FCC CFR47 PART 15 SUBPART C

CERTIFICATION TEST REPORT

FOR

GSM Phone + Bluetooth & DTS 2.4GHz b/g/n

MODEL NUMBER: SM-G350E

FCC ID: A3LSMG350E

REPORT NUMBER: 14I17784-4

ISSUE DATE: MAY 17, 2014

Prepared for
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	5/17/14	Initial Issue	P. Zhang

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: **SAMSUNG ELECTRONICS CO., LTD.**

EUT DESCRIPTION: **GSM Phone + Bluetooth & DTS 2.4GHz b/g/n**

MODEL: **SM-G350E**

SERIAL NUMBER: **FL-179-D (Conducted); FL-179-B (Radiated)**

DATE TESTED: **MAY 9 - 17, 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 and 47266 Benicia Street, Fremont, California, USA. Line conducted emissions are measured only at the 47173 address. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

47173 Benicia Street	47266 Benicia Street
☐ Chamber A	☐ Chamber D
☒ Chamber B	☐ Chamber E
☐ Chamber C	☒ Chamber F

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at http://ts.nist.gov/standards/scopes/2000650.htm.

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 Phone + Bluetooth & DTS 2.4GHz b/g/n.

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	19.9	97.72
2412 - 2462	802.11g	22.12	162.93
2412 - 2462	802.11n HT20	21.08	128.23

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an FPCB antenna, with a maximum gain of -2.24dBi.

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
802.11n HT20mode: MCS0

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	SAMSUNG	ETA0U10EBE	N/A	N/A
Earphone	SAMSUNG	N/A	N/A	N/A

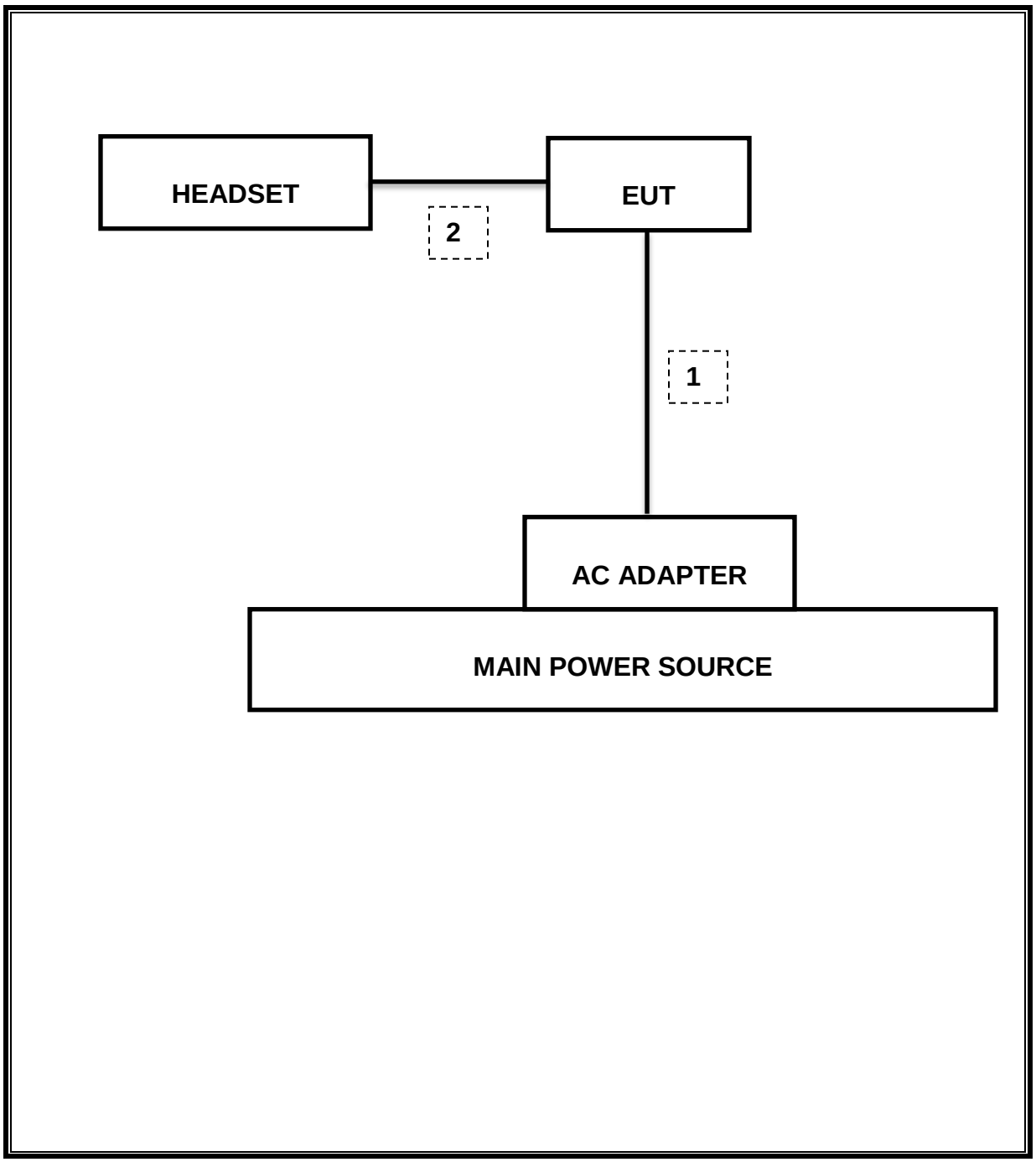
I/O CABLES

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 Due**
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01069	12/20/14
Spectrum Analyzer,9KHz-40GHz	HP	8564E	C00986	04/01/15
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	8.88MHz
2.1051, 15.247 (d)	RSS-210 A8.5	Band Edge / Conducted Spurious Emission	-20dBc		Pass	-24.19dBm
15.247	RSS-210 A8.4	TX conducted output power	<30dBm		Pass	22.12dBm
15.247	RSS-210 A8.2	PSD	<8dBm		Pass	-4.34dBm
15.207 (a)	RSS-GEN 7.2.2	AC Power Line conducted emissions	Section 10	Radiated	Pass	43.34dBuV (AV)
15.205, 15.209	RSS-210 Clause 2.6, RSS-210 Clause 6	Radiated Spurious Emission	< 54dBuV/m		Pass	53.73dBuV/m

9. ANTENNA PORT TEST RESULTS

9.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

IC RSS-210 A8.2 (a)

The minimum 6 dB bandwidth shall be at least 500 kHz.

TEST PROCEDURE

Reference to KDB 558074 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	9.00	0.5
Mid	2437	8.88	0.5
High	2462	9.08	0.5
Worst		8.88	

9.1.2. 802.11g MODE IN THE 2.4 GHz BAND

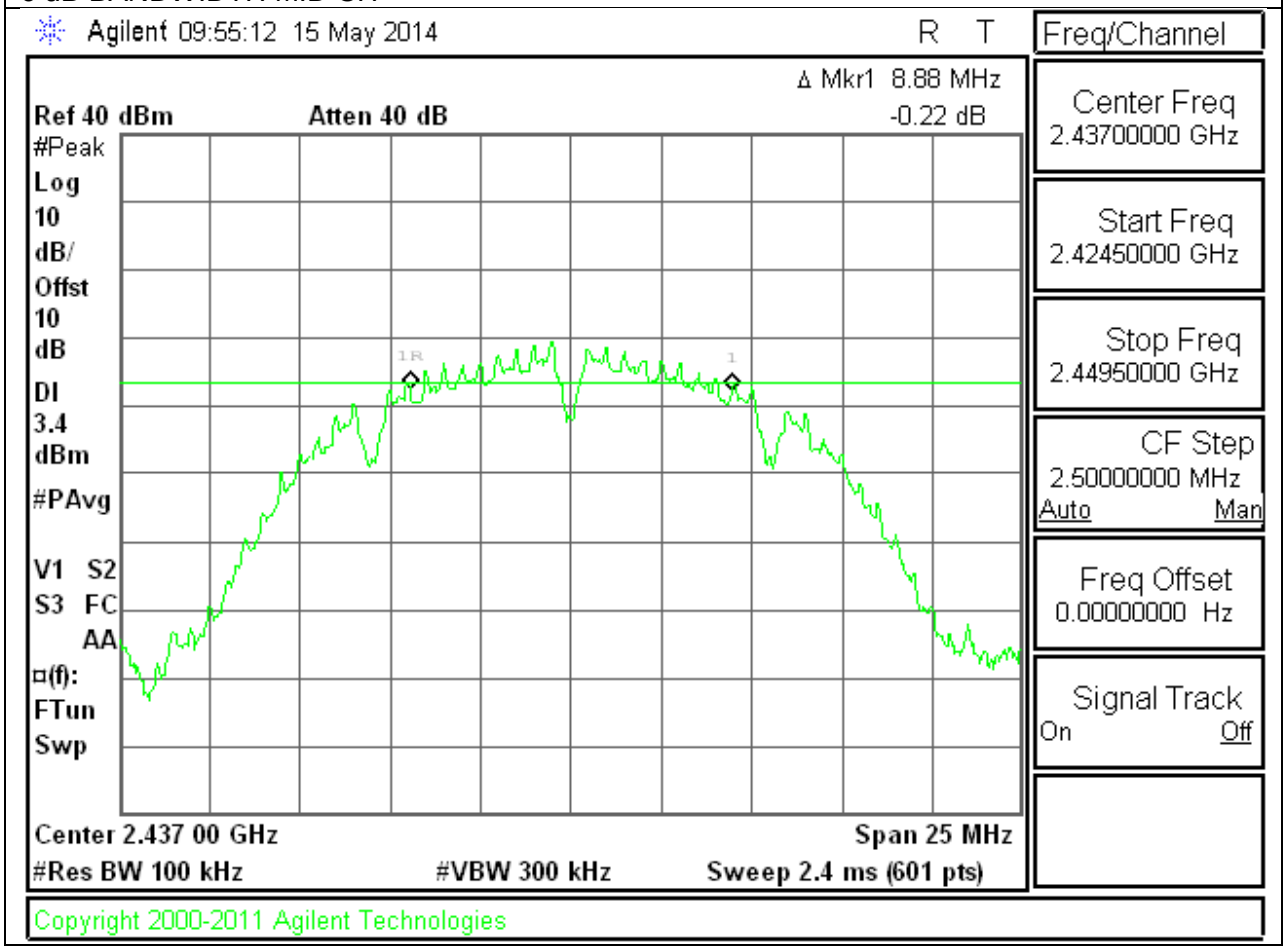
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	16.50	0.5
Mid	2437	16.46	0.5
High	2462	16.46	0.5
Worst		16.46	

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	17.75	0.5
Mid	2437	17.79	0.5
High	2462	17.71	0.5
Worst		17.71	

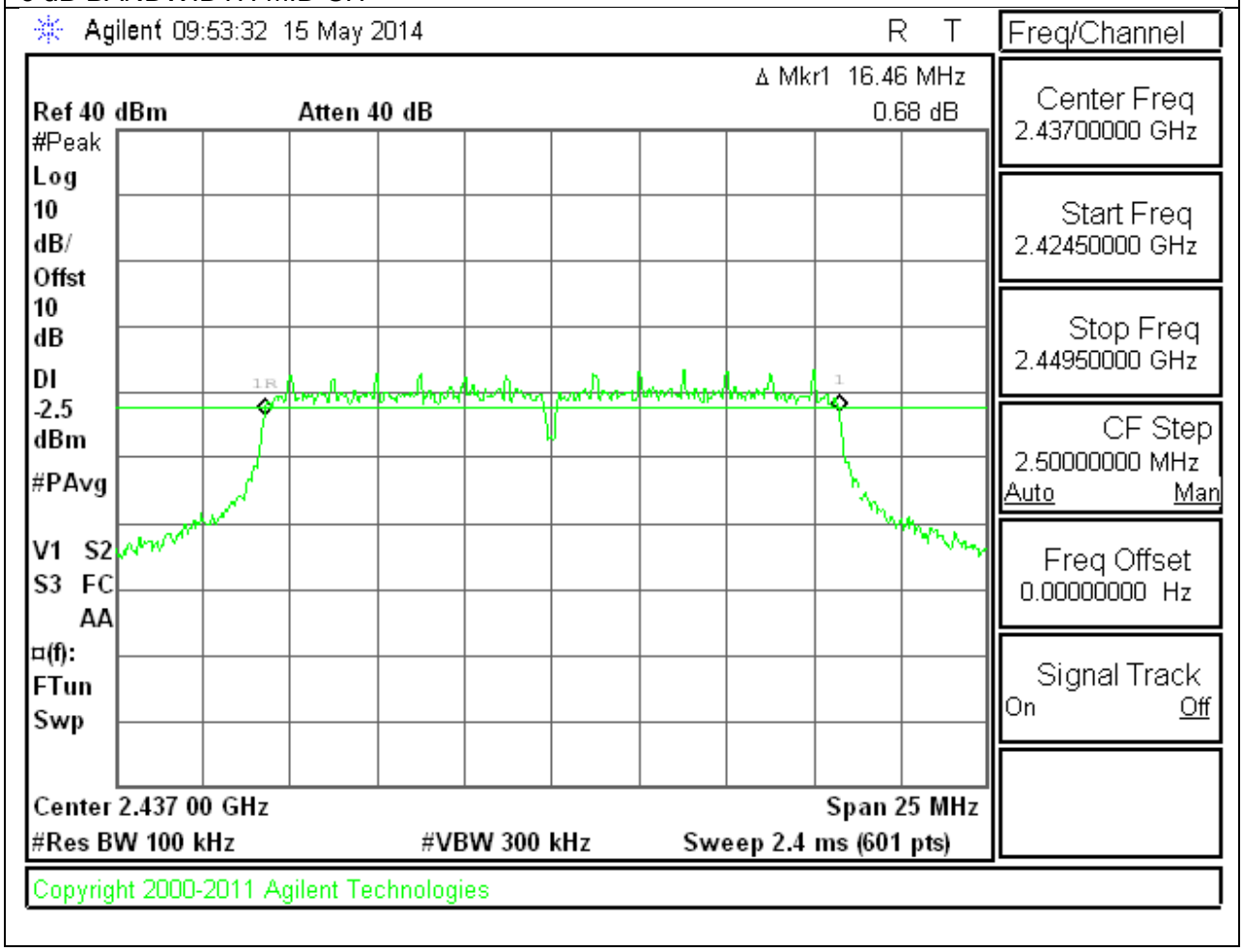
802.11b 6 dB BANDWIDTH

6 dB BANDWIDTH MID CH



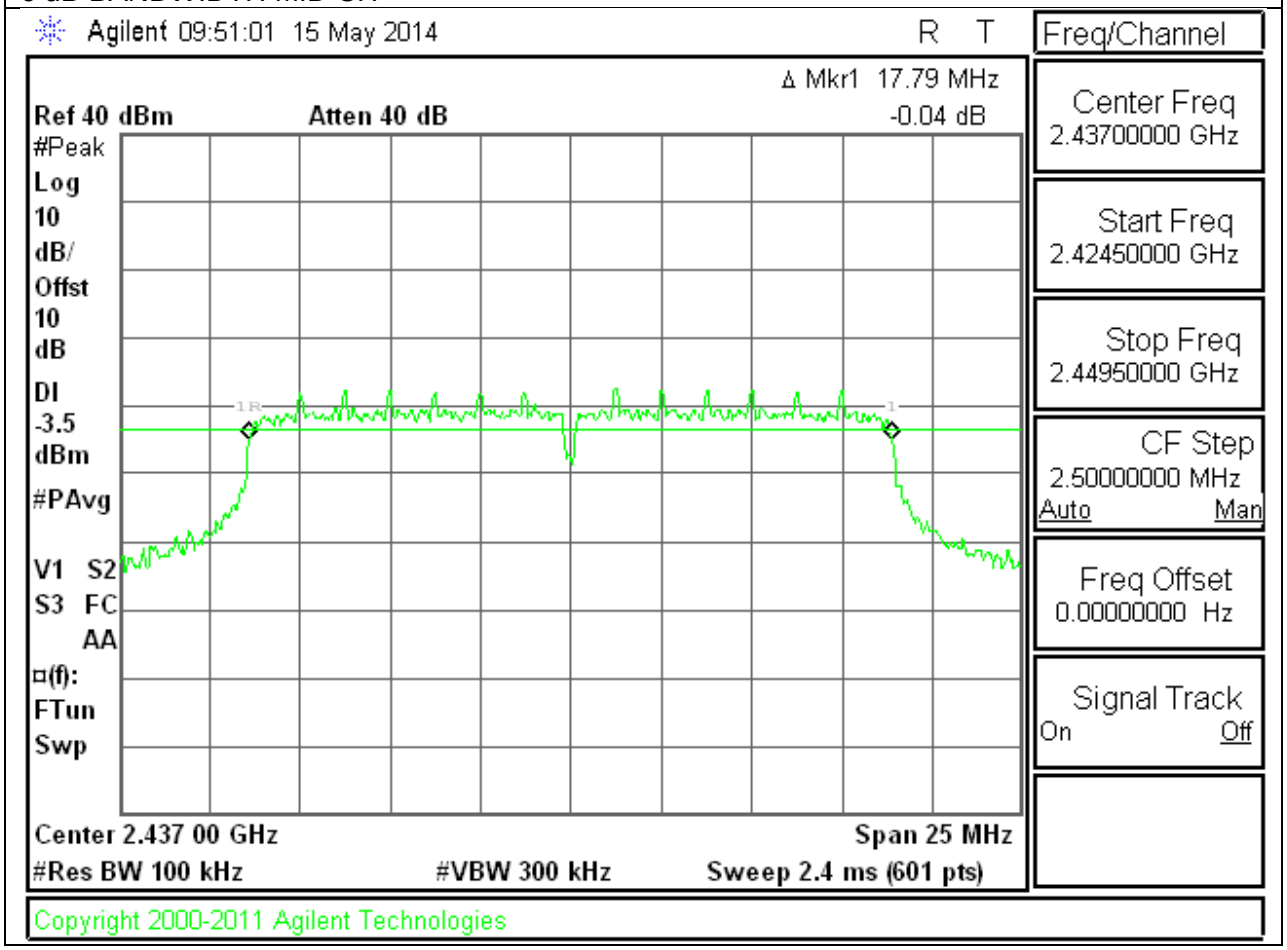
802.11g 6 dB BANDWIDTH

6 dB BANDWIDTH MID CH



802.11n 6 dB BANDWIDTH

6 dB BANDWIDTH MID CH



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	14.05
Mid	2437	14.08
High	2462	14.09
Worst		14.09

9.2.2. 802.11g MODE IN THE 2.4 GHz BAND

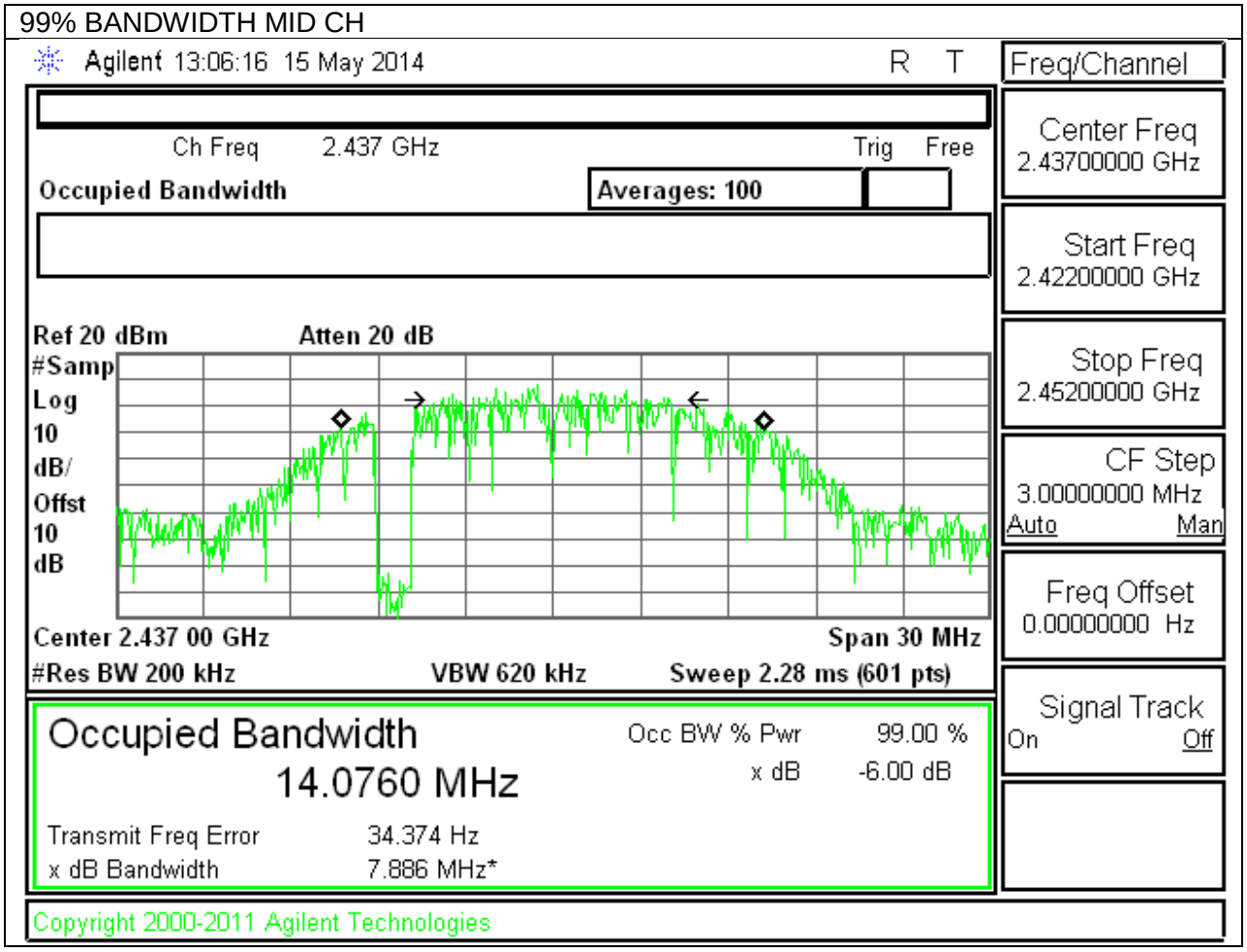
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	16.47
Mid	2437	16.51
High	2462	16.50
Worst		16.51

9.2.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	17.64
Mid	2437	17.56
High	2462	17.48
Worst		17.64

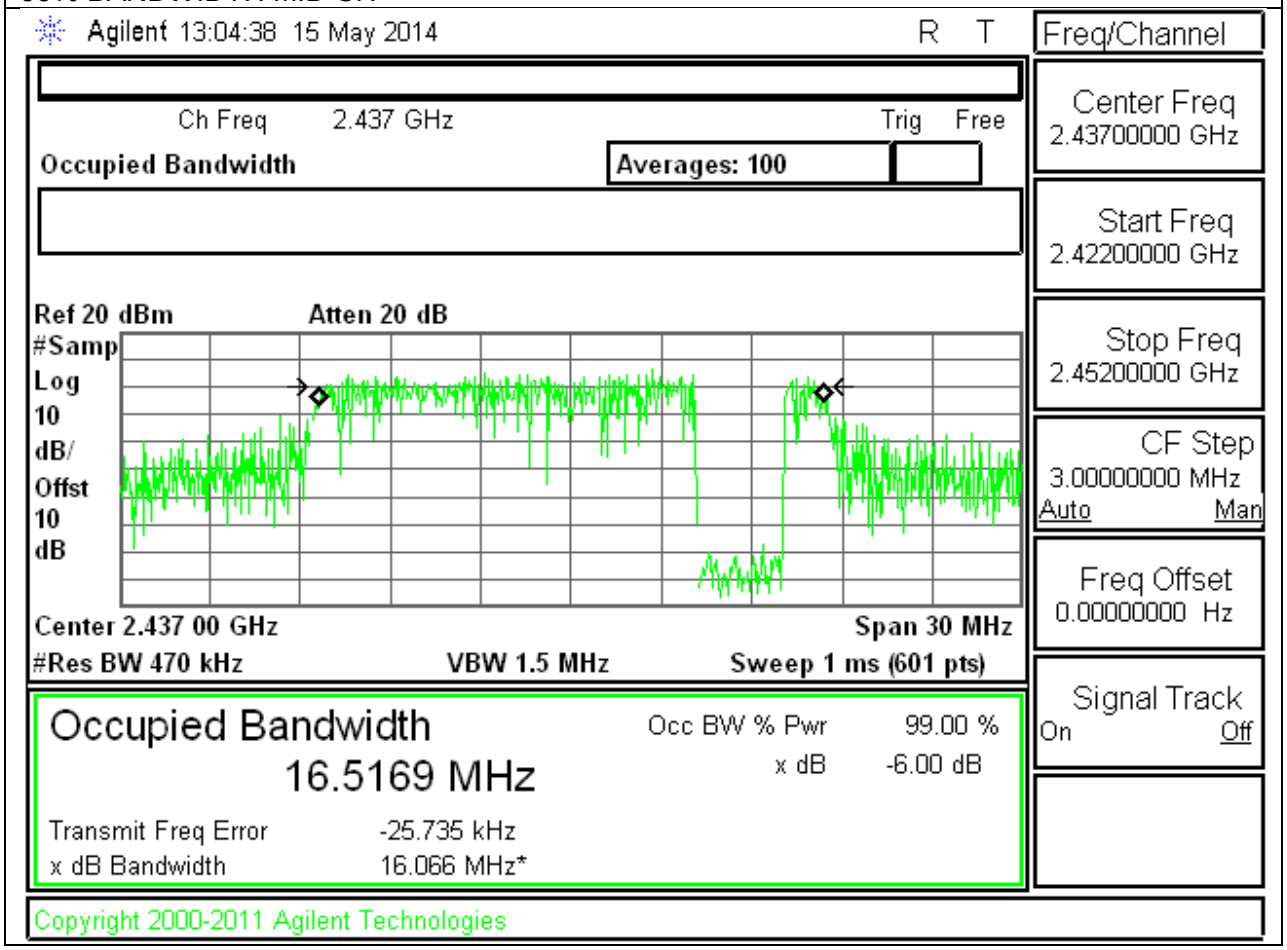
802.11b 99% BANDWIDTH

99% BANDWIDTH MID CH



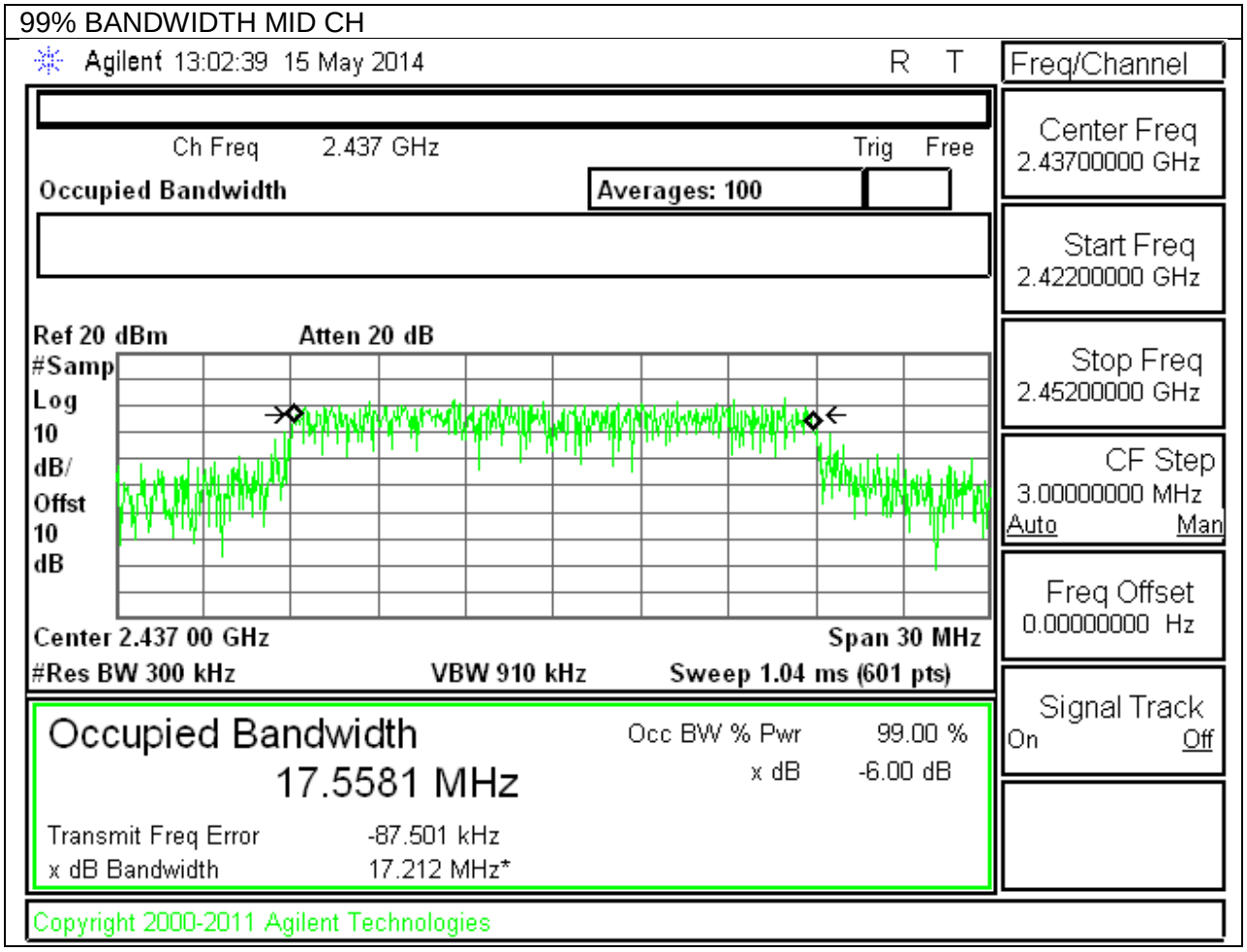
802.11g 99% BANDWIDTH

99% BANDWIDTH MID CH



802.11n 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 10.2 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	16.80
Mid	2437	16.80
High	2462	16.80
Worst		16.800

9.3.2. 802.11g MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	2412	14.00
Mid	2437	13.90
High	2462	14.00
Worst		14.000

9.3.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	2412	13.00
Mid	2437	13.00
High	2462	13.00
Worst		13.000

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	-2.24	30.00	30	36	30.00
Mid	2437	-2.24	30.00	30	36	30.00
High	2462	-2.24	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	19.90	19.90	30.00	-10.10
Mid	2437	19.74	19.74	30.00	-10.26
High	2462	19.82	19.82	30.00	-10.18
Worst			19.90		

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	-2.24	30.00	30	36	30.00
Mid	2437	-2.24	30.00	30	36	30.00
High	2462	-2.24	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	21.95	21.95	30.00	-8.05
Mid	2437	22.04	22.04	30.00	-7.96
High	2462	22.12	22.12	30.00	-7.88
Worst			22.12		

9.4.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

Limits

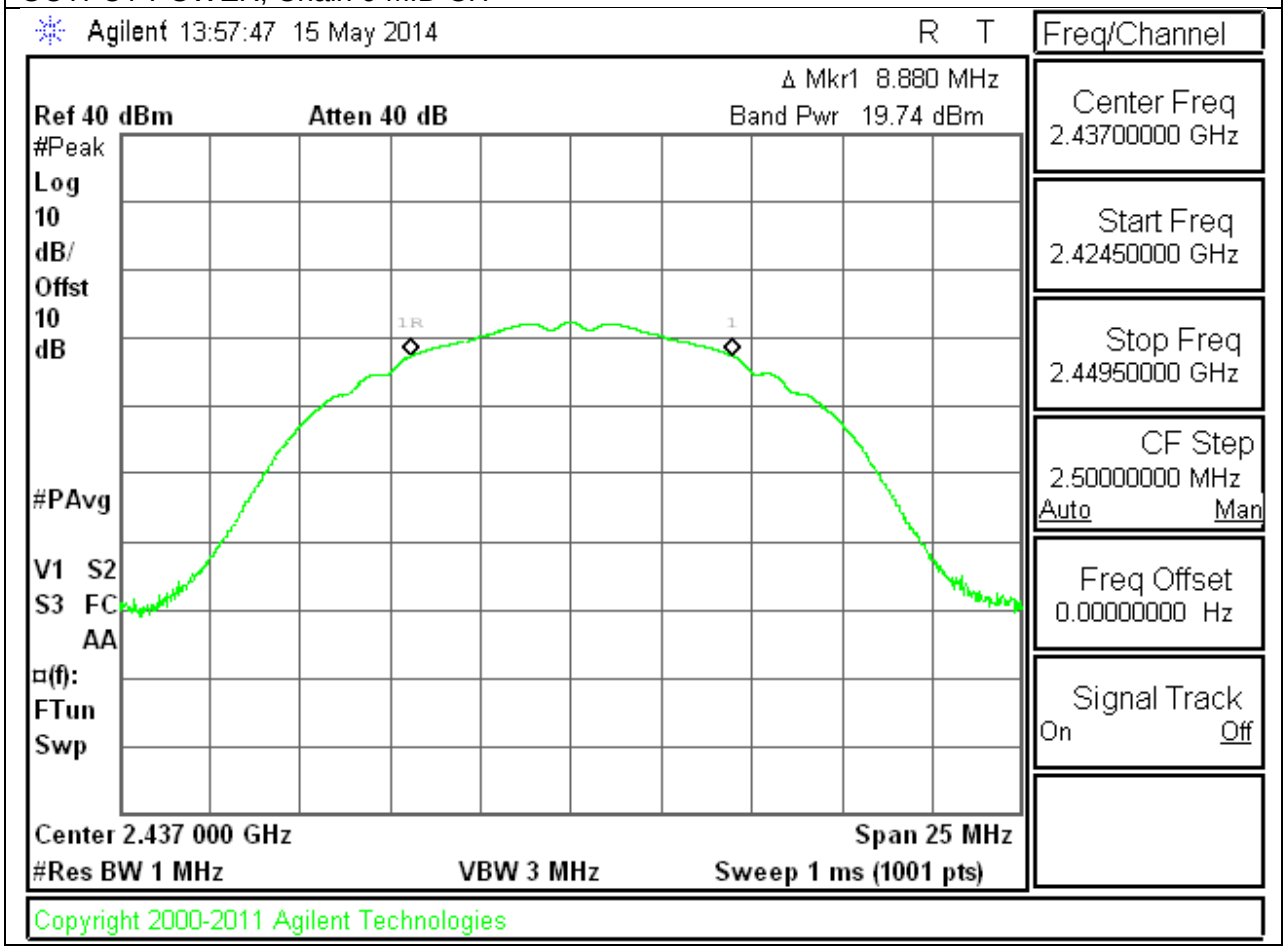
Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	2412	-2.24	30.00	30	36	30.00
Mid	2437	-2.24	30.00	30	36	30.00
High	2462	-2.24	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	2412	21.07	21.07	30.00	-8.93
Mid	2437	21.08	21.08	30.00	-8.92
High	2462	21.00	21.00	30.00	-9.00
Worst			21.08		

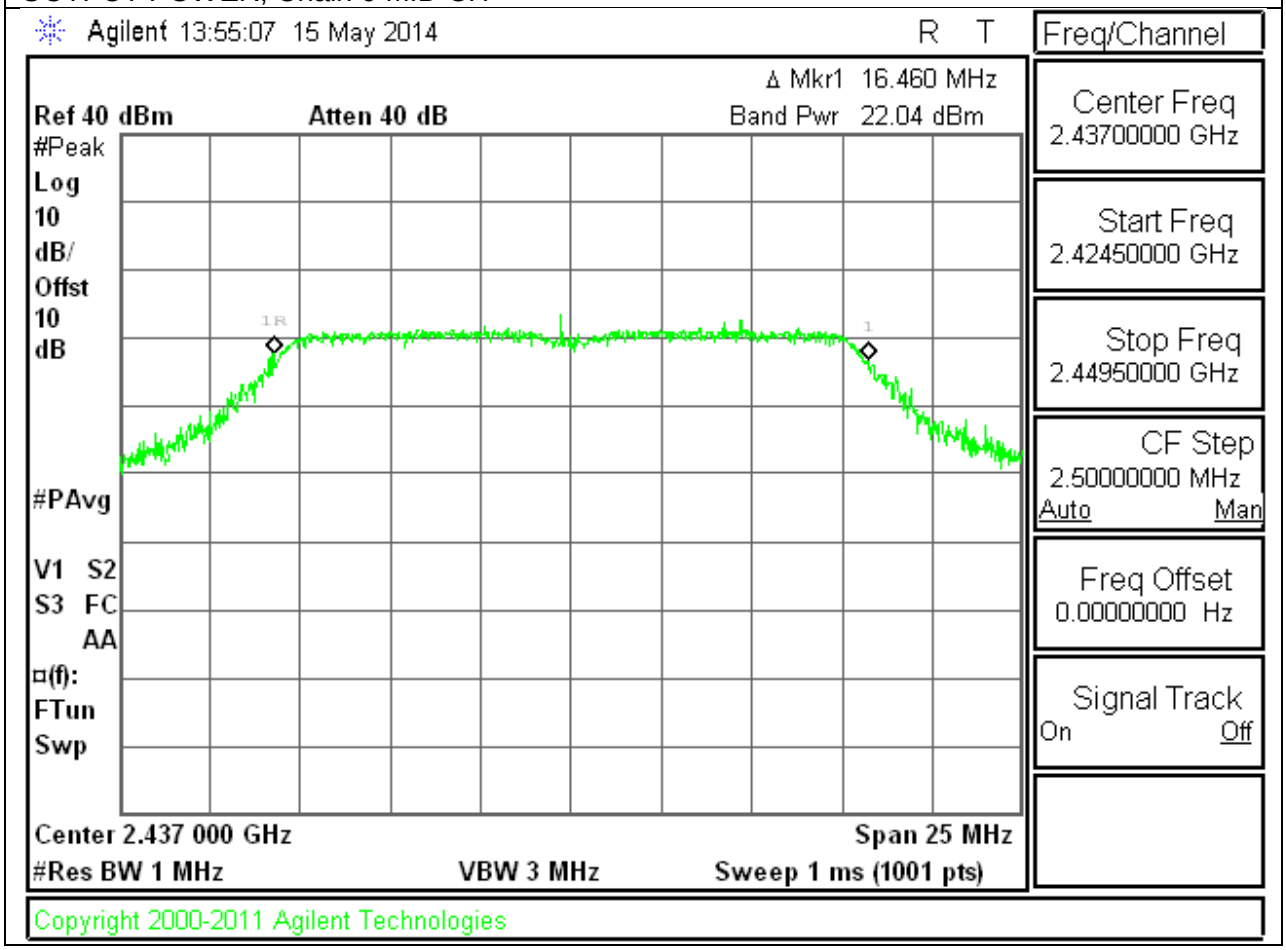
802.11b OUTPUT POWER, Chain 0

OUTPUT POWER, Chain 0 MID CH



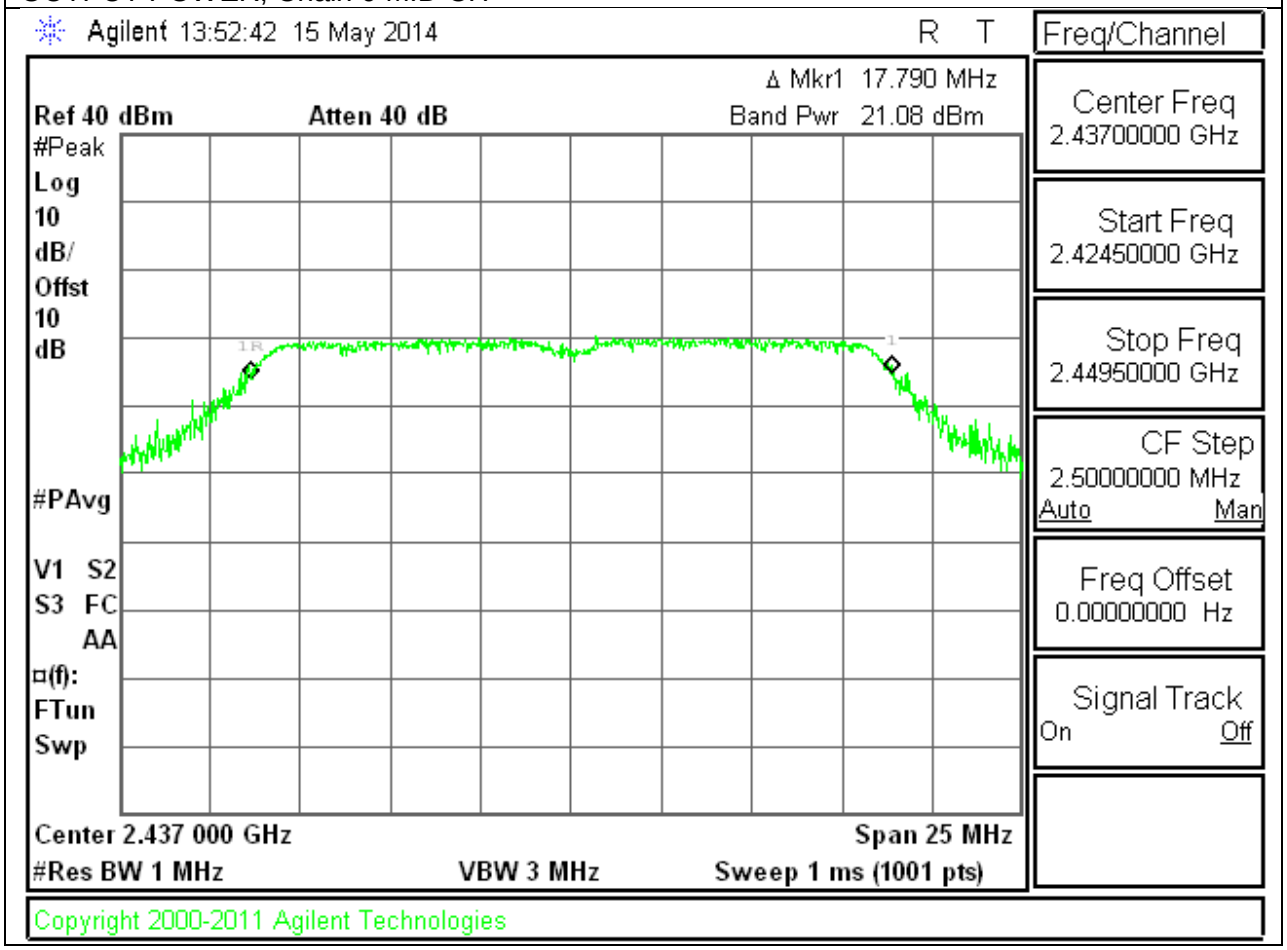
802.11g OUTPUT POWER, Chain 0

OUTPUT POWER, Chain 0 MID CH



802.11n OUTPUT POWER, Chain 0

OUTPUT POWER, Chain 0 MID CH



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	-4.34	8.0	-12.3
Mid	2437	-4.91	8.0	-12.9
High	2462	-4.93	8.0	-12.9

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	-11.07	8.0	-19.1
Mid	2437	-11.63	8.0	-19.6
High	2462	-11.50	8.0	-19.5

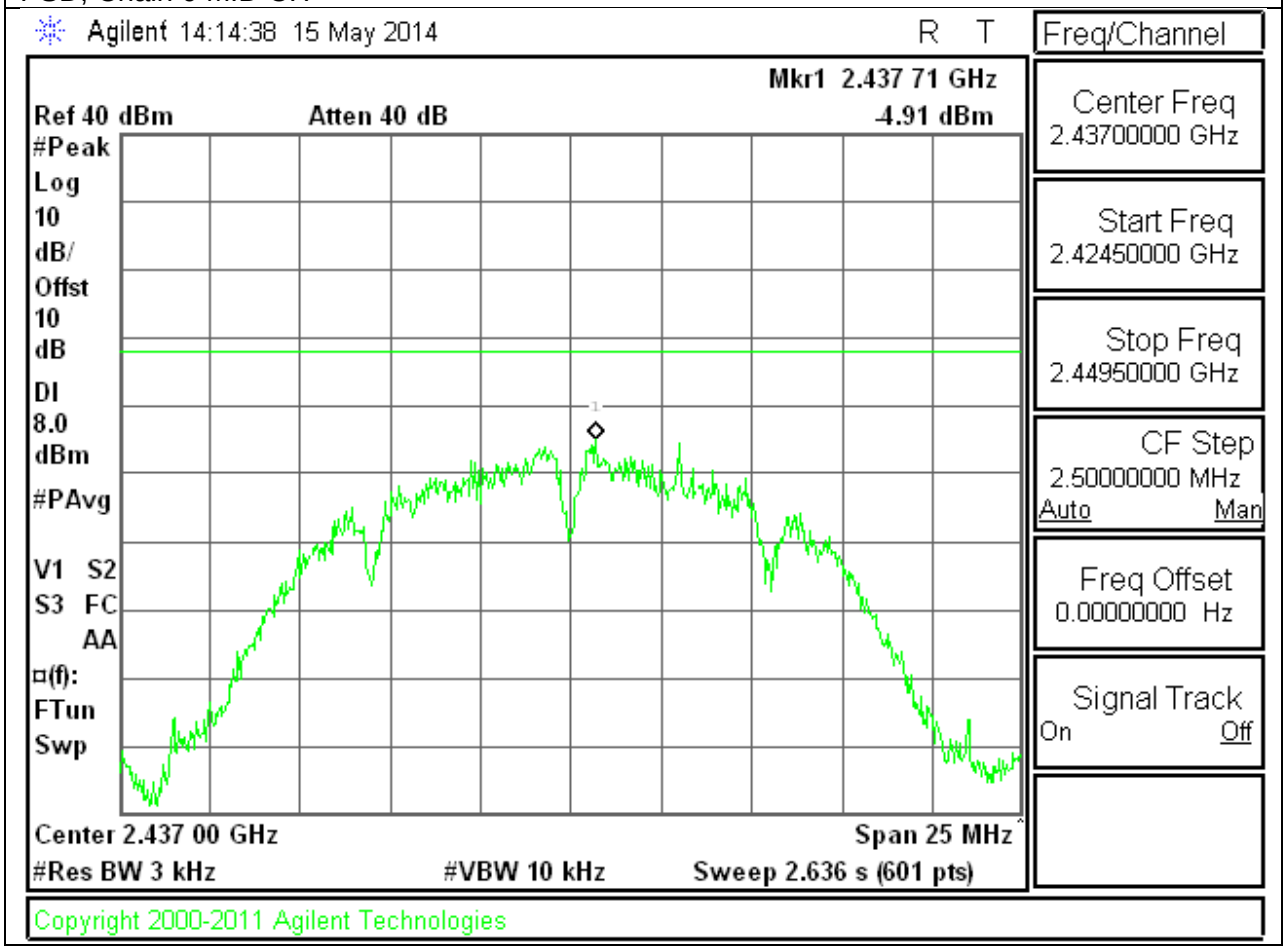
9.5.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-12.35	8.0	-20.4
Mid	2437	-11.14	8.0	-19.1
High	2462	-12.62	8.0	-20.6

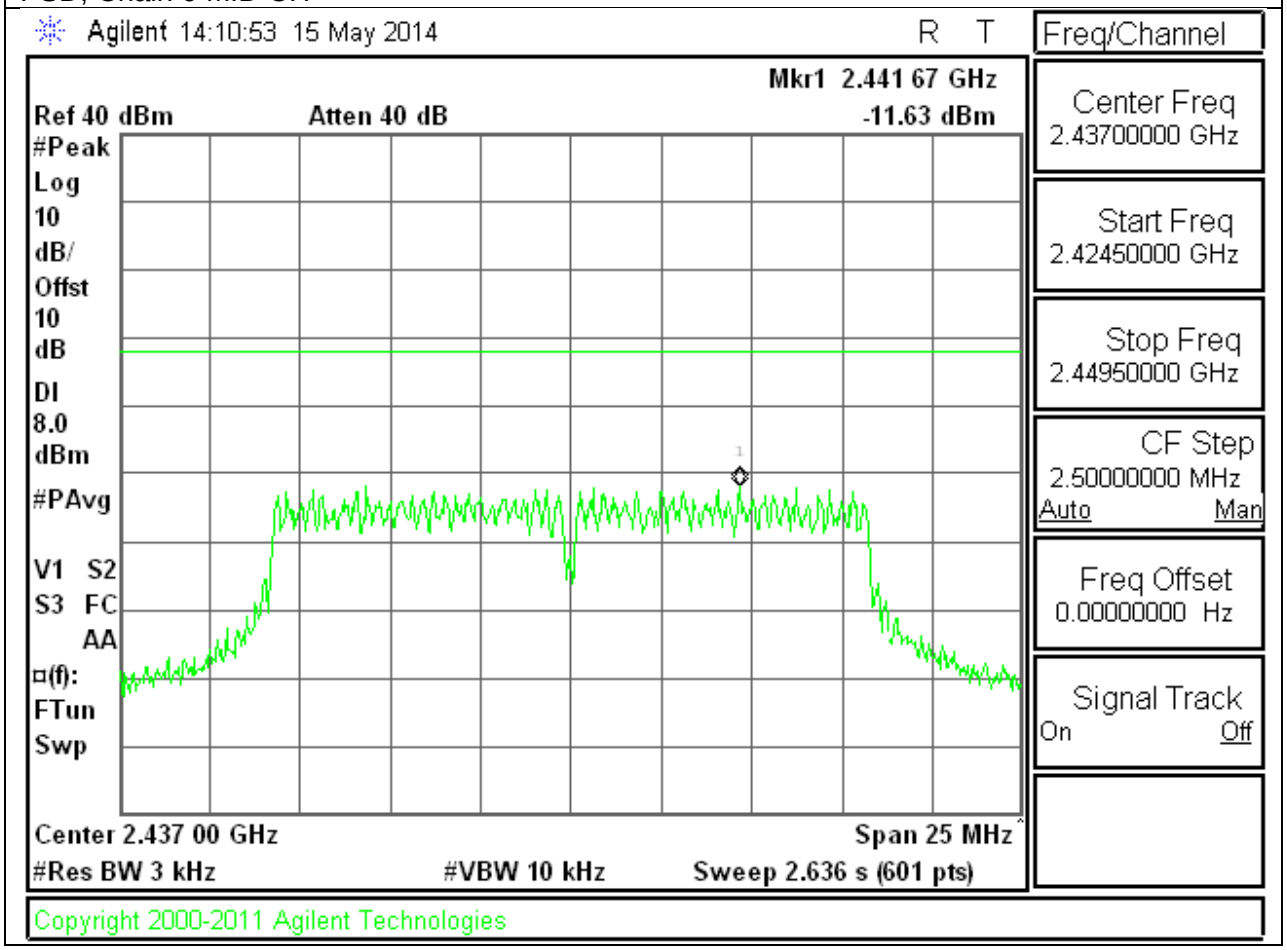
802.11b PSD, Chain 0

PSD, Chain 0 MID CH



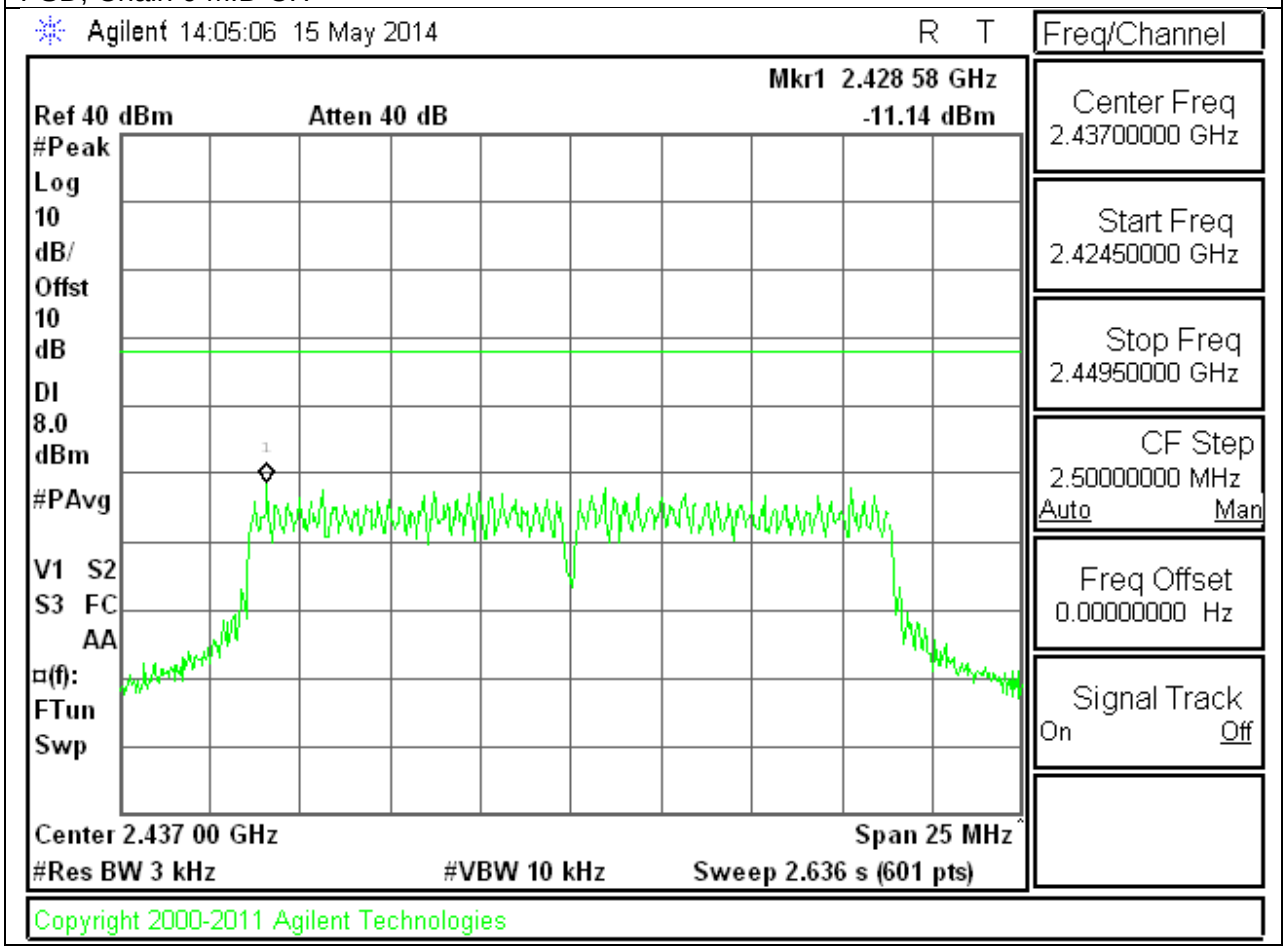
802.11g PSD, Chain 0

PSD, Chain 0 MID CH



802.11n PSD, Chain 0

PSD, Chain 0 MID CH



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

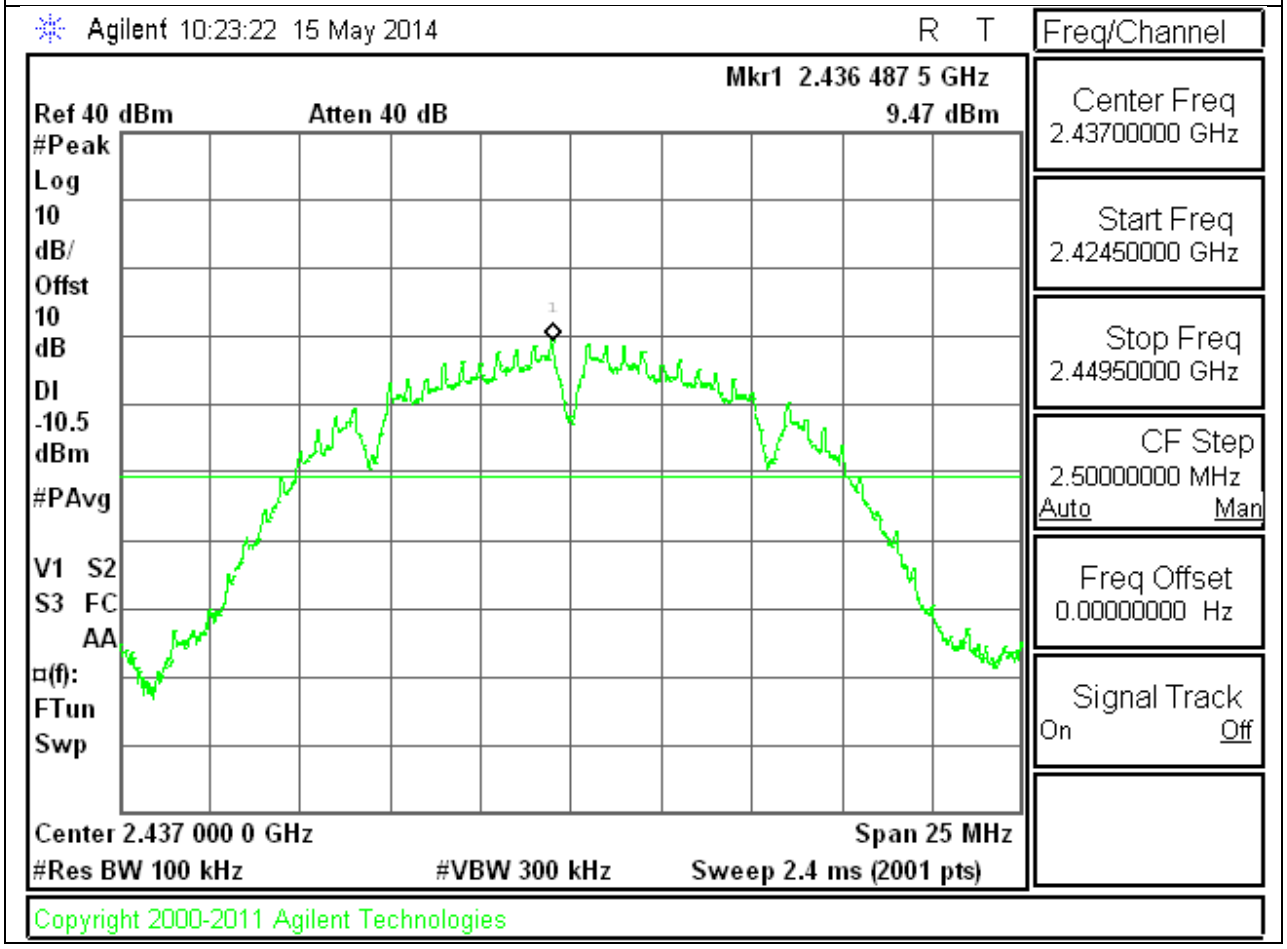
The transmitter output is connected to a spectrum analyzer with RBW = 100 kHz, VBW = 300 kHz, peak detector, and max hold. Measurements utilizing these settings are made of the in-band reference level, bandedge (where measurements to the general radiated limits will not be made) and out-of-band emissions.

RESULTS

9.6.1. 802.11b MODE IN THE 2.4 GHz BAND

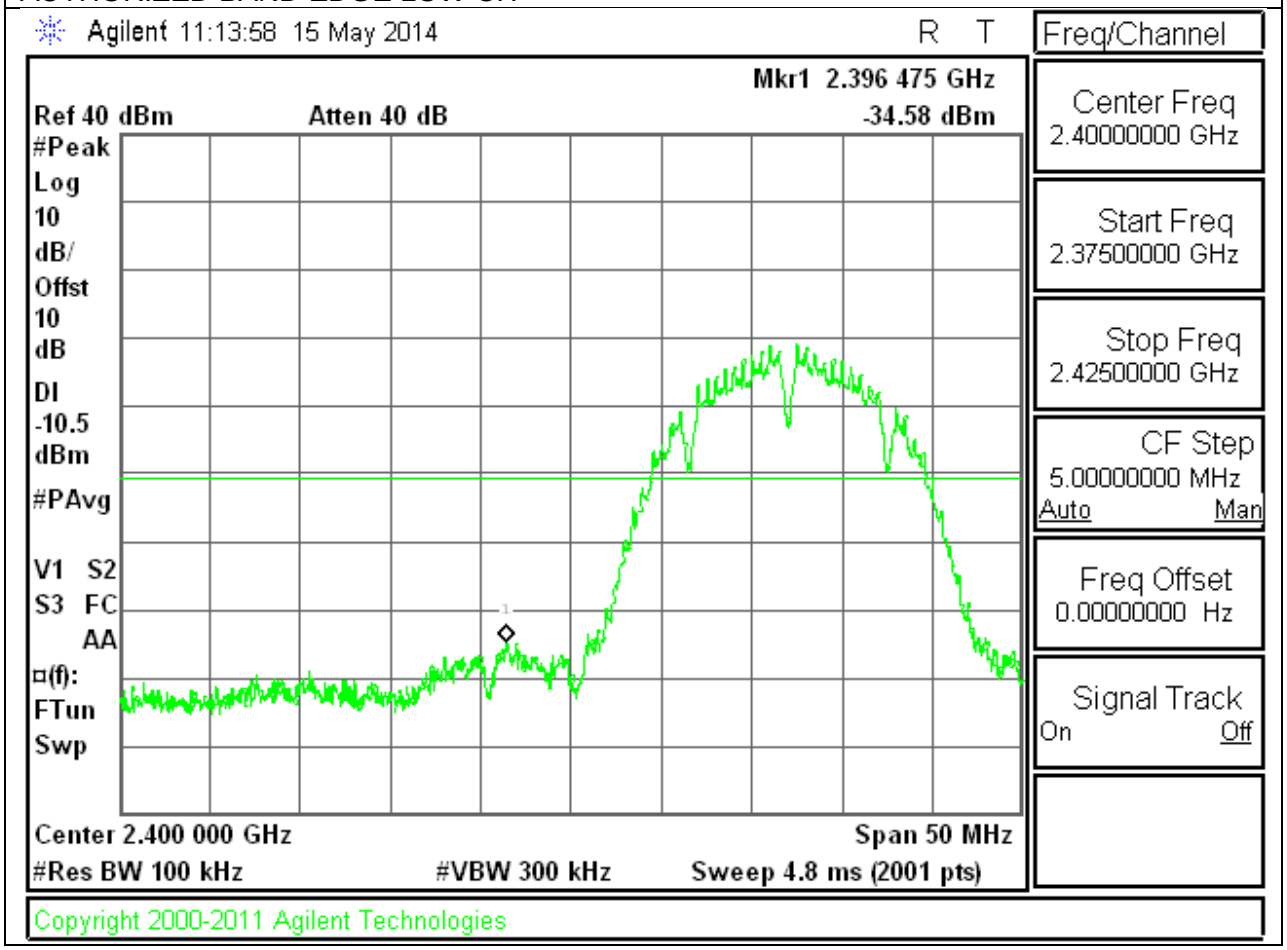
IN-BAND REFERENCE LEVEL

REFERENCE LEVEL MID CH



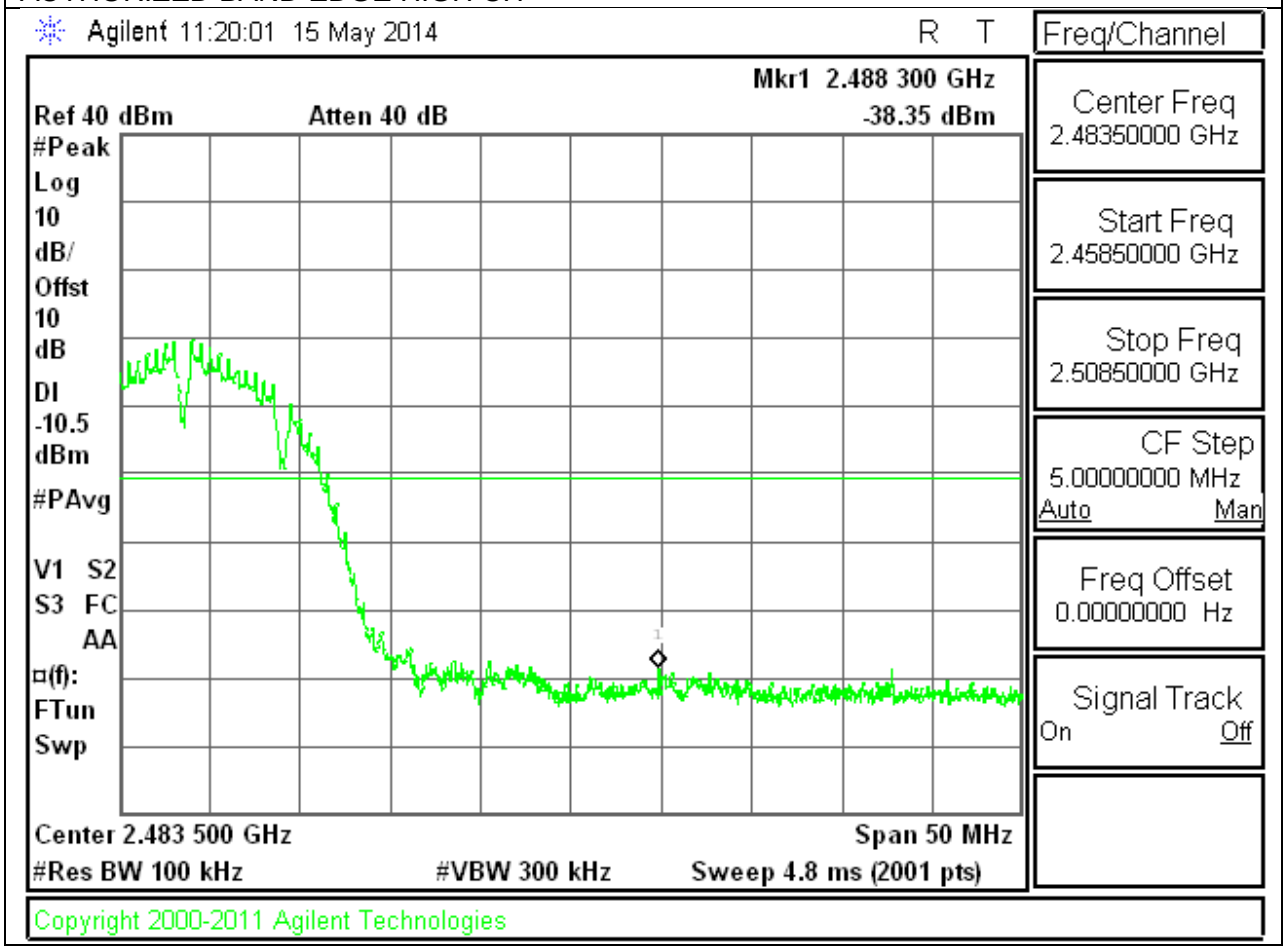
LOW CHANNEL BANDEDGE

AUTHORIZED BAND EDGE LOW CH



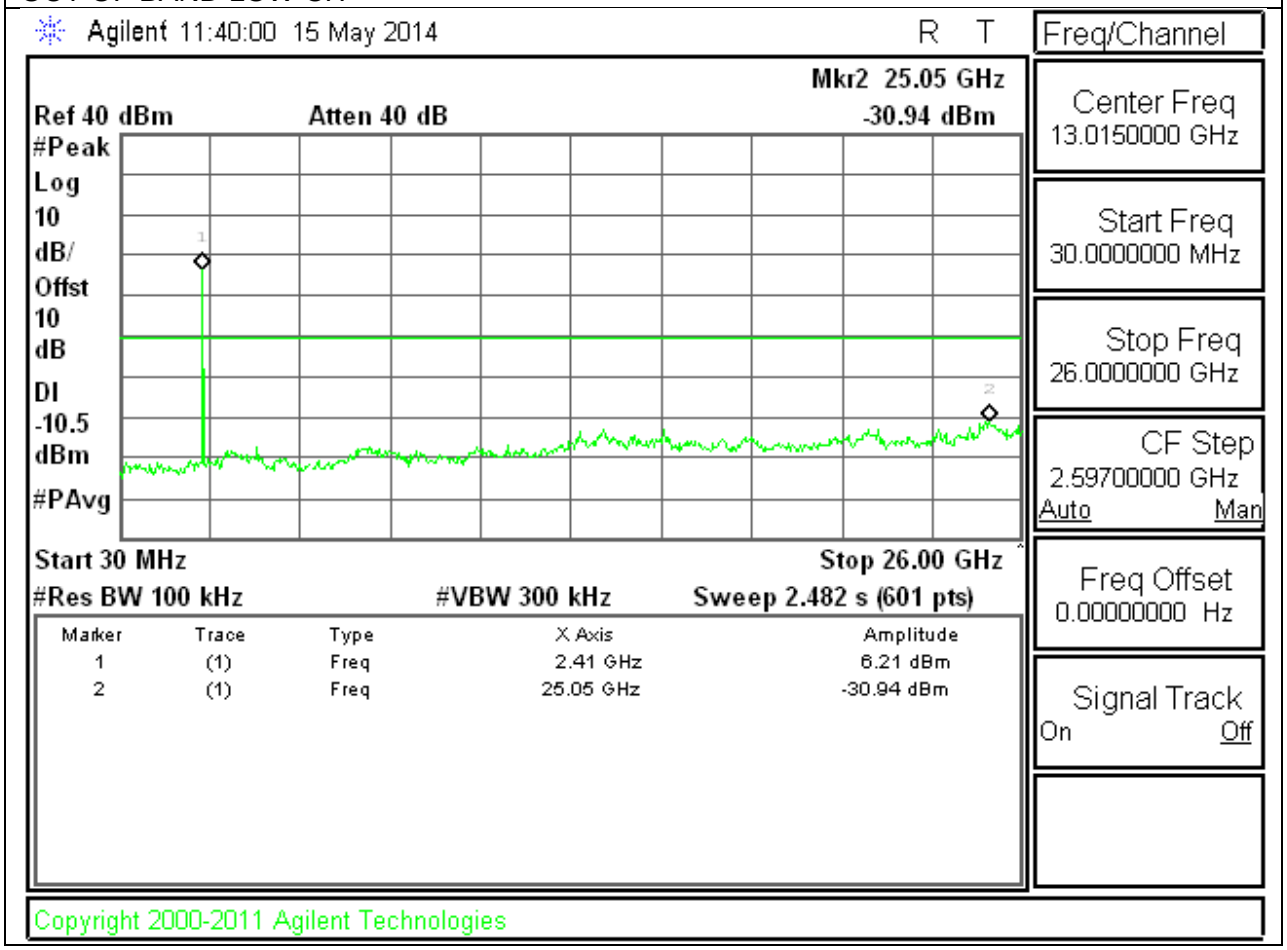
HIGH CHANNEL BANDEDGE

AUTHORIZED BAND EDGE HIGH CH

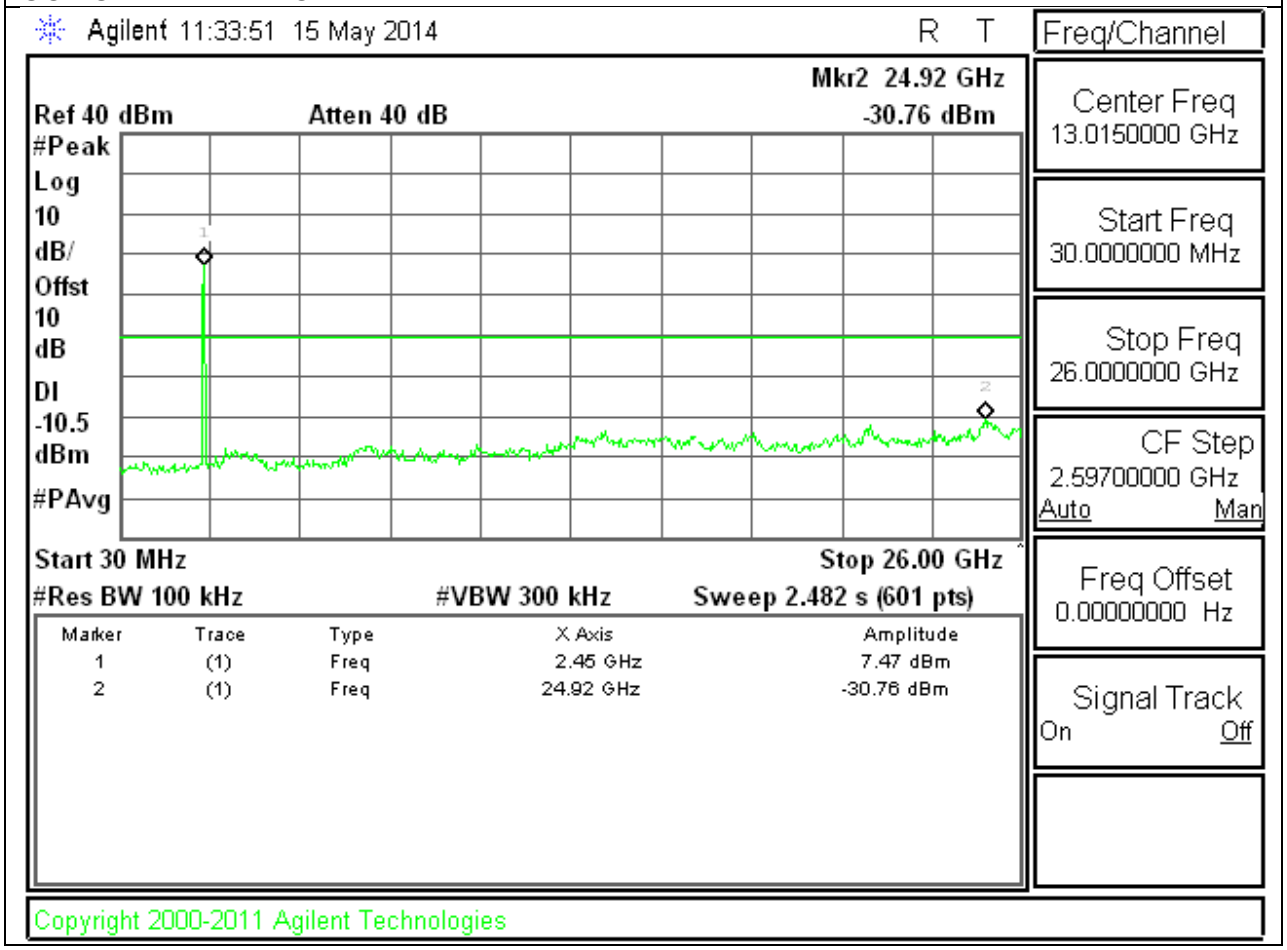


OUT-OF-BAND EMISSIONS

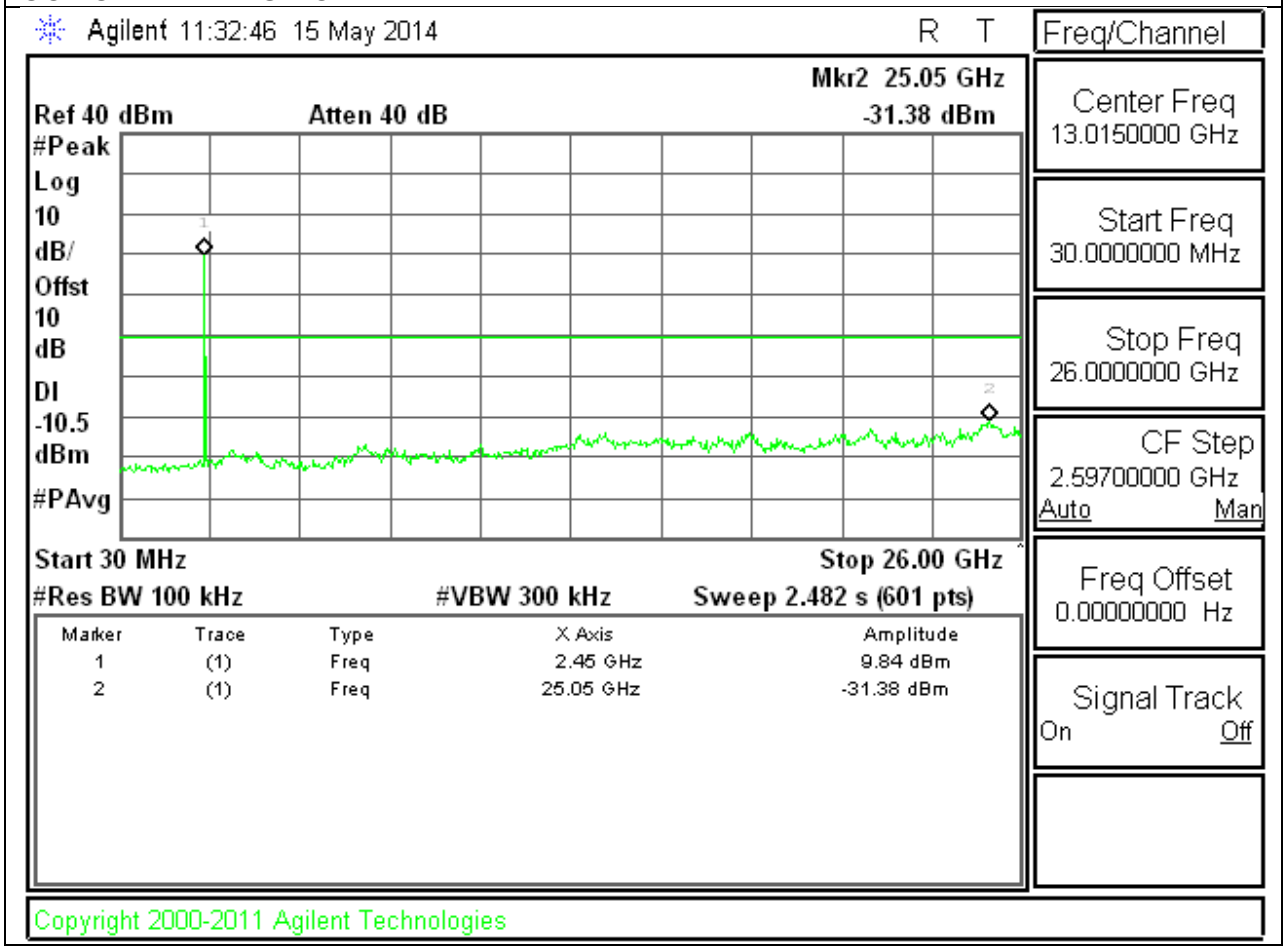
OUT OF BAND LOW CH



OUT OF BAND MID CH



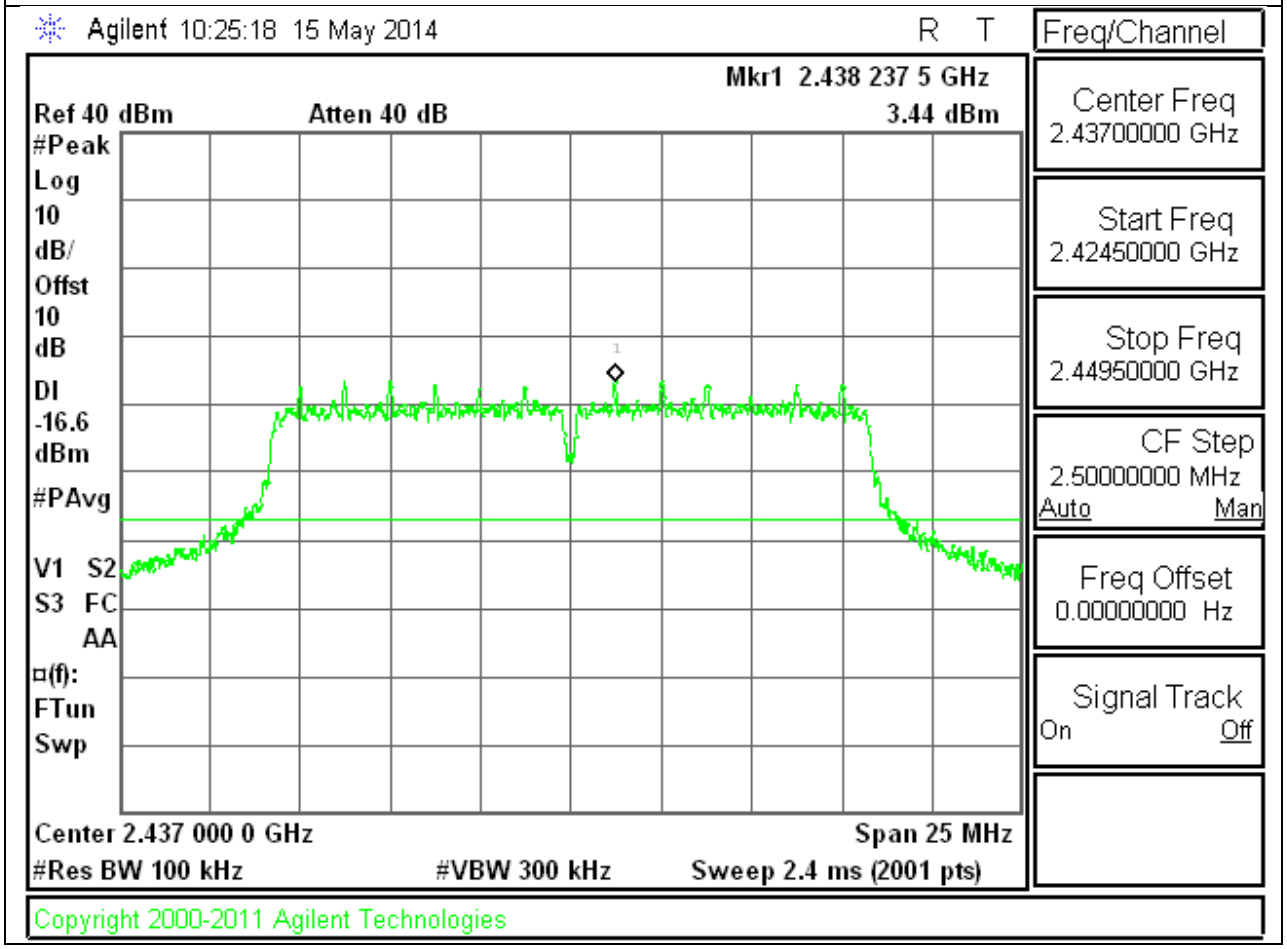
OUT OF BAND HIGH CH



9.6.2. 802.11g MODE IN THE 2.4 GHz BAND

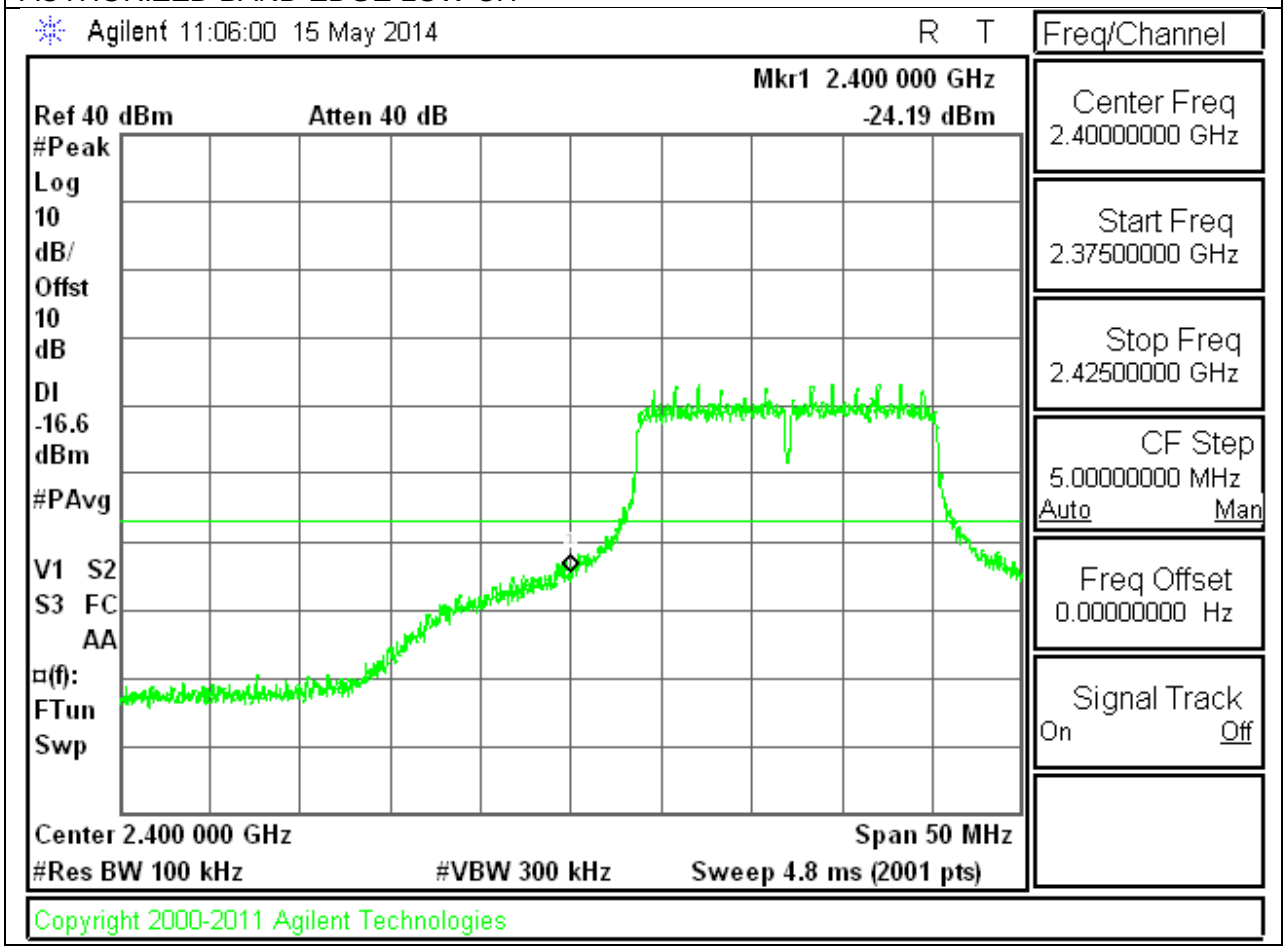
IN-BAND REFERENCE LEVEL

REFERENCE LEVEL MID CH



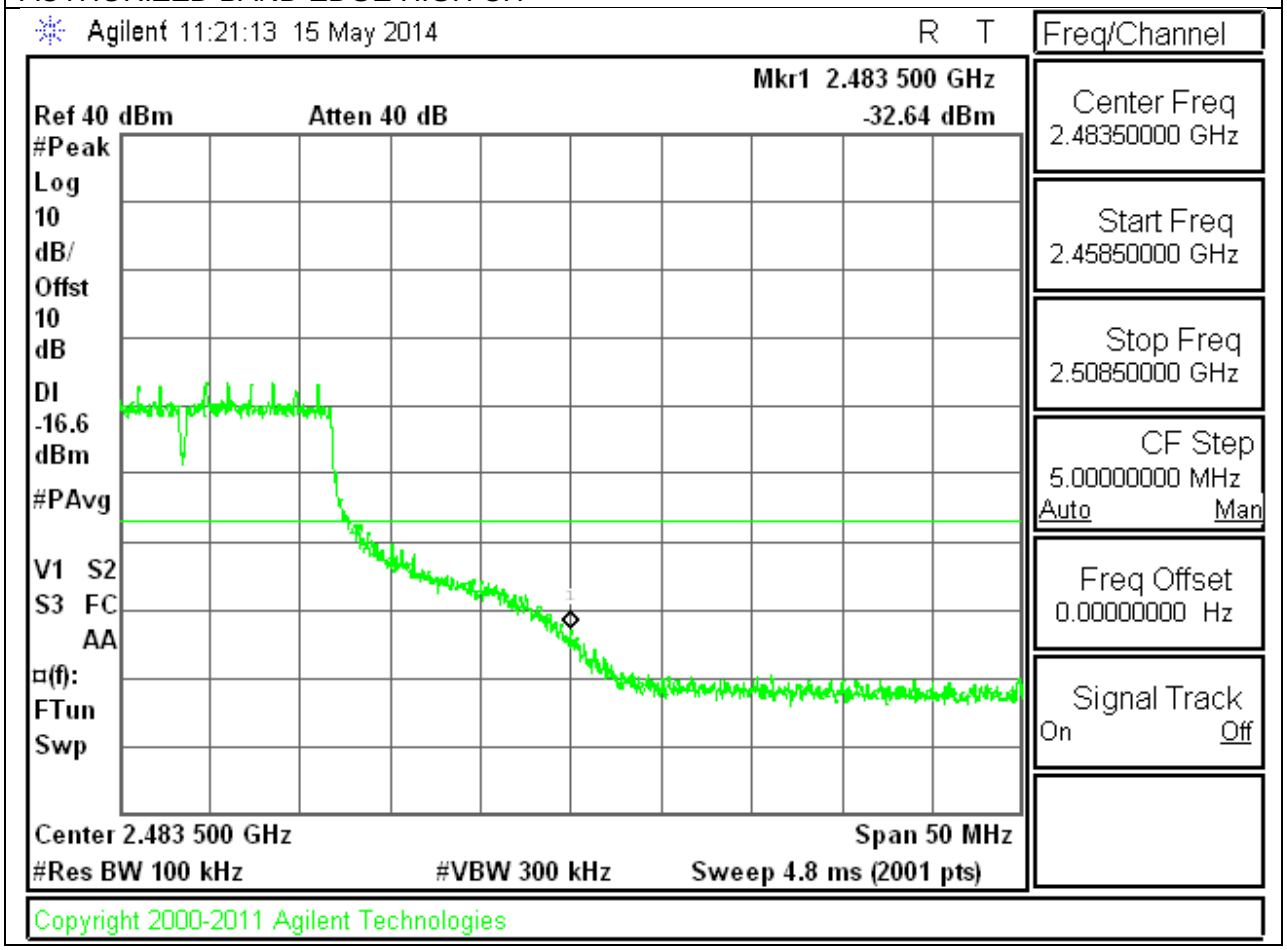
LOW CHANNEL BANDEDGE

AUTHORIZED BAND EDGE LOW CH



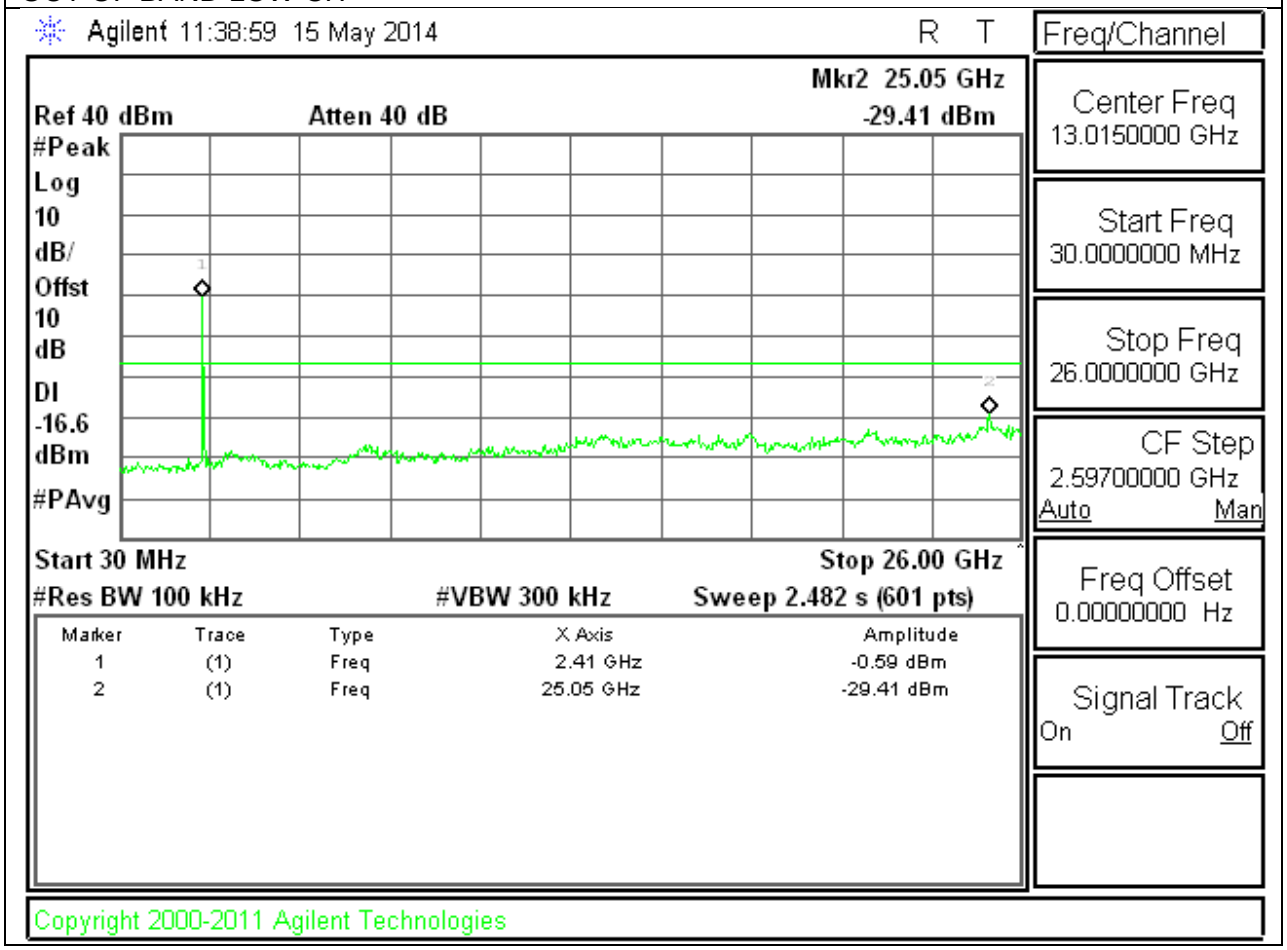
HIGH CHANNEL BANDEDGE

AUTHORIZED BAND EDGE HIGH CH

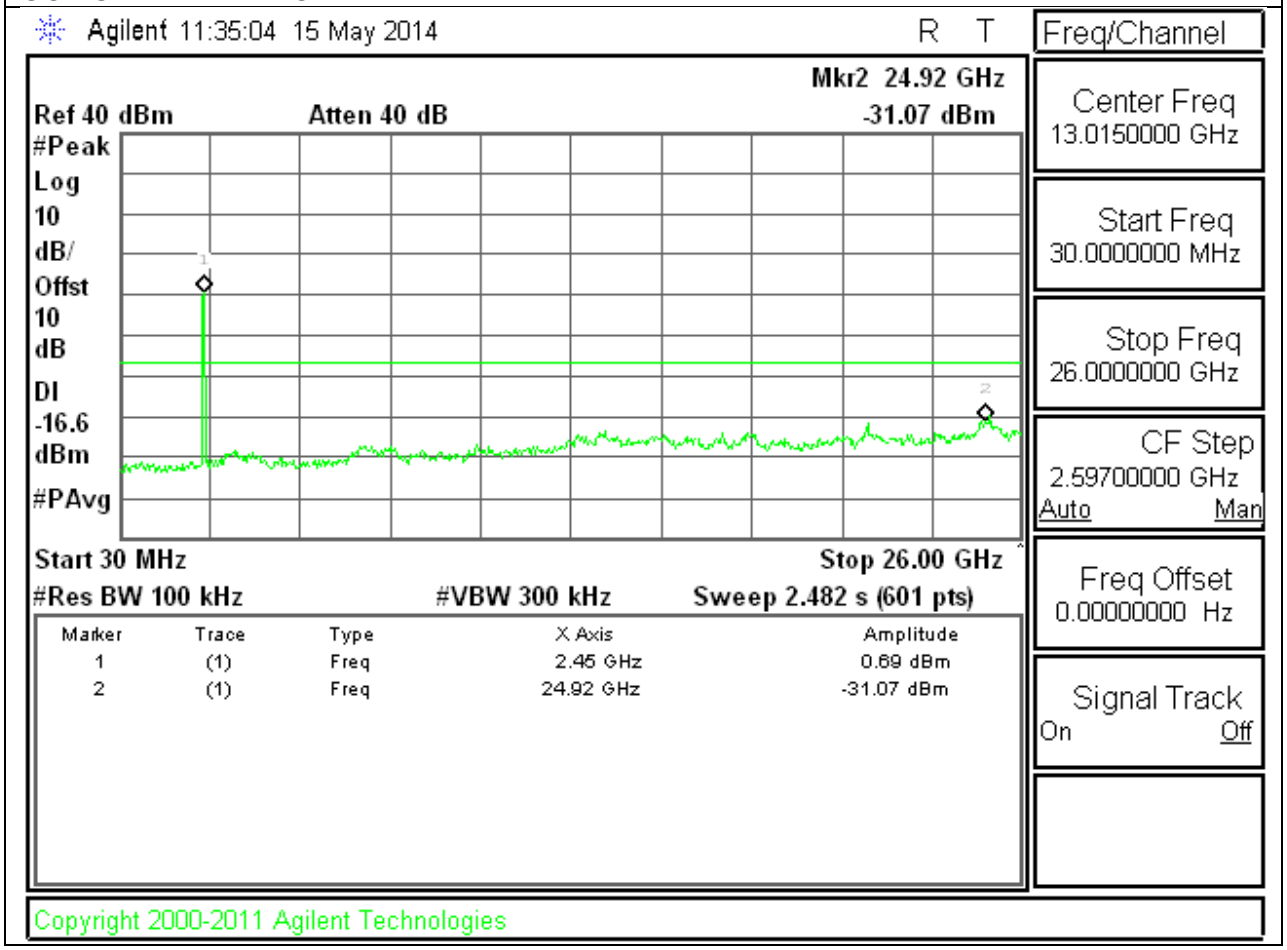


OUT-OF-BAND EMISSIONS

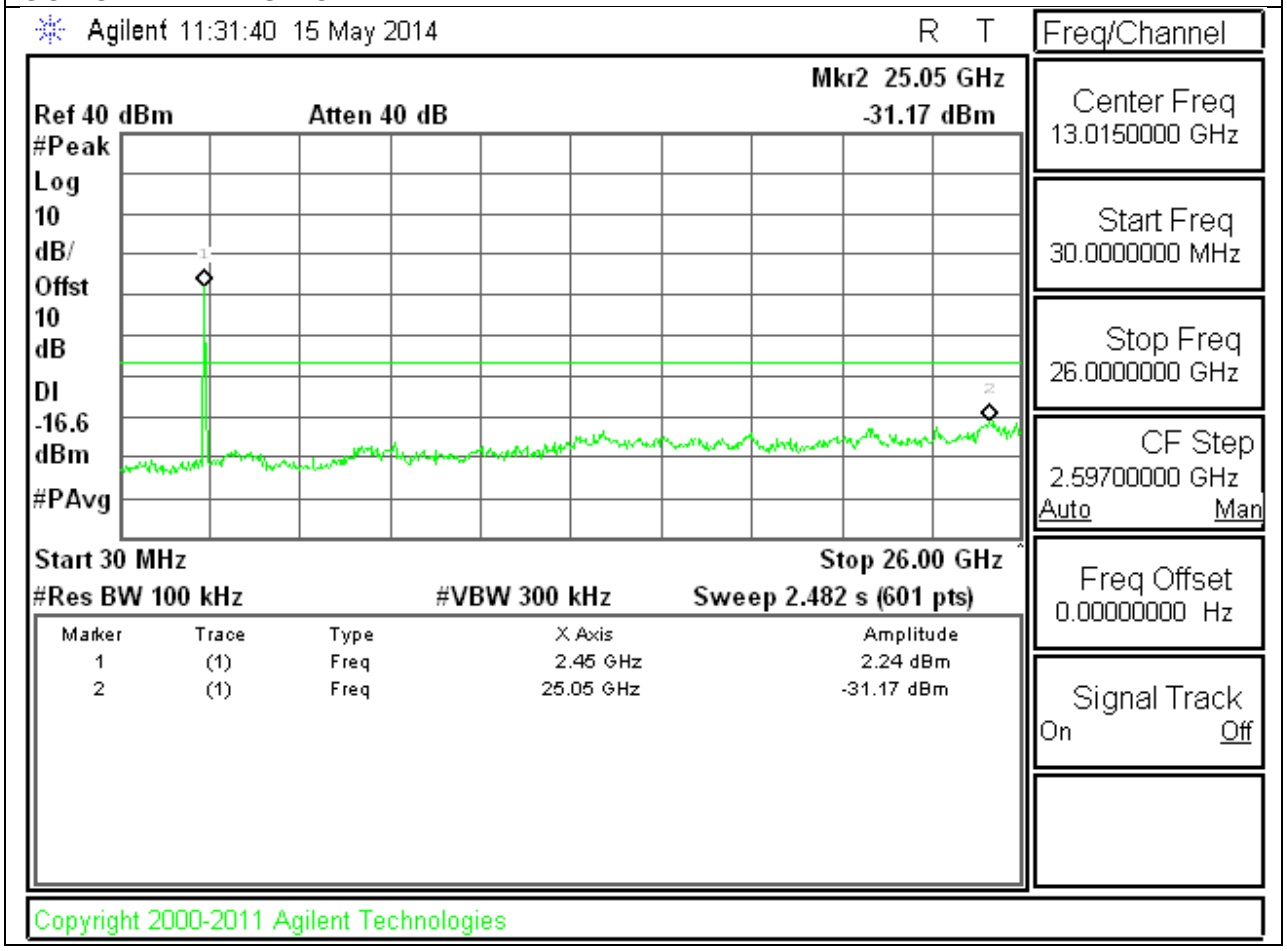
OUT OF BAND LOW CH



OUT OF BAND MID CH



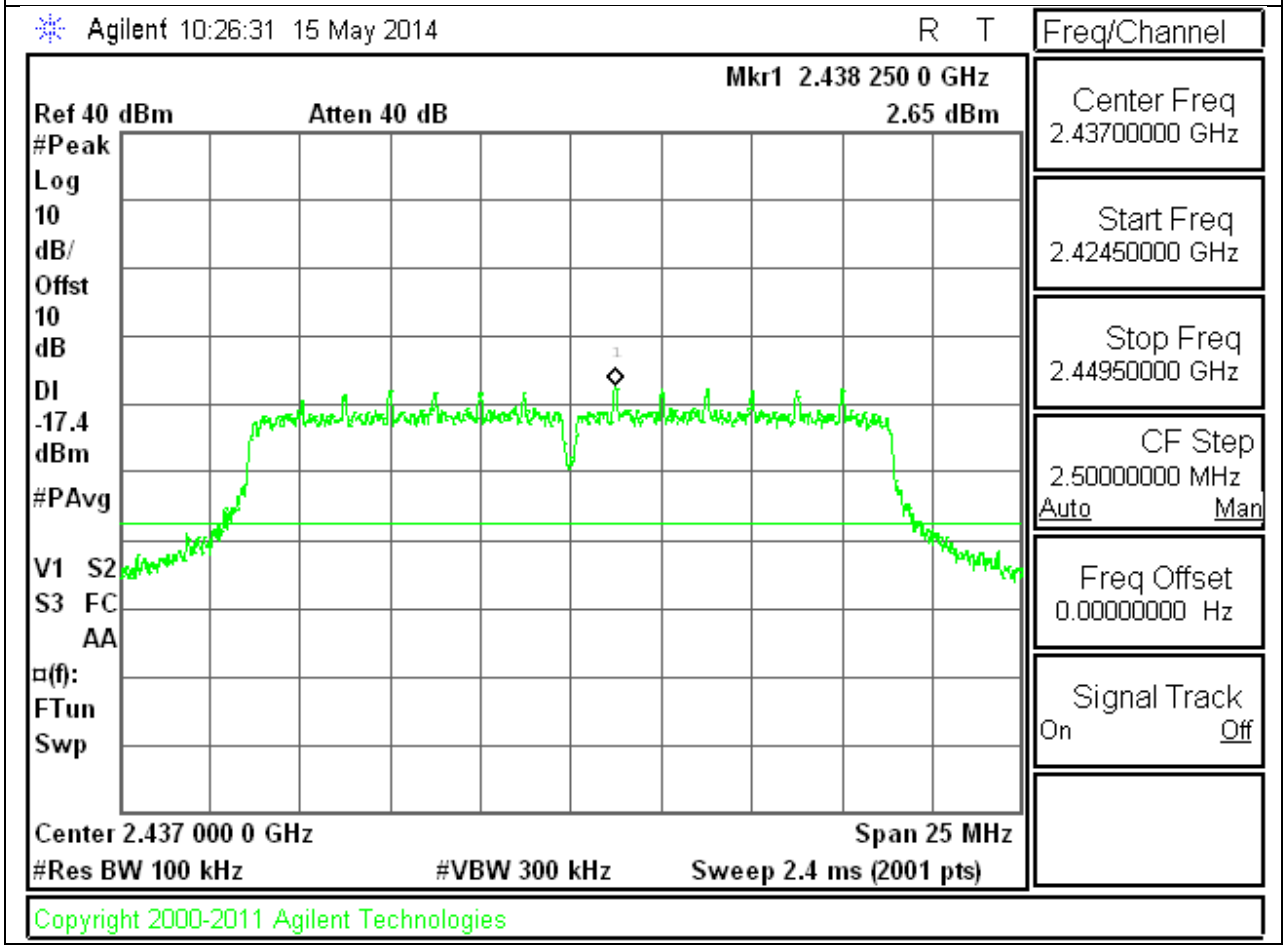
OUT OF BAND HIGH CH



9.6.3. 802.11n MODE IN THE 2.4 GHz BAND

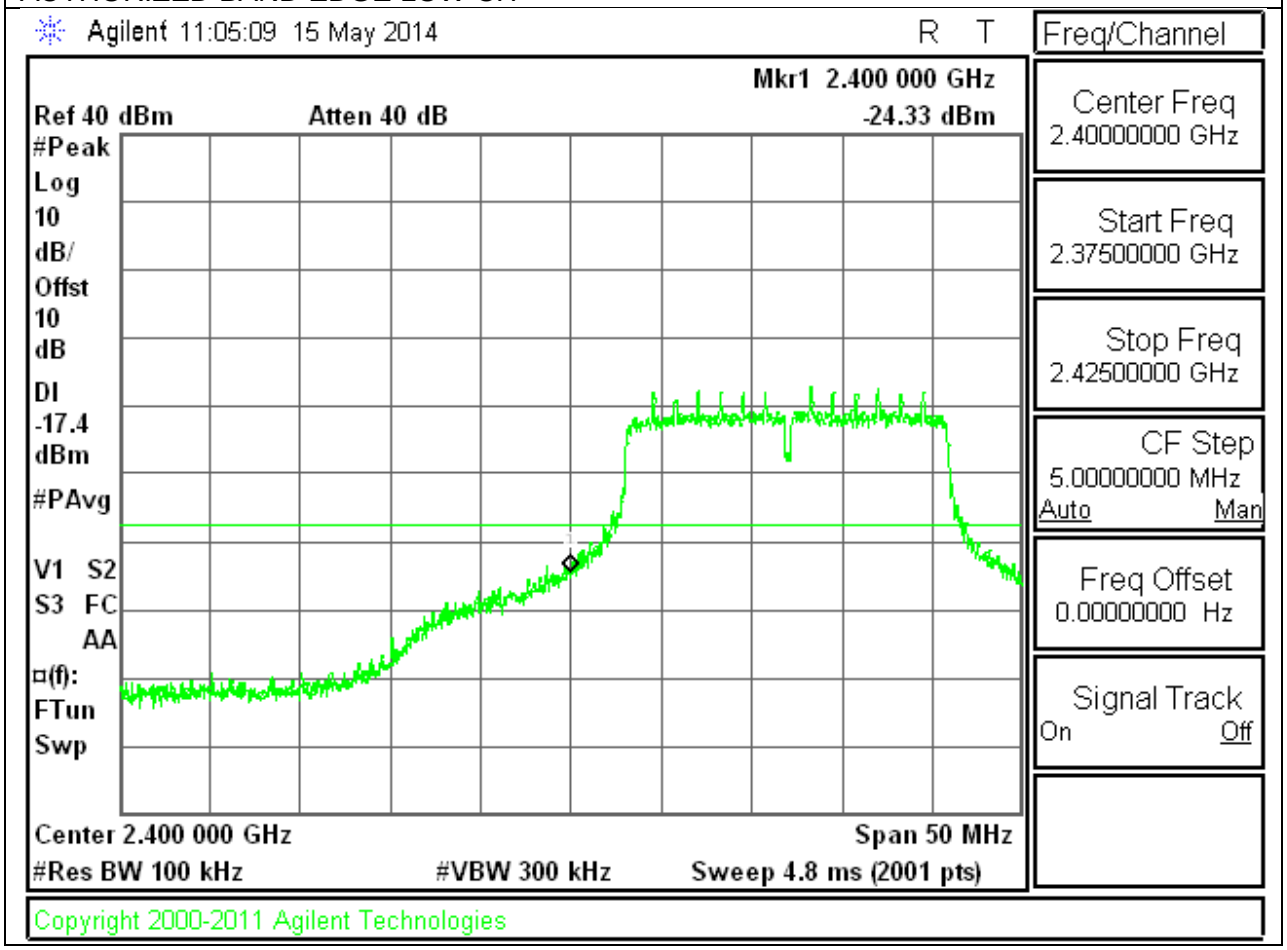
IN-BAND REFERENCE LEVEL

REFERENCE LEVEL MID CH



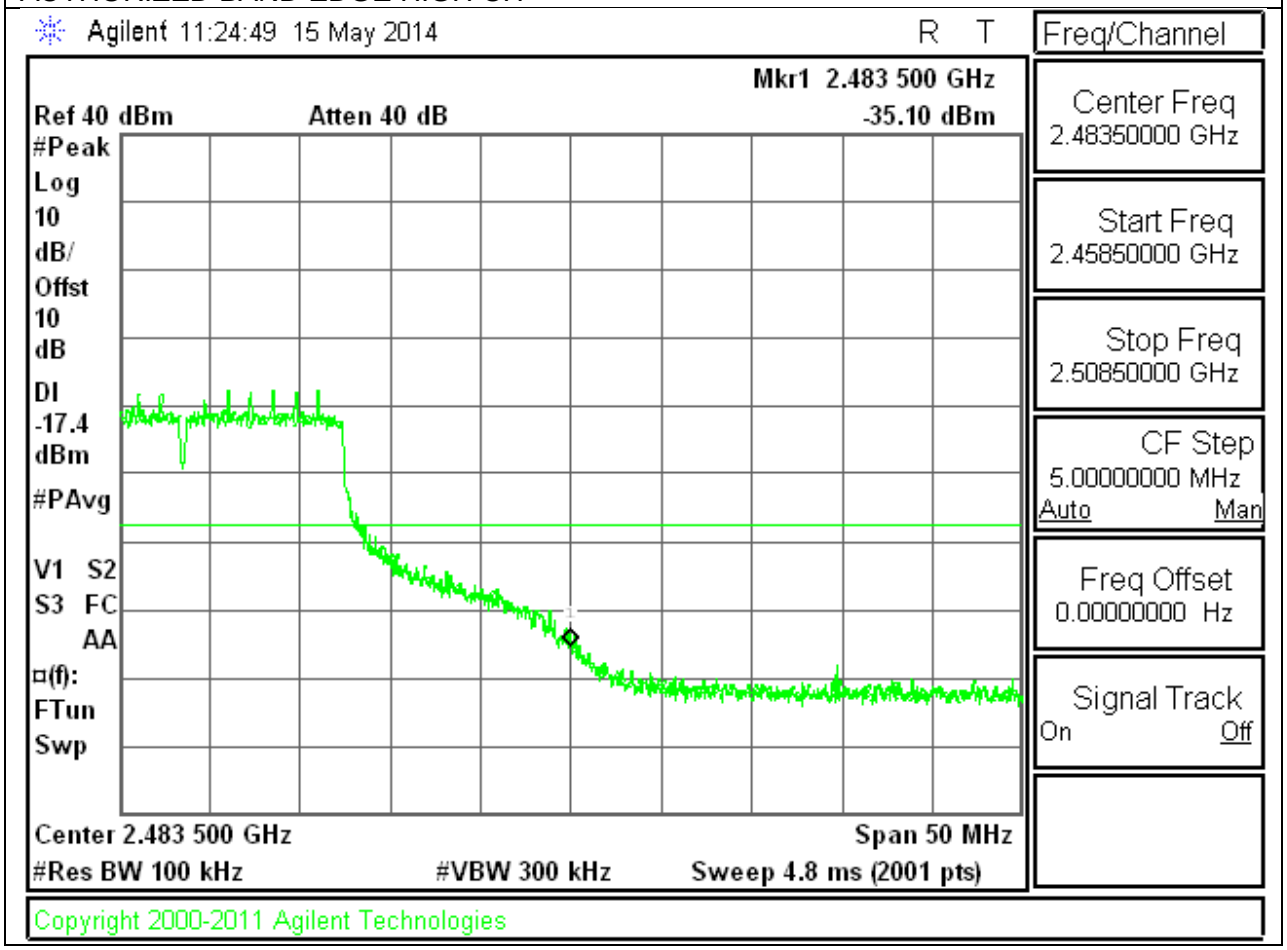
LOW CHANNEL BANDEDGE

AUTHORIZED BAND EDGE LOW CH



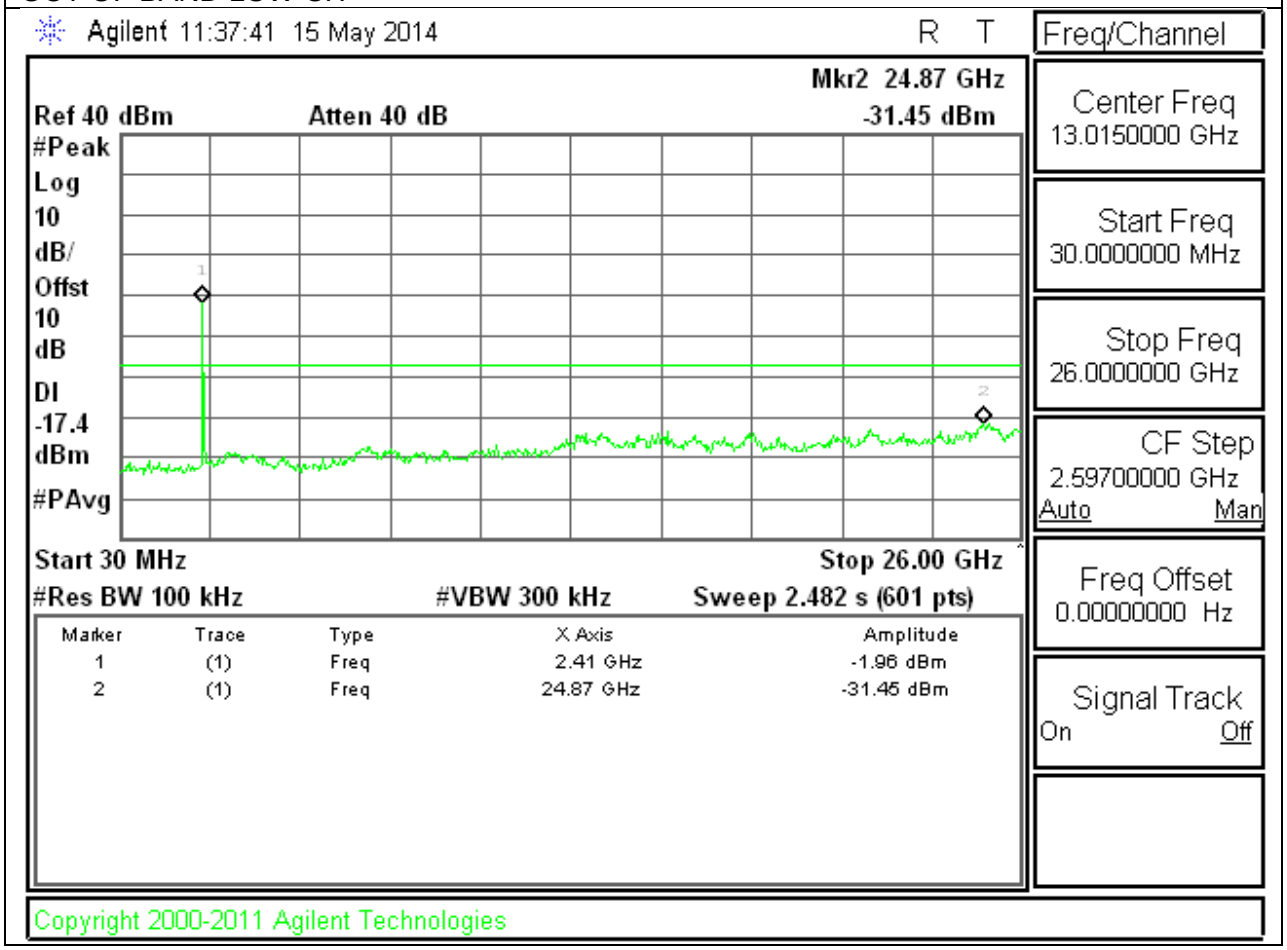
HIGH CHANNEL BANDEDGE

AUTHORIZED BAND EDGE HIGH CH

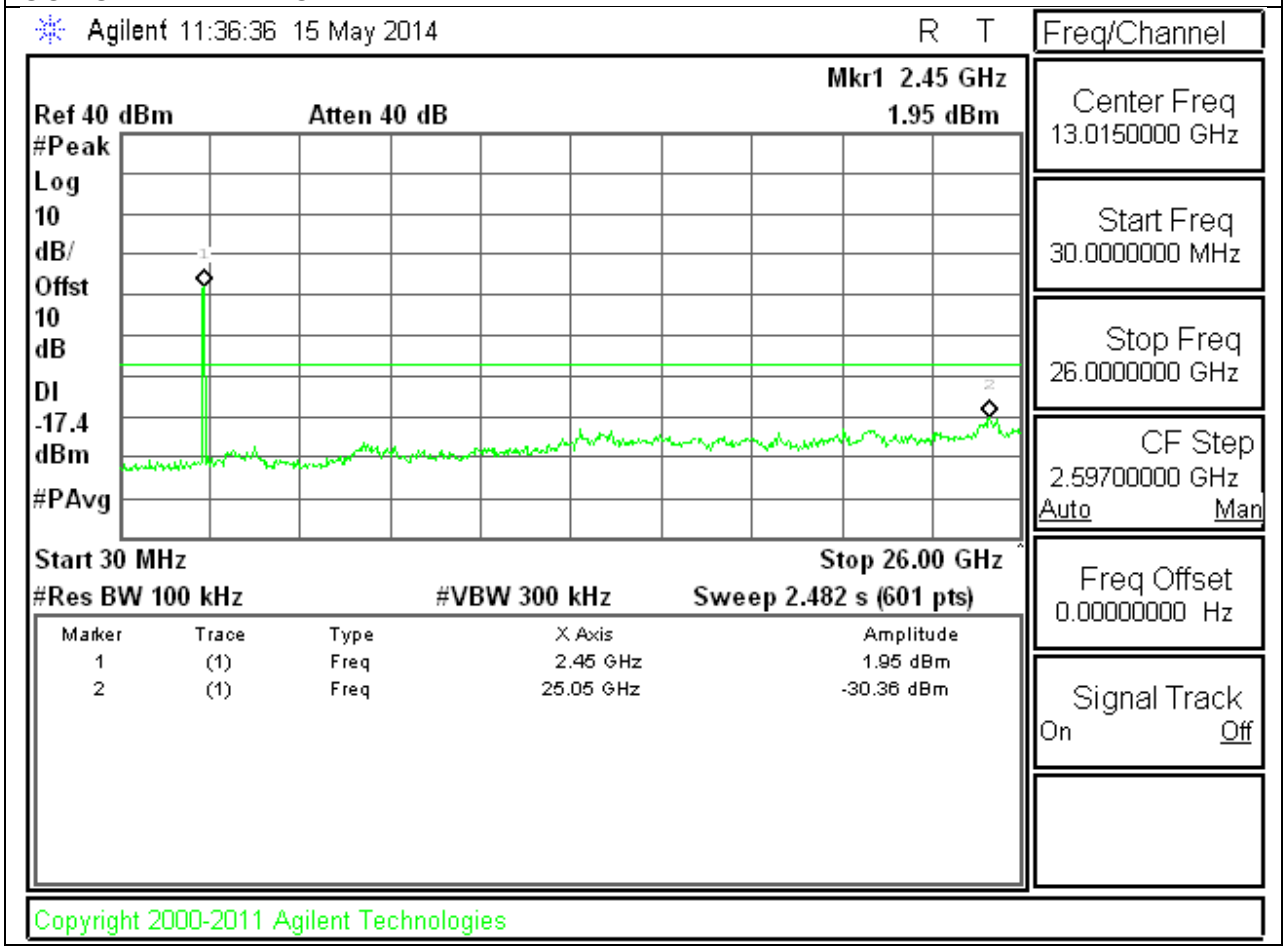


OUT-OF-BAND EMISSIONS

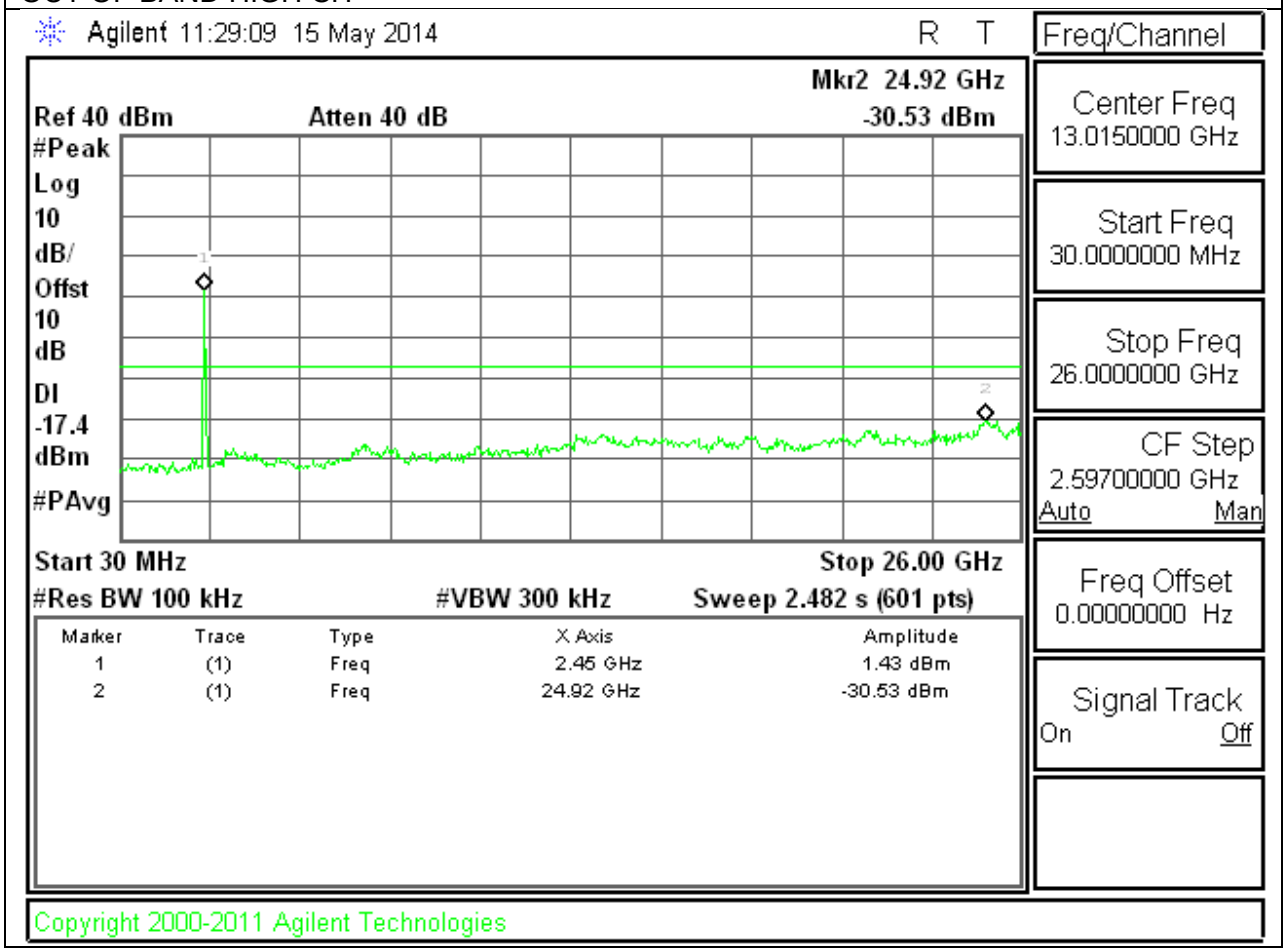
OUT OF BAND LOW CH



OUT OF BAND MID CH



OUT OF BAND HIGH CH



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 = 0.2dB; N mode = 0.22dB.

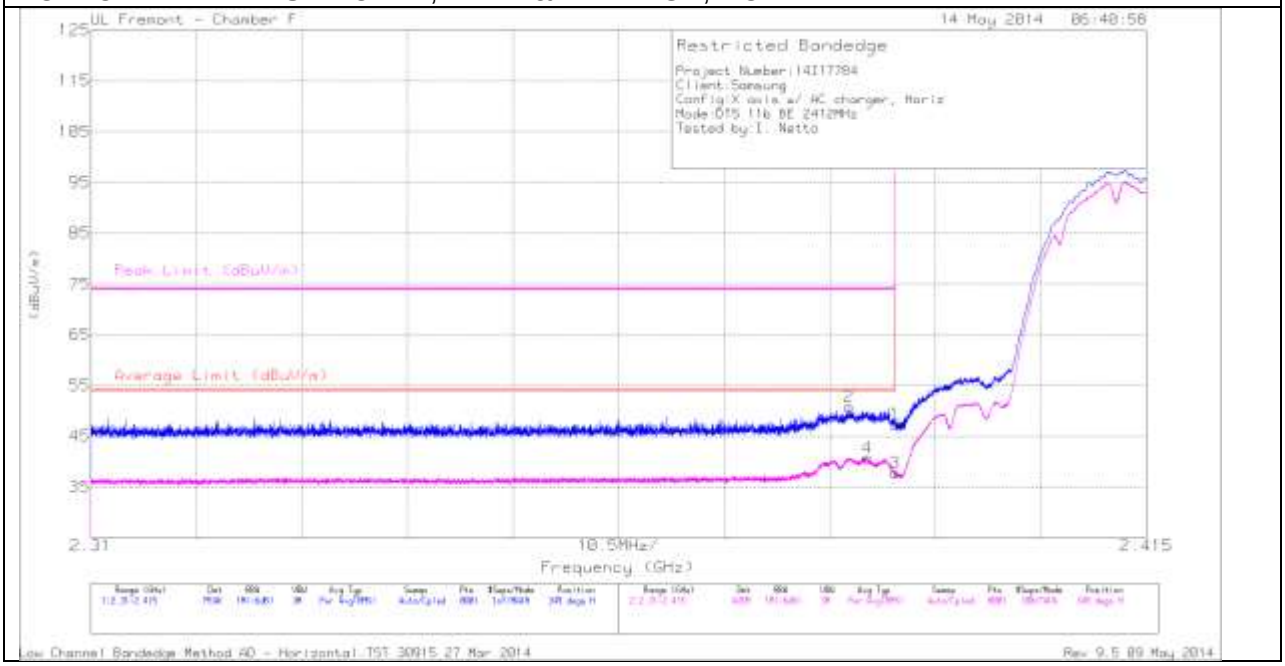
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.

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



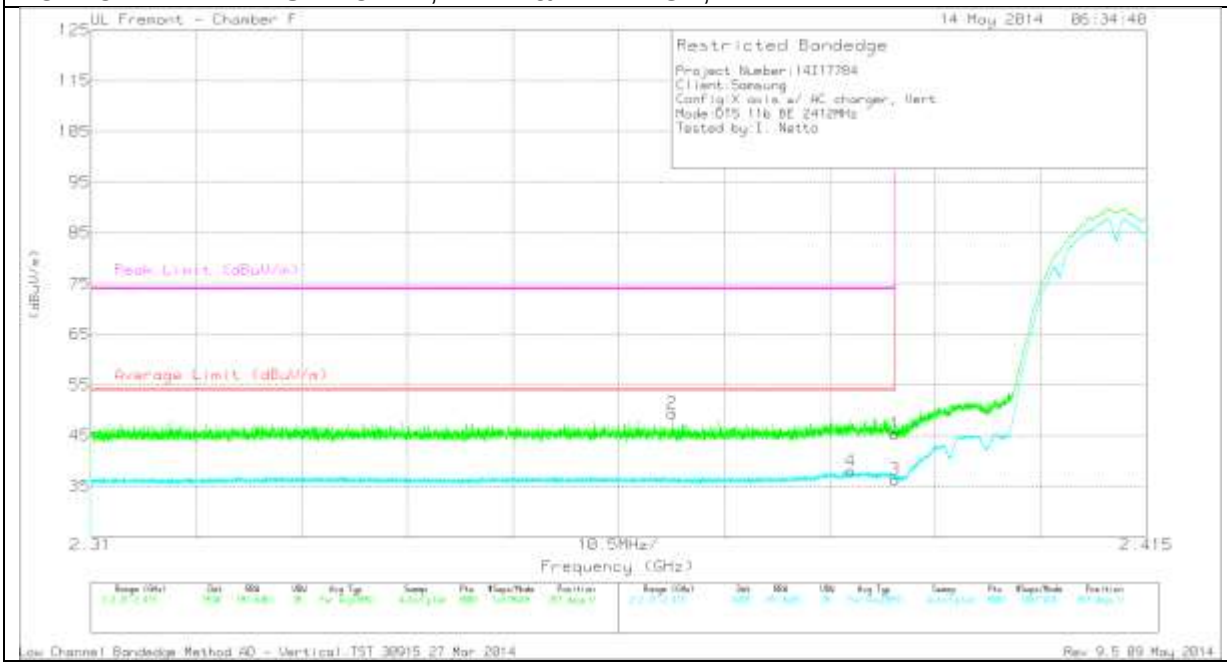
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	38.97	PK	32.2	-23.8	0	47.37	-	-	74	-26.63	349	336	H
2	* 2.385	42.45	PK	32.1	-23.8	0	50.75	-	-	74	-23.25	349	336	H
3	* 2.39	29.24	RMS	32.2	-23.8	0	37.74	54	-16.26	-	-	349	336	H
4	* 2.387	32.27	RMS	32.2	-23.8	0	40.77	54	-13.23	-	-	349	336	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 T120 (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	36.99	PK	32.2	-23.8	0	45.39	-	-	74	-28.61	357	283	V
2	* 2.368	41.2	PK	32.1	-23.9	0	49.4	-	-	74	-24.6	357	283	V
3	* 2.39	27.84	RMS	32.2	-23.8	0	36.34	54	-17.66	-	-	357	283	V
4	* 2.386	29.58	RMS	32.1	-23.8	0	37.99	54	-16.01	-	-	357	283	V

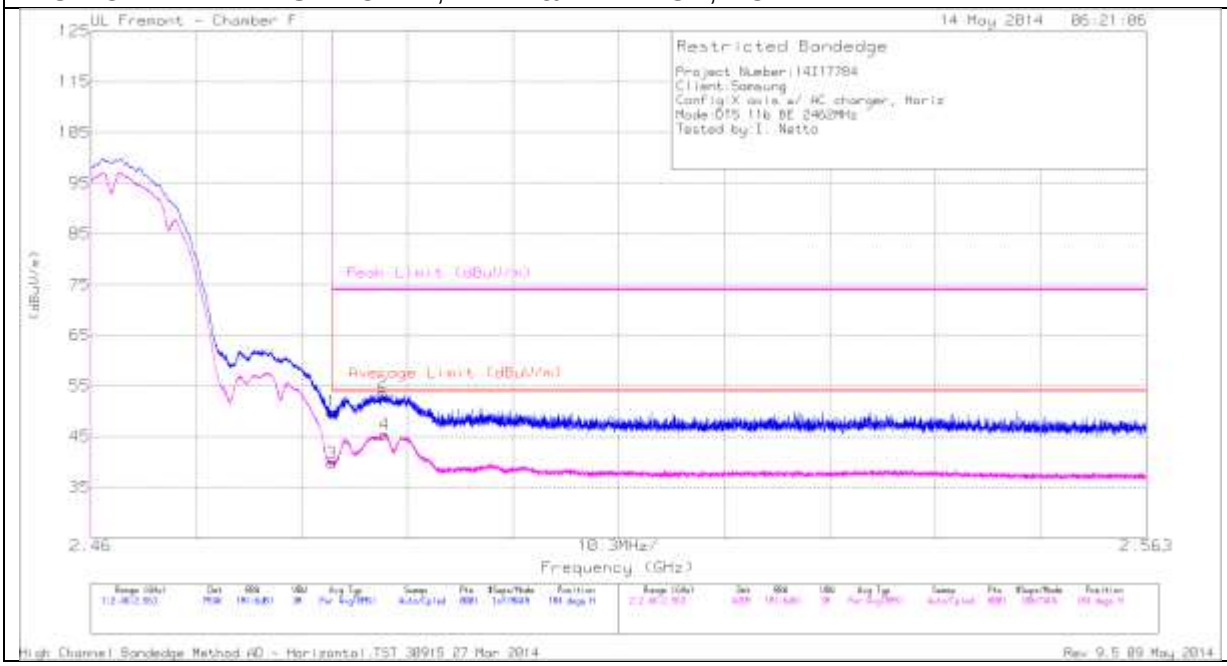
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HIGH CHANNEL RESTRICTED, PEAK & AVERAGE, HORIZ



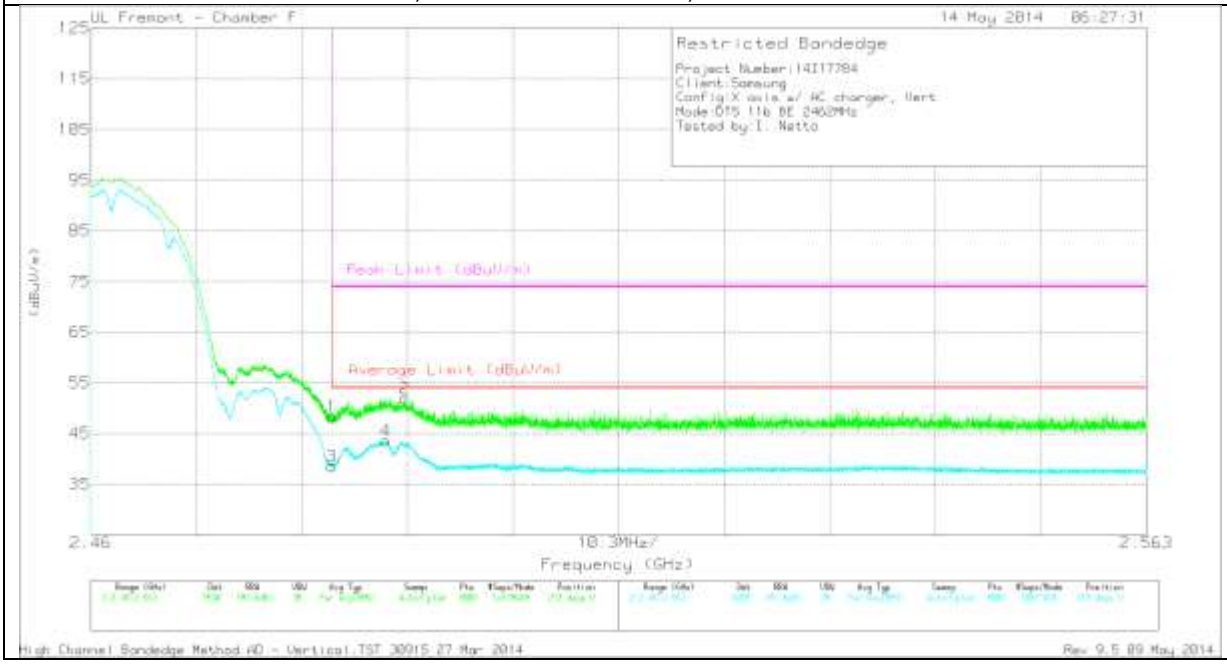
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	40.14	PK	32.6	-23	0	49.74	-	-	74	-24.26	184	209	H
2	* 2.488	43.84	PK	32.6	-22.8	0	53.64	-	-	74	-20.36	184	209	H
3	* 2.484	30	RMS	32.6	-23	0	39.7	54	-14.3	-	-	184	209	H
4	* 2.489	35.56	RMS	32.6	-22.8	0	45.46	54	-8.54	-	-	184	209	H

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

PK - Peak detector

RMS - RMS detection

HIGH CHANNEL BANDEDGE, PEAK & AVERAGE, VERT



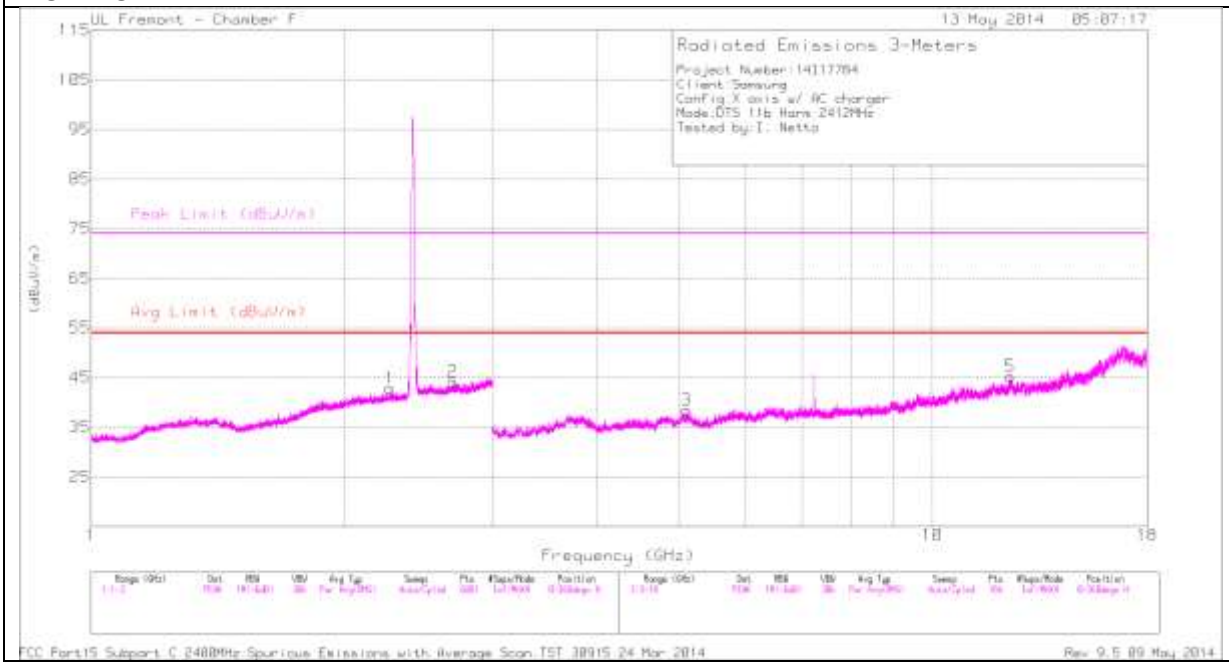
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (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	38.75	PK	32.6	-23	0	48.35	-	-	74	-25.65	212	257	V
2	* 2.491	42.15	PK	32.6	-22.9	0	51.85	-	-	74	-22.15	212	257	V
3	* 2.484	28.82	RMS	32.6	-23	0	38.52	54	-15.48	-	-	212	257	V
4	* 2.489	33.67	RMS	32.6	-22.8	0	43.57	54	-10.43	-	-	212	257	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK - Peak detector
RMS - RMS detection

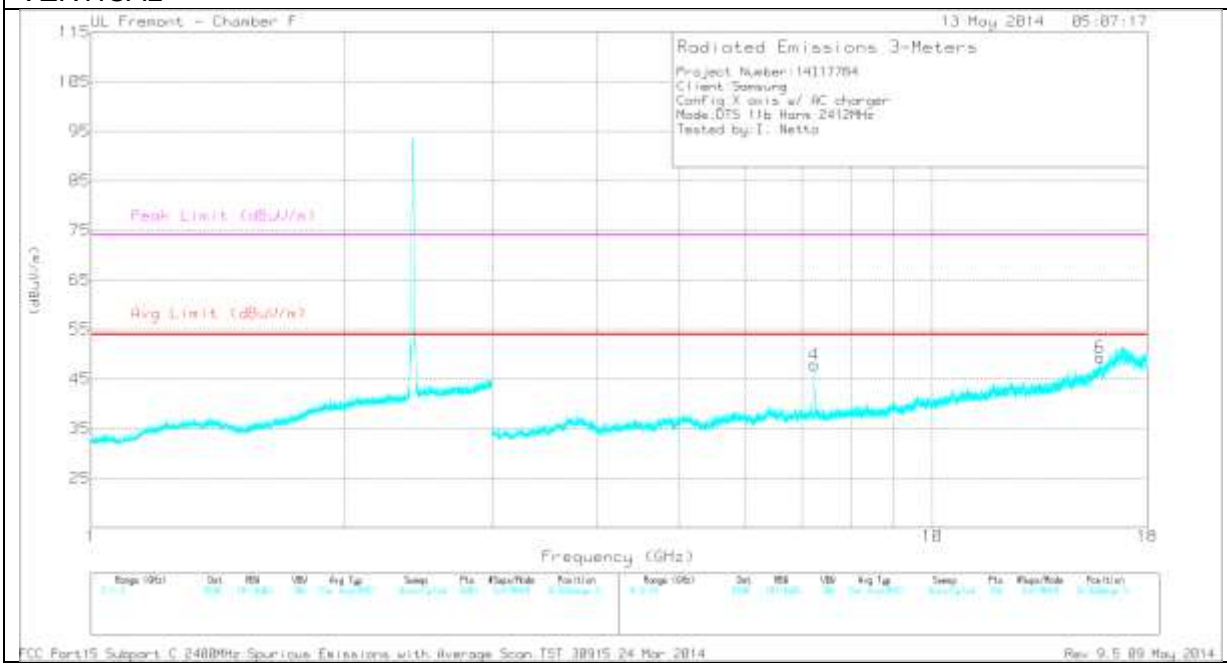
HARMONICS AND SPURIOUS EMISSIONS

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 T120 (dB/m)	Amp/Cbl/Fltr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.265	34.55	PK	31.8	-23.5	0	42.85	-	-	74	-31.15	0-360	101	H
2	* 2.692	34.23	PK	32.7	-22.7	0	44.23	-	-	74	-29.77	0-360	200	H
3	* 5.107	31.31	PK	34.3	-27.1	0	38.51	-	-	74	-35.49	0-360	201	H
5	* 12.362	27.98	PK	38.9	-21.6	0	45.28	-	-	74	-28.72	0-360	201	H
4	7.237	38.85	PK	35.5	-26.5	0	47.85	-	-	-	-	0-360	101	V
6	* 15.823	29.23	PK	40.4	-20.2	0	49.43	-	-	74	-24.57	0-360	101	V

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

PK - Peak detector

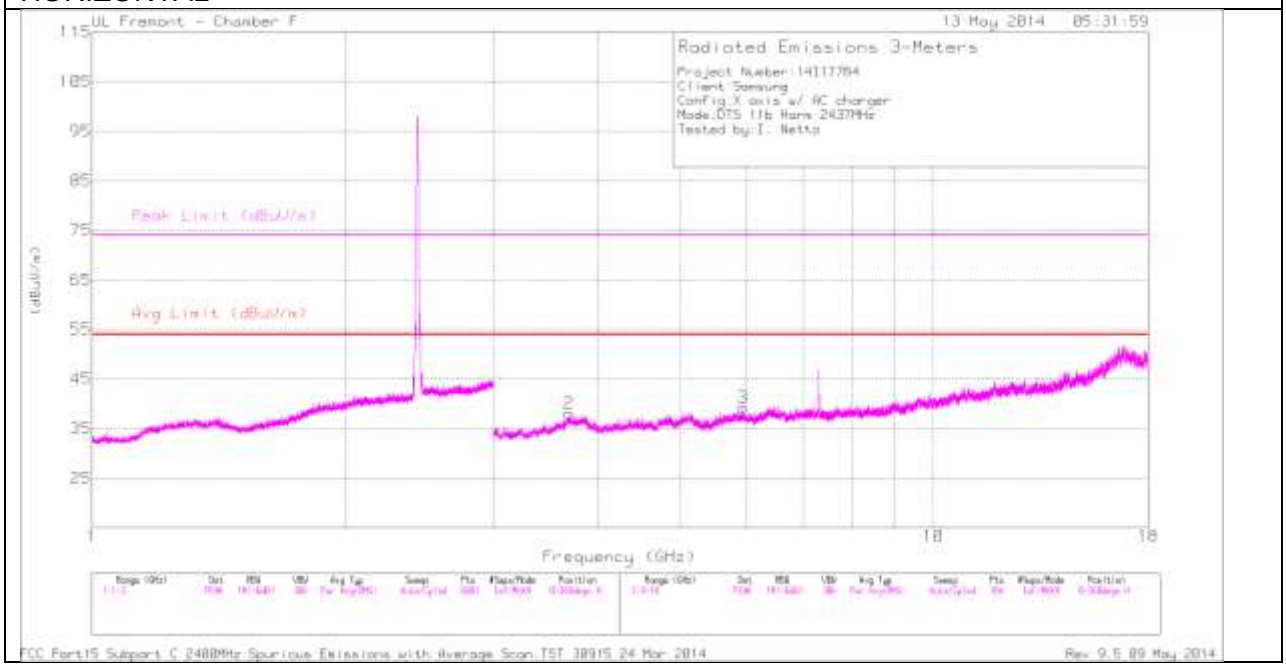
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.267	41.34	PK2	31.8	-23.5	0	49.64	-	-	74	-24.36	0	100	H
* 2.691	41.56	PK2	32.7	-22.7	0	51.56	-	-	74	-22.44	0	100	H
* 5.106	37.01	PK2	34.3	-27.1	0	44.21	-	-	74	-29.79	0	100	H
* 12.36	35.33	PK2	38.9	-21.7	0	52.53	-	-	74	-21.47	0	100	H
* 15.825	36.46	PK2	40.4	-20.4	0	56.46	-	-	74	-17.54	0	100	V
7.236	48.01	PK2	35.5	-26.5	0	57.01	-	-	-	-	28	301	V
7.237	42.01	MAv1	35.5	-26.5	0	51.11	-	-	-	-	28	301	V

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

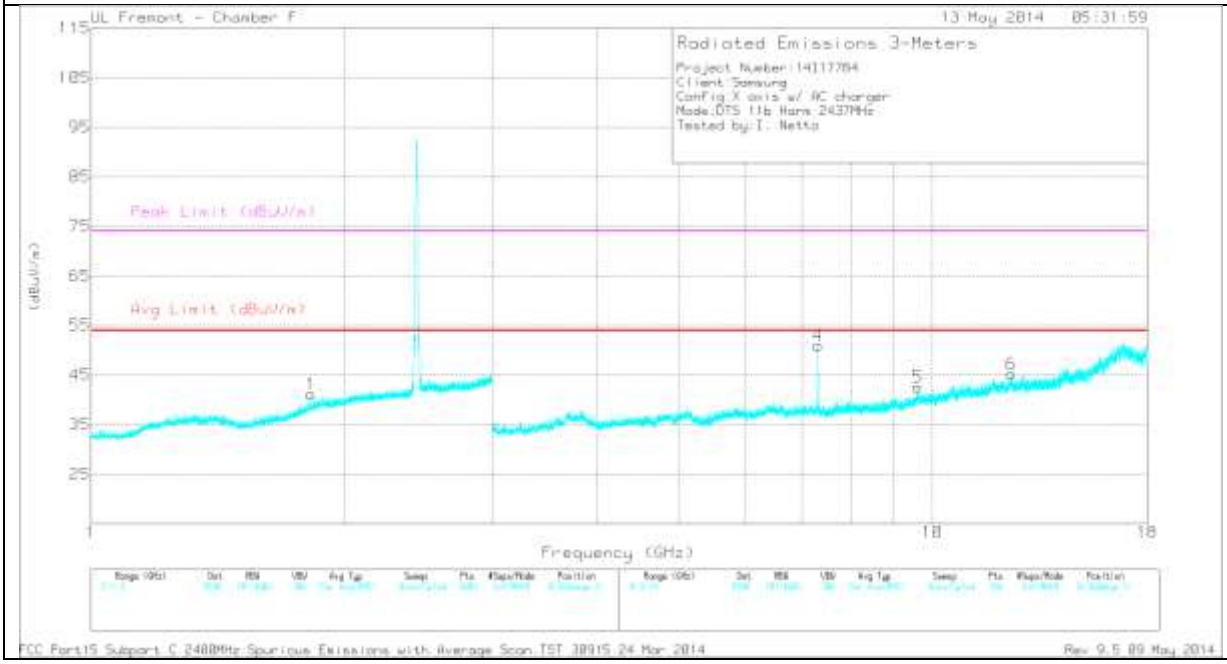
PK2 - KDB558074 Method: Maximum Peak

MID CHANNEL
HORIZONTAL



Note: Emission was scanned up to 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 T120 (dB/m)	Amp/Cbl/Fltr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.826	35	PK	30.6	-24.4	0	41.2	-	-	-	-	0-360	101	V
2	* 3.689	32.51	PK	34.9	-29.3	0	38.11	-	-	74	-35.89	0-360	200	H
3	5.937	32.04	PK	35.2	-28	0	39.24	-	-	-	-	0-360	200	H
4	* 7.311	41.89	PK	35.6	-26.6	0	50.89	-	-	74	-23.11	0-360	101	V
5	9.602	27.01	PK	36.9	-21.3	0	42.61	-	-	-	-	0-360	201	V
6	* 12.415	28.1	PK	38.9	-21.8	0	45.2	-	-	74	-28.8	0-360	201	V

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

PK - Peak detector

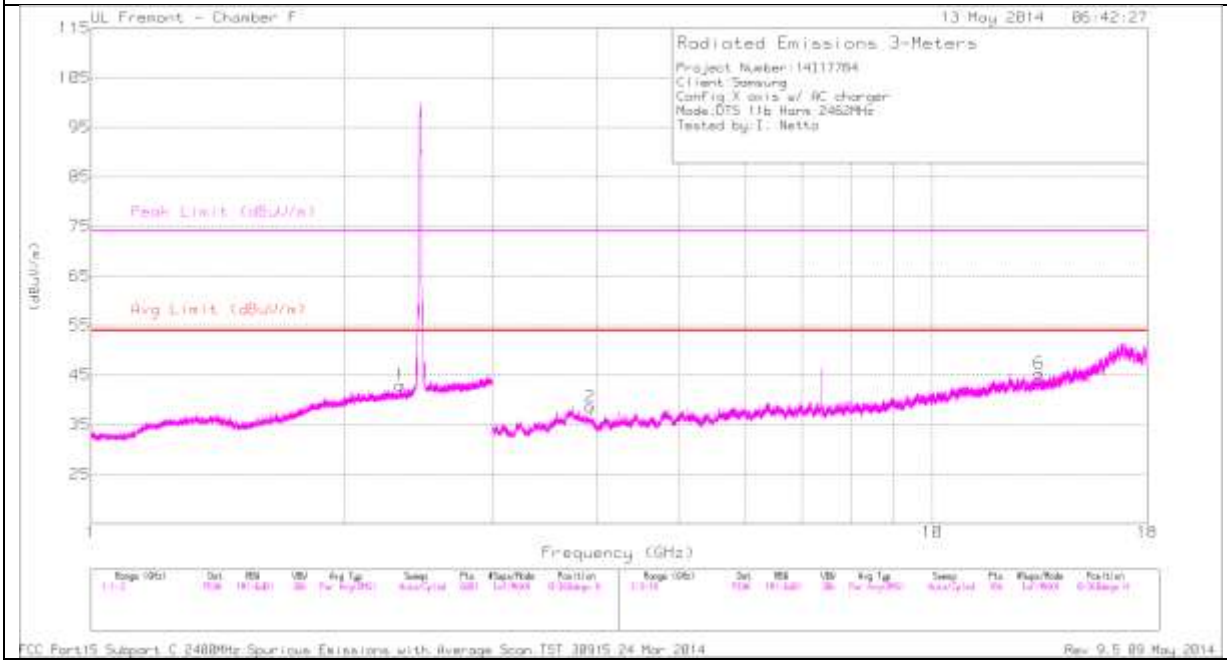
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.825	41.44	PK2	30.5	-24.4	0	47.54	-	-	-	-	2	101	V
* 3.689	38.12	PK2	34.9	-29.3	0	43.72	-	-	74	-30.28	2	101	H
5.938	38.07	PK2	35.2	-27.9	0	45.37	-	-	-	-	2	101	H
9.6	34.72	PK2	36.9	-21.4	0	50.22	-	-	-	-	2	101	V
* 12.414	35.66	PK2	38.9	-21.8	0	52.76	-	-	74	-21.24	2	101	V
* 7.311	48.9	PK2	35.6	-26.6	0	57.9	-	-	74	-16.1	31	374	V
* 7.312	43.9	MAv1	35.6	-26.6	0	53	54	-1	-	-	31	374	V

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

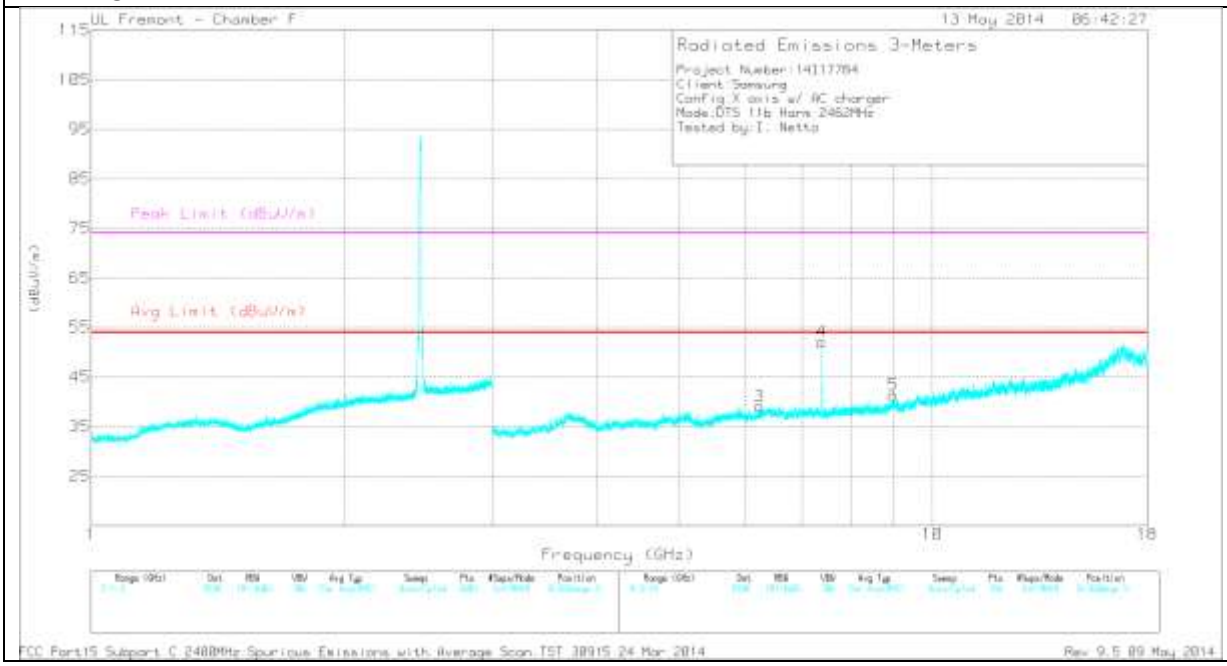
PK2 - KDB558074 Method: Maximum Peak

HIGH CHANNEL
HORIZONTAL



Note: Emission was scanned up to 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 T120 (dB/m)	Amp/Cbl/Fltr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.332	34.53	PK	31.9	-23.5	0	42.93	-	-	74	-31.07	0-360	263	H
2	* 3.922	34.12	PK	33.9	-29.4	0	38.62	-	-	74	-35.38	0-360	101	H
6	* 13.384	29.05	PK	39.1	-22.8	0	45.35	-	-	74	-28.65	0-360	101	H
3	6.227	31.17	PK	35.5	-27.5	0	39.17	-	-	-	-	0-360	101	V
4	* 7.387	42.39	PK	35.6	-25.9	0	52.09	-	-	74	-21.91	0-360	201	V
5	8.988	28.26	PK	36.1	-22.9	0	41.46	-	-	-	-	0-360	101	V

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

PK - Peak detector

Radiated Emissions

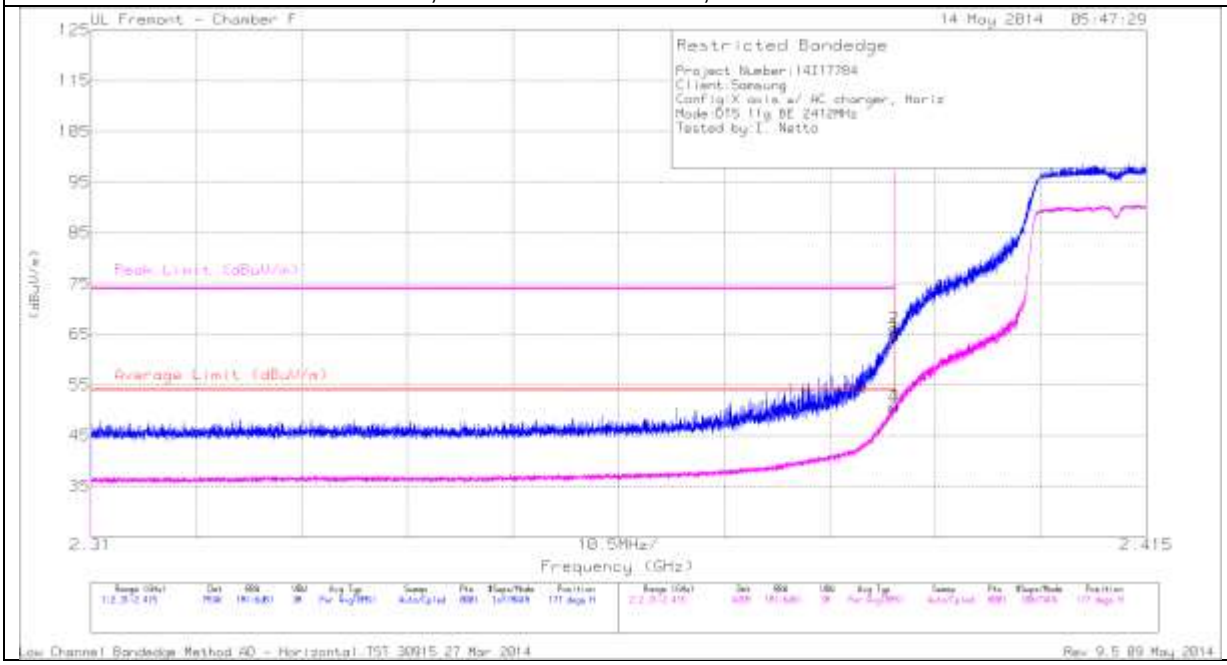
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.33	41.76	PK2	31.9	-23.5	0	50.16	-	-	74	-23.84	69	202	H
* 3.922	39.06	PK2	33.9	-29.4	0	43.56	-	-	74	-30.44	69	202	H
13.838	36.78	PK2	38.7	-22.8	0	52.68	-	-	-	-	69	202	H
* 7.386	47.91	PK2	35.6	-25.9	0	57.61	-	-	74	-16.39	69	202	V
* 7.387	42.57	MAv1	35.6	-25.9	0	52.27	54	-1.73	-	-	69	202	V
6.228	38.29	PK2	35.5	-27.5	0	46.29	-	-	-	-	69	202	V
8.986	35.27	PK2	36.1	-23	0	48.37	-	-	-	-	69	202	V

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

PK2 - KDB558074 Method: Maximum Peak

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



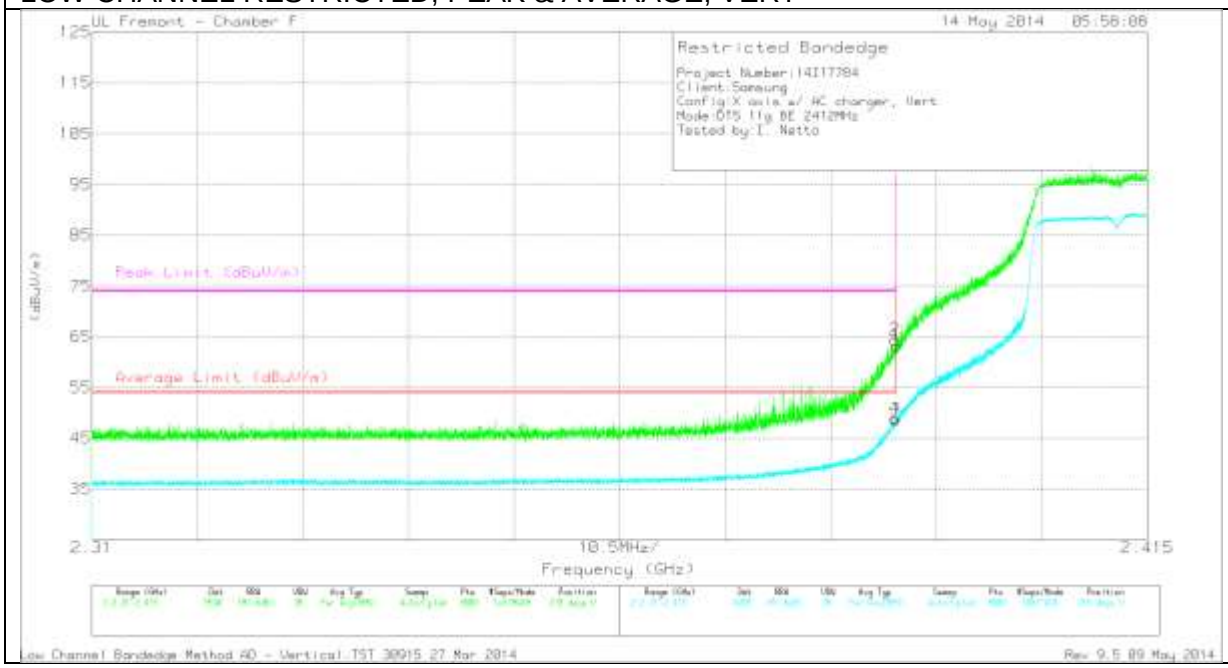
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	56.61	PK	32.2	-23.8	0	65.01	-	-	74	-8.99	177	234	H
2	* 2.39	57.84	PK	32.2	-23.8	0	66.24	-	-	74	-7.76	177	234	H
3	* 2.39	42.04	RMS	32.2	-23.8	.2	50.64	54	-3.36	-	-	177	234	H
4	* 2.39	42.11	RMS	32.2	-23.8	.2	50.71	54	-3.29	-	-	177	234	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 T120 (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	54.86	PK	32.2	-23.8	0	63.26	-	-	74	-10.74	219	297	V
2	* 2.39	56.05	PK	32.2	-23.8	0	64.45	-	-	74	-9.55	219	297	V
3	* 2.39	40.11	RMS	32.2	-23.8	.2	48.71	54	-5.29	-	-	219	297	V
4	* 2.39	40.21	RMS	32.2	-23.8	.2	48.81	54	-5.19	-	-	219	297	V

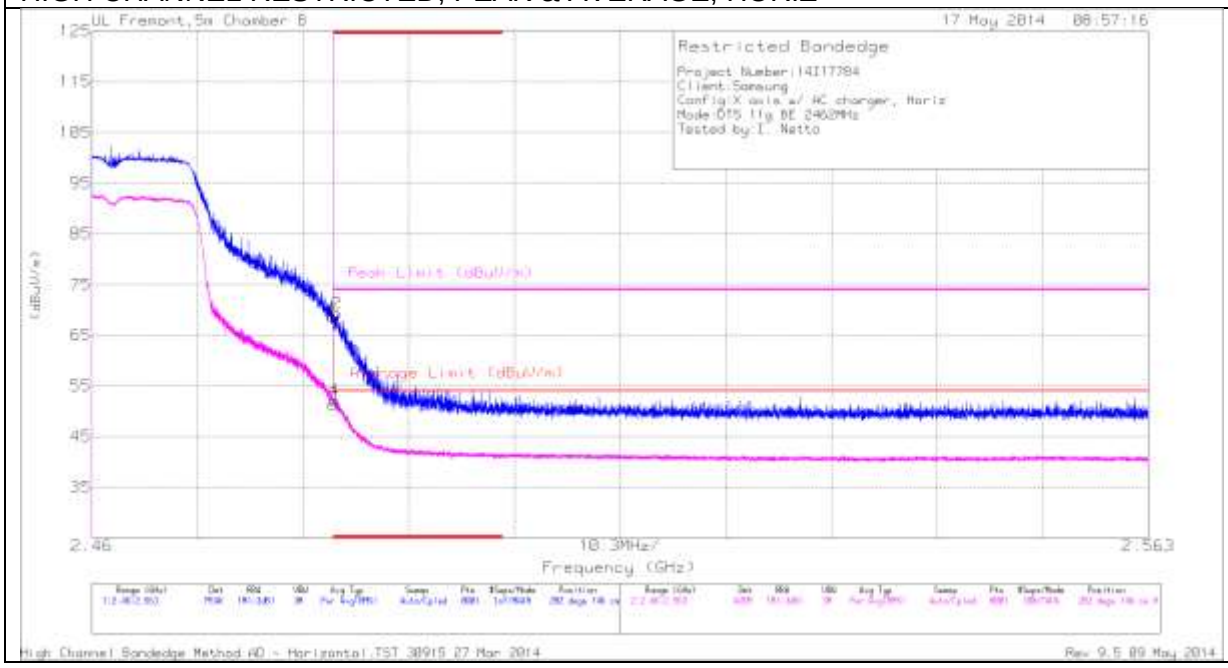
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HIGH CHANNEL RESTRICTED, PEAK & AVERAGE, HORIZ



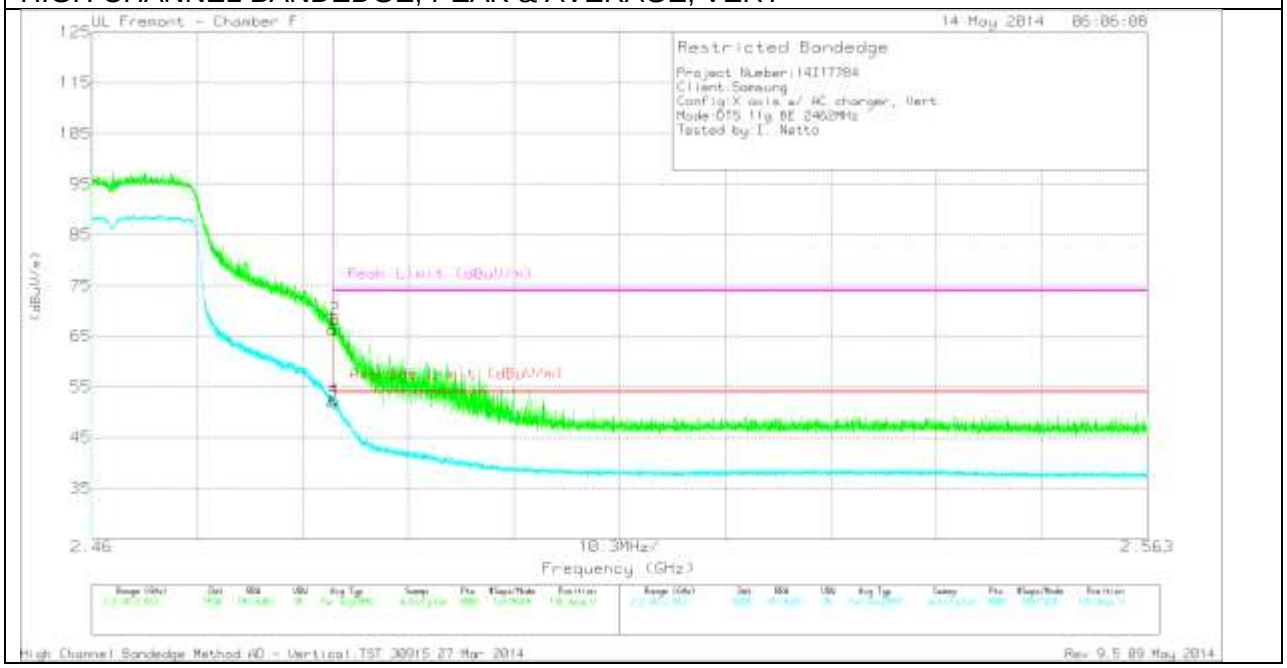
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	58.81	PK	32.4	-22.7	0	68.51	-	-	74	-5.49	282	146	H
2	* 2.484	59.64	PK	32.4	-22.7	0	69.34	-	-	74	-4.66	282	146	H
3	* 2.484	41.68	RMS	32.4	-22.7	.3	51.68	54	-2.32	-	-	282	146	H
4	* 2.484	42.41	RMS	32.4	-22.7	.3	52.41	54	-1.59	-	-	282	146	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 T120 (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	56.65	PK	32.6	-23	0	66.25	-	-	74	-7.75	136	389	V
2	* 2.484	58.83	PK	32.6	-23	0	68.43	-	-	74	-5.57	136	389	V
3	* 2.484	42.14	RMS	32.6	-23	.2	51.94	54	-2.06	-	-	136	389	V
4	* 2.484	42.65	RMS	32.6	-23	.2	52.45	54	-1.55	-	-	136	389	V

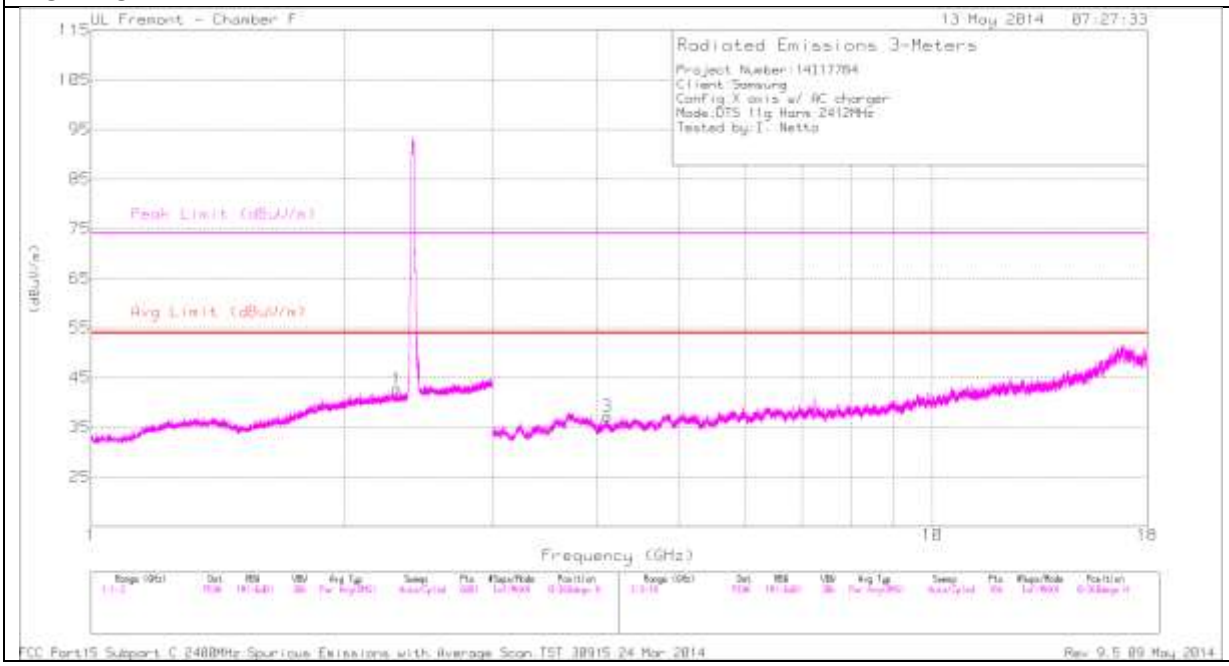
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

RMS - RMS detection

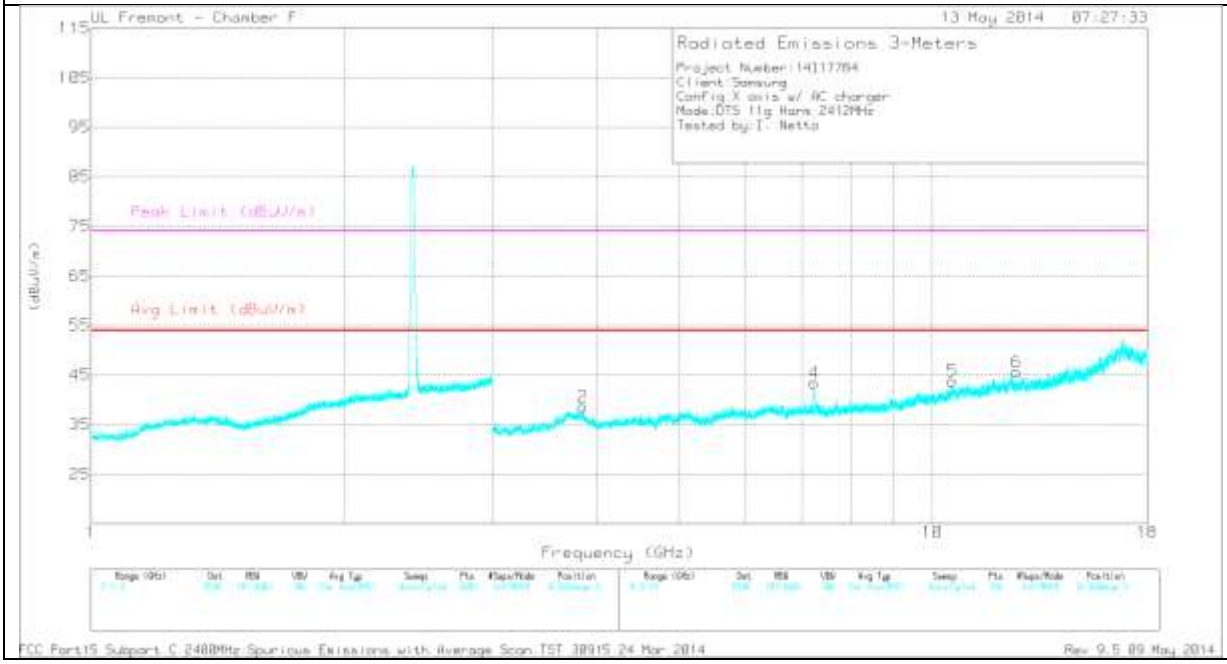
HARMONICS AND SPURIOUS EMISSIONS

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 T120 (dB/m)	Amp/Cbl/Fltr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.31	34.34	PK	31.8	-23.5	0	42.64	-	-	-	-	0-360	344	H
3	* 4.109	32.38	PK	33.7	-28.8	0	37.28	-	-	74	-36.72	0-360	101	H
2	* 3.845	33.43	PK	34.2	-29	0	38.63	-	-	74	-35.37	0-360	201	V
4	7.233	34.6	PK	35.5	-26.6	0	43.5	-	-	-	-	0-360	101	V
5	10.565	26.96	PK	37.8	-20.9	0	43.86	-	-	-	-	0-360	201	V
6	* 12.583	29.2	PK	39.1	-22.7	0	45.6	-	-	74	-28.4	0-360	201	V

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

PK - Peak detector

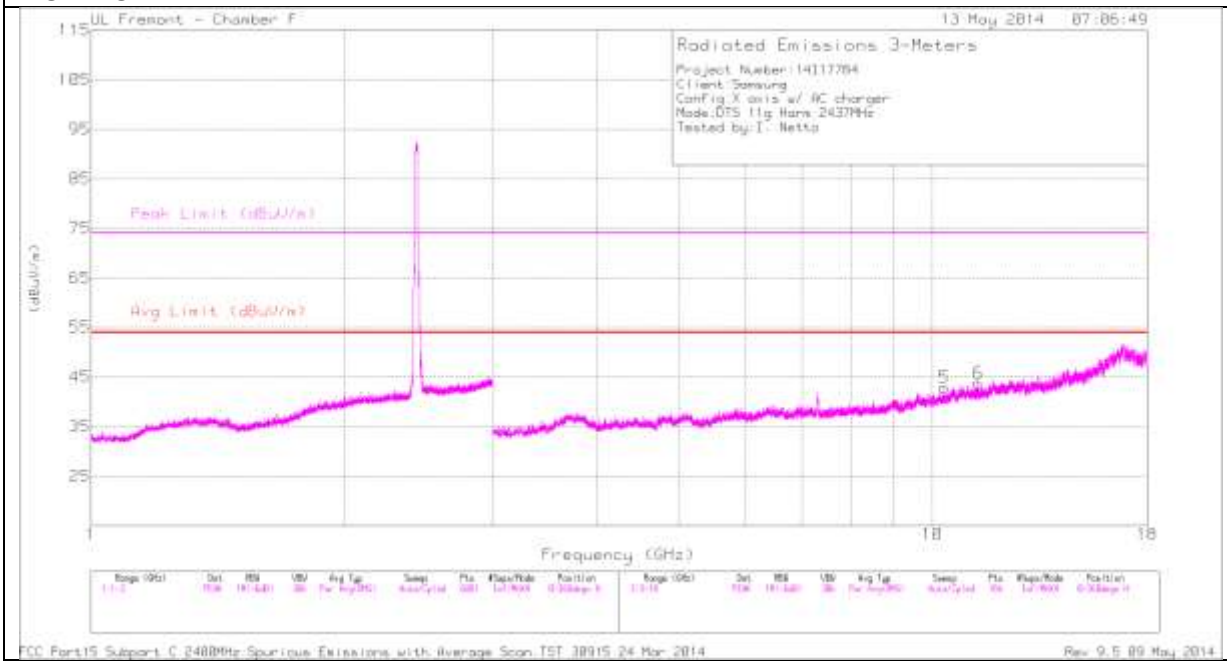
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2.31	41.74	PK2	31.8	-23.5	0	50.04	-	-	-	-	2	101	H
* 4.108	38.21	PK2	33.7	-28.8	0	43.11	-	-	74	-30.89	2	101	H
* 3.844	38.54	PK2	34.2	-29	0	43.74	-	-	74	-30.26	2	101	V
10.563	34.42	PK2	37.8	-20.9	0	51.32	-	-	-	-	2	101	V
* 12.584	35.61	PK2	39.1	-22.8	0	51.91	-	-	74	-22.09	2	101	V
7.235	40.23	PK2	35.5	-26.5	0	49.23	-	-	-	-	2	101	V
7.236	29.64	MAv1	35.5	-26.5	.2	38.84	-	-	-	-	2	101	V

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

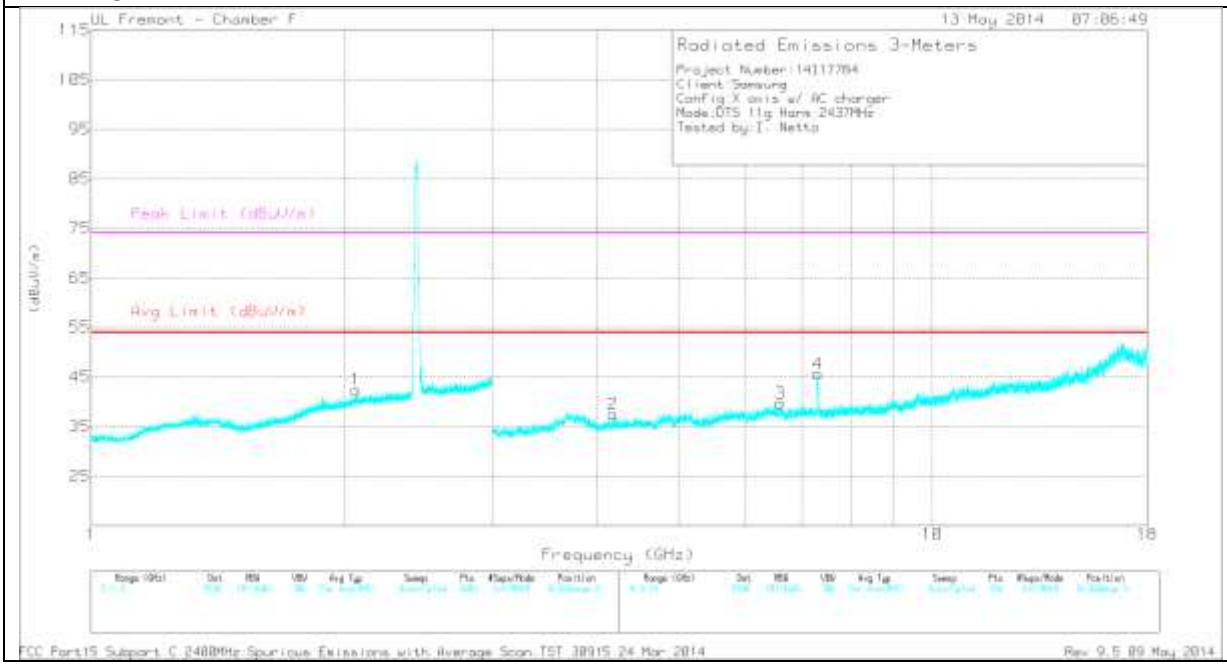
PK2 - KDB558074 Method: Maximum Peak

MID CHANNEL
HORIZONTAL



Note: Emission was scanned up to 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 T120 (dB/m)	Amp/Cbl/Fltr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.065	34.56	PK	31.8	-23.9	0	42.46	-	-	-	-	0-360	200	V
5	10.319	28.07	PK	37.2	-22.3	0	42.97	-	-	-	-	0-360	201	H
6	* 11.335	28.23	PK	38.2	-22.6	0	43.83	-	-	74	-30.17	0-360	101	H
2	* 4.176	32.31	PK	33.7	-28.5	0	37.51	-	-	74	-36.49	0-360	101	V
3	6.587	30.66	PK	35.7	-26.6	0	39.76	-	-	-	-	0-360	101	V
4	* 7.311	36.55	PK	35.6	-26.6	0	45.55	-	-	74	-28.45	0-360	101	V

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

PK - Peak detector

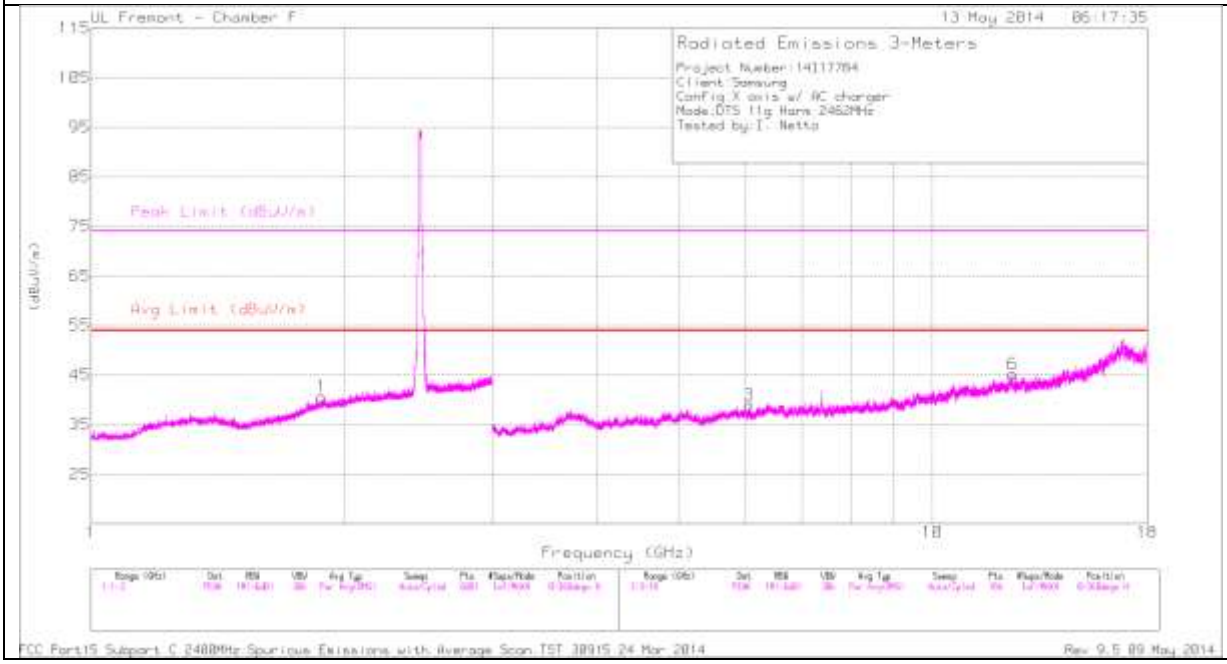
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2.063	41.77	PK2	31.8	-23.9	0	49.67	-	-	-	-	1	100	V
10.317	34.61	PK2	37.2	-22.4	0	49.41	-	-	-	-	1	100	H
* 11.335	34.72	PK2	38.2	-22.6	0	50.32	-	-	74	-23.68	1	100	H
* 4.177	37.97	PK2	33.7	-28.5	0	43.17	-	-	74	-30.83	1	100	V
6.587	38.07	PK2	35.7	-26.6	0	47.17	-	-	-	-	1	100	V
* 7.313	49.25	PK2	35.6	-26.6	0	58.25	-	-	74	-15.75	34	344	V
* 7.311	35.68	MAv1	35.6	-26.6	.2	44.88	54	-9.12	-	-	34	344	V

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

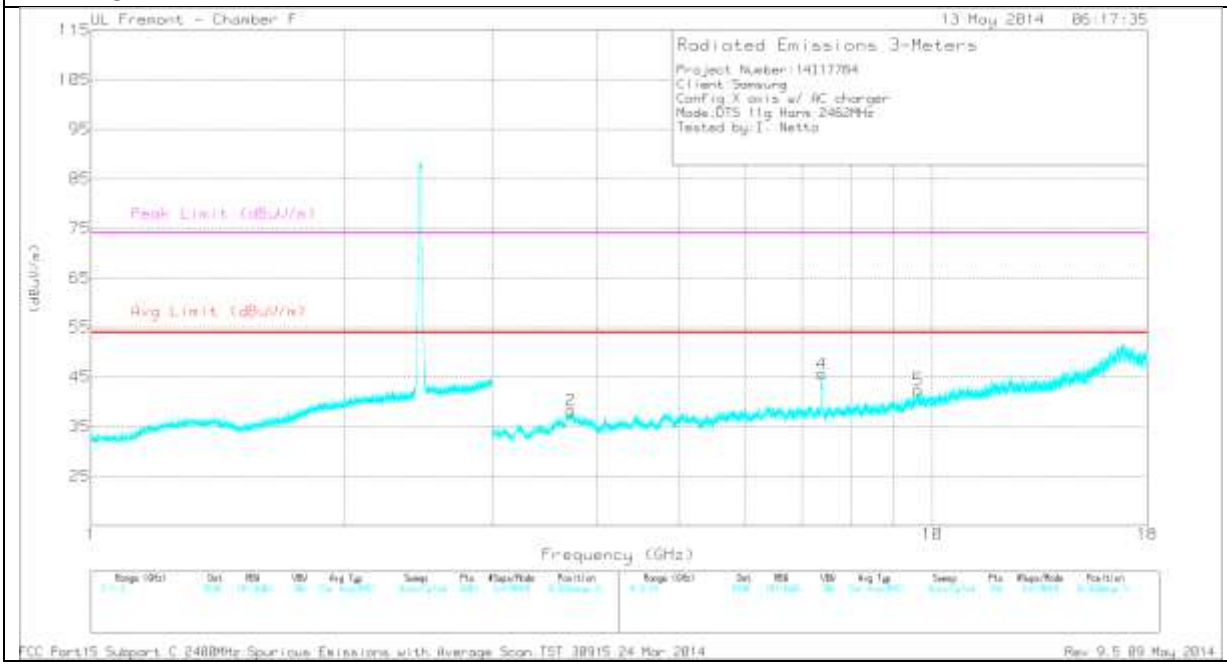
PK2 - KDB558074 Method: Maximum Peak

HIGH CHANNEL
HORIZONTAL



Note: Emission was scanned up to 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 T120 (dB/m)	Amp/Cbl/Fltr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.878	33.99	PK	31.2	-24.5	0	40.69	-	-	-	-	0-360	233	H
3	6.06	30.62	PK	35.4	-27	0	39.02	-	-	-	-	0-360	101	H
6	* 12.454	28.35	PK	38.9	-22	0	45.25	-	-	74	-28.75	0-360	101	H
2	* 3.721	33.04	PK	34.8	-29.6	0	38.24	-	-	74	-35.76	0-360	101	V
4	* 7.386	35.88	PK	35.6	-25.9	0	45.58	-	-	74	-28.42	0-360	201	V
5	9.615	27.16	PK	36.9	-21.7	0	42.36	-	-	-	-	0-360	201	V

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

PK - Peak detector

Radiated Emissions

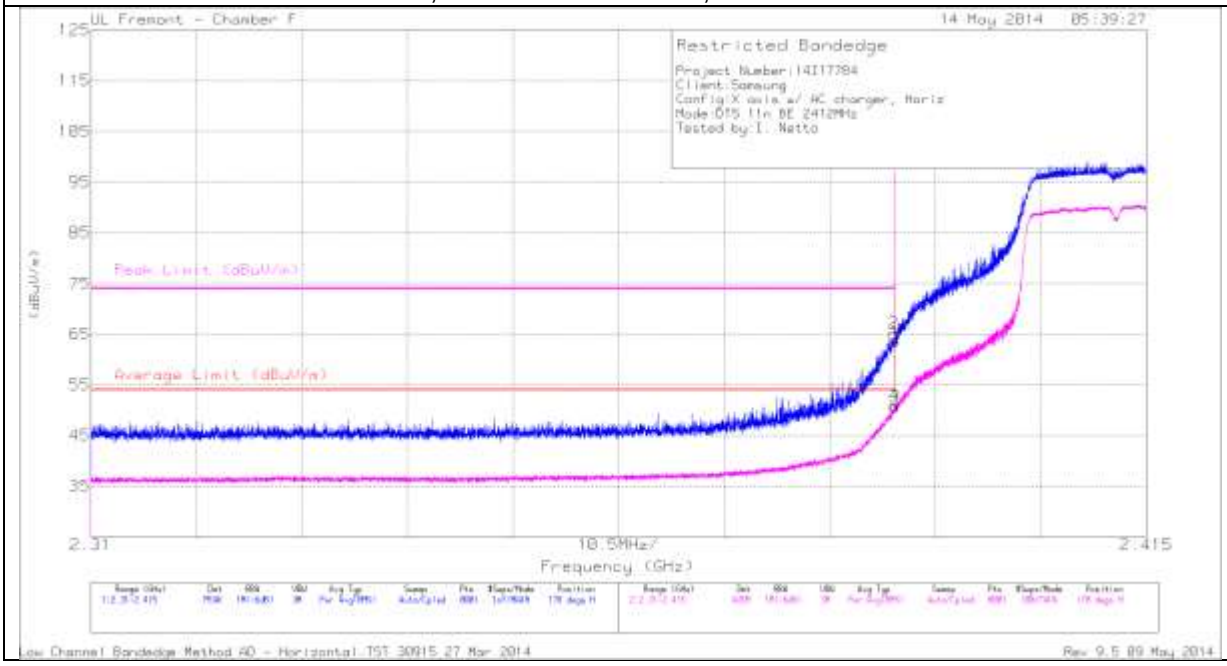
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.876	41.44	PK2	31.1	-24.5	0	48.04	-	-	-	-	1	101	H
6.06	37.69	PK2	35.4	-27	0	46.09	-	-	-	-	1	101	H
* 12.452	35.64	PK2	38.9	-22	0	52.54	-	-	74	-21.46	1	101	H
* 3.72	38.61	PK2	34.8	-29.6	0	43.81	-	-	74	-30.19	1	101	V
9.613	33.86	PK2	36.9	-21.6	0	49.16	-	-	-	-	1	101	V
* 7.388	49.46	PK2	35.6	-25.9	0	59.16	-	-	74	-14.84	70	362	V
* 7.386	35.91	MAv1	35.6	-25.9	.2	45.81	54	-8.19	-	-	70	362	V

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

PK2 - KDB558074 Method: Maximum Peak

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



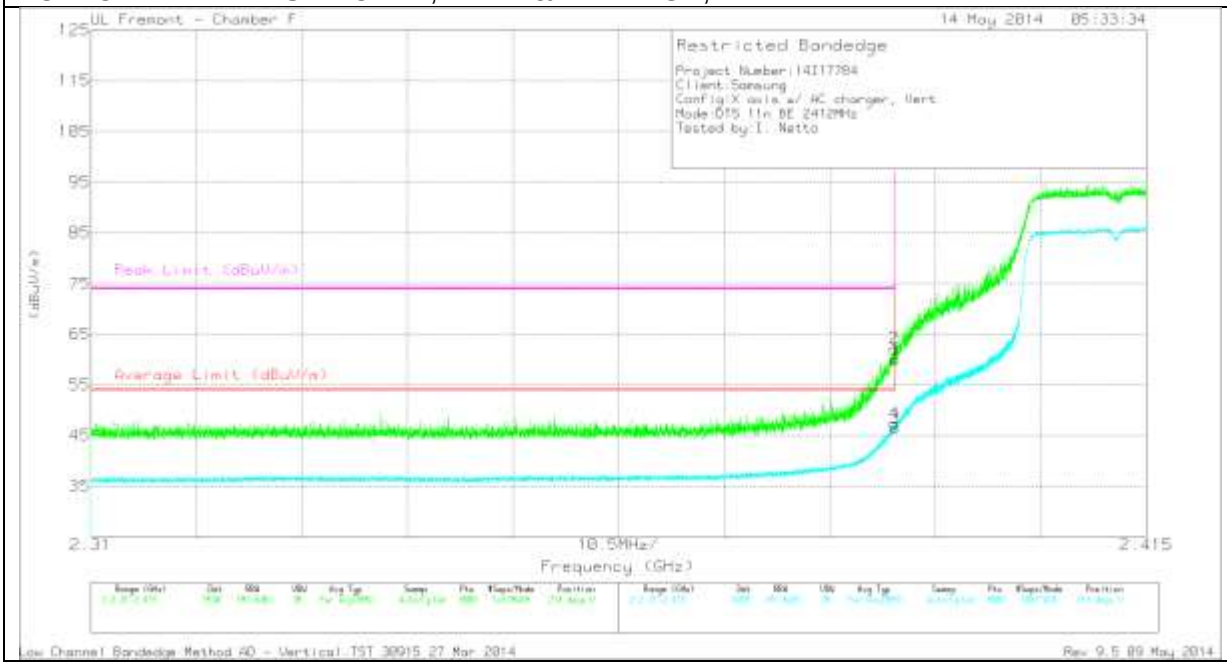
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	55.17	PK	32.2	-23.8	0	63.57	-	-	74	-10.43	178	183	H
2	* 2.39	56.79	PK	32.2	-23.8	0	65.19	-	-	74	-8.81	178	183	H
3	* 2.39	42.12	RMS	32.2	-23.8	.2	50.72	54	-3.28	-	-	178	183	H
4	* 2.39	42.19	RMS	32.2	-23.8	.2	50.79	54	-3.21	-	-	178	183	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 T120 (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	51.53	PK	32.2	-23.8	0	59.93	-	-	74	-14.07	214	239	V
2	* 2.39	53.75	PK	32.2	-23.8	0	62.15	-	-	74	-11.85	214	239	V
3	* 2.39	37.94	RMS	32.2	-23.8	.2	46.54	54	-7.46	-	-	214	239	V
4	* 2.39	38.89	RMS	32.2	-23.8	.2	47.49	54	-6.51	-	-	214	239	V

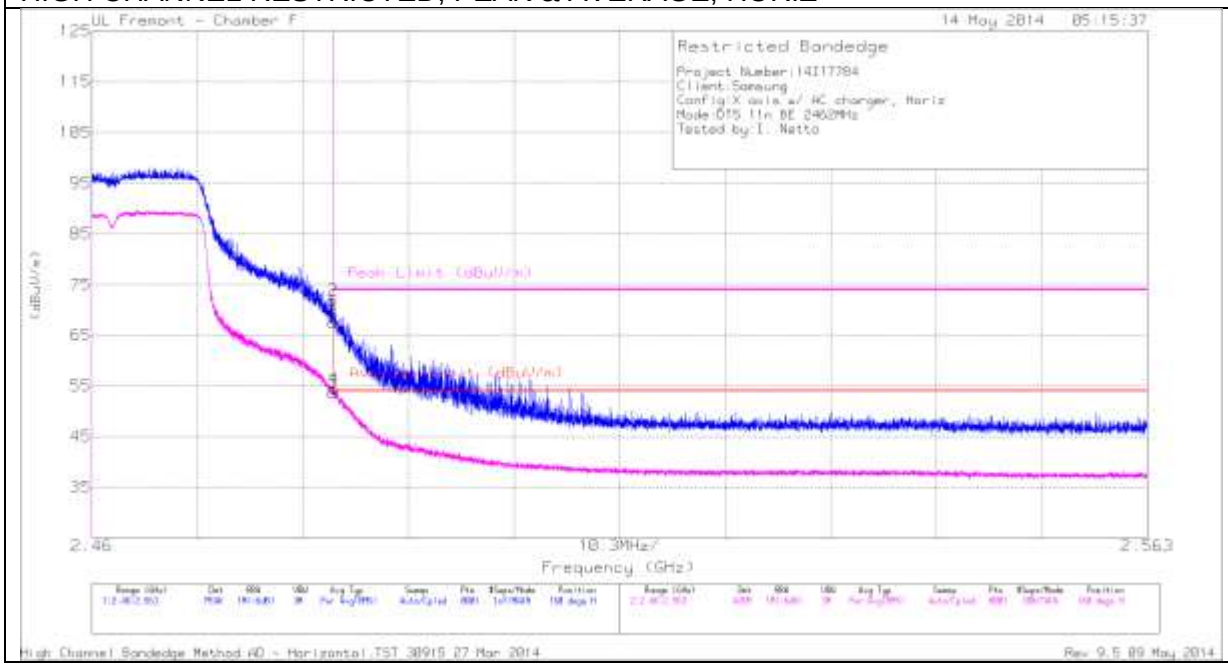
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HIGH CHANNEL RESTRICTED, PEAK & AVERAGE, HORIZ



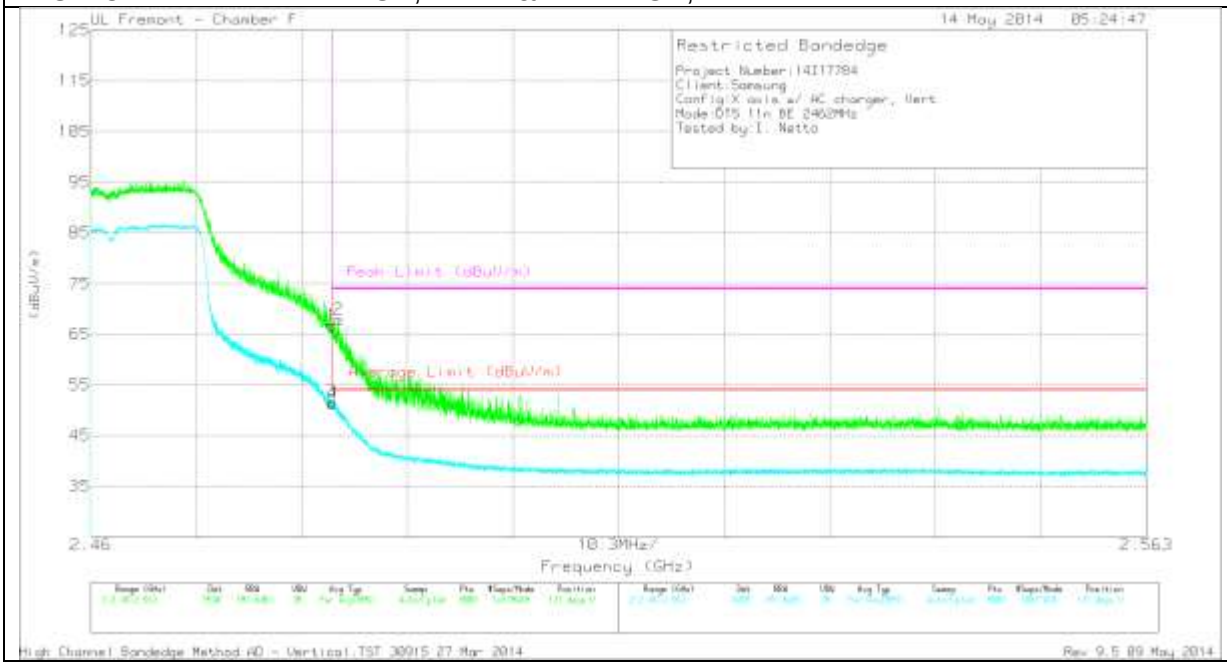
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	58.01	PK	32.6	-23	0	67.61	-	-	74	-6.39	160	311	H
2	* 2.484	62.3	PK	32.6	-23	0	71.9	-	-	74	-2.1	160	311	H
3	* 2.484	43.93	RMS	32.6	-23	.2	53.73	54	-.27	-	-	160	311	H
4	* 2.484	43.82	RMS	32.6	-23	.2	53.62	54	-.38	-	-	160	311	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 T120 (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	57.22	PK	32.6	-23	0	66.82	-	-	74	-7.18	131	247	V
2	* 2.484	58.22	PK	32.6	-22.9	0	67.92	-	-	74	-6.08	131	247	V
3	* 2.484	41.98	RMS	32.6	-23	.2	51.78	54	-2.22	-	-	131	247	V
4	* 2.484	41.45	RMS	32.6	-23	.2	51.25	54	-2.75	-	-	131	247	V

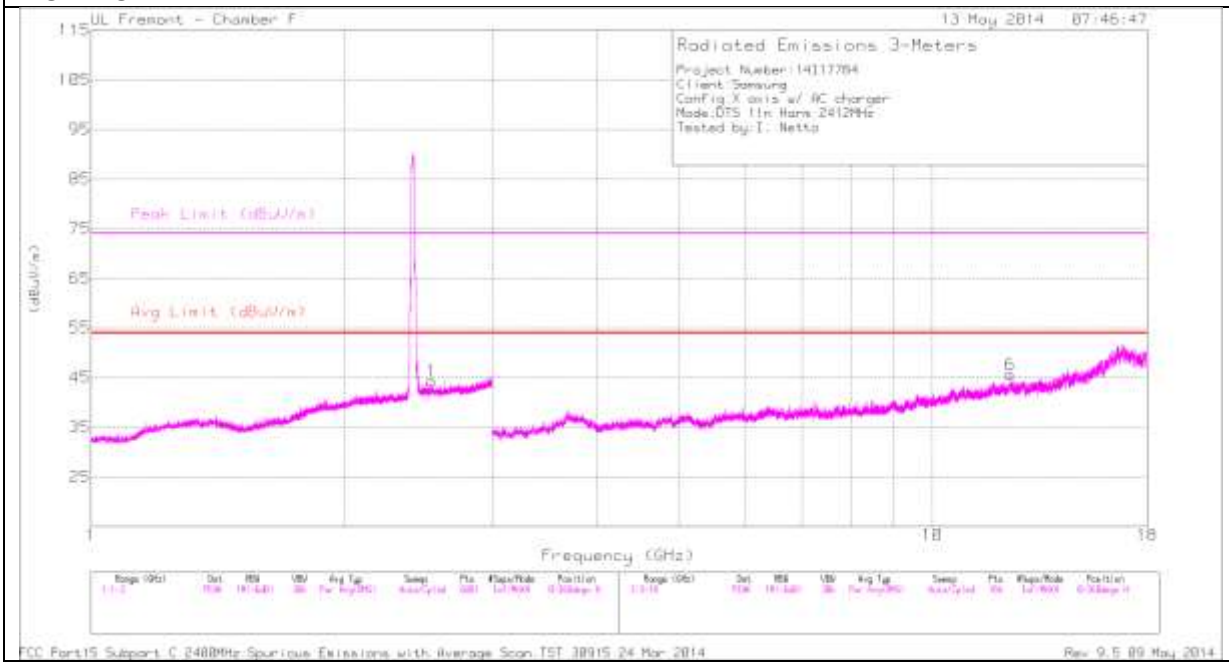
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

RMS - RMS detection

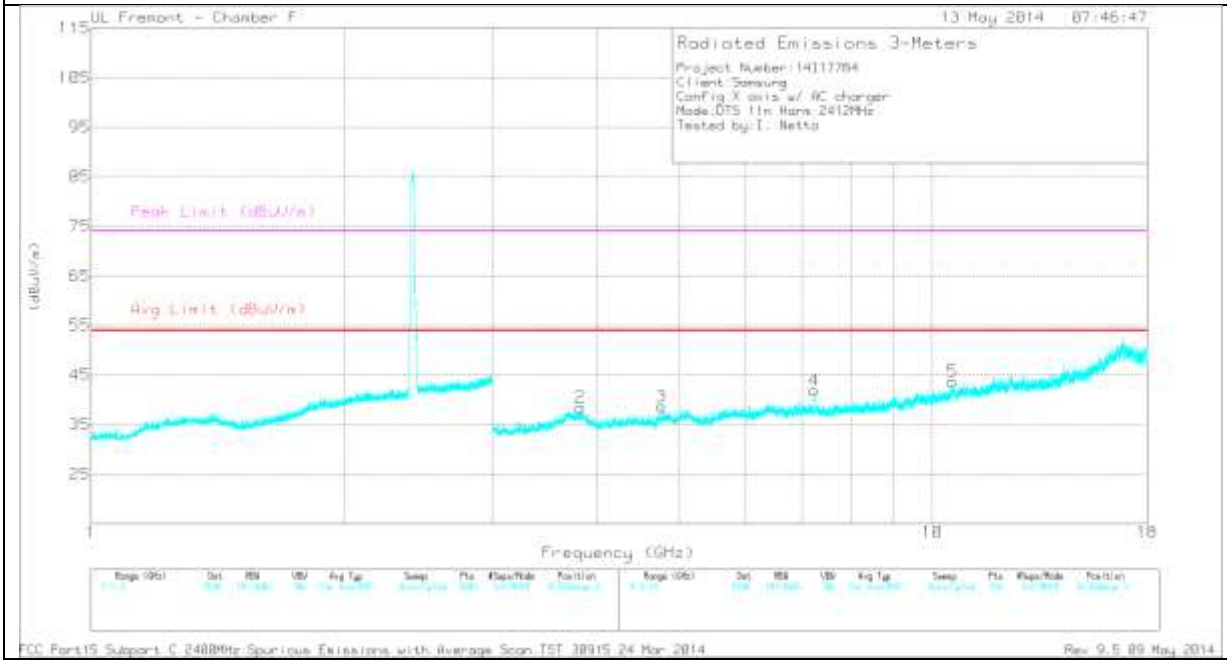
HARMONICS AND SPURIOUS EMISSIONS

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 T120 (dB/m)	Amp/Cbl/Fltr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.539	34.41	PK	32.7	-22.8	0	44.31	-	-	-	-	0-360	200	H
6	* 12.37	27.85	PK	38.9	-21.1	0	45.65	-	-	74	-28.35	0-360	200	H
2	* 3.814	33	PK	34.3	-28.8	0	38.5	-	-	74	-35.5	0-360	201	V
3	* 4.767	32.77	PK	34.1	-28.3	0	38.57	-	-	74	-35.43	0-360	201	V
4	7.236	32.93	PK	35.5	-26.5	0	41.93	-	-	-	-	0-360	101	V
5	10.569	26.76	PK	37.8	-20.9	0	43.66	-	-	-	-	0-360	101	V

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

PK - Peak detector

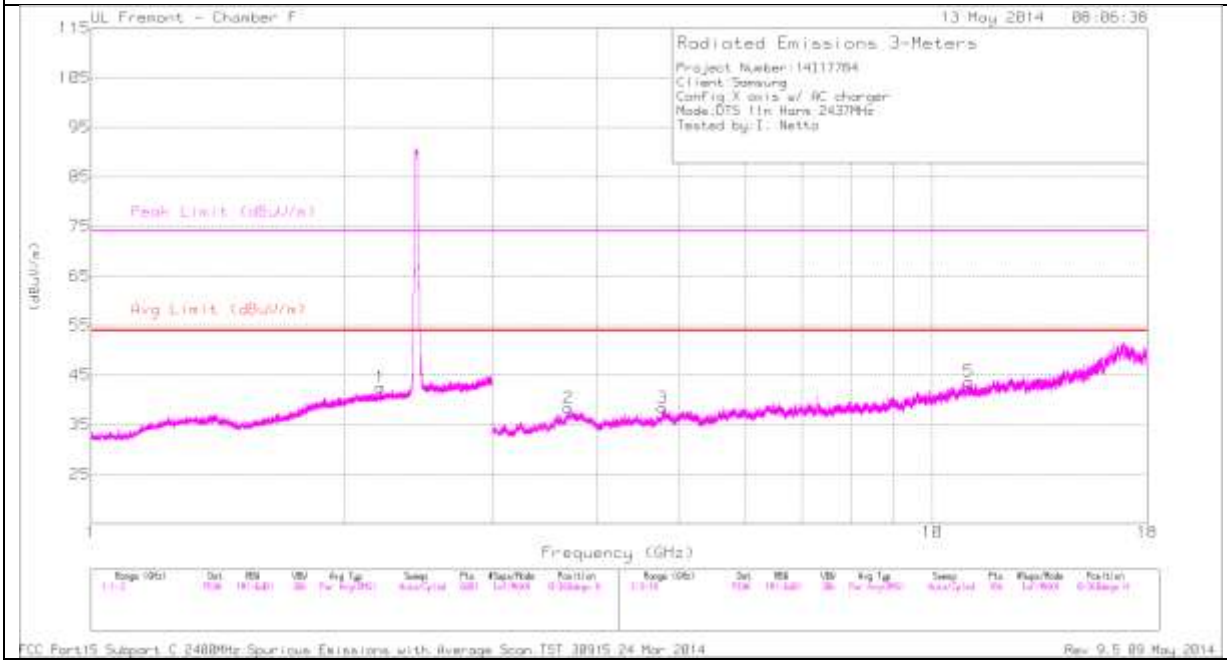
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2.538	41.87	PK2	32.7	-22.8	0	51.77	-	-	-	-	2	101	H
* 12.371	35.23	PK2	38.9	-21.2	0	52.93	-	-	74	-21.07	2	101	H
* 3.813	38.54	PK2	34.3	-28.8	0	44.04	-	-	74	-29.96	2	101	V
* 4.766	38.63	PK2	34.1	-28.3	0	44.43	-	-	74	-29.57	2	101	V
10.57	33.87	PK2	37.8	-20.8	0	50.87	-	-	-	-	2	101	V
7.234	46.29	PK2	35.5	-26.5	0	55.29	-	-	-	-	57	280	V
7.236	33.47	MAv1	35.5	-26.5	.2	42.67	-	-	-	-	57	280	V

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

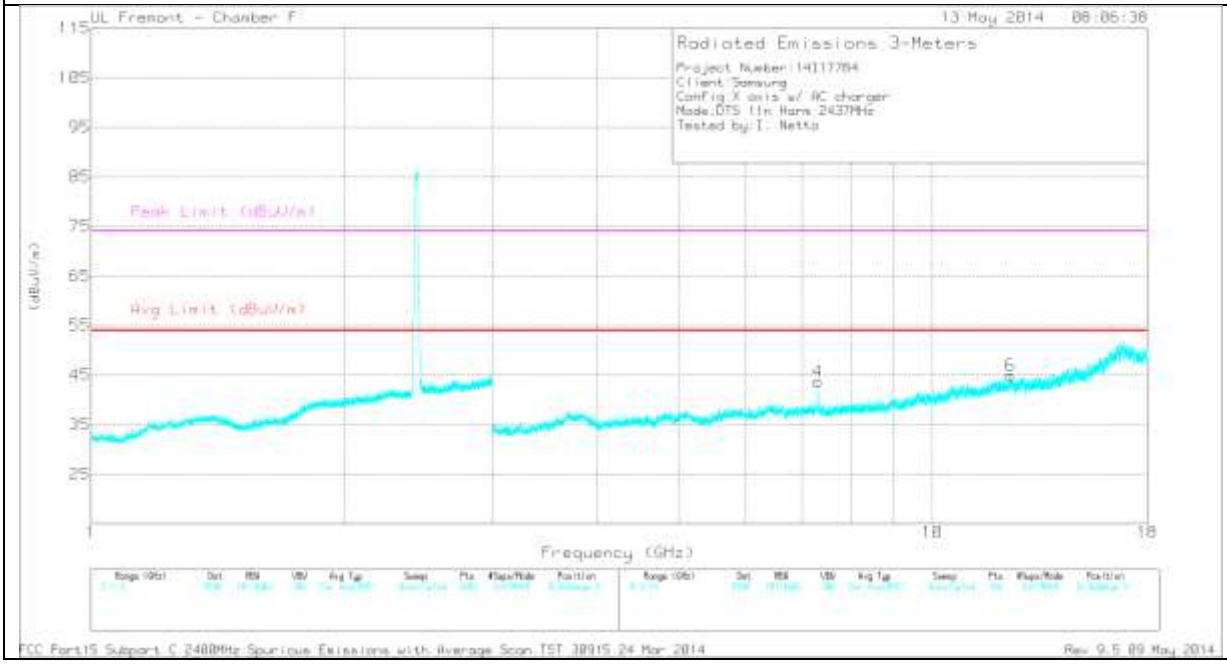
PK2 - KDB558074 Method: Maximum Peak

MID CHANNEL
HORIZONTAL



Note: Emission was scanned up to 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 T120 (dB/m)	Amp/Cbl/Fltr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.21	34.73	PK	31.8	-24	0	42.53	-	-	74	-31.47	0-360	101	H
2	* 3.692	32.72	PK	34.9	-29.3	0	38.32	-	-	74	-35.68	0-360	201	H
3	* 4.777	32.37	PK	34.1	-28.1	0	38.37	-	-	74	-35.63	0-360	101	H
5	* 11.046	28.31	PK	38.1	-22.7	0	43.71	-	-	74	-30.29	0-360	201	H
4	* 7.311	34.73	PK	35.6	-26.6	0	43.73	-	-	74	-30.27	0-360	101	V
6	* 12.369	27.22	PK	38.9	-21.1	0	45.02	-	-	74	-28.98	0-360	199	V

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

PK - Peak detector

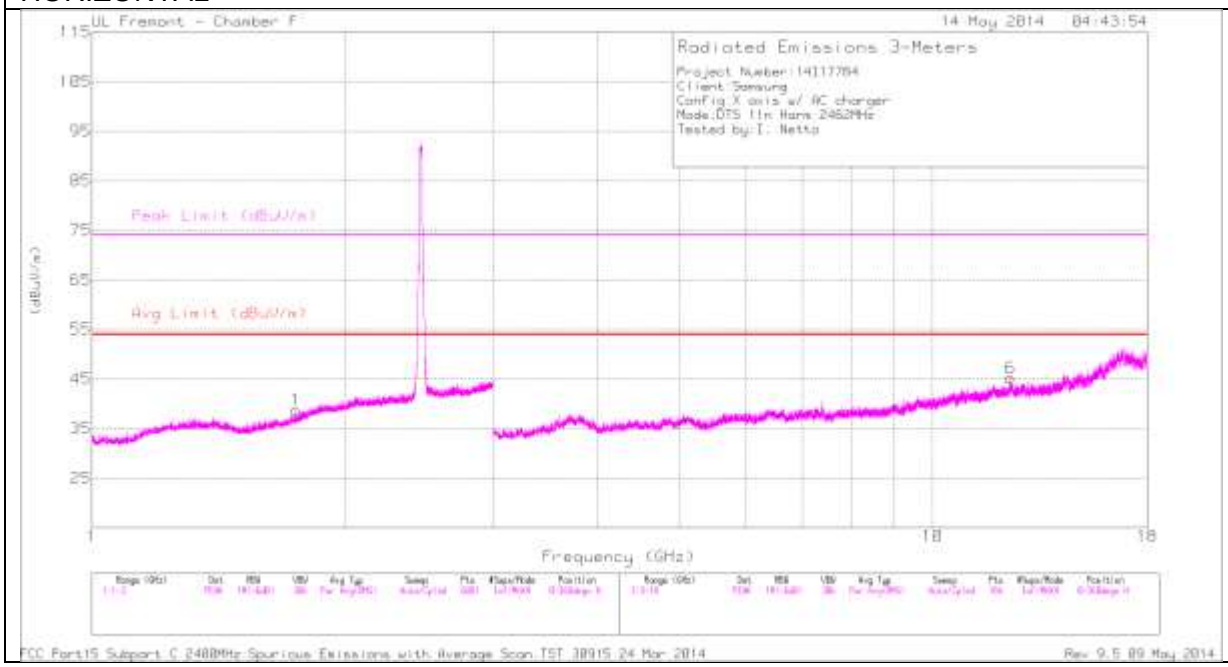
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.209	42.15	PK2	31.8	-24	0	49.95	-	-	74	-24.05	2	100	H
* 3.69	39.53	PK2	34.9	-29.3	0	45.13	-	-	74	-28.87	2	100	H
* 4.778	39.38	PK2	34.1	-28.1	0	45.38	-	-	74	-28.62	2	100	H
* 11.044	34.38	PK2	38.1	-22.7	0	49.78	-	-	74	-24.22	2	100	H
* 12.371	35.41	PK2	38.9	-21.1	0	53.21	-	-	74	-20.79	2	100	V
* 7.311	46.13	PK2	35.6	-26.6	0	55.13	-	-	74	-18.87	32	321	V
* 7.311	33.95	MAv1	35.6	-26.6	.2	43.15	54	-10.85	-	-	32	321	V

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

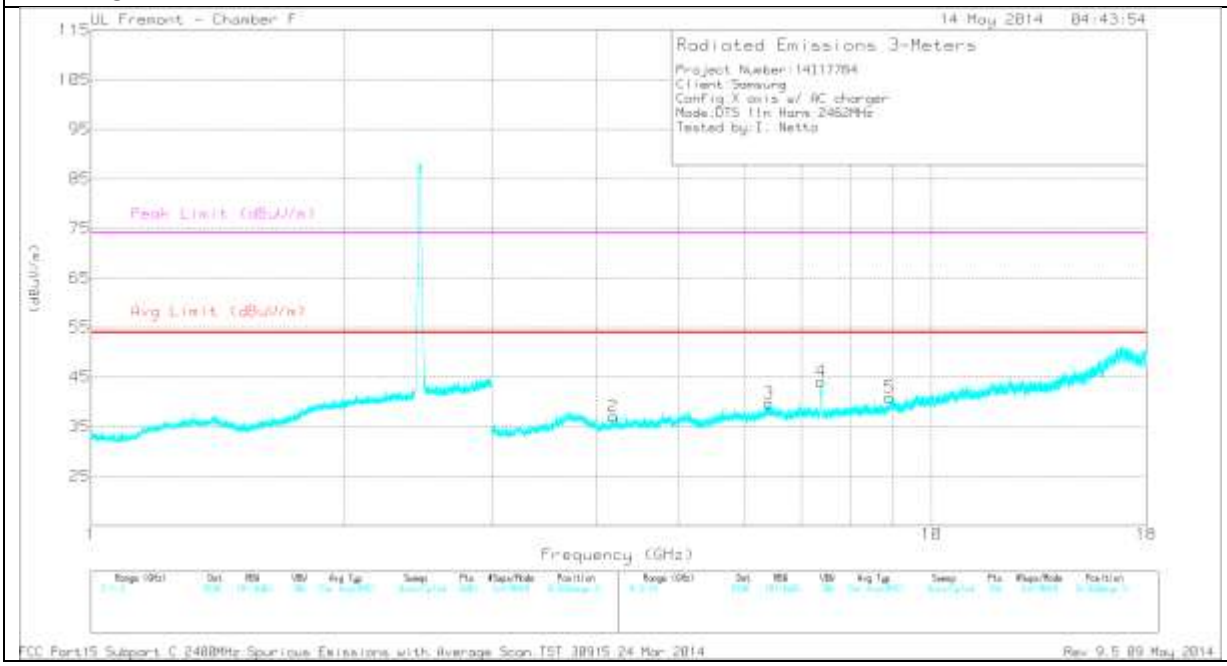
PK2 - KDB558074 Method: Maximum Peak

HIGH CHANNEL
HORIZONTAL



Note: Emission was scanned up to 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 T120 (dB/m)	Amp/Cbl/Fltr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.747	34.5	PK	29.7	-25.4	0	38.8	-	-	-	-	0-360	101	H
6	* 12.376	27.77	PK	38.9	-21.5	0	45.17	-	-	74	-28.83	0-360	101	H
2	* 4.18	31.86	PK	33.7	-28.5	0	37.06	-	-	74	-36.94	0-360	201	V
3	6.398	31.48	PK	35.6	-27.3	0	39.78	-	-	-	-	0-360	101	V
4	* 7.386	34.44	PK	35.6	-25.9	0	44.14	-	-	74	-29.86	0-360	101	V
5	8.901	28.42	PK	36.1	-23.6	0	40.92	-	-	-	-	0-360	101	V

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

PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.748	41.91	PK2	29.7	-25.4	0	46.21	-	-	-	-	0	101	H
* 12.374	35.52	PK2	38.9	-21.4	0	53.02	-	-	74	-20.98	0	101	H
* 4.178	38.92	PK2	33.7	-28.5	0	44.12	-	-	74	-29.88	0	101	V
6.4	38.3	PK2	35.6	-27.3	0	46.6	-	-	-	-	0	101	V
8.901	34.51	PK2	36.1	-23.6	0	47.01	-	-	-	-	0	101	V
* 7.386	44.37	PK2	35.6	-25.9	0	54.07	-	-	74	-19.93	0	291	V
* 7.386	32.53	MAv1	35.6	-25.9	.2	42.43	54	-11.57	-	-	0	291	V

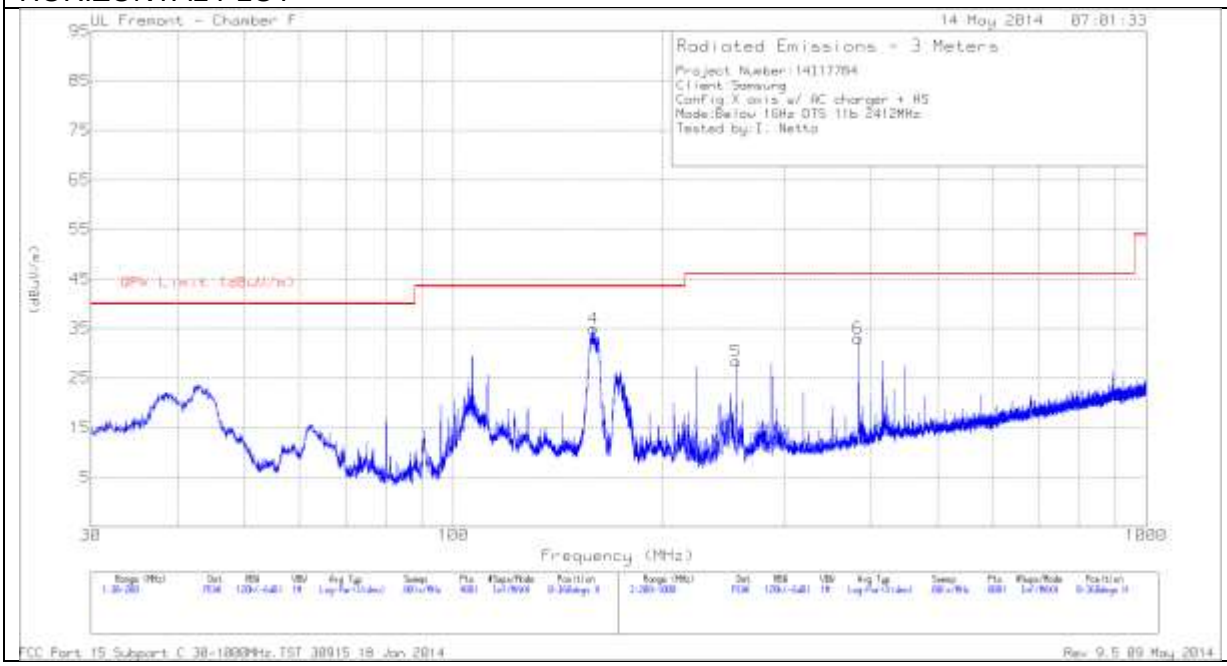
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK2 - KDB558074 Method: Maximum Peak

10.3. WORST-CASE BELOW 1 GHz

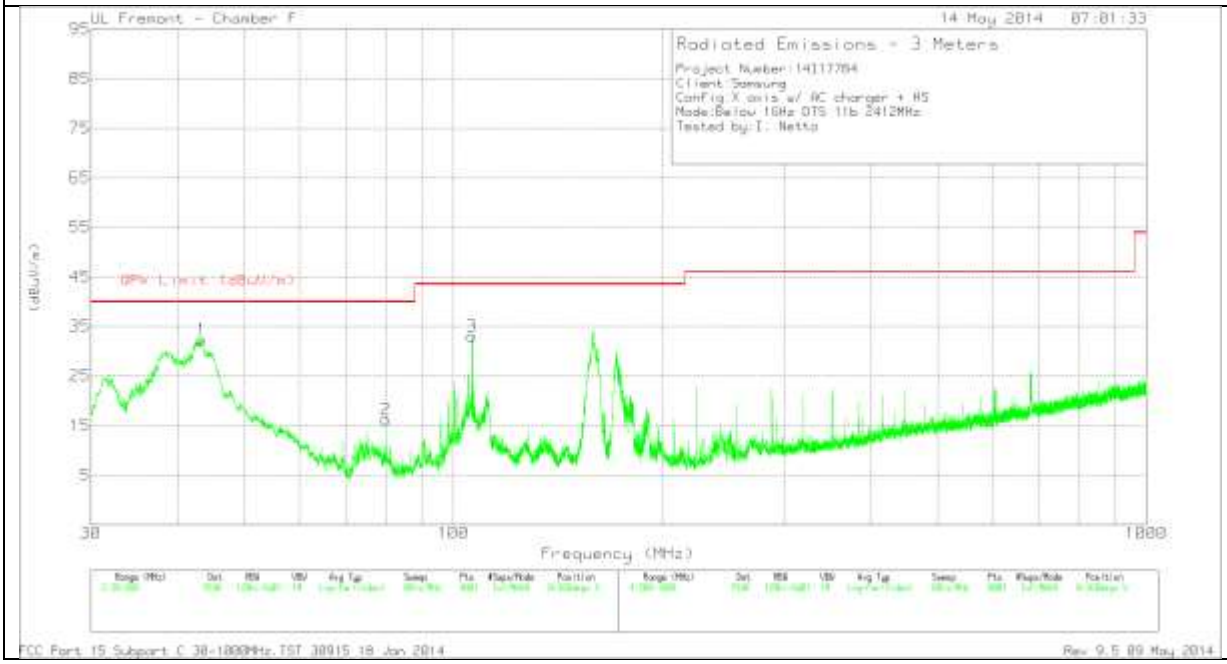
SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)

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 T122 (dB/m)	Amp/Cbl (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	159.37	53.65	PK	12.5	-31.1	0	35.05	43.52	-8.47	0-360	200	H
1	43.345	52.61	PK	11.5	-31.8	0	32.31	40	-7.69	0-360	100	V
2	79.98	39.92	PK	7.7	-31.4	0	16.22	40	-23.78	0-360	100	V
3	106.4575	52.93	PK	12	-31.8	0	33.13	43.52	-10.39	0-360	100	V
5	* 256	47.82	PK	11.7	-31.1	0	28.42	46.02	-17.6	0-360	100	H
6	384	48.33	PK	15.1	-30.4	0	33.03	46.02	-12.99	0-360	100	H

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

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

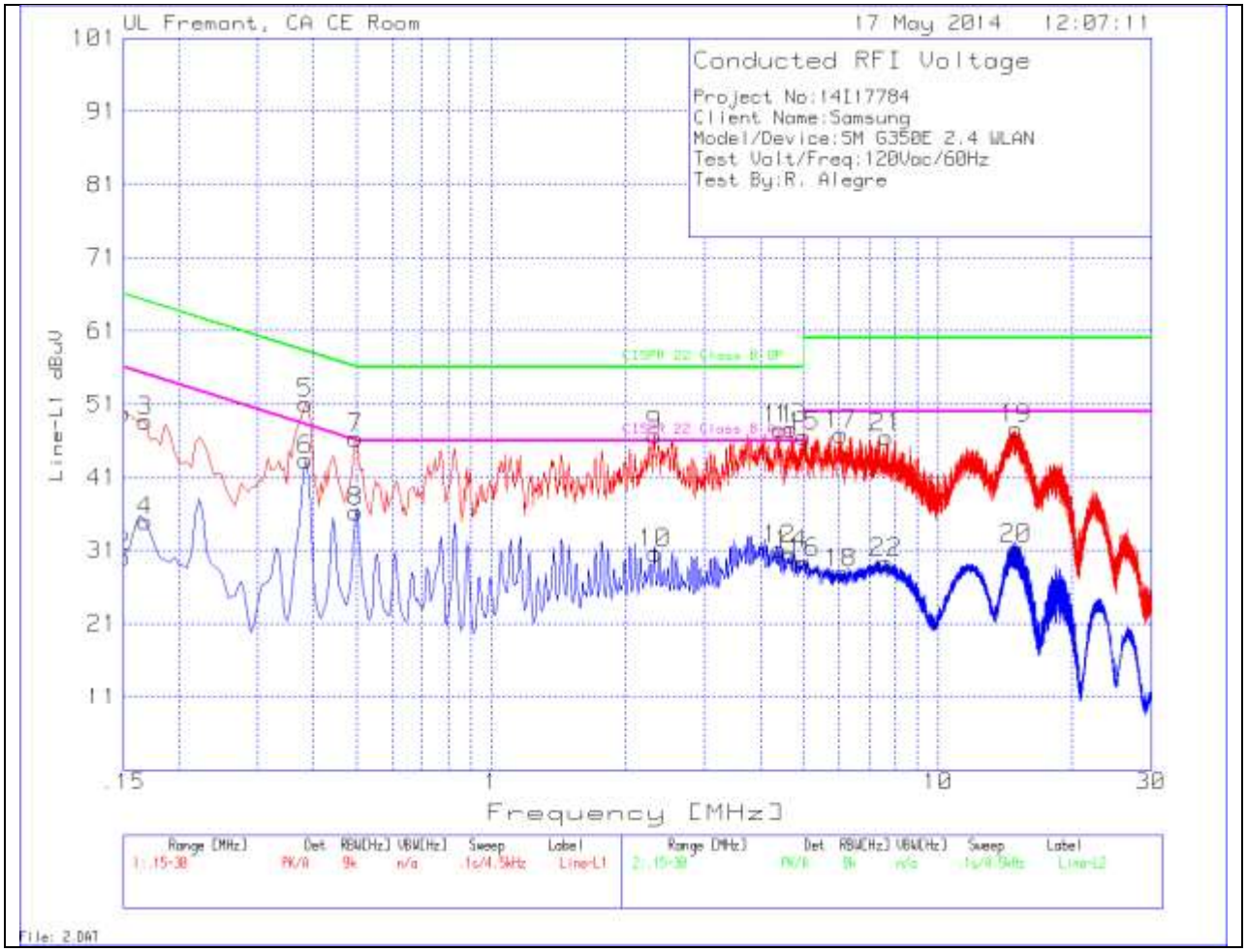
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L1 (dB)	LC Cables 1&3 (dB)	Corrected Reading dBuV	CISPR 22 Class B QP	Margin to Limit (dB)	CISPR 22 Class B Avg	Margin to Limit (dB)
1	.15	48.35	PK	1.4	0	49.75	66	-16.25	-	-
2	.15	28.64	Av	1.4	0	30.04	-	-	56	-25.96
3	.168	47.47	PK	1.2	0	48.67	65.1	-16.43	-	-
4	.168	33.78	Av	1.2	0	34.98	-	-	55.1	-20.12
5	.384	50.75	PK	.4	0	51.15	58.2	-7.05	-	-
6	.384	42.94	Av	.4	0	43.34	-	-	48.2	-4.86
7	.4965	45.99	PK	.4	0	46.39	56.1	-9.71	-	-
8	.4965	35.91	Av	.4	0	36.31	-	-	46.1	-9.79
9	2.3235	46.44	PK	.2	.1	46.74	56	-9.26	-	-
10	2.3235	30.26	Av	.2	.1	30.56	-	-	46	-15.44
11	4.4115	47.21	PK	.2	.1	47.51	56	-8.49	-	-
12	4.4115	30.79	Av	.2	.1	31.09	-	-	46	-14.91
13	4.686	47.33	PK	.2	.1	47.63	56	-8.37	-	-
14	4.686	30.17	Av	.2	.1	30.47	-	-	46	-15.53
15	5.019	46.3	PK	.2	.1	46.6	60	-13.4	-	-
16	5.019	29.08	Av	.2	.1	29.38	-	-	50	-20.62
17	6.063	46.55	PK	.2	.1	46.85	60	-13.15	-	-
18	6.063	27.66	Av	.2	.1	27.96	-	-	50	-22.04
21	7.665	46.14	PK	.2	.1	46.44	60	-13.56	-	-
22	7.665	29.05	Av	.2	.1	29.35	-	-	50	-20.65
19	14.946	47.25	PK	.2	.2	47.65	60	-12.35	-	-
20	14.946	30.84	Av	.2	.2	31.24	-	-	50	-18.76

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)
23	.159	49.56	PK	1.4	0	50.96	65.5	-14.54	-	-
24	.159	30.9	Av	1.4	0	32.3	-	-	55.5	-23.2
25	.2265	48.34	PK	.9	0	49.24	62.6	-13.36	-	-
26	.2265	33.66	Av	.9	0	34.56	-	-	52.6	-18.04
27	.3885	51.02	PK	.5	0	51.52	58.1	-6.58	-	-
28	.3885	40.23	Av	.5	0	40.73	-	-	48.1	-7.37
29	.5055	45.67	PK	.4	0	46.07	56	-9.93	-	-
30	.5055	31.2	Av	.4	0	31.6	-	-	46	-14.4
31	.8295	43.88	PK	.3	0	44.18	56	-11.82	-	-
32	.8295	32.4	Av	.3	0	32.7	-	-	46	-13.3
33	1.1625	44.22	PK	.3	0	44.52	56	-11.48	-	-
34	1.1625	30.35	Av	.3	0	30.65	-	-	46	-15.35
35	2.3235	45.56	PK	.2	.1	45.86	56	-10.14	-	-
36	2.3235	29.35	Av	.2	.1	29.65	-	-	46	-16.35
37	4.3665	45.9	PK	.2	.1	46.2	56	-9.8	-	-
38	4.3665	28.72	Av	.2	.1	29.02	-	-	46	-16.98
39	4.533	45.38	PK	.2	.1	45.68	56	-10.32	-	-
40	4.533	28.6	Av	.2	.1	28.9	-	-	46	-17.1
41	4.6995	45.56	PK	.2	.1	45.86	56	-10.14	-	-
42	4.6995	28.06	Av	.2	.1	28.36	-	-	46	-17.64
43	7.2195	45.73	PK	.2	.1	46.03	60	-13.97	-	-
44	7.2195	28.3	Av	.2	.1	28.6	-	-	50	-21.4
45	7.9485	45.69	PK	.2	.1	45.99	60	-14.01	-	-
46	7.9485	27.13	Av	.2	.1	27.43	-	-	50	-22.57
47	11.8095	45.72	PK	.2	.2	46.12	60	-13.88	-	-
48	11.8095	28.78	Av	.2	.2	29.18	-	-	50	-20.82
49	14.7255	47.49	PK	.3	.2	47.99	60	-12.01	-	-
50	14.7255	30.28	Av	.3	.2	30.78	-	-	50	-19.22

LINE 1 RESULTS



LINE 2 RESULTS