



FCC CFR47 PART 15 SUBPART C
CERTIFICATION TEST REPORT
FOR
CDMA + WIFI + LTE MOBILE HOTSPOT

MODEL NUMBER: AC778S

FCC ID: PY3AC778S

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Prepared for

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Revision History

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: NETGEAR INC
2200 FARADAY AVE.
CARLSBAD, CA 92008

EUT DESCRIPTION: CDMA BCO/1/10 (1xRTT, Rev A); LTE B25(1900)/B26/B41(2600).
1TX ant. MOBILE HOTSPOT.

MODEL: AC778S

SERIAL NUMBER: FS3282004304020E

DATE TESTED: AUG19 - SEP 9, 2013

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	Pass

UL Verification Services Inc. 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 Verification Services Inc. 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 Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. 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
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PHILIP KIM
WiSE PROGRAM MANAGER
UL Verification Services Inc.



STEVEN TRAN
WiSE LAB TECHNICIAN
UL Verification Services Inc.

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, ANSI C63.10-2009.

3. FACILITIES AND ACCREDITATION

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

UL Verification Services Inc. 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

CDMA BC0/1/10 (1xRTT, Rev A); LTE B25(1900)/B26/B41(2600). 1 TX ant. Mobile hotspot.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2412 - 2462	802.11b	11.9	15.49
2412 - 2462	802.11g	11.4	13.80
2412 - 2462	802.11n HT20	11.3	13.49
2422 - 2452	802.11n HT40	11.1	12.88

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a chip antenna, with a maximum gain of 2.1 dBi.

5.4. SOFTWARE AND FIRMWARE

Unit was controlled through the HyperTerminal software by laptop.

5.5. WORST-CASE CONFIGURATION AND MODE

Radiated emission and power line conducted emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

The fundamental of the EUT was investigated in three orthogonal orientations X,Y,Z, it was determined that Y orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in Y orientation.

Worst-case data rates as provided by the client were:

Based on the baseline scan, the worst-case data rates were:

802.11b mode: 1 Mbps

802.11g mode: 6 Mbps

802.11a mode: 6 Mbps

802.11n HT20mode: MCS0

802.11n HT40mode: MCS0

Radiated emissions for EUT with antenna was performed and passed; therefore, antenna port spurious was not performed.

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	S/N	FCC ID
Laptop	Lenovo	T420	C9LMQS027429	DoC
AC adapter	N/A	N/A	N/A	DoC

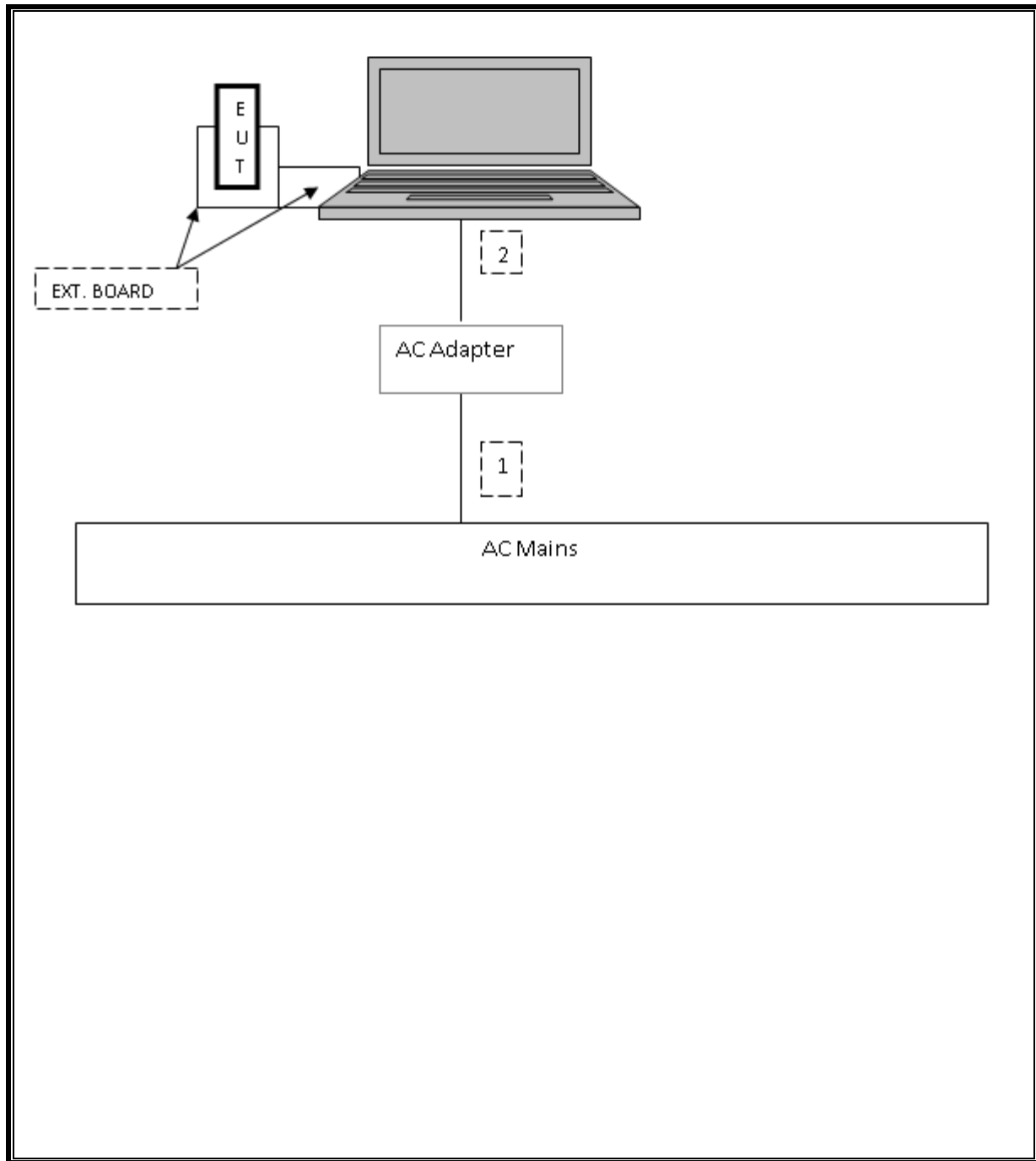
I/O CABLES

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	AC Power	1	2-Prong	Un-Shielded	1.5m	N/A
2	USB	1	USB	Un-shielded	1m	N/A

TEST SETUP

The EUT is a stand-alone unit 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 Date	Cal Due
Antenna, Biconolog, 30MHz-1 GHz	Sunol Sciences	JB1	C01016	08/14/12	08/14/14
Antenna, Horn, 18 GHz	ETS	3117	C01006	12/11/12	12/11/13
Antenna, Horn, 25.5 GHz	ARA	MWH-1826/B	C00980	11/14/12	11/14/13
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00885	01/16/13	01/16/14
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01063	10/22/12	10/22/13
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01012	10/21/12	10/21/13
PXA SIGNAL ANALYZER	Agilent / HP	N9030A	N/A		05/09/14
EMI Test Receiver, 30 MHz	R & S	ESHS 20	N02396	08/08/12	08/08/14
LISN, 30 MHz	FCC	50/250-25-2	C00626	01/14/13	01/14/14
Reject Filter, 2.4GHz	Micro-Tronics	BRM50702	N02684	CNR	CNR

7. MEASUREMENT METHODS

KDB 558074 Measurement Procedure PK2 is used for power and PKPSD is used for power spectral density.

Unwanted emissions within Restricted Bands are measured using traditional radiated procedures.

8. SUMMARY TABLE

FCC Part Section	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Worst Case
15.247 (a)(2)	RSS-210 A8.2(a)	Occupied Band width (6dB)	>500KHz	Conducted	Pass	35.75MHz
2.1051, 15.247 (d)	RSS-210 A8.5	Band Edge / Conducted Spurious Emission	-20dBc		Pass	
15.247	RSS-210 A8.4	TX conducted output power	<30dBm		Pass	18.65dBm
15.247	RSS-210 A8.2	PSD	<8dBm		Pass	-13.61dBm
15.207 (a)	RSS-GEN 7.2.2	AC Power Line conducted emissions	Section 10	Radiated	Pass	42.26dBuV/m
15.205, 15.209	RSS-210 Clause 2.6, RSS-210 Clause 6	Radiated Spurious Emission	< 54dBuV/m		Pass	49.87dBuV/m

9. ANTENNA PORT TEST RESULTS

9.1. 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

Reference to KDB 558074 DTS Meas Guidance 8.0: The transmitter output is connected to a spectrum analyzer with the RBW set to 100KHz, the VBW $\geq 3 \times$ RBW, peak detector and max hold.

RESULTS

802.11b MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	10.08	0.5
Mid	2437	10.13	0.5
High	2462	10.15	0.5
Worst		10.15	

802.11g MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	15.33	0.5
Mid	2437	15.62	0.5
High	2462	16.33	0.5
Worst		16.33	

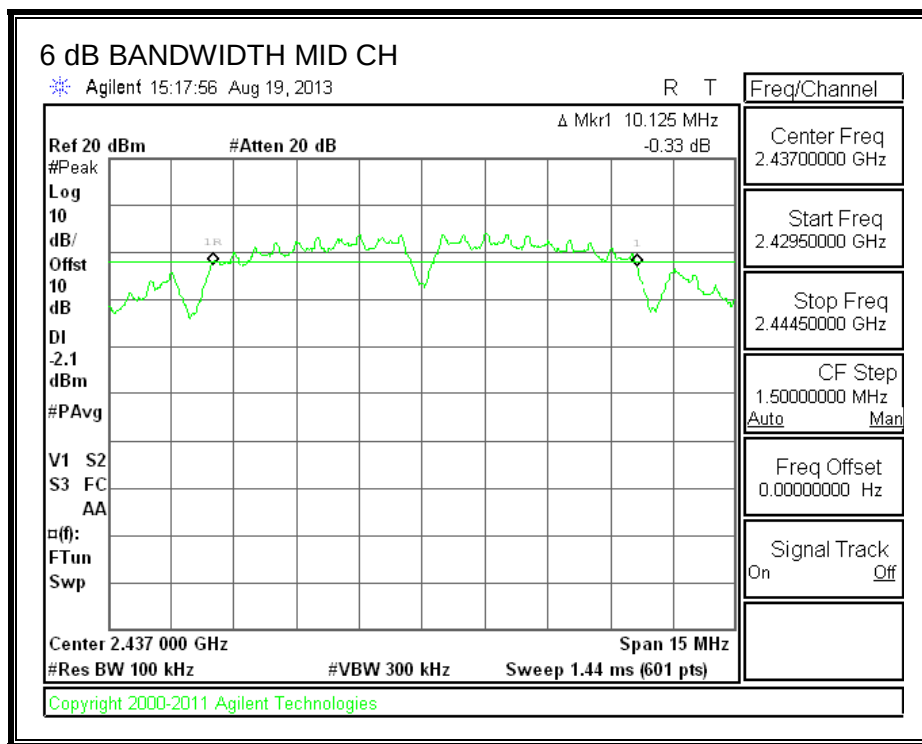
802.11n HT20 MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	16.50	0.5
Mid	2437	17.17	0.5
High	2462	16.92	0.5
Worst		17.17	

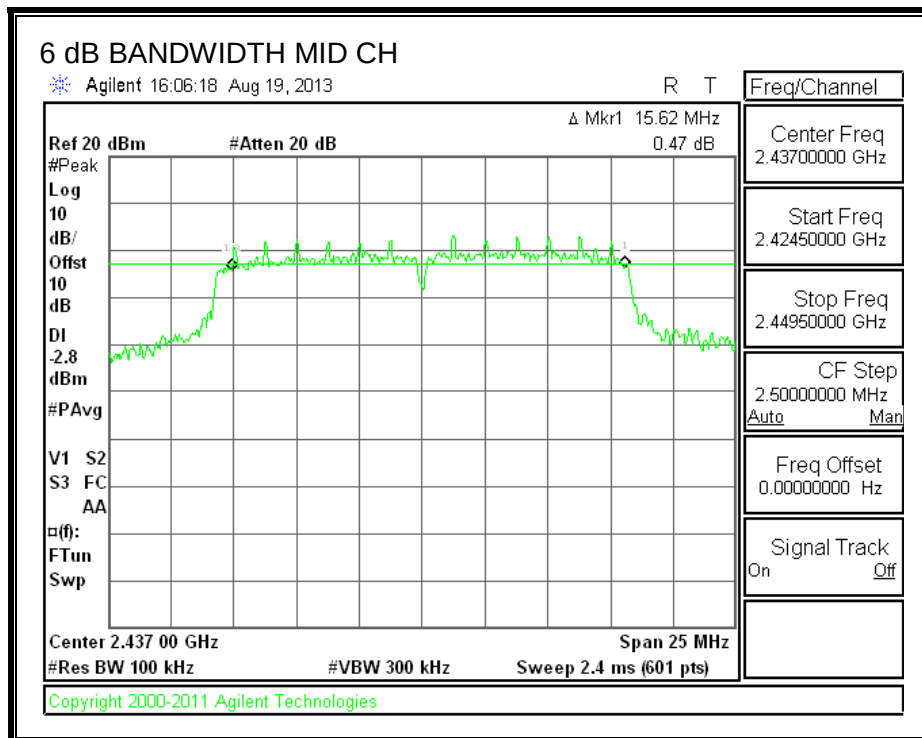
802.11n HT40 MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	35.75	0.5
Mid	2437	35.67	0.5
High	2462	35.31	0.5
Worst		35.75	

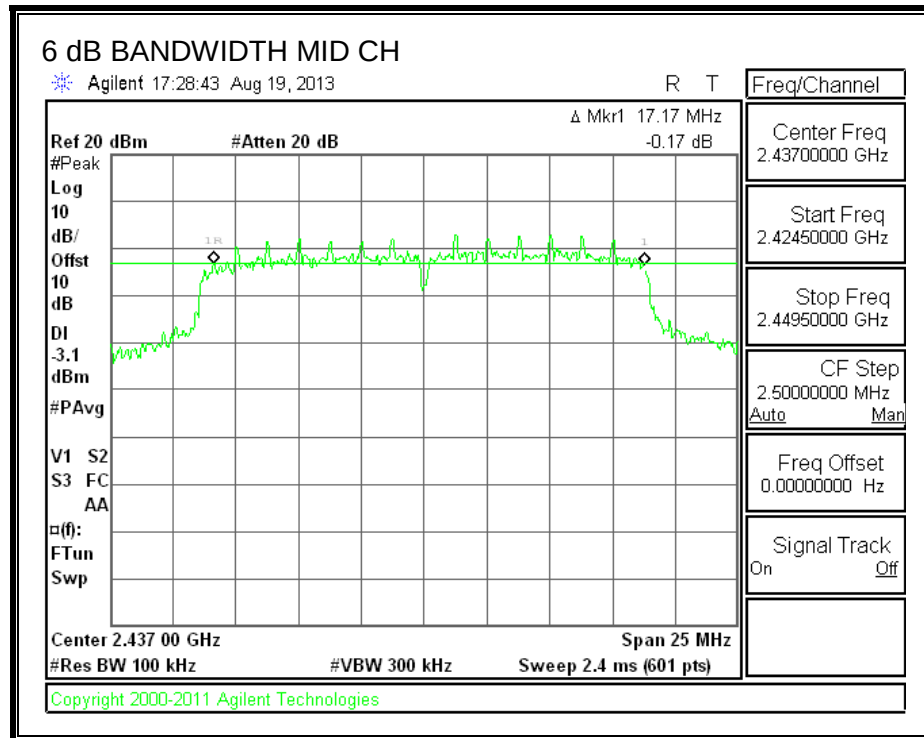
802.11b 6 dB BANDWIDTH



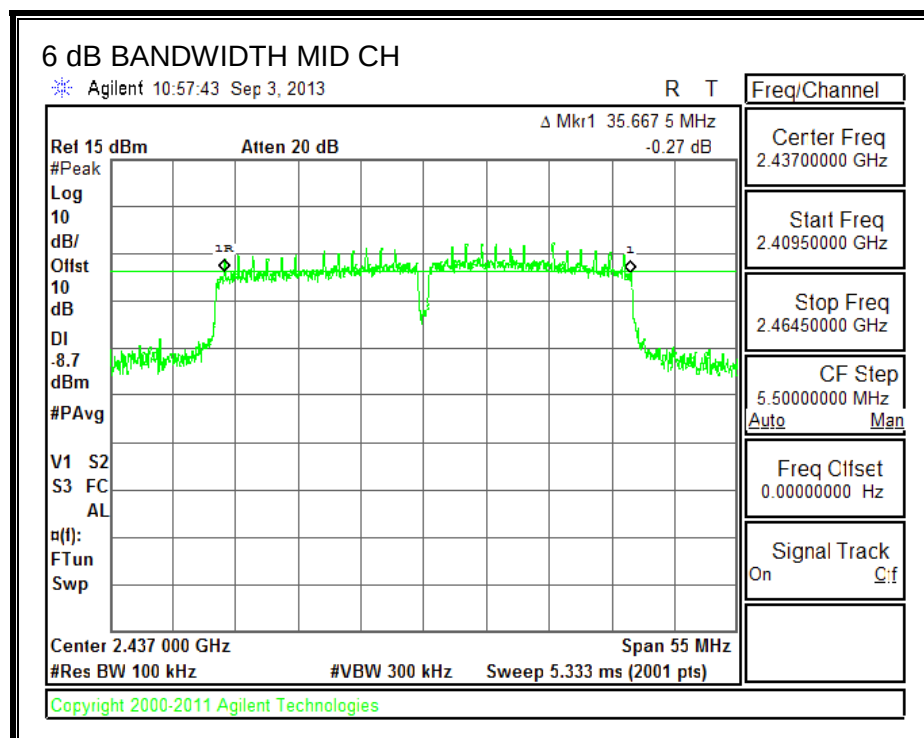
802.11g 6 dB BANDWIDTH



802.11n HT20 6 dB BANDWIDTH



802.11n HT40 6 dB BANDWIDTH



9.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

802.11b MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	14.48
Mid	2437	14.24
High	2462	14.34
Worst		14.48

802.11g MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	16.87
Mid	2437	16.80
High	2462	16.83
Worst		16.87

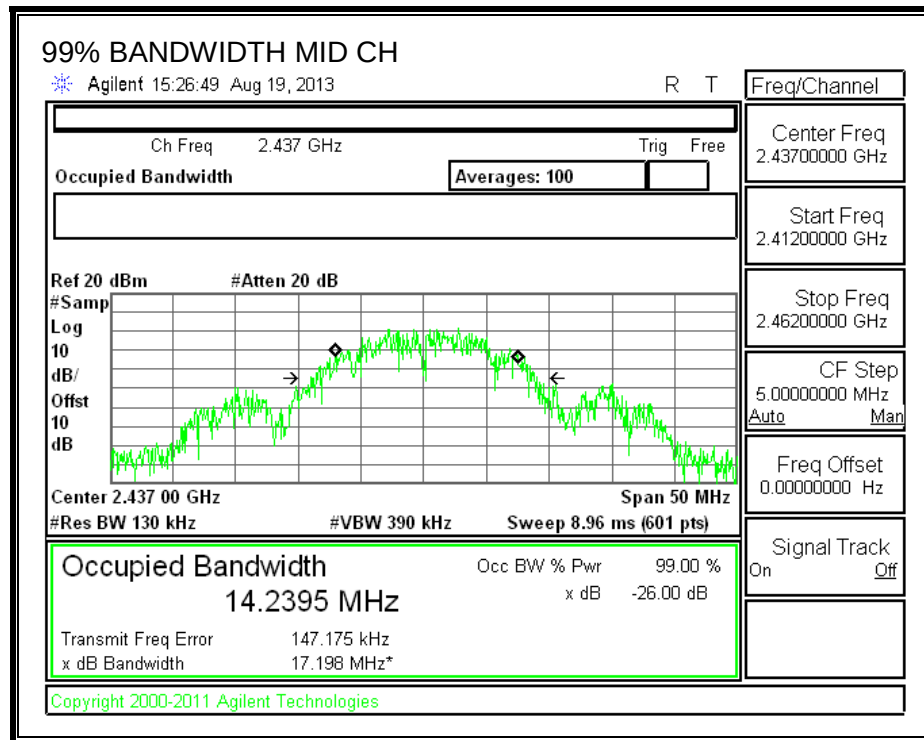
802.11n HT20 MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	17.93
Mid	2437	18.13
High	2462	18.26
Worst		18.26

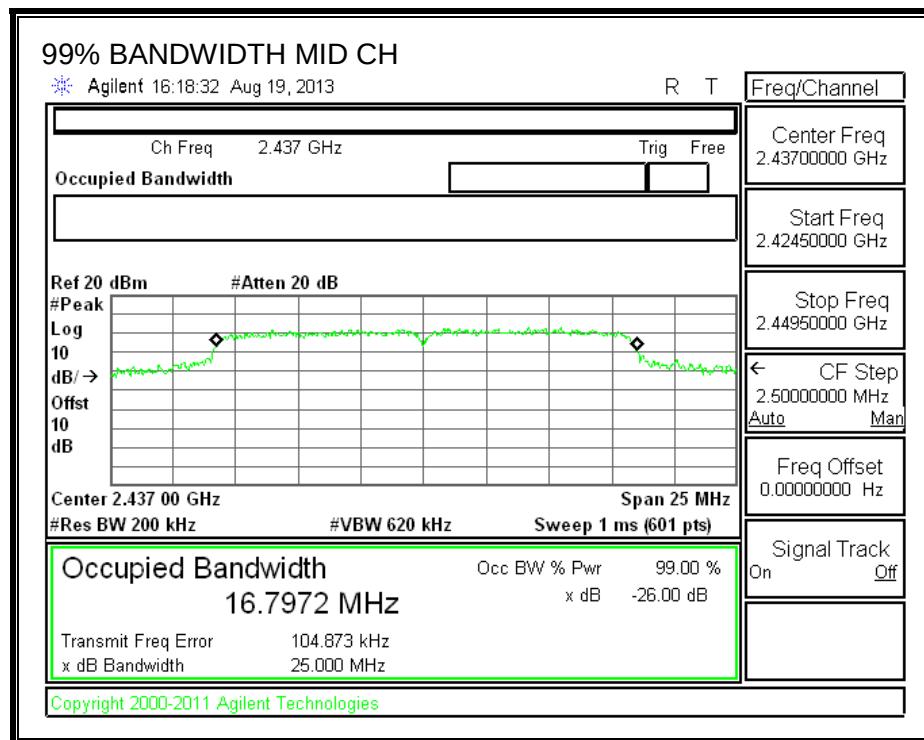
802.11n HT40 MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	36.11
Mid	2437	36.03
High	2462	32.17
Worst		36.11

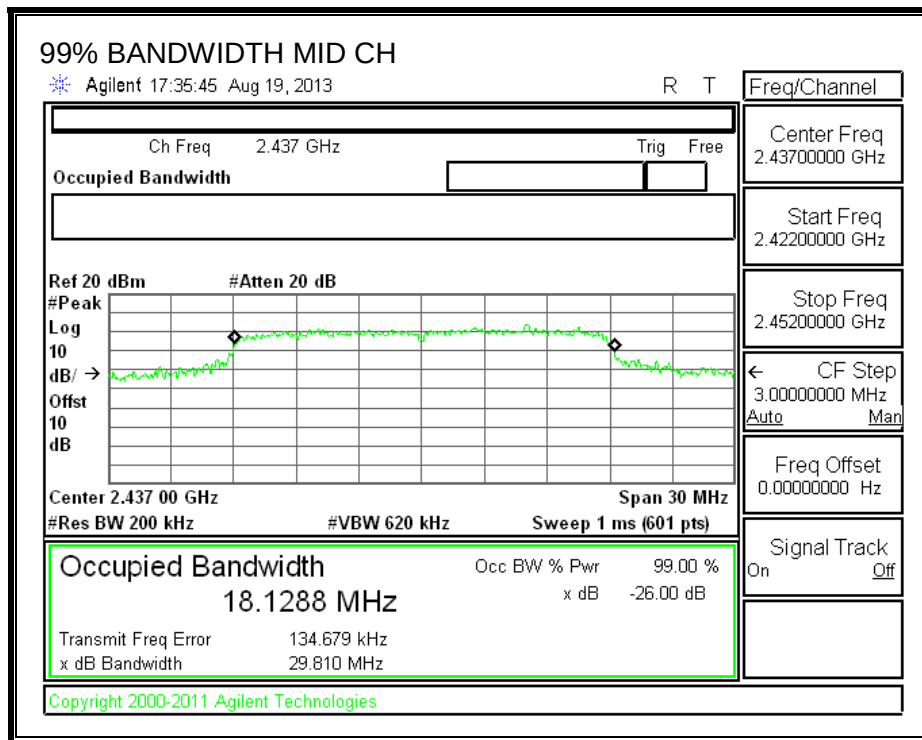
802.11b 99% BANDWIDTH



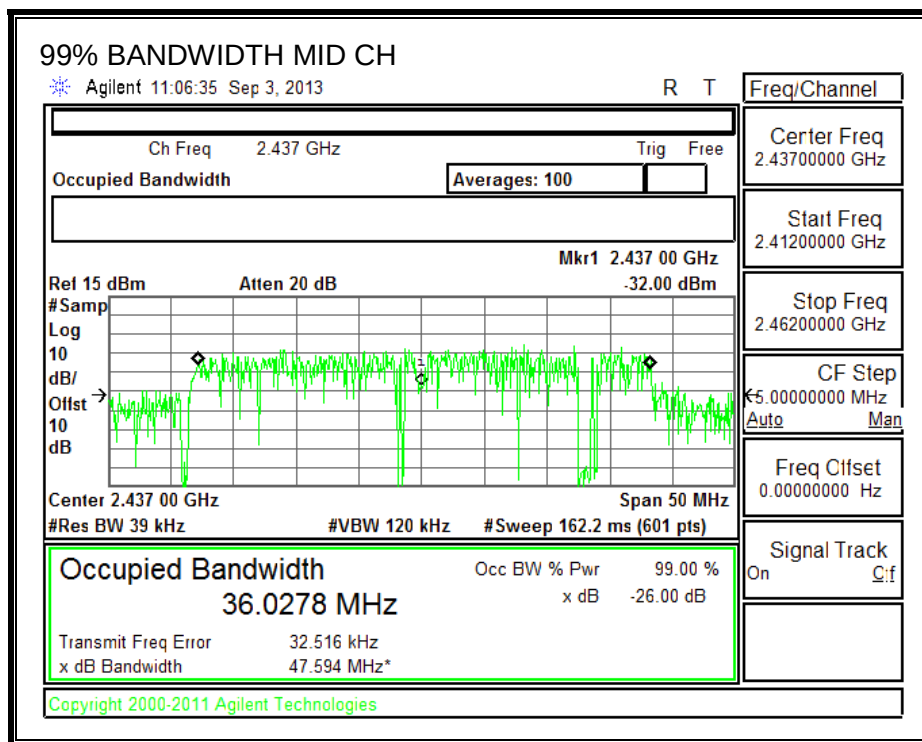
802.11g 99% BANDWIDTH



802.11n HT20 99% BANDWIDTH



802.11n HT40 99% BANDWIDTH



9.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 0.2 dB (including 10 dB pad and 0.2 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

RESULTS

802.11b MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	Power (dBm)
Low	2412	11.80
Mid	2437	11.90
High	2462	11.90

802.11g MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	Power (dBm)
Low	2412	10.70
Mid	2437	11.40
High	2462	11.40

802.11n HT20 MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	Power (dBm)
Low	2412	11.10
Mid	2437	11.30
High	2462	11.30

802.11n HT40 MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	Power (dBm)
Low	2422	10.80
Mid	2437	11.10
High	2452	11.10

9.4. OUTPUT POWER

LIMITS

FCC §15.247

IC RSS-210 A8.4

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

RESULTS

802.11b MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	2412	2.10	30.00	30	36	30.00
Mid	2437	2.10	30.00	30	36	30.00
High	2462	2.10	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	2412	13.49	13.49	30.00	-16.51
Mid	2437	13.93	13.93	30.00	-16.07
High	2462	13.61	13.61	30.00	-16.39
Worst			13.93		

802.11g MODE IN THE 2.4 GHz BAND

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	2412	2.10	30.00	30	36	30.00
Mid	2437	2.10	30.00	30	36	30.00
High	2462	2.10	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	2412	17.75	17.75	30.00	-12.25
Mid	2437	18.58	18.58	30.00	-11.42
High	2462	18.60	18.60	30.00	-11.40
Worst			18.60		

802.11n HT20 MODE IN THE 2.4 GHz BAND

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	2412	2.10	30.00	30	36	30.00
Mid	2437	2.10	30.00	30	36	30.00
High	2462	2.10	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	2412	18.06	18.06	30.00	-11.94
Mid	2437	18.61	18.61	30.00	-11.39
High	2462	18.47	18.47	30.00	-11.53
Worst			18.61		

802.11n HT40 MODE IN THE 2.4 GHz BAND

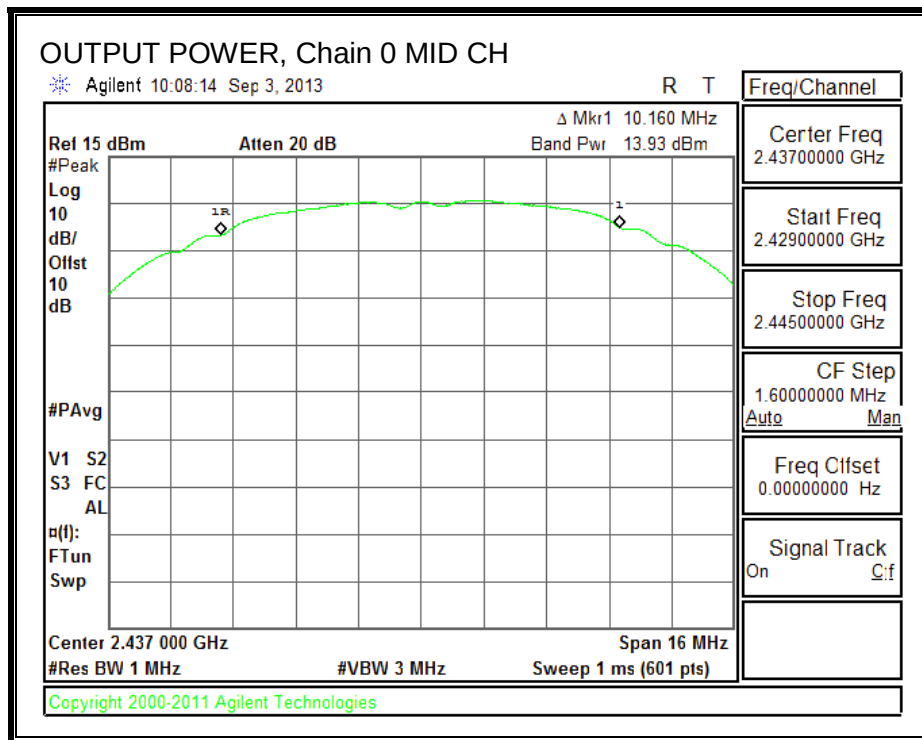
Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	2412	2.10	30.00	30	36	30.00
Mid	2437	2.10	30.00	30	36	30.00
High	2462	2.10	30.00	30	36	30.00

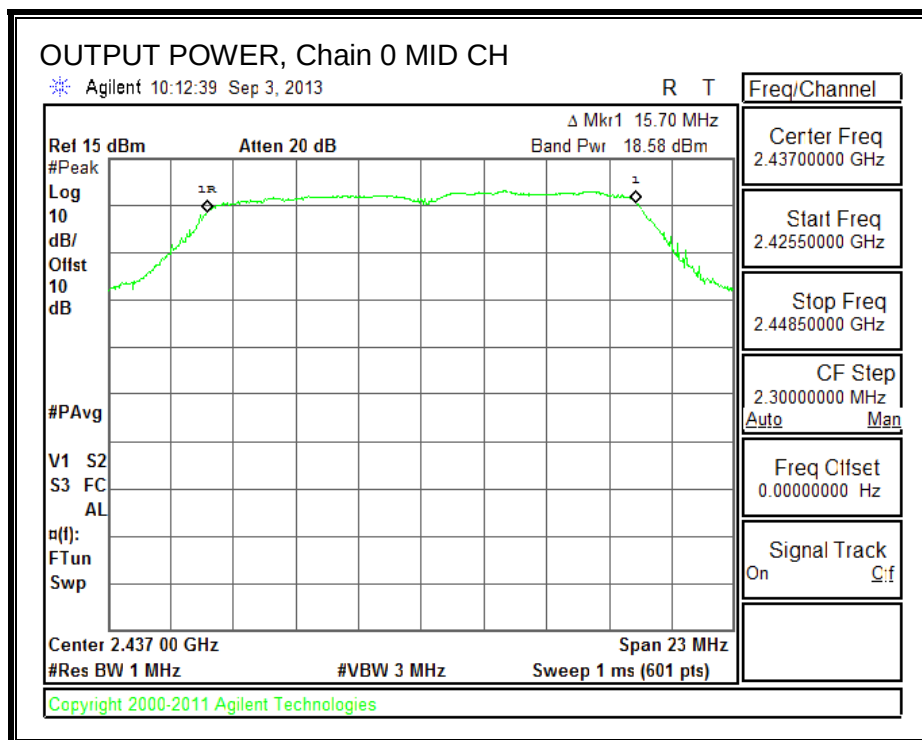
Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	2412	18.06	18.06	30.00	-11.94
Mid	2437	18.35	18.35	30.00	-11.65
High	2462	18.65	18.65	30.00	-11.35
Worst			18.65		

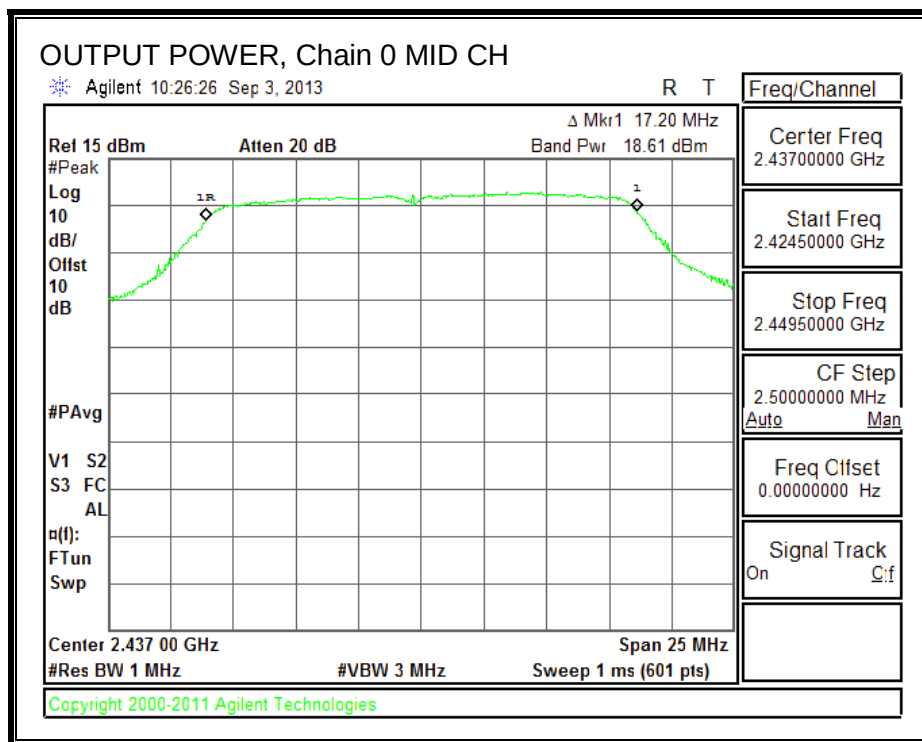
802.11b OUTPUT POWER, Chain 0



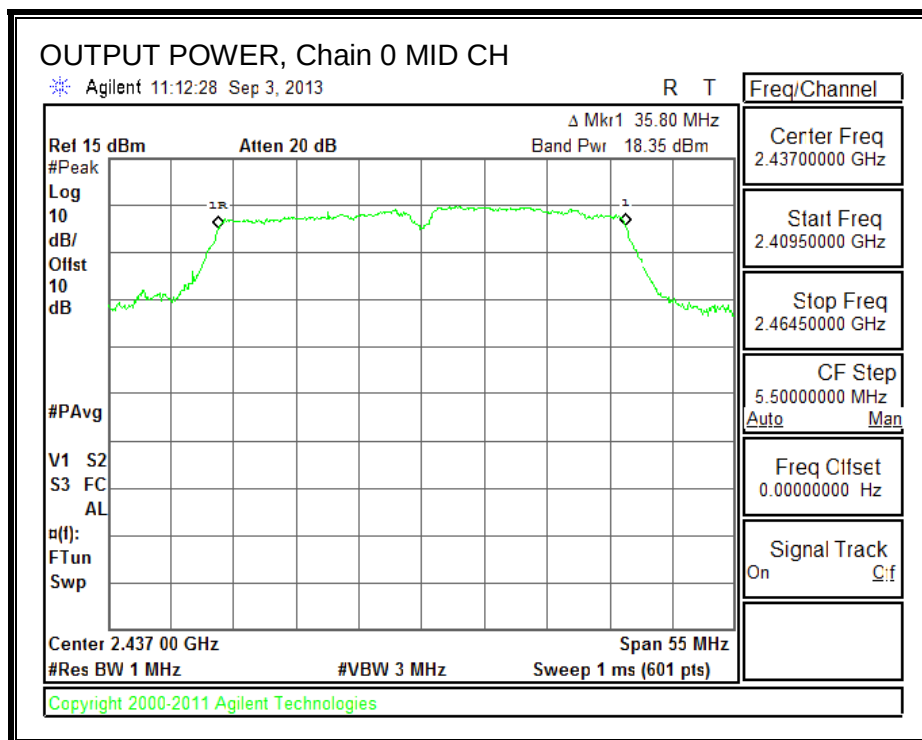
802.11g OUTPUT POWER, Chain 0



802.11n HT20 OUTPUT POWER, Chain 0



802.11n HT40 OUTPUT POWER, Chain 0



9.5. PSD

LIMITS

FCC §15.247

IC RSS-210 A8.2

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.

RESULTS

802.11b MODE IN THE 2.4 GHz BAND

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-15.36	8.0	-23.4
Mid	2437	-14.20	8.0	-22.2
High	2462	-14.71	8.0	-22.7

802.11g MODE IN THE 2.4 GHz BAND

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-16.83	8.0	-24.8
Mid	2437	-15.07	8.0	-23.1
High	2462	-14.97	8.0	-23.0

802.11n HT20 MODE IN THE 2.4 GHz BAND

PSD Results

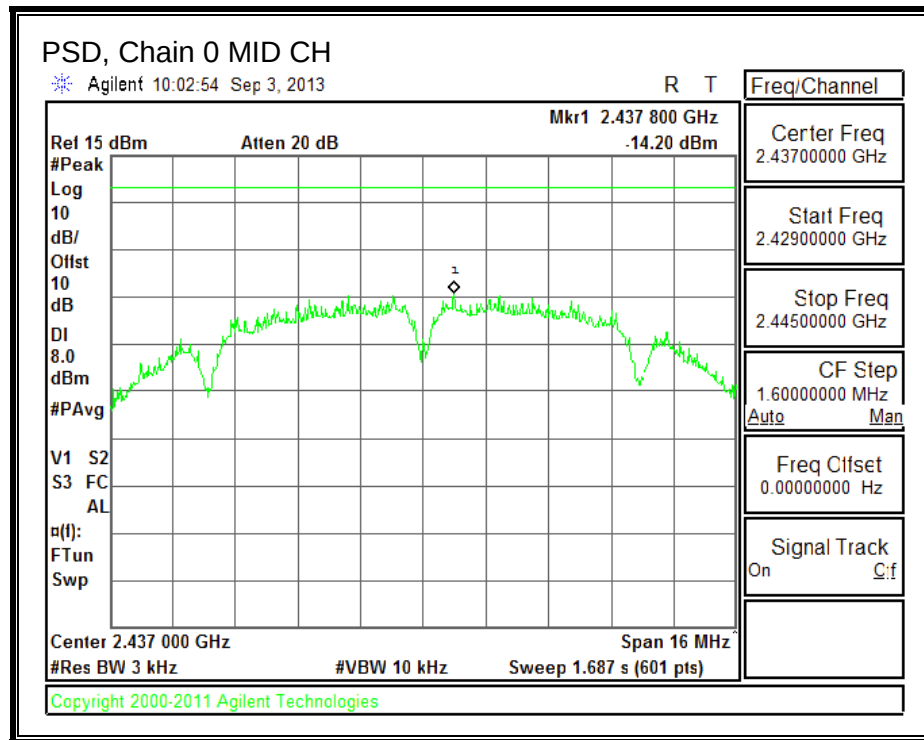
Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-13.61	8.0	-21.6
Mid	2437	-15.90	8.0	-23.9
High	2462	-15.29	8.0	-23.3

802.11n HT40 MODE IN THE 2.4 GHz BAND

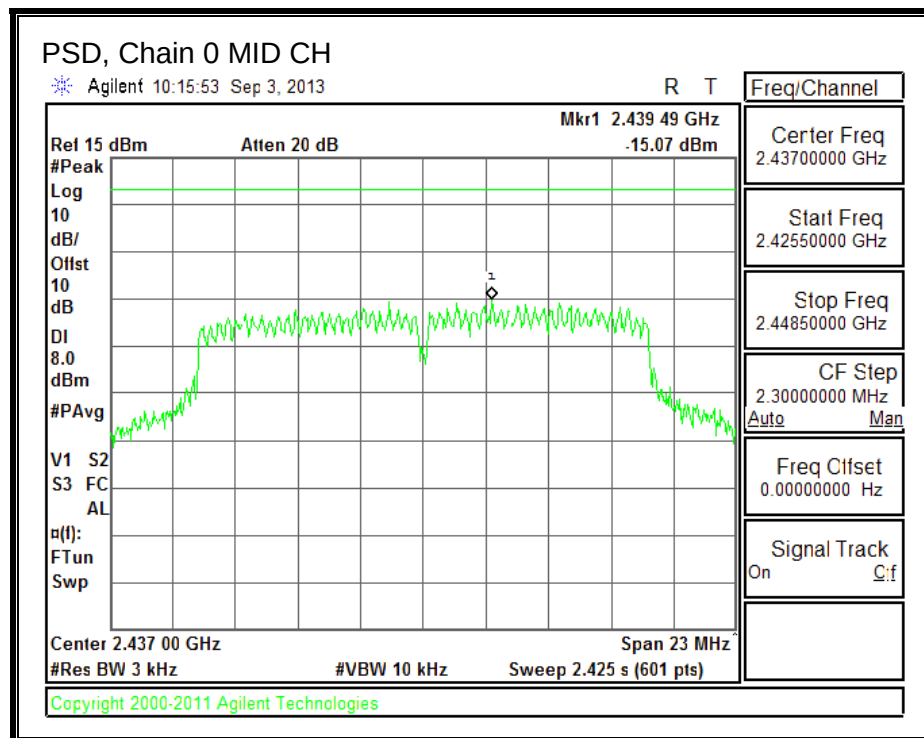
PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-17.20	8.0	-25.2
Mid	2437	-16.84	8.0	-24.8
High	2462	-21.10	8.0	-29.1

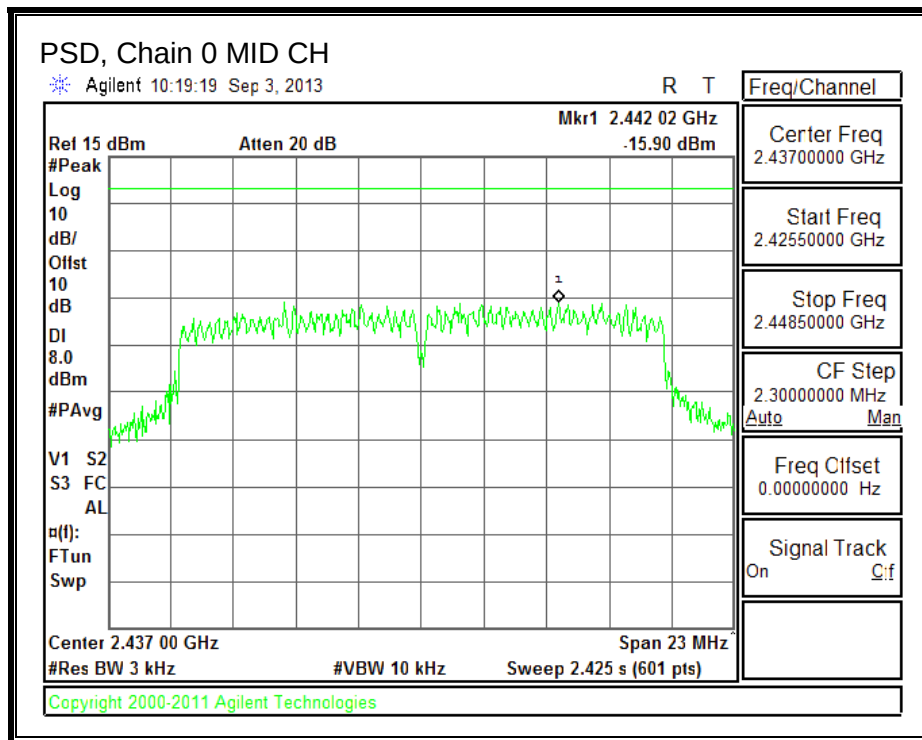
802.11b PSD, Chain 0



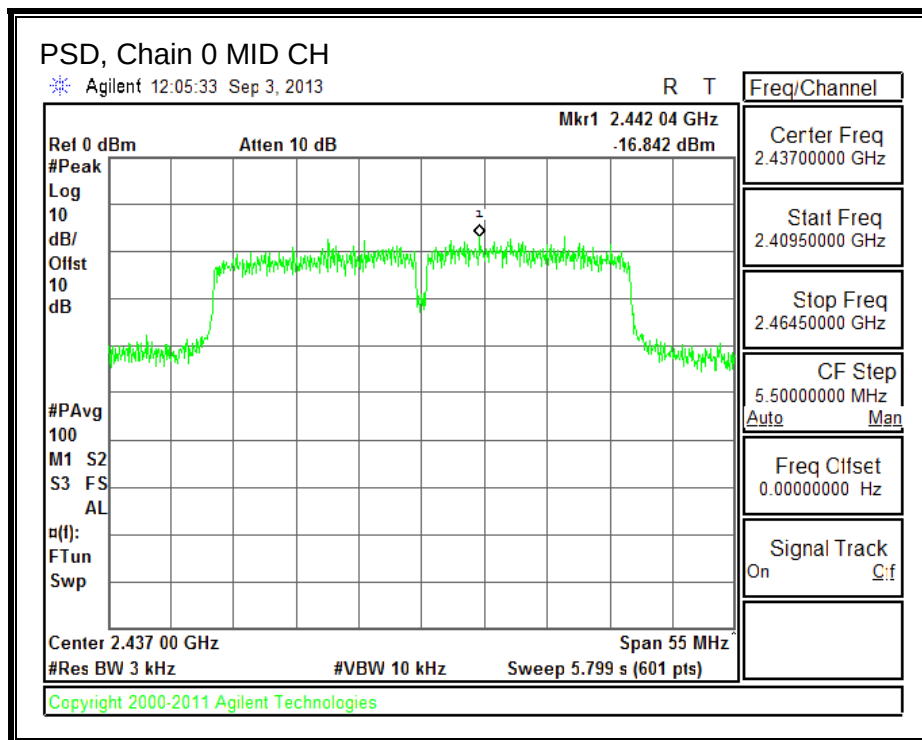
802.11g PSD, Chain 0



802.11n HT20 PSD, Chain 0



802.11n HT40 PSD, Chain 0



9.6. 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.

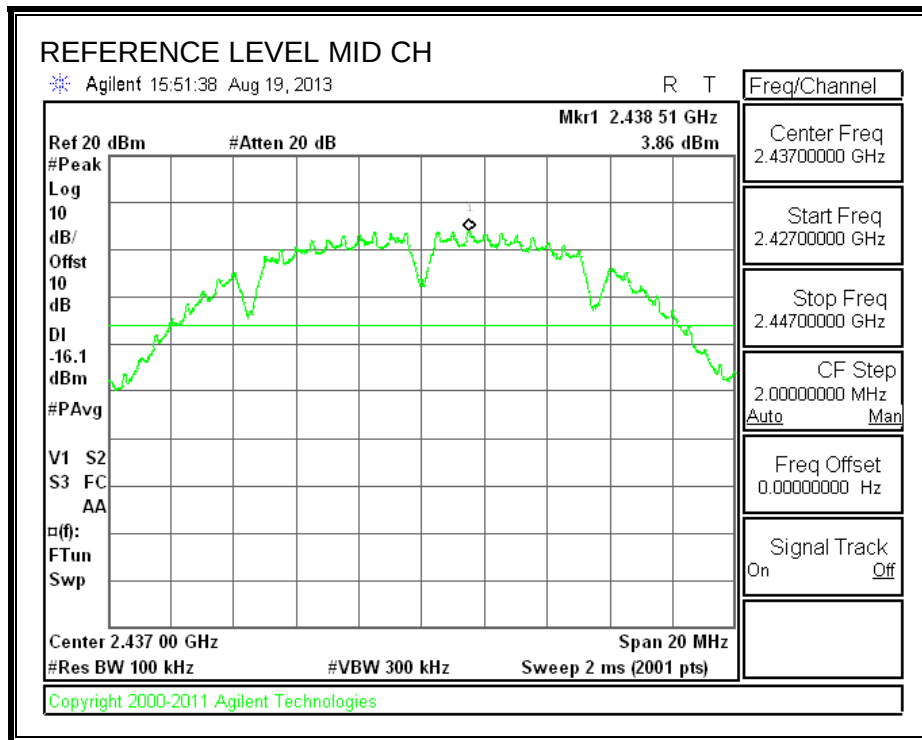
TEST PROCEDURE

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.

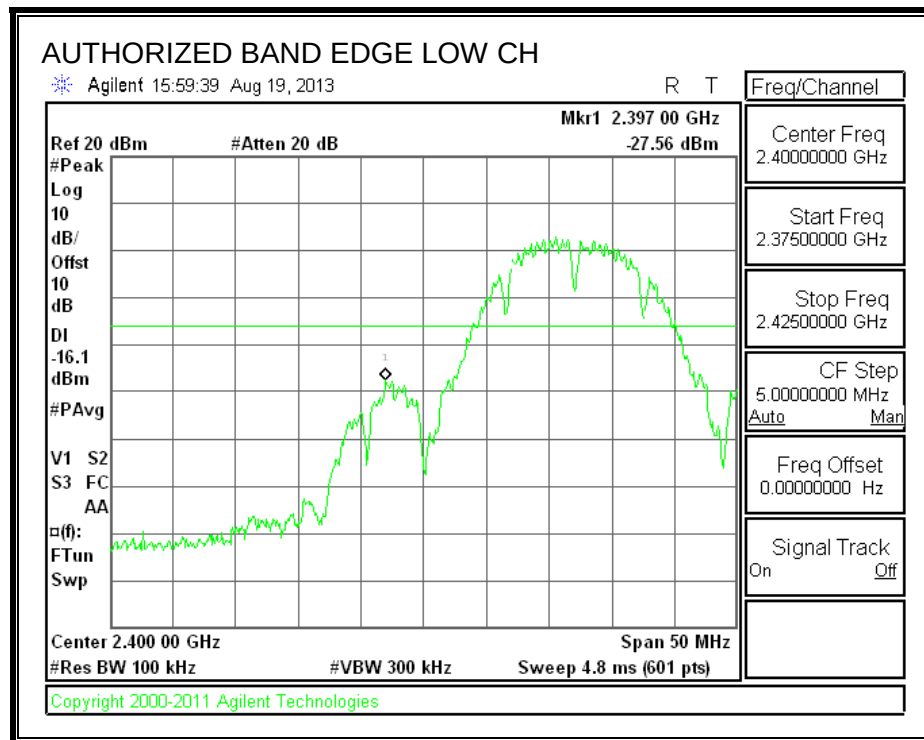
RESULTS

802.11b MODE IN THE 2.4 GHZ BAND

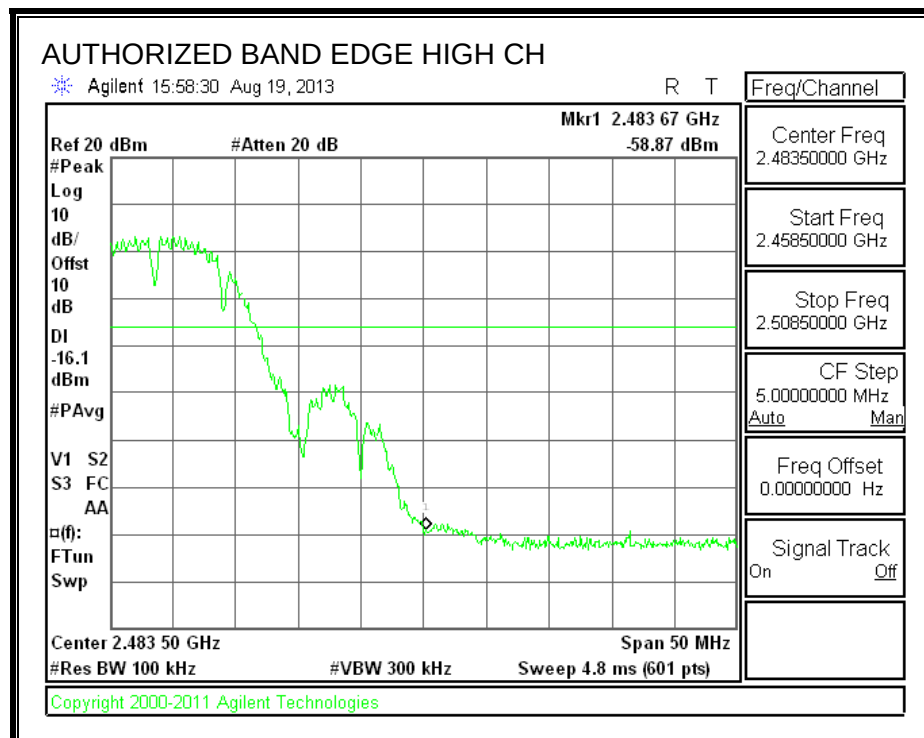
IN-BAND REFERENCE LEVEL



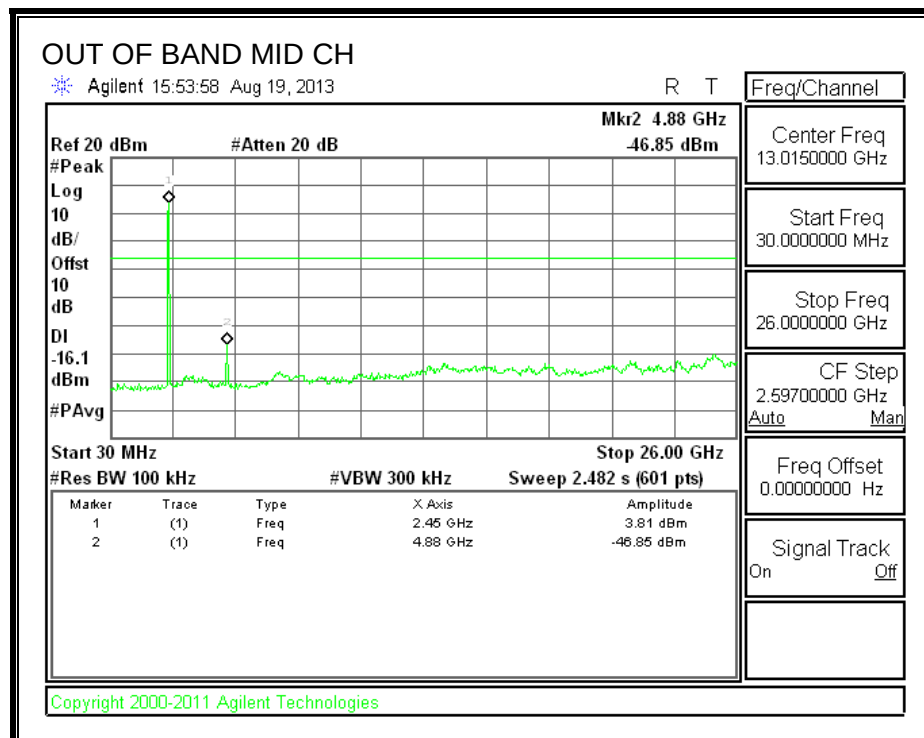
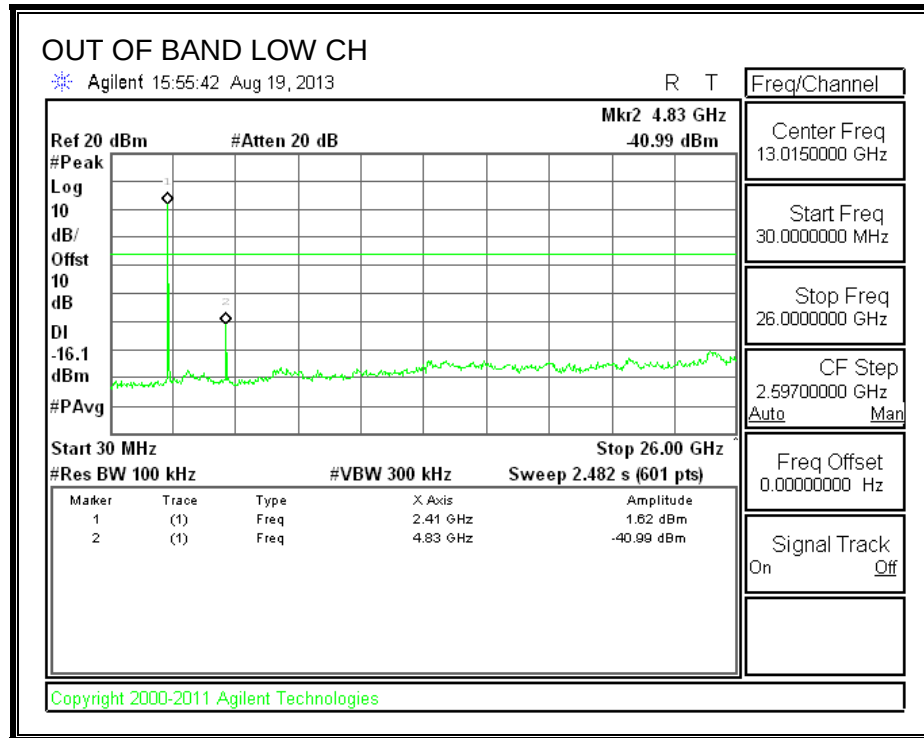
LOW CHANNEL BANDEDGE

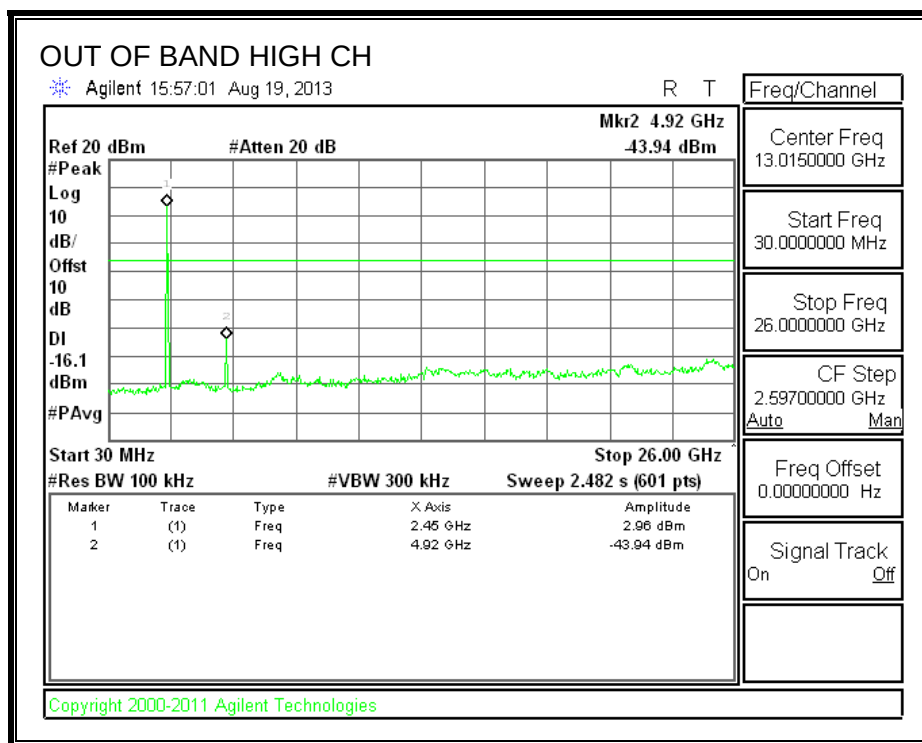


HIGH CHANNEL BANDEDGE



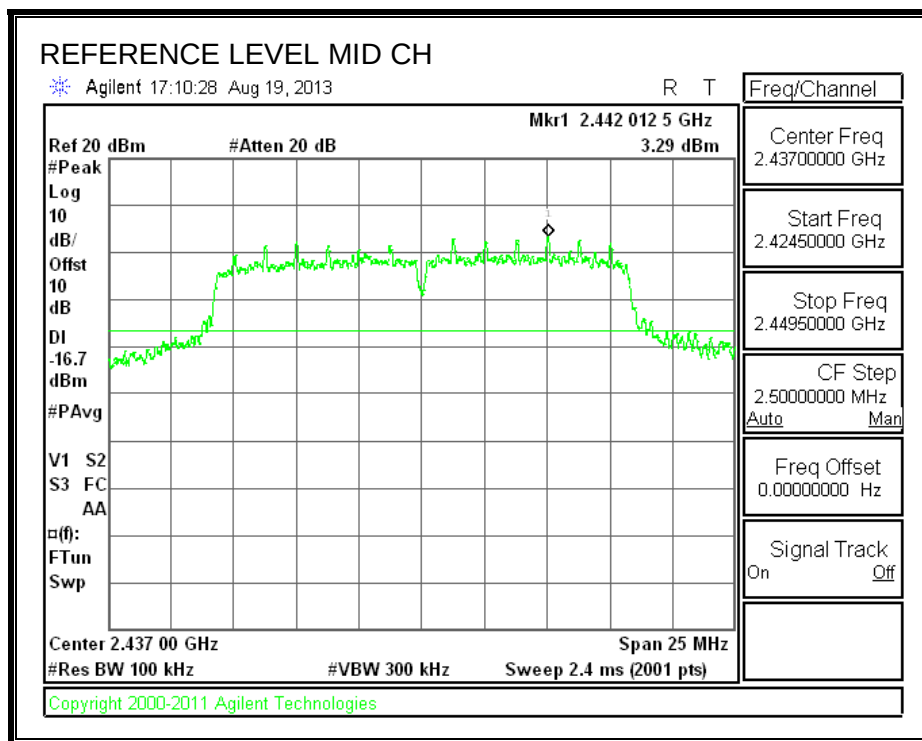
OUT-OF-BAND EMISSIONS



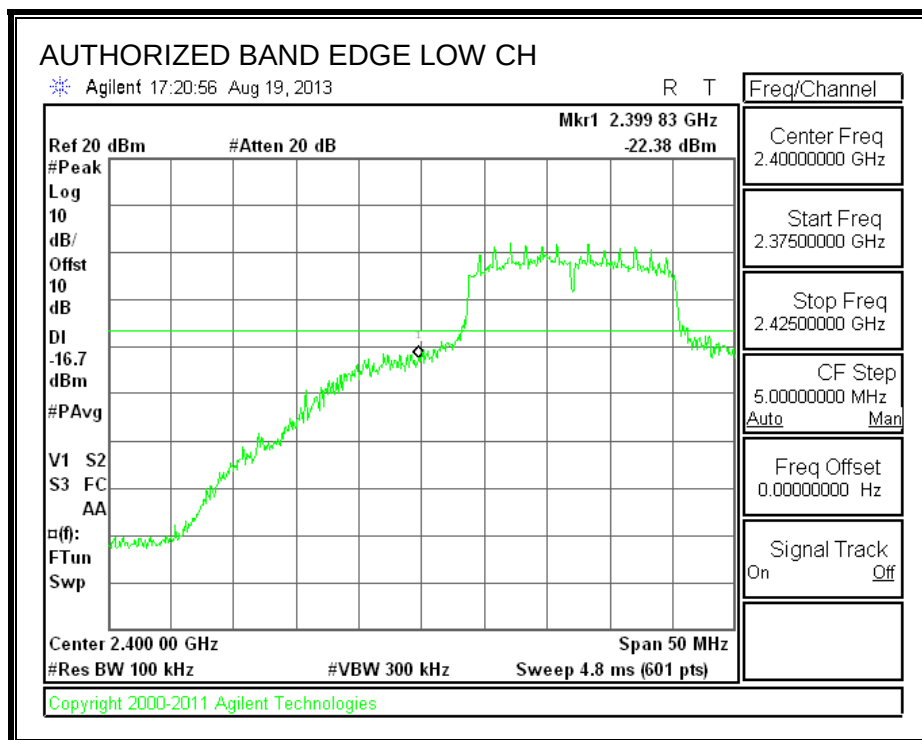


802.11g MODE IN THE 2.4 GHZ BAND

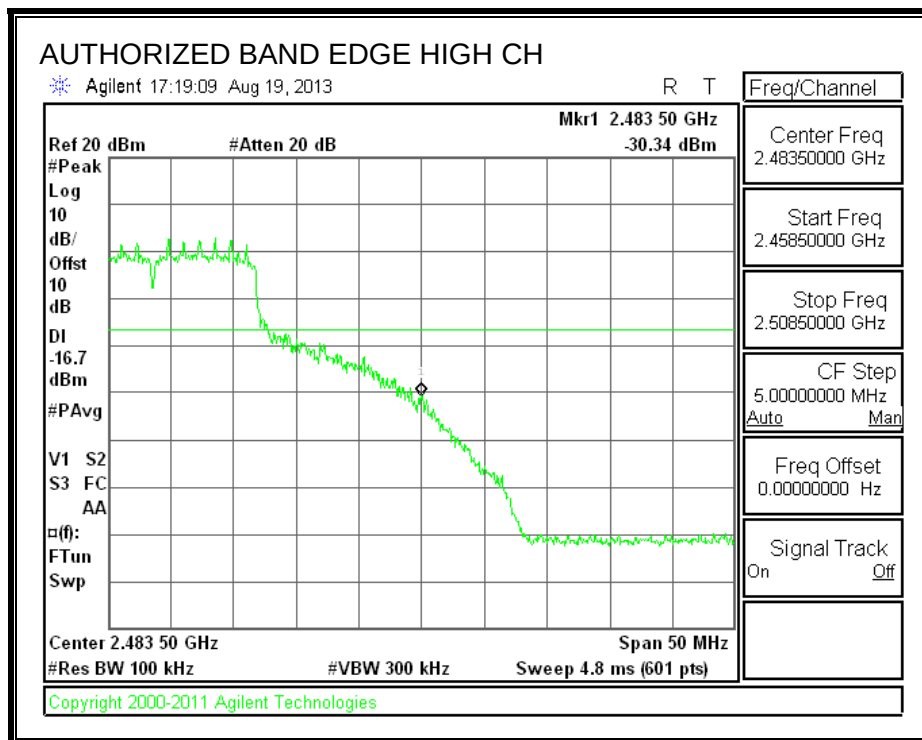
IN-BAND REFERENCE LEVEL



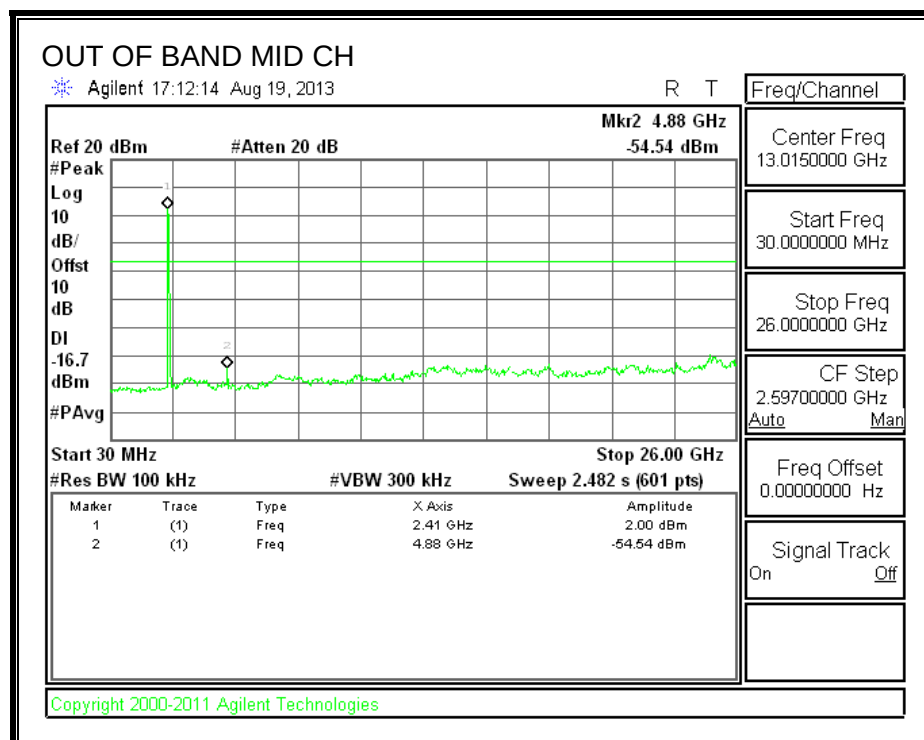
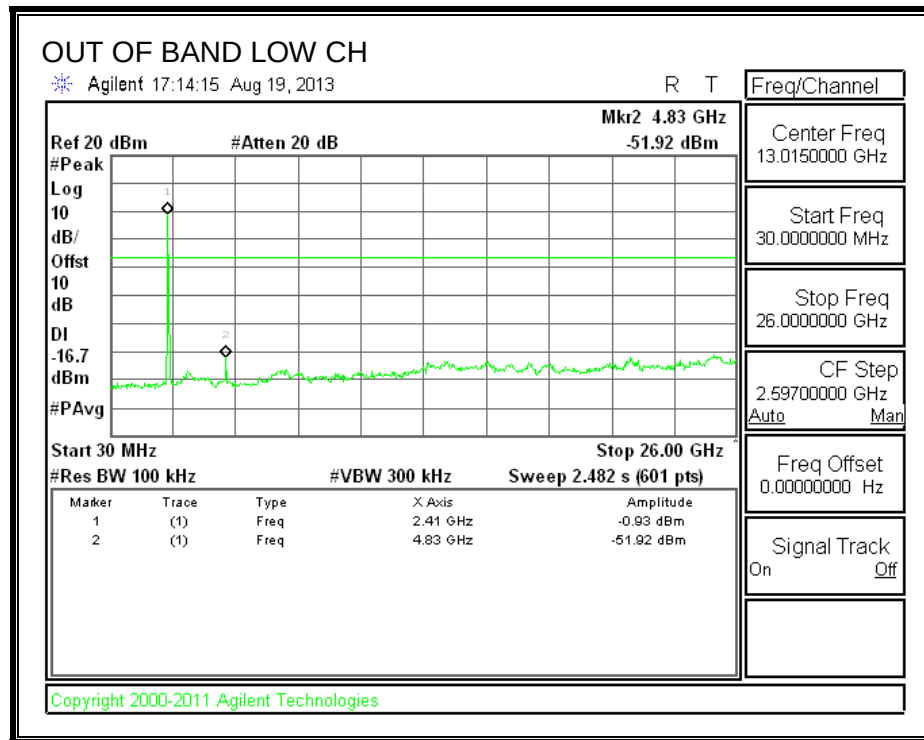
LOW CHANNEL BANDEDGE

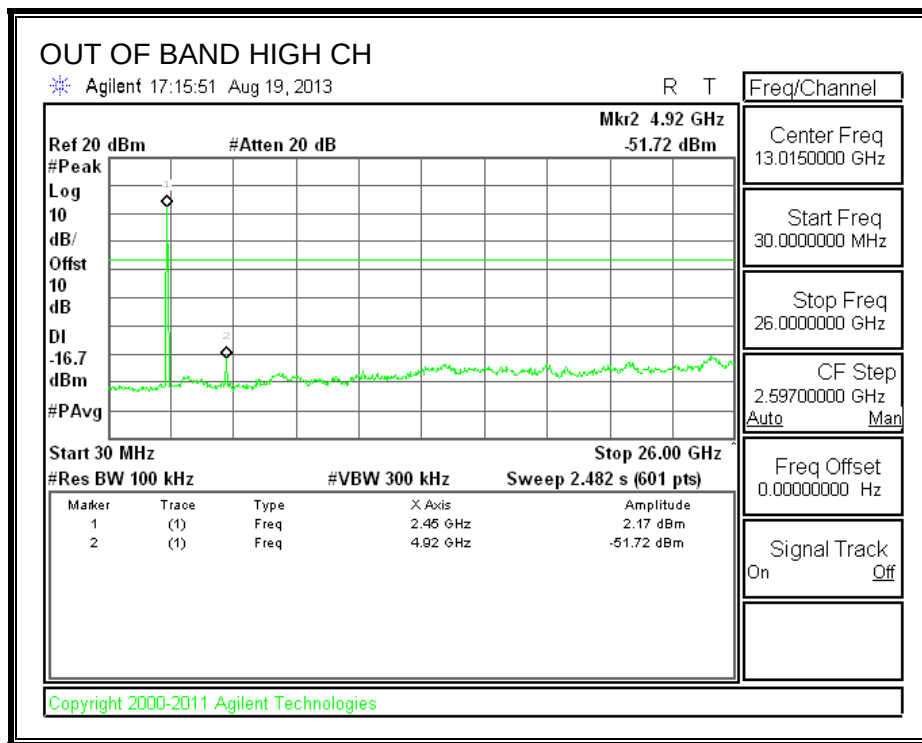


HIGH CHANNEL BANDEDGE



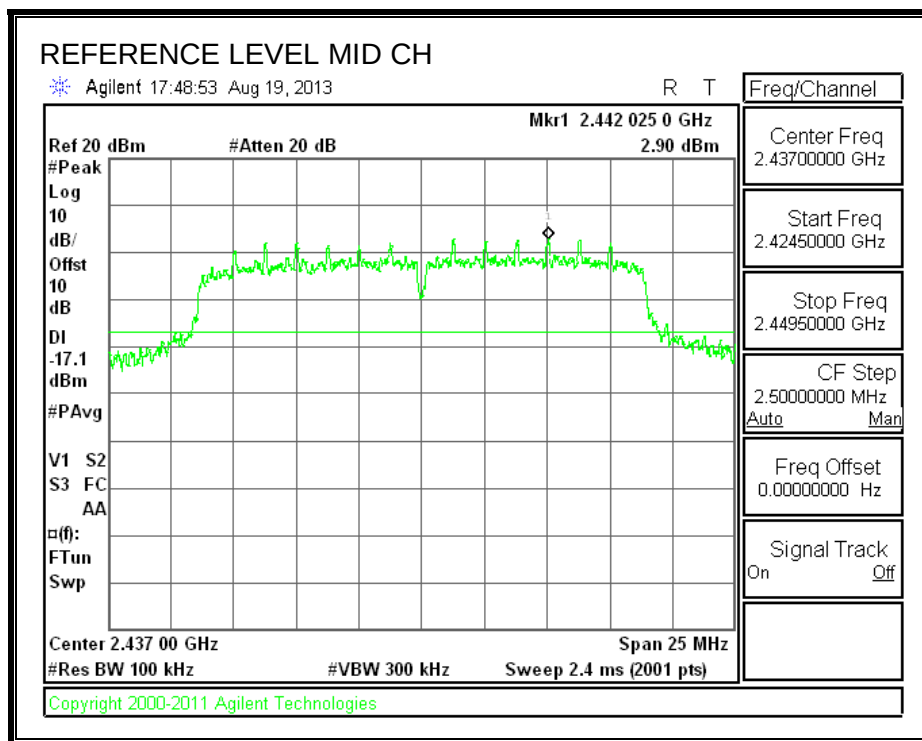
OUT-OF-BAND EMISSIONS



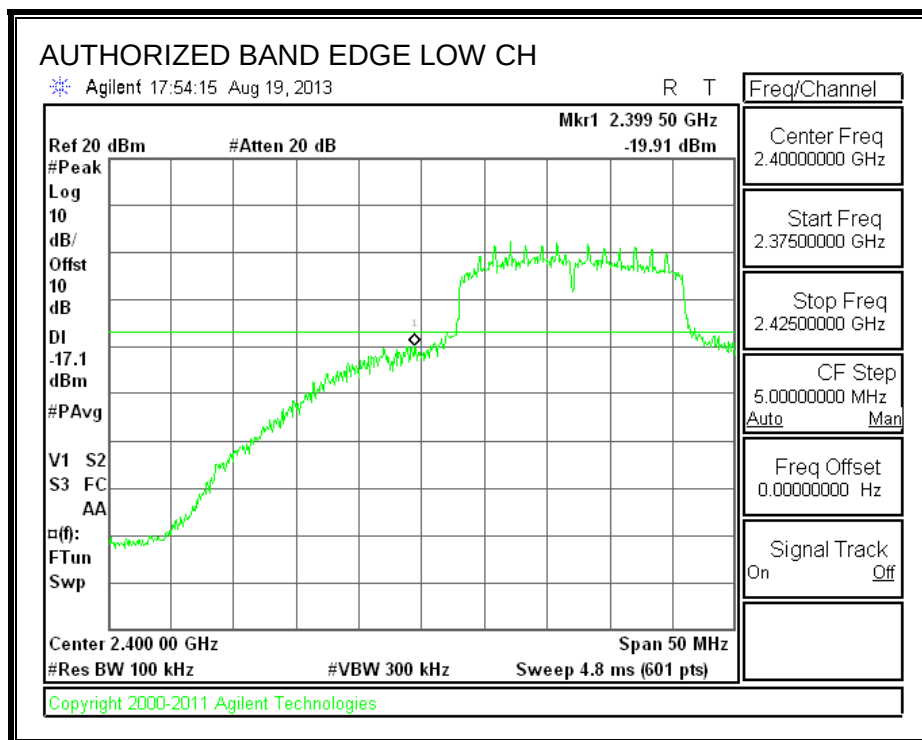


802.11n HT20 MODE IN THE 2.4 GHz BAND

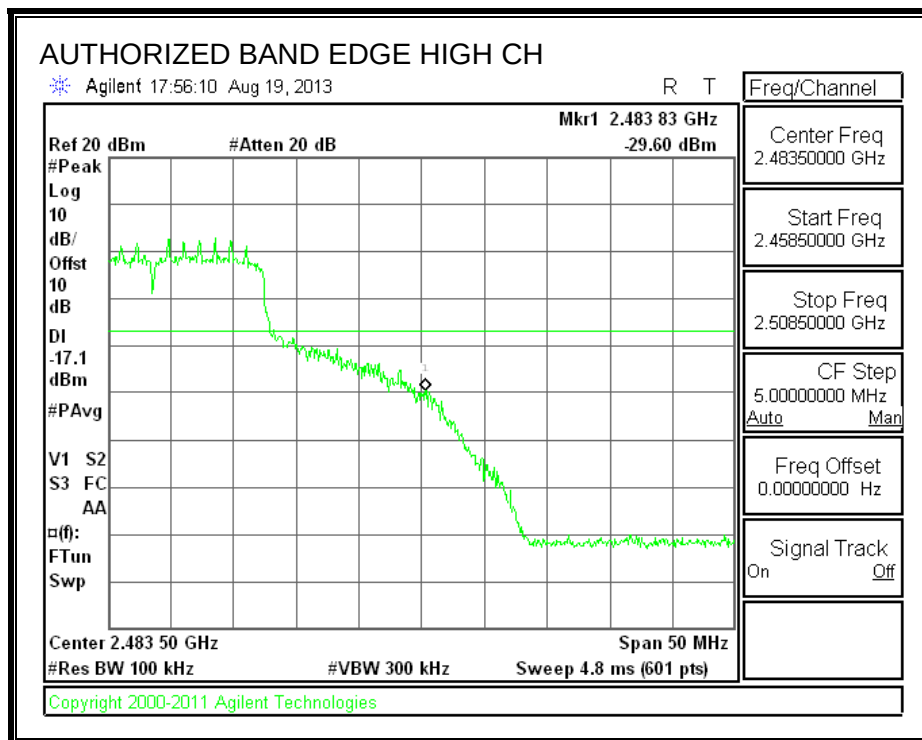
IN-BAND REFERENCE LEVEL



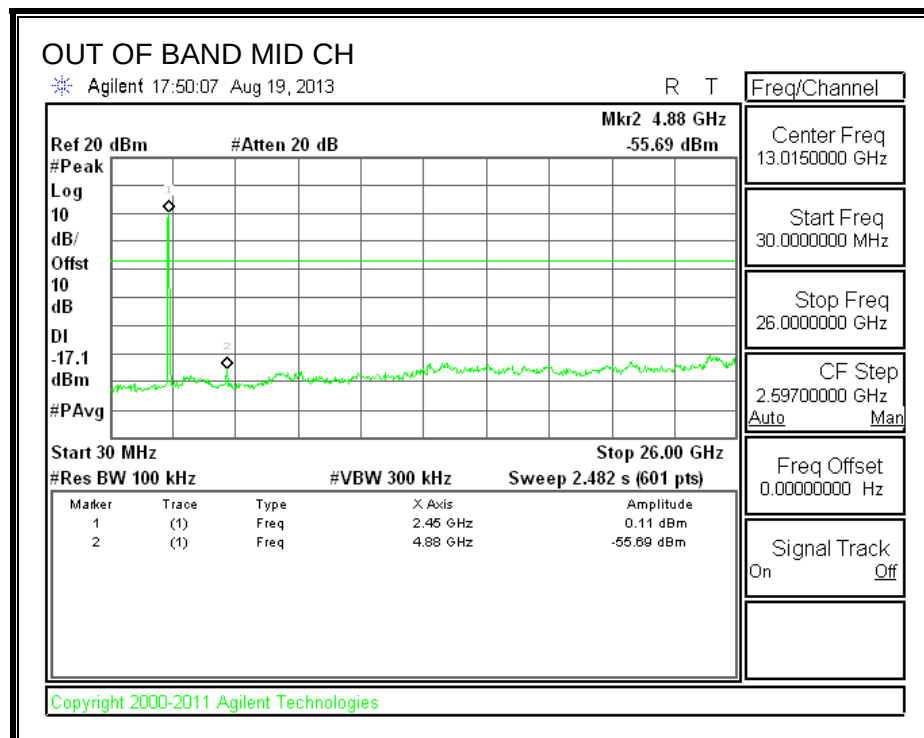
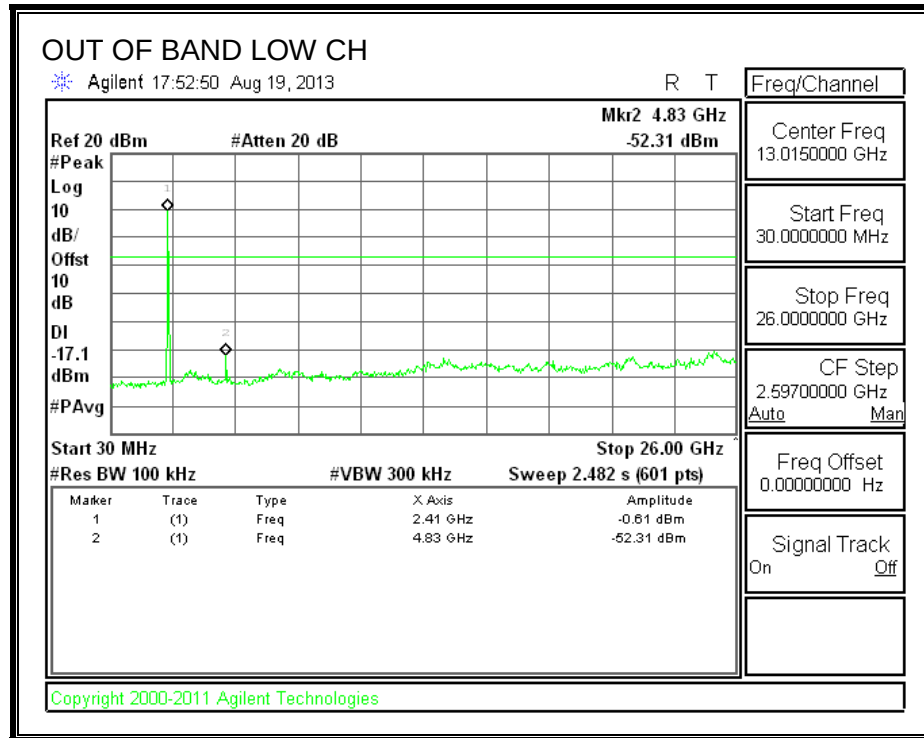
LOW CHANNEL BANDEDGE

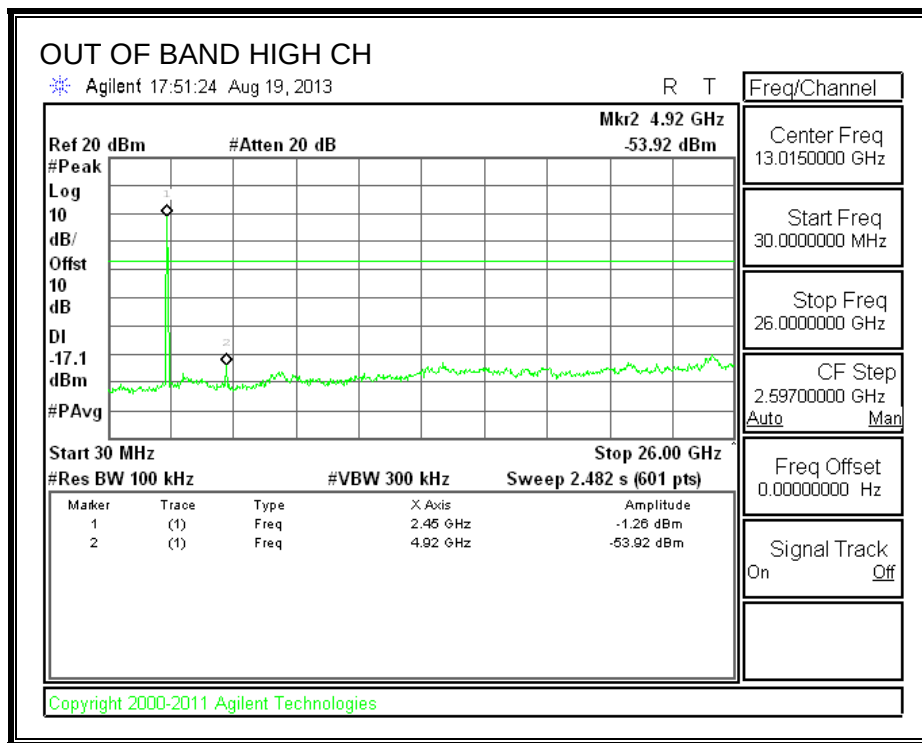


HIGH CHANNEL BANDEDGE



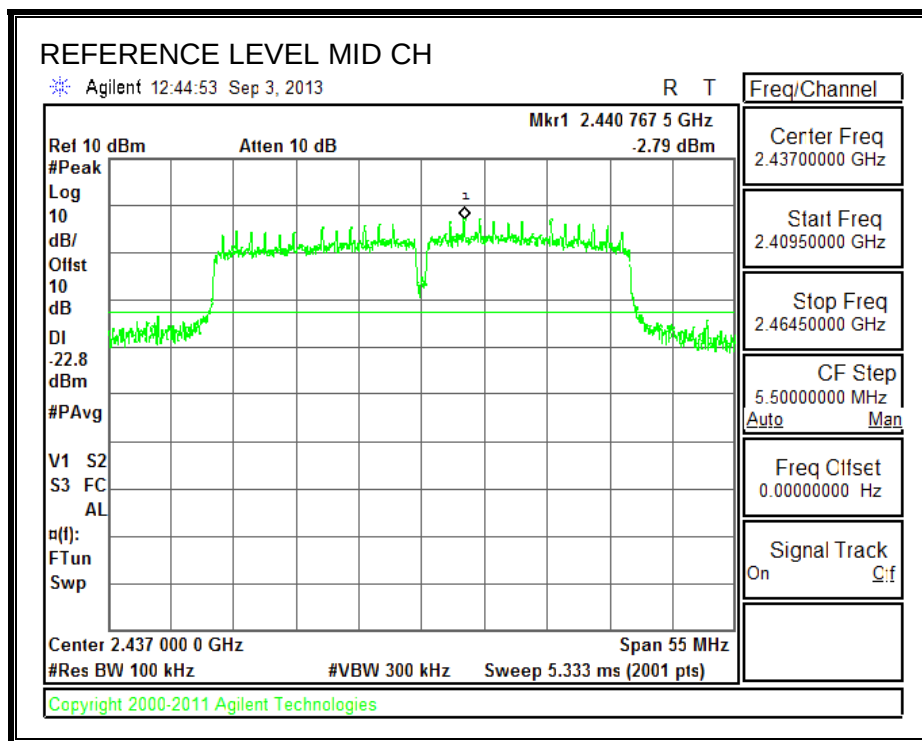
OUT-OF-BAND EMISSIONS



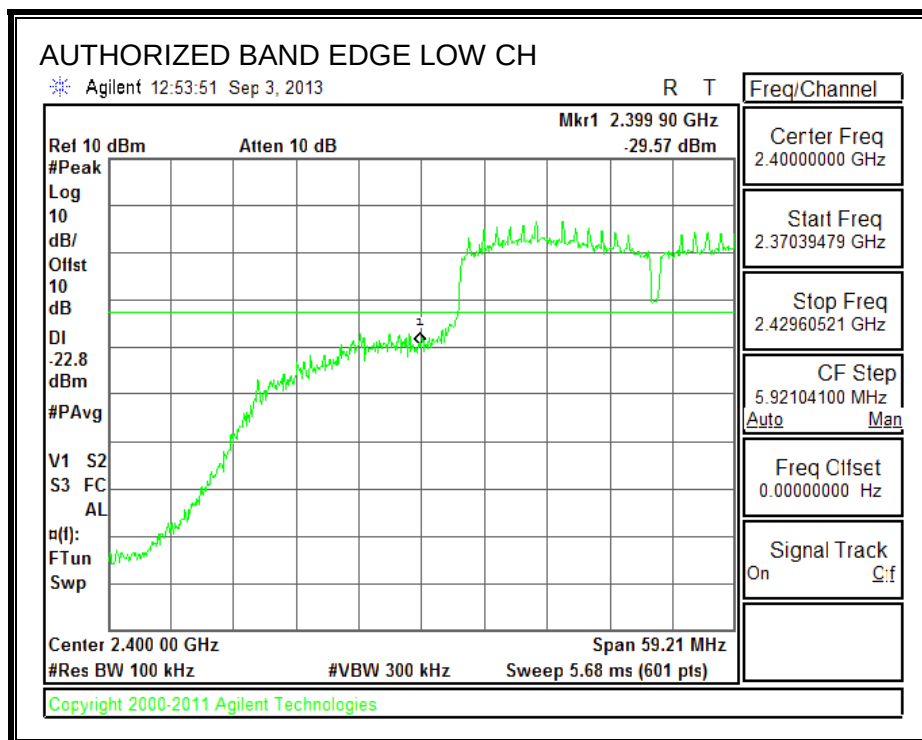


802.11n HT40 MODE IN THE 2.4 GHz BAND

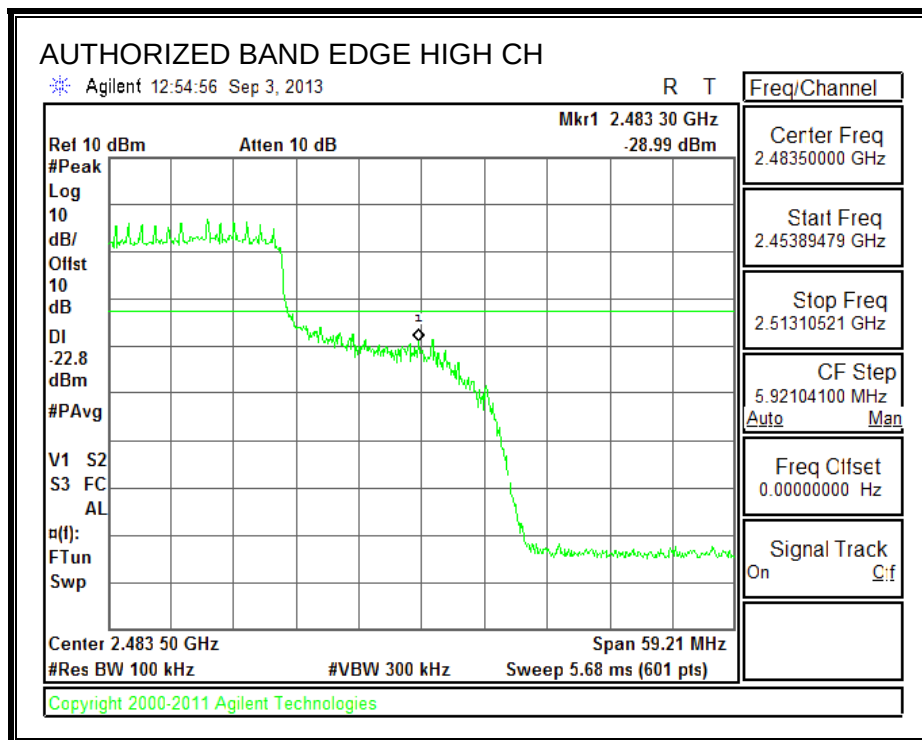
IN-BAND REFERENCE LEVEL



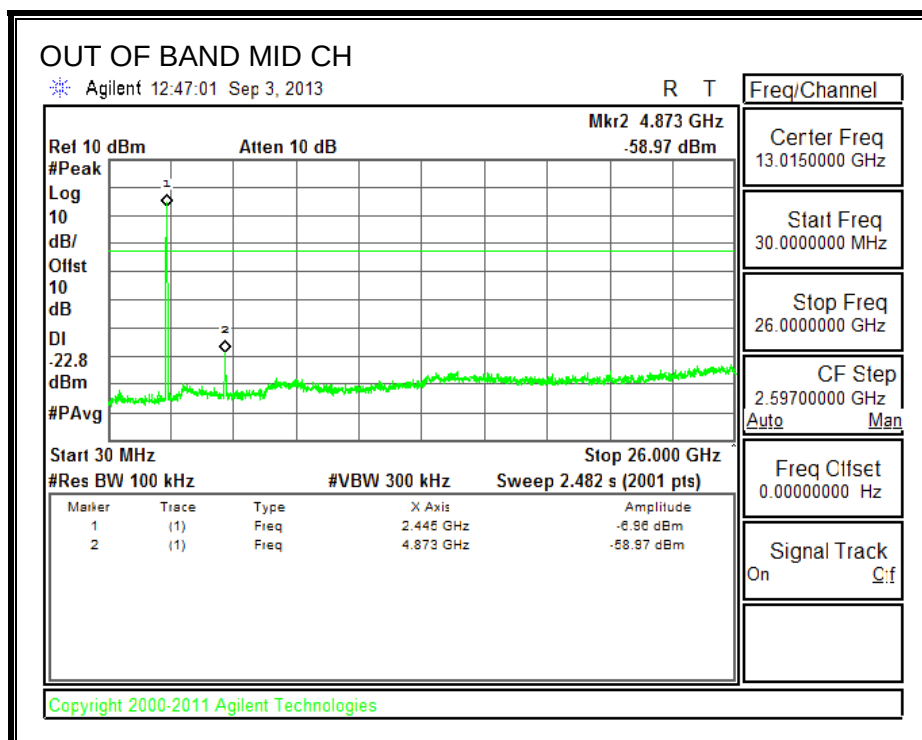
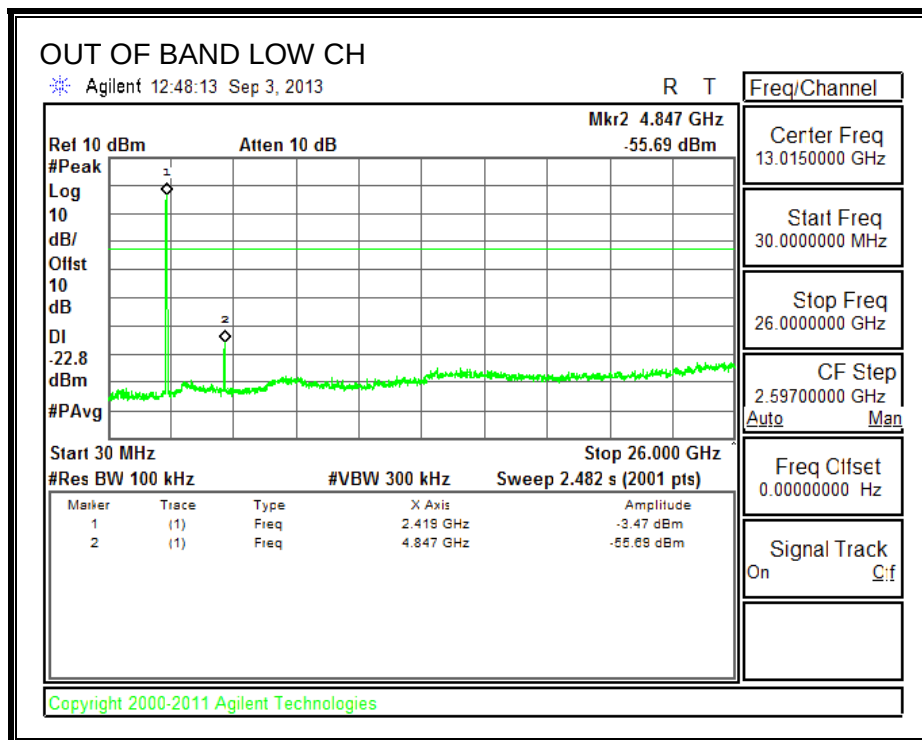
LOW CHANNEL BANDEDGE

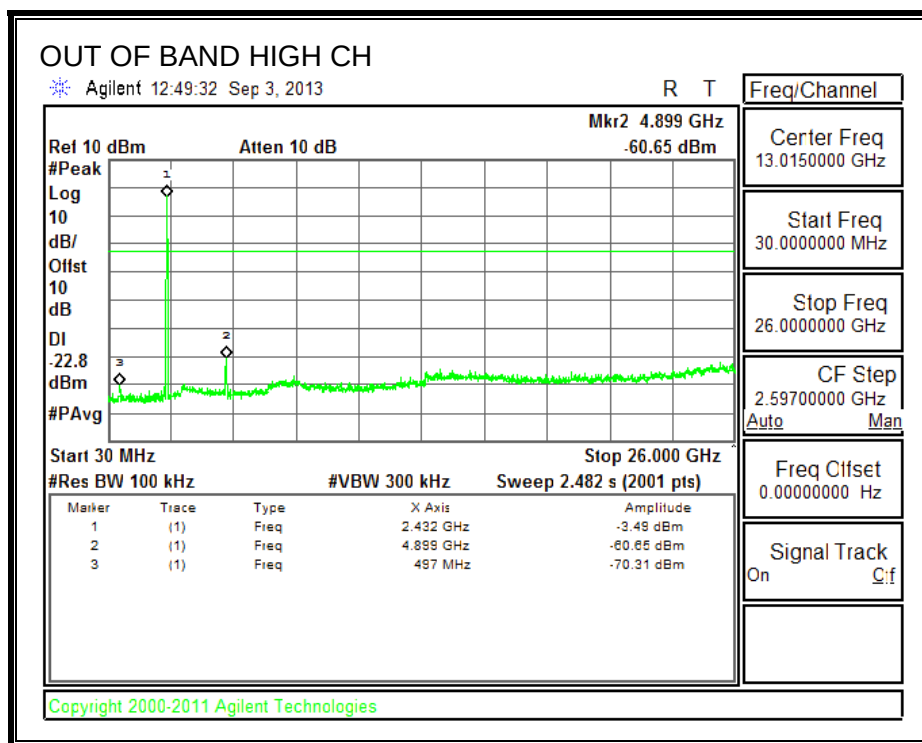


HIGH CHANNEL BANDEDGE



OUT-OF-BAND EMISSIONS





10. RADIATED TEST RESULTS

10.1. 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 3 MHz for peak measurements and add duty cycle factor for average measurements. Duty cycle factor= $10\log(1/x)$. For this unit, duty cycle can be set to greater than 98%. So no duty cycle factor applied.

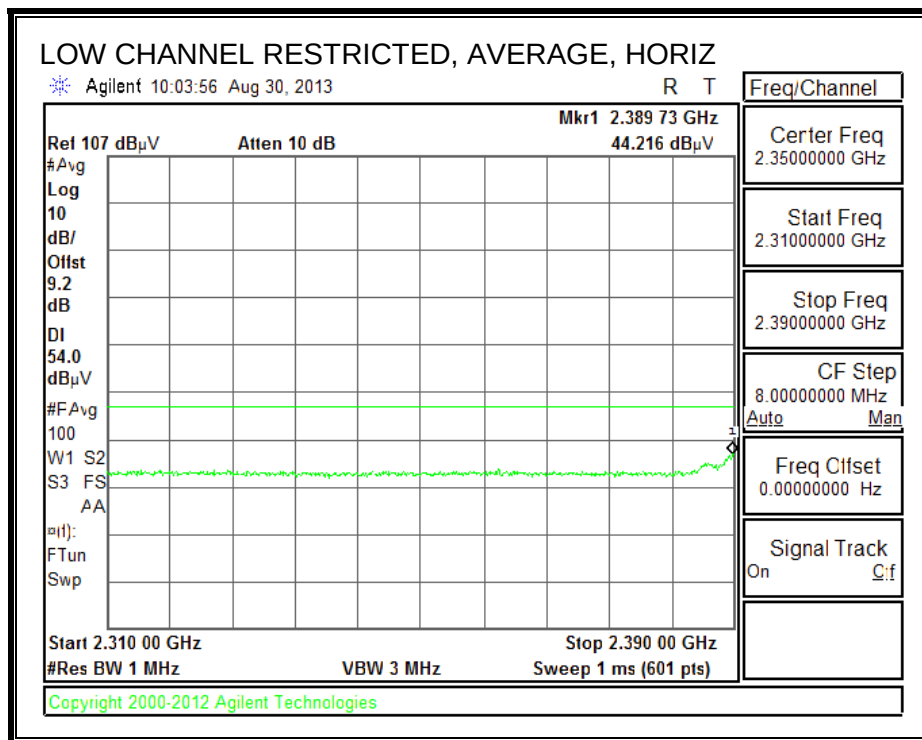
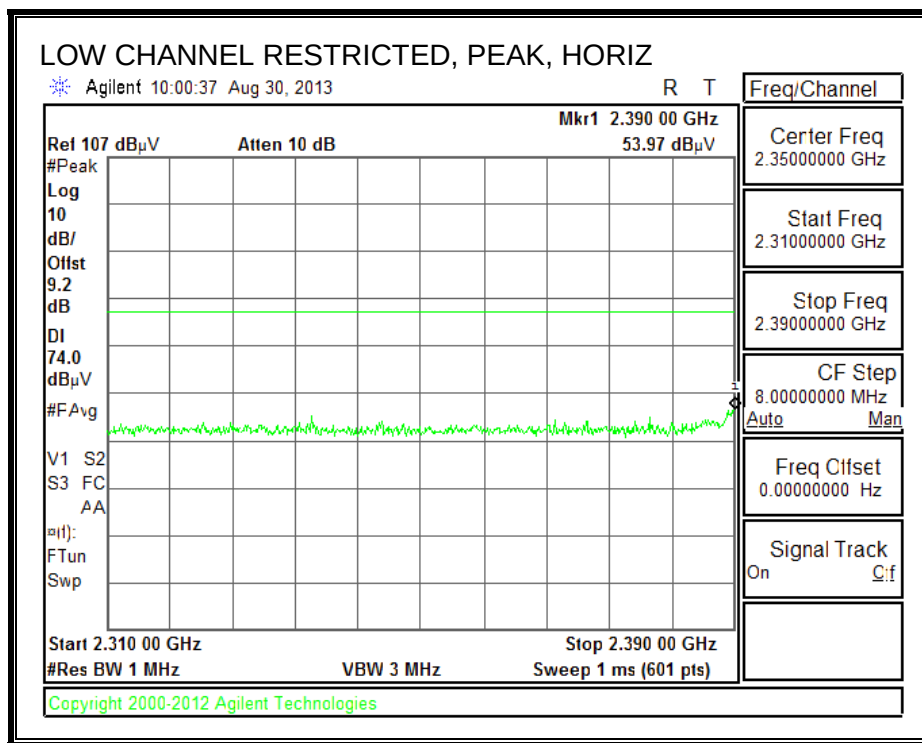
Note: B mode and G/N mode testing performed in different chamber, the offset factor is different due to different chamber.

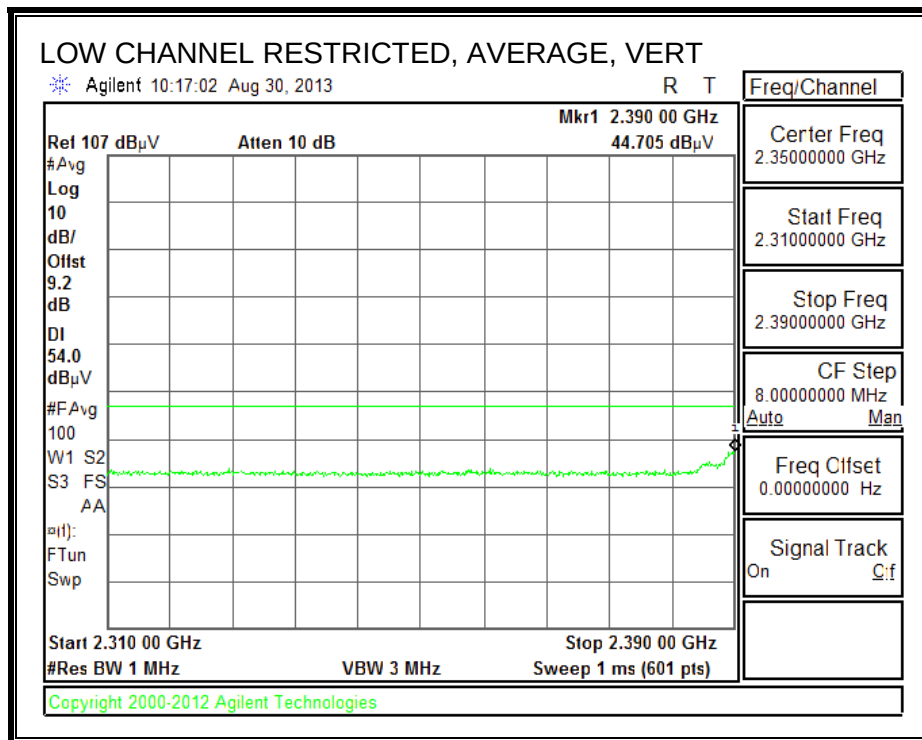
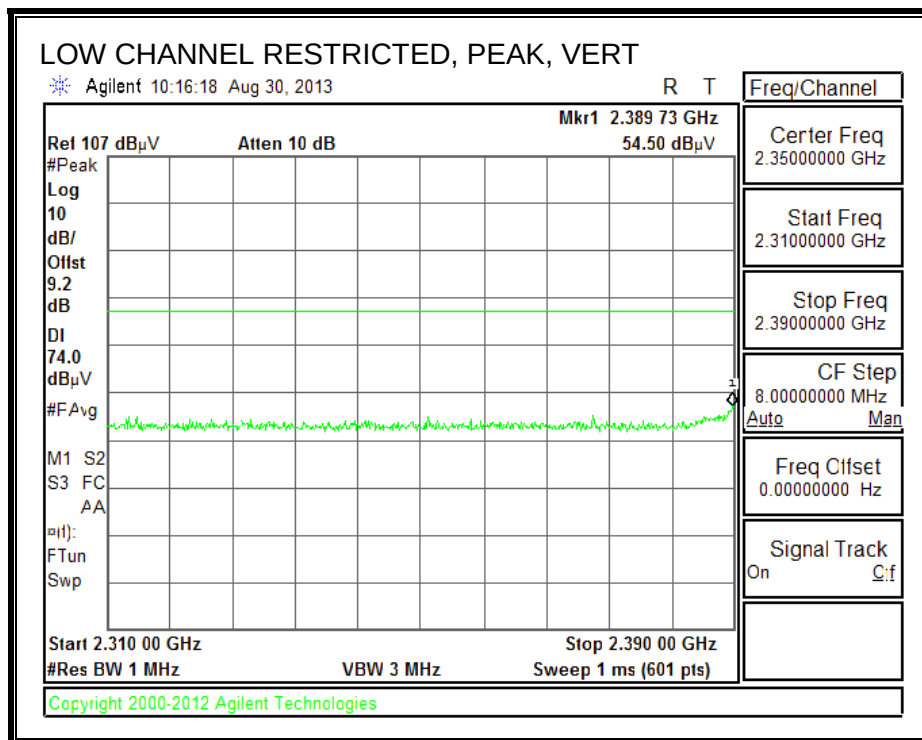
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.

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.

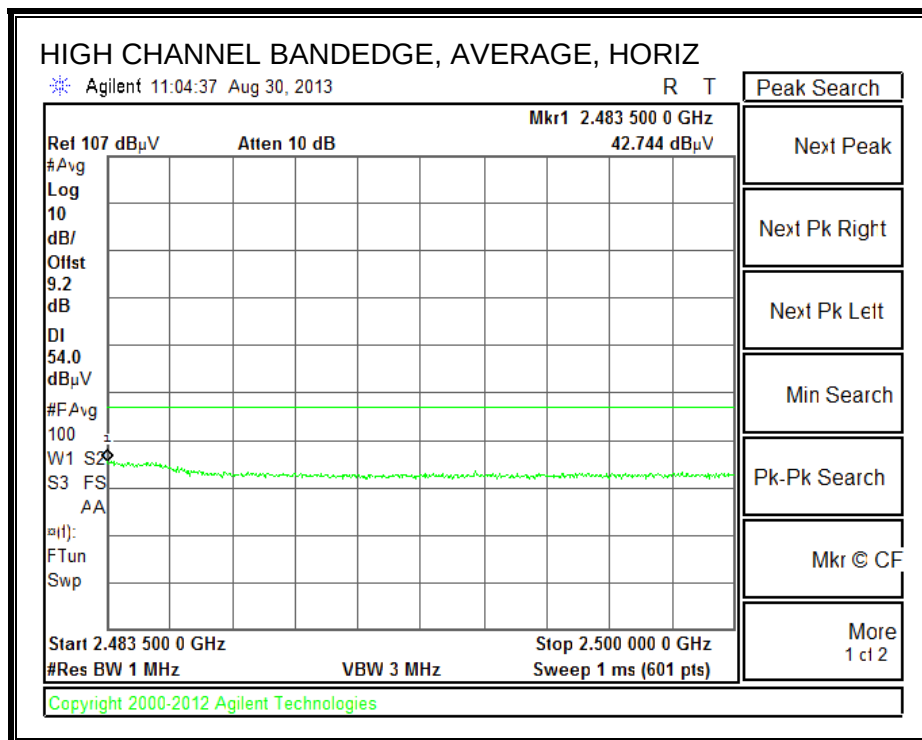
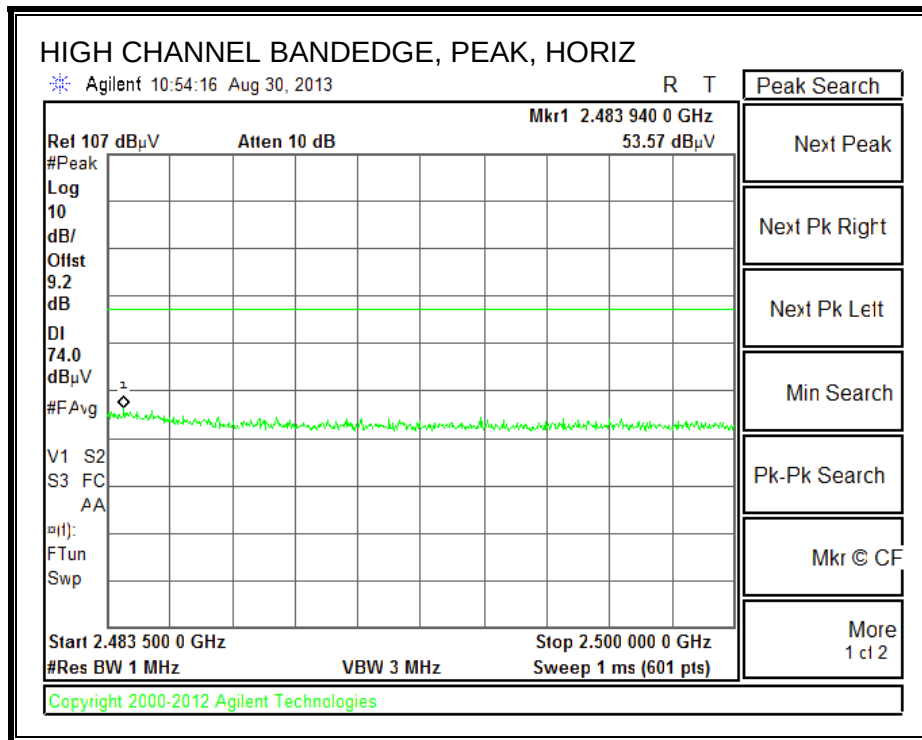
10.2. TRANSMITTER ABOVE 1 GHz

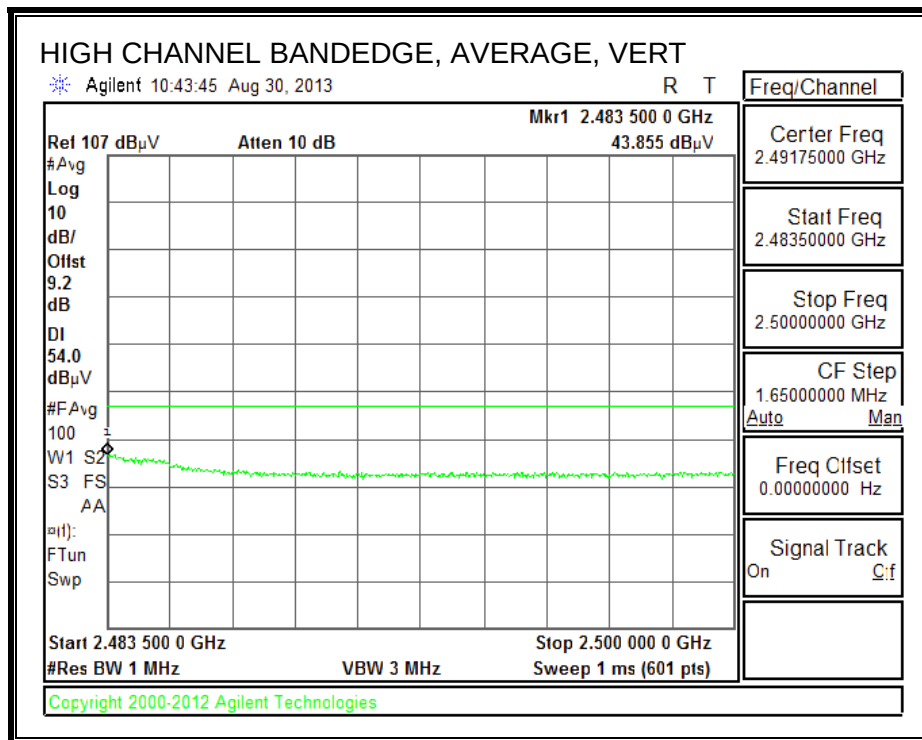
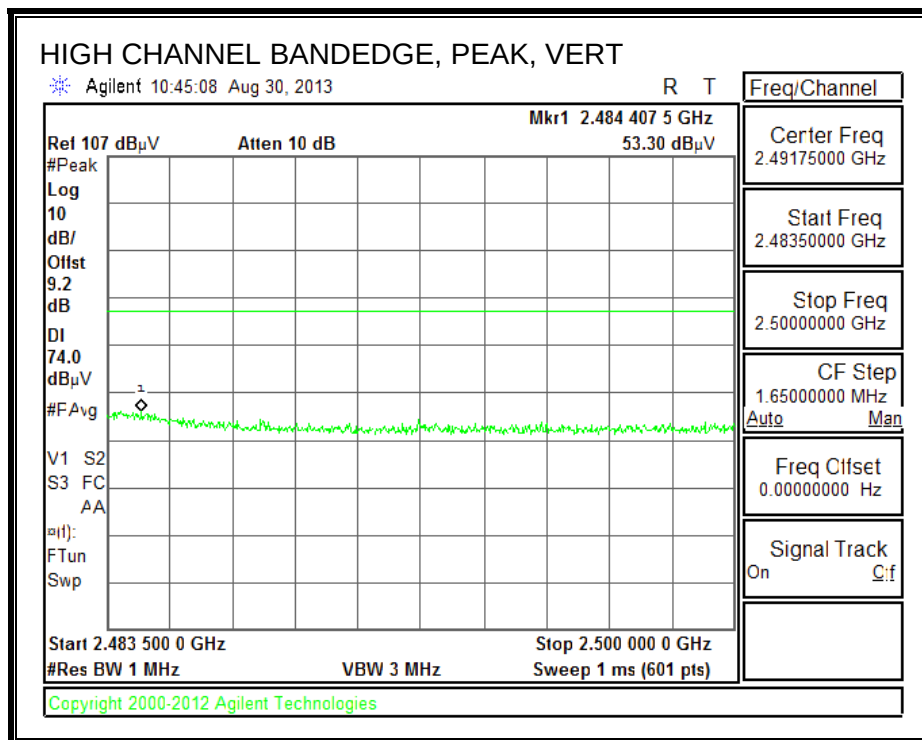
10.2.1. TX ABOVE 1 GHz 802.11b MODE IN THE 2.4 GHz BAND RESTRICTED BANDEDGE (LOW CHANNEL)





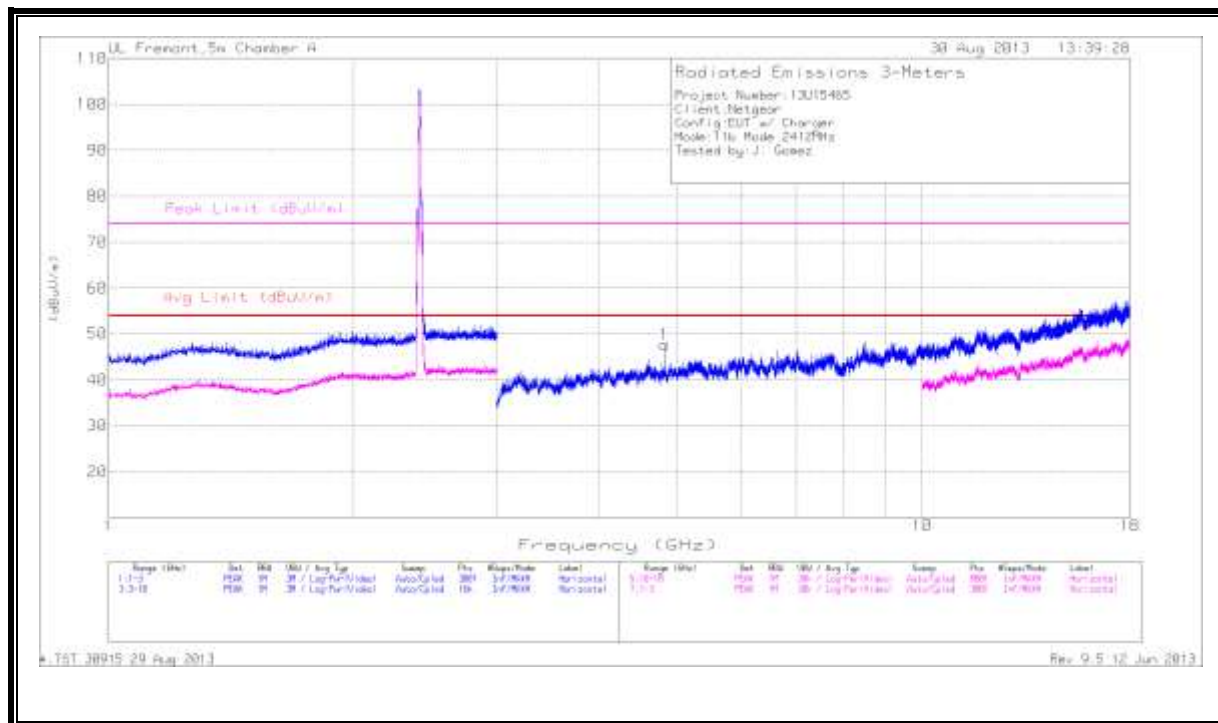
AUTHORIZED BANDEDGE (HIGH CHANNEL)



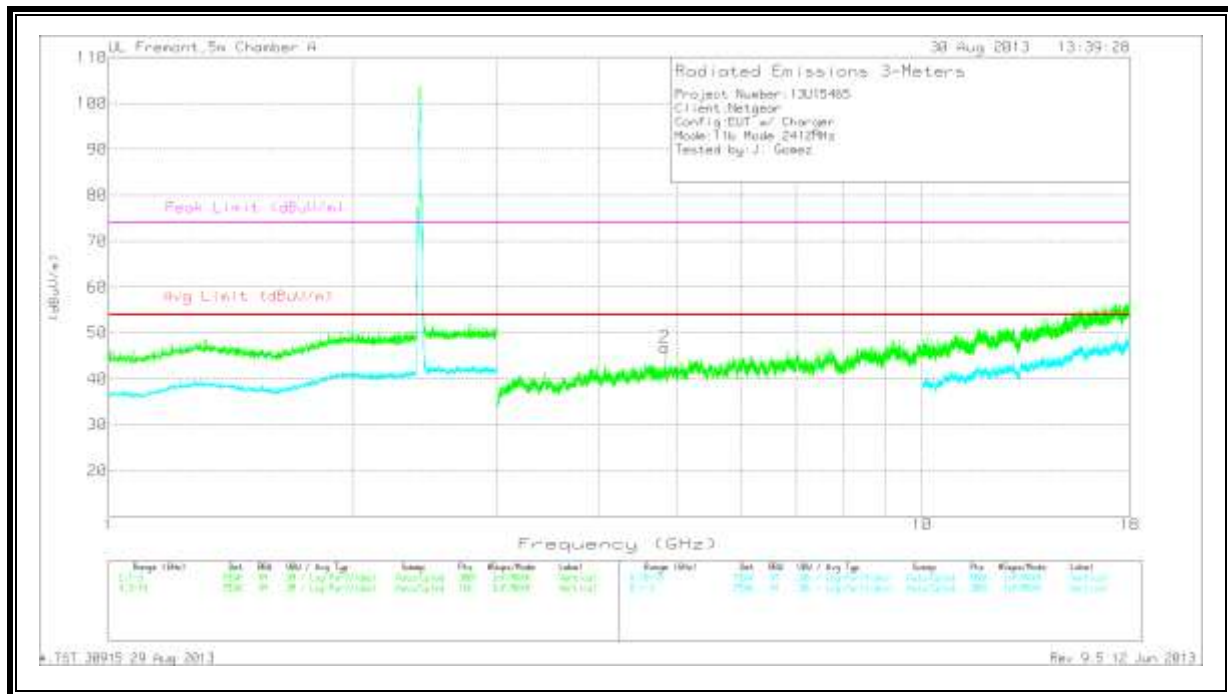


HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL
HORIZONTAL



VERTICAL



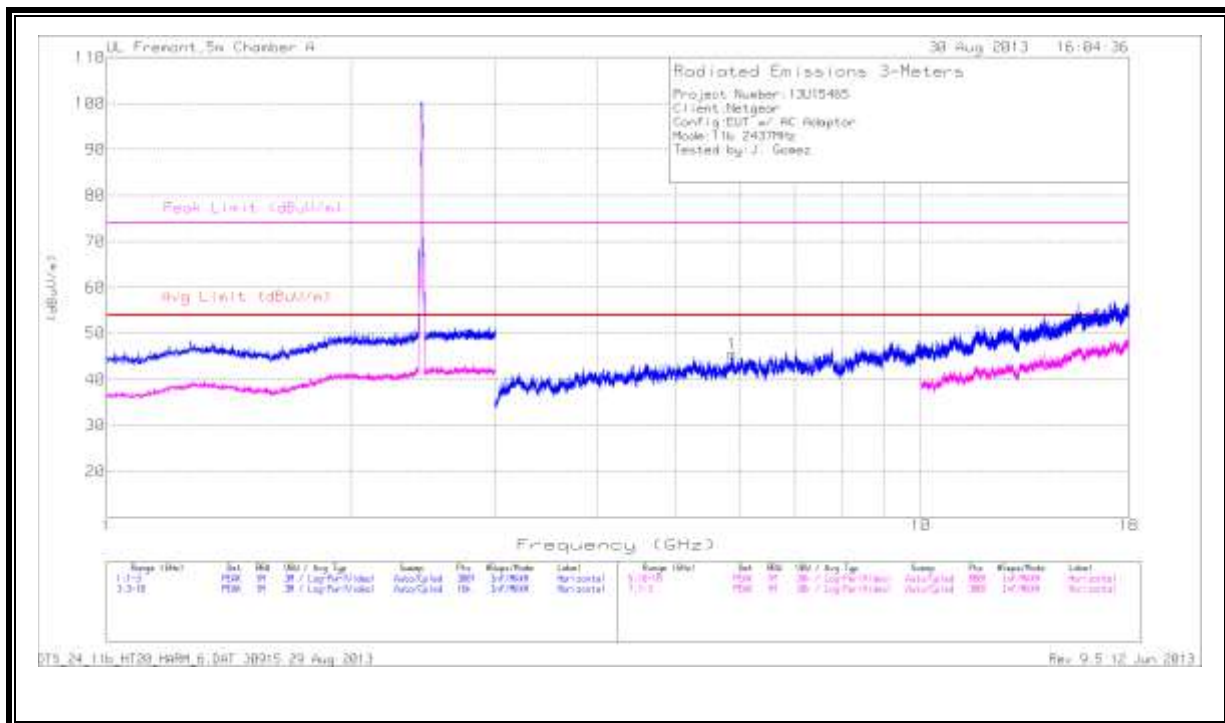
LOW CHANNEL DATA

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/ Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4.824	41.06	PK	33.9	-27.3	47.66	53.97	-6.31	74	-26.34	0-360	100	H
4.824	40.27	PK	33.9	-27.3	46.87	53.97	-7.1	74	-27.13	0-360	200	V

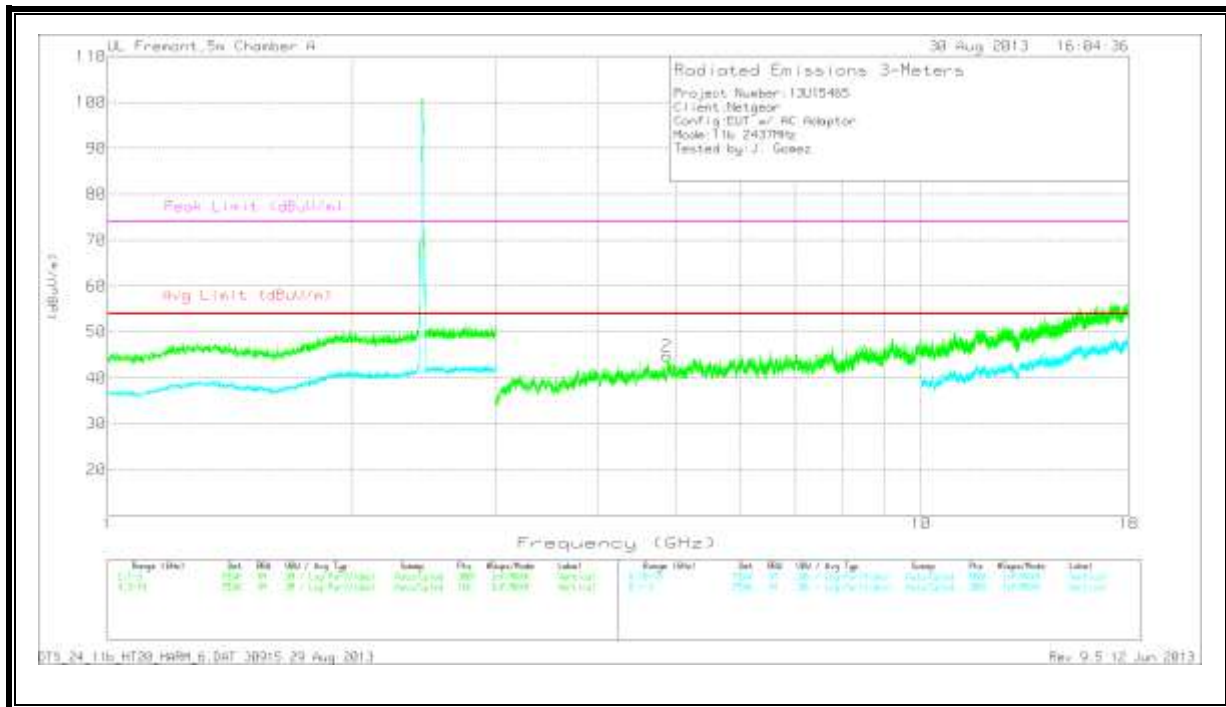
PK - Peak detector

FCC Part15 Subpart C T186 2400MHz Spurious Emissions.TST 12746Rev 9.5 12 Jun 2013

MID CHANNEL
HORIZONTAL



VERTICAL



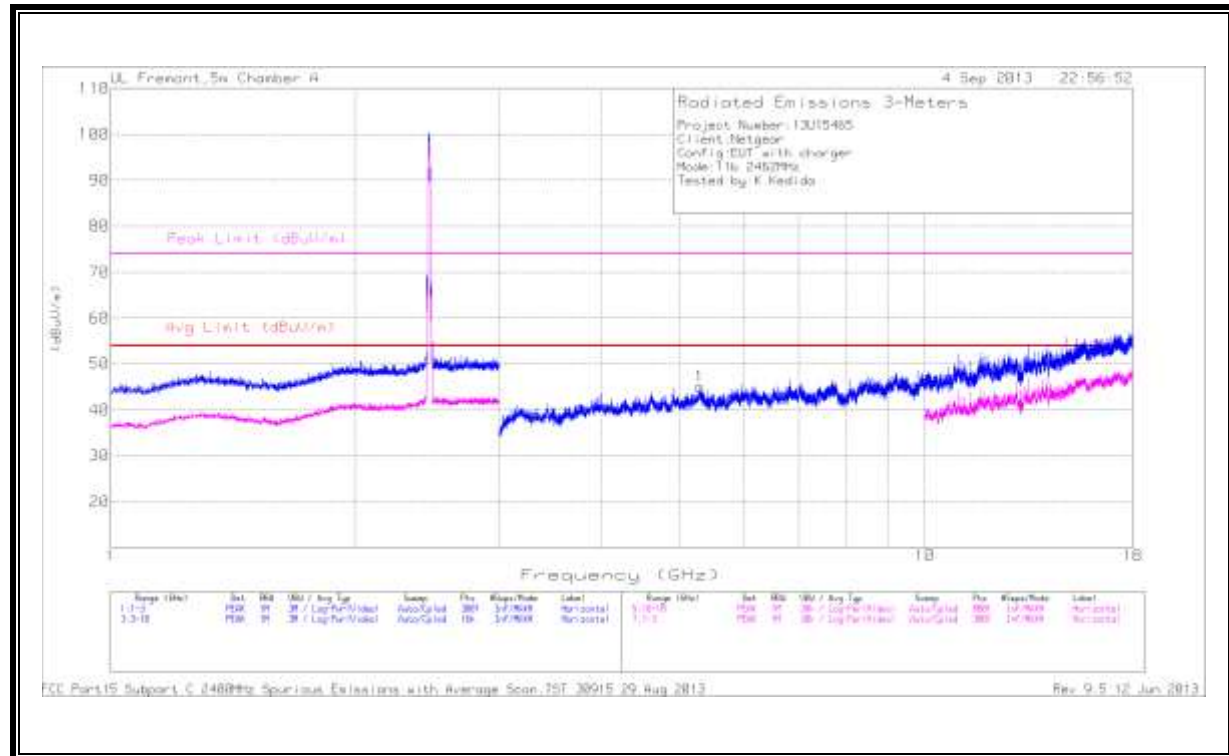
MID CHANNEL DATA

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl /Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Av Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5.867	37.22	PK	35	-26.7	45.52	53.97	-8.45	74	-28.48	0-360	100	H
4.874	38.32	PK	34	-27.5	44.82	53.97	-9.15	74	-29.18	0-360	100	V

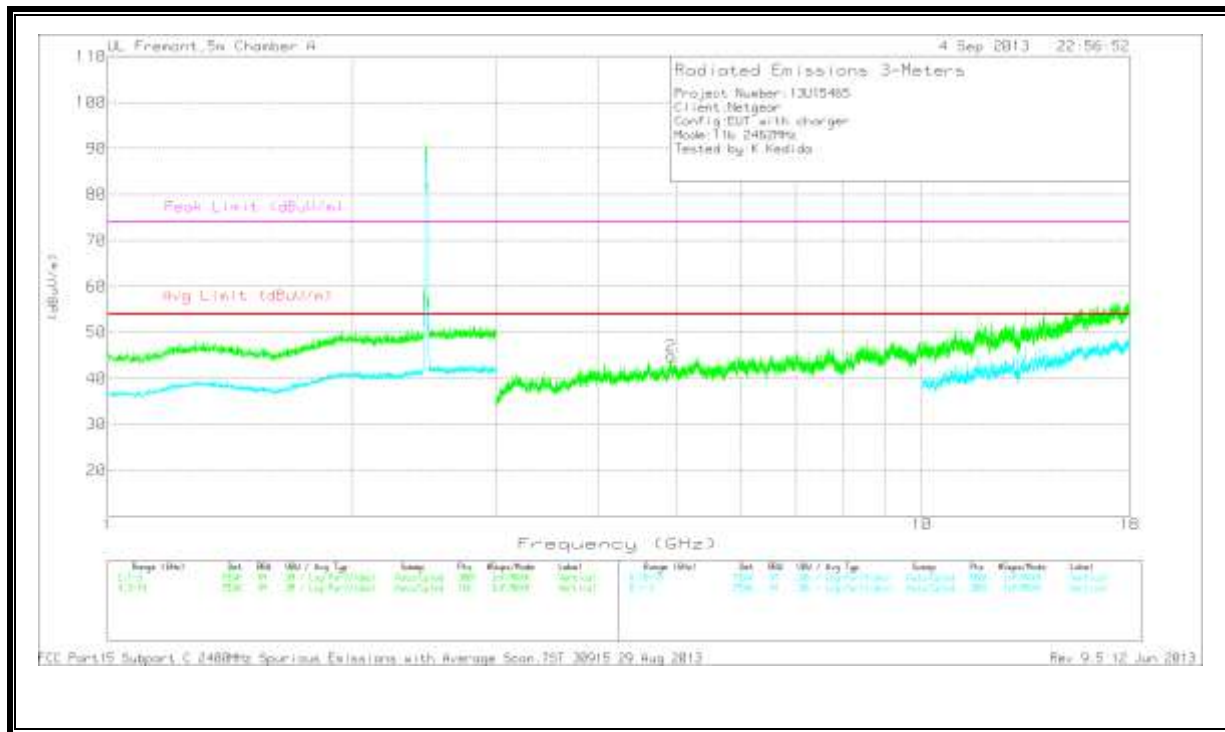
PK - Peak detector

FCC Part15 Subpart C T186 2400MHz Spurious Emissions.TST 12746Rev 9.5 12 Jun 2013

HIGH CHANNEL
HORIZONTAL



VERTICAL



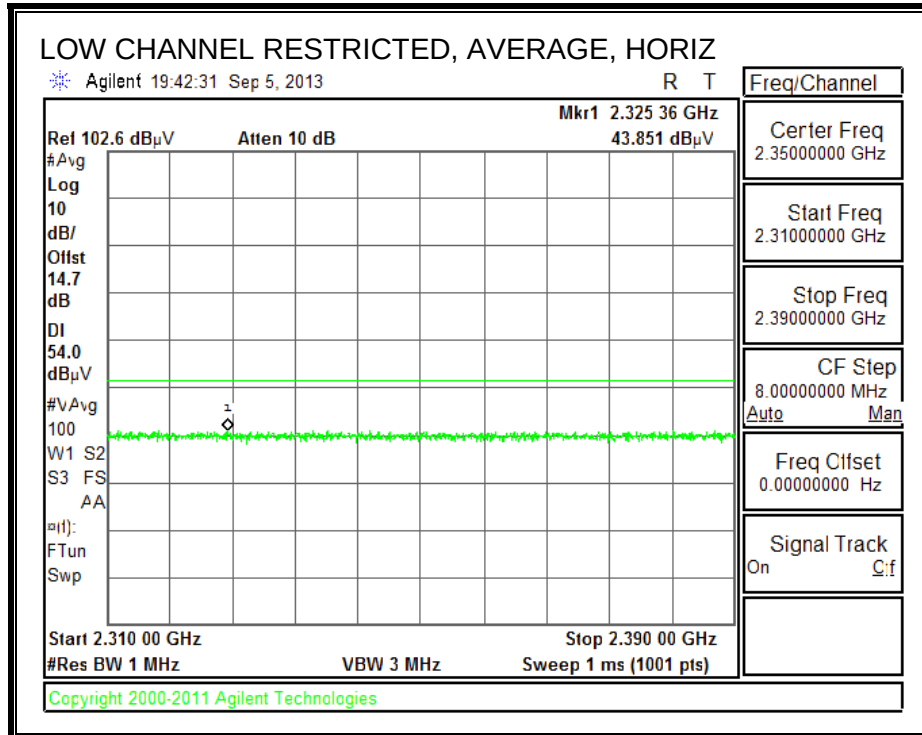
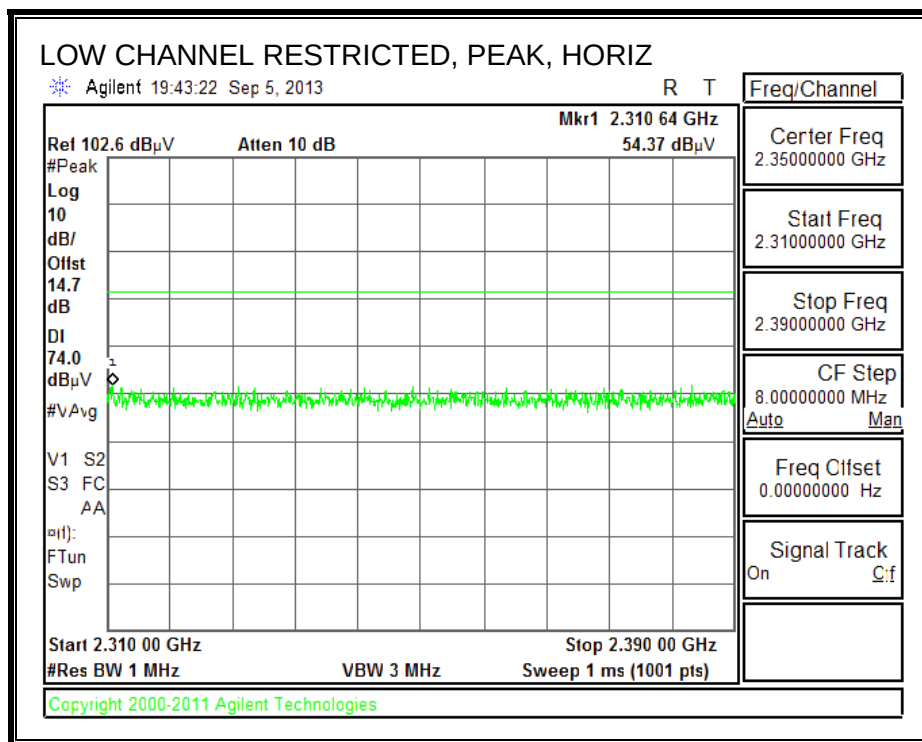
HIGH CHANNEL DATA

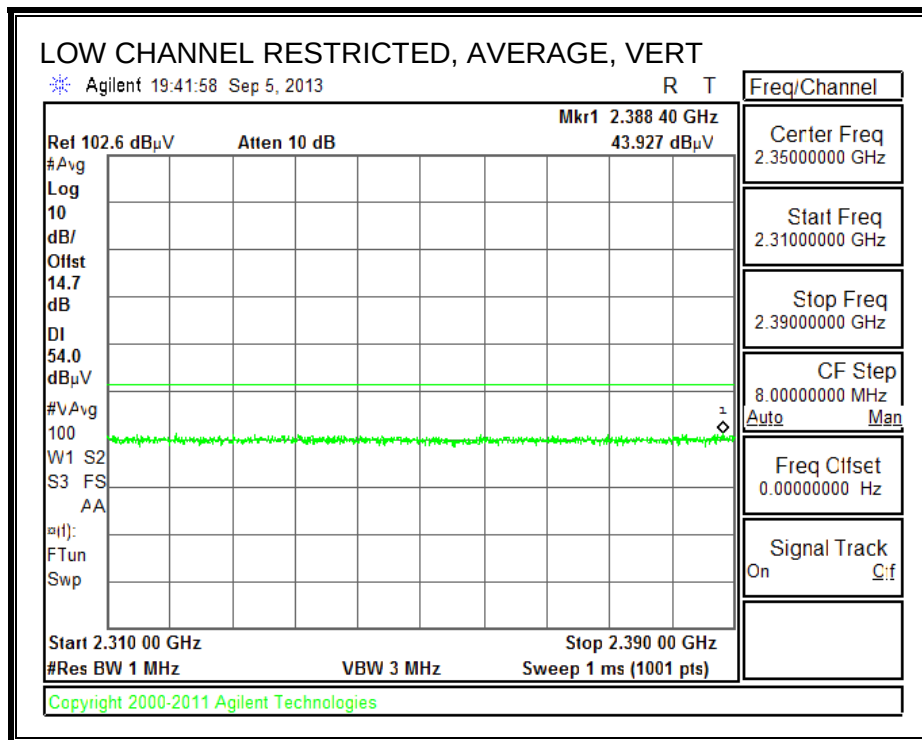
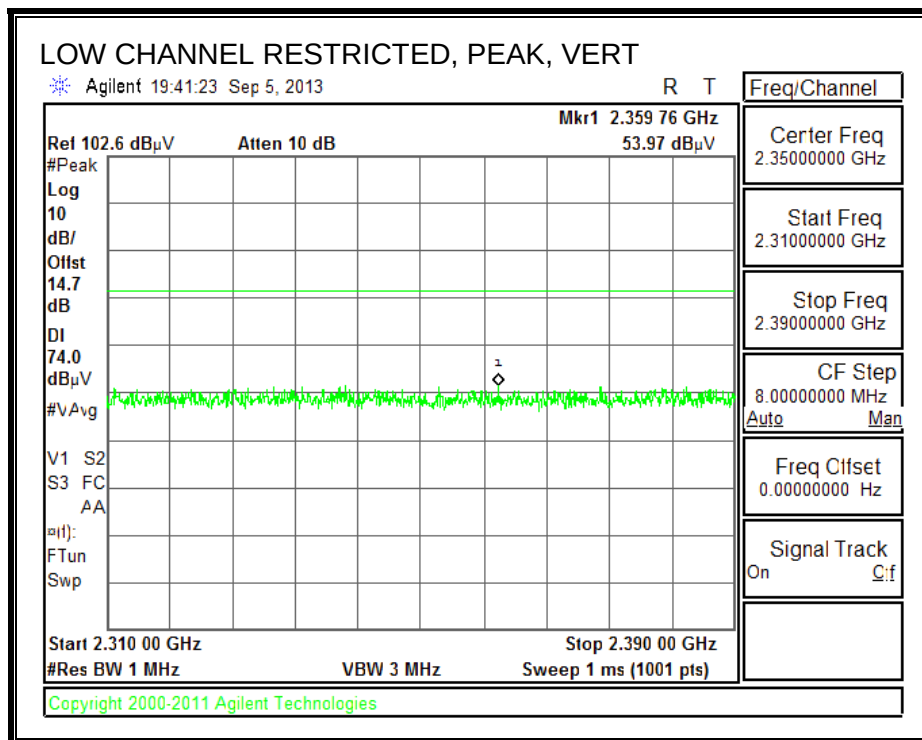
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl /Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5.289	36.97	PK	34.3	-26.2	45.07	53.97	-8.9	74	-28.93	0-360	100	H
4.924	38.36	PK	34	-27.5	44.86	53.97	-9.11	74	-29.14	0-360	200	V

PK - Peak detector

FCC Part15 Subpart C 2400MHz Spurious Emissions with Average Scan. TST 30915 29 Aug 2013 Rev 9.5
12 Jun 2013

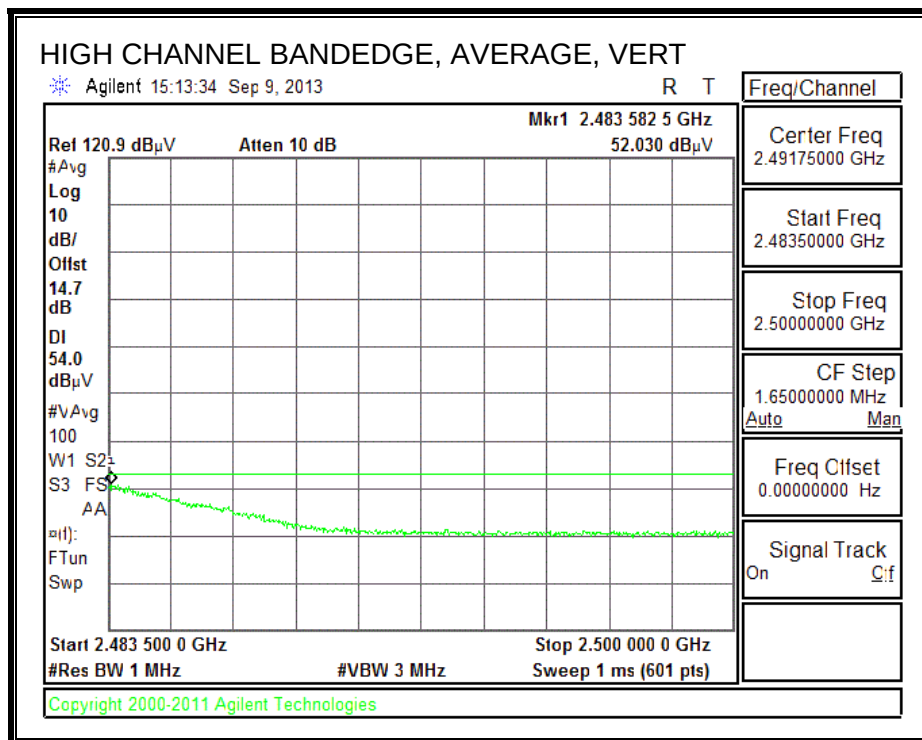
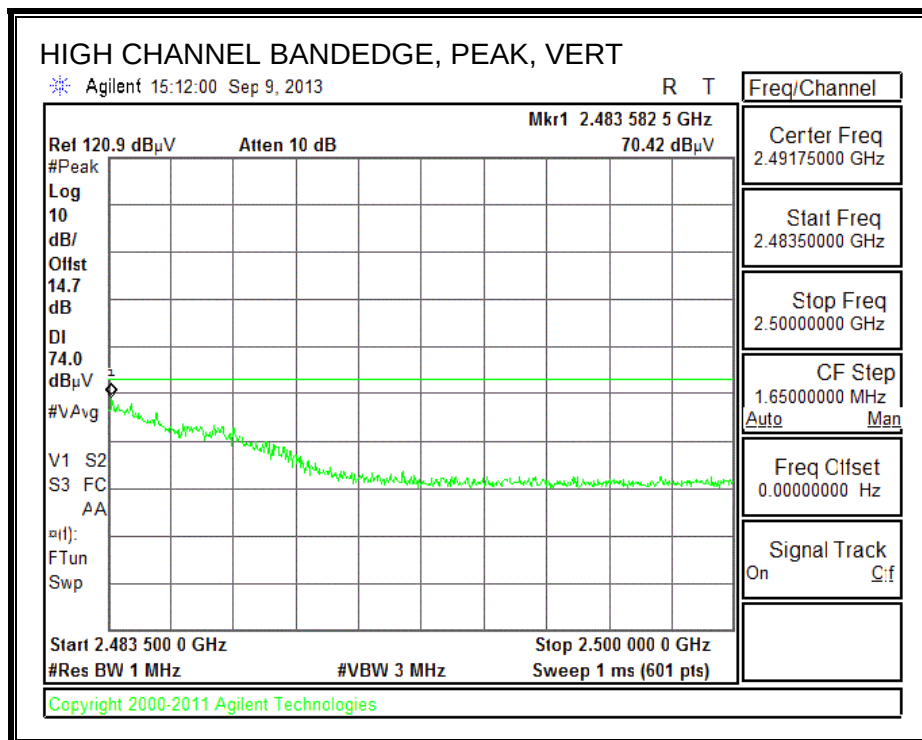
10.2.2. TX ABOVE 1 GHz 802.11g MODE IN THE 2.4 GHz BAND RESTRICTED BANDEDGE (LOW CHANNEL)





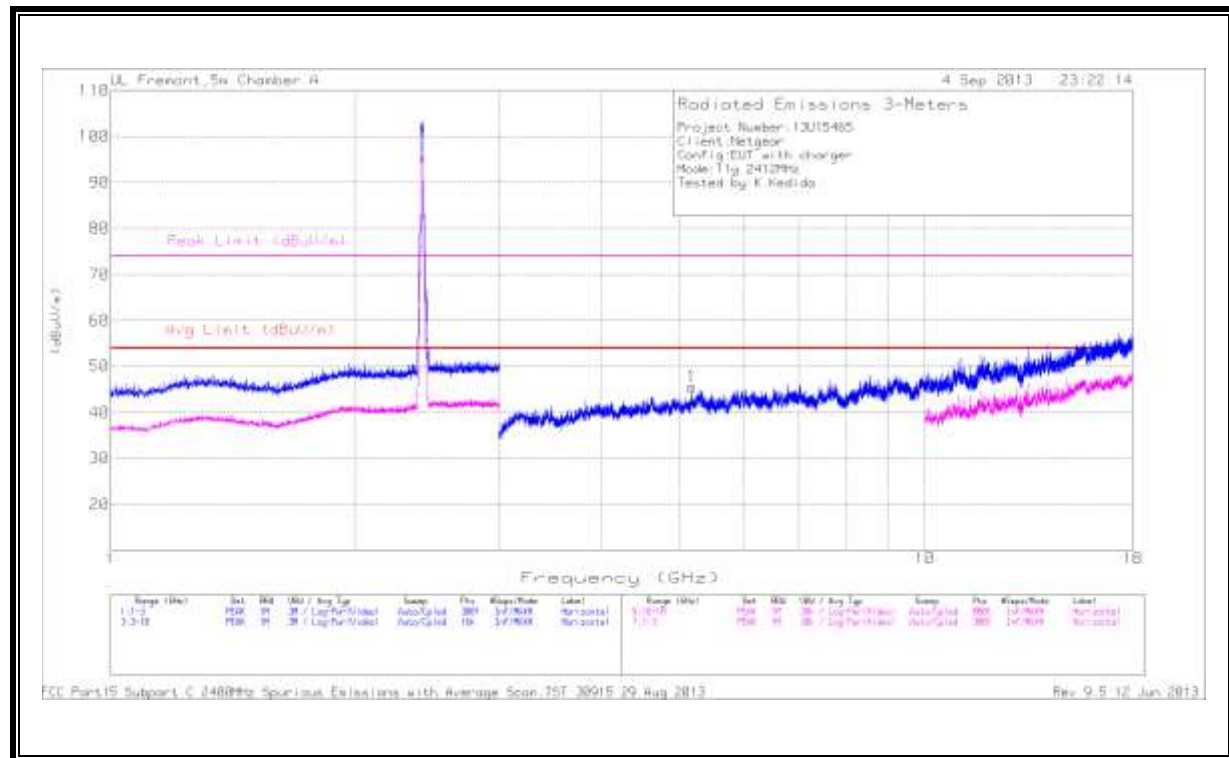
HIGH CHANNEL BANDEDGE, PEAK, HORIZ



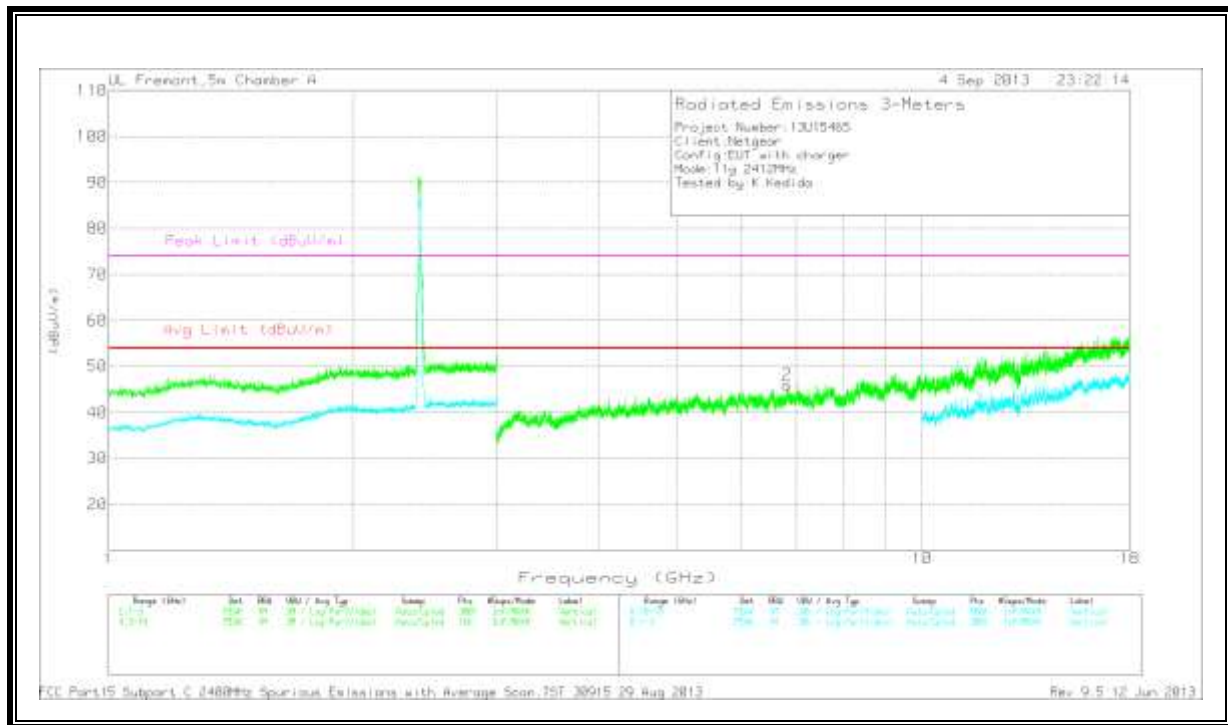


HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL
HORIZONTAL



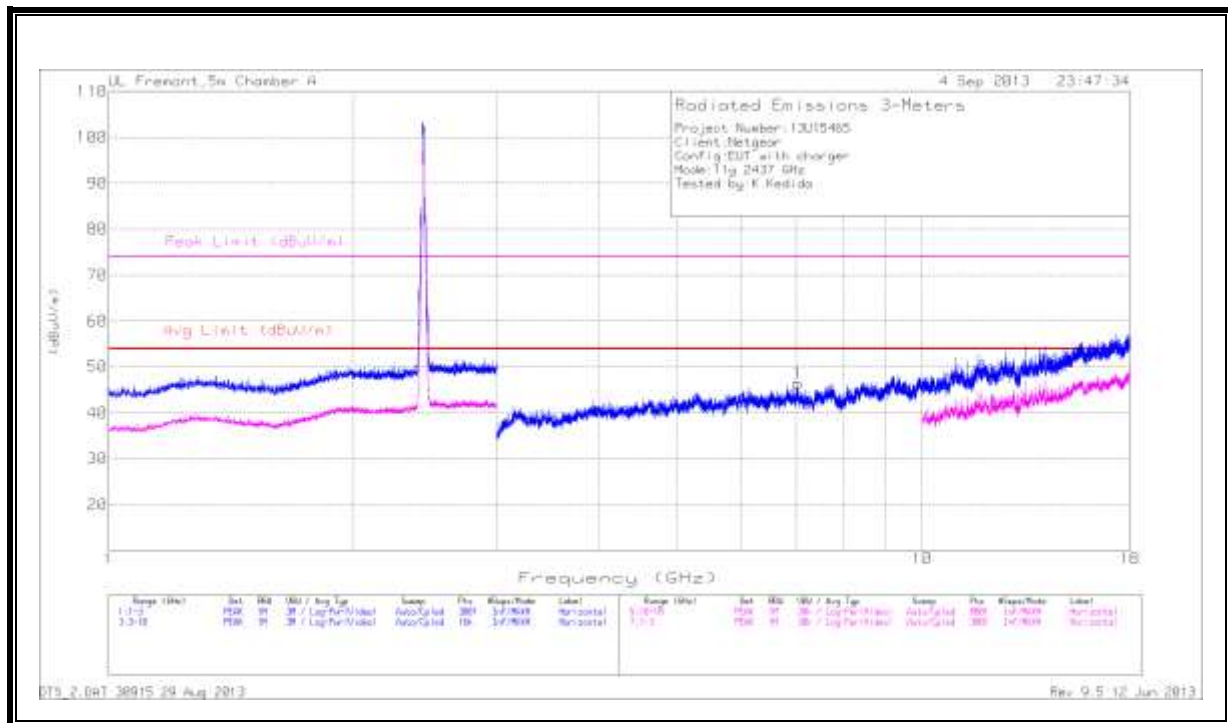
VERTICAL



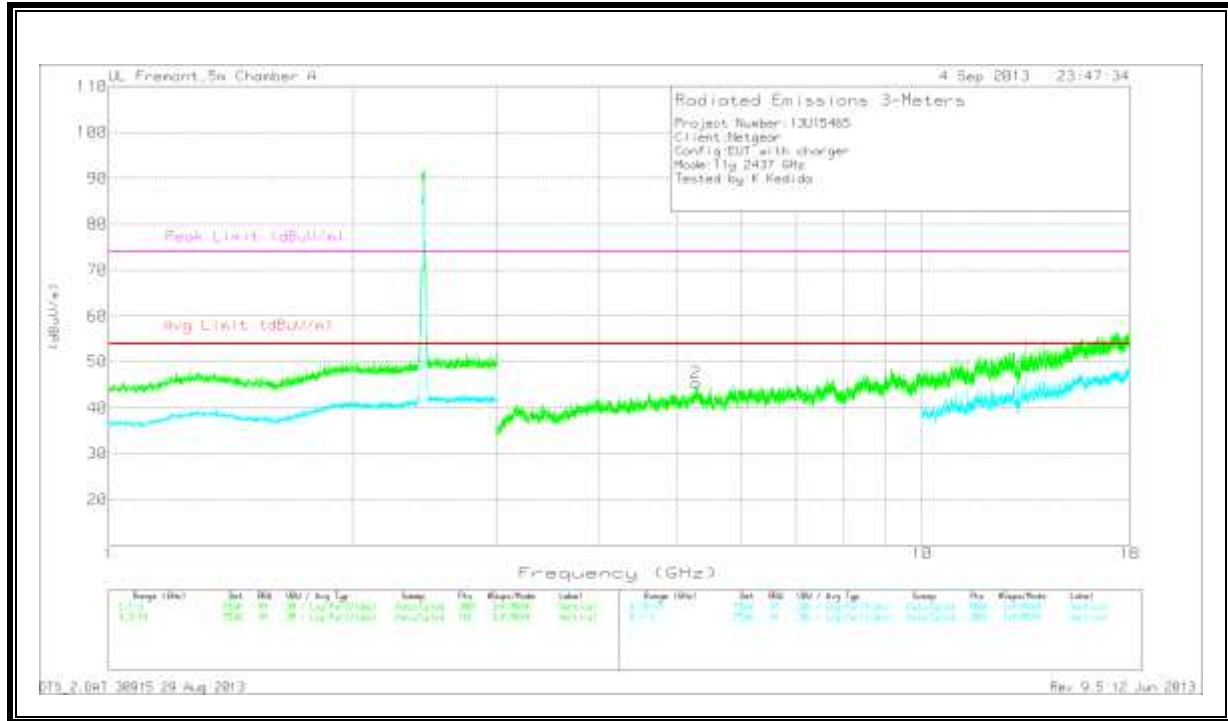
LOW CHANNEL DATA

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl /Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5.172	38.51	PK	34.1	-27	45.61	53.97	-8.36	74	-28.39	0-360	100	H
6.827	37.78	PK	35.4	-27.2	45.98	53.97	-7.99	74	-28.02	0-360	100	V

MID CHANNEL
HORIZONTAL



VERTICAL



MID CHANNEL DATA

Trace Markers

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
7.034	36.25	PK	35.4	-25.2	46.45	53.97	-7.52	74	-27.55	0-360	200	H
5.274	37.37	PK	34.3	-26.2	45.47	53.97	-8.5	74	-28.53	0-360	100	V

PK - Peak detector

DTS_2.DAT 30915 29 Aug 2013 Rev 9.5 12 Jun 2013

UL Frontent_5w Chamber A

5 Sep 2013 08:11:54

Radiated Emissions 3-Meters

Project Number: 13U15485
Client: Netgear
Config: EUT with charger
Mode: 11g 2452 GHz
Tested by: K. Kestida

Peak Limit (dBuV/m)

Avg Limit (dBuV/m)

Log(Power)

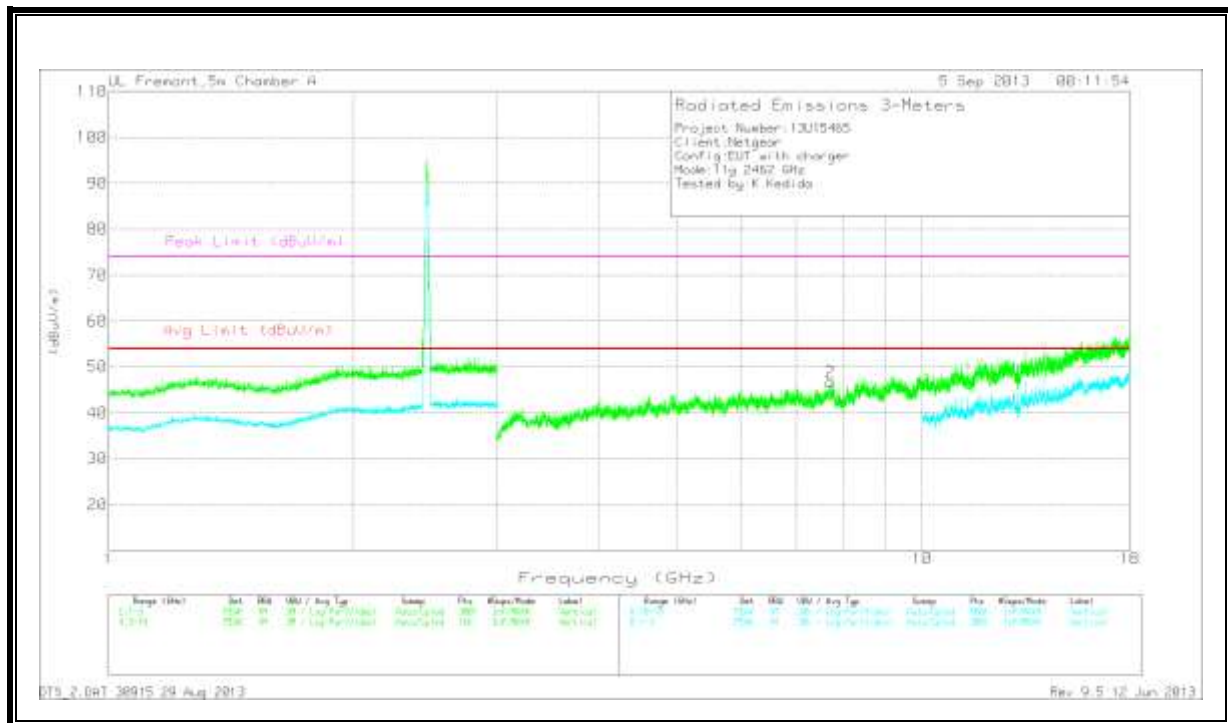
Frequency (GHz)

Range (GHz)	Set	RB	GB / Avg Type	Sample	Pre	Wave/Mode	Label	Range (GHz)	Set	RB	GB / Avg Type	Sample	Pre	Wave/Mode	Label
1.1-10	PRE	31	31 / Log-Pwr/Vol	Auto/Calcd	300	31/7000	Non-portal	3.3-10	PRE	31	31 / Log-Pwr/Vol	Auto/Calcd	300	31/7000	Non-portal
3.3-10	PRE	31	31 / Log-Pwr/Vol	Auto/Calcd	10	31/7000	Non-portal	3.3-10	PRE	31	31 / Log-Pwr/Vol	Auto/Calcd	300	31/7000	Non-portal

ETS 2.0AT 3991S 29 Aug 2013

Rev: 9.5.12 Jun 2013

VERTICAL



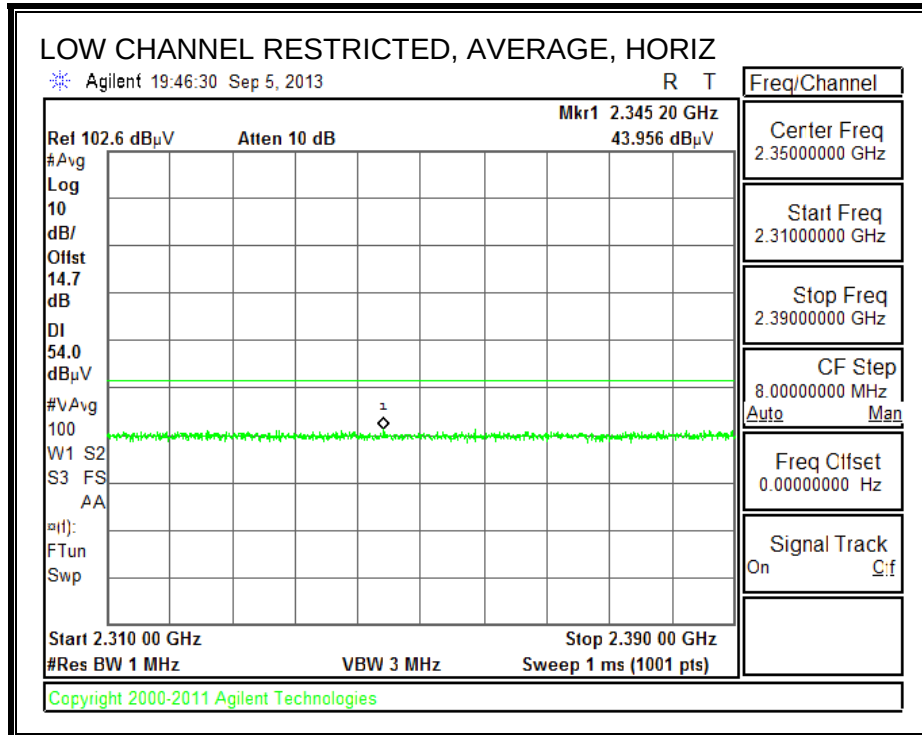
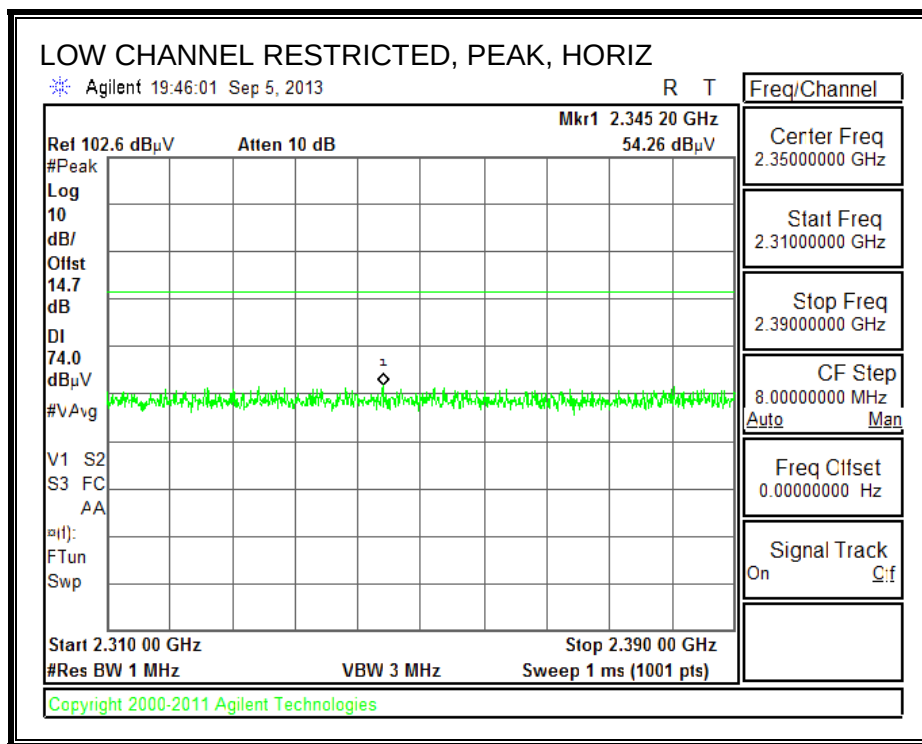
HIGH CHANNEL DATA

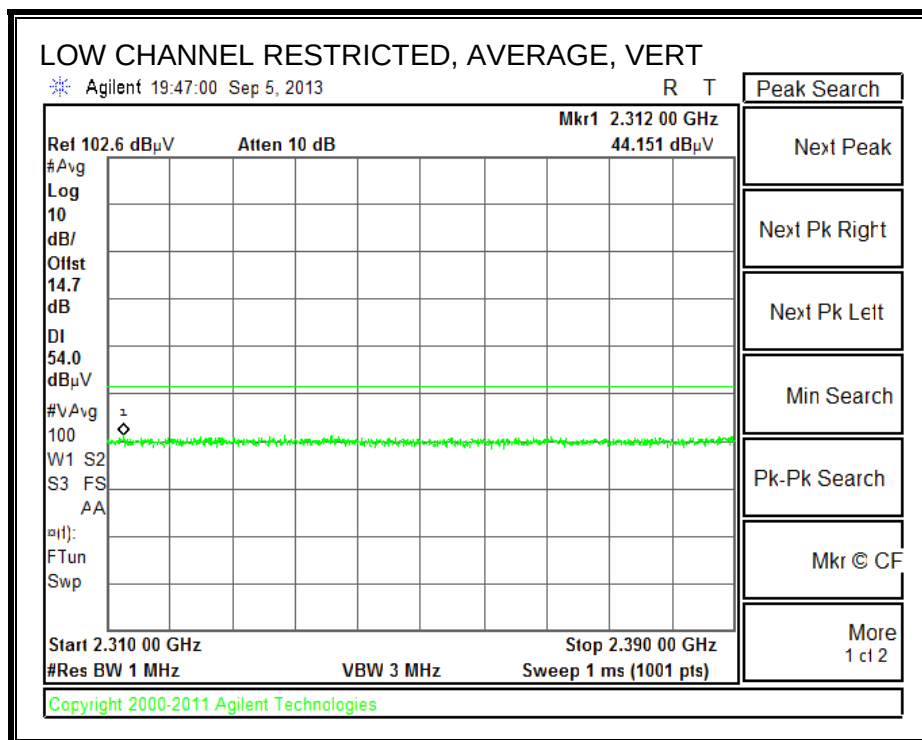
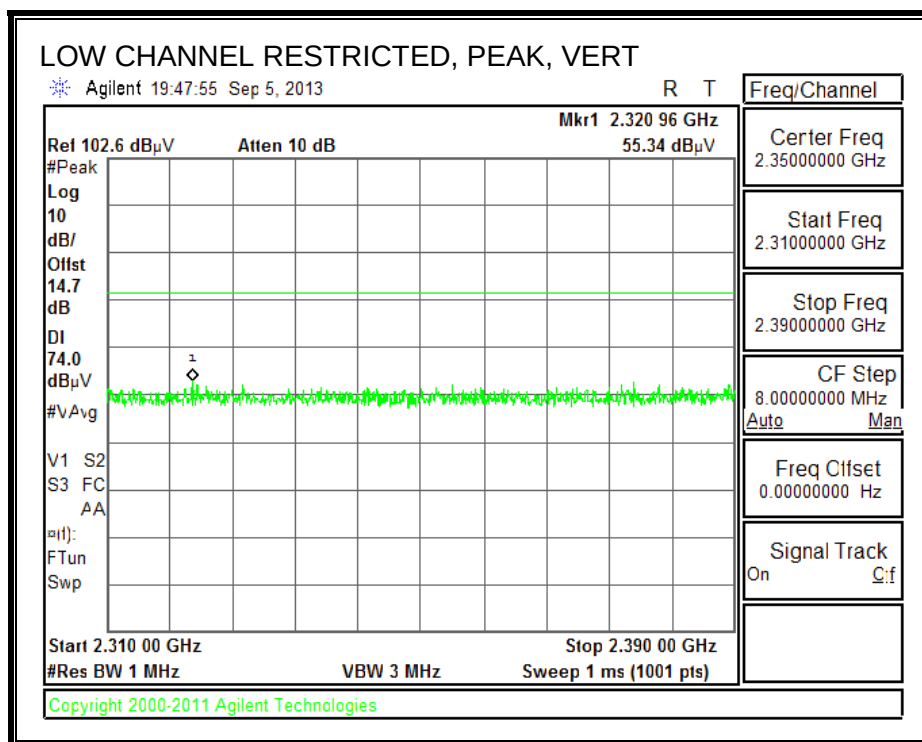
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/C b/Filtr/ Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5.274	36.26	PK	34.3	-26.2	44.36	53.97	-9.61	74	-29.64	0-360	100	H
7.726	36.87	PK	35.5	-25.7	46.67	53.97	-7.3	74	-27.33	0-360	200	V

PK - Peak detector

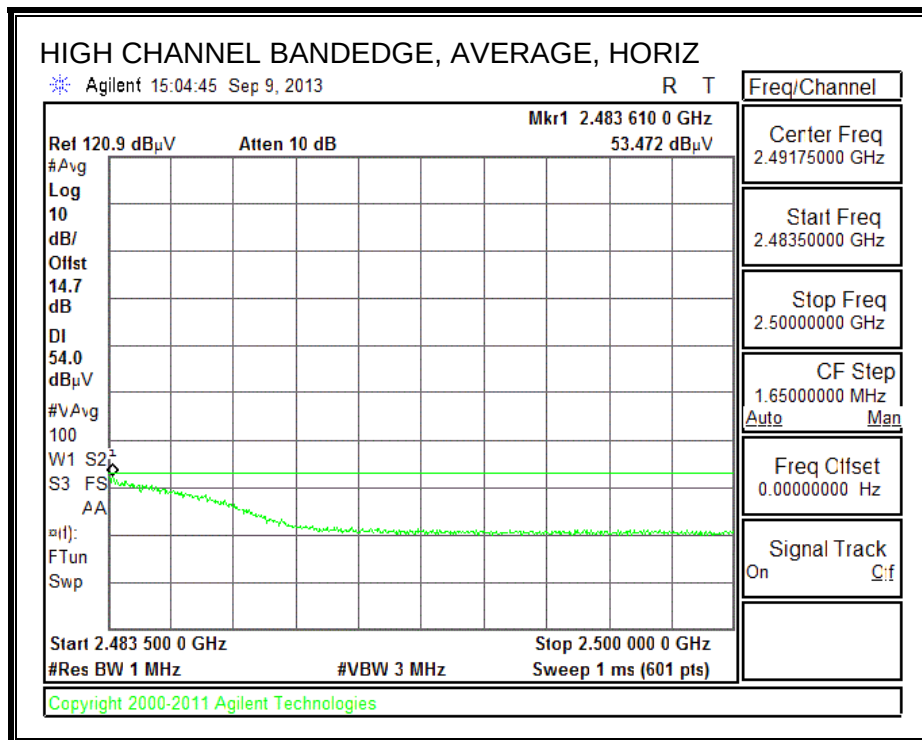
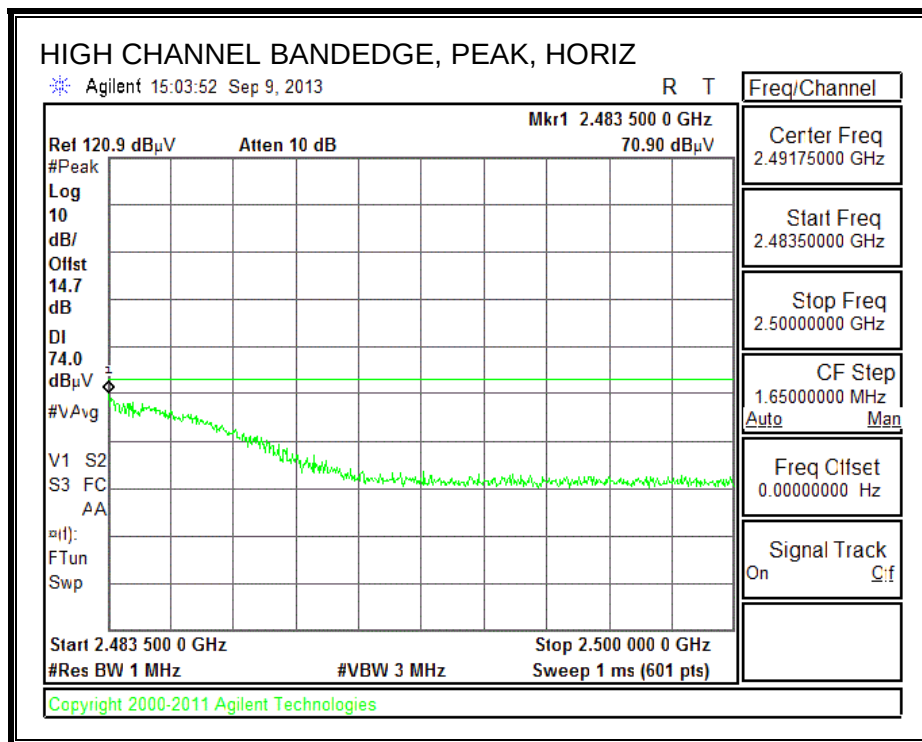
DTS_2.DAT 30915 29 Aug 2013 Rev 9.5 12 Jun 2013

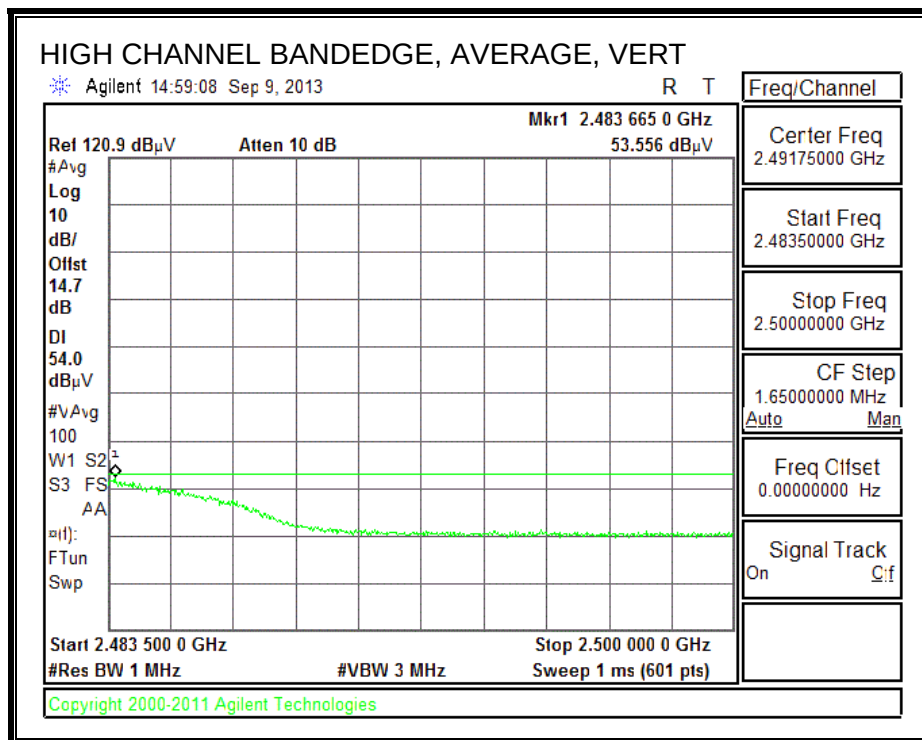
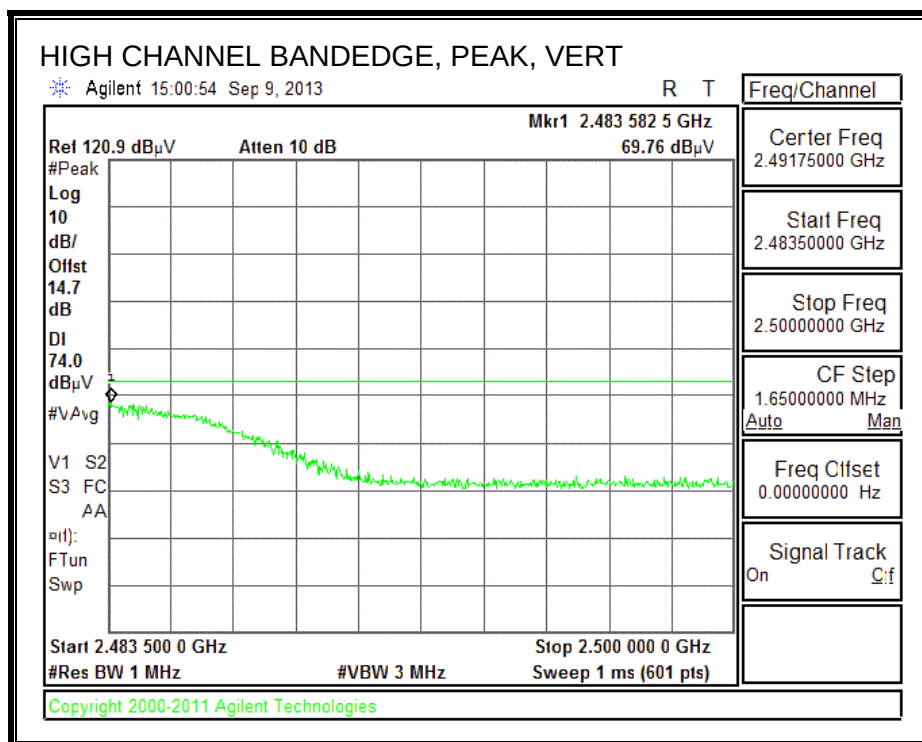
10.2.3. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 2.4 GHz BAND RESTRICTED BANDEDGE (LOW CHANNEL)





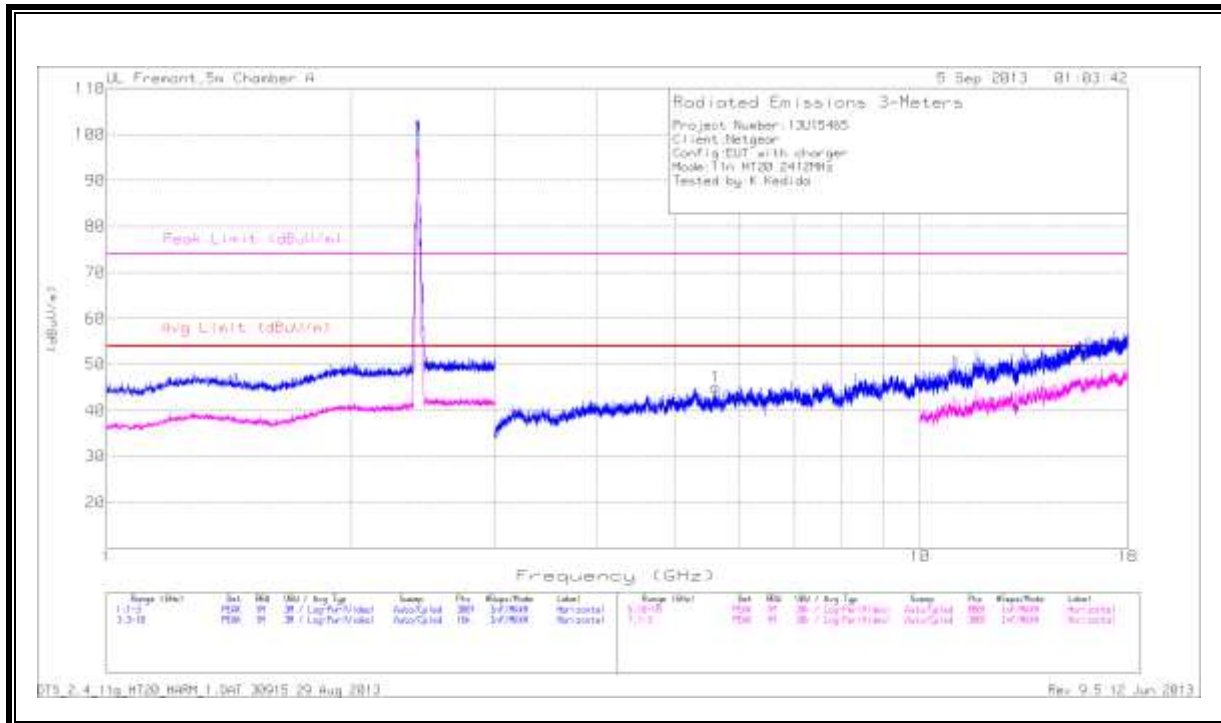
AUTHORIZED BANDEDGE (HIGH CHANNEL)



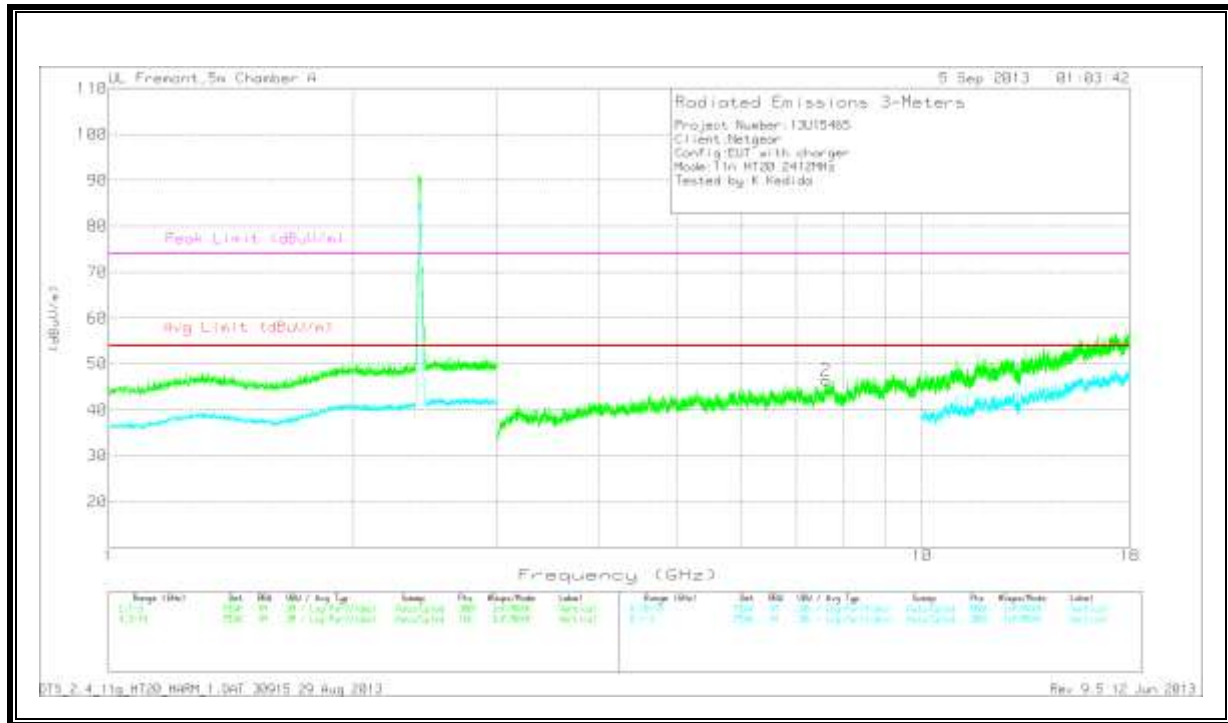


HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL
HORIZONTAL



VERTICAL



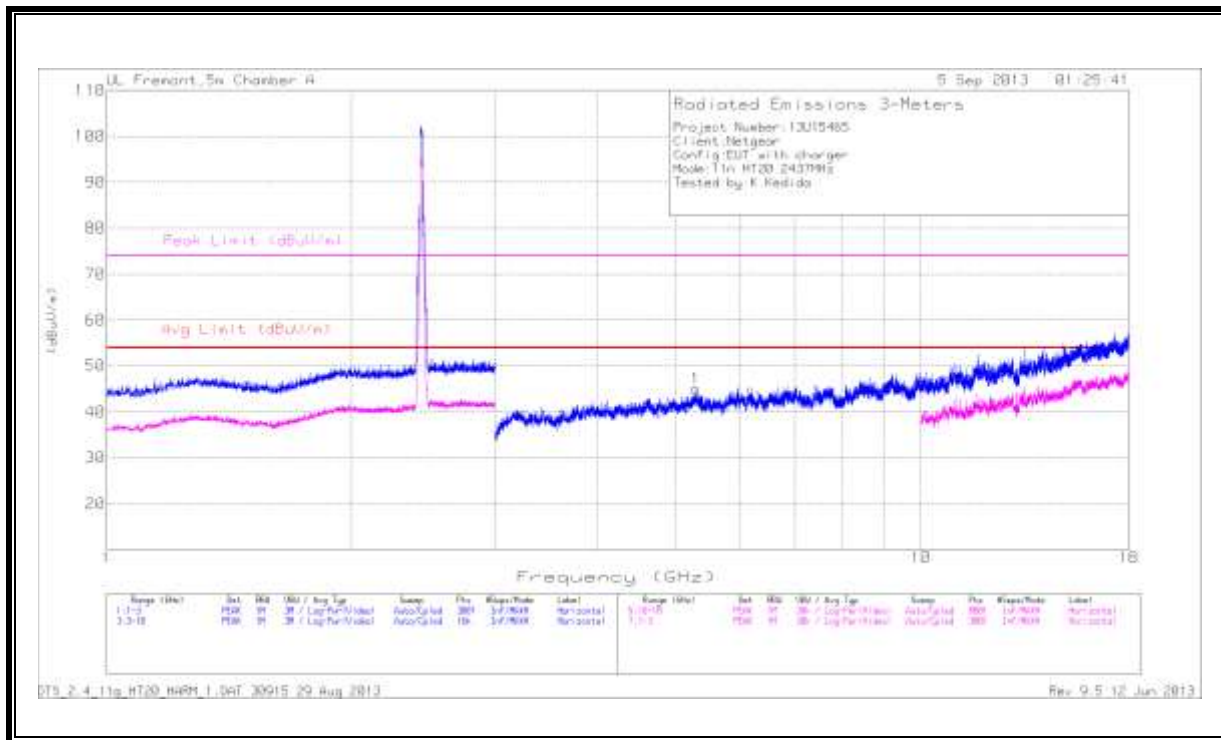
LOW CHANNEL DATA

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/C bl/Filtr/ Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5.609	38.82	PK	34.4	-28.2	45.02	53.97	-8.95	74	-28.98	0-360	200	H
7.622	36.31	PK	35.5	-25.3	46.51	53.97	-7.46	74	-27.49	0-360	200	V

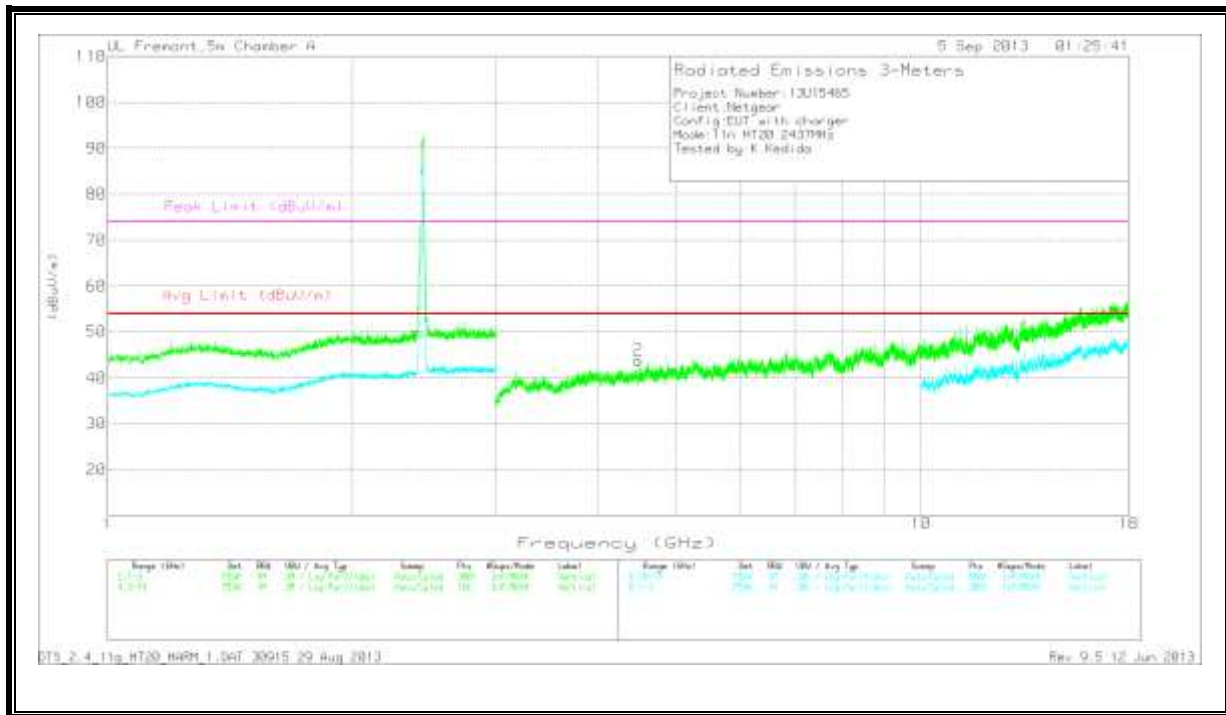
PK - Peak detector

DTS_2.4_11g_HT20_HARM_1.DAT 30915 29 Aug 2013 Rev 9.5 12 Jun 2013

MID CHANNEL
HORIZONTAL



VERTICAL



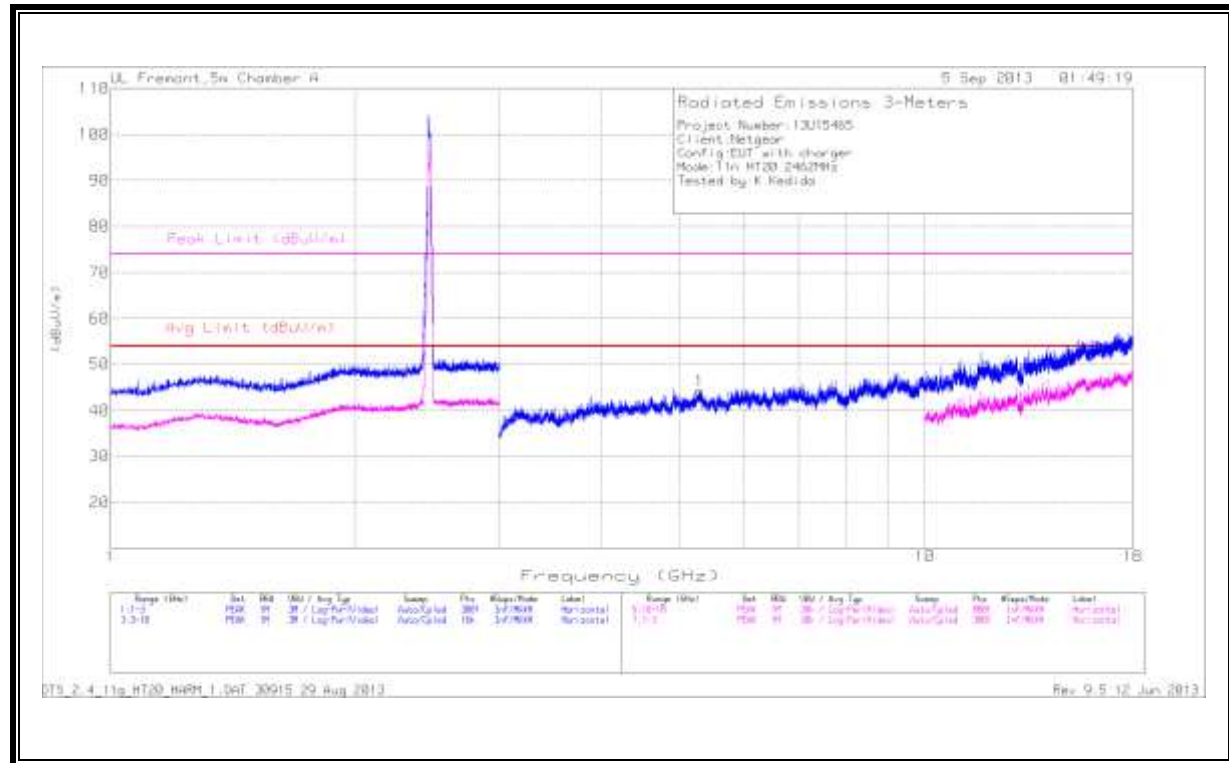
MID CHANNEL DATA

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/C bl/Filtr/ Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5.293	36.99	PK	34.3	-26.3	44.99	53.97	-8.98	74	-29.01	0-360	200	H
4.493	38.47	PK	33.8	-28.4	43.87	53.97	-10.1	74	-30.13	0-360	200	V

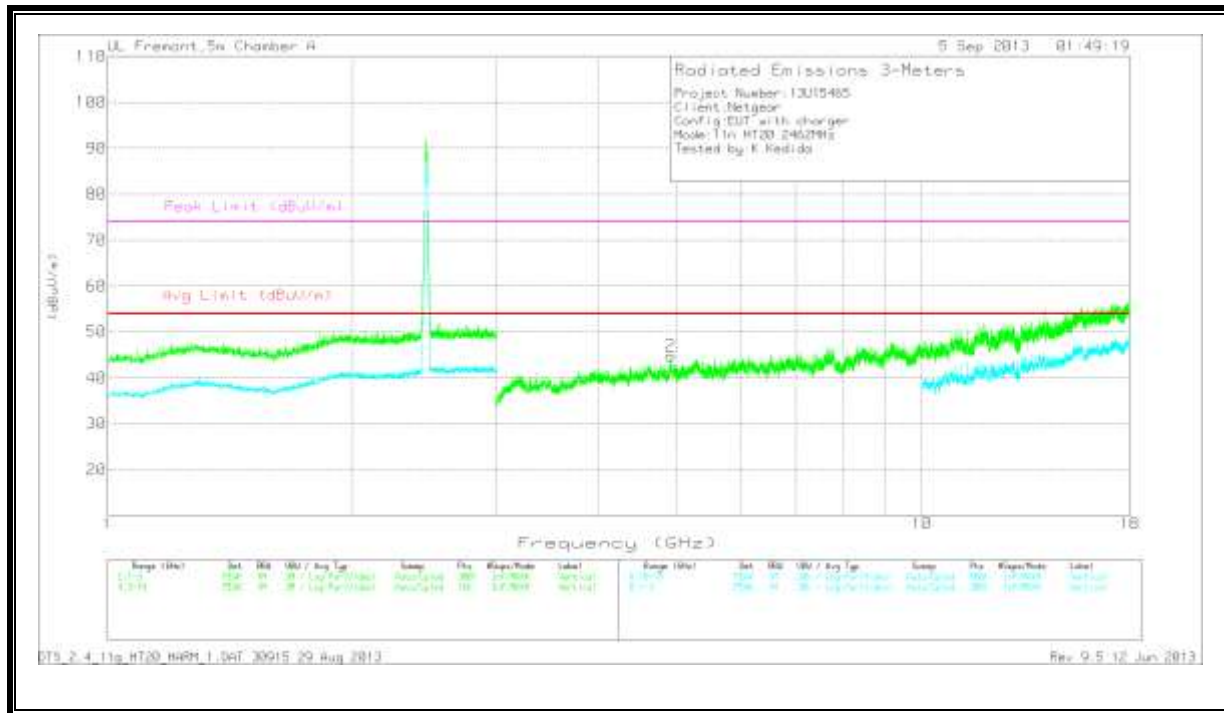
PK - Peak detector

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HIGH CHANNEL
HORIZONTAL



VERTICAL



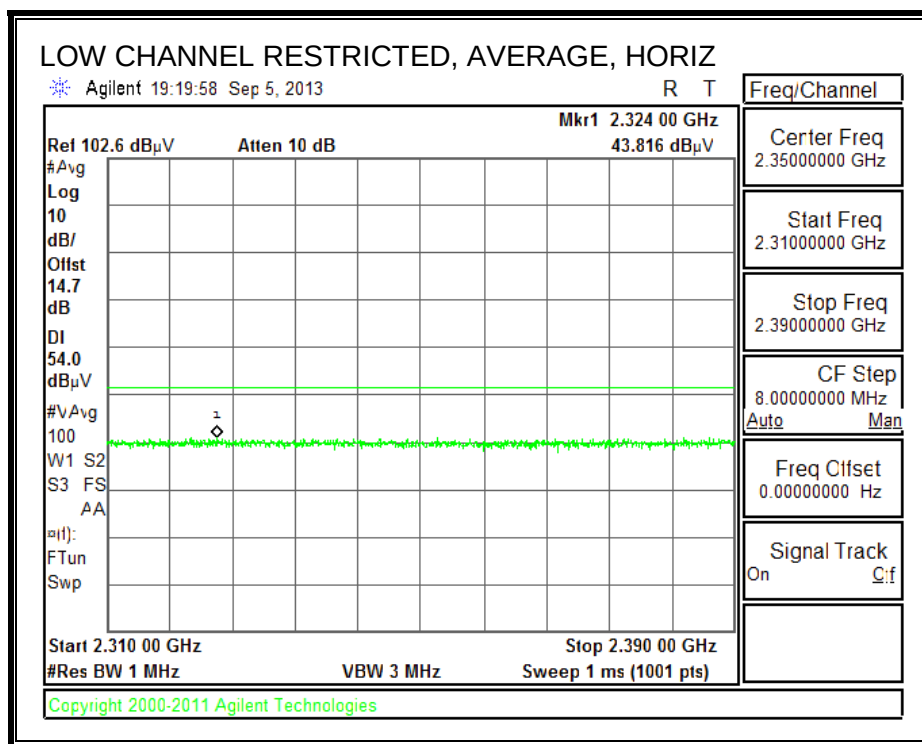
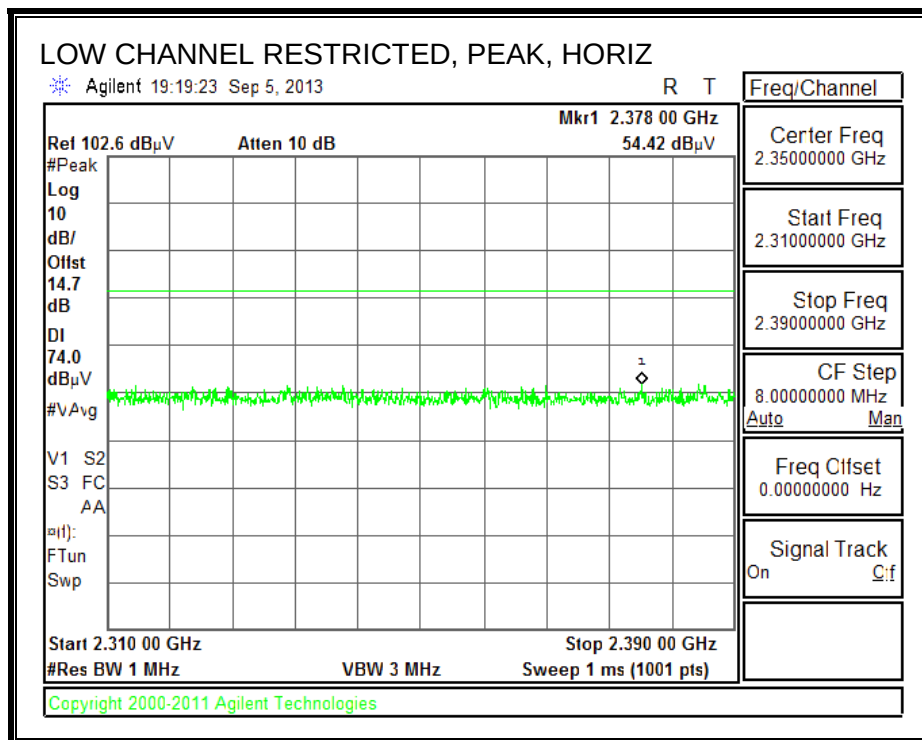
HIGH CHANNEL DATA

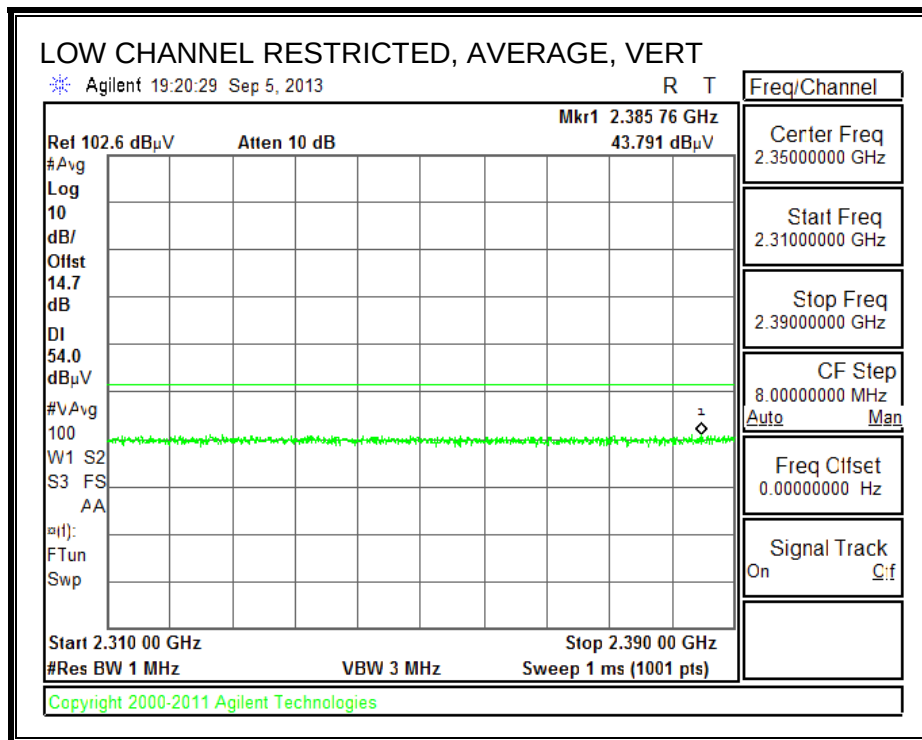
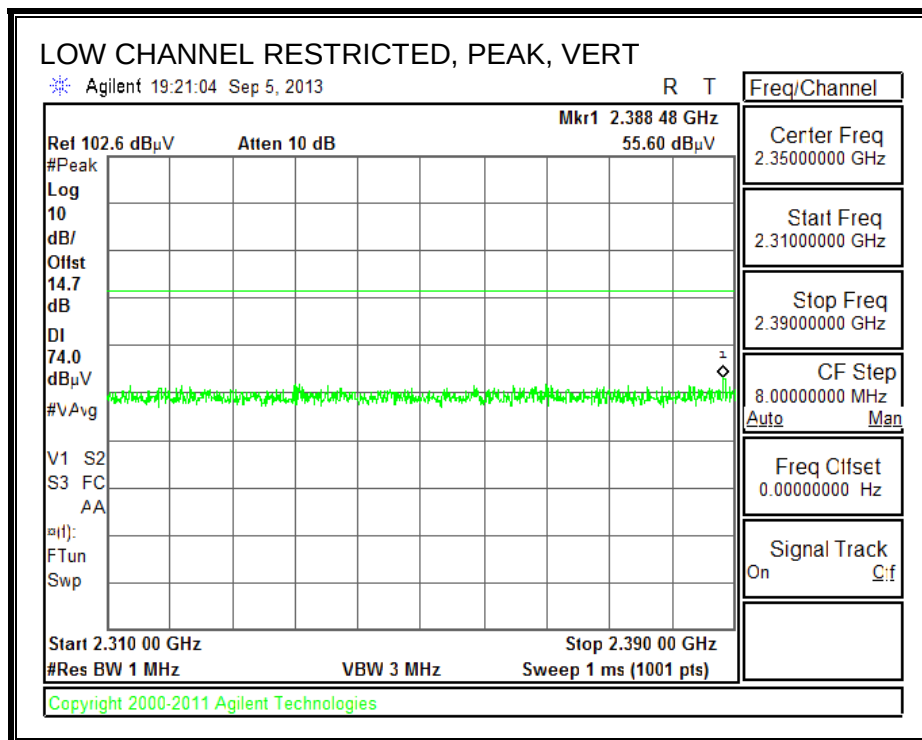
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/C bl/Filtr/ Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5.293	36.16	PK	34.3	-26.3	44.16	53.97	-9.81	74	-29.84	0-360	100	H
4.917	38	PK	34	-27.2	44.8	53.97	-9.17	74	-29.2	0-360	200	V

PK - Peak detector

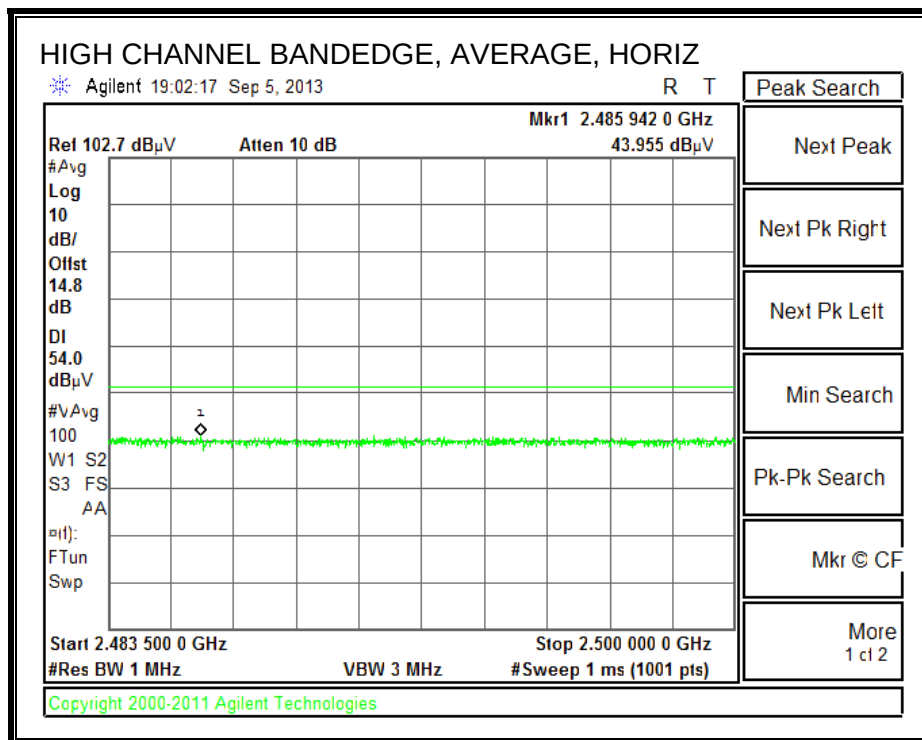
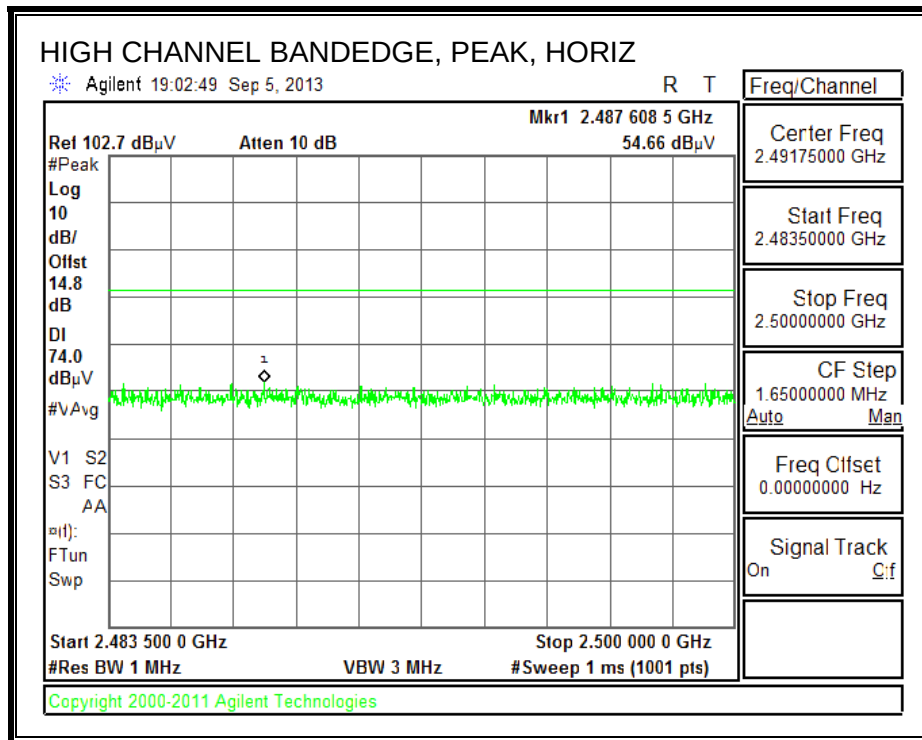
DTS_2.4_11g_HT20_HARM_1.DAT 30915 29 Aug 2013 Rev 9.5 12 Jun 2013

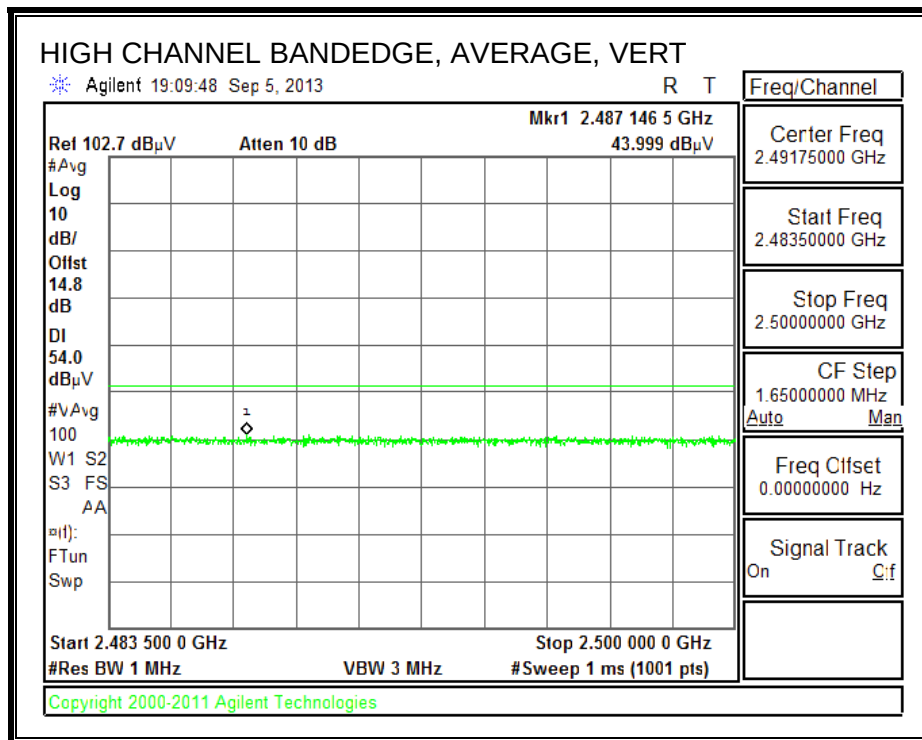
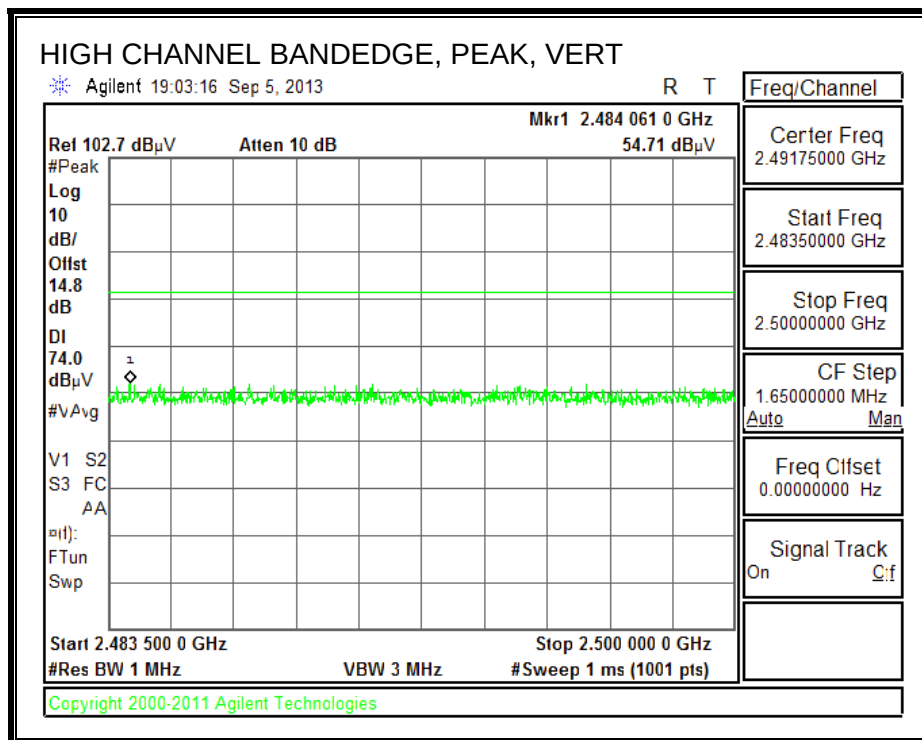
10.2.1. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 2.4 GHz BAND RESTRICTED BANDEDGE (LOW CHANNEL)





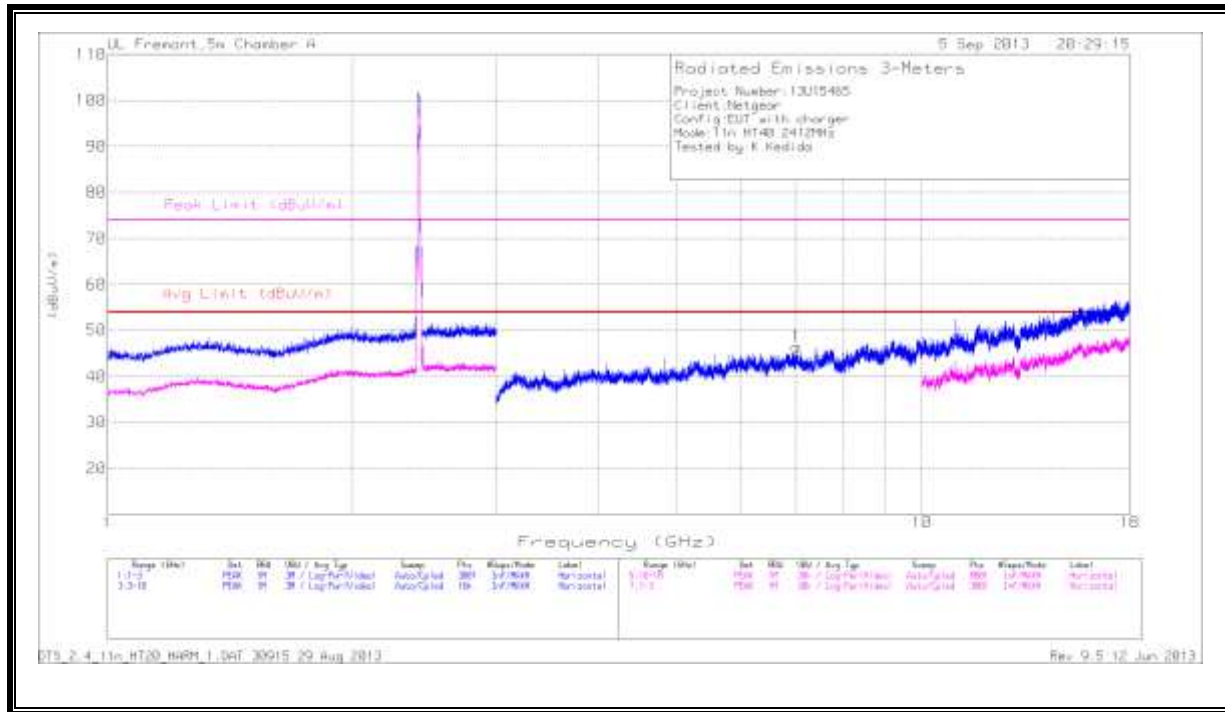
AUTHORIZED BANDEDGE (HIGH CHANNEL)



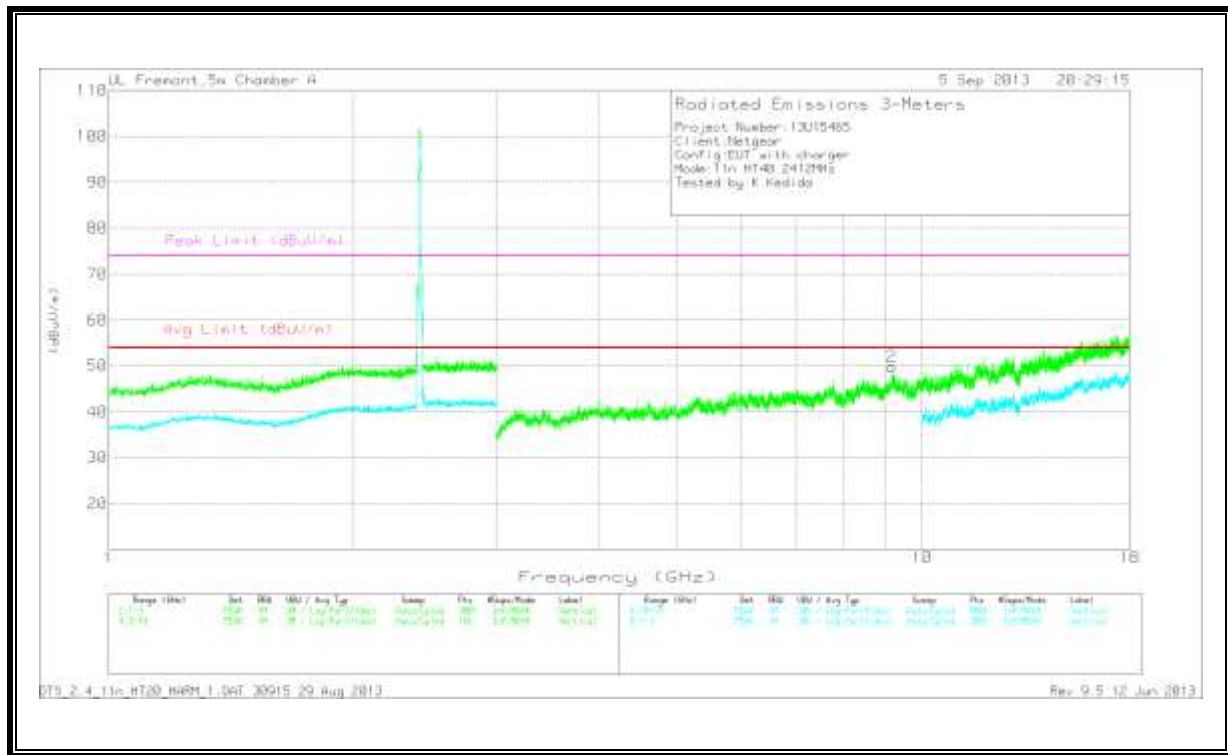


HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL
HORIZONTAL



VERTICAL



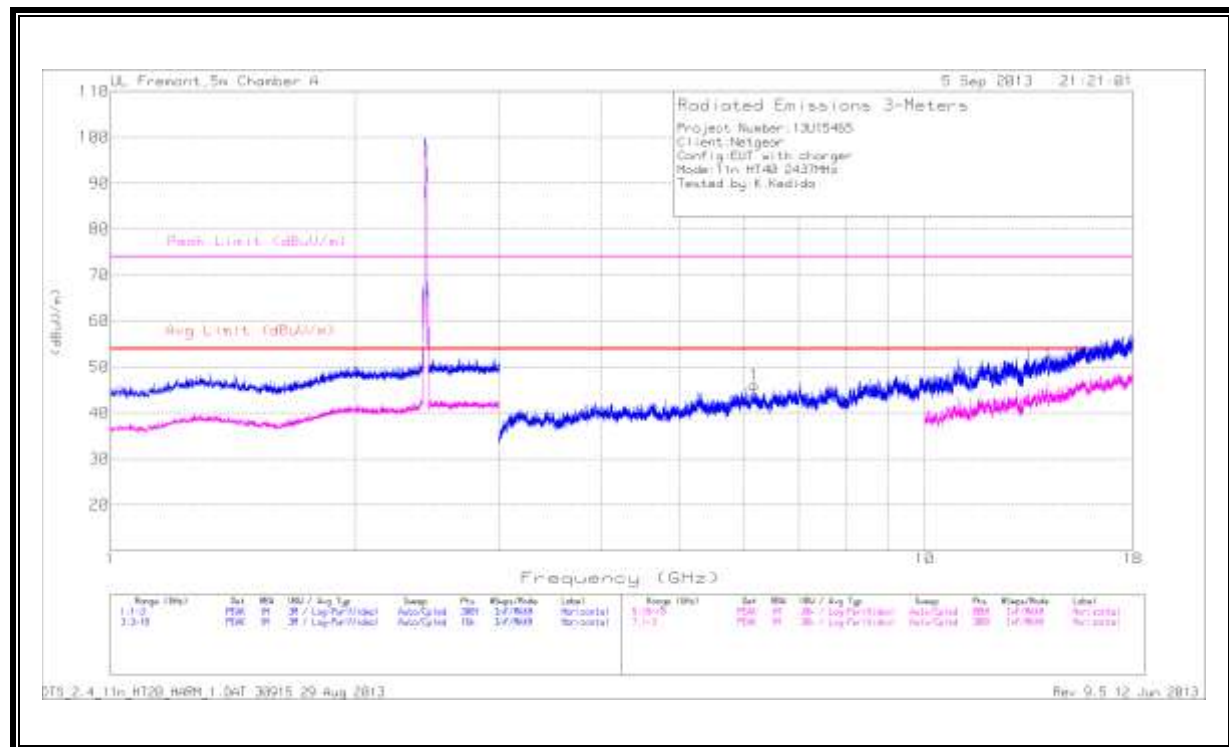
LOW CHANNEL DATA

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/C bl/Filtr/ Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
7.012	36.36	PK	35.4	-25.2	46.56	53.97	-7.41	74	-27.44	0-360	100	H
9.183	36.77	PK	36.1	-23	49.87	53.97	-4.1	74	-24.13	0-360	200	V

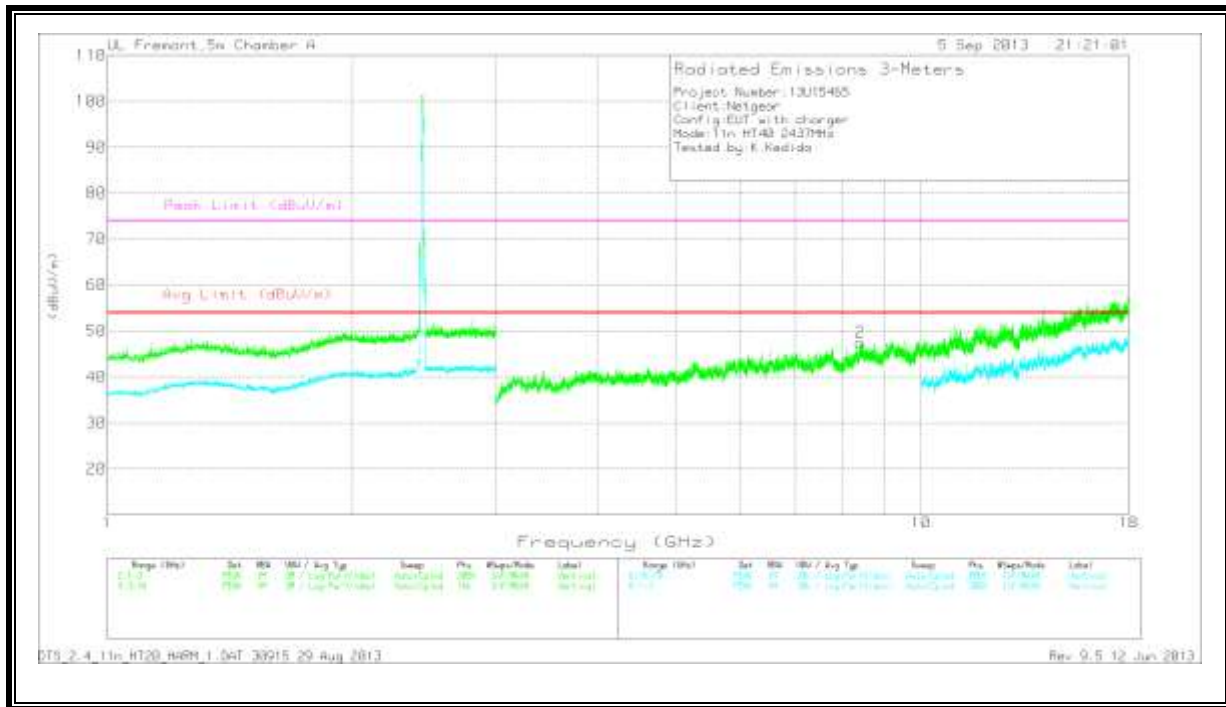
PK - Peak detector

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MID CHANNEL
HORIZONTAL



VERTICAL



MID CHANNEL DATA

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/C bl/Filtr/ Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
6.176	38.09	PK	35.4	-27.5	45.99	53.97	-7.98	74	-28.01	0-360	100	H
8.417	36.69	PK	35.7	-24.9	47.49	53.97	-6.48	74	-26.51	0-360	200	V

PK - Peak detector

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UL Frontant, 5w Chamber A

5 Sep 2013 22:17:39

Radiated Emissions 3-Meters

Project Number: 13015465
Client: Netgear
Config: EUT with charger
Mode: T1a HT48 2462MHz
Tested by: K. Kadiolo

Peak Limit: (dBuV/m)

Avg. Limit: (dBuV/m)

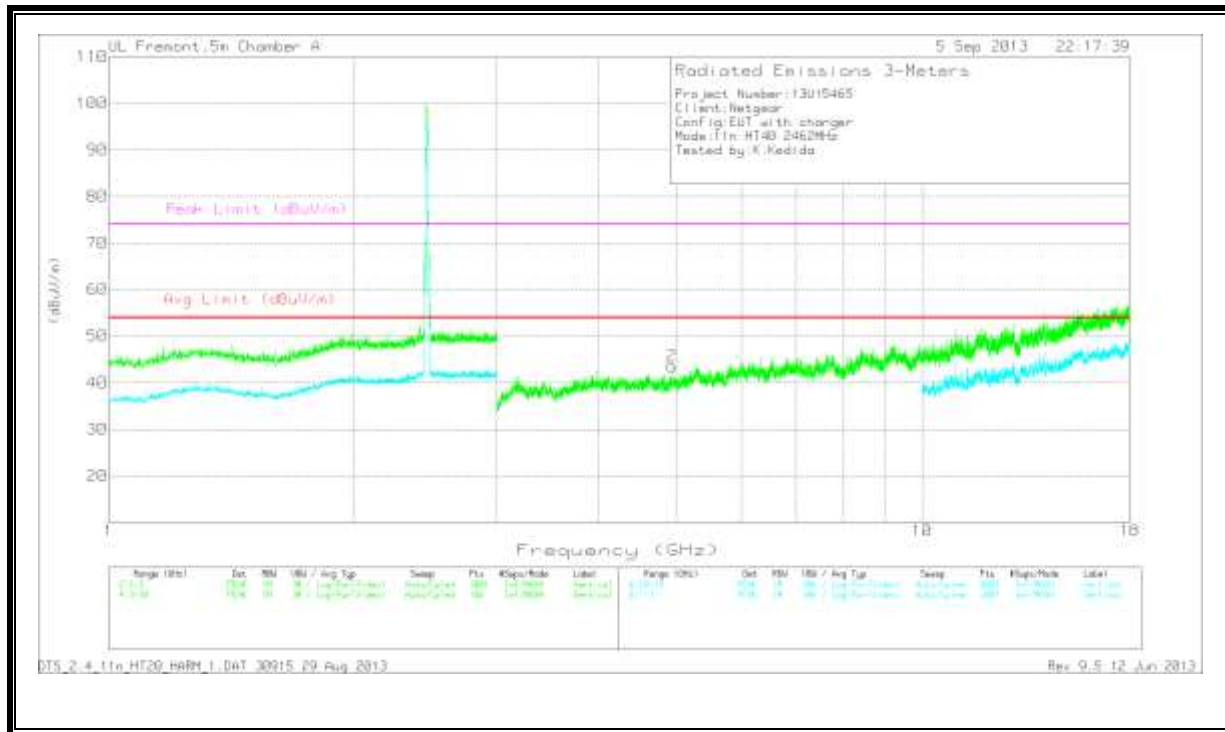
Frequency: (GHz)

Range (GHz)	Set	Std	Ref / Ref Type	Swamp	Pre	Display Mode	Label	Range (GHz)	Set	Std	Ref / Ref Type	Swamp	Pre	Display Mode	Label
1.1-18	PLW	38	LogPer100dB	AutoGain	200	3-D FREQ	Horizontal	1.1-18	PLW	38	LogPer100dB	AutoGain	200	3-D FREQ	Horizontal
3.3-18	PLW	38	LogPer100dB	AutoGain	200	3-D FREQ	Horizontal	3.3-18	PLW	38	LogPer100dB	AutoGain	200	3-D FREQ	Horizontal

BT5_2_4_11n_HT30_R40M_1.pdf 39915 29 Aug 2013

Rev 9.5 12 Jun 2013

VERTICAL



HIGH CHANNEL DATA

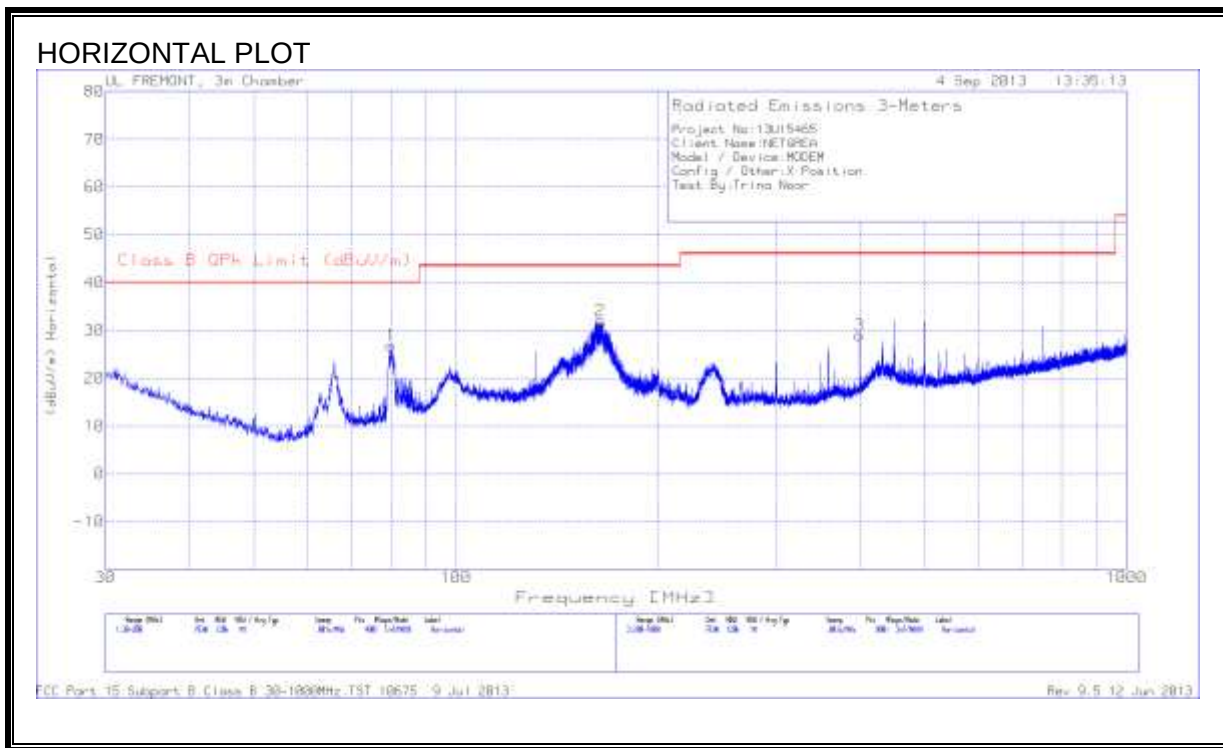
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/C bl/Filtr/ Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
7.412	36.72	PK	35.4	-24.9	47.22	53.97	-6.75	74	-26.78	0-360	200	H
4.924	37.11	PK	34	-27.5	43.61	53.97	-10.36	74	-30.39	0-360	200	V

PK - Peak detector

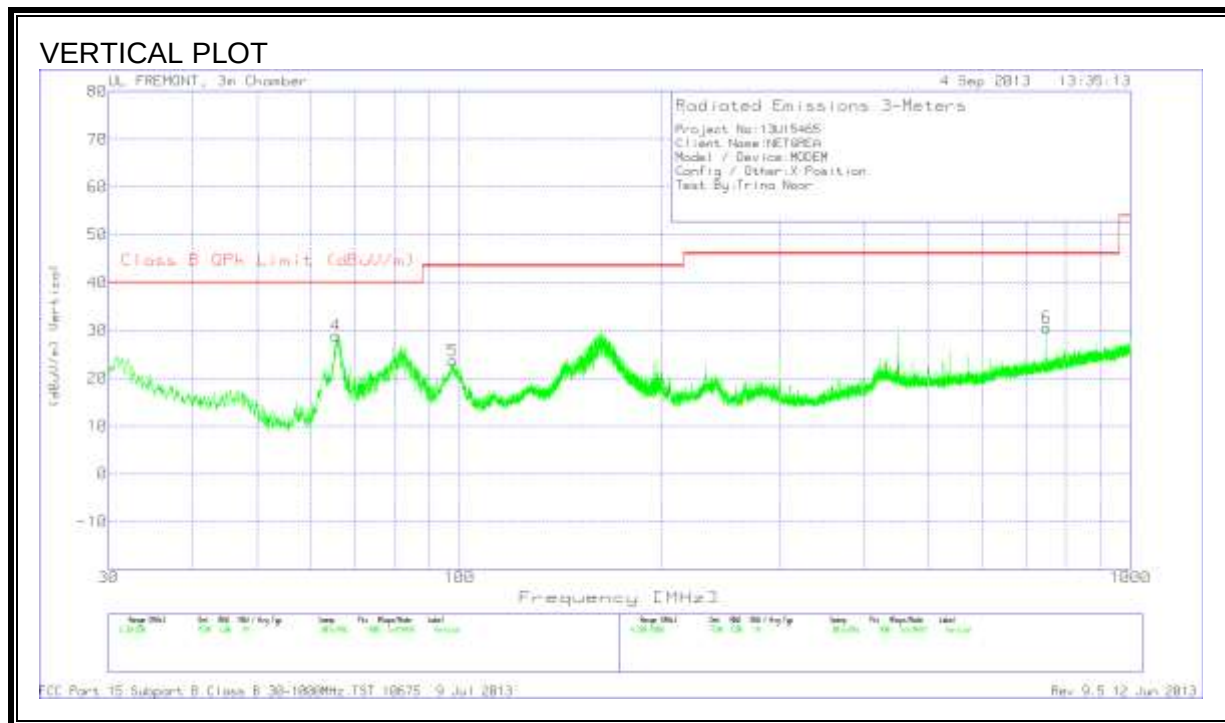
DTS_2.4_11n_HT40_HARM_1.DAT 30915 29 Aug 2013 Rev 9.5 12 Jun 2013

10.3. 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)



Below 1G Data

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	Class B QPk Limit (dBuV/m)	Margin (dB)	Height (cm)	Polarity
1	79.98	46.23	PK	7.6	-27	26.83	40	-13.17	99	Horz
2	164.045	46.29	PK	11.9	-26.2	31.99	43.52	-11.53	200	Horz
4	65.445	48.43	PK	7.7	-27.2	28.93	40	-11.07	99	Vert
5	97.83	40.97	PK	9.5	-26.8	23.67	43.52	-19.85	99	Vert
3	399.3	39.23	PK	15.5	-25.7	29.03	46.02	-16.99	99	Horz
6	750	34.71	PK	20.6	-24.8	30.51	46.02	-15.51	201	Vert

11. 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

Line-L1 .15 - 30MHz

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L1 (dB)	LC Cables 1&3 (dB)	Corrected Reading dBuV	CISPR 22 Class B QP	Margin to Limit (dB)	CISPR 22 Class B Avg	Margin to Limit (dB)
1	.159	42.16	PK	.1	0	42.26	65.5	-23.24	-	-
2	.159	29.75	Av	.1	0	29.85	-	-	55.5	-25.65
3	.5325	13.06	PK	.1	0	13.16	56	-42.84	-	-
4	.5325	2.84	Av	.1	0	2.94	-	-	46	-43.06
5	4.8165	15.12	PK	.1	.1	15.32	56	-40.68	-	-
6	4.8165	1.24	Av	.1	.1	1.44	-	-	46	-44.56
7	25.8	17.49	PK	.5	.3	18.29	60	-41.71	-	-
8	25.8	5.21	Av	.5	.3	6.01	-	-	50	-43.99

Line-L2 .15 - 30MHz

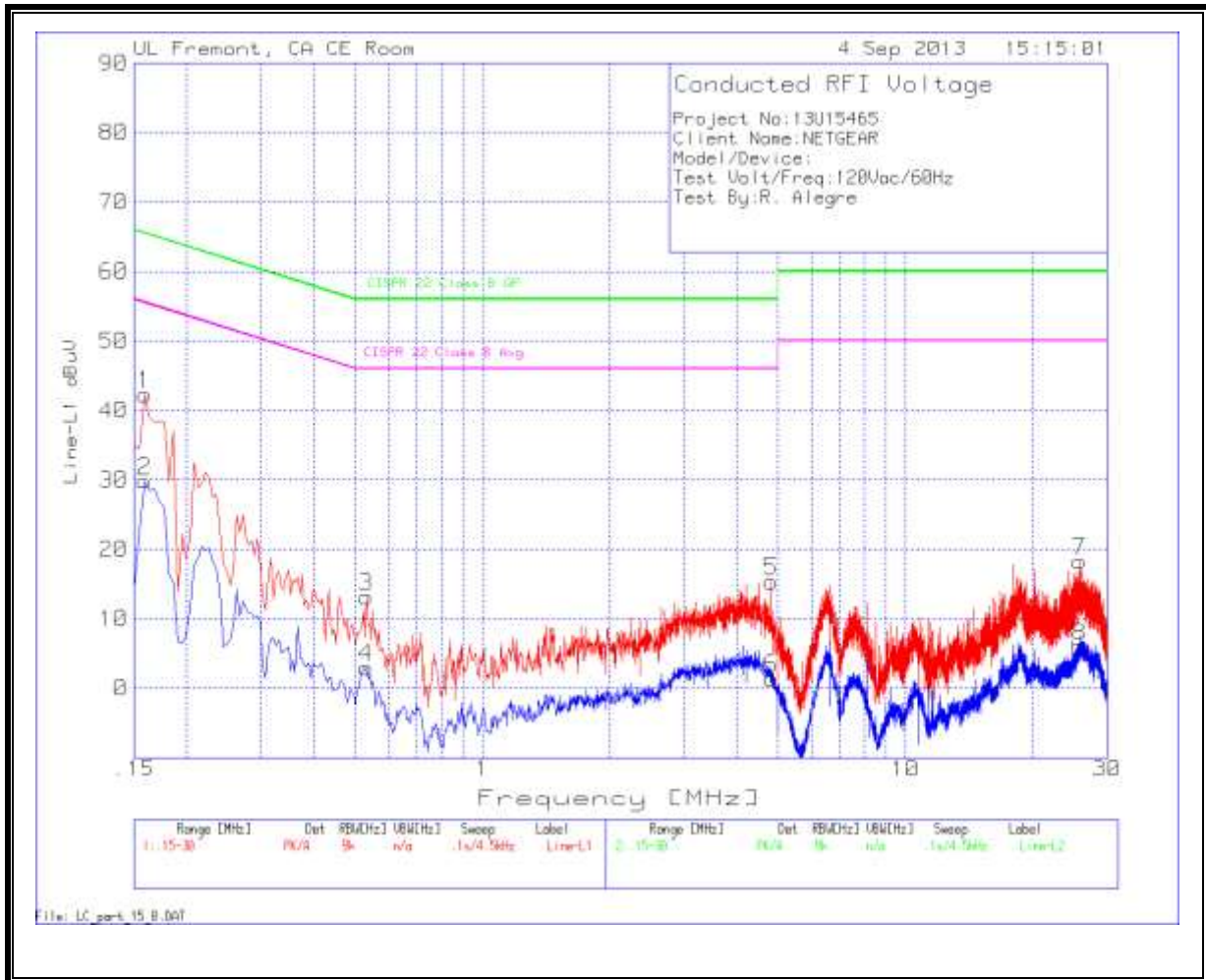
Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L2 (dB)	LC Cables 2&3 (dB)	Corrected Reading dBuV	CISPR 22 Class B QP	Margin to Limit (dB)	CISPR 22 Class B Avg	Margin to Limit (dB)
9	.15	37.03	PK	.1	0	37.13	66	-28.87	-	-
10	.15	19.98	Av	.1	0	20.08	-	-	56	-35.92
11	.528	18.23	PK	.1	0	18.33	56	-37.67	-	-
12	.528	8.65	Av	.1	0	8.75	-	-	46	-37.25
13	3.399	16.89	PK	.1	.1	17.09	56	-38.91	-	-
14	3.399	6.41	Av	.1	.1	6.61	-	-	46	-39.39
15	18.249	19.18	PK	.2	.2	19.58	60	-40.42	-	-
16	18.249	6.79	Av	.2	.2	7.19	-	-	50	-42.81

PK - Peak detector

Av - average detection

LINE 1 RESULTS



LINE 2 RESULTS

