FCC CFR47 PART 15 SUBPART C

CERTIFICATION TEST REPORT

FOR

GSM/WCDMA Phone + Bluetooth, DTS/UNII a/b/g/n & ANT+

MODEL NUMBER: SM-G7108V

FCC ID: A3LSMG7108V

REPORT NUMBER: 14U16956-4, Revision C

ISSUE DATE: February 20, 2014

Prepared for

SAMSUNG ELECTRONICS CO., LTD.
416, MAETAN 3-DONG, YEONGTONG-GU
SUWON-CITY, GYEONGGI-DO 443-742, SOUTH KOREA

Prepared by

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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	2/3/14	Initial Issue	P. Kim
A	2/14/14	Updated EUT name; Equipment list; Updated statement for conducted and radiated emission; Updated statement for quote standard	P. Kim
B	2/17/14	Updated harmonic data.	P. Kim
C	2/20/14	Updated 5.8GHz Harmonic statement	P. Kim

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME:	SAMSUNG ELECTRONICS CO., LTD. 416, MAETAN 3-DONG, YEONGTONG-GU SUWON-CITY, GYEONGGI-DO 443-742, SOUTH KOREA
EUT DESCRIPTION:	GSM/WCDMA Phone + Bluetooth, DTS/UNII a/b/g/n & ANT+
MODEL:	SM-G7108V
SERIAL NUMBER:	FL-027-F (Radiated) FL-027-A (Conducted)
DATE TESTED:	January 27 – February 3, 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.

Approved & Released
For UL Verification Services Inc. By:

PHILIP KIM
WiSE PROGRAM MANAGER
UL Verification Services Inc.

Tested By:

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 C63.4-2009.

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 Phone + Bluetooth, DTS/UNII a/b/g/n & ANT+

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	17.05	50.70
2412 - 2462	802.11g	19.16	82.41
2412 - 2462	802.11n HT20	18.3	67.61
5745-5825	802.11a	19.83	96.16
5745-5825	802.11n HT20	18.46	70.15
5755-5795	802.11n HT40	17.95	62.37

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an FPCB antenna, with a maximum gain of 2.4GHz band -1.7dBi; 5.8GHz band -0.3dBi

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	Samsung	SM-G7108V	N/A	N/A
Earphone	Samsung	N/A	N/A	N/A

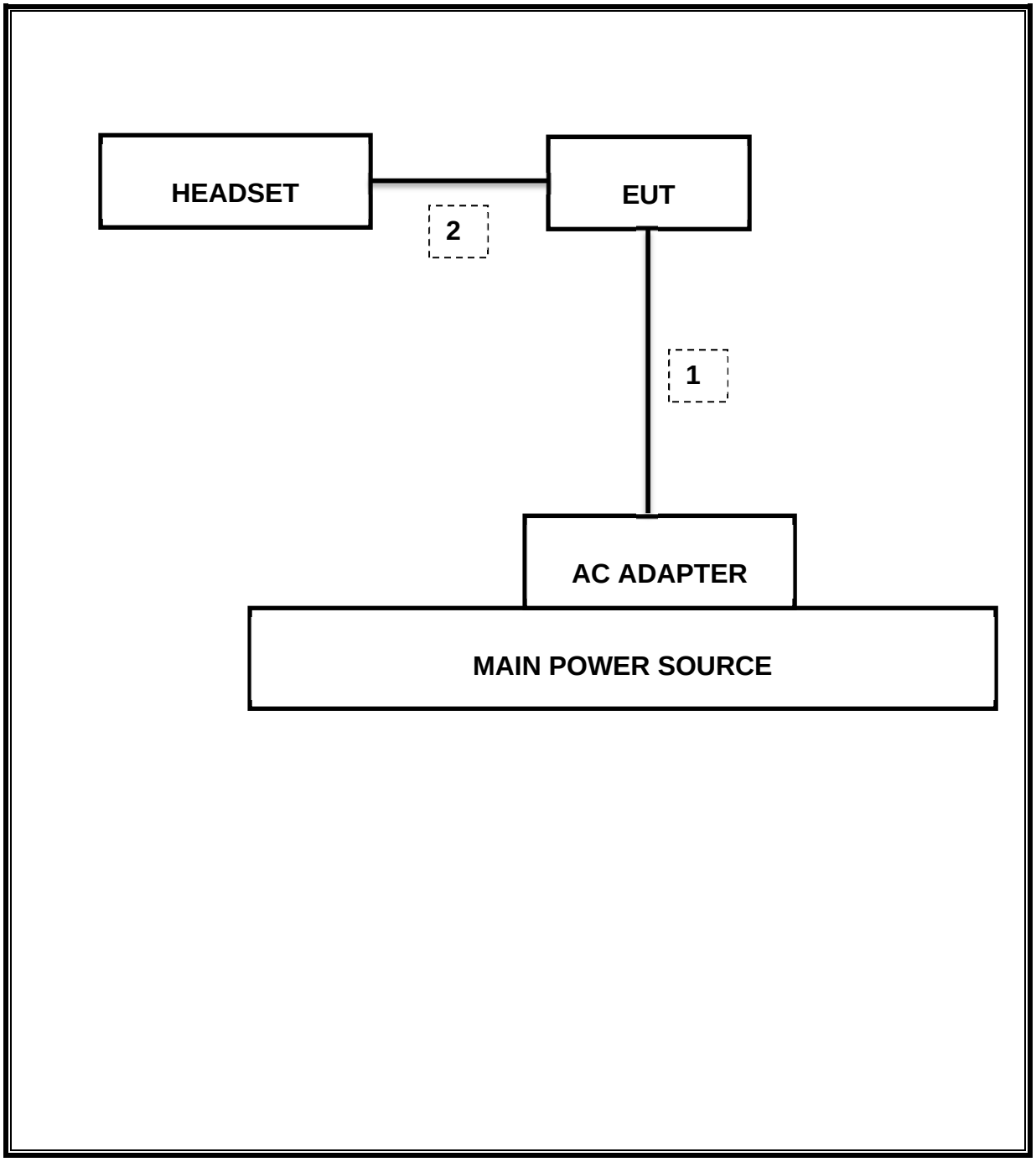
I/O CABLES

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 Date**	**Cal Due**
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01069	12/20/13	12/20/14
Spectrum Analyzer,9KHz-40GHz	HP	8564E	C00986	04/01/13	04/01/14
EMI Test Receiver, 9 kHz-7 GHz	R & S	ESCI 7	1000741	08/13/13	08/13/14
EMI Test Receiver, 30 MHz	R & S	ESHS 20	N02396	08/15/13	08/18/14
Peak Power Meter	Agilent / HP	E4416A	C00963	12/13/13	12/13/14
Peak / Average Power Sensor	Agilent / HP	E9327A	C00964	12/13/13	12/13/14
Antenna, Horn, 1-18 GHz	ETS	3117	C01022	02/21/13	02/21/14
Antenna, Horn,18- 26 GHz	ARA	MWH-1826/B	C00946	11/12/13	11/12/14
Antenna, Horn, 26-40 GHz	ARA	MWH-2640	C00891	06/28/13	06/28/14
Antenna, Bilog, 30MHz-1 GHz	Sunol Sciences	JB1	T243	03/06/13	03/06/14
RF Preamplifier, 100KHz -> 1300MHz	HP	TBD	C00825	06/01/13	06/01/14
RF Preamplifier, 1GHz - 18GHz	Miteq	NSP4000-SP2	924343	03/23/13	03/23/14
RF Preamplifier, 1GHz - 26.5GHz	HP	8449B	F00351	06/27/13	06/27/14
AC Power Supply, 2,500VA 45-500Hz	Elgar-Ametek	CW2501M	F00013	CNR	CNR
RF Preamplifier, 1GHz - 40GHz	Miteq	NSP4000-SP2	C00990	08/20/13	08/20/14
Attenuator / Switch driver	HP	11713A	F00204	CNR	CNR
Low Pass Filter 3GHz	Micro-Tronics	LPS17541	F00219	05/23/13	05/23/14
High Pass Filter 5GHz	Micro-Tronics	HPS17542	F00222	05/22/13	05/22/14
High Pass Filter 6GHz	Micro-Tronics	HPM17543	F00224	05/22/13	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.

Harmonic use KDB 558074 Option 1 max RMS method.

Bandedge use the video bandwidth is set to 3 MHz for peak measurements and add duty cycle factor for average measurements.

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	10.10 MHz
2.1051, 15.247 (d)	RSS-210 A8.5	Band Edge / Conducted Spurious Emission	-20dBc		Pass	-30.56 dBm
15.247	RSS-210 A8.4	TX conducted output power	<30dBm		Pass	19.83 dBm
15.247	RSS-210 A8.2	PSD	<8dBm		Pass	-8.20 dBm
15.207 (a)	RSS-GEN 7.2.2	AC Power Line conducted emissions	Section 10	Radiated	Pass	49.99 dBm
15.205, 15.209	RSS-210 Clause 2.6, RSS-210 Clause 6	Radiated Spurious Emission	< 54dBuV/m		Pass	51.78 dBm

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	10.10	0.5
Mid	2437	10.13	0.5
High	2462	10.10	0.5
Worst		10.10	

9.1.2. 802.11g MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	16.54	0.5
Mid	2437	16.46	0.5
High	2462	16.50	0.5
Worst		16.46	

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	17.71	0.5
Mid	2437	17.71	0.5
High	2462	17.75	0.5
Worst		17.71	

9.1.4. 802.11a MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5745	16.550	0.5
Mid	5785	16.600	0.5
High	5825	16.550	0.5
Worst		16.550	

9.1.5. 802.11n HT20 MODE IN THE 5.8 GHz BAND

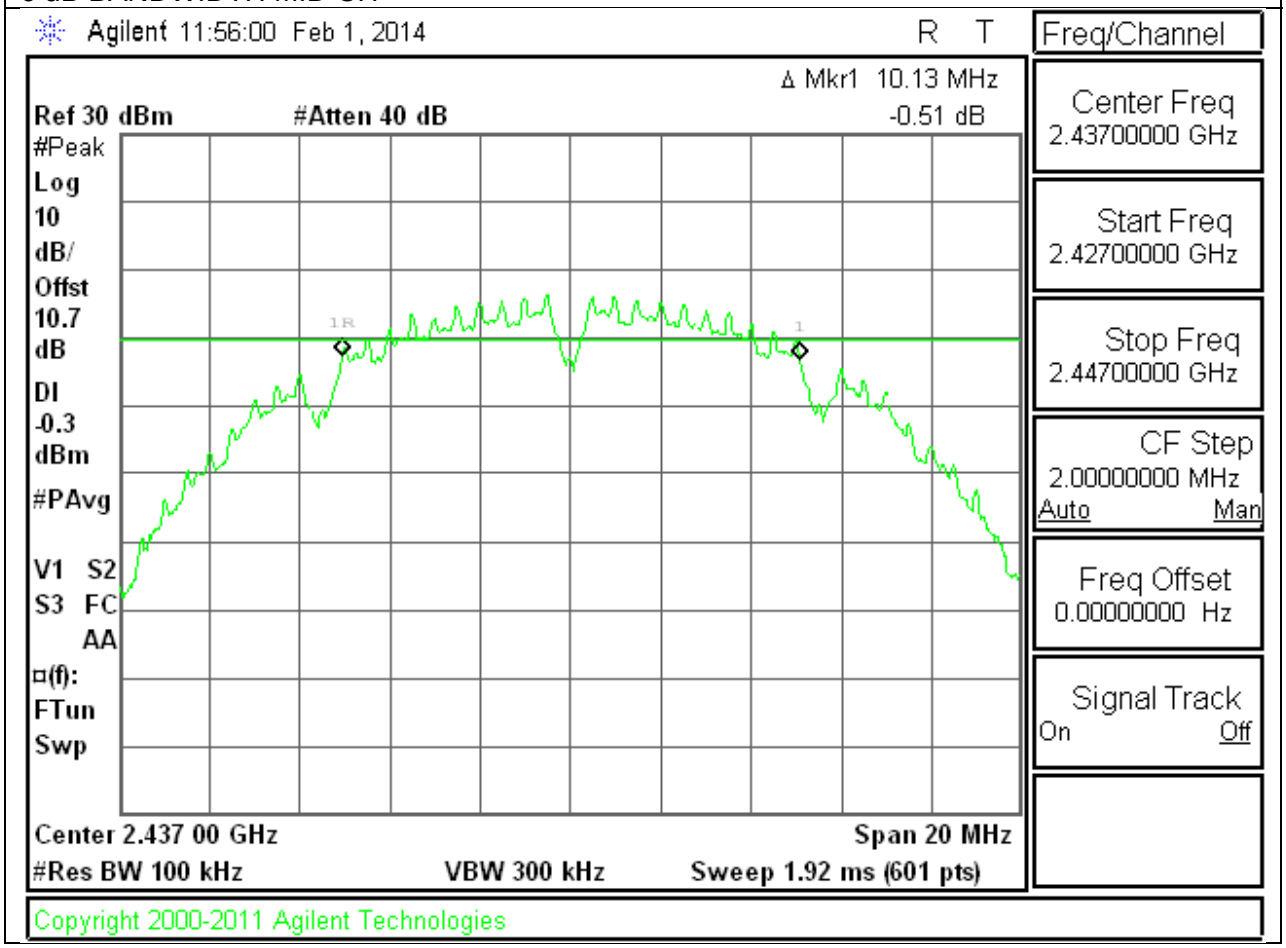
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5745	17.750	0.5
Mid	5785	17.700	0.5
High	5825	17.750	0.5
Worst		17.700	

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	36.3	0.5
High	5795	36.1	0.5
Worst		36.1	0.5

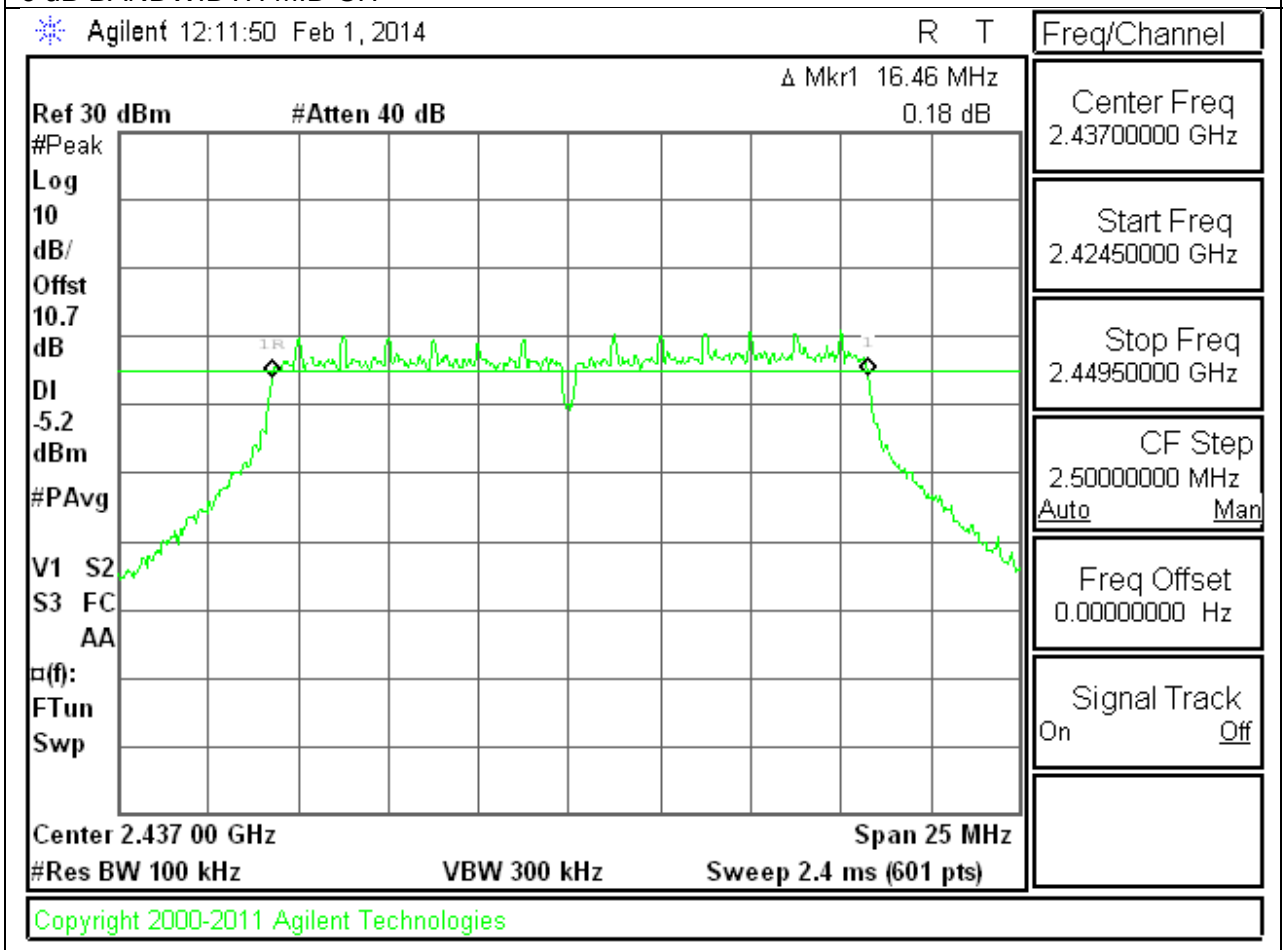
802.11b 6 dB BANDWIDTH

6 dB BANDWIDTH MID CH



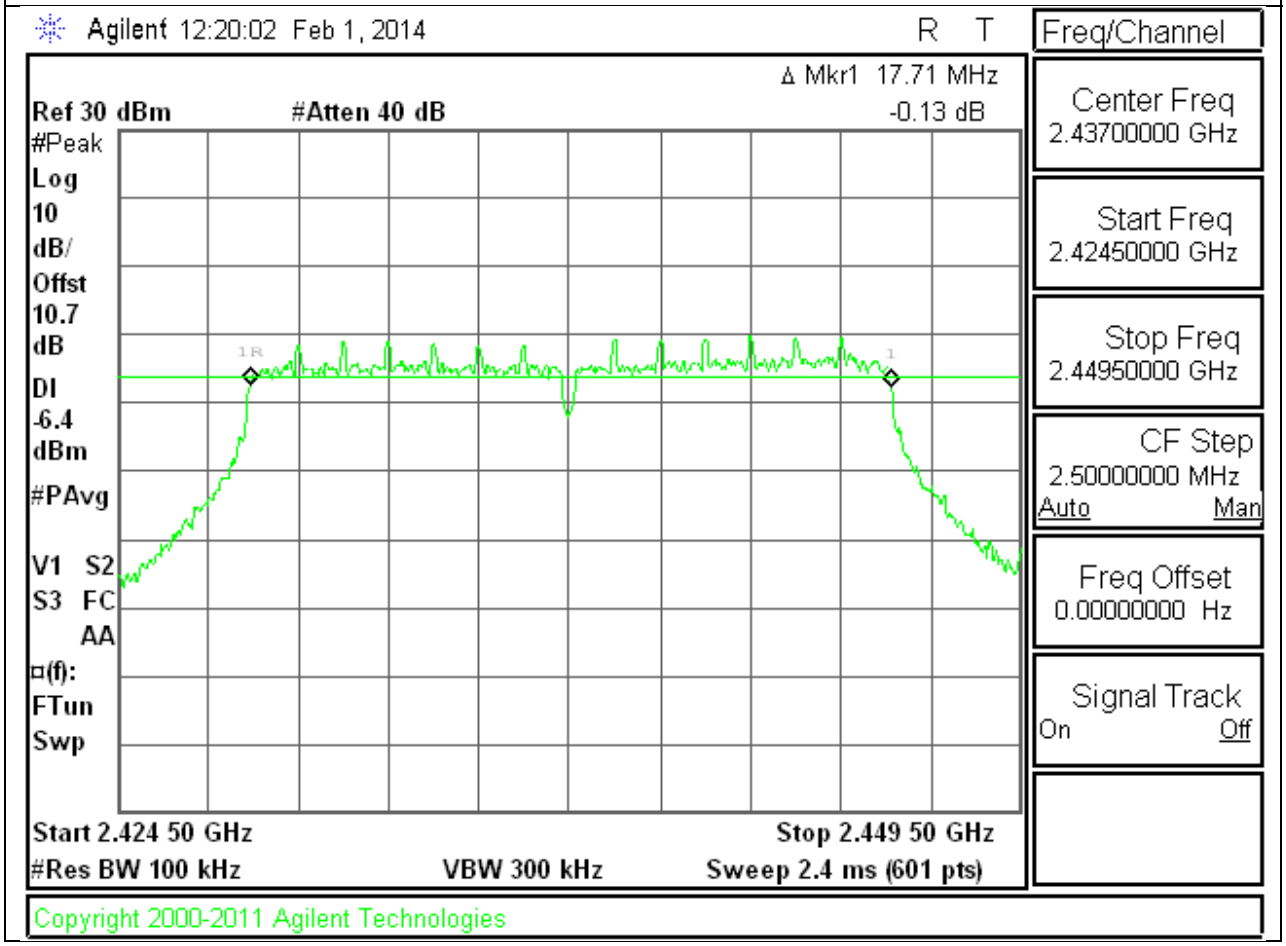
802.11g 6 dB BANDWIDTH

6 dB BANDWIDTH MID CH



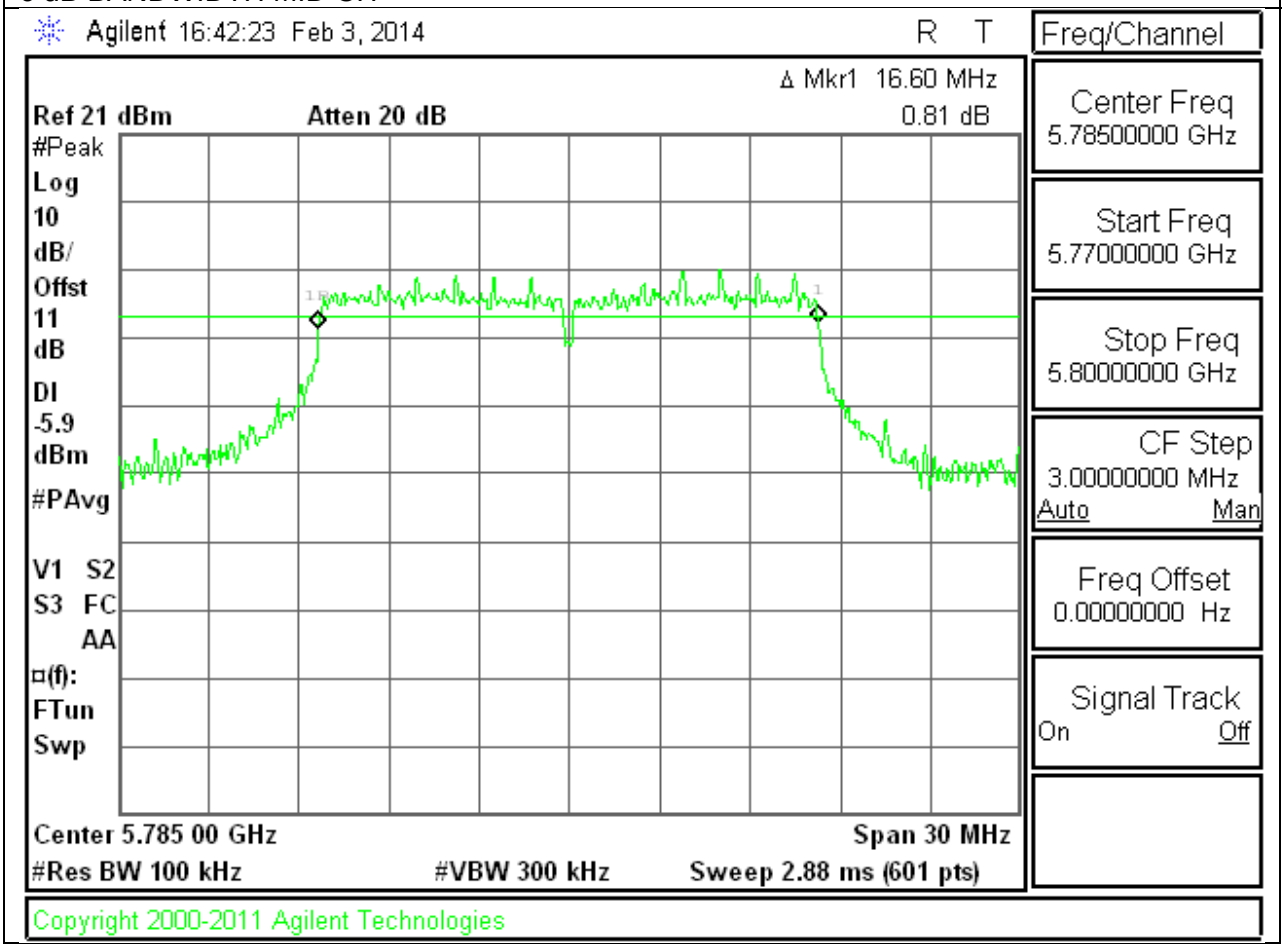
802.11n 6 dB BANDWIDTH

6 dB BANDWIDTH MID CH



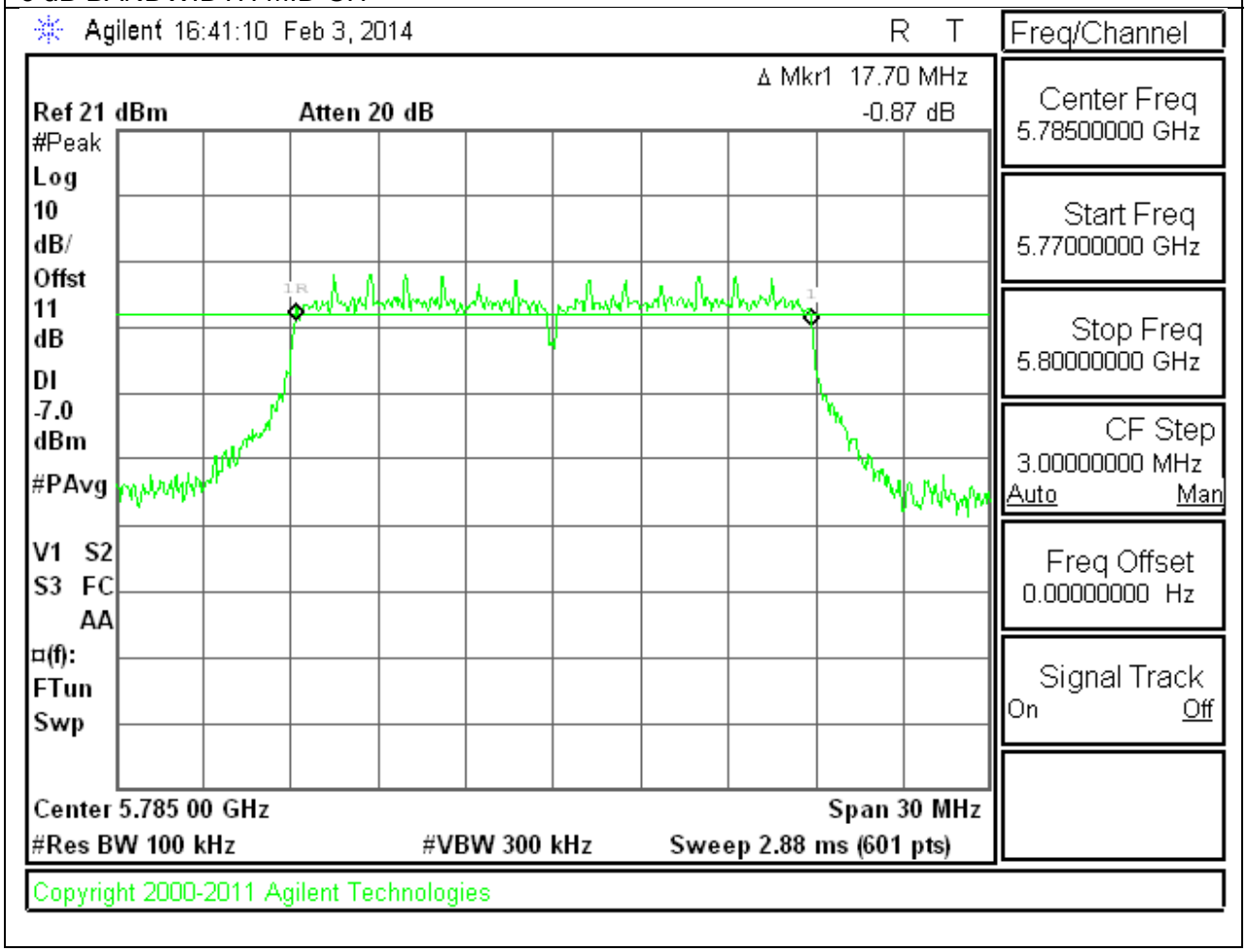
802.11a 5.8GHz 6 dB BANDWIDTH

6 dB BANDWIDTH MID CH



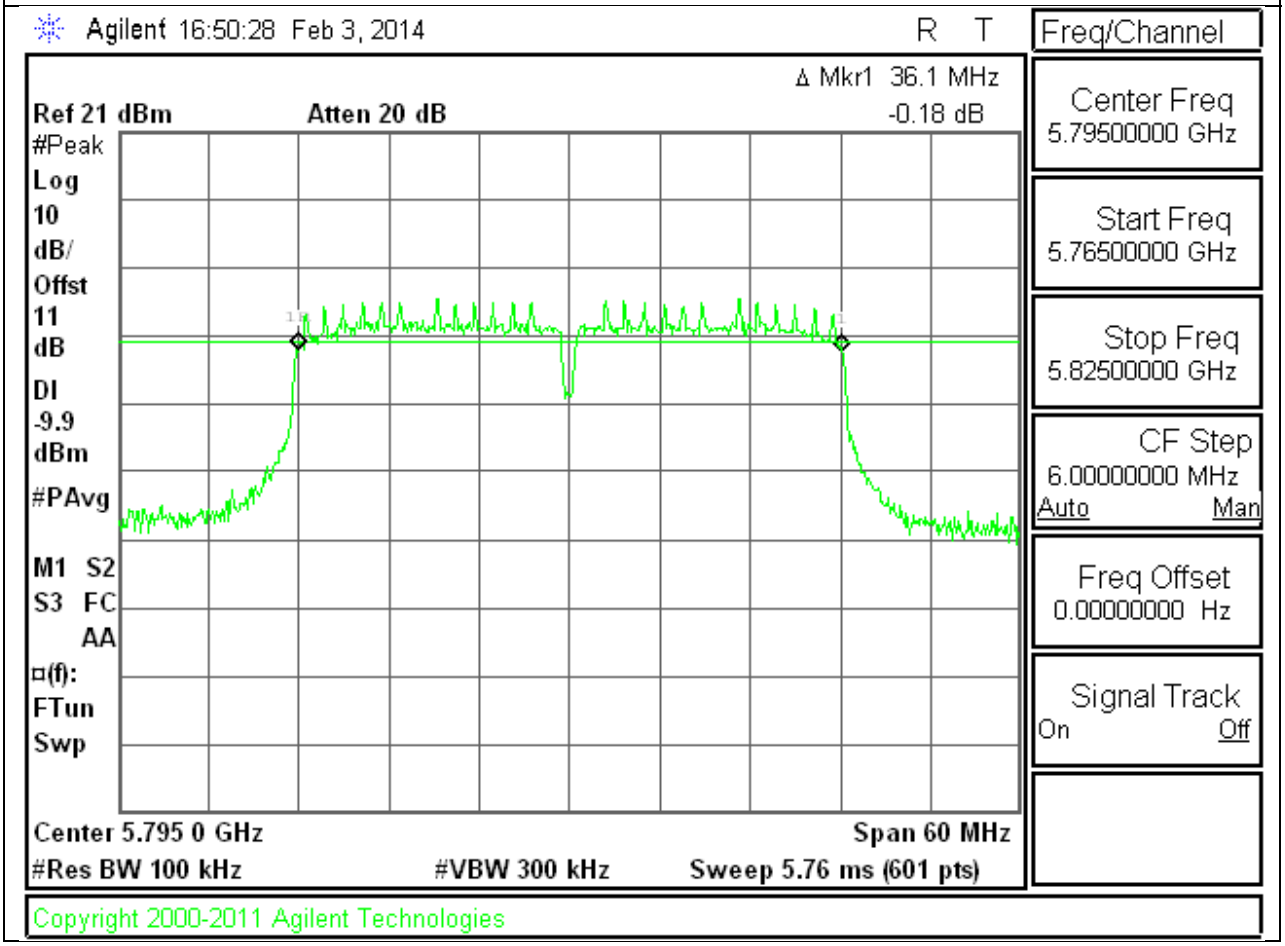
802.11n HT20 5.8GHz 6 dB BANDWIDTH

6 dB BANDWIDTH MID CH



802.11n HT 40 5.6GHz 6 dB BANDWIDTH

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	13.27
Mid	2437	13.30
High	2462	13.50
Worst		13.50

9.2.2. 802.11g MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	16.55
Mid	2437	16.45
High	2462	16.53
Worst		16.55

9.2.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	17.65
Mid	2437	17.62
High	2462	17.66
Worst		17.66

9.2.4. 802.11a MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5745	16.316
Mid	5785	16.551
High	5825	16.531
Worst		16.551

9.2.5. 802.11n HT20 MODE IN THE 5.8 GHz BAND

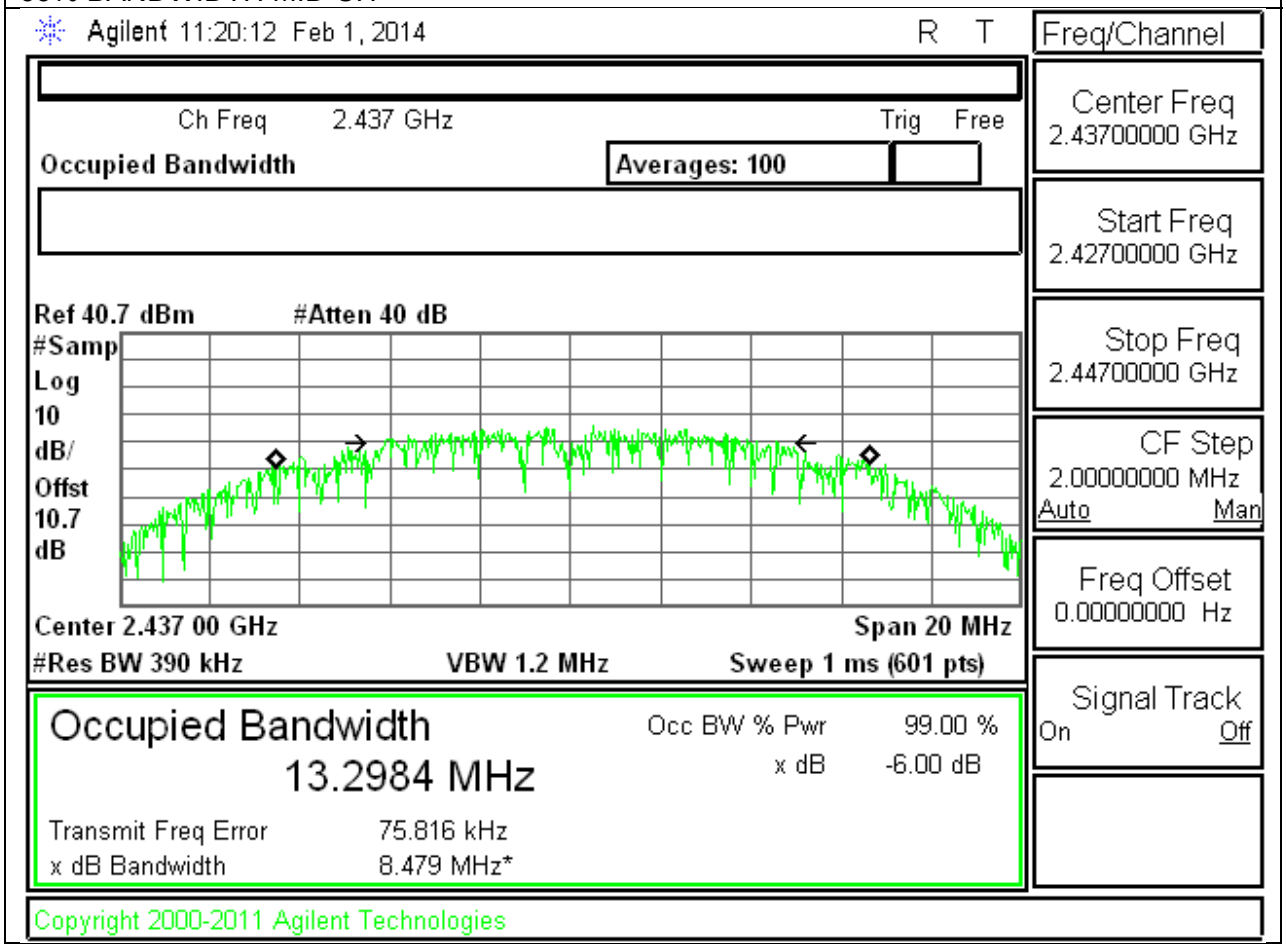
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5745	17.750
Mid	5785	17.700
High	5825	17.750
Worst		17.750

9.2.6. 802.11n HT40 MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5755	35.7
High	5795	35.0
Worst		35.7

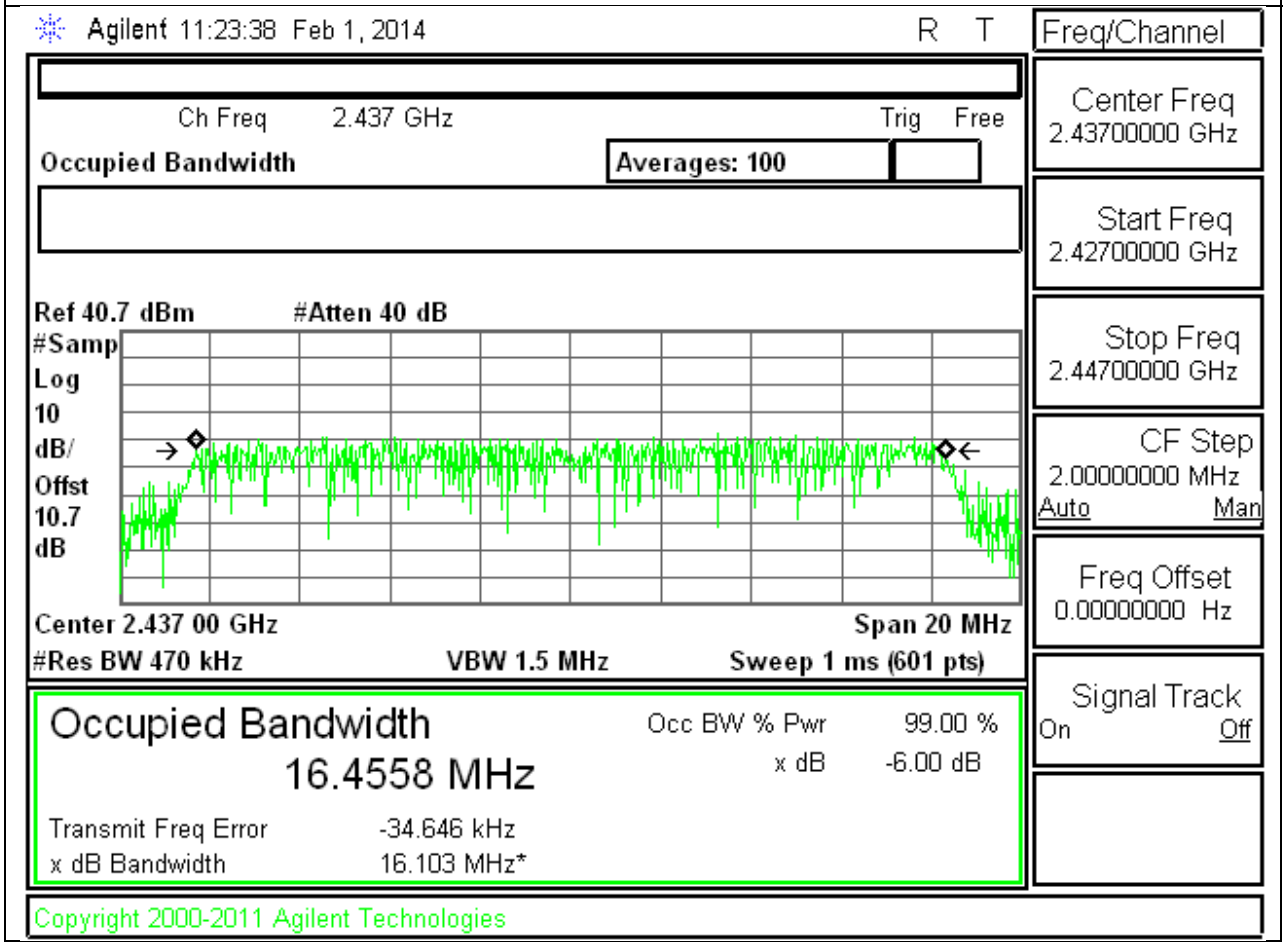
802.11b 99% BANDWIDTH

99% BANDWIDTH MID CH



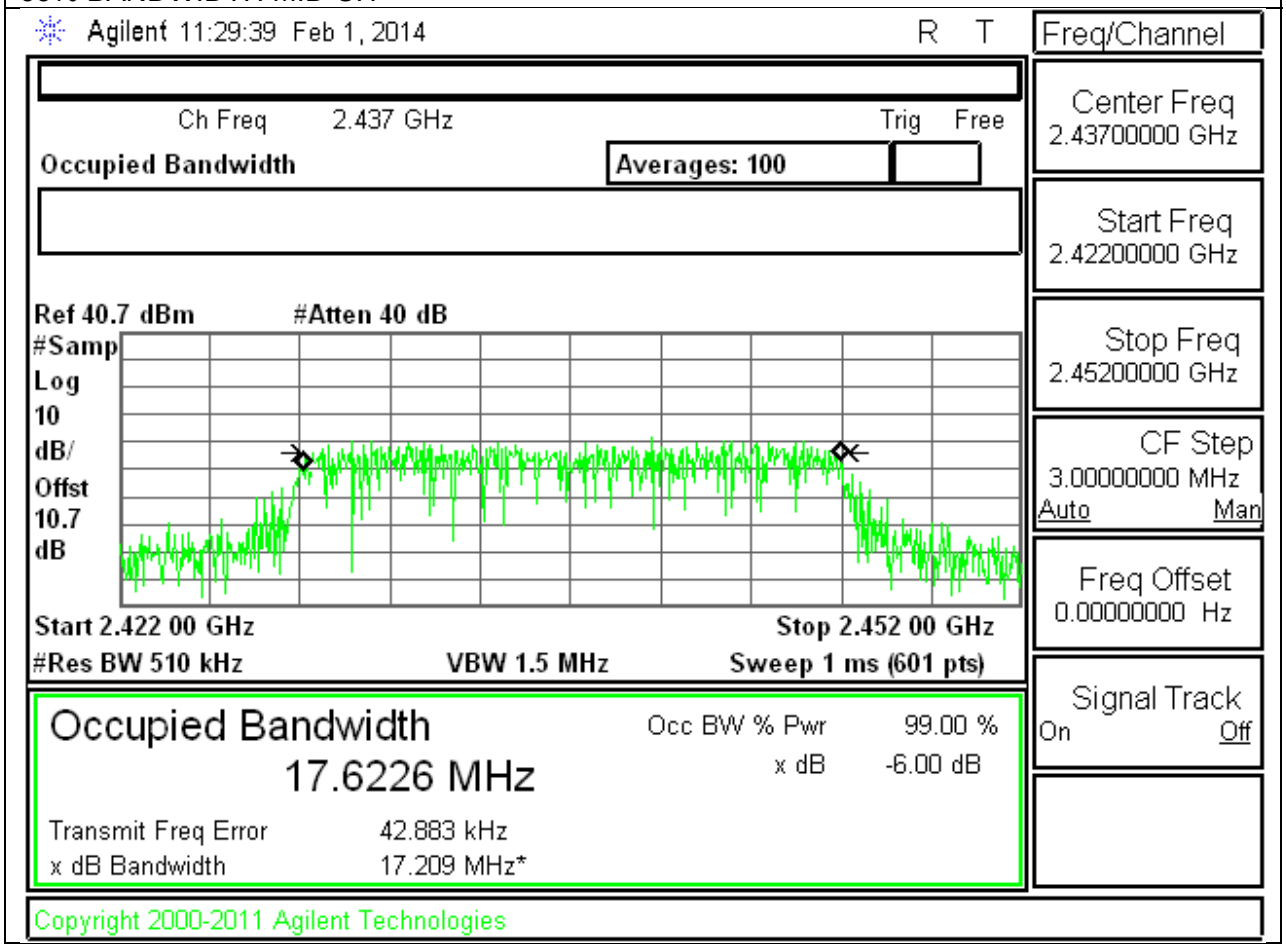
802.11g 99% BANDWIDTH

99% BANDWIDTH MID CH



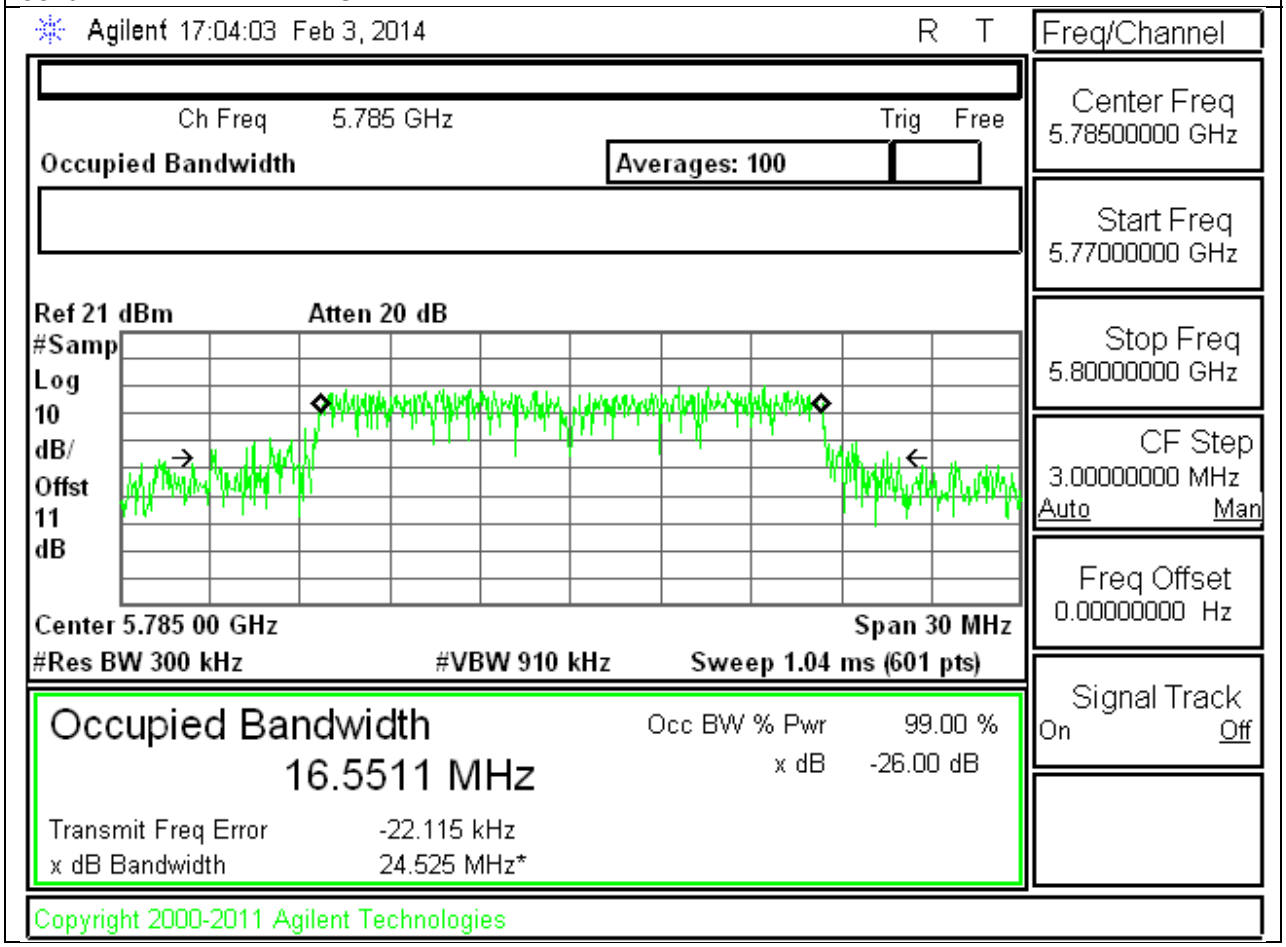
802.11n 99% BANDWIDTH

99% BANDWIDTH MID CH



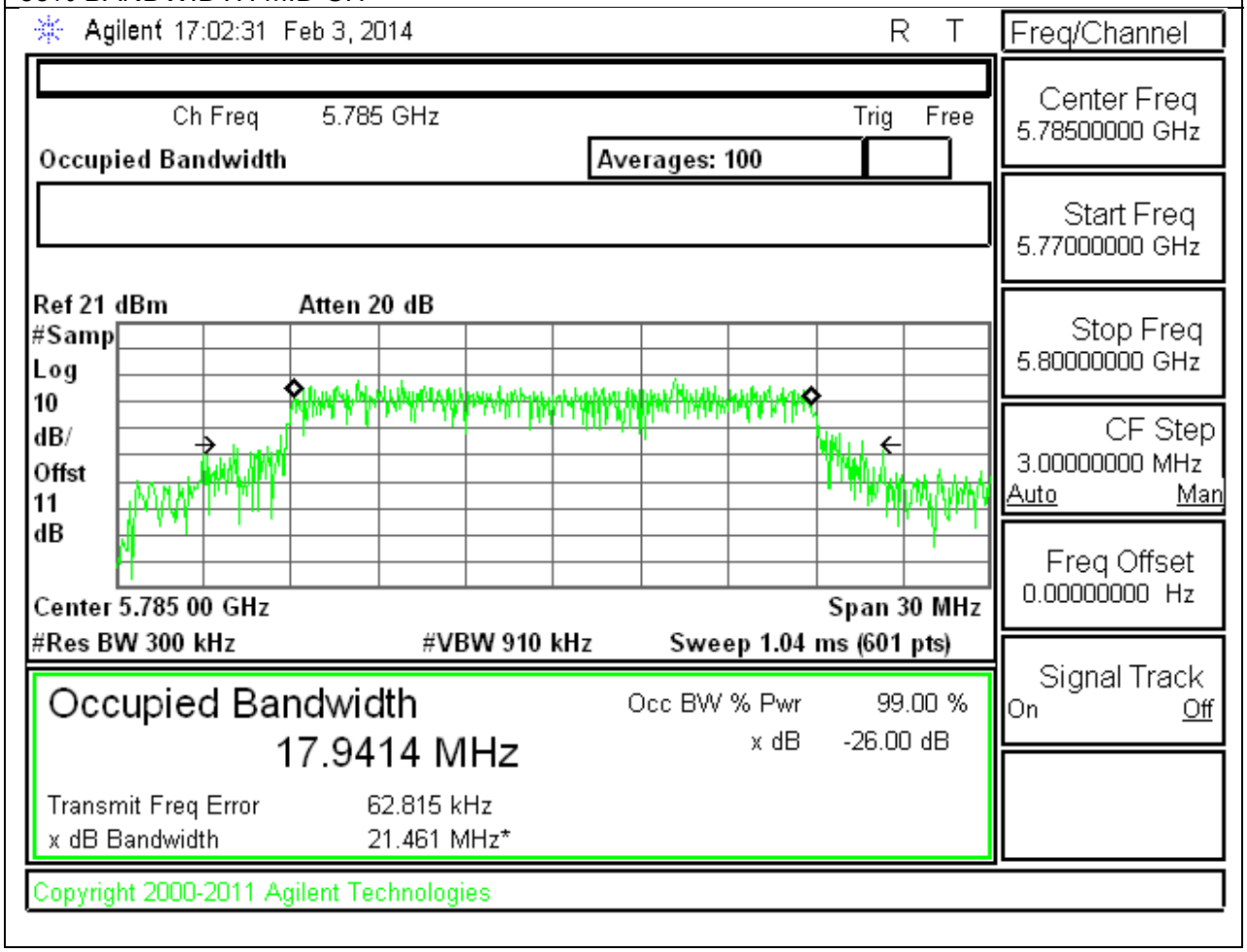
802.11a 5.8GHz 99% BANDWIDTH

99% BANDWIDTH MID CH



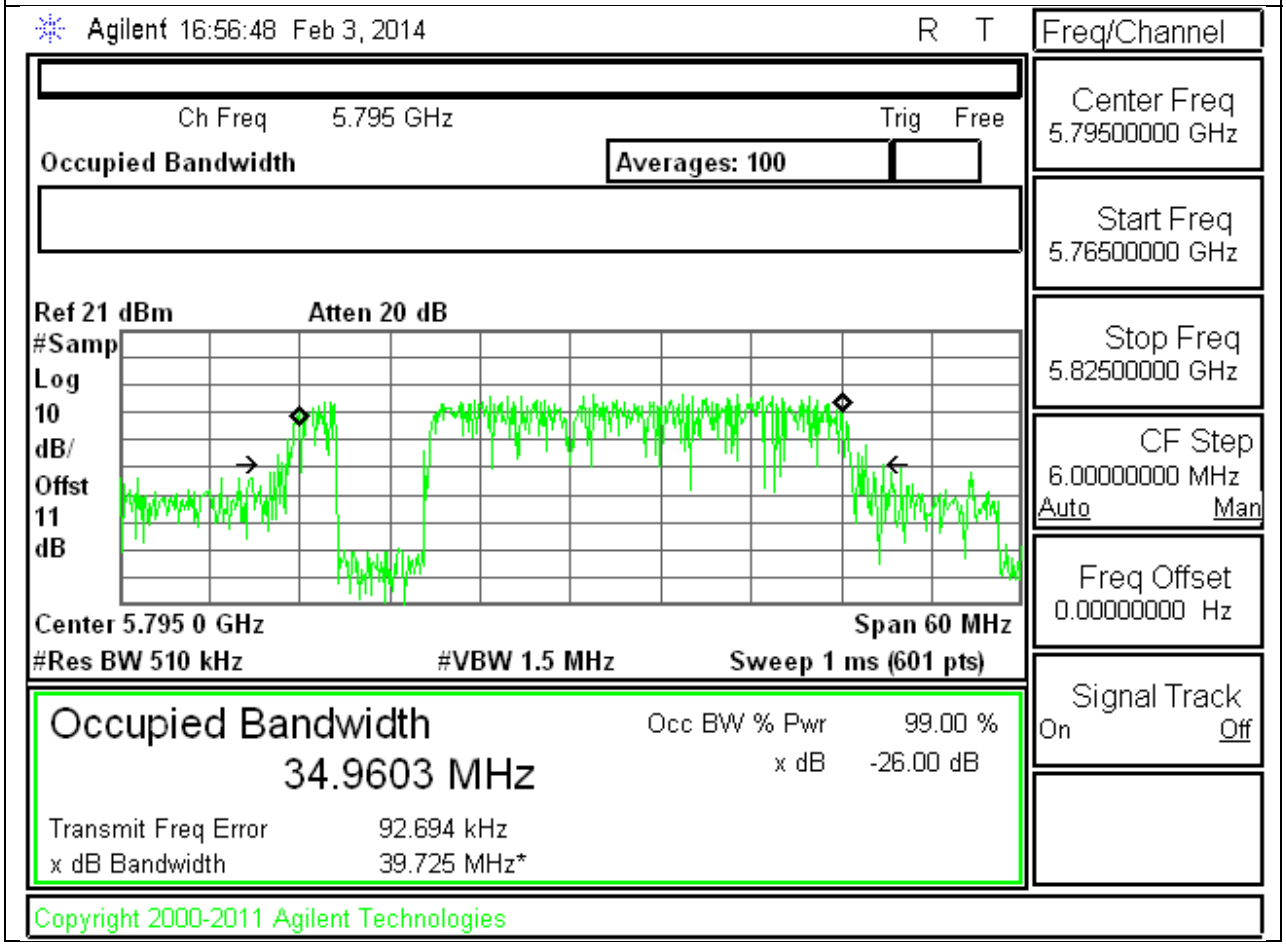
802.11n HT20 5.8GHz 99% BANDWIDTH

99% BANDWIDTH MID CH



802.11n HT 40 5.6GHz 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 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

9.3.1. 802.11b MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	2412	16.29
Mid	2437	16.33
High	2462	16.14
Worst		16.330

9.3.2. 802.11g MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	2412	13.40
Mid	2437	13.24
High	2462	13.18
Worst		13.400

9.3.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	2412	12.47
Mid	2437	12.31
High	2462	12.21
Worst		12.470

9.3.4. 802.11a MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5745	11.100
Mid	5785	12.500
High	5825	11.500
Worst		12.500

9.3.5. 802.11n HT20 MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5745	10.000
Mid	5785	10.100
High	5825	10.200
Worst		10.200

9.3.6. 802.11n HT40 MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5755	9.7
High	5795	10.2
Worst		10.2

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	-1.70	30.00	30	36	30.00
Mid	2437	-1.70	30.00	30	36	30.00
High	2462	-1.70	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	16.95	16.95	30.00	-13.05
Mid	2437	17.05	17.05	30.00	-12.95
High	2462	16.67	16.67	30.00	-13.33
Worst			17.05		

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	-1.70	30.00	30	36	30.00
Mid	2437	-1.70	30.00	30	36	30.00
High	2462	-1.70	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	19.16	19.16	30.00	-10.84
Mid	2437	18.76	18.76	30.00	-11.24
High	2462	18.82	18.82	30.00	-11.18
Worst			19.16		

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	-1.70	30.00	30	36	30.00
Mid	2437	-1.70	30.00	30	36	30.00
High	2462	-1.70	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	18.30	18.30	30.00	-11.70
Mid	2437	18.01	18.01	30.00	-11.99
High	2462	17.93	17.93	30.00	-12.07
Worst			18.30		

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	-0.30	30.00	30	36	30.00
Mid	5785	-0.30	30.00	30	36	30.00
High	5825	-0.30	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	19.83	19.83	30.00	-10.17
Mid	5785	19.77	19.77	30.00	-10.23
High	5825	19.36	19.36	30.00	-10.64
Worst			19.83		

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	-0.30	30.00	30	36	30.00
Mid	5785	-0.30	30.00	30	36	30.00
High	5825	-0.30	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	18.10	18.10	30.00	-11.90
Mid	5785	17.63	17.63	30.00	-12.37
High	5825	18.46	18.46	30.00	-11.54
Worst			18.46		

9.4.6. 802.11n HT40 MODE IN THE 5.8 GHz BAND

Limits

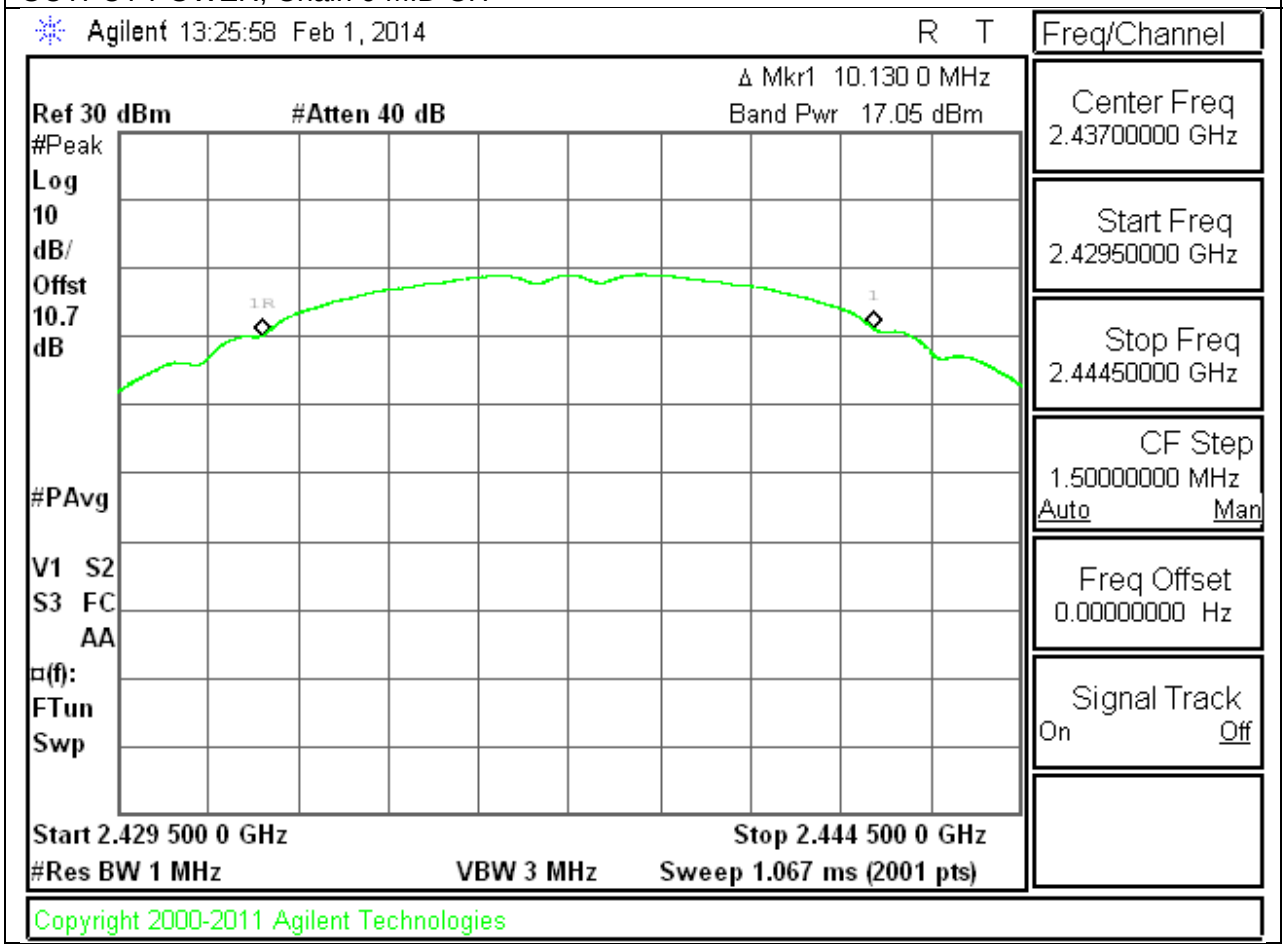
Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	5755	-0.30	30.00	30	36	30.00
High	5795	-0.30	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	5755	17.95	17.95	30.00	-12.05
High	5795	17.62	17.62	30.00	-12.38
Worst			17.95		

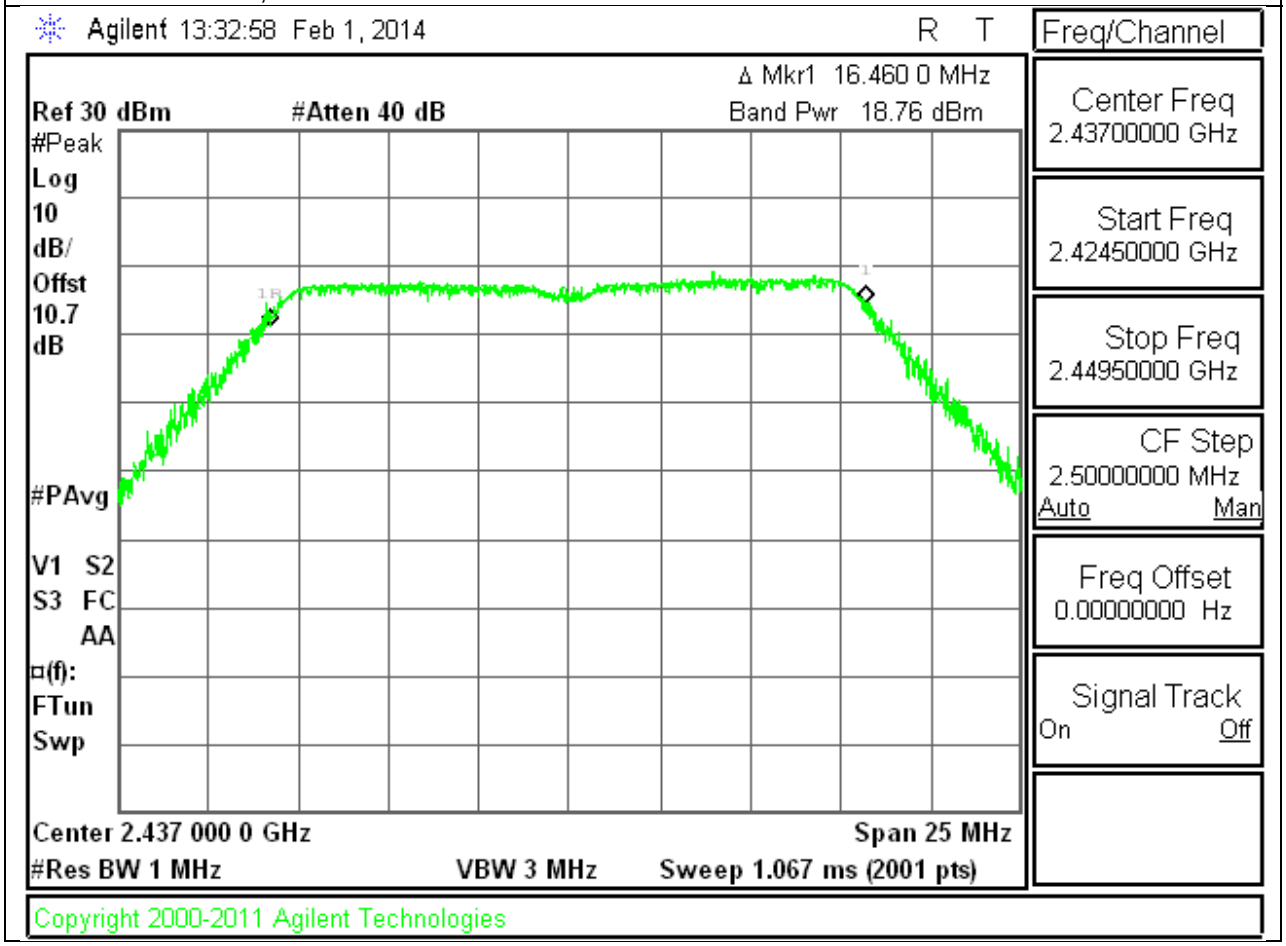
802.11b OUTPUT POWER, Chain 0

OUTPUT POWER, Chain 0 MID CH



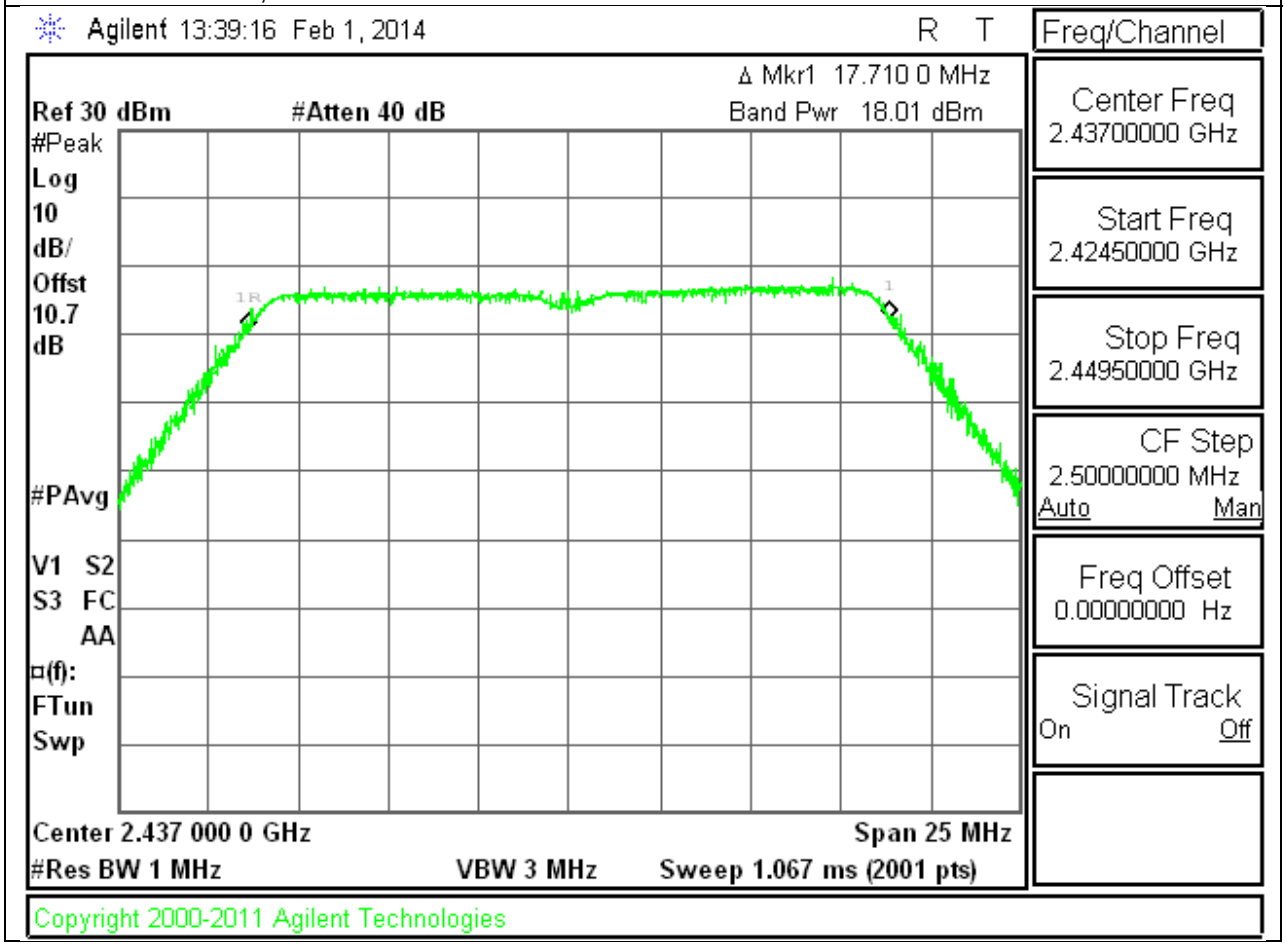
802.11g OUTPUT POWER, Chain 0

OUTPUT POWER, Chain 0 MID CH



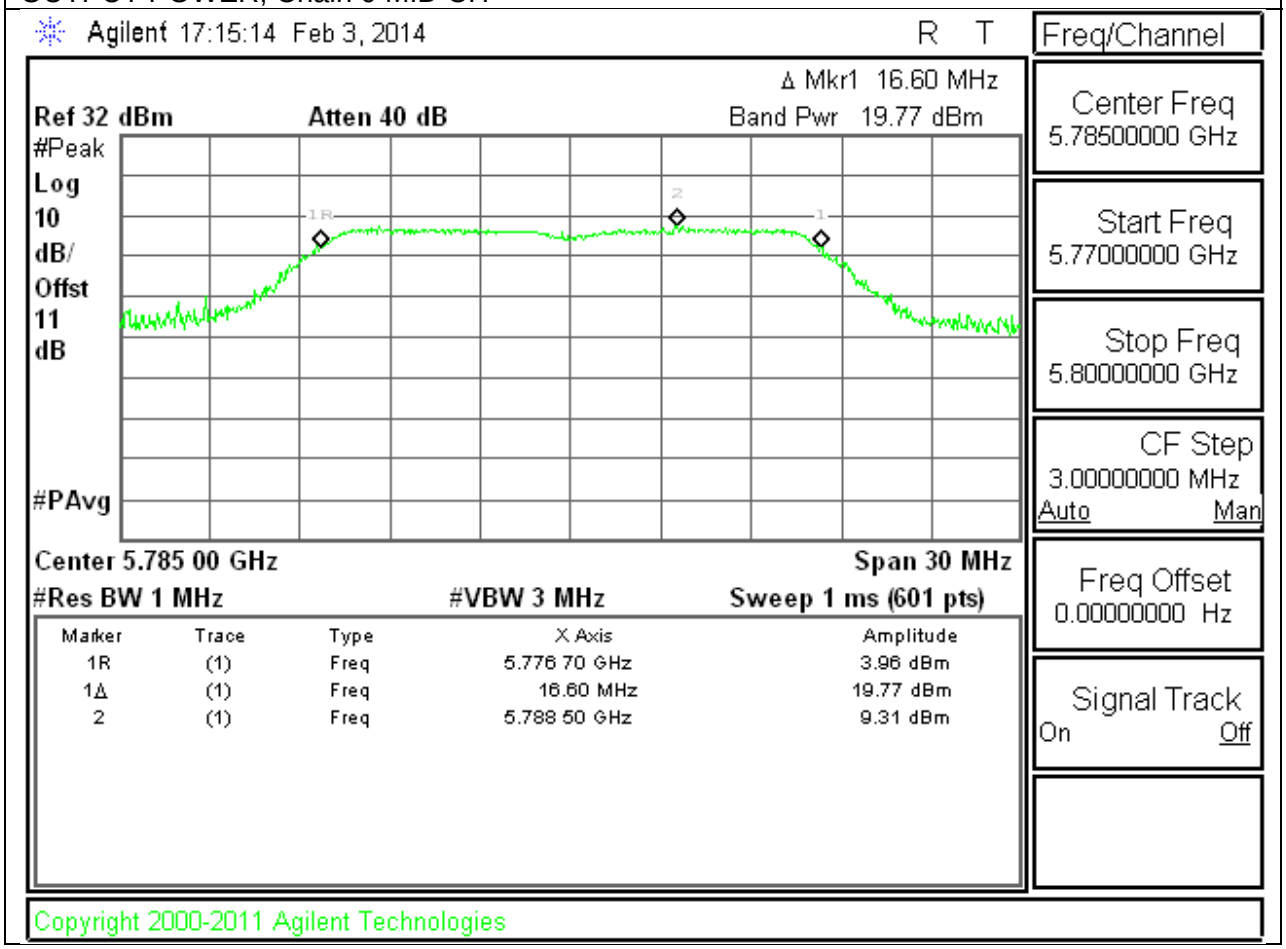
802.11n OUTPUT POWER, Chain 0

OUTPUT POWER, Chain 0 MID CH



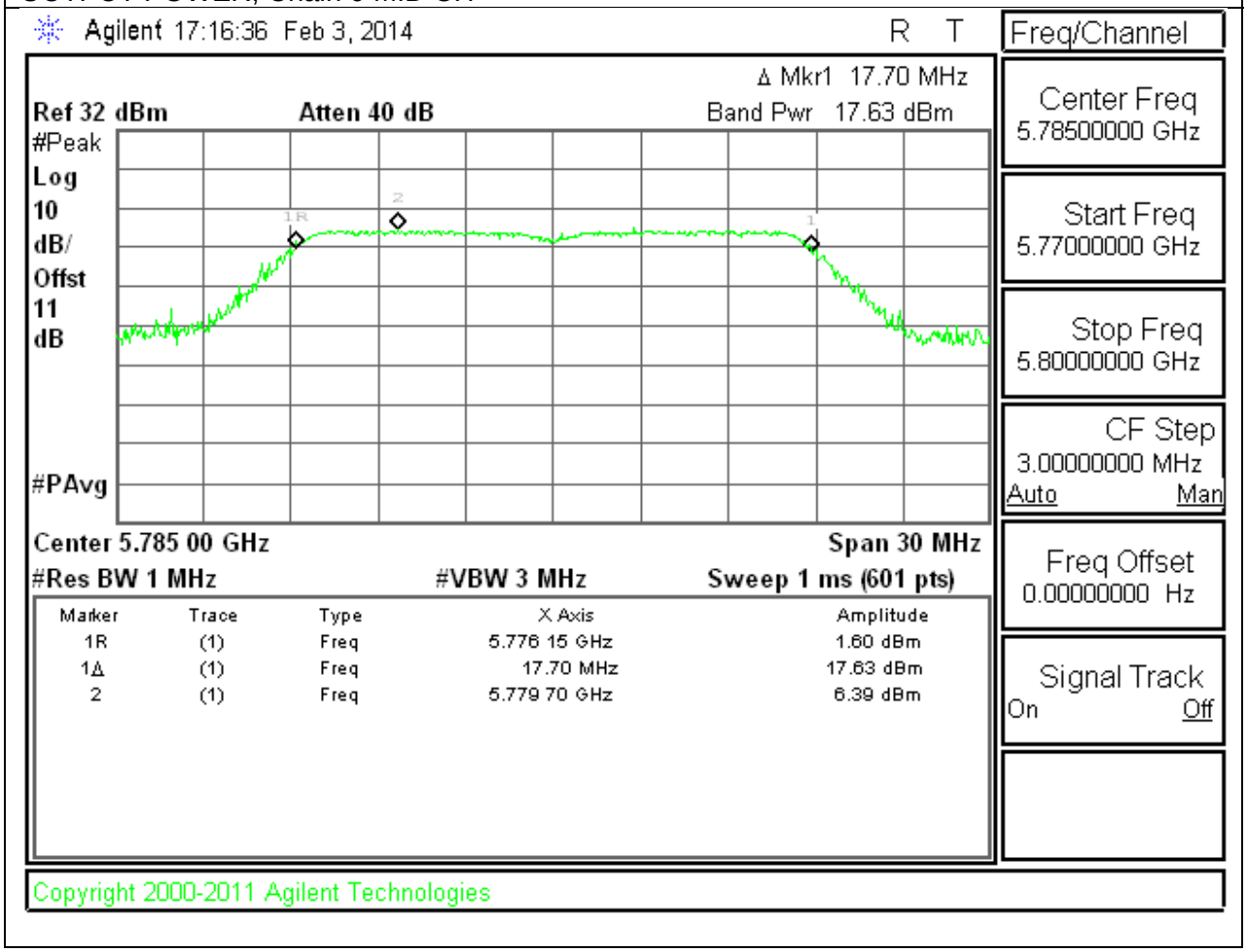
802.11a 5.8GHz OUTPUT POWER, Chain 0

OUTPUT POWER, Chain 0 MID CH



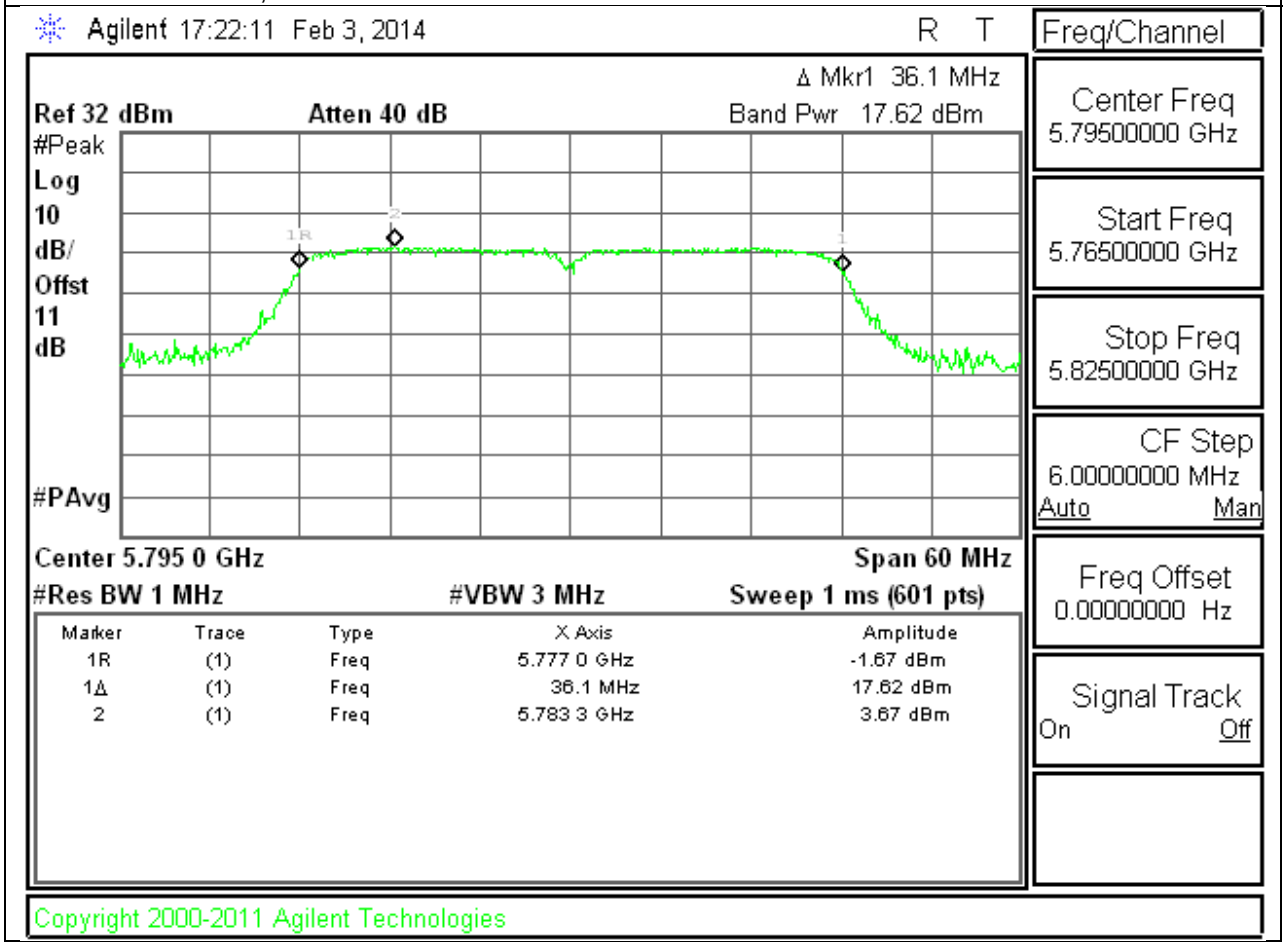
802.11n HT20 5.8GHz OUTPUT POWER, Chain 0

OUTPUT POWER, Chain 0 MID CH



802.11n HT40 5.6GHz 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	-8.54	8.0	-16.5
Mid	2437	-8.29	8.0	-16.3
High	2462	-8.20	8.0	-16.2

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	-13.93	8.0	-21.9
Mid	2437	-13.17	8.0	-21.2
High	2462	-13.50	8.0	-21.5

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	-14.17	8.0	-22.2
Mid	2437	-14.38	8.0	-22.4
High	2462	-15.12	8.0	-23.1

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	-13.48	8.0	-21.5
Mid	5785	-12.59	8.0	-20.6
High	5825	-12.91	8.0	-20.9

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	-14.33	8.0	-22.3
Mid	5785	-15.44	8.0	-23.4
High	5825	-15.03	8.0	-23.0

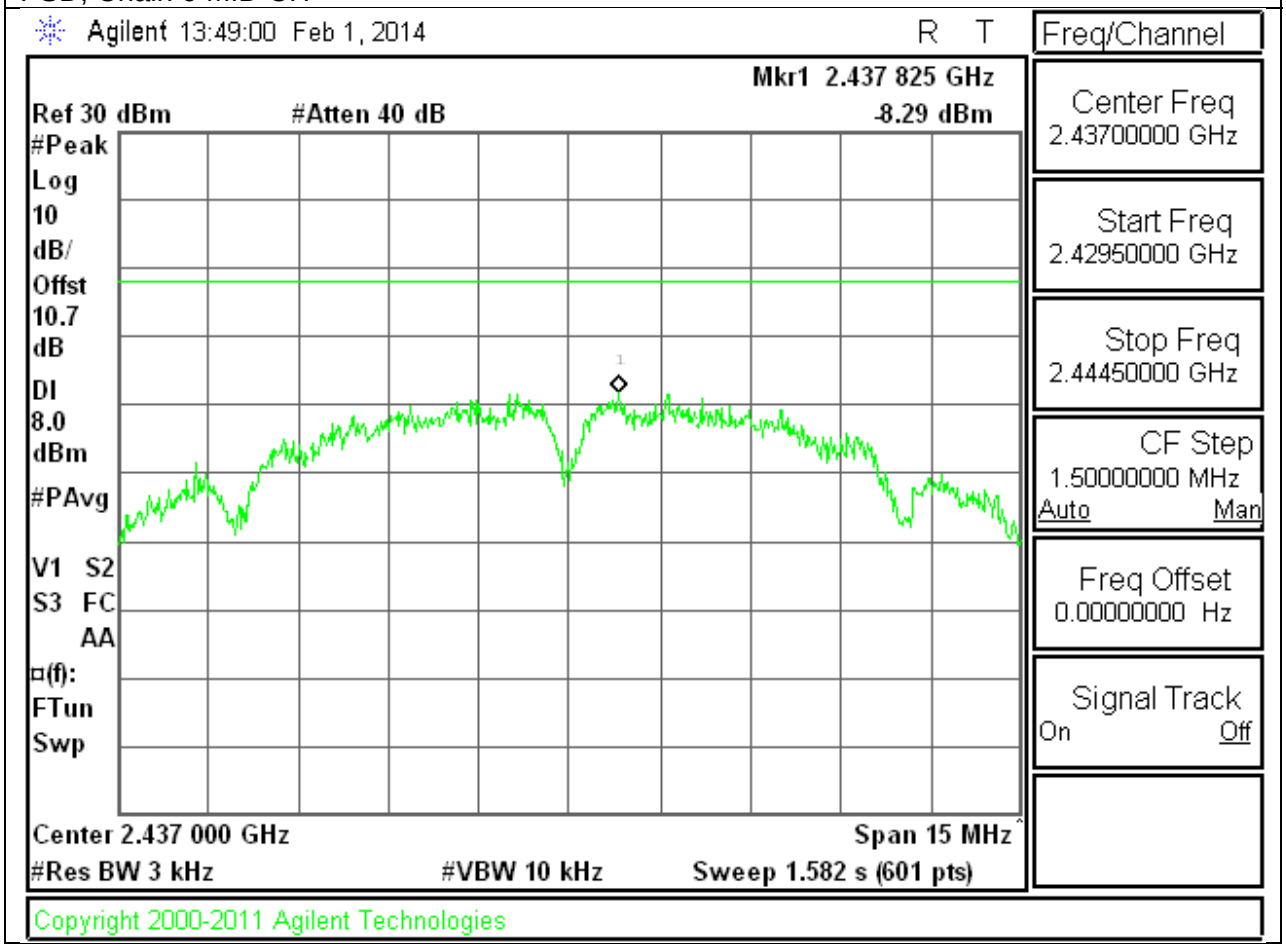
9.5.6. 802.11n HT40 MODE IN THE 5.8 GHz BAND

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Limit (dBm)	Margin (dB)
Low	5755	-18.02	8.0	-26.0
High	5795	-18.82	8.0	-26.8

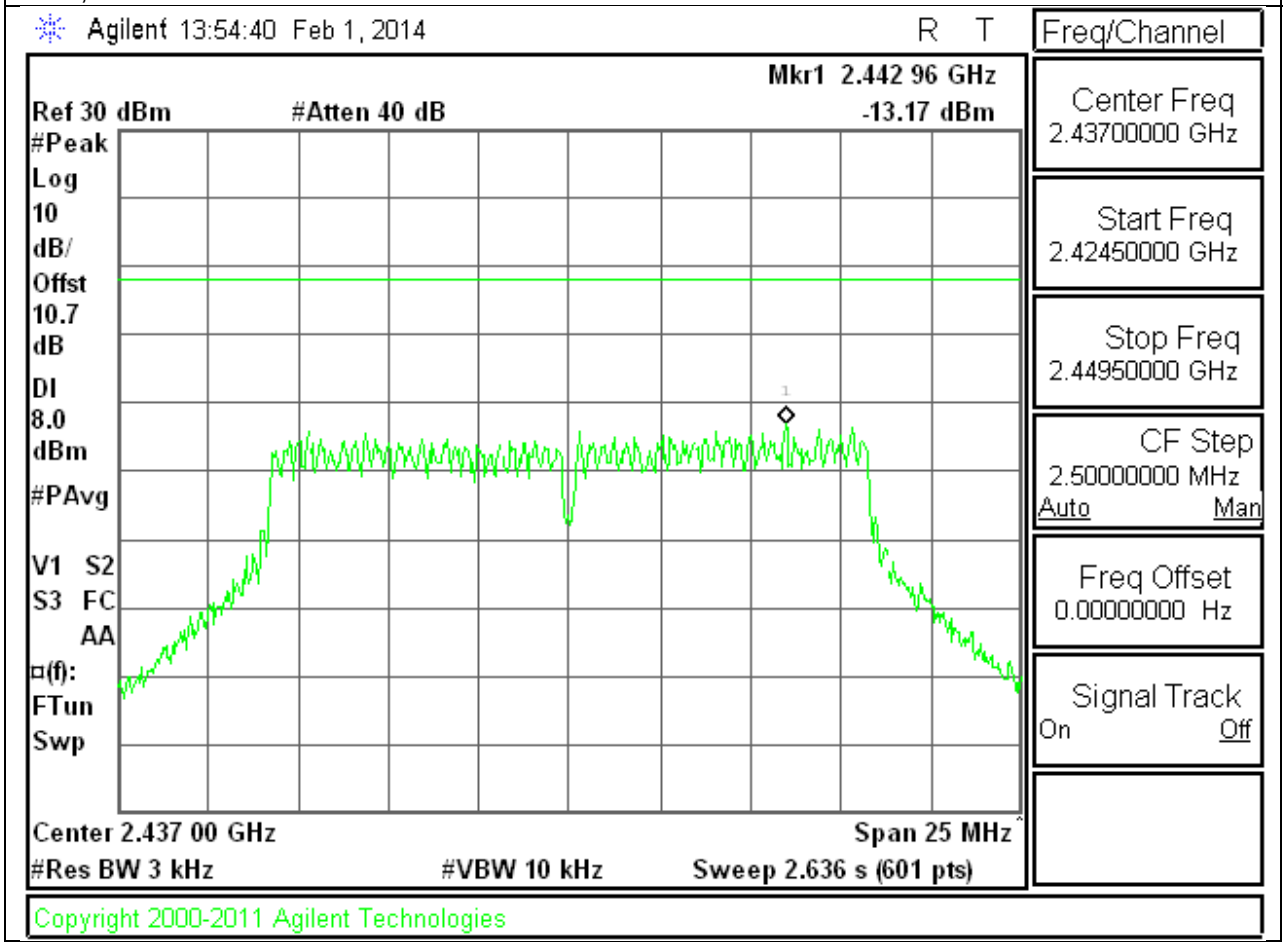
802.11b PSD, Chain 0

PSD, Chain 0 MID CH



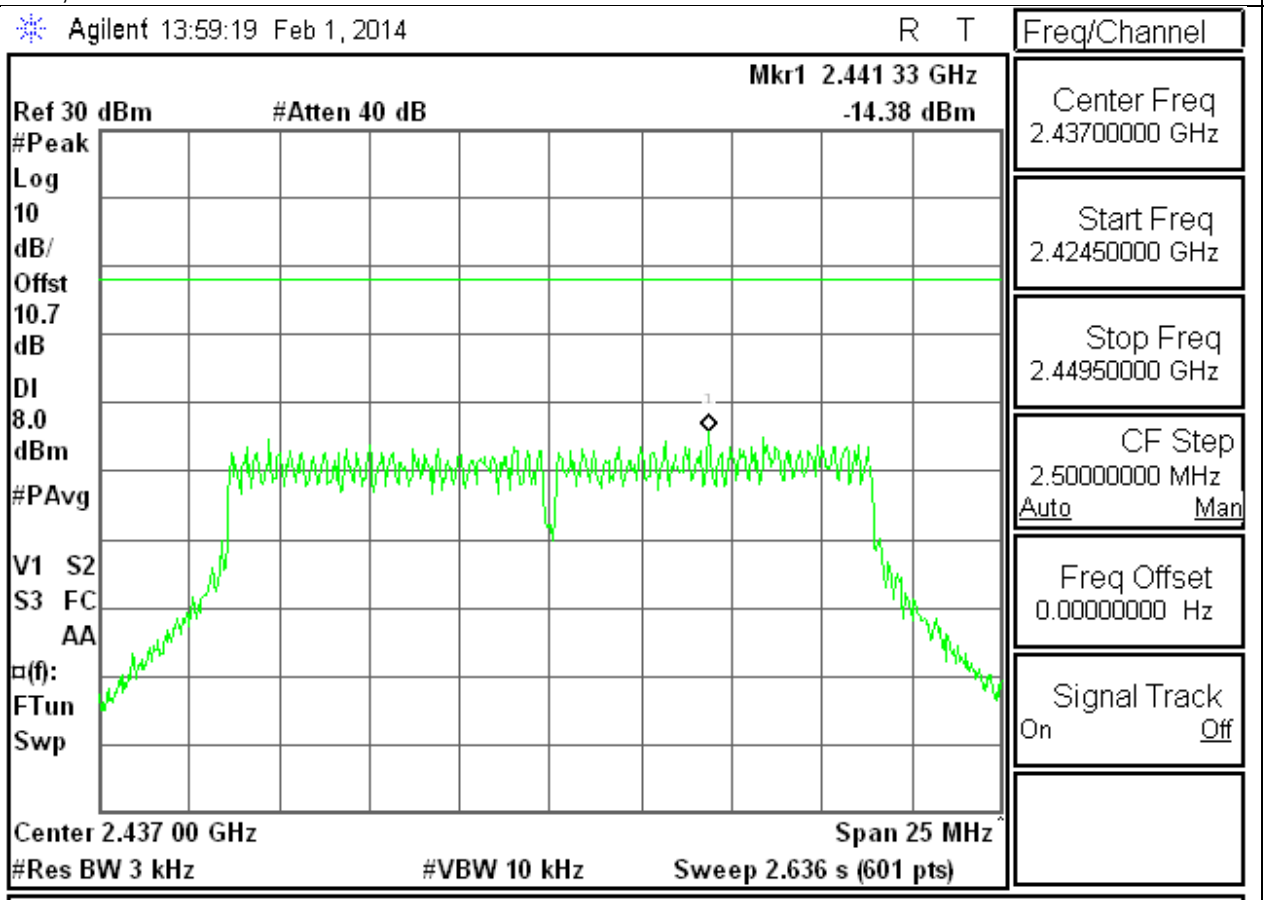
802.11g PSD, Chain 0

PSD, Chain 0 MID CH



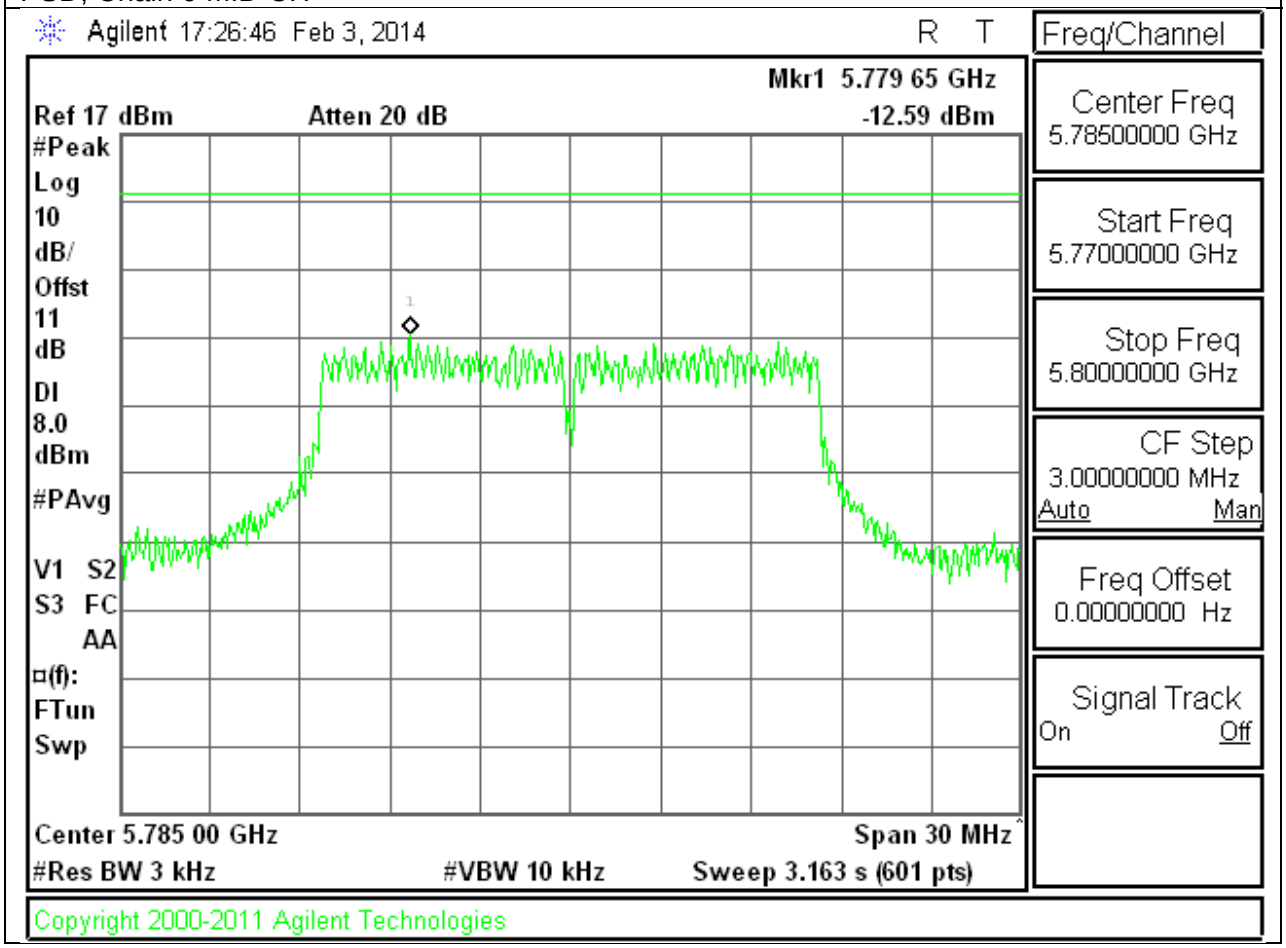
802.11n PSD, Chain 0

PSD, Chain 0 MID CH



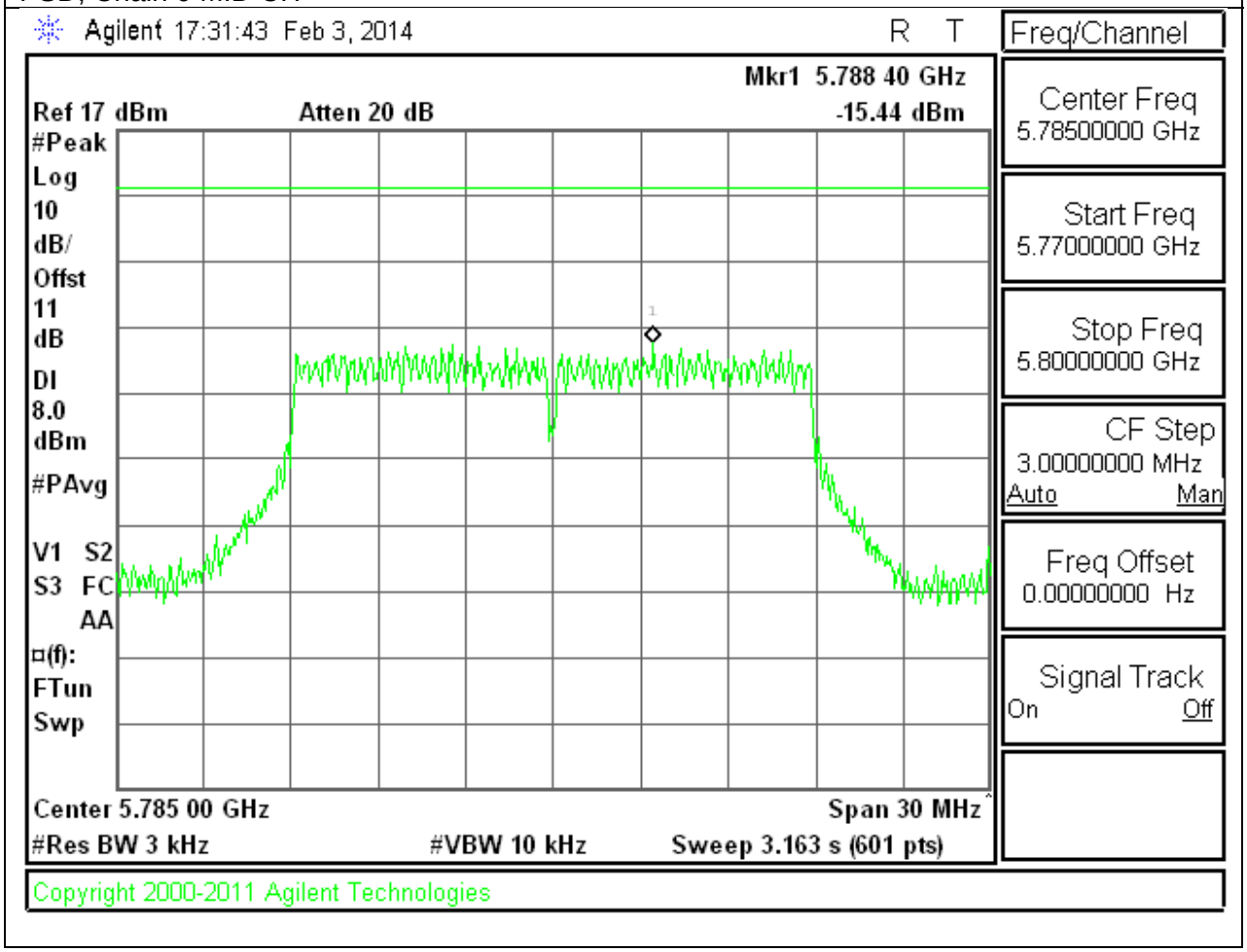
802.11a 5.8GHz PSD, Chain 0

PSD, Chain 0 MID CH



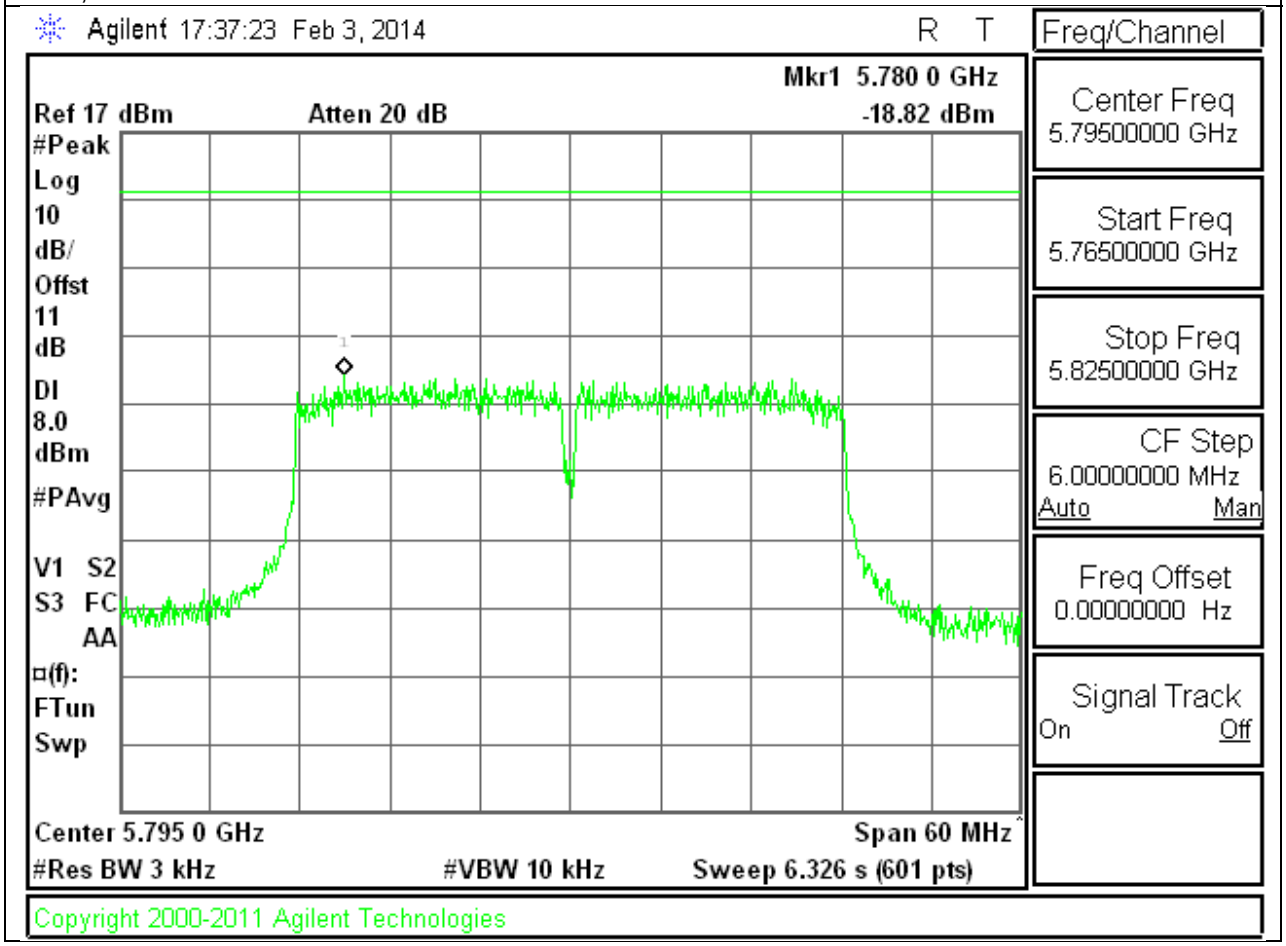
802.11n HT20 5.8GHz PSD, Chain 0

PSD, Chain 0 MID CH



802.11n HT40 5.6GHz 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

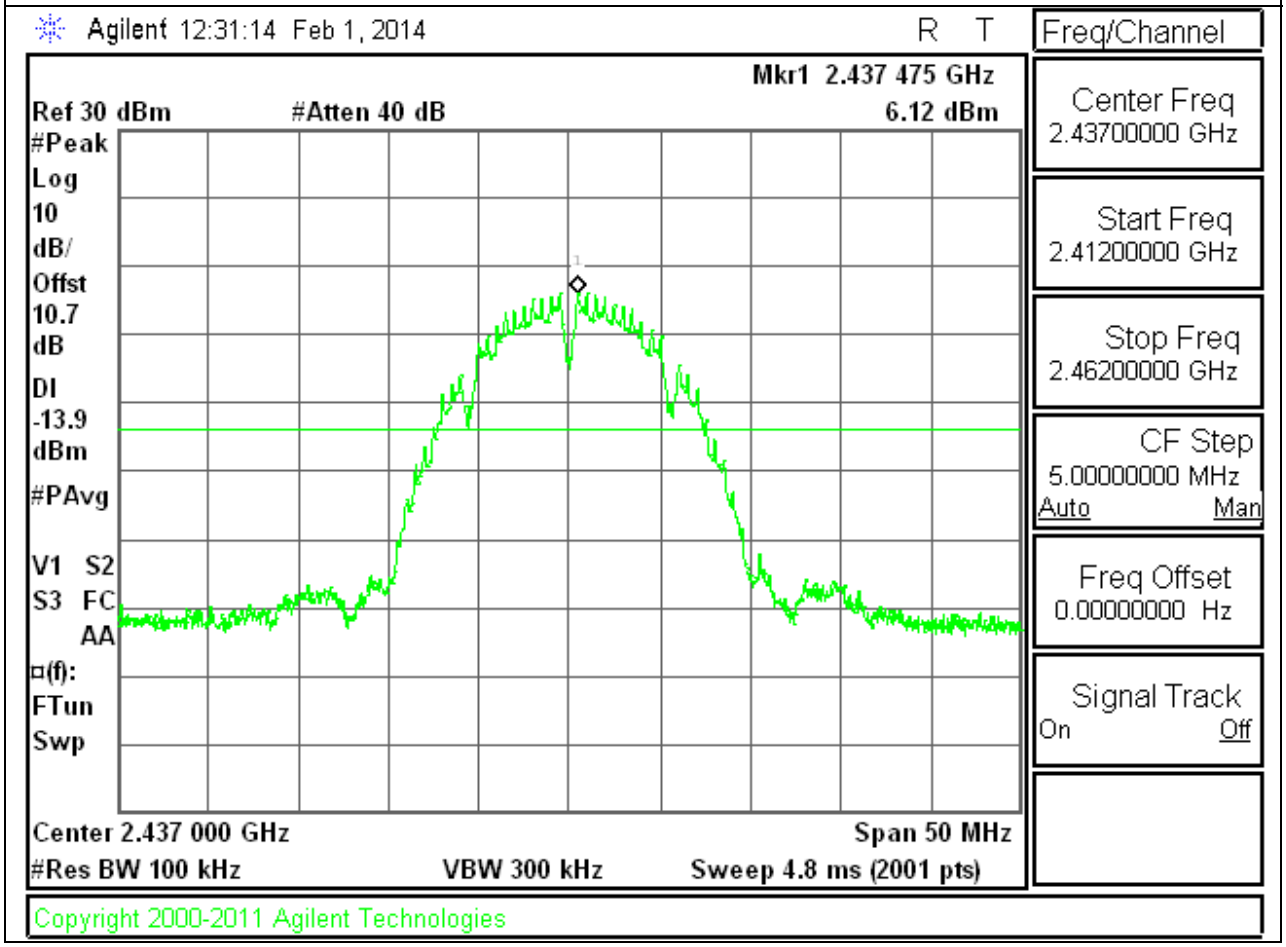
The transmitter output is connected to a spectrum analyzer with RBW = 100 kHz, VBW = 300 kHz, peak detector, and max hold. Measurements utilizing these settings are made of the in-band reference level, bandedge (where measurements to the general radiated limits will not be made) and out-of-band emissions.

RESULTS

9.6.1. 802.11b MODE IN THE 2.4 GHz BAND

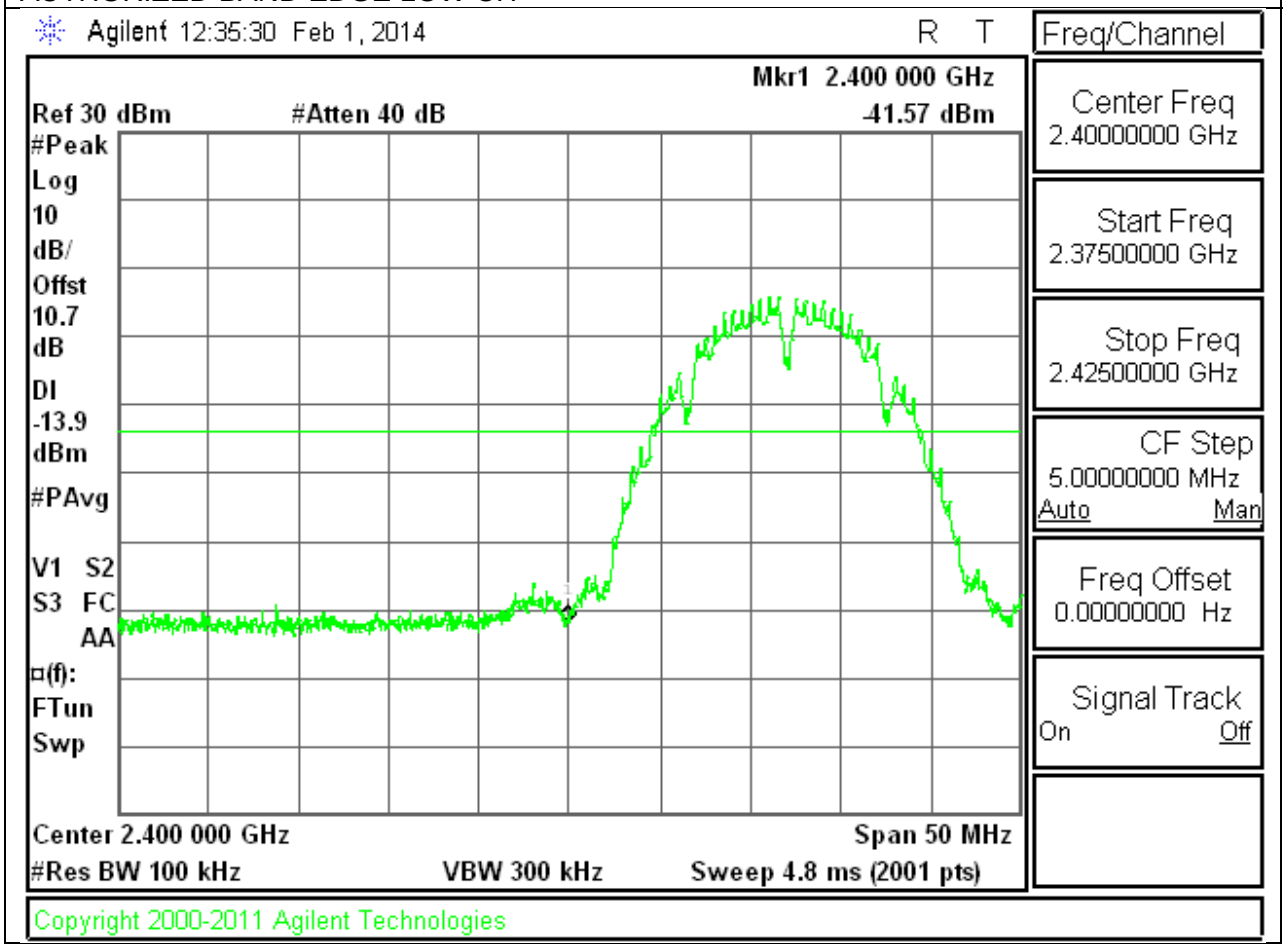
IN-BAND REFERENCE LEVEL

REFERENCE LEVEL MID CH



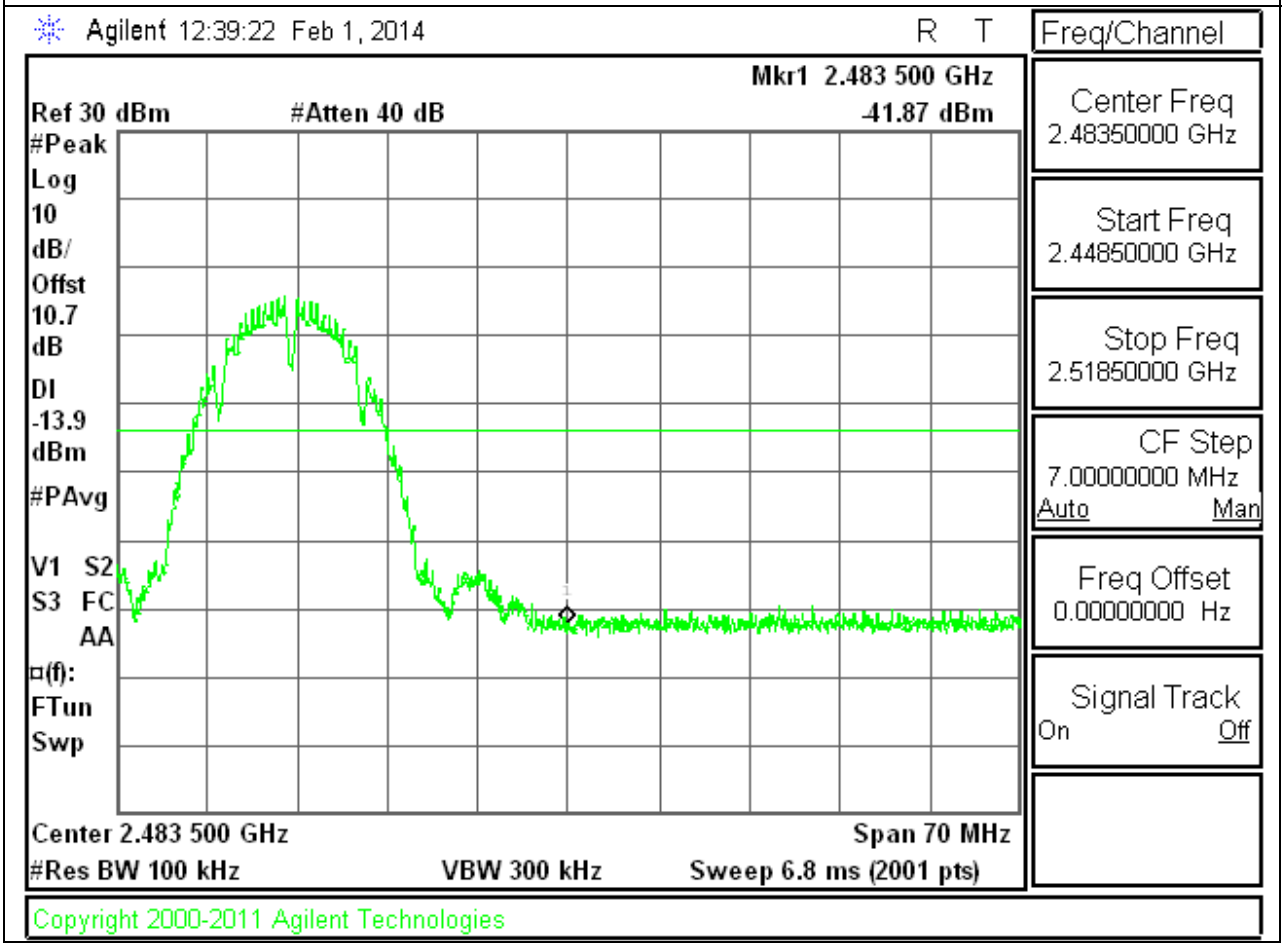
LOW CHANNEL BANDEDGE

AUTHORIZED BAND EDGE LOW CH



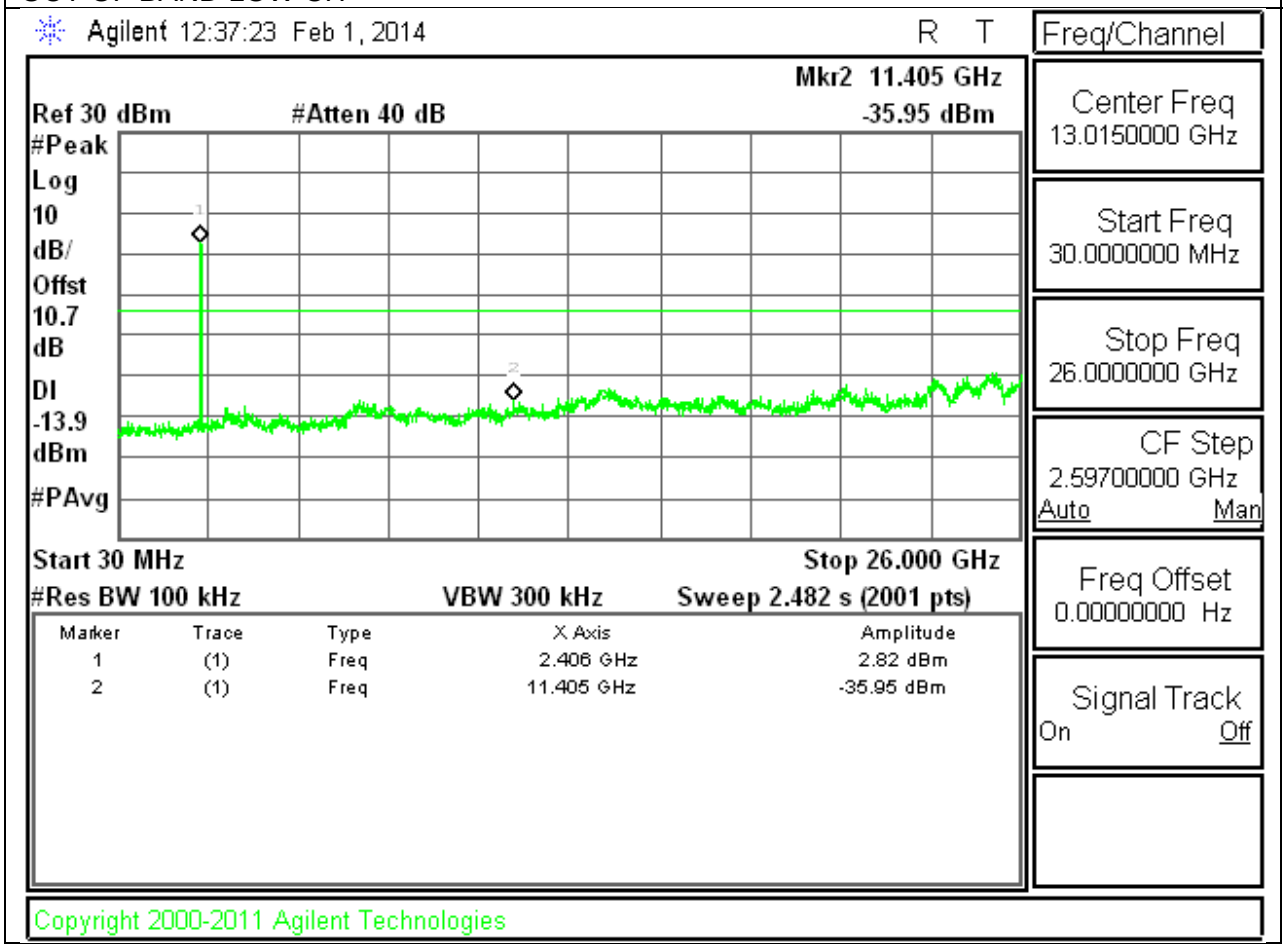
HIGH CHANNEL BANDEDGE

AUTHORIZED BAND EDGE HIGH CH

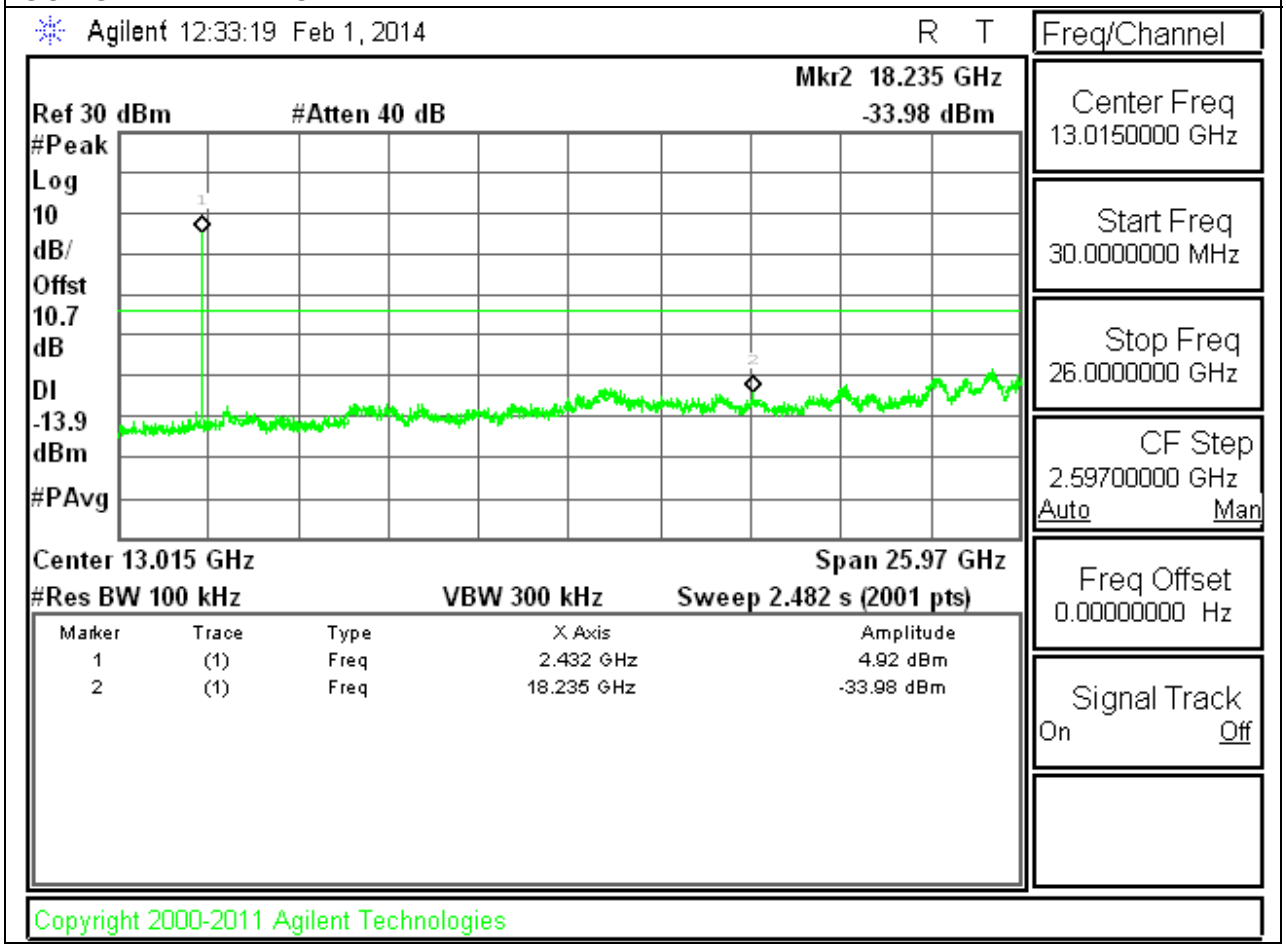


OUT-OF-BAND EMISSIONS

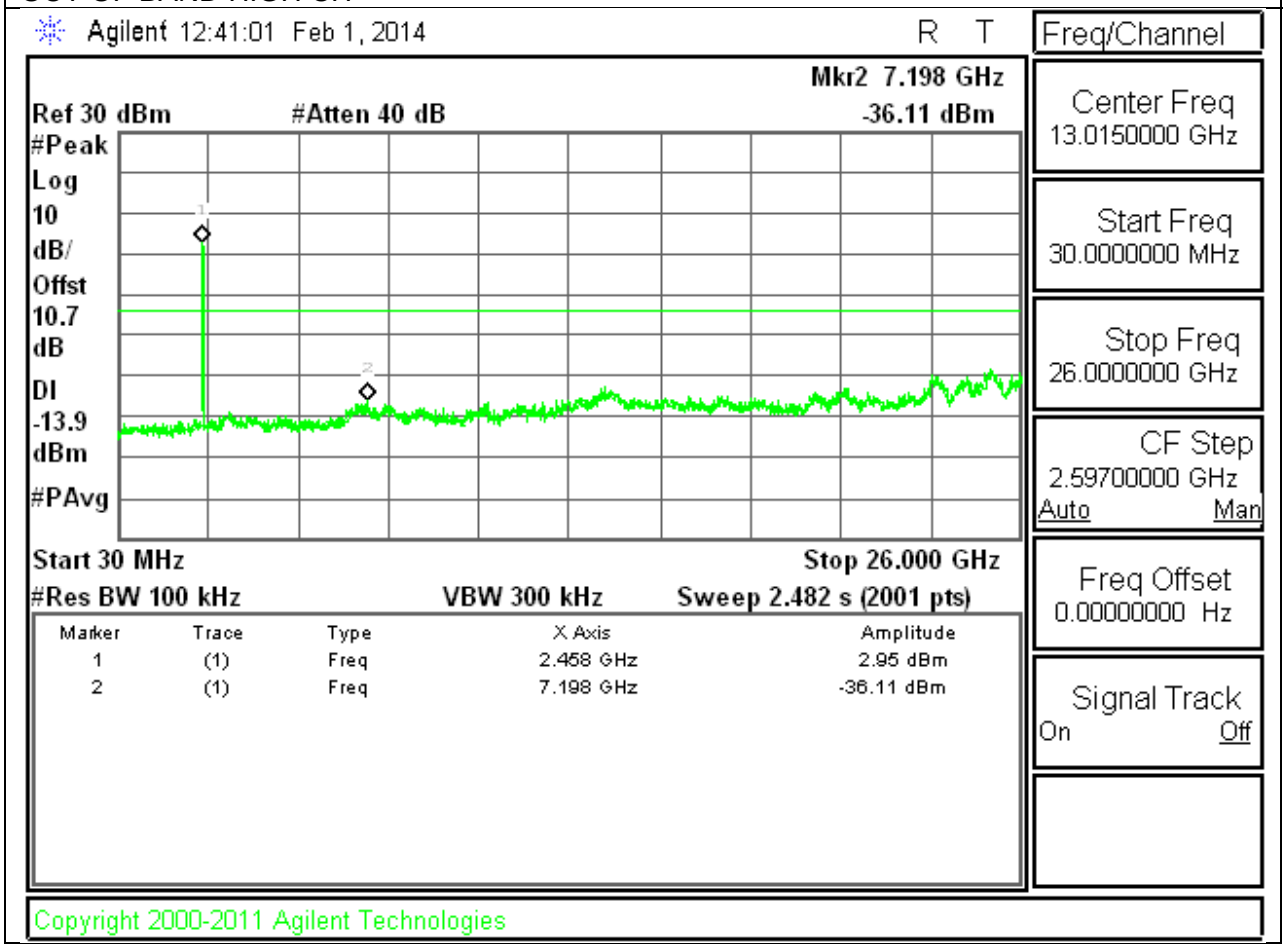
OUT OF BAND LOW CH



OUT OF BAND MID CH



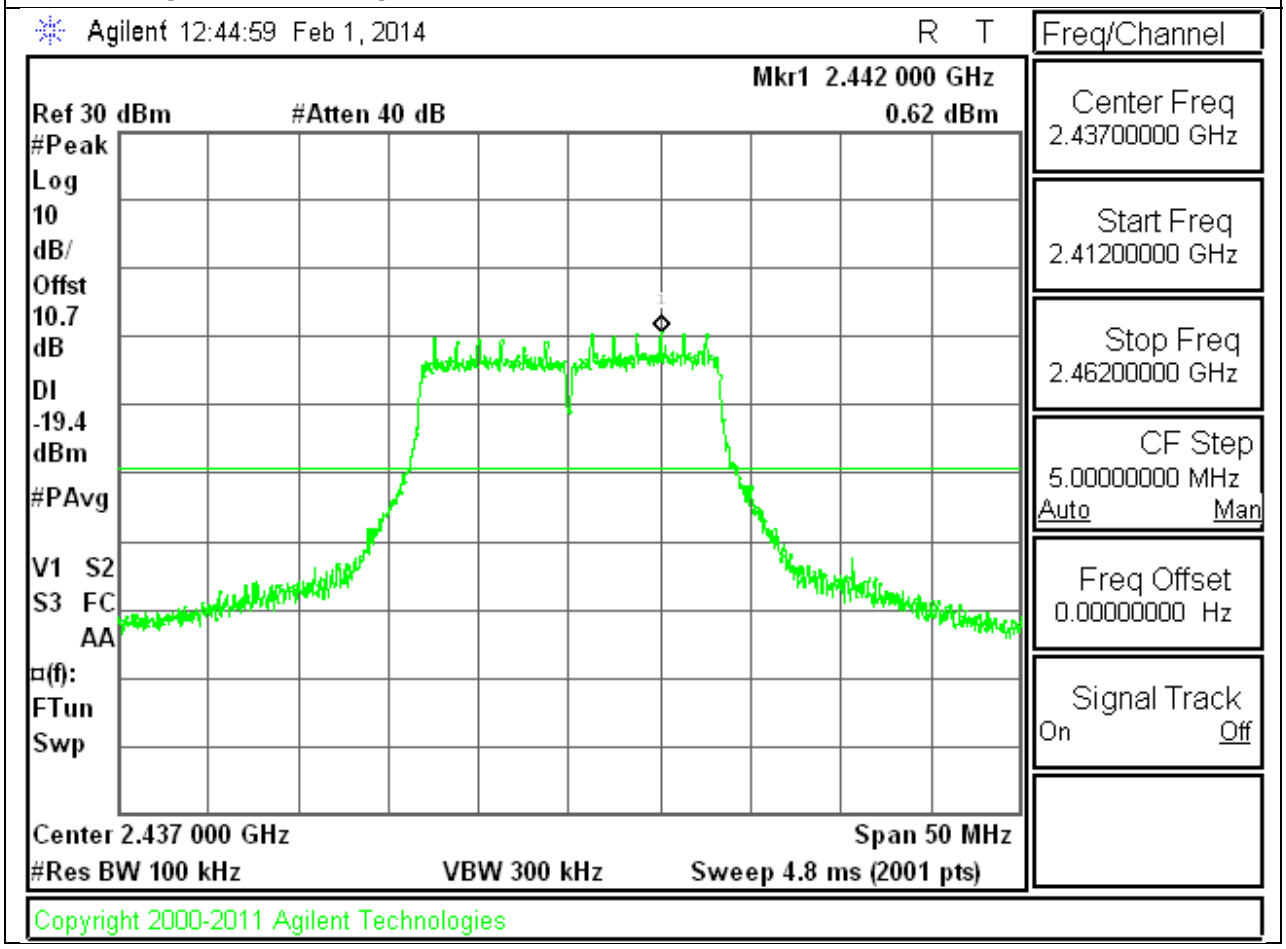
OUT OF BAND HIGH CH



9.6.2. 802.11g MODE IN THE 2.4 GHz BAND

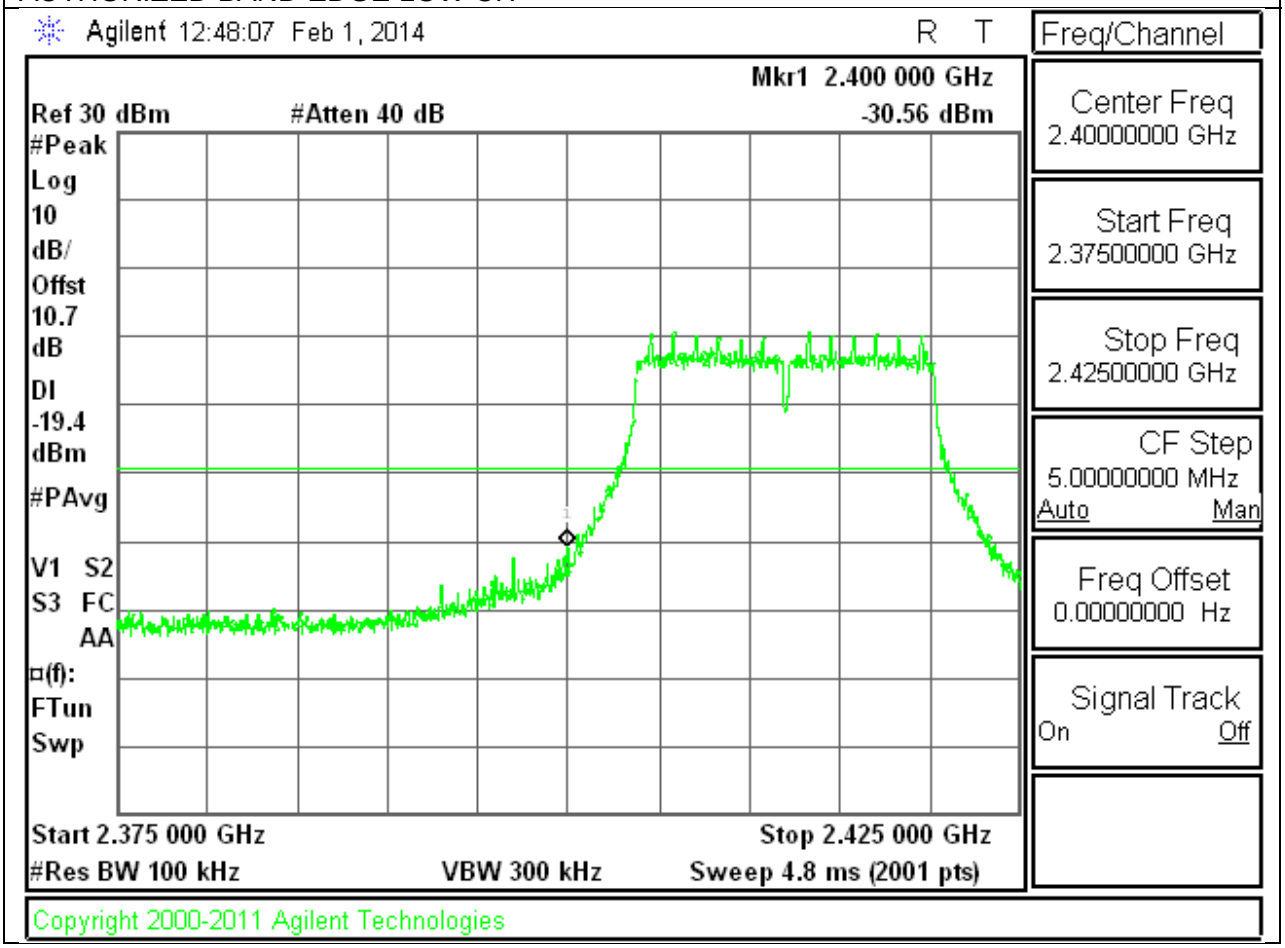
IN-BAND REFERENCE LEVEL

REFERENCE LEVEL MID CH



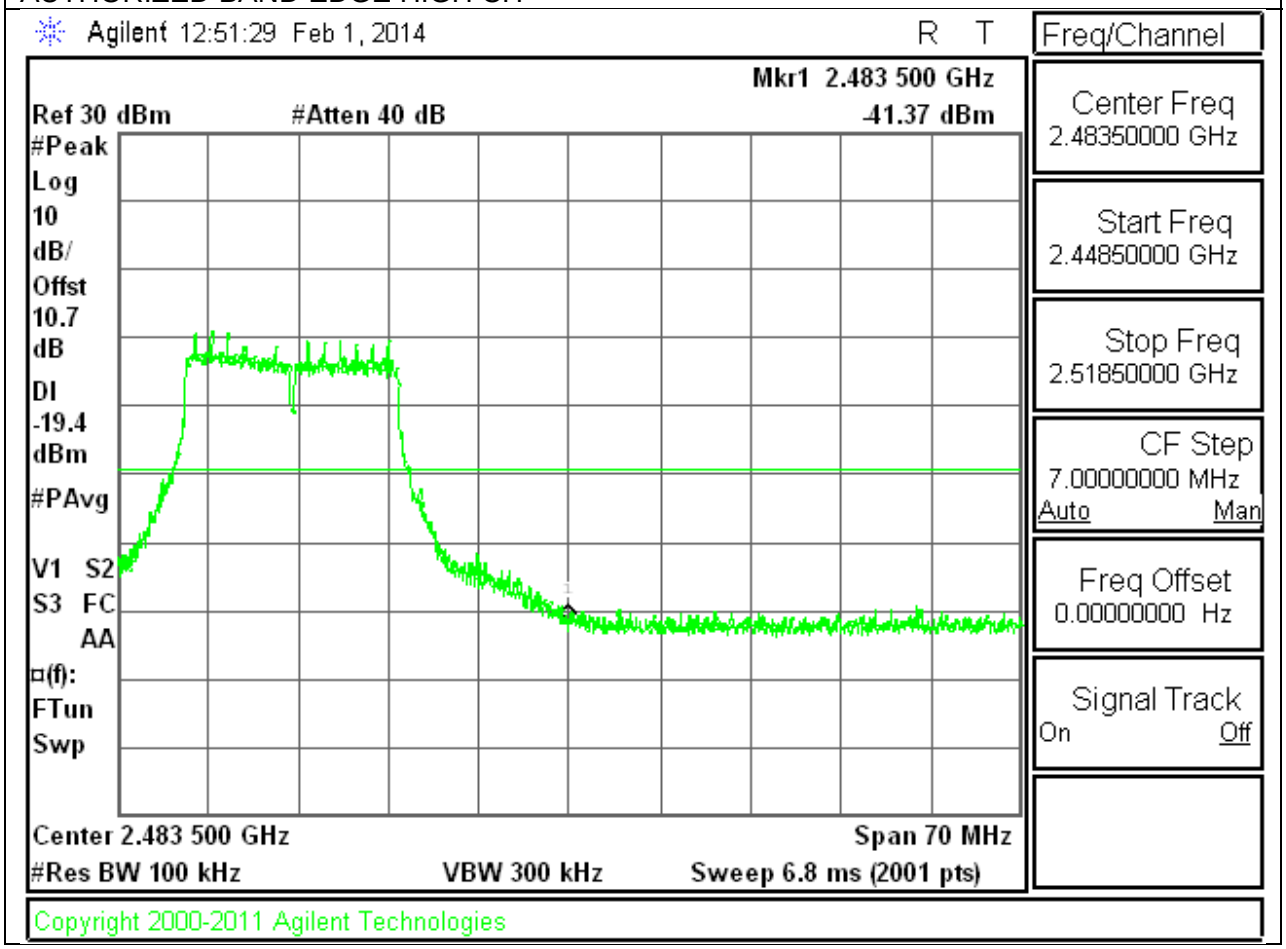
LOW CHANNEL BANDEDGE

AUTHORIZED BAND EDGE LOW CH



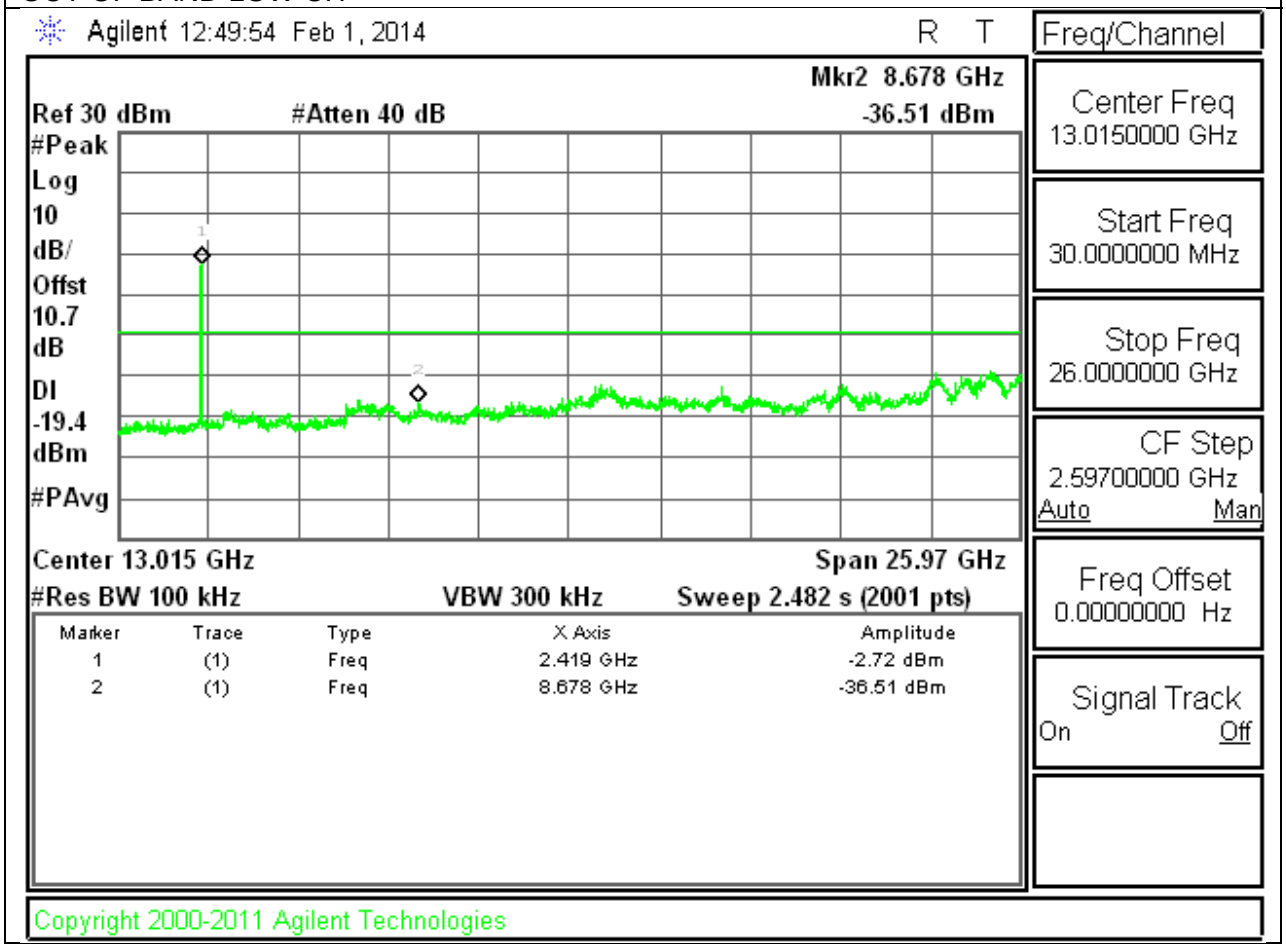
HIGH CHANNEL BANDEDGE

AUTHORIZED BAND EDGE HIGH CH

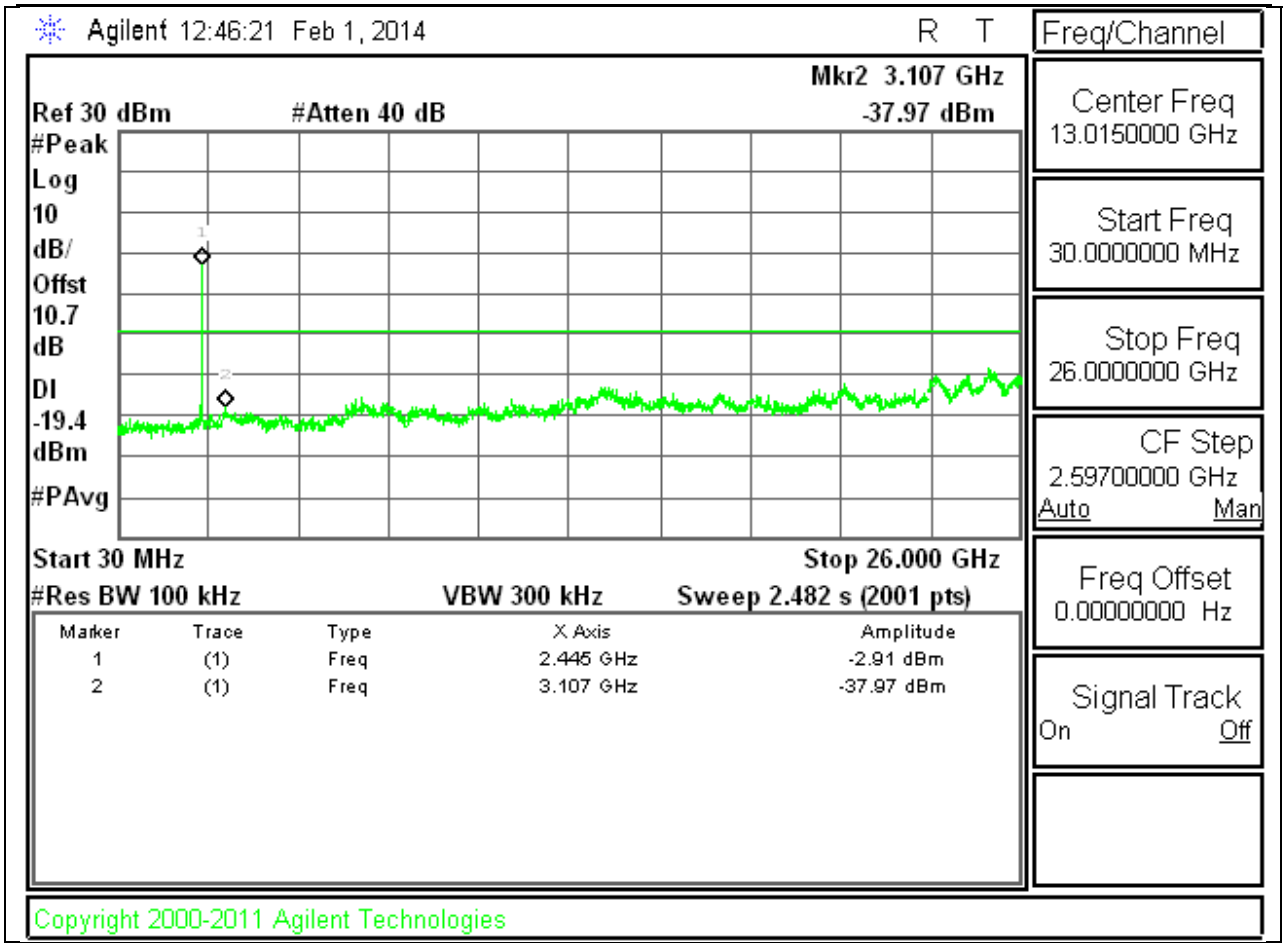


OUT-OF-BAND EMISSIONS

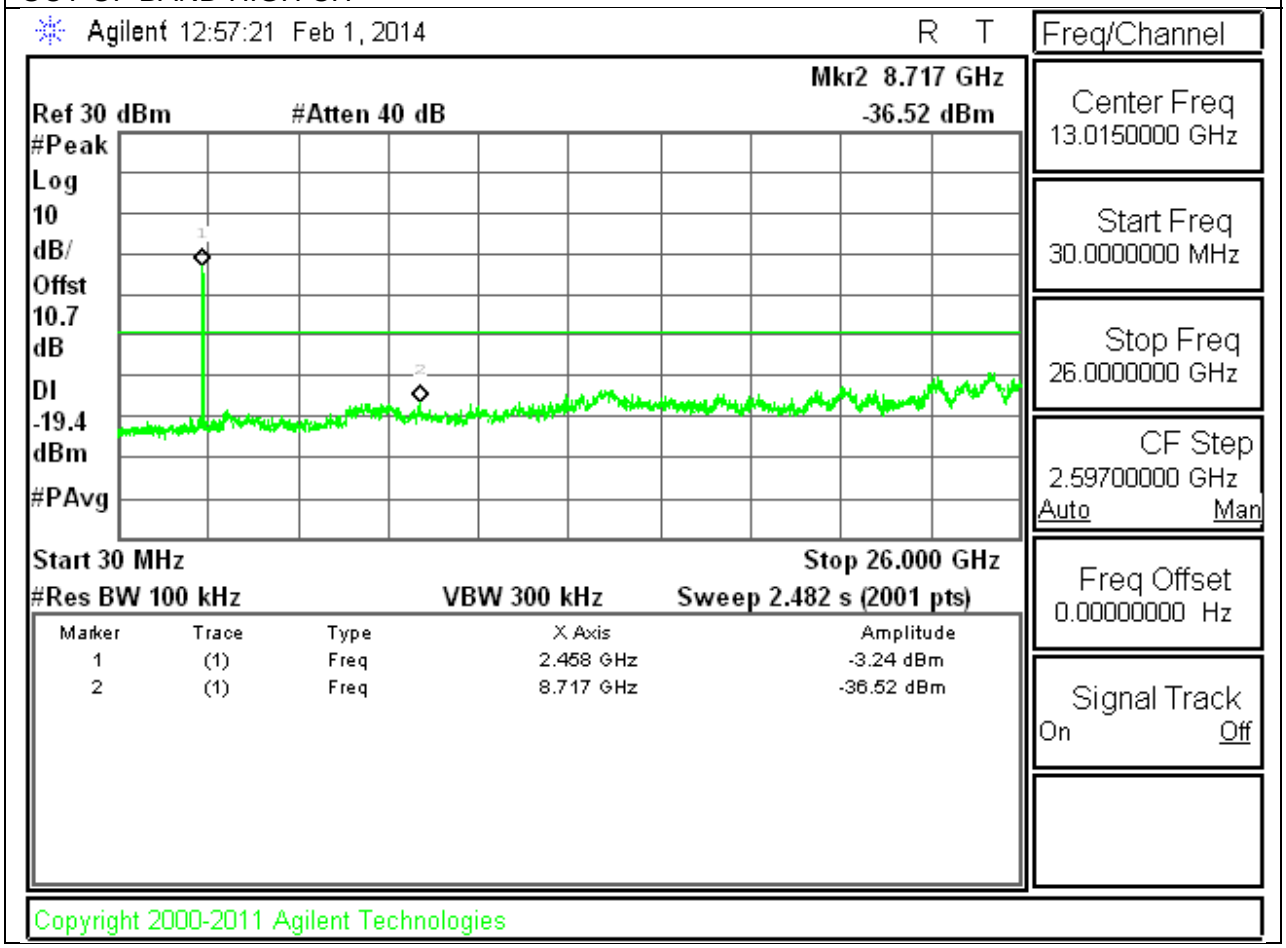
OUT OF BAND LOW CH



OUT OF BAND MID CH



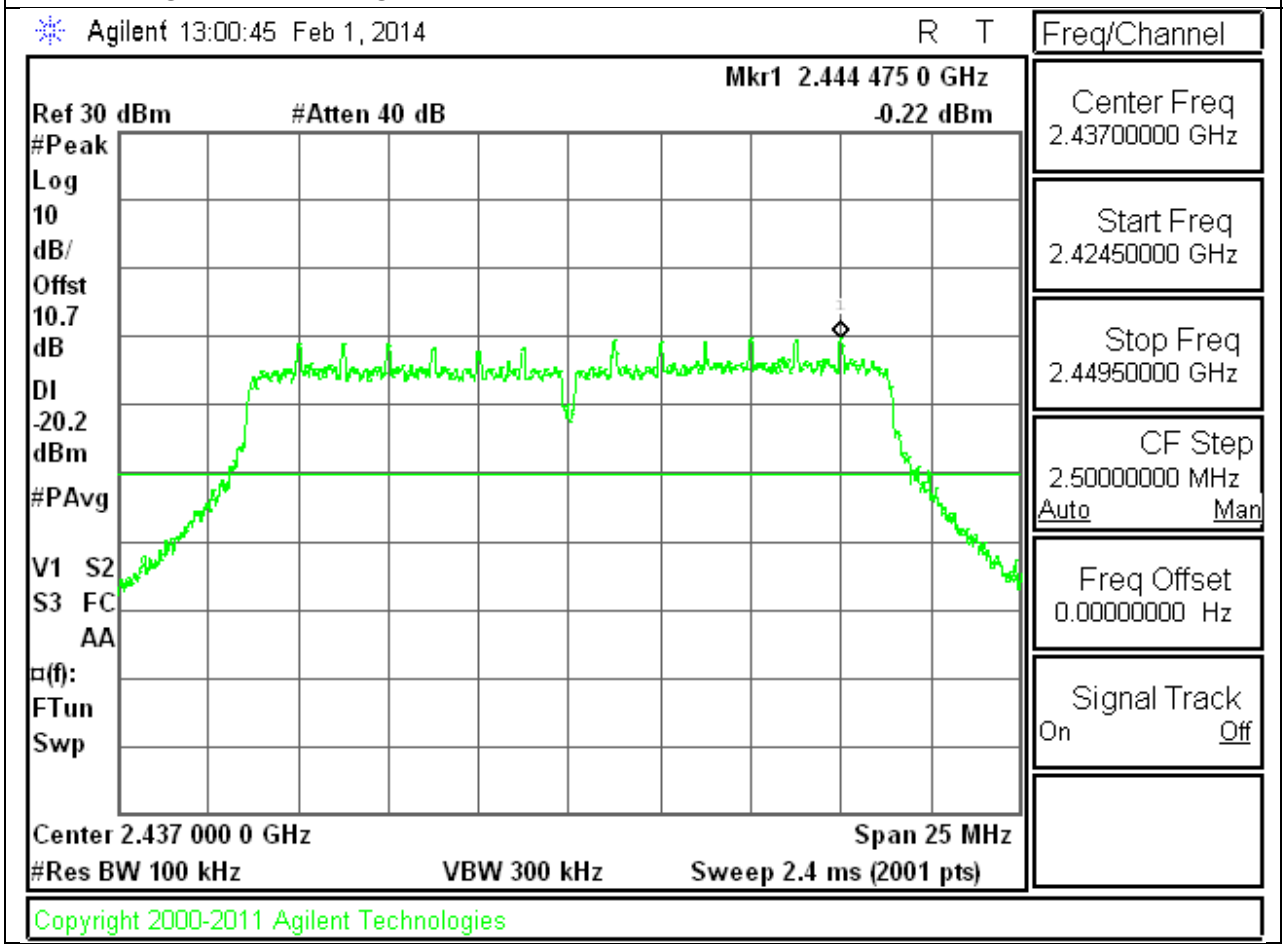
OUT OF BAND HIGH CH



9.6.3. 802.11n MODE IN THE 2.4 GHz BAND

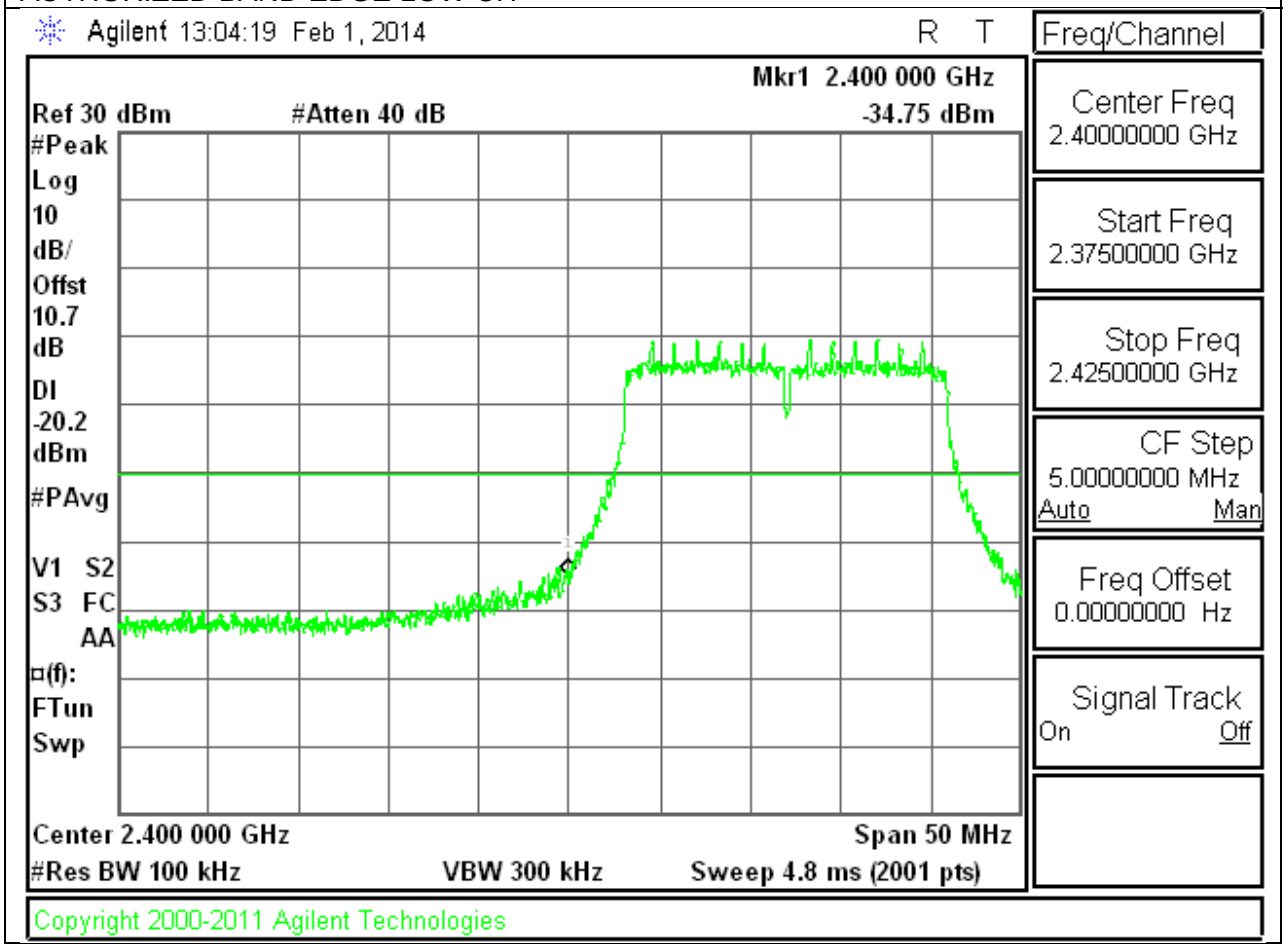
IN-BAND REFERENCE LEVEL

REFERENCE LEVEL MID CH



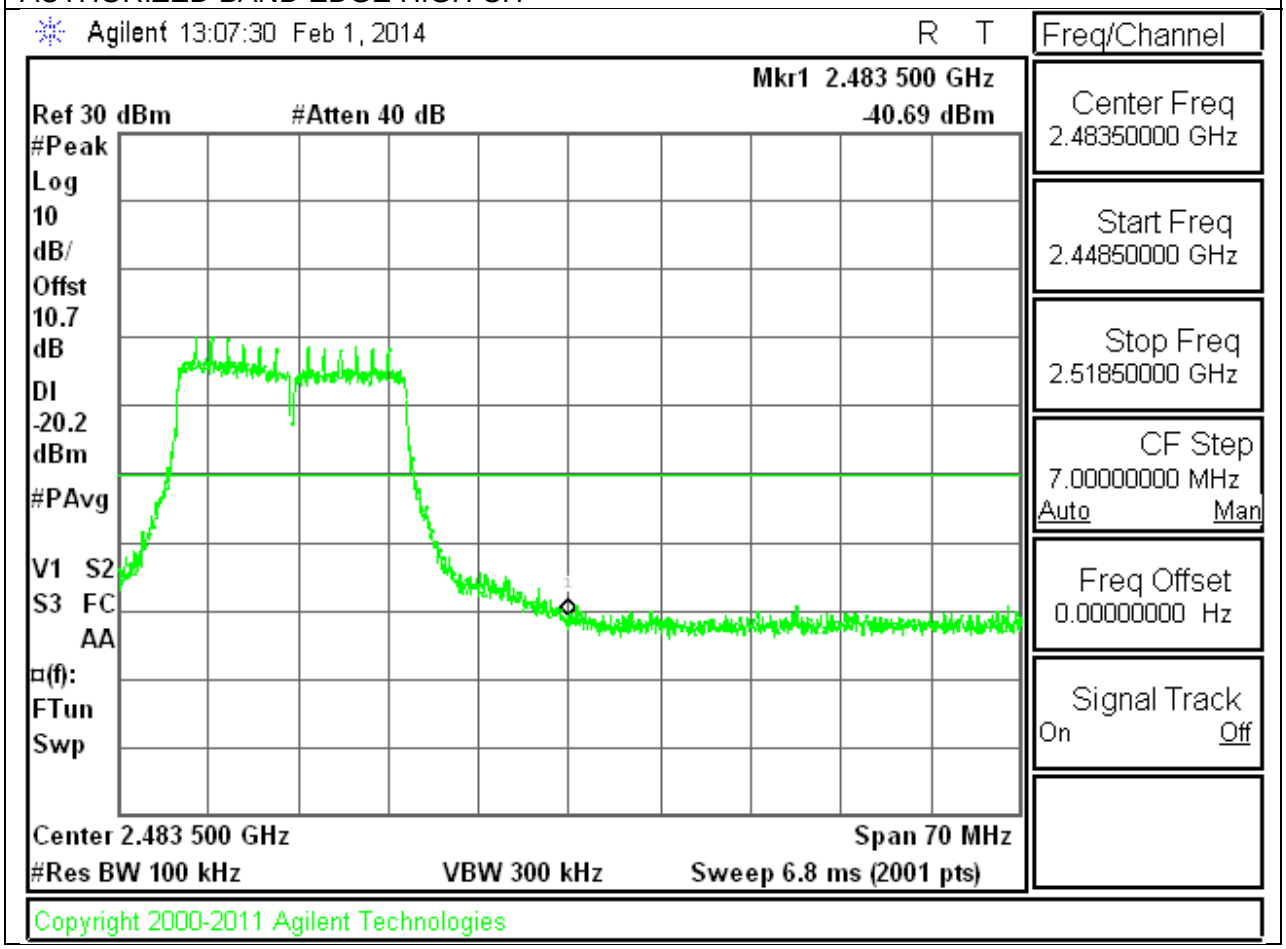
LOW CHANNEL BANDEDGE

AUTHORIZED BAND EDGE LOW CH



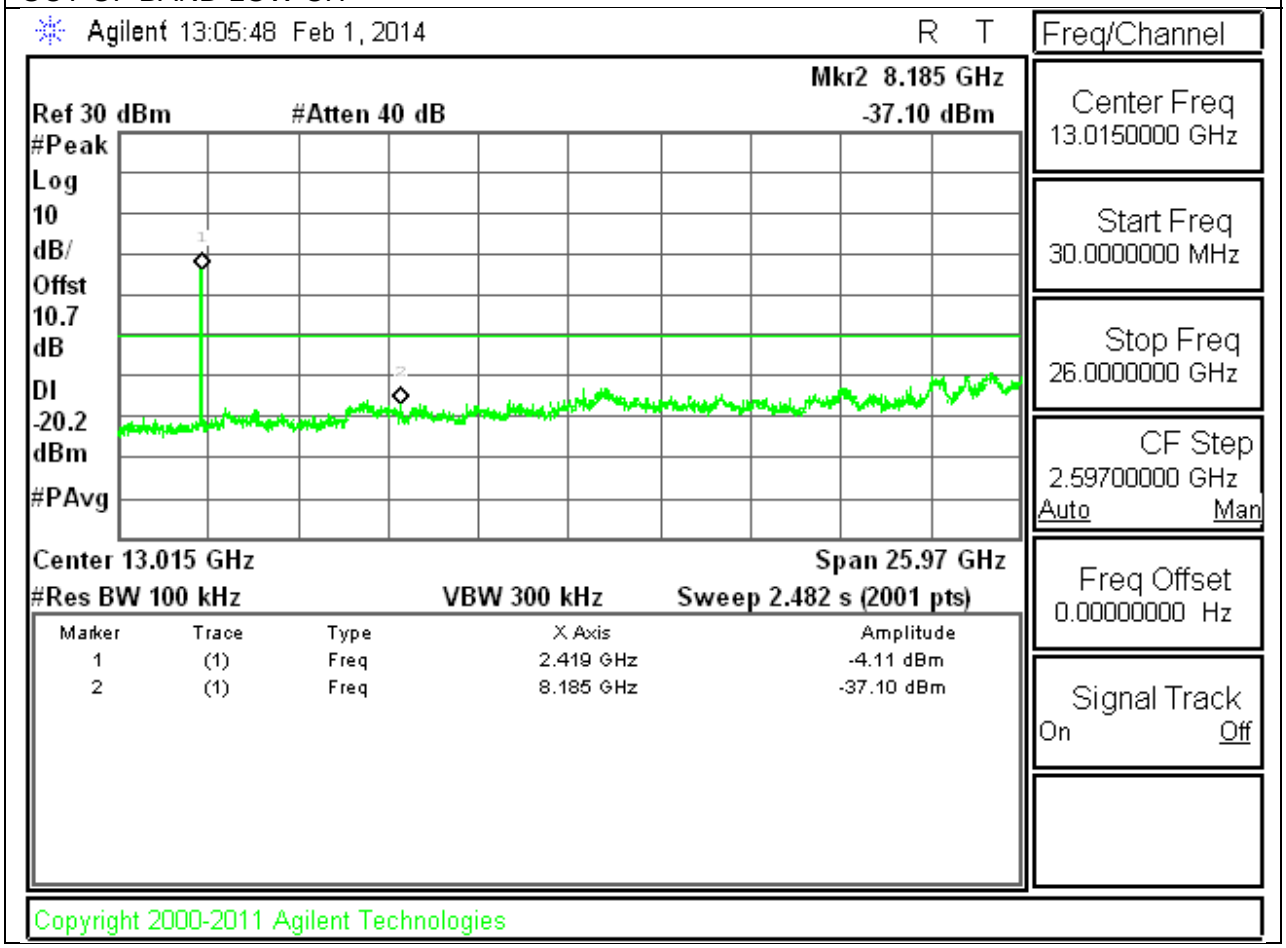
HIGH CHANNEL BANDEDGE

AUTHORIZED BAND EDGE HIGH CH

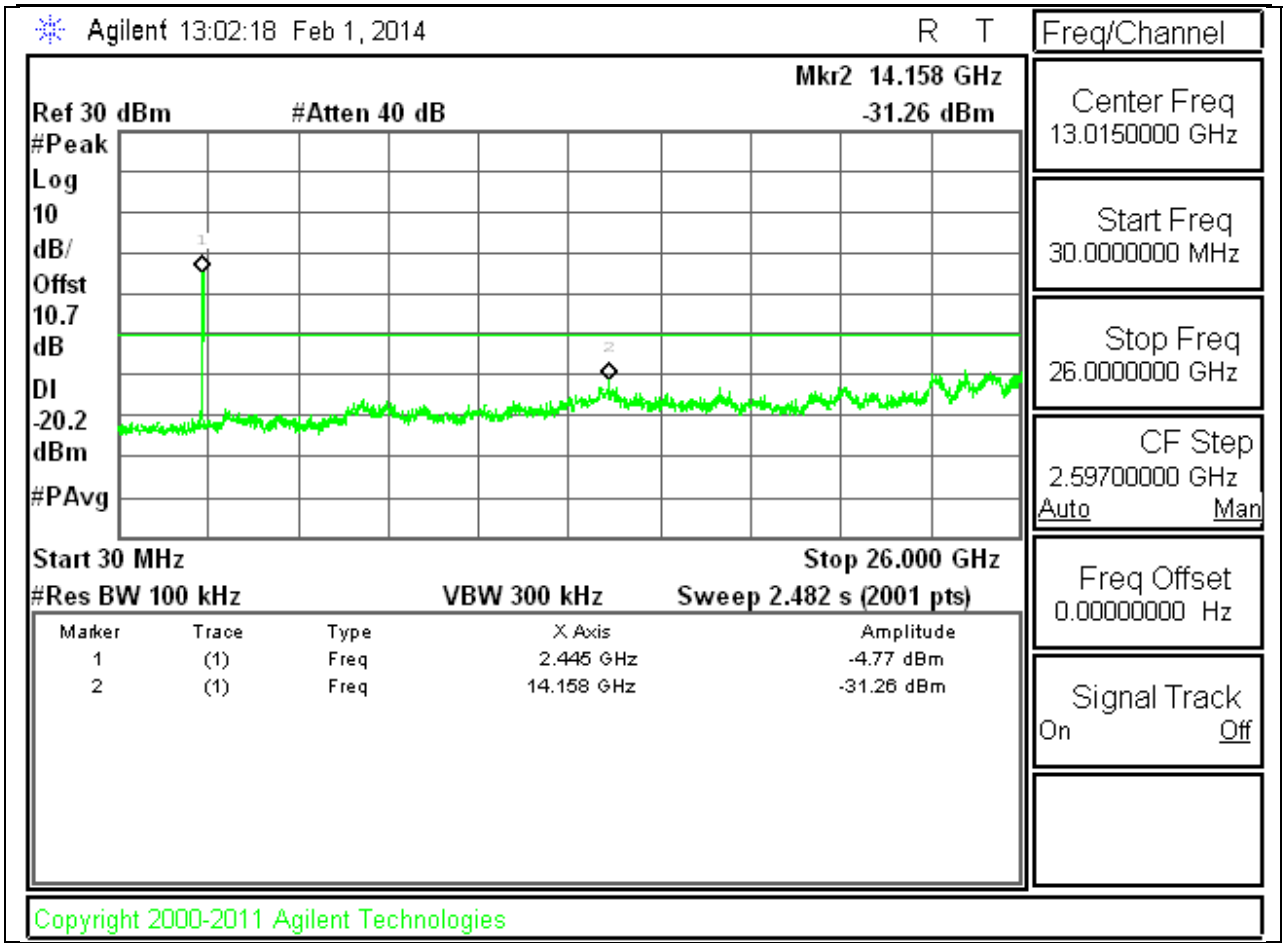


OUT-OF-BAND EMISSIONS

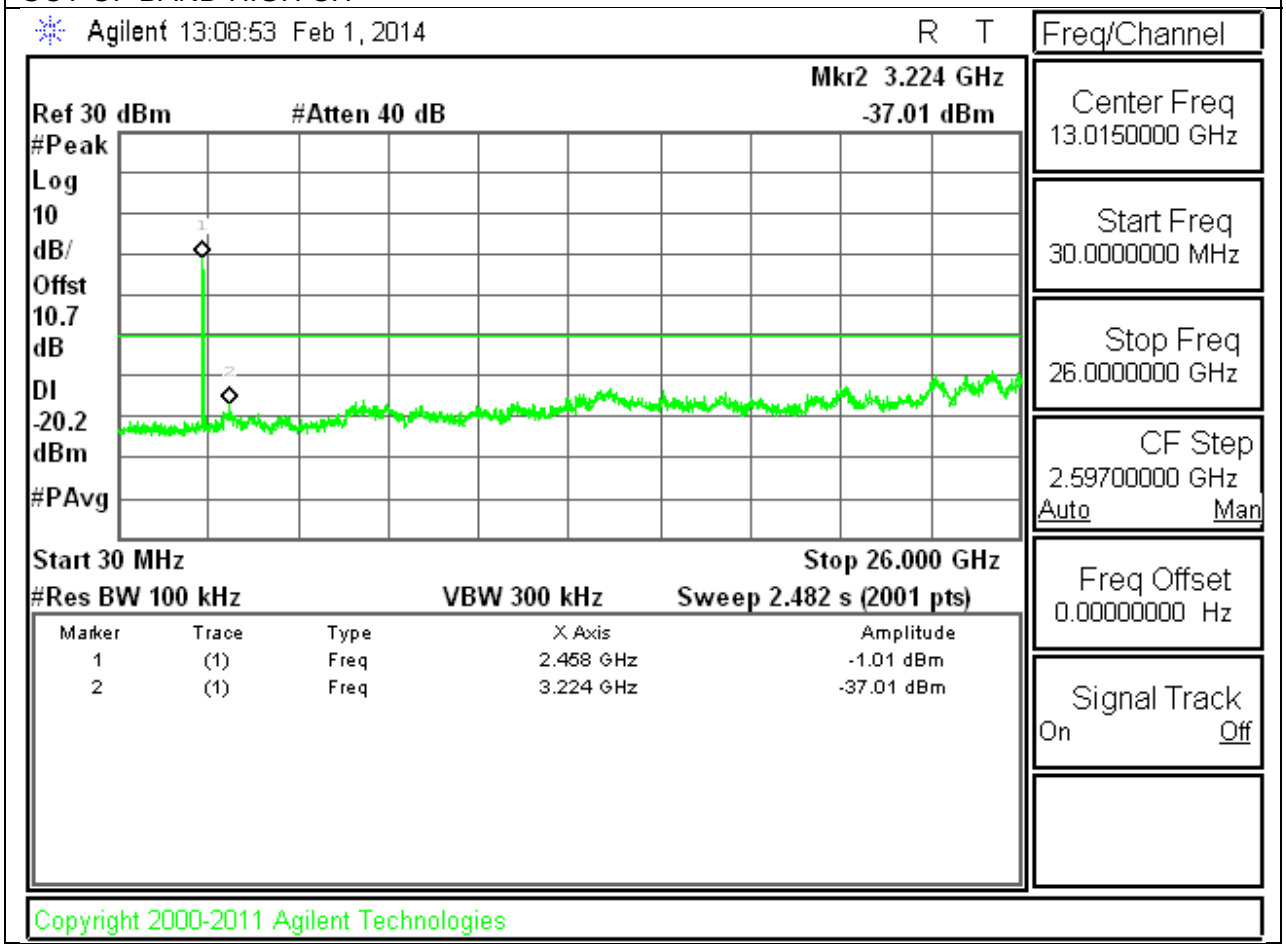
OUT OF BAND LOW CH



OUT OF BAND MID CH



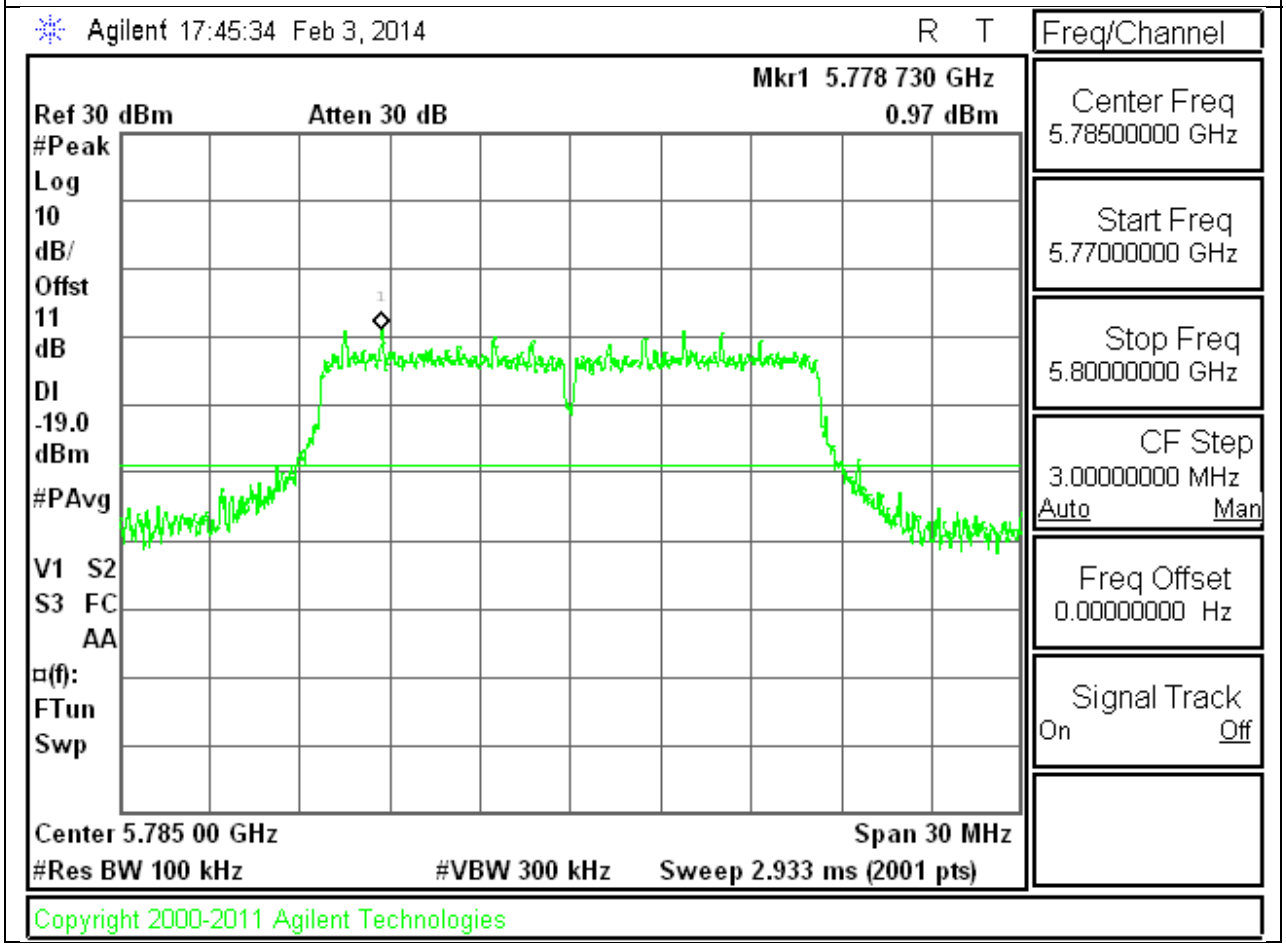
OUT OF BAND HIGH CH



9.6.4. 802.11a MODE IN THE 5.8 GHz BAND

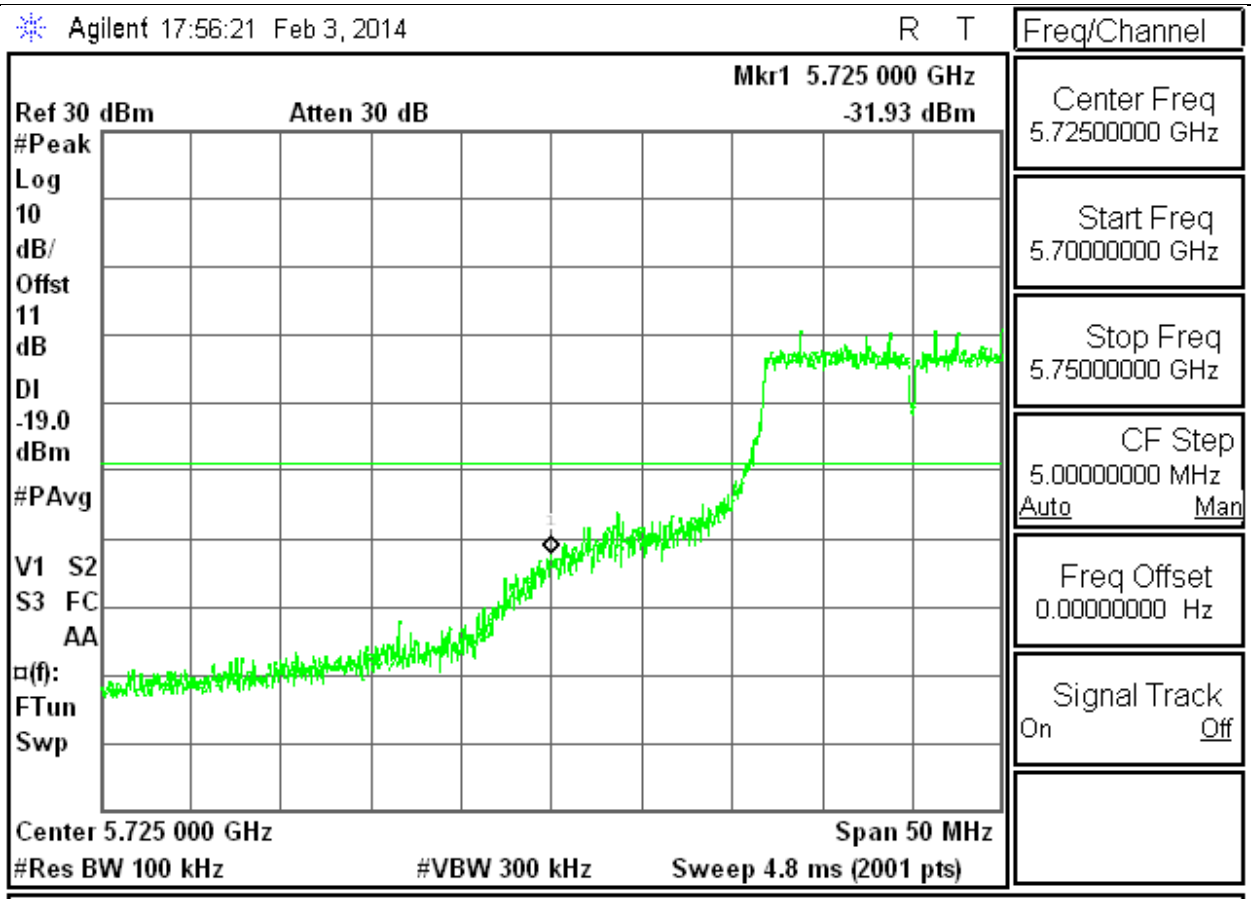
IN-BAND REFERENCE LEVEL

REFERENCE LEVEL MID CH



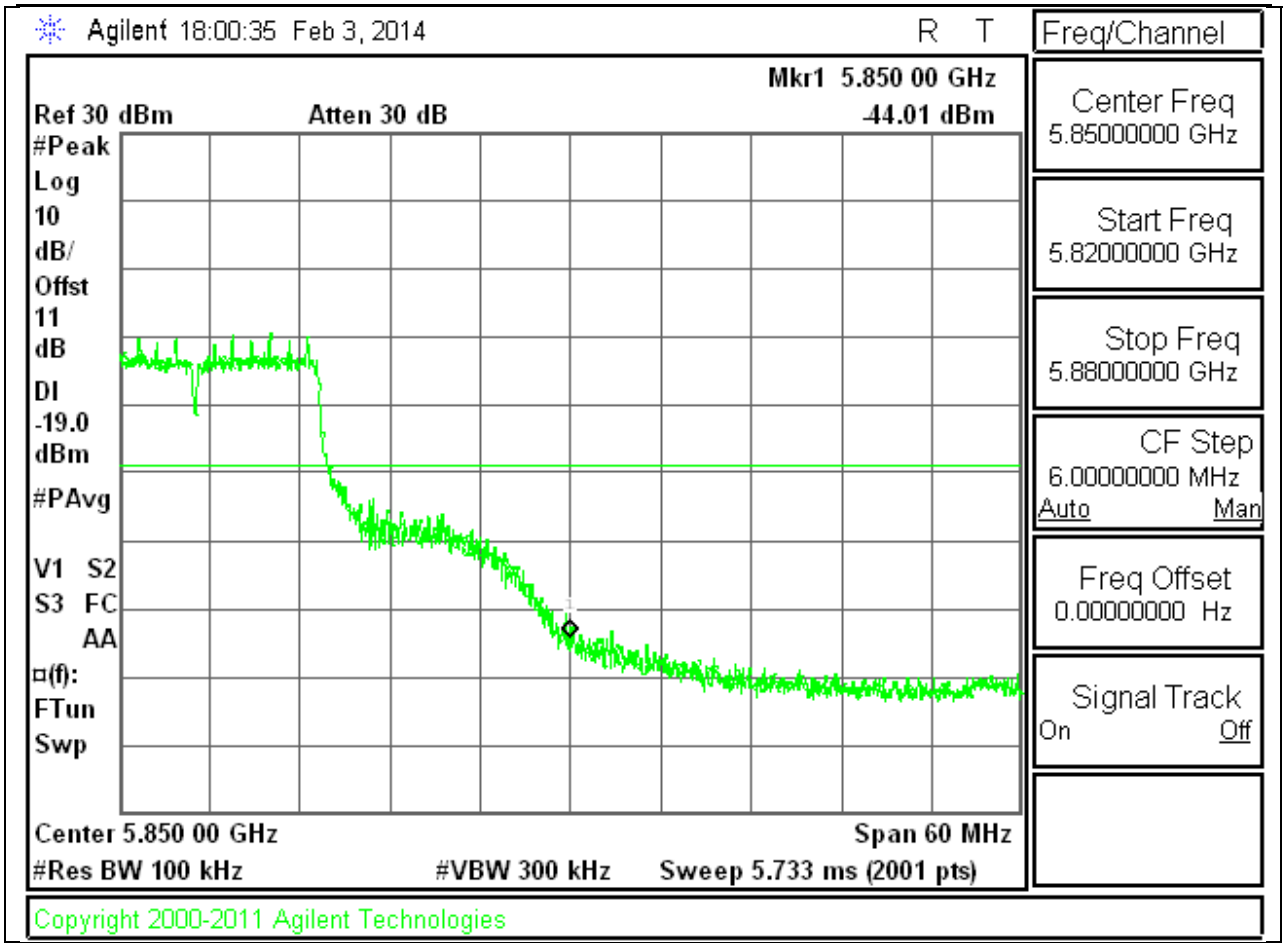
LOW CHANNEL BANDEDGE

AUTHORIZED BAND EDGE LOW CH



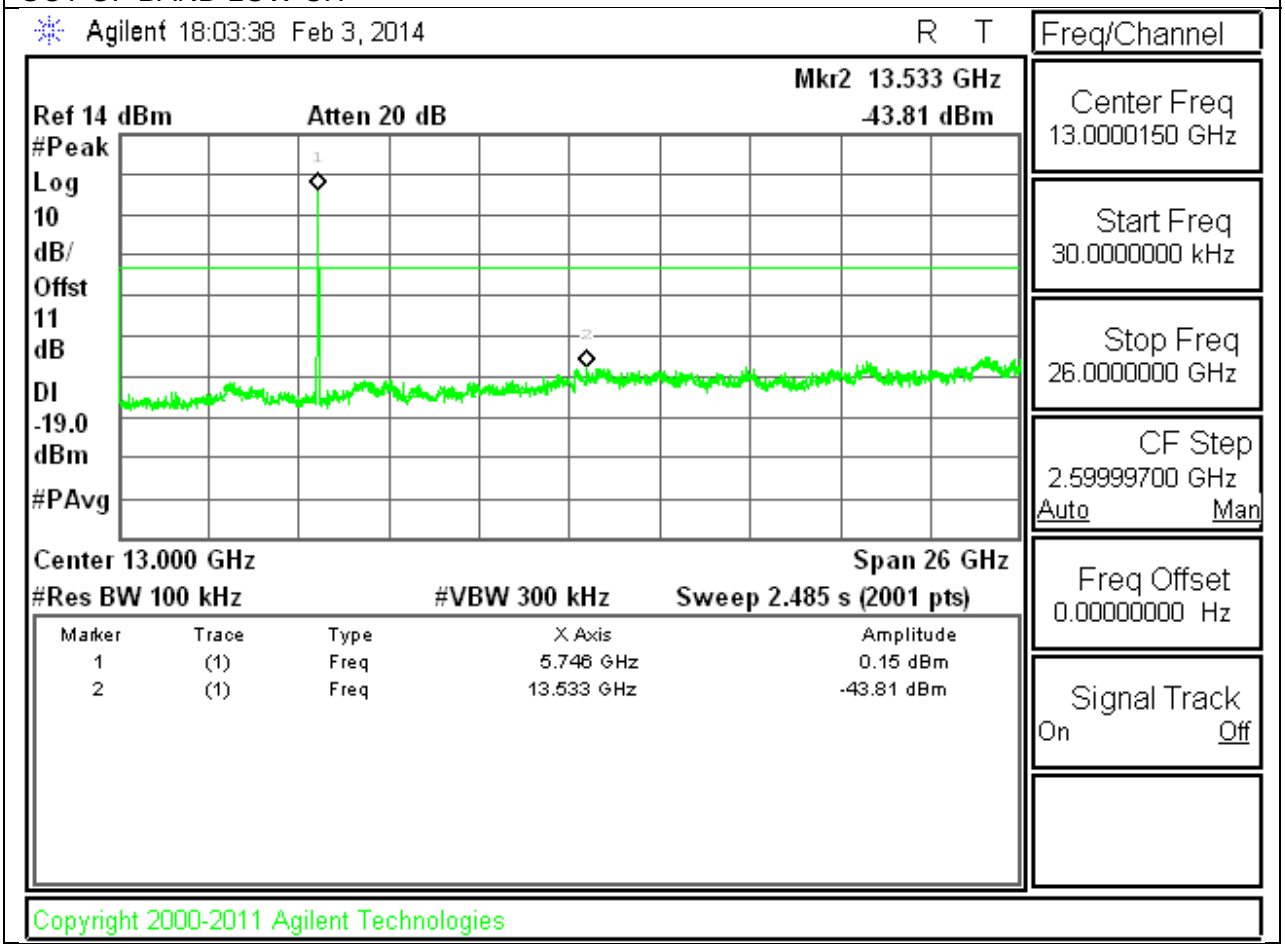
HIGH CHANNEL BANDEDGE

AUTHORIZED BAND EDGE HIGH CH



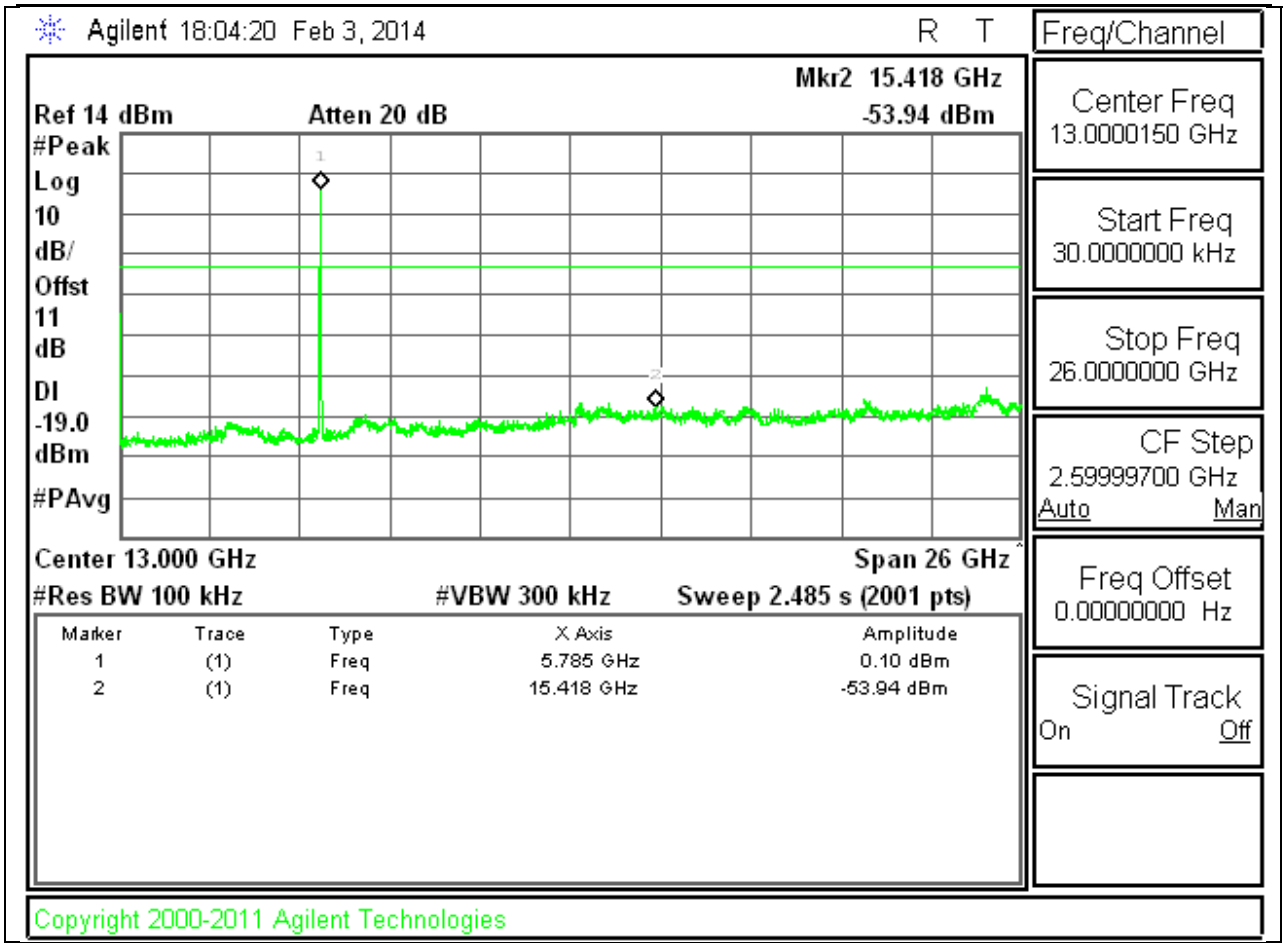
OUT-OF-BAND EMISSIONS

OUT OF BAND LOW CH



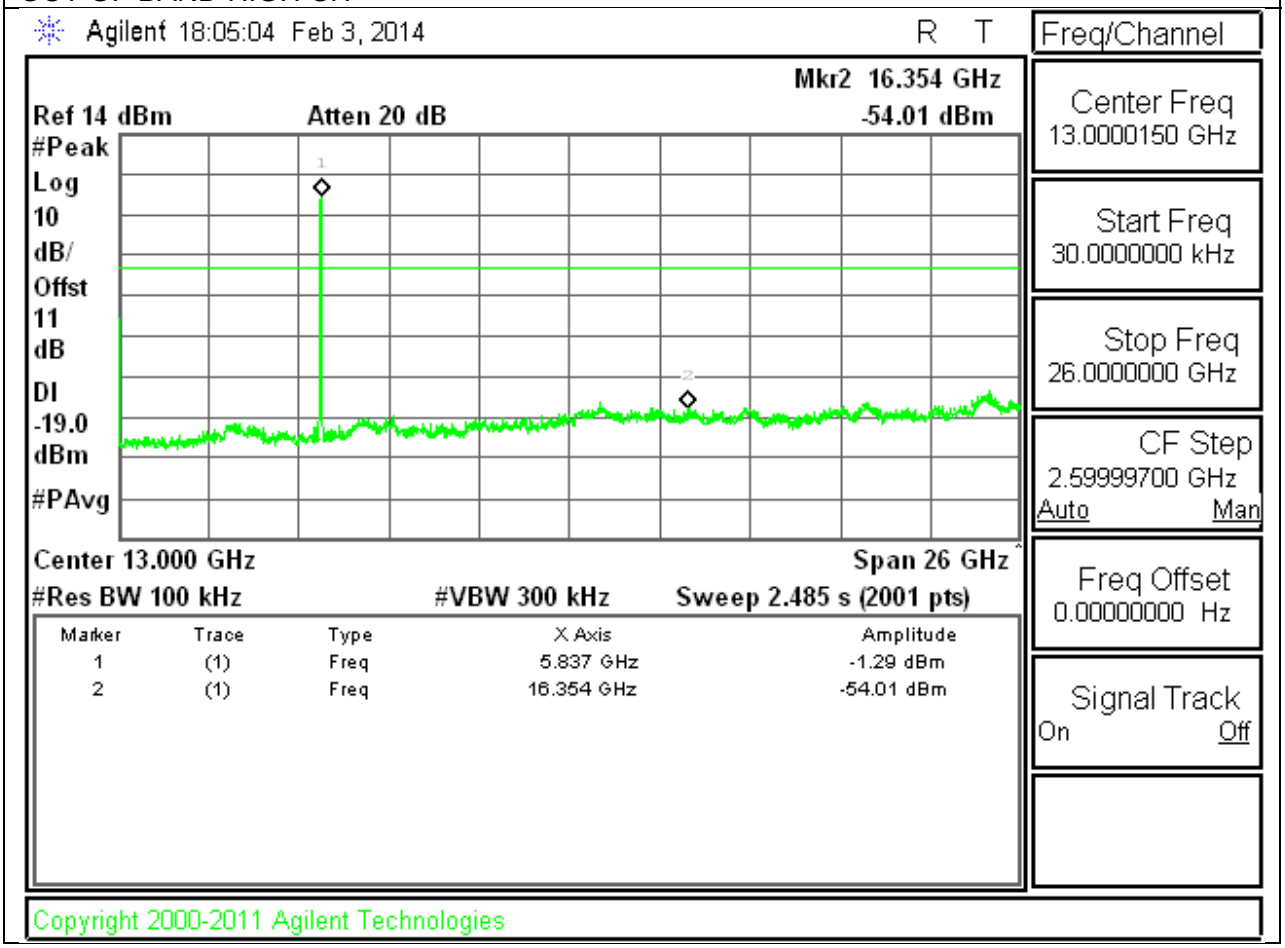
Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

OUT OF BAND MID CH



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

OUT OF BAND HIGH CH

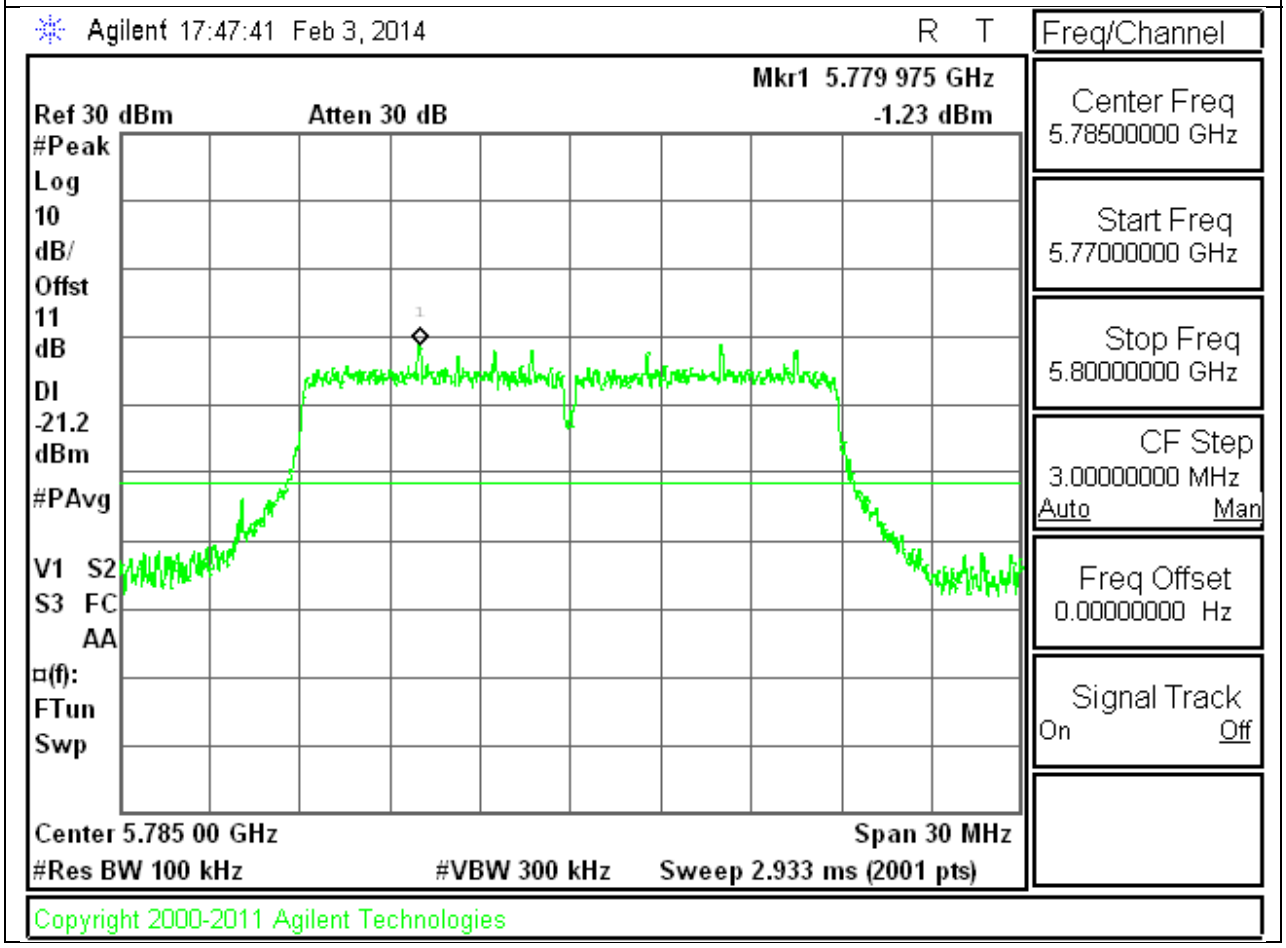


Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

9.6.5. 802.11n MODE IN THE 5.8 GHz BAND

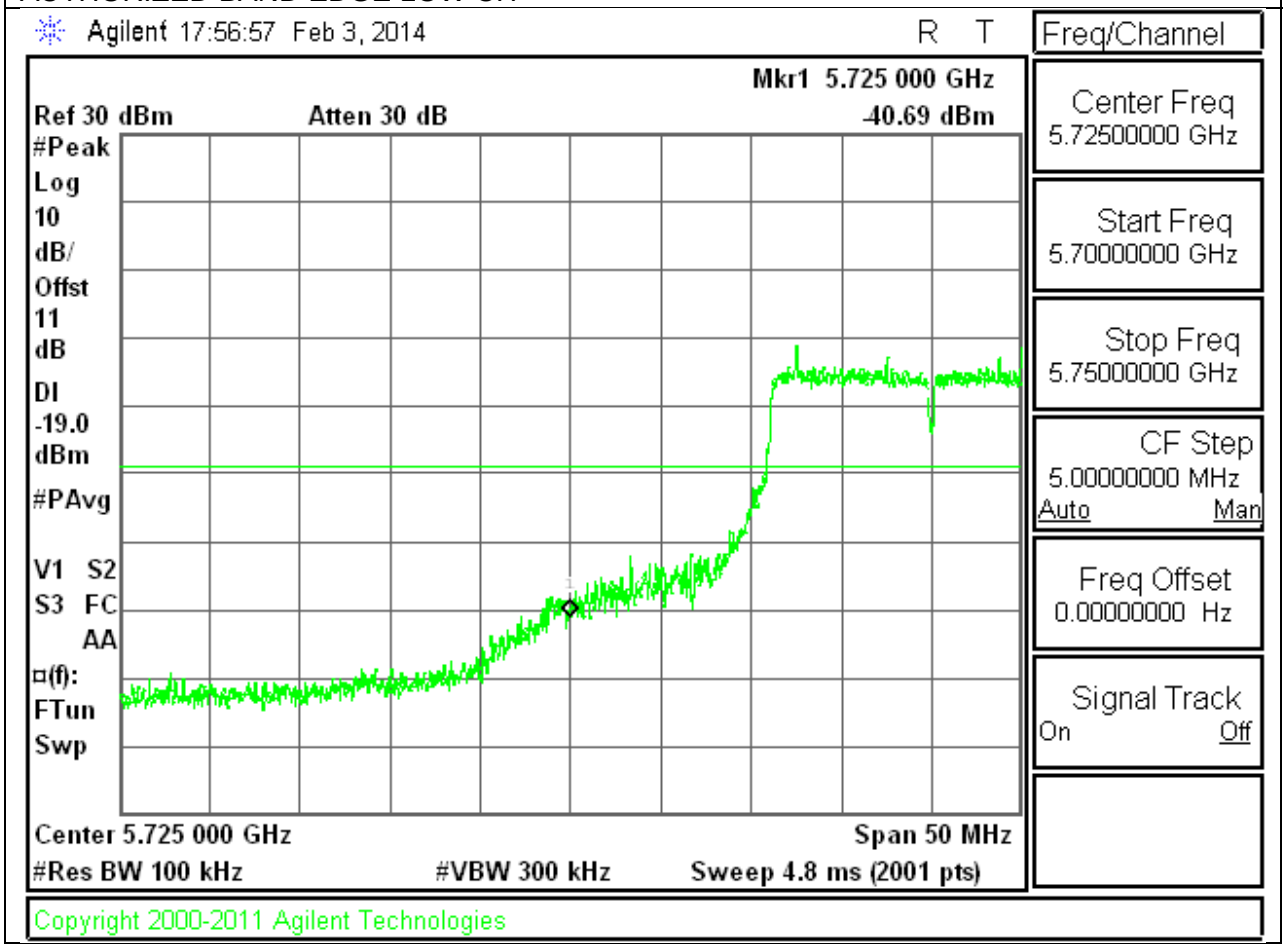
IN-BAND REFERENCE LEVEL

REFERENCE LEVEL MID CH



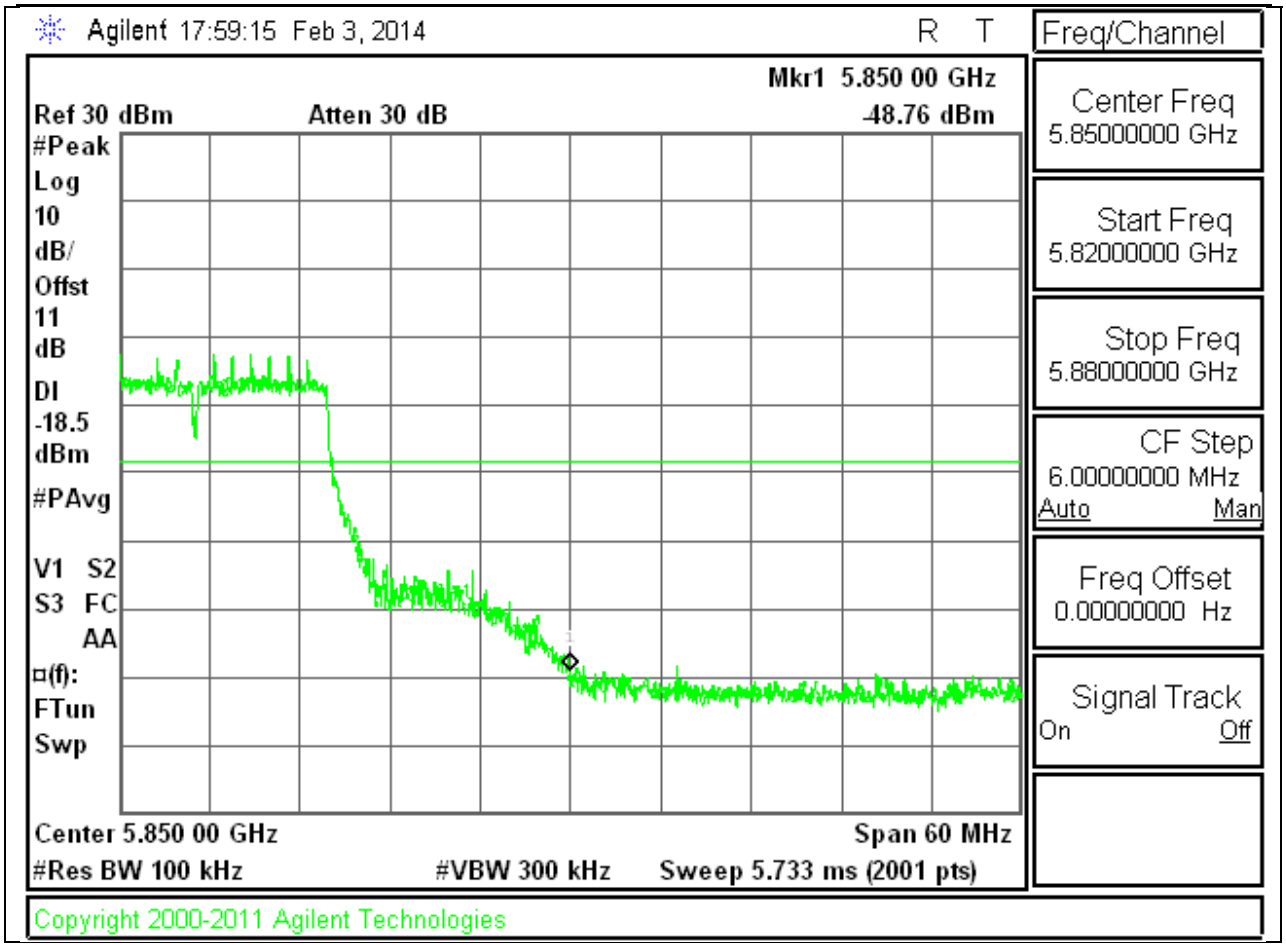
LOW CHANNEL BANDEDGE

AUTHORIZED BAND EDGE LOW CH



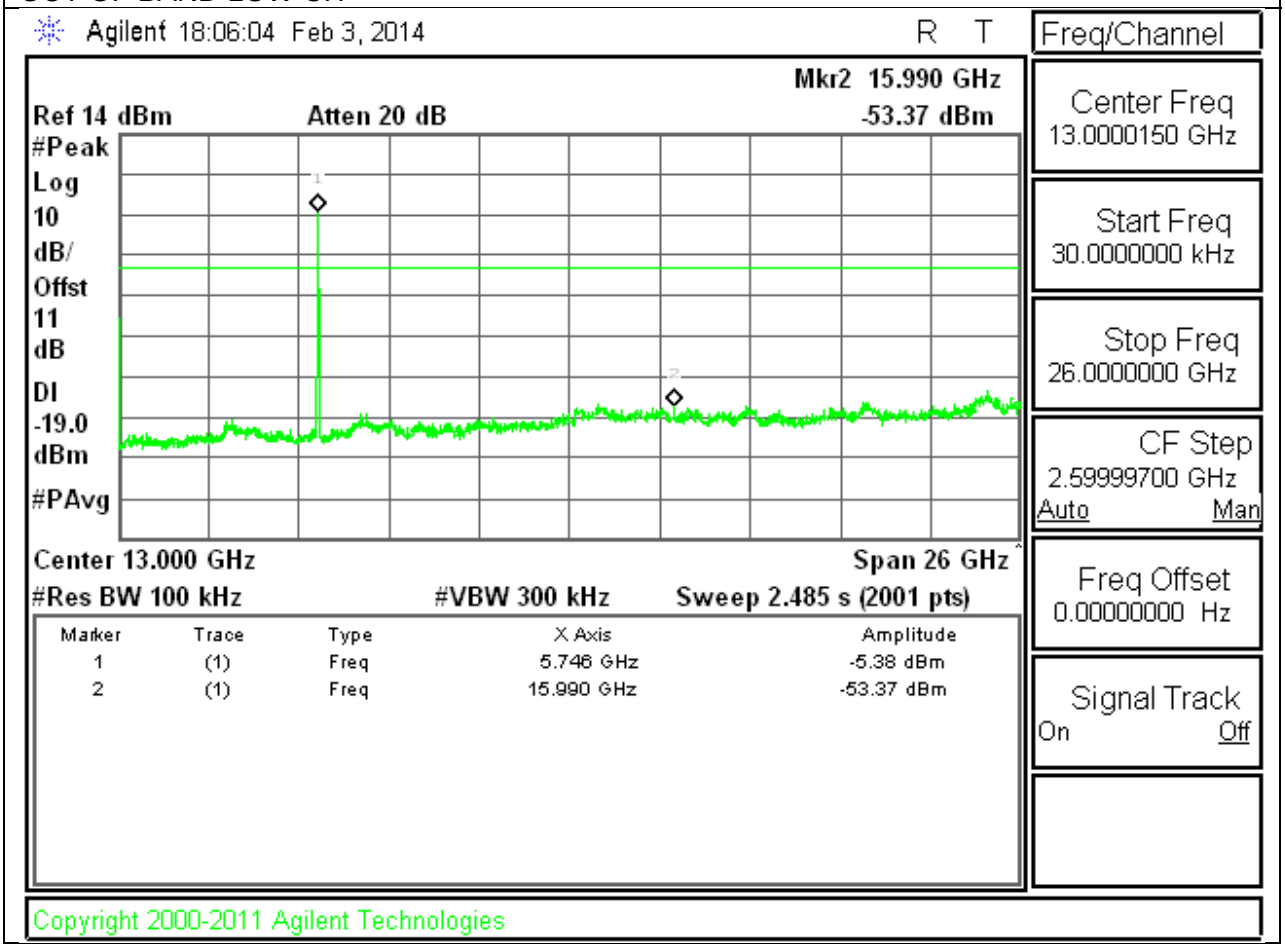
HIGH CHANNEL BANDEDGE

AUTHORIZED BAND EDGE HIGH CH



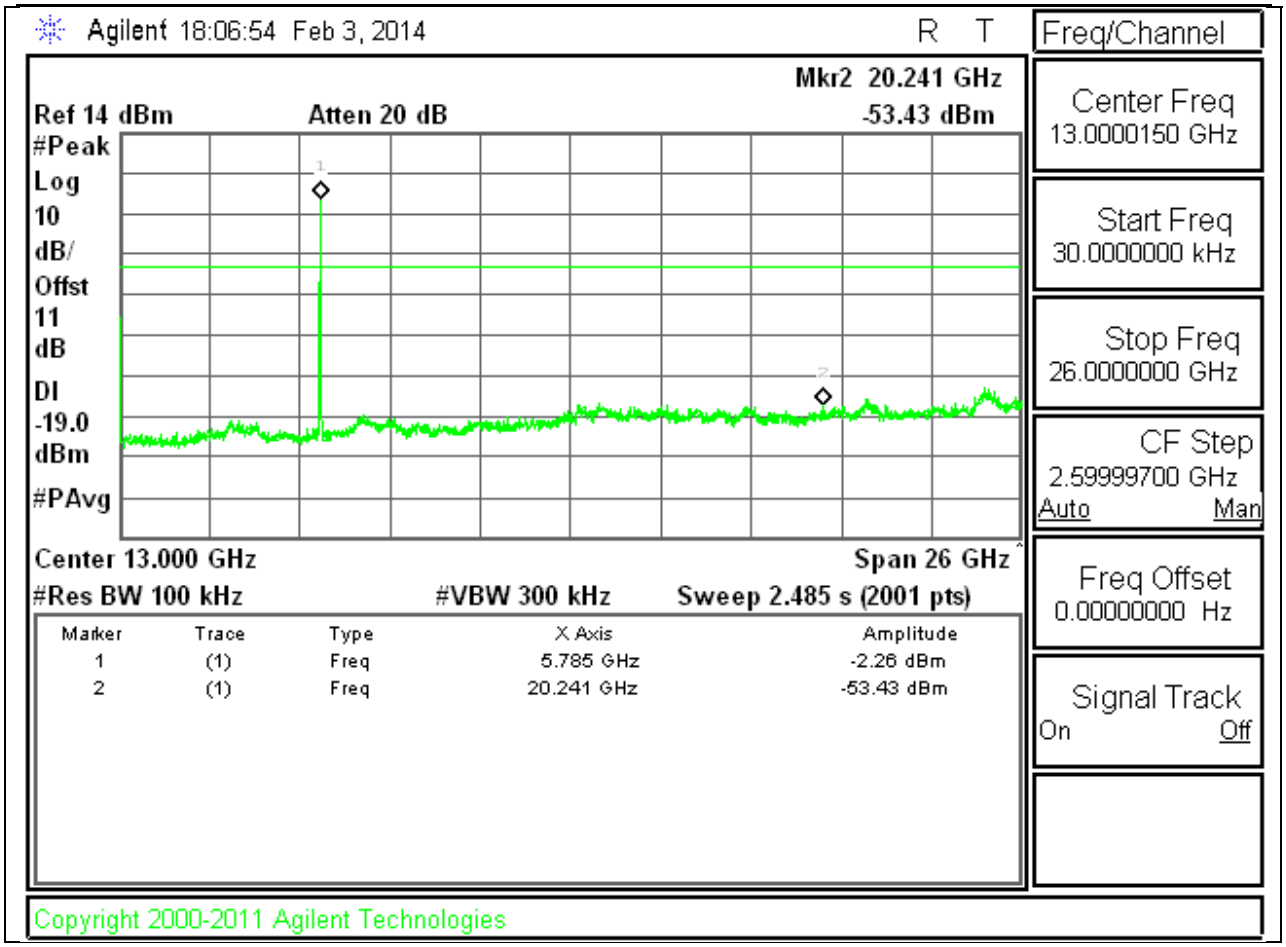
OUT-OF-BAND EMISSIONS

OUT OF BAND LOW CH



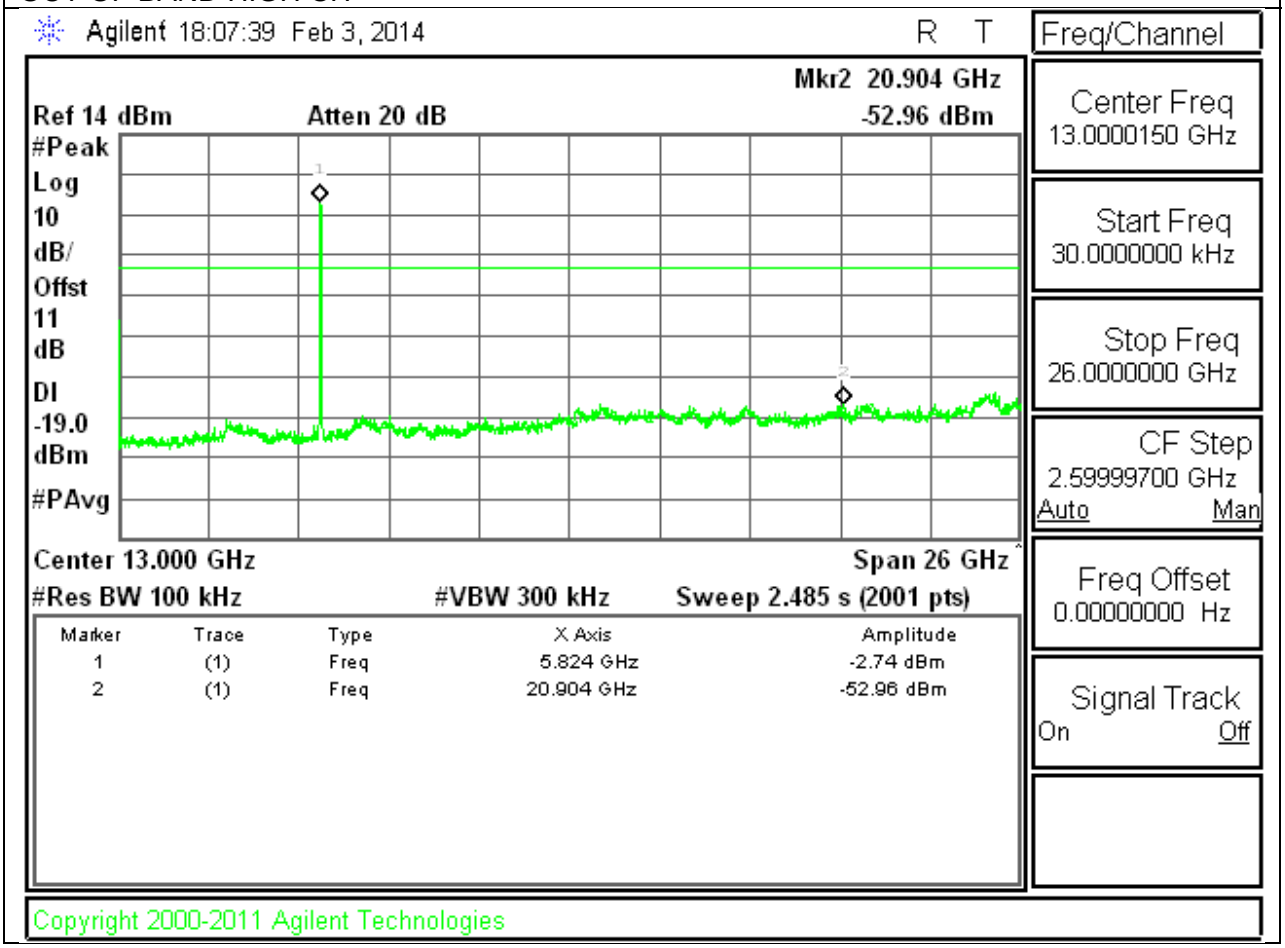
Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

OUT OF BAND MID CH



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

OUT OF BAND HIGH CH

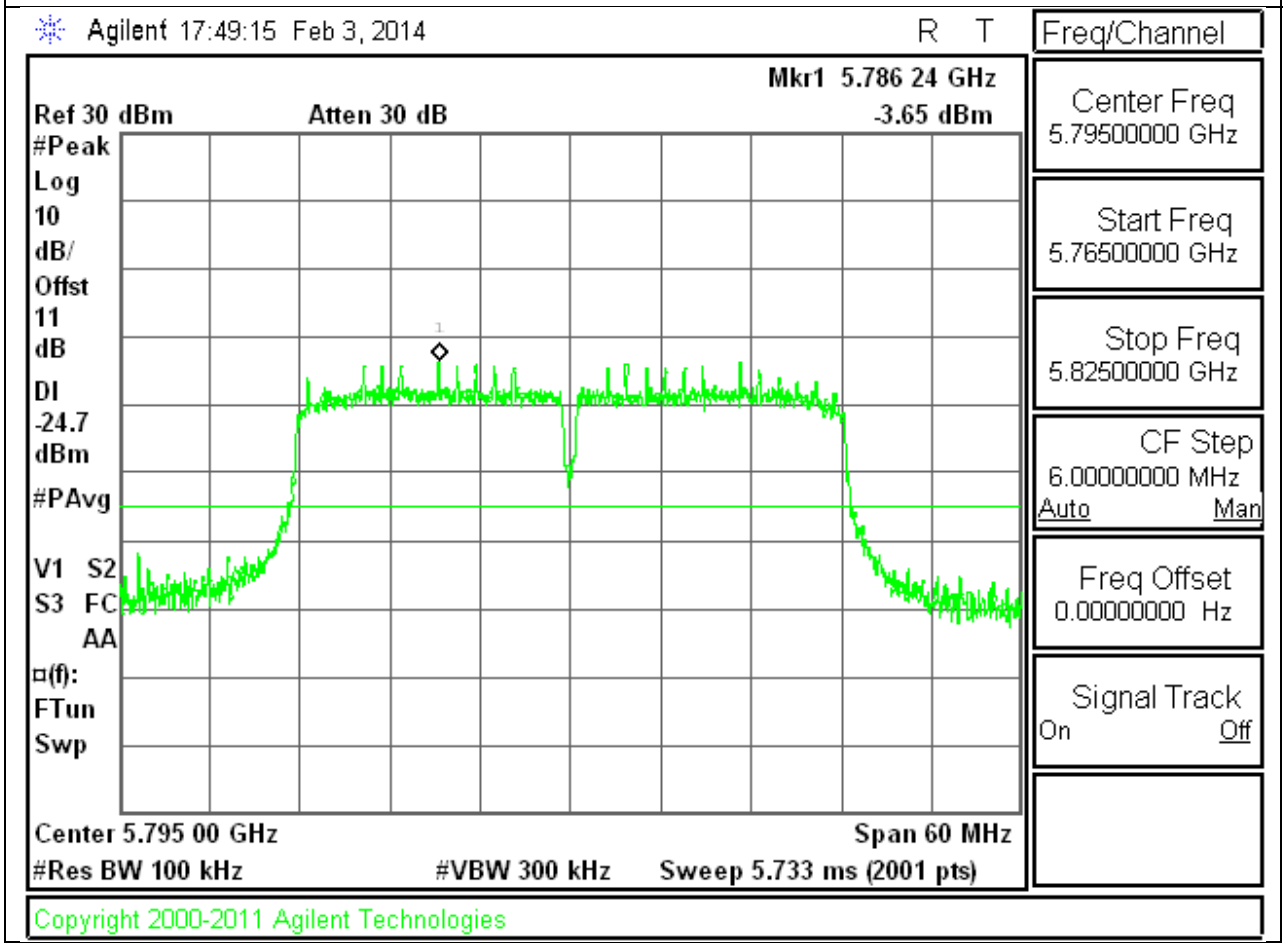


Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

9.6.6. 802.11n HT40 MODE IN THE 5.8 GHz BAND

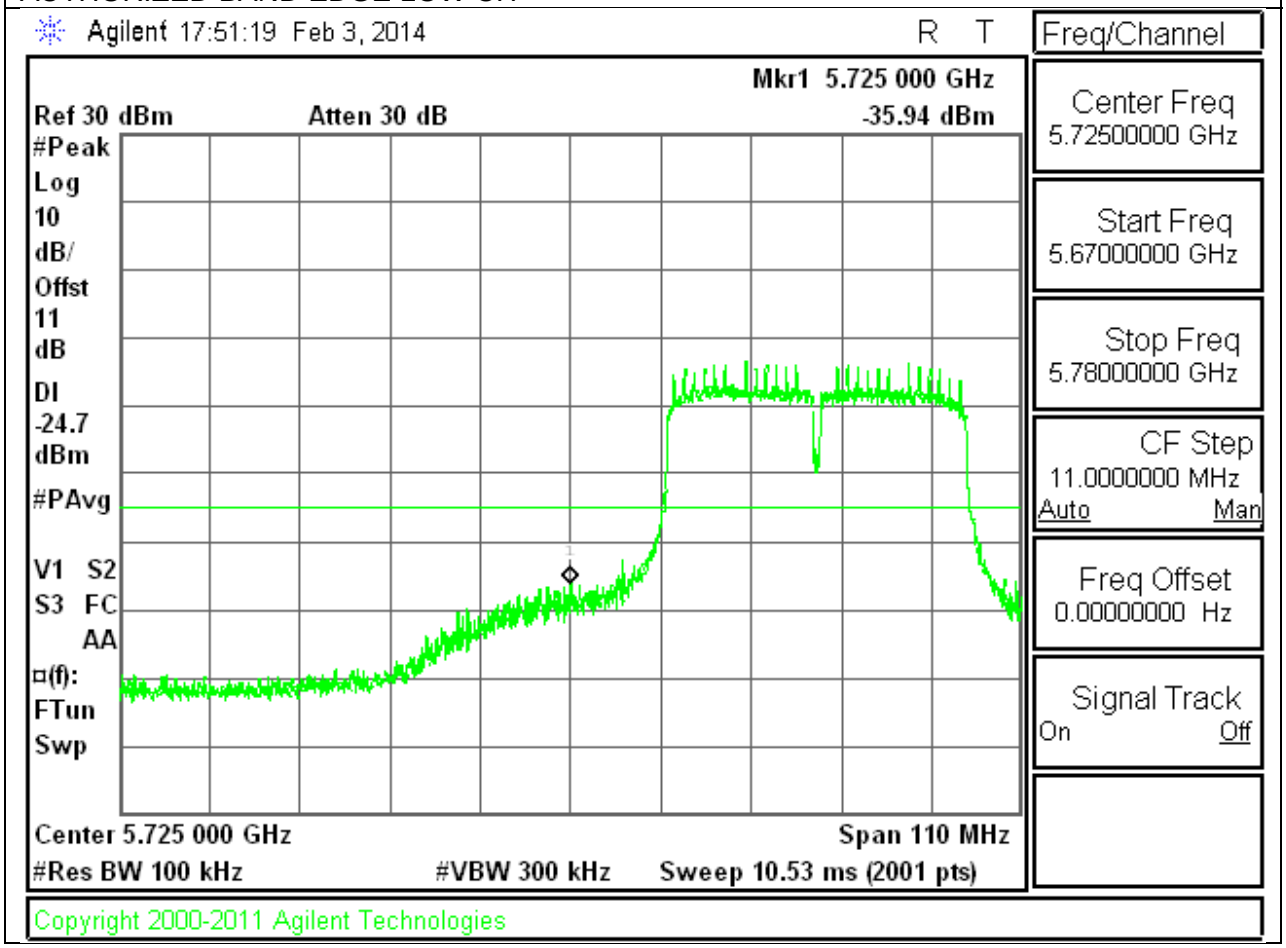
IN-BAND REFERENCE LEVEL

REFERENCE LEVEL HIGH CH



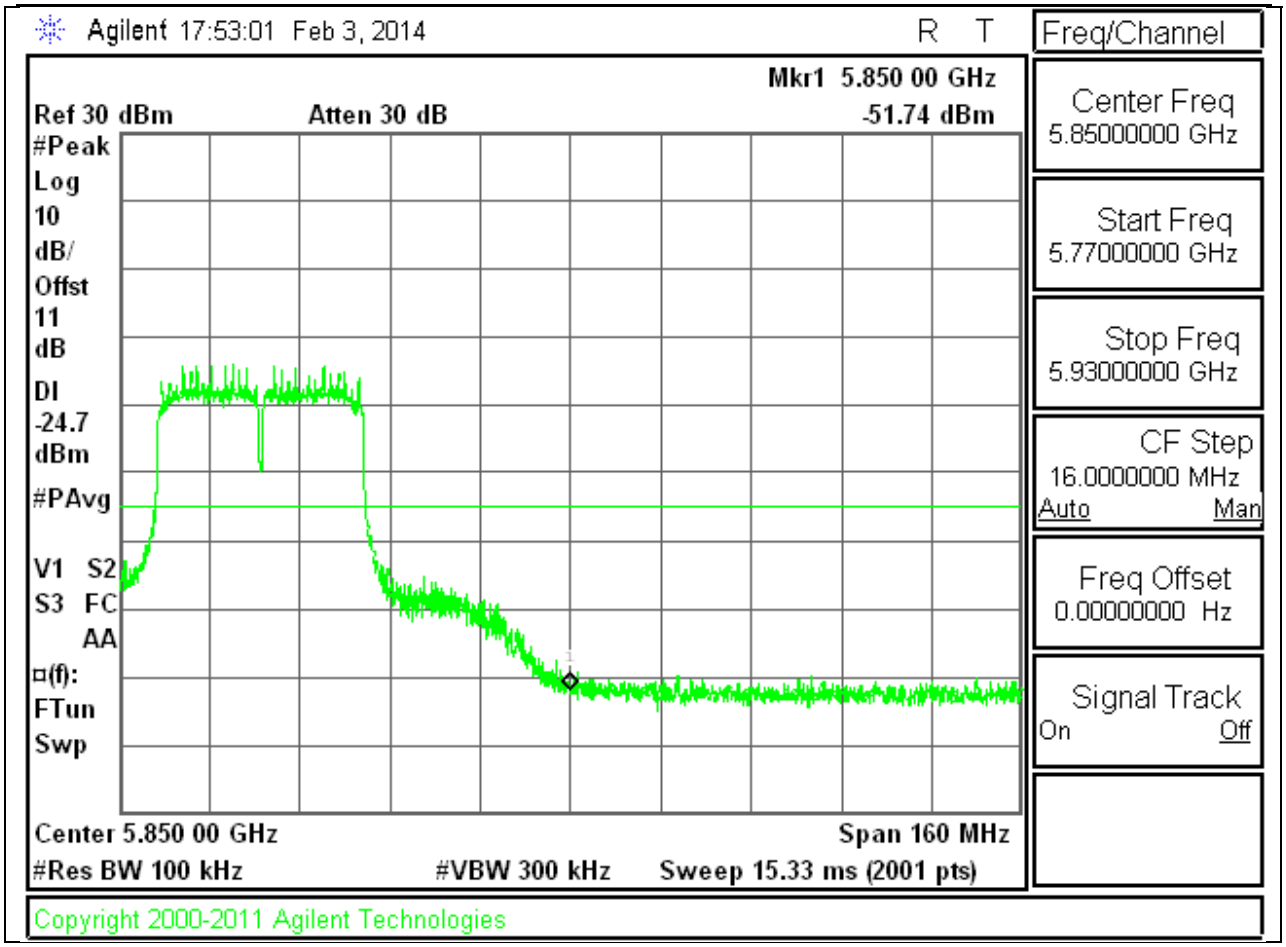
LOW CHANNEL BANDEDGE

AUTHORIZED BAND EDGE LOW CH



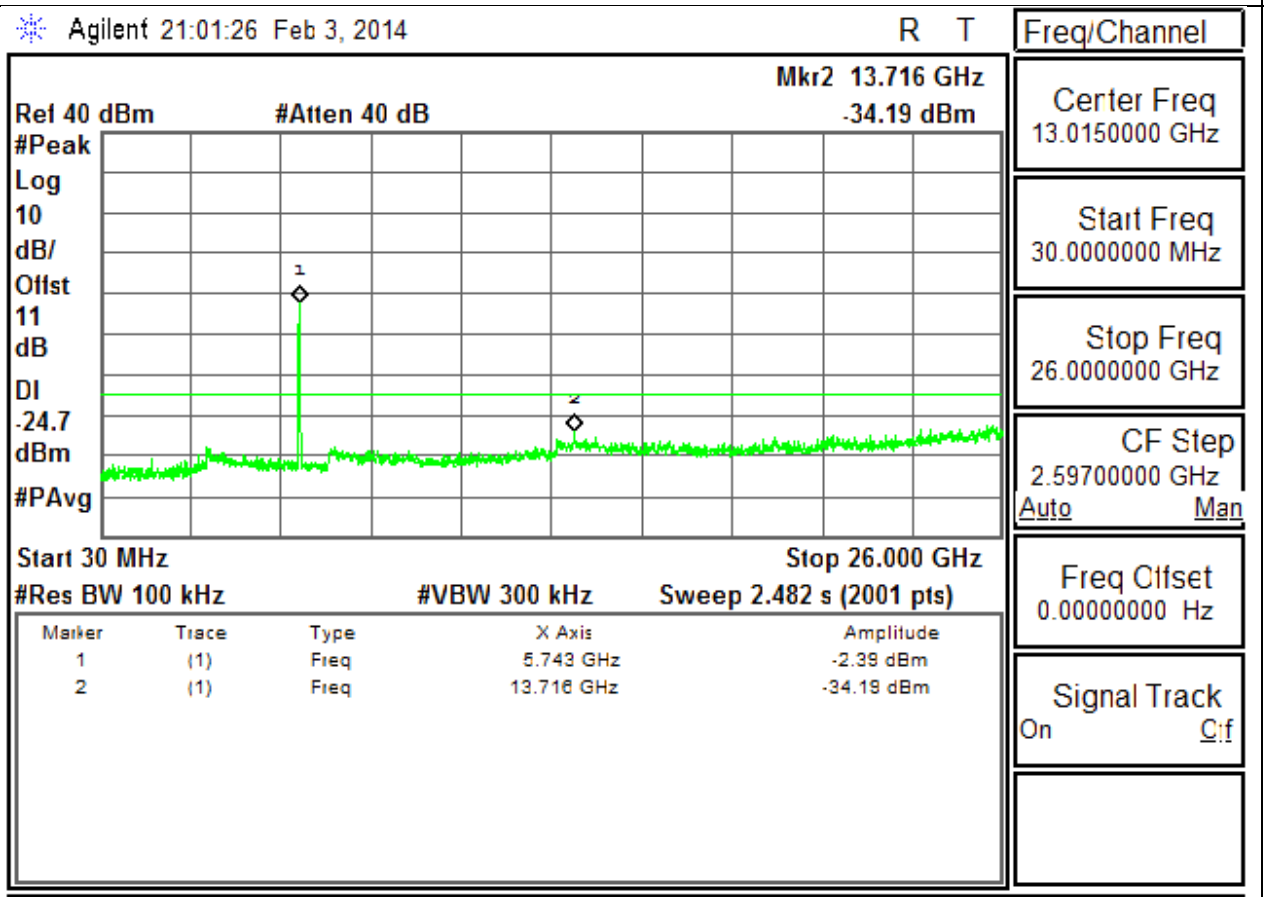
HIGH CHANNEL BANDEDGE

AUTHORIZED BAND EDGE HIGH CH



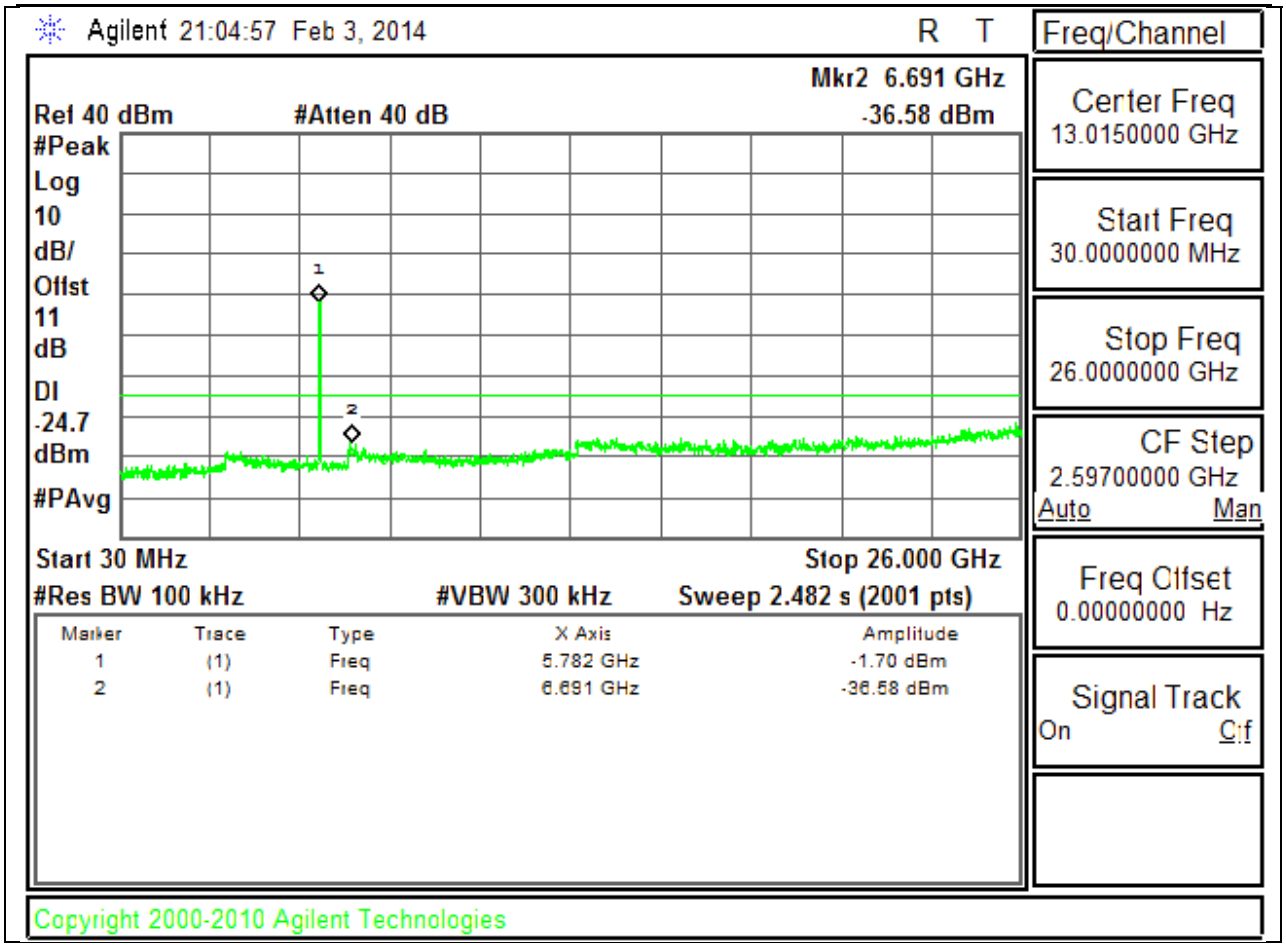
OUT-OF-BAND EMISSIONS

OUT OF BAND LOW CH



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

OUT OF BAND HIGH CH



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

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 = 0.3dB; N mode = 0.32dB.

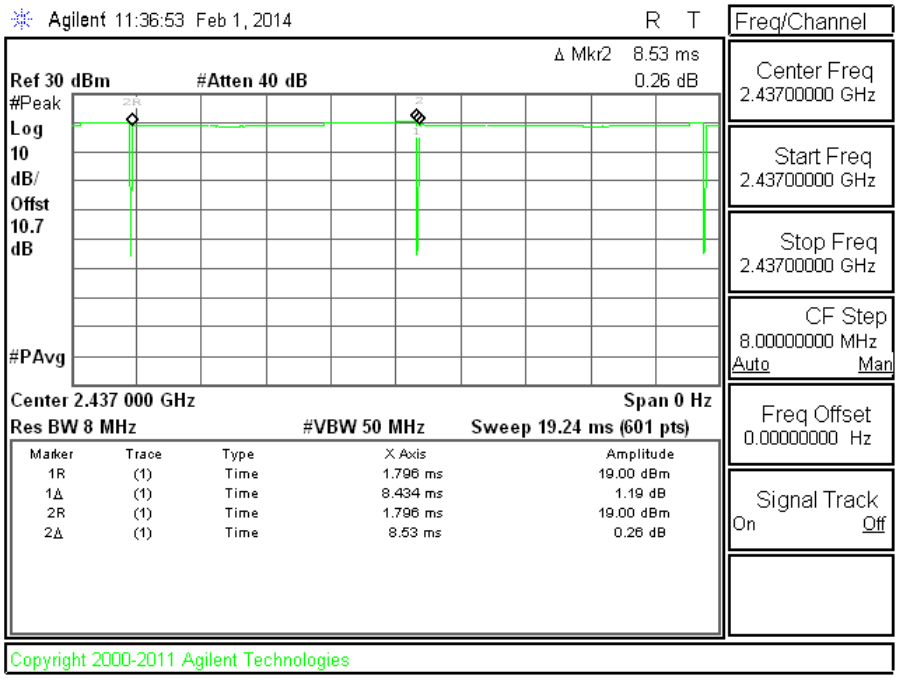
558074 Option 1 avg with video reduction is using for harmonic measurement.

The spectrum from 1GHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.

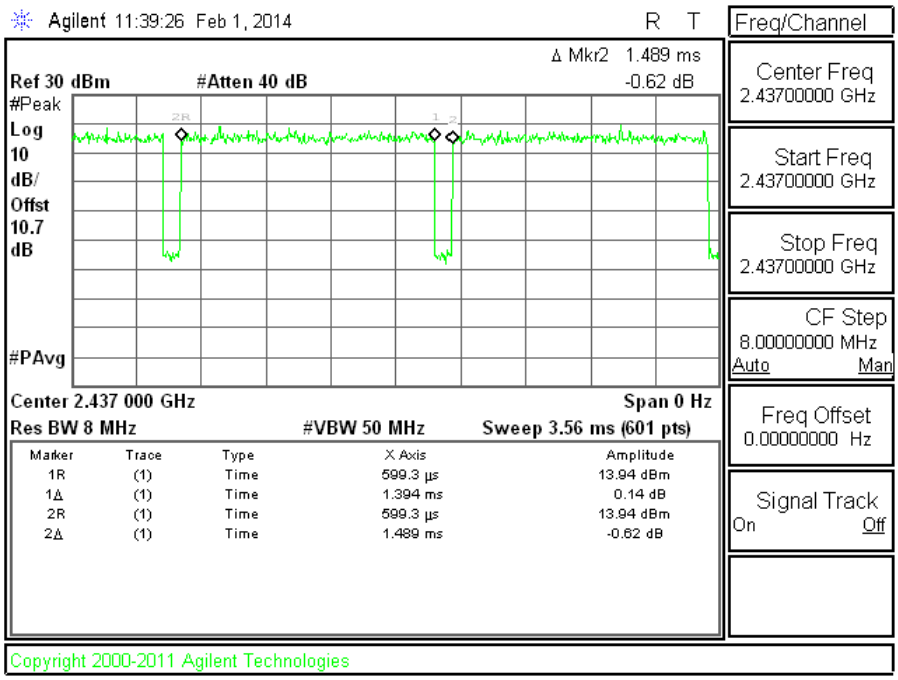
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

Duty cycle plots:

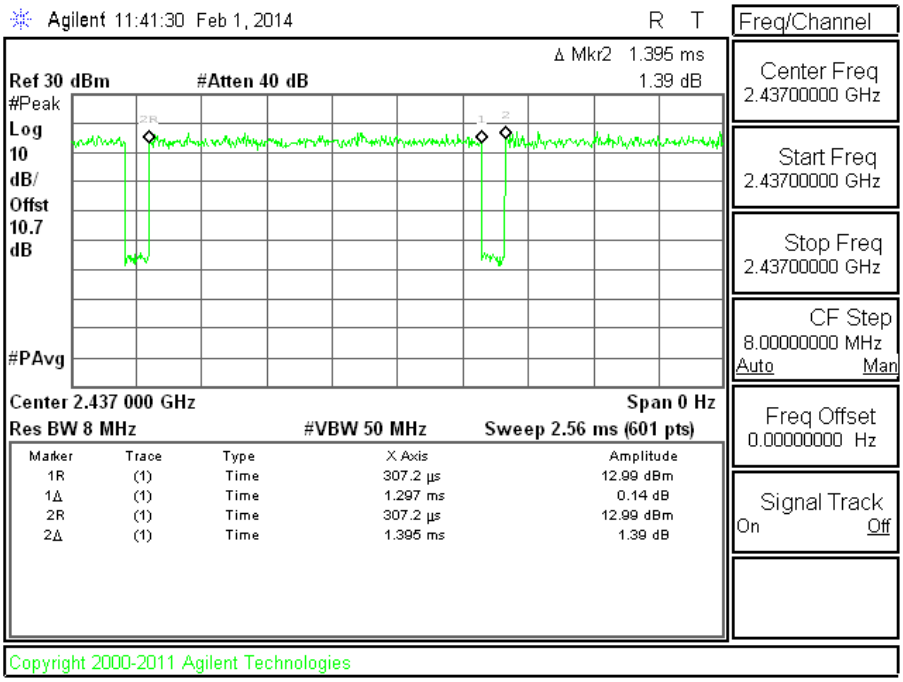
2.4 B mode



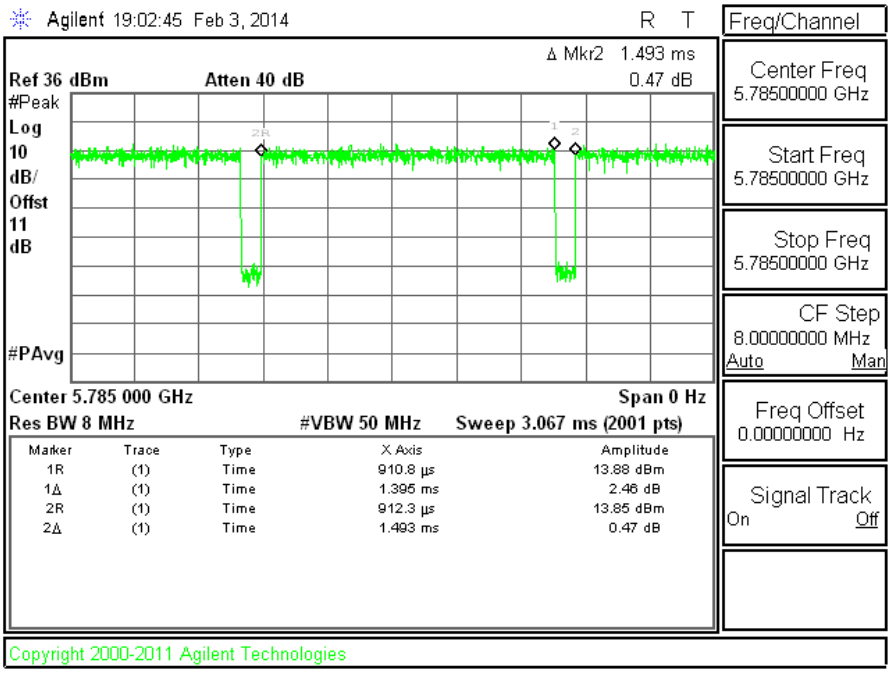
2.4 G mode



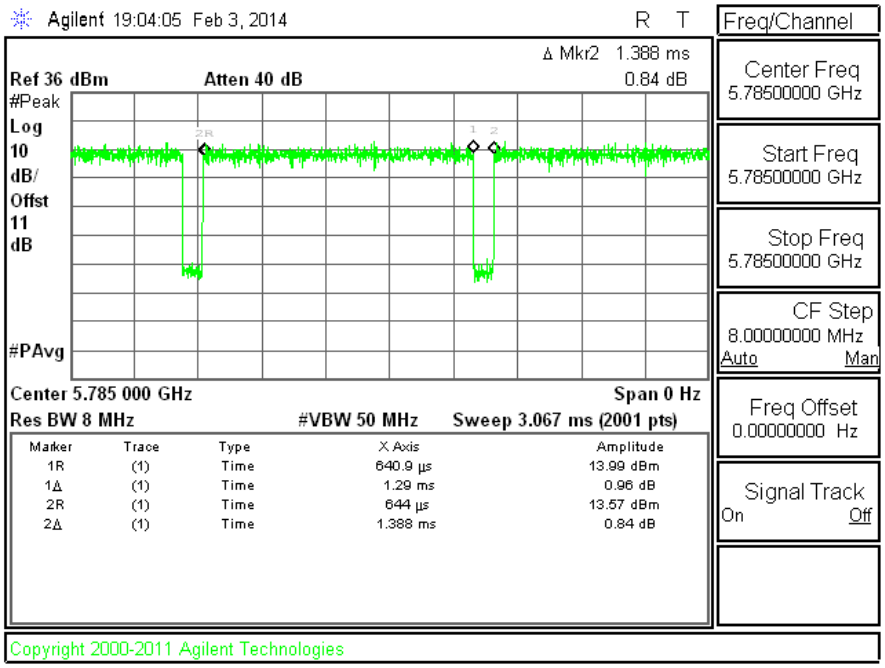
2.4 N mode



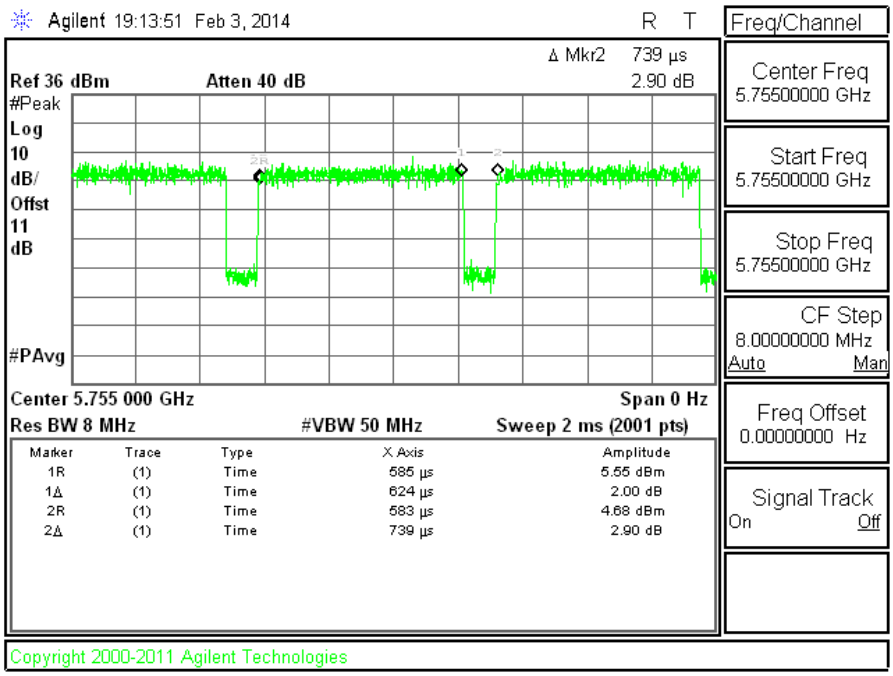
5.8 A Mode



5.8 N mode HT20



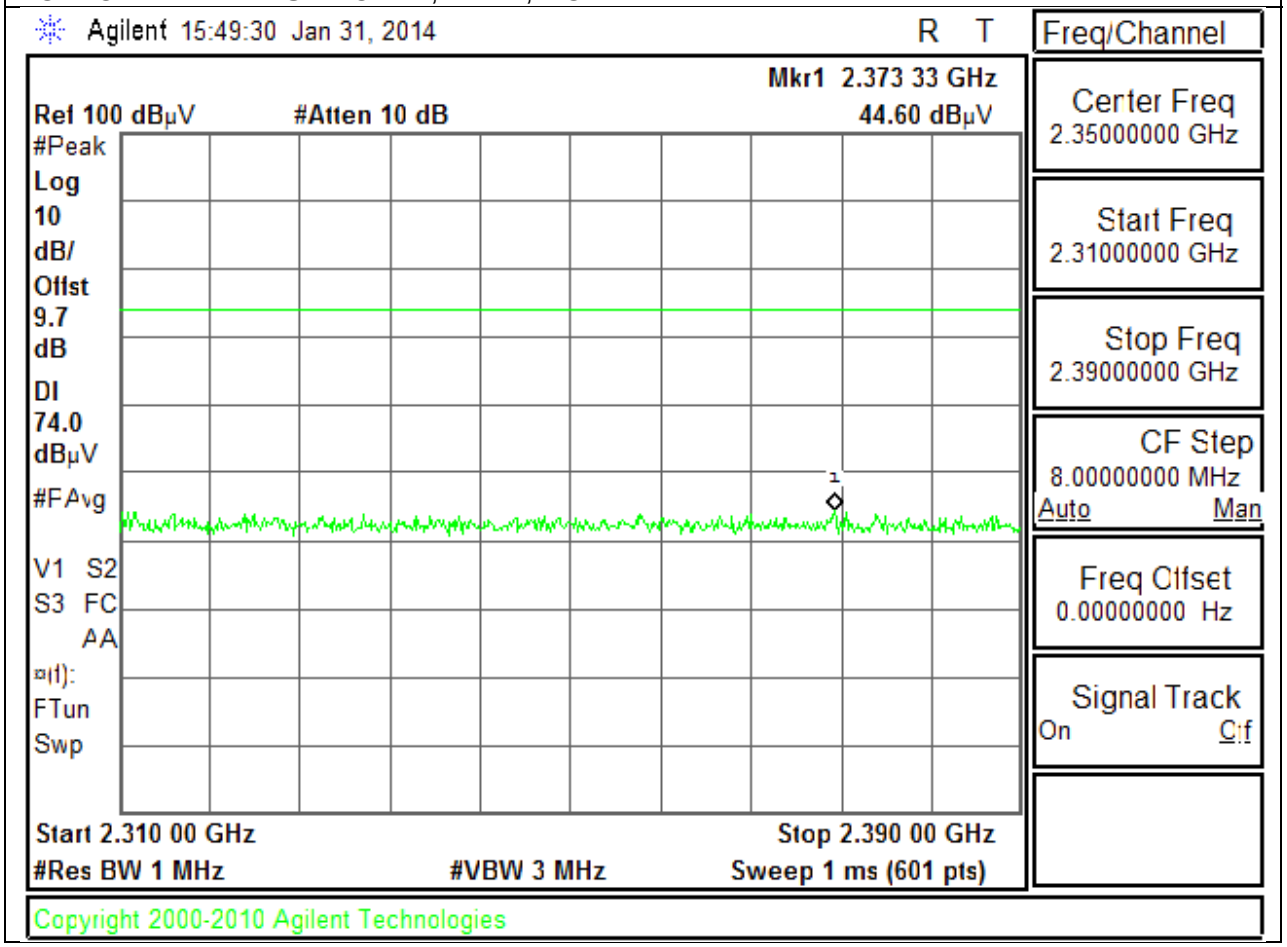
5.8 N mode HT40



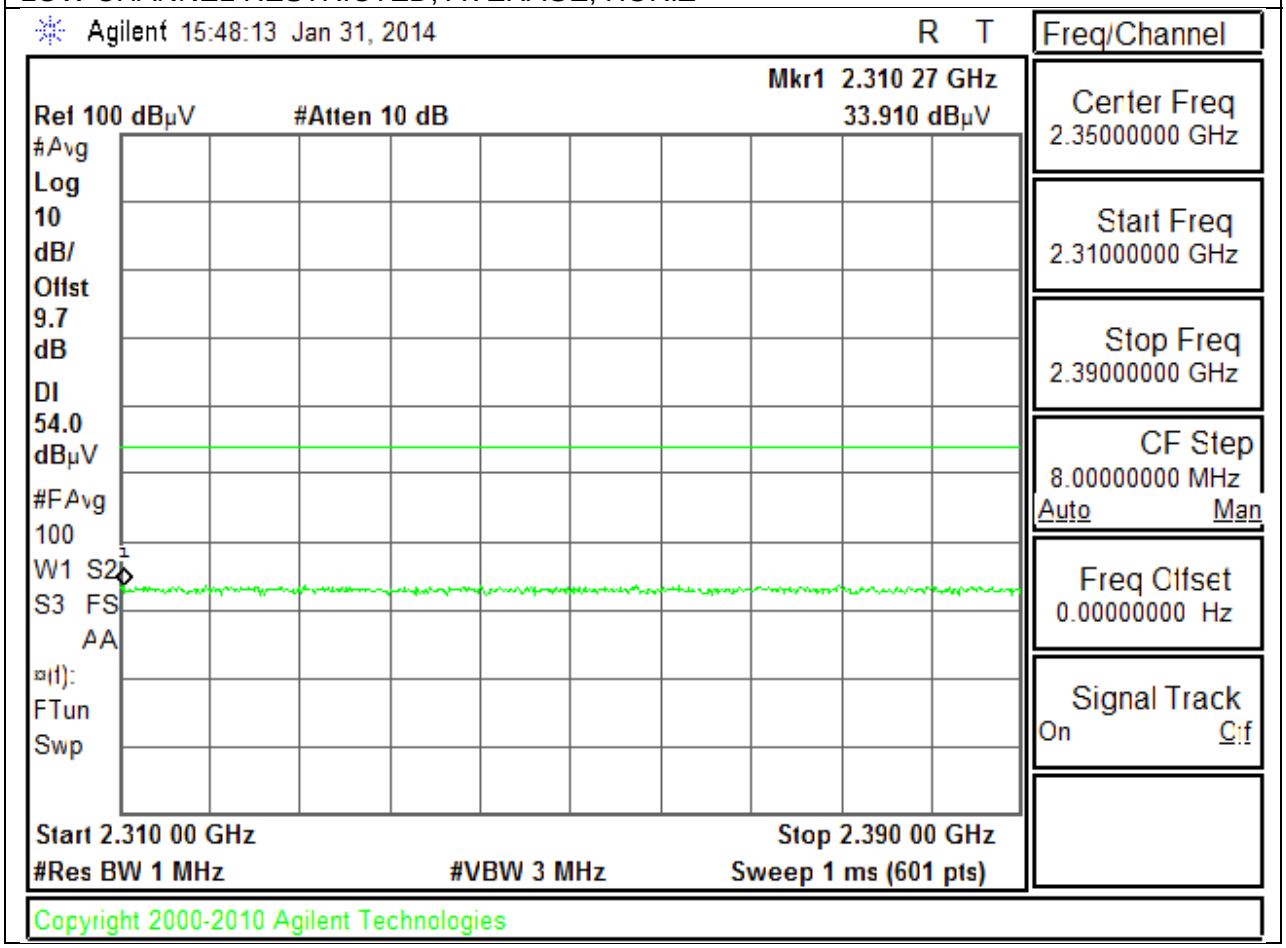
10.2. TRANSMITTER ABOVE 1 GHz

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

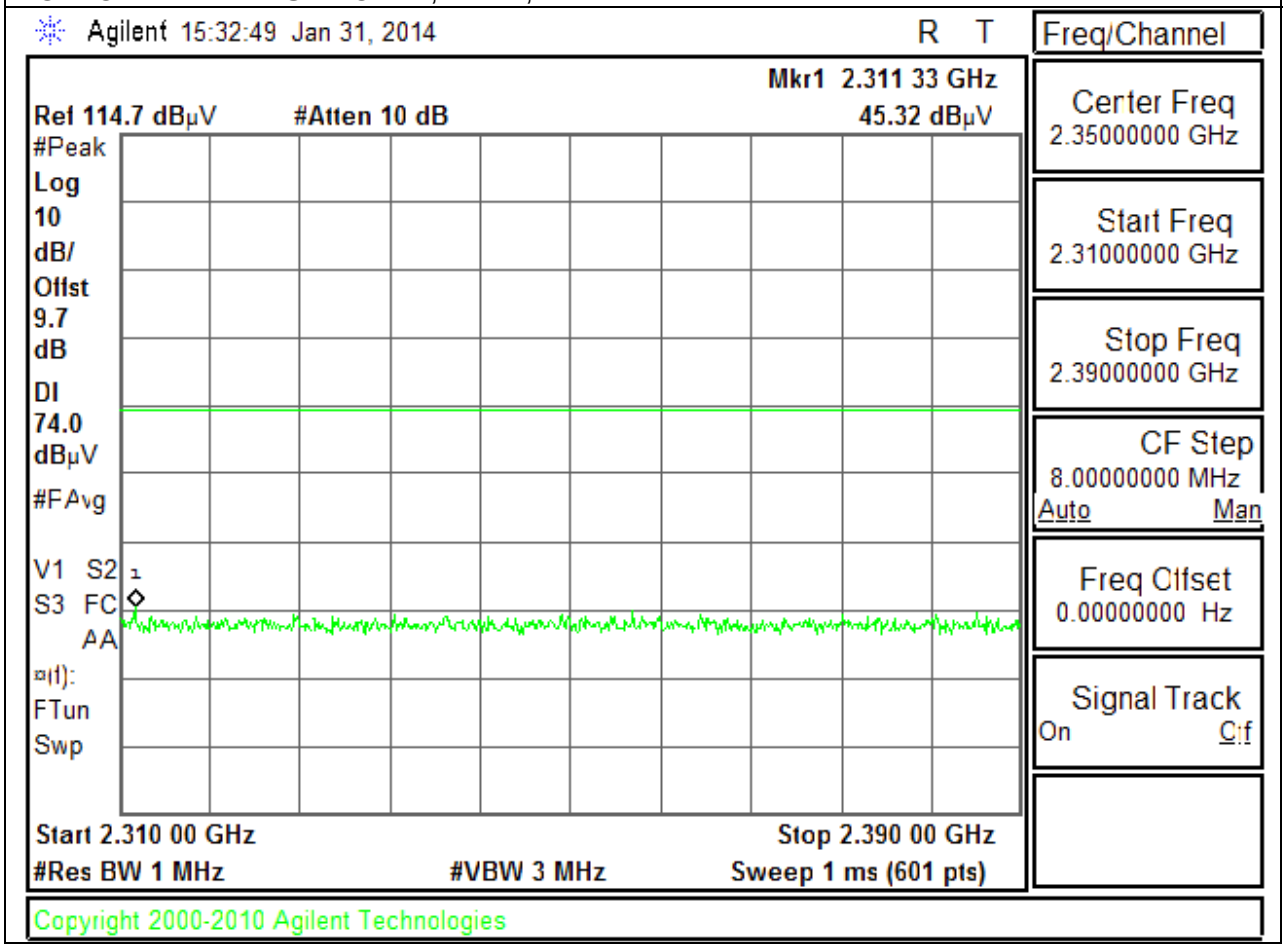
LOW CHANNEL RESTRICTED, PEAK, HORIZ



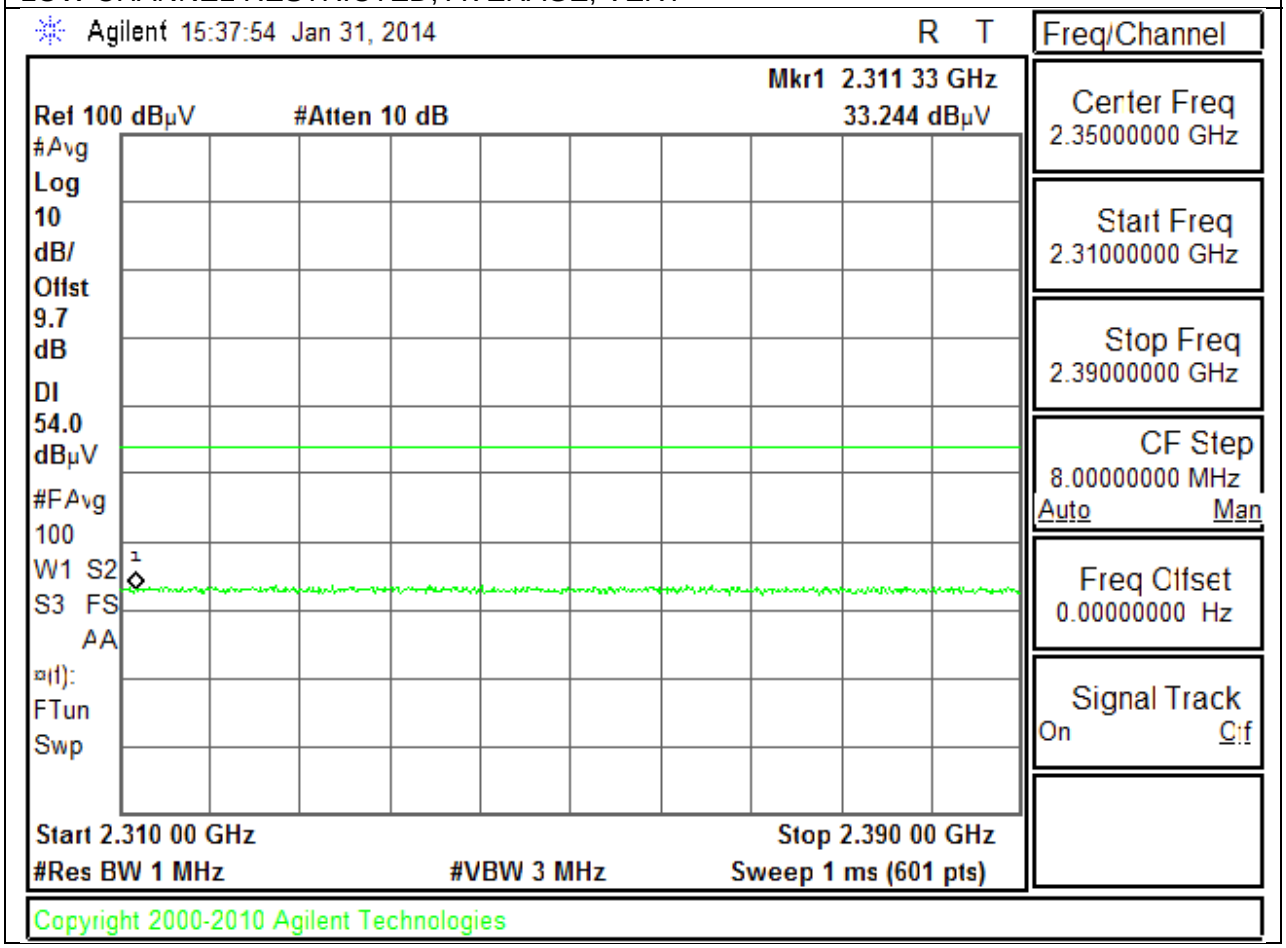
LOW CHANNEL RESTRICTED, AVERAGE, HORIZ



LOW CHANNEL RESTRICTED, PEAK, VERT

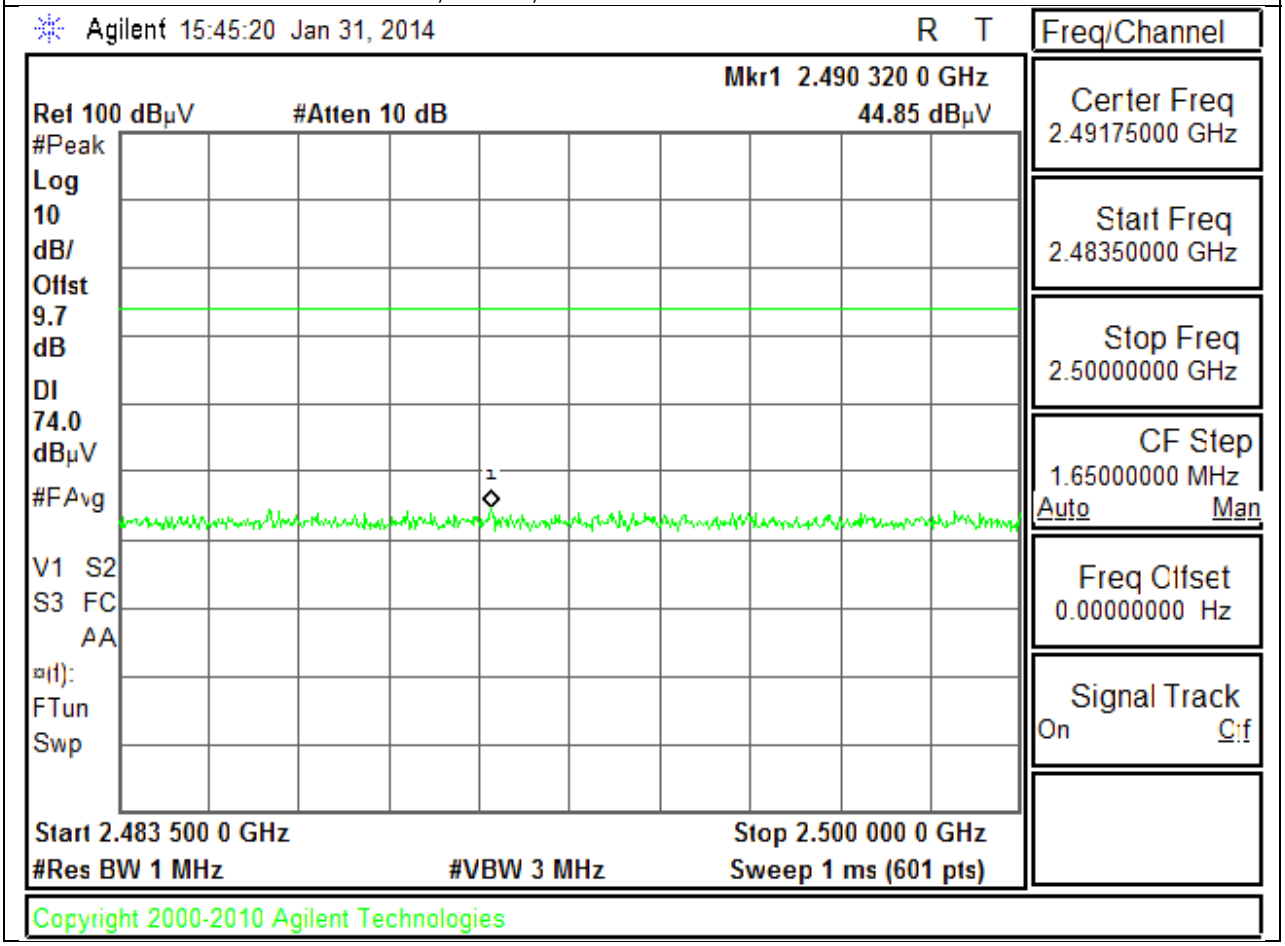


LOW CHANNEL RESTRICTED, AVERAGE, VERT

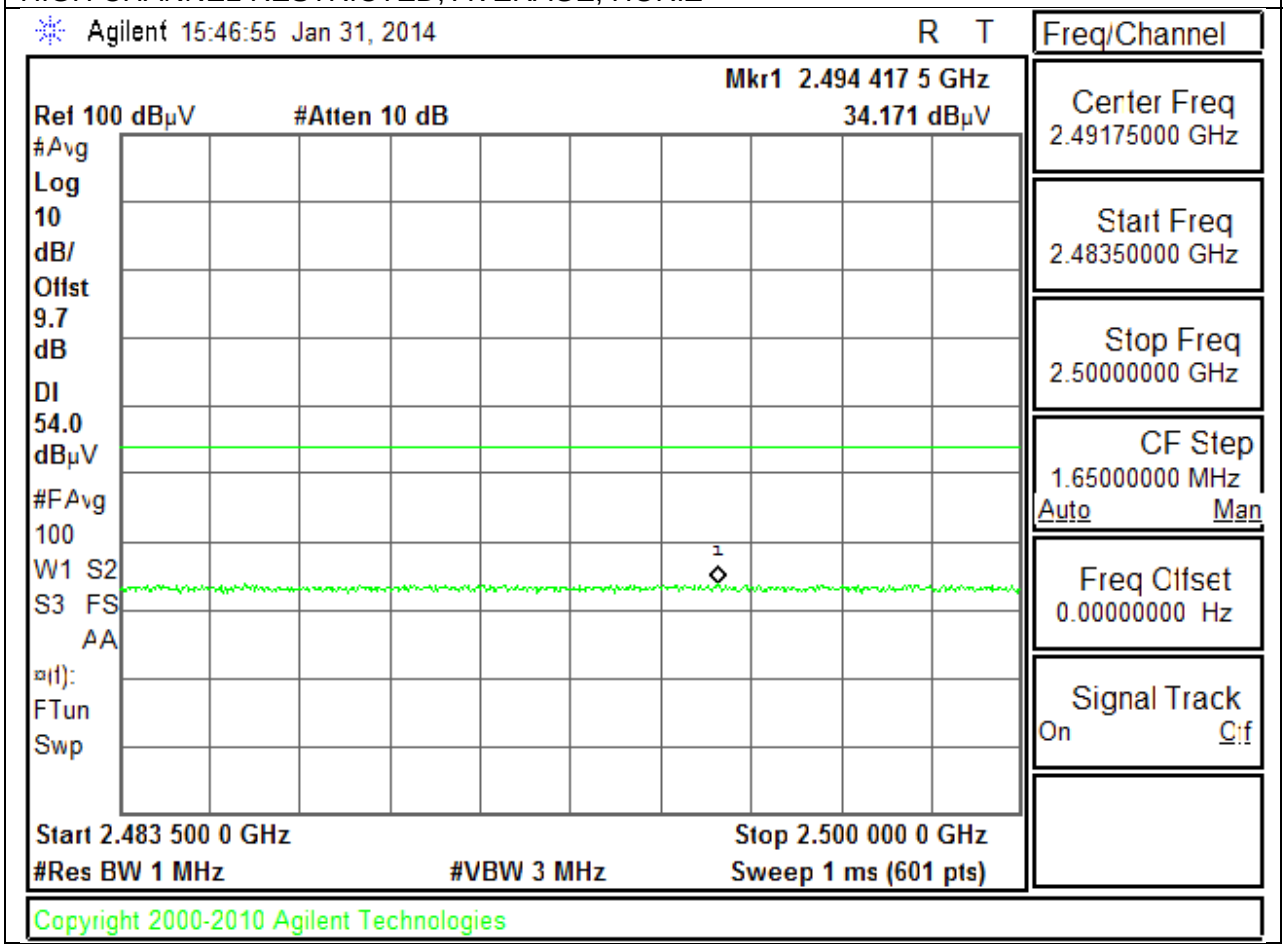


AUTHORIZED BANDEDGE (HIGH CHANNEL)

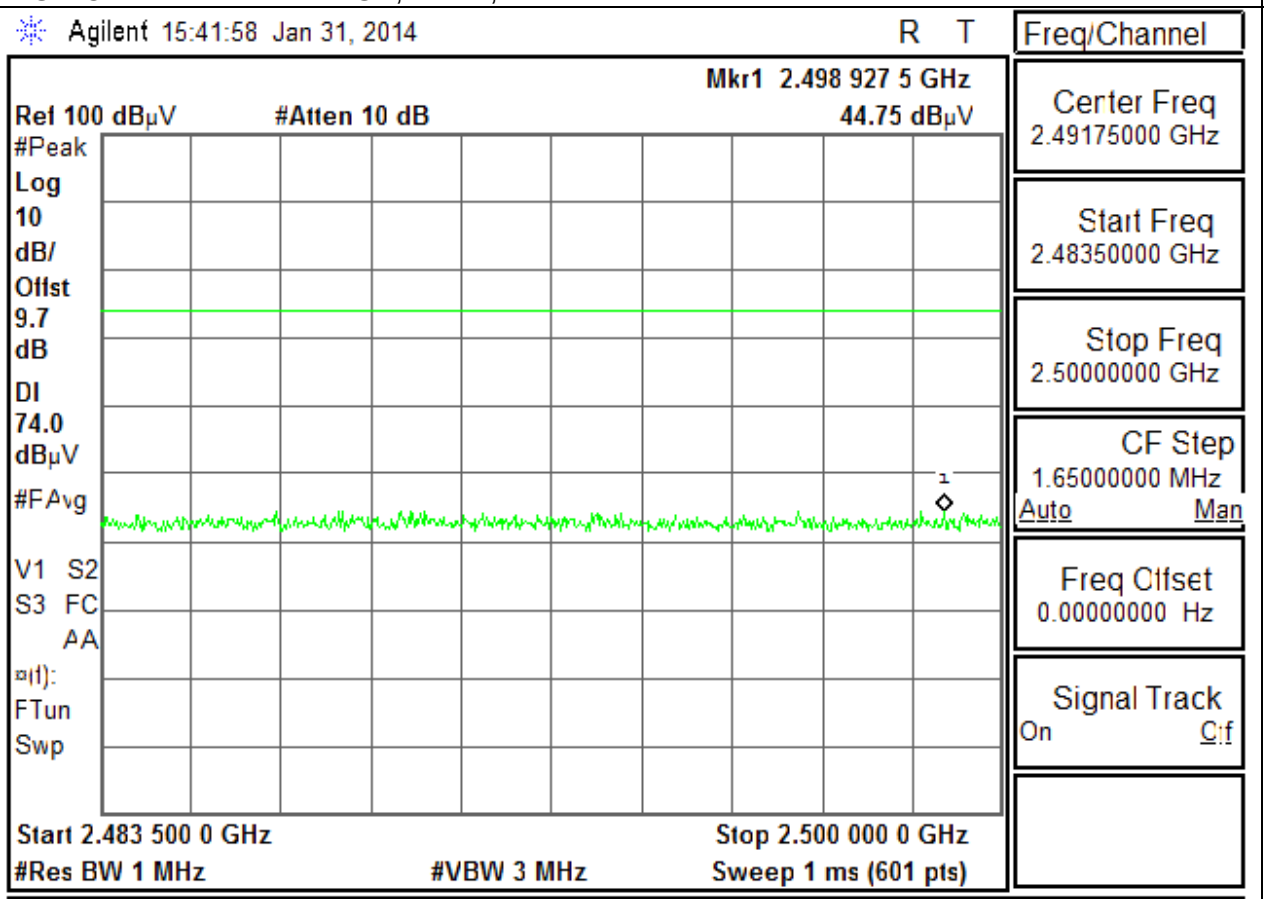
HIGH CHANNEL RESTRICTED, PEAK, HORIZ



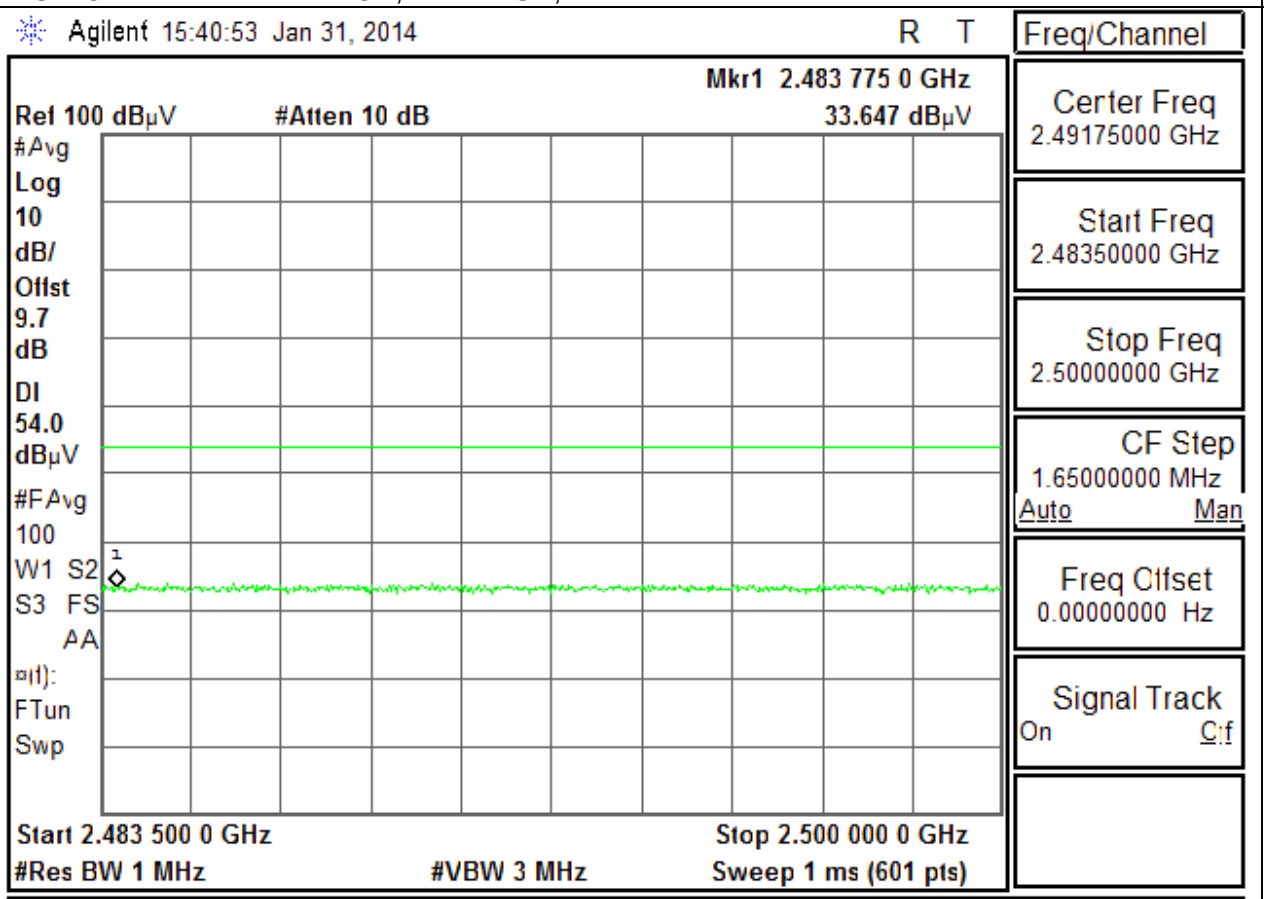
HIGH CHANNEL RESTRICTED, AVERAGE, HORIZ



HIGH CHANNEL BANDEDGE, PEAK, VERT

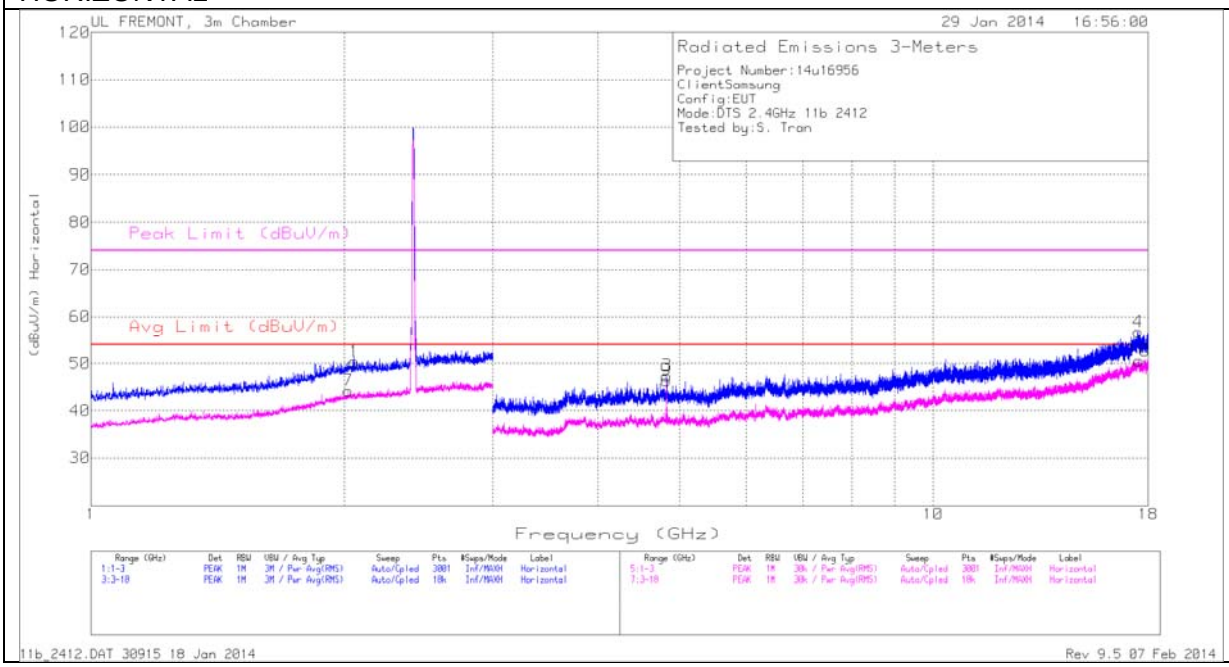


HIGH CHANNEL BANDEDGE, AVERAGE, VERT



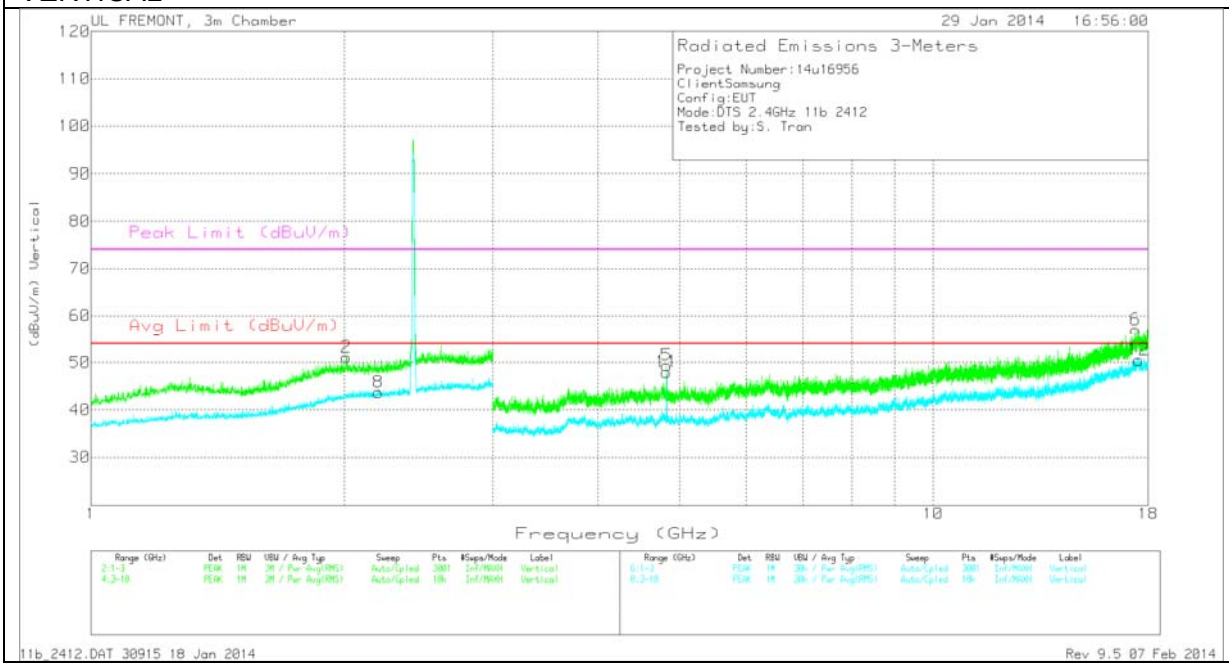
HARMONICS AND SPURIOUS EMISSIONS

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

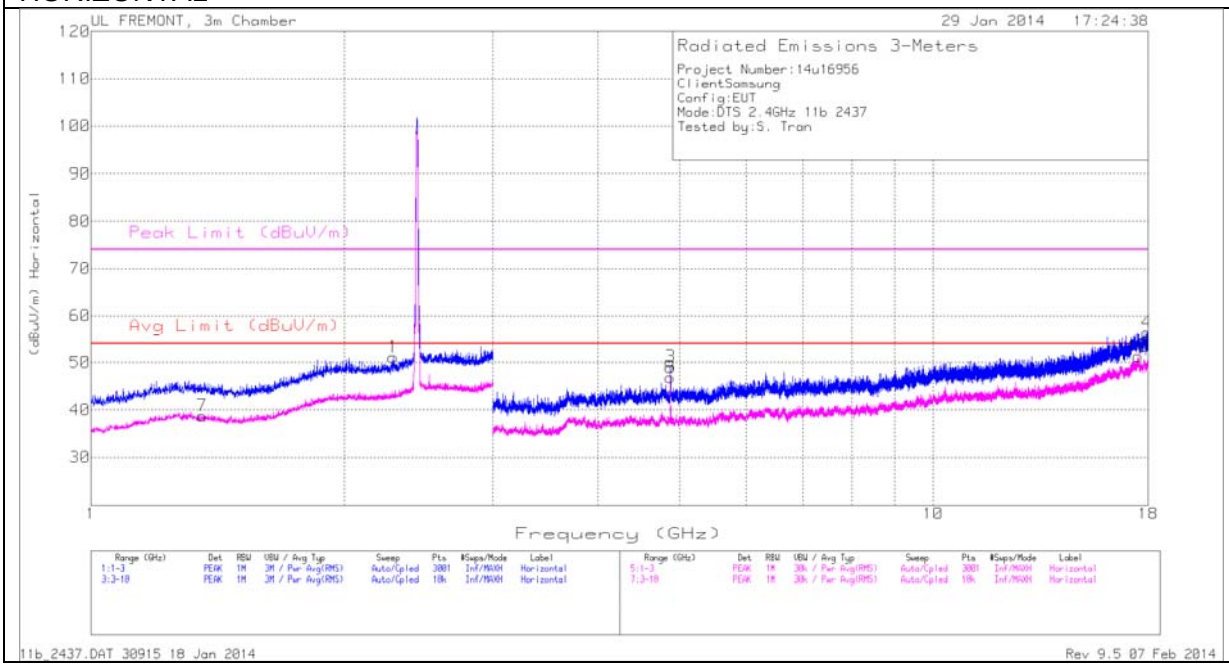


Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

LOW CHANNEL DATA
Trace Markers

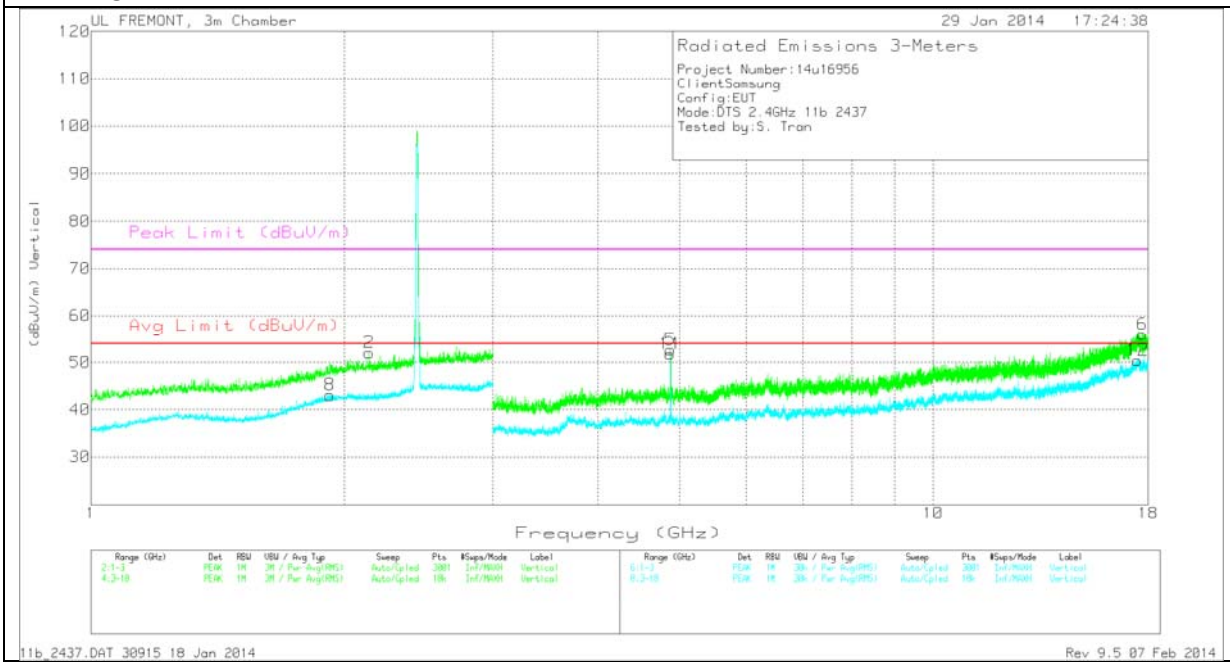
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	2.011	44.25	PK	32.1	-25.3	51.05	-	-	74	-22.95	0-360	101	V
7	2.019	37.3	Avg	32.1	-25.2	44.2	53.97	-9.77	-	-	0-360	101	H
1	2.055	43.24	PK	32.2	-25.1	50.34	-	-	74	-23.66	0-360	99	H
8	2.193	36.69	Avg	32.3	-25.3	43.69	53.97	-10.28	-	-	0-360	101	V
9	4.824	43.18	Avg	34.4	-31.2	46.38	53.97	-7.59	-	-	0-360	200	H
11	4.824	44.76	Avg	34.4	-31.2	47.96	53.97	-6.01	-	-	0-360	101	V
3	4.825	44.14	PK	34.4	-31.2	47.34	-	-	74	-26.66	0-360	101	H
5	4.825	46.19	PK	34.4	-31.2	49.39	-	-	74	-24.61	0-360	101	V
6	17.388	35.07	PK	41.6	-19.6	57.07	-	-	74	-16.93	0-360	101	V
4	17.505	34.36	PK	41.8	-19.4	56.76	-	-	74	-17.24	0-360	101	H
12	17.534	27.39	Avg	41.9	-18.8	50.49	53.97	-3.48	-	-	0-360	101	V
10	17.553	28.05	Avg	41.9	-19.4	50.55	53.97	-3.42	-	-	0-360	200	H

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



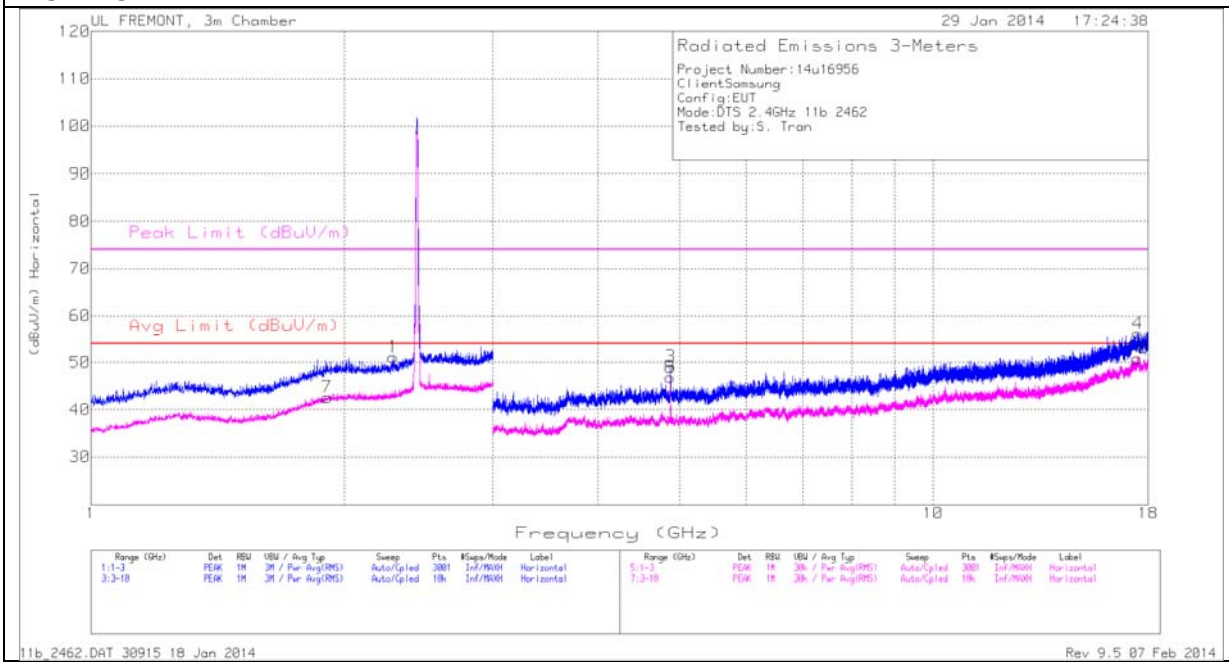
Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

MID CHANNEL DATA

Trace Markers

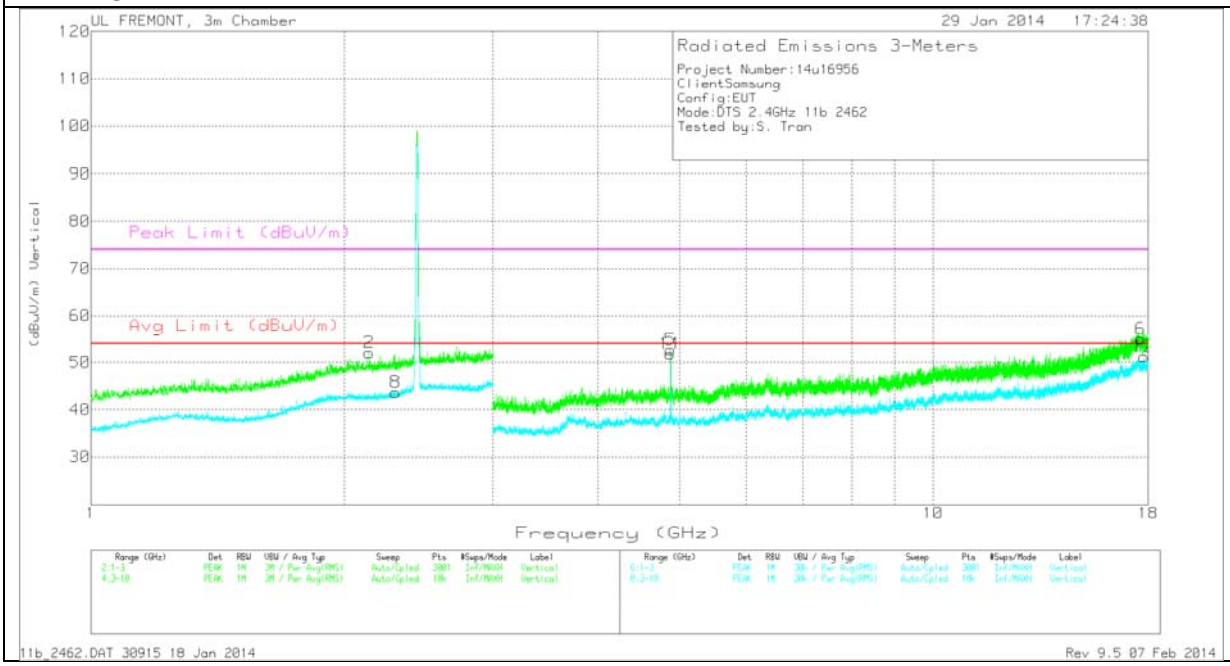
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
7	1.355	36.55	Avg	29	-26.8	38.75	53.97	-15.22	-	-	0-360	101	H
8	1.921	36.96	Avg	31.6	-25.5	43.06	53.97	-10.91	-	-	0-360	200	V
2	2.139	45.04	PK	32.3	-25.3	52.04	-	-	74	-21.96	0-360	101	V
1	2.285	43.76	PK	32.4	-25.1	51.06	-	-	74	-22.94	0-360	199	H
9	4.874	43.44	Avg	34.4	-31	46.84	53.97	-7.13	-	-	0-360	200	H
11	4.874	48.38	Avg	34.4	-31	51.78	53.97	-2.19	-	-	0-360	101	V
3	4.875	45.63	PK	34.4	-31	49.03	-	-	74	-24.97	0-360	199	H
5	4.875	49.25	PK	34.4	-31	52.65	-	-	74	-21.35	0-360	101	V
12	17.485	27.92	Avg	41.8	-19.3	50.42	53.97	-3.55	-	-	0-360	101	V
10	17.511	28.79	Avg	41.8	-19.3	51.29	53.97	-2.68	-	-	0-360	101	H
6	17.713	34.22	PK	42.1	-20.3	56.02	-	-	74	-17.98	0-360	200	V
4	17.933	34.17	PK	42.1	-19.8	56.47	-	-	74	-17.53	0-360	199	H

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.

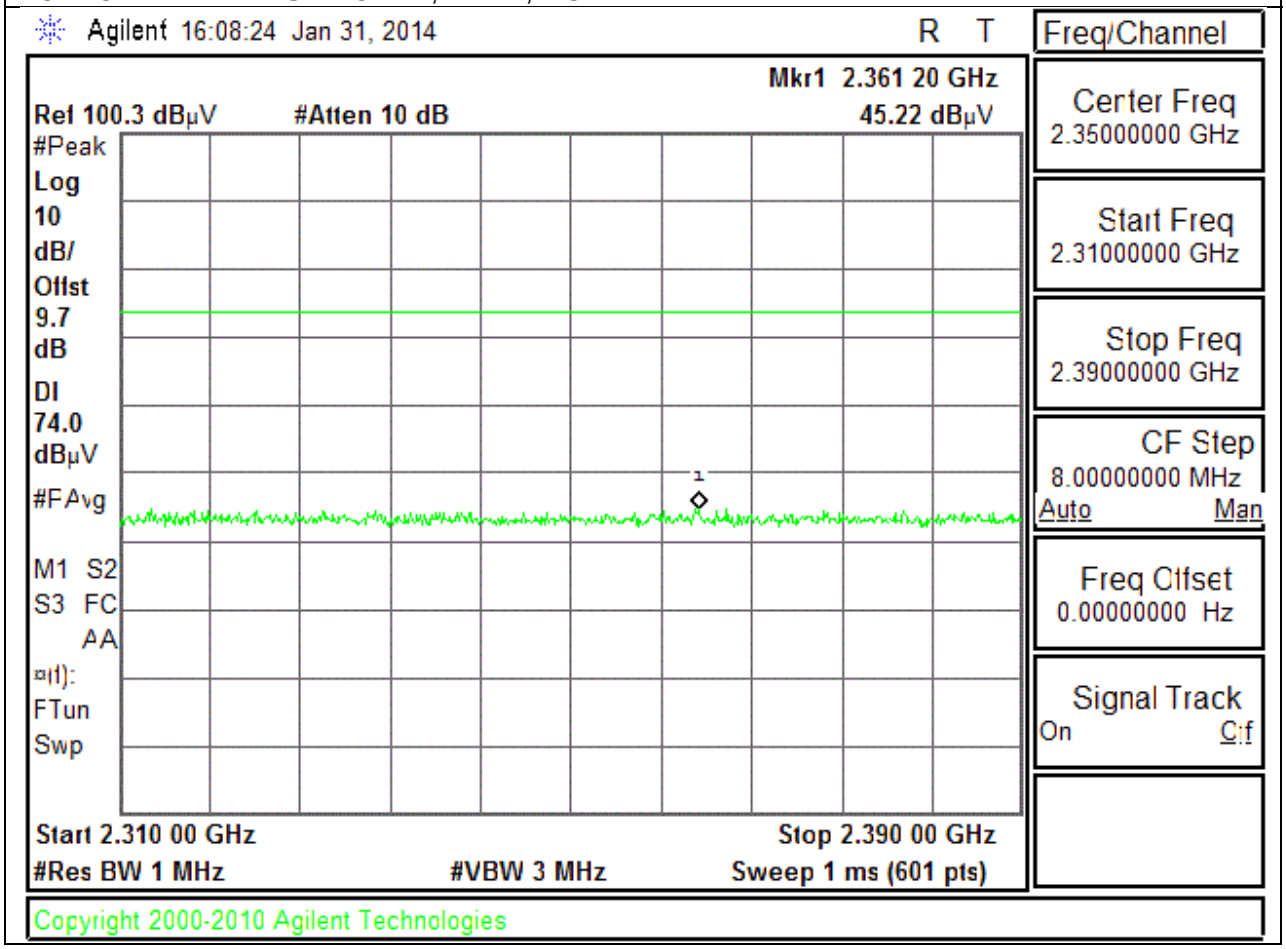
HIGH CHANNEL DATA

Trace Markers

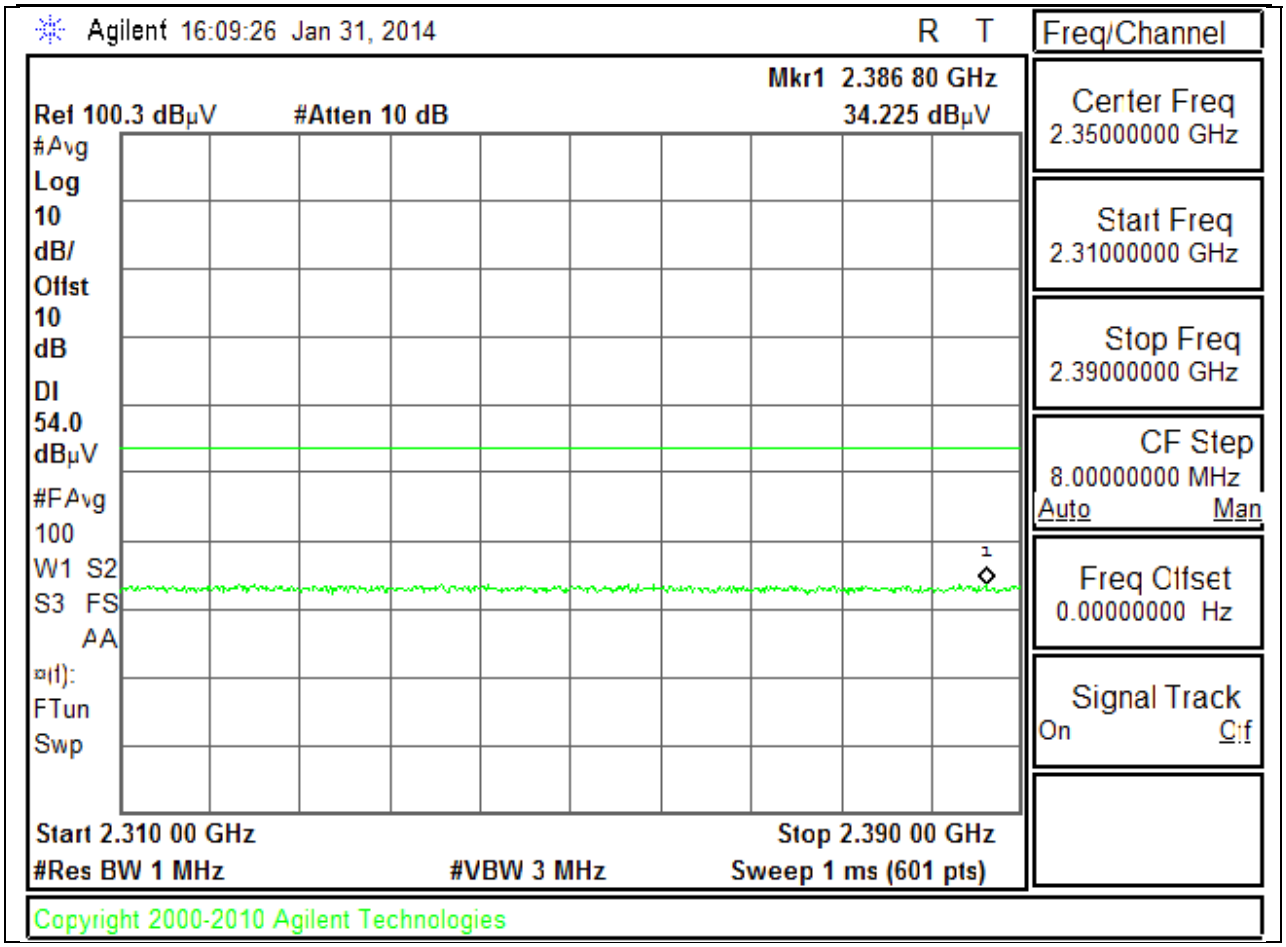
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
7	1.907	36.52	Avg	31.5	-25.4	42.62	53.97	-11.35	-	-	0-360	199	H
2	2.139	45.04	PK	32.3	-25.3	52.04	-	-	74	-21.96	0-360	101	V
1	2.285	43.76	PK	32.4	-25.1	51.06	-	-	74	-22.94	0-360	199	H
8	2.299	36.34	Avg	32.5	-25.2	43.64	53.97	-10.33	-	-	0-360	101	V
9	4.874	43.44	Avg	34.4	-31	46.84	53.97	-7.13	-	-	0-360	200	H
11	4.874	48.38	Avg	34.4	-31	51.78	53.97	-2.19	-	-	0-360	101	V
3	4.875	45.63	PK	34.4	-31	49.03	-	-	74	-24.97	0-360	199	H
5	4.875	49.25	PK	34.4	-31	52.65	-	-	74	-21.35	0-360	101	V
10	17.467	28.46	Avg	41.7	-19.3	50.86	53.97	-3.11	-	-	0-360	101	H
4	17.5	33.84	PK	41.8	-19.4	56.24	-	-	74	-17.76	0-360	101	H
6	17.622	33.13	PK	42	-20.1	55.03	-	-	74	-18.97	0-360	200	V
12	17.796	28.59	Avg	42.2	-19.6	51.19	53.97	-2.78	-	-	0-360	101	V

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

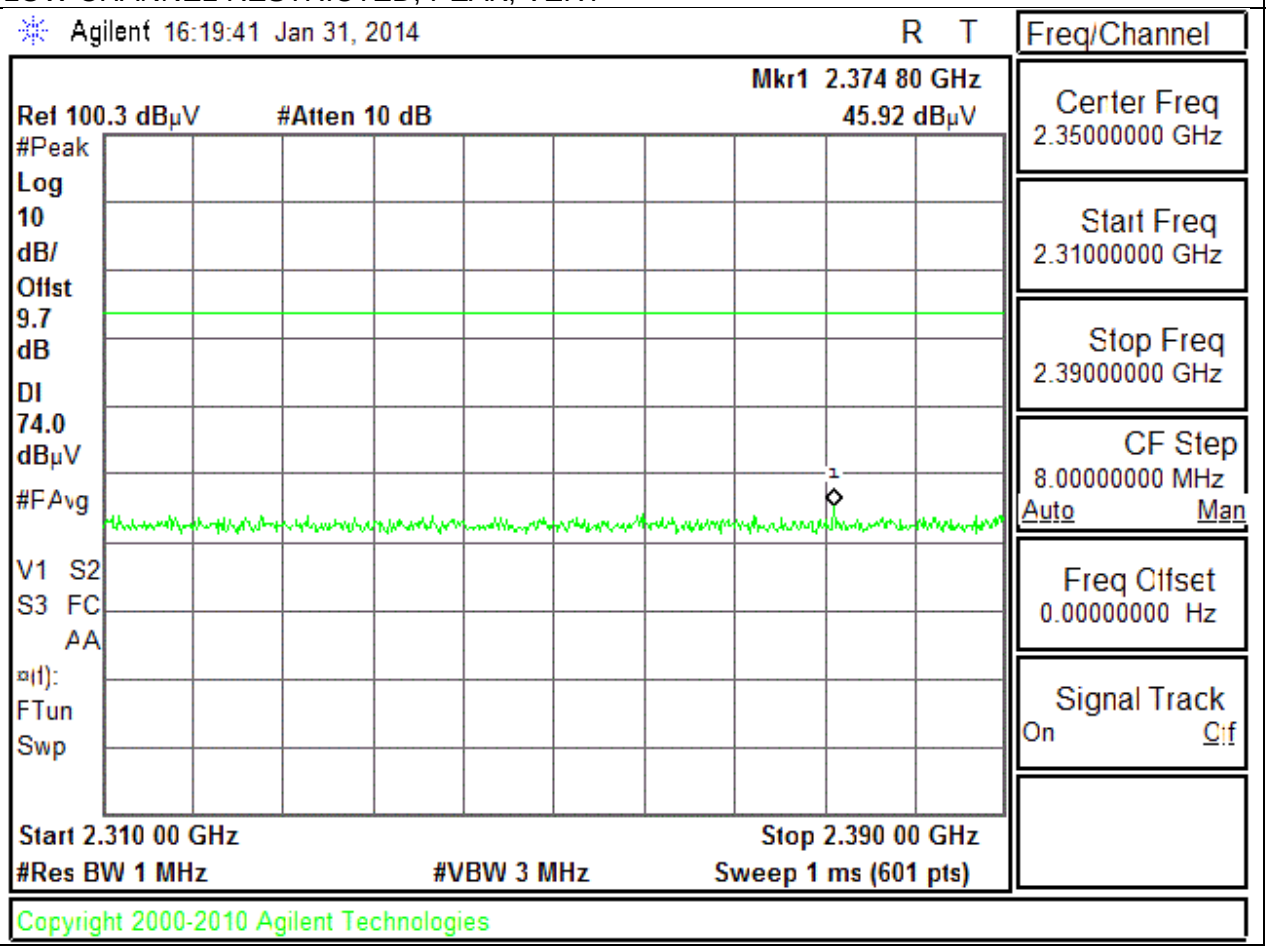
LOW CHANNEL RESTRICTED, PEAK, HORIZ



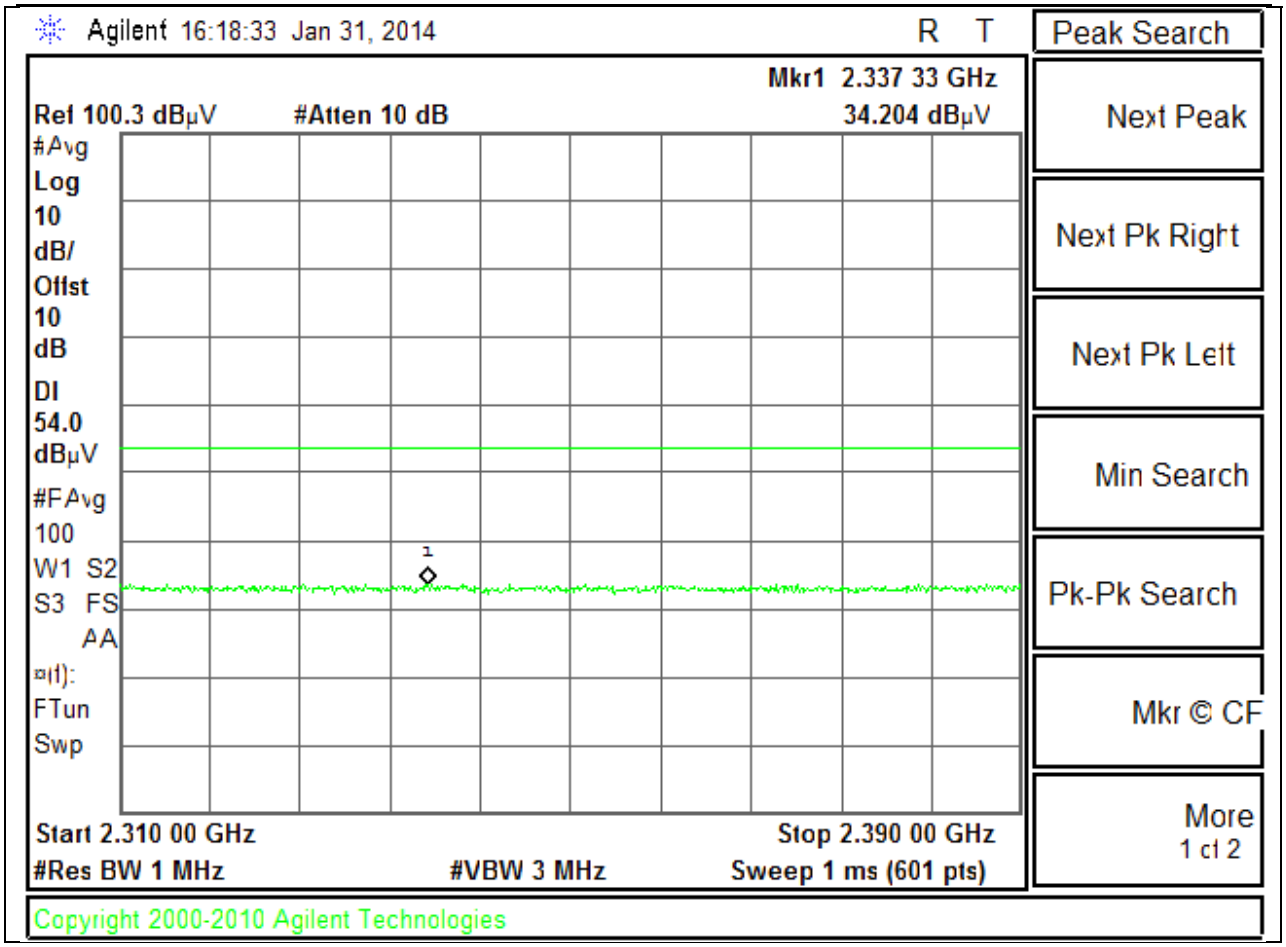
LOW CHANNEL RESTRICTED, AVERAGE, HORIZ



LOW CHANNEL RESTRICTED, PEAK, VERT

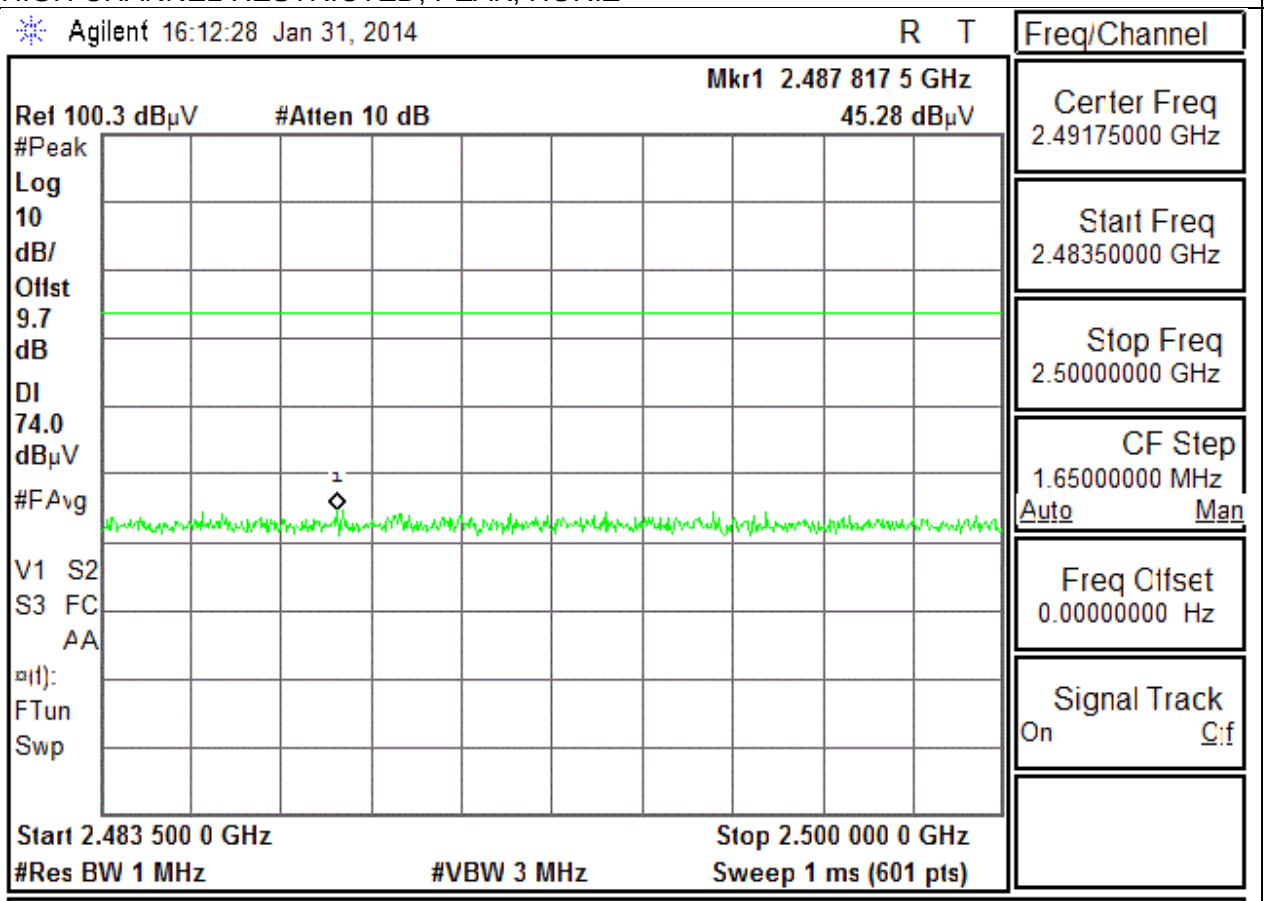


LOW CHANNEL RESTRICTED, AVERAGE, VERT

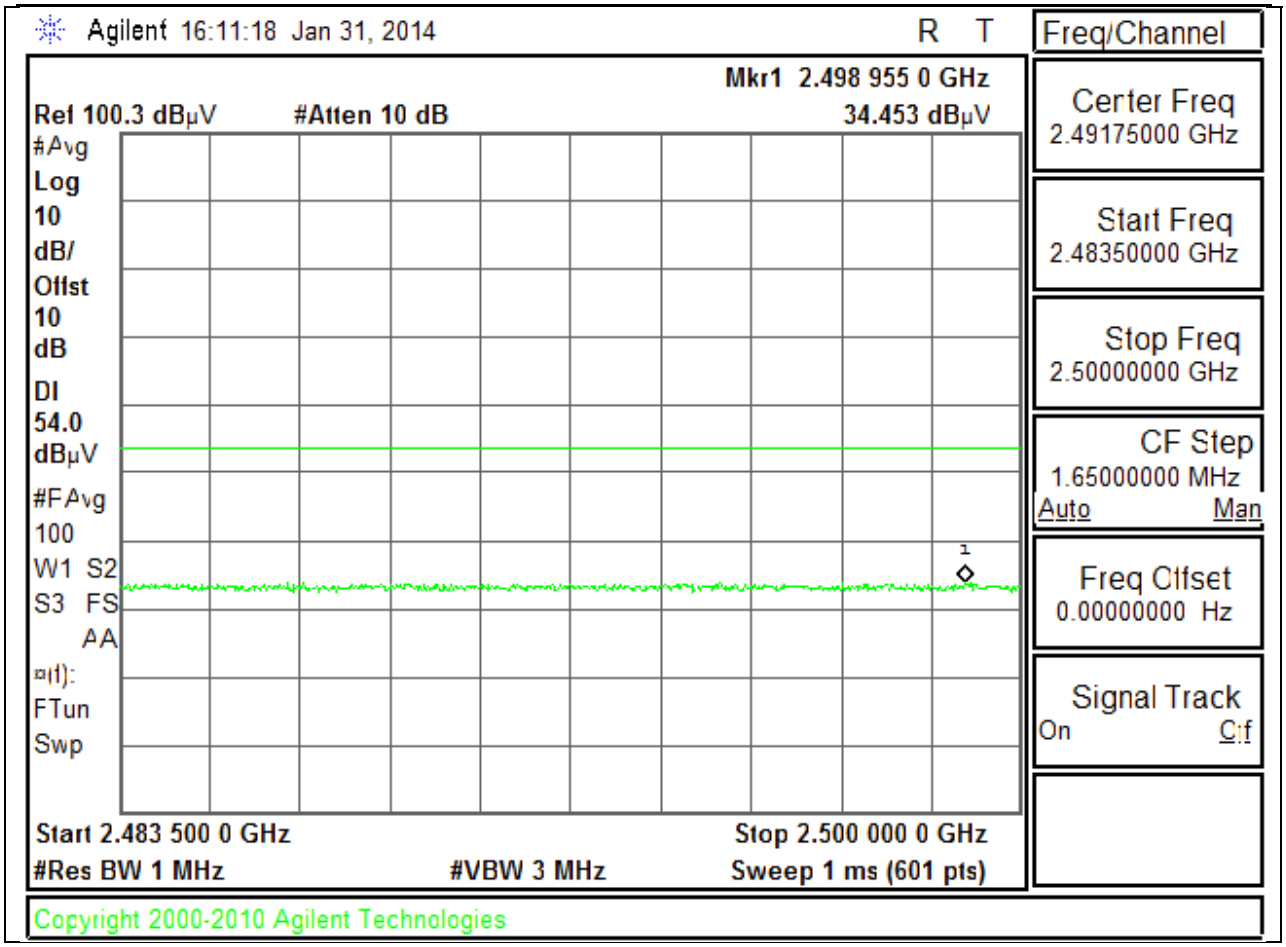


AUTHORIZED BANDEDGE (HIGH CHANNEL)

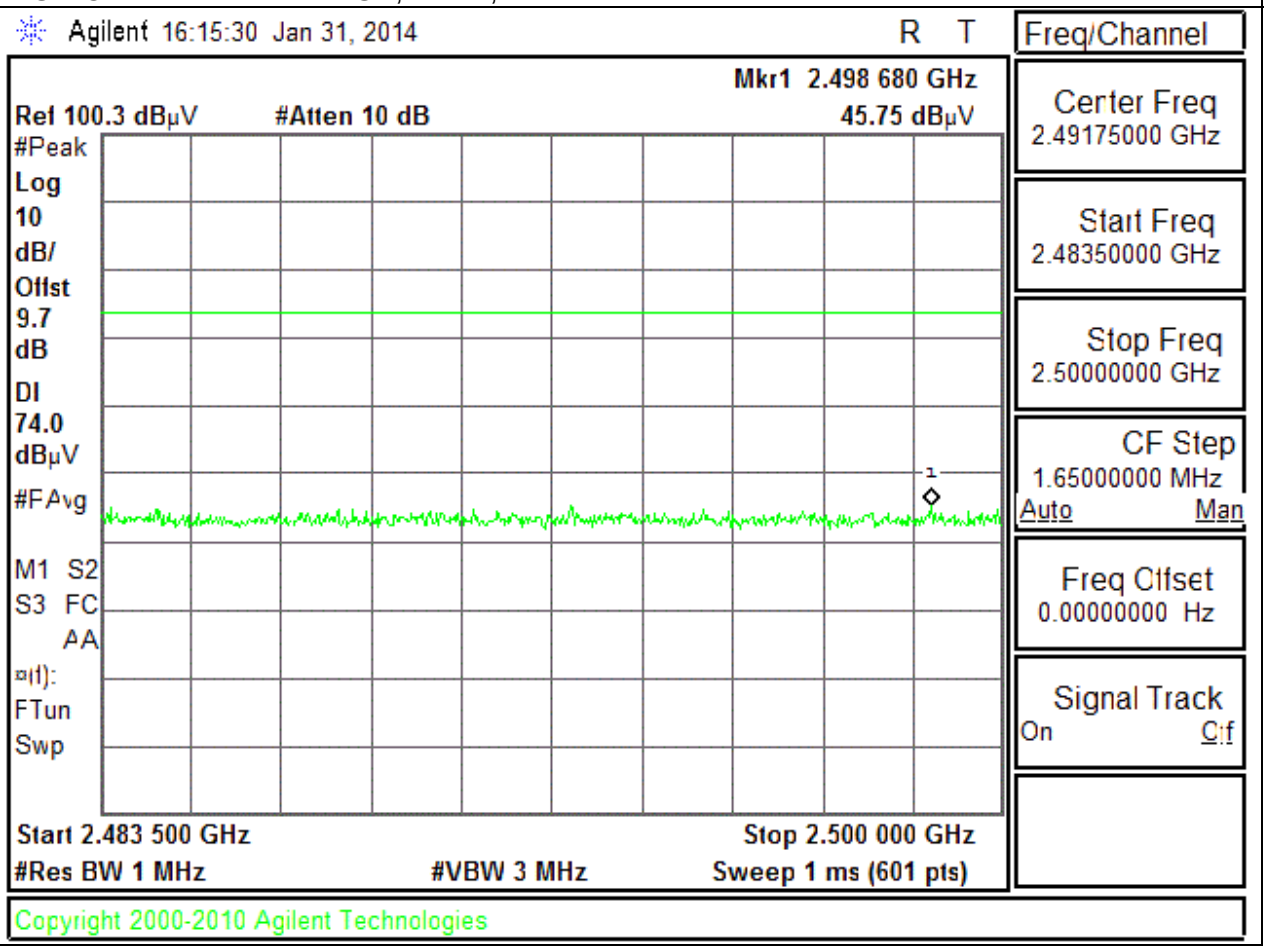
HIGH CHANNEL RESTRICTED, PEAK, HORIZ



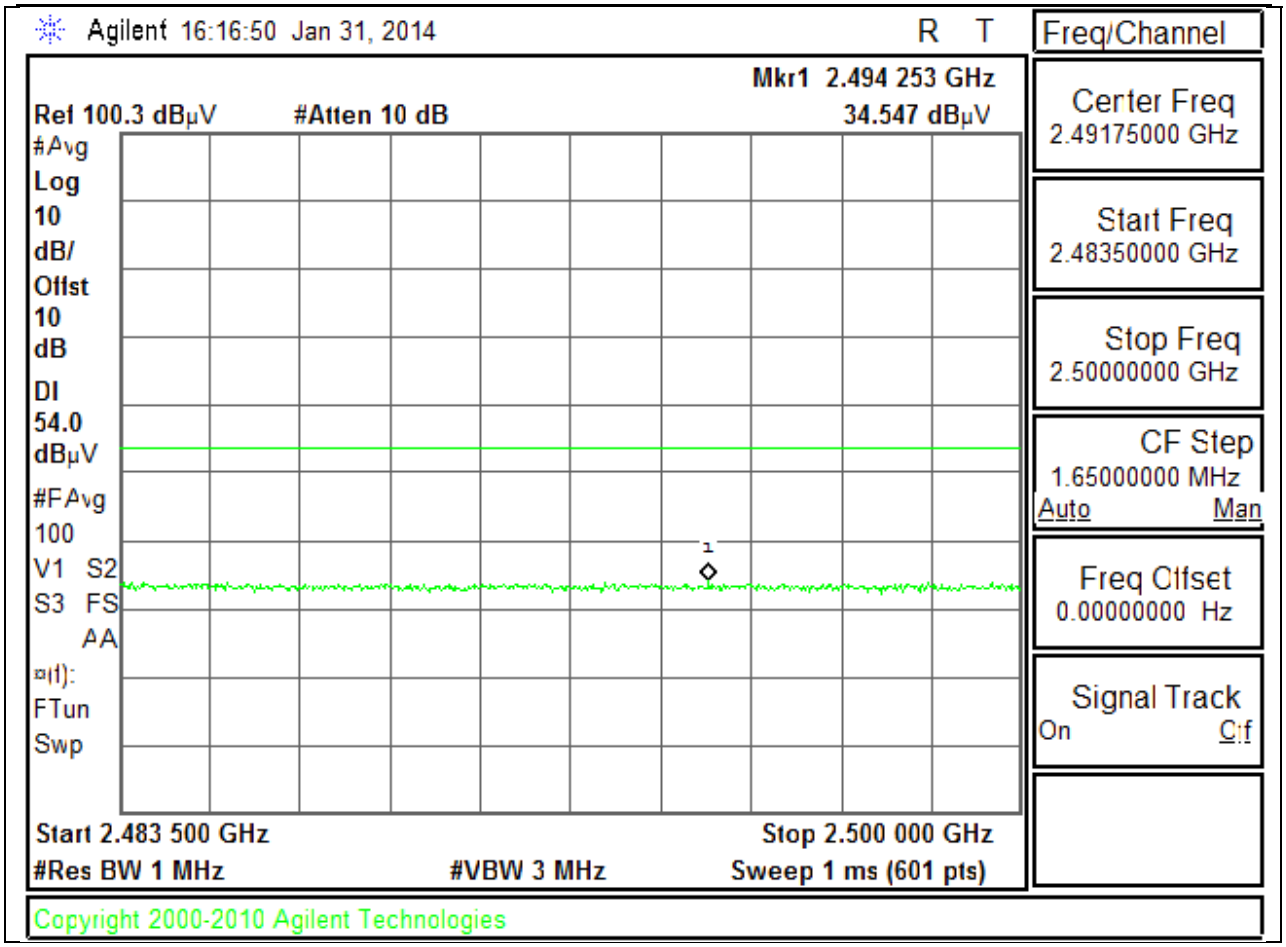
HIGH CHANNEL RESTRICTED, AVERAGE, HORIZ



HIGH CHANNEL BANDEDGE, PEAK, VERT

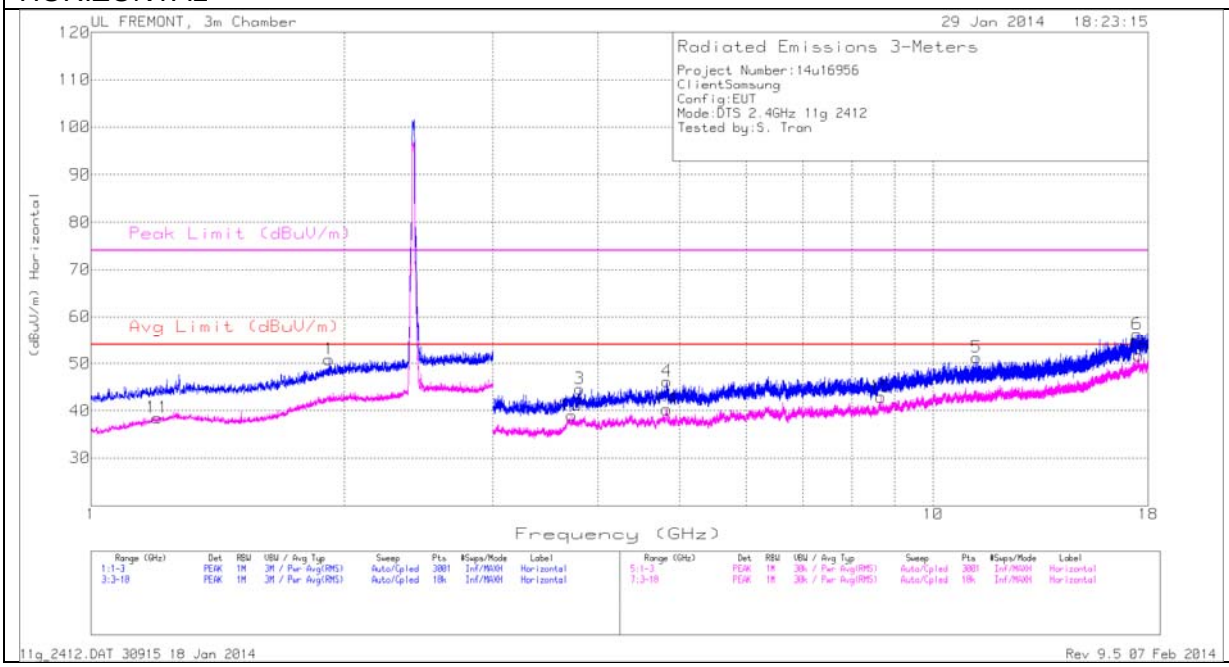


HIGH CHANNEL BANDEDGE, AVERAGE, VERT



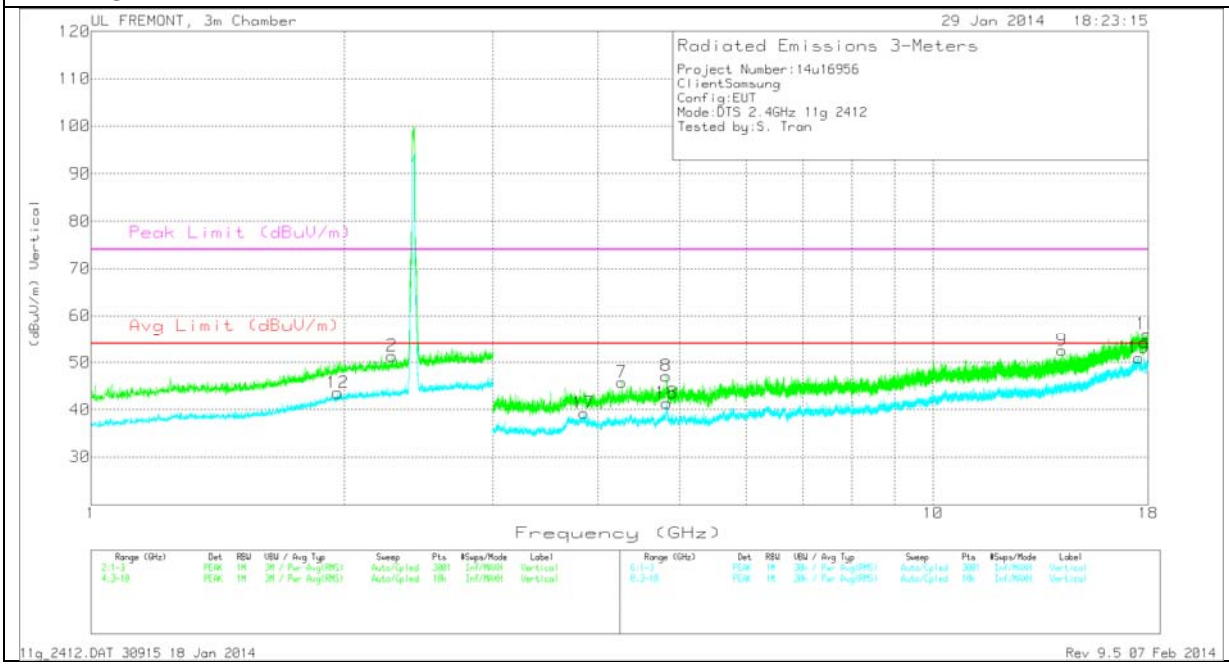
HARMONICS AND SPURIOUS EMISSIONS

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



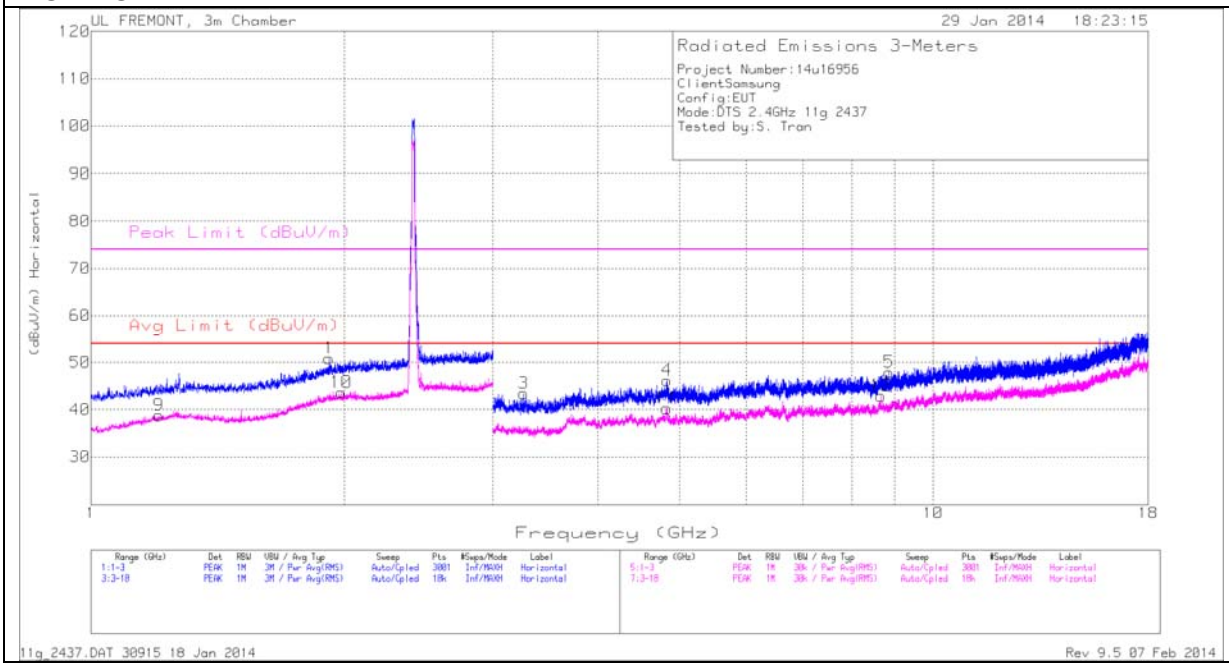
Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

LOW CHANNEL DATA

Trace Markers

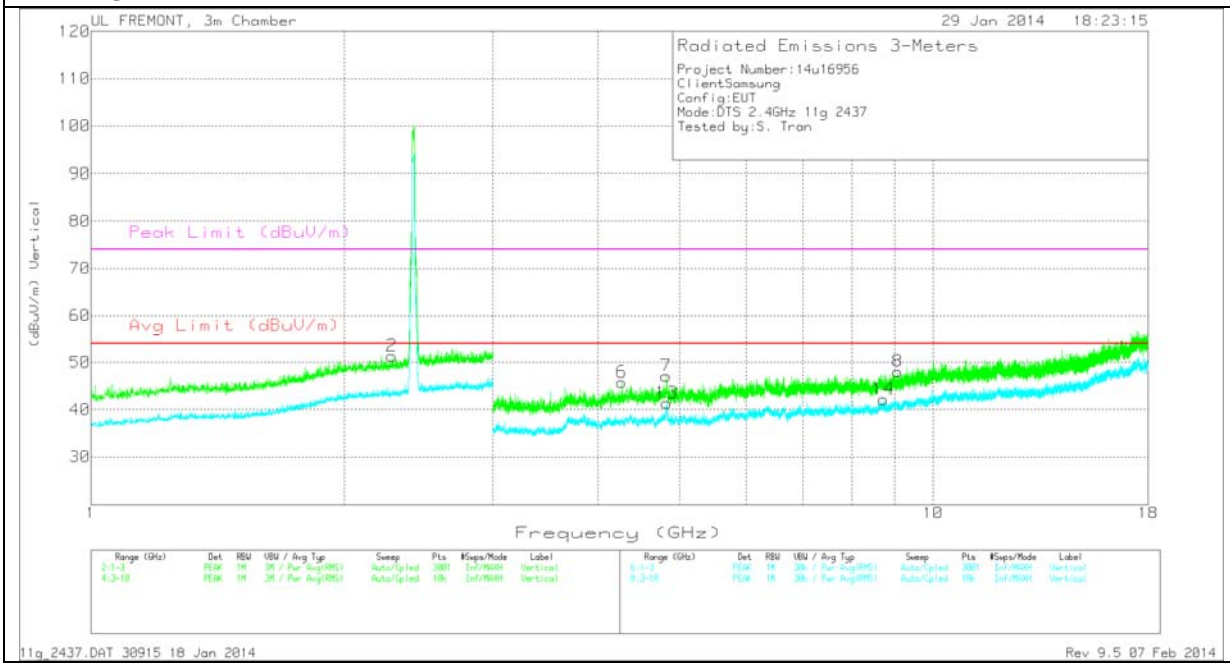
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
11	1.199	37.1	Avg	29	-27.6	38.5	53.97	-15.47	-	-	0-360	199	H
1	1.917	44.64	PK	31.6	-25.4	50.84	-	-	74	-23.16	0-360	101	H
12	1.964	37.07	Avg	31.9	-25.4	43.57	53.97	-10.4	-	-	0-360	200	V
2	2.277	44.12	PK	32.4	-25.2	51.32	-	-	74	-22.68	0-360	200	V
13	3.722	36.63	Avg	33.6	-31.2	39.03	53.97	-14.94	-	-	0-360	101	H
3	3.804	42.19	PK	33.7	-31.3	44.59	-	-	74	-29.41	0-360	199	H
17	3.848	37.25	Avg	33.7	-31.7	39.25	53.97	-14.72	-	-	0-360	200	V
7	4.267	43.08	PK	34	-31.3	45.78	-	-	74	-28.22	0-360	200	V
8	4.819	43.82	PK	34.4	-31.1	47.12	-	-	74	-26.88	0-360	101	V
14	4.827	37.07	Avg	34.4	-31.2	40.27	53.97	-13.7	-	-	0-360	101	H
18	4.827	38.17	Avg	34.4	-31.2	41.37	53.97	-12.6	-	-	0-360	101	V
4	4.832	42.98	PK	34.4	-31.2	46.18	-	-	74	-27.82	0-360	101	H
15	8.666	31.71	Avg	36.5	-25.3	42.91	53.97	-11.06	-	-	0-360	101	H
5	11.251	36.45	PK	38.6	-23.8	51.25	-	-	74	-22.75	0-360	199	H
9	14.223	38.53	PK	39.7	-25.7	52.53	-	-	74	-21.47	0-360	200	V
6	17.468	33.92	PK	41.7	-19.3	56.32	-	-	74	-17.68	0-360	199	H
19	17.536	27.85	Avg	41.9	-18.8	50.95	53.97	-3.02	-	-	0-360	200	V
16	17.538	28.8	Avg	41.9	-19	51.7	53.97	-2.27	-	-	0-360	101	H
10	17.948	33.59	PK	42.1	-19.6	56.09	-	-	74	-17.91	0-360	101	V

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



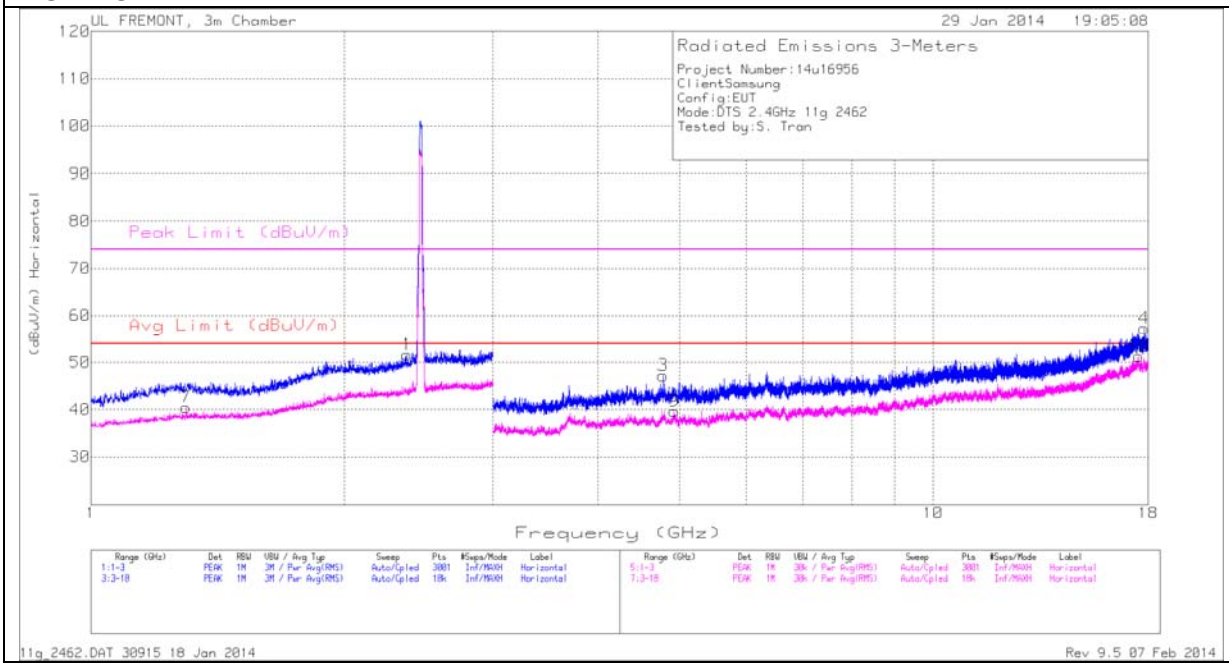
Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

MID CHANNEL DATA

Trace Markers

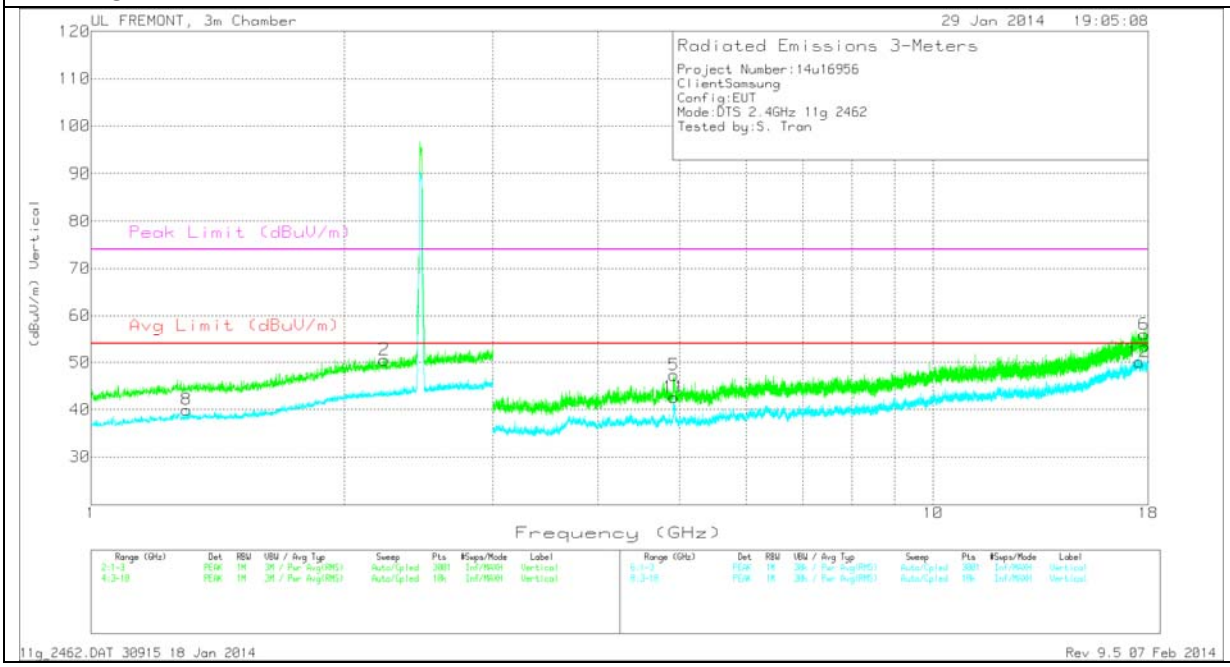
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
9	1.204	37.38	Avg	29	-27.6	38.78	53.97	-15.19	-	-	0-360	101	H
1	1.917	44.64	PK	31.6	-25.4	50.84	-	-	74	-23.16	0-360	101	H
10	1.982	37.02	Avg	32	-25.4	43.62	53.97	-10.35	-	-	0-360	199	H
2	2.277	44.12	PK	32.4	-25.2	51.32	-	-	74	-22.68	0-360	200	V
3	3.263	42.13	PK	33.4	-32.1	43.43	-	-	74	-30.57	0-360	199	H
6	4.267	43.08	PK	34	-31.3	45.78	-	-	74	-28.22	0-360	200	V
7	4.819	43.82	PK	34.4	-31.1	47.12	-	-	74	-26.88	0-360	101	V
11	4.827	37.07	Avg	34.4	-31.2	40.27	53.97	-13.7	-	-	0-360	101	H
13	4.827	38.17	Avg	34.4	-31.2	41.37	53.97	-12.6	-	-	0-360	101	V
4	4.832	42.98	PK	34.4	-31.2	46.18	-	-	74	-27.82	0-360	101	H
12	8.666	31.71	Avg	36.5	-25.3	42.91	53.97	-11.06	-	-	0-360	101	H
14	8.729	31.38	Avg	36.6	-25.8	42.18	53.97	-11.79	-	-	0-360	101	V
5	8.863	37.88	PK	36.7	-26.7	47.88	-	-	74	-26.12	0-360	101	H
8	9.076	37.17	PK	36.9	-26	48.07	-	-	74	-25.93	0-360	200	V

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.

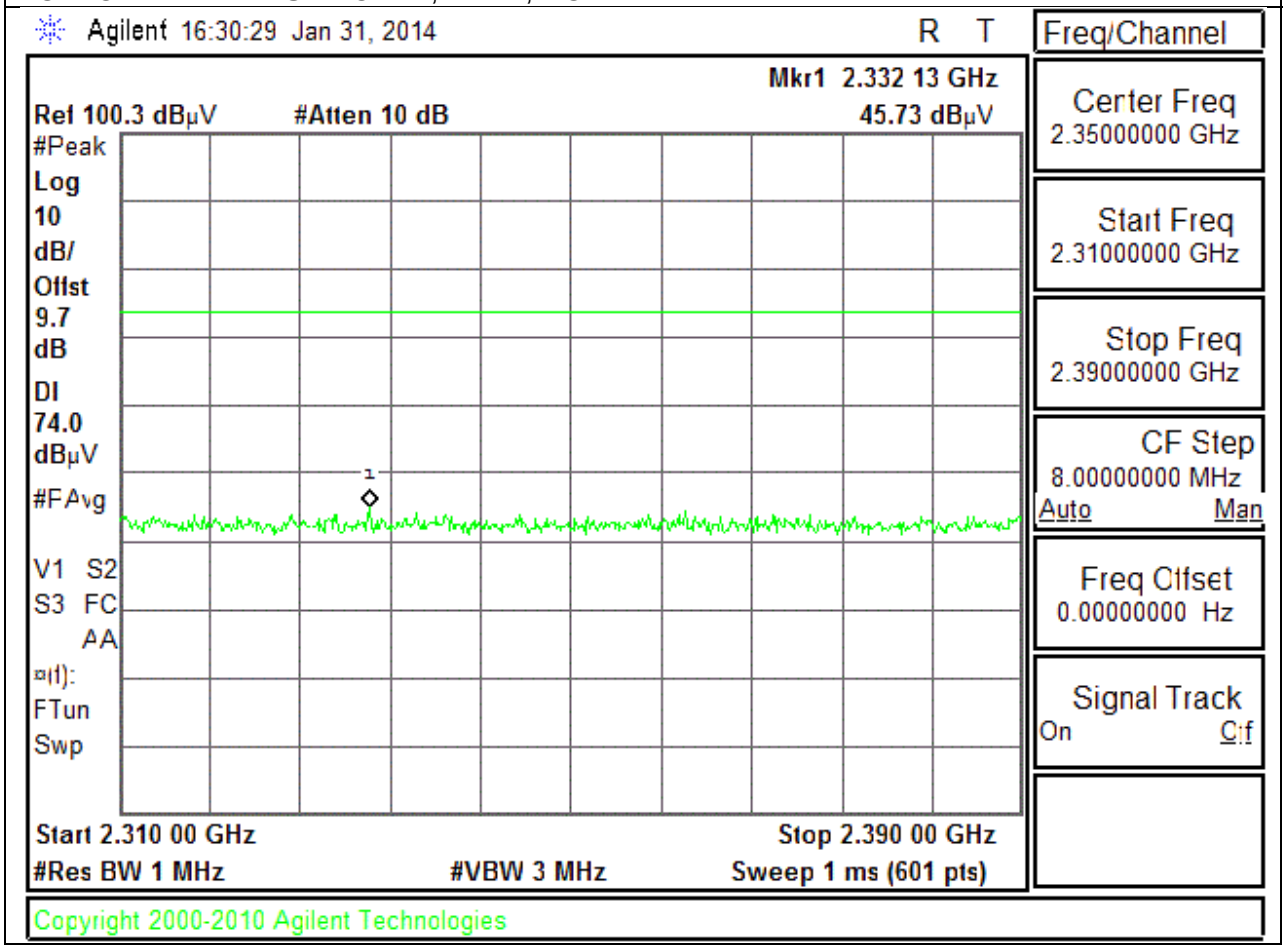
HIGH CHANNEL DATA

Trace Markers

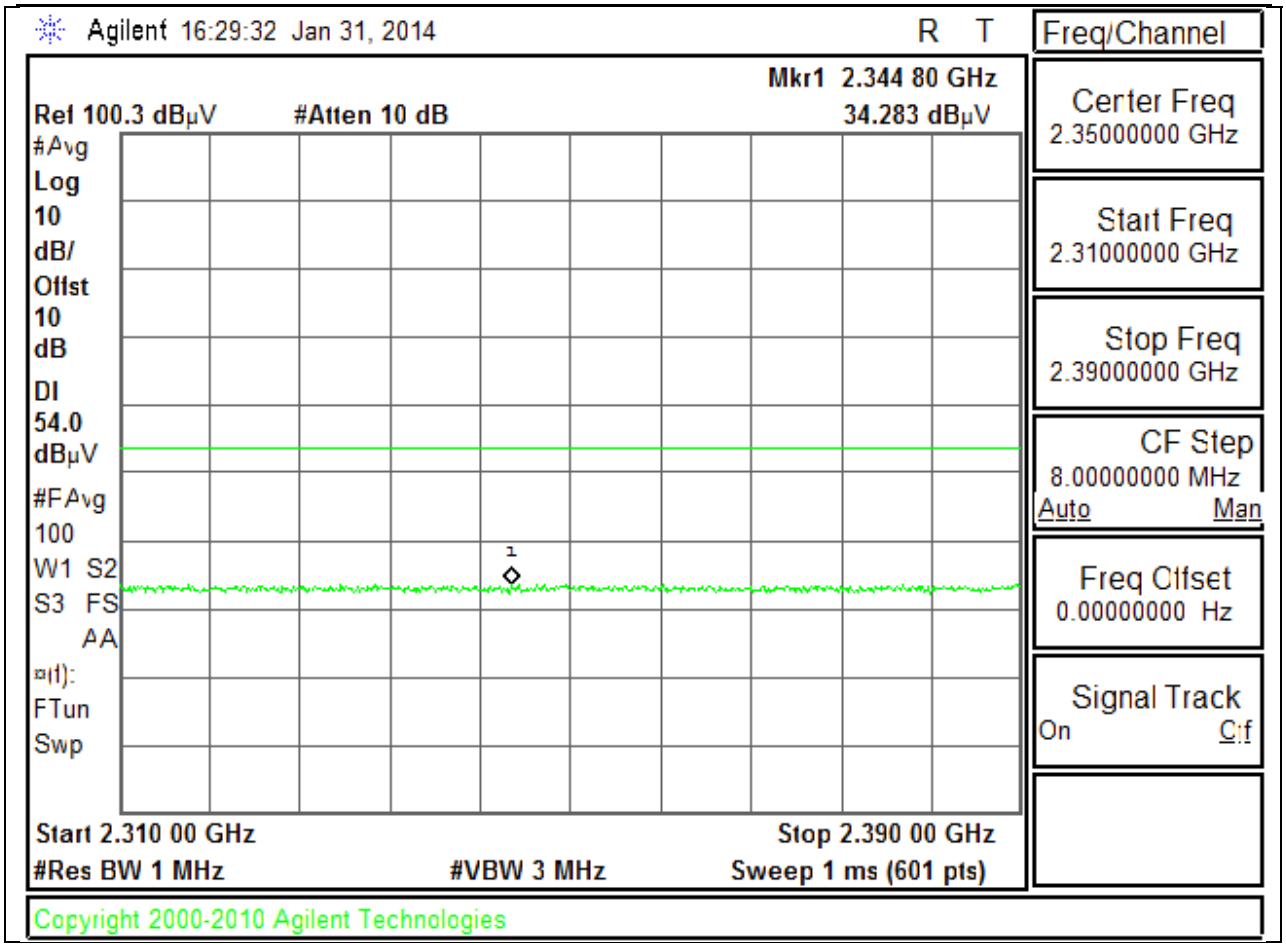
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
7	1.297	38.47	Avg	29.1	-27.1	40.47	53.97	-13.5	-	-	0-360	199	H
8	1.298	37.95	Avg	29.1	-27.1	39.95	53.97	-14.02	-	-	0-360	101	V
2	2.231	43.41	PK	32.4	-25.3	50.51	-	-	74	-23.49	0-360	101	V
1	2.373	44.02	PK	32.5	-24.9	51.62	-	-	74	-22.38	0-360	101	H
3	4.778	43.59	PK	34.4	-30.8	47.19	-	-	74	-26.81	0-360	200	H
5	4.921	43.49	PK	34.4	-30.6	47.29	-	-	74	-26.71	0-360	101	V
11	4.923	38.78	Avg	34.4	-30.6	42.58	53.97	-11.39	-	-	0-360	101	V
9	4.925	35.83	Avg	34.4	-30.6	39.63	53.97	-14.34	-	-	0-360	200	H
10	17.535	28.19	Avg	41.9	-18.8	51.29	53.97	-2.68	-	-	0-360	200	H
12	17.563	27.77	Avg	41.9	-19.6	50.07	53.97	-3.9	-	-	0-360	101	V
6	17.791	33.64	PK	42.2	-19.8	56.04	-	-	74	-17.96	0-360	200	V
4	17.802	34.78	PK	42.2	-19.7	57.28	-	-	74	-16.72	0-360	101	H

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

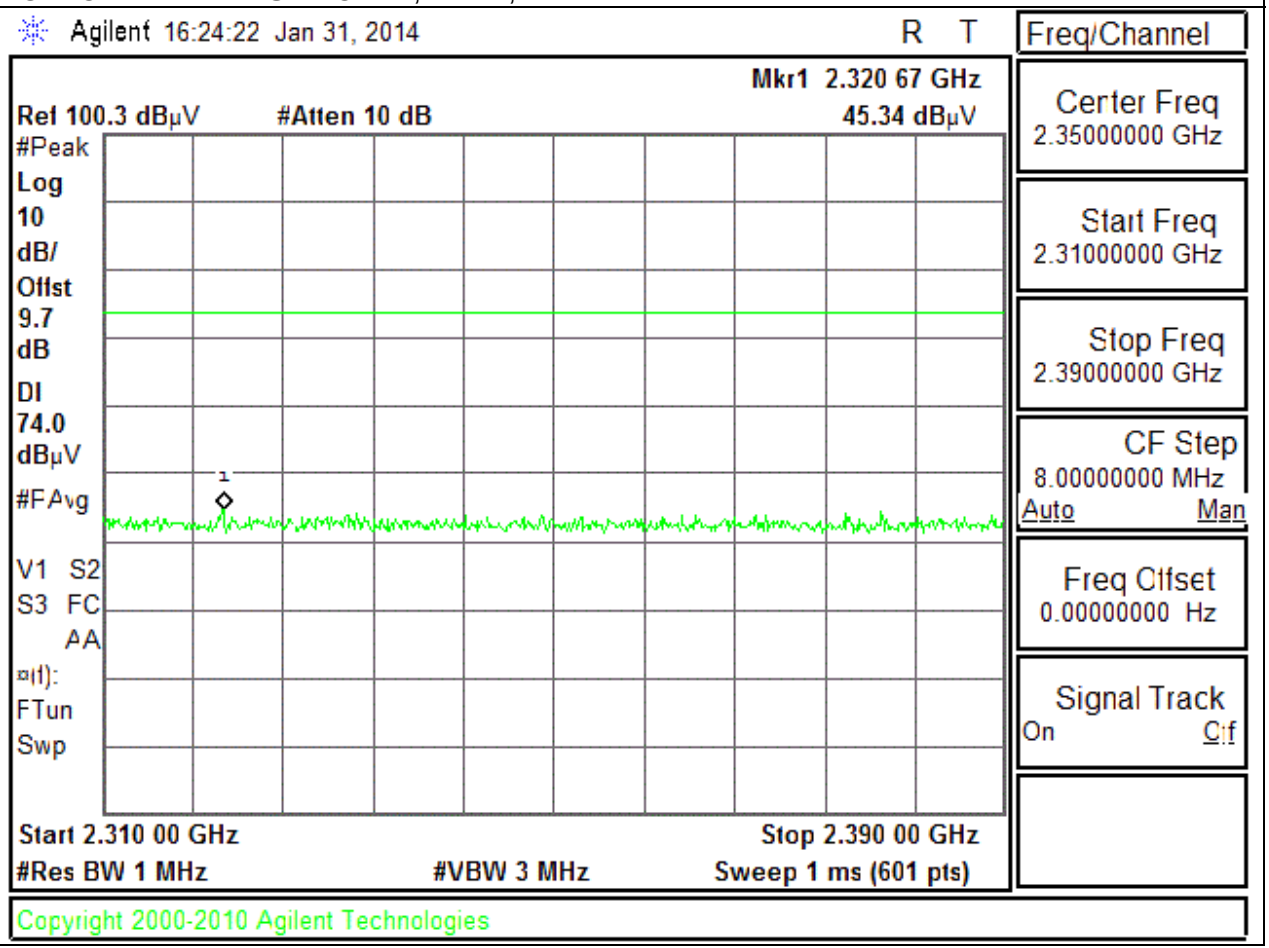
LOW CHANNEL RESTRICTED, PEAK, HORIZ



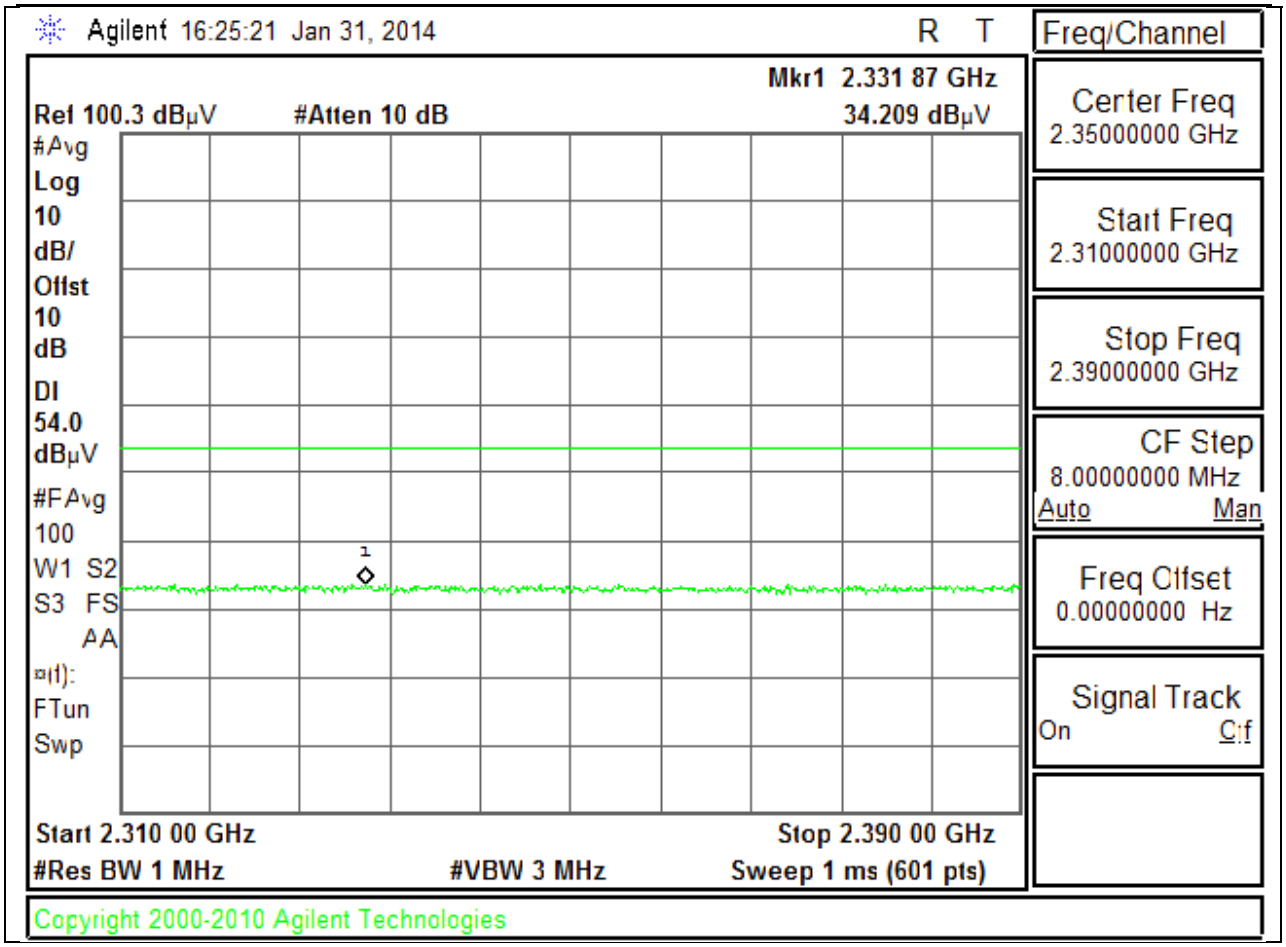
LOW CHANNEL RESTRICTED, AVERAGE, HORIZ



LOW CHANNEL RESTRICTED, PEAK, VERT

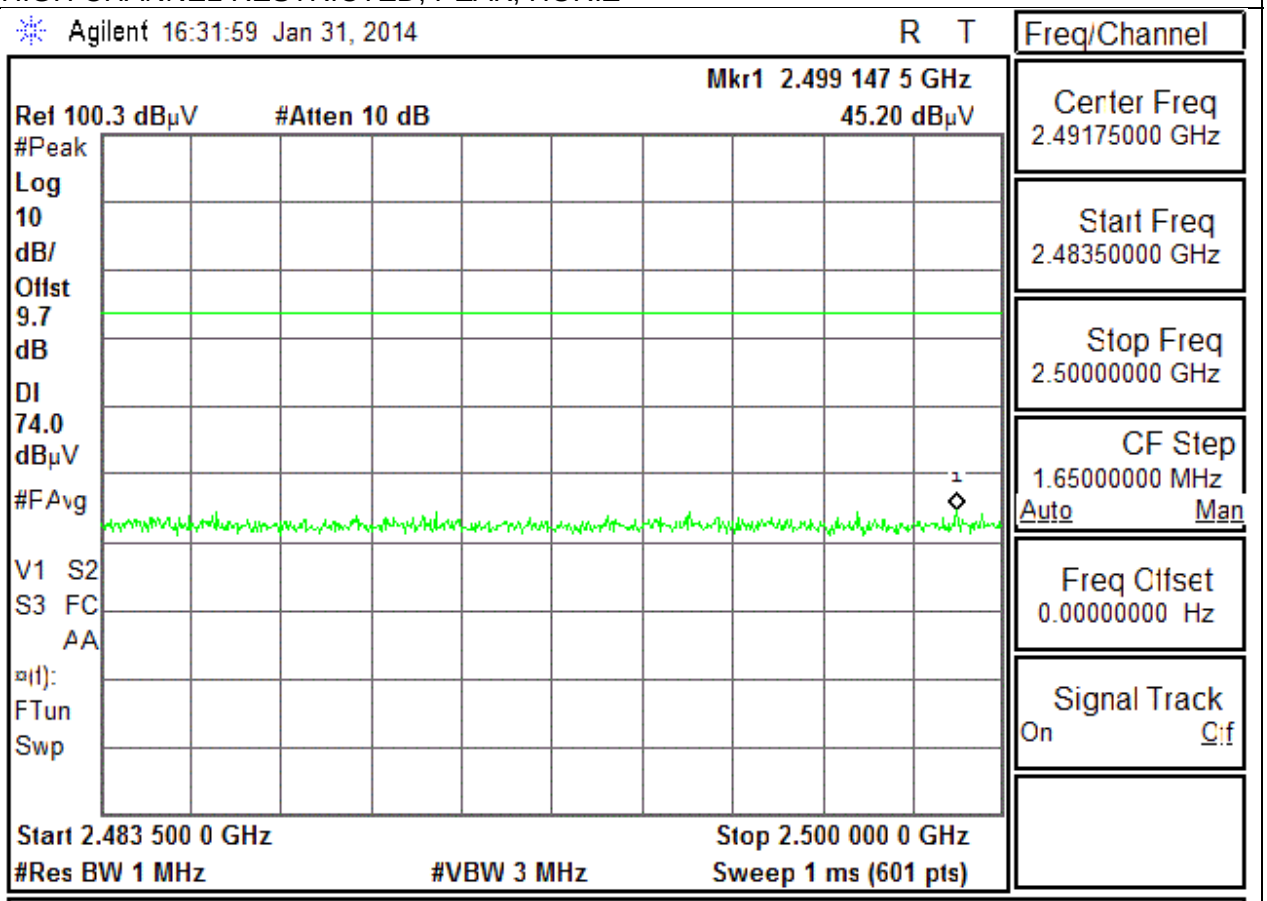


LOW CHANNEL RESTRICTED, AVERAGE, VERT

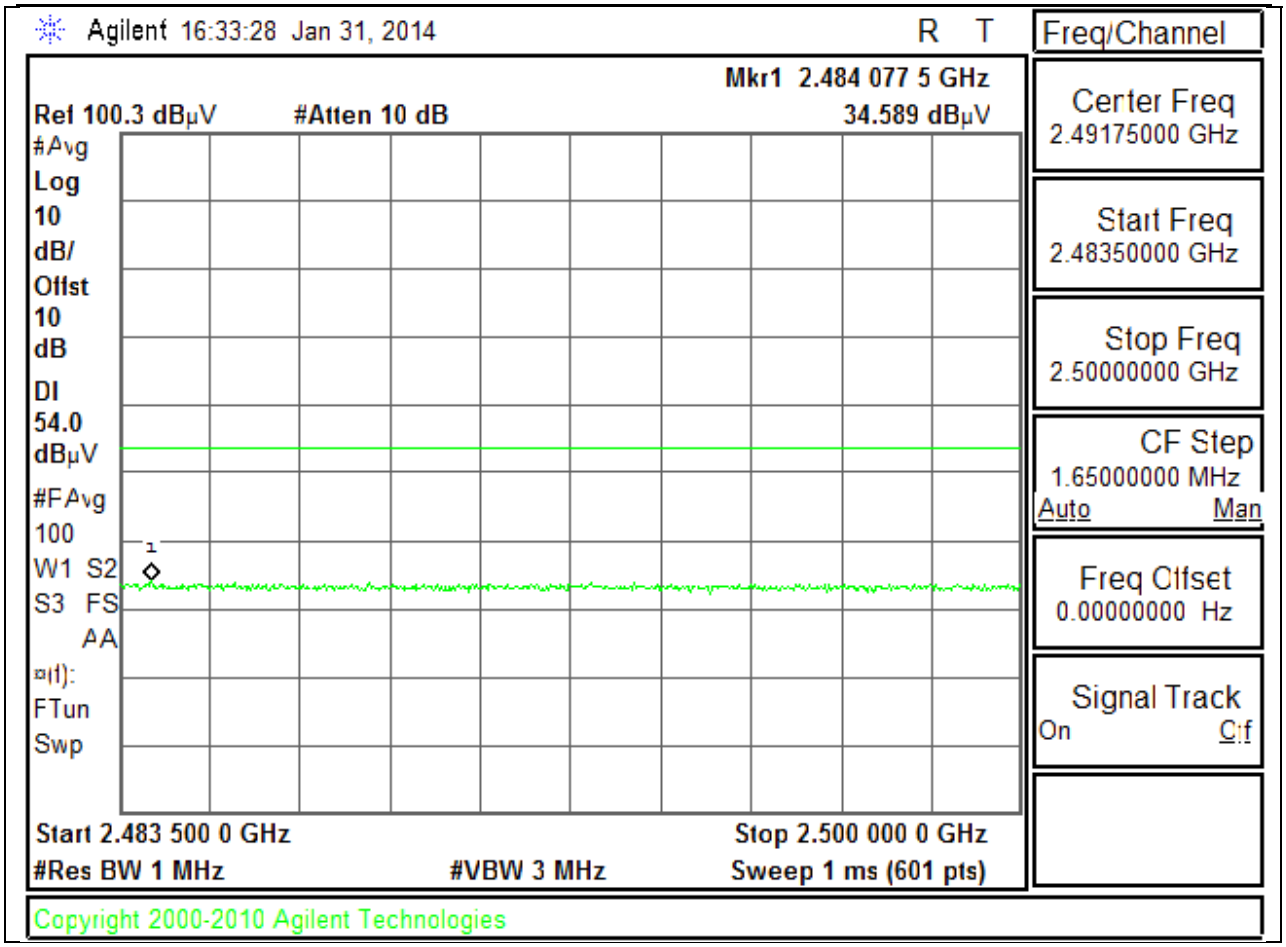


AUTHORIZED BANDEDGE (HIGH CHANNEL)

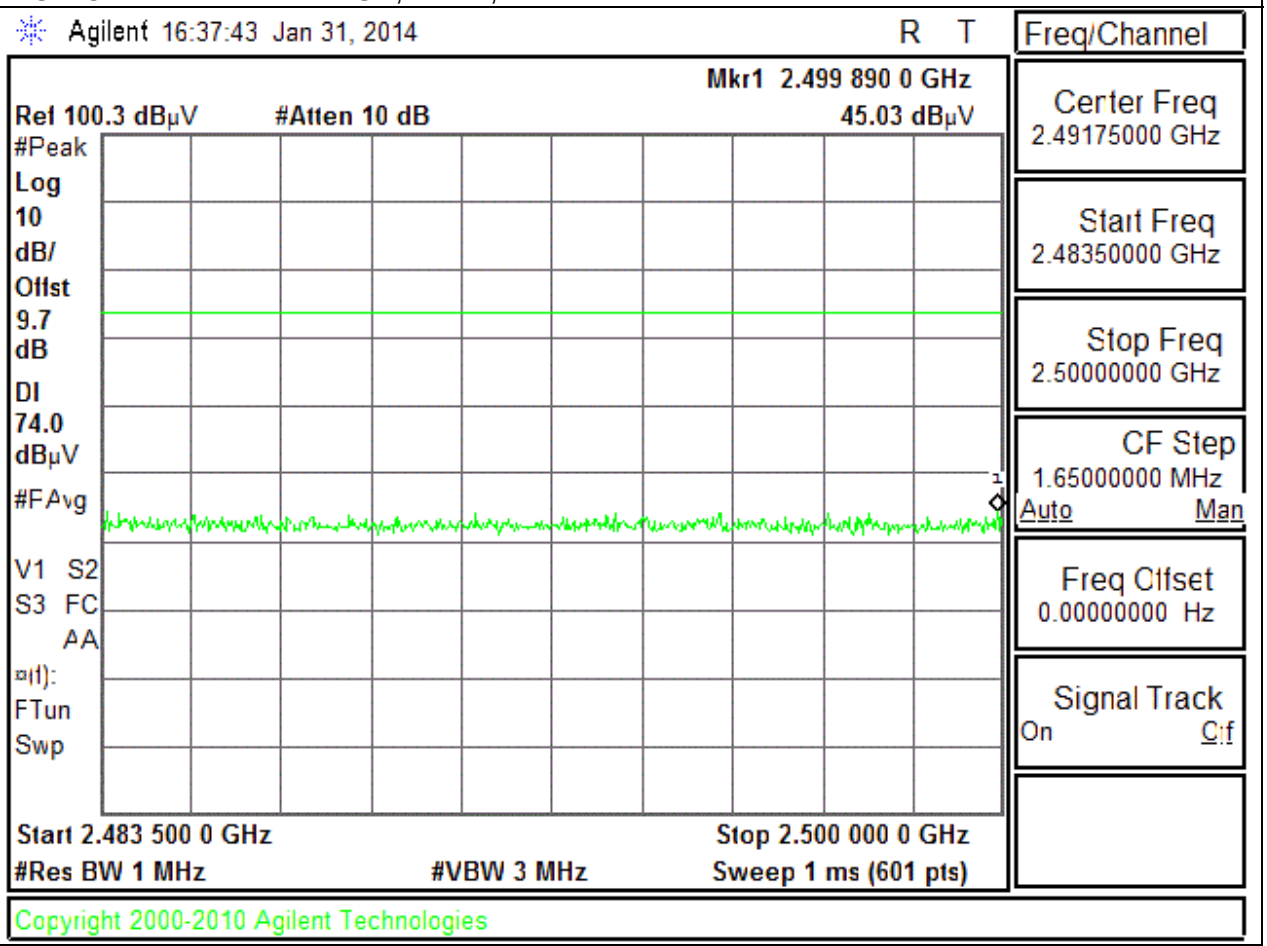
HIGH CHANNEL RESTRICTED, PEAK, HORIZ



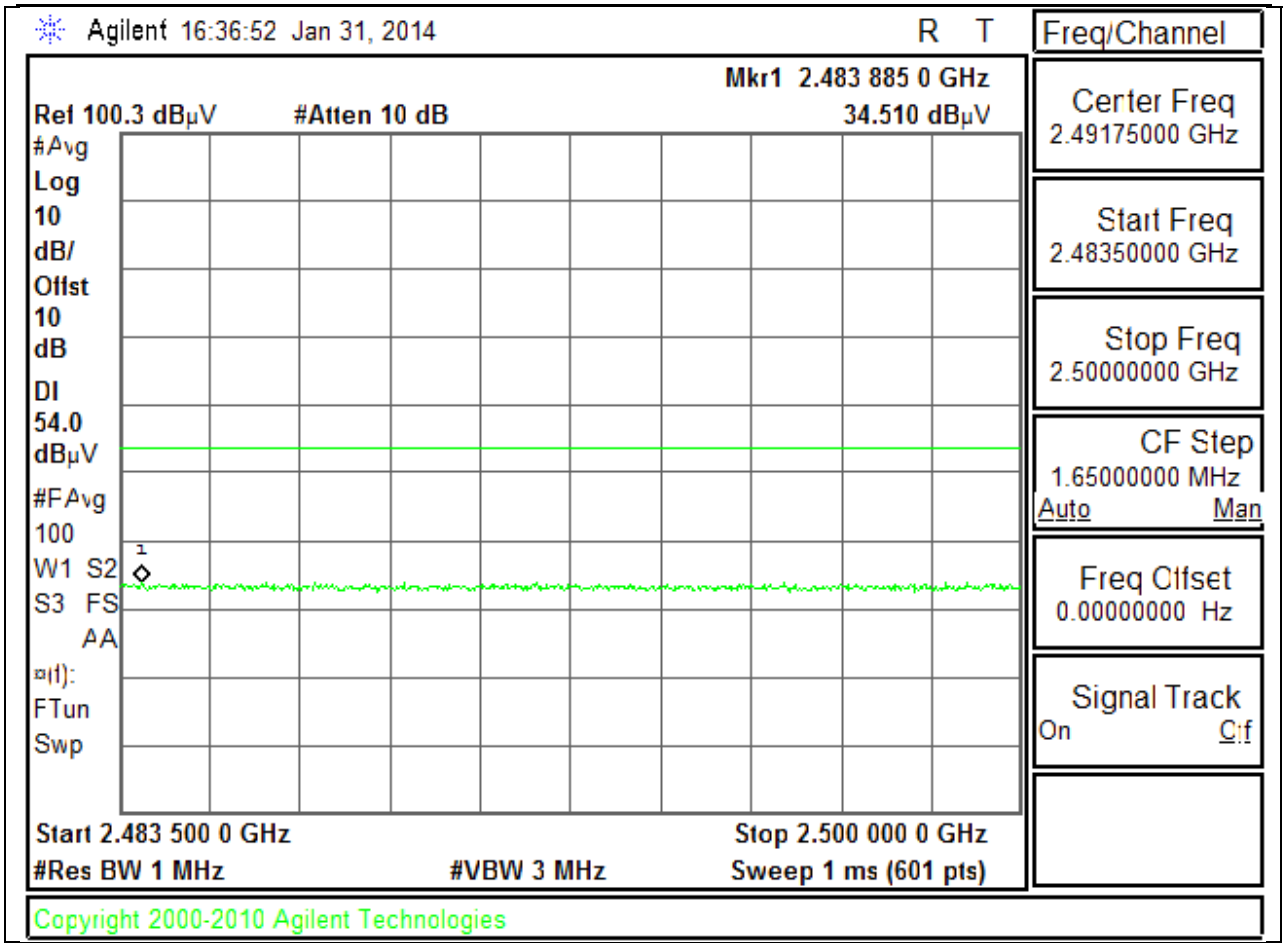
HIGH CHANNEL RESTRICTED, AVERAGE, HORIZ



HIGH CHANNEL BANDEDGE, PEAK, VERT

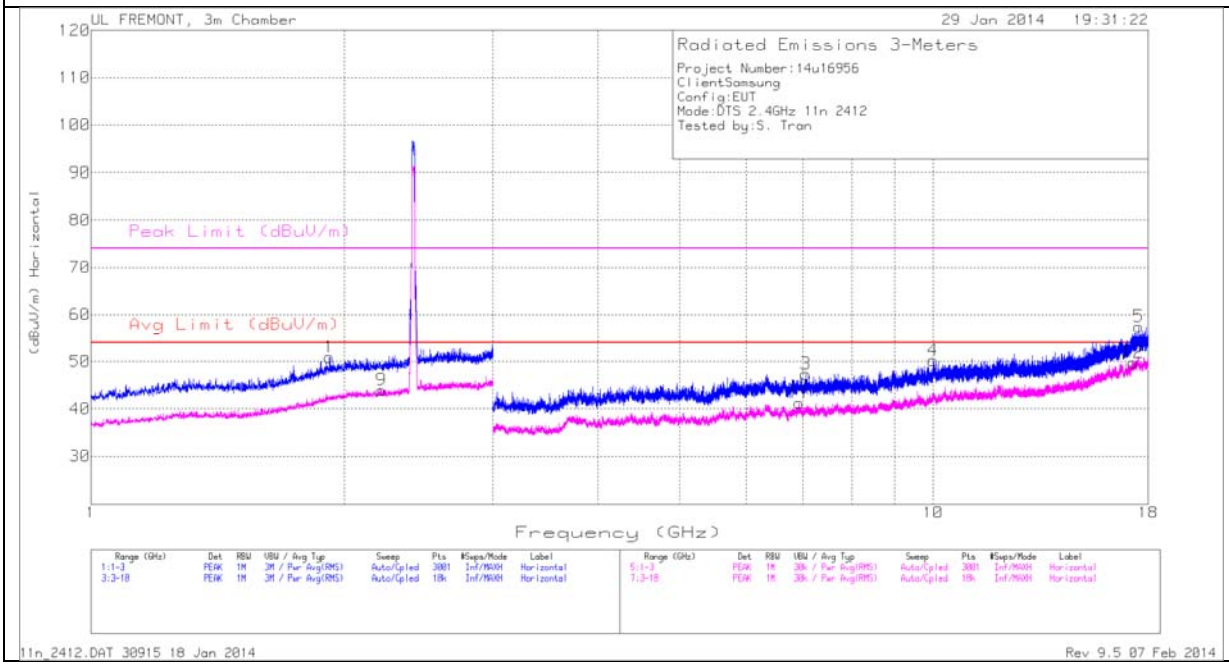


HIGH CHANNEL BANDEDGE, AVERAGE, VERT



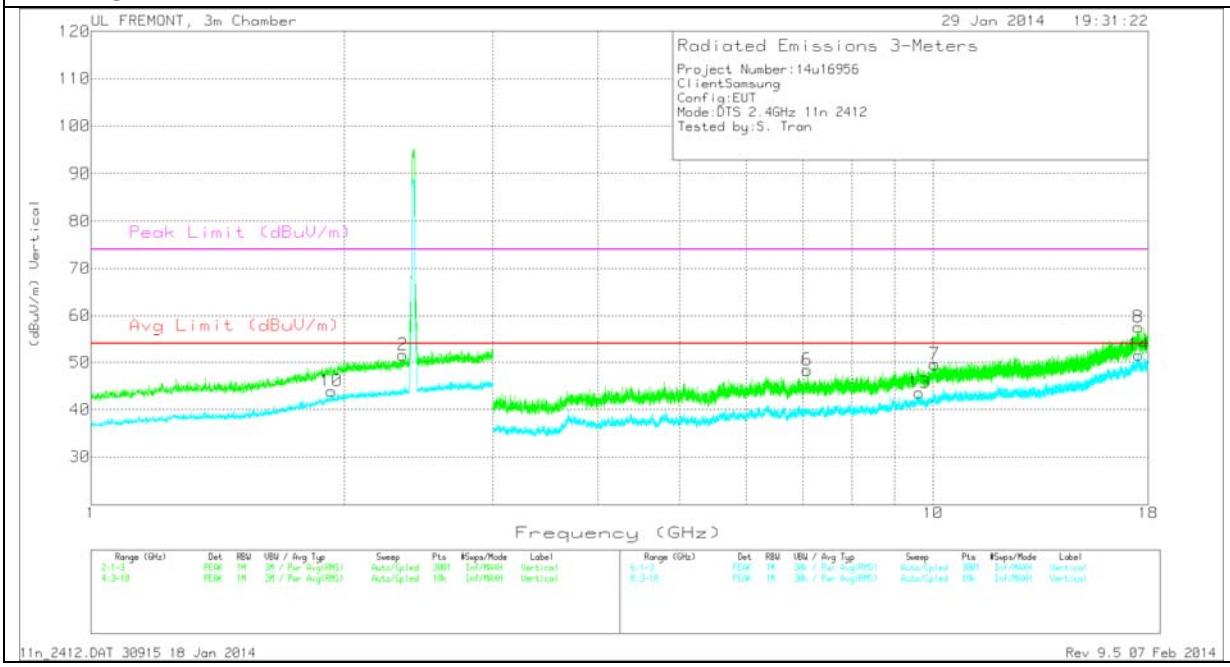
HARMONICS AND SPURIOUS EMISSIONS

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

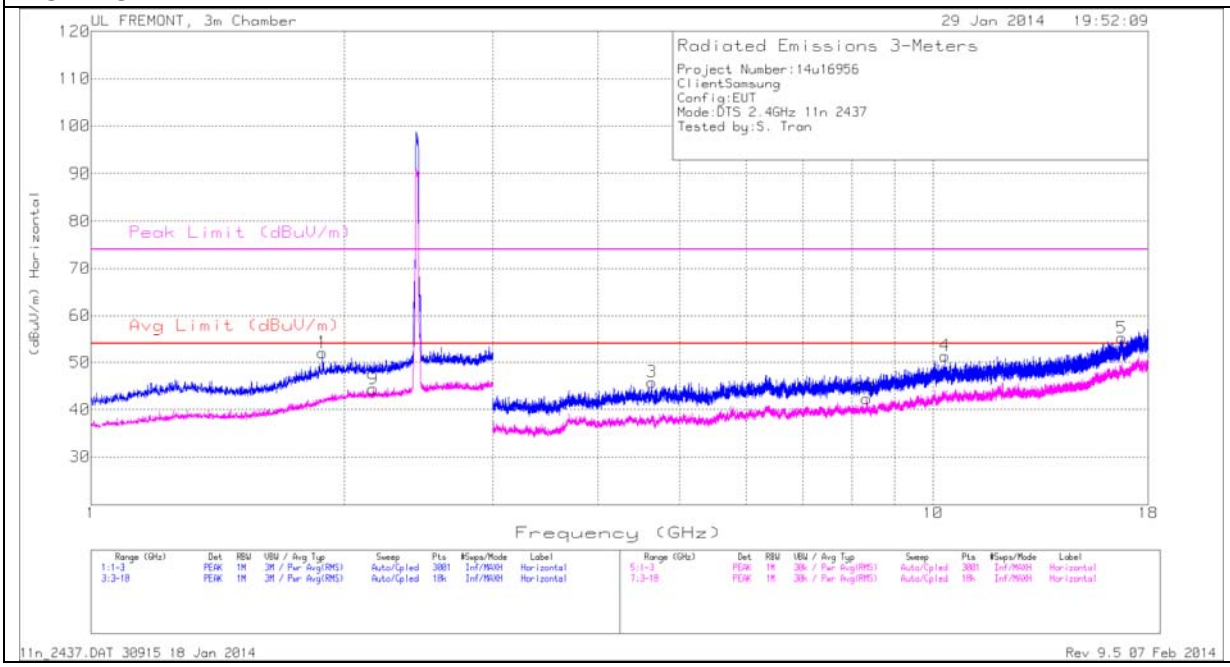


Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

LOW CHANNEL DATA
Trace Markers

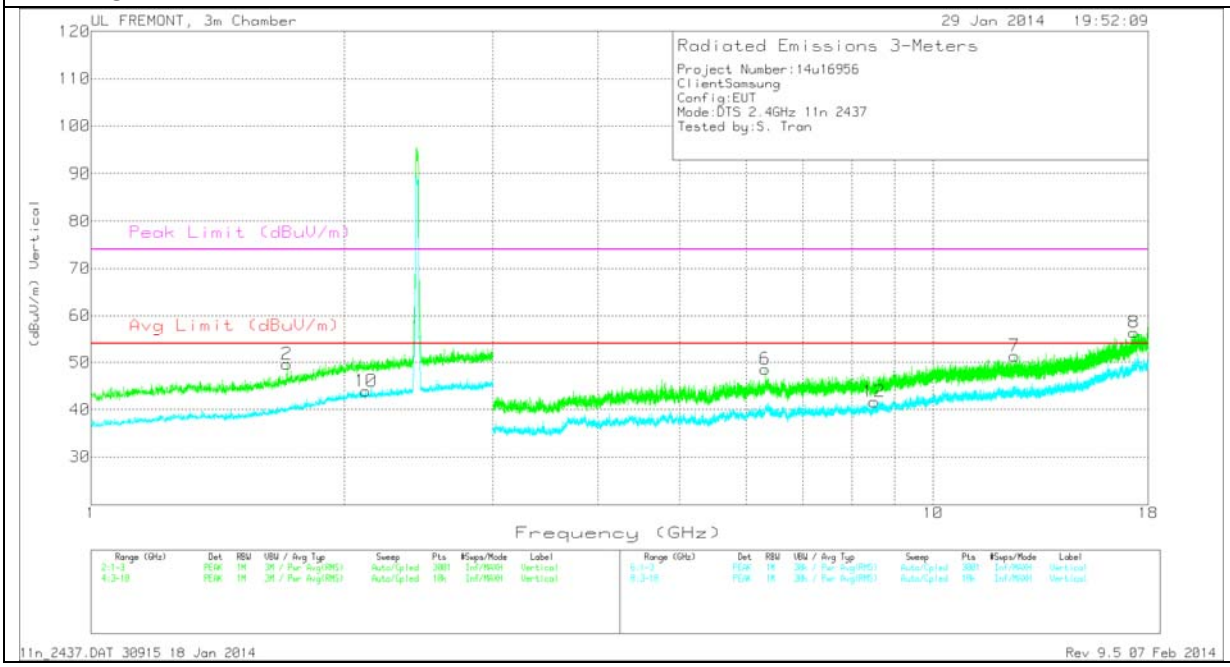
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.919	44.67	PK	31.6	-25.4	50.87	-	-	74	-23.13	0-360	101	H
10	1.931	37.73	Avg	31.7	-25.5	43.93	53.97	-10.04	-	-	0-360	200	V
9	2.212	36.74	Avg	32.4	-25.2	43.94	53.97	-10.03	-	-	0-360	199	H
2	2.345	44.05	PK	32.5	-25	51.55	-	-	74	-22.45	0-360	200	V
11	6.931	33.78	Avg	35.9	-28.4	41.28	53.97	-12.69	-	-	0-360	199	H
3	7.058	39.11	PK	36	-27.8	47.31	-	-	74	-26.69	0-360	199	H
6	7.091	40.36	PK	36	-28	48.36	-	-	74	-25.64	0-360	101	V
13	9.625	30.16	Avg	37.6	-24.2	43.56	53.97	-10.41	-	-	0-360	200	V
4	9.995	35.9	PK	38.1	-23.8	50.2	-	-	74	-23.8	0-360	199	H
7	10.038	35.68	PK	38.1	-24.2	49.58	-	-	74	-24.42	0-360	200	V
12	17.271	28.07	Avg	41.4	-19.7	49.77	53.97	-4.2	-	-	0-360	101	H
8	17.52	34.87	PK	41.8	-19.1	57.57	-	-	74	-16.43	0-360	101	V
14	17.534	28.37	Avg	41.9	-18.8	51.47	53.97	-2.5	-	-	0-360	200	V
5	17.547	34.85	PK	41.9	-19.3	57.45	-	-	74	-16.55	0-360	199	H

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



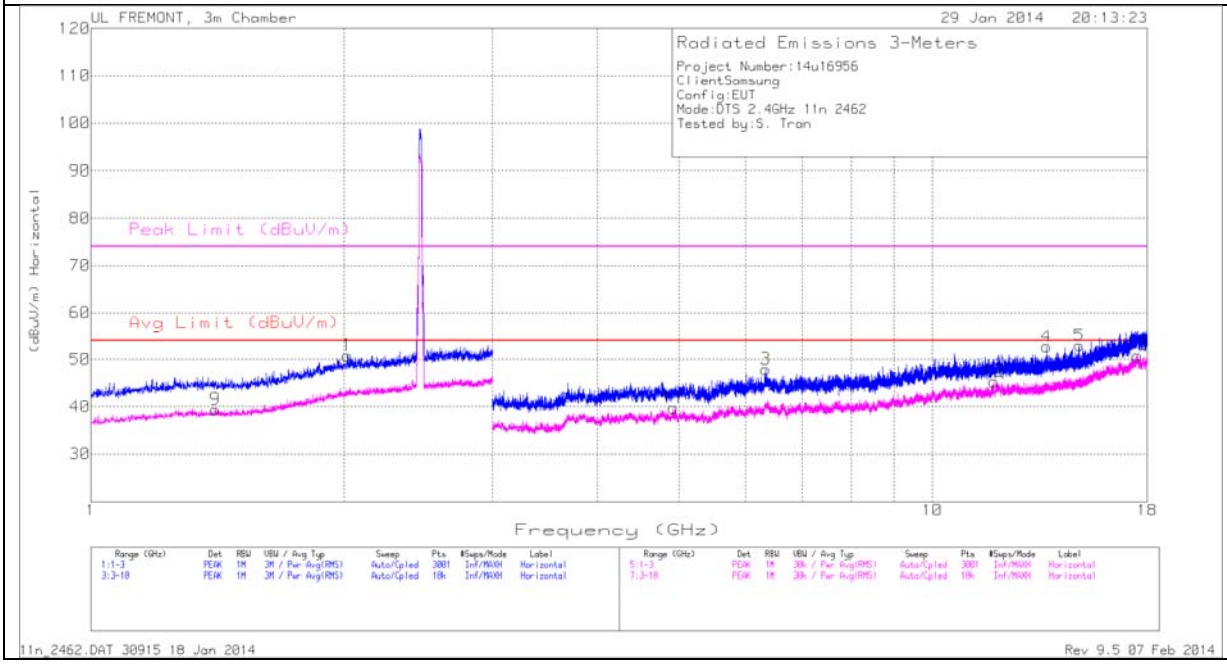
Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

MID CHANNEL DATA

Trace Markers

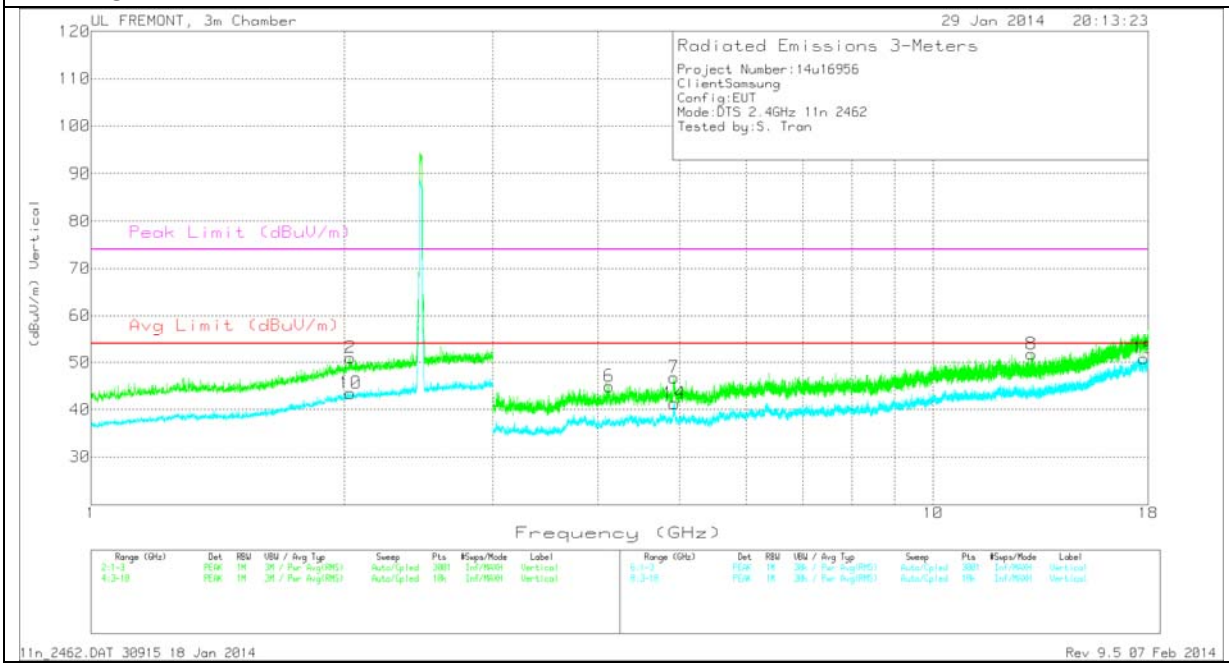
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	1.709	45.93	PK	30.2	-26.5	49.63	-	-	74	-24.37	0-360	101	V
1	1.883	46.49	PK	31.3	-25.8	51.99	-	-	74	-22.01	0-360	101	H
10	2.121	36.89	Avg	32.2	-25.2	43.89	53.97	-10.08	-	-	0-360	200	V
9	2.163	37.27	Avg	32.3	-25.2	44.37	53.97	-9.6	-	-	0-360	101	H
3	4.635	41.19	PK	34.4	-29.8	45.79	-	-	74	-28.21	0-360	101	H
6	6.313	41.64	PK	35.9	-29	48.54	-	-	74	-25.46	0-360	101	V
11	8.336	32.39	Avg	36.2	-26.3	42.29	53.97	-11.68	-	-	0-360	101	H
12	8.51	32.49	Avg	36.2	-27	41.69	53.97	-12.28	-	-	0-360	101	V
4	10.328	36.94	PK	38.3	-23.9	51.34	-	-	74	-22.66	0-360	101	H
7	12.489	36.32	PK	39.1	-24.1	51.32	-	-	74	-22.68	0-360	200	V
5	16.738	34.03	PK	41.4	-20.2	55.23	-	-	74	-18.77	0-360	200	H
8	17.316	34.32	PK	41.5	-19.4	56.42	-	-	74	-17.58	0-360	200	V

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.

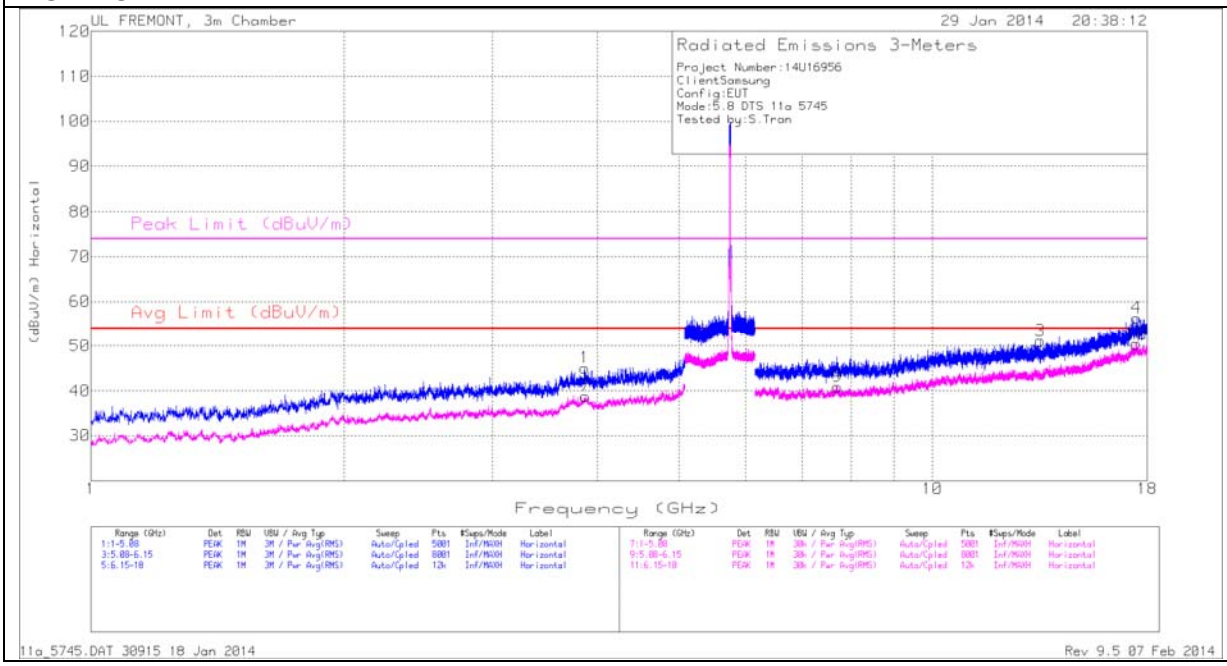
HIGH CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (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	1.405	36.87	Avg	29	-26.5	39.37	53.97	-14.6	-	-	0-360	101	H
1	2.018	43.88	PK	32.1	-25.2	50.78	-	-	74	-23.22	0-360	101	H
2	2.032	43.99	PK	32.1	-25.1	50.99	-	-	74	-23.01	0-360	200	V
10	2.033	36.44	Avg	32.1	-25.1	43.44	53.97	-10.53	-	-	0-360	101	V
6	4.122	42.13	PK	33.9	-31.1	44.93	-	-	74	-29.07	0-360	101	V
11	4.922	35.95	Avg	34.4	-30.6	39.75	53.97	-14.22	-	-	0-360	199	H
7	4.923	42.98	PK	34.4	-30.6	46.78	-	-	74	-27.22	0-360	101	V
14	4.927	37.42	Avg	34.4	-30.5	41.32	53.97	-12.65	-	-	0-360	101	V
3	6.338	40.21	PK	35.9	-28.2	47.91	-	-	74	-26.09	0-360	101	H
12	11.831	30.61	Avg	38.9	-24.2	45.31	53.97	-8.66	-	-	0-360	101	H
8	13.079	37.54	PK	39.1	-24.9	51.74	-	-	74	-22.26	0-360	200	V
4	13.673	38.93	PK	39.2	-25.4	52.73	-	-	74	-21.27	0-360	101	H
5	14.941	38.48	PK	39.8	-25.3	52.98	-	-	74	-21.02	0-360	199	H
13	17.522	28.14	Avg	41.8	-19.1	50.84	53.97	-3.13	-	-	0-360	199	H
15	17.787	28.55	Avg	42.2	-19.9	50.85	53.97	-3.12	-	-	0-360	101	V

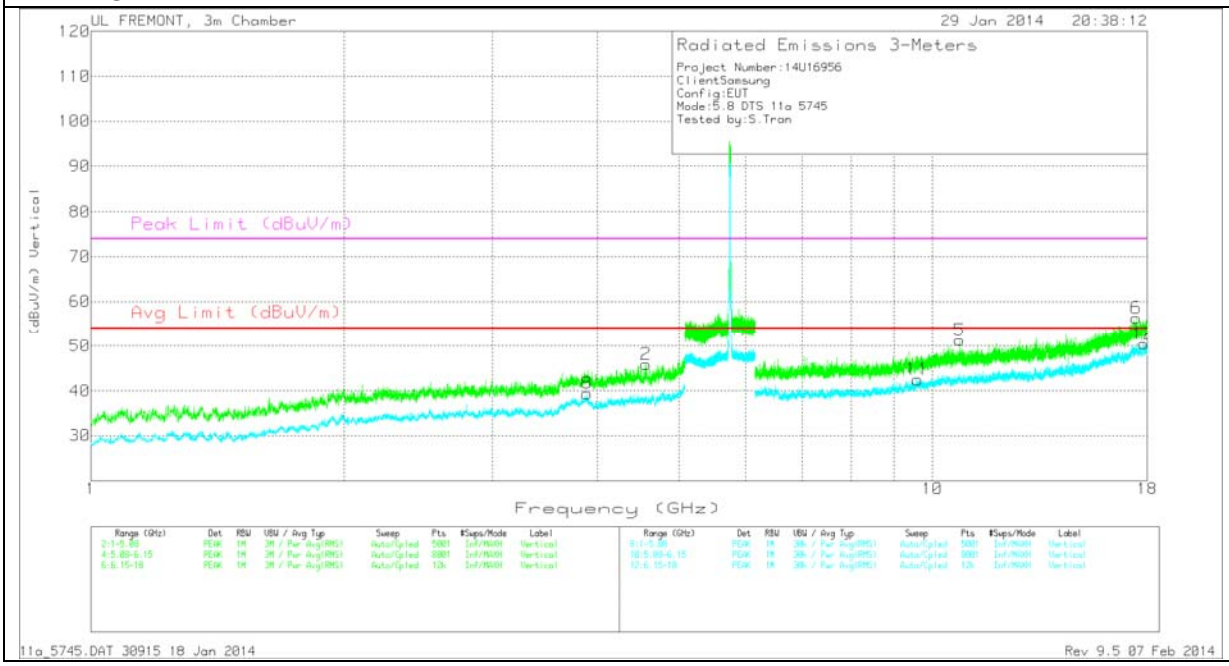
10.2.1. TX ABOVE 1 GHz 802.11a HT20 MODE IN THE 5.8 GHz BAND HARMONICS AND SPURIOUS EMISSIONS

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

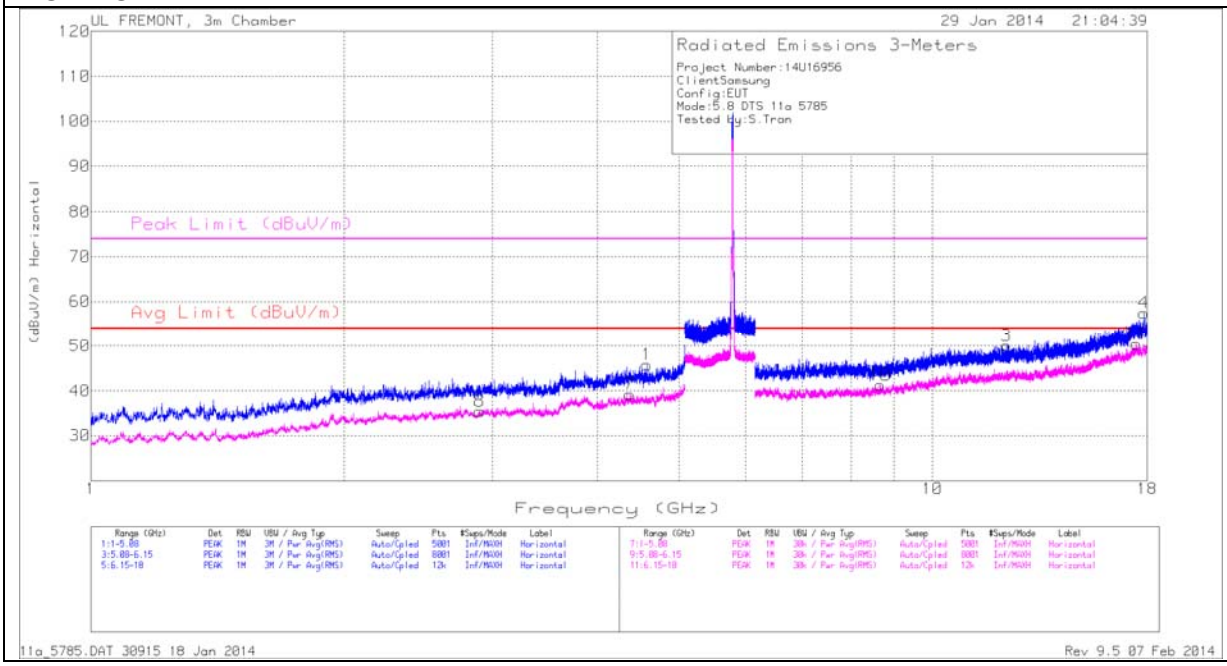


Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

LOW CHANNEL DATA
Trace Markers

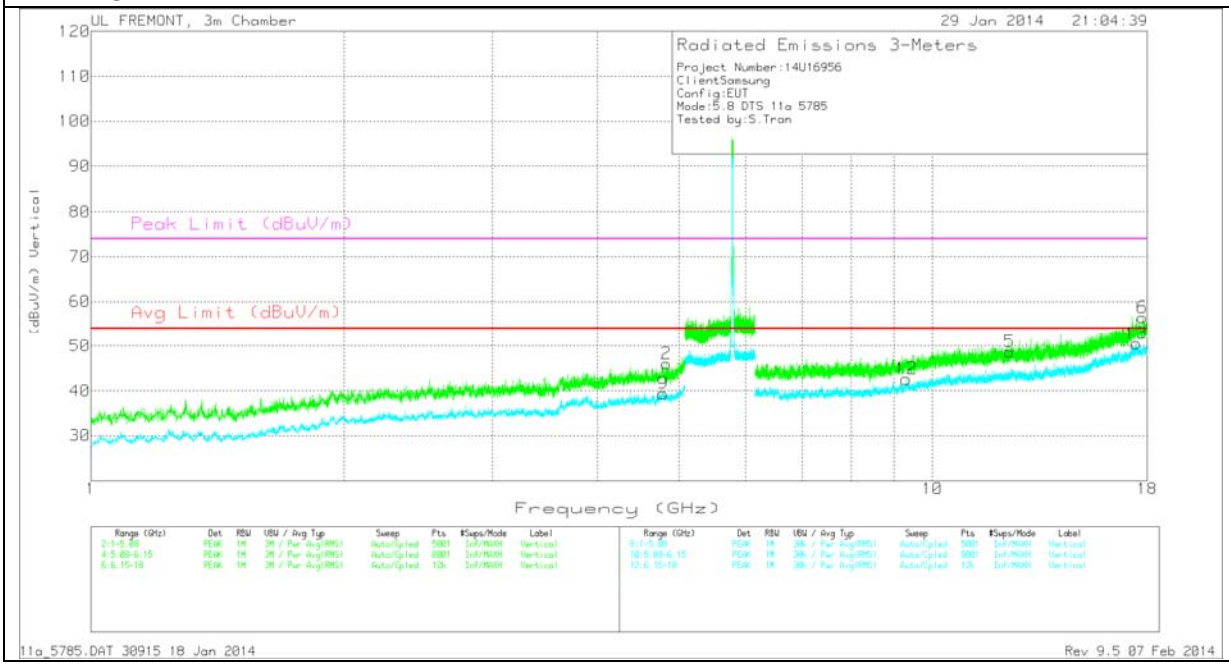
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	3.864	42.19	PK	33.7	-30.8	45.09	-	-	74	-28.91	0-360	199	H
7	3.871	35.92	Avg	33.7	-30.8	38.82	54	-15.18	-	-	0-360	200	H
8	3.886	36.48	Avg	33.8	-30.9	39.38	54	-14.62	-	-	0-360	200	V
2	4.568	42.3	PK	34.3	-30.7	45.9	-	-	74	-28.1	0-360	101	V
9	7.71	32.9	Avg	36.2	-28.2	40.9	54	-13.1	-	-	0-360	101	H
11	9.599	30.69	Avg	37.5	-25.7	42.49	54	-11.51	-	-	0-360	101	V
5	10.775	37.49	PK	38.5	-24.7	51.29	-	-	74	-22.71	0-360	200	V
3	13.436	38.02	PK	39.1	-26	51.12	-	-	74	-22.88	0-360	199	H
10	17.459	28.84	Avg	41.7	-20.1	50.44	54	-3.56	-	-	0-360	200	H
6	17.466	34.62	PK	41.7	-20	56.32	-	-	74	-17.68	0-360	101	V
4	17.471	34.55	PK	41.8	-20	56.35	-	-	74	-17.65	0-360	101	H
12	17.808	28.69	Avg	42.2	-20.4	50.49	54	-3.51	-	-	0-360	200	V

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



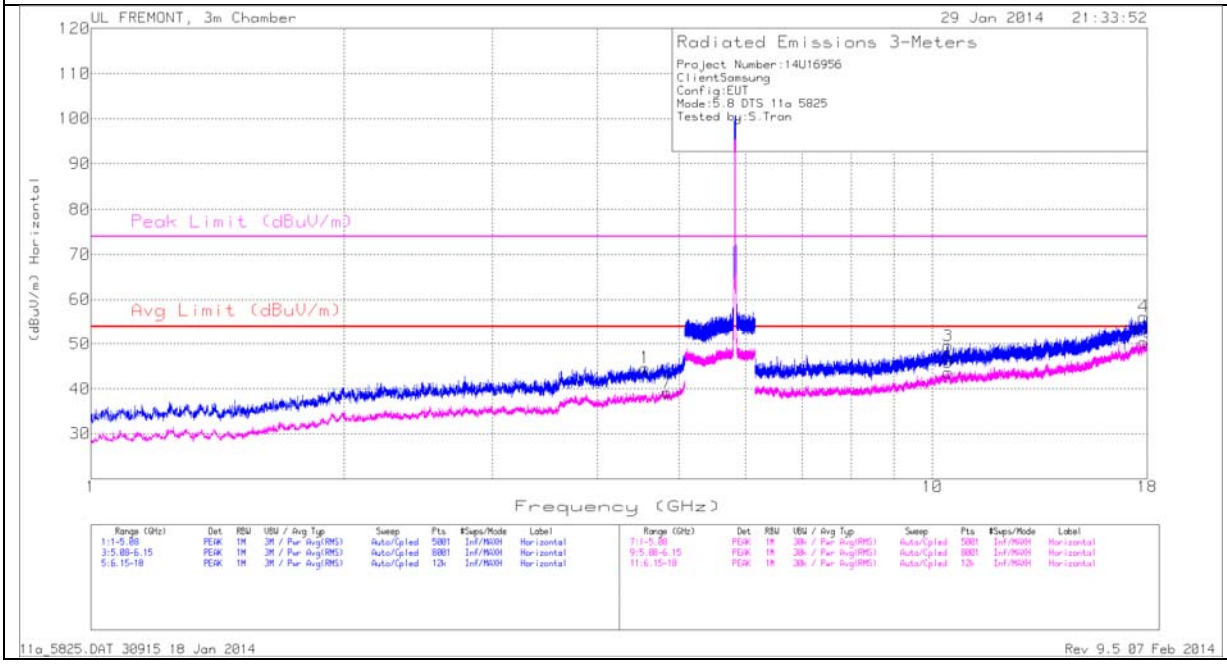
Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

MID CHANNEL DATA

Trace Markers

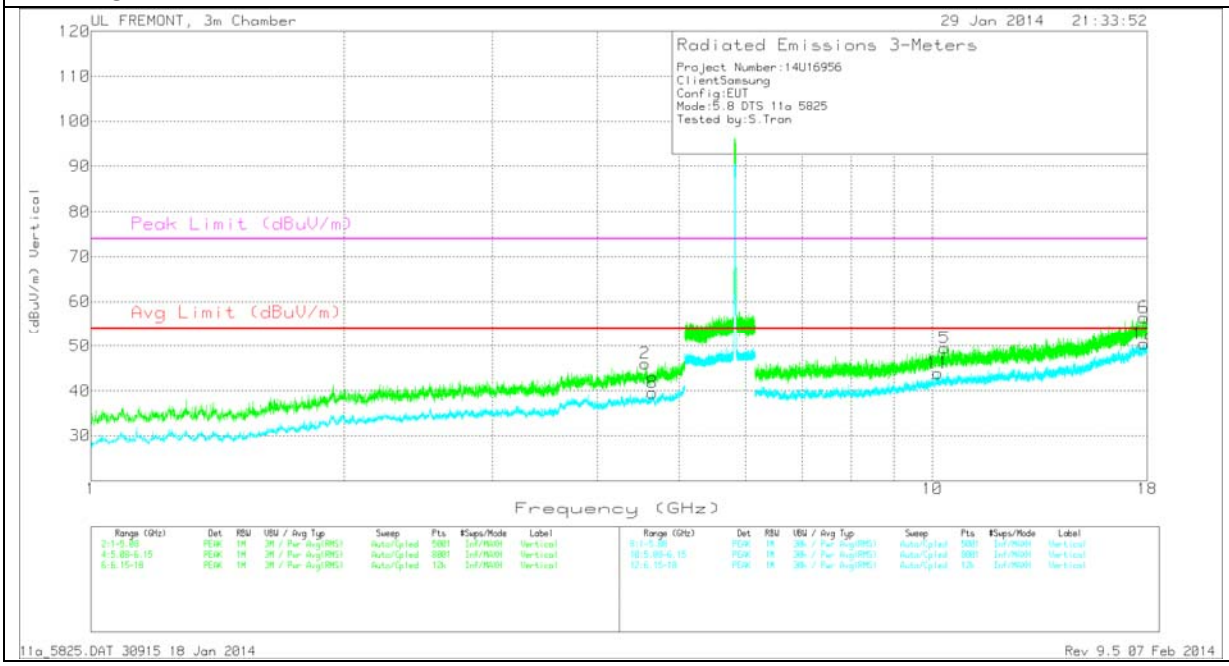
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
8	2.896	35.1	Avg	33.2	-32.9	35.4	54	-18.6	-	-	0-360	199	H
7	4.368	36.33	Avg	34.1	-31.2	39.23	54	-14.77	-	-	0-360	101	H
1	4.576	42.38	PK	34.3	-30.9	45.78	-	-	74	-28.22	0-360	199	H
9	4.785	35.18	Avg	34.4	-30.2	39.38	54	-14.62	-	-	0-360	101	V
2	4.831	41.94	PK	34.4	-30.3	46.04	-	-	74	-27.96	0-360	101	V
10	8.668	31.57	Avg	36.5	-26.8	41.27	54	-12.73	-	-	0-360	101	H
12	9.308	30.72	Avg	37.2	-25.3	42.62	54	-11.38	-	-	0-360	200	V
3	12.242	35.76	PK	39.2	-24.9	50.06	-	-	74	-23.94	0-360	101	H
5	12.356	34.86	PK	39.2	-25.4	48.66	-	-	74	-25.34	0-360	200	V
11	17.459	28.84	Avg	41.7	-20.1	50.44	54	-3.56	-	-	0-360	199	H
13	17.47	28.64	Avg	41.8	-19.9	50.54	54	-3.46	-	-	0-360	200	V
6	17.77	34.95	PK	42.2	-20.7	56.45	-	-	74	-17.55	0-360	200	V
4	17.828	35.4	PK	42.2	-20.1	57.5	-	-	74	-16.5	0-360	200	H

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.

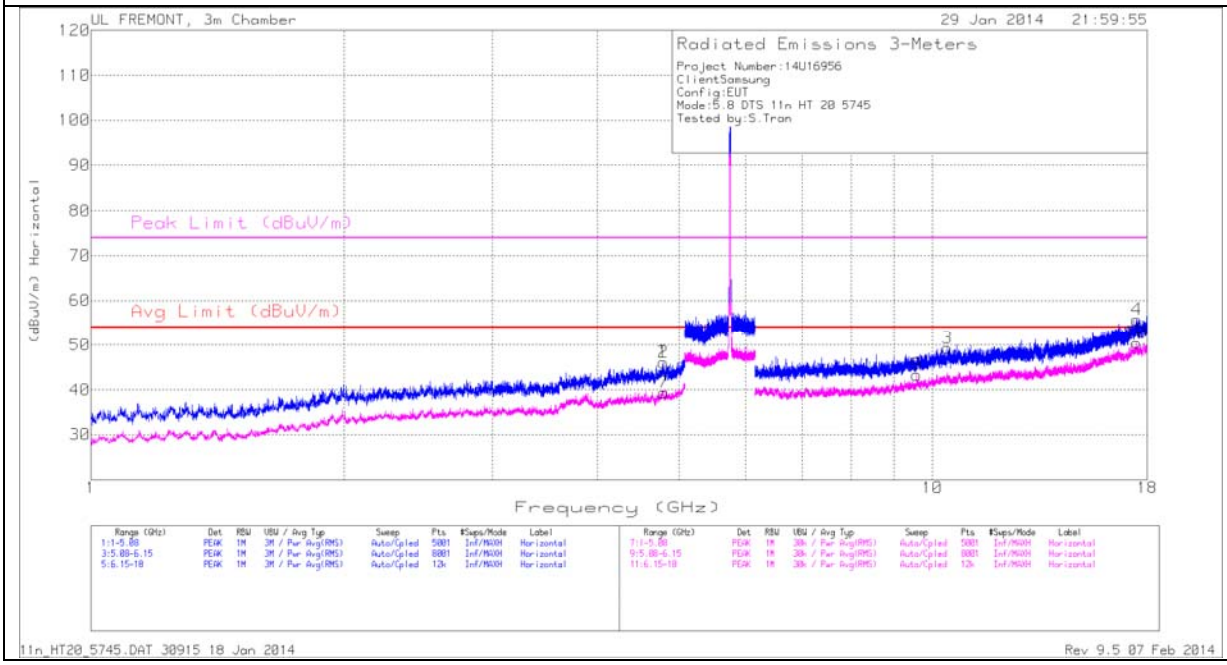
HIGH CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (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	4.556	40.7	PK	34.3	-30.4	44.6	-	-	74	-29.4	0-360	101	H
2	4.558	42.17	PK	34.3	-30.4	46.07	-	-	74	-27.93	0-360	101	V
8	4.648	34.95	Avg	34.4	-29.8	39.55	54	-14.45	-	-	0-360	101	V
7	4.838	35.07	Avg	34.4	-30.3	39.17	54	-14.83	-	-	0-360	200	H
11	10.149	30.69	Avg	38.2	-25	43.89	54	-10.11	-	-	0-360	101	V
5	10.337	36.03	PK	38.3	-24.8	49.53	-	-	74	-24.47	0-360	101	V
3	10.432	35.67	PK	38.4	-24.5	49.57	-	-	74	-24.43	0-360	199	H
9	10.443	29.86	Avg	38.4	-24.6	43.66	54	-10.34	-	-	0-360	101	H
10	17.804	28.52	Avg	42.2	-20.4	50.32	54	-3.68	-	-	0-360	101	H
12	17.829	28.37	Avg	42.2	-20.1	50.47	54	-3.53	-	-	0-360	101	V
4	17.831	34.04	PK	42.2	-20.1	56.14	-	-	74	-17.86	0-360	101	H
6	17.831	34.34	PK	42.2	-20.1	56.44	-	-	74	-17.56	0-360	101	V

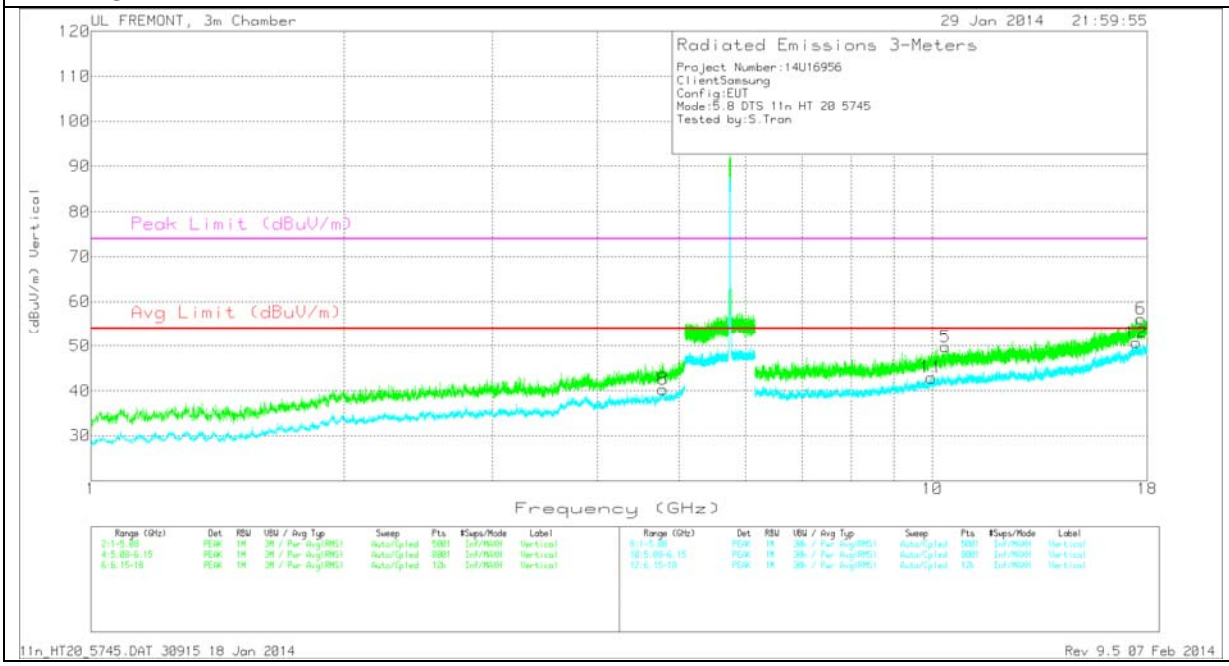
10.2.1. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.8 GHz BAND HARMONICS AND SPURIOUS EMISSIONS

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

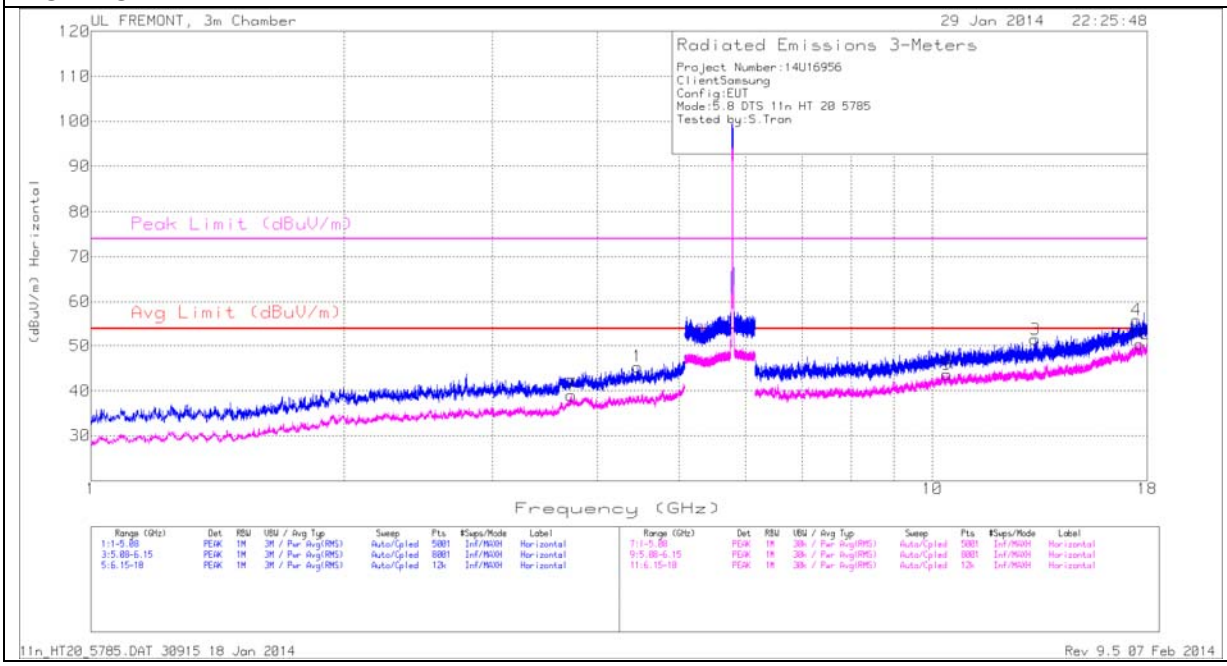


Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

LOW CHANNEL DATA
Trace Markers

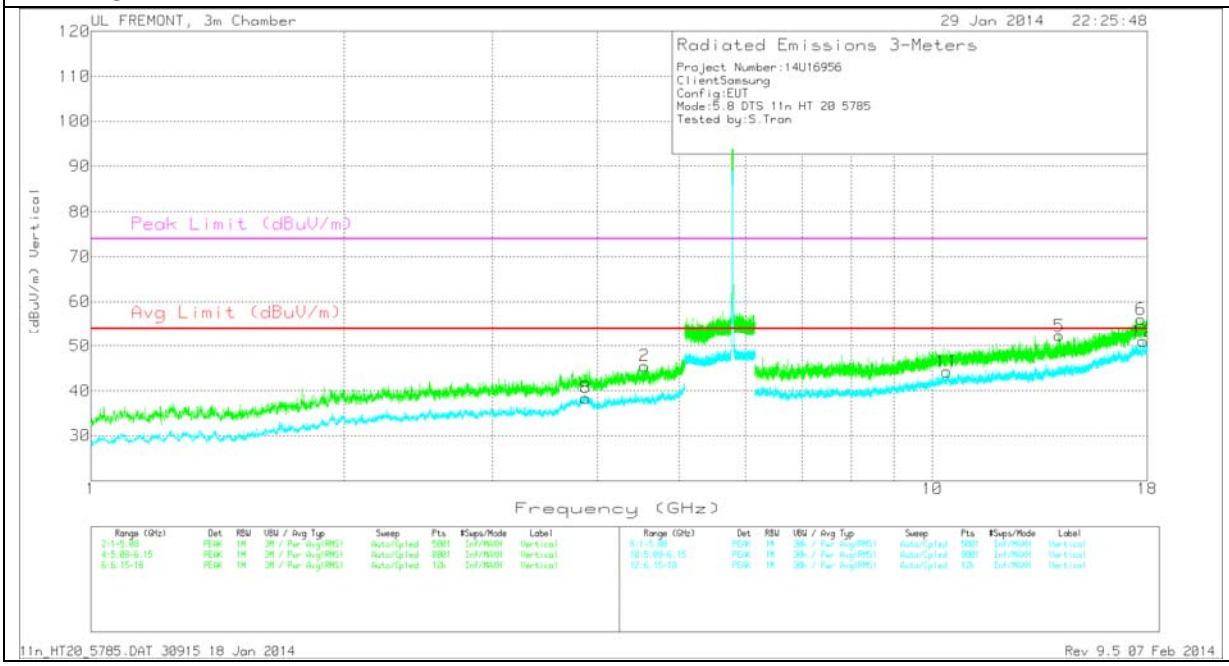
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
8	4.785	36.09	Avg	34.4	-30.2	40.29	54	-13.71	-	-	0-360	101	V
1	4.789	42	PK	34.4	-30.3	46.1	-	-	74	-27.9	0-360	101	H
2	4.789	42	PK	34.4	-30.3	46.1	-	-	74	-27.9	0-360	101	H
7	4.792	35.36	Avg	34.4	-30.4	39.36	54	-14.64	-	-	0-360	199	H
9	9.576	31.51	Avg	37.5	-25.7	43.31	54	-10.69	-	-	0-360	101	H
11	9.969	29.89	Avg	38	-25	42.89	54	-11.11	-	-	0-360	200	V
5	10.359	36.16	PK	38.3	-24.7	49.76	-	-	74	-24.24	0-360	101	V
3	10.416	34.89	PK	38.4	-24	49.29	-	-	74	-24.71	0-360	101	H
12	17.467	29	Avg	41.7	-19.9	50.8	54	-3.2	-	-	0-360	200	V
10	17.474	28.83	Avg	41.8	-20.1	50.53	54	-3.47	-	-	0-360	199	H
4	17.492	34.43	PK	41.8	-20.5	55.73	-	-	74	-18.27	0-360	101	H
6	17.686	33.91	PK	42.1	-19.8	56.21	-	-	74	-17.79	0-360	101	V

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



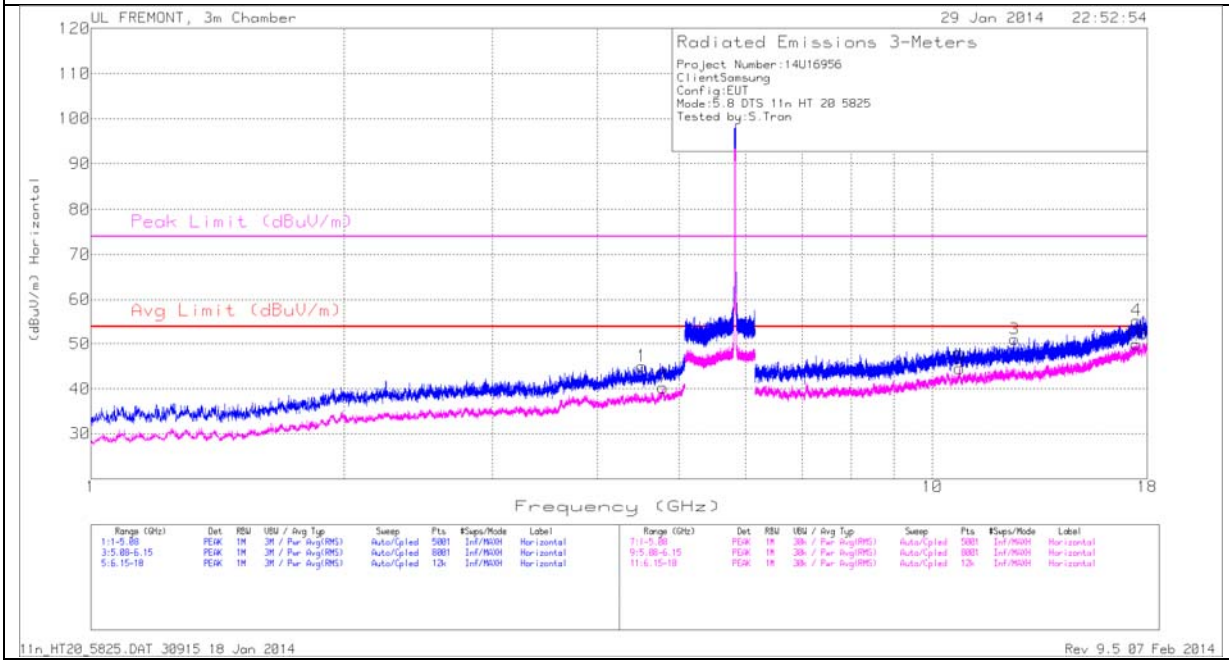
Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

MID CHANNEL DATA

Trace Markers

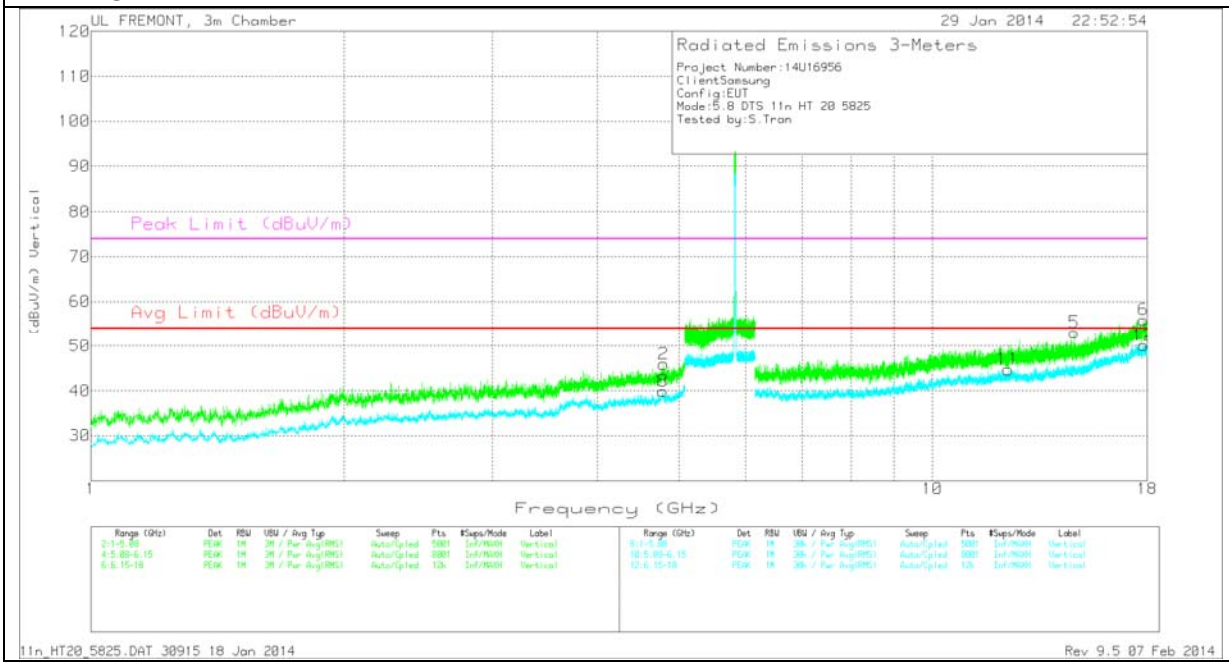
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
7	3.724	37.29	Avg	33.6	-31.9	38.99	54	-15.01	-	-	0-360	199	H
8	3.872	35.49	Avg	33.7	-30.8	38.39	54	-15.61	-	-	0-360	200	V
1	4.461	41.47	PK	34.3	-30.4	45.37	-	-	74	-28.63	0-360	101	H
2	4.55	41.71	PK	34.3	-30.5	45.51	-	-	74	-28.49	0-360	200	V
11	10.404	30.07	Avg	38.4	-24.2	44.27	54	-9.73	-	-	0-360	200	V
9	10.409	29.34	Avg	38.4	-24.1	43.64	54	-10.36	-	-	0-360	200	H
3	13.245	37.47	PK	39	-25	51.47	-	-	74	-22.53	0-360	200	H
5	14.146	38.48	PK	39.6	-25.8	52.28	-	-	74	-21.72	0-360	200	V
4	17.472	34.09	PK	41.8	-20	55.89	-	-	74	-18.11	0-360	200	H
10	17.632	28.79	Avg	42	-20.4	50.39	54	-3.61	-	-	0-360	200	H
6	17.685	33.77	PK	42.1	-19.8	56.07	-	-	74	-17.93	0-360	101	V
12	17.801	29.15	Avg	42.2	-20.3	51.05	54	-2.95	-	-	0-360	101	V

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.

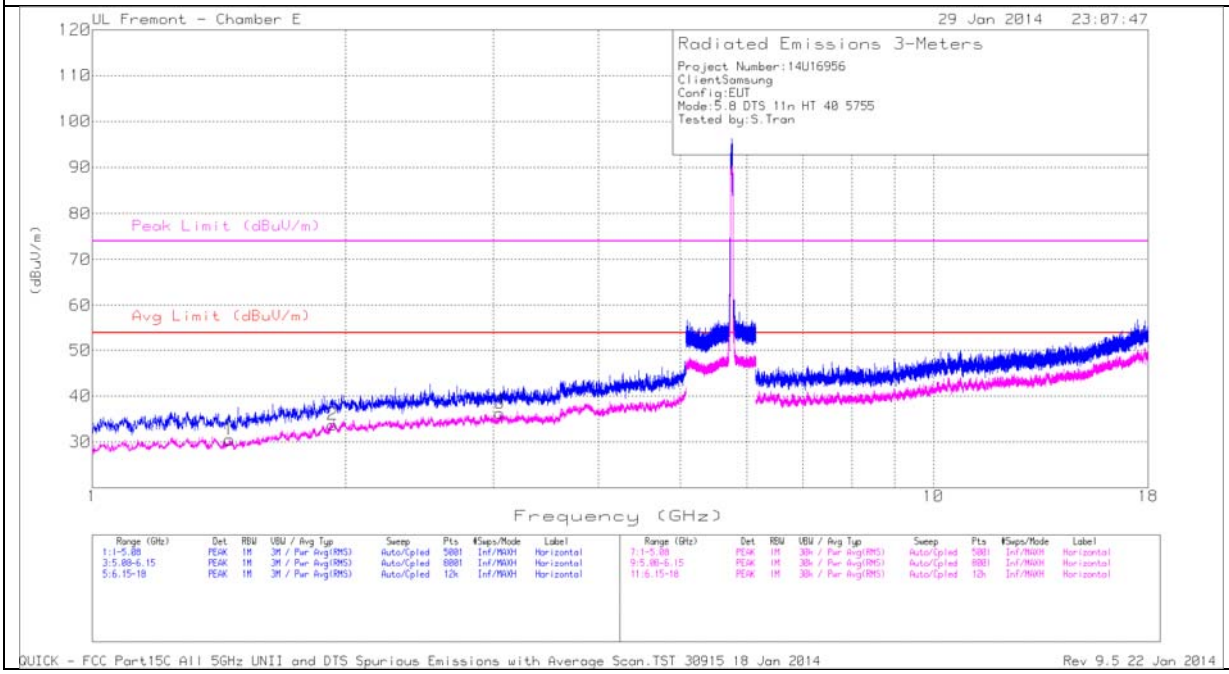
HIGH CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (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	4.515	40.99	PK	34.3	-30.3	44.99	-	-	74	-29.01	0-360	101	H
7	4.785	36.06	Avg	34.4	-30.2	40.26	54	-13.74	-	-	0-360	101	H
8	4.786	35.67	Avg	34.4	-30.2	39.87	54	-14.13	-	-	0-360	101	V
2	4.792	41.94	PK	34.4	-30.4	45.94	-	-	74	-28.06	0-360	101	V
9	10.771	30.56	Avg	38.5	-24.5	44.56	54	-9.44	-	-	0-360	101	H
11	12.297	30.72	Avg	39.2	-25.2	44.72	54	-9.28	-	-	0-360	101	V
3	12.526	36.49	PK	39.1	-24.5	51.09	-	-	74	-22.91	0-360	101	H
5	14.737	38.86	PK	39.8	-25.6	53.06	-	-	74	-20.94	0-360	101	V
10	17.468	28.16	Avg	41.7	-19.9	49.96	54	-4.04	-	-	0-360	101	H
4	17.489	34.04	PK	41.8	-20.5	55.34	-	-	74	-18.66	0-360	101	H
6	17.808	34.16	PK	42.2	-20.4	55.96	-	-	74	-18.04	0-360	101	V
12	17.819	28.12	Avg	42.2	-20.2	50.12	54	-3.88	-	-	0-360	101	V

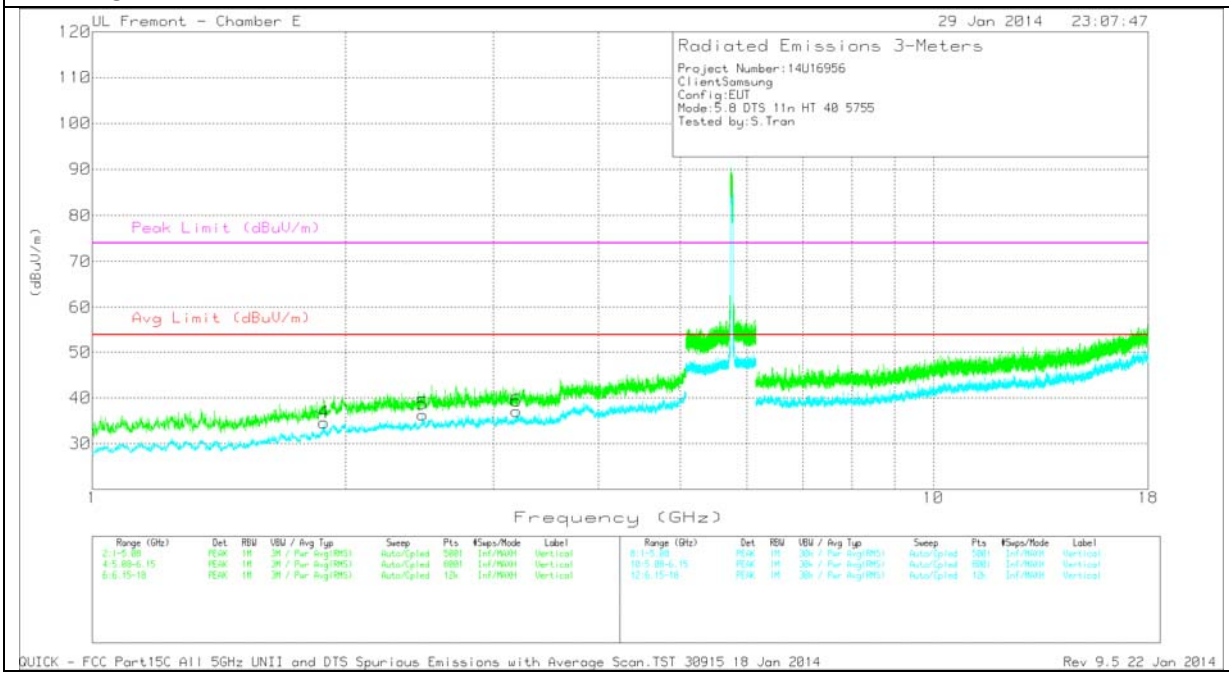
10.2.1. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.8 GHz BAND HARMONICS AND SPURIOUS EMISSIONS

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



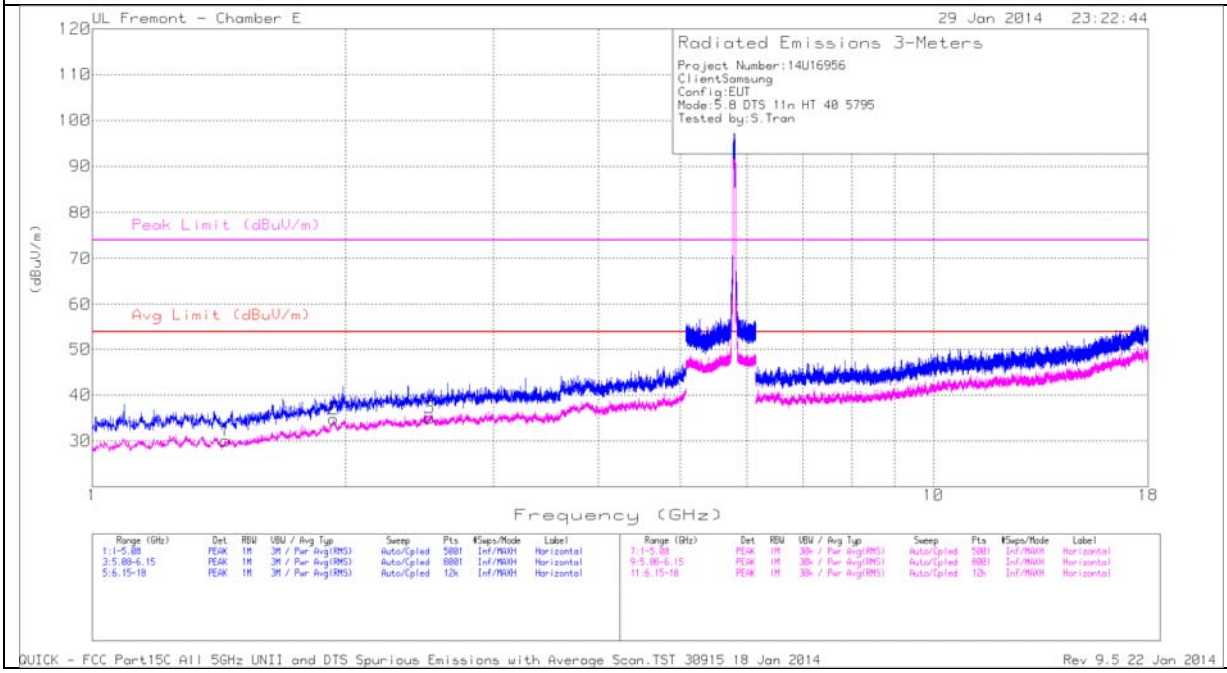
Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

LOW CHANNEL DATA
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (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	1.457	36.08	Avg	28.9	-34.5	30.48	54	-23.52	-	-	0-360	101	H
4	1.886	36.81	Avg	31.4	-33.6	34.61	54	-19.39	-	-	0-360	101	V
2	1.933	34.73	Avg	31.7	-32.7	33.73	54	-20.27	-	-	0-360	101	H
5	2.47	36.25	Avg	32.7	-32.6	36.35	54	-17.65	-	-	0-360	101	V
3	3.051	35.01	Avg	33.2	-31.9	36.31	54	-17.69	-	-	0-360	101	H
6	3.196	36.11	Avg	33.4	-32.4	37.11	54	-16.89	-	-	0-360	101	V

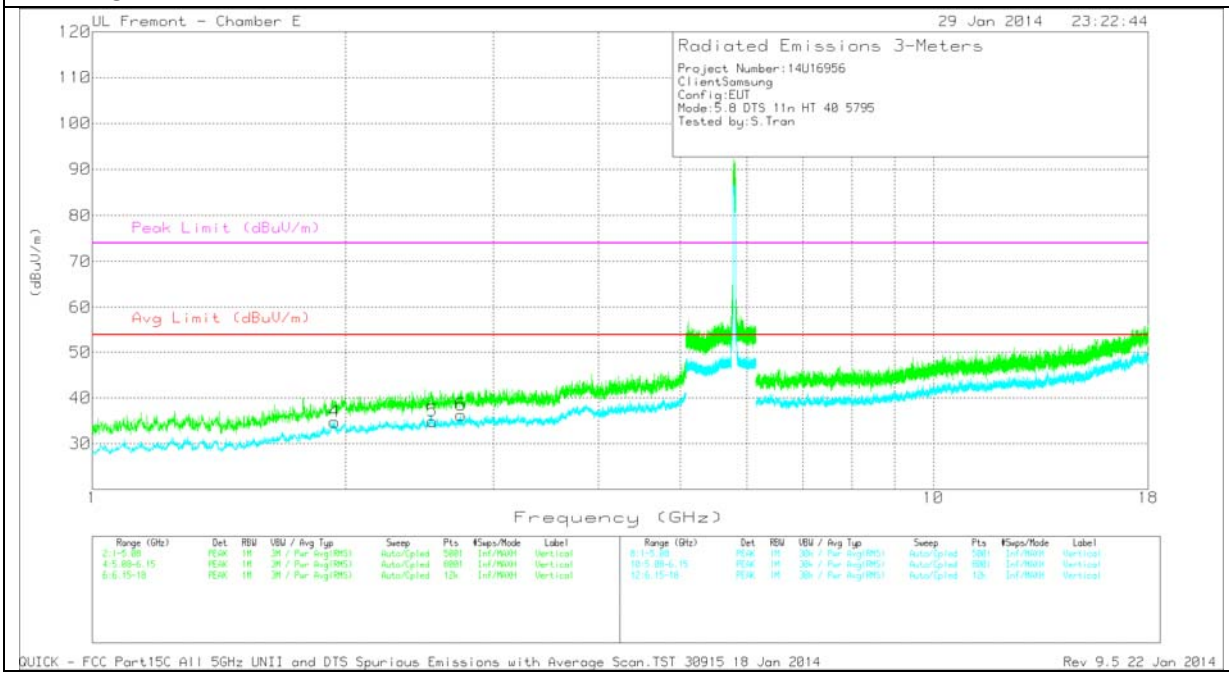
Note: All peak readings were 20dB below the peak limit. Average measurements at discrete frequencies are provided in the table above for frequencies that are within 6dB of the average limit.

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

Trace Markers

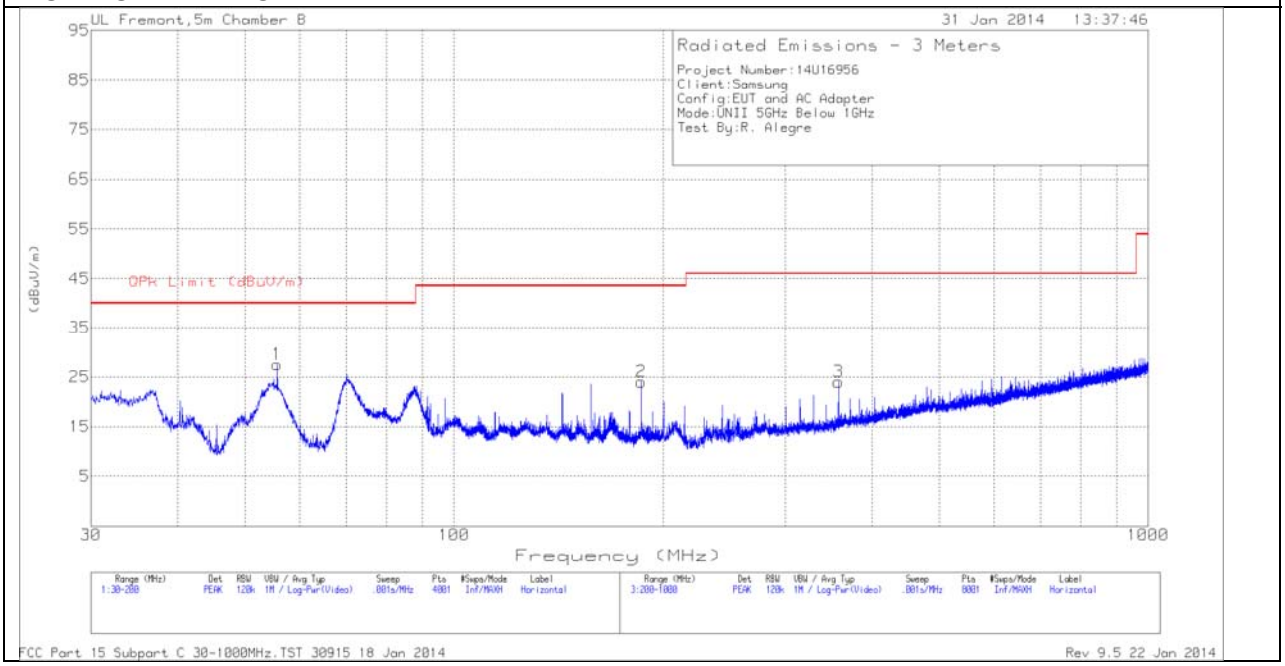
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.441	35.79	Avg	28.9	-34.6	30.09	54	-23.91	-	-	0-360	101	H
2	1.938	35.78	Avg	31.7	-32.7	34.78	54	-19.22	-	-	0-360	101	H
4	1.942	35.73	Avg	31.7	-32.7	34.73	54	-19.27	-	-	0-360	101	V
3	2.519	34.75	Avg	32.7	-32.4	35.05	54	-18.95	-	-	0-360	101	H
5	2.539	34.67	Avg	32.8	-32.6	34.87	54	-19.13	-	-	0-360	101	V
6	2.745	35.26	Avg	33.2	-32.2	36.26	54	-17.74	-	-	0-360	101	V

Note: All peak readings were 20dB below the peak limit. Average measurements at discrete frequencies are provided in the table above for frequencies that are within 6dB of the average limit.

10.3. WORST-CASE BELOW 1 GHz

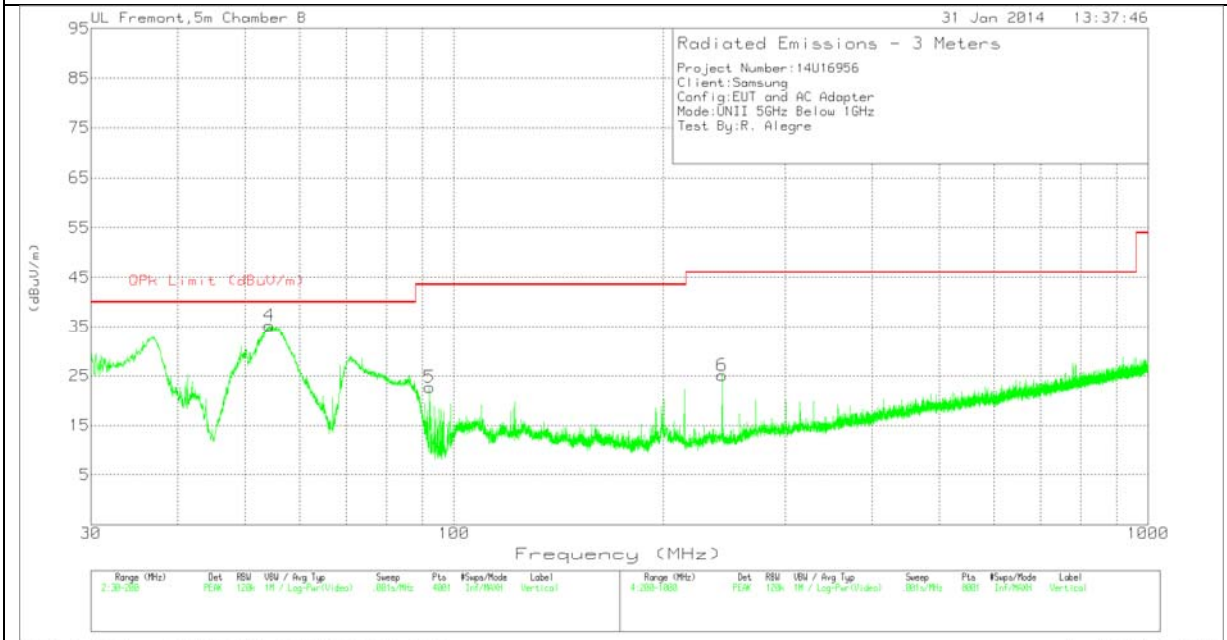
SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)

HORIZONTAL PLOT



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

VERTICAL PLOT



Below 1G Data

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T243 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	54.1825	56.96	PK	6.9	-28.6	35.26	40	-4.74	0-360	101	V
1	55.6275	49.19	PK	6.9	-28.6	27.49	40	-12.51	0-360	200	H
5	92.22	42.9	PK	7.9	-28.1	22.7	43.52	-20.82	0-360	101	V
2	186.145	40.12	PK	11	-27.1	24.02	43.52	-19.5	0-360	101	H
6	243.4	39.98	PK	11.6	-26.5	25.08	46.02	-20.94	0-360	200	V
3	357.9	35.22	PK	14.6	-25.8	24.02	46.02	-22	0-360	200	H

PK - Peak detector

FCC Part 15 Subpart C 30-1000MHz.TST 30915 18 Jan 2014 Rev 9.5 22 Jan 2014

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 dB(uVolts)	CISPR 11/22 Class B Quasi-peak	Margin to Limit (dB)	CISPR 11/22 Class B Average	Margin to Limit (dB)
1	.177	46.2	PK	1.1	0	47.3	64.6	-17.3	-	-
2	.177	36.99	Av	1.1	0	38.09	-	-	54.6	-16.51
3	.357	43.49	PK	.5	0	43.99	58.8	-14.81	-	-
4	.357	35.79	Av	.5	0	36.29	-	-	48.8	-12.51
5	2.283	49.65	PK	.2	.1	49.95	56	-6.05	-	-
6	2.283	38.08	Av	.2	.1	38.38	-	-	46	-7.62
7	2.508	49.69	PK	.2	.1	49.99	56	-6.01	-	-
8	2.508	36.02	Av	.2	.1	36.32	-	-	46	-9.68
9	2.733	49.54	PK	.2	.1	49.84	56	-6.16	-	-
10	2.733	35.82	Av	.2	.1	36.12	-	-	46	-9.88
11	5.1495	38.47	PK	.2	.1	38.77	60	-21.23	-	-
12	5.1495	17.38	Av	.2	.1	17.68	-	-	50	-32.32
13	8.583	36.7	PK	.2	.1	37	60	-23	-	-
14	8.583	21.43	Av	.2	.1	21.73	-	-	50	-28.27

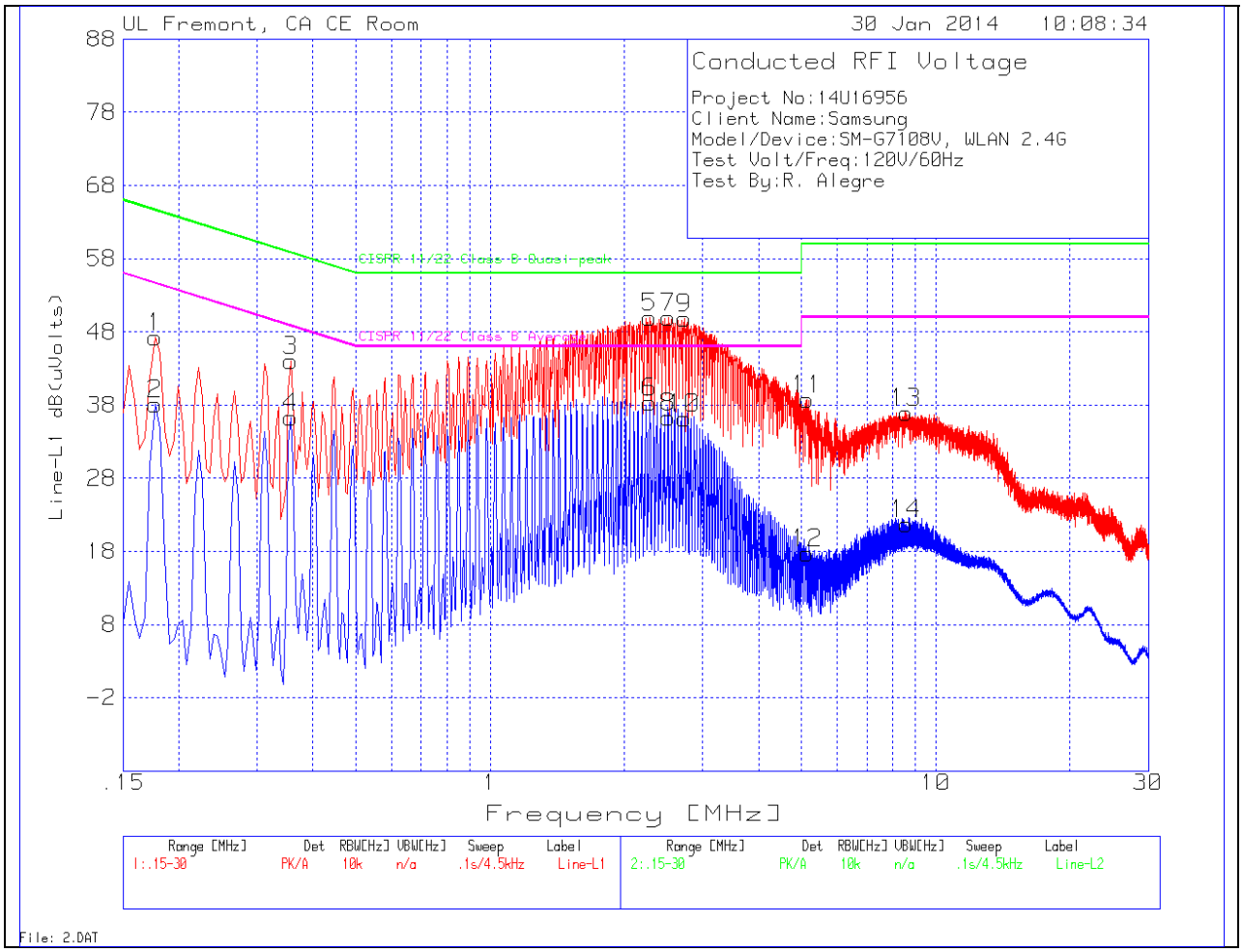
Line-L2 .15 - 30MHz

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L2 (dB)	LC Cables 2&3 (dB)	Corrected Reading dB(uVolts)	CISPR 11/22 Class B Quasi-peak	Margin to Limit (dB)	CISPR 11/22 Class B Average	Margin to Limit (dB)
15	.1815	42.05	PK	1.2	0	43.25	64.4	-21.15	-	-
16	.1815	34.72	Av	1.2	0	35.92	-	-	54.4	-18.48
17	.3165	43.83	PK	.6	0	44.43	59.8	-15.37	-	-
18	.3165	37.93	Av	.6	0	38.53	-	-	49.8	-11.27
19	.3615	43.9	PK	.5	0	44.4	58.7	-14.3	-	-
20	.3615	38.36	Av	.5	0	38.86	-	-	48.7	-9.84
21	2.0895	48.92	PK	.2	.1	49.22	56	-6.78	-	-
22	2.0895	37.41	Av	.2	.1	37.71	-	-	46	-8.29
23	2.544	49.17	PK	.2	.1	49.47	56	-6.53	-	-
24	2.544	37.42	Av	.2	.1	37.72	-	-	46	-8.28
25	2.814	48.84	PK	.2	.1	49.14	56	-6.86	-	-
26	2.814	34.24	Av	.2	.1	34.54	-	-	46	-11.46
27	5.181	36.83	PK	.2	.1	37.13	60	-22.87	-	-
28	5.181	15.86	Av	.2	.1	16.16	-	-	50	-33.84
29	7.962	37.85	PK	.2	.1	38.15	60	-21.85	-	-
30	7.962	21.42	Av	.2	.1	21.72	-	-	50	-28.28

PK - Peak detector
Av - average detection

LINE 1 RESULTS



LINE 2 RESULTS