FCC CFR47 PART 15 SUBPART C
INDUSTRY CANADA RSS-210 ISSUE 8

CERTIFICATION TEST REPORT

FOR

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

MODEL NUMBER: SM-G850S; SM-G850K; SM-G850L

FCC ID: A3LSMG850KOR
IC: 649E-SMG850KOR

REPORT NUMBER: 14U17914-4

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

Prepared by
UL VERIFICATION SERVICES INC.
47173 BENICIA STREET
FREMONT, CA 94538, U.S.A.
TEL: (510) 771-1000
FAX: (510) 661-0888

NVLAP LAB CODE 200065-0

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--	06/23/14	Initial Issue	P. Zhang

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SAMSUNG ELECTRONICS CO., LTD.

EUT DESCRIPTION: GSM/WCDMA/LTE Phone + Bluetooth, DTS/UNII a/b/g/n/ac, ANT+ & NFC

MODEL: SM-G850S; SM-G850K; SM-G850L

SERIAL NUMBER: 1883968 (Conducted), 1883967(Radiated)

DATE TESTED: MAY 27 – JUNE 23, 2014

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart C	Pass
INDUSTRY CANADA RSS-210 Issue 8 Annex 8	Pass
INDUSTRY CANADA RSS-GEN Issue 3	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:

PENG ZHANG
CONSUMER TECHNOLOGY DIVISION
PROJECT LEAD
UL Verification Services Inc.

Tested By:

CHARLES VERGONIO
CONSUMER TECHNOLOGY DIVISION
LAB ENGINEER
UL Verification Services Inc.

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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, RSS-GEN Issue 3, and RSS-210 Issue 8.

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%.

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5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a GSM/WCDMA/LTE Phone + Bluetooth, DTS/UNII a/b/g/n/ac, ANT+ & NFC SM-G850S, SM-G850K, SM-G850L are same hardware but for different carrier.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum total conducted output power as follows:

Frequency Range (MHz)	Mode	Total Output Power (dBm)	Total Output Power (mW)
2412 - 2462	802.11b	18.8	75.86
2412 - 2462	802.11g	23.09	203.70
2412 - 2462	802.11n HT20	21.42	138.68

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes two FPCB antennas like below:

	1	2	3	4	5	6	7	8	9	10	11	12	13
Frequency [MHz]	2400	2425	2450	2470	2485	5150	5250	5350	5470	5600	5725	5785	5850
Efficiency [dB]	-9.63	-8.47	-7.38	-6.78	-6.74	-6.97	-7.78	-5.25	-5.35	-4.05	-5.25	-4.68	-4.47
Efficiency [%]	10.90	14.23	18.30	21.01	21.17	20.08	16.66	29.83	29.18	39.33	29.83	34.04	35.74
TRG [dB]	-9.63	-8.47	-7.38	-6.78	-6.74	-6.97	-7.78	-5.25	-5.35	-4.05	-5.25	-4.68	-4.47
TRG_θ [dB]	-11.97	-10.72	-9.57	-8.88	-8.87	-8.26	-8.96	-6.53	-6.67	-5.38	-6.38	-5.74	-5.58
$Gain_{\theta\ Peak}$ [dB]	-8.19	-6.92	-5.75	-5.02	-4.86	-2.45	-3.28	-0.46	-0.48	0.67	-0.72	0.11	0.60
$Gain_{\theta\ Min}$ [dB]	-28.85	-28.38	-27.67	-27.01	-27.09	-28.26	-27.77	-23.00	-26.76	-23.86	-36.14	-23.75	-27.14
TRG_ϕ [dB]	-13.42	-12.40	-11.39	-10.93	-10.87	-12.88	-14.04	-11.20	-11.17	-9.86	-11.66	-11.33	-10.93
$Gain_{\phi\ Peak}$ [dB]	-8.74	-7.60	-6.67	-6.15	-6.10	-7.09	-7.78	-4.90	-4.79	-4.46	-5.84	-5.90	-5.01
$Gain_{\phi\ Min}$ [dB]	-39.73	-36.83	-38.62	-32.05	-28.72	-31.01	-38.66	-28.79	-25.11	-26.13	-21.60	-29.26	-22.09
UHRG [dB]	-13.08	-11.88	-10.73	-10.07	-10.01	-10.86	-11.59	-9.10	-9.18	-7.50	-8.36	-7.81	-7.62
UHRG/TRG [%]	45.21	45.58	46.21	46.89	47.16	40.88	41.61	41.22	41.36	45.25	48.93	48.67	48.38
H-Plane	-11.36	-10.13	-9.03	-8.37	-8.42	-7.75	-7.98	-5.33	-5.68	-4.20	-5.23	-4.27	-4.01
E1-Plane, AVG [dB]	-13.34	-12.12	-11.00	-10.31	-10.22	-7.81	-9.26	-6.92	-6.93	-5.54	-6.77	-5.90	-5.75
E2-Plane, AVG [dB]	-11.30	-10.04	-8.97	-8.38	-8.42	-8.81	-9.70	-7.43	-7.98	-7.10	-8.14	-7.62	-7.20
Peak Gain [dB]	-6.25	-5.07	-4.14	-3.69	-3.64	-1.66	-3.03	-0.39	-0.42	0.92	-0.68	0.48	1.02
Directivity [dB]	3.38	3.39	3.24	3.09	3.11	5.31	4.75	4.86	4.93	4.97	4.57	5.16	5.49
Minimum Gain [dB]	-14.44	-13.06	-11.67	-11.13	-10.96	-21.18	-20.74	-18.74	-17.74	-12.36	-17.53	-15.15	-12.31
Test Condition	FS												
Antenna Type													
FS=Free Space, BHR=Beside Head Right Side, BHL=Beside Head Left Side, HR=Hand Right, HL=Hand Left, BHHR=Beside Head and Hand													
Average Efficiency	-6.08 dB, 24.64 %												

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Antenna2 Gain

Frequency	Eff. (%)	Ave. Gain (dBi)	Peak Gain (dBi)	Directivity (dBi)
2400 MHz	7	-11.60	-7.89	3.71
2444 MHz	5	-12.60	-9.17	3.43
2447 MHz	6	-12.30	-8.86	3.44
2475 MHz	6	-12.50	-8.60	3.90
2485 MHz	7	-11.80	-7.84	3.96
2500 MHz	6	-12.20	-8.27	3.93
5150 MHz	1	-18.90	-13.90	5.00
5290 MHz	2	-17.50	-14.00	3.50
5430 MHz	2	-17.90	-13.40	4.50
5570 MHz	3	-15.50	-10.60	4.90
5710 MHz	6	-12.40	-6.09	6.31
5850 MHz	6	-12.00	-5.56	6.44

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5.4. List of test reduction and modes covering other modes:

2400 - 2483.5 MHz Authorized Frequency Band (Antenna Port & Radiated Testing)		
Frequency Range (MHz)	**Mode**	**Covered by**
2412 - 2462	802.11b Legacy 1TX	802.11b CDD 2TX
2412 - 2462	802.11g Legacy 1TX	802.11g CDD 2TX
2412 - 2462	802.11n 1TX	802.11n HT20 CDD 2TX
2412 - 2462	802.11n STBC 2TX	802.11n HT20 CDD 2TX

5.5. WORST-CASE CONFIGURATION AND MODE

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

The fundamental of the EUT was investigated in three orthogonal orientations X,Y,Z, it was determined that 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

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5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
AC Adapter	SAMSUNG	EP-TA11KWK	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.

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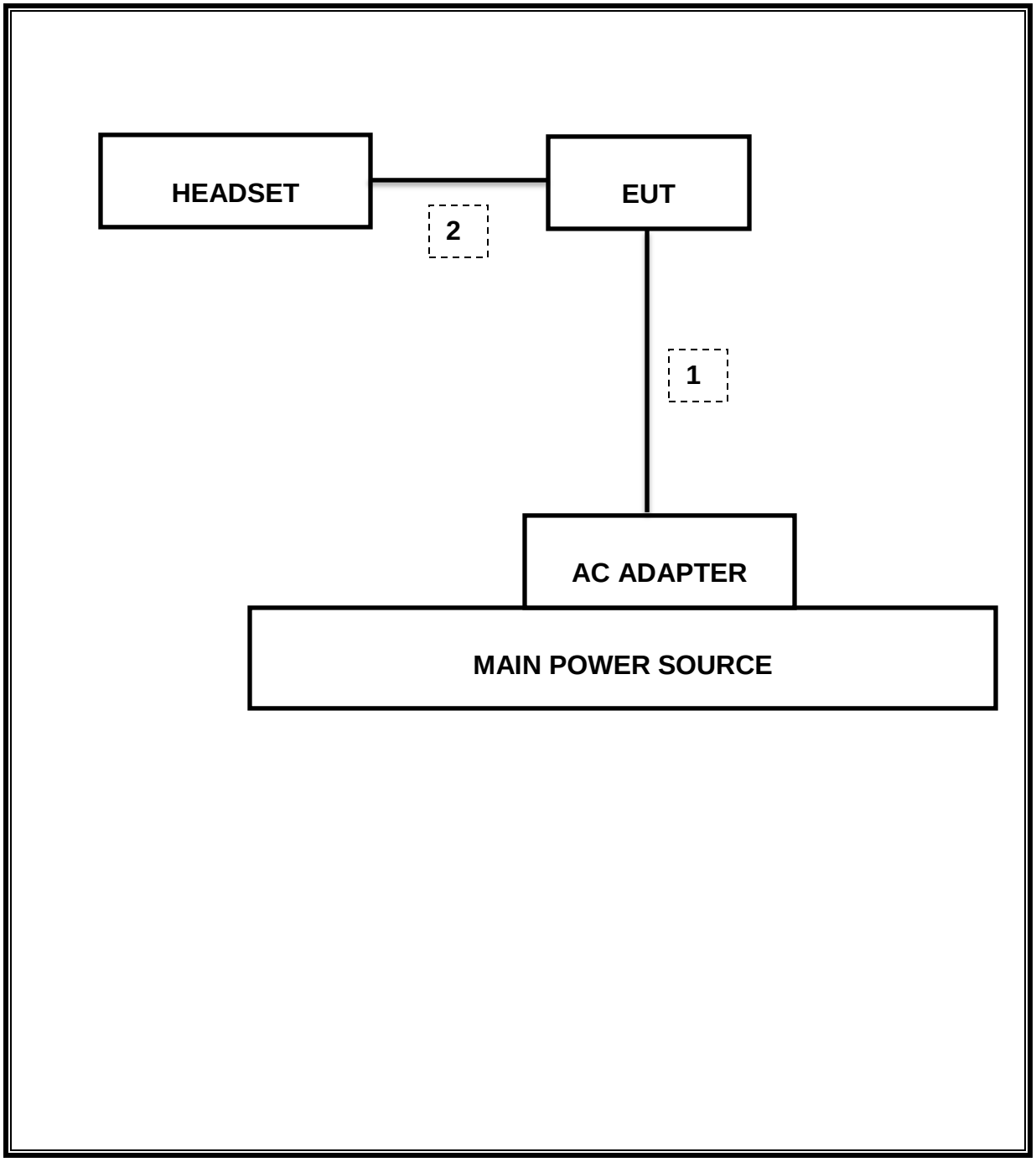
SETUP DIAGRAM FOR TESTS



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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	06/01/15
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	05/23/15
High Pass Filter 5GHz	Micro-Tronics	HPS17542	F00222	05/22/15
High Pass Filter 6GHz	Micro-Tronics	HPM17543	F00224	05/22/15

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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. ON TIME, DUTY CYCLE AND MEASUREMENT METHODS

LIMITS

None; for reporting purposes only.

PROCEDURE

KDB 789033 Zero-Span Spectrum Analyzer Method.

8.1. ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/T Minimum VBW (kHz)
2400MHz Bands						
802.11b	8.62	9	0.991	99.1%	0.00	0.010
802.11g	1.43	2	0.933	93.3%	0.30	0.700
802.11n HT20	0.70	1	0.874	87.4%	0.59	1.439

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9. 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	8.138MHz
2.1051, 15.247 (d)	RSS-210 A8.5	Band Edge / Conducted Spurious Emission	-20dBc		Pass	-23.77dBm
15.247	RSS-210 A8.4	TX conducted output power	<30dBm		Pass	26.50dBm
15.247	RSS-210 A8.2	PSD	<8dBm		Pass	-0.74dBm
15.207 (a)	RSS-GEN 7.2.2	AC Power Line conducted emissions	Section 10	Radiated	Pass	55.94dBuV
15.205, 15.209	RSS-210 Clause 2.6, RSS-210 Clause 6	Radiated Spurious Emission	< 54dBuV/m		Pass	52.59dBuV/m

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10. ANTENNA PORT TEST RESULTS

10.1. 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

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10.1.1. 802.11b MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	Minimum Limit (MHz)
Low	2412	8.541	9.120	0.5
Mid	2437	9.780	9.120	0.5
High	2462	8.138	9.075	0.5

10.1.2. 802.11g MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	Minimum Limit (MHz)
Low	2412	16.400	16.475	0.5
Mid	2437	16.425	16.400	0.5
High	2462	15.800	16.425	0.5

10.1.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	Minimum Limit (MHz)
Low	2412	17.150	17.675	0.5
Mid	2437	17.675	17.650	0.5
High	2462	16.425	17.625	0.5

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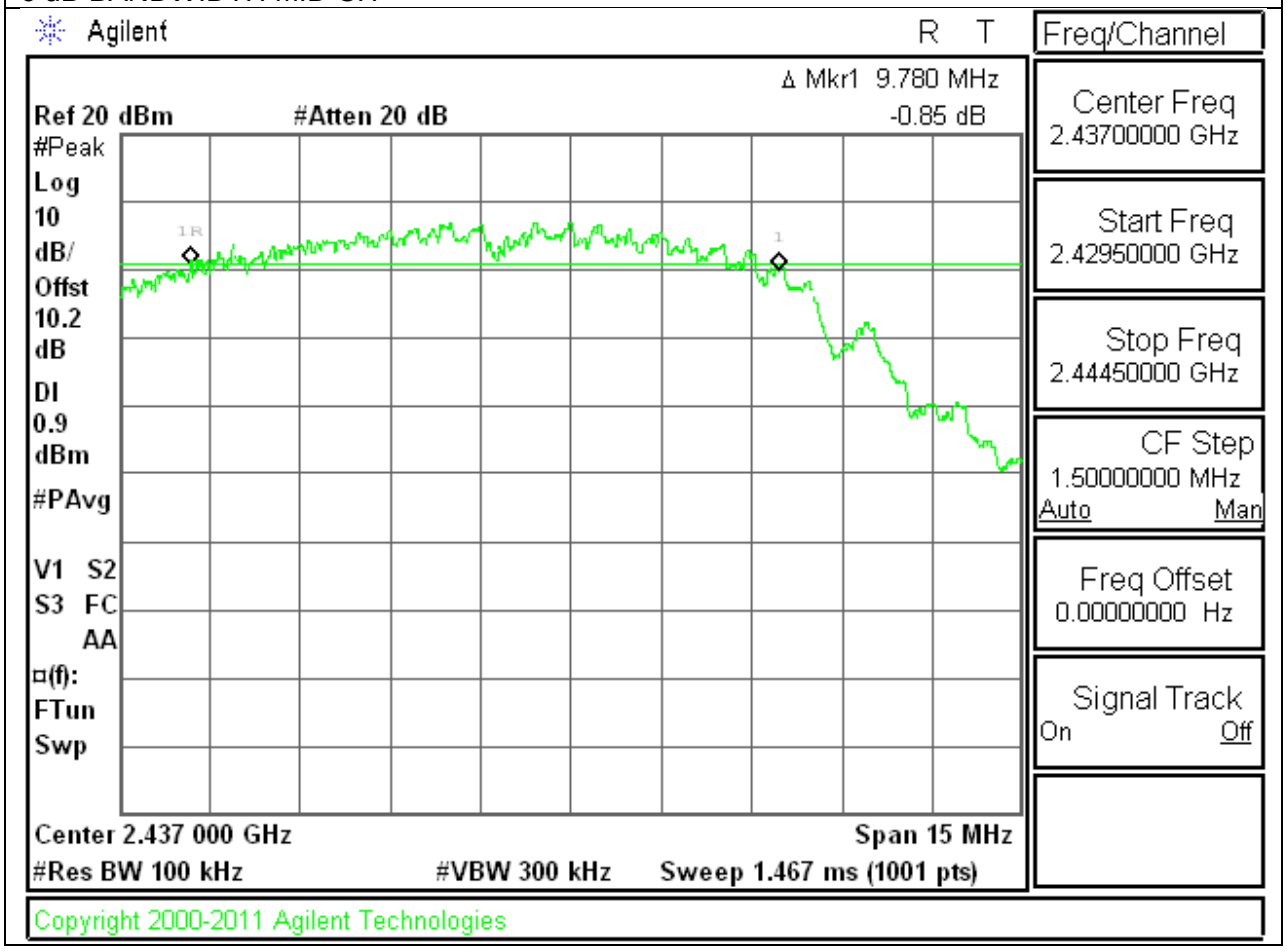
10.1.4. 2.4GHz Plots

802.11b 6 dB BANDWIDTH CHAIN 0

6 dB BANDWIDTH MID CH



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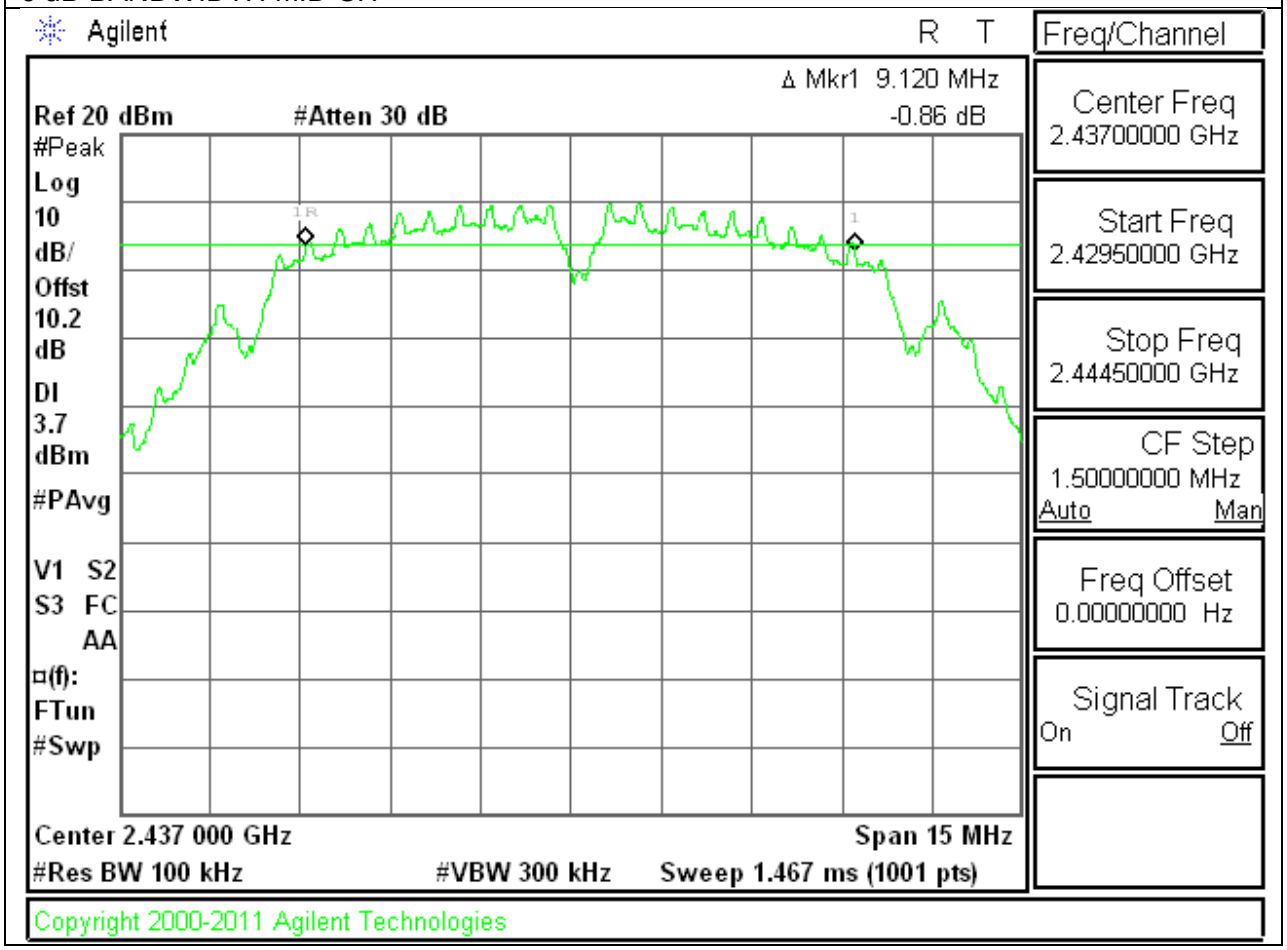
802.11b 6 dB BANDWIDTH CHAIN 1

6 dB BANDWIDTH MID CH



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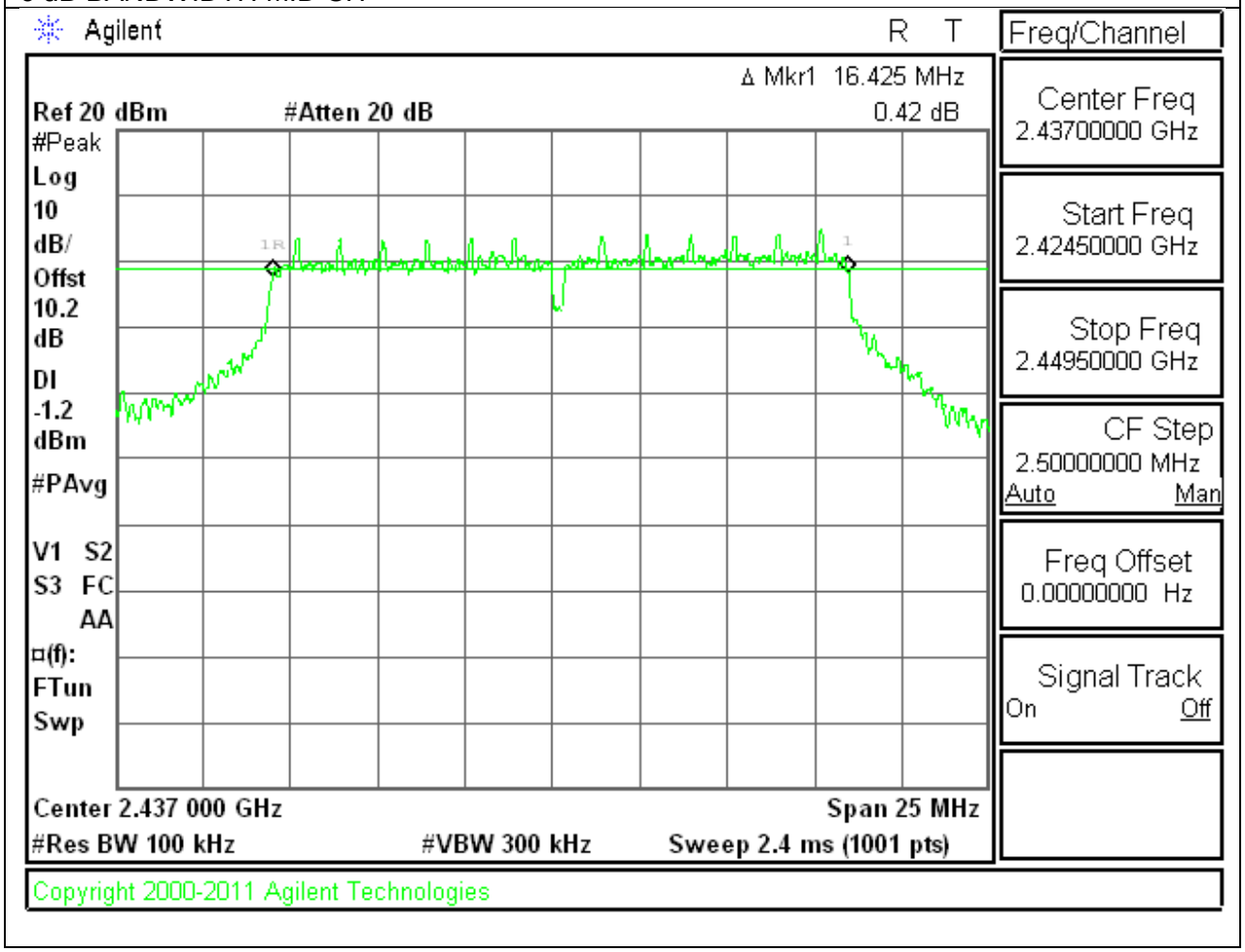
802.11g 6 dB BANDWIDTH CHAIN 0

6 dB BANDWIDTH MID CH



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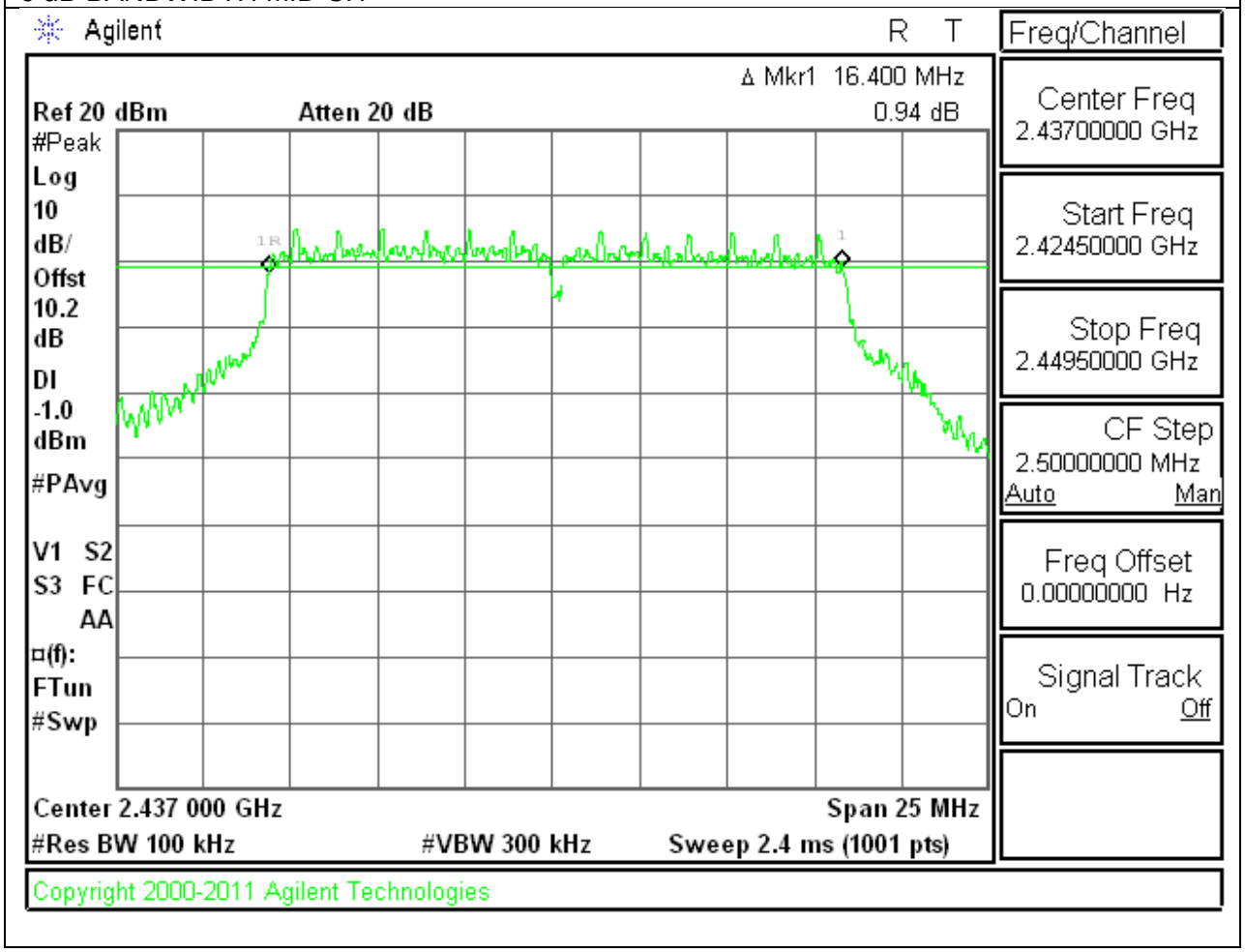
802.11g 6 dB BANDWIDTH CHAIN 1

6 dB BANDWIDTH MID CH



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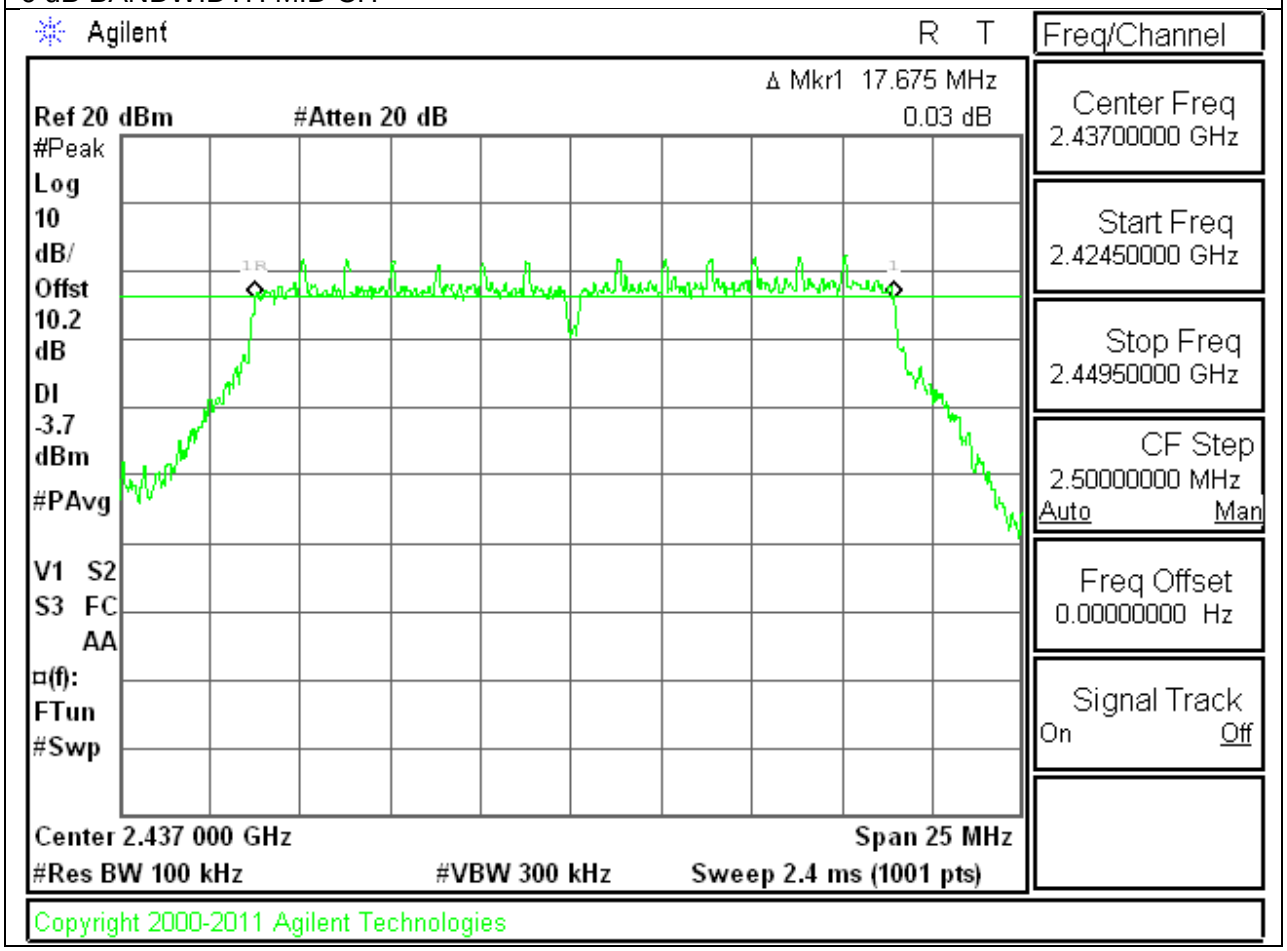
802.11n 6 dB BANDWIDTH CHAIN 0

6 dB BANDWIDTH MID CH



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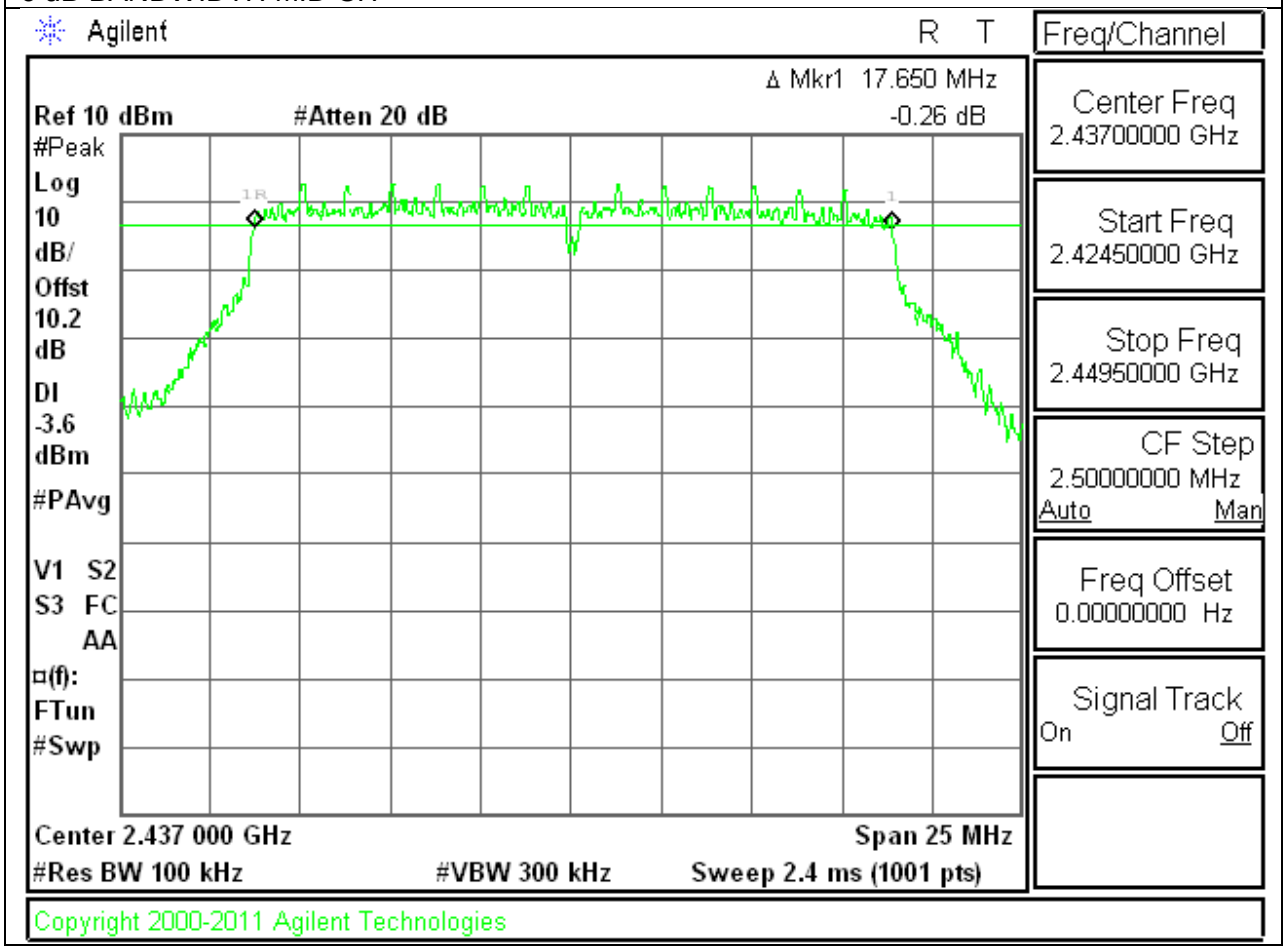
802.11n 6 dB BANDWIDTH CHAIN 1

6 dB BANDWIDTH MID CH



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10.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

10.2.1. 802.11b MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	2412	10.4687	10.7272
Mid	2437	11.0926	10.5700
High	2462	10.5576	10.8703

10.2.2. 802.11g MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	2412	16.3890	16.4667
Mid	2437	16.4200	16.3574
High	2462	16.4739	16.4201

10.2.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	2412	17.1993	17.3147
Mid	2437	17.3937	17.2659
High	2462	17.2782	17.3795

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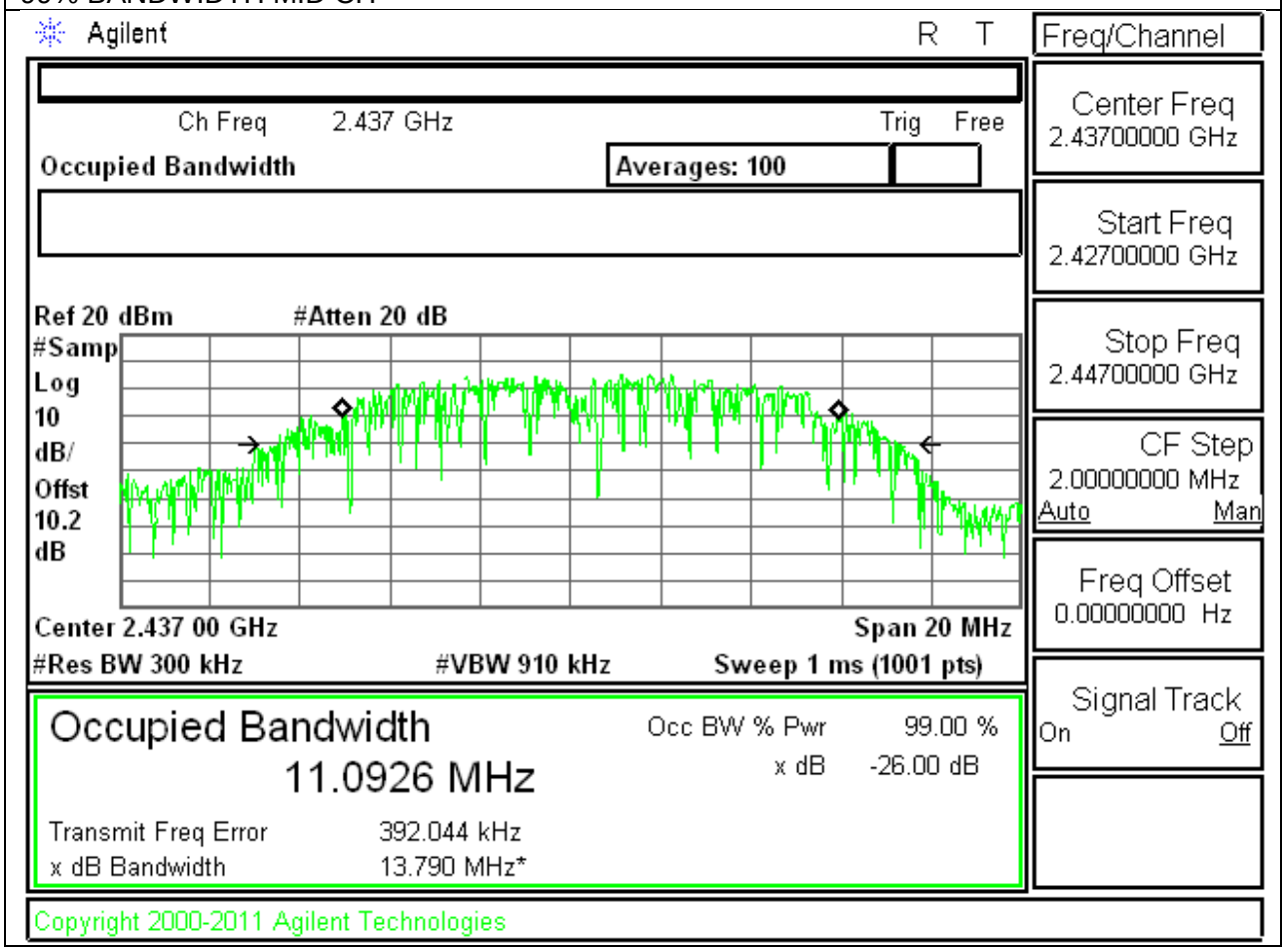
10.2.4. 2.4GHz Plots

802.11b 99% BANDWIDTH CHAIN 0

99% BANDWIDTH MID CH



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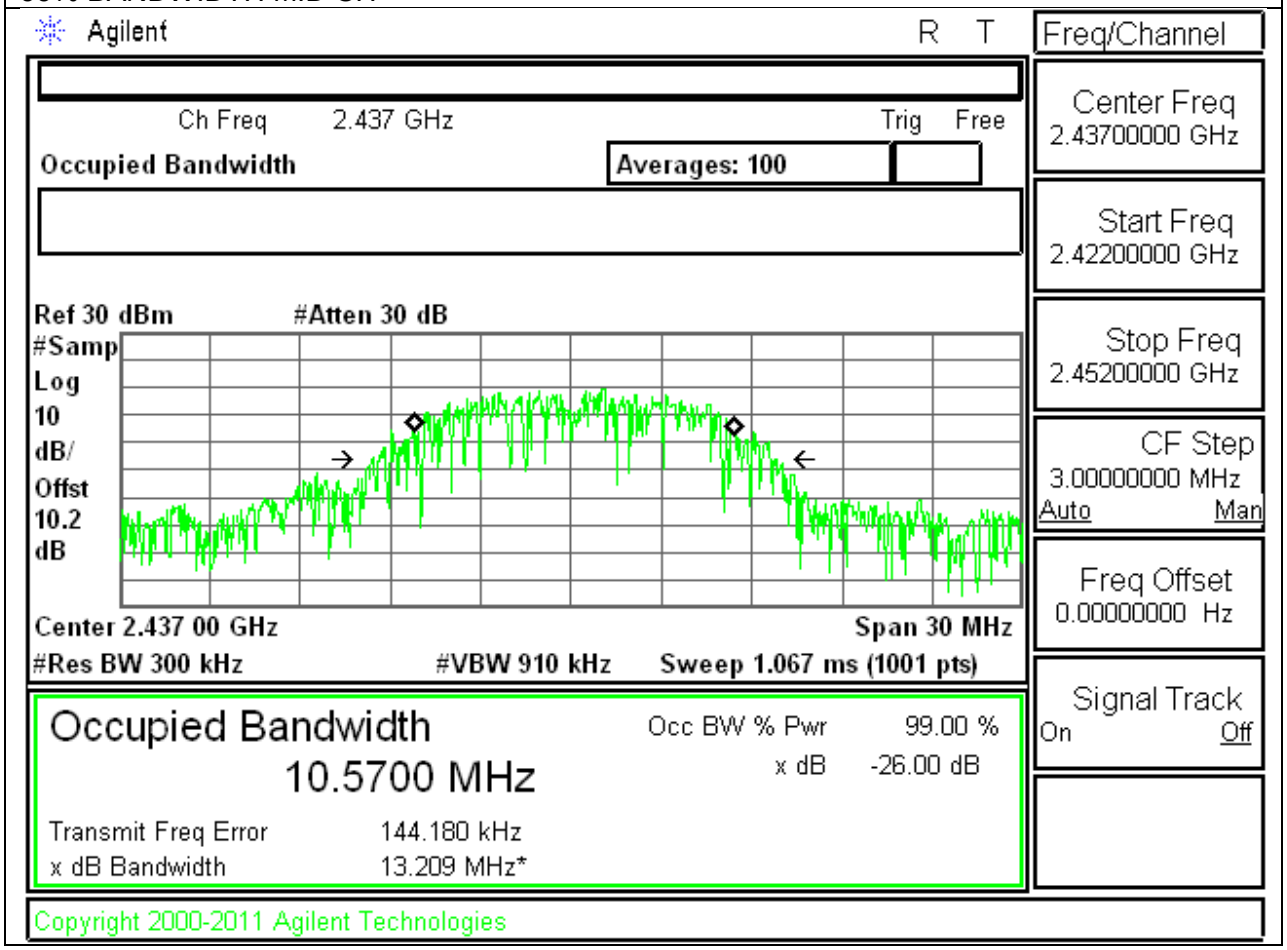
802.11b 99% BANDWIDTH CHAIN 1

99% BANDWIDTH MID CH



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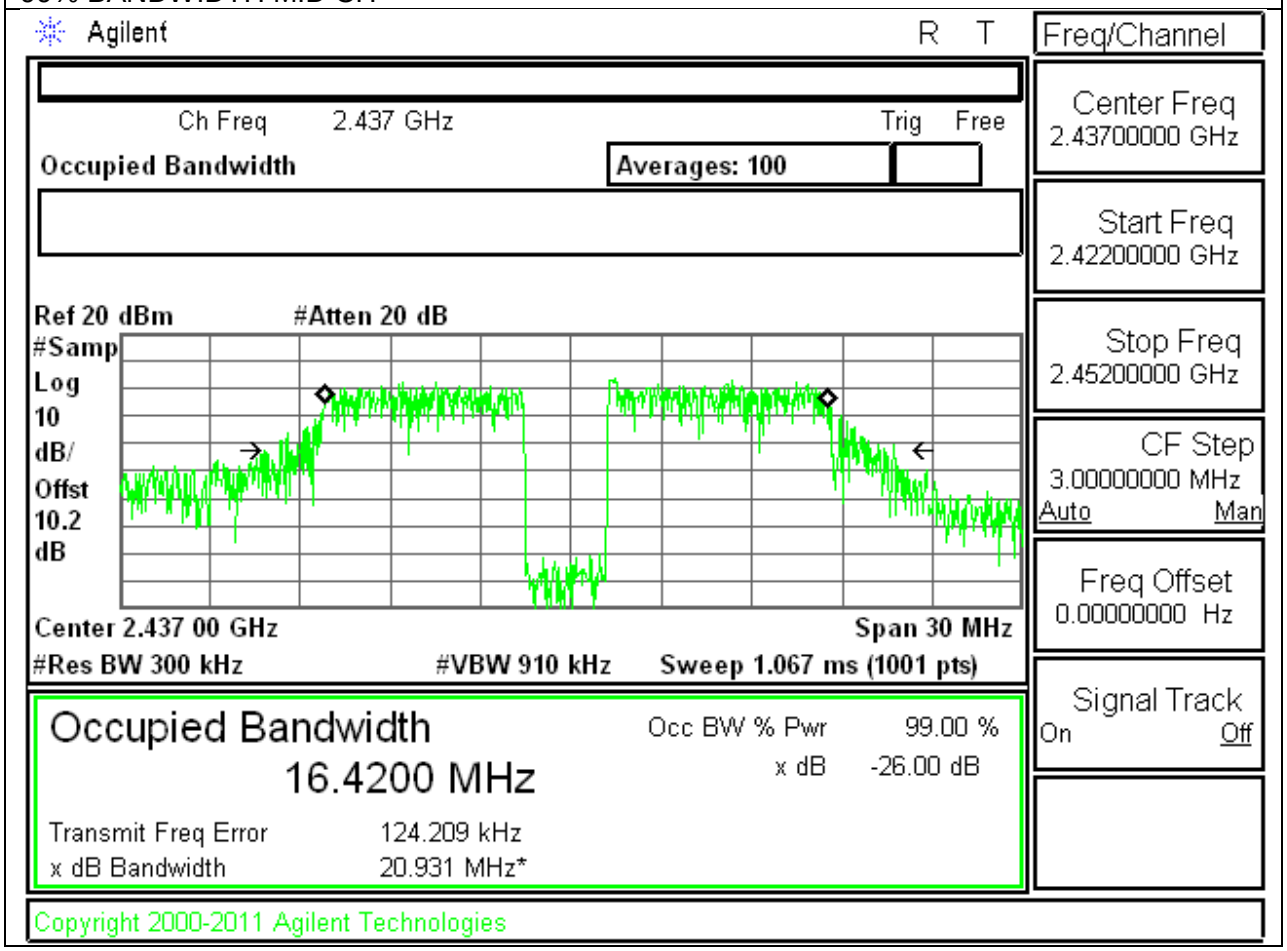
802.11g 99% BANDWIDTH CHAIN 0

99% BANDWIDTH MID CH



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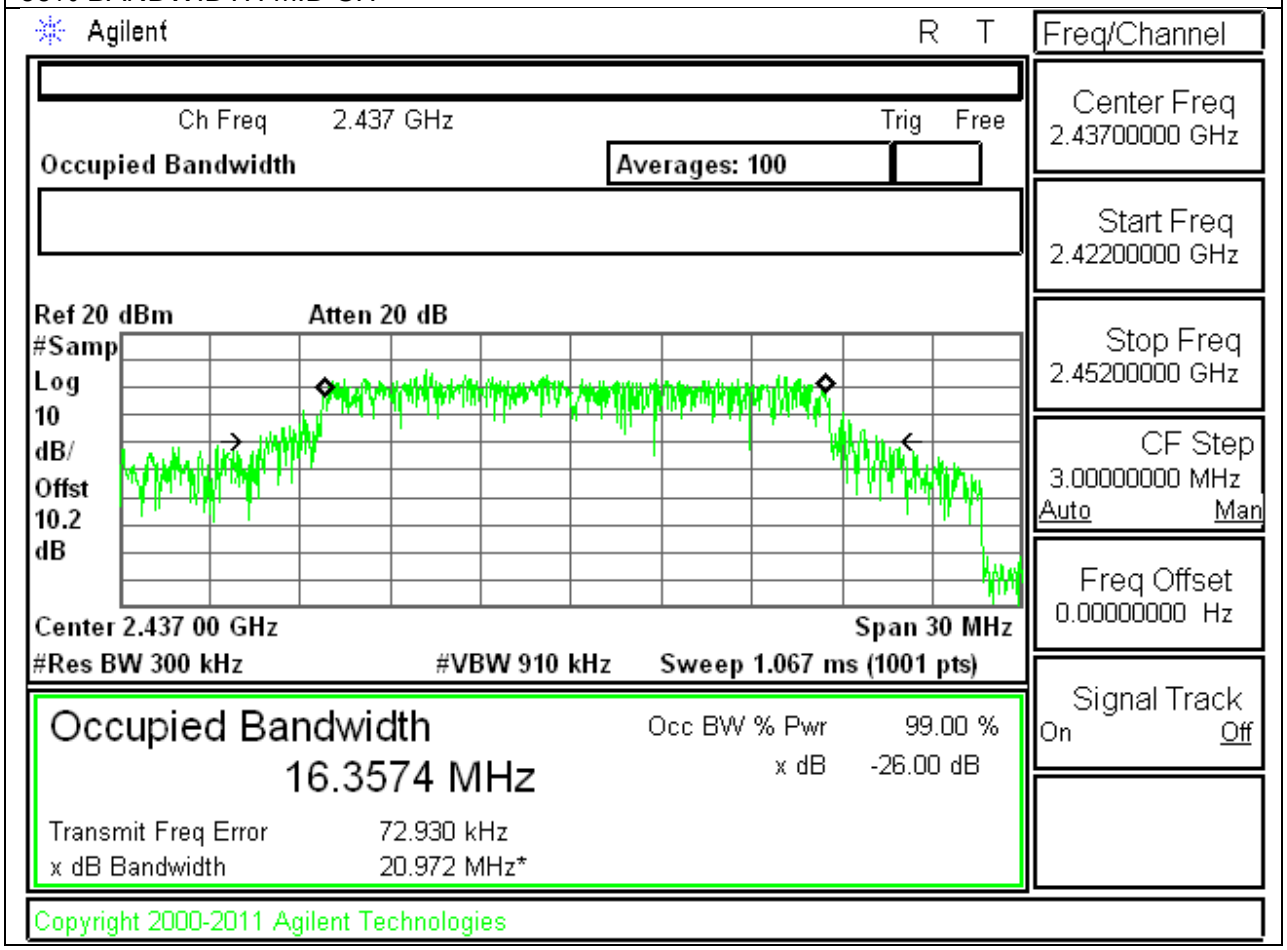
802.11g 99% BANDWIDTH CHAIN 1

99% BANDWIDTH MID CH



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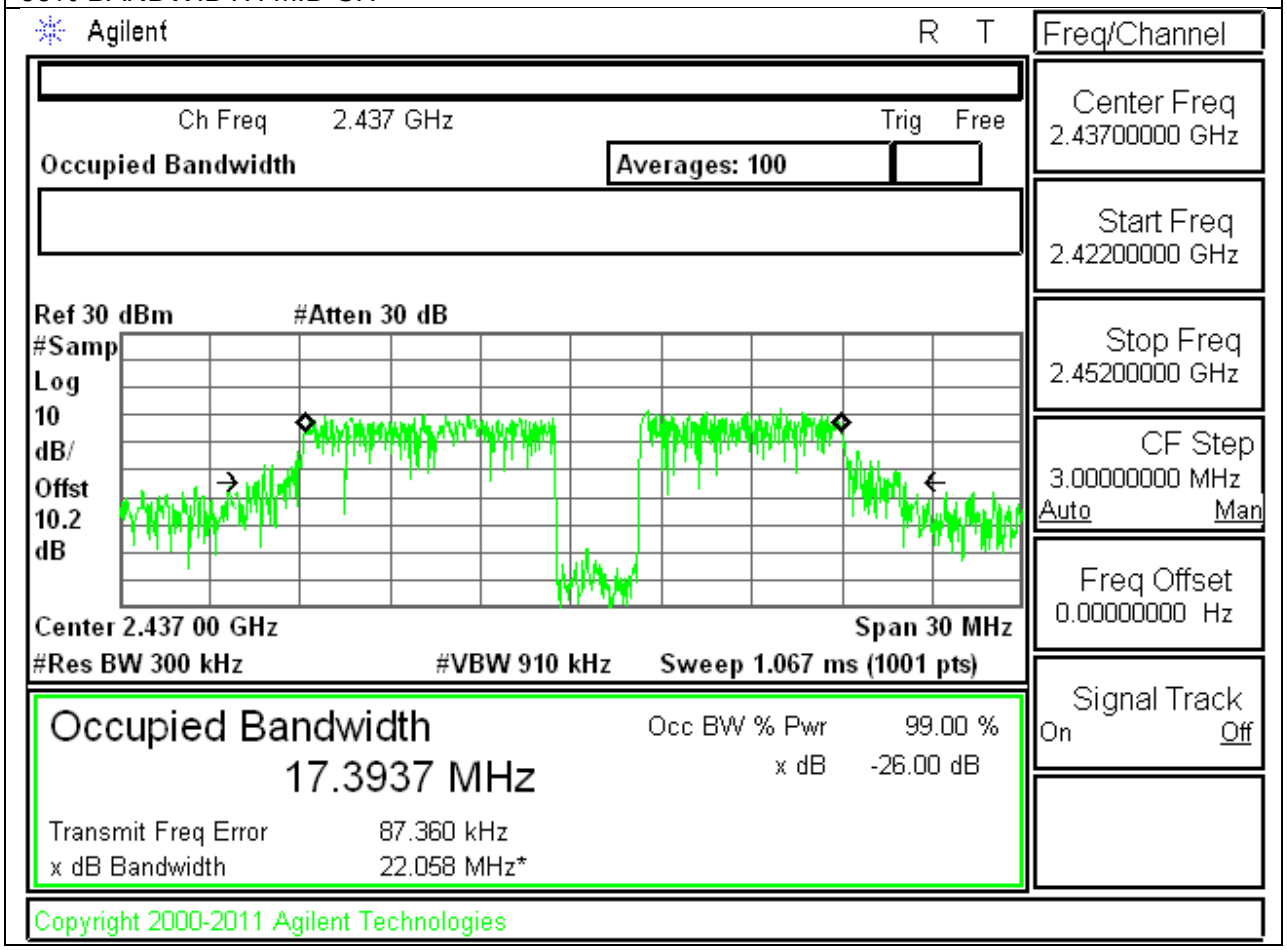
802.11n 99% BANDWIDTH CHAIN 0

99% BANDWIDTH MID CH



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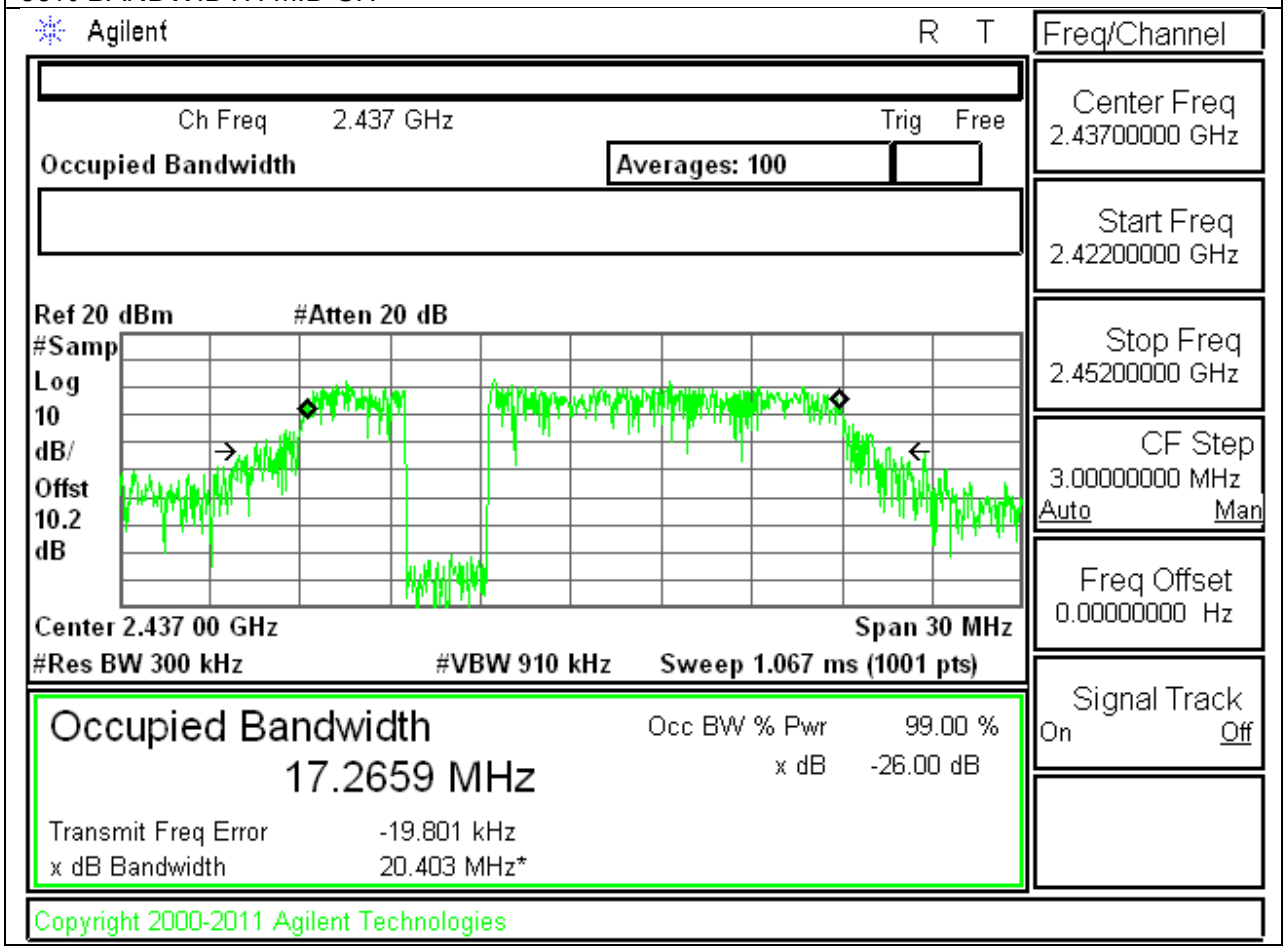
802.11n 99% BANDWIDTH CHAIN 0

99% BANDWIDTH MID CH



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10.3. 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

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10.3.1. 802.11b MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low	2412	13.50	14.50	17.04
Mid	2437	13.50	14.30	16.93
High	2462	13.10	14.50	16.87

10.3.2. 802.11g MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low	2412	14.00	14.40	17.21
Mid	2437	14.30	14.30	17.31
High	2462	14.00	14.30	17.16

10.3.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low	2412	11.80	12.20	15.01
Mid	2437	12.00	12.10	15.06
High	2462	11.90	12.20	15.06

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10.4. 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

PWR: The TX chains are uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
-3.69	-7.89	-5.30

PPSD: The TX chains are correlated and the antenna gain is unequal among the chains. The directional gain is:

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Correlated Chains Directional Gain (dBi)
-3.69	-7.89	-2.53

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RESULTS

10.4.1. 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	-5.30	30.00	30	36	30.00
Mid	2437	-5.30	30.00	30	36	30.00
High	2462	-5.30	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margi (dB)
Low	2412	18.80	19.79	22.33	30.00	-7.67
Mid	2437	16.52	20.97	22.30	30.00	-7.70
High	2462	16.50	19.83	21.49	30.00	-8.51

10.4.2. 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	-5.30	30.00	30	36	30.00
Mid	2437	-5.30	30.00	30	36	30.00
High	2462	-5.30	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margi (dB)
Low	2412	23.09	23.33	26.22	30.00	-3.78
Mid	2437	22.73	24.14	26.50	30.00	-3.50
High	2462	22.31	23.45	25.93	30.00	-4.07

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10.4.3. 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	-5.30	30.00	30	36	30.00
Mid	2437	-5.30	30.00	30	36	30.00
High	2462	-5.30	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margi (dB)
Low	2412	20.33	21.30	23.85	30.00	-6.15
Mid	2437	20.82	22.12	24.53	30.00	-5.47
High	2462	21.42	21.17	24.31	30.00	-5.69

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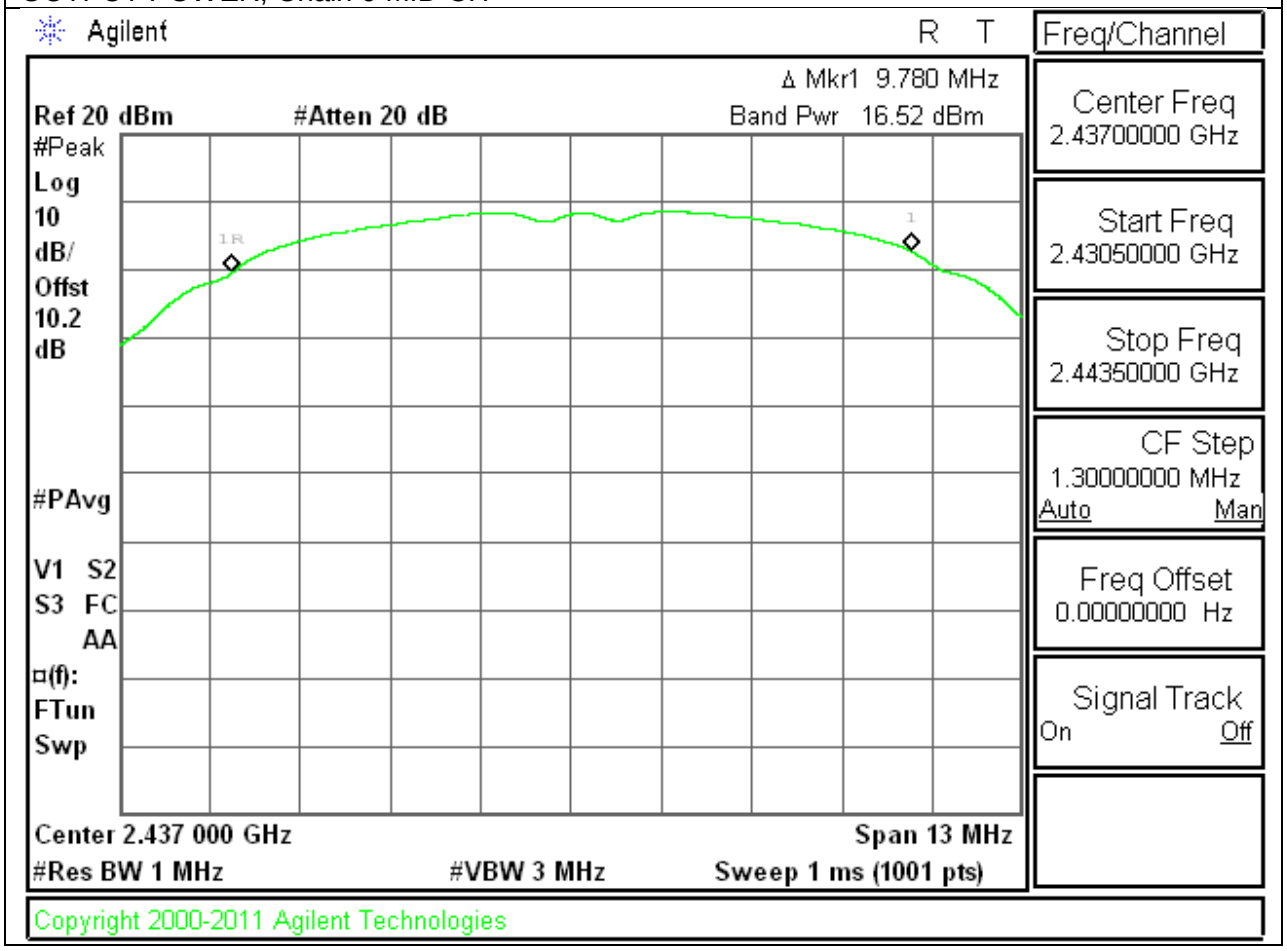
10.4.4. 2.4GHz Plots

802.11b OUTPUT POWER, Chain 0

OUTPUT POWER, Chain 0 MID CH



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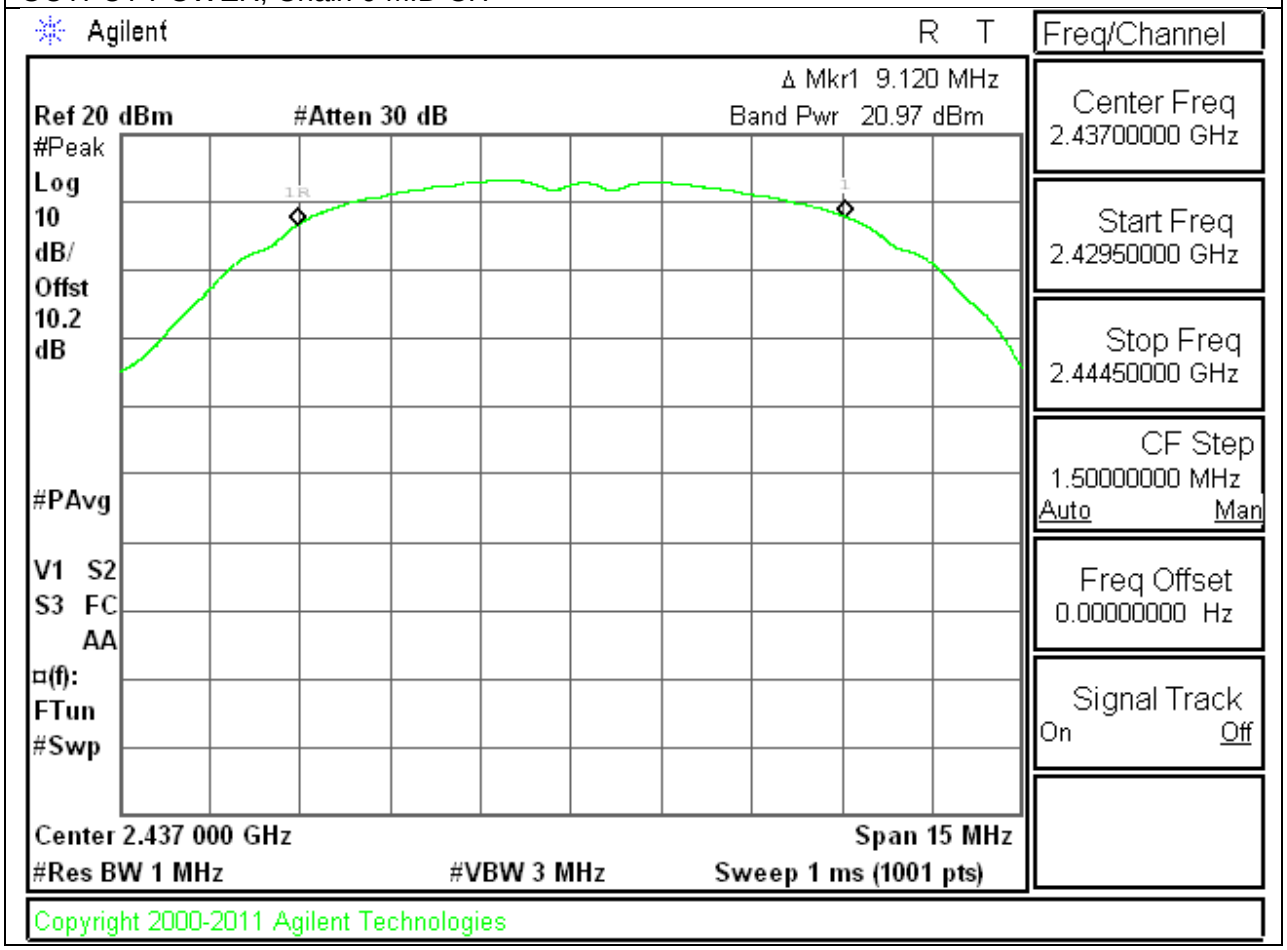
802.11b OUTPUT POWER, Chain 1

OUTPUT POWER, Chain 0 MID CH



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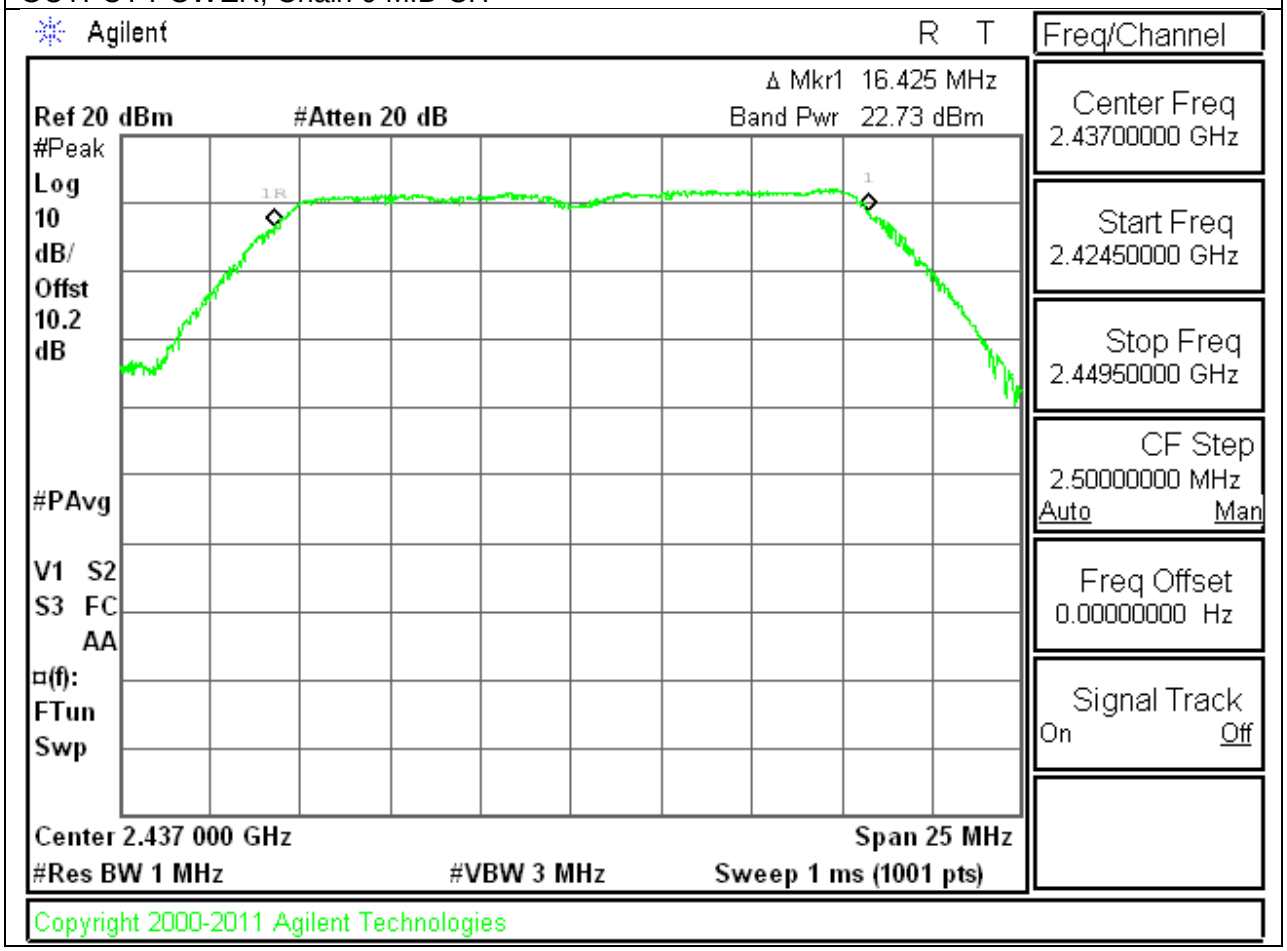
802.11g OUTPUT POWER, Chain 0

OUTPUT POWER, Chain 0 MID CH



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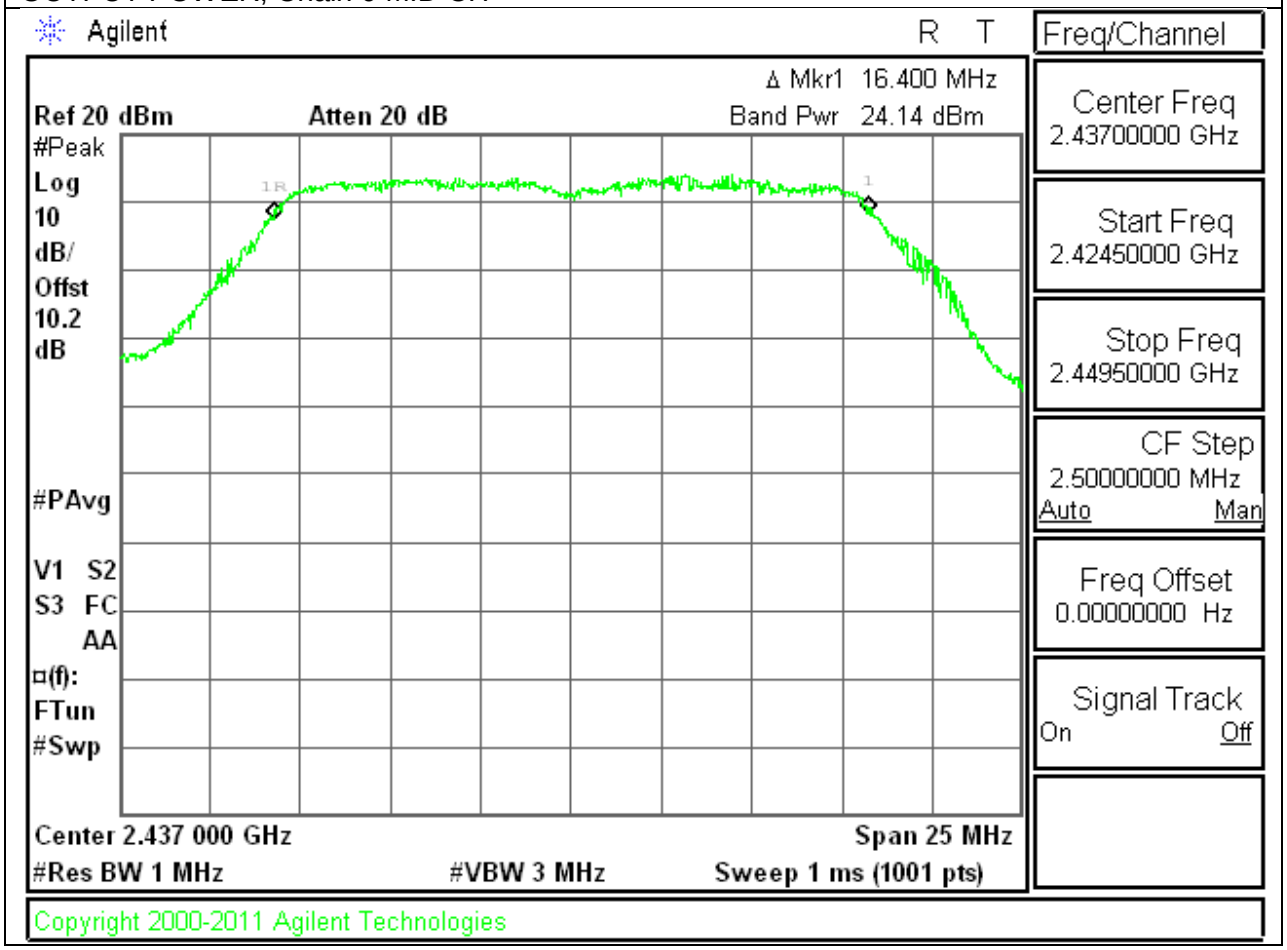
802.11g OUTPUT POWER, Chain 1

OUTPUT POWER, Chain 0 MID CH



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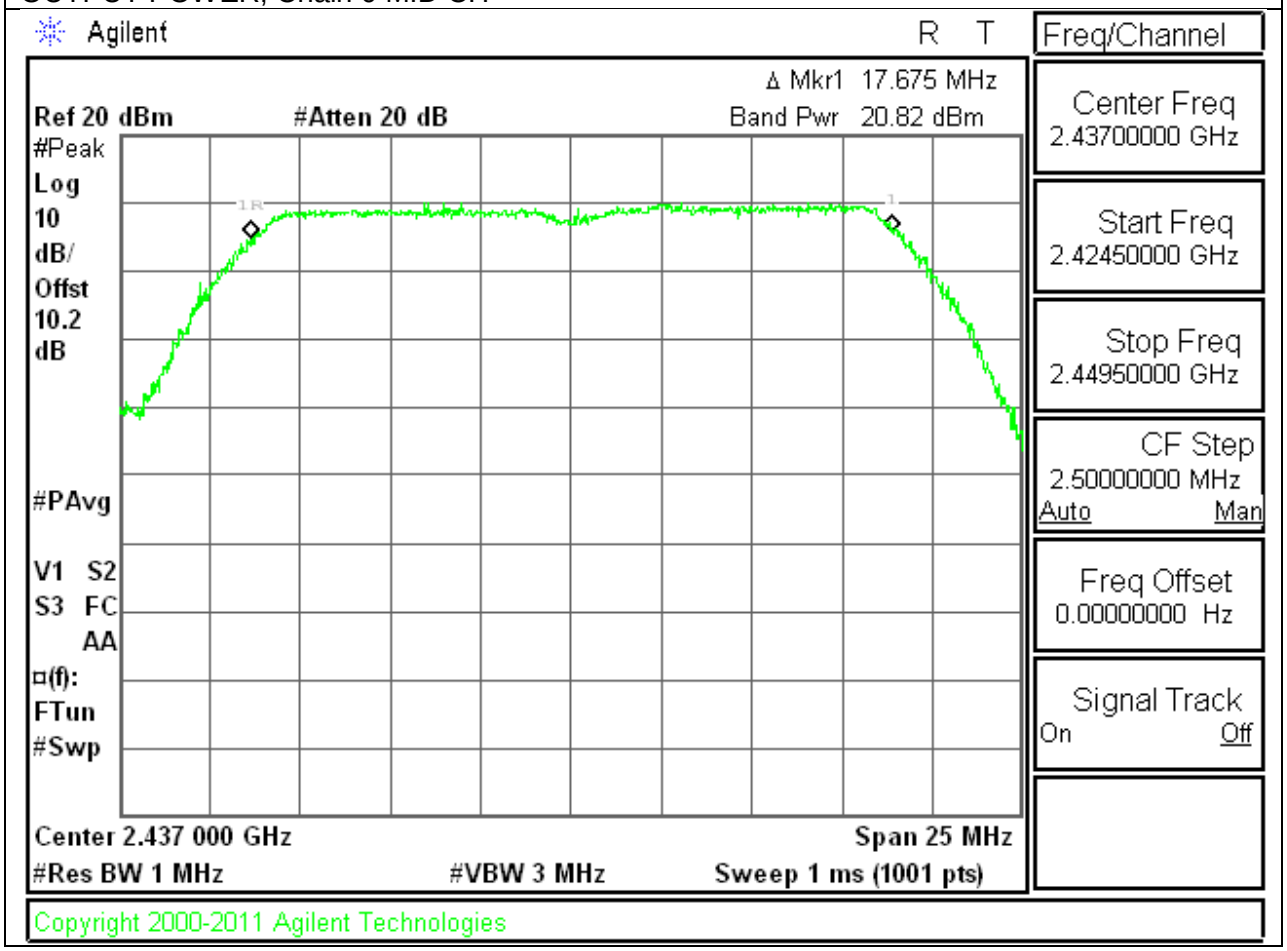
802.11n OUTPUT POWER, Chain 0

OUTPUT POWER, Chain 0 MID CH



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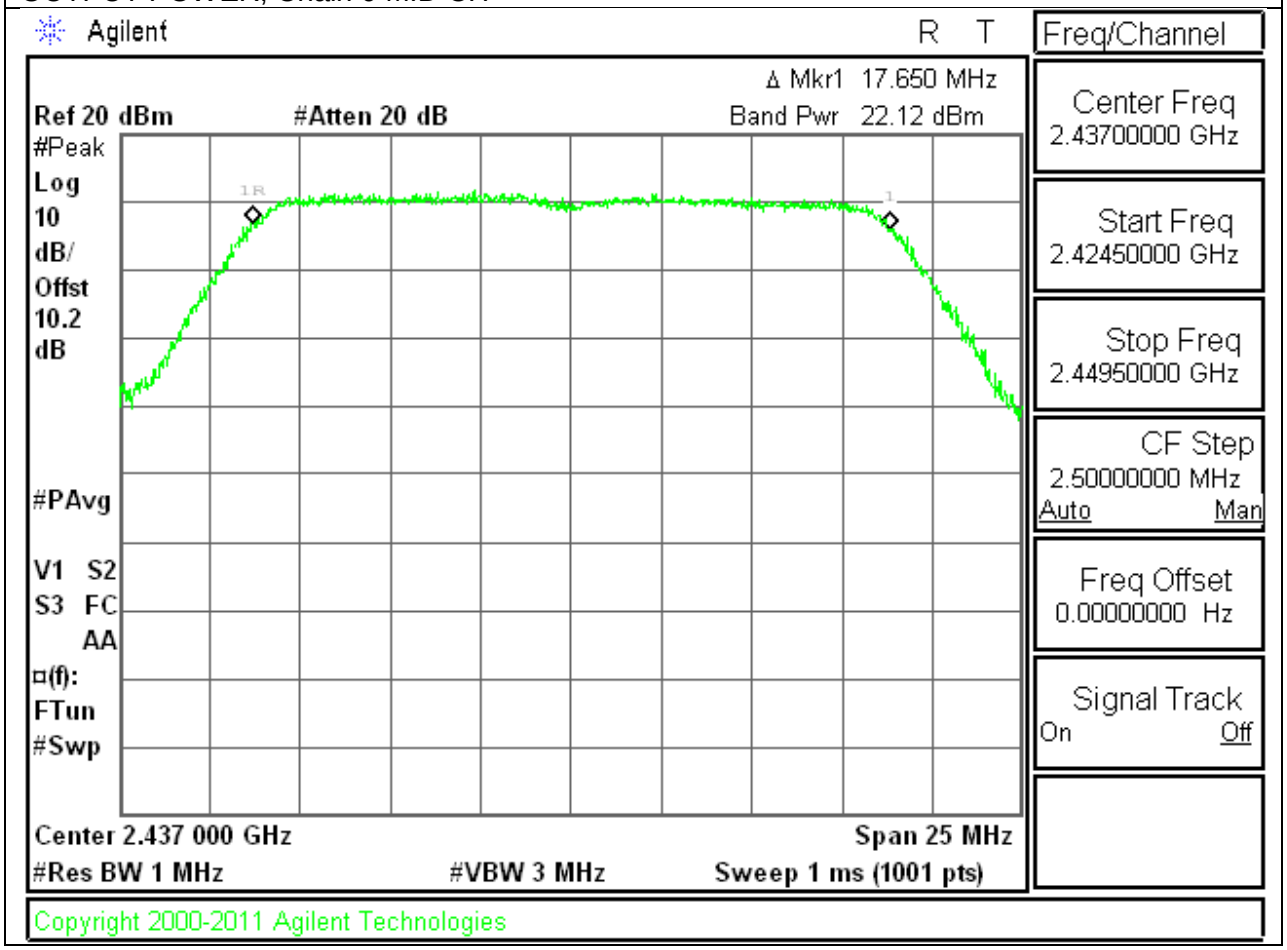
802.11n OUTPUT POWER, Chain 1

OUTPUT POWER, Chain 0 MID CH



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10.5. 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

10.5.1. 802.11b MODE IN THE 2.4 GHz BAND

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Chain 1 Meas (dBm)	Total PSD (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-3.61	-3.89	-0.74	8.0	-8.7
Mid	2437	-7.09	-4.81	-2.79	8.0	-10.8
High	2462	-8.82	-5.16	-3.61	8.0	-11.6

10.5.2. 802.11g MODE IN THE 2.4 GHz BAND

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Chain 1 Meas (dBm)	Total PSD (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-10.38	-9.76	-7.05	8.0	-15.0
Mid	2437	-11.19	-9.09	-7.00	8.0	-15.0
High	2462	-9.94	-10.29	-7.10	8.0	-15.1

10.5.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Chain 1 Meas (dBm)	Total PSD (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-12.84	-12.61	-9.71	8.0	-17.7
Mid	2437	-13.01	-10.92	-8.83	8.0	-16.8
High	2462	-11.49	-12.28	-8.86	8.0	-16.9

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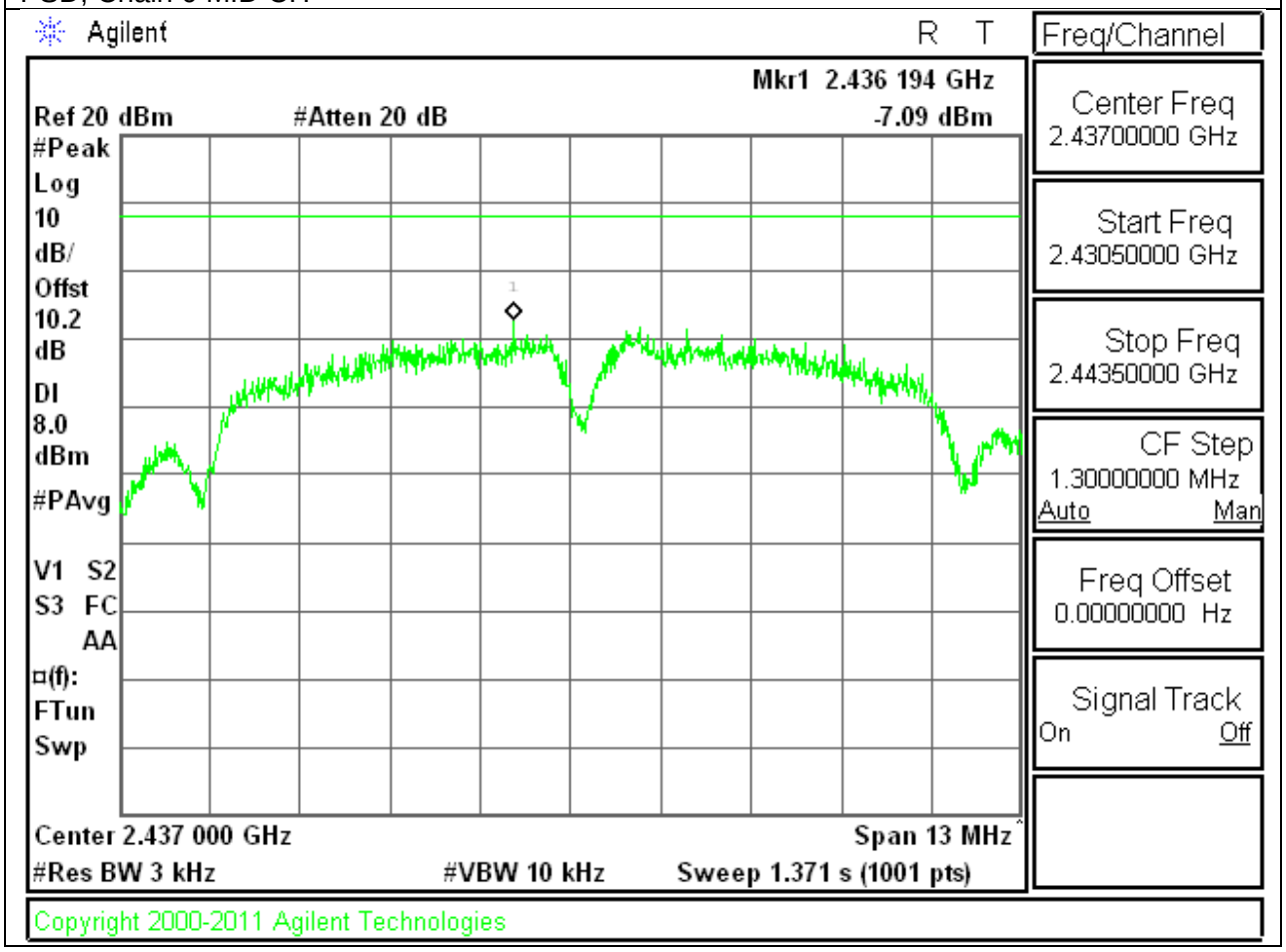
10.5.4. 2.4GHz Plots

802.11b PSD, Chain 0

PSD, Chain 0 MID CH



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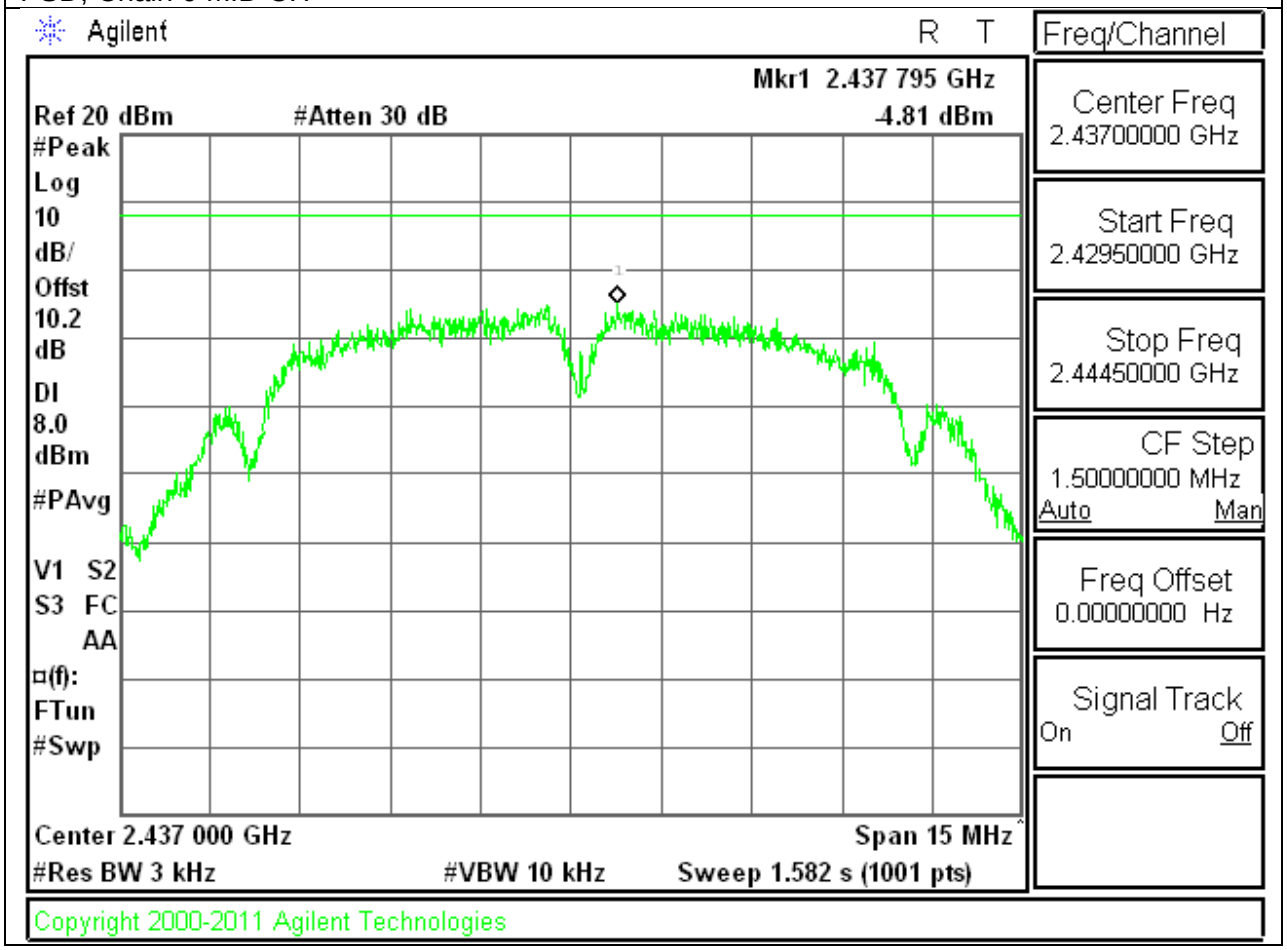
802.11b PSD, Chain 1

PSD, Chain 0 MID CH



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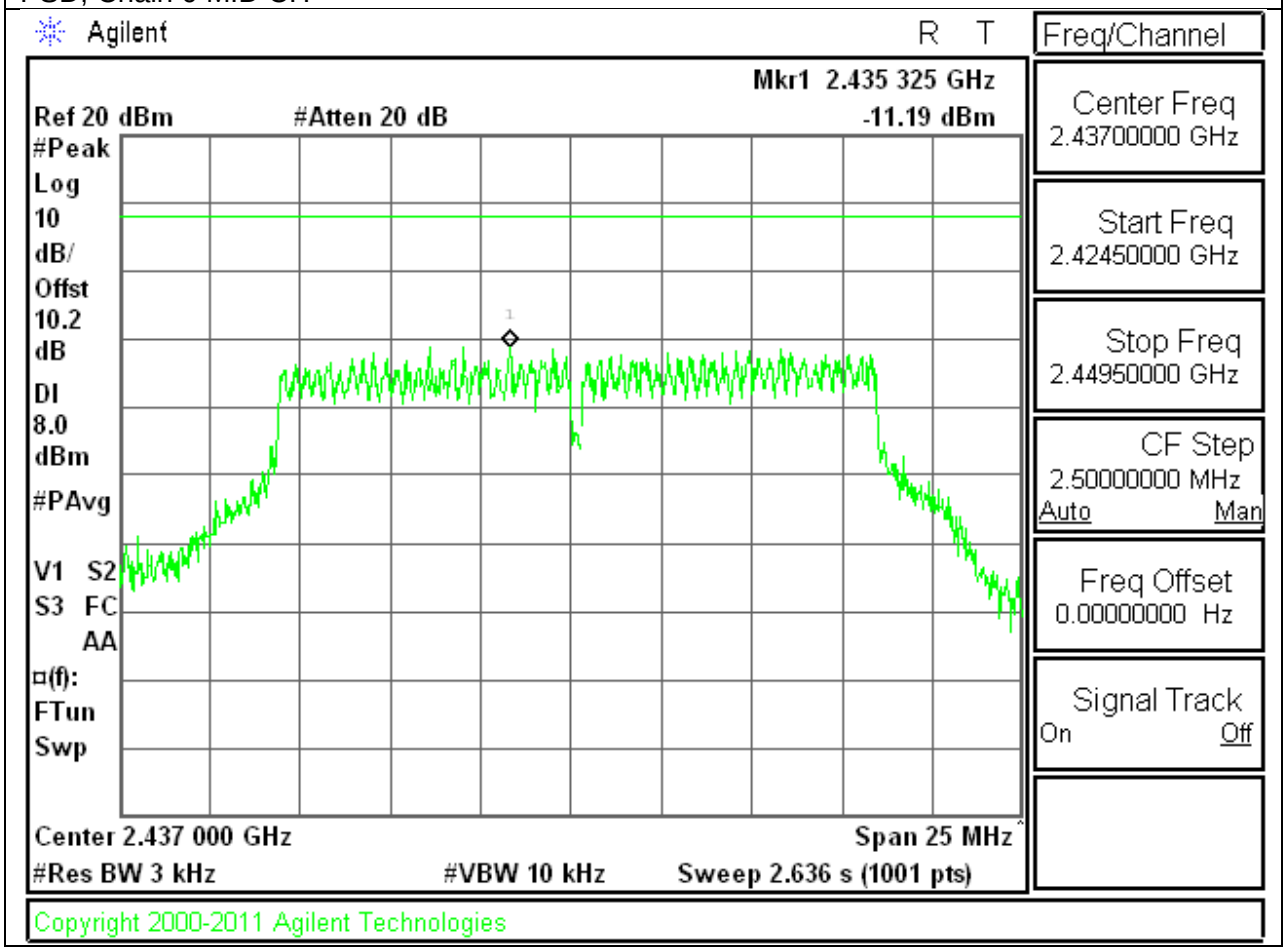
802.11g PSD, Chain 0

PSD, Chain 0 MID CH



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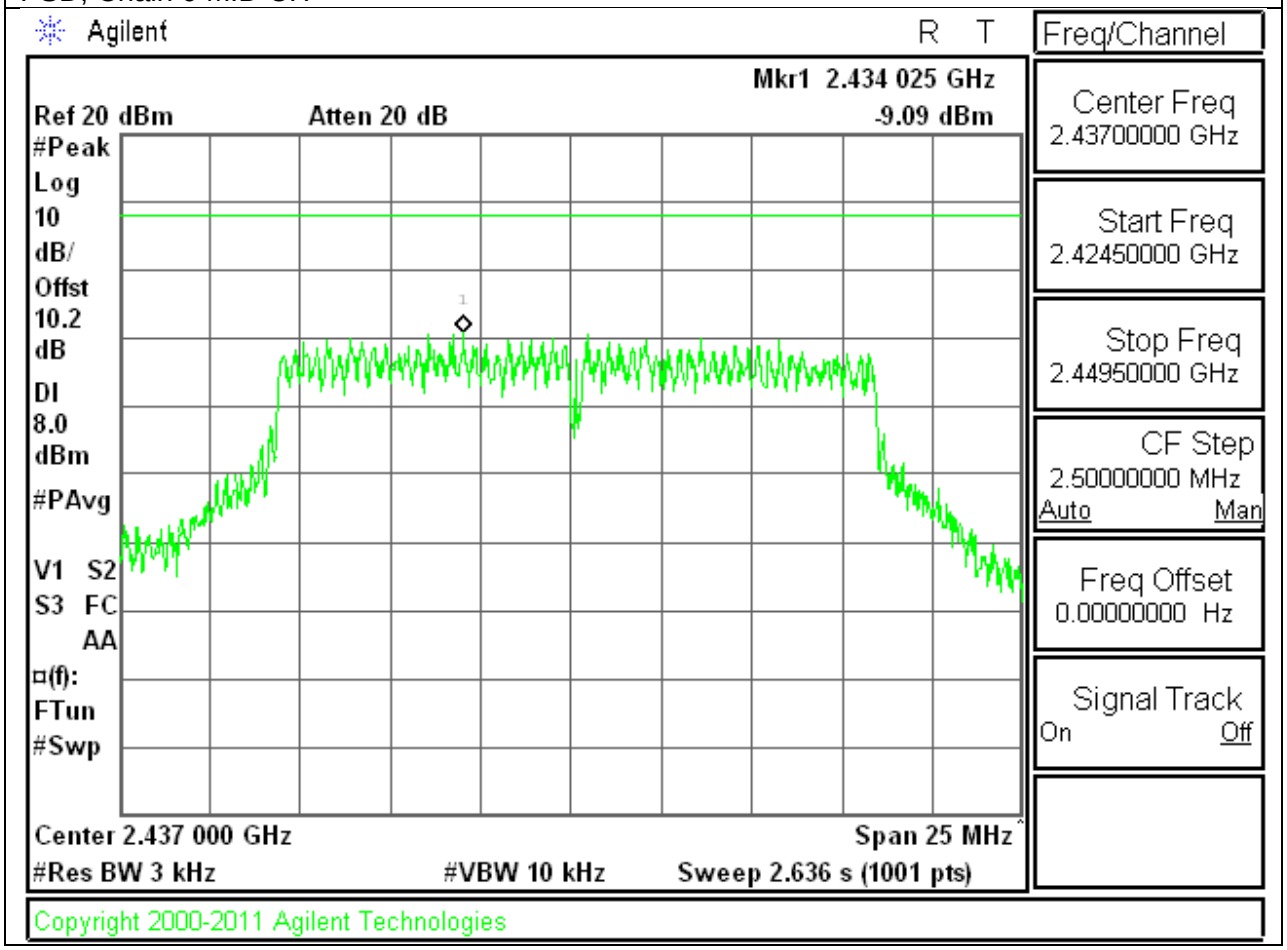
802.11g PSD, Chain 1

PSD, Chain 0 MID CH



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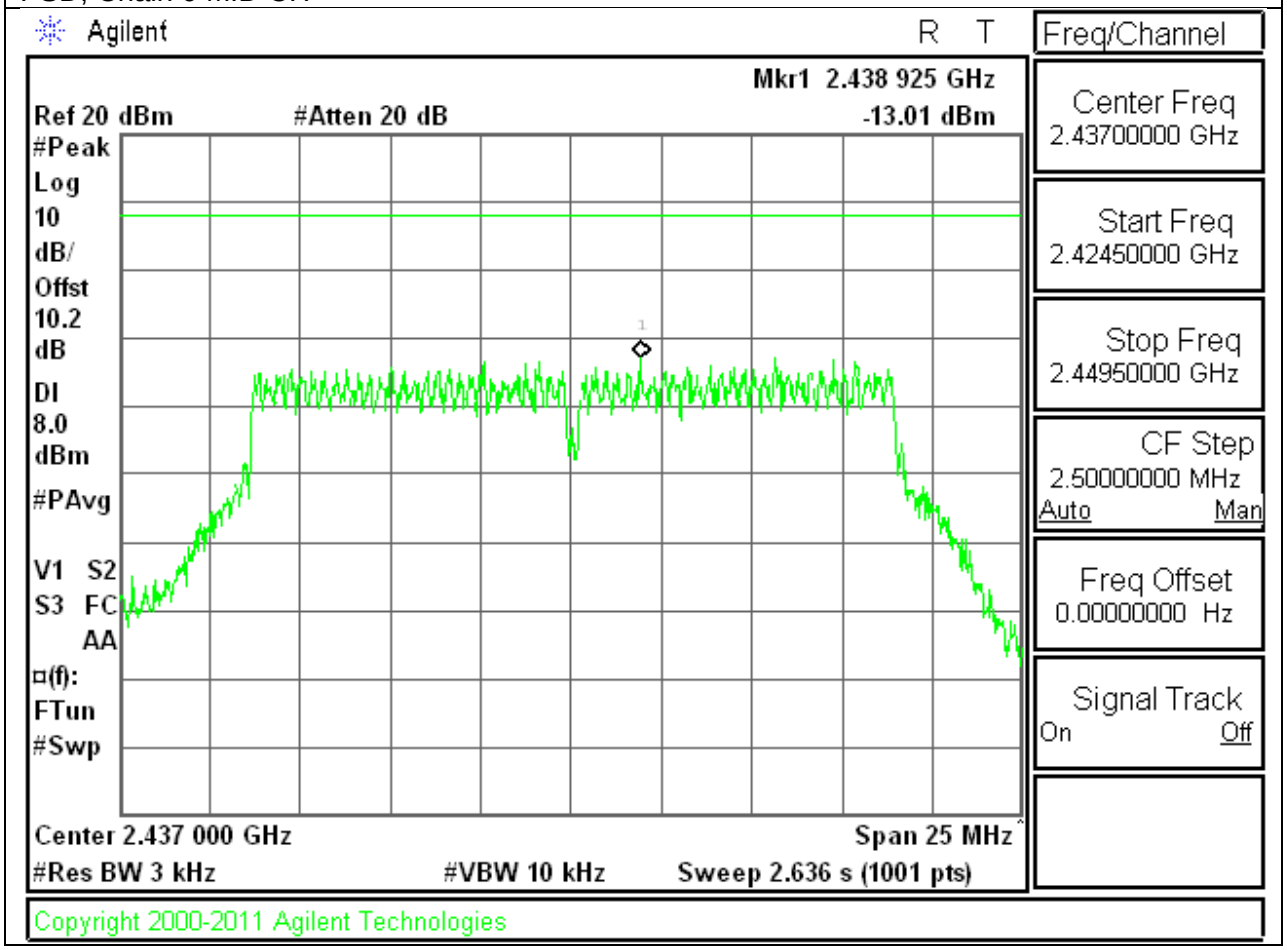
802.11n PSD, Chain 0

PSD, Chain 0 MID CH



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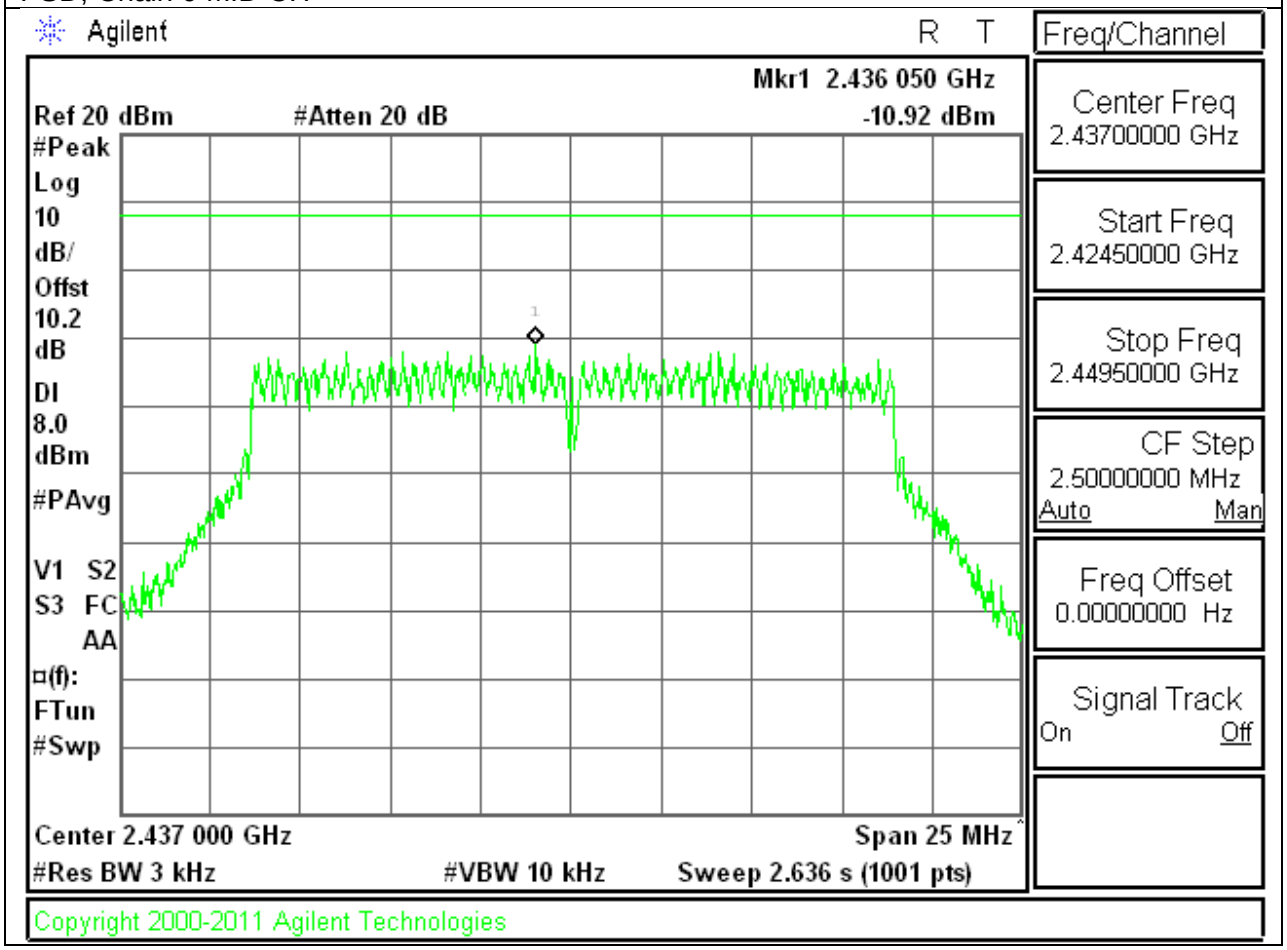
802.11g PSD, Chain 1

PSD, Chain 0 MID CH



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10.6. 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.

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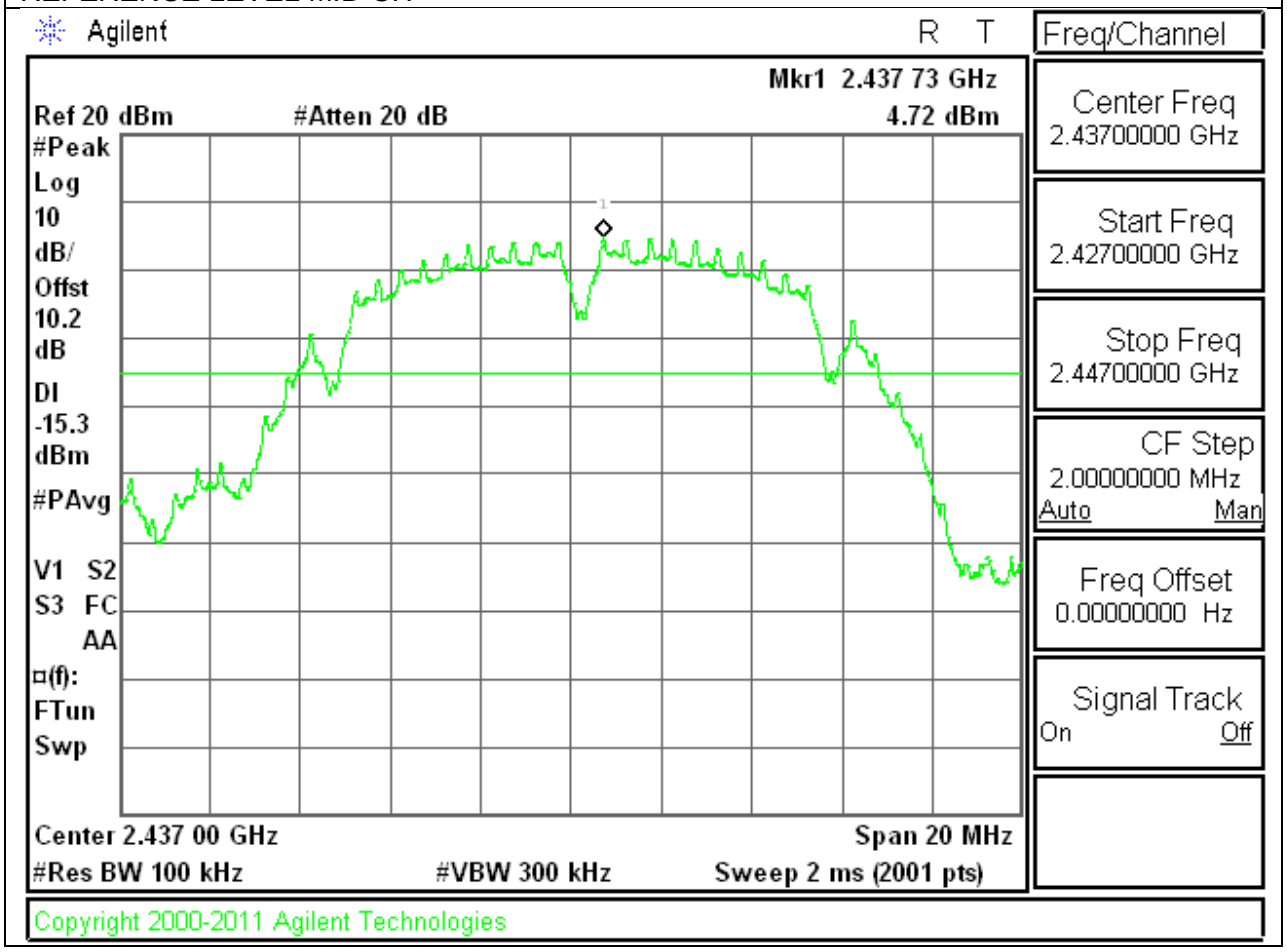
RESULTS

10.6.1. 802.11b MODE IN THE 2.4 GHz BAND CHAIN 0

IN-BAND REFERENCE LEVEL

REFERENCE LEVEL MID CH



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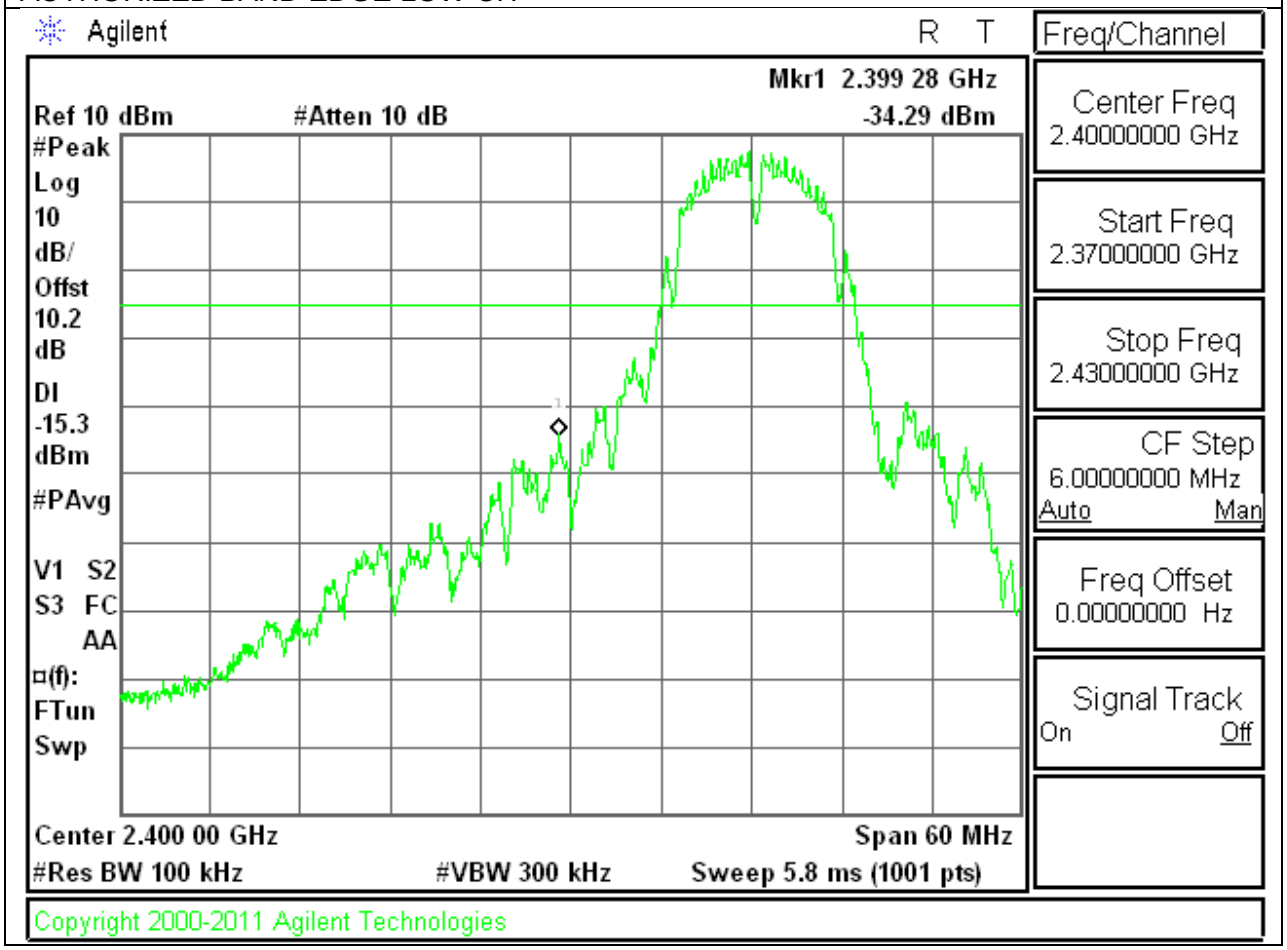
LOW CHANNEL BANDEDGE

AUTHORIZED BAND EDGE LOW CH



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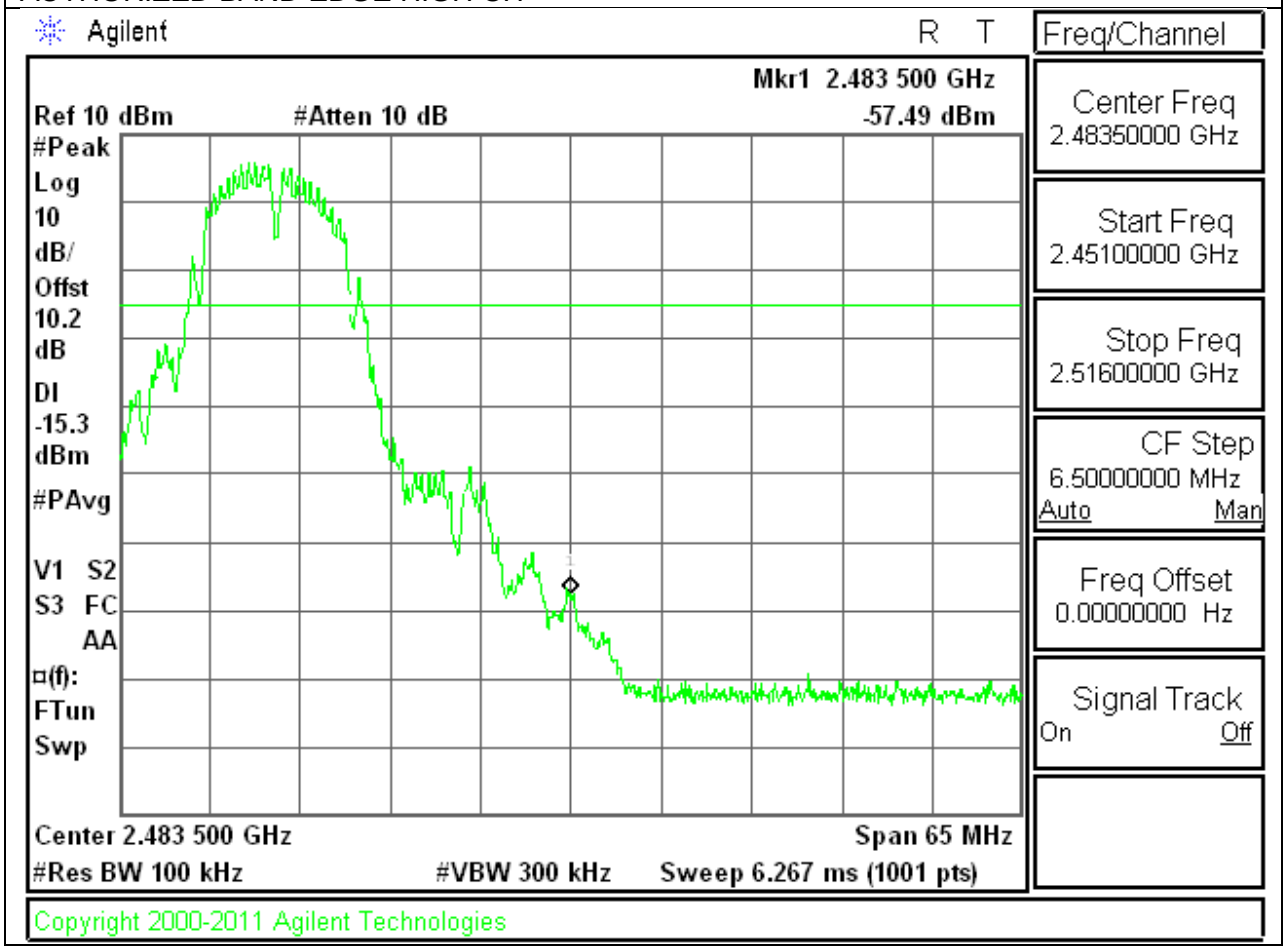
HIGH CHANNEL BANDEDGE

AUTHORIZED BAND EDGE HIGH CH



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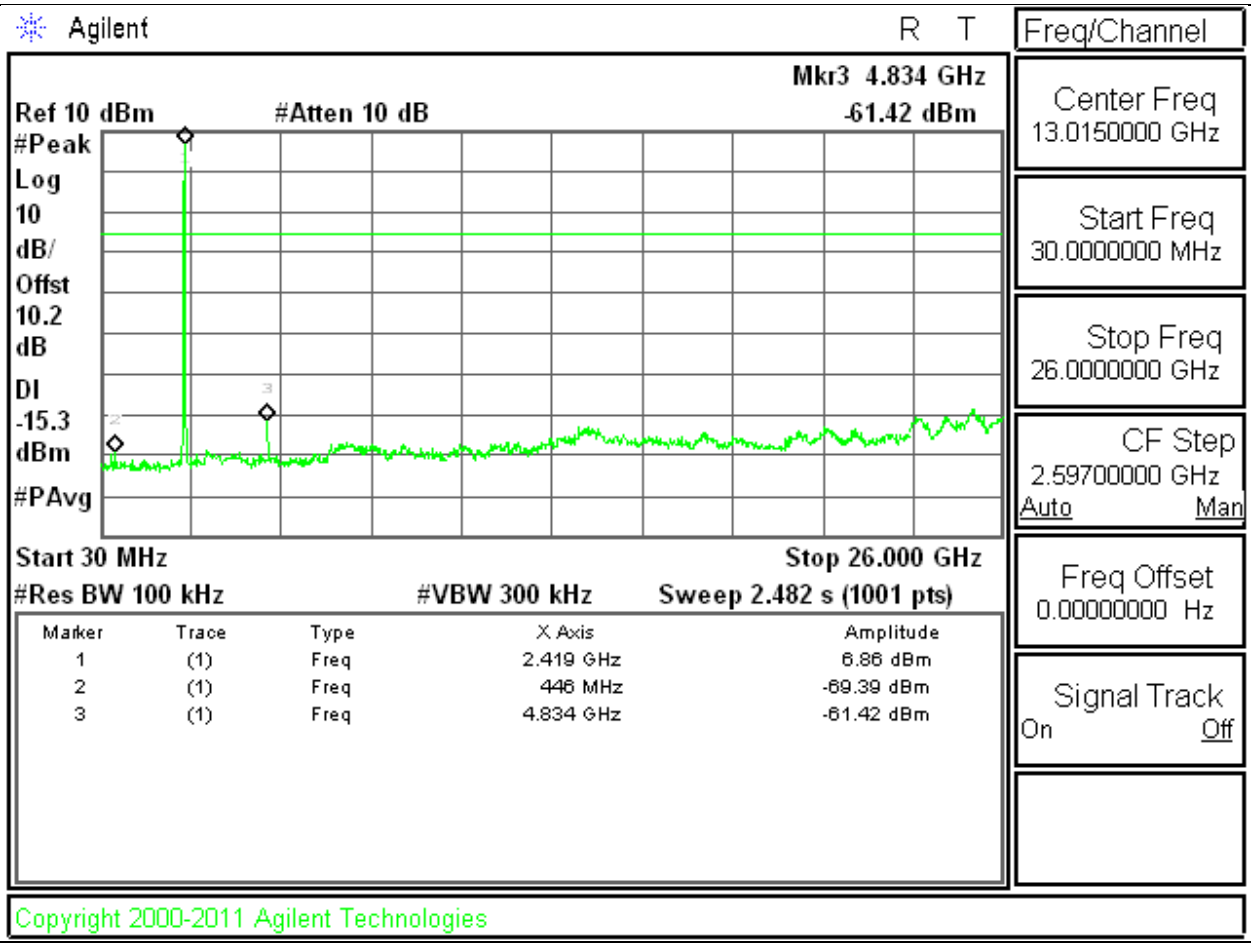
OUT-OF-BAND EMISSIONS

OUT OF BAND LOW CH



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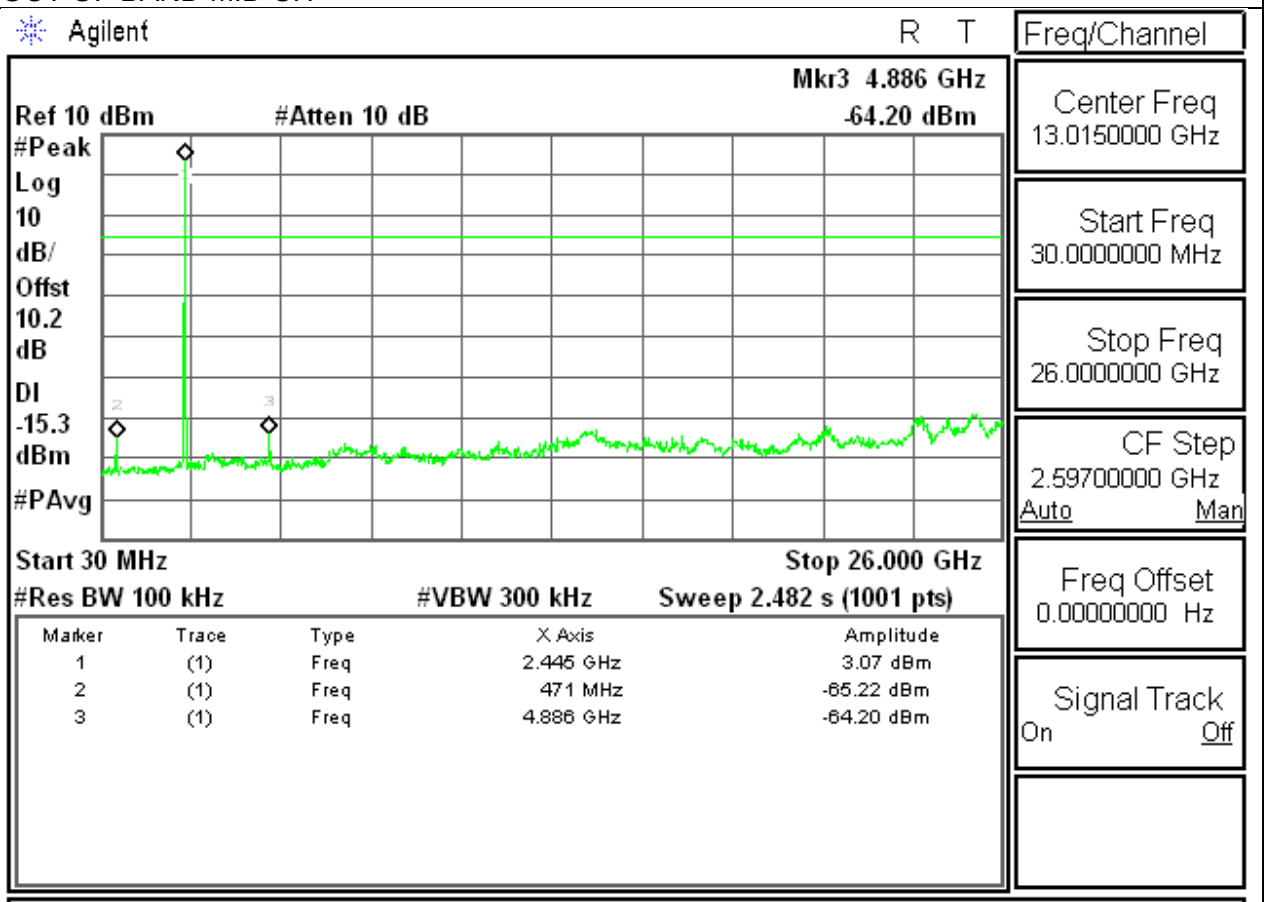
OUT OF BAND MID CH



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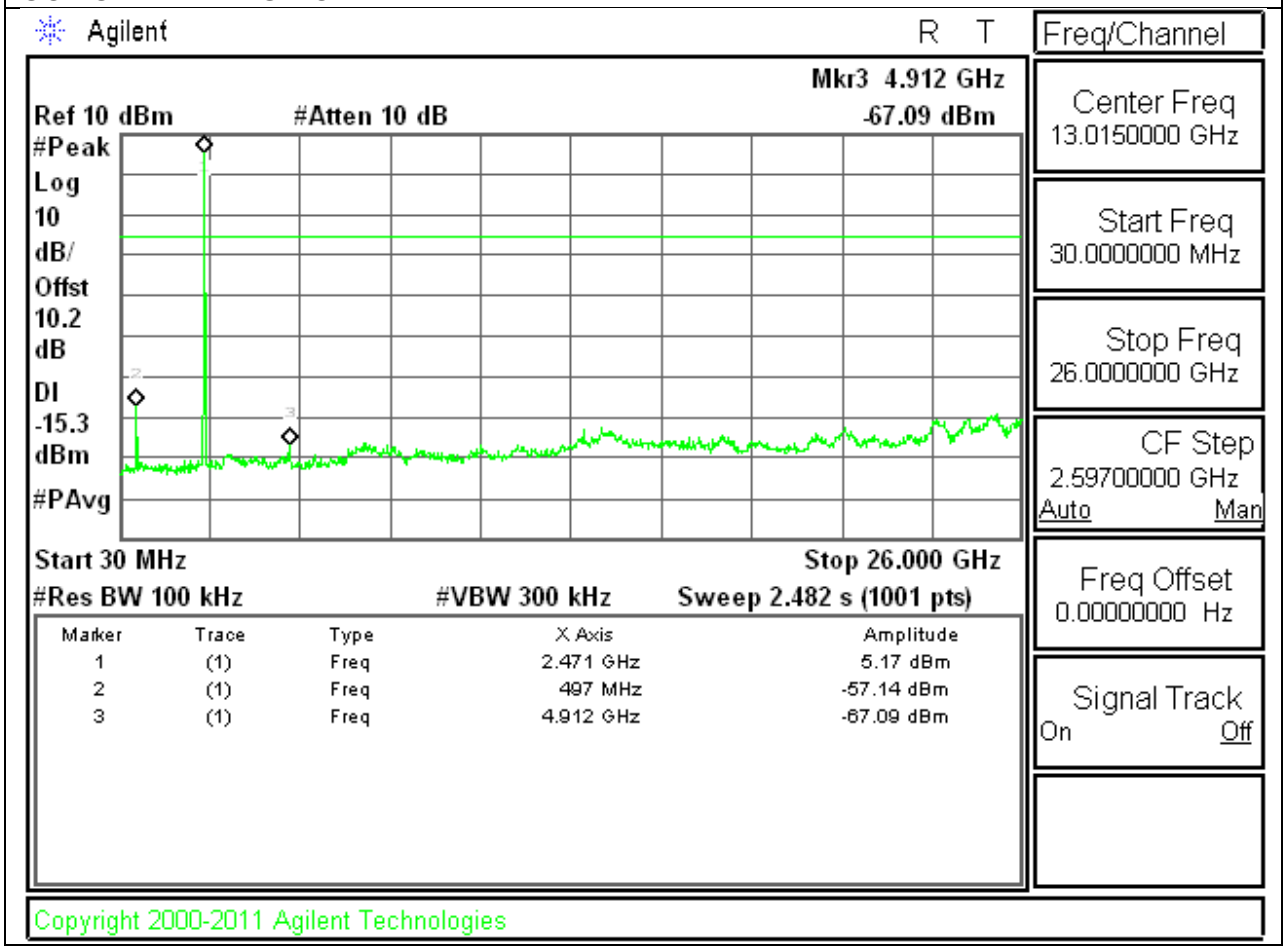
OUT OF BAND HIGH CH



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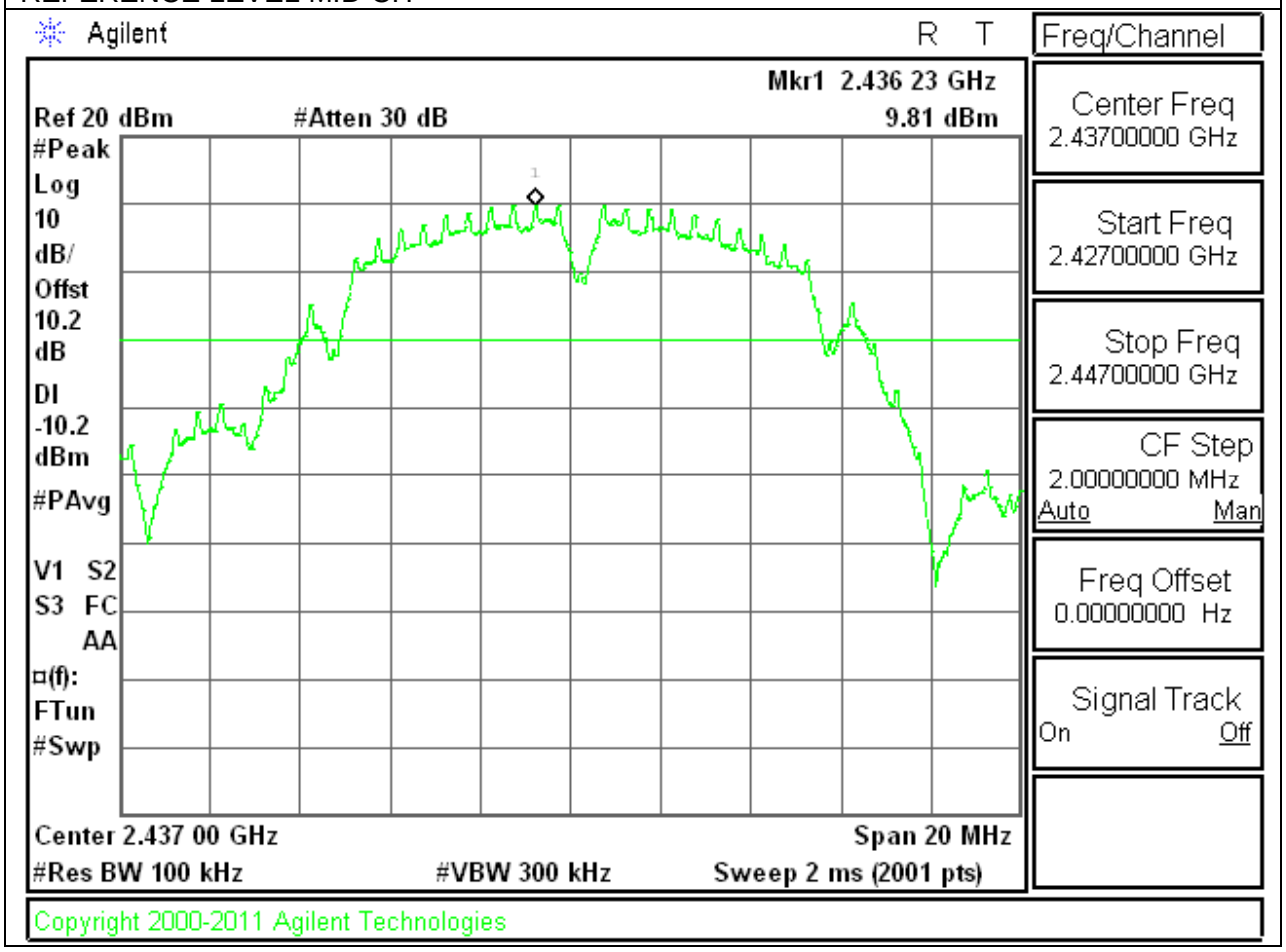
10.6.2. 802.11b MODE IN THE 2.4 GHz BAND CHAIN 1

IN-BAND REFERENCE LEVEL

REFERENCE LEVEL MID CH



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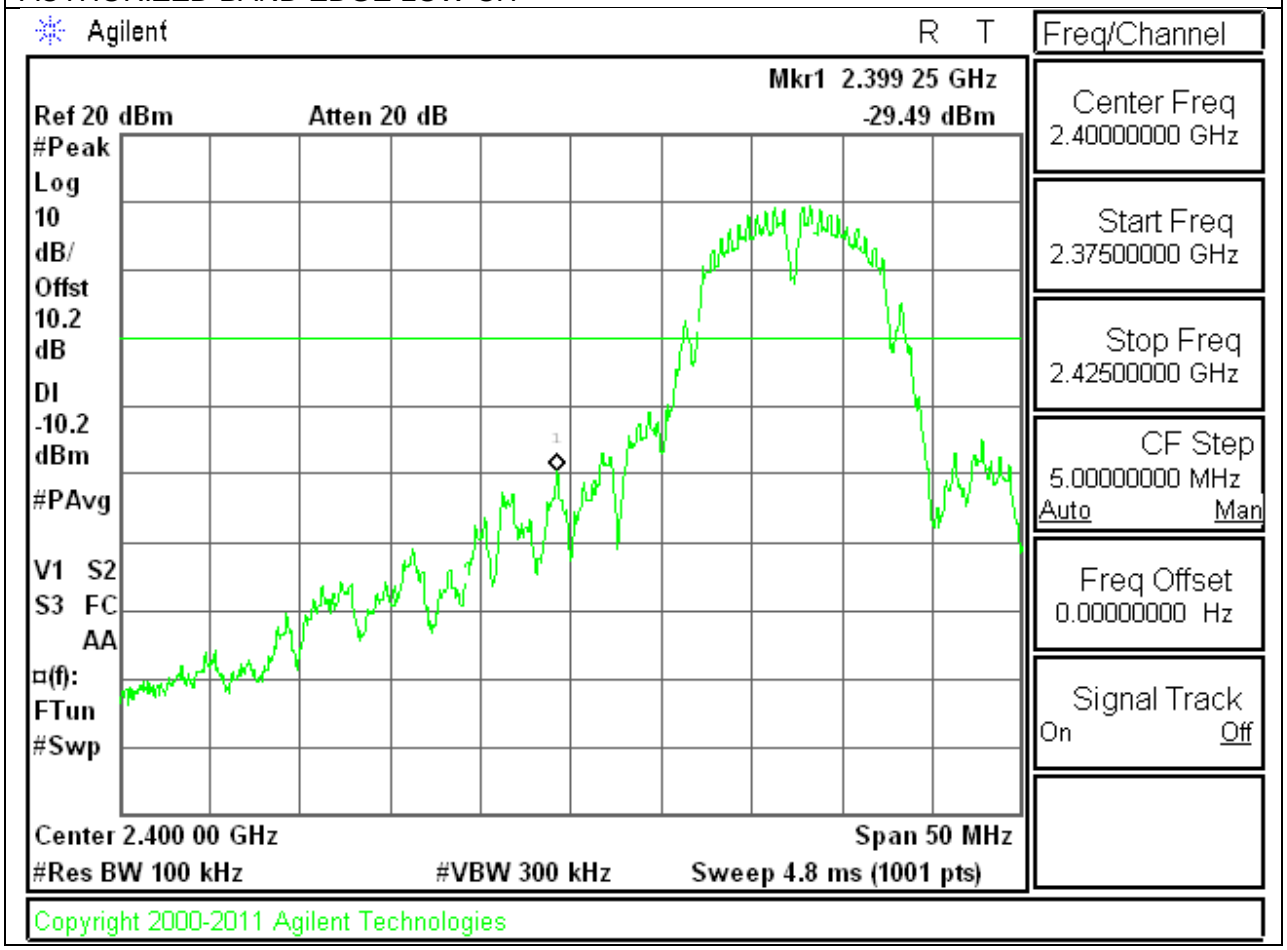
LOW CHANNEL BANDEDGE

AUTHORIZED BAND EDGE LOW CH



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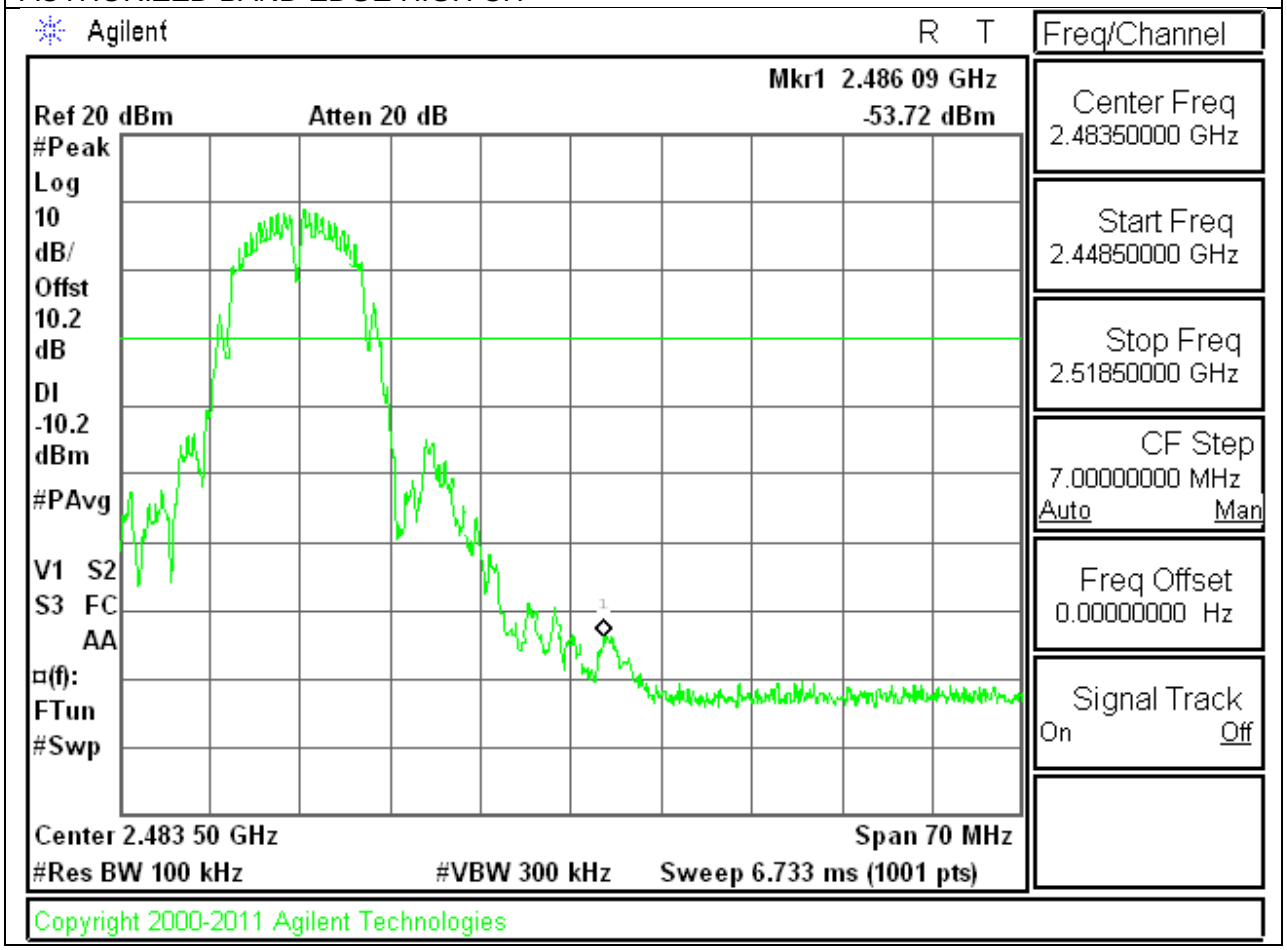
HIGH CHANNEL BANDEDGE

AUTHORIZED BAND EDGE HIGH CH



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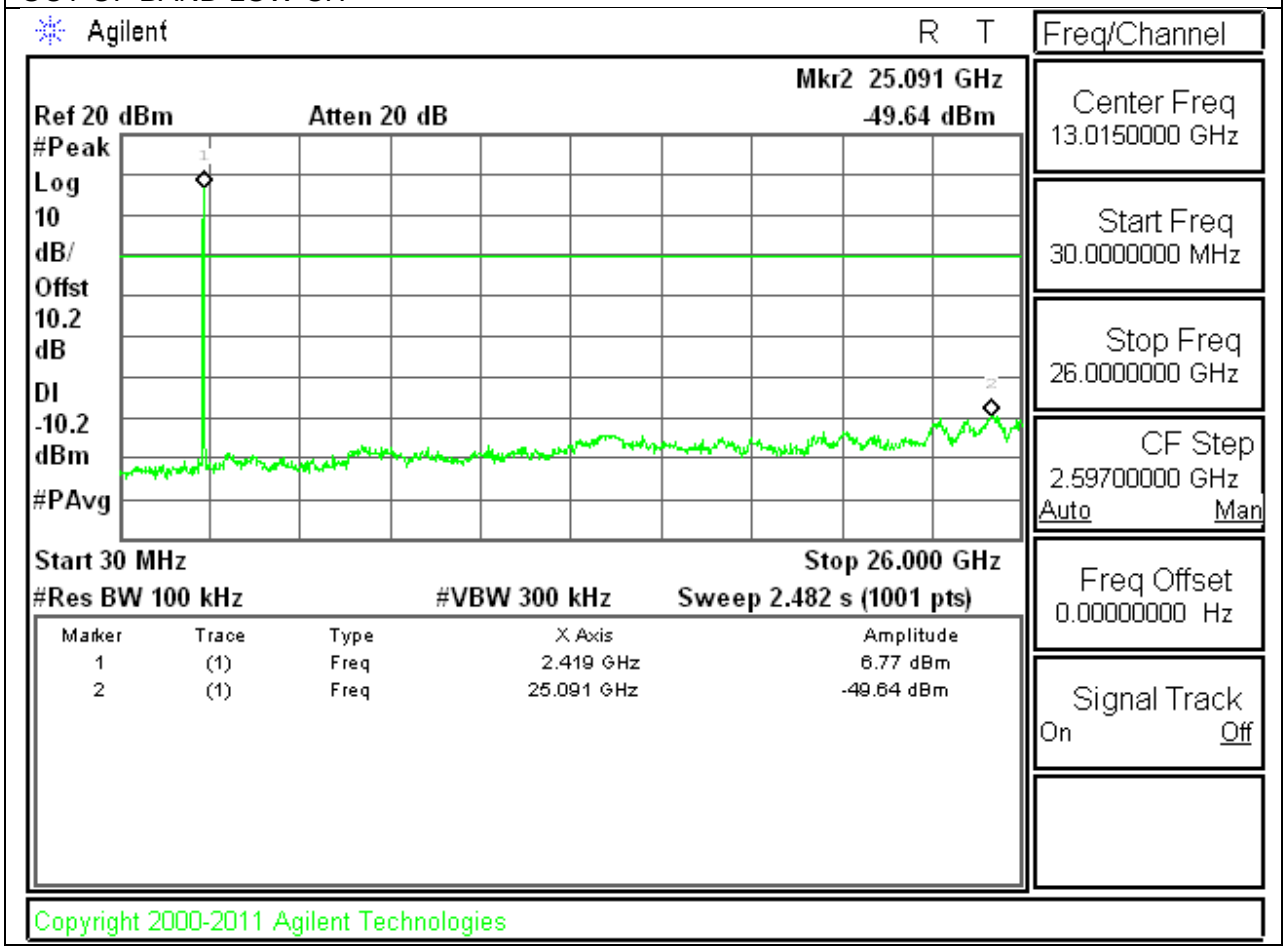
OUT-OF-BAND EMISSIONS

OUT OF BAND LOW CH



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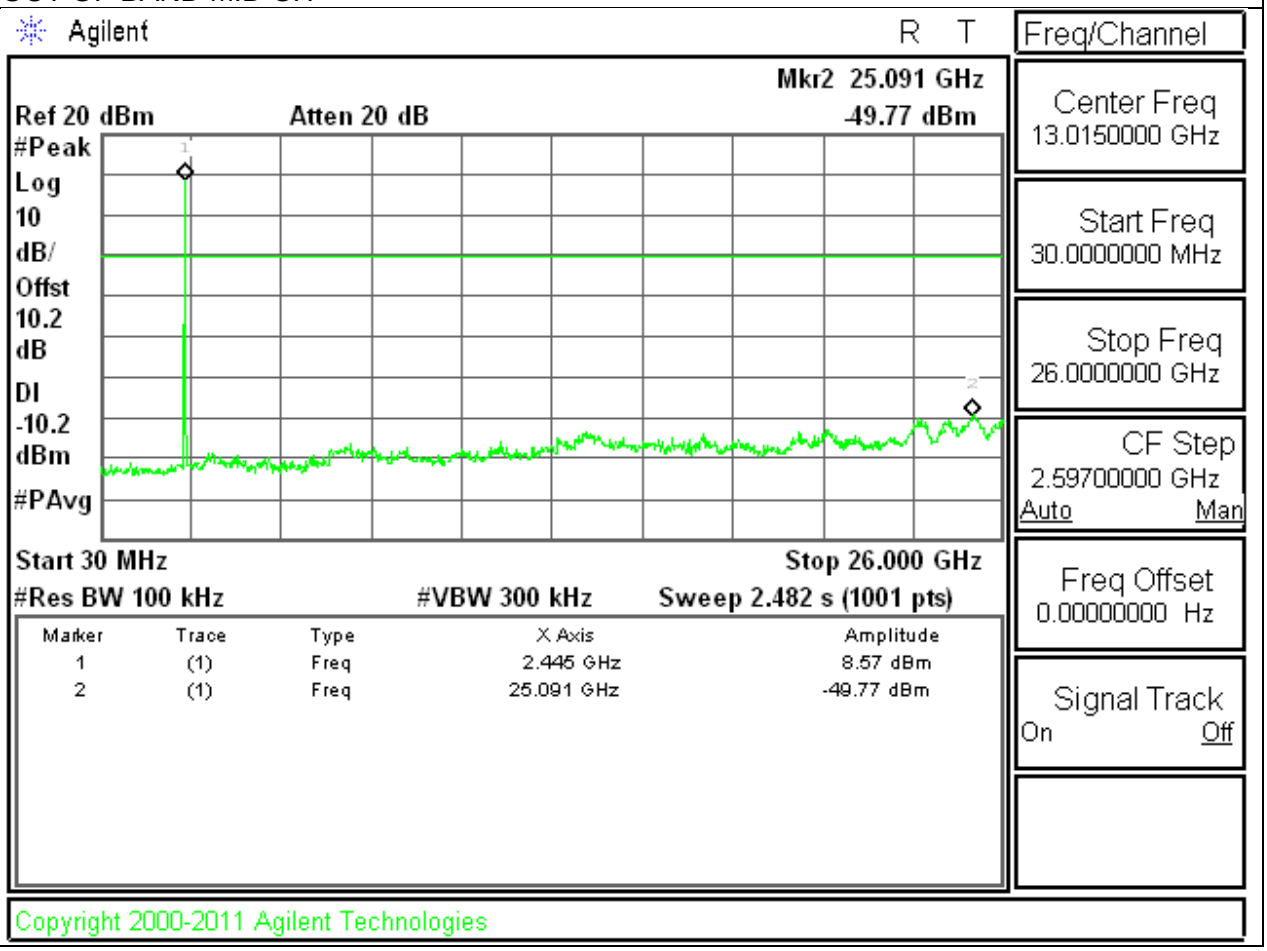
OUT OF BAND MID CH



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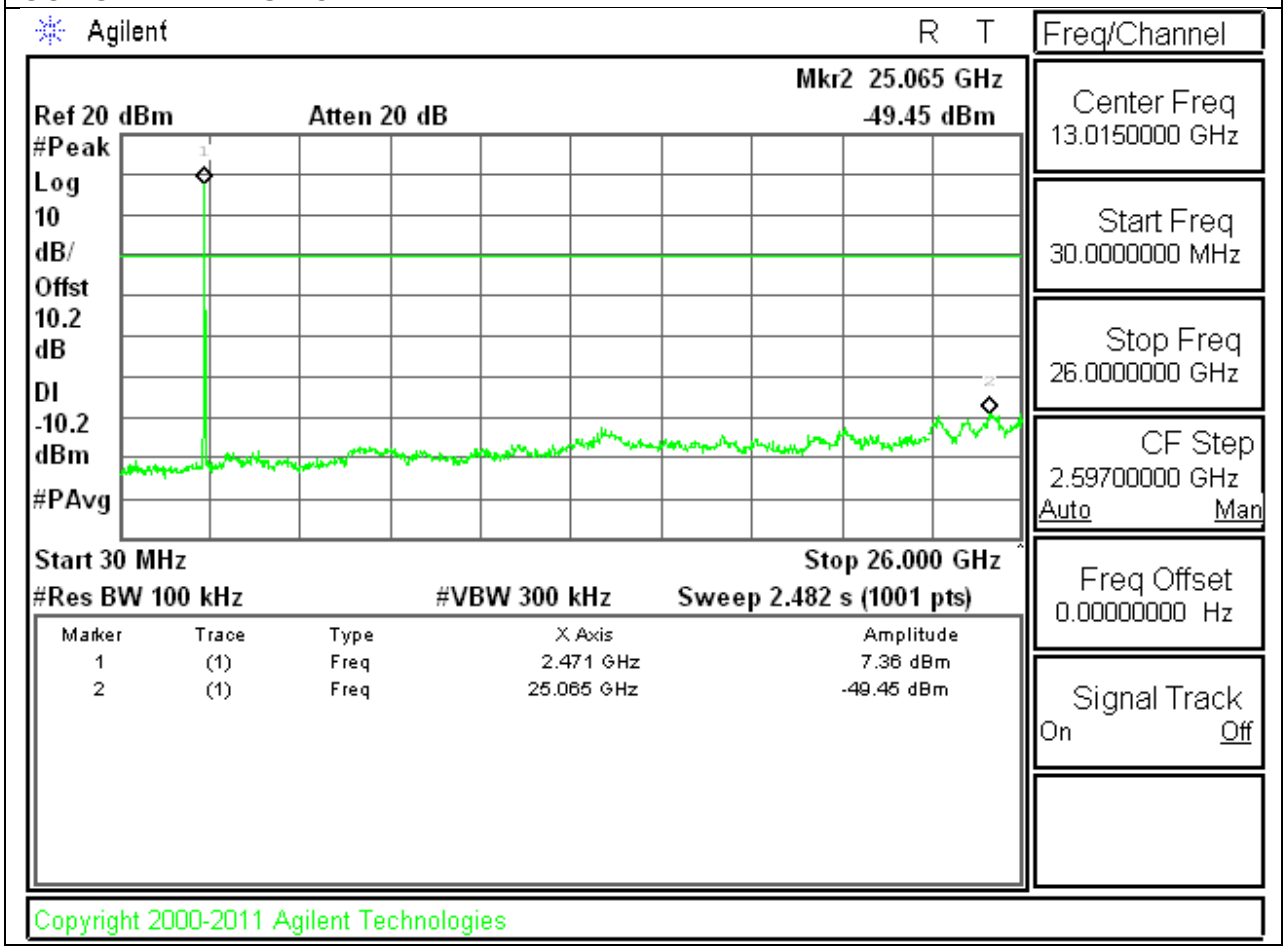
OUT OF BAND HIGH CH



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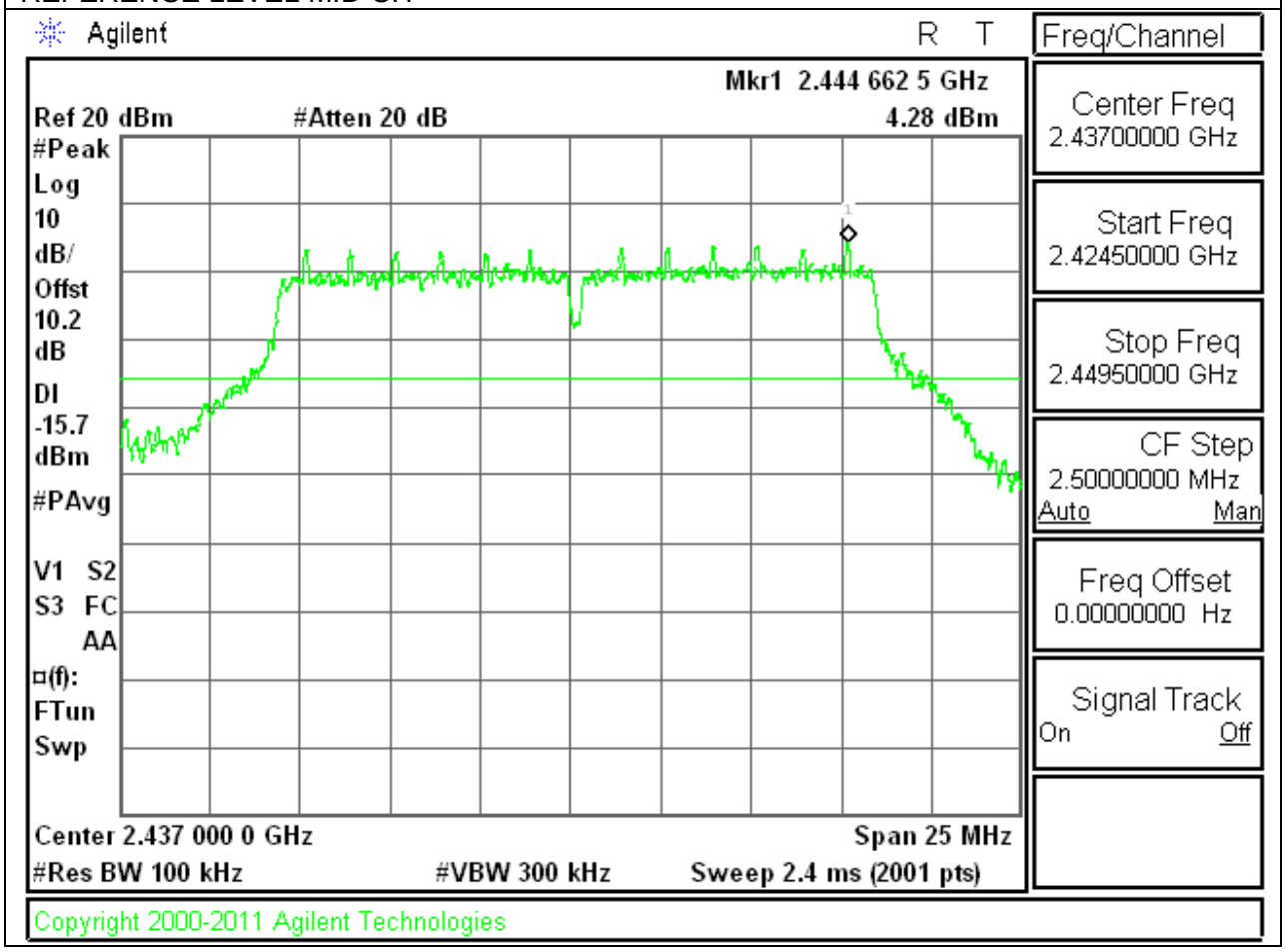
10.6.3. 802.11g MODE IN THE 2.4 GHz BAND CHAIN 0

IN-BAND REFERENCE LEVEL

REFERENCE LEVEL MID CH



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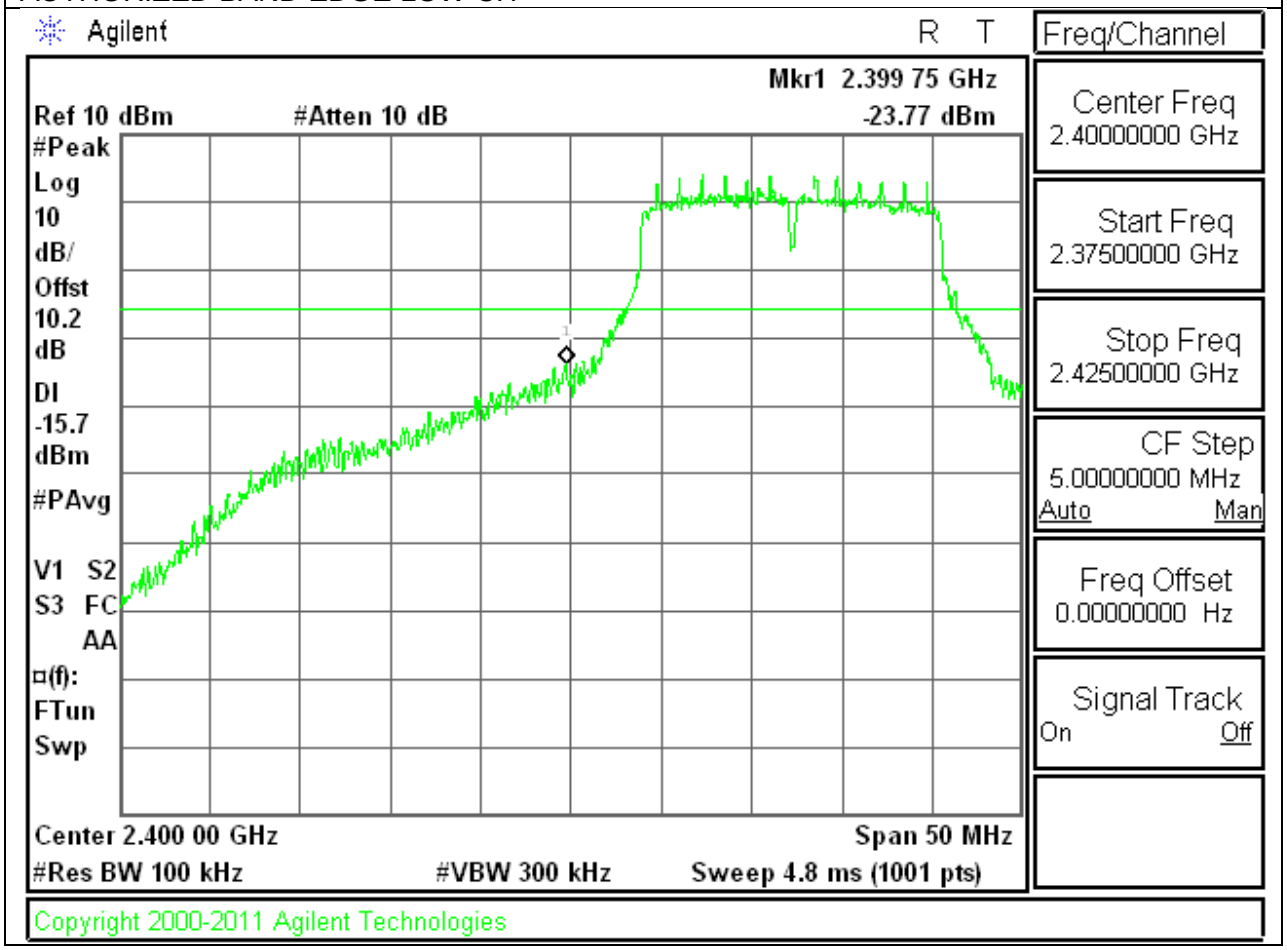
LOW CHANNEL BANDEDGE

AUTHORIZED BAND EDGE LOW CH



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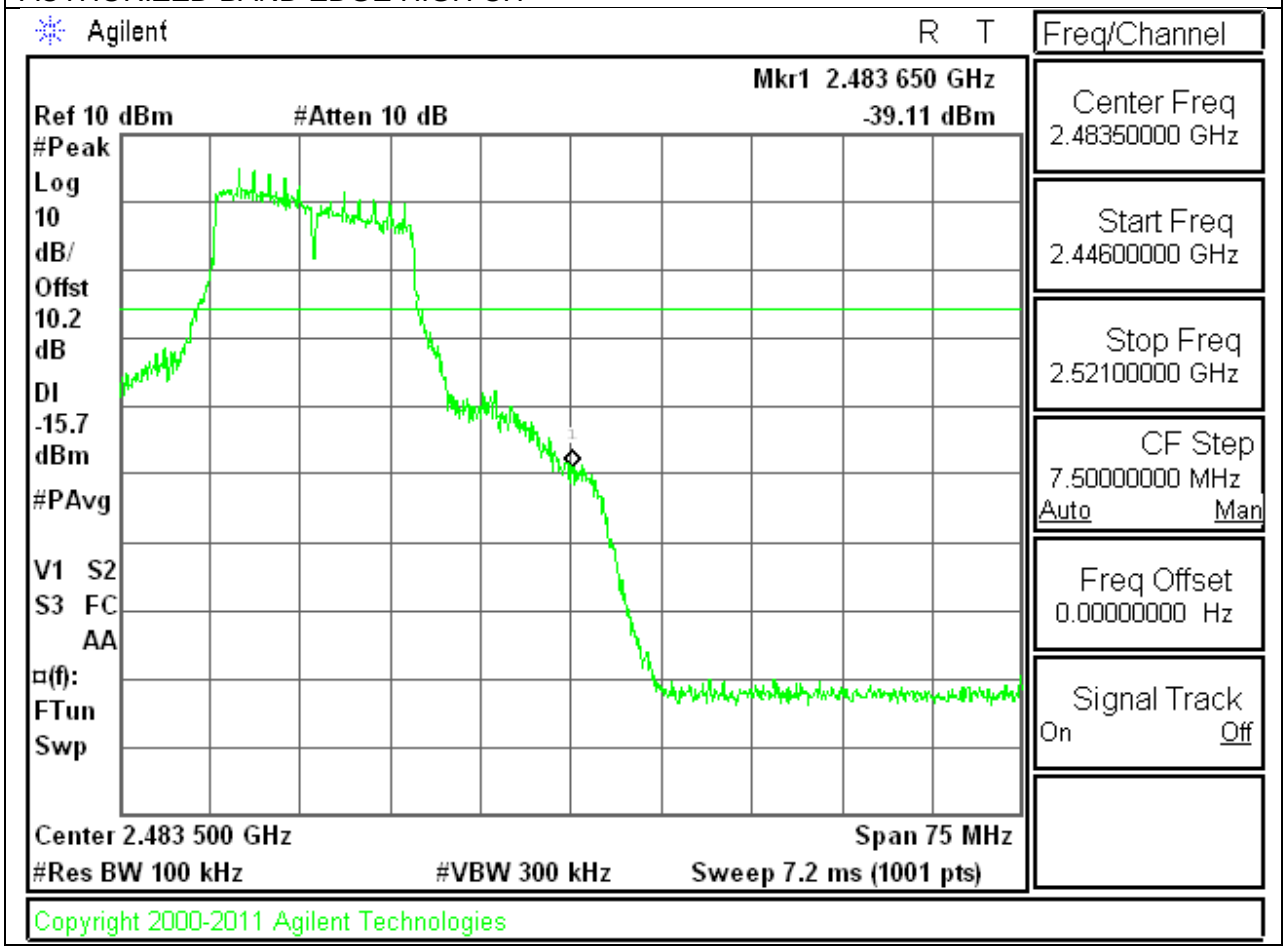
HIGH CHANNEL BANDEDGE

AUTHORIZED BAND EDGE HIGH CH



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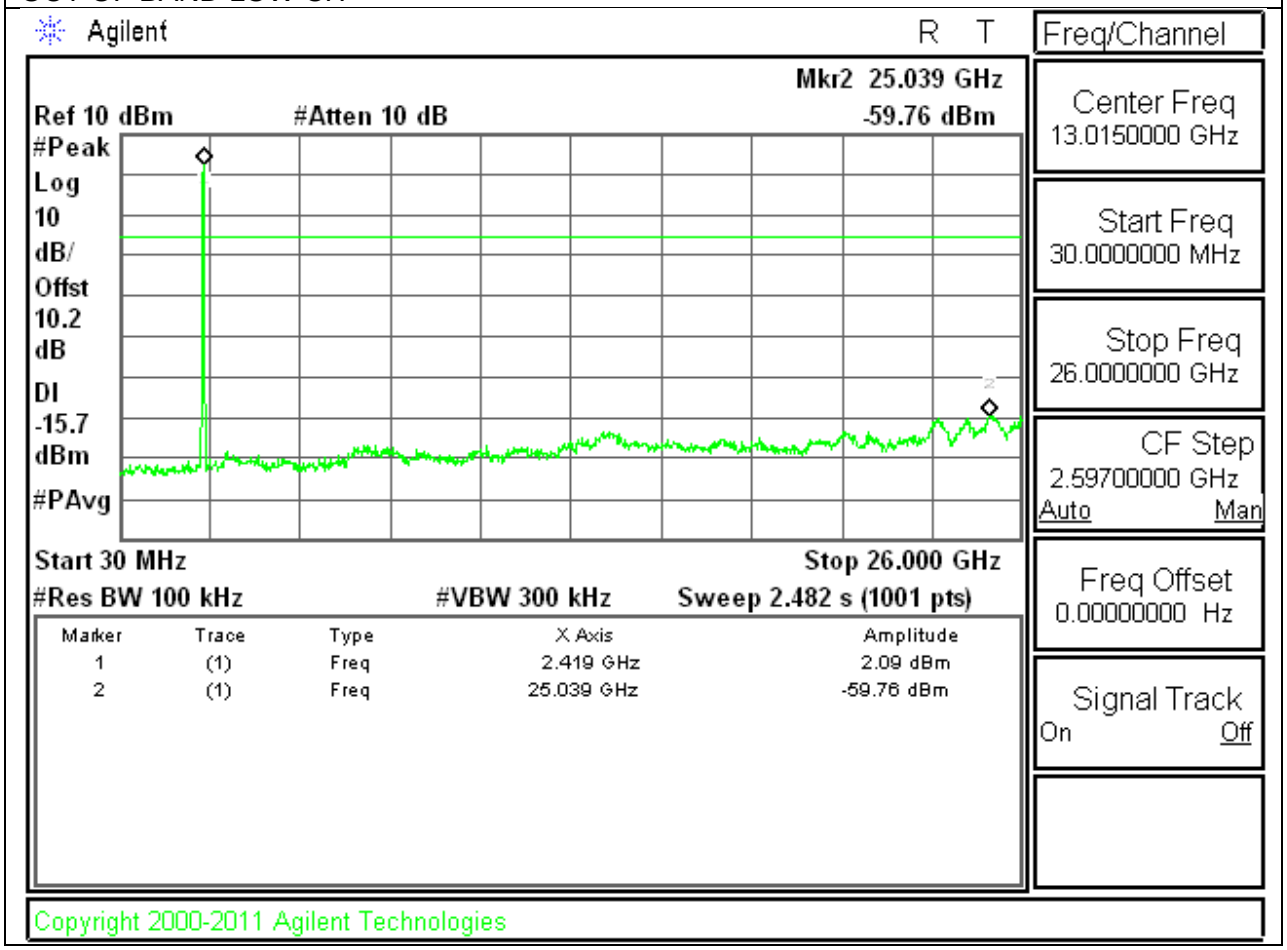
OUT-OF-BAND EMISSIONS

OUT OF BAND LOW CH



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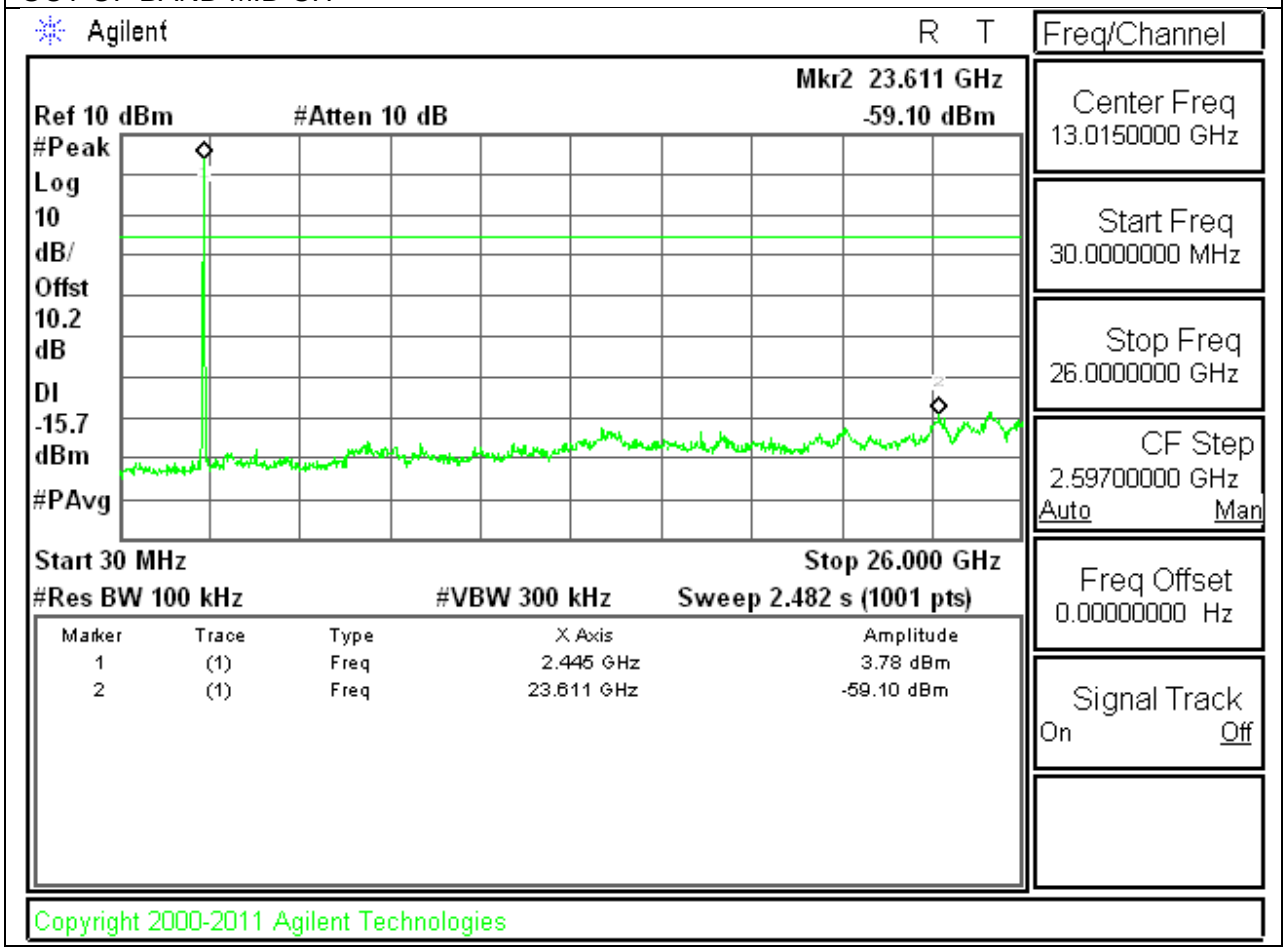
OUT OF BAND MID CH



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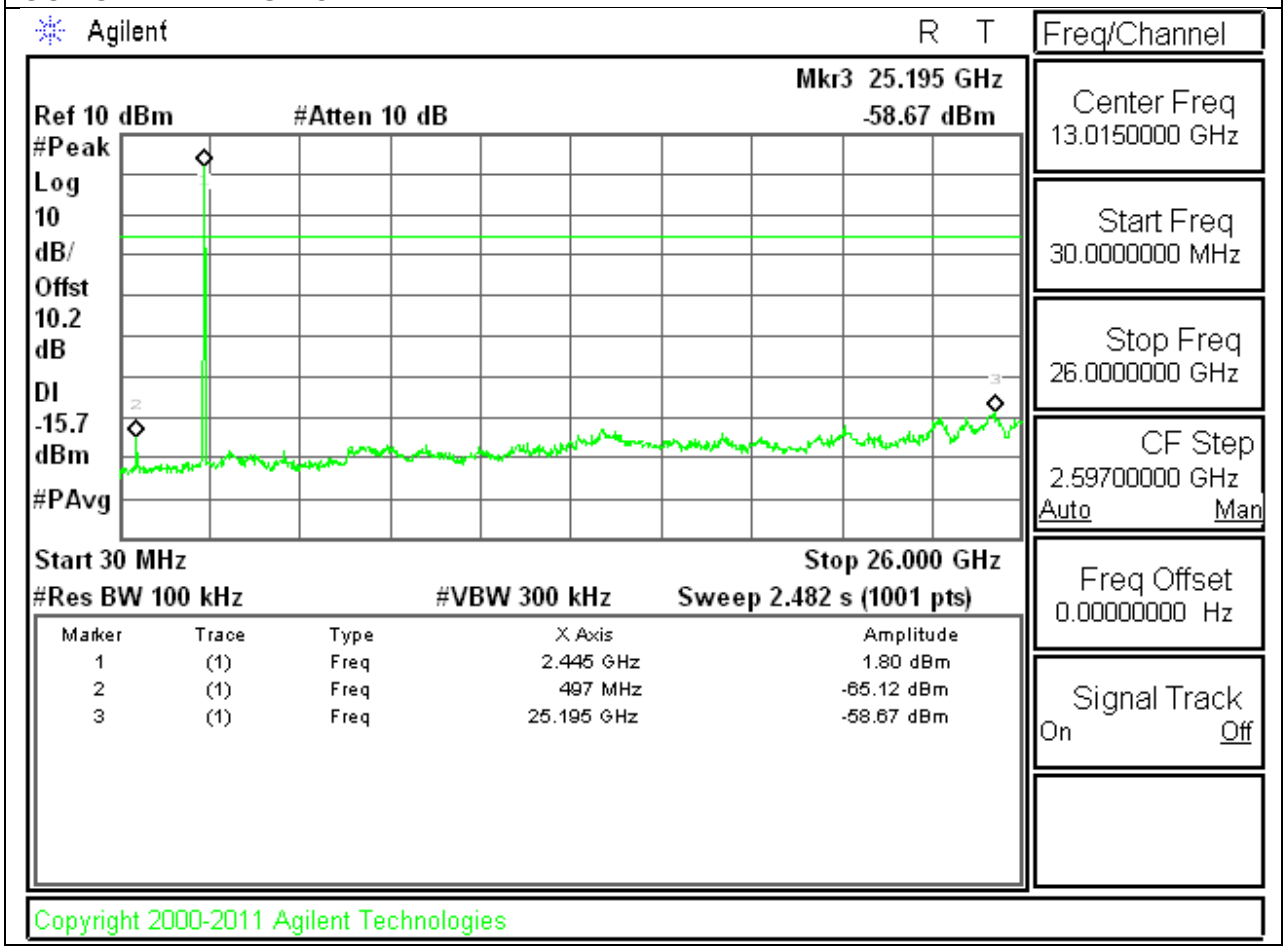
OUT OF BAND HIGH CH



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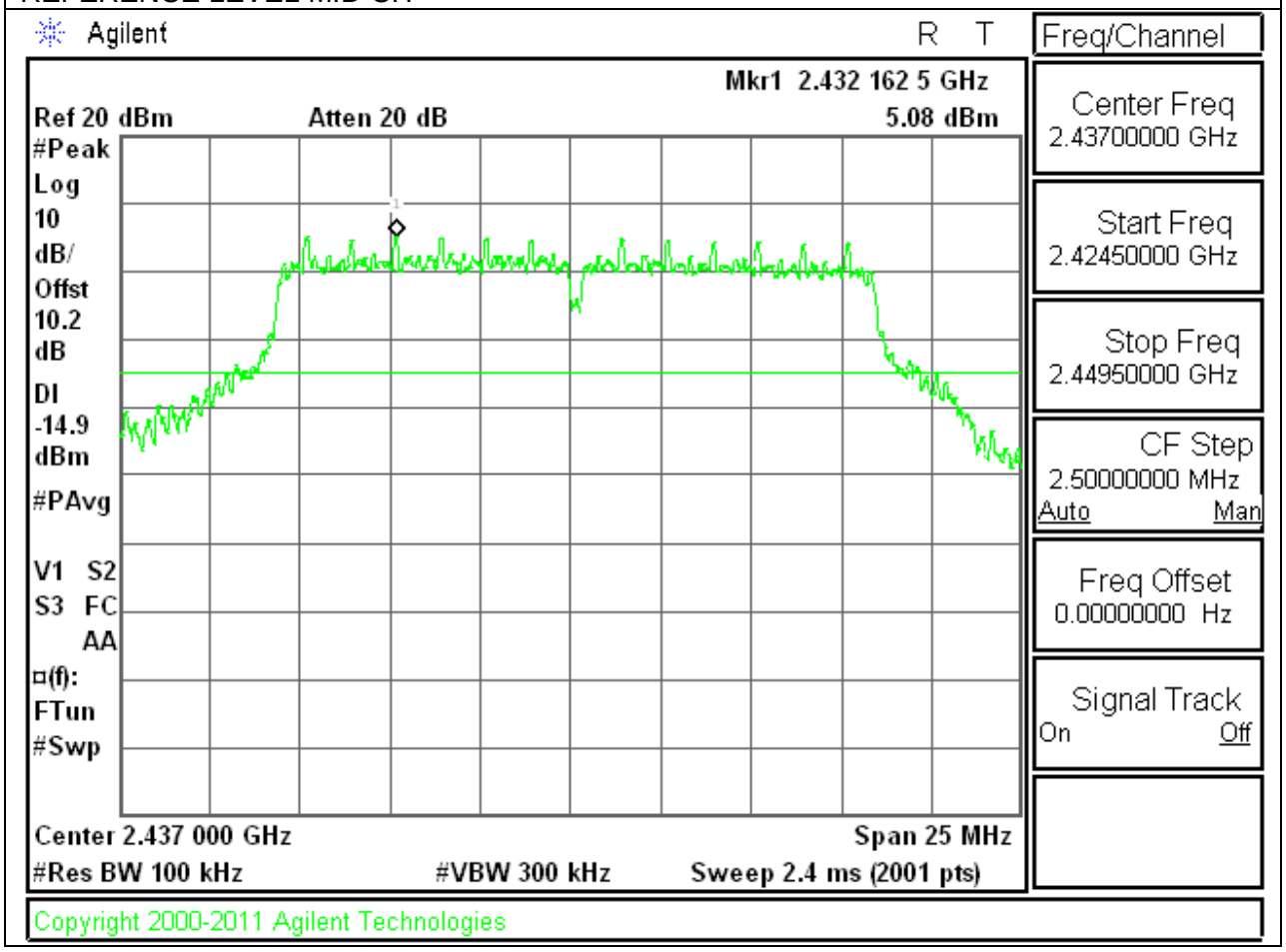
10.6.4. 802.11g MODE IN THE 2.4 GHz BAND CHAIN 1

IN-BAND REFERENCE LEVEL

REFERENCE LEVEL MID CH



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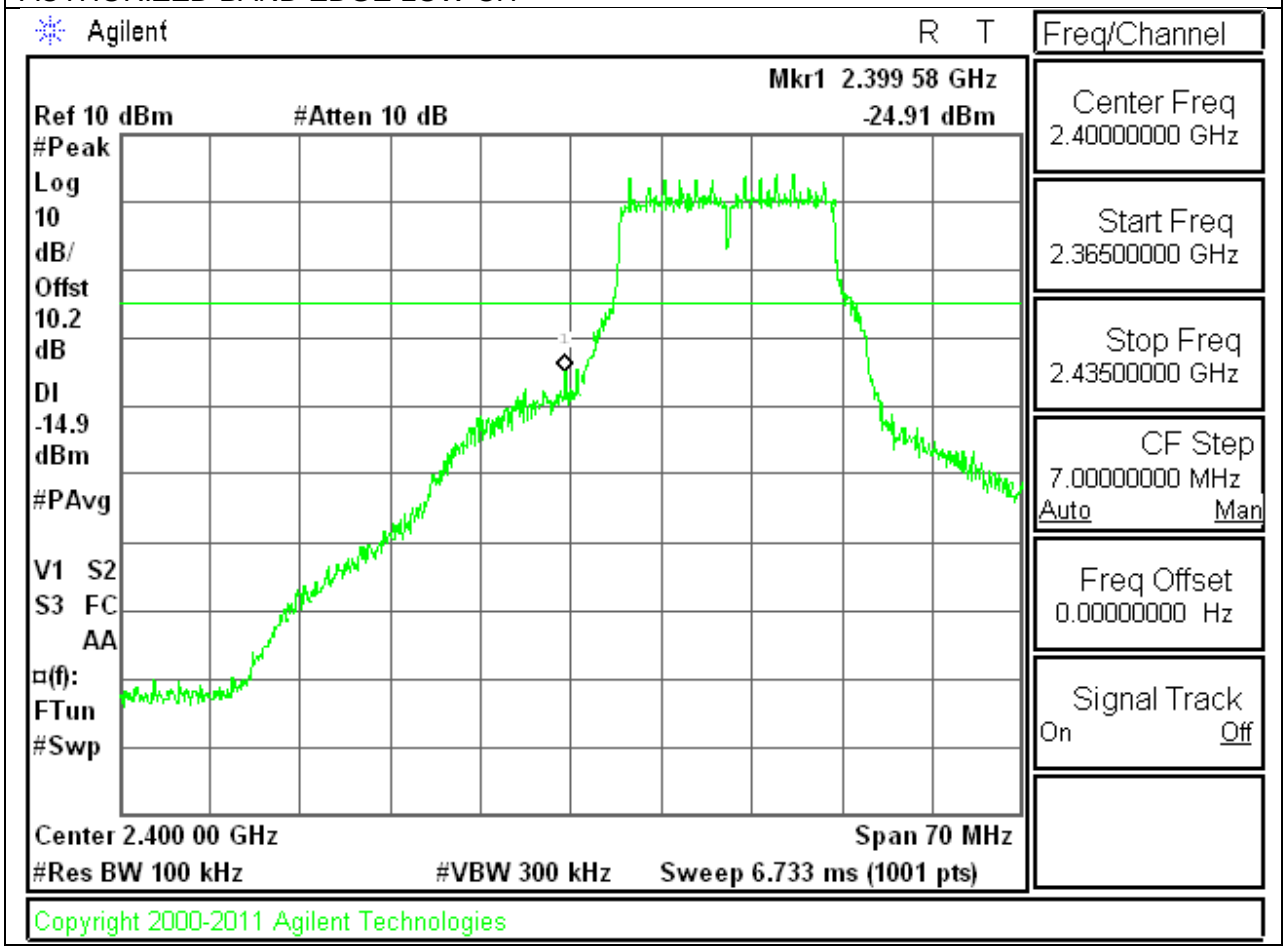
LOW CHANNEL BANDEDGE

AUTHORIZED BAND EDGE LOW CH



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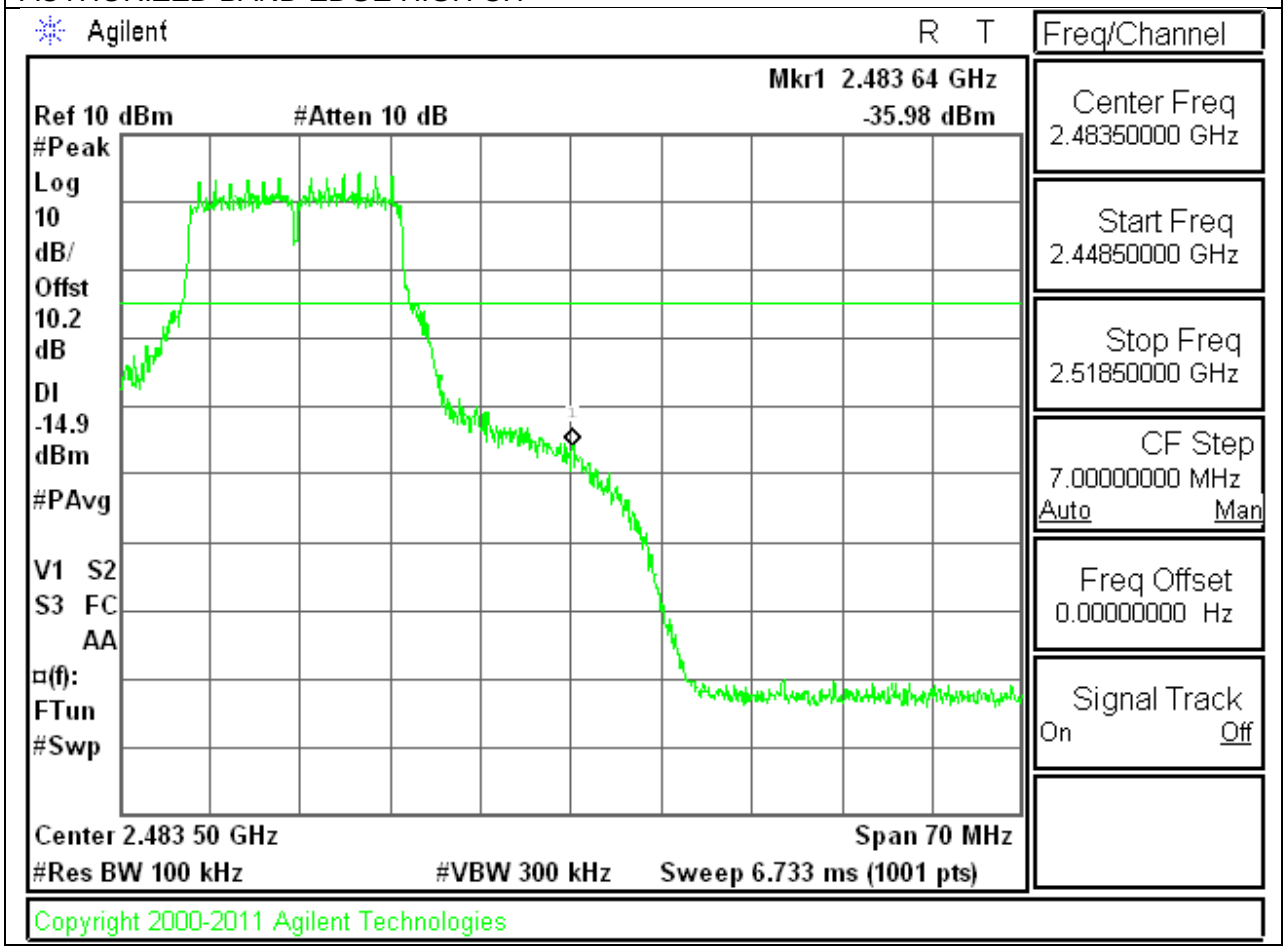
HIGH CHANNEL BANDEDGE

AUTHORIZED BAND EDGE HIGH CH



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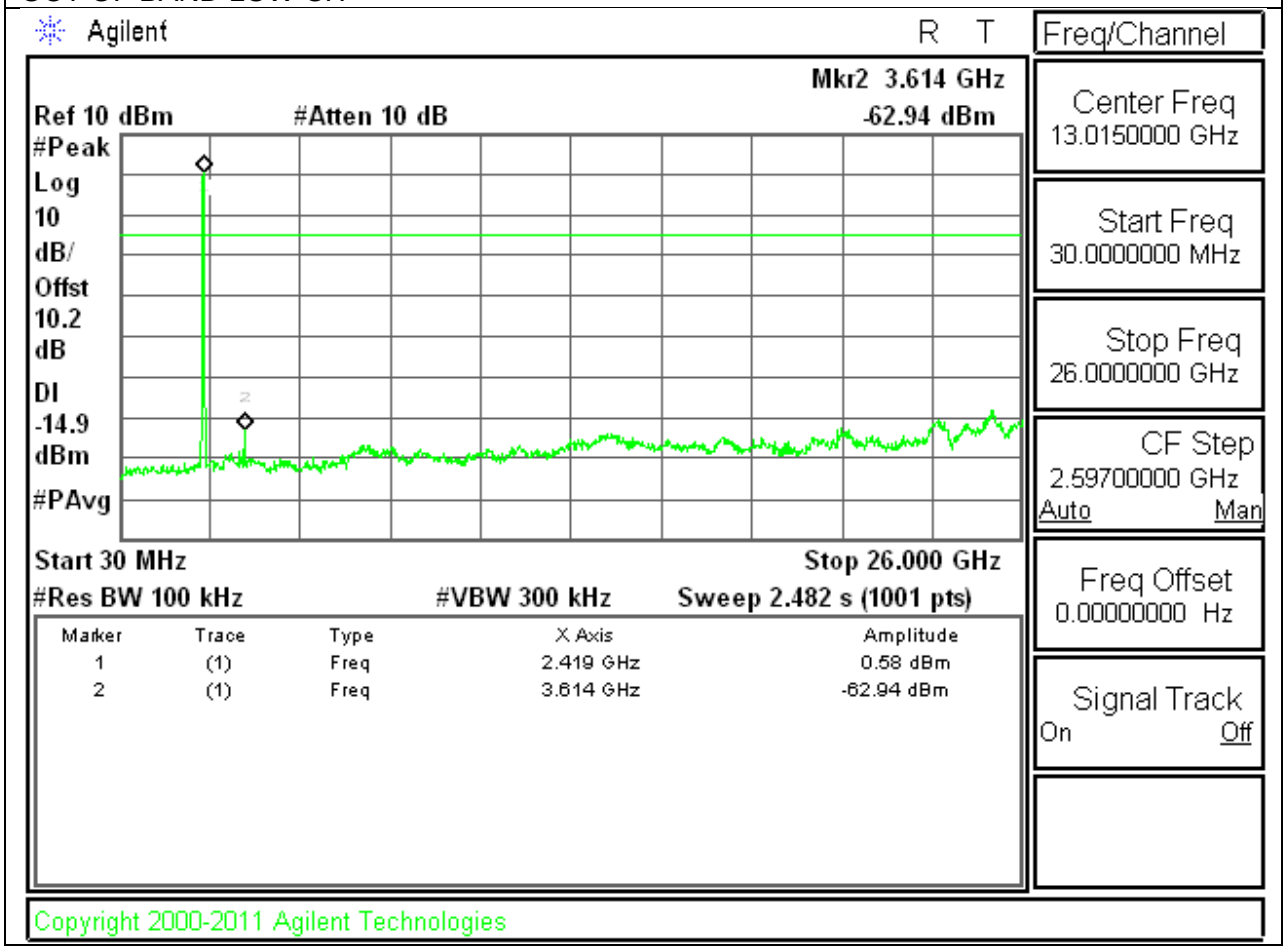
OUT-OF-BAND EMISSIONS

OUT OF BAND LOW CH



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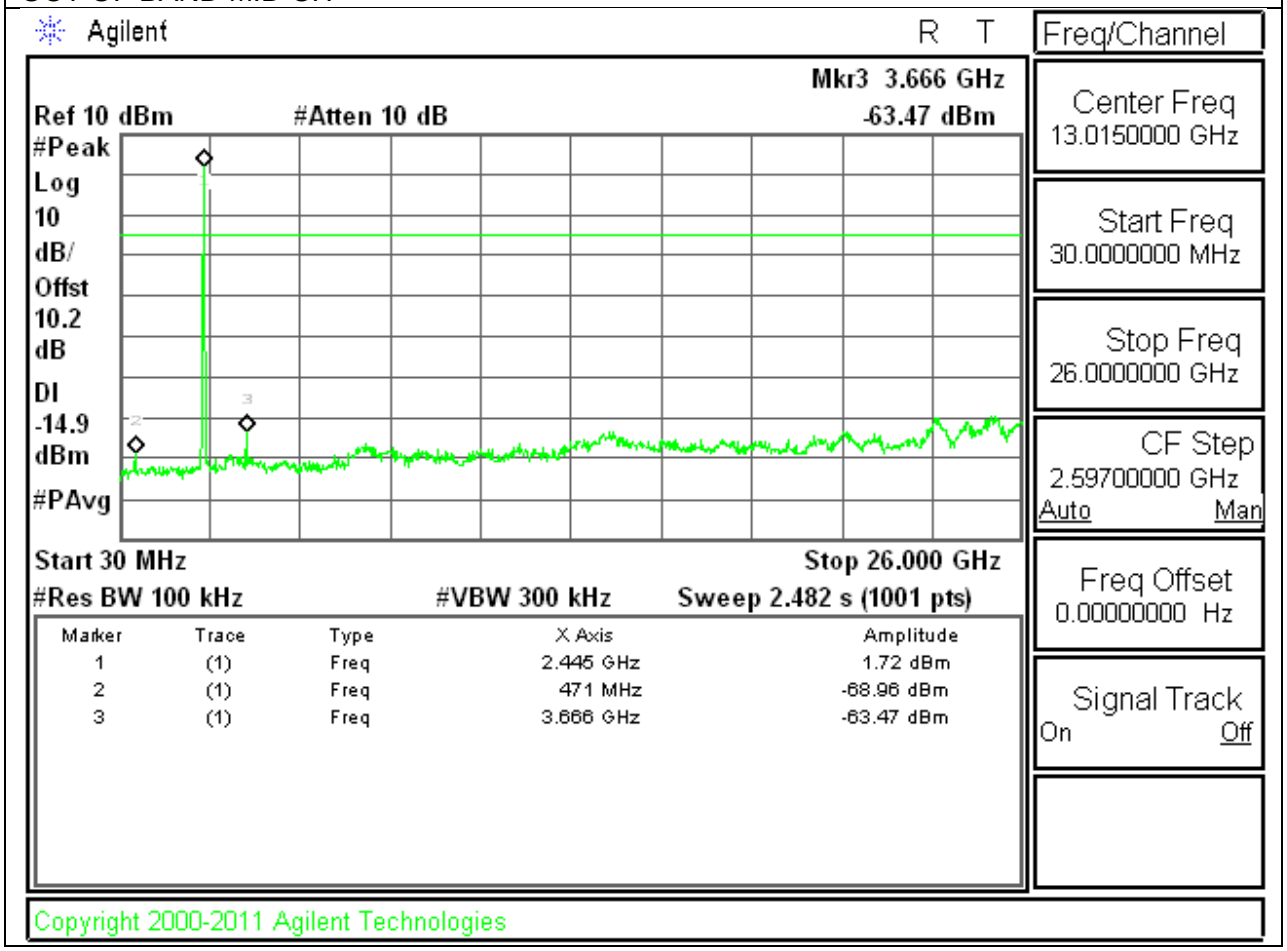
OUT OF BAND MID CH



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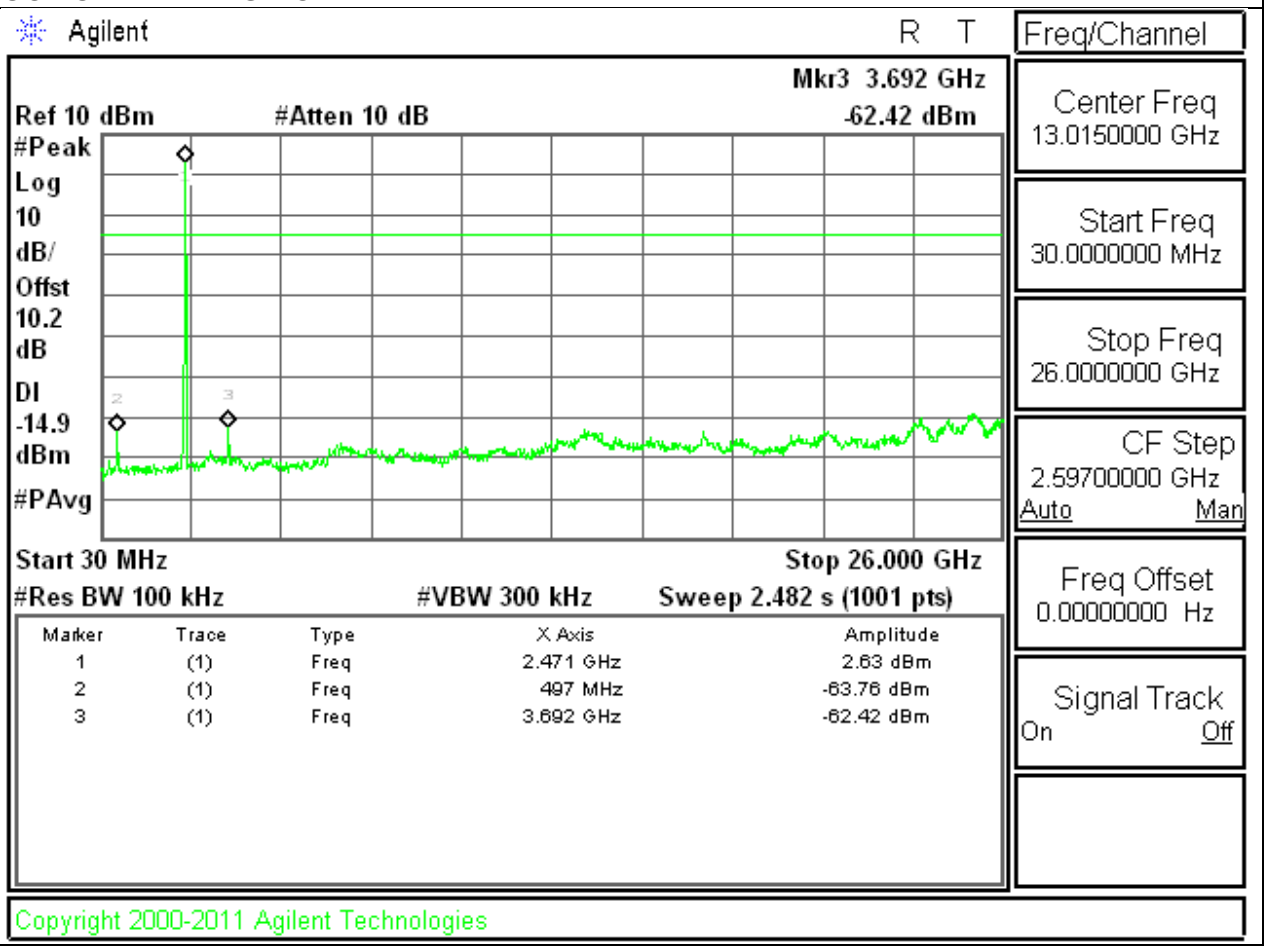
OUT OF BAND HIGH CH



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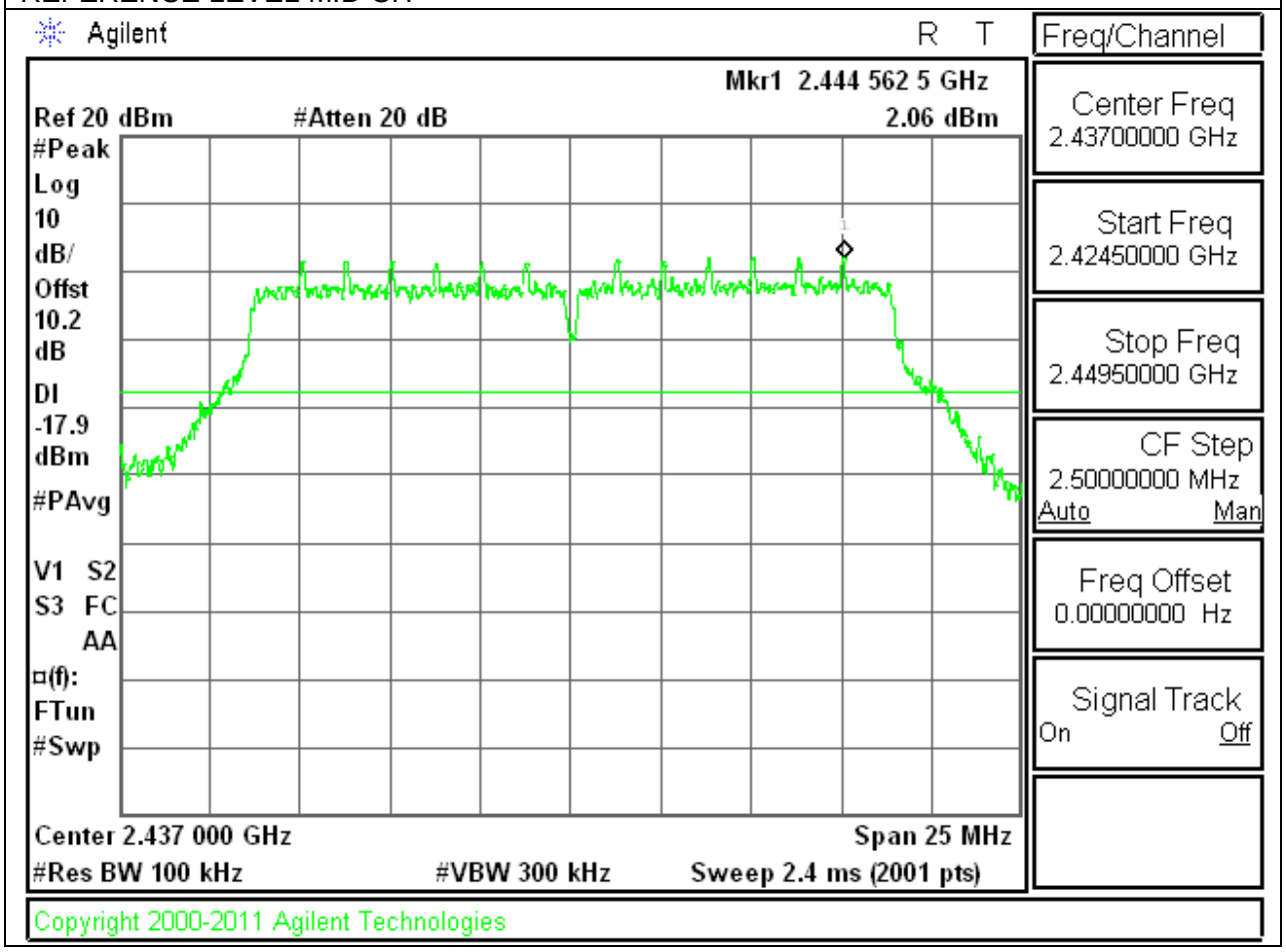
10.6.5. 802.11n MODE IN THE 2.4 GHz BAND CHAIN 0

IN-BAND REFERENCE LEVEL

REFERENCE LEVEL MID CH



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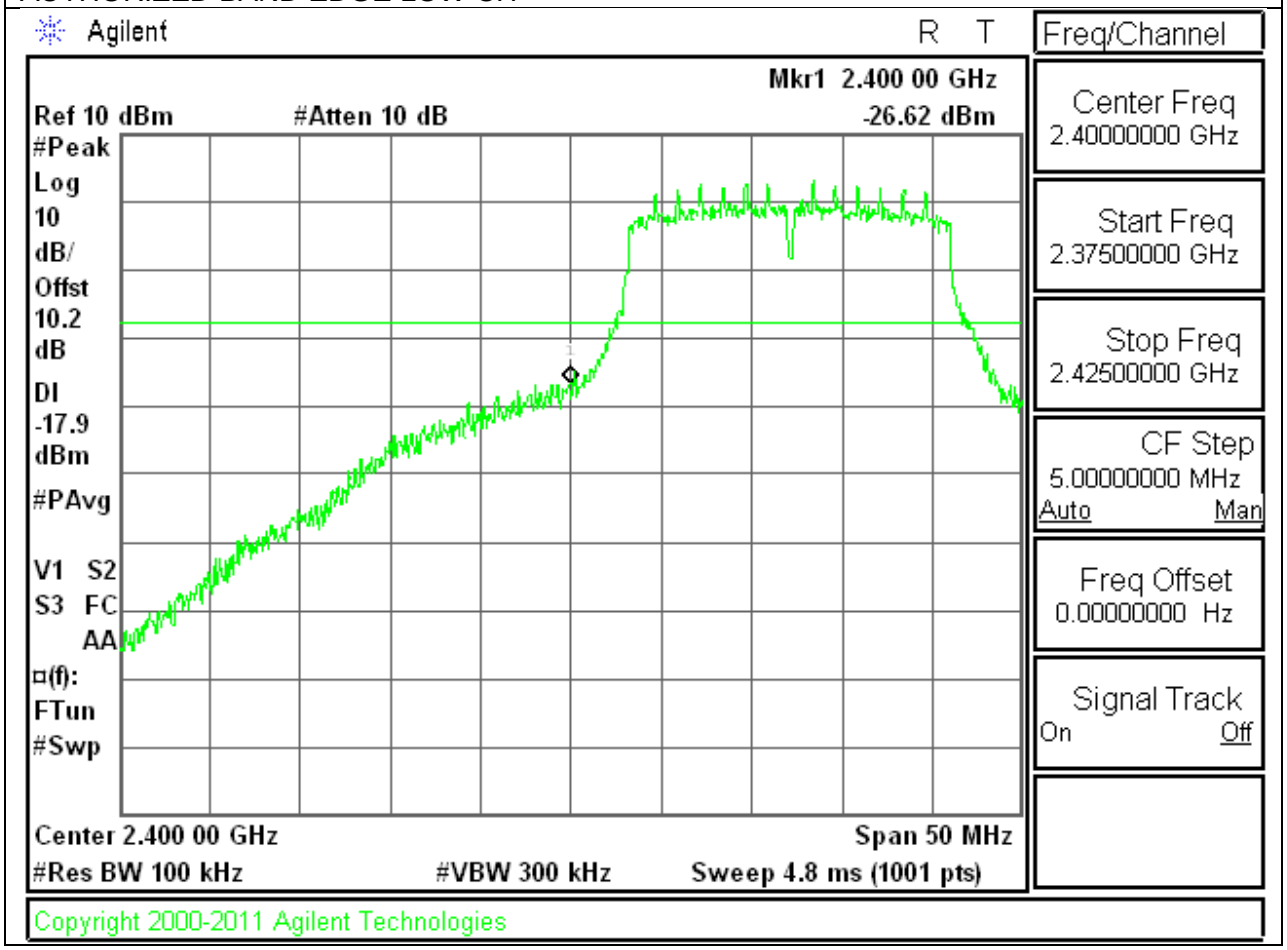
LOW CHANNEL BANDEDGE

AUTHORIZED BAND EDGE LOW CH



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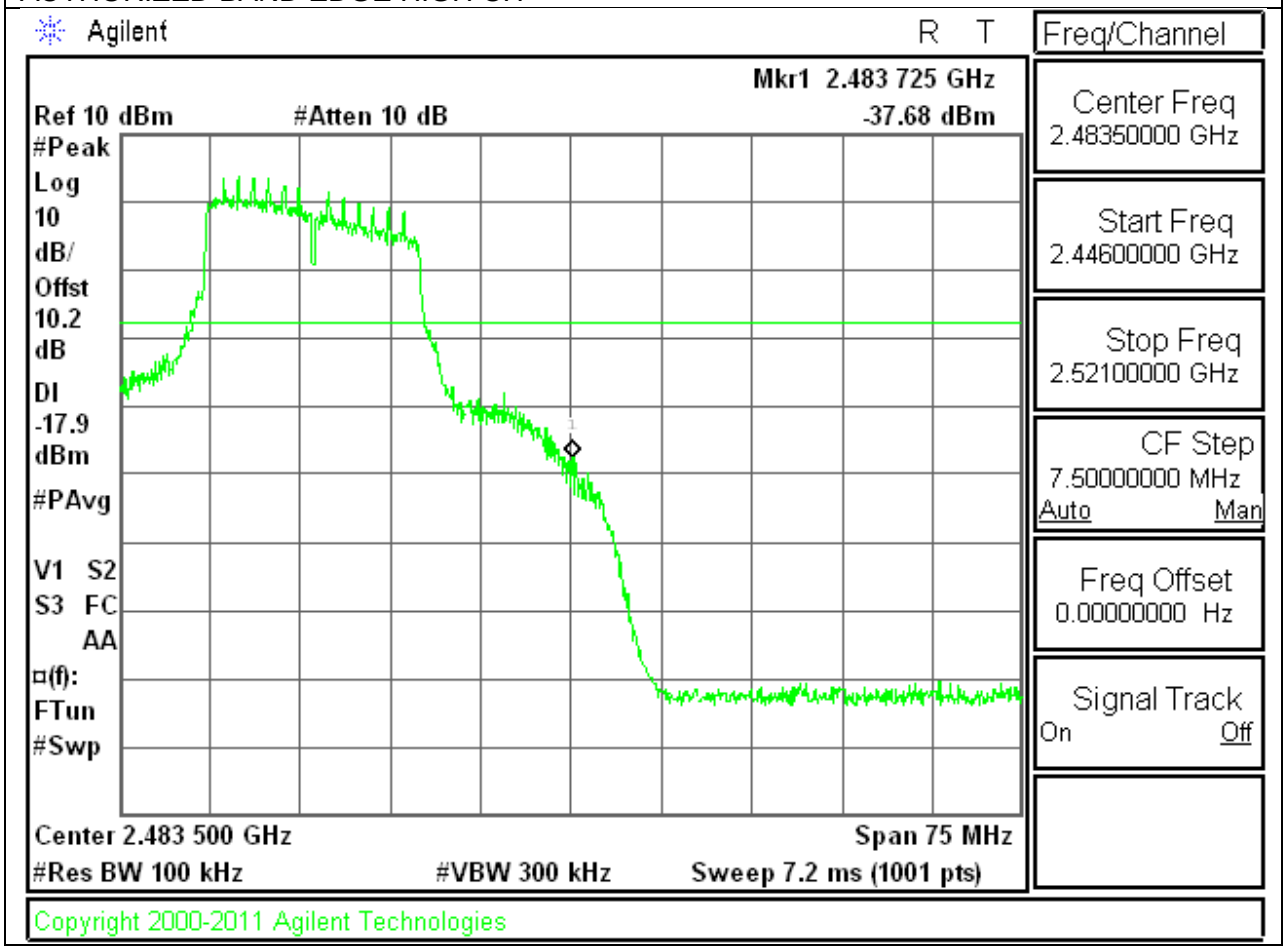
HIGH CHANNEL BANDEDGE

AUTHORIZED BAND EDGE HIGH CH



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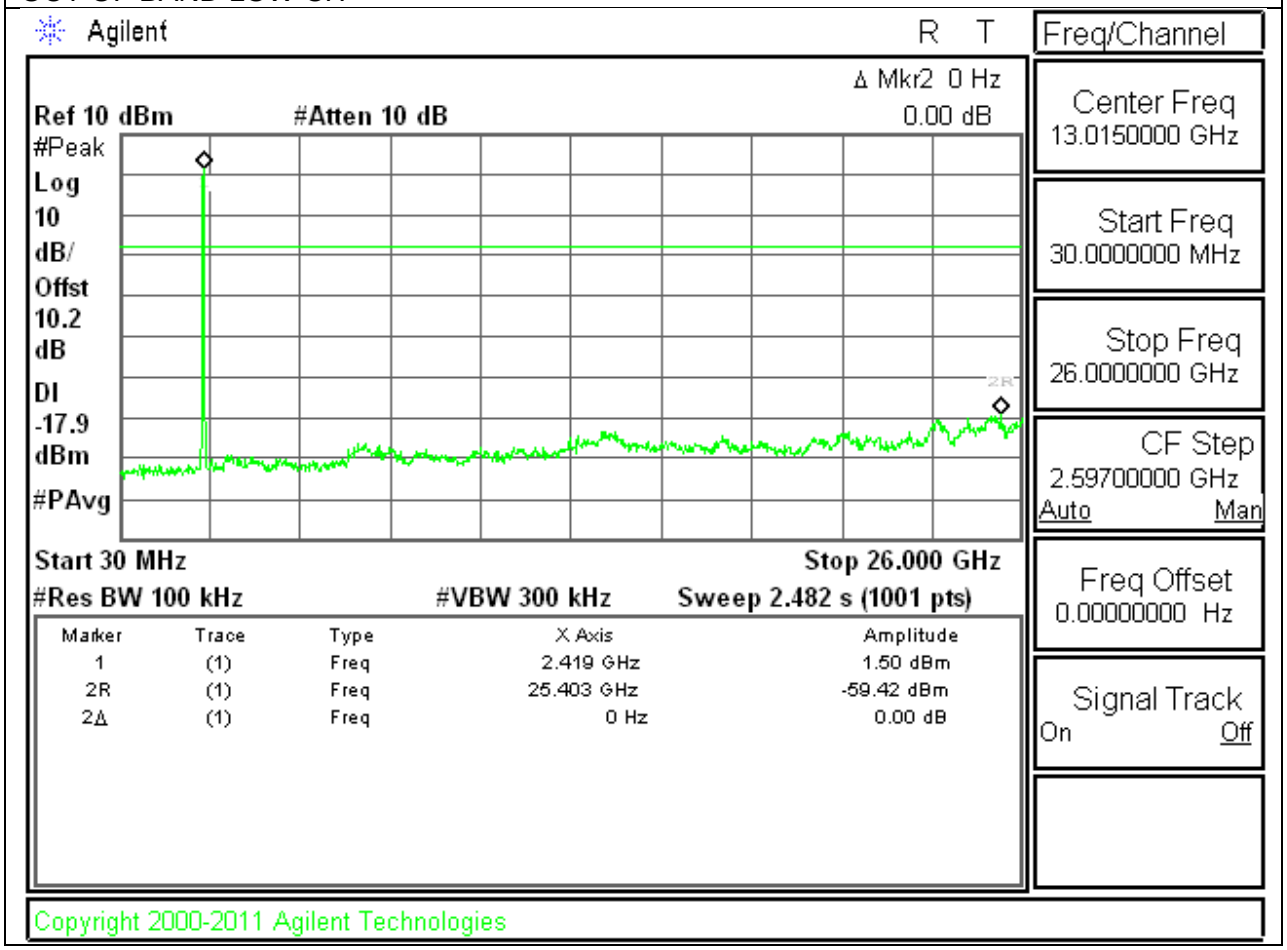
OUT-OF-BAND EMISSIONS

OUT OF BAND LOW CH



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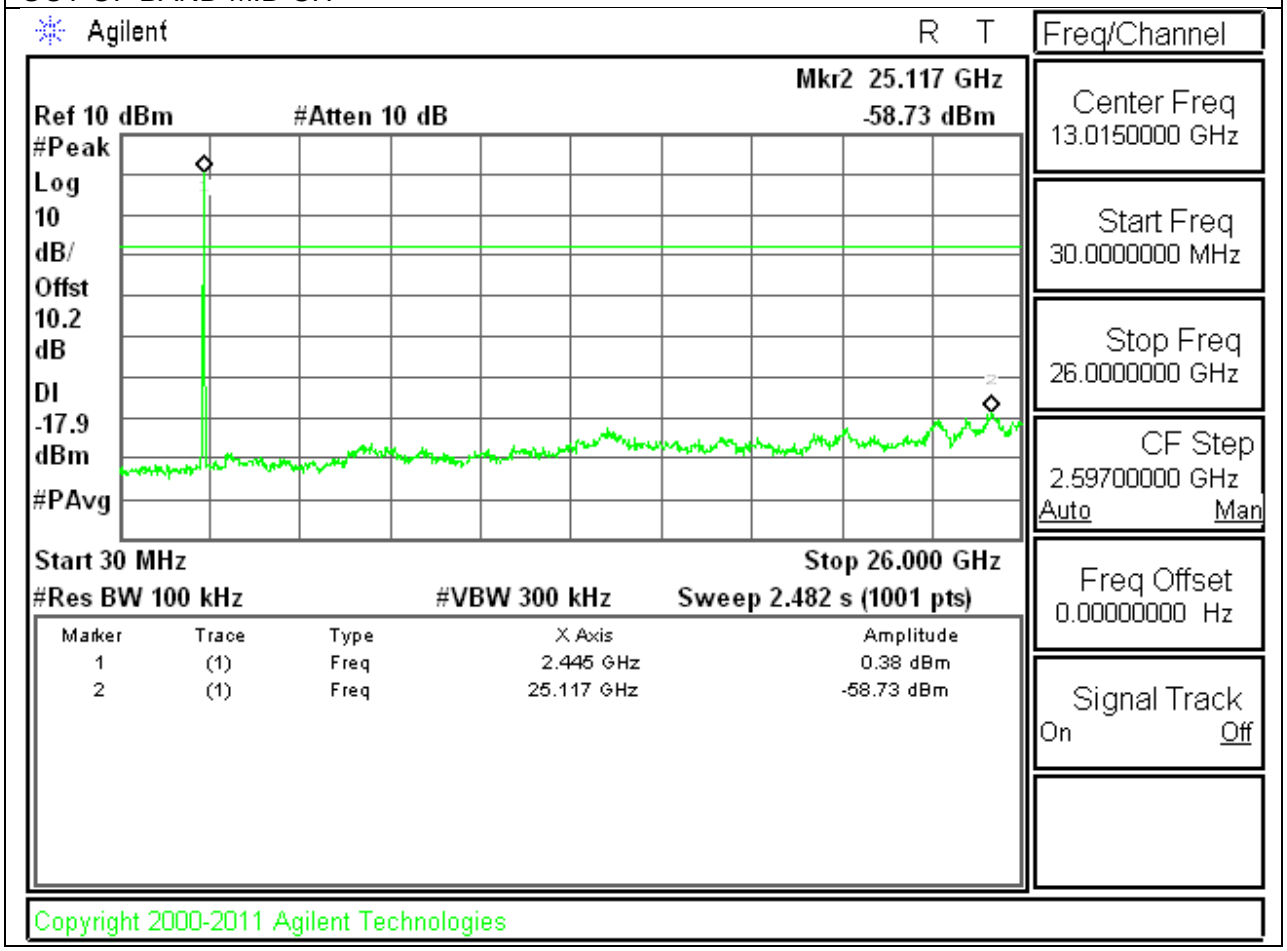
OUT OF BAND MID CH



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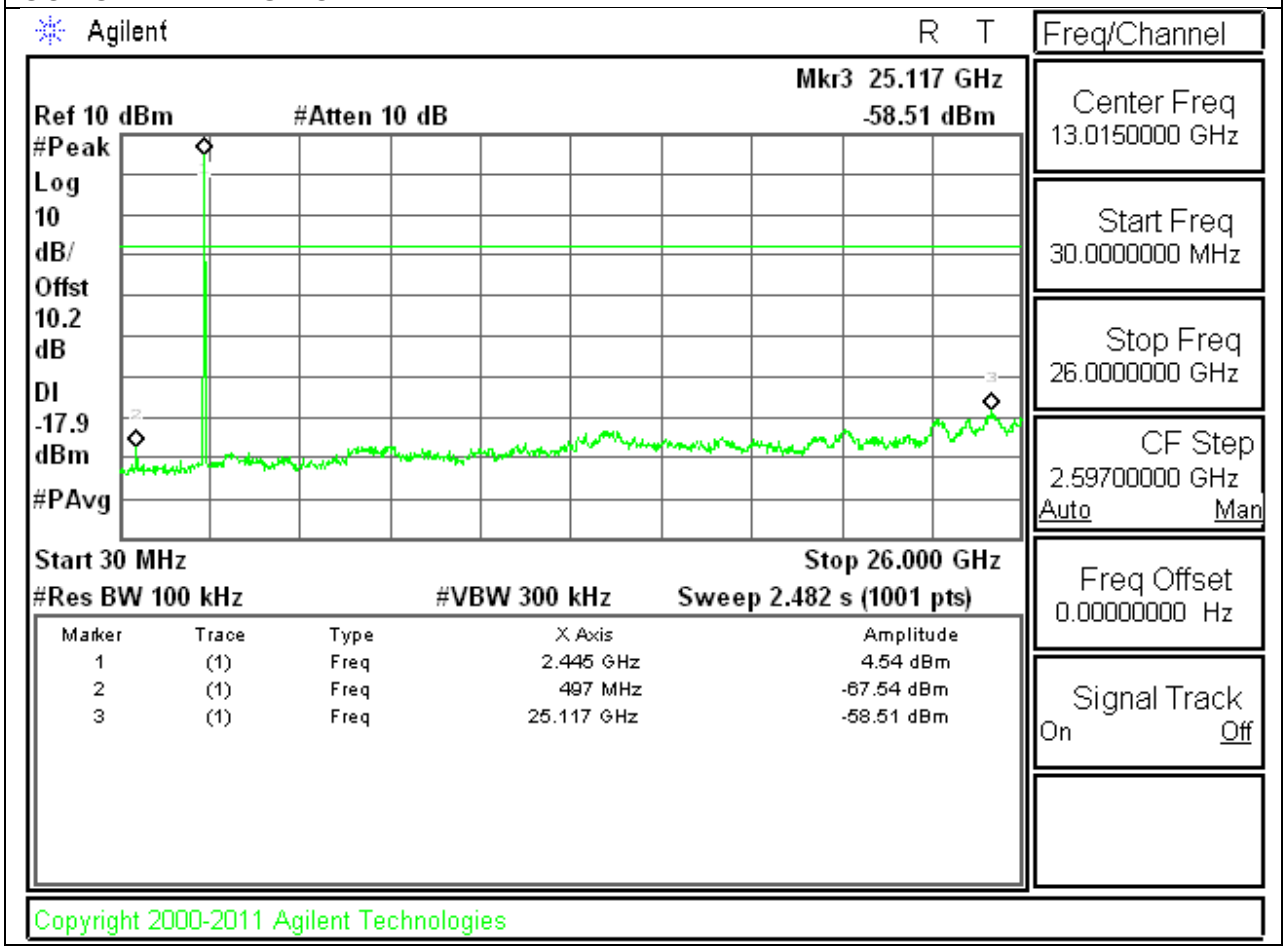
OUT OF BAND HIGH CH



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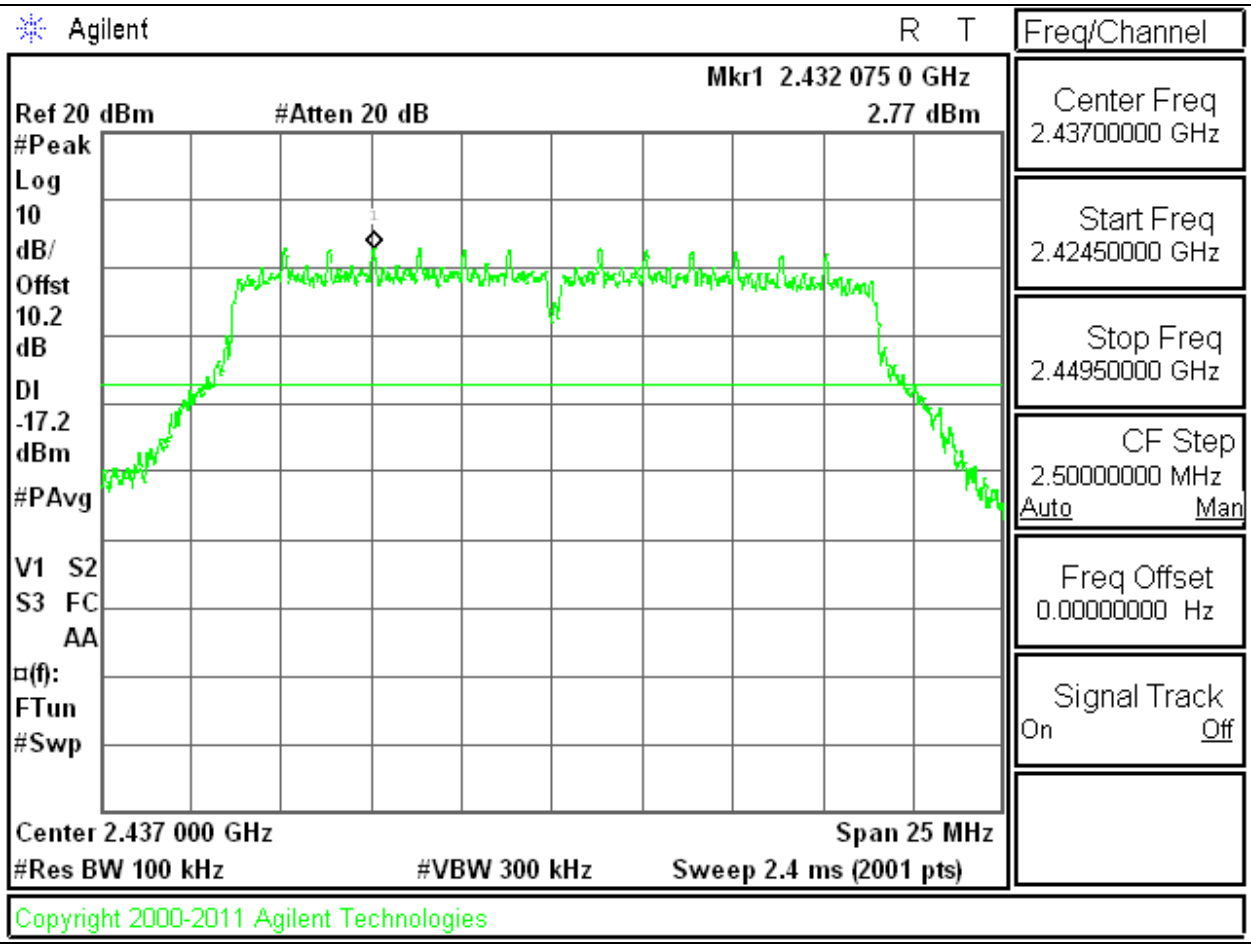
10.6.6. 802.11n MODE IN THE 2.4 GHz BAND CHAIN 1

IN-BAND REFERENCE LEVEL

REFERENCE LEVEL MID CH



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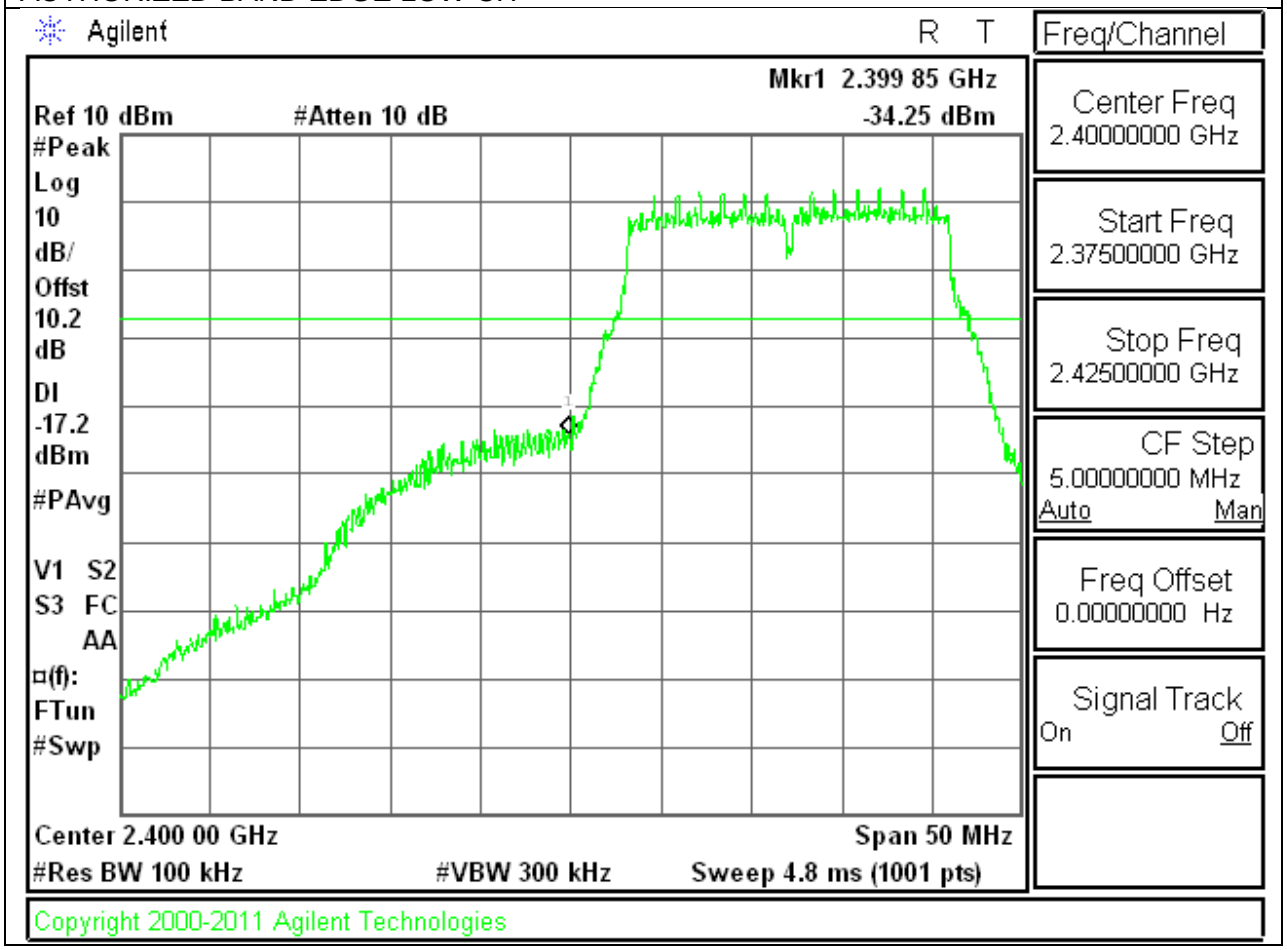
LOW CHANNEL BANDEDGE

AUTHORIZED BAND EDGE LOW CH



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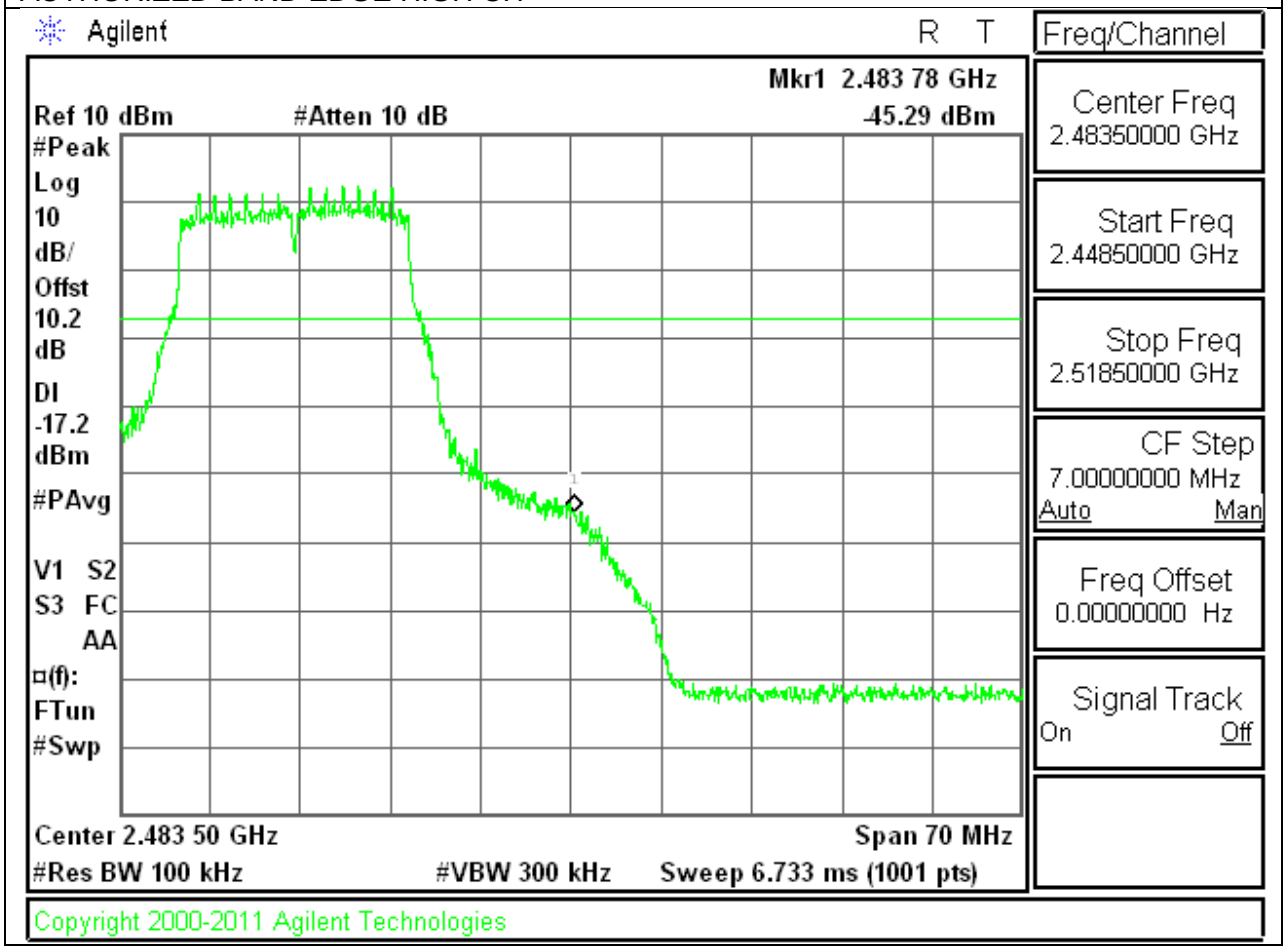
HIGH CHANNEL BANDEDGE

AUTHORIZED BAND EDGE HIGH CH



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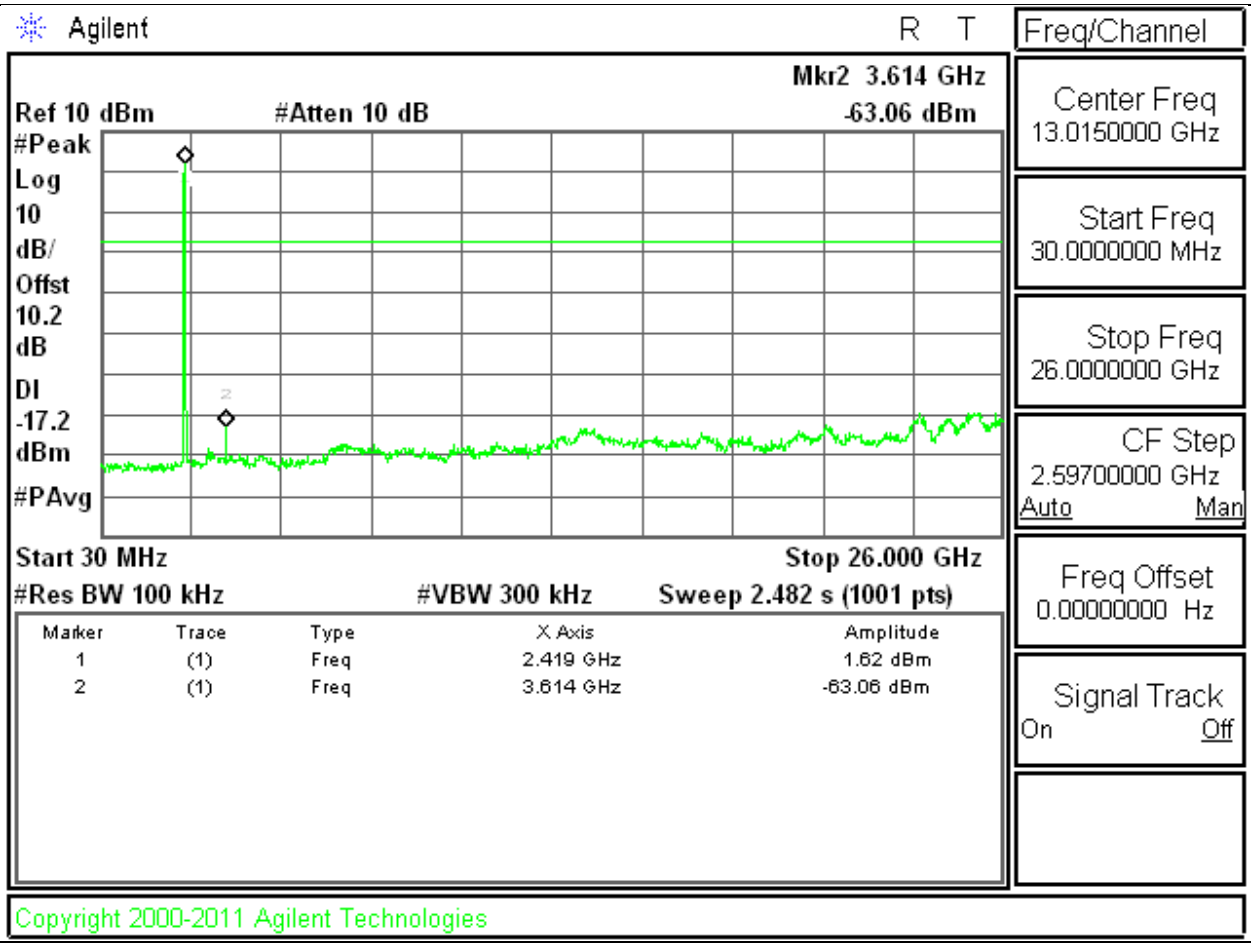
OUT-OF-BAND EMISSIONS

OUT OF BAND LOW CH



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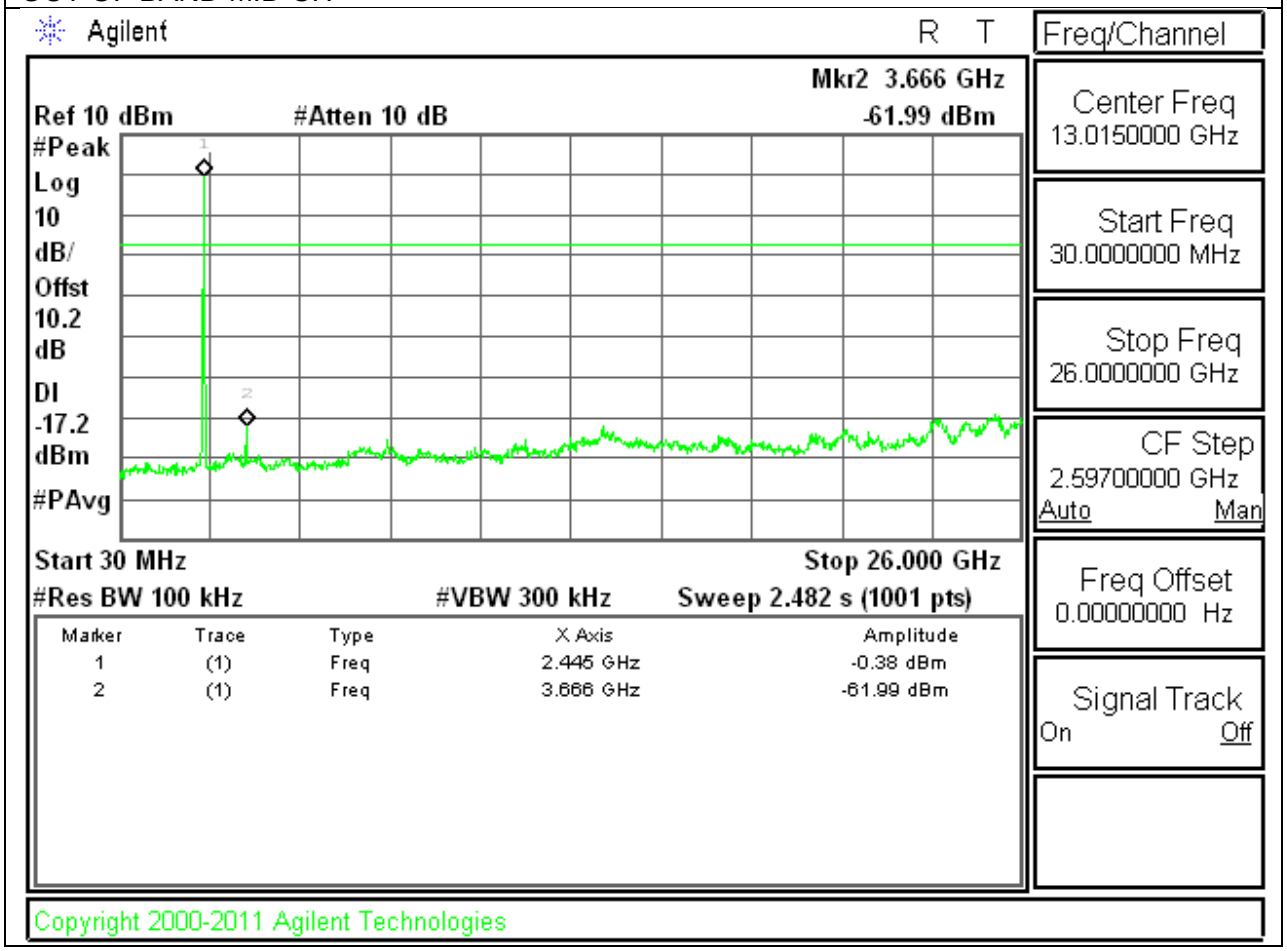
OUT OF BAND MID CH



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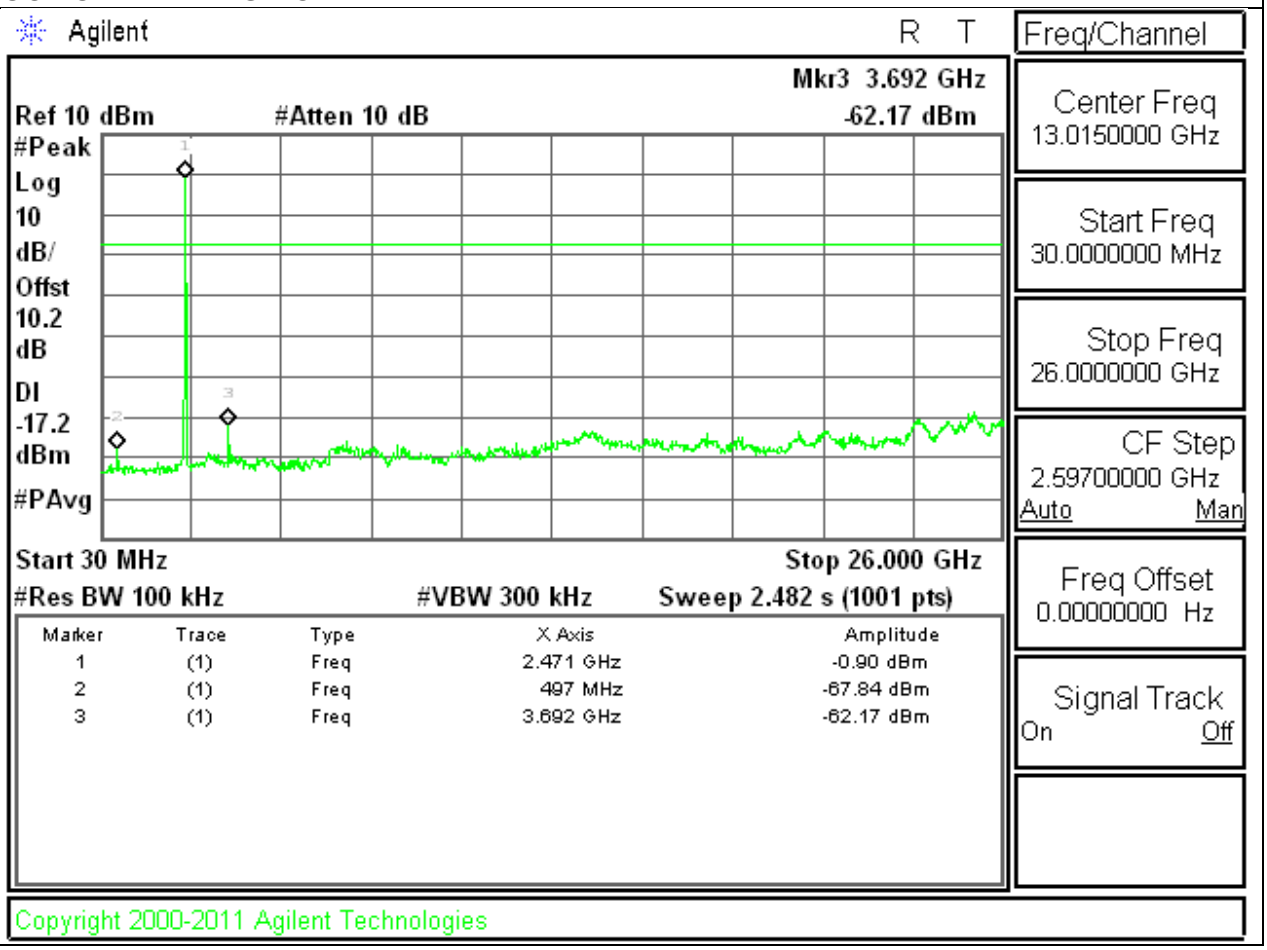
OUT OF BAND HIGH CH



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11. RADIATED TEST RESULTS

11.1. 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 = 0.6dB.

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.

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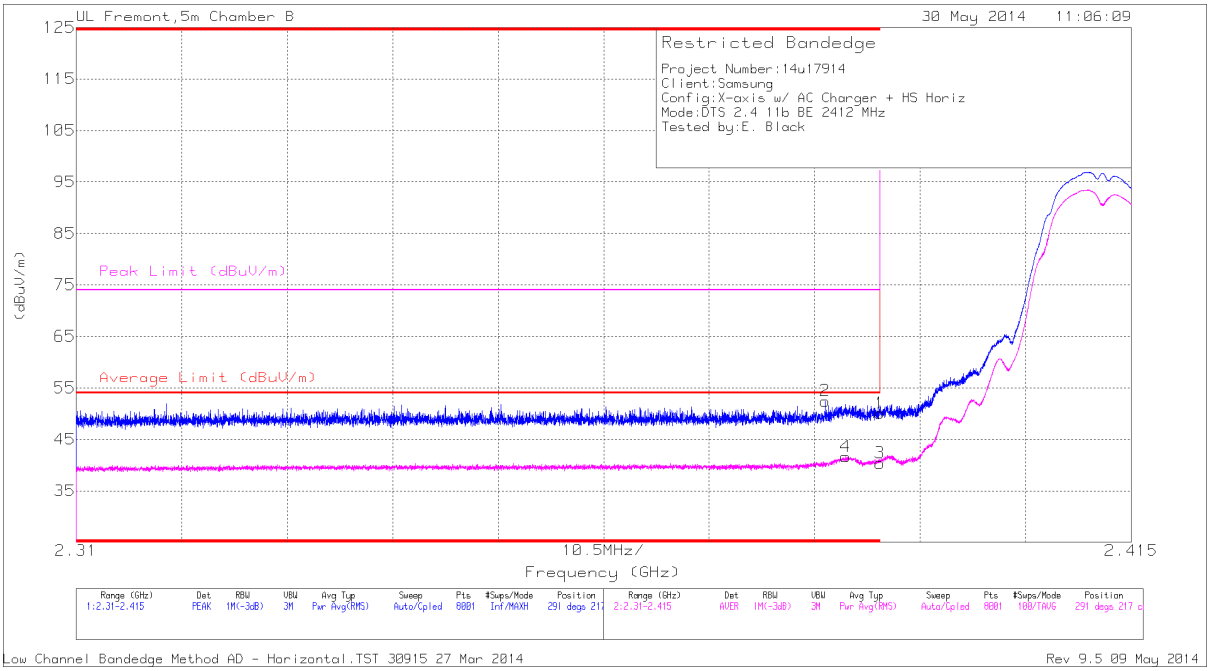
11.2. TRANSMITTER ABOVE 1 GHz

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

HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	40.78	PK	32.1	-22.8	50.08	-	-	74	-23.92	291	217	H
2	* 2.385	43.26	PK	32.1	-22.9	52.46	-	-	74	-21.54	291	217	H
3	* 2.39	30.99	RMS	32.1	-22.8	40.39	54	-13.61	-	-	291	217	H
4	* 2.387	32.23	RMS	32.1	-22.8	41.63	54	-12.37	-	-	291	217	H

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

PK - Peak detector

RMS - RMS detection

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47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
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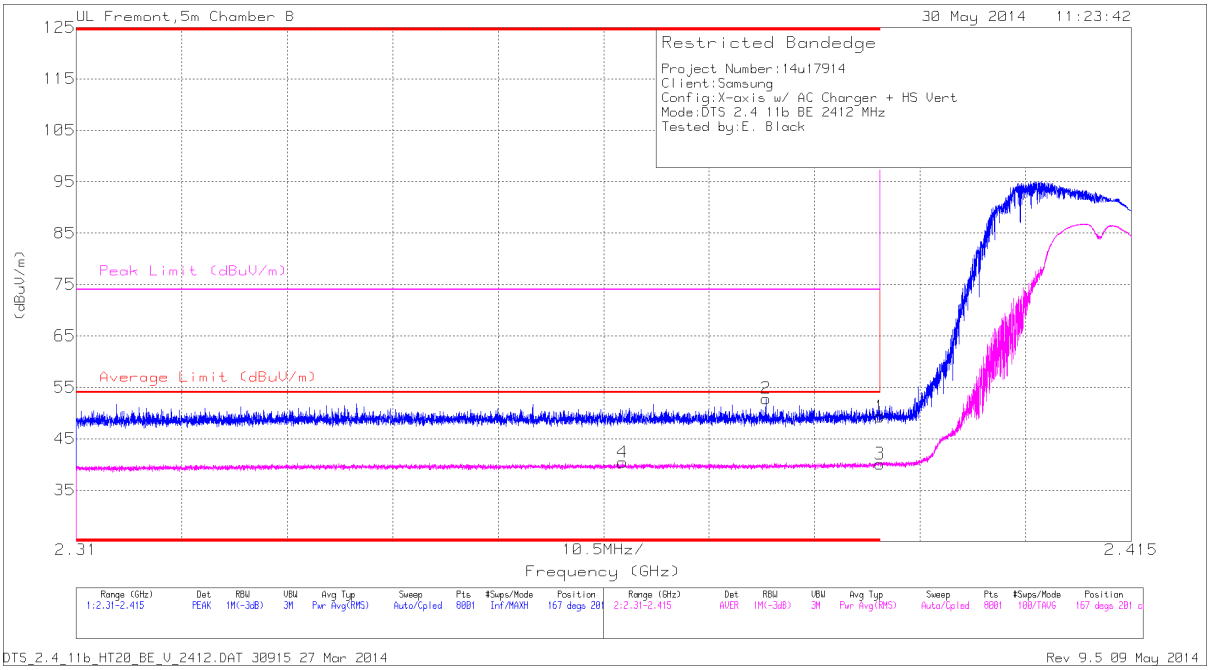
VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 2.364	31.2	RMS	32	-22.8	40.5	54	-13.5	-	-	167	201	V
2	* 2.379	43.73	PK	32	-22.9	52.83	-	-	74	-21.17	167	201	V
1	* 2.39	40.01	PK	32.1	-22.8	49.31	-	-	74	-24.69	167	201	V
3	* 2.39	30.81	RMS	32.1	-22.8	40.21	54	-13.79	-	-	167	201	V

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

PK - Peak detector

RMS - RMS detection

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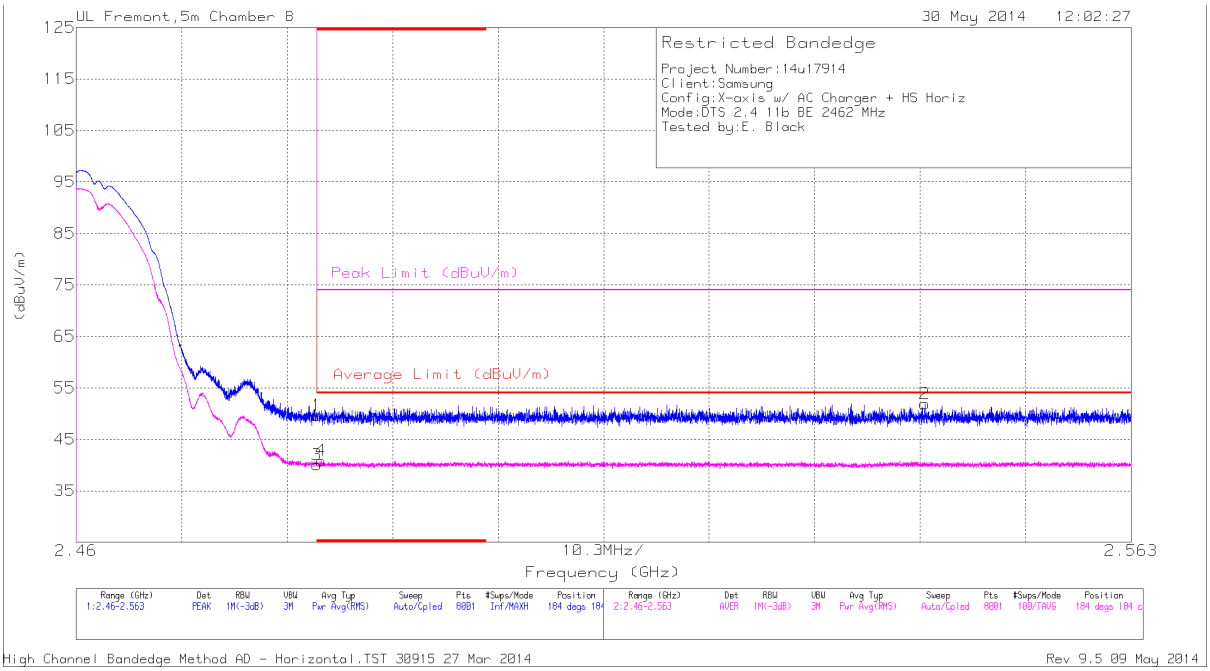
AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Flt r/Pad (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	39.97	PK	32.4	-22.7	49.67	-	-	74	-24.33	184	184	H
3	* 2.484	30.24	RMS	32.4	-22.7	40.04	54	-13.96	-	-	184	184	H
4	* 2.484	31.06	RMS	32.4	-22.7	40.86	54	-13.14	-	-	184	184	H
2	2.543	41.99	PK	32.5	-22.6	51.89	-	-	74	-22.11	184	184	H

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

PK - Peak detector

RMS - RMS detection

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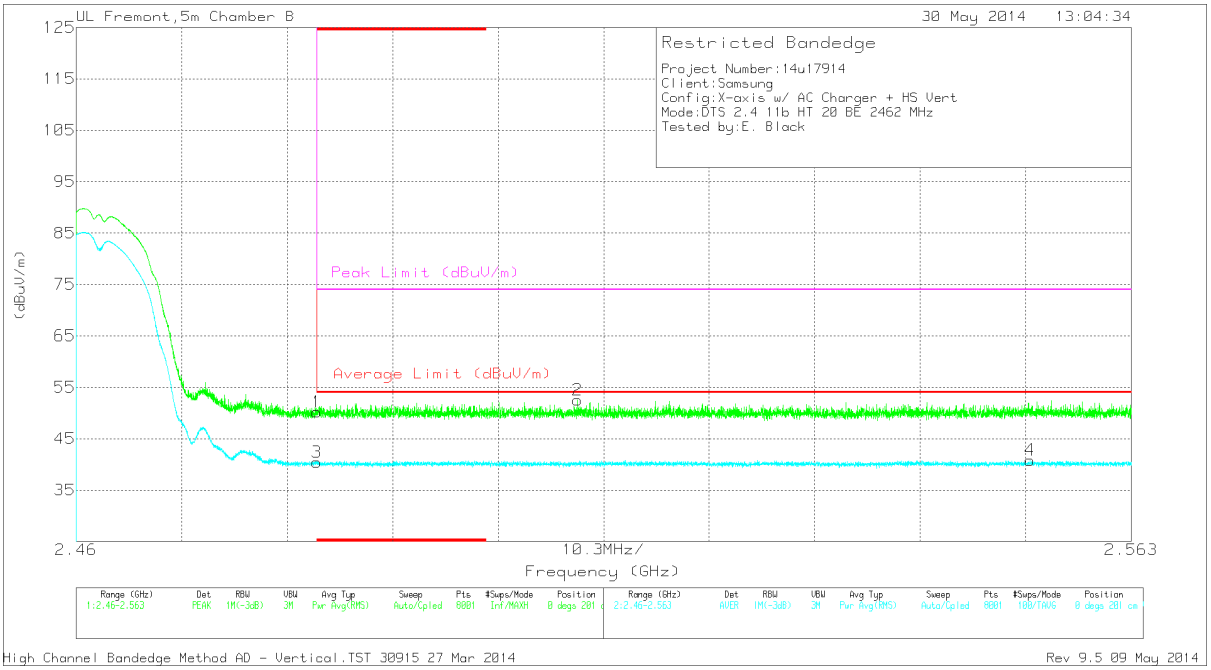
VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Flt r/Pad (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	40.47	PK	32.4	-22.7	50.17	-	-	74	-23.83	0	201	V
3	* 2.484	30.6	RMS	32.4	-22.7	40.4	54	-13.6	-	-	0	201	V
2	2.509	42.81	PK	32.4	-22.7	52.51	-	-	74	-21.49	0	201	V
4	2.553	30.82	RMS	32.5	-22.6	40.82	54	-13.18	-	-	0	201	V

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

PK - Peak detector

RMS - RMS detection

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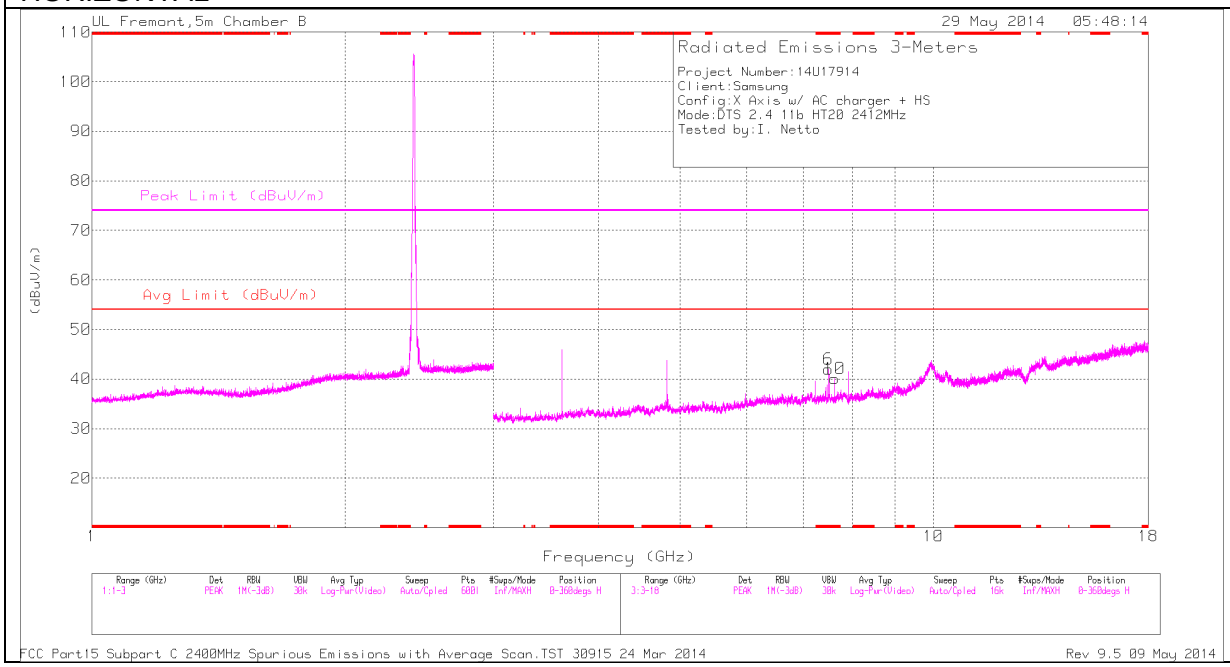
HARMONICS AND SPURIOUS EMISSIONS

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.

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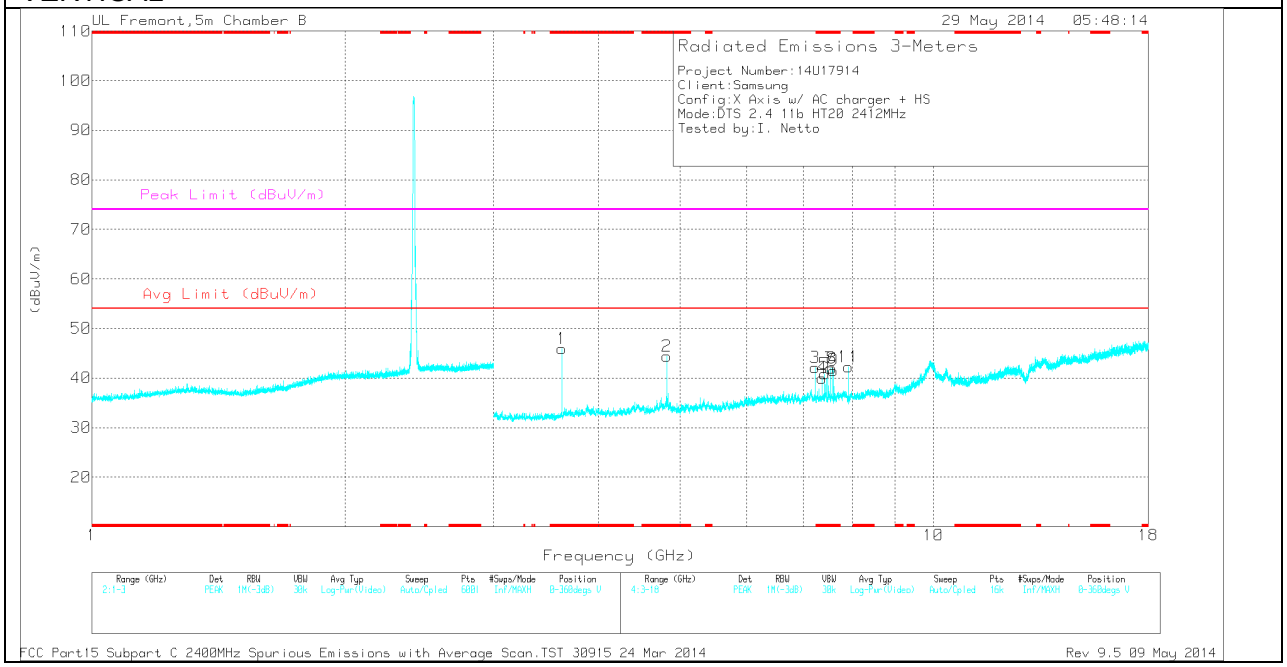
LOW CHANNEL
VERTICAL



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

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LOW CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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
6	* 7.501	33.31	PK	35.6	-26.9	0	42.01	-	-	74	-31.99	0-360	99	H
10	* 7.627	31.64	PK	35.7	-27.2	0	40.14	-	-	74	-33.86	0-360	202	H
1	* 3.618	43.68	PK	33.2	-31	0	45.88	-	-	74	-28.12	0-360	202	V
2	* 4.823	40.04	PK	34.2	-29.8	0	44.44	-	-	74	-29.56	0-360	202	V
4	* 7.368	32.04	PK	35.6	-27.7	0	39.94	-	-	74	-34.06	0-360	202	V
5	* 7.429	31.8	PK	35.6	-26.6	0	40.8	-	-	74	-33.2	0-360	99	V
7	* 7.537	33.53	PK	35.6	-27.1	0	42.03	-	-	74	-31.97	0-360	202	V
8	* 7.579	33.5	PK	35.7	-27.2	0	42	-	-	74	-32	0-360	202	V
9	* 7.605	33.25	PK	35.7	-27.4	0	41.55	-	-	74	-32.45	0-360	202	V
3	7.234	33.73	PK	35.6	-27.2	0	42.13	-	-	-	-	0-360	99	V
11	7.919	33.69	PK	35.7	-27.1	0	42.29	-	-	-	-	0-360	202	V

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

PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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
* 7.502	38.71	PK2	35.6	-26.9	0	47.41	-	-	74	-26.59	286	117	H
* 7.5	25.85	MAv1	35.6	-26.8	0	34.75	54	-19.25	-	-	286	117	H
* 7.629	37.82	PK2	35.7	-27.1	0	46.42	-	-	74	-27.58	340	194	H
* 7.625	26.2	MAv1	35.7	-27.2	0	34.8	54	-19.2	-	-	340	194	H
* 3.617	49.18	PK2	33.2	-31	0	51.38	-	-	74	-22.62	84	312	V
* 3.617	45.53	MAv1	33.2	-31	0	47.83	54	-6.17	-	-	84	312	V
* 4.822	44.85	PK2	34.2	-29.7	0	49.35	-	-	74	-24.65	214	286	V
* 4.823	37.78	MAv1	34.2	-29.7	0	42.38	54	-11.62	-	-	214	286	V
* 7.368	38.59	PK2	35.6	-27.7	0	46.49	-	-	74	-27.51	330	115	V
* 7.366	26.62	MAv1	35.6	-27.7	0	34.62	54	-19.38	-	-	330	115	V
* 7.431	36.85	PK2	35.6	-26.5	0	45.95	-	-	74	-28.05	288	175	V
* 7.431	25.3	MAv1	35.6	-26.5	0	34.5	54	-19.5	-	-	288	175	V
* 7.431	37.53	PK2	35.6	-26.6	0	46.53	-	-	74	-27.47	288	175	V
* 7.431	25.32	MAv1	35.6	-26.6	0	34.42	54	-19.58	-	-	288	175	V
* 7.536	37.73	PK2	35.6	-27.1	0	46.23	-	-	74	-27.77	79	319	V
* 7.535	25.82	MAv1	35.6	-27.1	0	34.42	54	-19.58	-	-	79	319	V
* 7.581	38.32	PK2	35.7	-27.3	0	46.72	-	-	74	-27.28	150	335	V
* 7.577	26.3	MAv1	35.6	-27.2	0	34.8	54	-19.2	-	-	150	335	V
* 7.605	37.99	PK2	35.7	-27.4	0	46.29	-	-	74	-27.71	194	179	V
* 7.603	26.08	MAv1	35.7	-27.4	0	34.48	54	-19.52	-	-	194	179	V
7.233	36.69	MAv1	35.5	-27.1	0	45.19	-	-	-	-	290	256	V
7.235	43.75	PK2	35.6	-27.2	0	52.15	-	-	-	-	290	256	V
7.917	25.7	MAv1	35.7	-27.1	0	34.4	-	-	-	-	16	380	V
7.918	37.75	PK2	35.7	-27.1	0	46.35	-	-	-	-	16	380	V

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

PK2 - KDB558074 Method: Maximum Peak

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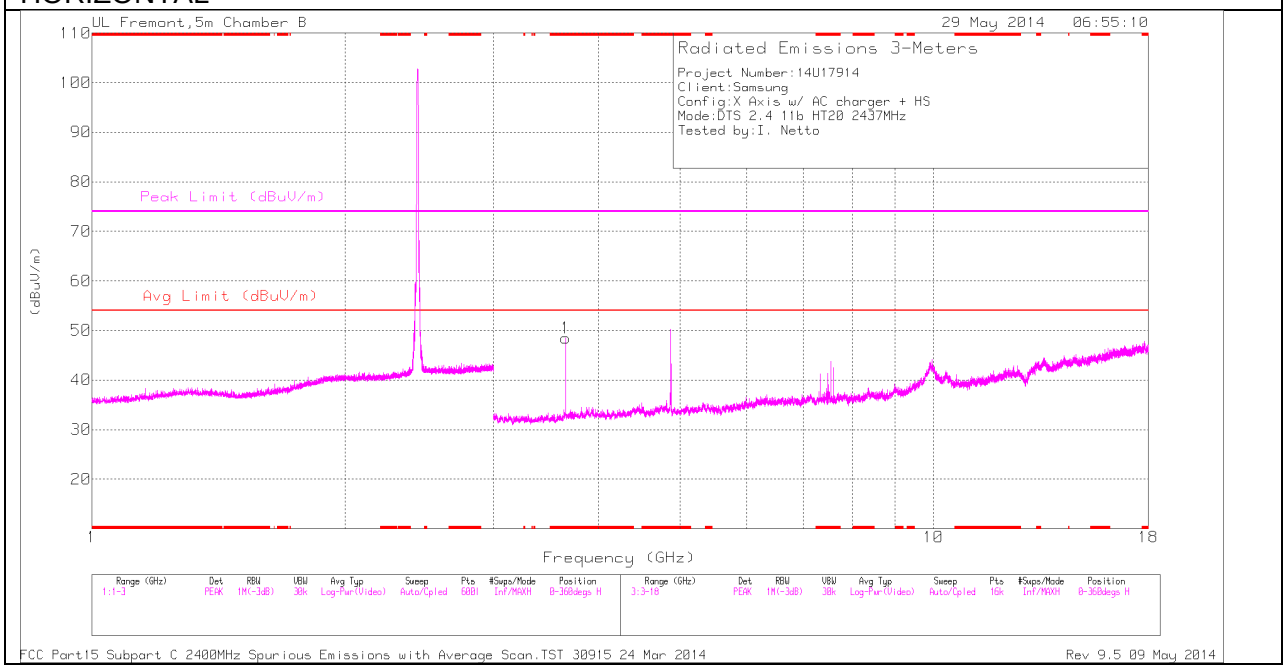
MID CHANNEL
HORIZONTAL



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

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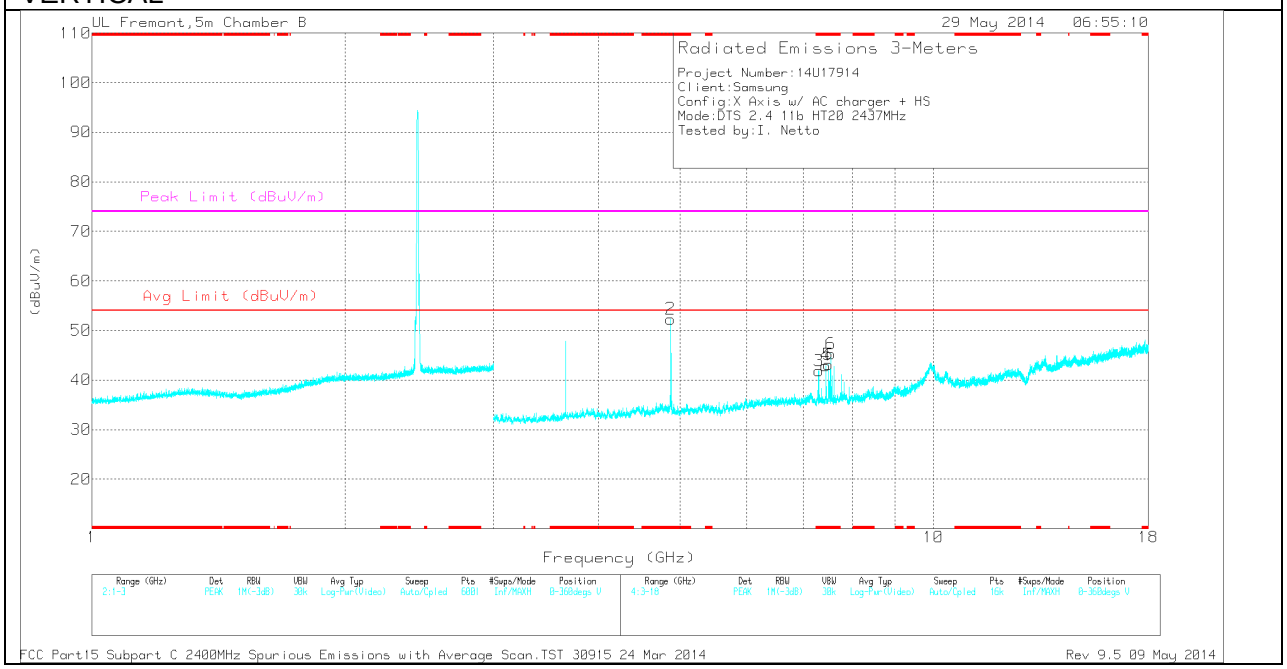
MID CHANNEL
VERTICAL



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

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MID CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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	* 3.656	46.37	PK	33.2	-31.1	0	48.47	-	-	74	-25.53	0-360	202	H
2	* 4.874	48.64	PK	34.2	-30.5	0	52.34	-	-	74	-21.66	0-360	202	V
3	* 7.307	34.36	PK	35.6	-28.1	0	41.86	-	-	74	-32.14	0-360	99	V
4	* 7.454	33.85	PK	35.6	-26.5	0	42.95	-	-	74	-31.05	0-360	99	V
5	* 7.497	34.35	PK	35.6	-26.8	0	43.15	-	-	74	-30.85	0-360	202	V
6	* 7.557	36.98	PK	35.6	-27.3	0	45.28	-	-	74	-28.72	0-360	202	V

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

PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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
* 3.656	50.21	PK2	33.2	-31.1	0	52.31	-	-	74	-21.69	191	234	H
* 3.656	47.36	MAv1	33.2	-31.1	0	49.56	54	-4.44	-	-	191	234	H
* 4.874	51.8	PK2	34.2	-30.5	0	55.5	-	-	74	-18.5	236	252	V
* 4.874	48.79	MAv1	34.2	-30.5	0	52.59	54	-1.41	-	-	236	252	V
* 7.308	40.72	PK2	35.6	-28.1	0	48.22	-	-	74	-25.78	136	259	V
* 7.309	31	MAv1	35.6	-28.1	0	38.6	54	-15.4	-	-	136	259	V
* 7.455	37.65	PK2	35.6	-26.5	0	46.75	-	-	74	-27.25	18	374	V
* 7.454	25.66	MAv1	35.6	-26.5	0	34.86	54	-19.14	-	-	18	374	V
* 7.499	38.03	PK2	35.6	-26.8	0	46.83	-	-	74	-27.17	223	279	V
* 7.499	25.71	MAv1	35.6	-26.8	0	34.61	54	-19.39	-	-	223	279	V
* 7.558	38.44	PK2	35.6	-27.3	0	46.74	-	-	74	-27.26	139	339	V
* 7.556	26.28	MAv1	35.6	-27.3	0	34.68	54	-19.32	-	-	139	339	V

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

PK2 - KDB558074 Method: Maximum Peak

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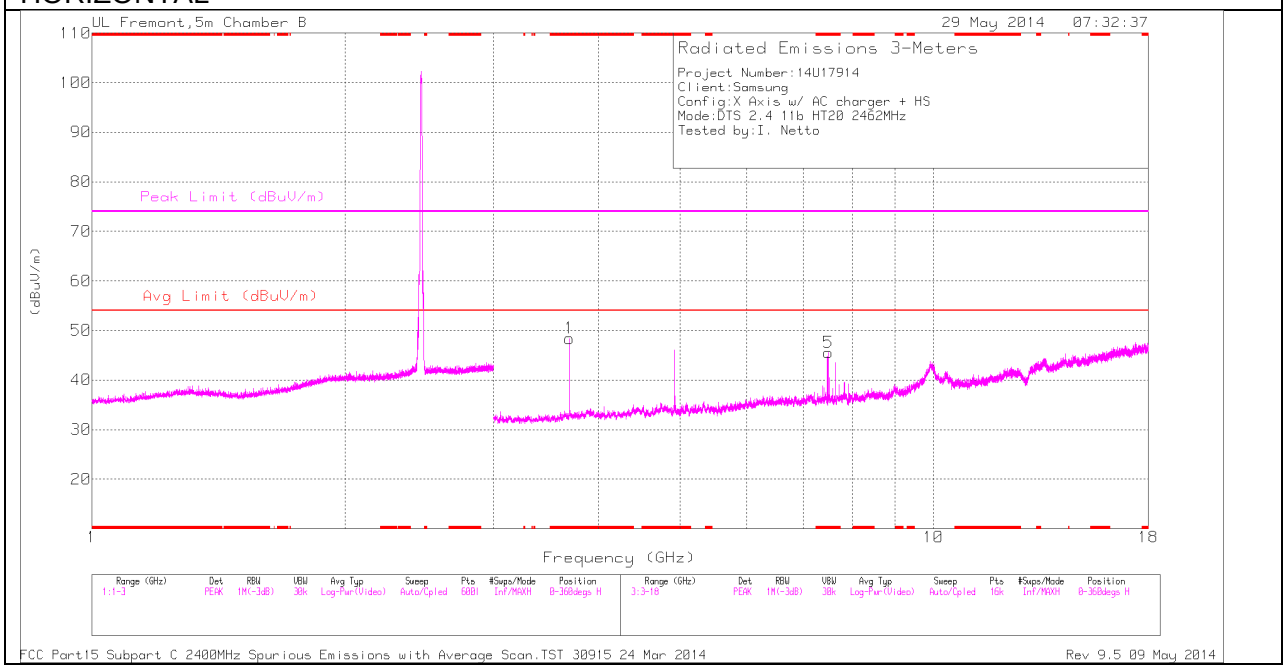
HIGH CHANNEL
HORIZONTAL



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

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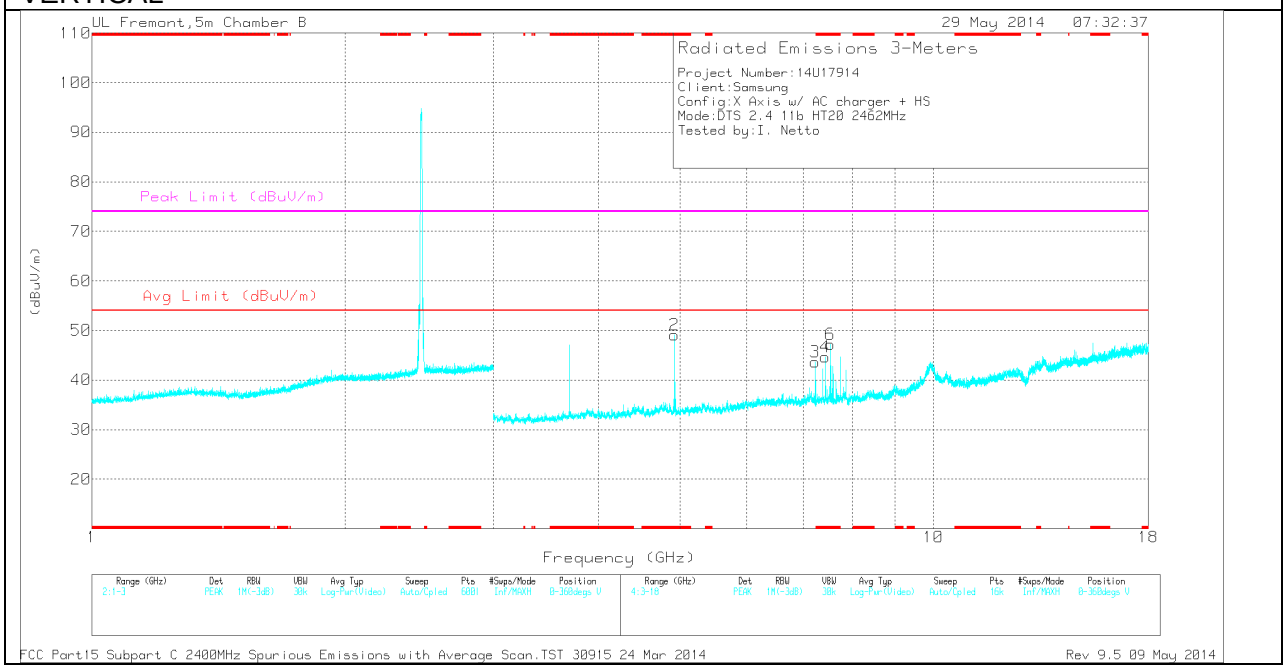
HIGH CHANNEL
VERTICAL



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

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HIGH CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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	* 3.694	46.41	PK	33.3	-31.3	0	48.41	-	-	74	-25.59	0-360	202	H
5	* 7.497	36.78	PK	35.6	-26.8	0	45.58	-	-	74	-28.42	0-360	202	H
2	* 4.925	45.75	PK	34.2	-30.8	0	49.15	-	-	74	-24.85	0-360	202	V
4	* 7.438	35.43	PK	35.6	-26.4	0	44.63	-	-	74	-29.37	0-360	202	V
6	* 7.536	38.7	PK	35.6	-27.1	0	47.2	-	-	74	-26.8	0-360	99	V
3	7.24	35.44	PK	35.6	-27.4	0	43.64	-	-	-	-	0-360	202	V

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

PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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
* 3.693	50.43	PK2	33.3	-31.3	0	52.43	-	-	74	-21.57	192	204	H
* 3.693	47.19	MAv1	33.3	-31.3	0	49.29	54	-4.71	-	-	192	204	H
* 7.499	37.73	PK2	35.6	-26.8	0	46.53	-	-	74	-27.47	57	385	H
* 7.498	25.64	MAv1	35.6	-26.8	0	34.54	54	-19.46	-	-	57	385	H
* 4.925	49.45	PK2	34.2	-30.8	0	52.85	-	-	74	-21.15	35	201	V
* 4.924	45.98	MAv1	34.2	-30.8	0	49.48	54	-4.52	-	-	35	201	V
* 7.437	37.45	PK2	35.6	-26.4	0	46.65	-	-	74	-27.35	99	225	V
* 7.44	26.57	MAv1	35.6	-26.3	0	35.97	54	-18.03	-	-	99	225	V
* 7.536	37.81	PK2	35.6	-27.1	0	46.31	-	-	74	-27.69	41	118	V
* 7.534	25.91	MAv1	35.6	-27.1	0	34.51	54	-19.49	-	-	41	118	V
7.241	25.73	MAv1	35.6	-27.4	0	34.03	-	-	-	-	36	100	V
7.242	37.6	PK2	35.6	-27.5	0	45.7	-	-	-	-	36	100	V

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

PK2 - KDB558074 Method: Maximum Peak

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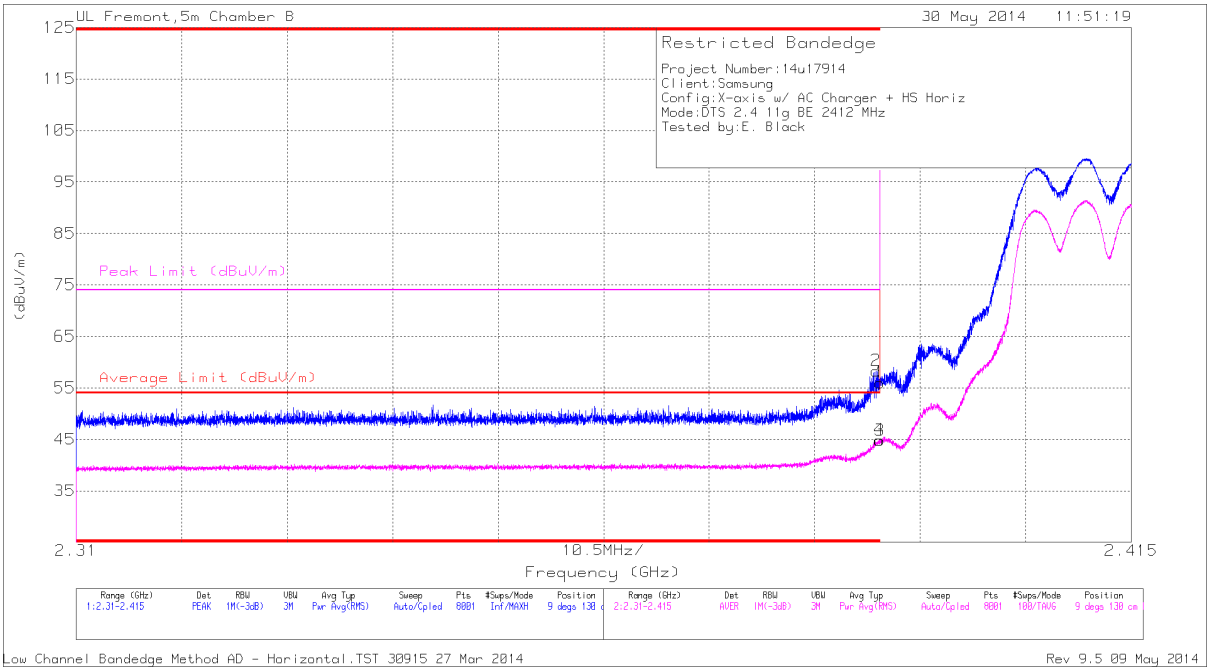
11.2.2. TX ABOVE 1 GHz 802.11g MODE IN THE 2.4 GHz BAND RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	46.7	PK	32.1	-22.8	0	56	-	-	74	-18	9	130	H
2	* 2.39	49.03	PK	32.1	-22.8	0	58.33	-	-	74	-15.67	9	130	H
3	* 2.39	35.31	RMS	32.1	-22.8	.3	44.81	54	-9.19	-	-	9	130	H
4	* 2.39	35.38	RMS	32.1	-22.8	.3	44.88	54	-9.12	-	-	9	130	H

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

PK - Peak detector

RMS - RMS detection

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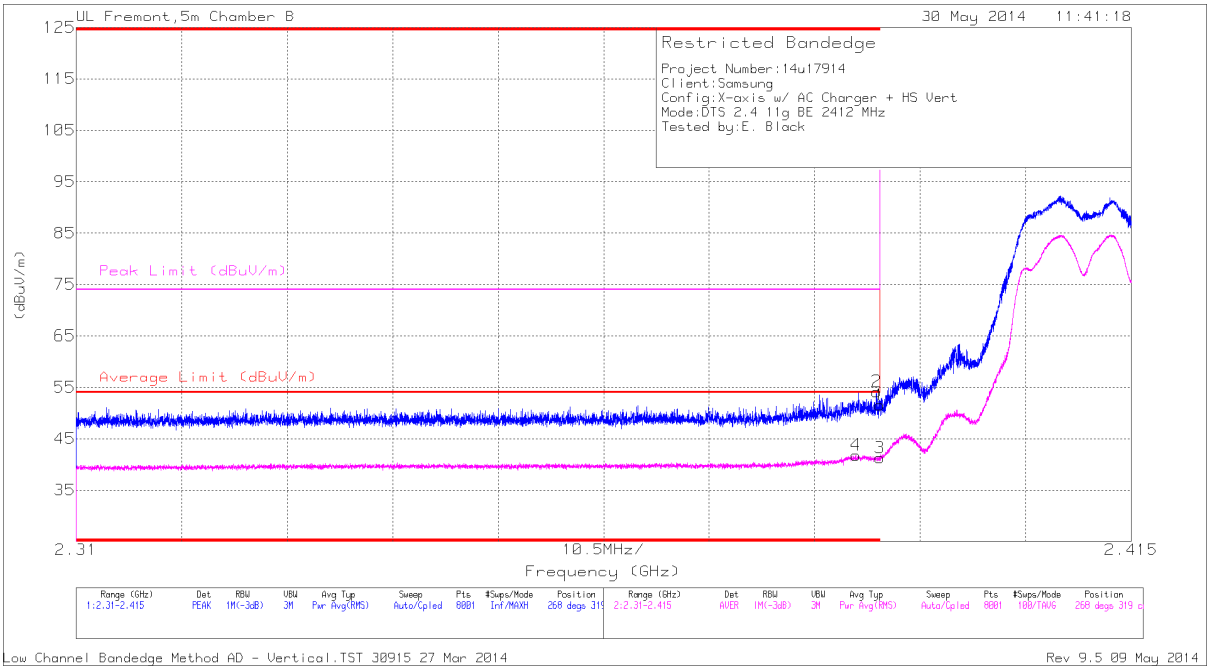
VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 2.388	32.31	RMS	32.1	-22.8	.3	41.81	54	-12.19	-	-	268	319	V
1	* 2.39	42.26	PK	32.1	-22.8	0	51.56	-	-	74	-22.44	268	319	V
2	* 2.39	44.85	PK	32.1	-22.8	0	54.15	-	-	74	-19.85	268	319	V
3	* 2.39	31.78	RMS	32.1	-22.8	.3	41.28	54	-12.72	-	-	268	319	V

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

PK - Peak detector

RMS - RMS detection

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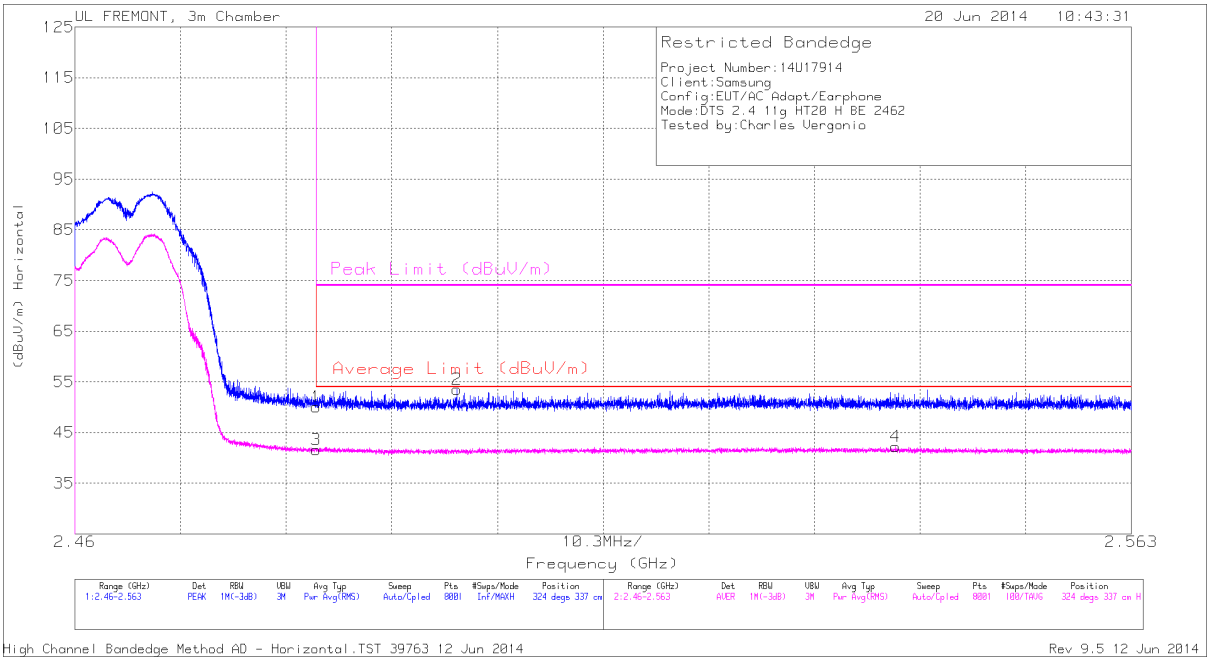
AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.484	38.54	PK	32.3	-20.8	0	50.04	-	-	74	-23.96	324	337	H
3	2.484	29.82	RMS	32.3	-20.8	.3	41.62	54	-12.38	-	-	324	337	H
2	2.497	41.95	PK	32.3	-20.7	0	53.55	-	-	74	-20.45	324	337	H
4	2.54	30.08	RMS	32.4	-20.6	.3	42.18	54	-11.82	-	-	324	337	H

PK - Peak detector

RMS - RMS detection

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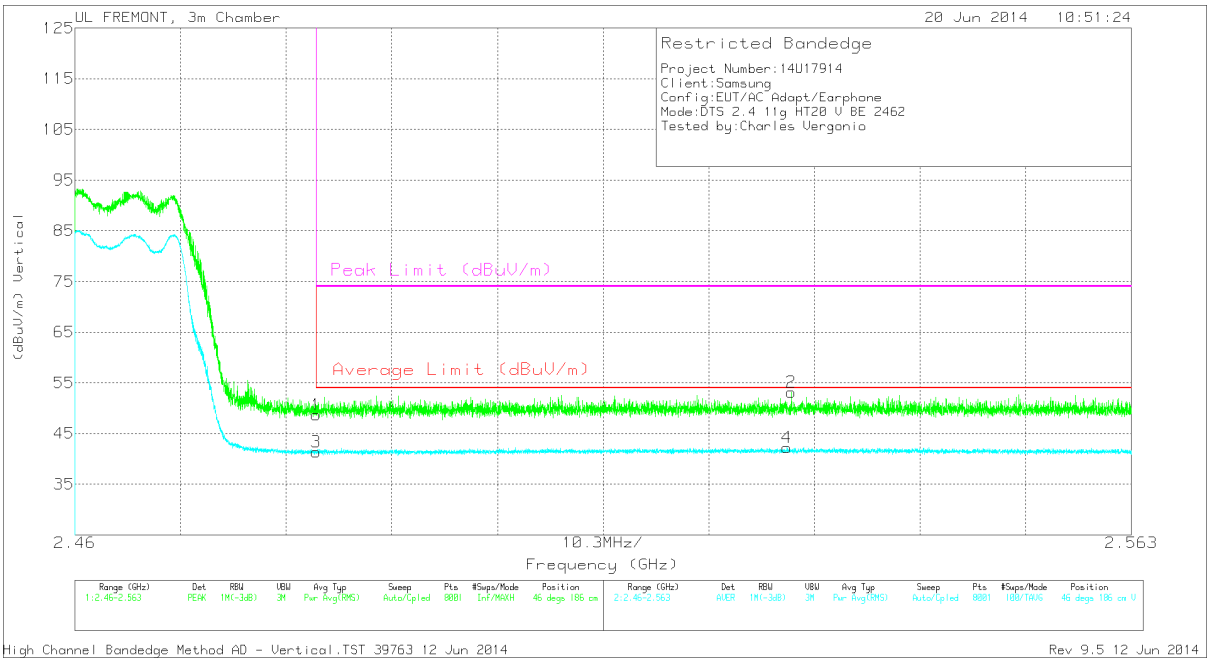
VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.484	37.21	PK	32.3	-20.8	0	48.71	-	-	74	-25.29	46	186	V
3	2.484	29.54	RMS	32.3	-20.8	.3	41.34	54	-12.66	-	-	46	186	V
4	2.529	30.14	RMS	32.4	-20.6	.3	42.24	54	-11.76	-	-	46	186	V
2	2.53	41.36	PK	32.4	-20.6	0	53.16	-	-	74	-20.84	46	186	V

PK - Peak detector

RMS - RMS detection

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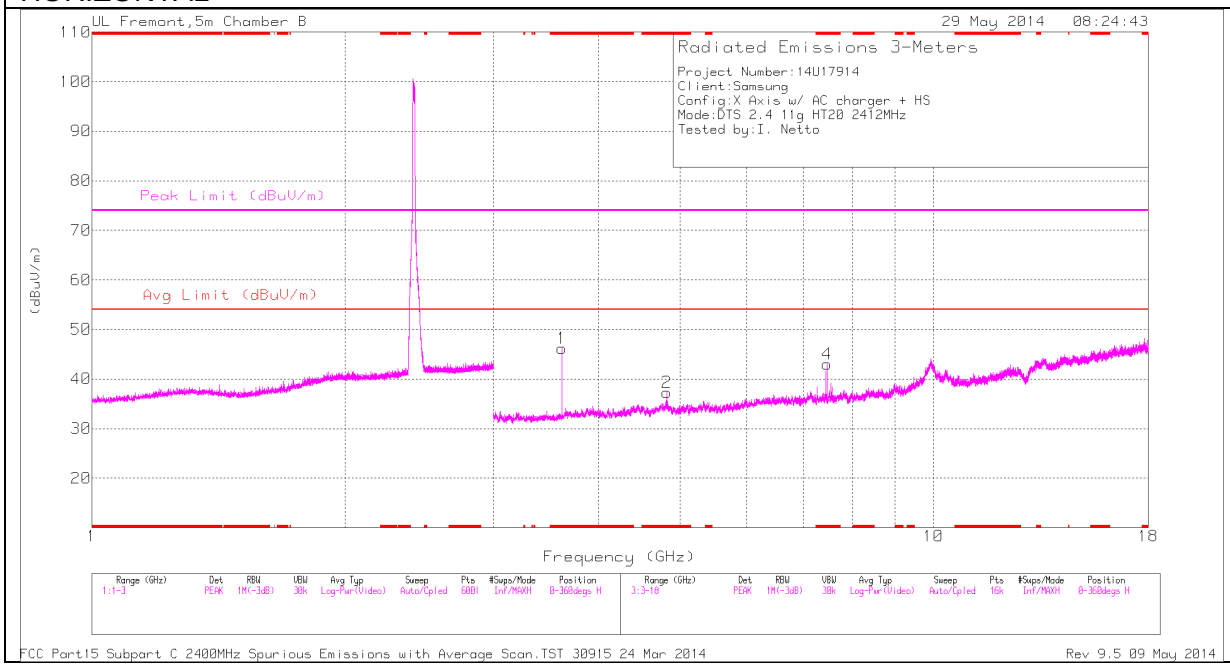
HARMONICS AND SPURIOUS EMISSIONS

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.

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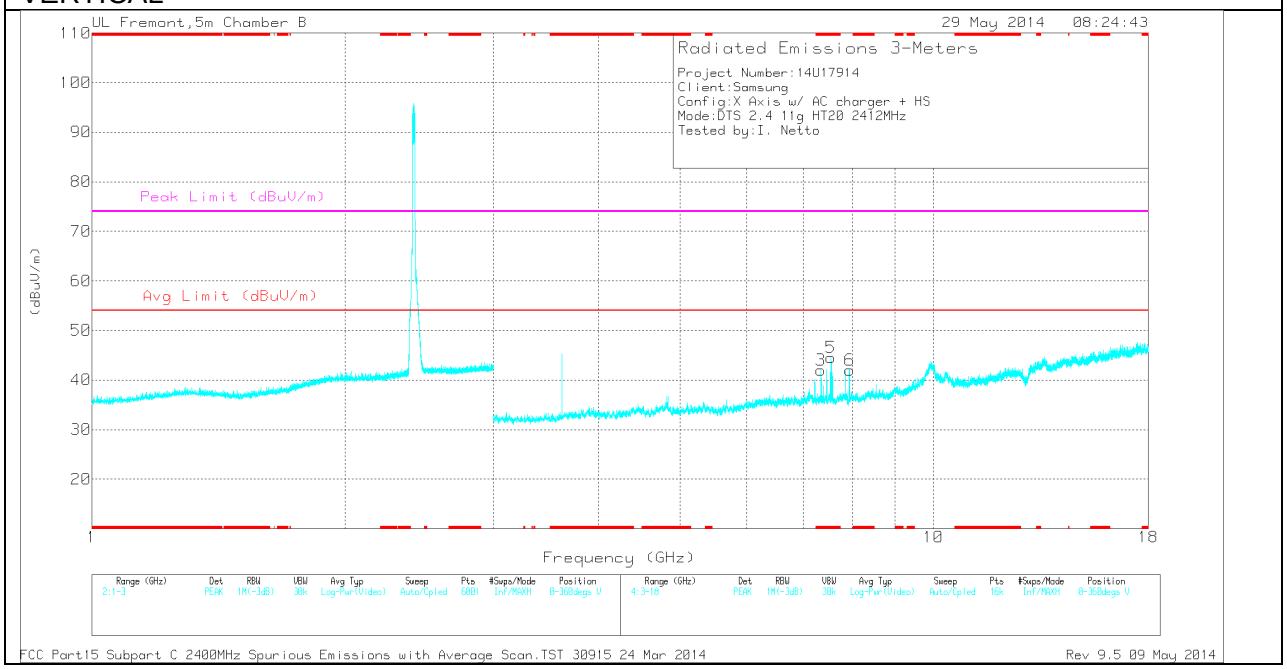
LOW CHANNEL
VERTICAL



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

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LOW CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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	* 3.618	43.93	PK	33.2	-31	0	46.13	-	-	74	-27.87	0-360	202	H
2	* 4.824	32.85	PK	34.2	-29.8	0	37.25	-	-	74	-36.75	0-360	202	H
4	* 7.473	34.2	PK	35.6	-26.8	0	43	-	-	74	-31	0-360	202	H
3	* 7.353	34.44	PK	35.6	-28	0	42.04	-	-	74	-31.96	0-360	202	V
5	* 7.55	36.2	PK	35.6	-27.3	0	44.5	-	-	74	-29.5	0-360	202	V
6	7.948	33	PK	35.7	-26.7	0	42	-	-	-	-	0-360	99	V

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

PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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
* 3.618	49.46	PK2	33.2	-31	0	51.66	-	-	74	-22.34	188	270	H
* 3.618	46.55	MAv1	33.2	-31	.3	48.95	54	-5.05	-	-	188	270	H
* 4.826	40.37	PK2	34.2	-29.8	0	44.77	-	-	74	-29.23	188	200	H
* 7.473	37.45	PK2	35.6	-26.8	0	46.25	-	-	74	-27.75	188	200	H
* 7.351	38.81	PK2	35.6	-28	0	46.41	-	-	74	-27.59	188	200	V
* 7.55	38.08	PK2	35.6	-27.3	0	46.38	-	-	74	-27.62	188	200	V
7.95	37.78	PK2	35.7	-26.8	0	46.68	-	-	-	-	188	100	V

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

PK2 - KDB558074 Method: Maximum Peak

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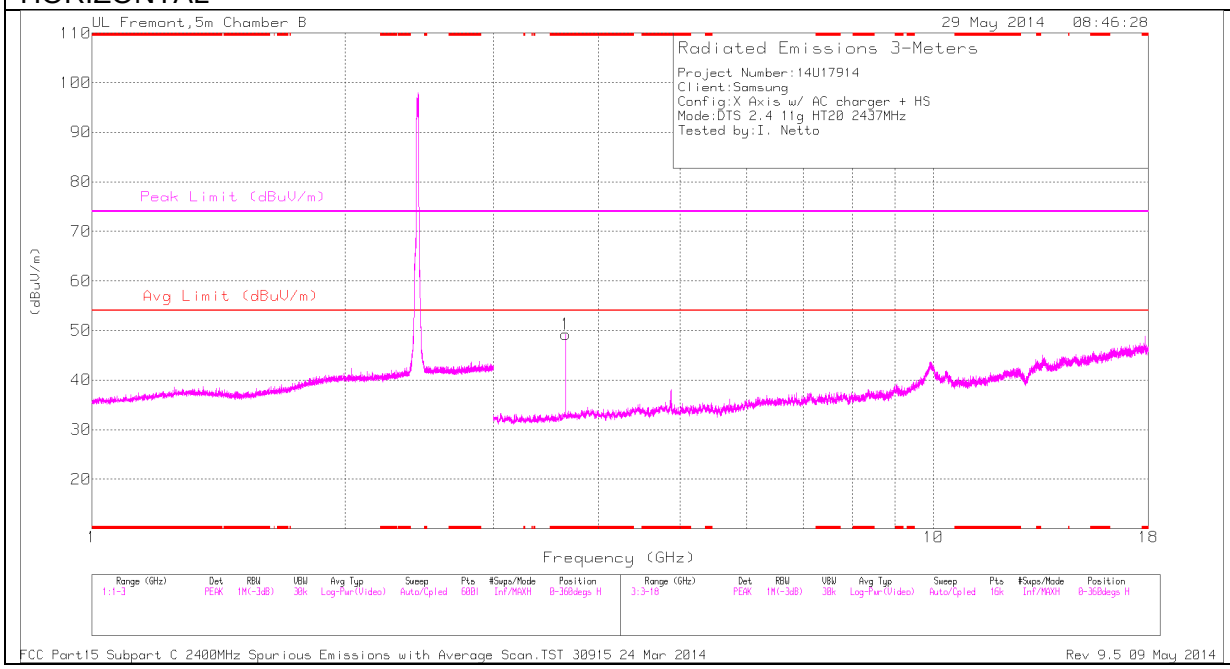
MID CHANNEL
HORIZONTAL



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

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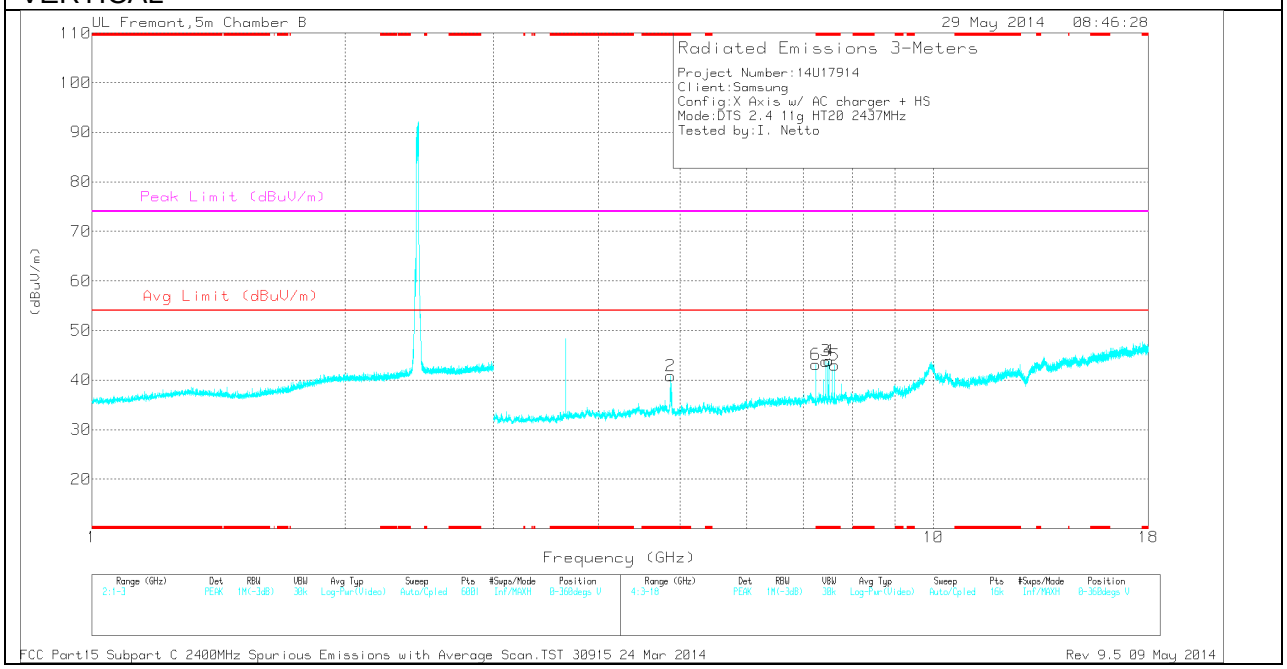
MID CHANNEL
VERTICAL



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

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MID CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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	* 3.655	47.11	PK	33.2	-31.1	0	49.21	-	-	74	-24.79	0-360	201	H
2	* 4.874	37.11	PK	34.2	-30.5	0	40.81	-	-	74	-33.19	0-360	202	V
3	* 7.45	34.64	PK	35.6	-26.4	0	43.84	-	-	74	-30.16	0-360	99	V
4	* 7.511	34.96	PK	35.6	-26.7	0	43.86	-	-	74	-30.14	0-360	99	V
5	* 7.625	34.49	PK	35.7	-27.2	0	42.99	-	-	74	-31.01	0-360	99	V
6	7.245	35.09	PK	35.6	-27.5	0	43.19	-	-	-	-	0-360	99	V

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

PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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
* 3.656	50.43	PK2	33.2	-31.1	0	52.53	-	-	74	-21.47	186	233	H
* 3.656	47.49	MAv1	33.2	-31.1	.3	49.79	54	-4.21	-	-	186	233	H
* 4.875	42.87	PK2	34.2	-30.5	0	46.57	-	-	74	-27.43	186	201	V
* 7.451	38	PK2	35.6	-26.4	0	47.2	-	-	74	-26.8	186	100	V
* 7.513	38.22	PK2	35.6	-26.6	0	47.22	-	-	74	-26.78	186	100	V
* 7.624	38.38	PK2	35.7	-27.2	0	46.88	-	-	74	-27.12	186	100	V
7.244	38.21	PK2	35.6	-27.5	0	46.31	-	-	-	-	186	100	V

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

PK2 - KDB558074 Method: Maximum Peak

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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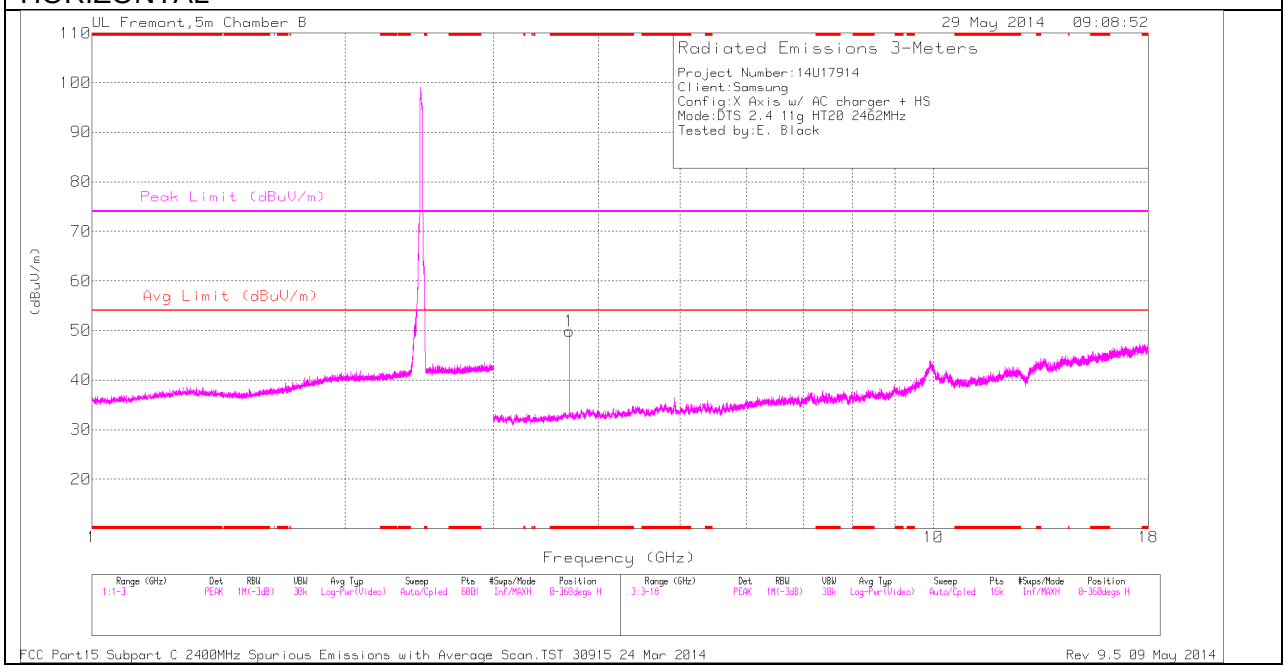
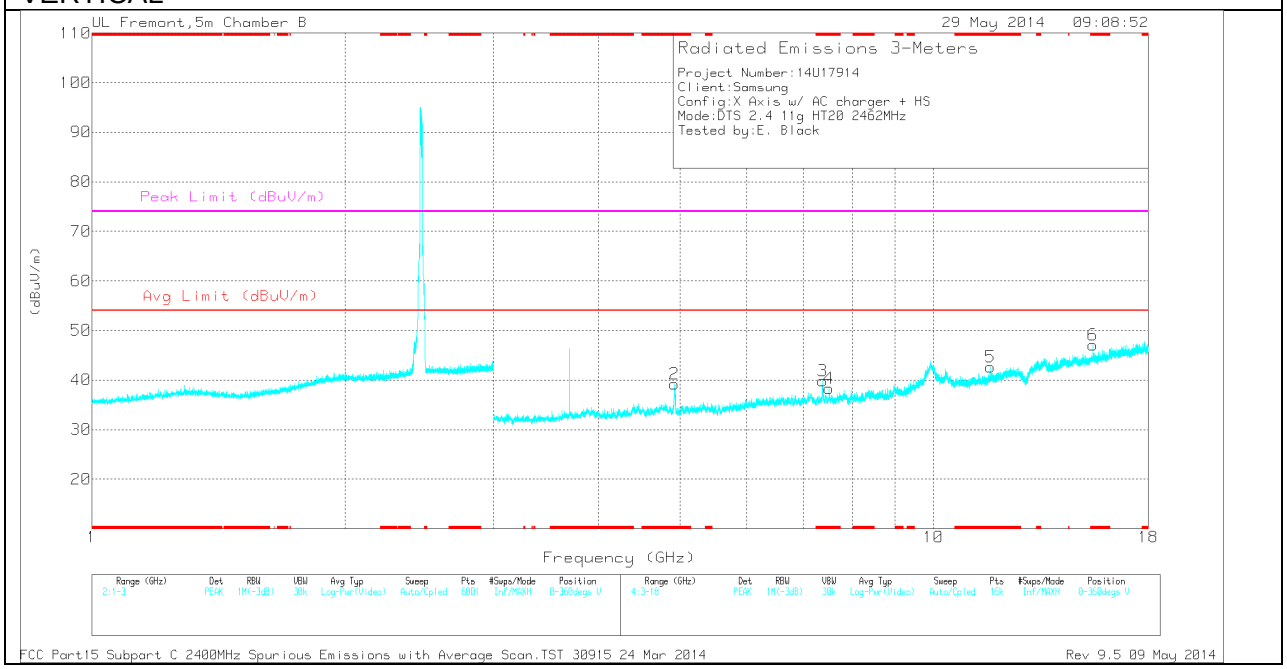
HIGH CHANNEL
HORIZONTAL



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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

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.

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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HIGH CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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	* 3.693	47.82	PK	33.3	-31.3	0	49.82	-	-	74	-24.18	0-360	202	H
2	* 4.926	35.8	PK	34.2	-30.8	0	39.2	-	-	74	-34.8	0-360	202	V
3	* 7.383	31.62	PK	35.6	-27.4	0	39.82	-	-	74	-34.18	0-360	202	V
4	* 7.51	29.38	PK	35.6	-26.7	0	38.28	-	-	74	-35.72	0-360	99	V
5	* 11.684	25.7	PK	38.2	-21.3	0	42.6	-	-	74	-31.4	0-360	99	V
6	* 15.475	26.44	PK	40.4	-19.8	0	47.04	-	-	74	-26.96	0-360	202	V

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

PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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
* 3.693	50.59	PK2	33.3	-31.3	0	52.59	-	-	74	-21.41	185	203	H
* 3.693	47.65	MAv1	33.3	-31.3	.3	49.85	54	-4.15	-	-	185	203	H
* 4.925	43.22	PK2	34.2	-30.8	0	46.62	-	-	74	-27.38	185	203	V
* 7.383	39.78	PK2	35.6	-27.4	0	47.98	-	-	74	-26.02	185	203	V
* 7.511	37.99	PK2	35.6	-26.7	0	46.89	-	-	74	-27.11	185	100	V
* 11.684	34.18	PK2	38.2	-21.3	0	51.08	-	-	74	-22.92	185	100	V
* 15.476	34.98	PK2	40.4	-19.8	0	55.58	-	-	74	-18.42	185	204	V

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

PK2 - KDB558074 Method: Maximum Peak

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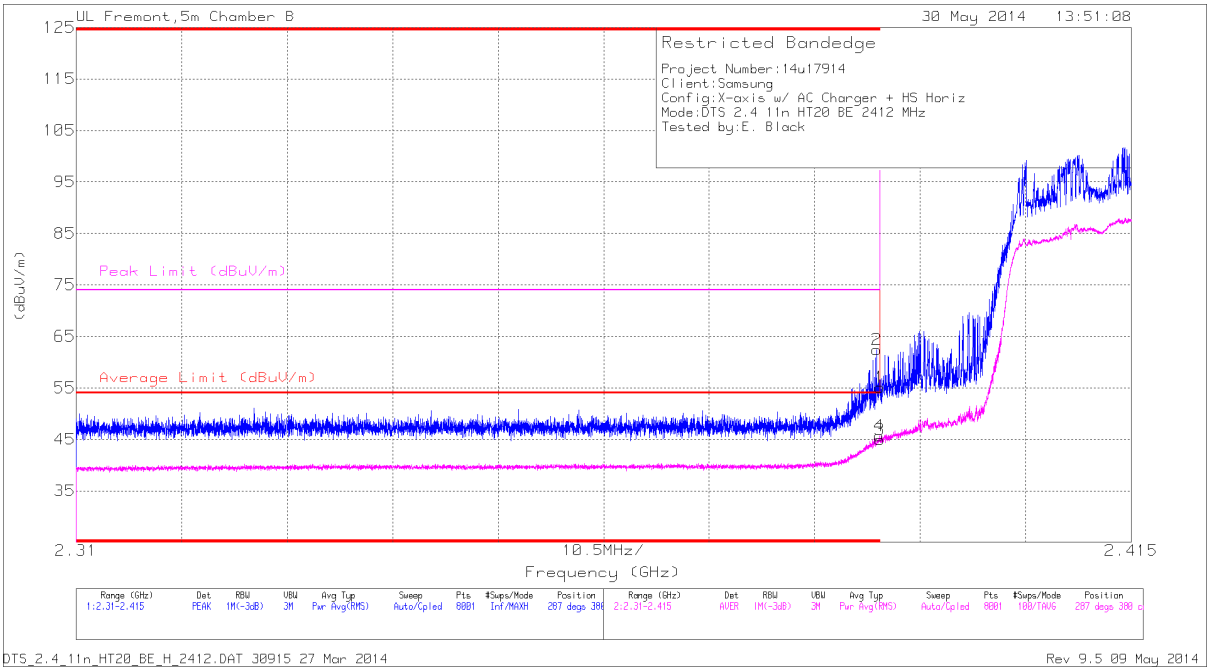
11.2.3. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 2.4 GHz BAND RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	45.78	PK	32.1	-22.8	0	55.08	-	-	74	-18.92	287	380	H
2	* 2.39	53.12	PK	32.1	-22.8	0	62.42	-	-	74	-11.58	287	380	H
3	* 2.39	35.45	RMS	32.1	-22.8	.6	45.35	54	-8.65	-	-	287	380	H
4	* 2.39	36.19	RMS	32.1	-22.8	.6	46.09	54	-7.91	-	-	287	380	H

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

PK - Peak detector

RMS - RMS detection

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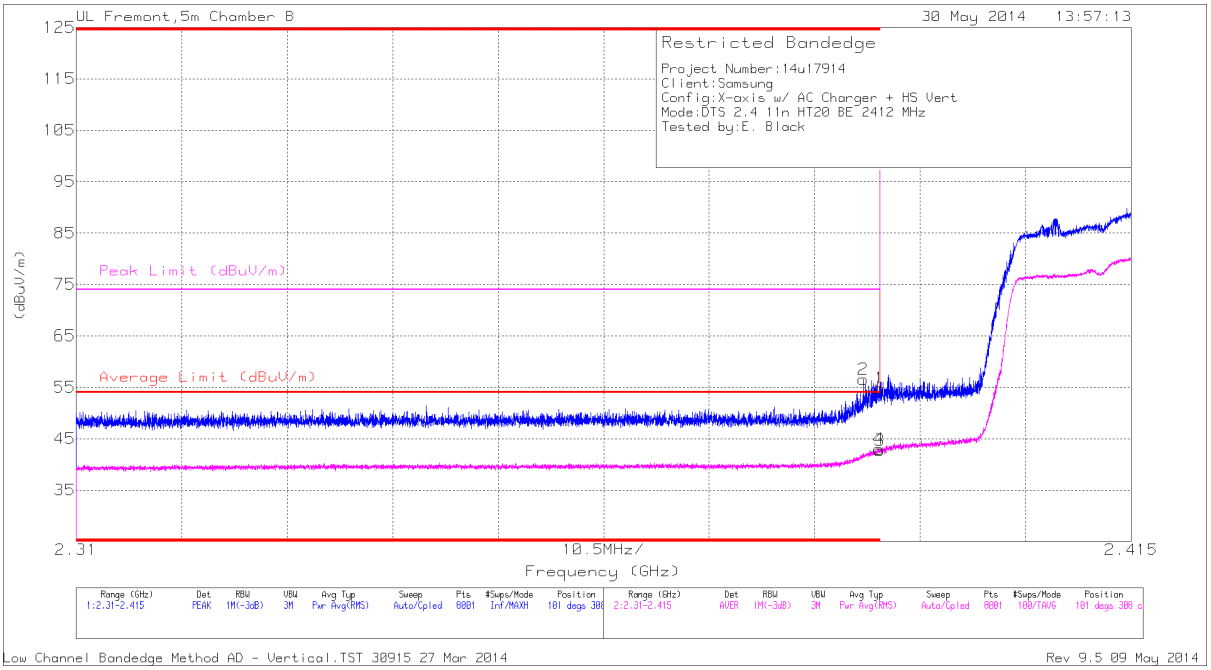
VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 2.388	47.27	PK	32.1	-22.8	0	56.57	-	-	74	-17.43	101	308	V
1	* 2.39	45.5	PK	32.1	-22.8	0	54.8	-	-	74	-19.2	101	308	V
3	* 2.39	33.22	RMS	32.1	-22.8	.6	43.12	54	-10.88	-	-	101	308	V
4	* 2.39	33.46	RMS	32.1	-22.8	.6	43.36	54	-10.64	-	-	101	308	V

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

PK - Peak detector

RMS - RMS detection

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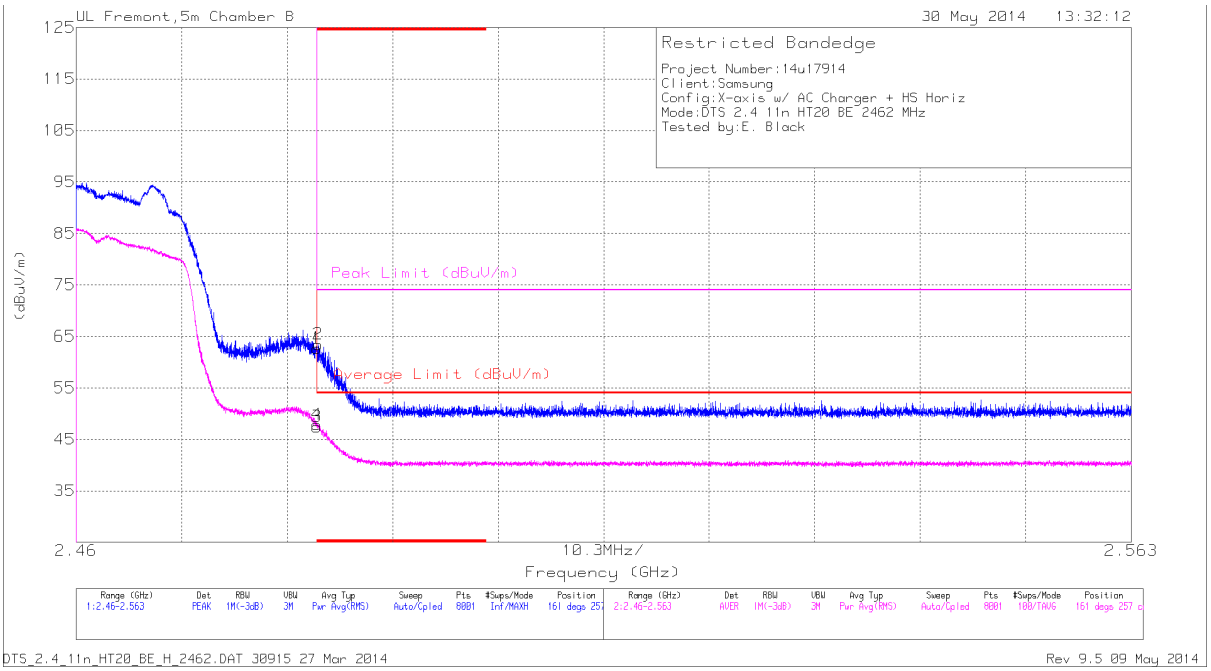
AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	53.03	PK	32.4	-22.7	0	62.73	-	-	74	-11.27	161	257	H
2	* 2.484	53.76	PK	32.4	-22.7	0	63.46	-	-	74	-10.54	161	257	H
3	* 2.484	37.55	RMS	32.4	-22.7	.6	47.45	54	-6.55	-	-	161	257	H
4	* 2.484	37.98	RMS	32.4	-22.7	.6	47.88	54	-6.12	-	-	161	257	H

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

PK - Peak detector

RMS - RMS detection

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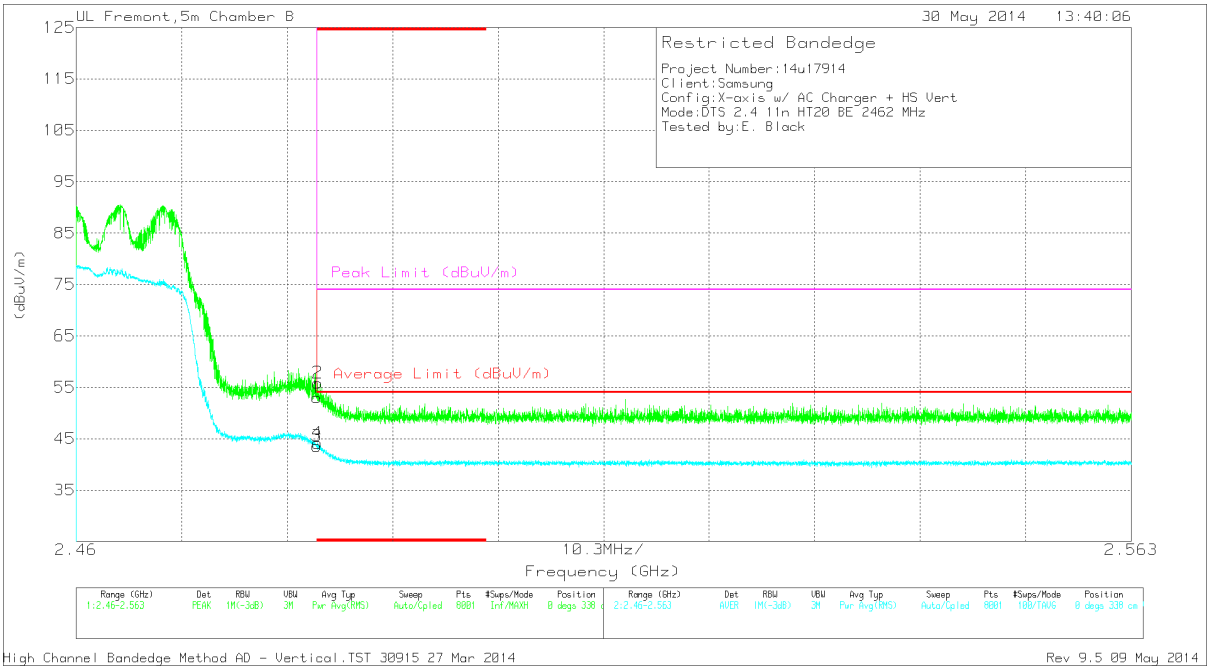
VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	43.28	PK	32.4	-22.7	0	52.98	-	-	74	-21.02	0	338	V
2	* 2.484	46.16	PK	32.4	-22.7	0	55.86	-	-	74	-18.14	0	338	V
3	* 2.484	33.67	RMS	32.4	-22.7	.6	43.97	54	-10.03	-	-	0	338	V
4	* 2.484	34.27	RMS	32.4	-22.7	.6	44.57	54	-9.43	-	-	0	338	V

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

PK - Peak detector

RMS - RMS detection

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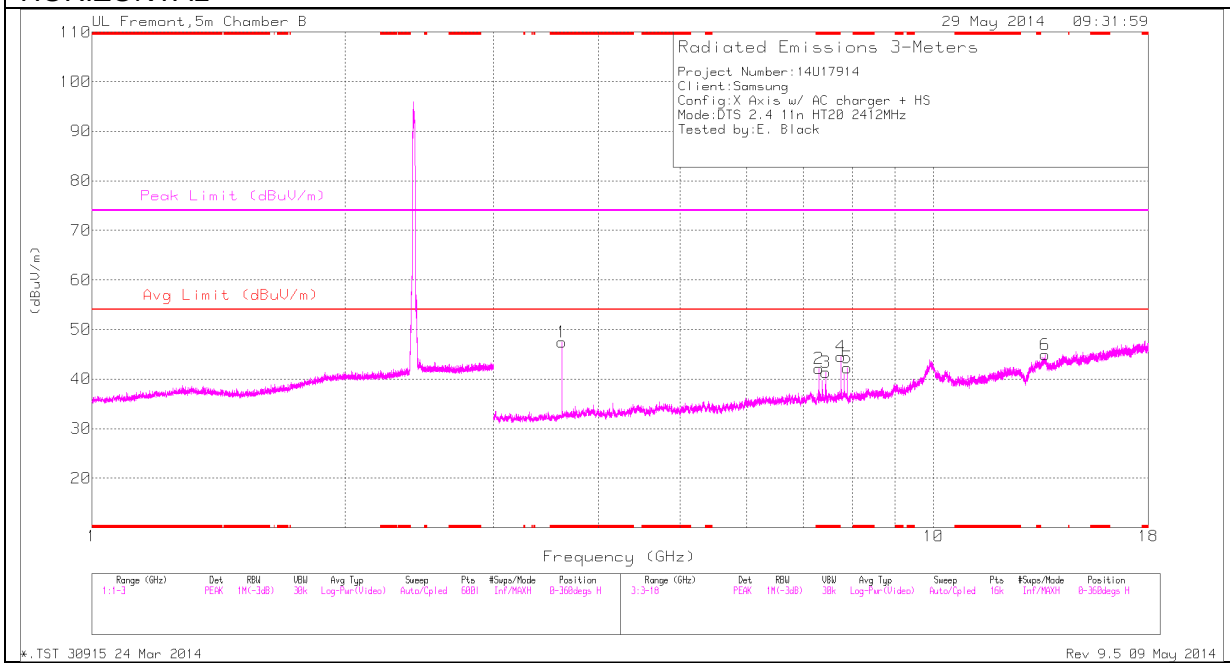
HARMONICS AND SPURIOUS EMISSIONS

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.

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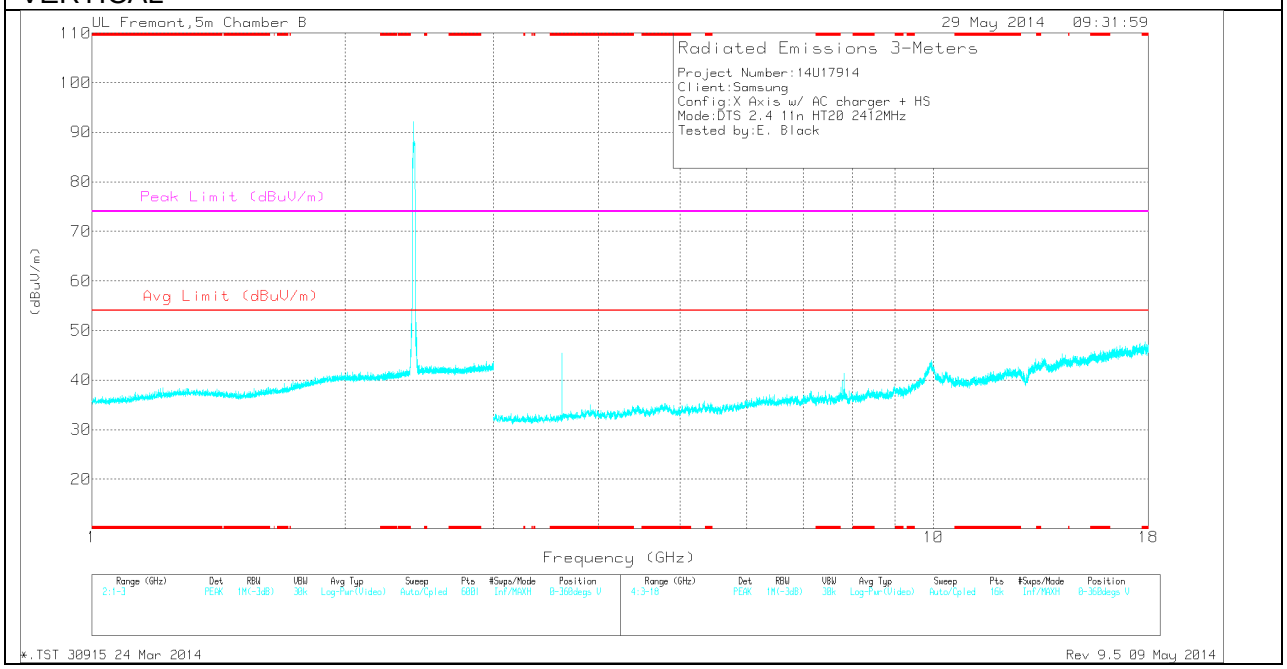
LOW CHANNEL
VERTICAL



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

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LOW CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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	* 3.618	45.24	PK	33.2	-31	0	47.44	-	-	74	-26.56	0-360	202	H
2	* 7.305	34.65	PK	35.6	-28.1	0	42.15	-	-	74	-31.85	0-360	202	H
3	* 7.448	32.13	PK	35.6	-26.4	0	41.33	-	-	74	-32.67	0-360	202	H
4	7.759	34.5	PK	35.7	-25.7	0	44.5	-	-	-	-	0-360	202	H
5	7.898	33.61	PK	35.7	-27	0	42.31	-	-	-	-	0-360	202	H
6	13.565	26.22	PK	38.9	-20.2	0	44.92	-	-	-	-	0-360	202	H

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

PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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
* 3.618	49.6	PK2	33.2	-31	0	51.8	-	-	74	-22.2	188	270	H
* 3.618	46.76	MAv1	33.2	-31	.6	49.16	54	-4.84	-	-	188	270	H
* 7.306	38.88	PK2	35.6	-28.1	0	46.38	-	-	74	-27.62	188	201	H
* 7.45	38.43	PK2	35.6	-26.4	0	47.63	-	-	74	-26.37	188	201	H
7.758	37.49	PK2	35.7	-25.7	0	47.49	-	-	-	-	188	201	H
7.897	37.92	PK2	35.7	-27	0	46.62	-	-	-	-	188	201	H
13.566	35.83	PK2	38.9	-20.2	0	54.53	-	-	-	-	188	201	H

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

PK2 - KDB558074 Method: Maximum Peak

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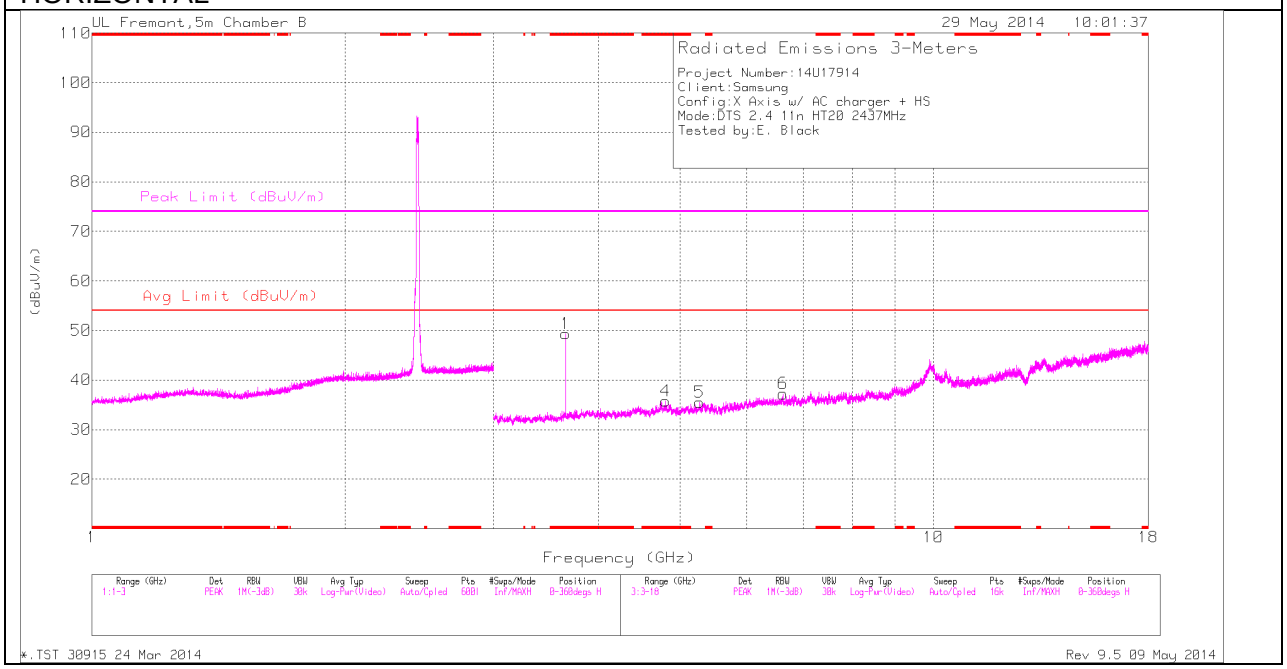
MID CHANNEL
HORIZONTAL



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

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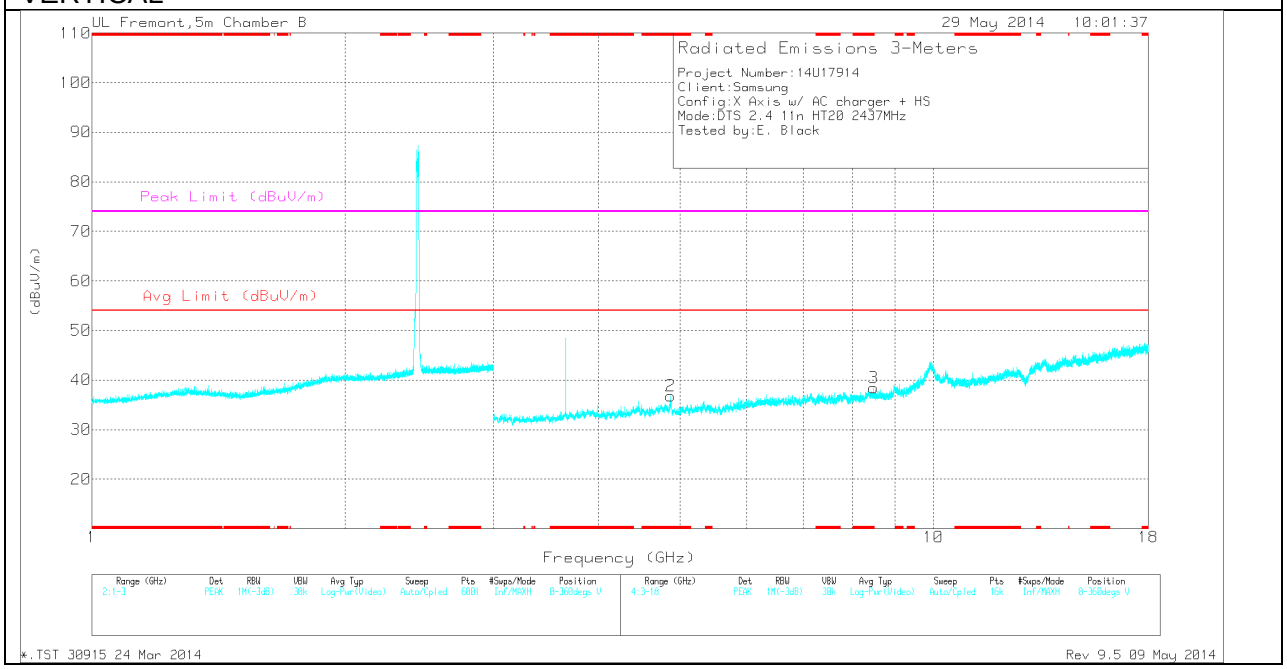
MID CHANNEL
VERTICAL



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

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MID CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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	* 3.655	47.23	PK	33.2	-31.1	0	49.33	-	-	74	-24.67	0-360	202	H
4	* 4.804	30.93	PK	34.2	-29.4	0	35.73	-	-	74	-38.27	0-360	202	H
2	* 4.875	33.15	PK	34.2	-30.5	0	36.85	-	-	74	-37.15	0-360	202	V
3	* 8.485	28.25	PK	35.8	-25.6	0	38.45	-	-	74	-35.55	0-360	99	V
5	5.274	30.86	PK	34.4	-29.7	0	35.56	-	-	-	-	0-360	202	H
6	6.627	29.74	PK	35.7	-28.2	0	37.24	-	-	-	-	0-360	202	H

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

PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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
* 3.656	50.54	PK2	33.2	-31.1	0	52.64	-	-	74	-21.36	187	234	H
* 3.656	47.77	MAv1	33.2	-31.1	.6	50.07	54	-3.93	-	-	187	234	H
* 4.802	40.71	PK2	34.2	-29.4	0	45.51	-	-	74	-28.49	187	201	H
* 4.876	40.97	PK2	34.2	-30.5	0	44.67	-	-	74	-29.33	187	201	V
* 8.484	37.12	PK2	35.8	-25.6	0	47.32	-	-	74	-26.68	187	100	V
5.272	40.4	PK2	34.4	-29.7	0	45.1	-	-	-	-	187	201	H
6.628	39.6	PK2	35.7	-28.3	0	47	-	-	-	-	187	201	H

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

PK2 - KDB558074 Method: Maximum Peak

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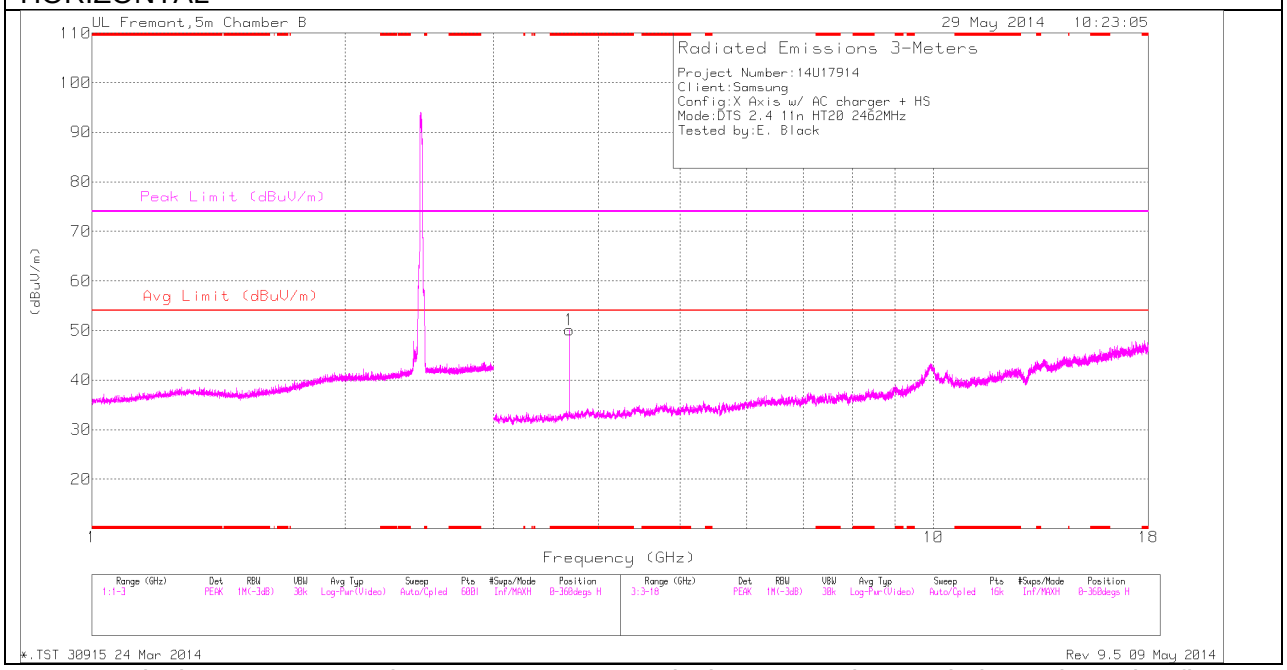
HIGH CHANNEL
HORIZONTAL



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

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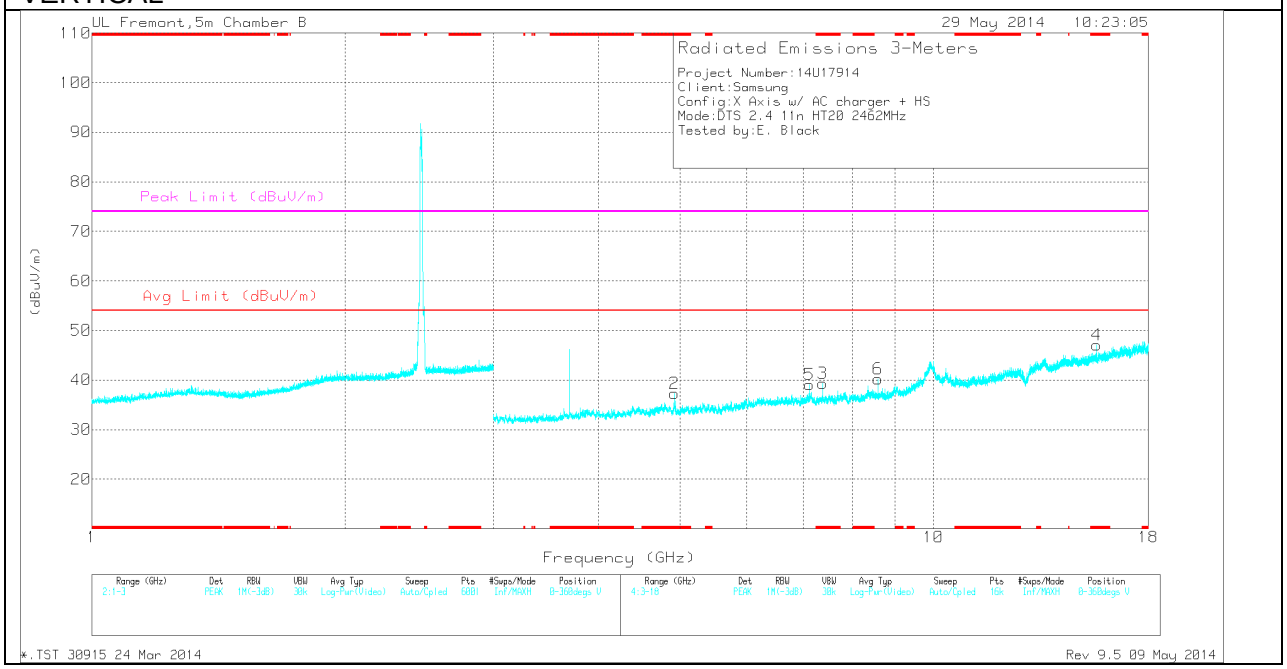
HIGH CHANNEL
VERTICAL



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

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HIGH CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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	* 3.693	48.13	PK	33.3	-31.3	0	50.13	-	-	74	-23.87	0-360	201	H
2	* 4.924	33.91	PK	34.2	-30.8	0	37.31	-	-	74	-36.69	0-360	202	V
3	* 7.385	31.1	PK	35.6	-27.4	0	39.3	-	-	74	-34.7	0-360	202	V
4	* 15.62	26.3	PK	40.6	-19.8	0	47.1	-	-	74	-26.9	0-360	99	V
5	7.125	30.52	PK	35.6	-27.1	0	39.02	-	-	-	-	0-360	202	V
6	8.589	30.27	PK	35.8	-25.9	0	40.17	-	-	-	-	0-360	202	V

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

PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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
* 3.693	50.87	PK2	33.3	-31.3	0	52.87	-	-	74	-21.13	187	204	H
* 3.693	48.19	MAv1	33.3	-31.3	.6	50.39	54	-3.61	-	-	187	204	H
* 4.922	41.22	PK2	34.2	-30.8	0	44.62	-	-	74	-29.38	187	204	V
* 4.925	29.57	MAv1	34.2	-30.8	.6	33.17	54	-20.83	-	-	187	204	V
* 7.386	38.99	PK2	35.6	-27.3	0	47.29	-	-	74	-26.71	187	204	V
* 15.621	34.32	PK2	40.6	-19.8	0	55.12	-	-	74	-18.88	187	100	V
7.126	38.48	PK2	35.6	-27	0	47.08	-	-	-	-	187	204	V
8.588	37.26	PK2	35.8	-25.9	0	47.16	-	-	-	-	187	204	V

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

PK2 - KDB558074 Method: Maximum Peak

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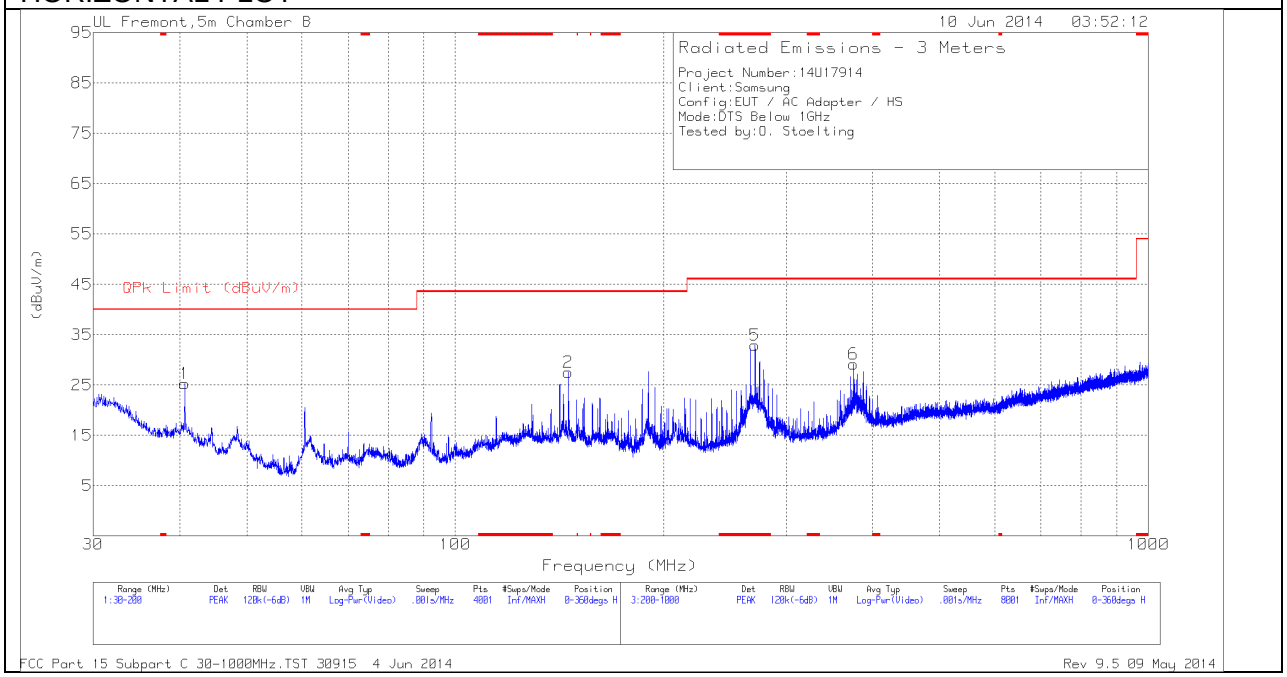
11.3. WORST-CASE BELOW 1 GHz

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

HORIZONTAL PLOT



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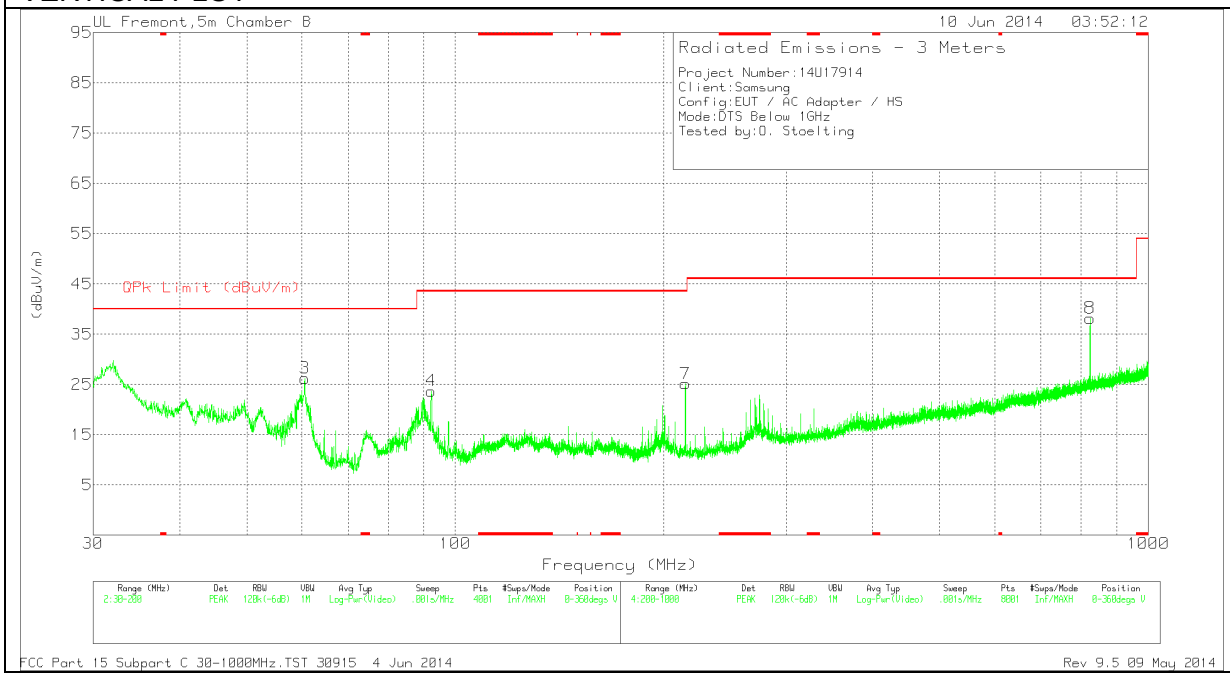
SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)

VERTICAL PLOT



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Below 1G Data

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
5	* 270.7	45.8	PK	13.3	-26.2	32.9	46.02	-13.12	0-360	101	H
1	40.6675	40.47	PK	13.4	-28.6	25.27	40	-14.73	0-360	200	H
3	60.6425	47.12	PK	7.5	-28.4	26.22	40	-13.78	0-360	101	V
4	92.3475	43.61	PK	8.2	-28.1	23.71	43.52	-19.81	0-360	101	V
2	145.515	42.49	PK	12.5	-27.5	27.49	43.52	-16.03	0-360	200	H
7	214.8	41.33	PK	10.6	-26.8	25.13	43.52	-18.39	0-360	200	V
6	375.7	40.05	PK	15	-25.9	29.15	46.02	-16.87	0-360	101	H
8	824.2	40.28	PK	21.6	-23.7	38.18	46.02	-7.84	0-360	200	V

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

PK - Peak detector

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12. 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.

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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	54.54	PK	1.4	0	55.94	66	-10.06	-	-
2	.15	31.04	Av	1.4	0	32.44	-	-	56	-23.56
3	.276	51.61	PK	.6	0	52.21	60.9	-8.69	-	-
4	.276	33.01	Av	.6	0	33.61	-	-	50.9	-17.29
5	.411	42.88	PK	.4	0	43.28	57.6	-14.32	-	-
6	.411	18.99	Av	.4	0	19.39	-	-	47.6	-28.21
7	1.0005	36.39	PK	.2	0	36.59	56	-19.41	-	-
8	1.0005	18.24	Av	.2	0	18.44	-	-	46	-27.56
9	3.4845	36.89	PK	.2	.1	37.19	56	-18.81	-	-
10	3.4845	17.46	Av	.2	.1	17.76	-	-	46	-28.24
11	4.83	42.27	PK	.2	.1	42.57	56	-13.43	-	-
12	4.83	22.03	Av	.2	.1	22.33	-	-	46	-23.67
13	5.172	41.85	PK	.2	.1	42.15	60	-17.85	-	-
14	5.172	20.53	Av	.2	.1	20.83	-	-	50	-29.17
15	15.693	41.87	PK	.3	.2	42.37	60	-17.63	-	-
16	15.693	25.77	Av	.3	.2	26.27	-	-	50	-23.73
17	15.7695	41.27	PK	.3	.2	41.77	60	-18.23	-	-
18	15.7695	24.68	Av	.3	.2	25.18	-	-	50	-24.82

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)
19	.15	46.65	PK	1.5	0	48.15	66	-17.85	-	-
20	.15	13.97	Av	1.5	0	15.47	-	-	56	-40.53
21	.267	45.59	PK	.7	0	46.29	61.2	-14.91	-	-
22	.267	21.69	Av	.7	0	22.39	-	-	51.2	-28.81
25	.411	34.79	PK	.4	0	35.19	57.6	-22.41	-	-
26	.411	18.82	Av	.4	0	19.22	-	-	47.6	-28.38
23	.8565	37.31	PK	.3	0	37.61	56	-18.39	-	-
24	.8565	15.43	Av	.3	0	15.73	-	-	46	-30.27
27	4.7805	41.15	PK	.2	.1	41.45	56	-14.55	-	-
28	4.7805	18.92	Av	.2	.1	19.22	-	-	46	-26.78
29	4.92	40.92	PK	.2	.1	41.22	56	-14.78	-	-
30	4.92	19.45	Av	.2	.1	19.75	-	-	46	-26.25
33	15.2295	44.85	PK	.3	.2	45.35	60	-14.65	-	-
34	15.2295	27.96	Av	.3	.2	28.46	-	-	50	-21.54
31	15.549	44.85	PK	.3	.2	45.35	60	-14.65	-	-
32	15.549	28.52	Av	.3	.2	29.02	-	-	50	-20.98
41	15.783	44.89	PK	.3	.2	45.39	60	-14.61	-	-
42	15.783	29.26	Av	.3	.2	29.76	-	-	50	-20.24
35	15.9945	45.11	PK	.3	.2	45.61	60	-14.39	-	-
36	15.9945	27.67	Av	.3	.2	28.17	-	-	50	-21.83
37	16.485	45.15	PK	.3	.2	45.65	60	-14.35	-	-
38	16.485	26.87	Av	.3	.2	27.37	-	-	50	-22.63
39	16.62	44.88	PK	.3	.2	45.38	60	-14.62	-	-
40	16.62	27.97	Av	.3	.2	28.47	-	-	50	-21.53

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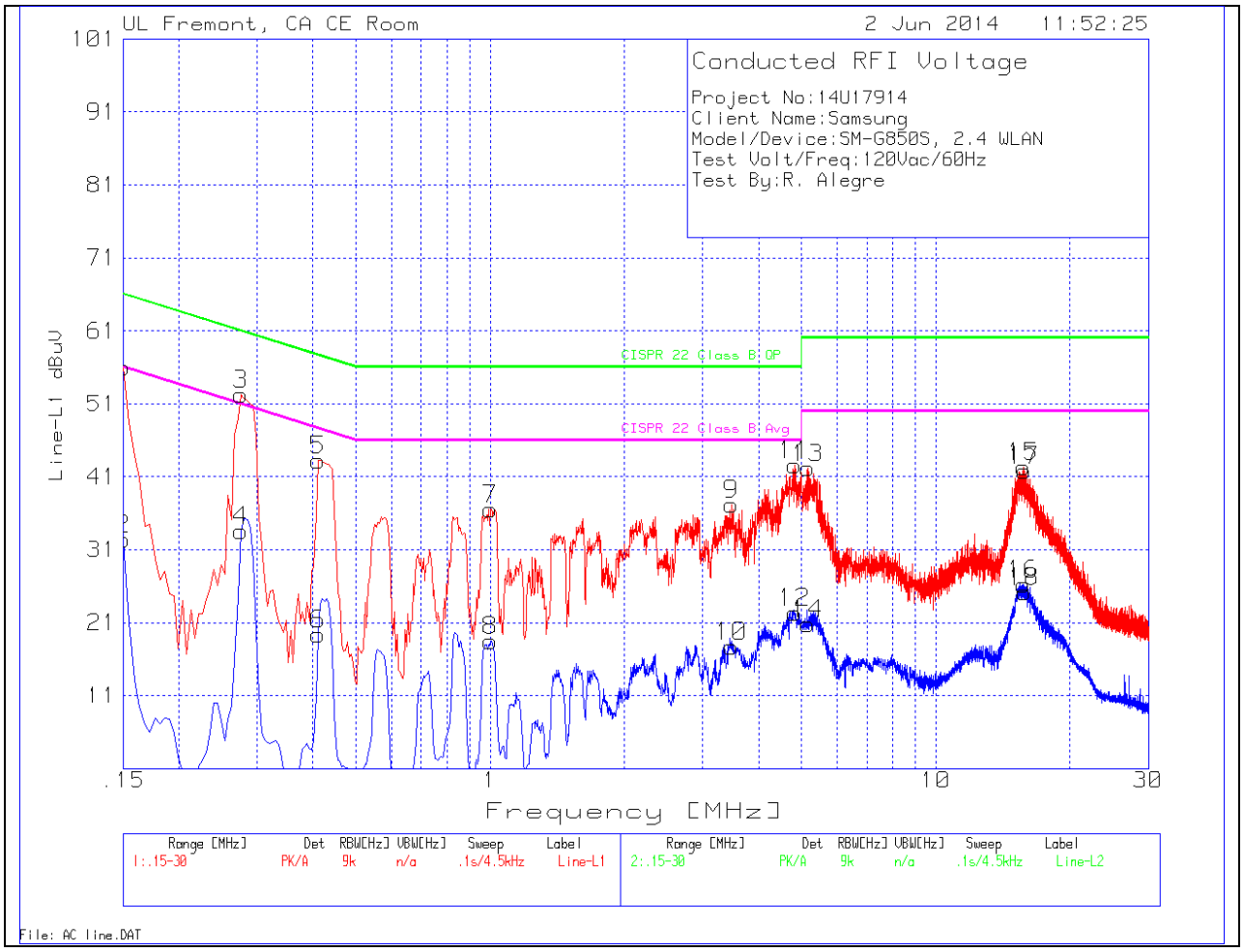
LINE 1 RESULTS



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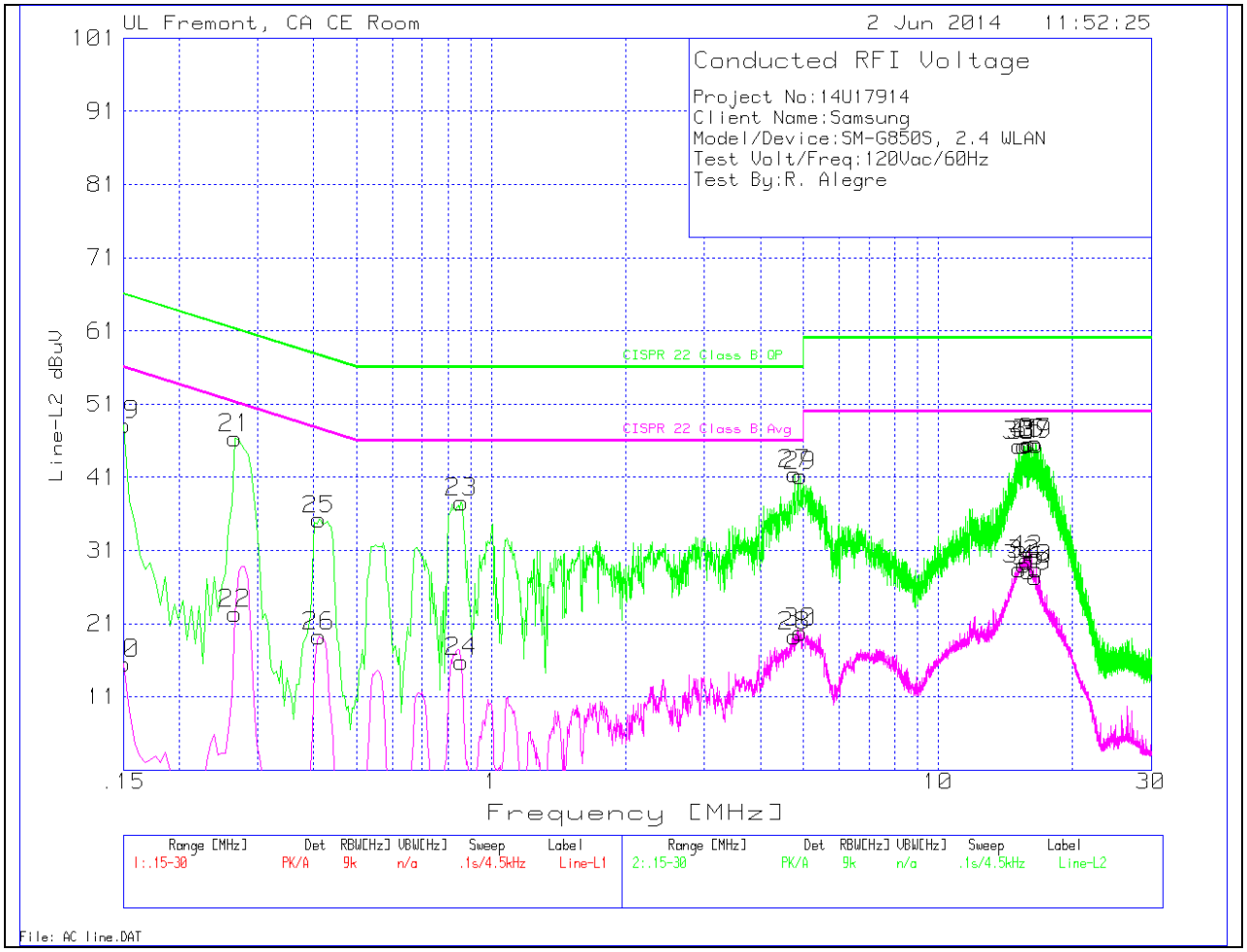
LINE 2 RESULTS



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