

8.11.6. OUT-OF-BAND EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

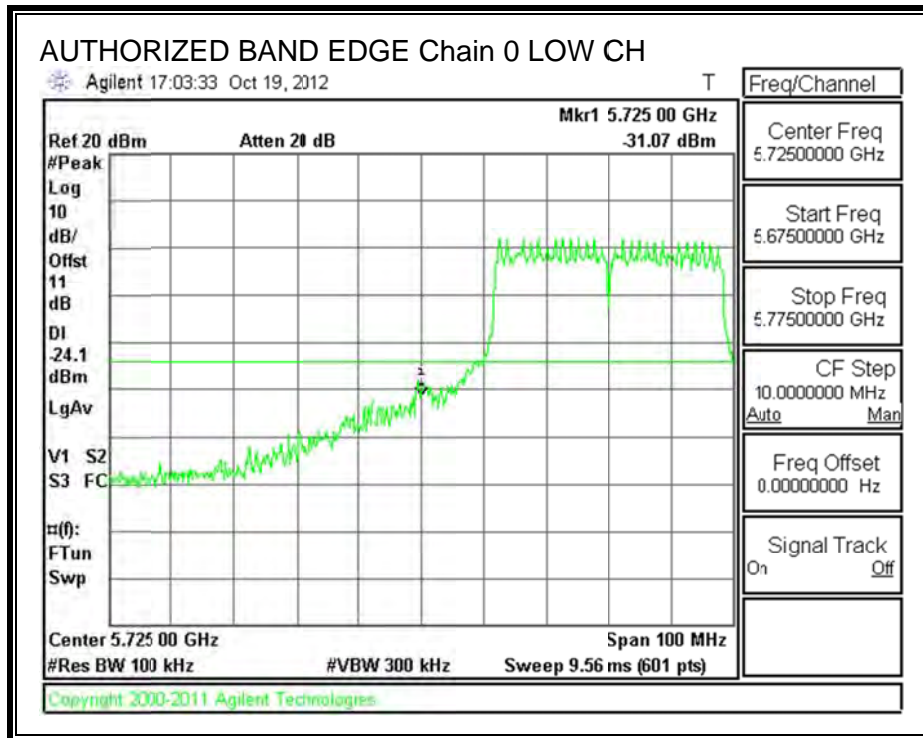
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.

TEST PROCEDURE

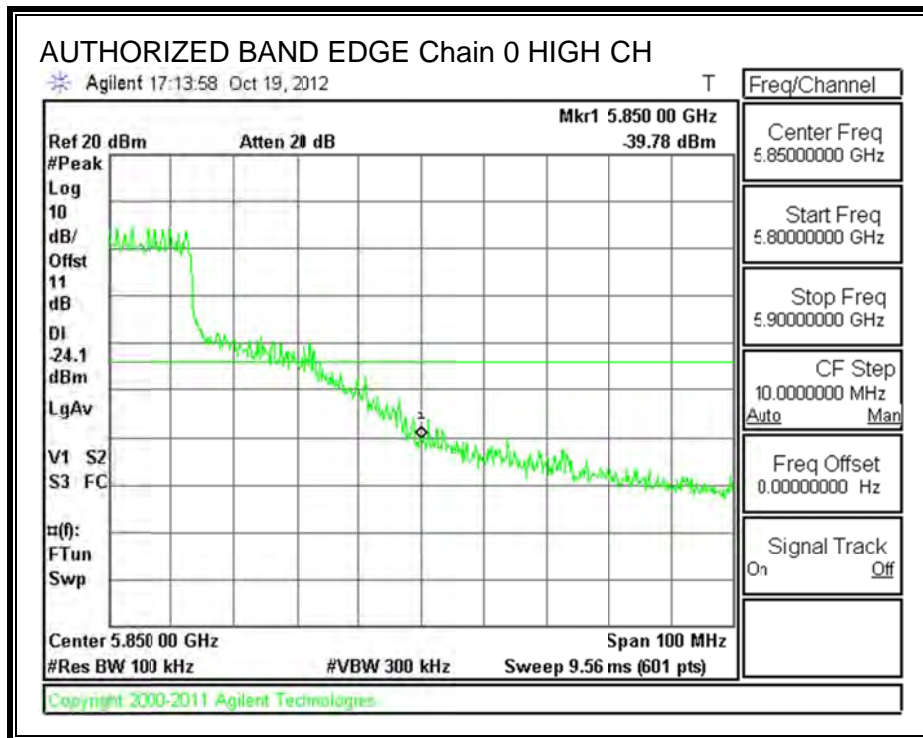
The transmitter output is connected to a spectrum analyzer with RBW = 100 kHz, VBW = 300 kHz, peak detector, and max hold. Measurements utilizing these settings are made of the in-band reference level, bandedge (where measurements to the general radiated limits will not be made) and out-of-band emissions.

RESULTS

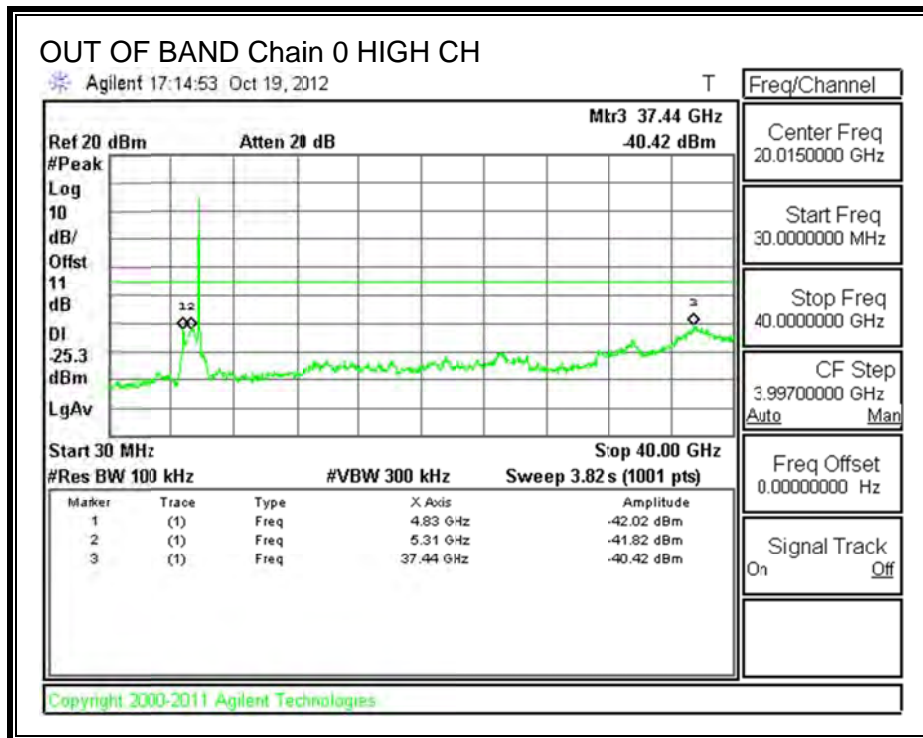
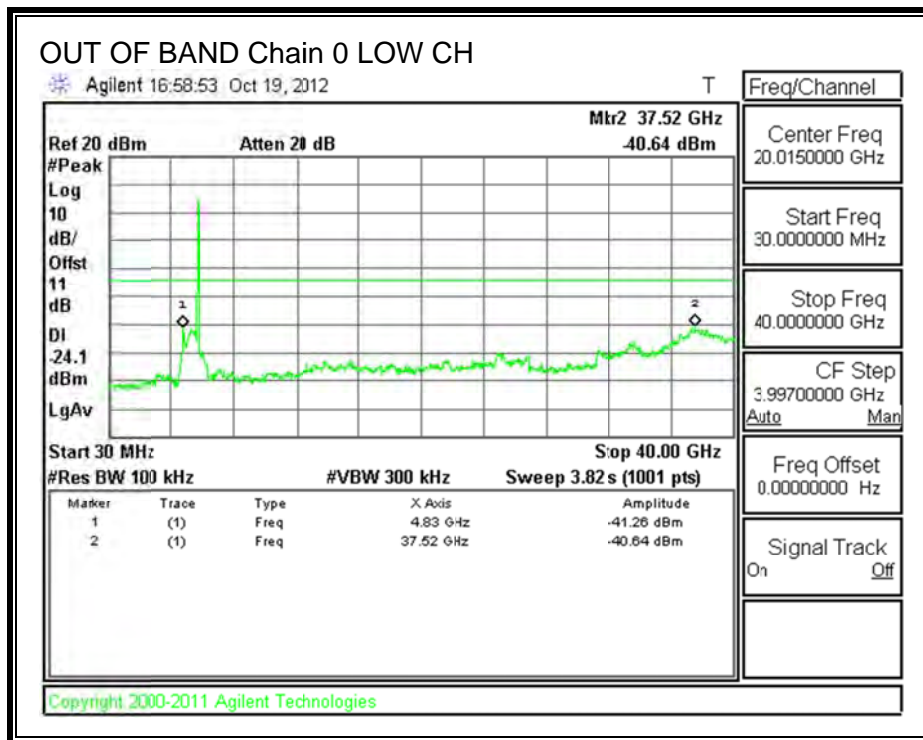
LOW CHANNEL BANDEDGE, Chain 0



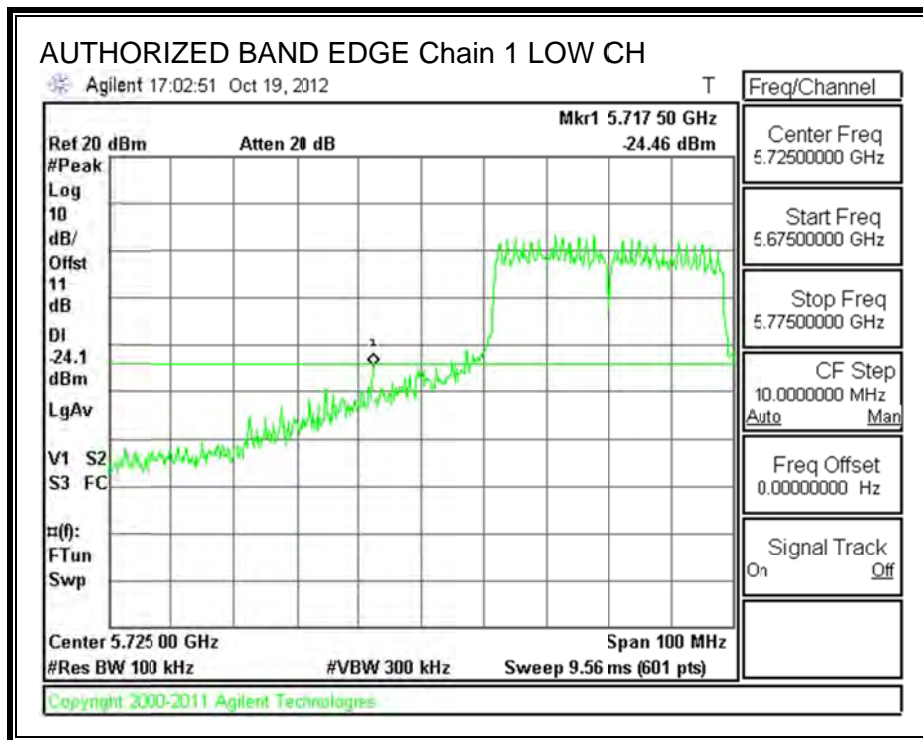
HIGH CHANNEL BANDEDGE, Chain 0



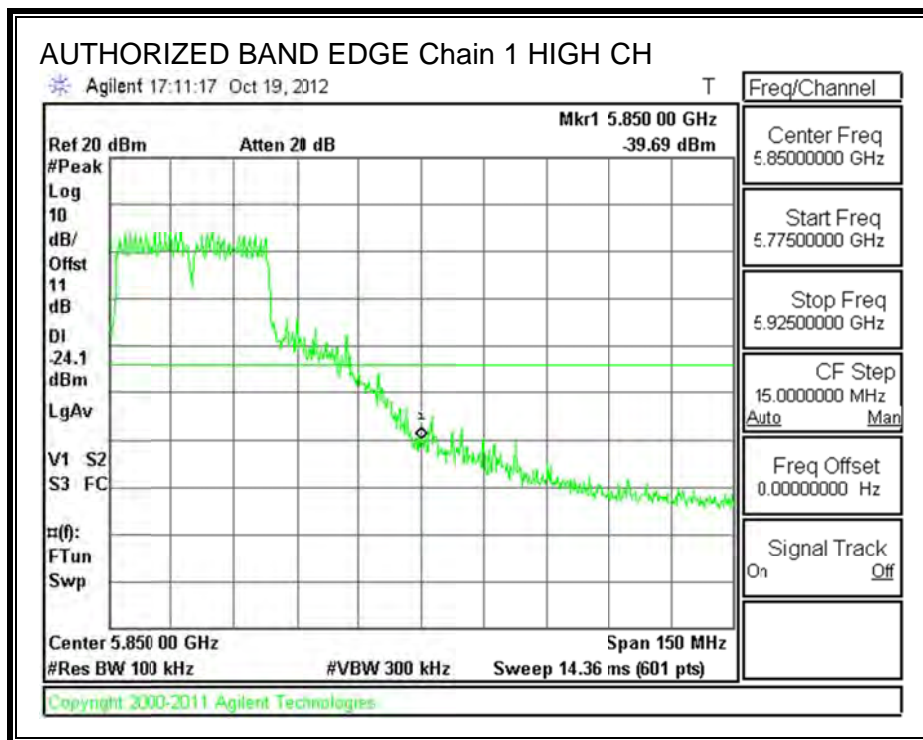
OUT-OF-BAND EMISSIONS, Chain 0

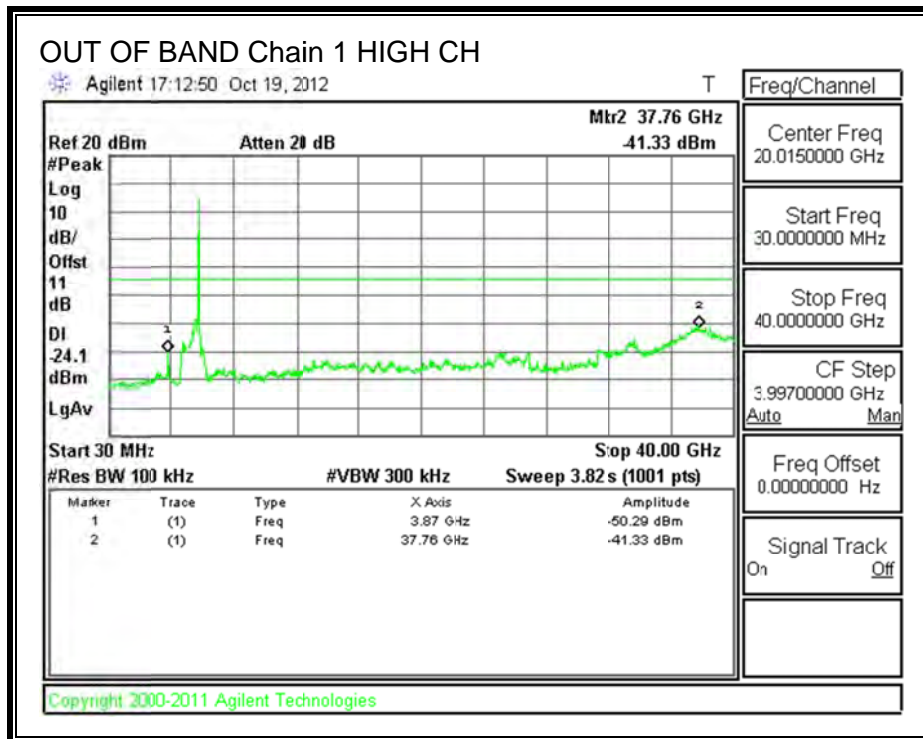
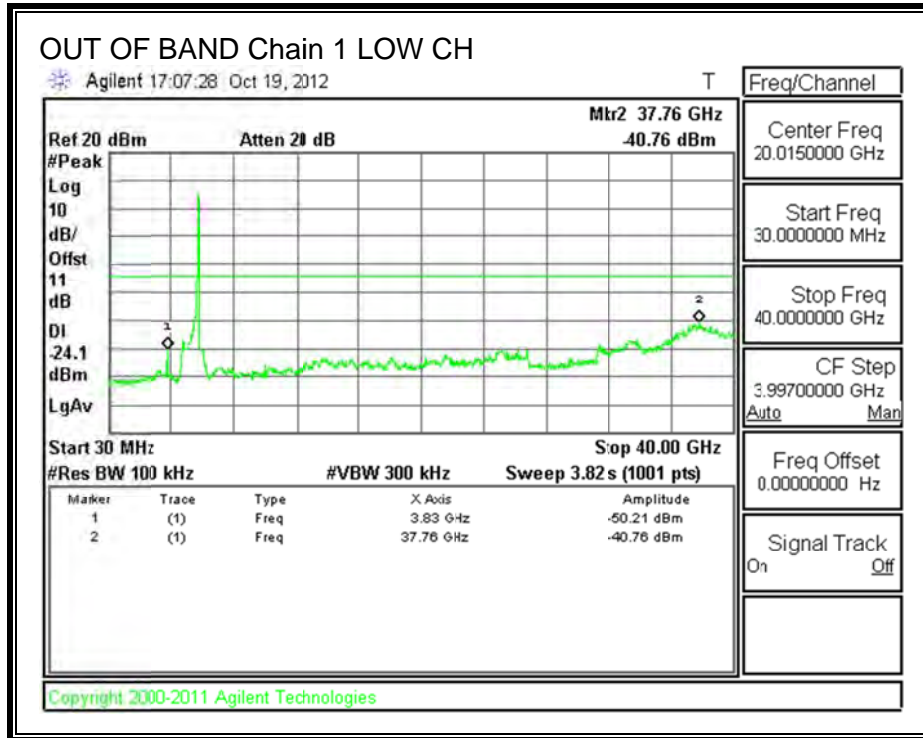


LOW CHANNEL BANDEDGE, Chain 1



HIGH CHANNEL BANDEDGE, Chain 1





9. RADIATED TEST RESULTS

9.1. 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.

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; the video bandwidth is set to 1 MHz for peak measurements and as applicable for average measurements.

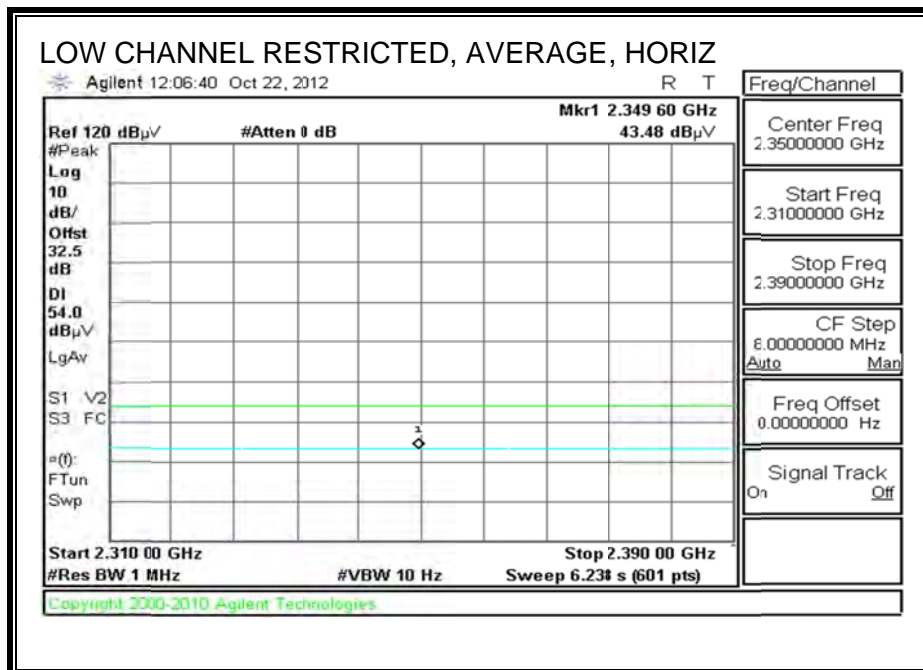
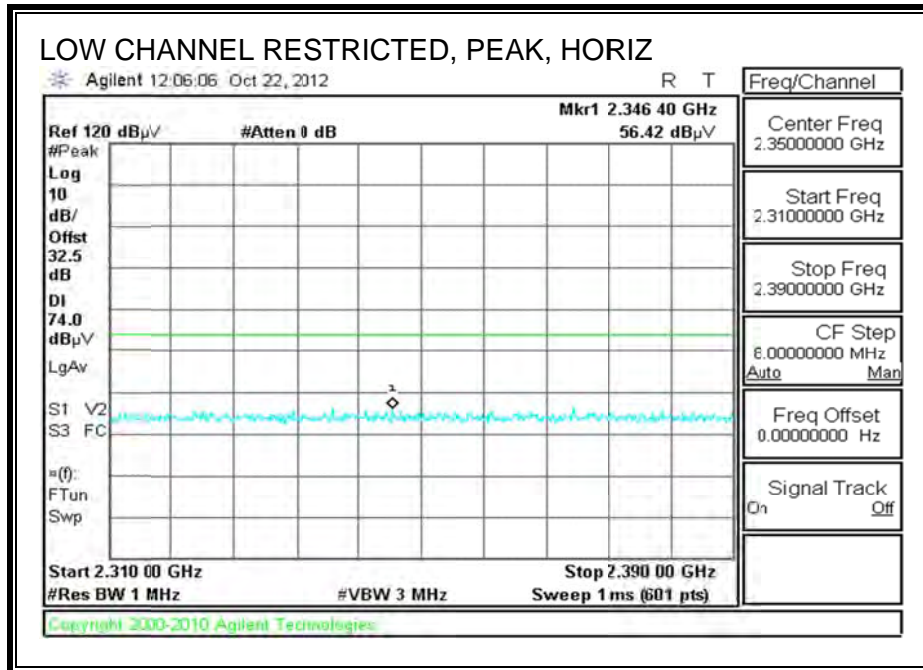
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.

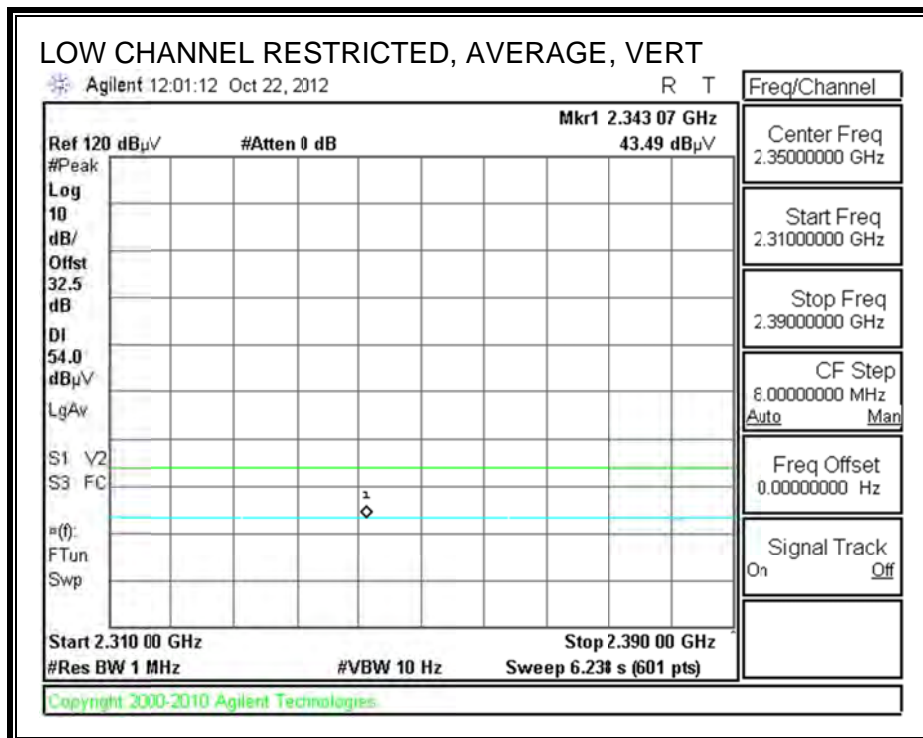
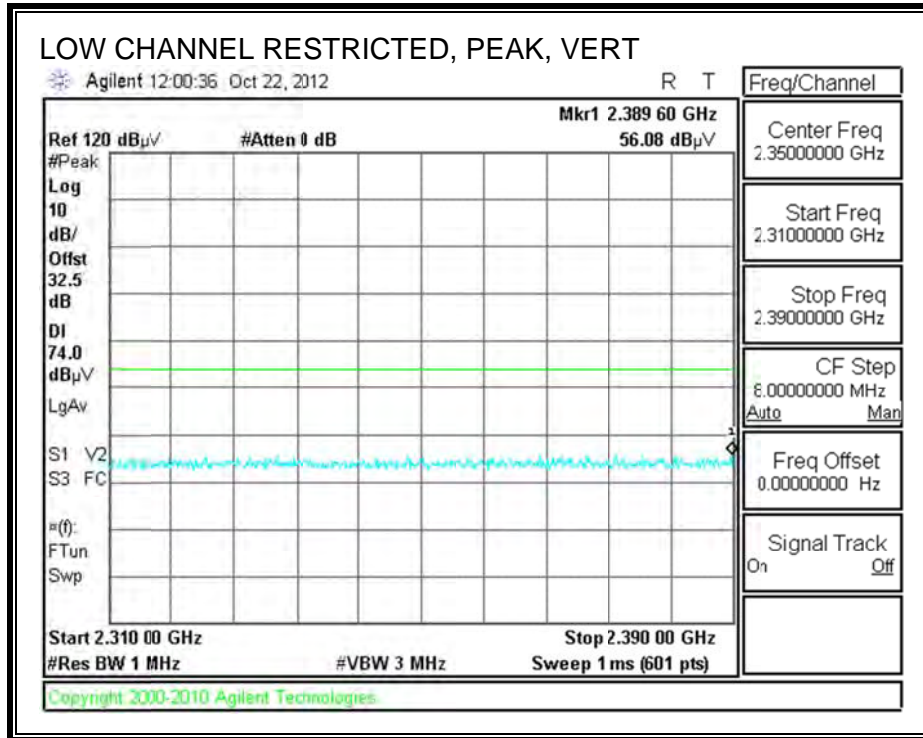
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

9.2. TRANSMITTER ABOVE 1 GHz

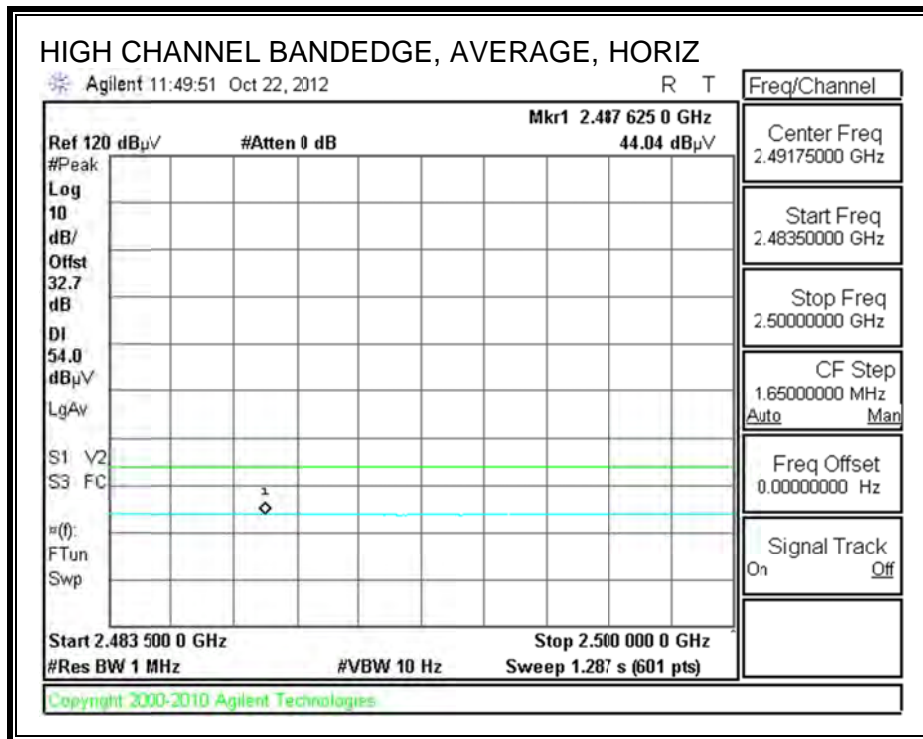
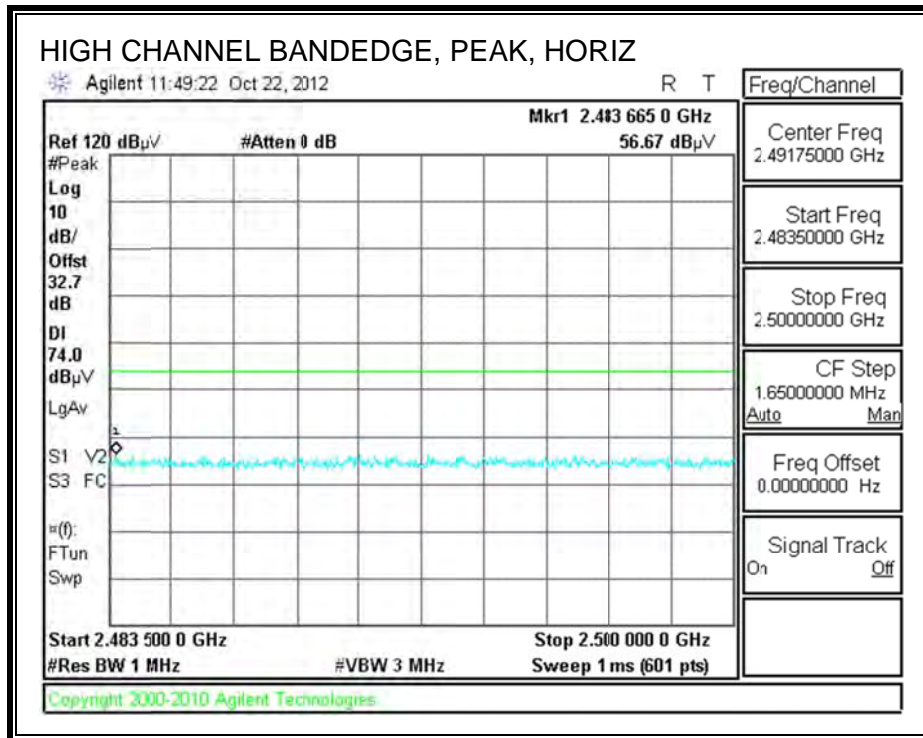
9.2.1. TX ABOVE 1 GHz 802.11b MODE IN THE 2.4 GHz BAND

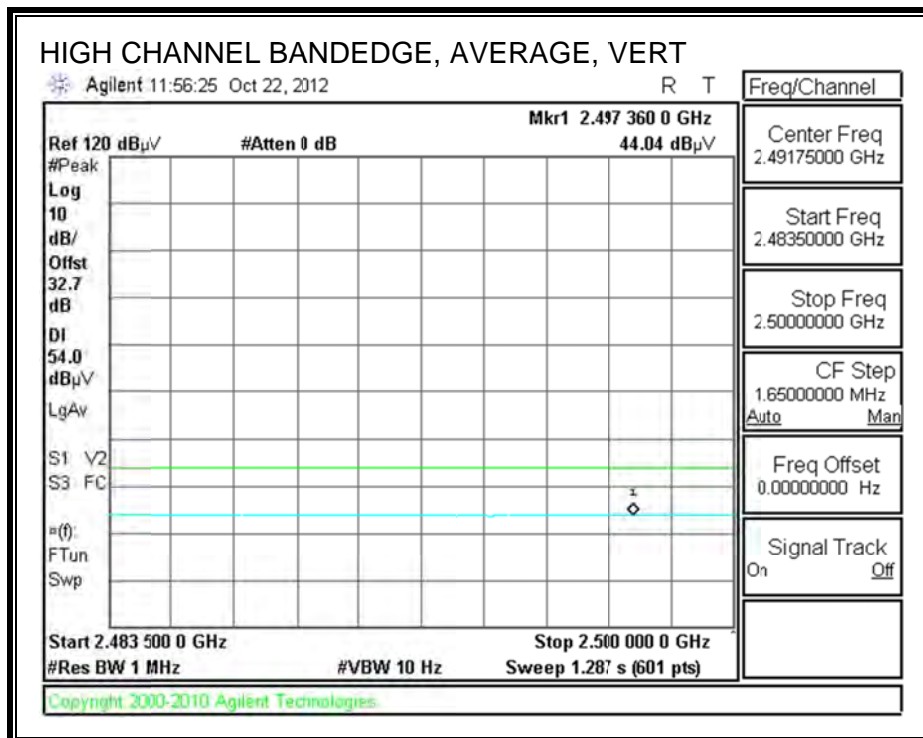
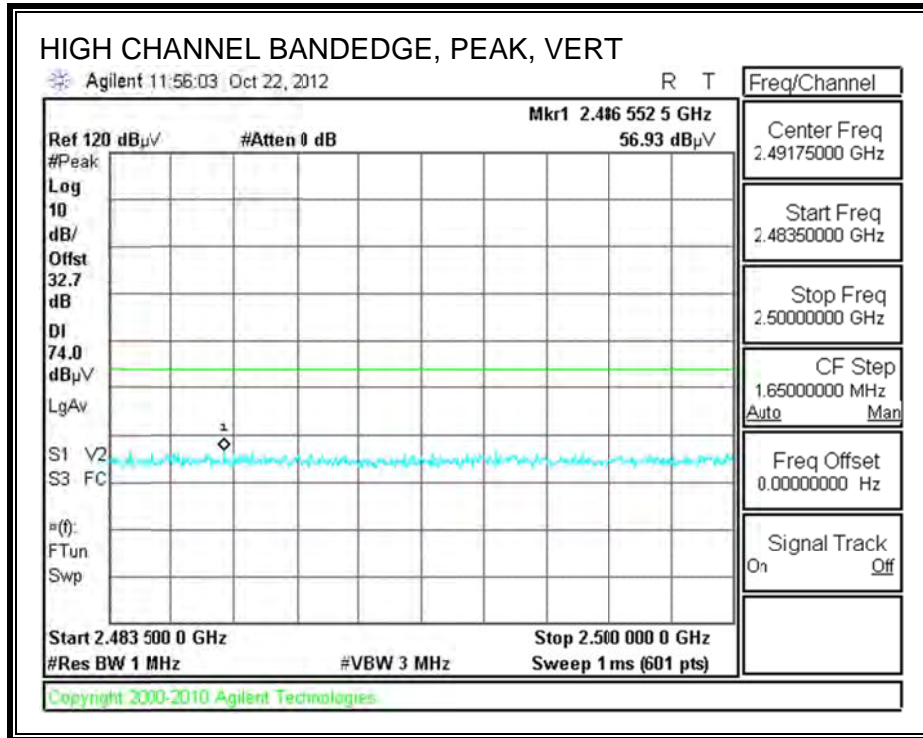
RESTRICTED BANDEDGE (LOW CHANNEL)





AUTHORIZED BANDEDGE (HIGH CHANNEL)





HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
 Compliance Certification Services, Fremont 3m Chamber

Company: Ruckus
Project #: 12U14419
Date: 10/22/2012
Test Engineer: David Garcia
Configuration: EUT with laptop in remote location, CAT 5, and AC adapter, New FCC Sample
Mode: 11b, Tx (99% duty cycle)

Test Equipment:

Horn 1-18GHz	Pre-amplifier 1-26GHz	Pre-amplifier 26-40GHz	Horn > 18GHz	Limit
T60; S/N: 2238 @3m	T34 HP 8449B			FCC 15.205

Hi Frequency Cables

3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF	Reject Filter	Peak Measurements RBW=1MHz; VBW=3MHz
3' cable 22807700	12' cable 22807600	20' cable 22807500		R_001	Average Measurements RBW=1MHz; VBW=10Hz

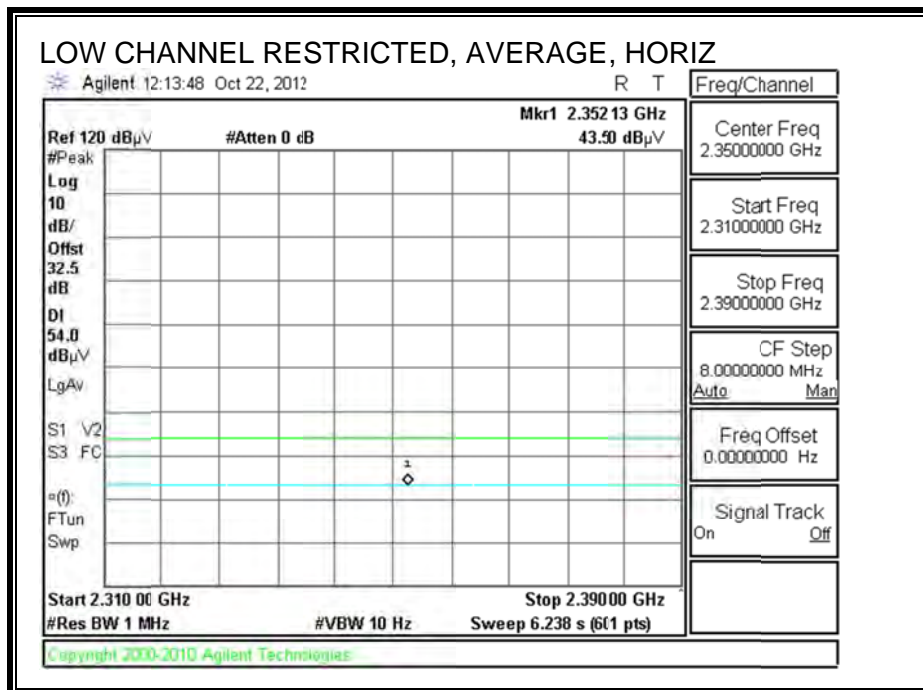
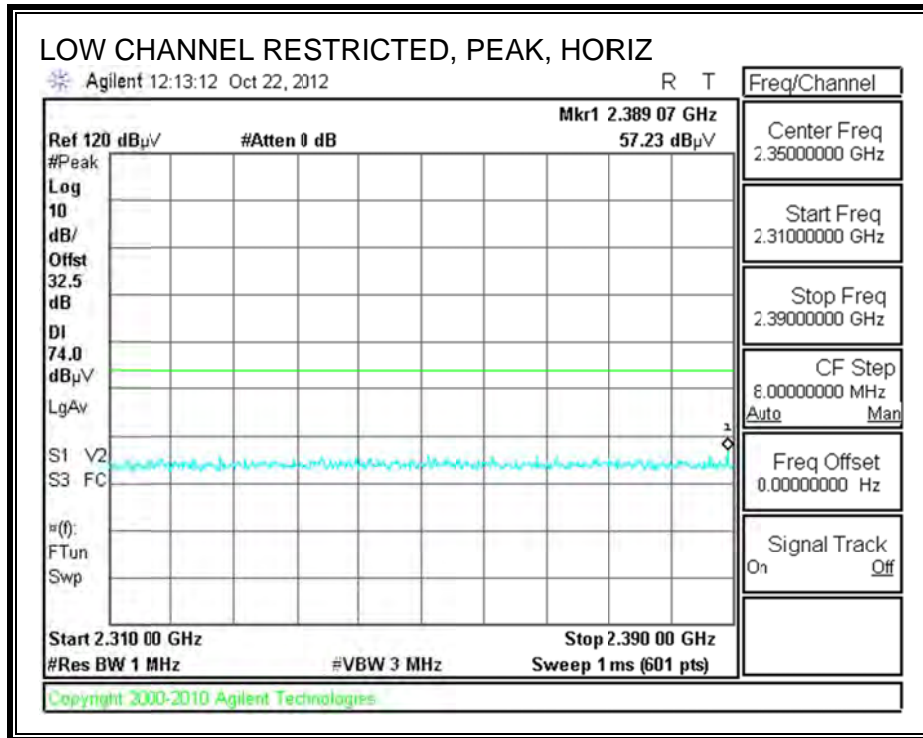
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filtr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Low Channel: 2412 MHz															
4.824	3.0	41.0	22.5	33.1	6.8	-34.1	0.0	0.0	46.9	38.3	74	54	-27.1	-15.7	V
4.824	3.0	39.0	28.8	33.1	6.8	-34.1	0.0	0.0	44.8	34.6	74	54	-29.2	-19.4	H
Mid Channel: 2437 MHz															
4.874	3.0	42.3	36.3	33.2	6.8	-34.0	0.0	0.0	48.2	42.2	74	54	-25.8	-11.8	V
4.874	3.0	39.5	30.0	33.2	6.8	-34.0	0.0	0.0	45.4	35.9	74	54	-28.6	-18.1	H
High Channel: 2462 MHz															
4.924	3.0	45.2	41.7	33.2	6.8	-34.0	0.0	0.0	51.2	47.7	74	54	-22.8	-6.3	V
7.386	3.0	46.6	40.8	36.4	9.1	-33.1	0.0	0.0	59.0	53.2	74	54	-15.0	-0.8	V
12.310	3.0	35.8	25.2	39.4	12.0	-32.3	0.0	0.0	54.9	44.4	74	54	-19.1	-9.6	V
4.924	3.0	41.0	34.3	33.2	6.8	-34.0	0.0	0.0	47.0	40.3	74	54	-27.0	-13.7	H
7.386	3.0	40.0	29.3	36.4	9.1	-33.1	0.0	0.0	52.4	41.7	74	54	-21.6	-12.3	H
12.310	3.0	38.2	26.3	39.4	12.0	-32.3	0.0	0.0	57.3	45.4	74	54	-16.7	-8.6	H

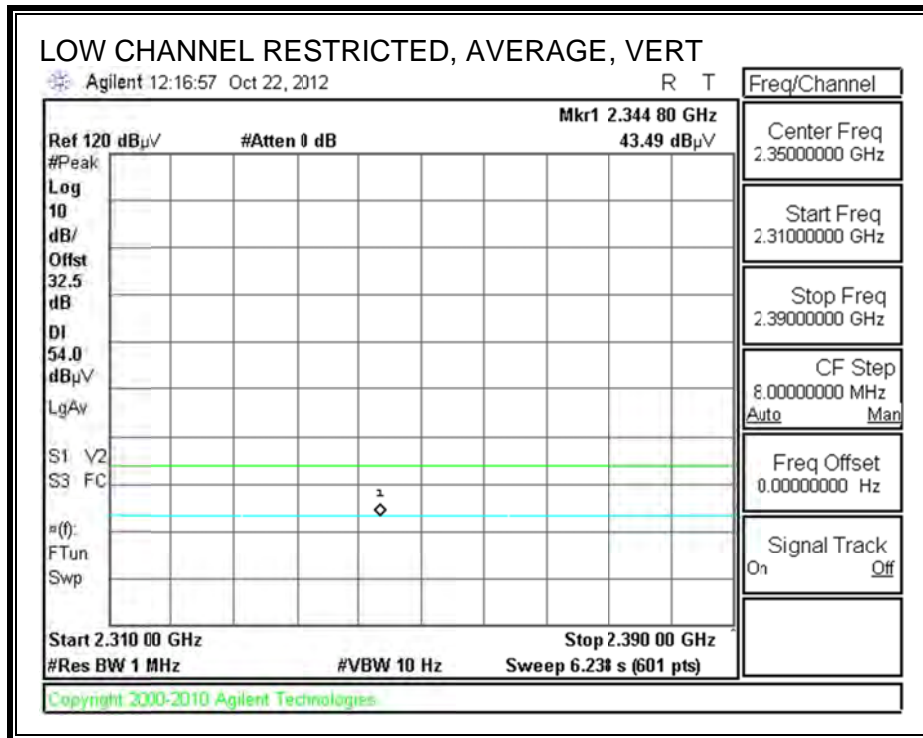
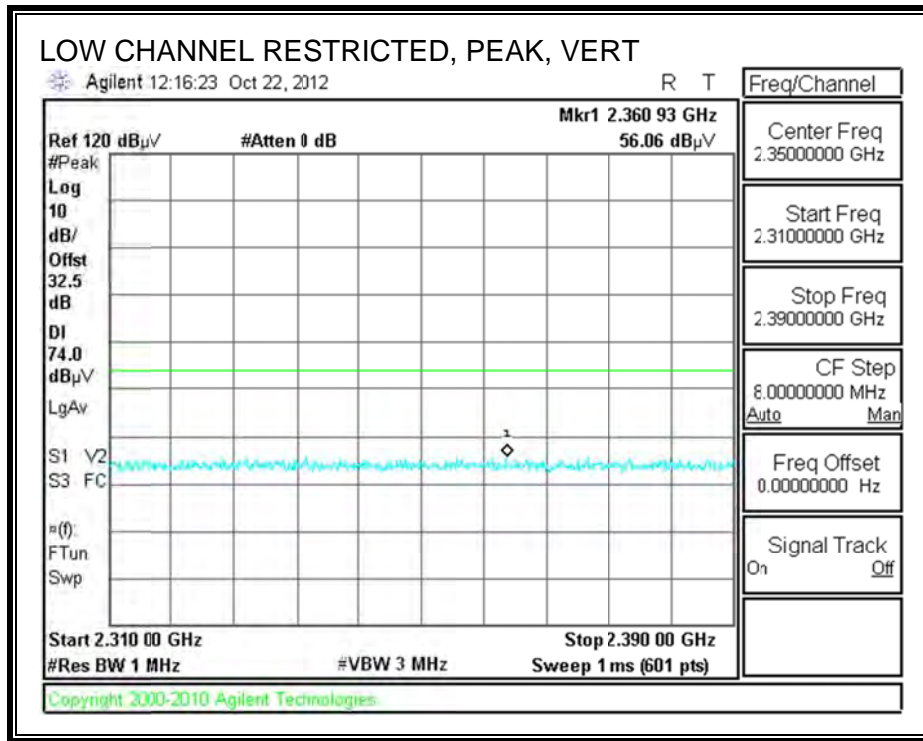
Rev. 11.10.11

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		

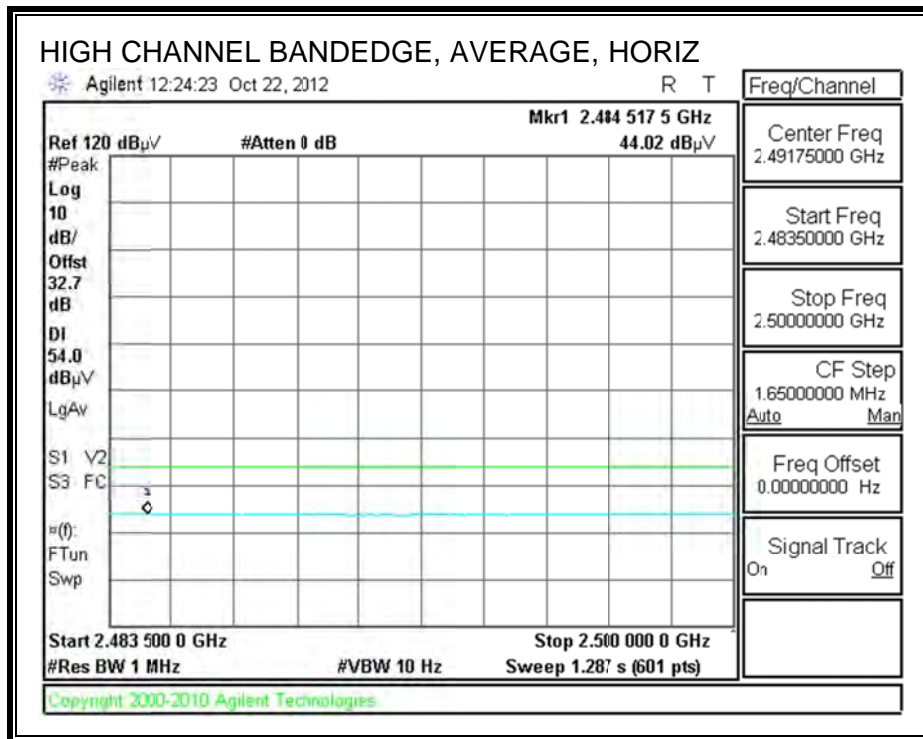
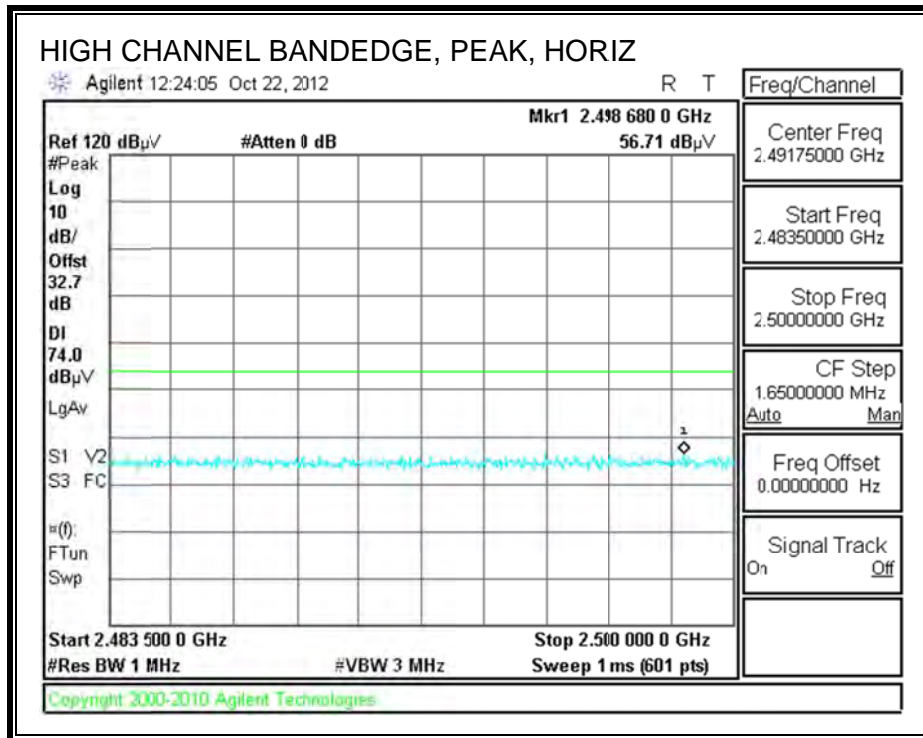
9.2.2. TX ABOVE 1 GHz 802.11g MODE IN THE 2.4 GHz BAND

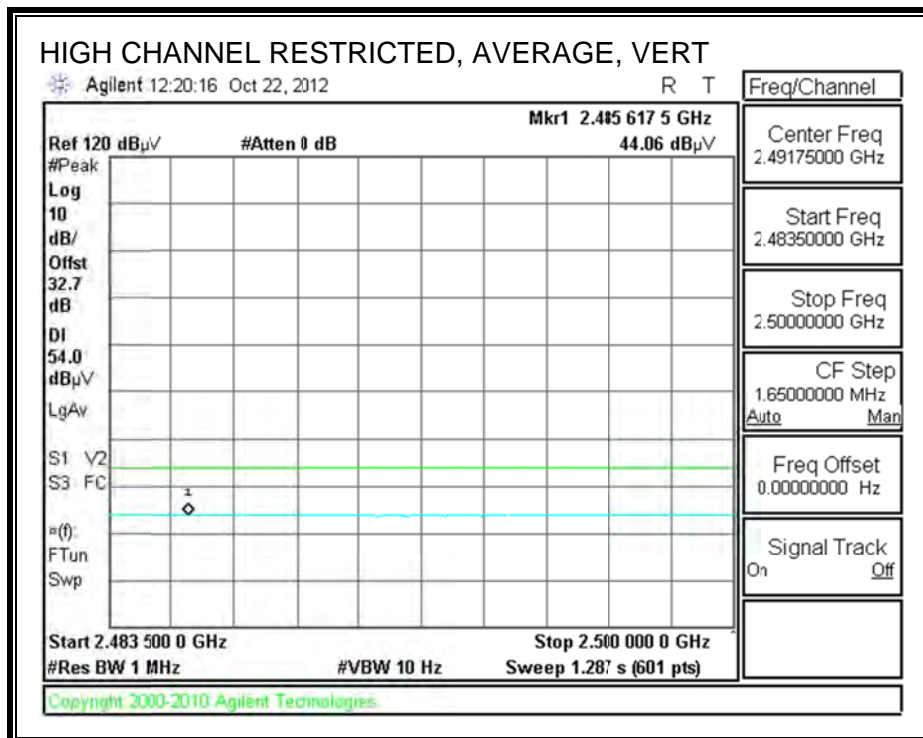
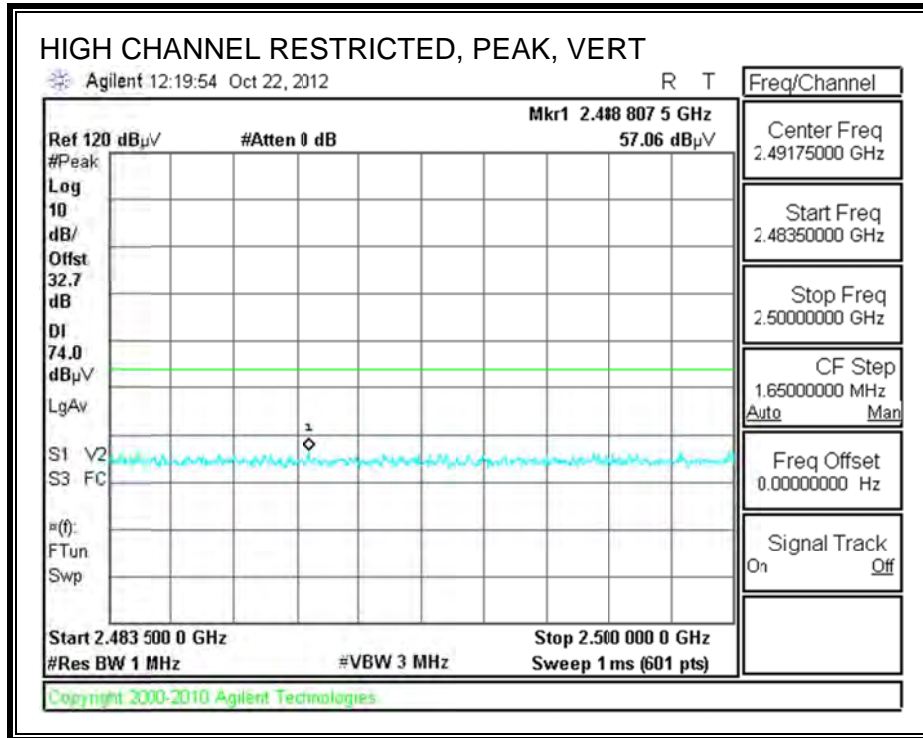
RESTRICTED BANDEDGE (LOW CHANNEL)





AUTHORIZED BANDEDGE (HIGH CHANNEL)





HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
 Compliance Certification Services, Fremont 3m Chamber

Company: Ruckus
Project #: 12U14419
Date: 10/22/2012
Test Engineer: David Garcia
Configuration: EUT with laptop in remote location, CAT 5, and AC adapter, New FCC Sample
Mode: 11g, Tx (99% duty cycle)

Test Equipment:

Horn 1-18GHz	Pre-amplifier 1-26GHz	Pre-amplifier 26-40GHz	Horn > 18GHz	Limit
T60; S/N: 2238 @3m	T34 HP 8449B			FCC 15.205

Hi Frequency Cables

3' cable 22807700	12' cable 22807630	20' cable 22807500	HPF	Reject Filter	Peak Measurements RBW=1MHz; VBW=3MHz
3' cable 22807700	12' cable 22807600	20' cable 22807500		R_001	Average Measurements RBW=1MHz; VBW=10Hz

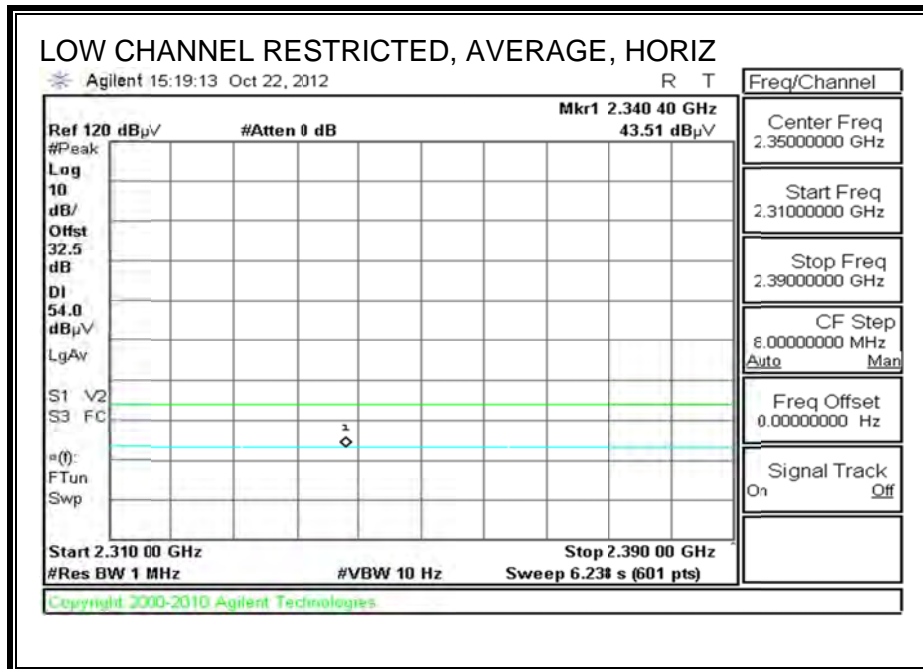
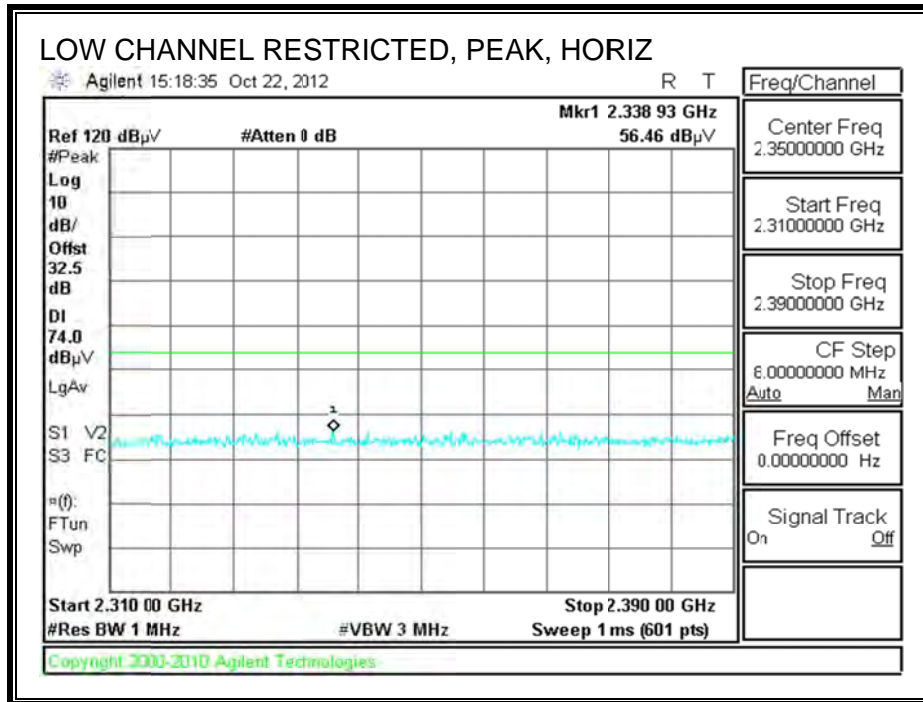
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filtr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Low Channel: 2412 MHz															
4.824	3.0	38.8	26.6	33.1	6.8	-34.1	0.0	0.0	44.6	32.4	74	54	-29.4	-21.6	V
4.824	3.0	37.2	25.0	33.1	6.8	-34.1	0.0	0.0	43.1	30.8	74	54	-30.9	-23.2	H
Mid Channel: 2437 MHz															
4.874	3.0	43.6	30.4	33.2	6.8	-34.0	0.0	0.0	49.5	36.3	74	54	-24.5	-17.7	V
4.874	3.0	39.3	27.4	33.2	6.8	-34.0	0.0	0.0	45.2	33.3	74	54	-28.8	-20.7	H
High Channel: 2462 MHz															
4.924	3.0	50.5	37.5	33.2	6.8	-34.0	0.0	0.0	56.5	43.5	74	54	-17.5	-10.5	V
7.386	3.0	49.8	36.7	36.4	9.1	-33.1	0.0	0.0	62.2	49.1	74	54	-11.8	-4.9	V
12.310	3.0	34.7	23.2	39.4	12.0	-32.3	0.0	0.0	53.8	42.4	74	54	-20.2	-11.6	V
4.924	3.0	47.0	34.6	33.2	6.8	-34.0	0.0	0.0	53.0	40.6	74	54	-21.0	-13.4	H
7.386	3.0	43.2	28.0	36.4	9.1	-33.1	0.0	0.0	55.6	40.4	74	54	-18.4	-13.6	H
12.310	3.0	37.6	26.2	39.4	12.0	-32.3	0.0	0.0	56.7	45.3	74	54	-17.3	-8.7	H

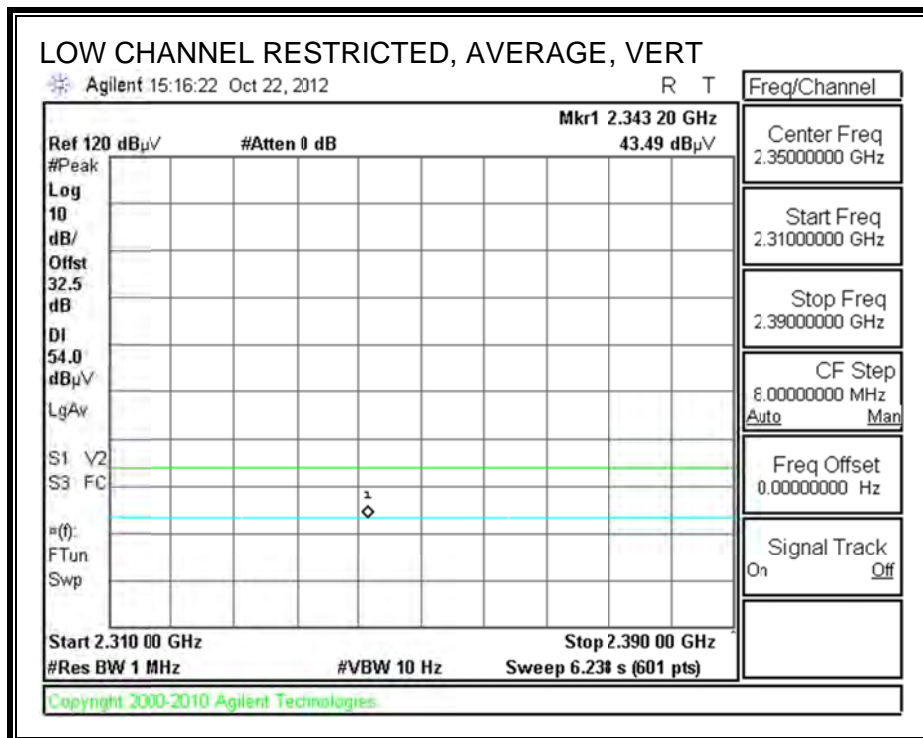
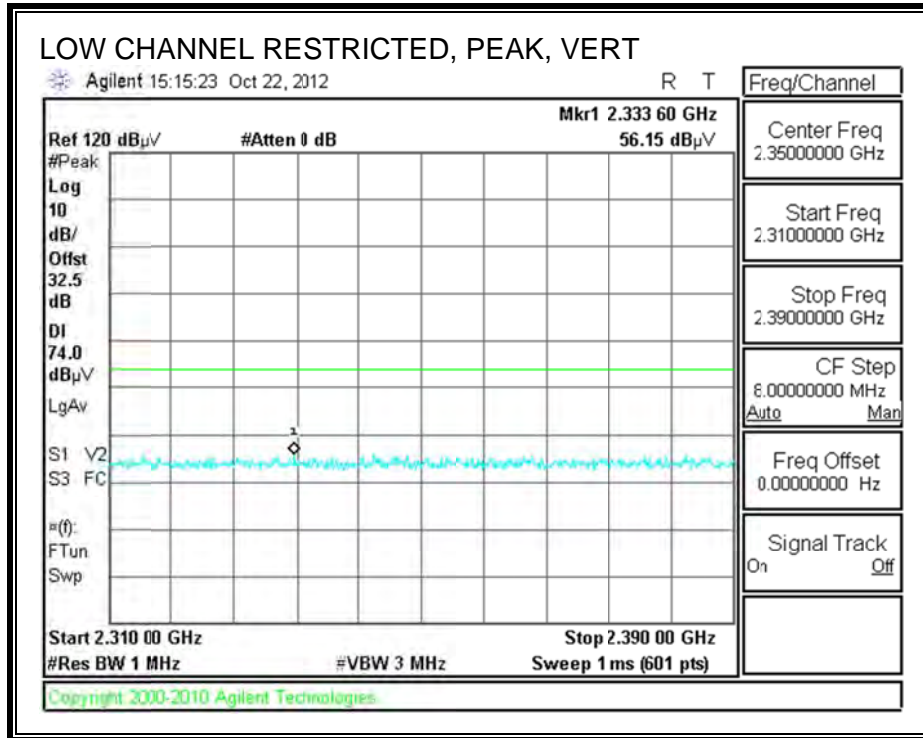
Rev. 11.10.11

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		

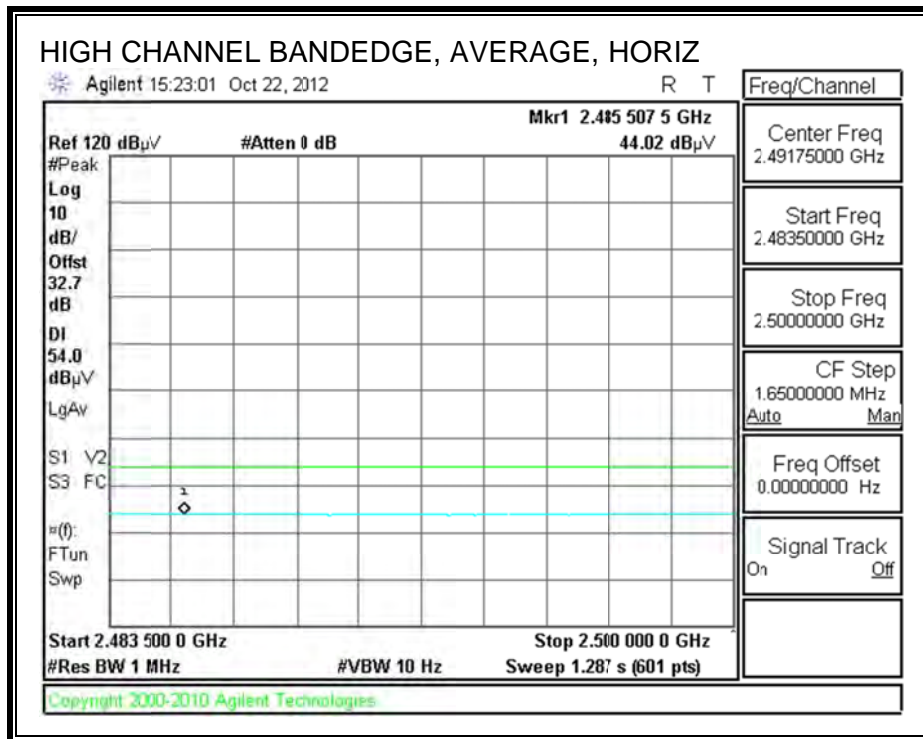
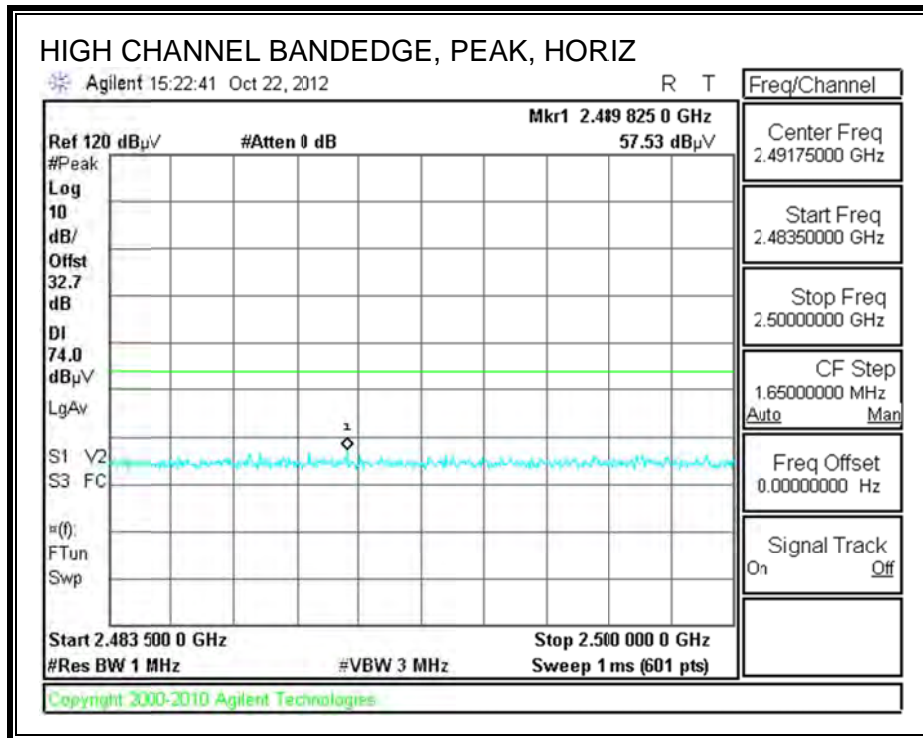
9.2.3. TX ABOVE 1 GHz 802.11n HT20 CDD MODE IN THE 2.4 GHz BAND

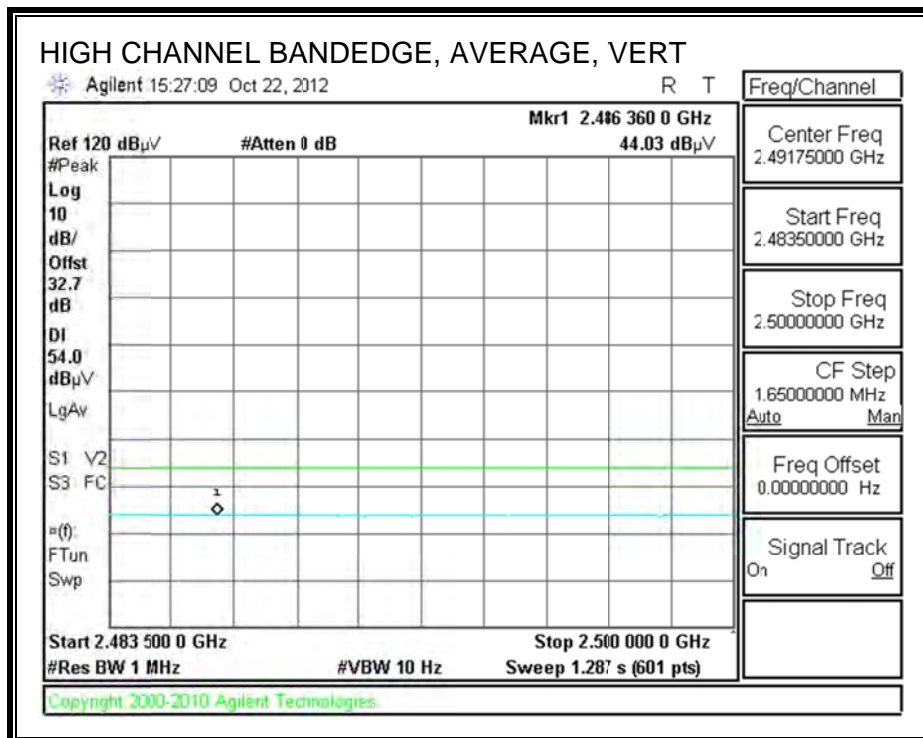
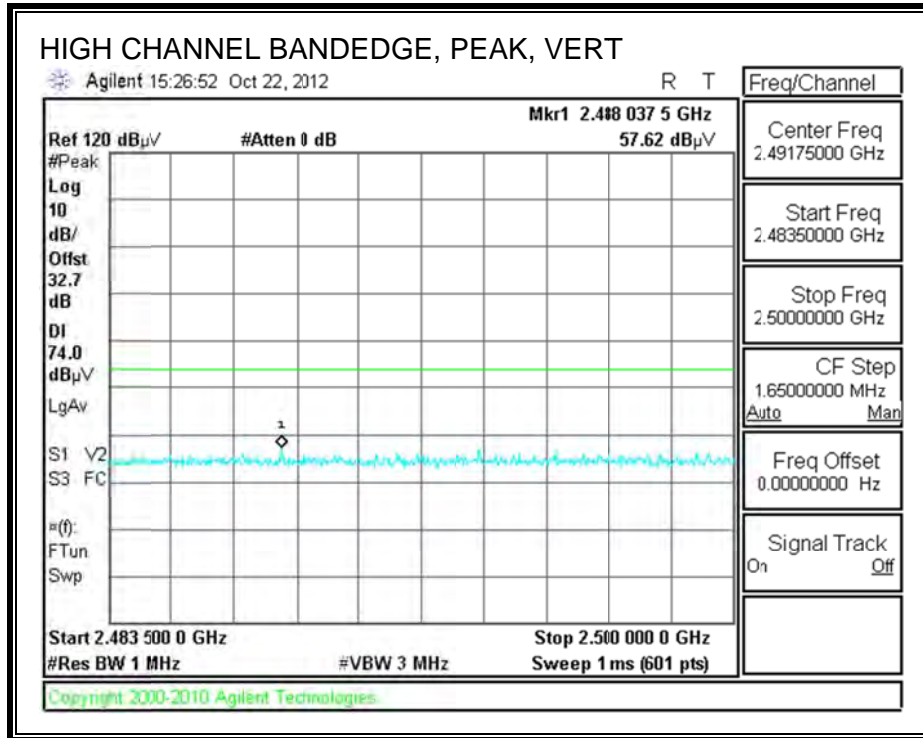
RESTRICTED BANDEDGE (LOW CHANNEL)





AUTHORIZED BANDEDGE (HIGH CHANNEL)





HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
 Compliance Certification Services, Fremont 3m Chamber

Company: Ruckus
Project #: 12U14419
Date: 10/22/2012
Test Engineer: David Garcia
Configuration: EUT with laptop in remote location, CAT 5, and AC adapter, New FCC Sample
Mode: 11n, HT20 CDD, Tx (99% duty cycle)

Test Equipment:

Horn 1-18GHz	Pre-amplifier 1-26GHz	Pre-amplifier 26-40GHz	Horn > 18GHz	Limit
T60; S/N: 2238 @3m	T34 HP 8449B			FCC 15.205

Hi Frequency Cables

3' cable 22807700	12' cable 22807630	20' cable 22807500	HPF	Reject Filter	Peak Measurements RBW=1MHz; VBW=3MHz
3' cable 22807700	12' cable 22807600	20' cable 22807500		R_001	Average Measurements RBW=1MHz; VBW=10Hz

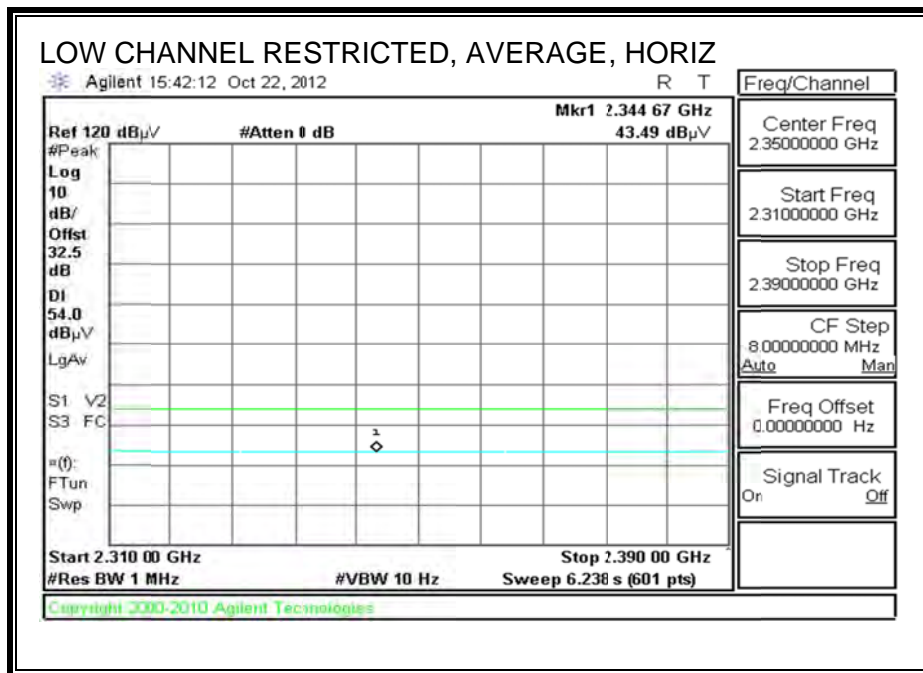
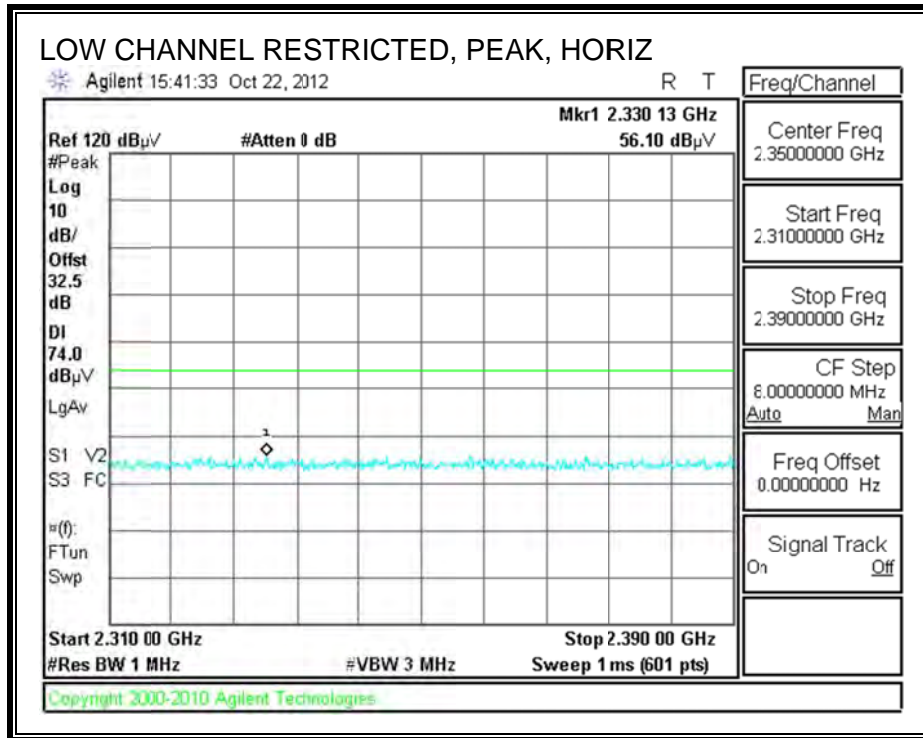
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filtr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Low Channel: 2412 MHz															
4.824	3.0	37.6	25.2	33.1	6.8	-34.1	0.0	0.0	43.5	31.1	74	54	-30.5	-22.9	V
4.824	3.0	36.5	24.2	33.1	6.8	-34.1	0.0	0.0	42.4	30.1	74	54	-31.6	-23.9	H
Mid Channel: 2437 MHz															
4.874	3.0	41.3	28.3	33.2	6.8	-34.0	0.0	0.0	47.2	34.2	74	54	-26.8	-19.8	V
4.874	3.0	38.8	25.8	33.2	6.8	-34.0	0.0	0.0	44.7	31.7	74	54	-29.3	-22.3	H
High Channel: 2462 MHz															
4.924	3.0	49.6	36.7	33.2	6.8	-34.0	0.0	0.0	55.6	42.7	74	54	-18.4	-11.3	V
7.386	3.0	50.5	37.4	36.4	9.1	-33.1	0.0	0.0	63.0	49.8	74	54	-11.0	-4.2	V
12.310	3.0	35.1	22.7	39.4	12.0	-32.3	0.0	0.0	54.2	41.8	74	54	-19.8	-12.2	V
4.924	3.0	45.3	32.8	33.2	6.8	-34.0	0.0	0.0	51.3	38.8	74	54	-22.7	-15.2	H
7.386	3.0	36.3	24.6	36.4	9.1	-33.1	0.0	0.0	48.7	37.0	74	54	-25.3	-17.0	H
12.310	3.0	34.0	21.8	39.4	12.0	-32.3	0.0	0.0	53.1	40.9	74	54	-20.9	-13.1	H

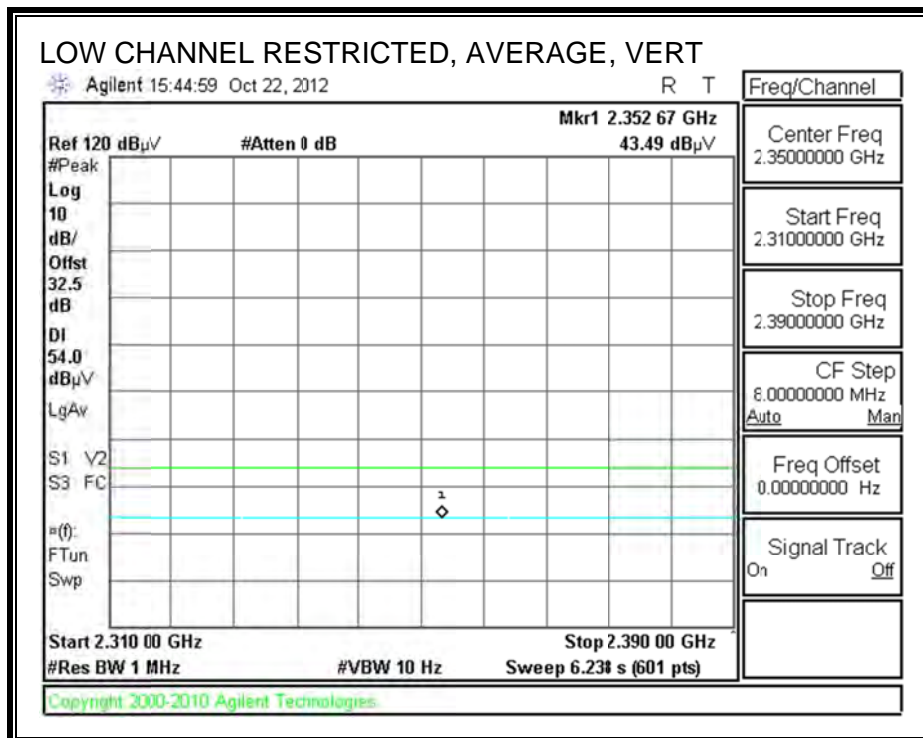
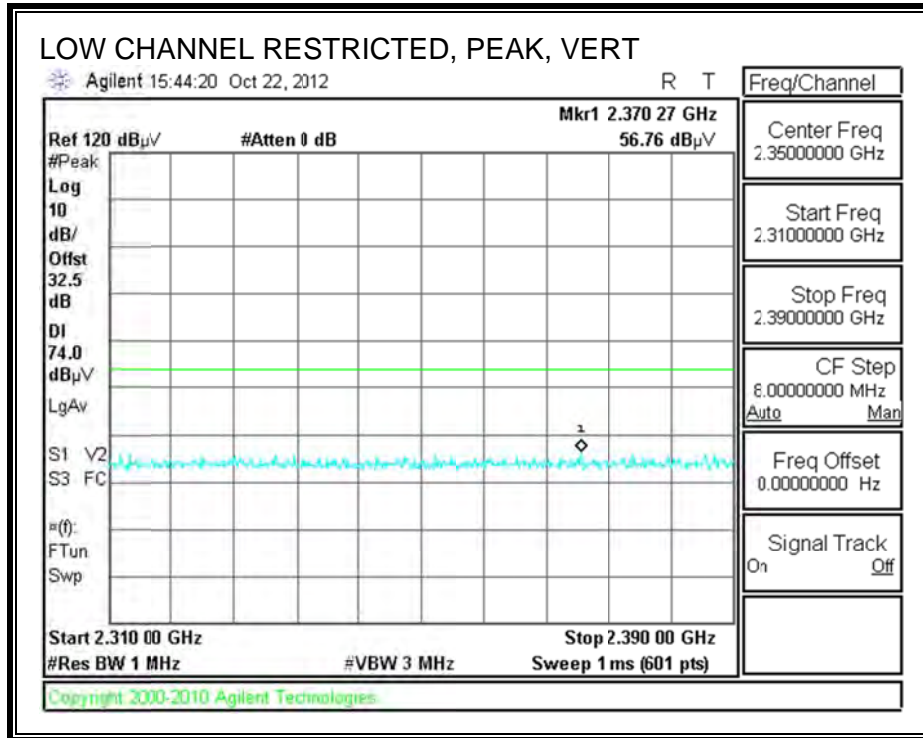
Rev. 11.10.11

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		

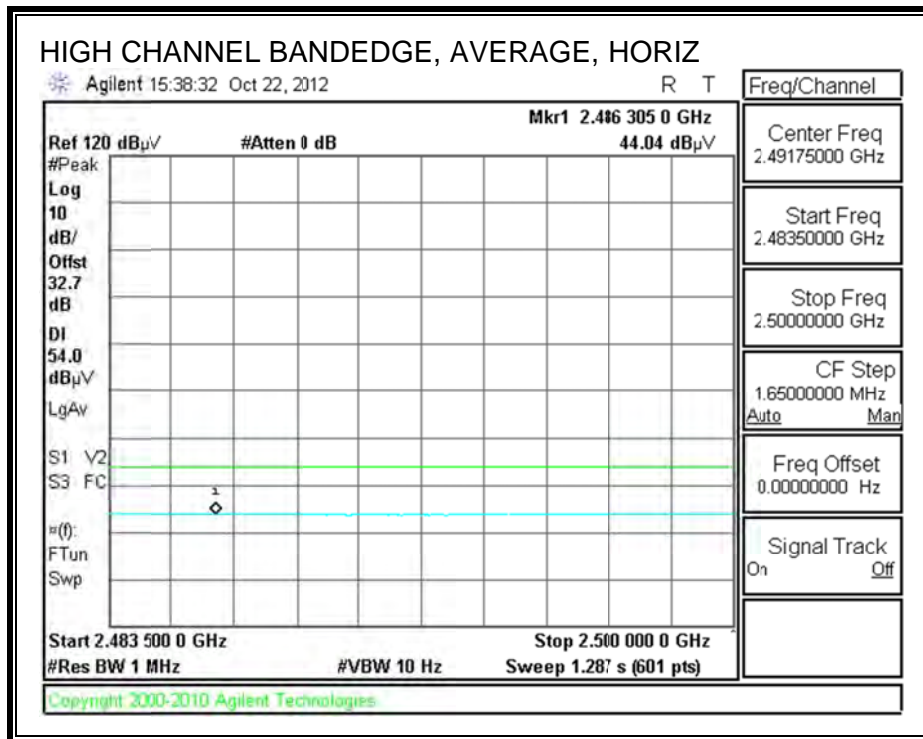
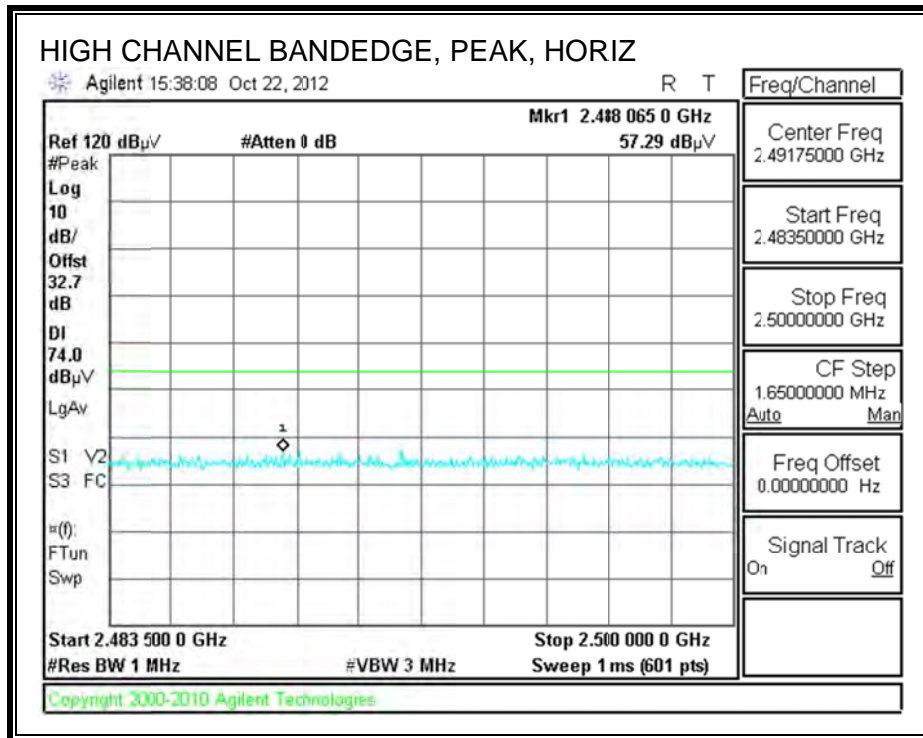
9.2.4. TX ABOVE 1 GHz 802.11n HT20 SDM MODE IN THE 2.4 GHz BAND

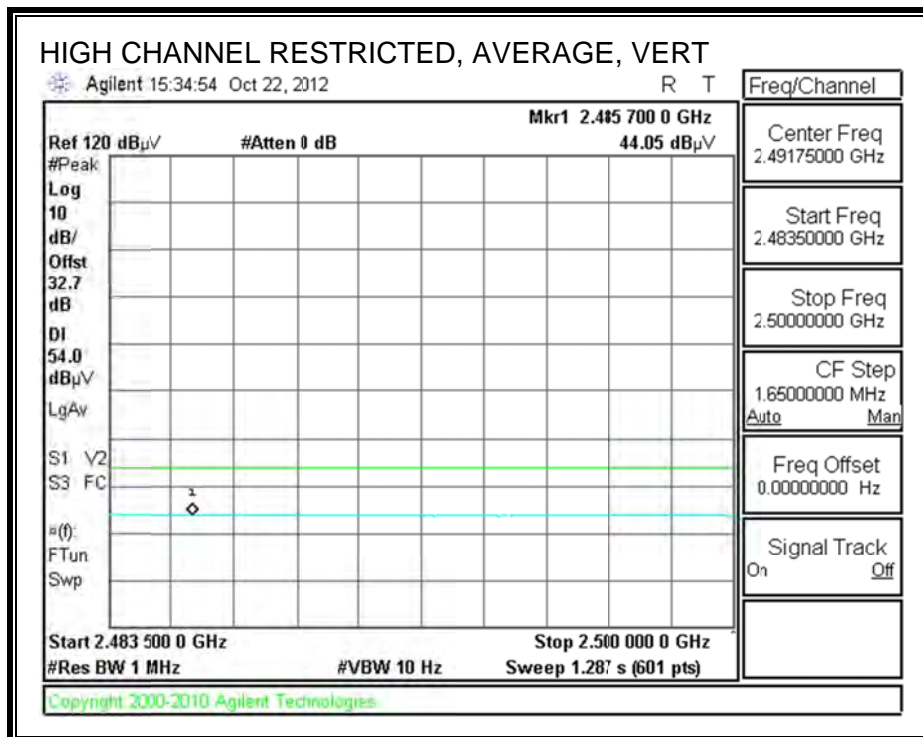
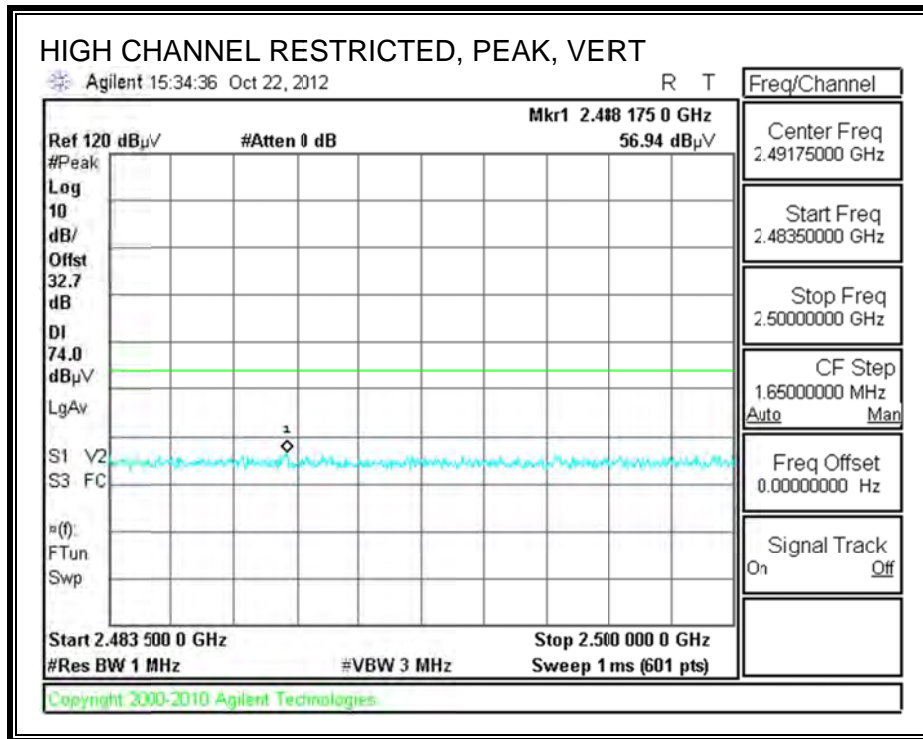
RESTRICTED BANDEDGE (LOW CHANNEL)





AUTHORIZED BANDEDGE (HIGH CHANNEL)





HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
 Compliance Certification Services, Fremont 3m Chamber

Company: Ruckus
Project #: 12U14419
Date: 10/22/2012
Test Engineer: David Garcia
Configuration: EUT with laptop in remote location, CAT 5, and AC adapter, New FCC Sample
Mode: 11n, HT20 SDM, Tx (99% duty cycle)

Test Equipment:

Horn 1-18GHz	Pre-amplifier 1-26GHz	Pre-amplifier 26-40GHz	Horn > 18GHz	Limit
T60; S/N: 2238 @3m	T34 HP 8449B			FCC 15.205

Hi Frequency Cables

3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF	Reject Filter	Peak Measurements RBW=1MHz; VBW=3MHz
3' cable 22807700	12' cable 22807600	20' cable 22807500		R_001	Average Measurements RBW=1MHz; VBW=10Hz

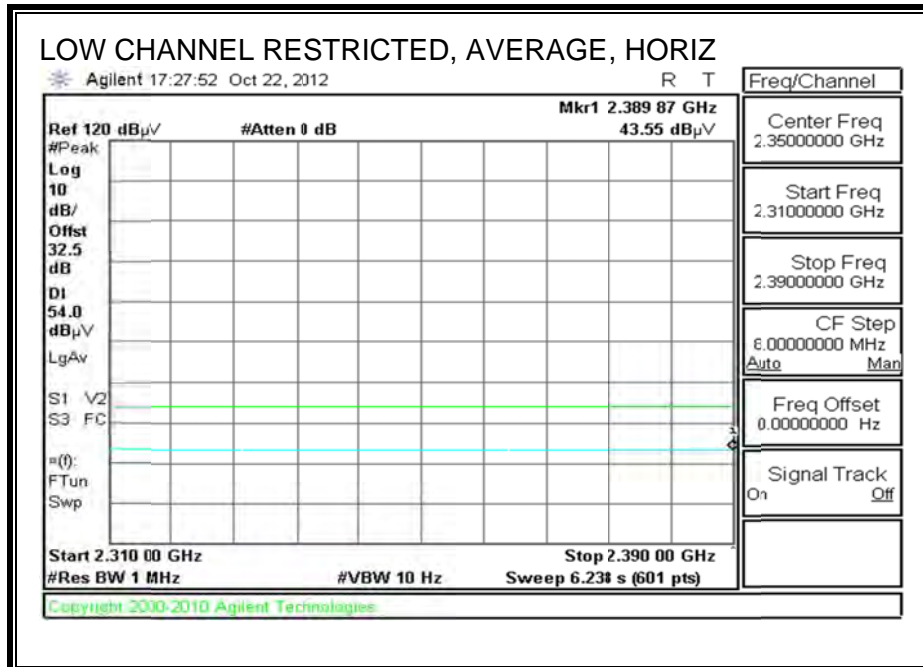
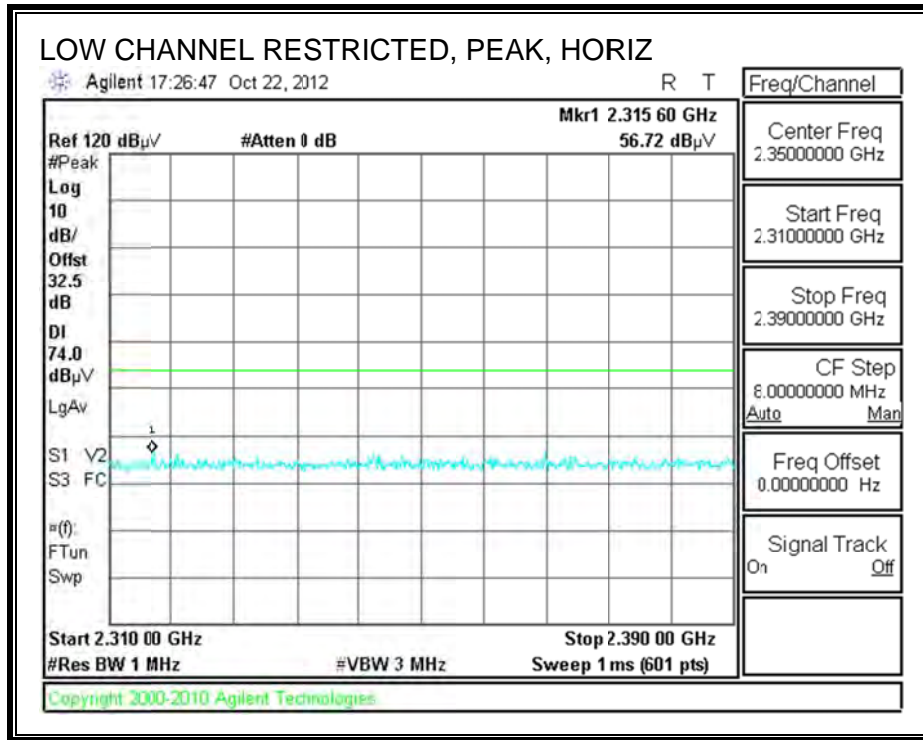
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filtr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Low Channel: 2412 MHz															
4.824	3.0	39.0	26.6	33.1	6.8	-34.1	0.0	0.0	44.9	32.5	74	54	-29.1	-21.5	V
4.824	3.0	36.8	24.6	33.1	6.8	-34.1	0.0	0.0	42.6	30.4	74	54	-31.4	-23.6	H
Mid Channel: 2437 MHz															
4.874	3.0	43.7	30.9	33.2	6.8	-34.0	0.0	0.0	49.6	36.8	74	54	-24.4	-17.2	V
4.874	3.0	40.2	27.1	33.2	6.8	-34.0	0.0	0.0	46.1	33.0	74	54	-27.9	-21.0	H
High Channel: 2462 MHz															
4.924	3.0	50.0	37.1	33.2	6.8	-34.0	0.0	0.0	56.0	43.1	74	54	-18.0	-10.9	V
7.386	3.0	49.5	37.0	36.4	9.1	-33.1	0.0	0.0	61.9	49.5	74	54	-12.1	-4.5	V
12.310	3.0	35.6	22.8	39.4	12.0	-32.3	0.0	0.0	54.7	42.0	74	54	-19.3	-12.0	V
4.924	3.0	43.3	31.6	33.2	6.8	-34.0	0.0	0.0	49.3	37.6	74	54	-24.7	-16.4	H
7.386	3.0	40.6	27.9	36.4	9.1	-33.1	0.0	0.0	53.1	40.3	74	54	-20.9	-13.7	H
12.310	3.0	33.3	21.1	39.4	12.0	-32.3	0.0	0.0	52.4	40.2	74	54	-21.6	-13.8	H

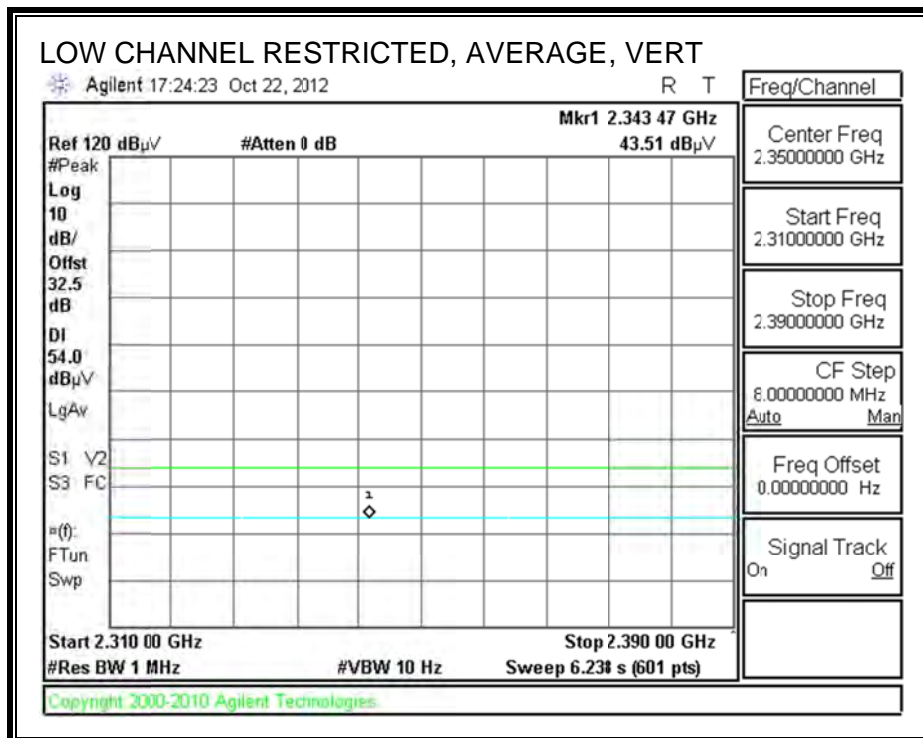
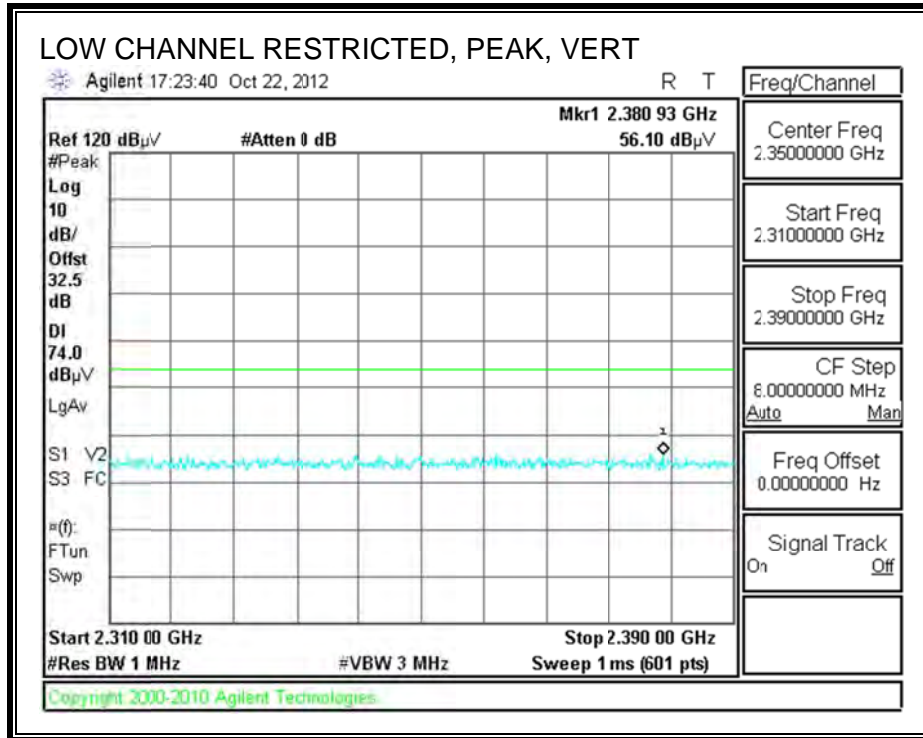
Rev. 11.10.11

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		

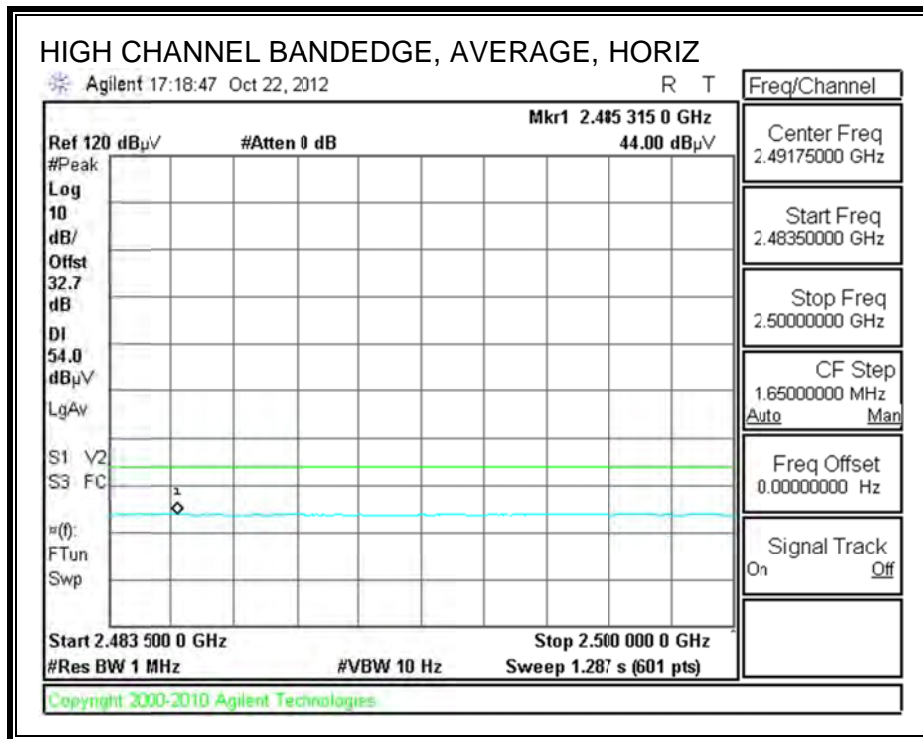
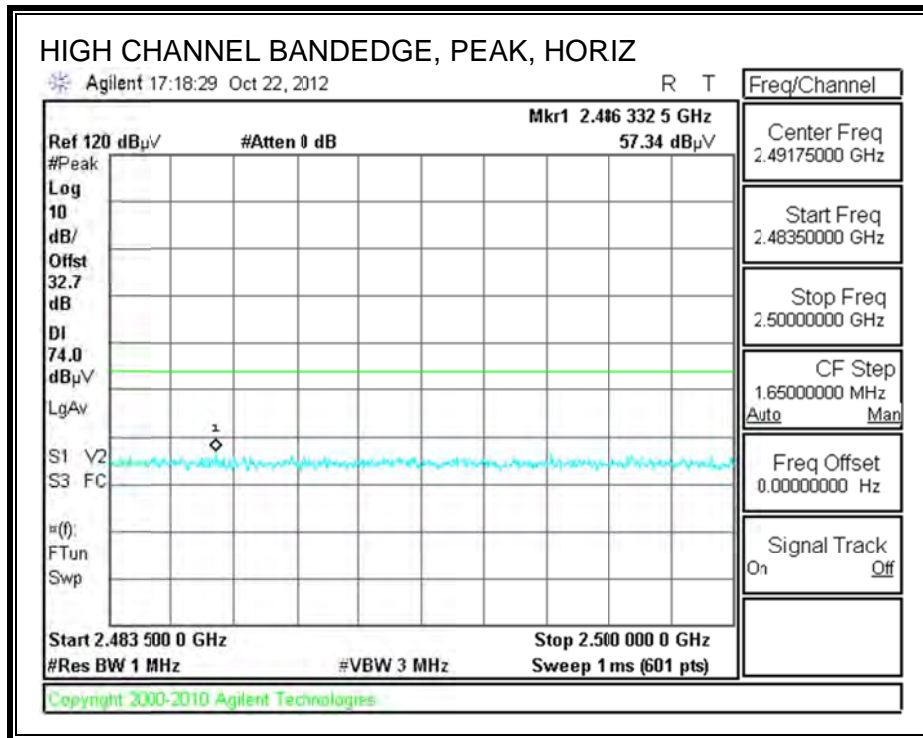
9.2.5. TX ABOVE 1 GHz 802.11n HT40 CDD MODE IN THE 2.4 GHz BAND

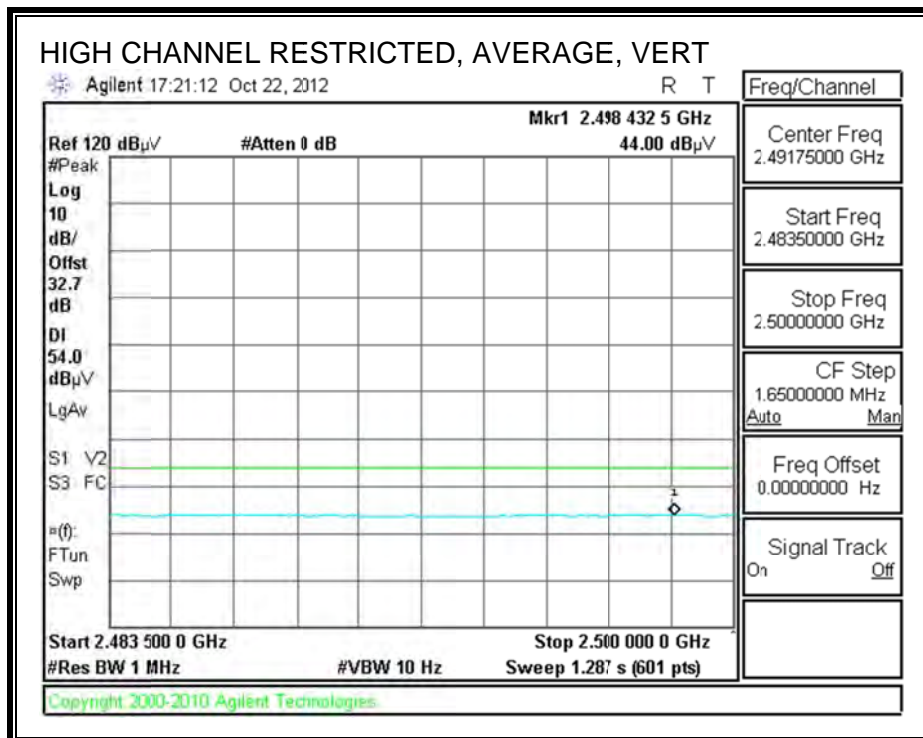
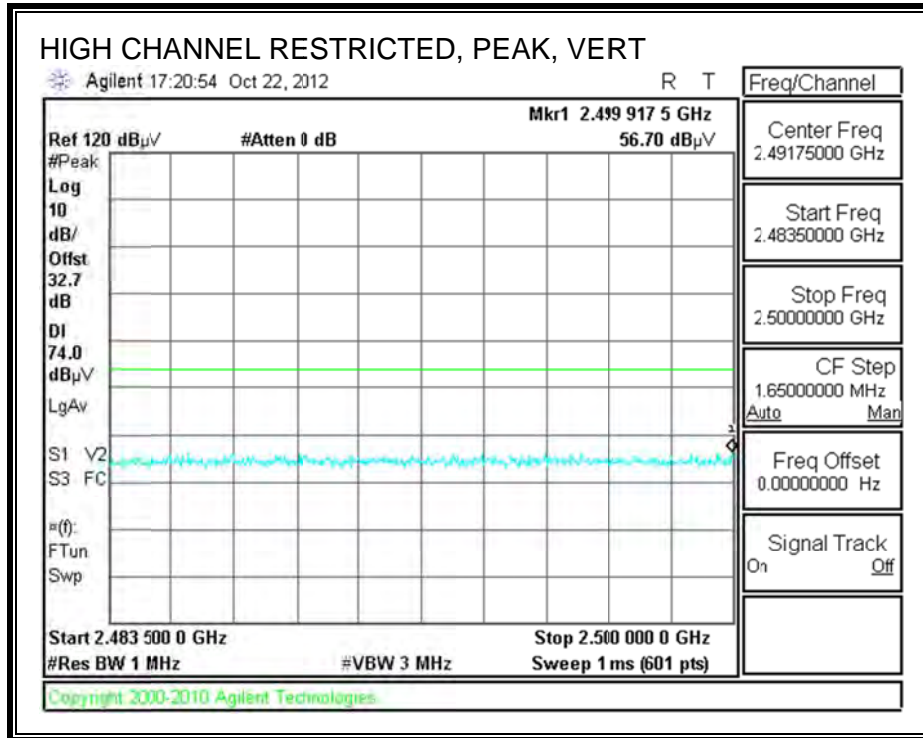
RESTRICTED BANDEDGE (LOW CHANNEL)





AUTHORIZED BANDEDGE (HIGH CHANNEL)





HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
 Compliance Certification Services, Fremont 3m Chamber

Company: Ruckus
 Project #: 12U14419
 Date: 10/22/2012
 Test Engineer: David Garcia
 Configuration: EUT with laptop in remote location, CAT 5, and AC adaptor, New FCC Sample
 Mode: 1In, HT40 CDD, Tx (99% duty cycle)

Test Equipment:

Horn 1-18GHz	Pre-amplifier 1-26GHz	Pre-amplifier 26-40GHz	Horn > 18GHz	Limit
T60; S/N: 2238 @3m	T34 HP 8449B			FCC 15.205

Hi Frequency Cables

3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF	Reject Filter	Peak Measurements RBW=1MHz, VBW=3MHz
3' cable 22807700	12' cable 22807600	20' cable 22807500		R_001	Average Measurements RBW=1MHz; VBW=10Hz

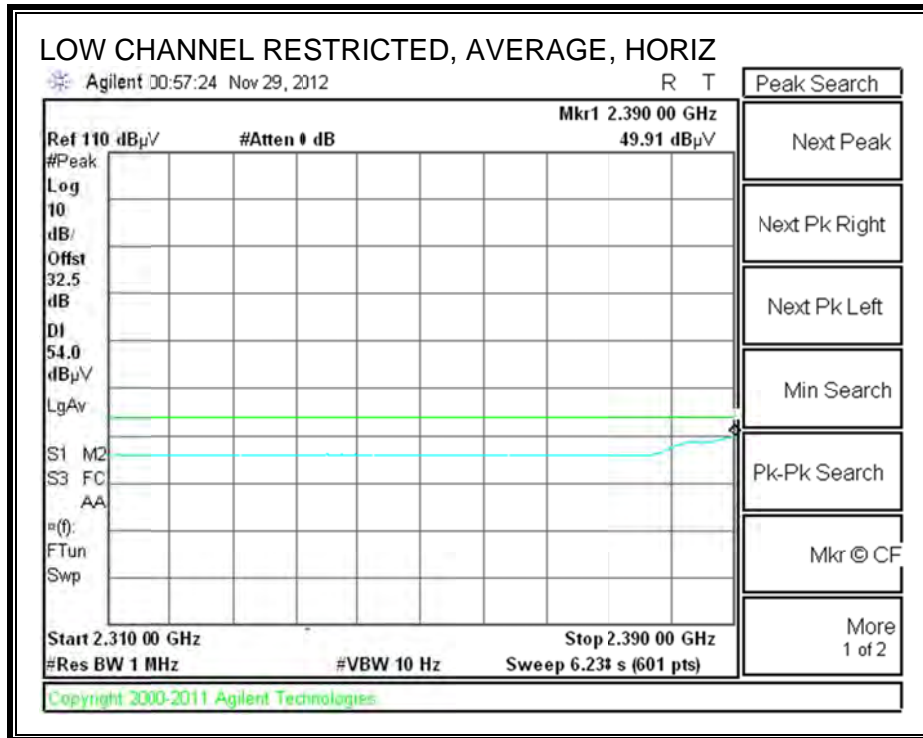
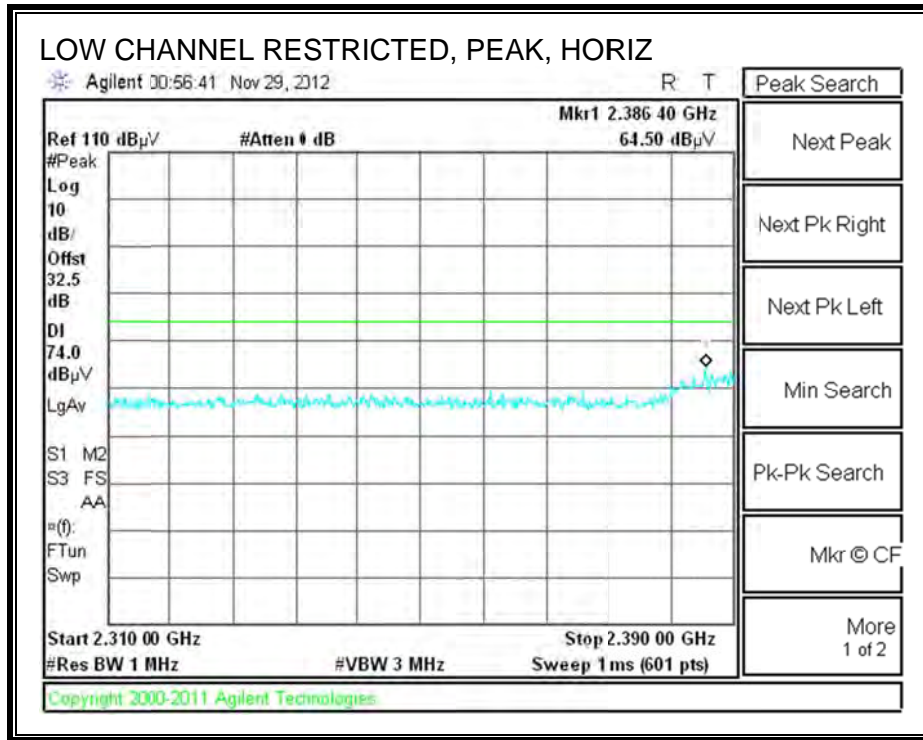
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filtr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Low Channel: 2422 MHz															
4.844	3.0	34.7	25.5	33.1	6.8	-34.0	0.0	0.0	40.5	31.4	74	54	-33.5	-22.6	V
4.844	3.0	35.7	24.1	33.1	6.8	-34.0	0.0	0.0	41.5	30.0	74	54	-32.5	-24.0	H
Mid Channel: 2437 MHz															
4.874	3.0	40.5	28.4	33.2	6.8	-34.0	0.0	0.0	46.4	34.3	74	54	-27.6	-19.7	V
4.874	3.0	35.7	24.4	33.2	6.8	-34.0	0.0	0.0	41.6	30.3	74	54	-32.4	-23.7	H
High Channel: 2452 MHz															
4.904	3.0	44.0	32.3	33.2	6.8	-34.0	0.0	0.0	50.0	38.3	74	54	-24.0	-15.7	V
7.356	3.0	38.4	25.6	36.4	9.1	-33.1	0.0	0.0	50.8	38.0	74	54	-23.2	-16.0	V
4.904	3.0	39.4	27.9	33.2	6.8	-34.0	0.0	0.0	45.3	33.8	74	54	-28.7	-20.2	H
7.356	3.0	35.2	23.1	36.4	9.1	-33.1	0.0	0.0	47.6	35.5	74	54	-26.4	-18.5	H

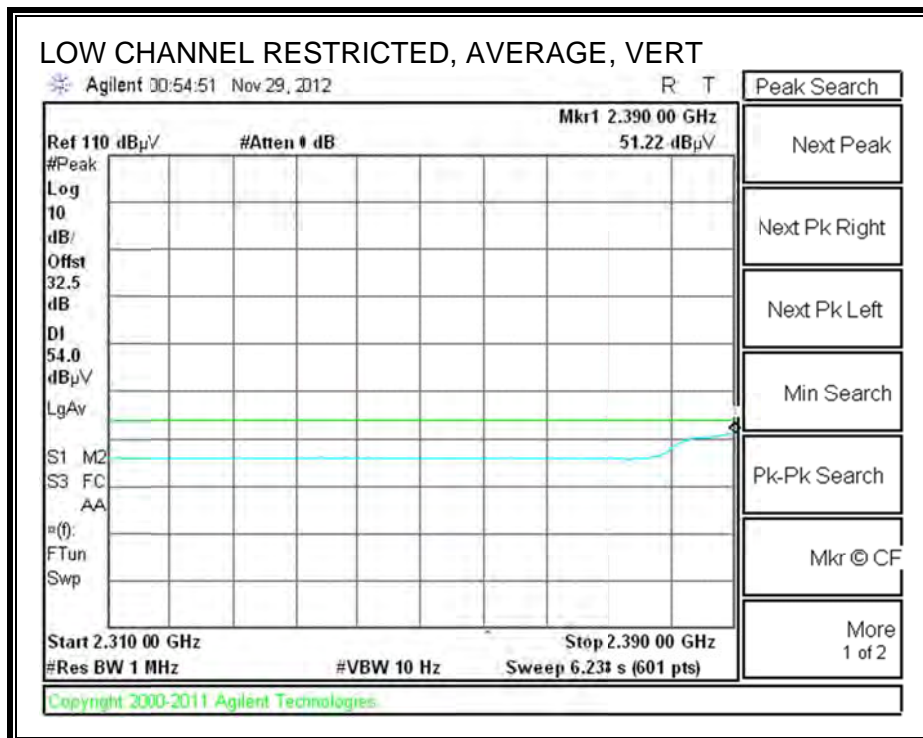
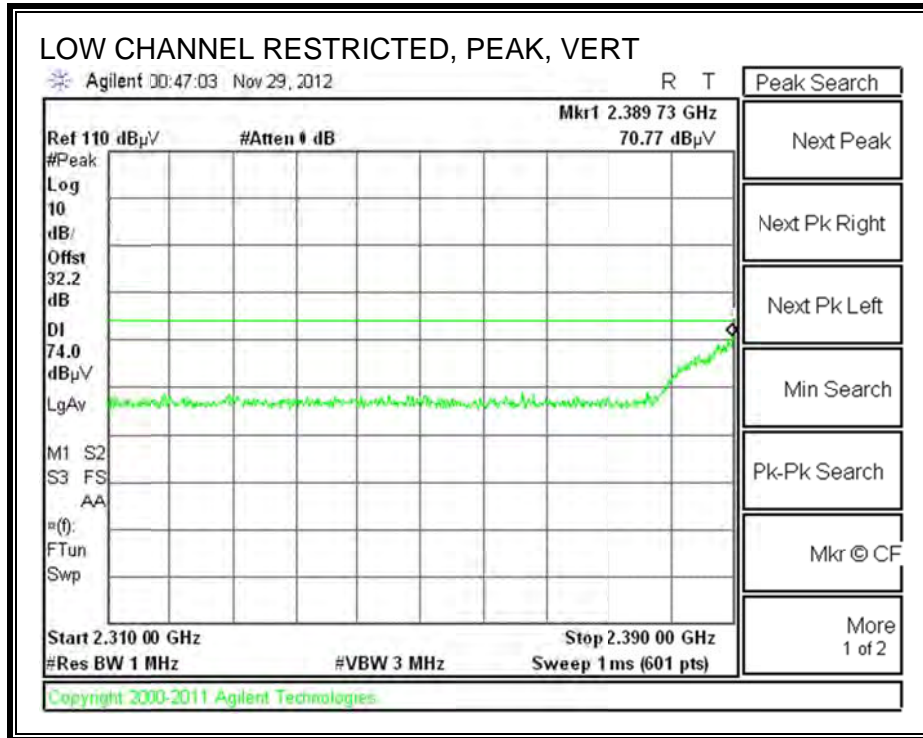
Rev. 11.10.11

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		

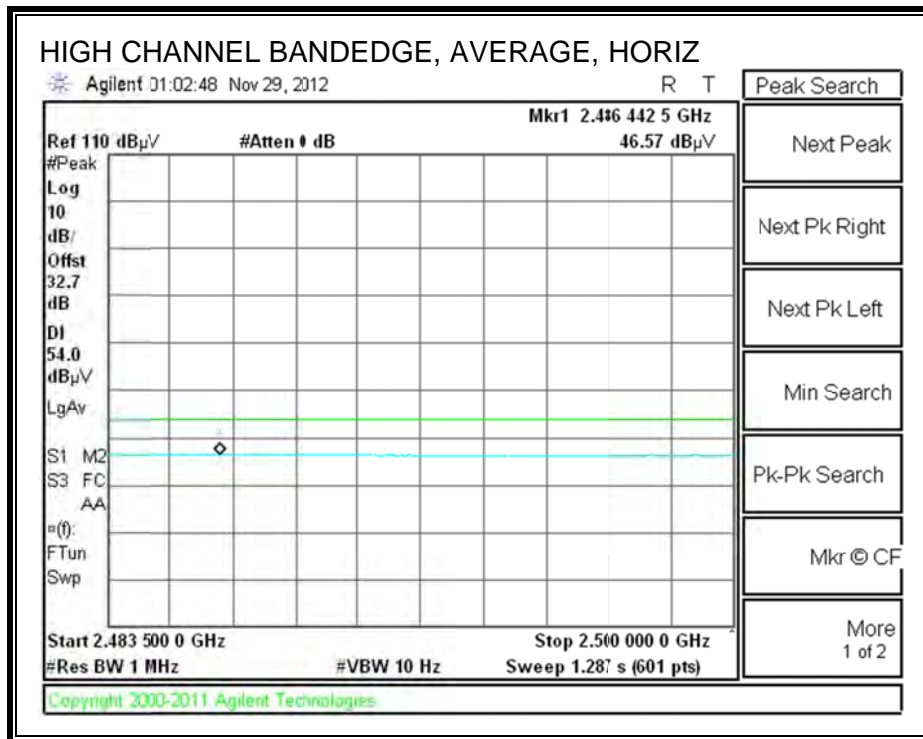
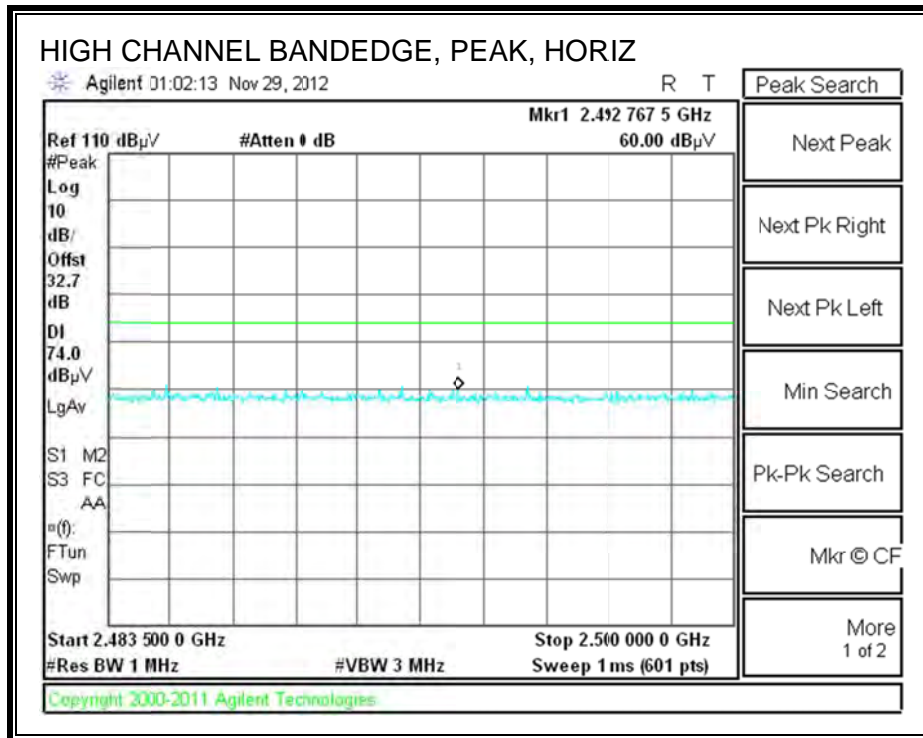
9.2.6. TX ABOVE 1 GHz 802.11n HT40 SDM MODE IN THE 2.4 GHz BAND

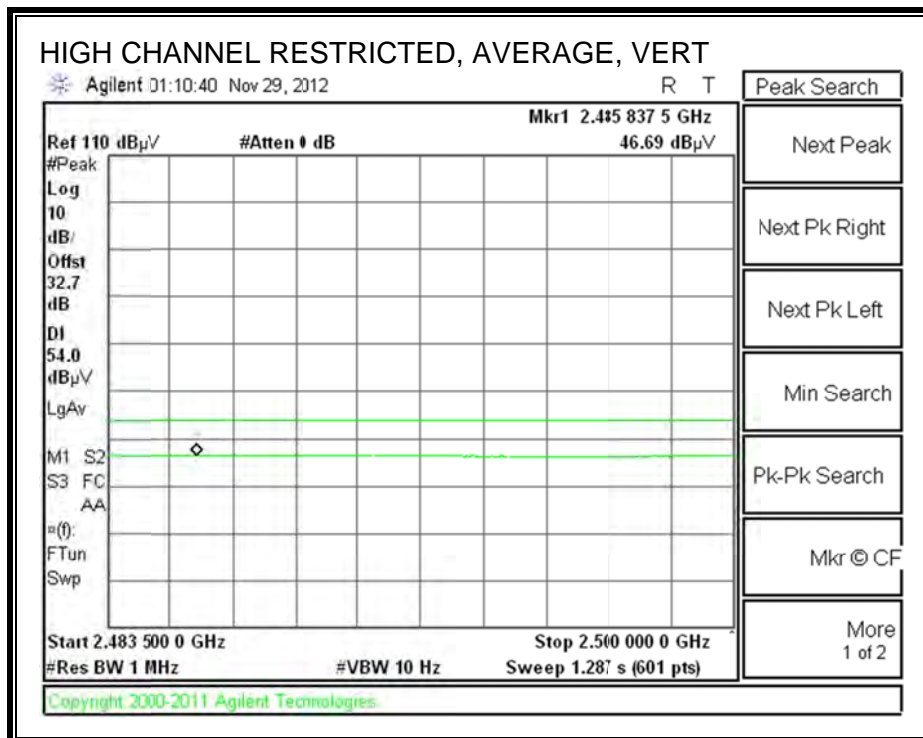
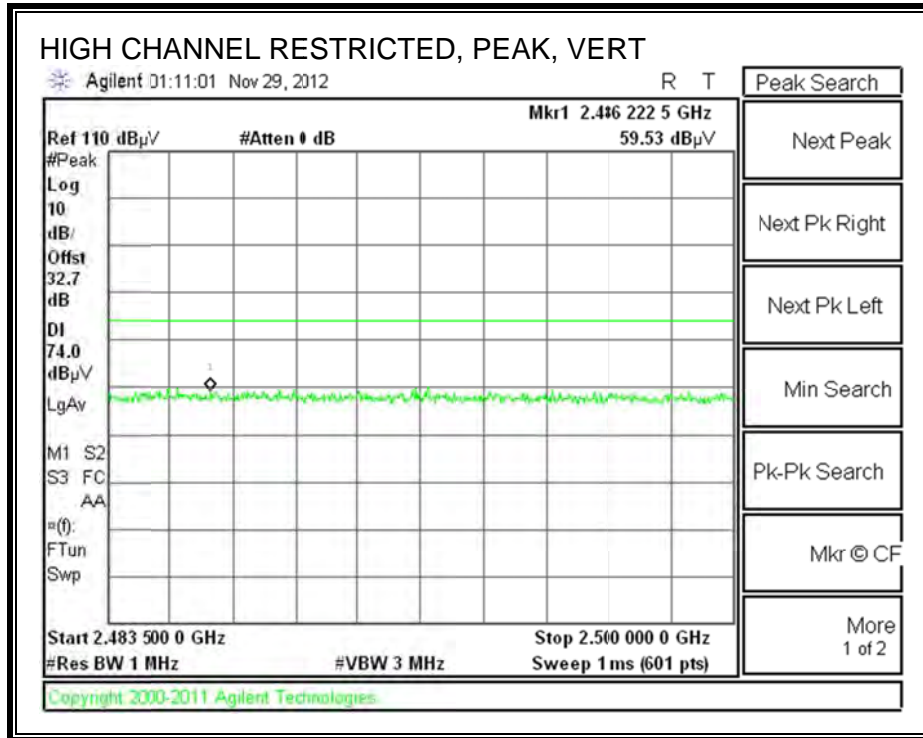
RESTRICTED BANDEDGE (LOW CHANNEL)





AUTHORIZED BANDEDGE (HIGH CHANNEL)





HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
 Compliance Certification Services, Fremont 3m Chamber

Company: Ruckus
Project #: 12U14419
Date: 10/23/2012
Test Engineer: David Garcia
Configuration: EUT with laptop in remote location, CAT 5, and AC adapter, New FCC Sample
Mode: 11n, HT40 SDM, TX

Test Equipment:

Horn 1-18GHz	Pre-amplifier 1-26GHz	Pre-amplifier 26-40GHz	Horn > 18GHz	Limit
T60; S/N: 2238 @3m	T34 HP 8449B			FCC 15.205

Hi Frequency Cables

3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF	Reject Filter	Peak Measurements RBW=1MHz, VBW=3MHz
3' cable 22807700	12' cable 22807600	20' cable 22807500		R_001	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)
Low Channel: 2422 MHz															
4.844	3.0	27.3	26.5	33.1	6.8	-34.0	0.0	0.0	33.2	32.4	74	54	-40.8	-21.6	V
4.844	3.0	26.9	26.0	33.1	6.8	-34.0	0.0	0.0	32.8	31.8	74	54	-41.2	-22.2	H
Mid Channel: 2437 MHz															
4.874	3.0	27.2	26.6	33.2	6.8	-34.0	0.0	0.0	33.1	32.5	74	54	-40.9	-21.5	V
4.874	3.0	27.3	26.2	33.2	6.8	-34.0	0.0	0.0	33.3	32.1	74	54	-40.7	-21.9	H
High Channel: 2452 MHz															
4.904	3.0	30.3	29.1	33.2	6.8	-34.0	0.0	0.0	36.2	35.1	74	54	-37.8	-18.9	V
7.356	3.0	31.3	30.5	36.4	9.1	-33.1	0.0	0.0	43.7	42.8	74	54	-30.3	-11.2	V
4.904	3.0	27.7	26.4	33.2	6.8	-34.0	0.0	0.0	33.7	32.4	74	54	-40.3	-21.6	H
7.356	3.0	28.2	27.4	36.4	9.1	-33.1	0.0	0.0	40.6	39.7	74	54	-33.4	-14.3	H

Rev. 11.10.11

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		

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

HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement													
Compliance Certification Services, Fremont 5m Chamber													
Test Engr:		David Garcia/KristopherNguyen											
Date:		09/01/10											
Project #:		12U14419											
Company:		Ruckus											
Test Target:		15.205											
Mode Oper:		11a Tx											
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
Mid Channel 5785 MHz													
11.570	3.0	49.7	38.9	10.6	-35.5	0.0	0.0	63.7	74.0	-10.3	H	P	
11.570	3.0	34.9	38.9	10.6	-35.5	0.0	0.0	48.9	54.0	-5.1	H	A	
11.570	3.0	46.5	38.9	10.6	-35.5	0.0	0.0	60.5	74.0	-13.5	V	P	
11.570	3.0	33.4	38.9	10.6	-35.5	0.0	0.0	47.4	54.0	-6.6	V	A	
Low Channel 5745 MHz													
11.490	3.0	49.9	38.8	10.5	-35.5	0.0	0.0	63.7	74.0	-10.3	H	P	
11.490	3.0	36.2	38.8	10.5	-35.5	0.0	0.0	50.1	54.0	-3.9	H	A	
11.490	3.0	50.6	38.8	10.5	-35.5	0.0	0.0	64.4	74.0	-9.6	V	P	
11.490	3.0	34.1	38.8	10.5	-35.5	0.0	0.0	47.9	54.0	-6.1	V	A	
High Channel 5825 MHz													
11.650	3.0	47.5	39.0	10.7	-35.5	0.0	0.0	61.7	74.0	-12.3	H	P	
11.650	3.0	33.4	39.0	10.7	-35.5	0.0	0.0	47.5	54.0	-6.5	H	A	
11.650	3.0	48.6	39.0	10.7	-35.5	0.0	0.0	62.8	74.0	-11.2	V	P	
11.650	3.0	33.0	39.0	10.7	-35.5	0.0	0.0	47.2	54.0	-6.8	V	A	
Rev. 4.1.2.7													
Note: No other emissions were detected above the system noise floor.													

9.2.8. TX ABOVE 1 GHz 802.11n HT20 CDD MODE IN THE 5.8 GHz BAND

High Frequency Measurement													
Compliance Certification Services, Fremont 5m Chamber													
Test Engr:		Tony Wagoner											
Date:		10/23/11											
Project #:		12U14419											
Company:		Ruckus											
Test Target:		15.205											
Mode Oper:		11n HT20 CDD											
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	Fltr	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 Channel, 5745 MHz													
11.490	3.0	48.5	38.9	11.2	-33.1	0.0	0.0	65.5	74.0	-8.5	H	P	
11.490	3.0	33.7	38.9	11.2	-33.1	0.0	0.0	50.7	54.0	-3.3	H	A	
11.490	3.0	53.1	38.9	11.2	-33.1	0.0	0.0	70.1	74.0	-3.9	V	P	
11.490	3.0	36.5	38.9	11.2	-33.1	0.0	0.0	53.5	54.0	-0.5	V	A	
Mid Channel, 5785 MHz													
11.570	3.0	46.5	38.9	11.3	-33.0	0.0	0.0	63.7	74.0	-10.3	H	P	
11.570	3.0	30.9	38.9	11.3	-33.0	0.0	0.0	48.2	54.0	-5.8	H	A	
11.570	3.0	52.6	38.9	11.3	-33.0	0.0	0.0	69.8	74.0	-4.2	V	P	
11.570	3.0	35.7	38.9	11.3	-33.0	0.0	0.0	52.9	54.0	-1.1	V	A	
High Channel, 5825													
11.650	3.0	47.3	39.0	11.4	-32.9	0.0	0.0	64.9	74.0	-9.1	H	P	
11.650	3.0	32.2	39.0	11.4	-32.9	0.0	0.0	49.8	54.0	-4.2	H	A	
11.650	3.0	52.3	39.0	11.4	-32.9	0.0	0.0	69.8	74.0	-4.2	V	P	
11.650	3.0	35.8	39.0	11.4	-32.9	0.0	0.0	53.3	54.0	-0.7	V	A	

Rev. 4.12.7

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

9.2.9. TX ABOVE 1 GHz 802.11n HT20 SDM MODE IN THE 5.8 GHz BAND

High Frequency Measurement													
Compliance Certification Services, Fremont 5m Chamber													
Test Engr:		Tony Wagoner											
Date:		10/23/11											
Project #:		12U14419											
Company:		Ruckus											
Test Target:		15.247											
Mode Oper:		11n HT20 SDM											
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	Filtr	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 Channel, 5745 MHz													
11.490	3.0	40.1	38.9	11.2	-33.1	0.0	0.0	65.5	74.0	-8.5	H	P	
11.490	3.0	27.7	38.9	11.2	-33.1	0.0	0.0	50.7	54.0	-3.3	H	A	
11.490	3.0	48.0	38.9	11.2	-33.1	0.0	0.0	70.1	74.0	-3.9	V	P	
11.490	3.0	33.6	38.9	11.2	-33.1	0.0	0.0	53.5	54.0	-0.5	V	A	
Mid Channel, 5785 MHz													
11.570	3.0	41.8	38.9	11.3	-33.0	0.0	0.0	63.7	74.0	-10.3	H	P	
11.570	3.0	28.7	38.9	11.3	-33.0	0.0	0.0	48.2	54.0	-5.8	H	A	
11.570	3.0	50.6	38.9	11.3	-33.0	0.0	0.0	69.8	74.0	-4.2	V	P	
11.570	3.0	34.8	38.9	11.3	-33.0	0.0	0.0	52.9	54.0	-1.1	V	A	
High Channel, 5825													
11.650	3.0	41.9	39.0	11.4	-32.9	0.0	0.0	64.9	74.0	-9.1	H	P	
11.650	3.0	28.6	39.0	11.4	-32.9	0.0	0.0	49.8	54.0	-4.2	H	A	
11.650	3.0	50.6	39.0	11.4	-32.9	0.0	0.0	69.8	74.0	-4.2	V	P	
11.650	3.0	32.6	39.0	11.4	-32.9	0.0	0.0	53.3	54.0	-0.7	V	A	
Rev. 4.12.7													
Note: No other emissions were detected above the system noise floor.													

9.2.10. TX ABOVE 1 GHz 802.11n HT40 CDD MODE IN THE 5.8 GHz BAND

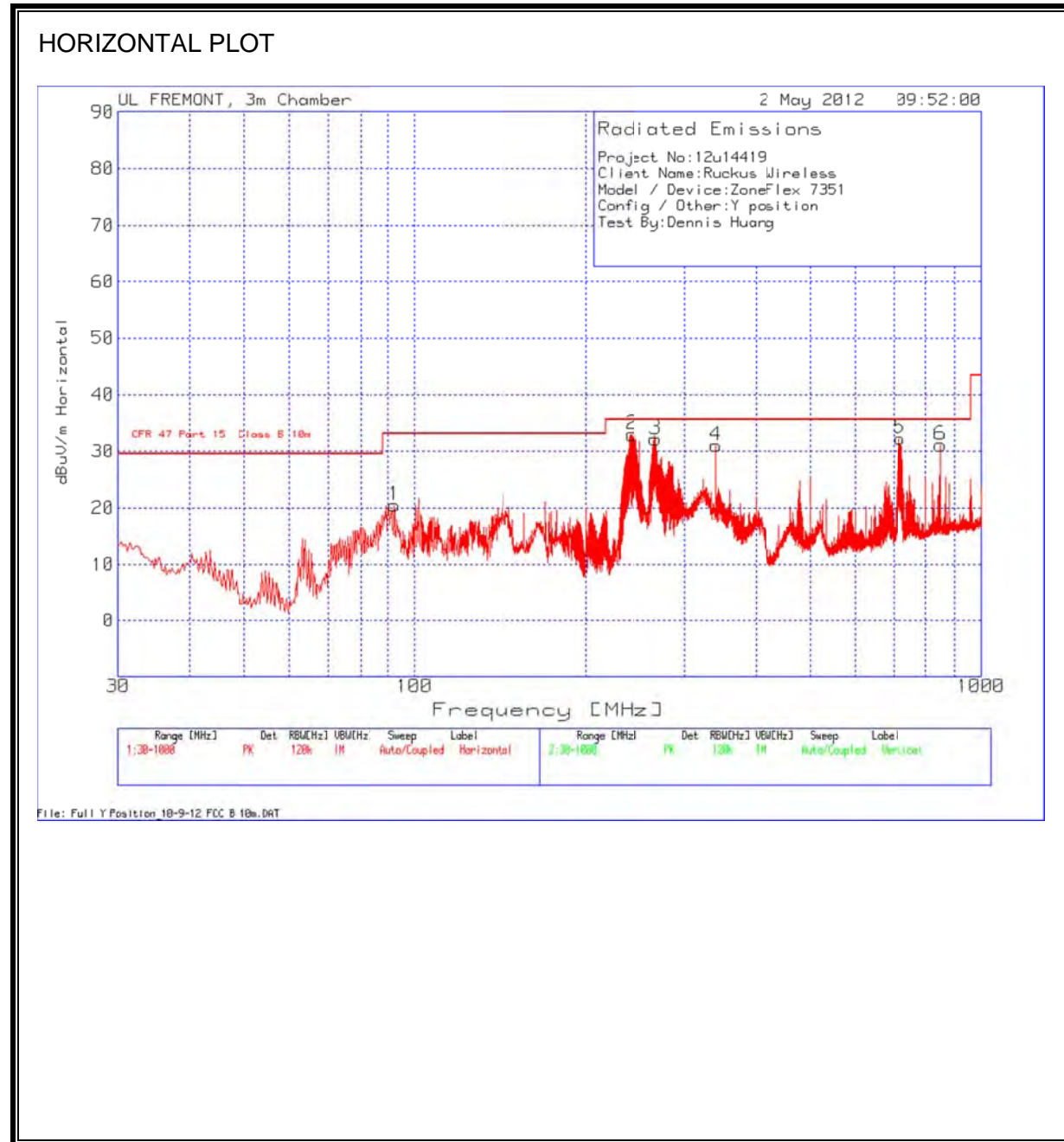
High Frequency Measurement													
Compliance Certification Services, Fremont 5m Chamber													
Test Engr:		Tony Wagoner											
Date:		10/23/11											
Project #:		12U14419											
Company:		Ruckus											
Test Target:		15.247											
Mode Oper:		11n HT40 CDD											
f	Measurement 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	Fltr	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 Channel, 5755 MHz													
11.510	3.0	39.6	38.9	11.2	-33.1	0.0	0.0	65.5	74.0	-8.5	H	P	
11.510	3.0	24.9	38.9	11.2	-33.1	0.0	0.0	50.7	54.0	-3.3	H	A	
11.510	3.0	45.8	38.9	11.2	-33.1	0.0	0.0	70.1	74.0	-3.9	V	P	
11.510	3.0	30.3	38.9	11.2	-33.1	0.0	0.0	53.5	54.0	-0.5	V	A	
High Channel, 5795MHz													
11.590	3.0	38.9	39.0	11.4	-32.9	0.0	0.0	64.9	74.0	-9.1	H	P	
11.590	3.0	26.1	39.0	11.4	-32.9	0.0	0.0	49.8	54.0	-4.2	H	A	
11.590	3.0	45.2	39.0	11.4	-32.9	0.0	0.0	69.8	74.0	-4.2	V	P	
11.590	3.0	31.0	39.0	11.4	-32.9	0.0	0.0	53.3	54.0	-0.7	V	A	
Rev. 4.1.2.7													

9.2.11. TX ABOVE 1 GHz 802.11n HT40 SDM MODE IN THE 5.8 GHz BAND

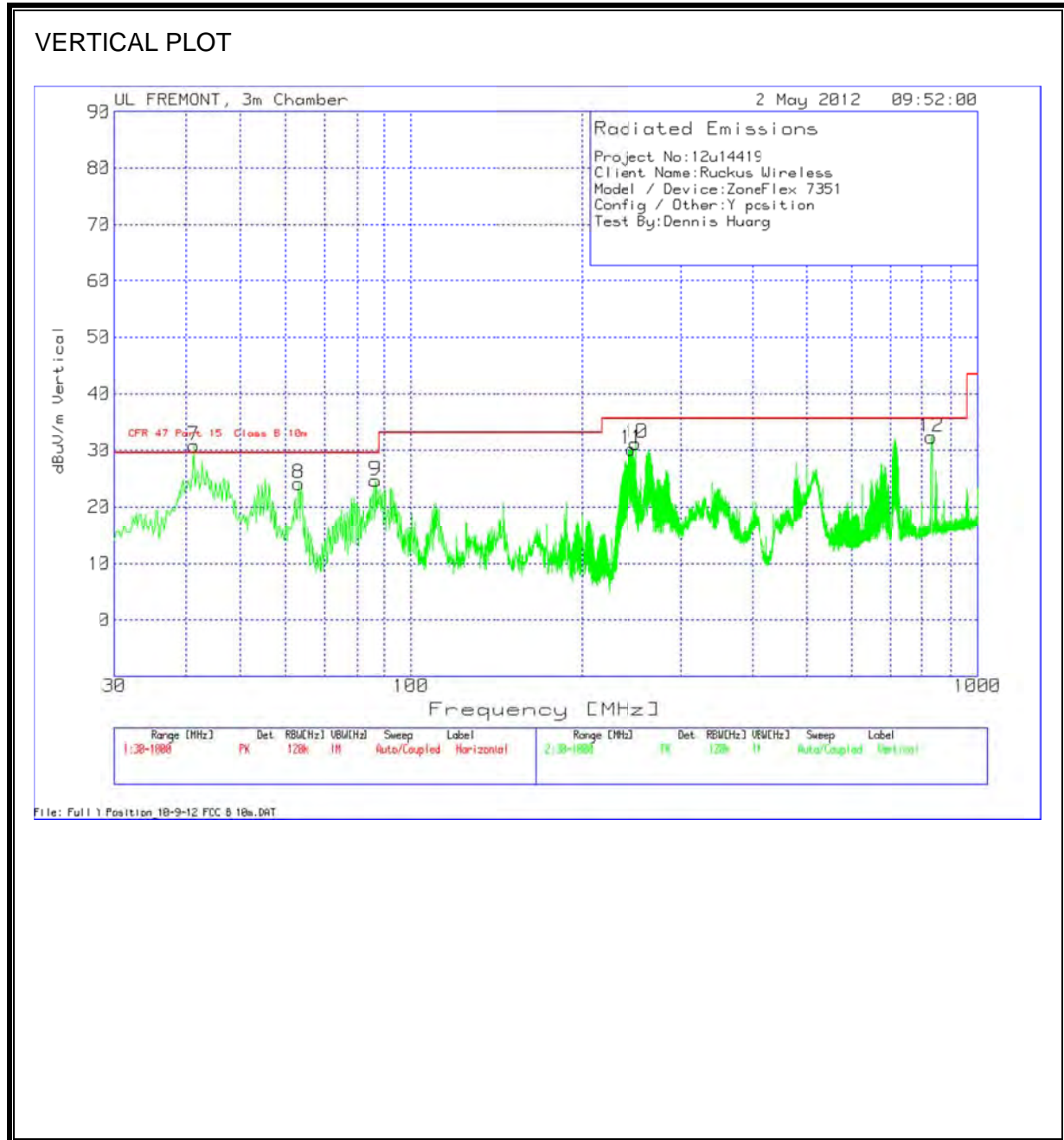
High Frequency Measurement													
Compliance Certification Services, Fremont 5m Chamber													
Test Engr:		David Garcia											
Date:		10/23/11											
Project #:		12U14419											
Company:		Ruckus											
Test Target:		15.247											
Mode Oper:		11n HT40, SDM											
f	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	Ftr	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 Channel, 5755 MHz													
11.510	3.0	36.7	38.9	11.2	-33.1	0.0	0.0	65.5	74.0	-8.5	H	P	
11.510	3.0	23.3	38.9	11.2	-33.1	0.0	0.0	50.7	54.0	-3.3	H	A	
11.510	3.0	42.2	38.9	11.2	-33.1	0.0	0.0	70.1	74.0	-3.9	V	P	
11.510	3.0	36.7	38.9	11.2	-33.1	0.0	0.0	53.5	54.0	-0.5	V	A	
High Channel, 5795MHz													
11.590	3.0	38.0	39.0	11.4	-32.9	0.0	0.0	64.9	74.0	-9.1	H	P	
11.590	3.0	24.6	39.0	11.4	-32.9	0.0	0.0	49.8	54.0	-4.2	H	A	
11.590	3.0	42.2	39.0	11.4	-32.9	0.0	0.0	69.8	74.0	-4.2	V	P	
11.590	3.0	29.3	39.0	11.4	-32.9	0.0	0.0	53.3	54.0	-0.7	V	A	
Rev. 4.1.2.7													
Note: No other emissions were detected above the system noise floor.													

9.3. 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:12u14419
 Client Name:Ruckus Wireless
 Model / Device:ZoneFlex 7351
 Config / Other:Y position
 Test By:Dennis Huang

Test Frequency MHz	Meter Reading dB(μV)	Detector	Pre Amp Factor dB	Antenna Factor dB/m	3m to 10m Conversion dB	Corrected dB(μV/m)	Class B limit dB(μV/m)	Margin dB	Height cm	Polarity
92.2242	49.92	PK	-27	8.1	-10.5	20.52	33.1	-12.58	200	Horz
240.9033	58.08	PK	-26	11.4	-10.5	32.98	35.6	-2.62	100	Horz
266.8785	55.57	PK	-25.8	12.9	-10.5	32.17	35.6	-3.43	100	Horz
339.958	53.41	PK	-25.6	13.7	-10.5	31.01	35.6	-4.59	100	Horz
720.0879	46.07	PK	-23.3	20	-10.5	32.27	35.6	-3.33	100	Horz
850.1579	43.3	PK	-23.2	21.5	-10.5	31.1	35.6	-4.5	100	Horz
42.61	49.04	QP	-27.4	12.1	-10.5	23.24	29.6	-6.36	113	Vert
63.1475	54.28	PK	-27.2	7.6	-10.5	24.18	29.6	-5.42	100	Vert
86.7966	54.8	PK	-27	7.4	-10.5	24.7	29.6	-4.9	100	Vert
250.014	56.15	PK	-25.9	11.5	-10.5	31.25	35.6	-4.35	100	Vert
244.7802	55.23	PK	-26	11.5	-10.5	30.23	35.6	-5.37	100	Vert
831.7426	44.74	PK	-23.1	21.2	-10.5	32.34	35.6	-3.26	300	Vert

10. 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

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.4.

The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

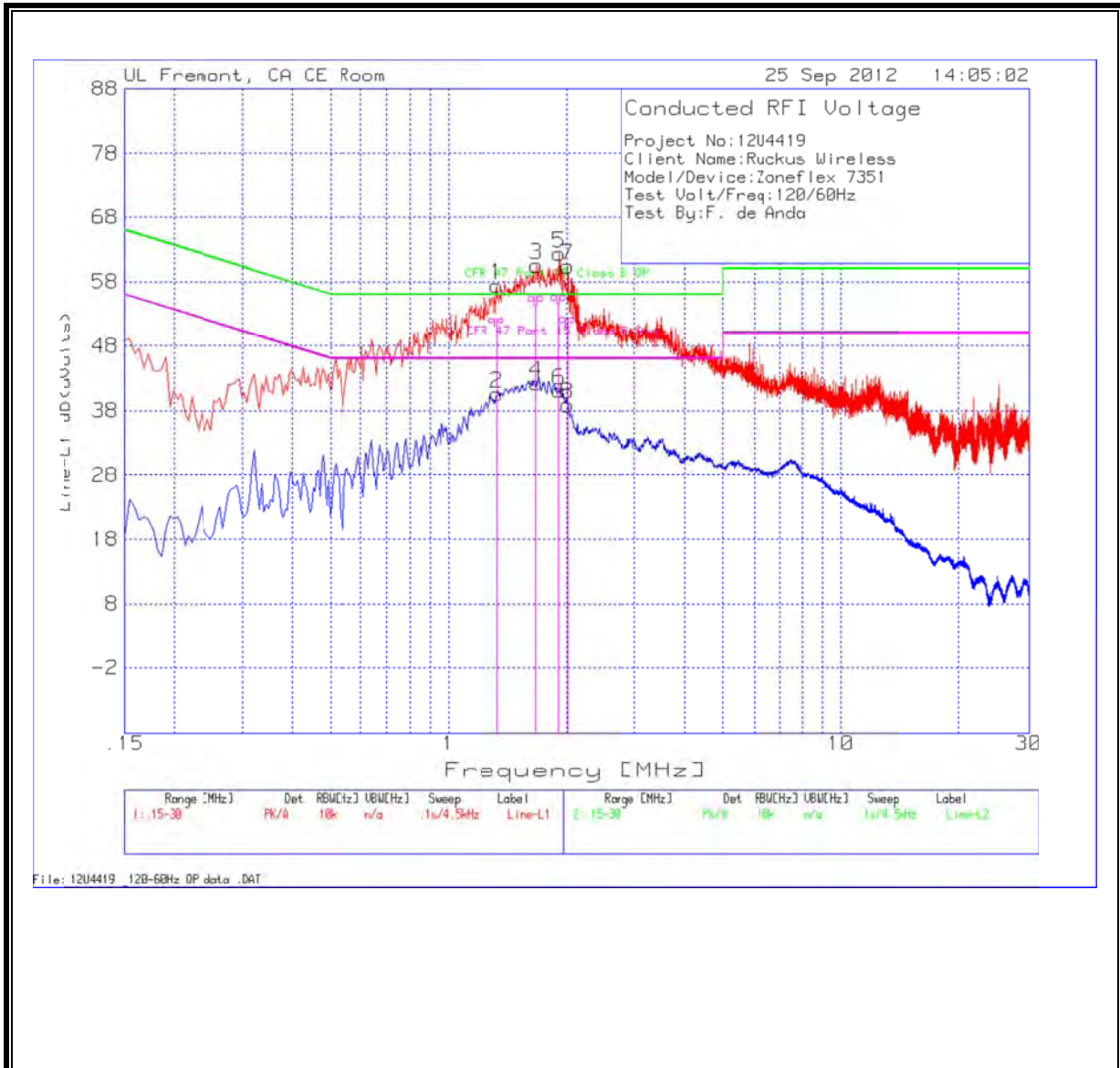
Line conducted data is recorded for both NEUTRAL and HOT lines.

RESULTS

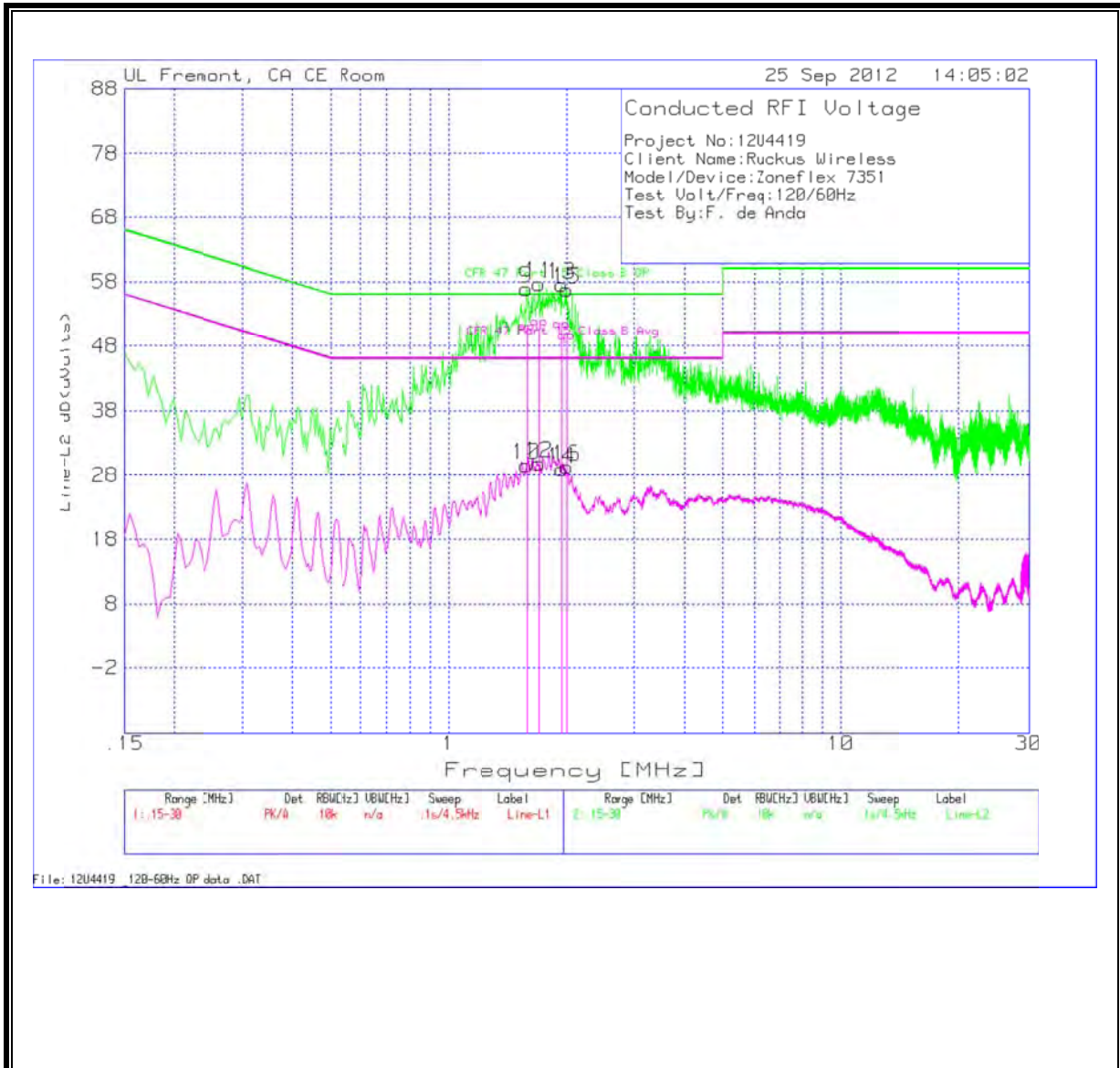
6 WORST EMISSIONS

Project No:12U4419									
Client Name:Ruckus Wireless									
Model/Device:Zoneflex 7351									
Test Volt/Freq:120/60Hz									
Test By:F. de Anda									
Frequency MHz	Reading dB(μV)	Detector	T24 LISN dB	Cables dB	Corrected dB(μV)	Class B QP Limit dB(μV)	QP Margin dB	Class B Av Limit dB(μV)	Av Margin dB
Line-L1									
1.3325	50.78	QP	0.1	0.1	50.98	56	-5.02	--	--
1.3335	40.4	Av	0.1	0.1	40.6	--	--	46	-5.4
1.6735	54.16	QP	0.1	0.1	54.36	56	-1.64	--	--
1.6755	42.08	Av	0.1	0.1	42.28	--	--	46	-3.72
1.9085	54.35	QP	0.1	0.1	54.55	56	-1.45	--	--
1.9095	40.82	Av	0.1	0.1	41.02	--	--	46	-4.98
2.0075	50.88	QP	0.1	0.1	51.08	56	-4.92	--	--
2.0085	38.68	Av	0.1	0.1	38.88	--	--	46	-7.12
Line-L2									
1.5885	49.75	QP	0.1	0.1	49.95	56	-6.05	--	--
1.5855	29.43	Av	0.1	0.1	29.63	--	--	46	-16.37
1.7055	50.46	QP	0.1	0.1	50.66	56	-5.34	--	--
1.7025	29.7	Av	0.1	0.1	29.9	--	--	46	-16.1
1.937	50.06	QP	0.1	0.1	50.26	56	-5.74	--	--
1.941	28.7	Av	0.1	0.1	28.9	--	--	46	-17.1
1.995	48.24	QP	0.1	0.1	48.44	56	-7.56	--	--
1.995	29.15	Av	0.1	0.1	29.35	--	--	46	-16.65

LINE 1 RESULTS

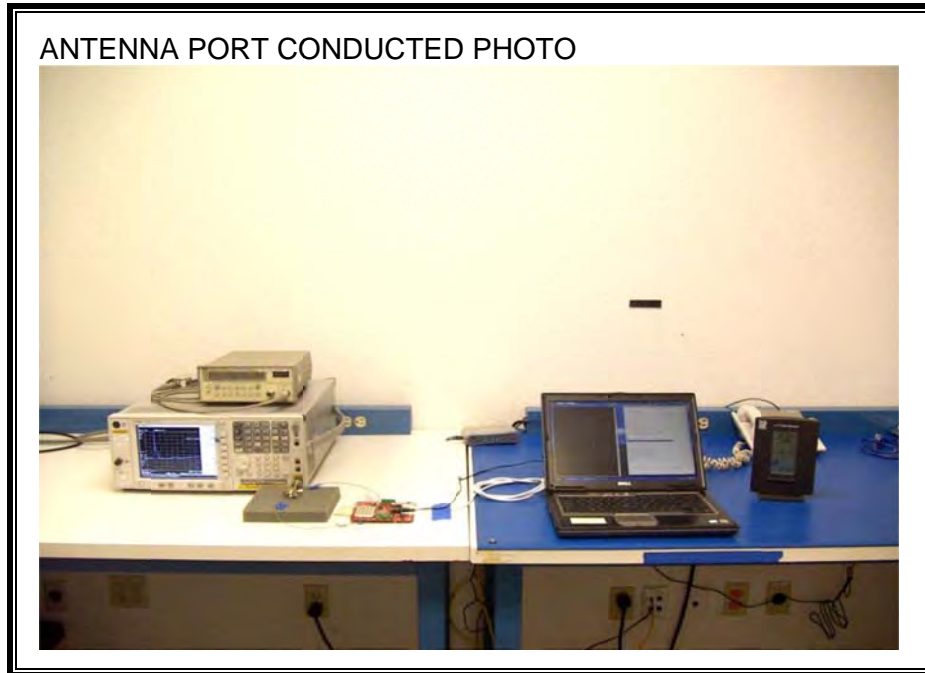


LINE 2 RESULTS

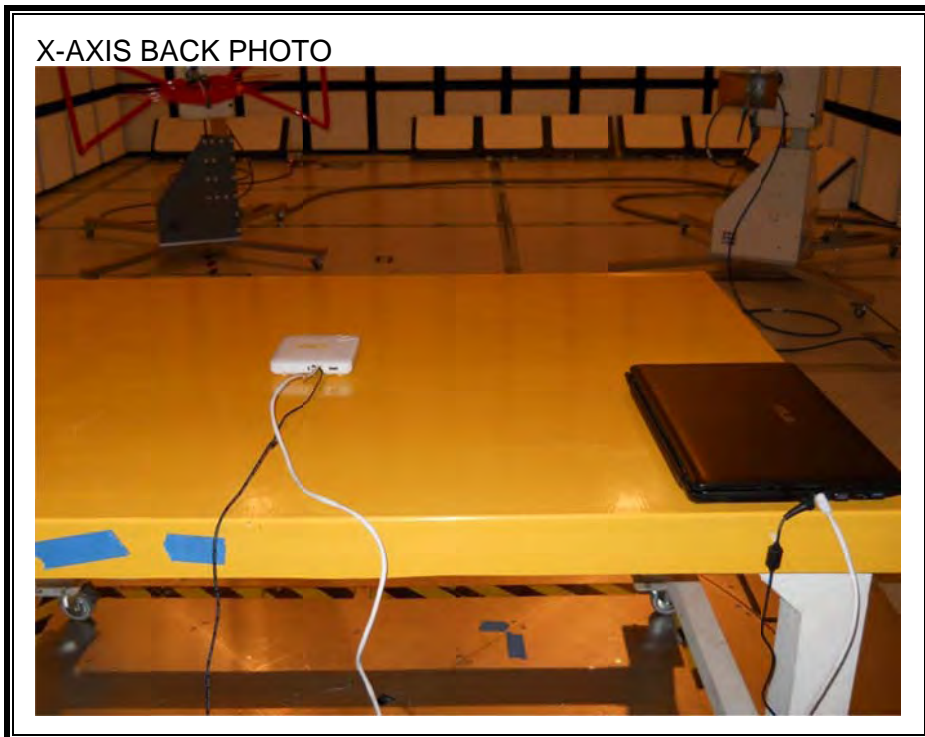
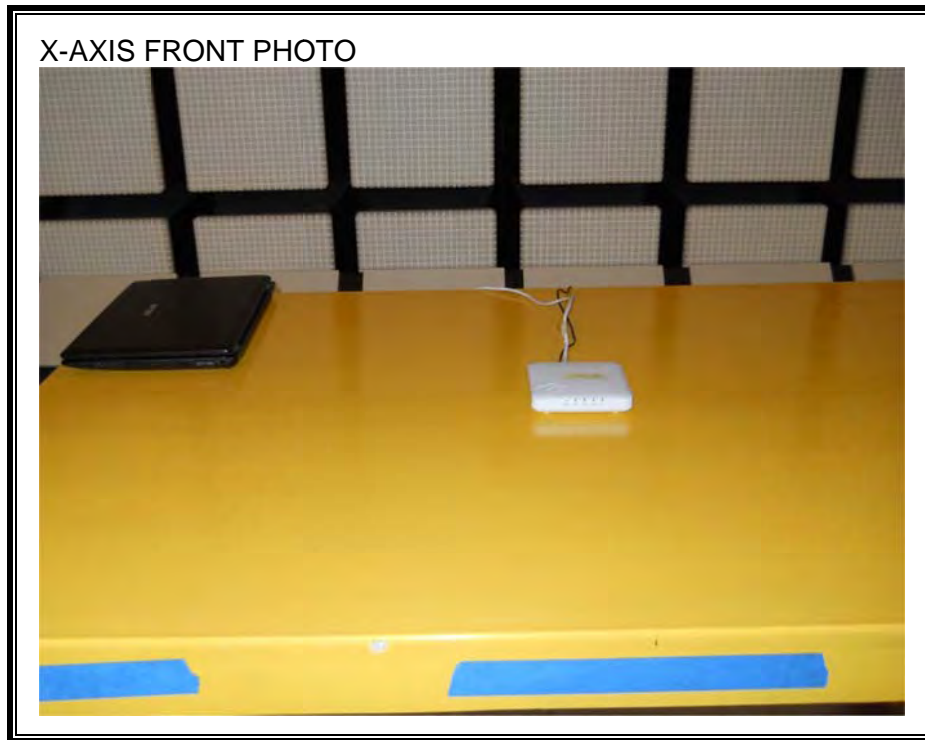


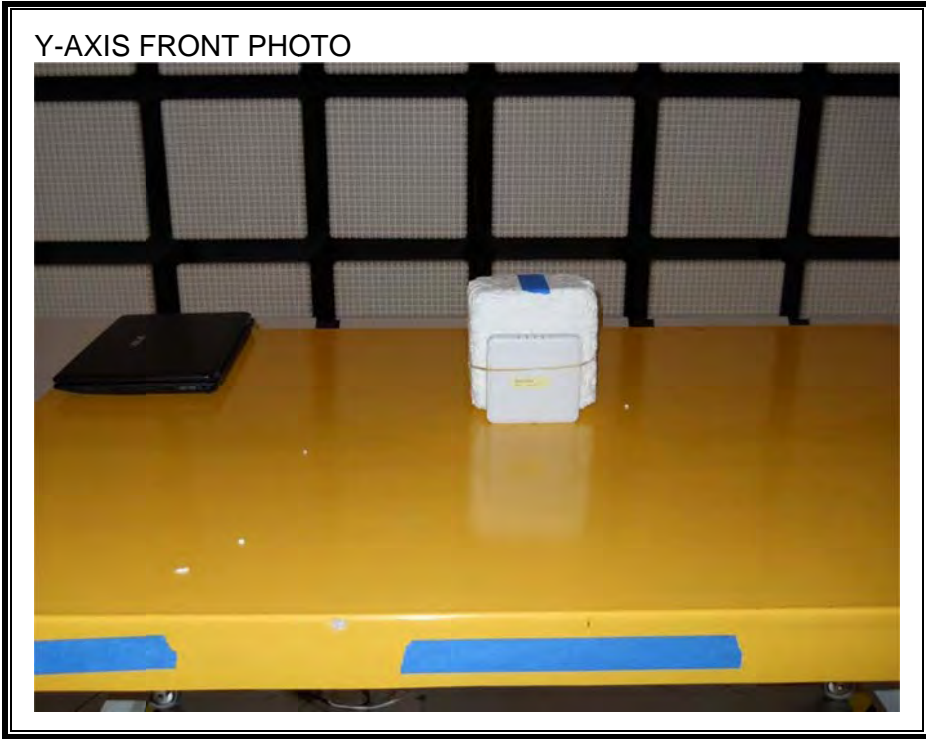
11. SETUP PHOTOS

ANTENNA PORT CONDUCTED RF MEASUREMENT SETUP

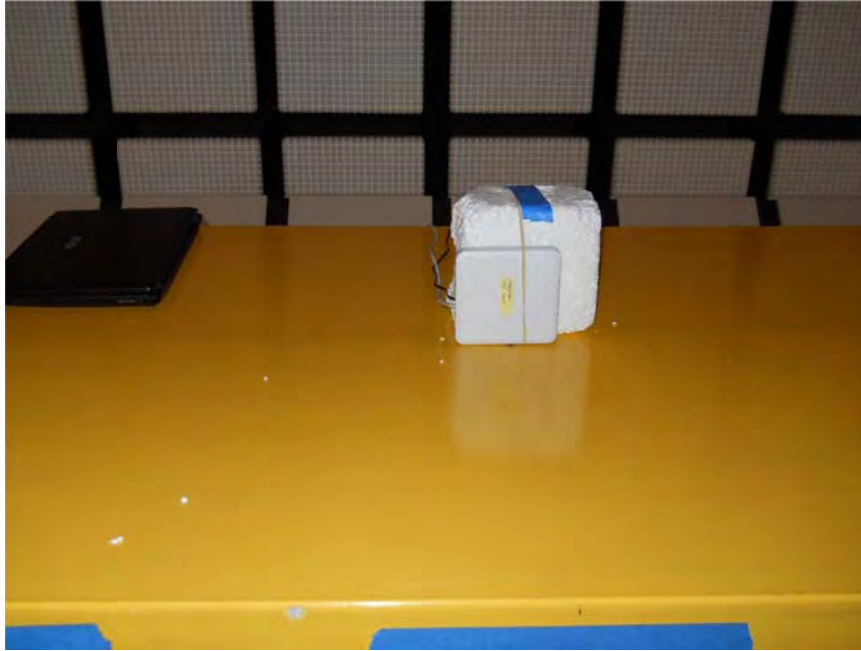


RADIATED RF MEASUREMENT SETUP FOR PORTABLE CONFIGURATION

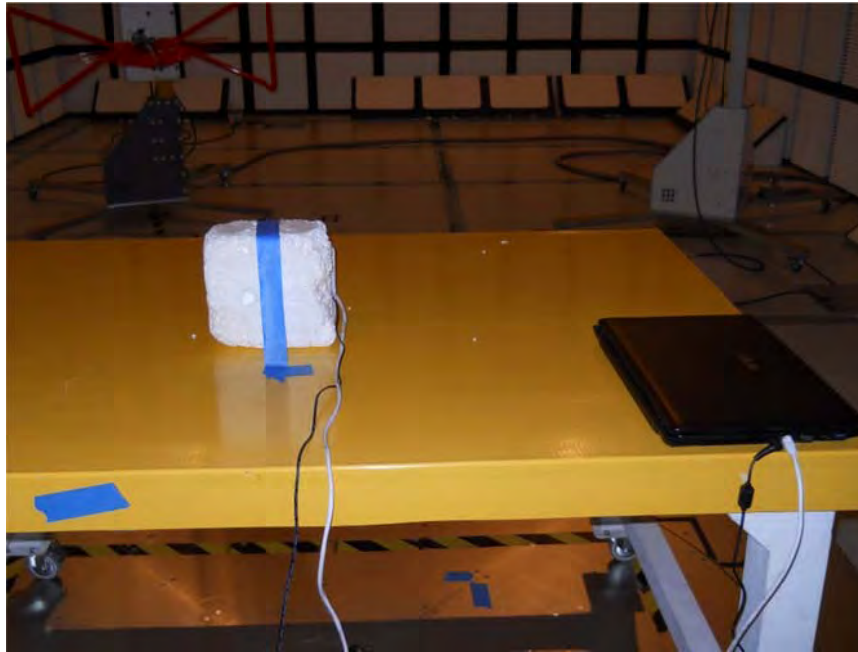




Z-AXIS FRONT PHOTO



Z-AXIS BACK PHOTO



POWERLINE CONDUCTED EMISSIONS MEASUREMENT SETUP

LINE CONDUCTED FRONT PHOTO



LINE CONDUCTED BACK PHOTO



END OF REPORT