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

Data#: 14 File#: 10U13225.EMI Date: 06-01-2010 Time: 13:24:02



(Line Conduction)

Trace: 12

Ref Trace:

Condition: CISPR CLASS-B
Test Operator: : Chin Pang
Project #: : 10U13225
Company: : Anaren, Inc.
BUT Description: : 2.4GHz Transceiver
Configuration: : BUT with 5dBi Antenna
Mode: : TX (Mid Ch)
Target: : FCC Class B
Voltage: : 115V / 60Hz
: L2: Peak (Blue) ; Average (Green)

10. MAXIMUM PERMISSIBLE EXPOSURE

FCC RULES

§1.1310 The criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified in §1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of §2.1093 of this chapter.

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3–3.0	614	1.63	*(100)	6
3.0–30	1842/f	4.89/f	*(900/f ²)	6
30–300	61.4	0.163	1.0	6
300–1500 .....	.....	.....	f/300	6
1500–100,000 .....	.....	.....	5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f ²)	30

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)—Continued

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
30–300	27.5	0.073	0.2	30
300–1500 .....	.....	.....	f/1500	30
1500–100,000 .....	.....	.....	1.0	30

f = frequency in MHz

* = Plane-wave equivalent power density

NOTE 1 TO TABLE 1: Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

NOTE 2 TO TABLE 1: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

IC RULES

IC Safety Code 6, Section 2.2.1 (a) A person other than an RF and microwave exposed worker shall not be exposed to electromagnetic radiation in a frequency band listed in Column 1 of Table 5, if the field strength exceeds the value given in Column 2 or 3 of Table 5, when averaged spatially and over time, or if the power density exceeds the value given in Column 4 of Table 5, when averaged spatially and over time.

**Table 5
 Exposure Limits for Persons Not Classed As RF and Microwave Exposed Workers (Including the General Public)**

1 Frequency (MHz)	2 Electric Field Strength; rms (V/m)	3 Magnetic Field Strength; rms (A/m)	4 Power Density (W/m ²)	5 Averaging Time (min)
0.003–1	280	2.19		6
1–10	280/ <i>f</i>	2.19/ <i>f</i>		6
10–30	28	2.19/ <i>f</i>		6
30–300	28	0.073	2*	6
300–1 500	1.585 <i>f</i> ^{0.5}	0.0042 <i>f</i> ^{0.5}	<i>f</i> /150	6
1 500–15 000	61.4	0.163	10	6
15 000–150 000	61.4	0.163	10	616 000 / <i>f</i> ^{1.2}
150 000–300 000	0.158 <i>f</i> ^{0.5}	4.21 x 10 ⁻⁴ <i>f</i> ^{0.5}	6.67 x 10 ⁻⁵ <i>f</i>	616 000 / <i>f</i> ^{1.2}

* Power density limit is applicable at frequencies greater than 100 MHz.

- Notes:**
1. Frequency, *f*, is in MHz.
 2. A power density of 10 W/m² is equivalent to 1 mW/cm².
 3. A magnetic field strength of 1 A/m corresponds to 1.257 microtesla (μT) or 12.57 milligauss (mG).

EQUATIONS

Power density is given by:

$$S = \text{EIRP} / (4 * \text{Pi} * \text{D}^2)$$

where

S = Power density in W/m²
EIRP = Equivalent Isotropic Radiated Power in W
D = Separation distance in m

Power density in units of W/m² is converted to units of mW/cm² by dividing by 10.

Distance is given by:

$$D = \text{SQRT} (\text{EIRP} / (4 * \text{Pi} * S))$$

where

D = Separation distance in m
EIRP = Equivalent Isotropic Radiated Power in W
S = Power density in W/m²

For multiple colocated transmitters operating simultaneously in frequency bands where the limit is identical, the total power density is calculated using the total EIRP obtained by summing the Power * Gain product (in linear units) of each transmitter.

$$\text{Total EIRP} = (P1 * G1) + (P2 * G2) + \dots + (Pn * Gn)$$

where

Px = Power of transmitter x
Gx = Numeric gain of antenna x

In the table(s) below, Power and Gain are entered in units of dBm and dBi respectively and conversions to linear forms are used for the calculations.

LIMITS

From FCC §1.1310 Table 1 (B), the maximum value of S = 1.0 mW/cm²

From IC Safety Code 6, Section 2.2 Table 5 Column 4, S = 10 W/m²

RESULTS

Band	Mode	Separation Distance (m)	Output Power (dBm)	Antenna Gain (dBi)	IC Power Density (W/m ²)	FCC Power Density (mW/cm ²)
2.4 GHz	DSSS	0.20	1.32	5.00	0.01	0.001