FCC CFR47 PART 15 SUBPART C

CERTIFICATION TEST REPORT

FOR

GSM/WCDMA/LTE Phone + Bluetooth & DTS/UNII a/b/g/n + NFC

MODEL NUMBER: LG-D631, D631, LGD631

FCC ID: ZNFD631

REPORT NUMBER: 14U17477-4

ISSUE DATE: APRIL 9, 2014

Prepared for
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	04/09/14	Initial Issue	P. Kim

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME:	**LG ELECTRONICS MOBILECOMM U.S.A., INC**
EUT DESCRIPTION:	**GSM/WCDMA/LTE Phone + Bluetooth & DTS/UNII a/b/g/n + NFC.**
MODEL:	**LG-D631, D631, LGD631**
SERIAL NUMBER:	**403KPDT000322 (Conducted), 403KPMZ000323 (Radiated)**
DATE TESTED:	**APRIL 1-7, 2014**

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.

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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 C63.4-2009.

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:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)
36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

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 18000 MHz	4.94 dB

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a GSM/WCDMA/LTE Phone + Bluetooth & DTS/UNII a/b/g/n + NFC.

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	18.96	78.70
2412 - 2462	802.11g	22.73	187.50
2412 - 2462	802.11n HT20	20.52	112.72
5745-5825	802.11a	18.07	64.12
5745-5825	802.11n HT20	17.59	57.41
5755-5795	802.11n HT40	18.14	65.16

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an FPCB antenna, with a maximum gain of -8.45 dBi for 2.4GHz and -4.22 for 5GHz.

5.4. 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 X orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in X orientation.

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

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	LG ELECTRONICS	MCS-01WD	DB390078751	N/A
Earphone	LG ELECTRONICS	LG-D631	N/A	N/A

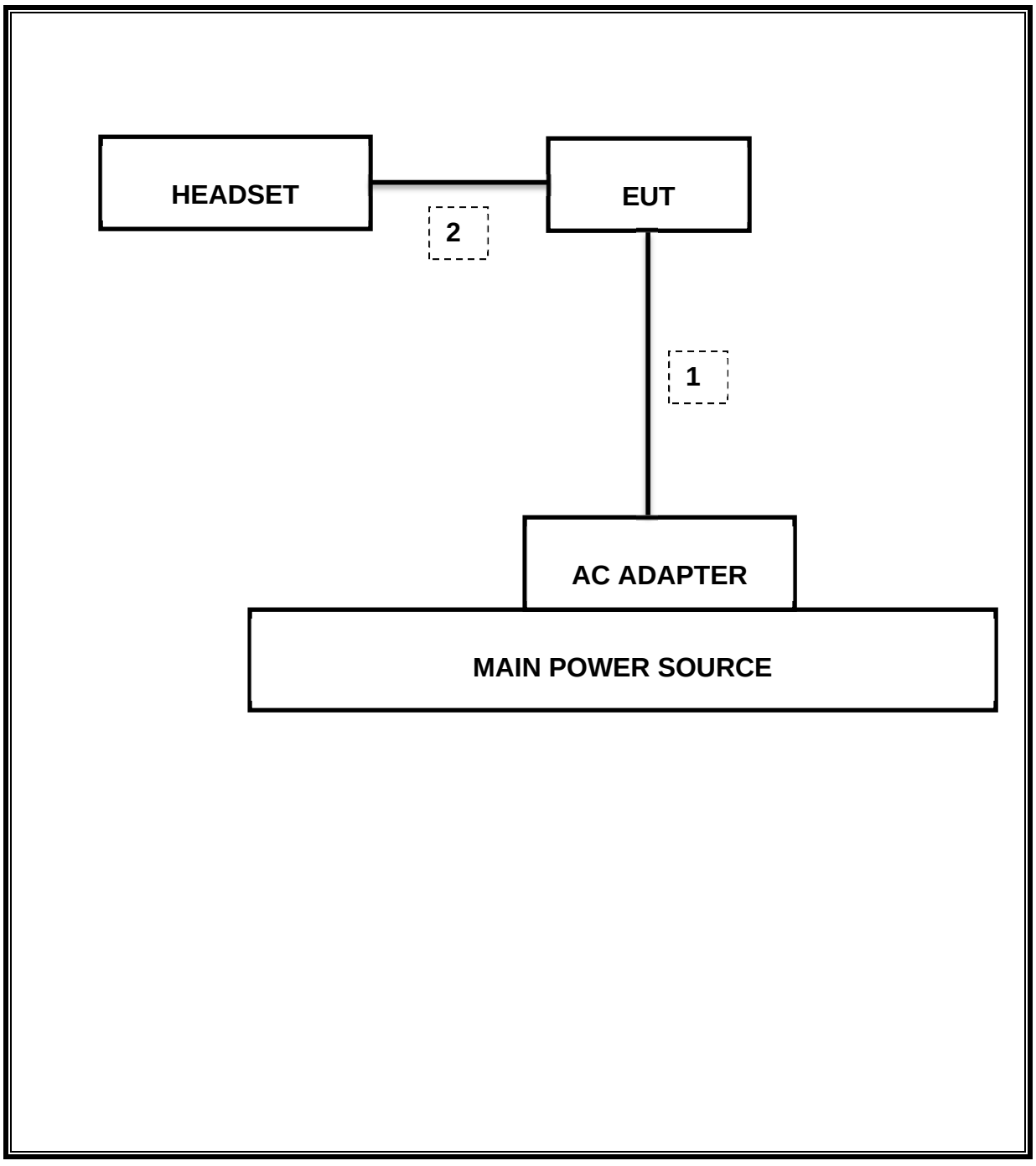
I/O CABLES

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	DC Power	1	Mini-USB	Shielded	1.2m	N/A
2	Audio	1	Mini-Jack	Unshielded	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 Due**
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01069	12/20/14
Spectrum Analyzer,9KHz-40GHz	HP	8564E	C00986	04/01/14
EMI Test Receiver, 9 kHz-7 GHz	R & S	ESCI 7	1000741	08/13/14
EMI Test Receiver, 30 MHz	R & S	ESHS 20	N02396	08/18/14
Peak Power Meter	Agilent / HP	E4416A	C00963	12/13/14
Peak / Average Power Sensor	Agilent / HP	E9327A	C00964	12/13/14
Antenna, Horn, 1-18 GHz	ETS	3117	C01022	02/21/15
Antenna, Horn,18- 26 GHz	ARA	MWH-1826/B	C00946	11/12/14
Antenna, Horn, 26-40 GHz	ARA	MWH-2640	C00891	06/28/14
Antenna, Bilog, 30MHz-1 GHz	Sunol Sciences	JB1	T243	03/06/15
RF Preamplifier, 100KHz -> 1300MHz	HP	TBD	C00825	06/01/14
RF Preamplifier, 1GHz - 18GHz	Miteq	NSP4000-SP2	924343	03/23/15
RF Preamplifier, 1GHz - 26.5GHz	HP	8449B	F00351	06/27/14
AC Power Supply, 2,500VA 45-500Hz	Elgar-Ametek	CW2501M	F00013	CNR
RF Preamplifier, 1GHz - 40GHz	Miteq	NSP4000-SP2	C00990	08/20/14
Attenuator / Switch driver	HP	11713A	F00204	CNR
Low Pass Filter 3GHz	Micro-Tronics	LPS17541	F00219	05/23/14
High Pass Filter 5GHz	Micro-Tronics	HPS17542	F00222	05/22/14
High Pass Filter 6GHz	Micro-Tronics	HPM17543	F00224	05/22/14

7. MEASUREMENT METHODS

KDB 558074 D01 DTS Meas Guidance v03r01: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.

Band edge emissions within Restricted Bands are measured using RMS with duty cycle factor offset method.

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	10.03MHz
2.1051, 15.247 (d)	RSS-210 A8.5	Band Edge / Conducted Spurious Emission	-20dBc		Pass	-33.00dBm
15.247	RSS-210 A8.4	TX conducted output power	<30dBm		Pass	22.73dBm
15.247	RSS-210 A8.2	PSD	<8dBm		Pass	-5.24dBm
15.207 (a)	RSS-GEN 7.2.2	AC Power Line conducted emissions	Section 10	Radiated	Pass	34.90dBuV(AV)
15.205, 15.209	RSS-210 Clause 2.6, RSS-210 Clause 6	Radiated Spurious Emission	< 54dBuV/m		Pass	48.34dBuV/m

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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 D01 DTS Meas Guidance v03r01: The transmitter output is connected to a spectrum analyzer with the RBW set to100KHz, the VBW >= 3 x RBW, peak detector and max hold.

RESULTS

9.1.1. 802.11b MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	10.03	0.5
Mid	2437	10.03	0.5
High	2462	10.05	0.5
Worst		10.03	

9.1.2. 802.11g MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	16.33	0.5
Mid	2437	16.25	0.5
High	2462	16.33	0.5
Worst		16.25	

9.1.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	17.25	0.5
Mid	2437	17.17	0.5
High	2462	17.46	0.5
Worst		17.17	

9.1.4. 802.11a MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5745	15.120	0.5
Mid	5785	15.210	0.5
High	5825	16.020	0.5
Worst		15.120	

9.1.5. 802.11n HT20 MODE IN THE 5.8 GHz BAND

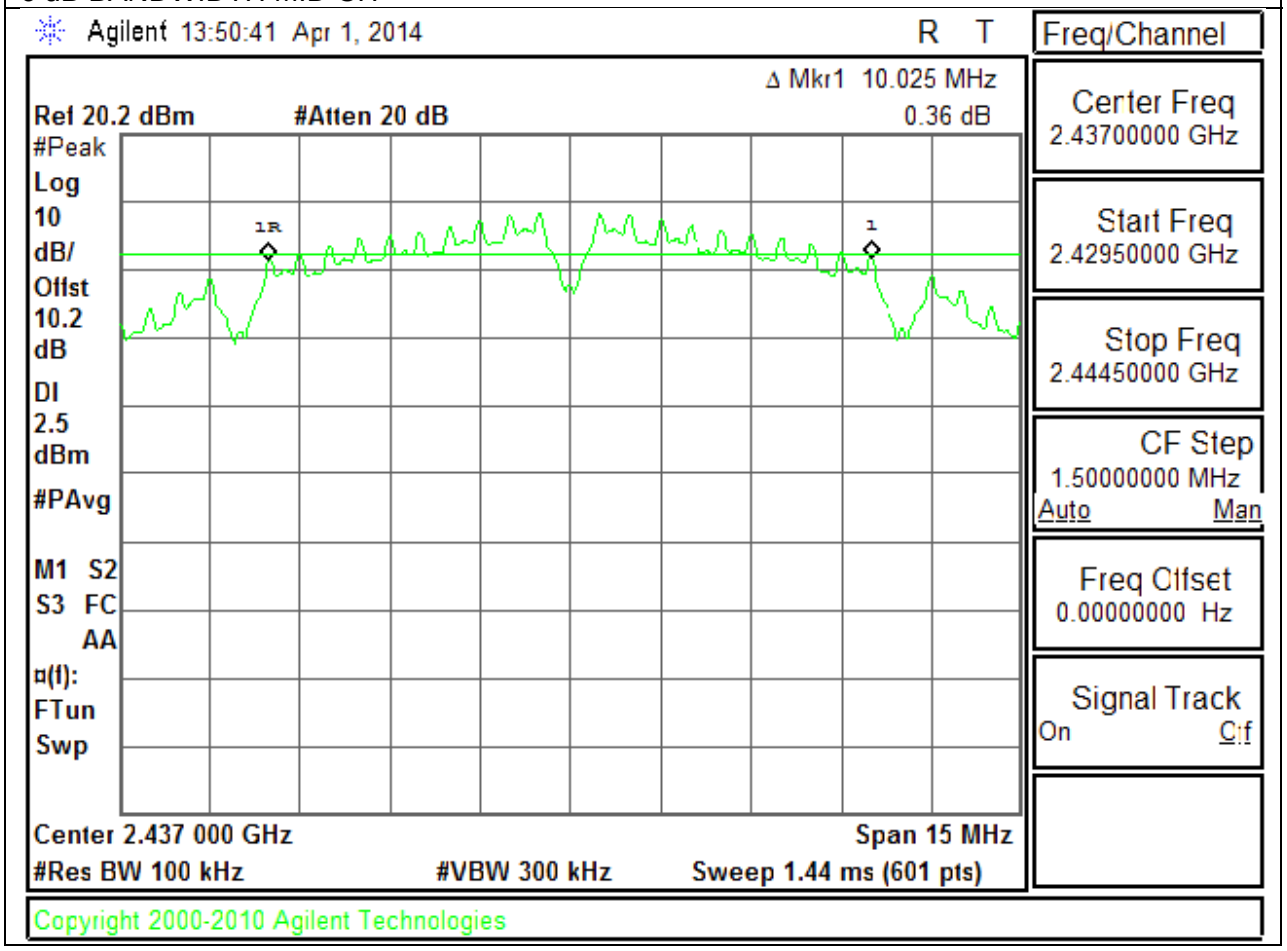
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5745	16.080	0.5
Mid	5785	15.120	0.5
High	5825	14.700	0.5
Worst		14.700	

9.1.6. 802.11n HT40 MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5755	34.0	0.5
High	5795	35.4	0.5
Worst		34.0	0.5

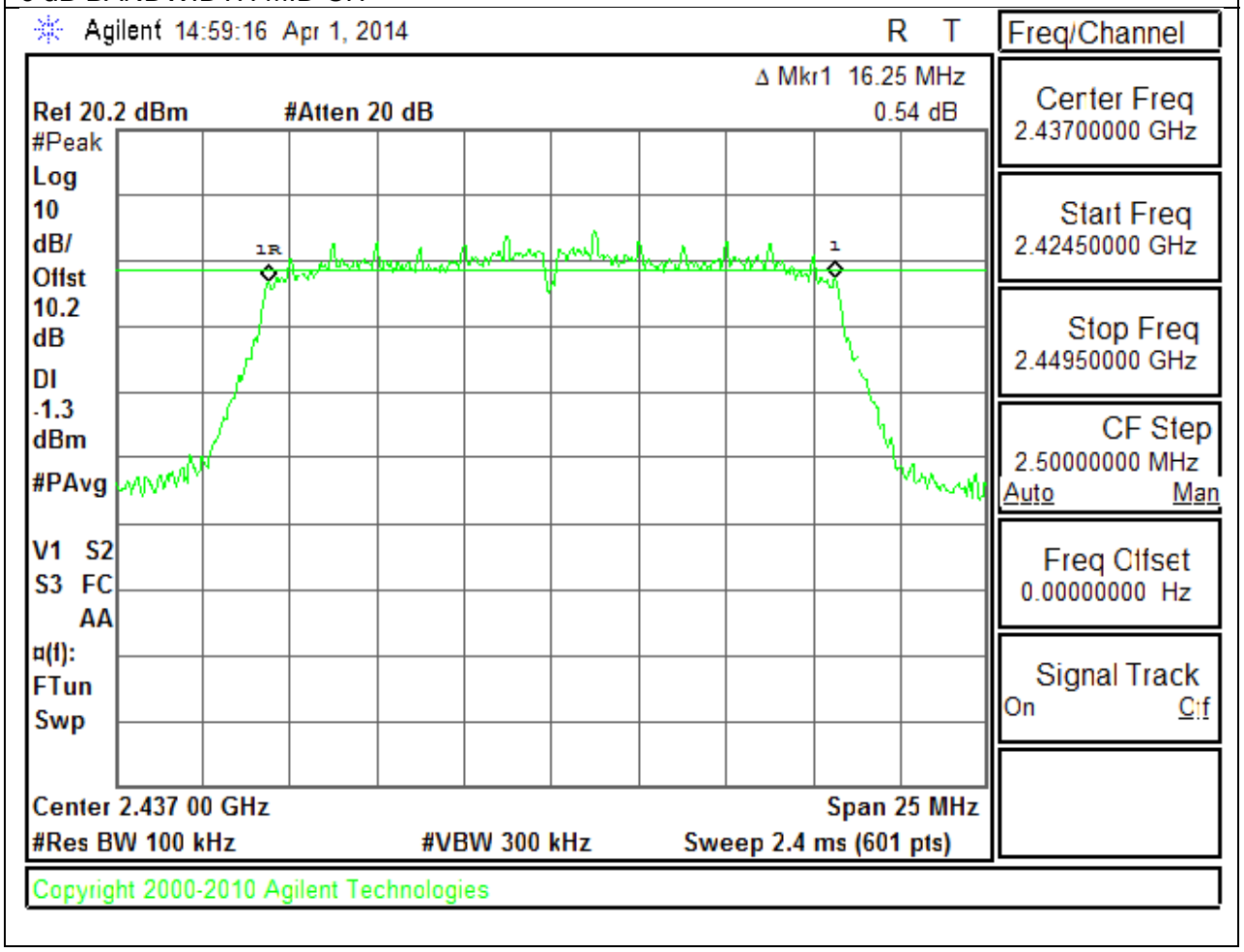
802.11b 6 dB BANDWIDTH

6 dB BANDWIDTH MID CH



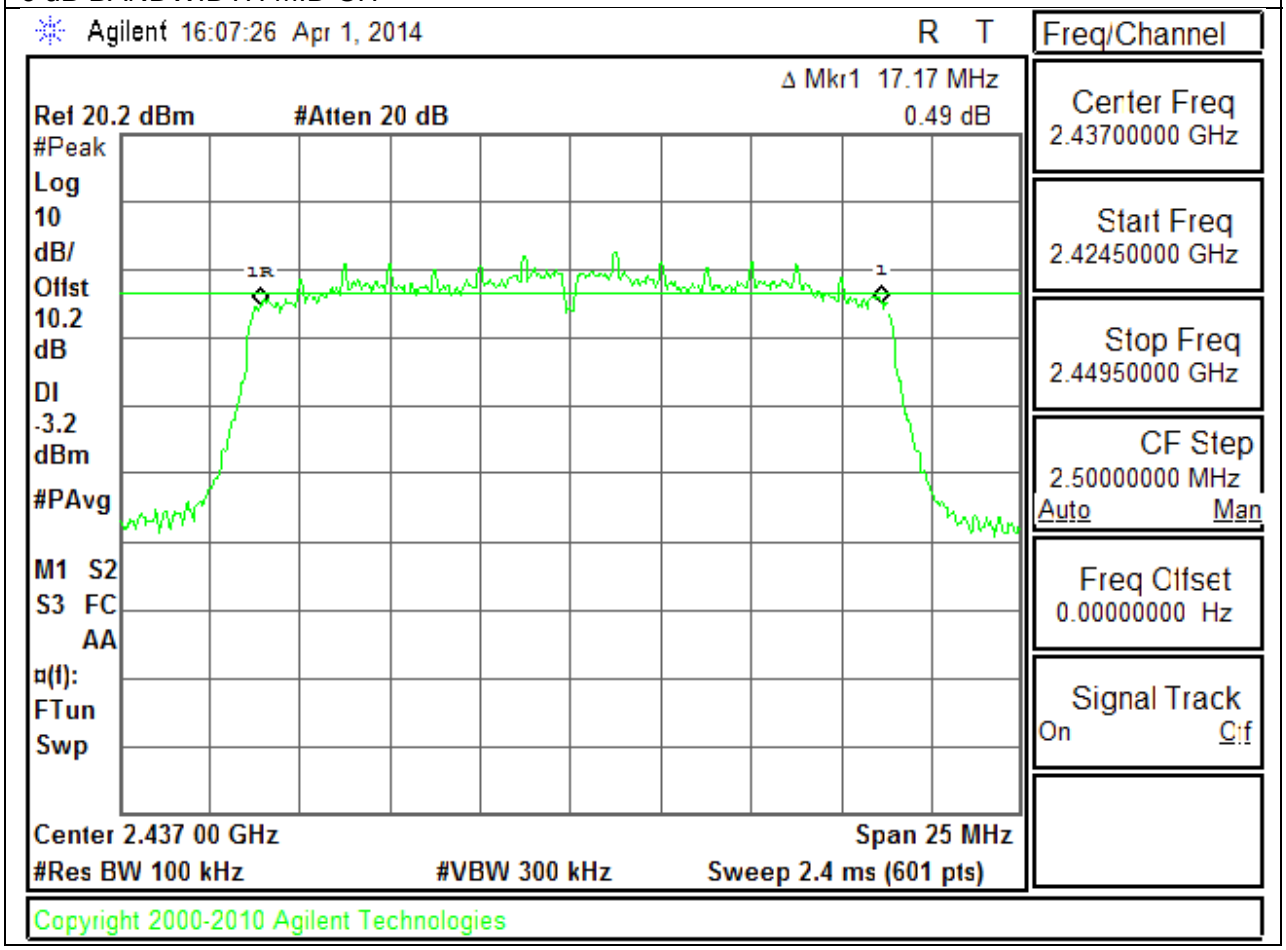
802.11g 6 dB BANDWIDTH

6 dB BANDWIDTH MID CH



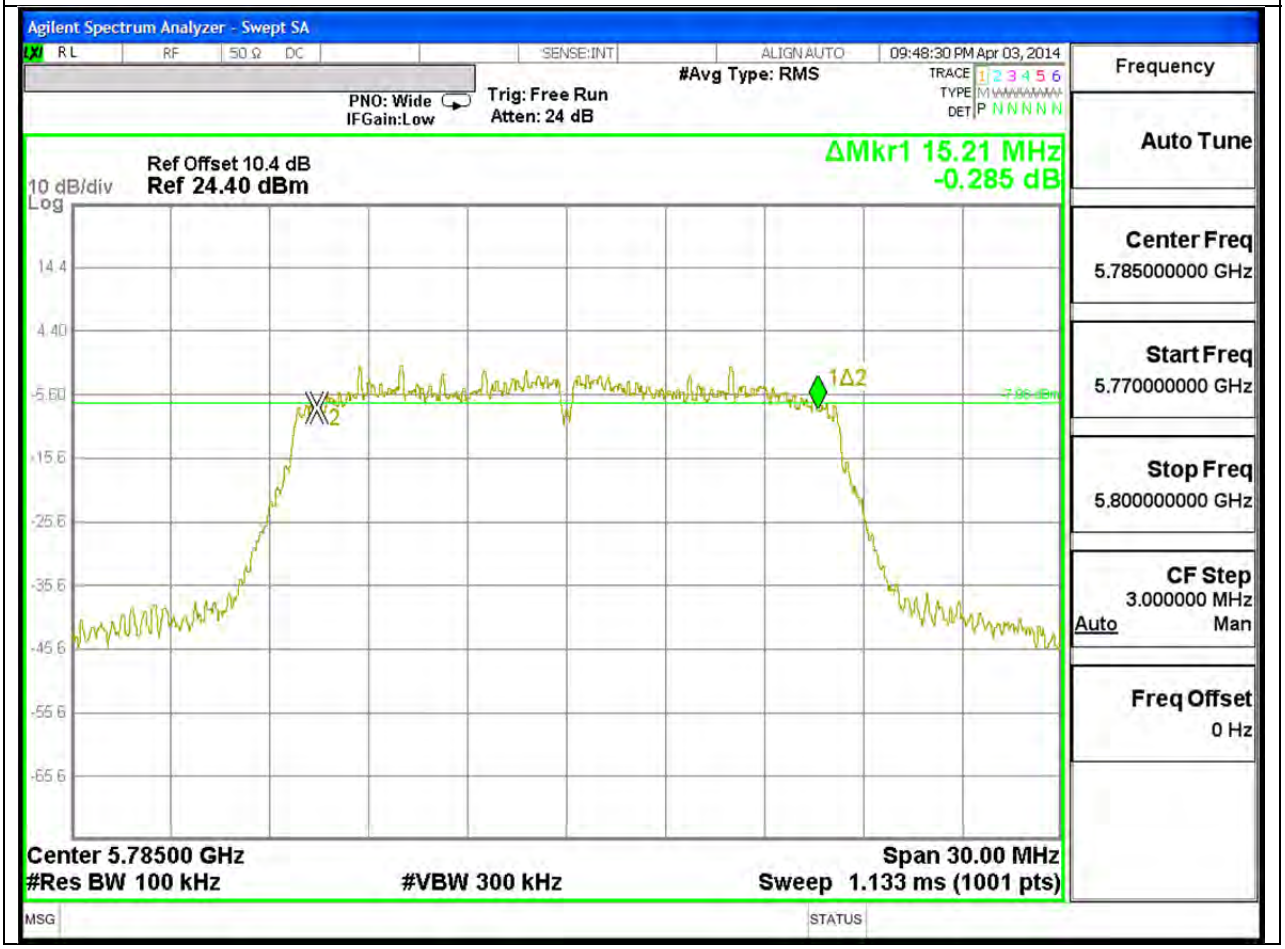
802.11n 6 dB BANDWIDTH

6 dB BANDWIDTH MID CH



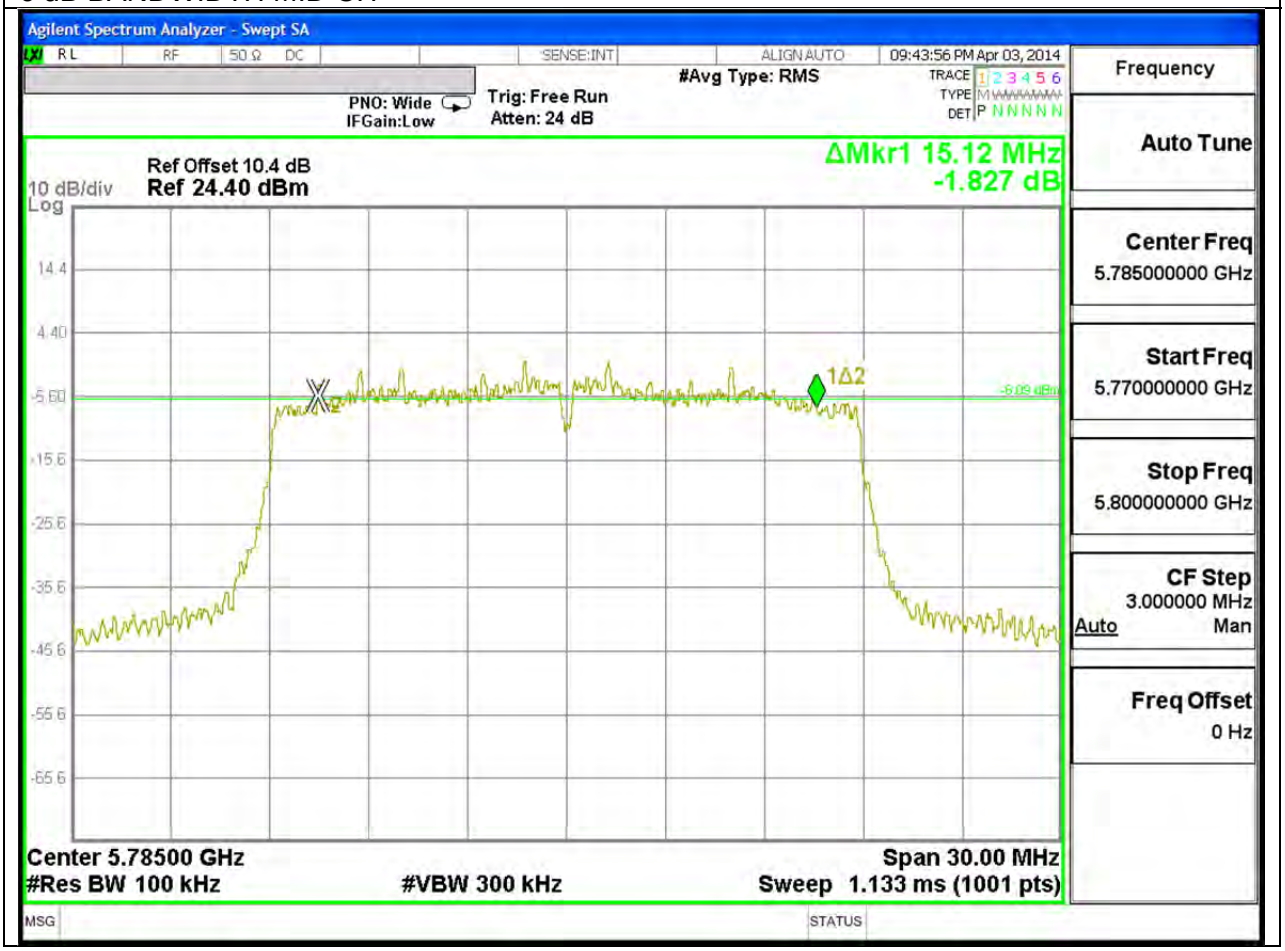
802.11a 6 dB BANDWIDTH 5.8GHz

6 dB BANDWIDTH MID CH



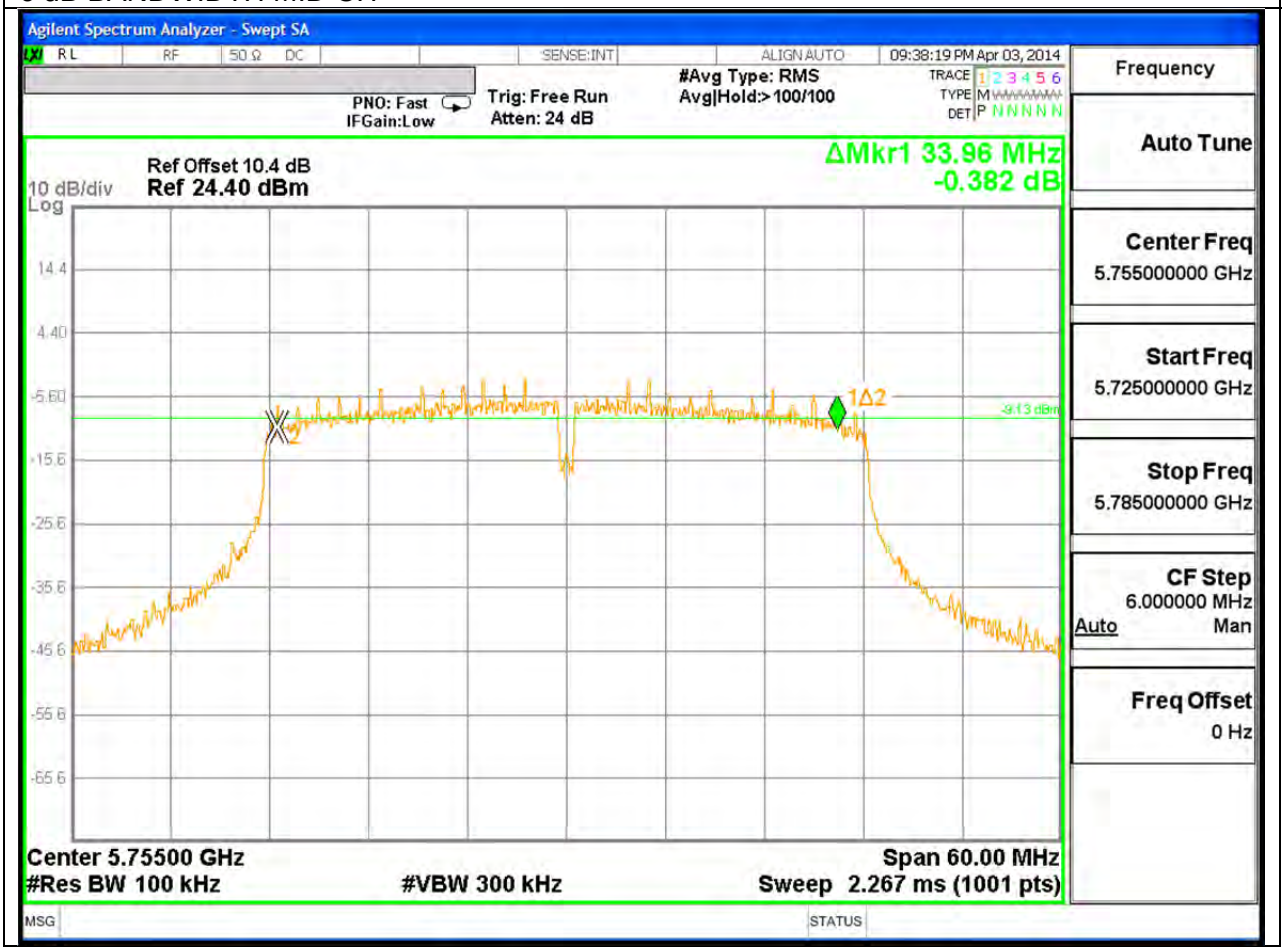
802.11n HT20 6 dB BANDWIDTH 5.8GHz

6 dB BANDWIDTH MID CH



802.11n HT40 6 dB BANDWIDTH 5.8GHz

6 dB BANDWIDTH MID CH



9.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

9.2.1. 802.11b MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	13.99
Mid	2437	13.93
High	2462	13.96
Worst		13.99

9.2.2. 802.11g MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	16.21
Mid	2437	16.09
High	2462	16.30
Worst		16.30

9.2.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	17.37
Mid	2437	17.41
High	2462	17.46
Worst		17.46

9.2.4. 802.11a MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5745	16.473
Mid	5785	16.384
High	5825	16.427
Worst		16.473

9.2.5. 802.11n HT20 MODE IN THE 5.8 GHz BAND

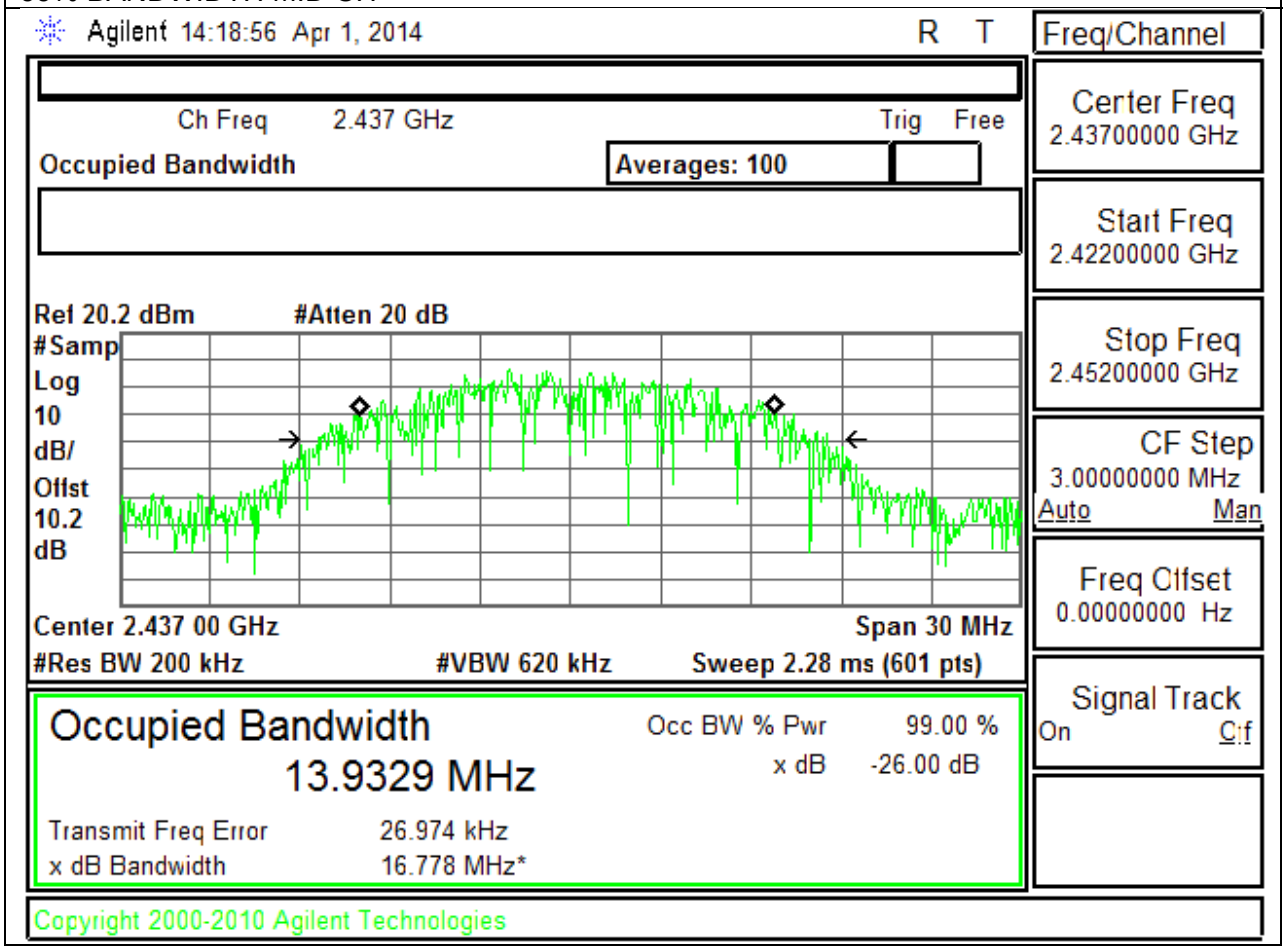
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5745	17.584
Mid	5785	17.586
High	5825	17.626
Worst		17.626

9.2.6. 802.11n HT40 MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5755	36.0
High	5795	35.9
Worst		36.0

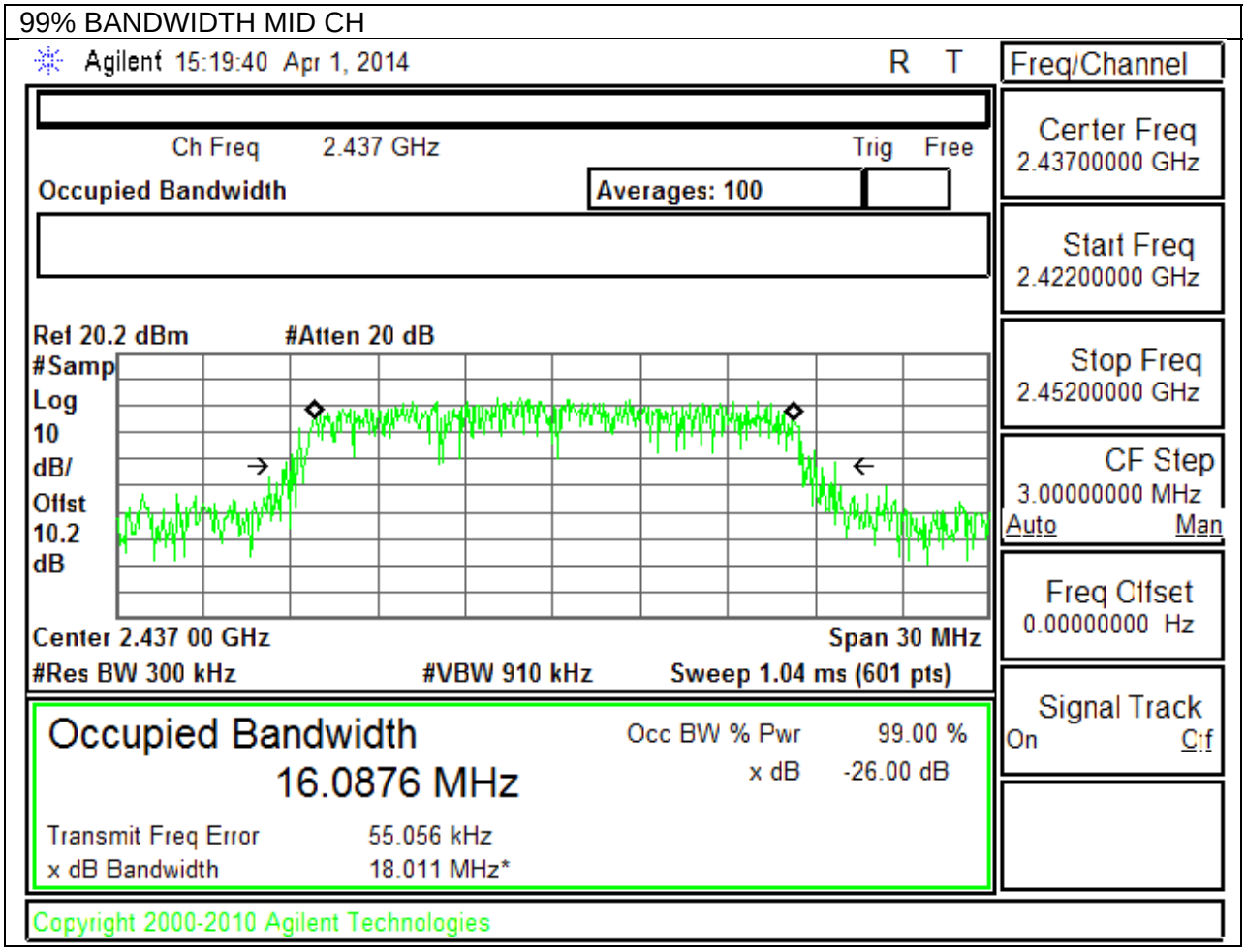
802.11b 99% BANDWIDTH

99% BANDWIDTH MID CH



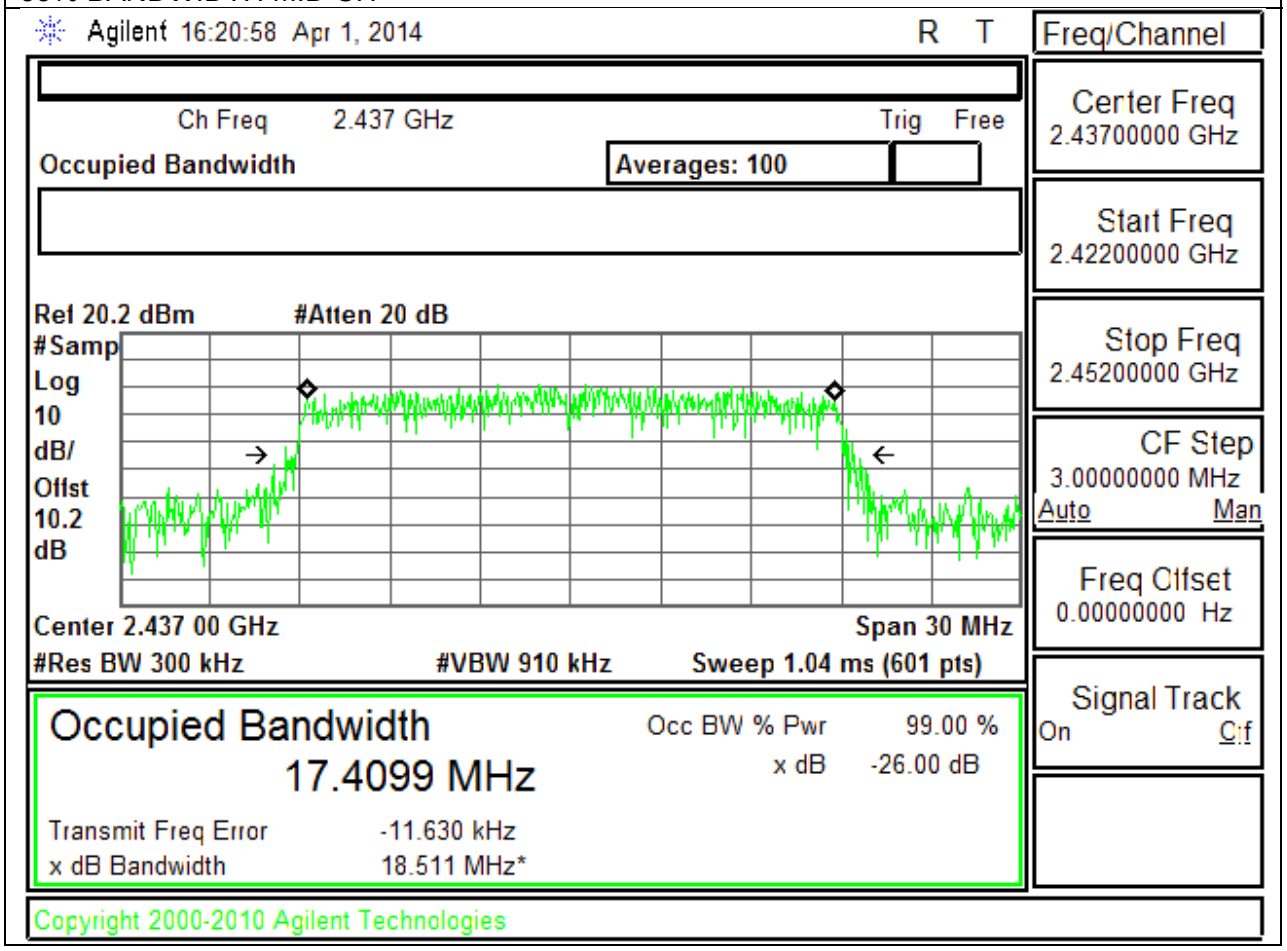
802.11g 99% BANDWIDTH

99% BANDWIDTH MID CH



802.11n 99% BANDWIDTH

99% BANDWIDTH MID CH

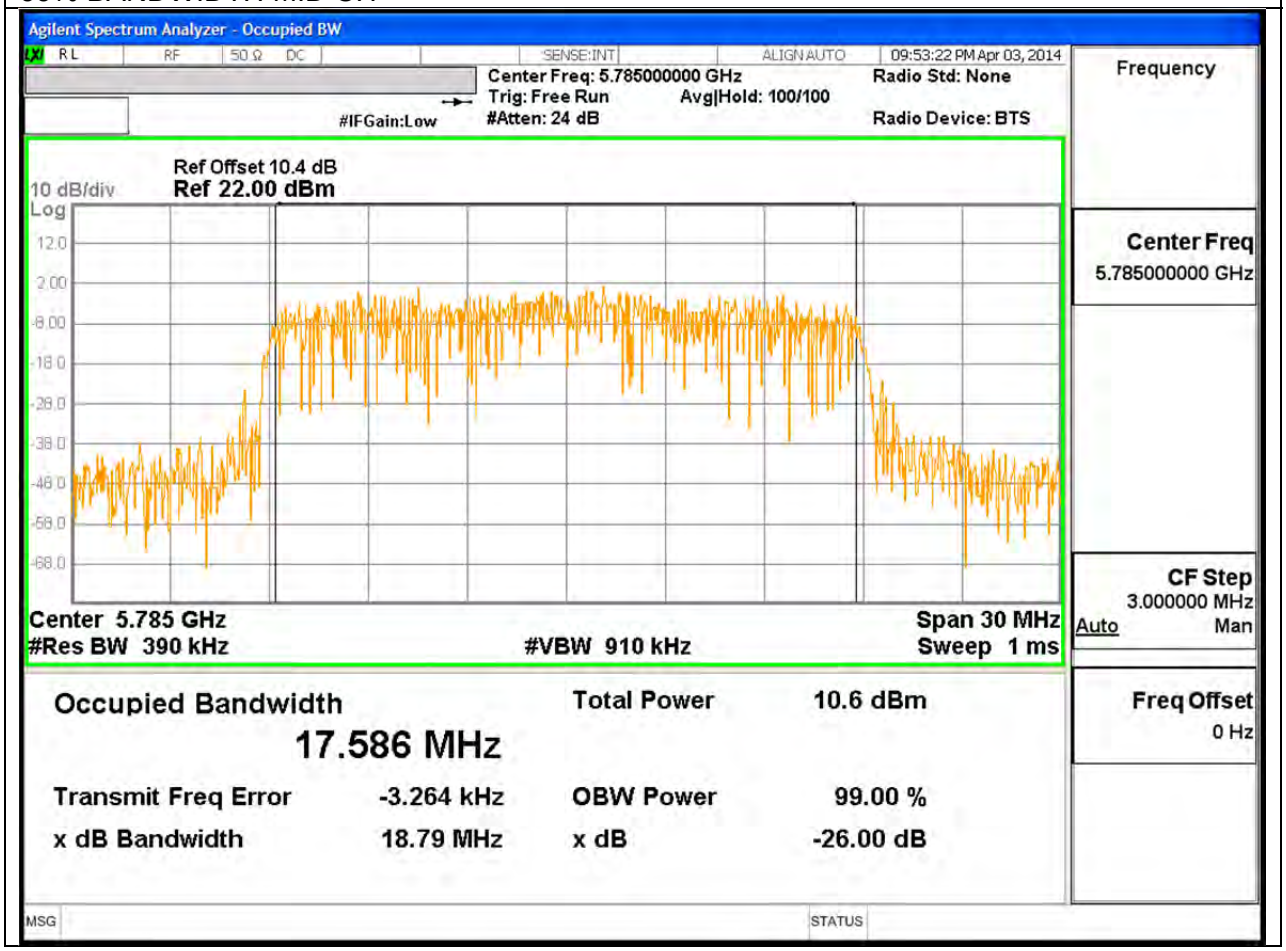


802.11a 5.8GHz 99% BANDWIDTH

99% BANDWIDTH MID CH

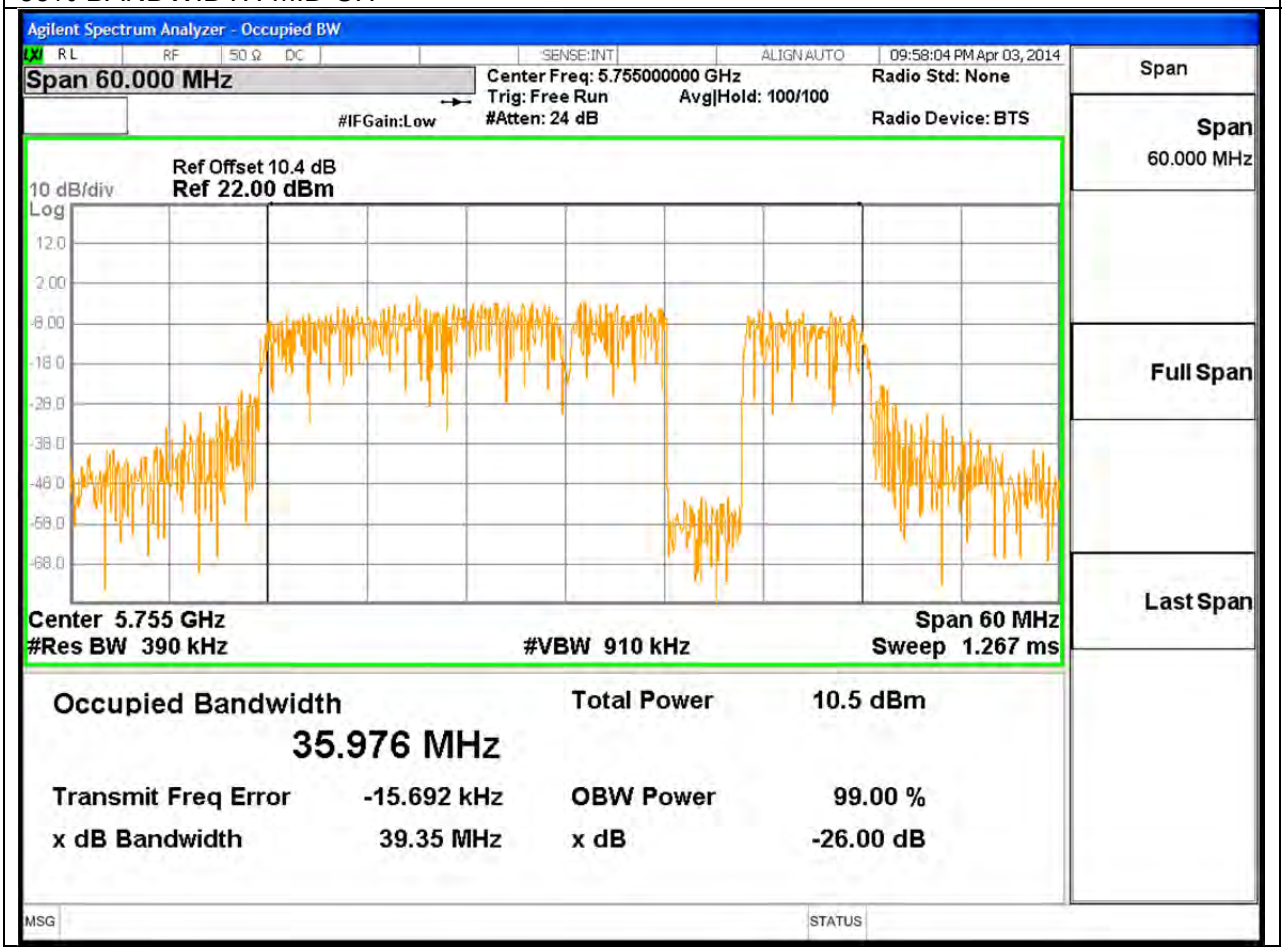
802.11n HT20 5.8GHz 99% BANDWIDTH

99% BANDWIDTH MID CH



802.11n HT40 5.8GHz 99% BANDWIDTH

99% BANDWIDTH MID CH



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 10.4 dB (including 10 dB pad and 0.4 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

RESULTS

9.3.1. 802.11b MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	2412	15.80
Mid	2437	16.10
High	2462	16.20
Worst		16.200

9.3.2. 802.11g MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	2412	14.00
Mid	2437	14.30
High	2462	14.50
Worst		14.500

9.3.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	2412	12.00
Mid	2437	12.30
High	2462	12.50
Worst		12.500

9.3.4. 802.11a MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5745	10.500
Mid	5785	10.400
High	5825	10.400
Worst		10.500

9.3.5. 802.11n HT20 MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5745	10.300
Mid	5785	10.300
High	5825	10.200
Worst		10.300

9.3.6. 802.11n HT40 MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5755	9.8
High	5795	10.0
Worst		10.0

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

9.4.1. 802.11b 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	-8.45	30.00	30	36	30.00
Mid	2437	-8.45	30.00	30	36	30.00
High	2462	-8.45	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	18.35	18.35	30.00	-11.65
Mid	2437	18.75	18.75	30.00	-11.25
High	2462	18.96	18.96	30.00	-11.04
Worst			18.96		

9.4.2. 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	-8.45	30.00	30	36	30.00
Mid	2437	-8.45	30.00	30	36	30.00
High	2462	-8.45	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	22.18	22.18	30.00	-7.82
Mid	2437	22.58	22.58	30.00	-7.42
High	2462	22.73	22.73	30.00	-7.27
Worst			22.73		

9.4.3. 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	-8.45	30.00	30	36	30.00
Mid	2437	-8.45	30.00	30	36	30.00
High	2462	-8.45	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	20.22	20.22	30.00	-9.78
Mid	2437	20.52	20.52	30.00	-9.48
High	2462	20.52	20.52	30.00	-9.48
Worst			20.52		

9.4.4. 802.11a MODE IN THE 5.8 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	5745	-4.22	30.00	30	36	30.00
Mid	5785	-4.22	30.00	30	36	30.00
High	5825	-4.22	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	5745	18.07	18.07	30.00	-11.93
Mid	5785	17.65	17.65	30.00	-12.35
High	5825	17.87	17.87	30.00	-12.13
Worst			18.07		

9.4.5. 802.11n HT20 MODE IN THE 5.8 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	5745	-4.22	30.00	30	36	30.00
Mid	5785	-4.22	30.00	30	36	30.00
High	5825	-4.22	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	5745	17.59	17.59	30.00	-12.41
Mid	5785	16.90	16.90	30.00	-13.10
High	5825	17.24	17.24	30.00	-12.76
Worst			17.59		

9.4.6. 802.11n HT40 MODE IN THE 5.8 GHz BAND

Limits

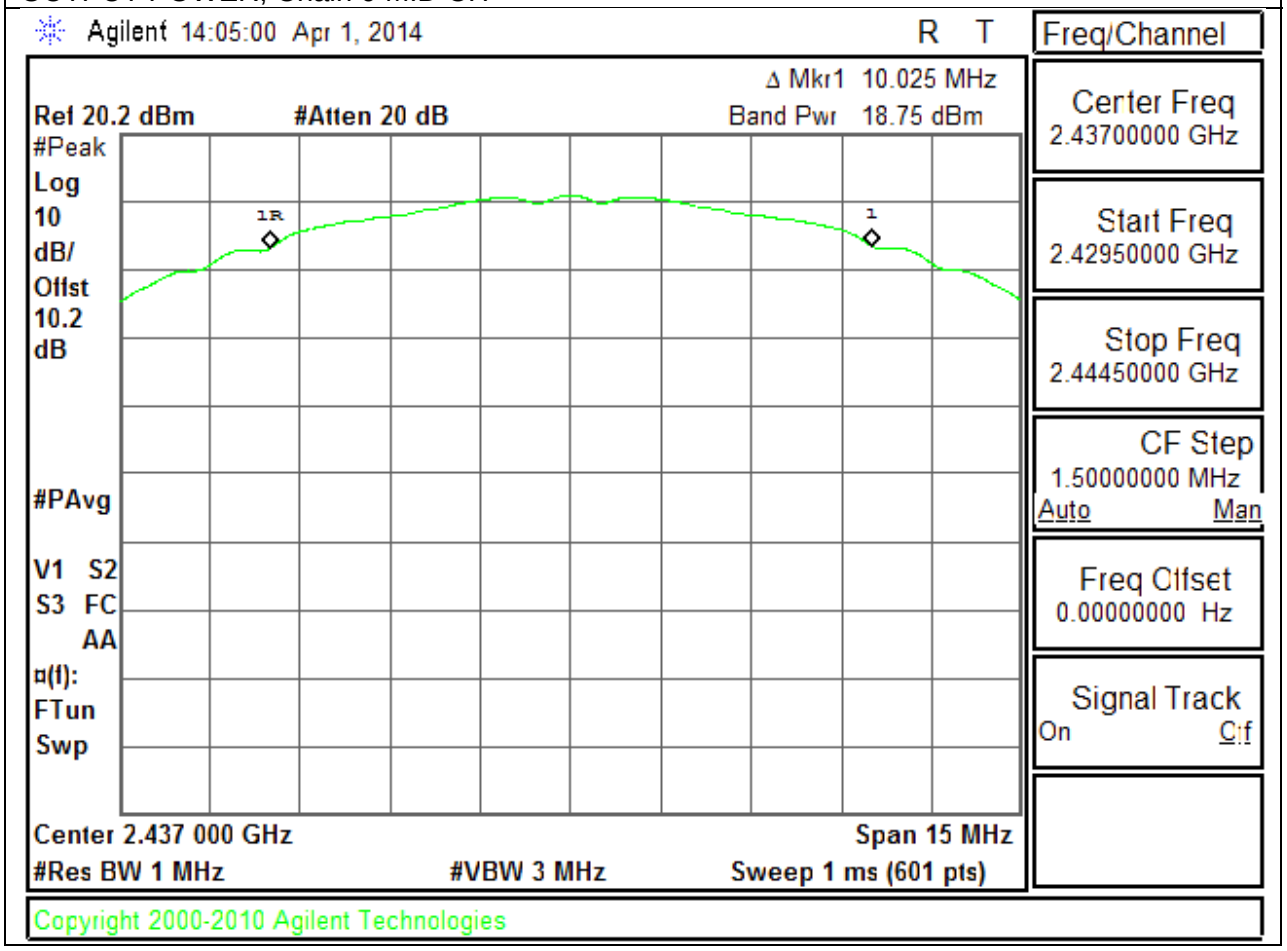
Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	5755	-4.22	30.00	30	36	30.00
High	5795	-4.22	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	5755	18.14	18.14	30.00	-11.87
High	5795	17.68	17.68	30.00	-12.33
Worst			18.14		

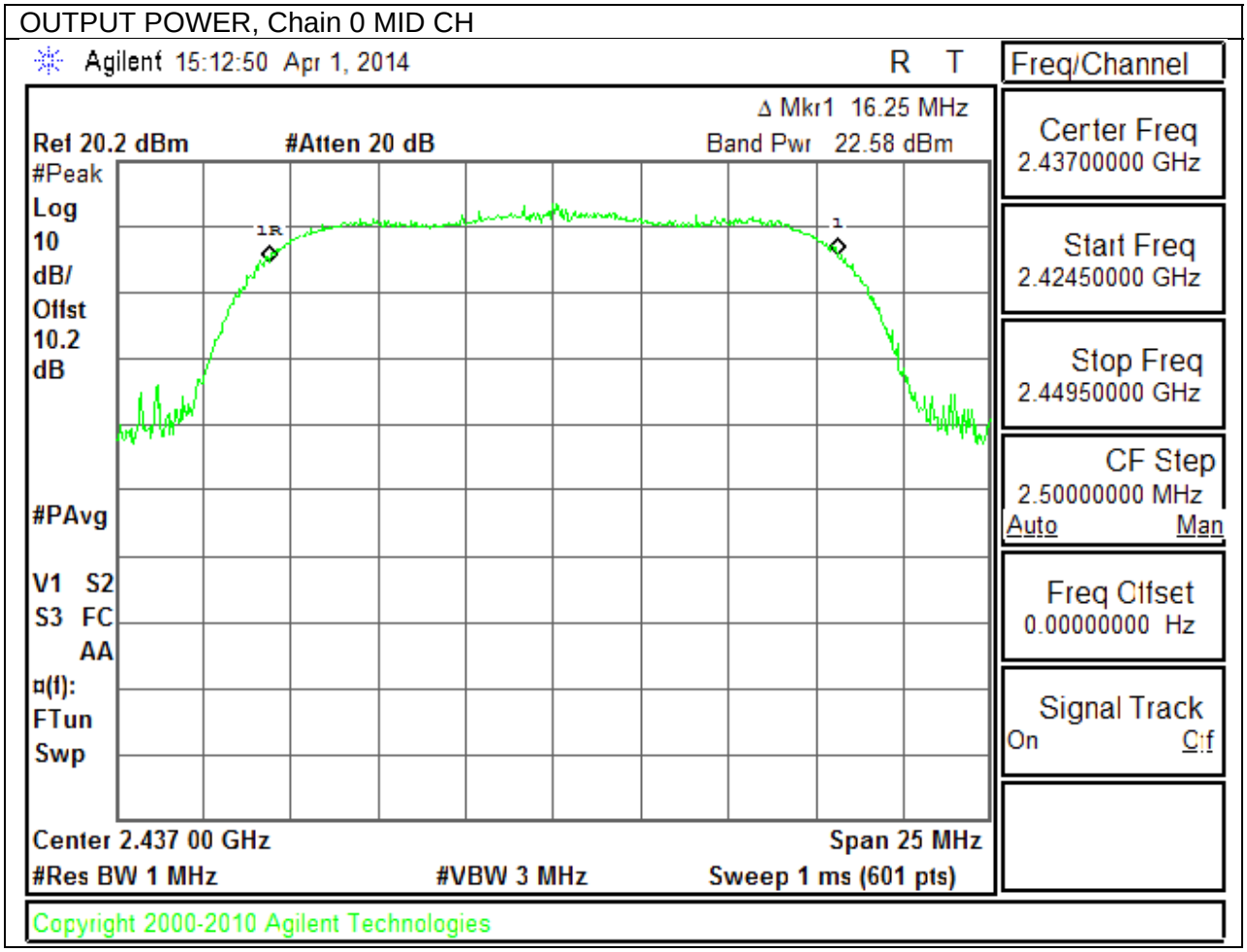
802.11b OUTPUT POWER, Chain 0

OUTPUT POWER, Chain 0 MID CH



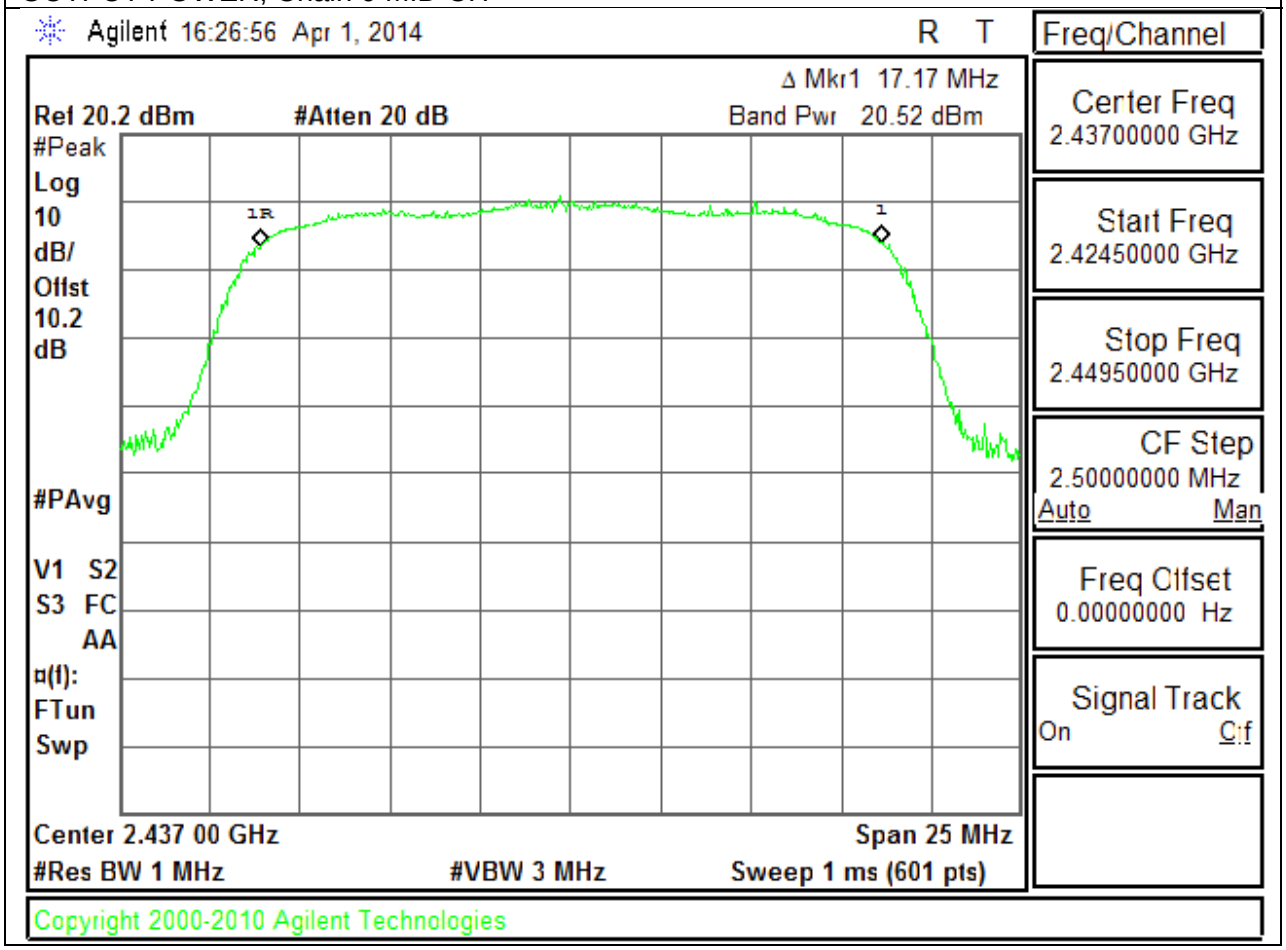
802.11g OUTPUT POWER, Chain 0

OUTPUT POWER, Chain 0 MID CH



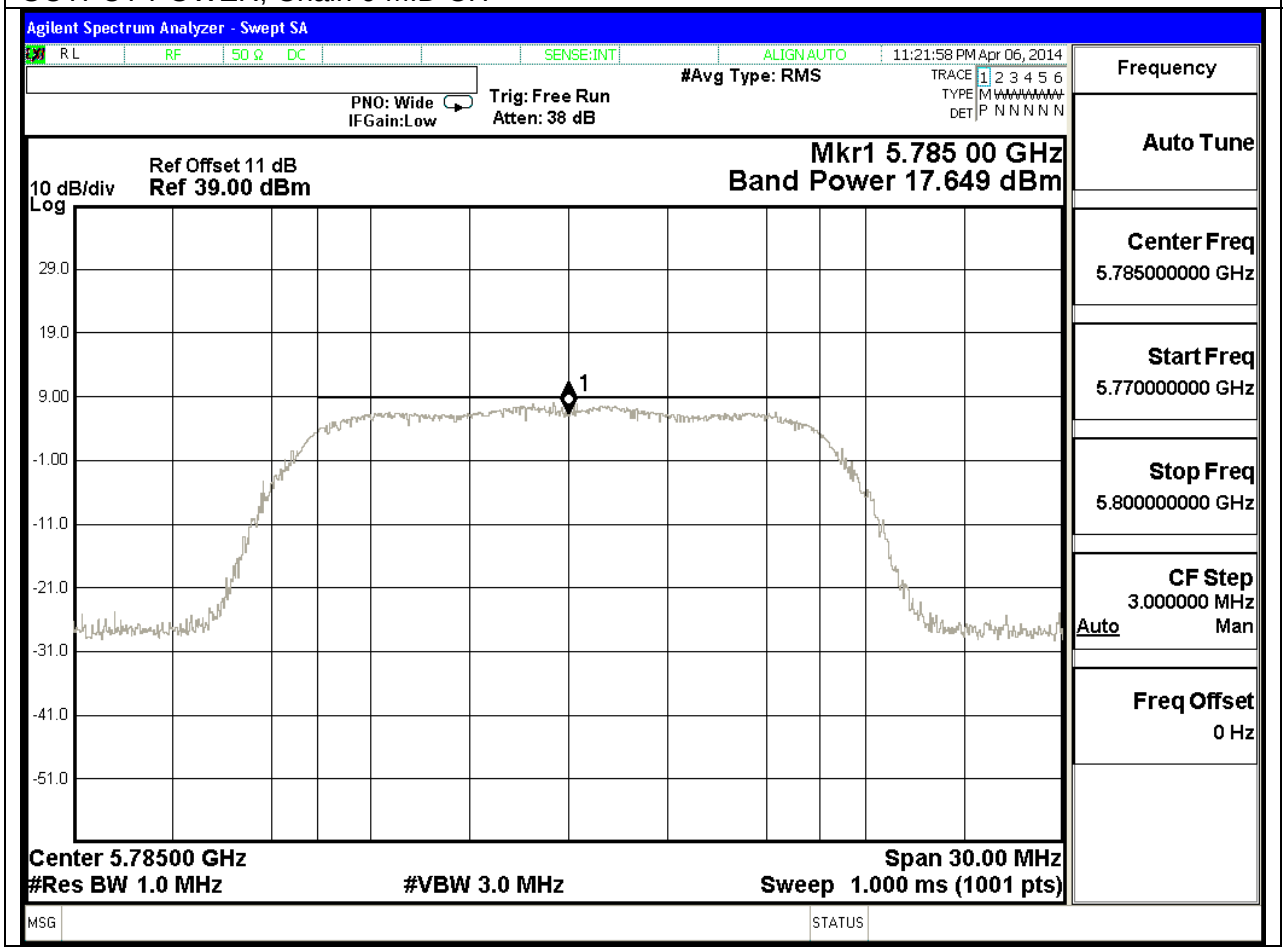
802.11n OUTPUT POWER, Chain 0

OUTPUT POWER, Chain 0 MID CH



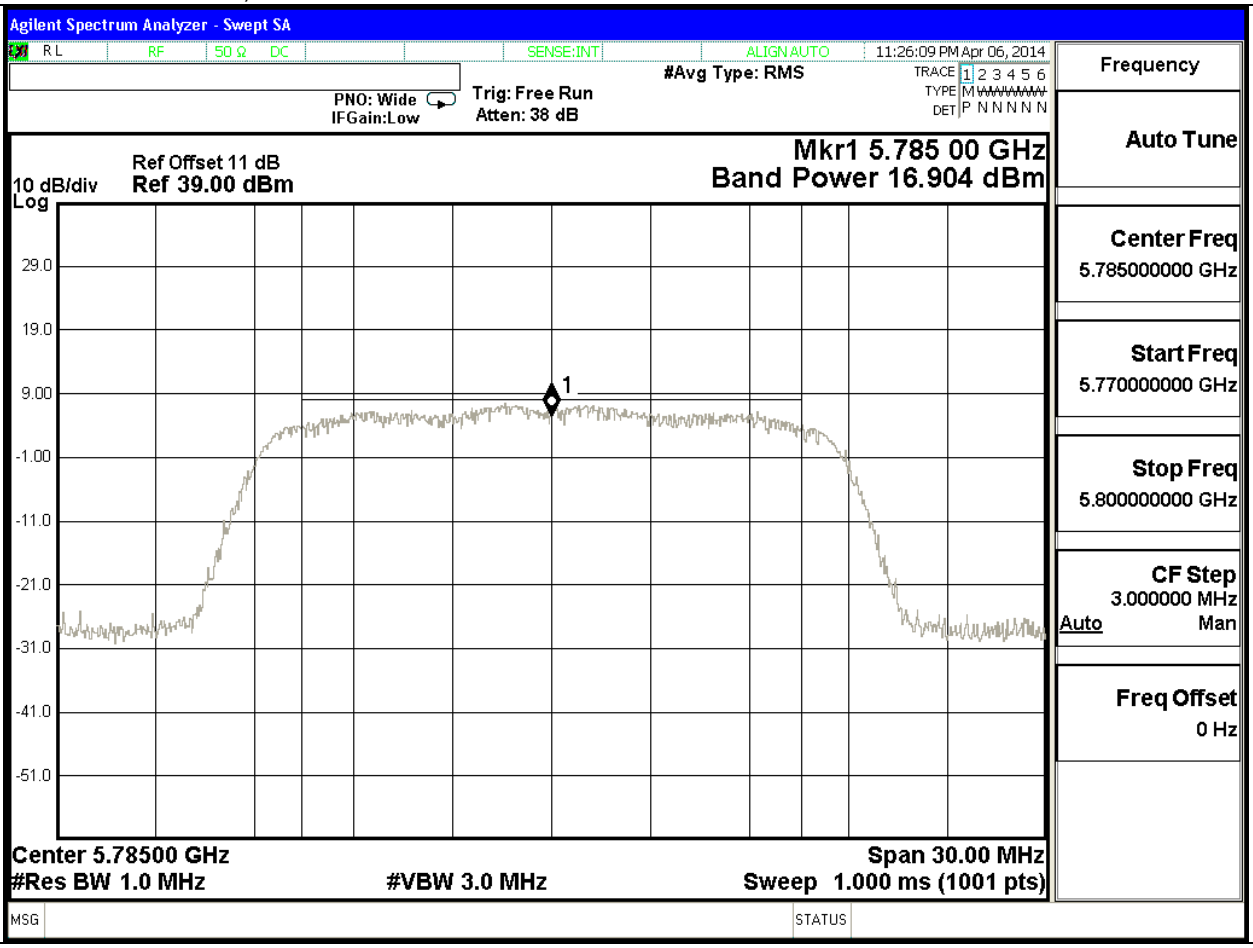
802.11a 5.8 GHz OUTPUT POWER, Chain 0

OUTPUT POWER, Chain 0 MID CH



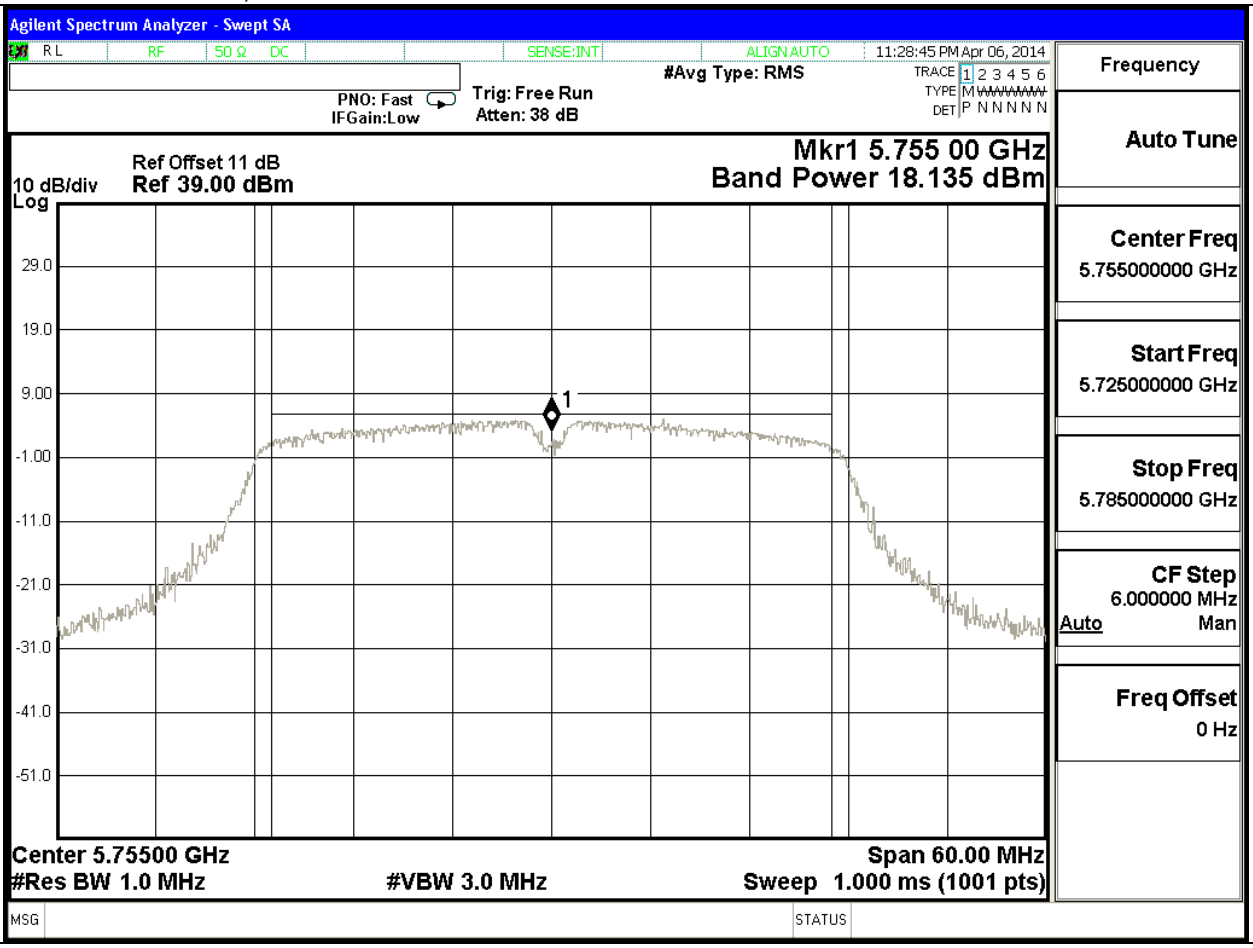
802.11n HT20 5.8 GHz OUTPUT POWER, Chain 0

OUTPUT POWER, Chain 0 MID CH



802.11n HT40 5.8 GHz OUTPUT POWER, Chain 0

OUTPUT POWER, Chain 0 MID CH



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

9.5.1. 802.11b MODE IN THE 2.4 GHz BAND

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-5.75	8.0	-13.8
Mid	2437	-5.45	8.0	-13.5
High	2462	-5.24	8.0	-13.2

9.5.2. 802.11g MODE IN THE 2.4 GHz BAND

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-10.45	8.0	-18.5
Mid	2437	-8.99	8.0	-17.0
High	2462	-9.82	8.0	-17.8

9.5.3. 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	-12.14	8.0	-20.1
Mid	2437	-11.85	8.0	-19.9
High	2462	-11.29	8.0	-19.3

9.5.4. 802.11a MODE IN THE 5.8 GHz BAND

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Limit (dBm)	Margin (dB)
Low	5745	-13.21	8.0	-21.2
Mid	5785	-14.13	8.0	-22.1
High	5825	-13.70	8.0	-21.7

9.5.5. 802.11n HT20 MODE IN THE 5.8 GHz BAND

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Limit (dBm)	Margin (dB)
Low	5745	-13.97	8.0	-22.0
Mid	5785	-13.75	8.0	-21.8
High	5825	-13.83	8.0	-21.8

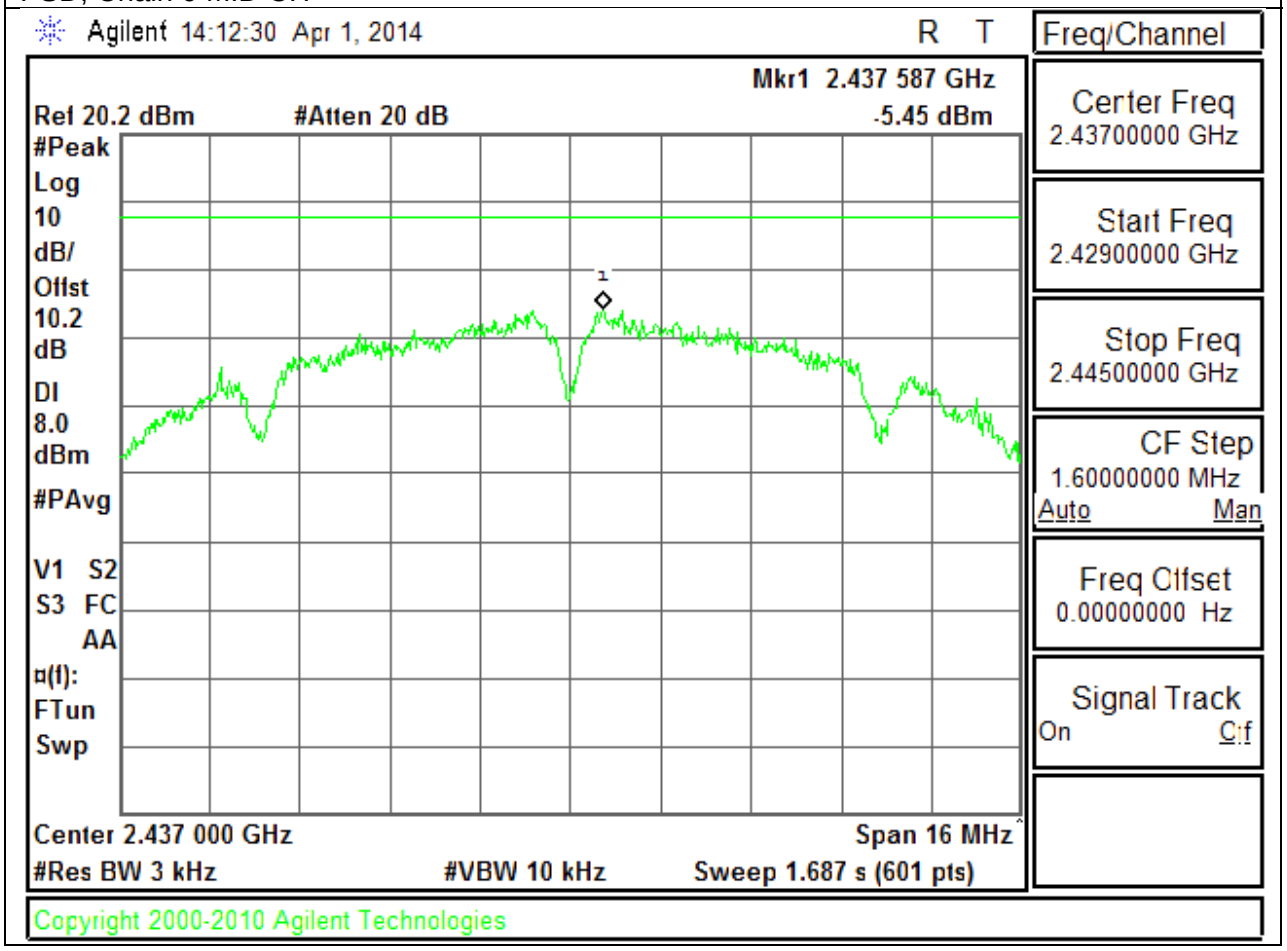
9.5.6. 802.11n HT40 MODE IN THE 5.8 GHz BAND

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Limit (dBm)	Margin (dB)
Low	5755	-17.18	8.0	-25.2
High	5795	-17.62	8.0	-25.6

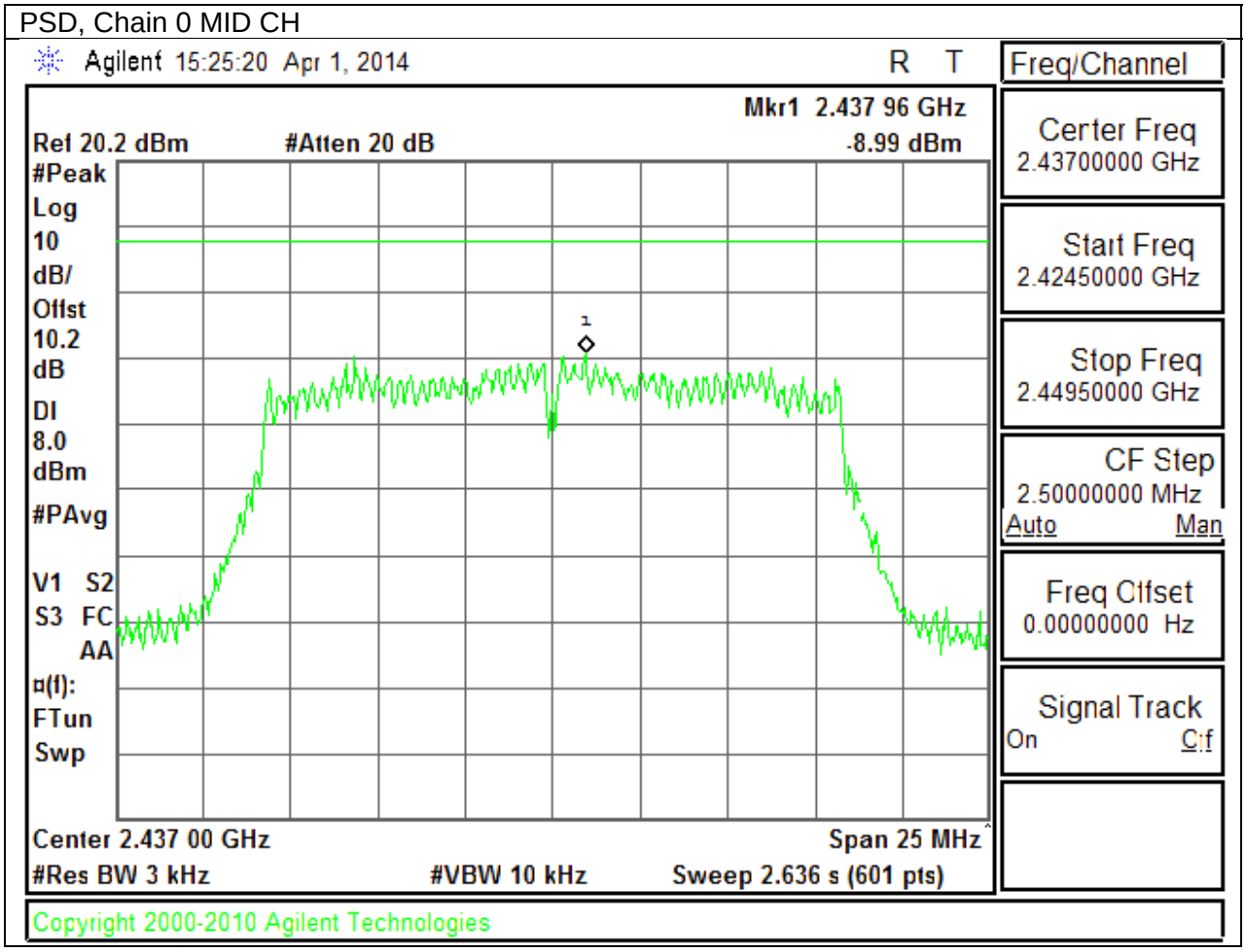
802.11b PSD, Chain 0

PSD, Chain 0 MID CH



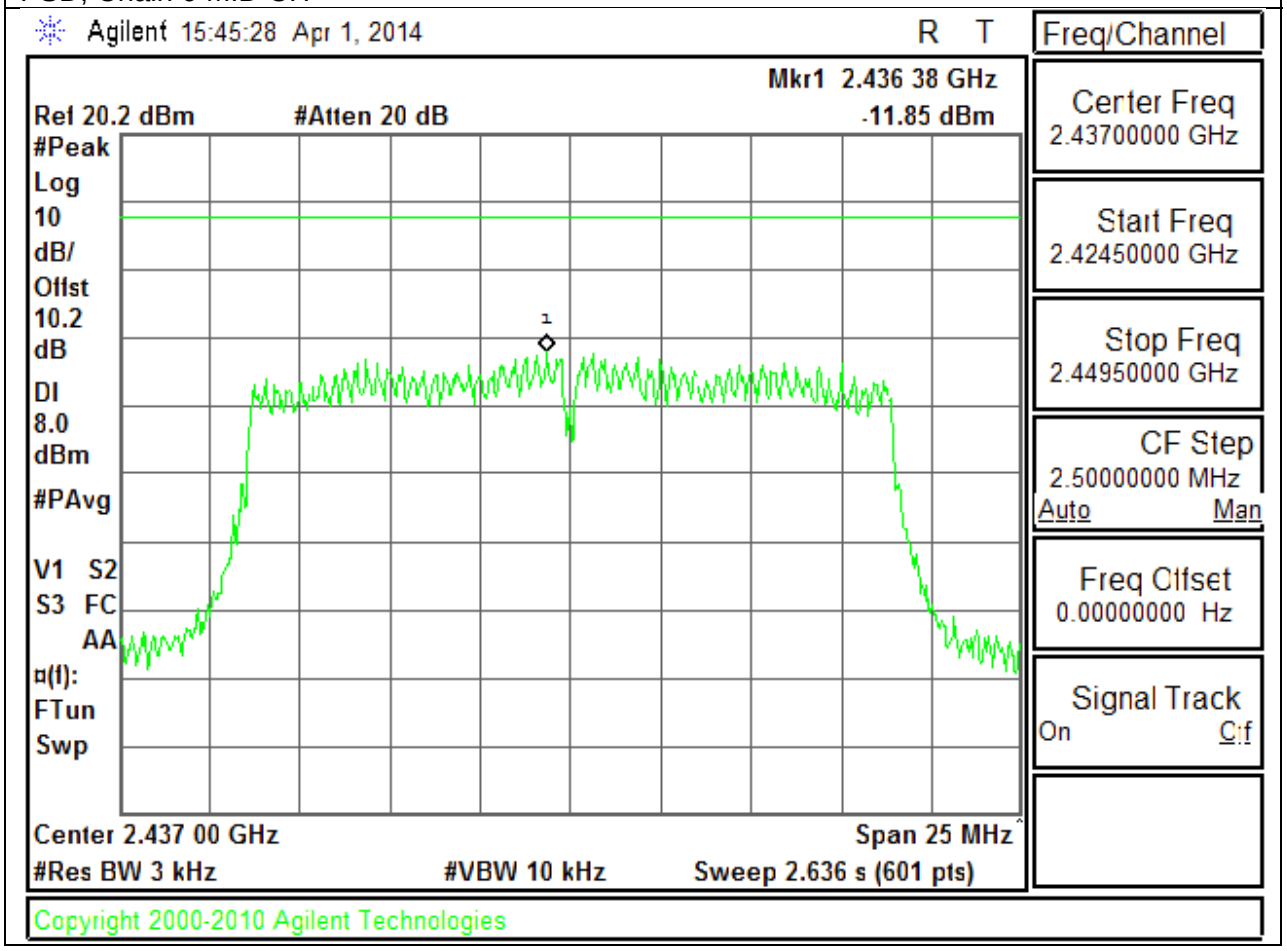
802.11g PSD, Chain 0

PSD, Chain 0 MID CH



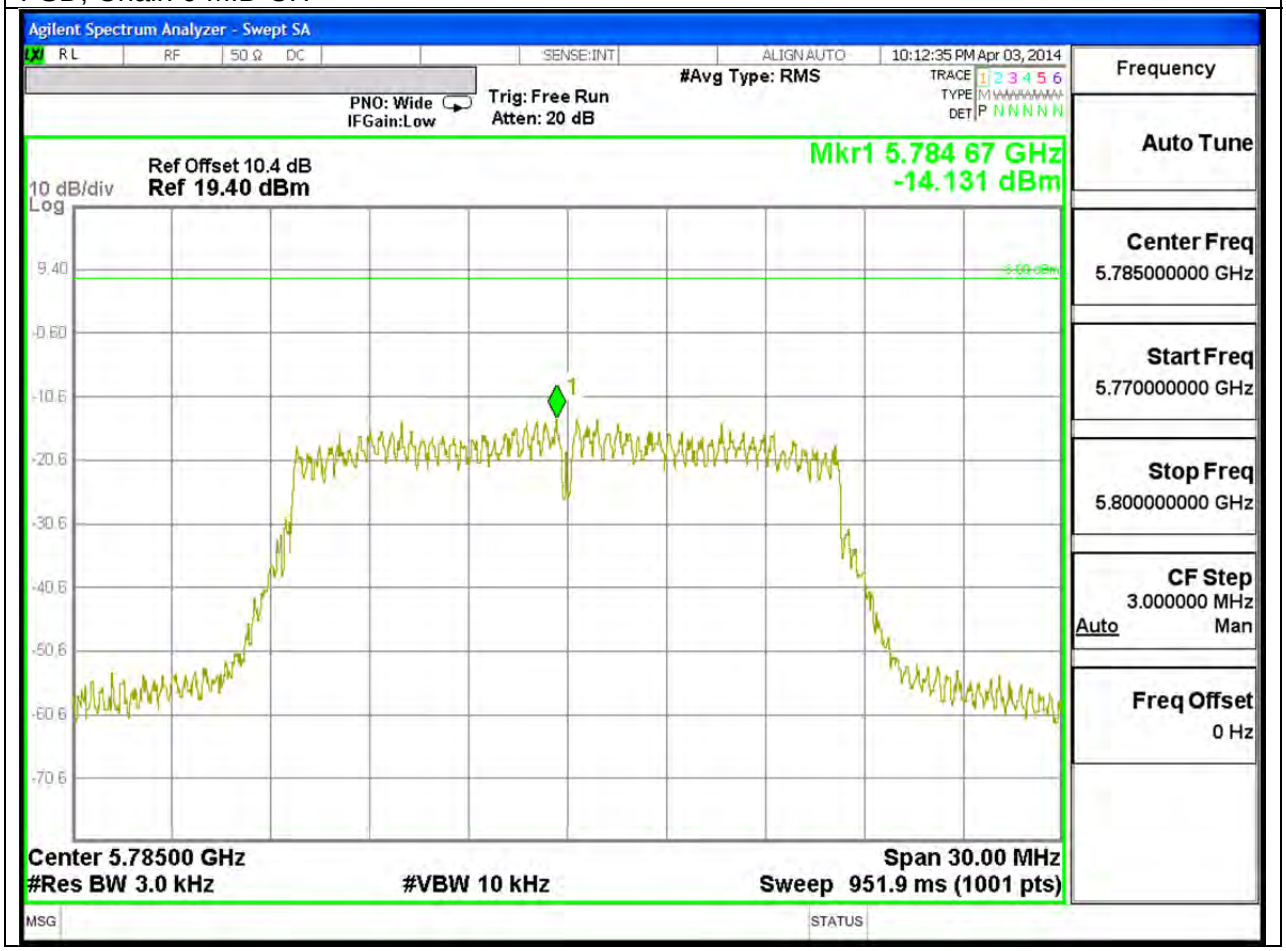
802.11n PSD, Chain 0

PSD, Chain 0 MID CH



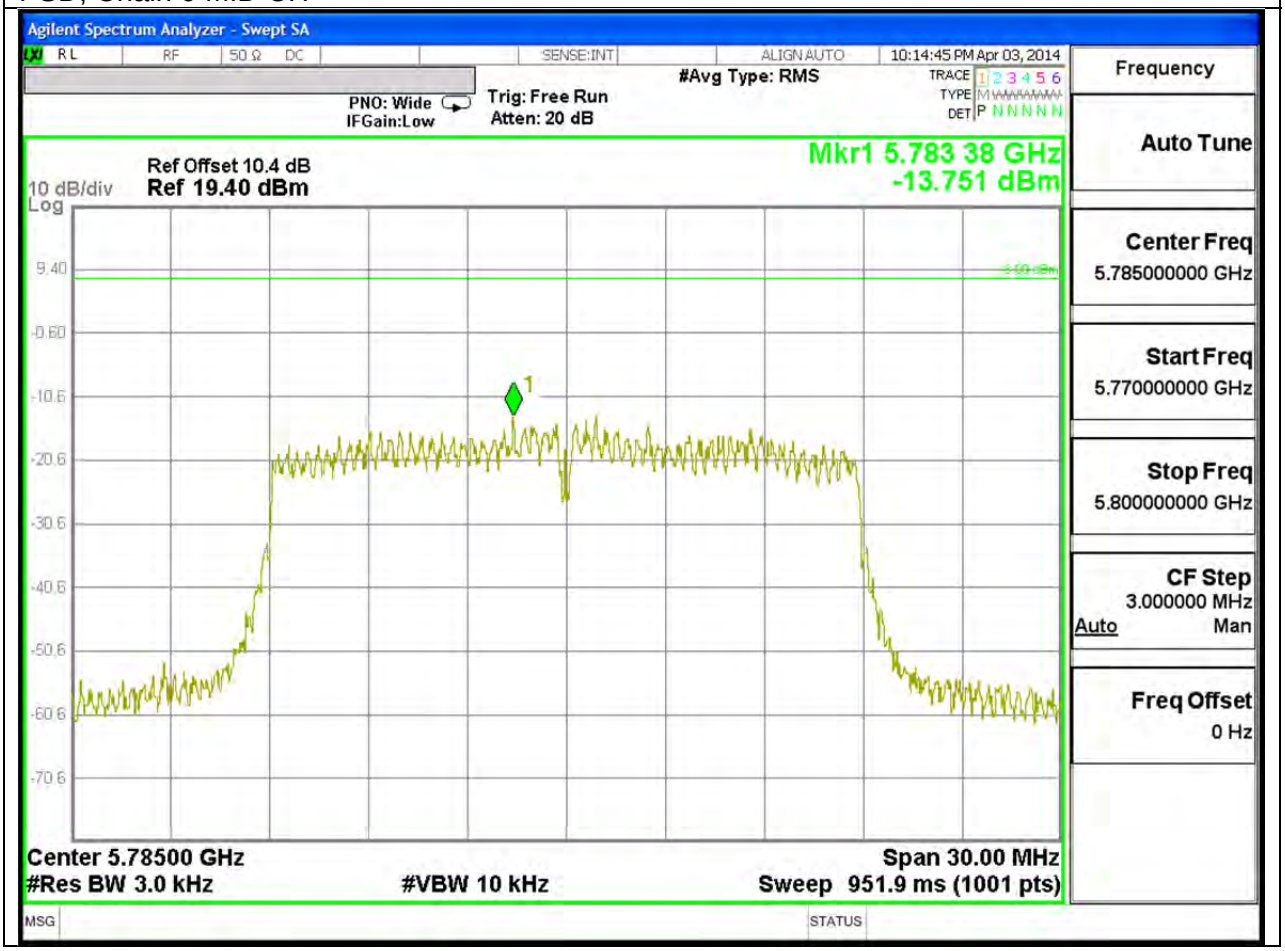
802.11a 5.8GHz PSD, Chain 0

PSD, Chain 0 MID CH



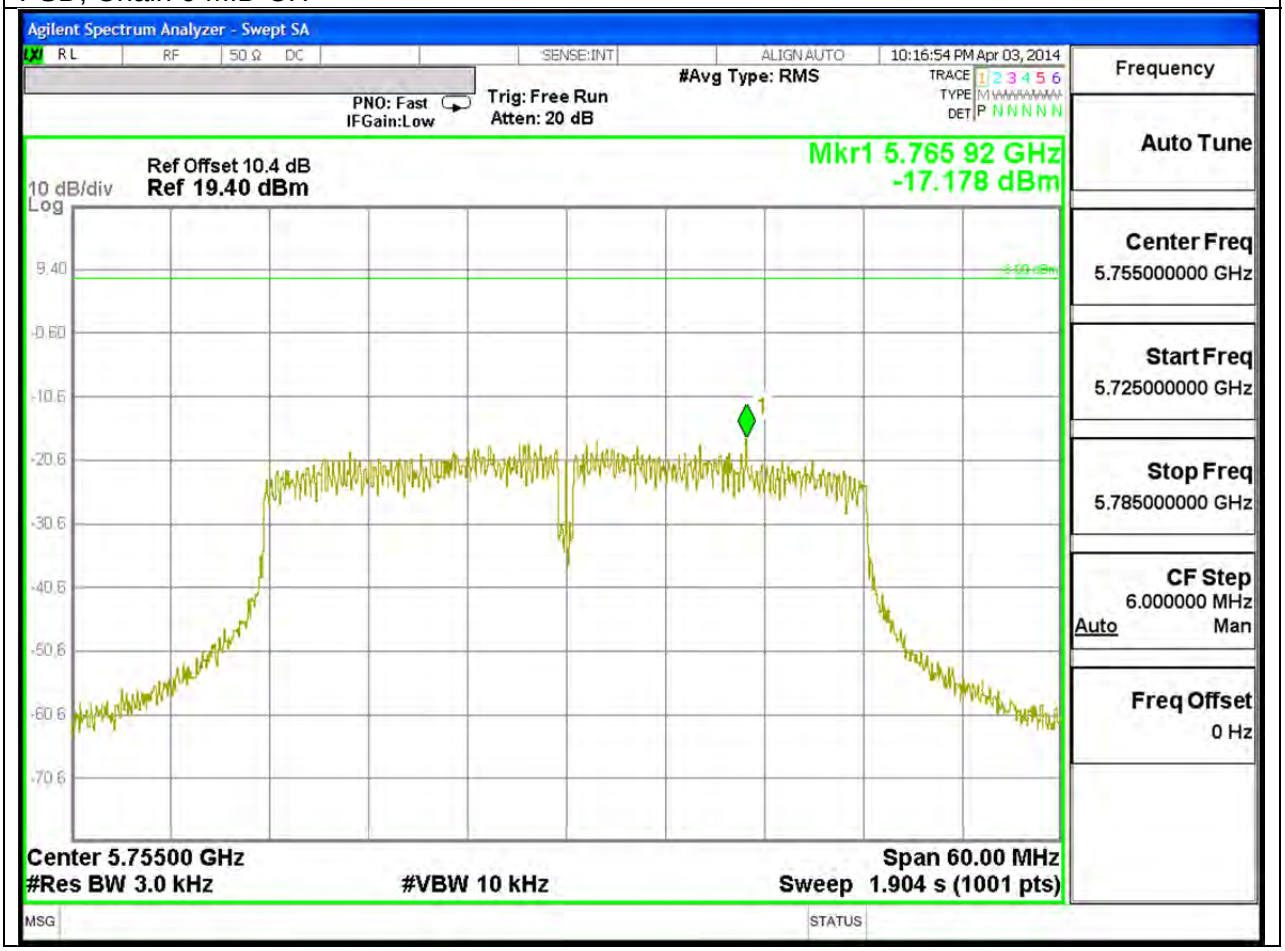
802.11n HT20 5.8GHz PSD, Chain 0

PSD, Chain 0 MID CH



802.11n HT40 5.8GHz PSD, Chain 0

PSD, Chain 0 MID CH



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

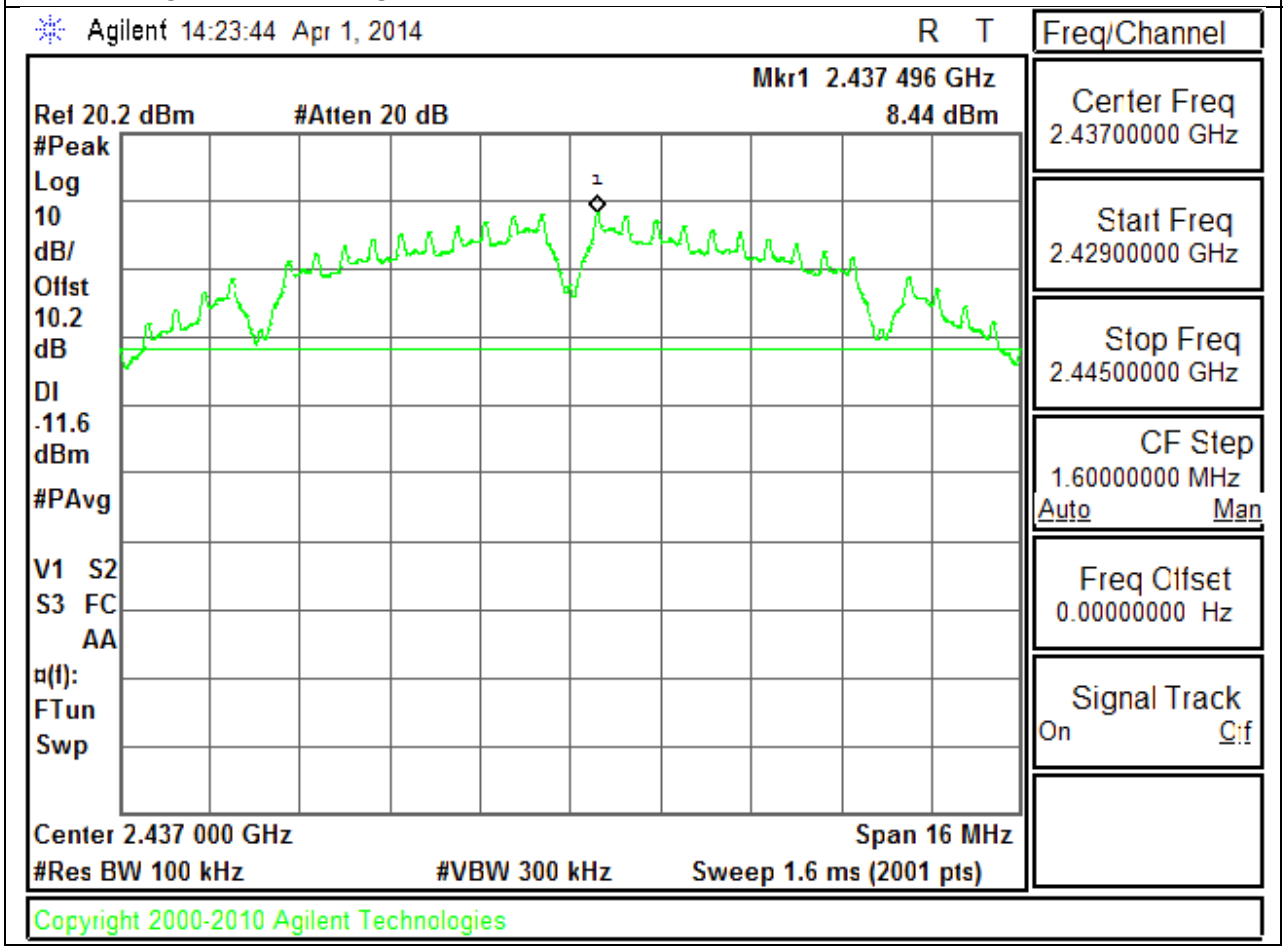
The transmitter output is connected to a spectrum analyzer with RBW = 100 kHz, VBW = 300 kHz, peak detector, and max hold. Measurements utilizing these settings are made of the in-band reference level, bandedge (where measurements to the general radiated limits will not be made) and out-of-band emissions.

RESULTS

9.6.1. 802.11b MODE IN THE 2.4 GHz BAND

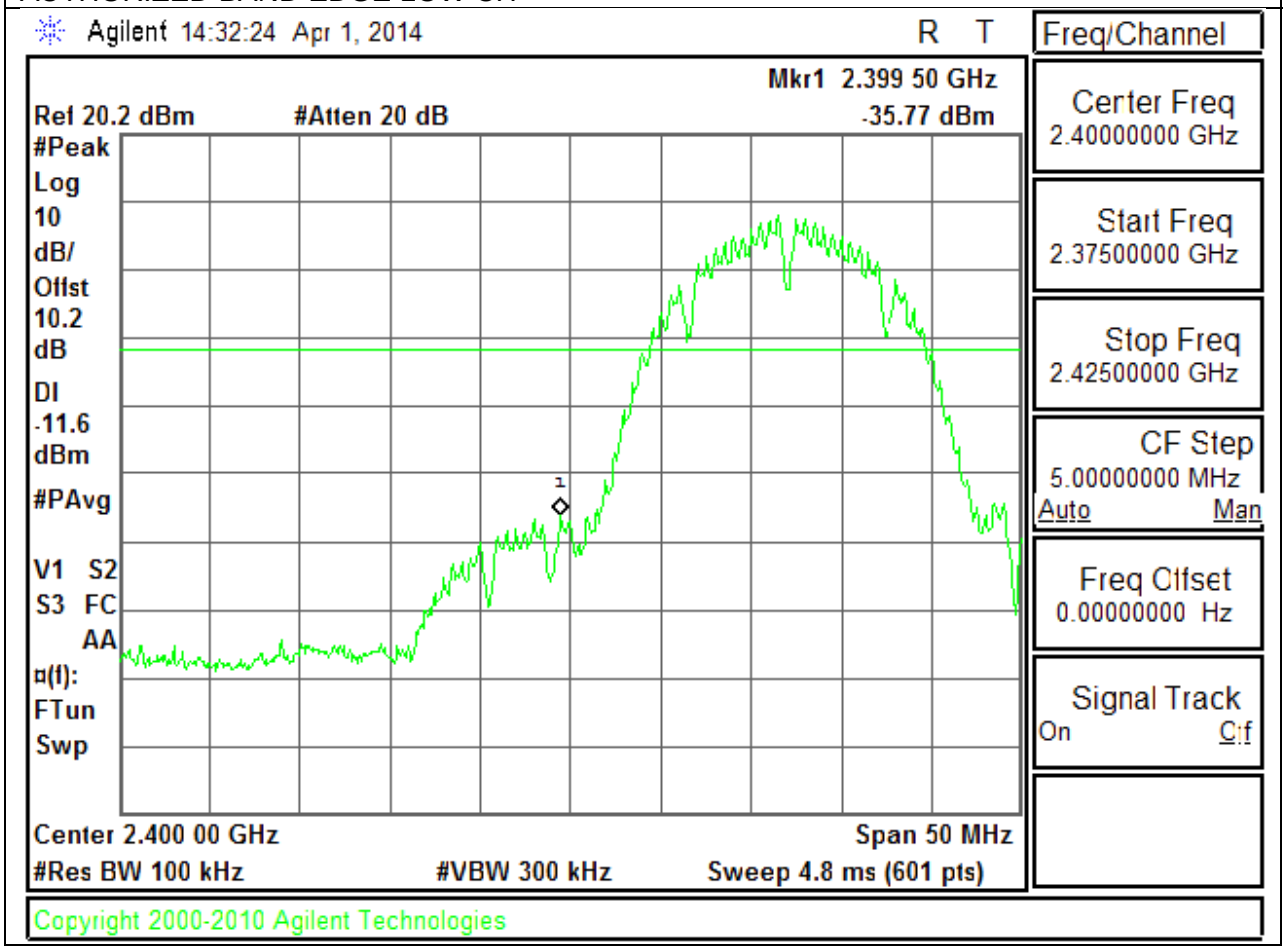
IN-BAND REFERENCE LEVEL

REFERENCE LEVEL MID CH



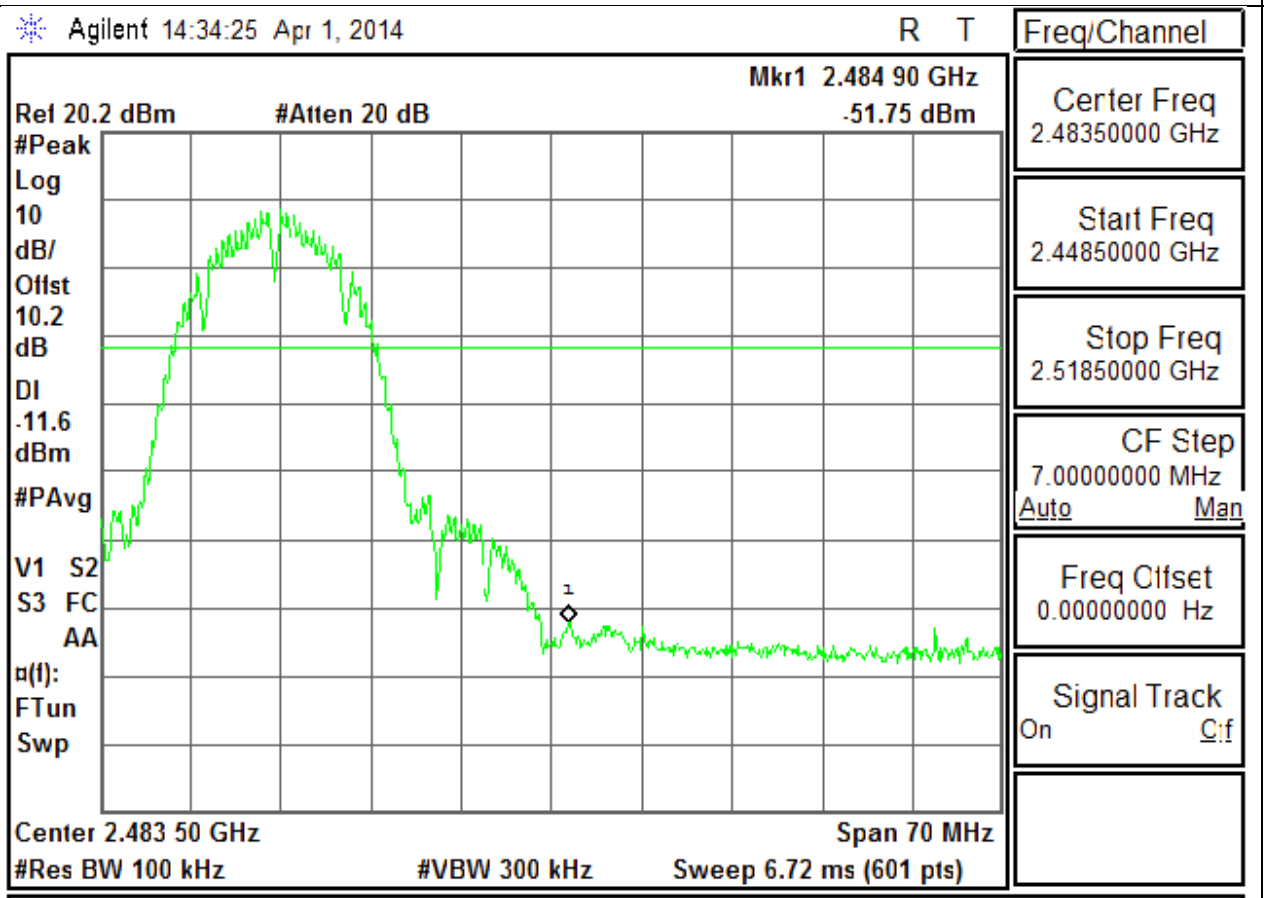
LOW CHANNEL BANDEDGE

AUTHORIZED BAND EDGE LOW CH



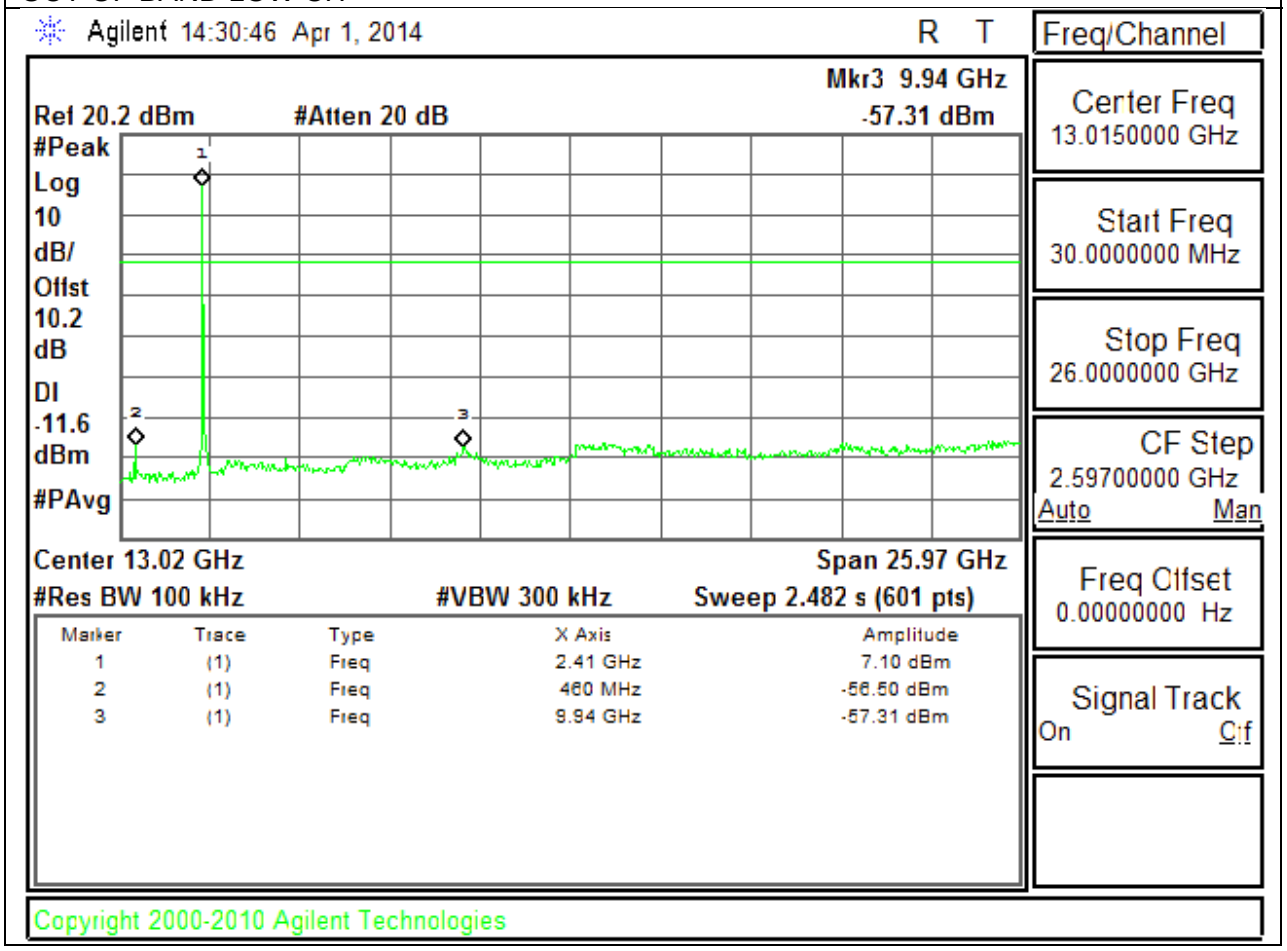
HIGH CHANNEL BANDEDGE

AUTHORIZED BAND EDGE HIGH CH

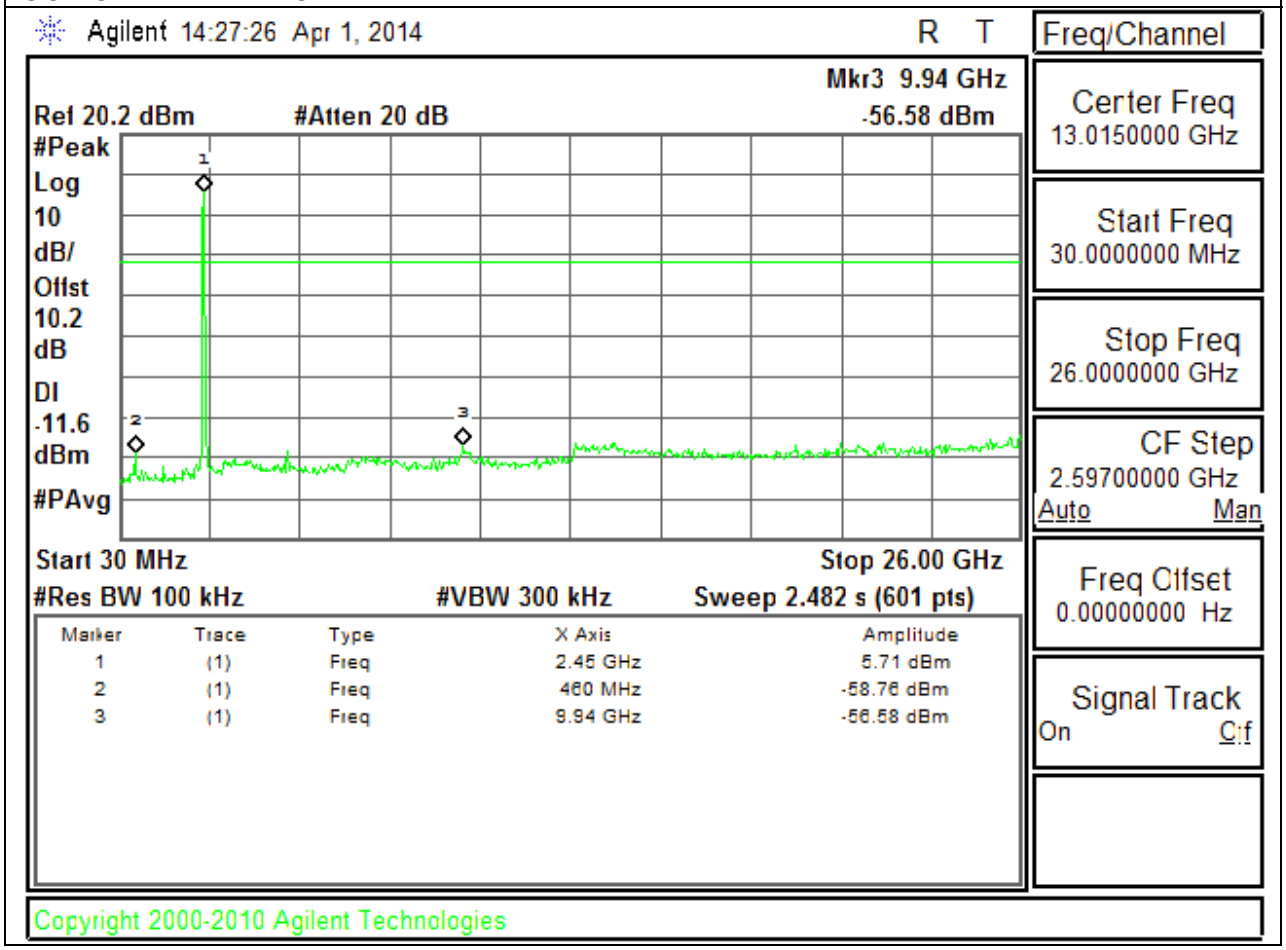


OUT-OF-BAND EMISSIONS

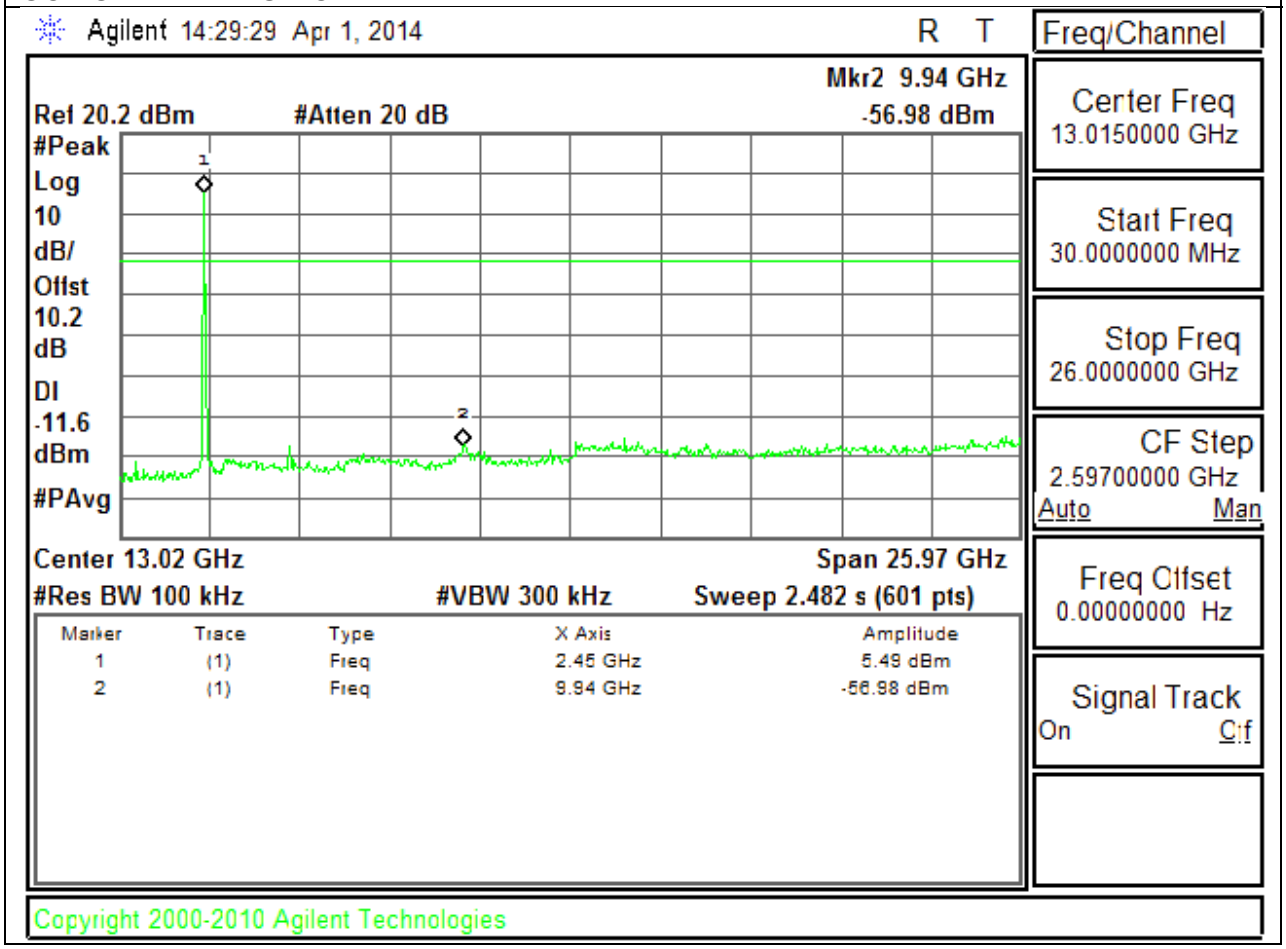
OUT OF BAND LOW CH



OUT OF BAND MID CH



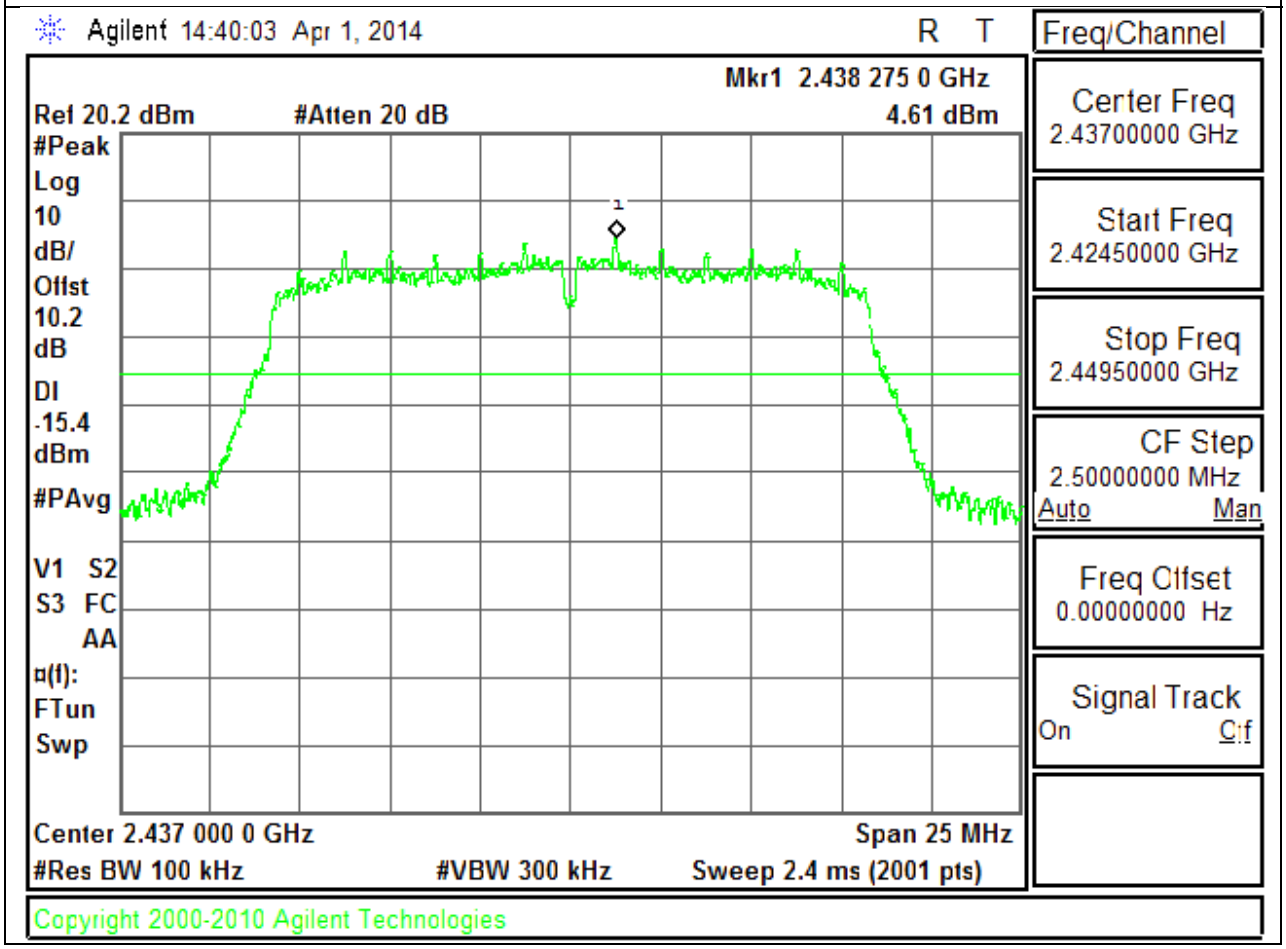
OUT OF BAND HIGH CH



9.6.2. 802.11g MODE IN THE 2.4 GHz BAND

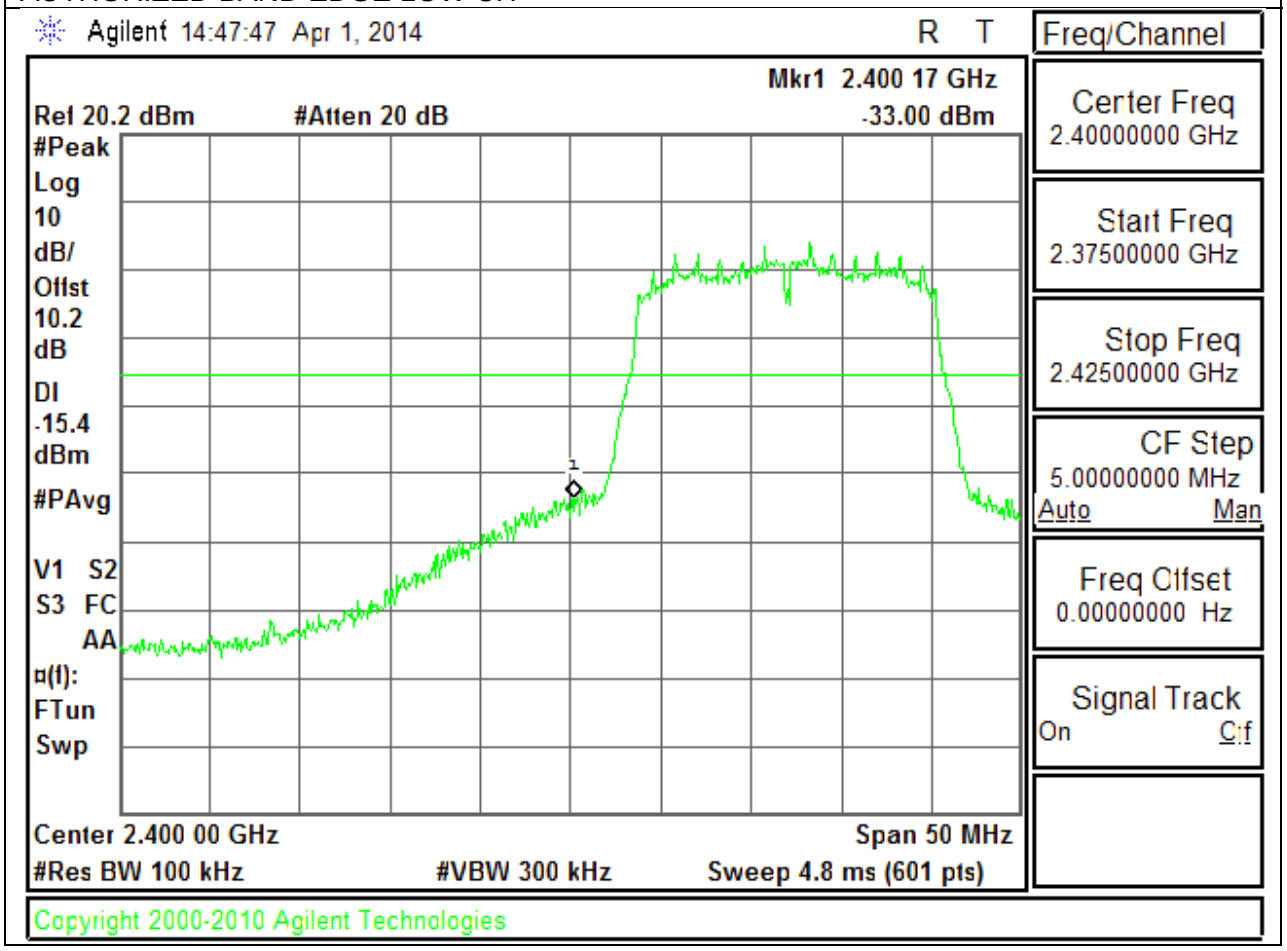
IN-BAND REFERENCE LEVEL

REFERENCE LEVEL MID CH



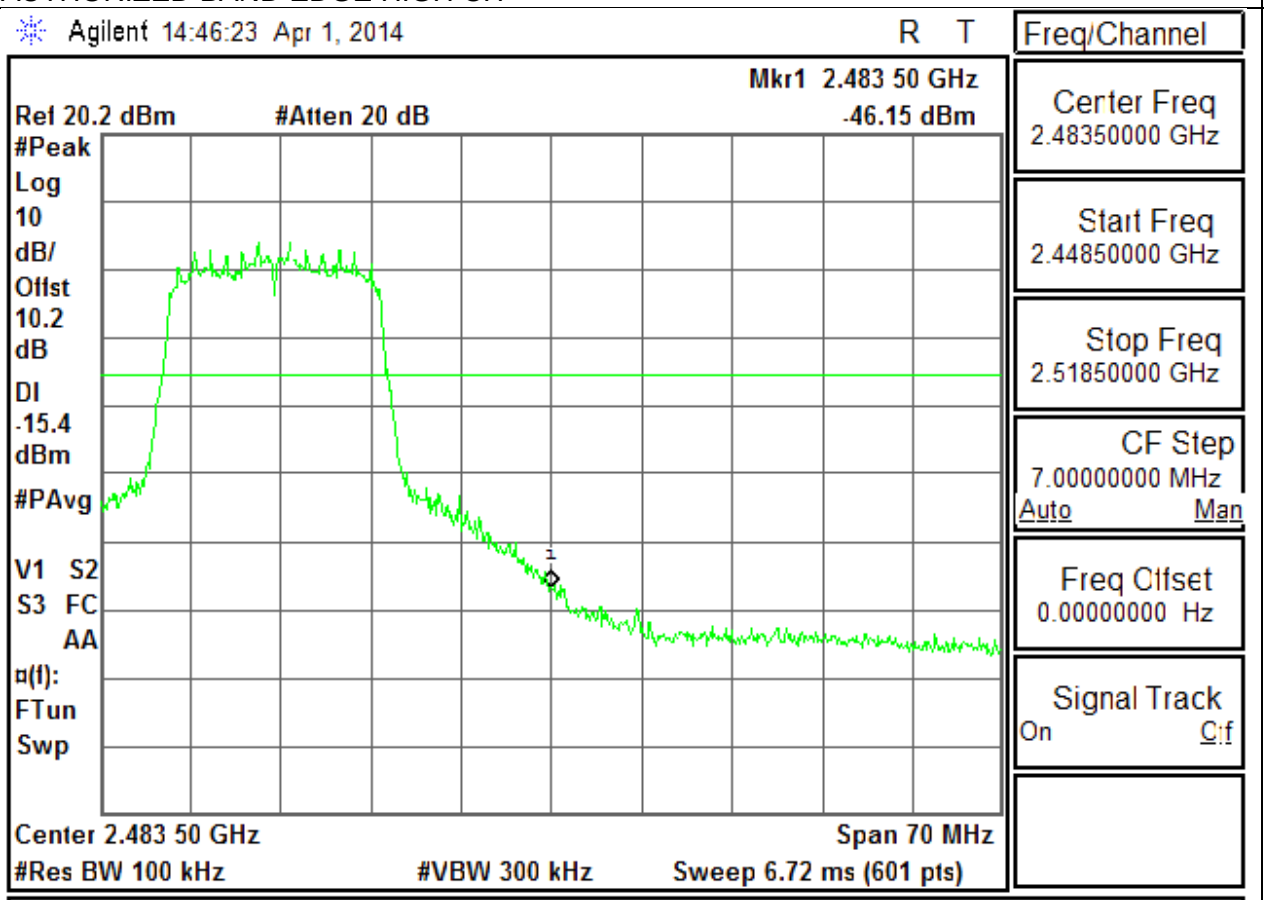
LOW CHANNEL BANDEDGE

AUTHORIZED BAND EDGE LOW CH



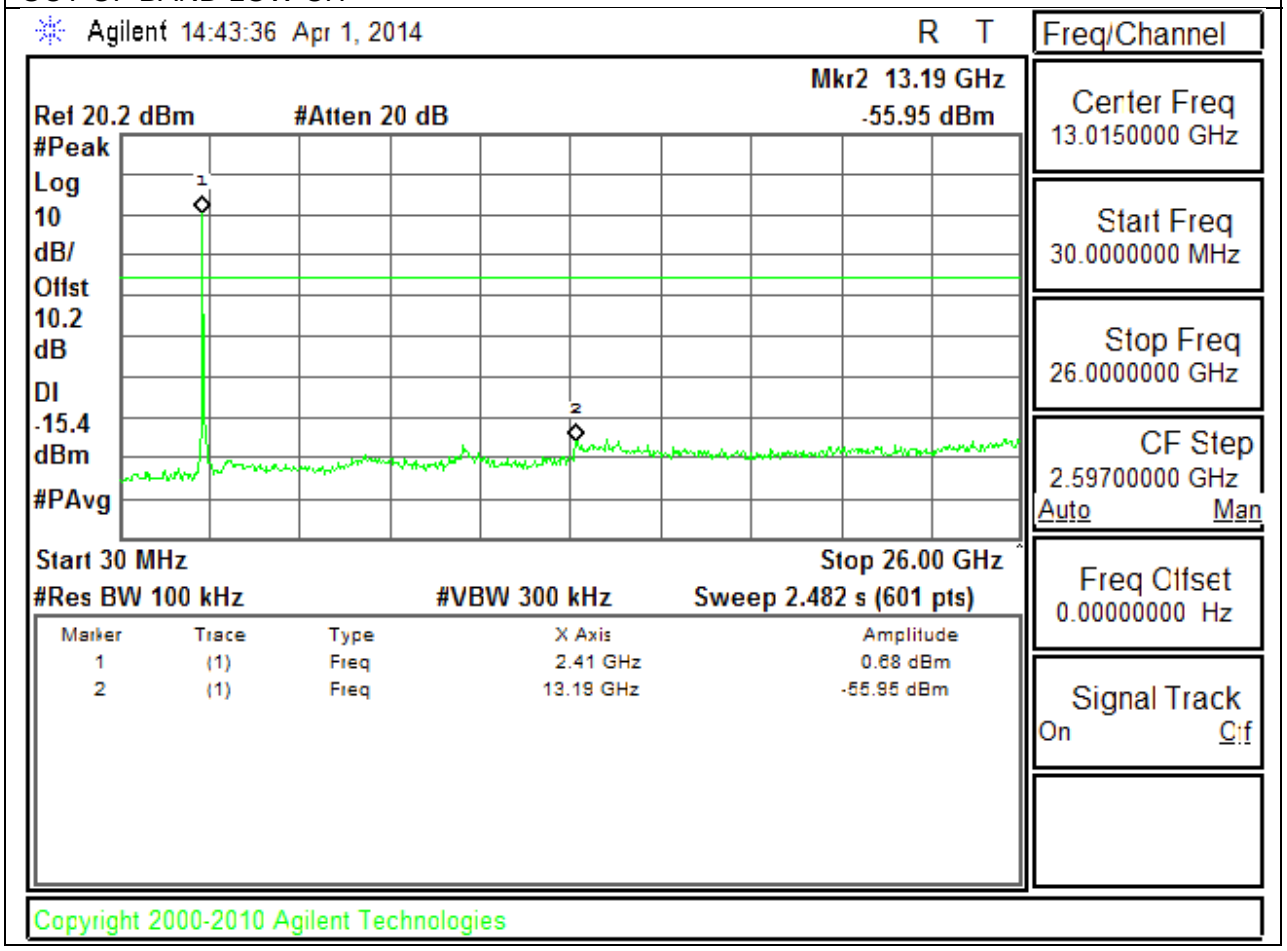
HIGH CHANNEL BANDEDGE

AUTHORIZED BAND EDGE HIGH CH

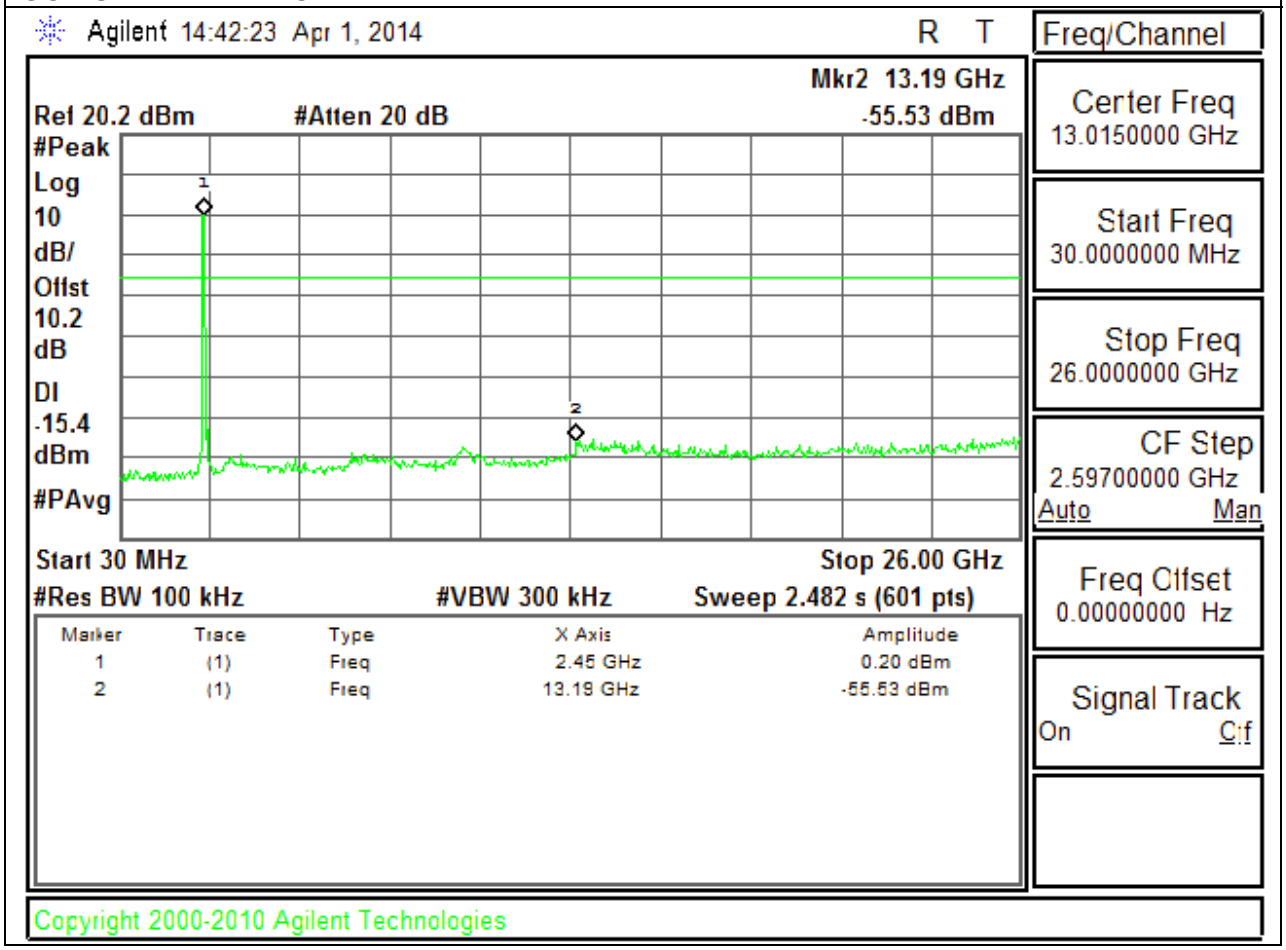


OUT-OF-BAND EMISSIONS

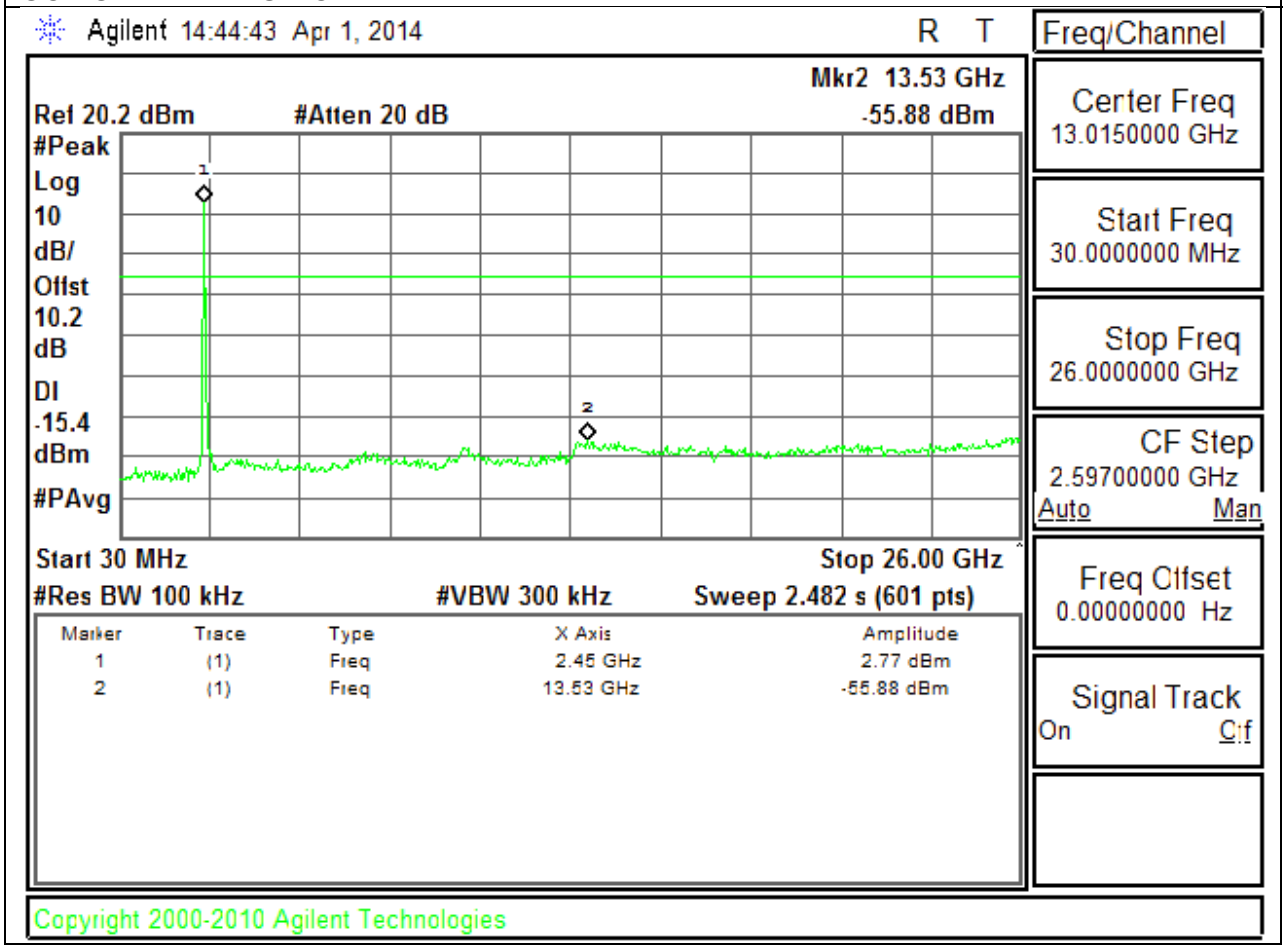
OUT OF BAND LOW CH



OUT OF BAND MID CH



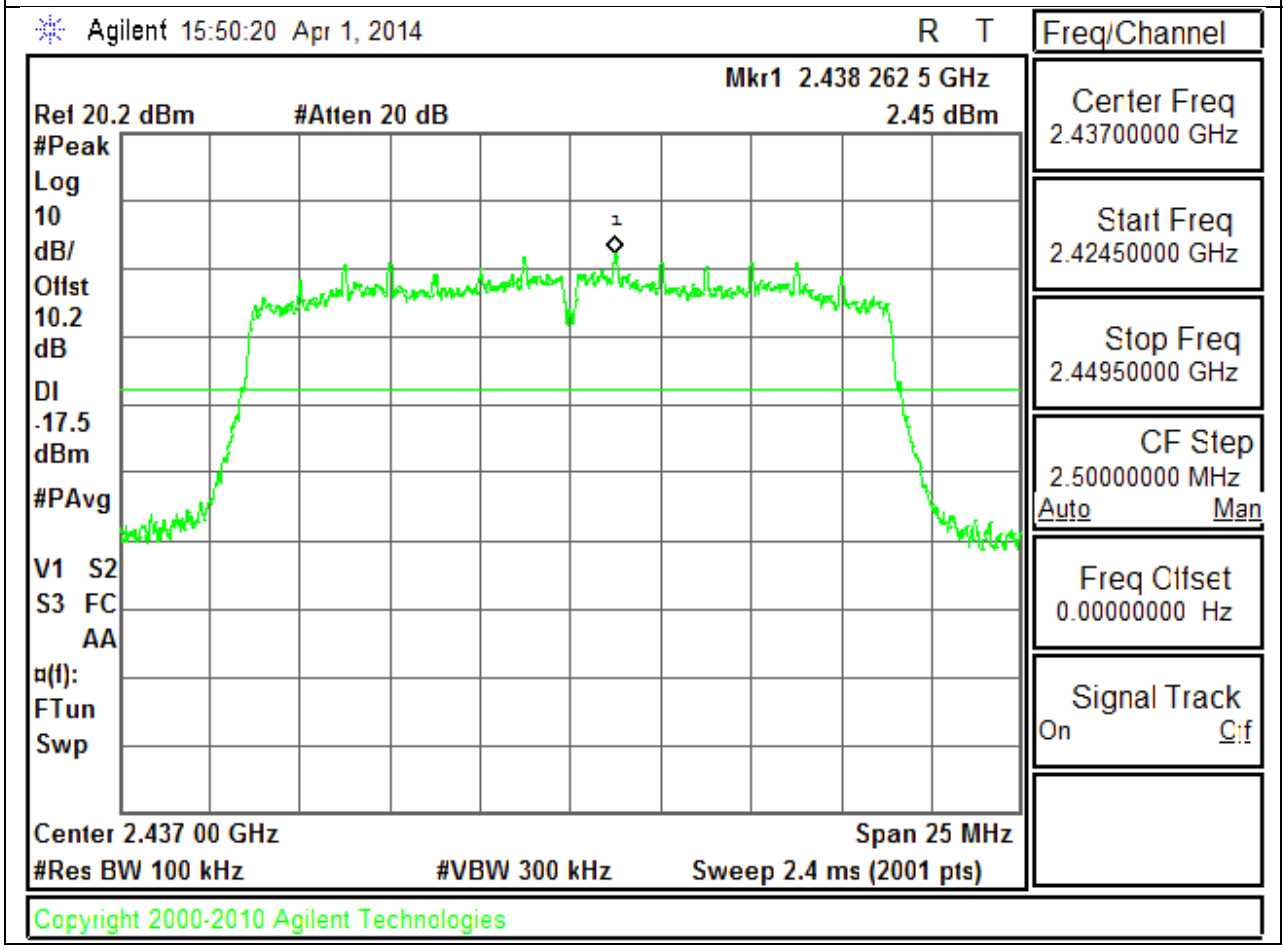
OUT OF BAND HIGH CH



9.6.3. 802.11n MODE IN THE 2.4 GHz BAND

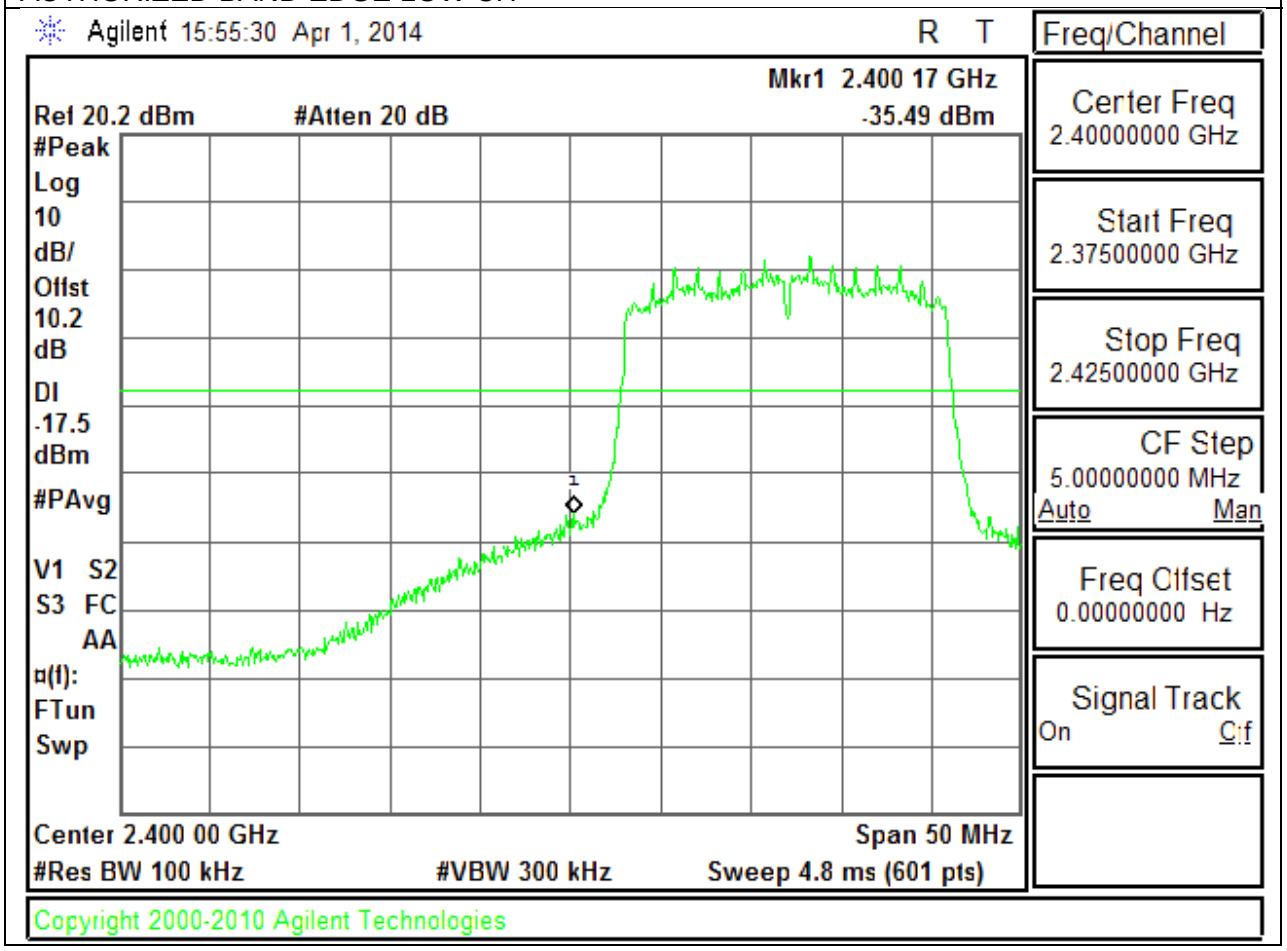
IN-BAND REFERENCE LEVEL

REFERENCE LEVEL MID CH



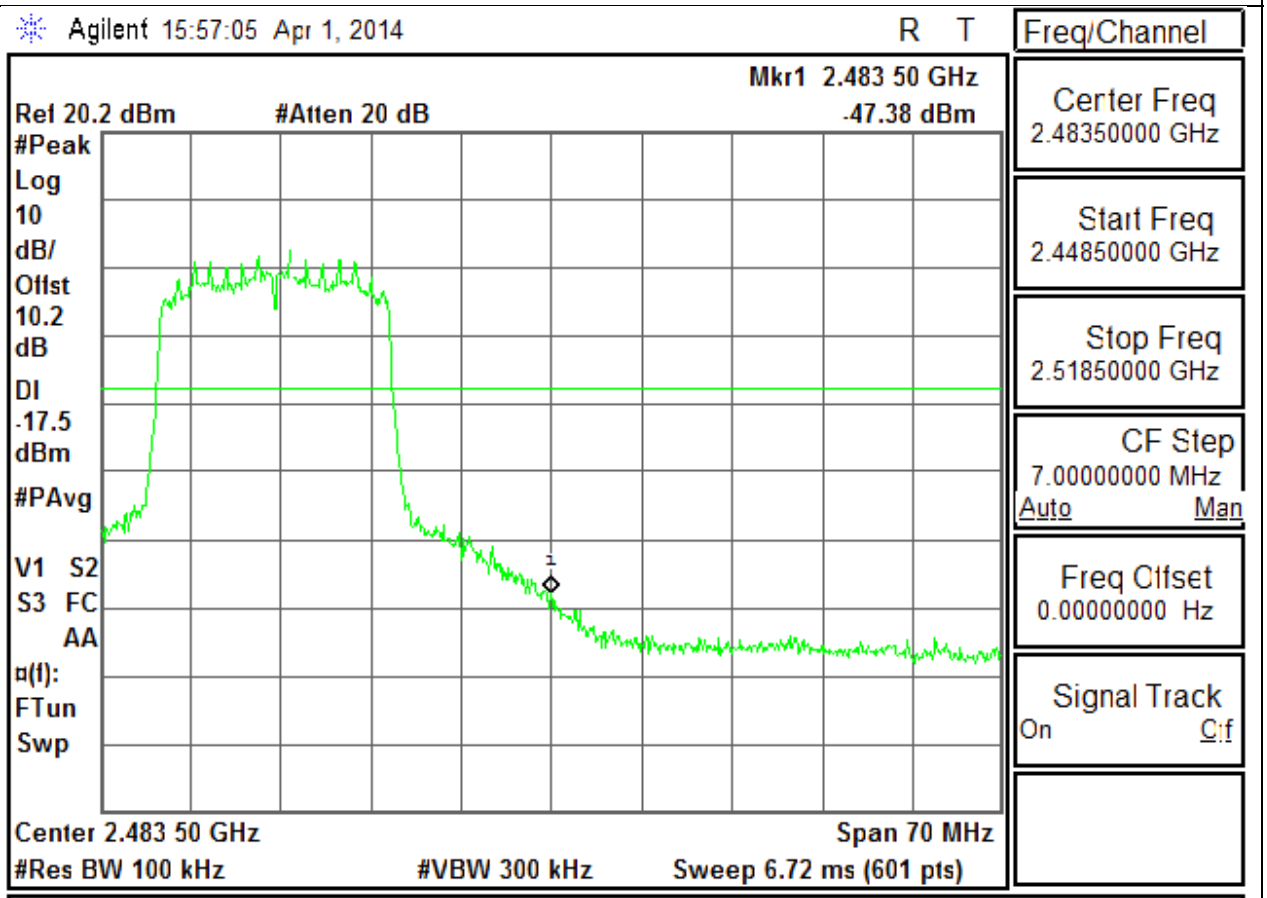
LOW CHANNEL BANDEDGE

AUTHORIZED BAND EDGE LOW CH



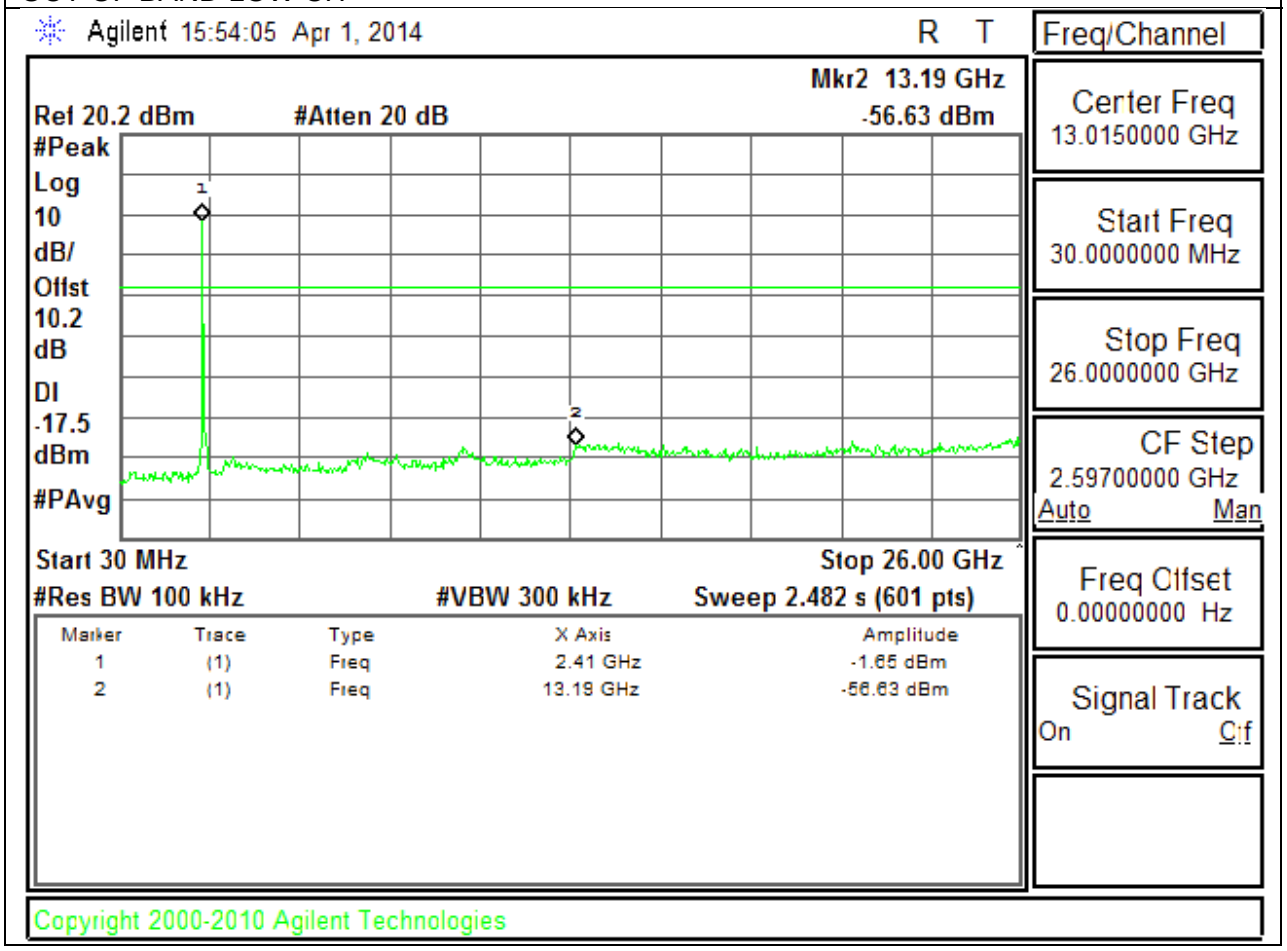
HIGH CHANNEL BANDEDGE

AUTHORIZED BAND EDGE HIGH CH

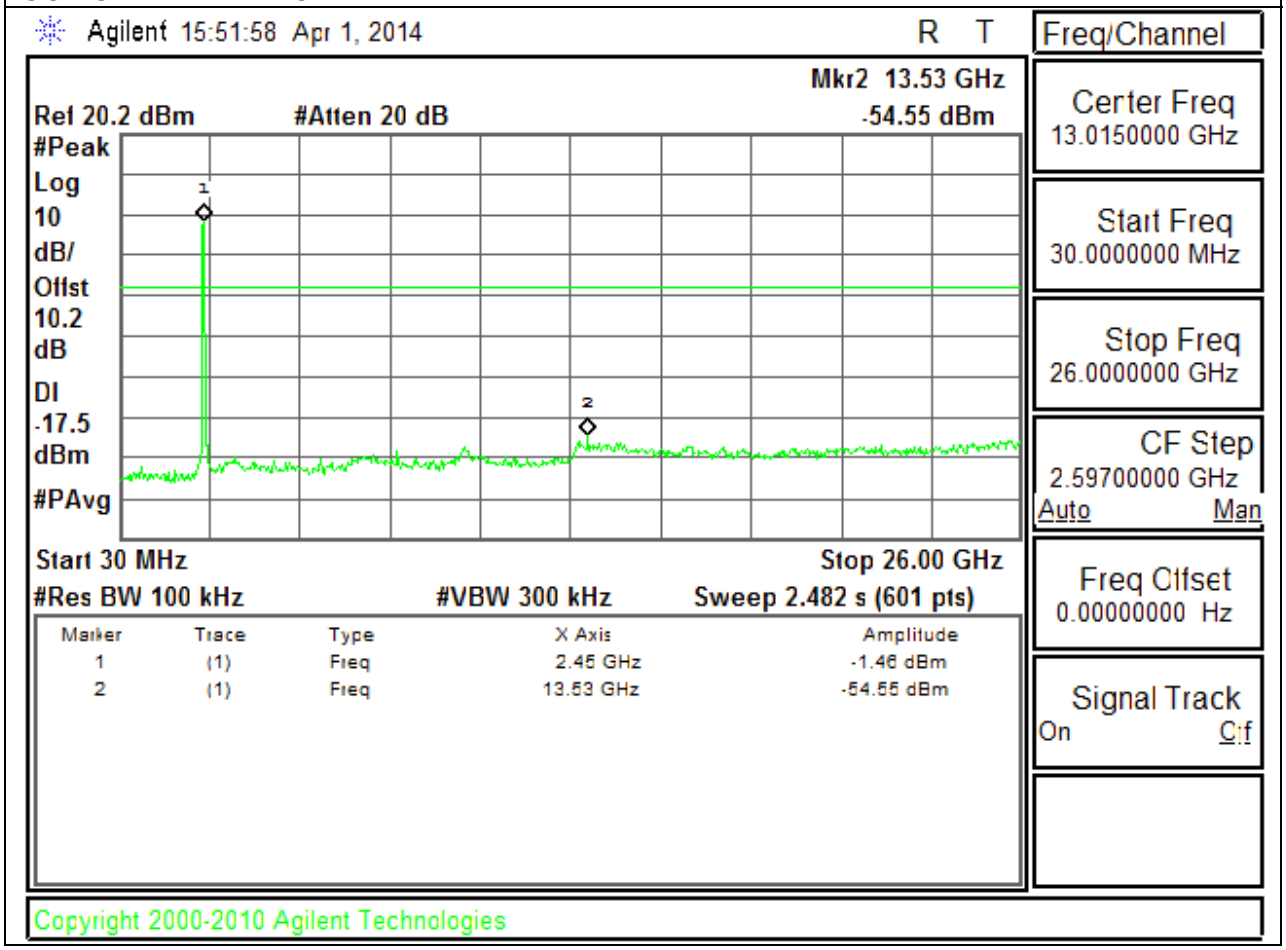


OUT-OF-BAND EMISSIONS

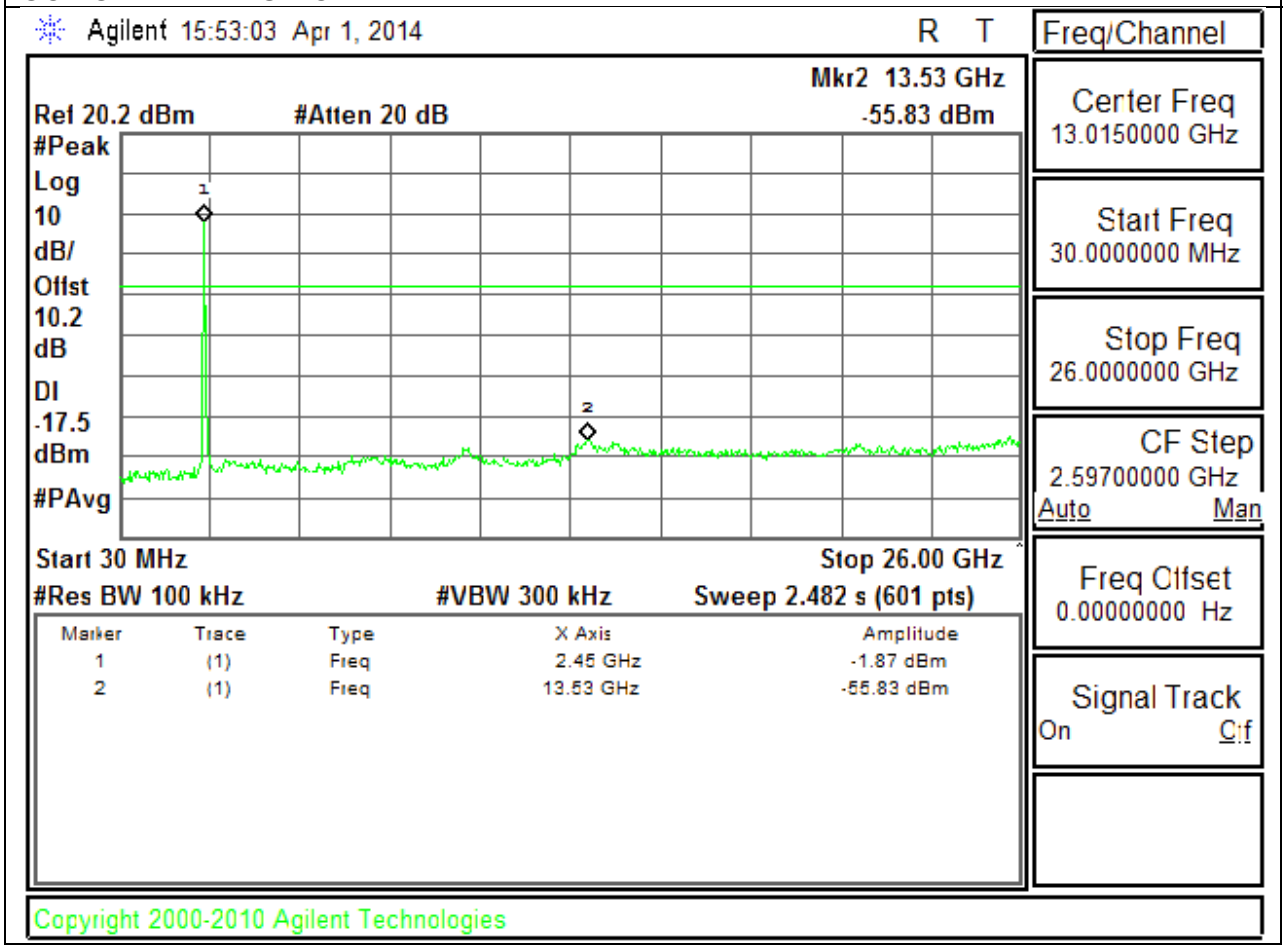
OUT OF BAND LOW CH



OUT OF BAND MID CH



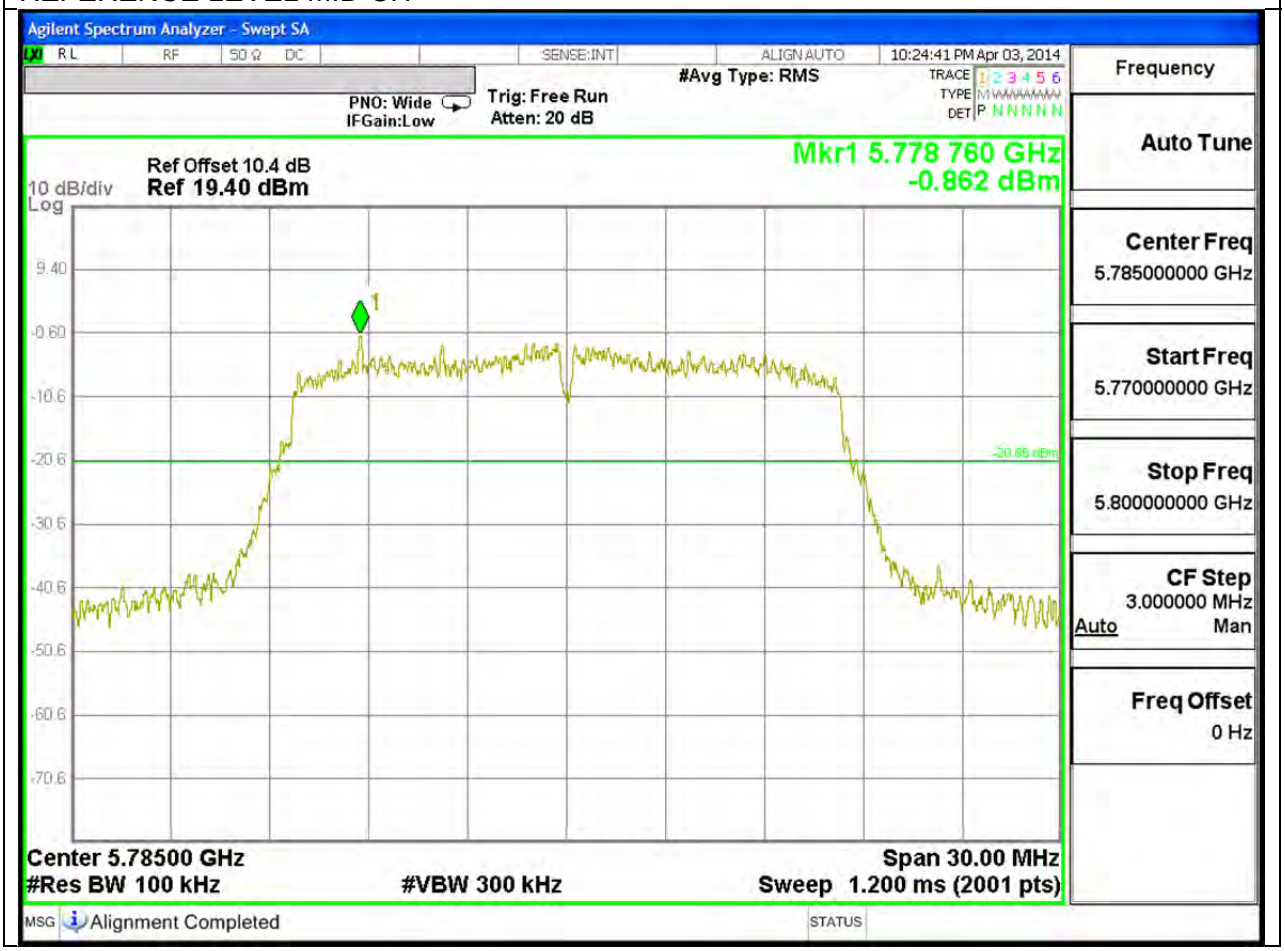
OUT OF BAND HIGH CH



9.6.4. 802.11a MODE IN THE 5.8 GHz BAND

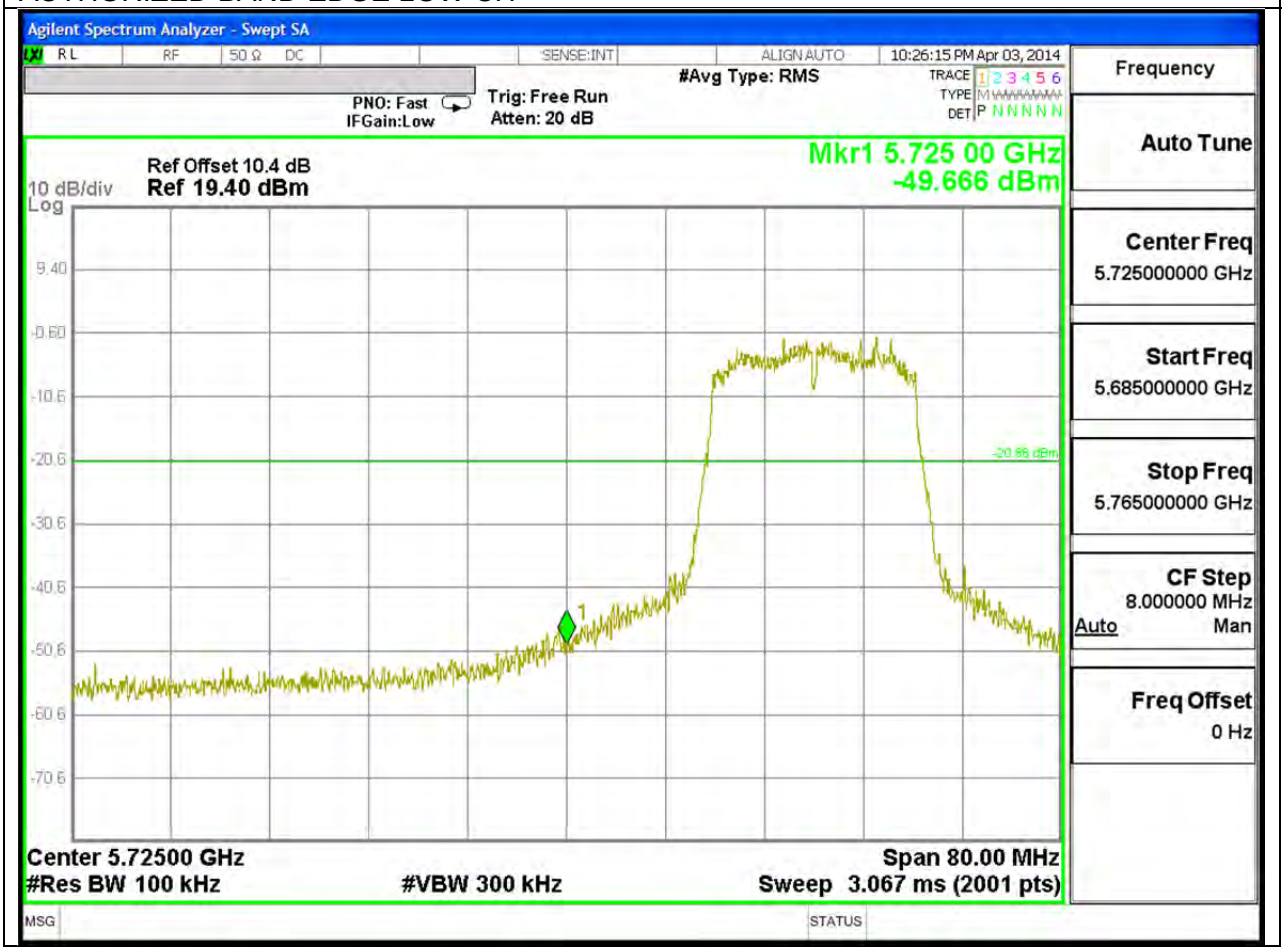
IN-BAND REFERENCE LEVEL

REFERENCE LEVEL MID CH



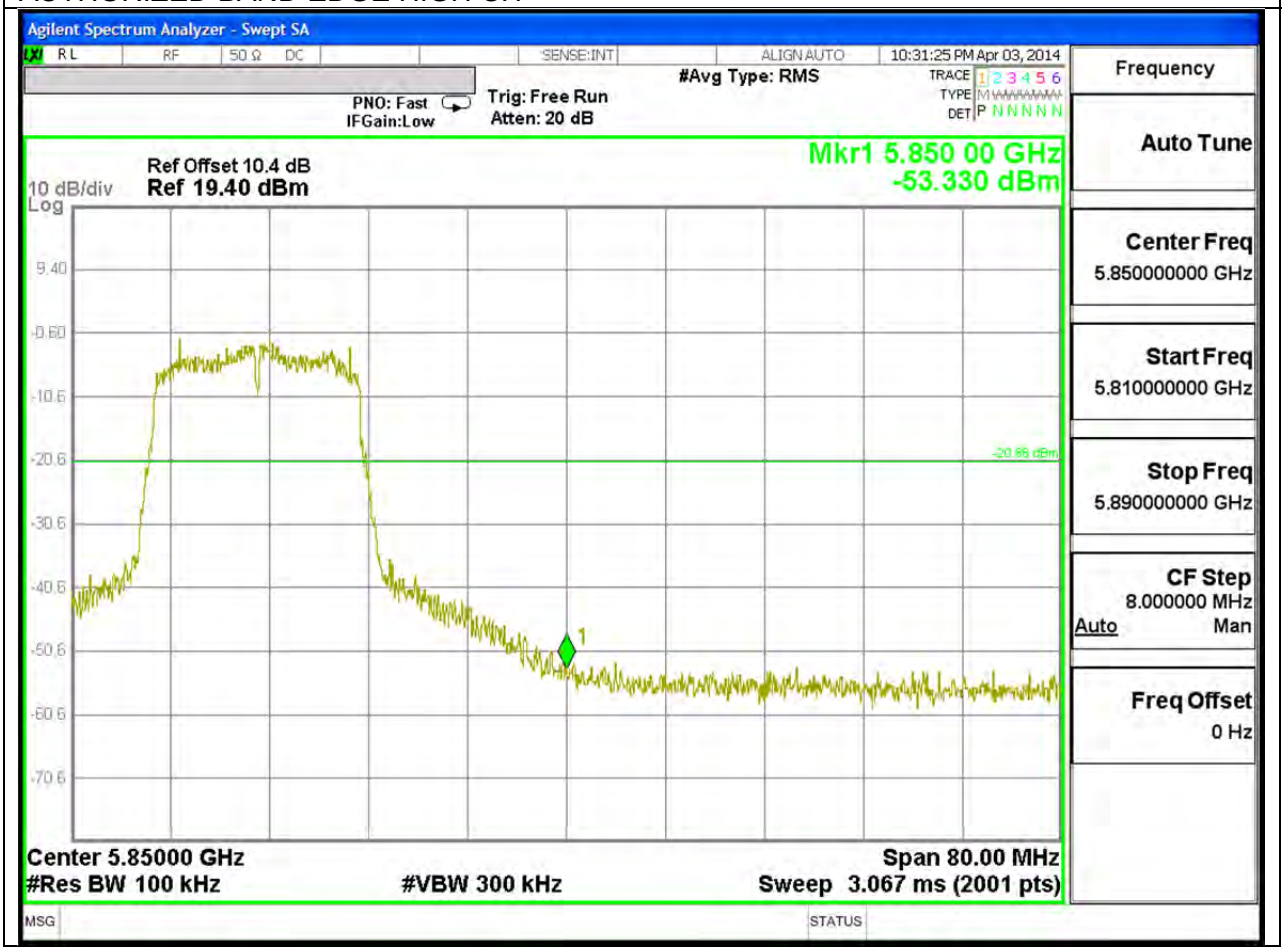
LOW CHANNEL BANDEDGE

AUTHORIZED BAND EDGE LOW CH



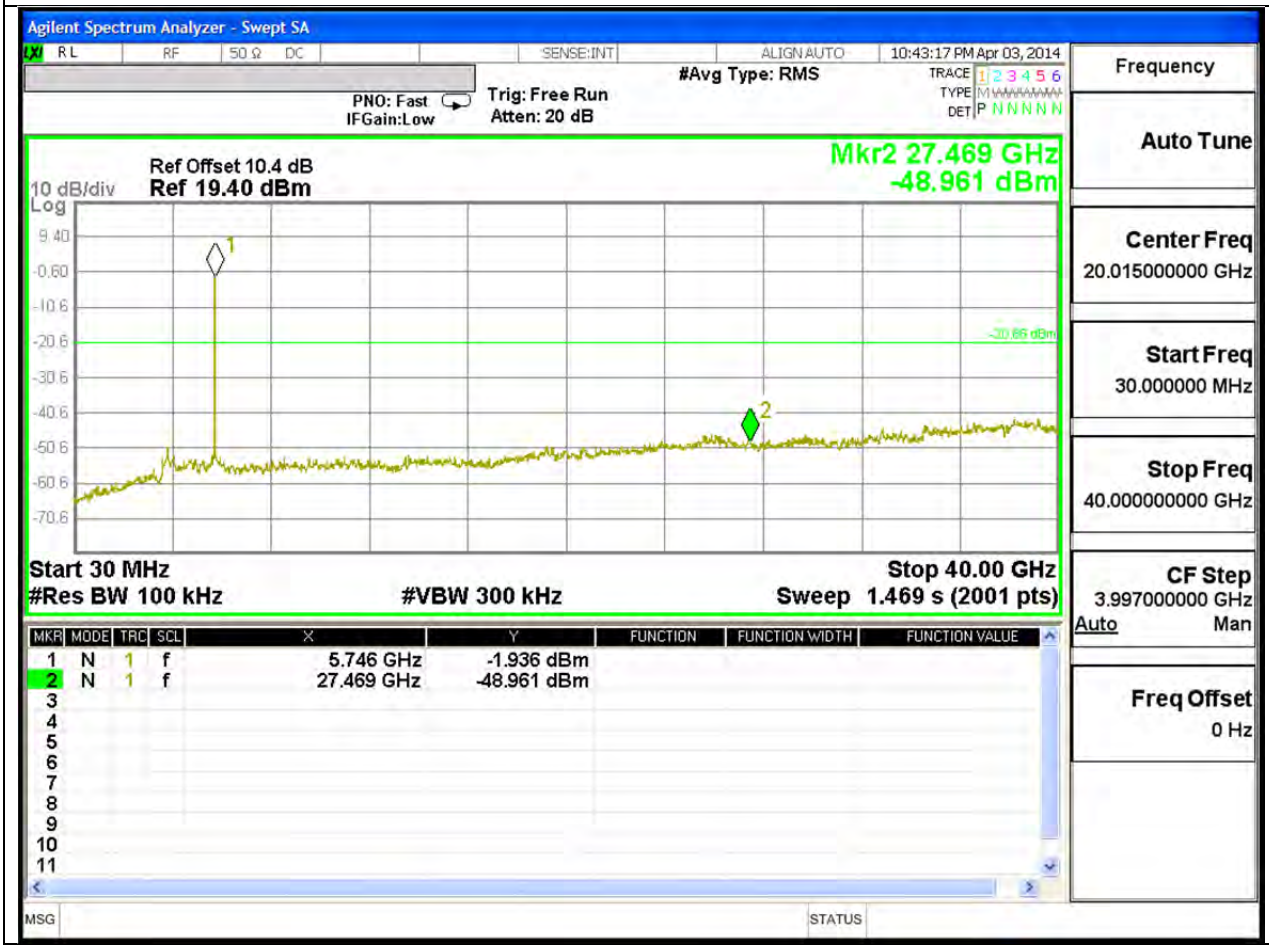
HIGH CHANNEL BANDEDGE

AUTHORIZED BAND EDGE HIGH CH

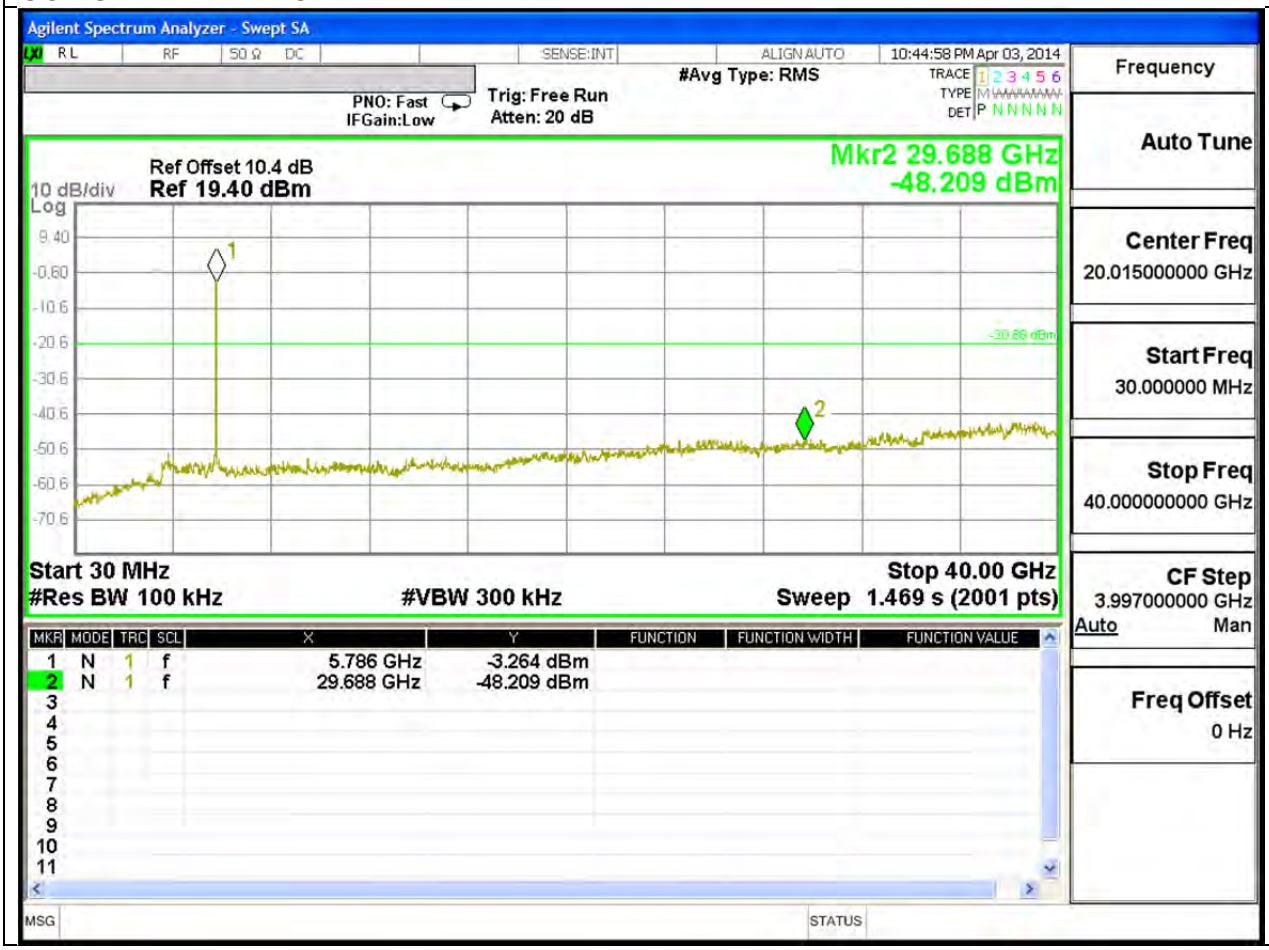


OUT-OF-BAND EMISSIONS

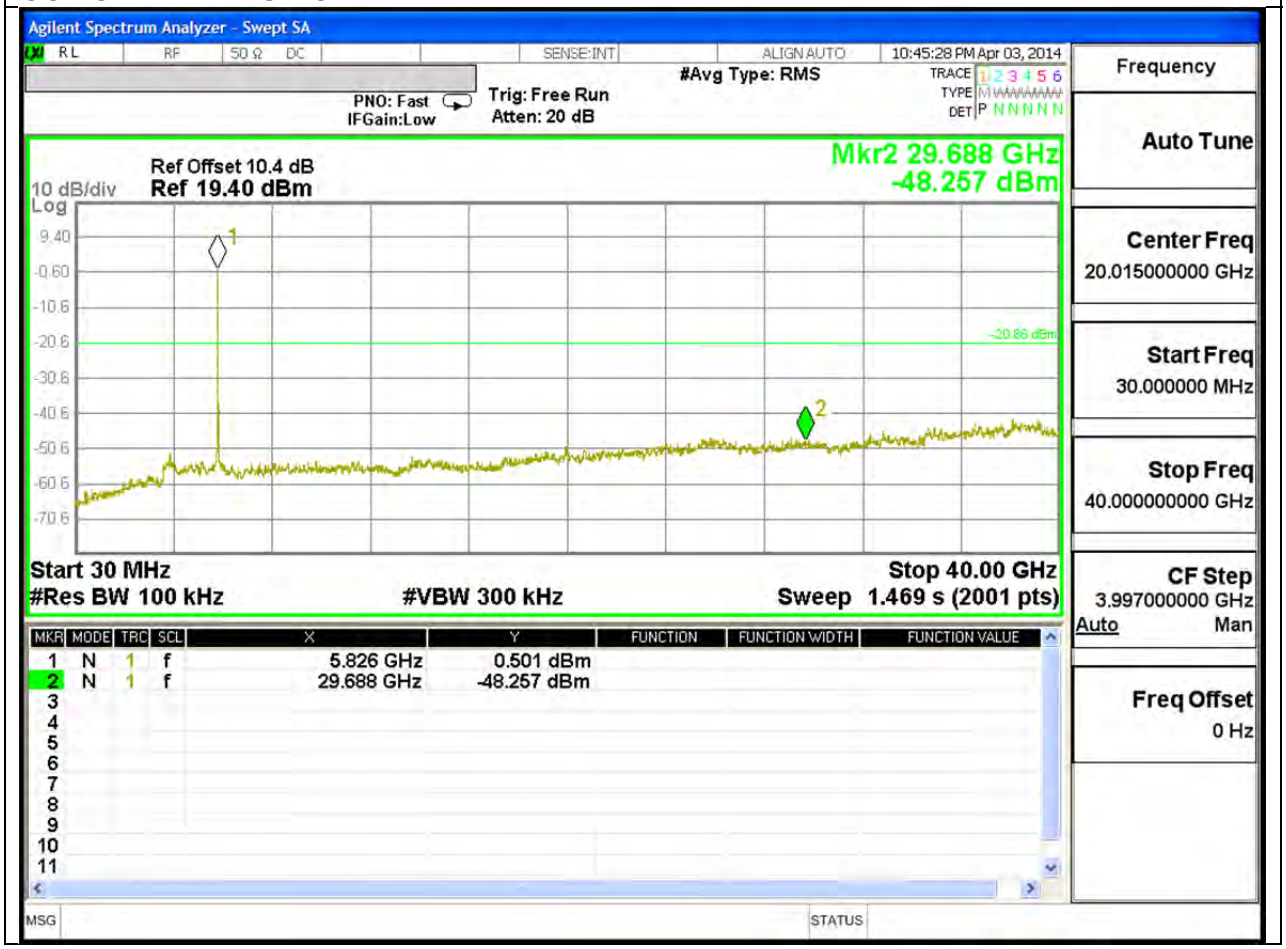
OUT OF BAND LOW CH



OUT OF BAND MID CH



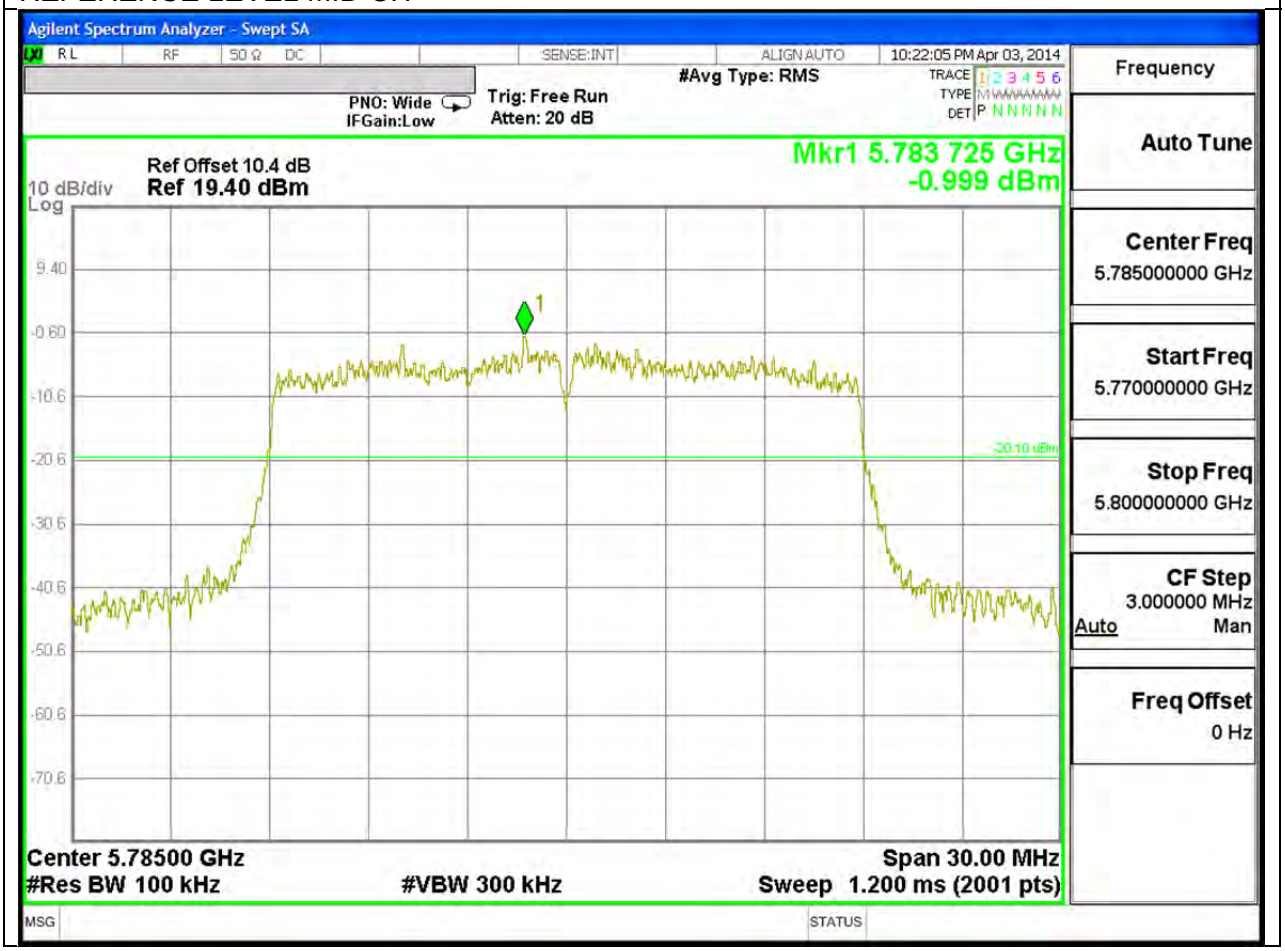
OUT OF BAND HIGH CH



9.6.5. 802.11n MODE IN THE 5.8 GHz BAND

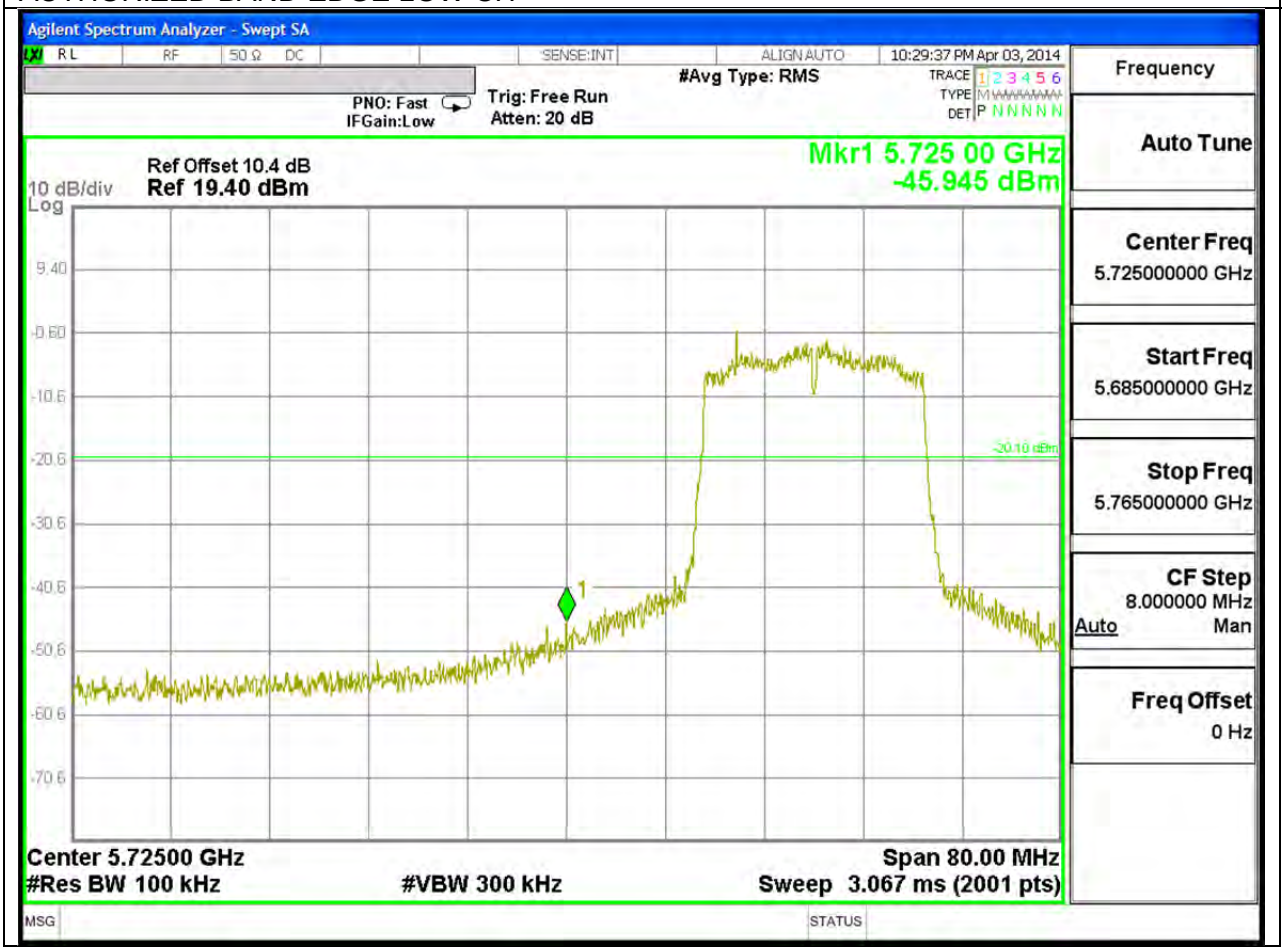
IN-BAND REFERENCE LEVEL

REFERENCE LEVEL MID CH



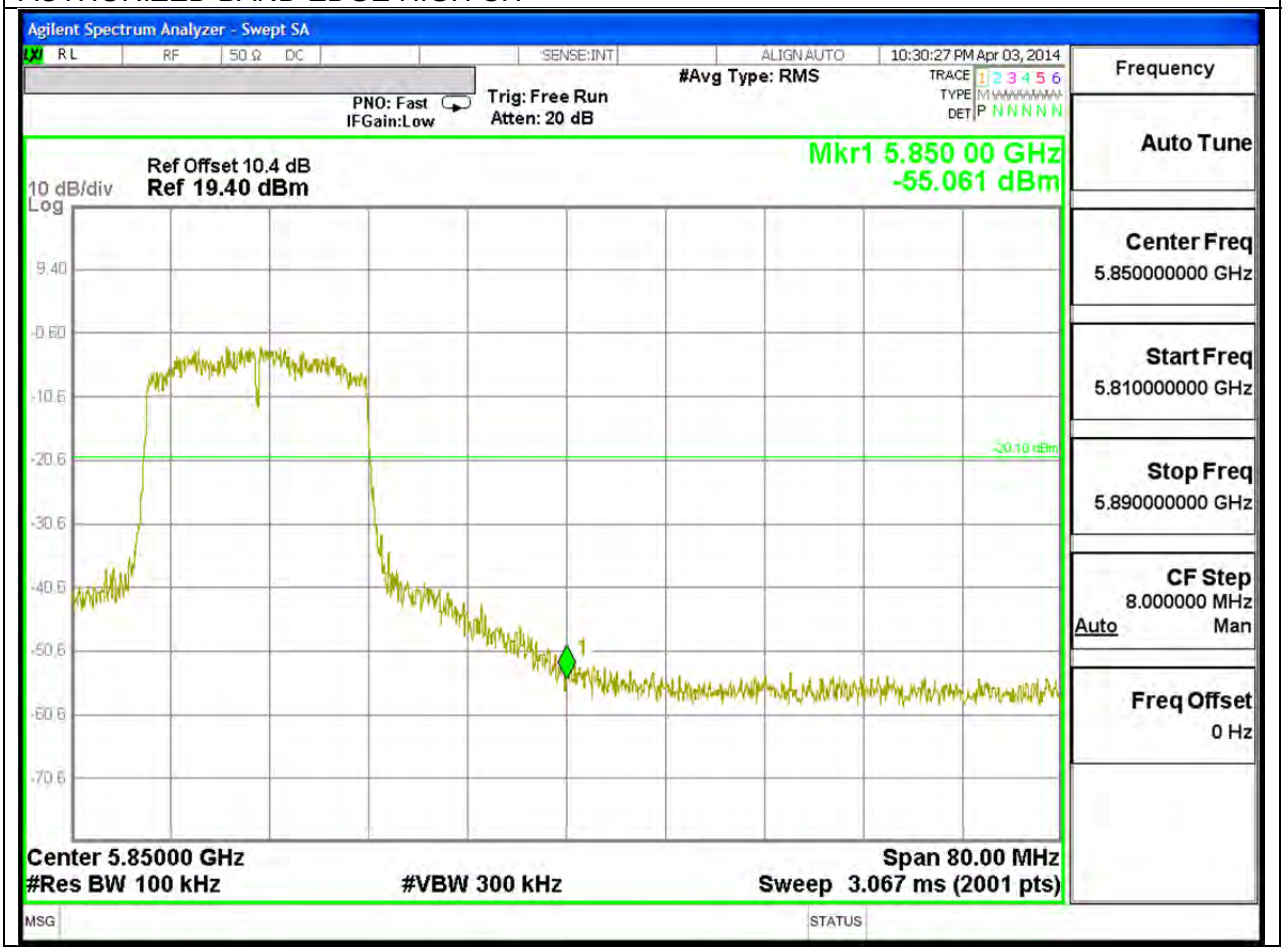
LOW CHANNEL BANDEDGE

AUTHORIZED BAND EDGE LOW CH



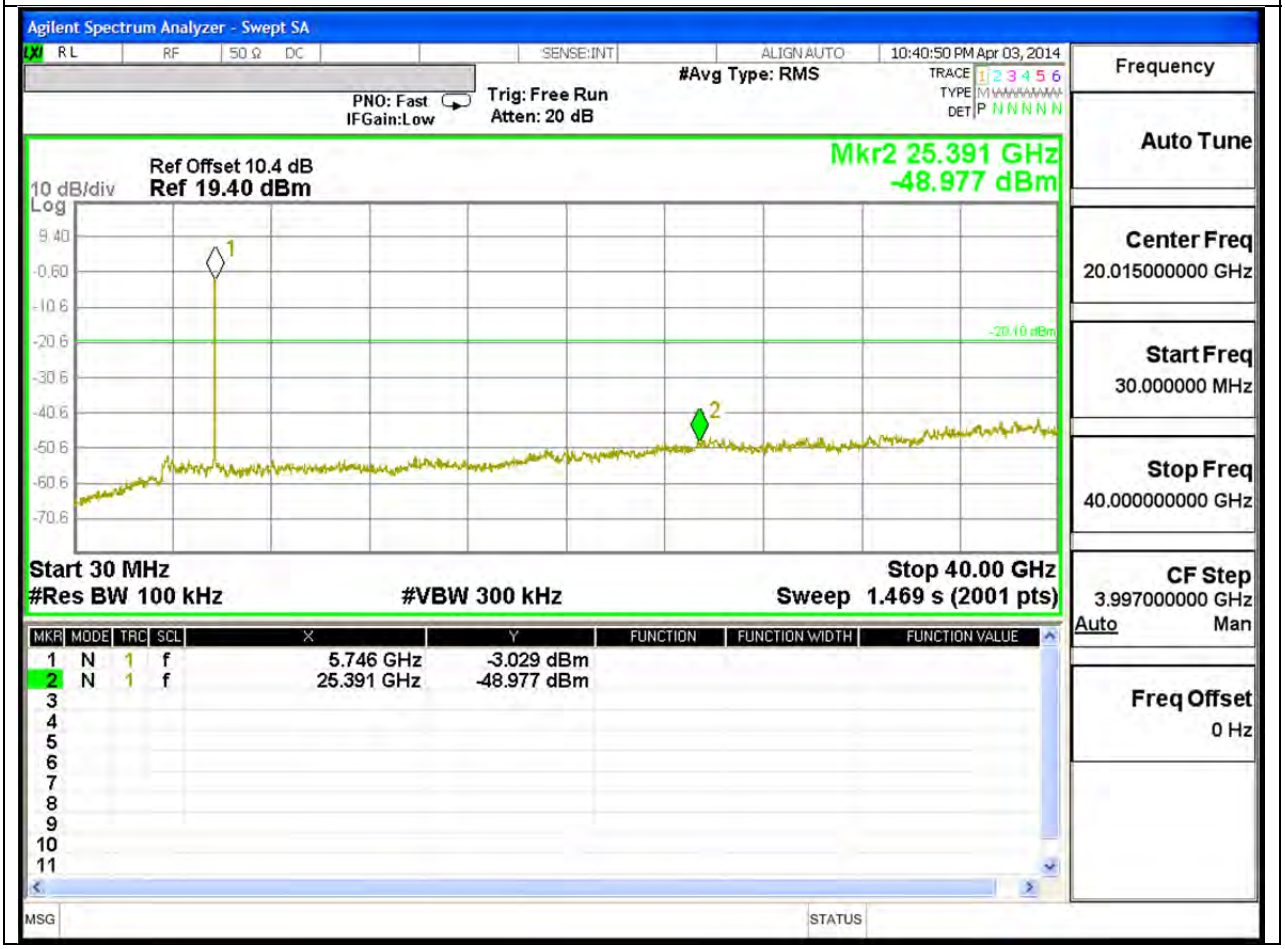
HIGH CHANNEL BANDEDGE

AUTHORIZED BAND EDGE HIGH CH

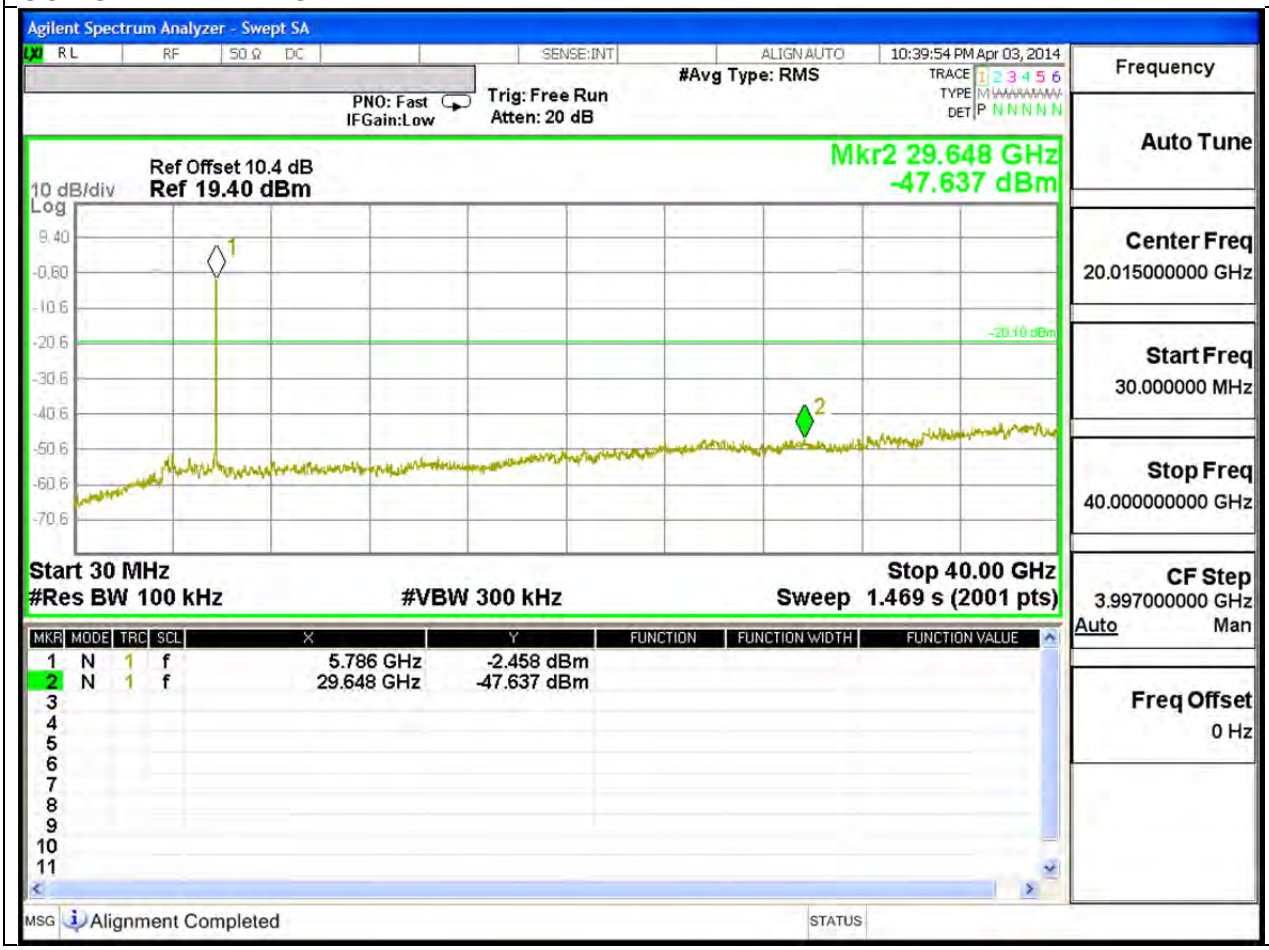


OUT-OF-BAND EMISSIONS

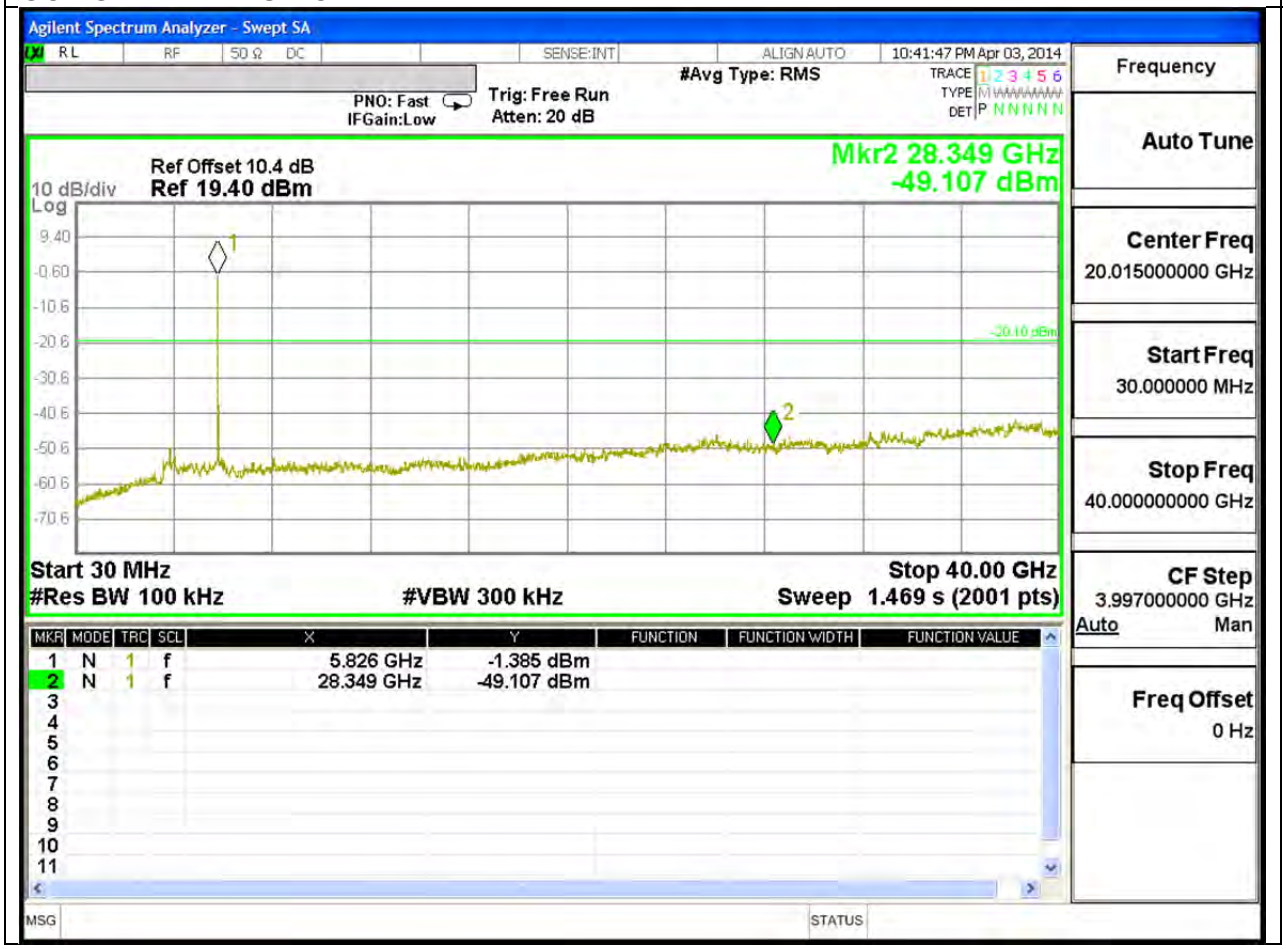
OUT OF BAND LOW CH



OUT OF BAND MID CH



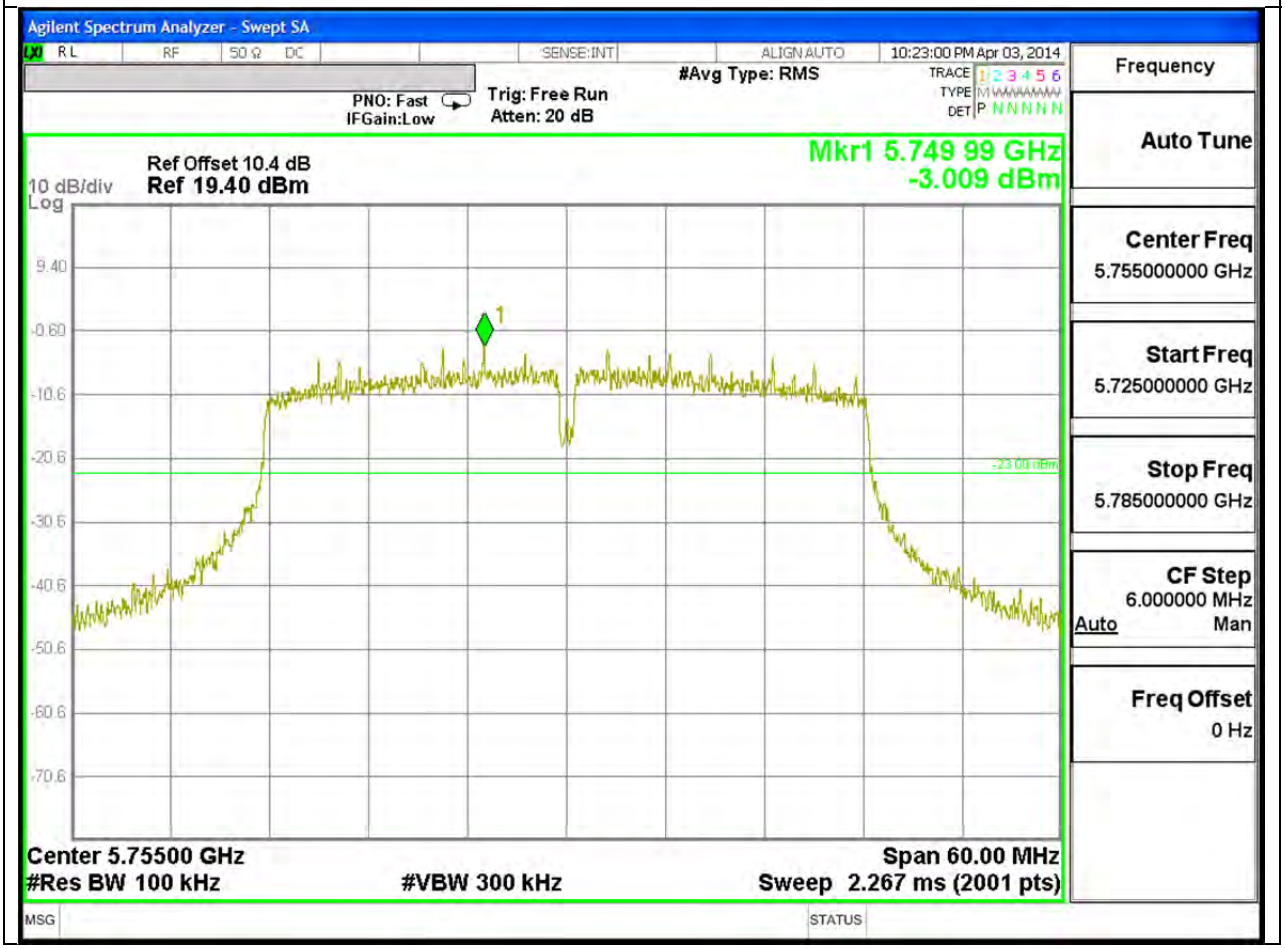
OUT OF BAND HIGH CH



9.6.6. 802.11n HT40 MODE IN THE 5.8 GHz BAND

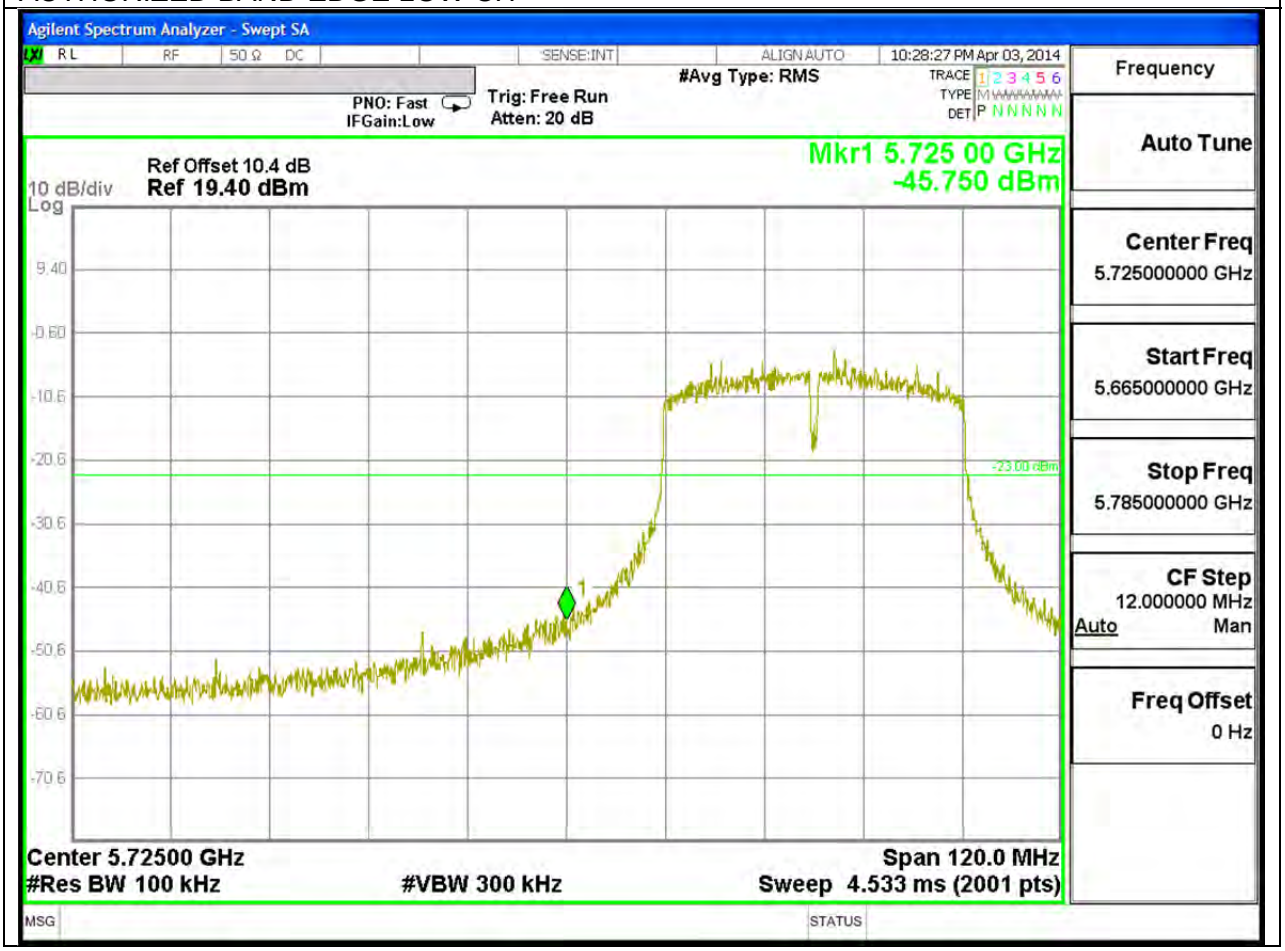
IN-BAND REFERENCE LEVEL

REFERENCE LEVEL MID CH



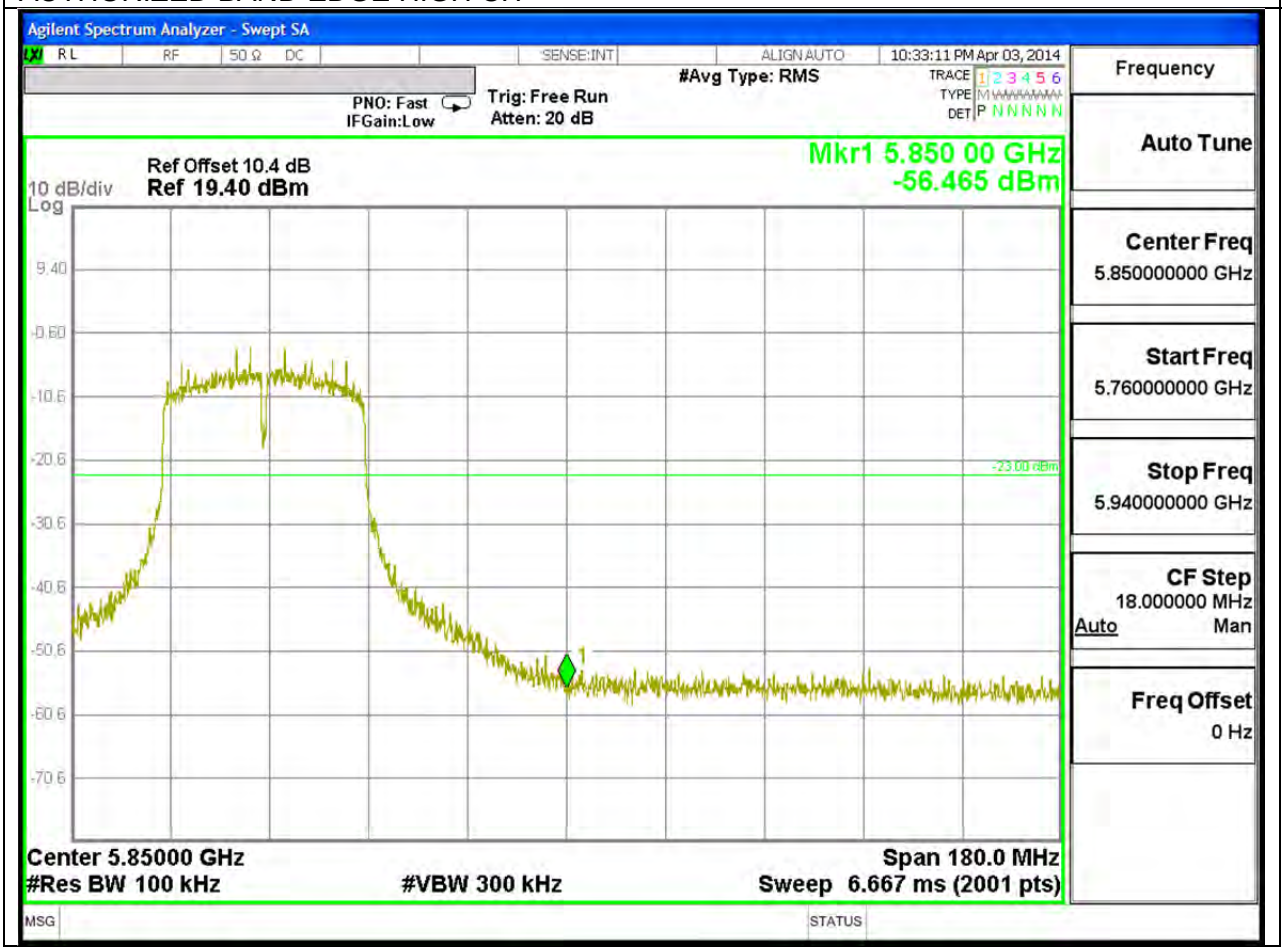
LOW CHANNEL BANDEDGE

AUTHORIZED BAND EDGE LOW CH



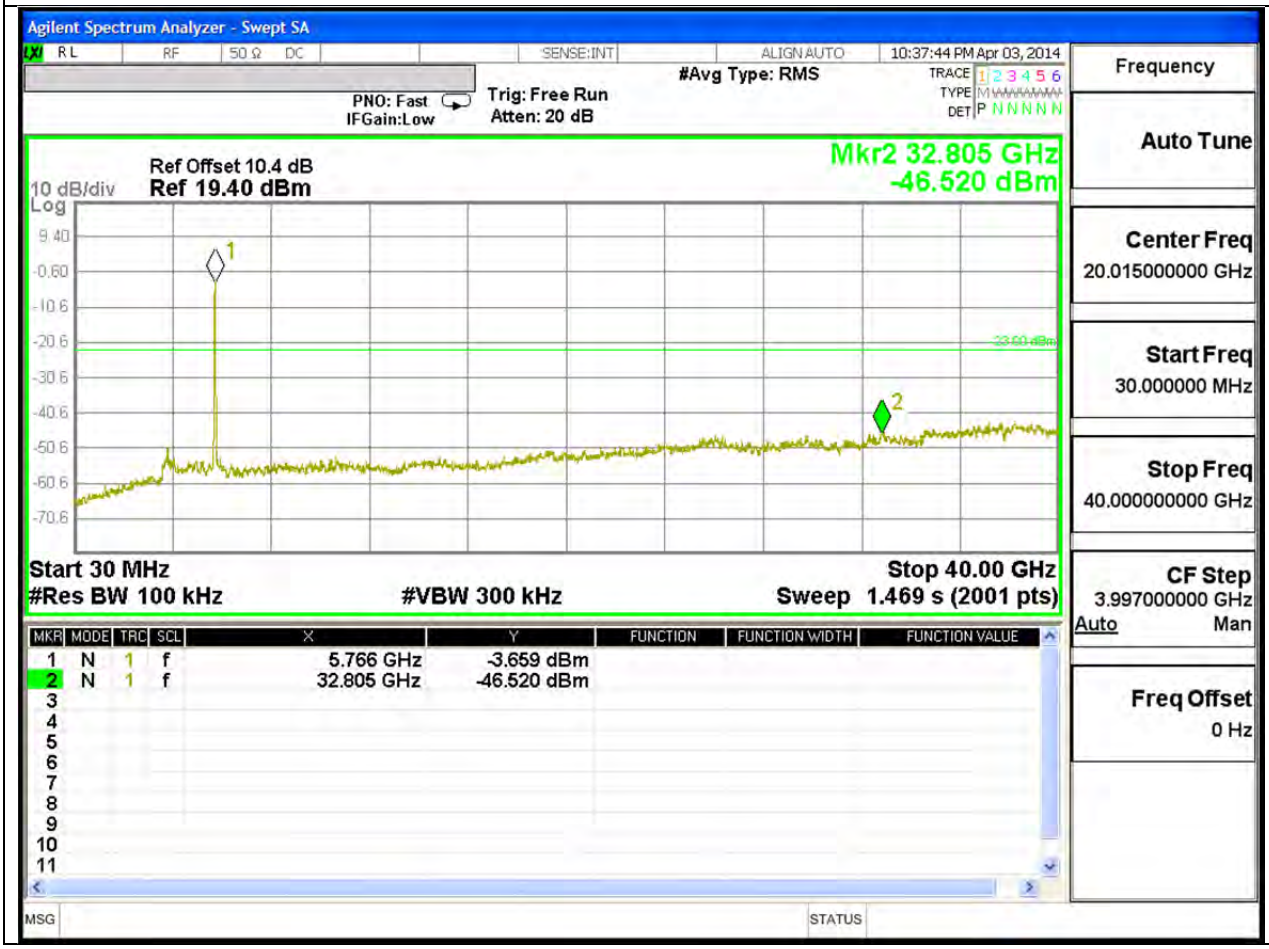
HIGH CHANNEL BANDEDGE

AUTHORIZED BAND EDGE HIGH CH

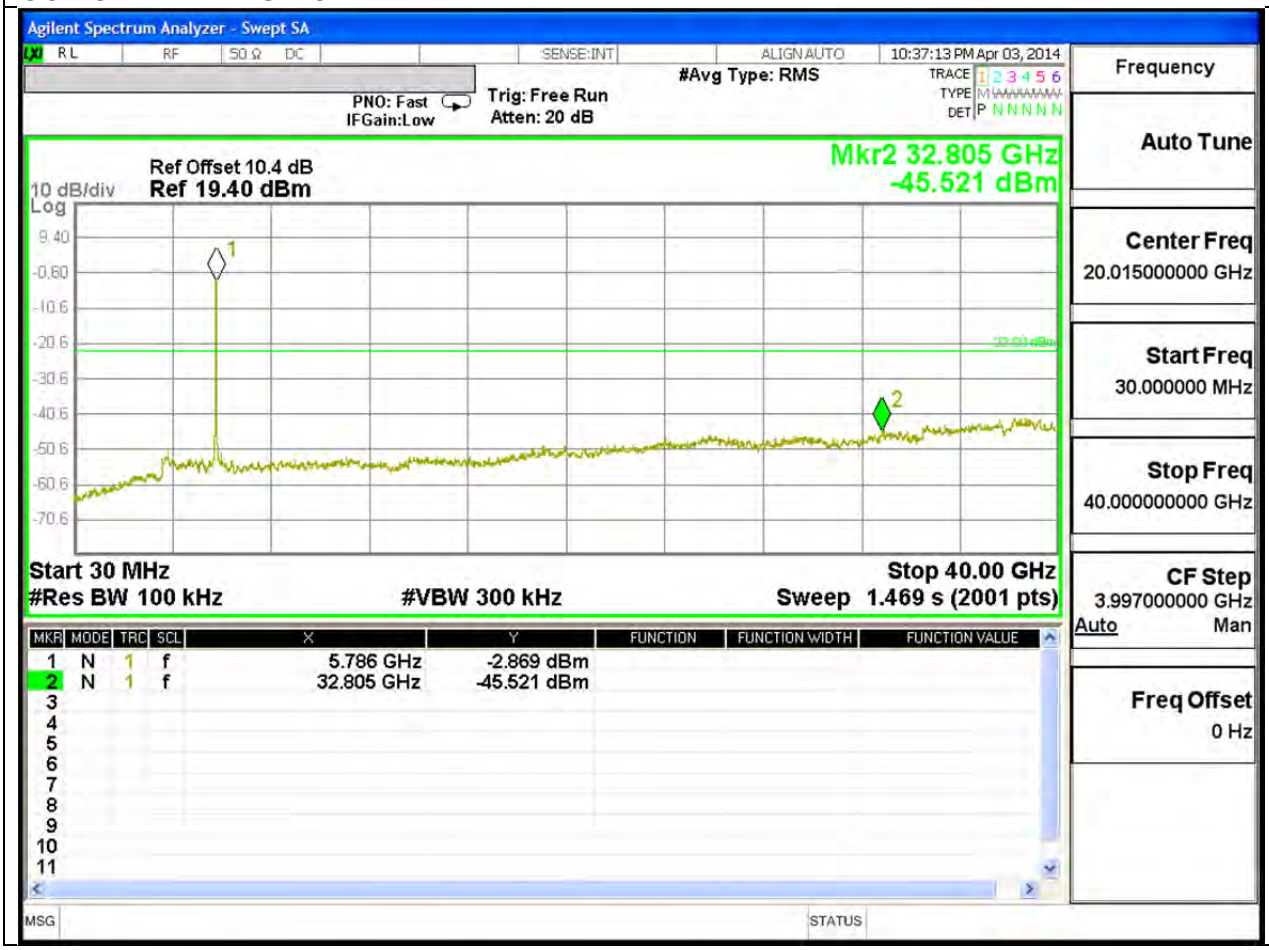


OUT-OF-BAND EMISSIONS

OUT OF BAND LOW CH



OUT OF BAND HIGH CH



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= 10log (1/x) For this sample B mode = 0dB (duty cycle >98%); G mode = 0.21dB; N mode HT20 = 0.22dB; N mode HT40 = 0.45dB.

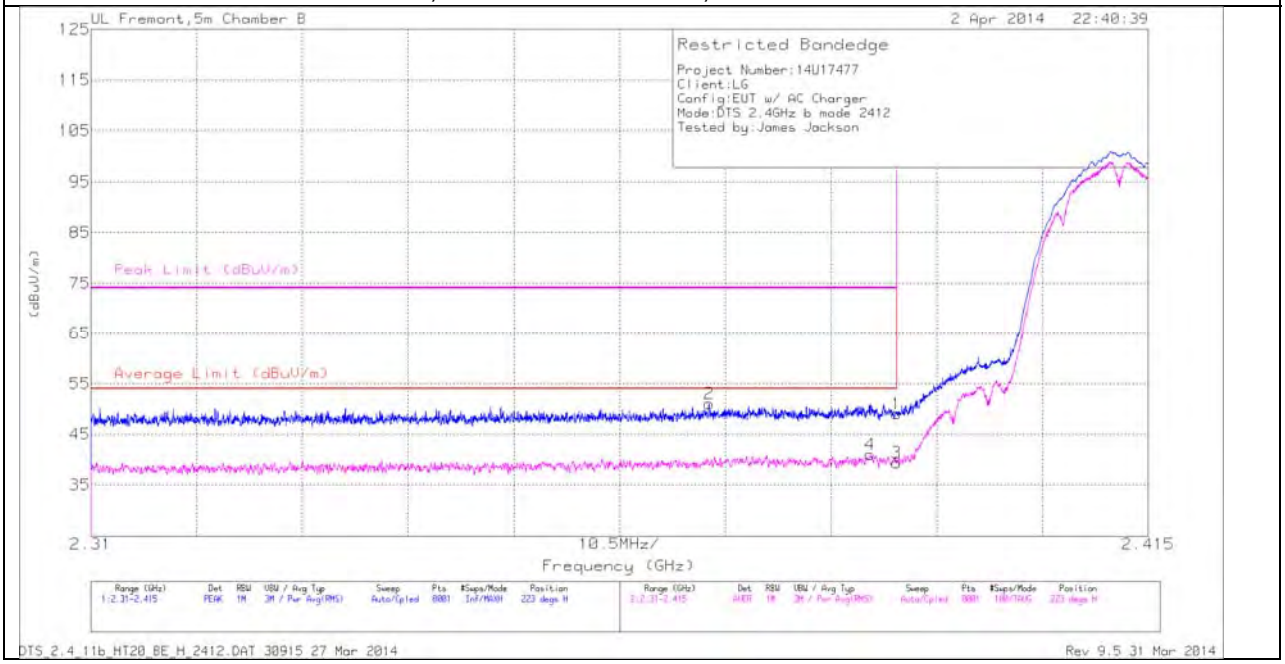
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.

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)

LOW CHANNEL RESTRICTED, PEAK & AVERAGE, HORIZ



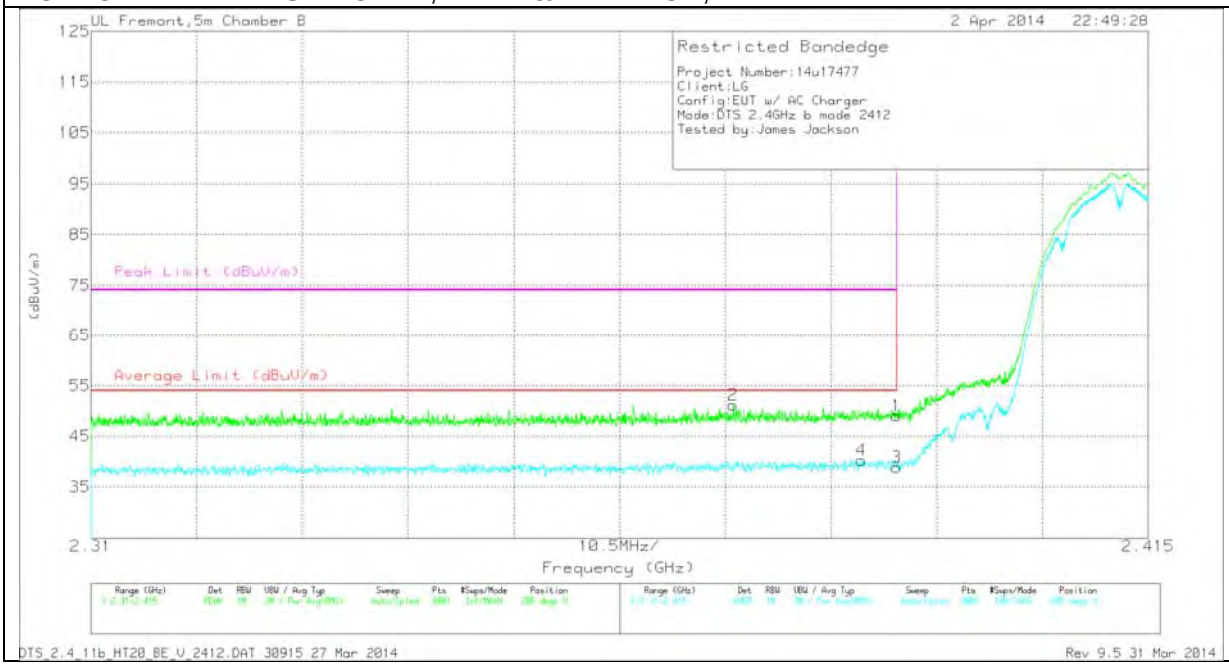
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	38.17	PK	31.5	-20.6	0	49.07	-	-	74	-24.93	223	303	H
2	* 2.371	40.3	PK	31.4	-20.7	0	51	-	-	74	-23	223	303	H
3	* 2.39	28.31	RMS	31.5	-20.6	0	39.31	54	-14.69	-	-	223	303	H
4	* 2.387	30.03	RMS	31.5	-20.6	0	41.03	54	-12.97	-	-	223	303	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

RMS - RMS detection

LOW CHANNEL RESTRICTED, PEAK & AVERAGE, VERT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	38.17	PK	31.5	-20.6	0	49.07	-	-	74	-24.93	205	392	V
2	* 2.374	40.44	PK	31.4	-20.7	0	51.14	-	-	74	-22.86	205	392	V
3	* 2.39	27.86	RMS	31.5	-20.6	0	38.86	54	-15.14	-	-	205	392	V
4	* 2.387	29.28	RMS	31.5	-20.6	0	40.28	54	-13.72	-	-	205	392	V

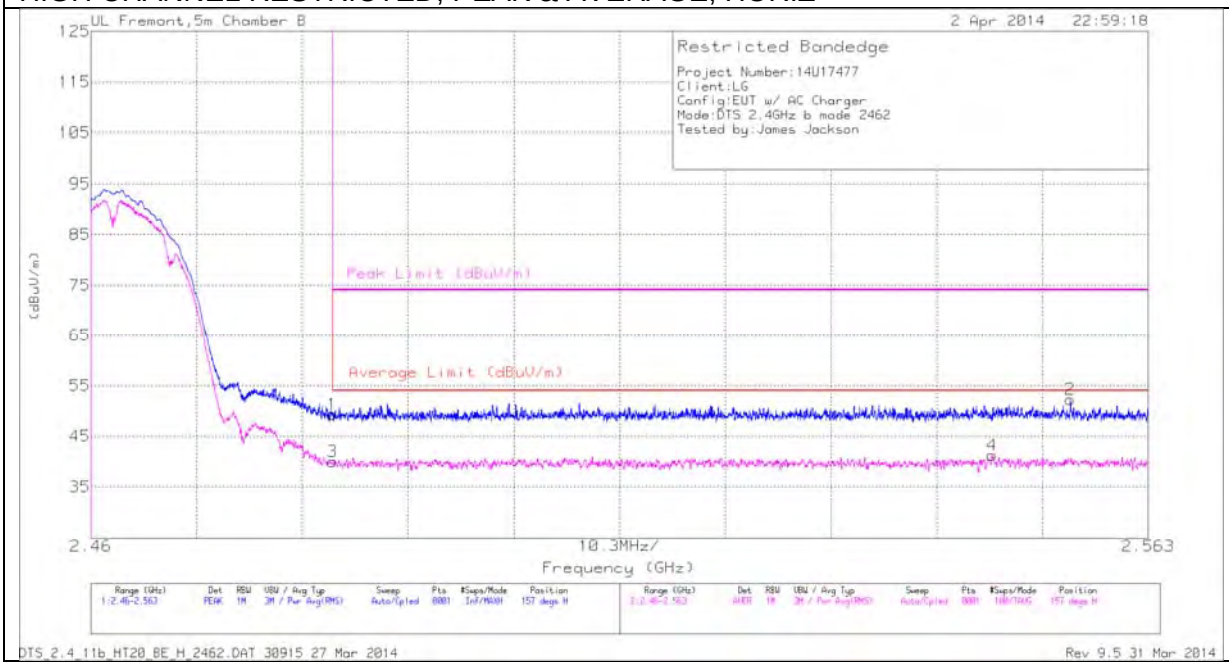
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HIGH CHANNEL RESTRICTED, PEAK & AVERAGE, HORIZ



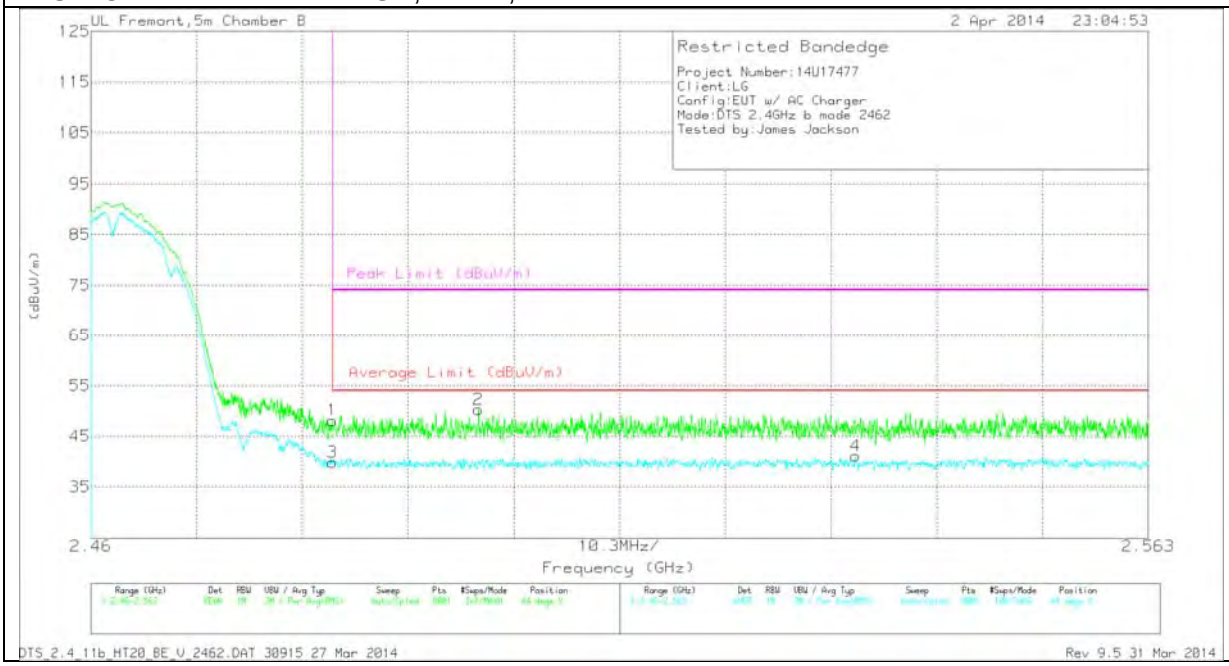
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	37.8	PK	32.1	-20.6	0	49.3	-	-	74	-24.7	157	224	H
3	* 2.484	28.36	RMS	32.1	-20.6	0	39.96	54	-14.04	-	-	157	224	H
4	2.548	29.38	RMS	32.1	-20.3	0	41.28	54	-12.72	-	-	157	224	H
2	2.555	40.54	PK	32	-20.3	0	52.24	-	-	74	-21.76	157	224	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

RMS - RMS detection

HIGH CHANNEL BANDEDGE, PEAK, VERT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	36.62	PK	32.1	-20.6	0	48.12	-	-	74	-25.88	44	224	V
2	* 2.498	38.87	PK	32.2	-20.8	0	50.27	-	-	74	-23.73	44	224	V
3	* 2.484	28.27	RMS	32.1	-20.6	0	39.87	54	-14.13	-	-	44	224	V
4	2.534	29.37	RMS	32.1	-20.5	0	41.07	54	-12.93	-	-	44	224	V

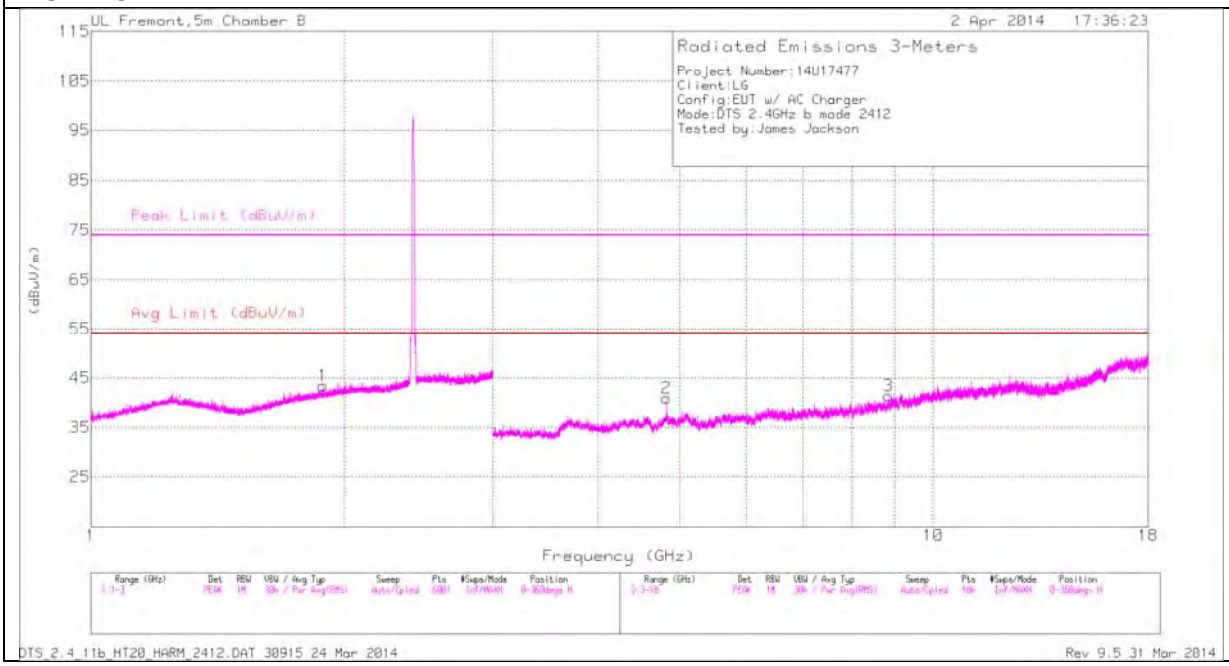
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

RMS - RMS detection

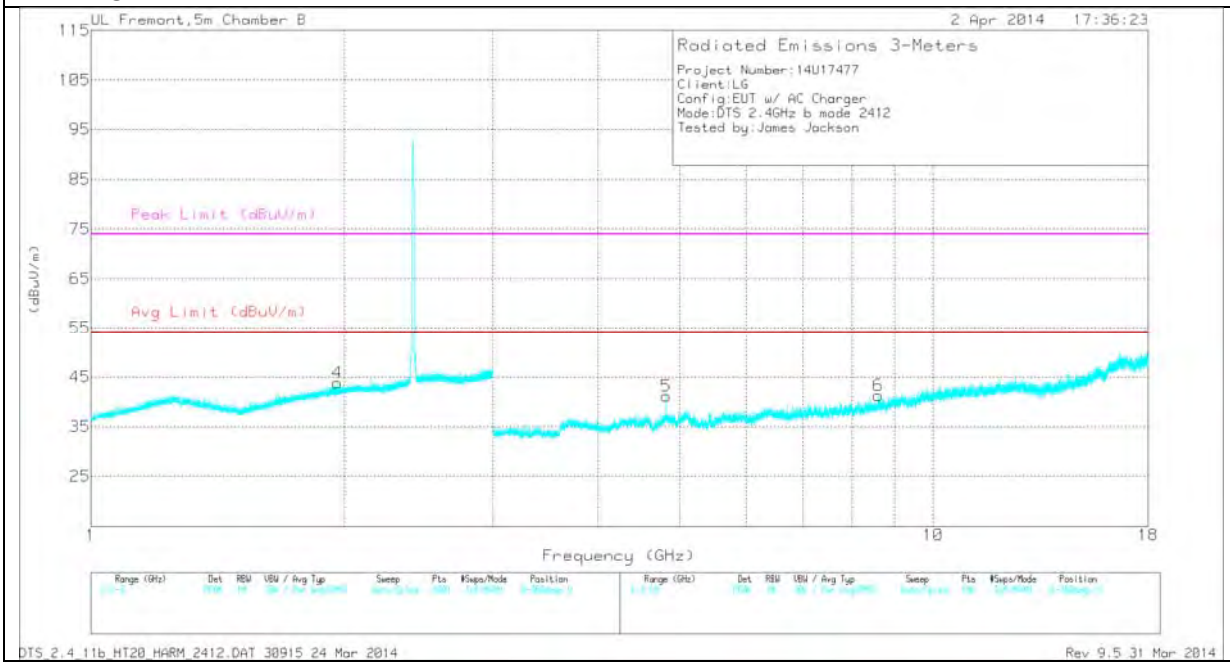
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL
HORIZONTAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

LOW CHANNEL
VERTICAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

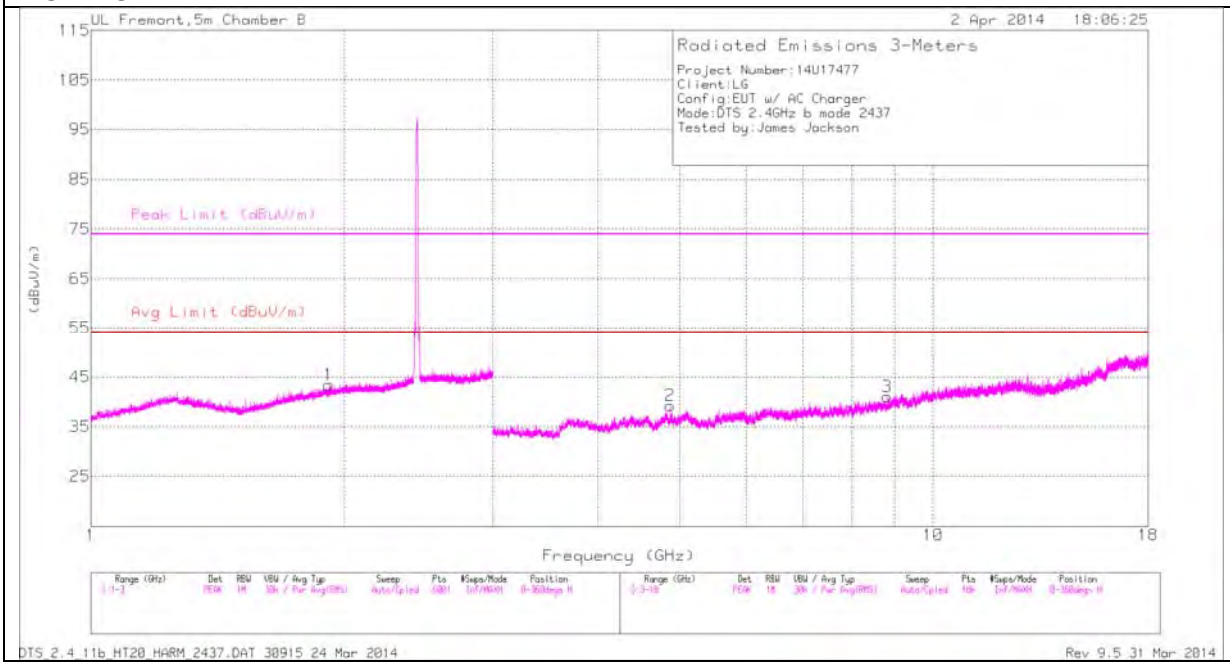
LOW CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 4.824	34.11	PK	33.5	-26.7	40.91	54	-13.09	74	-33.09	0-360	100	H
5	* 4.824	34.31	PK	33.5	-26.7	41.11	54	-12.89	74	-32.89	0-360	100	V
1	1.886	34.5	PK	30.1	-21.1	43.5	54	-10.5	74	-30.5	0-360	201	H
4	1.963	34.47	PK	30.5	-21.1	43.87	54	-10.13	74	-30.13	0-360	100	V
6	8.605	28.28	PK	35.5	-22.5	41.28	54	-12.72	74	-32.72	0-360	100	V
3	8.849	28.75	PK	35.7	-23	41.45	54	-12.55	74	-32.55	0-360	100	H

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.824	39.99	PK2	33.5	-26.7	46.79	54	-7.21	74	-27.21	58	384	H
* 4.824	33.36	MAv1	33.5	-26.7	40.16	54	-13.84	74	-33.84	58	384	H
* 4.824	39.15	PK2	33.5	-26.7	45.95	54	-8.05	74	-28.05	66	126	V
* 4.824	31.28	MAv1	33.5	-26.7	38.08	54	-15.92	74	-35.92	66	126	V
* 4.924	40.1	PK2	33.5	-27.8	45.8	54	-8.2	74	-28.2	1	100	V
* 5.42	40.07	PK2	33.9	-26.7	47.27	54	-6.73	74	-26.73	1	100	V

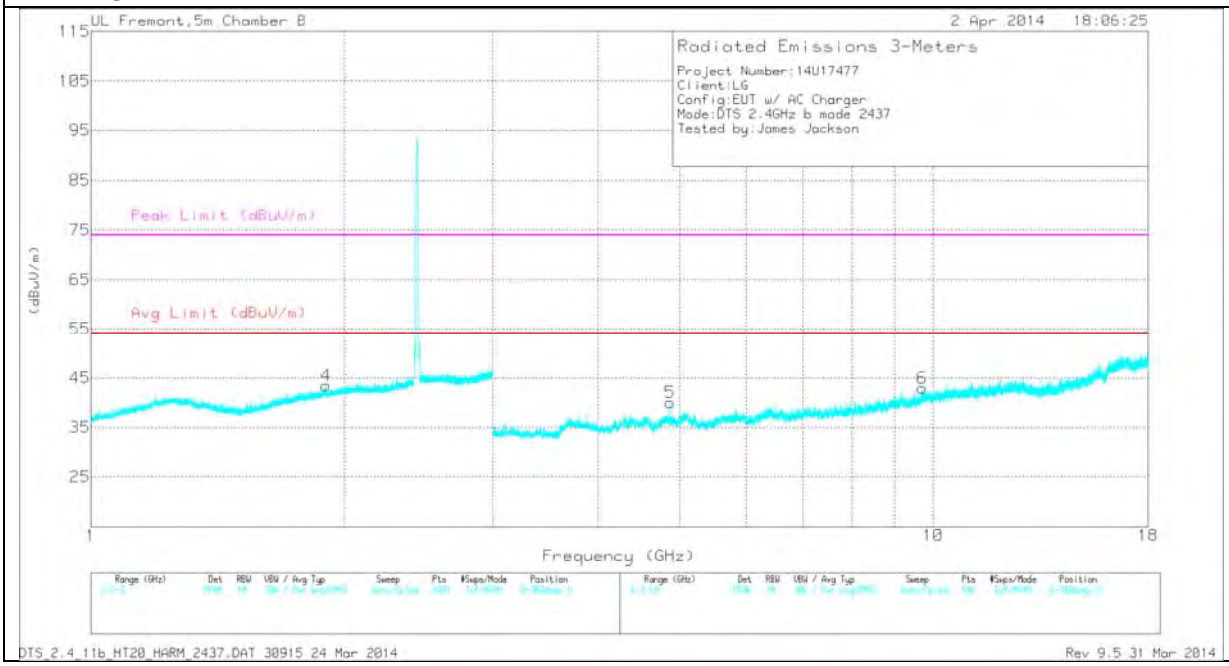
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

MID CHANNEL
HORIZONTAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

MID CHANNEL
VERTICAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

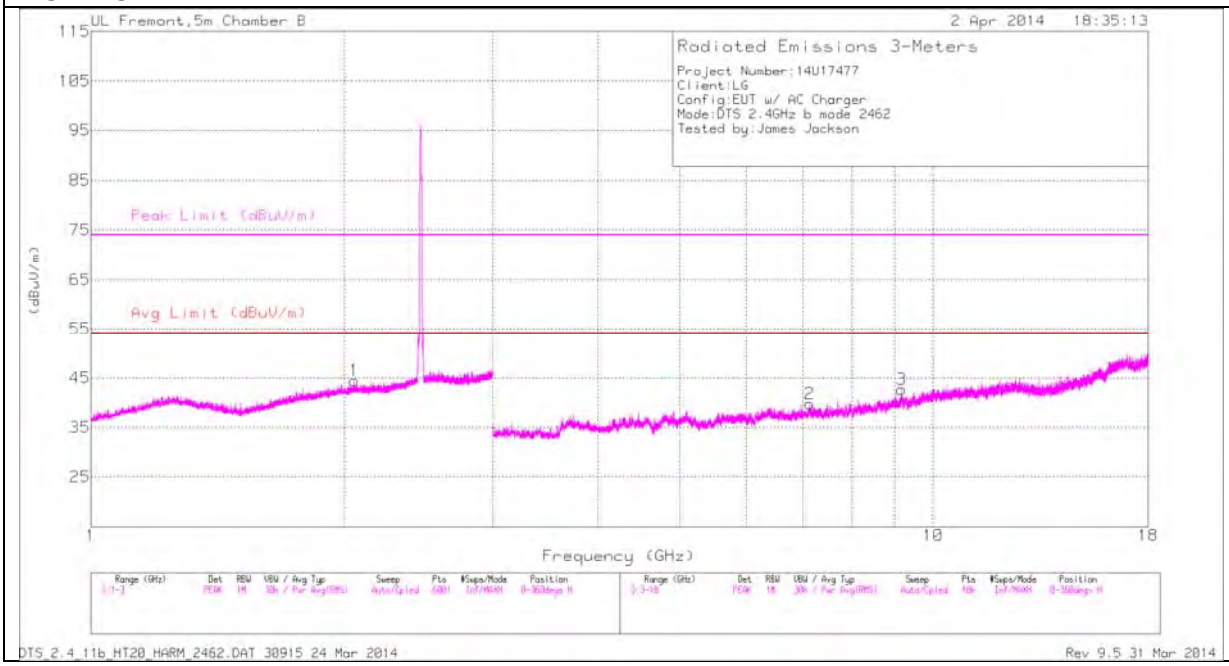
MID CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 4.874	32.62	PK	33.5	-26.9	39.22	54	-14.78	74	-34.78	0-360	100	H
5	* 4.874	33.46	PK	33.5	-26.9	40.06	54	-13.94	74	-33.94	0-360	201	V
4	1.901	34.38	PK	30.2	-21.1	43.48	54	-10.52	74	-30.52	0-360	201	V
1	1.917	34.49	PK	30.3	-21.3	43.49	54	-10.51	74	-30.51	0-360	201	H
3	8.818	28.57	PK	35.7	-23.2	41.07	54	-12.93	74	-32.93	0-360	201	H
6	9.714	27.5	PK	36.4	-21	42.9	54	-11.1	74	-31.1	0-360	201	V

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.874	38.32	PK2	33.5	-26.9	44.92	54	-9.08	74	-29.08	61	382	H
* 4.874	30.52	MAv1	33.5	-26.9	37.12	54	-16.88	74	-36.88	61	382	H
* 4.873	38.34	PK2	33.5	-26.9	44.94	54	-9.06	74	-29.06	226	155	V
* 4.874	30.15	MAv1	33.5	-26.9	36.75	54	-17.25	74	-27.25	226	155	V
* 4.924	40.1	PK2	33.5	-27.8	45.8	54	-8.2	74	-28.2	1	100	V
* 5.42	40.07	PK2	33.9	-26.7	47.27	54	-6.73	74	-26.73	1	100	V

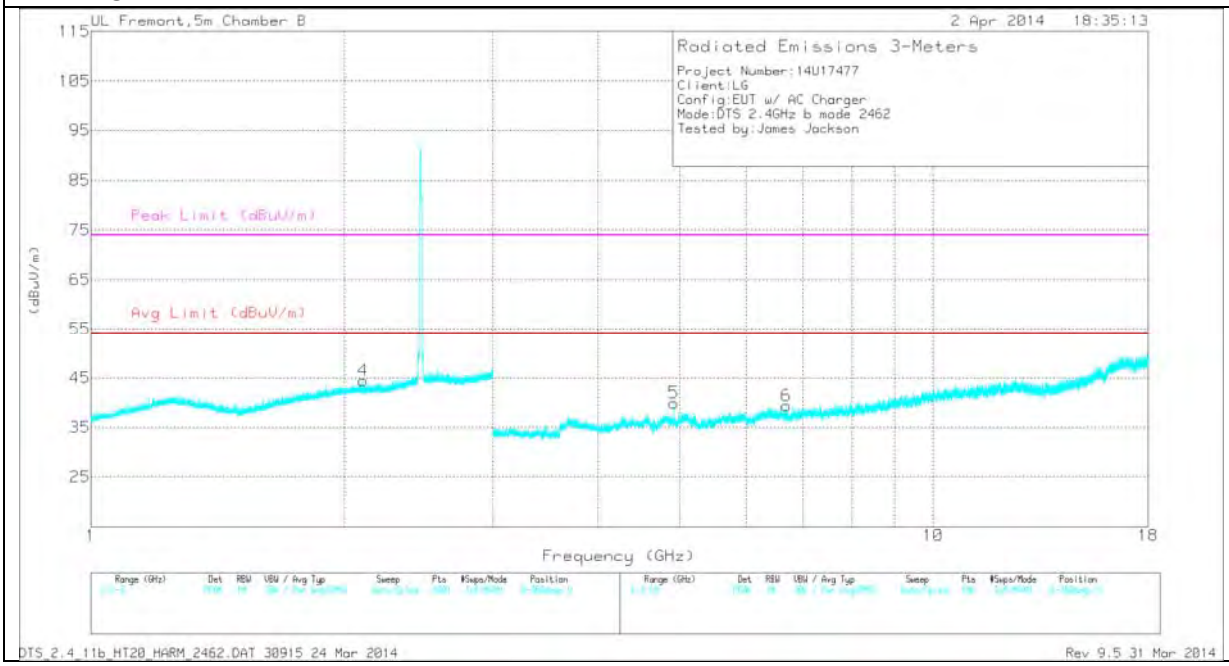
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

HIGH CHANNEL
HORIZONTAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

HIGH CHANNEL
VERTICAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

HIGH CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* 9.174	28.12	PK	35.9	-21.3	42.72	54	-11.28	74	-31.28	0-360	100	H
5	* 4.924	34.25	PK	33.5	-27.8	39.95	54	-14.05	74	-34.05	0-360	100	V
1	2.054	34.8	PK	30.7	-21	44.5	54	-9.5	74	-29.5	0-360	201	H
4	2.106	34.81	PK	30.7	-21	44.51	54	-9.49	74	-29.49	0-360	100	V
6	6.693	30.63	PK	35	-26.2	39.43	54	-14.57	74	-34.57	0-360	201	V
2	7.14	30.07	PK	35.1	-25.4	39.77	54	-14.23	74	-34.23	0-360	201	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 9.17	34.81	PK2	35.9	-21.3	49.41	-	-	74	-24.59	238	191	H
* 9.167	23.68	MAv1	35.9	-21.5	38.08	54	-15.92	-	-	238	191	H
* 4.924	40.25	PK2	33.5	-27.8	45.95	-	-	74	-28.05	215	107	V
* 4.924	33.05	MAv1	33.5	-27.8	38.75	54	-15.25	-	-	215	107	V
* 4.924	40.1	PK2	33.5	-27.8	45.8	-	-	74	-28.2	1	100	V
* 5.42	40.07	PK2	33.9	-26.7	47.27	-	-	74	-26.73	1	100	V

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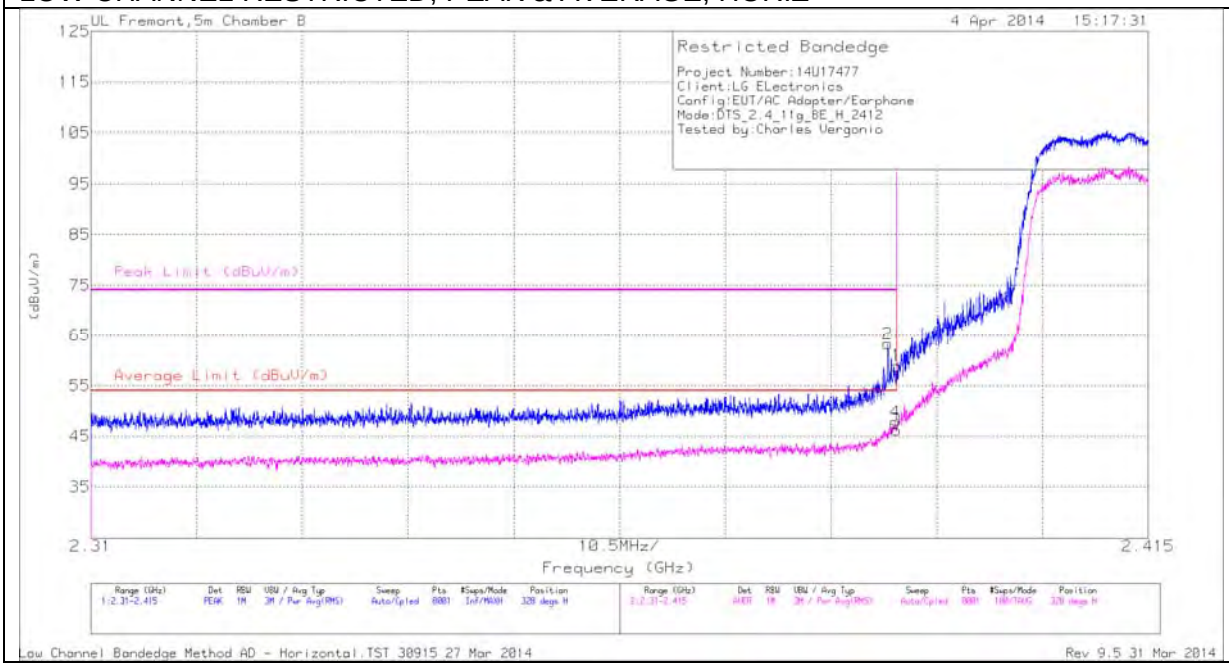
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

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

LOW CHANNEL RESTRICTED, PEAK & AVERAGE, HORIZ



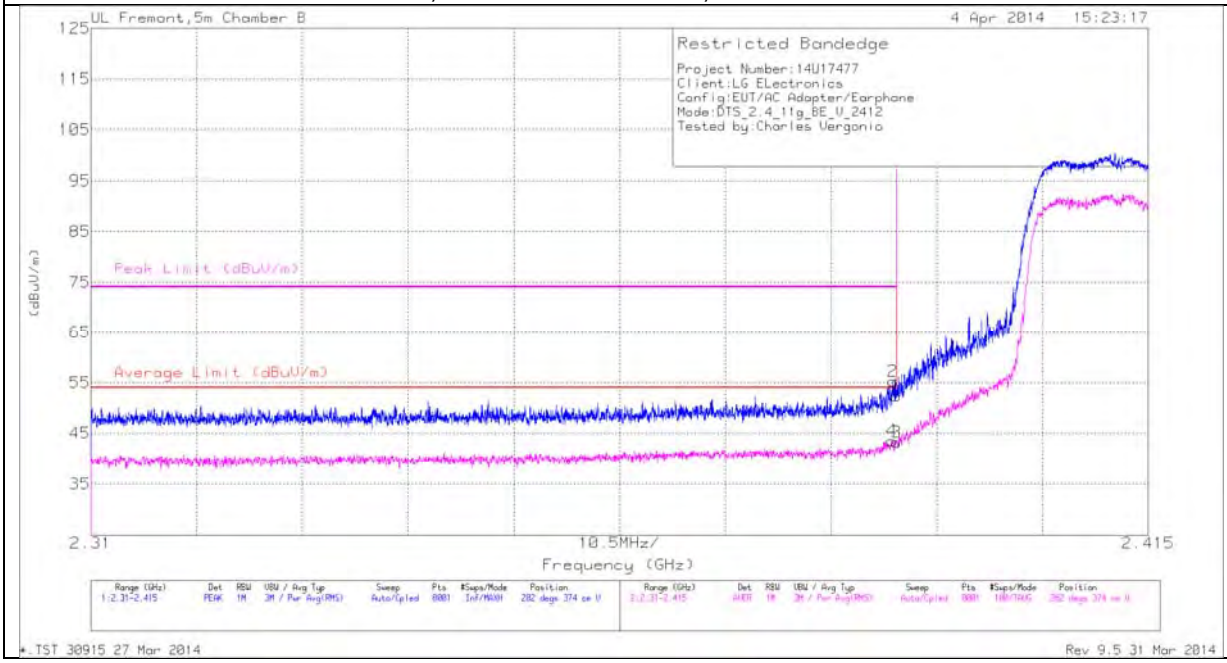
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	49.72	PK	32.1	-22.9	0	58.92	-	-	74	-15.08	328	240	H
2	* 2.389	54.08	PK	32.1	-22.9	0	63.28	-	-	74	-10.72	328	240	H
3	* 2.39	36.78	RMS	32.1	-22.9	.21	46.18	54	-7.82	-	-	328	240	H
4	* 2.39	38.35	RMS	32.1	-22.9	.21	47.75	54	-6.25	-	-	328	240	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

RMS - RMS detection

LOW CHANNEL RESTRICTED, PEAK & AVERAGE, VERT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	43.21	PK	32.1	-22.9	0	52.41	-	-	74	-21.59	282	374	V
2	* 2.39	46.07	PK	32.1	-22.9	0	55.27	-	-	74	-18.73	282	374	V
3	* 2.39	33.83	RMS	32.1	-22.9	.21	43.23	54	-10.77	-	-	282	374	V
4	* 2.39	34.12	RMS	32.1	-22.9	.21	43.52	54	-10.48	-	-	282	374	V

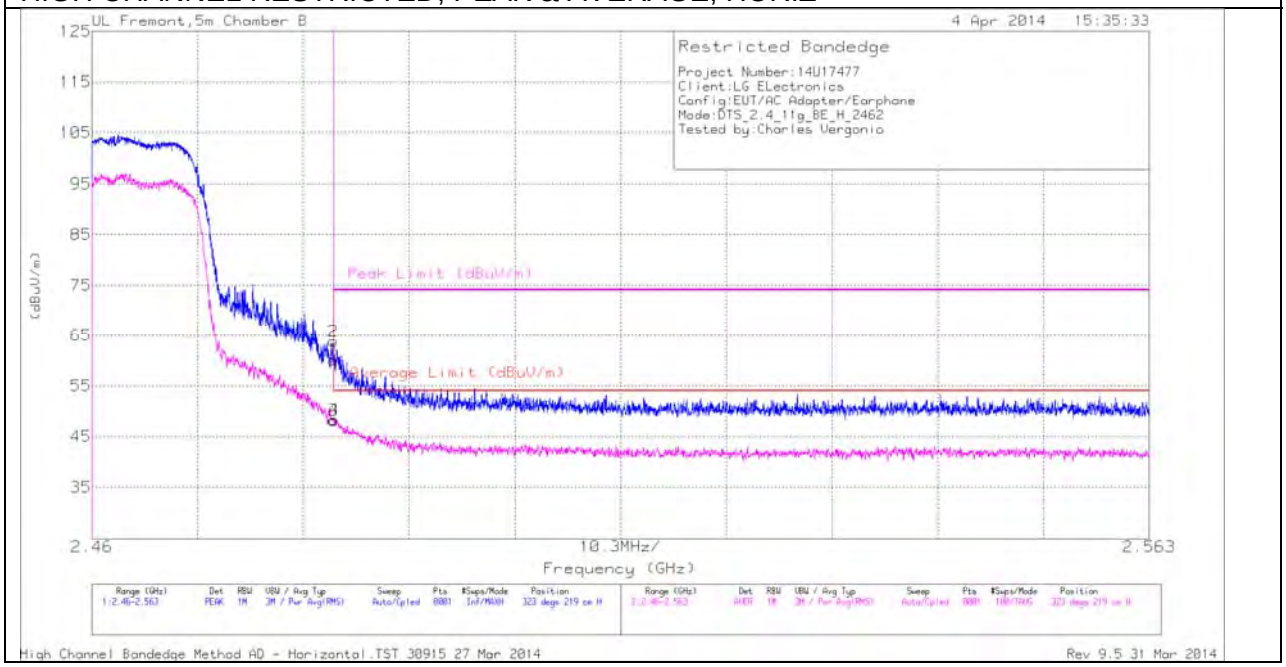
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HIGH CHANNEL RESTRICTED, PEAK & AVERAGE, HORIZ



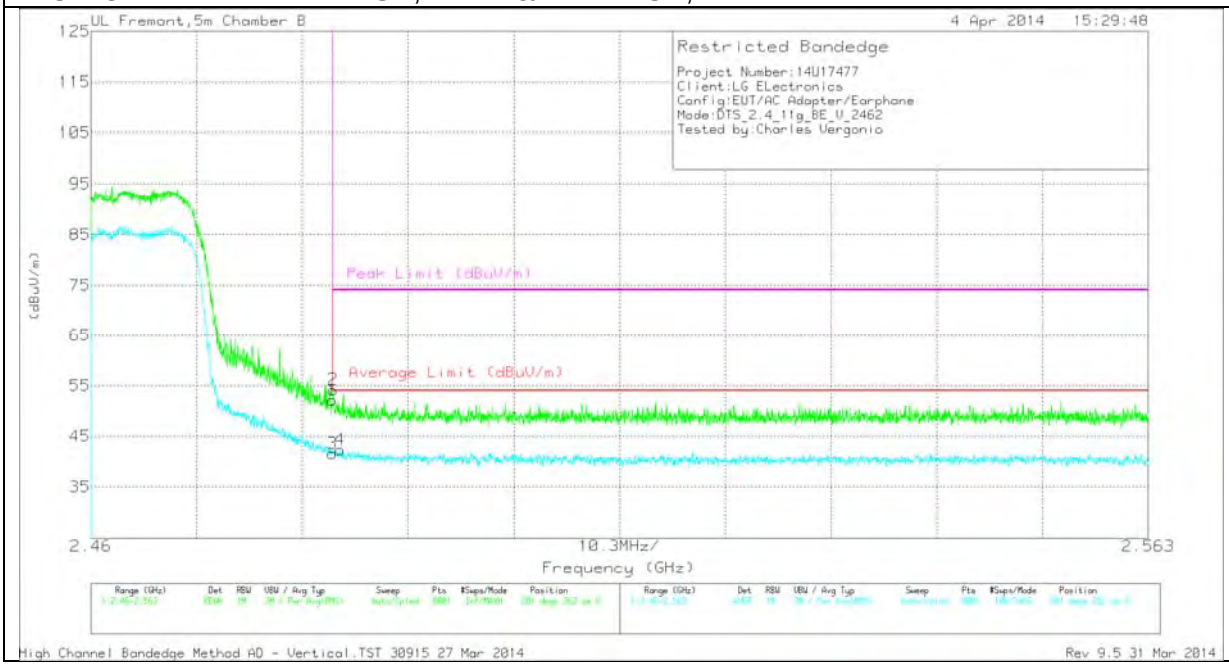
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	50.32	PK	32.4	-22.6	0	60.12	-	-	74	-13.88	323	219	H
2	* 2.484	54	PK	32.4	-22.6	0	63.8	-	-	74	-10.2	323	219	H
3	* 2.484	38.21	RMS	32.4	-22.6	.21	48.21	54	-5.79	-	-	323	219	H
4	* 2.484	38.34	RMS	32.4	-22.6	.21	48.34	54	-5.66	-	-	323	219	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

RMS - RMS detection

HIGH CHANNEL BANDEDGE, PEAK & AVERAGE, VERT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	42.39	PK	32.4	-22.6	0	52.19	-	-	74	-21.81	201	262	V
2	* 2.484	44.4	PK	32.4	-22.6	0	54.2	-	-	74	-19.8	201	262	V
3	* 2.484	31.62	RMS	32.4	-22.6	.21	41.62	54	-12.38	-	-	201	262	V
4	* 2.484	32.36	RMS	32.4	-22.6	.21	42.36	54	-11.64	-	-	201	262	V

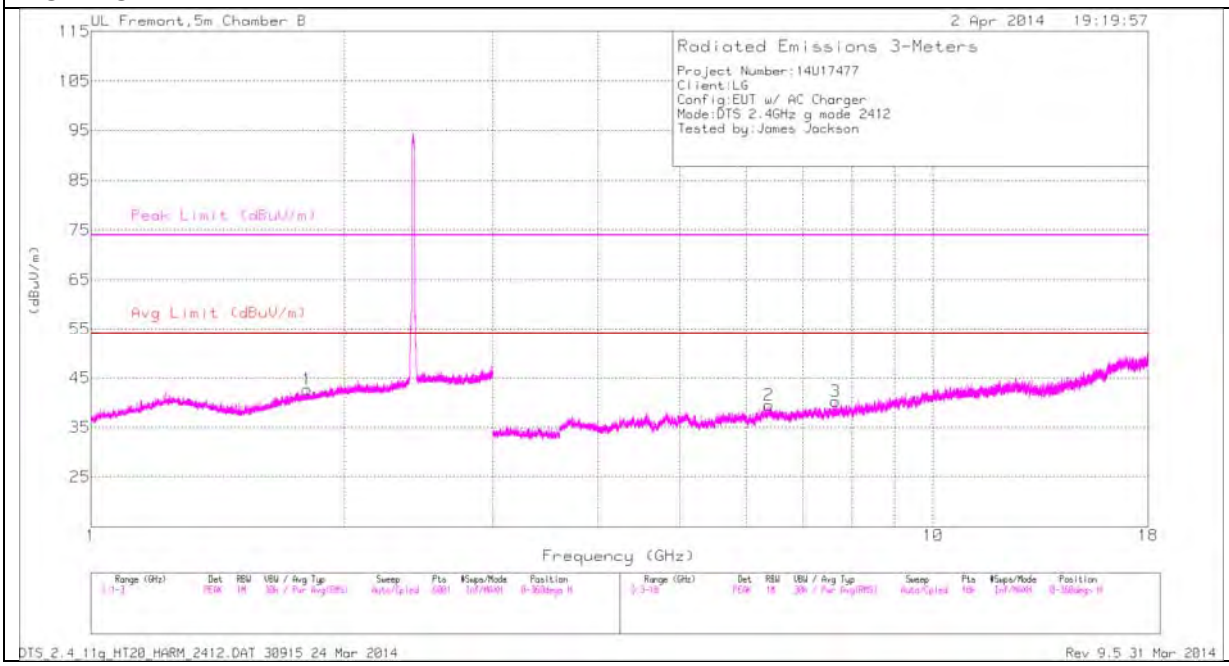
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

RMS - RMS detection

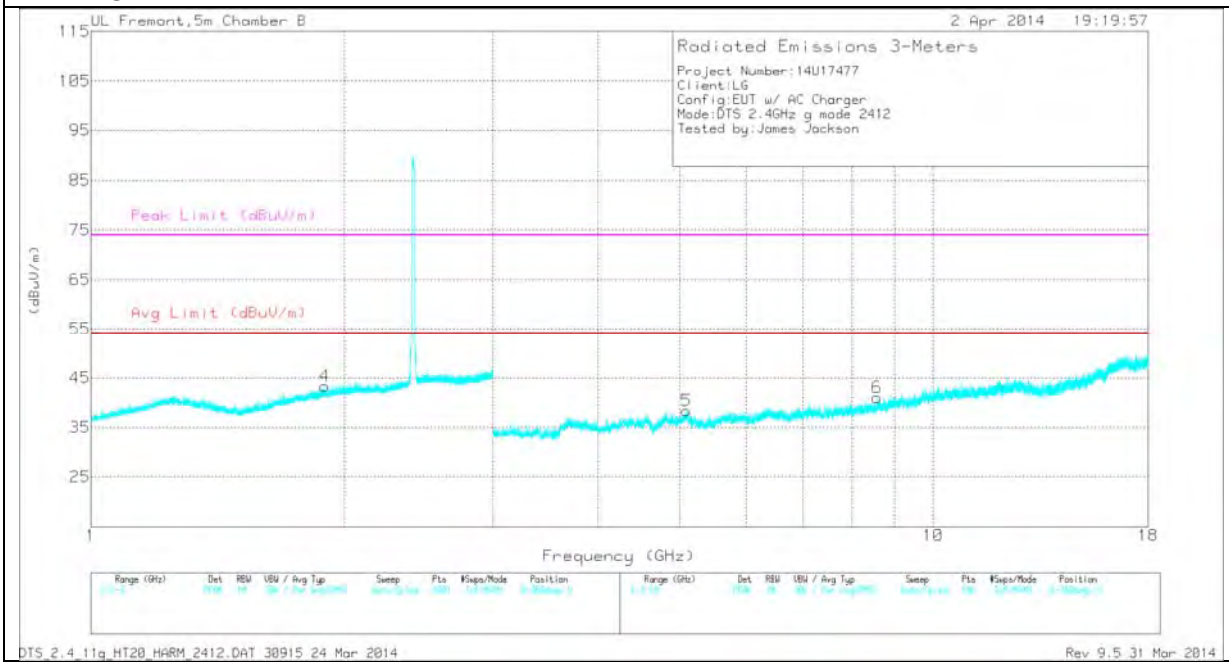
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL
HORIZONTAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

LOW CHANNEL
VERTICAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

LOW CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* 7.652	29.85	PK	35.1	-24.7	40.25	54	-13.75	74	-33.75	0-360	100	H
5	* 5.092	30.72	PK	33.6	-25.9	38.42	54	-15.58	74	-35.58	0-360	100	V
1	1.806	34.2	PK	29.7	-21.2	42.7	54	-11.3	74	-31.3	0-360	201	H
4	1.895	34.15	PK	30.2	-21	43.35	54	-10.65	74	-30.65	0-360	100	V
2	6.382	30.59	PK	35	-26.1	39.49	54	-14.51	74	-34.51	0-360	201	H
6	8.577	28.23	PK	35.5	-22.7	41.03	54	-12.97	74	-32.97	0-360	201	V

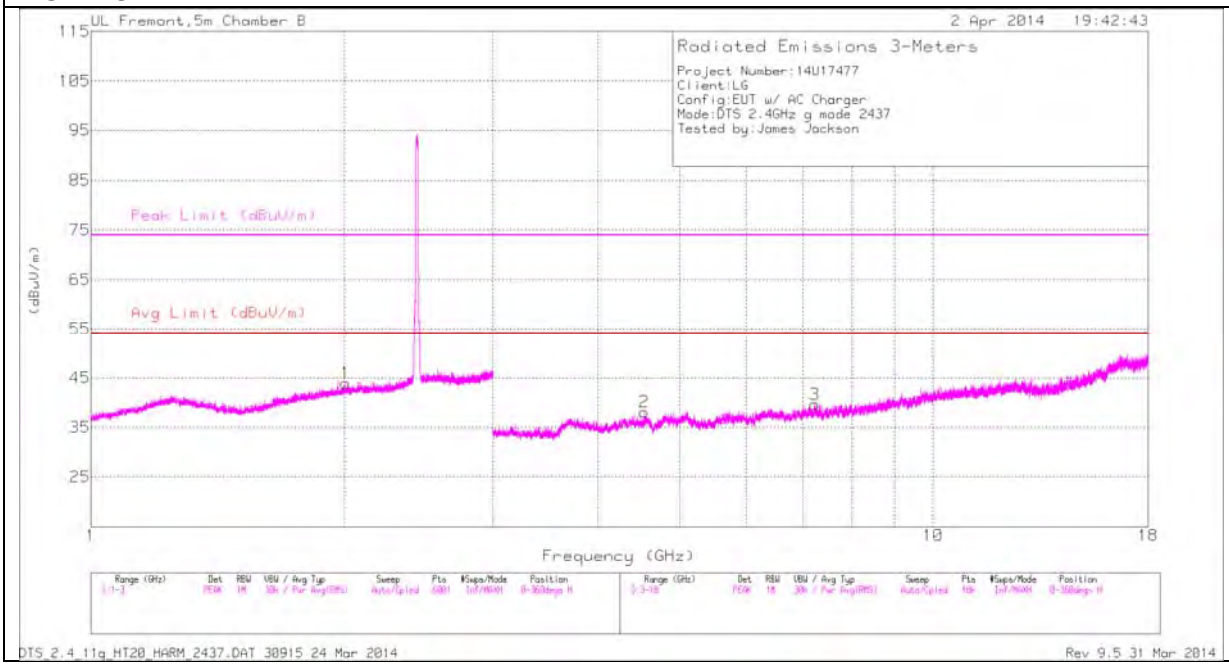
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 7.653	37.2	PK2	35.1	-24.7	47.6	54	-6.4	74	-26.4	360	100	H
* 5.091	37.18	PK2	33.6	-25.9	44.88	54	-9.12	74	-29.12	360	100	V
* 4.924	40.25	PK2	33.5	-27.8	45.95	54	-8.05	74	-28.05	215	107	V
* 4.924	33.05	MAv1	33.5	-27.8	38.75	54	-15.25	74	-35.25	215	107	V
* 4.924	40.1	PK2	33.5	-27.8	45.8	54	-8.2	74	-28.2	1	100	V
* 5.42	40.07	PK2	33.9	-26.7	47.27	54	-6.73	74	-26.73	1	100	V

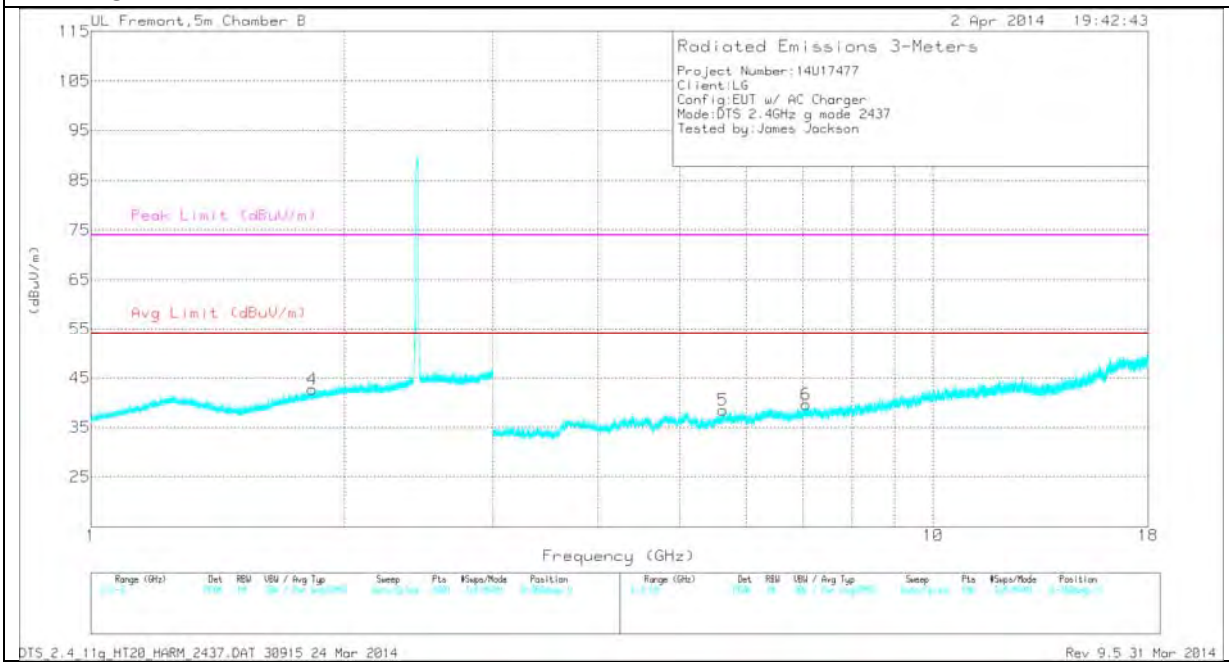
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

MID CHANNEL
HORIZONTAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

MID CHANNEL
VERTICAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

MID CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 4.543	31.07	PK	33.5	-26.5	38.07	54	-15.93	74	-35.93	0-360	100	H
4	1.832	34.17	PK	29.8	-21.3	42.67	54	-11.33	74	-31.33	0-360	100	V
1	2.005	34.41	PK	30.7	-21.1	44.01	54	-9.99	74	-29.99	0-360	100	H
5	5.625	31.14	PK	34	-26.7	38.44	54	-15.56	74	-35.56	0-360	100	V
6	7.067	29.68	PK	35.1	-25.2	39.58	54	-14.42	74	-34.42	0-360	201	V
3	7.236	29.68	PK	35.1	-25.1	39.68	54	-14.32	74	-34.32	0-360	100	H

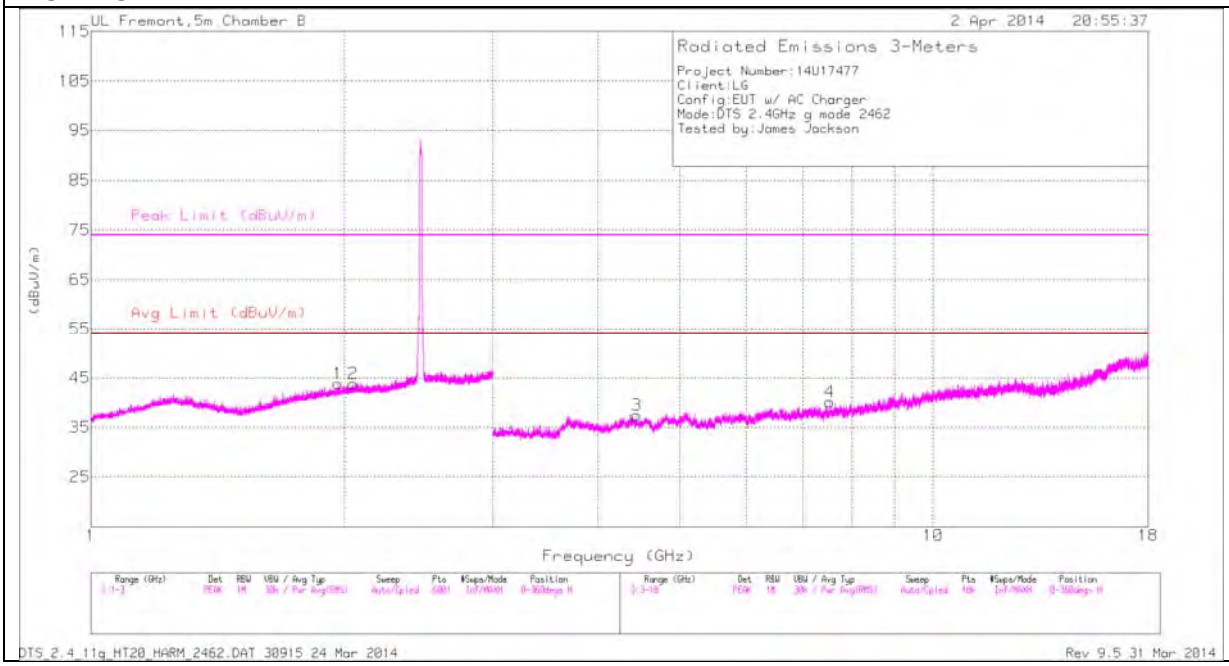
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.546	36.52	PK2	33.5	-26.6	43.42	54	-10.58	74	-30.58	360	100	H
* 5.091	37.18	PK2	33.6	-25.9	44.88	54	-9.12	74	-29.12	360	100	V
* 4.924	40.25	PK2	33.5	-27.8	45.95	54	-8.05	74	-28.05	215	107	V
* 4.924	33.05	MAv1	33.5	-27.8	38.75	54	-15.25	-	-35.25	215	107	V
* 4.924	40.1	PK2	33.5	-27.8	45.8	54	-8.2	74	-28.2	1	100	V
* 5.42	40.07	PK2	33.9	-26.7	47.27	54	-6.73	74	-26.73	1	100	V

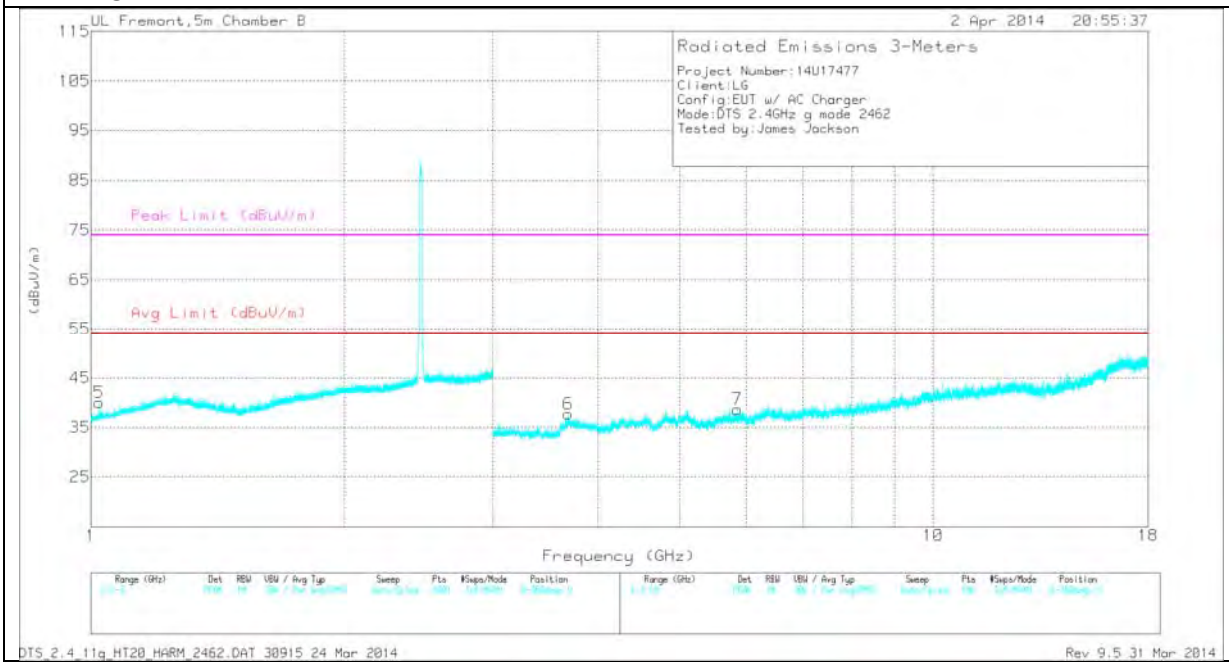
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

HIGH CHANNEL
HORIZONTAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

HIGH CHANNEL
VERTICAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

HIGH CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5	* 1.022	35.96	PK	26.4	-22.3	40.06	54	-13.94	74	-33.94	0-360	100	V
4	* 7.543	30.07	PK	35.2	-25.1	40.17	54	-13.83	74	-33.83	0-360	100	H
6	* 3.684	33.09	PK	32.6	-28	37.69	54	-16.31	74	-36.31	0-360	201	V
1	1.966	34.38	PK	30.5	-21.1	43.78	54	-10.22	74	-30.22	0-360	201	H
2	2.047	34.15	PK	30.7	-21	43.85	54	-10.15	74	-30.15	0-360	201	H
3	4.445	32.2	PK	33.4	-28.1	37.5	54	-16.5	74	-36.5	0-360	201	H
7	5.857	31.38	PK	34.4	-27.1	38.68	54	-15.32	74	-35.32	0-360	100	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

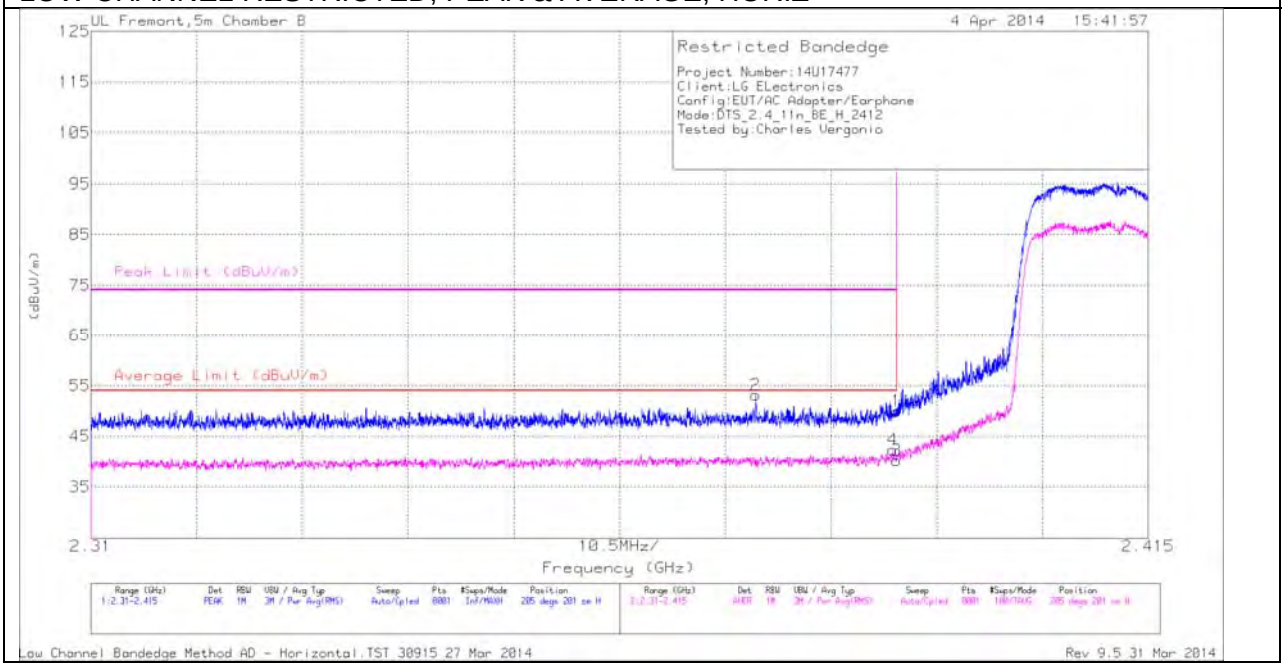
PK - Peak detector

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.023	41.6	PK2	26.4	-22.3	45.7	54	-8.3	74	-28.3	360	100	V
* 7.544	37.18	PK2	35.2	-25.1	47.28	54	-6.72	74	-26.72	360	100	H
* 3.683	39.1	PK2	32.6	-28	43.7	54	-10.3	74	-30.3	360	100	V
* 4.924	33.05	MAv1	33.5	-27.8	38.75	54	-15.25	74	-35.25	215	107	V
* 4.924	40.1	PK2	33.5	-27.8	45.8	54	-8.2	74	-28.2	1	100	V
* 5.42	40.07	PK2	33.9	-26.7	47.27	54	-6.73	74	-26.73	1	100	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

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

LOW CHANNEL RESTRICTED, PEAK & AVERAGE, HORIZ



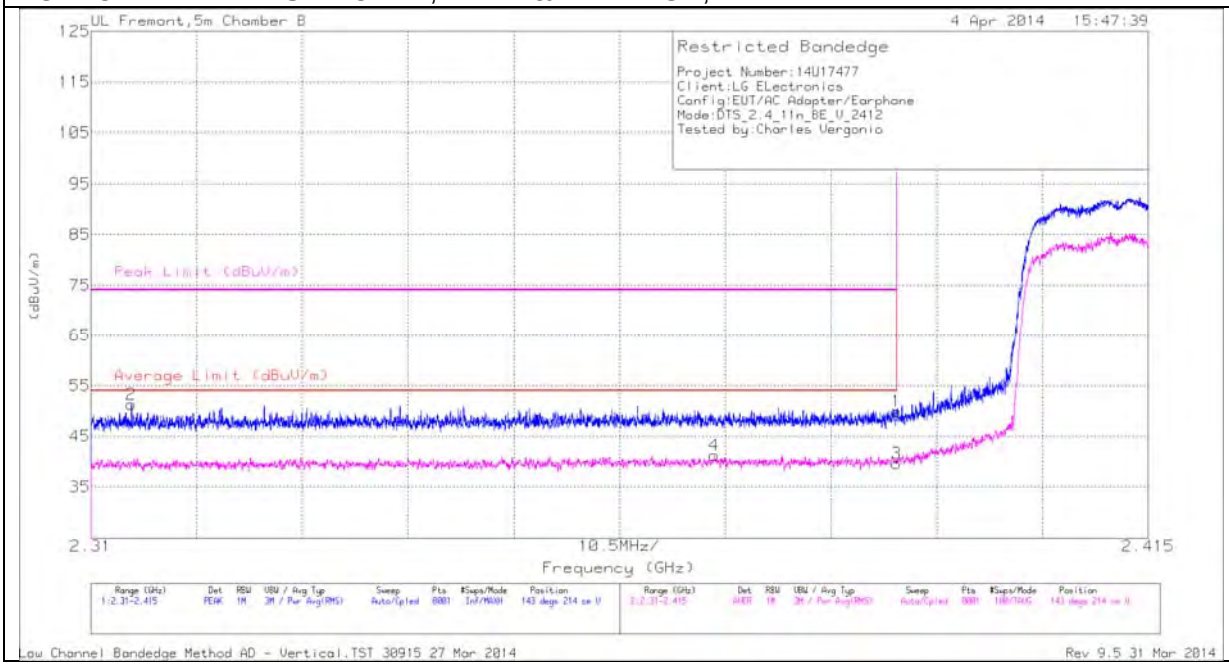
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	40.78	PK	32.1	-22.9	0	49.98	-	-	74	-24.02	205	201	H
2	* 2.376	44.01	PK	32	-22.9	0	53.11	-	-	74	-20.89	205	201	H
3	* 2.39	30.8	RMS	32.1	-22.9	.24	40.2	54	-13.8	-	-	205	201	H
4	* 2.39	32.97	RMS	32.1	-22.9	.24	42.37	54	-11.63	-	-	205	201	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

RMS - RMS detection

LOW CHANNEL RESTRICTED, PEAK & AVERAGE, VERT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	40.74	PK	32.1	-22.9	0	49.94	-	-	74	-24.06	143	214	V
2	* 2.314	42.57	PK	31.7	-23	0	51.27	-	-	74	-22.73	143	214	V
3	* 2.39	30.21	RMS	32.1	-22.9	.22	39.61	54	-14.39	-	-	143	214	V
4	* 2.372	31.84	RMS	32	-22.8	.22	41.24	54	-12.76	-	-	143	214	V

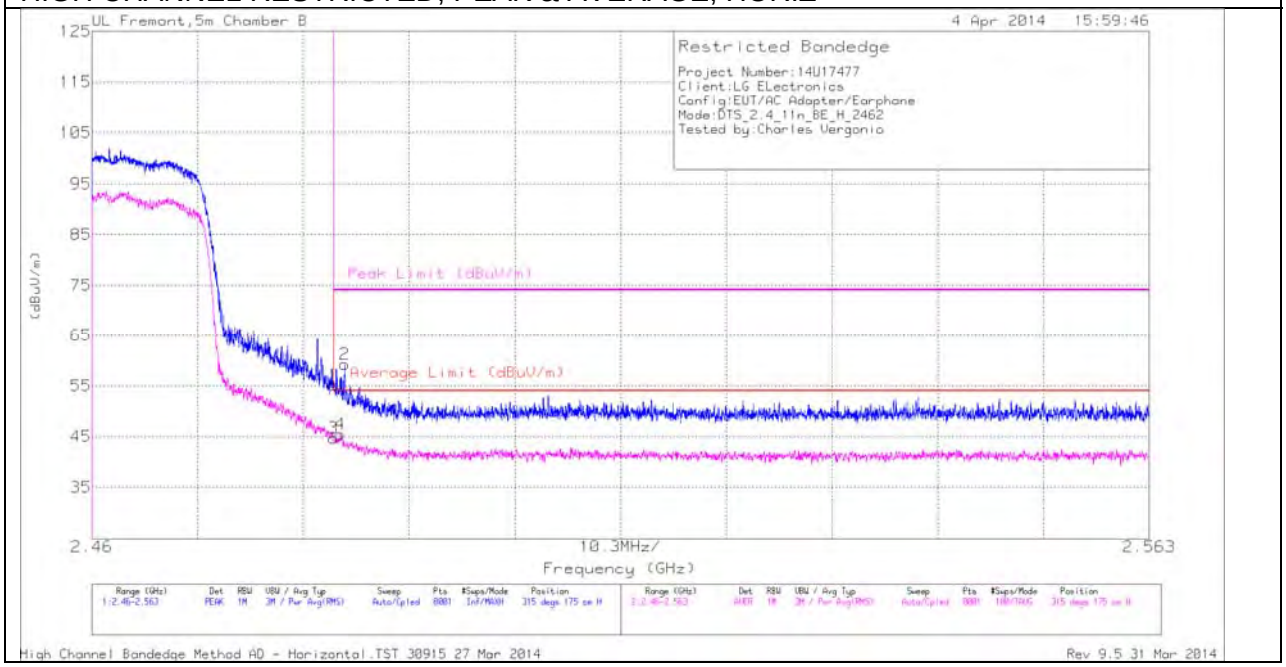
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HIGH CHANNEL RESTRICTED, PEAK & AVERAGE, HORIZ



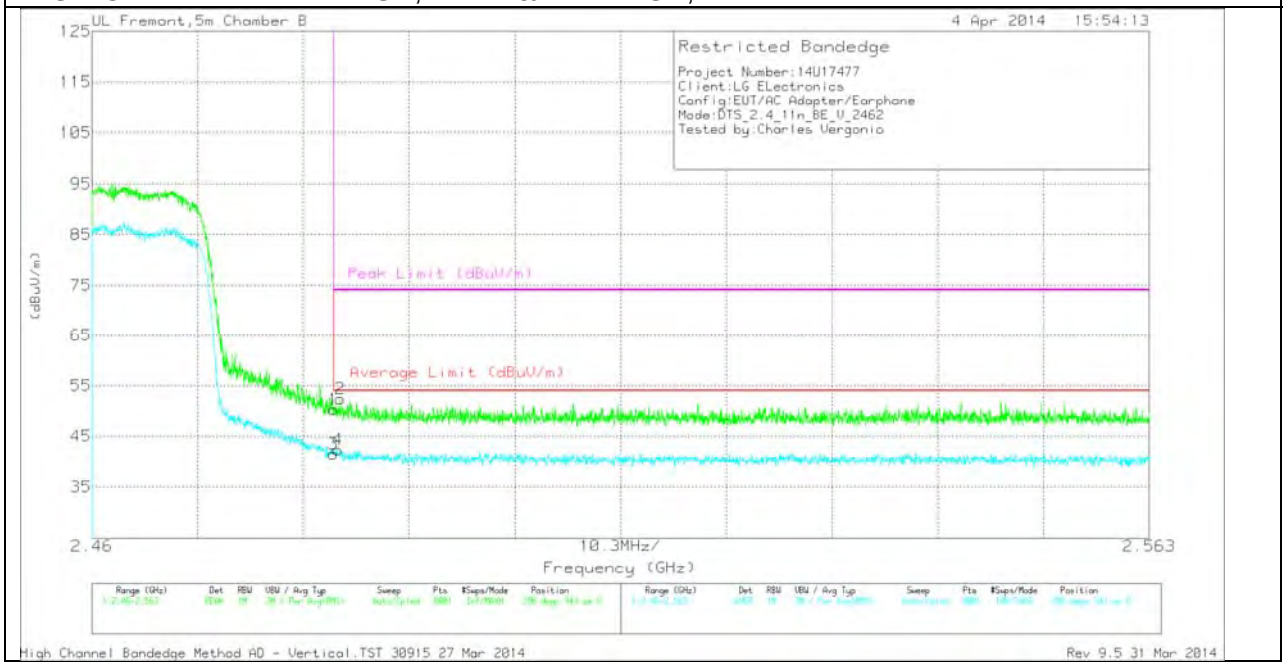
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	45.33	PK	32.4	-22.6	0	55.13	-	-	74	-18.87	315	175	H
2	* 2.485	49.46	PK	32.4	-22.6	0	59.26	-	-	74	-14.74	315	175	H
3	* 2.484	34.71	RMS	32.4	-22.6	.22	44.71	54	-9.29	-	-	315	175	H
4	* 2.484	35.4	RMS	32.4	-22.6	.22	45.4	54	-8.6	-	-	315	175	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

RMS - RMS detection

HIGH CHANNEL BANDEDGE, PEAK & AVERAGE, VERT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	40.51	PK	32.4	-22.6	0	50.31	-	-	74	-23.69	358	343	V
2	* 2.484	42.64	PK	32.4	-22.6	0	52.44	-	-	74	-21.56	358	343	V
3	* 2.484	31.43	RMS	32.4	-22.6	.22	41.43	54	-12.57	-	-	358	343	V
4	* 2.484	32.33	RMS	32.4	-22.6	.22	42.33	54	-11.67	-	-	358	343	V

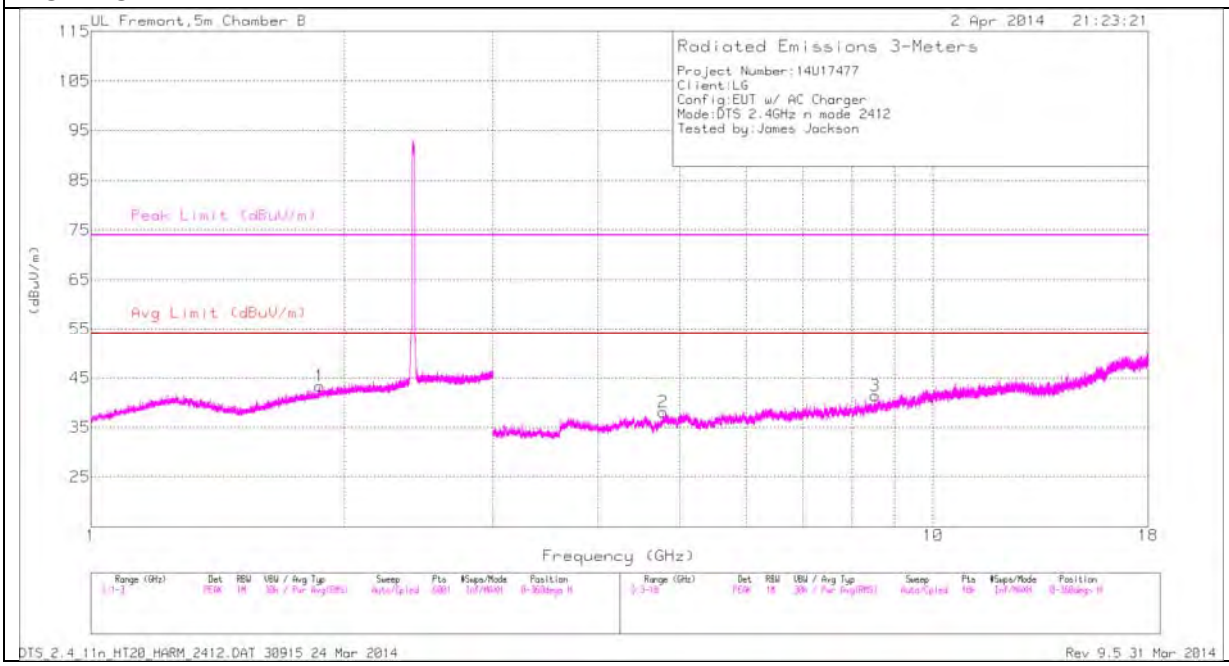
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

RMS - RMS detection

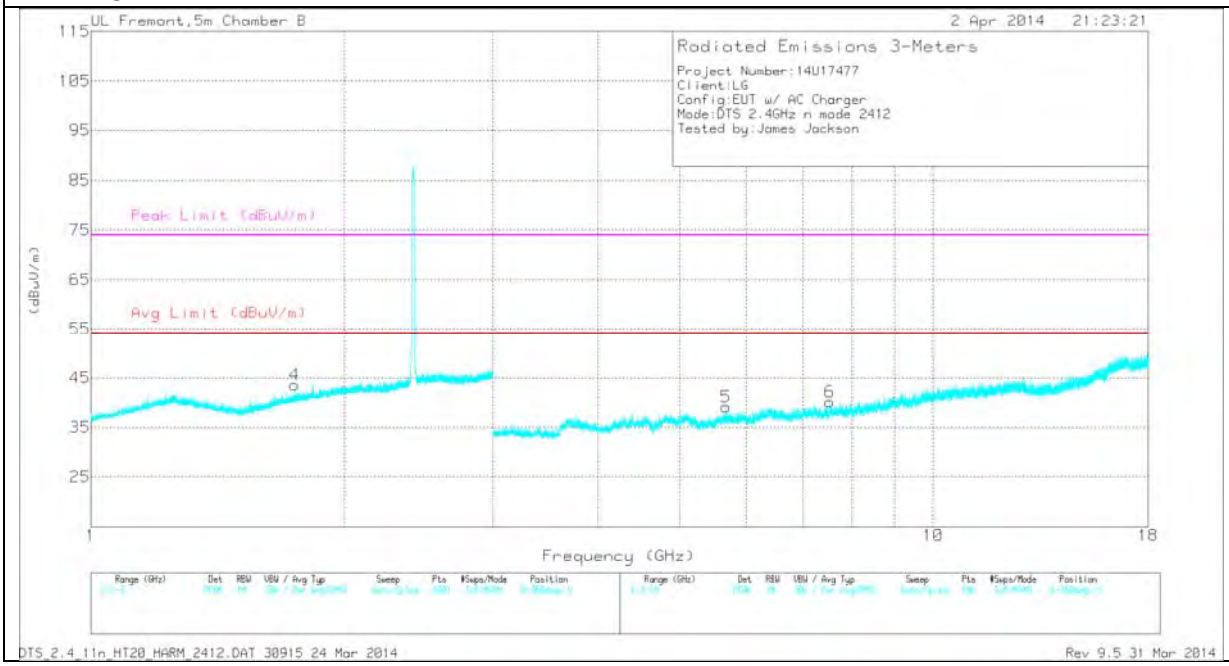
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL
HORIZONTAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

LOW CHANNEL
VERTICAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

LOW CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 4.78	32.21	PK	33.5	-27.6	38.11	54	-15.89	74	-35.89	0-360	201	H
6	* 7.541	29.99	PK	35.2	-25.1	40.09	54	-13.91	74	-33.91	0-360	201	V
4	1.746	35.52	PK	29.4	-21.4	43.52	54	-10.48	74	-30.48	0-360	100	V
1	1.868	34.46	PK	30	-21.1	43.36	54	-10.64	74	-30.64	0-360	100	H
5	5.678	31.59	PK	34.1	-26.6	39.09	54	-14.91	74	-34.91	0-360	100	V
3	8.53	29.83	PK	35.4	-23.8	41.43	54	-12.57	74	-32.57	0-360	100	H

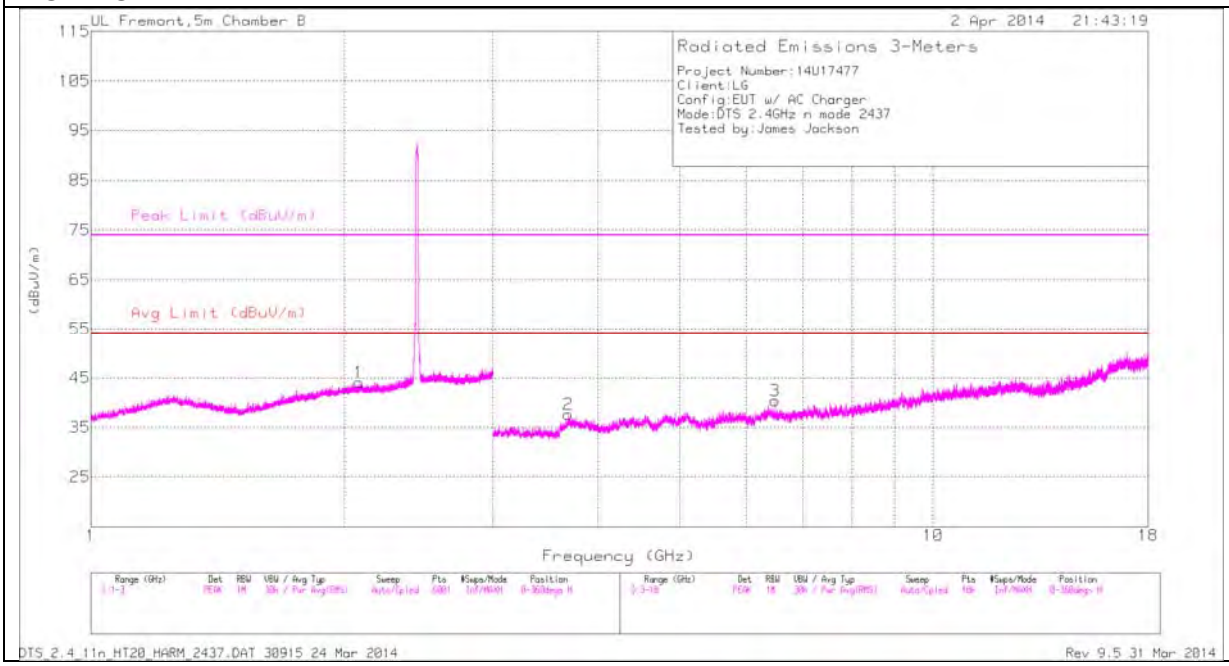
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.779	38.07	PK2	33.5	-27.6	43.97	54	-10.03	74	-30.03	360	100	H
* 7.541	36.67	PK2	35.2	-25.1	46.77	54	-7.23	74	-27.23	360	100	V
* 3.683	39.1	PK2	32.6	-28	43.7	54	-10.3	74	-30.3	360	100	V
* 4.924	33.05	MAv1	33.5	-27.8	38.75	54	-15.25	74	-35.25	215	107	V
* 4.924	40.1	PK2	33.5	-27.8	45.8	54	-8.2	74	-28.2	1	100	V
* 5.42	40.07	PK2	33.9	-26.7	47.27	54	-6.73	74	-26.73	1	100	V

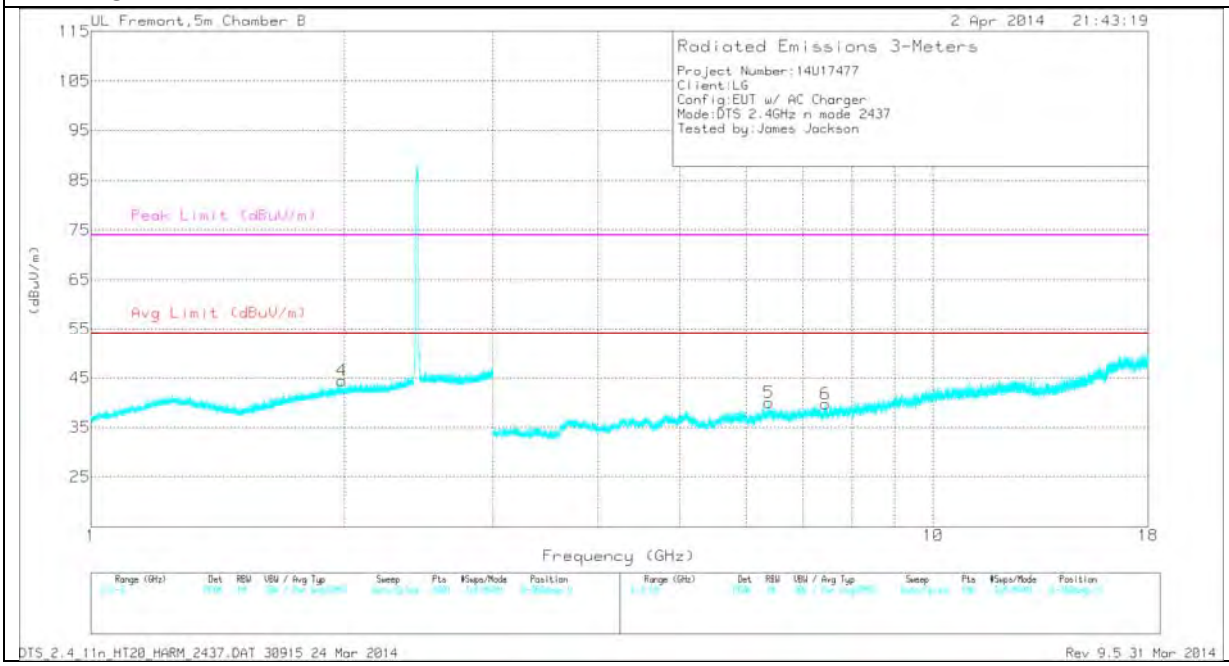
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

MID CHANNEL
HORIZONTAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

MID CHANNEL
VERTICAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

MID CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 3.686	32.97	PK	32.6	-28	37.57	54	-16.43	74	-36.43	0-360	201	H
6	* 7.449	29.45	PK	35.2	-24.9	39.75	54	-14.25	74	-34.25	0-360	201	V
4	1.986	35.08	PK	30.6	-21.2	44.48	54	-9.52	74	-29.52	0-360	201	V
1	2.079	34.14	PK	30.7	-20.8	44.04	54	-9.96	74	-29.96	0-360	201	H
5	6.381	31.15	PK	35	-26.1	40.05	54	-13.95	74	-33.95	0-360	201	V
3	6.489	31.86	PK	35	-26.5	40.36	54	-13.64	74	-33.64	0-360	201	H

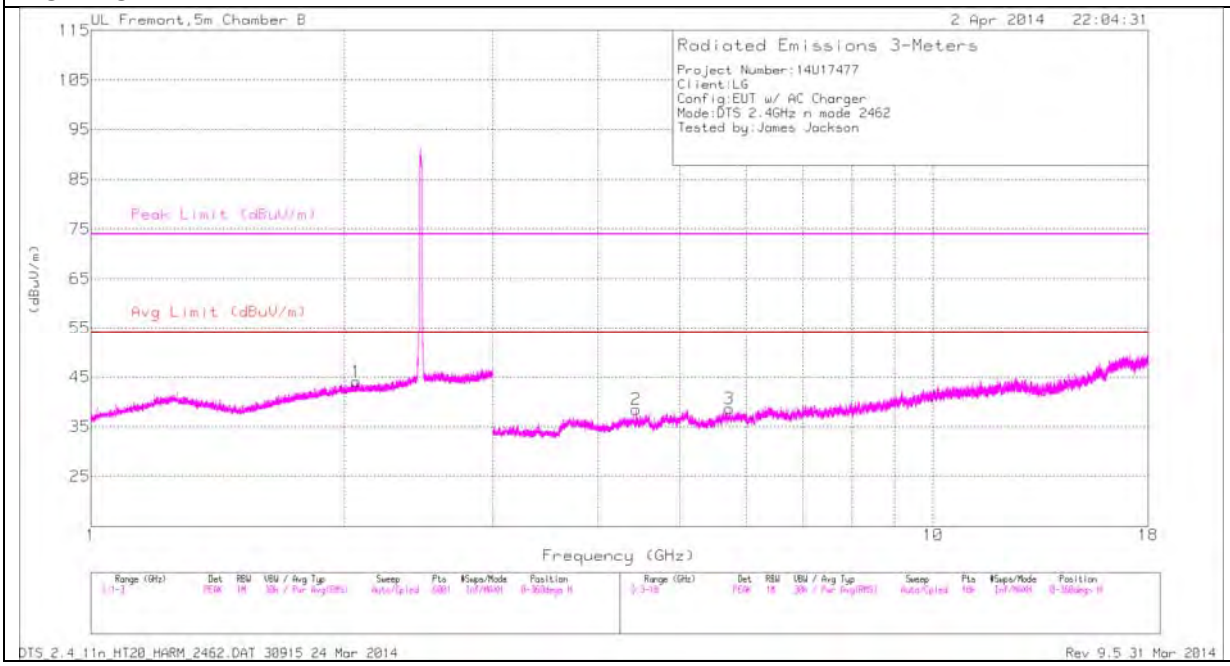
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.686	38.54	PK2	32.6	-28	43.14	54	-10.86	74	-30.86	360	100	H
* 7.447	36.41	PK2	35.2	-24.9	46.71	54	-7.29	74	-27.29	360	100	V
* 3.683	39.1	PK2	32.6	-28	43.7	54	-10.3	74	-30.3	360	100	V
* 4.924	33.05	MAv1	33.5	-27.8	38.75	54	-15.25	74	-35.25	215	107	V
* 4.924	40.1	PK2	33.5	-27.8	45.8	54	-8.2	74	-28.2	1	100	V
* 5.42	40.07	PK2	33.9	-26.7	47.27	54	-6.73	74	-26.73	1	100	V

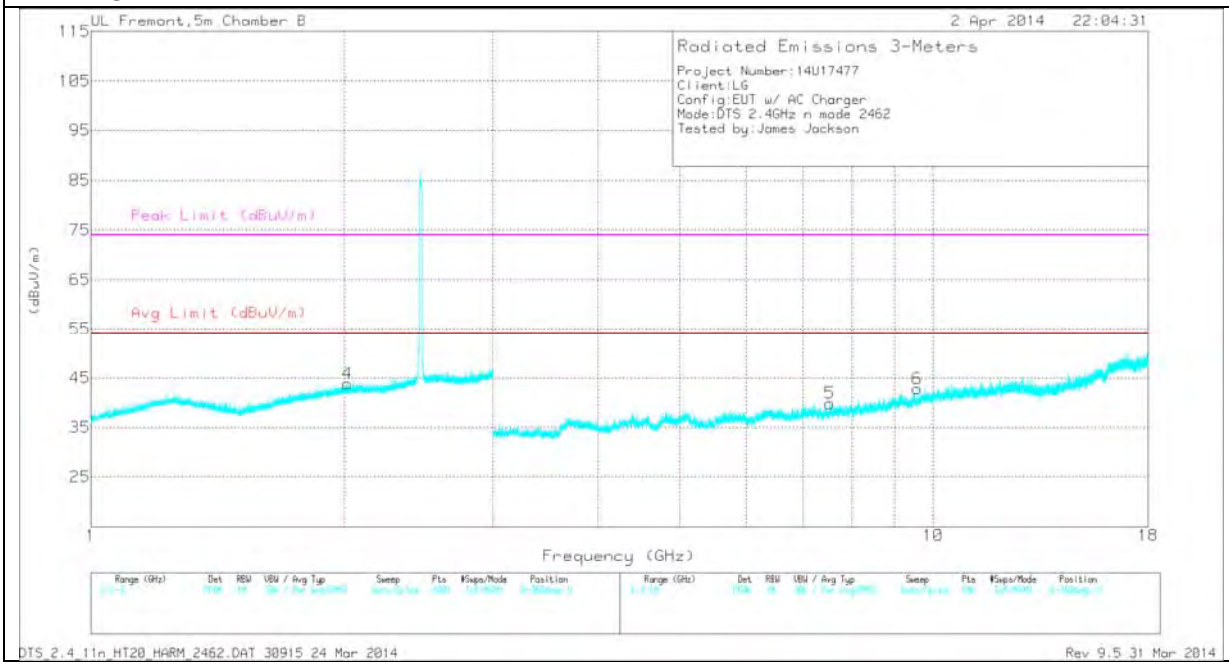
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

HIGH CHANNEL
HORIZONTAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

HIGH CHANNEL
VERTICAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

HIGH CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5	* 7.541	29.73	PK	35.2	-25.1	39.83	54	-14.17	74	-34.17	0-360	201	V
4	2.016	34.2	PK	30.7	-21.1	43.8	54	-10.2	74	-30.2	0-360	201	V
1	2.065	34.26	PK	30.7	-20.9	44.06	54	-9.94	74	-29.94	0-360	100	H
2	4.442	33.19	PK	33.4	-28.1	38.49	54	-15.51	74	-35.51	0-360	201	H
3	5.725	31.17	PK	34.2	-26.7	38.67	54	-15.33	74	-35.33	0-360	100	H
6	9.579	28.56	PK	36.3	-22.1	42.76	54	-11.24	74	-31.24	0-360	100	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

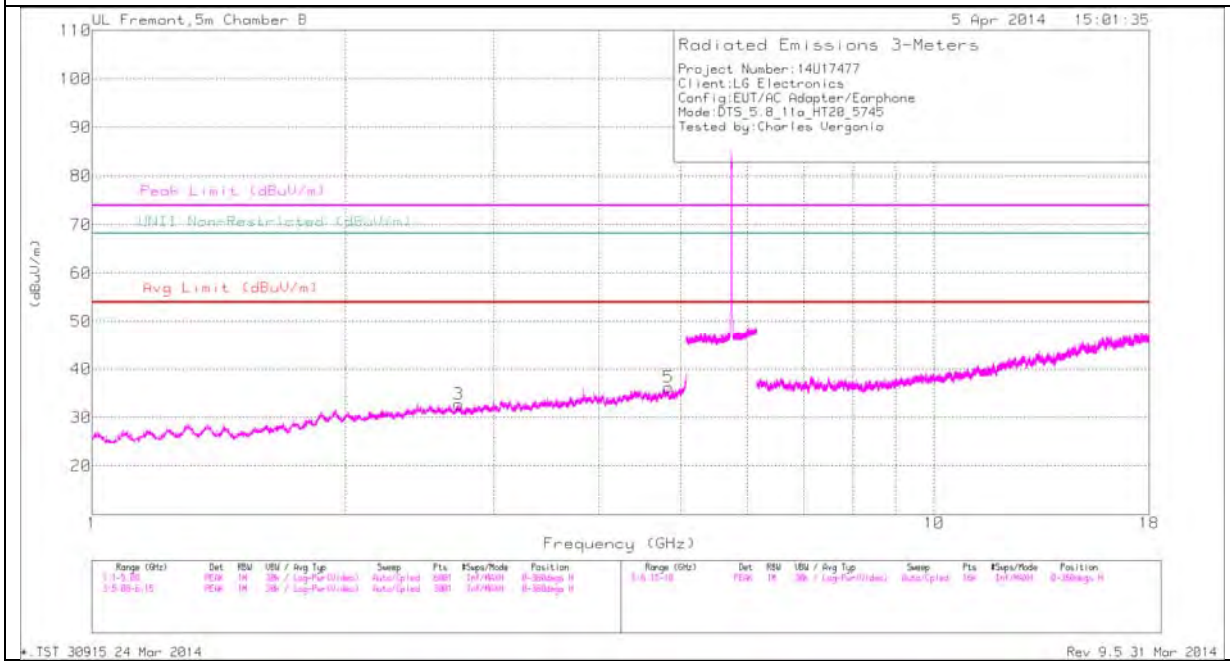
PK - Peak detector

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 7.54	36.91	PK2	35.2	-25	47.11	54	-6.89	74	-26.89	360	100	V
* 7.54	36.56	PK2	35.2	-25	46.76	54	-7.24	74	-27.24	360	100	V
* 3.683	39.1	PK2	32.6	-28	43.7	54	-10.3	74	-30.3	360	100	V
* 4.924	33.05	MAv1	33.5	-27.8	38.75	54	-15.25	74	-35.25	215	107	V
* 4.924	40.1	PK2	33.5	-27.8	45.8	54	-8.2	74	-28.2	1	100	V
* 5.42	40.07	PK2	33.9	-26.7	47.27	54	-6.73	74	-26.73	1	100	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

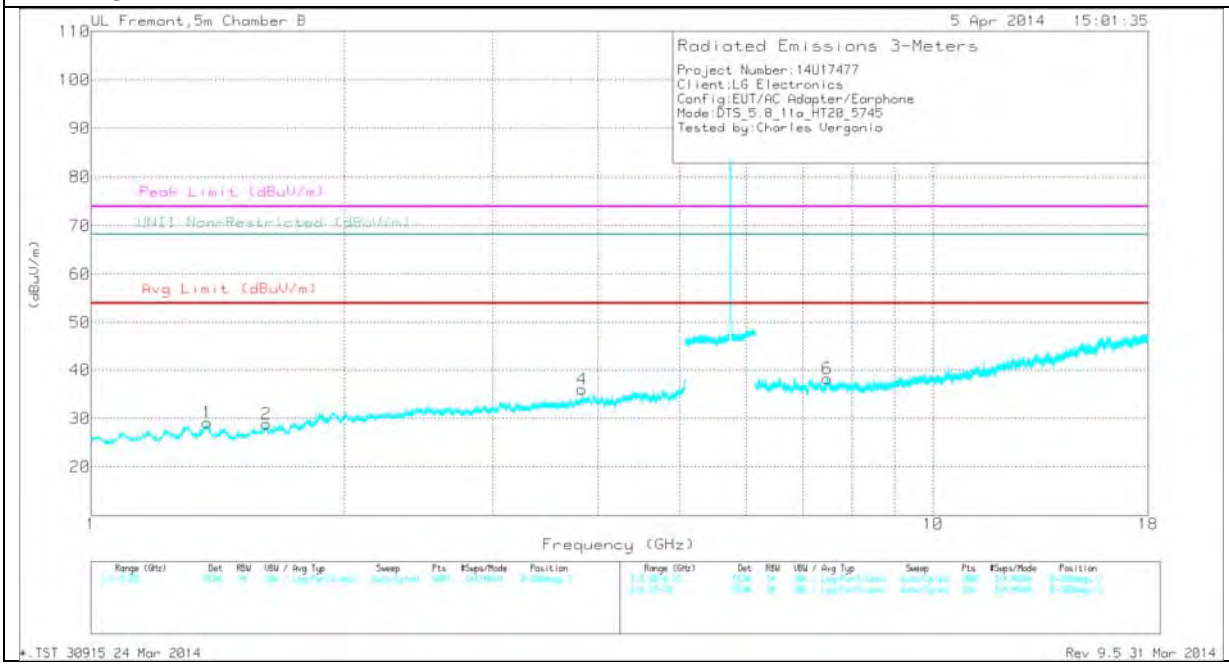
10.2.1. TX ABOVE 1 GHz 802.11a MODE IN THE 5.8 GHz BAND HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

LOW CHANNEL
VERTICAL



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

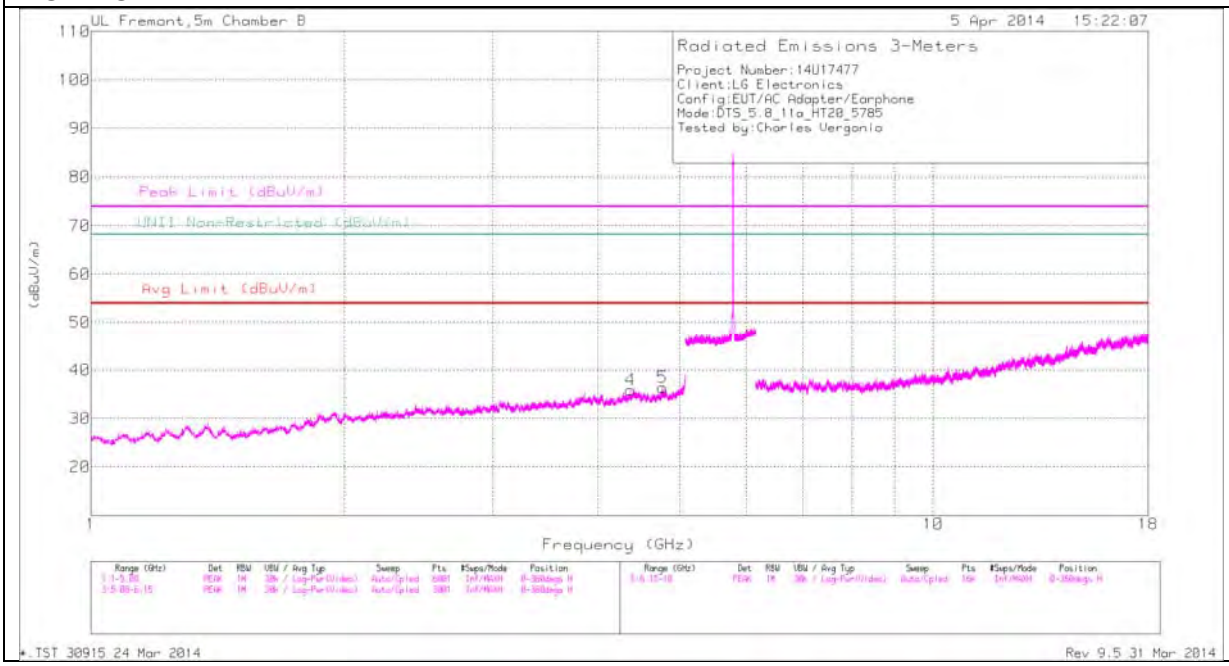
LOW CHANNEL DATA

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.724	40.78	PK2	32.2	-31.9	41.08	54	-12.92	74	-32.92	-	-	359	100	H
* 4.837	41.6	PK2	34.2	-30.3	45.5	54	-8.5	74	-28.5	-	-	359	100	H
* 1.373	42.78	PK2	28.6	-33.8	37.58	54	-16.42	74	-36.42	-	-	359	100	V
* 1.615	41.62	PK2	28.6	-33.1	37.12	54	-16.88	74	-36.88	-	-	359	100	V
* 3.83	41.72	PK2	33.7	-31	44.42	54	-9.58	74	-29.58	-	-	359	100	V
* 7.488	37.31	PK2	35.6	-25.8	47.11	54	-6.89	74	-26.89	-	-	359	100	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

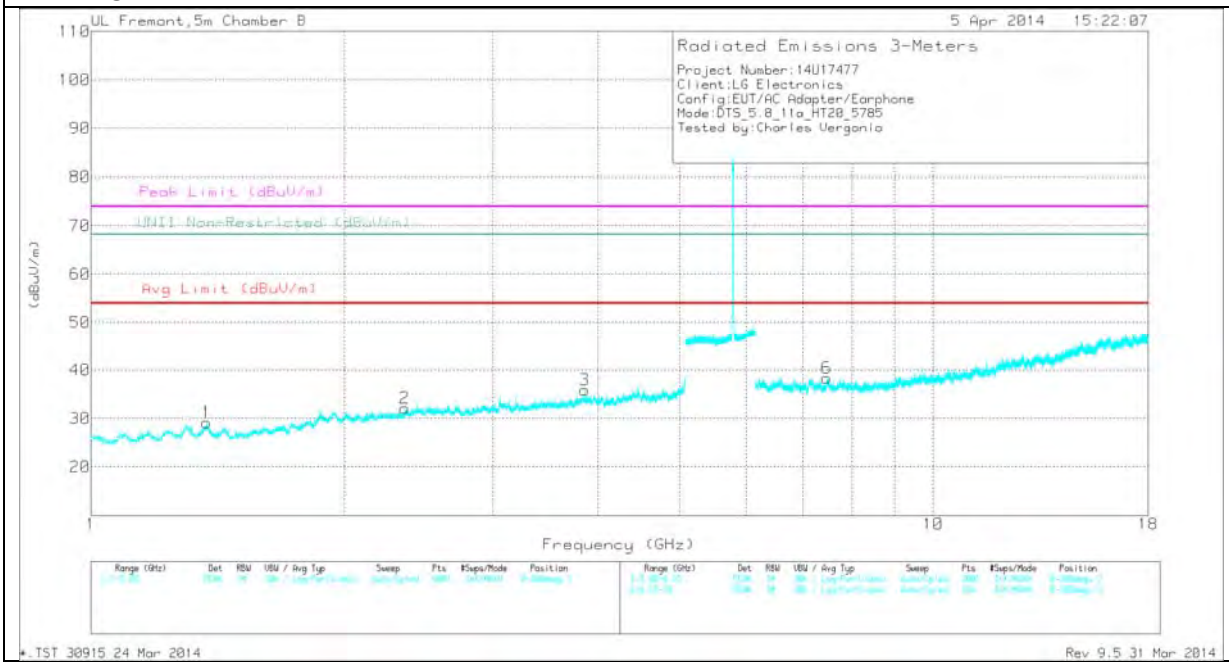
PK2 - KDB558074 Method: Maximum Peak

MID CHANNEL
HORIZONTAL



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

MID CHANNEL
VERTICAL



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

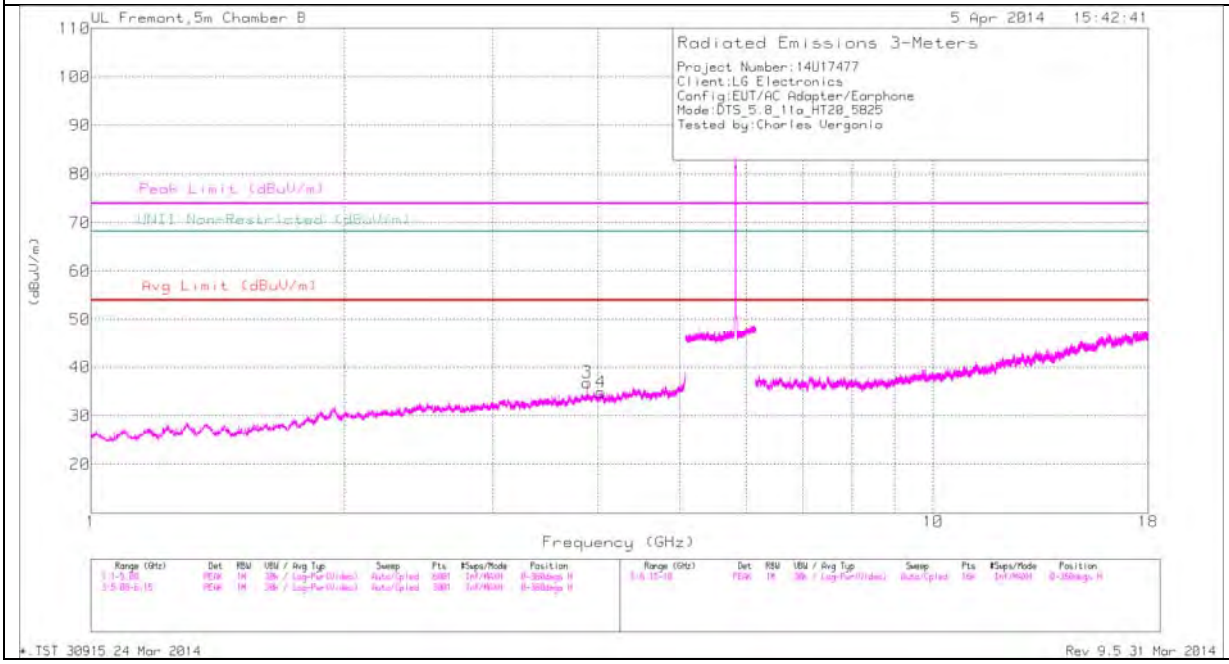
MID CHANNEL DATA

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.372	40.97	PK2	33.8	-30.8	43.97	54	-10.03	74	-30.03	-	-	359	100	H
* 4.772	39.96	PK2	34.2	-29.1	45.06	54	-8.94	74	-28.94	-	-	359	100	H
* 1.373	43.17	PK2	28.6	-33.8	37.97	54	-16.03	74	-36.03	-	-	359	100	V
* 2.361	40.93	PK2	31.9	-32.8	40.03	54	-13.97	74	-33.97	-	-	359	100	V
* 3.856	41.15	PK2	33.7	-31.4	43.45	54	-10.55	74	-30.55	-	-	359	100	V
* 7.481	37.68	PK2	35.6	-26	47.28	54	-6.72	74	-26.72	-	-	359	100	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

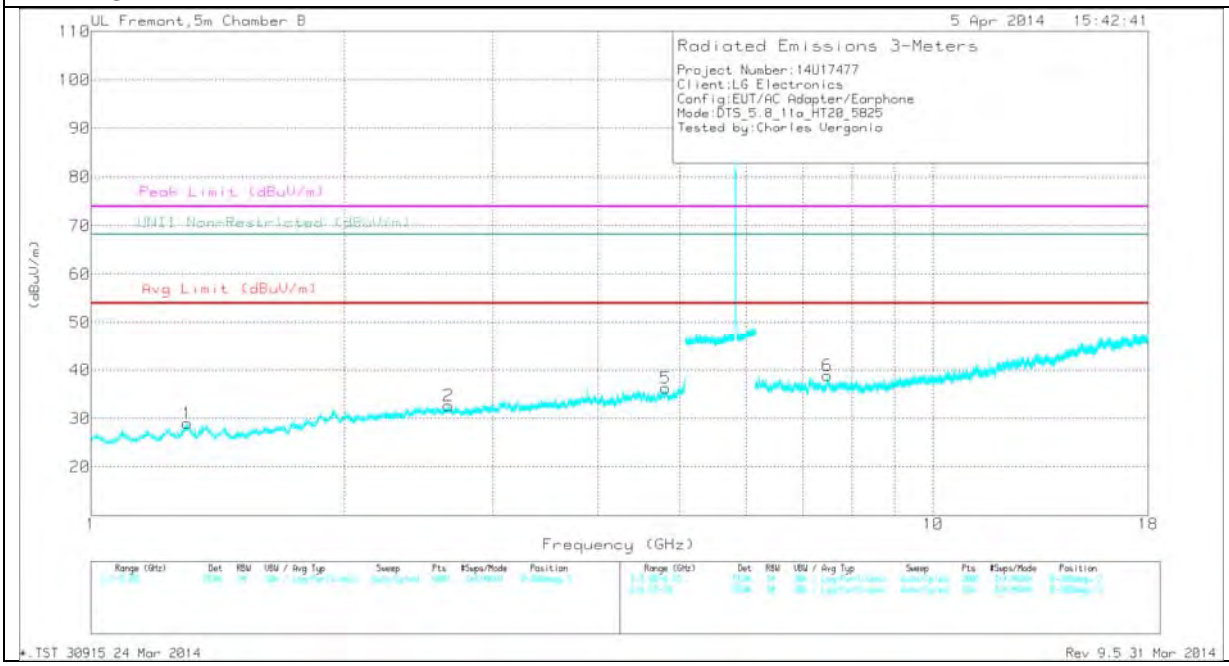
PK2 - KDB558074 Method: Maximum Peak

HIGH CHANNEL
HORIZONTAL



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

HIGH CHANNEL
VERTICAL



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

HIGH CHANNEL DATA

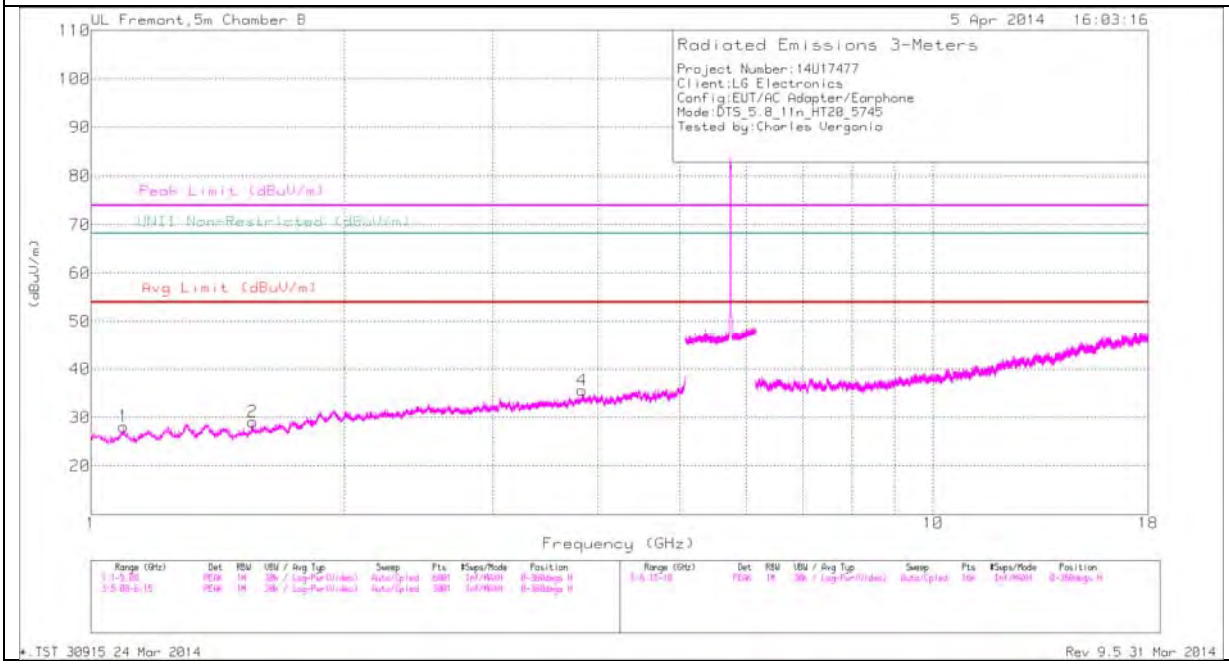
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.883	40.95	PK2	33.8	-31.7	43.05	54	-10.95	74	-30.95	-	-	359	100	H
* 4.035	40.78	PK2	33.6	-30	44.38	54	-9.62	74	-29.62	-	-	359	100	H
* 1.299	43.23	PK2	28.9	-34.2	37.93	54	-16.07	74	-36.07	-	-	359	100	V
* 2.657	40.47	PK2	32.3	-32	40.77	54	-13.23	74	-33.23	-	-	359	100	V
* 4.811	40.75	PK2	34.2	-29.3	45.65	54	-8.35	74	-28.35	-	-	359	100	V
* 7.486	37.22	PK2	35.6	-25.9	46.92	54	-7.08	74	-27.08	-	-	359	100	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK2 - KDB558074 Method: Maximum Peak

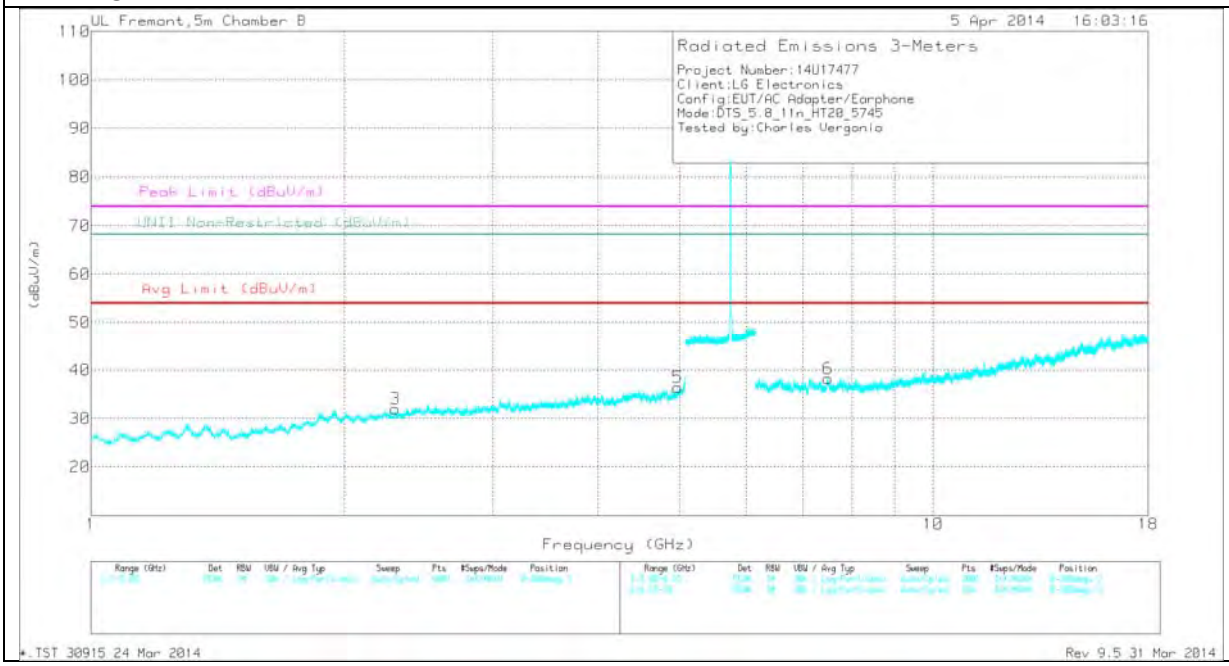
10.2.1. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.8 GHz BAND HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL
HORIZONTAL



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

LOW CHANNEL
VERTICAL



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

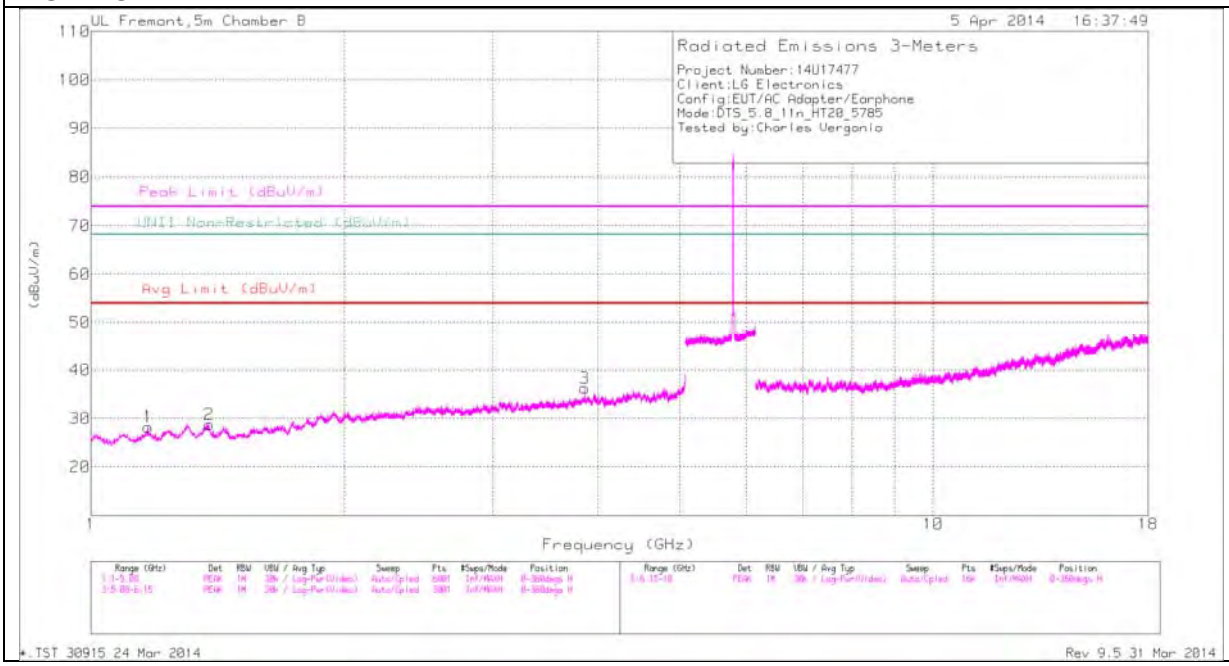
LOW CHANNEL DATA

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.092	43.26	PK2	27.3	-34.4	36.16	54	-17.84	74	-37.84	-	-	359	100	H
* 1.555	42.42	PK2	28.2	-33.8	36.82	54	-17.18	74	-37.18	-	-	359	100	H
* 3.83	41.19	PK2	33.7	-31	43.89	54	-10.11	74	-30.11	-	-	359	100	H
* 2.298	40.95	PK2	31.6	-33	39.55	54	-14.45	74	-34.45	-	-	359	100	V
* 4.972	40.37	PK2	34.2	-28.5	46.07	54	-7.93	74	-27.93	-	-	359	100	V
* 7.494	36.92	PK2	35.6	-25.7	46.82	54	-7.18	74	-27.18	-	-	359	100	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

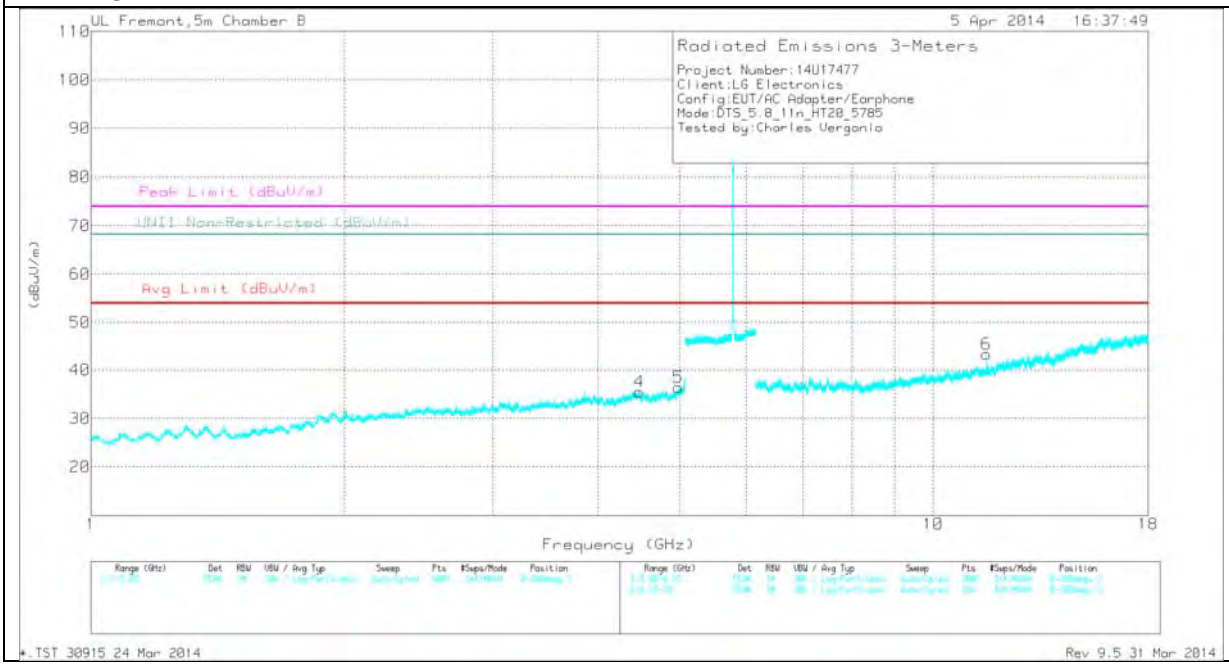
PK2 - KDB558074 Method: Maximum Peak

MID CHANNEL
HORIZONTAL



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

MID CHANNEL
VERTICAL



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

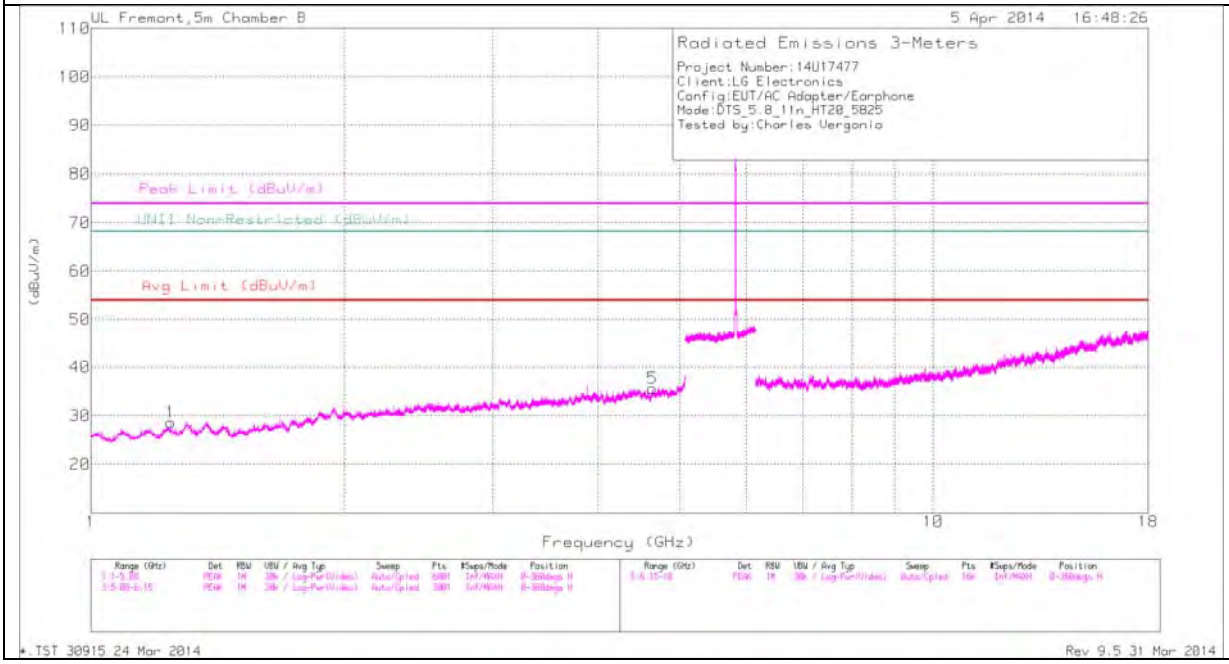
MID CHANNEL DATA

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.17	42.87	PK2	27.9	-34.7	36.07	54	-17.93	74	-37.93	-	-	360	202	H
* 1.38	43.31	PK2	28.6	-33.8	38.11	54	-15.89	74	-35.89	-	-	360	202	H
* 3.857	41.35	PK2	33.7	-31.4	43.65	54	-10.35	74	-30.35	-	-	360	202	H
* 4.981	39.7	PK2	34.2	-28.3	45.6	54	-8.4	74	-28.4	-	-	360	202	V
* 11.57	36.25	PK2	38.1	-22.8	51.55	54	-6.45	74	-26.45	-	-	360	202	V
4.478	39.91	PK2	34	-29.7	44.21	54	-	-	-	68.2	-23.99	360	202	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

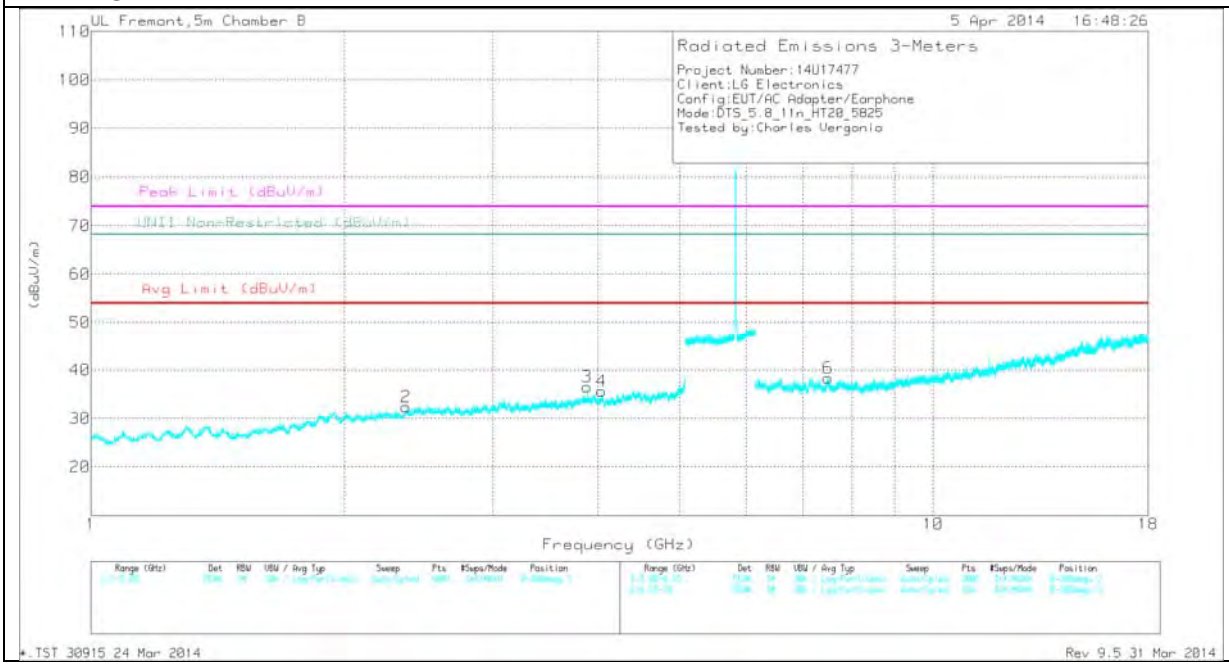
PK2 - KDB558074 Method: Maximum Peak

HIGH CHANNEL
HORIZONTAL



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

HIGH CHANNEL
VERTICAL



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

HIGH CHANNEL DATA

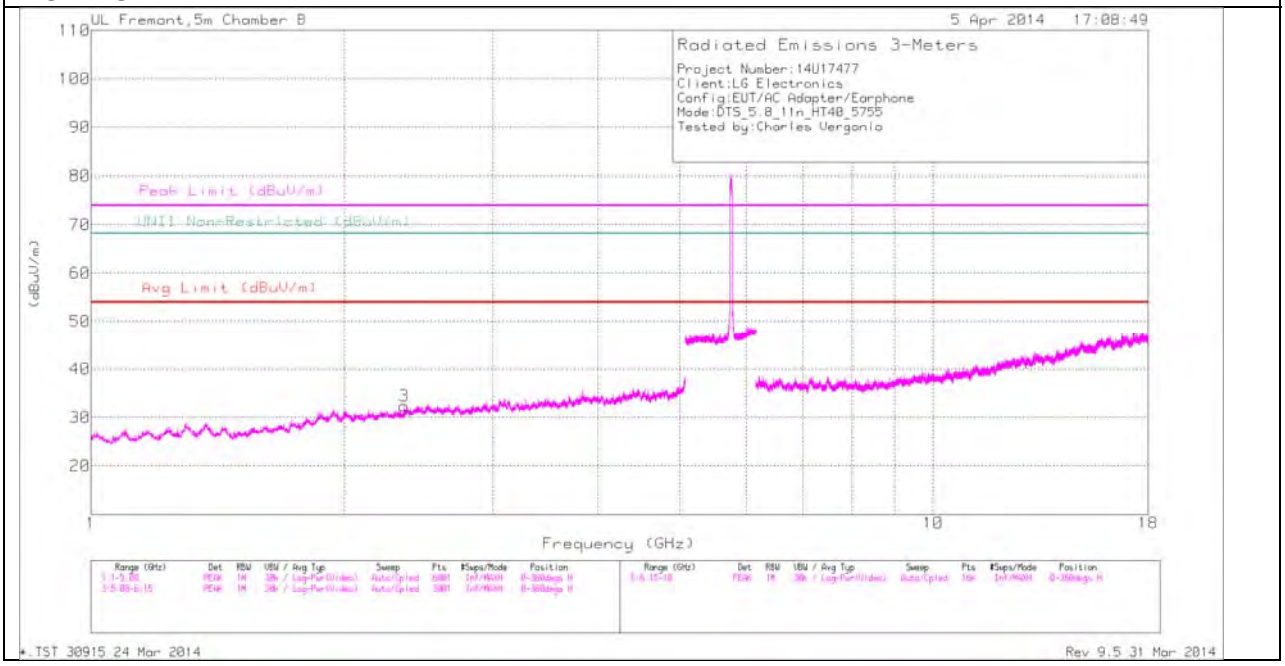
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.244	42.71	PK2	28.5	-34.7	36.51	54	-17.49	74	-37.49	-	-	359	100	H
* 4.642	39.64	PK2	34.2	-29.5	44.34	54	-9.66	74	-29.66	-	-	359	100	H
* 2.366	42	PK2	32	-32.7	41.3	54	-12.7	74	-32.7	-	-	359	100	V
* 3.883	42.06	PK2	33.8	-31.7	44.16	54	-9.84	74	-29.84	-	-	359	100	V
* 4.037	40.01	PK2	33.6	-29.9	43.71	54	-10.29	74	-30.29	-	-	359	100	V
* 7.498	36.81	PK2	35.6	-25.8	46.61	54	-7.39	74	-27.39	-	-	359	100	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK2 - KDB558074 Method: Maximum Peak

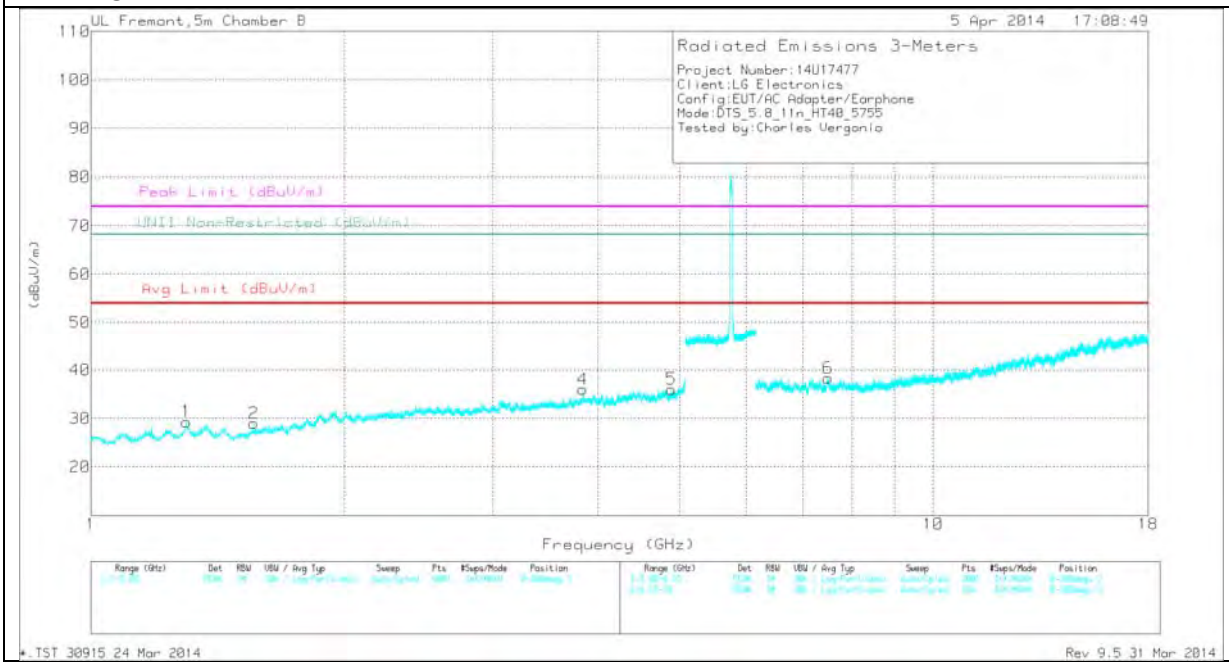
10.2.1. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.8 GHz BAND HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL
HORIZONTAL



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

LOW CHANNEL
VERTICAL



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

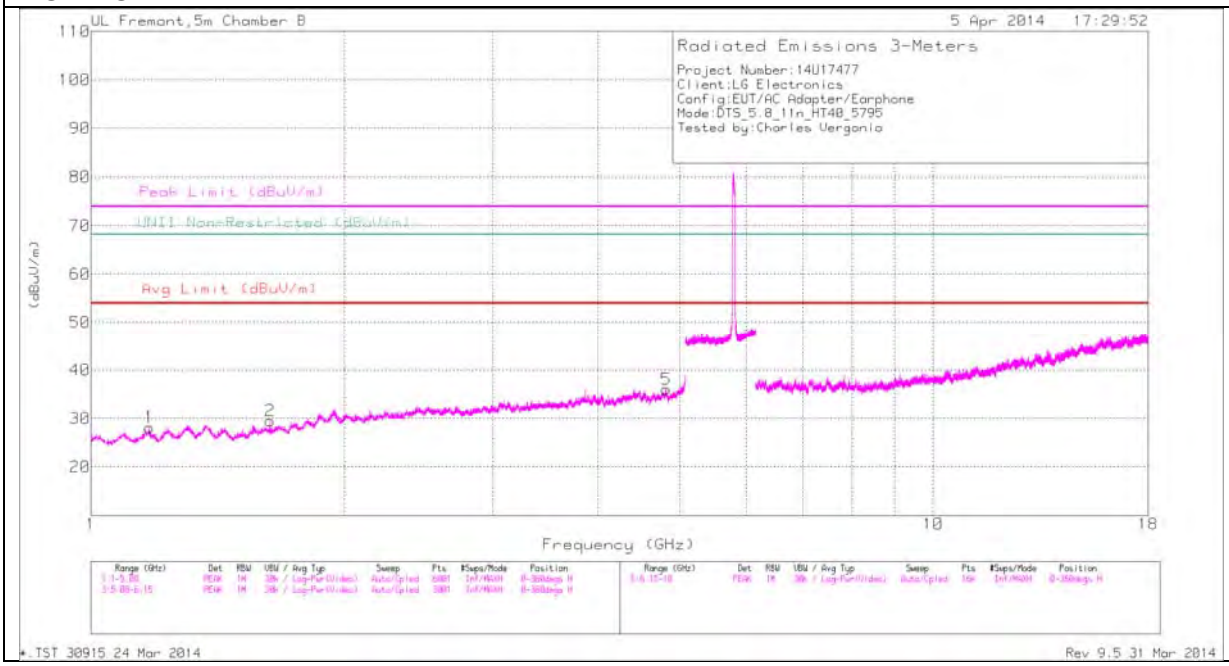
LOW CHANNEL DATA

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.353	40.57	PK2	31.9	-33	39.47	54	-14.53	74	-34.53	-	-	360	100	H
* 1.298	42.99	PK2	28.8	-34.2	37.59	54	-16.41	74	-36.41	-	-	360	100	V
* 1.56	42.07	PK2	28.3	-33.6	36.77	54	-17.23	74	-37.23	-	-	360	100	V
* 3.836	41.74	PK2	33.7	-31.1	44.34	54	-9.66	74	-29.66	-	-	360	100	V
* 4.89	39.76	PK2	34.2	-29.6	44.36	54	-9.64	74	-29.64	-	-	360	100	V
* 7.495	37.79	PK2	35.6	-25.8	47.59	54	-6.41	74	-26.41	-	-	360	100	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

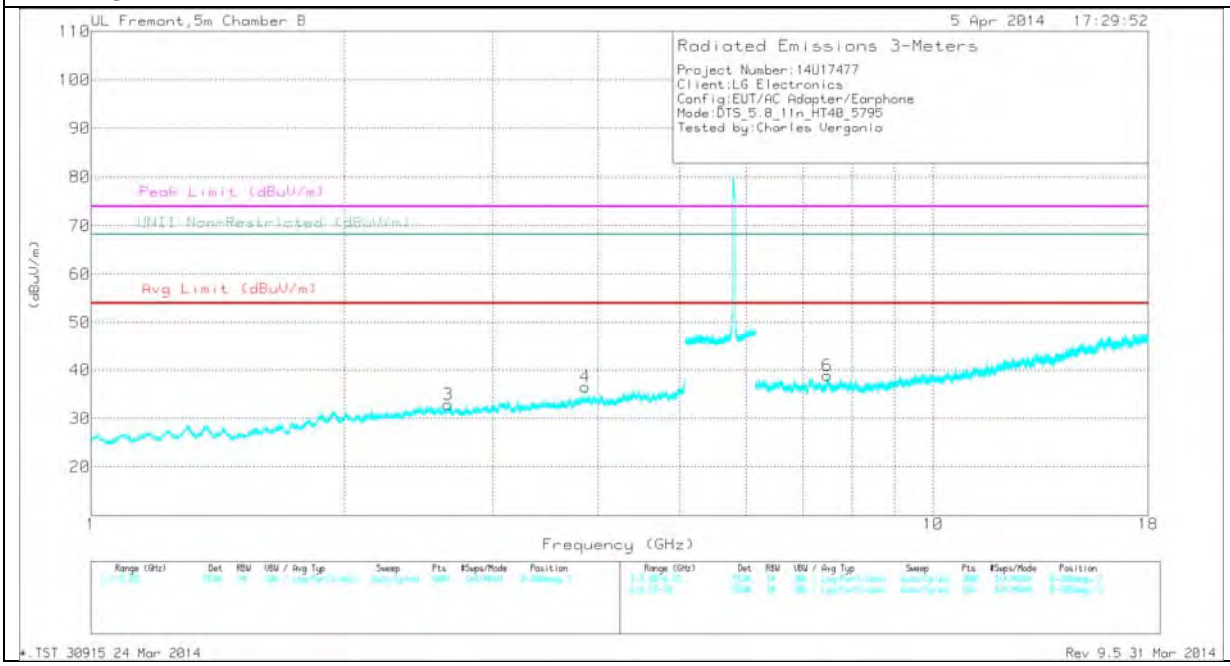
PK2 - KDB558074 Method: Maximum Peak

HIGH CHANNEL
HORIZONTAL



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

HIGH CHANNEL
VERTICAL



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

HIGH CHANNEL DATA

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.172	42.9	PK2	28	-34.7	36.2	54	-17.8	74	-37.8	-	-	360	100	H
* 4.819	40.51	PK2	34.2	-29.6	45.11	54	-8.89	74	-28.89	-	-	360	100	H
* 3.863	41.59	PK2	33.7	-31.5	43.79	54	-10.21	74	-30.21	-	-	360	100	V
* 2.657	41.04	PK2	32.3	-32	41.34	54	-12.66	74	-32.66	-	-	360	100	V
* 7.49	36.93	PK2	35.6	-25.7	46.83	54	-7.17	74	-27.17	-	-	360	100	V
1.632	41.6	PK2	28.7	-33.2	37.1	54	-	-	-	68.2	-31.1	360	100	H

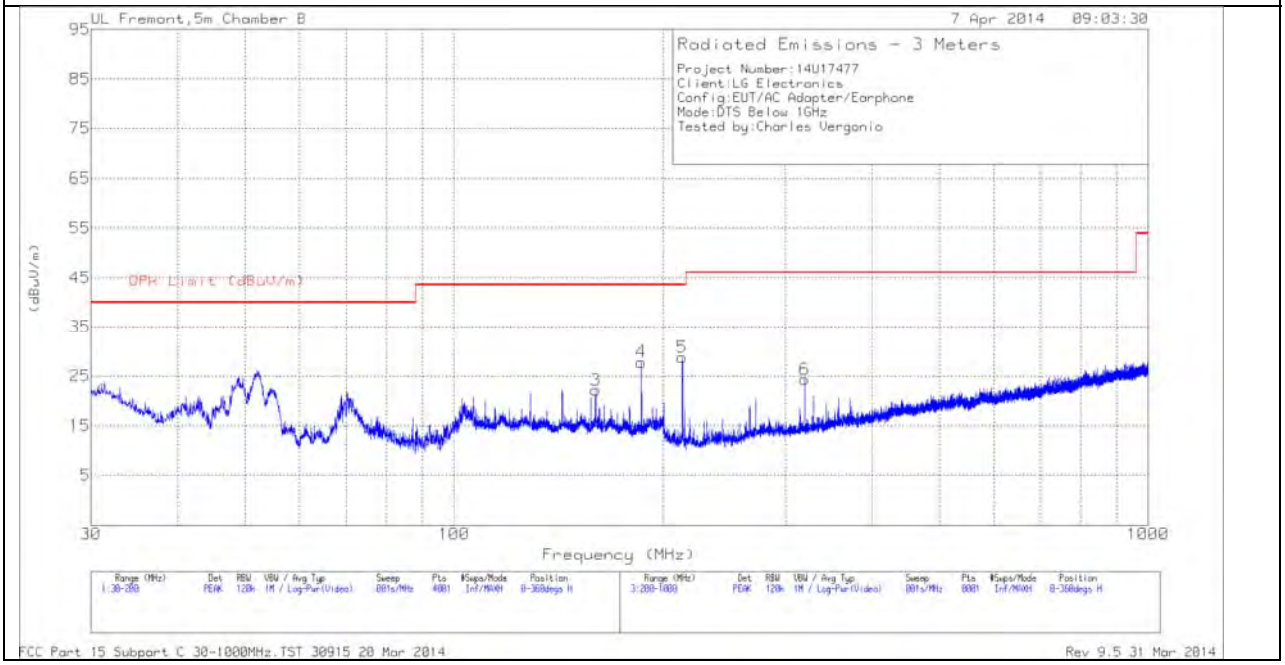
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK2 - KDB558074 Method: Maximum Peak

10.3. WORST-CASE BELOW 1 GHz

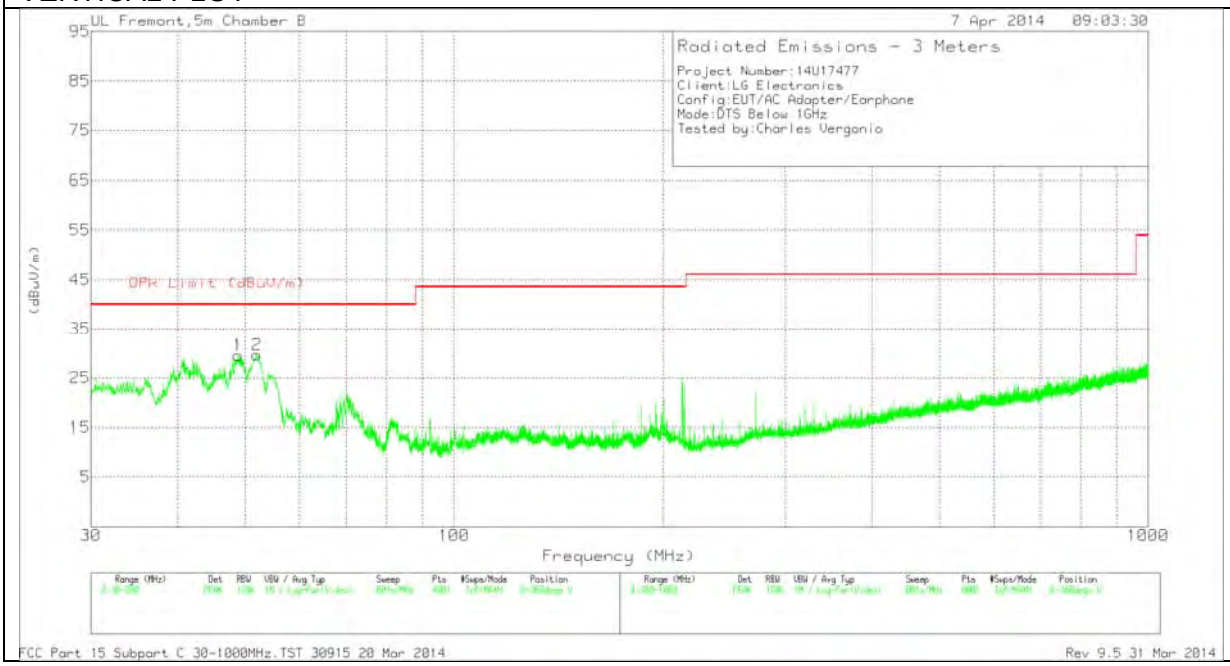
SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)

HORIZONTAL PLOT



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

VERTICAL PLOT



Below 1G Data

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T477 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	48.9125	49.89	PK	8.2	-28.6	29.49	40	-10.51	0-360	101	V
2	52.0575	51.07	PK	7.2	-28.6	29.67	40	-10.33	0-360	101	V
3	159.965	37.27	PK	12.2	-27.3	22.17	43.52	-21.35	0-360	200	H
4	186.145	43.62	PK	11.3	-27.1	27.82	43.52	-15.7	0-360	100	H
5	213.3	45.29	PK	10.4	-26.9	28.79	43.52	-14.73	0-360	200	H
6	320	36.45	PK	13.8	-25.9	24.35	46.02	-21.67	0-360	101	H

PK - Peak detector

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 2009.

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

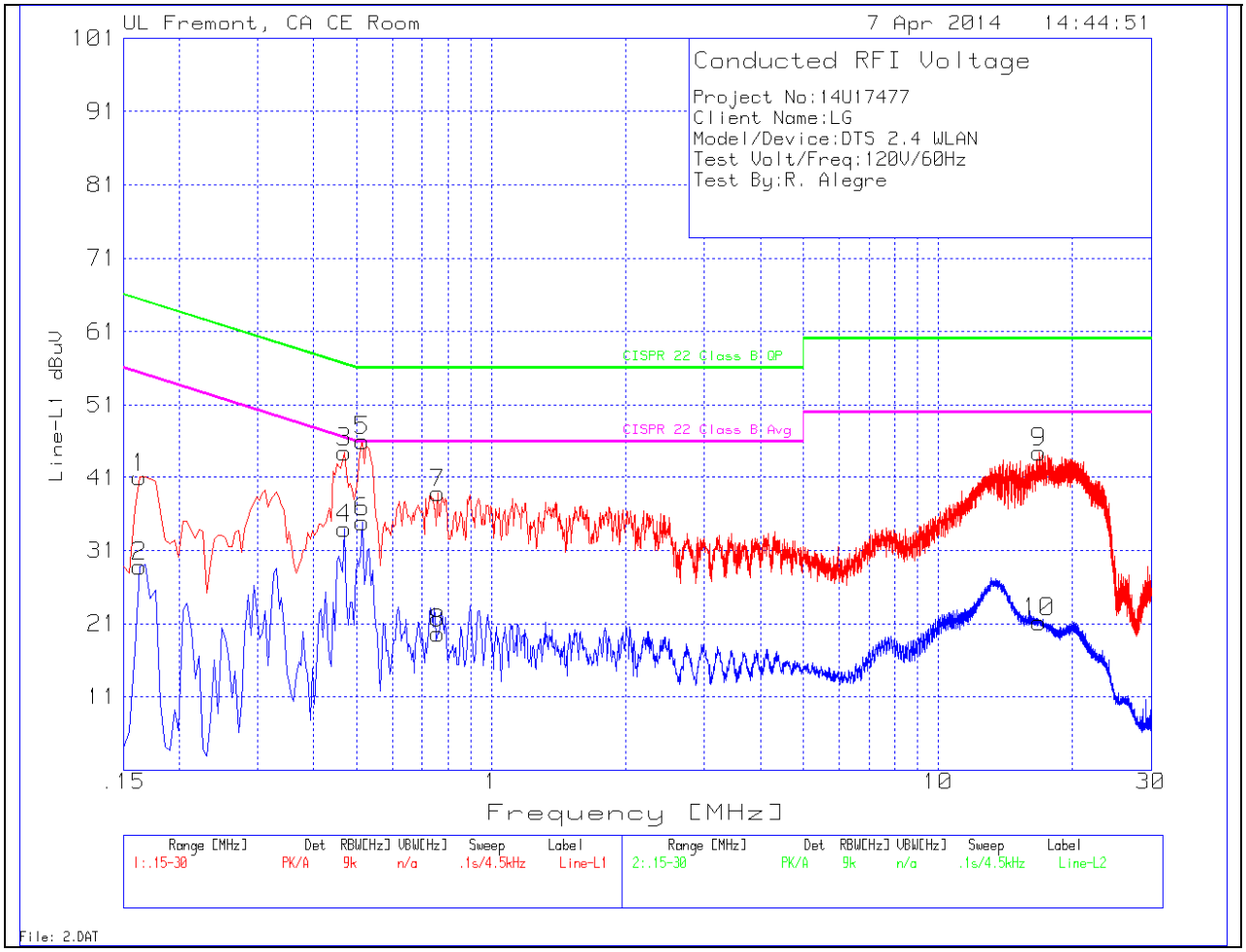
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L1 (dB)	LC Cables 1&3 (dB)	Corrected Reading dBuV	CISPR 22 Class B QP	Margin to Limit (dB)	CISPR 22 Class B Avg	Margin to Limit (dB)
1	.1635	39.87	PK	1.2	0	41.07	65.3	-24.23	-	-
2	.1635	27.64	Av	1.2	0	28.84	-	-	55.3	-26.46
3	.4695	44.1	PK	.4	0	44.5	56.5	-12	-	-
4	.4695	33.58	Av	.4	0	33.98	-	-	46.5	-12.52
5	.5145	45.73	PK	.3	0	46.03	56	-9.97	-	-
6	.5145	34.6	Av	.3	0	34.9	-	-	46	-11.1
7	.7575	38.59	PK	.3	0	38.89	56	-17.11	-	-
8	.7575	19.33	Av	.3	0	19.63	-	-	46	-26.37
9	16.836	43.99	PK	.3	.2	44.49	60	-15.51	-	-
10	16.836	20.73	Av	.3	.2	21.23	-	-	50	-28.77

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)
11	.1635	34.6	PK	1.3	0	35.9	65.3	-29.4	-	-
12	.1635	22.92	Av	1.3	0	24.22	-	-	55.3	-31.08
13	.3255	34.37	PK	.5	0	34.87	59.6	-24.73	-	-
14	.3255	18.83	Av	.5	0	19.33	-	-	49.6	-30.27
15	.483	37.01	PK	.4	0	37.41	56.3	-18.89	-	-
16	.483	24.63	Av	.4	0	25.03	-	-	46.3	-21.27
17	.5235	41.87	PK	.4	0	42.27	56	-13.73	-	-
18	.5235	28.58	Av	.4	0	28.98	-	-	46	-17.02
19	.753	32.03	PK	.3	0	32.33	56	-23.67	-	-
20	.753	14.86	Av	.3	0	15.16	-	-	46	-30.84
21	12.894	36.36	PK	.3	.2	36.86	60	-23.14	-	-
22	12.894	19.73	Av	.3	.2	20.23	-	-	50	-29.77

LINE 1 RESULTS



LINE 2 RESULTS