



FCC CFR47 PART 15 SUBPART C

CERTIFICATION TEST REPORT

FOR

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

MODEL NUMBER: SM-G8508S

FCC ID: A3LSMG8508S

REPORT NUMBER: 14U18322-4 REVISION A

ISSUE DATE: AUG 14, 2014

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NVLAP LAB CODE 200065-0

Revision History

Issue			
Rev.	Date	Revisions	Revised By
--	7/24/14	Initial Issue	P. Zhang
A	8/14/14	Updated antenna information	P. Zhang

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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-G8508S
SERIAL NUMBER: FL-280-D (Conducted); FL-280-B (Radiated)
DATE TESTED: JULY 17 -24, 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 26000 MHz	4.94 dB

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

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

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2412 - 2462	802.11b	20.31	107.40
2412 - 2462	802.11g	17.36	54.45
2412 - 2462	802.11n HT20	15.16	32.81

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes two FPCB antennas, with maximum gain of -7.84 dBi and -3.64dBi for 2.4GHz

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

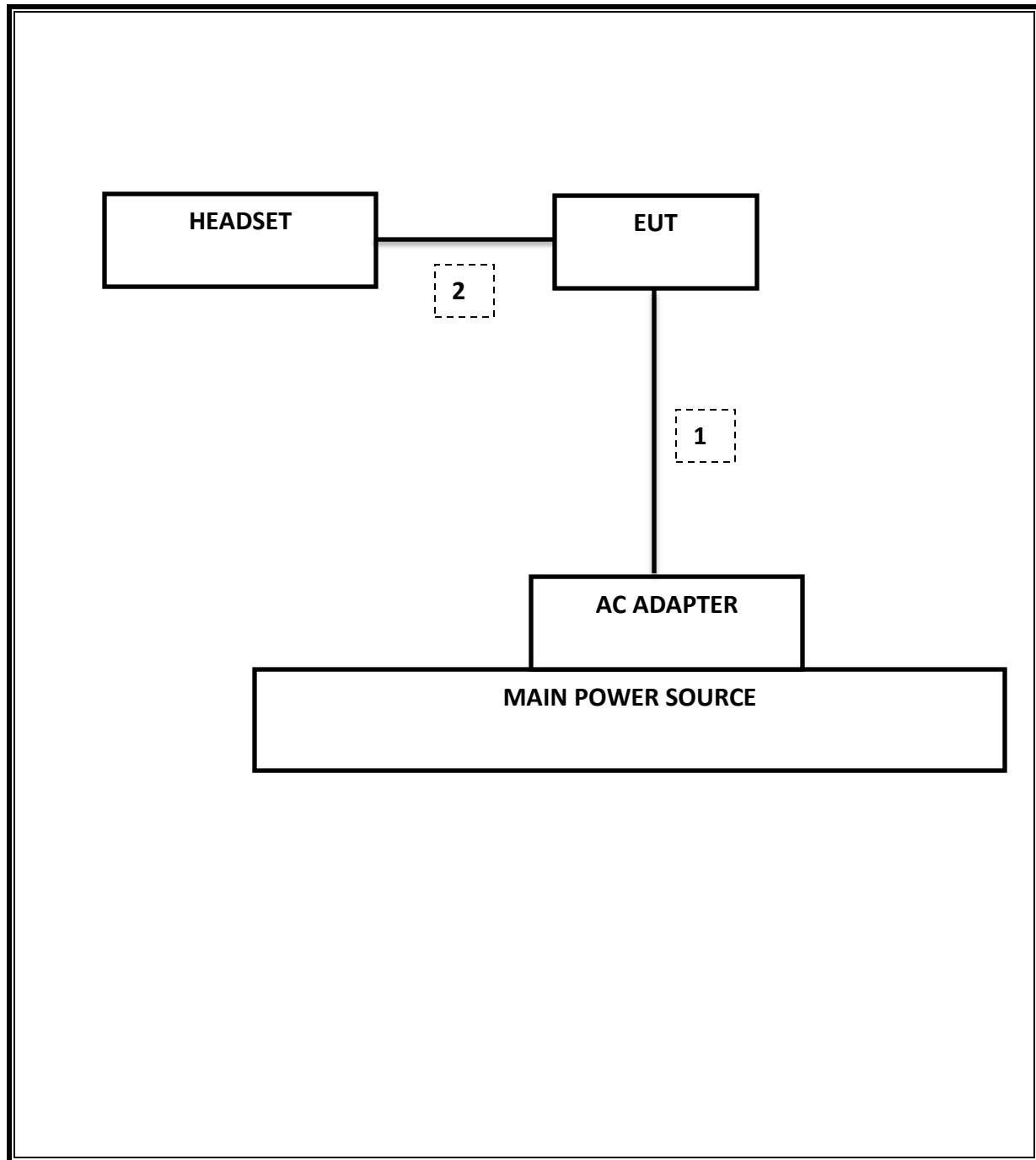
Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	SAMSUNG	EP-TA50CWC	N/A	N/A
Earphone	SAMSUNG	EO-EG900BW	N/A	N/A

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	06/28/15
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	06/27/15
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

7. MEASUREMENT METHODS

KDB 558074 D01 DTS Meas Guidance v03r02: Measurement Procedure AVGPM-G is used for power and AVGPS-3 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	8.58 MHz
2.1051, 15.247 (d)	RSS-210 A8.5	Band Edge / Conducted Spurious Emission	-20dBc		Pass	-26.49dBm
15.247	RSS-210 A8.4	TX conducted output power	<30dBm		Pass	20.31 dBm
15.247	RSS-210 A8.2	PSD	<8dBm		Pass	-9.46 dBm
15.207 (a)	RSS-GEN 7.2.2	AC Power Line conducted emissions	Section 10	Radiated	Pass	50.12 dBuV
15.205, 15.209	RSS-210 Clause 2.6, RSS-210 Clause 6	Radiated Spurious Emission	< 54dBuV/m		Pass	49.26 dBuV/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 v03r02: The transmitter output is connected to a spectrum analyzer with the RBW set to 100 kHz, the VBW $\geq 3 \times$ RBW, peak detector and max hold.

RESULTS

9.1.1. 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	8.58	9.12	0.5
Mid	2437	9.21	9.60	0.5
High	2462	9.06	9.09	0.5

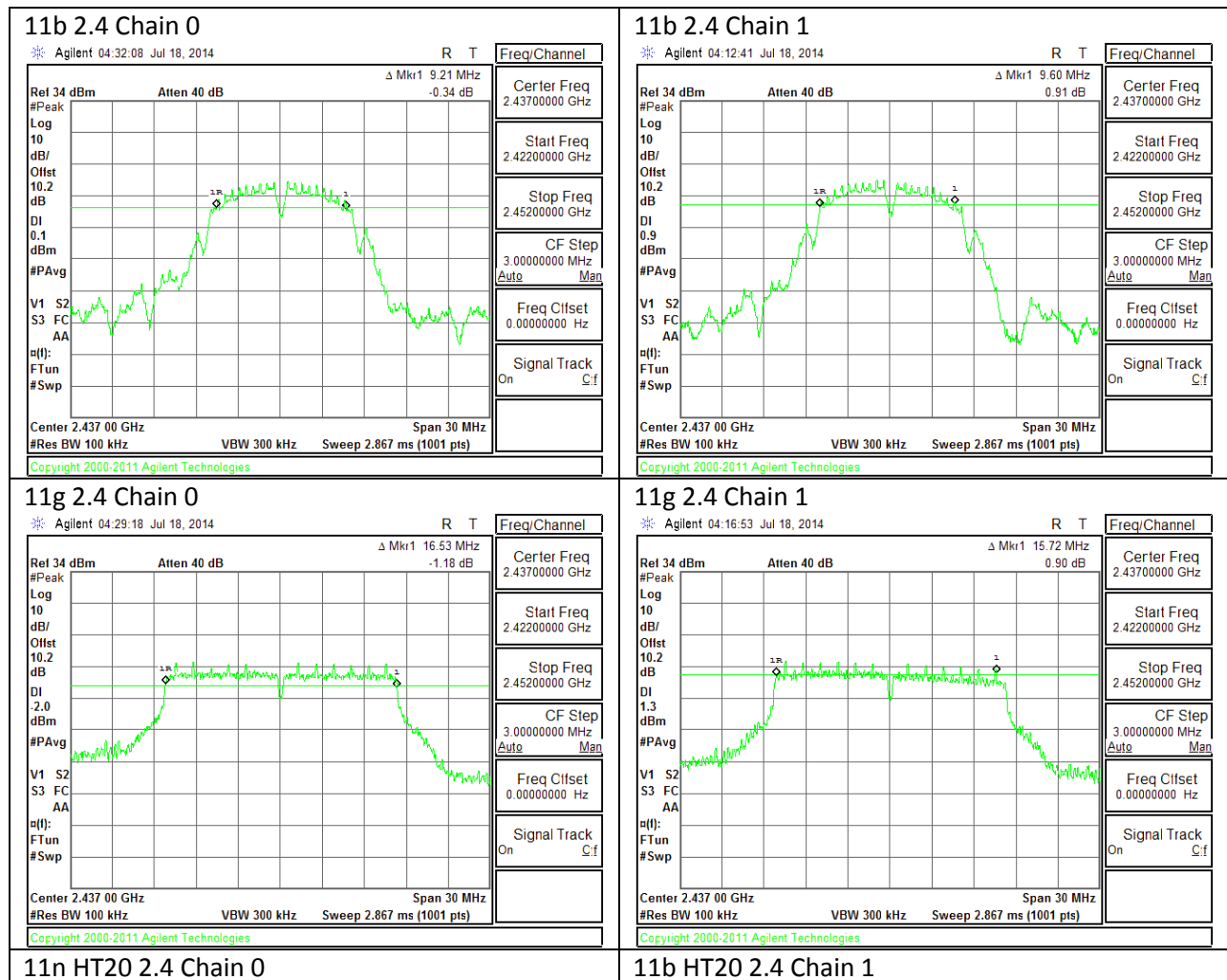
9.1.2. 802.11g MODE IN THE 2.4 GHz BAND

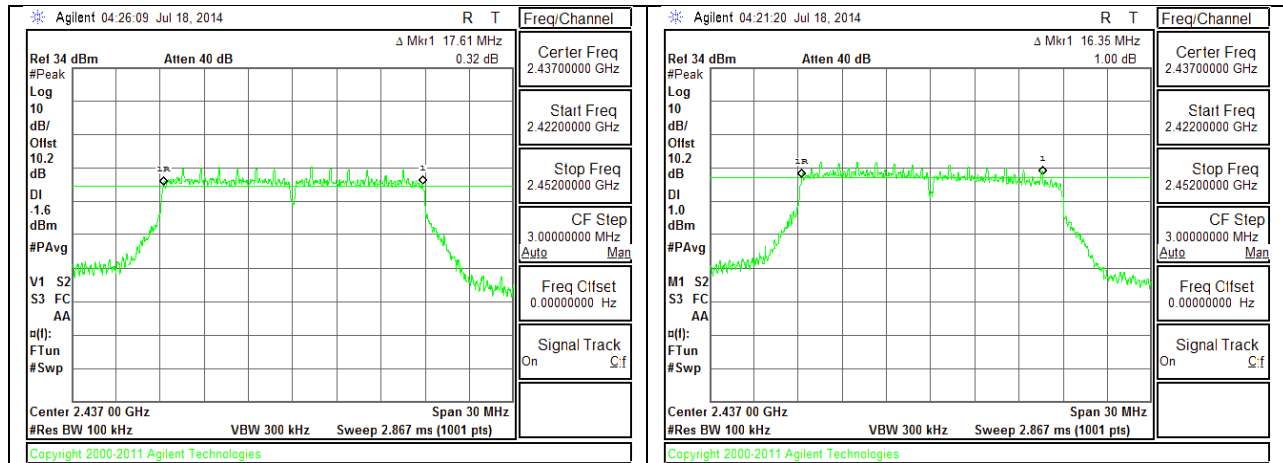
Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	Minimum Limit (MHz)
Low	2412	15.72	16.44	0.5
Mid	2437	16.53	15.72	0.5
High	2462	15.45	16.47	0.5

9.1.3. 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	16.65	17.64	0.5
Mid	2437	17.61	16.35	0.5
High	2462	15.72	17.61	0.5

9.1.1. 6 dB BANDWIDTH MID CH PLOTS





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% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	2412	10.503	11.347
Mid	2437	10.437	10.666
High	2462	10.699	11.118

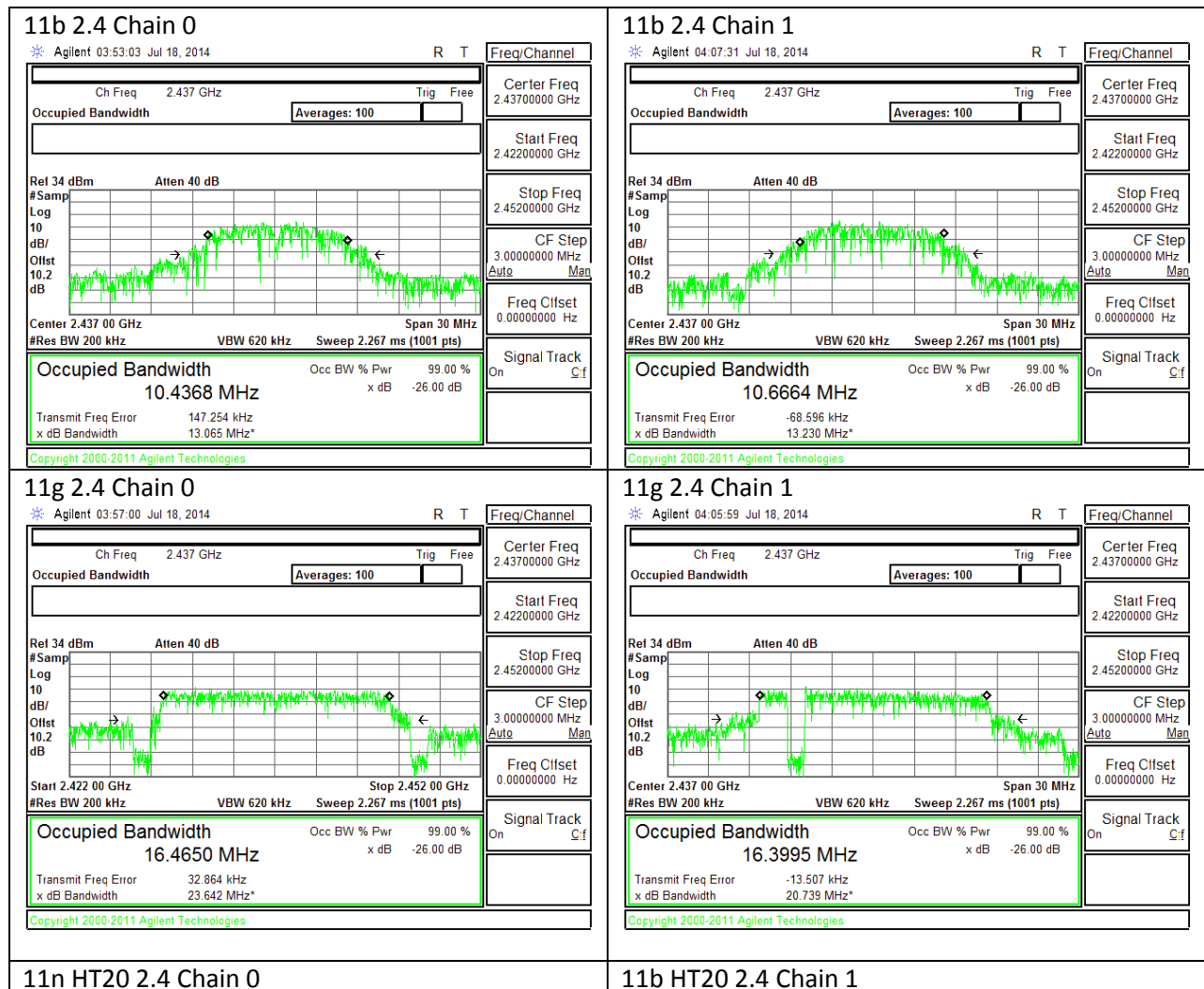
9.2.2. 802.11g MODE IN THE 2.4 GHz BAND

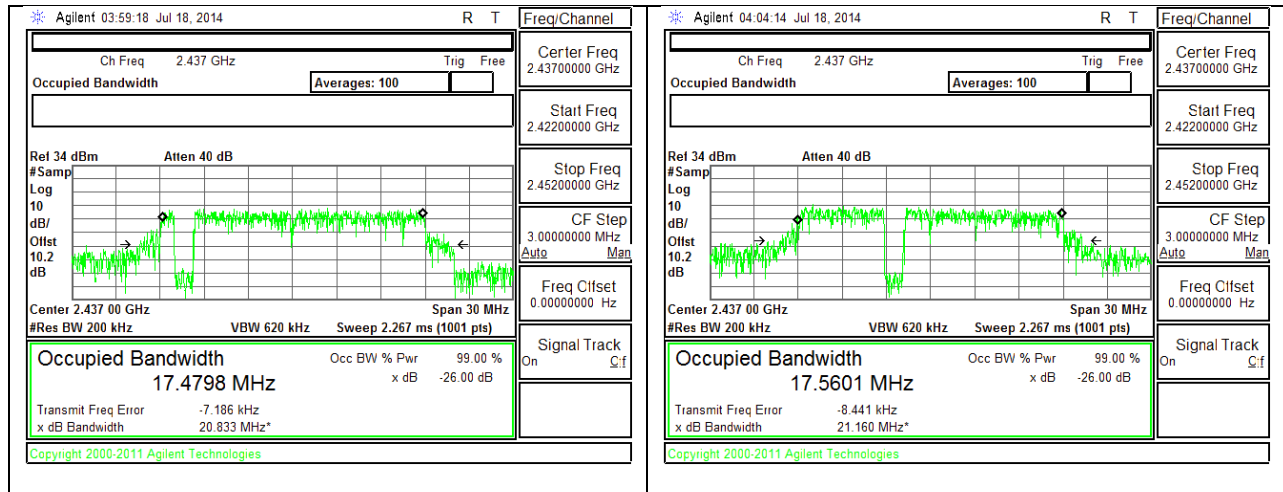
Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	2412	16.413	16.448
Mid	2437	16.465	16.400
High	2462	16.370	16.389

9.2.3. 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	17.571	17.634
Mid	2437	17.480	17.560
High	2462	17.505	17.551

9.2.4. 99% BANDWIDTH MID CH PLOTS





9.3. 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

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)
-7.84	-3.64	-5.25

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)
-7.84	-3.64	-2.48

RESULTS

9.3.1. 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	-5.25	30.00	30	36	30.00
Mid	2437	-5.25	30.00	30	36	30.00
High	2462	-5.25	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	17.20	16.50	19.87	30.00	-10.13
Mid	2437	17.50	17.10	20.31	30.00	-9.69
High	2462	17.00	16.20	19.63	30.00	-10.37

9.3.2. 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	-5.25	30.00	30	36	30.00
Mid	2437	-5.25	30.00	30	36	30.00
High	2462	-5.25	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	14.50	14.20	17.36	30.00	-12.64
Mid	2437	13.90	14.50	17.22	30.00	-12.78
High	2462	13.90	13.50	16.71	30.00	-13.29

9.3.3. 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	-5.25	30.00	30	36	30.00
Mid	2437	-5.25	30.00	30	36	30.00
High	2462	-5.25	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	12.10	11.90	15.01	30.00	-14.99
Mid	2437	11.50	12.30	14.93	30.00	-15.07
High	2462	12.30	12.00	15.16	30.00	-14.84

9.4. 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

9.4.1. 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	-12.39	-12.55	-9.46	8.0	-17.5
Mid	2437	-12.31	-12.94	-9.60	8.0	-17.6
High	2462	-12.73	-13.03	-9.87	8.0	-17.9

9.4.2. 802.11g MODE IN THE 2.4 GHz BAND

PSD Results

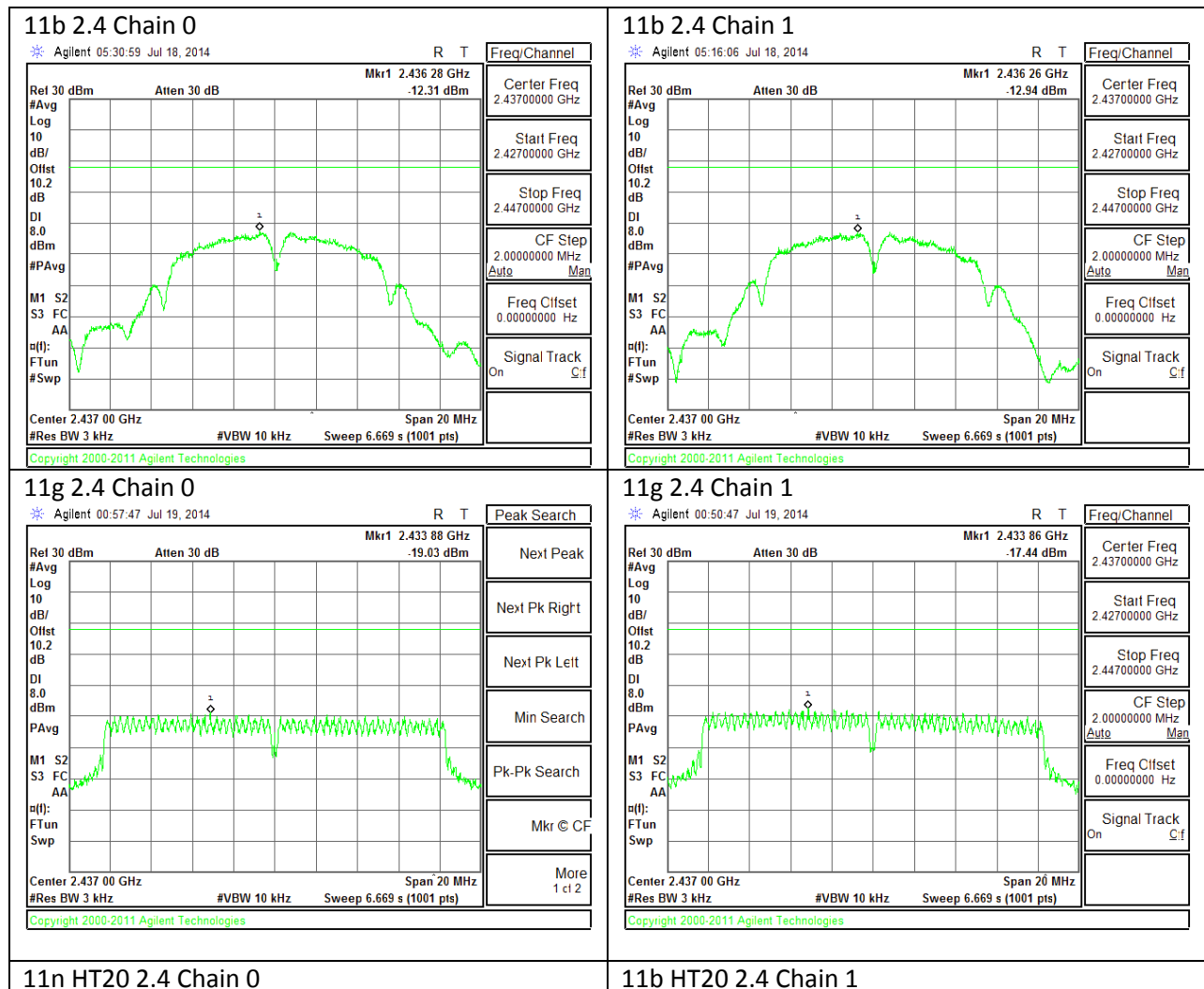
Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Chain 1 Meas (dBm)	Total PSD (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-19.30	-18.39	-15.81	8.0	-23.8
Mid	2437	-19.03	-17.44	-15.15	8.0	-23.2
High	2462	-18.53	-17.96	-15.23	8.0	-23.2

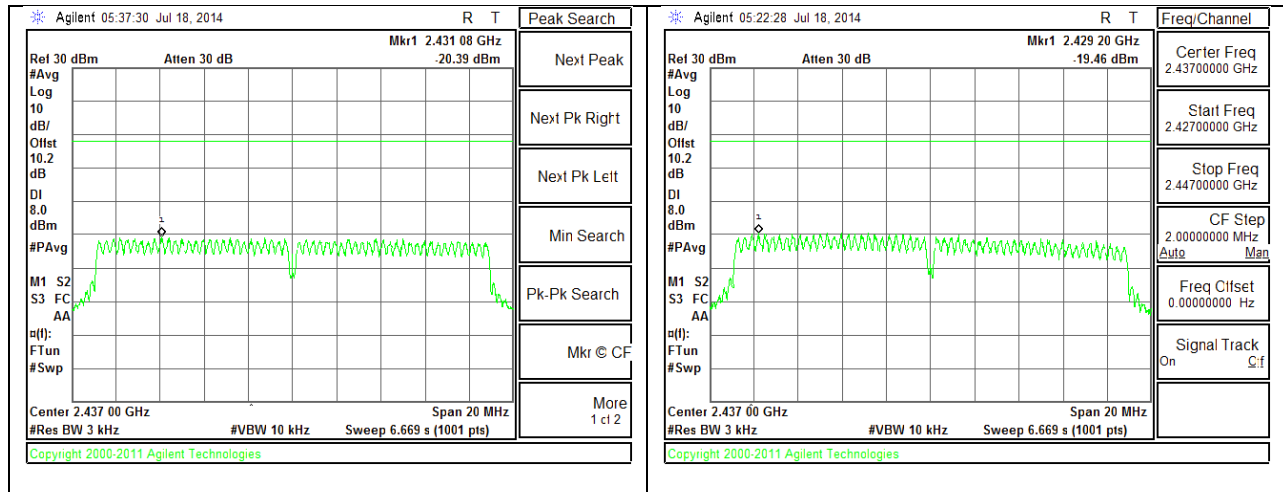
9.4.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Chain 1 Meas (dBm)	Total PSD (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-20.48	-19.85	-17.14	8.0	-25.1
Mid	2437	-20.39	-19.46	-16.89	8.0	-24.9
High	2462	-20.33	-19.46	-16.86	8.0	-24.9

9.4.4. PSD MID CH PLOTS





9.5. 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.

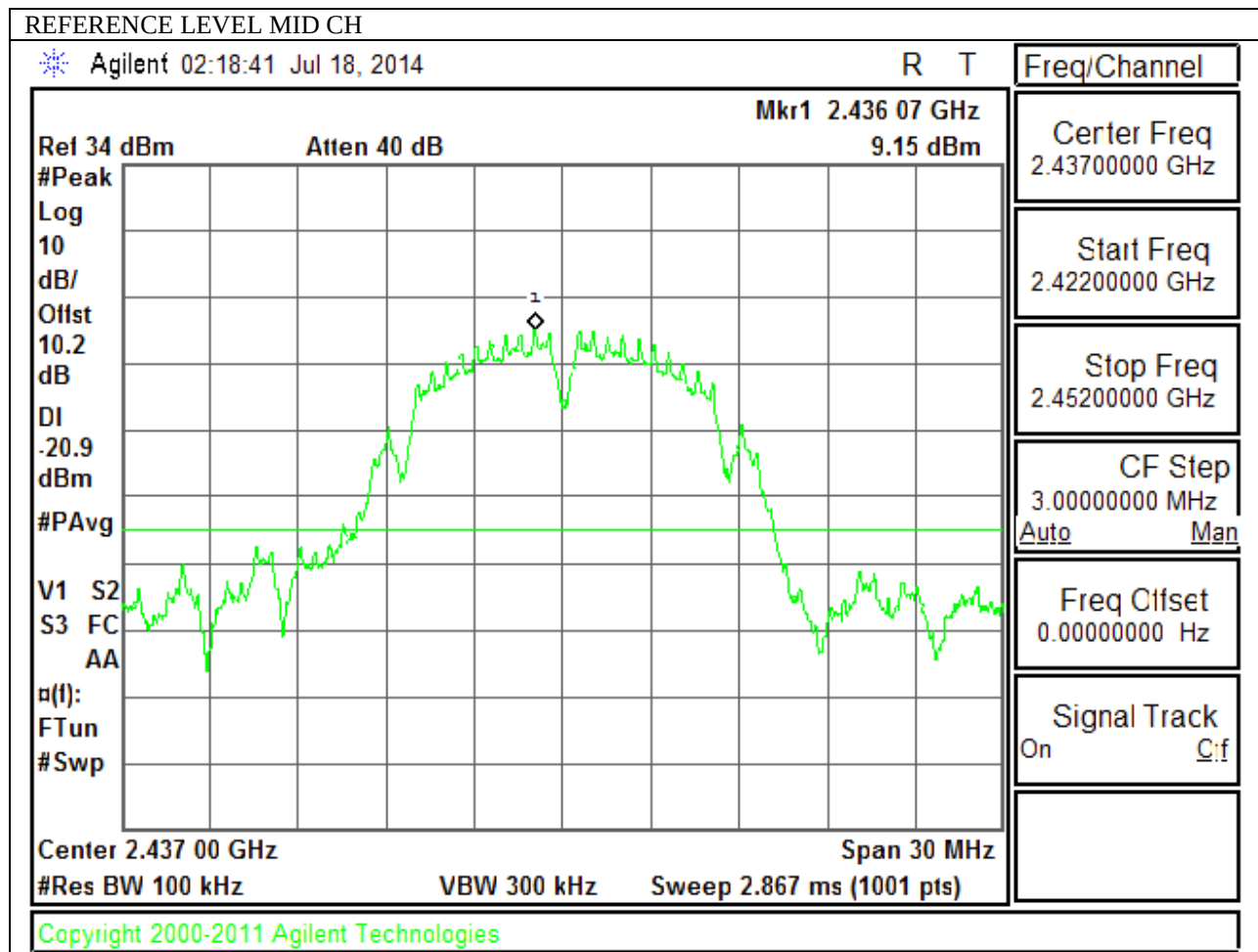
TEST PROCEDURE

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.

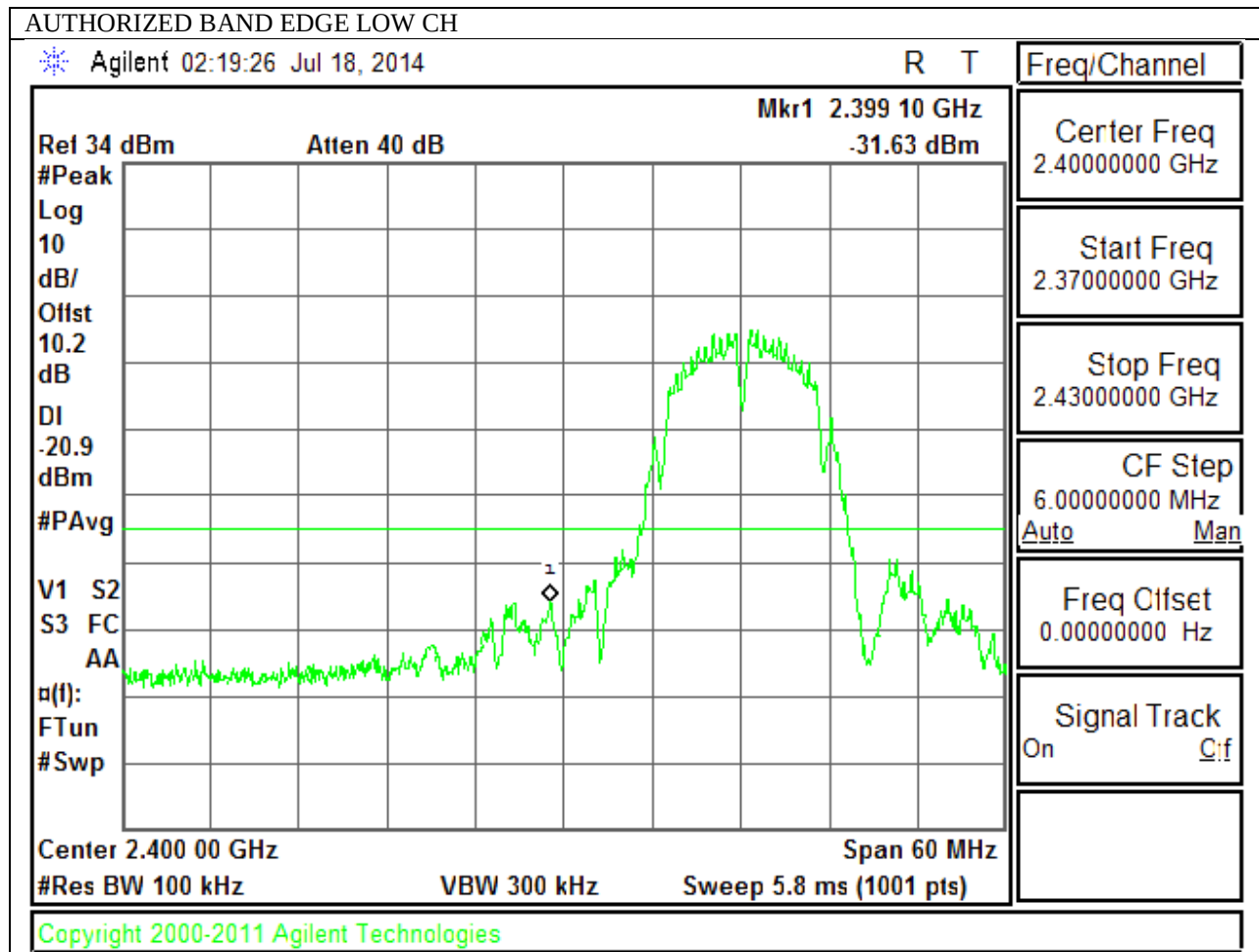
RESULTS

9.5.1. 802.11b MODE IN THE 2.4 GHz BAND CHAIN 0

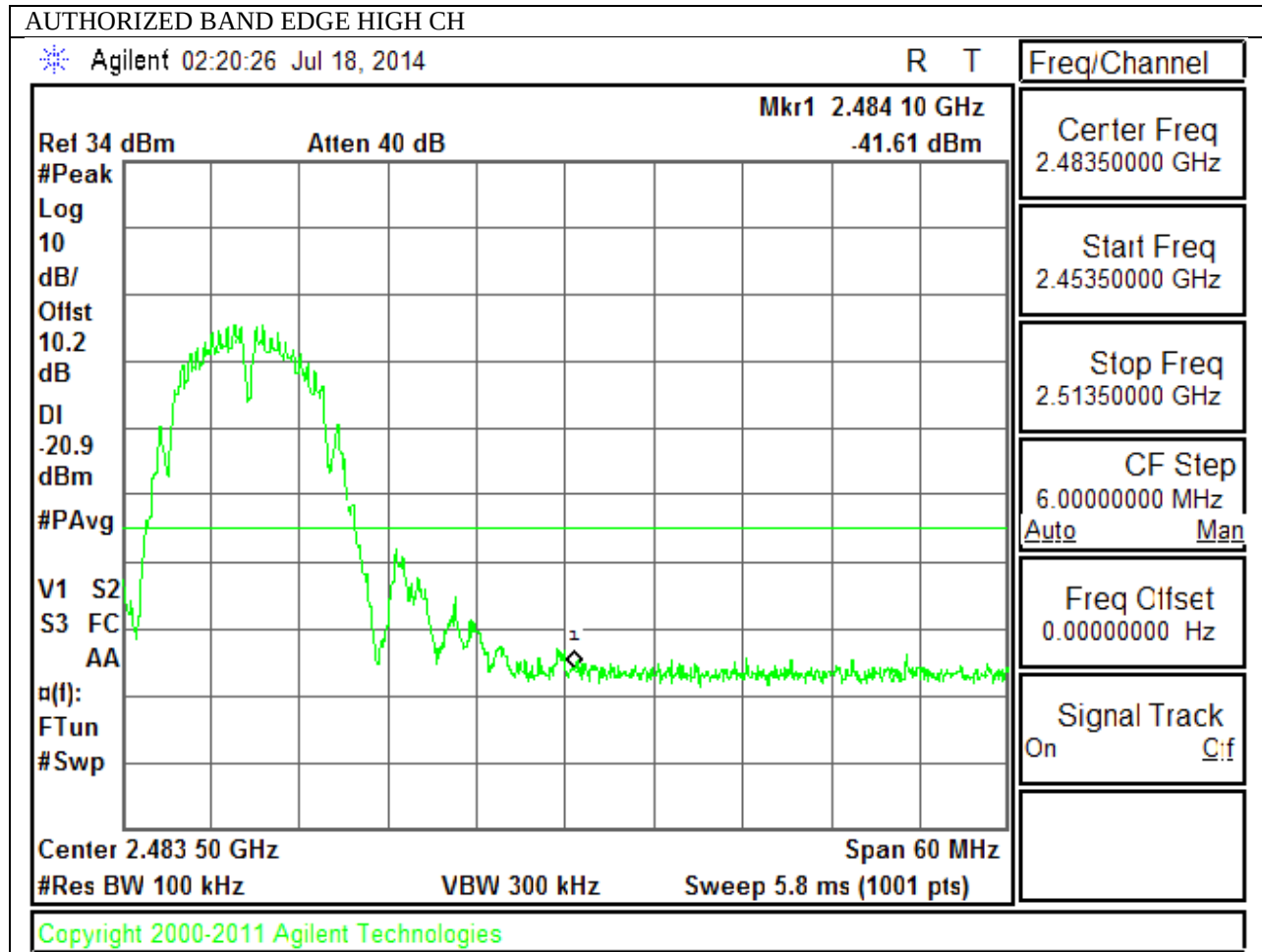
IN-BAND REFERENCE LEVEL



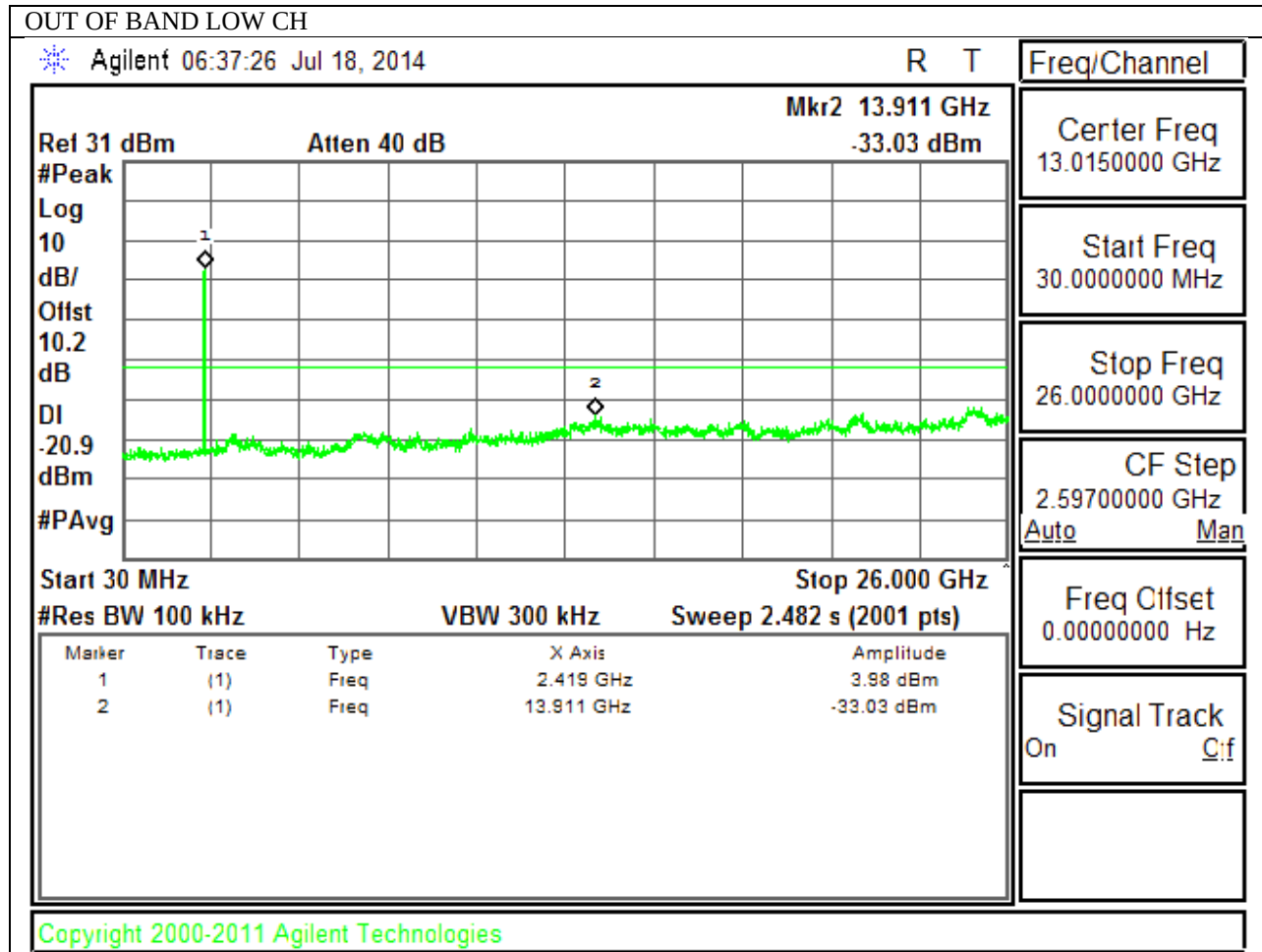
LOW CHANNEL BANDEDGE

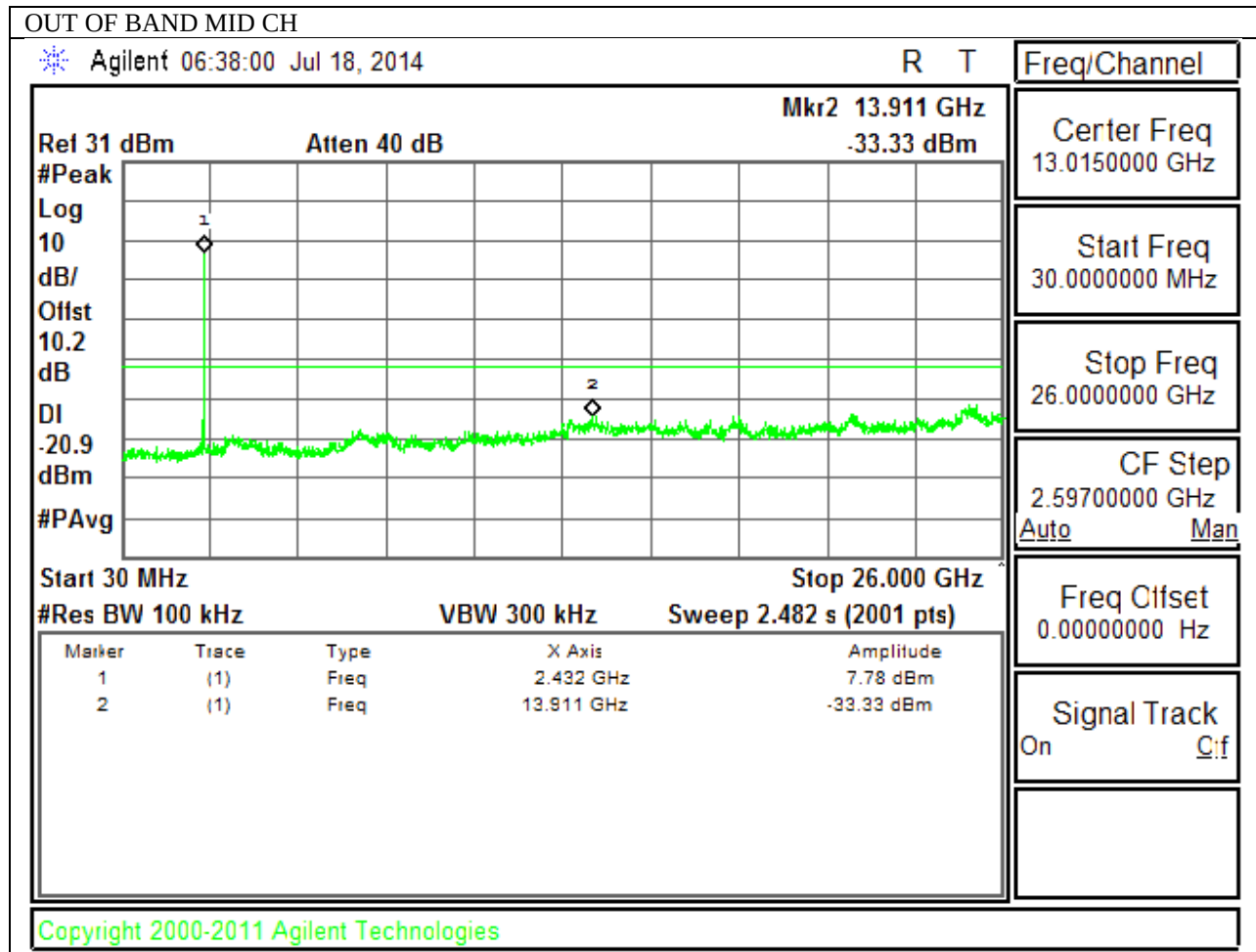


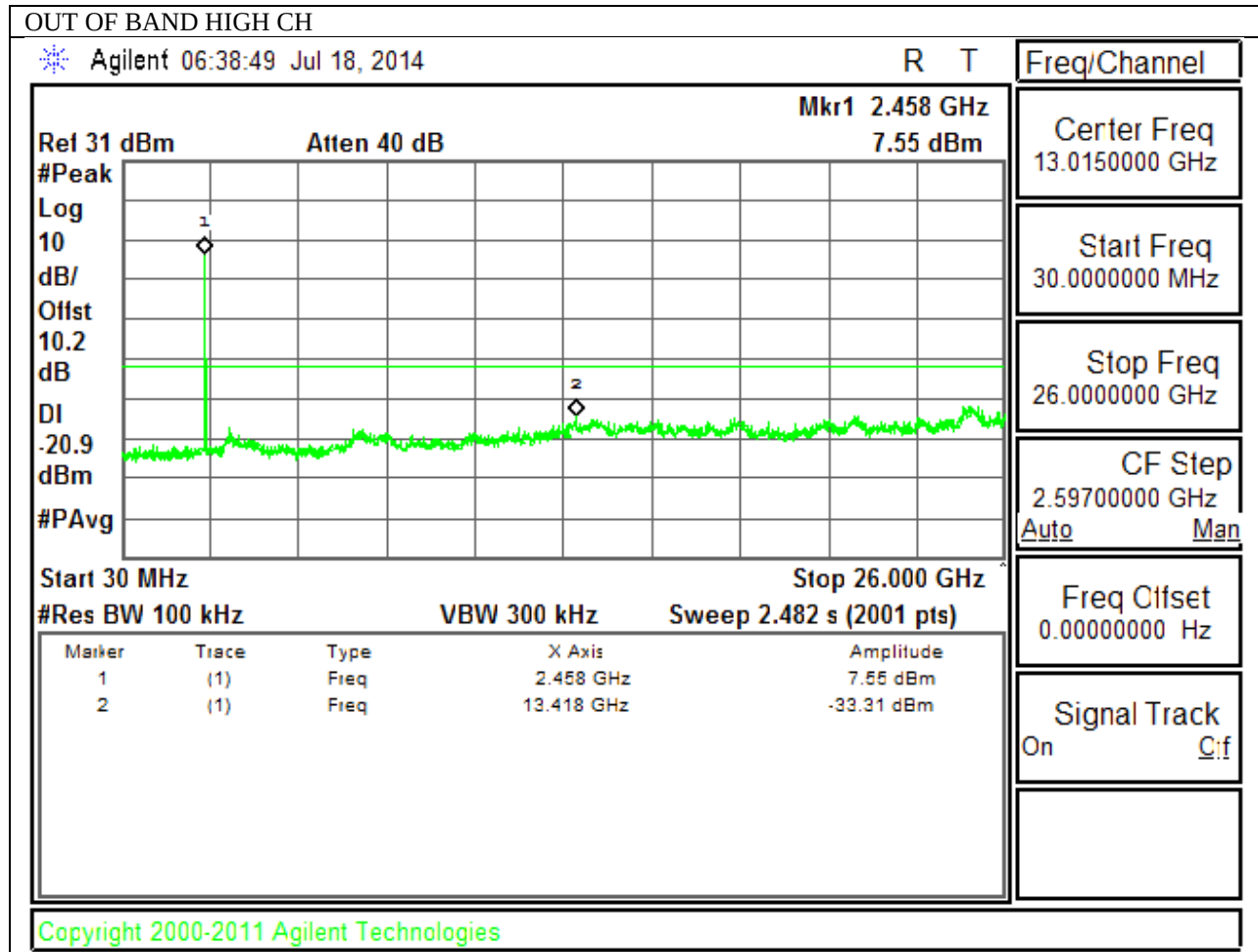
HIGH CHANNEL BANDEDGE



OUT-OF-BAND EMISSIONS

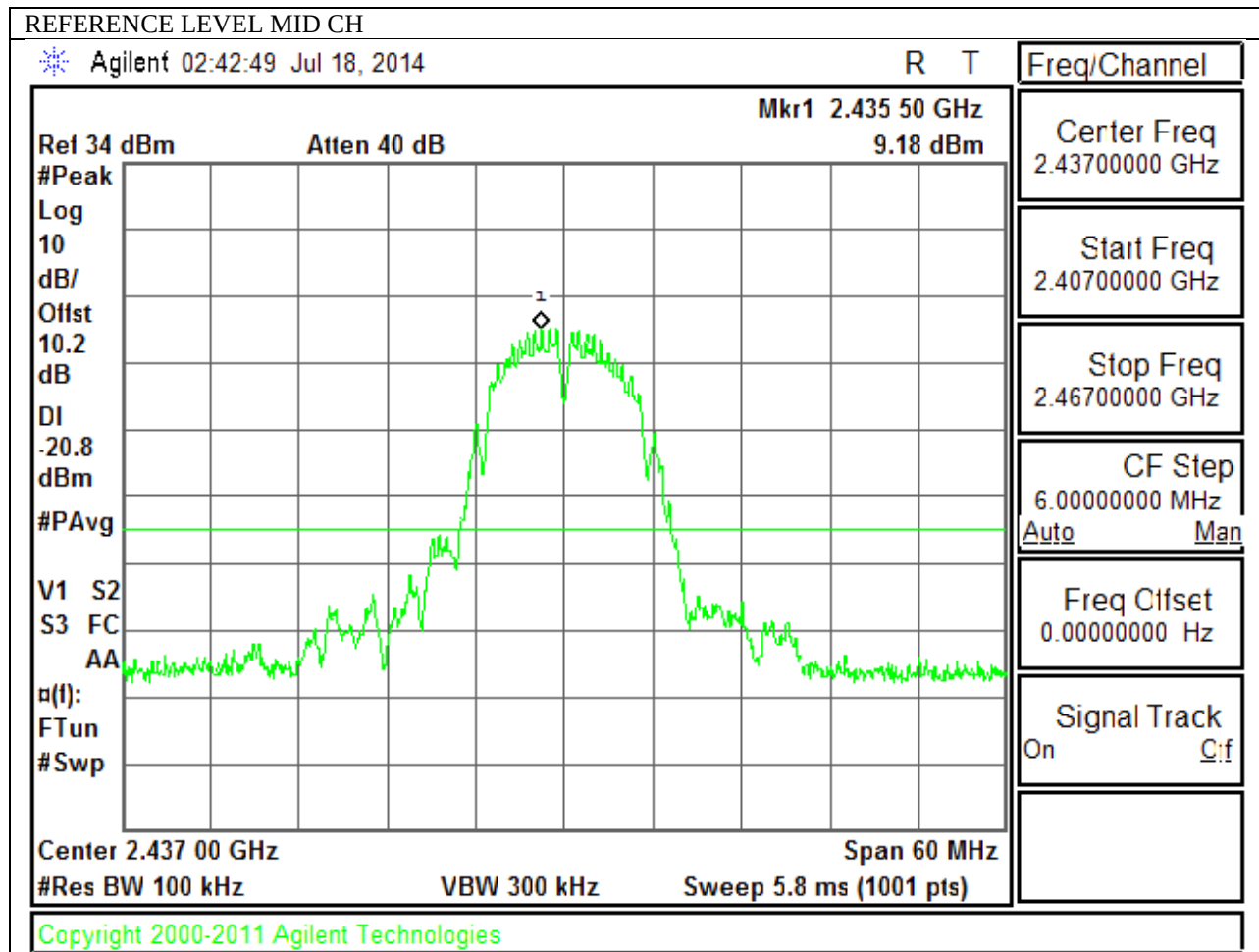




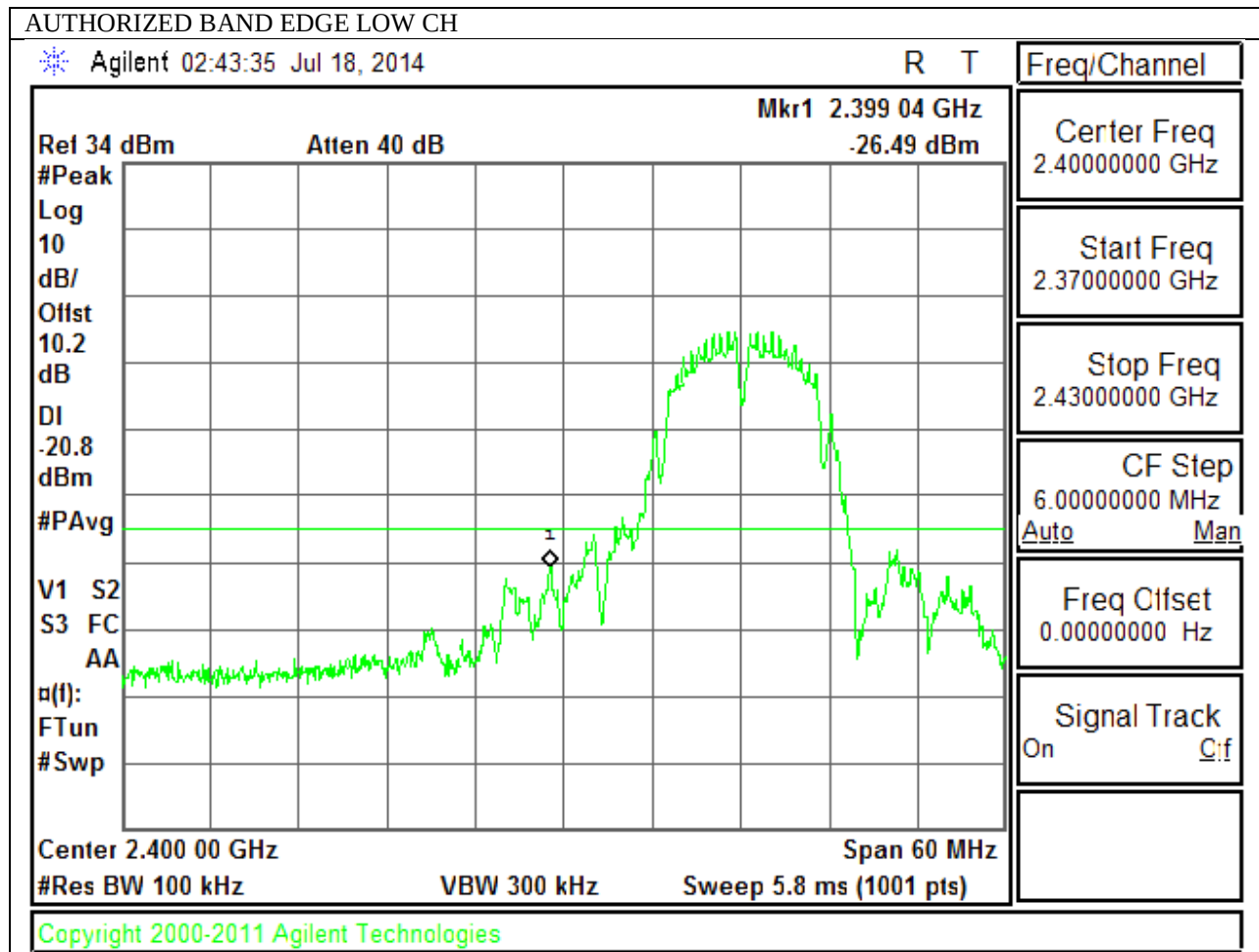


9.5.2. 802.11b MODE IN THE 2.4 GHz BAND CHAIN 1

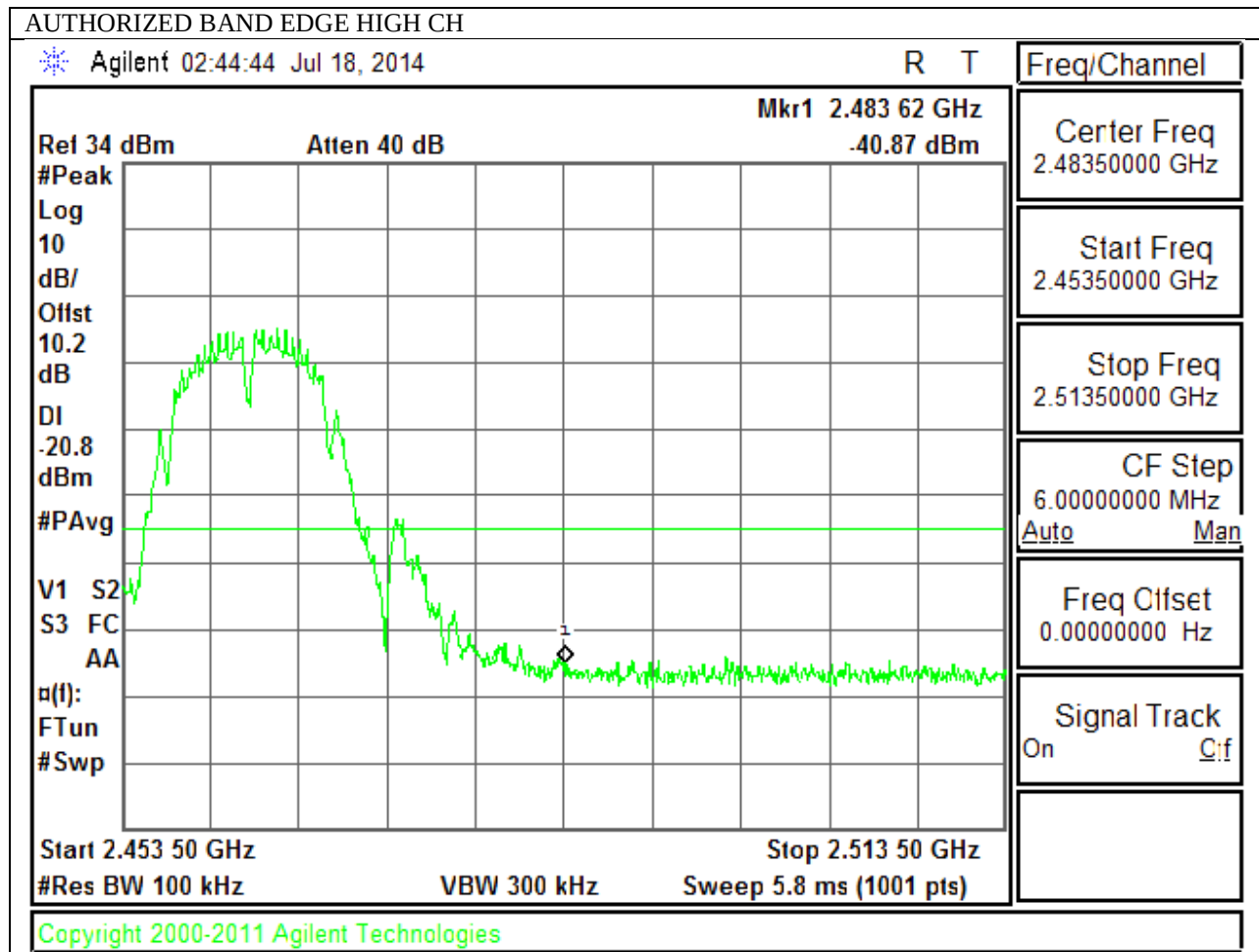
IN-BAND REFERENCE LEVEL



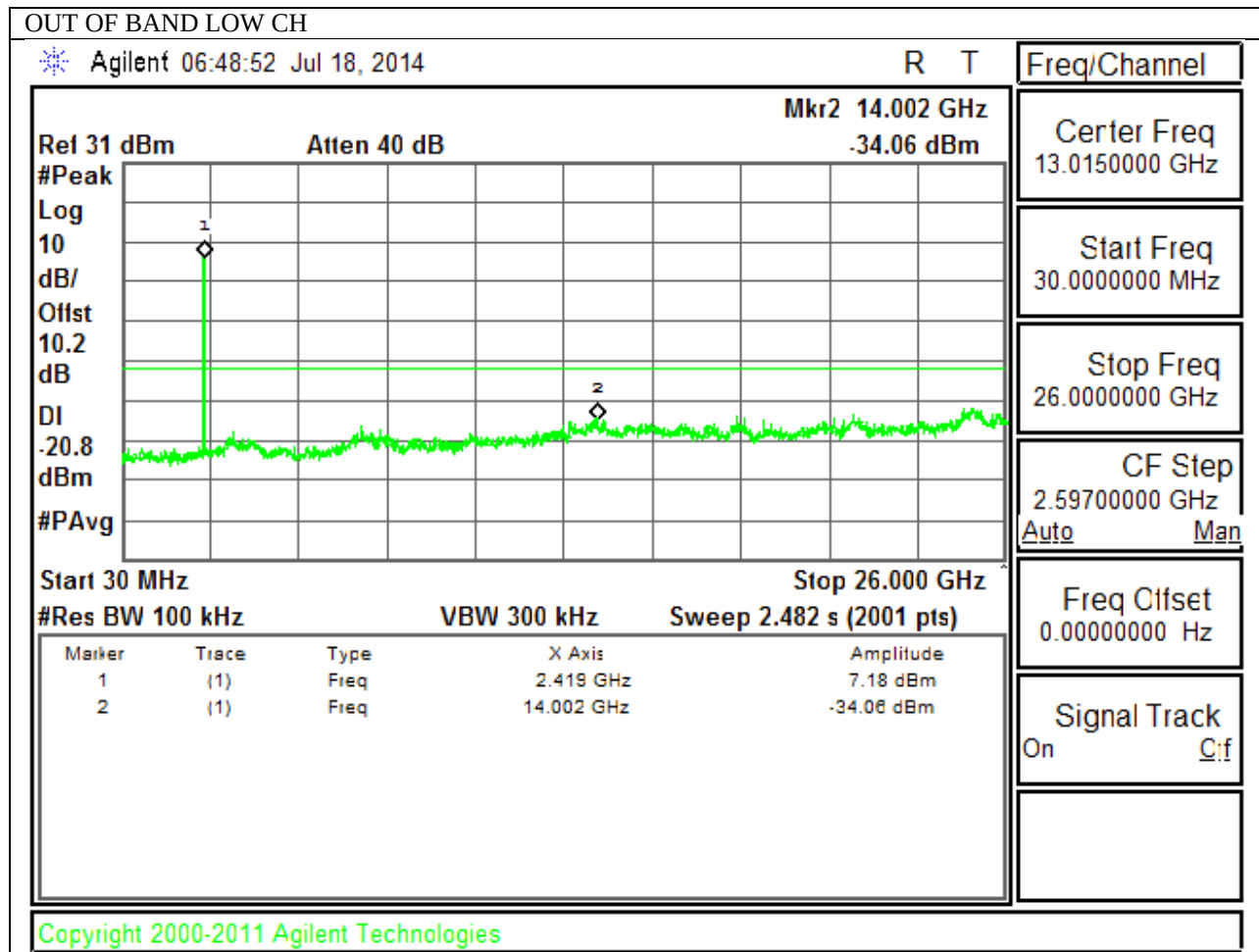
LOW CHANNEL BANDEDGE

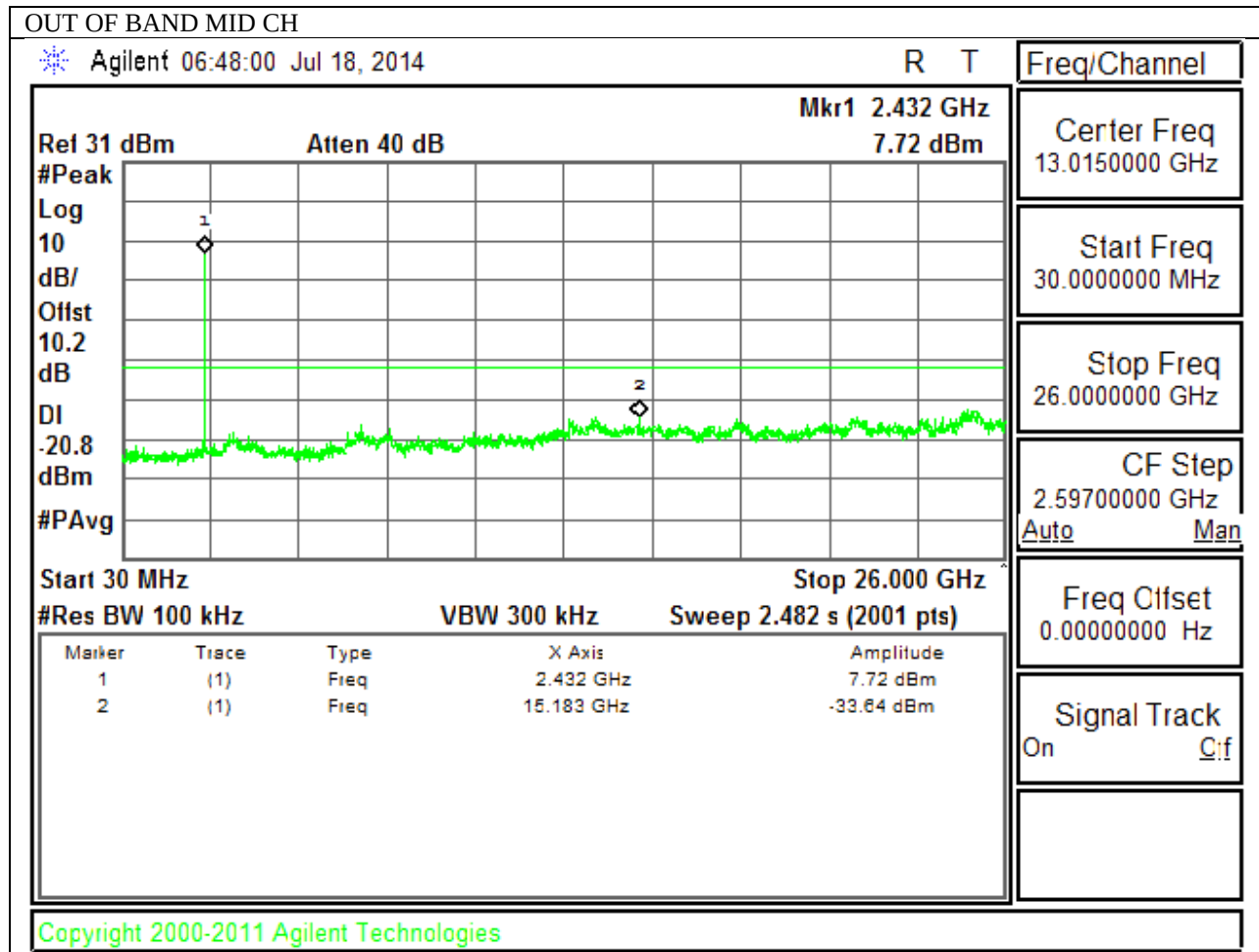


HIGH CHANNEL BANDEDGE



OUT-OF-BAND EMISSIONS



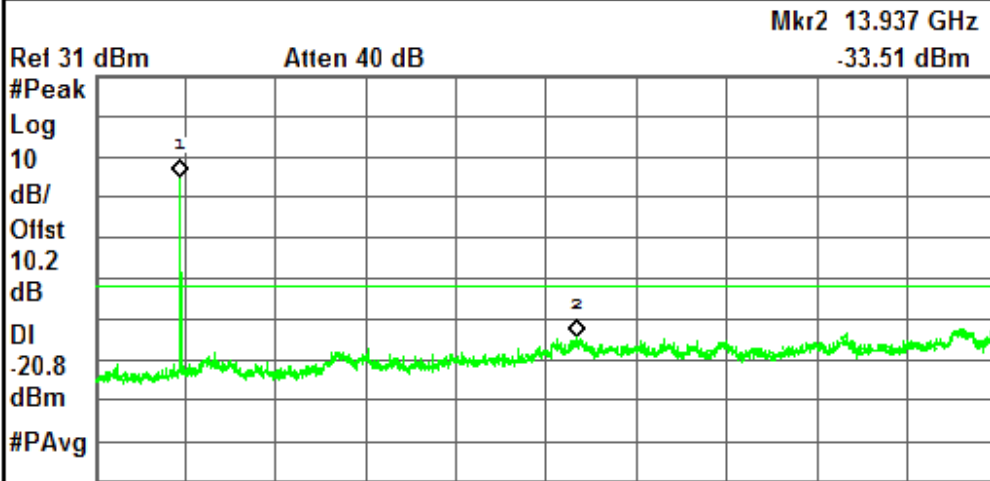


OUT OF BAND HIGH CH

Agilent 06:47:09 Jul 18, 2014

R T

Freq/Channel



Center Freq
13.0150000 GHz

Start Freq
30.0000000 MHz

Stop Freq
26.0000000 GHz

CF Step
2.59700000 GHz
Auto Man

Freq Offset
0.00000000 Hz

Signal Track
On Off

Start 30 MHz Stop 26.000 GHz
#Res BW 100 kHz VBW 300 kHz Sweep 2.482 s (2001 pts)

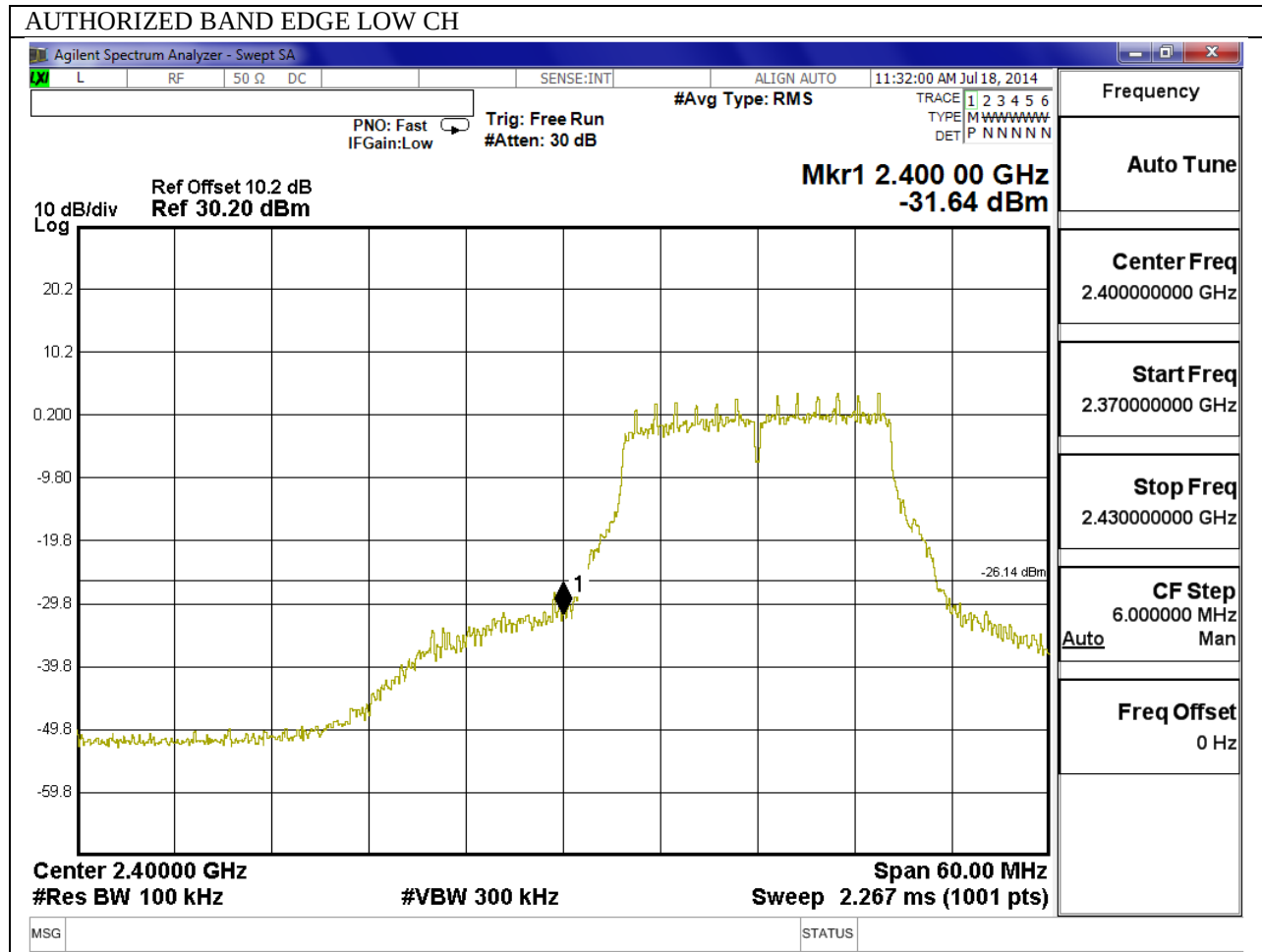
Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.458 GHz	6.10 dBm
2	(1)	Freq	13.937 GHz	-33.51 dBm

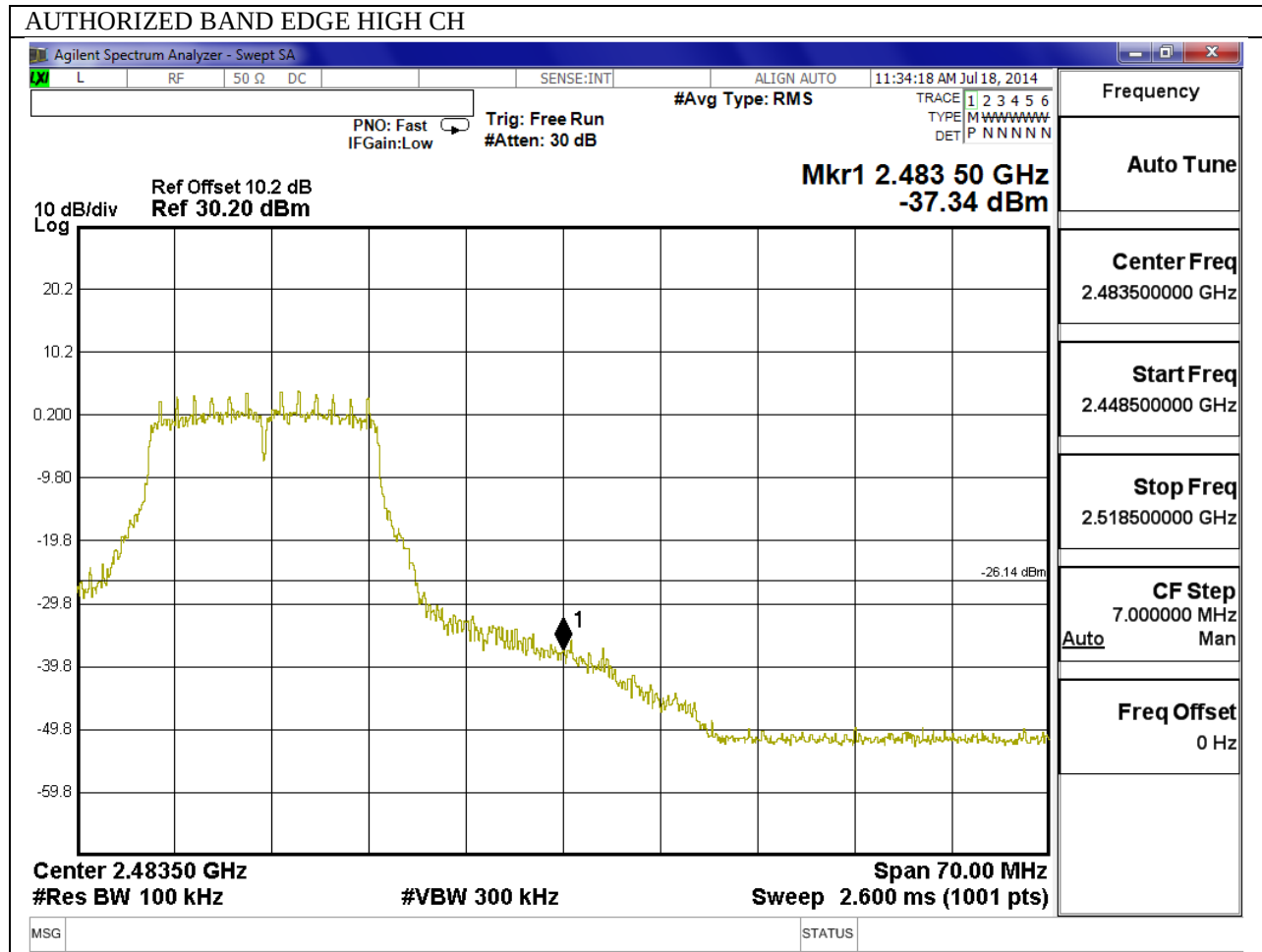
Copyright 2000-2011 Agilent Technologies

9.5.3. 802.11g MODE IN THE 2.4 GHz BAND CHAIN 0

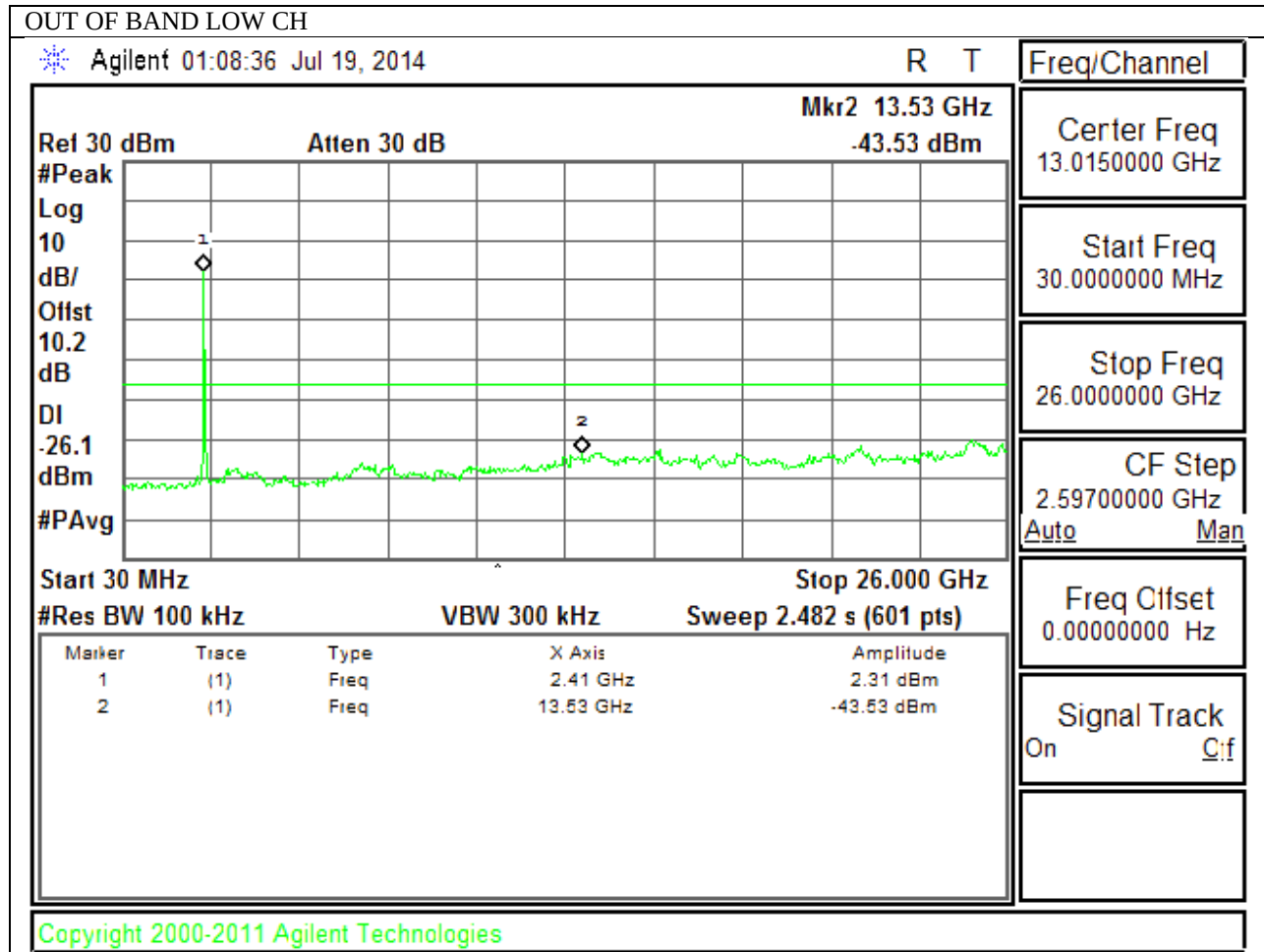
IN-BAND REFERENCE LEVEL

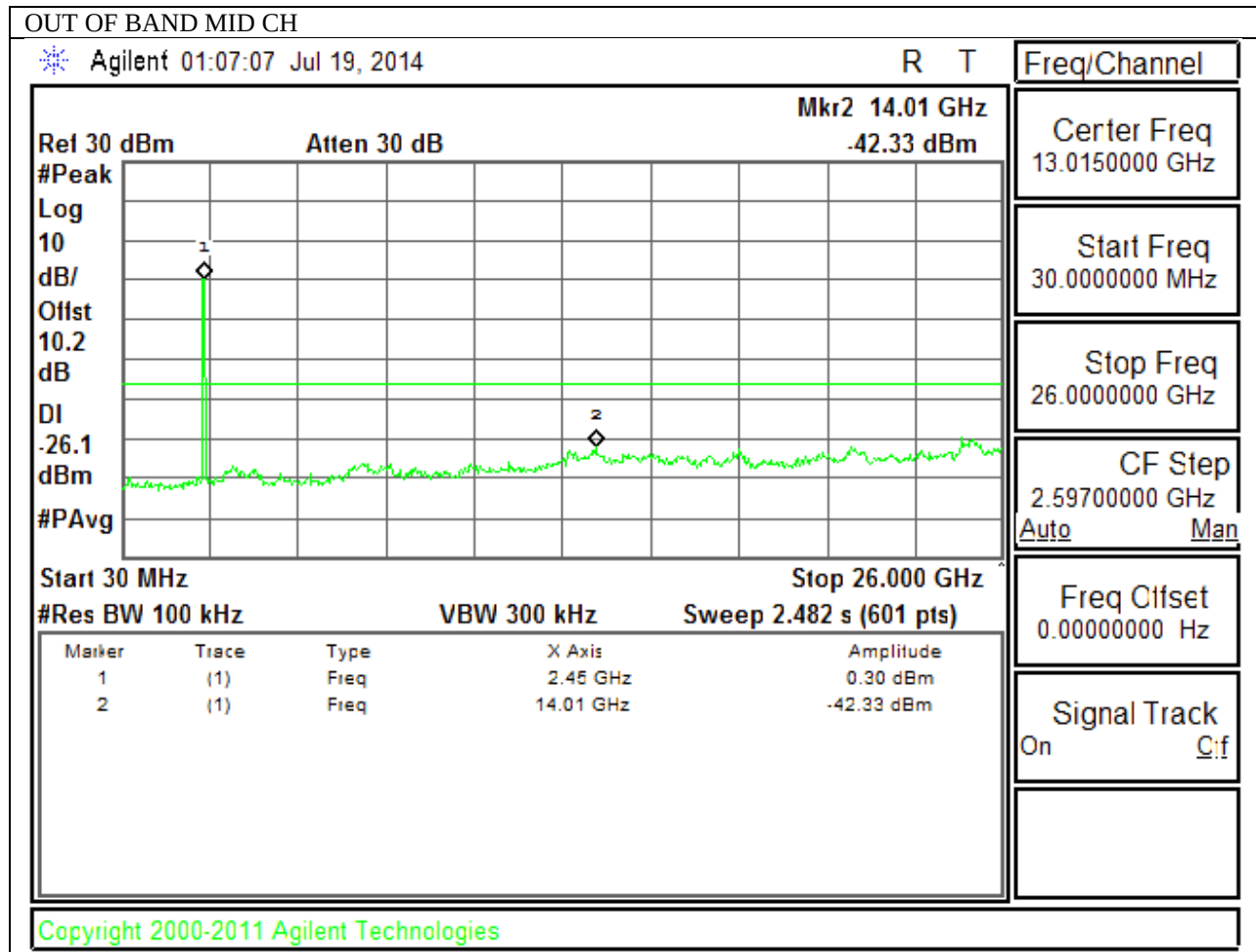


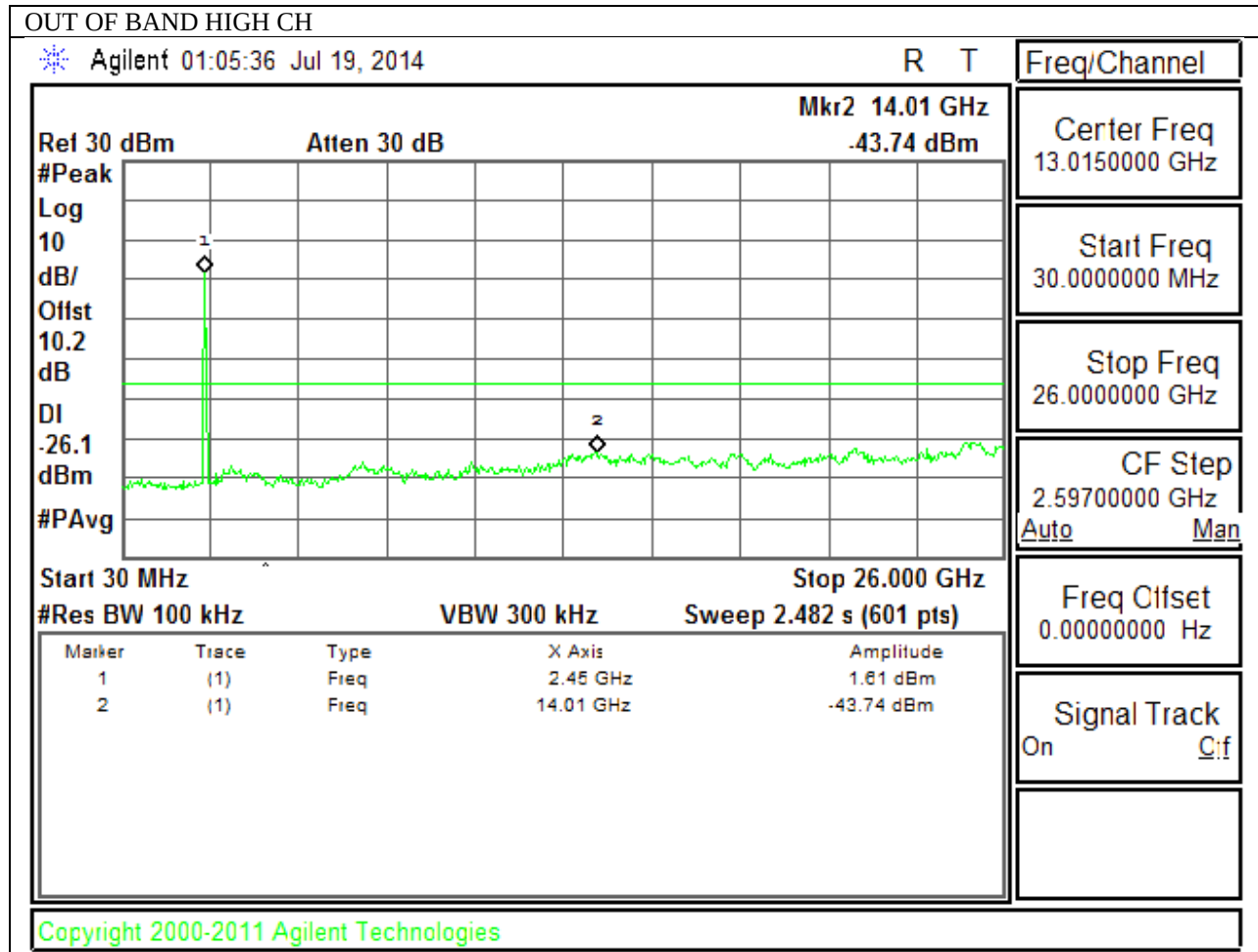
LOW CHANNEL BANDEDGE

HIGH CHANNEL BANDEDGE

OUT-OF-BAND EMISSIONS

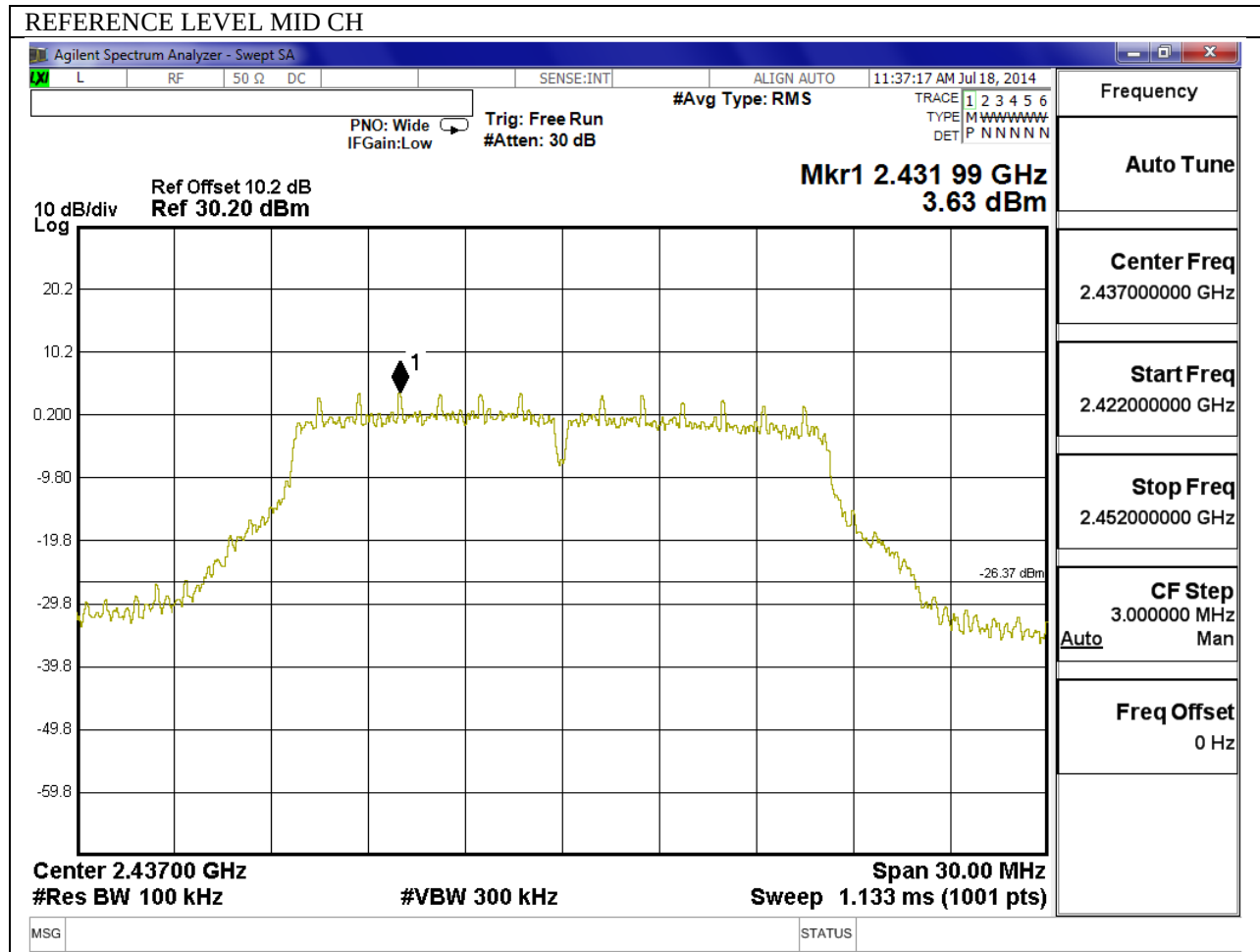


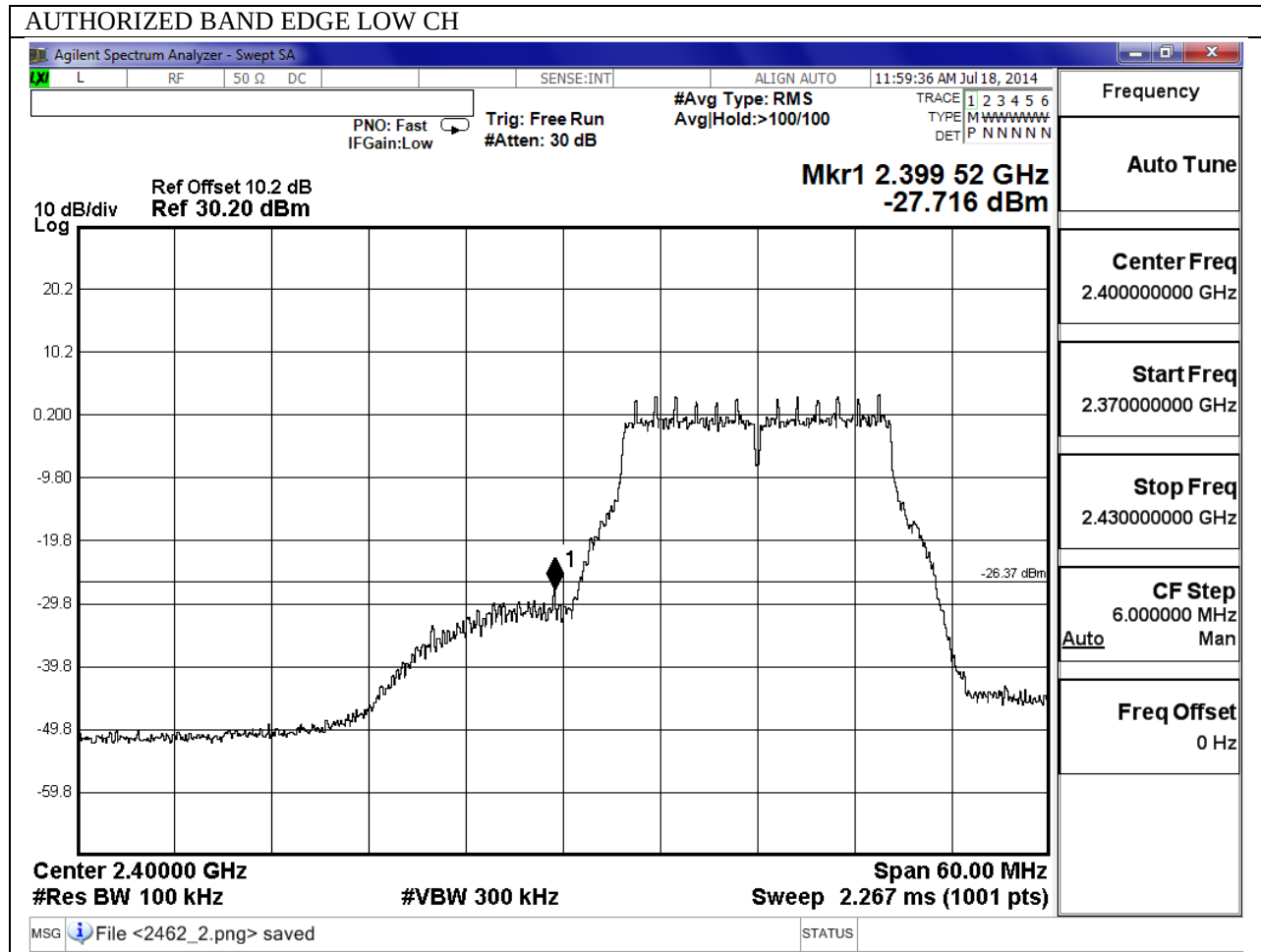


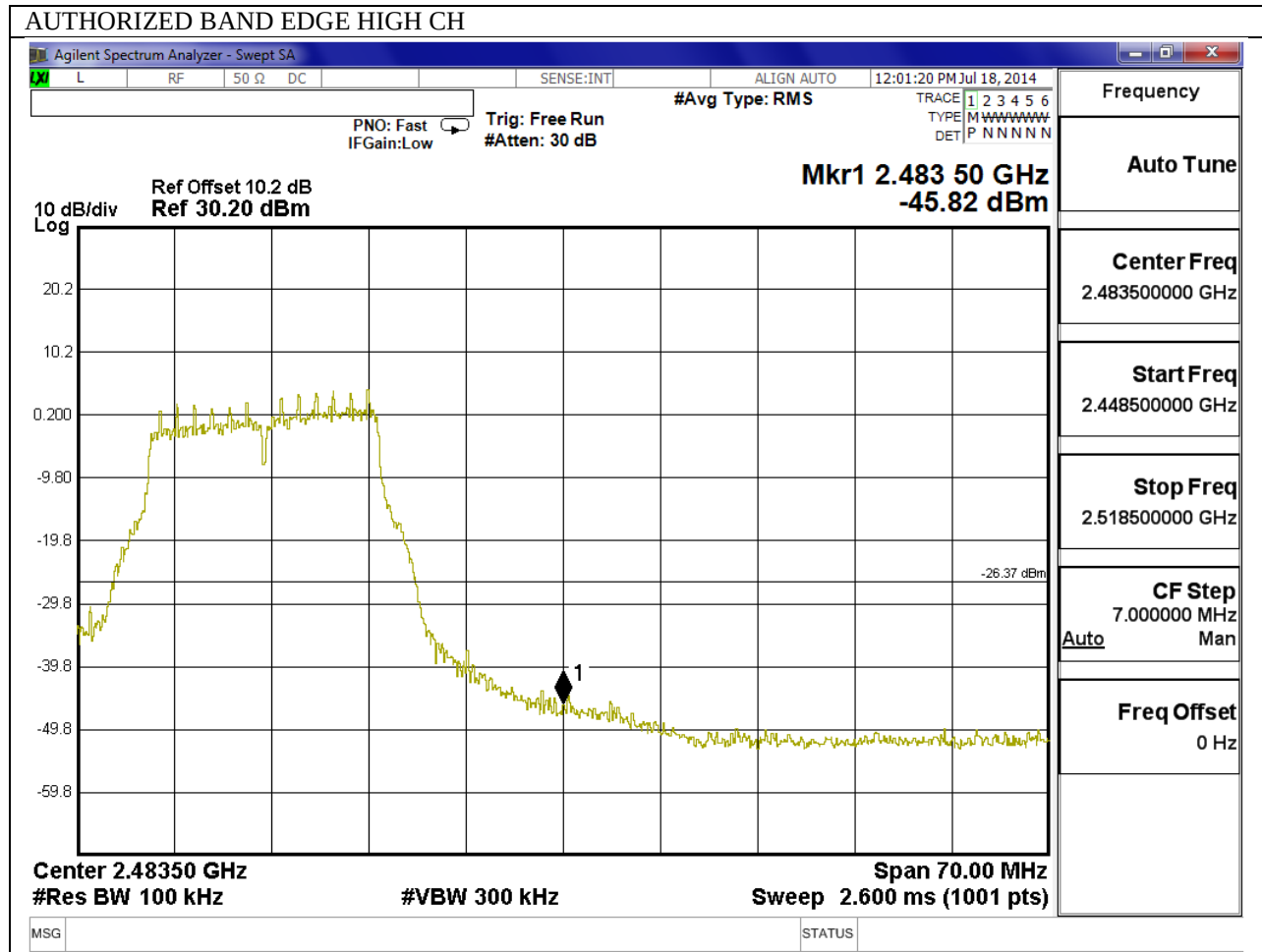


9.5.4. 802.11g MODE IN THE 2.4 GHz BAND CHAIN 1

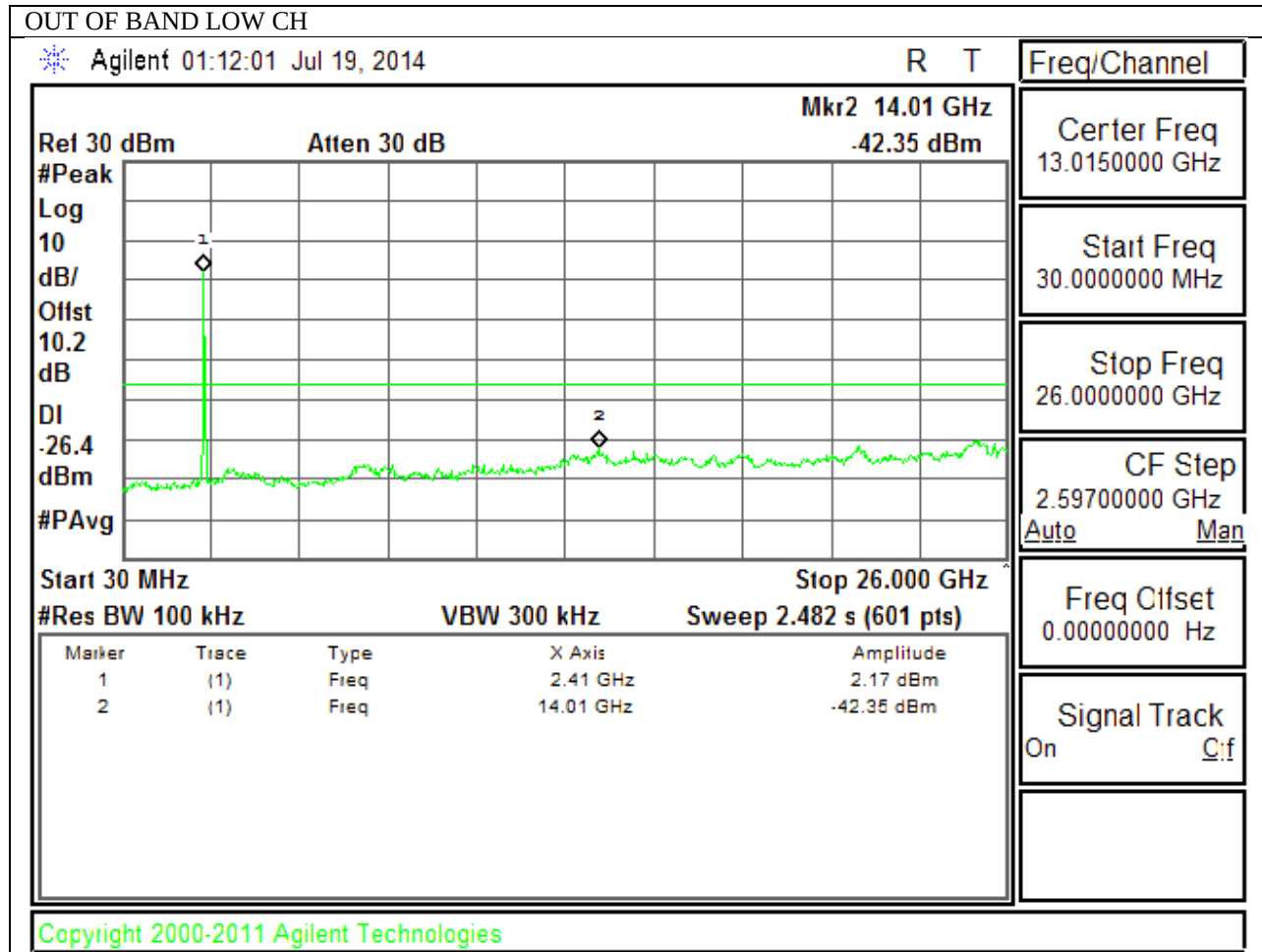
IN-BAND REFERENCE LEVEL

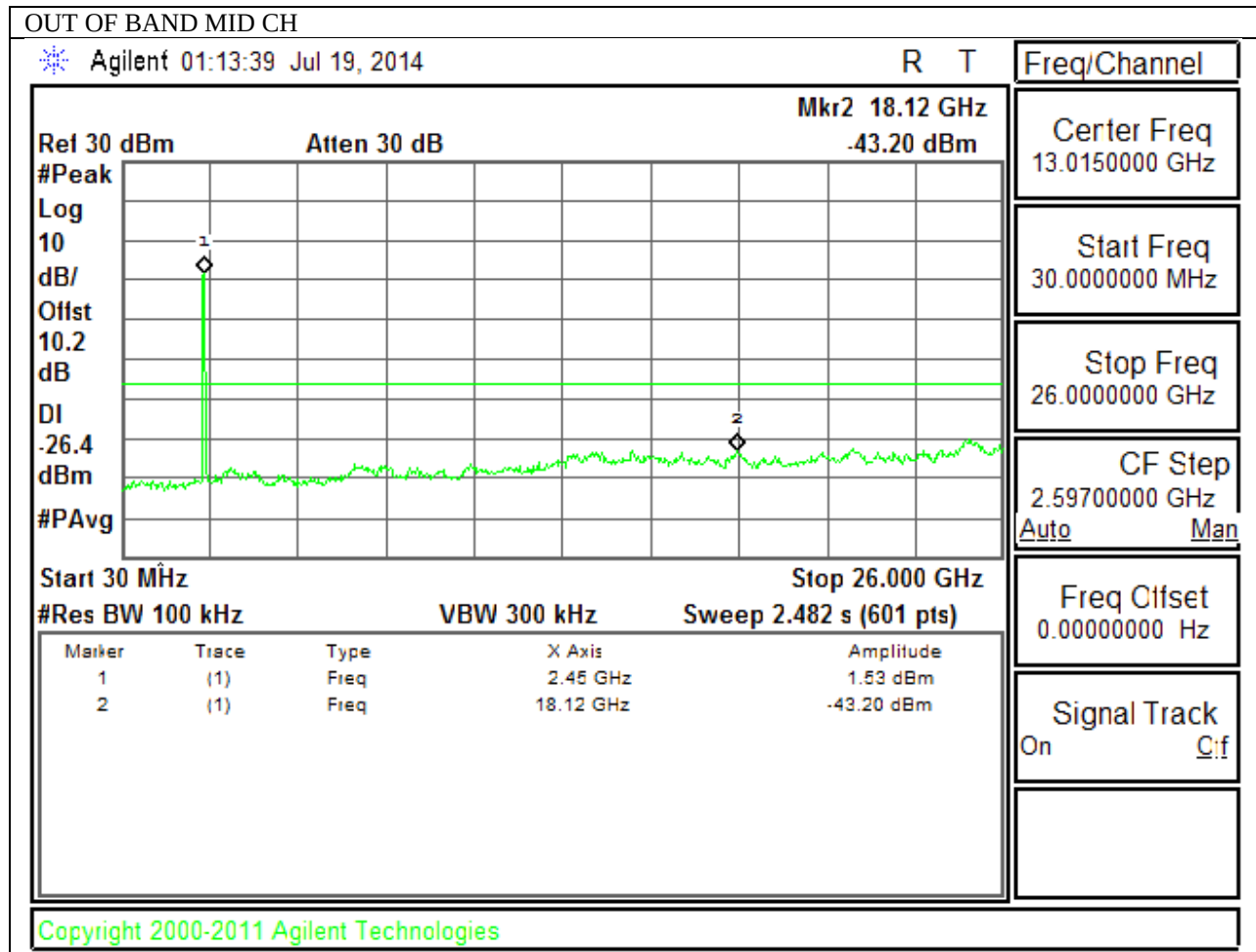


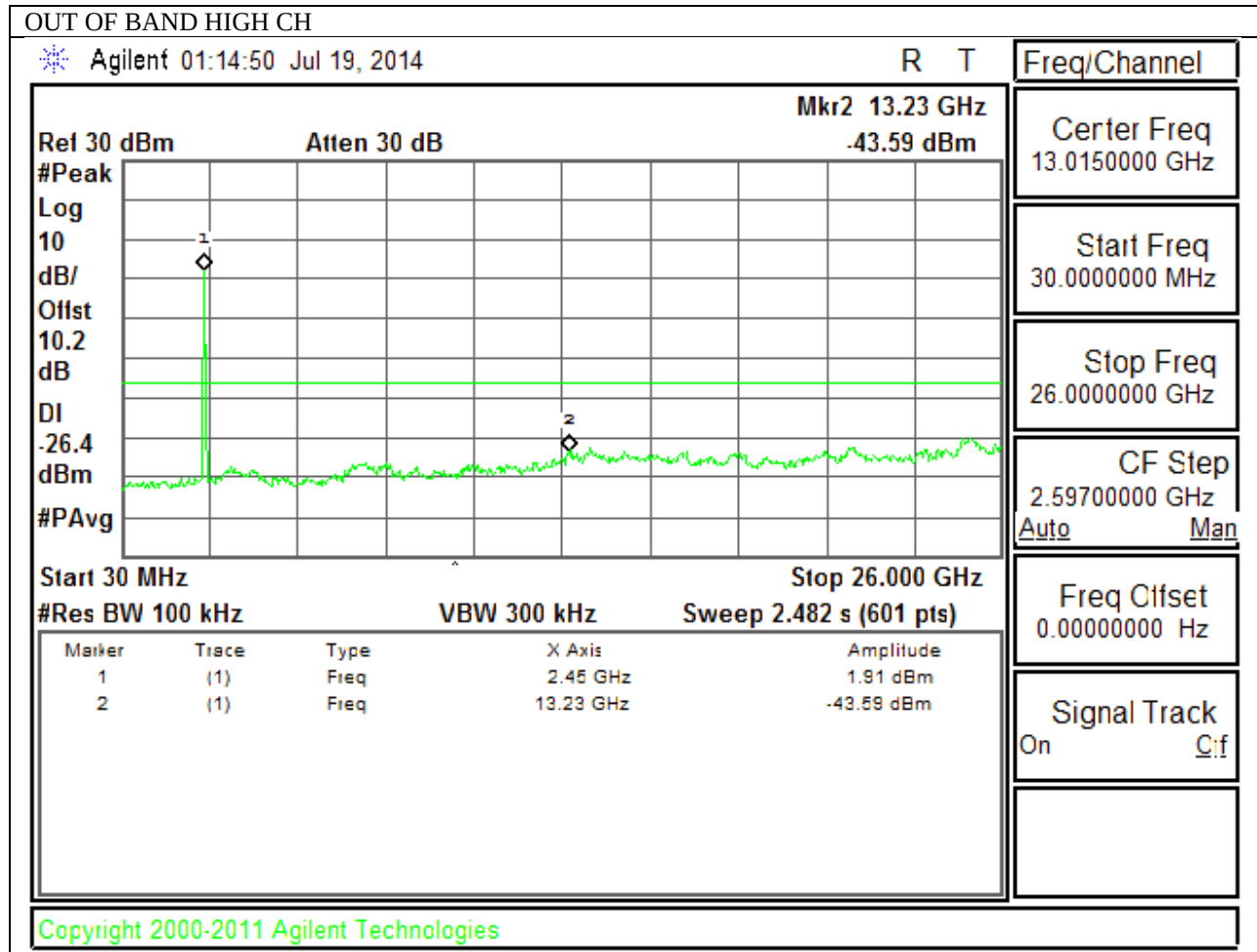
LOW CHANNEL BANDEDGE

HIGH CHANNEL BANDEDGE

OUT-OF-BAND EMISSIONS

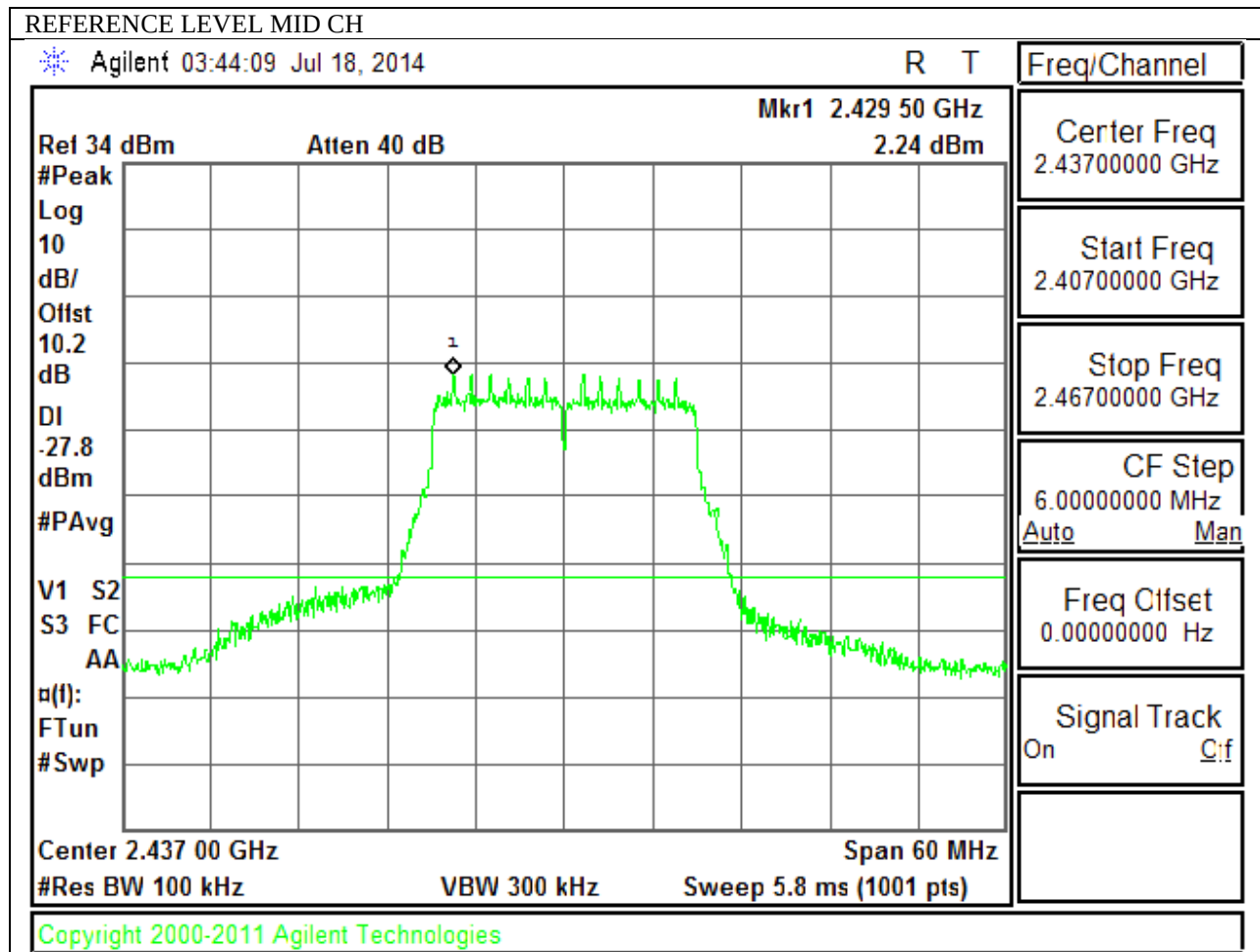




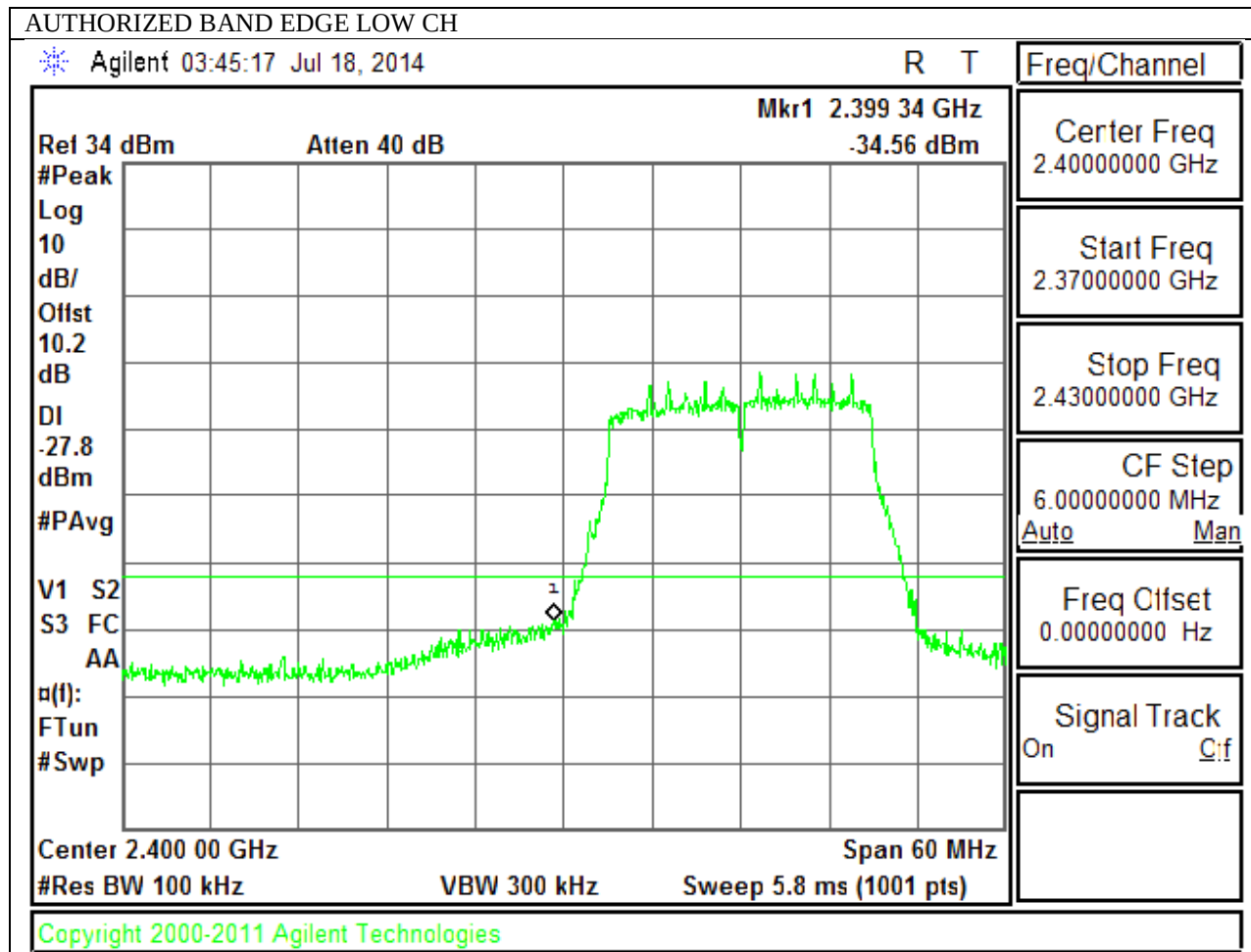


9.5.5. 802.11n MODE IN THE 2.4 GHz BAND CHAIN 0

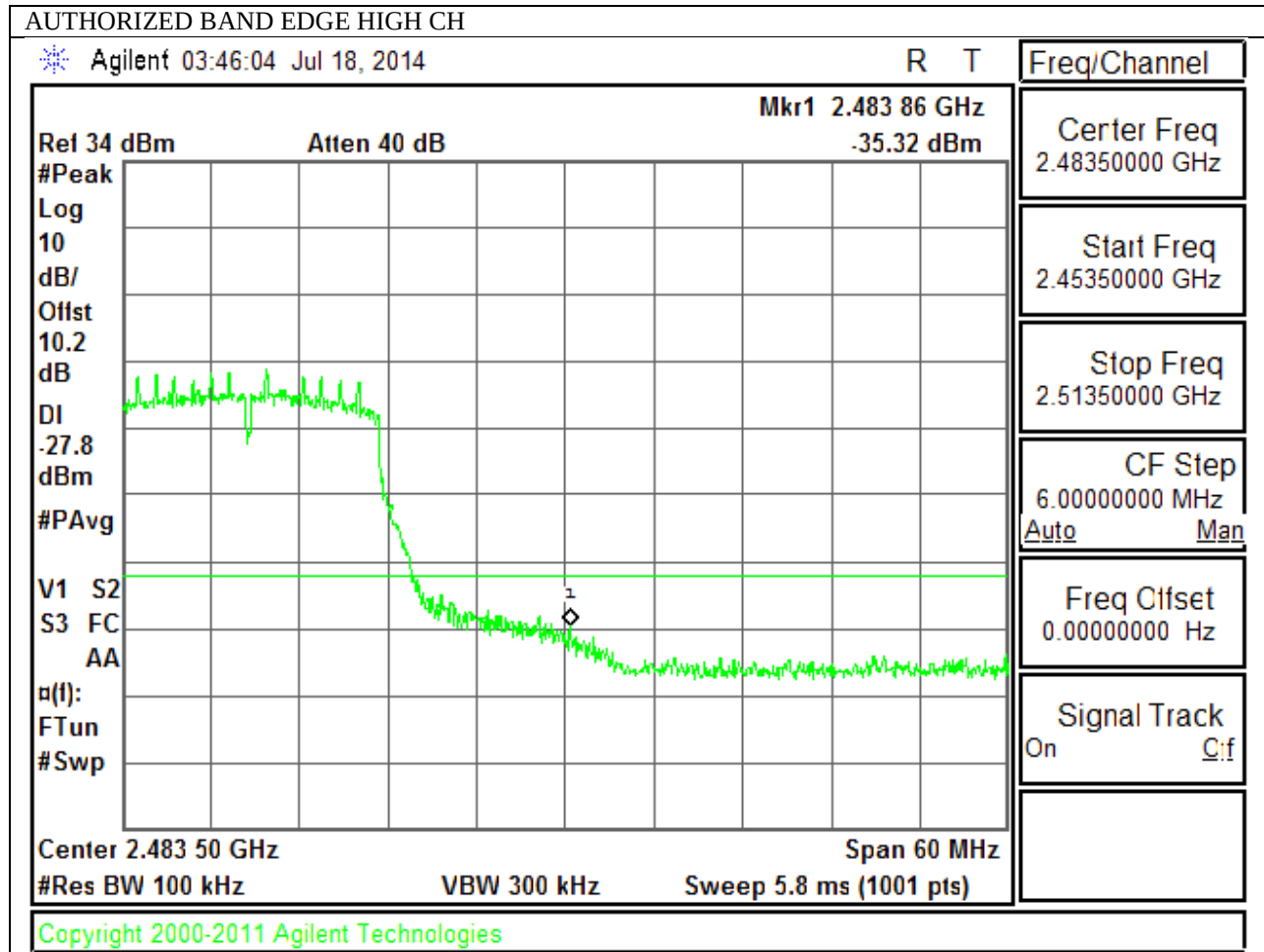
IN-BAND REFERENCE LEVEL



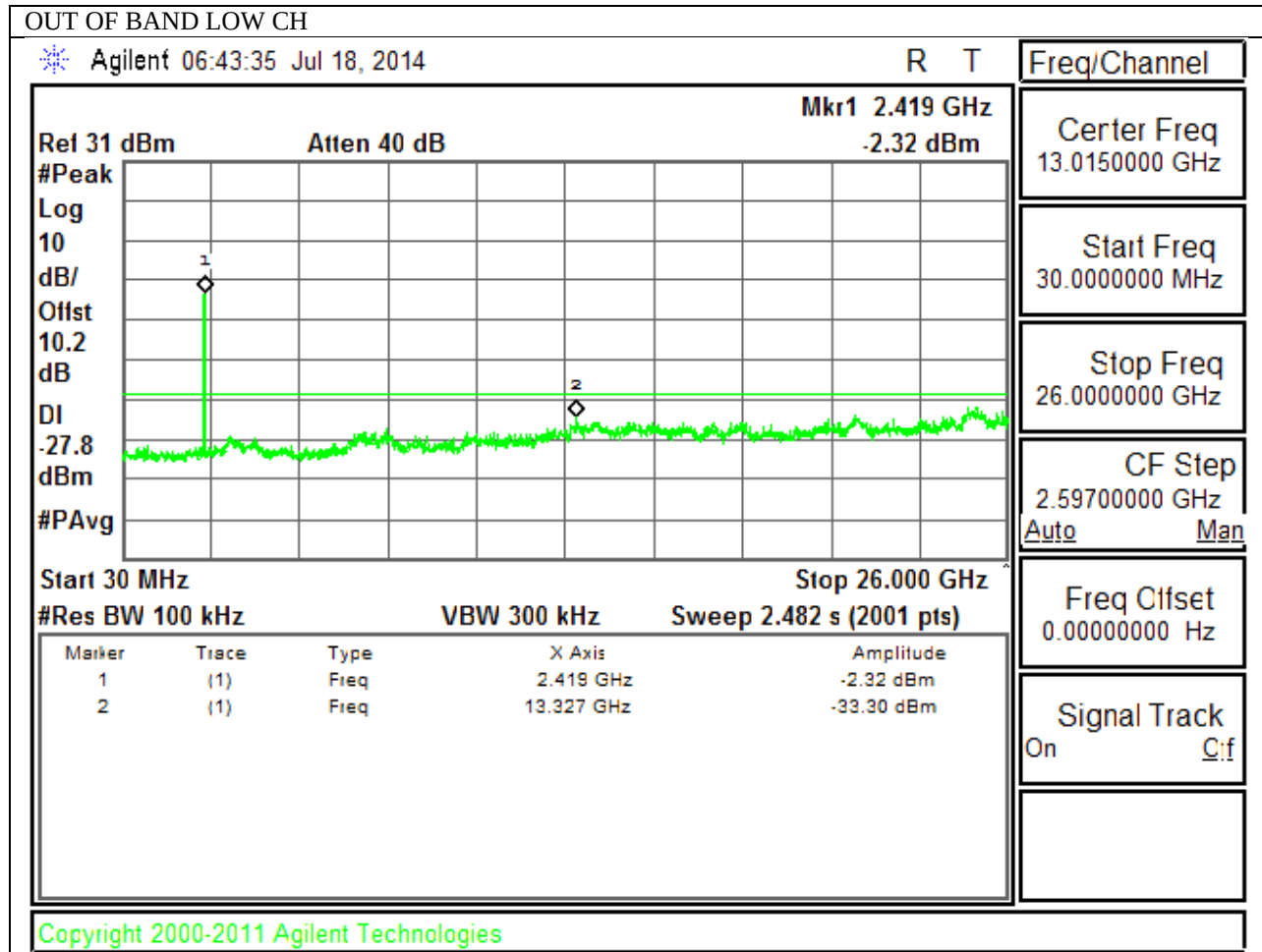
LOW CHANNEL BANDEDGE

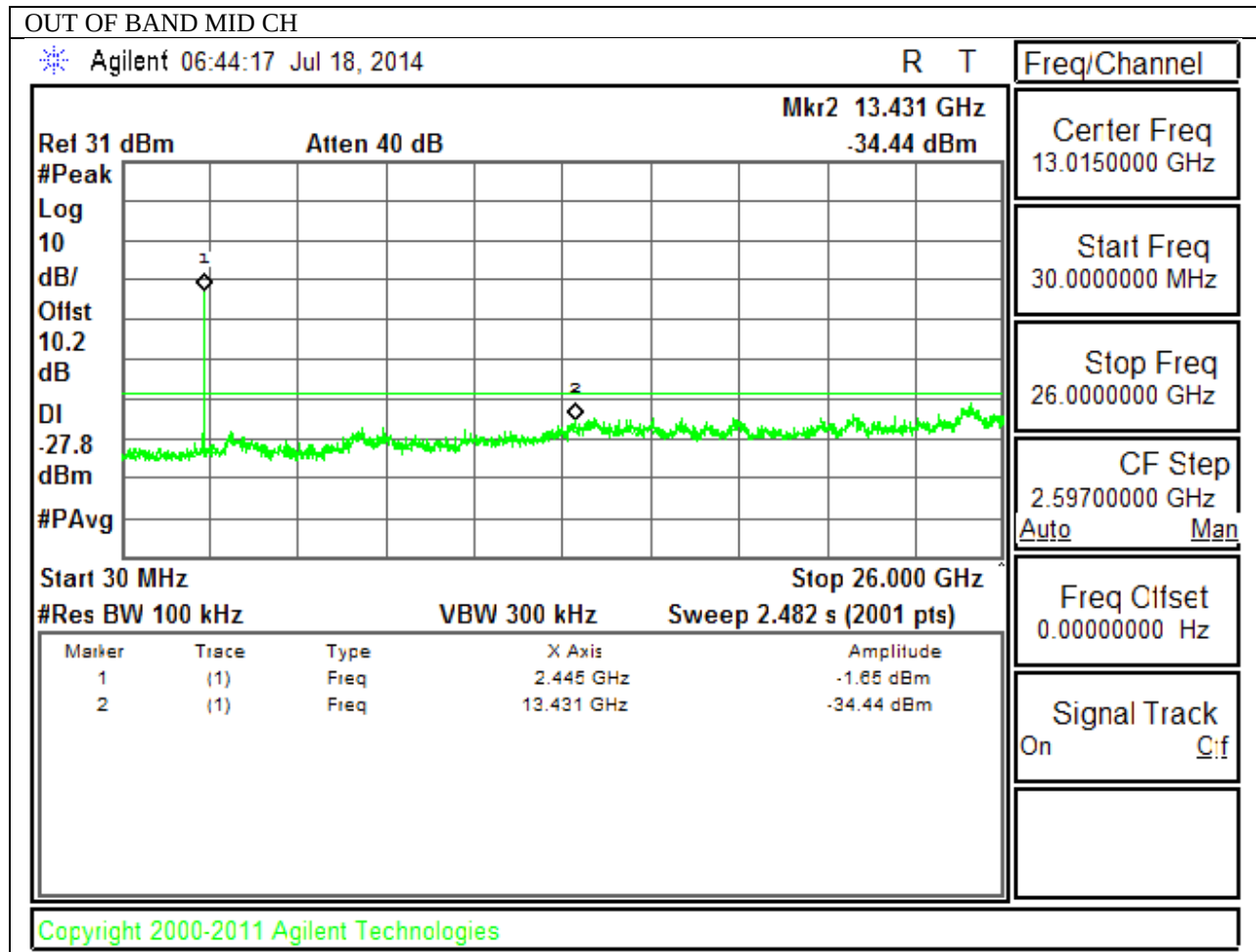


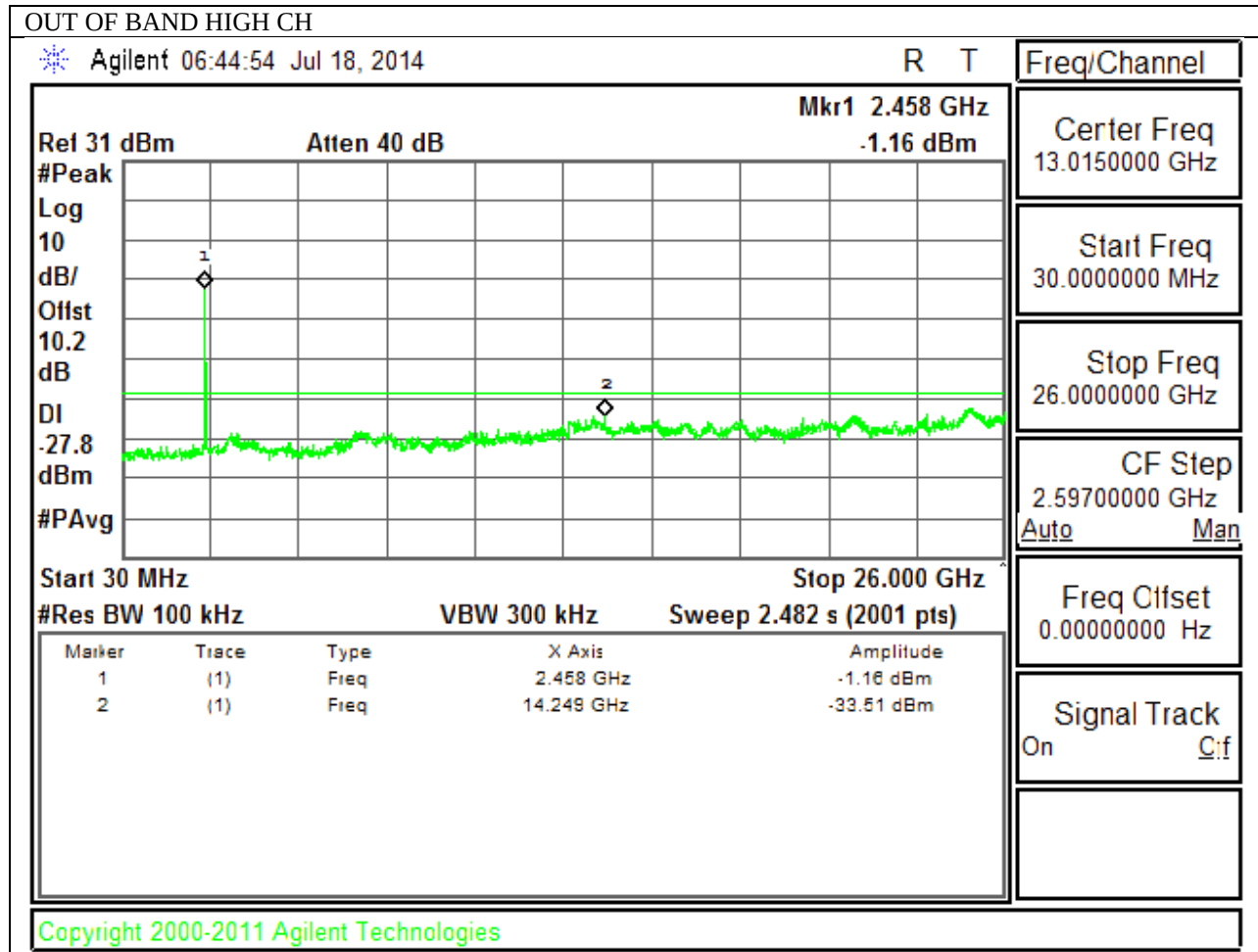
HIGH CHANNEL BANDEDGE



OUT-OF-BAND EMISSIONS

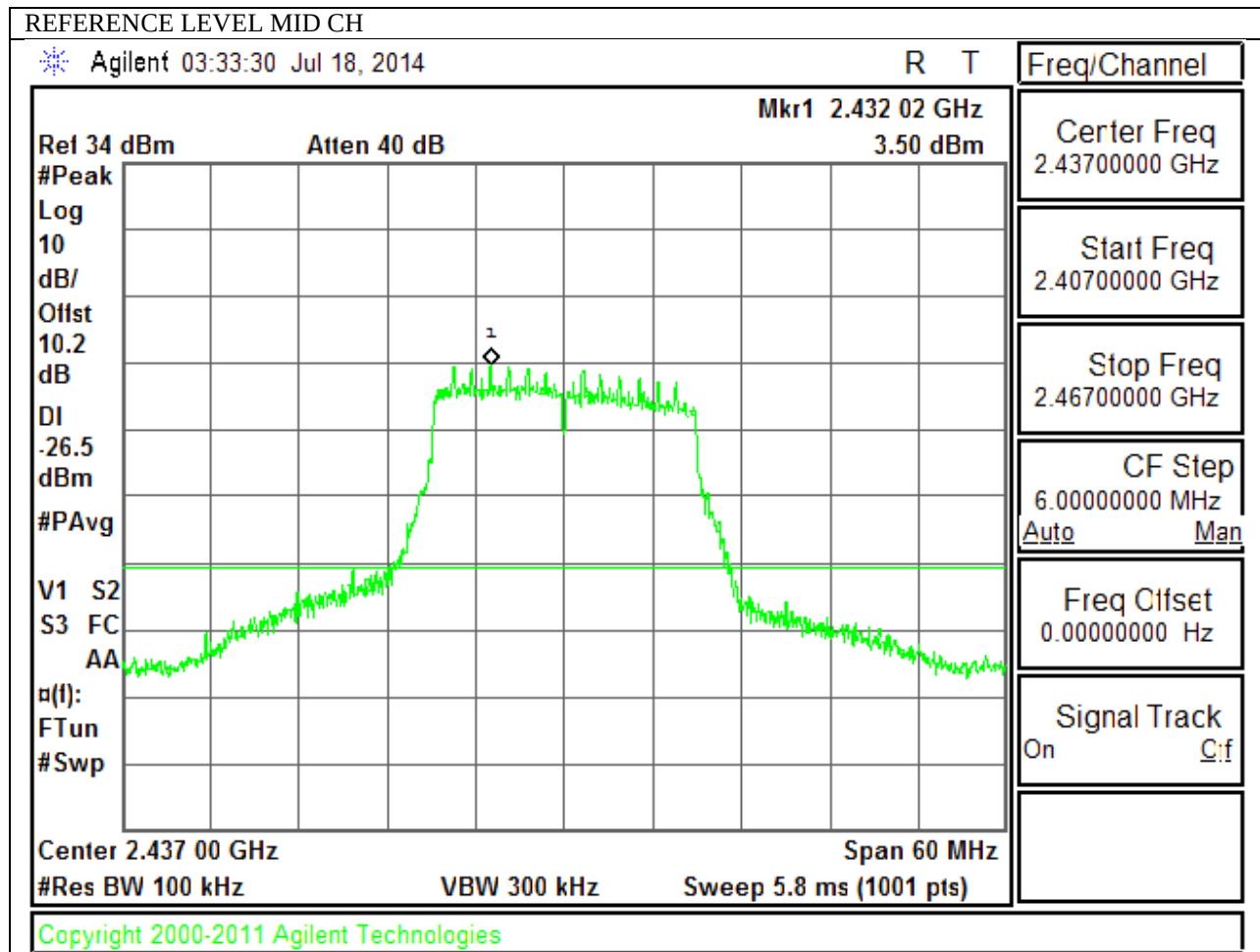




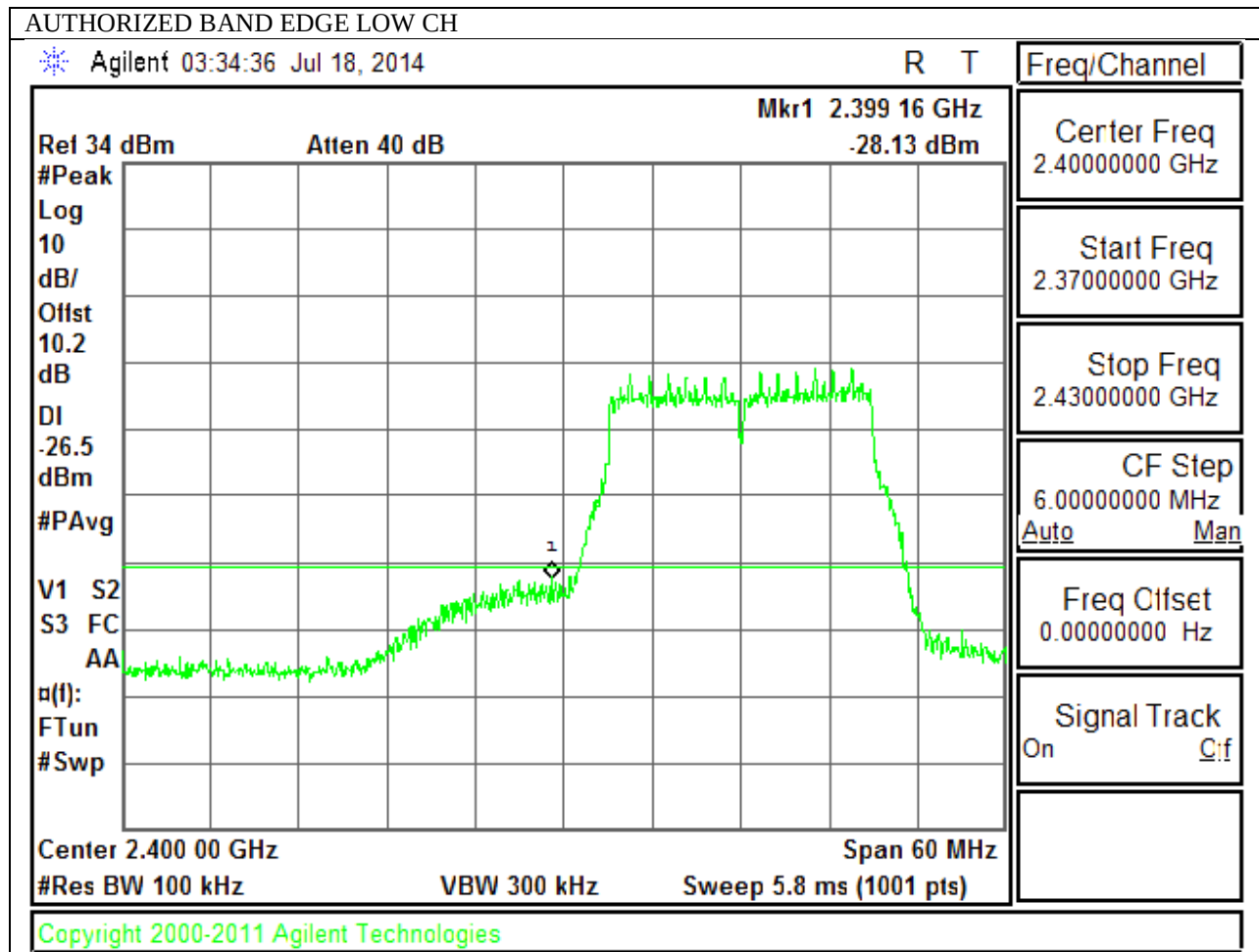


9.5.6. 802.11n MODE IN THE 2.4 GHz BAND CHAIN 1

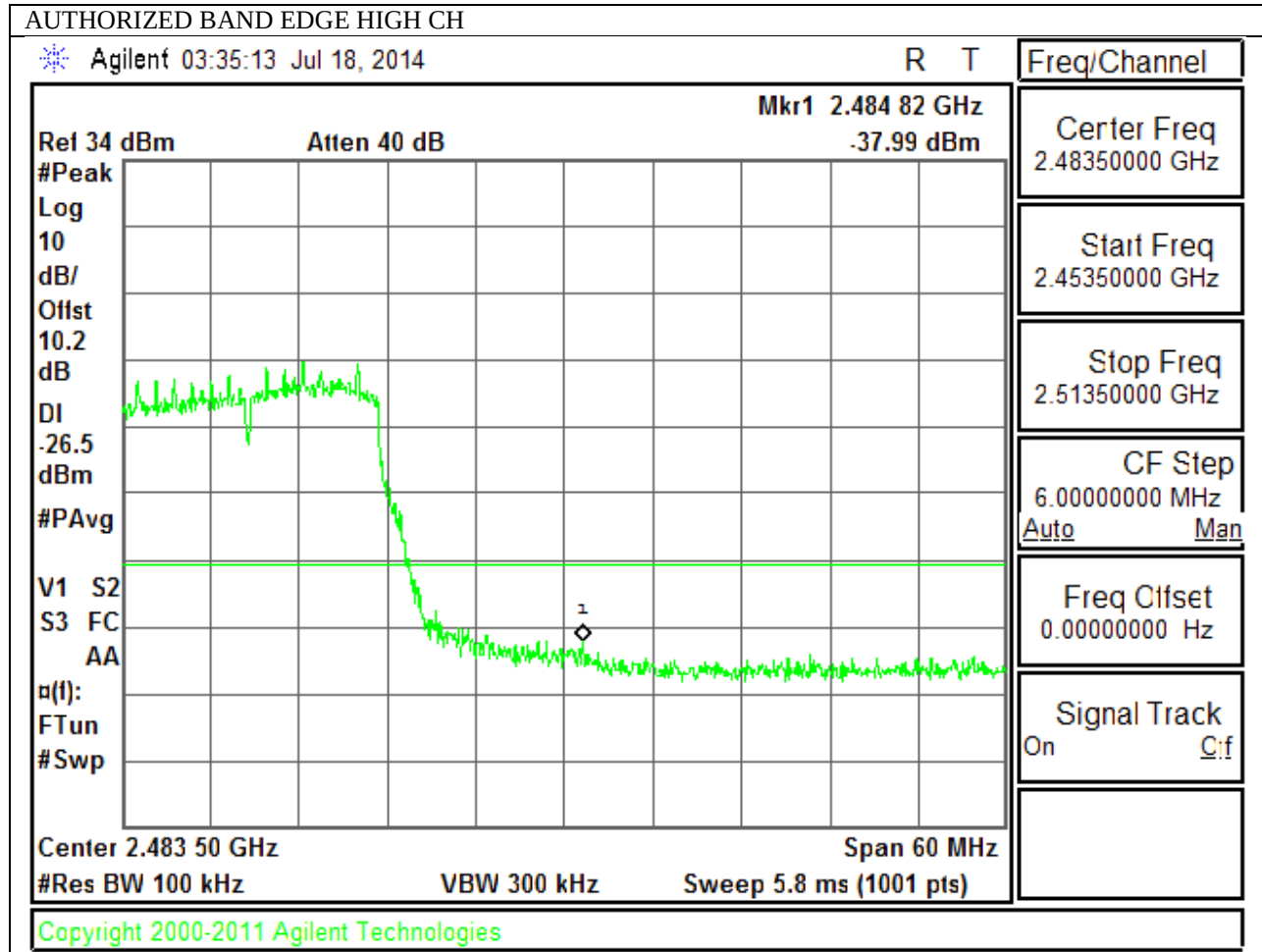
IN-BAND REFERENCE LEVEL



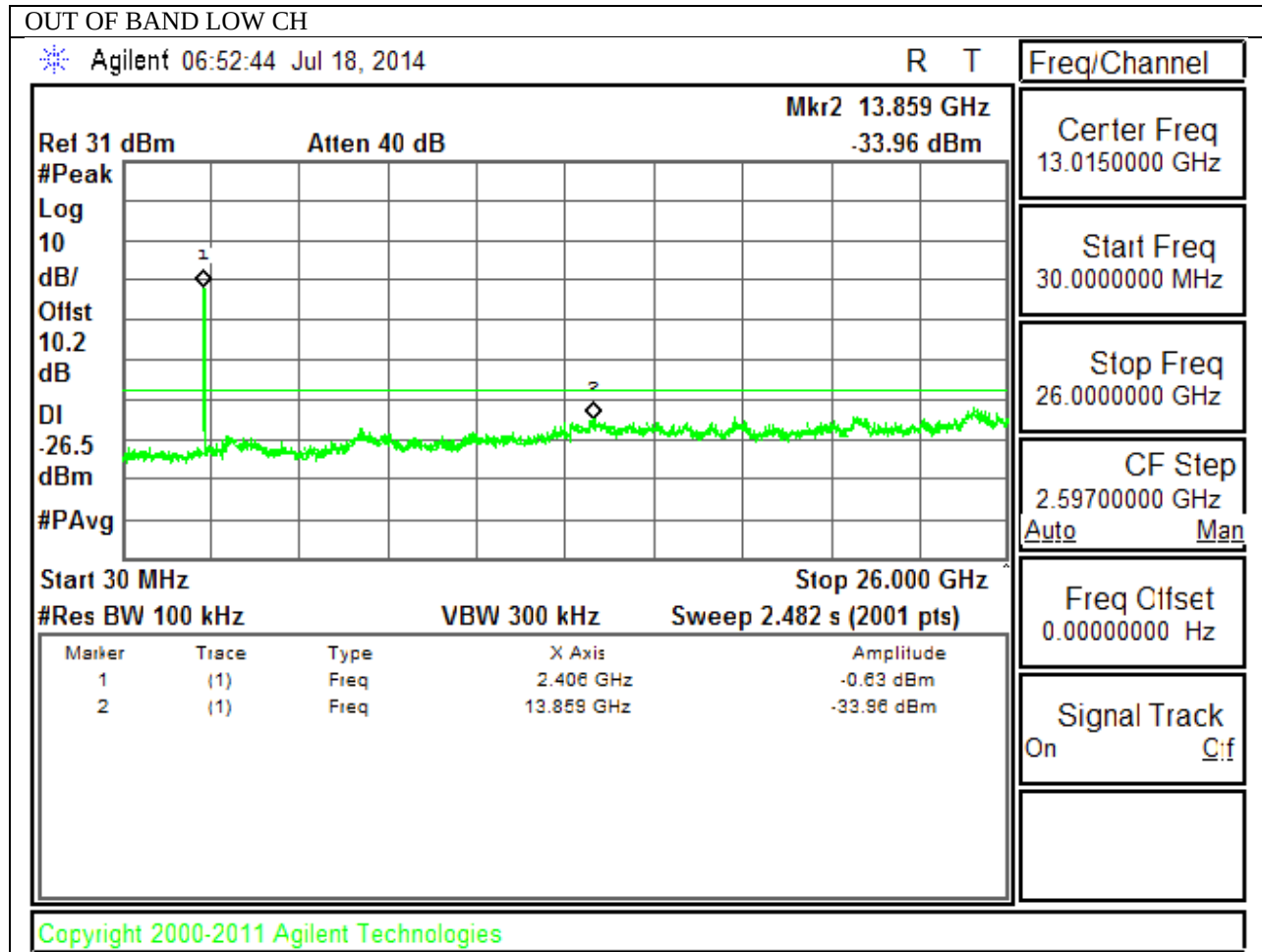
LOW CHANNEL BANDEDGE

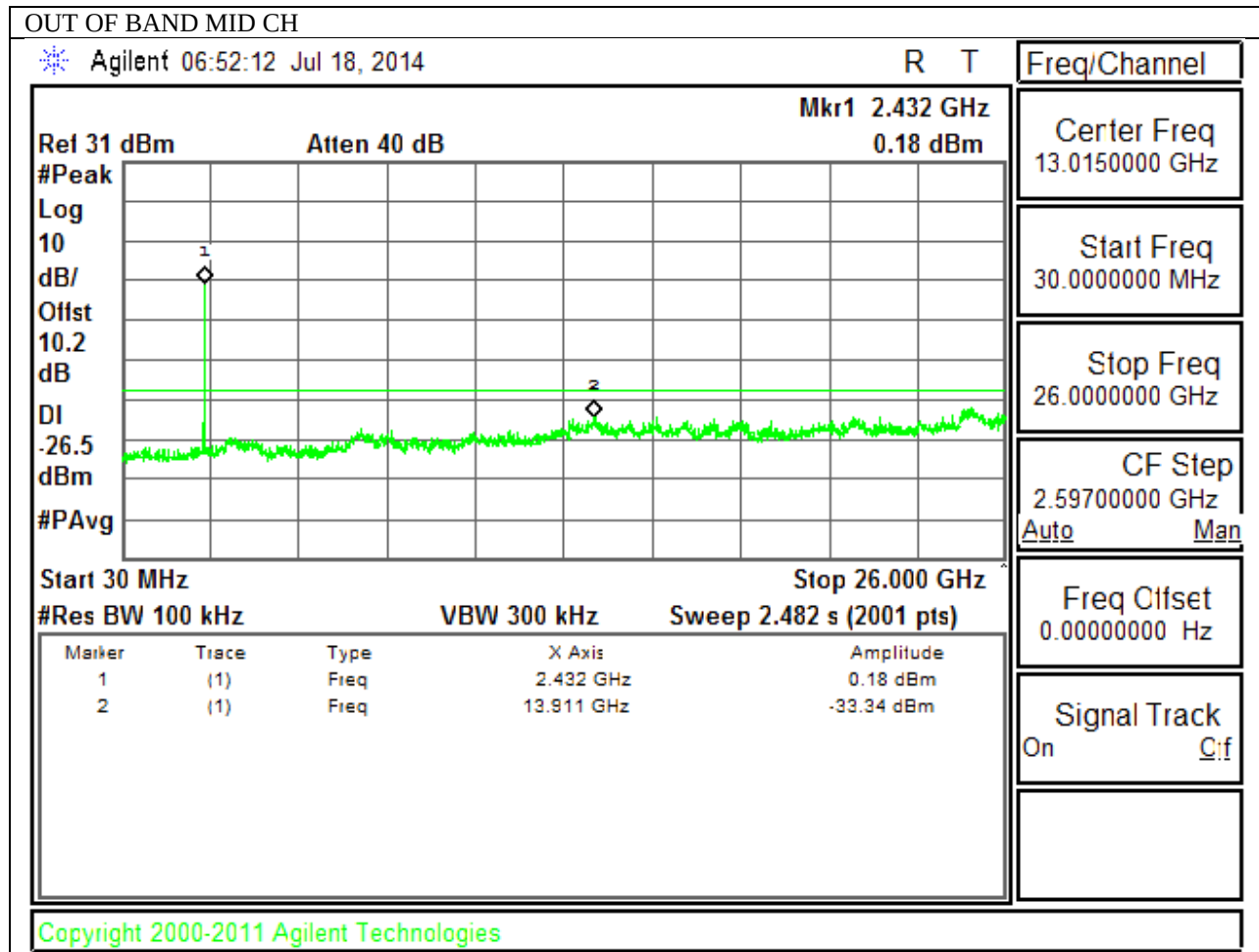


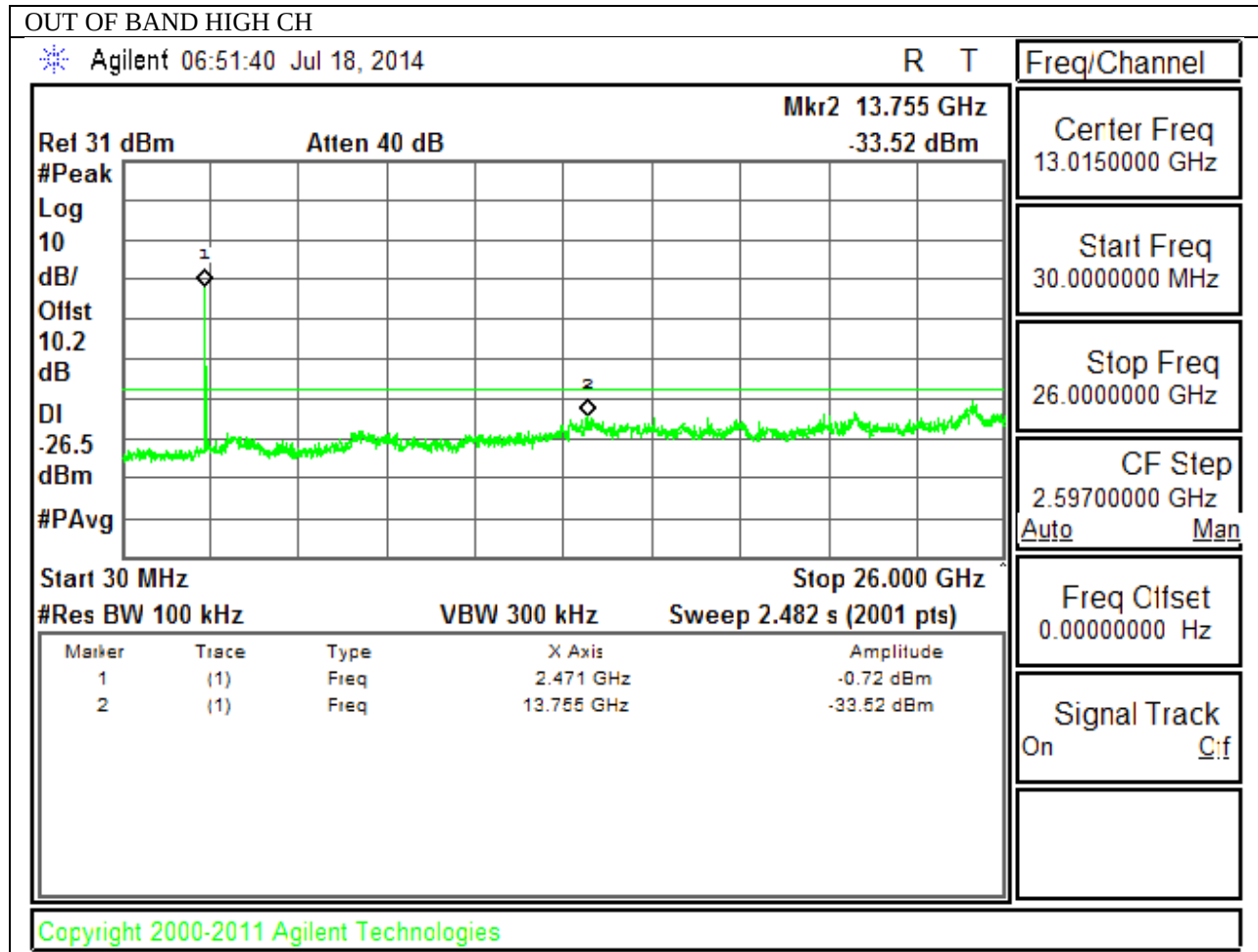
HIGH CHANNEL BANDEDGE



OUT-OF-BAND EMISSIONS







10. RADIATED TEST RESULTS

10.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

IC RSS-210 Clause 2.6 (Transmitter)

IC RSS-GEN Clause 6 (Receiver)

Frequency Range (MHz)	Field Strength Limit ($\mu\text{V/m}$) at 3 m	Field Strength Limit (dB $\mu\text{V/m}$) at 3 m
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane. The antenna to EUT distance is 3 meters.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements and add duty cycle factor for average measurements. Duty cycle factor = $10\log(1/x)$ For this sample B mode = 0dB (duty cycle >98%); G mode = 0.3dB; N mode = 0.32dB.

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.

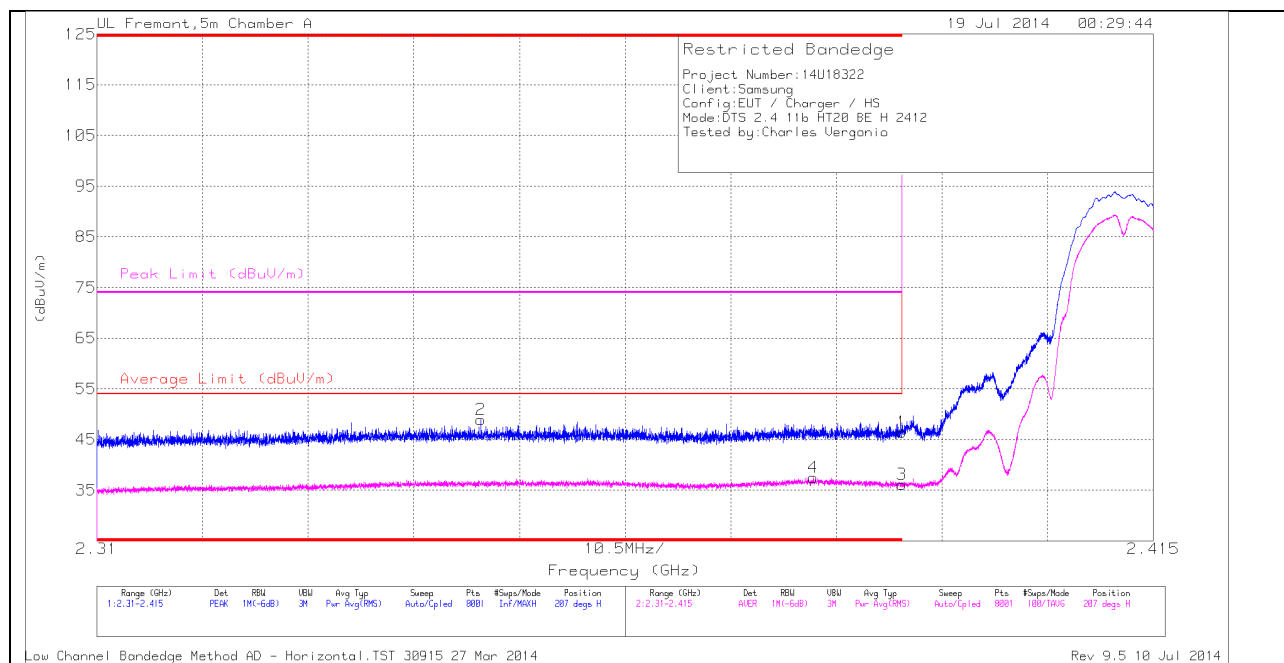
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

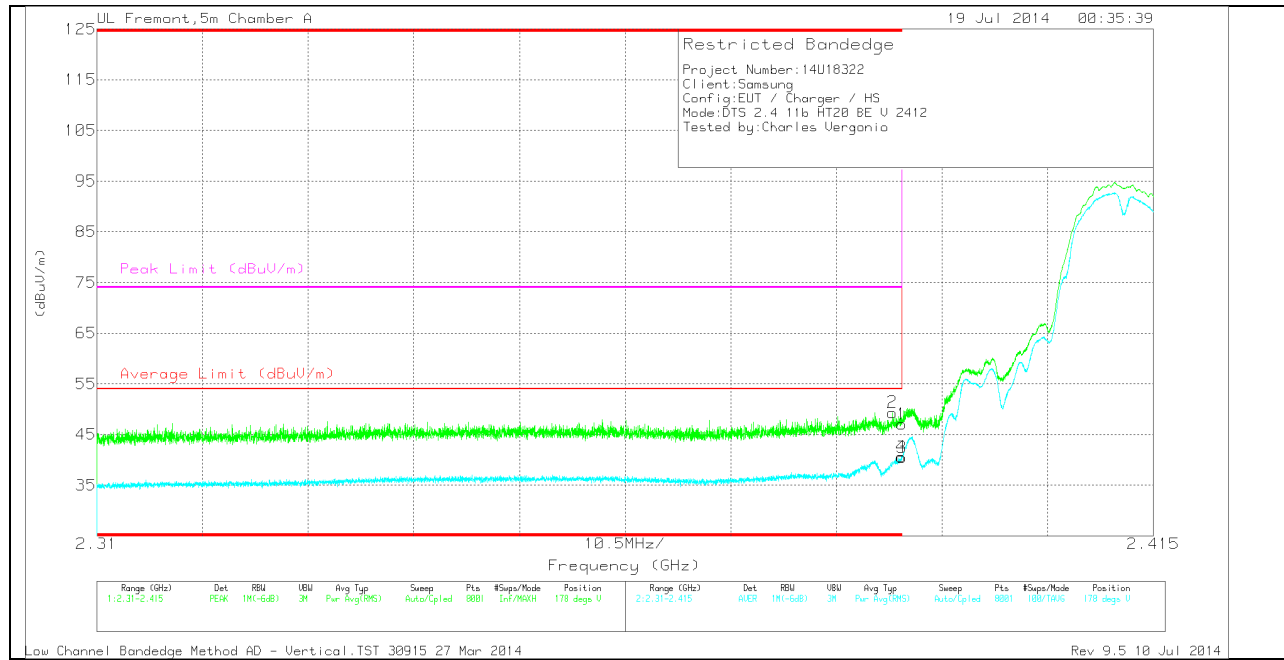
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/ Fitr/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	38.61	PK	32.2	-24.4	46.41	-	-	74	-27.59	207	100	H
2	* 2.348	40.75	PK	31.9	-23.7	48.95	-	-	74	-25.05	207	100	H
3	* 2.39	28.35	RMS	32.2	-24.4	36.15	54	-17.85	-	-	207	100	H
4	* 2.381	28.81	RMS	32.2	-23.5	37.51	54	-16.49	-	-	207	100	H

VERTICAL PEAK AND AVERAGE PLOT

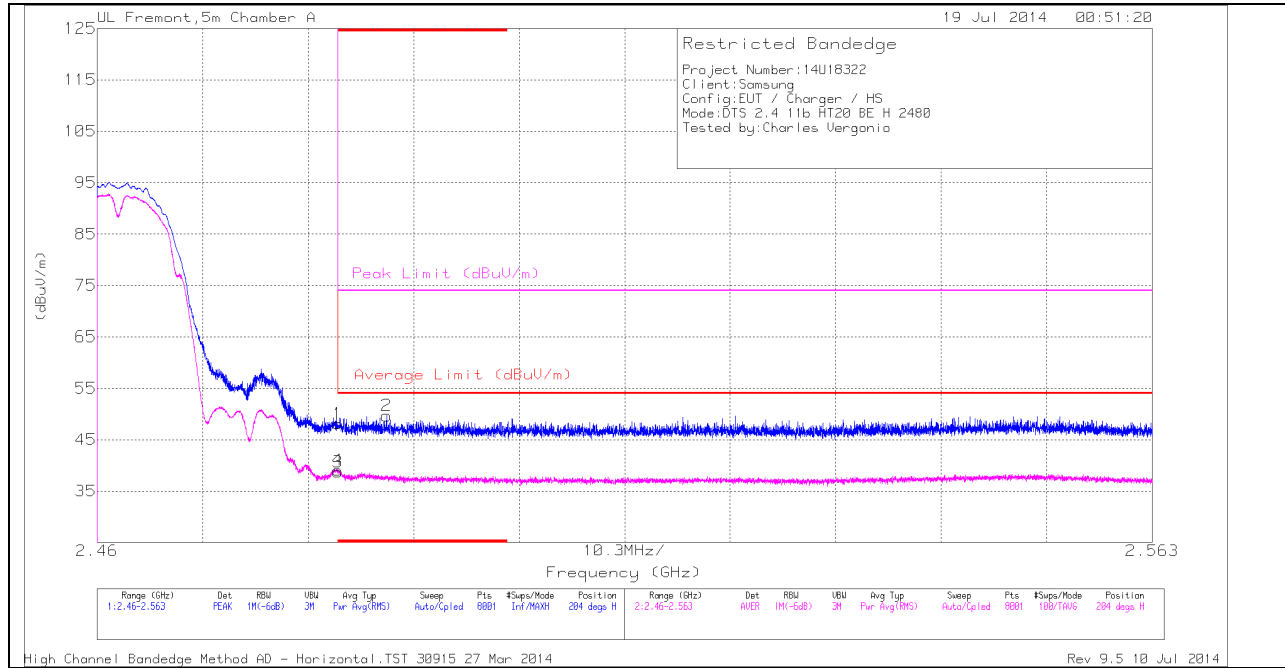


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/ Filt/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	39.31	PK	32.2	-24.4	47.11	-	-	74	-26.89	178	102	V
2	* 2.389	41.46	PK	32.2	-24.3	49.36	-	-	74	-24.64	178	102	V
3	* 2.39	32.73	RMS	32.2	-24.4	40.53	54	-13.47	-	-	178	102	V
4	* 2.39	32.8	RMS	32.2	-24.4	40.6	54	-13.4	-	-	178	102	V

AUTHORIZED BANDEDGE (HIGH CHANNEL)

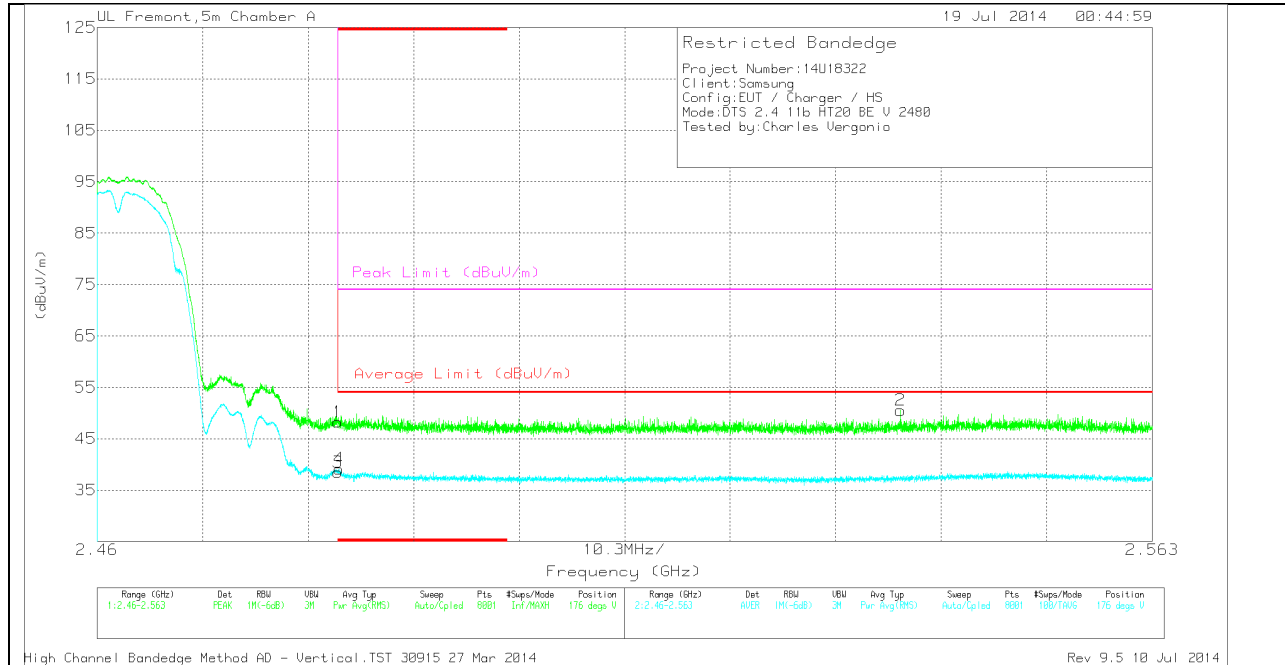
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/ Filt/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	38.94	PK	32.7	-23.5	48.14	-	-	74	-25.86	204	133	H
3	* 2.484	29.53	RMS	32.7	-23.5	38.73	54	-15.27	-	-	204	133	H
4	* 2.484	29.87	RMS	32.7	-23.5	39.07	54	-14.93	-	-	204	133	H
2	* 2.488	40.27	PK	32.8	-23.4	49.67	-	-	74	-24.33	204	133	H

VERTICAL PEAK AND AVERAGE PLOT

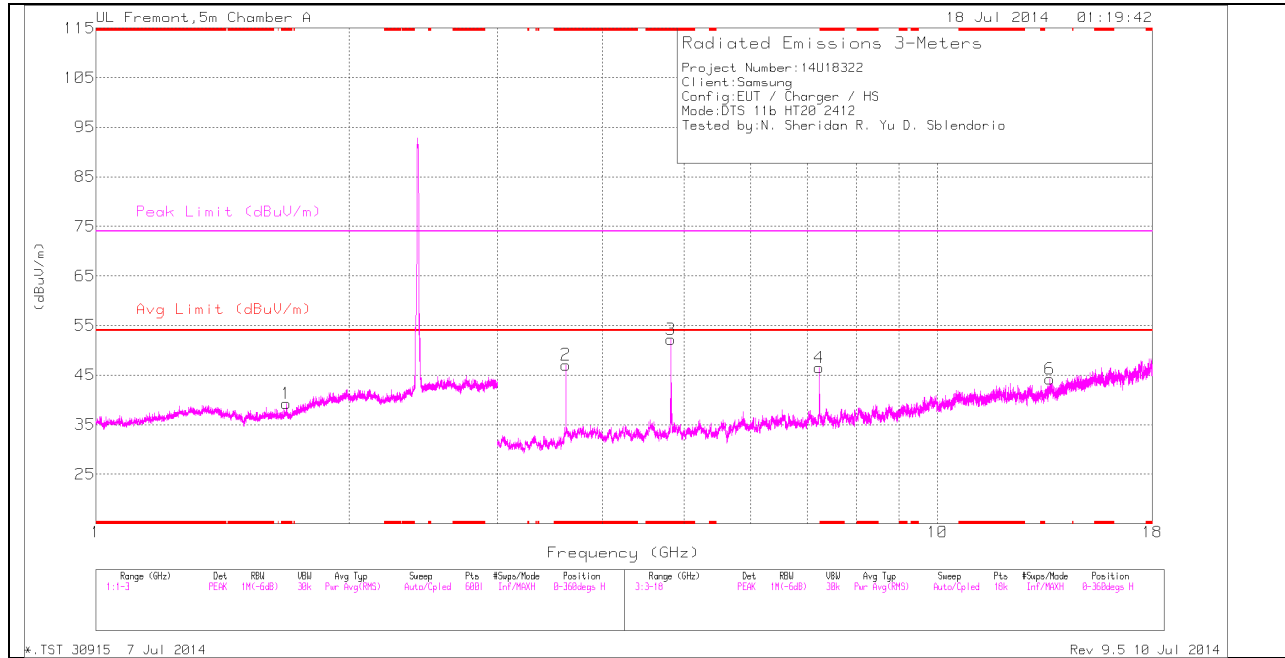


VERTICAL DATA

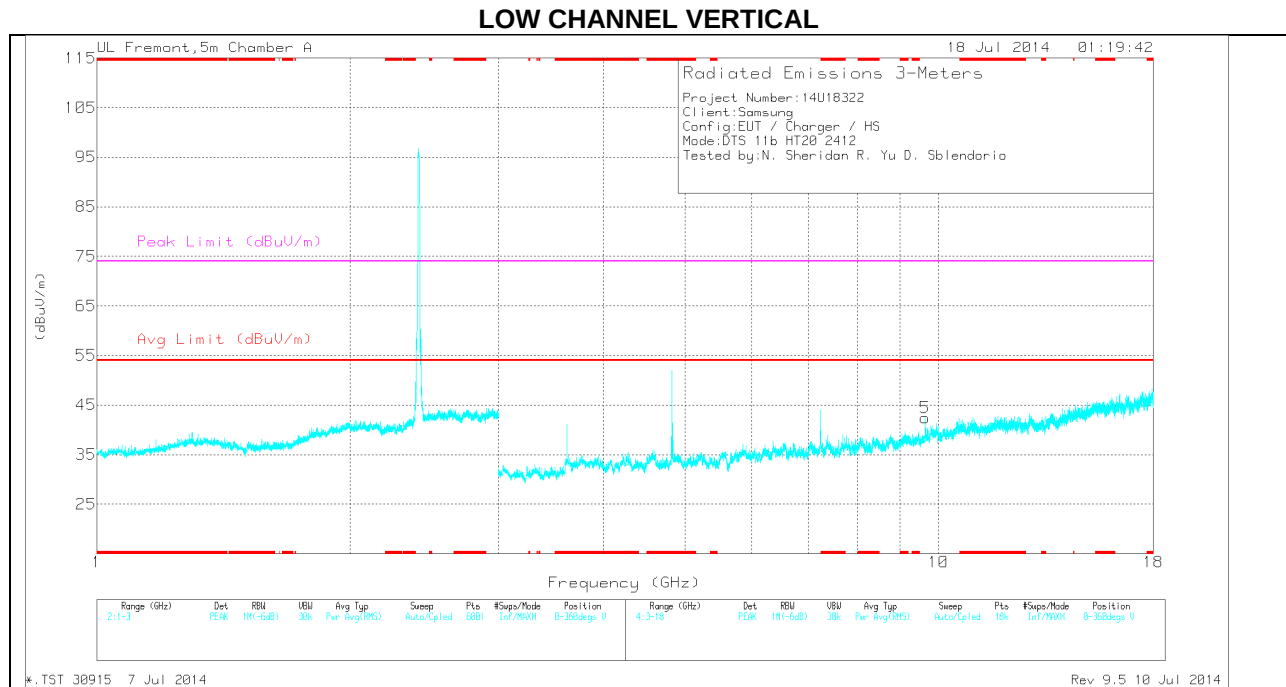
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Fitr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	39.06	PK	32.7	-23.5	48.26	-	-	74	-25.74	176	181	V
3	* 2.484	29.26	RMS	32.7	-23.5	38.46	54	-15.54	-	-	176	181	V
4	* 2.484	29.91	RMS	32.7	-23.5	39.11	54	-14.89	-	-	176	181	V
2	2.538	41.12	PK	32.9	-23.5	50.52	-	-	74	-23.48	176	181	V

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.



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

LOW CHANNEL DATA

TRACE MARKERS

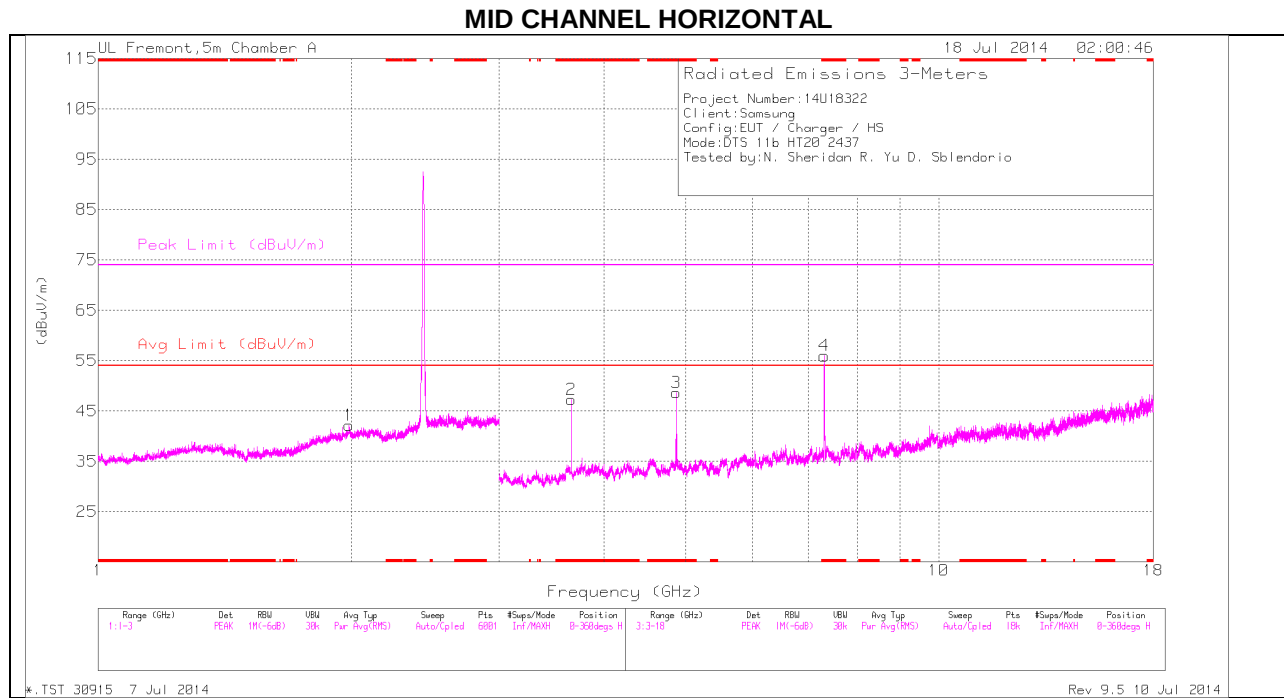
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.685	35.81	PK	29.1	-25.6	39.31	-	-	74	-34.69	0-360	100	H
2	* 3.618	44.46	PK	33.2	-30.6	47.06	-	-	74	-26.94	0-360	201	H
3	* 4.824	47.62	PK	34	-29.4	52.22	-	-	74	-21.78	0-360	100	H
4	7.236	37.51	PK	35.2	-26.2	46.51	-	-	-	-	0-360	100	H
5	9.648	29.8	PK	36.8	-24.2	42.4	-	-	-	-	0-360	201	V
6	13.602	26.95	PK	38.8	-21.5	44.25	-	-	-	-	0-360	201	H

PK - Peak detector

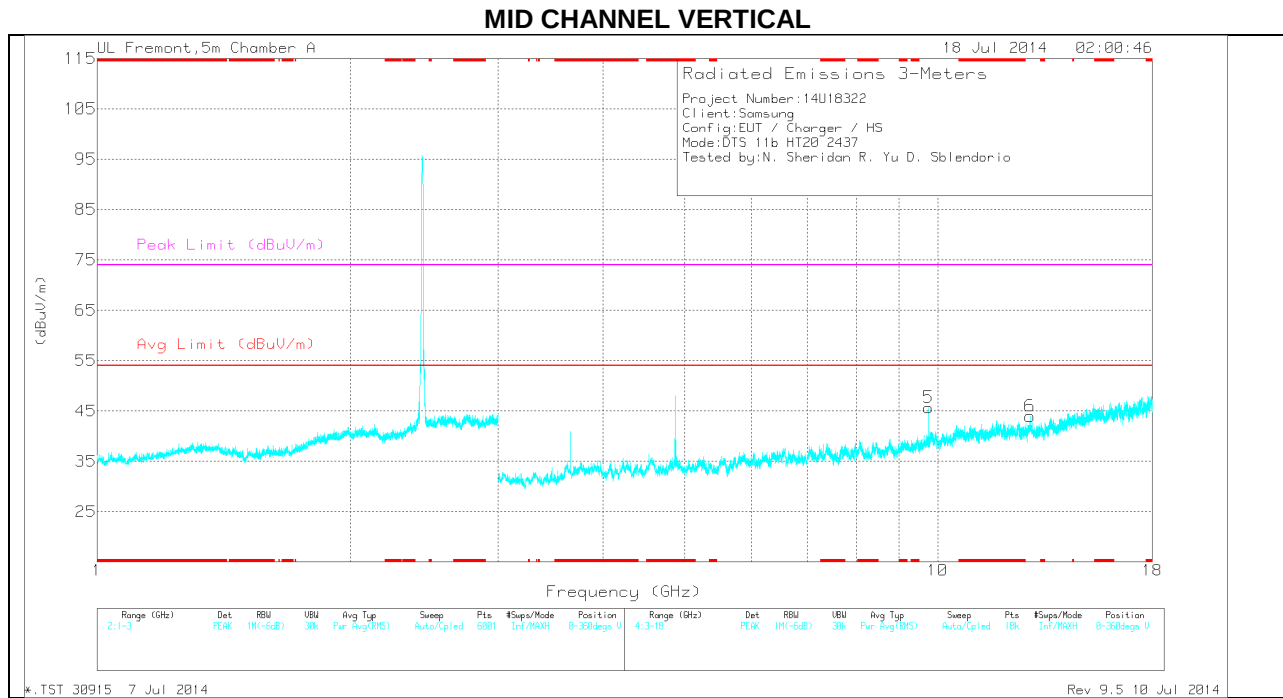
RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.618	44.64	PK2	33.2	-30.6	47.24	-	-	74	-26.76	217	351	H
* 3.618	40.26	MAV1	33.2	-30.6	42.86	54	-11.14	-	-	217	351	H
* 4.824	51.34	PK2	34	-29.4	55.94	-	-	74	-18.06	356	141	H
* 4.824	43.68	MAV1	34	-29.4	48.28	54	-5.72	-	-	356	141	H
7.235	35.31	MAV1	35.2	-26.2	44.31	-	-	-	-	2	101	H
7.236	46.09	PK2	35.2	-26.1	55.19	-	-	-	-	2	101	H

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



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 T136 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 3.656	44.87	PK	33.3	-30.9	47.27	-	-	74	-26.73	0-360	100	H
3	* 4.874	42.93	PK	34	-28.3	48.63	-	-	74	-25.37	0-360	100	H
4	* 7.31	47.97	PK	35.2	-27.2	55.97	-	-	74	-18.03	0-360	201	H
1	1.989	34.52	PK	32	-24.4	42.12	-	-	-	-	0-360	201	H
5	9.748	33.29	PK	36.9	-24.5	45.69	-	-	-	-	0-360	201	V
6	12.876	26.37	PK	39	-21.4	43.97	-	-	-	-	0-360	100	V

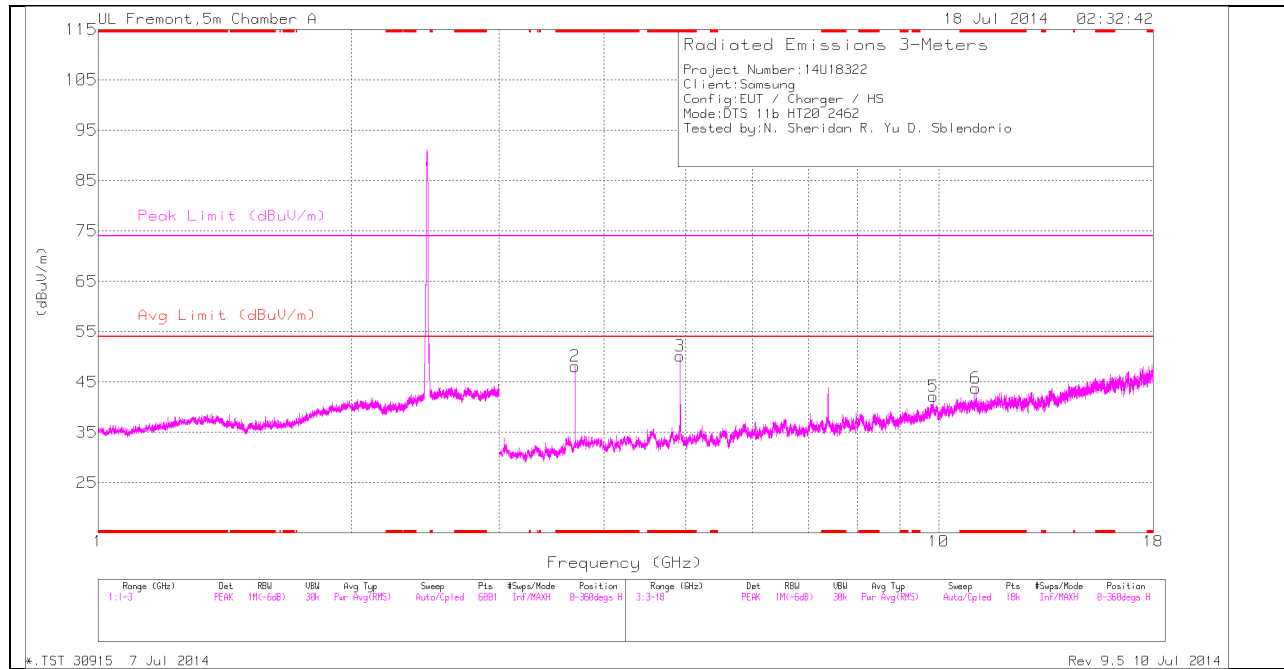
PK - Peak detector

RADIATED EMISSIONS

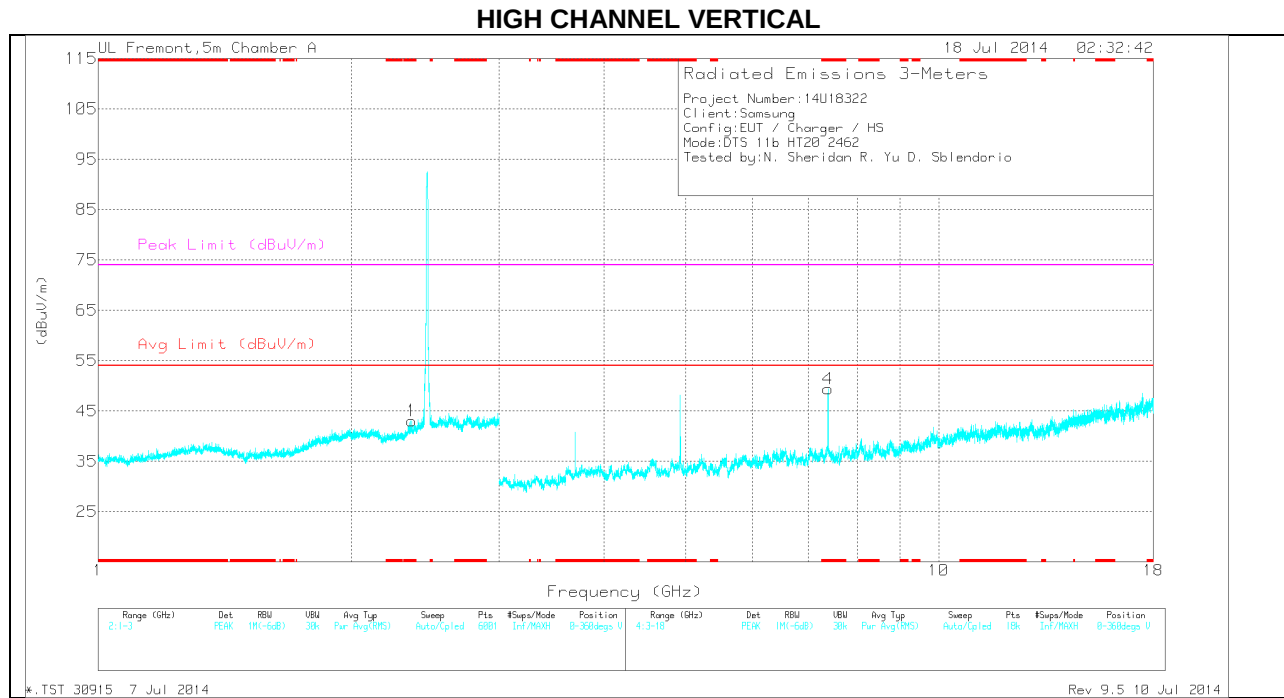
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.655	46.48	PK2	33.3	-30.9	48.88	-	-	74	-25.12	221	222	H
* 3.656	44.15	MAv1	33.3	-30.9	46.55	54	-7.45	-	-	221	222	H
* 4.874	42.83	PK2	34	-28.3	48.53	-	-	74	-25.47	360	281	H
* 4.874	35.36	MAv1	34	-28.3	41.06	54	-12.94	-	-	360	281	H
* 7.31	36.71	PK2	35.2	-27.2	44.71	-	-	74	-29.29	128	346	H
* 7.31	27.11	MAv1	35.2	-27.2	35.11	54	-18.89	-	-	128	346	H
9.748	38.12	PK2	36.9	-24.5	50.52	-	-	-	-	252	128	V
9.748	25.96	MAv1	36.9	-24.5	38.36	-	-	-	-	252	128	V

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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.



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

HIGH CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.361	34.85	PK	32	-23.8	43.05	-	-	74	-30.95	0-360	100	V
2	* 3.693	45.71	PK	33.4	-31	48.11	-	-	74	-25.89	0-360	100	H
3	* 4.924	45.25	PK	33.9	-29	50.15	-	-	74	-23.85	0-360	100	H
6	* 11.068	27.77	PK	37.7	-21.7	43.77	-	-	74	-30.23	0-360	201	H
4	* 7.386	38.4	PK	35.3	-24.3	49.4	-	-	74	-24.6	0-360	100	V
5	9.848	27.45	PK	37	-22.3	42.15	-	-	-	-	0-360	201	H

PK - Peak detector

RADIATED EMISSIONS

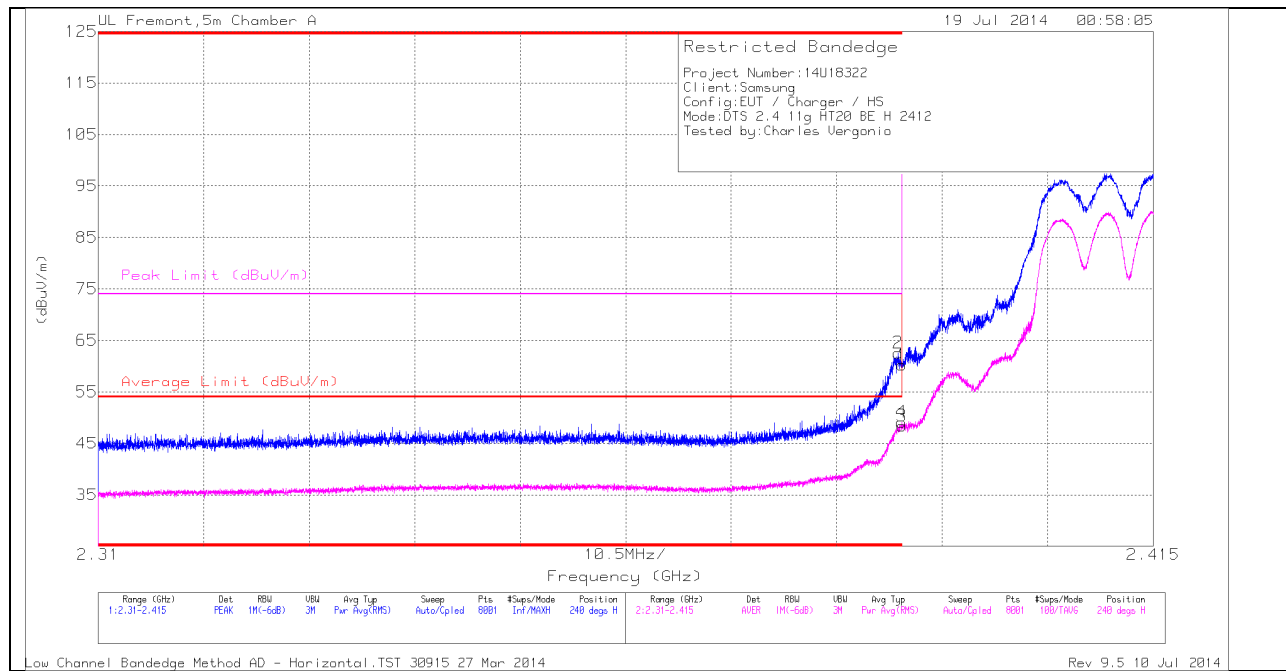
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.693	47.56	PK2	33.4	-31	49.96	-	-	74	-24.04	219	102	H
* 3.693	45.46	MAv1	33.4	-31	47.86	54	-6.14	-	-	219	102	H
* 4.924	46.35	PK2	33.9	-29	51.25	-	-	74	-22.75	201	352	H
* 4.924	43.47	MAv1	33.9	-29	48.37	54	-5.63	-	-	201	352	H
* 7.387	40.1	PK2	35.3	-24.3	51.1	-	-	74	-22.9	206	235	V
* 7.387	29.29	MAv1	35.3	-24.4	40.19	54	-13.81	-	-	206	235	V

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10.2.2. TX ABOVE 1 GHz 802.11g MODE IN THE 2.4 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

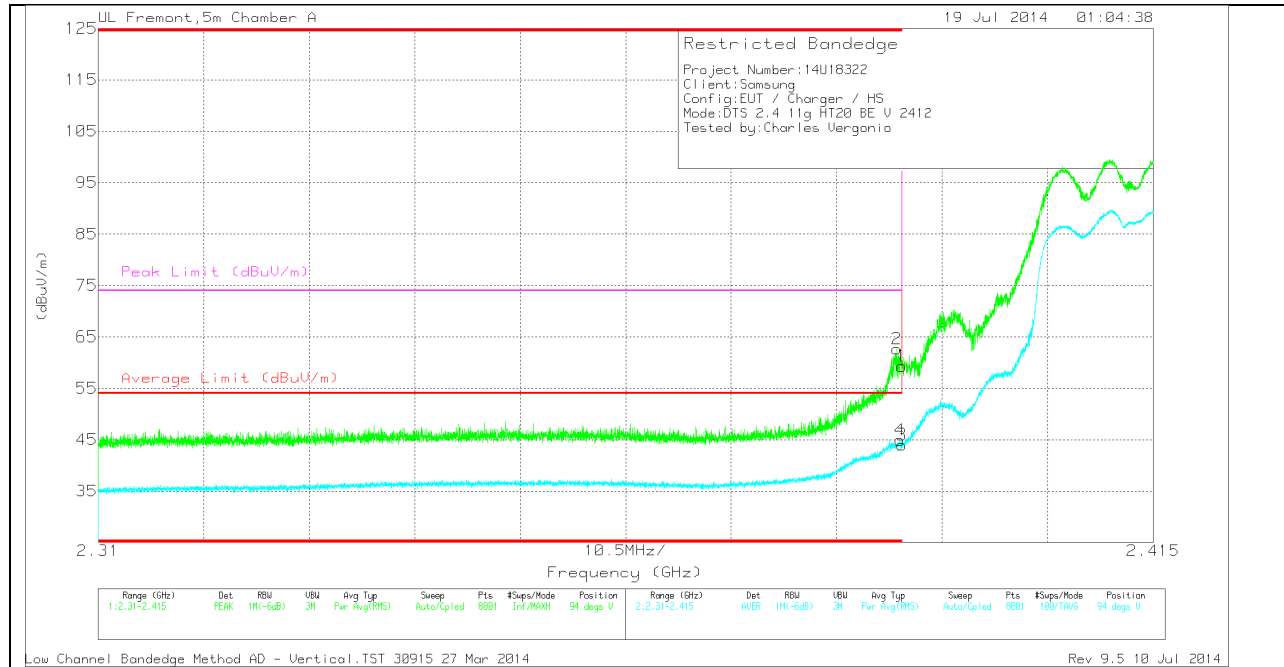
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AFT136 (dB/m)	Amp/Cbl/Fit 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	52.39	PK	32.2	-24.4	0	60.19	-	-	74	-13.81	240	202	H
2	* 2.39	54.78	PK	32.2	-24.4	0	62.58	-	-	74	-11.42	240	202	H
3	* 2.39	40.3	RMS	32.2	-24.4	.3	48.4	54	-5.6	-	-	240	202	H
4	* 2.39	41.04	RMS	32.2	-24.4	.3	49.14	54	-4.86	-	-	240	202	H

VERTICAL PEAK AND AVERAGE PLOT

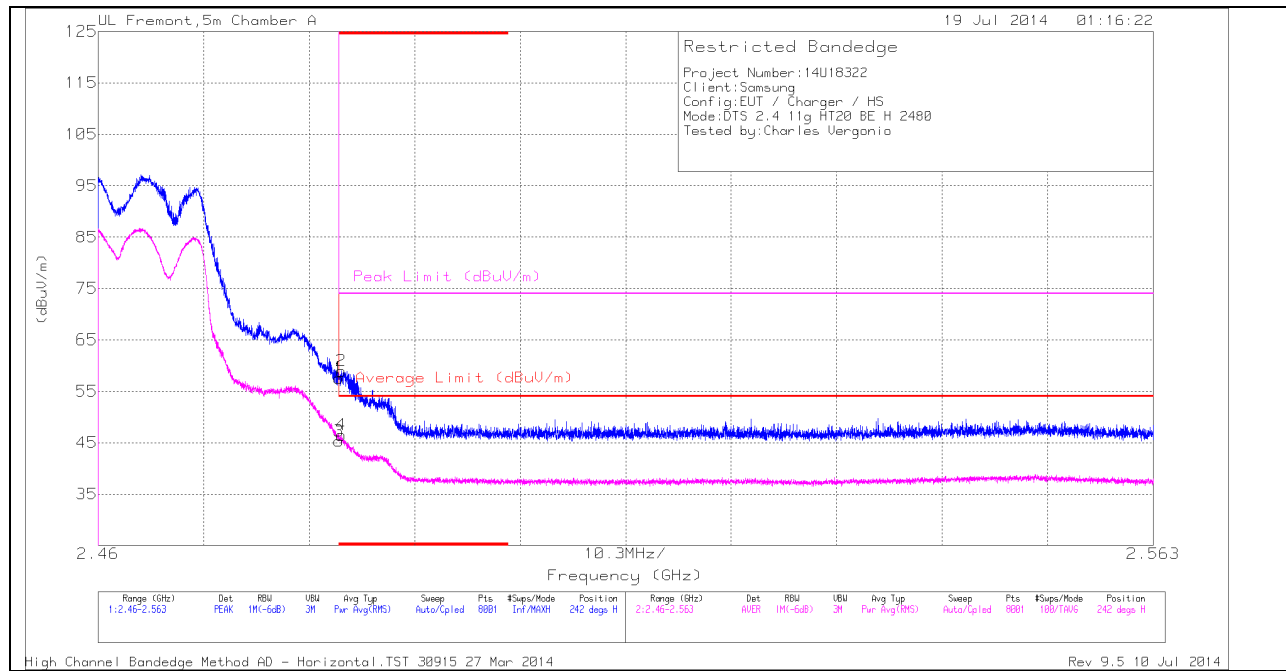


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Fit 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	* 2.389	54.85	PK	32.2	-24.4	0	62.65	-	-	74	-11.35	94	192	V
1	* 2.39	51.52	PK	32.2	-24.4	0	59.32	-	-	74	-14.68	94	192	V
3	* 2.39	35.9	RMS	32.2	-24.4	.3	44	54	-10	-	-	94	192	V
4	* 2.39	36.81	RMS	32.2	-24.4	.3	44.91	54	-9.09	-	-	94	192	V

AUTHORIZED BANDEDGE (HIGH CHANNEL)

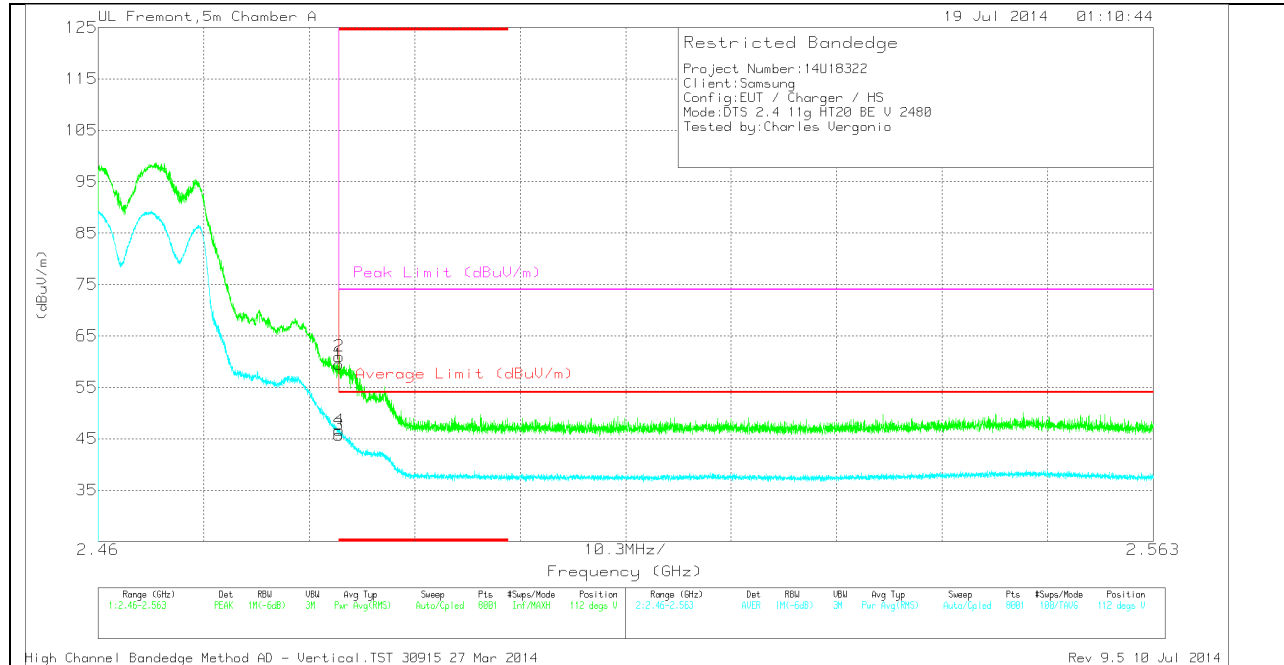
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Fit 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	48.36	PK	32.7	-23.5	0	57.56	-	-	74	-16.44	242	356	H
2	* 2.484	49.76	PK	32.7	-23.5	0	58.96	-	-	74	-15.04	242	356	H
3	* 2.484	35.8	RMS	32.7	-23.5	.3	45.3	54	-8.7	-	-	242	356	H
4	* 2.484	36.99	RMS	32.7	-23.5	.3	46.49	54	-7.51	-	-	242	356	H

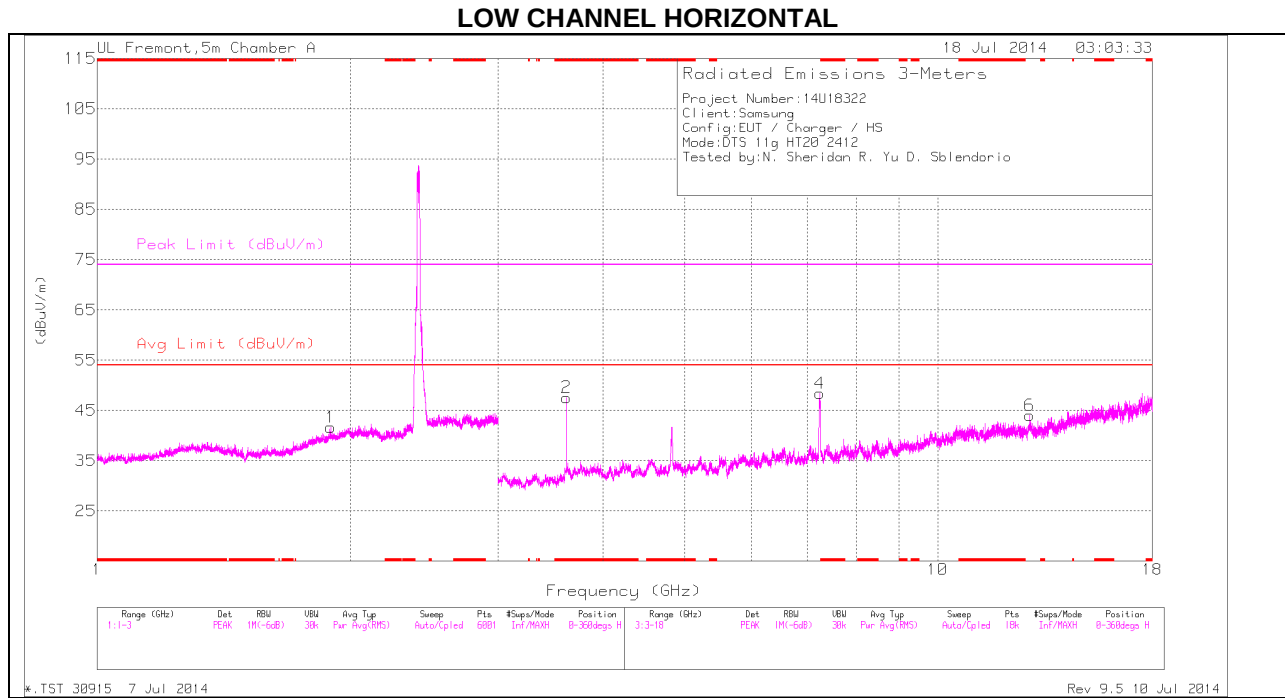
VERTICAL PEAK AND AVERAGE PLOT



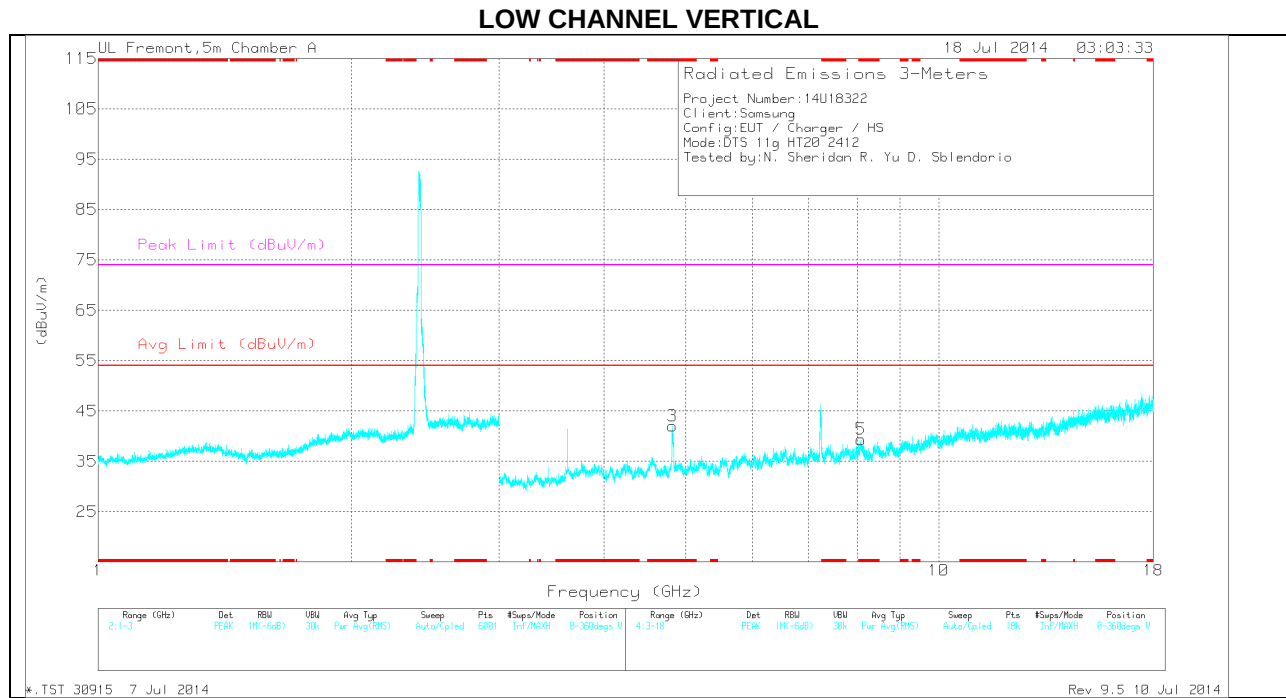
VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Filt 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	50.28	PK	32.7	-23.5	0	59.48	-	-	74	-14.52	112	183	V
2	* 2.484	51.81	PK	32.7	-23.5	0	61.01	-	-	74	-12.99	112	183	V
3	* 2.484	36.26	RMS	32.7	-23.5	.3	45.76	54	-8.24	-	-	112	183	V
4	* 2.484	37.15	RMS	32.7	-23.5	.3	46.65	54	-7.35	-	-	112	183	V

HARMONICS AND SPURIOUS EMISSIONS



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

TRACE MARKERS

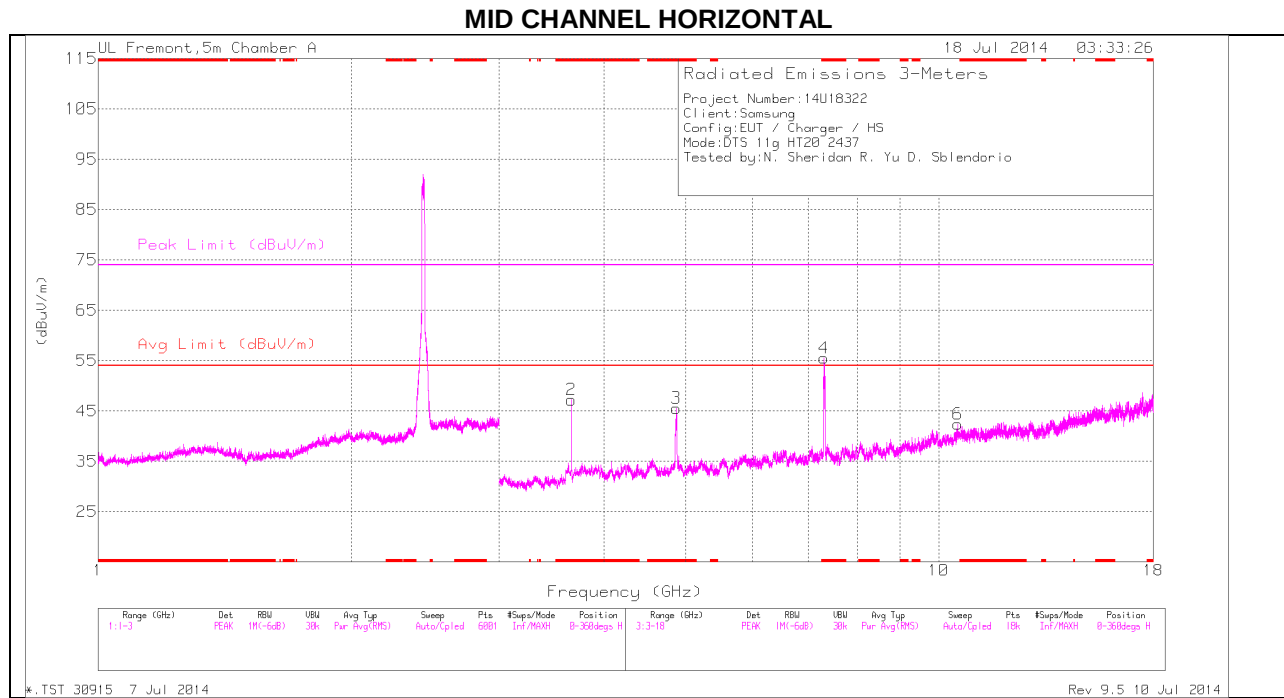
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cb/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 3.618	44.97	PK	33.2	-30.6	0	47.57	-	-	74	-26.43	0-360	201	H
3	* 4.822	37.51	PK	34	-29.5	0	42.01	-	-	74	-31.99	0-360	100	V
5	* 8.086	27.75	PK	35.5	-23.9	0	39.35	-	-	74	-34.65	0-360	201	V
1	1.896	35.05	PK	31.6	-25	0	41.65	-	-	-	-	0-360	100	H
4	7.243	39.3	PK	35.2	-26.1	0	48.4	-	-	-	-	0-360	100	H
6	12.869	26.43	PK	39	-21.4	0	44.03	-	-	-	-	0-360	100	H

PK - Peak detector

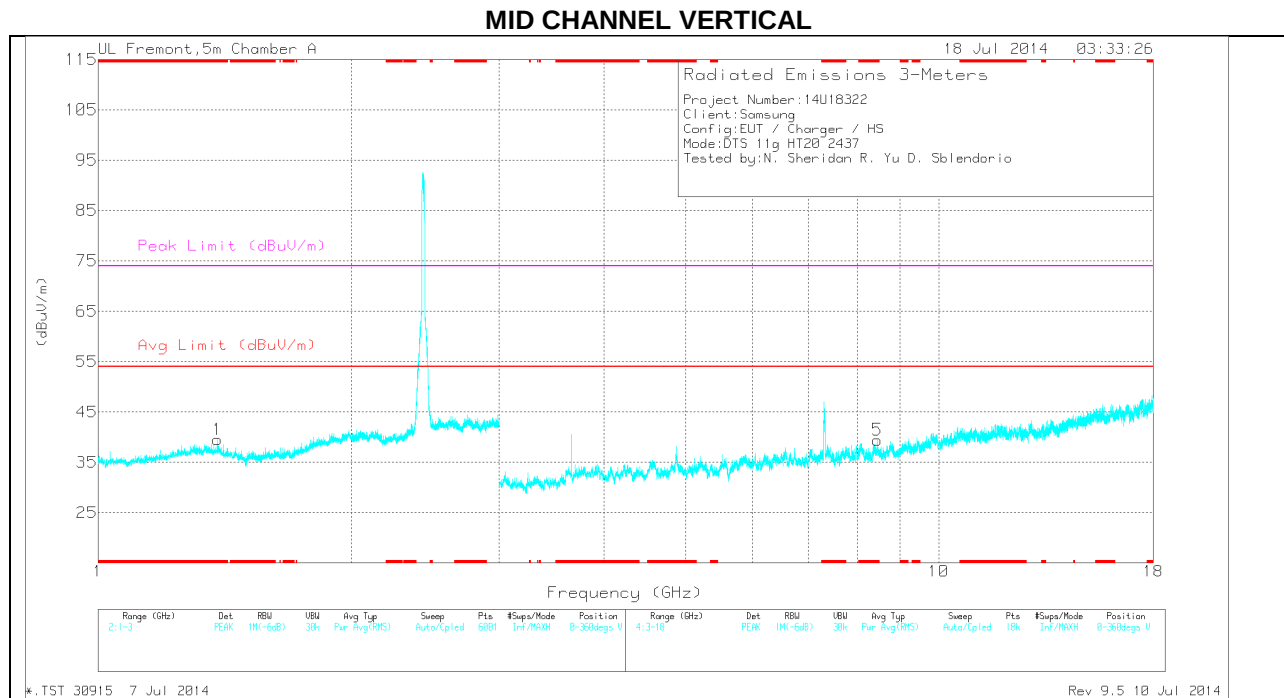
RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cb/Ftr /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	44.84	PK2	33.2	-30.6	0	47.44	-	-	74	-26.56	217	355	H
* 3.618	41.21	MAV1	33.2	-30.6	.3	44.11	54	-9.89	-	-	217	355	H
* 4.823	44.09	PK2	34	-29.5	0	48.59	-	-	74	-25.41	254	168	V
* 4.823	35.66	MAV1	34	-29.5	.3	40.46	54	-13.54	-	-	254	168	V
7.241	29.87	MAV1	35.2	-26.1	.3	39.27	-	-	-	-	299	168	H
7.242	60.61	PK2	35.2	-26.1	0	69.71	-	-	-	-	299	168	H

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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

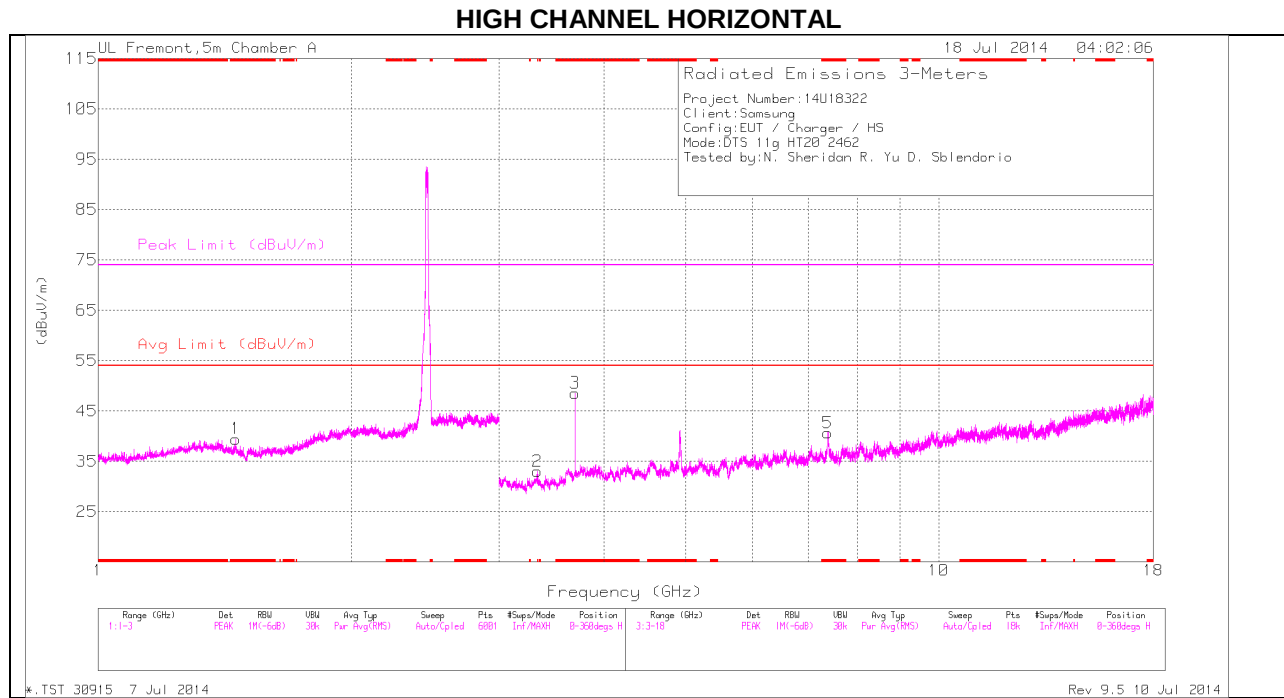
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cb/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.388	36.01	PK	29.9	-26.4	0	39.51	-	-	74	-34.49	0-360	201	V
2	* 3.656	44.83	PK	33.3	-30.9	0	47.23	-	-	74	-26.77	0-360	201	H
3	* 4.876	39.76	PK	34	-28.2	0	45.56	-	-	74	-28.44	0-360	100	H
4	* 7.306	47.42	PK	35.2	-27.1	0	55.52	-	-	74	-18.48	0-360	100	H
5	* 8.455	28.04	PK	35.7	-24.3	0	39.44	-	-	74	-34.56	0-360	201	V
6	10.536	26.2	PK	37.6	-21.4	0	42.4	-	-	-	-	0-360	201	H

PK - Peak detector

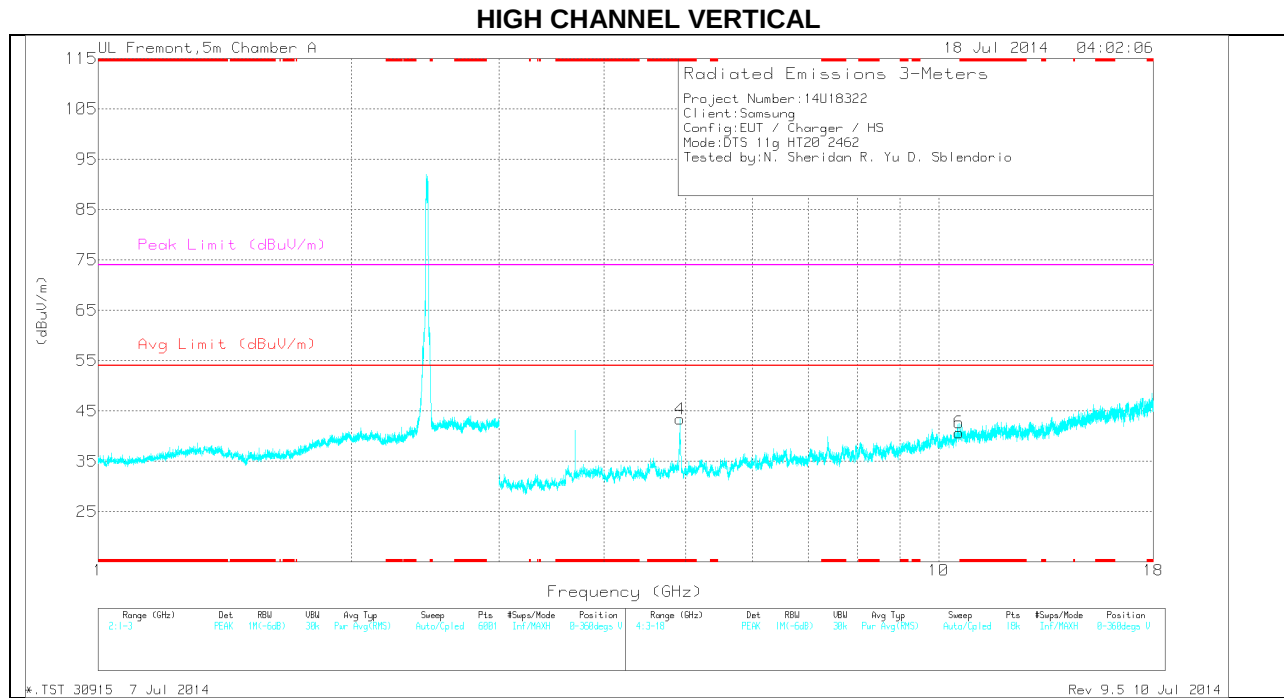
RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cb/Ftr /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
* 3.655	45.81	PK2	33.3	-30.9	0	48.21	-	-	74	-25.79	179	200	H
* 3.656	41.73	MAV1	33.3	-30.9	.3	44.43	54	-9.57	-	-	179	200	H
* 4.877	40.81	PK2	34	-28.2	0	46.61	-	-	74	-27.39	322	393	H
* 4.878	28.69	MAV1	34	-28.1	.3	34.89	54	-19.11	-	-	322	393	H
* 7.307	36.6	PK2	35.2	-27.1	0	44.7	-	-	74	-29.3	5	174	H
* 7.306	26.08	MAV1	35.2	-27.1	.3	34.48	54	-19.52	-	-	5	174	H

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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

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cb/Ftr /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	* 1.457	36.27	PK	29.2	-26	0	39.47	-	-	74	-34.53	0-360	100	H
3	* 3.693	46.17	PK	33.4	-31	0	48.57	-	-	74	-25.43	0-360	100	H
5	* 7.375	29.82	PK	35.3	-24.5	0	40.62	-	-	74	-33.38	0-360	100	H
4	* 4.925	38.51	PK	33.9	-29	0	43.41	-	-	74	-30.59	0-360	100	V
2	3.331	30.81	PK	33	-30.8	0	33.01	-	-	-	-	0-360	201	H
6	10.579	24.9	PK	37.6	-21.8	0	40.7	-	-	-	-	0-360	100	V

PK - Peak detector

RADIATED EMISSIONS

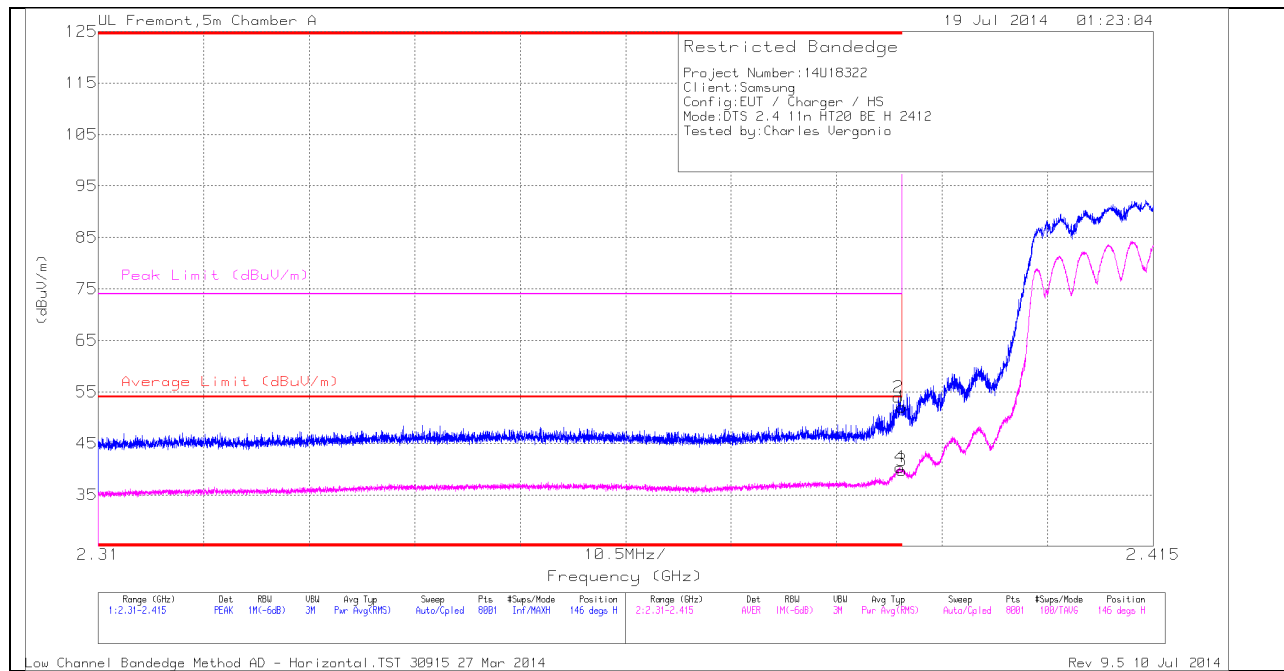
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cb/ Ftr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.458	41.87	PK2	29.2	-26	0	45.07	-	-	74	-28.93	1	100	H
* 1.459	30.83	MAV1	29.2	-26	.3	34.33	54	-19.67	-	-	1	100	H
* 3.693	49.1	PK2	33.4	-31	0	51.5	-	-	74	-22.5	221	104	H
* 3.693	45.79	MAV1	33.4	-31	.3	48.49	54	-5.51	-	-	221	104	H
* 7.373	42.8	PK2	35.3	-24.7	0	53.4	-	-	74	-20.6	3	123	H
* 7.377	28.77	MAV1	35.3	-24.4	.3	39.97	54	-14.03	-	-	3	123	H
* 4.924	38.18	PK2	33.9	-29	0	43.08	-	-	74	-30.92	3	100	V
* 4.926	27.21	MAV1	33.9	-29	.3	32.41	54	-21.59	-	-	3	100	V
1.992	41.35	PK2	32	-24.6	0	48.75	-	-	-	-	1	100	H
2.029	29.98	MAV1	32	-24.9	.3	37.38	-	-	-	-	1	100	H
3.33	26.32	MAV1	33	-30.8	.3	28.82	-	-	-	-	91	400	H
3.331	38.56	PK2	33	-30.8	0	40.76	-	-	-	-	91	400	H

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10.2.3. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 2.4 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

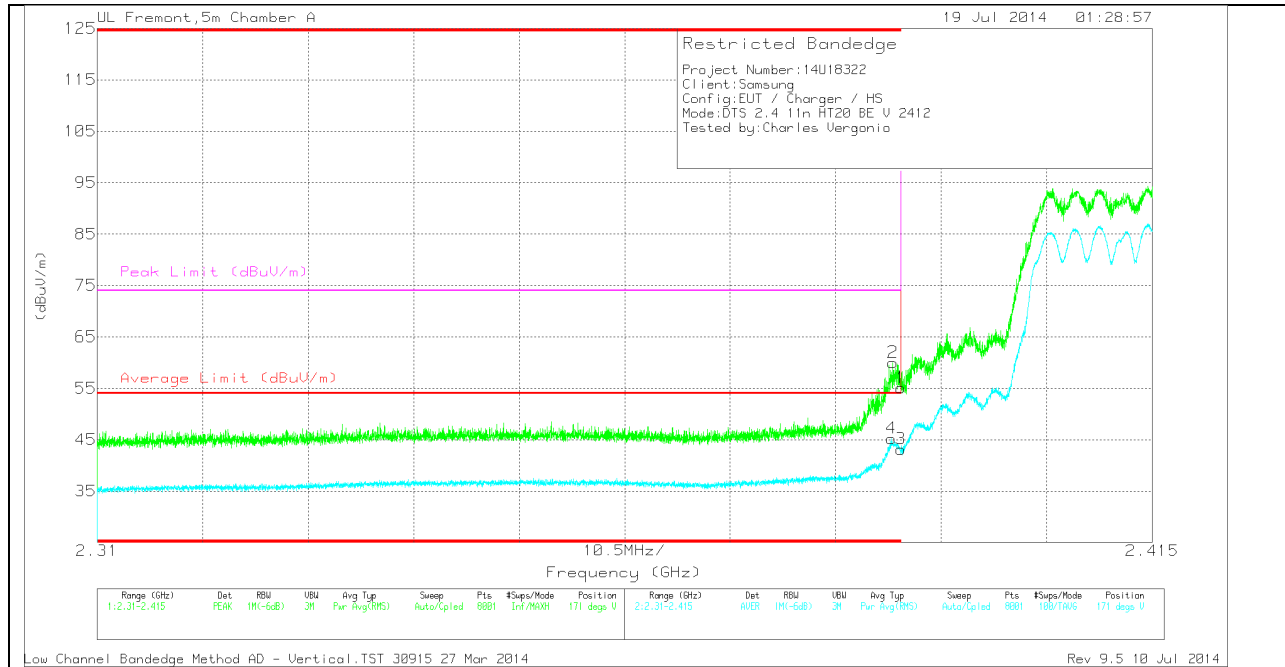
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

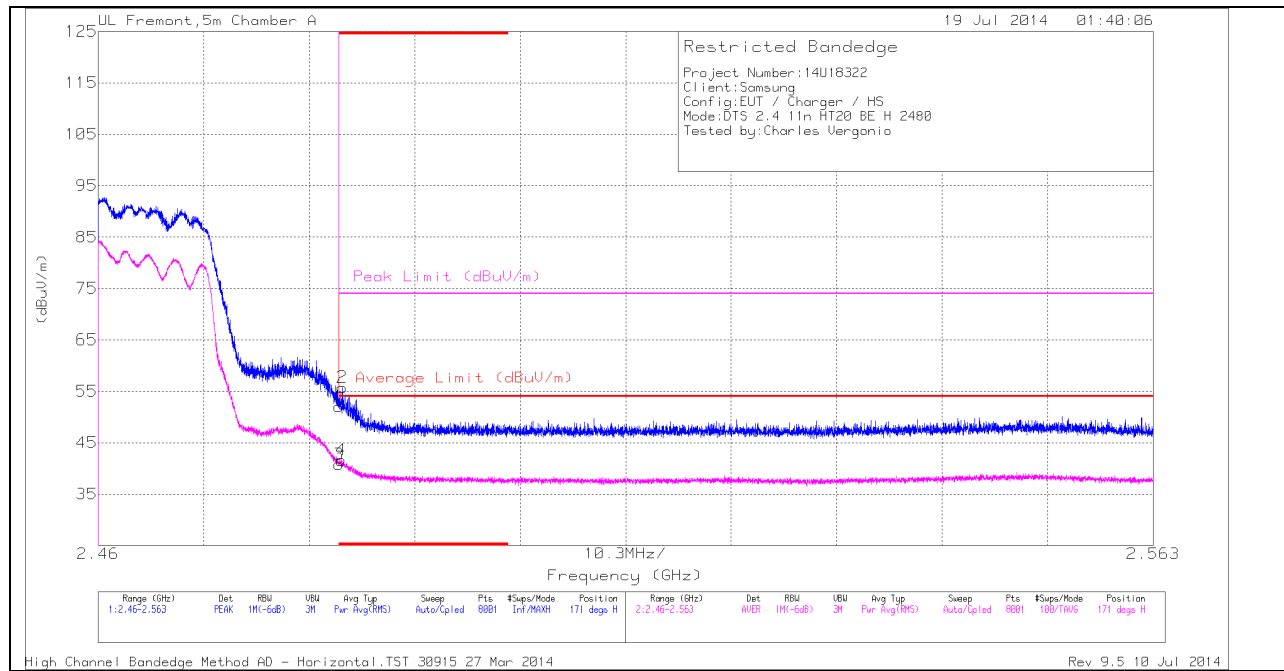
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AFT136 (dB/m)	Amp/Cbl/Fitter/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	44.25	PK	32.2	-24.4	0	52.05	-	-	74	-21.95	146	358	H
2	* 2.39	46.2	PK	32.2	-24.4	0	54	-	-	74	-20	146	358	H
3	* 2.39	31.61	RMS	32.2	-24.4	.32	39.73	54	-14.27	-	-	146	358	H
4	* 2.39	32.25	RMS	32.2	-24.4	.32	40.37	54	-13.63	-	-	146	358	H

VERTICAL PEAK AND AVERAGE PLOT



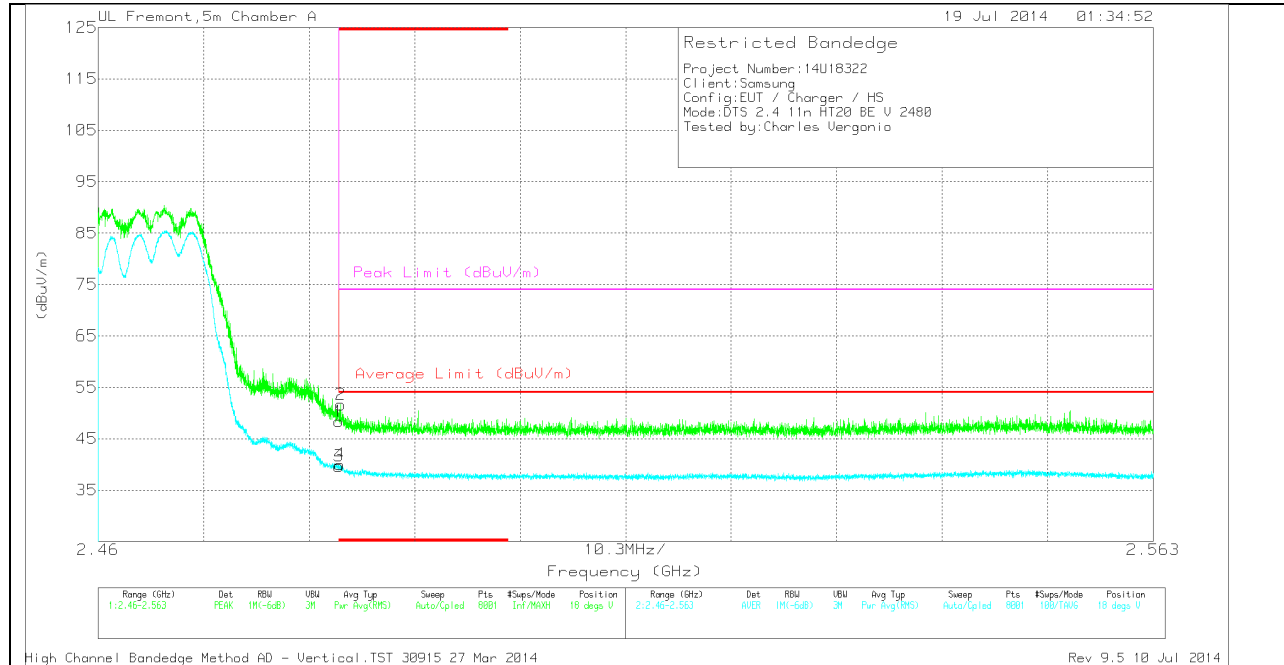
VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Fit 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	* 2.389	52.1	PK	32.2	-24.3	0	60	-	-	74	-14	171	293	V
4	* 2.389	37.03	RMS	32.2	-24.3	.32	45.25	54	-8.75	-	-	171	293	V
1	* 2.39	47.31	PK	32.2	-24.4	0	55.11	-	-	74	-18.89	171	293	V
3	* 2.39	35.06	RMS	32.2	-24.4	.32	43.18	54	-10.82	-	-	171	293	V

AUTHORIZED BANDEDGE (HIGH CHANNEL)**HORIZONTAL PEAK AND AVERAGE PLOT****HORIZONTAL DATA**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Fit 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	42.83	PK	32.7	-23.5	0	52.03	-	-	74	-21.97	171	162	H
2	* 2.484	46.55	PK	32.7	-23.5	0	55.75	-	-	74	-18.25	171	162	H
3	* 2.484	31.28	RMS	32.7	-23.5	.32	40.8	54	-13.2	-	-	171	162	H
4	* 2.484	32.09	RMS	32.7	-23.5	.32	41.61	54	-12.39	-	-	171	162	H

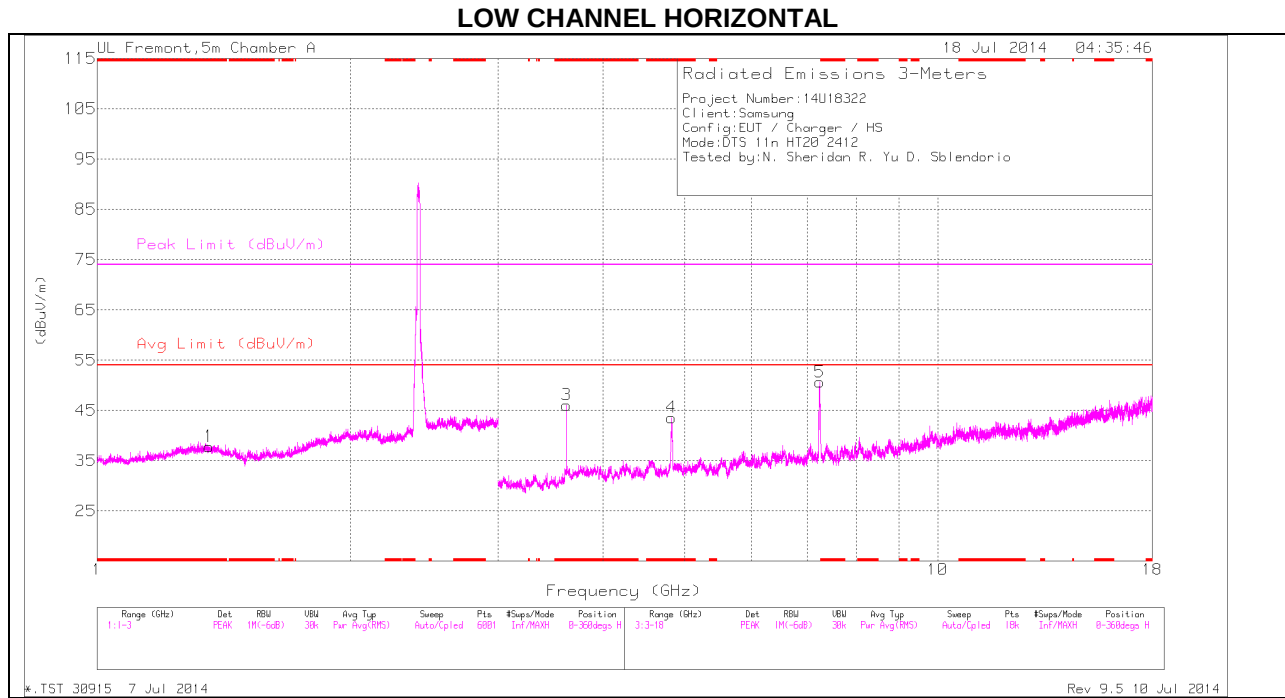
VERTICAL PEAK AND AVERAGE PLOT



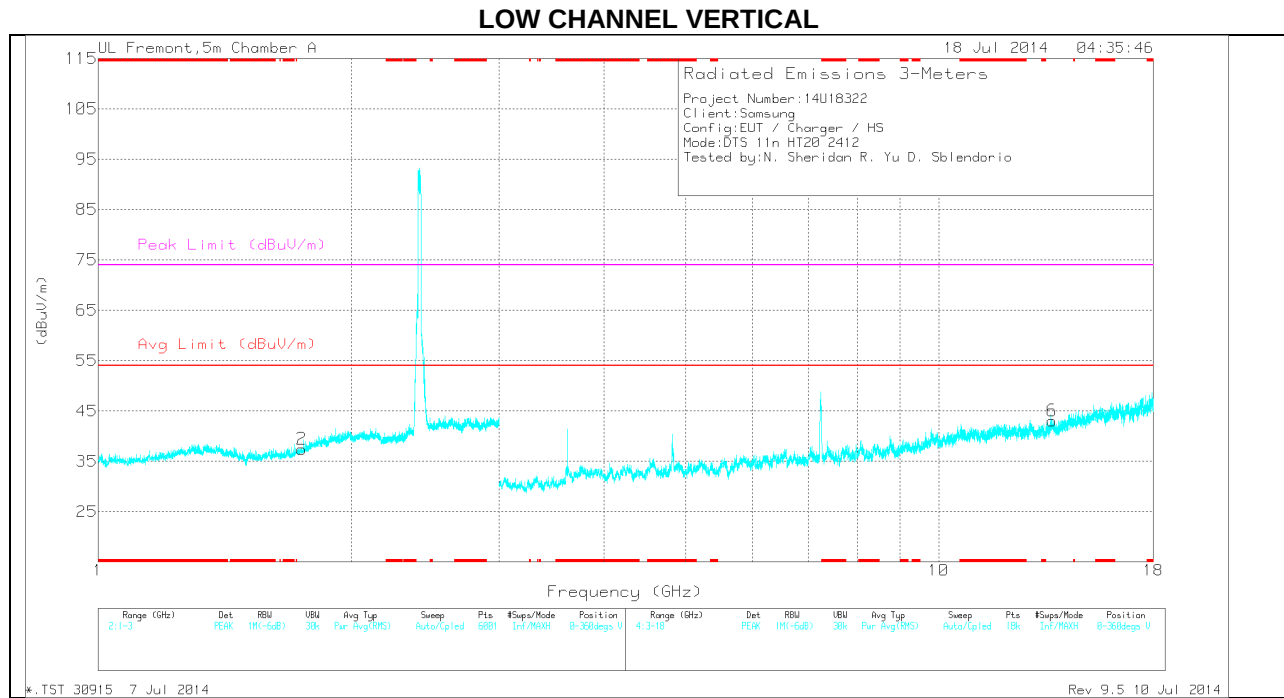
VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Fitter/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	39.18	PK	32.7	-23.5	0	48.38	-	-	74	-25.62	18	179	V
2	* 2.484	42.42	PK	32.7	-23.5	0	51.62	-	-	74	-22.38	18	179	V
3	* 2.484	30.13	RMS	32.7	-23.5	.32	39.65	54	-14.35	-	-	18	179	V
4	* 2.484	30.45	RMS	32.7	-23.5	.32	39.97	54	-14.03	-	-	18	179	V

HARMONICS AND SPURIOUS EMISSIONS



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

TRACE MARKERS

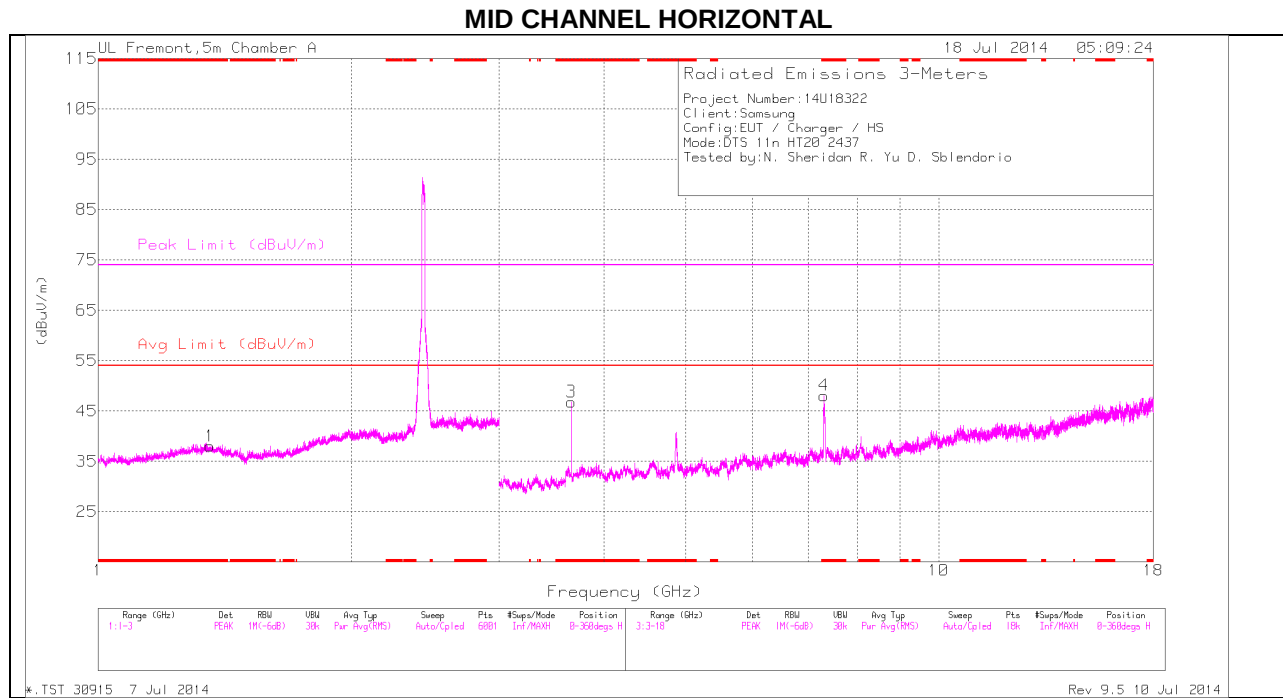
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cb/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.359	34.42	PK	30	-26.6	0	37.82	-	-	74	-36.18	0-360	100	H
3	* 3.618	43.48	PK	33.2	-30.6	0	46.08	-	-	74	-27.92	0-360	201	H
4	* 4.824	38.99	PK	34	-29.4	0	43.59	-	-	74	-30.41	0-360	100	H
2	1.746	33.26	PK	29.8	-25.6	0	37.46	-	-	-	-	0-360	100	V
5	7.243	41.53	PK	35.2	-26.1	0	50.63	-	-	-	-	0-360	201	H
6	13.649	26.76	PK	38.8	-22.5	0	43.06	-	-	-	-	0-360	100	V

PK - Peak detector

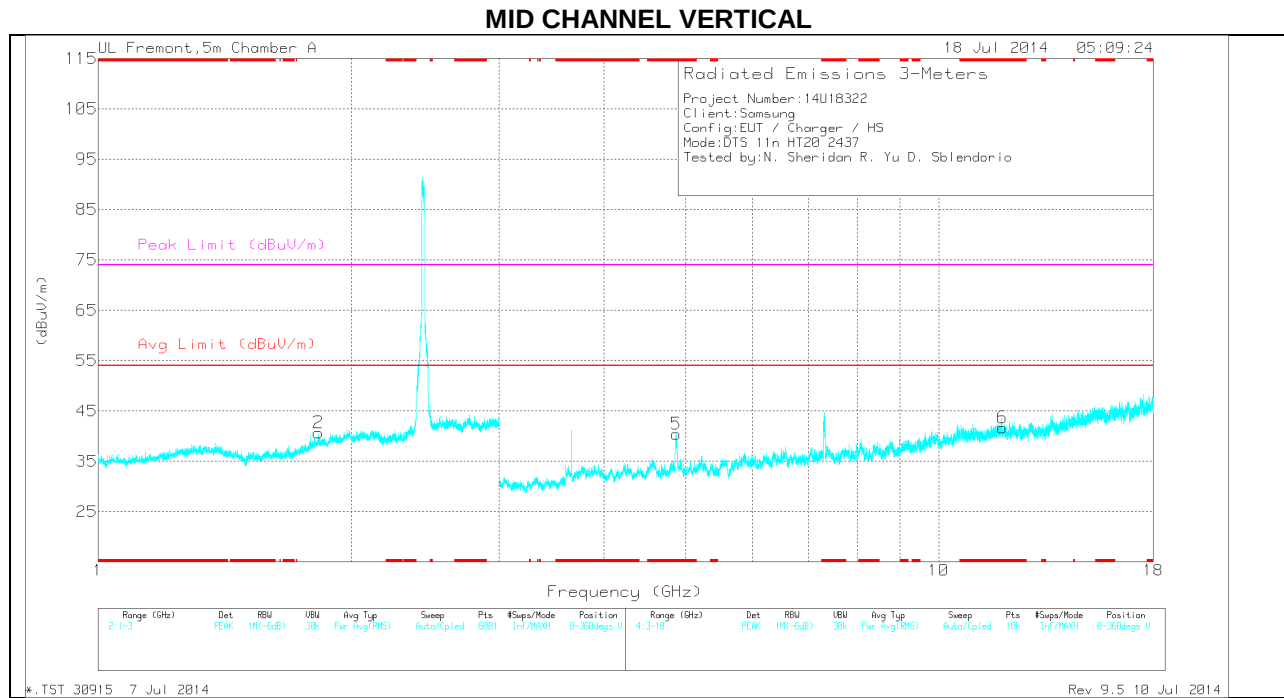
RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cb/Ftr /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	45.91	PK2	33.2	-30.6	0	48.51	-	-	74	-25.49	222	229	H
* 3.618	41.77	MAV1	33.2	-30.6	.32	44.69	54	-9.31	-	-	222	229	H
* 4.823	48.88	PK2	34	-29.5	0	53.38	-	-	74	-20.62	360	100	H
* 4.823	33.65	MAV1	34	-29.5	.32	38.47	54	-15.53	-	-	360	100	H
7.241	25.41	MAV1	35.2	-26.1	.32	34.83	-	-	-	-	244	317	H
7.245	43.43	PK2	35.2	-26.2	0	52.43	-	-	-	-	244	317	H

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MID CHANNEL DATA

TRACE MARKERS

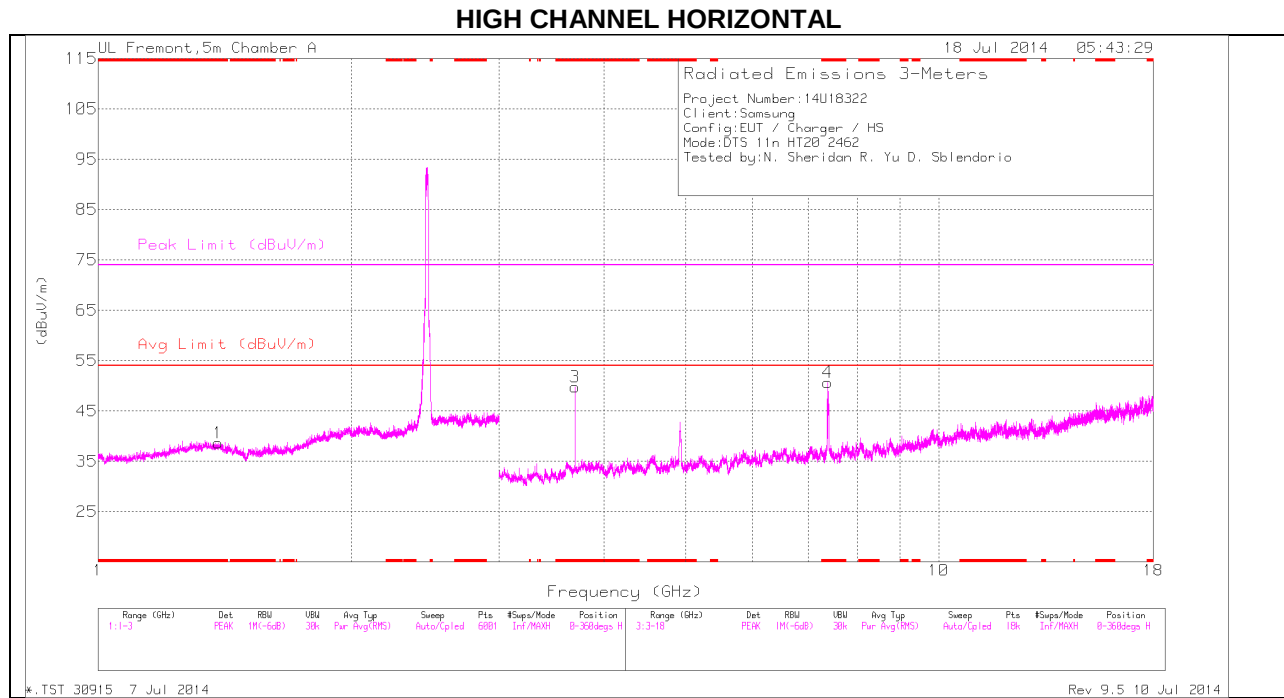
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cb/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.359	34.63	PK	30	-26.6	0	38.03	-	-	74	-35.97	0-360	201	H
3	* 3.656	44.42	PK	33.3	-30.9	0	46.82	-	-	74	-27.18	0-360	100	H
4	* 7.306	39.99	PK	35.2	-27.1	0	48.09	-	-	74	-25.91	0-360	100	H
5	* 4.874	34.74	PK	34	-28.3	0	40.44	-	-	74	-33.56	0-360	201	V
6	* 11.913	25.6	PK	38.8	-22.7	0	41.7	-	-	74	-32.3	0-360	100	V
2	1.829	34.69	PK	30.9	-24.9	0	40.69	-	-	-	-	0-360	201	V

PK - Peak detector

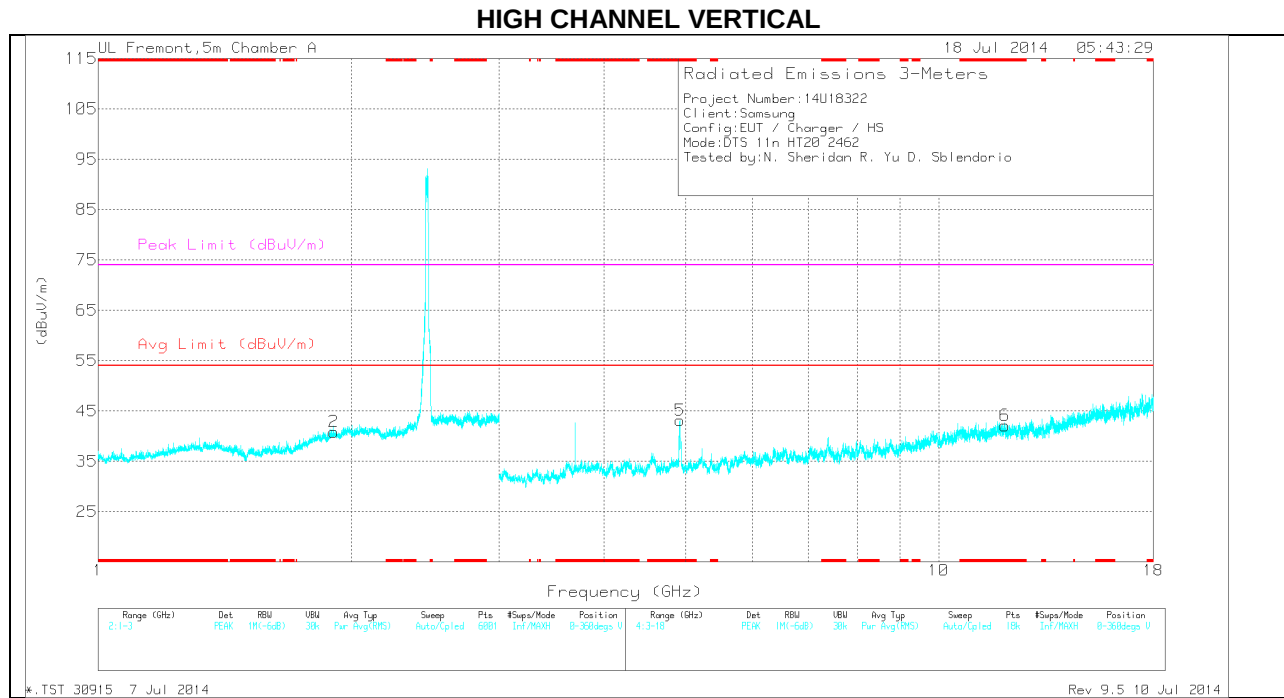
RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cb/Ftr /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
* 7.305	36.25	PK2	35.2	-27.1	0	44.35	-	-	74	-29.65	299	100	H
* 7.307	30.19	MAV1	35.2	-27.1	.32	38.61	54	-15.39	-	-	299	100	H
* 4.875	39.91	PK2	34	-28.2	0	45.71	-	-	74	-28.29	0	129	V
* 4.874	26.78	MAV1	34	-28.3	.32	32.8	54	-21.2	-	-	0	129	V

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



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

HIGH CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cb/Ftr /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	* 1.39	35.17	PK	29.9	-26.4	0	38.67	-	-	74	-35.33	0-360	201	H
3	* 3.693	47.36	PK	33.4	-31	0	49.76	-	-	74	-24.24	0-360	100	H
4	* 7.376	39.87	PK	35.3	-24.5	0	50.67	-	-	74	-23.33	0-360	201	H
5	* 4.922	38.22	PK	33.9	-29	0	43.12	-	-	74	-30.88	0-360	100	V
6	* 11.996	24.81	PK	38.9	-21.6	0	42.11	-	-	74	-31.89	0-360	100	V
2	1.908	34.36	PK	31.7	-25.2	0	40.86	-	-	-	-	0-360	201	V

PK - Peak detector

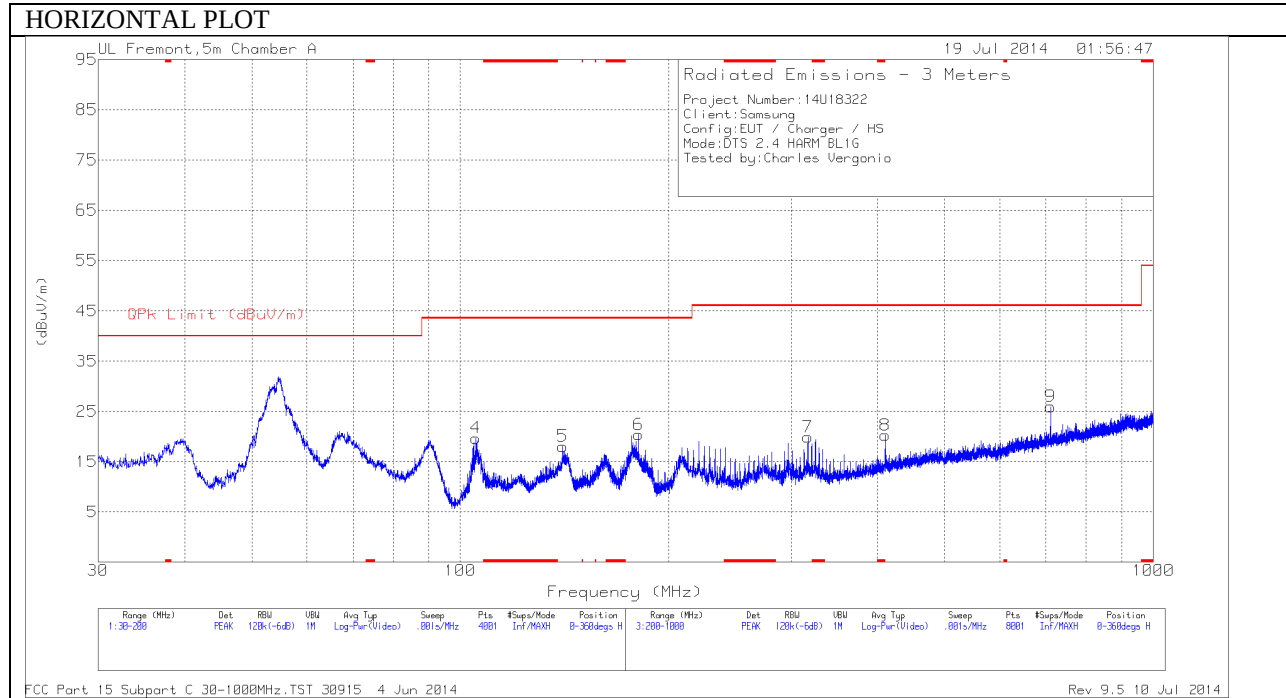
RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cb/Ftr /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	49.88	PK2	33.4	-31	0	52.28	-	-	74	-21.72	231	134	H
* 3.693	46.54	MAV1	33.4	-31	.32	49.26	54	-4.74	-	-	231	134	H
* 7.377	37.65	PK2	35.3	-24.4	0	48.55	-	-	74	-25.45	346	202	H
* 7.377	26.82	MAV1	35.3	-24.4	.32	38.04	54	-15.96	-	-	346	202	H
* 4.92	44.31	PK2	33.9	-29.1	0	49.11	-	-	74	-24.89	219	382	V
* 4.923	33.09	MAV1	33.9	-29	.32	38.31	54	-15.69	-	-	219	382	V

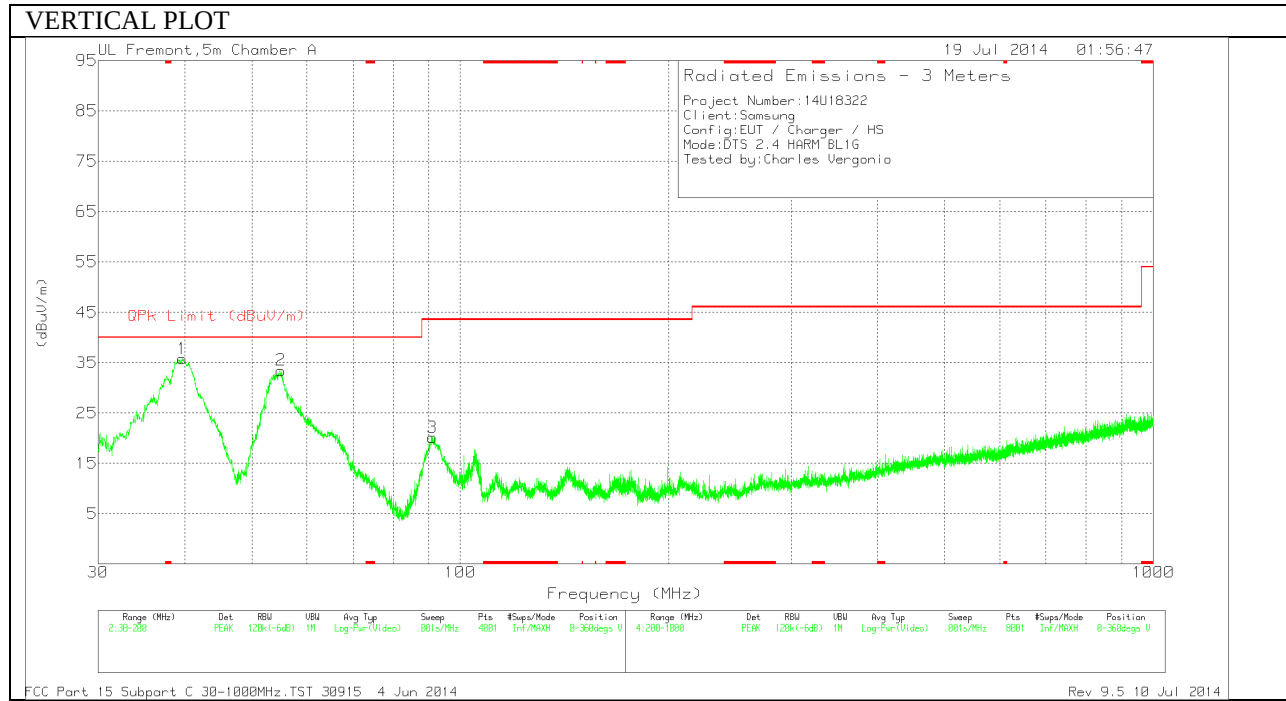
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10.3. WORST-CASE BELOW 1 GHz

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



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



Below 1G Data

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T130 (dB/m)	Amp/Cbl (dB/m)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	39.69	52.26	PK	14.5	-31	35.76	40	-4.24	0-360	101	V
2	55.1175	56.85	PK	7.3	-30.7	33.45	40	-6.55	0-360	101	V
3	91.0725	42.73	PK	7.9	-30.5	20.13	43.52	-23.39	0-360	101	V
4	105.3525	38.51	PK	11.7	-30.5	19.71	43.52	-23.81	0-360	300	H
5	140.5425	35.07	PK	13.2	-30.2	18.07	43.52	-25.45	0-360	200	H
6	180.79	39	PK	11.3	-29.9	20.4	43.52	-23.12	0-360	200	H
7	317.4	35.21	PK	13.9	-29.2	19.91	46.02	-26.11	0-360	101	H
8	410.3	33.09	PK	16	-28.8	20.29	46.02	-25.73	0-360	101	H
9	710.7	33.87	PK	20.3	-28.2	25.97	46.02	-20.05	0-360	400	H

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.

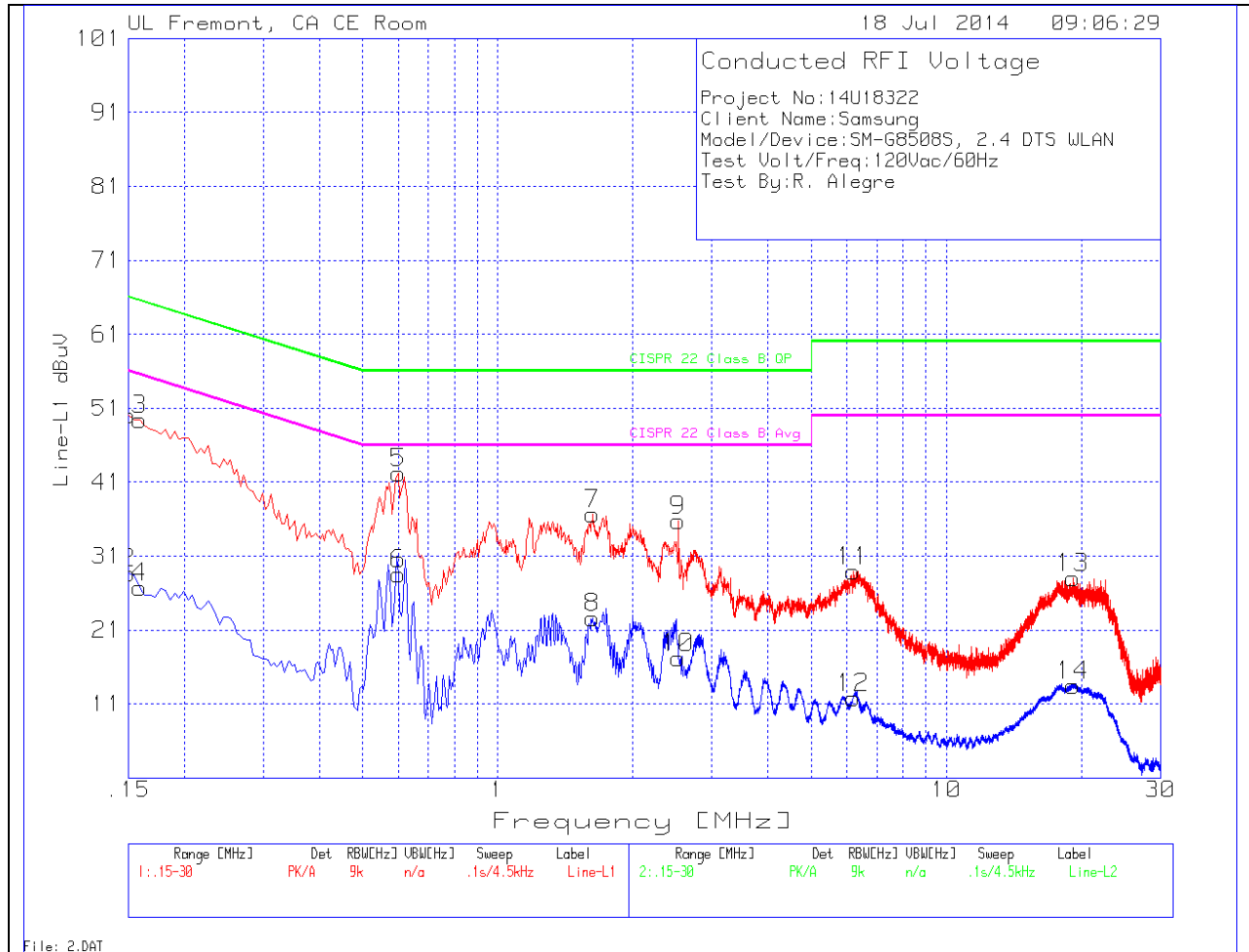
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

Line conducted data is recorded for both NEUTRAL and HOT lines.

RESULTS

6 WORST EMISSIONS

LINE 1 PLOT



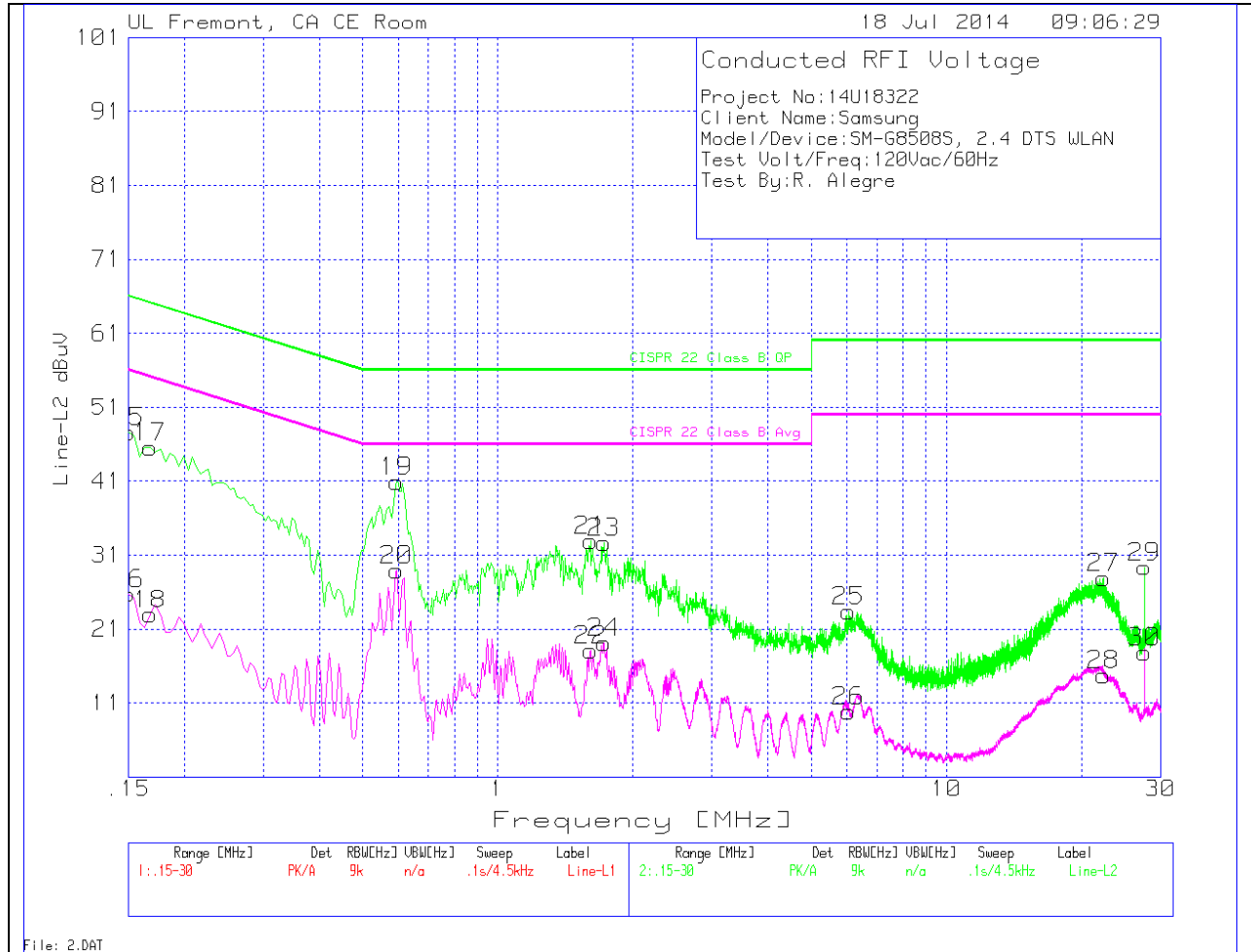
LINE 1 RESULTS

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	48.72	PK	1.4	0	50.12	66	-15.88	-	-
2	.15	27.29	Av	1.4	0	28.69	-	-	56	-27.31
3	.159	48.13	PK	1.3	0	49.43	65.5	-16.07	-	-
4	.159	25.42	Av	1.3	0	26.72	-	-	55.5	-28.78
5	.6	41.89	PK	.3	0	42.19	56	-13.81	-	-
6	.6	28.3	Av	.3	0	28.6	-	-	46	-17.4
7	1.6305	36.33	PK	.2	.1	36.63	56	-19.37	-	-
8	1.6305	22.37	Av	.2	.1	22.67	-	-	46	-23.33
9	2.5305	35.42	PK	.2	.1	35.72	56	-20.28	-	-
10	2.5305	16.9	Av	.2	.1	17.2	-	-	46	-28.8
11	6.1935	28.61	PK	.2	.1	28.91	60	-31.09	-	-
12	6.1935	11.48	Av	.2	.1	11.78	-	-	50	-38.22
13	19.158	27.49	PK	.3	.2	27.99	60	-32.01	-	-
14	19.158	12.97	Av	.3	.2	13.47	-	-	50	-36.53

LINE 2 PLOT



LINE 2 RESULTS

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)
15	.15	46.11	PK	1.5	0	47.61	66	-18.39	-	-
16	.15	24.27	Av	1.5	0	25.77	-	-	56	-30.23
17	.168	44.22	PK	1.3	0	45.52	65.1	-19.58	-	-
18	.168	21.64	Av	1.3	0	22.94	-	-	55.1	-32.16
19	.5955	40.57	PK	.3	0	40.87	56	-15.13	-	-
20	.5955	28.66	Av	.3	0	28.96	-	-	46	-17.04
21	1.608	32.59	PK	.2	.1	32.89	56	-23.11	-	-
22	1.608	17.84	Av	.2	.1	18.14	-	-	46	-27.86
23	1.725	32.37	PK	.2	.1	32.67	56	-23.33	-	-
24	1.725	18.79	Av	.2	.1	19.09	-	-	46	-26.91
25	6.0495	23.08	PK	.2	.1	23.38	60	-36.62	-	-
26	6.0495	9.53	Av	.2	.1	9.83	-	-	50	-40.17
27	22.4295	27.41	PK	.3	.2	27.91	60	-32.09	-	-
28	22.4295	14.31	Av	.3	.2	14.81	-	-	50	-35.19
29	27.5685	28.78	PK	.3	.3	29.38	60	-30.62	-	-
30	27.5685	17.28	Av	.3	.3	17.88	-	-	50	-32.12

PK - Peak detector

Av - average detection