



**FCC CFR47 PART 15 SUBPART C
INDUSTRY CANADA RSS-210 ISSUE 8**

**CERTIFICATION CLASS II PERMISSIVE CHANGE
TEST REPORT**

FOR

802.11n + BT MODULE

MODEL NUMBER: WCN3660

**FCC ID: PPD-WCN3660
IC: 4104A-WCN3660**

REPORT NUMBER: 12U14585-1

ISSUE DATE: SEPTEMBER 18, 2012

Prepared for
**QUALCOMM Atheros, INC.
1700 TECHNOLOGY DRIVE
SAN JOSE, CA 95110, U.S.A.**

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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	09/18/12	Initial Issue	F. Ibrahim

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: QUALCOMM ATHEROS, INC.
1700 TECHNOLOGY DRIVE
SAN JOSE, CA 95110, U.S.A.

EUT DESCRIPTION: 802.11n + BT MODULE

MODEL: WCN3660

SERIAL NUMBER: N10GB6RFK

DATE TESTED: September 6-18, 2012

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	Pass
INDUSTRY CANADA RSS-210 Issue 8 Annex 8	Pass
INDUSTRY CANADA RSS-GEN Issue 3	Pass

Compliance Certification Services (UL 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 UL 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.

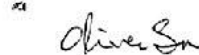
Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL CCS and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL 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 UL CCS By:



FRANK IBRAHIM
WISE PROJECT LEADER
UL CCS

Tested By:



OLIVER SU
EMC ENGINEER
UL CCS

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4-2003, FCC CFR 47 Part 2, FCC CFR 47 Part 15, RSS-GEN Issue 3, and RSS-210 Issue 8.

3. FACILITIES AND ACCREDITATION

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

UL 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:

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

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

Refer to original report number "12U14222-6A FCC IC DTS Report".

5.2. DESCRIPTION OF CLASS II PERMISSIVE CHANGE

Digital processor on the host, APQ8060A, was replaced by APQ8064.

5.3. MODIFICATIONS

Refer to original report number "12U14222-6A FCC IC DTS Report".

5.4. MAXIMUM OUTPUT POWER

Power was reduced for 802.11b mode to pass radiated band edge, and it was increased for 802.11n HT20 as it did pass radiated band edge with higher power. For 802.11g mode the power did not change. For 5.8 GHz band power did not change.

The grant value of **25.48 dBm** is still applicable and it is still the rated value.

The changes on output power are summarized in the table below.

2.4GHz WLAN				
Frequency Range (MHz)	Mode	Channel	New Average Output Power (dBm)	Output Power (mW)
2412 - 2462	802.11b	Low	16.97	49.77
		High	15.95	39.36
2412 - 2462	802.11n HT20	Low	16.26	42.27
		High	17.20	52.48

5.5. DESCRIPTION OF AVAILABLE ANTENNAS

Refer to original report number "12U14222-6A FCC IC DTS Report".

5.6. SOFTWARE AND FIRMWARE

Refer to original report number "12U14222-6A FCC IC DTS Report".

5.7. WORST-CASE CONFIGURATION AND MODE

Refer to original report number "12U14222-6A FCC IC DTS Report".

For this Class II Permissive Change, an investigation was done to determine test items with worst-case margins and re-testing was performed for those items as covered by this report.

5.8. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Refer to original report number "12U14222-6A FCC IC DTS Report".

I/O CABLES

Refer to original report number "12U14222-6A FCC IC DTS Report".

TEST SETUP

Refer to original report number "12U14222-6A FCC IC DTS Report".

SETUP DIAGRAM FOR TESTS

Refer to original report number "12U14222-6A FCC IC DTS Report".

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 Date
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01052	11/11/12
Antenna, Horn, 18 GHz	EMCO	3115	C00943	10/06/12
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00885	12/30/12
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01016	02/07/13
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01161	05/02/13
Power Meter	Agilent / HP	437B	s/n: 3125U12345	07/25/13
Power Sensor, 18 GHz	Agilent / HP	8481A	s/n: 1926A27048	07/26/13
Reject Notch Filter, 2.4 GHz	Micro-Tronics	-	-	CNR
EMI Test Receiver	R & S	ESHS 20	N02396	08/08/13
LISN	FCC	FCC-LISN-50/250	C00626	12/13/12

7. ANTENNA PORT TEST RESULTS (802.11n HT20 MODE IN THE 2.4 GHz BAND)

Refer to original report number "12U14222-6A FCC IC DTS Report"; except for the following:

7.1. 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.

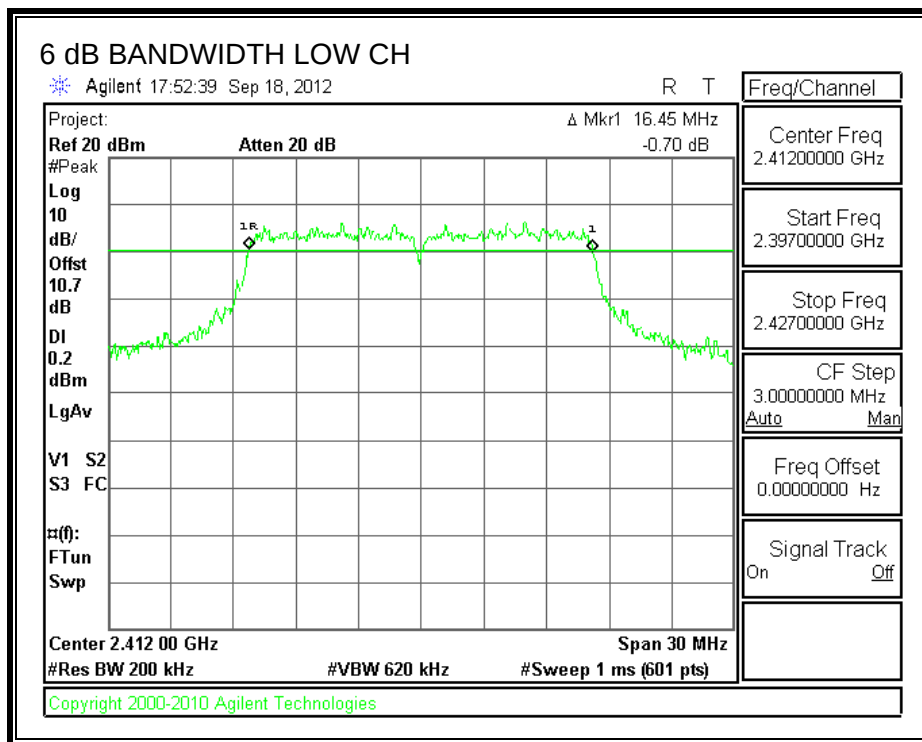
TEST PROCEDURE

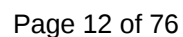
KDB 558074 D01 DTS Measurement Guidance V01 dated 01-18-12.

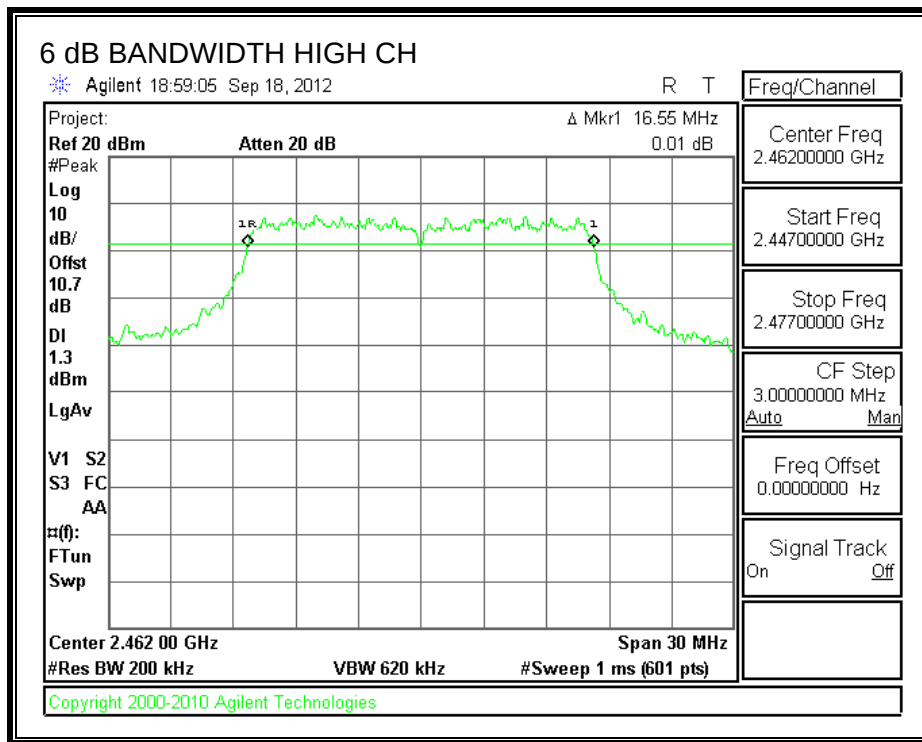
RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	16.450	0.5
Middle	2437	16.413	0.5
High	2462	16.550	0.5

6 dB BANDWIDTH







7.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

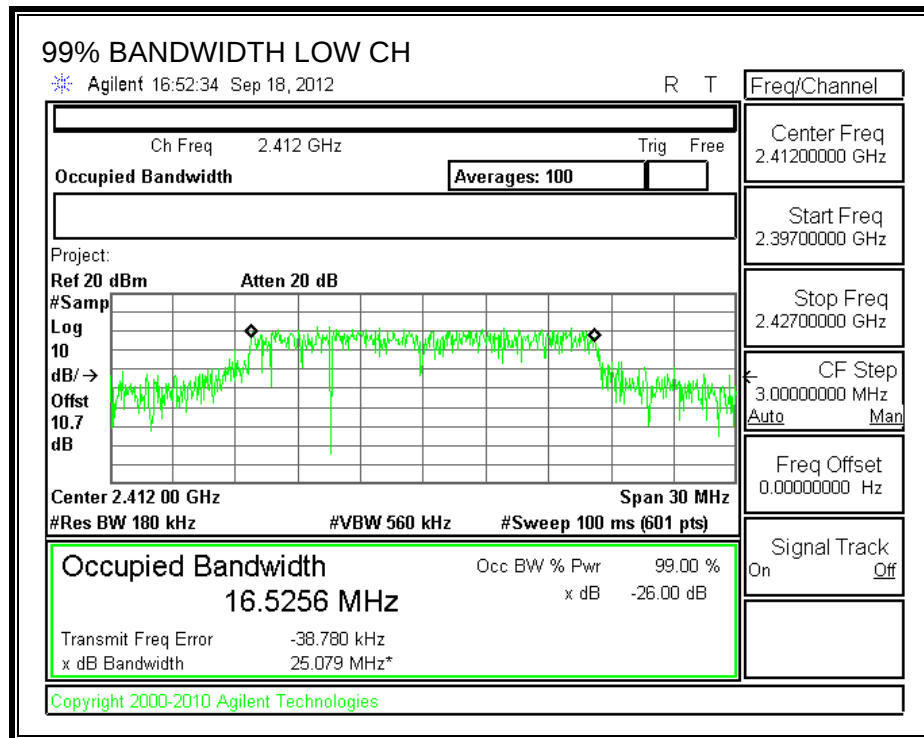
TEST PROCEDURE

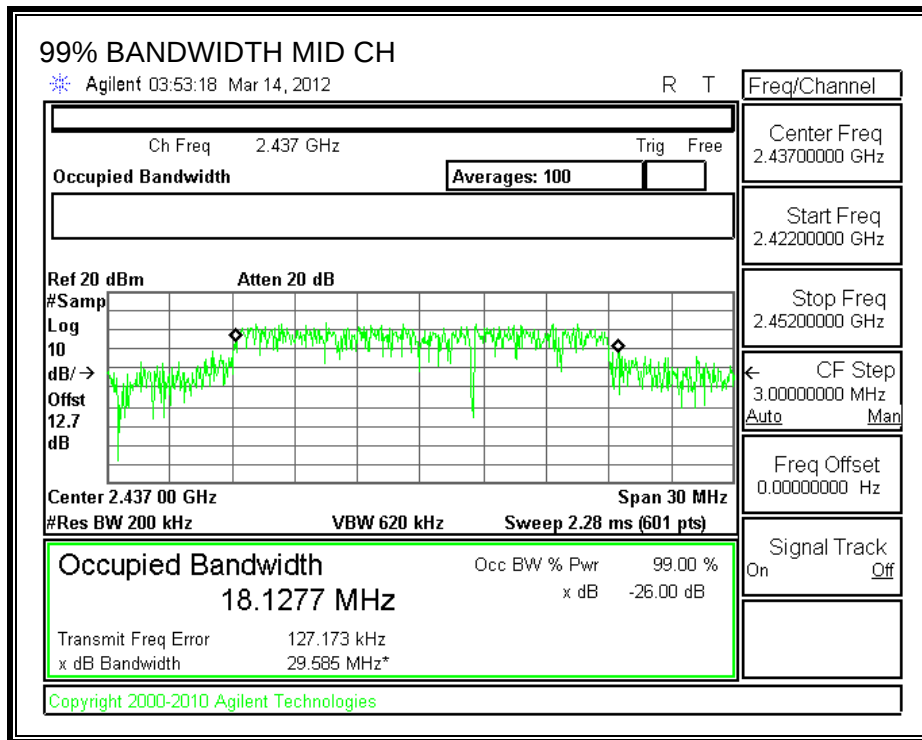
The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

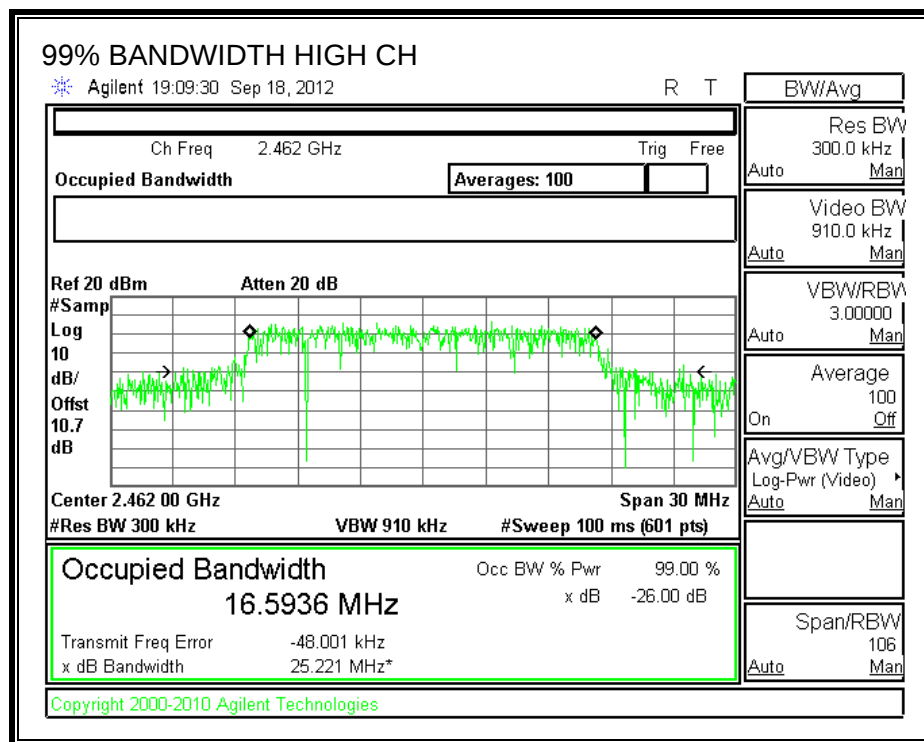
RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	16.5256
Middle	2437	18.1277
High	2462	16.5936

99% BANDWIDTH







7.3. 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.

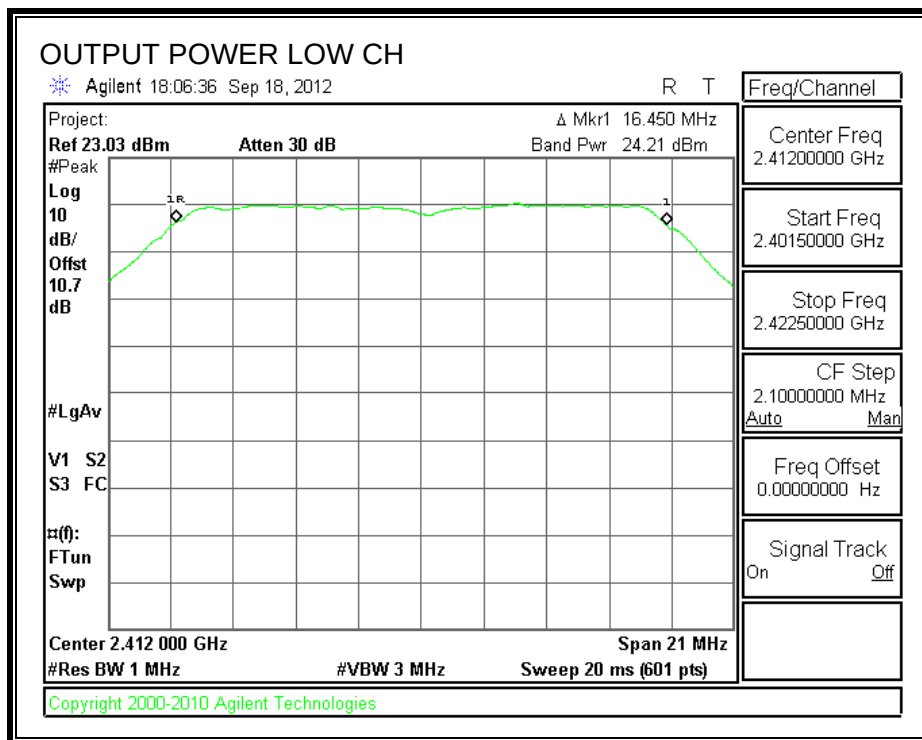
TEST PROCEDURE

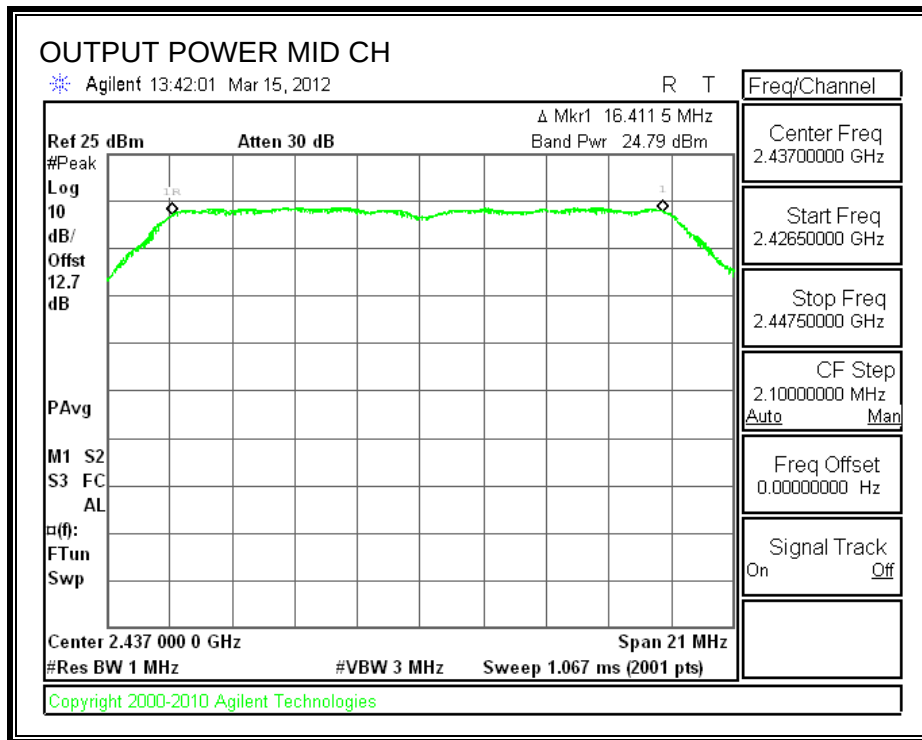
KDB 558074 D01 DTS Measurement Guidance V01 dated 01-18-12.

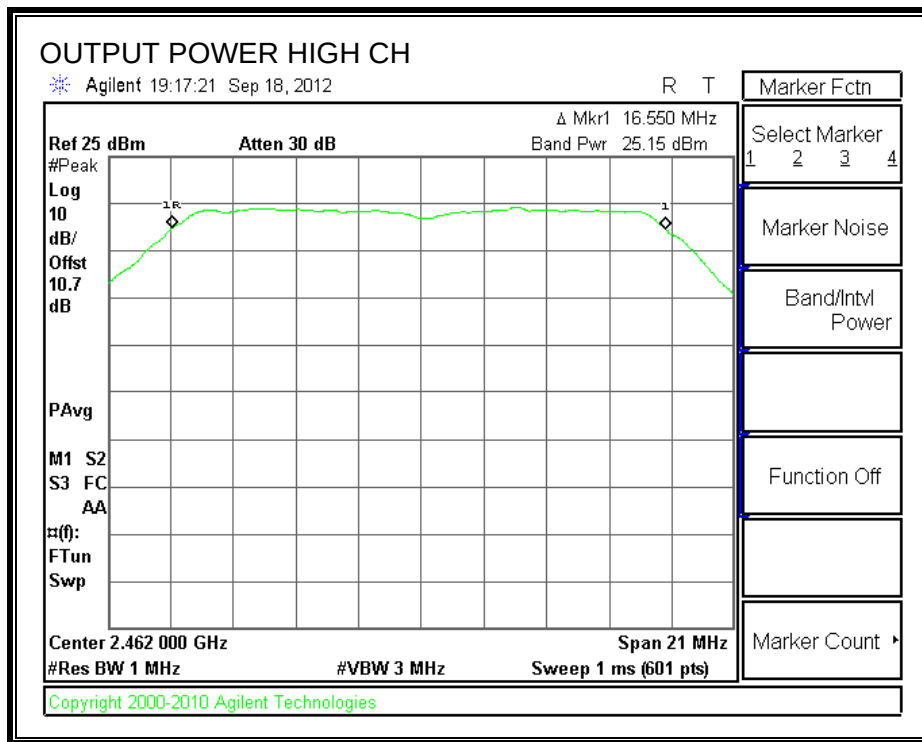
RESULTS

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2412	24.21	30	-5.79
Middle	2437	24.79	30	-5.21
High	2462	25.15	30	-4.85

OUTPUT POWER







7.4. 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 12.7dB (including 12 dB pad and 0.7 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency (MHz)	Power (dBm)
Low	2412	16.26
Middle	2437	16.80
High	2462	17.20

7.5. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

IC RSS-210 A8.2 (b)

TEST PROCEDURE

KDB 558074 D01 DTS Measurement Guidance V01 dated 01-18-12.

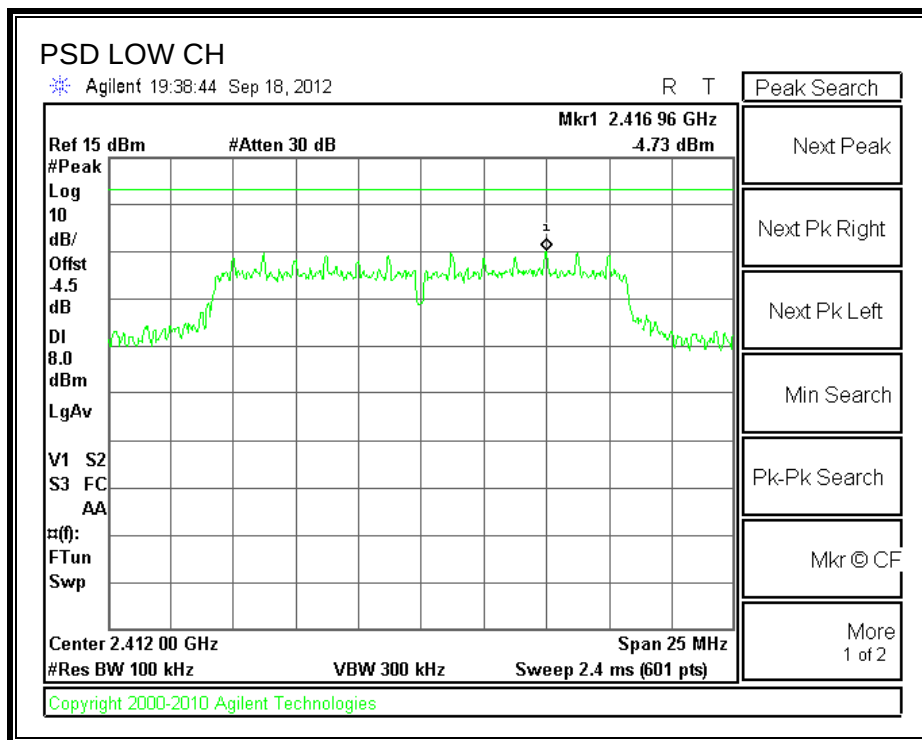
RESULTS

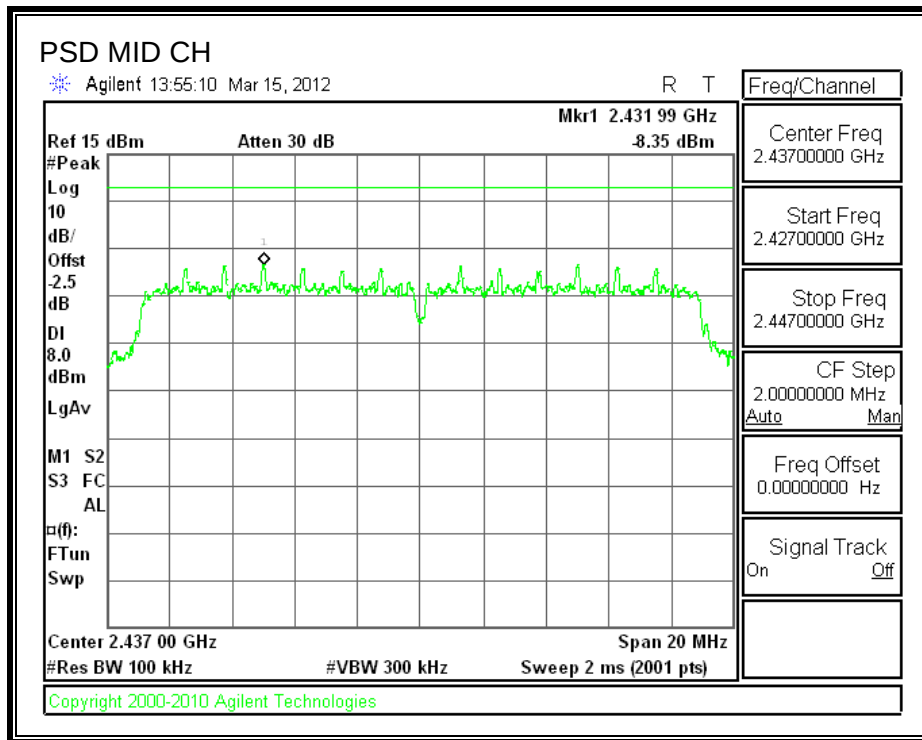
Note:

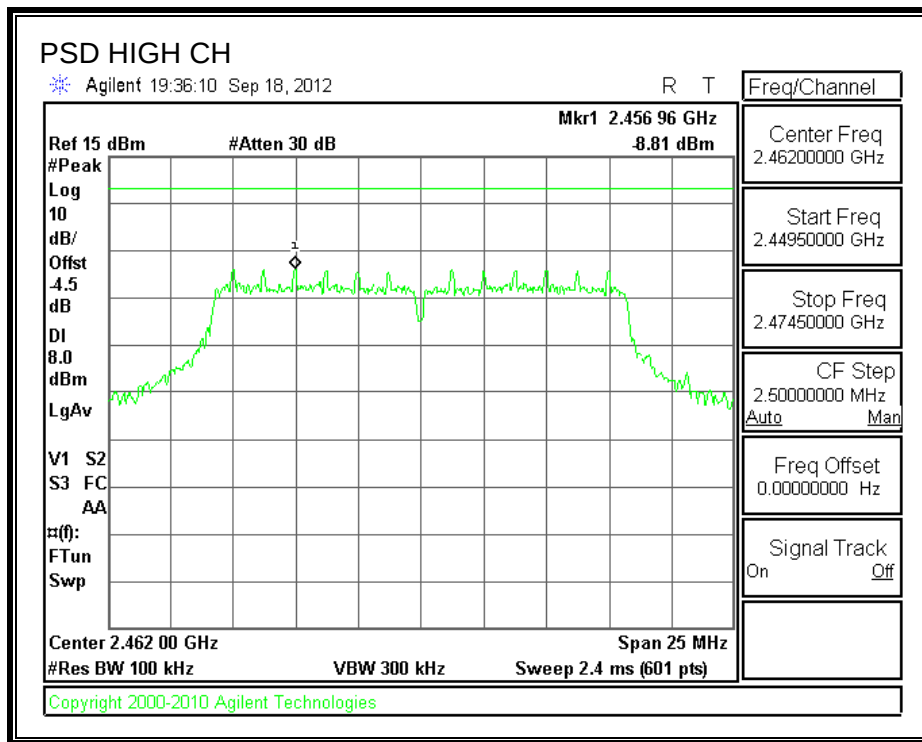
- 1) For Mid Channel analyzer offset = cable loss + attenuator + $10 \log (3/100 \text{ kHz}) = -2.5 \text{ dB}$
- 2) For Low and High Channel, analyzer offset = cable loss + attenuator + $10 \log (3/100 \text{ kHz}) = -4.5 \text{ dB}$

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-4.73	8	-12.73
Middle	2437	-8.35	8	-16.35
High	2462	-8.81	8	-16.81

POWER SPECTRAL DENSITY







7.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

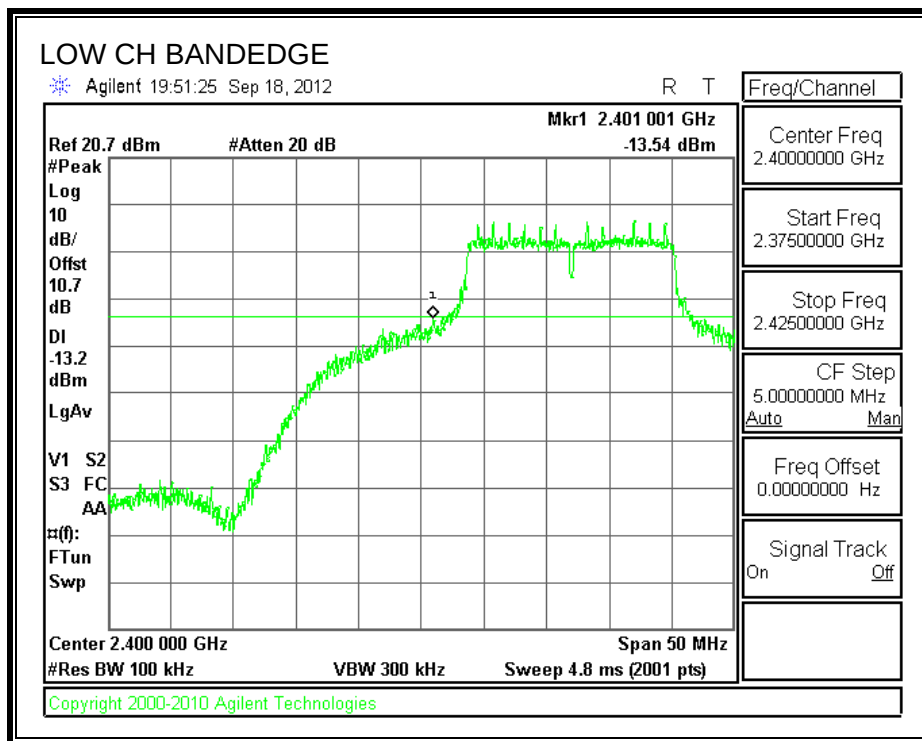
Output power was measured based on the use of a peak measurement, therefore the required attenuation is 20 dB.

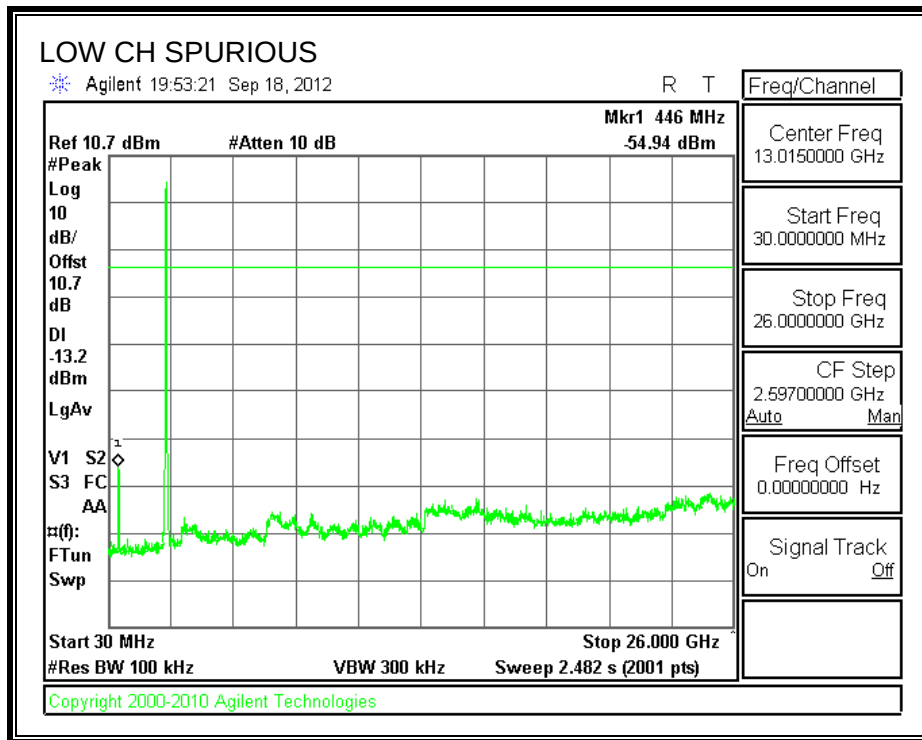
TEST PROCEDURE

KDB 558074 D01 DTS Measurement Guidance V01 dated 01-18-12.

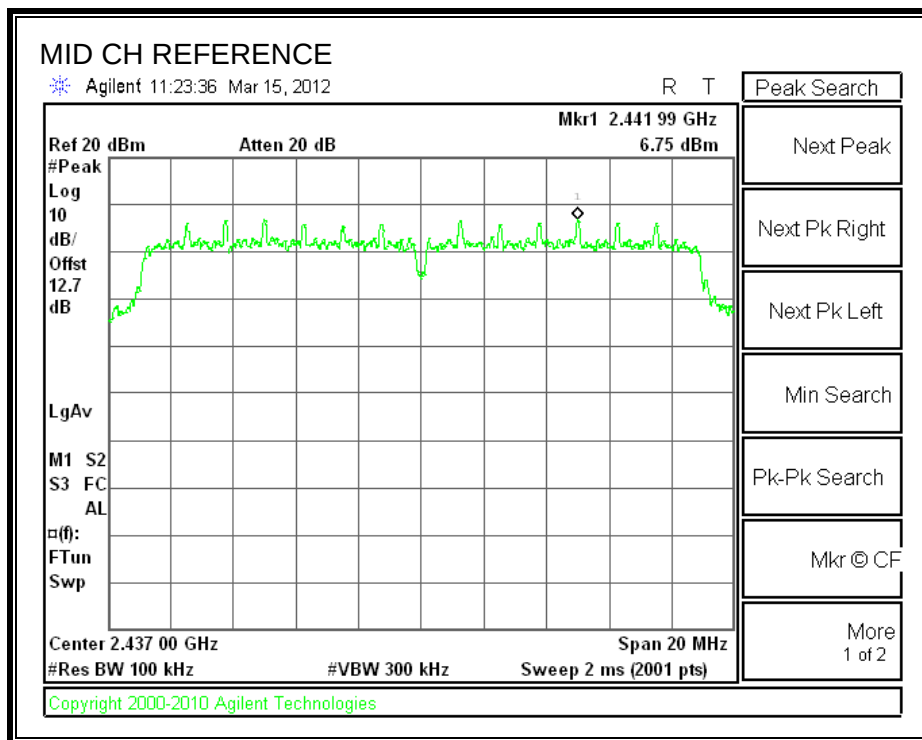
RESULTS

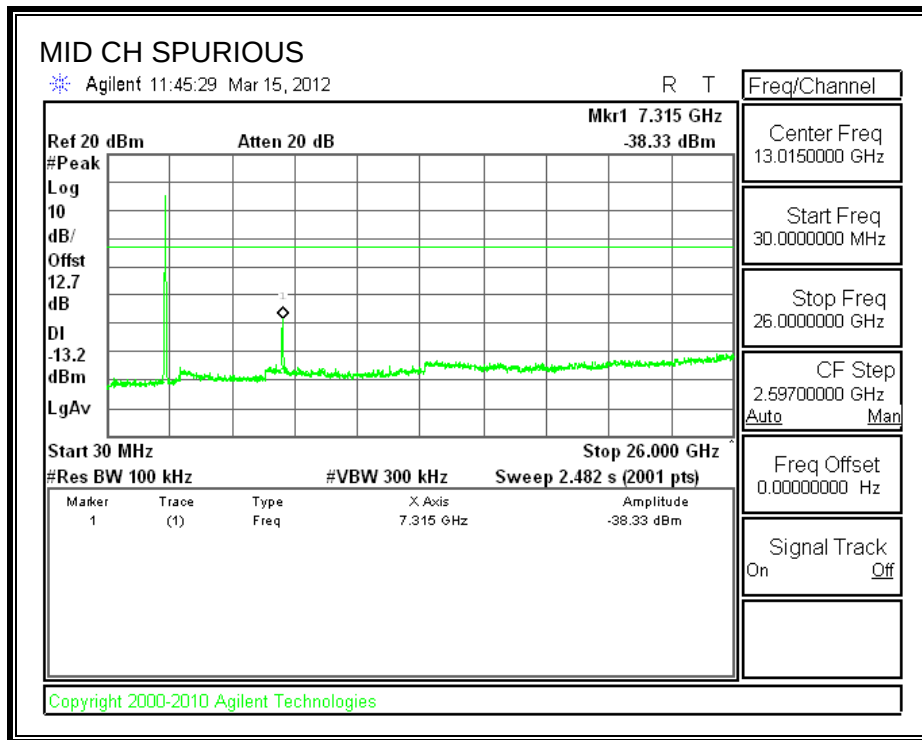
SPURIOUS EMISSIONS, LOW CHANNEL



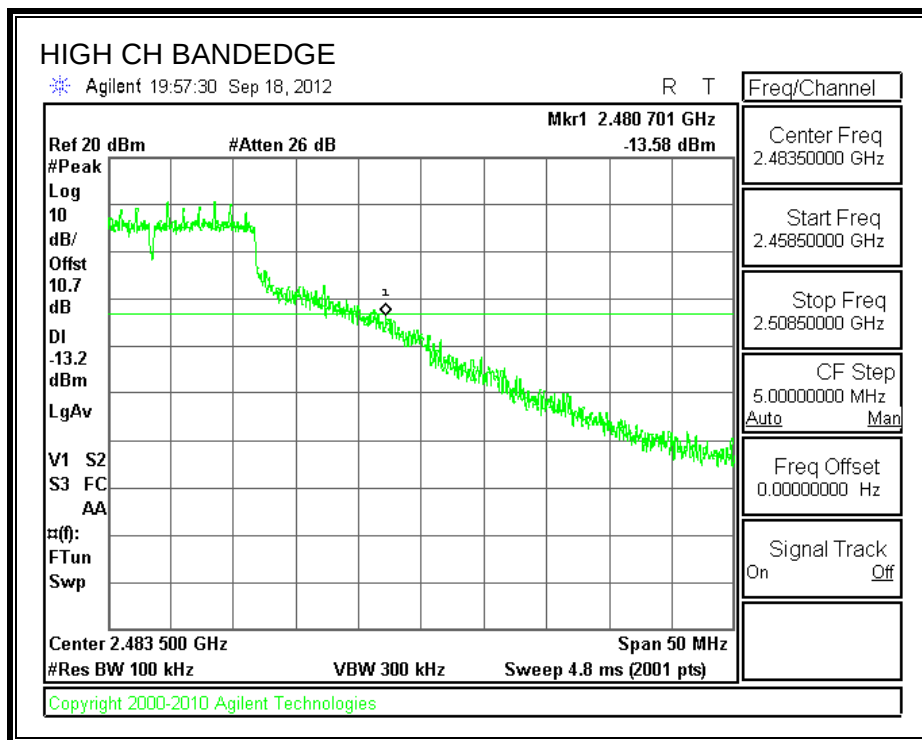


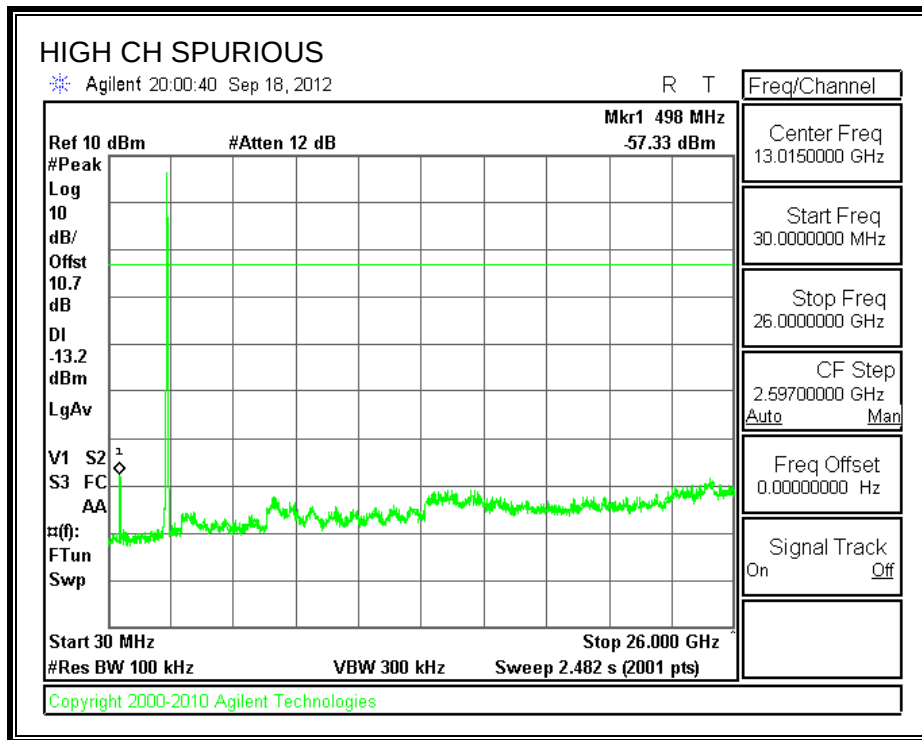
SPURIOUS EMISSIONS, MID CHANNEL





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.

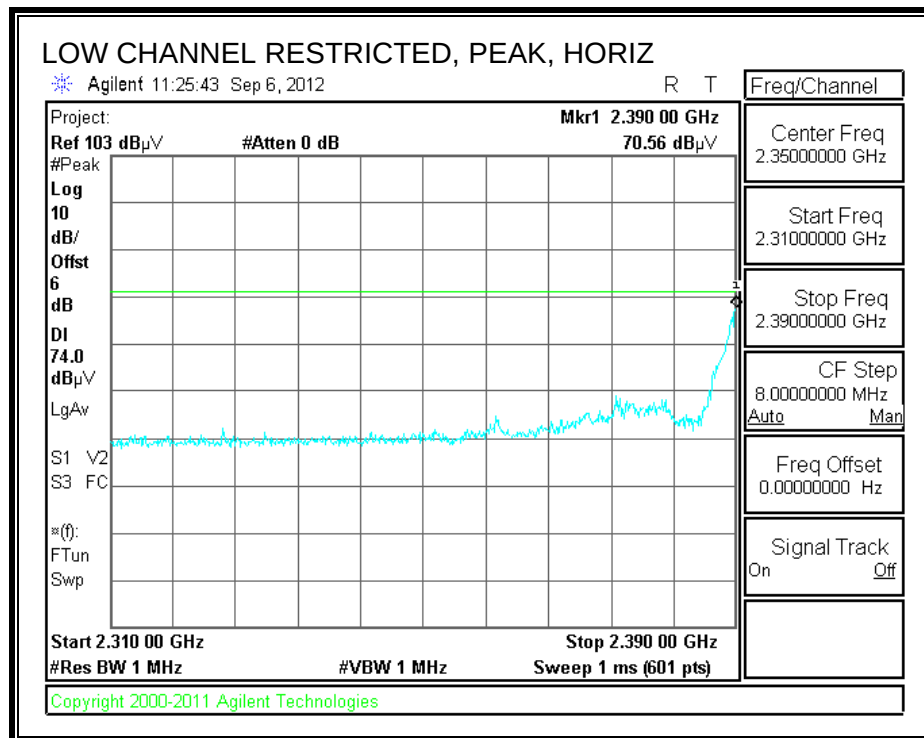
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.

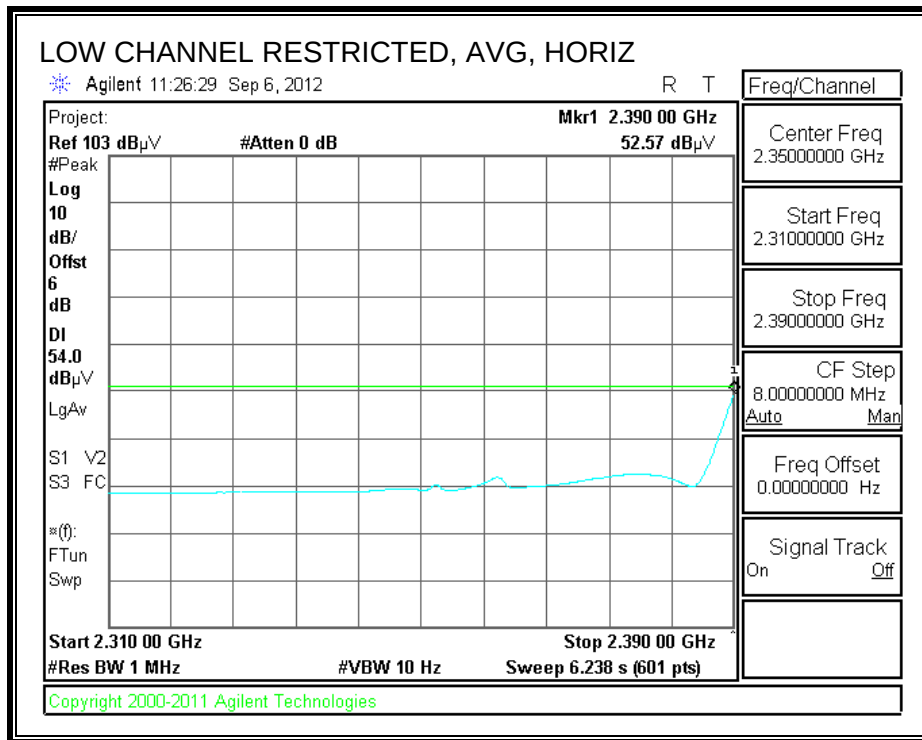
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

8.2. TRANSMITTER ABOVE 1 GHz

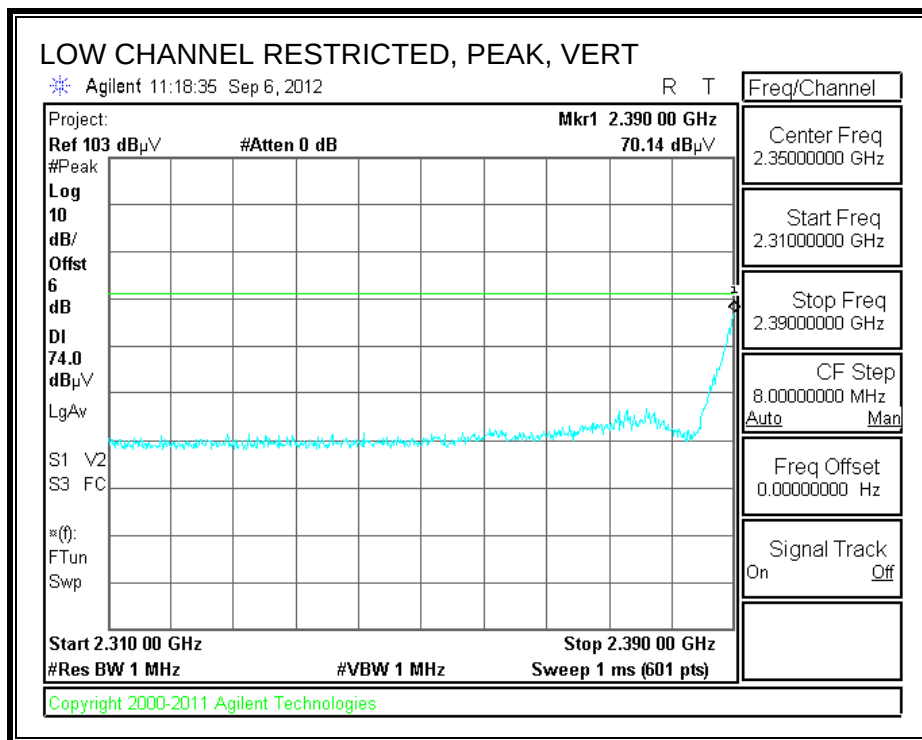
8.2.1. TX ABOVE 1 GHz FOR 802.11b 1TX MODE IN THE 2.4 GHz BAND

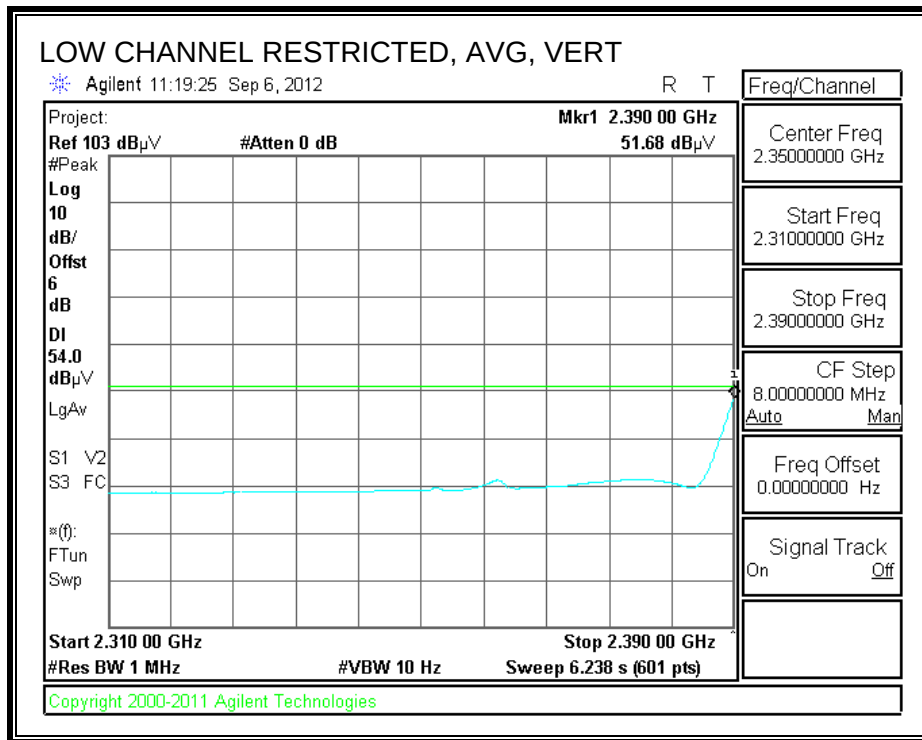
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



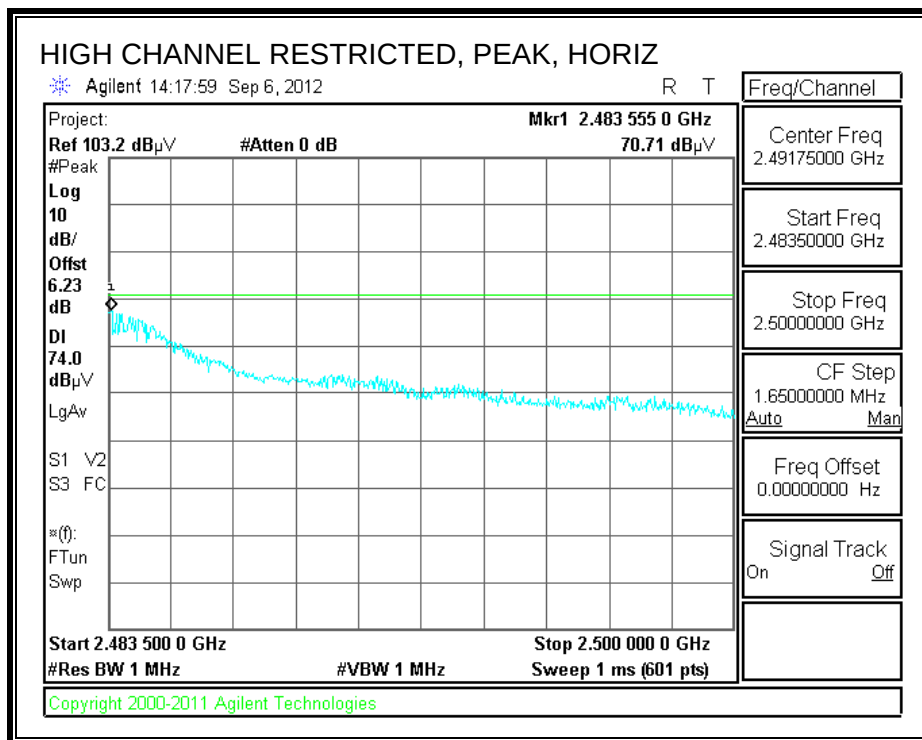


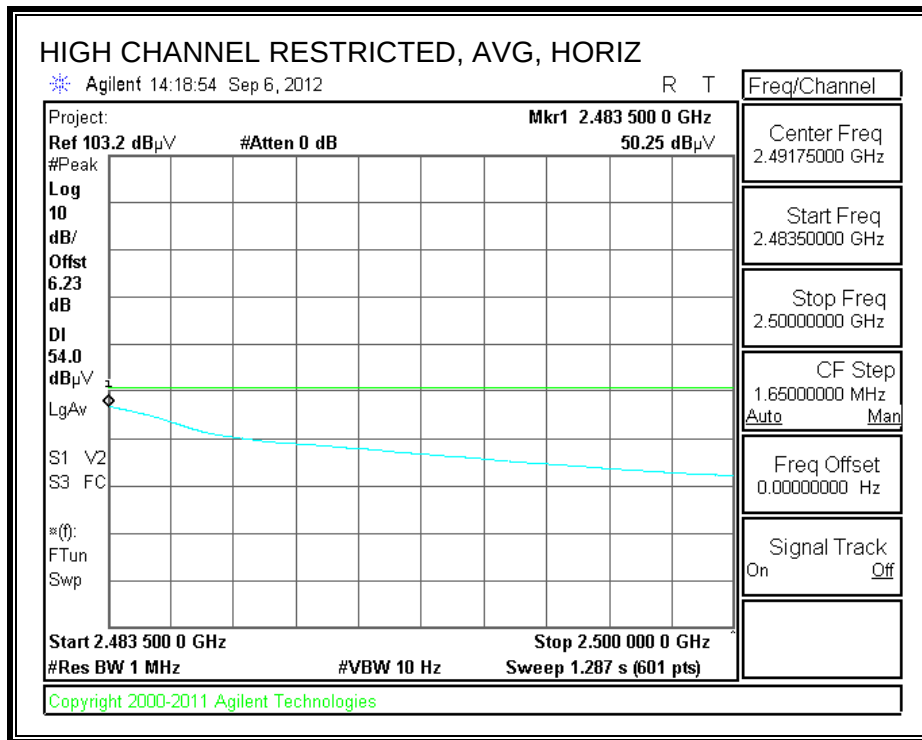
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



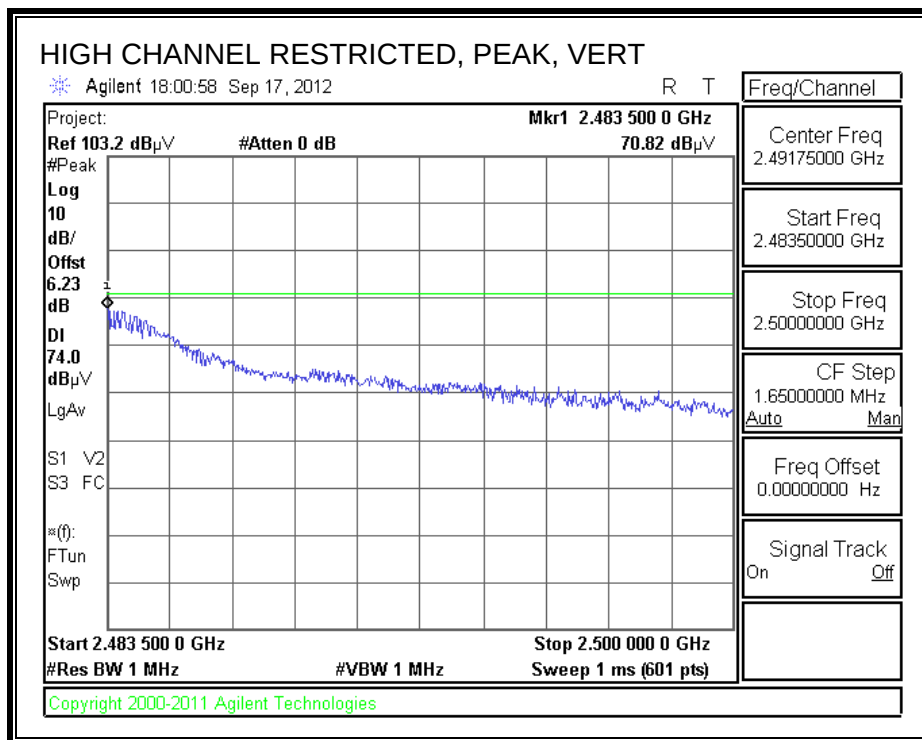


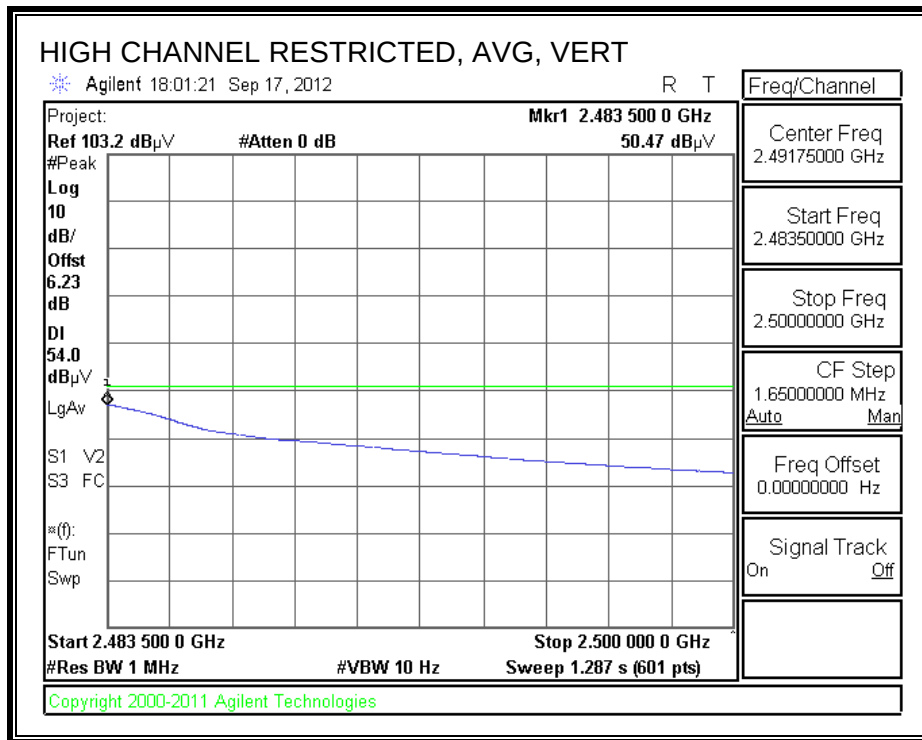
RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)





RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)





HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement

Compliance Certification Services, Fremont 5m Chamber

Test Engr: Oliver Su
Date: 09/17/12
Project #: 12U14585
Company: Qualcomm
Test Target: FCC 15.247
Mode Oper: 11b, 2.4GHz, Tx Continuously with 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	Ftr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant.High cm	Table Angle Degree	Notes
11b Mid Ch (2437MHz)															
4.874	3.0	37.7	33.5	6.3	-35.5	0.0	0.0	42.0	74.0	-32.0	V	P	101.6	298.8	
4.874	3.0	25.1	33.5	6.3	-35.5	0.0	0.0	29.4	54.0	-24.6	V	A	101.6	298.8	
4.874	3.0	36.6	33.5	6.3	-35.5	0.0	0.0	40.9	74.0	-33.1	H	P	130.4	45.2	
4.874	3.0	24.5	33.5	6.3	-35.5	0.0	0.0	28.8	54.0	-25.2	H	A	130.4	45.2	
7.311	3.0	43.6	35.7	8.5	-35.4	0.0	0.0	52.4	74.0	-21.6	V	P	180.0	238.1	
7.311	3.0	29.8	35.7	8.5	-35.4	0.0	0.0	38.6	54.0	-15.4	V	A	180.0	238.1	
7.311	3.0	37.7	35.7	8.5	-35.4	0.0	0.0	46.5	74.0	-27.5	H	P	198.6	261.5	
7.311	3.0	25.0	35.7	8.5	-35.4	0.0	0.0	33.8	54.0	-20.3	H	A	198.6	261.5	
12.185	3.0	35.3	39.3	11.1	-35.3	0.0	0.0	50.4	74.0	-23.6	V	P	150.5	54.3	
12.185	3.0	22.7	39.3	11.1	-35.3	0.0	0.0	37.7	54.0	-16.3	V	A	150.5	54.3	
12.185	3.0	35.2	39.3	11.1	-35.3	0.0	0.0	50.3	74.0	-23.7	H	P	114.1	235.0	
12.185	3.0	22.7	39.3	11.1	-35.3	0.0	0.0	37.8	54.0	-16.2	H	A	114.1	235.0	

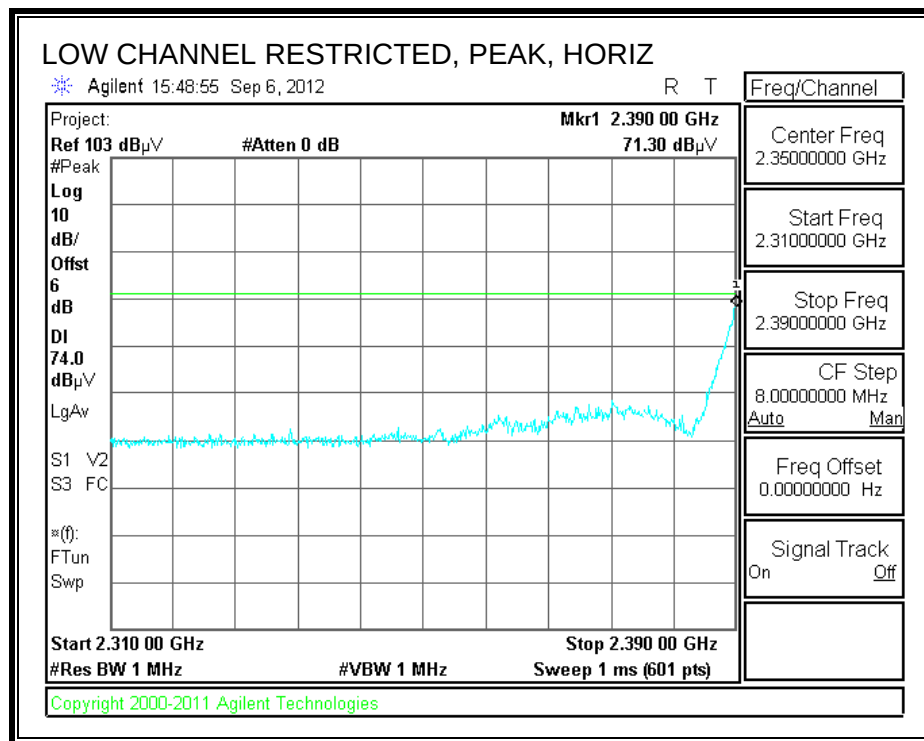
Rev. 4.1.2.7

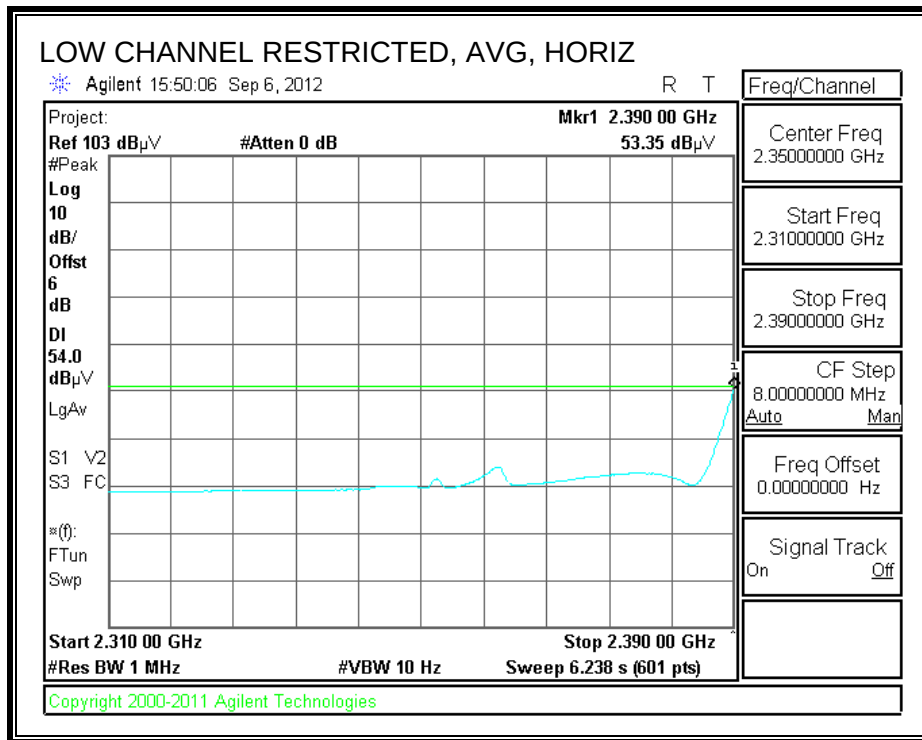
Note: No other emissions were detected above the system noise floor.

Note: Refer to original report number "12U14222-6A FCC IC DTS Report" for low and high channel.

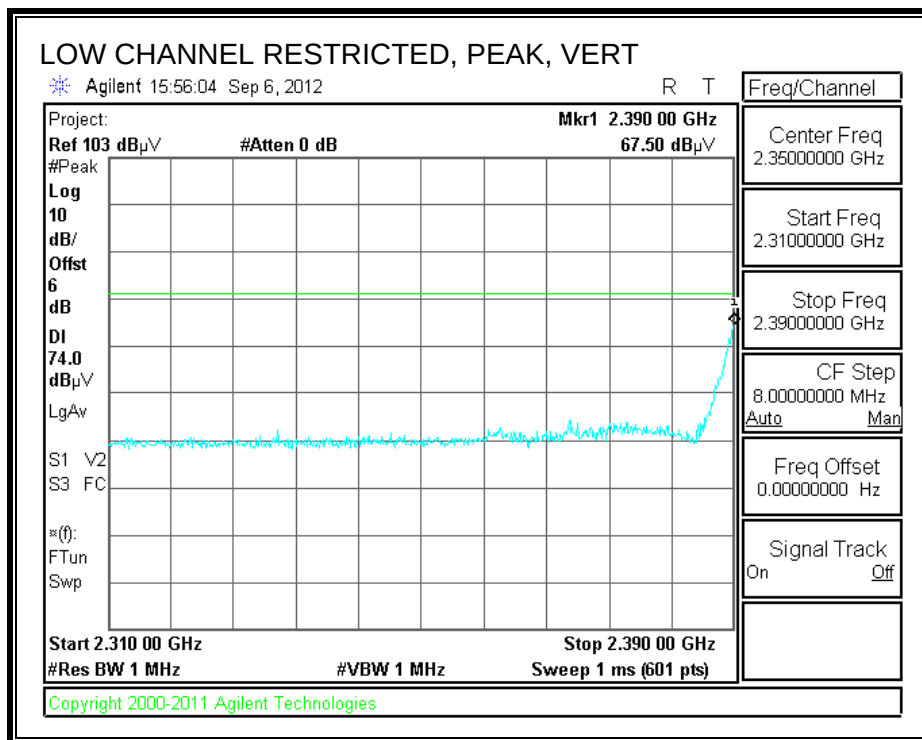
8.2.2. TX ABOVE 1 GHz FOR 802.11g 1TX MODE IN THE 2.4 GHz BAND

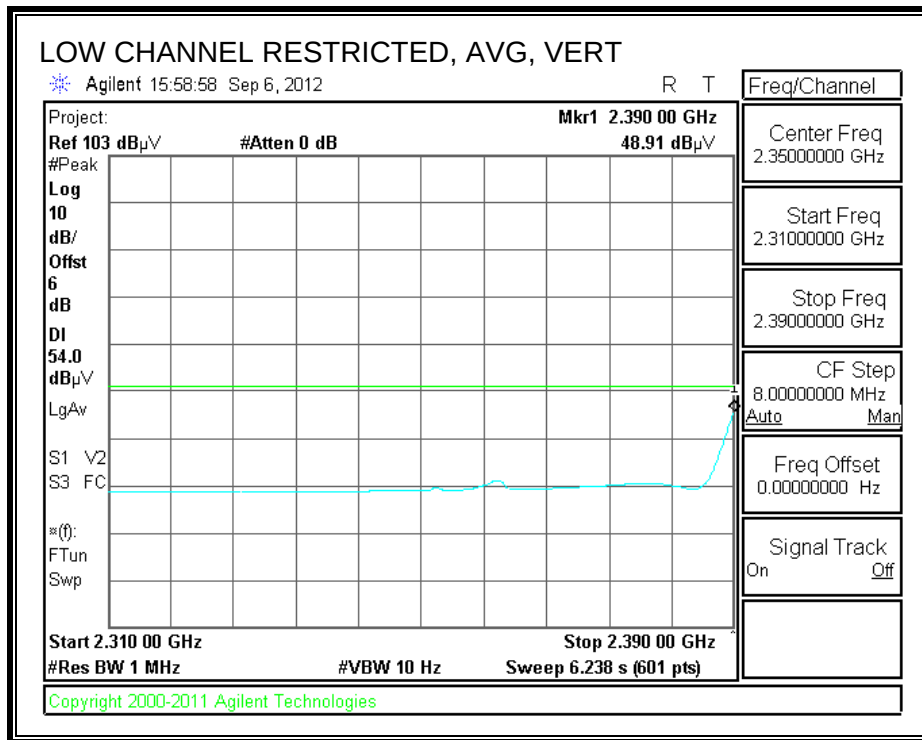
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



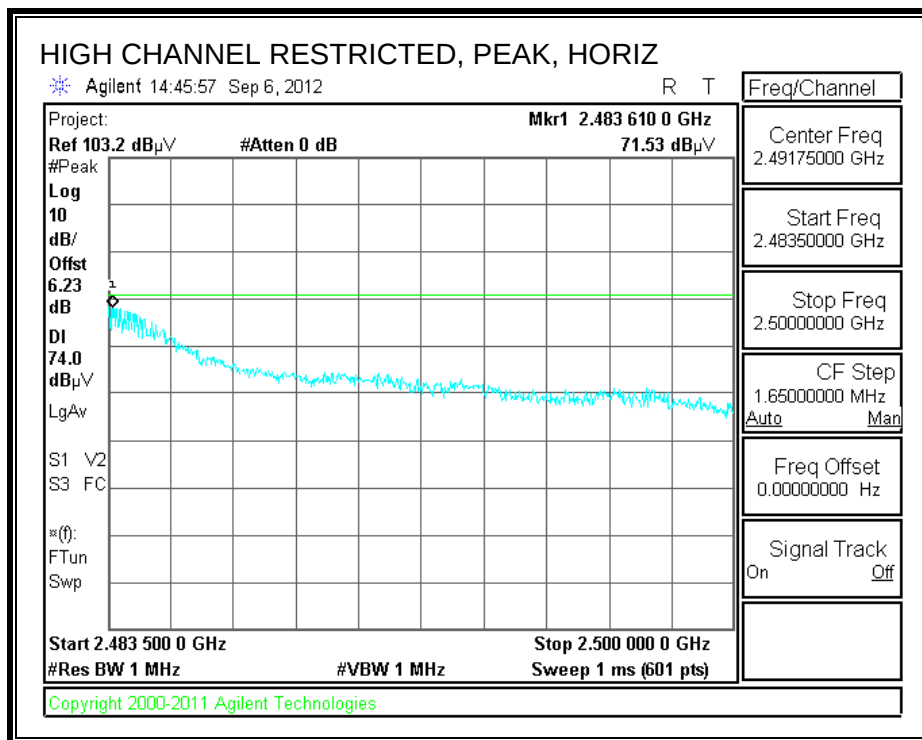


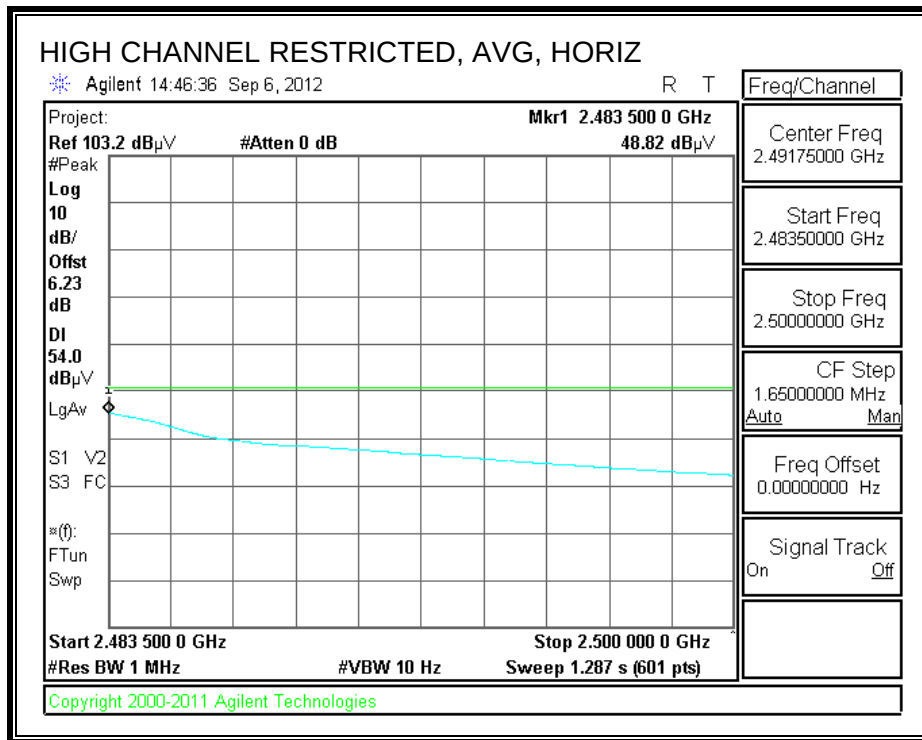
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



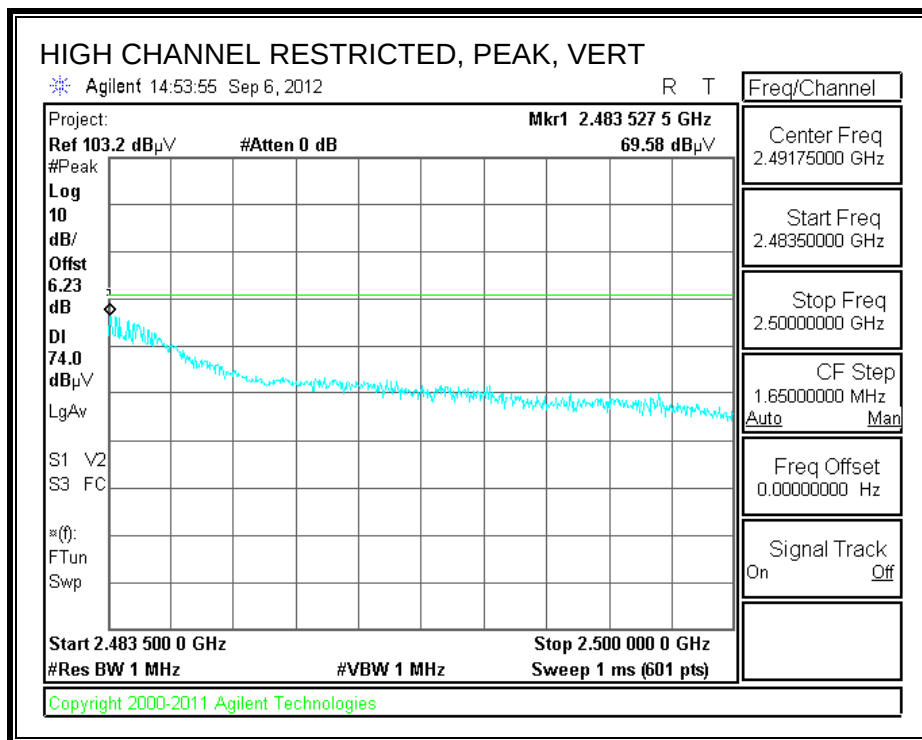


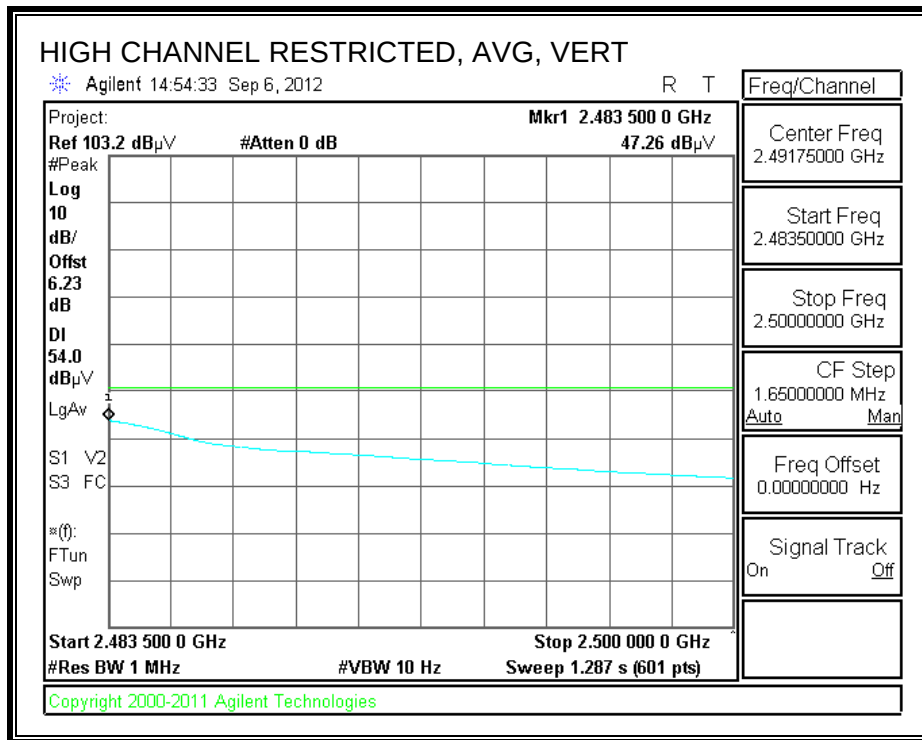
RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)





RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



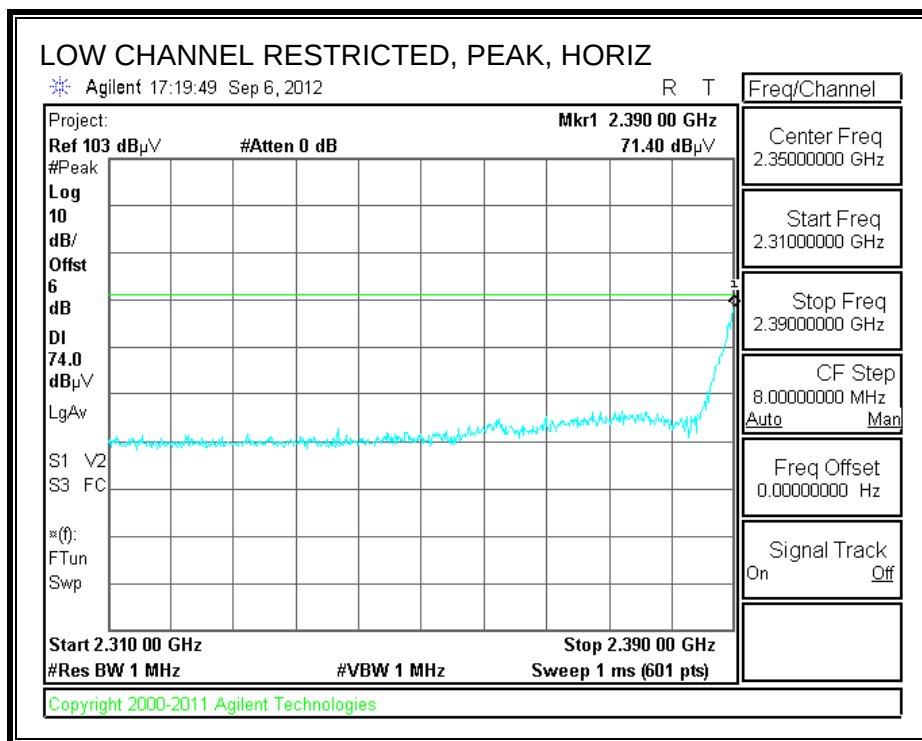


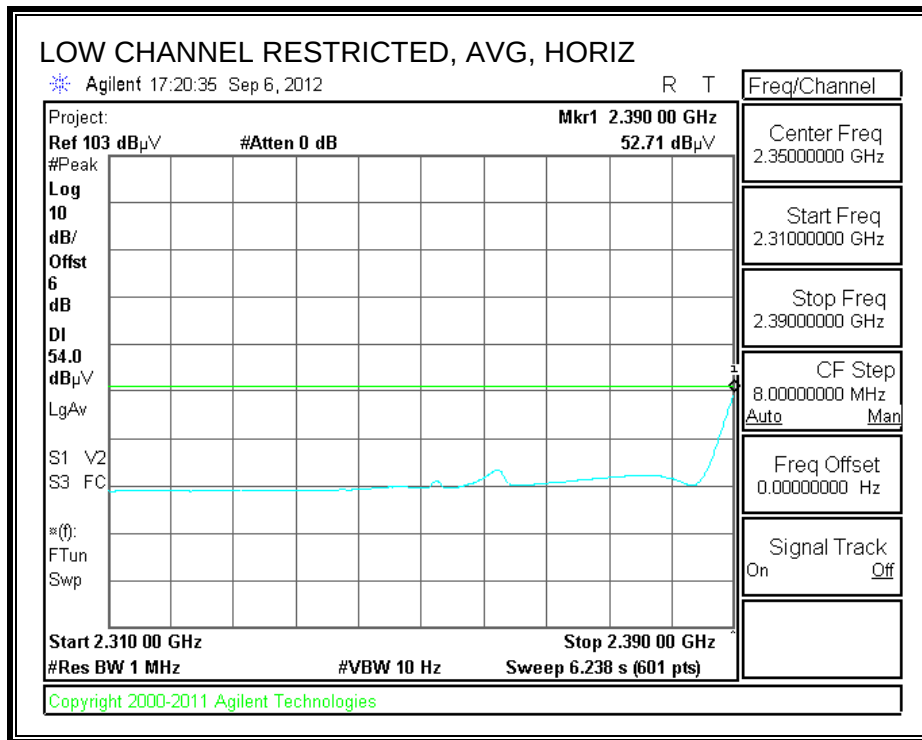
HARMONICS AND SPURIOUS EMISSIONS

Refer to original report number "12U14222-6A FCC IC DTS Report".

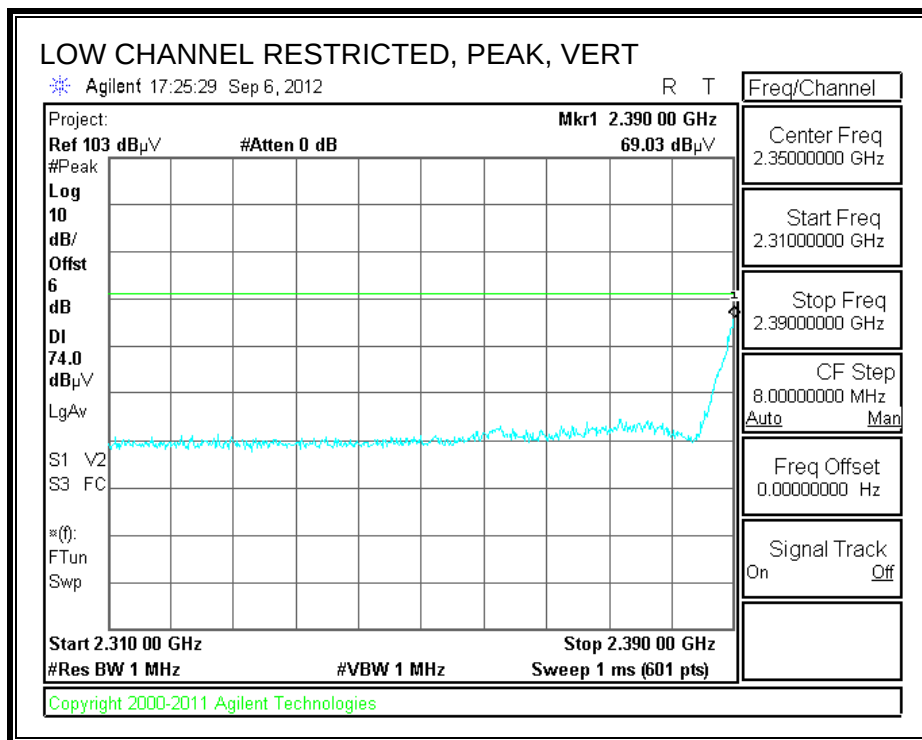
8.2.3. TX ABOVE 1 GHz FOR 802.11n HT20 1TX MODE IN THE 2.4 GHz BAND

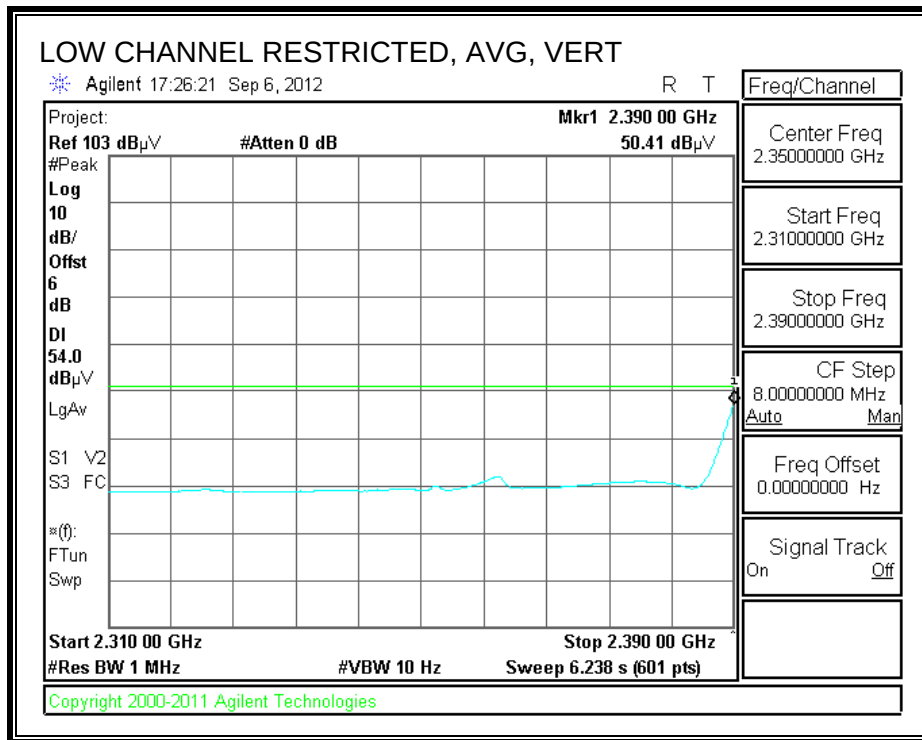
RESTRICTED BANEDGE (LOW CHANNEL, HORIZONTAL)



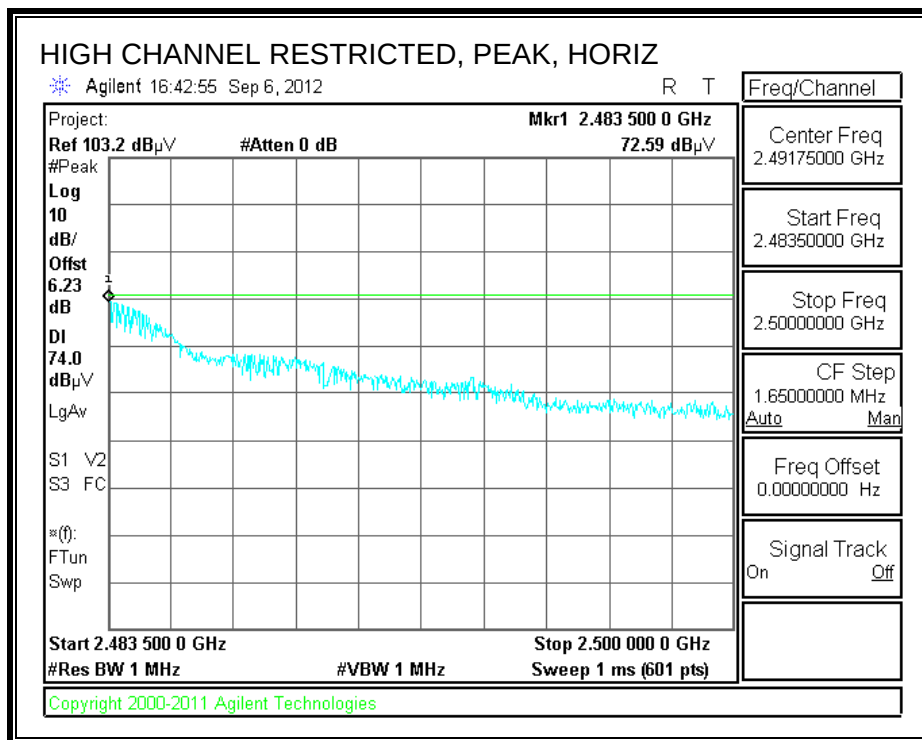


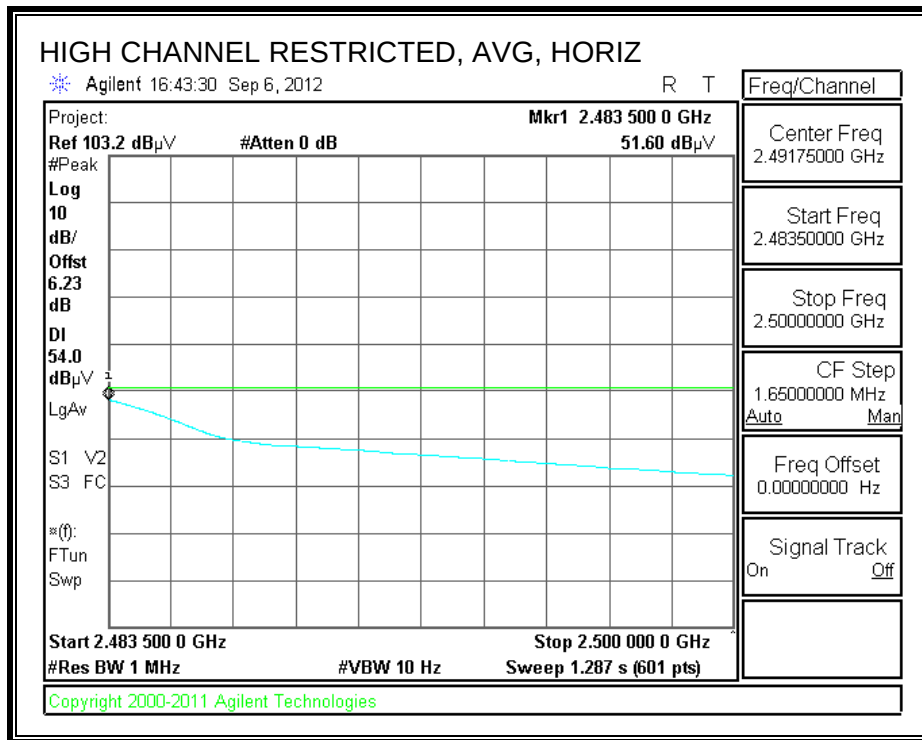
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



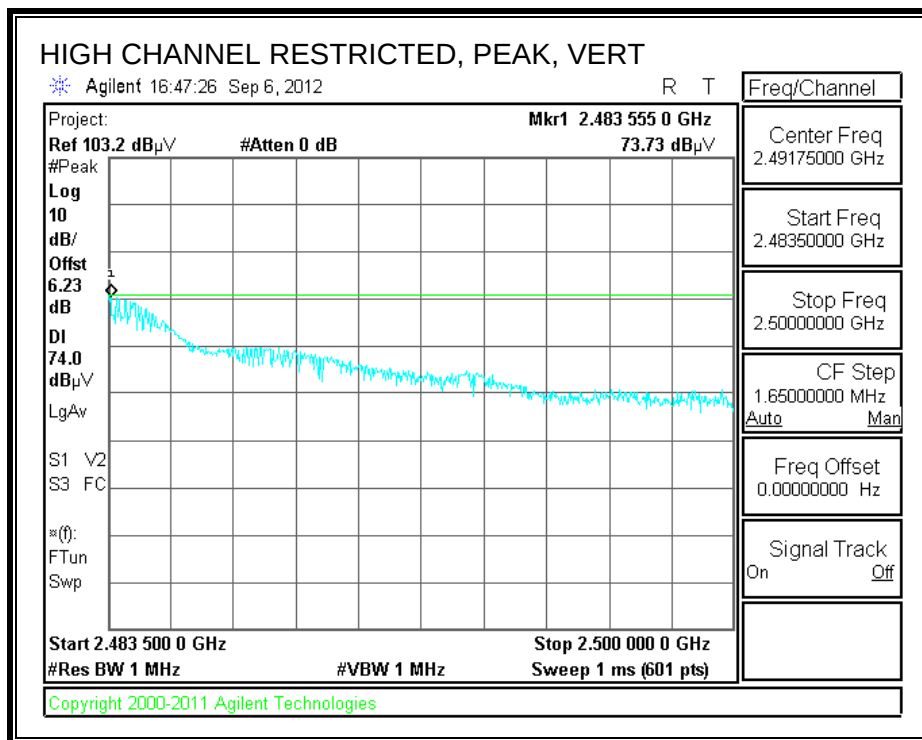


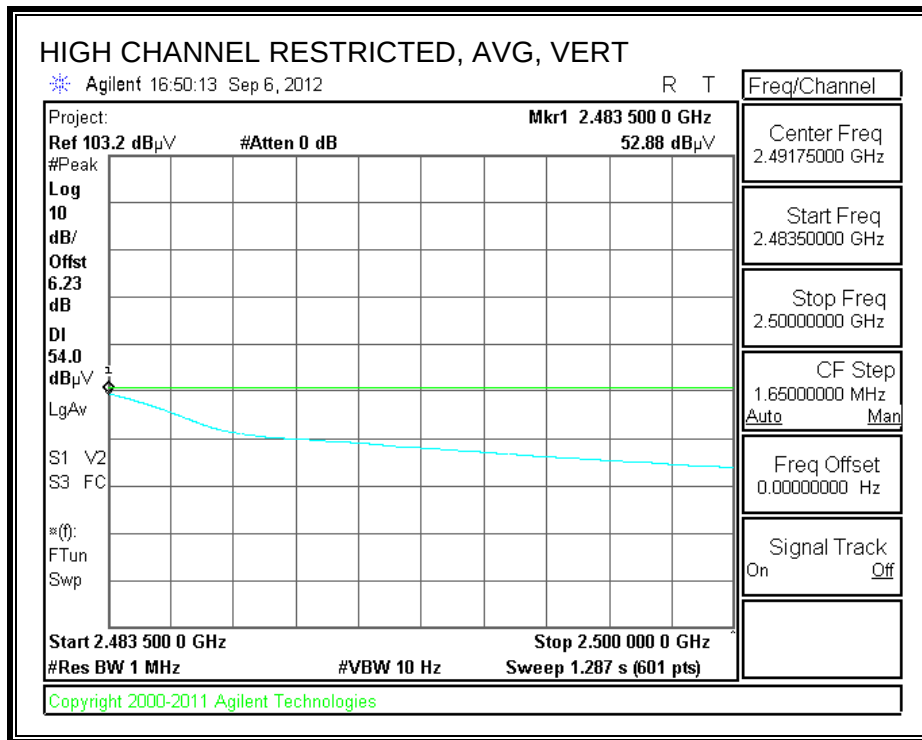
RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)





RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)





HARMONICS AND SPURIOUS EMISSIONS

Refer to original report number "12U14222-6A FCC IC DTS Report".

8.2.4. TX ABOVE 1 GHz FOR 802.11a MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

Refer to original report number "12U14222-6A FCC IC DTS Report".

8.2.5. TX ABOVE 1 GHz FOR 802.11n HT20 MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement Compliance Certification Services, Fremont 5m A Chamber															
Test Engr: Dennis Huang, Oliver Su Date: 5/24/2012 - 5/25/2012, 9/6/2012 Project #: 12U14222 Company: Qualcomm Atheros Test Target: FCC 15.205 EUT: 802.11n HT20 Mode, MTP PCB SN:016-2-450001, RF Module: N10G84TRF															
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	Htr dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/Q/P	Ant.High cm	Table Angle Degree	Notes
Low Channel - 5745MHz															
11.490	3.0	38.4	38.8	10.7	-35.5	0.0	0.7	53.1	74.0	-20.9	V	P	136.9	256.0	
11.490	3.0	33.1	38.8	10.7	-35.5	0.0	0.7	47.9	54.0	-6.1	V	A	136.9	256.0	
11.490	3.0	34.9	38.8	10.7	-35.5	0.0	0.7	49.6	74.0	-24.4	H	P	173.0	119.7	
11.490	3.0	26.6	38.8	10.7	-35.5	0.0	0.7	41.3	54.0	-12.7	H	A	173.0	119.7	
Mid Channel - 5785MHz															
11.570	3.0	39.1	38.9	10.8	-35.5	0.0	0.7	54.0	74.0	-20.0	V	P	122.4	254.6	
11.570	3.0	33.8	38.9	10.8	-35.5	0.0	0.7	48.7	54.0	-5.3	V	A	122.4	254.6	
11.570	3.0	35.1	38.9	10.8	-35.5	0.0	0.7	50.0	74.0	-24.0	H	P	197.6	272.0	
11.570	3.0	24.7	38.9	10.8	-35.5	0.0	0.7	39.6	54.0	-14.4	H	A	197.6	272.0	
High Channel - 5825MHz															
11.650	3.0	37.5	39.0	10.7	-35.5	0.0	0.0	51.7	74.0	-22.3	V	P	166.9	357.1	
11.650	3.0	24.4	39.0	10.7	-35.5	0.0	0.0	38.5	54.0	-15.5	V	A	166.9	357.1	
11.650	3.0	36.5	39.0	10.7	-35.5	0.0	0.0	50.7	74.0	-23.3	H	P	158.7	268.0	
11.650	3.0	29.0	39.0	10.7	-35.5	0.0	0.0	43.2	54.0	-10.8	H	A	158.7	268.0	
Rev. 4.1.2.7															
Note: No other emissions were detected above the system noise floor.															

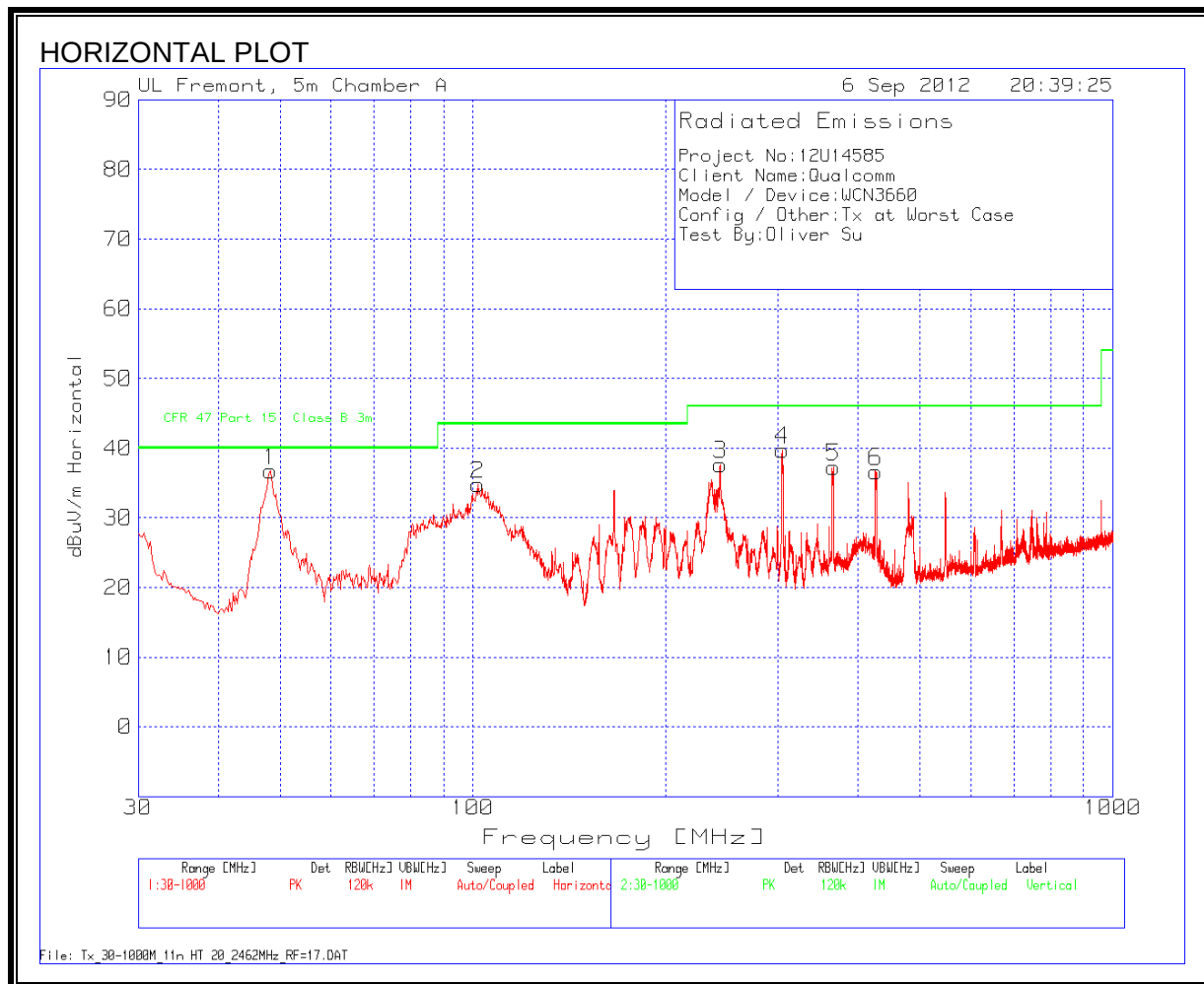
8.2.6. TX ABOVE 1 GHz FOR 802.11n HT40 MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

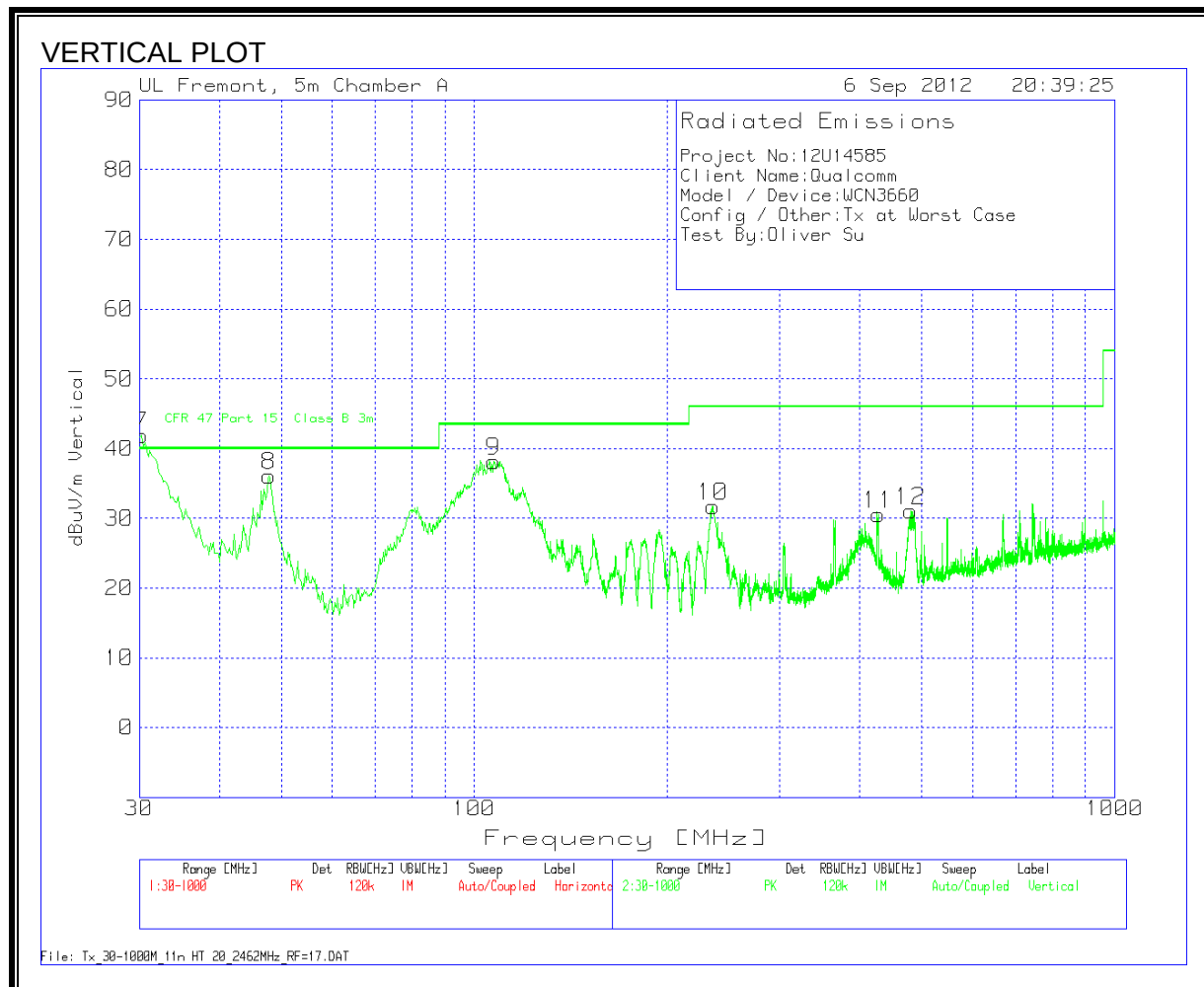
Refer to original report number "12U14222-6A FCC IC DTS Report".

8.3. WORST-CASE BELOW 1 GHz

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)



SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)



HORIZONTAL AND VERTICAL DATA

Project No:12U14585									
Client Name:Qualcomm									
Model / Device:WCN3660									
Config / Other:Tx at Worst Case (11n HT20, 2462MHz)									
Test By:Oliver Su									
Horizontal									
30 - 1000MHz									
Test Frequency	Meter Reading	Detector	25MHz-1GHz ChmbrA Amplified .TX (dB)	T243 Sunol Bilog.TXT (dB)	dBuV/m	CFR 47 Part 15 Class B 3m	Margin	Height [cm]	Polarity
48.2214	55.31	PK	-27.3	8.8	36.81	40	-3.19	300	Horz
101.7226	50.96	PK	-26.9	10.7	34.76	43.5	-8.74	200	Horz
243.811	52.15	PK	-26	11.5	37.65	46	-8.35	100	Horz
304.8721	52.21	PK	-25.8	13.3	39.71	46	-6.29	100	Horz
365.7394	47.6	PK	-25.5	15.2	37.3	46	-8.7	100	Horz
426.8006	45.68	PK	-25.4	16.4	36.68	46	-9.32	100	Horz
Vertical 30 - 1000MHz									
Test Frequency	Meter Reading	Detector	25MHz-1GHz ChmbrA Amplified .TX (dB)	T243 Sunol Bilog.TXT (dB)	dBuV/m	CFR 47 Part 15 Class B 3m	Margin	Height [cm]	Polarity
31.3504	40.92	QP	-27.5	20.2	33.62	40	-6.38	111	Vert
47.8337	54.45	PK	-27.3	9	36.15	40	-3.85	100	Vert
107.3441	52.82	PK	-26.8	12.1	38.12	43.5	-5.38	100	Vert
236.0572	46.53	PK	-26	11.2	31.73	46	-14.27	100	Vert
426.9944	39.51	PK	-25.4	16.4	30.51	46	-15.49	200	Vert
480.8833	38.75	PK	-25	17.3	31.05	46	-14.95	100	Vert
PK - Peak detector									
QP - Quasi-Peak detector									
Av - Average detector									

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

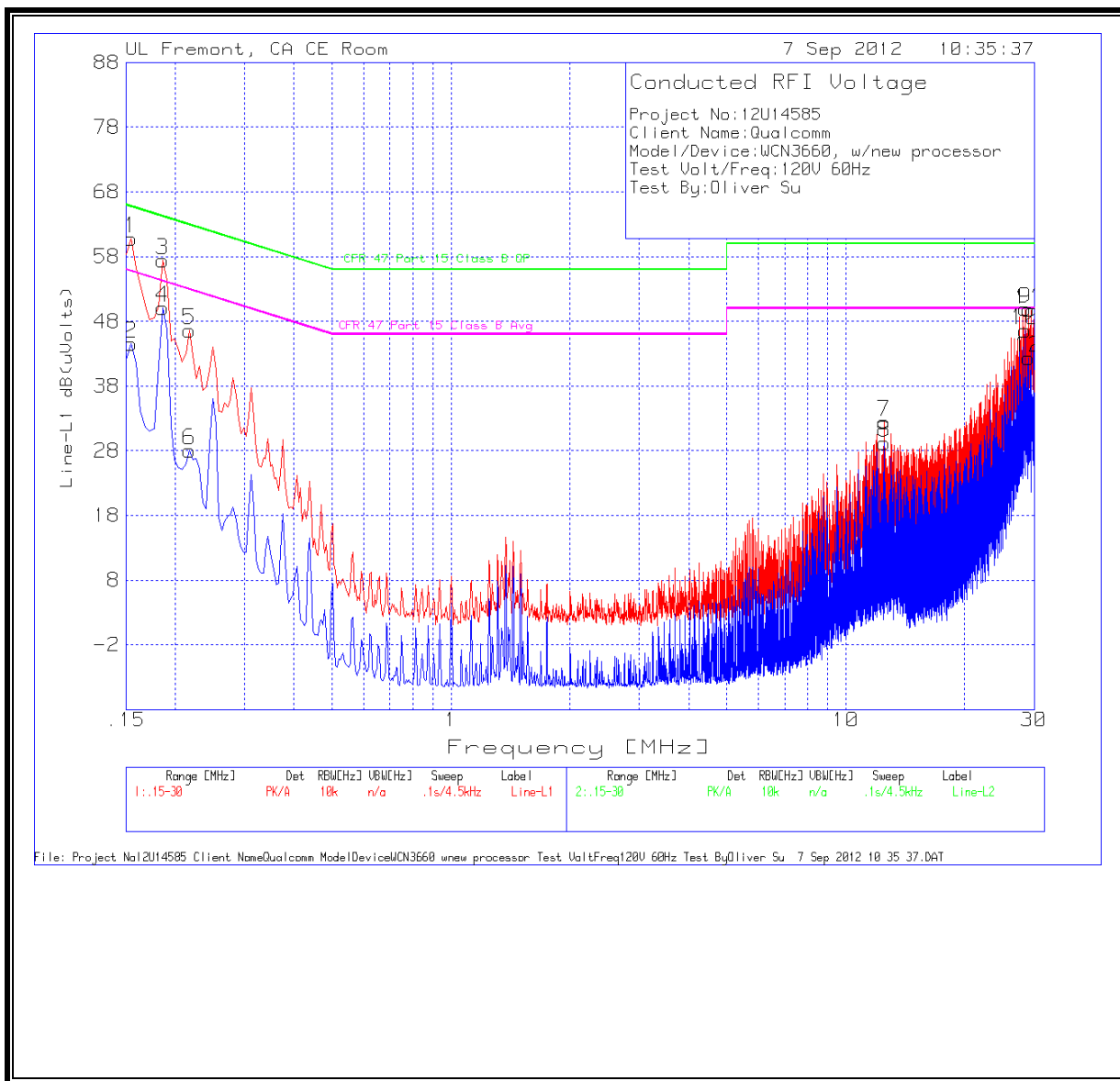
ANSI C63.4

LINE 1 AND LINE 2 RESULTS

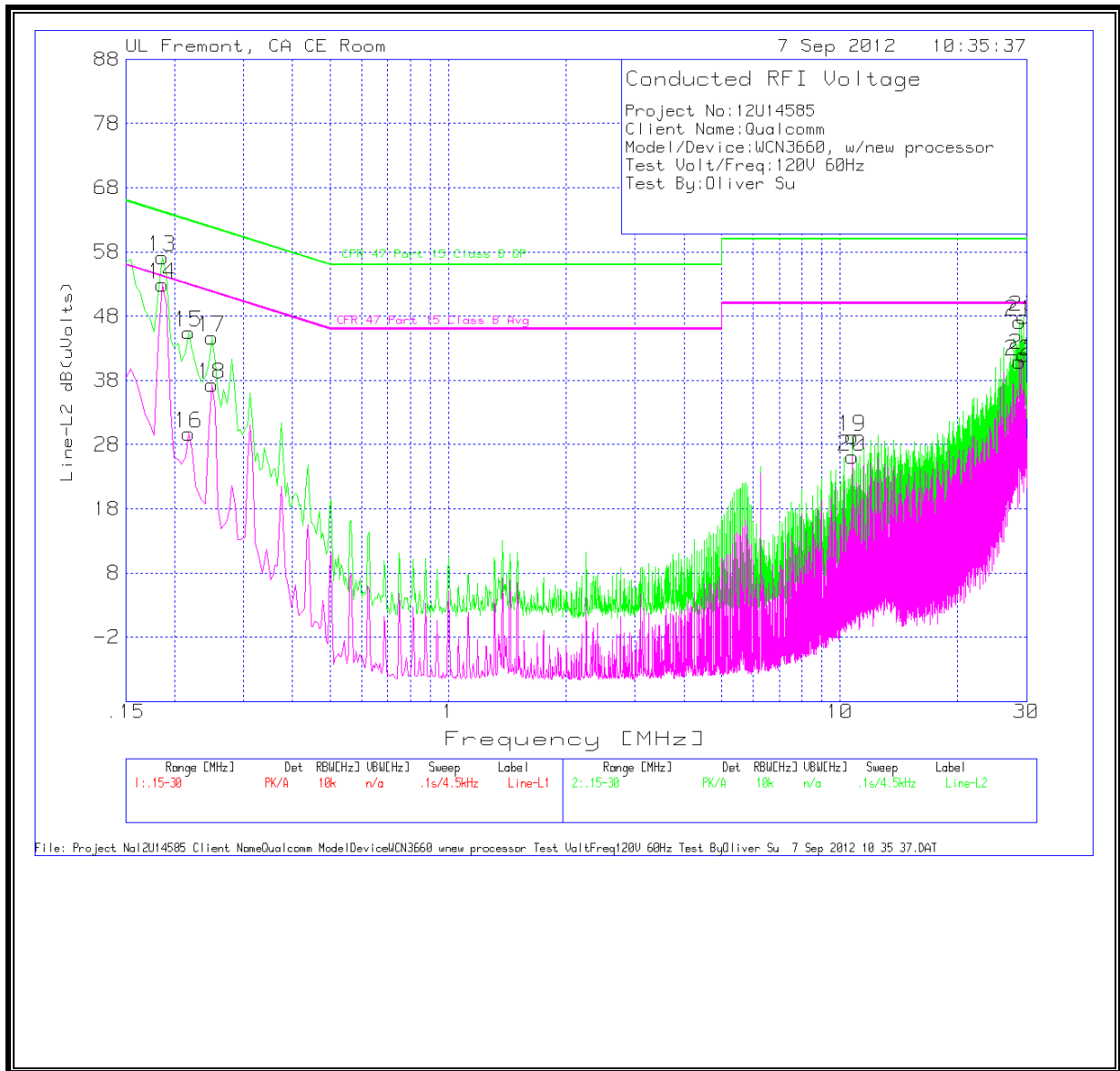
6 WORST EMISSIONS

Project No:12U14585									
Client Name:Qualcomm									
Model/Device:WCN3660, w/new processor									
Test Volt/Freq:120V 60Hz									
Test By:Oliver Su									
Line-L1 .15-30MHz									
Test Frequency	Meter Reading	Detector	T24 IL L1.TXT (dB)	LC Cables 1&3.TXT (dB)	dB(uVolts)	CFR 47 Part 15 Class B QP	Margin	CFR 47 Part 15 Class B Avg	Margin
0.1545	60.66	PK	0.1	0	60.76	65.8	-5.04	-	-
0.1545	44.49	Av	0.1	0	44.59	-	-	55.8	-11.21
0.186	57.31	PK	0.1	0	57.41	64.2	-6.79	-	-
0.186	49.95	Av	0.1	0	50.05	-	-	54.2	-4.15
0.2175	46.46	PK	0.1	0	46.56	62.9	-16.34	-	-
0.2175	28	Av	0.1	0	28.1	-	-	52.9	-24.8
12.507	32.08	PK	0.2	0.2	32.48	60	-27.52	-	-
12.507	28.76	Av	0.2	0.2	29.16	-	-	50	-20.84
28.518	49.1	PK	0.5	0.3	49.9	60	-10.1	-	-
28.518	45.79	Av	0.5	0.3	46.59	-	-	50	-3.41
29.0175	48.97	PK	0.5	0.3	49.77	60	-10.23	-	-
29.0175	41.56	Av	0.5	0.3	42.36	-	-	50	-7.64
Line-L2 .15-30MHz									
0.186	57.08	PK	0.1	0	57.18	64.2	-7.02	-	-
0.186	52.83	Av	0.1	0	52.93	-	-	54.2	-1.27
0.2175	45.41	PK	0.1	0	45.51	62.9	-17.39	-	-
0.2175	29.65	Av	0.1	0	29.75	-	-	52.9	-23.15
0.249	44.54	PK	0.1	0	44.64	61.8	-17.16	-	-
0.249	37.27	Av	0.1	0	37.37	-	-	51.8	-14.43
10.7565	28.81	PK	0.2	0.2	29.21	60	-30.79	-	-
10.7565	25.75	Av	0.2	0.2	26.15	-	-	50	-23.85
28.77	46.29	PK	0.5	0.3	47.09	60	-12.91	-	-
28.77	40.18	Av	0.5	0.3	40.98	-	-	50	-9.02
29.5215	47.04	PK	0.5	0.3	47.84	60	-12.16	-	-
29.5215	41.11	Av	0.5	0.3	41.91	-	-	50	-8.09
PK - Peak detector									
Av - Average detector									

LINE 1 RESULTS



LINE 2 RESULTS



10. MAXIMUM PERMISSIBLE EXPOSURE

Refer to original report number "12U14222-6A FCC IC DTS Report".